

**Appendix F – Recreation Study**

**Gile Flowage Storage Project  
FERC No. 15055**

**Study Plan**

**Recreation Study**

**Prepared for**



**Prepared by**



meadhunt.com

**April 2021**



## 1. Introduction

Northern States Power Company – Wisconsin (NSPW or Applicant), d/b/a Xcel Energy, is in the process of applying for an original license from the Federal Energy Regulatory Commission (FERC or Commission) to operate and maintain the existing Gile Flowage Storage Project (Gile Flowage or Project). The Project is owned, operated, and maintained by NSPW. To obtain a License, NSPW must submit a Final License Application (FLA) to FERC no later than August 18, 2023. The FLA, in part, must include an evaluation of the existing recreational facilities associated with the Project along with any potential recreation enhancements.

On January 19, 2021, FERC issued Scoping Document 1 and requested that stakeholders provide comments on the Pre-Licensing Application (PAD) and study requests within 60 days. During the 60-day comment period, the Licensee received comments and study requests from several entities. The Friends of the Gile Flowage (FOG), the National Park Service (NPS), the River Alliance of Wisconsin (RAW), and Wisconsin Department of Natural Resources (WDNR) requested the Applicant to complete a recreation study as part of relicensing.

The FERC requested that the Applicant complete a recreation study to gather existing information on recreation facilities, recreation use, and potential project effects to determine existing and future recreation use and capacity at the Project.

The FOG requested that the Applicant complete a recreation study to evaluate motorized and non-motorized recreational issues, needs, opportunities, aesthetics, and accessibility. They also requested that recreation use on the islands and water level fluctuation impacts on recreation be evaluated.

The NPS requested that the Applicant complete a comprehensive recreation study that involves a detailed condition assessment and inventory of recreation facilities and dispersed recreation use in the Project area to evaluate whether recreation needs are being met within the proposed Project boundaries.

The RAW requested that the Applicant complete a recreation study to evaluate the existing condition of recreational facilities, document needed upgrades, and update or create a new recreational brochure to serve as a guide for the public.

The WDNR requested that the Applicant complete a recreation study to evaluate the current recreational uses, including opportunities for low flow and high flow events, public access, aesthetics, trails, water sports, and fishing with consideration for the different seasonal uses.

## 2. Study Plan Elements

### 2.1 Study Goals and Objectives

The objective of this study is to obtain a subjective assessment of recreation facility conditions or enhancements needed but currently absent; determine capacity of existing facilities to address current and future user demand; and produce sufficient information to evaluate such impacts as well as provide the basis for making recreation enhancement recommendations. The evaluation of whitewater boating flows is a separate effort independent of this study plan.

### 2.2 Resource Management Goals

Recognize the full potential for meeting present and future public outdoor recreation demands, while maintaining and enhancing a quality environmental setting and provide direction to give equal consideration to other non-power resources such as recreation.

### 2.3 Public Interest

FERC, FOG, NPS, RAW, and WDNR expressed interest in this study.

### 2.4 Background and Existing Information

Recreation in the vicinity of the Project is dominated by activity near the project facilities. There are several recreational use areas, both under and outside the control of the Licensee, that will be evaluated for recreational use and improvements.

### 2.5 Project Nexus

A nexus exists between the Project that has an effect upon recreation opportunities and the proposed study. This study will help to describe existing conditions and enhancement opportunities.

### 2.6 Study Area

The study area is depicted in Appendix 1. The recreation inventory, facility condition assessment, recreation use survey, and spot counts will incorporate the recreation sites listed below in Table 2.6-1.

**Table 2.6-1. Recreation Sites to be Inventoried and Surveyed for Existing Use**

Gile Park
Gile Dam Canoe Portage
Sucker Hole Landing
Town of Pence Landing
County C Landing

## 2.7 Methodology

### 2.7.1 Recreation Inventory

Each of the recreation sites listed in Table 2.6-1 will be inventoried during one of the recreational use surveys using the forms attached as Appendix 2 to collect information on recreation amenities and capacity. The following types of information will be recorded:

- 1) The entity responsible for operation and maintenance.
- 2) Identification of whether the facility is a proposed project or non-project recreation facility.
- 3) The seasons/hours of operation.
- 4) The primary type(s) of recreation provided at the site.
- 5) Existing sanitation facilities (if any).
- 6) Type of vehicle access and parking capacity (if any).
- 7) The presence and type (if any) of barrier-free facilities.
- 8) The GPS location of the facility.
- 9) The type and number of amenities at each site and their location in respect to the proposed Project boundary.
- 10) Photographs of the recreation site, each amenity, each sign, the entryways to primary recreation sites from the main road(s), and any adverse impacts from the site on the resources, including shoreline erosion.
- 11) The minimum water elevation adequate recreation use is observed for existing recreation features including boat landings, docks, piers, etc.

### 2.7.2 Facility Condition Assessment

During at least one recreation site visit to each of the recreation sites listed in Table 2.6-1, the condition of each component (including recreational wayfinding signs and interpretive signs) of the recreation site and its immediate vicinity will be assessed. A rating for the site will be made according to the following scale:

- 1) Not Usable and Needs Replacement
- 2) Needs Repair
- 3) Needs Maintenance or Cleaning
- 4) Good Working Condition (does not need any attention)
- 5) Facility Lacking; need to install facility or otherwise add enhancement (identify item).

If a rating is awarded where additional attention is required, the specific item that needs additional attention will be noted on the form.

### 2.7.3 Recreation Use Survey

Recreation use surveys will be conducted during visits to each of the recreation sites listed in Table 2.6-1. The surveys will last at least two hours per site between the hours of 7:00 a.m. and 7:00 p.m. They will be completed on a rotating basis to ensure that they are not always being surveyed at the same time of the day to account for time-of-day use patterns. The recreation use

survey attached in Appendix 3 will be administered to users of the site to gather their opinion about the existing recreation facilities and opportunities. The survey will record the number of people in a party, their primary reason for visiting the site, their perception of level of use, and their opinions with regard to the amount and types of recreation opportunities offered within the proposed Project boundary. The recreation use surveys will be conducted according to the following schedule in Table 2.7.3-1.

**Table 2.7.3-1. Recreation Use Survey Schedule**

<b>Survey Month/Season</b>	<b>Recurrence Interval</b>
May	Two randomly selected weekend days. Two randomly selected non-holiday weekend days. One day during Memorial Day weekend.
June	Two randomly selected weekdays. Two randomly selected weekend days.
July	Two randomly selected weekdays. Two randomly selected non-holiday weekend days. One day during July 4 <sup>th</sup> weekend.
August	Two randomly selected weekdays. Two randomly selected weekend days.
September	Two randomly selected weekdays. Two randomly selected non-holiday weekend days. One day during Labor Day weekend.
October	Two randomly selected weekdays. Two randomly selected weekend days.
January	Two randomly selected weekdays. Two randomly selected weekend days.

#### **2.7.4 Recreation Spot Counts**

When first arriving at each recreation site where recreation use surveys will be collected, a spot count will be conducted using the form enclosed in Appendix 4. This information will be statistically analyzed to develop recreational use figures for the Project. This information will be summarized by season and activity for each type of use in the study report.

#### **2.7.5 Evaluation of Existing Recreation on Undeveloped Islands**

There are 43 undeveloped islands within the proposed Project boundary. Recreation activities occurring on privately owned islands will not be evaluated as part of this study. Each Applicant and publicly owned island will be evaluated for existing recreational use during one holiday weekend (Memorial Day, July 4<sup>th</sup>, or Labor Day) when use would be expected to be the highest. During the assessment, the surveyors will examine each island for evidence of recreational use including the beaching or docking of boats, shore fishing, picnicking, and camping. The location of any erosion caused by recreation access and any recreational user-developed facilities present (i.e., fire pits, campsites, signs) will be noted. The type of recreation access, existing user-developed facilities, and recreation-caused erosion sites will be summarized in the recreation report.

## 2.8 Consistency with Generally Accepted Scientific Practice

The overall approach to the recreational survey is similar to that commonly used in relicensing proceedings and is consistent with generally accepted methods for recreation studies.

## 2.9 Project Schedule and Deliverables

Results of this study will be summarized in a Recreation Study Report. The report will include a facility inventory including the following items:

- The location of facilities in relation to the proposed Project boundary, including facilities or amenities that may straddle the proposed boundary,
- The number and types of amenities provided at each facility,
- The condition of the facility/amenities,
- Identification of any erosion at each recreation site,
- Identification of all proposed project and non-project recreation facilities,
- Entities responsible for operation and maintenance of the facilities,
- Hours/seasons of operation,
- Photographs,
- Use figures for each recreation site, overall recreational use figures, and projected use figures,
- Compilation of responses to the recreation use survey,
- Discussion of whether proposed project operation would lower the reservoir level below the minimum water elevation at which existing public boat ramps, piers, docks or landing points within the project reservoir and its islands would be accessible and operable, and if so, how often and how long these features or sites would be inaccessible or inoperable,
- A discussion on whether proposed project operation would lower the reservoir level below the minimum water elevation at which in-water recreation such as boating, swimming, and recreation would be affected, and if so, how often and for how long these activities would be affected,
- All field sheets, completed forms, completed surveys, and photographs collected during the study.

NSPW anticipates that field work will begin in October 2021 to ensure that all recreation surveys and the recreation study report can be completed prior to the September 28, 2022 filing deadline for the Initial Study Report.

## 2.10 Level of Effort and/or Cost

NSPW estimates that this study will cost approximately \$60,000 to complete.

## 2.11 Discussion of Alternative Approaches

NSPW has generally incorporated FERC, FOG, NPS, RAW, and WDNR comments on their request for recreation surveys. The overall approach has been used in other relicensing proceedings and is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC's study requirements under the ILP. No alternative approaches to this study are warranted.

### 3. References

Federal Energy Regulatory Commission. 2021. Comments on Preliminary Study Plans, Request for Studies, and Additional Information. March 17, 2021.

Friends of the Gile Flowage. 2021. Comments on Notice of Intent, Scoping Document 1, Preliminary Application Document, and Studies Request for the Gile Flowage Storage Reservoir Project, P-15055-000. March 16, 2021.

