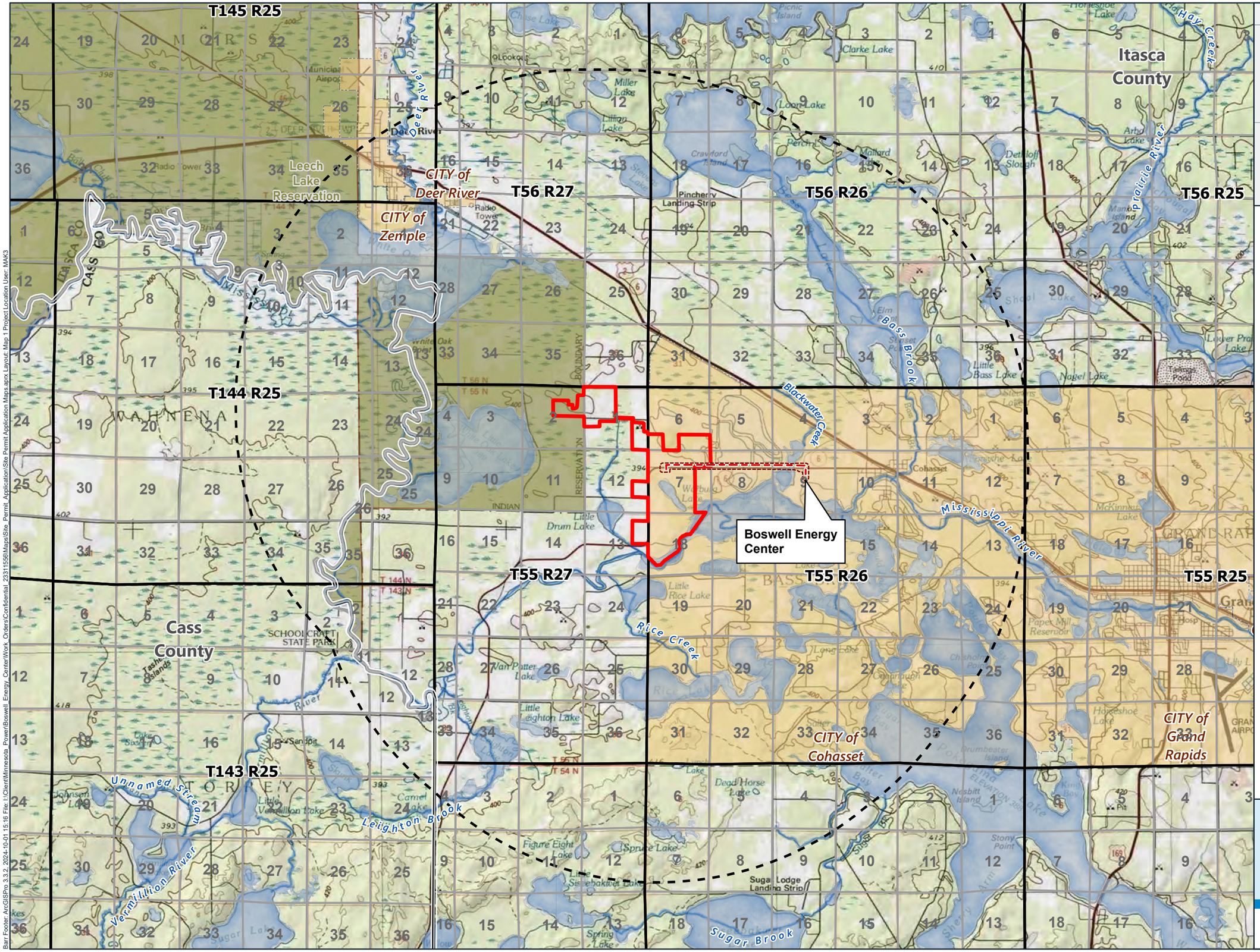


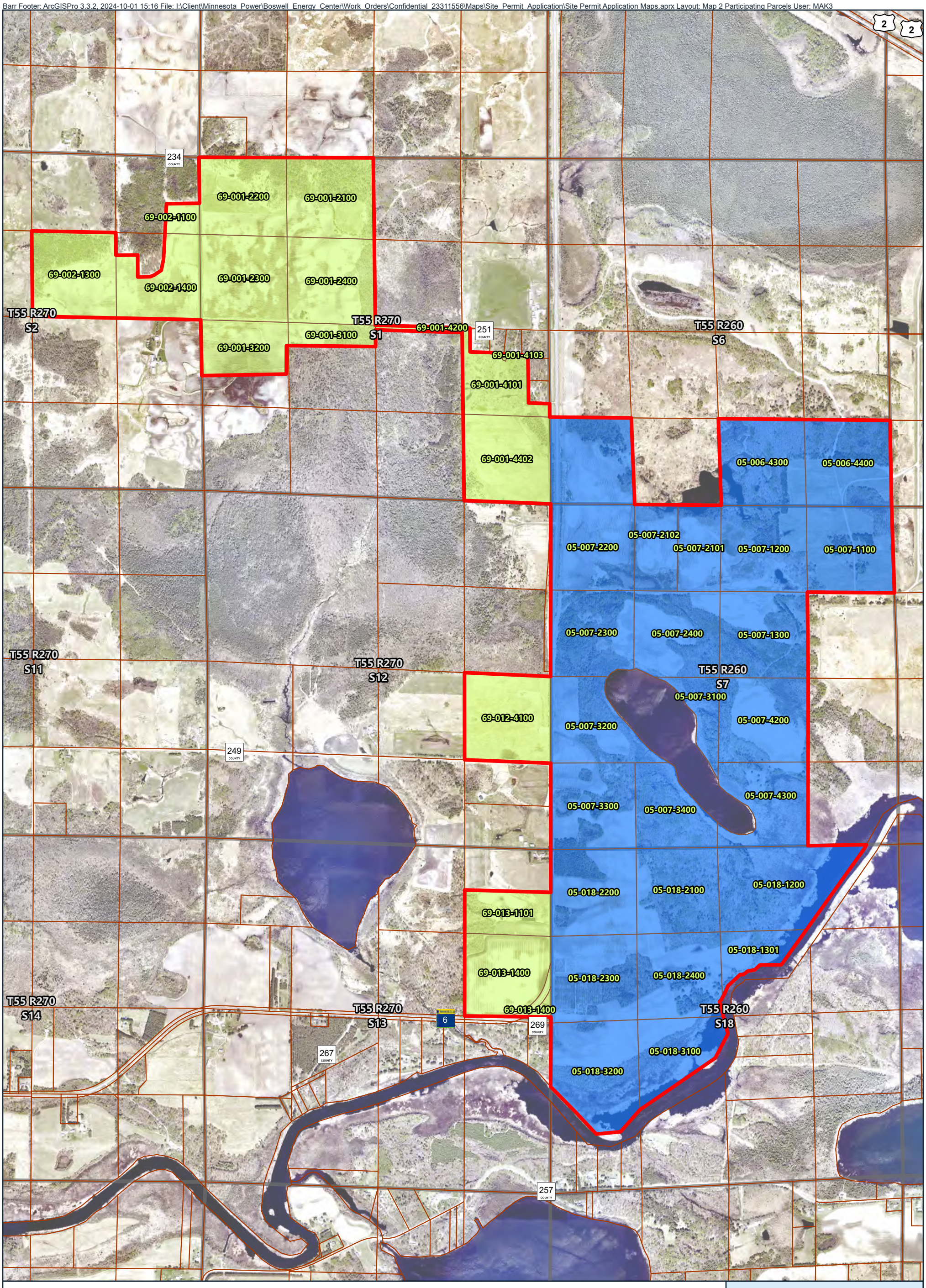
PROJECT LOCATION
Site Permit Application
Minnesota Power

Map 1

BARR

Docket No. E015/GS-24-425
Docket No. E015/TL-24-426

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



Site
Section Boundary
Itasca County Parcel Boundary
Participating Parcels
Private Landowner
Minnesota Power Landowner

