Before the
Federal Energy Regulatory Commission
Application for a Subsequent License
For a Major Water Power Project
Less than 10 Megawatts

Initial Statement as required under 18 CFR §4.61

1. Eagle Creek Sartell Hydro, LLC, a wholly-owned subsidiary of Eagle Creek Renewable Energy, LLC, *applies to the Federal Energy Regulatory Commission (FERC) for a* new license *for the* Sartell *Water Power Project, as described hereinafter (*FERC Project No. 8315*)*.

2. *The location of the project is:*

State or territory:	Minnesota
County:	Benton County, MN and Stearns County, MN
Township or nearby town:	City of Sartell, Township of Brockway, Township of Langola, Township of Le Sauk, Township of Sauk Rapids, Township of Watab
Stream or body of water:	Mississippi River
Other:	Located in northeast Stearns County, Minnesota and western Benton County, Minnesota, approximately 70 miles northwest of Minneapolis and 2 miles north of St. Cloud, Minnesota

A Project location map is included in Appendix A-1.

3. *The exact name, address and telephone number of the applicant are:*

Eagle Creek Sartell Hydro, LLC
c/o Eagle Creek RE Management, LLC
7315 Wisconsin Avenue, Suite 1100W
Bethesda, Maryland 20814
(240) 482-2700

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4. *The exact name, address, and telephone number of each person authorized to act as agent for the applicant in this application are:*

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920-293-4628 ext. 347

5. *Applicant is a* domestic limited liability company *and* is not *claiming preference under Section 7(a) of the Federal Power Act.*

6. *The statutory or regulatory requirements of the state(s) in which the project would be located and that affect the project as proposed, with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes, and with respect to the right to engage in the business of developing, transmitting, and distributing power and in any other business necessary to accomplish the purposes of the license under the Federal Power Act, are:*

a. The Applicant must be in accordance with the following sections of Minnesota Statutes:

- **103A.203** Hydropower Policy, states the legislature finds the public health, safety, and welfare of the state are promoted by the use of state waters to produce hydroelectric power.
- **103F.125** Considering Industrial Uses in Floodplain, indicates that proper consideration should be given to the needs of an industry whose business requires that it be located within a floodplain.
- **103G.127** Permit Program Under Section 404 of Federal Clean Water Act, states the Commissioner, with the concurrence of the Board of Water and Soil Resources and the commissioner of agriculture, may adopt rules establishing a permit program for regulating the discharge of dredged and fill material into the waters of the state as necessary to obtain approval from the USEPA to administer the permit program under Section 404 of the Federal Clean Water Act.
- **103G.245** Work in Public Waters requires a state-issued permit to make changes in a reservoir, dam, waterway, or on public water in any manner or diminish the course, current, or cross-section of public waters.

The Applicant must also be in accordance with following parts of Minnesota Administrative Rules:

- 6115.0190 authority to place fill into public waters.
- 6115.0200 authority to excavate and remove materials in public waters.
- 6115.0210 authority to construct structures in public waters.

In accordance with Section 401 of the Federal Water Pollution Control Act, 33 U.S.C. §1341, the applicant must obtain water quality certification, or a waiver thereof, from the State of Minnesota. In Minnesota, the Certification Program is administered by the Minnesota Pollution Control Agency (MPCA).

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MPCA established water quality standards in Minnesota. The State of Minnesota's Rule 7050, Waters of the States, Water Quality Standards for Protection of Waters of the State (MN Rule 7050), provides a classification system of beneficial uses applicable to waters of the state, narrative and numeric water quality standards that protect specific beneficial uses, antidegradation provisions, and other provisions to protect the physical, chemical, and biological integrity of waters of the state. Parts 7050.0400 to 7050.0470 classify all surface waters within or bordering Minnesota and designate the beneficial uses for which these waters are protected.

Applicant must comply with the provisions of the Coastal Zone Management Act (CZMA) of 1972.

b. The steps the applicant has taken or plans to take to comply with each of the laws cited above are outlined below:

The Applicant will apply to the MPCA for the Section 401 water quality certificate pursuant to Section 401 of the Clean Water Act for continued operation of the Project. The applicant plans to coordinate with the MPCA and will be the applicant for the Water Quality Certificate pursuant to Section 401 of the Federal Clean Water Act and Minnesota, Statues, Section 103G.245.

The Applicant is not proposing any current construction that would require compliance with 103F.125 and 103G.127. Should the license issued for the project require construction that requires compliance with these sections, the Licensee will cooperate with the MNDNR as appropriate to comply with the required sections.

The Minnesota Lake Superior Coastal Program (MLSCP) is responsible for implementing the State of Minnesota’s coastal zone management program. The State of Minnesota’s Coastal Program is responsible for preserving Lake Superior and northern Minnesota’s economic, recreational, and cultural resources. None of the Counties where the Project is located are within or include any coastal zone. The Applicant is requesting a formal written determination of consistency with the MNDNR.

7. *Brief Project Description*

The Project operates as a run-of-river facility with a normal head of 20 feet. It consists of a 46-foot-high dam with three sections, a 12-foot-high (maximum) flood wall, a 2,350.5-acre reservoir, a powerhouse containing 11 generating units, and a 715-foot-long transmission line passing over the top of the dam to the point of interconnection. The four sections of the dam consist of a powerhouse, non-overflow section, overflow section, and floodwall. The minimum hydraulic capacity of the Project is 330 cfs and the maximum hydraulic capacity of the powerhouse is 6,200 cfs. There are no minimum flow requirements. The power generated by the facility is sold into the local utility’s distribution system.

a. The Project has an installed generating capacity of 8.925 MW.
b. The Project is an existing dam.

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8. *Lands of the United States affected:*

The Project does not occupy any Lands of the United States. Zero lands of the United States are affected.

9. *Construction of the Project:*

No construction is proposed.

The information provided below complies with 18 CFR §4.32.

1. *For a preliminary permit or a license, identify every person, citizen, association of citizens, domestic corporation, municipality, or state that has or intends to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project*.

Sartell Hydro is the sole entity that intends to maintain any proprietary right necessary to construct, operate, or maintain the Project.

2. *For a license, identify (providing names and mailing addresses):*

Every county in which any part of the project and any federal facilities that would be used by the project would be located:

Montgomery Headley, County Administrator
Benton County
531 Dewey Street
Foley, MN 56329

Michael Williams, Administrator
Stearns County
705 Courthouse Square, Room 121
St. Cloud, MN 56303-4701

No federal facilities are used by the Project.

Every city, town, or similar local political subdivision in which any part of the project, and any Federal facilities that would be used by the project, would be located:

Anna Gruber, City Administrator
City of Sartell
125 Pinecone Road. N.
Sartell, MN 56377

Julie Fandel, City Clerk
City of Rice
205 Main Street, P.O. Bo 179
Rice, MN 56367

Margaret Stang, Clerk
Township of Brockway
43710 85th Ave. N.
Rice, MN 56367

Mark Petron, Supervisor-Chairperson
Township of Langola
15245 Barley Road NW
Royalton, MN 56373

Marlyce Plante, Clerk
Township of Le Sauk
2293 Pinecone Road
Sartell, MN 56377

Dan Zwick, Chairman
Township of Sauk Rapids
4749 Mayhew Lake Rd NE
Sauk Rapids, MN 56379

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Julie Johnson, Chairperson
Township of Watab
660 75th St NW
Sauk Rapids, MN 56379

No federal facilities are used by the Project.

Every city, town, or similar local political subdivision that has a population of 5,000 or more people and is located within 15 miles of the project dam:

The following cities and towns each have a population of 5,000 or more people (2010 U.S. Census data), and are located within 15 miles of the Project powerhouse:

Anna Gruber, City Administrator
City of Sartell
125 Pinecone Road, N.
Sartell, MN 56377

Ross Olson, City Administrator/EDA Executive Director
City of Sauk Rapids
250 Summit Avenue, N.
Sauk Rapids, MN 56379

Dave Kleis, Mayor
City of St. Cloud
400 2nd Street S.
St. Cloud, MN 56301

Therese Haffner, City Administrator
City of St. Joseph
75 Calloway Street, E.
St. Joseph, MN 56374

Shaunna Johnson, Administrator
City of Waite Park
19 13th Avenue, N.
Waite Park, MN 56387

Every irrigation district, drainage district, or similar special purpose political subdivision in which any part of the project is located, and any federal facility used by the project is located:

There is no irrigation district, drainage district, or similar special purpose political subdivision in which any part of the Project is located or that owns, operates, maintains, or uses any Project facility. The Project uses no federal facilities and occupies no federal lands.

No federal facilities are used by the Project.

Every irrigation district, drainage district, or similar special purpose political subdivision that owns, operates, maintains, or uses any project facility or any federal facility used by the project:

None.

No federal facilities are used or occupied by the Project.

Every other political subdivision in the general area of the project that there is reason to believe would be likely to be interested in or affected by the notification:

There is no other political subdivision in the general area of the Project that there is reason to believe would likely be interested in, or affected by, this notification.

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All Indian tribes that may be affected by the project:

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As to any facts alleged in the application or other materials filed, be subscribed and verified under oath in the form set forth in paragraph (2)(3)(ii) of Section 9.32 by the person filing, an officer thereof, or other person having knowledge of the matters set forth.

This application is executed in the:

State of Wisconsin

Winnebago County

By David Fox

Being duly sworn, deposes and says the contents of this application are true to the best of his knowledge. The undersigned applicant this 28th day of February, 2023.

David Fox
Senior Director of Regulatory Affairs
Sartell Hydro LLC, c/o Eagle Creek RE Management, LLC

Subscribed and sworn before me, a Notary Public, of the State of Wisconsin this 28th day of February, 2023.

Notary Public

My Commission Expires: May 11, 2025

SEAL

CHELSEY L GOEBEL
Notary Public
State of Wisconsin

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Sartell Hydroelectric Project
FERC No. 8315

Exhibit A
Description of Project

Final License Application

Prepared for

Eagle Creek Sartell Hydro, LLC
Neshkoro, WI

Prepared by

EAGLE CREEK
— RENEWABLE ENERGY —

February 2023

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APPENDICES

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LIST OF ABBREVIATIONS

cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
FERC	Federal Energy Regulatory Commission
FLA	Final License Application
Hp	horsepower
kW	Kilowatts
kV	Kilovolts
MWh	Megawatt-hour
MVA	Megavolt Ampere
NGVD	National Geodetic Vertical Datum 1929
NSP	Northern States Power Company
Project	Sartell Hydroelectric Project
rpm	revolutions per minute
Sartell Hydro	Eagle Creek Sartell Hydro, LLC
USGS	United States Geological Survey

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1. Introduction

Eagle Creek Sartell Hydro, LLC (Sartell Hydro) is the Licensee for the Sartell Hydroelectric Project (Project) designated as FERC Project No. 8315. The Project is located on the Mississippi River at approximately river mile 932 in Benton and Stearns Counties, Minnesota (Minnesota Department of Natural Resources, 2019). **Appendix A-1** of this application includes a map showing the general location of the Sartell Project. **Appendix A-2** presents an aerial photograph showing the Sartell Project structures, which include the Sartell Dam, powerhouse, floodwall, substation and transmission equipment, reservoir, and appurtenant equipment. The Licensee is not proposing any upgrades or changes in Project facilities as part of this relicensing.

Sartell Hydro has an easement with AIM Development to access the powerhouse by roadway located on the east side of the project. All other lands required for the operations of the Project are owned by Sartell Hydro and are discussed in Exhibit E and Exhibit G of this application.

A description of each part of the facility is provided in the following paragraphs.

2. Description of Dam Structures

From left to right looking downstream, the dam structures include a step-up transformer, powerhouse, non-overflow section, radial (Tainter-type) gate section, bascule gate section, floodwall, and transmission equipment.

2.1 Powerhouse

The powerhouse is a reinforced concrete substructure and a masonry superstructure. Looking downstream, the powerhouse is approximately 244 feet wide. The inside width of the grinder room is approximately 151 feet, and the inside width of the generator room is approximately 74 feet.

The cross section of the grinder bay portion of the powerhouse is 91 feet wide from the base of the trash racks upstream to the downstream edge of the stop log slots. This includes a 51-foot-wide forebay measured from the base of the trash racks to the upstream side of the wall between the forebay and the grinder room. The forebay is 16.5 feet high from the forebay (turbine bay) floor to the top of the forebay deck and the overall powerhouse height of the grinder bay portion of the powerhouse is 57.5 feet high from the floor of the draft tube to the peak of the roof.

The grinder bay section contains nine bays (Bay #1 through #9). Bay No. 1 was retired in 1985 and does not contain a turbine. Each of the remaining bays (Nos. 2 through 9) contain a horizontal quadruple 29-inch diameter runner Francis turbine (i.e., four runners per bay) in an open flume setting. Each of the turbines connects to a horizontal shaft which extends through a 6-foot-thick headwall and connects to a generator (Eagle Creek Sartell Hydro, LLC, 2019).

The generator bay contains three bays (Bay #10-12), all of which are active (Eagle Creek Sartell Hydro, LLC, 2019). Each bay contains a 30-inch quadruple horizontal Francis unit in an open flume setting. In each of the three bays, a horizontal shaft extends through the headwall to connect the turbines and existing generators (Eagle Creek Sartell Hydro, LLC, 2019).

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The maximum hydraulic capacity of the units in the powerhouse is 6,200 cfs.

Both forebays contain trashracks that are 19.25 feet along their face and are leaning downstream with a cross-sectional height of 15.9 feet and total width of 234 feet. Each trashrack has a clear spacing of 1.75 inches.

2.2 Non-Overflow Section Old Transformer Bay

The non-overflow section is located between the powerhouse and radial (Tainter-type) gate section. Prior to 1985, the transformers were located on this section; however, they are now located on the east side of the powerhouse. The section of the dam between the powerhouse and the Tainter gate spillway is referred to as the old transformer bay. Looking downstream, the section is 49 feet wide from the outside of the powerhouse wall to the outside of the pier on the right side of the section, 30 feet high with a top elevation of 1,019.6 feet NGVD29 (Kleinschmidt Associates, 2017), and a base elevation of 989.6 feet NGVD29. The cross section is 110 feet wide[1] (upstream sheet pile cutoff wall to downstream sheet pile cutoff wall) where it abuts the overflow dam and 155 feet wide where it abuts the powerhouse.

2.3 Overflow Dam Gated Spillways

Looking downstream, the overflow dam is 388 feet long and is located between the transformer bay and the right abutment. The overall structure height of the dam is 46 feet with a normal head of 20 feet (Eagle Creek Sartell Hydro, LLC, 2019). The cross section is approximately 110 feet wide (upstream sheet pile cutoff wall to downstream sheet pile cutoff wall) and consists of two bascule gate sections, a large radial (Tainter-type) gate section and two small radial (Tainter-type) gate sections. The two small radial (Tainter-type) gate sections abut the non-overflow section to the right. The spillway gates are equipped with heaters to prevent ice formation during the winter. The following is a summary of the pertinent dam data and its various components.

General Information (WSP, 2021)	
Top of dam elevation	1019.6 feet NGVD29
Overall length of dam (not including powerhouse)	388 feet
Streambed elevation at centerline	
Radial (Tainter-type) gate section	974 ± feet NGVD29
Bascule gate section	988 ± feet NGVD29
Bascule Gates	
Number of gates	2
Length (each gate)	106.5 feet
Height (each gate, fully closed)	7.3 feet
Sill elevation (open position)	1,007.5 feet NGVD29
Top of gate (fully closed)	1,014.8 feet NGVD29
Gate foundation elevation	988 feet NGVD29

[1] Scaled from the Exhibit F drawing.

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The bascule gates are operated by hydraulic lifts and are normally maintained in the closed position except as required to pass high flows and ice.

Large Radial (Tainter-type) Gate

Number of gates	1
Length	46.5 feet
Height	15.0 feet
Sill elevation	1,000.5 feet NGVD29
Top of gate (fully closed)	1,015.5 feet NGVD29
Gate foundation elevation	974 feet NGVD29

Small Radial (Tainter-type) Gates

Number of gates	2
Length (each gate)	20.0 feet
Height (each gate)	16.7 feet
Sill elevation	998.87 feet NGVD29
Top of gate (fully closed)	1,015.6 feet NGVD29
Gate foundation elevation	974 feet NGVD29

2.4 Right Abutment Flood Wall

The 605-foot-long concrete flood wall, with a base width of 3.5 feet on the right (west) abutment of the dam has a maximum height of 12.0 feet with a top elevation of 1,023.0 feet NGVD29. Additionally, a temporary closure dike can be constructed as-needed on the end of the flood wall on the right abutment, that extends upstream along Riverside Avenue. During flows greater than 40,000 cfs this 6.5-foot-high temporary dike is constructed of a silty sand core, polyethylene sheeting, and sandbags lining the slope to a point of high ground approximately 1,300 feet upstream.

3. Description of Reservoir

The reservoir impounded by the Sartell Dam encompasses approximately 2,350.5 acres at an elevation of 1,015.0 feet NGVD29 with a normal surface elevation of 1,014.5 feet NGVD29. It has an estimated gross storage capacity of 15,278.3 acre-feet at elevation 1,015.0 feet NGVD29 (Mead and Hunt, Inc., 2022) with zero usable (net) storage available.

3.1 Ice Breakers

Six ice breakers are installed in the reservoir just upstream of the powerhouse and spillway to break up large sheets of ice before they reach the project structures. They were constructed in 1946 and consist of steel sheetpile exterior walls with rock-filled timber cribbing inside and reinforced concrete caps on each. The sheetpile walls have been driven to refusal into the foundation. Each ice breaker is approximately 35 by 25-feet wide with top elevations at approximately 1019.5 feet NGVD29, though dimensions can vary slightly between each.

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4. Description of Generating Units

4.1 Turbines

The powerhouse contains eleven Allis Chalmer Horizontal turbines in its twelve bays each containing four Francis runners. Unit Nos. 2 through 9 contain 29-inch diameter runners and each have a minimum hydraulic capacity of 330 cfs. Unit Nos. 10 through 12 contain 30-inch diameter runners and each have a minimum hydraulic capacity of 360 cfs each (Eagle Creek Sartell Hydro, LLC, 2019). The specifics of each turbine are displayed in **Table A-1**.

4.2 Generators

The eleven turbines are attached to eleven generating units ranging in size from 750 kW rated units to 806.25 kW rated units. The authorized installed capacity is limited by turbine horsepower to 8,925 kW[2,3,4,5] (Eagle Creek Sartell Hydro, LLC, 2019). The Commission's regulations state, in part, "authorized installed capacity means the lesser of the ratings of the generator or turbine units." 18 C.F.R. § 11.1(i) (2019). The specifics of each generating unit are displayed in **Table A-1**.

Table A-1. Tabulation of Turbine Generators (Eagle Creek Sartell Hydro, LLC, 2019)

	Turbines						Generators	
Bay Number	Description	Wheel Diameter (inches)	rpm	Output (Hp)	Output (kW)	Rated Discharge (cfs)	Description	Rated Output (kW)
1	N/A	Bay No. 1 Not Used				N/A	N/A	N/A
2	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	29	240	1,075	806.25	550	Existing Reconditioned General Electric Synchronous Motor	937.5
3	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	29	240	1,075	806.25	550	Existing Reconditioned General Electric Synchronous Motor	937.5
4	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	29	240	1,075	806.25	550	Existing Synchronous Motor (Reconditioned)	937.5
5	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	29	240	1,075	806.25	550	Reconditioned General Electric Synchorus Motor-Generator	925.0
6	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	29	240	1,075	806.25	550	Existing Reconditioned General Electric Synchronous Motor	750.0
7	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	29	240	1,075	806.25	550	Existing Reconditioned General Electric Synchronous Motor	750.0
8	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	29	240	1,075	806.25	550	Existing Reconditioned Allis Chalmers Synchronous Motor	750.0
9	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	29	240	1,075	806.25	550	Existing Reconditioned Allis Chalmers Synchronous Motor	750.0
10	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	30	240	1,200	900	600	Reconditioned General Electric Synchronous Motor	925.0
11	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	30	240	1,200	900	600	Reconditioned General Electric Synchronous Motor Generator	925.0
12	Allis Chalmers Horizontal Quadruple Runner Francis Turbines	30	240	1,200	900	600	Reconditioned General Electric Synchronous Motor Generator	925.0

[2] Units 6, 7, 8, 9 Generator Limited.
[3] Units 2, 3, 4, 5, 10, 11, 12 Turbine Limited.
[4] (Authorized Installed Capacity is the Lower of Turbine Capacity or Generator Capacity for each unit per 18 C.F.R § 11.1(i)).
[5] Maximum efficiency at 19.5 feet of head.

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5. Tailrace

The tailrace is approximately 200-feet-wide at the powerhouse and extends 400 feet downstream, with a normal tailwater elevation of 993.0 (NGVD29). The shoreline of the tailrace area is protected with concrete walls or rock riprap.

6. Step-Up Transformer and Transmission Equipment

The Project's electrical output is sold wholesale. An interconnection with Northern States Power Company (NSP), new interconnection facilities connecting to NSP's distribution system shown on Exhibits F-1 and G-1, and a distribution wheeling agreement with NSP allow the output to reach the transmission system under the control of the Midcontinent Independent System Operator, Inc (Eagle Creek Sartell Hydro, LLC, 2019).

The transmission equipment (primary line from the power plant) required to transmit electrical generation to a non-project distribution system includes a 2 Megavolt Ampere (MVA) transformer, a 10 MVA transformer, and a 34.5 Kilovolt (kV) transmission line. The 2 MVA transformer steps up voltage from the two generators (0.48 kV each) to 2.4 kV. The 10 MVA transformer steps up the voltage from the 2 MVA transformer and the remaining nine generators that generate at 2.4 kV to 34.5 kV (Mead and Hunt, Inc., 2020).

The 715-foot-long transmission line extends from the 10 MVA transformer across the top of the powerhouse and Project dam in a cable tray to the distribution system interconnection pole on the west side of the dam (Mead and Hunt, Inc., 2020). The one-line diagram of principal electrical circuits is filed as CEII.

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7. Appurtenant Equipment

The appurtenant equipment includes but is not limited to bearing lubrication systems, generator ventilation systems, switchboards, switchgear, protective devices, and metering devices (Mead and Hunt, Inc., 2020). This also includes hydraulic gate operators for the large radial (Tainter-type) gate and bascule gates. The two small radial (Tainter-type) gates are controlled from the 480-volt motor control center (Eagle Creek Sartell Hydro, LLC, 2019).

8. Project Operation

The Project currently operates in a run-of-river mode where discharge measured immediately downstream of the Project tailrace approximates the sum of inflows into the Project. There are no minimum flow requirements.

The Project is operated manually, no remote operations are in place. During normal operations, personnel are present at the dam eight hours a day on weekdays, with daily inspections occurring, and operators on call 24 hours per day, year-round. In addition to daily staffing, an operator is on call 24-hours a day, seven days per week should an abnormal condition be detected. During periods of high flow, an operator is on site 24-hours per day (Mead and Hunt, Inc., 2020). During periods of high flow the Project is staffed 24 hours per day with at least one operator. Changes in the upstream pool level are monitored continuously.

Gate and turbine adjustments are made locally by operating personnel as necessary to maintain the reservoir at a constant level. River flow rates are received daily by telephone from the upstream Blanchard Dam near Royalton, Minnesota. Operating personnel determine the operations mode for the Project based on flows reported at the Blanchard Dam, assuming an approximate water travel time of eight hours. Flows in excess of power production requirements are spilled through the radial (Tainter-type) gates and bascule gates to maintain the normal pool elevation. The small Tainter gates (Gates No. 1 and 2), operated by an electric motor, are the first to be opened, followed by the large Tainter gate (Gate No. 3), operated by a hydraulic power unit, when flows exceed the discharge capacity of the small gates. At this point, the small Tainter gates are closed partially and used to manage minor river flow fluctuations. The bascule gates are generally maintained fully closed or fully opened. The bascule gates are utilized when the discharge capacity of the three Tainter gates is exceeded, or when large volumes of ice or debris need to be passed.

During periods when river flow does not satisfy power production requirements, supplemental electric power is purchased to operate equipment and hydraulic turbines are shut down to maintain normal pool levels (Mead and Hunt, Inc., 2020). The Licensee does not propose any changes to the current Project operation.

8.1 Low Tailwater Operations

When the tailwater level is low enough to expose the top of the draft tube, power generation units are shut down to prevent unit cavitation and minimize the potential for scour erosion in the tailrace.

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9. Safe Management, Operation, and Maintenance

The Licensee has a robust Owners Dam Safety Program that incorporates all dam safety inspection components, monitoring responsibilities, and communication required for this dam classification. It also assures adequate resources are allocated for fulfillment of Federal Energy Regulatory Commission (FERC) dam safety requirements. The current Owners Dam Safety Program was revised and submitted to FERC on February 24, 2023.

The Licensee developed a public safety plan in consultation with the FERC, the plan is reviewed on an annual basis to determine if changes are necessary. The plan was last updated on October 13, 2015.

10. Average Annual Generation

Generation and average outflow for the last five years are summarized in **Table A-2**. Generation is given in megawatts per hour (MWh) and average outflow is given in cubic feet per second (cfs).

Table A-2: Summary of Sartell Project Generation and Flow Records by Year for 2016 - 2022

Time Period	Annual Generation (MWh)[6]	Monthly Average Generation (MWh)	Average Outflow[7] (cfs)
1/1/2016 to 12/31/2016	42,128	3,510.7	7,402
1/1/2017 to 12/31/2017	38,351	3,195.9	7,680
1/1/2018 to 12/31/2018	35,752	2,979.3	6,908
1/1/2019 to 12/31/2019	28,063	2,338.6	9,748
1/1/2020 to 12/31/2020	36,925	3,077.1	7,430
1/1/2021 to 12/31/2021	22,188	1,849.02	4,192
1/1/2022 to 12/31/2022	30,169	2,514.08	9,158

The drainage area upstream of the dam is 12,265 square miles (Eagle Creek Sartell Hydro, LLC, 2019).

11. River Flow Characteristics

Flow in the Mississippi River for the Sartell Project is recorded by the U.S. Geological Survey (USGS) gaging station No. 05267000, which is located upstream of the Project on the Mississippi River at Royalton, Minnesota. The drainage area at the Royalton gage is 11,600 square miles, adjusted for the drainage area of 12,265 square miles at the Sartell Dam. Based on the adjusted data for the analyzed period of 1924-2020, the average annual calendar year flow at the Project is 3,878 cfs, the maximum calendar year flow was 9,748 cfs in 2019, and the minimum annual calendar year flow was 1,178 cfs in 1934.

6 Annual calendar year generation based on plant revenue meter readings on the first of the month.

7 Average calendar year outflow as measured at Royalton USGS Gage No. 05267000; average outflow is adjusted according to a drainage basin area at the Project dam of 11,600 square miles.

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Flow duration data shows the percentage of time a given flow is equaled or exceeded. Monthly flow duration curves and the annual exceedance table are based on data collected for the period of record from 1925-2020 and are included in **Appendix A-3**.

12. Estimated Project Cost

The Project is an existing licensed facility. As of December 31, 2022, the net book value (net investment) was calculated at $8,467,000 and the gross book value was estimated at $12,130,000. This figure includes land, land rights, structures, improvements, generating equipment, accessories, miscellaneous equipment, construction in process and intangibles.

13. Estimated Costs of Proposed Environmental Measures

Estimated capital and estimated annual Operation and Maintenance (O&M) costs for proposed environmental measures are outlined in Table 13.1.

Table 13-1. Estimated Capital and O&M Costs for Proposed Environmental Measures

Item	Capital Cost	O&M Cost
Operations Monitoring Plan	$10,000	$5,000
Historic Properties Management Plan	$25,000	$10,000 Annually $30,000 Every 5-Years
Recreation Maintenance	$0	$1,000
Total Cost	**$35,000**	**$16,000 Annually, $46,000 Every 5th Year**

14. Purpose of the Project

The purpose of the Project is to generate renewable hydroelectric energy. The Licensee is a wholesale power producer that sells energy produced at the Project on the open market.

15. License Application Development Costs

The costs for Eagle Creek Sartell Hydro to relicense under the Traditional Licensing Process through the filing of the Final License Application is $218,028.92.

16. Estimated Value of On-peak and Off-Peak Power

In accordance with 18 CFR §4.61 (c)(4), the Project currently and will continue to be operated in a run-of-river mode. Therefore on-peak and off-peak power values are not applicable. From January 1, 2019, to December 31, 2022, the Project produced and average of 25,364 MWh of electricity each calendar year. Based on the 2022 generation of 30,169 MWh of electricity, the total value of power produced at the Project in 2022 was $1,473,000 (including energy, capacity, and REC revenue).

17. Average Annual Increase or Decrease in Project Generation and Value of Power Due to Changes in Project Operations

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The Licensee is not proposing any changes that will affect power generation at the Project. The average annual amount and value of Project power for the term of the new license is projected to remain the same.

18. Remaining Undepreciated Net Investment, or Book Value of the Project

The remaining undepreciated net investment (or book value) of the Project is $8,467,000 in 2022 dollars.

19. Annual Operation and Maintenance Costs

The annual Project operation and maintenance (O & M) expenses including general O & M costs, personnel costs, insurance, and taxes are presented in Table A-3.

Table A-3: Annual Project Operation and Maintenance Costs (2022 Dollars)

Cost Item	Annual Cost
O & M	$763,975
Personnel Costs	$476,355
Insurance	$64,803
Taxes	$198,534
Total Cost of Sales	$1,503,667

20. Public Utilities Regulatory Policy Act

The Licensee has exercised its rights under the Public Utility Regulatory Policies Act and reserves the right to continue to do so.

21. One-Line Diagram of Electric Circuits

The One-line Diagram of Electrical Circuits is included within Volume 2 of this application, filed as CEII.

22. United States Land within the Sartell Project Boundary

There are no federal lands located within the Project boundary.

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Sartell Hydroelectric Project

FERC Project No. 8315

Final License Application

Exhibit E
Environmental Report

Prepared for

Eagle Creek Sartell Hydro, LLC

Prepared by

EAGLE CREEK
— RENEWABLE ENERGY —

February 2023

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[1] All Appendices are in Volume 3 of 4, Appendices.

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LIST OF ABBREVIATIONS AND TERMS

§ ..... Section
°F ..... degrees Fahrenheit
ADA ..... Americans with Disabilities Act
Applicant ..... Eagle Creek Sartell Hydro, LLC
APE ..... Area of Potential Effect
ATIS ..... Aquatic and Terrestrial Invasive Species
barrier-free ..... ADA accessible
BITA ..... Broad Incidental Take Authorization
CFR ..... Code of Federal Regulations
cfs ..... cubic feet per second
Commission ..... Federal Energy Regulatory Commission
CWA ..... Clean Water Act
CZMA ..... Coastal Zone Management Act
dam ..... Sartell Dam
DLA ..... Draft License Application
DO ..... Dissolved oxygen
Eagle Act ..... Bald and Golden Eagle Protection Act
Eagle Creek ..... Eagle Creek RE Management, LLC
EFH ..... Essential Fish Habitat
ESA ..... Endangered Species Act
FERC ..... Federal Energy Regulatory Commission
FLA ..... Final License Application
fps ..... feet per second
HPMP ..... Historic Properties Management Plan
IBI ..... Index of Biological Integrity
IPaC ..... Information for Planning and Consultation
JAM ..... Joint Agency Meeting
kW ..... Kilowatts
Licensee ..... Eagle Creek Sartell Hydro, LLC
LLC ..... limited liability company
mg/L ..... milligrams per liter
MNDNR ..... Minnesota Department of Natural Resources
MN Rule 7050 ..... Minnesota Administrative Rule 7050
MPCA ..... Minnesota Pollution Control Agency
ml ..... milliliter
n.d. ..... no date
NGVD ..... National Geodetic Vertical Datum 1929
NHIS ..... Natural Heritage Information System
NLEB ..... northern long-eared bat
NOI ..... Notice of Intent
NPS ..... National Park Service
NOAA ..... National Oceanic and Atmospheric Administration
NRCS ..... Natural Resource Conservation Service
NRHP ..... National Register of Historic Places
PAD ..... Pre-Application Document
Project ..... Sartell Hydroelectric Project

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rpm ..... revolutions per minute
RUSLE2 ..... Revised Universal Soil Loss Equation Version 2
Sartell Hydro ..... Eagle Creek Sartell Hydro, LLC
Sartell Project ..... Sartell Hydroelectric Project
SCORP ..... Statewide Outdoor Comprehensive Recreation Plan
SHPO ..... State Historic Preservation Officer
SU ..... Standard Units
SWCD ..... Soil and Water Conservation District
TLP ..... Traditional Licensing Process
USACE ..... United States Army Corps of Engineers
USC ..... United States Code
USCB ..... United States Census Bureau
USDA ..... United States Department of Agriculture
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geologic Survey
WQC ..... Water Quality Certification

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1. Introduction

Eagle Creek Sartell Hydro, LLC (Sartell Hydro, Licensee, or Applicant), a wholly owned subsidiary of Eagle Creek Renewable Energy, LLC (Eagle Creek), a limited liability company, is applying to the Federal Energy Regulatory Commission (FERC or Commission) for a new license to operate the Sartell Hydroelectric Project (FERC Project No. 8315) (Sartell Project or Project).

The purpose of this Exhibit E is to provide a description of the environmental setting in the Project vicinity. The Licensee prepared this Exhibit to conform to the Commission's regulations under 18 Code of Federal Regulations (CFR) § 4.38 and § 4.61, as required under the Traditional Licensing Process (TLP). The Licensee's request to use the TLP was approved by the FERC on April 17, 2020.

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2. Project Description

A brief description of the Project is provided below as a basis for subsequent discussions. Detailed Project descriptions are provided in Exhibit A of the Final License Application (FLA).

2.1 Project Facilities

2.1.1 Sartell Facilities

The Project is located on the Mississippi River at approximately river mile 932 in Benton County and Stearns County, Minnesota. The Project operates as a run-of-river facility to non-consumptively use water from the Mississippi River for hydroelectric power generation. The Project works include a 46-foot-high dam with four sections, a 2,366-acre reservoir, a powerhouse containing 11 generating units with a total authorized capacity of 8,925 kilowatts (kW), and a715-foot-long transmission line passing over the top of the dam to the point of interconnection. The four sections of the dam consist of a powerhouse, non-overflow section, overflow dam section, and floodwall. The minimum hydraulic capacity of the Project is 330 cubic feet per second (cfs) and the maximum hydraulic capacity of the powerhouse is 6,200 cfs. During periods when river flow is below 330 cfs, supplemental electric power is purchased to operate equipment and hydraulic turbines are shut down to maintain normal pool levels. There are no minimum flow requirements (WSP, 2021).

The Licensee is not proposing any changes to Sartell Project facilities or operations.

2.2 Project Lands and Waters and Federal Lands

The proposed FERC Project boundary is depicted on drawings included in Exhibit G of this application and Section 2.3. No federal lands are within the Project boundary.

2.3 Project Boundary Changes

The current FERC license establishes the Sartell Project boundary (depicted in the existing Exhibit G) at the reservoir surface water elevation of 1,014.5 feet NGVD, inclusive of all lands containing the powerhouse, dam, and flood wall. The current boundary encompasses 2,803.3 acres, which includes 3.1 acres of Project lands and 2,800.2 acres of submerged land. The inundated area is further divided into 2,795.2 acres of reservoir area upstream of the Sartell Dam and 5.0 acres in the tailwater downstream of the powerhouse (Mead & Hunt, Inc., 2022b).

The Licensee completed a review of the current Project boundary described above, which was likely identified using USGS topographic maps that displayed 10- or 20-foot contours, to provide relevant information to describe the existing environment. The Licensee remapped the Project boundary based on LiDAR elevation data with an accuracy of +/- 2.0 feet.[2] The current Exhibit G mapped the Project boundary at the normal reservoir elevation of 1,014.5 feet NGVD2, which is not representative of all lands necessary or appropriate for Project operation. Analysis of the LiDAR data also identified the upper extent of the current Project boundary contains a free-flowing river reach that is not impounded at the maximum reservoir elevation of 1,015.0 feet NGVD.

[2] LiDAR data source: Minnesota Geospatial Information Office, 2015.

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The proposed boundary was mapped using current high-resolution LiDAR terrain data to elevation 1,015.0 feet NGVD, which extends approximately 7.9 miles upstream of the Sartell Dam. The proposed Project boundary includes all lands upstream of the Sartell Dam to elevation 1,015.0 feet NGVD and excludes those lands not impounded at elevation 1,015.0 feet NGVD. The proposed boundary also includes lands owned by the Licensee with Project facilities including the powerhouse, dam, flood wall, canoe portage take-out, and tailrace that extends downstream from the dam approximately 420 feet.

The proposed Project boundary includes all land and water necessary and desirable for the safe and effective operation of the Sartell Project and all lands required for other Project purposes, including but not limited to flowage, public recreation, shoreline control, and protection of environmental resources. Maps showing the current versus proposed Sartell Project boundary are in **Appendix E-30**.

The proposed Project boundary excludes one recorded archaeological property, Site 21-SN-as, which is located within the current Project boundary.[3] Another site, Site 21-BN-0015 (a precontact find spot) is upstream of the proposed Project boundary and was not investigated for potential impacts during the 2019 drawdown because its location is further upstream of the area expected to be impacted by the three-foot drawdown or APE (Minnesota Department of Natural Resources, 2019b). This finding correlates well with the finding of the Licensee when determining the upstream extent of the impounded area. The site exists at an elevation above or upstream of the area impounded by the Sartell Dam at elevation 1,015.0 feet NGVD. Therefore, it is not expected to be adversely impacted by the operation of the Project and does not need to be included in the proposed Project boundary.

To mitigate any potential for the continued Project operation to adversely impact any currently unknown sites, the Licensee proposes to survey the reservoir shoreline within the proposed Project boundary throughout the license term (Section 7.3.2) to identify any new sites potentially impacted by Project operation-induced erosion during the term of the license.

The proposed Project boundary establishes the Sartell Project boundary at the reservoir surface water elevation of 1,015.0 feet NGVD, inclusive of all lands containing the powerhouse, dam, and flood wall. The proposed Project boundary encompasses approximately 2,358.6 acres, which includes 3.1 acres of upland and 2,350.5 acres of submerged land. The inundated area is further divided into 2,350.5 acres of reservoir area upstream of the Sartell Dam, and 5.0 acres of tailwater area below the powerhouse (Mead & Hunt, Inc., 2022b). Maps depicting the Licensee-owned project land and inundated area within the current and proposed Project boundary are included in **Appendix E-31**.

[3] Site 21-SN-as, a possible mound location, was expected to be located on a high bank overlooking the river above the shoreline and was determined to not be impacted by Project operations during the drawdown. Regardless, the riverbank below the site was examined in 2019 and no cultural materials were noted along the exposed shoreline. See **Appendix E-9**.

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3. Pre-Filing Consultation Process

The FERC issued the Licensee a new license for the Sartell Project on March 13, 1985 effective March 1, 1985. The current license expires on February 28, 2025 (Federal Energy Regulatory Commission, 1985). On February 27, 2020, the Licensee filed a Notice of Intent (NOI) to relicense the Project, a Pre-Application Document (PAD) containing information for the Project, and a request to use the TLP. After due consideration and the opportunity for public comment, the FERC granted the Licensee's request to use the TLP on April 17, 2020 (Federal Energy Regulatory Commission, 2020). Each stage of consultation is further discussed in the following sections.

3.1 Public Outreach

The Licensee initiated the Sartell Project relicensing on February 27, 2020 with the filing of the Notice of Intent (NOI) to file an application and Pre-Application Document (PAD). Pursuant to 18 CFR, Section 5.5, the filing of the NOI marks the beginning of the licensing process and sets the schedule for further licensing activities. In addition to filing the PAD and NOI, the Licensee filed a request to utilize the Traditional Licensing Process (TLP). The request to use the TLP was filed as a related submittal under 18 CFR, Section 5.3. A hardcopy of the NOI, PAD, and TLP request is available for viewing at the Great River Regional Library in St. Cloud, Minnesota during normal business hours. A public notice of the NOI, PAD, and TLP request was published in the St. Cloud Times newspaper on February 19, 2020. FERC approved utilizing the TLP on April 17, 2020.

In accordance with the TLP schedule, within 30 days of receiving TLP approval from FERC, Sartell Hydro issued the Notice for the virtual JAM with resource agencies, Indian tribes, and other interested parties. A public notice of the virtual JAM was published in the St. Cloud Times newspaper on May 15, 2020. The JAM was held on June 16, 2020. A site visit to the Project was held on November 16, 2020. A public notice of the site visit was published on October 16, 2020 in the St. Cloud Times newspaper.

Stage two consultation began after written comments on the PAD were due. The Licensee did not receive any comments on the PAD or study requests. Since no comments or study requests were received, the Licensee reviewed the existing information and determined that studies regarding recreation, invasive species, and water quality were necessary for FERC to complete their environmental analysis. The Summary of Study Comments and Responses was filed with FERC on February 12, 2021. Studies were conducted in 2021.

All of the documents noted above are public documents that are posted to FERC's eLibrary and are available on Sartell Hydro's relicensing website at https://www.eaglecreekre.com/facilities/operating-facilities/sartell/sartell-relicensing-information.

3.2 First-Stage Consultation

The Licensee distributed the NOI, PAD, and request to use the TLP to the various stakeholders on February 27, 2020. The Licensee also published a public notice of the NOI, PAD, and request to use the TLP on February 19, 2020 in the St. Cloud Times, which is a daily newspaper of general circulation in

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Benton and Stearns Counties where the Sartell Project is located. Comments on the request to use the TLP were due to the FERC within 30 days of the PAD filing, which was on or before March 30, 2020. The FERC approved the Licensee's TLP request via their April 17, 2020 letter.

In accordance with the deadlines set by the FERC, the Licensee held a virtual Joint Agency Meeting (JAM) on June 16, 2020. Due to the COVID-19 Centers for Disease Control and corporate guidelines to avoid public gatherings and discretionary travel in place at the time, a public notice of the virtual JAM was published in the St. Cloud Times on May 15, 2020. The FERC was also notified of this meeting on May 28, 2020. The virtual JAM was attended by ten individuals from resource agencies and interested members of the public and seven individuals from Sartell Hydro and their relicensing consultant. A site visit to the Project was held on November 16, 2020. A public notice of the site visit was published on October 16, 2020 in the St. Cloud Times. The FERC was also notified of the meeting on October 29, 2020. The site visit was attended by seven individuals from resource agencies and interested members of the public and four individuals from Sartell Hydro and their relicensing consultant.

During the JAM, the Minnesota Department of Natural Resources (Minnesota DNR) indicated they would be providing written comments on the PAD at a later date. No written comments or study requests were received from any of the relicensing participants.

3.3 Second-Stage Consultation

3.3.1 Study Summary

Since there were no written comments or study requests, the Licensee reviewed the existing available information regarding the Project to determine if any additional studies were necessary for the FERC to complete their environmental analysis. The Licensee proposed to complete the following studies to provide additional information that will be necessary for the FERC to complete their analysis.

The Licensee proposed to complete the following activities in the study summary:

- Recreation Study
- Aquatic and Terrestrial Invasive Species (ATIS) and Shoreline Habitat Study
- Water Quality Study

In addition, Sartell Hydro conducted a National Registry eligibility review with the Minnesota SHPO as discussed in Section 7.2.1.

The Licensee filed the study summary with the FERC on February 12, 2021 and provided copies to Minnesota DNR, Minnesota Pollution Control Agency (MPCA), Minnesota State Historic Preservation Office (SHPO), National Park Service (NPS), Stearns County Soil and Water Conservation District (SWCD), and United States Fish and Wildlife Services (USFWS). No comments were received from any stakeholders. A copy of the study summary is provided in *Volume 4 of 4 Documentation of Consultation*.

3.3.2 Study Results

The studies identified in Section 3.2.1 were performed in 2021 and results are presented in this application. The Licensee did not receive any stakeholder comments on the study results or comments on the DLA; therefore, there is no listing of stakeholder comments or Licensee responses included in the FLA.

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3.3.3 Draft License Application

The DLA was submitted for review to the consulting parties included on the distribution list outlined in the September 14, 2022 cover letter. No written comments were received.

3.3.4 Third-Stage Consultation

A letter with a link to the electronic version of the FLA will be sent via certified mail to the distribution list. The FLA will also be posted on the relicensing website at: https://www.eaglecreekre.com/facilities/operating-facilities/sartell/sartell-relicensing-information. The distribution list for FLA delivery is included in *Volume 4, Documentation of Consultation* of the FLA.

3.4 Consistency with Statutory and Regulatory Requirements

3.4.1 Section 401 of the Clean Water Act

Under Section 401 of the Clean Water Act (CWA) (33 United States Code (USC) § 1341), any federal license or permit to conduct any activity that may result in discharge into navigable waters requires a certification from the state in which the discharge originates that it will comply with the applicable provisions of the CWA, unless the certification is waived. Therefore, a Section 401 Water Quality Certification (WQC) or waiver is required prior to the FERC's issuance of a new license for the Project. The MPCA is the state agency designated to conduct the certification requirements prescribed in Section 401 of the CWA. Pursuant to 18 CFR § 5.23(b), the Licensee will request a Section 401 WQC from the MPCA.

3.4.2 Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to ensure any action they authorize, fund, or conduct is not likely to jeopardize the continued existence of any federally listed endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of any federally listed species.

The Licensee was granted designation as the FERC non-federal representative for ESA consultation on April 17, 2020. The Licensee consulted with the USFWS and concluded that two federally listed species may occur in the Project vicinity, the northern long-eared bat (NLEB) (*Myotis septentrionalis*) and the monarch butterfly (*Danaus plexippus)* (US Fish and Wildlife Service, 2022a). The Licensee's analysis of Project impacts on threatened and endangered species is presented in Section 6.

3.4.3 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265) requires federal agencies to consult with the National Oceanic and Atmospheric Administration (NOAA) Fisheries on all actions that may adversely affect Essential Fish Habitat (EFH). EFH is only applicable to federally managed commercial fish species which live at least one component of their lifecycle in marine waters. All fish in the Mississippi River in Minnesota are freshwater species; therefore, there is no designated EFH in the Project vicinity.

3.4.4 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (Public Law 89-665) requires every federal agency to consider how each of its undertakings could affect historic properties. Historic properties are any

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prehistoric or historic districts, sites, building structures, Traditional Cultural Property, and objects significant in American history architecture, engineering, and culture which are eligible for inclusion in the National Register of Historic Places (NRHP). The Sartell Dam and hydroelectric plant were evaluated for inclusion in the NRHP and both were determined ineligible (UWM-CRM, 2022).

3.4.5 Coastal Zone Management Act

Under Section 307 (c)(3)(a) of the Coastal Zone Management Act (CZMA), the FERC cannot issue a license for a project within or affecting a state's coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

In Minnesota, the only area subject to the CZMA includes portions of the four northeastern counties with shoreline on Lake Superior including Carlton, Cook, Lake and Saint Louis Counties (Minnesota Department of Natural Resources, n.d.a). The Sartell Project is not located within Minnesota's coastal zone and therefore is not subject to the CZMA. The Licensee requested a formal written determination of consistency with Minnesota's Lake Superior Coastal Program on July 21, 2022.Sartell Hydro reached back out to the Minnesota DNR on February 9, 2023 for concurrence. No response from Minnesota DNR has been received as of the filing of the FLA.

Communications with Minnesota DNR are included *Volume 4, Documentation of Consultation* of this application.

3.4.6 Wild and Scenic Rivers Act

Section 7(a) of the Wild and Scenic Rivers Act (Public Law 90-542) requires federal agencies to make a determination as to whether the operation of a project under a new license would unreasonably diminish the scenic, recreational, and fish and wildlife values present in the designated area. The Mississippi River in the Project vicinity is not a designated Wild and Scenic River by the NPS (National Wild and Scenic Rivers System, n.d.).

The Wilderness Act (Public Law 88-577) was enacted to establish a National Wilderness Preservation System. There are no nationally designated wilderness areas in the Project vicinity.

3.4.7 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC § 668-668c) (Eagle Act) was enacted to protect eagles from human-induced alterations and human interactions. The act prohibits the take; possession; sale; purchase; barter; offer to sell, purchase, or barter; transport; export; or import of any bald or golden eagle whether alive or dead, including any eagle, part, nest, or egg. A take is defined as pursuing, shooting, shooting at, poisoning, wounding, killing, capturing, collecting, molesting, or disturbing eagles (US Fish and Wildlife Service, n.d.a).

The bald eagle (Haliaeetus leucocephalus) is known to be located along the Mississippi River in the Project vicinity; however, there are no known recorded occurrences of bald eagle nests within the Project boundary. The Licensee's analysis of the Project's impact on the protected eagle is presented in Section 6.4.3.

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4. General Location and Project Locale

4.1 Location

The Sartell Project is one of fourteen regulated dams located on the main stem of the Mississippi River within the Upper Mississippi River Basin. These dams include six FERC-regulated hydroelectric project dams, six United States Army Corps of Engineers (USACE) dams with third-party generation under FERC licenses, one USACE dam that does not generate power, and two state-regulated dams that do not generate power. A figure showing the locations of all of the dams on the Upper Mississippi River is located in **Appendix E-5**. The Sartell Project is the only project on the Mississippi River owned and operated by the Licensee.

4.1.1 Sartell Project Location

The Sartell Project is located on the Mississippi River at approximately river mile 932 in the City of Sartell in Benton and Stearns Counties, Minnesota. The Project is located about 70 miles northwest of Minneapolis, Minnesota. The Sartell Dam impounds the Mississippi River and Little Rock Creek, creating a 2,350.5-acre reservoir (Mead & Hunt, Inc., 2022b). Municipalities within the current Project boundary include the City of Sartell and the Townships of Brockway, Langola, Le Sauk, Sauk Rapids, and Watab (Mead & Hunt, Inc., 2020).

From right to left looking upstream, the dam structures include a step-up transformer, powerhouse, non-overflow section, radial (Tainter-type) gate section, bascule gate section, floodwall, and transmission equipment. The facilities and Licensee owned property within the Project boundary are located within the City of Sartell.

The Sartell Project and surrounding area are shown on an orthophotograph included in **Appendix E-6**. The proposed Project boundary is further described in Section 2.3. and in Exhibit G of this application.

4.2 Climate

The Sartell Project is located within the Warm Summer Continental Climate Region which is characterized by hot, humid summers and cold winters with moderate snowfall (EarthHow.com, n.d.).

Based on data from 1981-2010, the average monthly minimum temperature ranges from 2 degrees Fahrenheit (°F) in January to 58°F in July. The average monthly maximum temperature ranges from 21°F in January to 82°F in July. The overall monthly average temperature ranges from 11.5°F in January to 70.0°F in July (US Climate Data, n.d.).

The regional climate is moderately moist with an average annual rainfall of approximately 27.73 inches, with approximately three-quarters of yearly precipitation occurring during the growing season of April through September. The area has an average annual winter snowfall of 47 inches. The winter month of December experiences the largest snowfall with an average of 11 inches (US Climate Data, n.d.).

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4.3 Topography, Geology, and Soils

4.3.1 Topography

The Sartell Project is located within the Mississippi River valley, which is a large outwash plain. Surface topography in the Project vicinity is relatively flat to gently rolling land, with the Mississippi River bisecting it with a narrow floodplain. Total relief ranges in excess of 1,140 feet on the hilltops to less than 960 feet at the Mississippi River near the St. Cloud dam tailwater. River shorelines are generally no more than one to two degrees with maximum slopes of up to six degrees near the banks. Glacial sediments are thin near the river at 30 feet or less, with several outcrops of Precambrian granites at the surface (St. Regis Corporation, 1984). The topography of the Project and the surrounding area is shown in **Appendix E-7**.

4.3.2 Geology

The Sartell Project is located at the southern edge of the Brainerd-Automba Drumlin field. The field is fan shaped. It is interrupted by Mississippi Valley terrain, which is the largest. The southern portion of the drumlin field is also interrupted by sharp erosional valleys containing lakes or streams that lie within valleys created by much larger streams of the past. The valleys are believed to have been formed as tunnel valleys under the glacial ice (Eagle Creek Sartell Hydro, LLC, 2017).

Unconsolidated surface material in the Project vicinity is generally composed of red drift from the Wisconsin Age, which overlies older grey drift from the Kansan and Nebraska Ages. Along the Mississippi River, drifts represent recent alluvial deposits. Some lacustrine silts of glacial Lake Grantsburg are also present. Drift thickness varies from zero to 175 feet (Eagle Creek Sartell Hydro, LLC, 2017).

The area bedrock consists primarily of Precambrian igneous and metamorphic rock. Outcroppings are composed predominately of granite and weathered gneiss and various other Precambrian rock are also present (Eagle Creek Sartell Hydro, LLC, 2017).

4.3.3 Soils

There are 45 soil types found throughout the Project vicinity, which are grouped into 34 major soil associations with distinctive soil patterns, relief, and drainage factors (U.S. Department of Agriculture-Natural Resource Conservation Service, 2019). A custom soils report and map for the general Project vicinity is included in **Appendix E-8**.

Hubbard, Zimmerman, Isan-Isan Complex, and Fordum-Winterfield Complex soils are the most prevalent soil series found in the Project vicinity, with the most commonly identified soil classifications being Hubbard loamy sand, Zimmerman fine sand, Isan-Isan frequently ponded complex, and Fordum-Winterfield frequently flooded complex in respective order of abundance. (U.S. Department of Agriculture-Natural Resource Conservation Service, 2019). Soil characteristics are shown in **Table 4.3.3-1**.

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Table 4.3.3-1 Prevalent Soil Characteristics in the Sartell Project Vicinity

Soil Series	Drainage Classification	Formation	Water Transmittal Capacity	Runoff Class
Hubbard	Excessively Drained	Stream terraces and flats	High to Very High	Low
Zimmerman	Excessively Drained	Outwash plains	High to Very High	Low
Isan-Isan Complex	Poorly Drained to Very Poorly Drained	Stream terraces, flats, and depressions	High	Moderate
Fordum-Winterfield Complex	Somewhat Poorly Drained to Very Poorly Drained	Flood plains	High to Very High	Moderate

4.3.4 Erosion

The United States Department of Agriculture (USDA)-Natural Resource Conservation Service (NRCS) uses a computer software model called Revised Universal Soil Loss Equation Version 2 (RUSLE2) to estimate soil loss from erosion caused by rainfall on cropland. The actors described in the following paragraphs are reviewed in RUSLE2 to estimate soil erosion based upon erodibility in the Project vicinity.

