Buck's Mill Dam Modification

Environmental Assessment Worksheet

March 2025
Moore Project No. 24327

PREPARED FOR
Pelican River Watershed District
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Environmental Assessment Worksheet

This most recent Environmental Assessment Worksheet (EAW) form and guidance documents are available at the Environmental Quality Board's website at: https://www.eqb.state.mn.us/ The EAW form provides information about a project that may have the potential for significant environmental effects. Guidance documents provide additional detail and links to resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item or can be addressed collectively under EAW Item 21.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project title

Buck's Mill Dam Modification

2. Proposer

Contact person: Tera Guetter
Title: Administrator, Pelican River WD
Address: 211 Holmes St W, Suite 201
City, State, ZIP: Detroit Lakes, MN 56501
Phone: (218) 846-0436
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3. RGU

Contact person: Tera Guetter
Title: Administrator, Pelican River WD
Address: 211 Holmes St W, Suite 201
City, State, ZIP: Detroit Lakes, MN 56501
Phone: (218) 846-0436
Fax: N/A
Email: tera.guetter@arvig.net

4. Reason for EAW Preparation (check one)

Required:
☐ EIS Scoping
☒ Mandatory EAW

Discretionary:
☐ Citizen petition
☐ RGU discretion
☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):

MN Rules 4410.4300 Subparts:

- 26. Stream diversion

5. Project Location

- County: Becker
- City/Township: Lake View Township
- PLS Location (¼, ¼, Section, Township, Range): Section 31, Township 138N, Range 41W
- Watershed (81 major watershed scale): 56 - Ottertail River (HUC 09020103)
- GPS Coordinates: 46.722811, -95.914550
- Tax Parcel Numbers: 190608001, 190601000, 197028000, 190609000, 190608000

At a minimum attach each of the following to the EAW

- County map showing the general location of the project;

  Figure 1. Project Location

- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and

  Figure 2. USGS Topographic Map

- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.

  Figure 3. Existing Site Conditions
  Figure 4. National Land Cover Data
  Figure 11. Surface Waters
  Figure 12. National Wetlands Inventory
  Appendix F. Preliminary Design Plans

- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project duringthe life of the project (as detailed below in item 7. Climate Adaptation and Resilience).

  See Item 7. Climate Adaptation and Resilience narrative, and Item 23. References.

6. Project Description

a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

The Pelican River Watershed District (PRWD) in cooperation with the Minnesota Department of Natural Resources (MnDNR) proposes to modify the Buck's Mill Dam to improve fish passage and ecological health, supporting the MnDNR "Reconnect the Red" initiative. Modifications include replacing the box culvert under Bucksmill Drive raising the road elevation, removing the walkway and Kingsbury Lock for safety, and enhancing the spillway with rock riffles.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities

Project Description

The PRWD is partnering with MnDNR for the Buck's Mill Dam Modification project, located downstream of Lake Melissa and approximately 0.7 miles north on Bucksmill Drive, a township road, from MN Highway 34. The project area encompasses a corridor along the Pelican River (Public Water Inventory (PWI): H-101-508/101508) as it flows through Buck's Mill Dam. The approximate size of the site is 10.86 acres. Buck's Mill Dam is 10 miles south of Detroit Lakes, Minnesota, located in Section 31 of Township 138N, Range 41W. The current dam runout elevation of 1328.61' NAVD 88 will not be changed.

The project aims to address public safety improvements, enhance ecological functions, and facilitate fish passage by modifying the existing dam structure. Key upgrades include modifying the dam's existing spillway with a series of rock and riffle structures and removing the structural remains of Kingsbury Lock, a navigational lock built in 1908. Additional modifications to Buck's Mill Dam, constructed in 1937, involve removing the catwalk and its concrete support piers. Bucksmill Road within the project area will be raised to accommodate resized culverts and the newly constructed riffle structure which will provide fish passage. Bucksmill Road has been identified as a barrier to fish passage at its current elevation.

Physical manipulation of the environment includes the removal of deteriorated structural components and potential soil disturbances during demolition and construction activities. This process will require access pathways and staging areas, which may temporarily impact surrounding vegetation and hydrology. The demolition of the lock walls and adjustments to the dam's concrete components could generate construction waste, including concrete debris and possibly contaminated sediment from the riverbed.

The proposed project will have three main construction elements: A.) Removal of the remaining sections of the Kingsbury Lock and excavation of existing ground to be graded and prepared for construction of the rock riffles. B.) Construction of the rock riffle structures within the channel of the Pelican River from the existing Buck's Mill Dam to downstream of the Bucksmill Drive crossing. C.) Culvert modification and road raise of Bucksmill Drive.

1. Construction Methods

The construction methods presented below are potential methods, not mandated methods. The goal of this section is to give an idea of possible construction methods. Contractors will be able to make their own decisions on these matters.

A. Removal of the Kingsbury Lock and modification of the Buck's Mill Dam will consist of demolition of the concrete sections of the existing lock. This will likely be completed with an excavator to break apart the concrete and rebar then haul out the pieces with a dump truck. There will be site grading, including excavation of existing ground to widen the channel adjacent to the lock. Additional excavation will be completed south of the existing weir, widening the crest. This will most likely be completed with an excavator, skid steer, and dump trucks.
B. Construction of the rock riffle structures will include physical manipulation of the riverbed of the Pelican River. Once the subgrade is prepared, through step A, described above, fill will be brought in to build up the channel bed and a berm on the south bank. This fill will be hauled with trucks then placed with equipment such as excavators, loaders, and dozers. Within the channel, fill will be placed to the bottom of the riprap. The weir boulders will be placed with an excavator, followed by the riprap, chinking rock, and cobble also placed with an excavator. These smaller rocks will be placed to fill voids and ensure water runs over the structure, not through it.
C. The culvert modification and road raise of Buck's Mill Dam will be completed by closing Bucksmill Drive while an excavator removes the fill above the existing culverts. The existing culverts will be removed section by section and salvaged if possible. An excavator will remove unsalvageable material from the site by loading it onto trucks. Once the material is removed, fill will be brought in, placed, and compacted with a sheepsfoot roller to fill the voids left by the culverts and up to the new culvert inverts. The new culverts will be placed with an excavator and laborers in the trench. Backfill around the new culverts will be placed and compacted up to finished grade and aggregate will top off the road. The aggregate will be graded with a grader. Upon completion of the road, a guard rail will be installed by laborers with a skid steer and post hole digger. Culverts will be replaced following guidance from the MnDNR.