N

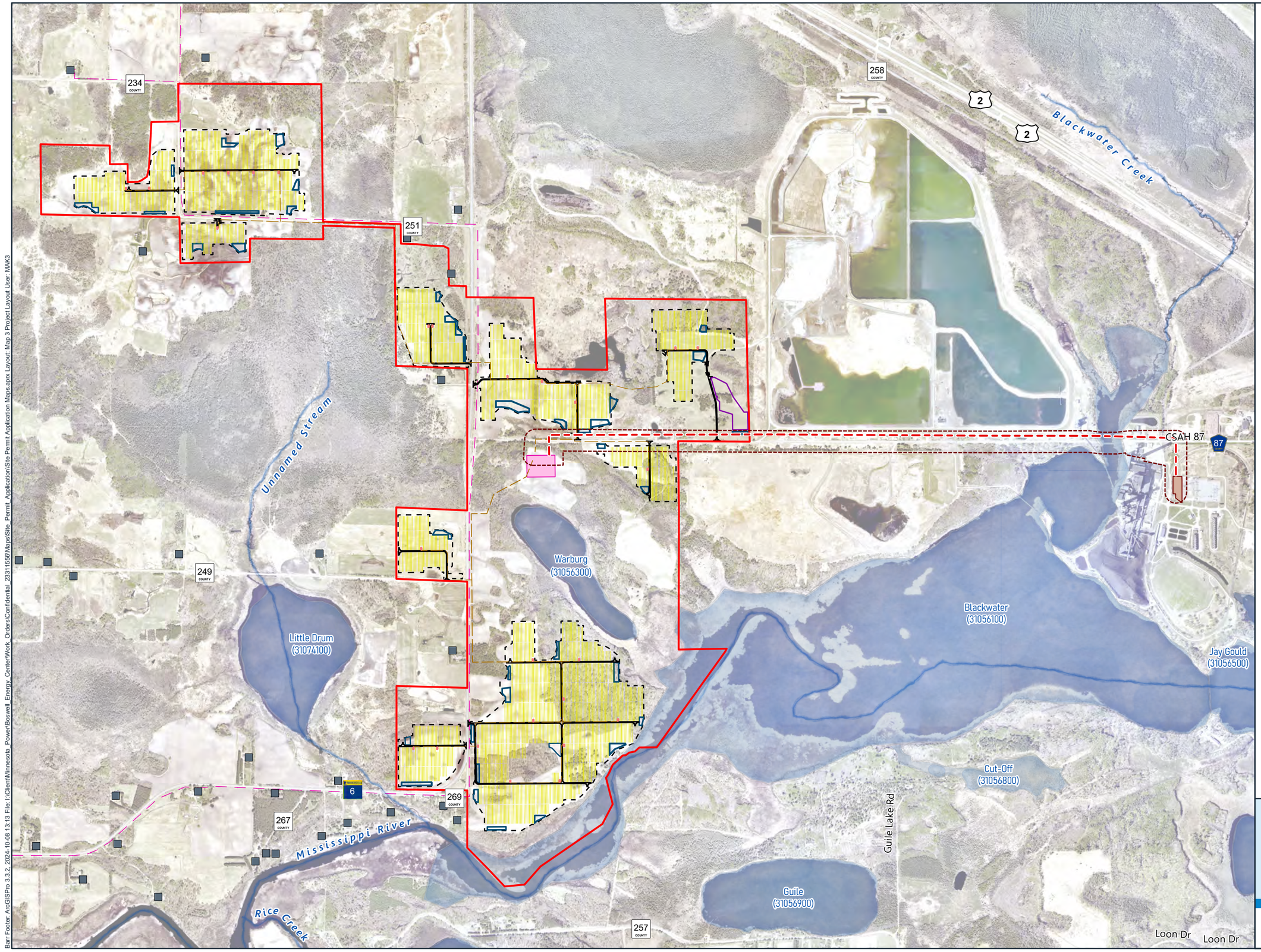
0 1,000 2,000
Feet

Imagery: 2023 Itasca County

PARTICIPATING PARCELS
Site Permit Application
Minnesota Power

Map 2

BARR



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

Public Watercourses
Public Water Watercourse
Public Waters Basins

0 1,500 3,000
Feet

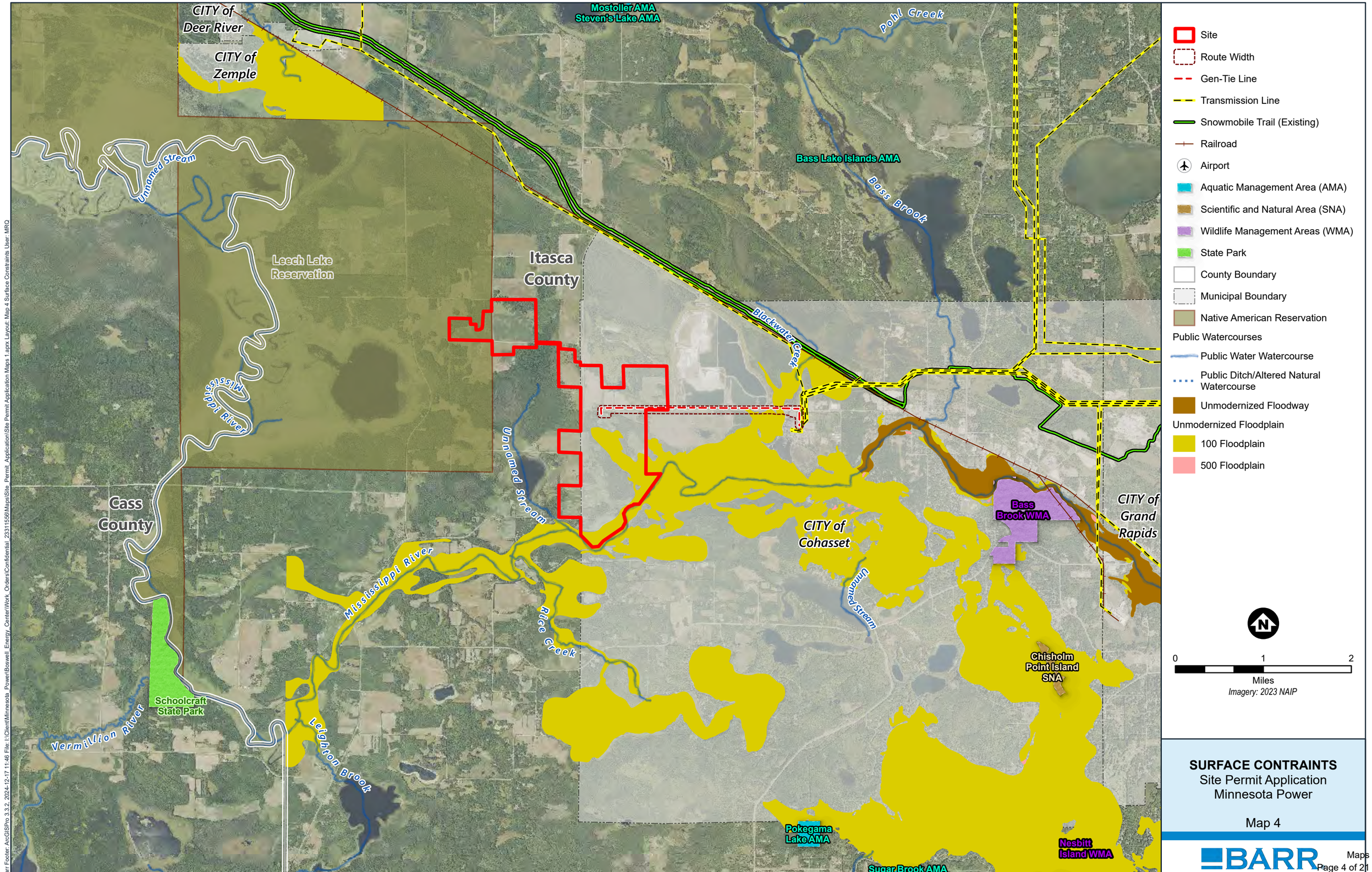
Imagery: 2023 Itasca County

PROJECT LAYOUT
Site Permit Application
Minnesota Power

Map 3

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-10-08 13:13 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps.aprx Layout: Map 3 Project Layout User: MAK3

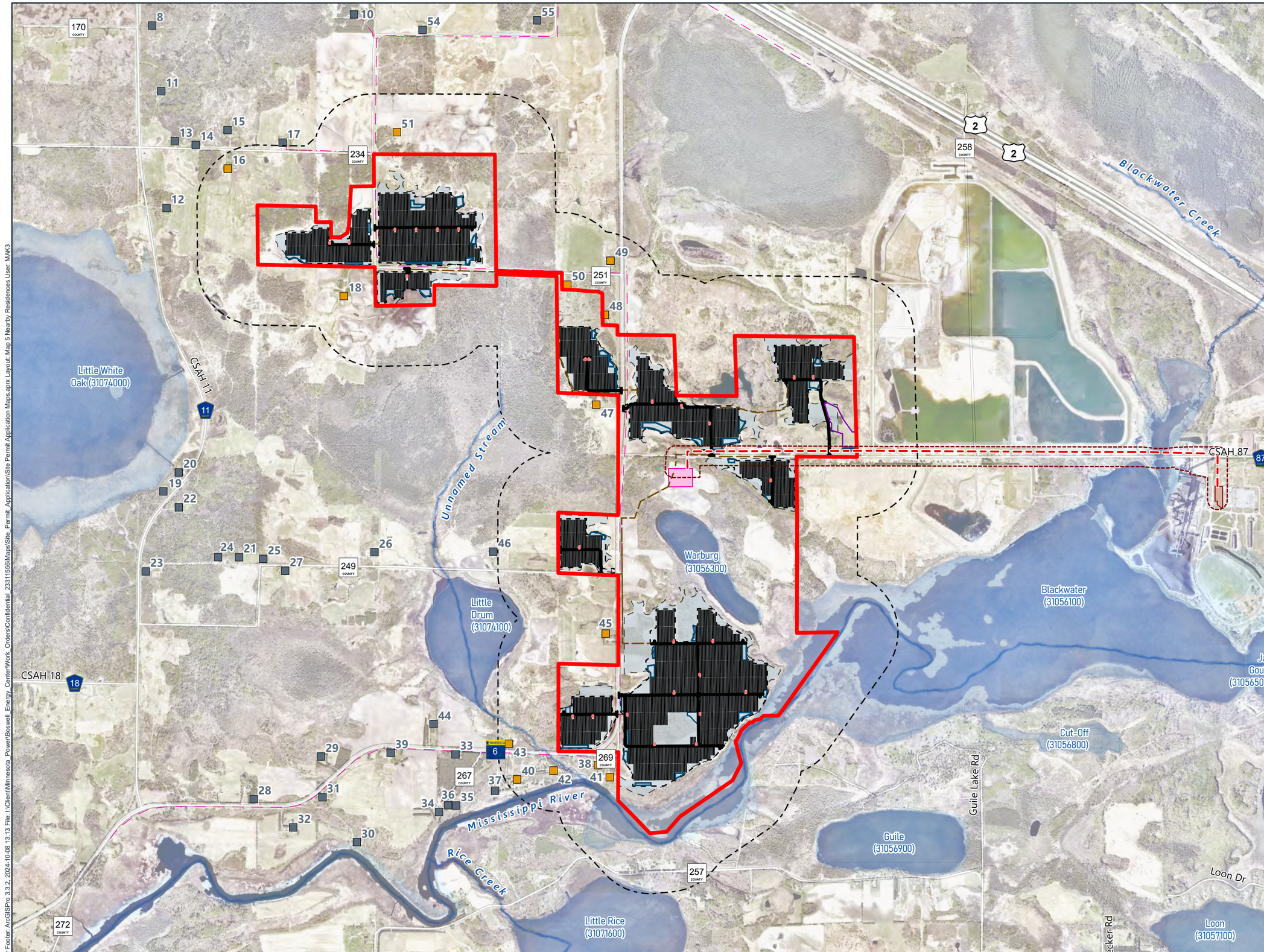


SURFACE CONTRAINTS
Site Permit Application
Minnesota Power

Map 4

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 11:46 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 4 Surface Constraints User: MRO



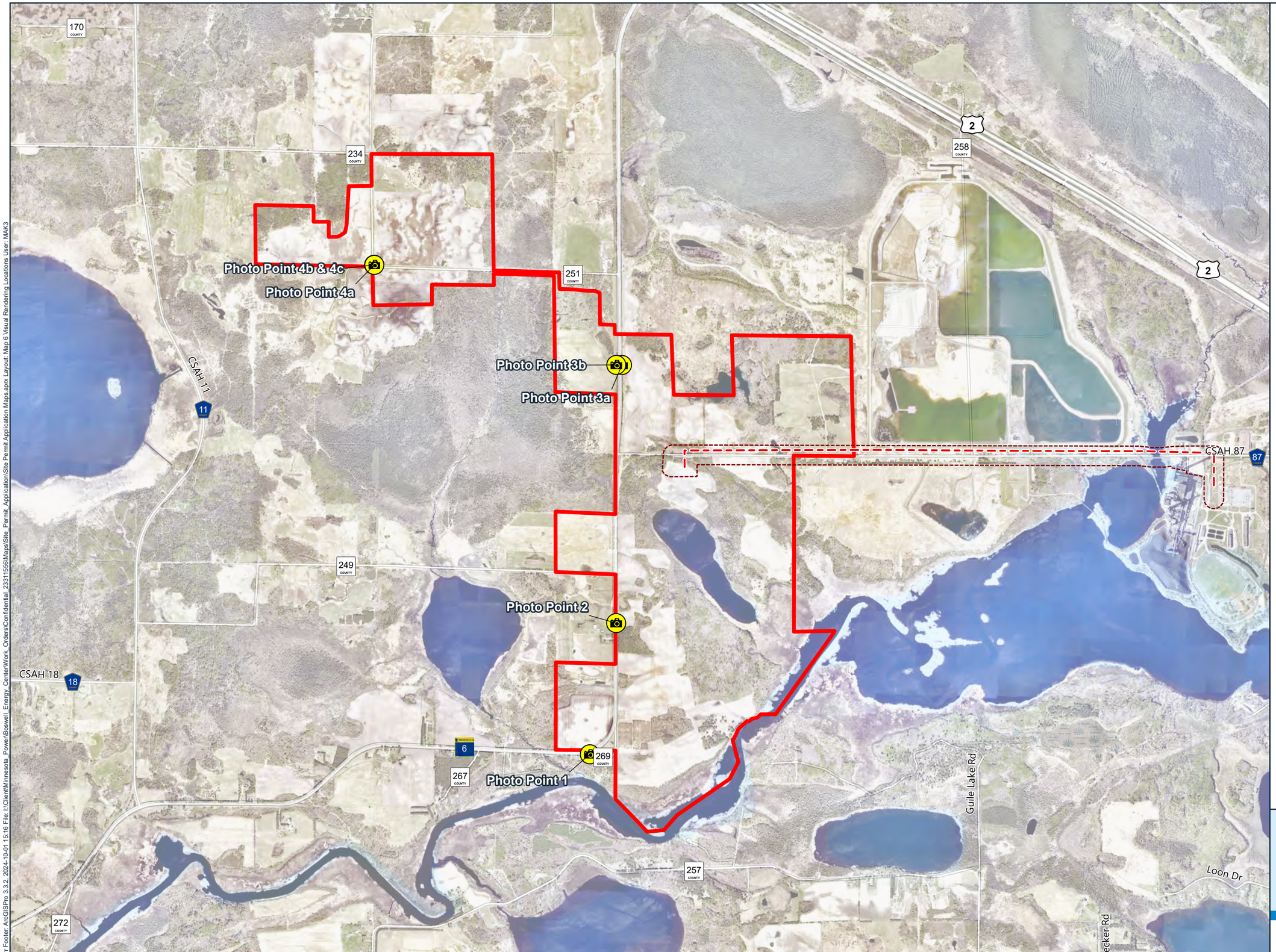
NEARBY RESIDENCES
Site Permit Application
Minnesota Power

