Appendix D

Agricultural Impact Mitigation Plan

Agricultural Impact Mitigation Plan

Boswell Solar Project, Itasca County, Minnesota

Minnesota Power

December 2024

Agricultural Impact Mitigation Plan

December 2024

Contents

Tables

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Abbreviations

AIMP	Agricultural Impact Mitigation Plan
BMP	best management practice
Contractor	construction contractor
LCC	Land Capability Class
LLBO	Leech Lake Band of Ojibwe
MDA	Minnesota Department of Agriculture
Monitor	suitable independent monitor
MW	megawatt
O&M	Operations and maintenance building
PLSS	Public Land Survey System
Project	Boswell Solar Project
PV	Photovoltaic
SSURGO	Soil Survey Geographic Database
SWPPP	Stormwater Management Pollution Prevention Plan
VMP	Vegetation Management Plan

1 Purpose and Applicability of the AIMP

Minnesota Power developed this Agricultural Impact Mitigation Plan (AIMP or Plan) in consultation with the Minnesota Department of Agriculture (MDA). This Plan provides measures that Minnesota Power, including its staff and/or contractors, plan to use to avoid, lessen, and/or rectify possible adverse impacts to agricultural lands resulting from developing, operating, and ultimate decommissioning the Boswell Solar Project (Project) in Itasca County, Minnesota. This Plan also includes descriptions of best management practices (BMPs) that Minnesota Power will implement during construction to minimize long-term adverse soil impacts. It is anticipated that the Minnesota Public Utilities Commission will incorporate this Plan by reference into the Site Permit for the Project. Unless the easement or other agreement, regardless of nature, with the landowners specifically requires the contrary, Minnesota Power will implement the mitigative measures specified in this Plan in accordance with the conditions discussed below.

Minnesota Power owns, or leases land required to construct and operate the Project. Agricultural production will temporarily cease during the approximate 35-year Project lifespan. This Plan contains measures to allow Project lands to return to agricultural production upon Project decommissioning. Minnesota Power and the construction contractor (Contractor) will follow this Plan. The Contractor may identify some procedures and methods that are more efficient and yield better results during Project construction. Should this occur, Minnesota Power and the Contractor will engage with the MDA to determine if deviations from this AIMP are warranted and gain approval from the MDA for any alternative procedures and methods.

This Plan and the associated Vegetation Management Plan (VMP) seek to maintain and/or emulate the Project Area's landscape characteristics. Minnesota Power and its Contractor will select native and non-invasive naturalized plant species that grow well in shady conditions and do not hinder solar panel operation while providing benefits to pollinator species and soil conditions. In general, they will seed lands with the Photovoltaic (PV) solar arrays using a mix of shorter prairie plant species at the base of the solar arrays and in the open spaces between fences and arrays, and wetland plant species seed mix for areas that will retain water and wetland characteristics. They will specify the final details for seeding zones in the VMP. Minnesota Power and its Contractor will coordinate with applicable agencies and state plant specialists to formulate native and naturalized, non-invasive plant seed mixes. Minnesota Power will use seed mixes that:

- can attain efficient operation of the PV solar array
- maintain and/or reestablish stable perennial land cover
- keep weeds in check
- preclude soil erosion and minimize runoff
- preserve water infiltration capabilities of the soil
- maintain or create habitat conducive to pollinator species

Minnesota Power and its Contractor will manage vegetation following the appropriate BMPs included in this Plan as part of an adaptive management approach. The VMP includes vegetation parameters and procedures to protect and/or restore the existing agricultural land characteristics. Additional details on plans for seeding are available in the VMP.

This Plan is organized into the following sections:

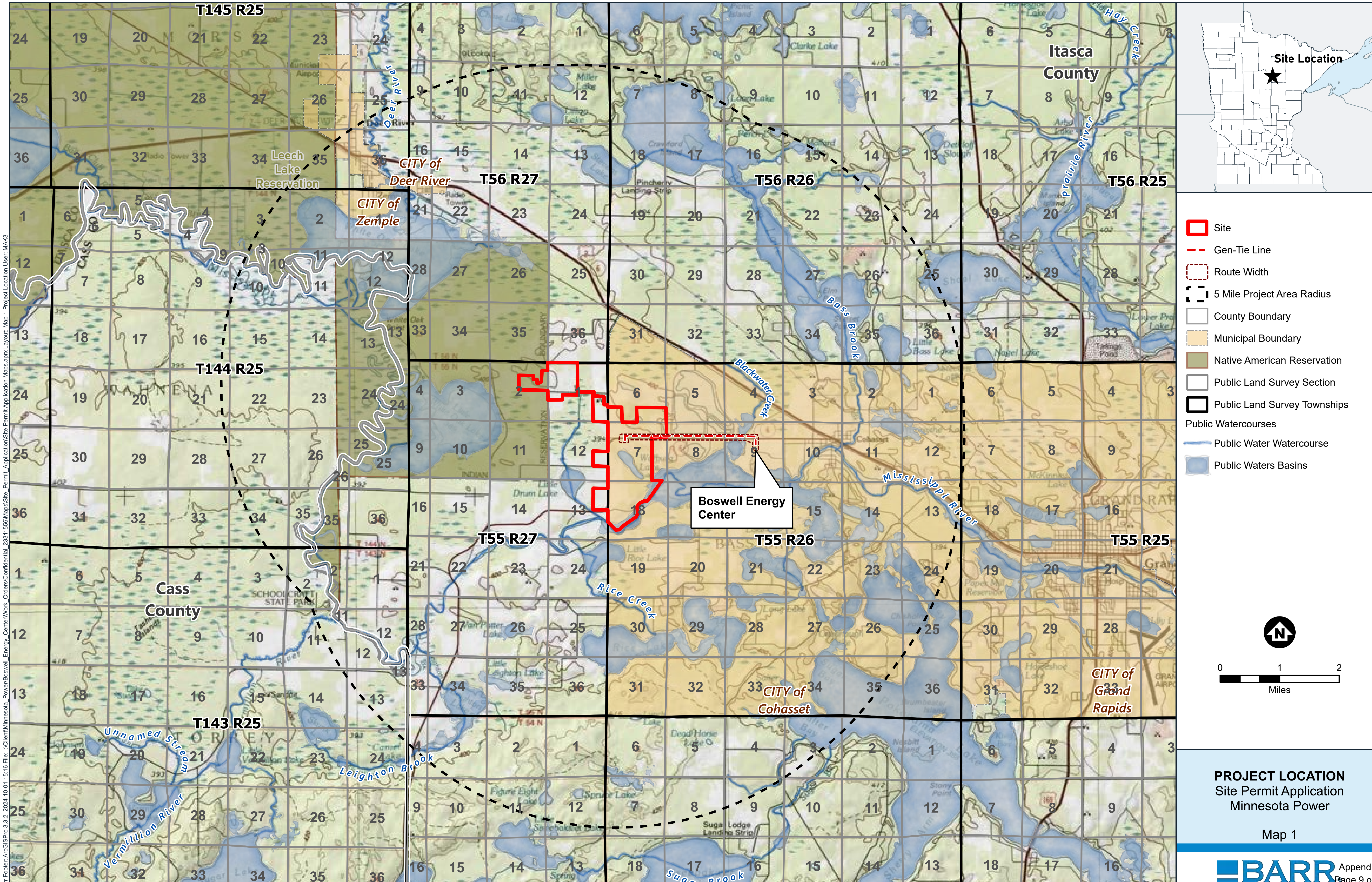
- Section 1 includes the Plan's purpose and applicability.
- Section 2 includes a Project overview.
- Section 3 discusses limitations and the suitability of the on-site soils.
- Section 4 provides the BMPs to be used during construction and operation.
- Section 5 summarizes the decommissioning process.