2. Modifications

The project modifications were highlighted in the project description but will be further discussed below. These are based on the three main construction elements A, B, and C, as noted above.

A. Removal of the Kingsbury Lock and modification of the Buck's Mill Dam will consist of full removal of the existing lock structure and adjacent high ground on each side. The existing dam will be widened to the south, in accordance with the MnDNR request during the project scoping fall of 2024. This modification will divert the high velocities towards the center of the new channel as opposed to being directed at the foundation of the private structure on the north bank, as is currently the case.
B. Construction of the rock riffle structures will modify the channel bed elevation, slope, and material. The existing channel is relatively flat downstream of the dam and the new proposed channel slope is 3% down from the crest of the dam. The new rock riffle structures are being designed to MnDNR standards as a "2-3-2" design, providing optimum fish passage. Riprap will cover the entire channel bottom, providing protection up to the 100-yr inundation extents. A new berm is required along the south bank to both contain the 100-yr event and provide maintenance and pedestrian access along the length of the structure.

C. The culvert modification and road raise of Bucksmill Drive is necessary due to the channel gradually stepping down from the dam, rather than the existing, vertical drop. With the gradual slope from the dam's crest, the channel is higher at the crossing, requiring the road raise. The current elevation of the road also restricts fish passage. The road aggregate will be installed, and graded to match the existing gravel on the north and south banks, where it ties in. Additionally, aggregate will be placed on the side slopes to protect from erosion by foot traffic. Along each side of the road, guard rails are being installed to allow for a steeper slope down to the channel bottom and shorter culverts.

3. Demolition and Removal of Existing Structures

A. Walkway Removal: The existing walkway along the dam crest is unsafe for public access and is currently facilitating trespassing. Following construction, public access will be available along a berm on the south bank.

B. Lock Removal: The existing lock downstream of Buck's Mill Dam is non-operational and in a deteriorated state, posing a public safety risk. As part of the project, the lock will be removed entirely to facilitate the installation of the new rock riffle structure and ensure site safety. The removal of this structure will reduce velocities by providing a larger cross-sectional area for water to pass as it moves over the riffle structures. The non-organic material will be removed and disposed of offsite.

4. Timing and Duration

Construction activities are anticipated to begin in the summer of 2025, following the necessary permitting and preparatory phases. The work will span an estimated 3-6 months, including site preparation, demolition, structural modifications, and site restoration. The anticipated schedule is outlined below:

- Grant Agreement (MnDNR and PRWD): executed August 22, 2024
- Field Work: Fall 2024
- Engineer's Report: Fall 2024 – Spring 2025
- Environmental Review: Fall 2024 – Spring 2025
- Public Hearing: March 2025
- Plans, Specifications, and Cost Estimate: Winter 2024/2025
- Desired Construction Start: Spring 2025
- Construction Completion: Fall 2025

c. Project magnitude:

Table 1 – Project Magnitude

Description	Number
Total Project Acreage	10.86 acres
Linear project length	1,596 feet
Number and type of residential units	N/A
Residential building area (in square feet)	N/A
Commercial building area (in square feet)	N/A
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – specify (in square feet)	N/A
Structure height(s)	10 feet

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of this project is to enhance the Pelican River's ecological health, improve fish passage, and address public safety concerns by modifying the existing dam infrastructure, which is approximately 10-ft high, by constructing a natural-looking spillway with rock riffle structures. This project is part of the MnDNR "Reconnect the Red" fish passage initiative and aims to enhance fish passage, aquatic ecology, and public safety. It also supports the restoration and improvement of natural stream characteristics within the Pelican River Watershed. The primary goals of the project include restoring aquatic habitats, improving biodiversity, and supporting the restoration of lake sturgeon populations in the Pelican River and leverages prior Pelican River chain of lakes fish passage completions. Velocities within the channel will be reduced to a level passable by fish and riprap will armor the structure to protect from erosive activity. Additionally, the project will improve public safety for recreation by removing potential hazards, such as the deteriorating King's Lock structure, and replacing the downstream township culvert on Bucksmill Drive. The modifications will ensure the river functions with a more natural hydrologic regime, improving habitat connectivity and overall river health.

e. Are future stages of this development including development on any other property planned or likely to happen? Yes
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

Future expansion for public use is expected but the timeline is unknown. The most likely project will include a pier or dock in Mill Pond for fishing purposes. Environmental review for any future stages will take place once funding has been secured and there is local support.

☐ Is this project a subsequent stage of an earlier project? Yes
If yes, briefly describe the past development, timeline and any past environmental review.

This site has been subject to human activity for many years including but not limited to the MnDNR's modification of the Muskie Pond (also referred to as Minnow pond) to the southwest of Buck's Mill Dam be used for fishery purposes, the lock system, road crossing, and dam structure, as seen today. The level of environmental review these projects were subject to is unknown due to the extent of time that has passed since they were constructed.

7. Climate Adaptation and Resilience

a. Describe the climate trends in the general location of the project (see guidance: *Climate Adaptation and Resilience*) and how climate change is anticipated to affect that location duringthe life of the project.

