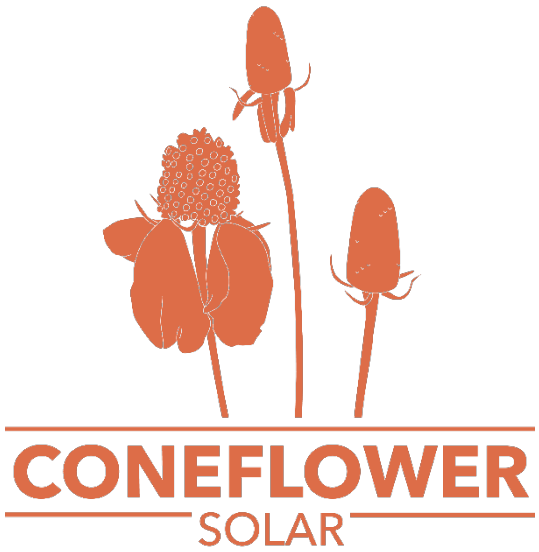

APPLICATION FOR A SITE PERMIT FOR THE CONEFLOWER SOLAR PROJECT

SUBMITTED TO:

MINNESOTA PUBLIC UTILITIES COMMISSION

DOCKET NO. IP7132/GS-24-215

SUBMITTED BY:

CONEFLOWER ENERGY, LLC

C/O APEX CLEAN ENERGY, INC.
8665 HUDSON BOULEVARD NORTH, SUITE 200
LAKE ELMO, MINNESOTA 55042

LYON COUNTY, MINNESOTA

AUGUST 2024

Applicant:	Coneflower Energy, LLC
Address:	c/o Apex Clean Energy Inc. Attn: General Counsel 120 Garrett Street, Suite 700 Charlottesville, Virginia 22902
Authorized Representative:	Scott Koziar, Executive Vice President of the Manager of the Sole Member of the Sole Member of the Applicant
Signature:	
Project Contact:	c/o Apex Clean Energy, Inc. Attn: Garrick Valverde, Senior Development Manager 8665 Hudson Boulevard North, Suite 200 Lake Elmo, MN 55042 Phone: (785) 979-9701 Email: Garrick.Valverde@apexcleanenergy.com

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ACRONYM LIST

AADT	Annual Average Daily Traffic
AC	alternating current
AIMP	Agricultural Impact Mitigation Plan
Apex	Apex Clean Energy Holdings, LLC
Applicant	Coneflower Energy, LLC
Application	Site Permit Application
AQI	Air Quality Index
ARMER	Allied Radio Matrix for Emergency Response
ASIS	Aggregate Source Information System
BCC	Birds of Conservation Concern
BCR	Bird Conservation Region
BGEPA	Bald and Golden Eagle Protection Act
BMPs	best management practices
BOP	Balance of Plant
Buffer Ordinance	Lyon County Buffer Ordinance
C&I	Commercial and Industrial
CAA	Clean Air Act
CH_4	methane
CN	Certificate of Need
CO	carbon monoxide
CO_2	carbon dioxide
Commission	Minnesota Public Utilities Commission
Coneflower/Coneflower Solar	Coneflower Energy, LLC
CREAT	Climate Resilience Evaluation and Awareness Tool from EPA
CREC	Controlled Recognized Environmental Conditions
CREP	Conservation Reserve Enhancement Program
CSAH	County State Aid Highway
dB	decibels
dBA	A-weighted decibels
DC	direct current
DOC	Minnesota Department of Commerce
DPP	Definitive Planning Phase
DSM River Watershed CWMP	Des Moines River Watershed Comprehensive Watershed Management Plan

ECS	Ecological Classification System
EERA	Energy Environmental Review and Analysis
EJ	Environmental Justice
EMF	electric and magnetic fields
EPA	U.S. Environmental Protection Agency
EPC	engineering, procurement, and construction
EQB	Environmental Quality Board
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
Garvin Scenario	The Project would interconnect to Xcel Energy's proposed Garvin Substation, the terminus of the proposed Minnesota Energy Connection's double-circuit 345 kV transmission line
GHG	greenhouse gases
GIA	Generator Interconnection Agreement
GIS	Geographic Information Systems
GPS	Global Positioning System
GW	gigawatt
HFC	hydrofluorocarbon
HHS	U.S. Department of Health and Human Services
HREC	Historical Recognized Environmental Condition
IBA	Important Bird Area
ICIS-AIR	Integrated Compliance Information System for Air
IPaC	Information for Planning and Consultation
IPP	Independent Power Producer
kV	kilovolt
L_{10}	ten percent of any hour
L_{50}	fifty percent of any hour
LGU(s)	local government unit(s)
Mbps	megabytes per second
MBS	Minnesota Biological Survey
MBTA	Migratory Bird Treaty Act
MCE	MnDNR Conservation Explorer
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health

mG	milliGauss
MHS	Minnesota Historical Society
MIAC	Minnesota Indian Affairs Council
MISO	Midcontinent Independent System Operator
MISO Scenario	The Project would interconnect to the Lyon County to Lake Yankton 115 kV transmission line that bisects the northern portion of the Project Area
MNDEED	Minnesota Department of Employment and Economic Development
MnDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MNEC	Minnesota Energy Connection
MOBU	Monarch butterfly
MPCA	Minnesota Pollution Control Agency
MW	megawatt
MWI	Minnesota Well Index
NAAQS	National Ambient Air Quality Standards
NABCI	North American Bird Conservation Initiative
NAIP	National Agricultural Imagery Program
NFHL	National Flood Hazard Layer
NHD	National Hydrography Dataset
NHIS	Natural Heritage Information System
NHR	Natural Heritage Reivew
NIEHS	National Institute of Environmental Health Sciences
NLCD	National Land Cover Database
NLEB	northern long-eared bat
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NPCs	native plant communities
NPDES	National Pollutant Discharge Elimination System
NPDES/SDS	National Pollutant Discharge Elimination System/State Disposal System
NPMS	National Pipeline Mapping System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	noise sensitive area/receptor
NWI	National Wetlands Inventory
O&M	operations and maintenance

O_3	ozone
PM and PM_{10}/$PM_{2.5}$	particulate matter
PFC	perfluorocarbon
Phase I ESA	Phase I Environmental Site Assessment
POI	Point of Interconnection
PPA	power purchase agreement
Prime Farmland Guidance	Minnesota Department of Commerce issued Solar Energy Production and Prime Farmland: Guidance for Evaluating Prudent and Feasible Alternative (May 19, 2020)
Project	Coneflower Solar Project
Project Area	Site; Approximate 2,299 acre area of privately-owned land for which Coneflower Energy, LLC has lease and easement agreements to allow construction and operation of the Project
Project Footprint	Approximate 1,723 acre area where Coneflower Energy, LLC proposes to build the Coneflower Solar Project facilities
Project Substation	A 34.5/161 kV or 34.5 to 345 kV step-up substation
PUC	Minnesota Public Utilities Commission
PV	photovoltaic
PWI	Public Waters Inventory
RCP	Representative Concentration Pathway
RCPE	Rapid City, Pierre & Eastern Railroad, Inc.
RCRA	Resource Conservation and Recovery Act, a federal law that regulates the disposal of hazardous and solid waste.
REC	Recognized Environmental Condition
REO	Lyon County Renewable Energy Ordinance
RES	Renewable Energy Standard
RFP	Request for Proposal
RIM	Reinvest in Minnesota
ROW	Right-of-way
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act
SF_6	Sulfur hexaflouride
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Office
SIS	Surplus Interconnection System
SNA	Scientific and Natural Area
SO_2	sulfur dioxide
SOBS	Sites of Biodiversity Significance

Solar Guidance	Minnesota Department of Natural Resources Commercial Solar Siting Guidance (2023)
Solar Project	Coneflower Solar Project
SPCC	Spill Prevention, Control, and Countermeasure Plan
SSA	sole source aquifer
SSURGO	Soil Survey Geographic Database
SWAP	State Wildlife Action Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRDC	Southwest Regional Development Commission
TCBA	Tricolored bat
TCP	Traditional Cultural Properties
TCS	Tribal cultural specialist
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USG	unhealthy for sensitive groups
USGS	U.S. Geological Survey
VMP	Vegetation Management Plan
VPPP	virtual power purchase agreement
WAN	Wildlife Action Network
WEG	Wind Erodibility Group
WFRA	Waterfowl Feeding and Resting Area
WHPA	Wellhead Protection Area
WIA	Walk-In Access
WMA	Wildlife Management Area
WPA	Waterfowl Production Area

1.0 INTRODUCTION

Coneflower Energy, LLC (Coneflower, Coneflower Solar, or Applicant), is an independent power producer (IPP) and an indirect wholly owned subsidiary of Apex Clean Energy Holdings, LLC (Apex). Coneflower Solar proposes to construct the Coneflower Solar Project (Solar Project or Project), a solar energy conversion facility with an up-to-235-megawatt (MW) alternating current (AC) nameplate capacity, in Custer Township, Lyon County, Minnesota (Figure 1 – Project Location). The Solar Project will generate up to 235 MW, enough energy to provide electricity for approximately 49,000 homes annually. Coneflower Solar plans to construct the Project on a schedule that facilitates an in-service date by the end of 2027.

The Project is situated on approximately 2,299 acres of privately-owned land under lease or easement agreement with Coneflower Solar (with the exception of public road rights-of-way) (Project Area). Of the 2,299- acre Project Area, approximately 1,723 acres are currently designated to host Project facilities (Project Footprint). References to the "Project Area" within this Application refers to all land under agreement with a landowner for the Project (2,299 acres); whereas references to "Project Footprint" refers to the portions of the Project Area enclosed within the Project fence and includes the land needed for the Project components and for operation and maintenance of the Project, as shown on Figure 2 – Project Area and Project Footprint.

The Project has been designed and sited to have flexibility regarding how it provides electricity to the regional electrical grid. Specifically, the Project can provide electricity to the grid in two different ways. First, it could connect to the existing Lyon County to Lake Yankton 115-kilovolt (kV) transmission line (MISO Scenario). Second, the Project could connect with Xcel Energy's proposed Garvin Substation (Garvin Scenario). That substation is the terminus of the proposed 345 kV double circuit Minnesota Energy Connection transmission line. Either way, the Project will safely and reliably deliver electricity to the grid (see Sections 2 and 3).

Construction of the Project requires a Site Permit from the Minnesota Public Utilities Commission (PUC or Commission). On June 6, 2024, Coneflower Solar provided the Commission with notice that it is seeking approval for its Application under the alternative review process provided in Minnesota Statutes (Minn. Stat.) § 216E.04, subd. 2(8) and Minnesota Administrative Rules (Minn. R. 7850.2800 to 7850.3900). Coneflower Solar respectfully submits this Application for a Site Permit pursuant to the Minnesota Power Plant Siting Act (Minn. Stat. Chapter 216E) and Minn. R. Chapter 7850. A Completeness Checklist for this Application is provided in Appendix A.

1.1 Applicant Information

1.1.1 Statement of Ownership

The Solar Project will be constructed, owned, and operated by Coneflower, an indirect, wholly owned subsidiary of Apex. Coneflower has entered into lease or easement agreements with the landowners for the Solar Project site. Coneflower has signed fifteen (15) lease and easement agreements to site solar facilities on twenty-two (22) parcels in the Project Area. A table of participating landowners is provided in Appendix B (Participating Landowner List). As noted in Appendix B, Coneflower has also signed two *Solar Easement, Setback Waiver, and Participation Agreements* for two parcels outside the Project Area. This type of agreement is well suited for landowners either within or adjacent to the Project Area that want to participate

and support the Project, but either don't want to host facilities or do not have enough land to support facilities. This landowner is noted as a participant in all relevant portions of this Application even though the parcel will not host project facilities.

Founded in 2009, Apex is a full-service renewable energy company focused on bringing utility-scale generation facilities to market, from site origination and financing to turnkey construction and long-term asset management. Apex's mission-driven team of more than 400 professionals uses a data-focused approach and an unrivaled portfolio of projects to create solutions for the world's most innovative and forward-thinking customers. Headquartered in Charlottesville, Virginia, Apex is expanding the renewable frontier across North America.

Apex's track record of successful transactions and strong relationships in the global financial community underpin its capabilities. Since the company's founding, Apex has commercialized more than 35 projects totaling over eight (8) gigawatts (GW) of capacity and currently operates two (2) GW of wind and solar assets.

1.1.2 Permittee and Contact Information

The permittee for the Site Permit will be:

Coneflower Energy, LLC
c/o Apex Clean Energy, Inc.
8665 Hudson Boulevard North, Suite 200
Lake Elmo, MN 55042

The contact persons regarding this Application are:

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1.2 Capacity and Power Purchase Agreements

The Coneflower Solar Project is up to 235 MW_{AC}. The Project has not yet executed any power purchase agreements (PPA) or any other off-take agreements. However, as discussed in more detail throughout this Application, the Project is intentionally and uniquely sited to capitalize on a variety of off-take scenarios. With a Midcontinent Independent System Operator (MISO) queue position along the existing Lyon County to Lake Yankton 115 kV transmission line, Coneflower could enter into an agreement with the interconnection utility (Xcel Energy), any MISO member, or with a Commercial and Industrial (C&I) customer. The Project is also positioned within one-half mile of Xcel Energy's proposed Garvin Substation,

the terminus of the proposed Minnesota Energy Connection's double-circuit 345 kV transmission line which could result in a different type of agreement with Xcel Energy. In either case, Coneflower is proposing to construct this Project to sell energy, capacity and renewable energy credits, either bundled or unbundled, to one or more electric utilities and/or commercial customers. Coneflower Solar plans to sell the power from the Project to off-takers through a PPA, virtual power purchase agreement (VPPA), or similar contractual agreement. Each of these is a viable commercial opportunity for the Project, and Coneflower will move forward with whichever scenario is selected by an off-taker.

1.3 State Policy

The Project is consistent with and capable of supporting Minnesota's mandate and goals found in the Renewable Energy Objectives, Solar Energy Standards, and other applicable energy planning requirements.[1] The Project will support the recently enacted "100 percent by 2040" law that, generally, sets a standard for electric utilities to generate or acquire 100 percent of the energy for retail sales from carbon-free resources and expands the previous Renewable Energy Standard (RES) to require public utilities to generate or procure 55 percent of the energy used to serve Minnesota customers from renewables by 2035.[2] Further, the Project is directly aligned with the law's goal that ten percent of the retail electric sales in Minnesota be generated by solar energy by 2030.[3]

The Project will also benefit the local community through economic investment, construction and operations jobs, property and business taxes, community investment programs, and landowner lease payments, in addition to preserving the underlying participating property. The Project will also benefit businesses seeking to use renewable energy in support of business growth.

A market exists for independently produced electricity generated from solar and other renewables, including up to 235 MW to be generated by the Project. In sum, Minnesota has a wide array of needs that Coneflower Solar can help address. The clean, renewable power that Coneflower Solar will produce can help meet utility commitments in an efficient and reliable manner, achieve greenhouse gases (GHG) reduction targets, and provide much needed short- and long-term economic benefit.

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1 *See* Minn. Stat. §§ 216B.1691, subd. 2f, subd. 2g, 216C.05, and 216E.02, subd. 1.

2 *See* Minn. Stat. §§ 216B.1691, subd. 2f, subd. 2g.

3 *See* Minn. Stat. § 216B.1691 subd. 2f.

2.0 PROJECT INFORMATION

The following sections provide a description of the Project Area, Project Footprint, proposed Project infrastructure including land control, Project design, costs, schedule and other permits required.

2.1 Overall Project Description

Coneflower Solar is currently developing the Coneflower Solar Project, an up to 235 MW solar energy conversion facility located in southern Lyon County, Minnesota. The Project will be located on approximately 2,299 acres of private land for which Coneflower has signed voluntary leases and easements (Project Area), of which up to approximately 1,723 acres will host Project facilities (Project Footprint).

The Project will include:

- Solar modules and tracking racking systems;
- Inverters;
- An electrical collection system;
- A Project Substation and interconnection facilities;
- Gravel access roads;
- Perimeter fencing and gates;
- An operations and maintenance (O&M) Building;
- Weather stations;
- Stormwater drainage basins;
- Temporary facilities such as laydown areas, temporary site offices, parking, and improvements for storage and staging of equipment prior to installation as needed; and
- A switching station (MISO Scenario) or an up to one mile 345 kV transmission line (Garvin Scenario; to be permitted separately, if needed).

The proposed equipment is preliminary and subject to change as the design advances. A Preliminary Project Layout is included in Figures 3a and 3b, showing the MISO and Garvin Scenarios, respectively.

As described in Section 1.0, the Project has two viable interconnection opportunities – the MISO Scenario and the Garvin Scenario. The Project facilities and layout between each scenario are substantially similar; the key difference is that in the MISO Scenario, the Project Substation is located in the north-central portion of the Project Area adjacent to the Lyon County to Lake Yankton transmission line whereas in the Garvin Scenario, the Project Substation is located in the eastern portion of the Project Areas near the proposed Garvin Substation. Coneflower includes both interconnection options in this Application to maximize permitting efficiency. The construction timeline, cost, and other information below are expected to be similar between both scenarios, except that the overall Project cost would increase approximately $1.5 million for the 345 kV transmission line. The Garvin Scenario will also require a route permit from the Commission but is first dependent on the Commission's approval of the Garvin Substation in a separate proceeding (Docket TL-22-132) and Xcel Energy's interest in, selection, and Commission approval of the acquisition of Coneflower Solar. Therefore, Coneflower Solar will submit a Route Permit, if needed, at a later time. Coneflower does not anticipate the potential Route Permit to affect overall Project schedule

as the permit and construction timelines for this facility fit well within the Project schedule described in Section 2.4.

2.2 Facility Description

2.2.1 Location

Coneflower is proposing to build its solar facility in Sections 7, 16-22, and 27, Township 109 North, Range 41 West, Lyon County, Minnesota (Figure 1 – Project Location). The Coneflower Solar Project is generally south of Marshall, MN. Specifically, the Project is north and west of Garvin and U.S. Highway 59 and east of Balaton. U.S. Highway 14 bisects the Project Area.

A participating landowner list, as required by Minn. R. 7850.1900, subp.1(F) is provided in Appendix B, and participating parcels are shown on the Landowner Map (Figure 6).

Coneflower selected the specific Project Area based on unique interconnection opportunities, significant landowner interest, optimal solar resource, consistency with local land uses, and minimal impact to natural and cultural resources.

2.2.2 Solar Site Size and Capacity

Coneflower has obtained leases and easements for 2,299 acres of privately-owned land in the Project Area. Based on preliminary design, Coneflower has designed the Project such that Project facilities will cover approximately 1,723 acres of the Project Area in either the MISO Scenario or the Garvin Scenario (Project Footprint). There are approximately 567 acres of the Project Area for which Coneflower has site control, but are currently not contemplated for occupation by solar facilities (Figure 2 – Project Area and Project Footprint). These 567 acres outside the Project Footprint generally occur on the perimeter of the Project Area as setbacks from adjacent parcels, residences, and road rights-of-way and avoidance of wetlands, a Reinvest in Minnesota (RIM) Reserve easement, and a pipeline right-of-way. The 567-acre portion of the Project Area that will not be utilized by the Project is currently under lease with the underlying landowners; however, the landowner will be able to continue to farm this area or these areas will be planted with native vegetation. The total nameplate capacity for the proposed Project facilities is up to 235 MW_{AC}.

In this Application, Coneflower is providing a preliminary Project layout (Figures 3 – Preliminary Project Layout and 4 – Detailed Preliminary Project Layout). The layout under consideration is within the Project Footprint and is subject to final micro-siting, geotechnical investigations, and procurement. The Project's facilities include solar panels and racking, access roads, inverters, security fencing, Project Substation, switching station (MISO Scenario), electrical collection and communication lines, O&M Building, stormwater basins, laydown areas, and up to five weather stations (up to 10 feet tall).

This preliminary Project layout within the Project Footprint reflects Coneflower's effort to maximize the energy production of the Project and follow applicable setbacks, while minimizing impacts to the land, environment, and surrounding community. The final site layout may, however, differ from the preliminary layout and the current boundaries of the Project Footprint, but will not extend beyond the outer boundaries of the Project Area. The Preliminary Project Layout for the MISO and Garvin Scenarios are shown on a topographic map on

Figures 5a and 5b, respectively. Project facilities are described in more detail in Section 4.0 (Engineering and Operational Design).

2.3 Cost Analysis

The total installed capital costs for the Project are estimated to be nearly $550 million, with Project cost depending on variables including, but not limited to, construction costs, taxes, tariffs, and panel selection, along with associated electrical and communication systems, and access roads. Costs associated with the various Project phases are detailed in Table 2.3-1.

Table 2.3-1
Estimated Project Costs

Project Phase	Cost
Planning and State Permitting[1]	$2,350,000
Acquisition and "Downstream" Permits	$100,000
Design (i.e., fully engineered design)	$2,500,000
Procurement (i.e., purchase of all materials required in the design such as panels, inverters, electrical system, O&M Building, and Project Substation equipment)	$108,903,050
Construction (i.e., equipment and labor)	$254,006,000
Operation (approximately $5,250,795 annually; i.e., landowner lease payments and operational costs)	$157,523,829
Decommissioning[2] (see Section 4.6)	$21,659,398
Project Total	**$547,042,277**

[1] Includes development expense to construction and state permitting.
[2] Decommissioning cost is the Garvin Scenario, which is slightly higher than the MISO Scenario and does not account for salvage value, which Coneflower anticipates will more than cover the costs of decommissioning (see Appendix F – Decommissioning Plan).

2.4 Project Schedule

The anticipated schedule for the Site Permit, construction, testing, and commercial operation is outlined in Table 2.4-1. Coneflower notes that there is no substantive difference in the anticipated Project schedule between the MISO and Garvin Scenarios, and, therefore, only one schedule is proposed.

Table 2.4-1
Project Schedule

Project Stage	Timing	Comments
Land Acquisition	Complete	Coneflower has solar leases and easements for all land required for Project facilities.
Site Permit	3rd Quarter 2025	Coneflower anticipates the Site Permit to be issued fall 2025.
Other Permits	3rd Quarter 2025	Coneflower will acquire all other permits necessary for the Project prior to construction – see Table 2.5-1.
Financing	4th Quarter 2025	Project financing
Equipment Procurement	4th Quarter 2025	Final equipment selection in 4th quarter 2025.
Construction	2nd Quarter 2026	Construction is anticipated to last up to 18 months
Commercial Testing	3rd Quarter 2027	Testing of the Solar Project
Commercial Operations	4th Quarter 2027	Commencement of operations
Decommissioning	2055	The Site Permit is typically issued for 30 years.

2.5 Required Project Permits

Project development will require several federal, state, and local permit approvals prior to construction. Potential permits, with respect to their prospective applicability and expected timing, are detailed below in Table 2.5-1.

Table 2.5-1
Potential Permits and Approvals for the Coneflower Solar Project

Agency	Permit	Applicability	Permit Status and Timing
Federal			
U.S. Army Corps of Engineers (USACE)	Section 404 Permit	Dredging or filling jurisdictional Waters of the United States (wetlands/waterways).	To be obtained prior to construction, as needed.
U.S. Environmental Protection Agency (EPA)	Spill Prevention, Control, and Countermeasure (SPCC) Plan	Project facilities with oil storage of more than 1,320 gallons.	To be written prior to construction, as needed.
U.S. Fish and Wildlife Service (USFWS)	Section 7 Endangered Species Act (ESA) Consultation	Any project with a federal nexus that may adversely affect a federally listed endangered, threatened, or candidate species as determined by the lead federal agency.	Coneflower is unaware of a federal nexus on the Project. The Project is not anticipated to have adverse impacts on federally listed species.

Table 2.5-1
Potential Permits and Approvals for the Coneflower Solar Project

Agency	Permit	Applicability	Permit Status and Timing
	Section 10 Endangered Species Incidental Take Permit	Potential impacts on federally endangered or threatened species.	Coneflower does not anticipate adverse impacts on federally listed species.
State			
Minnesota Public Utilities Commission (PUC or Commission)	Site Permit	Required for construction of a Large Generating Facility greater than 50 MW.	Submitted July 2024.
	Route Permit	Required for construction of the transmission line in the Garvin Scenario only.	To be determined, if needed.
Minnesota Pollution Control Agency (MPCA)	Section 401 Water Quality Certification	Required for Section 404 Individual and Nationwide from the USACE.	To be obtained prior to construction, as needed.
	Construction Stormwater General Permit, MNR100001	For stormwater discharges from construction activities with disturbances greater than one acre.	To be obtained prior to construction.
Minnesota Department of Natural Resources (MnDNR)	Water Appropriation/Dewatering Permit	Required for all users withdrawing more than 10,000 gallons of water per day or 1 million gallons per year (dewatering).	To be obtained prior to construction, as needed.
	Consultation and Review of State Threatened and Endangered Species (Natural Heritage Information System (NHIS) Review)	Potential effects on State threatened and endangered species.	Received – see Appendix C.
	Utility Crossing License	Required to cross state land with utility infrastructure.	To be obtained prior to construction, as needed.
Minnesota Department of Labor and Industry	Electrical inspection of installed equipment	Required to comply with the state electrical codes.	Inspection to be conducted during construction and prior to operation.
Minnesota Department of Health (MDH)	Well Construction Permit	Installation of a water supply well.	To be obtained prior to construction of a well (for the O&M Building).

Table 2.5-1
Potential Permits and Approvals for the Coneflower Solar Project

Agency	Permit	Applicability	Permit Status and Timing
Minnesota Department of Agriculture (MDA)	Agricultural Impact Mitigation Plan (AIMP)	Identify measures that the Coneflower Solar Project will take to avoid and/or repair potential negative agricultural impacts that may result from the construction, operation, and eventual decommissioning of the Project.	Consultation prior to construction – see Appendices D and E.
Minnesota Department of Transportation (MnDOT)	Oversize/Overweight Permit	Vehicles delivering equipment, materials, and supplies that exceed applicable MnDOT height/length limits and weight limits.	To be obtained prior to equipment deliveries, as needed.
	Driveway Permit	Required for driveways off federal or state highways.	To be obtained prior to construction, if needed.
	Utility Crossing Permit	Required for crossing federal or state highways (transmission line for Garvin Scenario only).	To be obtained prior to construction, if needed.
State Historic Preservation Office (SHPO)	Cultural and Historic Resources Review; State and national Register of Historic Sites Review	Projects that require State permits or affect State register properties or require Section 106 compliance.	In Progress - see Section 5.4.
Consultation with Tribal Nations in Minnesota	Consistent with Minn. Stat. §10.65.	Consultation by Coneflower Solar was initiated. Refer to Section 6.0 – Agency, Tribal, and Stakeholder Coordination.	Completed – see Appendices C and E.
County/Local			
Lyon County	County Entrance Permit	Required for access from county roads.	To be obtained prior to construction, as needed.
	Utility Permit	Required to place facilities within public road right-of-way.	To be obtained prior to construction, as needed.
	Subsurface Sewage Treatment System	Required for septic systems designed with flows up to 10,000 gallons per day.	To be obtained prior to construction, as needed.
	Local government unit for Minnesota Wetland Conservation Act	Required for wetland impacts.	To be obtained prior to construction, as needed.

2.5.1 Local Approvals

Pursuant to Minn. Stat. § 216.10, subd. 1, the Site Permit supersedes and preempts all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose government.

Coneflower Solar has consulted with local officials from early in the development process and will strive to incorporate feedback and reasonable recommendations of local stakeholders into the final design of the Project. A summary of public and regulatory outreach is described in Section 6.0 (Agency, Tribal, and Stakeholder Coordination).

2.5.2 Certificate of Need

A Certificate of Need (CN) is required for a "large energy facilities," as defined in Minnesota Statutes § 216B.2421, subd. 2(1), unless the facility falls within a statutory exemption from the CN requirements. This Project is exempt from CN requirements pursuant to Minn. Stat. § 216B.243, subdivision 8(a)(8), which provides that a CN is not required for a "…solar energy generating system, and defined in section 216E.01, subd. 9a, for which a site permit application is submitted by an IPP under chapter 216E…" As Coneflower Solar is an IPP, a CN is not required for the Project.

2.5.3 Site Permit

Pursuant to Minn. Stat. §§ 216E.03 subd. 1 and 216E.01, subd. 5, a Site Permit is required for a large electric generating plant, which includes solar energy generating systems designed and capable of operation at a capacity of 50 MW or more. The Project falls within this definition and requires a Site Permit from the Commission prior to construction.

Pursuant to Minn. Stat. § 216E.04, subd. 2(8), Coneflower Solar seeks approval of its Application under the alternative review process provided for under Minn. Stat. § 216E.04 and Minn. R. 7850.2800 to 7850.3900. Coneflower Solar filed a Notice of Intent to Submit a Site Permit Application under the Alternative Permitting Process to the Commission on June 6, 2024.

Additionally, Coneflower Solar submitted a Solar Size Determination request to the Minnesota Department of Commerce (DOC) Energy Environmental Review and Analysis (EERA) on April 25, 2024, in accordance with Minn. Stat. § 216E.021. The size determination response from DOC was issued on May 3, 2024 and is provided in Appendix C (Agency Correspondence) together with the Coneflower Solar size determination form.

2.5.4 Other Potential Permits and Approvals

Coneflower will obtain all permits and licenses that are required for the Solar Project, following issuance of the Site Permit. The permits or approvals that Coneflower has identified as potentially being required for the construction and operation of the Solar Project are shown in Table 2.5-1. Copies of agency correspondence are included in Appendix C.

3.0 PROJECT SITE SELECTION AND CONSTRAINTS ANALYSIS

Coneflower conducted a detailed analysis to identify the proposed Point of Interconnection (POI) locations and site location for development. Aspects of the analysis and site search are discussed in more detail in the sections that follow. Coneflower's search was limited to the southwestern portion of the state due to the good solar resource and relatively open farmland in the region. Within the southwest portion of the state, Coneflower screened for substations and transmission lines with available capacity (at least 235 MW), which revealed a relatively narrow subset of possible POIs.

Coneflower identified the MISO POI and potential future Garvin POI as having available capacity and low interconnection costs. Coneflower then screened available land within approximately five miles of the MISO POI and Garvin POI due to the financial limitations of constructing a longer transmission line (construction cost, easement acquisition cost, and electrical losses). Five miles of existing transmission was determined to be the upper limit that a project of this size can support. Lands within the five-mile radius of each POI were determined potentially suitable if they were: cleared and otherwise undeveloped, not currently encumbered by other easements (e.g., wind farms, pipelines), contained minimal wetlands, streams, transmission lines, pipelines, roads, or other obstacles that would limit the buildable land or lead to irregularly shaped development areas. Coneflower also screened the areas for geotechnical risks, habitat for endangered species, proximity to culturally sensitive areas, other potential environmental risks such as pollutants, steep slopes, flood zones, current land use conflicts, and a clear and uncontested title. Once the potential project areas passed the above constraints tests, Coneflower approached landowners to negotiate voluntary leases and easements.

The Project Area was chosen for its proximity to each POI, supportive landowners, and no competition with other potential renewable energy projects (i.e., available land not currently participating in other renewable energy projects).

The primary siting factors driving Project site selection are described in this document and include: (1) best available solar source, (2) access to the grid (access to transmission or reasonably affordable interconnection), (3) a developable site (favorable ground slope and limited environmental liability), and (4) willing landowners. These factors were considered when identifying the site and are discussed further in the following sections.

3.1 Prohibited and Exclusion Sites

Minnesota Rules 7850.4400 subp. 1 prohibits power generating plants from being sited in several prohibited areas, including: national parks; national historic sites and landmarks; national historic districts; national wildlife refuges; national monuments; national wild, scenic, and recreational riverways; state wild, scenic, and recreational rivers and their land use districts; state parks; nature conservancy preserves; state scientific and natural areas; and state and national wilderness areas. The MnDNR Commercial Solar Siting Guidance (Solar Guidance) also lists RIM Reserve easements, Minnesota Native Prairie Bank, and Forest Legacy easements as prohibited sites (MnDNR, 2023b). One RIM Reserve easement is centrally located in the Project Area. Project facilities have been setback from the easement and will not be located in the RIM Reserve easement. The Project facilities are not located within any prohibited areas.

Additionally, Minnesota Rules 7850.4400 subp. 3 requires that applicants avoid siting power generating plants in several exclusion areas unless there is no feasible and prudent alternative. These exclusion areas include state registered historic sites; state historic districts; state Wildlife Management Areas (WMAs); county parks; metropolitan parks; designated state and federal recreational trails; designated trout streams; and state water trails. There are several collocated collection lines within an approximately 150-foot wide corridor planned to cross the access road/driveway to the Garvin WMA, but Coneflower plans to bore these lines underground to cross the access road and will not impact the surface resources after obtaining a utility crossing license from the MnDNR. Project facilities are not located within any other exclusion areas. An analysis of Coneflower's avoidance of exclusion areas and other sensitive environmental areas is provided below in Section 3.1.2.

Minnesota Rules 7850.4400, subp. 4 prohibits large energy power generating plants from being sited on more than 0.5 acre of prime farmland per MW of net generating capacity unless there is no feasible and prudent alternative. The Coneflower Project Footprint is sited on prime farmland (see Section 5.5.4). Given the up to 235 MW net generating capacity of the Project, this rule would allow use of up to 117.5 acres of prime farmland for the Project. Approximately 1,469.7 acres of prime farmland are located within the Project Footprint. Current land use within the Project Area is predominately agricultural – specifically, row crop production. The Project would result in the removal of these acreages from row crop production for the life of the Project.