Map 5

BARR

Docket No. E015/GS-24-425
Docket No. E015/TL-24-426

Barr Footer: ArcGISPro 3.3.2, 2024-10-08 13:13 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps.aprx Layout: Map 5 Nearby Residences User: MAK3



Site

Gen-Tie Line

Route Width

Visual Rendering Location

0 2,000 4,000

Feet

Imagery: 2023 Itasca County

VISUAL RENDERING LOCATIONS

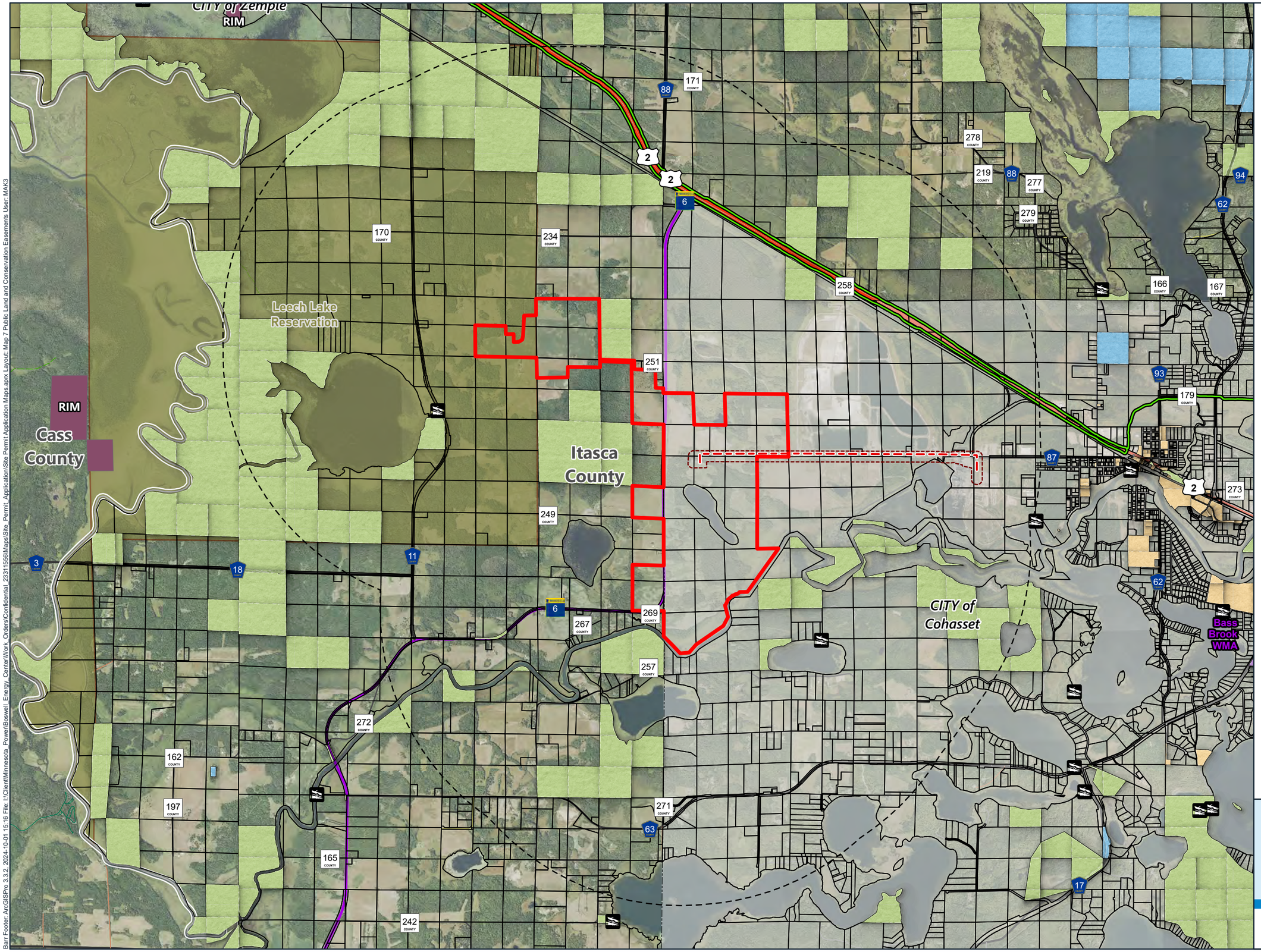
Site Permit Application

Minnesota Power

Map 6

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 6 Visual Rendering Locations User: MAK3



Site
Route Width
2 Mile Project Radius
Gen-Tie Line
Snowmobile Trail (Existing)
County Boundary
Native American Reservation
Municipal Boundary
Wildlife Management Areas (WMA)

Parcel Type
Non-Public Land
City
County
Public Access
State of Minnesota

Conservation Easement
RIM

0 0.5 1
Miles

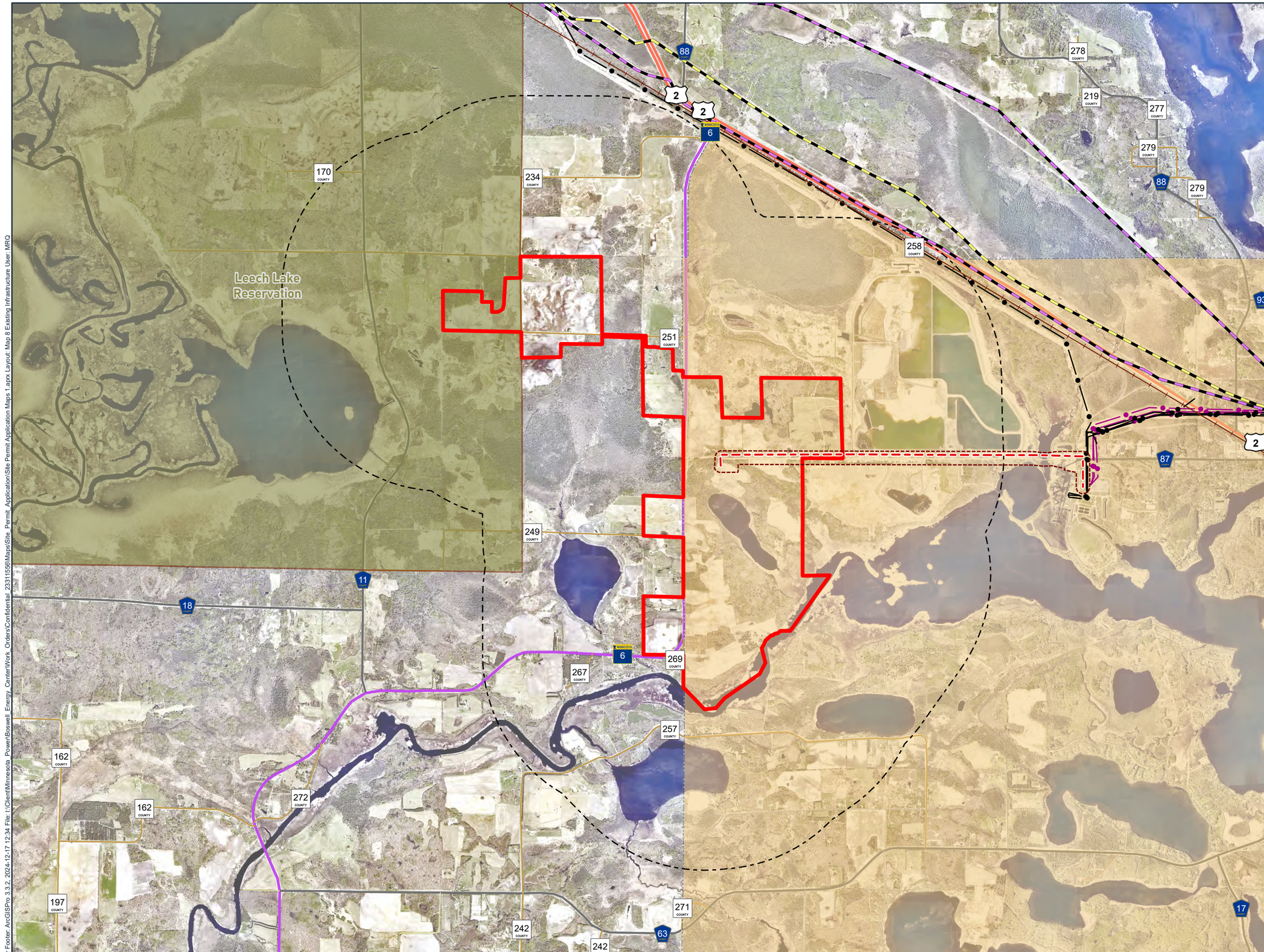
Imagery: 2023 NAIP

PUBLIC LAND AND CONSERVATION EASEMENTS
Site Permit Application
Minnesota Power

Map 7

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 7 Public Land and Conservation Easements User: MAK3



Site
Route Width
Gen-Tie Line
1 Mile Project Area Radius
Native American Reservation
Municipal Boundary
Existing 115 kV Transmission Line
Existing 230 kV Transmission Line
Gas Transmission Pipeline*
Hazardous Liquid Pipeline*
Railroad
US Highway
State Trunk Highway
County State-Aid Highway
County Road
Township Road
Unorganized Township Road
Municipal Street
National Forest Development Road
Ramp

** Pipeline routes are based on USGS 7.5 Minute Quadrangle map features and cross referenced with the NPMS Public Viewer pipeline category type. These routes are considered approximate. Please refer to https://pvnpms.phmsa.dot.gov/PublicViewer/ for the most available route data to the public.*