2 Project Overview

Minnesota Power will construct, own, and operate the Project. The Project involves construction of an 85-megawatt (MW) PV solar energy generating facility west of the city of Cohasset in Itasca County, Minnesota (Figure 1). Minnesota Power proposes to build the Project within an area of approximately 1,344.5 acres of private land (Site), of which 581.8 acres will be for the operation of the Project (Anticipated Development Area). The Site is in the city of Cohasset, unincorporated Itasca County, and the Leech Lake Band of Ojibwe (LLBO) Reservation in the following Public Land Survey System (PLSS) sections:

- Sections 1-2 and 12-13 of Township 55 North, Range 27 West
- Sections 6-7 and 18 of Township 55 North, Range 26 West

The Site is generally north of the Mississippi River, west of Blackwater Lake, south of US-2, and east of County Road 11. The Site includes agricultural land, wetlands, and forested areas.


T145 R25
T144 R25
T143 R25
T56 R27
T56 R26
T56 R25
T55 R27
T55 R26
T55 R25
Itasca County
Cass County
Leech Lake Reservation
CITY of Deer River
CITY of Zemple
CITY of Cohasset
CITY of Grand Rapids
Boswell Energy Center
Deer River
Hay Creek
Prairie River
Bass Brook
Blackwater Creek
Mississippi River
Rice Creek
Leighton Brook
Unnamed Stream
Vermillion River
Sugar Brook
Site Location
Site
Gen-Tie Line
Route Width
5 Mile Project Area Radius
County Boundary
Municipal Boundary
Native American Reservation
Public Land Survey Section
Public Land Survey Townships
Public Watercourses
Public Water Watercourse
Public Waters Basins
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1
2
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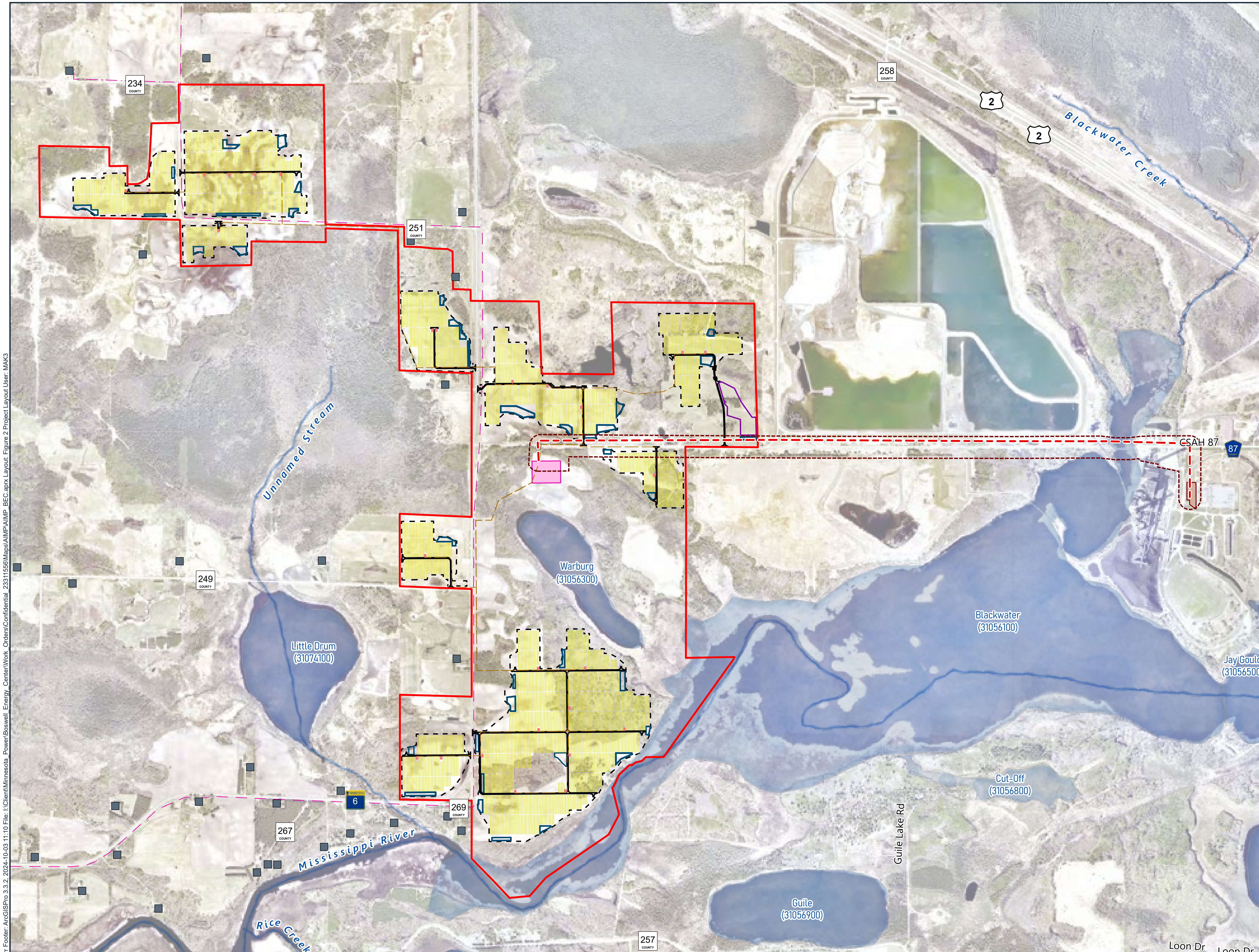
PROJECT LOCATION
Site Permit Application
Minnesota Power
Map 1
BARR
Barr Footer: ArcGISPro 3.3.2, 2024-10-01 15:16 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps.aprx Layout: Map 1 Project Location User: MAK3

2.1 Project Components

Minnesota Power will construct the following major components, systems, and associated facilities for the Project (Figure 2):