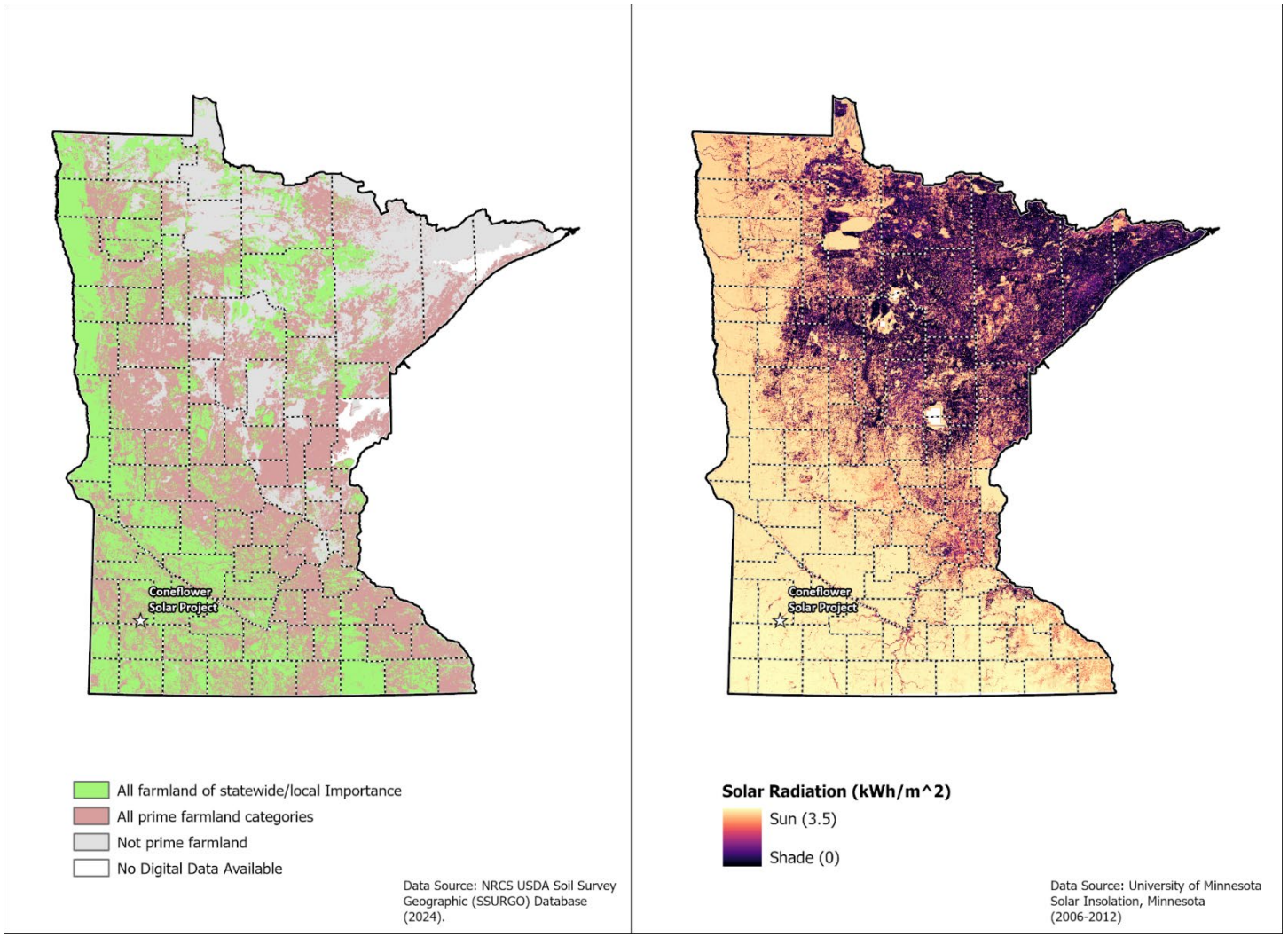
In May 2020, the DOC issued Solar Energy Production and Prime Farmland: Guidance for Evaluating Prudent and Feasible Alternative (DOC, 2020). The Prime Farmland Guidance recognizes that, "the State of Minnesota has dual mandates to advance solar energy production and protect prime farmland" and is "meant to assist developers in defining feasible and prudent in relation to siting alternatives." An analysis of factors identified in the Prime Farmland Guidance with respect to site selection and alternative sites is provided in the following sections below.

3.1.1 Factors Driving Choice of Region

The Prime Farmland Guidance first directs an applicant to discuss why a project has been proposed in a particular region, including an assessment of: (1) the solar resource in the region; (2) available interconnection points; and (3) efforts to investigate developable sites (i.e., those with appropriate topography and willing participants). Coneflower explored southwest Minnesota to identify a suitable area for a solar project based on several factors including the high solar resource in this portion of the state, nearby access to the transmission grid, limited environmental constraints, and willing landowners.

In Minnesota, there is a strong correlation between high solar resource and the prevalence of prime farmland. As displayed in Image 1, southwestern Minnesota is characterized by the prevalence of prime farmland and the highest solar resource. Conversely, areas without prime farmland generally have a lower solar resource.

Image 1: Prime Farmland and Solar Resource in Minnesota



In addition to the solar resource, existing transmission interconnection feasibility was also a factor in determining the Project's location. Several existing transmission lines ranging from 69 kV to 115 kV are located within the Project vicinity including a 115 kV line that parallels and runs along the northern side of 140th Street intersecting the northern portion of the Project Area. Northern States Power Company (Xcel Energy) owns and operates this 115 kV transmission line. Coneflower is proposing to construct a new Project Substation adjacent to a new utility constructed, owned and operated switching station that would serve as a (POI). This option is referred to as the MISO POI.

Future transmission was also a factor in determining the Project location. On October 30, 2023, Xcel Energy submitted a certificate of need (CN-22-131) and a route permit (TL-22-132) to the PUC to construct the Minnesota Energy Connection (MNEC) Project. The MNEC Project includes a new 345 kV double-circuit transmission line between the existing Sherco Substation in Becker, Minnesota and terminating with a new Garvin Substation in Lyon County. This new Xcel Energy substation would be located approximately one-half mile east of the Project Area and could be a potential POI for the Coneflower Solar Project. This option is referred to as the Garvin POI. See Section 4.2 for interconnection details.

Because of the excellent solar resource and existing and future transmission lines in the area, there will be increased opportunities for renewable energy projects in the county. The PUC's interactive Wind Farm and Solar Projects map shows there is one operating 62 MW solar project in Lyon County. The Marshall Solar Energy Project is about 18 miles northeast of the proposed Coneflower Solar Project, approximately four miles east of Marshall.

Generally speaking, a landowner cannot hold leases with multiple development companies; therefore, a new project such as the Coneflower Project requires sufficient acreage to host facilities in an area without existing leases that is also conducive to development with respect to the solar resources, topography, interconnection, and environmental constraints. These factors are described below specific to the Coneflower Solar Project.

3.1.2 Factors to Consider when Prime Farmland is Present

The Prime Farmland Guidance further identifies factors to assess when prime farmland is present within a proposed project site, including: (1) alternative sites in nonprime farmland in proximity to an interconnection site; (2) avoidance of other prohibited areas; and (3) alternative configurations or technologies. As displayed on Image 1, Southwestern Minnesota, including Lyon County, contains the best solar resource in the state. Additionally, southwestern Minnesota is characterized by a long history of agricultural activities, in part due to the nutrient rich soil. In Lyon County, approximately 83 percent of the soils are classified as prime farmland as defined under the Code of Federal Regulations 1980, title 7, section 657.5, paragraph (a). In consideration of Minnesota Rules 7850.4400, subp. 4, Coneflower examined the soils within the southwest Minnesota region. The prevalence of prime farmland is consistently high regardless of location in the region (see Figure 7 – Regional Prime Farmland and Image 1). Prime farmland, and its sub-categories, are mapped throughout the region except along larger waterway drainages and lakes; Figure 7 – Regional Prime Farmland). Accordingly, there is no area in the region with the best solar resource that is conducive to solar development of approximately 1,723 acres that is not defined as prime farmland.

With respect to avoidance of prohibited areas, Coneflower also evaluated several potential constraints during site selection to determine whether the Project has avoided other constraints to the maximum degree practicable and to determine which sections should be avoided. These include transmission interconnection, willing landowners to sell or lease land for project facilities, and environmental constraints that may prohibit or make development more challenging. Within 5 miles of the MISO POI and Garvin POI Scenarios, Coneflower avoided land with environmental constraints, including parcels that were:

- owned or managed by a state or federal agency (i.e., state park, WMA, or Waterfowl Production Area [WPA]);
- within a municipality;
- within two miles of a public airport;
- under lease with a different developer;
- with MnDNR Sites of Biodiversity Significance (SOBS);
- with MnDNR mapped native plant communities (NPCs) and native prairie; and
- with MnDNR rare species records.

These constraints, and the sections most suitable for solar development without these features, are displayed on Figure 8 (Potential Solar Development Constraints). As shown on the Potential Solar Development Constraints map, Coneflower has sited the Coneflower Solar Project to avoid the sensitive resources identified above. Furthermore, the Project is sited on the closest available land to the existing 115 kV transmission line and the potential Garvin Substation for interconnection, and to minimize environmental impacts (see Figure 8 – Potential Solar Development Constraints).

Coneflower considered several design options to minimize impacts on soils and prime farmland including minimizing the overall Project Footprint, minimizing solar facility placement in areas with slopes that would require grading, reducing access road lengths, incorporating an electrical collection system that minimizes soil disturbance, and minimizing the space between rows. The Project Footprint has been designed to avoid areas that would require excess grading. The construction of access roads will require some grading and soil segregation. Coneflower has minimized access roads to provide access to inverters; access roads do not traverse the perimeter of the Project Footprint, thereby reducing grading and soil disturbance. The installation of the electrical collection system involves trenching to a depth of 48 inches (4 feet). Coneflower's design includes a hanging harness system for the direct current (DC) collection system (cabling from the panels to the inverters). Implementing this type of collection system significantly reduces soil disturbance because trenching is not required along every row of panels. Finally, Coneflower has minimized the space between rows to 15 feet. This is a safe distance for O&M staff to access various portions of the Project Footprint with most maintenance vehicles, but also minimizes the overall Project Footprint because wider row spacing results in a larger footprint (for example, compared to 15 foot row spacing, 18 foot row spacing increases the distance between every row of panels by 3 feet and results in more land area to be utilized for the Project). Together, these design considerations minimize the Project's impact on prime farmland by reducing soil disturbing activities.

3.1.3 Mitigations and Offsetting Benefits

In addition to the minimization measures described above, Coneflower includes an AIMP and Vegetation Management Plan (VMP) as mitigation measures, as well as offsetting benefits such as reducing nitrogen pollution. Each of these is described further below.

3.1.3.1 Agricultural Impact Mitigation Plan (AIMP)

Coneflower has voluntarily developed an AIMP (Appendix D) detailing methods to minimize soil compaction, preserve topsoil, and establish and maintain appropriate vegetation that will help to ensure the Project is designed, constructed, operated and ultimately decommissioned and restored in a manner allowing the land to be returned to its original agricultural use in the future. Moreover, conversion of the Project Footprint to non-row-crop uses for the life of the Project may also have beneficial environmental impacts such as soil building, erosion control, habitat for wildlife, and protection of groundwater and surface water resources from nitrogen pollution (see Section 5.5.3 and Section 5.5.5 and Section 5.5.7).

The AIMP has been designed to incorporate best management practices (BMPs) into siting procedures; pre-construction, construction, and post construction methods; operational procedures; and decommissioning and restoration procedures to avoid and minimize impacts to soil and site productivity such that pre-construction agricultural productivity (anticipated use, appropriate management) is rapidly returned to the site following decommissioning. The AIMP for Coneflower Solar Project is attached as Appendix D.

3.1.3.2 Vegetation Management Plan (VMP)

Coneflower has developed a VMP that provides a guide to site preparation, installation of prescribed seed mixes, management of invasive species and noxious weeds, and control of erosion/sedimentation (Appendix E). As discussed further below, shifting the land cover in the Project Area to perennial vegetation instead of row crops for the life of the Project could prove to be beneficial for limiting nitrogen infiltration into groundwater supply and nitrogen runoff, thereby improving groundwater and surface water quality. Additionally, native plants improve the soil with organic matter over the 30-year life of the Project, allowing microorganisms and soil fauna to recover after years of intensive compaction and pesticide and fertilizer application.

3.2 Future Expansion

Coneflower's interconnection request is for up to 235 MW_{AC}, the nameplate capacity of the Project. Coneflower does not have any plans for future expansion.

3.3 Alternatives Considered but Rejected

Per Minn. Stat. § 216E.04, subd. 2(8), the Project qualifies for the alternative review process specified in Minn. R. 7850.2800-7850.3900. Accordingly, Coneflower is not required to analyze alternative sites pursuant to 7850.3100. As described in Section 3.1, Coneflower Solar evaluated areas within five miles of the MISO POI and Garvin POI to find parcels that could host the Project.

4.0 ENGINEERING AND OPERATIONAL DESIGN

Solar energy harvests energy from the sun to produce electricity. The process begins with solar panels converting energy from sunlight into DC electrical power. Sets of panels will be electrically connected in series and terminated at an inverter/transformer. The inverters/transformers will convert the DC power from the panels to AC power. Next, a transformer will step up the AC voltage of generated electricity from the inverter output voltage of 645 volts to 34.5 kV. From the inverters/transformers, electrical cable will be buried below-ground for routing to the Project Substation where the electricity will be stepped up from 34.5 kV to 115 kV before traveling to an adjacent utility constructed, owned, and operated switching station and on to the existing Lyon County to Lake Yankton 115 kV transmission line (MISO Scenario). In the Garvin Scenario, the below-ground collection lines would run to the Project Substation on the east side of the Project Area where the electricity would be stepped up from 34.5 kV to 345 kV before traveling on a short (less than one mile) transmission line into Xcel Energy's proposed Garvin Substation.

4.1 Design

The Project will utilize bifacial photovoltaic (PV) panels with tempered glass that are approximately four feet long by eight feet wide, and one to two inches thick. The panels will be installed on a tracking rack system that utilizes galvanized steel and aluminum for the foundations and frame with a motor that allows the racking to rotate from east to west throughout the day. Each tracking rack will contain multiple panels. Based on preliminary panel selection, panels on the tracking rack system could be up to 12 feet in height from the ground to the top of the panels when at a 60-degree angle, depending on manufacturer, topography, and vegetation constraints. Similarly, based on these same considerations, panels will have approximately 18 inches of ground clearance. The racks considered for this Project may go up to 60-degree tilt. Depending on the technology selected, the PV panels may have an aluminum frame, silicon, and weatherized plastic backing or a side-mount or under-mount aluminum frame, heat strengthened front glass, and laminate material encapsulation for weather protection.

To limit reflection, solar panels are constructed of dark, light-absorbing materials. Today's panels reflect as little as two percent of the incoming sunlight depending on the angle of the sun and assuming use of anti-reflective coatings.

The solar array will occupy most of the Project site for the solar facilities.

4.1.1 Linear Axis Tracking Rack System

A linear axis tracking rack system allows the PV panels to track the solar resource throughout the day. The panels and tracking rack system are generally aligned in rows north and south with the PV panels facing east toward the rising sun in the morning, parallel to the ground during mid-day, and then west toward the setting sun in the afternoon. The panels are rotated by a small motor connected to the tracking rack system to slowly track with the sun throughout the day. The tracking rack system allows the Project to optimize the angle of the panels in relation to the sun throughout the day, thereby maximizing production of electricity and the capacity value of the Project.

The tracking rack system is mounted on top of steel piles that are typically driven into the ground up to 10 feet below the ground surface, without a need for excavation or concrete to install the piles.

4.1.2 Electrical Collection System

Electrical wiring (DC) will connect the panels to inverters, which will convert the power from DC to AC. The AC will be stepped up through a transformer from the inverter output voltage to 34.5 kV and brought via the collection cables to the Project Substation. The DC cabling will be mounted underneath the panels in a hanging harness system (see Image 2). Use of this system minimizes soil disturbance and trenching along every row of panels. The AC collection system between the inverters and Project Substation will be located in a below-ground trench (approximately four feet deep and one to two feet wide). Below-ground AC collection systems from the inverter skids to the Project Substation will be installed in trenches or plowed into place at a depth of at least four feet below grade. During all trench excavations the topsoil and subsoil will be removed and stockpiled separately in accordance with the AIMP. Once the cables are laid in the trench, the area will be backfilled with subsoil followed by topsoil.

Image 2: Hanging Harness System for DC Cabling between Panels and Inverters

Inverters and transformers are housed together on a "skid." This equipment converts approximately 1,500 volts of DC output of the PV panels to 34.5 kV of AC. Inverter skids will be utilized at locations throughout the Project Footprint and include a transformer to which the inverters will feed electricity. The final number of inverters for the Project will depend on the inverter size, as well as inverter and panel availability; the final number of inverters will support a 235 MW solar project. The Project's preliminary design includes 60 central inverter skids (one inverter is required for every 3-4 MW_{AC}). These skids provide the foundation for the inverter, transformer, and Supervisory Control and Data Acquisition (SCADA) system. The skids will be placed atop a concrete slab or pile foundations and typically measure 15 feet

wide by 20 feet long, with a structure height of approximately 12 feet above grade. Concrete foundations will be poured onsite or precast and assembled off-site.

The inverters are within the interior of the Project along access roads. A representative photo of an inverter is shown below in Image 3.

Image 3: Representative Photo of an Inverter

The Project will use a SCADA system, which allows remote control and monitoring of the status of the Project. The monitoring system provides status views of electrical and mechanical data, operation and fault status, meteorological data, and grid station data.

4.1.3 Project Substation

The Project Substation will be a 34.5/115 kV step-up substation or 34.5/345 kV step-up substation, for the MISO Scenario and Garvin Scenario, respectively, with metering and switching equipment such as line breakers, switches, and the main power transformer. It will be designed according to regional utility practices, MISO Operator Standards, Midwest Reliability Organization Standards, National Electrical Safety Code, and the Rural Utility Service Code. The area within the substation will be graveled to minimize vegetation growth in the area, reduce fire risk, and as a safety measure for grounding purposes. The substation will be fenced with a 6-foot chain-link fence, topped with one foot of barbed wire for security and safety purposes. In both the MISO and Garvin Scenarios, the Project Substation's area is approximately 5 acres (470 feet by 470 feet), although the final footprint after construction will be approximately 2-3 acres.

4.1.4 Access Roads

The Project will include approximately 15 miles of graveled access roads that lead to the inverters. The final length of the access roads will depend on the equipment selected and final engineering. There is a slight difference in access roads between the MISO and Garvin

Scenarios; the difference is a result of access road length to the Project Substation. These roads are up to 20 feet wide along straight portions of the roads and wider along curves at internal road intersections and turn arounds (approximately 35-foot internal turning radius). There will be 28 access points initially constructed under the MISO Scenario and 25 access points under the Garvin Scenario. The access point entrances will be constructed from public roads on temporary and permanent access roads throughout the Project Footprint. Temporary access roads will only be used to access the two temporary laydown yards that are outside the fence (off of 140th Street and 240th Avenue). All other access points with access roads leading to areas within the fence (solar panels, Project Substation, and the O&M Building) will be permanent for the life of the Project. These preliminary access points are planned off of 230th, 240th, 250th, 260th, and 265th Avenues; 140th and 120th Streets; and US Highway 14. Coneflower anticipates removing two temporary access points under each Scenario for a total of 26 permanent access points under the MISO Scenario and a total of 23 permanent access points under the Garvin Scenario. For the majority of the Project, entrances off of public roads are the same between Scenarios; the difference is separate entrances for the Project Substation, switchyard, and O&M Building in the MISO Scenario whereas in the Garvin Scenario, the Project Substation and O&M Building are accessed by an entrance that also serves a solar panel area. All entrances will have locked gates.

Some upgrades or other changes to the public roads may be required for construction or operation of the Project. Coneflower will work with Lyon County, Custer Township, and MnDOT to facilitate and pay for required upgrades that meet the required public road standards. Upgrades or changes could include, but are not limited to, road improvements, additional aggregate, and driveway changes. Road improvements may require a road use and repair agreement with Lyon County and/or Custer Township; Coneflower will continue to coordinate with both agencies as the Project develops. Driveway changes will require a county entrance permit from Lyon County or MnDOT, which will be obtained prior to construction.

4.1.5 Security Fencing and Lighting

Permanent security fencing will be installed along the perimeter of the solar arrays and Project Footprint. Fencing will be secured to posts which will be directly embedded in the soil or set in concrete foundations as required for structural integrity and based on soil conditions. The fencing will consist of an agricultural woven wire fence and will extend approximately seven feet above grade. Barbed wire will not be used around the perimeter of the Project, and instead one foot of three to four strands of smooth wire will be used for a total height of 8-feet. However, the fencing around the Project Substation will be a 6-feet above grade chain-link fence and include one foot of barbed wire to comply with the National Electric Code. This fencing will be designed to prevent the public from gaining access to electrical equipment which could cause injury.

The Project may also have security cameras. Coneflower will have security lighting at the Project substation that will be down-lit, which is wildlife-friendly. The typical pole height will be ten feet and manual by switch as well as motion activated if an intrusion is detected. There will be lights at each inverter that will be down lit and switch controlled for repair purposes.

4.1.6 Operation and Maintenance (O&M) Building

An O&M Building will be constructed in the Project Area and will provide access and storage for Project maintenance and operations. Such buildings are typically made of steel,

approximately 1,000 to 1,500 square feet in size and house the equipment to operate and maintain the Project. The building will be used to conduct maintenance and repair of Project equipment and solar module components, store parts, tools, and other equipment, and store other O&M supplies. The parking lot adjacent to the building is expected to be approximately 3,000 square feet. Coneflower anticipates that a new well will provide water service for the O&M Building, and that an on-site septic system will provide for sanitary needs. The O&M Building is located adjacent to the Project Substation in both the MISO and Garvin Scenarios. Coneflower conservatively includes a 3-acre area for the O&M Building and parking area in both scenarios.

4.1.7 Weather Stations

The Project will include up to five weather stations up to 10 feet in height. The weather stations will be within the Project Footprint; the final locations will be determined following final engineering. The weather stations will be steel structures connected to a foundation with anchor bolts; sensors and instrumentation will be mounted to the steal structure. The weather station will be connected to the AC collection system and also have a solar powered battery as a backup power source.

4.1.8 Stormwater Drainage Basins

Coneflower has preliminarily designed 78 drainage basins throughout the Project Footprint that range in size from approximately 700 square feet (0.02 acre) to 46,000 square feet (1.06 acres)(see Figures 3a and 3b – Preliminary Project Layout – MISO and Garvin Scenario, respectively). These basins are located in existing low areas for which the preliminary design for solar facilities has avoided. The preliminary basins are the same size and location in both the MISO and Garvin Scenarios as a result of substantially similar Project designs. Due to the existing topography and drainage patterns, Coneflower has designed a higher quantity of smaller stormwater basins across the Project Footprint instead of fewer larger stormwater basins. Basins will be vegetated with a wet seed mix that will help stabilize soils after rain events. The size and location of stormwater drainage basins will be finalized concurrent with final engineering.

4.1.9 Temporary Facilities

Coneflower will utilize 17 temporary laydown areas, one within each fenced block of panels and two outside of the fence, totaling 59.9 acres. These areas will serve both as a parking area for construction personnel and staging areas for Project components during construction. The 15 laydown areas within the fenced blocks of panels will stage components for that block before transitioning to racking and panels. These 15 temporary laydown areas will not be graveled and are indicated on Figures 4a and 4b – Detailed Preliminary Project Layout – MISO and Garvin Scenario, respectively, with the temporary laydown area shown under the solar arrays. The two laydown areas outside the fence will be graveled during construction and then restored to pre-construction conditions and suitable for agricultural use by the landowner or restored with a native seed mix. All 17 laydown areas have been sited to avoid any tree clearing.

4.1.10 Transmission System

As previously discussed, the Project has two interconnection opportunities: the 115 kV Lyon County to Lake Yankton transmission line that bisects the northern portion of the Project Area (MISO Scenario) and the proposed Garvin Substation one half mile east of the Project Area (Garvin Scenario). In the MISO Scenario, the interconnecting utility (Xcel Energy) will permit, construct, own, and operate a switching station immediately adjacent to the Project Substation and up to 500 feet (a single span) of 115 kV transmission line to interconnect into the existing Lyon County to Lake Yankton 115 kV transmission line. In the Garvin Scenario, a short (up to one mile, depending on final location of the Garvin Substation) 345 kV transmission line will be needed. The Garvin Scenario will require a route permit from the Commission, but is first dependent on the Commission's approval of the Garvin Substation in a separate proceeding (Docket TL-22-132) and Xcel Energy's interest in, selection, and Commission approval of the acquisition of Coneflower Solar. Therefore, Coneflower Solar will submit a Route Permit Application, if needed, at a later time.

4.1.11 Pipeline System

Minnesota Rules 7850.1900, subp. 1(J) is not applicable to the Project because no pipelines will be accessed or built as part of the Project.

4.2 Interconnection

The Project filed for interconnection status in September 2022 and is currently in Definitive Planning Phase (DPP) 1 with Interconnection queue ID J3021 (DPP-2022-West). Coneflower is expected to sign a Generator Interconnection Agreement (GIA) in summer 2025. The Garvin Scenario would require a Surplus Interconnection System (SIS) agreement with Xcel Energy to interconnect into the proposed Garvin Substation. That would occur after the Commission's approval of the Garvin Substation in a separate proceeding (Docket TL-22-132) and Xcel Energy's interest in, selection, and Commission approval of the acquisition of Coneflower Solar.

4.3 Project Layout

4.3.1 Setbacks

The Project's final layout will optimize electrical generation and efficiency of the Solar Project while avoiding and minimizing environmental, cultural, and infrastructure impacts. The Lyon County Renewable Energy Ordinance (REO) Article 21, Section 21.6 identifies Setbacks and Standards for Solar Energy Systems. As demonstrated in Table 4.3-1, Coneflower Solar has designed the preliminary layout to exceed these setbacks.

Table 4.3-1
Solar Project Setback Requirements

Feature	Setback Requirement (feet) to solar panel or racking system	Project Design (feet, at its closest)
Neighboring Property Lines (Property lines within the Project Area are exempt)	25'	29'

Table 4.3-1 Solar Project Setback Requirements		
Feature	**Setback Requirement (feet) to solar panel or racking system**	**Project Design (feet, at its closest)**
Dwellings, other than Project owners	200’	323’
Road Right-of-Way	25’	38’
Public Conservation Lands	200’	205’

Additionally, Coneflower has included at least a 25-foot panel setback from the existing pipeline easement that runs southeast to northwest through the Project Area and the transmission easement that bisects and runs adjacent to the northern portion of the Project Area.

4.3.2 Estimated Project Facility Acreages

Table 4.3-2 describes the Project facilities’ estimated acreage within the approximate 1,723-acre Project Footprint based on the preliminary design for the Project.

Table 4.3-2 Estimated Project Facility Acreages within Project Footprint		
Project Facilities	**Acres**	
	MISO Scenario	**Garvin Scenario**
Access Roads	25.2	25.6
Inverters	0.6	0.6
Project Substation	5.1	5.1
Switching Station[1]	5.1	NA
O&M Building	3.0	3.0
Laydown Areas within the fence[2]	50.5	50.5
Stormwater Basins	18.0	18.0
Solar panels (area within the fence)[3]	1,606.3	1,611.0
Laydown Areas outside the fence	9.4	9.4
Project Total	**1,723.2**	**1,723.2**

[1] Only the MISO Scenario requires a utility-owned Switching Station to connect into the 115 kV transmission line. The Garvin Scenario would interconnect directly into the Garvin Substation, and therefore, a switching station is not needed.
[2] Laydown areas within the fence will be temporary for each solar block and then host panels.
[3] There are up to 9.7 acres of underground collection lines between blocks of panels that will be restored to pre-construction conditions.

4.4 Project Construction

A variety of activities must be completed to carry the Project through construction. Below is a preliminary list of activities necessary to develop the Project. Pre-construction, construction, and post-construction activities for the Project include:

Table 4.4-1
Construction Activities for the Coneflower Solar Project

Construction Stage	Activity
Pre-Construction	Geotechnical analysis
	Design substation and electrical collection system
	Design solar array, access roads, and O&M Building
	Design erosion and sedimentation and stormwater plans
	Underground utility discovery
	Procure all necessary facility components (solar panels, tracking system, transformers)
Construction	Install erosion control measures
	Site preparation, grubbing, and grading
	Construct laydown areas and set up temporary job site trailers
	Construct fencing
	Civil construction of access roads
	Install PV mounting posts
	Install below-ground collection system
	Install electrical enclosure/inverter
	Tracker installation
	PV panel installation
	Construct gen-tie line (if needed)
Post-Construction	Restore disturbed areas not intended for permanent above-ground facilities. Permanent above-ground facilities include the Solar Project Substation, O&M Building, inverter skids and electrical cabinets, and access roads
	Test facility
	Begin commercial production

4.4.1 Construction Activities

During construction, equipment and work vehicles will travel to and from the site (see Section 5.2.8.8 for estimated traffic volumes). Daily construction duration is anticipated to be consistent throughout the construction season when the majority of the access road construction, electrical and substation work is taking place. Typical construction equipment such as scrapers, dozers, dump trucks, watering trucks, motor graders, vibratory compactors

and pile drivers, pickup trucks, and backhoes will be used during construction. Specialty construction equipment that may be used during construction will include:

- Bulldozer and excavator;
- Grader;
- Skid steer loader;
- Medium duty crane;
- All-terrain forklift;
- Concrete truck and boom truck;
- High reach bucket truck; and
- Truck-mounted auger or drill rig.

Upon completion of associated construction activities, heavy equipment will be removed from the site. For example, the bulldozer and excavator and grader will be used during site clearing and vegetation removal, earthwork, and access road construction. Once these construction activities are complete, they will be removed from the Project. Similarly, a medium duty crane will be used to place the inverters. After this activity is complete, the medium duty crane will be removed from the Project.

An overview of construction activities follows. Coneflower provides approximate durations for the construction activities described in more detail below. Coneflower notes that approximate durations are not additive. That is, construction will be sequenced such that construction activities will occur simultaneously. Put differently, one construction activity does not need to be completed across the Project Footprint for the next activity to start; they will occur concurrently in different areas of the Project Footprint.

4.4.1.1 Geotechnical

Geotechnical and pull testing studies will be performed to determine the topsoil and subsoil types, and the mechanical properties of the soils. Soil resistivity measurements will be taken on site as part of the Project's geotechnical analysis, and that data will be used to help design grounding systems. These variables will be used to engineer the solar array foundation system. Typically, the foundation is a steel pile, which is driven into the ground with a hydraulically powered high-frequency hammer mounted on a tracked carrier. The piles are installed at pre-defined locations throughout the array area to an embedment depth of eight feet to 14 feet below grade, depending on soil properties and other factors. Coneflower anticipates this work will take approximately one month of site work prior to construction.

4.4.1.2 Site Clearing & Vegetation Removal

After the necessary permits are received, construction will begin with the initial site preparation work, including utility locates within the Project Area. Depending on timing of the start of construction, the Project may require the clearing of residual row-crop debris from the 2025 harvest season. Alternatively, and depending on construction timing, Coneflower may plant a cover crop in Spring 2026 that is compatible with the Project's VMP (Appendix E). This cover crop will stabilize soils if row crops are not planted that year. Coneflower anticipates this site clearing work to take approximately one month.

4.4.1.3 Earthwork

Areas of the site to be graded will have topsoil and organic matter stripped and segregated from the subsoil (depending on the depth of grading cut) in accordance with the Project's AIMP. Some grading will be required to provide a more level workspace and maintain soil stability in areas with a slope greater than five percent. Topsoil shall have temporary and permanent erosion control and soil stabilization measures established in accordance with the Project's Stormwater Pollution Prevention Plan (SWPPP). The earthwork activities will be completed using typical civil construction equipment – scrapers, bulldozers, front-end loaders, back-hoes, or skid-steers. Coneflower anticipates earthwork to take approximately three months.

4.4.1.4 Access Road Construction

As a component of earthwork, permanent access roads and permanent turnouts will be developed. This work will start with the stripping and segregating of topsoil materials from the anticipated 20-foot-wide road width. The subgrade materials will be compacted 20-feet wide to the specified compaction requirements as laid out by the civil and geotechnical engineer. After compaction is reached and verified, the road will be installed as designed, typically done with geotextile fabric, and then, with a surface of four to 12 inches of gravel. The gravel will be placed level with the existing grade to facilitate drainage and minimize ponding.

After gravel is installed and compacted to engineers' requirements, the Project drainage ditches will be shaped as identified on the final grading plan. Finally, the previously stripped and windrowed topsoil material will be re-spread throughout the Project Area.

Topsoil removed from permanent access roads will be moved to suitable locations near the site of removal and spread across existing topsoil for storage. Storage locations will be identified (Global Positioning System [GPS] boundary and depth) and recorded on site maps to facilitate final reclamation after decommissioning.

Coneflower anticipates access road construction to last approximately three months and will at least partially overlap with earthwork activities.

4.4.1.5 Solar Array Construction

Once grading activities are complete, the racking system supports will be constructed using steel piles driven into the ground. The solar facilities will be constructed in blocks, and multiple blocks could be constructed simultaneously. Construction of the blocks will include pre-positioning and driving piles, mounting the tracking rack system to the piles, pre-positioning of panel pallets, mounting panels to the tracking rack system, the completion of electrical connections, terminations and grounding, and installation of cable management systems. In some situations where soils are low strength or consist of loose, non-cohesive sand, helical screw or auger-type foundation posts may be used. Foundations are typically galvanized steel and used where high load bearing capacities are required. The pile is driven using a hydraulic ram that moves along tracks and is operated by two workers. Soil disturbance would be restricted to the hydraulic ram/ screw machinery, about the size of a small tractor, temporarily disturbing soil at each pile insertion location and while driving between drilling locations.

The remainder of the tracking rack system will be installed by construction crews using hand tools and all-terrain tracked equipment to distribute materials. Array racking will be bolted on top of the foundation piling to create a "rack" to which the solar panels can be fastened.

During array and racking assembly, multiple crews and various types of vehicles will be working within the Project Area. These vehicles include flatbed trucks for transporting array components, small all-terrain vehicles, rough-terrain forklifts, and skid-steers, as well as pick-up trucks for transporting equipment and workers throughout the Project Area. To the extent practicable, vehicular traffic will be limited to permanent and temporary access roads to minimize soil disturbance, mixing and compaction; however vehicular traffic will occur off of roads throughout the Project Area during construction. Panels will be staged in advance throughout the Project Area and brought to specific work areas for installation by wagon-type trailers pulled by small tractors or by all-terrain tracked equipment. The solar panels will be installed by multiple crews using hand tools. Installation crews will proceed in serpentine fashion along staked temporary access roads in a pre-established route to minimize off-road traffic.

Coneflower anticipates solar array construction to last approximately 12 months and will at least partially overlap with earthwork and access road construction activities.

4.4.1.6 Electrical Collection System Construction

Electrical wiring will connect the panels to inverters, which will convert the power from DC to AC. The AC will be stepped up through a transformer from the inverter output voltage to 34.5 kV and brought via the collection cables to the Project Substation. The DC collection system would be installed underneath the panels in a hanging harness system; the AC collection system will be installed in a below-ground system.

Below-ground AC collection systems will be installed in trenches or plowed into place at a depth of at least four feet below grade. During trench excavation the topsoil and subsoil will be removed and stockpiled separately in accordance with the AIMP. Once the cables are laid in the trench, the area will be backfilled with subsoil followed by topsoil. Electrical collection technology is rapidly evolving and will be site-specific depending on geotechnical analysis, constructability, and availability of materials. Final engineering and procurement will help determine the construction method for the electrical collection system.