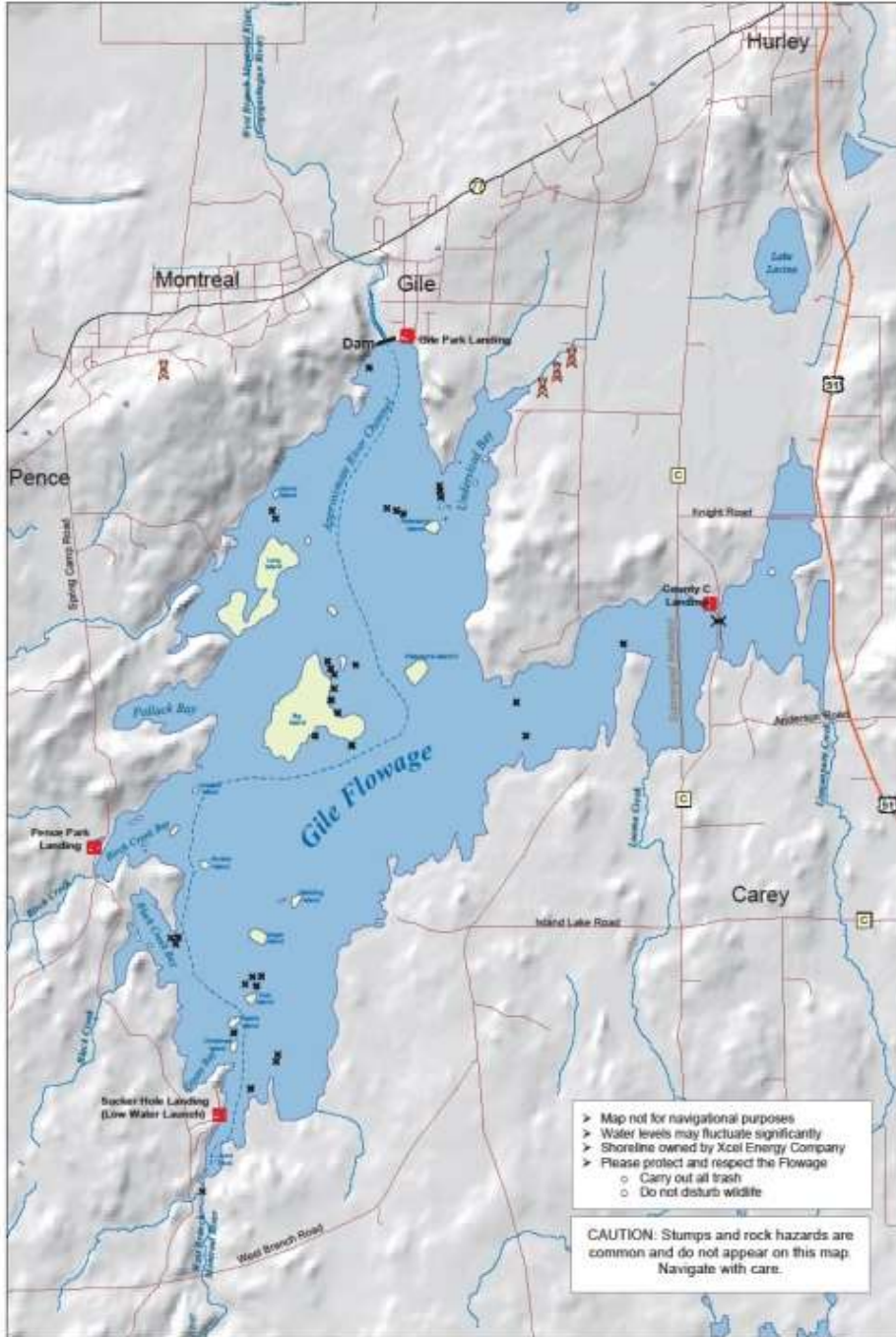
National Park Service. 2021. Comments on the Pre-application Document and Study Request for the Gile Flowage (P-15055) Hydroelectric Project. March 16, 2021.

Northern States Power Company – Wisconsin, dba Xcel Energy. 2020. Pre-Application Document-Gile Flowage Storage Reservoir Project. Prepared by Mead & Hunt, October 27, 2020.

River Alliance of Wisconsin. 2021. Notice of Intent to File License Application, Filing of Pre-Application Document (PAD), Commencement of Pre-Filing Scoping, Request for Comments on the PAD and Scoping Document and Identification of Issues on the PAD and Scoping Document and identification of Issues Associated with Study Requests. March 17, 2021.

Wisconsin Department of Natural Resources. 2021. Comments on Notice of Intent, Scoping Document 1, Preliminary Application Document, and Studies Request for the Gile Flowage Storage Reservoir Project (P-15055-000) Licensing. March 5, 2021.

## **Appendix 1 – Recreation Study Area**



- Boat Landing
- Rock Bar
- ⌘ Towers
- ✕ Culverts
- ~ Streams
- - - River Channel

## Gile Flowage

Iron County Wisconsin

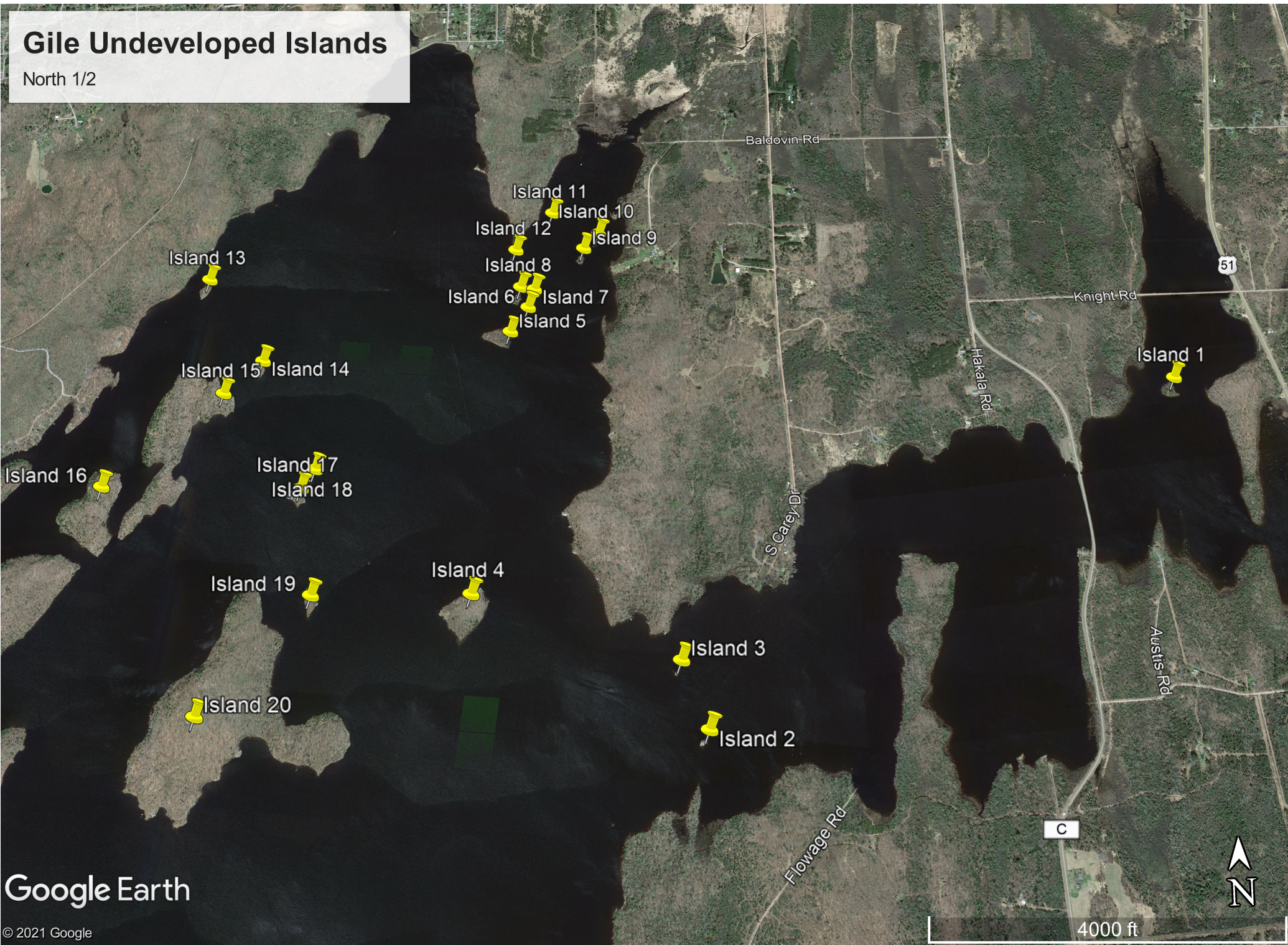
*Be A Friend...  
Help Stop the Spread of  
Invasive Species*





# Gile Undeveloped Islands

North 1/2



Google Earth

© 2021 Google

4000 ft





# Gile Undeveloped Islands

South 1/2

- Island 21
- Island 22
- Island 23
- Island 24
- Island 25
- Island 26
- Island 27
- Island 28
- Island 29
- Island 30
- Island 31
- Island 32
- Island 33
- Island 34
- Island 35
- Island 36
- Island 37
- Island 38
- Island 39
- Island 40
- Island 41
- Island 42
- Island 43

Forage Rd  
Maplewood Rd  
Island Lake Rd  
W Branch Rd

Spring Camp Rd

Google Earth

© 2021 Google



4000 ft



**Appendix 2 – Recreation Facility Inventory Forms**

**Recreation Inventory and Condition Assessment**

Location: \_\_\_\_\_ Date: \_\_\_\_\_

Gile Flowage Storage Project P-15055-000

Owned By: \_\_\_\_\_

Operated / Managed By: \_\_\_\_\_

Hours / Seasons of Operation: \_\_\_\_\_

Survey Person: \_\_\_\_\_

GPS Location: \_\_\_\_\_

Amenity Photo Numbers: \_\_\_\_\_

Shoreline Photo Numbers: \_\_\_\_\_

Entryway Photo Number: \_\_\_\_\_

Type of Amenity:	Quantity of Amenities:	Condition of Amenity:				Notes:	Barrier Free? (Y or N)
		-Not Usable (N)					
		-Needs Repair (R)					
		-Needs Maintenance (M)					
		-Good Working Condition (G)					
Boat Launch	Lanes:      Launches:	N	R	M	G		
Skid Pier		N	R	M	G		
Fishing Pier		N	R	M	G		
Picnic Tables		N	R	M	G		
Restroom		N	R	M	G		
Trash Receptacles		N	R	M	G		
Trail		N	R	M	G		
Other		N	R	M	G		

Minimum Reservoir Elevation Needed to Operate Amenities \_\_\_\_\_ Feet NGVD

Parking	Total Spaces:	Number of Spaces (each type):			Notes:	Condition:		
		Standard:						N
		Barrier-Free:						R
		Trailer:						M
		Other:						G

Signage:	Number:	Condition:	Comments: Provide Details on which signs need attention.
FERC Project Sign		N R M G	
Regulations Signs		N R M G	
Directional		N R M G	
Interpretive		N R M G	

**Additional Comments:**  
Describe any signs of overuse, erosion, or anything observed that is not already documented above.