- Single-axis tracking PV arrays installed on driven piles or helical screws
- Power conversion stations, which house inverters and medium-voltage step-up transformers
- Electrical collection line cables
- Project substation (Warburg Lake Substation)
- Step-up transformers
- Metering equipment
- Supervisory Control and Data Acquisition (SCADA) systems
- 230-kV generation tie line
- Boswell 230-kV Substation Expansion
- Gravel access roads
- Security fencing and gates
- Stormwater management system basins
- Temporary laydown yard
- Communication shelter
- Meteorological stations



Site
Route Width
Gen-Tie Line
Dwelllings
Access Roads
Inverters
Laydown Yard
Overhead Powerlines
Security Fence
Stormwater Basin
Underground Collection
Proposed Solar Array
Warberg Lake Substation Area
BEC 2030kV Expanson Substation

Public Watercourses

Public Water Watercourse
Public Ditch/Altered Natural Watercourse
Public Waters Basins

N

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Feet

Imagery: 2023 Itasca County

PROJECT LAYOUT
Agricultural Impact Mitigation Plan
Minnesota Power

Figure 2

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During construction activities, the Contractor will use the laydown area to stage equipment and for temporary construction-related needs. Minnesota Power may also use a permanent laydown area during operation of the Project.

The proposed solar panels will deliver DC power to the inverters through overhead cables or underground cabling. The buried cables would be installed through an open trench, directional bore, or plowed in place. The AC collector system will transmit the power to the Project substation adjacent to the interconnection point (Figure 2). The cable trenches may need to be deeper to avoid existing utilities or other features. The geotechnical analysis, constructability, and availability of materials will inform the site-specific electrical collection technology used.

The Project substation will consist of supporting structures for high voltage electrical structures, breakers, transformers, lightning protection, and control equipment according to the Interconnection Agreement with the Midcontinent Independent System Operator and transmission owner specifications.

The SCADA system will communicate back to the Generations Operations center at the Boswell Energy Center. The existing Boswell Energy Center will also provide a place for maintaining and storing equipment and tools.

Minnesota Power will construct access roads throughout the Site, install perimeter fencing to prevent public access, and construct stormwater management areas if required per the Project's Stormwater Management Pollution Prevention Plan (SWPPP). These basins will be designed to capture stormwater runoff for control and water quality. The Contractor will seed these areas with a proper mix in accordance with the VMP to stabilize soils and minimize erosion.

2.2 Construction

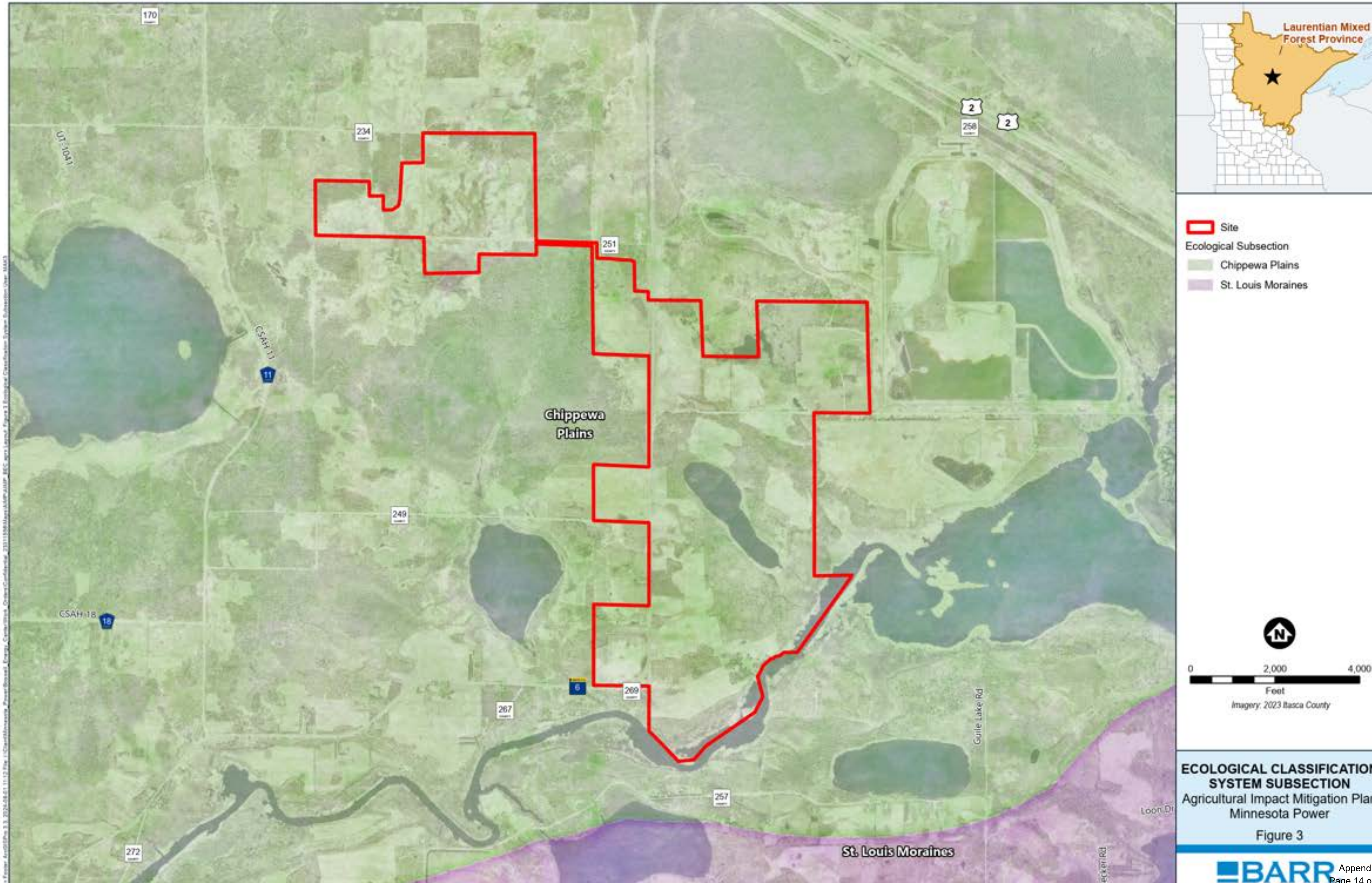
Minnesota Power anticipates beginning construction in the first quarter of 2026 and commercial operation by quarter three of 2027. The construction activities will include:

- Clearing and vegetation removal activities
- Earthwork and grading
- Installing access roads, solar arrays, and other permanent features

Multiple construction activity stages or phases will possibly occur at the same time. The SWPPP will outline phasing measures to minimize erosion and the potential for off-site sediment transport.

