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VIA E-FILING

February 28, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Docket Room
Washington, D.C. 20426-001

**RE: River Falls Hydroelectric Project, FERC Project No. 10489
Initial Study Report Meeting Summary**

Dear Secretary Bose:

In accordance with 18 CFR § 5.15(c), the City of River Falls Municipal Utilities (RFMU or Licensee) filed with the Federal Energy Regulatory Commission (FERC or Commission) the Initial Study Report (ISR) for the River Falls Hydroelectric Project (Project) (FERC P-10489) on January 30, 2020. Pursuant to 18 CFR § 5.15(c), RFMU held the ISR Meeting on February 13, 2020 and is filing the FERC ISR Meeting summary. The Licensee has not identified the need for any additional studies.

If there are any questions or comments regarding the ISR Meeting summary, please contact Kevin Westhuis at (715) 426-3442, or by email at kwesthuis@rfcity.org.

Sincerely,

Kevin Westhuis
Utility Director
City of River Falls Municipal Utilities
222 Lewis Street
River Falls, WI 54022

Enclosure: Initial Study Report Meeting Summary for the River Falls Hydroelectric Project (P-10489)

cc: Interested Parties Mailing List
Lesley Brotkowski, TRC

**RIVER FALLS HYDROELECTRIC PROJECT, FERC No. 10489
INTERESTED PARTIES MAILING LIST**

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**CITY OF RIVER FALLS WISCONSIN
RIVER FALLS HYDROELECTRIC PROJECT (FERC NO. 10489)
INITIAL STUDY REPORT MEETING
CITY HALL – TRAINING ROOM
February 13, 2020**

Date and Time: February 13, 2020, 9:00 AM – 4:00 PM (break for lunch 12:00 PM – 12:30 PM).

Meeting Location: River Falls City Hall, Training Room, located at 222 Lewis Street, River Falls, WI

Purpose of the meeting:

Review the contents of the Initial Study Report (ISR). Each study update included an opportunity for questions and comments. This meeting provided an opportunity to discuss the study results and proposals, if any, to modify the study plan in light of the progress of the study plan and data collected.

Present:

City of River Falls Municipal Utilities (RFMU) Utility Director Kevin Westhuis;
RFMU Administrative Assistant Lanae Nelson;
RFMU Hydroelectric Facility Operator & Electric Meter Technician Brian Hatch;
RFMU Wastewater/Water Superintendent Ron Groth;
RFMU Utility Advisory Board Member Mark Spafford;
City of River Falls City Engineer Crystal Raleigh;
City of River Falls Project Engineer Jason Raverty;
City of River Falls City Administrator Scot Simpson;
City of River Falls Community Development Director Amy Peterson;
City of River Falls Planner Sam Wessel;
City of River Falls Assistant to the City Administrator Brandt Johnson;
U.S. Army Corps of Engineers (USACE) St. Paul District Kim Warshaw;
USACE St. Paul District Michelle Prosser;
U.S. National Park Service (NPS) Midwest Hydropower Coordinator Angie Tornes;
Federal Energy Regulatory Commission (FERC) Coordinator Shana Wiseman;
FERC Archaeologist Michael Davis;
FERC Fish Biologist Nick Ettema;
Wisconsin Historical Society State Historic Preservation Officer (SHPO) Tyler Howe;
Wisconsin Department of Natural Resources (Wisconsin DNR) Policy Initiatives Adv-Admin Dan Helsel;
Wisconsin DNR Water Management Engineer Michael Rogney;
Wisconsin DNR Conservation Warden Brad Peterson;
Trout Unlimited (TU) Kiap TU Wish Chapter Member Kent Johnson;
TU Driftless Area Restoration Effort Duke Welter;
Kinnickinnic River Land Trust President Judie Foster Babcock;
Kinnickinnic River Land Trust Holly Dolliver;
Kinnickinnic River Land Trust Charlene Brooks;
Kinnickinnic River Land Trust Mark Ritzinger;
Kinnickinnic River Land Trust Charlene Brooks;

The Prairie Enthusiasts St. Croix Valley President Evanne Hunt;
Kinni Corridor Member William Hanson;
Kinni Corridor Collaborative Scott Eickschen;
Kinni Corridor Collaborative Michelle Maher;
River Falls Community Member Patricia LaRue;
River Falls Community Member Francis Ogden;
Ayres Associates Senior Project Manager Ellen Faulkner;
Ayres Associates Water Resources Engineer Peter Haug;
TRC Senior Consultant Lesley Brotkowski

Present via Phone Conference Call:

FERC Branch Chief Midwest Janet Hutzel;
FERC Wildlife Biologist Jay Summers;
FERC Engineer Paul Makowski;
Wisconsin DNR Statewide FERC Coordinator Cheryl Laatsch;
TRC Consultant Elizabeth Krchnavek

Meeting Summary:

The River Falls Hydroelectric Project (FERC No. 10489) ISR meeting was led by TRC Senior Consultant Lesley Brotkowski. A copy of the PowerPoint presented during the meeting is available in Appendix A.

1. Meeting Overview

- a. Ms. Brotkowski went over the agenda and asked that all attendees sign in.
- b. Introductions
 - i. Ms. Brotkowski asked those in attendance to introduce themselves (name and affiliation).
- c. Meeting Purpose and FERC Process Update
 - i. Ms. Brotkowski described the meeting purpose. She stated that the meeting is an opportunity to discuss the study results and proposals, if any, to modify the study plan in light of the progress of the study plan and data collected.
 - ii. The FERC relicensing process and schedule between the Revised Study Plan (RSP) filing and the Updated Study Report (USR) were described.
 1. RFMU will file the ISR meeting summary within 15 days of the ISR meeting.
 2. Comments on the ISR are due March 31, 2020.
 3. Responses to disputes / amendment requests are due April 30, 2020.
 4. FERC's determination on disputes / amendments will be issued by May 30, 2020.
 5. The second study season will be 2020 and the USR will be filed by January 30, 2021.
- d. Schedule Update
 - i. Ms. Brotkowski provided an update on the schedule for the studies. She described which studies were conducted in 2019 and which will be conducted in 2020.
 - ii. 2019 Studies
 1. Water Quality (initiated in 2019)
 2. Wetland, Riparian, and Terrestrial Resources Survey
 3. Recreation – Recreation Facility Inventory

4. Cultural Resources – Architectural Resources Survey
 5. Decommissioning Plan (initiated in 2019)
 - iii. 2020 Studies
 1. Hydrologic & Hydraulic Evaluation
 2. Water Quality (continued in 2020)
 3. Lake George Shoreline Habitat Assessment
 4. Aquatic Invasive Species Survey
 5. Mussel Survey
 6. Riverine Habitat Evaluation below Powell Falls
 7. Recreation – Recreation Use Assessment
 8. Cultural Resources – Archaeology Resources Survey
 9. Decommissioning Plan (continued in 2020)
 - e. USACE Planning Assistance to States (PAS) Program
 - i. Ms. Brotkowski gave a brief overview of the PAS Program and described that RFMU is planning to participate in this program to complete studies. RFMU received approval into the PAS Program on December 20, 2019.
 - ii. Ms. Brotkowski introduced Kim Warshaw and Michelle Prosser of USACE’s PAS Program.
 - iii. Ms. Warshaw described the PAS Program (USACE cost-share program available to states, Tribes, local governments, or other non-federal entities. Assists with preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources.). It was described that USACE will take on up to 50% of the studies/costs associated with the Program following the approval date (12/20/2019). Costs associated with the studies prior to December 20, 2019 will not count towards the PAS Program.
 - iv. It was asked which studies USACE will conduct as a part of the PAS Program. Ms. Warshaw explained that RFMU and USACE have been in discussions but that the decision regarding which studies the USACE will conduct has not yet been finalized. Ms. Warshaw explained that the USACE will likely conduct the Hydrologic & Hydraulic Evaluation and the Mussel Survey, as they have expertise in these topics. Ms. Warshaw explained that they may also conduct other studies, but this has not yet been finalized.
2. **Studies to be Conducted in 2020** – Ms. Brotkowski described each of the studies that will be conducted in 2020.
- a. Hydrologic & Hydraulic Evaluation
 - i. Although this study is not specifically required by the FERC’s Study Plan Determination (SPD), RFMU is planning to conduct this study to gain information needed by resource agencies.
 - ii. The study will take place in 2020 to take advantage of USACE staff expertise with hydrologic & hydraulic studies. The USACE will likely conduct this study on behalf of RFMU through the PAS Program.
 - iii. The study methodology is outlined in the RSP.
 - iv. Study will be conducted in spring – fall 2020.
 - b. Water Quality
 - i. The study was initiated in 2019 (performed by Ayres Associates). Year 2 study to be conducted in 2020.
 - ii. The study methodology is outlined in the RSP & SPD.
 - iii. The Water Quality study will be conducted May 1 - September 15, 2020.

- iv. Judy Babcock asked if this study is sufficient for the Wisconsin DNR's requirements. Cheryl Laatsch (Wisconsin DNR) explained that the Wisconsin DNR's state Water Quality Certification (WQC) process is separate from the FERC process, and that the WQC process has not yet been initiated.
- c. Lake George Shoreline Habitat Assessment
 - i. The study will be conducted in June – July 2020. The study methodology is outlined in the RSP.
- d. Aquatic Invasive Species Survey
 - i. The study will be conducted in June – July 2020. The study methodology is outlined in the RSP.
- e. Mussel Survey
 - i. The FERC required this study in their SPD.
 - ii. This study will document habitat, occurrence, density, distribution, and relative abundance of federally listed mussels.
 - iii. Survey downstream—most 0.81 mile of the Kinnickinnic River, the Kinnickinnic River delta, and 6-mile reach of the St. Croix River
 - iv. Study methodology will be developed in consultation with Wisconsin DNR and U.S. Fish and Wildlife Service (USFWS).
 - v. Study will be conducted in summer or fall 2020. The USACE will likely conduct this study on behalf of RFMU through the PAS Program.
- f. Riverine Habitat Evaluation below Powell Falls
 - i. The desktop evaluation was completed in 2019 and the five study reaches were defined. 2019 fieldwork was delayed due to high water levels and will be completed in 2020.
 - 1. Trout Unlimited Kiap TU Wish Chapter Member Kent Johnson asked how the study reaches were determined. Ms. Brotkowski stated that the proposed transect areas were determined in the desktop review and may be modified if needed in the field. Ms. Brotkowski stated that a desktop evaluation summary can be appended to the ISR meeting summary *[Summary available in Appendix B.]*
 - ii. The study methodology is outlined in the RSP & SPD.
- g. Recreation Use Assessment
 - i. The Recreation Facility Inventory portion of the Recreation Study was conducted in 2019 and that the Recreation Use Assessment will be conducted in 2020.
 - ii. The Recreation Use Assessment includes spot counts and recreation user surveys to be conducted between Memorial Day weekend and Labor Day weekend.
 - iii. Study methodology is outlined in RSP & SPD.
 - iv. U.S. National Park Service Midwest Hydropower Coordinator Angie Tornes asked if there is a question about aesthetic flows included on the Recreation User Survey form. Ms. Brotkowski and TRC Consultant Elizabeth Krchnavek explained that the Recreation User Survey form was provided in Appendix G of the RSP (page 442 of the PDF). Ms. Krchnavek stated that the form includes several questions about scenic views and aesthetics at the Project, and that the FERC approved the Recreation Facility Inventory and Recreation Use Assessment without modifications, including the survey form, in their SPD. Ms. Tornes requested that aesthetic flow be added in parenthesis to an existing question about aesthetics (i.e. "...for example aesthetic flows over the spillway"). *[The Recreation User Survey form was updated to include the suggested change and the proposed Recreation User Survey form is provided in Appendix C. The*

Licensee is requesting that the FERC approve this modification to the study plan for the Recreation Use Assessment.]

- h. Cultural Resources
 - i. The Architectural Resources Survey was conducted in 2019 and that the Archaeology Resources Survey will be conducted in summer 2020. The study methodology is outlined in the RSP & SPD.
 - i. Decommissioning Plan
 - i. The Decommissioning Plan was drafted in 2019.
 - ii. The Decommissioning Plan will continue to be refined and will be finalized in 2020.
 - iii. The study methodology is outlined in the RSP.
3. **Studies Conducted in 2019**
- a. Water Quality Study
 - i. Ms. Brotkowski introduced Ayres Associates Senior Project Manager Ellen Faulkner. Ms. Brotkowski explained that Ayres Associates is conducting this study.
 - ii. Ms. Faulkner described what was conducted in 2019. She described the methods and how dissolved oxygen (DO) and water temperature were recorded at 15-minute intervals between July 18 – September 17, 2019. Ms. Faulkner described that there were some issues with vandalism of the meters early in the season.
 - iii. Ms. Faulkner described the 2019 results:
 - 1. Flows entering the Project area consistently met state DO and temperature criteria for cold water fisheries.
 - 2. From the upstream to the downstream limits of the study area, measured water temperatures typically increased by 3 to 4 degrees Fahrenheit at the sample locations.
 - 3. Measured DO concentrations generally decreased from upstream to downstream in the study area, although the amount of decrease was highly variable.
 - 4. DO concentrations in and downstream of the impoundments dropped below 5.0 mg/L during some periods. In Lake George and at the outfall from Lake Louise, DO concentrations fell below 5.0 mg/L in 28 percent and 18 percent of measurements respectively.
 - 5. The Junction Falls outflow showed fewer exceedances of the dissolved oxygen standard than Lake George or the Lake Louise outfall.
 - 6. There was little evidence of stratification except in Lake George, where near-surface readings often showed higher DO concentrations than the mid-depth reading.
 - 7. The 2019 sampling season did not include extreme streamflow, precipitation, or temperature conditions.
 - iv. Ms. Faulkner explained that the 2nd year of study will be from May to September 2020.
 - v. Modification requests to the study:
 - 1. Kent Johnson of Trout Unlimited asked that there be documentation of DO meter calibration in 2020. He also suggested including percent DO saturation in the data reports.
 - 2. It was suggested by a meeting participant that based on the results it may be beneficial to extend the season (through September).
 - b. Wetland, Riparian, and Terrestrial Resources Survey
 - i. Ms. Brotkowski described the methods and results associated with this survey:

1. Major vegetation cover types
 - a. The major vegetation cover types were shown on the map, and representative photos of these cover types were shown.
 2. Invasive botanical species
 - a. This was based on Wisconsin NR 40 list of invasive botanical species. Several invasive botanical species were observed, and these species were mapped.
 3. Wildlife
 - a. Common species typical of urbanized areas in northwest Wisconsin were observed.
 4. Rare Species & Habitat
 - a. No rare species were observed.
 - b. Appropriate habitat for prairie bush-clover was present in the Oak Savanna, but plants were not observed.
 - c. Mature trees were in good health with no noticeable crevices or exfoliating bark to provide suitable summer roosting habitat for the northern long-eared bat.
- ii. FERC Wildlife Biologist Jay Summers provided a statement regarding Figure 2 (Vegetation Cover Types in the Project Boundary) and Figure 3 (Invasive Species in the Project Boundary): he believes there may be an omission in a certain area that may be dominated by reed canary grass or cattail. Ms. Brotkowski will follow up with the field surveyor to confirm what was seen in this area. Mr. Summers can circle the area that he is describing on a map and send to Ms. Brotkowski. *[After following up with the field surveyor, it was determined that a small area of cattail was omitted from the invasive species map; Figure 3 has been updated to include this area of cattail and the text was updated to reflect the total acreage of cattail in the Powell Falls Project Boundary. Figure 2 was also updated to remove an island area previously mapped as shallow marsh in the Powell Falls Project Boundary. After further review of aerial photographs, it was determined this area was likely an algal mat opposed to formal island with shallow marsh habitat. The updated report is provided in Appendix D.]*
- c. Recreation Facility Inventory
- i. The results of the recreation inventory were described by Ms. Brotkowski. The inventory was specific to facilities within the Project Boundary. The sites and facilities were mapped and these maps were shown.
 - ii. Associated with Junction Falls:
 1. Riverwalk Pathway
 2. White Kinnickinnic Pathway
 3. Lake George Fishing Area
 4. Lake George Boat Launch
 5. Kinnickinnic River Pedestrian Bridge
 - iii. Associated with Powell Falls:
 1. Recreation Area Below Powell Falls Development
 2. Glen Park

3. Glen Park Picnic Area

- iv. FERC Coordinator Shana Wiseman asked if the informal fishing area below Junction Falls dam is in the Powell Falls Project Boundary or Junction Falls Project Boundary. Ms. Brotkowski stated that that facility is in the Powell Falls Project Boundary.

d. Architectural Resources Survey

- i. Ms. Brotkowski described that this survey was completed in 2019.
- ii. Ms. Brotkowski explained that first, there was consultation regarding the Project Area of Potential Effects (APE) with SHPO and the Tribes. It was determined that for this project, the Project APE is the same as the FERC Project Boundary. Ms. Brotkowski further explained that depending on the access route selected for the Project, the Project APE may need to be modified in the future. Ms. Brotkowski stated that the Licensee will continue to consult with the appropriate agencies, stakeholders, Tribes, and the FERC regarding any potential changes to the Project.
- iii. FERC Archaeologist Michael Davis had a question on the following sentence on page 13 of the Architectural Resources Survey report (Section 4 Survey Results): “No other non-Project related architectural resources were identified within the two Project APEs.” Mr. Davis asked that this sentence be clarified. Ms. Brotkowski stated that she will check with the historian that conducted the survey and will clarify in the ISR meeting summary. *[Following the ISR meeting, Ms. Brotkowski confirmed with the historian that conducted the survey that the intended meaning of the sentence is “No other **Project** nor non-Project related architectural resources were identified within the two Project APEs.”]*
- iv. Wisconsin Historical Society SHPO Tyler Howe stated that in the SHPO’s files Junction Falls is referred to as: “Junction Mills.” Mr. Howe asked that RFMU notes the name difference when uploading the photos.
- v. Mr. Howe asked that the SHPO is notified if Powell Falls is removed. Mr. Howe also asked that if Powell Falls is decommissioned, the SHPO is provided with written documentation that the property will continue to be owned by the City of River Falls.

4. **Lunch Break**

5. **Studies Conducted in 2019, continued**

a. Powell Falls Decommissioning Plan

- i. Ms. Brotkowski introduced Ayres Associates Water Resources Engineer Peter Haug, as Ayres Associates drafted the Decommissioning Plan.
- ii. Mr. Haug described the draft Decommissioning Plan. Mr. Haug explained that he will discuss the following topics pertaining to the draft Decommissioning Plan: 1) goals; 2) risks; 3) example; 4) overall plan; 5) anticipated schedule; and 6) drawings.
- iii. Mr. Haug described the goals:
 - 1. Minimize sediment deposited downstream in the Kinnickinnic and St. Croix Rivers;
 - 2. Minimize the risk of an uncontrolled release of water during dam removal;
 - 3. Minimize adverse construction traffic impacts to the community;
 - 4. Comply with state standards for noise, vibration, dust, sediment tracking, and erosion control measures;

5. Leave no visible remnant of the concrete spillway once removal is complete;
 6. Beneficially reuse the powerhouse foundation (wildlife viewing platform and possibly future bridge abutment);
 7. Monitor and manage invasive species during the drawdown and restoration; and
 8. Protect critical infrastructure against channel instabilities.
- iv. Mr. Haug described the risks:
1. Too fast of drawdown mobilizes more sediment than the turbidity barriers can contain;
 2. Flood during construction mobilizes more sediment than the turbidity barriers can contain;
 3. Flood during construction causes a dam failure;
 4. Flood after drawdown damages critical infrastructure (Plant and Sanitary System);
 5. Public endangered by worksite, including soft mud in impoundment and equipment traffic;
 6. Invasive species established after drawdown; and
 7. Construction equipment adversely affects environment (introduction of invasive species or contaminants).
- v. Mr. Haug described an example project (Grimh Dam in Radisson, WI) that Ayres Associates was involved with, and the various stages associated with removal. Mr. Haug reiterated that the key to minimizing sediment release during dam removals generally requires a very slow process. The approach of a slow drawdown process allows sediment to be better stabilized in place and decreases the risk of sediment mobilization and turbidity. Grimh Dam took three years from start of drawdown to final removal. This is similar to what is proposed for the Powell Falls removal.
- vi. Mr. Haug also described another example project (Gordon Dam in Solon Springs, WI) that Ayres Associates was involved with at which the dam was removed. The physical removal of this dam occurred over a period of two years, but the reservoir had been drawn down 50% at least a year prior to starting the dam removal. This is similar to what is proposed for the Powell Falls removal.
- vii. Overall Plan
1. Year 1 – Stage 1 – Initial Dewatering (estimated June 2024 – March 2025)
 - i. De-energize the powerhouse
 - ii. Install temporary power for contractor use
 - iii. Drawdown impoundment slowly, allowing pore water release from sediments and avoiding mass slumps of banks
 - iv. Inspect / protect the sanitary line crossings
 - v. Inspect / protect the shoreline along the wastewater treatment plant
 - a. Year 1 Initial Dewatering is estimated to occur June 2024 – March 2025. It was asked if initial dewatering could be done sooner. Mr. Haug explained that based on his experience he does not believe so and it is all dependent on receiving permits.
 2. Year 2 – Stage 2 – Initial Removal (estimated June 2025 – March 2026)

- i. Erosion control measures (especially the turbidity barriers) installed and inspected
 - ii. Assess geomorphological stability within impoundment prior to starting dam removal
 - iii. Construct access roads and causeways
 - iv. Construct cofferdams if stability computation confirm these are required
 - v. Dewater the work area
 - vi. Release the rock bolt tension within the removal area
 - vii. Remove powerhouse superstructure and generating equipment
 - viii. Remove cofferdams to pass flow through the removed section of dam
 - ix. Reassess bank stability and correct problems
- 3. Year 3 – Stage 3 – Final Removal (estimated June 2026 – December 2026)
 - i. Construct cofferdams if stability computation confirm these are required
 - ii. Dewater the work area
 - iii. Release the rock bolt tension within the removal area
 - iv. Isolate the sluice gate from the powerhouse foundation and remove the sluice gate
 - v. Remove cofferdams to pass flow through the removed section of dam
 - vi. Reassess bank stability and correct problems
 - vii. Stabilize the disposal site with vegetation
- 4. Years 4 to 9 – Post-Construction (estimated June 2027 – June 2032)
 - i. Allow natural vegetation establishment in the former bed and coordinate restoration with interested stakeholders
 - ii. Monitor the site for invasive species, channel instability, infrastructure damage
 - iii. Exercise adaptive management and implement correction strategies as needed
 - iv. Evaluate additional Kinni Corridor improvements and implement as decision- makers and budgets allow
- viii. Mr. Haug described an estimated schedule for the Project.
 - 1. Initial Study Report Submittal (due January 31, 2020)
 - 2. Updated Study Report Submittal (January 31, 2021)
 - 3. FERC Decommissioning Decision (August 31, 2023)
 - 4. Permit Applications Submitted (December 1, 2023)
 - 5. Permits Received (May 31, 2024)
 - 6. Initial Drawdown Starts (Start to drain in June 2024 but make take a couple of months)
 - 7. Contractor Mobilization (August 1, 2024)
 - 8. Powerhouse Turbine is Pulled (September 30, 2024)
 - 9. Critical Infrastructure Stabilized (February 28, 2025)
 - 10. First River Diversion Completed (September 30, 2025)
 - 11. Project is Substantially Completed (December 31, 2026)
 - 12. Final Project Completion (June 30, 2027)

- ix. Mr. Haug went over the drawings and figures associated with the Decommissioning Plan, including figures showing the existing and proposed conditions, existing sections of the waterway, and Lake Louise profile and the future river channel.
- x. Mr. Haug reviewed the proposed access route, and other access route options.
 - 1. The access plan options were discussed, as shown on Figure 9. The preferred route is to develop a causeway on the former bed of Lake Louise. It was explained that this preferred route will cause the least disturbance and may also allow for the potential of recreation enhancement in the future. It was also explained that due to the steep slopes in the area, certain access routes are not possible. Mr. Westhuis explained that the preferred route is not the cheapest and that it is preferred for a variety of other reasons in the best interest of the public such as limiting disturbance.
 - 2. Mr. Westhuis described the potential of a recreational enhancement of a recreation viewing platform, with the potential of a pathway over the river utilizing existing foundation at the powerhouse.
- xi. Mr. Haug described the existing sanitary crossing that will be exposed during the drawdown of Lake Louise, the associated challenges, and options to protect the crossing.
 - 1. RFMU Utility Director Kevin Westhuis reiterated that there are concerns related to the potentially high costs and difficulty associated with the sanitary line crossing.
 - 2. Mr. Haug explained that sanitary crossings are considered “critical infrastructure” and the priority is to protect these from failure during any dam removal activity. The two crossings (one at the wastewater plant and another near the South Fork confluence) transport all sanitary effluent from the southeast and northeast sides of River Falls across the river. The current plan is to use an engineered riprap protection blanket for any sanitary crossing that is susceptible to undermining during dam removal.
- xii. Mr. Haug described the worksite, utilities, and erosion control plans.
- xiii. Mr. Haug described the removal sequence.
- xiv. Mr. Haug described the construction-related plans that have been prepared and included in the draft Decommissioning Plan. A figure depicting the draft restoration plan was shown. Mr. Haug described the Erosion Control and Spill Prevention Plan and reviewed the location of the turbidity barrier.
- xv. Discussion:
 - 1. Ms. Wiseman explained the FERC process prior to issuing their determination order. She explained that this process takes two years following the Licensee submittal of the application.
 - 2. FERC Engineer Paul Makowski asked if it is known how much sediment will be released at the Project during the removal of the dam. Mr. Haug stated that this is not known. The purpose of the slow drawdown is to allow the sediments in the lakebed to settle and become established with vegetation, reducing the amount of sediment released downstream.
 - a. Mr. Summers suggested that it would be helpful to have quantified estimates of sediment for FERC’s evaluation.
 - 3. Ms. Tornes stated that she has concerns about mussels downstream of the dam in the Saint Croix River and the effects that the dam removal may

have on these mussels. There was additional discussion amongst the group about mussels downstream of the Project and about whether the dam removal will impact mussels. A mussel study will be conducted in 2020 and the results will be provided in the USR along with the final Decommissioning Plan.

4. Mr. Haug explained that at Grimh Dam there was a 10 year flood at a critical point of the project, and that within a few months there were no remnants of sediment deposits downstream of this flood. Mr. Haug stated that this showed how resilient rivers can be.
5. Mr. Haug noted to the group that the United States Society on Dams (USSD) developed guidelines for dam decommissioning projects (<https://www.ussdams.org/wp-content/uploads/2016/05/15Decommissioning.pdf>) and Mr. Haug is part of the USSD Dam Decommissioning Committee that is working on additional guidance on sediment and floods at dam removal projects.
6. Ms. Tornes asked if a sediment modeling study was conducted. It was explained that this study was not required by FERC and was not conducted.
7. It was asked if the decommissioning plan will address fish habitat improvements. Mr. Haug explained that fish habitat improvements will not be included in this stage of the project.
8. It was asked how decisions are made in the decommissioning and removal process due to the weather forecast. Mr. Haug stated that there are no guarantees on the weather and the contractors need to be ready as best as possible for anything during all stages of the project.
9. In response to a question from Ms. Wiseman regarding figures numbered 14 and 15, Mr. Haug clarified that the portions depicted in red on those figures will be removed.
10. Ms. Tornes asked if there are plans of what will be done with the brick from the Project powerhouse. Mr. Haug stated that these plans have not yet been finalized, and there are no planned uses of the removed brick at this time.
11. Mr. Haug explained that there are some concerns with public interactions with the dam removal construction activities, so this plan will include measures to be taken to address site security.
12. Ms. Wiseman reminded the Licensee that the final Decommissioning Plan needs to describe plans with certainty about which options will be selected. Ms. Wiseman stated that the final Decommissioning Plan cannot show multiple options.
13. Ms. Wiseman confirmed that the Supporting Design Report is technically required in the license application, but that FERC has requested that it is submitted with the final Decommissioning Plan for this Project.
14. FERC Fish Biologist Nick Ettema asked that he be included in discussion related to mussel protocol.

6. Overview of Next Steps

- a. Ms. Brotkowski reviewed the next steps Ms. Brotkowski stated that the ISR meeting summary will be filed with the FERC within 15 days of the ISR meeting, or Feb. 28, 2020. Ms. Wiseman stated that the schedule issued by FERC on July 10, 2019 contains firm dates. Dates are not adjusted based on dates of filings, as suggested in the

regulations. Therefore, **comments on the ISR are due March 31, 2020**. Responses to disputes / amendment requests are due April 30, 2020. FERC's determination on disputes / amendments will be issued by May 30, 2020. All comments should be filed with FERC

- b. The Licensee's USR will be filed by Jan. 30, 2021.
7. Ms. Brotkowski asked if there were any final questions or comments. Ms. Brotkowski and Mr. Westhuis thanked everyone for their time and participation. The meeting was adjourned at 3 p.m.

Appendix A – ISR Meeting PowerPoint

River Falls Hydroelectric Project (FERC P-10489)

Initial Study Report Meeting

February 13, 2020



Agenda

- | | |
|-----------------|--|
| 9:00 AM | Meeting Overview <ul style="list-style-type: none">• Introductions• Meeting Purpose and FERC Process Update• Schedule Update• U.S. Army Corps of Engineers Planning Assistance to States (PAS) Program |
| 9:30 AM | Studies to be Conducted in 2020 |
| 10:00 AM | Studies Conducted in 2019 <ul style="list-style-type: none">• Water Quality Study• Wetland, Riparian, and Terrestrial Resources Survey• Recreation Facility Inventory• Architectural Resources Survey |
| 12:00 PM | Lunch Break (lunch provided) |
| 12:30 PM | Studies conducted in 2019, Continued <ul style="list-style-type: none">• Powell Falls Decommissioning Plan |
| 3:30 PM | Next steps |
| 4:00 PM | End meeting |
- 

Introductions



Meeting Purpose

- Review the contents of the Initial Study Report (ISR)
- Each study update will include an opportunity for questions and comments
- This meeting is an opportunity to discuss the study results and proposals, if any, to modify the study plan in light of the progress of the study plan and data collected

FERC Process Update

| Responsible Party | Pre-Filing Milestone | Date* |
|-------------------|---|----------------|
| Licensee | Revised Study Plan (RSP) | 6/11/19 |
| FERC | Study Plan Determination (SPD) | 7/11/2019 |
| Licensee | First Study Season | 2019 |
| Licensee | Initial Study Report filed | 1/30/2020 |
| All stakeholders | Initial Study Report Meeting | 2/13/2020 |
| Licensee | Initial Study Report Meeting Summary | Within 15 days |
| All stakeholders | Any Disputes/Requests to Amend Study Plan Due | Within 30 days |
| All stakeholders | Responses to Disputes/Amendment Requests Due | Within 30 days |
| FERC | Determination on Disputes/Amendments | Within 30 days |
| Licensee | Second Study Season | 2020 |
| Licensee | Updated Study Report due | 1/30/2021 |

*Dates based on FERC Revised Process Plan and Schedule issued on 7/10/2019

Schedule Update

| Study | 2019 | 2020 |
|---|------|------|
| Hydrologic & Hydraulic Evaluation | | ✓ |
| Water Quality | ✓ | ✓ |
| Lake George Shoreline Habitat Assessment | | ✓ |
| Aquatic Invasive Species Survey | | ✓ |
| Mussel Survey | | ✓ |
| Wetland, Riparian, and Terrestrial Resources Survey | ✓ | |
| Riverine Habitat Evaluation below Powell Falls | | ✓ |
| Recreation | | |
| - Recreation Facility Inventory | ✓ | |
| - Recreation Use Assessment | | ✓ |
| Cultural Resources | | |
| - Architectural Resources Survey | ✓ | |
| - Archaeology Resources Survey | | ✓ |
| Decommissioning Plan | ✓ | ✓ |

USACE Planning Assistance to States (PAS) Program Program

- USACE cost-share program available to states, Tribes, local governments, or other non-federal entities
 - Assists with preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources
 - RFMU's application to PAS program approved on December 20, 2019
 - USACE is supporting 2020 studies required for the FERC process
- 

Studies to be Conducted in 2020

Hydrologic & Hydraulic Evaluation

- Not required by FERC SPD
 - 2019 study postponed to 2020 to take advantage of USACE staff expertise with H&H studies under PAS program
 - **Study methodology:** as outlined in RSP
 - **Study timeline:** spring – fall 2020
- 

Studies to be Conducted in 2020

Water Quality

- Initial study conducted in 2019; Year 2 study to be conducted in 2020
- **Study methodology:** as outlined in RSP & SPD
- **Study timeline:** May 1 - September 15, 2020

Studies to be Conducted in 2020

Lake George Shoreline Habitat Assessment

- **Study methodology:** as outlined in RSP
- **Study timeline:** June – July 2020

Aquatic Invasive Species Survey

- **Study methodology:** as outlined in RSP
- **Study timeline:** June – July 2020



Studies to be Conducted in 2020

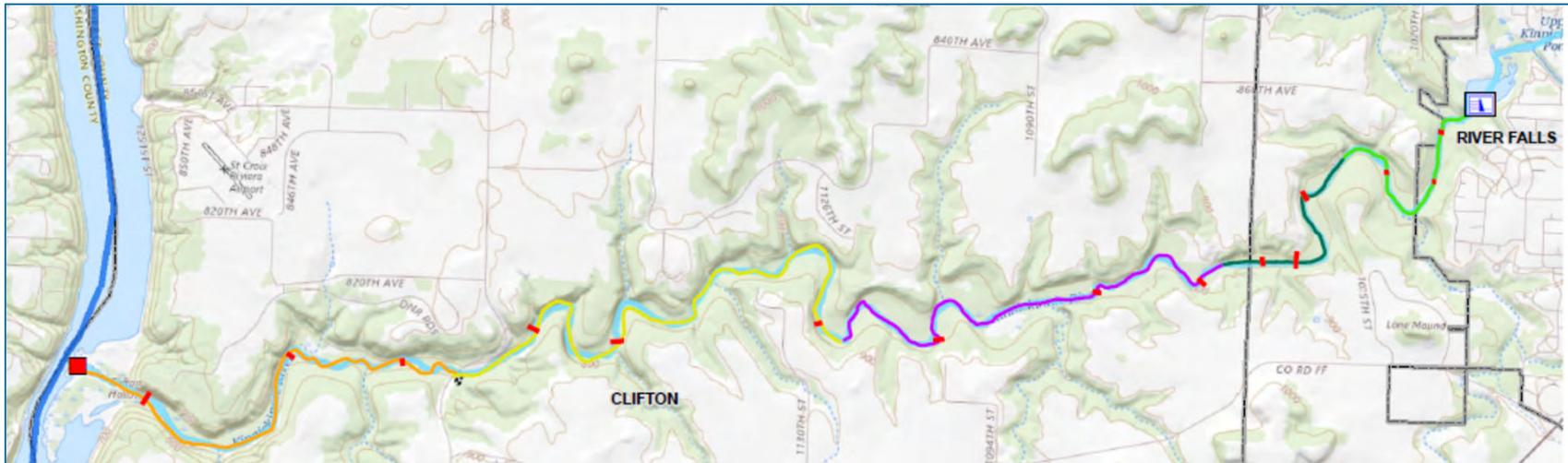
Mussel Survey

- FERC required in SPD
 - Document habitat, occurrence, density, distribution, and relative abundance of federally listed mussels
 - Survey downstream-most 0.81 mile of the Kinnickinnic River, the Kinnickinnic River delta, and 6-mile reach of the St. Croix River
 - **Study methodology:** to be developed in consult with WDNR and USFWS
 - **Study timeline:** summer or fall 2020
- 

Studies to be Conducted in 2020

Riverine Habitat Evaluation below Powell Falls

- Desktop evaluation: 5 study reaches defined
- 2019 fieldwork: delayed due to high water levels
- Fieldwork will occur in 2020
- **Study methodology:** as outlined in RSP & SPD
- **Study timeline:** summer 2020



Studies to be Conducted in 2020

Recreation Use Assessment

- Recreation facility inventory conducted in 2019; spot counts and recreation user surveys to be conducted in 2020
- **Study methodology:** as outlined in RSP & SPD
- **Study timeline:** Memorial Day weekend – Labor Day weekend 2020

Studies to be Conducted in 2020

Cultural Resources

- Architectural Resources Survey conducted in 2019;
Archaeology Resources Survey to be conducted in 2020
- **Study methodology:** as outlined in RSP & SPD
- **Study timeline:** summer 2020

Studies to be Conducted in 2020

Decommissioning Plan

- Decommissioning Plan drafted in 2019; will be finalized in 2020
- **Study methodology:** as outlined in RSP
- **Study timeline:** spring – fall 2020