4.3.4.1 Hydrologic Group

The Hydrologic Group for each soil is based upon runoff potential for saturated and bare soils and range from Group A through Group D, with Group A having the lowest runoff potential and Group D having the highest (U.S. Department of Agriculture-Natural Resource Conservation Service, 2019).

Hubbard loamy sands with 0-2% slopes (D67A) reside in Group A, Zimmerman fine sands with banded substratum and 1-6% slopes (D55B) reside in Group A, Isan-Isan frequently ponded complex soils with 0-2% slopes (D20A) reside in Group A/D, and Fordum-Winterfield complex, frequently flooded complex soils with 0-2% slopes (1011A) reside in Group B/D.

4.3.4.2 T Factor

The T Factor is an estimate of the maximum average rate of soil erosion in tons per acre per year that can occur without affecting crop productivity over a sustained period. T Factor also relates to the ability of the soil to revegetate once it is disturbed (U.S. Department of Agriculture-Natural Resource Conservation Service, 2019).

Hubbard loamy sands with 0-2% slopes have a T Factor of 5 tons per acre, Zimmerman fine sands with banded substratum and 1-6% slopes have a T factor of 5 tons per acre, Isan-Isan frequently ponded complex soils with 0-2% slopes have a T Factor of 2 tons per acre, and Fordum-Winterfield complex, frequently flooded complex soils with 0-2% slopes have a T Factor of 3 to 5 tons per acre.

4.3.4.3 Kf Factor

The Kf Factor gives an indication of how susceptible a soil surface is to erosion caused by water and range from 0.02 to 0.69, with 0.69 having the highest susceptibility to erosion. Based upon the RUSLE2 information, lands in the Project vicinity have Kf factors in the low to moderate range

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due to the soil particle susceptibility to detachment due to runoff (U.S. Department of Agriculture-Natural Resource Conservation Service, 2019).

Hubbard loamy sands with 0-2% slopes have a Kf Factor of 0.02, Zimmerman fine sands with banded substratum and 1-6% slopes have a Kf factor of 0.1, Isan-Isan frequently ponded complex soils with 0-2% slopes have a Kf Factor of 0.2, and Fordum-Winterfield complex, frequently flooded complex soils with 0-2% slopes have a Kf Factor 0.17 to 0.28.

4.3.4.4 Percent Sand, Percent Silt, and Percent Clay

The USDA-NRCS also provides a representative value of the sand, silt, and clay composition in the dominant soils (U.S. Department of Agriculture-Natural Resource Conservation Service, 2019).

Hubbard loamy sands with 0-2% slopes are composed of 86% sand, 8% silt, and 6% clay. Zimmerman fine sands with banded substratum and 1-6% slopes are composed of 97.3% sand, 0.7% silt, and 2% clay. Isan-Isan frequently ponded complex soils with 0-2% slopes are composed of 67% sand, 24% silt, and 9% clay. Fordum-Winterfield complex, frequently flooded complex soils with 0-2% slopes are composed of 65.0 to 87.3% sand, 6.7 to 27.0% silt, and 6 to 8% clay.

4.3.5 Impoundment Shoreline Conditions

The existing shallow shoreline slopes, native riparian vegetation buffer, surface water management, and floodplain regulations work together to provide adequate protection from wide-spread shoreline erosion at the Project. In 2019, the Minnesota DNR conducted an archaeological survey of the reservoir shoreline during a six-week drawdown. During the survey, Minnesota DNR employees regularly patrolled the shoreline for potential erosion concerns and no instances were identified in the report. The entire 2019 shoreline survey report is included in **Appendix E-9**.

In conjunction with a planned drawdown of the Sartell Project reservoir in 2016, the Stearns County SWCD and Minnesota DNR completed a shoreline erosion survey of the portion of the reservoir on the Mississippi River. Erosion rates were estimated at 18 sites and **Table 4.3.5-1** provides information for each site. All shorelines owned by the Licensee have been stabilized with rip rap. Other shoreline areas not identified in the 2016 erosion survey have existing riparian buffers.

Table 4.3.5-1 Stearns County SWCD and Minnesota DNR Sartell Reservoir Erosion Survey

Site ID	BEHI* Erosion Rating	Bank Length (feet)	Sturdy Bank Height (feet)	Bank Erosion Rate	
				(feet/year)	(tons/year/feet)
E033034	Very High	70	50	0.58	1.38
E031032	Very High	150	30	0.58	0.83
E023024	High	205	17	0.87	0.71
W005006	High	100	25	0.58	0.69
E025026	High	96	19	0.58	0.53
W009010	High	270	25	0.38	0.46
W007008	Very High	75	16	0.58	0.44

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Site ID	BEHI* Erosion Rating	Bank Length (feet)	Sturdy Bank Height (feet)	Bank Erosion Rate	
				(feet/year)	(tons/year/feet)
E029030	Very High	500	15	0.58	0.42
E021022	High	150	11	0.58	0.30
W011012	High	1,000	10	0.58	0.28
W003004	Very High	100	15	0.38	0.27
E019020	Very High	300	8	0.58	0.22
E017018	High	1,372	10	0.38	0.18
E015016	High	350	8	0.38	0.15
W013014	High	121	12	0.25	0.14
E035036	High	150	4	0.58	0.11
E027028	High	240	5	0.38	0.09
W001002	Low	200	2.5	0.07	0.01

The western reservoir shoreline near the Sartell Dam is an urban area and the land use upstream is primarily large plat forested residential and agriculture. The eastern shoreline near the Sartell Dam is primarily former industrial and the land use upstream is forested large plat residential and agricultural. Both shorelines generally have existing buffers of native riparian vegetation and are primarily stable.

Benton County enforces a Shoreline Management Ordinance that classifies shoreline areas, as well as establishes minimum setback requirements for buildings and septic systems, maximum amounts of impervious area, and standards for shoreland alterations including alterations of vegetation and topography (Benton County, n.d.a). Both Benton County and Stearns County are compliant with the Minnesota Buffer Law that requires perennial vegetative buffers of up to 50 feet along lakes, rivers, and streams to reduce shoreline erosion and sedimentation (Minnesota Board of Water and Soil Resources, n.d.).

4.3.5.1 Proposed Action

Sartell Hydro is not proposing any new environmental measures related to geology and soils at the Sartell Project.

4.3.5.2 Unavoidable Adverse Effects

Continued operation and relicensing of the Sartell Project as proposed is not expected to have unavoidable adverse effects on soils because the facility is operated as run-of-river.

4.4 Vegetative Cover

The Sartell Project shoreline along the Mississippi River portion of the reservoir consists mainly of wooded rural residential properties, with scattered areas of mixed forest, lowland forest, and upland forest. The portion of the reservoir along Little Rock Creek between the Mississippi River and Little Rock Lake consists mainly of wooded rural residential properties. The western shoreline of Little Rock Lake consists of wooded rural residential properties, with large portions of the eastern shoreline consisting of mixed forest (GAI Consultants, 2021).

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The riparian habitat in the Project vicinity is typical of the Anoka Sand Plain subsection of the Eastern Broadleaf Ecological Province (Minnesota Department of Natural Resources, n.d.b). It is primarily a mixture of upland forest, lowland forest, forested wetland, and emergent wetland. Approximately 912.8 acres of wetlands are within the proposed Sartell Project boundary (Mead & Hunt, Inc., 2022a). These wetlands support various herbaceous species including cattails, sedges, grasses, and rushes, as well as water-tolerant trees and shrubs.

The vegetation along the shorelines of the Project reservoir was reviewed in conjunction with the ATIS Study. The shoreline was observed from a boat while moving slowly along the shoreline. The shoreline was divided into sections based on plant community type to provide an overall characterization of the terrestrial plant composition. The overall community type within a 10-meter riparian zone visible from the open water was recorded for each section.

Shoreline community types observed during the ATIS Study in order of abundance included wooded residential, mixed forest, lowland forest, and upland forest/sparse residential (GAI Consultants, 2021). A full description of the botanical resources in the Project vicinity is included in Section 6.

4.5 Land Development

Major land uses in the Project vicinity include residential, agriculture, commercial, forest, wetland, and parks. A map depicting the major land uses in the Project vicinity is included in **Appendix E-10**.

Major land uses in Benton County consist of 76% agricultural, 10% incorporated or under annexation agreements, 9% rural residential, 3% rural vacant land, 2% parks and open space, <1% commercial and industrial, and <1% public facilities/other (Benton County, 2019a).

Major land uses in Stearns County Consist of 78% agricultural use, 12% forested, 5% urban, 3% water, 2% wetland, and <1% extractive/other (Stearns County, 2020a).

Proposed Action
Sartell Hydro is not proposing any changes to the Sartell Project or operations, and any minor adjustments to project boundaries is not expected to affect land use.

Unavoidable Adverse Effects
Sartell Hydro does not expect any adverse effects on land use with the continued operation of the Sartell Project.

4.6 Population Size and Density

The 2020 census data indicated the population of the City of Sartell was 19,351, which was a 21.9% increase from the 2010 census figure of 15,876. This results in an average population density of 1,619.9 persons per square mile (US Census Bureau, n.d.a).

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The 2020 census data indicated the population of Benton County was 41,379, which was a 7.6% increase from the 2010 census figure of 38,451. Benton County has an average population density of 94.2 persons per square mile with a housing unit density of 42.9 housing units per square mile (US Census Bureau, n.d.a).

The 2020 census data indicated the population of Stearns County was 158,292, which was a 5.1% increase from the 2010 census figure of 150,642. Stearns County has an average population density of 112.2 persons per square mile with a housing unit density of 49.3 housing units per square mile (US Census Bureau, n.d.a).

The population changes from 1980 to 2020 for the City of Sartell, Benton County, and Stearns County are presented in **Table 4.6-1**. Between 1980 and 2020, the population increased in the City of Sartell by 564.7%, Benton County by 164.3%, and Stearns County by 146.3 (City of Sartell, 2016a), (US Census Bureau, n.d.a).

Table 4.6-1 City of Sartell, Benton County and Stearns County Historical Population

Municipality	1980	1990	2000	2010	2020
City of Sartell	3,427	5,354	9,641	15,876	19,351
Benton County	25,187	30,185	34,266	38,451	41,379
Stearns County	108,161	118,791	133,166	150,642	158,292

Source: 1980 to 2000 (City of Sartell, 2016a) and 2010 to 2020 (US Census Bureau, n.d.a)

Population projections for 2020 through 2035 for the City of Sartell, Benton County, and Stearns County are presented in **Table 4.6-2**. The City of Sartell is projected to have population increases of 18.1% (City of Sartell, 2016a). Benton County and Stearns County are projected to have population increases of 4.5% and 5.6%, respectively (Minnesota State Demographic Center, n.d.).

Table 4.6-2 City of Sartell, Benton County, and Stearns County Population Projections

Municipality	2025	2030	2035
City of Sartell	25,474	27,906	30,074
Benton County	42,055	43,100	43,950
Stearns County	167,092	172,106	176,396

Source: (City of Sartell, 2016a), (Minnesota State Demographic Center, n.d.)

Proposed Action

Sartell Hydro is not proposing any changes to the Sartell Project or operations, and any minor adjustments to project boundaries is not expected to affect the population size or density.

Unavoidable Adverse Effects

Sartell Hydro does not expect any adverse effects on population size or density with the continued operation of the Sartell Project.

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4.7 Labor Force and Employment

The largest employment sectors for Benton County include the following industry categories in order of prevalence: educational services, health care, and social assistance; manufacturing; and retail trade. The employment status in Benton County is summarized in **Table 4.7-1**.

Table 4.7-1 Employment Status, Benton County

Industry	Jobs	
	Number (est.)	Percentage
Civilian employed population 16 years and over	21,790	-
Agriculture, forestry, fishing, hunting, and mining	454	2.1%
Construction	1814	8.3%
Manufacturing	3,161	14.5%
Wholesale trade	520	2.4%
Retail trade	2,918	13.4%
Transportation, warehousing, and utilities	1,172	5.4%
Information	104	0.5%
Finance and insurance, real estate, rental, and leasing	1,257	5.8%
Professional, scientific, and management; administrative; and waste management services	1,579	7.2%
Educational services, health care, and social assistance	5,945	27.3%
Arts, entertainment, recreation, accommodation, and food services	1,165	5.3%
Other services, except public administration	894	4.1%
Public administration	807	3.7%

Source: (US Census Bureau, n.d.b)

The largest employment sectors for Stearns County include the following industry categories in order of prevalence: educational services, health care, and social assistance; manufacturing; and retail trade. The employment status in Stearns County is summarized in **Table 4.7-2**.

Table 4.7-2 Employment Status, Stearns County

Industry	Jobs	
	Number (est.)	Percentage
Civilian employed population 16 years and over	85,498	-
Agriculture, forestry, fishing, hunting, and mining	2,846	3.3%
Construction	5,896	6.9%
Manufacturing	11,748	13.7%
Wholesale trade	2,005	2.3%
Retail trade	10,202	11.9%
Transportation, warehousing, and utilities	4,621	5.4%

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Information	981	1.1%
Finance and insurance, real estate, rental, and leasing	4,775	5.6%
Professional, scientific, and management; administrative; and waste management services	5,236	6.1%
Educational services, health care, and social assistance	24,111	28.2%
Arts, entertainment, recreation, accommodation, and food services	6,895	8.1%
Other services, except public administration	3.906	4.6%
Public administration	2,273	2.7%

Source: (US Census Bureau, n.d.b).

4.7.1.1 Proposed Action

Sartell Hydro is not proposing any changes to the Sartell Project or operations, and any minor adjustments to project boundaries is not expected to affect socioeconomics.

4.7.1.2 Unavoidable Adverse Effects

Sartell Hydro does not expect any adverse effects on socioeconomics with the continued operation of the Sartell Project.

4.8 Environmental Justice

The following sections provide information on Environmental Justice (EJ) communities within the geographic scope of the existing and proposed Sartell Project boundaries.[4]

4.8.1 Race, Ethnicity, and Low-Income Data

Race, ethnicity, and low-income data from the US Census Bureau 2020 five-year estimates for the State of Minnesota, Benton County, Stearns County, census block group, and census tract within the geographic scope of the Sartell Project is summarized in **Table 4.8.1-1**.

[4] The area within one mile of either the existing or Proposed Project Boundary, whichever is larger, is known as the geographic scope in regard to Environmental Justice communities when there are no major construction activities planned.

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Table 4.8.1-1 Sartell Environmental Justice Community Information

SARTELL PROJECT											
	RACE AND ETHNICITY DATA										LOW INCOME DATA
Geography	Total Population (count)	White Alone Not Hispanic (count)	African American (count)	Native American/ Alaska Native (count)	Asian (count)	Native Hawaiian & Other Pacific Islander (count)	Some Other Race (count)	Two or More Races (count)	Hispanic or Latino (count)	Total Minority (%)	Households Below Poverty Level (%)
State of Minnesota	**5,600,166**	**4,422,490**	**354,540**	**48,409**	**273,100**	**1,905**	**17,494**	**174,553**	**307,675**	**21.0%**	**9.3%**
Benton County	**40,476**	**35,979**	**1,876**	**49**	**378**	**0**	**11**	**1,097**	**1,086**	**11.1%**	**9.0%**
Census Tract 202.03, Block Group 1	**1,734**	**1,649**	**26**	**1**	**0**	**0**	**0**	**48**	**10**	**4.9%**	**4.1%**
Census Tract 202.03, Block Group 2	**846**	**814**	**0**	**4**	**2**	**0**	**0**	**7**	**19**	**3.8%**	**3.4%**
Census Tract 202.05, Block Group 1	**1,863**	**1,804**	**0**	**14**	**11**	**0**	**0**	**34**	**0**	**3.2%**	**5.9%**
Census Tract 202.05, Block Group 2	1,352	1,339	0	0	0	0	0	1	12	1.0%	4.6%
Census Tract 202.06, Block Group 1	1,601	1,542	0	0	19	0	0	27	13	3.7%	9.1%
Census Tract 202.06, Block Group 2	1,285	1,151	120	0	0	0	0	0	14	10.4%	14.1%
Census Tract 211.03, Block Group 3	956	947	8	0	0	0	0	0	1	0.9%	10.2%
Stearns County	159,788	135,291	10,932	289	3,410	0	545	3,764	5,557	15.3%	11.1%
Census Tract 101.01, Block Group 1	2,075	1,720	20	0	79	0	0	228	28	17.1%	0%
Census Tract 101.01, Block Group 2	3,744	3,503	3	0	216	0	0	5	17	6.4%	0.4%
Census Tract 101.01, Block Group 3	**2,006**	**1,793**	**0**	**0**	**87**	**0**	**13**	**28**	**85**	**10.6%**	**1.2%**
Census Tract 101.03, Block Group 1	**1,795**	**1,603**	**0**	**0**	**12**	**0**	**0**	**180**	**0**	**10.7%**	**3.9%**

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Census Tract 101.03, Block Group 2	**2,365**	**2,247**	**0**	**0**	**0**	**0**	**0**	**63**	**55**	**5.0%**	**7.1%**
Census Tract 102, Block Group 1	**2,556**	**2,488**	**2**	**0**	**30**	**0**	**0**	**4**	**32**	**9.7%**	**2.8%**
Census Tract 102, Block Group 2	**1,215**	**1,200**	**0**	**0**	**0**	**0**	**0**	**14**	**1**	**1.2%**	**4.0%**

Source: (US Census Bureau, n.d.d) (US Census Bureau, n.d.c)

4.8.2 Environmental Justice Communities

The Licensee evaluated the census block groups and tracts within the geographic scope of the Project to determine if there were any EJ communities present. Three different evaluation methods were used to make this determination. The methods used included the 50% analysis method, meaningful greater analysis method, and low-income threshold method.

To qualify as an EJ community under the 50% analysis method, the total percentage of the minority population must exceed 50%. To qualify as an EJ community under the meaningful greater analysis method, the block group minority population must exceed 12.2% for block groups in Benton County and 16.8% for block groups in Stearns County.[5] To qualify as an EJ community under the low-income threshold method, the percentage of the population below the poverty level must equal or exceed Benton County's poverty level of 9.0% for block groups located in Benton County and 11.1% for block groups in Stearns County. These analyses identified four EJ communities within the geographic scope of the Sartell Project. They are shown in **Table 4.8.2-1**.

Table 4.8.2-1 Environmental Justice Communities within the Geographic Scope of the Sartell Project

County	Census Block/Tract No.	50% Analysis Method (Y/N)	Meaningful Analysis Method (Y/N)	Low Income Threshold Method (Y/N)
Benton	Census Tract 202.06, Block 1	N	N	Y
Benton	Census Tract 202.06, Block 2	N	N	Y
Benton	Census Tract 211.03, Block 3	N	N	Y
Stearns	Census Tract 101.01, Block 1	N	Y	N

A map showing the Project boundary and location of project-related construction in relation to all identified EJ communities within the geographic scope of the Project is shown in **Figure 4.8.2-1**.[6] The map also identifies all sensitive receptor locations, including daycare centers, schools, hospitals, and nursing homes, which are located within the geographic scope of the Project.

[5] Meaningful Greater Analysis (Benton County minority population of 11.1% x 1.1 = 12.2%; Steans County minority population of 15.3% x 1.1=16.8%).
[6] There is no proposed construction associated with relicensing of the Project.

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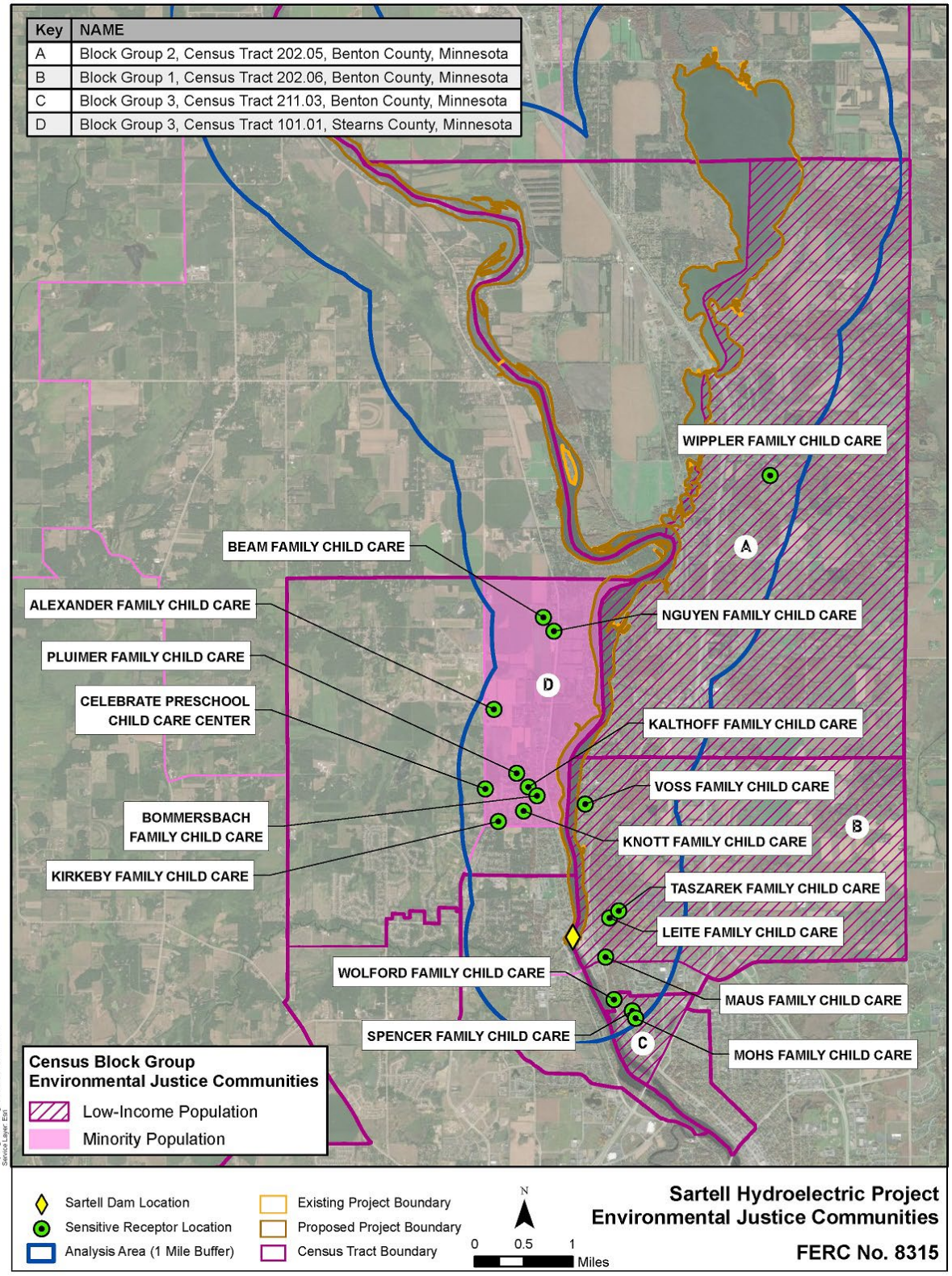
Figure 4.8.2-1 Environmental Justice Communities within the Geographic Scope of the Sartell Project



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Sensitive receptor locations within the geographic scope of the Project are shown in **Table 4.8.2-2**.

Table 4.8.2-2 Sensitive Receptor Locations

Sensitive Receptor Location	Sensitive Receptor Location Type	Distance from Existing Project Boundary	Project Related Effects	Mitigation Measures to Minimize Project-Related Impacts
Alexander Family Child Care	Child Care	0.83 miles	None	None
Beam Family Child Care	Child Care	0.49 miles	None	None
Bommersbach Family Child Care	Child Care	0.24 miles	None	None
Celebrate Preschool Child Care Center	Child Care	0.75 miles	None	None
Kaltoff Family Child Care	Child Care	0.32 miles	None	None
Kirkeby Family Child Care	Child Care	0.64 miles	None	None
Knott Family Child Care	Child Care	0.37 miles	None	None
Leite Family Child Care	Child Care	0.24 miles	None	None
Maus Family Child Care	Child Care	0.31 miles	None	None
Mohs Family Child Care	Child Care	0.95 miles	None	None
Nguyen Family Child Care	Child Care	0.37 miles	None	None
Pluimer Family Child Care	Child Care	0.42 miles	None	None
Spencer Family Child Care	Child Care	0.88 miles	None	None
Taszarek Family Child Care	Child Care	0.32 miles	None	None
Voss Family Child Care	Child Care	0.08 miles	None	None
Wippler Family Child Care	Child Care	0.70 miles	None	None
Wolford Family Child Care	Child Care	0.67 miles	None	None

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4.8.3 Project-Related Impacts to EJ Communities and Sensitive Receptor Locations

The Licensee does not anticipate any adverse Project-related impacts on any EJ communities or sensitive receptor locations due to continued operation of the Sartell Project.

The Project is an existing hydroelectric facility that has been in operation since 1907. The current Project license was issued in 1984 and expires on February 28, 2025. The Project operates in a run-of-river mode where discharge measured immediately downstream of the Project tailrace approximates the sum of inflow into the Project reservoir. The reservoir is maintained at elevation 1,014.5 NGVD ± 0.5 ft. There is no minimum flow requirement at the Project. No changes to operations are proposed.

The Licensee has not proposed any construction as part of the new license at the Project. Therefore, there will be no construction-related impacts to any EJ communities. Since no adverse impacts on EJ communities are anticipated due to proposed construction activities or continued operation of the Projects, no EJ mitigation measures have been proposed at the Project.

A review of the 2020 *American Community Survey Table S1601 Language Spoken At Home* data for the City of Sartell indicates that 92.2% of the City's population speaks only English and 7.8% speaks a language other than English. The other languages spoken at home include Asian and Pacific Island languages (3.4%), other languages (1.8%), other Indo-European languages (1.4%), and Spanish (1.2%). The Table also indicates that of all citizens 18 years old and over, 98.5% of the population speaks English only or speaks English very well (US Census Bureau, n.d.e). Based on this data, language does not appear to be a major barrier in the Project vicinity. Additionally, no adverse impacts from continued operation of the Project are anticipated to adversely impact any EJ or non-English speaking communities. Therefore, no mitigation measures for non-English speaking communities have been proposed in the license application.

4.9 Tribal Resources

There are eleven recognized Native American Tribes in Minnesota. The seven Chippewa (Ojibwe) communities include Grand Portage, Boise Forte, Red Lake, White Earth, Leech Lake, Fond du Lac, and Mille Lacs. The four Dakota (Sioux) communities include Shakopee Mdewakanton, Prairie Island, Lower Sioux, and Upper Sioux (State of Minnesota, n.d.a). Native American Reservations (Tribal lands) have been established by the federal government for each of these Tribes. There are no Tribal lands within the Project boundary.

The Licensee is not proposing changes to the run-of-river operations or reservoir elevations for the Sartell Project. Since there are no proposed operational changes, continued operation of the Project is not expected to adversely impact Tribal resources in the area.

4.9.1 Grand Portage Band of Lake Superior Chippewa

The Grand Portage Band is in Cook County in the northeastern tip of Minnesota about 150 miles northeast from Duluth. The name originates from the nine-mile-long portage stretching from Lake Superior to Northern Minnesota used to bypass the Pigeon River waterfalls. The Ojibwe community arrived in the Grand Portage area after migrating along the northern shore of Lake Superior. The French used the portage for fur trade beginning in 1731 until around 1760 when the British took over. In about

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1785 to 1787, the British North West Company built the post at Grand Portage. In the early 1800s, the post was taken over by the American Fur Company. The Grand Portage Band were not participants in the early treaties with the United States. Under the terms of the Treaty of 1854, the Grand Portage Band ceded their lands to the United States and accepted the Grand Portage reservation (State of Minnesota, n.d.b).

4.9.2 Bois Forte Band of Chippewa

The Bois Forte Band is located in Itasca and St. Louis Counties in Northern Minnesota about 45 miles south of the Canadian border. The name Bois Forte or “strong wood” was given by French fur traders because they made the densest forests of northern Minnesota their home. The Bois Forte Band has lived in northern Minnesota for centuries but did not originally settle there. The Band journeyed from the east coast of the United States, up the Saint Lawrence River, around the Great Lakes, and followed rivers and lakes inland from Lake Superior (State of Minnesota, n.d.c).

4.9.3 Red Lake Band of Chippewa

The Red Lake Band is located in Beltrami County and Clearwater County in northern Minnesota about 25 miles north of Bemidji. The Red Lake community has lived in this area since the mid-1700s when the Dakota moved from the region. Although demanded to forfeit their lands through various treaties and land agreements from 1863 to 1902, the Red Lake Band never ceded the diminished reservation and all land is held in common by members of the Band (State of Minnesota, n.d.d).

4.9.4 White Earth Nation of Chippewa

The White Earth Nation is located in Becker County, Clearwater County, and Mahnomen County in northwestern Minnesota about 68 miles east of Fargo, North Dakota. The name White Earth comes from the layer of white clay underneath the surface on the western half of the reservation. White Earth became a reservation in 1867 through a treaty with the Mississippi Band of Ojibwe. There were many instances of illegal land seizures from the Tribal members between 1887 and 1906 and the land was quickly passed into non-Indian ownership. Today, the White Earth Tribe has little allotted land remaining in trust. The White Earth reservation was to become the home of all Chippewa and Dakota; however, not all Bands wanted to move to one reservation and give up their lands (State of Minnesota, n.d.e).

4.9.5 Leech Lake Band of Chippewa (Ojibwe)

The Leech Lake Band is located in Beltrami County, Cass County, Itasca County, and Hubbard County in north central Minnesota. In the 1600s, the Dakota had communities at Leech Lake and the Ojibwe Band moved into the region during the mid to late 1700s. In 1847, treaties took a section on the southwest corner of their lands. The remaining land was ceded to the United States by treaty in 1855 and established the Leech Lake reservation. Around 1867, there was intent to provide Leech Lake as a reservation for all Minnesota Ojibwe people. However, the plan was changed and the White Earth Reservation was designated as home for the Ojibwe people and lands around Leech Lake were reduced via executive orders. This was reversed in 1873 and 1874 and land was added back to the Ojibwe People (State of Minnesota, n.d.f).

4.9.6 Fond du Lac Band of Lake Superior Chippewa

The Fond du Lac Band is located within Carlton County and St. Louis County adjacent to the City of Cloquet. The first recorded contact with the French in 1622, at which time, the community was greatly dispersed into small family units during the winter. During warmer seasons, the Chippewa people held many communal activities, celebrations, and religious rites. The La Pointe Treaty of 1854 was the last

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treaty between several bands of Chippewa living in northern Minnesota, northern Wisconsin, and the western part of Michigan's upper peninsula, when the people ceded about 25% of their lands to the United States government. The Fond du Lac reservation was established at 100,000 acres to provide for the Chippewa people by this treaty (State of Minnesota, n.d.g).

4.9.7 Mille Lacs Band of Ojibwe

The Mille Lacs community is located within Mille Lacs County in east Central Minnesota near the City of Onamia (State of Minnesota, n.d.h). The band established themselves in the region around Mille Lacs Lake in the mid-1700s and forced out the Dakota. Prior to the Treaty of 1855, the Ojibwe sustained themselves by fishing, hunting, maple-sugaring, and gathering wild rice. The 1855 treaty established the Mille Lacs reservation on the south end of Mille Lacs Lake in Minnesota. Under much pressure to give up their reservation and move to the White Earth Reservation, some members of the band were allowed to stay at Mille Lacs while much of the original reservation land was taken away (Minnesota Historical Society, n.d.).

4.9.8 Shakopee Mdewakanton Sioux Community

The Shakopee Mdewakanton Sioux Community is located in Scott County near the City of Prior Lake and the Minnesota River. The tribal community heavily relied on the water for fish, rice, and game and had established villages along the riverbanks. European contact with the Dakota tribe was first recorded in the 1640s. The Community was granted official recognition as a Native American tribe in 1969 by the United States government (Shakopee Mdewakanton Sioux Community, n.d.).

4.9.9 Prairie Island Indian Community

The Prairie Island Community is located on an island in the Mississippi River located 14 miles north of Red Wing. The community is largely made up of members of the Mdewakanton Band, Mdewakanton means "those who were born of the waters." The Mdewakanton Band are descendants of the Mdewakanton Band of Eastern Dakota and are also known as the Mississippi or Minnesota Sioux. The community used the land for medicinal purposes for hundreds of years and today will often return to gather medicines to heal their people. The Prairie Island reservation was created in 1886 when land was purchased by the Department of Interior and placed into a trust (State of Minnesota, n.d.i).

4.9.10 Lower Sioux Indian Community

The Lower Sioux Community is located in Redwood County near the City of Redwood Falls. The Community is located on the south side of the Minnesota River at the site of the United States Indian Agency and the Bishop Whipple Mission, which are a part of the original reservation established in a Treaty in 1851. The Dakota inhabited this area for thousands of years until the United States-Dakota Conflict of 1862, when the tribe was moved to reservations outside of Minnesota. Many members returned to their homeland and were allocated land in 1863 and are now known as the Lower Sioux Indian Community (State of Minnesota, n.d.j).

4.9.11 Upper Sioux Indian Community

The Upper Sioux Community is located on the Minnesota River in Yellow Medicine County, five miles south of the City of Granite Falls. The Dakota inhabited this area for thousands of years until the United States-Dakota Conflict of 1862 when the tribe was moved to reservations outside of Minnesota. The Community was reestablished in 1938 when 746 acres of original Dakota lands were returned (State of Minnesota, n.d.k).

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4.10 Floodplains

The Mississippi River water surface profile drops about 50 feet in the 24.1 miles between the Blanchard Dam and the Sartell Dam, or approximately 2.1 feet per mile (Minnesota Department of Natural Resources, n.d.c), (US Geological Survey, n.d.).[7]

The Mississippi River is subject to periodic flooding. These floodplain areas are defined in terms of a floodway and a flood fringe. The floodway is the river channel and adjacent areas where water continues to flow downstream and moves under flood conditions. The flood fringe is the portion of the floodplain outside the floodway where water will collect and not move during a flood. A flood occurs when water flows outside river channel banks and activates the floodplain. A floodplain typically includes land area covered by water during a 100-year flood event, which is a flood defined as having a 1% recurrence interval over the period of record or has a chance of occurring once every 100 years. The Federal Emergency Management Agency floodplain mapping for the area is included in **Appendix E-11**.

Most of the Mississippi River and Little Rock Creek floodplains within the Sartell Project consist of residential development, wooded riparian areas, and park areas. There is also a limited amount of commercial development near the Sartell Dam.

The United States Geological Survey (USGS) maintains a gage on the Mississippi River at Royalton, Minnesota (USGS Gage No. 05267000), which is located approximately 20 miles upstream of the Project. The gage was used to develop the Sartell Project flow duration curves. This gage has a drainage area of 11,600 square miles versus a drainage area of 12,265 square miles at the Sartell Dam. Based on the data analyzed from the period of record from January 1, 1924 to December 31, 2022, the average calendar year flow at the Sartell Project is 3,878 cfs, the minimum annual calendar year flow was 1,178 cfs in 1934, and the maximum annual calendar year flow was 9,748 in 2019. The water discharge records for the Project are presented in **Appendix A-3**. Flow statistics for the Project are presented in **Table 4.9-1**.

Table 4.9-1 Sartell Dam Calendar Year Annual Flow Statistics

Flow Statistic	Value (cfs)	Date(s)
Annual Mean	5,086	1924-2022
Highest Annual Mean	9,748	2019
Lowest Annual Mean	1,178	1934
Highest Daily Mean	40,360	April 8, 1997
Lowest Daily Mean	268	November 25, 1936
10% Exceedance	10,998	-
50% Exceedance	3,878	-
90% Exceedance	1,521	-
100-Year Flood Flow	21,976	-

[7] From elevation 1,050 feet at the base of the Blanchard Dam to 1,000 feet at the base of the Sartell Dam.

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5. Report on Water Use and Quality

5.1 Uses of Project Waters

5.1.1 Existing Uses of Project Waters

The fur trade industry began in central Minnesota during the mid-17th century and continued to be the most prominent industry of the Upper Mississippi River Valley until the mid-1800's when logging took over. A number of dams were built to aid in log transportation, control water levels, and provide electricity (Minnesota Pollution Control Agency, 2019). Present day uses of the Mississippi River are primarily industrial water supply, hydroelectric power generation, navigation, recreation, and fish and wildlife habitat.

The Sartell Project powerhouse operates with a net operating head of 20 feet and has an estimated maximum hydraulic capacity of 6,200 cfs and an authorized capacity of 8,925 kW. The powerhouse contains four generators with an authorized capacity of 806.25 kW (Units 2, 3, 4, and 5), three units with an authorized capacity of 900 kW (Units 10, 11, and 12), and four units with an authorized capacity of 750 kW (Units 6, 7, 8, and 9). Generators on Units 2 through 9 have horizontal, quadruple runner, Francis turbines that are 29 inches in diameter and operate at a speed of 240 revolutions per minute (rpm). Units 10 through 12 have horizontal, quadruple runner, Francis turbines that are 30 inches in diameter and operate at a speed of 240 rpm.

The Sartell reservoir encompasses approximately 2,350.5 acres with a gross storage capacity of 15,278.3 acre-feet at the reservoir surface elevation of 1,015 feet National Geodetic Vertical Datum 1929 (NGVD) (Mead & Hunt, Inc., 2022b). [8] The Project is operated in a run-of-river mode where discharge measured immediately downstream of the Project tailrace approximates the sum of inflow into the Project reservoir. There is no minimum flow requirement at the Project.

5.1.2 Proposed Uses of Project Waters

The Licensee is not proposing to change the operation of the Project and will continue to operate in run-of-river mode where discharge measured immediately downstream of the Project tailrace approximates the sum of inflow into the Project reservoir. No changes to reservoir elevations are being proposed. Therefore, no changes to available water quantity are anticipated for downstream uses at the Project.

5.2 Existing Water Quality

Minnesota's water quality standards are provided in Minnesota Administrative Rules Chapter 7050 Waters of the State (MN Rule 7050) and are administered by MPCA. All surface waters in Minnesota are classified and protected for beneficial uses (Minnesota Pollution Control Agency, n.d.a). The full text of MN Rule 7050 can be found in **Appendix E-12**.

5.2.1 Sartell Project Water Quality Standards

Designated uses and water quality standards applicable to the waters within the Sartell Project are provided in **Table 5.2-1** and **Table 5.2-2**, respectively.

[8] Assuming an average water depth of 6.5 feet.

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Table 5.2-1 Designated Uses for Waters within the Sartell Project

Classified Waters	Project Area Included within Classified Waters	Use Classes	Class Category
Mississippi River from Sauk River to Swan River	Portion of Project reservoir on main stem of Mississippi River and reach of River downstream of the Project	1C 2Bdg	General warm water for aquatic life and aquatic habitat, and drinking water
Unlisted Waters (lotic)	Portion of Little Rock Creek between Little Rock Lake and the Mississippi River	2Bg	Warm water aquatic life, aquatic habitat, and wetlands
Unlisted waters	Little Rock Lake	2B	Warm water aquatic life, aquatic habitat, and wetlands

Source: (Minnesota Legislature, n.d.)

Table 5.2-2 Water Quality Standards for Waters within the Sartell Project

Parameter	Numeric Criteria
Dissolved Oxygen	The quality of class 2B surface waters shall be such as to permit the propagation and maintenance of a healthy community or cool or warm water aquatic biota and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. 5.0 milligrams per liter as the daily minimum.
pH	6.5 to 8.5 standard units; maintain background per MN Rule 7050.0222, subpart 6.
Temperature (˚F)	Temperature must not exceed 5˚F above natural temperature in streams and 3˚F above natural temperatures in lakes, based on monthly average of maximum daily temperature, except in no case shall it exceed the daily average temperature of 86˚F.

Source: (Minnesota Legislature, n.d.)

5.2.2 Impaired Waters

The MPCA develops a list every two years of impaired waters that do not meet water quality standards. The Little Rock Lake portion of the Project reservoir is impaired for recreation due to high nutrient levels. Little Rock Lake and the portion of the Project reservoir on the Mississippi River have fish consumption advisories for mercury (Minnesota Pollution Control Agency, n.d.b) (Minnesota Pollution Control Agency, n.d.c).

5.2.3 Historic Water Quality Data

MPCA Surface Water Data map-based search tool was used to compile historic water quality data collected on the Mississippi River in the Project vicinity (Minnesota Pollution Control Agency, n.d.d).

5.2.3.1 Mississippi River: Swan River to Sauk River

Water quality results for Stream No. 07010210-631 were available from five sites, as listed below:

- Biological Monitoring Station 13UM009 located 10.5 river miles upstream of the Project dam.
- Stream Monitoring Station S006-059 located 8.7 miles upstream of the Project dam.
- Stream Monitoring Station S004-320 located 4.8 miles upstream of the Project dam and a short distance upstream of the mouth of Little Rock Creek.
- Biological Monitoring Station 07UM283 located 3.6 miles upstream of the Project dam.
- Stream Monitoring Station S006-147 located 0.6 miles upstream of the Project dam

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Monitoring data showed dissolved oxygen (DO) levels met the state criterion and ranged between 6.2 milligrams per liter (mg/L) to 11.8 mg/L. Only one pH reading was included in the monitoring data, but at 8.8 Standard Units (SU) it was above the state criterion of 6.5 SU – 8.5 SU (Minnesota Pollution Control Agency, n.d.d). Historic water quality data from the Mississippi River monitoring stations are included in **Appendix E-13**.

5.2.3.2 Little Rock Creek: Little Rock Lake to Mississippi River

Water quality data for Little Rock Creek from Little Rock Lake (Lake No 05-0012-00) to Mississippi River (Stream No 07010201-557) were compiled from the MPCA Surface Water Data map-based search tool. Monitoring data is available from three monitoring stations, as listed below:

- Stream Monitoring Station S-005-004 located 4.8 miles upstream of the Project dam and 1.2 miles upstream of the mouth of Little Rock Creek.
- Lake Monitoring Station 05-012-00-209 located 6.1 miles upstream of the Project dam and 1.4 miles upstream of the mouth of Little Rock Creek.
- Lake Monitoring Station 05-012-00-201 located 6.4 miles upstream of the Project dam and 1.7 miles upstream of the mouth of Little Rock Creek.

The data indicated DO levels met state criterion and ranged from 6.7 to 13.8 mg/L (Minnesota Pollution Control Agency, n.d.d). Historic water quality monitoring data from the Little Rock Creek monitoring stations are located in **Appendix E-14**.

5.2.3.3 Little Rock Lake

Water monitoring data with water chemistry or temperature information were available from 12 sites spaced throughout Little Rock Lake (Lake No. 05-0013-00). An additional five sites only maintained water clarity information. The data shows that on numerous occasions the DO levels did not meet the minimum state criterion of 5 mg/L (Minnesota Pollution Control Agency, n.d.a). MPCA water monitoring data from Little Rock Lake is located in **Appendix E-15**.

5.2.4 Current Water Quality

The Licensee conducted water quality monitoring studies at the Project in 2021 to characterize current water quality conditions and determine compliance with Minnesota water quality standards. The study monitored upstream and downstream pH, DO, and temperature. The results of the 2021 Water Quality Study are presented below.

Two monitoring stations were established at the Sartell Project and include one upstream of the Project dam and one downstream of the Project powerhouse in the fully mixed zone.

The monitoring station upstream of the Project dam was located in the main river channel just upstream of the boat barrier. Samples were collected at one-meter intervals from the surface to the bottom of the water column twice in May, three times in June, twice in July, and seven times in August. All field measurements for temperature met state water quality criterion. All DO readings taken at the surface and in the upper portion of the water column met state criterion of 5.0 mg/L. However, several readings taken near the reservoir bed did not meet the state criterion and are likely indicative of decaying detritus within sediments accumulated on the bottom of the reservoir. The pH levels exceeded the state criterion of 8.5 mg/L on

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approximately 29.6% of the readings at this station. In a limestone-rich environment, higher pH measurements are common. The same result was identified in the one pH sample on the Mississippi River; a pH measurement of 8.8 was obtained at Swan River to Sauk River (Steam No. 07010210-631). Therefore, Project operation is not a cause for increased pH levels.

The monitoring location downstream of the Project powerhouse was within the fully mixed zone at the pedestrian bridge. Samples were collected at one-meter intervals from the surface to the bottom of the water column twice in May, three times in June, nine times in July, and two times in August. All field measurements for DO and temperature at the downstream monitoring station met the state water quality criterion. The pH levels exceeded the state criterion of 8.5 on approximately 60% of the readings at this station. In a limestone-rich environment, higher pH measurements are common, and the operation of the Project is not a cause for increased pH levels.

The results of the monitoring study suggest Project operation has little effect, if any, on water quality within the Mississippi River. The results of the data collection are shown in **Table 5.2.4-1**.

Table 5.2.4-1 Sartell Project 2021 Water Quality Monitoring Study Results

Monitoring Site	Date	Depth (m)	pH	DO mg/L)	Temp (°F)
Upstream	05/17/2021	1	8.82	10.7	64.4
Upstream	05/17/2021	2	8.75	10.3	62.9
Upstream	05/17/2021	3	8.72	10.21	62.2
Upstream	05/17/2021	4	8.72	9.95	62.2
Upstream	05/17/2021	5	8.67	9.92	62.2
Upstream	05/17/2021	6	8.70	9.55	62.2
Upstream	05/17/2021	7*	8.71	9.95	62.0
Upstream	05/26/2021	1	8.44	7.76	69.6
Upstream	05/26/2021	2	8.41	7.78	69.4
Upstream	05/26/2021	3	8.41	7.72	69.4
Upstream	05/26/2021	4	8.41	7.65	69.4
Upstream	05/26/2021	5	8.42	7.62	69.4
Upstream	05/26/2021	6	8.43	7.62	69.2
Upstream	05/26/2021	7	8.43	7.61	69.2
Upstream	05/26/2021	7.5*	8.43	7.68	69.2
Upstream	06/11/2021	1	8.38	5.87	81.1
Upstream	06/11/2021	2	8.35	5.91	81.1
Upstream	06/11/2021	3	8.34	5.77	80.9
Upstream	06/11/2021	4	8.31	5.73	80.9
Upstream	06/11/2021	5	8.25	5.48	80.6
Upstream	06/11/2021	6	8.20	5.28	80.0
Upstream	06/11/2021	7	8.18	5.21	79.7
Upstream	06/11/2021	8*	8.19	5.23	79.7
Upstream	06/17/2021	1	8.29	7.28	78.9
Upstream	06/17/2021	2	8.24	6.87	78.8
Upstream	06/17/2021	3	8.23	6.79	78.8
Upstream	06/17/2021	4	8.21	6.70	78.8

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Monitoring Site	Date	Depth (m)	pH	DO mg/L)	Temp (°F)
Upstream	06/17/2021	5	8.17	6.56	78.8
Upstream	06/17/2021	6	8.12	6.17	78.6
Upstream	06/17/2021	7	8.04	5.91	78.2
Upstream	06/17/2021	8*	7.97	5.36	77.9
Upstream	06/29/2021	1	8.62	7.63	74.6
Upstream	06/29/2021	2	8.55	7.37	74.4
Upstream	06/29/2021	3	8.51	7.01	74.3
Upstream	06/29/2021	4	8.32	6.62	73.9
Upstream	06/29/2021	5	8.32	6.00	73.9
Upstream	06/29/2021	6	8.31	5.94	73.9
Upstream	06/29/2021	7	8.29	5.63	73.7
Upstream	06/29/2021	8*	8.29	5.63	73.7
Upstream	07/07/2021	1	8.32	6.73	78.6
Upstream	07/07/2021	2	8.30	6.49	78.4
Upstream	07/07/2021	3	8.29	6.30	78.4
Upstream	07/07/2021	4	8.27	6.16	78.2
Upstream	07/07/2021	5	8.25	6.00	78.2
Upstream	07/07/2021	6	8.24	5.86	78.0
Upstream	07/07/2021	7	8.00	4.61	77.5
Upstream	07/07/2021	8*	7.89	2.50	75.9
Upstream	07/22/2021	1	8.80	8.85	78.4
Upstream	07/22/2021	2	8.80	8.65	78.4
Upstream	07/22/2021	3	8.79	8.55	78.4
Upstream	07/22/2021	4	8.39	5.81	77.9
Upstream	07/22/2021	5	8.11	3.80	76.6
Upstream	07/22/2021	6	7.84	0.30	74.8
Upstream	07/22/2021	7	7.65	0.11	74.4
Upstream	07/22/2021	8*	7.78	0.07	72.3
Upstream	08/05/2021	1	8.74	8.80	76.1
Upstream	08/05/2021	2	8.76	8.85	76.1
Upstream	08/05/2021	3	8.78	9.15	76.1
Upstream	08/05/2021	4	8.75	9.11	75.9
Upstream	08/05/2021	5	8.65	8.14	75.9
Upstream	08/05/2021	6	8.37	5.89	75.5
Upstream	08/05/2021	7	8.23	4.73	75.3
Upstream	08/05/2021	8*	7.34	0.52	73.5
Upstream	08/19/2021	1	8.85	8.49	76.6
Upstream	08/19/2021	2	8.82	8.04	76.1
Upstream	08/19/2021	3	8.79	7.82	76.1
Upstream	08/19/2021	4	8.72	7.30	75.7
Upstream	08/19/2021	5	8.68	6.70	75.3
Upstream	08/19/2021	6	8.65	6.50	75.2
Upstream	08/19/2021	7	8.46	4.89	74.3
Upstream	08/19/2021	8*	8.15	0.56	73.4

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Monitoring Site	Date	Depth (m)	pH	DO mg/L)	Temp (°F)
Downstream	05/17/2021	1	8.73	10.33	62.6
Downstream	05/17/2021	2	8.71	10.29	62.6
Downstream	05/17/2021	3*	8.71	10.24	62.6
Downstream	05/26/2021	1	8.50	8.15	69.8
Downstream	05/26/2021	2*	8.49	8.15	69.8
Downstream	06/11/2021	1	8.32	5.73	80.7
Downstream	06/11/2021	2*	8.32	5.78	80.7
Downstream	06/17/2021	1	8.22	7.04	78.9
Downstream	06/17/2021	2*	8.22	6.95	78.9
Downstream	06/29/2021	1	8.47	7.04	74.4
Downstream	06/29/2021	2*	8.44	7.04	74.4
Downstream	07/01/2021	1	8.45	7.21	75.5
Downstream	07/01/2021	1.75*	8.44	7.22	75.5
Downstream	07/05/2021	1	8.43	7.54	80.6
Downstream	07/05/2021	2	8.45	7.52	80.6
Downstream	07/07/2021	1	8.31	7.32	78.4
Downstream	07/07/2021	1.75*	8.30	7.21	78.4
Downstream	07/12/2021	1	8.59	8.05	76.8
Downstream	07/12/2021	1.75*	8.60	8.00	76.8
Downstream	07/16/2021	1	8.58	8.04	76.8
Downstream	07/16/2021	1.75*	8.58	7.86	76.8
Downstream	07/19/2021	1	8.88	8.34	80.7
Downstream	07/19/2021	1.5*	8.80	8.32	80.7
Downstream	07/22/2021	1	8.65	7.69	78.2
Downstream	07/22/2021	1.5*	8.64	7.62	78.2
Downstream	07/26/2021	1	8.56	8.13	78.8
Downstream	07/26/2021	1.5*	8.55	8.10	78.8
Downstream	07/29/2021	1	8.57	8.12	78.8
Downstream	07/29/2021	1.5*	8.55	8.10	78.8
Downstream	08/02/2021	1	8.74	8.32	77.3
Downstream	08/02/2021	1.5*	8.73	8.22	77.3
Downstream	08/05/2021	1	8.73	8.46	75.9
Downstream	08/05/2021	1.5*	8.72	8.45	75.9
Downstream	08/09/2021	1	8.21	8.31	76.2
Downstream	08/09/2021	1.5*	8.21	8.28	76.2
Downstream	08/13/2021	1	8.74	8.28	75.9
Downstream	08/13/2021	1.5*	8.73	8.25	75.9
Downstream	08/17/2021	1	8.61	7.89	75.0
Downstream	08/17/2021	1.25*	8.60	7.90	75.0
Downstream	08/19/2021	1*	8.84	8.21	76.1
Downstream	08/23/2021	1*	8.75	8.52	76.1

** Level of bottom depth measurement*

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5.2.5 Future Water Quality Monitoring

The Licensee is not proposing any new facilities or changes to the current operation of the Project. As such, continued Project operation is not expected to adversely impact water quality in the area and no future monitoring is proposed.

5.3 Project Operation (Minimum Flow and Mode of Operation)

Under the terms of the new License issued on March 13, 1985, the Project is operated in a run-of-river mode where discharge measured immediately downstream of the Project tailrace approximates the sum of inflow into the Project reservoir. The Project is operated with a reservoir elevation of 1,014.5 NGVD ± 0.5 feet. There is no established minimum flow at the Project (Federal Energy Regulatory Commission, 1985). The minimum hydraulic capacity of the Project is 330 cfs. During periods when river flow is below 330 cfs, supplemental electric power is purchased to operate equipment and hydraulic turbines are shut down to maintain normal pool levels (WSP, 2021).

No changes to Project operations are proposed as part of this application.

5.4 Operational Deviations

Notifying the FERC, USFWS, and Minnesota DNR of planned deviations for a duration of less than three weeks will protect water quality by providing for an informal consultation process to allow the Licensee to implement USFWS and/or Minnesota DNR-recommended measures during the deviation to reduce potential impacts on natural resources.