3 Project Location and Characteristics

According to the Minnesota Department of Natural Resources Ecological Classification System, the Project is within the Chippewa Plains (212Na) Subsection in the Northern Minnesota Drift and Lake Plains (212N) Section of the Eastern Broadleaf Forest Province (Figure 3) (reference (1)). This Section has complex surface geology, formed over many episodes of glaciation. It is characterized by deep (200-600 feet) glacial deposits in outwash plains, lake plains, till plains, outwash channels, moraines, and drumlin fields. The patterns of vegetation in the Section reflect the complex and patchy distribution of these glacial deposits. Mesic forest of sugar maple, basswood, paper birch, aspen, and northern red oak are widespread (reference (2)).


Laurentian Mixed Forest Province
Site
Ecological Subsection
Chippewa Plains
St. Louis Moraines
Chippewa Plains
St. Louis Moraines
CSAH 11
CSAH 18
UT-1041
Gulle Lake Rd
Loon Dr
Becker Rd
170
234
251
249
267
269
257
272
258
2
11
18
6
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Feet
Imagery: 2023 Itasca County
ECOLOGICAL CLASSIFICATION SYSTEM SUBSECTION
Agricultural Impact Mitigation Plan
Minnesota Power
Figure 3
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3.1 Land Use and Land Cover

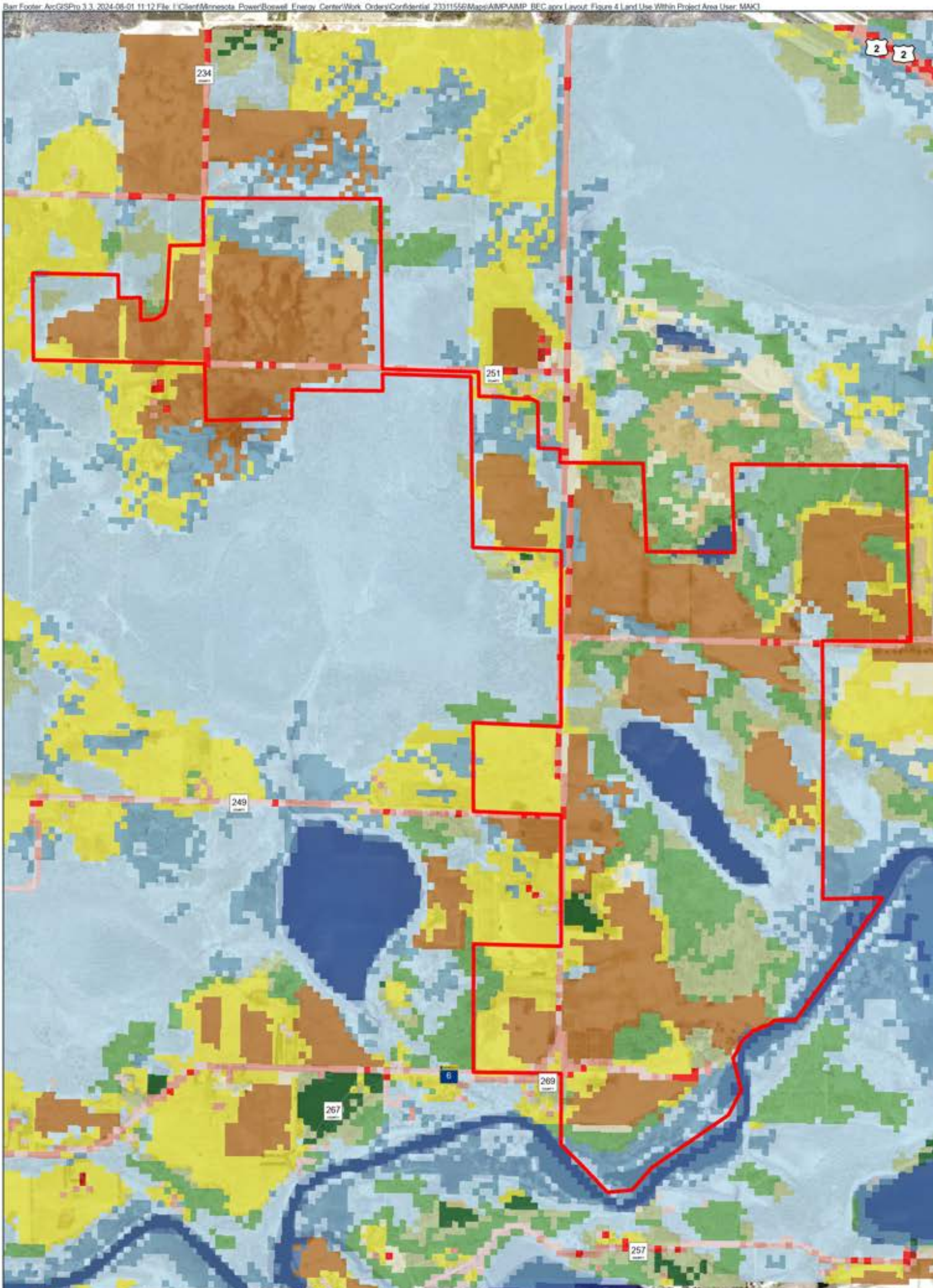
Land use within and adjacent to the Site is predominantly forested land and agricultural (Figure 4). The Site includes agricultural fields with cultivated crops and pastures, as well as agricultural related structures, forested areas, wetlands, and waterbodies (Figure 5).

Over a ten-year period (2014 to 2023), soybeans have been the primary cultivated crop within the Site (Table 1) (references (3); (4); (5); (6); (7); (8)). Other agricultural land cover types have included spring wheat, grass/pasture, corn, and alfalfa. The Site contains areas designated as Prime Farmland, Farmland of Statewide Importance, and Prime Farmland if drained (Section 3.3).

Table 1 Primary Land Cover for the Site

Year	Primary Land Cover
2023	Soybeans
2022	Soybeans
2021	Soybeans
2020	Soybeans
2019	Soybeans
2018	Spring Wheat
2017	Soybeans
2016	Soybeans
2015	Soybeans
2014	Soybeans

The most developed area near or within the Project is the city of Cohasset. Except for residences in the city of Cohasset, residences in the vicinity of the Project are primarily associated with farms. The major traffic routes in the area are US-2 which runs southeast and northwest, to the north of the Project, and MN-6, which runs north and south, across the Project.