Studies Conducted in 2019

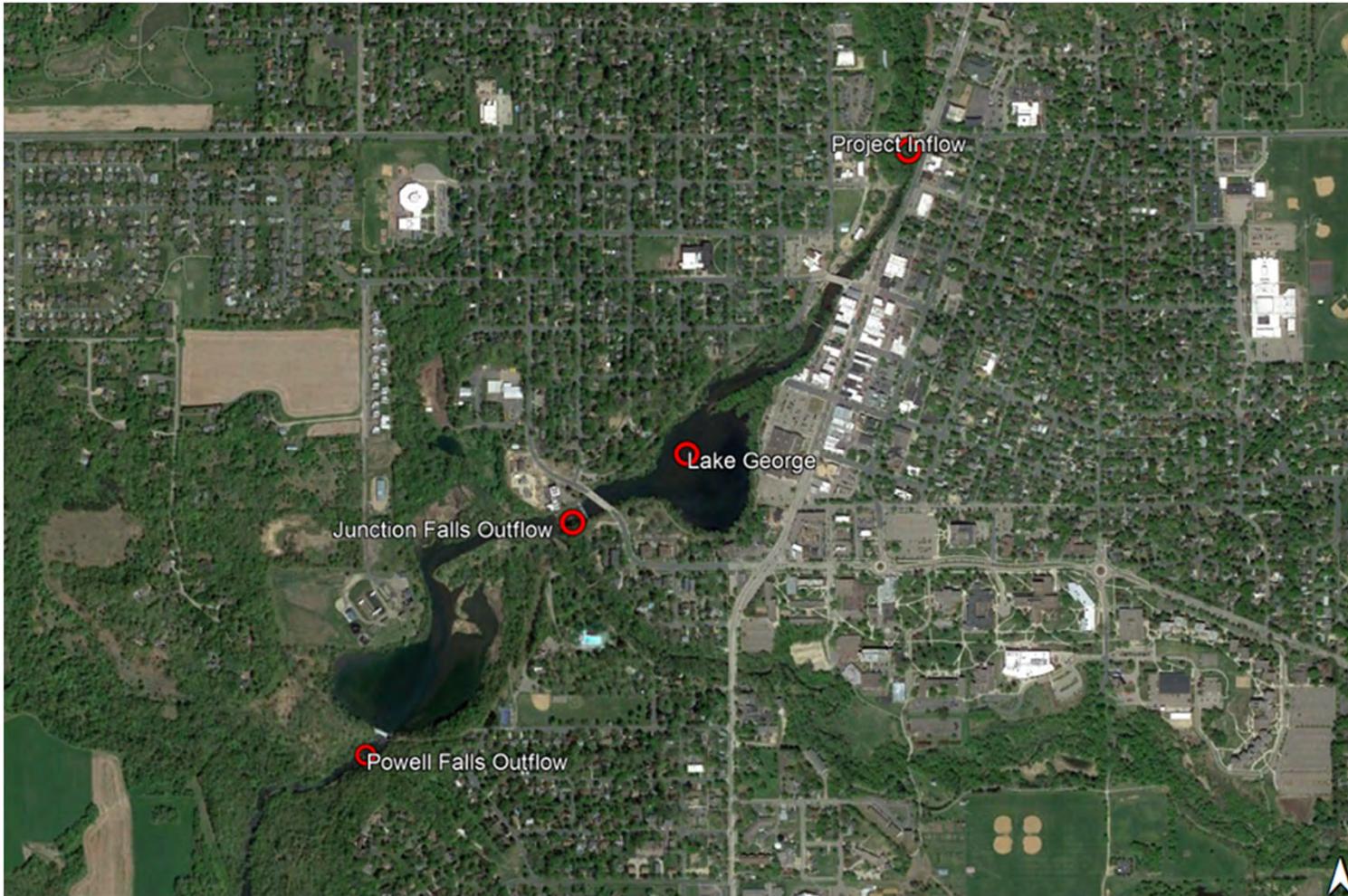


2019 Water Quality Study

- Dissolved oxygen (DO) and water temperature recorded at 15- minute intervals, July 18 – September 17, 2019 (Season 1 of 2)
- 4 instrument locations in the study area
- Other observations:
 - Daily air temperature
 - Algae cover in Lake George (~2 week intervals)
 - YSI meter “grab samples” (DO and temperature, ~2 week intervals)
 - Daily streamflow at downstream USGS gaging station

2019 Water Quality Study

DO Meter Locations



2019 Water Quality Study

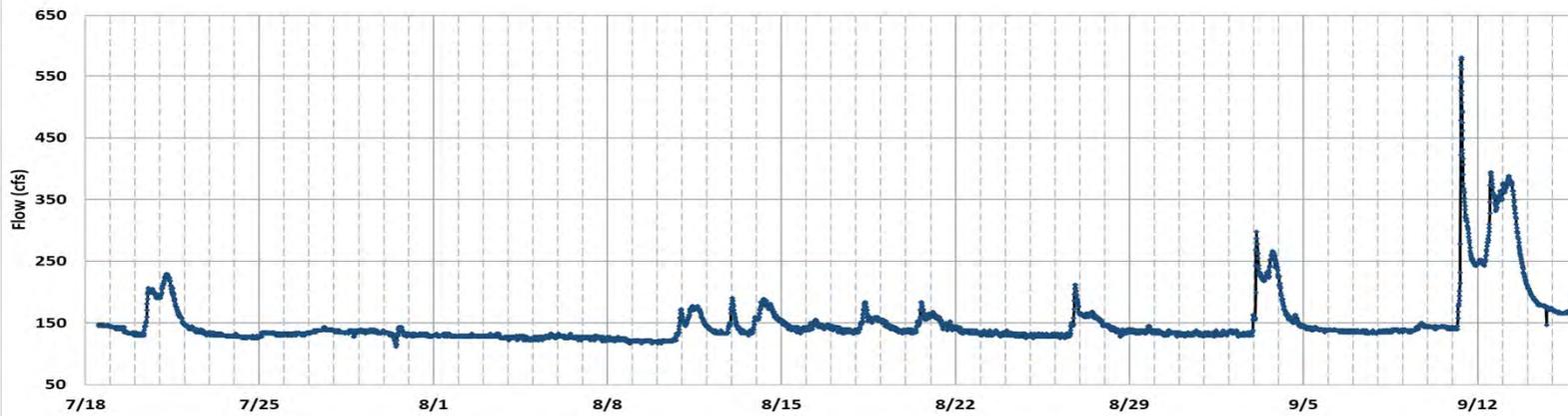
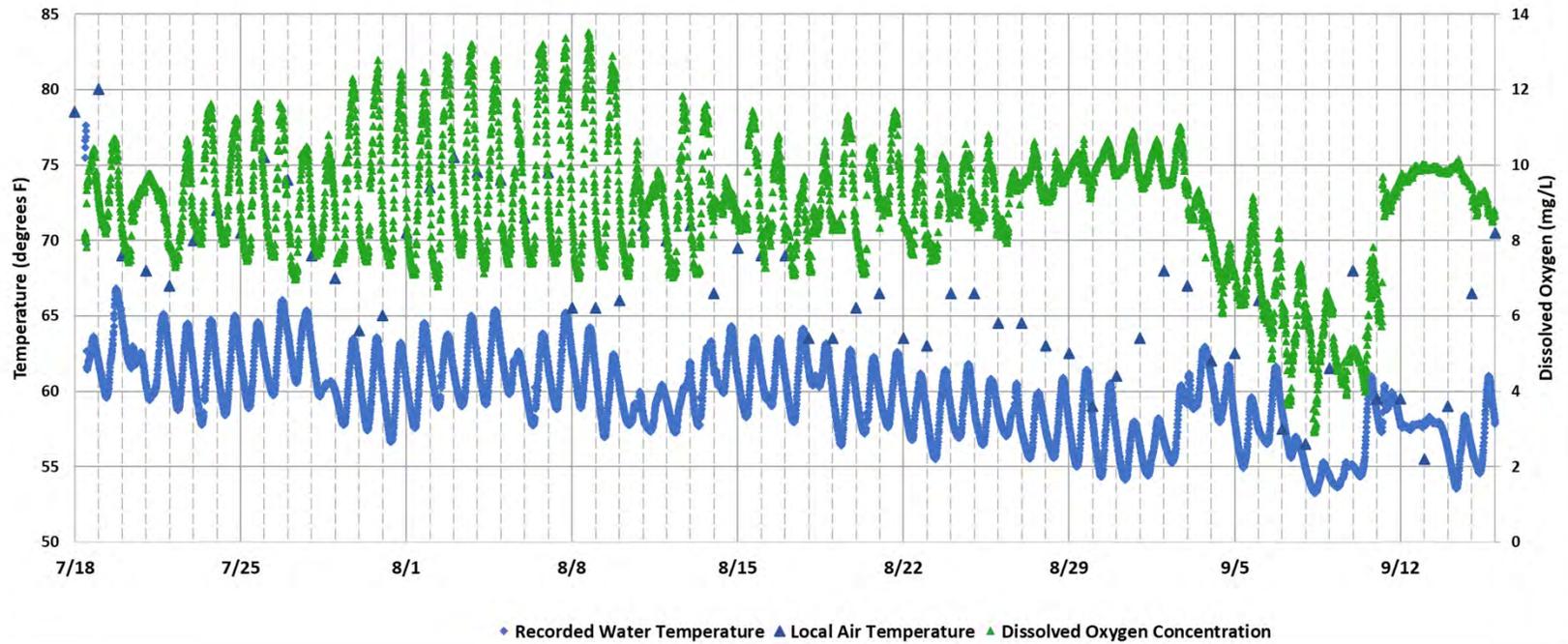
DO Meter Installation



Junction Falls outflow site

- 4 HOBO U26-001 DO data loggers
- Sensors positioned mid-water column
- Meter check and data download at approximately 2 week intervals
- Vandalism issues early in season

Water Quality Time Series – Junction Falls Outflow



Water Quality Study

Summary of Recorded Dissolved Oxygen Concentrations Summer 2019

| Location | Measured Dissolved Oxygen Range (mg/L) for Season | Percent of readings < 6.0 mg/L (trout stream standard) | Percent of readings < 5.0 mg/L (other water body standard) |
|------------------------|---|--|--|
| Inflow | 7.0 – 13.0 | 0 % | 0 % |
| Lake George | 0.0 – 13.0 | 37 % | 28 % |
| Junction Falls Outflow | 2.9 – 13.5 | 4 % | 3 % |
| Powell Falls Outflow | 0.7 – 12.2 | 29 % | 18 % |

Water Quality Study

Summary of Recorded Water Temperatures Summer 2019

| Location | Temperature | | | | | |
|-----------------------------------|--|-------------------|----------------------|---|-------------------|----------------------|
| | Maximum 15-minute Reading, ° F (Acute Criteria Shown by Month for Cold Water Stream/ Lake) | | | Average Reading, ° F (Ambient Criteria Shown by Month for Cold Water Stream/Lake) | | |
| | July (73/86) | August (73/86) | September (72/84) | July (64/72) | August (63/71) | September (57/63) |
| Inflow | 64 | 63 | 62 | 60 | 60 | 56 |
| Lake George | 78 | 65 | 62 | 61 | 59 | 57 |
| Junction Falls Outflow | 78 | 65 | 63 | 62 | 60 | 57 |
| Powell Falls Outflow | 80 | 82 | 66 | 63 | 61 | 58 |

Water Quality Study – Summary of 2019 Season

- Flows entering the project area consistently met state DO and temperature criteria for cold water fisheries.
 - From the upstream to the downstream limits of the study area, measured water temperatures typically increased by 3 to 4 degrees F at a given sampling time.
 - Measured dissolved oxygen concentrations generally decreased from upstream to downstream in the study area, although the amount of decrease was highly variable.
 - Dissolved oxygen concentrations in and downstream of the impoundments dropped below 6 mg/L during some periods. In Lake George and at the outfall from Lake Louise, DO concentrations fell below the Class 1 trout stream standard in 37 percent and 29 percent of measurements respectively.
 - The Junction Falls outflow showed fewer exceedances of the dissolved oxygen standard than Lake George or the Lake Louise outfall.
 - There was little evidence of stratification except in Lake George, where near-surface readings often showed higher DO concentrations than the mid-depth reading.
 - The 2019 sampling season did not include extreme streamflow, precipitation, or temperature conditions.
- 

Wetland, Riparian, and Terrestrial Resources Survey

Reconnaissance level field survey of wetland, riparian, and terrestrial resources:

1. Major vegetation cover types
2. Invasive botanical species
3. Common wildlife (bird and mammal) species
4. Presence of roosting habitat for northern long-eared bat and rare botanical species or associated habitats

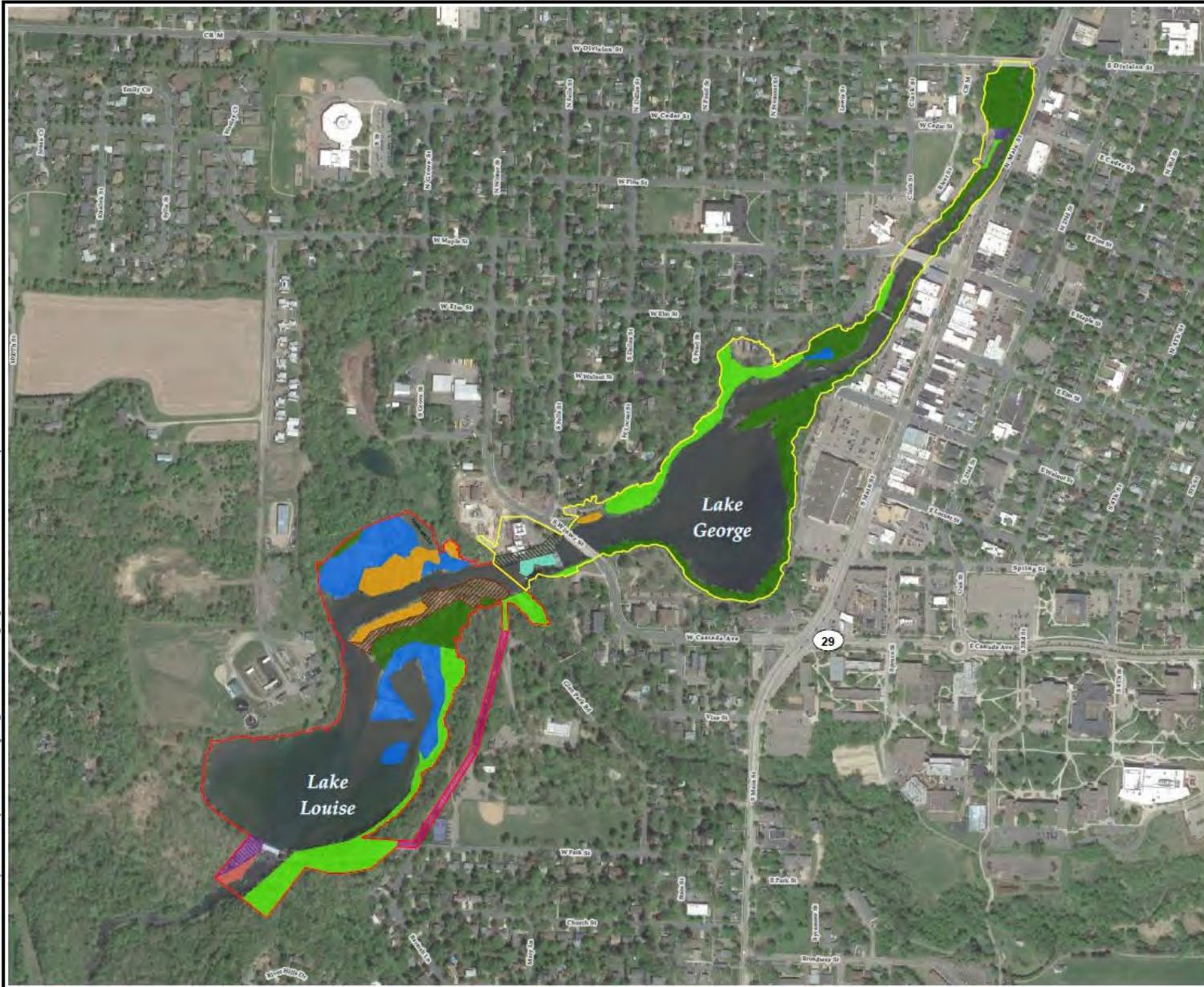
Wetland, Riparian, and Terrestrial Resources Survey

Junction Falls habitat types:

- shallow marsh
- bottomland hardwood woodland
- young upland woodland
- mature woodland
- upland shrub
- meadow

Powell Falls habitat types:

- fresh (wet) meadow
 - shallow marsh
 - bottomland hardwood woodland
 - riparian woodland
 - old field
 - young upland woodland
 - mature woodland
 - oak savanna
- 

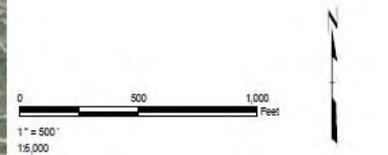


LEGEND

- MATURE WOODLAND
- OAK SAVANNA
- RIPARIAN WOODLAND
- BOTTOMLAND HARDWOOD WOODLAND
- YOUNG UPLAND WOODLAND
- YOUNG BOTTOMLAND HARDWOOD/FRESH (WET) MEADOW
- FRESH (WET) MEADOW
- SHALLOW MARSH
- UPLAND SHRUB
- MEADOW
- OLD FIELD
- APPROXIMATE JUNCTION FALLS PROJECT BOUNDARY
- APPROXIMATE POWELL FALLS PROJECT BOUNDARY

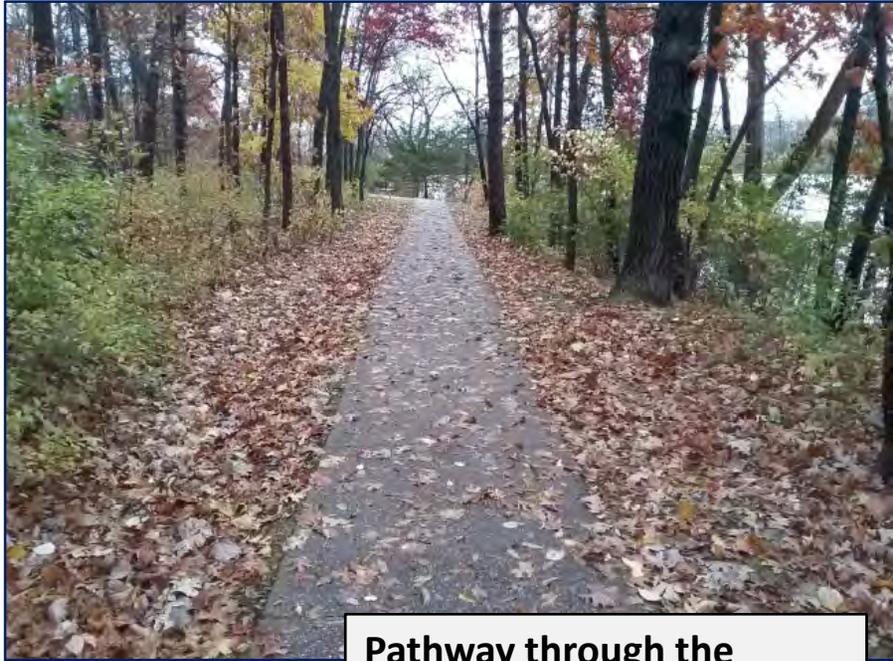
NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO., (5/14/2016).
2. OPEN WATER & DEVELOPED AREAS NOT INCLUDED.



| | |
|--|--------------------|
| PROJECT | |
| RIVER FALLS HYDROELECTRIC PROJECT CITY OF RIVER FALLS, WISCONSIN | |
| TITLE | |
| VEGETATION COVER TYPES IN THE PROJECT BOUNDARIES | |
| DRAWN BY: | A. ACAR |
| CHECKED BY: | L. SHEB |
| APPROVED BY: | L. BROTKOWSKI |
| DATE: | JANUARY 2020 |
| FIGURE 2 | |
| 708 Heartland Trail, Suite 3000 Madison, WI 53717 Phone: 608.826.3600 www.trcinc.com | |
| FILE NO: | 301165_002_VEG.mxd |

Wetland, Riparian, and Terrestrial Resources Survey



Pathway through the mature woods on the North side of Lake George

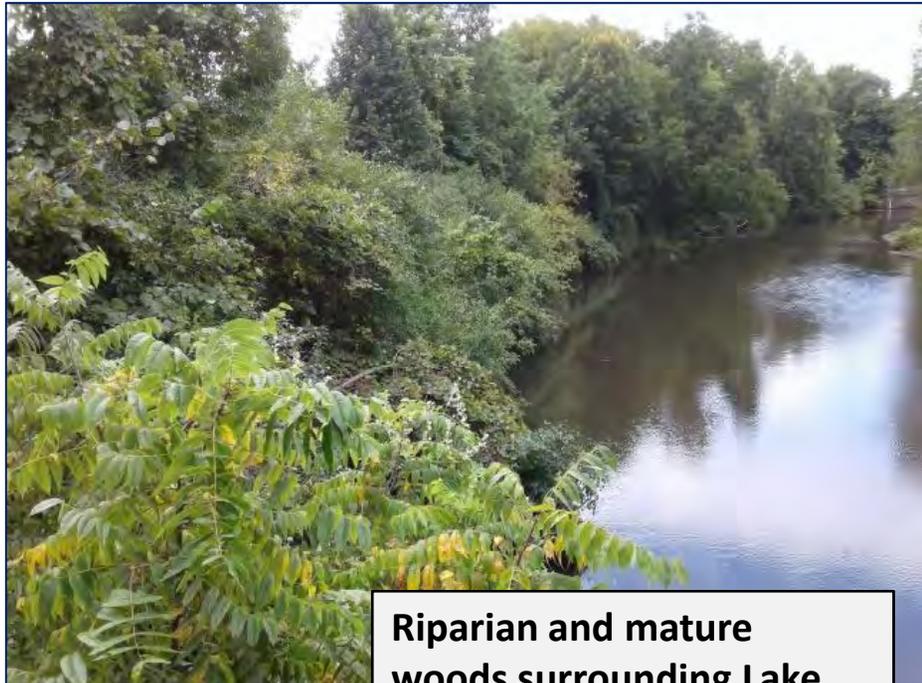
Bottomland hardwood woodland cover type on the northeast side of Lake George



Junction Falls



Wetland, Riparian, and Terrestrial Resources Survey



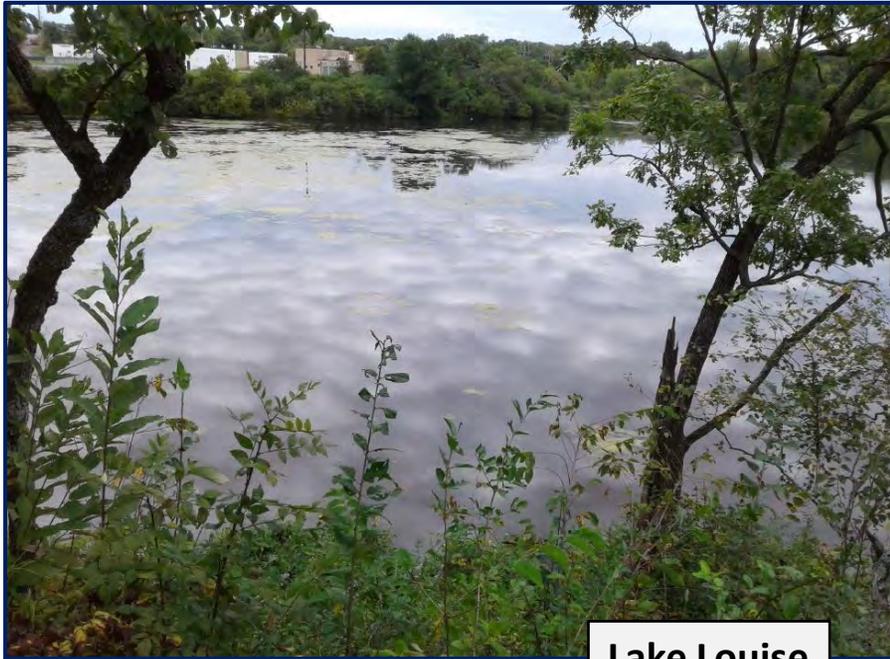
Riparian and mature woods surrounding Lake George



Meadow cover type in the northwest portion of the Junction Falls Project Boundary

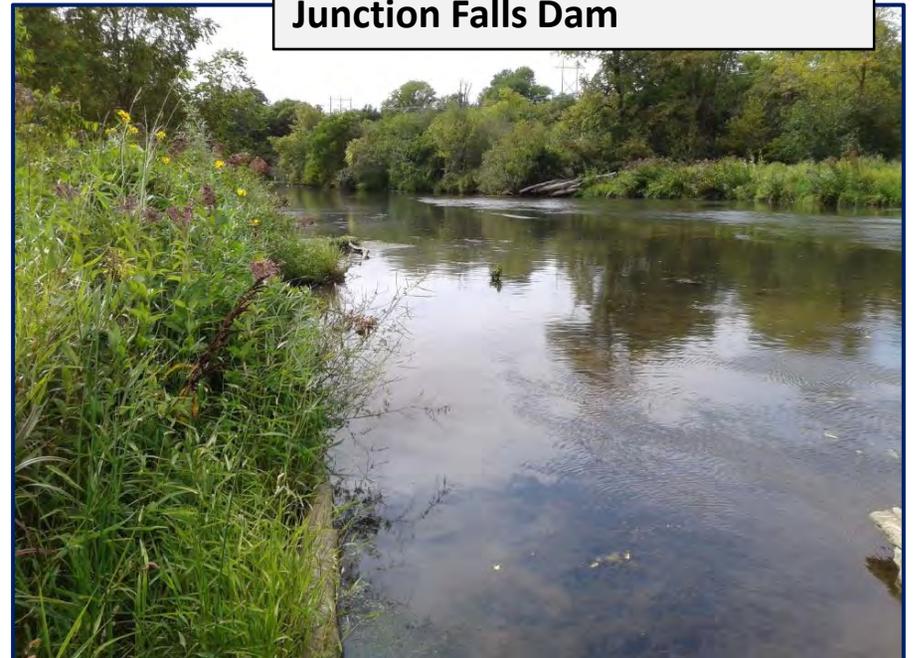
Junction Falls

Wetland, Riparian, and Terrestrial Resources Survey



Lake Louise

Fresh (wet) meadow and young upland woodlands south of the Junction Falls Dam

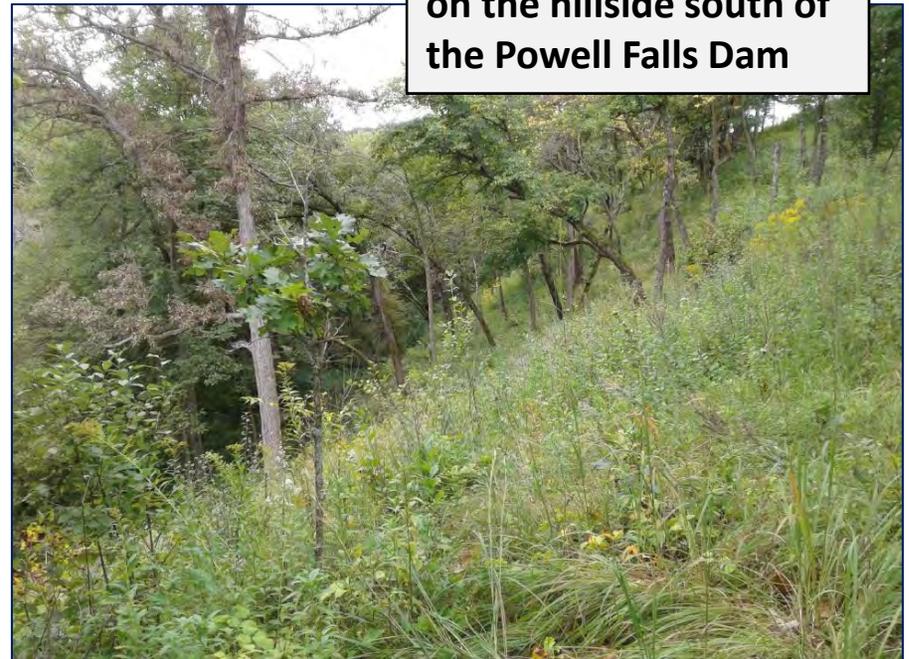


Powell Falls

Wetland, Riparian, and Terrestrial Resources Survey



Bottomland hardwood woodland along Lake Louise



Oak savanna cover type on the hillside south of the Powell Falls Dam

Powell Falls

Wetland, Riparian, and Terrestrial Resources Survey



Fresh (wet) meadow cover type located on the north side of Lake Louise



Shallow marsh cover type located on the north side of Lake Louise

Powell Falls



Wetland, Riparian, and Terrestrial Resources Survey

Invasive species

- Based on Wisconsin NR 40 list of invasive botanical species
- Species observed:
 - burning bush
 - dame's rocket
 - wild parsnip
 - Tatarian honeysuckle
 - Moneywort
 - purple loosestrife
 - reed canary grass
 - common reed
 - common buckthorn
 - garlic mustard
 - black locust
 - Cattail
 - Siberian elm

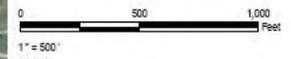


LEGEND

- 1: *Euonymus alata* (BURNING BUSH)
- 2: *Hesperis matronalis* (DAMES ROCKET)
- 3: *Hesperis matronalis* (DAMES ROCKET) AND *Pastinaca sativa* (WILD PARSNIP)
- 4: *Lonicera tatarica* (TATARIAN HONEYSUCKLE)
- 5: *Lysimachia nummularia* (MONEYWORT)
- 6: *Phalaris arundinacea* (REED CANARY GRASS) AND *Lythrum salicaria* (PURPLE LOOSESTRIFE)
- 7: *Phragmites australis* (COMMON REED)
- 8: *Rhamnus cathartica* (COMMON BUCKTHORN)
- 9: *Rhamnus cathartica* (COMMON BUCKTHORN) AND *Alfilaria petiolata* (GARLIC MUSTARD)
- 10: *Robinia pseudoacacia* (BLACK LOCUST)
- 11: *Typha glauca* (CATTAIL)
- 12: *Ulmus pumila* (SIBERIAN ELM)
- 13: *Ulmus pumila* (SIBERIAN ELM) AND *Lonicera tatarica* (TATARIAN HONEYSUCKLE)
- 14: *Lythrum salicaria* (PURPLE LOOSESTRIFE)
- APPROXIMATE JUNCTION FALLS PROJECT BOUNDARY
- APPROXIMATE POWELL FALLS PROJECT BOUNDARY

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO., (5/14/2018).
2. *LYSIMACHIA SALICARIA* (PURPLE LOOSESTRIFE) PRESENT AT 1 TO 2 PERCENT IN SOME PLANT COMMUNITIES.



| | |
|--|------------------------|
| PROJECT | |
| RIVER FALLS HYDROELECTRIC PROJECT CITY OF RIVER FALLS, WISCONSIN | |
| TITLE | |
| INVASIVE SPECIES IN THE PROJECT BOUNDARIES | |
| DRAWN BY: A. ADAIR | PROJ. NO.: 350195.0001 |
| CHECKED BY: L. OESBE | FIGURE 3 |
| APPROVED BY: L. BROTKOWSKI | |
| DATE: JANUARY 2020 | |
| 708 Heartland Trail, Suite 3000 Madison, WI 53717 Phone: 608.826.3900 www.trcsolutions.com | |
| FILE NO.: 350195_003_INV.mxd | |

Wetland, Riparian, and Terrestrial Resources Survey

Wildlife

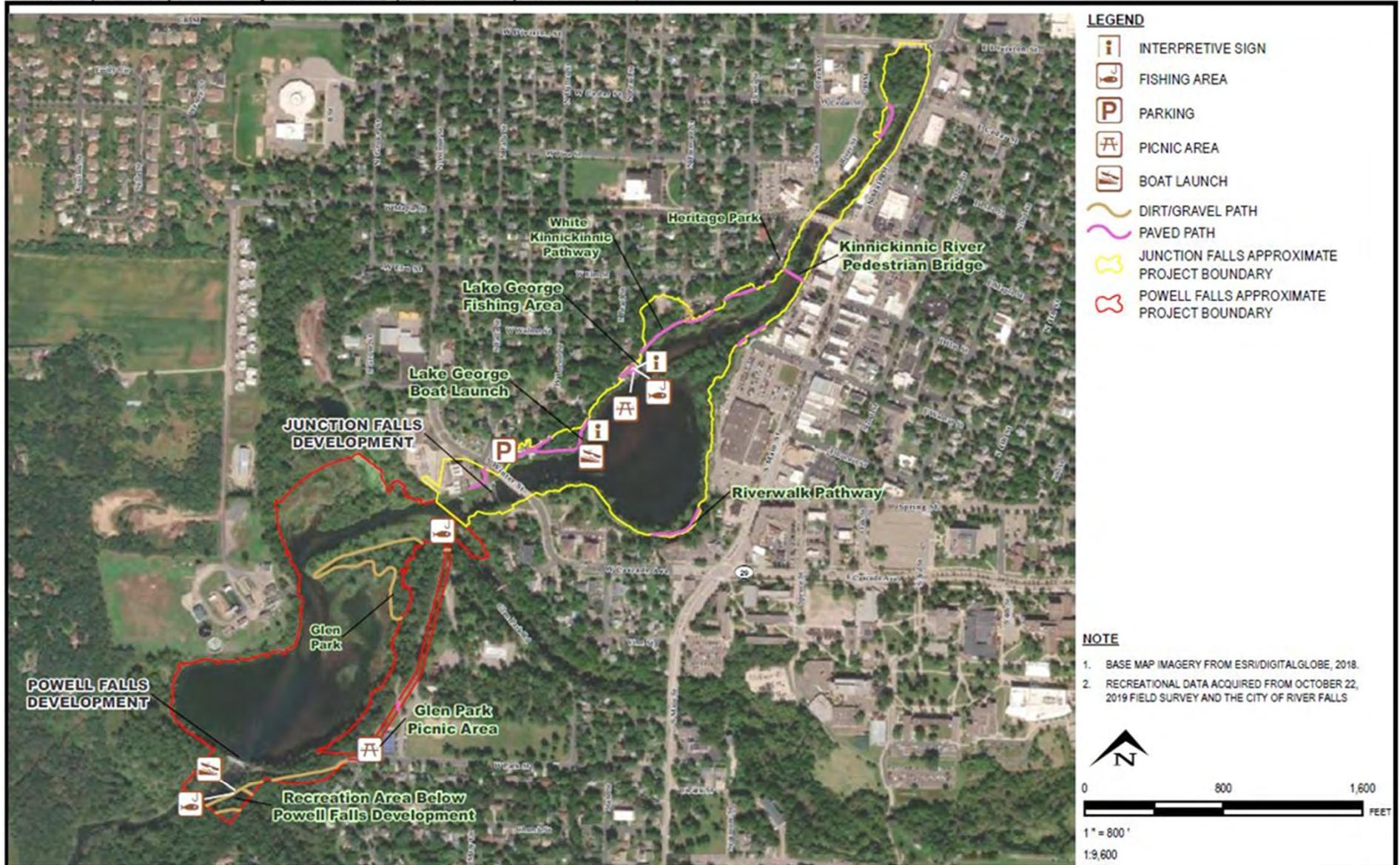
- Common species typical of urbanized areas in northwest Wisconsin (e.g. red and gray squirrels, chipmunk, white-tail deer, raccoon, otters, red-eared slider, frogs, great blue heron, green heron, Canada geese, ducks, white egrets, belted kingfisher, pileated woodpecker)

Rare Species & Habitat

- No rare species were observed
- Appropriate habitat for prairie bush-clover was present in the Oak Savanna
- Mature trees were in good health with no noticeable crevices or exfoliating bark to provide suitable summer roosting habitat for the northern long-eared bat

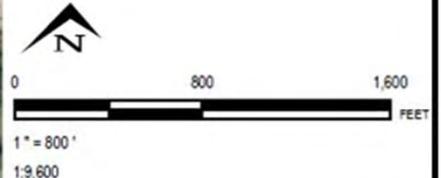
Recreation Facility Inventory

- **Study goal:** complete baseline inventory of existing public recreation sites and facilities in the FERC Project Boundary
- Inventory conducted in October 2019



- LEGEND**
- INTERPRETIVE SIGN
 - FISHING AREA
 - PARKING
 - PICNIC AREA
 - BOAT LAUNCH
 - DIRT/GRAVEL PATH
 - PAVED PATH
 - JUNCTION FALLS APPROXIMATE PROJECT BOUNDARY
 - POWELL FALLS APPROXIMATE PROJECT BOUNDARY

- NOTE**
1. BASE MAP IMAGERY FROM ESRI/DIGITALGLOBE, 2018.
 2. RECREATIONAL DATA ACQUIRED FROM OCTOBER 22, 2019 FIELD SURVEY AND THE CITY OF RIVER FALLS




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TRC - GIS

| | |
|----------|---|
| PROJECT: | RIVER FALLS HYDROELECTRIC PROJECT (P-10489) CITY OF RIVER FALLS, WISCONSIN |
| TITLE: | RECREATION SITES AND FACILITIES IN THE PROJECT BOUNDARY |

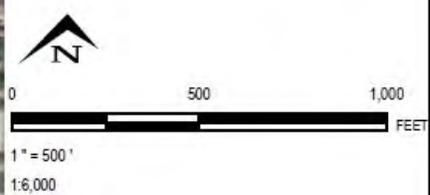
| | |
|-----------------|-----------------------------|
| DRAWN BY: | D. SWEENEY |
| CHECKED BY: | E. KRCHNAVEK |
| APPROVED BY: | L. BROTKOWSKI |
| DATE: | JANUARY 2020 |
| PROJ. NO.: | 297852 |
| FILE: | 297852-011_City_AA_8x11.mxd |
| FIGURE 1 | |



- LEGEND**
- BENCH
 - FISHING PLATFORM
 - INTERPRETIVE SIGN
 - PARKING
 - PICNIC AREA
 - BOAT LAUNCH
 - PAVED PATH
 - JUNCTION FALLS APPROXIMATE PROJECT BOUNDARY

NOTE

1. BASE MAP IMAGERY FROM ESRI/DIGITALGLOBE, 2018.
2. RECREATION DATA ACQUIRED FROM OCTOBER 22, 2019 FIELD SURVEY AND THE CITY OF RIVER FALLS




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Madison, WI 53717
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PROJECT: RIVER FALLS HYDROELECTRIC PROJECT (P-10489)
CITY OF RIVER FALLS, WISCONSIN

TITLE: RECREATION SITES AND FACILITIES IN THE
JUNCTION FALLS PROJECT BOUNDARY

| | |
|--------------|--------------------------------|
| DRAWN BY: | D. SWEENEY |
| CHECKED BY: | E. KRCHNAVEK |
| APPROVED BY: | L. BROTKOWSKI |
| DATE: | JANUARY 2020 |
| PROJ. NO.: | 297852 |
| FILE: | 297852-011_City_AA_JF_8x11.mxd |

FIGURE 2

Recreation Facility Inventory

Junction Falls

Riverwalk Pathway

- Paved trail along the southern shore of Lake George and Kinnickinnic River
- Managed by the City of River Falls, open from 5 am – 11 pm
- The trail is in good condition



Recreation Facility Inventory

Junction Falls

White Kinnickinnic Pathway

- Paved trail along the northwestern shore of Lake George and the Kinnickinnic River.
- Maintained by the City of River Falls, open from 5 am – 11 pm
- Benches and an interpretive sign about great blue heron along the trail
- Trail and the associated facilities are in good condition



Recreation Facility Inventory

Junction Falls

White Kinnickinnic Pathway

- Parking area located at the southern end of pathway near the intersection of South Falls Street and South Winter Street
- Provides seven parking spots