Coneflower anticipates electrical collection system construction will take place over nine months and will at least partially overlap solar array construction.

4.4.1.7 Project Substation Construction

Construction work within the substation site will include site preparation and installation of substructures and electrical equipment. Installation of concrete foundations and embedments for equipment will require the use of trenching machines, concrete trucks and pumpers, vibrators, forklifts, boom trucks, and medium-duty cranes. Above-ground and below ground conduits from this equipment will run to a control enclosure that will house the protection, control, and automation relay panels. A station service transformer will be installed for primary AC power requirements. Batteries and battery chargers will be installed inside the enclosure for auxiliary power to the substation's control system. Crushed rock will cover the area of the

substation and adequate lighting will be installed around the substation for worker safety during construction and operation.

One of two methods will be used to install substation foundations. Option 1 would use a small rubber tire backhoe to dig out major foundations prior to pouring the concrete slabs. Option 2 would use an auger/drill type machine for minor foundations.

In both scenarios, the limits of disturbance will be within the footprint of the substation for both the foundation equipment and the concrete delivery trucks. All topsoil from the Project Substation footprint will be removed to a pre-established suitable location for storage. The storage area would be near the site where the soil was removed, accurately located (GPS boundary, soil depth) and graded to facilitate revegetation. Subsoil would be removed, if necessary, to an acceptable preestablished and approved area for storage. After decommissioning, subsoil will be returned to the area from which it was excavated (as needed), topsoil will be replaced, and the area will be brought back to pre-construction contours.

Coneflower anticipates Project Substation construction will take place over nine months and will at least partially overlap solar array construction.

4.4.2 Construction Management

Coneflower will designate an on-site construction manager. This manager's responsibilities include scheduling and coordinating the activities of engineering, procurement, and construction (EPC) contractors. The construction manager will be supported by other members of Coneflower's team who specialize in engineering, permitting, meteorology, environmental compliance, real estate, and Geographic Information Systems (GIS) mapping.

Throughout the construction phase, ongoing coordination occurs among the Project's development, design, and construction teams. The construction manager coordinates execution of the work. This coordination includes safety and quality control programs, cost, and schedule forecasting, as well as site security and ongoing communication with local officials, citizen groups, and landowners.

4.4.3 Commissioning

During and upon completion of the construction phase, the Project will undergo inspection, testing, and commissioning. Inspection and testing will occur for each component of the solar array, as well as the associated communication, meteorological, collection, and SCADA systems.

4.4.4 Restoration

Following construction, areas that will not contain permanent facilities (area under the arrays and the laydown yards) will be stabilized with sediment stabilization and erosion control measures such as silt fence and biologs and re-vegetated according to the VMP (Appendix E). The site will be seeded with site specific seed mixes developed in coordination with the Minnesota Vegetation Management Working Group and include four seed mixes: (1) an array mix that includes low-growing species to accommodate 18-inch solar panel clearance; (2) a short native mix to be used on the perimeter of the Project Footprint 15 feet inside the fence;

(3) a mixed height native mix to be used outside the Project Footprint and fence in areas that are within setbacks and/or unsuitable for agricultural use (less than 20 acres); and (4) a wet mix for stormwater basins and areas susceptible to holding water. Additionally, a cover crop will be planted with the mixes to stabilize the soil and prevent erosion during the time it takes for the native seeds to establish. In both the MISO and Garvin Scenarios, there are approximately 300 acres of non-row cropped vegetation outside the Project Footprint (of the 567 acres outside the Project Footprint) that will not be disturbed by construction activities and therefore the existing vegetation will remain. Similarly, there are approximately 19 acres of existing public roads and between 33 and 38 acres of Coneflower solar facilities (depending on the MISO and Garvin Scenario) that will also not require restoration. Coneflower will revegetate currently row-cropped areas that are outside the Project Footprint (Appendix E – VMP).

The VMP outlines three vegetation maintenance strategies that may be implemented at the Project: mowing, haying, and/or grazing. Each of the three management techniques can be used for the seed mixes proposed, though the management prescriptions may vary from mix to mix over time depending on their location and vegetation goals. For example, the array mix may have more frequent mowing to ensure no interference with the panels, whereas haying may be more appropriate for the non-array areas as vegetation is grown to a taller height before haying. Haying and grazing are management techniques that are especially beneficial to native plant species as they mimic natural disturbances. Grazing solar facilities with livestock (sheep) is a developing management approach that Coneflower is considering for this Project. In any management strategy, the wet mix would be used for basins.

The VMP provides a guide to site preparation, installation of prescribed seed mixes, management of invasive species and noxious weeds, and control of erosion/sedimentation. The required restoration management is designed to continue for three years. The VMP outlines vegetation management tasks during the establishment and perpetual maintenance phases including monitoring for and treating any invasive species, mowing, and re-seeding. Additionally, vegetation community establishment targets are defined for each of the first three years of implementation of the VMP.

4.5 Project Operation and Maintenance

Following commissioning and commercial operation, the care, custody, and control of the facility transfers from the construction team to the operations staff. The construction manager works with the operations staff, the equipment suppliers, and other construction and maintenance personnel to ensure a smooth transition from the start of construction to the commercial operation date of the Project. The operations staff will have full responsibility for the facility to ensure operations and maintenance are conducted in compliance with approved permits, prudent industry practice and the equipment manufacturer’s recommendations.

The Project will be professionally maintained and operated by Coneflower, an affiliate, or a contractor. Primary tasks include scheduled monthly and quarterly inspection(s) of electrical equipment, vegetation management, as well as snow removal on access drives.

The expected service life of the Project is at least 30 years, and Coneflower estimates that the Project will result in up to three full-time permanent positions to operate and maintain the Project facilities. A maintenance plan will be created for the Project to ensure the performance of the solar facilities, including a scheduled check of the main items and a predictive

maintenance approach of the devices subjected to derating/degradation. Derating/degradation refers to the known process of components losing some efficiency or otherwise degrading over the course of the Project's life cycle; like all technology and physical components, a certain amount of this is unavoidable, and Coneflower will plan for it and maintain the facility as needed. Once construction is complete, the solar facility will see one to two trucks on site daily, and at intervals associated with the maintenance schedule in Section 4.5.5 during normal operations. The main scheduled activities are described in more detail below in Sections 4.5.2 through 4.5.4. In addition to maintenance, the operations crew is responsible for performance monitoring and adjustments and managing other contractors such as vegetation management.

All maintenance activities will be performed by qualified personnel. Maintenance activities will be performed during the day to the extent that they do not disrupt energy production. As an example, if a panel needs repair, that particular section of the array can be disconnected from the array by opening the combiner box circuit. The panel can then be replaced, and the combiner box circuit closed. Additionally, the power production circuits are separated from the tracking circuits. This allows the PV panels to operate during an unscheduled outage of the tracker system. Upon occasion, it may be desirable to perform maintenance when the sun is down. Activities that have the potential for substantial noise generation will be performed during the day to minimize impacts in areas where residents are present.

There will be an area for the storage of the spare parts and the tools as described in Section 4.1.6 (Operations and Maintenance Building). The solar generating facility will be operated through a real-time control system for most operations functions.

4.5.1 Supervisory Control and Data Acquisition (SCADA) System

The solar arrays will communicate directly with the SCADA system for remote performance monitoring, energy reporting and troubleshooting. The SCADA system provides data on solar generation and production, availability, meteorology, and communications. The SCADA system allows monitoring of, and communications with, the Project and relays alarms and communication errors. Coneflower will manage all the monitored on-site data in addition to a qualified subcontractor that will remotely monitor the site 24 hours a day, seven days a week through the SCADA system.

4.5.2 Equipment Inspection

Inspection of the main equipment will occur at regular intervals, including:

- PV panels: visual check of the panels, tracking system and surrounding grounds to verify the integrity of the panels and tracking structure, the presence of animals and nests, etc.
- Inverters, transformer, and electrical panels: visual check of the devices including the connection cabinet and the grounding network. Check for presence of water and dust;
- Electrical check: measurement of the insulation level and dispersion. Check of the main switches and safety devices (fuses);
- Noise: check of abnormal sounds; and

- Cabling and wiring: visual check of the buried and aerial electrical line and connection box to verify their status.

4.5.3 Performance Monitoring

Performance monitoring of the Project facilities will consist of a weekly or monthly download of the data acquired by the onsite meteorological stations (energy produced, alarms, faults, etc.).

4.5.4 Facility Maintenance

Housekeeping of the Project facilities will include road maintenance, vegetation maintenance (method is to be determined; either traditional mowing or sheep and/or lamb grazers will be utilized), fence and gate inspection, lighting system checks, and PV panel washing (if required; minimal to no washing is anticipated to be needed at Project facilities due to the naturally occurring and frequent precipitation).

4.5.5 Maintenance Schedule

Table 4.5-1 provides more information on the anticipated frequency of the O&M tasks associated with the Project. The table represents the anticipated preliminary frequency of these tasks; the frequency of inspection may be varied based on facility demands and experience with performance of certain components and Project features.

Table 4.5-1
Operations and Maintenance Tasks and Frequency

Plant Device	Task	Preliminary Frequency
Photovoltaic (PV) Field	PV Panels visual check	Once Yearly
	Wirings and junction boxes visual check	Once Yearly
	PV strings measurement of the insulation	Once Yearly
	PV strings and string boxes faults	Once Yearly
	PV panels washing	No regular washing planned (only as site-specific conditions warrant)
	Vegetation Management (if necessary at site)	Up to three times a year depending on site conditions
Electric Boards	Case visual check	Once Yearly
	Fuses check	Once Yearly
	Surge arresters check	Once Yearly
	Torque check	Once Yearly
	DC voltage and current check	Once Yearly
	Grounding check	Once Yearly
Inverter	Case visual inspection	Once Yearly
	Air intake and filters inspections	Once Yearly

Table 4.5-1
Operations and Maintenance Tasks and Frequency

Plant Device	Task	Preliminary Frequency
	Conversion stop for lack of voltage	Once yearly
	AC voltage and current check	Once yearly
	Conversion efficiency inspection	Once yearly
	Datalogger memory download	Once yearly
	Fuses check	Once yearly
	Grounding check	Once yearly
	Torque check	Once yearly
Support Structures	Visual check	Once yearly
	PV panels toque check on random sample	Once yearly

4.6 Decommissioning and Repowering

At the end of the Project's useful life, Coneflower will either take necessary steps to continue operation of the Project (such as re-permitting and retrofitting) or will decommission the Project and remove facilities. Decommissioning activities will include and are generally in the following order:

- Removing the solar arrays, inverters/transformers, electrical collection system, fencing, lighting, and Project Substation;
- Removal of below-ground electrical cables to a depth of four feet (cables buried below four feet will be left in place);
- Removal of buildings and ancillary equipment to a depth of four feet;
- Removal of surface road material and restoration of the roads to substantially the same physical condition that existed immediately before construction. If the Project is decommissioned and the land sold to a new owner, Coneflower would retain any access roads the new landowner requested (in writing) be retained;
- Grading, adding or re-spreading topsoil, and reseeding, according to the Natural Resources Conservation Service (NRCS) technical guide recommendations and other agency recommendations, areas disturbed by the construction of the facility or decommissioning activities. Grading and soil disturbance activities will be kept to the minimum necessary to restore areas where topsoil was stripped in construction, topsoil in decommissioned roads, and compaction only in areas that were compacted during decommissioning activities so that the benefits to the soil that were achieved over the life of the Project are not counteracted by decommissioning; and
- Standard decommissioning practices would be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements, and restoration.

Similar to the construction of the Project, decommissioning activities will occur with multiple activities happening at once across the Project Footprint; that is, a single activity does not need to be completed across the Project for the next activity to commence.

4.6.1 Timeline

Decommissioning is estimated to take up to 60 weeks to complete depending on seasonality, and the decommissioning crew will ensure that all equipment is recycled or disposed of properly. It is anticipated that approximately the same size crews and equipment will be used for decommissioning as will be used in construction of the project.

4.6.2 Removal and Disposal of Project Components

The removal and disposal details of the Project components are found below:

- Modules: Modules will be inspected for physical damage, tested for functionality, and disconnected and removed from racking. Functioning modules will be packed and shipped to an offsite facility for reuse or resale. Non-functioning modules will be shipped to the manufacturer or a third party for recycling or disposal.
- Racking: Racking and racking components will be disassembled and removed from the steel foundation posts, processed to appropriate size, and sent to a metal recycling facility.
- Steel Foundation Posts: Structural foundation steel posts will be pulled out to full depth, removed, processed to appropriate size, and shipped to a recycling facility. The posts can be removed using back hoes or similar equipment. During decommissioning, the area around the foundation posts may be compacted by equipment and, if compacted, the area will be decompacted in a manner to adequately restore the topsoil and sub-grade material to a density consistent for vegetation.
- Hanging and Underground Cables and Lines: The hanging DC collection system will be removed with the modules and racking. All underground cables and conduits (AC collection system) will be removed to a depth of 48 inches. Facilities deeper than 48 inches may remain in place to limit vegetation and surface disturbance. The underground cables around equipment pads will be completely removed up to a length of 25 feet around the perimeter of pads. Topsoil will be segregated and stockpiled for later use prior to any excavation and the subsurface soils will be staged next to the excavation. The subgrade will be compacted per standards. Topsoil will be redistributed across the disturbed area.
- Inverters, Transformers, and Ancillary Equipment: All electrical equipment will be disconnected and disassembled. All parts will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at Coneflower's sole discretion, consistent with applicable regulations and industry standards.
- Equipment Foundation and Ancillary Foundations: The ancillary foundation for Coneflower Solar are pile foundations for the equipment pads. As with the solar array steel foundation posts, the foundation piles will be pulled out completely. Duct banks will be excavated to a depth of at least 48 inches. All unexcavated areas compacted

by equipment used in decommissioning will be decompacted in a manner to adequately restore the topsoil and sub-grade material to a density similar to the surrounding soils. All materials will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at Coneflower's sole discretion, consistent with applicable regulations and industry standards.

- Fence: Fence parts and foundations will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at Coneflower's sole discretion, consistent with applicable regulations and industry standards. The surrounding areas will be restored to pre-solar farm conditions to the extent feasible.
- Access Roads: Facility access roads will be used for decommissioning purposes, after which removal of roads will be discussed with the landowner(s), and one of the following options will be pursued:
    - After final clean-up, roads may be left intact through mutual agreement of the landowner and Coneflower unless otherwise restricted by federal, state, or local regulations.
    - If a road is to be removed, aggregate will be removed and shipped from the site to be reused, sold, or disposed of appropriately, at Coneflower's sole discretion, consistent with applicable regulations and industry standards. Clean aggregate can often be used as "daily cover" at landfills for no disposal cost. Internal service roads are constructed with geotextile fabric and eight inches of aggregate over compacted subgrade. Any ditch crossing connecting access roads to public roads will be removed unless the landowner requests it remains. The subgrade will be decompacted in a manner to adequately restore the topsoil and sub-grade material to a density consistent for reintroduction of farming. Topsoil that was stockpiled during the original construction will be distributed across the open area. Finally, the access road corridors will be tilled to an agricultural condition.
- Project Substation: Decommissioning of the Project Substation will be performed with the rest of the Project. All steel, conductors, switches, transformers, and other components of the substation will be disassembled and taken off site to be recycled or reused. Foundations and underground components will be removed to a depth of four feet. The rock base will be removed using bulldozers and backhoes or front loaders. The material will be hauled from the site using dump trucks to be recycled or disposed of at an off-site facility. Additionally, any permanent stormwater treatment facilities (e.g., infiltration ponds and engineered drainage swales) will be removed. Topsoil will be reapplied to match surrounding grade to preserve existing drainage patterns. Topsoil and subsoil will be decompacted in a manner to adequately restore the topsoil and sub-grade material to a density consistent for reintroduction of farming.
- O&M Building: The O&M Building is a sturdy, general purpose steel building. If the building is not repurposed, decommissioning will include disconnection of the utilities and demolition of the building structure, foundation, rock base parking lot, and associated vegetated/stormwater handling facilities. All associated materials will be removed from the site using wheeled loaders or backhoes and bulldozers and hauled off site in dump trucks. All recyclable materials will be brought to appropriate facilities and sold; the remaining materials will be disposed of at an approved landfill facility.

Subgrade soils will be decompacted in a manner to adequately restore the topsoil and sub-grade material to a density consistent for reintroduction of farming. Topsoil will be reapplied to match existing surrounding grade to preserve existing drainage patterns, and the site will be tilled to a farmable condition, depending upon location.

4.6.3 Restoration/Reclamation of Facility Site

Coneflower will restore and reclaim the site to the pre-Project condition consistent with the site lease agreements, AIMP, and VMP, as applicable. Coneflower assumes that most of the Project site will be returned to farmland and/or pasture after decommissioning and will implement appropriate measures to facilitate such uses. Areas that consisted of non-agricultural vegetation prior to construction of the Project will be restored and reseeded to match pre-construction conditions to the greatest extent possible. If no specific use is identified, Coneflower will plant unvegetated portions of the site with a seed mix specified in the approved SWPPP, AIMP, and VMP, as applicable. The goal of restoration will be to restore natural hydrology and plant communities to the greatest extent practicable, while minimizing new disturbance and removal of native vegetation or vegetation established during operation of the facility. The decommissioning effort will implement construction stormwater BMPs to minimize erosion and to contain sediment on the Project to the extent practicable, including the following:

1. Minimize new disturbance and removal of native vegetation to the greatest extent practicable.
2. Remove solar equipment and all access roads up to a minimum depth of four feet, backfill with subgrade material, and cover with suitable topsoil to allow adequate root penetration for plants, and so that subsurface structures do not substantially disrupt ground water movements.
3. Any topsoil that is removed from the surface for decommissioning will be stockpiled to be reused when restoring plant communities or agricultural land. Once decommissioning activity is complete, topsoil will be re-spread to assist in establishing and maintaining plant communities.
4. Stabilize soils and return them to agricultural use, according to the landowner direction.
5. During and after decommissioning activities, install erosion and sediment control measures, such as silt fences, bio-rolls, and ditch checks in all disturbance areas where potential for erosion and sediment transport exists, consistent with storm water management objectives and requirements.
6. Remediate any petroleum product leaks and chemical releases from equipment operation and electrical transformers prior to completion of decommissioning.

Coneflower reserves the right to continue to operate the Project, instead of decommissioning, by applying for an extension of required permits. Should the Project Owner decide to continue operations, a decision may be made on whether to continue operation.

4.6.4 Financial Resource Plan

Under DOC-EERA recommendations, a Financial Assurance is not required during the first 10 years of operation; however, a bond will be posted no earlier than the 10th anniversary from the Commercial Operation Date of the Project. The Commission or its designee will be named as the beneficiary of the financial assurance. According to the EERA recommendations, a revised decommissioning estimate shall be submitted every five years

or any time there is a change in ownership. Each revised plan will reflect advancements in construction techniques, reclamation equipment, and decommissioning standards. The decommissioning cost estimate will also be reassessed and revised to reflect any identified changes in the costs, including current salvage values of materials and equipment. The amount of the Financial Assurance will be adjusted accordingly to offset any increases or decrease in decommissioning costs and salvage values determined during each plan reassessment. The total net decommissioning costs for the MISO and Garvin Scenarios are estimated at $65,480 and $65,693 per MW_{DC}, respectively (see Section 9.0 of Appendix F – Decommissioning Plan). It is anticipated that the Project will be in operation for 30 years or until the Site Permit expires.

5.0 ENVIRONMENTAL INFORMATION

For the discussion in the following sections, the following terminology, assumptions, and approach are used.

For the description of resources about existing conditions, calculations are based on the Project Area (approximately 2,299 acres) and the acreage Coneflower has under lease and easement agreements. This reflects the fact that final design may necessitate development within the overall Project Area. Additionally, for any discussions of resources that are located outside of the Project Area (such as parks within one mile), the Project Area is used in order to describe these features related to the acreage Coneflower has under lease and easement agreement.

For approximating areas of temporary impact, the Project Footprint is used (approximately 1,723 acres); this reflects the possibility for resources to be temporarily impacted within the area that preliminary design indicates is needed for construction and operation of the facility. For some resources, such as land cover, and agricultural production or other land uses, the Project Footprint is also referred to for “permanent impact” discussions (i.e., “permanent” for the life of the Project). It should be noted that preliminary design does not identify locations of the posts for the solar arrays, so detailed calculations of impacts are not included. However, due to the fact that the solar array posts are anticipated to be installed via vibration or a pile driver for the majority of the locations, the permanent impacts associated with these features are expected to be negligible. To illustrate, the I-beam shaped posts are anticipated to be approximately six inches by four inches, with a surface area of approximately eight square inches because the I-beam is approximately 0.25-inch thick within the 6-inch by 4-inch I-shaped configuration.

5.1 Environmental Setting

The MnDNR and the U.S. Forest Service have developed an Ecological Classification System (ECS) for ecological mapping and landscape classification in Minnesota that is used to identify, describe, and map progressively smaller areas of land (Province, Section, Subsection) with increasingly uniform ecological features (MnDNR, n.d.-a). The Project Area is located within the Prairie Parkland Province, North Central Glaciated Plains Section (251B), and the Coteau Moraines Subsection (251Bb).

The Coteau Moraines Subsection occurs within an area of transition from shallow deposits of wind-blown silt (loess) over glacial till to deeper deposits of loess in the southwestern portion, with the northeastern portion of the Subsection consisting of a steep escarpment which becomes less pronounced to the south. This Subsection is part of a high glacial landform occupying portions of southwestern Minnesota, southeastern South Dakota, and northwestern Iowa and is topped by Buffalo Ridge (1995 feet above sea level) in northern Pipestone County. This steep elevation is a result of the thick deposits of pre-Wisconsin age glacial till (up to 800 feet in thickness). The northeast edge of the Subsection is marked with a steep escarpment cut by several streams, which fades to the southeast and becomes indistinct along the Iowa border.

Soils within the Coteau Moraines Subsection are comprised of loamy well-drained soils with thick, dark surface horizons—primarily Mollisols-Aquolls and Udolls with some Borolls and Ustolls (MnDNR, n.d.-a). Tallgrass prairie covered virtually all of the subsection, with smaller

portions of the landscape covered by wet prairies that were restricted to narrow stream margins. Forest areas were restricted to ravines along a few streams, including the Redwood River. Present day land use is almost entirely agricultural, with few remnants of pre-settlement vegetation remaining.

The Project is located in a rural area between the cities of Balaton and Garvin, with residences scattered throughout the Project Area. The Project Area is west U.S. Highway 59 and bisected by U.S. Highway 14. Other roads within the Project vicinity are local county or township roads. The Project is located on relatively flat fields that are conducive to solar development.

5.2 Human Settlement

Solar facilities have the potential to impact human settlements during construction and operation. Public health and safety issues during construction include injuries due to falls, equipment use, impaired air quality, and electrocution. Public health concerns related to the operation of the Project may include health impacts from electric and magnetic fields (EMF), stray voltage, induced voltage, and electrocution. Solar facilities also have the potential to displace homes or businesses, introduce new noise sources, affect the aesthetics and socioeconomics of the Project Area, impact local land use and zoning, and impact public services (i.e., transportation). These potential impacts are discussed in more detail below.

The Project is in a rural landscape in Lyon County in between population centers with farmsteads located along roads (Figure 1 – Project Location). The municipalities nearest to the Project are Garvin (directly adjacent to the southeastern Project Area) and Balaton (1.0 mile west of the Project Area). The largest population center is Marshall, located approximately 12 miles north of the Project Area. According to the 2020 Decennial Census, the population of Lyon County is 25, 269 (U.S. Census Bureau, 2020a).

5.2.1 Aesthetics

The topography of the Project Area is generally flat with elevations ranging from 1,518 to 1,550 feet above sea level. Land use within the Project Area is predominantly agricultural, with soybeans and corn being the most common crops. There are windbreaks comprised mainly of trees around most farmsteads and former farmsteads with agricultural buildings still present in the Project vicinity.

The Project Area and surrounding land are typical of agriculturally dominated landscapes. Viewsheds in this area are generally broad and uninterrupted, with only small, scattered areas where they are interrupted by trees or topography. The settlements in the vicinity are residences and farm buildings scattered along rural county roads and highways. Coneflower mapped and confirmed the occupancy status for residences in the Project Area, as well as within 3,200 feet of the Project Area. A total of 108 residences were mapped and field verified (Appendix G).

Residences within and near the Project Footprint are more likely to have higher viewer sensitivity as their residents live and commute closer to the Project. Most of these residences are at least partially surrounded by woodlands or windbreaks, which partially obscure views of the surrounding landscape. A total of 20 residences are adjacent to and within the Project Area (Figure 4 – Detailed Preliminary Project Layout).

There are two participating residences in the Project Area: RE1 is an occupied residence in the northwestern portion of the Project Area near U.S. Highway 14 and CSAH 7, and RE2 is an unoccupied residence in the southeastern portion of the Project Area near the railroad tracks and Garvin. Additionally, as mentioned in Section 1.1.1 (Statement of Ownership), Coneflower signed a *Solar Easement, Setback Waiver, and Participation Agreement* for two residences outside and adjacent to the Project Area. These residences are identified as RE12 and RE14 located in the north-central portion of the Project Area.

Table 5.2-1 provides distances from the 20 residences, including approximate distances to the Project Footprint, the edge of solar arrays, the nearest inverter (per preliminary design), and notes on existing and proposed vegetation. Generally speaking, vegetative screening is proposed near residences to either supplement or create a vegetative screen from arrays on the same or adjacent parcels and in the direction of arrays.

Table 5.2-1
Proximity of Residences to the Coneflower Solar Project

Residence	Distance to Project Footprint (feet)	Distance to Solar Arrays (feet) [1]	Distance to Nearest Inverter (feet) [1]	Existing and Proposed Vegetative Screening from Project Facilities
RE1[2]	300.7	324.8	676.5	This residence has existing vegetative screening around all four sides, although the southern side is partially screened. Vegetative screening is proposed on the southern side of the property to supplement existing vegetation.
RE2[2, 3]	300.7	326.3	1,235.8	This unoccupied residence faces northeast and has existing vegetative screening along the eastern, southern, and western sides of the farmstead.
RE9	301.9	336.4	1,121.4	This residence has existing vegetative screening on the eastern, southern, and western sides. Vegetative screening is proposed on the western side of the property to supplement existing vegetation.
RE10	391.9	452.0	1,414.4	This residence faces south and has existing vegetative screening on all four sides.
RE11	240.2	338.9	1,333.7	This residence has existing vegetative screening around all four sides.
RE12[2]	1,300.9	1,345.4	1,995.4	Located outside of the Project Area boundary near the intersection of 140th Street and 250th Avenue. This residence has signed a *Solar Easement, Setback Waiver, and Participation Agreement*. This residence faces west and has existing vegetative screening on the northern and southern sides.

Table 5.2-1
Proximity of Residences to the Coneflower Solar Project

Residence	Distance to Project Footprint (feet)	Distance to Solar Arrays (feet) [1]	Distance to Nearest Inverter (feet) [1]	Existing and Proposed Vegetative Screening from Project Facilities
RE13	302.0	346.8	1,191.4	This residence has existing vegetative screening around all four sides, although the western side is partially screened. Vegetative screening is proposed west of the property to supplement existing vegetation.
RE14[2]	301.4	337.5	1,090.2	This residence has existing vegetative screening around all four sides. This residence has signed a *Solar Easement, Setback Waiver, and Participation Agreement*.
RE15[4]	301.5	328.5	813.0	This residence faces south and has existing vegetative screening on the northern and western sides and partial screening along the eastern side. Vegetative screening is proposed on the eastern side of the property to supplement existing vegetation.
RE17[4]	301.4	327.5	919.9	This residence has existing vegetative screening on the northern, southern, and western sides. Vegetative screening is proposed on the eastern side of the property.
RE18	242.1	322.6	1,034.4	This residence faces east and has existing vegetative screening on the western side, and partial vegetative screening on the northern, eastern, and southern sides. Vegetative screening is proposed on the northern side of the property to supplement existing vegetation.
RE23	354.1	396.5	955.9	This residence faces southeast and has existing vegetative screening on all four sides.
RE24	303.8	344.4	1,303.9	This residence has existing vegetative screening on the northern and southern sides, with partial vegetative screening along the western and eastern sides. Vegetative screening is proposed on the eastern side of the property to supplement existing vegetation.

Table 5.2-1
Proximity of Residences to the Coneflower Solar Project

Residence	Distance to Project Footprint (feet)	Distance to Solar Arrays (feet) [1]	Distance to Nearest Inverter (feet) [1]	Existing and Proposed Vegetative Screening from Project Facilities
RE26	303.0	333.7	910.7	This residence has existing vegetative screening around all four sides, although the eastern and southern sides have partial vegetative screening. Vegetative screening proposed on the eastern side of the property to supplement existing vegetation.
RE27	291.3	324.0	1,236.2	This residence has existing vegetative screening around along the western side of the farmstead, with partial screening along the eastern and southern sides. Vegetative screening proposed south of the property.
RE28	257.5	452.1	1,077.8	This residence has existing vegetative screening along the eastern and western sides of the farmstead, with partial screening along the northern and southern sides. Vegetative screening proposed south of the property.
RE30	474.4	561.4	1,382.9	This residence has existing vegetative screening along the northern and southern sides, with partial vegetative screening to the east and west.
RE31	310.8	343.4	936.0	This residence faces south and has existing vegetative screening around all four sides.
RE107[4]	301.4	340.7	1,177.6	This residence has existing vegetative screening on all sides, with partial screening along the eastern side. Vegetative screening is proposed on the eastern side to supplement existing vegetation.
RE108[5]	297.9	329.5	951.0	This unoccupied residence has existing vegetative screening on the north side and partial vegetation on the east, west, and south sides.

Table 5.2-1
Proximity of Residences to the Coneflower Solar Project

Residence	Distance to Project Footprint (feet)	Distance to Solar Arrays (feet) [1]	Distance to Nearest Inverter (feet) [1]	Existing and Proposed Vegetative Screening from Project Facilities

[1] Based on preliminary design.

[2] Participating landowner.

[3] Field visit on 5/6/2024 determined building is boarded up and unoccupied.

[4] Owner has signed a competitor lease and would not be able to sign a lease agreement or a Solar Easement, Setback Waiver, and Participation Agreement with Coneflower Solar. This does not preclude these landowners from being considered for vegetative screening.

[5] House is unoccupied. No vegetative screening is proposed at unoccupied residences. Should the occupancy status change, Coneflower will work with the resident to determine the need for vegetative screening.

Note: the home and barn near the intersection of CSAH 7 and 120th Street, within the Project Area, have been demolished. As such no visual impacts will occur and no vegetative screening is proposed.

5.2.1.1 Impacts and Mitigation

The Project will convert approximately 1,723 acres of predominately agricultural land (see Table 5.5-8 in Section 5.5.6 [Vegetation] and associated discussion) to a solar facility characterized by complex geometric forms, lines, and surfaces that may be divergent from the surrounding rural landscape. Most of the Project Footprint will be utilized with rows of solar panels. Solar PV employs glass panels that are designed to maximize absorption and minimize reflection to increase electricity production efficiency. The images in Section 4.1 (Design) provide a reference for how the Coneflower Solar Project will appear during operation. To limit reflection, solar panels are constructed of dark, light-absorbing materials and covered with an anti-reflective coating. Today's panels reflect as little as two percent of the incoming sunlight depending on the angle of the sun and assuming use of anti-reflective coatings. Therefore, during operation of the solar facility there will be little glare from the solar arrays.

The solar arrays will occupy most of the disturbed area for the solar facility. The electrical transformers and inverters, the Project Substation, O&M Building, and access roads will utilize the rest of the disturbed area. Most of the facility, including the solar arrays, will be low-profile (i.e., less than 12 feet above ground level). The Project Substation will have a more vertical profile with equipment ranging in height from 80-120 feet. Many similar features such as gravel roads, electric transmission and distribution lines, and a substation already exist on the landscape.

The degree to which the Project will be visible will vary by location. The solar arrays will be visible from adjacent roadways, nearby residences, and recreational areas where there is level terrain and a lack of existing vegetation. However, given their relative low profile, and the fact they will be fenced for security, they will not be visible from significant distances. While relatively few trees existing within the Project Area, as noted in Table 5.2-1, most residences are least partially surrounded by natural vegetation screening. To minimize aesthetic impacts to adjacent residences, Coneflower proposes to supplement existing vegetative screening by planting trees and shrubs in specific areas to minimize the views from adjacent residences to the Project infrastructure. These vegetative buffers will be installed within the Project Footprint in areas where a residence has minimal or no existing vegetative

buffers. Coneflower has designed the Project to minimize tree clearing and maintain existing views to the extent practicable.

Photo simulations for three locations around the Project Area were rendered to provide a representation of what the Project would most likely look like when completed. Photo locations were selected to represent areas frequented by the public and provide a representative view of the Project from different parts of the site. These locations were varied, with some located near major roads, near houses, or concentrated array areas. The specific vantage point for each photo was selected for good visibility of the proposed Project.

Photo location one was taken from 240th Avenue / CSAH 7 looking northwest. Existing conditions are shown on Image 4 and the visual rendering is shown on Image 5.

Photo location two was taken from 140th Street, just west of CSAH 7 looking southwest. Existing conditions are shown on Image 6 and the visual rendering is shown on Image 7.

Photo location three was taken from U.S. Highway 59 near the city of Garvin, looking northwest. Existing conditions are shown on Image 8 and the visual rendering is shown on Image 9.