A notification process for unplanned deviations after they occur will allow the FERC, USFWS, and Minnesota DNR to respond to any stakeholder questions about the deviations in an informed manner. The process will also allow the Licensee to keep track of any deviation occurrences. If deviations result in unanticipated adverse impacts upon the resource as identified by the responding operator(s), the Licensee can reduce further unanticipated impacts by addressing the cause of the deviations to avoid future deviations caused by similar circumstances.

The Licensee recommends the following deviation requirements be incorporated into any issued license:

> *<u>Planned Deviations</u>*
> *Project operation may be temporarily modified for short periods, of up to 3 weeks, after mutual agreement among the Licensee, U.S. Fish and Wildlife Service, and Minnesota Department of Natural Resources (collectively, resource agencies). After concurrence from the agencies, the Licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 calendar days after the onset of the planned deviation. Each report must include: (1) reasons for the deviation and how project operations were modified, (2) duration and magnitude of the deviation, (3) any observed or reported environmental effects and how the observations were made, and (4) documentation of consultation with the agencies. For planned deviations exceeding 3 weeks, the Licensee must file an application for a temporary amendment of required operations and receive Commission approval prior to implementation.*

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Unplanned Deviations

Operations may be temporarily modified if required by operating emergencies beyond the control of the Licensee (i.e., unplanned deviations). For any unplanned deviation that lasts longer than 3 hours or results in visible environmental effects such as a fish kill, turbidity plume, bank erosion, or downstream flooding, the Licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 days after each such incident. The report must include: (1) cause of the deviation, (2) duration and magnitude of the deviation, (3) any pertinent operational and/or monitoring data, (4) a timeline of the incident and the Licensee's response, (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies, (6) documentation of any observed or reported environmental effects, and (7) a description of measures implemented to prevent similar deviations in the future.

For unplanned deviations lasting 3 hours or less that do not result in visible environmental effects, the Licensee must file an annual report, by March 1, describing each incident that occurred during the prior January 1 through December 31 time period. The report must include for each 3 hours or less deviation: (1) cause of the deviation, (2) duration and magnitude of the deviation, (3) any pertinent operational and/or monitoring data, (4) a timeline of the incident and the Licensee's response to each deviation, (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies, and (6) a description of measures implemented to prevent similar deviations in the future.

The Licensee will develop an Operations Monitoring Plan for the Project to document how to comply with the operational requirements of the license, including reservoir elevation and run-of-river flow requirements. The plan will include the locations of headwater and tailwater monitoring gages, frequency of monitoring, procedures for maintaining and calibrating monitoring equipment, standard operating procedures to be implemented outside of normal operating conditions such as scheduled or emergency facility shutdowns or maintenance activities, and a schedule for installing and operating the monitoring equipment. The cost to develop the Operations Monitoring Plan is estimated at $10,000 in 2022 dollars with an additional estimated annual cost of $5,000 in 2022 dollars for audit and reporting any deviations.

5.5 Water Quality Impacts During Project Operation

Water quality monitoring programs conducted in and near each Project area are described in Section 5.2.

Even though no ground-disturbing activities are planned, the Licensee will implement erosion and siltation controls for ground disturbing activities within the Project boundary over the term of the new license to mitigate impacts on water quality.

In addition, the Licensee has not identified any proposed operational changes. Therefore, continued operation of the Project is not expected to adversely impact water quality.

5.6 Water Quality Certification

The Licensee will request a water quality certification from the MPCA, pursuant to Section 401 of the Clean Water Act, no later than 60 days following the FERC issuance of the Notice of Application Ready of Environmental Analysis.

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6. Report on Fish, Wildlife, and Botanical Resources

6.1 Aquatic Habitat and Resources

6.1.1 Aquatic Habitat

The most significant littoral habitat in the Project vicinity is located within Little Rock Creek and Little Rock Lake; the main riverine reservoir provides some littoral habitat. As observed during the three-foot drawdown in 2019, the Little Rock Creek and Little Rock Lake portion of the reservoir are shallow substrates primarily composed of fine organic materials and sand on the shallow slopes, and coarse substrates such as stone and gravel on the steeper slopes. The shallow sloping shorelines of the main riverine portion of the reservoir are primarily sand-bottomed and the steeper slopes are primarily coarse substrates such as stone and gravel. The 2019 Minnesota DNR shoreline survey report is included in **Appendix E-9**.

As part of the ATIS Study, the Licensee sampled aquatic plants adjacent to public water access areas, public parks or beach areas, tributary inlets, and areas of higher use (i.e., highly developed shorelines, concentrations of private boat docks, and privately owned access points). In addition, a meander survey was conducted of the near shore/littoral zone, which is defined as less than five feet water depth, but only to the maximum depth of plant colonization. The ATIS Study Report was included with the February 12, 2021, study summary to the Commission and included with the September 14, 2022, DLA. No comments were received from stakeholders.

Two surveys were completed at the Project to account for both early and late season species, with the first between June 28 and 30, 2021 and the second between August 9 and 11, 2021. The surveys were conducted from a boat moving along the shoreline and sampling points identified above. A double-sided rake mounted on a pole was lowered into the water at each grid point, rested lightly on the river bottom, twisted twice, and brought to the surface to assess the extent and composition of aquatic species. The density for each rake sample was recorded based on rake fullness. Plants not collected on the rake sample but visible within six feet of the sample point were recorded as visual sightings. Areas not captured by the sample collection were monitored for species listed in the *Minnesota DNR Guidance for Conducting Aquatic* Invasive Species Early Detection and Baseline Monitoring in Lakes (GAI Consultants, 2021).

During the early season survey in June, 90 points were surveyed which included nine developed/high use locations, eight tributary inlets, six public water access points, three protected bays, and 64 random meander points. Of the sampled points, 82 were shallower than the maximum rooting depth of seven feet and 48 had vegetation. Sixteen species were identified during the early season survey. Of these sixteen species, two were not present on the rake but observed visually and included watershield (*Brasenia schreberi*) and large duckweed (*Spirodela polylrhiza*). The top three predominant species were coontail (*Ceratophyllum demersum*), common waterweed (*Elodea canadensis*), and wild celery (*Vallisneria americana*). Average rake fullness across points with vegetation was 1.27 (GAI Consultants, 2021).

During the late season survey in August, 97 points were surveyed which included ten protected bays, nine public water access points, six developed/high use locations, six tributary inlets, one outflow, one river confluence (Little Rock Creek and the Mississippi River), and 64 random meander points. Of the sampled points, 84 were shallower than the maximum rooting depth of 6.5 feet and 48 had vegetation. Sixteen species were identified during the late season survey. Of these sixteen species, six were not

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present on the rake, but were observed visually and included small duckweed (*Lemna minor*), northern water milfoil (*Myriophyllum sibiricum*), grass-leaved arrowhead (*Sagittaria graminea*), large duckweed, sago pondweed (*Stuckenia pectin*ata), and wild rice (*Zizania sp.*). The top three predominant species were coontail, common waterweed, and wild celery.

All submerged aquatic plant species identified during the early and late season ATIS Study are included in **Table 6.1.1-1** and **Table 6.1.1-2** provides an overall summary of the ATIS Study. The ATIS Study Report, including all maps and datasheets, is included in **Appendix E-16**.

Table 6.1.1-1 Species of Aquatic Vegetation Observed During Sartell Project ATIS Study

Common Name	Scientific Name
Common waterweed	*Elodea canadensis*
Coontail	*Ceratophyllum demersum*
Curly-leaf pondweed	*Potamogeton crispus*
Flatstem pondweed	*Potamogeton zosteriformis*
Floating-leaf pondweed	*Potamogeton natans*
Grass-leaved arrowhead	*Sagittaria graminea*
Horned pondweed	*Zannichellia palustris*
Large duckweed	*Spirodela polyrhiza*
Leafy pondweed	*Potamogeton foliosus*
Long-leaf pondweed	*Potamogeton nodosus*
Northern water milfoil	*Myriophyllum sibiricum*
Sago pondweed	*Stuckenia pectinata*
Small duckweed	*Lemna minor*
Spatterdock	*Nuphar variegata*
Watershield	*Brasenia schreberi*
Water star grass	*Heteranthera dubia*
White water crowfoot	*Ranunculus aquatilis*
White water lily	*Nymphaea odorata*
Wild celery	*Vallisneria americana*
Wild rice	*Zizania sp.*

Table 6.1.1-2 Overall Sartell Project ATIS Study Summary

Statistic	June 2021	August 2021
Frequency of Occurrence	58.54	58.33
Maximum Plant Depth	7.0 foot	6.5 feet
Species Richness	16	16
Floristic Quality Index	20.25	18.09

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6.1.2 Fish

6.1.2.1 Historic Fish Sampling Efforts

Historic fish sampling was conducted for the Mississippi River by the MPCA and Little Rock Lake by the Minnesota DNR. A summary of each effort is described below.

Mississippi River Fisheries Data

The MPCA conducted biological monitoring of two sites on the Mississippi River in the Project vicinity. Fisheries data was collected in 2013 at biological monitoring site 13UM009, which is approximately 10.5 miles upstream of the Project dam. Fisheries data was collected in 2007 at biological monitoring site 07UM283, which is approximately 3.6 miles upstream of the Project dam. 25 fish species were identified between the two monitoring sites. Of the 509 fish identified, the ten most predominant species collected are shown in **Table 6.1.2.1-1** (Minnesota Pollution Control Agency, n.d.d).

Table 6.1.2.1-1 Predominant Fish Species Identified via MPCA on the Mississippi River

Common Name	Scientific Name	Number of Fish Captured	Percent of Fish Captured
Bluegill	*Lepomis macrochirus*	104	20.4%
Smallmouth Bass	*Micropterus dolomieu*	102	20.0%
Logperch	*Percina caprodes*	53	10.4%
Yellow Perch	*Perca flavescens*	30	5.9%
Common shiner	*Luxilus cornutus*	27	5.3%
White sucker	*Catostomus commersonii*	27	5.3%
Johnny darter	*Etheostoma nigrum*	22	4.3%
Rock Bass	*Ambloplites turpestris*	22	4.3%
Shorthead redhorse	*Moxostoma macrolepedidotum*	22	4.3%
Silver redhorse	*Moxostoma anisurum*	17	3.3%

Little Rock Lake

The Minnesota DNR completed fisheries surveys of Little Rock Lake in 1990,1996, 2002, 2008, 2009, and 2014. 32 fish species were identified during all the surveys. Of the 7,942 fish identified, the ten most predominant species collected are shown in **Table 6.1.2.1-2** (Minnesota Department of Natural Resources, n.d).

Table 6.1.2.1-2 Predominant Fish Species Identified via Minnesota DNR on Little Rock Lake

Common Name	Scientific Name	Number of Fish Captured	Percent of Fish Captured
White sucker	*Catostomus commersonii*	2,397	30.2%
Yellow perch	Perca flavescens	1,899	23.9%
Black crappie	*Pomoxis nigromaculatus*	670	8.4%
Logperch	*Pecina caprodes*	581	7.3%
Bluegill	*Lepomis macrochirus*	365	4.6%
Walleye	*Sander vitreus*	350	4.4%

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Common Name	Scientific Name	Number of Fish Captured	Percent of Fish Captured
Johnny darter	*Etheostoma nigrum*	202	2.5%
Channel catfish	*Ictalurus punctatus*	198	2.5%
Northern pike	*Esox lucius*	190	2.4%
White crappie	*Pomoxis annularis*	172	2.2%

6.1.2.2 Current Fish Sampling Efforts

As stated in Sections 3.2.1 through 3.2.3 of this exhibit, Sartell Hydro did not receive any written comments or study requests from stakeholders during comment periods for the PAD and study requests, nor for the DLA. Therefore, Sartell Hydro did not complete a fisheries study, but instead provides existing scientific information available for the Project.

The Minnesota DNR conducted a standard fishery study between June 13 and 17, 2020 to determine the status of the fishery within Little Rock Lake after a 2019 drawdown. The survey indicated fisheries of significance included species such as walleye, channel catfish, black crappie, and northern pike (lesser extent). The Minnesota DNR indicated the lake exhibits a fish community typical of a high-nutrient reservoir lacking extensive vegetation beds (Minnesota Department of Natural Resources, n.d). The fish survey report is located in **Appendix E-17**.

6.1.2.3 Fish Entrainment and Mortality Information

The Sartell Project contains two forebays on the upstream side of the powerhouse. One is for the grinder bay section and is 22 feet wide, the other is for the generating bay and is 57 feet wide. Both forebays contain trashracks that are 19.25 feet along their face and leaning downstream with a cross-sectional height of 15.9 feet and a total width of 234 feet. Each trashrack has a clear spacing of 1.75 inches. The intake velocity of flow through the trashracks is low, in the range of 1.4 to 2.1 feet per second (fps). The relatively large surface area of the trashracks results in the low intake velocities (St. Regis Corporation, 1984).

A 2016 Kleinschmidt Group report titled *Chippewa River Fish Protection Study* included a table using USFWS criteria showing the sustained and burst swim speeds for fish by length.[9] The sustained swim speed is the velocity a fish can be expected to sustain indefinitely and burst swim speed is a velocity a fish could sustain briefly to ambush prey, escape predation, or maneuver in current (Kleinschmidt Group, 2016). Swim speeds of fish for each length frequency group are presented in **Table 6.1.2.3-1**. According to the table, fish exceeding eight inches in length have sustained swim speeds greater than 2.1 fps. Similarly, fish exceeding four inches in length have burst swim speed exceeding 1.98 fps. Therefore, most fish in these length classes would be able to avoid entrainment or impingement at the Sartell Project.

[9] The Chippewa River document was e-filed under P-2639 on May 19, 2022 (Accession No. 20220519-5165).

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Table 6.1.2.3-1 Swimming Speeds of Fish for Each Length Frequency Group

Swim Speed (Body Length/s)	Fish Length																			
	1-inch	2-inch	3-inch	4-inch	5-inch	6-inch	7-inch	8-inch	9-inch	10-inch	11-inch	12-inch	13-inch	14-inch	15-inch	16-inch	17-inch	18-inch	19-inch	20-inch
Sustained Swim Speeds	Swimming Speeds (fps)																			
3	0.24	0.48	0.75	0.99	1.26	1.5	1.8	2.1	2.25	2.49	2.76	3.0	3.3	3.27	3.75	3.99	4.23	4.5	4.74	4.98
4	0.32	0.64	1.0	1.32	1.68	2.0	2.4	2.8	3	3.32	3.68	4.0	4.4	4.36	5	5.32	5.64	6.0	6.32	6.64
5	0.4	0.8	1.25	1.65	2.1	2.5	3.0	3.5	3.75	4.15	4.6	5.0	5.5	5.45	6.25	6.65	7.05	7.5	7.9	8.3
Burst Swim Speeds																				
6	0.48	0.96	1.5	1.98	2.52	3.0	3.6	4.2	4.5	4.98	5.52	6.0	6.6	6.54	7.5	7.98	8.46	9.0	9.48	9.96
7	0.56	1.12	1.75	2.31	2.94	3.5	4.2	4.9	5.25	5.81	6.44	7.0	7.7	7.63	8.75	9.31	9.87	10.5	11.06	11.62

Source: (Kleinschmidt Group, 2016)

6.1.3 Freshwater Mussels

According to *Freshwater Mussels of the Upper Mississippi River* there are a total of 51 native mussels in the Upper Mississippi River and its major tributaries as of 2015. Several species are protected under federal and state endangered species regulations. Mussels identified in the Upper Mississippi River Basin and the federal and state listing status are summarized in **Table 6.1.3-1** (Tieman, 2015). A state NHI review identified the potential presence of only one state mussel species of special concern, the black sandshell *(Liguma recta*) (Minnesota Department of Natural Resources, 2022).

Table 6.1.3-1 Freshwater Mussels of the Upper Mississippi River (2015)

Mussel Species	Scientific Name	Federal Status*	State Status*
Black sandshell	*Ligumia recta*		SC
Bluefer	*Potamilus purpuratus*		
Butterfly	*Ellipsaria linolata*		THR
Creek heelsplitter	*Lasmigona compressa*		SC
Creeper	*Strophitus undulatus*		
Cylindrical papershell	*Anodontoides ferussacianus*		
Deertoe	*Truncilla truncata*		
Ebonyshell	*Fusconaia ebena*		
Elephantear	*Elliptio crassidens*		END
Elktoe	*Alasmidonta marginata*		THR
Ellipse	*Venustaconcha ellipsiformis*		THR
Fatmucket	*Lampsilis siliquoidea*		
Fat pocketbook	*Potamilus capax*	END	EXT
Fawnsfoot	*Truncilla donaciformis*		THR
Fingernail clams	*Sphaerium spp.*		
Flat floater	*Utterbackia suborbiculata*		SC
Fluted-shell	*Lasmigona costata*		THR
Fragile papershell	*Leptodea fragilis*		
Giant Floater	*Pyganodon grandis*		
Gulf Mapleleaf	*Quadrula nobilis*		
Hickorynut	*Obovaria olivaria*		
Higgins' eye	*Lampsilis higginsii*	END	END
Lilliput	*Toxolasma parvum*		
Mapleleaf	*Quadrula*		

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Mussel Species	Scientific Name	Federal Status*	State Status*
Monkeyface	*Quadrula metanevra*		THR
Mucket	*Actinonaias ligamentina*		THR
Paper pondshell	*Utterbackia imbecillis*		
Pimpleback	*Cyclonaias pustulosa*		
Pink heelsplitter	*Potamilus alatus*		
Pink papershell	*Potamilus ohiensis*		
Pistolgrip	*Tritogonia verrucosa*		END
Plain pocketbook	*Lampsilis cardium*		
Pondmussel	*Ligumia subrostrata*		THR
Purple wartyback	*Cyclonaias tuberculata*		END
Rock pocketbook	*Arcidens confragosus*		END
Round pigtoe	*Pleurobema sintoxia*		SC
Salamander mussel	*Simpsonaias ambigua*		END
Scaleshell	*Leptodea leptodon*	END	EXT
Slippershell	*Alasmidonta virdis*		
Sheepnose	*Plethobasus cyphyus*	END	END
Snuffbox	*Epioblasma triquetra*	END	END
Spectaclecase	*Cumberlandia monodonta*	END	END
Spike	*Eilliptio dilatata*		THR
Threehorn wartyback	*Obliquaria reflexa*		
Three-ridge	*Amblema plicata*		
Wabash pigtoe	*Fusconaia flava*		
Wartyback	*Cyclonaias nodulata*		THR
Washboard	*Megalonaias nevosa*		END
White heelsplitter	*Lasmigona complanata*		
Winged Mapleleaf	*Quadrula fragosa*	END	END
Yellow Sandshell	*Lampsilis teres*		END

* Federal/State Status: END=endangered, THR=threatened, EXT=extirpated, SC=special concern

6.1.4 Benthic Community

There are two biological monitoring stations on the Mississippi River in the Project vicinity. Biological monitoring site 13UM009 is located approximately 10.5 miles upstream of the Project dam. The Fisheries Index of Biological Integrity (IBI) rating for the site in 2013 was 75 and rated as good. The Invertebrate IBI rating was 16 and rated as poor (Minnesota Pollution Control Agency, n.d.d).

Biological Monitoring site 07UM283 is located approximately 3.6 miles upstream of the Project dam. The Fisheries IBI rating for the site in 2007 was 46 and listed as fair. No Invertebrate IBI was conducted during 2007 sampling (Minnesota Pollution Control Agency, n.d.d).

Biological sampling data and the IBI scores are included in **Appendix E-13**.

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6.1.5 Aquatic Invasive Species

The Minnesota DNR has regulatory authority over aquatic plants and animals. A four-tiered system classifies invasive species (both aquatic and terrestrial) into prohibited, regulated, unregulated nonnative species, or unlisted nonnative species categories, each of which describes permitted activities, transportation prohibitions, and levels of enforcement (Minnesota Department of Natural Resources, n.d.d).

6.1.5.1 Historic Aquatic Invasive Species

The Minnesota DNR maintains a list of infected water bodies. Little Rock Lake and Little Rock Lake Channel, which connect to the Mississippi River, were listed in 2006 for presence of zebra mussel (*Dreissena polymorpha*) (Minnesota Department of Natural Resources, n.d.e)

The Stearns County Aquatic Invasive Species Plan identified the presence of zebra mussels in the Mississippi River in the Project vicinity and listed several other species of concern for the County including Eurasian watermilfoil, starry stonewort (*Nitellopsis obtusa*), and hydrilla (*Hydrilla verticillata*) (Stearns County, 2020b).

Benton County's Aquatic Invasive Species Management Plan noted the Minnesota DNR's designation of Little Rock Lake and Little Rock Lake Channel and potential for movement of invasives from neighboring counties including Eurasian watermilfoil, purple loosestrife (*Lythrum salicaria*), starry stonewort, and curly-leaf pondweed (Crow River Organization of Water, 2018).

6.1.5.2 Current Aquatic Invasive Species Information

The ATIS Study encompassed the upstream and downstream inundated portions of the Mississippi River, Little Rock Creek, and Little Rock Lake contained in both the existing and proposed Project boundary. The study included aquatic and terrestrial plants. Each sample was inspected for aquatic species present and density. Additional plants visible within six feet of the sample point were recorded as a visual sighting (GAI Consultants, 2021). Surveys were conducted in June and in August.

One invasive species, curly-leaf pondweed was identified on the rake during the June survey, and another, Yellow iris (*Iris pseudacoris*), was observed at three locations along the shoreline during this survey (GAI Consultants, 2021).

No invasive species were identified on the rake during the late season survey completed in August; however, purple loosestrife was observed sporadically along the shoreline throughout the river reaches. No purple loosestrife was observed in Little Rock Lake (GAI Consultants, 2021). ATIS Study Report is included in **Appendix E-16** and features maps of the locations of aquatic invasive species.

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6.2 Wildlife

6.2.1 Mammal Species

Mammal species in the Project vicinity are identified from a wildlife list maintained by the Minnesota DNR and are included in **Table 6.2.1-1** (Minnesota Department of Natural Resources, n.d.f).

Table 6.2.1-1 Mammal Species in the Project Vicinity

Common Name	Scientific Name
American badger	*Taxidea taxus*
American beaver	*Castor canadensis*
Black bear	*Ursus americanus*
Cottontail rabbit	*Sylvilagus floridanus*
Coyote	*Canis latrans*
Deer mouse	*Peromyscus maniculatus*
Eastern Chipmunk	*Tamias striatus*
Eastern pipistrelle	*Perimyotis subflavus*
Fox squirrel	*Sciurus niger*
Gray fox	*Urocyon cinereoargenteus*
Gray squirrel	*Sciurus carolinensis*
Fox squirrel	*Sciurus niger*
House mouse	*Mus musculus*
Least Chipmunk	*Tamias minimus*
Little brown bat	*Myotis lucifugus*
Long-tailed weasel	*Mustela frenata*
Meadow jumping mouse	*Zapus hudsonius*
Meadow vole	*Microtus pennsylvanicus*
Muskrat	*Ondatra zibethicus*
Mink	*Mustela vison*
Porcupine	*Erethizon dorsatum*
Opossum	*Didelphis marsupialis*
Northern long-eared bat	*Myotis septentionalis*
Northern flying squirrel	*Glaucomys sabrinus*
Raccoon	*Procyon lotor*
Red fox	*Vulpes*
Red squirrel	*Tamiasciurus hudsonicus*
River otter	*Lontra canadensis*
Short-tailed weasel	*Mustela erminea*
Southern flying squirrel	*Glaucomys volans*
Striped skunk	*Mephitis mephitus*
Thirteen-lined ground squirrel	*Spermophilus tridecemlineatus*
White-tailed deer	*Odocoileus virginianus*
White-tailed jackrabbit	*Lepus townsendii*
White-footed mouse	*Peromyscus leucopus*
Woodchuck	*Marmota monax*

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Common Name	Scientific Name
Woodland jumping mouse	*Napaeozapus insignis*

No changes to the operation of the Project are proposed. Therefore, continued operation is unlikely to influence the population or diversity of mammal species in the area.

6.2.2 Herptile Species

Although no records of herpetological species surveys were found during literature review, based on the habitat in the Project vicinity and the geographical range, it is likely a variety of frogs, snakes, turtles, and salamanders exist. **Table 6.2.2-1** includes reptiles and amphibians identified on the Minnesota DNR website that are likely to be found in the Project vicinity (Minnesota Department of Natural Resources, n.d.h) (Minnesota Department of Natural Resources, n.d.g)

Table 6.2.2-1 Herptile Species in the Project Vicinity

Common Name	Scientific Name
American toad	*Bufo americanus*
Blanding's turtle	*Emydoidea blandingii*
Blue-spotted salamander	*Ambystoma laterale*
Brown snake	*Storeria dekayi*
Bullsnake (gophersnake)	*Pituophis melanoleucus*
Common gartersnake	*Thamnophis sirtalis*
Common snapping turtle	*Chelydra serpentina*
Copes gray treefrog	*Hyla chrysoscelis*
Eastern red-backed salamander	*Plethodon cinereus*
Eastern hognose snake	*Heterodon platirhinos*
False map turtle	*Graptermys pseudogeographica*
Gray treefrog	*Hyla versicolor*
Green frog	*Lithobates clamitans*
Leopard frog	*Rana pipiens*
Mink frog	*Lithobates septentrionalis*
Mudpuppy	*Necturus maculosus*
Northern map turtle	*Graptemys geographica*
Northern water snake	*Nerodia sipedon*
Ouachita map turtle	*Graptemys ouachitensis*
Painted turtle	*Chrysemys picta*
Plains garter snake	*Thamnophis radix*
Plains hognose snake	*Heterodon nasicus*
Redbelly snake	*Storeria occipitomaculata*
Smooth green snake	*Opheodrys vernalis*
Spiny softshell turtle	*Apalone spinifera*
Spotted salamander	*Ambystoma maculatum*
Spring peeper	*Pseudacris crucifer*
Tiger salamander	*Ambystoma tigrinum*
Western chorus frog	*Pseudacris triseriata*

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Common Name	Scientific Name
Wood frog	*Lithobates sylvaticus*
Wood turtle	*Glyptemys insculpta*

No changes to the operation of the Project are proposed. Therefore, continued operation is unlikely to influence the population or diversity of herptile species in the area.

6.2.3 Avian Species

Avian species historically observed in the Project vicinity can be found on the Cornell E-Bird Mississippi River Park checklist and are included in **Table 6.2.3-1** (Cornell E Bird, n.d.).

Table 6.2.3-1 Avian Species in the Project Vicinity

Common Name	Scientific Name
American Bittern	*Botaurus lentiginosus*
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Spinus tristis*
American Kestrel	*Falco sparverius*
American Redstart	*Setophaga ruticilla*
American Robin	*Turdus migratorius*
American Tree Sparrow	*Spizelloides arborea*
Bald Eagle	*Haliaeetus leucocephalus*
Baltimore Oriole	*Icterus galbula*
Barn Swallow	*Hirundo rustica*
Barred Owl	*Strix varia*
Bay-breasted Warbler	*Setophaga castanea*
Belted Kingfisher	*Megaceryle alcyon*
Black-and-white Warbler	*Mniotilta varia*
Blackburnian Warbler	*Setophaga fusca*
Black-capped Chickadee	*Poecile atricapillus*
Black-throated Blue Warbler	*Setophaga caerulescens*
Black-throated Green Warbler	*Setophaga virens*
Blue-gray Gnatcatcher	*Polioptila caerulea*
Blue-headed Vireo	*Vireo solitarius*
Blue-winged Warbler	*Vermivora cyanoptera*
Brewer's Blackbird	*Euphagus cyanocephalus*
Broad-winged Hawk	*Buteo platypterus*
Brown Creeper	*Certhia americana*
Brown Thrasher	*Toxostoma rufum*
Brown-headed Cowbird	*Molothrus ater*
Bufflehead	*Bucephala albeola*
Cackling Goose	*Branta hutchinsii*
Canada Goose	*Branta canadensis*
Canada Warbler	*Cardellina canadensis*
Cedar Waxwing	*Bombycilla cedrorum*
Chestnut-sided Warbler	*Setophaga pensylvanica*

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Common Name	Scientific Name
Chipping Sparrow	*Spizella passerina*
Clay-colored Sparrow	*Spizella pallida*
Cliff Swallow	*Petrochelidon pyrrhonota*
Common Goldeneye	*Bucephala clangula*
Common Grackle	*Quiscalus quiscula*
Common Merganser	*Mergus merganser*
Common Nighthawk	*Chordeiles minor*
Common Raven	*Corvus corax*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	*Accipiter cooperii*
Dark-eyed Junco	*Junco hyemalis*
Downy Woodpecker	*Dryobates pubescens*
Eastern Bluebird	*Sialia sialis*
Eastern Kingbird	*Tyrannus*
Eastern Phoebe	*Sayornis phoebe*
Eastern Wood-Pewee	*Contopus virens*
Eurasian Collared-Dove	*Streptopelia decaocto*
Field Sparrow	*Spizella pusilla*
Fox Sparrow	*Passerella iliaca*
Golden-crowned Kinglet	*Regulus satrapa*
Golden-winged Warbler	*Vermivora chrysoptera*
Gray Catbird	*Dumetella carolinensis*
Great Blue Heron	*Ardea herodias*
Great Crested Flycatcher	*Myiarchus crinitus*
Great Horned Owl	*Bubo virginianus*
Green Heron	*Butorides virescens*
Hairy Woodpecker	*Dryobates villosus*
Hermit Thrush	*Catharus guttatus*
Hooded Merganser	*Lophodytes cucullatus*
House Finch	*Haemorhous mexicanus*
House Sparrow	*Passer domesticus*
Indigo Bunting	*Passerina cyanea*
Killdeer	*Charadrius vociferus*
Lark Sparrow	*Chondestes grammacus*
Least Flycatcher	*Empidonax minimus*
Lesser Scaup	*Aythya affinis*
Magnolia Warbler	*Setophaga magnolia*
Mallard	*Anas platyrhynchos*
Mourning Dove	*Zenaida macroura*
Nashville Warbler	*Leiothlypis ruficapilla*
Northern Cardinal	*Cardinalis*
Northern Flicker	*Colaptes auratus*
Northern Harrier	*Circus hudsonius*

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Common Name	Scientific Name
Northern Parula	*Setophaga americana*
Northern Saw-whet Owl	*Aegolius acadicus*
Northern Shoveler	*Spatula clypeata*
Northern Shrike	*Lanius borealis*
Northern Waterthrush	*Parkesia noveboracensis*
Olive-sided Flycatcher	*Contopus cooperi*
Orange-crowned Warbler	*Leiothlypis celata*
Osprey	*Pandion haliaetus*
Ovenbird	*Seiurus aurocapilla*
Palm Warbler	*Setophaga palmarum*
Philadelphia Vireo	*Vireo philadelphicus*
Pied-billed Grebe	*Podilymbus podiceps*
Pileated Woodpecker	*Dryocopus pileatus*
Prothonotary Warbler	*Protonotaria citrea*
Purple Finch	*Haemorhous purpureus*
Purple Martin	*Progne subis*
Red Crossbill	*Loxia curvirostra*
Red-bellied Woodpecker	*Melanerpes carolinus*
Red-breasted Nuthatch	*Sitta canadensis*
Red-eyed Vireo	*Vireo olivaceus*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Ring-billed Gull	*Larus delawarensis*
Ring-necked Duck	*Aythya collaris*
Ring-necked Pheasant	*Phasianus colchicus*
Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Rough-legged Hawk	*Buteo lagopus*
Ruby-crowned Kinglet	*Corthylio calendula*
Ruby-throated Hummingbird	*Archilochus colubris*
Ruffed Grouse	*Bonasa umbellus*
Sandhill Crane	*Antigone canadensis*
Scarlet Tanager	*Piranga olivacea*
Sedge Wren	*Cistothorus stellaris*
Sharp-shinned Hawk	*Accipiter striatus*
Song Sparrow	*Melospiza melodia*
Spotted Sandpiper	*Actitis macularius*
Swainson's Thrush	*Catharus ustulatus*
Tennessee Warbler	*Leiothlypis peregrina*
Trumpeter Swan	*Cygnus buccinator*
Turkey Vulture	*Cathartes aura*
Vesper Sparrow	*Pooecetes gramineus*
Warbling Vireo	*Vireo gilvus*

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Common Name	Scientific Name
White-throated Sparrow	*Zonotrichia albicollis*
Wild Turkey	*Meleagris gallopavo*
Wilson's Snipe	*Gallinago delicata*
Wilson's Warbler	*Cardellina pusilla*
Winter Wren	*Troglodytes hiemalis*
Wood Duck	*Aix sponsa*
Wood Thrush	*Hylocichla mustelina*
Yellow Warbler	*Setophaga petechia*
Yellow-bellied Sapsucker	*Sphyrapicus varius*
Yellow-rumped Warbler	*Setophaga coronata*
Yellow-throated Vireo	*Vireo flavifrons*

No changes to the operation of the Project are proposed. Therefore, continued operation is unlikely to influence the population or diversity of avian species in the area.

6.3 Botanical Habitat and Resources

Ecological landscapes in their natural state are primarily defined by the physical environment which includes climate, geology and landforms, and hydrology. The Sartell Project is located within the Anoka Sand Plain subsection of the Minnesota and Northeast Iowa Morainal section of the Eastern Broadleaf Province, which consists of sandy terraces associated with historic levels of the Mississippi River (Minnesota Deparment of Natural Resources, n.d.).

6.3.1 Terrestrial Habitat

The terrestrial habitat along the shoreline of the Project was characterized during the ATIS Study. The shoreline was divided into four shoreline classifications based on the natural communities and land use present. **Table 6.3.1-1** shows the community type, percentage of occurrence, and dominant species present within the current Project boundary.

Table 6.3.1-1 Sartell Project Terrestrial Shoreline Community Summary

Community Type	Occurrence Percentage	Dominant Species
Wooded residential	71.6%	Silver maple and lawn grass species
Forested (Mixed Forest)	25.0	Basswood, cottonwood, oak, silver maple, and willow species
Lowland Forest	1.5%	Silver maple and reed canary grass
Upland Forest/Sparse Residential	2.3%	White pine, red pine, and willow species

Source: (GAI Consultants, 2021)

The ATIS Study Report with maps showing the terrestrial habitat within the Project boundary and along the reservoir shoreline is included in **Appendix E-16**. A more thorough listing of botanical species found in terrestrial areas of the Project shoreline is included in the next section.

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6.3.2 Shoreline Habitat

Typical botanical species found in the Project vicinity during the ATIS Study are shown in **Table 6.3.2-1** (developed shoreline) and **Table 6.3.2-2** (forested shoreline). The occurrence frequency of each shoreline type and location maps are included in the ATIS Study Report in **Appendix E-16**.

Table 6.3.2-1 Typical Species in Developed Shoreline Areas

Common Name	Scientific Name
Aspen	*Populus tremuloides*
Bird's-foot trefoil	*Lotus corniculatus*
Canada goldenrod	*Solidago canadensis*
Canada thistle	*Cirsium arvense*
Common mullein	*Verbascum thapsus*
Common ragweed	*Ambrosia artemisiifolia*
Crabgrass	*Digitaria spp.*
Fringed sagebrush	*Artemisia frigida*
Jewelweed	*Impatiens capensis*
Kentucky bluegrass	*Poa pratensis*
Reed canary grass	*Phalaris arundinacea*
Riverbank grape	*Vitis riparia*
Siberian elm	*Ulmus pumila*
Silver Maple	*Acer saccharinum*
Smooth brome	*Bromus inermis*
Sumac	*Rhus spp.*
Timothy	*Phleum pratense*
Turf/Mowed grass	
Virginia creeper	*Parthenocissus quinquefolia*
Yarrow	*Achillea millefolium*
Yellow sweetclover	*Melilotus officinalis*

Table 6.3.2-2 Typical Tree and Shrub Species in Forested Shoreline Areas

Common Name	Scientific Name
Basswood	*Tilia americana*
Cottonwood	*Populus deltoides*
Oaks	*Quercus spp.*
Red pine	*Pinus resinosa*
Silver Maple	*Acer saccharinum*
White pine	*Pinus strobus*
Willow	*Salix spp.*

6.3.3 Terrestrial Invasive Species

Information regarding terrestrial invasive species was collected during the ATIS Study. Upland shoreline areas not owned by the Licensee were surveyed from a boat while moving slowly along the shoreline. Upland shoreline areas owned by the Licensee were surveyed utilizing a meander method. Invasive terrestrial plants included on the Minnesota Noxious Weed list were recorded if found in upland areas and

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an estimate of relative abundance and length of shoreline where each species was present was recorded for mapping.[10] Three terrestrial invasive species were identified in the Project boundary. Canada thistle was located on Licensee-owned lands and was found in small populations growing in gravel. Purple loosestrife was restricted to individual plants or small populations along the shoreline. One occurrence of Japanese knotweed was observed. All three showed a relative abundance of under 1% (GAI Consultants, 2021).

Species identified during the ATIS Study are shown in **Table 6.3.3-1**. A description of each species occurrence frequency and location maps are included in the ATIS Study Report in **Appendix E-16**.

Table 6.3.3-1 Terrestrial Invasive Species Identified During the ATIS Study

Common Name	Scientific Name
Canada thistle	*Cirsium arvense*
Japanese Knotweed	*Fallopia japonica*
Purple Loosestrife	*Lythrum salicaria*

Source: (GAI Consultants, 2021)

6.4 Threatened and Endangered Resources

6.4.1 Federally Listed Species

The USFWS IPaC website was accessed on April 22, 2022 to develop an official list of federally threatened or endangered species for the Project. The list identified the potential presence of one federally threatened species and one candidate species that are likely to occur in the Project vicinity. Species and their federal status are shown in **Table 6.4.1-1** and described in the paragraphs below (US Fish and Wildlife Service, 2022a). The Sartell Project IPaC Resource List is included in **Appendix E-18**.

Table 6.4.1-1 Species Identified in IPaC Resource List for the Sartell Project

Common Name	Scientific Name	Group	Status
Northern Long-eared Bat	*Myotis septentrionalis*	Mammal	endangered
Monarch Butterfly	*Danaus plexippus*	Insect	Candidate/endangered

6.4.1.1 Northern Long-Eared Bat

The Northern long-eared bat (NLEB) is a state and federally threatened mammal. The USFWS announced a proposal to reclassify the NLEB as endangered under the ESA on March 22, 2022. The final determination on the reclassification of the NLEB from threated to endangered was November 29, 2022 (US Fish and Wildlife Service, 2022b).

The bat roosts during the summer months underneath loose bark or in cavities or crevices of both live and dead trees. Non-reproducing females and males may also roost in cool places such as caves or mines. The bat feeds in the forest interior and hibernates in caves and mines during the months of October through April (US Fish and Wildlife Service, n.d.b; US Fish and Wildlife Service, n.d.b) (US Fish and Wildlife Service, n.d.b). The Project is within the NLEB range; however, according to the Minnesota Natural Heritage Information System (NHIS) search described below, no documented NLEB are known to occur in the Project vicinity (Minnesota Department of Natural Resources, 2022). Project operations do not involve tree removal activities

[10] Minnesota Noxious Weed list retrieve June 2021 at https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list

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should tree removal be necessary, measures shall be implemented to mitigate impact on potential maternity roosts. Mitigation measures for such activities can be found in Section 6.7.2.2.

6.4.1.2 Monarch Butterfly

On December 15, 2020, the USFWS announced the listing of the monarch butterfly as endangered or threatened under the ESA was warranted but was precluded by higher priority listing actions. The decision is the result of extensive status review of the species that compiled and assessed the monarch's current and future status. The monarch butterfly is now a candidate species under the ESA. As a candidate species, its status will be reviewed annually until a listing decision is made (US Fish and Wildlife Service, n.d.c).

Monarch butterfly habitat preferences can include field, roadside areas, urban gardens, or wetland areas, flowering plants and milkweed plants (USFWS 2022). The species could potentially be found flying over the Project boundary or on flowering plants located near the project or in the project boundary. However, specific habitat for laying eggs is limited, without milkweed species. The proposed Project boundary includes all land and water necessary and desirable for the safe and effective operation of the Sartell Project and all lands required for other Project purposes, including but not limited to flowage, public recreation, shoreline control, and protection of environmental resources. Maps showing the current versus proposed Sartell Project boundary are in Appendix E-30. The project boundary is primarily made up of lacustrine and riverine, accounting for approximately 2,319.1 acres, and 10.1 acres of wetlands (freshwater forested/shrub, pond, emergent) (for more detail see section 9).

Vegetation management at the Project is limited to the immediate area of the Project infrastructure (dam, powerhouse, switchyard, and canoe put-in and takeout). Sartell Hydro does not undertake vegetation management activities along the Project impoundment. Therefore, vegetation management is not anticipated to adversely affect potential monarch butterfly habitat within the Project boundary.

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6.4.2 State Listed Species

The Minnesota NHIS provides information on rare plants, animals, native plant communities, and other rare features (Minnesota Department of Natural Resources, n.d.i). The Licensee submitted a request to Minnesota DNR to determine if any species identified in the Project boundary vicinity are covered under the Minnesota Endangered Species Protection Act. The Minnesota DNR responded on July 13, 2022 indicating two rare species are likely to occur in the Project vicinity, which are shown in **Table 6.4.2-1** and described in the paragraphs below (Minnesota Department of Natural Resources, 2022).

Table 6.4.2-1 State Listed Species Likely to Occur in the Sartell Project Vicinity

Common Name	Scientific Name	Group	State Status
Black sandshell mussel	*Ligumia recta*	Mussel	Special Concern
Blanding's turtle	*Emydoidea blandingii*	Reptile	Threatened

Source: (Minnesota Department of Natural Resources, 2022)

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6.4.2.1 Black Sandshell Mussel

The black sandshell is a mussel that prefers medium-sized streams to large rivers in areas dominated by sand or gravel with adequate current. Known host fish include walleye, sugar, sunfishes, and bass. (Minnesota Department of Natural Resources, n.d.j). Although none are currently planned, Project maintenance that may result in extensive ground disturbing activities which could cause erosion or sedimentation adjacent to the river and work on the bed of the reservoir have the potential to impact the species. Mitigation measures for such activities can be found in Section 6.7.1.2.

6.4.2.2 Blanding's Turtle

The Blanding's turtle needs both wetland and upland habitats to complete its life cycle. The turtle uses ponds, marshes, shrub swamps, bogs, and ditches and streams with slow moving water. Calm, shallow water bodies with mud bottoms and abundant aquatic vegetation are preferred. Extensive marshes bordering rivers provide excellent habitat. Nesting occurs in open sandy uplands, often some distance from water bodies. Blanding's turtles have also been known to nest successfully in areas with disturbed soils and on residential properties, particularly those in low density situations. The turtles overwinter in the muddy bottoms of deeper marshes or other water bodies where they are protected from freezing (Minnesota Department of Natural Resources, n.d.k).

Although none are currently planned, Project maintenance that may involve ground disturbing activities within areas with suitable nesting habitat, extensive ground disturbing activities which could cause erosion or sedimentation adjacent to the river, and work on the bed of the reservoir have the potential to impact the species. Mitigation measures for such activities can be found in Section 6.7.1.2.

6.4.3 Other Protected Species

The bald eagle (*Haliaeetus leucocephalus*) is known to be located along the Mississippi River in the Project vicinity. As of August 9, 2007, the bald eagle population has recovered to the extent it no longer requires the protection of the Federal Endangered Species Act; the species remains protected by the Migratory Birth Treaty Act, Bald and Golden Eagle Protection Act, and Lacey Act (US Fish and Wildlife Service, n.d.a).

The bald eagle is no longer listed as a threatened, endangered, or special concern species in Minnesota (Minnesota Department of Natural Resources, n.d.l). Although none are currently planned, Project maintenance that may involve disturbance within 660 feet of a nest during the nesting season may cause impacts to this species (US Fish and Wildlife Service, 2021). Mitigation measures for such activities can be found in Section 6.7.1.2.

6.5 Agency/Stakeholder Recommended Mitigation Measures

Sartell Hydro did not receive any comments from agencies or stakeholder for the DLA or receive any fish, wildlife, botanical, and endangered resources mitigation measures recommended by resource agencies and stakeholders.

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6.6 Anticipated Project Impacts

6.6.1 Aquatic Impacts

6.6.1.1 Aquatic Invasive Species

Once an invasive species becomes established within the Project boundary, they can migrate downstream through water releases or move outside the Project areas with the help of migrating wildlife and recreationists (GAI, 2021). Recreationists can inadvertently cause the spread, and even introduction of invasives, to the Project area by hand-carry or power boats that were not cleaned properly, and then put-in the reservoir, allowing anything that was on the boat to become established. For the same reasons, portage around the dam can cause downstream spread, as well. There are currently no proposed maintenance activities or operational changes planned. Run-of-river operations at the Project will not cause introduction of new invasive species, however if invasives have been introduced to the reservoir by other means, spill operations, whether from normal operation or flood evets, has the potential to facilitate the downstream spread of these species. In general, run-of-river operations result in stable water quality, and stable impoundment elevations without regular shoreline exposure, more often minimizing the potential for spread of invasive species during normal Project operation. Although spread can occur from water releases, operating as a run-of-river facility minimizes that impact more than if the Project was operated by other means, such as peaking or store-and-release. Mitigation measures are discussed under Section 6.7.1

6.6.1.2 Work on Reservoir Bed

Work on the reservoir or riverbed below the ordinary high-water mark can have an adverse impact upon rare and sensitive resources, such as the Black Sandshell Mussel and Blandings Turtle. Work on the reservoir or riverbed below the ordinary high-water mark would cause disturbance to the rare and sensitive resources habitat. No such work is planned at this time. Mitigation for potential impacts will be further discussed under Section 6.7.1.

6.6.1.3 Erosion and Siltation

Although no ground disturbing activities are planned, Project maintenance and construction can result in extensive ground disturbing activities. Uncontrolled erosion and siltation from ground disturbing activities can have an adverse impact upon aquatic resources. Mitigation for potential impacts will be further discussed under Section 6.7.1.

6.6.1.4 Reservoir Drawdowns

Normal operation of the Project does not require regular reservoir drawdown. Although no drawdowns are planned at this time, it may be requested in the future for the Licensee to draw down the Project reservoir for Little Rock Lake, potential dam structure repairs or inspections. The timing, rate of drawdown, and other specific aspects of a reservoir drawdown can have adverse impacts upon aquatic resources. Mitigation for potential impacts will be further discussed under Section 6.7.1.

6.6.2 Terrestrial Impacts

6.6.2.1 Recreational Site Improvements

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Other than general maintenance, the Licensee is not proposing to make large-scale improvements to recreational sites in undisturbed areas or stable soils that could cause terrestrial impacts due to ground disturbing activities. Potential terrestrial impacts that could occur are further discussed under Section 6.7.2.

6.6.2.2 NLEB Roosting Sites

Roosting sites of the federally threatened NLEB can occur in any tree. Much of the shoreline along the Project reservoir is forested and privately owned property. Tree removal is not part of normal day-to-day Project operation and maintenance. The NHIS review did not identify any federally protected trees that are known maternity roosts or any areas where known hibernacula could be impacted within the Project boundary.

Wisconsin implements the requirements of a Broad Incidental Take Permit and Broad Incidental Take Authorization (BITA) for Wisconsin Cave Bats dated August 25, 2016. Although this BITA has not been adopted by the State of Minnesota, the Licensee believes following the guidelines outlined within it will provide protection to any NLEB in the Project vicinity during the normal course of Project operation and maintenance. Therefore, the Licensee proposes to follow the applicable mitigation measures outlined in the BITA, which is included in **Appendix E-19**. Under the BITA, hydroelectric project activities are not likely to jeopardize the continued existence and recovery of the state population of the protected bats or the whole plant-animal community of which they are a part. Mitigation for potential impacts will be further discussed under Section 6.7.2.

6.6.2.3 Terrestrial Invasive Species

Maintenance activities within the Project boundary could potentially lead to the transfer of invasive species. Mitigation for potential impacts will be further discussed under Section 6.7.2.

6.6.2.4 Erosion and Siltation Impacts

Erosion and siltation from ground disturbing activities can have an adverse impact upon rare and sensitive resources. Mitigation for potential impacts will be further discussed under Section 6.7.2.

6.7 Applicant Proposed Mitigation

Continued operation of the Project is not expected to adversely impact the resources described herein based on the implementation of the proposed mitigation measures described below.

6.7.1 Proposed Aquatic Mitigation

6.7.1.1 Aquatic Invasive Species

As part of its day-to-day maintenance activities, the Licensee will assure all maintenance equipment brought on to the work site from another location is free from aquatic invasive species before it is utilized for maintenance at the Project. The estimated cost of this measure is negligible.

6.7.1.2 Reservoir Bed

The Licensee will consult with the USFWS, Minnesota DNR, and the Commission as appropriate before conducting any activities that would result in a disturbance of the reservoir bed to mitigate

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impacts of work below the ordinary high-water mark that may impact the Blandings Turtle and the Black Sandsheel Mussel within the Project boundary and to determine appropriate measures to implement to minimize or eliminate impacts to federal and state listed species.

6.7.1.3 Erosion and Siltation

The Licensee will implement best management practices for erosion and siltation control if ground disturbing activities are necessary within the Project boundary to mitigate potential impacts of erosion and siltation on the resource. FERC Standard Form L-4 Article 19, which is expected to be incorporated into the new license by reference, already requires measures to prevent erosion and avoid stream sedimentation. Temporary silt fencing on the downslope of areas of disturbance, seeding and mulching of exposed areas as soon as feasible, and monitoring for effectiveness of temporary measures and prompt repair of temporary measures when required are several of the best management practices that will be implemented.

6.7.1.4 Reservoir Drawdowns

There are no routinely scheduled drawdowns necessary for the operation and maintenance of the Project. Prior to any reduction in reservoir elevation below the required minimum elevation with a duration of three weeks or less (also termed a planned deviation), the Licensee will consult with the USFWS and Minnesota DNR to mitigate potential environmental impacts of any proposed planned deviations, as described in Section 5.4. If mitigation measures cannot be agreed upon, the Licensee will file for a temporary license amendment prior to reducing the reservoir elevation.

Although none are currently planned by the Licensee, as part of any future request for a temporary license amendment or a non-routine drawdown lasting more than three weeks, the Licensee will consult with the USFWS and Minnesota DNR. This process would apply to non-emergency drawdowns greater than three weeks. After the USFWS and Minnesota DNR comments are addressed, the Licensee will file the amendment request with the FERC for approval.

6.7.2 Proposed Terrestrial Mitigation

6.7.2.1 Recreational Site Maintenance

The Licensee is proposing to implement the terrestrial mitigation measures identified in Sections 6.7.2.2 through 6.7.2.4 below to mitigate for impacts associated with ground disturbing or vegetation management activities due to the potential maintenance activities at existing recreation sites.

6.7.2.2 NLEB Bat Roosting Sites

Sartell Hydro understands that incidental take of a federally listed species is not permitted and that consultation with the USFWS and State of Minnesota will need to be conducted if potential take of the NLEB is expected or if an adverse effect of the species would occur. To protect the federally endangered NLEB, the Licensee will consult with the USFWS and State of Minnesota to address recommendations on tree removal and removal of bats from structures within the Project Boundary. The Licensee proposes to avoid tree removal at the Project unless the tree poses a threat to human life or property, or removal occurs outside of the NLEB pup season of June 1 to July 31.

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6.7.2.3 Terrestrial Invasive Species

As part of its day-to-day maintenance activities, the Licensee will ensure all maintenance equipment brought on to the work site from another location is free from invasive species before it is utilized for maintenance at the Project. The estimated cost of this measure is negligible.

6.7.2.4 Erosion and Siltation

The Licensee will implement best management practices for erosion and siltation control should ground disturbing activities be necessary within the Project boundaries to mitigate the impacts of erosion and siltation on the resource. The Licensee is also proposing to monitor reservoir shorelines for erosion on a 5-year schedule. In addition to identifying the location of eroding shorelines, routine monitoring will evaluate whether erosion is impacting historic or archaeological resources as described in Section 7.2.

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7. Report on Historical and Archeological Resources

7.1 General History of the Sartell Project Area and Waterway

Although the Mississippi River was heavily used by Native American communities for travel, trading, and subsistence for several hundred years prior to European occupation, the general history of the area and waterway during post-European occupation is best described for relicensing purposes in the following excerpts taken from the Sartell Hydroelectric Project Architectural/Historical Reconnaissance survey included as **Appendix E-20**:

> *"Prior to the mid-19th century, the area of what would eventually become Sartell was inhabited in turns by Dakota, Chippewa, and Ho-chunk tribes as they were forced westward by encroaching white settlement. French fur traders knew the present site of Sartell as the "third rapids" that they would encounter as they traveled north on the Mississippi River from Minneapolis. One of the earliest permanent white settlers of the area was Joseph B. Sartell in 1854, who established a flour mill and later a lumber mill and dam near Watab Creek Park. In 1905, the Watab Pulp and Paper Company began construction of a paper mill at the site, with the accompanying hydromechanical dam and powerhouse completed in 1907. The mill quickly became the area's largest employer, and the complex was bought by the St. Regis in 1946 and Champion International in 1982, after which time mill operations were significantly expanded."*
>
> *"In 1907, the Village of Sartell was incorporated and named after the area's earliest white settler, Joseph B. Sartell. The paper mill continued to grow, and in 1925 another major company was founded in Sartell: DeZurik Water Controls, a valve production plant. While the city was originally located along the US Highway 10, a major arterial traveling north from the Twin Cities and St. Cloud, the re-route of the roadway in the 1960s and the construction of a new bridge over the Mississippi River led to the decline of the original downtown area.3 The population growth of Sartell began to accelerate due to the city's location, services, and small-town atmosphere. However, a fire at the paper mill in 2012 would eventually lead to the sale and demolition of the complex, and loss of a major employer in the area."*

7.2 Efforts to Identify Significant Properties (National Register Status)

The following sections detail the Licensee's completed efforts to identify historic and archaeological properties within the Project's Area of Potential Effects (APE) in accordance with Section 106 of the National Historic Preservation Act of 1966 and 36 CFR 800 - Protection of Historic Properties.