Recreation Facility Inventory

Junction Falls

Lake George Fishing Area

- Located on the northwestern shore of Lake George
- Has a fishing platform, an interpretive sign about the belted kingfisher, a picnic table, and two benches
- Maintained by the City of River Falls
- The facilities at the Lake George Fishing Area are in good condition



Recreation Facility Inventory

Junction Falls

Lake George Boat Launch

- Located on the northwestern shore of Lake George
- Carry-in boat launch for canoes, kayaks, and other small watercraft
- Owned and maintained by the City of River Falls
- Good condition

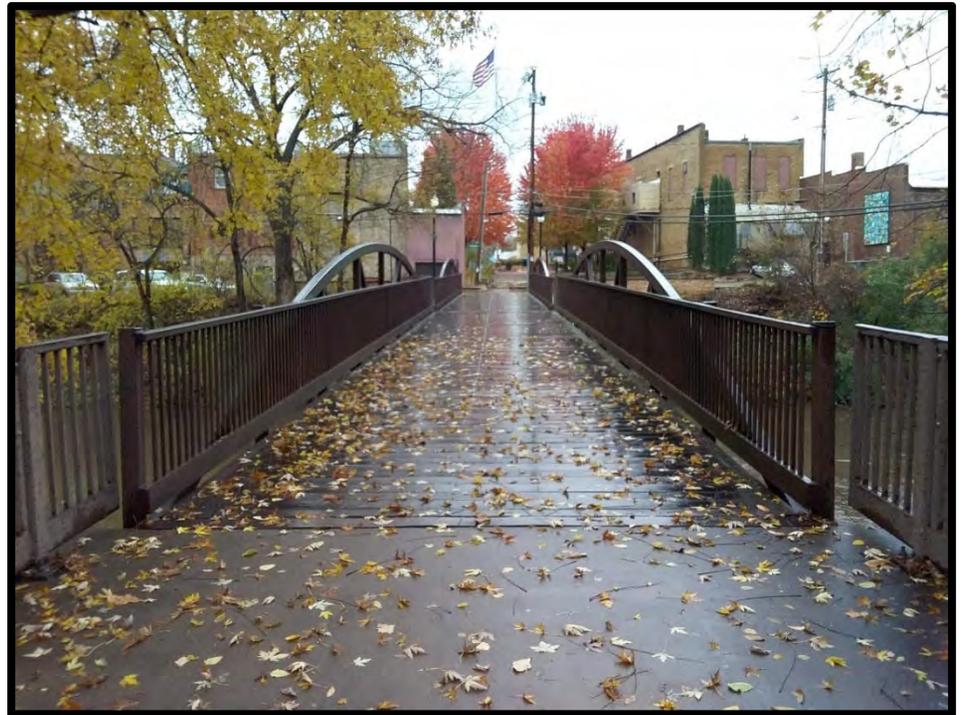


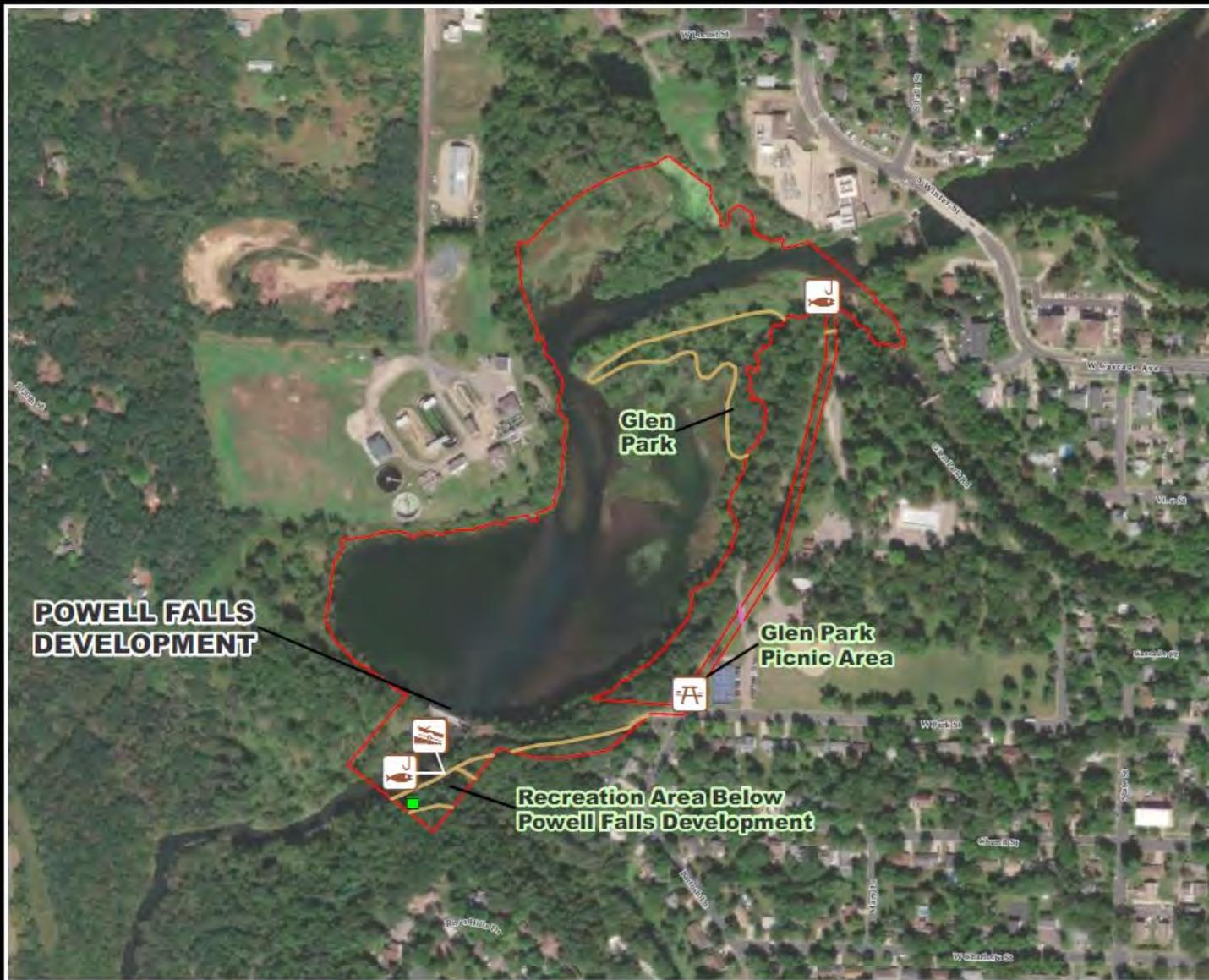
Recreation Facility Inventory

Junction Falls

Kinnickinnic River Pedestrian Bridge

- Located across the Kinnickinnic River connecting Heritage Park (west side) to Veterans' Park (east side)
- Owned and maintained by the City of River Falls, open for public use from 5 am – 11 pm
- Good condition



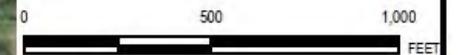


LEGEND

-  BENCH
-  FISHING
-  PICNIC AREA
-  BOAT LAUNCH
-  DIRT/GRAVEL PATH
-  PAVED PATH
-  POWELL FALLS APPROXIMATE PROJECT BOUNDARY

NOTE

1. BASE MAP IMAGERY FROM ESRI/DIGITALGLOBE, 2018.
2. RECREATION DATA ACQUIRED FROM OCTOBER 22, 2019 FIELD SURVEY AND THE CITY OF RIVER FALLS



1" = 500'

1:6,000



708 Heartland Trail, Suite 3000
Madison, WI 53717
Phone: 608.826.3600
www.bcsolutions.com

TRC - GIS

PROJECT:

**RIVER FALLS HYDROELECTRIC PROJECT (P-10489)
CITY OF RIVER FALLS, WISCONSIN**

TITLE:

**RECREATION SITES AND FACILITIES IN THE
POWELL FALLS PROJECT BOUNDARY**

DRAWN BY:

D. SWEENEY

CHECKED BY:

E. KRCHNAVEK

APPROVED BY:

L. BROTKOWSKI

DATE:

JANUARY 2020

PROJ. NO.:

297852

FILE:

297852-011_City_AA_Pf_8x11.mxd

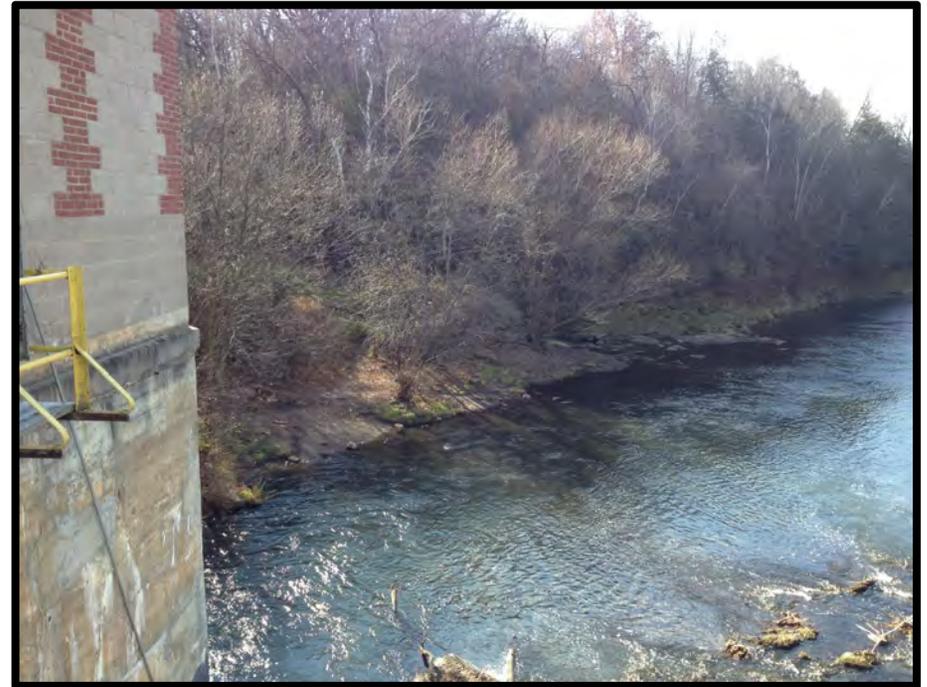
FIGURE 3

Recreation Facility Inventory

Powell Falls

Recreation Area Below Powell Falls Development

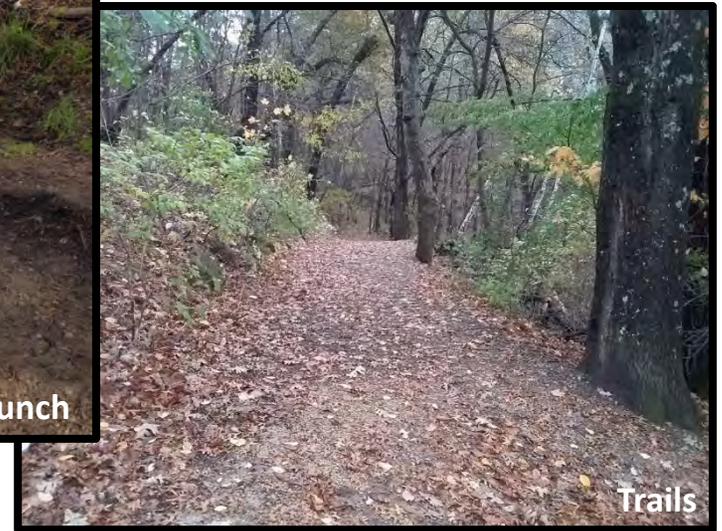
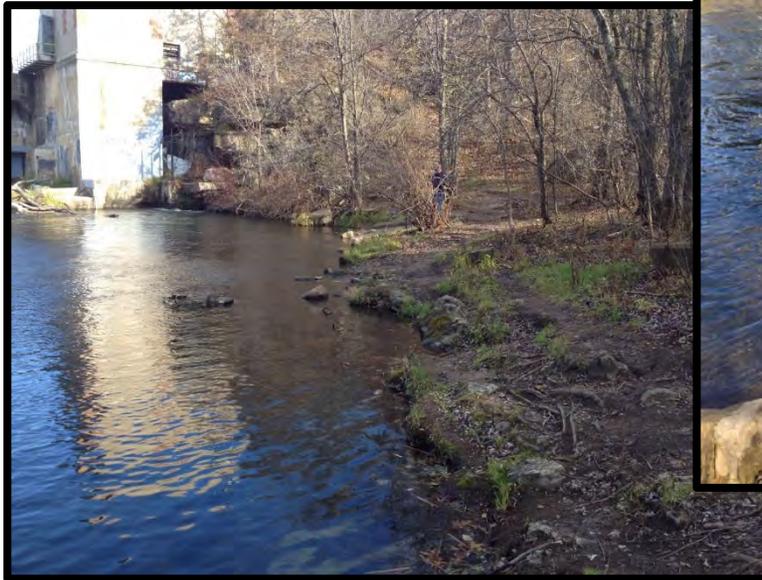
- Located south of Lake Louise and below the Powell Falls dam
- Offers an informal fishing area, an informal carry-in boat launch, trails, and bench
- Trails are unpaved and are composed of gravel and dirt. Parts of the trail are steep.
- Owned and managed by the City of River Falls, open for public use from 5 am – 11 pm
- Facilities are in good condition



Recreation Facility Inventory

Powell Falls

**Recreation Area Below
Powell Falls Development**

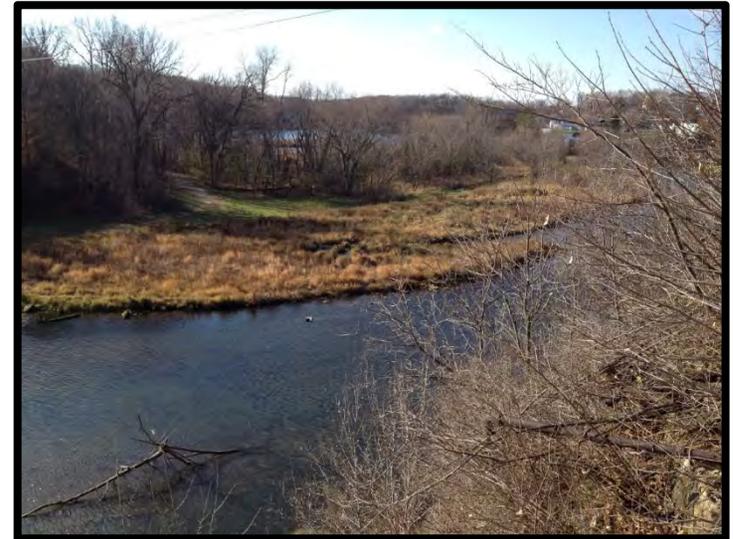


Recreation Facility Inventory

Powell Falls

Glen Park

- Located on the southern side of Lake Louise, extending beyond the Project Boundary
- Informal fishing area located near the mouth of the South Fork Kinnickinnic River, below the Junction Falls Development
- Paved and unpaved trails at Glen Park
- The general topography is flat near the water and steep along the wooded slopes
- Owned and managed by the City of River Falls, open for public use from 5 am – 11 pm
- Facilities are in good condition



Recreation Facility Inventory

Powell Falls

Glen Park



Recreation Facility Inventory

Powell Falls

Glen Park

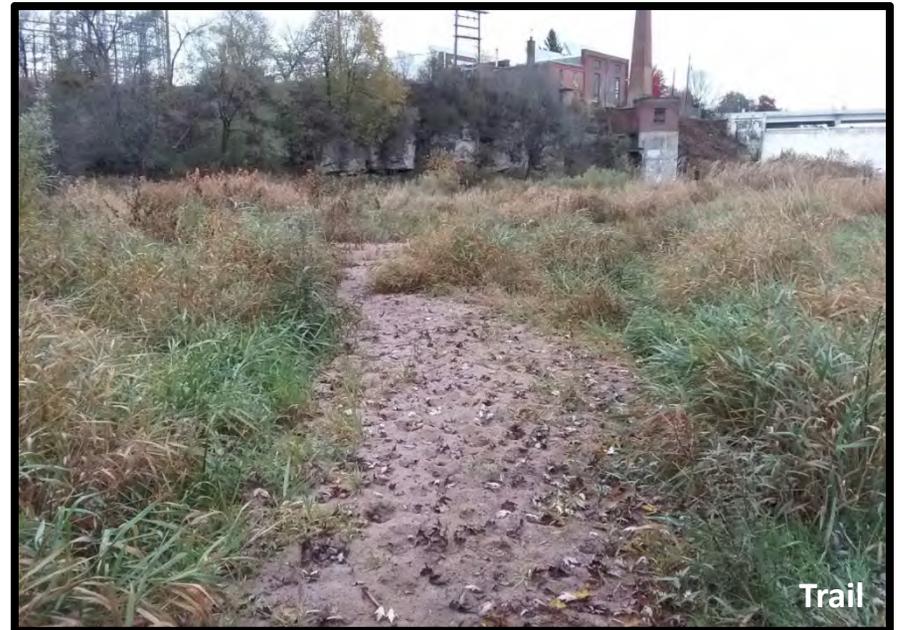
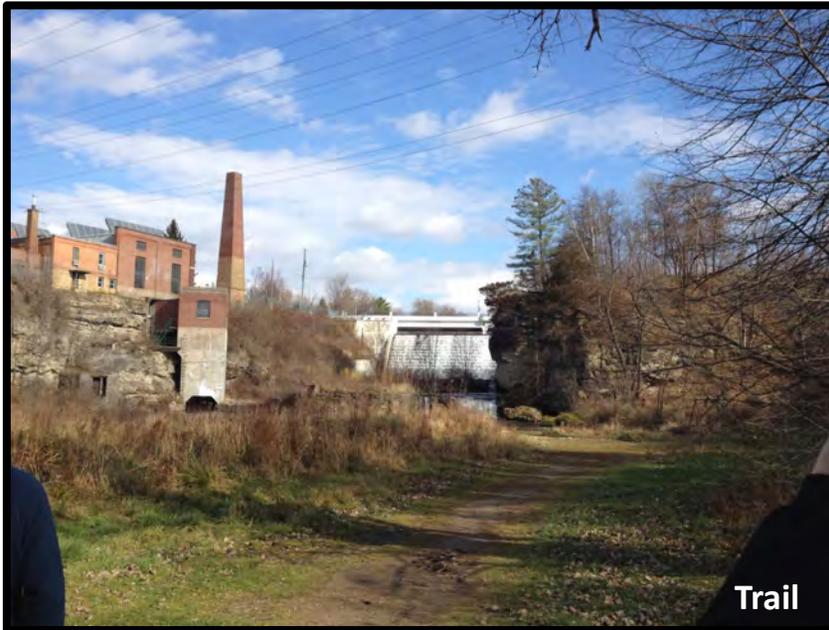


Informal fishing area

Recreation Facility Inventory

Powell Falls

Glen Park



Recreation Facility Inventory

Powell Falls

Glen Park Picnic Area

- Located south of Lake Louise next to pickleball courts and a parking area, which are both adjacent to the Project Boundary
- Owned and maintained by the City of River Falls, open for public use from 5 am – 11 pm
- Four picnic tables, each in good condition



Cultural Resources Study

Architectural Resources Survey

Project Area of Potential Effects (APE) consultation

- Proposed Project APE = Project Boundary
- Consulted with the SHPO and Tribes
 - SHPO concurred with proposed APE on October 10, 2019
 - No other responses were received.
- Project APE may need to be modified
 - Dependent on access route selection for the Powell Falls decommissioning and dam removal
 - The Licensee will continue to consult with the appropriate agencies, stakeholders, Tribes, and the FERC regarding any potential changes to the Project

Powell Falls and Junction Falls Hydroelectric Project

Proposed Area of Potential Effect (APE)



Project Location

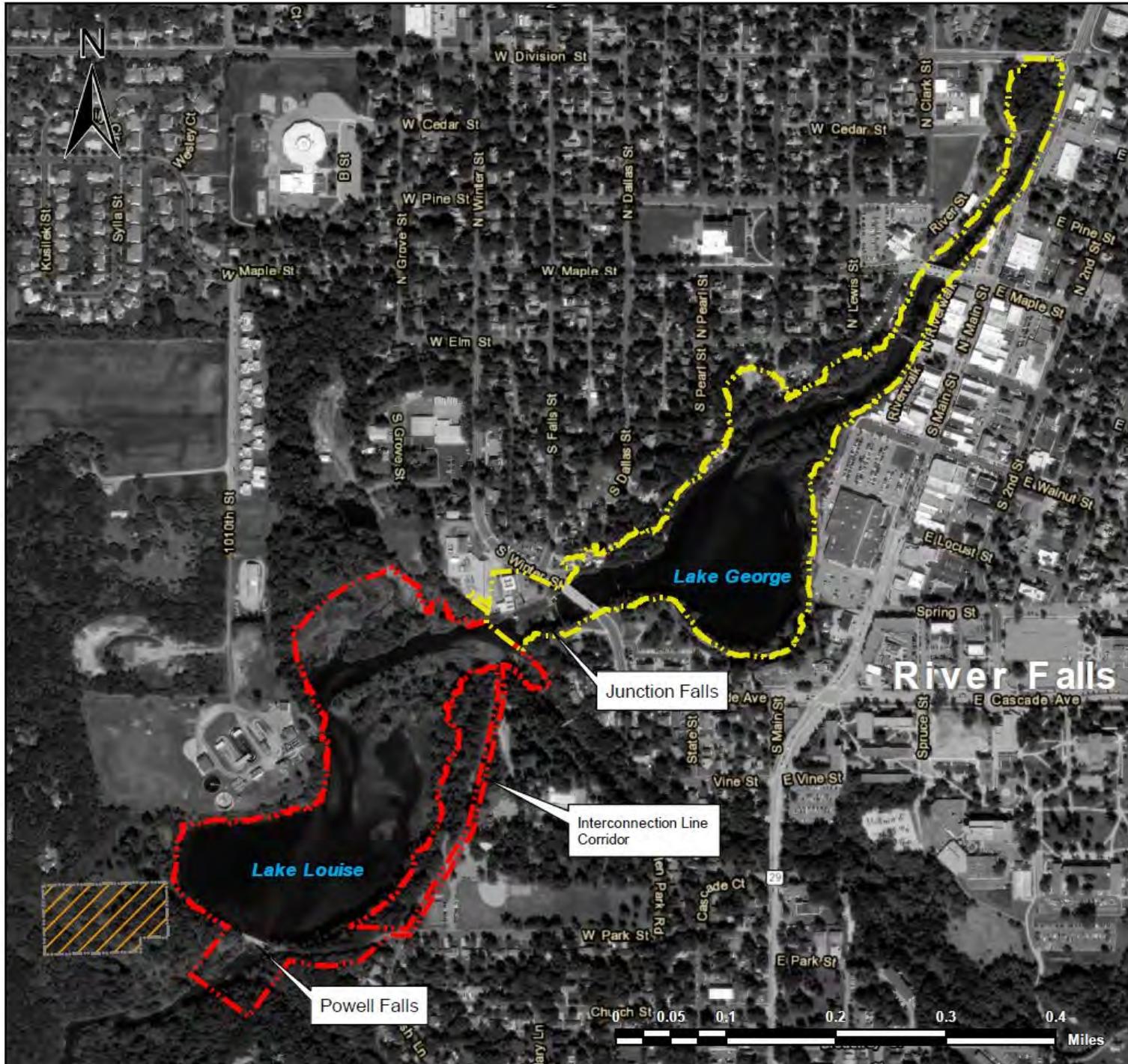
FERC Project Number 10489
 Pierce County, Wisconsin
 June 7, 2019

Legend

-  Foster Cemetery
- Proposed APE**
-  Junction Falls
-  Powell Falls



RIVER FALLS
 MUNICIPAL UTILITIES



Cultural Resources Study

Architectural Resources Survey

Study Purpose

- Survey historic architectural and engineering resources aged 50 years or older within the Project APE, including both Project-related and non-Project-related facilities, and to evaluate their eligibility for listing in the National Register of Historic Places (NRHP)
- Junction Falls Development and Powell Falls Development were evaluated

Cultural Resources Study

Architectural Resources Survey

Hydropower Historical Timeline

- 1900: Junction Falls powerhouse and timber-crib dam construction
 - 1903: Powell Falls wood-frame powerhouse and timber-crib dam construction
 - 1912: Junction Falls dam raised to form Lake George
 - 1920: Junction Falls concrete gravity dam built 30' downstream of crib dam
 - 1964: Flood destroyed Powell Falls timber crib dam and powerhouse
 - 1965: New Powell Falls powerhouse and concrete gravity dam constructed
 - 1989: Junction Falls dam rebuilt with stepped design
- 

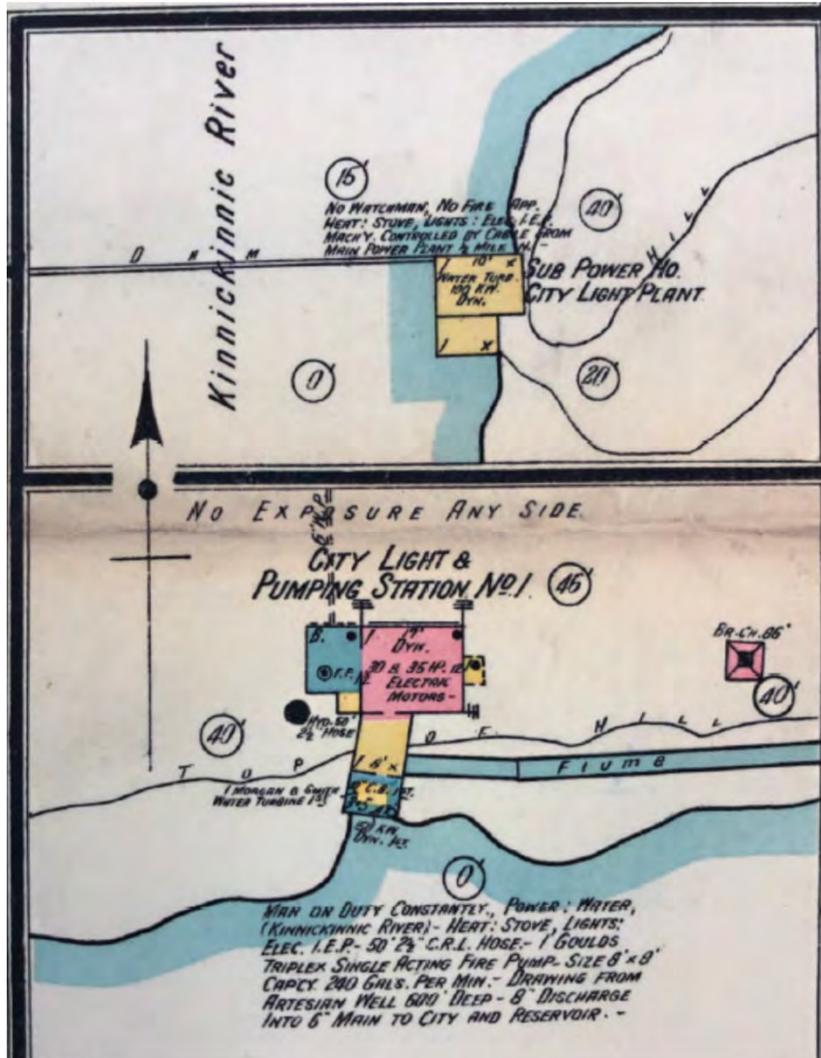
Cultural Resources Study



Junction Falls hydroelectric plant, circa 1900

(Courtesy of University of Wisconsin-River Falls, University Archives)

Cultural Resources Study



Architectural Resources Survey

- 1912 Sanborn Map showing original configurations of Powell Falls (top) and Junction Falls (bottom)

Junction Falls Development

S Falls St

Switchyard
(not in APE)

Modern Additions

1928/1947
Additions

Dam

1900 Powerhouse

Generator House

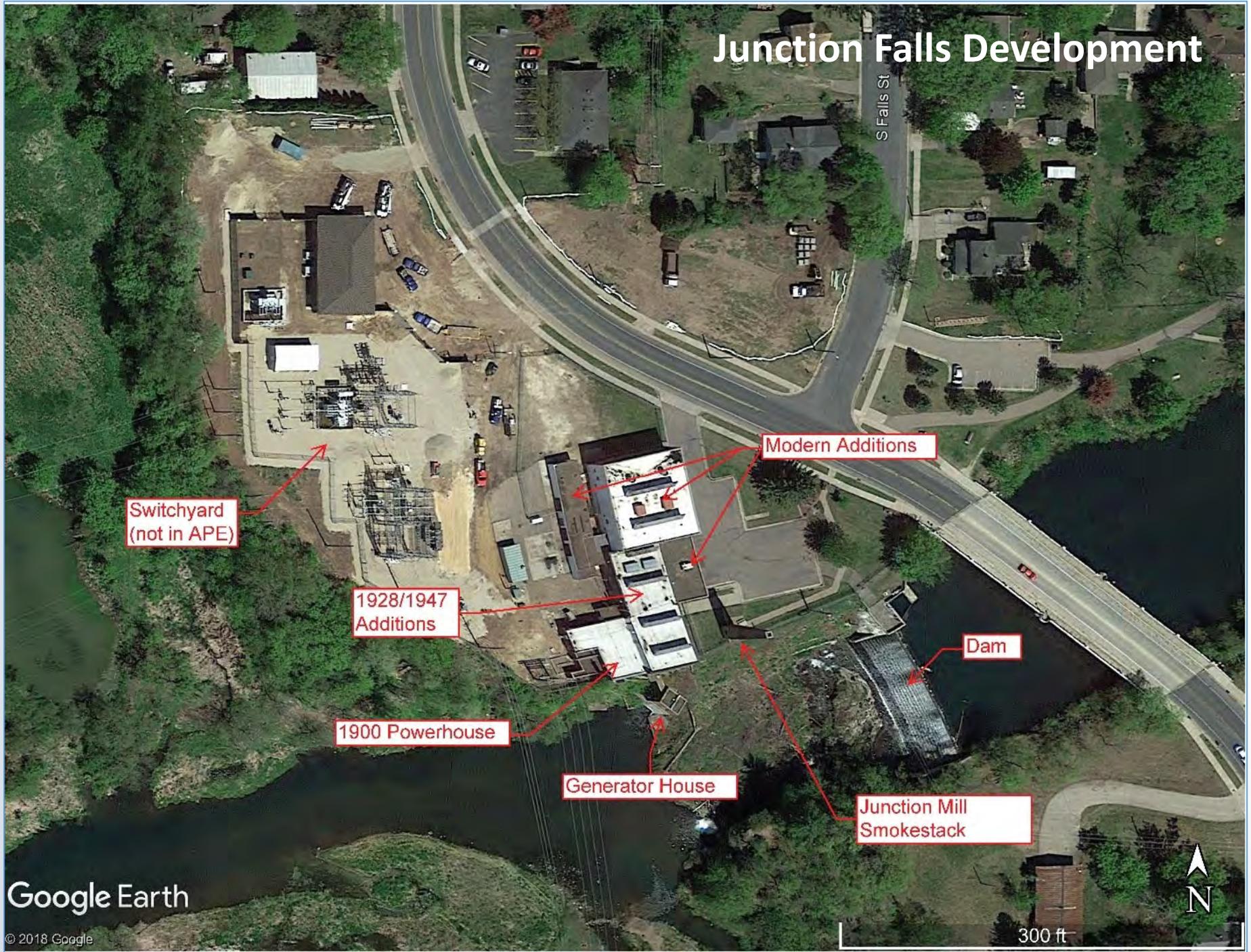
Junction Mill
Smokestack

Google Earth

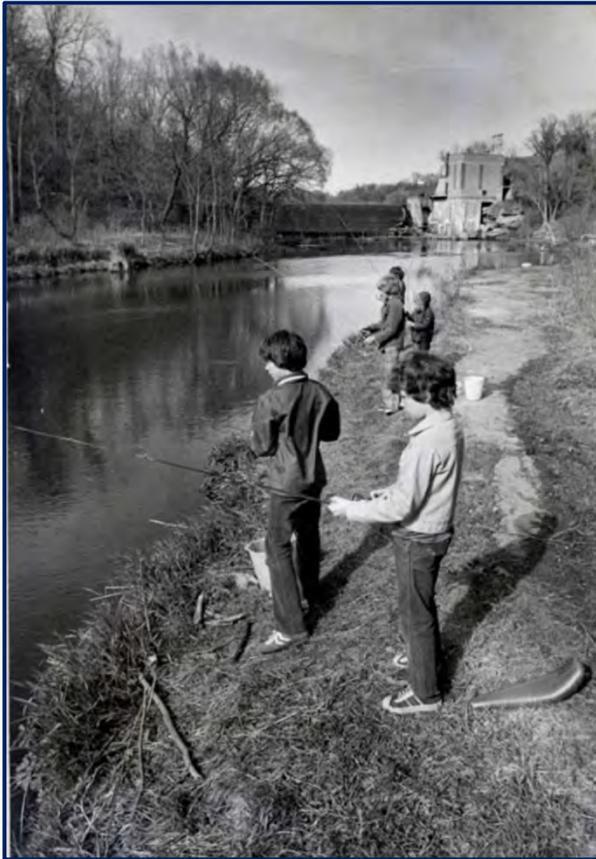
© 2018 Google



300 ft

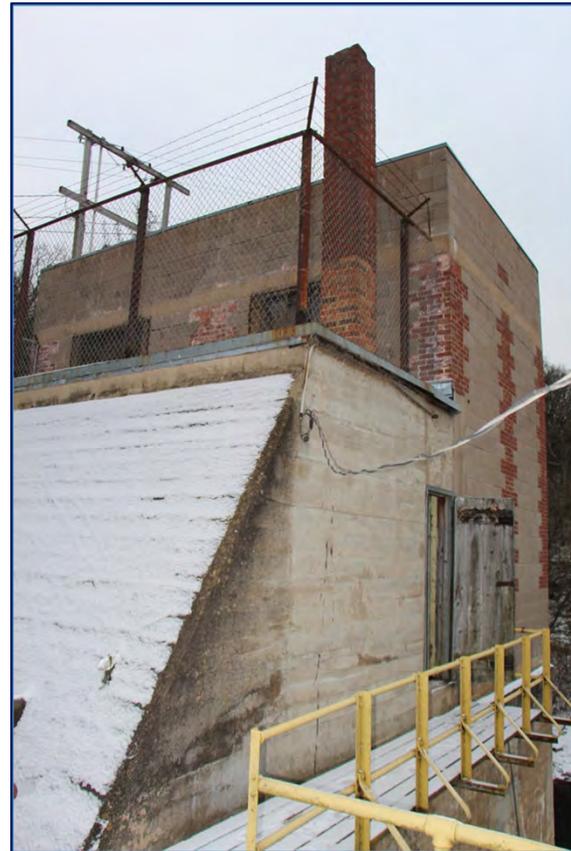


Cultural Resources Study



Powell Falls, circa 1975

(Courtesy of University of Wisconsin-River Falls,
University Archives)



Powell Falls, 2019

Cultural Resources Study

Architectural Resources Survey

Junction Falls & Powell Falls Developments were evaluated under NRHP Eligibility Criteria

- **Criterion A (Event).** Association with one or more events that have made a significant contribution to the broad patterns of national, state, or local history.
- **Criterion B (Person).** Association with the lives of persons significant in the past.
- **Criterion C (Design/Construction).** Embodiment of distinctive characteristics of a type, period, or method of construction; or representation of the work of a master; or possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction.