Image 4: Existing Conditions from 240th Ave to Northwest

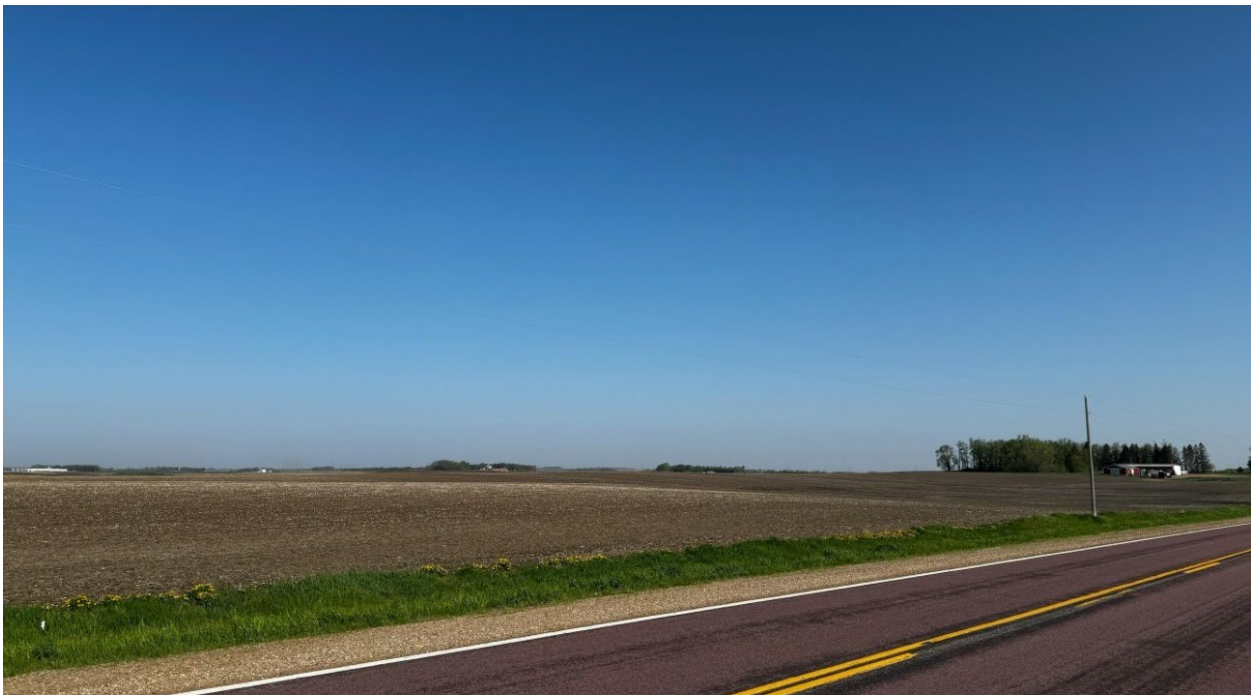


Image 5: Visual Rendering of Project from 240th Avenue to Northwest

Image 6: Existing Conditions from 140th Street to Southwest

Image 7: Visual Rendering of Project from 140th Street to Southwest

Image 8: Existing Conditions from U.S. Highway 59 to Northwest

Image 9: Visual Rendering of Project from U.S. Highway 59 to Northwest

Operation of the Project will require wildlife-friendly down lit security lighting at the Project substation and there will be wildlife-friendly down lit, switch controlled lights at each inverter for repair purposes. Impacts to light-sensitive land uses are not anticipated given the rural Project location coupled with minimal required lighting for operations.

5.2.2 Cultural Values

Cultural values include those perceived community attitudes or beliefs that provide a framework for community unity. The Project is in Lyon County, Minnesota. According to the U.S. Census Bureau QuickFacts website, the majority of the population in Lyon County identifies as white with an ethnic background of European origin, not Latino or Hispanic (U.S. Census Bureau, 2020a). No cultural community events were identified within one mile of the Project Area, based on publicly available information and the Lyon County website (Lyon County, 2024a).

Other community events near the Project are more centered around seasonal events, national holidays, and municipal events than to those based in ethnic heritage. Examples of regional cultural events include summertime events like the Balaton Fun Fest and the Lyon County Fair (Balaton, 2023; Lyon County, 2024b). A more detailed discussion of these events is presented in Section 5.3.4 (Tourism).

5.2.2.1 Impacts and Mitigation

The Project is not anticipated to impact or alter the work and leisure pursuits of residents in such a way as to impact the underlying culture of the area. Construction and operation of the Project would not impact public participation in the regional community events noted above, as the Project Area is located outside of municipal areas and no cultural or historic sites will be impacted. Therefore, no impacts to cultural values are anticipated and no mitigation measures specific to cultural values are proposed. See Section 5.4 for additional information on cultural and historic resources in the Project vicinity.

5.2.3 Displacement

There are two participating residences with clustered farm outbuildings within the Project Area; one within the southwestern portion of the Project Area, and one within the southeastern portion of the Project Area which is unoccupied. These two residences correspond with RE1 and RE2 as shown in Table 5.2-1. In addition, there are 18 other residences with clustered farm outbuildings that surround the Project Area boundary on all sides. The residences in Garvin are separated from the Project Area by an existing railroad track on the north edge of the city.

5.2.3.1 Impacts and Mitigation

The two existing residences with clustered farm outbuildings that are within the Project Area have been excluded from the Project Footprint. Coneflower has coordinated with the landowners of the two residences and sited solar facilities at least 200 feet from these residences. Both landowners are participating in the Project. Because none of the structures in the Project Area will be removed, there will not be any displacement; as such, no mitigation is proposed.

5.2.4 Environmental Justice

The MPCA Environmental Justice (EJ) policy and purpose refers to the fair treatment and meaningful involvement of communities of color, Indigenous communities, and low-income communities, to the enjoyment of a healthy environment and to fair treatment with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (MPCA, n.d.). Minority and/or low-income communities are often concentrated in small geographical areas within the larger geographically and/or economically defined population. Minority communities and low-income communities may constitute a very small percentage of the total population and/or geographical area (EPA, 1998).

The MPCA maintains the Minnesota Areas of Environmental Justice Concern interactive map, which identifies areas of EJ concern within the State of Minnesota by census tract (MPCA, 2021). The MPCA uses U.S. Census Bureau's 2023 Cartographic Boundary File, the five-year (2017-2021) American Community Survey data, and MnDOT's Tribal Government data in preparing the map. A census tract is considered an area of concern if it has higher concentrations of low-income residents, people of color, or people with limited English proficiency. The Project Area is in census tract 27083360600. The MPCA includes four criteria: at least 35% of people reported income of less than 200% of the federal poverty level, 40% or more people of color, federally recognized Indian tribes, and at least 40% of people have limited English proficiency.[4]

The MPCA refers to the U.S. Census Bureau and U.S. Department of Health and Human Services (HHS) to define poverty, a threshold which is calculated using a family's household size and composition. In 2021, an individual in the U.S. was considered to be in poverty with an income of $13,788 or less, according to the 2021 Poverty Threshold Data Table (U.S. Census Bureau, 2021)[5], therefore, 200% of the poverty level would be calculated at $27,576 per person.

Based on the MPCA EJ criteria, the Project is not within any MPCA-identified areas of concern for Environmental Justice as shown in Table 5.2-2.

[4] Minn. Stat. § 216B.1691, subd. 1(e) defines an "environmental justice area" as an area in Minnesota that, based on the most recent data published by the U.S. Census Bureau meets one or more of the following criteria: 1) 40% or more of the area's total population is nonwhite; 2) 35% or more of households in the area have an income that is at or below 200% of the federal poverty level; 3) 40% or more of residents over the age of 5 have limited English proficiency; or 4) the area is located within Indian country, as defined in United States Code, title 18, section 1151.

[5] Determining the poverty level in 2021 corresponds to the timeframe (2017-2021) used by the MPCA to identify the federal poverty level for EJ purposes.

Table 5.2-2
MPCA Environmental Justice Areas of Concern

EJ Criteria	Census Tract 27083360600 (percent)
At least 35% of people reported income less than 200% of the federal poverty level	21.56% (+/- 7.28% margin of error) reported income less than the 200% federal poverty level.
40% or more people of color	4.75% (+/- 1.77% margin of error) are people of color.
Federally recognized Indian Tribes	0% (no federally recognized Indian Tribes)
At least 40% of people have limited English proficiency	0.67% (+/- 0.51% margin of error) are reported as residents with limited English proficiency

Note: the margin of error is accounted for in determining environmental justice areas of concern. For example, if a census tract has an estimated population of 36% people of color with a 5% margin of error, then the MPCA would count that census tract as an environmental justice area of concern.

Marshall and Tracy are the only two areas of increased concern for EJ identified in Lyon County. Marshall is about 12 miles north of the Project Area and Tracy is about six miles east of the Project Area.

In addition to the screening criteria put forth by the MPCA, Coneflower used the EPAs Environmental Justice Screening and Mapping Tool (EJScreen) to review the socioeconomic and environmental information by census tract, township, county and state. EJScreen uses publicly available data to map and report environmental and socioeconomic indicators into EJ/supplemental indexes that summarize how environmental and socioeconomic indicators come together in the same location. Table 5.2-3 summarizes results of the EJScreen using the four environmental justice criteria.

Table 5.2-3
EPA EJScreen Results

Criteria	Census Tract 27083360600	Custer Township	Lyon County	Minnesota
Low Income	21%	32%	32%	23%
People of color	6%	9%	18%	21%
Federally recognized Indian Tribes	No	No	No	Yes[1]
Limited English proficiency	0%	0%	2%	2%

[1] There are 11 federally recognized Indian Tribes in Minnesota.

Combined, the environmental justice screening criteria put forth by the MPCA and the data embedded in the EJScreen report indicate there are no environmental justice communities within or adjacent to the Project Area.

Section 5.2.11 (Socioeconomics) summarizes population, housing, income, and poverty for the township, county, and state levels.

5.2.4.1 Impacts and Mitigation

No measures to mitigate environmental justice impacts are needed because the Project is not within an EJ area of concern and there is no indication that any minority or low-income

population is concentrated within or adjacent to the Project Area. Therefore, disproportionate impacts on EJ areas of concern are not anticipated.

The Project is designed to be beneficial to the landowners, local governments, and communities. Coneflower Solar has reached out to participating and non-participating landowners and the local community to ensure they can work together to build a solar project that benefits everyone. Economic benefits include financial benefits to participating landowners as they execute voluntary lease or easement agreements with Coneflower Solar. The local and surrounding communities will benefit from increased demand for lodging, food services, fuel, transportation, construction materials, and other general supplies during the construction phase of the Project. During operation of the Project, Coneflower will provide nearly $18 million dollars in production taxes to Custer Township and Lyon County over the life of the Project. Additionally, this Project furthers the transition from fossil fuels to renewable energy sources with far less pollution and harm to the environment.

5.2.5 Public Health and Safety

Public health and safety issues during construction and operations include unauthorized entry to the Project, risks from existing potential sources of contamination, risks associated with the use and disposal of hazardous materials, and worker injuries due to falls, equipment use, and electrocution.

As mentioned in Section 4.1.4 (Access Roads), the access points to the Project from existing county roads/new access roads will have locked gates to prevent unauthorized entry.

A Phase I Environmental Site Assessment (Phase 1 ESA) was conducted within the Project Area for indications of current and historical recognized environmental conditions (RECs). The Phase I ESA revealed no RECs within the Project Area. The nearest REC is the D&G Demolition Landfill, located about 0.4 mile south of the Project Area. Additionally, no Controlled Recognized Environmental Conditions (CRECs), and no Historical Recognized Environmental Conditions (HRECs) were identified within the Project Area.

Data from the EPA and MPCA were also reviewed to identify regulated facilities and sites within the Project Area. A review of the EPA's MyEnvironment website indicated there are four records within one mile of the Project Area including one Air Pollution (ICIS-AIR) site, one Hazardous Waste site (RCRA), and two Water Dischargers National Pollutant Discharge Elimination System (NPDES) sites.

No EPA regulated sites were identified within the Project Area.

A review of the MPCA's What's in My Neighborhood website indicated there are 64 records within one mile of the Project Area and include the following sites:

- 1 Air quality site;
- 1 Hazardous waste, minimal quantity generator site;
- 1 Hazardous waste site;
- 1 Permitted solid waste facility site;
- 1 Wastewater, industrial NPDES/SDS permit site;

- 1 Wastewater, municipal NPDES/SDS permit site;
- 1 Petroleum remediation, contaminated soil treatment facility site;
- 2 Petroleum remediation, leak sites;
- 2 Aboveground storage tank sites;
- 4 Underground storage tank sites;
- 12 Solid waste sites;
- 12 Construction stormwater sites;
- 12 Feedlot sites; and
- 13 Industrial stormwater sites.

No MPCA regulated sites were identified within the Project Area.

5.2.5.1 Impacts and Mitigation

Construction and operation of the Project will have minimal impacts on the health and safety of the general public. As described in Section 4.1.5 (Security Fencing and Lighting), perimeter fencing will be installed around the solar arrays, Project Substation, and O&M Building; and each access road will have lockable gates to prevent unauthorized access to the Project facilities. Only authorized personnel will be allowed entry. Signs will be posted to warn unauthorized persons not to enter fenced areas. Additionally, signage at the Project Substation will warn of high voltage equipment. These precautions should prevent accidental electrocution from happening to someone who may have otherwise unintentionally wandered onto the site. All equipment, tools, and substances that will be used for the Project will be properly stored, maintained, and monitored.

Grounding of electrical equipment, lines, and other applicable infrastructure will be completed to federal and state standards. Inspection of grounding will be done prior to operation. Any changes or failures in grounding electrical infrastructure will be identified through the Project's active monitoring system.

Health and safety concerns that may occur during construction can include injuries due to falls, equipment malfunction and/or misuse, and electrocution. To prevent health and safety incidents, Coneflower Solar requires all parties involved with the Project to implement well-developed, comprehensive health and safety plans and protocols. While difficult to quantify, during construction an emergency incident or accident may occur and would be addressed as needed by Project personnel and local responders (as required). Workers will have, or be provided, proper training to successfully complete required construction activities while reducing risks associated with it.

Based on documented environmental conditions in the Phase 1 ESA and a review of environmental records in the EPA and MPCA databases, there are no environmental records located within the Project Area. A number of sites are located in the vicinity of the Project Area, though none will be impacted by the Project.

A Spill Prevention, Control, and Countermeasure (SPCC) Plan will be required during construction and operation of the Project. During construction, spill-related impacts are primarily associated with fuel and oil storage, equipment refueling, and equipment

maintenance. Once construction is complete, hazardous material storage will be associated with the main power transformers located in the Project Substation, as well as for oil-filled operational equipment (inverter/transformer) or oil storage at the O&M Building. To avoid potential impacts to water and soil resources, all hazardous materials stored outdoors will be stored within secondary containment. Secondary containment will prevent impacts and will contain leaks in the event that they occur.

The SPCC Plan will detail the appropriate storage, cleanup, and disposal of oil products associated with the Project. The transformers will be properly contained per EPA requirements. Any monitoring, transportation, or handling of materials will be conducted by trained and qualified personnel utilizing established procedures and proper equipment and in accordance with applicable laws. The SPCC will be kept on-site and will meet all EPA requirements. Because of its specificity, a separate SPCC will be completed prior to construction that details construction-related best practices.

Coneflower Solar will coordinate with all emergency and non-emergency response teams for the Project, as needed. Emergency services for responding to public health and safety emergencies are further described in Section 5.2.8.2 (Emergency Services).

5.2.6 EMF

EMF are present around any electrical device. Electric fields arise from the voltage or electrical charges while magnetic fields arise from the flow of electricity or current that travels along transmission lines, power collection lines, substation transformers, house wiring, and electrical appliances. The intensity of the electric field is related to the voltage of the line and the intensity of the magnetic field is related to the current flow through the conductors (wire). EMF can occur indoors and outdoors.

The sources of EMF related to the Project include electrical collection lines and the transformers installed at each inverter. EMF from electrical collection lines and transformers dissipates rapidly with distance from the source (National Institute of Environmental Health Sciences [NIEHS], 2002). If a 345 kV gen-tie transmission line is required in the Garvin Scenario, EMF specific to this transmission line will be covered in the Route Permit. Generally speaking, higher voltage electrical lines produce higher levels of EMF at the source before dissipating with distance. Solar arrays generate EMF in the same extremely low frequency range as electrical appliances and wiring found in most homes and buildings (NIEHS, 2002).

The internationally accepted guideline for the general public exposed to electric fields is 4.2 kV per meter (kV/M) and 833 milliGauss (mG) for magnetic fields (NIEHS, 2002). There are presently no Minnesota regulations pertaining to magnetic field exposure. There also is no federal standard for transmission line electric fields. The Commission, however, has imposed a maximum electric field limit of 8 kV/m measured at one meter (3.28 feet) above the ground.[6] The standard was designed to prevent serious hazards from shocks when touching large objects parked under AC transmission lines of 500 kV or greater.

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[6] In the Matter of the Route Permit Application for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota, Docket No. ET-2/TL-08-1474, Order Granting Route Permit (adopting Administrative Law Judge Findings of Fact, Conclusions and Recommendation at Finding 194 [April 22, 2010 and amended April 30, 2010]) (September 14, 2010).

For a utility-scale solar project, the Commission concluded that, "based on the most current research on electromagnetic fields, and the distance between the [Elk Creek] Project and houses (the nearest residence was reported to be 275 feet from the solar arrays), the [Elk Creek] Project will have no impact to public health and safety due to EMF or magnetic fields."[7]

Additionally, characterization of EMF in a 2015 study revealed that the levels of EMF near solar energy facilities are lower than the average exposure levels for most Americans (Tell et al., 2015). Another study by Guldbert (2012) showed that EMF levels were zero at night when solar panels were not operating and that EMF levels 50 feet from the solar arrays were less than 0.005 kV/m and 0.02 mG. This frequency is similar to or less than EMF frequencies generated by typical electrical appliances and wiring that are used in many homes and buildings.

5.2.6.1 Impacts and Mitigation

EMFs associated with the Project are not expected to have an impact on public health and safety.

The 34.5 kV underground power cable to be used in the proposed Project collection system is shielded, meaning the energized conductor is located at the center of the cable and is surrounded by a grounded metallic shield. This construction confines the electric field to the interior of the cable. Thus, no detectable electric field is produced by the cable or by any other components of the collection system. Additionally, the transformers are enclosed in a grounded metal case (shielded), they typically do not emit much EMF.

The nearest occupied residence to solar arrays is 323 feet and 677 feet to the nearest electrical collection line and inverter/transformer (see Table 5.2-1 in Section 5.2.1 [Aesthetics] and Figure 4). At these distances, any EMF generated from these sources is anticipated to be minimal based on the studies by Tell (2015) and Guldbert (2012), and recent Commission findings.

Stray voltage is often a concern in agricultural areas, particularly dairy farms. Stray voltage is an unintended transfer of electricity between two grounded objects and is typically caused by improperly grounded electrical equipment in farm buildings or by a faulty utility connection. All electrical components in the Project, including inverters and transformers, will be grounded in accordance with National Electric Safety Code. Soil resistivity measurements will be taken on site as part of the Project's geotechnical analysis, and that data will be used to help design grounding systems. For these reasons, the potential for stray voltage as a result of the Project will be negligible. Should a fault occur during operation of the Project, it would be quickly identified by Project monitoring systems and corrected.

[7] In the Matter of the Application of Elk Creek Solar, LLC for a Site Permit for the up to 80- Megawatt Elk Creek Solar Project in Rock County, Minnesota, Docket No. IP-7009/GS-19-495, Order Adopting Findings of Fact, Conclusions of Law, and Recommendations, Granting Certificate of Need, And Issuing Site Permit (December 31, 2020) (adopting the Administrative Law Judge's Findings of Fact, Conclusions, and Recommendation at Finding 101).

5.2.7 Noise

Noise is measured in units of decibels (dB) on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight." The A-weighted decibel scale (dBA) is used to reflect the selective sensitivity of human hearing. This scale puts more weight on the range of frequencies that the average human ear perceives, and less weight on those that we do not hear as well, such as very high and very low frequencies. Common sound sources within an agricultural and/or rural environment include, but are not limited to, sound from farm equipment such as tractors and combines, sound generated from traffic on roadways, sounds from birds, and wind rustling through the vegetation. According to ANSI/ASA S12.9-2013/Part 3, rural residential areas have a typical daytime noise level of 40 dBA and a typical nighttime noise level of 34 dBA. A comparison of typical noise-generating sources is outlined below in Table 5.2-4 (MPCA, 2008).

Table 5.2-4
Common Noise Sources

Sound Pressure Level (dBA)	Common Noise Source
110	Rock band at 5 m
100	Jet flyover at 300 m
90	Gas lawn mower at 1 m
85	Food blender at 1 m
75	Shouting at 1 m
70	Vacuum cleaner at 3 m
60	Normal speech at 1 m
55	Large business office
50	Dishwasher in next room, quiet urban daytime
40	Library, quiet urban nighttime
30	Bedroom at night
20	Quite rural nighttime
0	Threshold of hearing

The MPCA has the authority to adopt noise standards pursuant to Minnesota Statute Section 116.07, subd. 2. The adopted standards are set forth in Minnesota Rule Chapter 7030. The MPCA standards require A weighted noise measurements. Different standards are specified for daytime (7:00 AM to 10:00 PM) and nighttime (10:00 PM to 7:00 AM) hours. The noise standards specify the maximum allowable noise volumes that may not be exceeded for more than 10 percent of any hour (L_{10}) and 50 percent of any hour (L_{50}). Household units, including farmhouses, are included in Noise Area Classification 1. Table 5.2-5 shows the MPCA state noise standards.

Table 5.2-5
State Noise Standards - Hourly A-Weighted Decibels

Noise Area Classification	Daytime (7:00 a.m. – 10:00 p.m.)		Nighttime (10:00 p.m. – 10:00 a.m.)	
	L_{10}	L_{50}	L_{10}	L_{50}
1 – Residential	65	60	55	50
2 – Commercial	70	65	70	65
3 - Industrial	80	75	80	75
Source: Minn. R. 7030.0040				

Coneflower identified 108 noise sensitive areas/receptors (NSAs; residences) within 3,200 feet of the Project Area. The NSAs were initially identified using aerial imagery then field-verified to determine their occupancy status. The NSAs are categorized by distance from the Project Area as shown in Table 5.2-6. Appendix G includes a map and detailed table of each receptor.

Table 5.2-6
NSA Distance Distribution

Distance from Project Area	# of NSAs
<50'	3
50' - 100'	3
100' - 200'	7
200' - 400'	7
400' - 800'	18
800' - 1600'	48
1600' - 3200'	22

5.2.7.1 Impacts and Mitigation

During construction, noise will be emitted by the construction vehicles and equipment. The amount of noise will vary based on what type of construction is occurring at the Project on a given day. Construction associated noise will likely be perceptible at adjacent residences (see Section 5.2.1 [Aesthetics] and Figure 4 for locations). The following noise levels are anticipated during construction:

- Grading equipment, bobcats, and other construction equipment are anticipated to emit noise between 76-85 dBA at 50 feet (U.S. Department of Transportation [USDOT], 2017). Noise associated with these types of equipment will primarily occur during the initial site set up – grading and access road construction which is expected to last approximately four weeks.
- Coneflower anticipates pile driving of the rack supports to create the most noise measured at 101 dBA at 50 feet (USDOT, 2017). Installation of each rack support takes between 30 seconds to two minutes depending on the soil conditions; Coneflower anticipates this activity will take up to six weeks across the site.
- Installation of the solar panels on the tracking would emit noise levels similar to general construction equipment described above. Typically, a forklift is used to place individual panels on the tracking rack system. The noise from any of these construction activities would dissipate with distance and be audible at varying decibels, depending on the locations of the equipment and receptor.

Note that construction activities will be sequenced; site preparation may occur at a portion of the site while pile driving occurs at a different location. As stated above, these noise impacts will be temporary and limited to daytime hours.

The main source of noise from the Project during operation will be from the inverters, which include the air conditioners housed in each, and to a lesser extent from the transformers and rotation of the tracking system. Table 5.2-7 summarizes the anticipated distance to reach the most stringent MPCA noise standard of 50 dBA from the inverters and trackers under

consideration for use at the Coneflower Project. Table 5.2-7 also provides the dBA at 50 feet so noise levels can be calculated at greater distances.

Table 5.2-7
Inverter and Tracker Noise Levels

Facility Type	Equipment Model	Distance to 50 dBA	dBA at 50 feet
Inverter/Transformer	Sungrow SG4400UD-MV-US	141	59.0
Tracker	Nextracker NX Horizon	29	45.0

The results of noise modeling conducted by technology manufactures outlined in Table 5.2-7 show that noise levels will be less than 50 dBA at 141 feet from the inverter. Similarly, noise levels will be less than 50 dBA at 29 feet from the trackers. As such, the Project has been designed to meet the nighttime L50 dBA noise standard, as the closest residence to the facility is 323 feet away from the edge of the nearest solar array. Further, because the inverters are typically located within the middle of the solar arrays, the noise levels from Project equipment are not expected to be discernible from background noise levels at homes in the vicinity. The distance of the nearest inverter to a residence is 677 feet.

During construction, Coneflower plans to limit construction to daylight hours to the extent practicable. No noise impacts are anticipated during operation; therefore, no mitigation measures are proposed.

5.2.8 Public Services and Infrastructure

Public services are those typically provided by a government entity to its citizens and those services are used to benefit public health and safety.

5.2.8.1 Transportation

The Project is adjacent to two major roads. U.S. Highway 14 bisects the Project Area for approximately 2.8 miles, and U.S. Highway 59 parallels a portion of the eastern Project Area for approximately 0.5 mile. Other roads that surround the Project Area are county or township roads. The nearest road to the northern limits of the Project Area is 150th Street and the nearest road to the southern Project Area is 1st Street/265th Avenue. The Project Area is bordered on the east by U.S. Highway 59 and on the west by County Road 63.

MnDOT conducts traffic counts on roads in Minnesota. The functional capacity of a two-lane paved rural highway is in excess of 5,000 vehicles per day, or Annual Average Daily Traffic (AADT). Based on 2021 data, the highest existing AADT for roads near the Project Area is 6,014 vehicles per day along U.S. Highway 59; traffic volumes along county and township roads range from 38 to 758 vehicles per day (MnDOT, 2024a). Traffic volume data for roads near the Project Area are provided in Table 5.2-8 and displayed on Figure 9 – Existing Infrastructure and AADT.

Table 5.2-8
Annual Average Daily Traffic in the Project Vicinity

Roadway	Year	AADT Traffic Volume Total
U.S. Highway 59 *South of US Highway 14*	2021	6,014
U.S. Highway 59 *North of U.S. Highway 14*	2022	2,597
U.S. Highway 14 *West of 240th Ave / CSAH 7 and East of 2nd Street*	2022	1,717
U.S. Highway 14 *West of U.S. Highway 59 and East of 240th Ave / CSAH 7*	2022	1,496
CSAH 7 *North of U.S. Highway 14*	2022	758
CSAH 7 *South of U.S. Highway 14*	2018	205
County Road 67 / 250th Ave	2022	55
County Road 63 / 230th Ave	2022	38

There will be 28 access points initially constructed under the MISO Scenario and 25 access points under the Garvin Scenario. The access points will be constructed from public roads on temporary and permanent access roads throughout the Project Area. Temporary access roads will only be used to access the two temporary laydown yards that are outside the perimeter fence. All other access points with access roads leading to solar panels, the Project Substation, and the O&M Building will be permanent for the life of the Project. Coneflower anticipates removing two access points under each Scenario for a total of 26 permanent access points under the MISO Scenario and a total of 23 permanent access points under the Garvin Scenario. Public roads used for access road entrance points are located along U.S. Highway 14, CSAH 7, County Road 63, and 140th Street. There are no AADT volumes for 140th Street within the Project Area. The nearest traffic volume total was west of CSAH 5 and was 48 in 2022.

No railroads are located in the Project Area. One railroad is mapped adjacent to the Project's southern boundary near the City of Garvin, owned by Rapid City, Pierre & Eastern Railroad, Inc. (RCPE) and generally runs east to west. One other railroad owned by BNSF Railway is located within 10 miles of the Project Area, generally running southwest to northeast. Both railroad lines are active (MnDOT, 2024b). No Project infrastructure is designed to enter, cross, occupy, or restrict railroad property or ROWs.

There are no airports, heliports, or runways within or adjacent to the Project Area. The nearest facility is the Tracy Municipal Airport located 7.5 miles east of the Project Area (MnDOT, 2024c). The Tracy Municipal Airport has three runways in operation with one being a concrete runway and two being grass runways (Tracy, n.d.). The area influenced by airport rules and regulations can extend several miles from the airport boundary (MnDOT, 2024c). The area of influence at the Tracy Municipal Airport surrounds the airport in an approximate 2.1 mile buffer (MnDOT, 2024d). The Project Area does not fall within the Tracy Municipal Airport area of influence.

In addition, Coneflower Solar used the FAA's Obstruction Evaluation/Airport Airspace Analysis Notice Criteria Tool to determine if further aeronautical study or FAA filing is needed. The tool generated a "you do not exceed Notice Criteria" result for the solar panels, construction cranes, electric transmission poles/towers, or communications towers up to 150 feet. As a result, no FAA 7460-1 forms need to be filed for the Project and no mitigation is needed or planned.

5.2.8.2 Emergency Services

The Project is in rural Lyon County and has a population density of 35.4 persons per square mile of land area (U.S. Census Bureau, 2020b). If emergency personnel were needed at the Coneflower Solar Project, multiple agencies would likely respond, depending on the situation. These include the Lyon County Sheriff and city of Tracy and Tyler police departments, and city, community, and volunteer fire departments in Garvin, Lynd, Tyler, and Walnut Grove, all of which are within 15 miles of the Project.

Ambulance response is provided by regional and local ambulance services. The Balaton Fire Department Ambulance Service for Lyon County provides response services to a 50-square-mile region surrounding Balaton, Minnesota. The cities of Tracy and Tyler also provide ambulance services (Minnesota Emergency Medical Services Regulatory Board, 2013).

Hospitals near the Project Area include Avera Marshall Regional Medical Center (Lyon County) and the Murray County Medical Center in Slayton (Murray County). Smaller medical clinics or medical centers in the area include Sanford Health Medical Center in Tracy, Avera Medical Group in Tyler, and an eye clinic and dental office.

5.2.8.3 Local Utilities

Most rural residences in Lyon County are supplied water by wells (see Section 5.5.3 [Geology and Groundwater Sources]) (MDH, 2024). Sewage is serviced by residential septic tanks and/or drain fields.

5.2.8.4 Regional Utilities

The National Pipeline Mapping System (NPMS) was searched to assess whether pipelines are present in the Project Area (NPMS, 2024). One natural gas transmission pipeline is located within the Project Area. The Northern Border Mainline – Sask Border T generally travels southeast to northwest and is operated by Northern Border Pipeline Company. Two other natural gas transmission pipelines are located northwest of the Project within a one-mile buffer.

There are two overhead transmission lines located in the Project Area. One is a 69 kV line generally running north to south along County Road 67, U.S. Highway 14, and 260th Avenue. The second line is a 115 kV transmission line running east to west along 140th Street adjacent to and bisecting the northern boundary of the Project Area (MISO Scenario POI). Other transmission lines within the five-mile buffer are primarily located to the north and west (see Figure 9 – Existing Infrastructure and AADT).

Xcel Energy is proposing a new transmission line and substation east of the Project. The MNEC Project will include a new 345 kV double-circuit transmission line between the existing Sherco Substation in Becker, Minnesota and terminating with a new Garvin Substation approximately half mile east of the Project. Xcel Energy is proposing two transmission line routes near the Coneflower Solar Project. The Purple Route is immediately adjacent to the portions of the eastern Project Area.

5.2.8.5 Public Communications

Landline telephone service in the area is provided to farmsteads, rural residences, and businesses by Frontier Communications of Minnesota and Woodstock Telephone Co (DOC, 2023). Mobile service in the Project Area is provided by many carriers including AT&T, T-Mobile, and Verizon. Cable service providers include Bluepeak, Midcontinent Communications, Spectrum, and Vast Broadband. Other services, such as fixed wireless, satellite, and DLS, operating in Lyon County are CenturyLink, Consolidated Communications, Frontier, HughesNet, LTD Broadband, Midcontinent Communication, MVTV Wireless, Starlink, T-Mobile, Verizon, Viasat, Inc., Woodstock Communications, and Woodstock Wave (Minnesota Department of Employment and Economic Development [MNDEED], 2023a).

Minnesota is prioritizing border-to-border high-speed internet access throughout the state. The Border-to-Border Broadband Development Grant Program was created in Minn. Stat. § 116J.395 in 2014. The legislative focus of this grant program is to provide state resources that help make the financial case for new and existing providers to invest in building broadband infrastructure to unserved and underserved areas of the state. Based on data from the MNDEED, there are areas of the Project Area identified as Unserved (no wireline broadband of at least 25 megabytes per second (Mbps) download and three Mbps upload [25M/3M]) while other areas are served by fiber broadband speeds of >25MB/3M. Some areas in Lyon County are identified as Unserved (wireline broadband of less than 25M/3M) or Underserved areas (wireline broadband of at least 25M/3M but less than 100M/20M) (MNDEED, 2023b).

5.2.8.6 Emergency Communications

There are three towers that are a part of the Allied Radio Matrix for Emergency Response (ARMER) in Lyon County (Minnesota Department of Public Safety, 2018). These ARMER towers are a part of Minnesota's Statewide Communication Interoperability Plan, which aims to improve communication for emergency responders. The ARMER radio system operates by line-of-sight, talking to other ARMER towers. In order for the system to operate effectively, multiple towers are needed to produce a solid blanket of coverage. The system can be interrupted if tall objects are proposed within the line-of-sight, typically at or near the top of a tower over 150 feet tall. There are no ARMER towers within one mile of the Coneflower Solar Project; the nearest ARMER tower is located in the city of Marshall, which is 6.6 miles northwest of the Project Area (Minnesota Department of Public Safety, 2018).

5.2.8.7 Regional Landfill

The Lyon County's Regional Landfill serves eight counties as a location for solid waste disposal, a collection point for recycling of bulky items and materials, and disposal of construction and demolition waste. The landfill is located about 12 miles southwest of Marshall (Lyon County,

2024b). The listed landfill design capacity is 2,359,523 tons (EPA, 2024b). Details of landfill services and capacity are addressed in the Decommissioning Plan (Appendix F).

5.2.8.8 Impacts and Mitigation

Transportation

Access to the Project will be via existing state, county, and township roads. With the limited possible exception of minor field access or driveway changes depending on final design, no changes to existing roadways will occur. The roads used for access to the Coneflower Solar Project are shown on Figure 9 (Existing Infrastructure and AADT). During the construction phase, temporary impacts are anticipated on some public roads within the vicinity of Project facilities, primarily through additional traffic and slow-moving construction vehicles. Slow-moving vehicles during construction have the potential to cause some delays, but the potential delays will be minimal and occur during a relatively short period of time. Additionally, Coneflower will have signage on local roads directing Project deliveries to the appropriate area as well as signage for the general public about construction traffic.

Construction traffic will use the existing roadway system to access the Project facilities and deliver construction materials and personnel. Construction is anticipated to take approximately 18 months and is expected to begin in Q2 2026. During this time, traffic is estimated to be approximately 10-20 truck trips/day during site preparation and solar panel installation. It is anticipated that there will be approximately 200 workers during peak construction with 150-200 employee vehicles being used during construction. Semi-truck delivery will vary per day depending on time of construction and delivery timeline of equipment.