In general agreement from the Minnesota SHPO on November 12, 2021, the Project APE is defined as:

- Lands enclosed by the Project boundary as delineated in the existing license.
- Attached or associated buildings and structures extending beyond the Project boundary, which contribute to the National Register of Historic Places eligibility of the hydroelectric generating facility.
- Lands or properties outside the Project boundary where the Project may cause changes in the character or use of historic properties, if any historic properties exist.

7.2.1 Sartell Project Historic Properties

The Licensee conducted a Project Architectural/Historical Reconnaissance survey to identify historic properties within the APE in 2022. This survey is included as **Appendix E-20**.

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The survey began with a review of online resources to develop a historical context of the area. Online resources included those available through local historical societies, Minnesota Historical Society, and University of Wisconsin System Library. Online review was followed with a literature search of the Minnesota Historic Site and Structure Inventory. **Table 7.2.1-1** includes the six resources identified in the literature search. A copy of the survey report and the eligibility forms are in **Appendix E-20**.

Table 7.2.1-1 Properties Identified in the Literature Search

Inventory No.	Property Name	NRHP Status	NRHP Status
BN-STC-001	Watab Paper Mill and Dam	Evaluated not eligible	NA
BN-STC-004	Sartell Hydroelectric Powerhouse	Evaluated not eligible	Contributing to the not-eligible BN-STC-001
BN-STC-005	Sartell Hydroelectric Dam	Evaluated not eligible	Contributing to the not-eligible BN-STC-001
BN-WAT-006*	Fort Ripley Military Road – Watab Segment	Evaluated not eligible	NA
BN-WAT-009	Brainerd Branch – Sauk Rapids to Brainerd Railroad	Previously evaluated not eligible	NA
XX-RRD-NPR029	Bridge - Brainerd Branch – Sauk Rapids to Brainerd Railroad	Previously evaluated not eligible	Contributing to the not-eligible BN-WAT-009

Regarding the Watab Paper Mill and Dam, Sartell Hydroelectric Powerhouse, Sartell Hydroelectric Dam, and the remaining mill building fragment, they do not constitute an intact example of a paper mill, nor are they distinguished or associated with the history of hydroelectric power in Minnesota and are unlikely to be eligible for the NRHP. A determination of eligibility has been completed for each structure and were provided to the Minnesota SHPO for concurrence on July 21, 2022. the Minnesota SHPO responded on November 9, 2022, requesting the inventory form include the Watab Paper Mill and Dam Complex (BN-STC-001). The updated inventory form was submitted to SHPO on February 22, 2023. At this time, Minnesota SHPO has not responded.

7.2.2 Archaeological Properties

Section 106 of the National Historic Preservation Act and 36 CFR Part 800 requires Phase 1 Archaeological Surveys be completed at the Project to determine whether any archaeological sites are eligible for the NRHP and if they will be affected by continued operation of the Project. An archaeological survey of the reservoir shoreline was conducted by the Minnesota DNR Division of Fish and Wildlife Cultural Resources Program in 2019 as part of a reservoir drawdown and is included in **Appendix E-9**. Background research for the 2019 survey identified several archaeological properties adjacent to or near the reservoir that needed to be monitored for potential adverse effects from the drawdown.[11] The archaeological properties are listed in **Table 7.2.2-1**.

[11] Although the survey also identified historic structures, only archaeological properties are being discussed in this section.

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Table 7.2.2-1 Previously Identified Archaeological Properties within the Sartell Reservoir Vicinity

State Site #	Archaeological Site Type	NRHP Eligibility Status	Adversely Impacted by Drawdown?
21-BN-a	Contact-era trading post	Recognized as potentially eligible	Could not be relocated
21-BN-j	Expansive Pre-contact habitation	Recognized as potentially eligible	Could not be relocated
21-BN-007	Mound group	Eligible for NRHP	No evidence identified
21-BN-008	Pre-Contact Habitation Site	Eligible for NRHP	No pre-modern materials exposed

The Licensee hired TRC Environmental to review and determine if the 2019 drawdown survey would provide enough information to assess the potential for adverse impacts of the proposed operation on archaeological properties within the Project APE. TRC Environmental recommended that no additional archaeological survey work was required during the relicensing process and further recommended a five-year monitoring plan be developed as part of the future license.

The Licensee submitted the recommendation to the Minnesota SHPO on July 21, 2022. The Minnesota SHPO response received on November 9, 2022, agreed with the conclusion that efforts to identify archaeological properties within the APE was reasonable. The June 2019 survey conducted during the drawdown exceeds what could be done during normal (non-drawdown) conditions for FERC relicensing reviews. The Minnesota SHPO agreed with the recommendation that no additional archaeological survey is needed, and the proposed 5-year archaeological monitoring schedule is appropriate.

7.3 Proposed Mitigation Measures

7.3.1 Programmatic Agreement

Since there is no current statewide Programmatic Agreement for hydropower relicensing in the State of Minnesota, the Commission and the Minnesota SHPO will develop a Programmatic Agreement to ensure historic properties are considered in the continued operation and maintenance of facilities during the term of a Project license. To further this purpose, the Licensee will develop a Historic Resources Management Plan or Historic Properties Management Plan (HPMP) within one year of license issuance.

7.3.2 Historic Properties Management Plan

As outlined in its letter to the Minnesota SHPO dated June 22, 2022, the Licensee proposed to develop an HPMP for the Project that will include, as recommended by TRC Environmental, a provision to periodically (every five years initially) monitor the shoreline. The HPMP will also include a requirement for an annual report on the activities associated with the implementation of the HPMP. The anticipated cost to develop the HPMP is $25,000 in 2022 dollars. The Licensee anticipates the cost of each annual report is $10,000 in 2022 dollars and the Project's 5-year shoreline survey cost is anticipated to be approximately $30,000 in 2022 dollars each time it is completed.

The development of the HPMP as a proposed mitigation measure was presented to the Minnesota SHPO in a letter dated July 21, 2022. The Minnesota SHPO response received on November 9, 2022,

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stated that they agree that the monitoring provision should be a component of any future Historic Properties Management Plan as directed by FERC.

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8. Report on Recreational Resources

8.1 Sartell Project Existing Recreational Resources

The Sartell Dam and reservoir are primarily located within the City of Sartell and Townships of Brockway, Langola, Le Sauk, Sauk Rapids, and Watab in Benton and Stearns Counties. The Project is located within the Little Falls to St. Cloud Reach (Reach 7) of the Mississippi River State Water Trail. This section of the Mississippi River connects Minnesota's forests to its prairies (Minnesota Department of Natural Resources, n.d.m). The tables below include recreation sites located within or in the vicinity of the proposed Project boundary and information about the site owner, who is responsible to operate/maintain the site, and a list of recreation amenities. **Table 8.1-1** includes recreation sites located within or partially within the proposed Project boundary. **Table 8.1-2** includes recreation sites located adjacent to or in the vicinity of the proposed Project boundary. The only FERC-approved recreation sites include the canoe portage take-out, canoe portage put-in, and canoe portage trail; the location of each site is depicted on the Project boundary drawings provided in Exhibit G of this application. A map of the recreation sites in the Project vicinity is in **Appendix E-21**.

Table 8.1-1 Recreation Sites Within or Partially Within the Proposed Sartell Project Boundary

Recreation Site	Boundary Location	Owner	Operate/ Maintain	Amenities
Canoe Portage	Partially Within	Sartell Hydro and City of Sartell	Sartell Hydro and City of Sartell	• Take-out • 978-foot-long trail • Put-in
Benton Beach Park[12]	Partially Within	Benton County	Benton County	• Single-lane gravel boat launch • Gravel parking, 8-10 vehicles with trailers • Accessible portable toilet • Regulatory signage
Hwy 10 Boat Launch	Partially Within	Minnesota DNR Division of Parks and Trails	Minnesota DNR Division of Parks and Trails	• Two-lane concrete plank boat launch • Skid pier • Paved parking, 29 vehicles with trailers • 2 dedicated accessible parking spaces • Accessible portable toilet • Regulatory signage

[12] Amenities listed are only associated with boat launch area that provides access to Project reservoir. Other non-Project related amenities at this Park include campsites, picnic shelters, sports fields and courts, and a frisbee golf course.

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Sartell Boat Launch	Partially Within	Minnesota DNR Division of Parks and Trails	Minnesota DNR Division of Parks and Trails	• Two-lane concrete plank boat launch • Skid pier • Fishing pier • Paved parking, 39 vehicles with trailers and 11 standard vehicles • 1 non-paved parking space reserved for enforcement officer • 2 dedicated accessible parking spaces • 2 portable restrooms • Regulatory signage

Table 8.1-2 Recreation Sites Adjacent to or in the Vicinity of the Sartell Project Boundary

Recreation Site	Boundary Location	Owner	Operate/ Maintain	Amenities
St. Regis Park	Adjacent	Benton County	Benton County	• Carry-in access • Ice fishing access • Picnic tables • Portable toilet
Rose Anna Beach	Adjacent	Benton County	Benton County	• Carry-in access • Ice fishing access • Picnic table
Veterans Park	Outside	City of Sartell	City of Sartell	• Paved parking for six vehicles • Monument • Gazebo • Benches • Historical placards

8.1.1 Recreation Plans

The Sartell area offers an abundance of opportunities for outdoor recreation. The City of Sartell, Benton County, Stearns County, and the State of Minnesota recognize the contribution of recreation to the quality of life for their citizens. Each governing body developed an outdoor recreation plan, which are summarized in the following sections.

8.1.1.1 City of Sartell 2016 Comprehensive Plan

Recreation in the City of Sartell is addressed in the *2016 Comprehensive Plan, Section 7 Parks and Open Spaces*. The plan addresses outdoor recreation within the community and can be found in **Appendix E-22**. One of the main goals was to recognize the Mississippi, Watab, Sauk, and other rivers and natural areas as major recreation, economic, and open space assets to the community (City of Sartell, 2016b).

Under this overarching goal, the following strategies were identified:

- Maintain existing public access to the rivers and increase public access in new development and redevelopment projects, specifically within the Mill Property area.

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- Work to connect rivers to neighborhoods, parks, and communities with trails and greenspace.
- Work with the Minnesota DNR and other agencies to create and/or enhance portages within all of the navigable rivers.

8.1.1.2 Benton County 2040 Comprehensive Plan

Recreation within Benton County is addressed in Chapter 6 of the *2040 Comprehensive Plan*, which is included in **Appendix E-23**. The plan provides a generalized list of projects that focus on short-term, mid-term, and long-term action items. Short-term action items include updating the existing Benton Beach Park Master Plan and improving trail connections within the existing park systems. Mid-term priorities include developing a new Park Master Plan for Rose Anna Park, implementing improvements identified in the updated Benton Beach Park Master Plan, and re-establishing a swimming area at the park. Long term priorities include implementing the improvements identified in both the Benton Beach and Rose Anna Park Master Plans (Benton County, 2019b).

8.1.1.3 Stearns 2040 Comprehensive Plan

Recreation within Stearns County is addressed in the *Stearns 2040 Comprehensive Plan,* which is located in **Appendix E-24**. The plan does not identify specific recreation improvements; however, the recreation amenities available in the Project vicinity help fulfill the recreational needs identified in the plan (Stearns County, 2020a).

8.1.1.4 Minnesota Statewide Comprehensive Outdoor Recreation Plan, 2020-2040

Recreation at the statewide level is addressed in the *Minnesota Statewide Comprehensive Outdoor Recreation Plan, 2020-2040* (SCORP), which is in **Appendix E-25**. Recreation amenities in the Project vicinity help fulfill recreational needs identified in the SCORP.

The SCORP is structured around the following four strategic directions (Minnesota Department of Natural Resources, 2019a):

- Connect people and the outdoors by developing Minnesota's stewards of tomorrow through efforts to increase life-long participation in outdoor recreation and appreciation of our natural heritage.
- Acquire land and create opportunities by expanding and creating new park and trail opportunities to satisfy current recreation users, as well as to reach out to new users.
- Take care of what we have to provide safe, high-quality park and trail experiences through regular reinvestment in park and trail infrastructure, as well as natural resource management.
- Coordinate among partners to enhance coordination across the large and complex network of public, private, and non-profit partners that support Minnesota's parks and trails to ensure seamless, enjoyable park and trail experiences or Minnesotans.

8.2 Estimated Use of Existing and Potential Recreation Resources

8.2.1 Recreation Survey Methods and Results

As part of relicensing consultation, the Licensee determined a need for recreation use information to be collected at recreational areas in the Project vicinity to understand and document recreation utilization and needs within the Project.

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The recreation study consisted of the following, which are describe in the following sections:

- Recreation site inventory
- Recreation facility condition assessment
- Recreation use surveys
- Future and potential recreation questionnaire

Recreation in the Project vicinity is dominated by city and county parks that offer plenty of amenities; none are dependent on the Project reservoir. Therefore, during the recreation study, only the portions of these parks associated with boat launch and carry-in access areas were evaluated since they provide recreational access to the Project reservoir and the Mississippi River. Other Park recreational needs have been identified Section 8.1.

8.2.2 Sartell Project Recreation Site Inventory

The recreation site inventory was completed during the summer of 2021 to collect data on recreation amenities and capacities, primary type of recreation provided at the site, existing sanitation facilities, type of vehicle access and parking, type of Americans with Disabilities Act (ADA) accessible (barrier-free) facilities if available, location of site, and photographs of amenities.

A summary of amenities at the Sartell Project is shown in **Table 8.2.2-1** (generally upstream to downstream) and a more detailed description of each site is provided in the following paragraphs. Recreation Inventory and Condition Assessment Forms are in **Appendix E-26** and photographs of amenities taken during the inventory are in **Appendix E-27**.

Table 8.2.2-1 Sartell Project Recreation Site Inventory

Recreation Site	Parking Sites	Boat Launch / Carry-in Access	Picnic Facilities	Bank Fishing	Part 8 Sign	Other Signage
Benton Beach Park	8-10	Boat Launch	Yes	Yes	No	• Regulation • Direction • Interpretive
Hwy 10 Boat Launch	29 (2 barrier-free)	Boat Launch	No	Yes	No	• Regulation • Direction (missing) • Interpretive
Sartell Boat Launch	51 (2 barrier-free)	Boat Launch	No	Fishing pier	No	• Regulation • Directional • Interpretive
Sartell Canoe Portage	None	Carry-in Access	No	Yes	Yes	• Regulation • Directional • Interpretive

8.2.2.1 Benton Beach Park

Benton Beach Park is owned and maintained by Benton County. Project related amenities include a single-lane gravel boat launch (**Figure 8.2.2.1-1**), parking area that facilitates 8-10 vehicles with trailers (**Figure 8.2.2.1-2**) and an accessible portable toilet. Only the portion of the boat launch below the ordinary high-water mark is located within the proposed Project boundary. Other non-Project related amenities include campsites for recreational vehicles and tents, picnic shelters,

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playground, basketball court, 18-hole disk golf course, sand volleyball court, softball field, and horseshoe pits. (Benton County, n.d.b).

Figure 8.2.2.1-1 Benton Beach Park Boat Launch

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Figure 8.2.2.1-2 Benton Beach Park Boat Launch Parking Area

8.2.2.2 Highway 10 Boat Launch

The Highway 10 Boat Launch is owned and maintained by the Minnesota DNR Division of Parks and Trails. Amenities include a two-lane concrete boat plank boat launch (**Figure 8.2.2.2-1**), skid pier, parking area, and an accessible portable toilet (**Figure 8.2.2.2-2**). Only the portion of the boat launch below the ordinary high-water mark and the skid pier are located within the proposed Project boundary. The site has a large, paved parking area with a total of 29 parking spaces suitable for vehicles with trailers, two spaces are signed as dedicated accessible parking spaces.

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Figure 8.2.2.2-1 Highway 10 Boat Launch

Figure 8.2.2.2-2 Highway 10 Boat Launch Portable Restroom

8.2.2.3 Sartell Boat Launch

The Sartell Boat Launch is owned and maintained by the Minnesota DNR Division of Parks and Trails. Amenities include a two-lane concrete plank boat launch, skid pier, fishing pier (**Figure 8.2.2.3-1**), paved parking area, and portable accessible restroom (**Figure 8.2.2.3-2**). Only the portion of the boat launch below the ordinary high-water mark, skid pier, and fishing pier are located within the proposed Project boundary. The parking area includes paved parking for 39 vehicles with trailers, 11 conventional spots, and one unpaved spot for law enforcement personnel. Two of the parking spots are signed as designated accessible parking spaces.

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Figure 8.2.2.3-1 Sartell Boat Launch, Skid Pier, and Fishing Pier

Figure 8.2.2.3-2 Sartell Boat Launch Parking and Portable Toilet

8.2.2.4 Sartell Canoe Portage

The Sartell Canoe Portage take-out (**Figure 8.2.2.4-1**) and approximately half of the portage trail are owned and operated by Sartell Hydro, while the put-in (**Figure 8.2.2.4-2**) along with the rest of the portage trail are owned and operated by City of Sartell. The canoe portage take-out and portion of the portage trail owned by Sartell Hydro are included in the proposed Project boundary. The portage trail extends approximately 978 feet from the canoe portage take-out to the put-in.

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Figure 8.2.2.4-1 Canoe Portage Take-Out

Figure 8.2.2.4-2 Canoe Portage Put-In

8.2.3 Sartell Project Recreation Facility Condition Assessment

A facility condition assessment was completed for each recreation site to determine if the amenities (including signage) were in good working condition, needed maintenance or repair, or needed to be replaced. A summary of recommended site improvements is shown in **Table 8.2.3-1**. The completed site condition assessment forms can be found in **Appendix E-26**.

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Table 8.2.3-1 Recommended Recreation Facility Improvements from Study Report

Recreation Site	Recommended Improvements
Benton Beach Park	No improvements recommended in condition assessment.
Hwy 10 Boat Launch	Replace public water access sign at site entrance.
	Restroom needs to be serviced.
Sartell Boat Launch	No improvements recommended in condition assessment.
Sartell Canoe Portage	FERC Part 8 signage needs to be updated to meet current standards.

8.2.4 Sartell Project Recreation Use Surveys

Recreation use was periodically observed and documented during randomly selected holiday weekend days, weekdays, and weekends beginning in April and continuing through September to account for primary recreation season use. 13 observation days were recorded during this timeframe. In addition, two winter recreation season observations were completed during one weekend day each in December 2021 and January 2022. The schedule of the recreation use surveys is shown in **Table 8.2.4-1**. Results of the recreation use survey observations are summarized in the sections below and completed observation forms are in **Appendix E-28**.

Table 8.2.4-1 Recreation Use Survey Dates

Sartell Survey Date	Type of Day
April 17, 2021	Weekend
May 15, 2021	Weekend
May 31, 2021	Holiday
June 9, 2021	Weekday
June 12, 2021	Weekend
June 19, 2021	Weekend
July 11, 2021	Weekend
July 20, 2021	Weekday
July 24, 2021	Weekend
August 5, 2021	Weekday
August 14, 2021	Weekend
August 21, 2021	Weekend
September 12, 2021	Weekend
December 19, 2021	Winter Weekend
January 15, 2022	Winter Weekend

8.2.4.1 Primary Recreation Season Use Surveys

Benton Beach Park Boat Launch

The Benton Beach Park Boat Launch received 11 recreation users over the 13 days surveyed. The number of individuals recreating ranged from a maximum of eight users (June 12) to a

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minimum of zero users (April 17, May 31, June 9, June 19, July 11, July 20, August 5, August 14, and September 12). The recreation activities observed were boat fishing, picnicking, and other.[13]

Highway 10 Boat Launch

The Highway 10 Boat Launch received 51 recreation users over the 13 days surveyed. The number of individuals recreating ranged from a maximum of 27 users (May 15) to a minimum of zero users (July 11, July 20, August 5, and August 21). The recreation activities observed in order of primary use include boat fishing, shoreline fishing, and other.[14]

Sartell Boat Launch

The Sartell Boat Launch received 109 recreation users over the 13 days surveyed. The number of individuals recreating ranged from a maximum of 28 users (June 19) to a minimum of zero at users (August 21). The recreation activities observed in order of primary use include boat fishing, shoreline fishing, power boating, and non-powered boating.

Sartell Canoe Portage

The Sartell Canoe Portage received three recreation users over the 13 days surveyed. One user was noted on June 9 and two were noted on August 5. The only recreation activity observed was shore fishing.

8.2.4.2 Winter Recreation Season Use Surveys

Benton Beach Park Boat Launch

The Benton Beach Park Boat Launch received four recreation users in December and four recreation users in January. The only recreation activity observed was ice fishing.

Highway 10 Boat Launch

The Highway 10 Boat Launch received no recreation users in December and one recreation user in January. The only recreation activity observed was ice fishing.

Sartell Boat Launch

No use of the Sartell Boat Launch was noted during the winter surveys.

Sartell Canoe Portage

The Sartell Canoe Portage received one recreation user in December and four recreation users in January. The only recreation activity observed was ice fishing.

[13] Other activities at Benton Beach Park Boat Launch included playing with a dog.
[14] Other activities at Hwy 10 Boat Launch included people parked watching a fire on a neighboring property.

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8.2.4.3 Overall Recreation Use Summary

During the primary recreation season user survey, the Sartell Boat Launch showed the most use with 106 users observed during the 13 observation days, followed by the Highway 10 Boat Launch, Benton Beach Park Boat Launch, and the Sartell Canoe Portage.

The amount of primary recreation season use at each recreation site was analyzed for use versus capacity. The analysis assumed the number of parking spaces was the limiting factor for capacity for each recreation site. It was assumed there would be an average of 1.5 people per vehicle. Therefore, daily capacity was determined by multiplying 1.5 by the number of dedicated parking spaces at each site. Sites without dedicated parking spaces (canoe portage) were given an assumed capacity value for the calculation. Recreation use recorded during the survey is shown in **Table 8.2.4.3-1** and summarized in the section below. Completed recreation use survey forms and summary spreadsheets are in **Appendix E-28**.

Table 8.2.4.3-1 Sartell Project Primary Season Recreation Use Survey Summary

Recreation Site	Total Users Observed	Percent Capacity Observed	
		Average (All Dates)	Maximum Daily
Benton Beach Park Boat Launch	11	5.6%	66.7%
Highway 10 Boat Launch	51	9.0%	93.1%
Sartell Boat Launch	109	11.4%	46.7%
Sartell Canoe Portage	3	4.6%	40.0%

Based on the analysis, Sartell Boat Launch had the highest annual average utilization rate at 11.4%, followed by Highway 10 Boat Launch with 9.0%, Benton Beach Park Boat Launch with 5.6%, and Sartell Canoe Portage with 4.6%.

The daily utilization rate did not exceed capacity at any of the recreation sites on any of the survey dates. Daily utilization exceeded 50% of capacity at two recreation sites. The daily utilization rate of the Benton Beach Park Boat Launch was 53.3% of capacity on June 12 and 66.7% on July 24. The daily utilization rate of the Highway 10 Boat Launch was 93.1% of capacity on May 15.

8.2.4.4 Estimate of Current and Future Recreation Use

Results from the recreation use study show 174 users were observed over 13 primary recreation season observations for an average of 13.4 users per day. Assuming each observation accounted for an entire recreation day, the recreation season total use as surveyed from April through September (183 days at 13.4 users per day) is 2,452 days. The Project experienced 2,452 recreation days during the primary recreation season. Assuming recreation use is 25% during the winter recreation season (October to March), the Project experienced 613 winter recreation days. This provides an annual total of 3,065 estimated recreation days for the recreation facilities in the Project vicinity in 2021.

As stated in Section 4.6, the City of Sartell is projected to have a population increase of 18.1% during the 2020 to 2035 timeframe (City of Sartell, 2016a). The Licensee assumed the 18.1% population growth rate for the City of Sartell will have a corresponding impact on recreation use.

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Therefore, the number of recreation days for recreation facilities in the Project vicinity is expected to increase to 3,620 recreation days by 2035. None of the recreation facilities in the Project vicinity are expected to exceed their capacity for decades. With the limited number of recreation facilities and the Licensee's minimal role in maintaining the canoe portage, a need for continued routine survey of recreation use at the Project does not exist.

8.2.5 Future and Potential Recreation Questionnaires

A questionnaire was sent to municipalities and other entities responsible for recreation in the Project vicinity to determine future recreation needs. A questionnaire was sent to the City of Sartell, Benton County, Stearns County, and Minnesota DNR. All Future and Potential Recreation Questionnaires received have been included in **Appendix E-29**. The City of Sartell was the only entity to respond to the questionnaire and its comments are described below. No questionnaire responses were received from Benton County, Stearns County, or Minnesota DNR.

8.2.5.1 City of Sartell

The City of Sartell is responsible for managing park lands within the city and indicated it maintains greenspace and parklands on the east side of County Road 1 from 1st Street North to 7th Street North. This includes lands downstream of the Project dam, including Veterans Park, and lands adjacent to and upstream of the Project dam and floodwall. No recreation sites exceed capacity and there are plans to open a new walking path in the area in the fall of 2022. The City did not identify a need for any additional recreation sites or amenities in the Project vicinity.

8.3 Stakeholder Comments and Recommended Development

Development recommendations brought forward by stakeholders throughout Stage 1 and Stage 2 consultation are contained in *Volume 4, Documentation of Consultation*.

8.4 Measures Recommended for Creating, Preserving, or Enhancing Recreational Opportunities

8.4.1 Cooperate with Local Entities

A portion of the canoe portage trail and put-in are located on lands owned by the City of Sartell. The Licensee will cooperate with the City when implementing any proposed enhancements at these sites.

8.5 New Measures or Facilities Proposed by the Applicant

No new measures or facilities are being proposed by the Applicant. The Applicant will continue to properly maintain the existing Sartell canoe portage recreation facility for the duration of the upcoming license.

8.5.1 Estimated Costs

Estimated annual cost for the existing Sartell canoe portage recreation facility at the Sartell Project are expected to be $1,000 per year in 2022 dollars.

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9. Report on Land Management and Aesthetics

9.1 Existing Development and Use of Project

Land-use regulation and zoning occurs at the municipal and county government level in Minnesota. Provisions of zoning ordinances may not take effect until a municipal ordinance is adopted by the respective civil government. In the Project vicinity, regulatory land use and zoning matters are controlled by the City of Sartell within incorporated areas, and by Benton County and Stearns County in unincorporated areas. Project facilities are located within the City of Sartell and are surrounded by commercial and residential areas, as well as public park lands.

Regulations for navigable waters of the state occur at the state and federal government level and are controlled by the Minnesota DNR and USACE. The Mississippi River is designated as a Section 10 waterway by the USACE. As such, there is additional regulatory authority from the USACE.

Continued operation and relicensing of the Sartell Project as proposed is not expected to adversely affect existing development and use of the Project. Sartell Hydro is not proposing changes to the current operations or proposing to construction any new facilities.

9.2 Measures Proposed to Ensure Modifications Blend with Surrounding Environment

Construction of the Sartell Dam began in 1905. The Project and associated hydroelectric facilities began operation when construction was completed in 1907. After an explosion at the adjacent paper mill in 2012, the hydroelectric project was separated from the paper mill and the mill was demolished. The hydroelectric units were recommissioned in 2015. The project has been operating in its current location since 1907, with the exception of a short period after the adjacent paper mill exploded when the hydroelectric Project was separated from the mill facilities and the mill was demolished (Kleinschmidt Associates, 2017).

Continued operation of the Sartell Project will not violate any federal or state policies or regulations once relicensed. There are no known conflicts between the local governmental planning and/or zoning ordinances and the Project's development or operation. Current aesthetics of the Project and facilities are shown in **Figure 9.2-1**, **Figure 9.2-2**, **Figure 9.2-3**, and **Figure 9.2-4**.

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Figure 9.2-1 View Upstream of the Sartell Dam Intake Structure

Figure 9.2-2 View Downstream of the Sartell Dam

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Figure 9.2-3 View of Floodwall, Looking Upstream along West Bank

Figure 9-2-4 View of Powerhouse, Looking Towards East Bank

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9.3 Wetlands or Floodplains within or Adjacent to the Project Boundary

9.3.1 Description of Existing Wetlands

Wetlands are transition habitats between land and water and have unique hydrologic, soil, and vegetative parameters that allow them to be differentiated (delineated) from other habitat types. Wetlands function to improve water quality, wildlife habitat, nutrient cycling and storage, recreation, and aesthetics. Large wetlands absent from human influence are generally higher quality wetlands. In riverine systems, wetlands provide flood water storage and filtration for water contaminants and sediment. They also provide an environmental corridor for enhanced recreation and aesthetics. The USFWS National Wetland Inventory data layers were used to determine the types of wetlands located within the Project boundary.

The acreage of each wetland type was calculated within both the proposed and current Project boundary and are shown in **Table 9.4.1-1**. Maps illustrating wetlands within the proposed and current Project boundary are included in **Appendix E-32**.

Table 9.4.1-1 Wetlands within Proposed and Current Sartell Project Boundary

Wetland Type	Project Boundary	
	Current (acres)	Proposed (acres)
Lacustrine	1,409.7	1,416.4
Riverine	1,323.7	902.7
Freshwater Forested/Shrub	38.6	8.8
Freshwater Pond	0.9	0.2
Freshwater Emergent	1.1	1.1
TOTAL	**2774.0**	**2,329.2**

A comparison of wetlands between the proposed and current Project boundary shows significant acreage changes for riverine wetlands and freshwater forested/shrub wetlands due to the removal of river reaches that are not inundated at the reservoir elevation of 1,015.0 feet NGVD (Mead & Hunt, Inc., 2022a).

There are no proposed operational changes regarding reservoir elevation. As such, the continued Project operation is not anticipated to impact wetlands.

9.4 Shoreline Erosion

The Licensee will implement best management practices to mitigate the impacts of erosion and siltation if minor and extensive ground disturbing activities are determined necessary within the Project boundary. The only proposed minor ground disturbing activity is the installation of signage at the canoe portage. There are no planned activities that could result in extensive ground disturbing activities at this time.

The Licensee proposes to periodically monitor the Project shorelines for erosion throughout the term of the license. These inspections will also document any newly identified areas of erosion on the shoreline. The costs for the 5-year joint erosion and archaeological shoreline survey are identified in Section 7.3.2.

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9.5 Buffer Zone

As stated previously herein, the Sartell Dam and its associated hydroelectric facilities have been operating in their present location since 1907. The Project has become part of the environment. The areas near the Project dam are located near the center of the City of Sartell and are fully developed with a mixture of commercial, residential, and public parkland properties. The shorelines become more rural in nature upstream within the Project reservoir and consist of residential riverfront lots and agricultural lands, typically with vegetated riparian buffers.

The Licensee proposes to periodically monitor the Project shorelines for erosion throughout the term of the license. These inspections will also document any newly identified areas of erosion on the shoreline. The costs for the 5-year joint erosion and archaeological shoreline survey are identified in Section 7.3.2. Continued operation and relicensing of the Sartell Project as proposed is not expected to adversely affect the existing buffer zone.

9.6 Applicant's Policy Toward Development of Shoreline Facilities

The Minnesota DNR is charged under Minnesota Statutes with the licensing, permitting, and supervision of all structures in lakes or streams that extend beyond the ordinary high-water mark. The Licensee plans to monitor shoreline use during routine field activities according to the appropriate statutes as administered by the Minnesota DNR and its administrative regulations of any piers, docks, boat landings, extended bulkheads, or other structures owned by others that extend into Project waters. The Licensee is not opposed to these developments as permitted by the Minnesota DNR and will develop a consistent policy regarding these structures if the demand requires.

9.7 Maps or Drawings of Proposed Measures

Volume 2, Exhibits F and G include drawings and maps depicting the nature and location of the Sartell Project. As part of this FLA, the Licensee is not proposing any new measures concerning Project works, right-of-way, access roads, or any other topographic alternations.

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10. Comprehensive Plans per 18 CFR Part 16.8 [F][6]

Section 10(a)(2) of the Federal Power Act requires the FERC to consider the extent to which a proposed project is consistent with existing federal and state comprehensive plans, as defined in Section 2.19 under Part 2 of Chapter 1, Title 18, Code of Federal Regulations.

The following presents a current listing of FERC-approved comprehensive plans that may be applicable to the relicensing of the Sartell Project. This application was prepared in consultation with various resource agencies, including those that prepared the comprehensive plans outlined in the following sections.

Volume 4, Documentation of Consultation details all consultation between the applicant and stakeholders. The license application incorporates various recommendations made by stakeholders during consultation, which are outlined in the license application.

The Licensee is not proposing any changes to the current operation of the Sartell Project. If environmental reviews conducted by the resource agencies identified any operational characteristics that require mitigation, appropriate mitigation has been proposed herein. As such, continued operation of the Project with the proposed mitigation measures is not expected to adversely impact resources in the area.

10.1 National Park Service Plans

10.1.1 The Nationwide Rivers Inventory (1993)

The Nationwide Rivers Inventory is a listing of more than 3,200 free-flowing river segments in the United States that are believed to possess one or more “outstandingly remarkable” values. The Mississippi River section in the Project vicinity is not listed in the inventory (National Park Service, n.d.).

10.2 US Fish and Wildlife Service Plans

10.2.1 North American Waterfowl Management Plan (2012)

The North American Waterfowl Management Plan is general in nature regarding outlining specific plan policies, goals, and recommendations. The plan does not establish goals or recommendations specific to the Project vicinity. However, it does stress the importance of resource conservation, management, and enhancement (US Fish and Wildlife Service, n.d.d). This license application has been developed to analyze impacts based upon resource conservation, management, and enhancement. There are no conflicts between the North American Waterfowl Management Plan and continued operation of the Project.

10.2.2 Upper Mississippi River & Great Lakes Region Joint Venture Implementation Plan (1998)

The Joint Venture is a partnership of resource agencies, Tribes, corporations, individuals, and organizations that have accepted the responsibility of implementing conservation plans within this geographic region. The Joint Venture conducts activities to support bird conservation goals and are the standard for effective, science-based delivery of bird conservation through partnerships (US Fish and Wildlife Service, 1993). There are no conflicts between this comprehensive plan and continued operation of the Project.

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10.2.3 Fisheries USA: The Recreational Fisheries Policy of the U.S. Fish & Wildlife Service (1989)

This policy defines the USFWS's role in the management of county recreational fishery resources. The policy is intended to ensure high-quality recreational fisheries through federal cooperation and partnership (US Fish and Wildlife Service, 1986). There are no conflicts between this policy and continued operation of the Project.

10.2.4 Prairie Pothole Joint Venture Implementation Plan (1995)

The Prairie Pothole Joint Venture Implementation Plan implements waterfowl conservation in the prairie pothole region. The portion of the Project within Stearns County is subject to this plan (US Fish and Wildlife Service, 1995). There are no conflicts between this plan and continued operation of the Project.

10.2.5 Great Lakes and Northern Great Plains Piping Plover Recovery Plan (1988)

This plan focuses on achieving recovery goals for the Northern Great Plains Population of the piping plover (*Charadrius melodus*) (US Fish and Wildlife Service, 1988). No piping plovers were identified in the IPaC Resource list or Minnesota NHIS review for the Project vicinity. Therefore, continued operation of the Project is not expected to impact recovery efforts.

10.2.6 Higgins Eye (*Lampsilis higginsii*) Mussel Recovery Plan (2004)

This plan identified actions necessary for the recovery of the Higgins eye mussel (US Fish and Wildlife Service, 2004). No Higgins eye mussels were identified in the Project vicinity in the IPaC Resource List or the Minnesota NHIS review. Therefore, continued operation of the Project is not expected to impact recovery efforts.

10.3 Minnesota Department of Natural Resources Plans

10.3.1 Minnesota Statewide Comprehensive Outdoor Recreation Plan (2021)

The SCORP is discussed in Section 8 and is provided in **Appendix E-25**.

10.3.2 Statewide Outstanding Rivers Inventory (1983)

The Statewide Outstanding Rivers Inventory was conducted to provide Minnesota DNR with priorities for detailed study and development of comprehensive river management plans and to address the need to manage and protect outstanding rivers (Minnesota Department of Natural Resources, 1983). The Mississippi River in the Project vicinity is not considered an outstanding river nor is classified as a wild and scenic river. Therefore, continued operation of the Project will not conflict with this plan.

10.3.3 Minnesota State Parks and Trails System Plan (2015)

The Minnesota State Parks and Trails System Plan is intended to advance new approaches for managing state parks, state recreation areas, state trails, state forest recreation, and state water recreation systems. There are no state parks, trails, or forests in the Project vicinity (Minnesota Department of Natural Resources, 2015). Therefore, continued operation of the Project will not conflict with this plan.

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10.3.4 Minnesota's Wildlife Action Plan, 2015-2025 (2016)

The Minnesota's Wildlife Action Plan demonstrates a focus to ensure the long-term health and viability of the state's rare species, declining species, and species vulnerable to decline. Continued operation of the Project will not conflict with this plan.

10.3.5 Minnesota DNR's Canoe and Boating Route Program.

Minnesota has 35 state water trails with over 4,500 miles of canoe, paddling, and boating routes. The Mississippi River in the Project vicinity is classified as a state water trail (Minnesota Department of Natural Resources, n.d.c). Continued operation of the Project will not conflict with this plan.

10.3.6 Minnesota DNR's Strategic Conservation Agenda: The DNR's 10-year Strategic Plan, 2015-2025

This plan identifies four strategic goals for the Minnesota DNR, which include:

- Conserve and enhance the state's waters.
- Provide quality outdoor recreation opportunities for all citizens.
- Support the state's natural resource-based economy while protecting environmental quality.
- Efficiently and effectively serve the residents of the state.

Continued operation of the Project will not conflict with this plan.

10.4 Mississippi Headwaters Board

10.4.1 Comprehensive Plan for the Upper Mississippi River (2019)

This plan was established to maintain coordination on management activities for water and related land resources, as well as provide future water policy on the Upper Mississippi River system. The goal of the plan is to enhance and protect the first 400 miles of the Mississippi River from its source in lake Itasca in Clearwater County to the southerly boundary of Morrison County (Mississiippi River Headwaters Board, 2019). The Project is located downstream of Morrison County and is not subject to the terms of this comprehensive plan. Therefore, continued operation of the Project will not conflict with the plan.

11. Documentation of Consultation

Volume 4, Documentation of Consultation details all phases of consultation between the Licensee and resource agencies, Tribes, and the public during the development of this application. By reference here, *Volume 4, Documentation of Consultation* becomes part of Exhibit E of this application.

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12. Works Cited

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Sartell Hydroelectric Project

FERC Project No. 8315

Final License Application

Exhibit G
Project Maps

Prepared for

Eagle Creek Sartell Hydro, LLC

Prepared by

EAGLE CREEK
— RENEWABLE ENERGY —

February 2023

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Table 1.1 Sartell Project Boundary Maps

LIST OF ATTACHMENTS

Appendix A Exhibit G Maps
Appendix B Easement Agreement Documentation

1.0 PROJECT MAPS

The attached Exhibit G maps denote the Sartell Water Power Project (Sartell Project or Project) boundary.

The current FERC license establishes the Sartell Project boundary (depicted in the existing Exhibit G) at the reservoir surface water elevation of 1,014.5 feet NGVD 29, inclusive of all lands containing the powerhouse, dam, and flood wall. The current boundary encompasses 2,803.3 acres, which includes 3.1 acres of Project lands and 2,800.2 acres of submerged land. The inundated area is further divided into 2,795.2 acres of reservoir area upstream of the Sartell Dam and 5.0 acres in the tailwater downstream of the powerhouse (Mead & Hunt, Inc., 2022b).

The Licensee completed a review of the current Project boundary described above, which was likely identified using USGS topographic maps that displayed 10- or 20-foot contours, to provide relevant information to describe the existing environment. The Licensee remapped the Project boundary based on LiDAR elevation data with an accuracy of +/- 2.0 feet[1]. The current Exhibit G mapped the Project boundary at the normal reservoir elevation of 1,014.5 feet NGVD 29, which is not representative of all lands necessary or appropriate for Project operation. Analysis of the LiDAR data also identified the upper extent of the current Project boundary contains a free-flowing river reach that is not impounded at the maximum reservoir elevation of 1,015.0 feet NGVD 29.

The proposed boundary was mapped using current high-resolution LiDAR terrain data to elevation 1,015.0 feet NGVD 29, which extends approximately 7.9 miles upstream of the Sartell Dam. The proposed Project boundary includes all lands upstream of the Sartell Dam to elevation 1,015.0 feet NGVD 29 and excludes those lands not impounded at elevation 1,015.0 feet NGVD 29. The proposed boundary also includes lands owned by the Licensee with Project facilities including the powerhouse, dam, flood wall, canoe portage take-out, and tailrace that extends downstream from the dam approximately 420 feet.

[1] LiDAR data source: Minnesota Geospatial Information Office, 2015.

The proposed Project boundary includes all land and water necessary and desirable for the safe and effective operation of the Sartell Project and all lands required for other Project purposes, including but not limited to access to project structures, flowage, public recreation, shoreline control, and protection of environmental resources. Maps showing the current versus proposed Sartell Project boundary are in Appendix E-30.

Table 1.1 provides a summary of the drawing numbers and titles for the Exhibit G maps. The Project boundary maps show the Sartell Project vicinity, location, and boundary in sufficient detail to provide a full understanding of the Project. The Exhibit G maps were prepared in accordance with the requirements of 18 Code of Federal Regulations (C.F.R.) § 4.51(h).

Table 1.1 Sartell Project Boundary Maps

Drawing Number	Title
Exhibit G - Sheet 1 of 24	Project Boundary Map
Exhibit G – Sheet 2 of 24	Project Boundary Map
Exhibit G – Sheet 3 of 24	Project Boundary Map
Exhibit G – Sheet 4 of 24	Project Boundary Map
Exhibit G – Sheet 5 of 24	Project Boundary Map
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Exhibit G – Sheet 7 of 24	Project Boundary Map
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Exhibit G – Sheet 24 of 24	Project Boundary Map

2.0 FEDERAL LANDS

There are no public lands or reservations of the United States within the Sartell Project boundary.

3.0 EASEMENTS

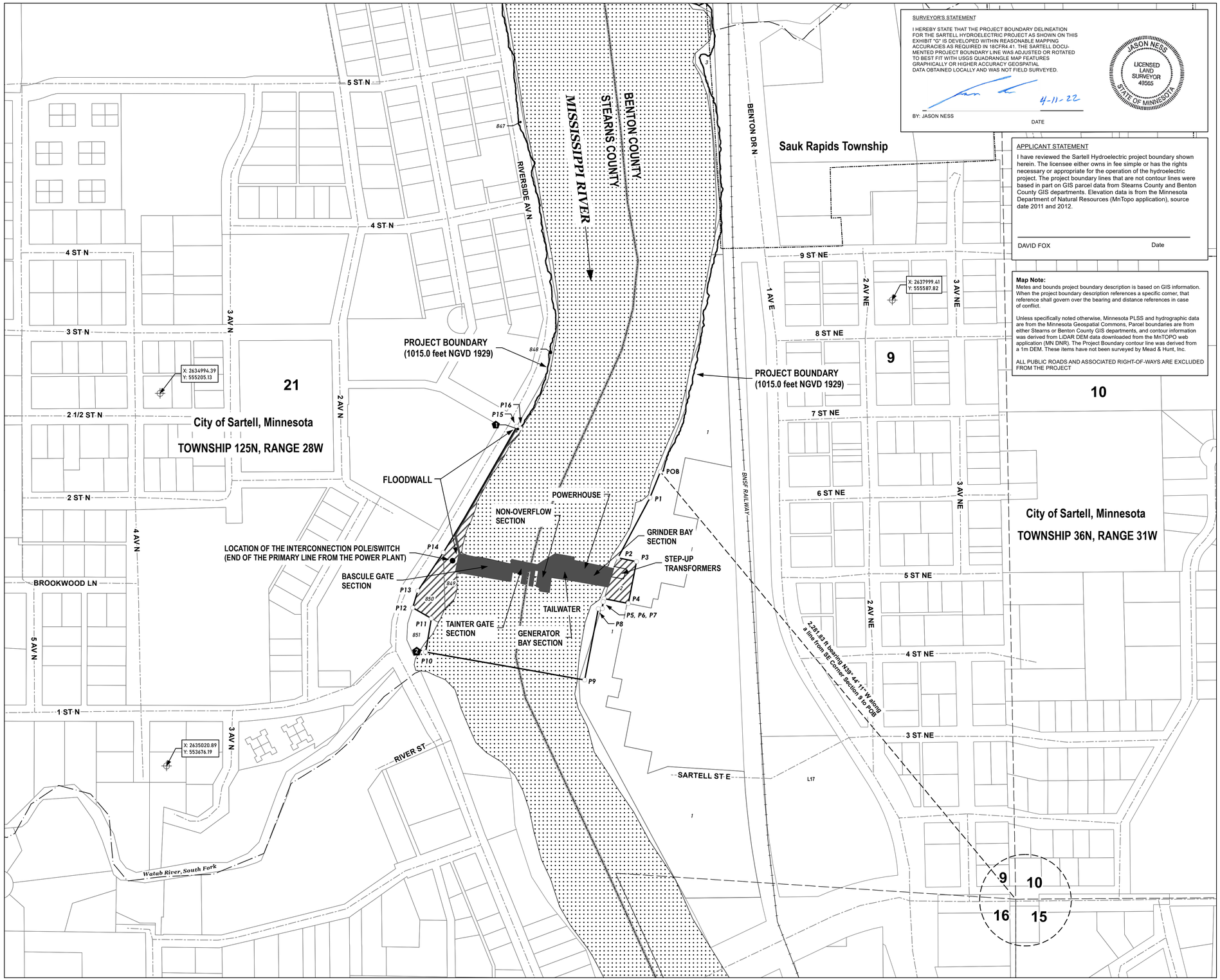
Sartell Hydro has an easement with AIM Development to access the powerhouse by roadway located on the east side of the project (See Exhibit G Sheet 1 of 24). All other lands required for the operations of the Project are owned by Sartell Hydro and are discussed in Exhibit A of this application.

Easement Agreement documentation are appended to this exhibit for the Commissions review.

Appendix A

Exhibit G Map

MATCH EXHIBIT G-2



SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

BY: JASON NESS — DATE: 4-11-22

JASON NESS — LICENSED LAND SURVEYOR 43565 — STATE OF MINNESOTA

APPLICANT STATEMENT

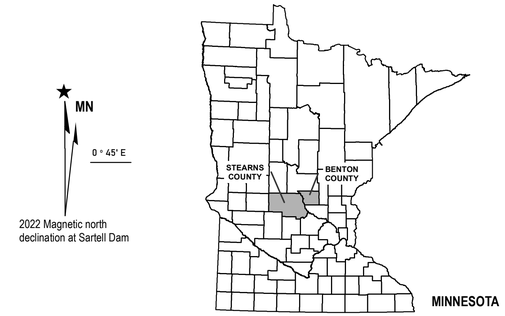
I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

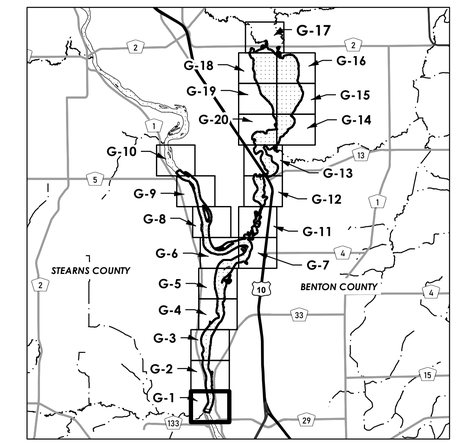
DAVID FOX — Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT





LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 1

EAGLE CREEK SARTELL HYDRO, LLC — SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

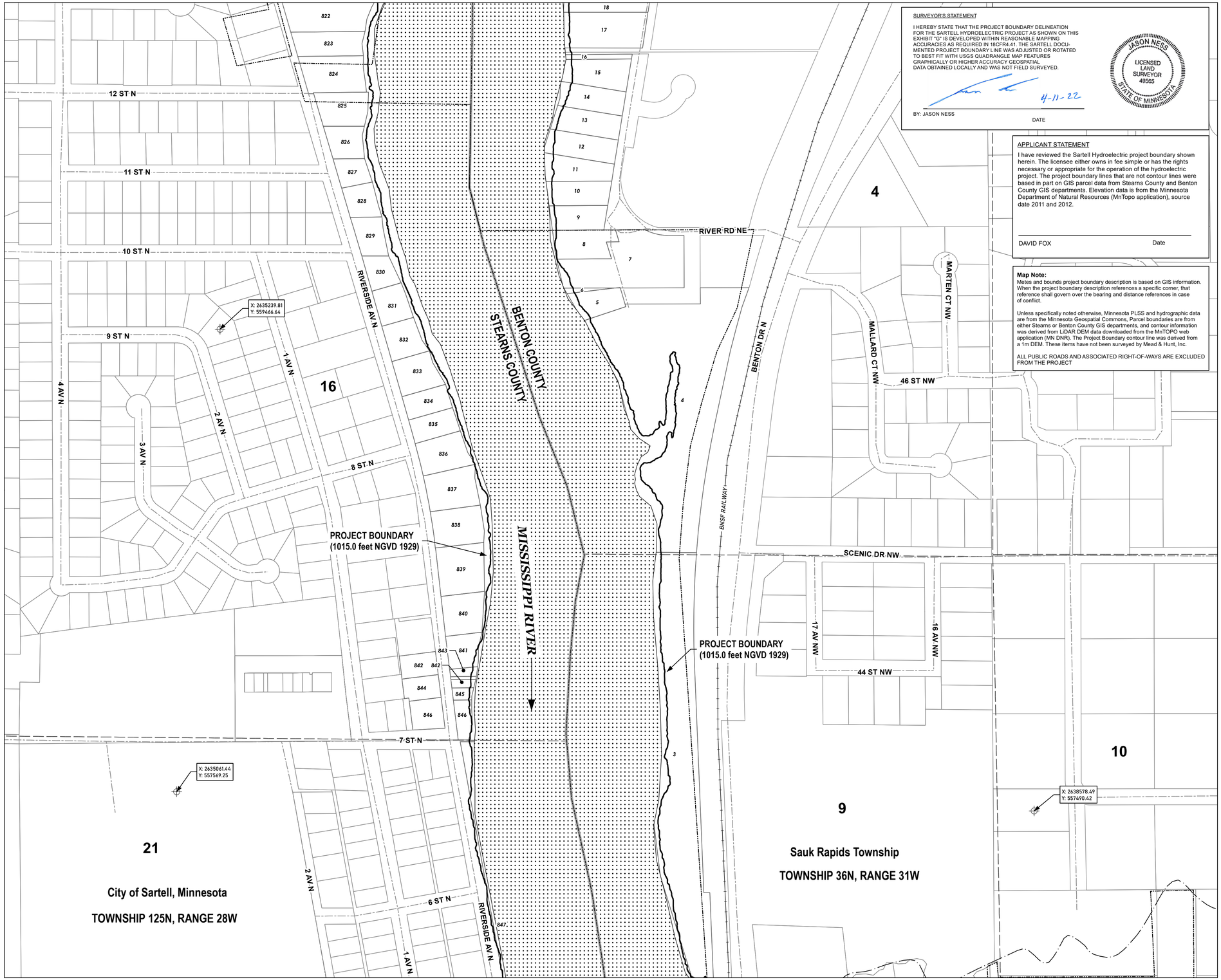
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-3



MATCH EXHIBIT G-1

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

BY: JASON NESS — DATE: 4-11-22

JASON NESS
LICENSED LAND SURVEYOR 49565
STATE OF MINNESOTA

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

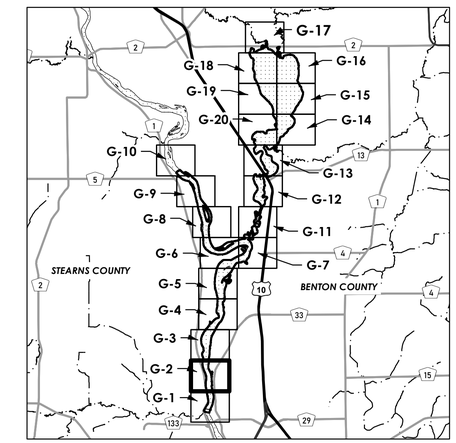
DAVID FOX — Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

MN
0 ° 45' E
2022 Magnetic north declination at Sartell Dam



LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 2

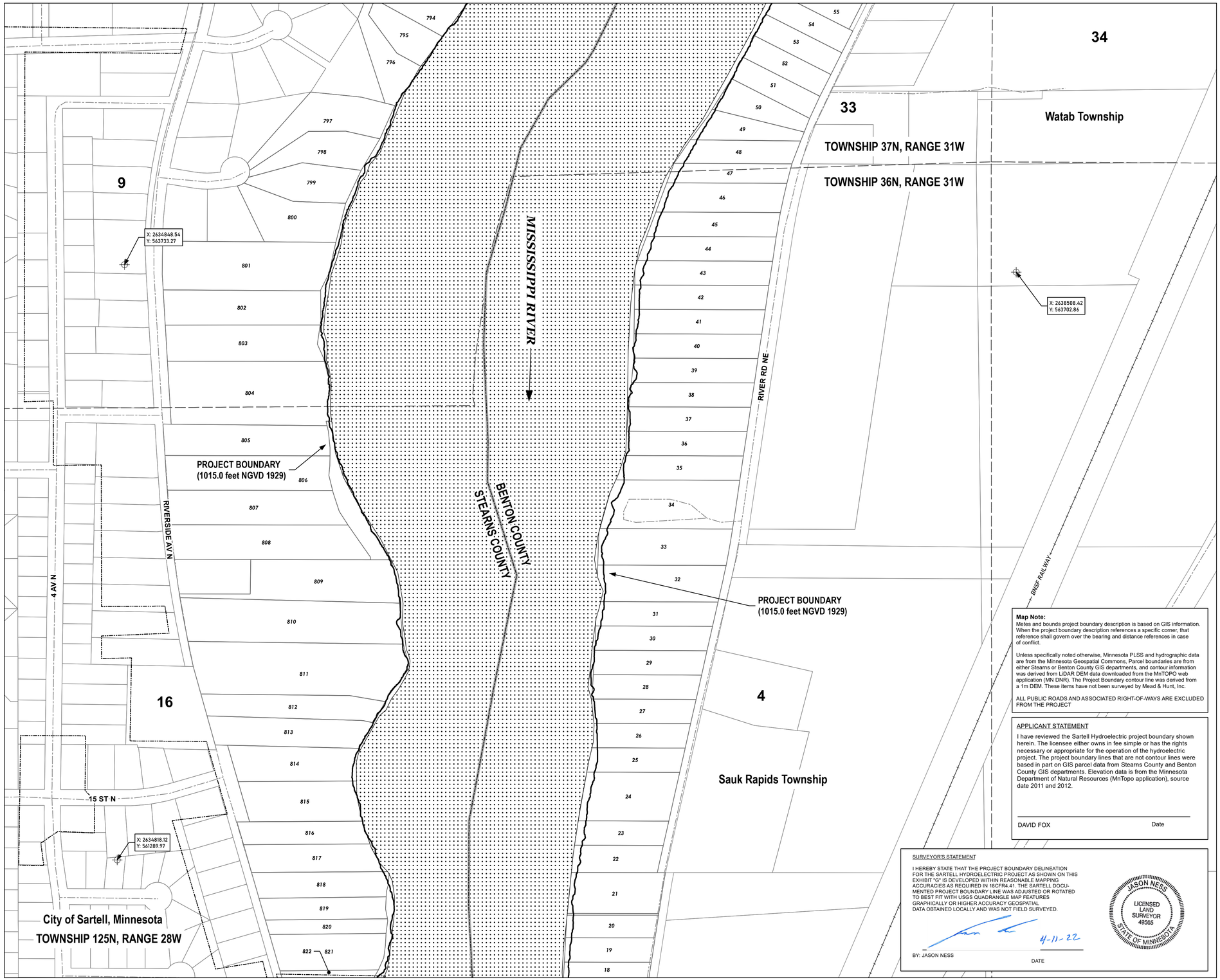
EAGLE CREEK SARTELL HYDRO, LLC — SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT
FERC PROJECT No. 8315
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA
PROJECT BOUNDARY MAP