Site

Land Use, NLCD 2021

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

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Imagery: 2023 Itasca County

LAND USE WITHIN PROJECT AREA

Agricultural Impact Mitigation Plan
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Figure 4

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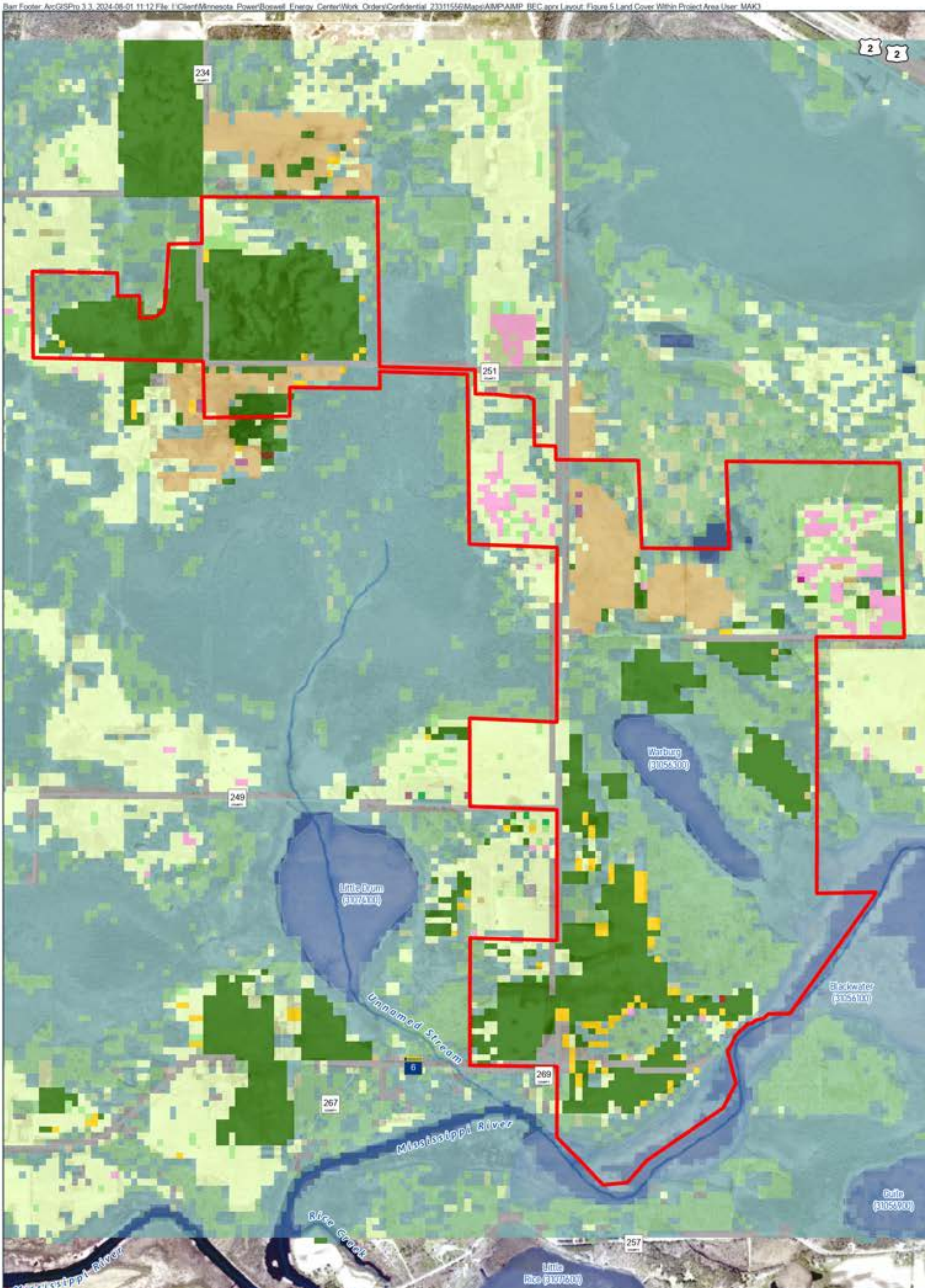

Site	Potatoes	Deciduous Forest
Cropland Data Layer 2023	Other Crops	Evergreen Forest
Corn	Sod/Grass Seed	Mixed Forest
Soybeans	Fallow/Idle Cropland	Shrubland
Spring Wheat	Open Water	Grassland/Pasture
Rye	Developed/Open Space	Woody Wetlands
Oats	Developed/Low Intensity	Herbaceous Wetlands
Alfalfa	Developed/Med Intensity	Public Watercourses
Other Hay/Non Alfalfa	Developed/High Intensity	Public Water Watercourse
Dry Beans	Barren	Public Waters Basins

0 1,000 2,000
Feet

Imagery: 2023 Itasca County

LAND COVER WITHIN PROJECT AREA
Agricultural Impact Mitigation Plan
Minnesota Power

Figure 5

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3.2 Soil Properties and Qualities

The Soil Survey Geographic Database (SSURGO) provides datasets with map data relating soil map unit polygons to component soil characteristics and interpretations. The Site soil varies in the physical and chemical characteristics that influence the soil's suitability and limitations for construction, reclamation, and restoration.

Figure 6 illustrates the mapped soil types within the Site. Table 2 summarizes the soil properties and textures of the mapped soil types. According to the SSURGO, 17 mapped soil units are within the Site. Approximately one-third third (31 percent) of the Site contains the Wawina-Cedar Valley complex, 1 to 18 percent slopes.

Site	625,Sandwick loamy fine sand	803D,Warba-Menahga complex, 10 to 25 percent slopes	B606B,Ashlake-Effie complex, 0 to 4 percent slopes
Soil Map Unit	627,Tawas muck	B238A,Cowhorn-Onega-Sago, frequently ponded complex, 0 to 3 percent slopes	B616A,Effie-Ashlake-Effie, frequently ponded, complex, 0 to 2 percent slopes
1031,Histosols, ponded	655,Bearville loamy sand	B240D,Wawina-Cedar Valley complex, 1 to 18 percent slopes	B626B,Ashlake-Suomi complex, 1 to 8 percent slopes
116,Redby loamy fine sand, 0 to 3 percent slopes	797,Mooselake and Lupton soils, 0 to 1 percent slopes	B243A,Hamre-Tacoosh-Effie complex, 0 to 1 percent slopes, frequently ponded	W,Water
32B,Nebish loam, 1 to 8 percent slopes	798,Sago and Roscommon soils		
620B,Cutaway loamy sand, 0 to 8 percent slopes	799,Seelyeville-Bowstring association		

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Imagery: 2023 Itasca County

NRCS MAPPED SOIL TYPES

Agricultural Impact Mitigation Plan

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Figure 6

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Table 2 Soil Properties and Qualities Summary

Total Project Acres	Surface Texture (acres)						Slope Range (acres)			Drainage Class (acres) [1]				Topsoil Thickness (acres) [2]			Hydric Soils (acres) [3]	Avg Depth to Water Table (acres)	
	Loamy Sand	Sandy Loam	Loam	Muck	Mucky Peat	Water	0-5%	>5-8%	>8%	W	SP	P	VP	0-12"	>12-18"	>18"		<10"	10-75"
1,344.5	355.4	458.1	256.4	174.7	16.7	83.2	838.7	418.6	3.9	724.0	205.8	140.1	191.4	1,256.2	5.1	0.0	331.5	331.5	37.4

Note: Numbers may not sum to total due to rounding and the presence of water.
Resource: NRCS SSURGO
[1] W = Well Drained, SP = Somewhat Poorly Drained, P = Poorly Drained, VP = Very Poorly Drained
[2] Topsoil thickness is the aggregate thickness of the A horizon.
[3] Soils included in the total acres reported for hydric soils include those with either a "predominantly hydric" (67 to 99 percent) rating or a "all hydric" (100 percent) rating.