Cultural Resources Study

Architectural Resources Survey

Results

| AHI Number | Name | Construction Date(s) | NRHP Status/ Recommendation |
|------------|----------------|---|--------------------------------|
| 25348 | Junction Falls | 1867; 1900; 1928; 1947; 1962; 1971; 1989; 1998; 2017 | Not Eligible |
| 240830 | Powell Falls | 1965 | Not Eligible |

- Recommended that the Junction Falls and Powell Falls Developments are not eligible for listing in the NRHP due to lack of historical significance and/or loss of integrity

Cultural Resources Study

Architectural Resources Survey

- As a result of the findings, it was recommended that the proposed FERC relicensing and decommissioning/dam removal actions will have No Effect on historic architectural resources
- No additional investigations were recommended

Powell Falls Decommissioning Plan



Goals



Photos represent example dam removal

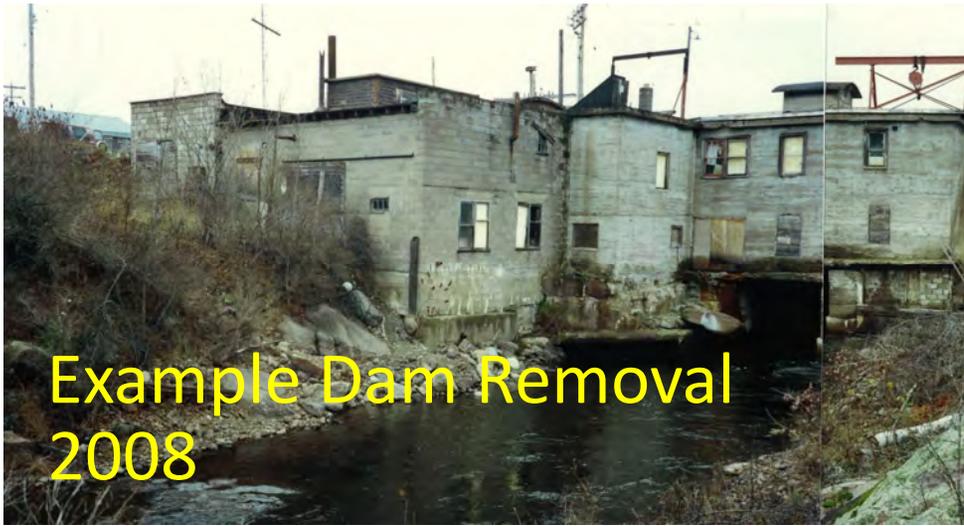
1. Minimize sediment deposited downstream in the Kinnickinnic and St. Croix Rivers
2. Minimize the risk of an uncontrolled release of water during dam removal
3. Minimize adverse construction traffic impacts to the community
4. Comply with state standards for noise, vibration, dust, sediment tracking, and erosion control measures
5. Leave no visible remnant of the concrete spillway once removal is complete
6. Beneficially reuse the powerhouse foundation (wildlife viewing platform and possibly future bridge abutment)
7. Monitor and manage invasive species during the drawdown and restoration
8. Protect critical infrastructure against channel instabilities

Risks



1. Too fast of drawdown mobilizes more sediment than the turbidity barriers can contain
2. Flood during construction mobilizes more sediment than the turbidity barriers can contain
3. Flood during construction causes a dam failure
4. Flood after drawdown damages critical infrastructure (Plant and Sanitary System)
5. Public endangered by worksite, including soft mud in impoundment and equipment traffic
6. Invasive species established after drawdown
7. Construction equipment adversely affects environment (introduction of invasives or contaminants)





Example Dam Removal
2008



2010



2010



2011



2011



2012

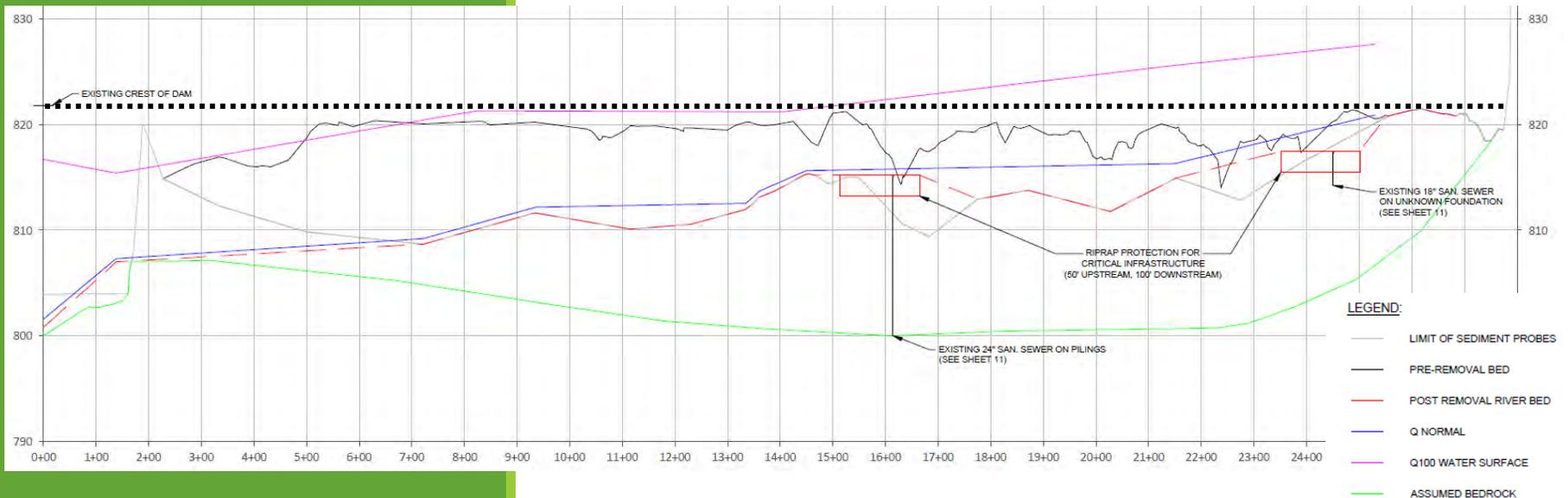
Year 1

Overall Plan

Stage 1 – Initial Dewatering

June 2024 to March 2025

1. De-energize the powerhouse
2. Install temporary power for contractor use
3. Drawdown impoundment slowly, allowing pore water release from sediments and avoiding mass slumps of banks
4. Inspect / protect the sanitary line crossings
5. Inspect / protect the shoreline along the wastewater treatment plant



Year 2

Overall Plan

Stage 2 – Initial Removal

June 2025 to March 2026



Photo represents example dam removal

1. Erosion control measures (especially the turbidity barriers) installed and inspected
2. Assess geomorphological stability within impoundment prior to starting dam removal
3. Construct access roads and causeways
4. Construct cofferdams if stability computation confirm these are required
5. Dewater the work area
6. Release the rock bolt tension within the removal area
7. Remove powerhouse superstructure and generating equipment
8. Remove cofferdams to pass flow through the removed section of dam
9. Reassess bank stability and correct problems

Year 3

Overall Plan

Stage 3 – Final Removal

June 2026 to Dec 2026



Photo represents example dam removal

1. Construct cofferdams if stability computation confirm these are required
2. Dewater the work area
3. Release the rock bolt tension within the removal area
4. Isolate the sluice gate from the powerhouse foundation and remove the sluice gate
5. Remove cofferdams to pass flow through the removed section of dam
6. Reassess bank stability and correct problems
7. Stabilize the disposal site with vegetation

Schedule



1. Incorporate comments after today's meeting into final decommissioning plan
2. Complete the Supporting Design Report

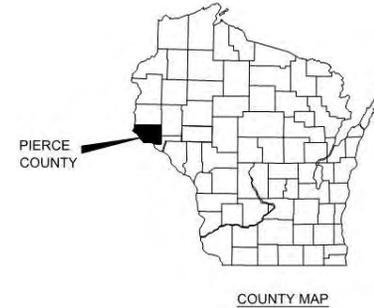
| Milestone | Deliverable(s) | Estimated Time of Completion |
|------------------------------------|---|--|
| Initial Study Report Submittal | Draft Decommissioning Plan (this report) | January 31, 2020 |
| Updated Study Report Submittal | Final Decommissioning Plan | January 31, 2021 |
| FERC Decommissioning Decision | FERC decision received | August 31, 2023 |
| Permit Applications Submitted | Permit applications to WDNR, USACE, and local agencies | December 1, 2023 ¹ |
| Permits Received | All required permits received | May 31, 2024 ¹ |
| Initial Drawdown Starts | Impoundment starts to drain | Start to drain in June 2024 but may take a couple months |
| Contractor Mobilization | Notice to Proceed issued to construction contractor(s) | August 1, 2024 |
| Powerhouse Turbine is Pulled | Turbine opened to pass flow | September 30, 2024 |
| Critical Infrastructure Stabilized | Sanitary Sewer Relocation, Riprap along Wastewater Plant | February 28, 2025 |
| First River Diversion Completed | River passes through west side of spillway | September 30, 2025 |
| Project is Substantially Completed | Rest of spillway is removed. Substantial completion granted to contractor | December 31, 2026 |
| Final Project Completion | Causeways completely removed, site stabilized, contractor has demobilized | June 30, 2027 |

¹ Dates may need to be extended based on FERC Decommissioning Order Requirements or Agency study needs.

RIVER FALLS DECOMMISSIONING PLAN

CITY OF RIVER FALLS

JANUARY 2020



CITY OF RIVER FALLS

UTILITY CONTACTS

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POWELL FALLS DECOMMISSIONING PLAN
 FERC PROJECT NO. 10489-016-WI



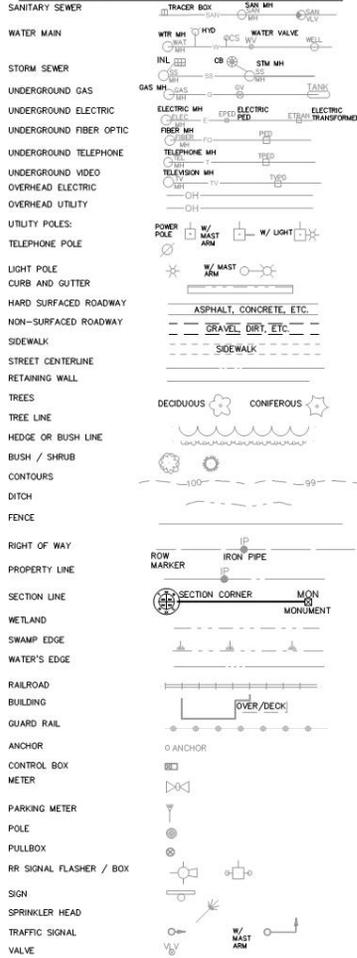
TITLE SHEET

SHEET NO.
 1

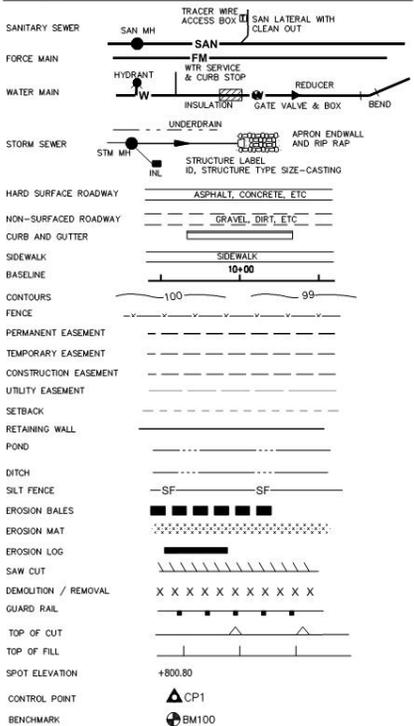
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| DR BY | ARR | DATE | 26-1155-00 | NOT FOR CONSTRUCTION | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | | | | |
| | | NO. | DATE | REVISION | NO. | DATE | REVISION |

All drawings are the property of AVRES ASSOCIATES, INC. and shall remain the property of AVRES ASSOCIATES, INC. if they are used for any other project without the written consent of AVRES ASSOCIATES, INC.

EXISTING



NEW



| | | | | | | | | | |
|----------|-----------------------|--------|-----------------------|--------|---------------------|------|--|------|----------------------------|
| AB | ANCHOR BOLT | DEFL | DEFLECTION | ID | INSIDE DIAMETER | PC | POINT OF CURVE | T&B | TOP & BOTTOM |
| ABV | ABOVE | DEG | DEGREE | IF | INSIDE FACE | PE | PRIVATE ENTRANCE | TC | TOP OF CURB |
| ADJ | ADJUST | DF | DRINKING FOUNTAIN | IN (") | INCHES | PED | PEDESTAL | TEL | TELEPHONE |
| AF | MOVE FINISHED FLOOR | DI | DUCTILE IRON | INCL | INCLUDE | THR | THICKNESS | THRU | THROUGH |
| AL | ALUMINUM | DIA | DIAMETER | INF | INFLUENT | PT | POINT OF INTERSECTION | TP | TELEPHONE POLE |
| ALT | ALTERNATE WITH | DM | DIMENSION | INL | INLET | PKG | PARKING | TP | TYPICAL |
| ALN | ALTERNATE | DISCH | DISCHARGE | INSUL | INSULATION | P | PLATE | TYP | TYPICAL |
| APPROX | APPROXIMATE | DN | DOWN | INT | INTERIOR | PL | PLACE | TJ | TOP OF |
| ASPH | ASPHALT | DP | DEPTH | INV | INVERT | PL & | PROPERTY LINE | UG | UNDERGROUND GAS |
| AUTO | AUTOMATIC | DR | DOOR | IP | IRON PIPE | PP | POWER POLE | UE | UNDERGROUND ELECTRICAL |
| AVE | AVENUE | DTL | DETAIL | IPS | IRON PIPE SIZE | PSF | POUNDS PER SQUARE FOOT | UNEC | UNEXCAVATED |
| AT | AT | DW | DRIVEWAY | JT | JOINT | PSI | POUNDS PER SQUARE INCH | UNO | UNLESS NOTED OTHERWISE |
| B | BASE COURSE | E | EAST | LAB | LABORATORY | PV | PLUG VALVE | USH | UNITED STATES HIGHWAY |
| BC | BACK OF CURB | EA | EACH | LAV | LABORATORY | PVC | POLYVINYL CHLORIDE | UT | UNDERGROUND TELEPHONE |
| BD | BOARD | EF | EACH FACE | LC | LENGTH OF CURVE | PVM | PAVEMENT | UV | UNDERGROUND VIDEO |
| BEL | BELOW | EFF | EFFLUENT | LD | LENGTH | PW | POTABLE WATER | V | VALVE |
| BETWN | BETWEEN | EJ | EXPANSION JOINT | LF | LINEAL FEET | % | PERCENT | V&B | VALVE & BOX |
| BF | BACK FACE | EL | ELEVATION | LP | LINEAL FEET | VAR | VARIABLE | VER | VERTICAL |
| BFV | BUTTERFLY VALVE | ELB | ELBOW | LOC | LOCATION | VC | VERTICAL CURVE | W | WEST |
| BIT | BITUMINOUS | ELEC | ELECTRICAL | LP | LIGHT POLE | RD | ROAD | WO | WITHOUT |
| BLD | BUILDING | EQ | EQUAL | LIR | LONG RADIUS | RD | ROAD | W | WITH |
| BLK | BLOCK | EQUIP | EQUIPMENT | LS | LUMP SUM | RDWY | ROADWAY | WM | WATER MAIN |
| BLKG | BLOCKING | ER | END OF RADIUS | LT | LEFT | REF | REFERENCE | WS | WATER SURFACE |
| BLVD | BOULEVARD | EST | ESTIMATE | LTR | LONG RADIUS | REFR | REINFORCING | WTF | WATER TREATMENT PLANT |
| BM | BENCHMARK | EW | EACH WAY | MAS | MASONRY | REM | REMOVE | WTR | WATER |
| BO | BREAKOFF | EWC | ELECTRIC WATER COOLER | MAX | MAXIMUM | REQD | REQUIRED | WWW | WELDED WIRE FABRIC |
| BRG | BEARING | EX | EXISTING | MECH | MECHANICAL | REV | REVISED | WWM | WALKER WIRE MESH |
| BRK | BROOK | EXH | EXHAUST | MFG | MANUFACTURER | RT | RIGHT </td <td>WWTP</td> <td>WASTEWATER TREATMENT PLANT</td> | WWTP | WASTEWATER TREATMENT PLANT |
| BS | BACK OF SIDEWALK | EXP | EXPANSION | MH | MANHOLE | RW | RIGHT OF WAY | | |
| BTM | BOTTOM | EXT | EXTERIOR | MIS | MISCELLANEOUS | S | SOUTH | | |
| BV | BALL VALVE | FD | FLOOR DRAIN | MJ | MECHANICAL JOINT | SAN | SANITARY | | |
| B | BASELINE | FDN | FOUNDATION | MP | MID-POINT | SAMH | SANITARY MANHOLE | | |
| CB | CATCH BASIN | FERT | FERTILIZER | MTL | MATERIAL | SCH | SCHEDULE | | |
| CF | CUBIC FOOT | F.F | FACE TO FACE | N | NORTH | SEC | SECTION | | |
| CHKD P | CHECKED PLATE | FGL | FIBERGLASS | NF | NEAR FACE | SF | SQUARE FOOT | | |
| CI | CAST IRON | FN | FINISHED | NC | NOT IN CONTRACT | SHT | SHEET | | |
| CJ | CONTROL JOINT | FL | FLOWLINE | NO | NUMBER | SIM | SIMILAR | | |
| CL | CENTERLINE | FLR | FLOOR | NOM | NOMINAL | SL | SLOPE | | |
| CLG | CHLORINE | FM | FORCE MAIN | NPW | NON-POTABLE WATER | SPA | SPACE | | |
| CLR | CLEARING | FN | FENCE | NTS | NOT TO SCALE | SPEC | SPECIFICATION | | |
| CLR | CLEAR | FT (') | FOOT | OC | ON CENTER | SQ | SQUARE | | |
| CMP | CORRUGATED METAL PIPE | FUT | FOOTING | OD | OUTSIDE DIAMETER | SS | STAINLESS STEEL | | |
| CNU | CONCRETE MASONRY UNIT | FUT | FUTURE | OE | OVERHEAD ELECTRICAL | SSMH | STORM SEWER MANHOLE | | |
| CO | CLEANOUT | G | GAS | OF | OUTSIDE FACE | STD | STANDARD | | |
| CONC | CONCRETE | GA | GAGE | OH | OVERHEAD | STH | STATE TRUNK HIGHWAY | | |
| CONN | CONNECTION | GAR | GARAGE | OPG | OPENING | STL | STEEL | | |
| CONST | CONSTRUCTION | GEN | GENERAL | OT | OVERHEAD TELEPHONE | STM | STORM | | |
| CONCT JT | CONSTRUCTION JOINT | GRD | GRADE | | | STP | SEWAGE TREATMENT PLANT | | |
| CONT | CONTINUOUS | GRD | GRADE | | | SURF | SURFACE | | |
| CONTR | CONTRACTOR | GV | GATE VALVE | | | SW | SIDEWALK | | |
| CONTR JT | CONSTRUCTION JOINT | GW | GROUNDWATER | | | SWR | SEWER | | |
| CP | CORNER | GRAV | GRAVEL | | | SY | SQUARE YARD | | |
| CP | CONTROL POINT | GW | GROUNDWATER | | | SYS | SYSTEM | | |
| CP | CORNER | HB | HOB BEB | | | | | | |
| CPLG | COUPLING | HM | HOLLOW METAL | | | | | | |
| CRS | COURSE | HORZ | HORIZONTAL | | | | | | |
| CSF | CORRUGATED STEEL PIPE | HSE | HOUSE | | | | | | |
| CTG | CASTING | HT | HEIGHT | | | | | | |
| CTH | COUNTY TRUNK HIGHWAY | HW | HOT WATER | | | | | | |
| CULV | CULVERT | HW | HOT WATER RETURN | | | | | | |
| CV | CHECK VALVE | HYD | HYDRANT | | | | | | |
| CW | COLD WATER | | | | | | | | |
| CY | CUBIC YARD | | | | | | | | |

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 www.diggershotline.com

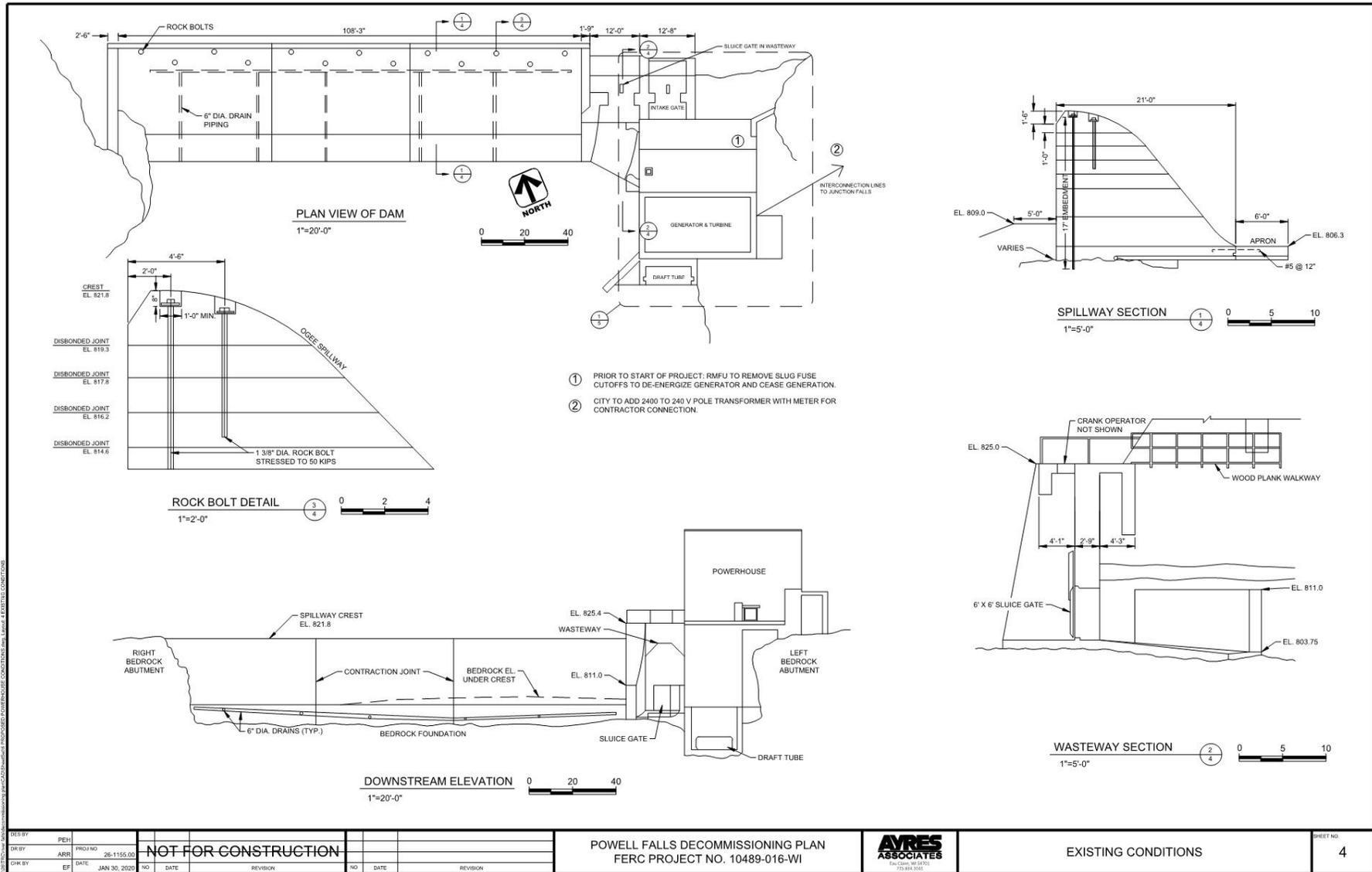
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| DR BY | ARR | DATE | JAN 30, 2020 | NO | DATE |
| CHK BY | EF | REVISION | | NO | DATE |

POWELL FALLS DECOMMISSIONING PLAN
 FERC PROJECT NO. 10489-016-WI



LEGEND

SHEET NO
2



All dimensions are in feet and inches unless otherwise specified. All dimensions are to be in accordance with the FERC project conditions.

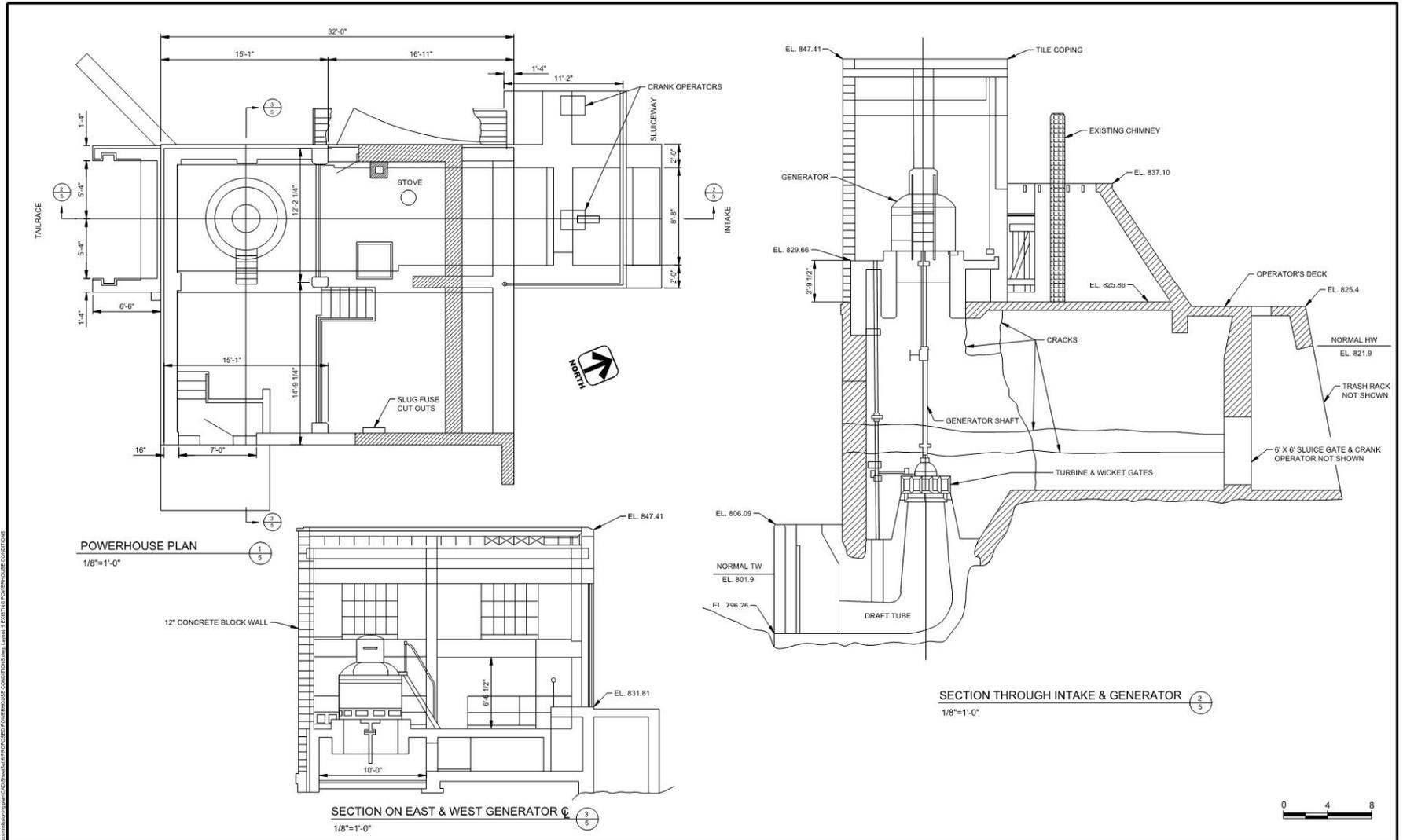
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|--------|-----|---------|--------------|-----------------------------|------|----------|-----|------|----------|
| DES BY | PEH | | | | | | | | |
| DR BY | ARR | PROJ NO | 26-1155.00 | NOT FOR CONSTRUCTION | | | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | NO. | DATE | REVISION | NO. | DATE | REVISION |

POWELL FALLS DECOMMISSIONING PLAN
 FERC PROJECT NO. 10489-016-WI



EXISTING CONDITIONS

SHEET NO. 4



All dimensions are in feet and inches unless otherwise noted.

| | | | | | | | |
|--------|-----|---------|--------------|-----------------------------|------|----------|--|
| DES BY | PEH | PROJ NO | 26-1155.00 | NOT FOR CONSTRUCTION | | | |
| DR BY | ARR | DATE | JAN 30, 2020 | NO. | DATE | REVISION | |
| CHK BY | EF | | | NO. | DATE | REVISION | |

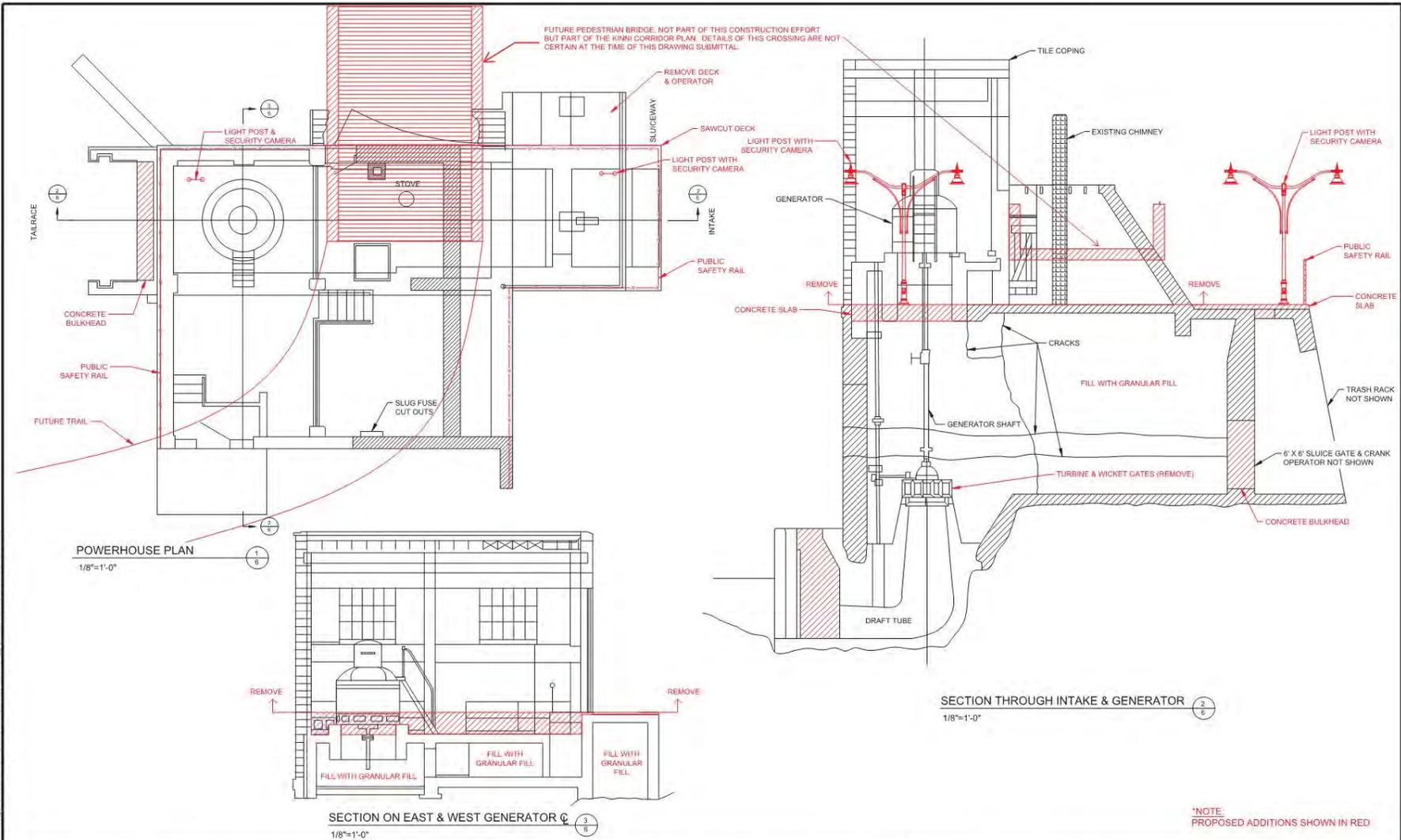
POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



EXISTING POWERHOUSE CONDITIONS

SHEET NO.
5





| | | | | |
|-----------|-----|-----------|--------------|----------|
| DESIGN BY | PER | NO. | DATE | REVISION |
| DRAWN BY | ARR | PROJ. NO. | 26-1155.00 | |
| CHECK BY | EF | DATE | JAN 30, 2020 | |

NOT FOR CONSTRUCTION

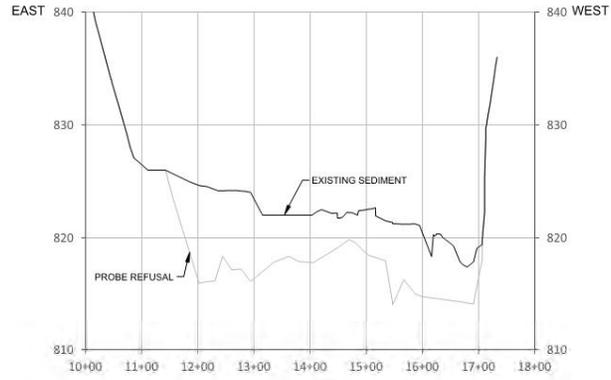
POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



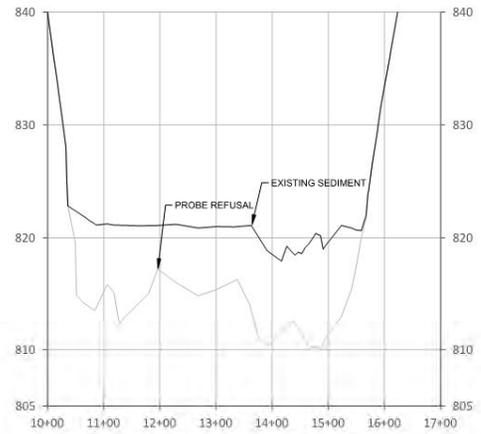
PROPOSED POWERHOUSE CONDITIONS

SHEET NO.
6

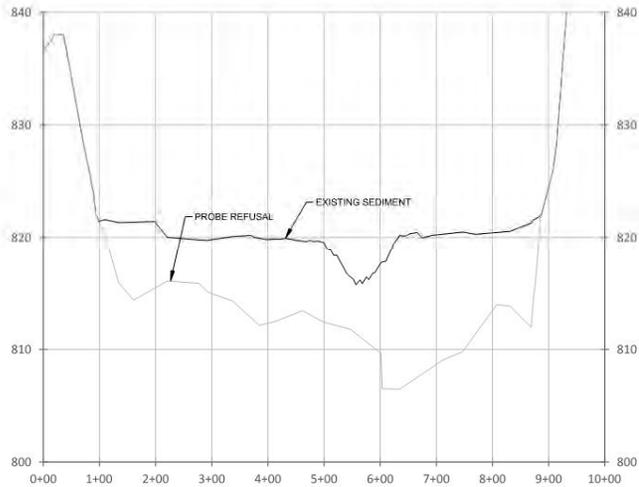
NOTE:
*SEE SHEET 3 FOR CROSS SECTION LOCATIONS



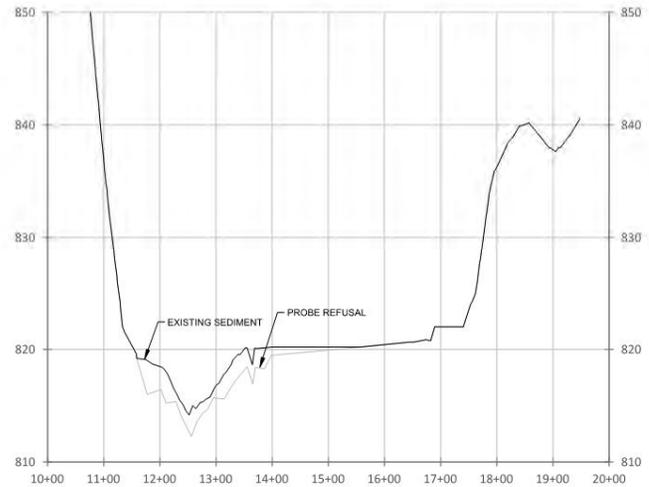
CROSS SECTION 1



CROSS SECTION 2



CROSS SECTION 3



CROSS SECTION 4

Data for cross sections is taken from the "Lake Geroge and Lake Louise Sediment Assessment Report" by Inter-Fluve, Inc and dated March 14th, 2016.