The MnDNR is committed to enhancing ecosystem resiliency and addressing the impacts of climate change through adaptation strategies, reducing and offsetting greenhouse gas emissions, engaging stakeholders, and building employee knowledge. Under Operational Order #131, "Climate Adaptation and Mitigation in Natural Resource Management," the MnDNR is required to use the best available science to develop and implement climate adaptation strategies (DNR Operational Order #131, Climate Adaptation and Mitigation in Natural Resource, 2017). These strategies include adopting water and land management practices that sustain Minnesota's natural resources while mitigating future climate change by reducing environmental impacts from carbon emissions (Climate Trends in Minnesota).

Climate change in Minnesota is evident through increasing temperatures and precipitation, more frequent extreme rainfall events, and warming winter conditions. From 1895 to 2017, the state experienced a 2.7°F rise in average temperatures and an additional 3.4 inches of annual precipitation. Rainfall events that historically ranked among the top 2% in intensity are becoming more common, and total precipitation is projected to increase by more than 15% by mid-century. In northwest Minnesota, including the Detroit Lakes region, the 21st-century average temperature has been over 2.2°F higher than the average recorded between 1895 and 1999 (Climate Change in Minnesota).

The project is situated in an area experiencing significant climate changes, including rising temperatures, increased precipitation, and more intense storm events (National Climate Assessment). These trends present specific challenges for the project, which aims to modify the dam structure by replacing it with a rock and riffle spillway, enhance fish passage, and address structural and ecological upgrades. The Detroit Lakes region is expected to see continued increases in annual precipitation, along with more frequent and intense rain events, elevating risks of localized flooding and erosion (Climate Change in Minnesota). The proposed rock and riffle spillway structure will be designed to handle high flow volumes and mitigate erosion caused by extreme weather events.

Rising temperatures in the region are expected to influence aquatic ecosystems, with warmer water temperatures potentially impacting fish species that rely on specific conditions for spawning and migration. To address these challenges, the fish passage improvements included in the project incorporate features that provide refuge while moving upstream, such as a 3% channel grade, along with lower velocity areas behind boulders and in deeper pools within the rock and riffle structures.

These design elements provide rest areas for fish moving upstream that mitigate the impacts of heat stress on aquatic species and improve habitat resilience.

Additionally, anticipated shifts in hydrology, including periods of high and low flow, necessitate structural modifications to accommodate variable water levels. While less frequent, periods of drought may reduce river flows, posing challenges for sustaining fish passage and achieving habitat restoration goals (National Climate Assessment). By incorporating adaptive design elements, the Buck's Mill Dam Modification project aims to enhance ecological conditions, support fish passage, and build long-term resilience against the impacts of climate change. This approach ensures the project meets its immediate objectives while preparing for evolving environmental challenges in the region.

b. For each Resource Category in the table below: Describe how the project's proposed activitiesand how the project's design will interact with those climate trends. Describe proposed adaptations to address the project effects identified.

Table 2 – Climate Considerations

Resource Category	Climate Considerations	Project Information	Adaptations
Project Design	Consideration for sizing the spillway replacement with rock riffle structures and township culvert with road modifications based on changing precipitation and flood event intensity. Floodway culverts are being installed in addition to the mainline culverts which are sized to meet current standards. These additional floodway culverts provide better floodway connectivity and allow for larger storms to safely pass through the system than is currently required.	Warmer (increasing) annual temperatures; and fewer, but heavier, more intense rain events.	Project will meet hydraulic capacity, provide static, sustainable outlet and fish passage, and enhance natural aesthetics of the area. Bank armoring will be used to ensure the structure is stable and able to withstand high flow events without failure.
Land Use	No changes in land use are expected in the future, at least not to the degree that would impact the magnitude or frequency of flood flows.	Warmer (increasing) annual temperatures; and fewer, but heavier, more intense rain events.	Project will meet hydraulic capacity, provide static, sustainable outlet and fish passage, and enhance natural aesthetics of the area.
Water Resources	Address in item 12	Address in item 12	Address in item 12

Resource Category	Climate Considerations	Project Information	Adaptations
Contamination / Hazardous Materials/ Wastes	Disposal of solid waste in landfills could result in GHG emissions. This project will produce small amounts of waste material including but not limited to, concrete, rebar, and metal pipe. The generation, recordkeeping, transport and disposal of these wastes are regulated. Hazardous materials are not expected to materially interact with climate change.	This project has no reasonably ascertainable climate change vulnerabilities involving hazardous materials.	Climate changes are not expected to affect hazardous waste management at this project.
Fish, wildlife, plant communities, andsensitive ecological resources (rare features)	Address in item 14.	Address in item 14.	Address in item14.

8. Cover types

Estimate the acreage of the site with each of the following cover types before and afterdevelopment:

Pre-project cover types and quantities were determined within the project area using the 2019 National Land Cover Dataset (NLCD) (National Land Cover Database, 2019) (Figure 4), data collected during the onsite wetland delineation, MnDNR PWI (Public Waters Inventory (PWI) Maps), United States Department of Agriculture (USDA) Farm Service National Agriculture Imagery Program (NAIP) aerial imagery (National Agriculture Imagery Program (NAIP)), and project design maps and photos. Quantities are presented below in Table 3.