3.2.1 Soil Surface Texture

The SSURGO describes surface texture as:

> *"Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. 'Loam,' for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand."*

An appropriate modifier, e.g., "sandy" is added to “loam” if there is more sand content (50 to 70 percent in total) in comparison to just loam.

Soil texture affects soil properties, including infiltration, structure, porosity, water-holding capacity, and chemistry (reference (9)). Approximately 34 percent of the soils in the Site are sandy loam. The second most prominent surface texture present is loamy sand (26 percent). Loams provide good water storage and aeration (reference (10)).

3.2.2 Slope Range

The Site is primarily in the 0 to 5 percent slope range. Most of the Site has very gradual relief. However, a hill reaching 1,370 feet above mean sea level is north of Warburg Lake.

3.2.3 Drainage Class

The SSURGO describes drainage class as:

> *"'Drainage class (natural)' refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the 'Soil Survey Manual.'"*

The soil drainage class indicates how quickly water drains from an area and the frequency and duration of wet soil periods and dictates the vegetation types that can grow and activities that can take place (reference (11)).

Approximately 54 percent of the soils present within the Site are classified as well drained. Less than a quarter of the Site soils are classified as very poorly drained (14 percent) or somewhat poorly drained (15 percent). Soils in poor drainage classes are very productive when drained and are well suited for and frequently converted to agriculture after installing subsurface drain tile.

3.2.4 Topsoil Thickness

SSURGO maps do not identify any of the soils within the Site as having a thick topsoil thickness greater than 18 inches (Table 2). Most (approximately 93 percent) of the soils in the Site have a topsoil thickness less than 12 inches.

3.2.5 Hydric Rating

Hydric soils form in areas permanently or seasonally saturated with water and, as a result, develop anaerobic conditions at some point during the growing season, which affect the types of vegetation they can support. Hydric soils are also an important indicator of wetlands, and models that predict wetland locations often include location information (reference (12)).

SSURGO maps identify approximately 25 percent of soils within the Site as predominantly hydric or hydric (Table 2).

3.2.6 Depth to Water Table

The depth to the water table is important for many ecological processes, including vegetation growth patterns, interactions with surface water, and pollutant transport (reference (13)). Shallow groundwater also has implications for construction stormwater design, which requires 3 feet of separation from the bottom of an infiltration practice to the seasonal high water table (reference (14)).

SSURGO maps indicate the average depth to the water table is greater than 75 inches within 60 percent of the Site (Table 2). Approximately 25 percent of the Site has a less than 10-inch average depth to the water table. Minnesota Power will confirm the depth to groundwater prior to construction activities.

3.3 Classification Data: Prime Farmland and Land Capability Class

Table 3 summarizes the total prime farmland and land capability class classifications within the Site (Figure 7).

Table 3 Prime Farmland and Land Capability Summary

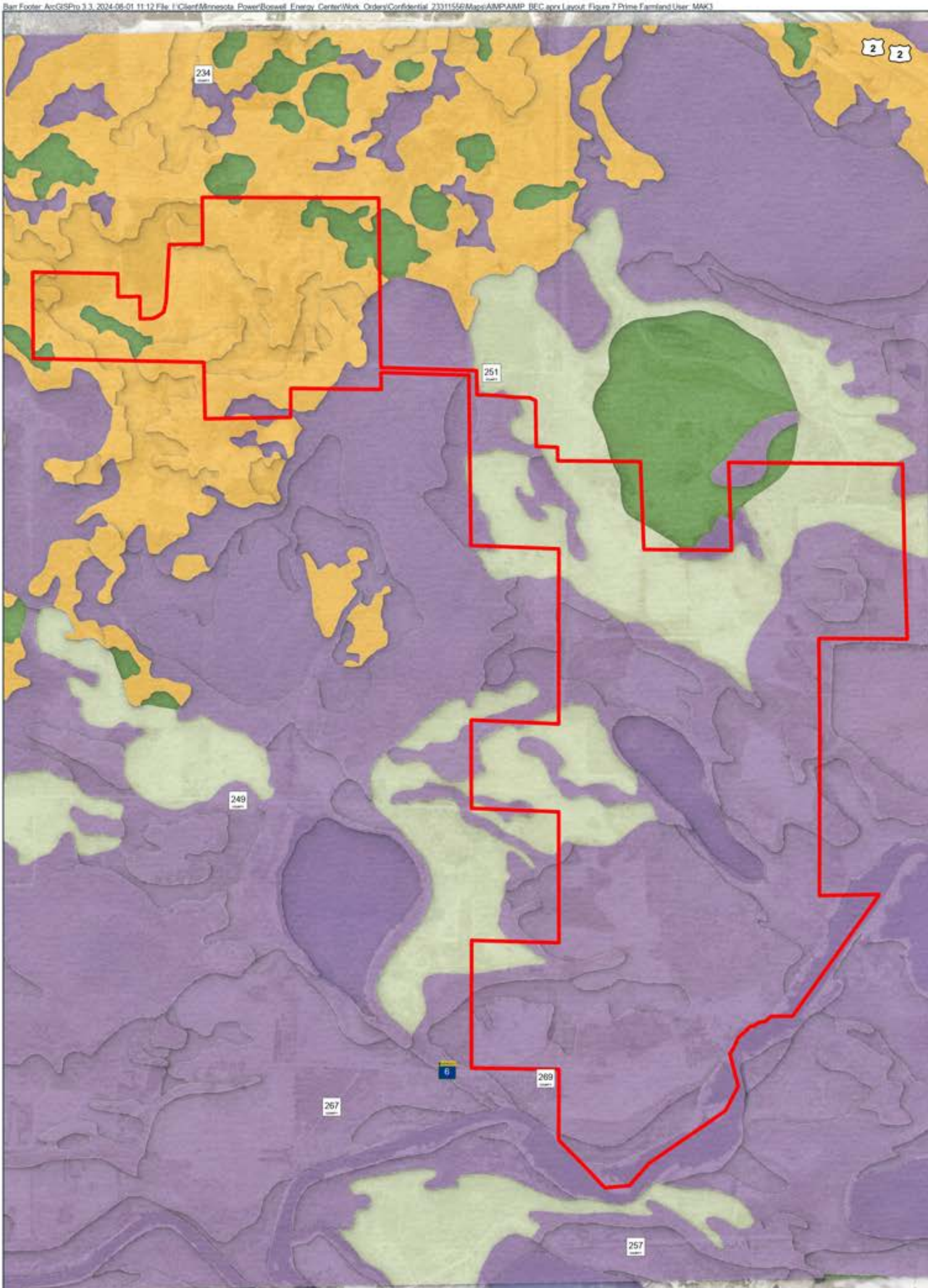
Total Acres	Prime Farmland (acres)				Land Capability Class (acres)								
	Prime	Statewide Importance	If Drained	Not Prime	2e	2w	3s	3w	4e	4w	5s	6w	8w
1344.5	34.5	289.4	221.9	798.7	12.1	35.6	289.4	188.2	3.9	122.1	418.6	174.7	16.7

Note: Numbers may not sum to total due to rounding and the presence of water.