0 3,000 6,000
Feet

Imagery: 2023 Itasca County

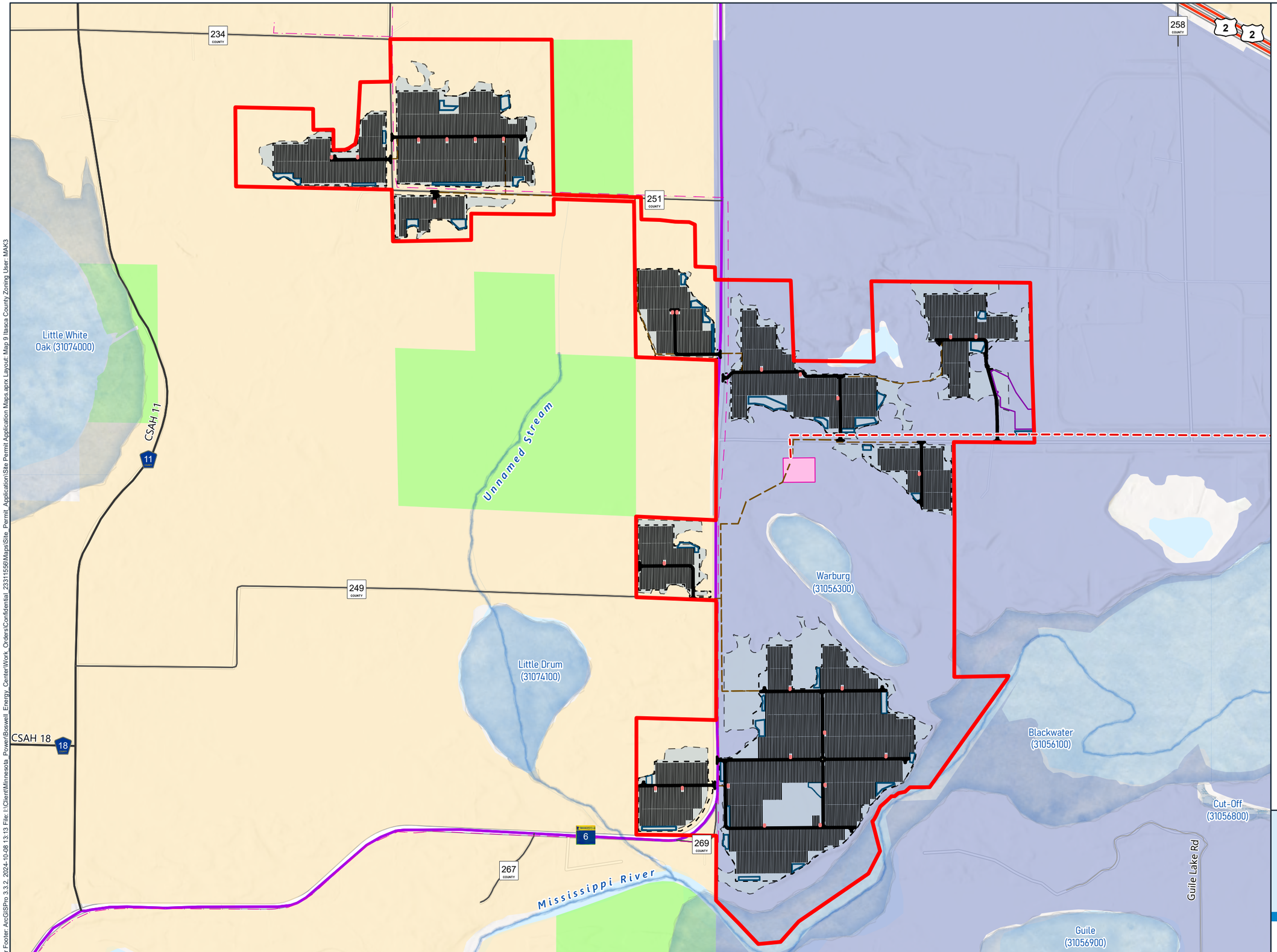
EXISTING LINEAR INFRASTRUCTURE
Site Permit Application
Minnesota Power

Map 8

BARR

Docket No. E015/GS-24-425
Docket No. E015/TL-24-426

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 12:34 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 8 Existing Infrastructure User: MRQ



Site
Gen-Tie Line
Laydown Yard
Inverters
Proposed Solar Array
Access Routes
Stormwater Basin
Overhead Powerlines
Underground Collection
Security Fence
Warberg Lake Substation Area
Developable Land
Public Waters Basins
Public Water Watercourse

Itasca County Zoning Districts

2 - Farm Residential
6 - Public
M - Municipal

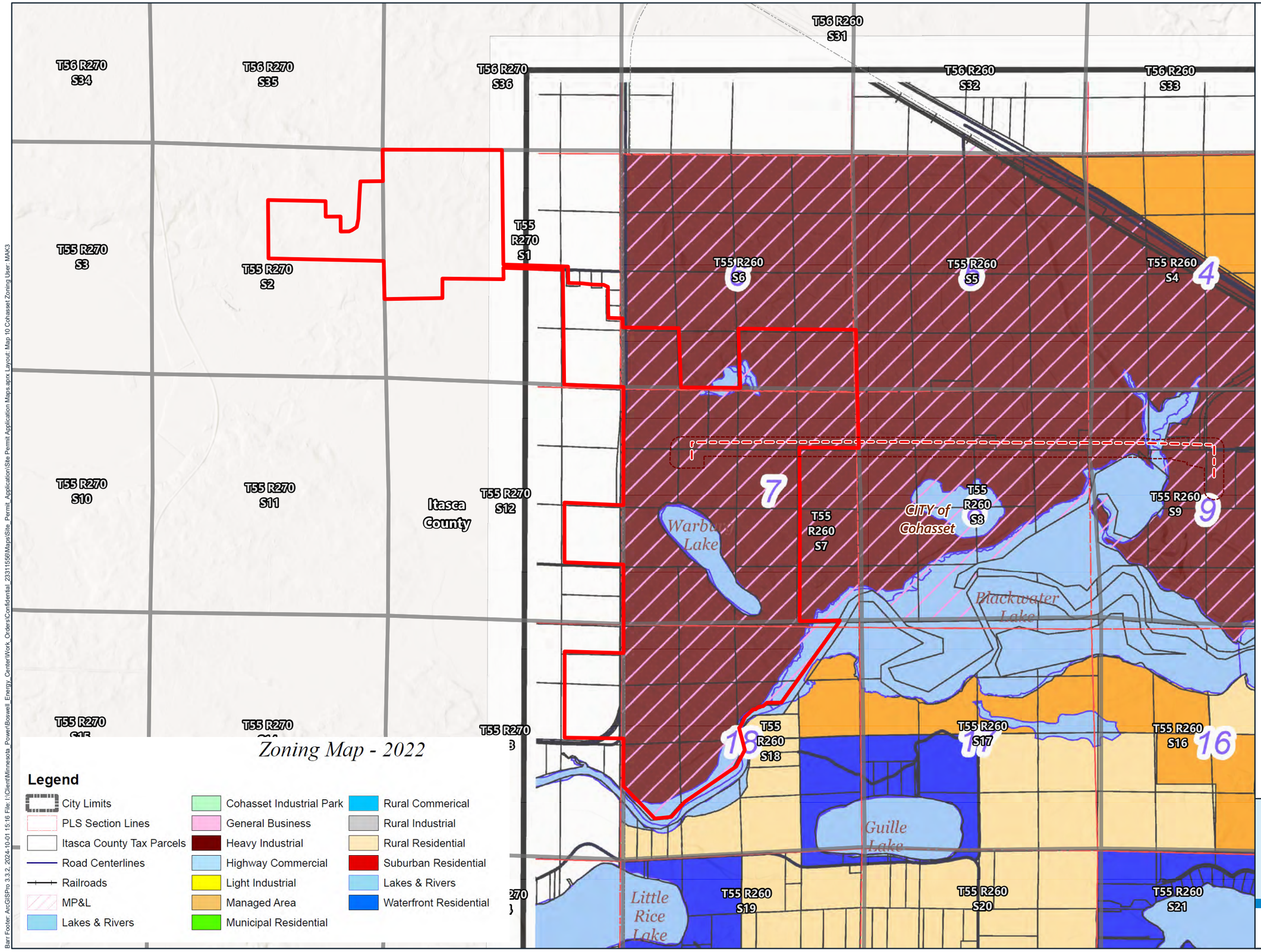
0 1,500 3,000
Feet

ITASCA COUNTY ZONING
Site Permit Application
Minnesota Power

Map 9

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-10-08 13:13 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps.aprx Layout: Map 9 Itasca County Zoning User: MAK3



Site
Gen-Tie Line
Route Width
Sections
Municipal Boundary
County Boundary

N

0 1,500 3,000
Feet

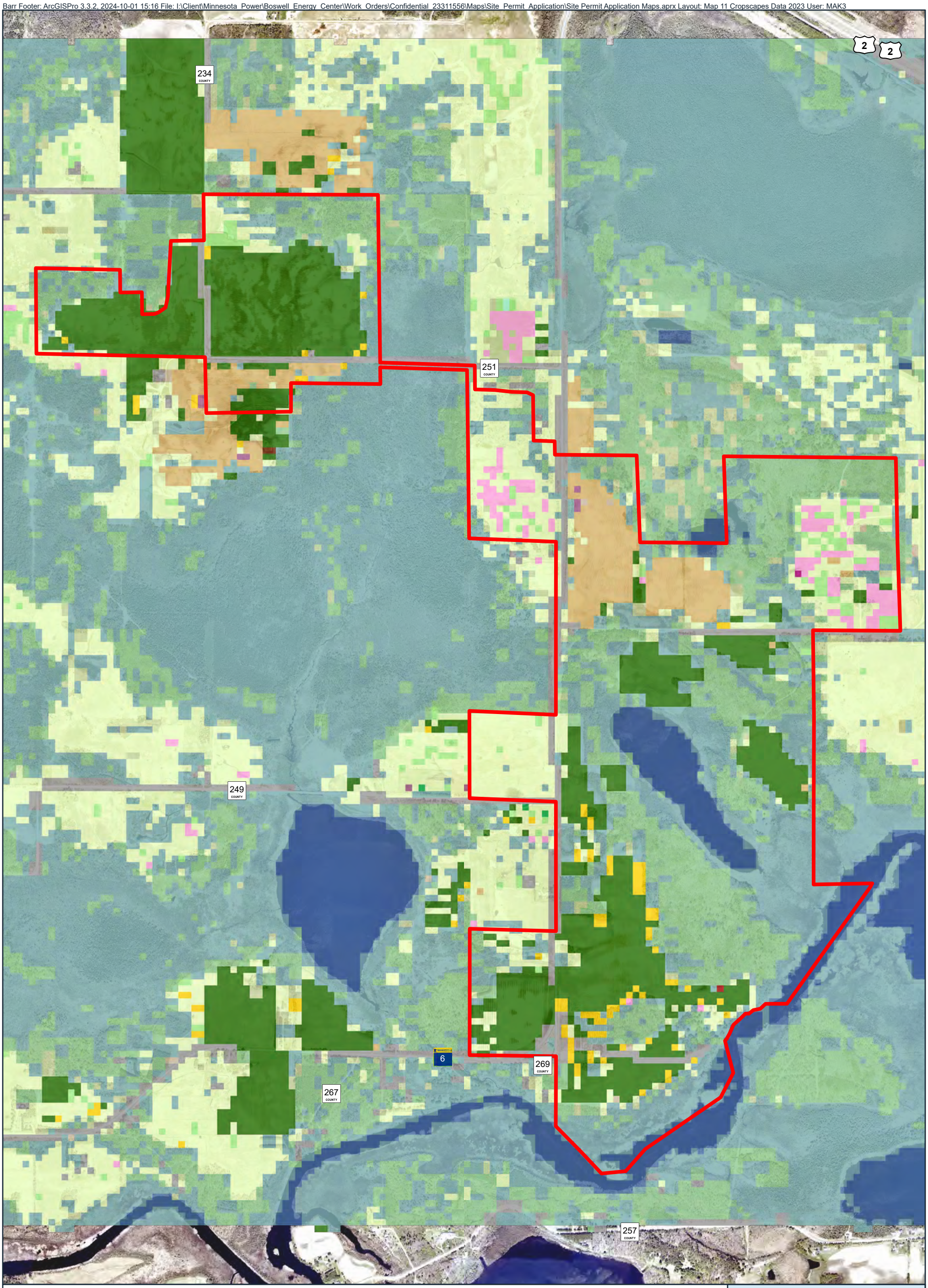
Cohasset Zoning Map Georeferenced by Barr Engineering for Review Purposes