Table 3 – Cover Types within the Project Area

Cover Types	Before (acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)* (Wetland 1 and 2)	1.84	1.62
Deep lakes (>2 meters deep) (Mill Pond)	0.47	0.47
Wooded/forest*	4.38	3.26
Rivers/streams (Pelican River)	1.55	1.55
Brush/Grassland	2.14	3.48
Cropland	0	0
Livestock rangeland/pastureland	0	0
Lawn/landscaping	0	0
Green infrastructure TOTAL (from table below**)	0	0
Impervious surface***	1.17	1.17
Stormwater Pond (wet sedimentation basin)	0	0
Other (describe)	0	0
TOTAL	11.55	11.55

*Portions of wetlands are identified as forested. Forested portions of the wetlands are included in both the Wooded/forest and wetlands acreage calculations above and total acreage calculation in the table will be larger than the total project area.
***Includes Dam Structure and building

Green Infrastructure**	Before (acreage)	After (acreage)
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0	0
Constructed tree trenches and tree boxes	0	0
Constructed wetlands	0	0
Constructed green roofs	0	0
Constructed permeable pavements	0	0
Other (describe)	0	0
TOTAL*	0	0

Trees	Percent	Number
Percent tree canopy removed or number of mature trees removed during development	25%	Approx. 1.12 acres will be removed
Number of new trees planted	N/A	N/A

9. Permits and approvals required

List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibiteduntil all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Table 4 – Permits and Approvals Required

Unit of Government	Type of Application	Status
United States Army Corps of Engineers (USACE)	Section 404 Permit	To be obtained
MnDNR	Public Waters Work Permit	To be obtained
	Dam safety permit	To be obtained
	EAW	Pending Approval
Becker County	Wetland Conservation Act (WCA) Permit	To be obtained
	Conditional Use Permit	To be obtained, if required
Minnesota Pollution Control Agency (MPCA)	National Pollution Discharge Elimination System (NPDES) Construction Stormwater (CSW) Permit	To be obtained
MPCA	401 Water Quality Certification, Anti-degradation Assessment	To be obtained, if required
MN State Legislature	Outdoor Heritage Fund	$1,000,000 to be allocated after all approvals/permits are obtained
MN State Legislature	Get Out MORE	$1,000,000 to be allocated after all approvals/permits are obtained
Federal	USFWS – National Fish Passage Program	$375,000 to be allocated after all approvals/permits are obtained

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 10-20, or the RGU can address all cumulative potential effects in response to EAW Item No.22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land use

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parksand open space, cemeteries, trails, prime or unique farmlands.

Land Use

The project is located along the Pelican River, a key waterway that connects several lakes, including Lake Melissa and Detroit Lake, and supports diverse aquatic habitats and recreational activities. The surrounding area features a mix of land uses, with agriculture being the predominant activity, including crop production and livestock farming. Rural residential properties and lakefront communities are scattered throughout the region, while natural areas such as wetlands, forests, and parks are concentrated along the river and lakes. These natural spaces are essential for maintaining the ecological health of the Pelican River Watershed and supporting the area's recreational and environmental values.

The proposed project is situated on land owned by the MnDNR, Becker County, and Bucks Mill Inc. According to the 2019 NLCD (National Land Cover Database), the existing land use is primarily classified as deciduous forest, with areas of developed open space, water, and woody and emergent herbaceous wetlands. Surrounding areas feature similar classifications, with additional cover types including mixed forest and pasture/hay (Table 3 and Figure 4). These features encompass wooded land within the Bucks Mill Aquatic Management Area (AMA), the Buck's Mill Dam and its associated infrastructure, a gravel access road, and the Pelican River, which bisects the project area. The surrounding landscape includes aquatic resources such as Buck's Mill/Minnow Pond, Buck Lake, and Mill Pond, as well as agricultural pastureland. Cropland within the surrounding area is shown in Figure 5. All land within or adjacent to the project area is designated as Not Prime Farmland (Figure 6). There are no vulnerable populations, such as nursing homes, schools, or daycares, located near the project site.

Parks and Open Space

The Bucks Mill AMA covers the project area south of Bucksmill Drive, encompassing a total of 31.94 acres, including 10.66 acres of Buck's Mill/Minnow Pond, a waterbody located within this general-use area. The AMA supports activities such as angling, non-motorized travel, wildlife observation, hunting, and trapping. It is connected to the Pelican River for 1,065 feet and Buck's Mill/Minnow Pond for 2,045 feet, providing diverse aquatic and wildlife habitats (Aquatic Management Areas). No other parks, trails, wildlife management areas, scientific natural areas, wildlife refuges, or other programs designed to conserve natural resources are present within the project area (Figure 7).

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and anyother applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

The planned land use in the area of the Buck's Mill Dam Modification project aligns with Becker County's 2024 Comprehensive Land Use Plan (Planning and Zoning), which focuses on balancing development with the preservation of natural resources and environmental stewardship. According to the plan, land near the project site is zoned primarily for agricultural purposes under the Agricultural 1 (A-1) zoning classification. This zoning supports rural land uses, natural resource conservation, and limited residential development. In addition to agricultural land use, the plan highlights the importance of maintaining the health and functionality of water bodies and their surrounding environments, including the Pelican River and its tributaries. Shorelands and riparian zones are particularly emphasized for their role in safeguarding water quality, wildlife habitats, and floodplain functions. The county actively promotes land use practices that align with these priorities, ensuring that projects in rural areas, such as the Buck's Mill Dam modifications, are compatible with environmental and community goals

Additionally, water and resource management in the area is guided by regional plans, including the Red River of the North Fisheries Management Plan (Red River of the North) and the Sturgeon Restoration Plan (Wendel, 2019-2029). These plans prioritize ecological restoration, improved fish passage, and water quality enhancement across watersheds, including the Pelican River, which is a tributary of the Otter Tail River. The PRWD also focuses on habitat restoration and flood resilience through projects like dam modification and the removal of fish passage barriers.

Overall, the planned land use and resource management strategies are consistent with the goals of the project, which aim to enhance ecological resilience, improve fish passage, and mitigate flood risks while supporting the broader environmental goals outlined by local, regional, and state authorities. By integrating these priorities, the project will not only enhance the ecological health of the Pelican River but also support the long-term sustainability goals established for the region. The collaborative approach taken by the MnDNR and other agencies ensures that the project aligns with planned land use and resource management strategies while addressing key environmental challenges in the watershed.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

The Federal Emergency Management Agency (FEMA) has not yet completed a survey to determine flood hazard in Becker County, and therefore, no flood map is available (Figure 8). The project site is assumed to be within the 100-year floodplain of the Pelican River, an area prone to periodic flooding during extreme weather events. Assuming the project will be within a floodplain zone, the project may require compliance with federal, state, and local regulations. The proposed modifications to Buck's Mill Dam and associated infrastructure, including the replacement of the culvert, will adhere to floodplain standards by ensuring that construction activities do not exacerbate flood risks. The new spillway design will account for hydrological variability, including potential increases in flood events due to climate change.