7 C.F.R. 657.5(a) provides, in part, that prime farmland is:

> *"land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses . . . It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding."*

Only three percent of the soils within the Site are designated Prime Farmland (Figure 7). The remaining Site is designated as Prime Farmland If Drained (17 percent), Prime Farmland of Statewide Importance (22 percent), or not prime farmland (59 percent).



Site

Farmland Classification

- All areas are prime farmland
- Farmland of statewide importance
- Not prime farmland
- Prime farmland if drained

N

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Feet

Imagery: 2023 Itasca County

PRIME FARMLAND WITHIN PROJECT AREA

Agricultural Impact Mitigation Plan

Minnesota Power

Figure 7

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The Land Capability Class (LCC) soil grouping system classifies soils based on their suitability for most kinds of field crops and groups according to their limitations for field crops, the risk of damage if used for crops, and how they respond to management. Capability classes are designated by the numbers 1 through 8, indicating progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

- Class 1 soils have few limitations that restrict their use.
- Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.
- Class 3 soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.
- Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.
- Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.
- Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Approximately 36 percent of the soils within the Site fall within class 3 (3w and 3s). Of these soils, approximately 22 percent fall specifically within 3s. The letters after the class represent the main hazard where:

- “s” shows that the soil is limited mainly because it is shallow, droughty, or stony.
- "w" shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage).

Some soils present within the Site are suitable for agricultural purposes, particularly if drained, as supported by the LCC classification of 3w and the prime farmland designations, including prime farmland if drained and farmland of statewide importance.

3.4 Construction Related Soil Suitability and Limitation Ratings

The SSURGO soil data also includes designated soil suitability and limitations ratings as they relate to construction. Table 4 provides an acreage breakdown of selected soils ratings within the Site.

Table 4 Construction Related Soil Suitability and Limited Ratings

Total Acres	Erosion Hazard (Off-Road, Off-Trail)	Susceptibility to Compaction [2]	Rutting Hazard			Drought Vulnerable [3]
			Slight	Moderate	Severe	
1,344.5	422.5	260.3	83.2	355.4	905.8	740.7

[1] Soils included in the total acres reported as having an erosion hazard include those with a moderate, severe, and very severe rating.
[2] Soils included in the total acres reported for susceptibility to compaction include those with a rating of "Medium" or higher.
[3] Soils included in the total acres reported as drought vulnerable include those with a moderately drought vulnerable, drought vulnerable, and severely drought vulnerable rating.

3.4.1 Erodibility

SSURGO maps indicate the soils within the 31 percent of the Site have a moderate, severe, or very severe erosion hazard rating (Table 4).

3.4.2 Compaction and Rutting Hazard

Approximately 19 percent of the soils within the Site are compaction-prone (Table 4) and 67 percent of the soils within the Site have a severe rating for rutting (Table 4). The severe rating indicates that ruts form readily.

The degree of soil rutting and compaction corresponds to the soil texture and moisture levels, which worsen when heavy equipment traffic impacts wet soils with fine or medium textures.

3.4.3 Drought

Over half of the Site soils are considered drought vulnerable (Table 4). SSURGO maps deem approximately 55 percent of the Site soils as moderately drought vulnerable, drought vulnerable, or severely drought vulnerable.

4 BMPs During Construction and Operation

Minnesota Power will construct the Project on property they own or lease and does not anticipate direct impacts to adjacent lands.

Minnesota Power anticipates earth-disturbing activities will include minimal grading, constructing interior roads, digging trenches for the DC and AC collection system, and foundational work for the Project substation and inverter skids, as necessary. While the PV arrays design can follow existing grades within certain tolerances, some site balancing is likely. Balancing involves grading topsoil off from areas where borrow or fill is necessary, removing subsoils from borrow areas, and placing those soils in fill areas. Once the subsoil balancing is complete, the segregated topsoil will be replaced in the borrow and fill locations.

4.1 Environmental Monitor

Minnesota Power will coordinate with the MDA to identify a suitable independent monitor (Monitor). The Monitor will monitor earthmoving activities, including but not limited to grading, trenching, soil stockpiling/storage, and potential compaction, during Project construction to confirm appropriate measures occur to properly segregate and handle the topsoil. The Monitor will:

- Perform regular inspections during the major earthmoving phases of Project construction, including grading, trenching, soil stockpiling/storage, and potential for compaction.
- Observe construction crews and activities to oversee that topsoil is segregated and managed appropriately.
- Monitor the site for areas of potential soil compaction (except within access roads) and make specific recommendations for decompaction.
- Assist in determining if "wet weather" conditions exist and provide recommendations to the construction manager on stormwater BMPs.
- Assist in determining BMPs to mitigate any impacts to surface and subsurface agricultural drainage systems.
- Submit a weekly report confirming adherence to soil BMPs to the MDA during the Project construction earthmoving phase and upon completing earthmoving activities.

4.2 Temporary Erosion and Sediment Control

By adhering to a site-specific SWPPP, Minnesota Power will minimize the risk of excessive soil erosion on lands disturbed by construction.

Prior to construction, Minnesota Power will work with engineers or the Contractor to outline reasonable methods for erosion control and prepare the SWPPP. These measures primarily include silt fencing on the downside of hills, near waterways, and near drain tile inlets. Silt fencing controls sediment transport from stormwater. Check dams and sediment control logs slow water during rain events in areas with the potential for high-volume flow. In addition, the Contractor can use erosion control blankets on steep slopes, although given the site topography, this BMP will not likely be necessary. Lastly, as outlined above, topsoil and sub-grade material will be piled, loosely compacted, and/or "tracked" while stored. The

BMPs employed to minimize wind and stormwater erosion on these soil stockpiles may include installing silt fences on the piles' downward and/or installing sediment control logs if these spoil piles are near waterways. The SWPPP will identify inspection and maintenance requirements for BMPs.

4.3 Soil Segregation and Decompaction

During construction, one of the primary means to protect and preserve the valuable topsoil within the Site will be to separate the topsoil from the other subgrade/subsoil materials when earthmoving activities or excavation are taking place (grading, road construction, cable installation, foundation installation, etc.). There may be limited situations where excavated subsoil storage on adjacent undisturbed topsoil needs to occur. In these situations, the Contractor will return subsoil to the excavation with as little disturbance of the underlying topsoil as practicable.