COHASSET ZONING
Site Permit Application
Minnesota Power

Map 10

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 10 Cohasset Zoning User: MAK3



Site

Cropland Data Layer 2023

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

N

0 1,000 2,000

Feet

Imagery: 2023 Itasca County

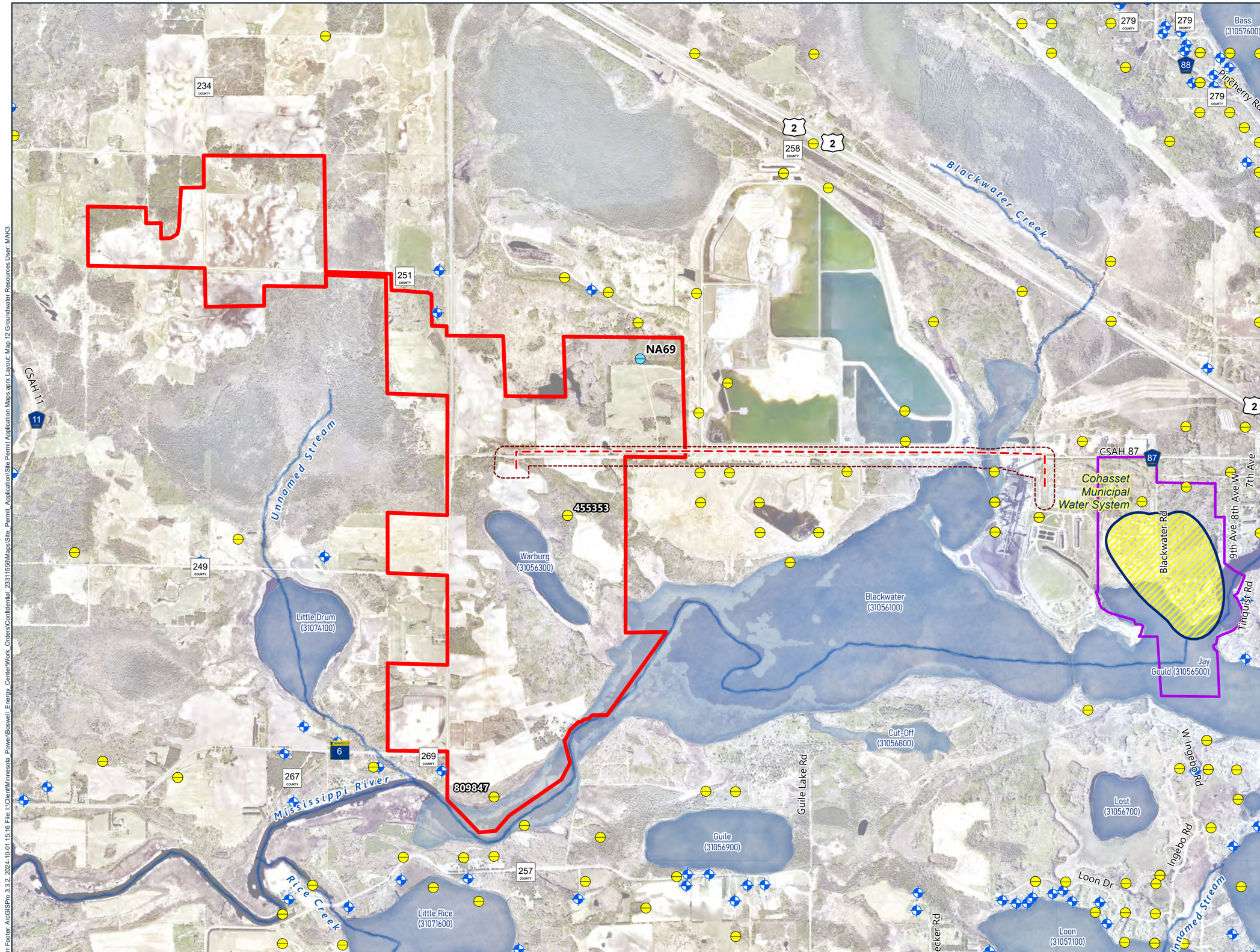
CROPSCAPES DATA 2023

Site Permit Application

Minnesota Power

Map 11

BARR



Site

Route Width

Gen-Tie Line

NPDES Monitoring Well

Unlocated Minnesota Well Index Wells

Minnesota Well Index Wells

Wellhead Protection Area

Drinking Water Supply Management Area

Public Watercourses

Public Water Watercourse

Public Waters Basins

N

0 2,000 4,000

Feet

Imagery: 2023 Itasca County

GROUNDWATER RESOURCES

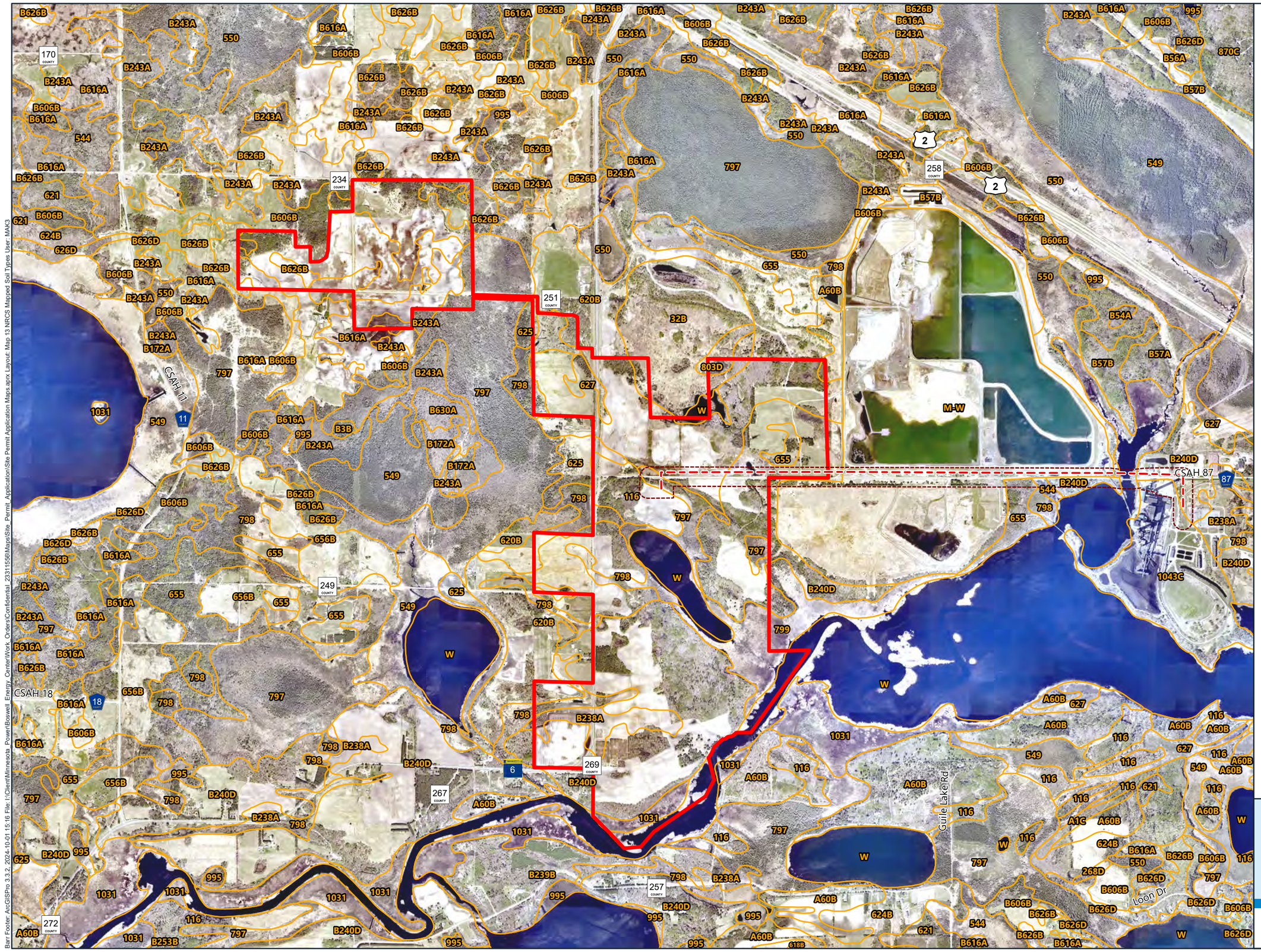
Site Permit Application

Minnesota Power

Map 12

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 12 Groundwater Resources User: MAK3