Overweight or oversized loads are unlikely. If they are required, Coneflower will obtain the appropriate approvals from state and local agencies prior to construction. While construction will create an increase in local traffic, the increase will not have an impact on the functional capacity of the local roads. For purposes of comparison, the functional capacity of a two-lane paved rural highway is in excess of 5,000 vehicles per day (AADT). The increased traffic may be perceptible to area residents, but the slight increase in volume is not expected to affect traffic function. Slow-moving construction vehicles may also cause delays on smaller roads, similar to the impact of farm equipment during planting or harvest. However, these delays should be minimal for the relatively short construction delivery period.

After construction is complete, traffic impacts during the operations phase of the Project will be negligible. A small maintenance crew driving through the area in pickup trucks on a regular basis (three truck trips/day) will monitor and maintain the facilities as needed, but traffic function will not be impacted as a result.

No railroads are located within the Project Area and therefore will not be impacted. The Project is designed to avoid the RCPE railroad located adjacent to the southern boundary by utilizing setbacks and avoiding access road crossings, which will mitigate any potential impact.

No impacts on Federal Aviation Administration (FAA)-registered airports would occur as a result of the Project. The nearest airport is the Tracy Municipal Airport about 7.5 miles east of the Project Area, and the airport area of influence is about 2.3 miles at its nearest to the

Project Area boundary. In addition, the Project does not require notice to the FAA as detailed in Section 5.2.8.1. Therefore, no mitigation measures are proposed.

Emergency Services

Coneflower is gathering information to coordinate with all emergency and non-emergency response teams for the Project, including the Lyon County Sheriff, city police departments and city, community, and volunteer fire departments in Balaton, Tracy, and Tyler, and ambulance services from Balaton, Tracy, Tyler, and 911 services. The type and number of responding agencies will depend on the incident requiring emergency services. Coneflower will develop an Emergency Action Plan that outlines local contacts (first responders and internal operation and maintenance staff) and emergency procedures for evacuation, fire response, extreme weather, injury, and criminal behavior. Additionally, construction will comply with local, state, and federal regulations regarding installation of the Project facilities and standard construction practices. Established industry safety procedures will be followed during and after construction of the Project; these include clear signage during all construction activities and fencing of all Project facilities to prevent public access.

Local Utilities

Coneflower will coordinate with Gopher State One Call before and during construction to fully understand infrastructure locations and safety concerns and to avoid possible structural conflicts. Coneflower will also conduct an American Land Title Association survey to identify the locations of underground utilities. Final design will minimize and avoid impacts to underground utilities; if conflicts are unavoidable Coneflower will coordinate with the utility to develop an approach to reroute or otherwise protect the utility. Underground utilities will be marked prior to construction start.

Regional Utilities

Coneflower will continue to monitor Xcel Energy's MNEC transmission line docket. Should the Commission approve the Purple Route or an alternate route segment within the Project Area, Coneflower will coordinate with Xcel Energy on the location of their easements and potential modifications to the design of the Project. The Project will not impact any other regional utilities such as existing and future transmission lines and substations or fiber optic networks; as such, no mitigation is proposed. As discussed in Section 4.3.1 (Setbacks), Project facilities will be setback at least 25 feet from the existing pipeline corridor that runs through the Project Area.

Public Communications

The Project will not impact existing utilities such as public communications; as such, no mitigation is proposed.

Emergency Communications

The nearest ARMER tower in the Project vicinity is 6.6 miles northeast of the Project Area. The Coneflower Solar Project will not impact this communication system as Project facilities are proposed well below the typical height of a tower and line-of-sight near the top of these towers (i.e., greater than 150 feet above ground). Coneflower anticipates the tallest facilities

will be the Project Substation with equipment (a dead-end transmission line structure) ranging in height from 80-120 feet. Taller construction equipment, such as medium-duty cranes, will be present for limited durations during construction and will be mobile, avoiding any potential impacts to public utilities. As such, no mitigation is necessary.

Regional Landfill

Details of landfill services and capacity are addressed in the Decommissioning Plan (Appendix F).

5.2.9 Land Use and Zoning

5.2.9.1 Land Use

The Project is located within a lightly populated rural area in Lyon County. Land use in the vicinity of the Project is predominantly agricultural as summarized in Table 5.5-7 in Section 5.5.6 [Vegetation] and shown on Figure 10 (Land Cover). Farmsteads are sparsely scattered in this area of the county, and generally situated near public roads. Several farmsteads and residences are located within and near the Project Area. Based on review of available aerial photography and field verification, there are two residences within the Project Area (one of which is occupied) and 17 occupied residences adjacent to the Project Area; however, the Project will not cause displacement or relocation of residences (see Section 5.2.1 [Aesthetics] and Figure 4).

5.2.9.2 Zoning

As noted in Section 2.5.1 (Local Approvals), the Site Permit supersedes and preempts zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose government per Minn. Stat. § 216E.10, subd. 1. However, the Commission will consider potential impacts to local land use.

Available local zoning ordinances within and adjacent to the Project Area were reviewed for the City of Garvin, Custer Township, and Lyon County. There is no publicly available data for the city or the townships, and the Project Area is outside of Garvin's municipal boundaries. Lyon County has jurisdiction over all areas of Lyon County outside the incorporated limits of municipalities (Lyon County, 2012). Therefore, Lyon County has jurisdiction over the Project. Based on Lyon County zoning data, the Project is zoned as Agricultural.

As noted in Article 21 (Renewable Energy Ordinance; REO), of the Lyon County Zoning Ordinance development of large solar energy systems within the Agricultural District is a conditionally permitted use (Lyon County, 2015). The REO applies to solar energy systems that are not otherwise subject to siting and oversight by the State of Minnesota under the Minnesota Power Plant Siting Act (i.e., those less than 50 MW; Minn. Stat. Ch. 216E).

Future land use within the Project Area has been designated as an Agricultural Preservation Area (Lyon County, 2002a). The Lyon County Zoning Map does not show urban growth boundaries or orderly annexation areas associated with Garvin or Balaton (Lyon County, 2012).

5.2.9.3 Comprehensive Plans

A comprehensive plan is a guide for future development in the applicable local government's jurisdiction and generally includes policies, goals, and plans for private and public land and water use, transportation, and community facilities. The local government may then adopt zoning regulations that further the goals of the comprehensive plan and provide for orderly development, including governing the size, placement, density, and height of structures, as well as where certain uses can occur.

Table 5.2-9 lists the applicable comprehensive plans and respective zoning ordinances of the local and county governing bodies within and adjacent to the Project Area.

Table 5.2-9
Comprehensive Plans

Governing Body[1]	Plan Name	Year Adopted/ Updated	Associated Regulations
Lyon County	Lyon County Comprehensive Plan	2002	Lyon County Zoning Ordinance (Article 3, Section 3.3)
	Lyon County Comprehensive Water Management Plan	2012	Minnesota Statutes § 103B.301
	Buffer Law Compliance Implementation Plan	2017	Lyon County Buffer Ordinance Minnesota Statutes § 103F.48
Cottonwood, Jackson, Lyon, Martin, Murray, Nobles, and Heron Counties	Des Moines River Watershed Comprehensive Watershed Management Plan	2023	Minnesota Statutes § 103B.801

[1] Based on publicly available information, Comprehensive Plans for Custer township and the city of Garvin were not identified. Lyon County has jurisdiction over all areas within the county outside of incorporated municipalities.

There are no watershed management districts or organizations within the Project Area (MnDNR, 2020a).

Lyon County Comprehensive Plan

Lyon County's Comprehensive Plan outlines basic principles which guide the growth of cities and the development of rural areas in a logical and efficient manner, and to protect growth areas and transportation corridors (Lyon County, 2002b). One of the main land use goals within the Comprehensive Plan is to support the long-term protection of agriculture in the county. Some areas within the county have been designated as agricultural preservation areas, on which only limited commercial and industrial development should be permitted. Appropriate commercial development would include those businesses not requiring urban services, those which primarily serve a local market, or those which support agriculture. The intent of the agricultural district is to preserve and promote areas identified as agricultural land and to protect the use of land for agricultural purposes from scattered non-agricultural, rural development. The county aims to identify prime agricultural areas and develop effective

strategies to ensure their preservation and viability and would allow concentrated non-farm development in less agriculturally productive areas to preserve large tracts of farmland while still allowing farmland owners to benefit from development.

Based on maps outlining important agricultural land in Lyon County, the Project Area overlays areas identified as state-wide important land, prime agricultural land, and agricultural preservation areas (Lyon County, 2002a and Lyon County, 2002c).

Lyon County Comprehensive Water Management Plan

Lyon County's Comprehensive Water Management Plan aims to provide specific tasks for how to best support implementation activities to aid in recovery efforts of impaired waters within the county. The Project is located within The Des Moines River – Headwaters Watershed and the Cottonwood River Watershed. Lyon County has drafted Total Maximum Daily Load (TMDL) plans for the nearby Des Moines River – Headwaters Watershed to address multiple impairments, including turbidity and fecal coliform concerns.

Des Moines River Watershed Comprehensive Watershed Management Plan

The Des Moines River Watershed Comprehensive Watershed Management Plan (DSM River Watershed CWMP) was designed to align water planning along watershed boundaries, not county or other jurisdictional boundaries. The DSM River Watershed CWMP establishes priorities in actions related to groundwater, surface water, habitat, and land stewardship (Des Moines River Watershed Partnership, 2023). Resources and concerns include the protection of existing groundwater recharge areas, aquatic life, and drinking water quality from contaminants, unused wells, and non-compliant septic systems. Other priorities include reducing erosion, runoff, flooding, and algal blooms due to excess phosphorous, as well as enhancing buffers, increasing shoreline and aquatic habitat, and creating resiliency to climate change. The overall purpose of the DSM River Watershed CWMP is to target management and projects during a 10-year effort to protect and restore the watershed's most valuable resources.

5.2.9.4 Local Ordinances

Pursuant to Minn. Stat. § 216E.10, subd. 1, the issuance of a Site Permit is the sole site approval required to be obtained. The Site Permit supersedes and preempts all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose government that would govern the site of the Project. Coneflower Solar will still obtain other required local permits, as detailed in Section 2.5.

Lyon County Renewable Energy Ordinance

REO, Article 21, regulates the installation and operation of renewable energy facilities (Lyon County, 2015). Renewable energy means energy from sources that are not easily depleted such as solar energy. Under this Ordinance, the Project is considered a large solar energy system, as it is a solar farm composed of multiple solar panels on multiple pole or rack mounting systems, and generally has an alternating current rated capacity greater than one MW. Large solar energy systems are conditionally permitted in the agricultural district. Setbacks, as measured from the nearest solar panel or racking system, for neighboring property lines (property lines within the Project Area are exempt) and road rights-of-way are

25 feet; and from dwellings and public conservation lands are 200 feet. These setbacks have been included in Table 4.3-1 in Section 4.3.1 (Setbacks). Based on preliminary design, the Project complies with the Lyon County setback requirements as shown on Figure 4 – Detailed Preliminary Project Layout.

The REO also contains additional provisions regarding stormwater management and erosion control, MPCA construction stormwater permit requirements, foundation and design certification, power and communication line requirements, and other applicable standards (the State of Minnesota Uniform Building Code, the National Electric Code, and other relevant state and federal regulatory standards).

Lyon County Shoreland Ordinance

State and local government shoreland standards provide for the orderly development and protection of Minnesota's shoreland areas (lakes, streams, rivers, and wetlands). These standards are typically regulated through ordinances and zoning districts. The Lyon County Planning and Zoning department administers the State of Minnesota's Shoreland program and provides guidance on protecting shoreland areas and local watersheds. According to the MnDNR Shoreland Classifications and Special Waterbody Designations map, there are three waterbodies located within a mile of the Project Area. Lake of the Hill is classified as a Natural Environment Lake, and Lake Yankton and Spink Lake are classified as General Development Lakes (MnDNR, n.d.-b). Under the county's Shoreland Overlay District, land located 1,000 feet from the ordinary high-water level of a lake, pond, or flowage (greater than 25 acres), or 300 feet from a river or stream or the landward extension of a floodplain designated by the Lyon County Zoning Ordinance, are considered to be within the shoreland district. The Project Area is sited greater than 1,000 feet from the three lakes and more than 300 feet from floodplains, and, therefore, is not subject to the rules and regulations outlined for the shoreland overlay district (Figure 14).

Lyon County Floodplain Ordinance

State and local government floodplain standards provide for the orderly development and protection of Minnesota's floodplains. These standards are typically regulated through ordinances and zoning districts. Lyon County's Floodplain Ordinance regulates development in the flood hazard areas of Lyon County, promotes sounds land use practices, and serves to preserve the natural characteristics and functions of watercourses and floodplains to moderate flood and storm water impact, improve water quality, reduce soil erosion, protect aquatic and riparian habitat, provide recreational opportunities, provide aesthetic benefits and enhance community and economic development (Lyon County, 2022). The Floodplain Ordinance applies to all lands within the jurisdiction of Lyon County's floodway, flood fringe, and general floodplain districts. According to the Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer (NFHL) Viewer, there are no floodplains within the Project Area (FEMA, 2021).

Lyon County Buffer Ordinance

Lyon County's Buffer Ordinance (Buffer Ordinance) provides for riparian vegetated buffers and water quality practices to protect state water resources from erosion and runoff pollution, protect riparian corridors, and to stabilize soils, shores, and banks (Lyon County, 2017). The

provisions of the Ordinance apply to all public drainage systems for which Lyon County is the drainage authority under Minn. Stat. Ch. 103E.

According to the Lyon County Planning and Zoning department, County Ditch 29 system is the only ditch system within the Project Area (Lyon County, n.d.-a). Portions of this ditch have a 16.5-foot buffer requirement (MnDNR, 2017). According to the most recent publicly available aerial imagery, the buffer surrounding the ditch appears to be in compliance.

5.2.9.5 Impacts and Mitigation

The Project will temporarily change the land use within the Project Footprint from the predominant agricultural uses to solar energy generation use for the life of the Project. The temporary conversion of agricultural land to the Project will have a relatively minimal impact on the rural character of the surrounding area or Lyon County. As discussed further in Section 5.3.1 (Agriculture), Lyon County has approximately 389,195 acres of cropland (91.7 percent). Converting 1,693.4 of cropland to a solar facility would reduce the amount of agricultural land in the county by less than one percent in each scenario.

Although Coneflower Solar proposes impacting a relatively small percentage of available farmland in Lyon County, an AIMP (Appendix D) has been developed to incorporate best management practices (BMPs) into siting procedures; pre-construction, construction, and post construction methods; operational procedures; and decommissioning and restoration procedures to avoid and minimize impacts to soil and site productivity such that pre-construction agricultural productivity (anticipated use, appropriate management) is rapidly returned to the site following decommissioning.

After the useful life of the Project, the current agricultural land use would be restored by decommissioning the Project pursuant to the Decommissioning Plan as summarized in Section 4.6 (Decommissioning and Repowering) and provided in Appendix F.

As noted above, development of solar energy systems within the Lyon County agricultural district is a conditionally permitted use. As the Coneflower Solar Project is subject to siting and oversight by the State of Minnesota under the Minnesota Power Plant Siting Act, the Site Permit will serve as the land use permit.

Because no permanent land use or zoning impacts are anticipated, no additional mitigation measures are proposed beyond those described in the prepared AIMP.

5.2.10 Public Lands and Recreation

Public lands provide a multitude of recreational opportunities such as fishing, hunting, hiking, biking, bird watching, camping, boating, swimming, and educational opportunities. Public lands also provide a wide diversity of habitat that supports hundreds of species including birds, bats, amphibians, insects, and plants. There are various recreational opportunities in or near the Project Area. Information from the MnDNR, Lyon County and other federal databases were reviewed to identify public land and recreational resources within and near the Project. Minnesota Outdoor Recreation System Units and School Trust Lands were also reviewed. Public lands and recreation areas are shown on Figure 11 – Recreation Resources and Conservation Easements.

Minnesota Outdoor Recreation System Units include areas administered by the MnDNR.[8] Minn. Stat. Ch. 86A lists the Outdoor Recreation System Units as state parks, state recreation areas, state trails, scientific and natural areas (SNAs), wilderness areas, state forests and state forest subareas, WMAs, state water-access sites, state wild, scenic, and recreational rivers, state historic sites, state rest areas, aquatic management areas, and state boater waysides. There are no state parks, state trails, SNAs, wilderness areas, state forests or state forest subareas, state water-access sites, state wild, scenic or recreational rivers, state rest areas, aquatic management areas, or state boater waysides, or fishery management areas within 0.25 mile of the Project Area. State historic sites are discussed in Section 5.4 (Archaeological and Historic Features).

School Trust Lands are public lands set aside to provide a continual source of funding for public education for every district in the state. The MnDNR serves as the Trustee for the 2.5 million acres of School Trust Lands and an additional 1 million acres of severed mineral rights on behalf of Minnesota's public schools. (MnDNR, n.d.-i). There are no School Trust lands within the Project Area or Lyon County.

No WMAs are in the Project Area, except for an access road/driveway that leads to the Garvin WMA from U.S. Highway 14. Two WMAs are within 0.25 mile of the Project. The Garvin WMA (82.1 acres) is adjacent to south-central Project Area boundary near Lake of the Hill, and the Dayland Marsh WMA (20.6 acres) is near the northwest corner of the Project. WMAs are part of Minnesota's outdoor recreation system and are established to protect those lands and waters that have a high potential for wildlife production, public hunting, trapping, fishing, and other compatible recreational uses. They are a part of the MnDNR's wildlife management efforts in Minnesota and are key to protecting wildlife habitat, opportunities for outdoor activities, and wildlife-based tourism (MnDNR, n.d.-c).

No WPAs are in the Project Area. Three U.S. Fish and Wildlife Service (USFWS) WPAs are within 0.25 mile of the Project. Two WPAs are adjacent to the southern Project Area: the Bendix 1 WPA (150.7 acres) and Bendix 2 WPA (125.0 acres). The third WPA, Sherman WPA (120.4 acres), is adjacent to the western Project Area, north of U.S. Highway 14 (MnDNR, n.d.-d). USFWS WPAs are small natural wetlands and grasslands within the National Wildlife Refuge System that provide breeding, resting and nesting habitat for millions of waterfowl, shorebirds, and other wildlife (USFWS, n.d.-a). Most WPAs are open to hunting.

There is one Walk-In Access (WIA) site in the Project Area. The 132-acre Lyon WIA #350 is located in the southwest portion of the Project Area near CSAH 7 and 120th Street (MnDNR, n.d.-e). The WIA program is run by the state to allow hunters to access private land. Landowners receive payments for enrollment in the program and have some general restrictions for land use. The Lyon WIA #350 agreement expires in June 2025. Once the land is no longer enrolled in the WIA program, public access to the private property is not allowed.

There are no mapped snowmobile trails within the Project Area; however, one snowmobile trail (Lyon County Snowmobile Trail – 250) runs parallel to U.S. Highway 59, east of the Project. The trail travels north-south along the east and west sides of U.S. Highway 59

[8] State historic sites are also administered by the Minnesota Historical Society (MHS), the Board of Regents of the University of Minnesota, governmental subdivisions of the state, or by county historical societies. State rest areas are administered by MnDOT, and state trails are administered by MnDNR and MnDOT.

(Figure 11 – Recreation Resources and Conservation Easements). The trail is managed by the Southwest Ridge Runners Snowmobile Club (Southwest Ridge Runners, n.d.).

No county or city parks are within one mile of the Project Area. The nearest parks are Garvin County Park 1.1 miles northeast of the Project and the East Bay 9 Golf Course 1.2 miles west of the Project.

Table 5.2-10
Public Lands & Recreational Resources within 0.25 mile of the Project Area

Land/Resource Manager	Classification	Public Land Name	Acreage	Direction from Project Area
MnDNR	WIA	Lyon WIA #350	132.0	Within Project Area
BWSR/Lyon SWCD[1]	RIM Reserve	Easement # 42-19-01-01	44.8	Within Project Area
MnDNR	WMA	Garvin WMA	82.1	South
MnDNR	WMA	Dairyland Marsh WMA	20.6	Northwest
USFWS	WPA	Bendix 1 WPA	150.7	South
USFWS	WPA	Bendix 2 WPA	125.0	South
USFWS	WPA	Sherman WPA	120.4	West
Southwest Ridgeriders Snowmobile Club	Snowmobile Trail	Lyon County Snowmobile Trail	N/A	East
BWSR/Lyon SWCD[1]	RIM Reserve	Easement # 42-03-02-01	30.3	North

[1] RIM Reserve easements are not considered public lands and are not open to the public. The easements remain in private ownership and can be used by landowners for passive recreation activities such as bird watching.

5.2.10.1 Impacts and Mitigation

Because no public recreational lands are located within the Project Area, no direct impacts are anticipated. While the access road to the Garvin WMA is within the Project Area, Coneflower plans to obtain a MnDNR Utility Crossing License to bore collection beneath the road and avoid impacts. Appropriate setbacks (see Table 4.3-1 in Section 4.3.1 [Setbacks]) from public lands have been included in the Project design to ensure minimal impacts to surrounding recreational lands due to the construction and operation of the Project. Additionally, Coneflower is aware that the Bendix I WPA conducts prescribed burns on the property annually. In addition to the 200-foot setback and as an added safety measure, Coneflower has designed a perimeter access road adjacent to this managed land to serve as a fire break. The construction phase will be a temporary visual, auditory, and aesthetic impact to some visitors and local residents. Once complete, the operation of the Project will not disturb and impact local recreation. Signs and fencing will be constructed as needed to inform and protect the public from entering onto the Project Footprint.

Snowmobilers will notice the different aesthetic along the portion of the snowmobile trail in the vicinity of the Coneflower Solar Project. With the existing alignment of the snowmobile

trail near the Project, the panels in the eastern portion of the Project would be most visible as the trail runs along the east and west sides of U.S. Highway 59. In general, snowmobile trails form a network between cities. While portions of snowmobile trails pass more rural areas, other portions pass through municipalities and various developments. The introduction of a solar facility is not expected to affect the snowmobile trail's use. Finally, by its nature, snowmobiling is a mobile activity; snowmobilers are expected to pass the Coneflower Solar Project on the established trails. Therefore, any aesthetic impacts would be limited to the rider's duration in the Project vicinity. Therefore, no impacts to recreational opportunities are anticipated and no mitigation measures are proposed.

5.2.11 Socioeconomics

Socioeconomic information for the Project Area is based on data from the U.S. Census Bureau. The U.S. Census Bureau's website provides a wide variety of data points. The discussion herein does not address every socioeconomic measure, but instead addresses the most applicable statistics related to the Project. The socioeconomic statistics that best characterize the demographic and economic context of the Project Area and represent the socioeconomic characteristics that potentially could be affected by construction and operation of the Project include total population, vacant housing units, median household income, the percentage of the population below poverty level, and the unemployment rate (Table 5.2-11).

Table 5.2-11
Socioeconomic Characteristics

State/County	Total Population	Total Vacant Housing Units	Median Household Income	Persons Living Below the Poverty Level (%)	Unemployment Rate[1] (%)
Minnesota[2]	5,706,494	221,215	82,338	9.6	4.0
Lyon County[2]	25,269	1,043	68,919	12.4	3.0
Custer Twp.[2]	175	17	64,583	9.8	1.3

1 ACS 5-Year Estimates Data Profiles, Table D03 (U.S. Census Bureau, 2022).
2 Explore Census Data (U.S. Census Bureau, 2020a).

Data is provided at the county and township level to characterize the socioeconomics in the Project Area and at the state level for the purpose of comparison. The Project is in a rural area within Custer Township and no incorporated communities are located within the Project Area. The incorporated communities nearest to the Project are Garvin (0.1 mile southeast), Balaton (1.5 miles west), and Tracy (6.0 miles east). The nearest larger city is Marshall which is approximately 12 miles north of the Project Area.

Lyon County has a very small population compared to the State of Minnesota as a whole, comprising less than one percent of the state's total population (see Table 5.2-11). The median household income of Lyon County is $68,919, which is lower than the state average. Custer Township's median household income is comparable to Lyon County's at $64,583. The unemployment rate in Lyon County (3.0 percent) is lower than the state average of 4.0 percent and the percentage of individuals classified as living below the poverty level in Lyon County (12.4 percent) is about three percentage points higher than the state average. Custer Township has a significantly lower unemployment rate than the state and county. The primary

industries in Lyon County are classified as educational services, health care, and social assistance (25.0 percent), followed by manufacturing (12.2 percent), and retail trade (11.9 percent) (U.S. Census Bureau, 2022).

There are approximately 1,043 vacant housing units in Lyon County and 17 vacant housing units in Custer Township. In the nearest metropolitan area, Marshall, there are approximately 513 vacant housing units (U.S. Census Bureau, 2020a). In addition, according to the Visit Marshall website (Visitmarshallmn.com, 2024) seven hotels and motels and one campground with approximately 80 lots are available in the Marshall area. The vacant housing, hotel, and motel statistics suggest the local area could support an influx of construction workers, if needed.

5.2.11.1 Impacts and Mitigation

The Project is designed to be socioeconomically beneficial to the landowners, local governments, and communities. Landowner compensation is established by voluntary lease or easement agreements between the landowners and Coneflower for Coneflower's use of the land.

Construction of the Project would provide temporary increases to the revenue of the area through increased demand for lodging, food services, fuel, transportation, and general supplies. Coneflower will use local contractors and suppliers for portions of the construction process, as available. Coneflower will issue a Request for Proposal (RFP) to qualified Balance of Plant (BOP) contractors to oversee and manage the construction of the Project. In this RFP, Coneflower intends to include a strong preference for bids that utilize local, union construction craft employees to the greatest extent feasible in accordance with the Project's timeline and safety requirements. Coneflower expects that the selected BOP contractor will collaborate with organized labor unions and other stakeholders to develop a workforce and hiring plan that maximizes the local economic benefits of the Project. In addition, opportunity exists for sub-contracting to local contractors for gravel, fill, and civil work. Additional personal income will also be generated by circulation and recirculation of dollars paid out by the Project as business expenditures and state and local taxes.

Specialized labor will be required for certain aspects of the Project such as licensed electricians. It may be necessary to import specialized labor from other areas of Minnesota or neighboring states because the relatively short construction duration often precludes special training of local or regional labor and much of the workforce needed to construct a solar facility must be comprised of Minnesota licensed electricians because most of the assembly and wiring work for solar installations is considered electrical work under the Minnesota State Electrical Code.

Effects on temporary or permanent housing are anticipated to be negligible. During construction, out-of-town laborers will likely use nearby vacant housing and hotels. The O&M Building will require two or three long-term employees. The Project anticipates that sufficient temporary lodging and permanent housing will be available within Lyon County, and the Marshall area, to accommodate construction laborers and long-term personnel.

In general, the socioeconomic impacts associated with the Project will be positive; therefore, no mitigative measures are proposed. Wages will be paid, and expenditures will be made to local businesses and landowners during the Project's construction and operation. The Project

will provide production tax payments to Lyon County of approximately $477,225 annually over 30 years for a total of approximately $14.3 million. Additionally, Custer Township will receive approximately $119,306 annually over 30 years for a total of approximately $3.6 million. In addition, lease and easement payments paid to the landowners (approximately $3.4 million annually and $100.9 million over 30 years) will offset potential financial losses associated with removing a portion of their land from agricultural production.

5.2.12 Property Values

Property values can be influenced by a myriad of factors, including location, interest rates, supply and demand, the economy, and many more localized or property-specific variables such as the quality of schools, parks, public transportation, recreational opportunities, and other amenities. Property-specific factors, including a property's size, condition, useability, and existing encumbrances also play a role in its value. Ultimately, no single factor determines a property's market value - the presence of a solar facility becomes one of many interacting factors that could affect a specific property's value.

Because each landowner has a unique relationship and sense of value associated with their property, a landowner's assessment of potential impacts to their property's value from additional or new variables, such as a change in land use on property the landowner considers nearby, is often a deeply personal comparison of the property "before" and "after" the potential change. Often, these deeply held, personal judgments or "stated preferences" provide a useful tool for understanding sentiment. The actual behavior of market participants (e.g., buyers and sellers) as evidenced in sales data, or "revealed preferences," however, is often different than those stated preferences (DOC, 2022; Chalmers, 2019)).

5.2.12.1 Impacts and Mitigation

It is understood that the presence of a solar facility has the potential to impact property values. These impacts may be either positive or negative but are dependent upon the relationship between all the factors that affect a property's market value. Attempting to account for all factors, and to isolate only the impacts from a potential project is difficult. Potential negative effects may result from impacts that extend beyond a project's operating location. This can happen where emissions, noise, or visual impacts extend beyond a project's footprint. Unlike fossil-fueled electric generating facilities, the Project would not generate emissions and potential impacts from operational noise are not anticipated. While some aesthetic impacts are anticipated, they are anticipated to be localized given the Project's relatively low vertical profile in comparison to a wind turbine or a smokestack.

The Commission has reviewed several studies that evaluate home sale prices near utility-scale solar projects. The studies vary in their outcome but generally support a conclusion that there is a potential for impacts on property values. In the Sherco Solar 3 Project, for example, the Commission concluded that impacts to the value of specific properties within the project vicinity are difficult to determine. They concluded that minimal to moderate property value impacts could occur, but significant negative impacts to property values in the project vicinity

are not anticipated.[9] Accordingly, significant negative impacts to property values in the Coneflower Solar Project vicinity are not anticipated.

Coneflower Solar will minimize impacts to property values by reducing aesthetic impacts based on preferences of adjacent landowners; implementing BMPs during construction and restoration; implementing the VMP and monitoring vegetation up to 10 years to assess the vegetative cover; and through individual agreements with neighboring landowners.

5.3 Land-Based Economies

5.3.1 Agriculture

According to the U.S. Department of Agriculture's (USDA's) 2022 Census of Agriculture, approximately 424,591 acres of land in Lyon County is in farms, including 389,195 acres of cropland (91.7 percent), 19,351 acres of pastureland (4.6 percent), and 16,045 acres of woodland and other (3.8 percent) land uses. A total of 869 individual farms are located in Lyon County, with the average farm size at 489 acres.

The total market value of agricultural products sold in Lyon County was approximately $763 million including $311 million for crops and $452 million for livestock, poultry, and products. The top three crops (in acres) included corn, soybeans for beans, and forage (hay and haylage). Grains, oilseeds, dry beans, and dry peas had the highest market value of crops sold, followed by other crops and hay. Hogs and pigs had the highest market value of livestock sold, followed by cattle and calves, and poultry and eggs (USDA, 2022).

The prime farmland exclusion rule and site selection process are discussed in Section 3.0 (Project Site Selection and Constraints Analysis]. Prime farmland information is provided in Section 5.5.4. (Soils and Prime Farmland) Figure 7 shows prime farmland within and surrounding the Project Area.

Based on discussions with Project landowners, Coneflower Solar is aware of drain tile and is coordinating with landowners on the presence of drain tile within the Project Area. In the event the remaining drain tile mapping cannot be identified, Coneflower will utilize other sources, including infrared aerial photographs, LiDAR data, and, if necessary, a site-specific tile locate survey to identify potential drain tile. Also see Section 5.5.5.5 (Drainage Ditches) for additional information on drain tile and drainage ditches.

5.3.1.1 Impacts and Mitigation

The Project will impact 1,693.4 acres of cultivated cropland land within the Project Footprint and will not result in a significant impact to land-based economies in the Project vicinity, as this acreage constitutes less than one percent of the cropland land in Lyon County (389,195 acres). Agricultural production would continue in the surrounding areas during construction and operation of the Project. The revenue lost from removing land from agricultural production will be offset by the leases and purchase options with the landowners. Areas disturbed during

[9] In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy (Xcel Energy) for a Site Permit for the 250-Megawatt Sherco Solar 3 Project in Sherburne County, Minnesota, Docket No. E002/ GS-23-217, Environmental Assessment (April 2024).

construction will also be repaired and restored to pre-construction contours and characteristics to the extent practicable. This restoration will allow the Project's land surfaces to drain properly, blend with the natural terrain, re-vegetate, and avoid erosion. Agricultural production would be allowed to continue in the area within the Project Area but outside the fence of the Project Footprint during construction and operation of the Project. Similarly, if the grazing vegetation management strategy is used, some agricultural activities would continue within the Project Footprint.

There is one feedlot adjacent to the northeast portion of the Project Area on the east side of 260th Avenue (Figure 9 – Existing Infrastructure and AADT). The Eldon Mitzner Farm is a registered feedlot with primarily Beef Cattle - Slaughter/Stock (MPCA, 2024). Coneflower will not impact access to or operation of the feedlot during construction or operation of the Project. Temporary increases in noise during construction would occur, but these impacts would resolve when construction is complete. Therefore, impacts on the feedlot would be minor and temporary.

In the event that damage occurs to drain tile or private ditches as a result of construction activities or operation of the Project, Coneflower Solar will repair any damages. More detail on drain tile identification, design considerations, construction measures, and operational measures is included in the AIMP (Appendix D).

5.3.2 Forestry

There are no forestry operations in the Project Area; therefore, the Solar Project will not affect forestry resources. Several small, wooded areas are located within the Project Area; the wooded areas appear mostly around existing farmsteads, the RIM Reserve easement in the central portion of the Project Area, and windbreaks along field edges. No wooded areas are considered to be economically significant.

5.3.2.1 Impacts and Mitigation

The wooded areas within the Project Area have mostly been excluded from the Project Footprint. As none of the woodlands in the Project Area are considered forestry resources, no impacts to forestry resources will occur and no mitigation is proposed. Based on the preliminary layout, only minor tree removal is proposed along windbreaks.

5.3.3 Mining

The southwestern portion of the state has numerous stone quarries, kaolin clay pits, and crushed stone quartzite quarries, especially along the Cottonwood River. While there are no mapped mines, pits, or quarries in Lyon County, there are active gravel pits in all 87 counties in Minnesota (MnDNR, 2016a).

MnDOT's Aggregate Source Information System (ASIS) does not identify any aggregate sources or pits within the Project Area. The nearest ASIS mapped aggregate source or pit is 800 feet south of the Project Area and 120th Street, just north of the railroad tracks. Based on 2020 aerial photography, the northern edge of the pit is about 150 feet south of the Project Area. The ASIS data also shows an aggregate source or pit about 700 feet south of the Project Area, west of Garvin (MnDOT, 2023). However, based on aerial photography, the pit appears

to have been converted to a municipal sewage pond sometime between 2004 and 2006 (Figure 9 – Existing Infrastructure and AADT).

While not mapped by the MnDNR or MnDOT, there is a sand/gravel mining operation within the Project Area south of U.S. Highway 14 and north of Lake of the Hill. This aggregate mining operation coincides with a Gravel Pit as mapped on U.S. Geological Survey (USGS) Topographic Maps. County tax records show the parcel is about 80 acres and classified as agricultural, rural vacant, and industrial land/buildings. This sand/gravel mining operation is on a participating parcel (Parcel ID 04-021003-0) as shown on Figure 6 – Landowner Map.