## **Appendix 3 – Recreation Use Survey**

**ON-SITE/IN-PERSON RECREATION INTERVIEW**

Northern States Power Company – Wisconsin (NSPW, Applicant), d/b/a Xcel Energy, is in the process of applying for an original license from the Federal Energy Regulatory Commission (FERC) to operate and maintain the existing Gile Flowage Storage Project (Gile Flowage or Project). The Project is owned, operated, and maintained by NSPW to provide water for downstream power generation at its Saxon Falls Hydroelectric Project (FERC No. 2610) and Superior Falls Hydroelectric Project (FERC No. 2587), both of which are currently licensed with FERC. To obtain a License for the Gile Flowage, NSPW must submit a final license application to FERC no later than August 18, 2023. As part of the relicensing process, NSPW is conducting studies on environmental resources to enable FERC to prepare an environmental document. The purpose of this survey is to collect information about use and visitor experience at public recreation facilities around the Gile Flowage.

Interview Location
<input type="checkbox"/> Gile Park
<input type="checkbox"/> Town of Pence Landing
<input type="checkbox"/> Sucker Hole Landing
<input type="checkbox"/> Highway C Landing

Total Number in Group:	
Home Zip Code:	
Interviewer:	
Date:	
Time:	

**RECREATION INTERVIEW QUESTIONS**

**1. Regarding the Gile Flowage area, do you consider yourself: (Please select only one)**

- Regular visitor (3 or more times per year)
- Occasional visitor (1-2 times per year)
- Infrequent visitor (Less than 1 time per year)
- This is my first visit

**2. When did you arrive on this trip to the Gile Flowage area?**

Arrive Date: \_\_\_\_\_

Arrive Time: \_\_\_\_\_ am/pm

**3. When do you expect to leave the Gile Flowage area?**

Departure Date: \_\_\_\_\_

Departure Time: \_\_\_\_\_ am/pm

**4. About how many miles did you travel to get to the Gile Flowage area?**

\_\_\_\_\_ miles

**5. During the last 12 months (including this trip), which month(s) did you visit the Gile Flowage area? (Check all that apply)**

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

6. Which of the following recreation areas did you visit for recreation during the past 12 months?  
(Check all that apply)

- Gile Park
- Town of Pence Landing
- Sucker Hole Landing
- Highway C Landing
- None of the above
- Other (please list below) \_\_\_\_\_

7. Are you staying overnight in the Gile Flowage area (not including at your own home) on this trip?

- Yes
- No

8. If you answered yes to 7, at what type of accommodations will you be staying?  
(Please select only one)

- RV/Auto/Tent Campground
- Motel/Hotel
- Bed and Breakfast
- Vacation or Rental Home
- Other (please list below) \_\_\_\_\_

9. Which of the following best describes your group during this trip?  
(Please select only one)

- Individual
- Adult group (over 21)
- Youth group (under 21)
- Family (with children)
- Mixed Group (various groups and ages)

10. On this trip to the Gile Flowage area, what activities have you or do you expect to participate in?  
(Please select all that apply)

- |  |                                       |  |
|--|---------------------------------------|--|
| <input type="checkbox"/> Bank fishing        | <input type="checkbox"/> Picnicking   | <input type="checkbox"/> Rafting/Tubing                |
| <input type="checkbox"/> Boat fishing        | <input type="checkbox"/> Swimming     | <input type="checkbox"/> Wildlife viewing              |
| <input type="checkbox"/> Pleasure boating    | <input type="checkbox"/> Sight-seeing | <input type="checkbox"/> Other (please describe below) |
| <input type="checkbox"/> Personal watercraft | <input type="checkbox"/> Hunting      |  |

On any trip to the Gile Flowage in the last year, which of the following activities have you participated?  
(Please select all that apply)

- |  |                                       |  |
|--|---------------------------------------|--|
| <input type="checkbox"/> Bank fishing        | <input type="checkbox"/> Picnicking   | <input type="checkbox"/> Rafting/Tubing                |
| <input type="checkbox"/> Boat fishing        | <input type="checkbox"/> Swimming     | <input type="checkbox"/> Wildlife viewing              |
| <input type="checkbox"/> Pleasure boating    | <input type="checkbox"/> Sight-seeing | <input type="checkbox"/> Other (please describe below) |
| <input type="checkbox"/> Personal watercraft | <input type="checkbox"/> Hunting      |  |

11. Of the activities you selected in 10 above, what is the primary activity you participated in or expect to participate in on *this* visit? (Please write answer below)

Primary activity \_\_\_\_\_

12. If boating or fishing is the primary activity you participated in, please rate the following:

Boating or Fishing	Totally Acceptable	Acceptable	Neutral	Unacceptable	Totally Unacceptable
Safety	5	4	3	2	1
Enjoyment	5	4	3	2	1
Crowding	5	4	3	2	1
Overall Experience	5	4	3	2	1

13. Please rate any Gile Flowage area recreational activities you participated in today or in the past.

Rating scale is the same as used in 12 above:

5 - Totally Acceptable

4 - Acceptable

3 - Neutral

2 - Unacceptable

1 - Totally Unacceptable

Recreation Activity	Gile Park	Town of Pence Landing	Sucker Hole Landing	Highway C Landing
Bank fishing				
Boat fishing				
Pleasure boating				
Personal watercraft				
Picnicking				
Swimming				
Sight-seeing				
Hunting				
Rafting/Tubing				
Wildlife viewing				
Other				



14. Please indicate if low reservoir levels were a problem for any of the following at the recreation area you are visiting today:

Circle one number for each:

Ability to:	No Problem	Small Problem	Neutral	Moderate Problem	Large Problem	No Opinion or N/A
Swim safely	5	4	3	2	1	<input type="checkbox"/>
Launch/take out boat	5	4	3	2	1	<input type="checkbox"/>
Boat safely	5	4	3	2	1	<input type="checkbox"/>
Use docks	5	4	3	2	1	<input type="checkbox"/>
Shoreline fish	5	4	3	2	1	<input type="checkbox"/>
Access shoreline	5	4	3	2	1	<input type="checkbox"/>
<i>Shoreline scenic quality</i>	5	4	3	2	1	<input type="checkbox"/>
<i>Other (specify below)</i>	5	4	3	2	1	<input type="checkbox"/>

Other: \_\_\_\_\_

15. Please share any additional thoughts or comments you have regarding recreation on the Gile Flowage:

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***Thank you for completing the Recreation Survey!***

## **Appendix 4 – Recreation Use Spot Count Form**

**Recreation Observation Form**

Date:		Time:	
Gile Flowage Storage Project P-15055-000			
Survey Person:			
Temperature:	Weather:	Wind Speed:	
Reservoir Elevation:			
Any amenities not usable due to low/high reservoir elevations?			

Note: Please list primary activity by placing a "P" in the box. Use and "S" for secondary activities.

	Number of Vehicles	Number of People	Recreation Activities												Notes	
			ATV/Snowmobile	Shore Fishing	Boat Fishing	Swimming	Hiking/Walking/ Jogging	Bicycling	Picnicking	Bird Watching	Wildlife Viewing	Non-Powered Boating	Power Boating	Other (specify)		
Recreation Site																
Gile Dam																
Gile Park																
County C Landing																
Sucker Hole Landing																
Town of Pence Landing																

Additional Comments:

**Appendix G – Shoreline Stability Study**

**Gile Flowage Storage Project  
FERC No. 15055**

**Study Plan**

**Shoreline Stability Study**

**Prepared for**



**Prepared by**



meadhunt.com

**April 2021**

## 1. Introduction

Northern States Power Company – Wisconsin (NSPW or Applicant), d/b/a Xcel Energy, is in the process of applying for an original license from the Federal Energy Regulatory Commission (FERC or Commission) to operate and maintain the existing Gile Flowage Storage Project (Gile Flowage or Project). The Project is owned, operated, and maintained by NSPW.

On January 19, 2021, FERC issued Scoping Document 1 and requested that stakeholders provide comments on the Pre-Licensing Application (PAD) and study requests within 60 days. During the 60-day comment period, the Licensee received comments and study requests from several entities. The FERC requested the Applicant to complete a shoreline stability study as part of relicensing.

The FERC requested that the Applicant complete a shoreline stability study to identify areas of erosion, mass soil movement, or other forms of instability of the shoreline of the Project reservoir and the West Fork of the Montreal River (West Fork) downstream of the Project dam.

While the Friends of the Gile Flowage (FOG) did not specifically request a shoreline stability study, they did request that erosion due to reservoir fluctuations be monitored as part of their request for a water level study.

The Applicant has proposed this Shoreline Stability Study to collect information on the stability of all shorelines within the Project's area of potential effect (APE) including the Project reservoir and the West Fork downstream of the dam.

## 2. Study Plan Elements

### 2.1 Study Goals and Objectives

The objective of this study is to identify areas of erosion, mass soil movement, slumping, or other forms of instability of the shoreline of the Project reservoir and the West Fork downstream of the Project.

### 2.2 Resource Management Goals

Provide equal consideration to non-power resources such as aquatic resources that could potentially be impacted by Project operations.

### 2.3 Public Interest

FERC expressed interest in this study.