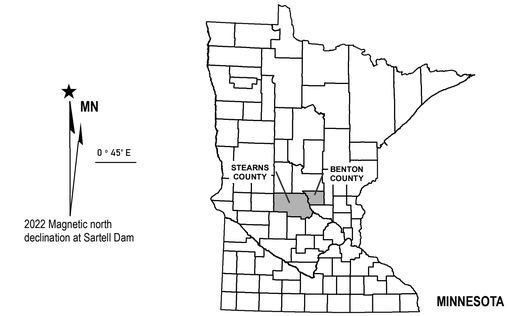
Mead & Hunt

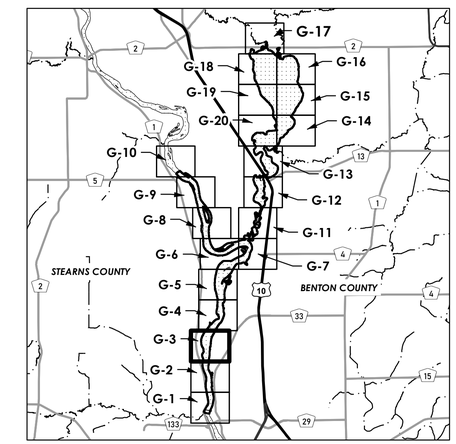
SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-4



MATCH EXHIBIT G-2





LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

Map Note:
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ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX Date

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

4-11-22

BY: JASON NESS DATE

JASON NESS
LICENSED LAND SURVEYOR
43565
STATE OF MINNESOTA

EXHIBIT G- 3

EAGLE CREEK SARTELL HYDRO, LLC SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

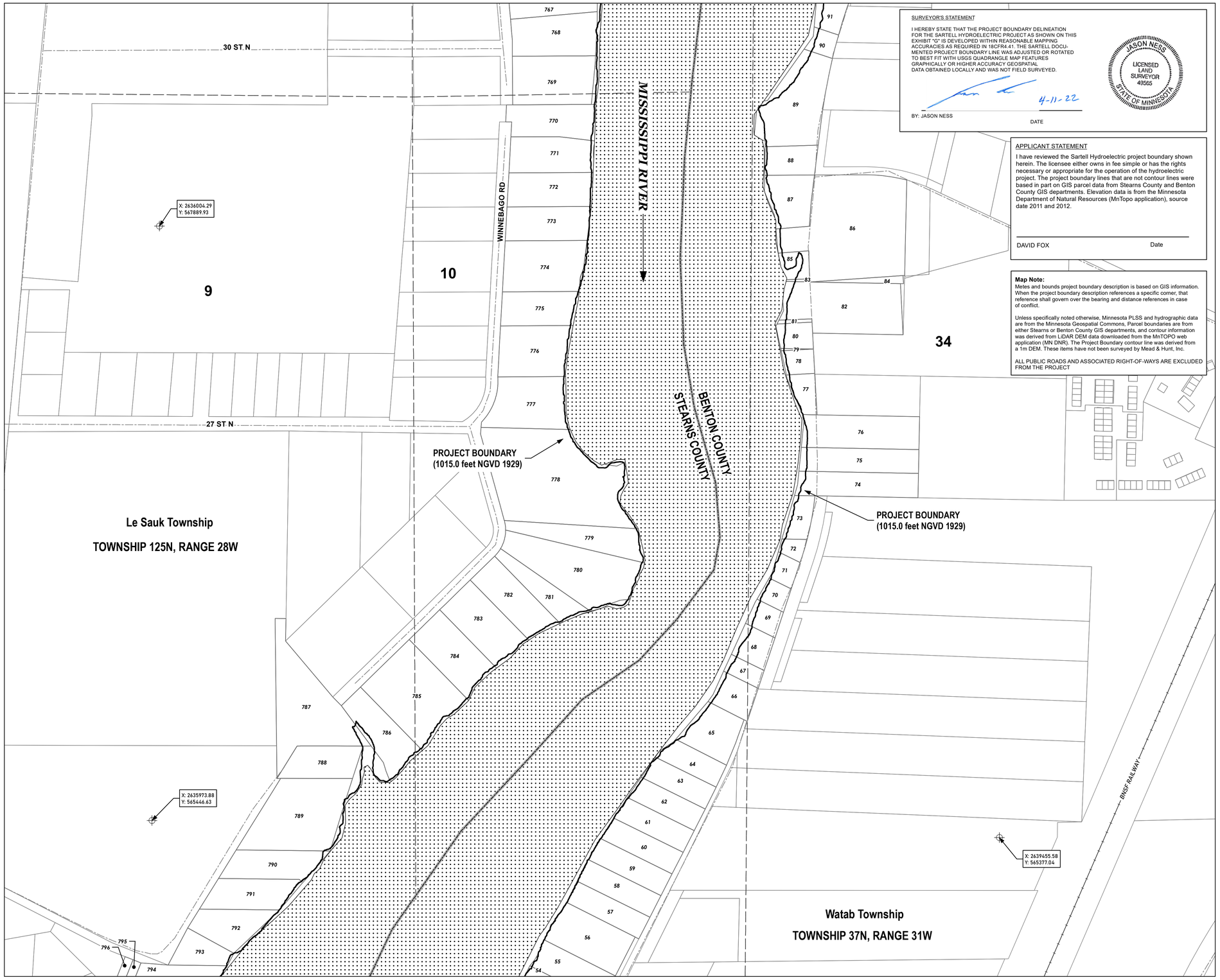
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-5



MATCH EXHIBIT G-3

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

BY: JASON NESS — DATE: 4-11-22

JASON NESS — LICENSED LAND SURVEYOR 43565 — STATE OF MINNESOTA

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX — Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

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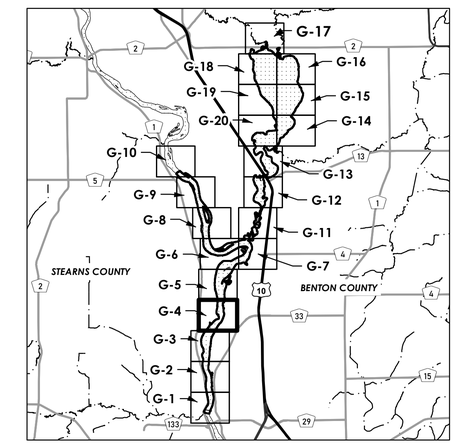
ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

MN — 0° 45' E

2022 Magnetic north declination at Sartell Dam



LEGEND

Project Boundary	Parcel Boundary	Section Line
Reference Point Location	Fee Simple Ownership	County Line
Project Boundary Point	Numbered Parcel*	Railroad
Recreation Site	Municipal Boundary	Street Centerline
Project Feature	Offset Line	Stream
Non-Project Lands		Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 4

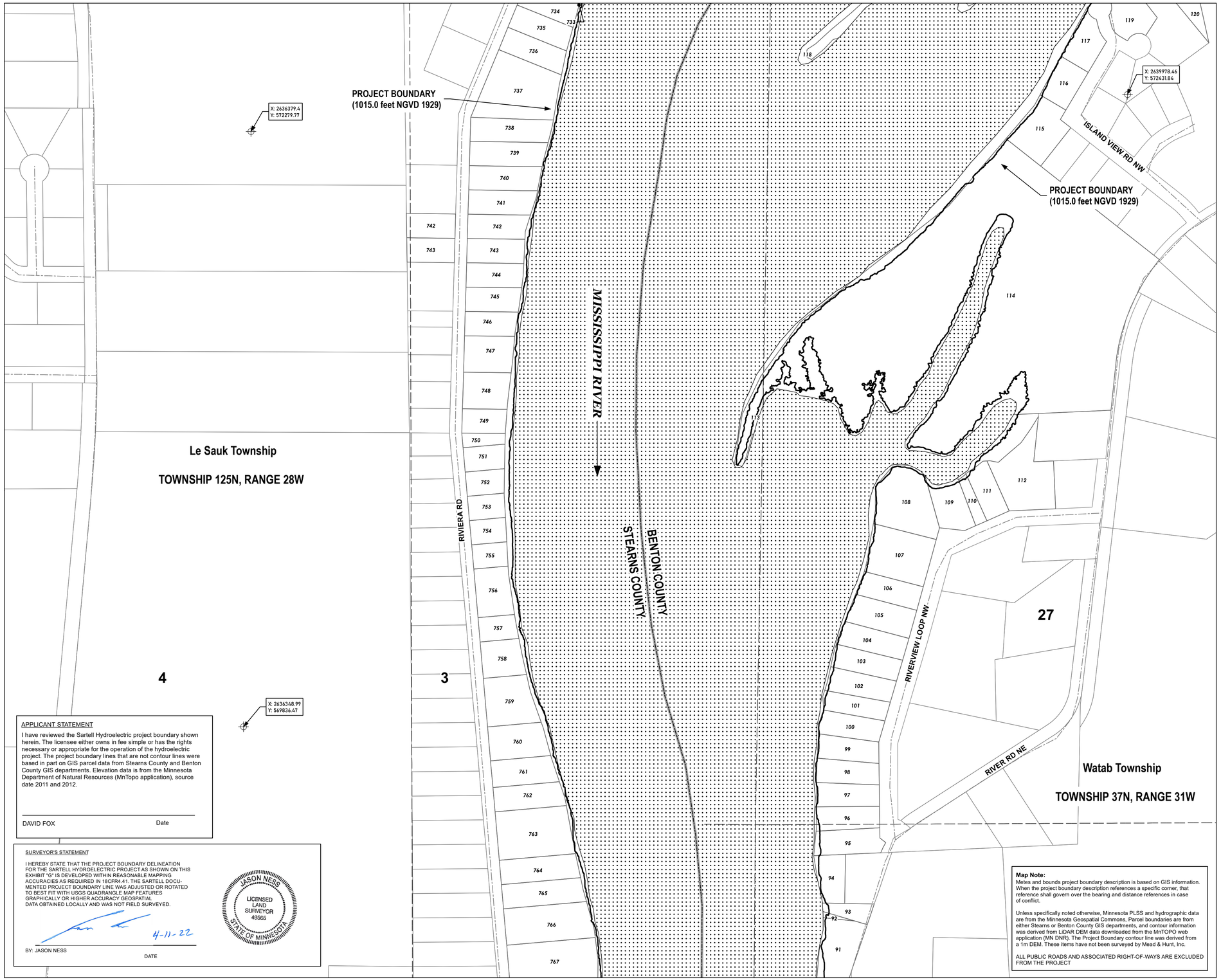
EAGLE CREEK SARTELL HYDRO, LLC — SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT
FERC PROJECT No. 8315
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA
PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-6



APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX Date

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

4-11-22

BY: JASON NESS DATE

JASON NESS
LICENSED LAND SURVEYOR 40565
STATE OF MINNESOTA

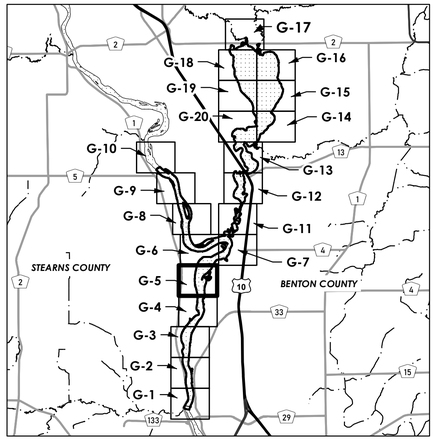
Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

MATCH EXHIBIT G-4

MN
0° 45' E
2022 Magnetic north declination at Sartell Dam



LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 5

EAGLE CREEK SARTELL HYDRO, LLC SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

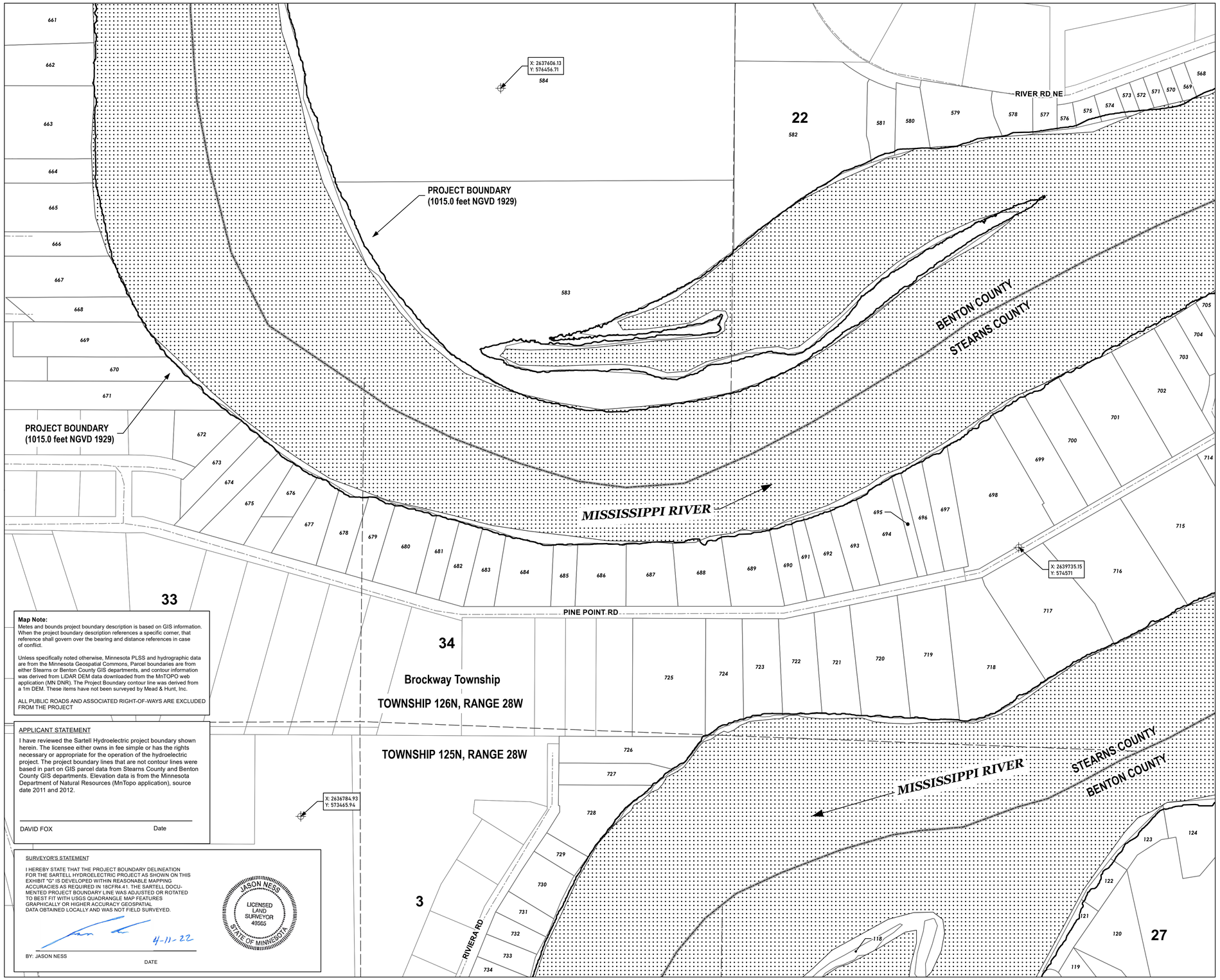
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-8



MATCH EXHIBIT G-7

MATCH EXHIBIT G-5

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

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APPLICANT STATEMENT

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DAVID FOX Date

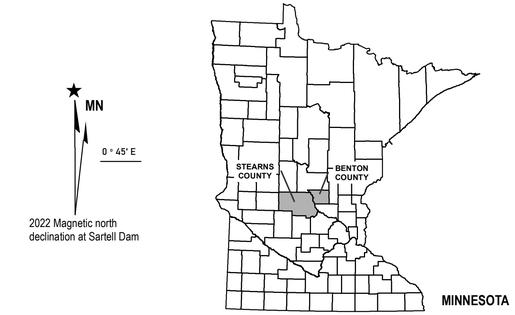
SURVEYOR'S STATEMENT

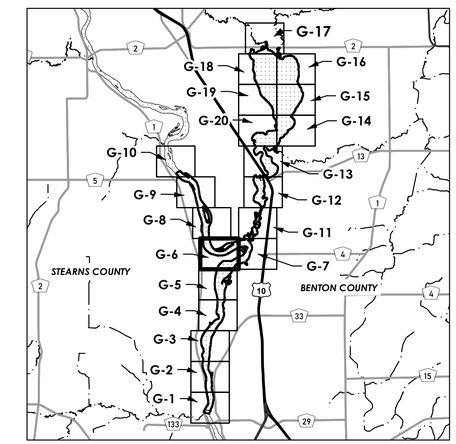
I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS
LICENSED LAND SURVEYOR 49365
STATE OF MINNESOTA

4-11-22

BY: JASON NESS DATE





LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- 56 Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 6

EAGLE CREEK SARTELL HYDRO, LLC — SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-11

MATCH EXHIBIT G-6

MISSISSIPPI RIVER

STEARNS COUNTY

BENTON COUNTY

PROJECT BOUNDARY
(1015.0 feet NGVD 1929)

JASMINE LOOP NW

RIVER RD NE

PEACE ROCK RD NW

BNSF RAILWAY

34

22

23

27

26

Watab Township

TOWNSHIP 37N, RANGE 31W

X: 2644713
Y: 576314.77

X: 2644834.66
Y: 574124.92

X: 2641367.4
Y: 573050.27

Map Note:
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DAVID FOX Date

SURVEYOR'S STATEMENT

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4-11-22

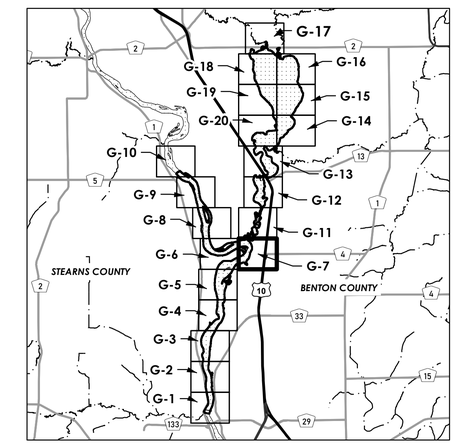
BY: JASON NESS DATE

JASON NESS
LICENSED LAND SURVEYOR
49565
STATE OF MINNESOTA

MN

0 ° 45' E

2022 Magnetic north declination at Sartell Dam



LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- 56 Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
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Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 7

EAGLE CREEK SARTELL HYDRO, LLC SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

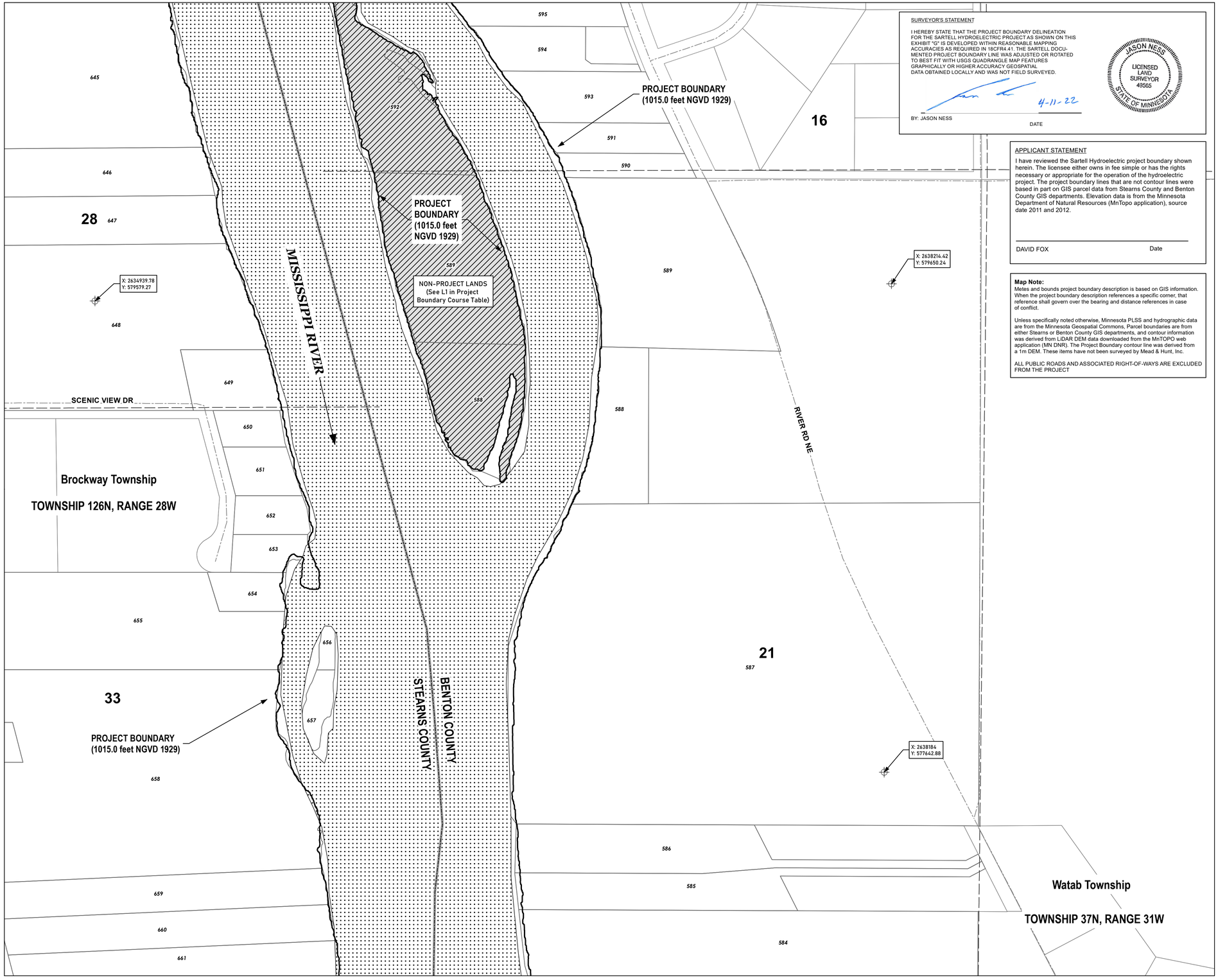
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-9



MATCH EXHIBIT G-6

SURVEYOR'S STATEMENT

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BY: JASON NESS — DATE: 4-11-22

JASON NESS
LICENSED LAND SURVEYOR
49565
STATE OF MINNESOTA

APPLICANT STATEMENT

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DAVID FOX — Date

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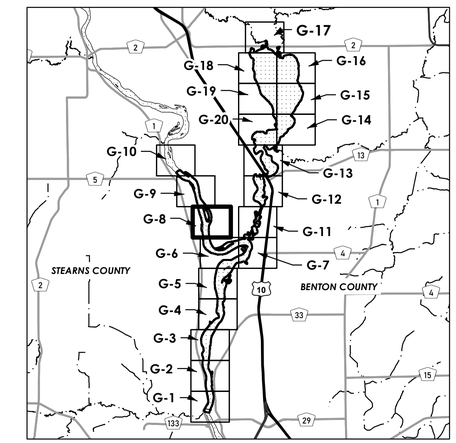
ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

MN
0 ° 45' E
2022 Magnetic north declination at Sartell Dam



LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

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Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 8

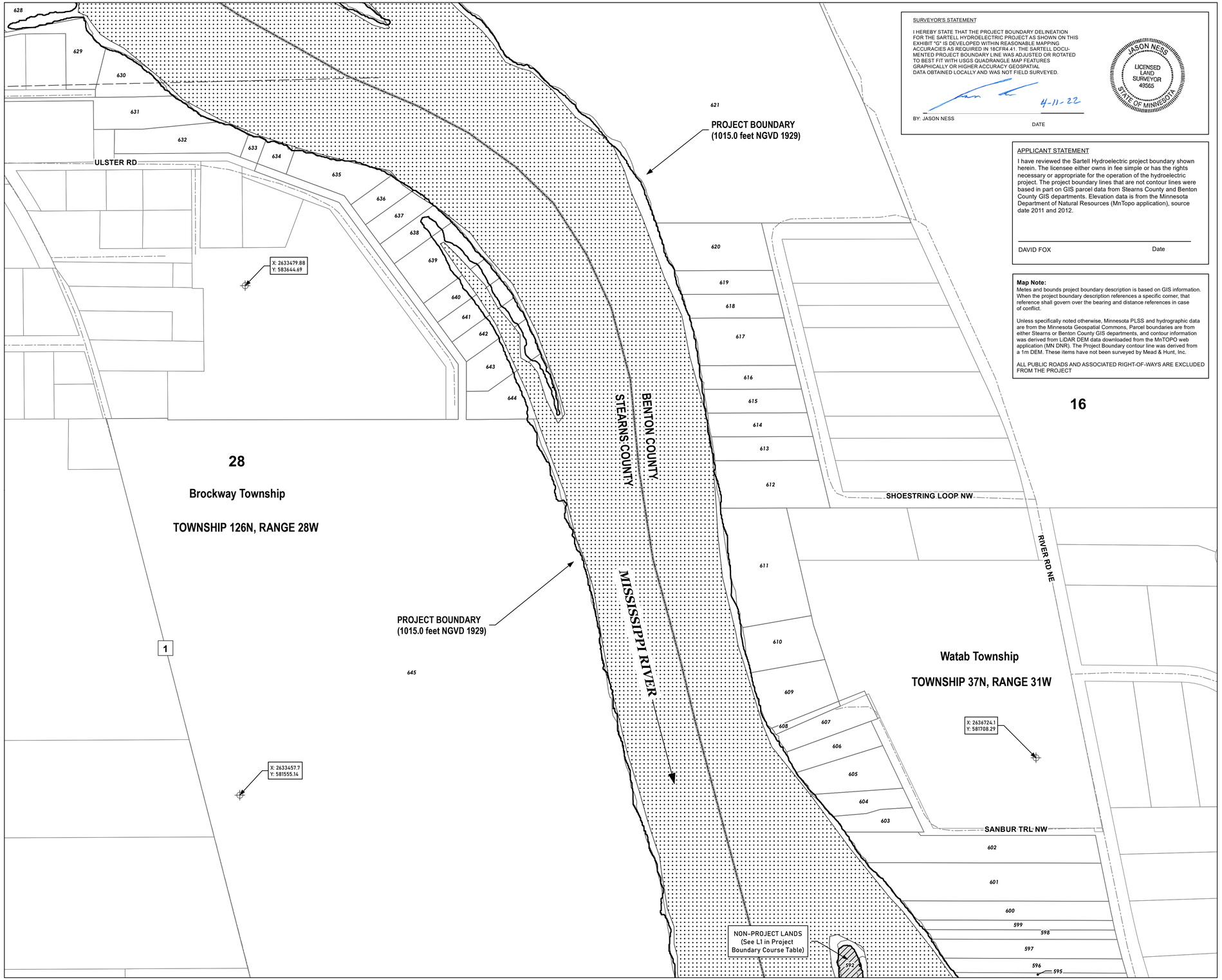
EAGLE CREEK SARTELL HYDRO, LLC — SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT
FERC PROJECT No. 8315
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA
PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-10



MATCH EXHIBIT G-8

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS
LICENSED LAND SURVEYOR 49565
STATE OF MINNESOTA

4-11-22

BY: JASON NESS DATE

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

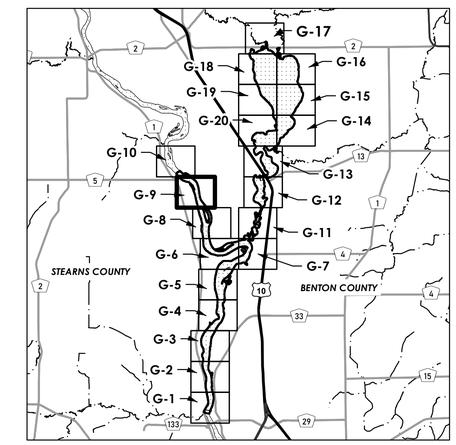
Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

MN

0 ° 45' E

2022 Magnetic north declination at Sartell Dam



LEGEND

Project Boundary	Parcel Boundary	Section Line
Reference Point Location	Fee Simple Ownership	County Line
Project Boundary Point	56 Numbered Parcel*	Railroad
Recreation Site	Municipal Boundary	Street Centerline
Project Feature	Offset Line	Stream
Non-Project Lands	* See Exhibit G-21 - 24 for ownership information for numbered parcels	Open Water/River

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

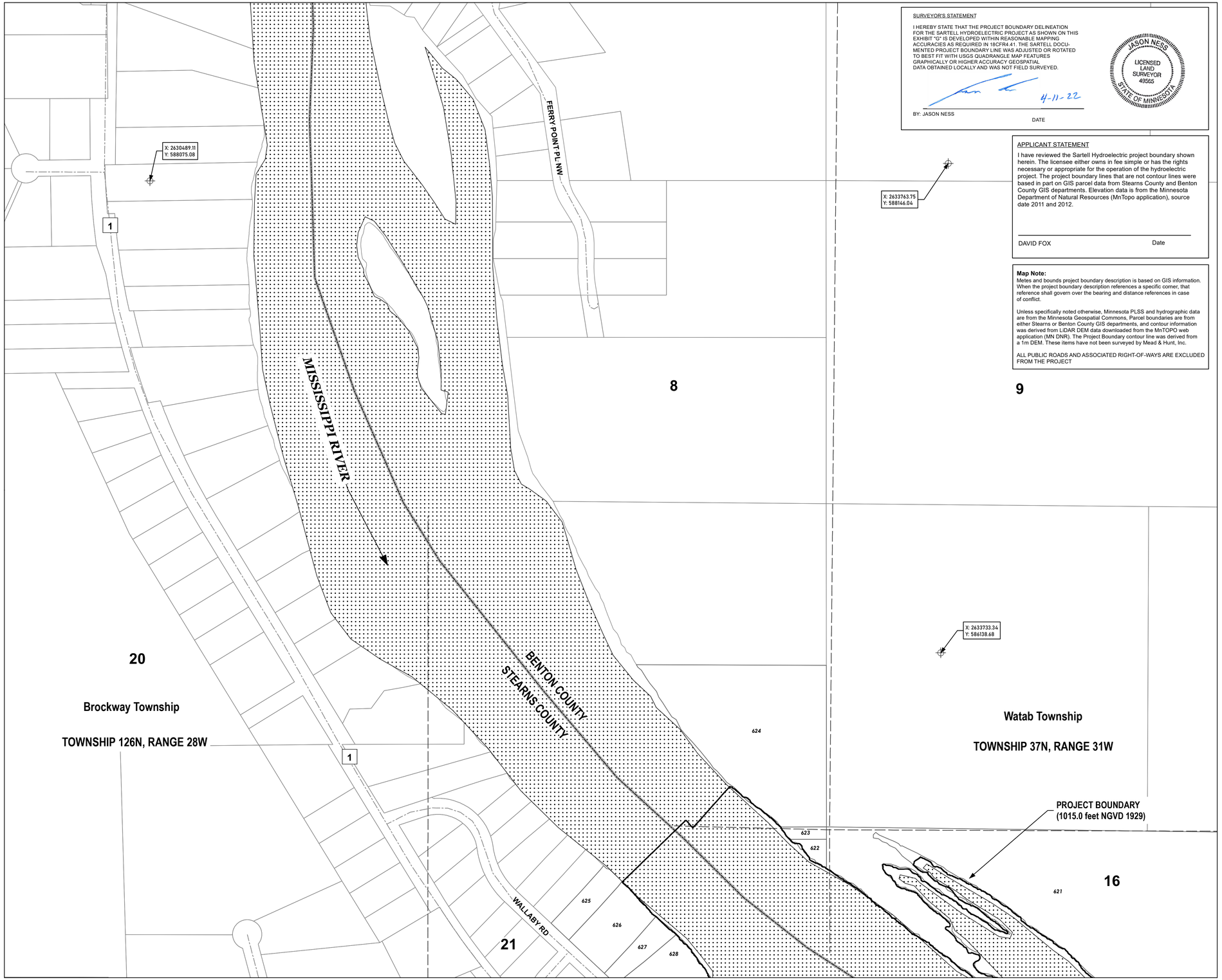
EXHIBIT G- 9

EAGLE CREEK SARTELL HYDRO, LLC SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT
FERC PROJECT No. 8315
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA
PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022



SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS
LICENSED LAND SURVEYOR 49565
STATE OF MINNESOTA

4-11-22

BY: JASON NESS

DATE

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX

Date

Map Note:
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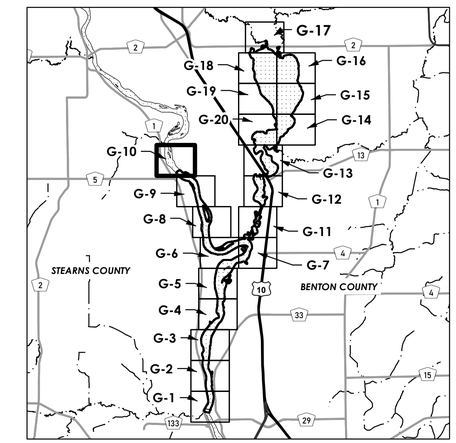
Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

MN

0 ° 45' E

2022 Magnetic north declination at Sartell Dam



LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- 56 Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 10

EAGLE CREEK SARTELL HYDRO, LLC **SARTELL, MINNESOTA**

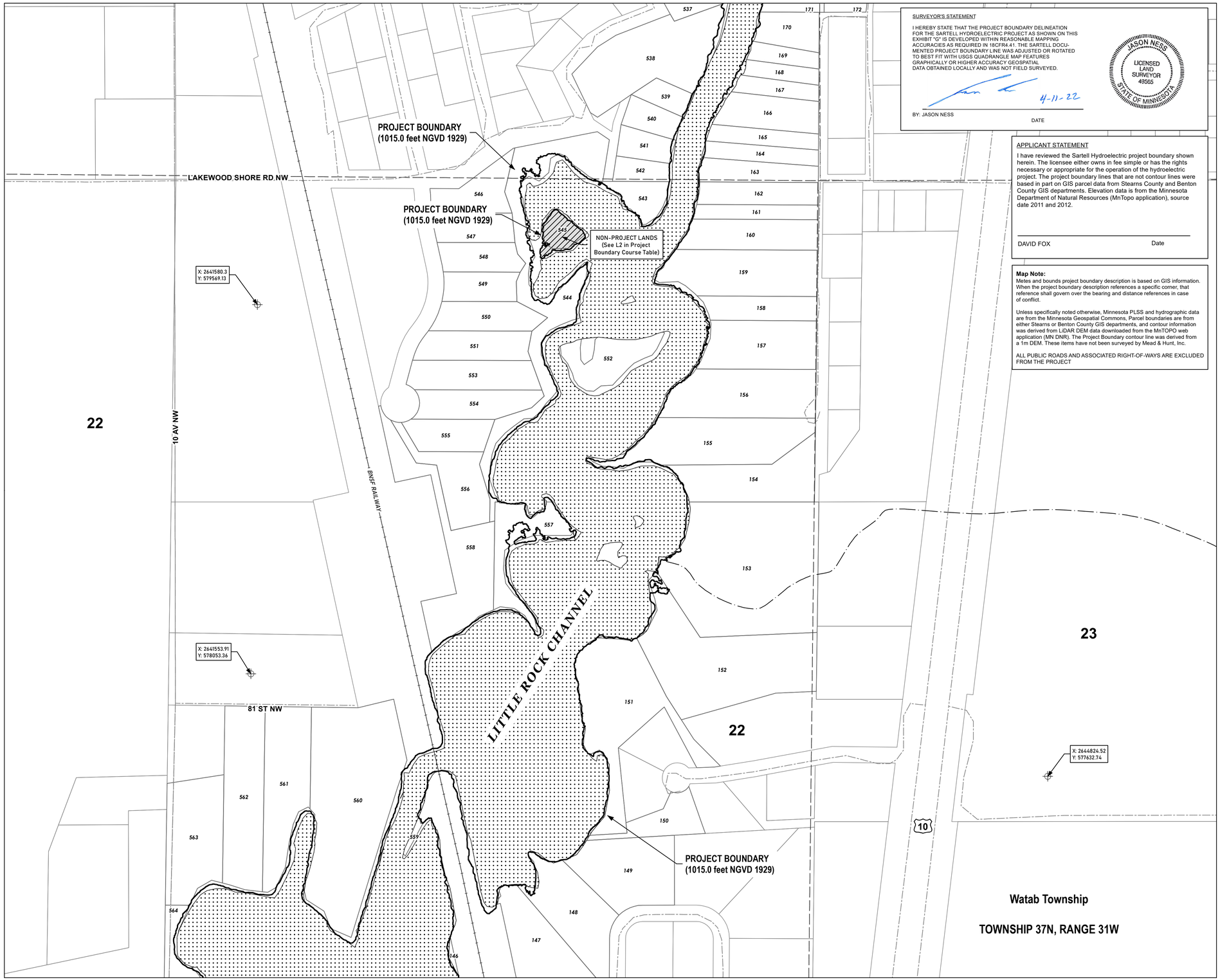
SARTELL HYDROELECTRIC PROJECT
FERC PROJECT No. 8315
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA
PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-9

MATCH EXHIBIT G-12



MATCH EXHIBIT G-7

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS
LICENSED LAND SURVEYOR 49565
STATE OF MINNESOTA

4-11-22

BY: JASON NESS DATE

APPLICANT STATEMENT

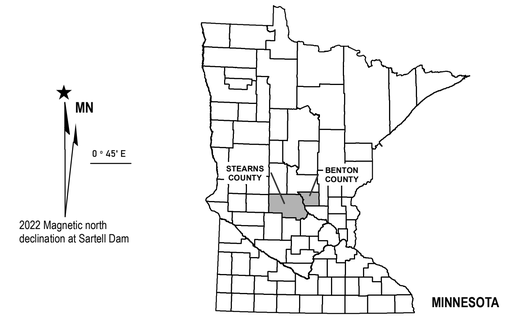
I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

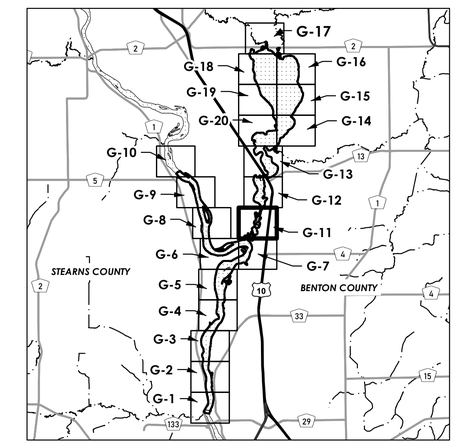
DAVID FOX Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT





LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 11

EAGLE CREEK SARTELL HYDRO, LLC SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

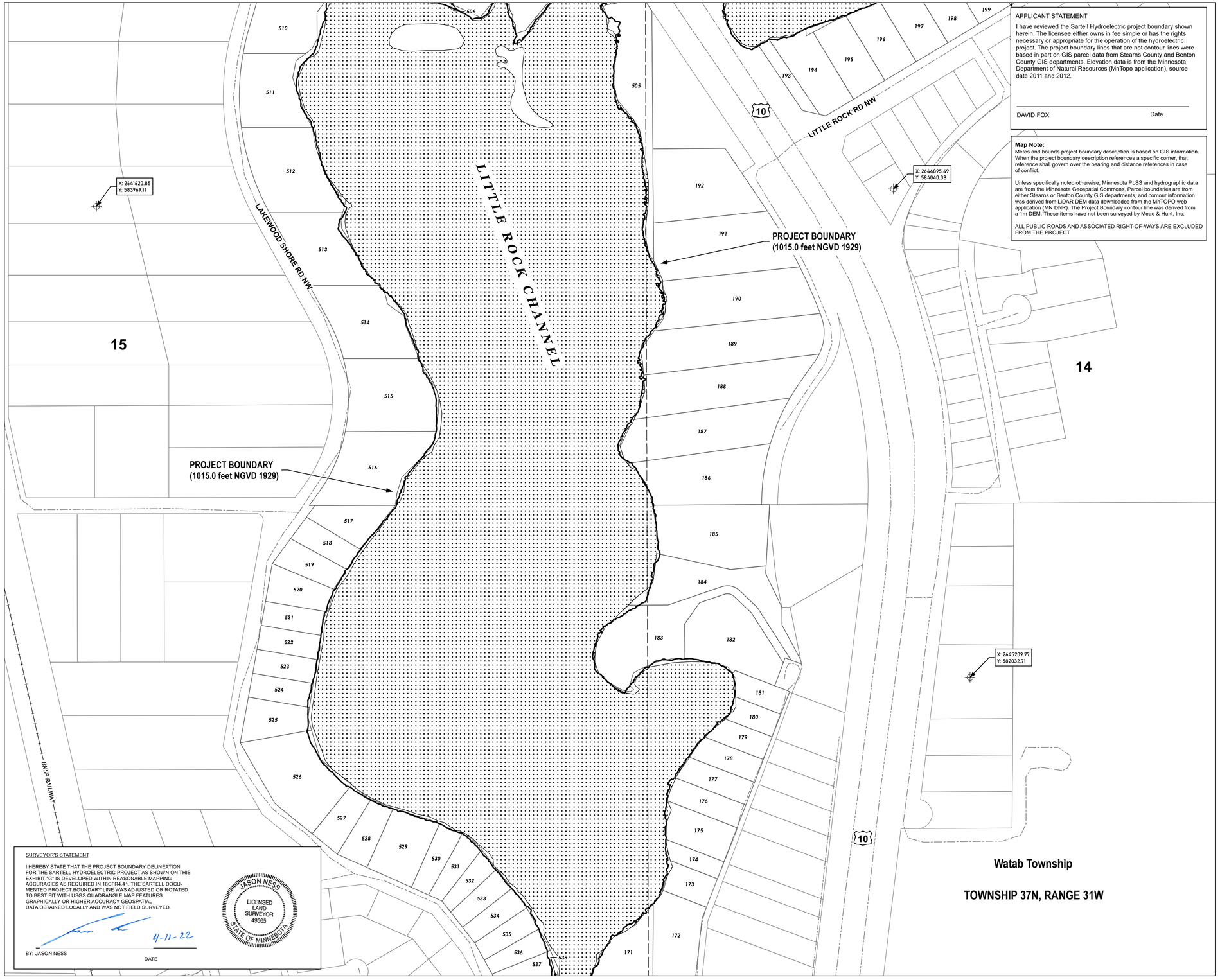
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-13



APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS
LICENSED LAND SURVEYOR 49565
STATE OF MINNESOTA

4-11-22

BY: JASON NESS DATE

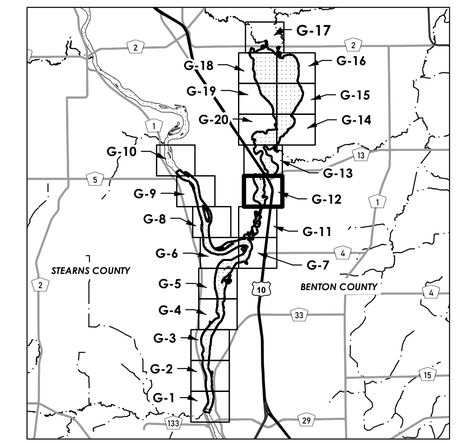
MATCH EXHIBIT G-11

MN

0 ° 45' E

2022 Magnetic north declination at Sartell Dam

MINNESOTA



LEGEND

Project Boundary	Parcel Boundary	Section Line
Reference Point Location	Fee Simple Ownership	County Line
Project Boundary Point	Numbered Parcel*	Railroad
Recreation Site	Municipal Boundary	Street Centerline
Project Feature	Offset Line	Stream
Non-Project Lands		Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 12

EAGLE CREEK SARTELL HYDRO, LLC SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

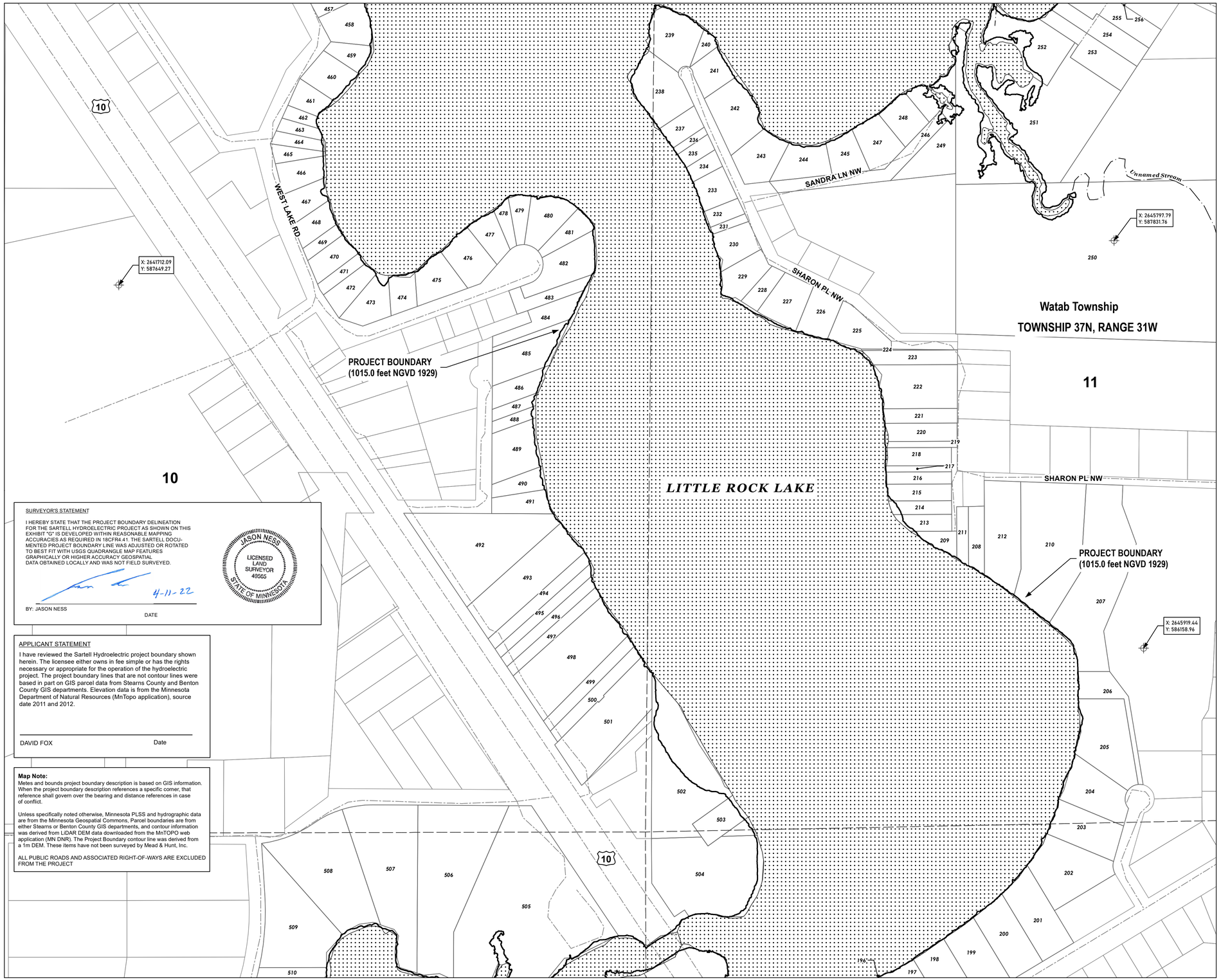
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-20



SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS
LICENSED LAND SURVEYOR 49365
STATE OF MINNESOTA

4-11-22

BY: JASON NESS DATE

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX Date

Map Note:
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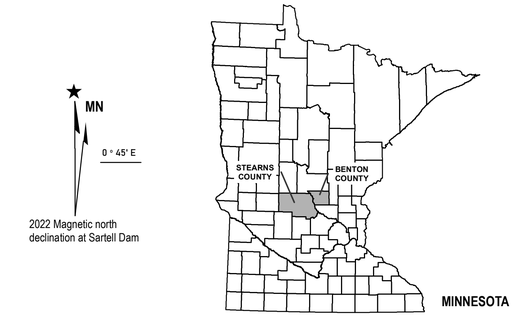
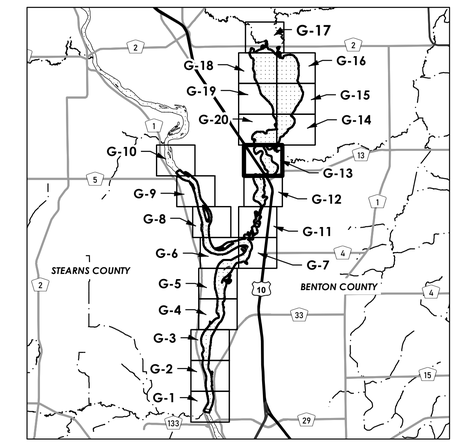
ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

MATCH EXHIBIT G-12





LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 13

EAGLE CREEK SARTELL HYDRO, LLC **SARTELL, MINNESOTA**

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

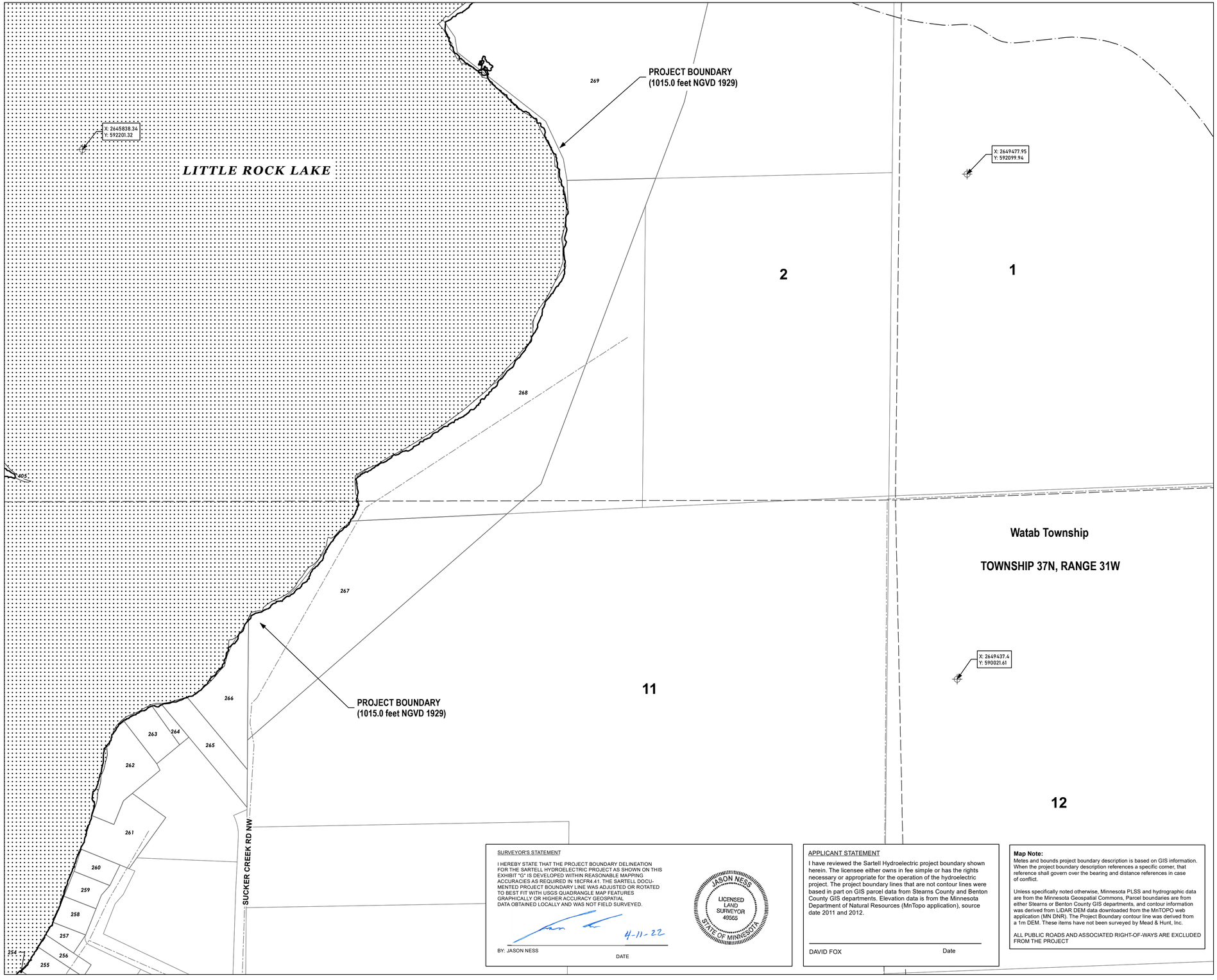
PROJECT BOUNDARY MAP

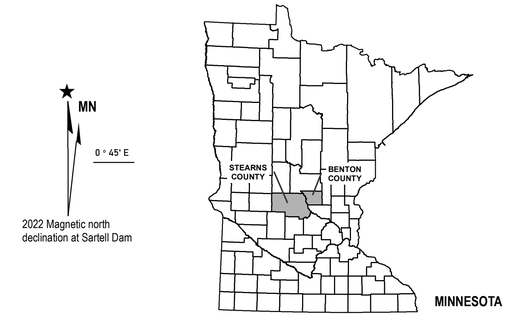
Mead & Hunt

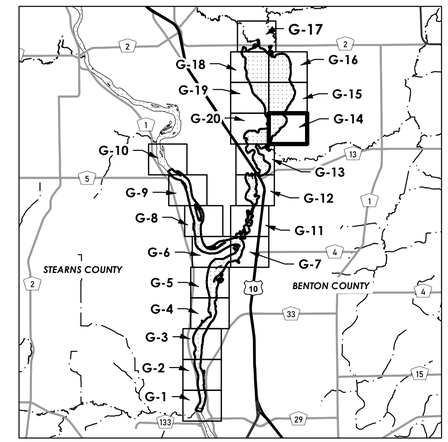
SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-15