5.3.3.1 Impacts and Mitigation

The Project will have no impact on mining resources. In coordination with the landowner, Coneflower has limited the siting of solar panels on the 80-acre parcel containing the sand/gravel pit to the actively cultivated adjacent field. Underground collection lines will cross the non-row cropped area immediately adjacent to the road right-of-way to not interfere with mining operations. Coneflower has entered into an Accommodation Agreement with this landowner that acknowledges Coneflower has sited solar facilities to avoid the landowner's mining operation and the mining operation will not extend into the Project Footprint. Based on conversations with the landowner on the Accommodation Agreement, the landowner was not concerned about Project traffic. No additional mitigative measures are proposed.

5.3.4 Tourism

Tourism in the vicinity of the Project Area centers around various festivals and activities hosted by the county and cities near the Project, such as Balaton and Marshall, and outdoor recreational opportunities described in Section 5.2.10 (Public Lands and Recreation). The City of Garvin, which abuts the Project Area, does not have an official government website. There are no parks or public spaces managed by the City of Garvin within the Project Area.

Located with the municipal boundary of the City of Balaton is Knudson-Bosley Memorial Park, a community park and campsite where activities such as fishing, boating, picnicking, and volleyball can occur (Balaton, 2023). Other outdoor recreational opportunities include golfing at the Balaton Bay Golf Course, camping at the Eastbay Campground, and playing various sports at the Frisbee Golf Course, Baseball and Softball Complex, and at Lion's Park. The City of Balaton also hosts a yearly Fun Fest, which includes a firework show, a parade, street dance, and bean bag and golf tournaments.

The nearby city of Marshall also hosts the Lyon County Fair each year (Lyon County, 2024c). Grandstand events for the fair include a Professional Rodeo Cowboys Association Rodeo and a Demolition Derby. There are also carnival rides, a thrill show, livestock shows, open class exhibits, and free attractions, events, and contests.

According to the 2024 Tourism and Economy Factsheet, gross sales in the leisure and hospitality industry in Lyon County totaled $67,699,217 in 2022 and employed 1,052 persons (Explore Minnesota, 2022).

5.3.4.1 Impacts and Mitigation

Coneflower Solar will construct the Project facilities within the limits of the Project Area. The annual events hosted by the cities of Balaton and Marshall occur within the municipal limits and do not occur within the Project Area. The Lyon County Fairgrounds are within Marshall and are not within the Project Area. No impacts to public access to these events is anticipated during construction or operation of the Project.

No impacts to tourism are anticipated and therefore no mitigative measures are proposed.

5.4 Archaeological and Historical Resources

Coneflower voluntarily initiated coordination with stakeholders including Native American tribes, MHS, and SHPO to actively generate feedback from interested parties regarding the Project. A summary of these ongoing coordination efforts is provided in Section 6.0 (Agency, Tribal, and Stakeholder Coordination) of this Application.

Coneflower Solar also completed architectural and cultural resources field surveys for the Project. The Phase I Reconnaissance Historic Architecture Survey of architectural structures (Phase I historic architecture survey), Phase Ia cultural resources literature review, and Phase I Reconnaissance Cultural Resources Survey (Phase I cultural resources survey) evaluated the Project Area and one-mile buffer (Ward, 2024; Lanno, 2024).

In addition, the plan for the Phase I cultural resource survey for the Project was developed in coordination with tribal members from the Upper Sioux Community that participated in the Phase I cultural resources survey of the Project Area. Coordination with tribal nations is ongoing. The results of all these surveys are presented below.

5.4.1 Phase I Historic Architecture Survey

Impact 7G, Inc. (Impact 7G) conducted a Phase Ia historic architecture literature review on November 7, 2023 and a Phase I historic architecture survey for the Project on November 10 and 11, 2023 (Ward 2024; Appendix H). Background research on known cultural resources was requested from SHPO in May 2023. The National Register of Historic Places (NRHP) and the National Historic Landmark online databases were also reviewed.

Previously recorded architectural resources within the Project Area and one-mile radius were identified and compiled during the records search. All previously documented structures that were potentially 45 years or older (based on aerial images and historic maps) were added to the field map and visited/revisited during fieldwork. Previously undocumented structures were also added to the field map as expected architectural resources to verify.

Seventeen previously recorded architectural sites were identified in the data search. All 17 were previously recommended not eligible or were unevaluated. Of those, all 17 were recommended not eligible based on the 2023 field survey and there will be no effect on these sites. An additional 50 locations were determined to have structures old enough to be evaluated for the NRHP. Of those site leads, 48 are recommended not eligible and/or contained structures that are considered unevaluated due to lack of access. Two of the newly recorded sites contain one or more structures that are recommended eligible for the NRHP. Neither of the two sites recommended eligible will experience any visual or direct impacts due

to shelter belts, topography, or distance from the Project Area. There are no effects identified on any of the recorded site leads within the Project Area. A copy of the Phase I historic architectural survey is provided in Appendix H.

5.4.2 Phase Ia Literature Review and Phase I Cultural Resource Survey

Impact 7G conducted a Phase Ia cultural resources literature review and a Phase I cultural resource survey for the Project in late 2023 and 2024 (Lanno 2024). Prior to the fieldwork, a Phase Ia archeological and historical records search was conducted to obtain information on known cultural resources within the Project Area and one-mile buffer. Searches included the SHPO, NRHP, National Historic Landmarks, local historic societies, and other appropriate sources, including the Minnesota Statewide Archaeological Predictive Model for the Project Area. Results of the records search indicated one known archeological site within the Project Area. This site was presumed not eligible for the NRHP based on a site form completed during a survey in 1980, however, in mid-July 2024, SHPO requested further analysis of the site to determine the potential effect from the Project.

The Phase I cultural resources survey of the Site was conducted November 7-11, 2023 and January 30- 31, 2024 by Impact 7G archeologists and two Upper Sioux Community tribal cultural specialists (TCS), with an additional field visit conducted by an Impact 7G archeologist July 17-19, 2024, to determine the boundary of the known archeological site. The Project consists of approximately 1,790 acres of potential surface disturbance within the Project Footprint; however, the entire Project Area was inventoried to Phase I survey standards.

The November 7-11, 2023 and January 30- 31, 2024 Phase I cultural resources survey consisted of a systematic pedestrian survey along 15-meter transects. Ground visibility at the time of survey ranged from 50 to 80 percent throughout the Site. Subsurface testing (shovel tests) were conducted if a surface artifact was located and the tribal cultural specialists had no objections to breaking ground. During the survey, two previously unrecorded cultural resources were documented in the Project Area and one previously recorded not eligible site was revisited. The two new sites are historic artifact scatters that are recommended not eligible for the NRHP. Four Traditional Cultural Properties in two discrete locations were documented by the TCSs and mapped for avoidance.

During the July 17-19, 2024 field visit, 20 shovel tests were completed along the presumed edges of the known archeological site, and 2 shovel tests in a central portion of the site. No artifacts were observed in any of the shovel test locations. The boundary of the site was determined and the inner portion of the site remains unevaluated for NRHP listing.

Coneflower has provided a draft Phase I Cultural Resources Report to SHPO and will file the report with the Commission after SHPO's review.

5.4.3 Impacts and Mitigation

All previously recorded architectural resources and 48 of the 50 newly recorded architectural resources are recommended not eligible for the NRHP. Two newly recorded architectural sites, both located outside of the Project Area, were recommended eligible for the NRHP; however, the Project will have no effects on either resource. The one archaeological site identified by the Phase Ia cultural resources literature review, and further investigated during

the field survey to determine the boundary, remains unevaluated for the NRHP. The two archaeological sites identified during the Phase I cultural resources field survey are recommended not eligible for the NRHP. There are no effects identified on any of the recorded sites within the Project Area. No impacts to State Register of Historic Places or NRHP listed cultural resources will occur from the Project; therefore, the construction and operation of the Project will not impact historic properties listed in, eligible for, or potentially eligible for listing in the NRHP.

The four Traditional Cultural Properties, in two discrete locations, will be avoided by all work activities with a 100-foot buffer, as requested by the Upper Sioux Community.

Before construction of the Project begins, and in coordination with Native American tribes, Coneflower will prepare an Unanticipated Discoveries Plan that will outline the steps to be taken if previously unrecorded cultural resources or human remains are encountered during construction.

5.5 Natural Resources

5.5.1 Air Quality

Section 109(b) of the Clean Air Act (CAA) requires that the (EPA establish National Ambient Air Quality Standards (NAAQS) "requisite to protect" public health and welfare (40 Code of Federal Regulations Part 50). The CAA identifies two classes of NAAQS: primary standards, which are limits set to protect the public health of the most sensitive populations, such as asthmatics, children and the elderly; and secondary standards which are limits set to protect public welfare, such as protection against visibility impairment or damage to vegetation, wildlife and structures. The EPA has promulgated NAAQS for six criteria pollutants: ozone (O_3), particulate matter (PM_{10}/$PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and lead. Minnesota has been in compliance with the primary and secondary NAAQS for all criteria pollutants since 2002 (MPCA, 2019a).

In Minnesota, air quality is tracked using air quality monitoring stations across the State. The MPCA uses data from these monitors to calculate the Air Quality Index (AQI), on an hourly basis, for O_3, $PM_{2.5}$, SO_2, NO_2, and CO. The pollutant with the highest AQI value for a particular hour sets the overall AQI for that hour. The AQI is used to categorize the air quality of a region as one of five levels of quality: good, moderate, unhealthy for sensitive groups (USG), unhealthy, or very unhealthy (MPCA, 2019b).

The Project is located nearest to the air quality monitor in Marshall, Minnesota (12 miles north). This station monitors for O_3 and $PM_{2.5}$. The AQI for Marshall for the past five years is provided in Table 5.5-1 (MPCA, 2024a).

Table 5.5-1
Days in Each Air Quality Index Category (Marshall, Minnesota)

Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy
2022	324	30	0	2	0
2021	289	65	3	2	0
2020	330	30	0	0	0

Table 5.5-1
Days in Each Air Quality Index Category (Marshall, Minnesota)

Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy
2019	326	35	0	0	0
2018	333	32	0	0	0

Air quality has been considered good for the majority of the past five reported years in Marshall. Since 2018, the largest number of days classified as moderate or USG occurred in 2021. Two days in 2021 and two days in 2022 were classified as unhealthy, and no days have been classified as very unhealthy.

In addition, clean energy from renewable sources such as solar produce almost no harmful emissions, known as GHG, such as carbon dioxide (CO_2), which have been linked to numerous health problems. Clean renewable energy generally results in less air pollution compared to combustible fuels, such as coal, because it does not produce CO_2 emissions (U.S. Department of Energy [USDOE], n.d.).

5.5.1.1 Impacts and Mitigation

When necessary, dust from construction traffic will be controlled using standard construction practices such as watering (non-chloride) of exposed surfaces, covering of disturbed areas, and reduced speed limits. Emissions from construction vehicles will be minimized by keeping construction equipment in good working order. Overall, dust emissions currently experienced annually in the area through farming activities will be reduced for the life of the Project through the establishment of perennial vegetative cover.

A majority of the soils at the Project are low to moderately susceptible to wind erosion, with a small percentage considered to be highly erodible. As construction in the Project Area may create dust, construction-specific mitigation measures and BMPs related to dust control have been identified in Section 5.5.4 (Soils and Prime Farmland). If wind erosion becomes an issue during construction, some practices that may be implemented include mulching exposed soils, wetting exposed soils, spraying down gravel roads, spraying tackifier, and reduced speed limits. Emissions from construction vehicles will be minimized by keeping construction equipment in good working order. Overall, dust emissions currently experienced annually in the area through farming activities will be reduced for the life of the Project.

5.5.2 Climate Change

5.5.2.1 GHG Emissions

GHGs are gases that warm the atmosphere and surface of the planet. The primary GHGs are CO_2, nitrous oxide (N_2O), methane (CH_4), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). GHGs come from a variety of sources with fossil fuel combustion being responsible for most CO_2 emissions in Minnesota. The majority of fossil fuels used today generate electricity and fuel vehicles (MPCA and DOC, 2023).

Construction of the Project will generate GHGs from the combustion of fossil fuels in construction equipment and vehicles. Exact amounts of fuel consumption and equipment

types during Project construction are not known at this time. The Applicant prepared an emissions estimate for the Project during construction and operations (Appendix I) based on the DOC-EERA *Application Guidance for Site Permitting of Solar Farms*, similar projects in Minnesota, and Coneflower's experience developing solar projects. This estimate is based on the number and type of equipment, the days and duration, and the estimated fuel consumption to determine the total amount of gas and diesel fuel used during construction and operation of the Project. The calculations also include the annual emissions of the Project during operations, including onsite vehicle traffic, and Project staff commuter traffic to and from the Project. Coneflower anticipates that emissions during decommissioning will be similar to construction but for a reduced amount of time (i.e., 60 weeks).

Based on these calculations, the Project is estimated to generate approximately 9,454 short tons of CO_2 during the Project construction phase, and 23.7 short tons of CO_2 annually during the operational life of the Project.[10] The Project is expected to offset approximately 391,657 short tons of CO_2 annually[11] and increase the carbon sequestration potential of the soils within the Project Footprint by replacing annual agricultural crops with permanent perennial vegetation. The total CO_2 emissions estimated to be produced by the construction and operation of the Project will be minimal when compared to the reduction in CO_2 emissions the Project will result in long term.

5.5.2.2 Existing and Projected Future Climate Conditions

Data on historic and projected future temperature and precipitation were obtained from the MnDNR Climate Explorer tool (MnDNR, n.d.-f) based on the geographic unit of Lyon County. Climate variables reviewed included average annual temperature and annual precipitation indices using data from 1895-2023. Some of the climate projections summarized below use Representative Concentration Pathways (RCPs), which are GHG concentration scenarios used by the Intergovernmental Panel on Climate Change. RCP 4.5 is an intermediate scenario in which emissions decline after peaking around 2040, and RCP 8.5 is a worst-case scenario in which emissions continue to rise through the 21st century (MnDNR, 2021a)

Temperature

The mean temperature in the county between 1895-2023 was approximately 43.95°F, with the lowest average temperature in 1917 (39.56°F) and the highest average temperature in 2012 (48.88°F). The model estimated the average annual temperature increased by 0.17°F per decade.

The average annual temperature in Lyon County is projected to continue to rise in the foreseeable future. In 2040-2059, average annual temperature under RCP 4.5 is projected to be 48.26°F.

[10] This is an initial estimate based on the current energy mix in the U.S. Moving forward, with new regulations, increased renewables and use of electric vehicles, this estimate can reasonably be expected to decrease drastically and trend towards zero over the operational life of the Project.

[11] Based on the EPAs Avoided Emissions Rates 2017-2024 (April 2024) spreadsheet for Utility PV projects in the Midwest. https://www.epa.gov/avert/avoided-emission-rates-generated-avert

Precipitation

The mean precipitation over this same 129-year period was 25.44 inches annually, with the lowest precipitation in 1976 (12.83 inches) and the highest precipitation in 2019 (41.95 inches). On average, precipitation has increased by 0.37 inch per decade.

The average annual precipitation in Lyon County is projected to continue to rise in the foreseeable future. In 2040-2059, the mean precipitation under RCP 4.5 is projected to be 27.40.

The models generally predict that the Project Area will see more precipitation and warmer average, maximum and minimum temperatures (Table 5.5-2). The mid-century (2040-2059) calculation is more relevant to the Project, given the 30-year life of the Project. The late-century (2080-2099) calculations are more relevant to the Project if repowered after the 30-year expected life.

Table 5.5-2
Historic and Projected Future Temperature and Precipitation Levels

Modeled Timeframes for Lyon County[1]	Average Temperature Mean (℉)	Minimum Temperature Mean (℉)	Maximum Temperature Mean (℉)	Precipitation Mean (in)
1895-2023	43.95	33.11	54.79	25.44
2040-2059 Mid-Century (RCP 4.5)	48.26	41.95	54.79	27.40
2080-2099 Late-Century (RCP 4.5)	50.63	44.67	56.92	28.18
2080-2099 Late- Century (RCP 8.5)	54.48	48.97	60.49	31.52

[1] The projected future temperatures and precipitation are based on January – December, Mean Model.

Flooding

The “Risk Factor: Flood Factor” tool was used to identify potential flooding risks in the Project Area over the next 30 years. The flood tool is based on a model that determines risk from all major types of flooding, including high-intensity rainfall, overflowing rivers, and streams. According to the model, the cities of Garvin and Balaton have a minor risk from flooding (First Street Foundation, n.d.).

The Project is not expected to have any negative effects or increase flood depths in the surrounding areas. This will be achieved by installing 78 smaller stormwater basins in existing low areas across the Project Footprint, based on preliminary design. The stormwater management basins will be sized appropriately and will meet state and county requirements for reducing runoff rates and providing the required treatment. Basins will be vegetated with a wet seed mix that will help stabilize soils after rain events.

The existing drainage patterns will be maintained and the increase in perennial vegetation under the modules is expected to increase the uptake of water onsite and slow and reduce runoff when compared to the current, cropped nature of the Project Footprint.

Other Climate Conditions

The EPA Climate Resilience Evaluation and Awareness Tool (CREAT) Climate Scenarios Projection anticipates an increase in 100-year storm intensity of 3.9 to 15.3 percent in 2035 and 7.5 to 29.8 percent in 2060 for the Project Area (EPA, 2023a) This indicates that the Project Area may see more intense storms in the future.

The racking and solar panel modules selected for the Project are designed to withstand wind (up to 150 miles per hour) and hail events consistent with International Electrotechnical Commission testing and standards. The tracking systems are also designed to automatically stow the panels in the safest position based on the weather conditions (wind, hail, flooding, deep snow, etc.). For example, panels are stowed in a nearly vertical position during hail events by re-orienting the trackers, which limits direct impacts between hailstones and the panels.

5.5.2.3 Impacts of Climate Change on Project

According to the MnDNR, Minnesota's climate is already changing rapidly and will continue to do so for the foreseeable future. Temperatures are increasing and larger, more frequent extreme precipitation events are occurring. Future decades will bring even warmer winters and nights, and even larger rainfalls, along with the likelihood of increased summer heat and the potential for longer dry spells (MnDNR, n.d.-g)

The Project has been designed with resiliency in mind as climate continues to change in Minnesota. Project equipment has been carefully engineered and selected to withstand the potential for an increase in the frequency of severe weather events. As an example, the solar modules being considered for the Project have an operating temperature of -40℃ to about +85℃ (-40℉ to 185℉) and are certified to withstand humidity, heat, rain, wind, hailstorms, and packed snow.

With regard to the design of the Project, solar modules and related facilities will be designed to withstand potential weather events that would reasonably be expected to occur in or near the Project Area. Coneflower intends to purchase equipment designed to ensure the highest level of operability reliably across the range of anticipated environmental conditions for the lifetime of the Project such as temperature, precipitation, wind, mechanical loading, etc.

The structural, civil, and electrical works will comply with all applicable local and State building codes in addition to codes and standards set by technical society and standards-developing organizations. The design safety factor used on snow and wind loads (to de-risk extreme weather events) will be based on recommendations from these standards. Similarly, the final tracking system components and pile sizes and depths will be designed to meet building codes for wind and snow loads. Potential tracking technologies will be assessed in the context of other Project attributes, such as resource forecast and expected operating profile.

Standard safety features in modern solar tracking systems include protective settings or modes known as “stowing” that are enabled during various extreme weather events, such as high wind or snow events. During extreme weather events, the trackers can enable these settings and rotate the modules to an angle that best protects the equipment from damage from environmental factors; rotating to reduce the degree of load experienced on the modules

and underlying structures. In this way, the tracking system works in tandem with the modules to mitigate risks to equipment from extreme weather events. Coneflower intends to utilize trackers capable of rotating as described. The solar modules selected will meet international standards for hail ratings and operating temperature ranges. Coneflower is taking into account the potential for increased precipitation, as identified using the MnDNR model as discussed above, in designing and sizing applicable stormwater management basins for operation of the Project.

In addition, the establishment of perennial vegetation under the solar modules is expected to increase the residence time of water onsite by slowing the runoff rate and increasing the uptake of water onsite when compared to the current, cropped conditions. This will also lower the amount of nutrients leaving the site compared to row crop agriculture from both the reduction in fertilizer and pesticide application, and the slowing of runoff brought about by the perennial vegetation. This slowing of runoff and reduction in the amount of nutrients leaving the site is expected to have a direct, positive effect on the water quality of any surface waters receiving runoff from the site, and also expected to positively benefit onsite wildlife and plant communities.

5.5.2.4 Impact of Project on Climate Change

Minnesota has been taking more action against climate change. Executive Order 19-37 (Climate Change Executive Order), signed in December 2019, created the Governor's Advisory Council and the Climate Change Subcabinet to coordinate climate change mitigation and resilience strategies in the State of Minnesota. The subcabinet's 2020 Annual Report to the Governor describes climate change as an existential threat that impacts all Minnesotans and our ability to thrive. It also encourages State leaders and policy makers to consider equity in our State's response to climate change (MPCA, 2020).

The Next Generation Energy Act set statutory goals to reduce GHG emissions in the State by 80% between 2005 and 2025, while supporting clean energy, energy efficiency, and supplementing other renewable energy standards in Minnesota. Interim goals were also set: a 15% reduction by 2015, and a 30% reduction by 2025. Minnesota's GHG emissions declined 23% between 2005 and 2020. If current trends continue, the State is on track to meet the goal of reducing emissions 30% by 2025. Since 2005, emissions from the electricity generation sector have declined by 54%, mainly because of producing energy from renewable sources like wind and solar (MPCA and DOC, 2023).

In 2022, the Governor and Lt. Governor introduced Minnesota's Climate Action Framework that updates Minnesota's climate goals to reduce emissions 50% by 2030 and achieve net-zero emissions by 2050. As mentioned in Section 1.3 (State Policy), the Project will help meet Minnesota's 100% carbon-free energy standard by 2040 and will contribute to meeting the Minnesota Renewable Energy Objectives and other clean energy requirements in Minnesota, neighboring states, and the country at large. Xcel Energy's MNEC and associated Garvin Substation is an example of this policy in action as it is proposed to deliver new renewable energy to customers to replace retiring coal plants. It will serve consumers' growing demand for renewable energy under various utility-sponsored programs and for utilities, IPPs and corporations seeking to use renewable energy to achieve sustainability goals.

The Project will further Minnesota's clean energy goals by providing a renewable source of energy that will offset other GHG emissions, primarily from coal and natural gas. The Project

will beneficially impact climate change because it will reduce the need for carbon-based electric generation processes, reduce the need for and minimize the proliferation of additional transmission infrastructure, and temporarily reduce emissions from agricultural activities (e.g., use of tractors and other farm implementation, decreased use of agricultural chemicals, etc.) during operation of the Project. In addition, approximately 1,600 acres of perennial seed mix are proposed to be established within the solar array development area, and about 60 acres of perennial seed mix is proposed in the open space between the solar arrays and the fence line. Coneflower also anticipates nearly 272 acres of perennial mixed height vegetation to be planted outside the fence, and approximately 20 acres of perennial mixed height vegetation planted in wetter areas and stormwater basins. In a study of 30 solar facilities across the Midwest, including Minnesota, researchers found that native grassland and forbs planted at solar facilities had 65% greater potential carbon storage capacity than agriculture (corn, soybean) (Walston et al., 2021). The establishment of over 1,900 acres of perennial vegetation throughout the Project Area is expected to increase the carbon storage capacity and is likely to result in additional carbon being sequestered over the life of the Project compared to the current agricultural land use.

5.5.3 Geology and Groundwater Resources

The bedrock in Lyon County consists largely of Precambrian granite and quartzite overlain with Cretaceous sandstone and shale. Glacial drift overlies the Precambrian and Cretaceous rocks and forms the surface of the area. The drift consists largely of till and ranges in thickness from about 10 feet in the north and northeast to approximately 550 feet in the southwest (Rodis, 1963). The mean depth to bedrock in the Project Area is 265 feet (Johnson et. al., 2024). Topography is generally level, but gradually slopes north to southwest.

Minnesota is divided into six groundwater provinces based on bedrock and glacial geology. The aquifers within these provinces occur in two general geologic settings: bedrock, and unconsolidated sediments deposited by glaciers, streams, and lakes. The Project is within the Western Province, which is characterized by loam and clay glacial sediment overlying Precambrian and Cretaceous bedrock. In this province, groundwater is typically derived from moderate extent surficial aquifers. Fractured bedrock is usually buried deeply beneath glacial sediments and is only locally used as an aquifer (MnDNR, 2021b).

Coneflower reviewed the Project Area for EPA designated sole source aquifers (SSA), wells listed on the Minnesota Well Index (MWI), and MDH Wellhead Protection Areas (WHPAs).

The EPA defines an SSA or principal source aquifer area as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer, where contamination of the aquifer could create a significant hazard to public health, and where there are no alternative water sources that could reasonably be expected to replace the water supplied by the aquifer (EPA, 2023b). There are no EPA-designated SSAs in the Project vicinity (EPA, 2024a).

The MWI is the most complete record of well construction and location in Minnesota and is kept up-to-date and maintained by the Minnesota Geological Survey, in cooperation with the MDH. A search of the MWI (MDH, 2024) identified no wells in the Project Area.

Under the Safe Drinking Water Act (SDWA), each state is required to develop and implement a Wellhead Protection Program to identify the land and recharge areas contributing to public

supply wells and prevent the contamination of drinking water supplies. The SDWA was updated in 1986 with an amendment requiring the development of a broader-based Source Water Assessment Program, which includes the assessment of potential contamination to both groundwater and surface water through a watershed approach. A WHPA encompasses the area around a drinking water well where contaminants could enter and pollute the well.

Public and non-public community water supply source-water protection in Minnesota is administered by the MDH through the Wellhead Protection program. WHPAs for public and community water-supply wells are delineated based on a zone of capture for 10-year groundwater time-of-travel to the well and are available through a database and mapping layer maintained by MDH (2019). A search for WHPAs in the MDH database indicated there are none in the Project Area; the nearest WHPA is located in the town of Balaton, approximately 1.4 miles west of the Project Area.

5.5.3.1 Impacts and Mitigation

Impacts to bedrock geological features, groundwater resources, and wells are not anticipated. Based on the depth of bedrock, excavation or blasting of bedrock is extremely unlikely. Project facilities will not affect the use of existing water wells because there are no MDH mapped wells within the Project Footprint (see Figure 9 – Existing Infrastructure and AADT). The closest well to the Project Footprint is 118.6 feet away and is associated with RE15 (see Table 5.2-1 in Section 5.2.1). Any dewatering required during construction will be discharged to the surrounding surface, thereby allowing it to infiltrate back into the ground to minimize potential impacts. If dewatering is necessary and exceeds the permitting threshold of 10,000 gallons of water per day or 1 million gallons per year, Coneflower will obtain a Water Appropriation Permit from MnDNR.

Impacts to groundwater resources, including aquifers, are not anticipated as water supply needs will be quite limited. The Project may have minimal impacts on regional groundwater recharge due to the minimal amount of increased impervious surface area that will be created by Project components under the MISO Scenario (39 acres) or the Garvin Scenario (34.3 acres [see Table 4.3-2 in Section 4.3.2]) combined with the increase in the amount of perennial vegetation that will be established onsite. The foundations of the tracking rack system will likely be a driven steel pier and will likely not require concrete, although some concrete foundations may be required. Geotechnical soil testing will determine the final installation process. Similarly, the exterior agricultural fence may require concrete foundations in some locations. If concrete is needed, it will be locally sourced; an on-site concrete batch plant will not be required for the Project.

In addition, Project facilities (i.e., the Project Footprint) are located at least 240.2 feet from the nearest occupied residence, thereby minimizing the risk of impacts on unmapped private wells in the Project Footprint. Construction of the Project facilities is not likely to require subsurface blasting; therefore, disturbances to groundwater flow from newly fractured bedrock are not anticipated.

BMPs will be used during construction and operation of the Project to protect topsoil and adjacent resources and to minimize soil erosion, whether the erosion is caused by water or wind. Practices may include containment of excavated material, protection of exposed soil, stabilization of restored material, and treating stockpiles to control fugitive dust. A SWPPP will be developed for the Project prior to construction that will include BMPs such as silt

fencing (or other erosion control devices), revegetation plans, and management of exposed soils to prevent erosion.

5.5.4 Soils and Prime Farmland

Soil characteristics within the study area were assessed using the Soil Survey Geographic database (SSURGO) (Soil Survey Staff, 2023). The SSURGO database is a digital version of the original county soil surveys developed by NRCS for use with GIS. It provides the most detailed level of soils information for natural resource planning and management. Soil maps are linked in the SSURGO database to information about the component soils and their properties (USDA, NRCS, 2022). Table 5.5-3 lists the soil types and characteristics located within the Project Area.

Table 5.5-3
Soil Types and Characteristics within the Project Area

Map Unit Symbol	Soil Name	Acres	Percent of Project Area	Farmland Designation	Hydric Soil	K-Factor	Wind Erodibility Group	Compaction Rating
GP	Pits, gravel-Udipsamments complex	0.3	0.0%	Not prime farmland	N/A	0	N/A	Low
J100D2	Buse, eroded-Wilno complex, 12 to 18 percent slopes	11.0	0.5%	Not prime farmland	No	0.34	4L	Medium
J101B	Hokans-Svea complex, 1 to 4 percent slopes	576.3	25.1%	All areas are prime farmland	No	0.35	6	Low
J104A	Svea loam, 1 to 3 percent slopes	181.4	7.9%	All areas are prime farmland	No	0.34	6	Low
J106B	Barnes, occasional saturation-Buse-Svea complex, 1 to 6 percent slopes	534.7	23.3%	All areas are prime farmland	No	0.32	6	Medium
J107A	Lakepark-Roliss-Parnell, depressional, complex, 0 to 3 percent slopes	296.5	12.9%	Prime farmland if drained	Yes	0.34	6	Low
J11A	Vallers clay loam, 0 to 2 percent slopes	65.6	2.9%	Prime farmland if drained	Yes	0.32	4L	Low
J12A	Marysland loam, 0 to 2 percent slopes	1.0	0.0%	Prime farmland if drained	Yes	0.13	4L	Low
J195B	Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	4.2	0.2%	All areas are prime farmland	No	0.43	6	Medium
J199A	Fulda silty clay, 0 to 2 percent slopes	6.6	0.3%	Prime farmland if drained	Yes	0.3	4	Low
J1A	Parnell silty clay loam, depressional, 0 to 1 percent slopes	185.0	8.0%	Prime farmland if drained	Yes	0.34	6	Low
J227D2	Buse, moderately eroded-Sandberg complex, 12 to 18 percent slopes	9.8	0.4%	Not prime farmland	No	0.23	4L	Medium

Table 5.5-3
Soil Types and Characteristics within the Project Area

Map Unit Symbol	Soil Name	Acres	Percent of Project Area	Farmland Designation	Hydric Soil	K-Factor	Wind Erodibility Group	Compaction Rating
J232B	Barnes, occasional saturation-Buse-Arvilla complex, 2 to 6 percent slopes	47.8	2.1%	All areas are prime farmland	No	0.25	6	Medium
J235C2	Buse, moderately eroded-Barnes, moderately eroded-Arvilla complex, 6 to 12 percent slopes	12.2	0.5%	Farmland of statewide importance	No	0.25	4L	Medium
J236A	Highpoint Lake silty clay, 0 to 2 percent slopes	5.3	0.2%	All areas are prime farmland	No	0.34	4	Low
J25A	Rauville silty clay loam, 0 to 1 percent slopes, frequently flooded	0.8	0.0%	Not prime farmland	Yes	0.37	4L	Low
J26B	Darnen loam, 2 to 6 percent slopes	15.0	0.7%	All areas are prime farmland	No	0.3	6	Low
J31B	Arvilla-Sandberg complex, 2 to 6 percent slopes	47.7	2.1%	Not prime farmland	No	0.05	3	Medium
J42C	Sandberg-Arvilla complex, 6 to 12 percent slopes	13.3	0.6%	Not prime farmland	No	0.05	5	Medium
J48A	Southam silty clay loam, 0 to 1 percent slopes	7.7	0.3%	Not prime farmland	Yes	0.32	8	Low
J57A	Balaton loam, 1 to 3 percent slopes	13.2	0.6%	All areas are prime farmland	No	0.31	4L	Low
J75A	Fordville loam, coteau, 0 to 2 percent slopes	1.6	0.1%	All areas are prime farmland	No	0.1	6	Medium
J75B	Renshaw-Fordville loams, coteau, 2 to 6 percent slopes	2.7	0.1%	All areas are prime farmland	No	0.07	6	Medium
J7A	Sverdrup sandy loam, 0 to 2 percent slopes	5.8	0.3%	Farmland of statewide importance	No	0.09	3	Medium

Table 5.5-3
Soil Types and Characteristics within the Project Area

Map Unit Symbol	Soil Name	Acres	Percent of Project Area	Farmland Designation	Hydric Soil	K-Factor	Wind Erodibility Group	Compaction Rating
J7B	Sverdrup sandy loam, 2 to 6 percent slopes	0.5	0.0%	Farmland of statewide importance	No	0.09	3	Medium
J95E	Buse, stony-Wilno complex, 18 to 25 percent slopes	7.4	0.3%	Not prime farmland	No	0.34	4L	Medium
J96C2	Barnes-Buse complex, 6 to 12 percent slopes, moderately eroded	246.0	10.7%	Farmland of statewide importance	No	0.32	6	Medium
	Total	**2,299.4**	**100%**					

1 NRCS Web Soil Survey indicates a Low rating as the potential for compaction being insignificant. The soil is able to support standard equipment with minimal compaction. A Medium rating is defined as having significant potential for compaction. After the initial compaction (i.e. the first equipment pass), this soil is able to support standard equipment with only minimal increases in soil density. There are no Compaction Ratings of High within the Project Area.

Approximately 24 percent of the Project Area is underlain by hydric soils or soils containing hydric inclusions (predominantly hydric or partially hydric soils). Hydric soils are one of several characteristics that can indicate the presence of wetlands (see Section 5.5.5 [Surface Waters]). Most of the soils in the Project Area have low to moderate susceptibility to erosion by water (i.e., K-factors from 0.1 to 0.4) (approximately 97 percent) with the higher the value of the K-factor the more susceptible the soil is to water erosion. Most of soils in the Project Area have a moderate to low susceptibility to erosion by wind (i.e. Wind Erodibility Group [WEG from 1 to 8). Soils in the Project Area are mostly WEGs 4L and 6 (approximately 96 percent), with the remaining four percent made up of soils in WEGs 3, 4, 5, and 8. WEG values in group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. (USDA, NRCS, 2022).