### 2.4 Background and Existing Information

A shoreline littoral zone survey was conducted on the Gile Flowage in 2005. The study is located on the Friends of the Gile Flowage (FOG) website at <http://www.friendsofthegile.org/home/flowage-publications>, but the report's author is not listed. The study analyzed the substrates in the littoral zone in areas up to six feet below the full pool elevation of 1,490 feet. The report indicated that substrates within the top 6

feet consisted of 20.3% bedrock, boulder, or cobble; 26.9% gravel, gravel with cobble, or gravel with boulders, 39.8% consisted of sand, muck or detritus; 13% consisted of sand with gravel, cobble, and/or boulders, and 79.7% had substrates with gravel and finer material present (FOG, 2005).

## 2.5 Project Nexus

Project operation affects water level and flow patterns in both the Project reservoir and the West Fork of the Montreal River (West Fork) downstream of the Project dam. The water fluctuation and flow patterns may cause shoreline erosion or instability, which may in turn influence environmental resources.

Understanding the Project's influence on shoreline erosion is necessary in understanding the effects continued operation of the Project may have on environmental resources.

## 2.6 Study Area

The study area includes the shoreline areas within the reservoir, including islands, and downstream of the dam on the West Fork within the proposed Area of Potential Effects (APE). This area is depicted in Appendix 1.

## 2.7 Methodology

### 2.7.1 Survey Methods

The Applicant will navigate the project area by boat (or by foot in areas not accessible by boat) inspecting the shorelines for evidence of erosion, such as lack of stabilizing vegetation, mass soil movement, slumping or sliding, or other forms of instability. During the survey, reservoir elevations and flows from the dam will be obtained from the NSPW operations and recorded.

### 2.7.2 Assessment of Instability at Identified Erosion Sites

When signs of erosion are identified, the beginning and end of the contiguous area will be recorded with the use of a handheld GPS unit for later mapping activities and representative photographs will be taken.

For each erosion areas identified on the reservoir, the [erosion intensity score worksheet](#) contained in NR 328.08 of the Wisconsin Administrative Code will be completed and a total score will be provided.

For each 150 feet or less of continuous erosion area identified on the streambanks downstream of the dam (i.e. less than 150 feet complete one form, for continuous areas greater than 300 feet, complete one form each 150 foot interval), the [bank erosion potential score worksheet](#) contained in NR 328.08 of the Wisconsin Administrative Code will be completed and a total score will be provided.

In addition to the completed forms, information collected during the survey will be used to create detailed maps showing all areas of unstable/eroding soils within the Project APE. Results will be analyzed and presented in a final study report, described in Section 2.9, below.

## 2.8 Consistency with Generally Accepted Scientific Practice

The overall approach to the shoreline stability study is consistent with generally accepted methods for this type of inventory.

## 2.9 Project Schedule and Deliverables

Results of this study will be summarized in a Shoreline Stability Study Report. The report will include the following items:

- Description of Study Area
- Methods
- Results
- Discussion and Analysis of Results and Erosion Site Total Scores
- Conclusions
- Estimate of River Flow
- Detailed Maps of Erosion Areas
- All field sheets, completed data collection forms, and photographs collected during the study.

NSPW anticipates that field work will be completed by late August 2022 and the study report will be filed with FERC in the Initial Study Report.

## 2.10 Level of Effort and/or Cost

NSPW estimates that this study will cost approximately \$35,000 to complete.

## 2.11 Discussion of Alternative Approaches

NSPW has generally incorporated FERC's comments on their request for a shoreline stability study. The overall approach is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC's study requirements under the ILP. No alternative approaches or additional information is required to be collected to meet the objectives of this study.

## 3. References

Federal Energy Regulatory Commission. 2021. Comments on Preliminary Study Plans, Request for Studies, and Additional Information. March 17, 2021.

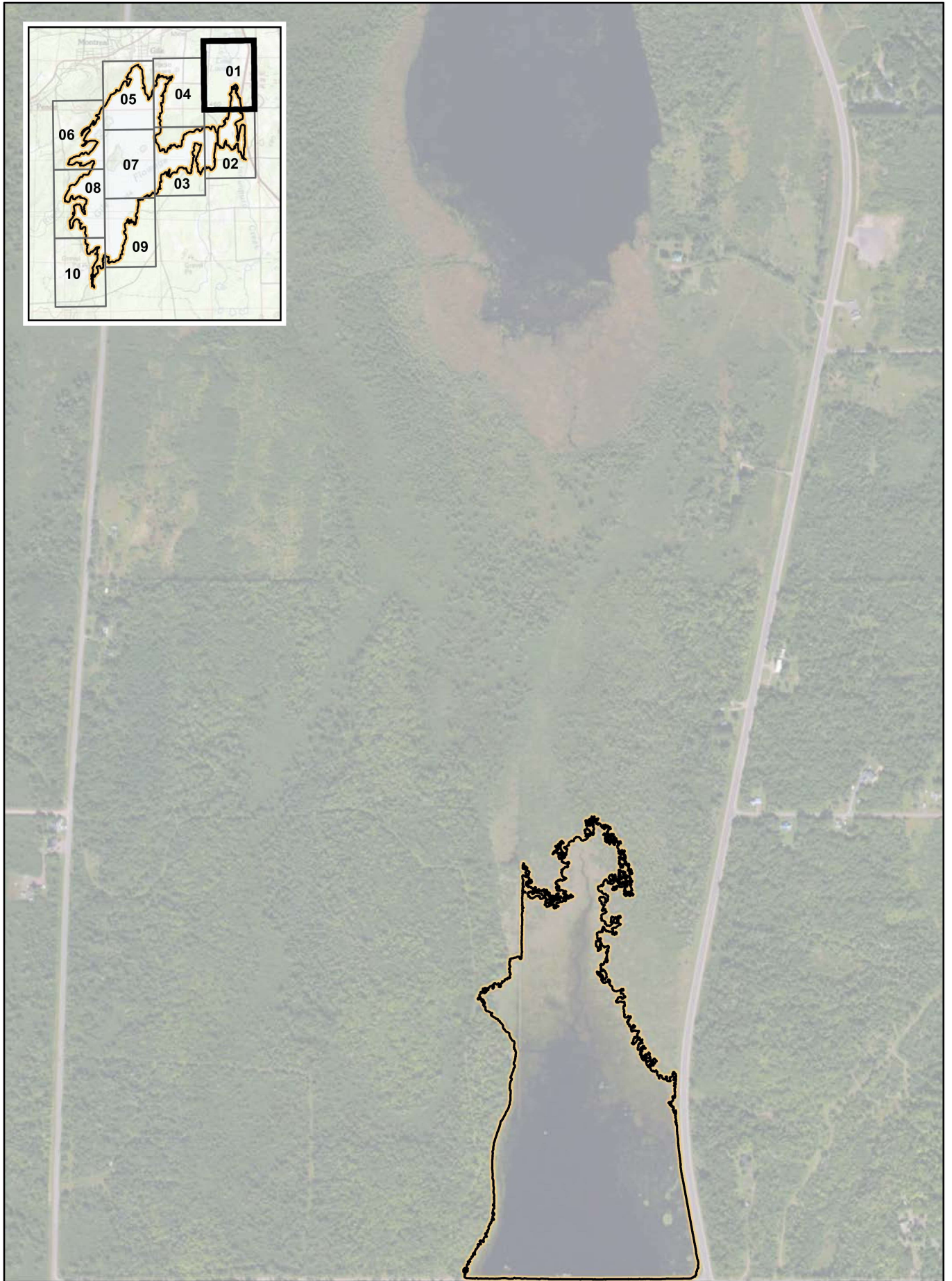
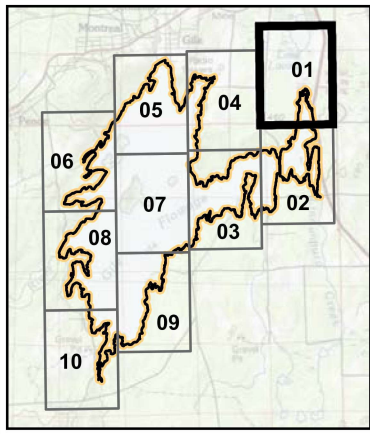
Friends of the Gile Flowage. 2021. Comments on Notice of Intent, Scoping Document 1, Preliminary Application Document, and Studies Request for the Gile Flowage Storage Reservoir Project, P-15055-000. March 16, 2021.

Friends of the Gile Flowage. 2005. Gile Flowage Littoral Zone Survey, 2005.  
[https://docs.google.com/file/d/0B75MzL2b1\\_KCaWtGN0UxSFhKbTQ/edit](https://docs.google.com/file/d/0B75MzL2b1_KCaWtGN0UxSFhKbTQ/edit). Accessed October 6, 2020.

Wisconsin Administrative Code Chapter NR 328 Shore Erosion Control Structures in Navigable Waterways. February 2014.