All dimensions are in feet unless otherwise noted. Elevation is in feet above sea level. Stationing is in feet from the left end of the section.

| | | | | | | | |
|--------|-----|---------|--------------|----------|-----|------|----------|
| DES BY | PEH | | | | | | |
| DR BY | ARR | PROJ NO | 26-1155.00 | | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | | | | |
| | | NO. | DATE | REVISION | NO. | DATE | REVISION |

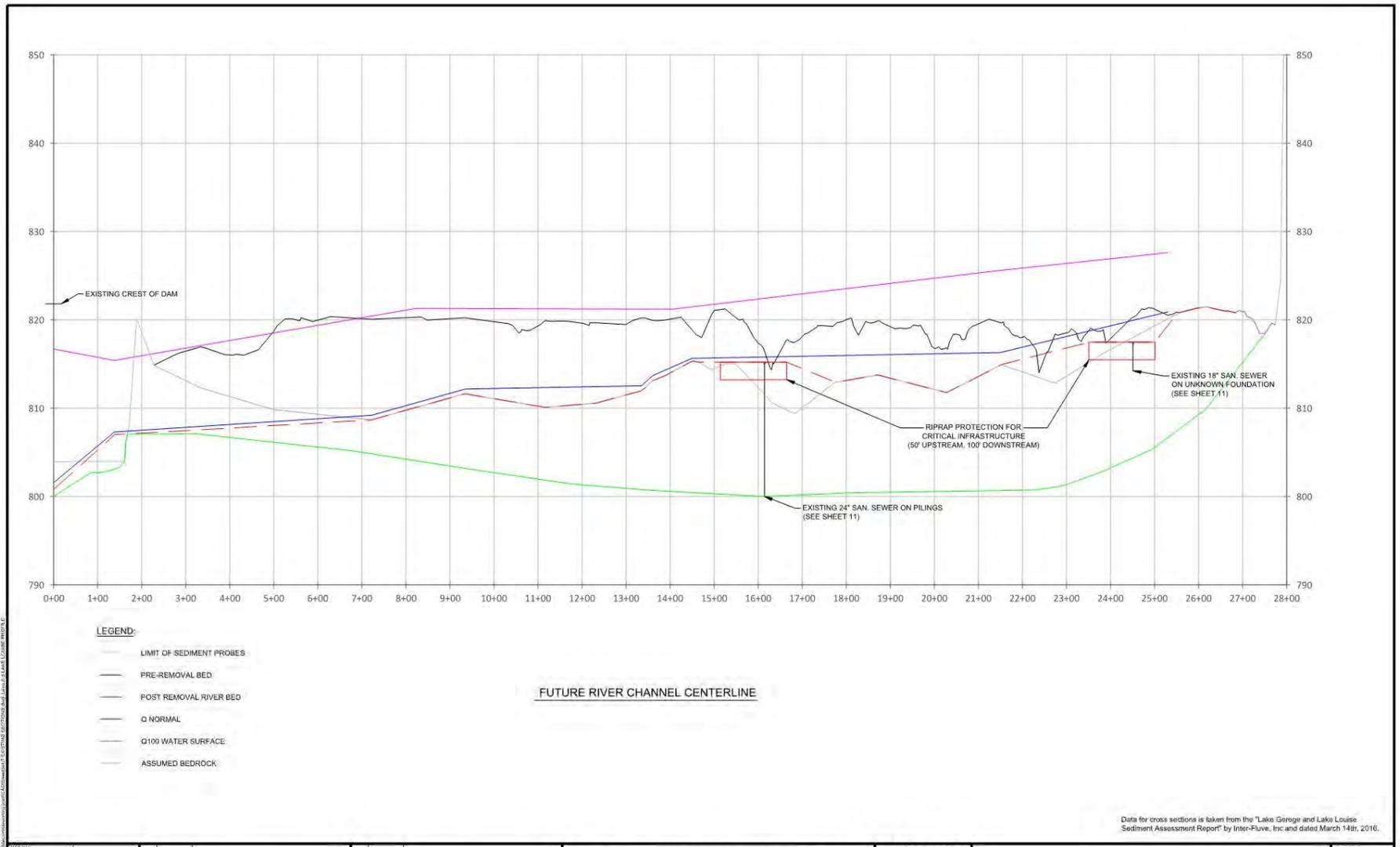
NOT FOR CONSTRUCTION

POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



EXISTING SECTIONS OF WATERWAY

| | |
|-----------|---|
| SHEET NO. | 7 |
|-----------|---|



Data for cross sections is taken from the "Lake George and Lake Louise Sediment Assessment Report" by Inter-Fluve, Inc and dated March 14th, 2016.

| | | | | | | | | |
|------------------|------------------------|-----------------------------|------|-------|-----------|------|-------|-----------|
| DESIGNED BY: PZH | PROJECT NO: 26-1155.00 | NOT FOR CONSTRUCTION | NO.: | DATE: | REVISION: | NO.: | DATE: | REVISION: |
| DRAWN BY: EP | DATE: JAN 30, 2020 | | | | | | | |
| DATE: | | | | | | | | |
| | | | | | | | | |

POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



LAKE LOUISE PROFILE

SHEET NO
8



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AeroG

| | | | | | | | | | |
|--------|-----|---------|--------------|----|------|----------|--|----|------|
| DES BY | PEH | | | | | | | | |
| DR BY | ARR | PROJ NO | 26-1155.00 | | | | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | NO | DATE | REVISION | | NO | DATE |

NOT FOR CONSTRUCTION

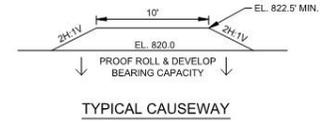
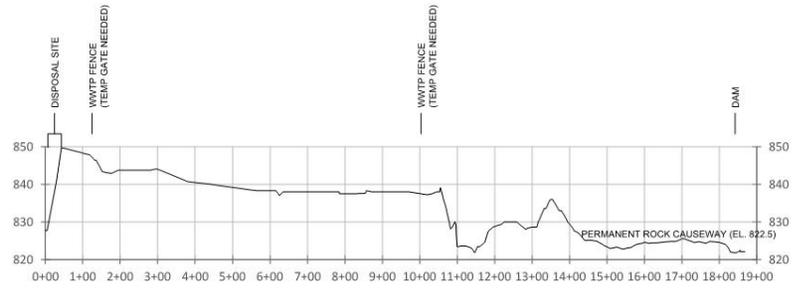
POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



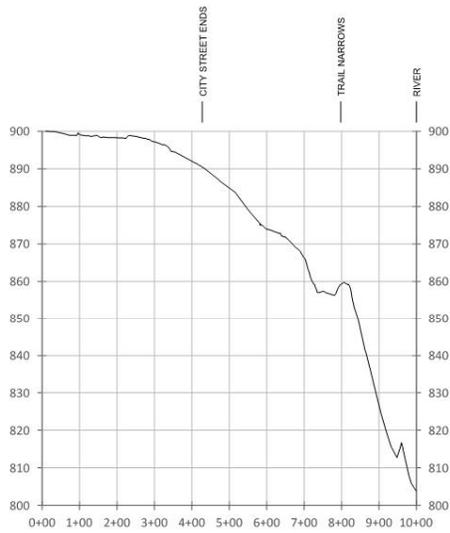
ACCESS PLAN OPTIONS

| | |
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| SHEET NO | 9 |
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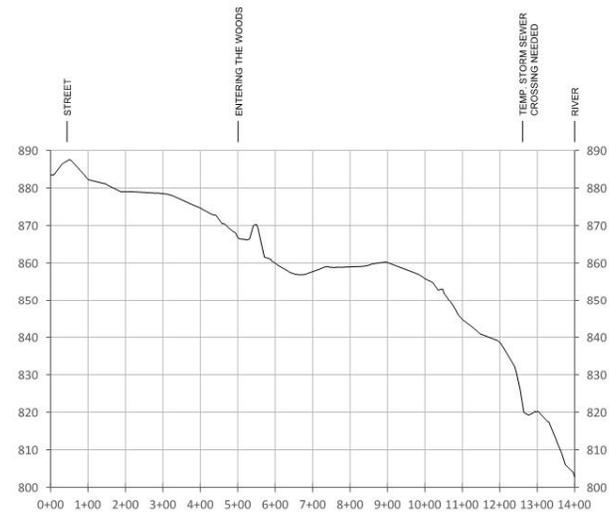




ACCESS ROUTE 1 PROFILE (PREFERRED ROUTE)



ACCESS ROUTE 2 PROFILE



ACCESS ROUTE 3 PROFILE

All dimensions are in feet unless otherwise noted. Access Route 1 is the preferred route.

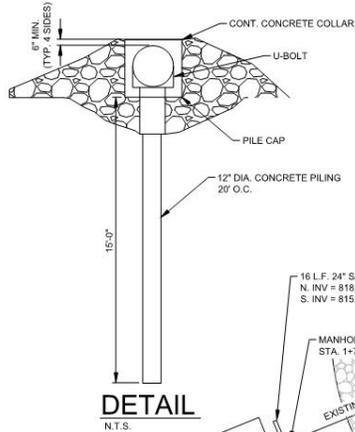
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|--------|-----|---------|--------------|-----------------------------|-----|------|----------|
| DES BY | PEH | | | | | | |
| DR BY | ARR | PROJ NO | 26-1155.00 | NOT FOR CONSTRUCTION | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | | | | |
| | | NO. | DATE | REVISION | NO. | DATE | REVISION |

POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



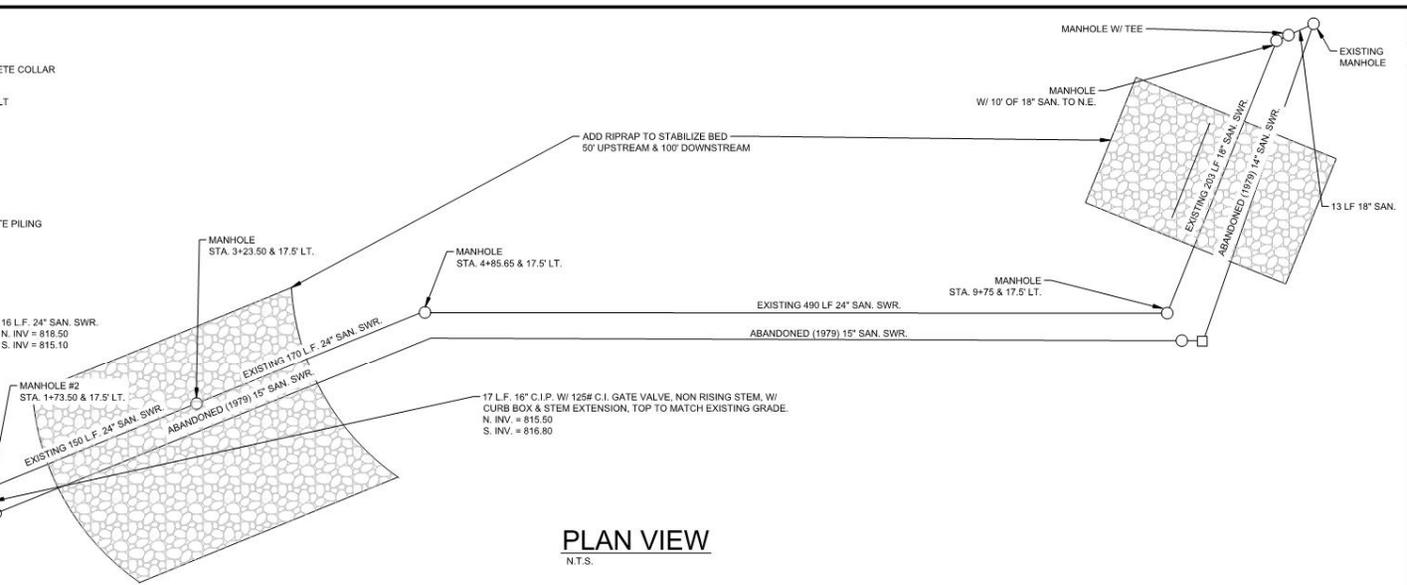
ACCESS ROUTE PROFILES

SHEET NO.
10

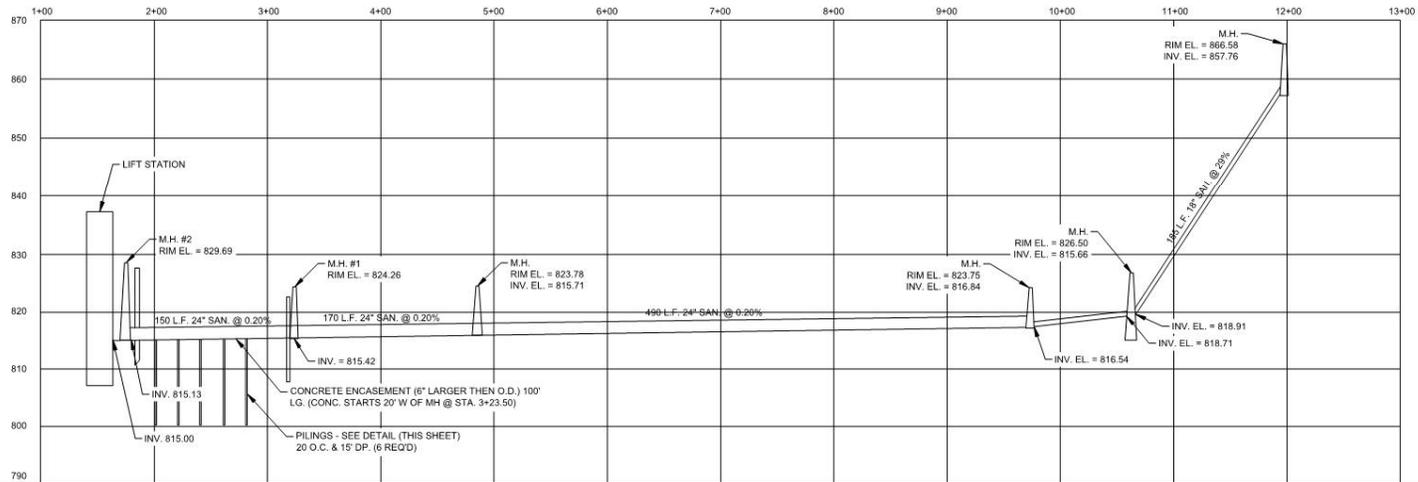


DETAIL
N.T.S.

EXISTING LIFT STATION
1979 LIFT STATION



PLAN VIEW
N.T.S.



All dimensions are in feet and inches unless otherwise noted.
 11/20/2020

| | | | | |
|--------|-----|----------|--------------|-----------------------------|
| DES BY | PEH | PROJ NO | 26-1155.00 | NOT FOR CONSTRUCTION |
| DR BY | ARR | DATE | JAN 30, 2020 | |
| CHK BY | EF | NO | DATE | |
| | | REVISION | | |
| | | NO | DATE | REVISION |

POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



SANITARY CROSSING DETAILS

SHEET NO.
11



All dimensions are in feet unless otherwise noted. All dimensions are to the centerline of the structure unless otherwise noted.

| | | | | | | | | | |
|-----------------------------|-----|---------|--------------|----|------|----------|--|----|------|
| DES BY | PEH | | | | | | | | |
| DR BY | ARR | PROJ NO | 26-1155-00 | | | | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | NO | DATE | REVISION | | NO | DATE |
| NOT FOR CONSTRUCTION | | | | | | | | | |

POWELL FALLS DECOMMISSIONING PLAN
 FERC PROJECT NO. 10489-016-WI



EXISTING WORKSITE & UTILITIES

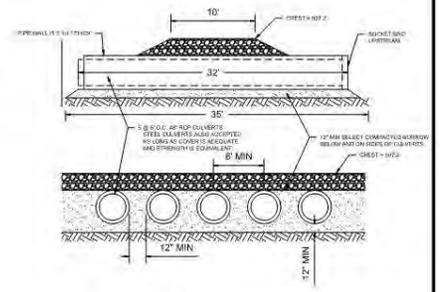
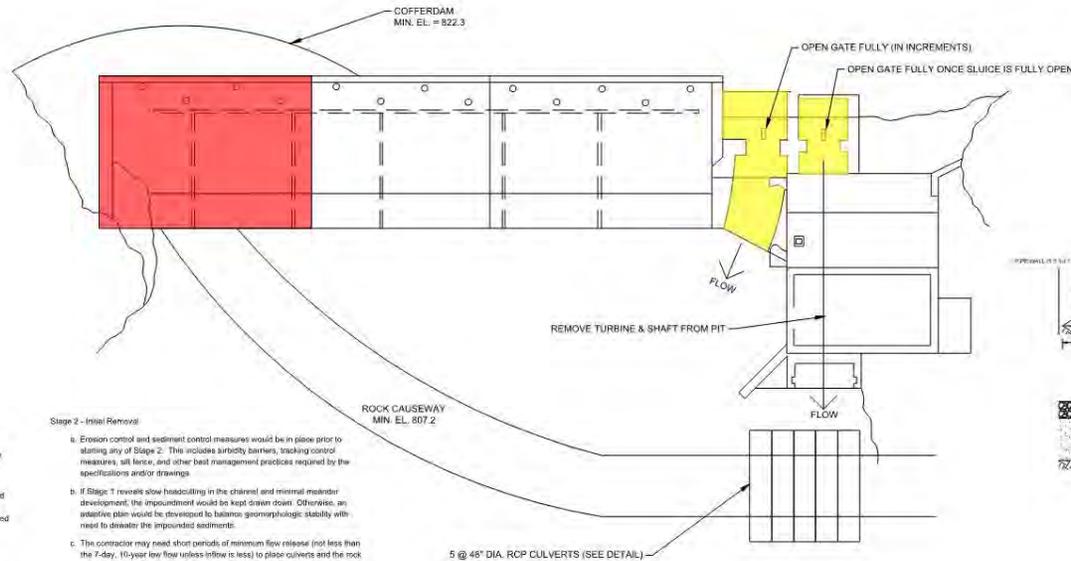
SHEET NO
 12

LEGEND:

- REMOVAL AREA
- FLOW AREA

STEADY STATE RATING CURVE

| STORM | FLOW | HW | TW |
|-------|-------|-------|-------|
| 100 | 12800 | 830.7 | 814.0 |
| 50 | 11000 | 829.9 | 813.1 |
| 10 | 6800 | 827.9 | 810.5 |
| 2 | 2500 | 824.9 | 806.7 |



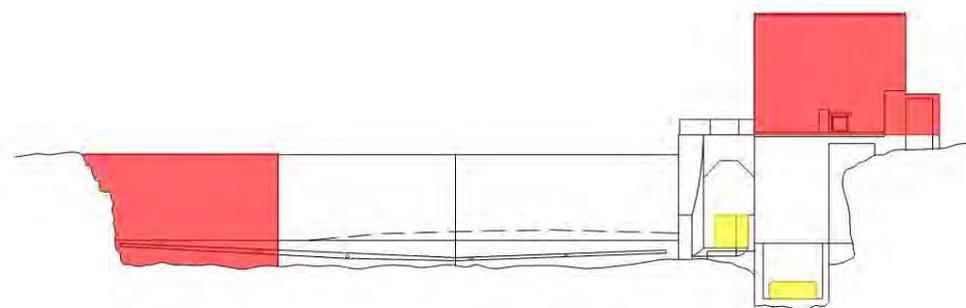
ROCK CAUSEWAY DETAIL
N.T.S.

Stage 1 - Initial Dewatering (Starting after July 1, 2024)

- a. Prior to contractor mobilization, the City will pull all base conduits from the Powell Falls powerhouse and de-energize the 2400-volt interconnection breaker at the Junction Falls facility. This will isolate the Powell Falls facility and allow the following to be safely completed.
 - i. A stepdown transformer and meter will be installed at Powell Falls on the power end nearest the dam. This low voltage power source will be provided for contractor connection, and future lighting for the public access areas. Security cameras may be installed in the future after a fiber optic line is added from Glen Park to the dam.
 - ii. The breaker at Junction Falls will be re-energized, converting the interconnection line to distribution lines.
 - iii. The dam operator will draw down the impoundment at six inches per day after July 1, 2024 using the sluice and powerhouse; and trained staff will monitor the impoundment for excessive sediment movement and bank stress.
 - iv. The drawdown would start during a normal low water period and end prior to September 30, 2024.
 - v. The sluice gate would be opened first, and the turbine pit would only be opened after the sluice gate was 100% open.
 - vi. The turbine shaft would be disconnected from the turbine and the turbine pulled to allow flow to pass through the unobstructed discharge ring.
 - vii. The 18-inch and 24-inch sanitary sewer crossings would be inspected to see how the draw down condition affecting structural integrity, and the structure should be relocated deeper if necessary. The inspecting engineer will also check the adjacent bank to confirm if riprap is necessary to protect it against undermining during draw down conditions.
 - viii. Additional riprap should be added to the east bank of the wastewater plant as needed.
 - ix. The sanitary sewer crossings will be lowered if needed so that spring floods and ice passage do not damage the crossings. Riprap will be added to protect infrastructure as needed.
- b. If Stage 1 reveals any major instabilities (uncontrolled headcutting, uncontrolled channel meandering, imminent sewer damage, etc.), the impoundment will be refilled to a higher level as deemed necessary by the engineer, with proper notice given to the regulatory agencies. All refill forecasts will comply with minimum flows established by the existing license and future regulatory permits. The fill would be maintained long enough to develop additional plans that promote bank stabilization.

Stage 2 - Initial Removal

- a. Erosion control and sediment control measures would be in place prior to starting any of Stage 2. This includes silt/fillity barriers, tracking control measures, soil fabric, and other best management practices required by the specifications and/or drawings.
 - i. If Stage 1 reveals slow headcutting in the channel and minimal meander development, the impoundment would be kept drawn down. Otherwise, an alternative plan would be developed to balance geomorphologic stability with need to dewater the impounded sediments.
 - ii. The contractor may need short periods of minimum flow release (not less than the 7-day, 10-year low flow unless inflow is less) to place culverts and the rock causeway, starting June 1, 2025. By reducing flow during access road construction, lots lines are re-located downstream.
 - iii. A Cofferdam will be constructed on the upstream side of the dam to isolate the western monolith (or eastern, depending on contractor access route. The exact sequencing of monoliths is still to be determined, but one monolith will be removed during this stage.). The cofferdam materials will be contractor choice as long as the cofferdam is stable and does not release fines or turbidity to the river.
- b. The water volume impounded between the cofferdam and dam will be pumped into a settling basin, and the dewatered den will be inspected by an engineer. The cofferdam and all causeways should be in place prior to September 30, 2025.
 - i. Upon receiving permission to proceed from the engineer, the contractor will start removing the upper lift of the monolith, being careful around rock bolt locations to avoid damaging the tensioned nut and base plate.
 - ii. The contractor will propose a plan for releasing bolt tension, subject to addressing objections and concerns of the engineer and rock bolt manufacturer.
 - iii. After release of the bolt tension, the deconstruction will continue, lift by lift, until the entire monolith is removed to bedrock.
- c. Because the dam has very limited discharge capacity at a draw down state, any major flood (1-year event or larger) is expected to refill the impoundment. Once the flood recedes and the impoundment is lowered again, an engineer will inspect the workface after each flood event to confirm suitability for continued dam removal.
 - i. The powerhouse will be modified to allow a walkway viewing platform on the upstream inside deck. New safety railing and new stairs are required to provide access in accordance with public access standards. Due to the steep and curving terrain, the trail and stairs will not conform to access standards of the Americans with Disabilities Act.
 - ii. Security lighting and cameras can be installed any time after the railing is in place, though the public will probably not be given access to the platform until after the contractor demobilizes.
 - iii. The contractor will remove the upstream cofferdam and all impounded sediment between the removed dam area and the active river channel.
 - iv. If banks need stabilizing upstream, this work will be completed prior to starting Stage 3.



| | | | | | | | | | |
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| DES BY | PEH | PROJ NO. | | | | | | | |
| DRW BY | ARR | DATE | 26-1158-00 | | | | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | | | | | | |

NOT FOR CONSTRUCTION

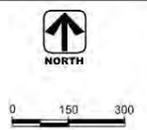
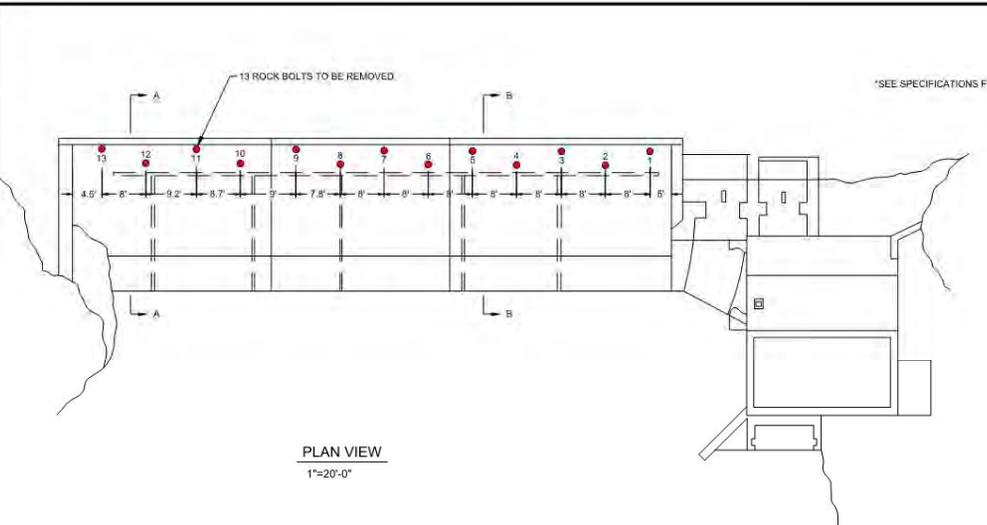
POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



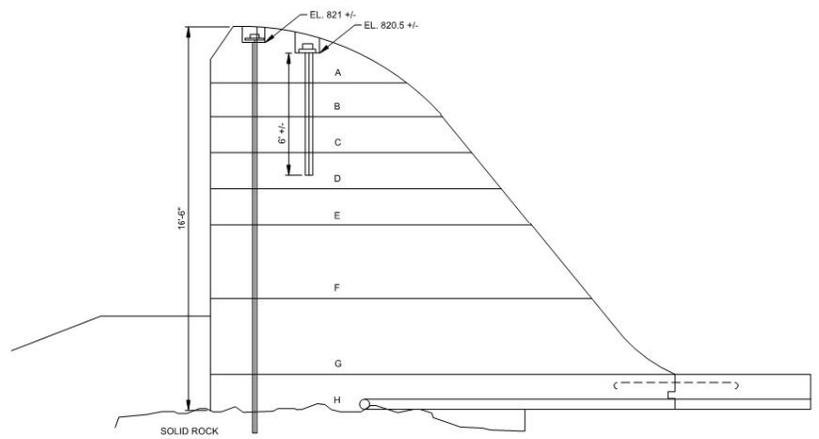
REMOVAL SEQUENCE #1&2

SHEET NO
14

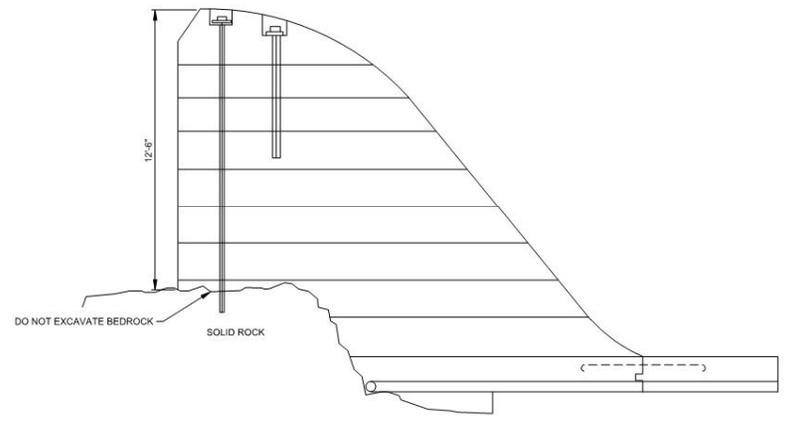
| Rock Bolt | Crest EL | Bedock EL | Cored EL |
|-----------|----------|-----------|----------|
| 1 | 821.80 | 807.97 | 806.22 |
| 3 | 821.81 | 808.56 | 806.81 |
| 5 | 821.83 | 808.16 | 805.16 |
| 7 | 821.81 | 807.64 | 805.64 |
| 9 | 821.82 | 805.97 | 804.32 |
| 11 | 821.81 | 806.35 | 805.31 |
| 13 | 821.80 | 807.40 | 805.59 |



PLAN VIEW
1"=20'-0"



SECTION A
1"=5'-0"



SECTION B
1"=5'-0"

All dimensions are in feet and inches unless otherwise noted. See notes for details. 1/30/2020

| | | | | | | | |
|--------|-----|---------|--------------|----------|-----|------|----------|
| DES BY | PEH | | | | | | |
| DR BY | ARR | PROJ NO | 26-1155-00 | | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | | | | |
| | | NO. | DATE | REVISION | NO. | DATE | REVISION |

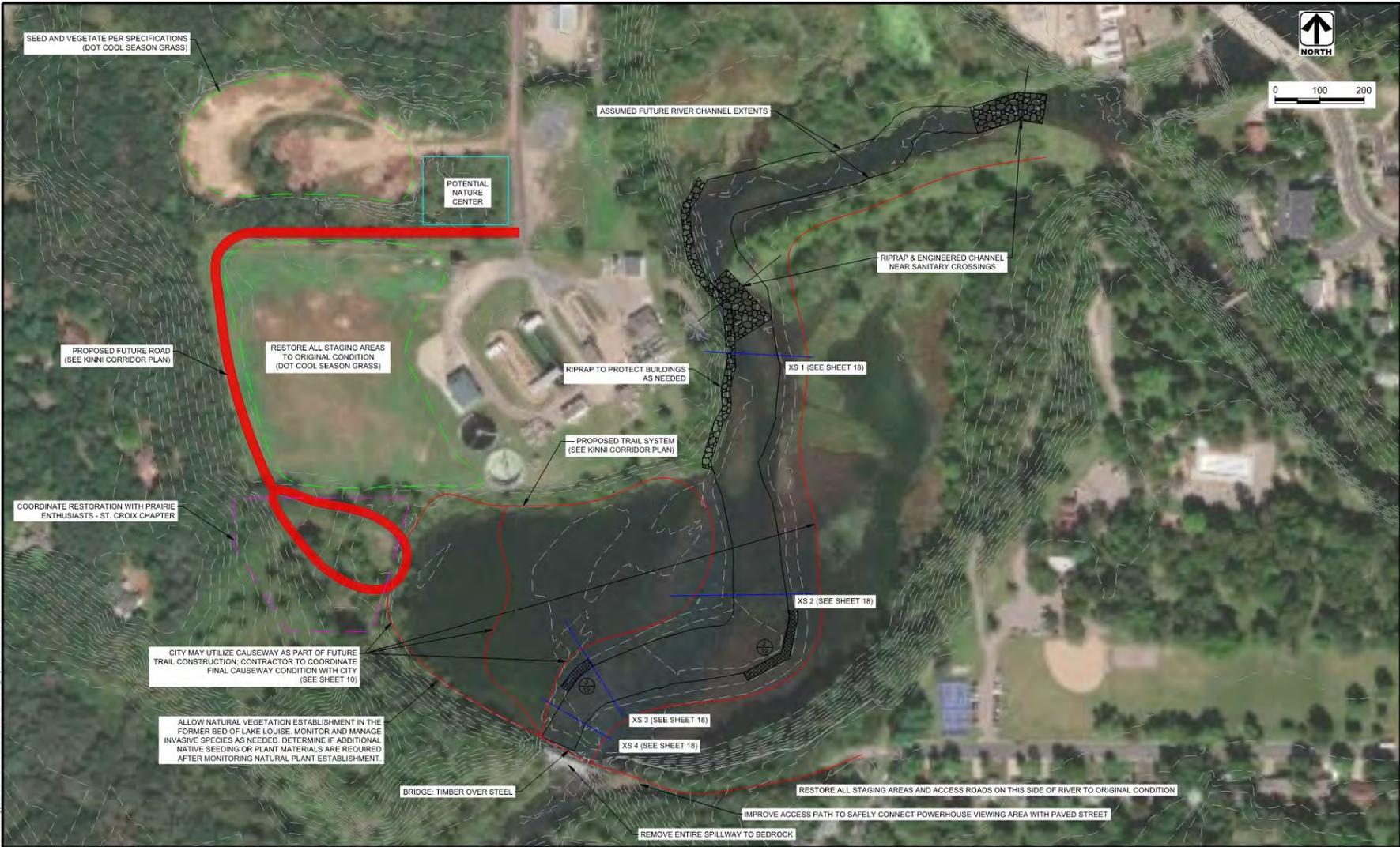
NOT FOR CONSTRUCTION

POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



ROCK BOLT REMOVAL

SHEET NO.
16



| | | | | | | | | | |
|--------|-----|---------|--------------|-----|------|----------|--|-----|------|
| DES BY | PEH | | | | | | | | |
| DR BY | ARR | PROJ NO | 26-1155.00 | | | | | | |
| CHK BY | EF | DATE | JAN 30, 2020 | NO. | DATE | REVISION | | NO. | DATE |

NOT FOR CONSTRUCTION

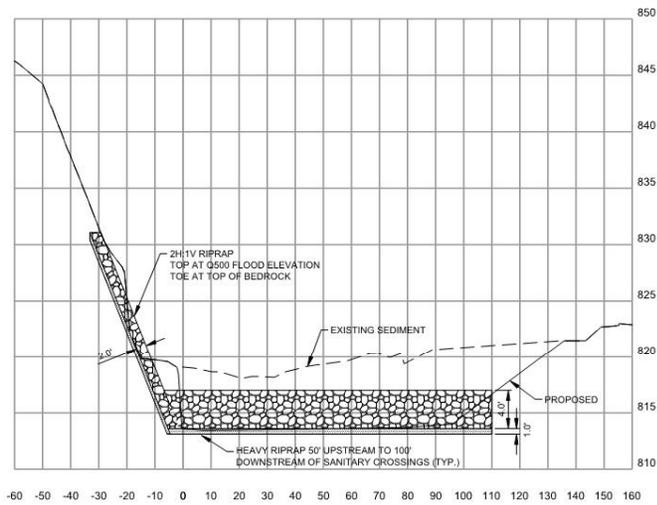
POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



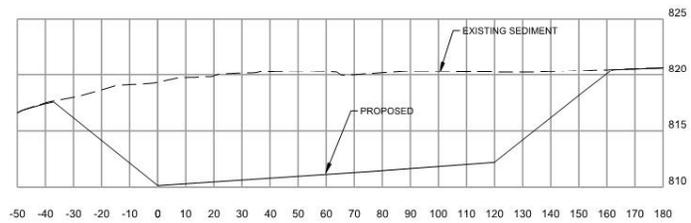
DRAFT RESTORATION PLAN

SHEET NO
17

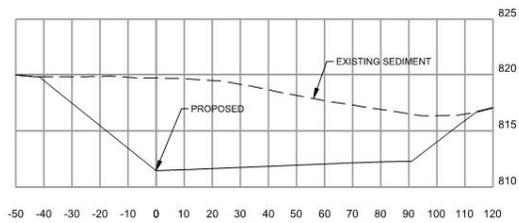




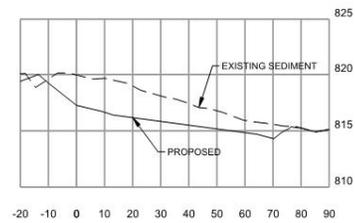
CROSS SECTION 1 (LOOKING UPSTREAM)



CROSS SECTION 2 (LOOKING UPSTREAM)



CROSS SECTION 3 (LOOKING UPSTREAM)



CROSS SECTION 4 (LOOKING UPSTREAM)

NOTE:
SEE SHEET 17 FOR CROSS SECTION LOCATIONS

All dimensions are in feet unless otherwise noted. See sheet 17 for cross section locations.

| | | | | | | | | | |
|--------|-----|---------|--------------|-----------------------------|------|----------|----|------|----------|
| DES BY | PEH | | | | | | | | |
| DR BY | ARR | PROJ NO | 26-1155.00 | NOT FOR CONSTRUCTION | | | | | |
| CHK BY | EP | DATE | JAN 30, 2020 | NO | DATE | REVISION | NO | DATE | REVISION |

POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



PROPOSED SECTIONS

SHEET NO.
18



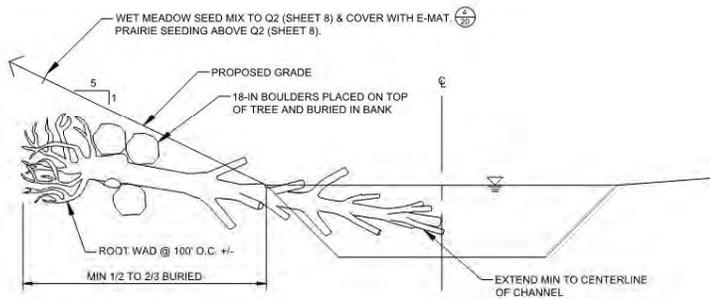
VEGETATED MECHANICALLY STABILIZED EARTH (VMSE) TIE IN DETAIL



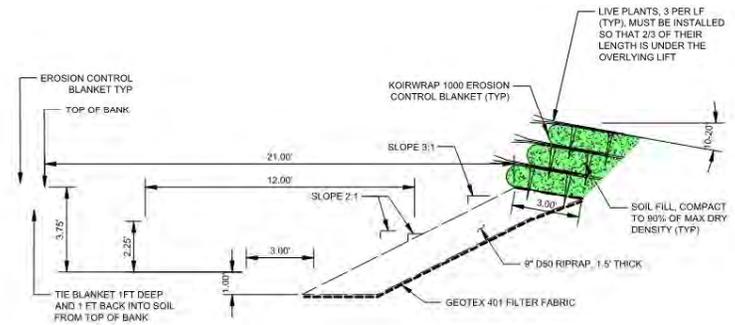
VMSE TIE IN FIELD PHOTO



VMSE WILLOW STAKES FIELD PHOTO



1 TYPICAL FOR ALL BANKS (EXCEPT WHERE DETAIL 2 IS USED)



2 VMSE FOR EROSION PRONE BANKS

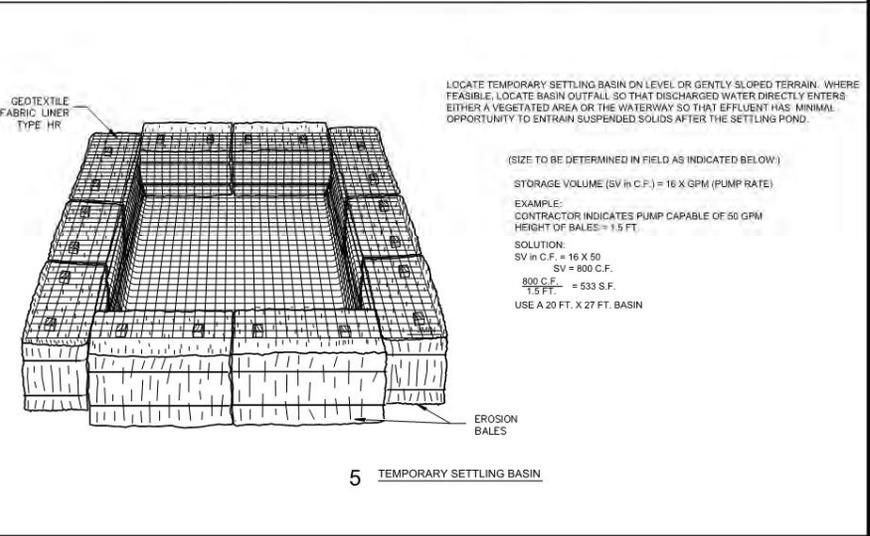
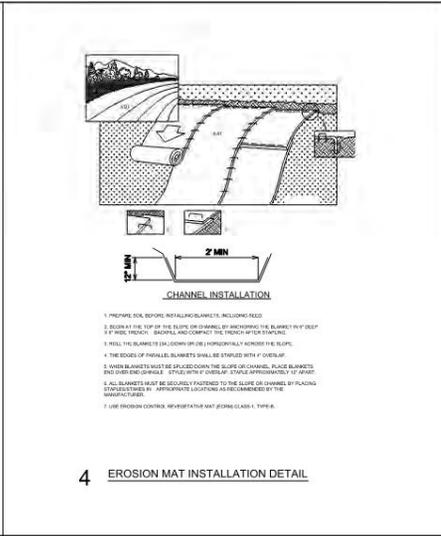
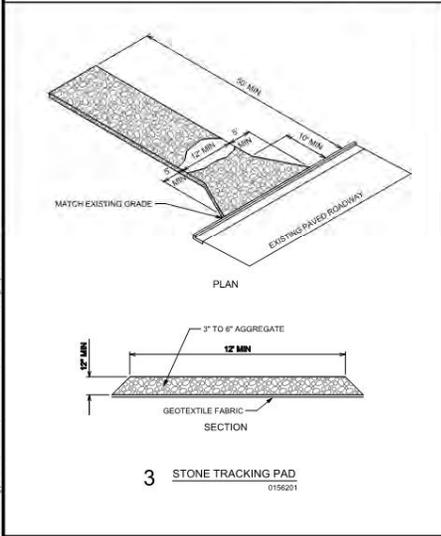
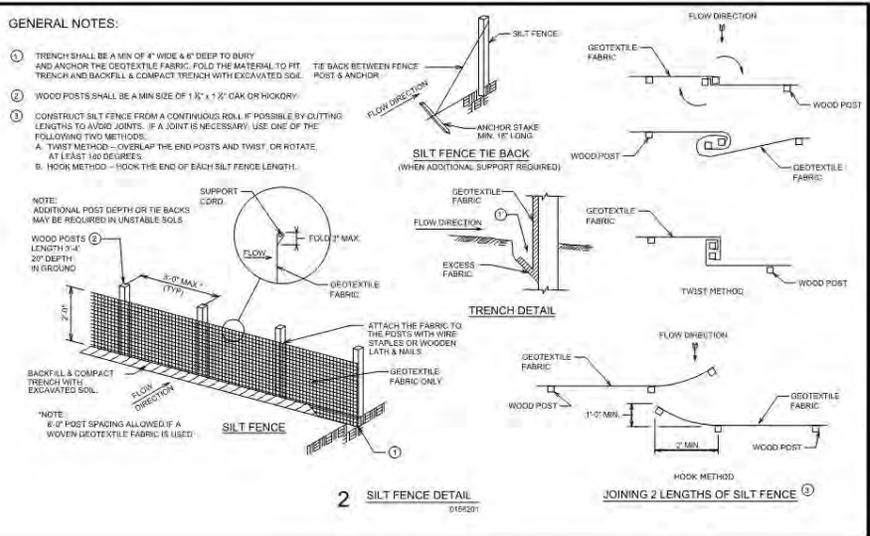
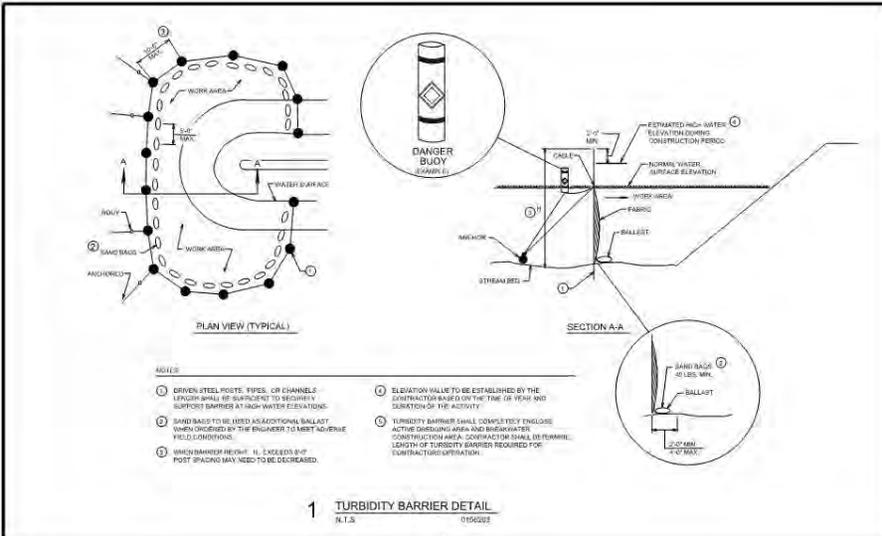
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|--------|-----|----------|--------------|-----------------------------|------|----------|--|
| DES BY | PEH | PROJ NO. | 26-1155-00 | NOT FOR CONSTRUCTION | | | |
| DWG BY | ARR | DATE | JAN 30, 2020 | NO. | DATE | REVISION | |
| CHK BY | EP | | | NO. | DATE | REVISION | |

POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI



STREAMBANK RESTORATION DETAILS

SHEET NO
19



| | | | | | |
|--------|-----|----------|--------------|-----------------------------|------|
| DES BY | PEH | PROJ NO | 26-1155-00 | NOT FOR CONSTRUCTION | |
| DR BY | ARR | DATE | JAN 30, 2020 | NO. | DATE |
| CHK BY | EF | REVISION | | NO. | DATE |

POWELL FALLS DECOMMISSIONING PLAN
FERC PROJECT NO. 10489-016-WI

AVRES ASSOCIATES
INCORPORATED
10000 W. 10TH AVENUE
DENVER, CO 80202

DETAILS

SHEET NO.
20

Next Steps

| Responsible Party | Pre-Filing Milestone | Date* |
|-------------------|---|-----------|
| All stakeholders | Initial Study Report Meeting | 2/13/2020 |
| Licensee | Initial Study Report Meeting Summary | 3/1/2020 |
| All stakeholders | Any Disputes/Requests to Amend Study Plan Due | 3/31/2020 |
| All stakeholders | Responses to Disputes/Amendment Requests Due | 4/30/2020 |
| FERC | Determination on Disputes/Amendments | 5/30/2020 |
| Licensee | Second Study Season | 2020 |
| Licensee | Updated Study Report due | 1/30/2021 |

*Dates based on FERC Revised Process Plan and Schedule issued on 7/10/2019

Final Thoughts & Questions

Contact Information:

Kevin Westhuis
Utility Director
River Falls Municipal Utilities
715-426-3442
kwesthuis@rfcity.org

Lesley Brotkowski
Senior Consultant
TRC
402-238-7789
lbrotkowski@trccompanies.com

**Appendix B – Riverine Habitat Evaluation below Powell Falls
Desktop Evaluation Summary**

Riverine Habitat Evaluation below Powell Falls

Desktop Evaluation Summary

Background

In accordance to the Federal Energy Regulatory Commission (FERC) required study the Licensee is conducting a riverine habitat evaluation in the approximately 9.85 river mile (RM) stretch (Study Area) of the Kinnickinnic River between the Powell Falls dam and St. Croix River in Pierce County, Wisconsin. A desktop evaluation to define study reaches was conducted in 2019.