Soils prone to compaction and rutting are subject to dramatic and adverse changes in soil porosity and structure as a result of mechanical deformation caused loading by equipment during construction. Compaction and rutting are related to moisture content and texture and are worse when medium and fine textured soils are subject to heavy equipment traffic when wet. SSURGO data indicates soils in the Project Area have a Low to Medium compaction rating. Soils prone to compaction and rutting are described in the AIMP (Appendix D).

Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pasture, woodland, or other lands). Urbanized land and open water cannot be designated as prime farmland. Prime farmland typically contains few or no rocks, is permeable to water and air, is not excessively erodible or saturated with water for long periods and is not subject to frequent or prolonged flooding during the growing season. Soils that do not meet the above criteria may be considered prime farmland if the limiting factor is mitigated (e.g., by draining or irrigating) (USDA, NRCS, 2022).

The NRCS also recognizes farmlands of statewide importance, which are defined as lands other than prime farmland that are used for production of specific high-value food and fiber crops (e.g., citrus, tree nuts, olives, fruits, and vegetables). Farmlands of statewide importance have the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Farmland of statewide importance is similar to prime farmland but with minor shortcomings such as greater slopes or less ability to store soil moisture. The methods for defining and listing farmland of statewide importance are determined by the appropriate State agencies, typically in association with local soil conservation districts or other local agencies.

Table 5.5-4 lists the soils considered prime farmland and soils of statewide or local importance within the Project Area. Figure 12 (Farmland Classifications) depicts the distribution of prime farmland, prime farmland if drained, and not prime farmland in the Project Area.

5.5.4.1 Impacts and Mitigation

Impacts and mitigation for soils are described at a high level below. A more detailed discussion is provided in the AIMP (Appendix D).

Impacts to soils will occur during the construction and decommissioning stages of the Project. Construction may require some amount of grading to provide a level surface for the solar

arrays. Because the Project location is on relatively level existing agricultural fields, the Project will minimize grading to the extent practicable. Additional soil impacts during construction will come from the installation of the direct-embedded piers that support the structural framework of the solar arrays, and small areas of foundations for the inverter skids, access roads, and the Project Substation. Based on the electrical configuration, impacts to soils will be minimal. As described in Section 4.1.2 (Electrical Collection System), the DC cabling will be mounted underneath the panels in a hanging harness system to minimize soil disturbance, while the AC collection system between the inverters and Project Substation will be located in a below-ground trench (approximately four feet deep and one to two feet wide). Details about construction and operation activities for the Project are provided in Sections 4.4 (Project Construction) and 4.5 (Project Operation and Maintenance), respectively.

Areas of the site to be graded will have topsoil and organic matter stripped and segregated from the subsoil. Topsoil shall have temporary and permanent stabilization measures established in accordance with the Project's SWPPP. Internal roads will be constructed of inorganic fill (road aggregate base) to match the surrounding existing ground elevations to allow existing drainage patterns to persist. Once the necessary grading is complete, subsoil will be placed followed by topsoil, and blending the grade into existing topography.

Following construction, Coneflower will restore disturbed areas to pre-construction conditions to the extent practicable. Soil erosion will be minimized by implementing environmental protection measures. These measures will include BMPs for erosion and sediment control, such as temporary seeding, permanent seeding, mulching, filter strips, erosion blankets, and sod stabilization. Compaction and rutting are potential limitations in the Project Footprint. Coneflower will design construction access and manage construction passes to minimize the number of trips occurring on a given soil and will implement wet weather procedures any time that rutting is observed. Deep compaction is not anticipated to be a significant problem as the number of construction equipment passes over a given area is limited, and construction equipment consists of smaller, low-ground-pressure tracked vehicles.

Additionally, research on the environmental impacts of solar farms indicates that there could be some net benefits to soil resources over the lifecycle of the Project. Writing in Cleantechnica, one of the world's top cleantech-focused news sites, engineer Jeff Briberg highlights the utility and specific benefits of using native plants on solar sites (Briberg, 2016 and Selbig and Balster, 2010).

"[Compared to row crops,] storm water runoff is reduced 23 percent for the 2-year storm (2.9 inches of rain) and 8 percent for the 100-year storm. Further, we expect a mix of prairie plants to provide superior hydrologic performance compared to monocrop turf-grasses that are common on solar sites in some areas of the country. In 2008, the USGS completed a five-year storm water study in cooperation with a consortium of 19 cities and towns in the area of Madison, Wisconsin that revealed 'striking differences between turf and prairie vegetation."

The study found 'prairie vegetation had greater median infiltration rates than those with turf grass,' and roots in the prairie vegetation plot were 'found to a depth of 4.7 feet compared with 0.46 feet in the turf.'

In addition to superior stormwater management, native plants improve the soil with organic matter over the 30-year life the Project, allowing microorganisms and soil fauna to recover after years of intensive compaction, pesticide, and fertilizer application. And, over time, native

plants out-compete weeds allowing ground cover to be maintained with just a single annual mow, reducing operating costs.

With the proper implementation of environmental protection measures intended to prevent, minimize, and/or reclaim soil erosion effects, no unmitigated loss of soil will result from the Project. Additionally, 1,693.4 acres of cropland out of production will give the soils an opportunity to rest and regenerate. Agricultural land (cropland and pasture) within the fenced area will be converted to open, herbaceous (i.e., grassland) cover except for the Project Substation, switchyard, O&M Building, inverters, and access roads (approximately 39 acres under the MISO Scenario and 34.3 acres under the Garvin Scenario) which will be converted to developed land and impervious surfaces. Seed mixes are discussed in more detail in the VMP (Appendix E).

As discussed in Section 4.4.4 (Restoration), Coneflower may decide to use grazing with sheep as a long-term vegetation management technique. Grazing solar facilities with livestock is a developing management approach that can have both positive and negative impacts to soils, depending on how it is implemented.

In human-controlled grazing systems, the detrimental or beneficial effects of grazing are largely determined by how and where grazing is used. The negative impacts of livestock grazing are often the result of misuse (USFWS, 2009a). The USFWS outlines the following soil impacts in their discussion of Prescribed Grazing:

> "Reduced vegetative cover and disturbed soil surfaces may result in increased wind and water erosion (Belnap and Gillette, 1998). However, organic components of feces and urine from grazing animals can build soil organic matter reserves, resulting in soils having increased water-holding capacity, increased water-infiltration rates, and improved structural stability. These changes can decrease soil loss by wind and water erosion (Hubbard et al., 2004).
>
> The most severe effect of trampling may be compaction of soils, which damages plant roots (Watkins and Clements, 1978) and causes roots to become concentrated near the soil surface (Dormaar and Willms, 1998). These changes may prevent plants from acquiring sufficient resources for vigorous growth (Belsky and Gelbard, 2000).
>
> Hoof action of grazing livestock can incorporate plant materials into soil and increase organic material."

As shown in Table 5.5-4, 97% of the soils impacted by the Project are classified as prime farmland soils, farmland of statewide importance, or prime farmland if drained; however, it is important to note that the prime farmland designation is independent of current land use (USDA, NRCS, 2022).

Table 5.5-4
Farmland Classifications within the Project Footprint

Farmland Classification	Acres in Project Footprint	Percent of Project Footprint
Prime Farmland	1,110.4	64
Prime Farmland if Drained	359.3	21

Table 5.5-4
Farmland Classifications within the Project Footprint

Farmland Classification	Acres in Project Footprint	Percent of Project Footprint
Farmland of Statewide Importance	205.3	12
Not Prime Farmland	48.2	3
Total	**1,723.2**	**100%**

Source: Soil Survey Staff, 2023

Prime farmland within the Project Footprint will be placed in a permanent cover of perennial vegetation (grasses, sedges, and forbes) according to seeding and management specifications in the VMP to the benefit of wildlife and the soil, regardless of which vegetation management strategy is implemented. As discussed in Section 3.1.3 (Mitigations and Offsetting Benefits), removing the land from agricultural production may be beneficial for limiting nitrogen infiltration (from manure and fertilizer applications) into groundwater supply, thereby improving groundwater quality. Upon decommissioning, the land would be returned to its pre-construction agricultural use. Coneflower anticipates the site will be restored to agricultural use upon decommissioning of the Project.

5.5.5 Surface Waters (Including Stormwater, Floodplains, and Wetlands)

The Project Area is located in two major watersheds: the Des Moines River – Headwaters Watershed (Hydrologic Unit Code [HUC] 07100001) and the Cottonwood River Watershed (HUC 07020008). Surface water from the Project Area generally drains south towards the Des Moines River and north towards the Cottonwood River. Surface water features within the Project Area and surrounding area are described in the following sections. Watershed boundaries and surface waters are shown on Figure 13 – Surface Waters.

5.5.5.1 Rivers, Streams, and Lakes

The National Hydrography Dataset (NHD) indicates there are 5 unnamed waterbodies and three unnamed, intermittent tributaries (flowlines) to Cottonwood River that occur within the Project Area. The National Wetlands Inventory (NWI) depicts two riverine wetlands in the Project Area, which overlap the flowlines depicted in the NHD data. The Cottonwood River starts near Balaton, approximately 6 miles in a direct line southwest of the Project Area and flows about 150 miles east to the Minnesota River near New Ulm.

5.5.5.2 Public Waters

Public Waters include lakes, wetlands, and watercourses over which the MnDNR has regulatory jurisdiction. No MnDNR Public Waters Inventory (PWI) watercourses or basins occur within the Project Area. The nearest PWI basins include: Lake of the Hill located approximately 0.3 mile south of the central portion of the Project Area; Hanson Slough located approximately 0.3 mile northeast of the northwestern portion of the Project Area; the Des Moines River located approximately 0.5 mile to the southwest of the southwestern portion of the Project Area; Spink Lake located approximately 0.6 mile to the southwest of the northwestern portion of the Project Area; Buttermilk Slough located approximately 0.4 mile

south of the southeastern portion of the Project Area; and Yankton Lake located approximately 0.9 mile west of the western portion of the Project Area.

5.5.5.3 Wetlands and Calcareous Fens

NWI depicts 85 wetlands scattered throughout the Project Area, two of which are classified as riverine wetlands and 83 of which are classified as either freshwater emergent, freshwater forested/shrub, or freshwater ponds.

Calcareous fens are rare groundwater-fed wetlands that are sensitive to changes in water quality and quantity and are protected by Minn. Stat. § 103G.223. Based on the wetland delineation and described in Section 5.5.5.4 (Delineated Wetlands), there are no calcareous fens within the Project Area. The nearest mapped calcareous fen is about 6.5 miles south of the Project Area and is associated with the Skandia WMA.

5.5.5.4 Delineated Wetlands

The potential for wetlands within the Project Area was initially determined by reviewing desktop resources (i.e., NWI data, aerial photography, hydric soil map units, LiDAR contours, and digital elevation models) followed by a formal wetland delineation of the Project Area in 2023. The delineation was completed using a level two routine determination method set forth in the U.S. Army Corps of Engineers (USACE) 87 Manual and the Midwest Regional Supplement (USACE, 2010).

Wetlands within the Project Area were delineated in the field during two separate site visits. The first mobilization occurred on June 5-8, 2023, and the second occurred November 8, 2023. The wetland delineation identified 60 wetlands within the Project Area (Figures 4a and 4b – Detailed Project Layout).

The majority of delineated wetlands are classified as Type 1, Seasonally Flooded Basin, that occur in row crop agricultural fields. Other delineated wetland types include Type 2 (Fresh Wet Meadow), Type 3 (Shallow Marsh), Type 4 (Deep Marsh), Type 5 (Shallow Open Water), Type 6 (Shrub Swamp), and Type 7 (Wooded Swamp). Table 5.5-5 summarizes the 60 delineated wetlands by type and acreage within the Project Area.

Table 5.5-5
Delineated Wetlands within the Project Area

Wetland Type	Wetland Plant Community	Count	Acres
Type 1	Seasonally Flooded Basin	40	24.9
Type 1,2	Seasonally Flooded Basin, Fresh Wet Meadow	3	3.9
Type 1,2,3,6	Seasonally Flooded Basin, Fresh Wet Meadow, Shallow Marsh, Shrub Swamp	1	2.3
Type 1,2,4	Seasonally Flooded Basin, Fresh Wet Meadow, Deep Marsh	1	0.8
Type 1,2,6	Seasonally Flooded Basin, Fresh Wet Meadow, Shrub Swamp	1	0.9

Table 5.5-5
Delineated Wetlands within the Project Area

Wetland Type	Wetland Plant Community	Count	Acres
Type 1,3	Seasonally Flooded Basin, Shallow Marsh	7	65.1
Type 1,3,5	Seasonally Flooded Basin, Shallow Marsh, Shallow Open Water	1	0.7
Type 1,3,5,6	Seasonally Flooded Basin, Shallow Marsh, Shallow Open Water, Shrub Swamp	1	4.3
Type 1,6,7	Seasonally Flooded Basin, Shrub Swamp, Wooded Swamp	1	8.0
Type 2	Fresh Wet Meadow	3	1.4
Type 3	Shallow Marsh	1	0.2
	Total	**60**	**112.5**

5.5.5.5 Drainage Ditches

The Lyon County Planning & Zoning department maintains the county ditch system, which includes around 200 miles of drainage ditches. Maintenance activities include ditch clean-out, vegetation and brush control, tile repair, drainage surveys, conducting information meetings, and preparing ditch assessment recommendations. According to the Lyon County Ditch Map, the southeastern portion of the Project Area contains open and tiled ditch systems that are part of the County Ditch 29 system (Lyon County, n.d.-a). The County Ditch 24 system connects with the County Ditch 29 system, and the systems flow north into an open ditch system that drains into the Cottonwood River tributaries. County Ditch 14 also intersects with the northwestern-most portion of the Project Area, ultimately draining into the Cottonwood River tributaries.

5.5.5.6 Impaired Waters

Impaired waterbodies within one mile of the Project Area include Yankton Lake and Lake Shetek Inlet (MPCA, 2024b). Yankton Lake is impaired for fish bioassessments and nutrients, both of which are considered to be construction-related parameters. Lake Shetek Inlet is impaired for fecal coliform (non-construction-related impairment) and fish bioassessments (construction-related impairment). Yankton Lake and Lake Shetek Inlet drain southeast towards the Des Moines River. Table 5.5-6 identifies the impaired water segments within one mile of the Project and lists their impairments.

Table 5.5-6
MPCA Impaired Waters

Water Body Name	AUID	Affected Designated Use	Pollutant or Stressor
Lake Shetek Inlet	07100001-643	Aquatic Life	Fish bioassessments
		Aquatic Recreation	Fecal coliform
Yankton Lake	42-0047-00	Aquatic Life	Fish bioassessments
		Aquatic Recreation	Nutrients

5.5.5.7 Floodplains

The FEMA maps for Lyon County indicate that the Project is located outside of any mapped 100-year floodplains (FIRM Panels 27083C0440D, 27083C0445D, and 27083C0575D; effective November 26, 2010). The nearest 100-year floodplain (i.e., Flood Hazard Zone A) can be found along portions of the Des Moines and Cottonwood Rivers (Figure 14 – Zoning Map).

5.5.5.8 Impacts and Mitigation

The Project has been designed to avoid impacts to the wetlands and watercourses within the Project Area to the extent practicable. Solar panels, access roads, inverters, and fence lines will not impact wetlands or other waters. It should be noted that there are three collection line crossings proposed under delineated features. To avoid impacts, Coneflower will bore the collection lines beneath Wetland 37, Wetland 54, and Perennial Watercourse 1 (Figures 4a and 4b – Detailed Preliminary Project Layout).

Stormwater will be managed through a series of stormwater ponds required to satisfy MPCA and NPDES stormwater management requirements. The number, location and size of the stormwater ponds have not been finalized but will be designed in compliance with the NPDES/SDS Construction Stormwater General Permit (NPDES/SDS). Coneflower anticipates a similar number of stormwater ponds in the final layout as shown on the Detailed Preliminary Project Layout (see Figures 4a and 4b). Coneflower will obtain coverage under the NPDES/SDS Construction Stormwater General Permit, which requires post-construction stormwater management best practices to treat 1.0-inch of runoff from new impervious surfaces, primarily gravel access roads in the case of solar installations. The ponds will be designed to meet storage volumes and provide the necessary treatment. These areas will be vegetated with a wet seed mix that will help stabilize soils after rain events.

A SWPPP will be developed in accordance with the NPDES/SDS permit for the Project prior to construction that will identify specific BMPs such as silt fencing (or other erosion control devices), revegetation plans, and management of exposed soils to prevent erosion. BMPs will be used during construction and operation of the Project to protect topsoil and adjacent resources, and to minimize soil erosion from water or wind. Practices may include containment of excavated material, protection of exposed soil, stabilization of restored material, and treating stockpiles to control fugitive dust. Additionally, as described in Section 4.1.8 (Stormwater Drainage Basins), Coneflower has preliminarily designed 78 stormwater basins within existing low-lying areas to help control runoff during rain events.

Because the Project will disturb more than 50 acres and is located within one mile of impaired waters, Coneflower will submit the SWPPP to MPCA for review and approval at least 30 days prior to construction.

The Project will not impact any FEMA-mapped floodplains, as none occur within the Project Area. The current Project design avoids impacts to delineated wetlands. Although unlikely, if there are unavoidable impacts to any delineated features, Coneflower anticipates the Project will fall under the impact threshold for a USACE Nationwide Permit or Regional General Permit. Coneflower will comply with the Minnesota Wetland Conservation Act administered by the local government unit (LGU). Coneflower will coordinate with both the USACE and LGU prior to construction for any wetland impacts. Table 2.5-1 in Section 2.5 (Required Project Permits) lists the potential water-related permits.

Coneflower will work with the county and landowners to identify and locate drain tile. Where county and private drain tiles and judicial ditches need to be crossed by Project facilities (e.g., collection lines), directional boring will be used to install the facilities which will avoid impacts to these tiles and ditches.

5.5.6 Vegetation

As noted in Section 5.1 (Environmental Setting), the Project is located in the Coteau Moraines Subsection. Historically, tallgrass prairie covered virtually all of this area with much smaller portions of wet prairies throughout this subsection. Forest areas within this region were limited to ravines along streams, such as the Redwood River. Agriculture is the most prominent land use in this subsection, with few remnants of pre-settlement vegetation remaining (MnDNR, n.d.-a).

The predominant land use in the Project Area is agricultural (2,172.8 acres), followed by developed areas (73.3 acres), wetlands/open water (41.1 acres), herbaceous (7.0 acres), and less than three acres each of forest and barren land (Table 5.5-7 and Figure 10 – Land Cover). Agricultural land includes cultivated cropland and hay/pasture. As discussed in Section 5.3.1 (Agriculture), the top three crops (in acres) in Lyon County included corn, soybeans, and forage (hay and haylage). Corn and soybeans were observed in the fields during the wetland delineation.

Developed land within the Project Area generally consists of farmsteads and public roads, including U.S. Highway 59 (E Main St), 265th Avenue, 260th Avenue, 250th Avenue, 240th Avenue, 230th Avenue, 140th Street, U.S. Highway 14 (Laura Ingalls Wilder Historic Highway), 120th Street, and 1st Street.

Forested areas appear to be small woodlands around farmsteads, windbreaks between farm fields, and areas within the RIM Reserve easement in the central portion of the Project Area. Grassland/herbaceous areas are associated primarily with the RIM Reserve easement and the area around the gravel/sand mine in the central portion of the Project Area just south of the intersection of U.S. Highway 14 and County Road 67. Barren land is associated with the gravel/sand mine. Section 5.5.5.4 provides information on delineated wetlands.

Table 5.5-7 lists the total acreage and percent per land cover type within the Project Area.

Table 5.5-7
Land Cover within the Project Area

Land Cover Type	Acres in Project Area	Percent of Total Acreage
Agricultural Lands		
Cultivated Cropland	2,063.0	89.7
Hay/Pasture	109.8	4.8
Developed Areas		
Developed, Open Space	65.2	2.8
Developed, Low Intensity	5.4	0.2
Developed, Medium Intensity	2.2	0.1
Developed, High Intensity	0.5	<0.1
Wetlands/Open Water		
Emergent Herbaceous Wetlands	38.1	1.7
Woody Wetlands	2.9	0.1
Open Water	<0.1	<0.1
Herbaceous		
Grassland/Herbaceous	7.0	0.3
Forest[1]		
Deciduous Forest	2.5	0.1
Barren Land	2.9	0.1
Total	**2,299.4**	**100.0**

[1] Based on 2021 aerial photography, the National Land Cover Database (NLCD) mapped forested areas appear to be open farm fields. Remnant deciduous forest areas appear to still be present near the areas currently designated as herbaceous, as well as around farmsteads.
Note: some addends may not sum due to rounding.
Source: Dewitz, 2021

5.5.6.1 Impacts and Mitigation

Approximately 1,693 acres (Garvin Scenario or MISO Scenario) of cropland is within the Project Footprint (e.g., the area within the fence line of the solar facility) that will be converted from an agricultural use to solar energy use for the life of the Project. Additional acreages of cultivated crops would be temporarily impacted during the use of the two laydown areas outside the fence line (9.4 acres) of the solar facility, but after construction these 9.4 acres will continue to be used for row crop production or planted into a perennial vegetation.

Cultivated cropland within the fence line of the solar facility will be converted to open, perennial vegetative cover except for the access roads, inverters, Project Substation, switchyard, and O&M Building under the MISO Scenario. Under the Garvin Scenario

cultivated cropland will be converted to open perennial vegetation except for the access roads, inverters, Project Substation, and O&M Building.

Developed and deciduous forest land covert totals about 0.5 percent of the Project Footprint. Coneflower has designed the solar facility to minimize tree clearing. Tree clearing is proposed primarily along windbreaks between agricultural field. Coneflower is committed to completing this activity during the inactive season for bats from November 1 through April 14[12] (see Section 5.5.8.1 (Federal Listed Species) and Section 6.1.1 (Federal Agencies) for additional information).

Coneflower has designed the Project to avoid impacts on developed land and wetlands. Within the Project Footprint, impacts to developed land will be avoided by setting solar facilities back 25 feet from the road rights-of-way and no residences or farm buildings will be removed. The electrical collection lines between the solar facilities and the Project Substation will be directionally bored under county roads and the Garvin WMA access road under the MISO or Garvin Scenarios.

Coneflower has identified four potential seed mixes for the Project that are designed to achieve Coneflower's goals for operating the solar facility including use of native plants, establishing stable ground cover successfully, reducing erosion and runoff, and improving infiltration. These include: (1) an array mix that includes low-growing species to accommodate 18-inch solar panel clearance; (2) a short native mix to be used on the perimeter of the Project Footprint 15 feet inside the fence; (3) a mixed height native mix to be used outside the Project Footprint and fence in areas that are within setbacks and/or unsuitable for agricultural use (less than 20 acres); and (4) a wet mix for stormwater basins and areas susceptible to holding water. Additionally, there are approximately 300 acres of non-row cropped vegetation outside the Project Footprint that will not be disturbed by construction activities and therefore the existing vegetation will remain. Coneflower's VMP is included in Appendix E.

Table 5.5-8 provides the total acreage by land cover type within the Project Footprint for each Scenario.

Table 5.5-8
Land Cover Impacts within the Project Footprint

Land Cover Type	Acres Impacted	
	Garvin Scenario	MISO Scenario
Agricultural		
Cultivated Cropland	1,693.41	1,693.41
Hay/Pasture	19.27	19.27
Developed Areas		
Developed, Open Space	6.49	6.53

[12] Date range from USFWS April 2, 2024 Northern Long-eared Bat and Tricolored Bat Voluntary Environmental Review Process for Development Projects which recommends to use the most recent USFWS March 2024 Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines.

Table 5.5-8
Land Cover Impacts within the Project Footprint

Land Cover Type	Acres Impacted	
	Garvin Scenario	MISO Scenario
Developed, Low Intensity	0.37	0.36
Developed, Medium Intensity	0.01	0.02
Wetlands/Open Water		
Emergent Herbaceous Wetlands	0.39	0.39
Woody Wetlands	0.08	0.08
Herbaceous		
Grassland/Herbaceous	0.93	0.93
Forest		
Deciduous Forest	2.5	2.5
Total	**1,723.4**	**1,723.4**

Source: Dewitz, 2021
Note: some addends may not sum due to rounding.

5.5.7 Wildlife and their Habitats

Wildlife species that are likely to be present in the Project Area include common species that are adapted to an agricultural setting, primarily cropland. As mentioned in Section 5.5.6 (Vegetation), corn and soybeans are the primary crop within the Project Area. These are annual temporary cover types that will be utilized by a small number of common wildlife species on a limited seasonal basis. Common mammal species that may utilize these areas include the common raccoon, coyote, red fox, striped skunk, white tailed deer, woodchuck, Virginia opossum, eastern cottontail, and thirteen-lined ground squirrel (MnDNR, 2020b).

Bird species that may utilize these agricultural areas include killdeer (*Chardrius vociferus*), red-winged blackbird (*Agelaius phoeniceus*), ring-necked pheasant (*Phasianus colchicus*), wild turkey (*Meleagris gallopavo*), various small perching birds and common raptors such as red-tailed hawk (*Buteo jamaicensis*). After harvest, the fields may offer short-term foraging areas for common waterfowl including Canada geese (*Branta Canadensis*) and mallards (*Anas platyrhynchos*). The conversion of row crop production to the recommended perennial mix will improve habitat and foraging opportunities and encourage use of the area by a wider variety of grassland/herbaceous and ground nesting birds.

Reptiles and amphibians accustomed to agriculture habitats and annual disturbances by heavy equipment, such as the American toad (*Anaxyrus americanus*), common garter snake (*Thamnophis sirtalis*), and northern leopard frog (*Lithobates pipiens*), may also be present in the Project Area (MnDNR, 2020b). However, due to the relative lack of diverse vegetation cover and habitat structure, pesticide/herbicide use, and the temporary seasonal nature of the cover, even these common species' use of the cropped field habitat is likely limited to

occasional foraging in the fields. These areas will provide more suitable habitat once perennial vegetation becomes established throughout the Project Footprint.

A greater diversity of wildlife habitat for migratory birds or other wildlife is present outside of the Project Area. Although agricultural land is the dominant land cover type in the area surrounding the Project Area, the extensive forested areas around the Cottonwood River and several of its tributaries provide high quality wildlife habitat. Many of these areas also coincide with Native Plant Communities (NPCs) ranked High and Outstanding (MnDNR, 2024a). In addition, as mentioned in Section 5.2.10 (Public Lands and Recreation), there are two WMAs and three WPAs within 0.25 mile of the Project Area, and a RIM Reserve easement within the Project Area. WMAs and WPAs are managed to provide wildlife habitat for a diversity of species.

5.5.7.1 Avian Species

The Coneflower Solar Project is located within the Mississippi Flyway (USFWS, 2017), one of four migration flyways for millions of birds and hundreds of species that migrate between South and Central America and travel north along the Gulf of Mexico before following the Mississippi River. An abundance of rivers and lakes makes the Mississippi Flyway an ideal route for ducks, geese, shorebirds, and other waterbirds (Fritts, 2022).

The Project Area is also located within the Prairie Pothole Bird Conservation Region (BCR 11) (Bird Studies Canada and NABCI, 2014). The USFWS identified 27 species of birds within BCR 11 as Birds of Conservation Concern (BCC) (USFWS,2008); BCC are avian species that represent the agency's highest conservation priorities. Based on the May 2, 2024 USFWS Information for Planning and Consultation (IPaC) report (USFWS, 2024), the following BCC species could potentially occur in the Project vicinity: bald eagle (*Haliaeetus leucocephalus*), black tern, chimney swift, Franklin's gull, grasshopper sparrow, Henslow's sparrow, lesser yellowlegs, pectoral sandpiper, short-billed dowitcher, western grebe, and willet.

The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code [U.S.C.] 703-712) regulates the taking, selling, transporting, and importing of migratory birds, their nests, eggs, parts, or products. The MBTA protects more than 1,000 species of birds that occur within the United States. Most birds within the Project Area would be afforded protection under this Act. The Bald and Golden Eagle Protection Act (BGEPA) protects and conserves bald eagles and golden eagles (*Aquila chrysaetos*) from intentional take of an individual bird, chick, egg, or nest, including alternate and inactive nests (USFWS, 2007). Unlike the MBTA, BGEPA prohibits disturbance that may lead to biologically significant impacts, such as interference with feeding, sheltering, roosting, and breeding or abandonment of a nest (USFWS, 2007).

Coneflower conducted a raptor nest study in accordance with USFWS guidelines in the spring of 2023. No raptors, including eagles, or raptor nests were documented within the Project Area or the 0.25-mile buffer during the survey. There is minimal nesting habitat within the Project Area. Coneflower plans to conduct an additional raptor nest survey prior to construction to ensure regulatory compliance.

Land uses in the Project Area are primarily agricultural including cultivated crops (89.7 percent) and hay/pasture (4.8 percent), with small amounts of developed areas (3.2 percent), emergent herbaceous wetlands (1.7 percent), and less than one percent each of herbaceous vegetation, woody wetlands, barren land, and deciduous forested land (see Figure 10). The

forested land is limited to windbreaks and small woodlands around residences, and small areas within the RIM Reserve easement. As a result, few migratory bird species that use trees or forested areas to roost or forage (such as bald eagle and red-headed woodpecker) are present within the Project Area. With minimal tree-clearing taking place, nesting habitat will remain intact and impacts to birds using these areas will be limited. The Project Area has little open water (see Section 5.5.5.1) and several wetlands (see Section 5.5.5.4). The Project is designed to avoid wetlands (see Section 5.5.5.8), and as such, wetland- or water-dependent birds will still have access to the wetlands within the Project Area. While the Project Area contains some grassland areas, these areas will be largely avoided by the Project Footprint and impacts to species of migratory birds associated with grasslands will be limited. Overall, few if any BCC are likely to currently use the area within the Project Area as habitat.

5.5.7.2 Waterfowl Feeding and Resting Areas

There are no Waterfowl Feeding and Resting Areas (WFRAs) within or adjacent to the Project Area. The nearest WFRA is in Jackson County, MN about 40 miles southeast of the Project Area (MnDNR, 2016b).

5.5.7.3 Important Bird Areas (IBAs)

Audubon Important Bird Areas (IBAs) are voluntary and non-regulatory, and part of an international conservation effort. The program relies on participation of private landowners, public land managers, and community members: to identify the most essential habitats for birds and designates IBAs in Minnesota; monitor these areas for changes to birds and their habitats; and conserve these areas for long-term protection of birds (MnDNR, 2024b). There are no state or global IBAs within or near the Project Area (Audubon, 2020).

5.5.7.4 Impacts and Mitigation

Given that the Project landscape is primarily agricultural, occurrence of wildlife within the Project Area is limited and wildlife mainly consist of common and generalist type species. Construction of the Project may result in wildlife benefits given that the area will be revegetated with a seed mix that is more diverse in species than the current agricultural crops of corn and soybeans and is pollinator friendly. During construction, highly mobile species of wildlife including deer, birds, and snakes are expected to divert to areas surrounding the Project. Less mobile species, ground nests, eggs, and chicks may be impacted; however, given that the Project Area is cropland, these impacts have likely occurred for years due to agricultural practices, and would therefore occur regardless of the Project development. Overall, construction of the Project is expected to have minimal impacts on individuals of common wildlife species and no impact on their populations. During operations, any potential impacts on wildlife are also expected to be minimal and insignificant. Impacts related to vehicle traffic, including parking or mowing, may occur. Because any potential impacts on wildlife are anticipated to be minimal and insignificant, no species-specific mitigation is proposed.

Fencing and screening for the Project will consist of agricultural woven wire fence and extend seven feet above grade. No barbed wire will be used (except at the Project Substation) and instead will utilize three to four strands of smooth wire to extend the fence height by one foot. The Project Substation will use a 6-foot above grade chain-link fence and include one foot of barbed wire to comply with the National Electric Code (Section 4.1.5 [Security Fencing and

Lighting]). All Project fencing will be placed to avoid impacts to wetlands, watercourses, and other habitats. As a result, Project fencing is unlikely to impact wildlife potentially located in the Project Area.

After construction and during operations, the Project may provide more suitable wildlife habitat than the current land use provides. Coneflower will restore impacted areas with a seed mix designed to enhance habitat for wildlife, including grassland birds, rodents, reptiles, and insects. Although 38.3 acres in the MISO Scenario and 33.6 acres in the Garvin Scenario will be converted to permanent facilities (i.e., access roads, inverters, Project Substation, switching station [MISO Scenario], and O&M Building), 1,940 acres in the MISO Scenario and 1,947 acres in the Garvin Scenario will be converted from crops to herbaceous cover, thereby restoring native plants and perennial vegetation throughout the area and potentially benefitting and attracting wildlife species (see Appendix E – Vegetation Management Plan).

5.5.8 Rare and Unique Natural Resources

Data on federal and state-protected species were reviewed for the Project using the IPaC online tool, MnDNR Conservation Explorer (MCE) online tool, and results of the NHIS data request (Project ID: MCE 2024-00422). Although the reviews do not represent comprehensive surveys, they provide information on the potential for the presence of rare and unique species within the Project vicinity.

5.5.8.1 Federal Listed Species

According to the May 2, 2024 IPaC report (USFWS, 2024), three species that are listed as endangered, proposed endangered, and candidate under the federal ESA may occur in the Project vicinity: northern long-eared bat (NLEB), tricolored bat (TCBA), and monarch butterfly (MOBU), respectively. The IPaC also identified the bald eagle as potentially occurring within the Project Area. There is no designated critical habitat within the Project Area. The IPaC is included in Appendix C – Agency Correspondence.

Northern Long-eared Bat

The NLEB is listed as threatened under the ESA. Its range extends across the eastern and central U.S., as well as central and southeastern Canada (Caceres and Barclay, 2000). The annual life history of the NLEB includes an inactive period when the species is hibernating and an active period when the species forages, raises its young, and breeds. Hibernation generally occurs in caves and mines between November 1 and April 14. Starting typically in April, the species emerges from its hibernacula and moves to summer habitat (USFWS, 2016). NLEB typically forage on flies, moths, beetles, caddisflies, arachnids, and other insects in the understory of wooded areas (USFWS, 2015). Adult females form breeding or maternity colonies that are variable in size, ranging from a few individuals to as many as 60 adults (Caceres and Barclay, 2000). During the summer, the species roosts in the cavities, crevices, and under the bark of live and dead trees (Timpone et al., 2010). The NLEB population has declined dramatically in recent years due to white-nose syndrome, a disease that affects hibernating bats.

The Project Area is primarily agricultural with only a small area of forested habitat (0.1 percent). The landscape surrounding the Project Area is also dominated by agriculture. During their active season (April through October), NLEB may roost in the trees within the Project

Area. However, the Project is unlikely to impact NLEB, even if they are roosting in forested areas, because bats do not typically collide with stationary features. The USFWS IPaC report states that NLEB only needs to be considered if the Project includes wind turbines.