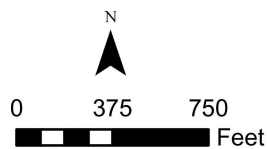
## **Appendix 1 – Project APE**



Service Layer Credits: ESRI



-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet

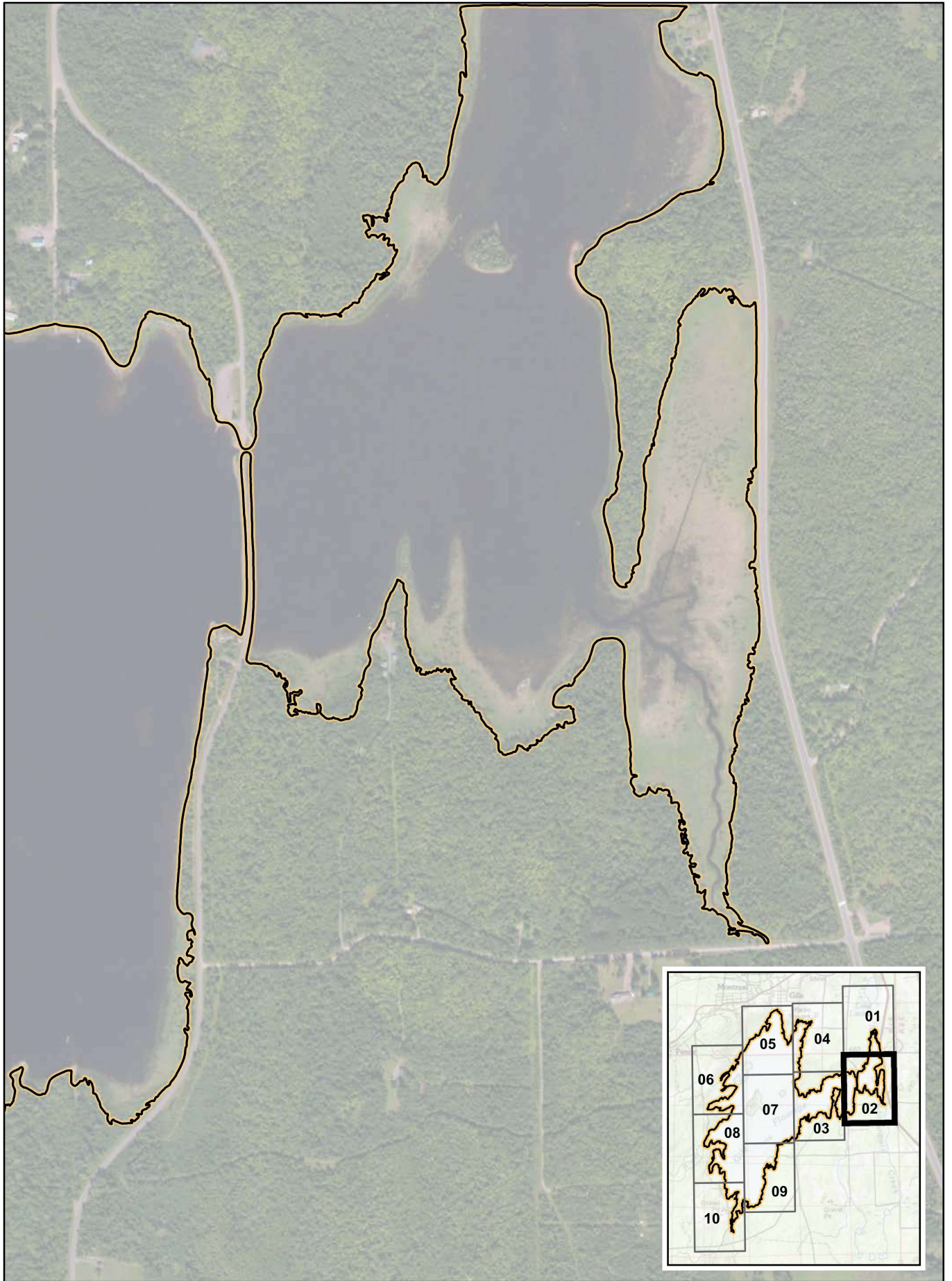


**Gile Flowage Storage Reservoir Project  
Proposed Project Area of Potential Effects**

**Map Sheet 01 of 10**




**FERC No. 15055**

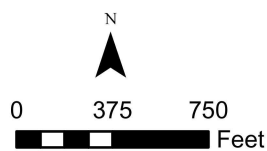




Service Layer Credits: ESRI



-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet

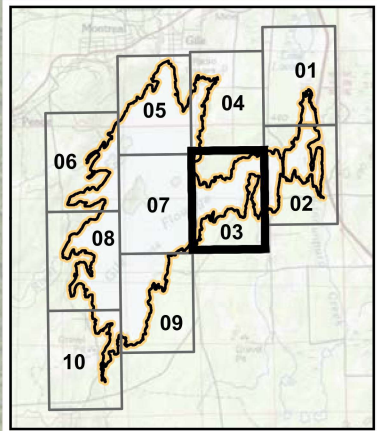
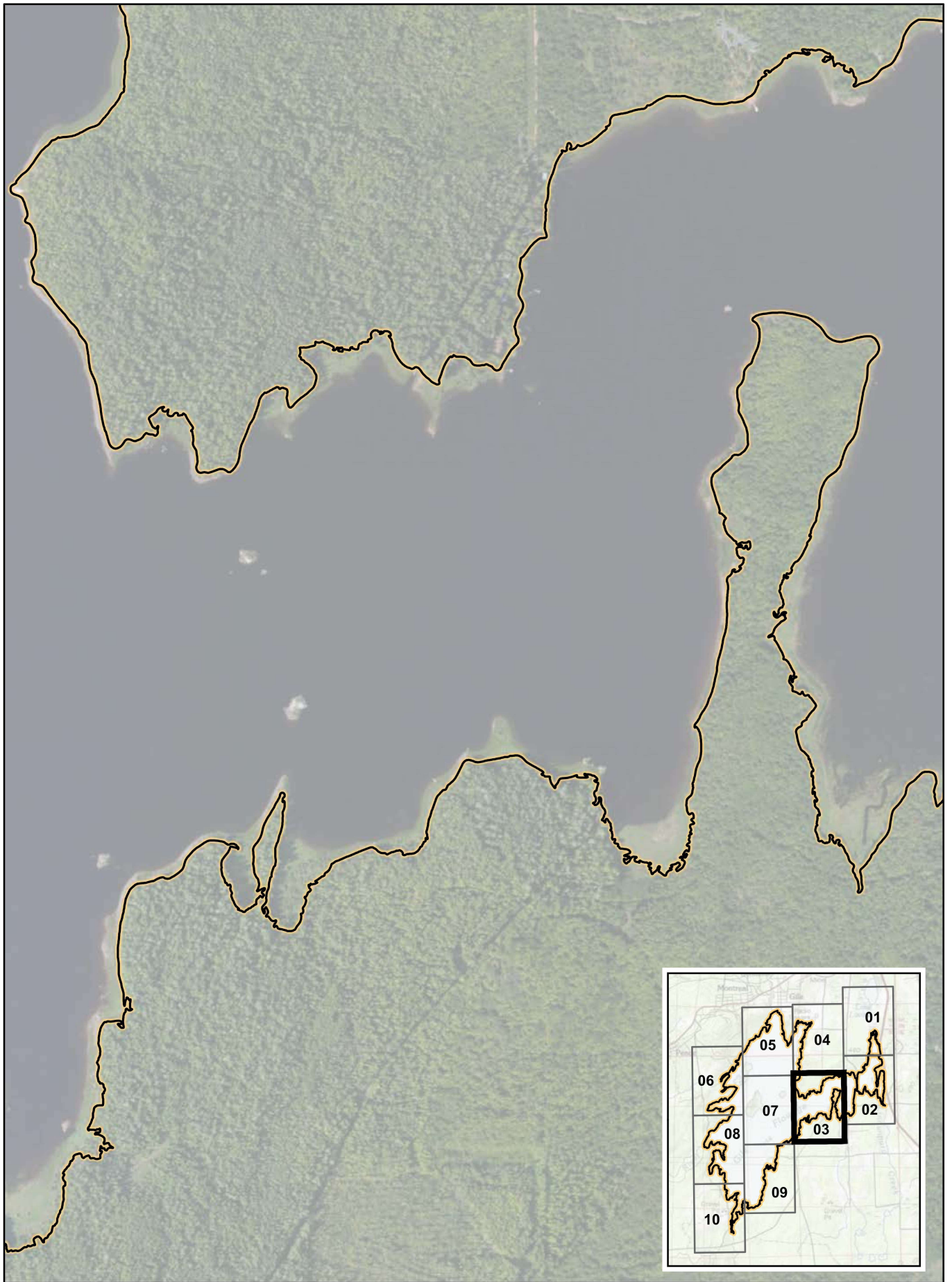


**Gile Flowage Storage Reservoir Project  
Proposed Project Area of Potential Effects**

**Map Sheet 02 of 10**




**FERC No. 15055**

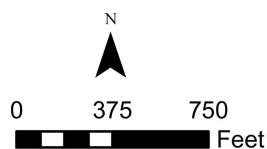




Service Layer Credits: ESRI



-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet

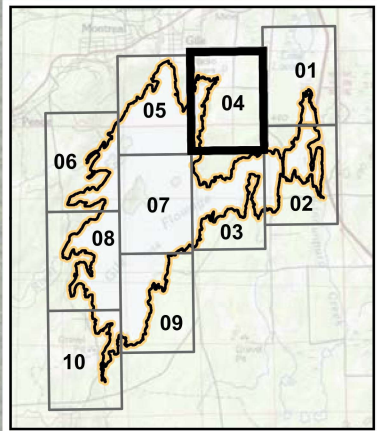
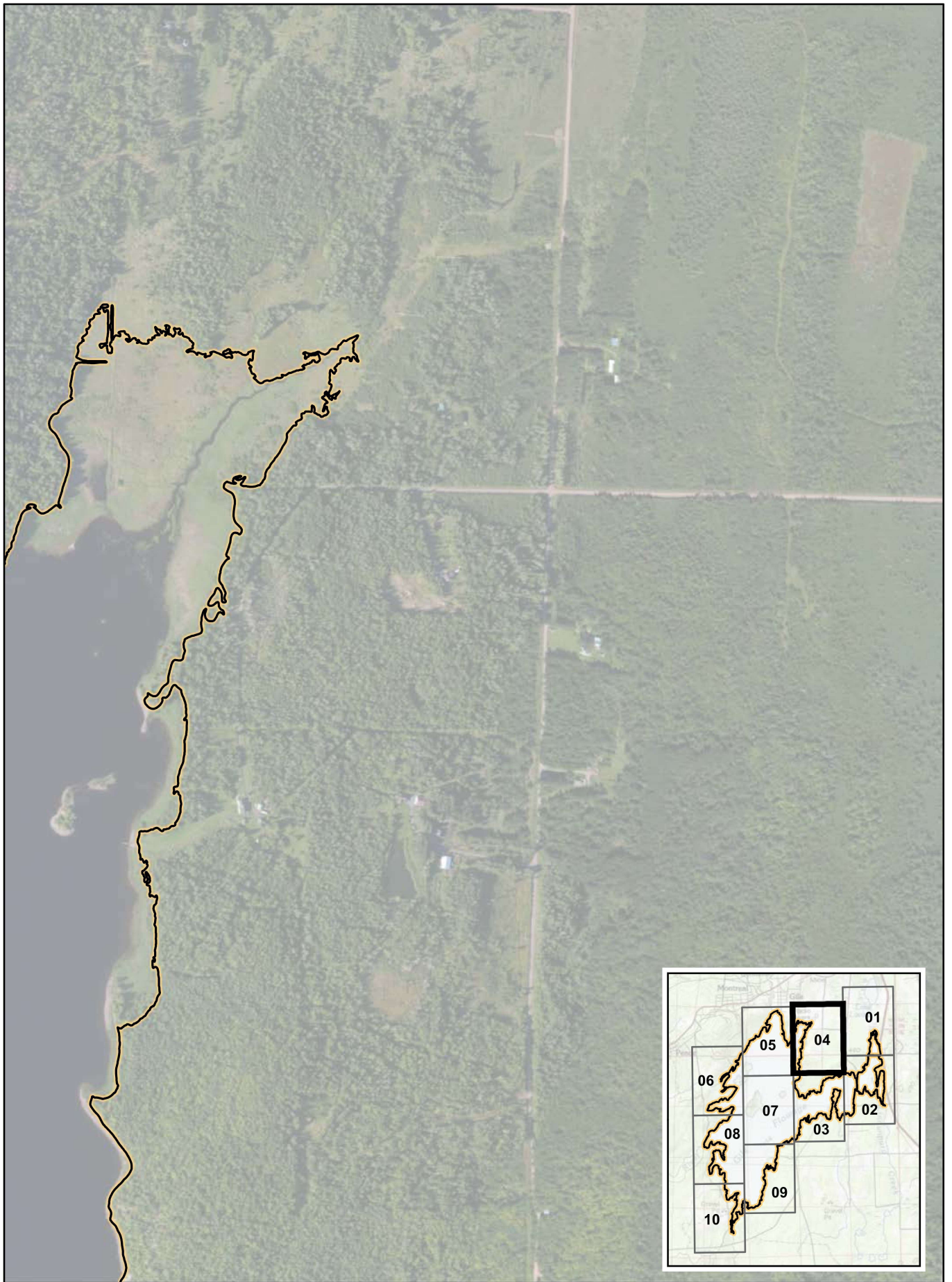