The Study Area was divided into five survey reaches based on a review of aerial photography and topographic maps (Figure 1). The limits of these survey reaches were designed to evaluate segments of the river sharing similar characteristics such as gradient, sinuosity, prevalence (or paucity) of mesohabitats (e.g., the lower reach nearest the St. Croix River confluence is pool/run dominated while other sections have a higher occurrence of riffles). Other factors such as tributary confluences and access points were also considered during survey reach design. Descriptions of each study reach are summarized below.

Review of USGS stream data reports that median discharge at the station at the Road F bridge (05342000) is 88 cfs. Comparing aerial imagery to measured data revealed that at this discharge reaches can be accessed by wading, as noted by exposed sandbars and other features. Because of this surveys should be timed in such a way as to be carried out during median or lower discharge levels.

Reach Descriptions

Reach 1

Reach 1 is approximately 1.18 RMs long and extends from the base of Powell Falls dam to the end of the first run (Figure 2). The downstream terminus was selected based upon decreasing water velocities associated with a large pool, located immediately downstream of the run. Steep slopes are prevalent and the reach is characterized predominantly by riffles and runs. This reach is best accessed from the upstream end at Powell Falls dam. Three cross-sectional transects within this reach are planned, two positioned within representative riffles, and one within a representative run/glide (Figure 2).

Reach 2

Reach 2 is approximately 1.0 RM long and extends from the downstream terminus of Reach 1 to the large transmission line right of way (ROW) (Figure 3). The downstream terminus was based

on anticipated changes in vegetation and invertebrate composition due to decreased canopy cover from the ROW. Slopes decrease while sinuosity increases in this reach, which is characterized predominantly by pools and other areas of lower velocity. This reach is best accessed from the Powell Falls dam. Three cross-sectional transects within this reach are planned, two positioned within representative pools, and one within a representative run/glide (Figure 3).

Reach 3

Reach 3 is approximately 2.4 RM long and extends from the downstream terminus of Reach 2 to the top of the bend where slopes increase significantly, marking the beginning of Reach 4 (Figure 4). Sinuosity and velocity are greatly reduced in this reach, which is characterized by adjacent wetlands visible from aerial imagery. This reach is best accessed from the Road F bridge. Three cross-sectional transects within this reach are planned, two positioned within representative pools, and one within a representative run/glide (Figure 4).

Reach 4

Reach 4 is approximately 2.97 RM long and extends from the downstream terminus of Reach 3 to the Road F bridge (Figure 5). The downstream terminus was chosen due to the anticipated effects of the bridge abutment on stream morphology. Steep slopes and high sinuosity are prevalent throughout this reach, which is characterized predominantly by riffles and runs. This reach is best accessed from the Road F bridge. Three cross-sectional transects within this reach are planned, two positioned within representative riffles, and one within a representative run/glide (Figure 5).

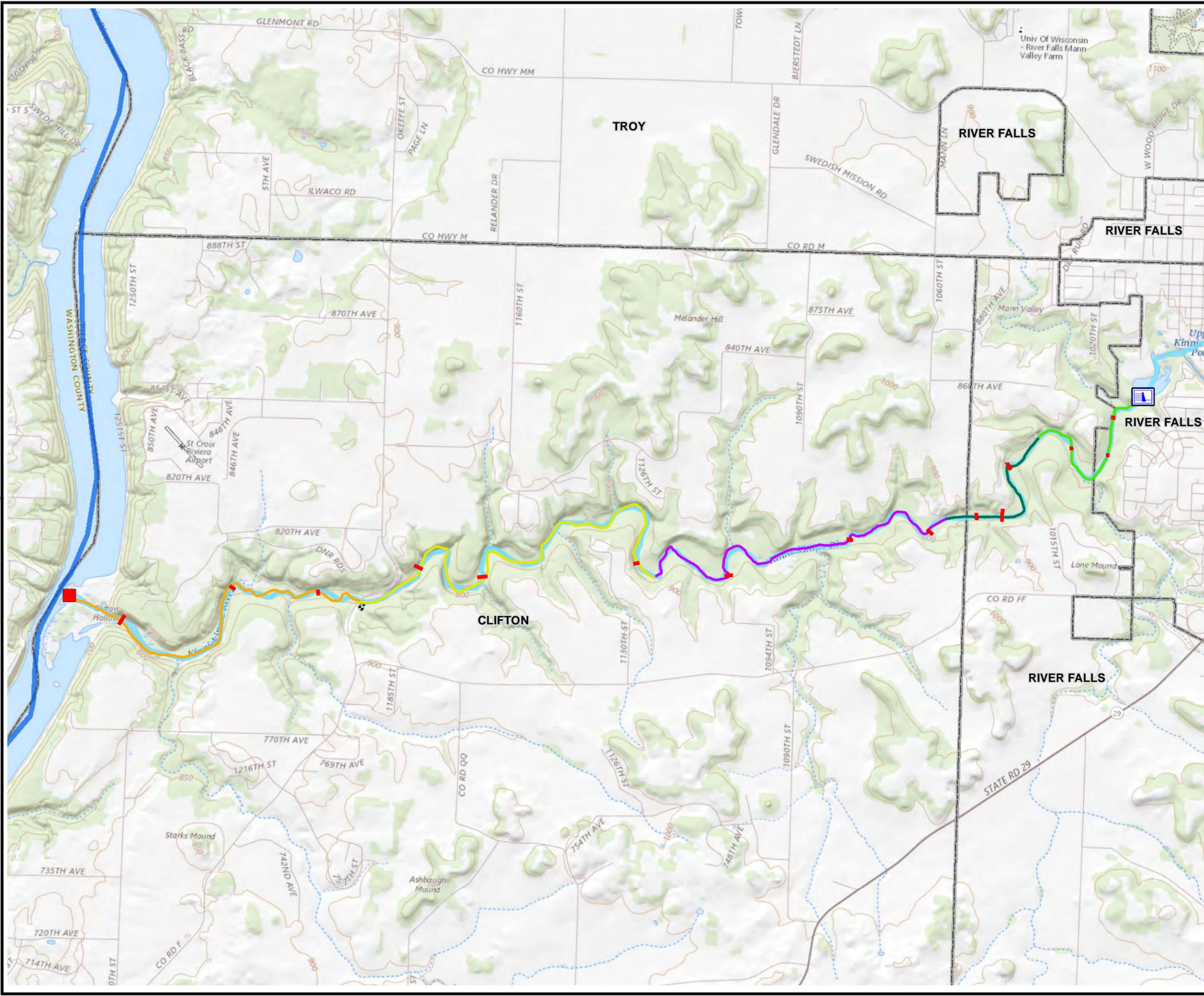
Reach 5

Reach 5 is approximately 2.3 RM long and extends from the downstream terminus of Reach 4 to the confluence with the St. Croix River (Figure 6). This reach is characterized by large bends and significantly lower velocity, which may be a combination of landform (gradient) and also impounding effects of the St. Croix River confluence. Sedimentation deposition bars are widely conspicuous at the lowest portion of this reach. This reach is best accessed from the Road F bridge. Three cross-sectional transects within this reach are planned, one near a large wetland, and two others in representative areas in the reach (Figure 6).

Field Assessment

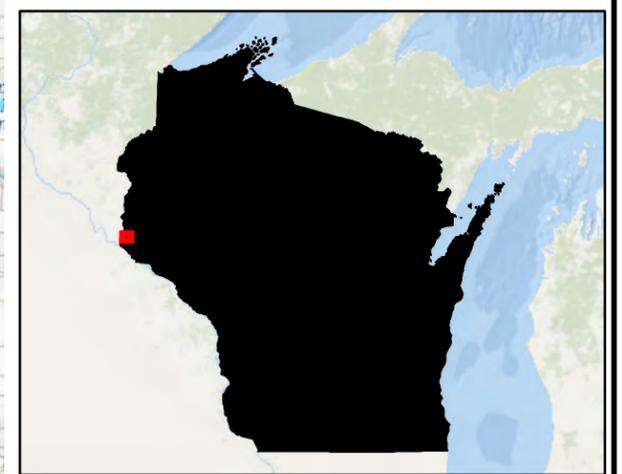
The field assessment was delayed due to high water levels and unsafe field conditions encountered during the October 2019 mobilization of the survey crew. The field assessment will be conducted in 2020.

Figures

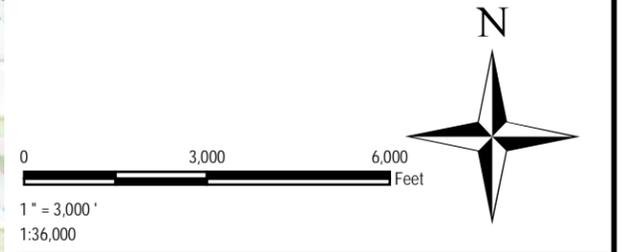


LEGEND

- POWELL FALLS DAM/START OF STUDY REACHES
- END OF STUDY REACHES
- REACH 1
- REACH 2
- REACH 3
- REACH 4
- REACH 5
- PROPOSED TRANSECT
- KINNICKINNIC RIVER
- SAINT CROIX RIVER



- NOTES**
- BASE MAP IMAGERY FROM USGS National Map, USGS 2019.
 - DATA SOURCES: ESRI, DNR, NHD, TRC.

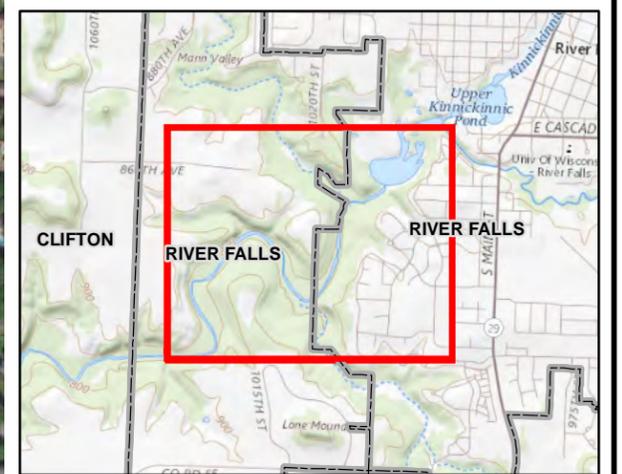


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| TITLE: | | | |
| STUDY AREA OVERVIEW | | | |
| DRAWN BY: | A. KAILAS | PROJ. NO.: | 350165.0002 |
| CHECKED BY: | J. DICKEY | FIGURE 1 | |
| APPROVED BY: | J. DICKEY | | |
| DATE: | FEBRUARY 2020 | | |
| | | | |
| FILE NO.: | Draft_Study_Reach_Overview_11x17.mxd | | |

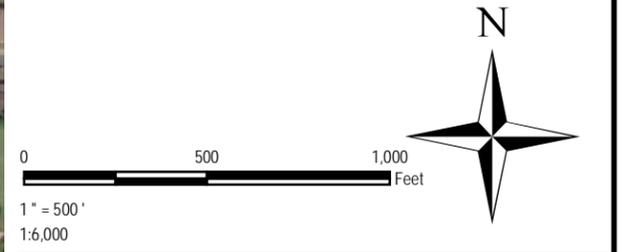


LEGEND

-  POWELL FALLS DAM/START OF STUDY REACHES
-  REACH 1
-  PROPOSED TRANSECT



- NOTES**
1. BASE MAP IMAGERY FROM USGS National Map, USGS 2019.
 2. DATA SOURCES: ESRI, DNR, NHD, TRC.



| | | | |
|--------------|---------------|--|-------------|
| PROJECT: | | RIVER FALLS HYDROELECTRIC PROJECT STREAM HABITAT STUDY CITY OF RIVER FALLS, WISCONSIN | |
| TITLE: | | STUDY AREA REACH 1 | |
| DRAWN BY: | A. KAILAS | PROJ. NO.: | 350165.0002 |
| CHECKED BY: | J. DICKEY | FIGURE 2 | |
| APPROVED BY: | J. DICKEY | | |
| DATE: | FEBRUARY 2020 | | |

 TRC

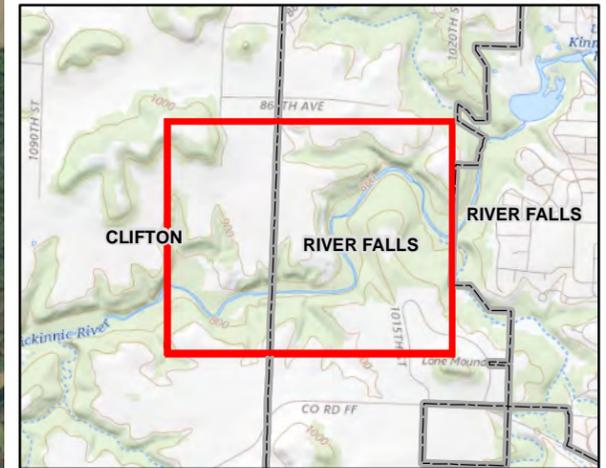
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 TRC - GIS



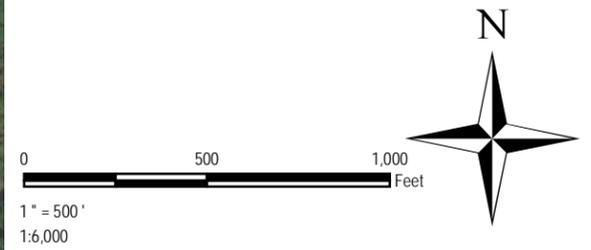
LEGEND

- REACH 2
- PROPOSED TRANSECT



NOTES

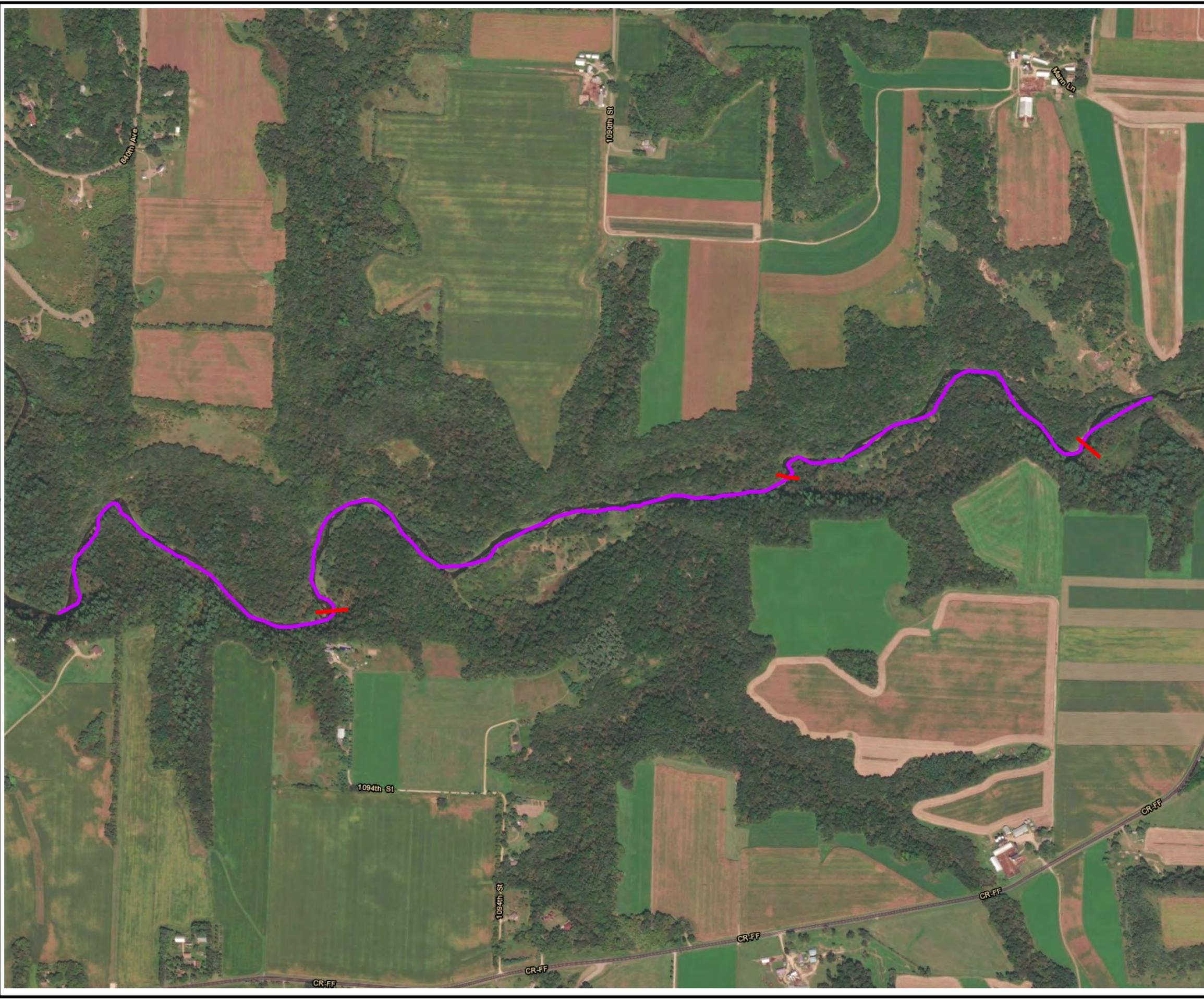
1. BASE MAP IMAGERY FROM USGS National Map, USGS 2019.
2. DATA SOURCES: ESRI, DNR, NHD, TRC.



| | | | |
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| TITLE: | | STUDY AREA REACH 2 | |
| DRAWN BY: | A. KAILAS | PROJ. NO.: | 350165.0002 |
| CHECKED BY: | J. DICKEY | FIGURE 3 | |
| APPROVED BY: | J. DICKEY | | |
| DATE: | FEBRUARY 2020 | | |



FILE NO: Draft_Study_Reach_2_11x17.mxd



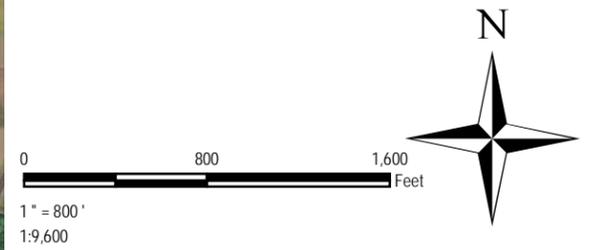
LEGEND

- REACH 3
- PROPOSED TRANSECT



NOTES

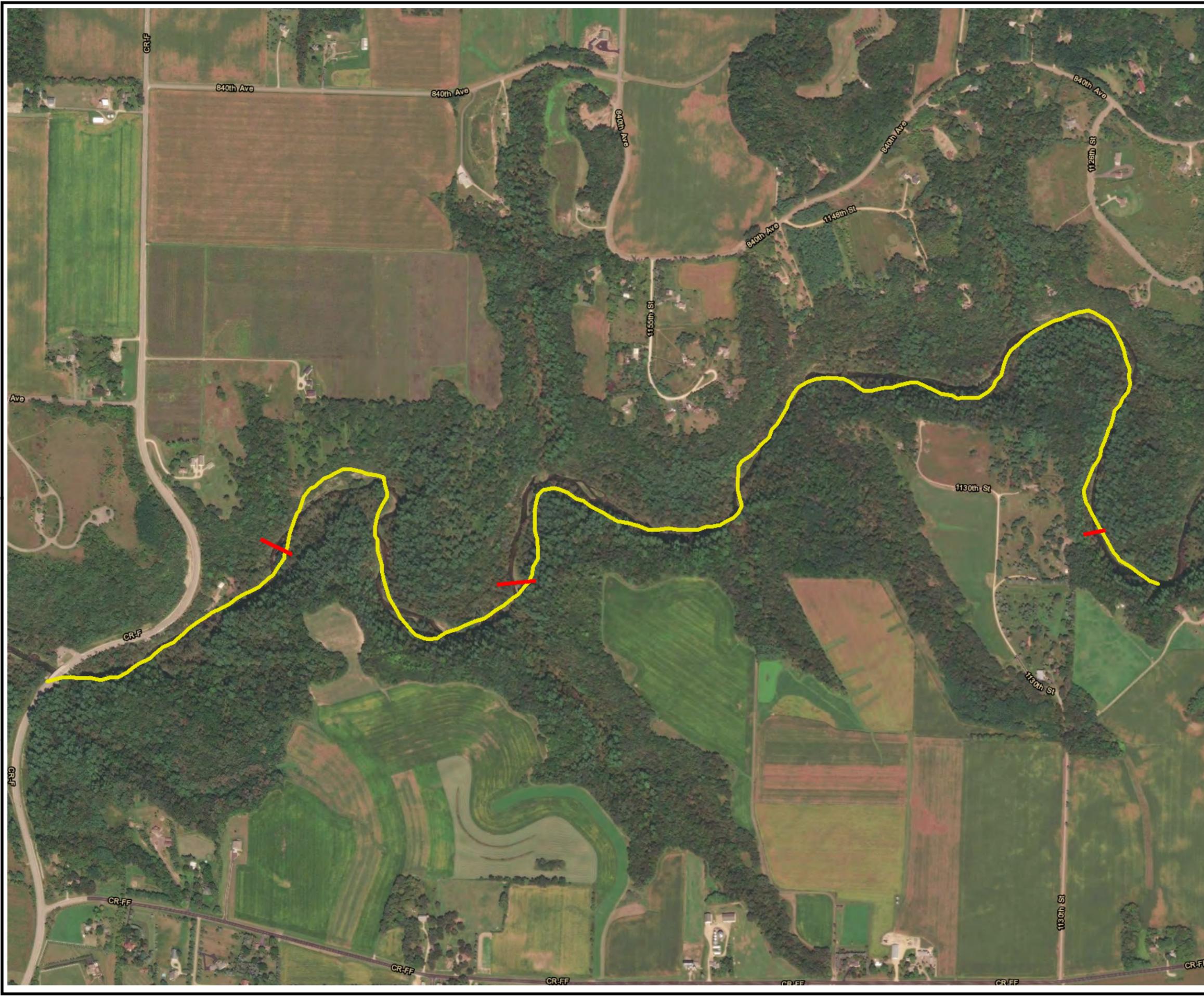
1. BASE MAP IMAGERY FROM USGS National Map, USGS 2019.
2. DATA SOURCES: ESRI, DNR, NHD, TRC.



| | | | |
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| TITLE: | | STUDY AREA REACH 3 | |
| DRAWN BY: | A. KAILAS | PROJ. NO.: | 350165.0002 |
| CHECKED BY: | J. DICKEY | FIGURE 4 | |
| APPROVED BY: | J. DICKEY | | |
| DATE: | FEBRUARY 2020 | | |



Plot Date: 2/11/2020 14:10:56 PM by AKAILAS - LAYOUT: ANSIB(11x17)
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 Map Rotation: 0
 TRC - GIS



LEGEND

- REACH 4
- PROPOSED TRANSECT

NOTES

- BASE MAP IMAGERY FROM USGS National Map, USGS 2019.
- DATA SOURCES: ESRI, DNR, NHD, TRC.

0 800 1,600 Feet

1" = 800'
1:9,600

PROJECT:
**RIVER FALLS HYDROELECTRIC PROJECT
 STREAM HABITAT STUDY
 CITY OF RIVER FALLS, WISCONSIN**

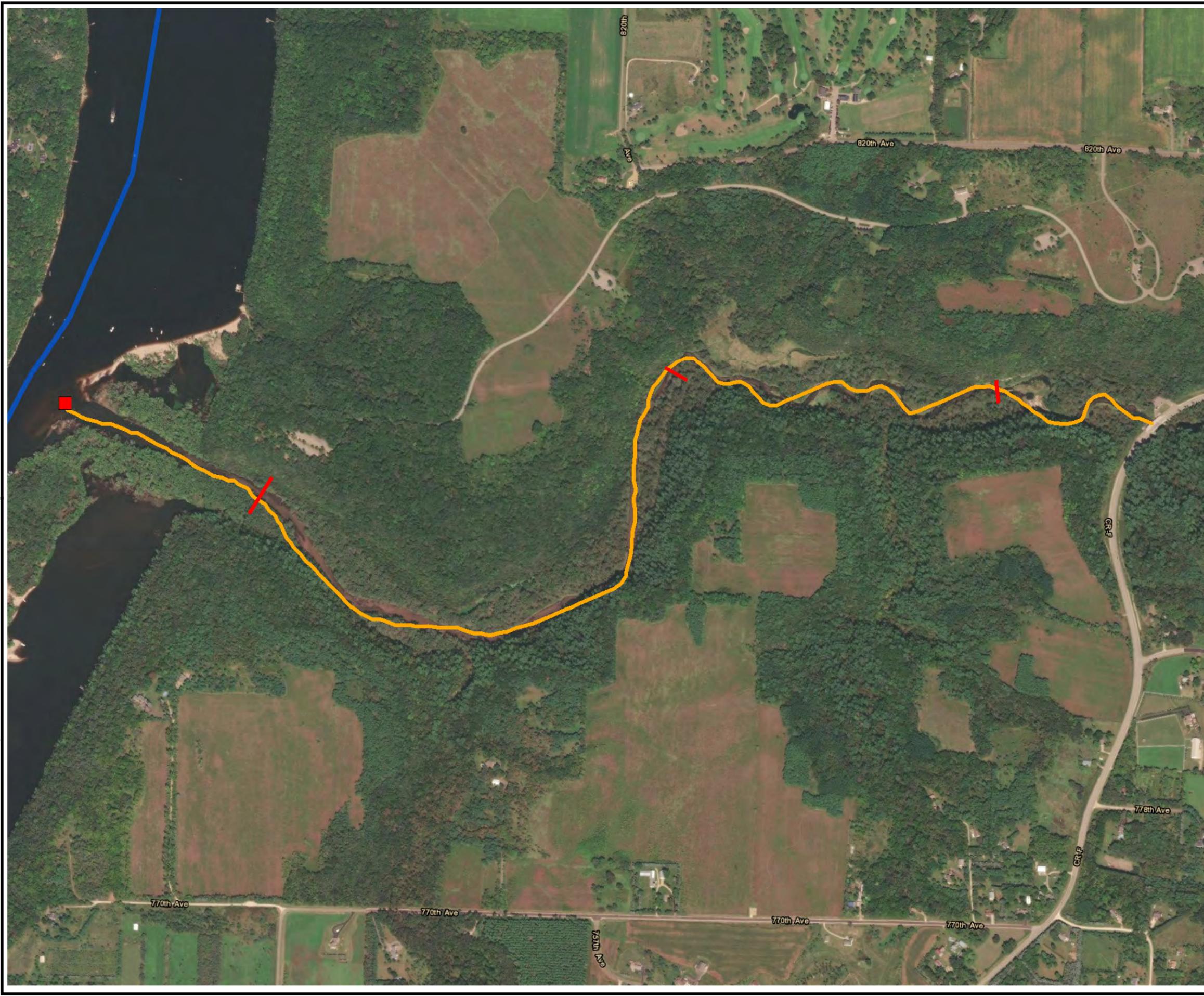
TITLE:
STUDY AREA REACH 4

| | |
|------------------------|------------------------|
| DRAWN BY: A. KAILAS | PROJ. NO.: 350165.0002 |
| CHECKED BY: J. DICKEY | FIGURE 5 |
| APPROVED BY: J. DICKEY | |
| DATE: FEBRUARY 2020 | |

TRC

FILE NO.: Draft_Study_Reach_4_11x17.mxd



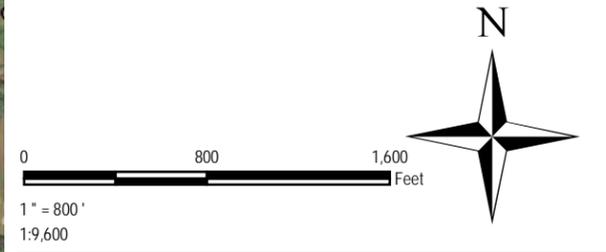


LEGEND

- END OF STUDY REACHES
- REACH 5
- PROPOSED TRANSECT
- SAINT CROIX RIVER



- NOTES**
1. BASE MAP IMAGERY FROM USGS National Map, USGS 2019.
 2. DATA SOURCES: ESRI, DNR, NHD, TRC.



| | | | |
|--------------|---------------|--|-------------|
| PROJECT: | | RIVER FALLS HYDROELECTRIC PROJECT STREAM HABITAT STUDY CITY OF RIVER FALLS, WISCONSIN | |
| TITLE: | | STUDY AREA REACH 5 | |
| DRAWN BY: | A. KAILAS | PROJ. NO.: | 350165.0002 |
| CHECKED BY: | J. DICKEY | FIGURE 6 | |
| APPROVED BY: | J. DICKEY | | |
| DATE: | FEBRUARY 2020 | | |



FILE NO: Draft_Study_Reach_5_11x17.mxd

Appendix C – Revised Recreation User Survey Form

**RIVER FALLS HYDROELECTRIC PROJECT
RECREATION USER SURVEY**

Interviewer: _____ Date/Time: _____ Location: _____

Weather: _____ Air Temp: _____ Declined Survey: _____

Good Afternoon. My name is _____ and I am conducting a recreation use survey of visitors to the River Falls Hydroelectric Project (which includes Lake George and Lake Louise) for the City of River Falls. This information is being collected in connection with the FERC relicensing of the Project and will assist the City in understanding more about land and water based recreation in this area. Responses from the survey will remain anonymous. Would you mind answering a few questions?

1. Have you participated in this survey effort before?

Yes _____ Thank you for your time. We are only interviewing each person once with this survey.

No _____ Continue with Survey

2. Over age 18? _____ Gender: _____ Zip Code: _____

3. How many in your group, including yourself? _____

4. How many vehicles did your group use to come here? _____

5. How many people were in each vehicle? _____

6. When did you arrive and plan to depart?

Arrived: _____ Date: _____ Time: _____ AM PM

Estimated Depart: Date: _____ Time: _____ AM PM

7. Are you a resident of the River Falls area? Yes _____ No _____

8. Have you ever visited the Project Area before? Yes _____ No _____

a. If yes, typically, how many times a year do you visit the area within the Project Boundary for recreation? (Please see map for reference) _____

9. Please indicate which of the following activities you participate or have participated in at the Project by season in the past five years. (Mark all that apply)

| Activity | Lake George, Lake Louise or the River? | This Trip | Spring (Mar. 20 – June 20) | Summer (June 21 – Sept. 22) | Fall (Sept. 23 – Dec. 21) | Winter (Dec. 22 – Mar. 19) |
|--------------------------|--|--------------|----------------------------------|--------------------------------------|------------------------------------|-------------------------------------|
| Biking | | | | | | |
| Birding/Nature Observing | | | | | | |
| Canoeing/Kayaking | | | | | | |
| Dog Walking | | | | | | |
| Fishing from a Boat | | | | | | |
| Fishing from Shore | | | | | | |
| Fly fishing | | | | | | |
| Ice/Winter Fishing | | | | | | |
| Paddle Board/Tubing | | | | | | |
| Photography | | | | | | |
| Picnicking | | | | | | |
| Walking/Running | | | | | | |
| Sightseeing | | | | | | |
| Cross country skiing | | | | | | |
| Sunbathing | | | | | | |
| Swimming | | | | | | |
| Other: | | | | | | |

10. Of the activities listed above, which is your PRIMARY activity on this trip? _____

11. Overall, how satisfied were you with the available number of recreation facilities? (circle number)

| | | | | |
|----------------------|--------------------|-----------|----------------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not Satisfied at all | Slightly Satisfied | Satisfied | Moderately Satisfied | Extremely Satisfied |

If less than satisfied could you explain why? _____

12. Please rate the condition of following amenities at this location:

| | Poor | | Fair | | Excellent | N/A |
|----------------------|------|---|------|---|-----------|-----|
| Parking | 1 | 2 | 3 | 4 | 5 | |
| Facility Condition | 1 | 2 | 3 | 4 | 5 | |
| Variety of Amenities | 1 | 2 | 3 | 4 | 5 | |
| Toilets/Restrooms | 1 | 2 | 3 | 4 | 5 | |
| River Access | 1 | 2 | 3 | 4 | 5 | |
| Impoundment Access | 1 | 2 | 3 | 4 | 5 | |
| Overall Quality | 1 | 2 | 3 | 4 | 5 | |

Please explain any poor ratings. _____

13. How would you rate this recreation site as a public recreation opportunity on a scale of 1 to 5?

| | | | | |
|-----------------|---|------------|---|------------|
| 1 | 2 | 3 | 4 | 5 |
| No Value At All | | Some Value | | High Value |

Notes: _____

14. During your visit today what is your perception of the amount of use occurring at this site?

| | | | | |
|-------------|---|------------------|---|-------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not Crowded | | Somewhat Crowded | | Extremely Crowded |

15. Would you return to this recreation site over the course of the next year? Yes____ No____

16. What did you like most about your recreational experience today? _____

17. What did you like least about your recreational experience today? _____

18. Does this recreation site/facility serve your interests? Yes____ No____

If not, why? _____

19. Are you aware of any scenic views that are important or of value to the Project Area?

Yes____ No____

If yes, describe and identify the specific location of the scenic view. _____

20. The next questions relate to scenic views or aesthetics at the Project. Please respond with your perception of aesthetics to locations/areas that you are familiar with, only.

a) How satisfied are you with the scenic views/aesthetics at Lake George? (circle number)

| | | | | |
|----------------------|--------------------|-----------|----------------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not Satisfied at all | Slightly Satisfied | Satisfied | Moderately Satisfied | Extremely Satisfied |

If less than satisfied could you explain why?: _____

b) How satisfied are you with the scenic views/aesthetics at Lake Louise? (circle number)

| | | | | |
|----------------------|--------------------|-----------|----------------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not Satisfied at all | Slightly Satisfied | Satisfied | Moderately Satisfied | Extremely Satisfied |

If less than satisfied could you explain why?: _____

c) How satisfied are you with the scenic views/aesthetics at Junction Falls Dam (including existing aesthetic flows over the spillway)? (circle number)

| | | | | |
|----------------------|--------------------|-----------|----------------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not Satisfied at all | Slightly Satisfied | Satisfied | Moderately Satisfied | Extremely Satisfied |

If less than satisfied could you explain why?: _____

d) How satisfied are you with the scenic views/aesthetics at Powell Falls Dam (including existing aesthetic flows over the spillway)? (circle number)

| | | | | |
|----------------------|--------------------|-----------|----------------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not Satisfied at all | Slightly Satisfied | Satisfied | Moderately Satisfied | Extremely Satisfied |

If less than satisfied could you explain why?: _____

e) Overall, how satisfied are you with the scenic views/aesthetics at the Project? (circle number)

| | | | | |
|----------------------|--------------------|-----------|----------------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not Satisfied at all | Slightly Satisfied | Satisfied | Moderately Satisfied | Extremely Satisfied |

If less than satisfied could you explain why?: _____

21. Do you have any additional comments regarding recreation opportunities or scenic views in connection with the Project?