Site

Gen-Tie Line

Route Width

Soil Map Unit

1031,Histosols, ponded

1043C,Udorthents, nearly level to rolling

116,Redby loamy fine sand, 0 to 3 percent slopes

32B,Nebish loam, 1 to 8 percent slopes

544,Cathro muck, occasionally ponded, 0 to 1 percent slopes

550,Dora mucky peat

620B,Cutaway loamy sand, 0 to 8 percent slopes

625,Sandwick loamy fine sand

627,Tawas muck

655,Bearville loamy sand

797,Mooselake and Lupton soils, 0 to 1 percent slopes

798,Sago and Roscommon soils

799,Seelyeville-Bowstring association

803D,Warba-Menahga complex, 10 to 25 percent slopes

B238A,Cowhorn-Onega-Sago, frequently ponded complex, 0 to 3 percent slopes

B240D,Wawina-Cedar Valley complex, 1 to 18 percent slopes

B243A,Hamre-Tacoosh-Effie complex, 0 to 1 percent slopes, frequently ponded

B606B,Ashlake-Effie complex, 0 to 4 percent slopes

B616A,Effie-Ashlake-Effie, frequently ponded, complex, 0 to 2 percent slopes

B626B,Ashlake-Suomi complex, 1 to 8 percent slopes

M-W,Water, miscellaneous

W,Water

0 2,000 4,000

Feet

Imagery: 2023 Itasca County

NRCS MAPPED SOIL STYPES

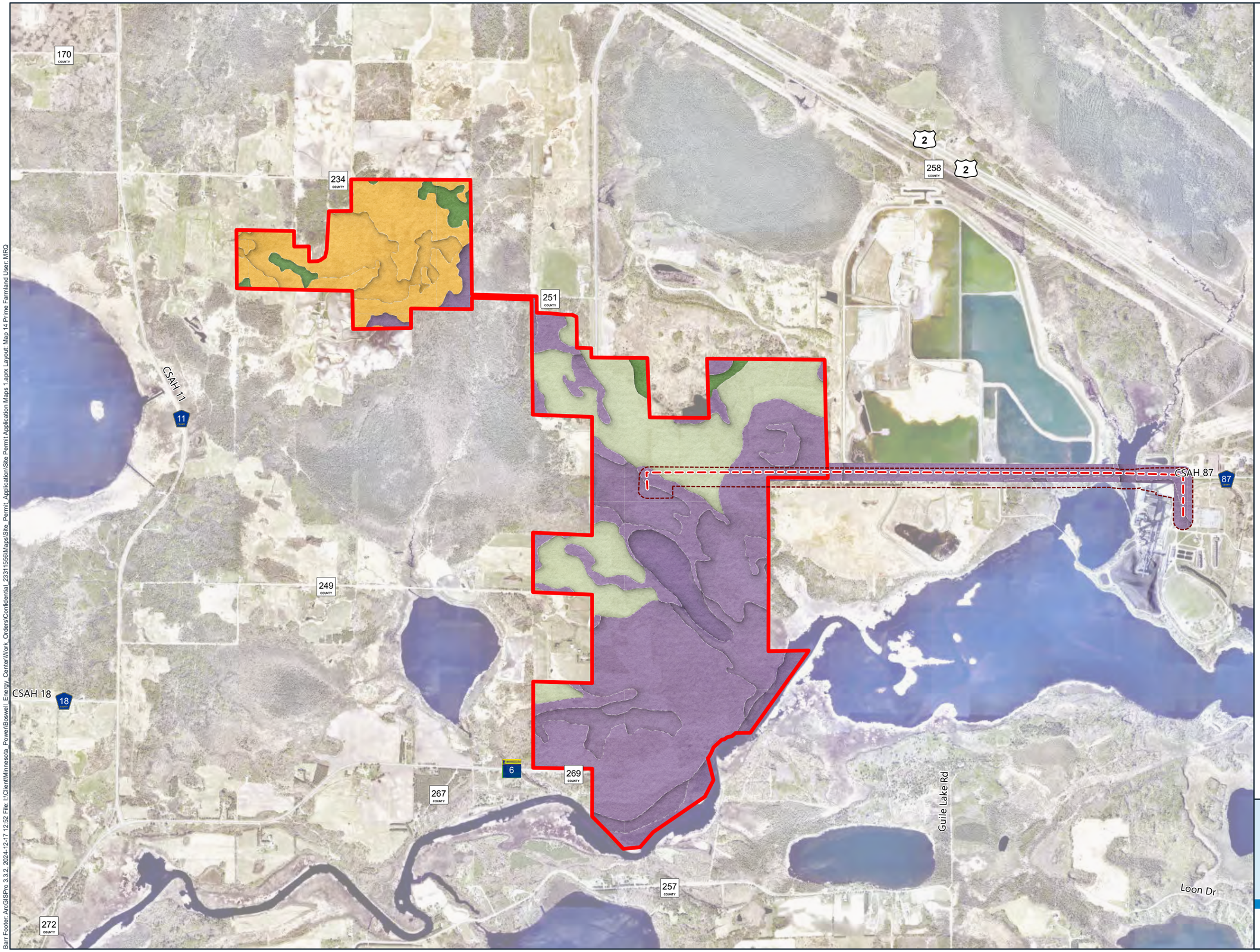
Site Permit Application

Minnesota Power

Map 13

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 13 NRCS Mapped Soil Types User: MAK3



Site

Gen-Tie Line

Route Width

Farmland Classification

All areas are prime farmland

Farmland of statewide importance

Not prime farmland

Prime farmland if drained

0 2,000 4,000

Feet

Imagery: 2023 Itasca County

PRIME FARMLAND WITHIN PROJECT AREA

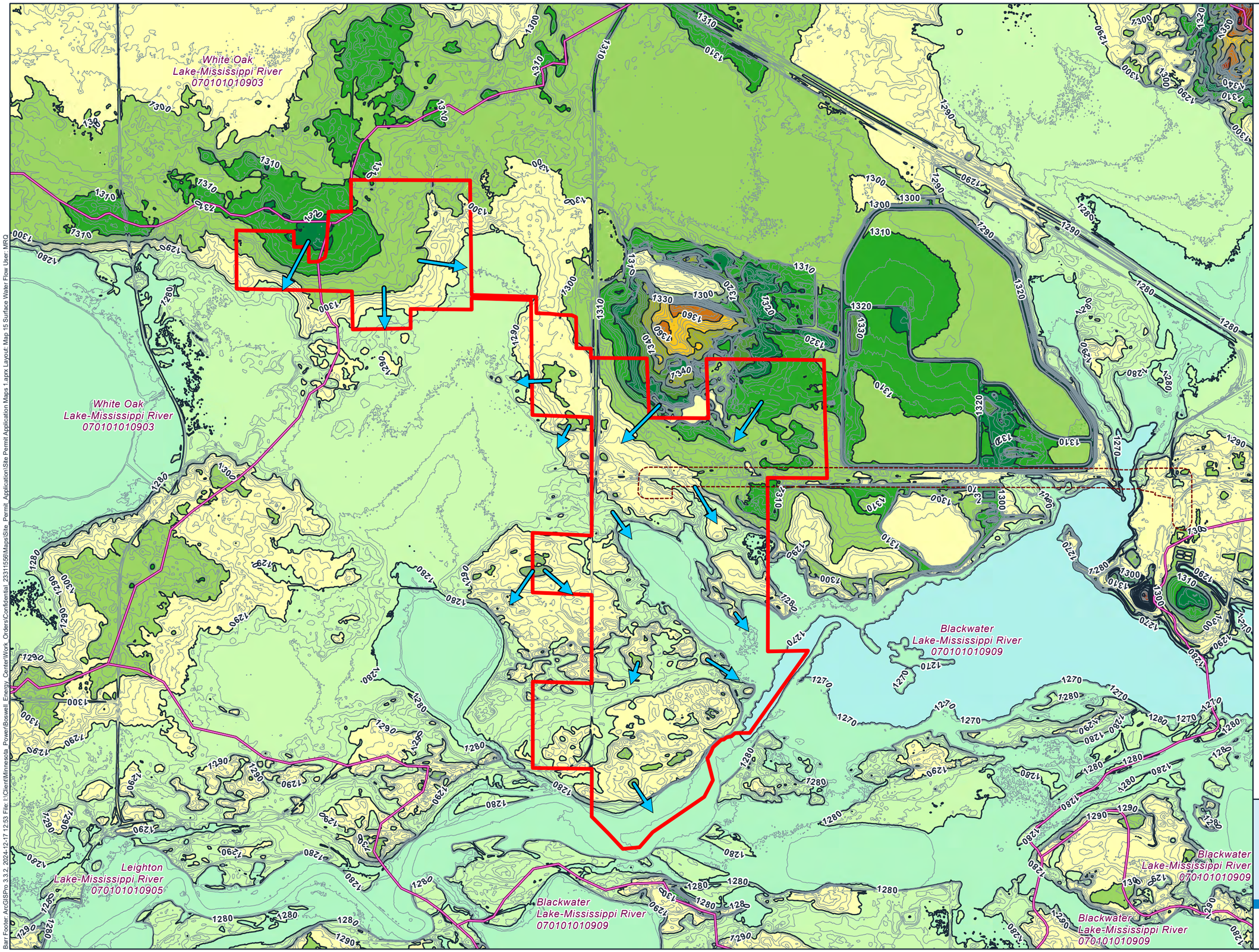
Site Permit Application

Minnesota Power

Map 14

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 12:52 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 14 Prime Farmland User: MRQ



Site
Route Width
Surface Flow
10' Index Contour
1' Intermediate Contour
DNR Watershed Level 08

Surface Elevation (ft)

Value
1,268.35 - 1,270
1,270.01 - 1,280
1,280.01 - 1,290
1,290.01 - 1,300
1,300.01 - 1,310
1,310.01 - 1,320
1,320.01 - 1,330
1,330.01 - 1,340
1,340.01 - 1,350
1,350.01 - 1,360
1,360.01 - 1,370
1,370.01 - 1,380
1,380.01 - 1,390

N

0 2,000 4,000
Feet

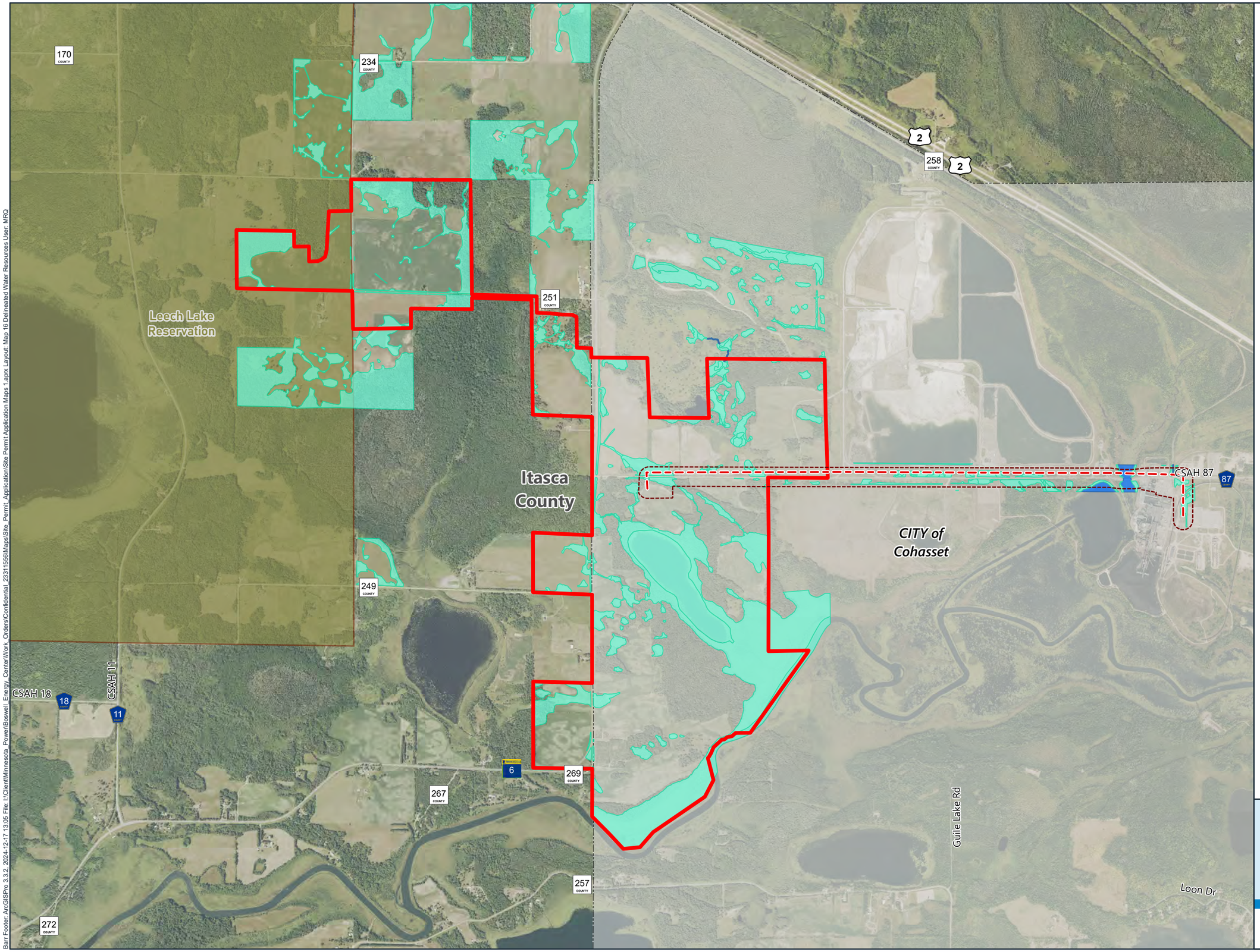
Imagery: 2023 Itasca County

SURFACE WATER FLOW
Site Permit Application
Minnesota Power

Map 15

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 12:53 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 15 Surface Water Flow User: MRQ