**Gile Flowage Storage Reservoir Project  
Proposed Project Area of Potential Effects**

**Map Sheet 03 of 10**




**FERC No. 15055**

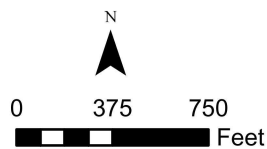




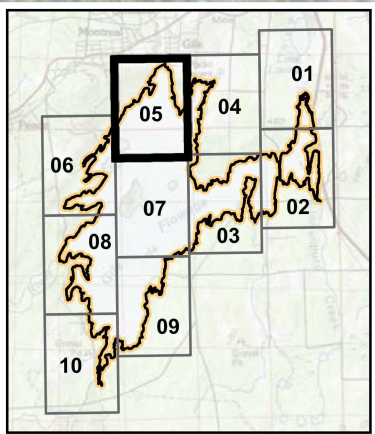
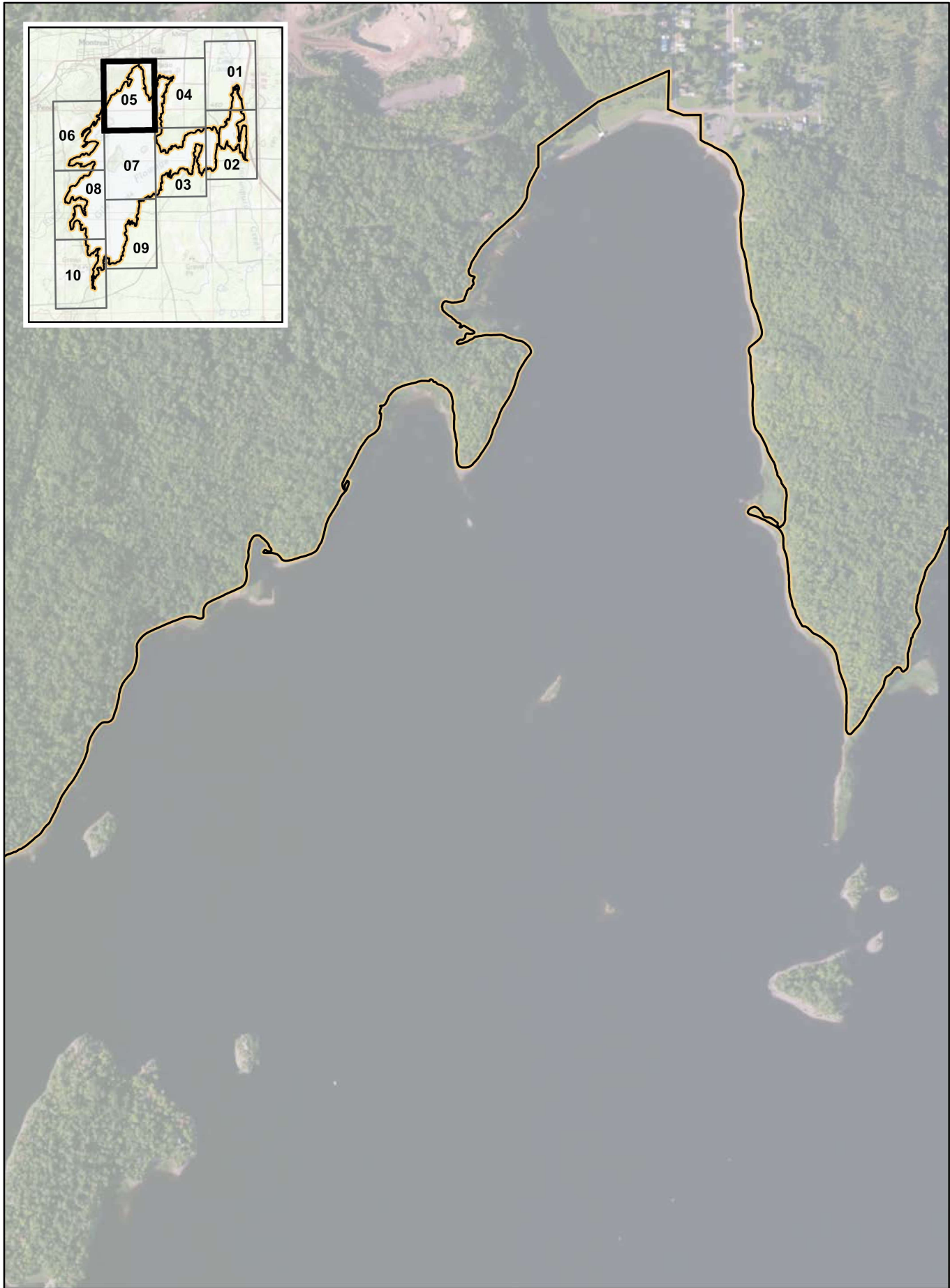
Service Layer Credits: ESRI



-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet






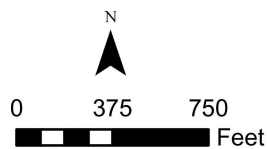
**Gile Flowage Storage Reservoir Project**  
**Proposed Project Area of Potential Effects**  
 Map Sheet 04 of 10  
 FERC No. 15055



Service Layer Credits: ESRI



-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet

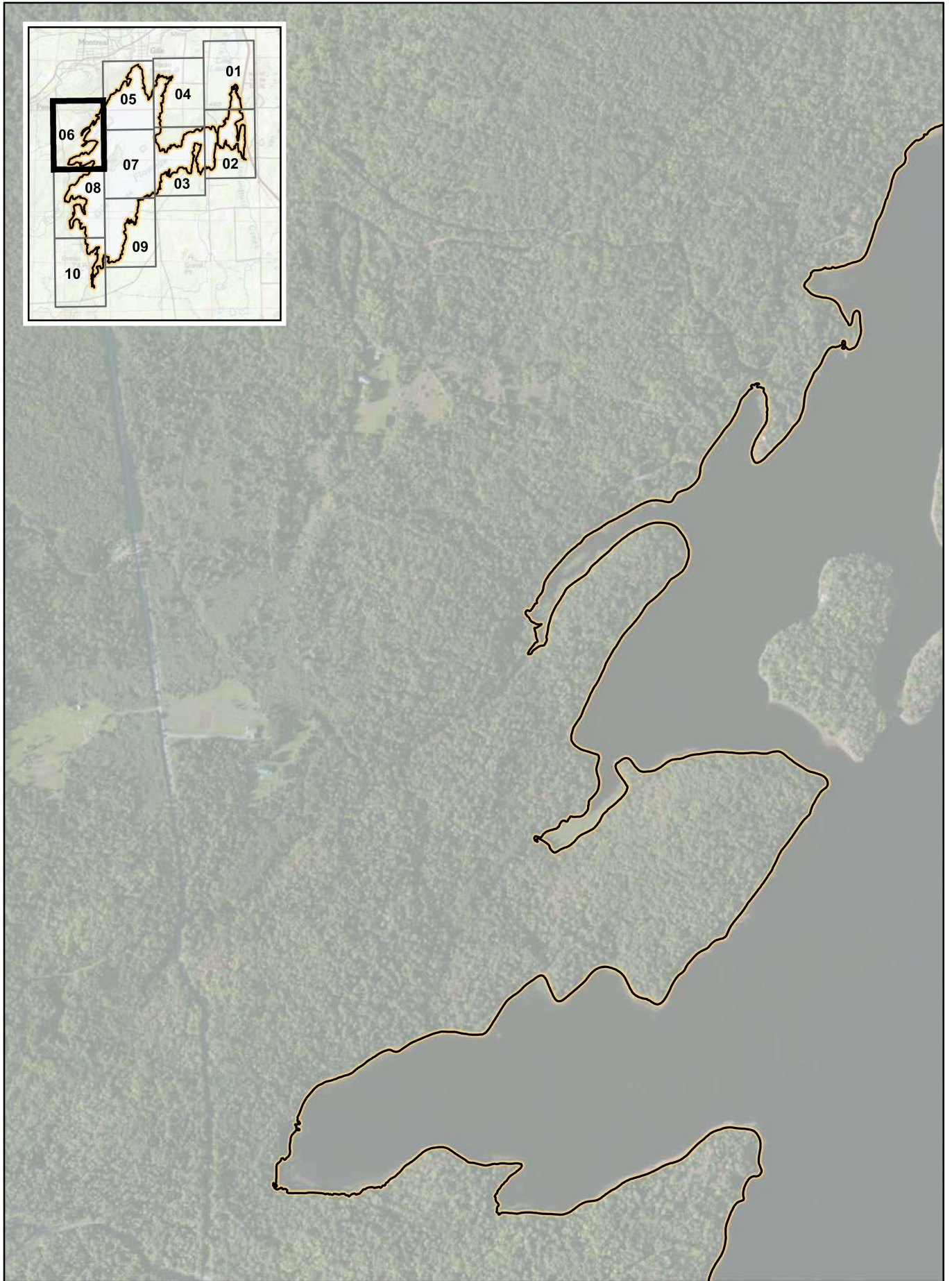
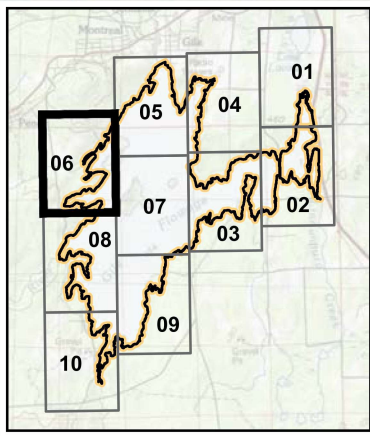