Thank you for your time and input.

Appendix D – Revised Wetland, Riparian, and Terrestrial Resources Survey Report

WETLAND, RIPARIAN, AND TERRESTRIAL RESOURCES SURVEY



RIVER FALLS HYDROELECTRIC PROJECT FERC No. 10489

SUBMITTED BY:

**CITY OF RIVER FALLS MUNICIPAL UTILITIES
222 LEWIS STREET
RIVER FALLS, WI 54022**

PREPARED BY:

**TRC
150 NORTH PATRICK BOULEVARD
BROOKFIELD, WI 53045**

JANUARY 2020, REVISED FEBRUARY 2020



CITY OF RIVER FALLS MUNICIPAL UTILITIES
RIVER FALLS HYDROELECTRIC PROJECT
FERC NO. 10489

WETLAND, RIPARIAN, AND TERRESTRIAL RESOURCES SURVEY

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LIST OF ACRONYMS

| | |
|---------------|--|
| Commission | Federal Energy Regulatory Commission |
| dbh | diameter at breast height |
| ERR | Endangered Resources Review |
| FERC | Federal Energy Regulatory Commission |
| ILP | Integrated Licensing Process |
| IPaC | Information for Planning and Consultation |
| Licensee | River Falls Municipal Utilities |
| Project | River Falls Hydroelectric Project (FERC No. 10489) |
| PSP | Proposed Study Plan |
| RFMU | River Falls Municipal Utilities |
| RSP | Revised Study Plan |
| RTE | rare, threatened, and endangered |
| SPD | Study Plan Determination |
| USFWS | U.S. Fish and Wildlife Service |
| Wisconsin DNR | Wisconsin Department of Natural Resources |

1.0 INTRODUCTION

River Falls Municipal Utilities (Licensee or RFMU) is the Licensee of the River Falls Hydroelectric Project (FERC No. 10489) (Project), located along the Kinnickinnic River in the City of River Falls, in Pierce County, Wisconsin. The Project is licensed by the Federal Energy Regulatory Commission (FERC or Commission) as a two-development project. The two developments include the Junction Falls Development and the Powell Falls Development. The Licensee is using the FERC's Integrated Licensing Process (ILP) to relicense the Junction Falls Development and decommission and remove the Powell Falls Development.

The Licensee included a Wetland, Riparian, and Terrestrial Resources Survey in its Proposed Study Plan (PSP) dated February 11, 2019 and Revised Study Plan (RSP) dated June 11, 2019. The FERC issued a revised process plan and schedule on July 20, 2019 and its Study Plan Determination (SPD) on July 11, 2019, which included the Wetland, Riparian, and Terrestrial Resources Survey.

On behalf of the Licensee, TRC Environmental Corporation (TRC) conducted the Wetland, Riparian, and Terrestrial Resources Survey of the Project (Figure 1, Appendix A). The Study Areas include the Powell Falls Project Boundary and Junction Falls Project Boundary (Project Boundaries).

The purpose of this study was to conduct reconnaissance level surveys to document wetland, riparian, and terrestrial resources in the Project Boundaries. The study was conducted to map the major vegetation cover types, document common wildlife species within each cover type, map invasive botanical species, evaluate mature hardwood trees for potential northern long-eared bat habitat, and evaluate rare, threatened and endangered species habitat within the Project Boundaries to support the relicensing of the Junction Falls development and decommissioning of Powell Falls development. Our study is presented here in terms of methodology, results, and conclusions.

2.0 METHODS

The wetland, riparian, and terrestrial resources survey was conducted in three phases. Phase 1 utilized aerial photo-interpretation to determine the boundaries of major vegetation cover types within each Study Area. The vegetation cover types were categorized based on the distinction between forested (woody) and herbaceous cover types; which were then mapped as wetland versus non-wetland where discernable through aerial photo-interpretation.

Phase 2, the field assessment, was conducted September 5 and 6, 2019 by TRC scientists Laura Giese, PhD and Amanda Larsen. The field assessment traversed the area within the Project Boundaries to confirm and further refine the vegetation cover types. Within each cover type,

documentation included botanical species composition, including the dominant and more prominent associated species in each stratum (tree, shrub and herbaceous layers).

Observations of wildlife species, included direct sightings, signs (tracks, scat), and calls. All observations of wildlife were noted for each vegetation cover type.

Rare, threatened and endangered species particular to the Project were identified through a U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) search and Wisconsin Department of Natural Resources (Wisconsin DNR) Endangered Resources Review (ERR). The site specific USFWS IPaC search listed two terrestrial species: northern long-eared bat (*Myotis septentrionalis*) and prairie bush-clover (*Lespedeza leptostachya*). The results of the Wisconsin DNR ERR contain data that are considered sensitive and are not subject to Wisconsin's Open Records Law (per s. 23.27, Wis. Stats.). Due to the confidential nature of the results, the details of the report are not provided in this public filing. In summary, the Wisconsin DNR ERR listed one (1) plant species with required actions, 14 species or communities with recommended actions, and four (4) communities with no recommended actions. During the field assessment suitable habitat for potential rare, threatened, and endangered (RTE) species was evaluated and meander surveys conducted within their associated habitats to document the presence/absence of that species, or any signs of that species.

Northern long-eared bats hibernate in caves and mines during the winter and in summer roost singly or in colonies in cavities, underneath bark, crevices, or hollows of both live and dead trees (typically ≥ 3 inches diameter at breast height [dbh]) (USFWS 2014, USFWS 2019). This opportunistic bat selects roosts, using tree species based on presence of cavities or crevices or presence of peeling bark. Northern long-eared bats emerge at dusk to forage in upland and lowland woodlots and tree-lined corridors, feeding on insects, which they catch while in flight using echolocation. This species also feeds by gleaning insects from vegetation and water surfaces.

Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Northern long-eared bats typically occupy their summer habitat from mid-May through mid-August each year and the species may arrive or leave some time before or after this period.

A meander survey was conducted for mature hardwood trees with exfoliating bark that may be used as summer habitat for northern long-eared bats. If suitable roost habitat was found data were collected on species composition, general abundance, and size within the woodlands.

The Wisconsin NR 40 list of invasive botanical species (Appendix D) was used to determine which species to consider invasive. The locations of invasive botanical species were mapped via GPS either as a point or polygon noting general abundance.

Phase 3 included the development of this summary report.

3.0 RESULTS

3.1 Aerial Photo-interpretation

A review of Google Earth aerial imagery identified several major vegetation cover types based on landscape position, color and texture. Major vegetation cover types within the Powell Falls Study Area included mature hardwood woodlands, emergent wetlands, and fields. Within the Junction Falls Study Area, mature hardwood woodlands are the primary major vegetation cover type.

3.2 Powell Falls Field Assessment

The Powell Falls Study Area, which includes Lake Louise, is mostly undeveloped with natural plant communities. Relatively steep slopes border the southern three-quarters of the lake and terrestrial cover types are more prominent within this area. Terrain is more level within the northern portion of the Study Area where wetland cover types are prominent.

Photo-interpretation followed by field verification identified eight vegetation cover types; three wetland cover types and five terrestrial cover types (Appendix A, Figure 1). Each vegetation cover type is described further below, and a list of botanical species is included in Table 1 (Appendix B). Representative photos of the cover types are included in Appendix C. Observed wildlife and mapped invasive species are included for each cover type below.

Within Lake Louise itself wildlife observations included otters, great blue heron, green heron, and Canada geese. Numerous ducks were observed including wood ducks and mallards.

Rare, threatened and endangered species habitat was evaluated within the cover types and is discussed separately below.

3.2.1 Vegetation Cover Types

3.2.1.1 Wetlands

3.2.1.1.1 Fresh (wet) Meadow

Fresh (wet) meadows are dominated by grasses and forbs and may represent younger communities that indicate recent disturbances by drainage, siltation, cultivation, pasturing, peat fires and/or temporary flooding (Eggers and Reed, 2015). Fresh (wet) meadow comprises approximately 1.4 acres along the south side of the Kinnickinnic River in the northern portion of the Powell Falls Study Area. This area likely floods as evidenced by scour and drainage patterns creating a dynamic and resilient ecosystem. Within the fresh (wet) meadow there is a diverse mix of botanical species with no prominent species other than invasive reed canary grass (*Phalaris arundinacea*), which comprises approximately 80 percent of the mapped area.

In addition to the reed canary grass, invasive botanical species included hybrid cattail (*Typha x glauca*) at 10 percent coverage, and purple loosestrife (*Lythrum salicaria*) at one percent coverage.

Wildlife observed included birds, turtles, and mammals: gold finch, least bittern, belted kingfisher, red-eared slider, and a meadow vole. White-tail deer tracks were also observed.

3.2.1.1.2 Shallow Marsh

Shallow marshes are characterized by emergent aquatic plants growing in permanent to seasonal, shallow water (Egger and Reed, 2015). Emergent aquatic plants typically become established and spread when water levels are low or when the marsh substrate is exposed, and then persist when water levels rise. Shallow marsh is located within several places including along the eastern part of Lake Louise and within the backwater areas of the northwestern portion of the Study Area. Soils are saturated to the surface and unconsolidated. This vegetation cover type comprises approximately 4.96 acres in the Powell Falls Study Area. The botanical species composition is very diverse with no dominant species other than hybrid cattail within 30 percent of the mapped area.

In addition to the hybrid cattail, invasive botanical species included common reed (*Phragmites australis*) at five (5) percent, reed canary grass at two (2) percent coverage, and purple loosestrife at one (1) percent coverage.

Wildlife observed included birds and amphibians: great blue heron, blue jays, Canada geese, and a frog too quick to be identified.

3.2.1.1.3 *Bottomland Hardwood Woodlands*

Bottomland hardwood forests are found along rivers and streams, generally in broad floodplains with at least occasional flooding beyond the stream channel confines. Bottomland hardwood woodlands comprise approximately 2.07 acres primarily located in the northeast portion of the Powell Falls Study Area with a small section in the northwest; both within backwater landscape positions. Botanical species composition is not very diverse. Silver maple (*Acer saccharinum*), and black walnut (*Juglans nigra*) are prominent overstory species, and wood nettle (*Laportea canadensis*) is the dominant forb species.

Invasive species included common buckthorn (*Rhamnus cathartica*) at 20 percent and reed canary grass at two percent.

Wildlife observed included birds, mammals, and invertebrates: pileated woodpecker, red squirrel, and a swallowtail butterfly.

3.2.1.2 *Terrestrial*

3.2.1.2.1 *Old Field*

The old field cover type includes agricultural fields that have been left fallow and other areas in early succession. The old field vegetation cover type is approximately 0.91 acres and located within a powerline right-of-way along a hillside in the eastern portion of the Powell Falls Study Area. It is comprised of ruderal botanical species with crown vetch (*Securigera varia*) and reedtop (*Agrostis gigantea*) as the dominant species.

No invasive botanical species or wildlife were observed.

3.2.1.2.2 *Young Upland Woodlands*

Young upland woodlands border the northern portion of the Powell Falls Study Area. This cover type includes deciduous tree species which have not reached a mature height or dbh and nor are they capable of reproducing. In this area, elevations are slightly higher before they drop behind a slight berm. The western portions are dominated by common buckthorn and American basswood (*Tilia americana*). Common buckthorn comprises approximately 50 percent. Black walnut is prominent on the eastern portion. This vegetation cover type is approximately 1.95 acres in the Powell Falls Study Area.

Other than common buckthorn, a small amount of reed canary grass (five (5) percent) was observed.

Wildlife signs include white-tail deer and raccoon tracks.

3.2.1.2.3 Riparian Woodlands

Riparian woodlands are adjacent to streams and rivers. The close proximity to the stream and potential for flooding influences the species composition, which includes those suitable for frequent disturbance. This cover type is located south of the Powell Falls dam on the west side of the Kinnickinnic River, comprises approximately 0.25 acres in the Powell Falls Study Area, and appears to be regularly flooded. Species composition, different than the bottomland hardwood woodlands, was also not very diverse. American basswood was the dominant overstory species, prickly ash (*Zanthoxylum americanum*) the dominant shrub species, and common scouring rush (*Equisetum hyemale*) the dominant ground cover species.

No invasive botanical species or wildlife were observed.

3.2.1.2.4 Mature Woodlands

Mature woodlands are comprised of deciduous tree species that have reached a height and maturity level for reproduction. The mature woodland cover type comprises approximately 4.63 acres in the Powell Falls Study Area and is located along the steep hillside in the eastern portion of the Study Area. Sugar maple (*Acer saccharum*) and basswood are prominent overstory species, American current (*Ribes cynosbati*) is prevalent in the shrub strata, and wild ginger (*Asarum canadense*) is common in the ground strata.

Other than common buckthorn at two (2) percent, no other invasive botanical species were observed.

Wildlife observed included red and gray squirrels. White-tail deer tracks were also observed

3.2.1.2.5 Oak Savanna

The oak-dominated savanna community has less than 50 percent tree canopy coverage and more than one tree per acre. Historically, oak savannas were very abundant in Wisconsin and occurred on wet-mesic to dry sites. Oak Savanna comprises approximately 0.38 acres along a steep hillside southwest of the Powell Falls dam. The botanical species composition was very diverse. Bur oak (*Quercus macrocarpa*) was the prominent overstory species. There was not a dominant understory or ground strata species.

Other than common buckthorn at 15 percent, no other invasive botanical species were observed.

Wildlife observed included a chipmunk.

3.2.2 *Rare, Threatened and Endangered Species*

During the field assessment suitable habitat for potential RTE species was evaluated and meander surveys conducted within their associated habitats to document the presence/absence of that species, or any signs of that species. The Powell Falls Project Boundary was examined for prairie bush clover, northern long-eared bats, and state listed botanical species.

Habitat for the federally-threatened plant species prairie bush-clover includes tallgrass prairie with mesic, moderately damp to dry prairie soils. It differs from round-headed bush-clover (*Lespedeza capitata*) by having open, branching flower heads and widely spaced leaves compared to tight flower heads and larger, wider leaves. Suitable habitat for this species was identified in the Oak Savanna cover type. Therefore, this area was extensively searched for presence of the plant. No individuals of the prairie bush-clover were found.

Northern long-eared bats hibernate in caves and mines during the winter and roost in live or dead trees with cavities or crevices during the summer. Suitable roost trees include live trees and/or snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities. Mature trees were present within the Powell Falls Study Area; however, the trees were in good health with no noticeable crevices or exfoliating bark to provide suitable summer roosting habitat for the northern long-eared bat.

No suitable habitat was present within the Powell Falls Project Boundary for any of the other state-listed plant species or communities. Nor were any high-quality habitats observed.

3.2.3 *Invasive Species*

Invasive species were more prominent in the wetland cover types (Appendix A, Figure 2), with the addition of the young upland woodland cover type. Several areas of hybrid cattail were mapped (2.36 acres), as well as reed canary grass (1.53 acres), and common reed (0.15 acres). Common buckthorn was prevalent in the young upland woodland (1.31 acres).

Purple loosestrife was observed scattered in small patches within the fresh (wet) meadow and shallow marsh plant communities, which includes approximately 2.08 acres. It comprised approximately one percent of the area in each cover type. It is likely that the dense vegetative cover in these plant communities is maintaining the low levels of this species.

3.3 Junction Falls Field Assessment

The Junction Falls Study Area is more developed with trails, benches, and picnic areas along the west side. The east side primarily has steep, wooded slopes adjacent to commercial development. There are two somewhat larger woodlands where terrain is more level and subject to frequent flooding. One is in the northwest portion and the other on the northside of Lake George.

Photo-interpretation followed by field verification identified six vegetation cover types; two wetland cover types and four terrestrial cover types (Appendix A, Figure 1). Each vegetation cover type is described further below, and a list of botanical species is included in Table 1 (Appendix B). Representative photos of the cover types are included in Appendix C. Observed wildlife and mapped invasive species are included for each cover type below.

Within Lake George itself wildlife observations included teal, mallards, Canada geese, white egrets, and a belted kingfisher.

Rare, threatened and endangered species habitat was evaluated within the cover types and discussed separately below.

3.3.1 Vegetation Cover Types

3.3.1.1 Wetlands

3.3.1.1.1 Shallow Marsh

Shallow marshes are characterized by emergent aquatic plants growing in permanent to seasonal, shallow water (Egger and Reed, 2015). Emergent aquatic plants typically become established and spread when water levels are low or when the marsh substrate is exposed, and then persist when water levels rise. There is a small area of shallow marsh (approximately 0.15 acres) within a backwater location along the west side of the Kinnickinnic River in the Junction Falls Study Area. Narrowleaf cattail (*Typha angustifolia*) is the prominent species.

The invasive narrowleaf cattail covers approximately 10 percent and reed canary grass covers approximately one (1) percent of the shallow marsh area.

No wildlife was observed.

3.3.1.1.2 Bottomland Hardwood Woodlands

Bottomland hardwood forests are found along rivers and streams, generally in broad floodplains with at least occasional flooding beyond the stream channel confines. The bottomland hardwood cover type was along the fringe of Lake George and the Kinnickinnic River, as well as in two broad floodplain areas. This cover type comprises

approximately 3.92 acres of the Junction Falls Study Area. Silver maple is the prominent overstory species, and wood nettle, jewelweed and pale touch-me-not (*Impatiens capensis* and *Impatiens pallida*) are abundant in the herbaceous strata.

Mapped invasive species consisted of common buckthorn at approximately five percent and Tatarian honeysuckle (*Lonicera tatarica*) at one percent. Garlic mustard (*Alliaria petiolata*) and moneywort (*Lysimachia nummularia*) were present at less than one percent coverage. Siberian elm (*Ulmus pumila*) and black locust (*Robinia pseudoaccacia*) bordered the River.

Wildlife observed included red and gray squirrels, and mallards.

An area (0.24 acres) of young bottomland hardwood woodlands interspersed with fresh (wet) meadow is located immediately below the Junction Falls dam. This plant community is influenced by the flow over the dam due to water spray from the dam and turbulent waters.

3.3.1.2 Terrestrial

3.3.1.2.1 Meadow

The meadow cover type is generally composed of grasses and flowering forbs without the encroachment of woody species. There is a small area (0.09 acres) of meadow in the northern portion of the Junction Falls Study Area adjacent to the River. Prominent species included Canada goldenrod (*Solidago canadensis*), ground ivy (*Glechoma hederacea*), giant ragweed (*Ambrosia trifida*), and daisy fleabane (*Erigeron annuus*).

Invasive species wild parsnip (*Pastinaca sativa*) and dames rocket (*Hesperis matronalis*) were present at five (5) percent each.

No wildlife was observed.

3.3.1.2.2 Young Upland Woodland

This cover type includes deciduous tree species that have not reached a mature height or dbh and nor are they capable of reproducing. A section of young upland woodland (0.10 acres) is adjacent to Lake George in the southern portion of the Study Area. Basswood was the prominent overstory species with a mix of forbs in the herb layer. A paved trail with maintained edges passes through this cover type.

No invasive botanical species were identified in this area.

Wildlife observed included a red squirrel.

3.3.1.2.3 Upland Shrub

The upland shrub cover type has a preponderance of shrub or small tree species interspersed with forbs. South of the bridge between W. Cascade Avenue and S. Winter Street, and on the steep, west bank below the Junction Falls powerhouse there is a small area of an upland shrub cover type (approximately 0.53 acres). It is also composed of ruderal species with smooth sumac (*Rhus glabra*), and box elder (*Acer negundo*) prominent in the shrub layer, and Canada goldenrod prominent in the forb layer.

One invasive species, common buckthorn at one (1) percent, was noted. No wildlife was observed.

3.3.1.2.4 Mature Woodland

Mature woodlands include deciduous tree species that have reached a height and maturity level for reproduction. Mature woodland encompasses approximately 2.52 acres along the western side of Lake George and the Kinnickinnic River in the Junction Falls Study Area. Paved trails, picnic areas and sitting benches are located within this cover type. Prominent overstory species include black walnut, red oak (*Quercus rubra*), and basswood. A variety of species comprised the ground strata but none were dominant. A paved trail with maintained edges passes through this cover type. There are scattered mown areas with picnic tables and sitting benches.

One invasive species, burning bush (*Euonymus alata*) was located within this cover type.

Wildlife observed included a cedar waxwing, chipmunks, and red squirrels.

3.3.2 Rare, Threatened and Endangered Species

Northern long-eared bats hibernate in caves and mines during the winter and roost in live or dead trees with cavities or crevices during the summer. Suitable roost trees include live trees and/or snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities. Mature trees were present within the Study Area; however, the trees were in good health with no noticeable crevices or exfoliating bark to provide suitable summer roosting habitat for the northern long-eared bat.

No suitable habitat was present for the other federal- or state-listed plant species. Nor were any high-quality habitats observed.

3.3.3 Invasive Species

Invasive species were scattered throughout the Study Area (Appendix A, Figure 2), generally in small quantities. Mapped invasive botanical species included burning bush (0.04 acres), dame's rocket (0.18 acres), wild parsnip (0.09 acres), Tatarian honeysuckle (0.10 acres), moneywort

(0.08 acres), common buckthorn (0.27 acres), garlic mustard (0.21 acres), black locust (0.16 acres), and Siberian elm (0.14 acres).

4.0 CONCLUSIONS

A Wetland, Riparian, and Terrestrial Resources Survey was conducted in the Powell Falls Project Boundary and Junction Falls Project Boundary. Within the Powell Falls Project Boundary, habitat types include fresh (wet) meadow, shallow marsh, bottomland hardwood woodland, riparian woodland, old field, young upland woodland, mature woodland, and oak savanna. Within the Junction Falls Project Boundary, habitat types include shallow marsh, bottomland hardwood woodland, meadow, young upland woodland, upland shrub, and mature woodland. Invasive species observed included burning bush, dame's rocket, wild parsnip, Tatarian honeysuckle, moneywort, purple loosestrife reed canary grass, common reed, common buckthorn, garlic mustard, black locust, cattail, and Siberian elm. Wildlife observed was typical of urbanized areas in northwest Wisconsin. While appropriate habitat for prairie bush-clover is present in the Oak Savanna habitat, no rare species were observed. Mature trees present within the Study Area were in good health with no noticeable crevices or exfoliating bark to provide suitable summer roosting habitat for the northern long-eared bat.

5.0 REFERENCES

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APPENDIX A
Figures



LEGEND

-  APPROXIMATE JUNCTION FALLS PROJECT BOUNDARY
-  APPROXIMATE POWELL FALLS PROJECT BOUNDARY

- NOTES**
1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO., (5/14/2018).

0 500 1,000
 Feet

1" = 500'
 1:6,000



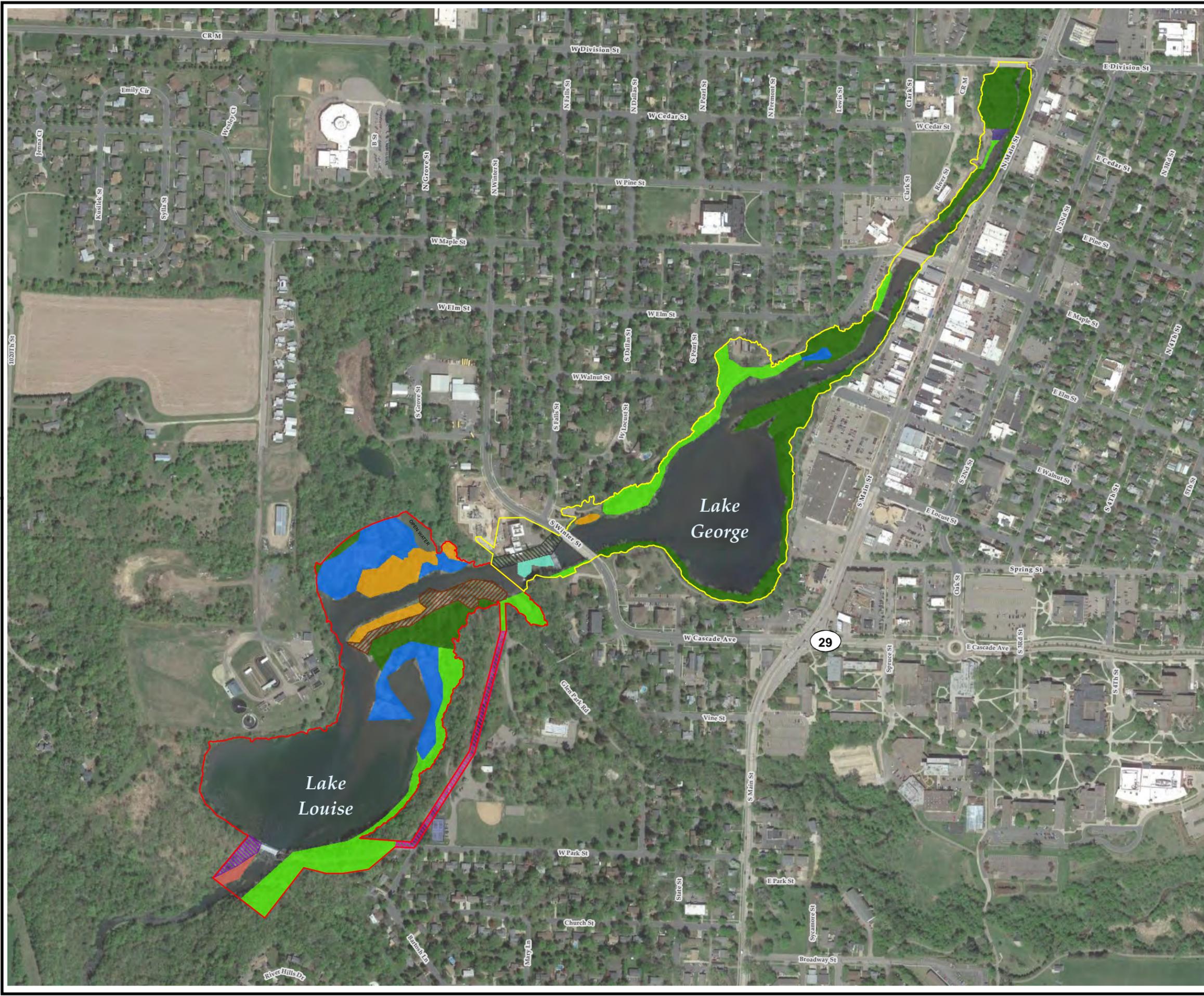
PROJECT:
**RIVER FALLS HYDROELECTRIC PROJECT
 CITY OF RIVER FALLS, WISCONSIN**

TITLE:
RIVER FALLS PROJECT BOUNDARY MAP

| | |
|----------------------------|------------------------|
| DRAWN BY: A. ADAIR | PROJ. NO.: 350165.0001 |
| CHECKED BY: L. GIESE | FIGURE 1 |
| APPROVED BY: L. BROTKOWSKI | |
| DATE: JANUARY 2020 | |

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FILE NO.: 350165_001_PB.mxd



LEGEND

- MATURE WOODLAND
- OAK SAVANNA
- RIPARIAN WOODLAND
- BOTTOMLAND HARDWOOD WOODLAND
- YOUNG UPLAND WOODLAND
- YOUNG BOTTOMLAND HARDWOOD/FRESH (WET) MEADOW
- FRESH (WET) MEADOW
- SHALLOW MARSH
- UPLAND SHRUB
- MEADOW
- OLD FIELD
- APPROXIMATE JUNCTION FALLS PROJECT BOUNDARY
- APPROXIMATE POWELL FALLS PROJECT BOUNDARY

- NOTES**
1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO., (5/14/2018).
 2. OPEN WATER & DEVELOPED AREAS NOT INCLUDED.

0 500 1,000
 Feet
 1" = 500'
 1:6,000

PROJECT: RIVER FALLS HYDROELECTRIC PROJECT
 CITY OF RIVER FALLS, WISCONSIN

TITLE: VEGETATION COVER TYPES
 IN THE PROJECT BOUNDARIES

| | |
|----------------------------|------------------------|
| DRAWN BY: A. ADAIR | PROJ. NO.: 350165.0001 |
| CHECKED BY: L. GIESE | |
| APPROVED BY: L. BROTKOWSKI | |
| DATE: FEBRUARY 2020 | |

FIGURE 2

TRC

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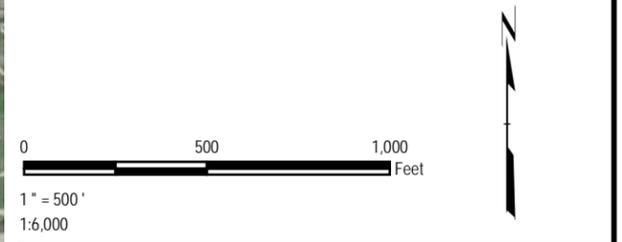
FILE NO.: 350165_002_VEG.mxd



LEGEND

- 1: *Euonymus alata* (BURNING BUSH)
- 2: *Hesperis matronalis* (DAMES ROCKET)
- 3: *Hesperis matronalis* (DAMES ROCKET) AND *Pastinaca sativa* (WILD PARSNIP)
- 4: *Lonicera tatarica* (TATARIAN HONEYSUCKLE)
- 5: *Lysimachia nummularia* (MONEYWORT)
- 6: *Phalaris arundinacea* (REED CANARY GRASS) AND *Lythrum salicaria* (PURPLE LOOSESTRIFE)
- 7: *Phragmites australis* (COMMON REED)
- 8: *Rhamnus cathartica* (COMMON BUCKTHORN)
- 9: *Rhamnus cathartica* (COMMON BUCKTHORN) AND *Alliaria petiolata* (GARLIC MUSTARD)
- 10: *Robinia pseudoacacia* (BLACK LOCUST)
- 11: *Typha x glauca* (CATTAIL)
- 12: *Ulmus pumila* (SIBERIAN ELM)
- 13: *Ulmus pumila* (SIBERIAN ELM) AND *Lonicera tatarica* (TATARIAN HONEYSUCKLE)
- 14: *Lythrum salicaria* (PURPLE LOOSESTRIFE)
- APPROXIMATE JUNCTION FALLS PROJECT BOUNDARY
- APPROXIMATE POWELL FALLS PROJECT BOUNDARY

- ### NOTES
- BASE MAP IMAGERY FROM GOOGLE EARTH PRO., (5/14/2018).
 - PREDOMINANT INVASIVE SPECIES ARE DEPICTED ON THE MAP. PERCENT COVER OF SCATTERED INVASIVE SPECIES IS DESCRIBED IN THE TEXT UNDER EACH PLANT COMMUNITY.



| | | | |
|--------------|--------------------|---|-------------|
| PROJECT: | | RIVER FALLS HYDROELECTRIC PROJECT CITY OF RIVER FALLS, WISCONSIN | |
| TITLE: | | INVASIVE SPECIES IN THE PROJECT BOUNDARIES | |
| DRAWN BY: | A. ADAIR | PROJ. NO.: | 350165.0001 |
| CHECKED BY: | L. GIESE | FIGURE 3 | |
| APPROVED BY: | L. BROTKOWSKI | | |
| DATE: | FEBRUARY 2020 | | |
| | | 708 Heartland Trail, Suite 3000 Madison, WI 53717 Phone: 608.826.3600 www.trcsolutions.com | |
| FILE NO.: | 350165_003_INV.mxd | | |

APPENDIX B
Cover Type Species Lists Table

| Scientific Name | Common Name | Conservation Status* | Form | Powell Falls / Lake Louise | | | | | | | | Junction Falls / Lake George | | | | | |
|--------------------------------|------------------------|----------------------|------|----------------------------|---------------|----------------------|--------------------|-----------|------------------------|------------------|-------------|------------------------------|----------------------|--------|------------------------|--------------|------------------|
| | | | | Wet Meadow | Shallow Marsh | Bottomland Hardwoods | Riparian Woodlands | Old Field | Young Upland Woodlands | Mature Woodlands | Oak Savanna | Shallow Marsh | Bottomland Hardwoods | Meadow | Young Upland Woodlands | Upland Shrub | Mature Woodlands |
| <i>Acer negundo</i> | Ash-leaved maple | Native | T | | | | | X | | X | | | X | | | X | |
| <i>Acer platanoides</i> | Norway maple | Introduced | T | | | | | | | | | | | | | | X |
| <i>Acer saccharinum</i> | Silver maple | Native | T | | | X | | | | | | X | X | | | | X |
| <i>Acer saccharum</i> | Sugar maple | Native | T | | | | | | | X | | | | | | | |
| <i>Aesculus glabra</i> | Ohio buckeye | Introduced | T | | | | | | | | | | | | | | X |
| <i>Betula nigra</i> | River birch | Native | T | | | | | | | | | | | | | | X |
| <i>Carpinus caroliniana</i> | American hornbeam | Native | T | | | | | | | X | | | | | | | |
| <i>Catalpa speciosa</i> | Northern catalpa | Introduced | T | | | | | | | | | | X | | | | |
| <i>Celtis occidentalis</i> | Northern hackberry | Native | T | | | | | | | | | | | | | | X |
| <i>Fraxinus nigra</i> | Black ash | Native | T | | | X | | | | X | | | X | | | | |
| <i>Fraxinus pennsylvanica</i> | Green ash | Native | T | | | | | | | | | | X | | X | X | X |
| <i>Juglans nigra</i> | Black walnut | Native | T | | | X | | X | X | X | | | X | | | | X |
| <i>Juniperus virginiana</i> | Eastern red-cedar | Native | T | | | | | | | | | | | | | | X |
| <i>Malus sp.</i> | Apple | Introduced | T | | | | | | | | | | | | | | X |
| <i>Ostrya virginiana</i> | Eastern hop-hornbeam | Native | T | | | | X | | | X | | | | | | | |
| <i>Picea sp.</i> | Spruce | Introduced | T | | | | | | | | | | | | | | X |
| <i>Pinus resinosa</i> | Red pine | Native | T | | | | | | | | | | | | | | X |
| <i>Populus deltoides</i> | Eastern cottonwood | Native | T | X | | X | | | | | | | X | | | | |
| <i>Prunus serotina</i> | Wild black cherry | Native | T | | | | | X | | X | | | | | | | |
| <i>Quercus alba</i> | White oak | Native | T | | | | | | | X | | X | | | | | |
| <i>Quercus macrocarpa</i> | Bur oak | Native | T | | | X | | | X | X | X | | | | | | X |
| <i>Quercus rubra</i> | Red oak | Native | T | | | | | | | X | | | | | | | X |
| <i>Robinia pseudoacacia</i> | Black locust | Invasive | T | | | | | | | | | | | | | | X |
| <i>Salix nigra</i> | Black willow | Native | T | | | X | X | | | | | | | | | | |
| <i>Tilia americana</i> | American basswood | Native | T | | | | X | | X | X | X | | X | | X | | X |
| <i>Ulmus americana</i> | American elm | Native | T | | | X | | | | X | | | X | | | X | X |
| <i>Ulmus pumila</i> | Siberian elm | Invasive | T | | | | | | | | | | | | | | X |
| <i>Ulmus rubra</i> | Red elm | Native | T | | | | | X | | X | | | | | | | |
| <i>Cornus alba</i> | Red osier dogwood | Native | S | X | X | | | | | | | | | | | | X |
| <i>Cornus racemosa</i> | Gray dogwood | Native | S | | | | | | | X | | | | | | | |
| <i>Lonicera tatarica</i> | Tartarian honeysuckle | Invasive | S | | | | | X | X | | | | X | | | | |
| <i>Physocarpus opulifolius</i> | Atlantic nine-bark | Native | S | | | | | | | X | | | | | | | |
| <i>Rhamnus cathartica</i> | Common buckthorn | Invasive | S | | | X | | | X | X | X | | X | | | X | X |
| <i>Rhus glabra</i> | Smooth sumac | Native | S | | | | | | | | | | | | | X | X |
| <i>Rhus typhina</i> | Staghorn sumac | Native | S | | | | | X | | | | | | | | | X |
| <i>Ribes americanum</i> | American black currant | Native | S | | X | | | | | | | | | | | | |
| <i>Ribes cynosbati</i> | Dogberry | Native | S | | | | X | | | X | | | | | | | X |
| <i>Rosa carolina</i> | Carolina rose | Native | S | | | | | | | | X | | | | | | |
| <i>Rubus idaeus</i> | American red raspberry | Native | S | | | | | | | X | X | | | X | | | X |
| <i>Salix discolor</i> | Pussy willow | Native | S | | X | | | | | | | | | | | | |
| <i>Salix interior</i> | Sandbar willow | Native | S | X | | | | | | | | | | | | | |
| <i>Sambucus nigra</i> | American elder | Native | S | | X | X | | | | X | | | X | X | | | |
| <i>Taxus canadensis</i> | American yew | Native | S | | | | | | | X | | | | | | | |
| <i>Viburnum dentatum</i> | Southern arrow-wood | Native | S | | | | | | | X | | | | | | | |
| <i>Viburnum opulus</i> | Cranberry viburnum | Native | S | | | X | | | | | | | | | | | |
| <i>Zanthoxylum americanum</i> | Common prickly-ash | Native | S | | | | X | | X | X | | | | | | | X |
| <i>Agastache foeniculum</i> | Blue giant hyssop | Native | H | | | | | | | | X | | | | | | |
| <i>Ageratina altissima</i> | White snakeroot | Native | H | | | | | | | | | | | | | | |
| <i>Agrimonia gryposepala</i> | Common agrimony | Native | H | | | | | | | | | | | X | | | |