According to Becker County Land Use Map (Becker County Land Use and Cover), the project site is situated within a shoreland overlay district, which governs land use and development near public waters to protect water quality, aquatic habitats, and natural shorelines (Figure 9). Shoreland zoning requirements emphasize minimizing impervious surfaces, maintaining natural vegetation buffers, and mitigating potential impacts on the waterbody. Compliance with these requirements will be a priority during construction and restoration.

No wild and scenic rivers are mapped within the project area (Wild and Scenic Rivers). The site is not located within a critical area or other specifically designated overlay, such as a state-designated natural resource corridor or federally protected wetlands. The land surrounding the project area is zoned as Agricultural 1 (A-1) according to Becker County zoning regulations (Becker County, MN). This zoning designation primarily supports agricultural uses, rural residential development, and conservation of natural resources. While the project area itself is not actively used for agricultural purposes, the zoning classification emphasizes the importance of maintaining the rural character of the land and protecting natural systems. The project activities will be planned to minimize any impacts on adjacent land uses and to align with the A-1 zoning objectives, ensuring that the ecological health of the Pelican River and its surroundings is preserved.

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding,describe the risk potential considering changing precipitation and event intensity.

The Buck's Mill Dam Modification project does not involve the construction or operation of any critical facilities, such as those necessary for public health and safety, facilities storing hazardous materials, or housing for occupants who may be insufficiently mobile. The project scope is focused on the modification of an existing dam structure, including the replacement of the culvert under Bucksmill Drive, and to improve ecological function and access.

While the project site is assumed to be located within a floodplain and is at potential risk for localized flooding due to its proximity to the Pelican River, no critical facilities will be constructed as part of this project. The proposed modifications, such as the rock and riffle spillway and upgraded culvert, are designed to enhance resilience to changing precipitation patterns and increased storm intensity. These measures will improve flood management in the area and mitigate risks to surrounding infrastructure. Therefore, the project is not anticipated to increase risks to public health or safety, nor does it involve facilities that would be vulnerable during flood events.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9aabove, concentrating on implications for environmental effects.

The Buck's Mill Dam Modification project is highly compatible with nearby land uses, zoning, and local plans, aligning with the area's environmental and rural character. The project is situated within an Agricultural 1 (A-1) zoning district in Becker County, which emphasizes the preservation of agricultural uses, rural residential development, and natural resource conservation. While the project site itself is not actively used for agriculture, the proposed modifications to the dam and surrounding infrastructure support the ecological and hydrological health of the Pelican River, a critical resource for the area.

The project is designed to enhance ecological functions by improving fish passage and restoring natural hydrology. These objectives are consistent with zoning goals for protecting natural resources and maintaining compatibility with adjacent rural and natural land uses. Furthermore, by incorporating flood-resilient designs, the project reduces the risk of erosion, protecting the new rock riffle structure from failure.

In addition to its alignment with zoning, the project complements regional plans focused on water quality and habitat improvement. By addressing sedimentation and improving aquatic connectivity, the project supports broader environmental goals for the Pelican River watershed. Measures such as erosion control, riparian buffer plantings, and stormwater management further mitigate potential environmental impacts, ensuring that the project contributes positively to the surrounding landscape.

Overall, the Buck's Mill Dam Modification project is compatible with nearby land uses, zoning, and local plans, with a strong emphasis on minimizing environmental effects and enhancing the ecological health of the area.

c. Identify measures incorporated into the proposed project to mitigate any potentialincompatibility as discussed in Item 10b above and any risk potential.

The majority of the proposed project is within the ordinary high-water level of both Pelican River and Mill Pond. Both waters fall under MnDNR (*Minnesota Statute 103G.245*) and USACE Federal Clean Water Act (CWA) jurisdiction. Other areas within the project area are owned by the MnDNR and Becker County, and private entities. Mitigation, minimization, and avoiding sensitive areas (public waters, wetlands, and steep sloped areas) will be accomplished during the planning and design phase of the project. The project site is also assumed to be located within the 100-year floodplain. The project will require compliance with federal, state, and local regulations.

11. Geology, soils and topography/land forms

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Review of the Minnesota Geological Survey (Minnesota Geological Survey) indicates that the surficial geology in the project area consists of sand to gravelly sand glacial outwash (QS). Bedrock geology is located approximately 401-500 feet below the ground surface and is described as Superior Province, Neoarchean mafic metavolcanic rocks and hypabyssal intrusive rocks metamorphosed to lower greenschist to lower amphibolite facies; includes the Ely Greenstone (Minnesota Geological Survey).

Proposed lock and key structure removal activities are anticipated to occur within ten feet of the surface and therefore will not impact bedrock. No susceptible geologic features such as sinkholes, shallow limestone formations, or unconfined/shallow aquifers were located within or near the project area. No karst features or areas prone to karst development are located within the project area (Karst Feature Inventory).

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highlypermeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed inresponse to Item 12.b.ii.

Soils

The project area intersects several soil map units, according to review of the USDA Natural Resource Conservation Service (NRCS) Web Soil Survey (Web Soil Survey) (Figure 10). The soil map units primarily associated with the project area is Sybil-Eagleview complex, 15 to 30 percent slopes and the soils within the Pelican River channel are identified as Nidaros muck, frequently flooded. These soil types are described as very deep and formed in loamy and sandy outwash sediments on glacial outwash plains, till plains, and moraines. They have moderately rapid permeability in the upper part and rapid permeability in the underlying material. The Sybil series is described as well drained while the Nidaros series is described as very poorly drained.