Minnesota Power will strip up to 12 inches of topsoil in areas of construction grading and will treat topsoil deeper than 12 inches as subsoil. During the activities that require temporary excavations and backfilling (e.g., trenching) the Contractor will first replace subgrade material in the excavations and compact as necessary, followed by replacing the topsoil to the approximate locations from which they removed it. The Contractor will grade topsoil to the approximate pre-construction contour. Minnesota Power will strive to avoid compaction in other areas where the design does not require it.

Most topsoil disturbance will occur during site balancing and grading. Other activities that impact topsoil are access road construction, underground collection trenching and cable installation, inverter footing installation, and substation construction.

Following earthwork activities that require topsoil/subsoil segregation, the Contractor will re-spread topsoil materials on top of the backfilled subsoils or disturbed areas and decompact if necessary.

4.4 Project Phasing

Minnesota Power will document plans for construction phases in the SWPPP. The first phase of work will be the general civil work, where the cut-and-fill activities will occur.

The Contractor will first strip topsoil that sits higher than other areas, so that the topography is within the tolerances the solar array design allows. Based on the preliminary design, Minnesota Power anticipates some grading will be required. During this civil work, the Contractor will push topsoil outside the cut/fill areas and collect it in designated spots for later use. Once the Contractor removes the topsoil from the cut/fill areas, they will remove the sub-grade materials from on-site hills and relocate to on-site low spots. Prior to relocating subgrade materials to the low spots, the Contractor will strip topsoil and set aside before adding fill, then re-spread the topsoil over the new fill. The Contractor will compact sub-grade materials in place and re-spread the topsoil spoil piles over the reconditioned sub-grade areas. The Contractor will loosely compact this newly spread topsoil and/or "track" and employ the wind and stormwater erosion prevention BMPs.

After completing most major earthwork activities, the Contractor will start constructing the internal road network. This work starts by stripping topsoil materials from the roadbeds to a depth of up to 12 inches. The Contractor will windrow topsoil to the edges of each roadbed by pushing materials into rows of stockpiles adjacent to the road, loosely compacting, and/or "tracking" with stormwater and wind erosion BMPs in place. The Contractor will then compact the sub-grade materials. After gravel installation and compaction to engineers' requirements is complete, the Contractor will shape Site drainage ditches as identified on the final grading plan. The Contractor will then re-spread the previously stripped and windrowed topsoil within the Site.

Following grading and road construction, the Contractor will begin installing piles' foundation for the solar PV array racking system. This work will directly drive the pile into the soil with pile-driving equipment.

4.5 Foundations

The Contractor will perform foundation work for the Project substation and inverters. The Contractor will strip topsoil, install the pier-type foundations, compact sub-grade materials, re-grade spoils around the substation yard, and install clean rock on the surface of the substation area. They will push topsoil stripped from the Project substation area outside of the substation area and windrow or stockpile it in designated locations for later use, with stormwater and wind erosion BMPs in place. Once construction advances, Contractor will redistribute the topsoil piles in a thin layer adjacent to the substation area.

The inverter skids will be placed on driven piles or concrete foundations. If foundations will be required, the contractor will strip the top soil and excavate the inverter foundations using an excavator and install rebar and concrete. After the concrete cures and strength testing, they will compact the subgrade soils around the inverters. The Contractor will re-spread adjacent topsoil around the inverter after the concrete is set.

4.6 Trenching

Trenching may be necessary for the DC and AC collection lines underground installation. The Contractor will install AC and DC collection cables in at least 3-foot-deep trenches using either the buried in trench, directional boring, or plowed in place method if they bury the collection lines.

The Contractor will excavate topsoil and subgrade materials from the trench using typical excavating equipment or backhoes and segregate the topsoil as described in Section 4.3. They may line the bottom of each trench with clean fill or imported bedding to surround the cables. Minnesota Power anticipates that native subsoil will be free of rocks greater than 3 inches. After installing cables on top of the fill or bedding materials in the trench, the Contractor will place 1 foot of screened, native backfill subsoil on the cables, followed by an additional 2 feet of unscreened native backfill trench spoil. They will compact the material, as necessary. After settling, the Contractor will backfill the last foot of each trench with topsoil to return the surface to its finished grade.

4.7 Drain Tile Identification, Avoidance, and Repair

Minnesota Power has consulted with landowners and there is no drain tile within the Site. Therefore, no avoidance or repairs are necessary. However, should any unknown drain tile be encountered during construction Minnesota Power and their construction contractor will immediately consult with the Environmental Monitor and MDA to determine the best method to repair any damage to the drain tile.

4.8 Wet Weather Conditions

During the Project construction, periods of wet weather may necessitate a temporary halt of construction activities. The Minnesota Power Construction Manager will have the responsibility for halting activities if weather conditions pose a risk to worker safety or if heavy equipment will cause severe rutting. Following initial grading, some activities may proceed in wet weather but with caution and after installing BMPs (e.g., plywood, timber matting) based on the existing soil type present. Minnesota Power's Construction

Manager is responsible for avoiding or minimizing topsoil erosion, rutting, compaction, or damage to drain tiles (where present) to the extent possible.

If necessary, prior to installation of the native seed mix, the Construction Manager may direct crews to de-compact soils following wet weather conditions. De-compaction with chisel plows prior to disking and planting is a standard method of soil preparation in areas proposed for seeding to native grasses, forbs, and pollinator species.

4.9 Restoration

Minnesota Power and Contractor will comply with the requirements of the SWPPP and VMP during restoration. This includes implementation of BMPs, such as revegetation after the solar array construction and maintenance of vegetation during operations and maintenance using well-suited plants, scheduling seeding periods for optimum soil moisture for germination, and mulching.

4.10 Adaptive Management During Construction

When appropriate and necessary, Minnesota Power and its Contractor will employ the following adaptive management measures:

- Changing the Construction Plan should unforeseeable conditions arise that render it unworkable.
- Working with the Monitor, MDA, and other appropriate agencies to discuss and select potential new approaches to the site-specific condition during construction require different BMPs than those described in this section.
- Remaining flexible and implementing new practices/procedures while maintaining safe working conditions.

5 Decommissioning

At the end of the Project's useful life, Minnesota Power will either take necessary steps to continue operation of the Project (such as re-permitting and retrofitting) or decommission it and remove facilities. Minnesota Power reserves the right to extend operations instead of decommissioning at the end of the Site Permit term. Refer to the Project's Decommissioning Plan for additional details.

5.1 Reclamation of Facility Site

After removing equipment, Minnesota Power will restore the Site to agricultural use, according to the Decommissioning Plan, or to another use if the economic conditions and landowner intentions indicate another use is appropriate for the site. This includes filling holes created by steel pier foundations and fence poles, concrete pads, re-claiming access road corridors, and returning soils to pre-construction conditions. Minnesota Power will keep grading and other soil disturbance activities during decommissioning to the minimum necessary to maintain the soil benefits realized during the long-term operation of the Site. As noted in the Decommissioning Plan, Minnesota Power will de-compact disturbed soils to return the Site for agricultural use.

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