MATCH EXHIBIT G-20







LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- 56 Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 14

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

4-11-22

BY: JASON NESS DATE

JASON NESS
LICENSED LAND SURVEYOR
49565
STATE OF MINNESOTA

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX Date

Map Note:
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ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

EAGLE CREEK SARTELL HYDRO, LLC **SARTELL, MINNESOTA**

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

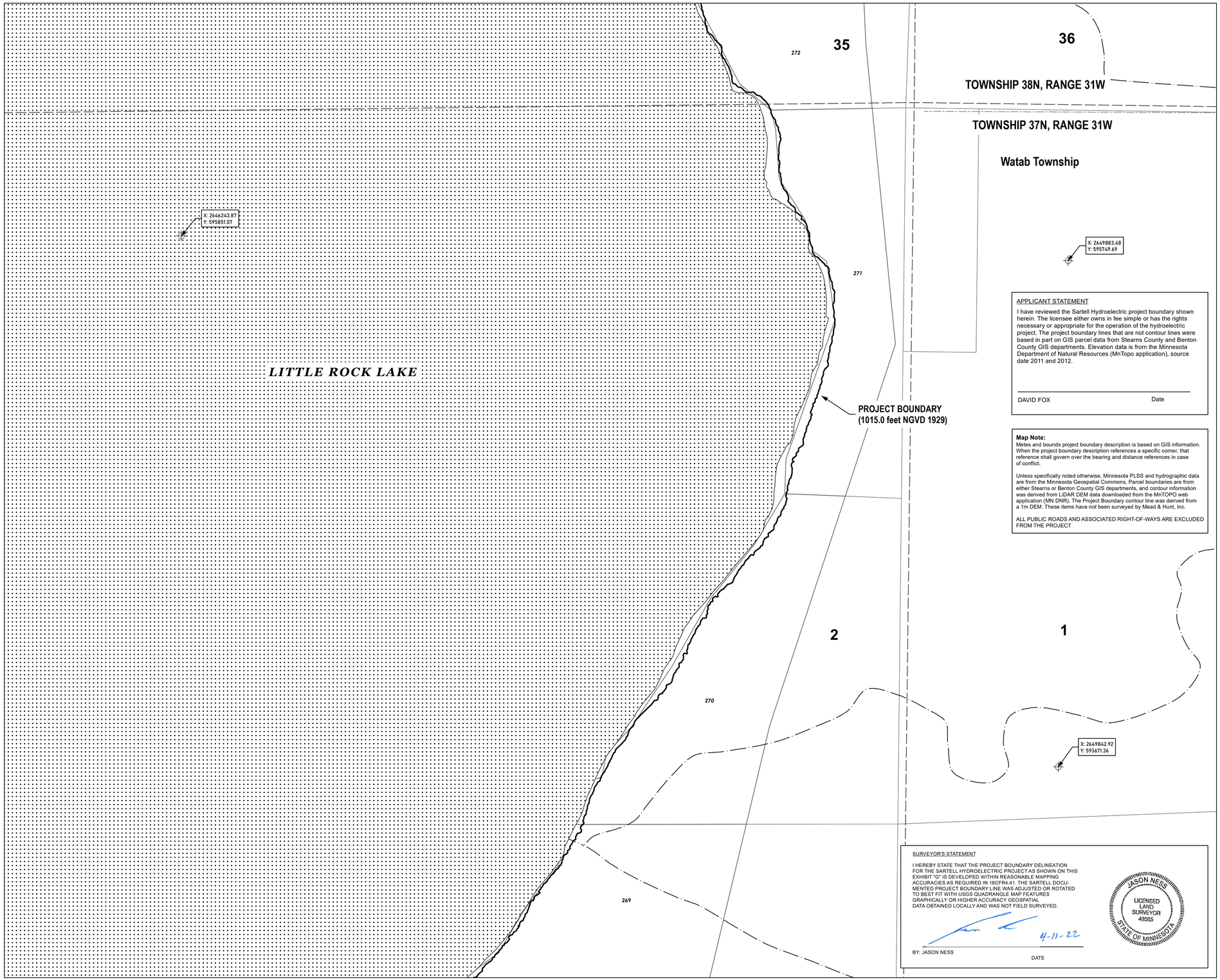
PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-16

MATCH EXHIBIT G-19



APPLICANT STATEMENT

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DAVID FOX Date

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SURVEYOR'S STATEMENT

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4-11-22

BY: JASON NESS DATE

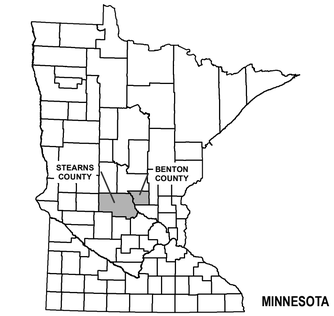
JASON NESS
LICENSED LAND SURVEYOR
43565
STATE OF MINNESOTA

MATCH EXHIBIT G-14

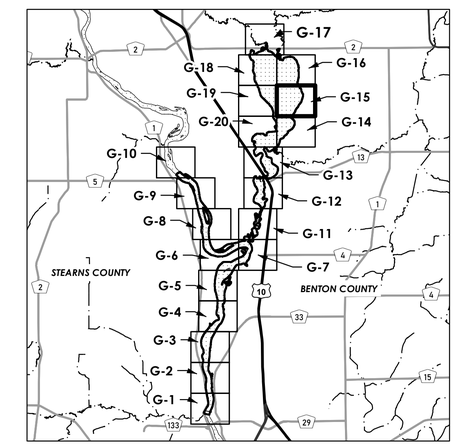
MN

0 ° 45' E

2022 Magnetic north declination at Sartell Dam



MINNESOTA



LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- 56 Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 15

EAGLE CREEK SARTELL HYDRO, LLC SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

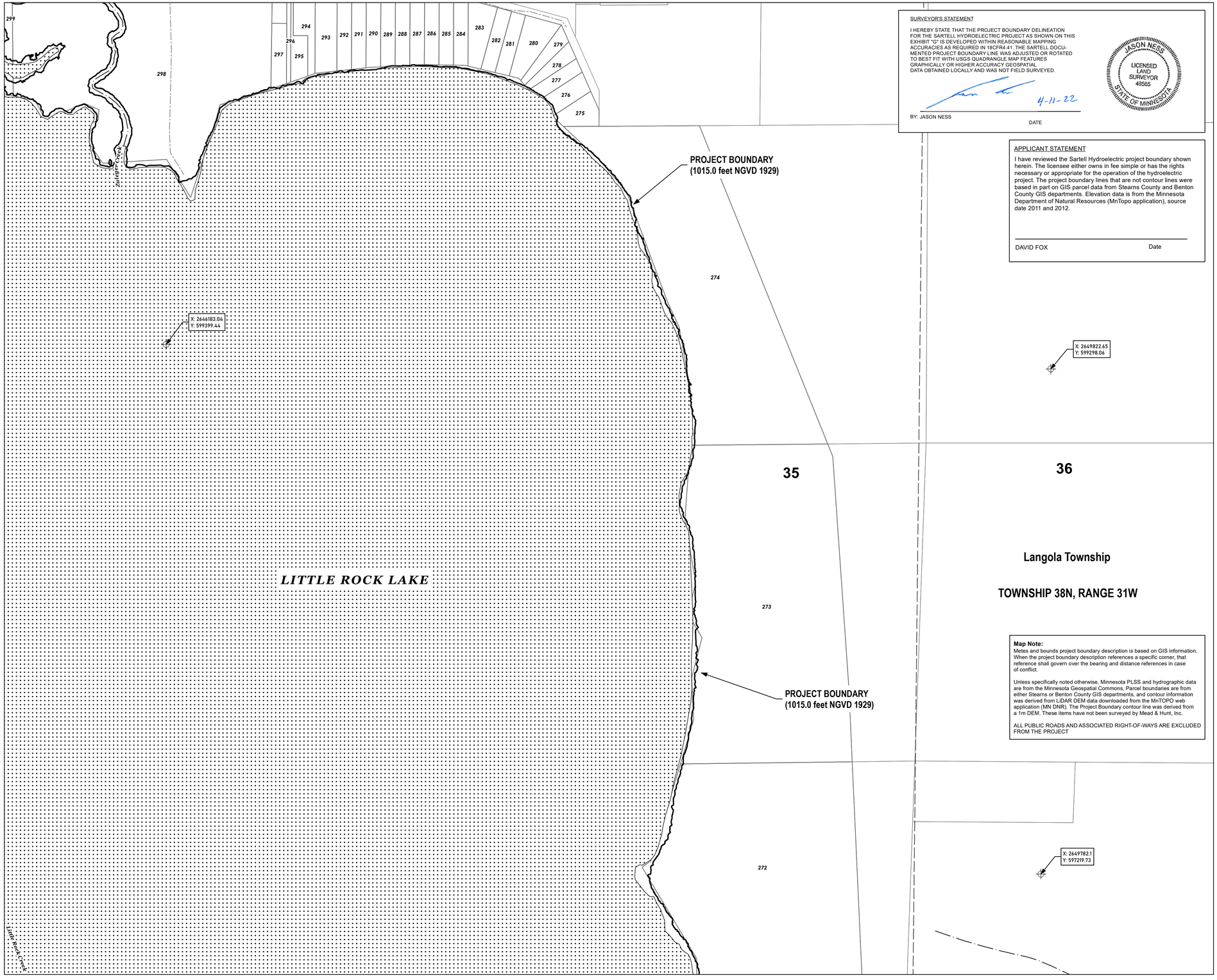
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-18



MATCH EXHIBIT G-15

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

4-11-22

BY: JASON NESS

DATE

JASON NESS
LICENSED LAND SURVEYOR
49565
STATE OF MINNESOTA

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX

Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

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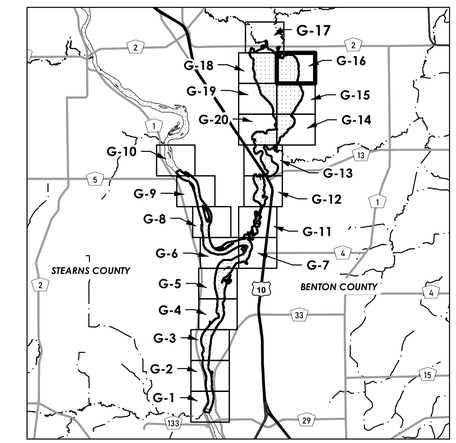
ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

MN

0 ° 45' E

2022 Magnetic north declination at Sartell Dam



LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- 56 Numbered Parcel*
- Municipal Boundary
- Offset Line
- Section Line
- County Line
- Railroad
- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 16

EAGLE CREEK SARTELL HYDRO, LLC **SARTELL, MINNESOTA**

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

FERC NO. 8315-XX

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

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ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX Date

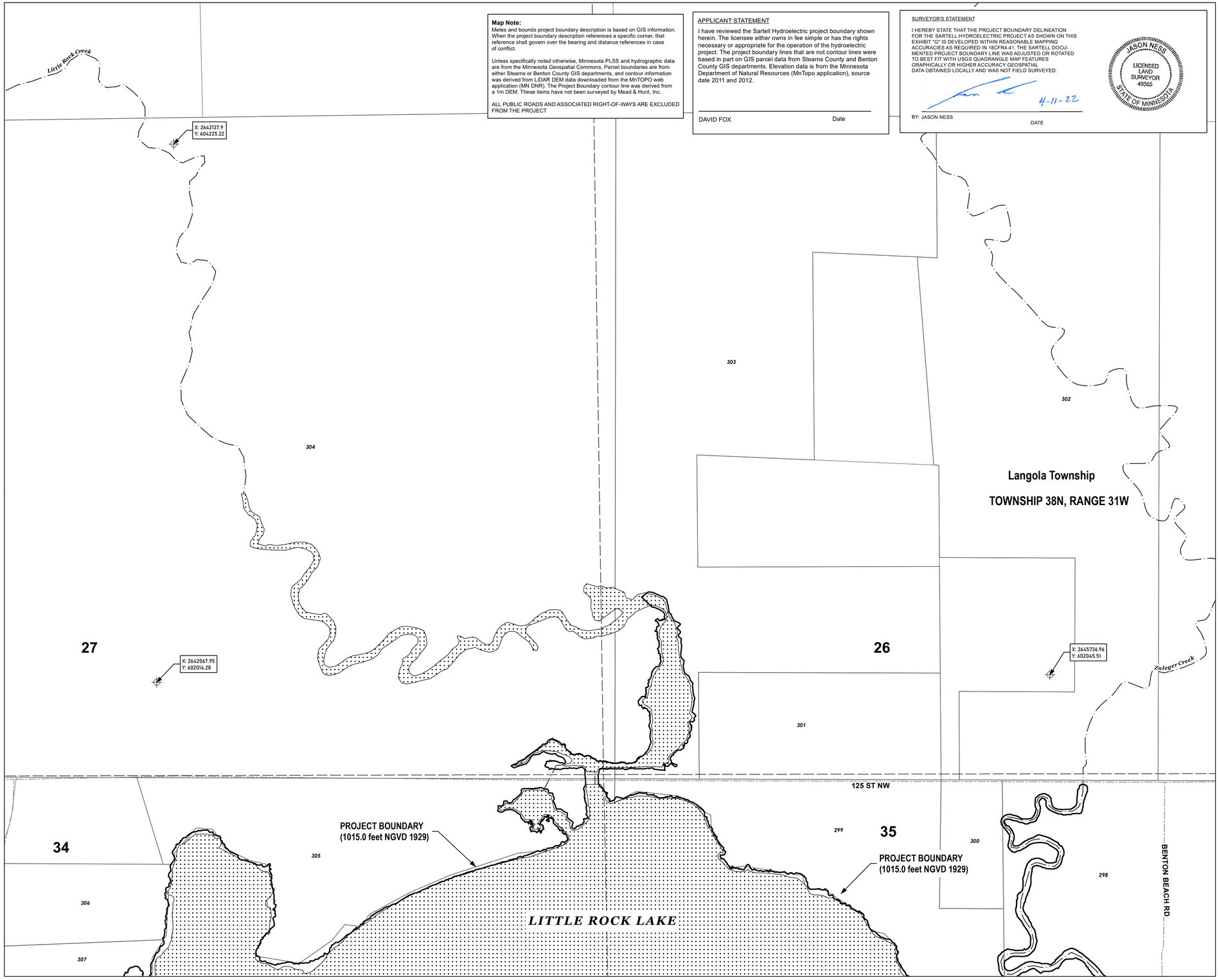
SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

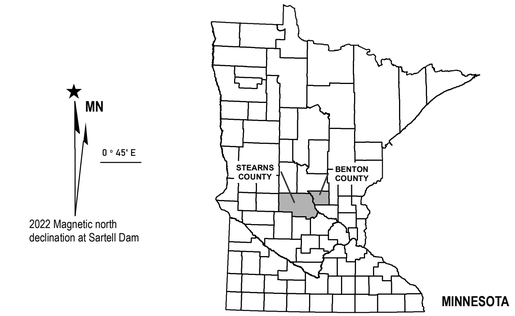
4-11-22

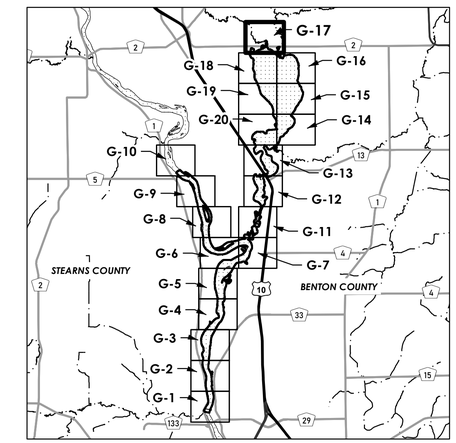
BY: JASON NESS DATE

JASON NESS
LICENSED LAND SURVEYOR
49565
STATE OF MINNESOTA



MATCH EXHIBIT G-18





LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
- Non-Project Lands
- Parcel Boundary
- Fee Simple Ownership
- 56 Numbered Parcel*
- Municipal Boundary
- Offset Line
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- Street Centerline
- Stream
- Open Water/River

* See Exhibit G-21 - 24 for ownership information for numbered parcels

0 100 200 400 600 800 Feet

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G- 17

EAGLE CREEK SARTELL HYDRO, LLC **SARTELL, MINNESOTA**

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

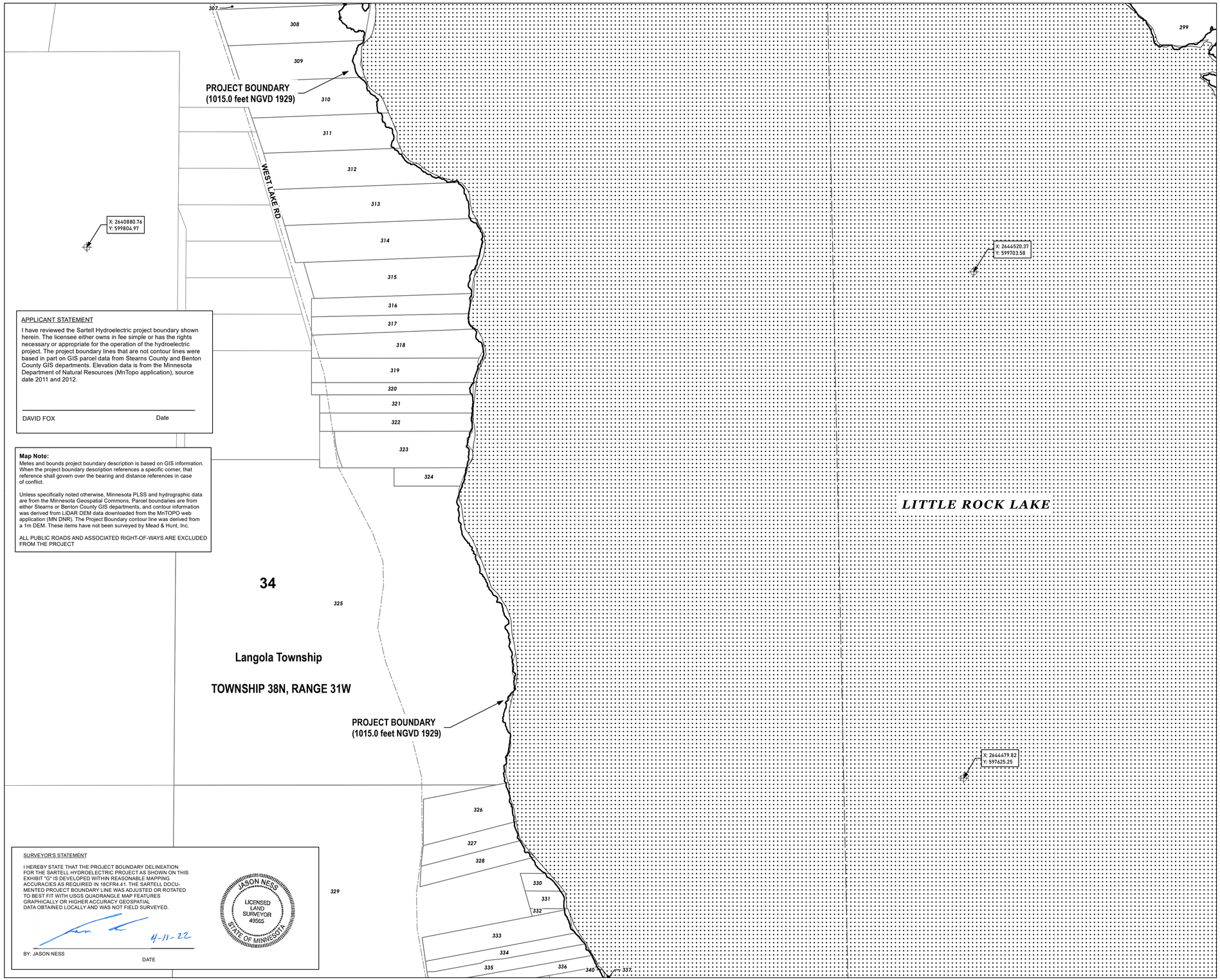
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-17



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DAVID FOX Date

Map Note:
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ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

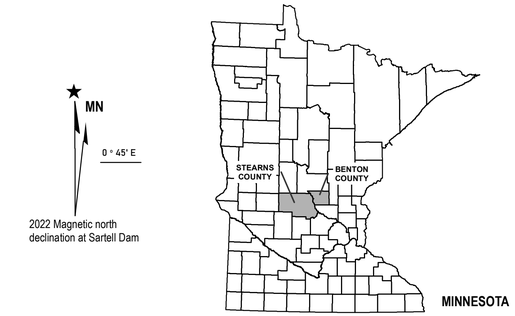
JASON NESS
LICENSED LAND SURVEYOR 49565
STATE OF MINNESOTA

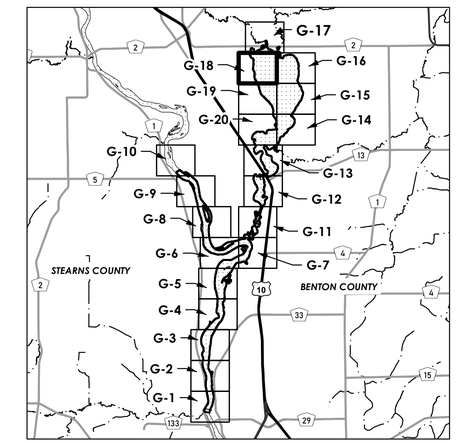
4-11-22

BY: JASON NESS DATE

MATCH EXHIBIT G-19

MATCH EXHIBIT G-16





LEGEND

- Project Boundary
- Reference Point Location
- Project Boundary Point
- Recreation Site
- Project Feature
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0 100 200 400 600 800 Feet

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EXHIBIT G- 18

EAGLE CREEK SARTELL HYDRO, LLC — SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

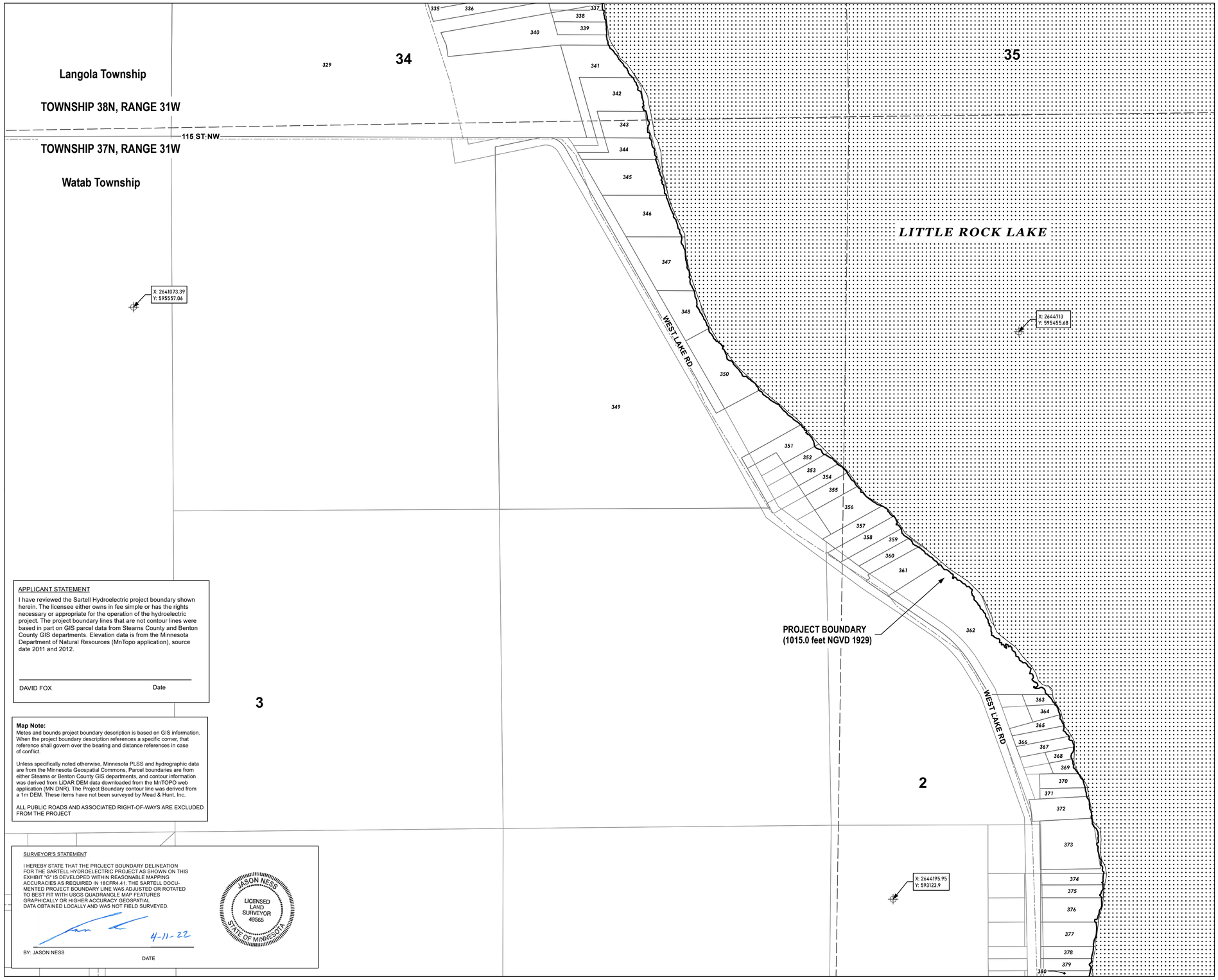
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

MATCH EXHIBIT G-18



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DAVID FOX Date

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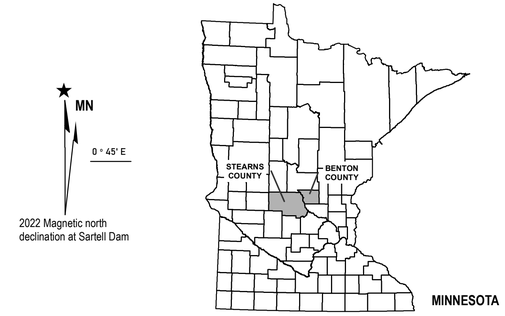
JASON NESS
LICENSED LAND SURVEYOR 49565
STATE OF MINNESOTA

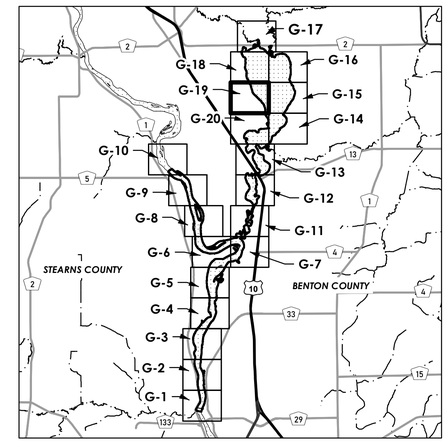
4-11-22

BY: JASON NESS DATE

MATCH EXHIBIT G-20

MATCH EXHIBIT G-15





LEGEND

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EXHIBIT G- 19

EAGLE CREEK SARTELL HYDRO, LLC — SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

SCALE: AS SHOWN
DATE: JUNE 2022

SURVEYOR'S STATEMENT

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STATE OF MINNESOTA

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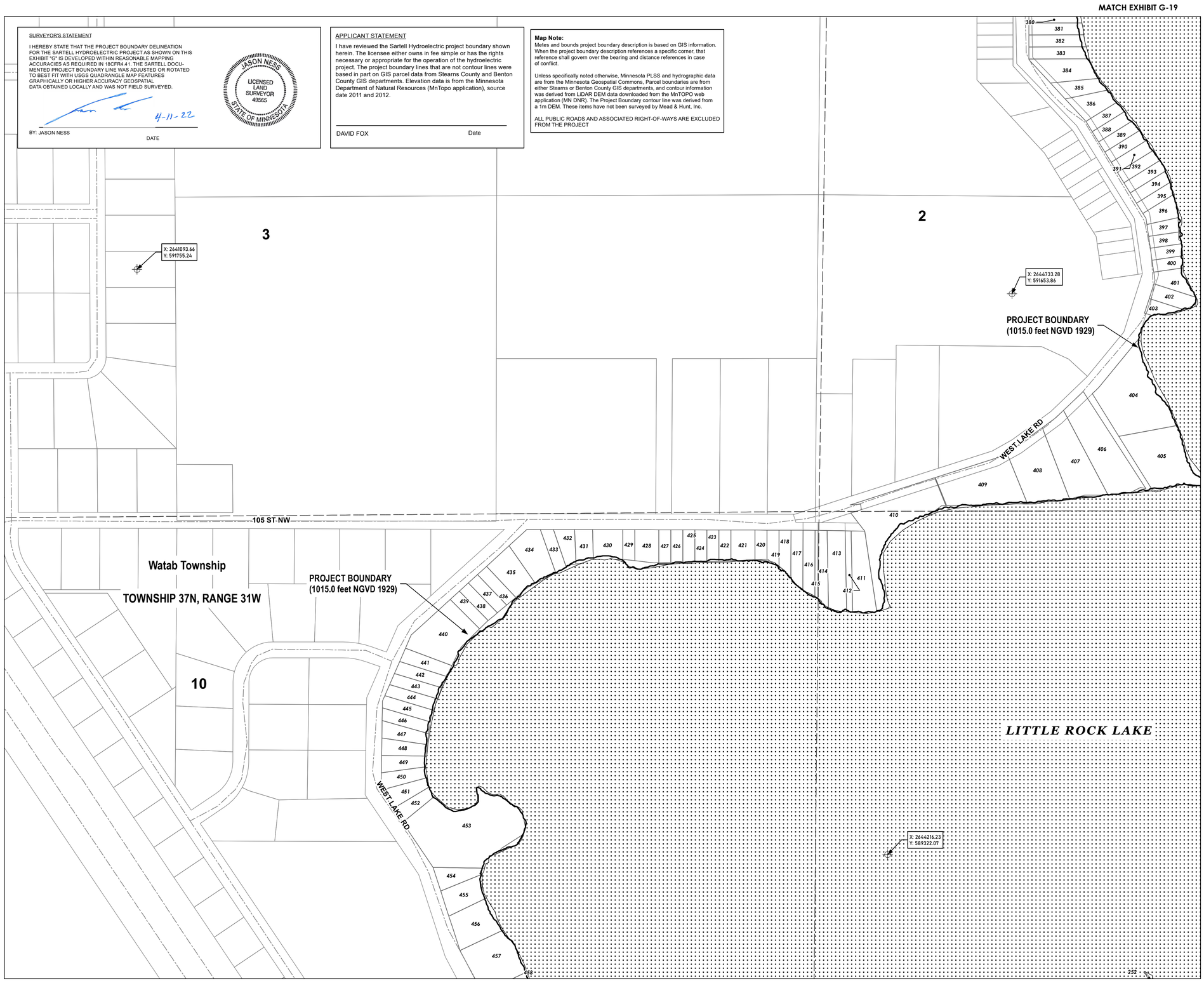

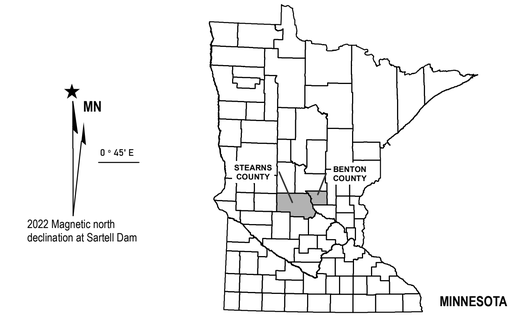

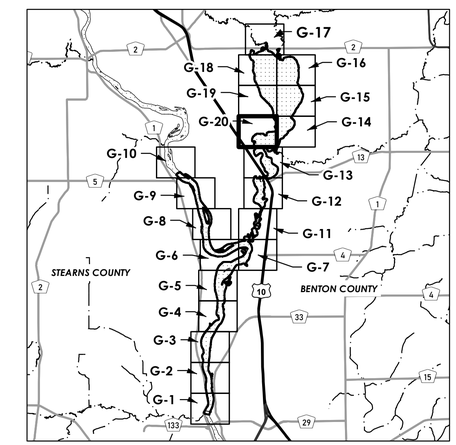

LEGEND

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EXHIBIT G- 20

EAGLE CREEK SARTELL HYDRO, LLC — SARTELL, MINNESOTA

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

Mead & Hunt

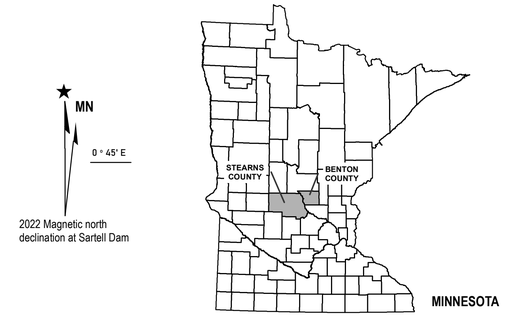
SCALE: AS SHOWN
DATE: JUNE 2022

BENTON COUNTY OWNERSHIP

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
180000100	AIM DEVELOPMENT (USA) LLC	PRIVATE	1
180000108	EAGLE CREEK SARTELL HYDRO LLC	LICENSEE	2
180000103	AIM DEVELOPMENT (USA) LLC	PRIVATE	3
180000200	STEVEN A SWALBOSKI	PRIVATE	4
180030500	GREGORY T AUBERT & PATRICIA A AUBERT	PRIVATE	5
180030501	GERALD M SAGEN & NADINE E SAGEN	PRIVATE	6
180037100	GERALD M SAGEN & NADINE E SAGEN	PRIVATE	7
180037000	STEPHEN F LAAKSO & DEBI A LAAKSO	PRIVATE	8
110030500	GEORGE BUKOVICH JOINT LIV TR & M JEAN BUKOVICH JOINT LIV TR	PRIVATE	9
110030400	KEVIN G ERTL	PRIVATE	10
110030300	THOMAS H LENARZ & PHYLLIS L LENARZ	PRIVATE	11
110030200	DIANE HAFFNER	PRIVATE	12
110030100	MICHELLE A PEACOCK ETAL C/O CHERYL L REBERG	PRIVATE	13
110030000	TRACY L PEACOCK & MICHELLE A PEACOCK	PRIVATE	14
110029900	JOAN M GERMANN REV TR	PRIVATE	15
110030501	DALE J FRIES & J CHRISTIE FRIES	PRIVATE	16
110006500	THOMAS & MARY PESCH TR AGMT	PRIVATE	17
110006400	ADRIAN T SEGUIN & SHANNA M SEGUIN	PRIVATE	18
110006300	CYNTHIA L HAUS REV TR	PRIVATE	19
110006200	JASON R WESTRE & KELLY A WESTRE	PRIVATE	20
110006000	WENDELL D TIMMER & CARLA J TIMMER	PRIVATE	21
110026500	JANE H FRANK REV TR	PRIVATE	22
110026400	JANE H FRANK REV TR	PRIVATE	23
110026200	DAWN P LARSON REV TR	PRIVATE	24
110026100	JEFFREY A STRAND & KIMBERLY L STRAND	PRIVATE	25
110026000	ROGER A SCHMITZ & DICHELLE HAPPKE	PRIVATE	26
110025900	MATTHEW S LEE & AMY J LEE	PRIVATE	27
110025800	CRAIG J BRAUN & CARIE A BRAUN	PRIVATE	28
110025700	STEVEN DANCER	PRIVATE	29
110025600	PAUL J OLSON REV TR	PRIVATE	30
110025500	DAVID A WARD & JOY M WARD	PRIVATE	31
110025400	JOHN J AHRENS & KATHLEEN AHRENS	PRIVATE	32
110025300	PATRICIA BERGSTROM & LAWRENCE BERGSTROM	PRIVATE	33
110025001	STATE OF MINNESOTA MN DEPT OF TRANSPORTATION	PUBLIC	34
110025000	DANIEL J LANDWEHR	PRIVATE	35
110024900	DANIEL J LANDWEHR	PRIVATE	36
110024800	DANIEL J LANDWEHR	PRIVATE	37
110024700	BORISLAV M BANJAC	PRIVATE	38
110024600	MICHAEL C BRISTOW & BARBARA J BRISTOW	PRIVATE	39
110024500	BRETT T STOLZENBERG & CHRISTINA K ANDERSON	PRIVATE	40
110024400	BRETT T STOLZENBERG & CHRISTINA K ANDERSON	PRIVATE	41
110024300	DAVID J HENKEMEYER & DEBORAH G HENKEMEYER	PRIVATE	42
110024200	DAVID E GUNDERSON & KATHLEEN M GUNDERSON	PRIVATE	43
110024100	RICHARD J VOS	PRIVATE	44
110024002	GREGORY J SCHULTZ & PAMELA B SCHULTZ	PRIVATE	45
110024000	JOY L CHALL	PRIVATE	46
110024001	ROBERT ROSS & GRETCHEN ROSS	PRIVATE	47
120044600	JASON C AUGST & ALYSSA L AUGST	PRIVATE	48
120066400	ROBERT E WOLF	PRIVATE	49
120066300	JOHN M KALKMAN & KAREN S M KALKMAN	PRIVATE	50
120066200	JEFFREY SCHULTE & LAURIE SCHULTE	PRIVATE	51
120066100	ROBERT GROSS & MARY JANE GROSS	PRIVATE	52
120066000	BENJAMIN A BEHRENDT	PRIVATE	53
120065900	KEVIN A STRANG	PRIVATE	54
120202500	MITCHELL J RENGEL REV TR	PRIVATE	55
120202400	RUSSELL A PIKUS & WENDY S PIKUS	PRIVATE	56
120065600	ELEANOR M ALEXANDER MAYAVSKI	PRIVATE	57
120065500	PHYLLIS A POGANSKI	PRIVATE	58
120065400	STEVEN SCHLICHTING & CAROL SCHLICHTING	PRIVATE	59
120065300	MARY B SCHINDLER & RONALD N SYME	PRIVATE	60
120065200	MICHAEL L PAUL REV TRUST & IRENE P PAUL REV TRUST	PRIVATE	61
120065100	KRISTIE M SKUZA & TIMOTHY J CHRISTOFERSON	PRIVATE	62
120065000	LEONARD A WEILER	PRIVATE	63
120064900	MARY E KOKULA	PRIVATE	64
120064700	JAMES E BARKER & PATRICIA BARKER	PRIVATE	65
120044500	JOSEPH E IV NADEAU & SANDRA J NADEAU	PRIVATE	66
120046700	LISA A HINZ & SCOTT A WRUCK	PRIVATE	67
120046500	ANGELA D GILDER	PRIVATE	68
120046600	JASON KRUEGER & ASHLEY KRUEGER	PRIVATE	69
120046800	JUNE M WHITE	PRIVATE	70
120046300	LUANN DARLENE WENGER	PRIVATE	71
120046200	DURWOOD C BETTENBERG & RENEE R BETTENBERG	PRIVATE	72
120046400	DURWOOD C BETTENBERG & RENEE R BETTENBERG	PRIVATE	73
120045700	TRICIA K QUINLAN & ANDREW D QUINLAN	PRIVATE	74
120045000	KENNETH L PHILIPPI ETAL C/O LORI TRAUT	PRIVATE	75
120045100	RONALD DIRKS & MARY L DIRKS	PRIVATE	76
120046100	RONALD E & PATTY WELLE REV TR	PRIVATE	77
120045300	RONALD E & PATTY WELLE REV TR	PRIVATE	78
OVERLAP	OWNER UNKNOWN	UNKNOWN	79
120045500	BLAIZ PROPERTIES LLC C/O RONALD B AMUNDSON, TRUSTEE	PRIVATE	80
GAP	OWNER UNKNOWN	UNKNOWN	81
120046000	EDWARD J JR GNIFKOWSKI & CAROLE M GNIFKOWSKI	PRIVATE	82
OVERLAP	OWNER UNKNOWN	UNKNOWN	83
120045200	EDWARD J JR GNIFKOWSKI & CAROLE M GNIFKOWSKI	PRIVATE	84
120045900	JAMES M MARMAS	PRIVATE	85
120054500	JAMES M MARMAS	PRIVATE	86
120054300	FAMILY TR/STANLEY LARSON REV T C/O DIANE LEE LARSON	PRIVATE	87
120054101	JAMES J MICHAUD REV TR & MARY B MICHAUD REV TR	PRIVATE	88
120054100	MICHAEL GABRIELSON & JULIANA GABRIELSON	PRIVATE	89
120054102	DOROTHY M RANDALL & RICHARD B RANDALL	PRIVATE	90

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
120054000	JARED EVAN TRAUT	PRIVATE	91
OVERLAP	OWNER UNKNOWN	UNKNOWN	92
120055600	LEROY BLANCHARD & DIANE MCKENZIE	PRIVATE	93
120053800	GARY PIKUS TR & MAUDEEN PIKUS TR	PRIVATE	94
120107700	JOHN C BOWE & TRACY F BOWE	PRIVATE	95
120107800	ROBERT MCMANUS & LINDA MCMANUS	PRIVATE	96
120107900	DOUGLAS C HAARSTAD & SHELBY M HAARSTAD	PRIVATE	97
120108000	PAUL J SCHWINGHAMMER & BARBARA J YOUNG	PRIVATE	98
120108100	MARY B ISAACS	PRIVATE	99
120108200	THOMAS A HOLTHAUS & ELIZABETH N HOLTHAUS	PRIVATE	100
120108300	ROBERT SCHLICHTING & JANET SCHLICHTING	PRIVATE	101
120108400	RONALD C HOMMERDING & PEGGY E HOMMERDING	PRIVATE	102
120108500	TIGER TRUST C/O JOHN E HAXBY-TRUSTEE	PRIVATE	103
120108600	JAMES M HUGHES & PAULA K HUGHES	PRIVATE	104
120108700	JEFFREY J SCHUNEMAN & LAURIE M SCHUNEMAN	PRIVATE	105
120108800	VICTORIA A WEISS	PRIVATE	106
120108900	MICHAEL C ENGDAHL & CARRIE A ENGDAHL	PRIVATE	107
120109100	EARL L UDERMANN REV TR & ELIZABETH M UDERMANN REV TR	PRIVATE	108
120109200	PHILLIP A KRUCHTEN & KALLY M KRUCHTEN	PRIVATE	109
120109300	PETER C WALDUM & HILLARY M WALDUM	PRIVATE	110
120109400	PETER C WALDUM & HILLARY M WALDUM	PRIVATE	111
120119600	CALEB L ANDERSON 6795 RIVERVIEW LOOP NW	PRIVATE	112
120044110	PETER WALDUM	PRIVATE	113
120042500	TODD M SEVERNAK & LISA M SEVERNAK	PRIVATE	114
120105000	GARY BARNEY & DEBRA BARNEY	PRIVATE	115
120104800	CASA BOOTEDD LLC C/O SUSAN K BJORKLUND	PRIVATE	116
120104700	CASA BOOTEDD LLC C/O SUSAN K BJORKLUND	PRIVATE	117
120042400	STATE OF MINNESOTA C/O DNR DIV OF LAND & MINERALS	PUBLIC	118
120104500	GARY M FOSS & AMY FOSS	PRIVATE	119
120103101	DAVID HANDELAND & KAREN HANDELAND	PRIVATE	120
120104600	DAVID HANDELAND & KAREN HANDELAND	PRIVATE	121
120106500	DAVID HANDELAND & KAREN HANDELAND	PRIVATE	122
120106700	COLLETTE D APPERT REV TR	PRIVATE	123
120106600	MASON J APPERT	PRIVATE	124
120102300	PEACE ROCK PROPERTY I LLC C/O CHARLES K ENGEBRETSON	PRIVATE	125
120102400	PEACE ROCK PROPERTY I LLC C/O CHARLES K ENGEBRETSON	PRIVATE	126
120041800	ELAINE A SCHULTZ REV TR	PRIVATE	127
120206200	PHASE 2 LLC ATTENTION: NATHAN LANDWEHR	PRIVATE	128
120206300	PHASE 2 LLC ATTENTION: NATHAN LANDWEHR	PRIVATE	129
120206400	SAMMY HEINEN & JODI HEINEN	PRIVATE	130
120206500	THE COVE COMMUNITY ASSOCIATION	PRIVATE	131
120034000	ROBERT J GUCK & CHERYL P GUCK	PRIVATE	132
120034500	TERRY L LATTERELL	PRIVATE	133
120034600	ERIC LINDSTROM & LINDA LINDSTROM	PRIVATE	134
120034400	ERIC LINDSTROM & LINDA LINDSTROM	PRIVATE	135
120034300	MARCIA A JOHNSON	PRIVATE	136
120035100	TOM VORONYAK	PRIVATE	137
	OWNER UNKNOWN	UNKNOWN	138
120034800	THOMAS L VORONYAK	PRIVATE	139
120034100	WILLIAM F BETTENDORF	PRIVATE	140
120033100	LOUIS T LEBLANC & MARY JANE LEBLANC	PRIVATE	141
120033101	LINDSETH-STEELE FAMILY TR C/O DALE LINDSETH/DONNA STEELE	PRIVATE	142
120033200	BENTON COUNTY	PRIVATE	143
120033300	GARY L & NANCY J JOHNSON TR	PRIVATE	144
120033000	LEE J JORDAN	PRIVATE	145
GAP	OWNER UNKNOWN	UNKNOWN	146
120136800	HARVEY W KIEKOW REV TR & GAIL M KIEKOW REV TR	PRIVATE	147
120136700	RICK D STROWBRIDGE	PRIVATE	148
120136600	BRIAN A BOEHMER & KARI L BOEHMER	PRIVATE	149
120149700	RUSSELL J MARKFELDER & SARAH L MARKFELDER	PRIVATE	150
120150000	SHANGRILA VALLEY	PRIVATE	151
120031100	GERALD R SOLARZ & JANET K SALDANA_SOLARZ	PRIVATE	152
120030900	TERRENCE V HULL & JON L HULL	PRIVATE	153
120030600	LAWRENCE S GALLION	PRIVATE	154
120030700	JOHN T BELL & DAWN J BELL	PRIVATE	155
120030500	JAMES T ADDICOTT & LINDA A ADDICOTT	PRIVATE	156
120030800	MICHAEL JAMES MOLINE	PRIVATE	157
120030400	ELMER G SKAJ & DONNA M SKAJ	PRIVATE	158
120030200	BRANDON HANSEN	PRIVATE	159
120030100	DUANE R NIETERS & SHARON L NIETERS	PRIVATE	160
120029900	TIMOTHY STRUZYK	PRIVATE	161
120030000	JASON T LOIDOLT & LISA K LOIDOLT	PRIVATE	162
120058700	BRADLEY DEAN NELSON	PRIVATE	163
120058600	CHRISTOPHER A VIRCHOW & LYNN A VIRCHOW	PRIVATE	164
120058500	CHRISTOPHER A VIRCHOW & LYNN A VIRCHOW	PRIVATE	165
120058300	CHARLES FEIA & EMILY FEIA	PRIVATE	166
120058200	JOHN A ZWACK	PRIVATE	167
120058100	STEVEN DUANE DONAT & SANDRA BEAULIEU & SHERI DONAT	PRIVATE	168
120058000	SHANE SALBER & SARAH SALBER	PRIVATE	169
120057800	RONALD J SCHLICHTING & DONNA M SCHLICHTING	PRIVATE	170
120026600	TROY SCHWARTZ & MONICA SEGURA-SCHWARTZ	PRIVATE	171
120024800	TED D NICHOLS & JULIE A NICHOLS	PRIVATE	172
120025900	THOMAS LOPEZ & TARA C FERGUSON LOPEZ	PRIVATE	173
120024900	KATHLEEN E NOBLE & RANDALL D NOBLE	PRIVATE	174
120025400	JEROME BERNARD & BEVERLY BERNARD	PRIVATE	175
120025200	SCOTT E SCHLICHTING & KRISTEN J SCHLICHTING	PRIVATE	176
120025600	ERNEST L OLTZ & MARJORIE M OLTZ	PRIVATE	177
120025700	KRISTOPHER M SHEFVELAND & MICHELLE M SHEFVELAND	PRIVATE	178
120025800	KEITH P O'BRIEN & KRISTI A O'BRIEN	PRIVATE	179
120023300	RICHARD DANIEL KOENEN	PRIVATE	180

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
120025500	ZACHARIAH ERICKSON	PRIVATE	181
120192400	JEFFREY S BOVITZ & LAUREL A BOVITZ	PRIVATE	182
120192500	DERRICK R TINDAL & JESSICA A TINDAL	PRIVATE	183
120192600	JAMES RAU TR & SANDY RAU TR	PRIVATE	184
120192700	NICHOLAS WEBB & AMANDA WEBB	PRIVATE	185
120145400	AUDREY J TWIT	PRIVATE	186
120145500	LEAH RAE KNAPTON & CHRISTOPHER K KNAPTON	PRIVATE	187
120145600	JASON T BLOMMER & MEGAN L BLOMMER	PRIVATE	188
120145700	PATRICK DINNDORF & PAMELA K GOECKE_DINNDORF	PRIVATE	189
120145800	DAVID W WATTS & ELAINE D WATTS	PRIVATE	190
120145900	DAVID W WATTS & ELAINE D WATTS	PRIVATE	191
120146000	DAVID W WATTS & ELAINE D WATTS	PRIVATE	192
120022100	SHIRLEY L SHULTZ	PRIVATE	193
120142400	JOHN BAUNE & CAROLYN BAUNE	PRIVATE	194
120142500	ROBIN FOSTER & DONNA FOSTER	PRIVATE	195
120142600	CHERYL ABLAN	PRIVATE	196
120142700	AARON A TROMPETER & JESSICA M TROMPETER	PRIVATE	197
120142800	EUGENE F POSER & SUSAN A POSER	PRIVATE	198
120142900	ANDREW R LYNCH & KELSEY R LYNCH	PRIVATE	199
120143000	GARY D PLOTZ JR & BETSY PLOTZ	PRIVATE	200
120143100	LAKE COUNTRY LIVING SVCS LLC	PRIVATE	201
120143300	RUSSELL PIERSKALLA & TIFFANY PIERSKALLA	PRIVATE	202
120143400	ROBERT JACOBS & CORRINE JACOBS	PRIVATE	203
120143500	ELIZABETH A WHITE C/O BARBARA L WHITE	PRIVATE	204
120143600	JESSICA W GOULD REV TR	PRIVATE	205
120144600	BAYVIEW ESTATES OWNERS ASSOC ATTN: DAN CAIRNS	PRIVATE	206
120159500	JEFFREY KUBERKA & GAIL SHAFER	PRIVATE	207
120016300	HELEN E SHAW C/O MICHAEL SHAW	PRIVATE	208
120057700	DUANE J KELLER	PRIVATE	209
120159400	JEFF FANDEL & JULIE FANDEL	PRIVATE	210
120016400	JAMES W HIGGINS ETAL	PRIVATE	211
120159300	TERRY J MCCANN & NANCY J MCCANN	PRIVATE	212
120057600	RONALD A POTTS & JEAN M POTTS	PRIVATE	213
120057500	MARVIN L WITTE	PRIVATE	214
120057400	JUDITH M SEVIOLA & STEPHEN M SEVIOLA	PRIVATE	215
120057300	DAVID WATTS & ELAINE WATTS	PRIVATE	216
120057200	DAVID WATTS & ELAINE WATTS	PRIVATE	217
120057100	DAVID W WATTS	PRIVATE	218
120057000	DAVID W WATTS & ELAINE D WATTS	PRIVATE	219
120056900	DAVID C JOHNSON & ANNETTE M JOHNSON	PRIVATE	220
120015800	DAVID W WATTS & ELAINE WATTS	PRIVATE	221
120016000	ANNA M FABER & ERIC FABER	PRIVATE	222
120016100	GERALD FILAS & SHARI FILAS	PRIVATE	223
GAP	OWNER UNKNOWN	UNKNOWN	224
120089800	MICHAEL G HALL	PRIVATE	225
120090000	JOHN RAYMOND ALSTRUP	PRIVATE	226
120090400	MAMA BEAR PROPERTIES LLC	PRIVATE	227
120090500	BRYAN R WOOD	PRIVATE	228
120090600	HERBERT A KOMETZ	PRIVATE	229
120090900	DERRICK B NELSON	PRIVATE	230
120091100	HURLEY HOMMERDING & MARY J HOMMERDING	PRIVATE	231
120091200	HURLEY HOMMERDING & MARY J HOMMERDING	PRIVATE	232
120091300	KATHLEEN A ZIERHUT	PRIVATE	233
120091500	JAMES L HOIHJELLE JR	PRIVATE	234
120091600	DANIEL JURKOVICS	PRIVATE	235
120091700	DANIEL JURKOVICS	PRIVATE	236
120091800	CHARLENE A MORAN TR	PRIVATE	237
120091900	HAROLD SOLTIS & BONNIE SOLTIS	PRIVATE	238
120092100	KATHLEEN I PATTON	PRIVATE	239
120092101	KATHLEEN I PATTON	PRIVATE	240
120092200	KATHLEEN ZIERHUT & NATHAN T ZIERHUT	PRIVATE	241
120092500	JEREMY JAY SMITH & SHARON SMITH	PRIVATE	242
120092600	NEIL M NEEB & GLORIA J NEEB	PRIVATE	243
120092700	SHAWN GALLAGHER & KELLIE GALLAGHER	PRIVATE	244
120092800	SHAWN GALLAGHER & KELLIE GALLAGHER	PRIVATE	245
120093101	SHAWN GALLAGHER & KELLIE GALLAGHER	PRIVATE	246
120092900	SHAWN GALLAGHER & KELLIE GALLAGHER	PRIVATE	247
120093000	SHAWN GALLAGHER & KELLIE GALLAGHER	PRIVATE	248
120093100	SHAWN GALLAGHER & KELLIE GALLAGHER	PRIVATE	249
120204900	RITA M KAINZ REV TR	PRIVATE	250
120204800	RITA M KAINZ REV TR	PRIVATE	251
120204700	RITA M KAINZ REV TR	PRIVATE	252
120204600	ELIZABETH L DANZL WEISBRICH & BRENDA JOANN DANZL ANDERSON	PRIVATE	253
120204500	RONALD B AMUNDSON	PRIVATE	254
120204400	JENNIFER GOUETTE	PRIVATE	255
120204300	RICKY SCHULTZ	PRIVATE	256
120204200	DONALD SPICZKA ETAL	PRIVATE	257
120204100	MICHAEL BARRINGER & DIANE BARRINGER	PRIVATE	258
120204000	LELAND L JOHNSON & PATRICIA L JOHNSON	PRIVATE	259
120203900	DERRICK B NELSON PROP LLC	PRIVATE	260
120203800	JEROME DENNIS NELSON REV TR & DOROTHY E NELSON REV TR	PRIVATE	261
120203500	ANTHONY L ERDMANN	PRIVATE	262
120203400	MICHAEL J MAIERS & PATRICIA L MAIERS	PRIVATE	263
120203300	JEROME DENNIS NELSON REV TR & DOROTHY E NELSON REV TR	PRIVATE	264
120203200	ERDMAN LIVING TR C/O DENISE V ERDMAN	PRIVATE	265
120203100	MATTHEW T SIMONES & MICHELLE L SIMONES	PRIVATE	266
120012800	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	267
120001300	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	268
120001200	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	269
120001100	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	270



SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS LICENSED LAND SURVEYOR 40565 STATE OF MINNESOTA

4-11-22

BY: JASON NESS — DATE

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX — Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G-21

EAGLE CREEK SARTELL HYDRO, LLC — **SARTELL, MINNESOTA**

SARTELL HYDROELECTRIC PROJECT
FERC PROJECT No. 8315
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA
PROJECT BOUNDARY MAP

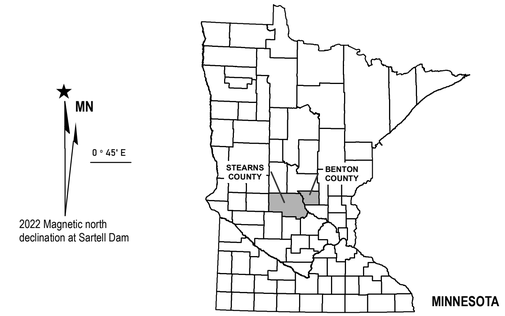
SCALE: AS SHOWN
DATE: JUNE 2022

BENTON COUNTY OWNERSHIP

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
120001000	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	271
060036000	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	272
060036100	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	273
060036200	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	274
060053900	DUANE D CEKALLA & SUSAN K JENSEN-CEKALLA	PRIVATE	275
060054000	LARRY L LANDIN & RANDEE L LANDIN	PRIVATE	276
060054100	JOHN P MCINTYRE & DOREEN S MCINTYRE	PRIVATE	277
060054300	JOHN G GRAHAM & CHERYL A GRAHAM	PRIVATE	278
060054200	LORETTA T JEROME & KATHLEEN A SAMBORSKI	PRIVATE	279
060054400	MARK SODERHOLM	PRIVATE	280
060054500	JAMES A HOVDA TR & JANIS L HOVDA TR	PRIVATE	281
060054600	LEANNE K STEVENS	PRIVATE	282
060054700	THOMAS L SR CHIES & DIANE J CHIES	PRIVATE	283
060053700	JEBB D WILLIS REV TR	PRIVATE	284
060053600	KEVIN DAVIS	PRIVATE	285
060053500	MARY A SCHADEWALD & WILLIAM B SCHADEWALD	PRIVATE	286
060053400	STEPHEN M SEVIOLA & RENEE L SEVIOLA	PRIVATE	287
060053300	JAMES P LARSON & MARILYN M LARSON	PRIVATE	288
060053200	MICHAEL DAVID ANDERSON & LINDA MARY ANDERSON	PRIVATE	289
060053100	VINCENT DOUGLAS GOERING & AURORA LOU GOERING	PRIVATE	290
060053000	JAMES F WAINRIGHT ETAL	PRIVATE	291
060052900	DANIEL J HANOWSKI ETAL	PRIVATE	292
060052800	BEVERLY A GERADS & ALAN M GERADS	PRIVATE	293
060052700	JERRY A PERSKE & VICKI A PERSKE	PRIVATE	294
060052600	ROBERT V HENGEL & KAREN M HENGEL	PRIVATE	295
060052500	DAVID HECHSEL & MARIE HECHSEL	PRIVATE	296
060036500	DAVID HECHSEL & MARIE HECHSEL	PRIVATE	297
060036901	BENTON COUNTY	PRIVATE	298
060037000	MARK SALDANA & ROXANNE SALDANA	PRIVATE	299
060036900	MARK SALDANA & ROXANNE SALDANA	PRIVATE	300
060026300	ADAM T SCHEFERS & SARAH R SCHEFERS	PRIVATE	301
060026101	GAZETT FAMILY LTD PARTNERSHIP	PRIVATE	302
060026301	STEVEN DANCER	PRIVATE	303
060027100	STEVEN DANCER	PRIVATE	304
060032600	JEFFREY M HOUK & MARY J HOUK	PRIVATE	305
060032502	DOUGLAS P JENSON & SUZANNE M LORETTE	PRIVATE	306
060032503	DOUGLAS P JENSON & SUZANNE M LORETTE	PRIVATE	307
060032504	FRANK D HARD & CARLA J HARD	PRIVATE	308
060032505	THOMAS R SKINNER & JUDY M SKINNER	PRIVATE	309
060032506	CURTIS J FERNHOLZ & KELIJO M FERNHOLZ	PRIVATE	310
060032507	CHARLES K ACKERMAN & LINDA L PLANTE	PRIVATE	311
060032700	GERALD A ROERING & JUDITH K ROERING	PRIVATE	312
060032701	JESSE J HLEBAIN	PRIVATE	313
060032702	PAUL ROGERS & KRISTA ROGERS	PRIVATE	314
060033600	STEVEN D HILL & SHIRLEY A HILL	PRIVATE	315
060033500	JAKIN KOLL & NICOLE KOLL	PRIVATE	316
060033400	JOHN E RINGWELSKI & SUSAN L RINGWELSKI	PRIVATE	317
060033300	BENNHARD HEDLUND TR & JUDITH HEDLUND TR	PRIVATE	318
060033200	BETH RINGWELSKI ETAL C/O JANET RINGWELSKI	PRIVATE	319
060033100	THOMAS NELSON ETAL	PRIVATE	320
060033001	JOHN P LINN & KATELYN J LINN	PRIVATE	321
060033000	JOHN P LINN & KATELYN J LINN	PRIVATE	322
060032900	RESSA E HARRIS REV TR	PRIVATE	323
060033900	ANNA M NYSTUEN-OLESON	PRIVATE	324
060033800	LITTLE ROCK HOLDINGS LLC C/O FRANK J RAJKOWSKI	PRIVATE	325
060035300	LLOYD D WALBURN & RONITA A WALBURN	PRIVATE	326
060034201	DUANE LUVERNE OTT	PRIVATE	327
060034200	O T S LLC C/O DUANE LUVERNE OTT	PRIVATE	328
060034100	LITTLE ROCK HOLDINGS LLC C/O FRANK J RAJKOWSKI	PRIVATE	329
GAP	OWNER UNKNOWN	UNKNOWN	330
060035000	DENNIS M ARNTSON & KATHERINE M ARNTSON	PRIVATE	331
060035100	DAVID J ANDERSON & DOUGLAS R ANDERSON	PRIVATE	332
060034900	NICHOLAS GENTLING & MARISSA GENTLING	PRIVATE	333
060034800	DAVID J BOYDA & THOMAS F BOYDA	PRIVATE	334
060034700	ALYSSA L PETERSON & JOSEPH D PETERSON	PRIVATE	335
060034600	JEFFERY D LATTERELL & RONDA A LATTERELL	PRIVATE	336
OVERLAP	OWNER UNKNOWN	UNKNOWN	337
060034300	THOMAS FRANCIS BOYDA	PRIVATE	338
060034500	THOMAS J CHIRHART ETAL	PRIVATE	339
060034400	THOMAS J CHIRHART ETAL	PRIVATE	340
060063000	CHARLES DRESSEL & DOREEN DRESSEL	PRIVATE	341
060063100	MICHAEL J GRAY TR & THERESA J GRAY TR	PRIVATE	342
060063200	CRAIG W ZIEBOL & BRANDY L ZIEBOL	PRIVATE	343
120144900	CRAIG W ZIEBOL & BRANDY L ZIEBOL	PRIVATE	344
120145000	JAMES M JOHNSON & MONIQUE R JOHNSON	PRIVATE	345
120145100	ROBERT W BARTH & LAURA J BARTH	PRIVATE	346
120145200	PAUL D SUTTON ETAL	PRIVATE	347
120145301	BENTON COUNTY	PRIVATE	348
120003101	CHARLES E RAU & DARLENE A RAU	PRIVATE	349
120145300	TIMOTHY J STEIL & KELLY L STEIL	PRIVATE	350
120068100	ALLEN KLECKER & THERESE KLECKER	PRIVATE	351
120068200	DEAN F CZARNETZKI & ALAN C CZARNETZKI	PRIVATE	352
120068300	DALE G LUNDTVEDT & CONSTANCE L LUNDTVEDT	PRIVATE	353
120068400	ROBERT L ERDMANN	PRIVATE	354
120068500	LUCAS J ANDERSON & MOLLY A ANDERSON	PRIVATE	355
120068600	MIKE S KEEHR & JILL WELCH	PRIVATE	356
120068700	CRAIG S BOELKE & DIANE BOELKE	PRIVATE	357
120068800	MARSHA A SOVADA & RICHARD J SOVADA	PRIVATE	358
120068900	ROBERT G JOHNSON & JUDITH A JOHNSON	PRIVATE	359
120069000	DANIEL G STEIL & MARY M STEIL	PRIVATE	360

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
120002703	DANIEL G STEIL & MARY M STEIL	PRIVATE	361
120002708	ELITE DEVELOPMENT LLC	PRIVATE	362
120063200	ROLAND N WEIS	PRIVATE	363
120063300	ROLAND N WEIS	PRIVATE	364
120063400	SANDRA J DINGLE	PRIVATE	365
120063500	MARC H SCHRANTZ	PRIVATE	366
120063600	DOUGLAS WEIS & MERRI K WEIS	PRIVATE	367
120063700	DOUGLAS P WEIS & MERRI K WEIS	PRIVATE	368
120063800	JODIE MCSHERRY	PRIVATE	369
120002800	DAVID R G OLSON	PRIVATE	370
120002900	JAYNE S RITTER & DEREK J BRINKMAN	PRIVATE	371
120003000	PATRICIA M CLAVIN & TERRENCE CLAVIN	PRIVATE	372
120002600	TERRANCE CLAVIN & PATRICIA M CLAVIN	PRIVATE	373
120060000	JEFFREY R BEHRENS & KIMBERLY A SOBIECK-BEHRENS	PRIVATE	374
120060100	DEBRA KNIGHT	PRIVATE	375
120060200	JOHN QUADE & DEANNA QUADE	PRIVATE	376
120060300	JOHN F QUADE & DEANNA M QUADE	PRIVATE	377
120060400	JOHN F QUADE & DEANNA M QUADE	PRIVATE	378
120060500	KRISANN MARIE BUNNELL	PRIVATE	379
120060700	DANIEL J FREUND	PRIVATE	380
120060600	SCHUETTE PARTNERS LLC	PRIVATE	381
120060900	SCHUETTE PARTNERS LLC	PRIVATE	382
120060800	SCHUETTE PARTNERS LLC	PRIVATE	383
120061100	LINDA J WOLDEN & ERIC A WOLDEN	PRIVATE	384
120061200	NANCY MARLENE O'DONNELL	PRIVATE	385
120061300	LEON L BENNER	PRIVATE	386
120061500	CORRINE P FABER TR	PRIVATE	387
120061600	CORRINE P FABER TR	PRIVATE	388
120061700	THOMAS F PAPPENFUS REV TR & PATRICIA M PAPPENFUS REV TR	PRIVATE	389
120061800	VIRGINIA M RUETER & PATRICIA L GOHLA	PRIVATE	390
120061900	MICHAEL J O'DONNELL & PATRICK S O'DONNELL	PRIVATE	391
120062000	PETER E BUSHMAN & JENNY L BUSHMAN	PRIVATE	392
120062100	PETER E BUSHMAN & JENNY L BUSHMAN	PRIVATE	393
120062200	JERRY LAGE & CHARLENE LAGE	PRIVATE	394
120062300	JERRY LAGE & CHARLENE LAGE	PRIVATE	395
120062400	JERRY LAGE & CHARLENE LAGE	PRIVATE	396
120062500	STEVEN C HONL & LOUISE M HONL	PRIVATE	397
120062600	LINNEA R SAKRY TR	PRIVATE	398
120062700	LINNEA R SAKRY TR	PRIVATE	399
120062800	BETH E RINGWELSKI	PRIVATE	400
120062900	BETH E RINGWELSKI	PRIVATE	401
120063000	BETH E RINGWELSKI	PRIVATE	402
120063100	BETH E RINGWELSKI	PRIVATE	403
120002000	SUSAN RICHARDS & BRETT RICHARDS	PRIVATE	404
120001900	SCOTT K STAINBROOK REV TR C/O SCOTT & RENOTTA STAINBROOK	PRIVATE	405
120002401	NICHOLAS G SMITH & SUSAN E SMITH	PRIVATE	406
120002402	LAWRENCE A SEEKON & JANICE CONNELLY	PRIVATE	407
120002400	LINDA LEE TIEDEKEN SEVIOLA	PRIVATE	408
120002100	THE DANIEL J & ALICE L OLMSCHENK TRUST	PRIVATE	409
120012900	ERIC R ALTENA	PRIVATE	410
120077500	RICHARD W SLIVNIK	PRIVATE	411
120077600	RICHARD W SLIVNIK	PRIVATE	412
120077700	DARLENE D PETERSON	PRIVATE	413
120077801	DARLENE D PETERSON	PRIVATE	414
120077800	TERRENCE C BOERGER & JANET D BOERGER	PRIVATE	415
120077900	TERRENCE C BOERGER & JANET D BOERGER	PRIVATE	416
120078000	TERRENCE C BOERGER & JANET D BOERGER	PRIVATE	417
120078100	RICHARD D PEDERSON & SHIRLEY PEDERSON	PRIVATE	418
120078200	RICHARD D PEDERSON & SHIRLEY PEDERSON	PRIVATE	419
120078300	RICHARD D PEDERSON & SHIRLEY PEDERSON	PRIVATE	420
120078400	CRAIG E BENNING	PRIVATE	421
120078500	BRIAN J EVESLAGE ETAL C/O JACQUELINE M EVESLAGE	PRIVATE	422
120078600	BRIAN J EVESLAGE ETAL C/O JACQUELINE M EVESLAGE	PRIVATE	423
120078700	TAMARA J EVESLAGE	PRIVATE	424
120078800	TAMARA J EVESLAGE	PRIVATE	425
120078900	RANDY P STENSRUD & ANNETTE M STENSRUD	PRIVATE	426
120079000	RANDY P STENSRUD & ANNETTE M STENSRUD	PRIVATE	427
120079100	DUSTIN SCHLICHTING	PRIVATE	428
120079300	RENEE E TOBIN_ZELENY & MICHAEL T ZELENY	PRIVATE	429
120079500	TROMPETERBUILT PROPERTIES	PRIVATE	430
120079700	MARK HENNESSEY	PRIVATE	431
120079800	GUY P JOHNSON	PRIVATE	432
120079900	GUY P JOHNSON	PRIVATE	433
120080000	THOMAS J FRIEDRICH & DANIELLE FRIEDRICH	PRIVATE	434
120080100	RICHARD CARL GAVANDA	PRIVATE	435
120080200	PATRICK PALLANSCH & AMIE PALLANSCH	PRIVATE	436
120080300	BRANDON T BOURKE & GINA A BOURKE	PRIVATE	437
120080400	MATTHEW SHODEEN	PRIVATE	438
120080500	MATTHEW SHODEEN	PRIVATE	439
120080700	RODNEY R MICHEL & KIMBERLY A MICHEL	PRIVATE	440
120081000	SAMUEL M WELLER	PRIVATE	441
120081100	SAMUEL M WELLER	PRIVATE	442
120081200	BRUCE ROBERTSON	PRIVATE	443
120081300	BRUCE ROBERTSON	PRIVATE	444
120081400	TRILOGY PROPERTIES OF MN LLC	PRIVATE	445
120081500	TRILOGY PROPERTIES OF MN LLC	PRIVATE	446
120081600	PHYLLIS J BOEDIGHEIMER	PRIVATE	447
120081700	PHYLLIS J BOEDIGHEIMER	PRIVATE	448
120081800	PHYLLIS J BOEDIGHEIMER	PRIVATE	449
120081900	JOSEPH L SCHREIFELS & KATHLEEN M SCHREIFELS	PRIVATE	450

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
120082000	JOSEPH L SCHREIFELS & KATHLEEN M SCHREIFELS	PRIVATE	451
120082100	JOSEPH L SCHREIFELS & KATHLEEN M SCHREIFELS	PRIVATE	452
120082200	MARY ANN SALDANA	PRIVATE	453
120082600	ROBERT A KEMP & DAWN R KEMP	PRIVATE	454
120082700	MARY D ROBERTS-KIVI & EUGENE J KIVI	PRIVATE	455
120082800	CARL L LEPINSKI & GLADYS A LEPINSKI	PRIVATE	456
120083100	JOYCE C SALDANA	PRIVATE	457
120083500	BRIAN J MIKOLICHEK & TIFFANY A WILD-MIKOLICHEK	PRIVATE	458
120083800	THOMAS P SMITH & ROSEMARY NOVACK-SMITH	PRIVATE	459
120083900	DANIELLE ZIMMERMAN	PRIVATE	460
120083901	STATE OF MINNESOTA BUREAU OF REAL ESTATE MGMT	PUBLIC	461
120084200	RAY SCOTT THOMPSON & JULIE MARIE THOMPSON	PRIVATE	462
120084300	RAY SCOTT THOMPSON & JULIE MARIE THOMPSON	PRIVATE	463
120084400	STEVEN F HANSEN & GERALDINE M HANSEN	PRIVATE	464
120084500	STEVEN F HANSEN & GERALDINE M HANSEN	PRIVATE	465
120084600	FRANK E FREUDENRICH	PRIVATE	466
120084900	STEVEN L MCFADDEN	PRIVATE	467
120085000	TRAVIS T FUSSY	PRIVATE	468
120085200	RANDY A WITTE & FAYE M IMKER-WITTE	PRIVATE	469
120085300	THOMAS J TAUBER & DARLENE M TAUBER	PRIVATE	470
120085500	SHAWN E KROLL & STACY A KROLL	PRIVATE	471
120085600	CLIFFORD WEITGENANT & SHERYL K WEITGENANT	PRIVATE	472
120085701	BENTON COUNTY	PRIVATE	473
120085700	TERRANCE MARK KOPKA ETAL C/O LEONARD KOPKA	PRIVATE	474
120085900	JOHN L WARUMZER & JUDITH A WARUMZER	PRIVATE	475
120086300	JOYCE M FINNEMAN	PRIVATE	476
120086400	MARVIN L GRIFFEY & STACY M GRIFFEY	PRIVATE	477
120086600	GREG A ANDERSON	PRIVATE	478
120086700	GREG A ANDERSON	PRIVATE	479
120086800	WILLIAM M SURMA & ANN M SURMA	PRIVATE	480
120087000	JOSHUA T WRIGHT & KALLEY A WRIGHT	PRIVATE	481
120087100	THE PETERS FAMILY TR	PRIVATE	482
120087200	SETH CASTER & BOBBI CASTER	PRIVATE	483
120009200	KEIKO MARIE HUBERTY	PRIVATE	484
120009500	LYNN M KOPEL & GREG F KOPEL	PRIVATE	485
120009700	PHYLLIS A POST	PRIVATE	486
120009900	GARRY J DANKS & SANDRA E DANKS	PRIVATE	487
120009800	CARL RYDBERG & MARILYN RYDBERG	PRIVATE	488
120010000	JOHNSON LAND HOLDINGS LLC	PRIVATE	489
120009400	HOLLY M BOYCE REV TR	PRIVATE	490
120009300	MICHAEL A BRUTGER & SUSAN M BRUTGER	PRIVATE	491
120059100	STEPHAN J CEKALLA & SUSAN M MOORE	PRIVATE	492
120059300	JEFFREY J BARTHELEMY	PRIVATE	493
120059200	ROBERT B SCHERPING	PRIVATE	494
120059600	ROBERT W RAHN & DORRAINE M RAHN	PRIVATE	495
120059500	LENNY FROLOV REV TR	PRIVATE	496
120059400	BRUCE CHRISTOFFERSON JUDITH CHRISTOFFERSON	PRIVATE	497
120059700	JEFFREY D RAMEY & JOAN E RAMEY	PRIVATE	498
120059800	JEANETTE A RAAB C/O JEANETTE A RAAB-KROLL	PRIVATE	499
120059900	KURT D HAEHNEL	PRIVATE	500
120010200	JAMES L JR HOIHJELLE	PRIVATE	501
120016500	THOMAS A RANALLO	PRIVATE	502
120016600	THOMAS RANALLO	PRIVATE	503
120021900	THOMAS A RANALLO	PRIVATE	504
120121300	D N R - REAL ESTATE MGT ATTN: TAX SPECIALIST	PUBLIC	505
120121500	LARRY D KOEPP & MARGARET A KOEPP	PRIVATE	506
120121600	TROY D OLSON & DANIELLE L LOPEZ	PRIVATE	507
120121700	CLINTON J BUCHNER & TINA M BUCHNER	PRIVATE	508
120121800	ROBERT W COURNEYA & MARY F FLYNN	PRIVATE	509
120121900	LEROY B JR MURPHY & BETTY L MURPHY	PRIVATE	510
120122000	ROLPH FAMILY REAL ESTATE TRUST C/O PATRICK & CAROL ROLPH	PRIVATE	511
120122100	MICHAEL ALLGOOD TR & RANDI ALLGOOD TR	PRIVATE	512
120122200	MARK MARVEL WELTY REV TR & CYNTHIA THERESA WELTY REV TR	PRIVATE	513
120122300	DEBRA A DURAY TRUST C/O JOEL & DEBRA DURAY	PRIVATE	514
120122400	DELROY JAMES SHANE REV TR & MARLENE KAY SHANE REV TR	PRIVATE	515
120122500	ROBERT N SALMONSON & DONNA M SALMONSON	PRIVATE	516
120069100	NATHANIEL J GORHAM	PRIVATE	517
120069200	STEVEN P LITZINGER & JULIE A LITZINGER	PRIVATE	518
120069300	DOTHAN A ALESHIRE & DIANE I ALESHIRE	PRIVATE	519
120069400	GUY D SPENCE & PATRICIA B SPENCE	PRIVATE	520
120069500	JAMES L WILHELMI & CONNIE L WILHELMI	PRIVATE	521
120069600	WAYNE LESLIE LARSON TR & AUDREY ANN LARSON TR	PRIVATE	522
120069700	WAYNE LESLIE LARSON TR & AUDREY ANN LARSON TR	PRIVATE	523
120069800	KAYE D DANCER	PRIVATE	524
120069900	GRETCHEN M GUTZ	PRIVATE	525
120070000	MARY C BRAUN & RICHARD L II BRAUN	PRIVATE	526
120070100	CHERYL LEE REBERG	PRIVATE	527
120070200	CARL B JR KULLBERG & CAROL J KULLBERG	PRIVATE	528
120070300	DAVID J SWEENEY & CLARINE M SWEENEY	PRIVATE	529
120070500	RONALD C PORTNER & DONNA R PORTNER	PRIVATE	530
120070600	JOHN T CLAUDE & AMY M CLAUDE	PRIVATE	531
120070700	DAVID P EFRAIMSON & CONSTANCE M EFRAIMSON	PRIVATE	532
120070800	MARY R RATKE	PRIVATE	533
120070900	MINE L ANDERSON & CURT A ANDERSON	PRIVATE	534
120071000	MINE L ANDERSON & CURT A ANDERSON	PRIVATE	535
120071100	GARY L KRUEGER & BONITA K KRUEGER	PRIVATE	536
120071500	LYLE A PETERSON	PRIVATE	537
120026500	KENNETH E GRABER & MAUREEN E GRABER	PRIVATE	538
120071600	KEITH GERALD BECHTOLD	PRIVATE	539
120071200	KEITH GERALD BECHTOLD	PRIVATE	540



SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

BY: JASON NESS — DATE: 4-11-22

JASON NESS LICENSED LAND SURVEYOR 40555 STATE OF MINNESOTA

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX — Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G-22

EAGLE CREEK SARTELL HYDRO, LLC — **SARTELL, MINNESOTA**

SARTELL HYDROELECTRIC PROJECT
FERC PROJECT No. 8315
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA
PROJECT BOUNDARY MAP

SCALE: AS SHOWN
DATE: JUNE 2022

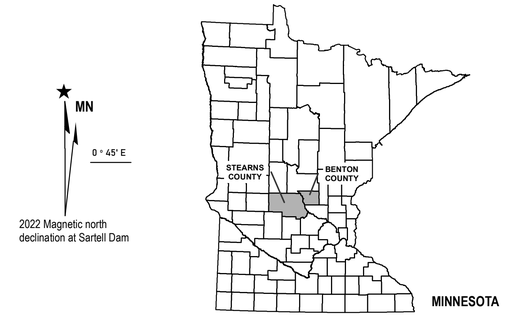
BENTON COUNTY OWNERSHIP

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
120071300	MICHAEL A HAUS & ELIZABETH A HAUS	PRIVATE	541
120071400	CHRISTINE ZIMMER	PRIVATE	542
120187800	MICHAEL HAUS & BETH HAUS	PRIVATE	543
120188100	PARADISE HOMEOWNERS ASSOC	PRIVATE	544
120187900	PARADISE HOMEOWNERS ASSOC	PRIVATE	545
120186600	CHRIS M FROELKE & HANNAH ELIZABETH-SMITH FROELKE	PRIVATE	546
120186700	CHRIS M FROELKE & HANNAH ELIZABETH-SMITH FROELKE	PRIVATE	547
120186800	NATHAN D GOHL & STACEY Q GOHL	PRIVATE	548
120186900	NATHAN D GOHL & STACEY Q GOHL	PRIVATE	549
120187000	PAUL D MOEN & NICHOLE R MOEN	PRIVATE	550
120187100	PARKER BAKKE & ERIN BAKKE	PRIVATE	551
120188000	PARADISE HOMEOWNERS ASSOC	PRIVATE	552
120187200	JASON DHEIN & KALIN DHEIN	PRIVATE	553
120187300	JASON DHEIN & KALIN DHEIN	PRIVATE	554
120187400	MICHAEL J BLOMMEL & STEPHANIE BLOMMEL	PRIVATE	555
120187500	SABASTIAN ROEUN & MYA NENG ROEUN	PRIVATE	556
120030901	EVERETT & BARBARA KROLL T ETAL	PRIVATE	557
120187600	SHAWN E KROLL ETAL	PRIVATE	558
GAP	OWNER UNKNOWN	UNKNOWN	559
120032900	TERRANCE P O'KEEFE & DEBORAH J O'KEEFE	PRIVATE	560
120032901	KATIE RUECKERT	PRIVATE	561
120032902	MARK A O'KEEFE & CHERYL J O'KEEFE	PRIVATE	562
120033500	WAYNE A PETERSON	PRIVATE	563
120033400	MARGARET SABRASKI & DONALD SABRASKI	PRIVATE	564
120032800	BRADLEY WARREN MCINTOSH & PATRICIA O MCINTOSH	PRIVATE	565
120032700	LLOYD SAMUELSON & CHRISTINE SAMUELSON	PRIVATE	566
120032500	JB MERTON LLC	PRIVATE	567
120032600	LYNN SCHEIL & ALESIA SCHEIL	PRIVATE	568
120064600	JOHN A BEHRENDT & SHAWN C MELLIES	PRIVATE	569
120064500	KARSTEN O BRAATEN & NANCY M BRAATEN	PRIVATE	570
120064400	KARSTEN O BRAATEN & NANCY M BRAATEN	PRIVATE	571
120064300	KEITH J WOLFE	PRIVATE	572
120064200	ELAINE B RUPP REV TR	PRIVATE	573
120064100	ELAINE B RUPP REV TR	PRIVATE	574
120064000	JAYME C TIMM	PRIVATE	575
120063900	ANDREW P HUINKER	PRIVATE	576
120032100	OSCAR A CASTELLANOS	PRIVATE	577
120032000	MICHAEL PECK & RACHEL PECK	PRIVATE	578
120032200	ERIK R WHEELER & JESSIE M WHEELER	PRIVATE	579
120031901	JOSHUA LEMM & NADINE LEMM	PRIVATE	580
120193600	MARK R VOIGT & MARIA C VOIGT	PRIVATE	581
120193500	TRACEY L & DOVE WATKIN REV TR	PRIVATE	582
120029600	GEORGE R KARVEL	PRIVATE	583
120029501	GEORGE R KARVEL	PRIVATE	584
120184800	NICHOLAS COLATRELLA & STACY M HINKEMEYER-COLATRELLA	PRIVATE	585
120184700	GREGORY BLUM & JULIE BLUM	PRIVATE	586
120029400	FRNCISCN SISTERS IMMAC CONCEPT	PRIVATE	587
120029100	FRNCISCN SISTERS IMMAC CONCEPT	PRIVATE	588
120029300	SHARON A BAUERLY REV TR	PRIVATE	589
120068000	SHAWN E KROLL & STACY A KROLL	PRIVATE	590
120067900	MICHAEL W MOLITOR & SHANON E MOLITOR	PRIVATE	591
120028600	RANDALL J SCHAPER	PRIVATE	592
120067800	ROBERT J FEULING REV TR & LINDA D FEULING REV TR	PRIVATE	593
120202900	RANDALL J SCHAPER	PRIVATE	594
120067400	STACY E HOGGARTH & RHONDELLE L HOGGARTH	PRIVATE	595
120067300	JEFFERY A MORTENSON & TAMI L MORTENSON	PRIVATE	596
120067200	ALLEN CARLTON MORTENSON & LEATRICE DARLENE MORTENSON	PRIVATE	597
120067100	ALLEN C MORTENSON & LEATRICE D MORTENSON	PRIVATE	598
120067000	MICHAEL R ST_MARIE	PRIVATE	599
120066900	MICHAEL R ST_MARIE	PRIVATE	600
120066800	MICHAEL S BALFANZ & KIMBERLY A BALFANZ	PRIVATE	601
120066600	JESSE R KUKLOK & MICHELLE A KUKLOK	PRIVATE	602
120077100	STEVEN J REE & ROXANN F REE	PRIVATE	603
120077200	BRENDA J WOGGON	PRIVATE	604
120077300	WAYNE JOHN ANDERSON & JUDITH ANN ANDERSON	PRIVATE	605
120077400	WAYNE JOHN ANDERSON & JUDITH ANN ANDERSON	PRIVATE	606
120028200	SCOTT J SCHNEIDER	PRIVATE	607
OVERLAP	OWNER UNKNOWN	UNKNOWN	608
120028400	PATRICIA A WALKER TR C/O LEWIS R WALKER	PRIVATE	609
120028000	EUGENE J BENIEK FAM TR	PRIVATE	610
120028301	HARK FAMILY TR C/O LARENE HARK	PRIVATE	611
120110400	ERIC STEARNS	PRIVATE	612
120110300	BARBARA J HOUDEK	PRIVATE	613
120110200	JEFFREY A GUNDERSON & JILL M GUNDERSON	PRIVATE	614
120110100	CHRISTOPHER D NELSON REV TR & REBECCA RAE NELSON REV TR	PRIVATE	615
120110000	CHRISTOPHER D NELSON REV TR & REBECCA RAE NELSON REV TR	PRIVATE	616
120109800	JIM FORSTING	PRIVATE	617
120109700	DANIEL CHRIS MEDECK	PRIVATE	618
120109600	DANIEL CHRIS MEDECK	PRIVATE	619
120109500	JOHN E MUELLER & MONICA E MUELLER	PRIVATE	620
120027900	KAREN E REKER	PRIVATE	621
120028800	KAREN E REKER	PRIVATE	622
120028900	AIM DEVELOPMENT (USA) LLC	PRIVATE	623
120006600	KAREN E REKER	PRIVATE	624

STEARNS COUNTY OWNERSHIP

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
04.02292.0000	DANIEL BATES	PRIVATE	625
04.02293.0000	RYAN M BJERKE	PRIVATE	626
04.02294.0000	HENRY J & AIMEE N WIELAND	PRIVATE	627
04.02295.0000	KYLE A DRIESSE	PRIVATE	628
04.02256.0028	MARY KAY PLOMBON	PRIVATE	629
04.02256.0030	C4D LLC	PRIVATE	630
04.01686.0000	ALOYS J VOUK REV TRUST	PRIVATE	631
04.01689.0000	MICHAEL R SCHILLER	PRIVATE	632
04.01689.0010	JESSICA M OSTMAN	PRIVATE	633
04.02405.0000	JESSICA M OSTMAN	PRIVATE	634
04.02406.0000	JEFF MAGERA	PRIVATE	635
04.02409.0000	JEFFREY JEFFERSON	PRIVATE	636
04.02410.0000	DEBORAH J FRENCH	PRIVATE	637
04.02411.0000	BENJAMIN R & KARI J NEMETH	PRIVATE	638
04.02412.0000	HARRIS D OLSON & MARCIA B OLSON REV TRUST	PRIVATE	639
04.02414.0000	MATTHEW C MCCLURE REV TRUST	PRIVATE	640
04.02415.0000	JEFF A SMITH	PRIVATE	641
04.02416.0000	KATHLEEN M LANGER & GERALD W LANGER JOINT REV TRUST	PRIVATE	642
04.02417.0000	DANIEL B TYSVER & BELINDA M TYSVER REV TRUST	PRIVATE	643
04.02419.0000	ROBERT W MCGONAGLE	PRIVATE	644
04.01709.0010	NATHANIEL JOHN U CASTRO	PRIVATE	645
04.02233.0500	PAUL & JOY HOPPE	PRIVATE	646
04.02233.0501	DOUGLAS L & JANET L PETERSON	PRIVATE	647
04.01708.0010	LYLE W & JOYCE E WOLHART	PRIVATE	648
04.01709.0005	DAVID W & SHERI WOLHART	PRIVATE	649
04.02394.0001	JOHN M & CHERYL A LOVITZ	PRIVATE	650
04.02394.0004	PAUL & MARY JO OMANN	PRIVATE	651
04.02394.0008	JENNIFER A WISE	PRIVATE	652
04.02394.0009	NATHANIEL JOHN U CASTRO	PRIVATE	653
04.01750.0004	NATHANIEL JOHN U CASTRO	PRIVATE	654
04.02233.0520	JON W & LAURIE J PERRY	PRIVATE	655
04.02233.0521	JON W & LAURIE J PERRY	PRIVATE	656
04.02233.0131	JASON R HUSE REV TRUST	PRIVATE	657
04.02233.0130	JASON R HUSE REV TRUST	PRIVATE	658
04.02502.0051	GRANT D GILLELAND	PRIVATE	659
04.02502.0052	GRANT D GILLELAND	PRIVATE	660
04.02502.0058	CHRISTY M GILLELAND	PRIVATE	661
04.02502.0056	GREGORY A RUETER	PRIVATE	662
04.01757.0000	MARY LOU STANG	PRIVATE	663
04.01758.0000	CRAIG R ERICKSON	PRIVATE	664
04.01756.0000	STEVEN T & KAYE M HEINS	PRIVATE	665
04.01759.0000	FRANK FAMILY TRUST	PRIVATE	666
04.01760.0010	EILEEN WENZ REVOCABLE TRUST	PRIVATE	667
04.01760.0000	BERNARD F OMANN	PRIVATE	668
04.01754.0000	TIMOTHY W WENZ	PRIVATE	669
04.02463.0004	FREDERICK C HERGES REV TRUST	PRIVATE	670
04.02463.0010	JOHN A SEBAS	PRIVATE	671
04.02220.0000	JOHN B STEELE	PRIVATE	672
04.02221.0000	RAMPAI SUKHAM TRUST	PRIVATE	673
04.02222.0000	DOUGLAS M & LAURIE J ALLEN	PRIVATE	674
04.02223.0000	ALAN R JACOBSON	PRIVATE	675
04.02224.0000	BENJAMIN R & KARI J NEMETH	PRIVATE	676
04.02390.0000	DERICK NETTER	PRIVATE	677
04.02389.0000	ANN ELISE BERGSTROM REV TRUST	PRIVATE	678
04.02388.0000	SEAN P WELANDER	PRIVATE	679
04.02387.0000	MICHAEL F CONTARDO	PRIVATE	680
04.02386.0000	MARILYNN S OLSEN	PRIVATE	681
04.02385.0000	JAMES L & PATSY J DEZURIK	PRIVATE	682
04.02384.0005	ROBERTA L CAYE TRUST	PRIVATE	683
04.02384.0004	RYAN D MORRIS	PRIVATE	684
04.02384.0000	JUSTIN C WAMPACH	PRIVATE	685
04.02383.0000	GARY W & WENDY VERKINNES	PRIVATE	686
04.02382.0000	DOUGLAS W VAGLE	PRIVATE	687
04.02381.0000	CHRISTIAN P & JANET I LERCH	PRIVATE	688
04.02380.0000	ANDREW MULDER	PRIVATE	689
04.02379.0000	COUNTRYSIDE CAMPGROUND LLC	PRIVATE	690
04.02379.0001	COUNTRYSIDE CAMPGROUND LLC	PRIVATE	691
04.02378.0004	SCOTT J SCHNEIDER REV TRUST	PRIVATE	692
04.02378.0001	DALE J & SYLVIA R MINNERATH	PRIVATE	693
04.02378.0000	JAMES T & TAMARA E UNGER	PRIVATE	694
04.02377.0005	NORMAN E & AMY L COLE	PRIVATE	695
04.02377.0000	NORMAN E & AMY L COLE	PRIVATE	696
04.02376.0000	NORMAN E & AMY L COLE	PRIVATE	697
04.02352.0000	CHARLES F III BRIGHAM TRUST	PRIVATE	698
04.02351.0000	MARK W BERGERSON	PRIVATE	699
04.02349.0000	PEDER HEGLAND & MARILYN J PEITSO REV TRUST	PRIVATE	700
04.02348.0000	JOHN P BARTLETT REV TRUST	PRIVATE	701
04.02347.0000	SHARON M WINTER	PRIVATE	702
04.02346.0000	BROCKWAY PINES LLC	PRIVATE	703
04.02371.0000	COREY J BARTLETT REVOCABLE TRUST	PRIVATE	704
04.02371.0003	MARY K OLSON REVOCABLE TRUST	PRIVATE	705
04.02263.0005	JASON & MINDY HUSE	PRIVATE	706
04.02371.0004	JIM ROGERS	PRIVATE	707
04.02371.0006	JIM ROGERS	PRIVATE	708
04.02371.0008	JIM ROGERS	PRIVATE	709
04.02392.0030	DOUGLAS E & KATHRYN WOOD	PRIVATE	710
04.02392.0032	DOUGLAS E & KATHRYN WOOD	PRIVATE	711
04.02371.0014	BROCKWAY PINES LLC	PRIVATE	712
04.02392.0034	DOUGLAS E & KATHRYN WOOD	PRIVATE	713
04.02392.0025	DOUGLAS E & KATHRYN WOOD	PRIVATE	714
04.02392.0040	JOHN P BARTLETT REV TRUST	PRIVATE	715

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
04.02392.0023	MARC G SANDERSON	PRIVATE	716
04.02392.0020	CHRISTOPHER MILLER	PRIVATE	717
04.02392.0017	DEAN VIRNIG	PRIVATE	718
04.02392.0014	CAROL J FENEIS REV TRUST	PRIVATE	719
04.02392.0013	TIMOTHY NELSON	PRIVATE	720
04.02392.0012	CONNIE R NAHAN REV TRUST	PRIVATE	721
04.02392.0011	BETH A BACHMAN	PRIVATE	722
04.02392.0010	PAMELA L MCGREGOR REV TRUST	PRIVATE	723
04.02392.0009	SCOTT A KLETTKE	PRIVATE	724
04.01774.0000	CHAD A HAROLDSON	PRIVATE	725
17.08901.0000	DAVID P POGATCHNIK	PRIVATE	726
17.08902.0000	MARK JOHN THORSON REV TRUST	PRIVATE	727
17.09551.0000	THOMAS P & JEANNE P HARTMANN	PRIVATE	728
17.09552.0000	ALFRED A BAERT	PRIVATE	729
17.09553.0000	LENORE M JOHNSON LIVING TRUST	PRIVATE	730
17.09554.0000	ADAM M & ALYSON H LAIDLAW	PRIVATE	731
17.09555.0000	MICHAEL R & KARI D MACHACEK	PRIVATE	732
17.09556.0000	MICHAEL P & PAMELA K DILLE	PRIVATE	733
17.09557.0000	ROBERT B SEXTON REV TRUST	PRIVATE	734
17.09558.0000	CHAD T & MICHELLE A SPODEN	PRIVATE	735
17.09559.0000	MICHAEL L DANIELSON	PRIVATE	736
17.09560.0000	TAD L FARRIS REV TRUST	PRIVATE	737
17.09561.0000	VIBHU KAPOOR	PRIVATE	738
17.09561.0010	THOMAS & LAURA L HEIM	PRIVATE	739
17.09563.0000	DOUGLAS J & MARLYS TANNER	PRIVATE	740
17.09564.0000	JAMES T & KATHLEEN PLOMBON	PRIVATE	741
17.09565.0000	RALPH J & ANN L ANDERSON	PRIVATE	742
17.09565.0001	CAMERON L SCHREIFELS	PRIVATE	743
17.09566.0000	CAMERON L SCHREIFELS	PRIVATE	744
17.09567.0000	CALEB R HAASE	PRIVATE	745
17.09568.0000	ERIK G SWANSON	PRIVATE	746
17.09569.0000	ROBIN C & KATHLEEN J JAHNKE	PRIVATE	747
17.09570.0000	KENT C & SHELLY M DAVIS	PRIVATE	748
17.09571.0000	JAMES W & MARIAN D JOHNSON	PRIVATE	749
17.09612.0000	JAMES W & MARIAN D JOHNSON	PRIVATE	750
17.09613.0000	JOEL M & TRISHA H BEMBOOM	PRIVATE	751
17.09613.0005	BENJAMIN L JENSEN	PRIVATE	752
17.09614.0000	BENJAMIN L JENSEN	PRIVATE	753
17.09614.0001	RITA E KNUESEL REV TRUST	PRIVATE	754
17.09615.0000	DENNIS O ANDERSEN	PRIVATE	755
17.09616.0000	DUANE A & JONI M RASMUSSON	PRIVATE	756
17.09617.0000	NICHOLE PERIUS	PRIVATE	757
17.09618.0000	SHAWN & PAMELA WENSEL	PRIVATE	758
17.09619.0000	DONALD G POPOWSKI & MARCENE L POPOWSKI TRUST	PRIVATE	759
17.09620.0000	LEONARD R DELONG REV TRUST	PRIVATE	760
17.09621.0000	WADE FRANCIS JACOBSEN REV TRUST	PRIVATE	761
17.09622.0000	PAMELA A OTTO	PRIVATE	762
17.09623.0000	PAMELA A OTTO	PRIVATE	763
17.09624.0000	TODD & CYNTHIA WYATT REV TRUST	PRIVATE	764
17.09625.0000	PAUL A CLARK	PRIVATE	765
17.09626.0000	JUDITH K SCHEUERELL QUALIFIED PERSONAL RESIDENCE TRUST	PRIVATE	766
17.09627.0001	RICHARD P BITZAN REV TRUST	PRIVATE	767
17.09628.0000	MICHAEL P & CHERYL J NIES	PRIVATE	768
17.09629.0000	THOMAS R MILLER MINNESOTA PERSONAL RESIDENCE TRUST	PRIVATE	769
17.09752.0010	RUMIKO Y PETERSON & TODD V PETERSON JOINT REV TRUST	PRIVATE	770
17.09752.0000	DAVID SCHLOUGH	PRIVATE	771
17.09753.0000	BONNIE J HALL	PRIVATE	772
17.09754.0000	CHARLES P EHLEN REV TRUST	PRIVATE	773
17.09755.0000	BRENT & CHRISTIE HAMAK	PRIVATE	774
17.09756.0000	PAMELA GOODING	PRIVATE	775
17.09757.0000	KAREN M GILLELAND REV TRUST	PRIVATE	776
17.09758.0000	DARIN & SUZANNE BUCHHOLZ	PRIVATE	777
17.09759.0000	GERALD L & KAREN B JURGENS	PRIVATE	778
17.09760.0000	PAUL D WENNER	PRIVATE	779
17.09761.0000	MARY C SAKRY	PRIVATE	780
17.09762.0000	SHIRLEY R WINDSCHITL REV TRUST	PRIVATE	781
17.09763.0000	MICHAEL D & J WINDSCHITL	PRIVATE	782
17.09764.0000	HERBERT J & BONNIE SCHRAUT	PRIVATE	783
17.09764.0005	GARY J & ROSEANN M STANG	PRIVATE	784
17.09765.0000	WINNEBAGO ROAD PROPERTIES LLC	PRIVATE	785
17.09767.0000	KIMBERLY HEMBERGER	PRIVATE	786
17.08994.0000	DAVID D VOS	PRIVATE	787
17.08993.0002	MICHAEL & KAREL HELGESON	PRIVATE	788
17.08992.0002	MICHAEL & KAREL HELGESON	PRIVATE	789
17.08990.0000	JENNIFER A LARSON REV TRUST	PRIVATE	790
17.08991.0000	JEROME HETTWER	PRIVATE	791
17.08989.0000	MARK R & GINA HALSTROM	PRIVATE	792
17.08988.0000	AARON MEIERHOFER	PRIVATE	793
17.09410.0001	RONALD C BERG REV TRUST	PRIVATE	794
17.09410.0003	BENJAMIN R & KARI J NEMETH	PRIVATE	795
17.09410.0005	JEFFREY C WINDSCHITL	PRIVATE	796
17.09410.0033	ALAN F & HEIDI A SCHNEIDER	PRIVATE	797
17.09410.0035	JANET S TILSTRA	PRIVATE	798
17.09410.0037	MICHAEL J & KIMBERLY S LAKMANN	PRIVATE	799
17.09410.0039	CAROL J GAETZ REV TRUST	PRIVATE	800
17.08984.0000	PETER H JOHNSON	PRIVATE	801
17.08985.0000	LAWRENCE M & MARY HALL	PRIVATE	802
17.08986.0000	THOMAS J WILLIAMS REV TRUST	PRIVATE	803
17.08987.0000	TODD ZAUN REV TRUST	PRIVATE	804
17.09003.0000	THE CHEESE COMPANY LLC	PRIVATE	805
17.09001.0000	WANDA G ORTH REV LIVING TRUST	PRIVATE	806



SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS LICENSED LAND SURVEYOR 40555 STATE OF MINNESOTA

4-11-22

BY: JASON NESS DATE

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX Date

Map Note:
Metes and bounds project boundary description is based on GIS information. When the project boundary description references a specific corner, that reference shall govern over the bearing and distance references in case of conflict.

Unless specifically noted otherwise, Minnesota PLSS and hydrographic data are from the Minnesota Geospatial Commons, Parcel boundaries are from either Stearns or Benton County GIS departments, and contour information was derived from LiDAR DEM data downloaded from the MnTOPO web application (MN DNR). The Project Boundary contour line was derived from a 1m DEM. These items have not been surveyed by Mead & Hunt, Inc.

ALL PUBLIC ROADS AND ASSOCIATED RIGHT-OF-WAYS ARE EXCLUDED FROM THE PROJECT

Reference coordinates are in Minnesota Stateplane
Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G-23

EAGLE CREEK SARTELL HYDRO, LLC **SARTELL, MINNESOTA**

SARTELL HYDROELECTRIC PROJECT

FERC PROJECT No. 8315

MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA

PROJECT BOUNDARY MAP

SCALE: AS SHOWN
DATE: JUNE 2022

STEARNS COUNTY OWNERSHIP

PARCEL ID	OWNER NAME	OWNER TYPE	MAP NO
17.09004.0000	JAMES E GABRIELSON	PRIVATE	807
17.08995.0000	CARLO & JUDY SCHWINN	PRIVATE	808
17.08998.0000	KRISTIN A MORAN	PRIVATE	809
17.09000.0000	DONALD P HELGESON REV TRUST	PRIVATE	810
17.09007.0000	EDITH A BLATTNER REV TRUST	PRIVATE	811
17.08996.0002	CHRISTOPHER C HAUCK	PRIVATE	812
17.09006.0002	ROBERT W MAHOWALD JR	PRIVATE	813
92.57171.0170	ERIC T MCFARLING	PRIVATE	814
17.09749.0001	HIEU V NGUYEN TRUST	PRIVATE	815
17.09012.0001	TRAESE KUHL REV TRUST	PRIVATE	816
17.09012.0000	ANTHONY D MURPHY	PRIVATE	817
17.09010.0000	STEPHEN R HOBBS	PRIVATE	818
92.56579.0042	LINDA D SPANIER	PRIVATE	819
17.09296.0000	SCOTT A & MARY C SEHNERT	PRIVATE	820
92.56579.0044	THEODORE R HULLSIEK	PRIVATE	821
92.56579.0041	STEVEN E & LORRAINE L VOLKERS	PRIVATE	822
92.56579.0040	ROBERT L & ANNE M MAHOWALD	PRIVATE	823
17.09288.0000	WAYNE J HARRISON JR	PRIVATE	824
92.56709.0000	JOHN P MAHOWALD LIVING TRUST	PRIVATE	825
92.56710.0000	JOHN P MAHOWALD LIVING TRUST	PRIVATE	826
92.56712.0000	ERIC M STOTKO	PRIVATE	827
92.56713.0000	HELEN C SHEETS REV TRUST	PRIVATE	828
92.56715.0000	DANIEL S ILER REV TRUST	PRIVATE	829
92.56829.0000	BLAINE HAY JR	PRIVATE	830
92.56830.0000	PETER M & MITZE J OLSON	PRIVATE	831
92.56831.0000	JEFFREY A & ANNE E DETERS	PRIVATE	832
92.56832.0000	JUDITH STUMVOLL	PRIVATE	833
92.56833.0000	SHAWN K PETERSEN	PRIVATE	834
92.56834.0000	CHARLES E & PATRICIA OFFERDAHL	PRIVATE	835
92.56835.0000	DANYA R RICE REV TRUST	PRIVATE	836
92.56836.0000	STEVEN P & JOY E WILSON	PRIVATE	837
92.56837.0000	BRIAN SCHULTZ	PRIVATE	838
92.56509.0000	MICHELLE L NICHOLS	PRIVATE	839
92.56508.0001	MARK O HENRY	PRIVATE	840
92.56510.0000	ROBERT J & JOAN R KARPEL	PRIVATE	841
92.56514.0000	DOUGLAS & JON MARIE LARSON	PRIVATE	842
92.56515.0000	ROBERT J & JOAN R KARPEL	PRIVATE	843
92.56512.0000	MARK S & KATHI LYNN SAUERER	PRIVATE	844
92.56513.0000	BERT D LARSON	PRIVATE	845
92.56507.0000	JASON A LATUNSKI	PRIVATE	846
92.57118.0005	CITY OF SARTELL	CITY	847
92.57116.0005	CITY OF SARTELL	CITY	848
92.57116.0000	EAGLE CREEK SARTELL HYDRO LLC	LICENSEE	849
92.56917.0090	EAGLE CREEK SARTELL HYDRO LLC	LICENSEE	850
92.56919.0000	CITY OF SARTELL	CITY	851

RECREATION SITE TABLE

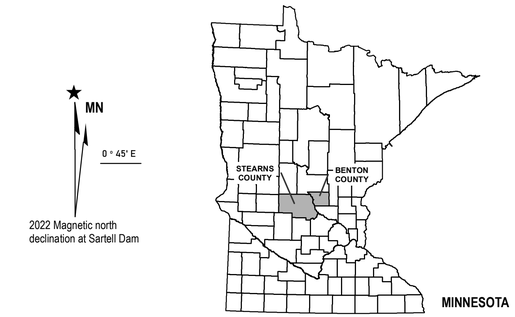
Site ID	Recreation Facility	Latitude	Longitude
1	Canoe Portage Take-out	45° 37' 20.742" N	94° 12' 14.033" W
2	Canoe Portage Put-in	45° 37' 11.747" N	94° 12' 19.882" W

PROJECT BOUNDARY COURSE TABLE

FROM POINT	TO POINT	BEARING	DISTANCE (ft)	DESCRIPTION
SEC COR	POB	N39° 44' 11" W	2,281.83	From SE Corner Section 9, T36N, R31W, Benton County to POB, a point on contour elevation 1,015.0 ft NGVD 1929
POB	1	S21° 39' 29" W	114.25	Along Parcel # 180000100 (Benton County)
1	2	S27° 58' 49" W	280.07	Along Parcel # 180000100 (Benton County)
2	3	S78° 31' 31" E	77.44	Along Parcel # 180000100 (Benton County)
3	4	S11° 04' 13" W	174.99	Along Parcel # 180000100 (Benton County)
4	5	N78° 31' 30" W	100.94	Along Parcel # 180000100 (Benton County)
5	6	S17° 06' 53" W	14.32	
6	7	S06° 29' 25" W	27.76	
7	8	S87° 37' 13" W	17.25	
8	9	S10° 44' 16" W	297.58	
9	10	N80° 00' 51" W	663.30	
10	11	N09° 41' 29" E	139.73	To a point on Parcel # 92.56917.0090 (Stearns County)
11	12	N60° 15' 04" W	88.41	Along Parcel # 92.56917.0090 (Stearns County)
12	13	N17° 18' 20" E	72.66	Along Parcel # 92.56917.0090 (Stearns County)
13	14	N33° 39' 03" E	188.98	Along Parcel # 92.56917.0090 (Stearns County)
14	15	N30° 13' 11" E	598.59	Along Parcel # 92.57116.0000 (Stearns County)
15	16	S61° 47' 06" E	13.93	To a point on elevation contour 1,015.0 ft NGVD 1929
16	POB		222,298.78	Along elevation contour 1,015.0 ft NGVD 1929

Non-Project Lands referenced on maps refer to lands excluded from the Project Boundary within the Mississippi River or Little Rock Channel

	ALONG SEGMENT			DESCRIPTION
	L1			Lands above contour elevation 1,015.0 ft NGVD 1929 (Exhibits G-8 and G-9)
	L2			Lands above contour elevation 1,015.0 ft NGVD 1929 (Exhibits G-11)



SURVEYOR'S STATEMENT

I HEREBY STATE THAT THE PROJECT BOUNDARY DELINEATION FOR THE SARTELL HYDROELECTRIC PROJECT AS SHOWN ON THIS EXHIBIT "G" IS DEVELOPED WITHIN REASONABLE MAPPING ACCURACIES AS REQUIRED IN 18CFR4.41. THE SARTELL DOCUMENTED PROJECT BOUNDARY LINE WAS ADJUSTED OR ROTATED TO BEST FIT WITH USGS QUADRANGLE MAP FEATURES GRAPHICALLY OR HIGHER ACCURACY GEOSPATIAL DATA OBTAINED LOCALLY AND WAS NOT FIELD SURVEYED.