| Scientific Name | Common Name | Conservation Status* | Form | Powell Falls / Lake Louise | | | | | | | | Junction Falls / Lake George | | | | | |
|-----------------------------------|-----------------------------------|----------------------|------|----------------------------|---------------|----------------------|--------------------|-----------|------------------------|------------------|-------------|------------------------------|----------------------|--------|------------------------|--------------|------------------|
| | | | | Wet Meadow | Shallow Marsh | Bottomland Hardwoods | Riparian Woodlands | Old Field | Young Upland Woodlands | Mature Woodlands | Oak Savanna | Shallow Marsh | Bottomland Hardwoods | Meadow | Young Upland Woodlands | Upland Shrub | Mature Woodlands |
| <i>Ambrosia artemisiifolia</i> | Annual bur-sage | Native | H | | | | | X | | | | | | | | | |
| <i>Ambrosia trifida</i> | Giant ragweed | Native | H | X | | | | | | | | | | X | | X | |
| <i>Amorpha canescens</i> | Lead-plant | Native | H | | | | | | | | X | | | | | | |
| <i>Amphicarpaea bracteata</i> | American hog-peanut | Native | H | X | | | X | | X | | X | | | X | | | |
| <i>Apocynum cannabinum</i> | Hemp-dogbane | Native | H | | | | | X | | | | | | | | | |
| <i>Aralia nudicaulis</i> | Wild sarsaparilla | Native | H | | | | | | | X | | | | | | | |
| <i>Arctium minus</i> | Common burdock | Introduced | H | | | | X | | | | | | | X | | X | |
| <i>Arisaema triphyllum</i> | Indian turnip | Native | H | | | | | | | X | | | X | | | | |
| <i>Asarum canadense</i> | Canadian wild-ginger | Native | H | | | | | | | X | | | | | | | |
| <i>Asclepias syriaca</i> | Common milkweed | Native | H | X | | | | X | | | | | | | | | |
| <i>Astragalus canadensis</i> | Canadian milk-vetch | Native | H | | | | | | | | X | | | | | | |
| <i>Berteroa incana</i> | Hoary false madwort | Introduced | H | | | | | X | | | | | | | | | |
| <i>Bidens cernua</i> | Nodding beggar-ticks | Native | H | X | X | | | | | | | X | X | | | | |
| <i>Caltha palustris</i> | Cowslip | Native | H | | X | | | | | | | | | | | | |
| <i>Calystegia sepium</i> | Hedge bindweed | Native | H | | | | | X | | | | | | | | | |
| <i>Campanula rapunculoides</i> | Creeping bellflower | Invasive | H | | | | X | | | | | | | | | X | |
| <i>Campanula rotundifolia</i> | Bluebell | Native | H | | | | | | | | | | | | | | |
| <i>Carex lacustris</i> | Common lake sedge | Native | H | X | X | | | | | | | | | | | | |
| <i>Carex sp.</i> | Sedge | Native | H | | | | | | | | X | | | | | | |
| <i>Carex vulpinoidea</i> | Brown fox sedge | Native | H | X | | | | | | | | | | | | | |
| <i>Caulophyllum thalictroides</i> | Blue cohosh | Native | H | | | | | | | X | | | | | | | |
| <i>Chelone glabra</i> | Turtlehead | Native | H | | X | | | | | | | | | | | | |
| <i>Cicuta bulbifera</i> | Bulbet water-hemlock | Native | H | | X | | | | | | | | | | | | |
| <i>Circaea canadensis</i> | Broad-leaf enchanter's-nightshade | Native | H | | | | | | X | X | | | | | | | |
| <i>Cirsium vulgare</i> | Bull thistle | Introduced | H | | | | | X | | | | | | | X | | |
| <i>Daucus carota</i> | Queen Anne's-lace | Introduced | H | | | | | | | | | | | X | | | |
| <i>Desmodium canadense</i> | Canadian tick-trefoil | Native | H | | | | | | | | X | | | | | | |
| <i>Desmodium glutinosum</i> | Cluster-leaf tick-trefoil | Native | H | | | | | | | | X | | | | | | |
| <i>Echinocystis lobata</i> | Balsam-apple | Native | H | X | | | | | | | | | | X | | X | |
| <i>Eleocharis palustris</i> | Common spike-rush | Native | H | X | | | | | | | | | | | | | |
| <i>Epilobium coloratum</i> | Cinnamon willow-herb | Native | H | X | X | | | | | | | | | | | | |
| <i>Equisetum hyemale</i> | Common scouring rush | Native | H | | | | X | | | | | | | | | | |
| <i>Erigeron annuus</i> | Annual fleabane | Native | H | | | | | X | | | | | | X | | | |
| <i>Eupatorium perfoliatum</i> | Boneset | Native | H | | X | | | | | | | | | | | | |
| <i>Eupatorium rugosum</i> | White snakeroot | Native | H | | | | X | X | X | | X | | X | X | X | X | |
| <i>Euphorbia corollata</i> | Flowering spurge | Native | H | | | | | | | | X | | | | | | |
| <i>Eutrochium maculatum</i> | Spotted Joe-Pye weed | Native | H | X | X | | | | | | X | | X | | | | |
| <i>Filipendula rubra</i> | Queen-of-the-prairie | Native | H | X | | | | | | | | | | | | | |
| <i>Galium palustre</i> | Common marsh bedstraw | Native | H | | X | | | | | | | | | | | | |
| <i>Geum canadense</i> | White avens | Native | H | | | | | X | | | X | | | | | | |
| <i>Glechoma hederacea</i> | Creeping-Charlie | Introduced | H | | | X | X | X | | | | | X | X | | | |
| <i>Helianthus giganteus</i> | Giant sunflower | Native | H | X | | | | | | | | | | | | X | |
| <i>Hemerocallis fulva</i> | Orange daylily | Introduced | H | | | | | | | | | | X | | | | |
| <i>Hesperis matronalis</i> | Dame's rocket | Invasive | H | | | | | | | | | | | | | | |
| <i>Hydrophyllum virginianum</i> | John's-cabbage | Native | H | | | | | | | X | | | | | | | |
| <i>Impatiens capensis</i> | Orange jewelweed | Native | H | X | X | X | | X | X | X | | X | X | X | | X | |
| <i>Impatiens pallida</i> | Pale touch-me-not | Native | H | | | X | | | | | | | X | | | X | |
| <i>Iris versicolor</i> | Blue flag | Native | H | | X | | | | | | | X | | | | | |
| <i>Laportea canadensis</i> | Canadian wood-nettle | Native | H | | X | X | | | X | | | | X | | | | |

| Scientific Name | Common Name | Conservation Status* | Form | Powell Falls / Lake Louise | | | | | | | | Junction Falls / Lake George | | | | | |
|---------------------------------------|-----------------------------|----------------------|------|----------------------------|---------------|----------------------|--------------------|-----------|------------------------|------------------|-------------|------------------------------|----------------------|--------|------------------------|--------------|------------------|
| | | | | Wet Meadow | Shallow Marsh | Bottomland Hardwoods | Riparian Woodlands | Old Field | Young Upland Woodlands | Mature Woodlands | Oak Savanna | Shallow Marsh | Bottomland Hardwoods | Meadow | Young Upland Woodlands | Upland Shrub | Mature Woodlands |
| <i>Leersia oryzoides</i> | Rice cut grass | Native | H | | | | | | | | | | | | | | |
| <i>Leonurus cardiaca</i> | Lion's tail | Introduced | H | | | | | | | | | | | | | X | |
| <i>Liatris aspera</i> | Lacerating blazing-star | Native | H | | | | | | | | X | | | | | | |
| <i>Lycopus americanus</i> | American water-horehound | Native | H | | | | | | | | | X | | | | | |
| <i>Lysimachia nummularia</i> | Moneywort | Invasive | H | | | X | | | X | | | X | | | | | |
| <i>Lythrum salicaria</i> | Purple loosestrife | Invasive | H | X | X | | | | | | | | | | | | |
| <i>Maianthemum canadense</i> | Canada bead-ruby | Native | H | | | | | | | | | | | | | X | |
| <i>Maianthemum racemosum</i> | False Solomon's-seal | Native | H | | | | | | | | X | | | | | X | |
| <i>Maianthemum stellatum</i> | Little false Solomon's-seal | Native | H | | | | | | | | | | | | | X | |
| <i>Melilotus alba</i> | White sweet clover | Introduced | H | X | | | | X | | | | X | | | | | |
| <i>Menispermum canadense</i> | Canadian moonseed | Native | H | | | | X | | | | X | | | | | | |
| <i>Mentha arvensis</i> | Field mint | Native | H | | X | | | | | | | | | | | | |
| <i>Monarda fistulosa</i> | Bee balm | Native | H | | | | | | | | | | | | | X | |
| <i>Monarda punctata</i> | Dotted horsemint | Native | H | | | | | | | | X | | | | | | |
| <i>Nepeta cataria</i> | Catnip | Introduced | H | | | | | X | | | | | | | | | |
| <i>Oenothera biennis</i> | Bastard evening-primrose | Native | H | | | | | X | | | | | | | X | | |
| <i>Osmorhiza claytonii</i> | Bland sweet cicely | Native | H | | | | X | | | X | | X | | | | | |
| <i>Oxypolis rigidior</i> | Common water-dropwort | Native | H | | | X | | | | | | | | | | | |
| <i>Pastinaca sativa</i> | Wild parsnip | Invasive | H | | | | | | | | | | X | | | | |
| <i>Penstemon digitalis</i> | False foxglove | Introduced | H | | | | | | | | X | | | | | | |
| <i>Penthorum sedoides</i> | Ditch stonecrop | Native | H | X | | | | | | | | | | | | | |
| <i>Persicaria hydropiper</i> | Marsh-pepper smartweed | Introduced | H | | | | | | | | | X | | | | | |
| <i>Persicaria maculosa</i> | Heart's-ease | Introduced | H | X | | | | | X | | | X | X | | | | |
| <i>Persicaria pensylvanica</i> | Pennsylvania knotweed | Native | H | X | | | | | | | | | | X | | | |
| <i>Persicaria sagittata</i> | Arrow vine | Native | H | | X | | | | | | | | | | | | |
| <i>Phryma leptostachya</i> | American lop-seed | Native | H | | | | | | | X | X | | | | | X | |
| <i>Pilea pumila</i> | Canadian clearweed | Native | H | | X | | | | | X | | X | X | | | | |
| <i>Polygonatum biflorum</i> | Giant Solomon's-seal | Native | H | | | | | | | | | | | | | | |
| <i>Polygonum lapathifolium</i> | Curly-top knotweed | Native | H | X | | | | | | | | | | | | | |
| <i>Polygonum sagittatum</i> | Arrow-leaved tearthumb | Native | H | X | | | | | | | | | | | | | |
| <i>Potentilla arguta</i> | Prairie cinquefoil | Native | H | | | | | | | | X | | | | | | |
| <i>Prunella vulgaris</i> | Heal-all | Native | H | | | | | X | | | | | | | | | |
| <i>Ratibida pinnata</i> | Globular coneflower | Native | H | | | | | | | | X | | | | | | |
| <i>Ribes cynosbati</i> | Dogberry | Native | H | | | | | | X | | | | | | | | |
| <i>Rudbeckia laciniata</i> | Cut-leaved coneflower | Native | H | | | | | | | | X | | X | | | | |
| <i>Rudbeckia triloba</i> | Brown-eyed Susan | Native | H | | | | | | | | X | | | | | | |
| <i>Rumex verticillatus</i> | Swamp dock | Native | H | | X | | | | | | | | | | | | |
| <i>Sagittaria latifolia</i> | Broad-leaf arrow-head | Native | H | | X | | | | | | | | | | | | |
| <i>Sanguinaria canadensis</i> | Bloodroot | Native | H | | | | | | | | X | | | | | | |
| <i>Sanicula marilandica</i> | Black snakeroot | Native | H | | | | | | | | X | | | | | | |
| <i>Schoenoplectus tabernaemontani</i> | Great bulrush | Native | H | X | | | | | | | | | | | | | |
| <i>Scirpus atrovirens</i> | Black bulrush | Native | H | X | | | | | | | | | | | | | |
| <i>Scirpus cyperinus</i> | Wool-grass | Native | H | | X | | | | | | | | | | | | |
| <i>Securigera varia</i> | Crown-vetch | Introduced | H | | | | | X | | | | | | | | | |
| <i>Silene latifolia</i> | Bladder campion | Introduced | H | | | | | X | | | | X | | | | | |
| <i>Silphium integrifolium</i> | Prairie rosinweed | Native | H | | | | | | | | | | X | | | | |
| <i>Silphium perfoliatum</i> | Cup-plant | Native | H | X | | | | | | | | | | | | X | |
| <i>Solanum dulcamara</i> | Bittersweet nightshade | Introduced | H | X | | | | | | | | | | | | | |
| <i>Solidago canadensis</i> | Canadian goldenrod | Native | H | | | | | X | X | | X | | | X | X | | |

APPENDIX C
Representative Cover Type Photographs

Site Photographs — Powell Falls

| | | | |
|--------------------------------------|--------|---|-------------------------|
| Project Name | | Site Location | Project No. |
| River Falls Hydroelectric Project | | River Falls, WI | 350165 (FERC No. 10489) |
| Photo No. | Date |  | |
| 1 | 9/5/19 | | |
| Description | | | |
| Representative photo of Lake Louise. | | | |

| | | | |
|--|--------|--|--|
| Photo No. | Date |  | |
| 2 | 9/5/19 | | |
| Description | | | |
| Representative photo of fresh (wet) meadow and young upland woodlands south of the Junction Falls Dam. | | | |

Site Photographs — Powell Falls

| | | | |
|---|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 3 | Date 9/5/19 |  | |
| Description Representative photo of the bottomland hardwood woodland cover type along Lake Louise. | | | |

| | | |
|---|----------------|--|
| Photo No. 4 | Date 9/5/19 |  |
| Description View of the bottomland hardwood woodland cover type along Lake Louise. | | |

Site Photographs — Powell Falls

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 5 | Date 9/5/19 |  | |
| Description Representative photo of the oak savanna cover type on the hillside south of the Powell Falls Dam. | | | |

| | | |
|--|----------------|--|
| Photo No. 6 | Date 9/5/19 |  |
| Description View of the herbaceous cover within the oak savanna cover type. | | |

Site Photographs — Powell Falls

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 7 | Date 9/5/19 |  | |
| Description Photo of the mature woods on the south side of Lake Louise. | | | |

| | | | |
|--|----------------|--|--|
| Photo No. 8 | Date 9/5/19 |  | |
| Description Photo of the mature woods on the south side of Lake Louise. | | | |

Site Photographs — Powell Falls

| | | | |
|--|--------|---|-------------------------|
| Project Name | | Site Location | Project No. |
| River Falls Hydroelectric Project | | River Falls, WI | 350165 (FERC No. 10489) |
| Photo No. | Date |  | |
| 9 | 9/5/19 | | |
| Description | | | |
| <p>Photo of the riparian woodland adjacent to the Kinnickinnic River below the Powell Falls Dam.</p> | | | |

| | | |
|--|--------|--|
| Photo No. | Date |  |
| 10 | 9/5/19 | |
| Description | | |
| <p>Photo of the riparian woodland adjacent to the Kinnickinnic River below the Powell Falls Dam.</p> | | |

Site Photographs — Powell Falls

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 11 | Date 9/5/19 |  | |
| Description Photo of the young upland woodland cover type on the north side of Lake Louise where black walnut was dominant. | | | |

| | | |
|--|----------------|--|
| Photo No. 12 | Date 9/5/19 |  |
| Description Photo of the young upland woods habitat on the north side of Lake Louise where common buckthorn was dominant. | | |

Site Photographs — Powell Falls

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 13 | Date 9/5/19 |  | |
| Description Photo of the old field cover type located below the utility corridor. Facing southwest | | | |

| | | | |
|---|----------------|--|--|
| Photo No. 14 | Date 9/5/19 |  | |
| Description Photo of the old field cover type below the utility corridor. Facing northeast. | | | |

Site Photographs — Powell Falls

| | | | |
|---|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 15 | Date 9/5/19 |  | |
| Description Representative photo of the vegetative cover within the shallow marsh cover type located on the north side of Lake Louise. | | | |

| | | |
|---|----------------|--|
| Photo No. 16 | Date 9/5/19 |  |
| Description Representative photo of the vegetative cover within the shallow marsh cover type located on the north side of Lake Louise. | | |

Site Photographs — Powell Falls

| | | | |
|---|--------|---|-------------------------|
| Project Name | | Site Location | Project No. |
| River Falls Hydroelectric Project | | River Falls, WI | 350165 (FERC No. 10489) |
| Photo No. | Date |  | |
| 17 | 9/5/19 | | |
| Description | | | |
| <p>Representative photo of the vegetative cover within the shallow marsh cover type located on the north side of Lake Louise.</p> | | | |

| | | | |
|--|--------|--|--|
| Photo No. | Date |  | |
| 18 | 9/5/19 | | |
| Description | | | |
| <p>Photo of the shallow marsh cover type located on the north side of Lake Louise.</p> <p>A couple sprigs of purple loosestrife are present.</p> | | | |

Site Photographs — Powell Falls

| | | | |
|---|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 19 | Date 9/5/19 |  | |
| Description Representative photo of the vegetative cover within the shallow marsh cover type located on the north side of Lake Louise. | | | |

| | | |
|--|----------------|--|
| Photo No. 20 | Date 9/5/19 |  |
| Description Representative photo of the vegetative cover within the fresh (wet) meadow cover type located on the north side of Lake Louise. | | |

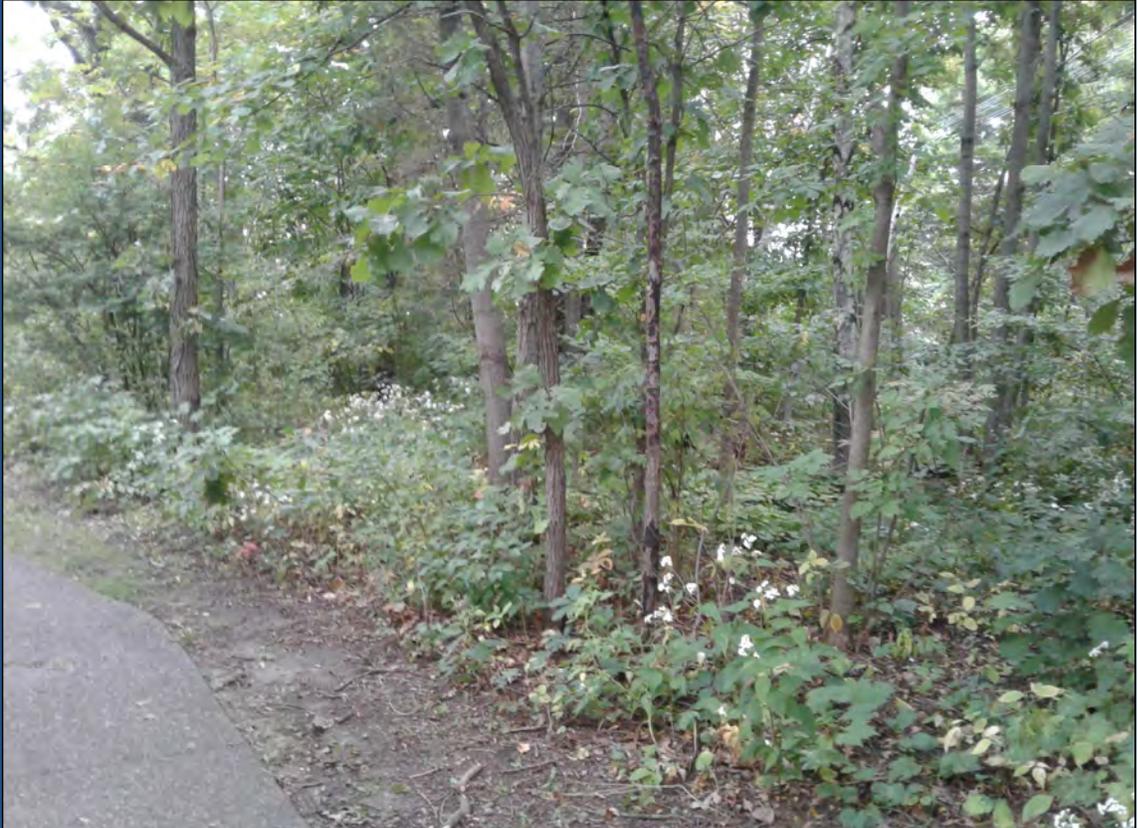
Site Photographs — Powell Falls

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 21 | Date 9/5/19 |  | |
| Description Representative photo of the vegetative cover within the fresh (wet) meadow cover type located on the north side of Lake Louise. | | | |

| | | | |
|--|----------------|--|--|
| Photo No. 22 | Date 9/5/19 |  | |
| Description Representative photo of the vegetative cover within the fresh (wet) meadow cover type located on the north side of Lake Louise. | | | |

Site Photographs—Lake George

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 1 | Date 9/6/19 |  | |
| Description Photo of the pathway through the mature woods on the North side of Lake George. | | | |

| | | |
|--|----------------|--|
| Photo No. 2 | Date 9/6/19 |  |
| Description Photo of the mature woods on the North side of Lake George. | | |

Site Photographs—Lake George

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 3 | Date 9/6/19 |  | |
| Description Representative photo of the bottomland hardwood habitat on the northeast side of Lake George. | | | |

| | | |
|--|----------------|--|
| Photo No. 4 | Date 9/6/19 |  |
| Description Photo of the bottomland hardwood woodland habitat on the northwest side of Lake George. | | |

Site Photographs—Lake George

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 5 | Date 9/6/19 |  | |
| Description Photo of the bottomland hardwood woodland cover type in the northwest portion of the Junction Falls Project Boundary. | | | |

| | | |
|---|----------------|--|
| Photo No. 6 | Date 9/6/19 |  |
| Description Representative view of the bottomland hardwood woodland cover type on the northeast side of Lake George. | | |

Site Photographs—Lake George

| | | | |
|---|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 7 | Date 9/6/19 |  | |
| Description Representative photo of the riparian and mature woods surrounding Lake George. | | | |

| | | |
|---|----------------|--|
| Photo No. 8 | Date 9/6/19 |  |
| Description Representative photo of the riparian and mature woods surrounding Lake George. | | |

Site Photographs—Lake George

| | | | |
|---|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 9 | Date 9/6/19 |  | |
| Description Representative photo of the meadow cover type in the northwest portion of the Junction Falls Project Boundary. | | | |

| | | | |
|--|----------------|--|--|
| Photo No. 10 | Date 9/6/19 |  | |
| Description Photo of the shallow marsh cover type on the north side of Lake George. | | | |

Site Photographs—Lake George

| | | | |
|--|----------------|---|--|
| Project Name River Falls Hydroelectric Project | | Site Location River Falls, WI | Project No. 350165 (FERC No. 10489) |
| Photo No. 11 | Date 9/6/19 |  | |
| Description Photo of the young upland hardwoods on the southwest side of Lake George. | | | |

| | | |
|---|----------------|--|
| Photo No. 12 | Date 9/6/19 |  |
| Description Photo of the young bottomland hardwood/fresh wet meadow located immediately below the Junction Falls dam. Right side of photo. | | |

Site Photographs—Lake George

| | | | |
|--|--------|---|-------------------------|
| Project Name | | Site Location | Project No. |
| River Falls Hydroelectric Project | | River Falls, WI | 350165 (FERC No. 10489) |
| Photo No. | Date |  | |
| 13 | 9/6/19 | | |
| <p>Description</p> <p>Photo of the upland shrub cover type on the hillside located on the southwest side.</p> <p>Left side of the photo.</p> | | | |

APPENDIX D
Wisconsin NR 40 List of Invasive Botanical Species

WISCONSIN CH. NR 40

INVASIVE SPECIES LIST – PLANTS ONLY

EFFECTIVE LISTING DATES: September 1, 2009^A; June 1, 2011^B; and May 1, 2015^C

PROHIBITED CATEGORY:

1. *Achyranthes japonica* (Japanese chaff flower)^C
2. *Akebia quinata* (Fiveleaf akebia or Chocolate vine)^C
3. *Ampelopsis brevipedunculata* (Porcelain berry)^A including the variegated cultivar
4. *Arundo donax* (Giant reed)^C
5. *Azolla pinnata* (Mosquito fern)^C
6. *Berberis vulgaris* (Common barberry)^C
7. *Cabomba caroliniana* (Fanwort, Carolina fanwort)^A
8. *Cardamine impatiens* (Narrow leaf bittercress)^C
9. *Celastrus loeseneri* (Asian loeseneri bittersweet)^C
10. *Centaurea diffusa* (Diffuse knapweed)^C
11. *Centaurea repens* (Russian knapweed)^C
12. *Centaurea solstitialis* (Yellow star thistle)^A
13. *Crassula helmsii* (Australian swamp crop or New Zealand pygmyweed)^A
14. *Cytisus scoparius* (Scotch broom)^A
15. *Digitalis lanata* (Grecian foxglove)^C
16. *Dioscorea batatas* or *Dioscorea polystachya* (Chinese yam)^C
17. *Dioscorea oppositifolia* (Indian yam)^A
18. *Egeria densa* (Brazilian waterweed or wide-leaf anacharis)^A
19. *Eichhornia azurea* (Anchored water hyacinth)^C
20. *Eichhornia crassipes* (Water hyacinth, floating)^C
21. *Fallopia sachalinensis* or *Polygonum sachalinense* (Giant knotweed)^A
22. *Fallopia x bohemicum* or *F. x bohémica* or *Polygonum x bohémicum* (Bohemian knotweed)^C
23. *Glossostigma cleistanthum* (Mudmat)^C
24. *Heracleum mantegazzianum* (Giant hogweed)^A
25. *Hydrilla verticillata* (Hydrilla)^A
26. *Hydrocharis morsus-ranae* (European frogbit)^A
27. *Hydrocotyle ranunculoides* (Floating marsh pennywort)^C
28. *Hygrophila polysperma* (Indian Swampweed)^C
29. *Impatiens glandulifera* (Policeman's helmet)^C
30. *Ipomoea aquatica* (Water spinach, swamp morning-glory)^C
31. *Lagarosiphon major* (Oxygen-weed, African elodea or African waterweed)^A
32. *Lepidium latifolium* (Perennial or broadleaved pepperweed)^A
33. *Lespedeza cuneata* or *Lespedeza sericea* (Sericea or Chinese lespedeza)^A
34. *Limnophila sessiliflora* (Asian marshweed)^C
35. *Lonicera japonica* (Japanese honeysuckle)^A
36. *Lythrum virgatum* (Wanded loosestrife)^C
37. *Microstegium vimineum* (Japanese stilt grass)^A
38. *Myriophyllum aquaticum* (Parrot feather)^A
39. *Najas minor* (Brittle naiad, or lesser, bushy, slender, spiny or minor naiad or waternymph)^A
40. *Nelumbo nucifera* (Sacred Lotus)^C
41. *Nymphoides peltata* (Yellow floating heart)^A
42. *Oenanthe javanica* (Java waterdropwort or Vietnamese parsley)^C
43. *Oplismenus hirtellus* ssp. *undulatifolius* (Wavy leaf basket grass)^C
44. *Ottelia alismoides* (Ducklettuce)^C
45. *Paulownia tomentosa* (Princess tree)^A
46. *Petasites hybridus* (Butterfly dock)^C
47. *Phellodendron amurense* (Amur Cork Tree)^C except male cultivars and seedling rootstock
48. *Pistia stratiotes* (Water lettuce)^C
49. *Polygonum perfoliatum* or *Persicaria perfoliata* (Mile-a-minute vine)^A
50. *Pueraria montana* or *P. lobata* (Kudzu)^A
51. *Quercus acutissima* (Sawtooth oak)^A
52. *Ranunculus ficaria* (Lesser celandine)^C
53. *Rubus armeniacus* (Himalayan blackberry)^C
54. *Rubus phoenicolasius* (Wineberry or wine raspberry)^A
55. *Sagittaria sagittifolia* (Hawaii arrowhead)^C
56. *Salvinia herzogii* (Giant Salvinia)^C
57. *Salvinia molesta* (Giant salvinia)^C
58. *Sorghum halepense* (Johnsongrass)^C
59. *Stratiotes aloides* (Water Soldiers)^C
60. *Taeniatherum caput-medusae* (Medusahead)^C
61. *Torilis arvensis* (Spreading hedgeparsley)^A
62. *Trapa natans* (Water chestnut)^A
63. *Tussilago farfara* (Colt's foot)^C
64. *Typha domingensis* (Southern cattail)^C
65. *Typha laxmannii* (Graceful cattail)^C
66. *Vincetoxicum rossicum* or *Cynanchum rossicum* (Pale or European swallow-wort)^A
67. *Wisteria floribunda* (Japanese wisteria)^C
68. *Wisteria sinensis* (Chinese wisteria)^C

PROHIBITED/RESTRICTED CATEGORY (restricted in the counties listed; prohibited elsewhere):

1. *Anthriscus sylvestris* (Wild chervil)^A - Adams, Barron, Chippewa, Crawford, Columbia, Dane, Dodge, Dunn, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Lacrosse, Lafayette, Marquette, Milwaukee, Monroe, Ozaukee, Polk, Racine, Richland, Rock, Sauk, Sheboygan, Taylor, Vernon, Walworth, Waukesha, and Washington counties
2. *Bunias orientalis* (Hill mustard)^A - Dane, Grant, Green, Iowa, Lafayette, and Rock counties
3. *Cirsium palustre* (European marsh thistle)^A - Ashland, Bayfield, Chippewa, Clark, Door, Florence, Forest, Iron, Langlade, Lincoln, Marathon, Marinette, Menominee, Oconto, Oneida, Price, Rusk, Sawyer, Shawano, Taylor and Vilas counties
4. *Conium maculatum* (Poison hemlock)^A - Buffalo, Crawford, Dane, Grant, Green, Iowa, Jefferson, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Trempealeau, Vernon, Walworth, and Waukesha counties; prohibited elsewhere
5. *Epilobium hirsutum* (Hairy willow herb)^A - Brown, Calumet, Door, Kenosha, Kewaunee, and Manitowoc counties
6. *Glyceria maxima* (Tall or reed mannagrass)^A - Brown, Calumet, Columbia, Dane, Dodge, Door, Fond du Lac, Green, Jefferson, Kenosha, Kewaunee, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha and Winnebago counties
7. *Humulus japonicus* (Japanese hops)^A - Buffalo, Crawford, Dane, Grant, Green, Iowa, Jackson, La Crosse, Lafayette, Monroe, Pepin, Richland, Sauk, Trempealeau, and Vernon counties; prohibited elsewhere
8. *Leymus arenarius* or *Elymus arenarius* (Lyme grass or sand ryegrass)^A - Door, Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, and Sheboygan counties

9. *Linaria dalmatica* (Dalmatian toadflax)^C - Juneau and Bayfield counties
10. *Lonicera maackii* (Amur honeysuckle)^A - Adams, Brown, Buffalo, Calumet, Columbia, Crawford, Dane, Dodge, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Manitowoc, Marquette, Milwaukee, Monroe, Outagamie, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara and Winnebago counties
11. *Phragmites australis* non-native ecotype (Phragmites or Common reed non-native ecotype)^A - Brown, Calumet, Columbia, Dane, Dodge, Door, Florence, Fond du Lac, Forest, Green Lake, Jefferson, Kenosha, Kewaunee, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Oconto, Outagamie, Ozaukee, Portage, Racine, Rock, Shawano, Sheboygan, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties
12. *Solidago sempervirens* (Seaside goldenrod)^C - Kenosha, Milwaukee and Racine counties
13. *Torilis japonica* (Japanese hedgeparsley or erect hedgeparsley)^A - Adams, Brown, Calumet, Columbia, Crawford, Dane, Dodge, Door, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Monroe, Oconto, Outagamie, Ozaukee, Portage, Racine, Richland, Rock, Sauk, Shawano, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties
14. *Vincetoxicum nigrum* or *Cynanchum louiseae* (Black or Louise's swallow-wort)^A - Columbia, Crawford, Dane, Grant, Green, Iowa, Jefferson, Juneau, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Racine, Richland, Rock, Sauk, Vernon, Walworth and Waukesha counties

RESTRICTED CATEGORY:

1. *Acer tataricum* subsp. *ginnala* (Amur maple)^C *except all cultivars
2. *Aegopodium podagraria* (Bishop's goutweed)^C
3. *Ailanthus altissima* (Tree of heaven)^A
4. *Alliaria petiolata* (Garlic mustard)^A
5. *Alnus glutinosa* (Black alder)^C *except all cultivars and hybrids
6. *Artemisia absinthium* (Wormwood)^C
7. *Berberis thunbergii* (Japanese barberry)^C *This restriction only applies to the parent type, the variety *atropurpurea*, the hybrid of *B. thunbergii* x *B. Koreana*, and the following cultivars. *Berberis thunbergii* cultivars: Sparkle, 'Anderson' Lustre Green™, Erecta, 'Bailgreen' Jade Carousel®, Angel Wings, Painter's Palette, Inermis ('Thornless'), Pow Wow, Golden Ring, Kelleris, Kobold, 'JN Variegated' Stardust™ and Antares. Variety *atropurpurea* cultivars: Marshall Upright ('Erecta'), Crimson Velvet, 'Bailtwo' Burgundy Carousel®, Red Rocket, 'Monomb' Cherry Bomb™, 'Bailone' Ruby Carousel®, JN Redleaf, Rose Glow and Silver Mile. Hybrid of *B. thunbergii* x *B. Koreana* cultivars: Tara and 'Bailseil' Golden Carousel®
8. *Butomus umbellatus* (Flowering rush)^A
9. *Campanula rapunculoides* (Creeping bellflower)^A
10. *Caragana arborescens* (Siberian peashrub)^C *except the cultivars Lorbergii, Pendula, and Walkerii
11. *Carduus acanthoides* (Plumeless thistle)^A
12. *Carduus nutans* (Musk thistle or Nodding thistle)^A
13. *Celastrus orbiculatus* (Oriental bittersweet)^A
14. *Centaurea biebersteinii*, *Centaurea maculosa* or *Centaurea stoebe* (Spotted knapweed)^A
15. *Centaurea jacea* (Brown knapweed)^C
16. *Centaurea nigra* (Black knapweed)^C
17. *Centaurea nigrescens* (Tyrol knapweed)^C
18. *Chelidonium majus* (Celandine)^A
19. *Cirsium arvense* (Canada thistle)^A
20. *Coronilla varia* (Crown vetch)^C
21. *Cynoglossum officinale* (Hound's tongue)^A
22. *Dipsacus laciniatus* (Cut-leaved teasel)^A
23. *Dipsacus sylvestris* or *Dipsacus fullonum* (Common teasel)^A
24. *Elaeagnus angustifolia* (Russian olive)^A
25. *Elaeagnus umbellata* (Autumn olive)^A
26. *Epipactis helleborine* (Helleborine orchid)^A
27. *Euonymus alatus* (Burning bush)^C *including the cultivar 'Nordine' and excluding all other cultivars
28. *Euphorbia cyparissias* (Cypress spurge)^A
29. *Euphorbia esula* (Leafy spurge)^A
30. *Fallopia japonica* or *Polygonum cuspidatum* (Japanese knotweed)^A
31. *Filipendula ulmaria* (Queen of the meadow)^C
32. *Galeopsis tetrahit* (Hemp nettle, brittlestem hemp nettle)^A
33. *Galium mollugo* (White bedstraw)^C
34. *Hesperis matronalis* (Dame's rocket)^A
35. *Impatiens balfourii* (Balfour's touch-me-not)^C
36. *Iris pseudacorus* (Yellow iris)^C
37. *Knautia arvensis* (Field scabiosa)^C
38. *Lonicera morrowii* (Morrow's honeysuckle)^A
39. *Lonicera tatarica* (Tartarian honeysuckle)^A
40. *Lonicera x bella* (Bell's or showy bush honeysuckle)^A
41. *Lysimachia nummularia* or *L. nummelaria* (Moneywort)^C *except the cultivar Aurea and yellow and gold leaf forms
42. *Lysimachia vulgaris* (Garden yellow loosestrife)^C
43. *Lythrum salicaria* (Purple loosestrife)^A
44. *Morus alba* (White mulberry)^C *except male cultivars
45. *Myosotis scorpioides* (Aquatic forget-me-not)^C
46. *Myosotis sylvatica* or *M. sylvaticum* (Woodland forget-me-not)^C
47. *Mysiophyllum spicatum* (Eurasian watermilfoil)^A
48. *Najas marina* (Spiny naiad)^C
49. *Pastinaca sativa* (Wild parsnip)^A *except for the garden vegetable form
50. *Phalaris arundinacea* var. *picta* (ribbon grass or gardener's garters and other ornamental variegated varieties and cultivars)^C *this restriction does not include the parent type - reed canary grass.
51. *Pimpinella saxifraga* (Scarlet pimpernel or Burnet saxifrage)^C
52. *Populus alba* (White poplar)^C
53. *Potamogeton crispus* (Curly-leaf pondweed)^A
54. *Rhamnus cathartica* (Common buckthorn)^A
55. *Rhamnus frangula* or *Frangula alnus* (Glossy buckthorn)^A *including the Columnaris (tall hedge) cultivar but excluding the cultivars Asplenifolia and Fineline (Ron Williams)
56. *Robinia hispida* (Rose acacia or Bristly locust)^C
57. *Robinia pseudoacacia* (Black locust)^C *except all cultivars
58. *Rosa multiflora* (Multiflora rose)^A
59. *Tanacetum vulgare* (Tansy)^A *except the cultivars Aureum and Crispum
60. *Typha angustifolia* (Narrow-leaf cattail)^A
61. *Typha x glauca* (Hybrid cattail)^A
62. *Ulmus pumila* (Siberian elm)^C *except hybrids and individuals used as rootstock
63. *Valeriana officinalis* (Garden heliotrope or Valerian)^C

Phase-out: Restricted only plants located in Wisconsin prior to their effective listing date may be transported, transferred, and introduced without a permit for a period not to exceed 3 years for herbaceous plants and woody vines, or 5 years for trees and shrubs, from their effective listing date (effective May 1, 2015).