Site
Route Width
Gen-Tie Line
Delineated Waterway
Field Delineated Wetland
Delineated Waterbody
County Boundary
Municipal Boundary
Native American Reservation

0 2,000 4,000
Feet

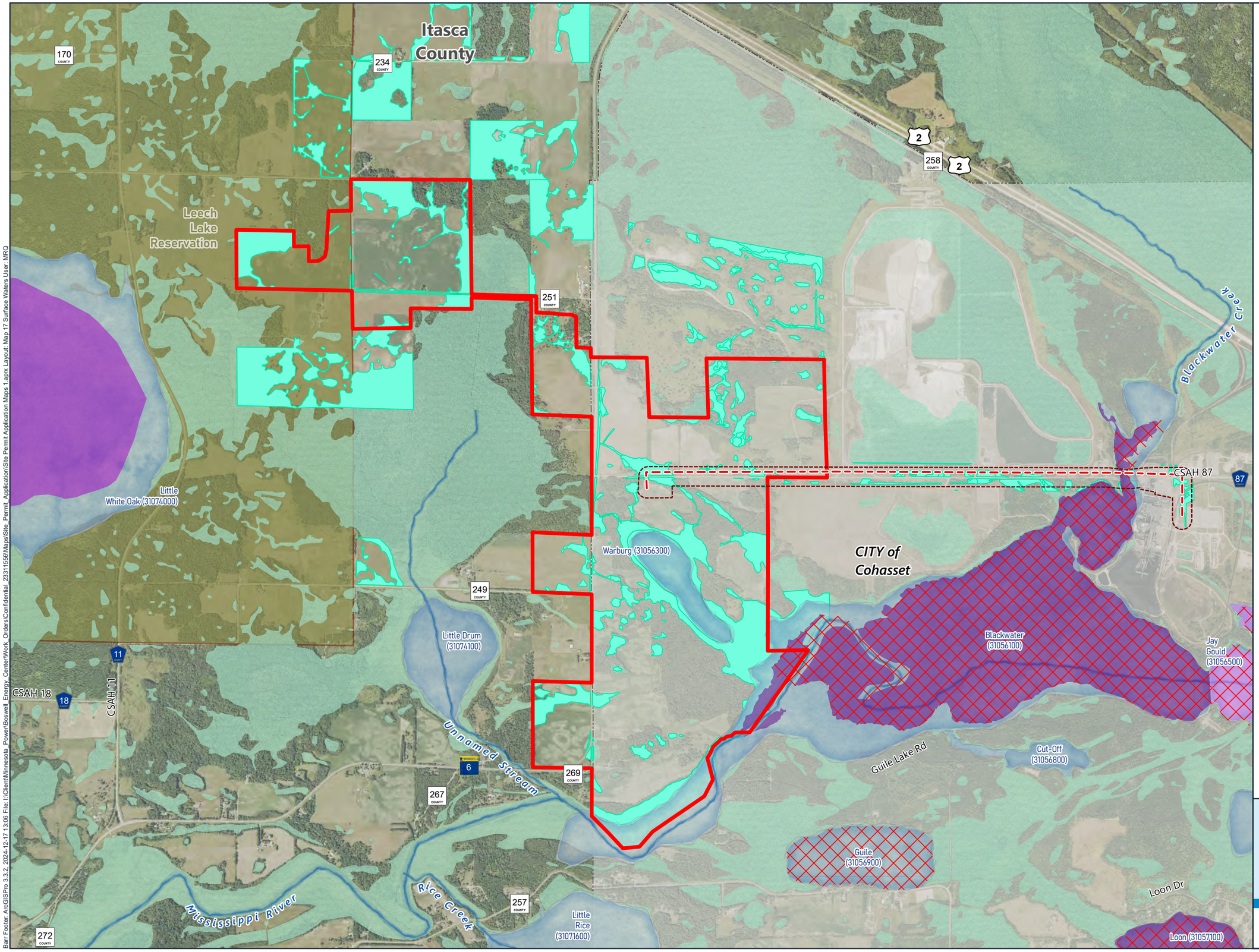
Imagery: 2023 Itasca County

DELINEATED WATER RESOURCES
Site Permit Application
Minnesota Power

Map 16

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 13:05 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 16 Delineated Water Resources User: MRQ



Site
County Boundary
Municipal Boundary
Native American Reservation
Gen-Tie Line
Route Width
Field Delineated Wetland
NWI Minnesota
MPCA Impaired Streams - Draft 2022
MPCA Impaired Lakes - Draft 2022

Public Watercourses
Public Water Watercourse
Public Waters Basins

Lakes of Biological Significance
Class
Outstanding
High
Moderate

0 2,000 4,000
Feet

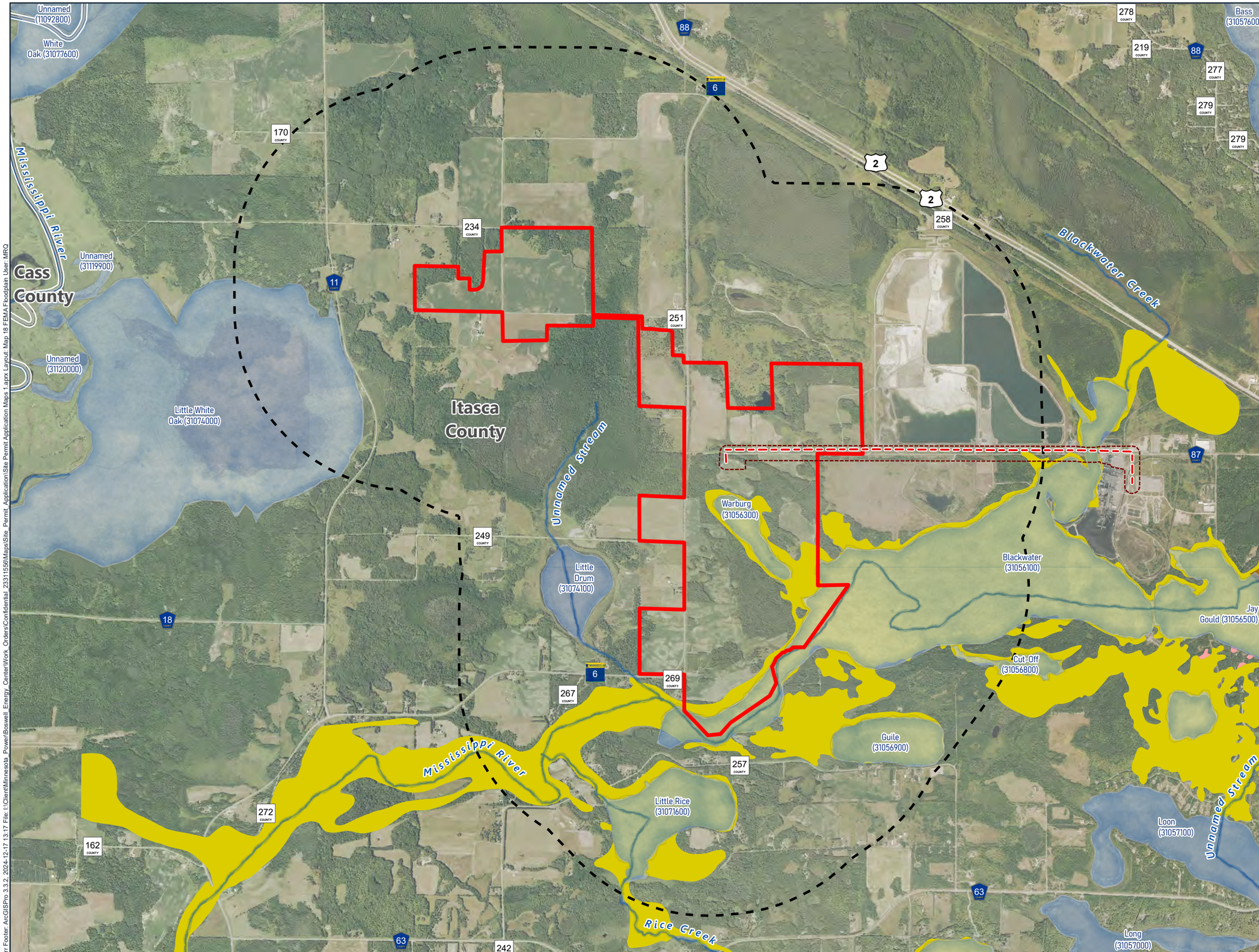
Imagery: 2023 Itasca County

SURFACE WATERS
Site Permit Application
Minnesota Power

Map 17

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 13:06 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 17 Surface Waters User: MRQ