**Gile Flowage Storage Reservoir Project  
Proposed Project Area of Potential Effects**

**Map Sheet 05 of 10**




**FERC No. 15055**

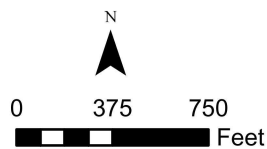




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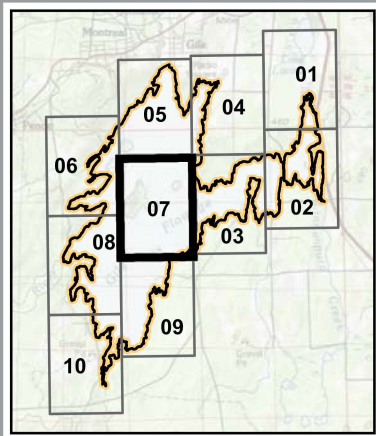
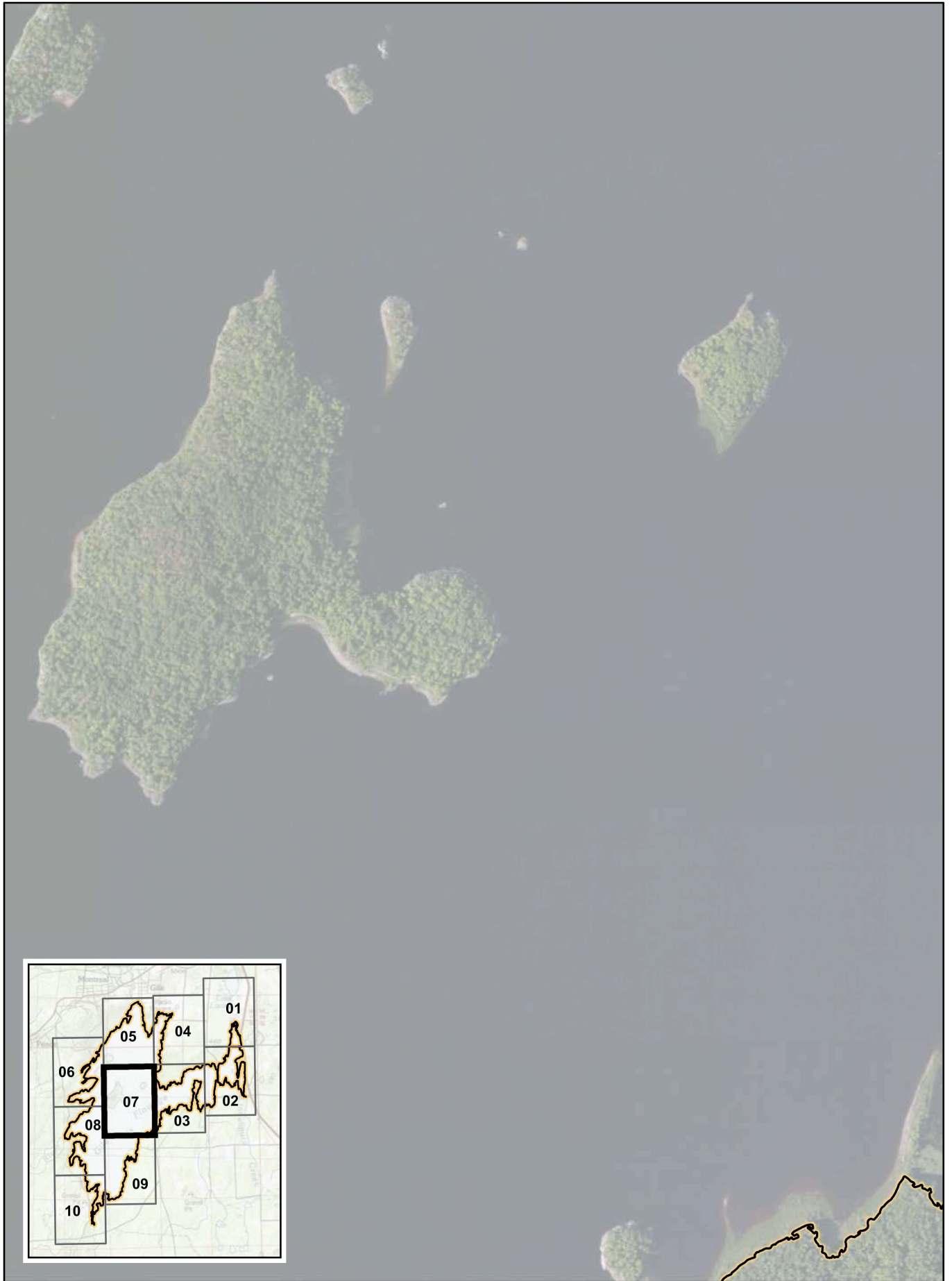
-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet



**Gile Flowage Storage Reservoir Project  
Proposed Project Area of Potential Effects**




**Map Sheet 06 of 10**

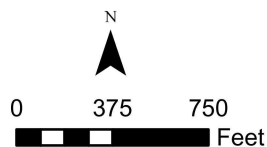
**FERC No. 15055**



Service Layer Credits: ESRI



-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet

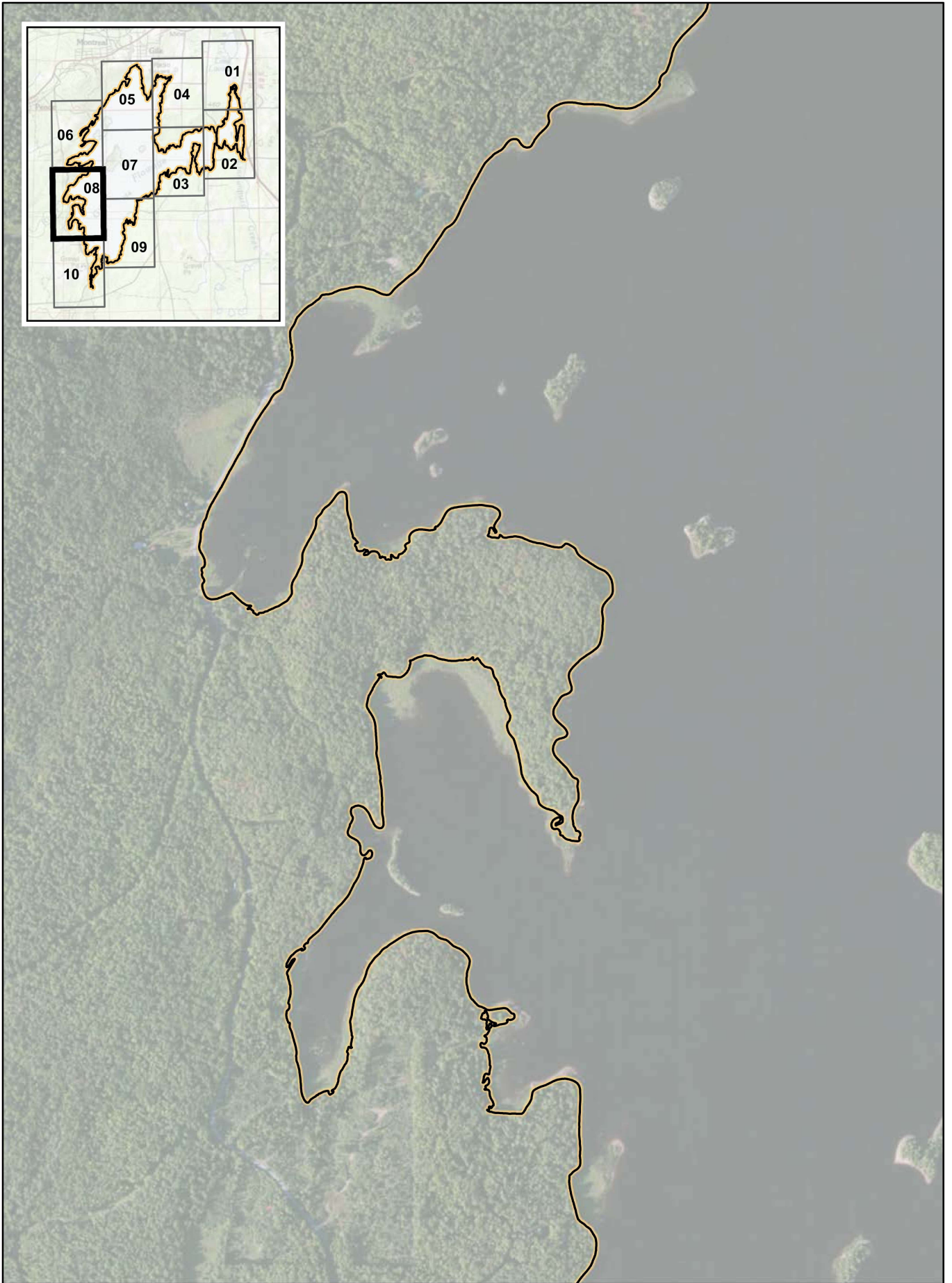
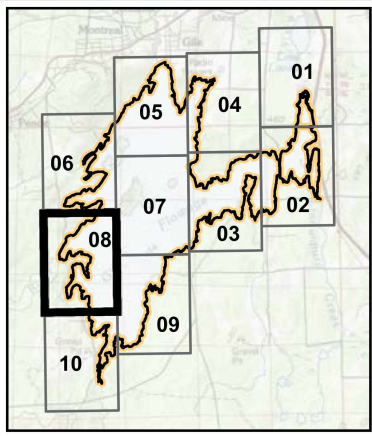