Tricolored Bat

The TCBA is listed as proposed endangered under the ESA. Its range extends through southern Canada, the eastern and middle sections of the United States, and Mexico and Central America (USFWS, n.d.-b). The annual life history of the TCBA includes an inactive period when the species is hibernating in caves and mines, and an active period where the species migrates short distances, forages, raises its young, and breeds. For northern TCBA in Minnesota, hibernation begins in October, which is early compared to other bat species, and ends in late spring (MnDNR, n.d.-i). The species emerges from its hibernacula by April at the latest (MnDNR, n.d.-i).

During the late spring, summer, and early fall, the TCBA roosts in leaf clusters of live or recently dead deciduous hardwood trees, in Spanish moss and bony beard lichen, and in man-made structures such as barns, roofs, bridges, and abandoned structures (USFWS, 2022). The TCBA primarily forages on small insects such as leafhoppers, ground beetles, flies, small moths, and flying ants along forest edges and over ponds (Barbour and Davis, 1969). Adult females form small breeding or maternity colonies that typically contain less than 35 individuals, although these colonies have not yet been located in Minnesota (Whitaker, 1998).

The Project Area is primarily agricultural with only a small area of forested habitat (0.1 percent). The landscape surrounding the Project Area is also dominated by agriculture. During their active season (April through October), TCBA may roost in the trees within the Project Area. However, the Project is unlikely to impact TCBA, even if they are roosting in forested areas, because bats do not typically collide with stationary features.

The USFWS IPaC report states that TCBA only needs to be considered if the Project includes wind turbines (USFWS, 2024).

Monarch Butterfly

The MOBU is listed as a candidate species under the ESA, and as a candidate species due to its decline from habitat loss and fragmentation. Candidate species are not afforded the same protections as listed species. Due to the predominantly agricultural landscape, suitable monarch butterfly habitat is limited in the Project Area. Monarch butterflies rely exclusively on the presence of milkweed (*Asclepias spp.*) to lay eggs (USFWS, n.d.-c). Coneflower is proposing to plant several different species of milkweed inside and outside of the perimeter fence to provide habitat for the MOBU (see Appendix E – Vegetation Management Plan).

Bald Eagle

Bald eagles are protected under BGEPA and occur year-round in Minnesota (MnDNR 2024d, USFWS n.d.-d) and the Minnesota breeding population has begun to expand into their former state-wide range (MnDNR 2024d). Generally, bald eagles select nest sites near lakes and rivers in forested areas where tall, large diameter trees are less than one half mile from a water source (Grier and Guinn 2003). According to MnDNR (2024d), bald eagles are known

to occur in Lyon County. Suitable nesting habitat within and near the Project Area is limited. Additionally, ideal waterbodies for foraging in the surrounding region are also limited.

Coneflower performed a raptor nest survey on March 8, 2023, to identify any raptor or eagle nests within the Project Area or a 0.25-mile buffer. This study did not identify any raptor or eagle nests within the Project Area or the 0.25-mile buffer. Since the Project Area is primarily agricultural (0.1 percent) and there is limited nesting habitat available, the risk of impacting bald eagles is low. The Project also anticipates no or minimal tree clearing will be required. Coneflower plans to conduct an additional raptor nest survey prior to construction to ensure regulatory compliance.

5.5.8.2 State Listed Species

The MnDNR NHIS database was queried on May 3, 2024, to determine whether any state-protected species have been documented within one mile of the Project Area. According to the NHIS database, two state special concern species (Prairie Mimosa; *Desmanthus illinoensis* and Snow Trillium; *Trillium nivale*) and no state-listed endangered or threatened species have been documented in the vicinity of the Project Area. The automated Natural Heritage Review report is provided in Appendix C – Agency Correspondence.

Habitat use and species information was obtained from the MnDNR Rare Species Guide.

Prairie Mimosa

The Prairie Mimosa is an upland vascular plant that is found on lake shores and upland prairie and is widespread but sparsely distributed in parts of the Midwest and southeastern United States. Most records of Prairie Mimosa from Minnesota are from shores of shallow prairie lakes rather than actual prairies and evidence suggests that only lakes with a minimal amount of disruption can sustain populations. Of the 25 documented species in Minnesota, three were from mesic prairies and others were in sand lake shores. There are no mapped or known prairies and no lake shores within the Project Area.

Snow Trillium

The Snow Trillium is an upland vascular plant that is found in floodplain forest and mesic hardwood forest dominated by sugar maple (*Acer saccharum)*, basswood (*Tilia americana*), and oaks (*Quercus* spp.). More Minnesota populations are located on prairie soils than on forest soils, but in the most extreme southwesterly cases, microhabitats may be influenced by groundwater discharge. All but two populations in the state lie within 600 feet of a stream. The state's largest populations are concentrated in the lower reaches and tributaries of the LeSueur and Blue Earth rivers, the Minnesota River Valley near Mankato, and the upper Cottonwood River in Lyon County. The headwaters (upper reach) of the Cottonwood River is near Balaton, approximately 6 miles in a direct line southwest of the Project Area. At its nearest, the Cottonwood River is about one mile northeast of the Project Area. Based on the habitat requirements of Snow Trillium, it is unlikely to occur within the Project Area given the lack of hardwood forests and distance to the upper reach of the Cottonwood River.

5.5.8.3 Impacts and Mitigation

Federal Listed Species

According to the May 2, 2024, IPaC report (USFWS, 2024), there are no known occurrences, hibernacula, or maternity roost sites for NLEB or TCBA within or in proximity to the Project Area. The NLEB and TCBA have potential to occur within the Project Area during spring, summer, or fall while migrating, foraging, and roosting. Coneflower does not anticipate that the Project will impact these bat species during construction or operations because there is limited forested habitat and Coneflower proposes minimal, if any, tree clearing. If tree clearing is necessary, Coneflower commits to completing this activity during the inactive season for bats from November 15 through April 1. Individual bats may be temporarily disturbed by human presence or noise if NLEB or TCBA occur in the Project Area during the same time and space as Project construction activities. However, such disturbance would be insignificant and similar to current human presence and noise associated with nearby residences and agricultural activities.

Bald Eagle

Bald eagle impacts are not anticipated by the Project. While bald eagles are known to occur within Lyon County (MnDNR 2024d), no eagle nests were identified within the Project Area and a 0.25-mile buffer during a raptor survey in spring of 2023. Additionally, suitable nesting habitat is very limited within the Project Area.

State Listed Species

A Natural Heritage Review (NHR) request was submitted through the MnDNR MCE on May 3, 2024 (Project ID 2024-00422) to assess potential Project impacts on protected species. The MnDNR NHR response is provided in Appendix C.

Special concern species are not legally protected under Minnesota threatened and endangered species laws. As noted in the MnDNR NHR (Appendix C), potential impacts to these species may be avoided by modifying the timing to avoid the presence of these species. Additionally, suitable habitat for both the prairie mimosa and snow trillium appear absent within the Project Area and impacts are unlikely to occur.

5.5.9 MnDNR Commercial Solar Siting Guidance

The MnDNR issued guidance for commercial solar sites entitled Commercial Solar Siting Guidance that recommends identification of high value natural resources during Project development. High value natural resources include state listed species; NPCs and native prairie; Minnesota Biological Survey (MBS) SOBS; shoreland and floodplains; public waters; wetlands; calcareous fens; public lands; and large block and other important habitats (MnDNR, 2023b).

High value natural resources are discussed throughout this Application. State listed species are discussed in Section 5.5.8. NPCs and native prairie are discussed in Section 5.5.10. Public waters, wetlands, calcareous fens, and floodplains are discussed in Section 5.5.5. Shorelands are discussed in Section 5.2.9.4. Floodplains are discussed in Sections 5.2.9.4

and 5.5.5.7. Public lands are discussed in Section 5.2.10. MBS SOBS and large block and other important habitats are discussed below.

5.5.9.1 MBS Sites of Biodiversity Significance (SOBS)

MnDNR's MBS assesses Minnesota landscapes for NPCs, rare animals, rare plants, and animal communities through desktop review and follow-up field survey. Based on this assessment, MBS designates and assigns rankings to SOBS, based on landscape context, NPC, and occurrence of rare species populations. The MBS groups and ranks SOBS for each of Minnesota's system subsections for the purpose of designating and cataloguing the state's most notable examples of NPCs and rare species. There are four ranks for SOBS: outstanding, high, moderate, and below (MnDNR, 2009). Based on a review of the MnDNR's data, there are no SOBS within the Project Area. There are four SOBs adjacent to the Project Area associated with the Dayland Marsh WMA, Sherman WPA, Garvin WMA, and the Bendix II WPA. The SOBS associated with the Dayland Marsh WMA and Sherman WPA are ranked below, and the SOBs associated with the Garvin WMA and Bendix II WPA are ranked moderate (MnDNR, 2024g).

5.5.9.2 Large Block and Other Important Resources

Large blocks (greater than 40 acres) of grassland habitat can include restored prairie, Conservation Reserve Program, Conservation Reserve Enhancement Program (CREP) or conservation easements (MnDNR, 2023b). The Project Area is primarily cropland (89.7 percent) with no grassland areas greater than 40 acres except for the approximately 60 acre RIM Reserve easement[13] (CREP I) located in the central portion of the Project Area.

Conservation Easements

Conservation easement lands are sold or donated by a landowner to federal, state, or nongovernmental organizations in perpetuity to meet conservation objectives. Conservation easements may or may not require public access as part of the easement agreement. There are two easement types within the Project Area. A state funded RIM Reserve easement is centrally located within the Project Area near U.S. Highway 14 and County Road 67. The second type of easement is a county-proposed flowage easement in the northwest portion of the Project Area near County Road 63 and 140th Street. Coneflower has designed the Project Footprint to avoid these easements.

Species and Habitats Included in the Wildlife Action Network and Minnesota Wildlife Action Plan

Minnesota's State Wildlife Action Plan (SWAP) (2015-2025) proactively addresses the state's conservation needs and defines actions to prevent species from becoming listed under the state endangered species program or the ESA. The SWAP also entailed revisions to the state's list of Species of Greatest Conservation Need (SGCN). SGCN are native animals with rare, declining, or vulnerable populations. All state and federally listed species that occur in Minnesota are automatically SGCN (MnDNR, 2022).

[13] Coneflower notes that based on GIS data from the Board of Water and Soil Resources, this RIM Reserve easement is 44.8 acres. However, Coneflower's ALTA survey indicates the easement acreage is 59.73 acres. As a conservative measure, Coneflower is using and avoiding the larger easement acreage.

The Wildlife Action Network (WAN) was developed as part of the 2015-2025 MN Wildlife Action Plan revision. The WAN is comprised of 10 data layers that represent quality terrestrial and aquatic habitats, buffers, and corridors across the state that support SGCN. The MnDNR chose five of the ten layers with complete or near complete statewide coverage to rank the areas within the WAN on a scale from Low to High. (MnDNR, 2022). The Project Area is ranked Low and Low-Medium. The nearest layer with a higher rank (Medium-High) is located about one mile north of the Project Area and is associated with the Cottonwood River (MnDNR, 2015). Based on Coneflower's review of the MnDNR's NHIS, no SGCN have been documented within the Project Area.

5.5.10 Native Prairie

Minn. Stat. § 84.02, subd. 5 defines native prairie as land that has never been plowed where native prairie vegetation originating from the site currently predominates or, if disturbed, is predominantly covered with native prairie vegetation that originated from the site.

Coneflower reviewed the following MnDNR publicly available GIS data layers to identify areas of potential native prairie within the Project Area: Railroad Rights-of-Way Prairie, Native Prairie, NPCs, Native Prairie Banks, and Potentially Undisturbed Land.

MCBS Railroad Rights-of-Way Prairie

The MnDNR' s Railroad Rights-of-Way Prairies are native prairie remnants that occur along railroad ROWs. The railroad ROWs program was instituted in 1997 by the Minnesota legislature in the Prairie Parkland and Eastern Broadleaf Forest ECS Provinces. The MnDNR ranks Railroad Rights-of-Way Prairie into three categories: very good, good, and fair. There are no MnDNR Rights-of-Way Prairie mapped within the Project Area. The nearest mapped features are two segments along the RCPE railroad located south of Lake of the Hill and between the southern Project Area and Garvin. The Project will not impact the RCPE railroad or mapped prairie segments.

Native Prairies

The MnDNR's native prairies polygons are a subset of a larger database of NPCs and are the result of that classification system and protocol. Generally, native prairies are classified by considering vegetation, hydrology, landforms, soils, and natural disturbance information. There are no MnDNR-mapped native prairies in the Project Area.

Native Plant Communities (NPCs)

NPCs are groups of native plants that interact with each other and their surrounding environment in ways not greatly altered by modern human activity or by introduced plant or animal species. These groups of native species form recognizable units, such as an oak forest, a prairie, or a marsh, that tend to repeat across the landscape and over time.

NPCs are generally classified and described by considering vegetation, hydrology, landforms, soils, and natural disturbance regimes. The MnDNR Native Plant Community data layer is classified primarily by vegetation and major habitat features. There are no MnDNR-mapped NPCs in the Project Area.

MnDNR Native Prairie Banks

A Native Prairie Bank is a voluntary easement between a landowner and the MnDNR. Landowners agree to manage the land in ways that protect native prairie in exchange for a single payment. There are no lands enrolled in the Native Prairie Bank Program with the Project Area or Lyon County (MnDNR, n.d.-h).

Potentially Undisturbed Land (virgin sod)

South Dakota State University has developed a rigorous system for identifying undisturbed land (virgin sod) by utilizing Farm Services Agency Common Land Unit data to determine the extent of known tillage history. Through a process of deductive assessment that incorporates USDA/NAIP aerial imagery, the system identifies and removes all tillage and physical land disturbance history to accurately identify the location of lands with the highest probability of being truly native (virgin) sod. There are several areas mapped as potentially being native with the largest areas associated with the RIM Reserve easement and the sand/gravel mine. Several smaller areas are mapped throughout the Project Area and are associated with delineated wetlands. No Project facilities are proposed within the RIM Reserve easement, the sand/gravel parcel, or wetlands.

5.5.10.1 Impacts and Mitigation

Based on review of the MnDNR data, no MBS Railroad ROW prairies, native prairies, NPCs, or Native Prairie Banks, are mapped within the Project Area. As such, no impacts to native prairie are anticipated and no mitigation measures are proposed.

5.6 Unavoidable Impacts

Coneflower designed the Project to avoid impacts to environmental resources whenever possible. In some cases, impacts to environmental resources could not be entirely avoided, but will be minimized by implementation of mitigation measures. A detailed discussion of the environmental impacts of the proposed Project, as well as the mitigation measures that would be used to minimize impacts is presented in Sections 5.1 through 5.5 of the Application. Environmental impacts that will be minimized by the use of mitigation measures, but not entirely avoided, are provided below. Most of these unavoidable impacts will occur during construction of the Project and will resolve with the completion of construction.

Unavoidable impacts related to the Project that will last only as long as the construction period include:

- Noise emitted from vehicles and equipment during construction that will be audible to neighboring landowners;
- Increased traffic on roads that bisect the Project Area;
- Minor air quality impacts due to fugitive dust;
- Potential for soil erosion; and
- Potential disturbance to and displacement of some species of wildlife.

Unavoidable impacts related to the Project that will last as long as the life of the Project will include:

- Aesthetic changes to the landscape (agricultural fields to solar facility), which will be visible from local roadways and parcels; and
- Changes in land cover and vegetation from agricultural land of predominately corn and soybeans to a solar facility with perennial vegetation underneath the solar modules and around the Project Footprint. As discussed in Section 5.5.7.4, this is likely to be a positive impact for wildlife and the environment.

5.7 Irretrievable and Irreversible Impacts

Irreversible, irretrievable, and unavoidable impacts or commitment of resources refers to impacts on or losses to resources that cannot be avoided, recovered, or reversed. Examples include the permanent conversion of wetlands and loss of cultural resources, soils, wildlife, or agricultural production.

Irreversible is a term that describes the loss of future options. It applies primarily to the impacts of use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods of time.

Irretrievable is a term that applies to the loss of production, harvest, or use of natural resources. For example, if farmland is used for a non-agricultural development, some or all of the agricultural production from an area of farmland is lost irretrievably while the area is temporarily used for another purpose. The production lost is irretrievable, but the action is not irreversible.

Land required for the Project would be committed to hosting solar modules and associated facilities for the life of the Project, which is expected to be 30 years. Although the entire 2,299-acre Project Area would not be developed, the 1,723 acres of land within the Project Footprint would be developed for Project infrastructure. This land would be unavailable for other uses. However, after the Project reaches the end of its operational life and the decision is made to decommission it and restore the site, the land would again be available for other uses.

Irreversible and irretrievable resource commitments are primarily related to Project construction, including the use of water, aggregate, hydrocarbons, steel, concrete, wood, and other consumable resources. Some, like fossil fuel use, are irretrievable. Others, like water use, are irreversible. Still others might be recyclable in part, for example, the raw materials used to construct PV panels would be an irretrievable commitment of resources, excluding those materials that may be recycled at the end of the panels' useful life. The commitment of labor and fiscal resources to develop, construct, and operate the Project is considered irretrievable.

No wetland or other sensitive land conversion or alteration will be made during any stage of the Project; therefore, no foreseen irreversible impacts are addressed.

5.8 Cumulative Potential Effects

Cumulative impacts are combined, incremental effects of human activity. While an individual activity may be insignificant by itself, minor impacts in combination with other actions may cause a larger issue in a region or to an important resource.

A review of the Lyon County website (Lyon County, 2024a), MnDOT Region 8 website (MnDOT, 2024f), and Minnesota Environmental Quality Board Projects Interactive Map (EQB, 2024) did not reveal any projects proposed with similar timing and within close proximity to the Project Area that would be expected to interact negatively or create significant cumulative impacts with the proposed Project.

According to the MISO Generator Interconnection Queue, there are four projects in Lyon County; one solar facility and three wind facilities. The solar project and one wind project have in service dates listed as June 2027, and two wind facilities have a May 2028 in service date (MISO, 2024). State and county level construction projects listed pertain to road or other infrastructure repairs and general maintenance. During the construction phase of the Project, an increased amount of traffic is to be expected with worker and equipment transports traveling similar routes. Should the timing of construction be similar between projects, coordination with appropriate parties on haul route traffic volumes will be conducted to reduce significant impacts on travel in the area (see Table 5.8-1). Minimal long term cumulative impacts are anticipated.

Table 5.8-1
Other Projects in Close Proximity and Timeframe

No.	Project Sponsor/Title	General Project Location[1]	Timeframe	Project Type
1	Lincoln County – Road Work[2]	West of Lyon County	2023-2025	Road work
2	Northern States Power Company (J2104)[3]	Redwood County	2024	Wind
3	Northern States Power Company (J2309)[3]	Murray County	2024	Solar
4	Murray County – CSAH Road Work[4]	South of Lyon County	2024-2029	Road work
5	Redwood County – Road Work[5]	East of Lyon County	2024-2029	Road work
6	MnDOT - District Culvert Repairs[6]	MnDOT District 8	2025	Culvert repair
7	Northern States Power Company (J2053)[3]	Redwood County	2025	Wind
8	Northern States Power Company (J2599)[3]	Redwood County	2026	Solar
9	MnDOT – Hwy 75 and 14 Lake Benton to Tyler[6]	Lake Benton to Tyler, Minnesota	2027	Road work
10	Northern States Power Company (J2332)[3]	Redwood County	2027	Wind

Table 5.8-1
Other Projects in Close Proximity and Timeframe

No.	Project Sponsor/Title	General Project Location[1]	Timeframe	Project Type
11	Northern States Power Company (J2447)[3]	Murray County	2027	Wind
12	Northern States Power Company (J3020)[3]	Lyon County	2027	Wind
13	Northern States Power Company (J3021)[3]	Lyon County	2027	Solar
14	Missouri River Energy Services – Transmission (J3326)[3]	Lyon County	2028	Wind
15	Missouri River Energy Services – Transmission (J3346)[3]	Lyon County	2028	Wind
16	Otter Tail Power Company (J3233)[3]	Yellow Medicine County	2028	Solar
17	No name provided (J2550)[3]	Yellow Medicine County	2030	Battery energy storage
18	No name provided (J2561)[3]	Yellow Medicine County	2030	Solar

1 Information on project sponsors/titles, locations, timeframes, and types were obtained by reviewing public sources including Lyon County, MnDOT Region 8, Minnesota EQB, and MISO. Precise project locations are not available, only general project locations (i.e., county level) are provided from these sources.
2 Lincoln County, n.d.
3 MISO, 2024
4 Murray County, 2024
5 Redwood County, 2024
6 MnDOT, 2024e

6.0 AGENCY, TRIBAL, AND STAKEHOLDER COORDINATION

This section describes outreach efforts conducted by Coneflower Solar and discusses pre-Application involvement by federal, state, and local agencies as well as the public information outreach campaign. Throughout the development process, Coneflower Solar has provided stakeholders and potentially affected landowners the opportunity to participate in the siting process. This engagement provided Coneflower Solar with valuable insight into landowners' and public agency preferences regarding development of Solar Project facilities.

6.1 Pre-Application Coordination

As part of pre-Application efforts, Coneflower Solar initiated its outreach campaign to public agencies through in person meetings and Project notification letters. Many agencies, stakeholders, landowners, and interested parties, were contacted to gather feedback on the Project (refer to Table 6.1-1). This included meetings with the MnDNR, USFWS, and Minnesota DOC.

Between September 22, 2023 and May 16, 2024, Coneflower Solar sent informal Project introduction letters and a map to federal, state, and local agencies with jurisdiction in the Project Area. Coneflower requested input specific to the resources under each agency's respective jurisdiction, as well as the identification of permits and/or approvals that may be potentially required for the Project.

A representative letter and responses received as of August 15, 2024 are included in Appendix C. A summary of responses and meetings with federal and state agencies and Native American tribes that share geography with Minnesota is included below. Coneflower Solar will continue to coordinate with township and county officials as the Project moves forward and will seek any necessary local permits. Table 6.1-1 identifies agencies that were contacted through meetings or a notification letter and the date that the consultation was conducted.

Table 6.1-1
Coneflower Solar Agency Correspondence

Agency	Letter Sent	Meeting/Response Date (Type)
Federal		
U.S. Army Corps of Engineers (USACE), St. Paul District	April 25, 2024	No response to date.
U.S. Fish and Wildlife Service (USFWS) – Twin Cities Ecological Services Field Office	May 9, 2024	December 19, 2023 (meeting) June 12, 2024
State		
Minnesota Historical Society (MHS) and State Historic Preservation Office (SHPO)	May 16, 2024	No response to date.
Minnesota Department of Commerce, Energy Environmental Review and Analysis (Size Determination Form) (DOC-EERA)	April 25, 2024	May 3, 2024

Table 6.1-1
Coneflower Solar Agency Correspondence

Agency	Letter Sent	Meeting/Response Date (Type)
Minnesota Department of Natural Resources (MnDNR) – Energy Projects Review	May 9, 2024	December 19, 2023 (meeting)
MnDNR – Region 4 (Southern Region)	May 9, 2024	December 19, 2023 (meeting) Dated May 5, 2024; Received June 5, 2024
MnDNR – Natural Heritage Information System (NHIS) Review	May 3, 2024	May 5, 2024
Minnesota Department of Health (MDH)	April 25, 2024	No response to date.
Minnesota Department of Agriculture (MDA)	April 25, 2024	No response to date.
Minnesota Department of Transportation (MnDOT)	April 25, 2024	No response to date.
Minnesota Department of Employment & Economic Development (MNDEED)	April 25, 2024	No response to date
Minnesota Pollution Control Agency (MPCA)	April 25, 2024	No response to date.
Minnesota Department of Public Safety	April 25, 2024	No response to date.
County		
Southwest Regional Development Commission	April 25, 2024	May 16, 2024 (Initial Response)
Lyon County – Planning and Zoning	April 25, 2024	No response to date.
Lyon County Administrator	April 25, 2024	No response to date.
Local Government Units		
Custer Township	April 25, 2024	No response to date.
Town of Garvin	April 25, 2024	No response to date.
Native American Tribes		
Lower Sioux Indian Community	September 22, 2023 June 24, 2024	October 3, 2023
Upper Sioux Community	September 22, 2023 June 24, 2024	October 11, 2023 February 2, 2024
Prairie Island Indian Community	September 22, 2023 June 24, 2024	No response to date.
Shakopee Mdewakanton Indian Community	September 22, 2023 June 24, 2024	September 25, 2023 June 24, 2024
Bois Forte Band of Chippewa	September 22, 2023 June 24, 2024	No response to date.

Table 6.1-1
Coneflower Solar Agency Correspondence

Agency	Letter Sent	Meeting/Response Date (Type)
Grand Portage Band of Ojibwe	September 22, 2023 June 24, 2024	No response to date.
Leech Lake Band of Ojibwe	September 22, 2023 June 24, 2024	September 25, 2023
Mille Lacs Band of Ojibwe	September 22, 2023 June 24, 2024	No response to date.
Red Lake Band of Chippewa	September 22, 2023 June 24, 2024	No response to date.
White Earth Band of Chippewa	September 22, 2023 June 24, 2024	No response to date.
Minnesota Indian Affairs Counsel	September 22, 2023 June 21, 2024	October 17, 2023

6.1.1 Federal Agencies

6.1.1.1 U.S. Fish and Wildlife Service (USFWS)

On December 19, 2023, Coneflower Solar met with USFWS to introduce the Project, present results from studies completed to date, and agree on appropriate minimization and avoidance measures. On March 18, 2024, Coneflower provided a meeting summary to USFWS along with an updated Project Area (reflected in this Application) that was an action item from the meeting.

On May 9, 2024, Coneflower sent a request for comments letter to USFWS specific to this Application that summarized the coordination to date, provided an IPaC review for the Project, and requested any additional comments from the agency. In its coordination and identified on the IPaC review, Coneflower Solar identified the NLEB and TCBA as federally-listed species with potential to occur in the Project Area. If minimal tree clearing is necessary, Coneflower committed to completing this activity during the inactive season for bats from November 15 through April 1 (see Section 5.5.8).

On June 12, 2024, USFWS provided a response that included the regulatory framework and planning resources, confirmed potential presence of NLEB and recommended tree clearing window (avoiding April 1 – November 14), and provided information on bald eagles. The agency also provided several site section and layout recommendations, such as:

- selecting a site with the least wildlife value practicable (Section 5.5.7);
- avoiding and minimizing impacts to forested areas, native grasslands, and wetlands (Sections 5.2.10, 5.5.5, 5.5.6, and 5.5.10);
- protecting bat habitat by minimizing the removal of forested habitat (Sections 5.5.6 and 5.5.8);

- identifying potential suitable habitat for other species on the IPaC list (Section 5.5.8);
- identifying bald eagle nests within or near the Project (Section 5.5.7);
- planting the site to provide habitat for pollinators (Sections 4.4.4 and 5.5.6); and
- incorporating a water source (Section 4.1.8).

USFWS provided the following construction recommendations:

- When feasible, avoid removing potential wildlife habitat during March 15 – August 15 (Section 5.5.7);
- Consider voluntary mitigation to offset the loss of forested areas, wetland, or native grasslands (Section 5.5.7 and 5.5.10);
- Use construction techniques and materials that are not likely to cause additional harm to wildlife (Section 5.5.7); and
- Implement measures to minimize the spread of invasive species (Section 5.5.6 and Appendix E – VMP).

The USFWS offered the following operational recommendations:

- Reporting wildlife injuries or mortalities, specifically birds and bats; and
- Incorporating wildlife friendly mowing practices.

As demonstrated here, Coneflower has implemented siting and construction recommendations from the USFWS into the Project and will incorporate the operational recommendations to the extent practicable. Coneflower will continue to coordinate with USFWS throughout the life of the Project as appropriate.

6.1.2 State Agencies

6.1.2.1 State Historic Preservation Office (SHPO)

On May 16, 2024, Coneflower Solar submitted a Summary of archaeological and architectural resources studies to the SHPO. As detailed in Section 5.4 (Archaeological and Historic Resources), Coneflower Solar conducted a Phase 1 records review and a Phase 1a field survey, neither of which identified cultural resources eligible for the NRHP; Traditional Cultural Properties (TCPs) are discussed below in Section 6.1.4. Coneflower Solar also conducted an architectural field survey and identified two newly recorded structures recommended as eligible for the NRHP, however neither will experience any visual or direct impacts due to shelter belts, topography, and distance from the Project. Therefore, Coneflower Solar requested concurrence from SHPO that the Project will not adversely impact cultural and historic resources.

6.1.2.2 Minnesota Department of Natural Resources (MnDNR)

On December 19, 2023, Coneflower Solar met with MnDNR to introduce the Project, present results from studies completed to date, and agree on appropriate minimization and avoidance measures. On March 18, 2024, Coneflower Solar provided a meeting summary to MnDNR

along with an updated Project Area (reflected in this Application) that was an action item from the meeting. On May 9, 2024, Coneflower Solar sent a request for comments letter to MnDNR specific to this Application that summarized the coordination to date and requested any additional comments from the agency.

The MnDNR responded with a letter dated May 5, 2024 (letter was actually received June 5, 2024) that provided a response that included comments for consideration by the Project. The following is a summary of the comments provided in the letter with applicable sections of this application in parentheses for applicable information:

- avoidance of native prairie and NPCs (Section 5.5.10);
- requirement for the Project to develop a VMP (Section 5.5.6 and Appendix E - VMP);
- WMA crossing requirements (Sections 5.2.10);
- wetland avoidance recommendations (Section 5.5.5);
- large block habitat avoidance recommendations (Section 5.5.9);
- perimeter fencing recommendations (Sections 4.1.5 and 5.2.5);
- facility lighting recommendations (Section 4.1.5)
- surface water and groundwater requirements (Section 5.5.5);
- dust control recommendations (Section 5.5.1); and
- erosion control and invasive species prevention best practices (Sections 5.5.4, 5.5.6, and Appendix E - VMP)

As demonstrated here, Coneflower has implemented siting, construction, and operational recommendations from MnDNR into the Project. Coneflower will continue to coordinate with MnDNR throughout the life of the Project as appropriate.

Specific to rare species, Coneflower Solar utilized the Minnesota Conservation Explorer tool to identify any rare species records in November 2022. This unofficial review was preliminary and used for planning purposes only and is therefore not included in this Application. On May 3, 2024, Coneflower Solar submitted a formal NHIS request to MnDNR. On May 5, MnDNR provided the NHIS response. As detailed in Section 5.5.8 and Appendix C, no rare species records or habitats were identified.

6.1.3 Local Agencies

6.1.3.1 Southwest Regional Development Commission (SWRDC)

On May 16, 2024, the Southwest Regional Development Commission (SWRDC) provided Coneflower Solar a Project Review Form with staff notes. Coneflower Solar responded to the SWRDC requesting the date in which the agency was reviewing the Project; SWRDC indicated they reviewed the Project during their May 9, 2024 meeting. Coneflower subsequently offered to introduce the Project at an upcoming SWRDC meeting. SWRDC later indicated the opportunity may not be available until September 2024. Coneflower Solar will continue coordinate with SWRDC.

6.1.4 Native American Tribes

Consistent with Minn. Stat. §10.65, on September 22, 2023, Coneflower Solar sent letters to the 11 Tribal Nations in Minnesota and the Minnesota Indian Affairs Counsel (MIAC) requesting comments on the Project and inviting tribal members to participate in the cultural resources field investigation. Of the 11 tribes contacted, four tribes and the MIAC responded and representatives of the Upper Sioux Community participated in the cultural resources field investigation. A summary of the responding tribes' comments is provided below.

On June 21, 2024 Coneflower provided the location and description of the tribal resources that were documented at the Project Area by the Upper Sioux to the MIAC (Appendix J) and on June 24, 2024 provided notification to the 10 Tribal Nations that did not participate in the survey that they can contact the MIAC for the survey results (Appendix C). Coneflower also provided a summary of the avoidance measures of the tribal resources to Upper Sioux Community on June 24, 2024 (Appendix J).

6.1.4.1 Lower Sioux Indian Community

Cheyanne St. John, Tribal Historic Preservation Office (THPO)/Director of the Lower Sioux Indian Community, responded on October 3, 2023, thanking Coneflower Solar for notifying their office of the proposed Project and noting they would add it to their review roster and contact Coneflower Solar if any concerns arise. No additional feedback has been received.

6.1.4.2 Upper Sioux Community

On October 11, 2023, Samantha Odegard, THPO of the Upper Sioux Community, responded and requested to be involved in the continued consultation and potentially the cultural field work. Two TCSs of the Upper Sioux Community participated in the cultural field work, during which they located two TCPs each containing two sites. On February 2, 2024, the Upper Sioux Community requested avoidance buffers of 50-100 feet, depending on the site. Both sites have been given a 100 ft avoidance buffer which exceeds the buffers requested by the Upper Sioux Community. On June 24, 2024 Coneflower provided a follow-up to the Upper Sioux Community on the avoidance measures implemented by Coneflower.

6.1.4.3 Shakopee Mdewakanton Indian Community

On September 25, 2023, Leonard Wabasha, Director of Cultural Resources of the Shakopee Mdewakanton Indian Community responded thanking Coneflower Solar for the opportunity to consult on the Project and requested a copy of the archaeological report when complete. On June 21, 2024 Coneflower Solar provided the relevant sections of the report to MIAC, which, Coneflower Solar understands the MIAC will provide to tribes with interest in the Project. On June 24, 2024, Coneflower provided a Project update describing the survey and results and how to obtain information on it; Leonard Wabasha responded acknowledging and appreciating the Project update.

6.1.4.4 Leech Lake Band of Ojibwe

On September 25, 2023, Amy Burnette, Leech Lake THPO responded indicating Lyon County was not one of the counties the tribe reviews and suggested Upper Sioux Community and

Lower Sioux Indian Community. On September 26, 2023, Coneflower Solar indicated both tribes had also received the letter.

6.1.4.5 Minnesota Indian Affairs Council

On October 17, 2023, John Reynolds of Minnesota Indian Affairs Council (MIAC) responded indicating the Project's location either intersects with, or is very near several state archaeological sites, and is within an area likely to contain cultural resources. MIAC recommended further research and cultural resource management fieldwork with monitoring and tribal consultation to regional THPOs, both of which were completed by Coneflower Solar as discussed in Sections 5.4 (Archaeological and Historical Resources) and 6.0 (Agency, Tribal, and Stakeholder Coordination). In accordance with Minn. Stat. §138.40 Subd. 3, on June 21, 2024, Coneflower provided the MIAC with the location and description of the tribal resources that were documented at the Project Area by the Upper Sioux Community for their review and input (Appendix J).

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