Site
Route Width
Gen-Tie Line
1 Mile Project Boundary Radius
County Boundary

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

Unmodernized Floodplain
100 Floodplain
500 Floodplain
Unmodernized Floodway

N

0 2,000 4,000
Feet

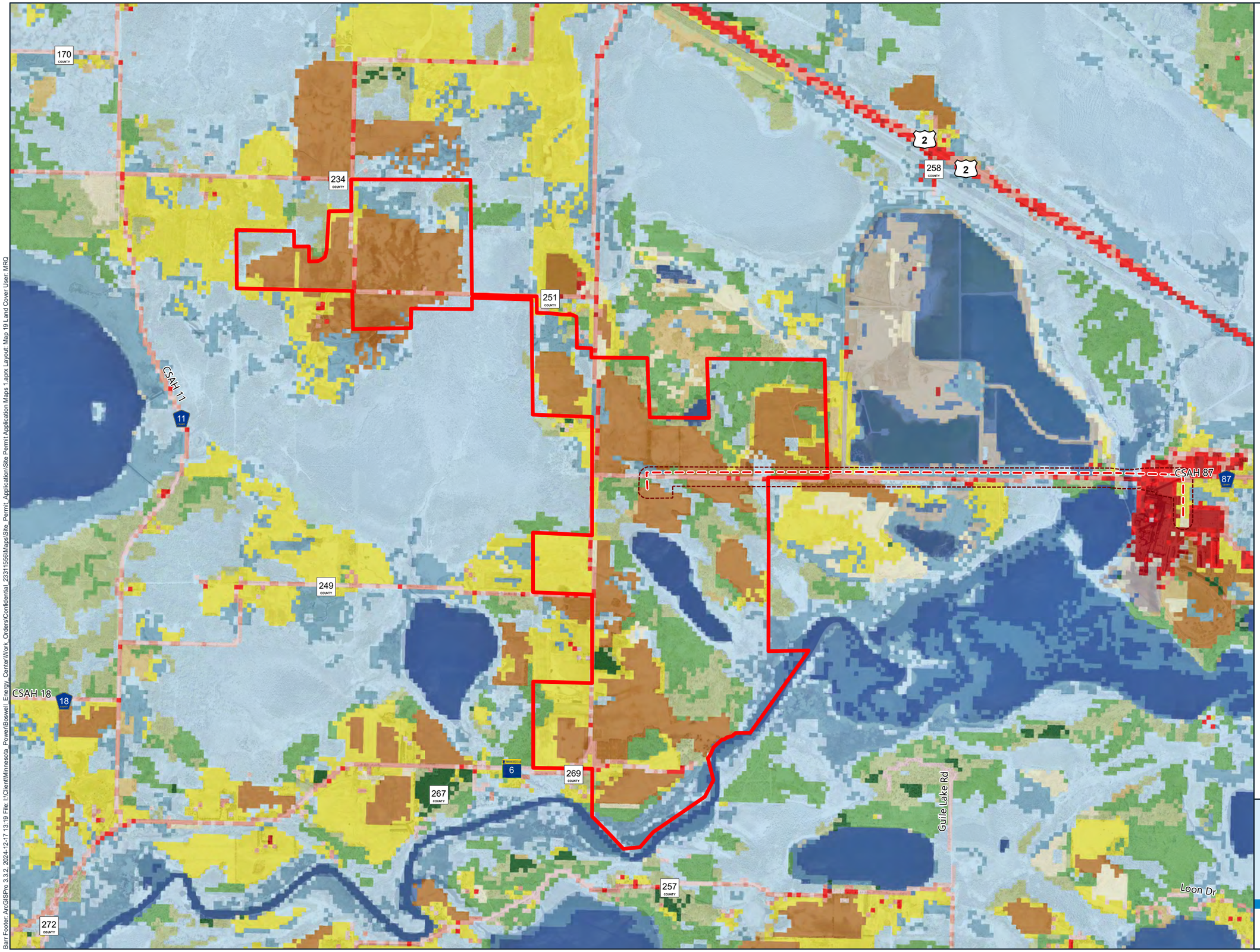
Imagery: 2023 Itasca County

FEMA FLOODPLAIN
Site Permit Application
Minnesota Power

Map 18

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 13:17 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 18 FEMA Floodplain User: MRQ



Site
Gen-Tie Line
Route Width

Land Use, NLCD 2021

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

N

0 2,000 4,000
Feet

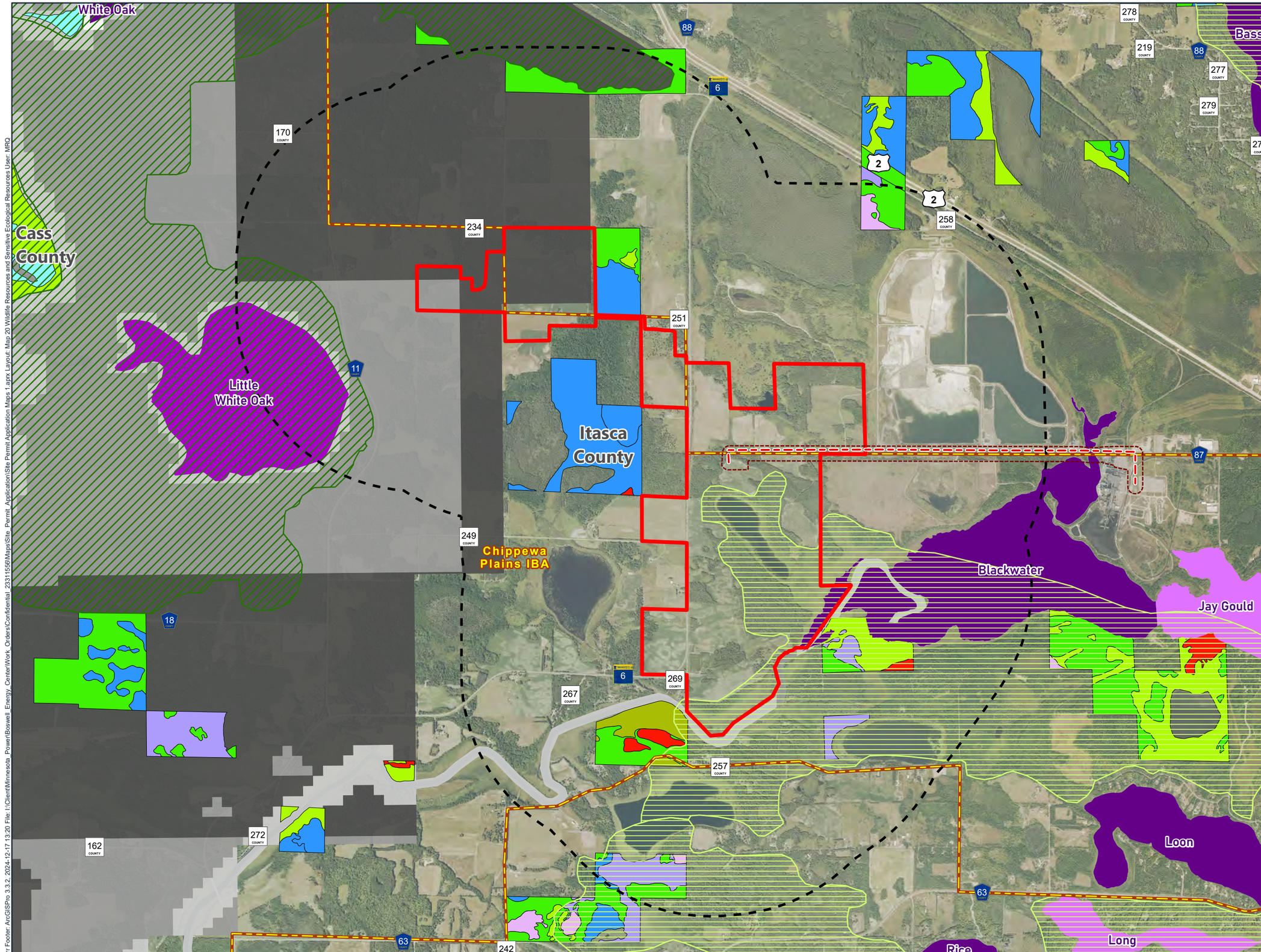
Imagery: 2023 Itasca County

LAND COVER
Site Permit Application
Minnesota Power

Map 19

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 13:19 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 19 Land Cover User: MRQ



Site
Route Width
Gen-Tie Line
1 Mile Project Boundary Radius
County Boundary
Important Bird Area

DNR Hydrography - Lakes of Biological Significance

Biological Significance Class
- Outstanding
- High
- Moderate

WAN Rank
- Low-Medium
- Medium
- Medium-High
- High

MBS Sites of Biodiversity Significance
- High
- Moderate

DNR Native Plant Communities
- Acid Peatland System
- Fire-Dependent Forest/ Woodland System
- Forested Rich Peatland System
- Marsh System
- Mesic Hardwood Forest System
- Open Rich Peatland System
- Wet Forest System
- Wet Meadow/Carr System

N

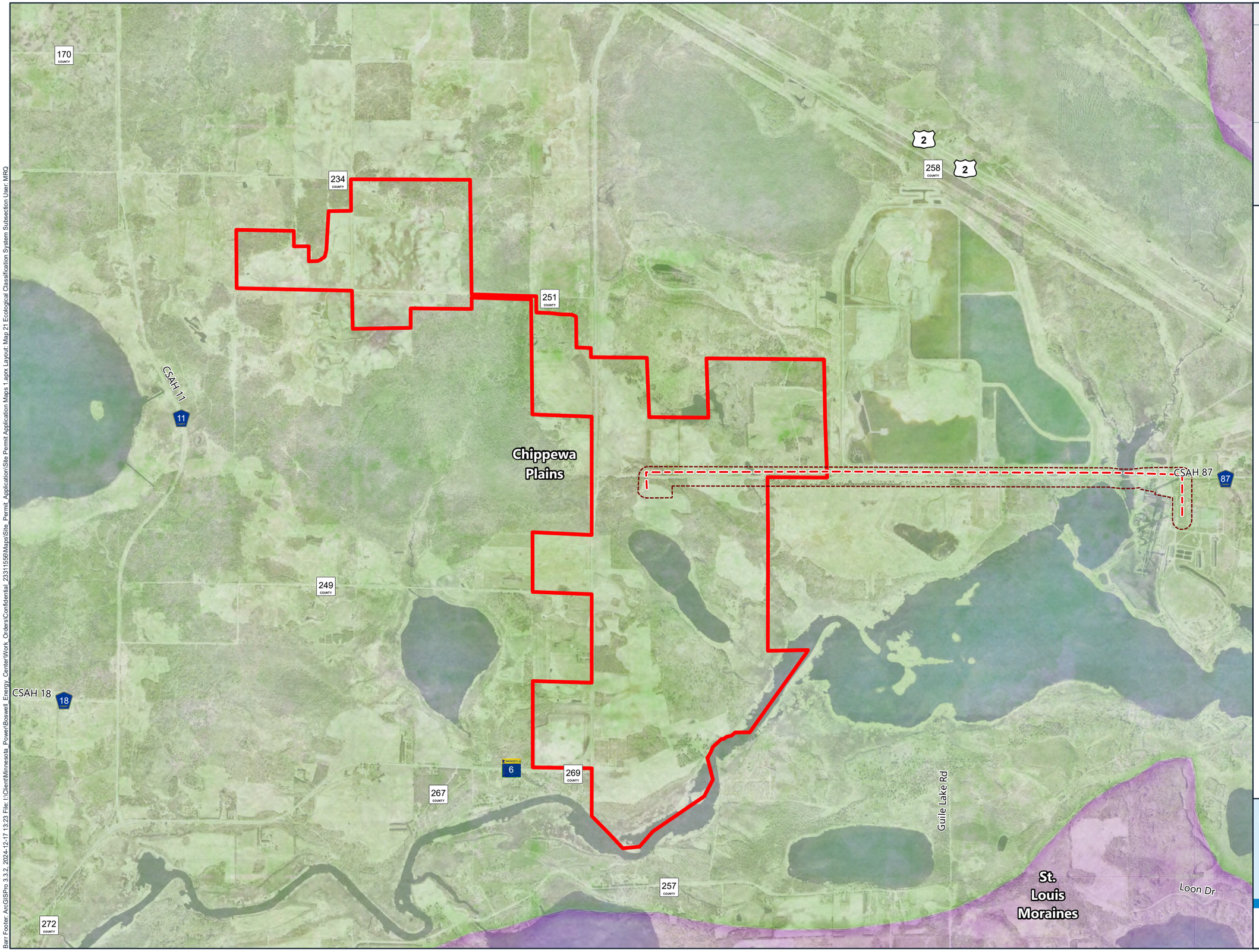
0 2,000 4,000
Feet

Imagery: 2023 Itasca County

WILDLIFE RESOURCES AND SENSITIVE ECOLOGICAL RESOURCES
Site Permit Application
Minnesota Power
Map 20

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 13:20 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_23311556\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 20 Wildlife Resources and Sensitive Ecological Resources User: MRQ



Site
Route Width
Gen-Tie Line
Ecological Subsection
Chippewa Plains
St. Louis Moraines

0 2,000 4,000
Feet

Imagery: 2023 Itasca County

ECOLOGICAL CLASSIFICATION SYSTEM SUBSECTION
Site Permit Application
Minnesota Power

Map 21

BARR

Barr Footer: ArcGISPro 3.3.2, 2024-12-17 13:23 File: I:\Client\Minnesota_Power\Boswell_Energy_Center\Work_Orders\Confidential_233115561\Maps\Site_Permit_Application\Site Permit Application Maps 1.aprx Layout: Map 21 Ecological Classification System Subsection User: MRQ