The soil data includes each soil hydrologic group that describes the soil's runoff potential. Runoff potential is based on the rate of water infiltration of soils that are unvegetated, wet, and receive precipitation during long-duration storm events. The hydrologic groups include A, B, C, or D in which *A* represents low runoff potential, and *D* represents high runoff potential. The soils within the Buck's Mill Dam Modification project area are characterized by low to moderate runoff potential (Table 5).

Table 5 – Soils within the Project Boundary

Map unit symbol	Map unit name	Hydrologic Group Rating	Acres in AOI	Percent of AOI
540	Seelyeville-Seelyeville, ponded, complex, 0 to 1 percent slopes	A/D	1.0	9.0%
721E	Corliss loamy sand, 20 to 35 percent slopes	A	0.5	4.4%
778C	Dorset-Corliss complex, 6 to 12 percent slopes	B	0.0	0.1%
1111	Nidaros muck, frequently flooded	B/D	4.5	41.0%
1195C	Sybil-Eagleview complex, 8 to 15 percent slopes	A	0.2	2.2%
1195E	Sybil-Eagleview complex, 15 to 30 percent slopes	A	3.9	35.5%
W	Water	N/A	0.8	7.7%
Totals for Area of Interest			**10.9**	**100%**

Source: (Web Soil Survey)

The anticipated volume of soil excavation is 1,500 cubic yards. Construction methods will utilize erosion and sediment control best management practices (BMPs) to prevent downstream sedimentation of aquatic resources.

Topography

The topography around Buck's Mill Dam consists of gently rolling terrain typical of Becker County, with a mix of open water, wetlands, forests, grasslands, and cultivated farmland. While the area is generally stable, wetlands and grasslands may indicate areas of higher soil permeability, which can influence water drainage and erosion potential. Buck's Mill Dam is located at an approximate elevation of 1,339 feet (408 meters) above sea level. The surrounding area generally has gentle elevation variations, typical of the rolling terrain in this region of Minnesota (Figure 2). The lack of steep slopes in the region reduces the risk of erosion due to runoff.

Grading

The site grading will consist of an estimated 1,500 CY of excavation and 7,500 CY of fill. A majority of the excavation is adjacent to the existing lock structure, where the channel will be widened to accommodate the rock riffles. The fill is being brought in to raise the channel bottom and allow for the rock riffles to gradually step down at the 3% grade.

- NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 12 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 11.

12. Water resources

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive speciesand the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Table 6 – Surface Water Features and Special Designations

Waterbody	Size	Depth (LakeFinder)	Features	Water Quality	AIS Class (Infested Waters List)	303d Listings (Impaired Waters: Final 2024)
Mill Pond (03037700)	154.5 acres	Max 10 feet	Reservoir, Buck's Mill Dam, distinct basins	Total phosphorus: 20 ppm, clarity: 7.5 feet	Zebra Mussels and Flowering Rush	Not Impaired
Pelican River (H-101-508/101508)	120 sq miles watershed	-	52 named lakes, wetlands, 50 miles of streams	Mirrors adjacent lakes	Zebra Mussels	Not Impaired
Buck Lake (03047300)	85.87 acres	Max 15 feet, mean 8 feet	Shoreline length: 2.15 miles	-	Zebra Mussels and Flowering Rush	Not Impaired
Buck's Mill / Minnow Pond (03124900)	10.66 acres	-	Connected to Pelican River and Buck's Mill/Minnow Pond	-	Zebra Mussels	Not Impaired
Wetlands	-	-	Two wetlands, one tributary, two lakes	-		Not Impaired

Surface waters designated as public waters within the project area include the following (Figure 11):

Mill Pond (03037700): Mill Pond is a shallow, 154.5-acre natural environment lake. Technically a reservoir, its water level is maintained approximately six feet above the natural lake elevation by Buck's Mill Dam, situated downstream. The lake features distinct basins, with the eastern half densely vegetated except for the Pelican River channel, while the west basin includes open water reaching a maximum depth of 10 feet. Although Mill Pond lacks a designated boat ramp, it can be accessed via Lake Melissa using canoes, kayaks, or small watercraft. Water quality monitoring from 2007 to 2009 recorded total phosphorus levels of 20 ppm and water clarity of 7.5 feet.

Pelican River (H-101-508/101508): The River flows through the 120-square-mile Pelican River Watershed, which includes 52 named lakes, numerous unnamed lakes and wetlands, and over 50 miles of streams. The river originates near Richwood and passes through Mill Pond (outlet edge of district), eventually draining into the Otter Tail River and then the Red River. Water quality at the outlets of lakes along the river, including Mill Pond, closely mirrors that of the adjacent lakes, with total phosphorus and sediment monitored at select locations.

Buck Lake (03047300): an 85.87-acre lake with a maximum depth of 15 feet and a mean depth of 8 feet. The lake has a shoreline length of 2.15 miles, providing habitat for aquatic species.

Buck's Mill/Minnow Pond (03124900): a 10.66-acre waterbody located within Bucks Mill AMA. This general-use area allows for activities such as angling, non-motorized travel, wildlife observation, hunting, and trapping. It is connected to the Pelican River for 1,065 feet and Buck's Mill/Minnow Pond for 2,045 feet, offering a variety of aquatic and wildlife habitats.

Wetlands: A wetland delineation has been completed for the currently proposed construction area surrounding the existing dam (Appendix B). Prior to the onsite investigation the National Wetlands Inventory was reviewed (Figure 12) (National Wetland Inventory). This delineation identified two wetlands, one tributary (Pelican River) and two lakes (Mill Pond and Minnow Pond) for the project area surrounding the dam. (Details provided in part iv.a. below.) There are no designated trout streams, trout lakes, or wildlife lakes in or near the project area.