**Gile Flowage Storage Reservoir Project  
Proposed Project Area of Potential Effects**

Map Sheet 07 of 10




FERC No. 15055

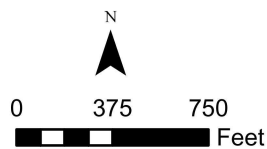




Service Layer Credits: ESRI



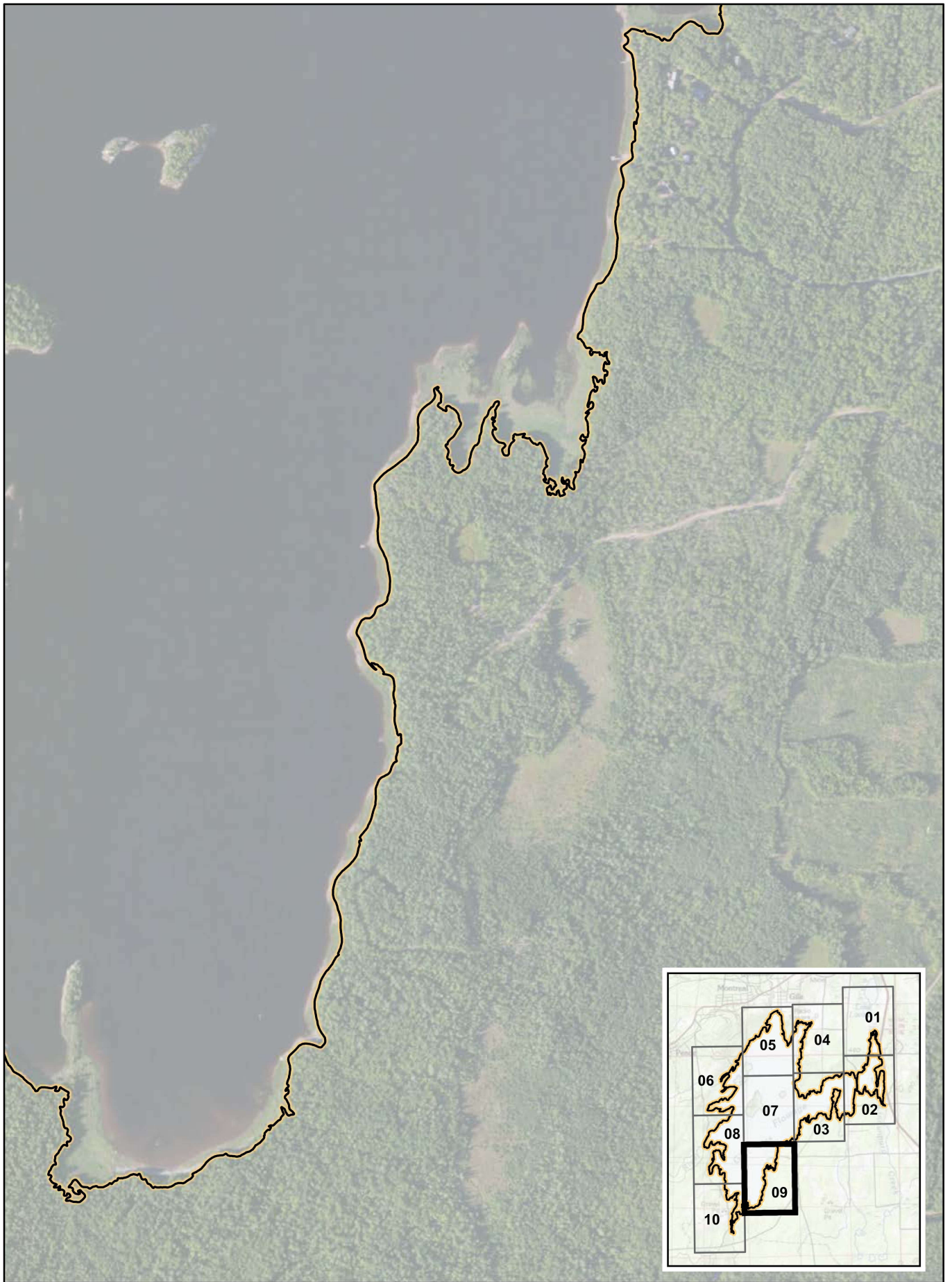
-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet



**Gile Flowage Storage Reservoir Project  
Proposed Project Area of Potential Effects**




**Map Sheet 08 of 10**

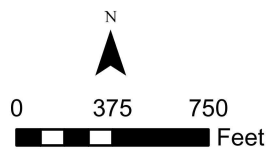
**FERC No. 15055**



Service Layer Credits: ESRI



-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet

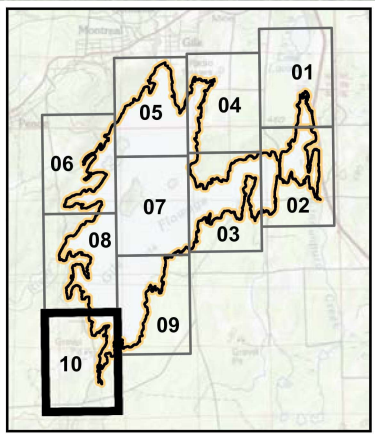
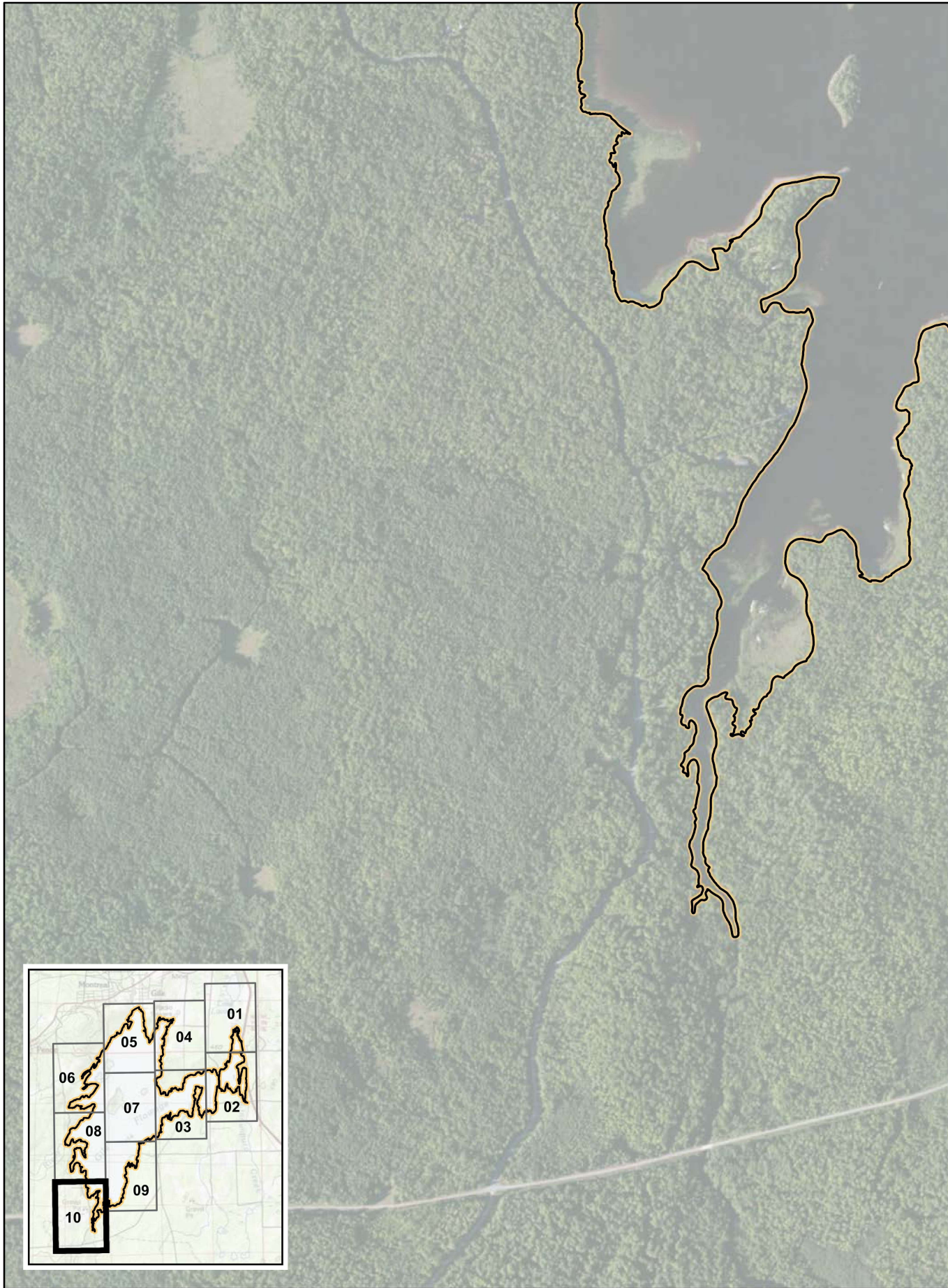


**Gile Flowage Storage Reservoir Project  
Proposed Project Area of Potential Effects**

**Map Sheet 09 of 10**




**FERC No. 15055**

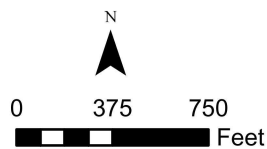




Service Layer Credits: ESRI



-  Proposed Project Boundary
-  Proposed Project APE
-  Map Sheet



**Gile Flowage Storage Reservoir Project**  
**Proposed Project Area of Potential Effects**  
 Map Sheet 10 of 10  
 FERC No. 15055