JASON NESS
LICENSED LAND SURVEYOR 40555
STATE OF MINNESOTA

4-11-22

BY: JASON NESS — DATE

APPLICANT STATEMENT

I have reviewed the Sartell Hydroelectric project boundary shown herein. The licensee either owns in fee simple or has the rights necessary or appropriate for the operation of the hydroelectric project. The project boundary lines that are not contour lines were based in part on GIS parcel data from Stearns County and Benton County GIS departments. Elevation data is from the Minnesota Department of Natural Resources (MnTopo application), source date 2011 and 2012.

DAVID FOX — Date

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Central Zone FIPS 2202, NAD 83.
Coordinate units are in U. S. Survey feet.
Project boundary elevation contour is referenced to NGVD 1929.

EXHIBIT G-24

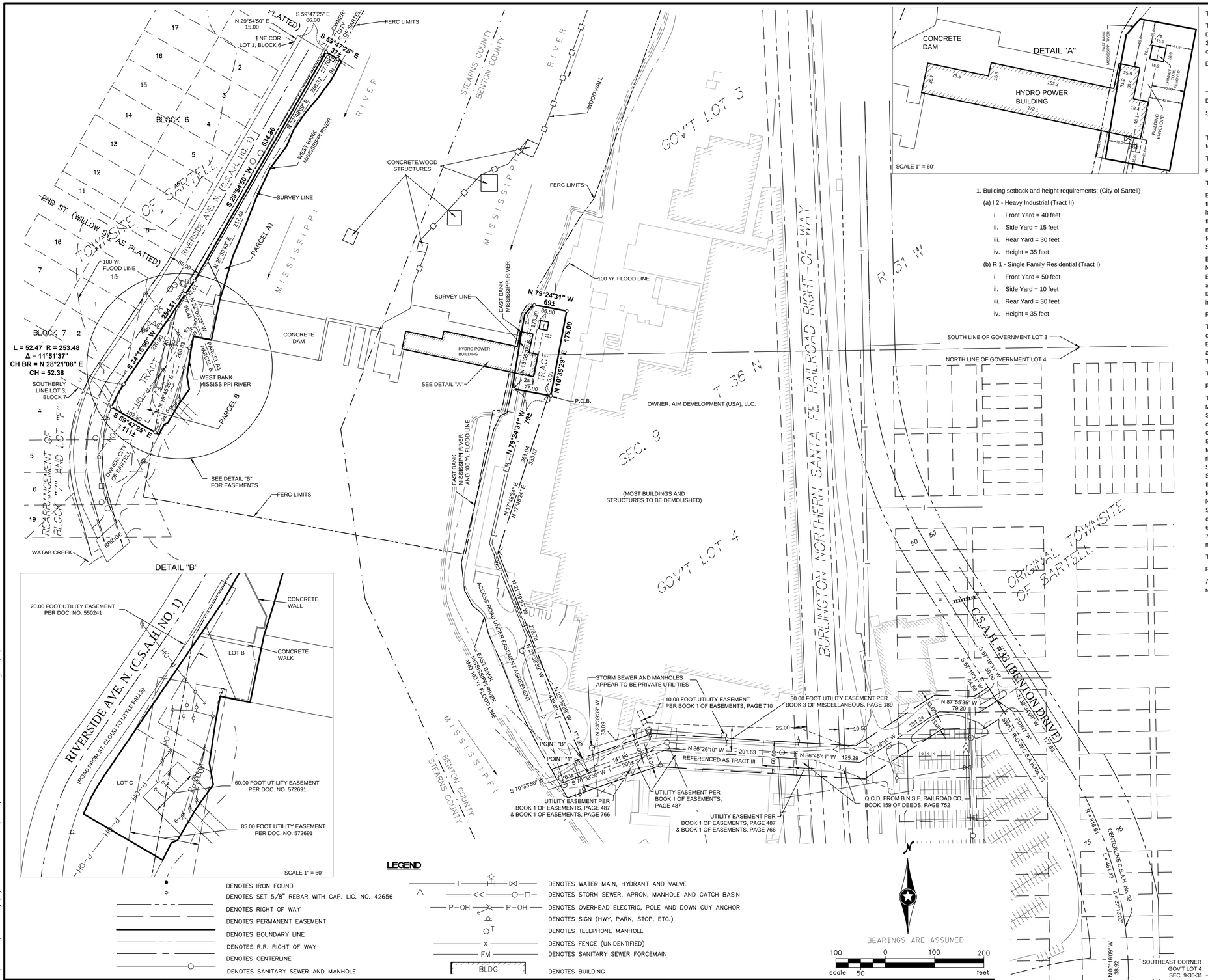
EAGLE CREEK SARTELL HYDRO, LLC — **SARTELL, MINNESOTA**

SARTELL HYDROELECTRIC PROJECT
FERC PROJECT No. 8315-MN
MISSISSIPPI RIVER
BENTON AND STEARNS COUNTIES, MINNESOTA
PROJECT BOUNDARY MAP

SCALE: AS SHOWN
DATE: JUNE 2022

APPENDIX B

EASEMENT AGREEMENT DOCUMENTATION



1. Building setback and height requirements: (City of Sartell)
   (a) I 2 - Heavy Industrial (Tract II)
      i. Front Yard = 40 feet
      ii. Side Yard = 15 feet
      iii. Rear Yard = 30 feet
      iv. Height = 35 feet
   (b) R 1 - Single Family Residential (Tract I)
      i. Front Yard = 50 feet
      ii. Side Yard = 10 feet
      iii. Rear Yard = 30 feet
      iv. Height = 35 feet

To AIM Development (USA), LLC., First American Title Insurance Company, and Eagle Creek Renewable Energy, LLC.:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2011 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 6(a), 7(a), 7(b)(1), 7(c), 8, 9, 10(a), 11(a), 12, 13, 14, 15, 16, 17, 18, 19 and 20(a) of Table A thereof. The field work was completed on October 22nd, 2014.

Date of Plat or Map: 12/01/2014

Dennis J. Warner

Dennis J. Warner, Professional Surveyor, Minnesota Lic. No. 42656

Survey based on Title Commitment No. NCS-629158-MKE, Effective date: August 31, 2013, revised October 17, 2014.

The land referred to in this Commitment is situated in the County of Benton and Stearns, State of Minnesota, and is described as follows:

Tract I:

Parcel A1:

That part of Section 21, Township 125, Range 28, Stearns County, described as follows:

Beginning at an iron bolt set in a granite rock 10 feet north of the intersection of the north shore of Watab Creek with the West shore of the Mississippi River; thence North 23 degrees West, 450 feet to the middle of the road leading from St. Cloud to Little Falls, as now located and traveled; thence North 30 degrees East, 900 feet to the middle of said road; thence North 6 degrees East, 200 feet along the middle of said road; thence North 13 degrees West, 217 feet along the middle line of said road to a point 2000 feet south of the north line of said Section 21 produced; thence East 90 feet to the west shore of the Mississippi River; thence in a southerly direction following said west shore of the Mississippi River to the place of beginning, the same being Lot lettered "B" in the Townsite of Sartell, Stearns County, Minnesota.

Except that part of said Lot lettered "B" in the Townsite of Sartell, lying Northerly of the following described line: Commencing at the Northeast corner of Lot 1, Block 6, Townsite of Sartell; thence Northeasterly in a straight line along the Northeasterly extension of the Easterly line of said Lot 1 a distance of 15 feet; thence Southeasterly at right angles from the prolongation of the last described course a distance of 66 feet, more or less, to the point of intersection with the West line of said Lot lettered "B", which point is the point of beginning of the line herein described; thence continue Southeasterly along the prolongation of the last described course to its intersection with the ordinary high water line of the Mississippi River and there terminating.

Parcel B:

That part of Lot lettered "C", in Townsite of Sartell, Stearns County, and that part of vacated River-View Avenue, as shown on said plat of Townsite of Sartell and that part of Lot 3, Block 7, in Rearrangement of Block "7" and Lot "F" in Townsite of Sartell, lying East of the Easterly right-of-way line of Riverview Avenue (now Riverside Avenue No.) as shown in the plat of Partial Rearrangement of Sartell, and Northerly of the Southeasterly extension of the Southerly line of said Lot 3, Block 7, in Rearrangement of Block "7" and Lot "F" in Townsite of Sartell to its point of intersection with the ordinary high water mark of the Mississippi River and there terminating.

Tract II:

Parcel A (Abstract Property):

That part of Government Lots 3 and 4, Section 9, Township 36 North, Range 31 West of the 4th Principal Meridian, Benton County, Minnesota, described as follows: Commencing at the southeast corner of said Government Lot 4, thence on an assigned bearing of South 89 degrees 33 minutes 04 seconds West, along the south line of said Government Lot 4, a distance of 408.28 feet to the centerline of County State Aid Highway Number 33; thence North 00 degrees 16 minutes 09 seconds West 38.92 feet along said centerline; thence northwesterly 461.43 feet along a tangential curve, and said centerline, concave to the southwest, having a radius of 818.51 feet, and a central angle of 32 degrees 18 minutes 00 seconds; thence North 32 degrees 34 minutes 09 seconds West, tangent to said curve, 177.83 feet along said centerline; thence South 57 degrees 19 minutes 31 seconds West 50.00 feet to the southwesterly right-of-way line of said County State Aid Highway Number 33, said point shall hereinafter be referred to as point "A"; thence continue South 57 degrees 19 minutes 31 seconds West 44.86 feet; thence North 87 degrees 55 minutes 35 seconds West 79.20 feet; thence South 57 degrees 19 minutes 31 seconds West 191.24 feet; thence North 86 degrees 46 minutes 41 seconds West 125.29 feet; thence North 86 degrees 26 minutes 10 seconds West 291.63 feet; thence South 70 degrees 33 minutes 50 seconds West 141.84 feet; thence North 23 degrees 39 minutes 39 seconds West 33.09 feet to a point hereinafter referred to as point "B"; thence continue North 23 degrees 39 minutes 39 seconds West 438.62 feet; thence North 17 degrees 48 minutes 24 seconds East 351.04 feet; thence South 79 degrees 24 minutes 31 seconds East 5.00 feet to the point of beginning of the tract to be herein described; thence North 10 degrees 35 minutes 29 seconds East 175.00 feet; thence North 79 degrees 24 minutes 31 seconds West 69 feet, more or less, to the easterly shoreline of the Mississippi River; thence southerly along said easterly shoreline to the intersection with a line bearing North 79 degrees 24 minutes 31 seconds West from the point of beginning; thence South 79 degrees 24 minutes 31 seconds East 79 feet, more or less, to the point of beginning.

Tract III:

Parcel C:

A perpetual easement for access, utilities, and transmission lines contained in the Easement Agreement dated November 7th, 2014, recorded November 12th, 2014, as Document No. 406495.

Notes to Survey:

1. Zoning for the Benton County parcel is I2 Heavy Industrial.
2. Zoning for the Stearns County parcel is R1 Single Family Residential.
3. Gross land area is 1.36± acres, 0.30± acres in Benton County, and 1.06± acres in Stearns County.
4. Portions of these parcels are within FEMA flood zone "AE". Flood Insurance Rate Map Panel numbers 27009C0252E and 27145C0627E were used to determine the flood boundaries shown on this survey.
5. There are no parking spaces within the parcels on this survey, excluding the Parcel C Easement.
6. Some of the structures in the river north of the dam are shown based on aerial photos. Personnel on site testified they were built and maintained by the former paper company.
7. Monuments will be placed upon completion of demolition of adjoining structures.
8. The area of the Hydro Power building is 13,864± sq. ft.
9. The height of the Hydro Power building is 42.7± feet.
10. Existing buildings adjacent to the subject parcel are in the process of being demolished.
11. Current Hydro Building is a legal non-conformity per conversations with the City of Sartell Planning and Zoning department.
12. The City of Sartell does not list an Ordinary High Water setback in their City Code. Per instructions from the City Planning and Zoning Department, a rear yard setback of 30 feet was used.
13. This survey was performed in winter conditions with considerable snow cover.
14. No wetlands were observed above the banks of the river.
15. The state of Minnesota is presumed to be the record owner of the bed of the Mississippi River.
16. The bank of the Mississippi River was located on January 9th, 2014.
17. There is no evidence of this site being used as a solid waste dump, sump or sanitary landfill. The demolished materials are being removed via train cars.
18. The water boundary is subject to change due to natural causes. This boundary line may or may not represent the actual location of the limit of title.
19. Currently there is a temporary underground power connection to the northeast corner of the Hydro building coming across the site to the east. The underground power is not shown on this survey. This will be relocated to the west across the dam in the near future. There are no other working utilities currently servicing the building. Eventually, water and sewer will service the building down the proposed easement road.
20. The two monuments on the easterly line of Tract II will be placed within one year because of current demolition in the area.

DRAWN BY: BRW	1	BRW	10/28/14	ADDED SANITARY SEWER FORCEMAIN AND WATERMAIN, AND UPDATED LEGEND
SURVEYOR: BRW		BRW	10/28/14	REVISED EASEMENT DESCRIPTION
CHECKED BY: DJW	2	BRW	10/30/14	UPDATED EXCEPTIONS TO REFLECT REVISED COMMITMENT, DATED 10/17/2014
	3	BRW	11/18/14	ADDED RECORDING INFORMATION FOR TRACT III
	4	BRW	12/01/14	REMOVED "NOT YET RECORDED" FROM UNDER TRACT III
DESIGN TEAM	NO.	BY	DATE	REVISIONS

SEH
PHONE: 320.229.4300
1200 25TH AVENUE SOUTH
P.O. BOX 1717
ST. CLOUD, MN 56302-1717
www.sehinc.com

Survey for:
AIM DEVELOPMENT (USA), LLC
A Delaware Limited Liability Co.

ALTA/ACSM LAND TITLE SURVEY

FILE NO. AIMDE 125715

1 / 2

S:\AE\A\Aimde\125715\9-survey\Hydro Parcel ALTA\CAD\AIMDE125715 ALTA 20140401.dwg 12/1/2014 10:10 AM Twisted

As to Tract I:

14. Terms and conditions, including an easement for the purposes of a future lock for navigation, as contained in the deed from The Watab Rapids Power Company to the United States of America, dated April 6, 1905, recorded December 12, 1906 in Book 104 of Deeds at page 524. **Affects Tract I Parcel A1; cannot be located - blanket easement.**

15. Terms and conditions of the Flowage Deed to The Watab Rapids Power Company, dated September 14, 1906, recorded October 29, 1908 in Book 108 of Deeds, at page 433. **Affects Tract I Parcel B; cannot be located - blanketed rights.**

16. Easement for power line purposes as contained in the instrument dated October 31, 1955, recorded October 31, 1955 in Book 32 of A and A, at page 406, as amended by the Partial Release of Easement dated September 7, 1984, recorded September 20, 1984 as Doc. No. 572692. **Does not affect the property.**

17. Easement for power line purposes as contained in the instrument dated May 6, 1957, recorded May 22, 1957 in Book 32 of A & A, at page 411, as amended by the Partial Release of Easement dated September 7, 1984, recorded September 20, 1984 as Doc. No. 572691. **Affects Tract I Parcel B; shown on survey.**

18. Easement for utility purposes in favor of the City of Sartell, as contained in the Quit Claim Deed dated November 30, 1982, recorded March 18, 1983 in Book 504 of Deeds, at page 233, as Doc. No. 550241. **Affects Tract I Parcels A1 and B; shown on survey.**

19. Reservation by the City of Sartell of rights regarding an existing sanitary sewer line, as contained in the Quit Claim Deed dated June 26, 1984, recorded July 2, 1984 as Doc. No. 569257. **Affects Tract I Parcels A1 and B; reserving the easement in Exception 18 as shown on survey.**

As to Tract II & Tract III:

20. Terms and conditions, including reservations by the grantor, in the Quitclaim Deed from the Burlington Northern Railroad Company, to St. Regis Paper Company, dated December 30, 1982, recorded January 3, 1983 in Book 159 of Deeds, at page 752. **Affects Tract III, shown on survey.**

21. Flowage Deed dated February 28, 1911, recorded November 11, 1911 in Book 48 of Deeds at page 576. **Does not affect the property.**

22. Rights of the Northern Pacific Railway Company to an approach over and across Government Lot 4, as contained in the instruments dated March 2, 1915, recorded March 15, 1915 in Book 49 of Deeds, at page 340, and dated September 1, 1915, recorded in Book 49 of Deeds at page 413. **Does not affect the property.**

23. Rights of the Northern Pacific Railway Company to certain spur tracks and sidings over and across Government Lot 4, as contained in the instrument dated June 25, 1937, recorded June 30, 1937 in Book 9 of Miscellaneous, at page 128. **Does not affect the property.**

24. Easement for sewer purposes in favor of the City of Sartell, as contained in the instrument dated June 19, 1941, recorded July 15, 1941 in Book 84 of Deeds, at page 602. **Does not affect the property.**

25. Easement for power line purposes in favor of Northern States Power Company, as contained in the instrument dated July 2, 1957, recorded July 22, 1957 in Book 17 of Miscellaneous, at page 274. **Affects Tract III, not shown on survey; ambiguous description.**

26. Easement for power line purposes in favor of Northern States Power Company, as contained in the Easement dated October 12, 1971, recorded October 26, 1971 in Book 3 of Miscellaneous, at page 189. **Affects Tract III, shown on survey.**

27. Easement for power line purposes in favor of Northern States Power Company, as contained in the Easement dated December 13, 1972, recorded January 4, 1973 in Book 29 of Miscellaneous, at page 179. **Does not affect the property.**

28. Easement for power line purposes in favor of Northern States Power Company, as contained in the Easement dated August 18, 1980, recorded October 16, 1980 in Book 1 of Easements, at page 567. **Does not affect the property.**

29. Terms and conditions of the Easement Agreement between the City of Sartell and St. Regis Paper Company, dated August 25, 1980, recorded September 8, 1980 in Book 1 of Easements, at page 487, relating to utility lines over and under Sartell Street. **Affects Tract III, shown on survey.**

30. Easement for power line purposes in favor of Northern States Power Company, as contained in the Easement dated April 16, 1981, recorded April 23, 1981 in Book 1 of Easements, at page 710. **Does not affect the property, shown on survey.**

31. Terms and conditions of the Easement Agreement between the City of Sartell, and St. Regis Paper Company, dated June 22, 1981, recorded July 29, 1981 in Book 1 of Easements, at page 766. **Affects Tract III, shown on survey.**

32. Terms and conditions, including easements, as contained in the Reciprocal Easement Agreement between St. Regis Paper Company, and Sartell Associates Limited Partnership, dated December 31, 1982, recorded January 6, 1983 as Doc. No. 164108, as amended by the Amendment No. 1, dated December 31, 1982, recorded August 5, 1983 as Doc. No. 166263 (which encumber additional land). **Affects Tract II Parcel A and Tract III; cannot be located - blanket easement.**

33. Right of way for Benton County State Aid Highways 29 and 33, including the right to erect and to maintain temporary snow fences on land adjacent there and also including access controls, as said roads are presently laid out and traveled and as contained in the following:

    (a) Final Certificate by the State of Minnesota, dated November 3, 1954, recorded November 17, 1954 in Book 16 of Miscellaneous, at page 564; **Does not affect the property.**

    (b) Quit Claim Deed from the State of Minnesota to the County of Benton, dated November 15, 1982, recorded November 29, 1982 in Book 159 of Deeds, at page 691; **Does not affect the property.**

    (c) Agreement between the County of Benton, the City of Sartell, and St. Regis Corporation, dated May 17, 1983, recorded July 18, 1983 in Book 44 of Miscellaneous, at page 589; **Does not affect the property.**

    (d) Quit Claim Deed from St. Regis Corporation to the County of Benton, dated May 17, 1983, recorded July 18, 1983 in Book 165 of Deeds, at page 91, which also includes easements for bridge and pier footings purposes; **Does not affect the property.**

    (e) Final Certificate by the County of Benton, dated October 10, 1984, recorded October 24, 1984 in Book 47 of Miscellaneous, at page 116, by which the County acquired an easement for right of way purposes; **Does not affect the property.**

    (f) Resolution 73-1984 by the City of Sartell, dated December 10, 1984, recorded December 14, 1984 in Book 47 of Miscellaneous, at page 356; **Does not affect the property.**

    (g) Release and Conveyance from the County of Benton to Champion International Corporation, dated May 7, 1985, recorded May 21, 1985 in Book 155 of Deeds, at page 762, by which the County purported to convey to Champion International Corporation a portion of the former right of way; **Does not affect the property.**

    (h) Resolution by the Benton County Board of Commissioners, dated December 19, 1995, recorded March 14, 1996 as Doc. No. 233716, transferring a portion of the right of way along said road to the City of Sartell; **Does not affect the property.**

    (i) Resolution No. 15-1996 by the City of Sartell City Council, dated February 12, 1996, recorded March 14, 1996 as Doc. No. 233717, vacating a portion of the right of way along County State Aid Highway No. 33. **Does not affect the property.**

34. Terms and conditions of the following Resolutions by the City of Sartell, which vacate various of the streets and alleys in the Townsite of Sartell:

    (a) Resolution by the Village of Sartell, dated May 1, 1916, which is unrecorded; **Does not affect the property.**

    (b) Resolution dated August 6, 1956, recorded August 15, 1956 in Book 17 of Miscellaneous, at page 160, which was rerecorded May 7, 1969 in Book 28 of Miscellaneous, at page 52; **Does not affect the property.**

    (c) Notice of Completion recorded April 15, 1980 in Book 40 of Miscellaneous, at page 10, and Resolution No. 19-1980, dated April 14, 1980, recorded April 15, 1980 in Book 40 of Miscellaneous, at page 12; **Does not affect the property.**

    (d) Notice of Completion recorded June 24, 1980 in Book 40 of Miscellaneous, at page 133, and Resolution No. 34-1980, dated June 23, 1980, recorded June 24, 1980 in Book 40 of Miscellaneous, at page 135; **Does not affect the property.**

    (e) Resolution No. 73-1984, dated December 10, 1984, recorded December 14, 1984 in Book 47 of Miscellaneous, at page 356; **Does not affect the property.**

    (f) Resolution No. 15-1996, dated February 12, 1996, recorded March 14, 1996 as Doc. No. 233717. **Does not affect the property.**

35. Reservation by the County of Benton of all minerals and mineral rights, as contained in the Quit Claim Deed dated April 18, 2006, recorded April 21, 2006 as Doc. No. A 337140. **Does not affect the property.**

36. Easement for right of way and other purposes in favor of the City of Sartell, as contained in the Easement dated May 19, 1958, recorded May 26, 1958 in Book 17 of Miscellaneous, at page 349. **Does not affect the property.**

37. Easement for right of way and other purposes in favor of the City of Sartell, as contained in the Easement dated May 12, 1958, recorded May 26, 1958 in Book 17 of Miscellaneous, at page 350. **Does not affect the property.**

38. Easement for power line purposes in favor of Northern States Power Company, as contained in the Easement dated April 16, 1981, recorded April 23, 1981 in Book 1 of Easements, at page 708. **Does not affect the property.**

39. Easement for telecommunications purposes in favor of Northwestern Bell Telephone Company, as contained in the Permanent Right-of-Way Permit dated December 14, 1939, recorded March 27, 1940 in Book 11 of Miscellaneous, at page 421. **Does not affect the property.**

40. Easement for pipeline purposes as contained in the following:

    (a) Pipeline Easement dated August 25, 1965, recorded September 27, 1966 in Book 22 of Miscellaneous, at page 523; **Does not affect the property.**

    (b) Modification and Amendment of Easement Grant, dated December 2, 1988, recorded July 7, 1989 as Doc. No. 193371; **Does not affect the property.**

    (c) Conveyance of this easement to Northern Natural Gas Company, dated December 31, 1990, recorded January 18, 1991 as Doc. No. 201079; **Does not affect the property.**

    (d) Correction of Modification and Amendment of Easement Grant by Northern Natural Gas Company, dated August 6, 1993, recorded August 13, 1993 as Doc. No. 217035. **Does not affect the property.**

41. Easement for pipeline purposes as contained in the following:

    (a) Pipeline Easement dated April 16, 1966, recorded September 27, 1966 in Book 22 of Miscellaneous, at page 525; **Does not affect the property.**

    (b) Modification and Amendment of Easement Grant, dated December 2, 1988, recorded July 7, 1989 as Doc. No. 193372; **Does not affect the property.**

    (c) Conveyance of this easement to Northern Natural Gas Company, dated December 31, 1990, recorded January 18, 1991 as Doc. No. 201079; **Does not affect the property.**

    (d) Correction of Modification and Amendment of Easement Grant by Northern Natural Gas Company, dated August 6, 1993, recorded August 13, 1993 as Doc. No. 217036. **Does not affect the property.**

42. Flowage rights reserved in the deed dated December 7, 1923, recorded December 29, 1923 in Book 60 of Deeds, at page 526. **Does not affect the property.**

43. Easement for sanitary sewer and watermain purposes in favor of the City of Sartell, as contained in the Easement dated July 23, 1974, recorded July 31, 1974 in Book 8 of Miscellaneous, at page 282. **Does not affect the property.**

44. Easement for power line purposes in favor of Northern States Power Company, as contained in the Easement dated February 9, 1981, recorded March 11, 1981 in Book 1 of Easements, at page 704. **Does not affect the property.**

45. Easement for power line purposes in favor of Northern States Power Company, as contained in the Easement dated January 14, 1971, recorded June 23, 1971 in Book 1 of Easements, at page 749. **Does not affect the property.**

46. Private Roadway and Crossing Agreement with the Burlington Northern Inc., dated April 1, 1980, which is unrecorded. **Does not affect the property.**

47. Wire Line Crossing Permit by the Burlington Northern Railroad Company, dated October 30, 1986, which is unrecorded. **Does not affect the property.**

48. License Agreement between Champion International Corporation and the County of Benton, dated _____, 1985, which relates to a sign on the land, and which is unrecorded. **Does not affect the property.**

49. License Agreement between Champion International Corporation and the County of Benton, dated August 1, 1989, which relates to the maintenance of a crosswalk on the land, and which is unrecorded. **Does not affect the property.**

50. License Agreement, between Verso Sartell LLC (formerly CMP Sartell LLC), and the City of Sartell, dated December 10, 2007, recorded December 26, 2007 as Doc. No. 353991. **Does not affect the property.**

51. Matters contained in the Affidavit Regarding Storage Tanks, dated March 8, 2013, recorded March 13, as Doc. No. 395365. **Does not affect the property.**

As to all Parcels:

52. Terms and conditions of the following deeds:

    (a) Limited Warranty Deed, from Verso Sartell LLC, as grantor, to AIM Development (USA) LLC, as grantee, dated March 8, 2013, recorded March 13, 2013, in the office of the Stearns County Recorded as Doc. No. A1393264; and. **Affects Tract I Parcels A1 and B, and Tract II Parcel A; not shown on survey.**

    (b) Limited Warranty Deed, from Verso Sartell LLC, as grantor, to AIM Development (USA) LLC, as grantee, dated March 8, 2013, recorded March 13, 2013, in the office of the Benton County Recorder as Doc. No. 395364. **Affects Tract I Parcels A1 and B, and Tract II Parcel A; not shown on survey.**

53. Terms and conditions of the easement agreement by which Tract III is created. **Affects Tract II Parcel A; shown on survey.**

54. Rights of tenants under unrecorded leases. **May or may not affect Tract I Parcel A1 and B, and Tract II Parcel A.**

DRAWN BY: BRW	NO.	BY	DATE	REVISIONS
	1	BRW	10/28/14	ADDED SANITARY SEWER FORCEMAIN AND WATERMAIN, AND UPDATED LEGEND
		BRW	10/28/14	REVISED EASEMENT DESCRIPTION
SURVEYOR: BRW	2	BRW	10/30/14	UPDATED EXCEPTIONS TO REFLECT REVISED COMMITMENT, DATED 10/17/2014
	3	BRW	11/18/14	ADDED RECORDING INFORMATION FOR TRACT III
CHECKED BY: DJW	4	BRW	12/01/14	REMOVED "NOT YET RECORDED" FROM UNDER TRACT III
DESIGN TEAM				

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Survey for:
AIM DEVELOPMENT (USA), LLC
A Delaware Limited Liability Co.

ALTA/ACSM LAND TITLE SURVEY

FILE NO. AIMDE 125715

S:\AE\A\Aimde\125715\9-survey\Hydro Parcel ALTA\CAD\AIMDE125715 ALTA 20140401.dwg 12/1/2014 10:10 AM bwisted

Sartell Hydroelectric Project
FERC Project No. 8315

Exhibit H
Additional Information Required Under Section 16.10

Final License Application

Prepared for

Eagle Creek Sartell Hydro, LLC

February 2023

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a. Information Provided by All Applicants H-1

b. Information Provided by Existing Licensee H-13

c. List of References H-17

TABLES

Table 5-1: Project Lost Generation Summary (2017-2021) H-16

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LIST OF ABBREVIATIONS

Applicant	Eagle Creek Sartell Hydro, LLC
CEII	Critical Energy Infrastructure Information
Commission	Federal Energy Regulatory Commission
DSSMR	Dam Safety Surveillance and Monitoring Report
DSSMP	Dam Safety and Surveillance Monitoring Plan
Eagle Creek	Eagle Creek RE Management, LLC
EAP	Emergency Action Plan
FERC	Federal Energy Regulatory Commission
Licensee	Eagle Creek Sartell Hydro, LLC
MISO	Midwest Independent System Operator
MW	Megawatt
MWh	Megawatt hour
ODSP	Owner's Dam Safety Program
Project	Sartell Hydroelectric Project
Sartell Hydro	Eagle Creek Sartell Hydro, LLC
Sartell Project	Sartell Hydroelectric Project
USACE	United States Army Corps of Engineers

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a. Information Provided by All Applicants

(1) Discussion of the plans and ability of the Applicant to operate and maintain the project in a manner most likely to provide efficient and reliable electric service, including efforts and plans to:

The Sartell Hydroelectric Project (Sartell Project or Project) is owned and operated by Eagle Creek Sartell Hydro, LLC (Sartell Hydro, Licensee), a wholly owned subsidiary of Eagle Creek RE Management, LLC (Eagle Creek). The Project is operated in a run of river mode where discharge measured immediately downstream of the Project tailrace approximates the sum of inflows into the Project. There are no minimum flow requirements. The Licensee maintains hydro department personnel and financial resources that are sufficient to reliably maintain and operate its hydroelectric projects and has a demonstrated record of license compliance.

(i) Increase capacity or generation at the project;

The Licensee does not propose additional development or upgrades for the Sartell Project at this time. Routine maintenance and/or replacement of Project facilities will be implemented as needed.

(ii) Coordinate the operation of the project with any upstream or downstream water resource projects; and

There are 14 regulated dams on the main stem of the Mississippi River within the Upper Mississippi River Basin, which include six Federal Energy Regulatory Commission (FERC)-regulated hydroelectric project dams: Blandin Dam, Brainerd Dam, Little Falls Dam, Blanchard Dam, Sartell Dam, and St. Cloud Dam. Six US Army Corps of Engineers (USACE) dams with third party hydropower generation under FERC Licenses; Pokegama Lake Dam, two St. Anthony Falls- Upper Dam (two hydroelectric projects), St. Anthony Falls- Lower Dam, Lock & Dam No. 1 (Ford Dam), and Lock & Dam No. 2 located in Hastings. One USACE dam that does not generate power, Winnebigoshish Dam, and two state-regulated dams that do not regulate power, Lake Bemidji Dam and Coon Rapids Dam (Mead & Hunt, 2020).

River flow rates are received daily by telephone from the Blanchard Dam upstream near Royalton, Minnesota. Operating personnel determine the operational mode for the project based on flows reported at the Blanchard Dam and assuming an approximate travel time of eight hours (WSP, 2021). The Project also has an established communication protocol with the City of St. Cloud in regarding the operation of the St. Cloud Dam downstream in case of a failure of the Sartell Dam (WSP, 2021).

The Project is operated manually, no remote operations are in place. Gate and turbine adjustments are made locally by operating personnel as necessary to maintain the reservoir at a constant level. During normal operations, personnel are present at the dam eight hours a day on weekdays with daily inspections occurring, and operators on call 24 hours per day, year-round.

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In addition to daily staffing, an operator is on call 24 hours a day, seven days per week should an abnormal condition be detected. During periods of high flow, an operator is on site 24 hours per day (Mead and Hunt, Inc., 2020), During periods of high flow the Project is staffed 24 hours per day with at least one operator. Changes in the upstream pool level are monitored continuously.

In addition to daily visits, an operator is on-call 24 hours per day, seven days per week should an abnormal condition be detected (WSP, 2021). The Project is operated in a run-of-river mode where discharge measured immediately downstream of the Project tailrace approximates inflows into the Project forebay to protect fish, wildlife, aesthetic, and recreational resources in the Mississippi River. There are no minimum flow requirements.

(iii) Coordinate the operation of the project with the Applicant's other electrical systems to minimize the cost of production.

The Licensee is an independent power producer and sells electricity generated at the Project to the local electric distribution utility.

(2) Discussion of the need of the Applicant over the short- and long-term for the electricity generated by the project, including:

(i) Reasonable costs and reasonable availability of alternative sources of power that would be needed by the Applicant or its customers, including wholesale customers, if the Applicant is not granted a license for the project;

The Licensee is an independent power producer. If the Licensee is not granted a new license for the Sartell Project, the local distribution utility (NSP/Xcel Energy) utilizing the power generated at the Project could obtain alternative sources of power by purchasing power from electricity markets operated in the region. Power could also be supplied through the construction of new power plants. Services to the grid would need to be provided by other existing projects, or in some other means by the system operator. This would likely be the equivalent amount of power from the Midwest Independent System Operator (MISO) market with costs based on market pricing resulting from the operation of the electric market in Minnesota. Therefore, it is difficult for the Licensee to speculate the cost and availability of such alternative sources of power since the price and source can vary hourly.

(ii) Discussion of the increase in fuel, capital, and any other costs that would be incurred by the Applicant or its customers to purchase or generate power necessary to replace the output of the licensed project, if the Applicant is not granted a license for the project;

The Licensee is an independent power producer. If the Licensee is not granted a new license for the Sartell Project, the local distribution utility currently utilizing the power generated at the Project could obtain alternative sources of power by purchasing power from electricity markets operated in the region. Power could also be supplied through the construction of new power plants. Services to the grid would need to be provided by other existing projects, or in some other means by the system operator. This would likely be the equivalent amount of power from the MISO market with costs based on market pricing resulting from the operation of the electric market in Minnesota. Therefore, it is difficult for Sartell Hydro, LLC to speculate

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the cost and availability of such alternative sources of power since the price and source can vary hourly.

Costs of replacing services produced by the Project would be passed to the consumer. This relates to reduced efficiency of other projects because they would need to modify operations to meet daily demand. Resulting loss in efficiencies caused by varying plant generation would increase fuel usage (in addition to increased emissions) and additional rate increases passed on to the customer base.

(iii) Effect of each alternative source of power on:

(A) Applicant's customers, including wholesale customers:

The primary purpose of the Project is to supply energy into the local utility electric distribution system. As a hydropower facility, the Project provides an important source of renewable electricity. Alternative sources of power, many of which would most likely be sourced by coal, gas, and nuclear generation may need to adjust their production levels, which would reduce their overall efficiency. Energy production costs, environmental costs, and construction costs would be higher than the existing Project.

(B) Applicant's operating and load characteristics: and

The Licensee is an independent power producer and, as such, does not maintain a separate transmission system that could be affected by replacement or alternative power sources.

(C) Communities served or to be served, including any reallocation of costs associated with the transfer of a license from the existing licensee.

The loss of the license for the Project would result in a loss of electrical generation to the local electric distribution utility and tax revenues for the adjoining City of Sartell and Benton and Stearns counties. In 2022, the Project contributed approximately $198,534 in state and local taxes. The governmental entities affected by this loss in tax revenue would ultimately have to seek a reduction in expenses or an increase in other sources of revenue. A transfer of license to another entity could increase the cost of the electricity generated for the local distribution utility.

(3) Following data showing need and the reasonable cost and availability of alternative sources of power:

(i) Average annual cost of power produced by project, including basis for calculation:

For the calendar year 2022 the cost of power produced by the Project was $49.48 per MWh. The cost is based on the actual costs incurred in 2022 from the production of 30,169 MWh of energy during the 2022 calendar year as detailed in **Table A-3**.

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Table A-3 Annual Cost of Power Produced by the Project (2022 dollars)

Cost Item	Cost
O & M Costs	$763,975
Personnel Costs	$476,355
Property Tax	$198,534
Insurance	$64,806
Cost of Sales	**1,503,667**

(ii) Projected resources required by the Applicant to meet the Applicant's capacity and energy requirements over the short- and long-term including:

(A) Energy and capacity resources, including the contribution from the Applicant's generation, purchases, and load modification measures (such as conservation, if considered as a resource), as separate components of the total resources required;

The Project serves a role in the regional energy market by providing an average of 26,179 megawatt-hours (MWh) of generation based on water year annually from January 1, 2016, to December 31, 2022.[1] The Project and other electric generating facilities owned and operated by the Licensee's parent company and affiliates are non-regulated Qualifying Facilities or Exempt Wholesale Generators. Power generated by the Project is sold in an open, competitive market to respond to consumer demands.

(B) Resource analysis, including a statement of system reserve margins to be maintained for energy and capacity; and

Not applicable, the Licensee is an independent power producer.

(C) If load management measures are not viewed as resources, the effects of such measures on the projected capacity and energy requirements indicated separately:

Not applicable, the Licensee is an independent power producer.

(iii) For alternative sources of power, including generation of additional power at existing facilities, restarting deactivated units, the purchase of power off-system, the construction or purchase and operation of a new power plant, and load management measures such as conservation; and

The Licensee does not propose to change how the Project is currently operated; therefore, there is no effect on providers of alternative sources of power.

[1] January 1, 2016, to December 31, 2016, 2016-42,128 MWh, 2017-38,351 MWh, 2018-35,752 MWh, 2019-28,063 MWh, 2020--36,925 MWh, 2021-22,188 MWh, and 2022-30,169 MWh.

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(iv) Effect on direct providers (and immediate customers) of alternate sources of power.

No detrimental effect would be expected, as it is anticipated adequate supply is available or could be developed to replace power generated by the Project.

(4) If an Applicant uses power for its own industrial facility and related operations, the effect of obtaining or losing electricity from the project on the operation and efficiency of such facility or related operations, its workers, and the related community.

Applicant does not use project power to meet its own industrial needs; not applicable.

(5) If an Applicant is an Indian tribe applying for a license for a project located on the tribal reservation, a statement of the need of such tribe for electricity generated by the project to foster the purposes of the reservation.

Applicant is not an Indian tribe; not applicable.

(6) Comparison of the impact on the operations and planning of the Applicant's transmission system of receiving or not receiving the project license, including:

(i) Analysis of the effects of any resulting redistribution of power flows on line loading (with respect to applicable thermal, voltage, or stability limits), line losses, and necessary new construction of transmission facilities or upgrading of existing facilities, together with the cost impact of these effects;

Sartell Hydro is an independent power producer and, as such, does not maintain a separate transmission system that could be affected by power flow redistribution.

A single-line diagram for the Project is being filed separately as Critical Electric Infrastructure Information (CEII) in Volume 2 of this license application.

(ii) Analysis of the advantage that the Applicant's transmission system would provide in the distribution of the project's power; and

Sartell Hydro is an independent power producer and, as such, does not maintain a separate transmission system that could be affected by power flow redistribution. The interconnect point is on the west side of the dam.

The location of a generation source in close proximity to the load in the City of Sartell can have ancillary benefits to the transmission and distribution system by providing voltage support on the distribution system the generation source is connected to.

(iii) Detailed single-line diagrams, including existing system facilities identified by name and circuit number that show system transmission elements in relation to the project and other principal interconnected system elements. Power flow and loss data that

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represent system operating conditions may be appended if Applicants believe such data would be useful to show that the operating impacts described would be beneficial.

A copy of the one-line system diagram for the Sartell Project is included, filed as CEII.

(7) If the Applicant has plans to modify existing project facilities or operations, a statement of the need for, or usefulness of, the modification, including at least a reconnaissance-level study of the effect and projected costs of the proposed plans and any alternate plans, which in conjunction with other developments in the area would conform with a comprehensive plan for improving or developing the waterway and for other beneficial public uses as defined in *Section 10(a)(1)* of the Federal Power Act.

The Licensee has no plans to modify existing Sartell Project facilities or operations; not applicable.

(8) If the Applicant has no plans to modify existing project facilities or operations, at least a reconnaissance-level study to show that the project facilities or operations in conjunction with other developments in the area would conform with a comprehensive plan for improving or developing the waterway and for other beneficial public uses as defined in *Section 10(a)(1)* of the Federal Power Act.

Discussion of the Project's conformance with comprehensive plans for developing or improving the waterway and for other beneficial uses is provided in Exhibit E, Section 10.

(9) Statement describing the Applicant's financial and personnel resources to meet its obligations under a new license, including specific information to demonstrate that the Applicant's personnel are adequate in number and training to operate and maintain the project in accordance with the provisions of the license.

Eagle Creek, the Licensee's parent company, is an owner and operator of 85 hydroelectric facilities, representing 620 MW of capacity across the United States. Sartell Hydro has the financial resources to maintain and operate the Project.

Sartell Hydro is party to a Services Agreement pursuant to which affiliates of Eagle Creek Sartell Hydro, LLC perform day-to-day administrative, operation, and maintenance activities for certain projects, including the Sartell Project. Therefore, the Project has a full complement of operations personnel who perform all necessary day-to-day functions related to Project operations and maintenance. On site-staff are fully qualified to handle all aspects of the operation and maintenance of the Project. The Project is fully equipped to allow staff to perform all routine maintenance functions. All personnel receive training commensurate with their responsibilities in an ongoing effort to improve their ability to operate the Project in a safe and efficient manner.

Over the term of the current license, the Project has been subject to FERC's standard operational and environmental inspections. Since acquiring the Project, there has been one issue of noncompliance with terms and conditions of the existing license. On January 24, 2019, the Licensee received a letter from the

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FERC indicating failure to submit the required Sartell Project Dam Safety Surveillance and Monitoring Report (DSSMR) by the due date. The DSSMR was submitted on February 13, 2019 (Mead & Hunt, 2020).

(10) If Applicant proposes to expand the project to encompass additional lands, a statement that the Applicant has notified, by certified mail, property owners on the additional lands to be encompassed by the project and governmental agencies and subdivisions likely to be interested in or affected by the proposed expansion.

There are no plans to expand the Sartell Project to encompass additional lands; not applicable.

(11) Applicant's electricity consumption efficiency improvement program, as defined under *Section 10(a)(2)(c)* of the Federal Power Act, including:

(i) Statement of the Applicant's record of encouraging or assisting its customers to conserve electricity and a description of its plans and capabilities for promoting electricity conservation by its customers; and

The Licensee is an independent power producer and all power generated at the Project is sold to the local electric distribution utility. The Licensee routinely strives to improve plant performance. The Project does not transmit power or sell electricity to retail customers and does not have other venues for energy conservation programs.

(ii) Statement describing the compliance of the Applicant's energy conservation programs with any applicable regulatory requirements.

Not applicable; the Licensee is an independent power producer.

(12) Names and mailing addresses of every Indian tribe with land on which any part of the proposed project would be located or which the Applicant reasonably believes would otherwise be affected by the proposed project.

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b. Information Provided by Existing Licensee

(1) Information provided by all applicants.

See Section a of this Exhibit.

(2) A statement of measures taken or planned by the licensee to ensure safe management, operation, and maintenance of the project, including:

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During normal operations, personnel are present at the dam eight hours a day, with daily inspections occurring, and operators on call 24 hours per day, year-round. In addition to daily staffing, an operator is on call 24-hours a day, seven days per week should an abnormal condition be detected. During periods of high flow, an operator is on site 24-hours per day(WSP, 2021) (Mead and Hunt, Inc., 2020). During periods of high flow the Project is staffed 24 hours per day with at least one operator. Changes in the upstream pool level are monitored continuously. In addition to daily visits, an operator is on-call 24 hours per day, seven days per week should an abnormal condition be detected (WSP, 2021).

In addition, the Owner has a robust Owner's Dam Safety Program (ODSP) that is in compliance with the requirements of FERC and is designed to identify, respond to, and address any potential safety concerns quickly.

(i) Description of existing and planned operation of the project during flood conditions;

Additional flood operation information is included in the ODSP and Dam Safety and Surveillance Monitoring Plan (DSSMP), both of which are classified as Critical Energy Infrastructure Information (CEII) and are on file with the Commission.

(ii) Discussion of any warning devices used to ensure downstream public safety;

The Sartell Dam is considered a high hazard potential structure and therefore maintains an Emergency Action Plan (EAP) that was developed in consultation with the FERC and the local emergency management organizations, as well as a DSSMP.

There is warning signage in place upstream and downstream of the Project facilities to warn the public of potentially hazardous conditions. The generating equipment and dam facilities are monitored from the powerhouse. In addition to the measures identified in the EAP, a buoy warning system is installed upstream of the dam during the summer to prevent recreationists from getting too close to the spillway gates.

(iii) Discussion of any proposed changes to the operation of the project or downstream development that might affect the existing Emergency Action Plan, as described in Subpart C of Part 12 of this chapter, on file with the Commission;

There are no proposed changes to the operation of the Sartell Project. Since the Sartell Project is classified as a high hazard potential category and it is not exempt from Section 12.21(a) of the Commission's regulations, Eagle Creek Sartell Hydro has implemented an EAP that is on file with the Commission.

(iv) Description of existing and planned monitoring devices to detect structural movement or stress, seepage, uplift, equipment failure, or water conduit failure, including a description of the maintenance and monitoring programs used or planned in conjunction with the devices; and

The monitoring instruments at the Project include headwater and tailwater gages, piezometers, crack gages, settlement and alignment monuments, upstream and downstream soundings, as well as old transformer bay concrete slab settlement measurement points.

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In addition to the aforementioned instrumentation, the Project is subject to daily visual inspections, regulatory agency inspections, and 5-year independent consultant inspections as part of the Project DSSMP and the Licensee's overall dam safety program (WSP, 2021). Additional information regarding dam safety and monitoring devices is located in the DSSMP which is classified as CEII and is on file with the Commission.

(v) Discussion of the project's employee safety and public safety record, including the number of lost-time accidents involving employees and the record of injury or death to the public within the project boundary.

The Licensee manages the Project consistent with its long-standing commitment to employee safety. This commitment includes compliance with applicable local, state, and federal regulations regarding the safe operation of industrial and electrical facilities. As the Licensee operates the Project's generation facilities, this commitment is implemented primarily through a rigorous employee safety program. Detailed inspection and maintenance programs ensure employee and contractor safety relative to operating equipment and facilities. The safety program involves employee and contractor training sessions, as well as making safety information available to employees.

One lost time injury has been logged during the last five years[2].

A search of the FERC E-Library identified no deaths reported within the Sartell Project during the last 5 years.

(3) Description of the current operation of the project, including any constraints that might affect the manner in which the project is operated.

The Project is operated manually, no remote operations are in place. During normal operations, personnel are present at the dam eight hours a day on weekdays, with daily inspections occurring, and operators on call 24 hours per day, year-round.

In addition to daily staffing, an operator is on call 24 hours a day, seven days per week should an abnormal condition be detected. During periods of high flow, an operator is on site 24-hours per day (WSP, 2021). During periods of high flow the Project is staffed 24 hours per day with at least one operator. Changes in the upstream pool level are monitored continuously.

In addition to daily visits, an operator is on-call 24 hours per day, seven days per week should an abnormal condition be detected (WSP, 2021). The Project is operated in a run-of-river mode where inflows approximate outflows.

(4) Discussion of the history of the project and record of programs to upgrade the operation and maintenance of the project.

[8]Shoulder injury from raking trashracks in 2019.

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The Sartell Dam was initially constructed in the period of 1905-1907. In the period 1924-1926, the dam was raised 4.5 feet and new generating equipment was installed. During 1960-1964, compressive rehabilitation of the timber structure resulted in a mass concrete dam and two new bascule gates, and one large radial (Tainter-type) gate were added. In 1987, the upstream right floodwall was constructed and in 2001, the headrace wall between bays #10 and #11 was replaced. In 2014, the new interconnection was constructed. In 2015, all units except for Unit #7 were recommissioned and in 2016 the runner for Unit #7 was replaced (WSP, 2021). A summary of all work performed is contained in the Supporting Technical Information Document on file with the Commission.

(5) Summary of any generation lost at the project over the last 5 years because of unscheduled outages, including the cause, duration, and corrective action taken.

Lost generation data is provided in **Table A-4** for the period of January 2017 through December 2022 and is considered representative of typical operations.

Table A-4: Project Lost Generation Summary (2017-2022)

Date and Time		Outage Duration (hours)	Description
Outage Start	Outage End		
1/2/2017	1/17/2017	384	Unit 7-Sheared coupling bolts at intermediate shaft
4/5/2017	5/21/2017	1,104	Unit 7-DS generator bearing housing moved and clashed stator and rotor
10/24/2017	10/302017	168	Unit 9-Loose runner at the bulkhead
4/10/2018	5/28/2018	1,152	Unit 7, Sheared coupling bolts at intermediate shaft- counter bored intermediate shaft and worked on alignment
4/12/2019	7/27/2019	2,544	Unit 9-Loose runner, broken housing US side of intermediate shaft
8/25/2020	4/14/2021	5,568	Unit 9-Loose runner at the bulkhead-permanent repair
	2022	0	No lost generation

(6) Discussion of the licensee's record of compliance with the terms and conditions of the existing license, including a list of all incidents of noncompliance, their disposition, and any documentation relating to each incident.

There are no known outstanding compliance issues associated with the Sartell Project.

(7) Discussion of any actions taken by the existing licensee related to the project which affect the public.

The Project provides renewable electricity to the local electric distribution company. This affects the general public by providing a low-cost and renewable-energy source. The Project also contributes to the public benefit through the employment of full and part-time staff.

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Under its existing license, the Licensee is subject to a number of license article requirements that specify operational and other requirements designed to protect the environment. License articles provide for the protection of environmental, aesthetic, recreational, and cultural resources.

The project is operated in a run-of-river mode. Personnel are present at the dam 8 hours a day on weekdays, with daily inspections occurring, and operators on call 24 hours per day, year-round. The dam is observed daily by the operator. The project is well-maintained, and operation and surveillance procedures are adequate to provide for public safety. The Licensee also maintains signage to warn the public of potential danger associated with turbulent water from flow releases and electrical hazards.

(8) Summary of the ownership and operating expenses that would be reduced if the project license were transferred from the existing licensee.

If the Project license were transferred to another entity, Eagle Creek Sartell Hydro's cost of operating and maintaining the Project would be eliminated.

(9) Statement of annual fees paid under Part I of the Federal Power Act for the use of any Federal or Indian lands included within the project boundary.

Not applicable. The Project does not occupy Federal or Indian lands.

c. Works Cited

Mead & Hunt. (2020). *Preliminary Application Document Sartell Hydroelectric Project.* February 2020.

WSP. (2021). *Supporting Technical Information Document for the Sartell Dam.* March 2021.

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