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells,including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

The groundwater table in the project area is relatively shallow. According to the USDA NRCS Web Soil Survey database (USDA Natural Resources Conservation Service), in most of the areas without surface waters, the depth to groundwater exceeds 200 centimeters. However, near the dam, several areas have groundwater depths ranging from 0 to 75 centimeters. Further, a geotechnical evaluation and borings were conducted onsite and two borings reached groundwater. The groundwater was between two and seven and a half feet from the surface at elevations ranging from 1313.5 to 1322 feet above sea level. The full geotechnical report can obtained upon request. According to the Minnesota Spring Inventory (Minnesota Spring Inventory), there are no mapped springs or seeps in the project area or in the vicinity of the project area.

Based on the Minnesota Department of Health Source Water Protection Areas online database (Source Water Protection Web Map Viewer), the project area is not located in a Wellhead Protection Area (WPA) or a Drinking Water Supply Management Area (DWSMA). A query of the MDH's Minnesota Well Index (Minnesota Well Index) indicated that there are four wells within a half-mile radius of Buck's Mill Dam and one well is located within the project area, Unique Well Number 639689 (Figure 13). Table 7 below identifies the wells located within a half-mile radius of Buck's Mill Dam. Well log reports are provided in Appendix A.

Table 7 – County Well Index Verified Wells within a Half Mile of the Project Area

Unique Well Number	Well Name	Elevation (ft)	Depth (ft)	Distance from Buck's Mill Dam (Miles)
639689	Lewis, Mike & Lori	1333 ft	330 ft	0.025
483406	Howts, L.Gene	1352 ft	192 ft	0.274
786372	Houts, Brenda	1348 ft	55 ft	0.292
796172	Roach, Joe & Jennifer	1359 ft	58 ft	0.328

b. Describe effects from project activities on water resources and measures to minimize or mitigatethe effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition ofall sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water andwaste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

No wastewater will be discharged as a result of the project construction or operations.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for sucha system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.

No wastewater will be discharged as a result of the project construction or operations.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

No wastewater would be produced or treated within the proposed project area. No wastewater discharge to surface waters is proposed or anticipated as a result of this project.

ii. Stormwater - Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants.Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments orare classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

The Buck's Mill Dam Modification project will result in changes to surface hydrology due to modifications in land cover and the replacement of existing structures. During construction, approximately 11.57 acres of land will be disturbed, requiring coverage under the NPDES Construction Stormwater Permit. The site's runoff currently flows into the Pelican River, which serves as the immediate receiving water body and connects downstream to other major water bodies.

The project's construction phase is expected to increase erosion and sedimentation risks due to disturbed soil and changes in land cover. To mitigate these risks, a SWPPP will be implemented, incorporating BMPs such as silt fences, erosion control logs, and erosion control blankets. These measures will help minimize sediment transport to the Pelican River and downstream waters. The SWPPP will also include stabilization practices such as temporary seeding and mulch application

to reduce soil exposure during and after construction.

Post-construction, the modified spillway and associated infrastructure will reduce impervious surfaces by removing the existing lock and key structure. The redesigned infrastructure is intended to handle larger storm events without contributing to downstream flooding or degradation.

The Pelican River is not classified as an impaired water body or a special water under the Construction Stormwater Permit, but any construction-related impacts will be managed to prevent adverse effects. Sediment and nutrient loading will be minimized through continuous monitoring and adaptive management strategies to ensure compliance with water quality standards.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe anywell abandonment. If connecting to an existing municipal water supply, identify the wells tobe used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should theappropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

No appropriation of surface water or groundwater is expected for project construction. If dewatering is required during construction, it is anticipated to remain below the permit-required threshold of 10,000 gallons per day or one million gallons per year. Should this threshold be exceeded, a MnDNR water appropriation permit will be obtained. Dewatering activities will comply with the MPCA NPDES Construction Stormwater Permit and will be conducted to avoid creating nuisance conditions or negatively impacting receiving waters or downstream properties.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

Approximately 1.03 acres of wetlands are located within the defined project area, including emergent wetlands (0.32 acres; seasonally flooded persistent emergent wetland) and forested wetlands (17.1 acres; broad leaved deciduous wetland).

A wetland delineation has been completed for the currently proposed construction area surrounding the existing dam (Appendix B). This delineation identified two wetlands, one tributary (Pelican River) and two lakes (Mill Pond and Minnow Pond) for the project area surrounding the dam. Wetlands surrounding the project area are not anticipated to be directly impacted by the project. Direct impacts will occur to wetland areas identified near the dam, tributary and the lake. Some of the impacts from the project will be temporary, while other impacts will be permanent.

The project is estimated to permanently impact approximately 0.22 acres of wetlands. Temporary impacts will be identified during the projects permitting stage along with specific work activities taking place.

The proposed project will follow the procedures and processes of state and federal wetlands laws, including permitting processes according to Section 404 of the CWA and the Minnesota WCA. Potential changes to wetlands are not expected to affect the host watershed when considering climatic changes.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The removal of the existing lock and key structure and the construction of the spillway and rock riffle fish passage structure will involve approximately 1,500 cubic yards of excavation and 7,500 cubic yards of fill in the Pelican River and its surrounding upland banks. The lock and key structure removal will necessitate temporary excavation of the river's adjacent shorelines, while the construction of the fish passage infrastructure will require permanent fill, using a combination of soil and boulders.

During the lock and key structure removal and construction of the spillway and fish passage structure, temporary surface water impacts may occur. Stormwater runoff, primarily consisting of sediment, is possible but expected to be minimal due to the surrounding land being mostly wooded or covered with brush and shrubland, with few impervious surfaces. Additionally, the project will minimize or eliminate these potential impacts through the use of BMPs, including sediment and erosion control measures, and will comply with the MnDNR Public Waters Work Permit and MPCA NPDES Construction Stormwater Permit.

Climate trends in the Midwest are characterized by rising growing-season temperatures, increased spring humidity, more frequent late-growing-season droughts, heavier rainfall events, and greater stress on ecosystems (National Climate Assessment). The current degraded condition of the dam makes it vulnerable to these climate trends, which could further strain its ability to function effectively. If left unchanged, the Pelican River, as well as Buck lake and Mill pond, will experience negative impacts from increased heavy rainfall, such as heightened erosion of surrounding shorelines and a greater risk of flooding to properties along these bodies of water. Additionally, these climate trends place increased pressure on the local ecosystem. The removal of the lock and key structure and restoration of aquatic habitat connectivity through the creation of the fish passage will offer greater access to spawning grounds and habitats suitable for aquatic organisms. Overall, the restoration project will improve floodwater storage and stream habitats, helping to mitigate the adverse effects of these climate trends.

13. Contamination/Hazardous Materials/Wastes

a. Pre-project site conditions - Describe existing contamination or potential environmental hazardson or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

Review of the MPCA "What's in my Neighborhood" (WIMN) indicates that there is one known site within a one-mile radius of the project area (Figure 14) (What's in My Neighborhood). The site is identified as Lakeview Township Dump (Site ID: 193152). No sites are located within the immediate project area. There are no anticipated potential environmental effects from prior contamination or environmental hazards. A summary table of MPCA WIMN sites within a one-mile radius of the project area is provided below (Table 8).

Table 8 – MPCA WIMN Sites within One Mile of the Project Area

Site ID	Name	Active	Activity Type	MPCA ID
193152	Lakeview Township Dump	Y	Site Assessment	SA0007123

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solidwaste including source reduction and recycling.

There will be no project related generation of solid wastes from operations. However, there will be solid waste generated from the removal of structural material from the lock and key structure modification. Wherever possible, excavated material from the channel that is suitable for building materials will be used for construction. Lock and key structural materials (cement, metal, ect) will be disposed of at an approved offsite dumping location selected by the contractor.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

The completed project will not require the use or storage of hazardous materials. Some hazardous materials will be utilized by construction equipment during the lock and key structure removal. Excavators, trucks, skid steers, and other heavy equipment utilized for construction contain petroleum-based fuels, hydraulic oils, and other materials that could be potentially hazardous if released into the environment. The materials will be required to be properly managed by the selected

construction contractor to minimize the potential for release. All hazardous substances will be stored at an appropriate construction staging or laydown area that will be located outside of the floodplain of Buck Lake, Mill Pond, and the Pelican River minimizing the chance that an unintended release would reach the waterways. Fuels, oil, and solvents must be stored in appropriate containers such as double walled tanks or tanks with secondary containment. All used waste oils and materials will require offsite disposal at the appropriate solid waste disposal facility that can accept these substances.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

There is no anticipated project related hazardous materials generation or storage proposed for the operation of the project. A minor amount of hazardous materials storage is anticipated during construction, primarily fuel for construction equipment, as described above. The materials will be required to be properly managed by the selected construction contractor to minimize the potential for release. Fuels, oil, and solvents must be appropriately stored and the contractor will be required to implement a spill prevention and response plan. All used waste oils and materials will require offsite disposal at an appropriate facility.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features)

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The Buck's Mill Dam Modification project area is located within the Hardwood Hills subsection of the Eastern Broadleaf Forest Province according to the MnDNR Ecological Classification System (Figure 15). The landforms in this region are described as containing ice stagnation, end, and ground moraines, with outwash plains. Kettle lakes are numerous, both on moraine and outwash deposits. Parent material is primarily calcareous glacial till and outwash sediments. The glacial till is calcareous loamy sediment deposited by the last major glaciation. Soils consist primarily of loamy sands and sandy loams. There are eight key habitats of the Hardwood Hills subsection including forest-upland deciduous (aspen-oak), forested-upland deciduous (hardwood), shrub/woodland-upland (oak savanna, brush prairie), prairie, wetland non-forest, grassland, lake-shallow, and river-headwater to large (Minnesota Department of Natural Resources). Aerial image analysis show the potential for the following habitats to occur in the project area. These habitats are described below (Division of Ecological Services).

<u>Forest-Upland Deciduous (Aspen-Oak):</u>
This habitat is characterized by a canopy dominated by quaking aspen (*Populus tremuloides*), big-toothed aspen (*Populus grandidentata*), paper birch (*Betula papyrifera*), or a mixture of these species with a shrub layer consisting of hazelnuts (*Corylus spp.*) or dogwoods (*Cornus spp*.). These shade-intolerant tree species are the dominant trees in the early stages of a wide variety of native plant communities in fire-dependent and mesic hardwood forest systems. These forests support a variety of mammal, bird, and amphibian species of greatest conservation need (SGCN).

Forested-Upland Deciduous (Hardwood):

This habitat is found on upland sites with moisture-retentive soils and in areas where wildfires are rare. Characterized by a continuous, often dense canopy of deciduous trees, primarily sugar maple (*Acer saccharum*), basswood (*Tillia americana*), and red oak (*Quercus rubra*), along with other canopy species such as elm (*Ulmus Spp.*), ash's (*Fraxinus Spp.*), bitternut hickory (*Carya cordiformis*), and hackberry (*Celtis occidentalis*). Older forests in this habitat typically feature multiple, nearly closed layers of vegetation, including a well-defined canopy, subcanopy, and shrub layer. SCGN species that utilize this habitat consist of Acadian flycatchers (*Empidonax virescens*), cerulean warblers (*Setophaga cerulea*), hooded warblers (*Setophaga citrina*), and red-shouldered hawks (*Buteo lineatus*). Wood thrushes (*Hylocichla mustelina*), ovenbirds (*Seiurus aurocapilla*), least flycatchers (*Empidonax minimus*), black-throated blue warblers (*Setophaga caerulescens*), northern goshawks (*Accipiter gentilis*), four-toed salamanders (*Hemidactylium scutatum*), red-backed salamanders (*Plethodon cinereus*), and woodland voles (*Microtus pinetorum*).

Wetland Non-Forest:

This habitat contains multiple different wetland plant communities consisting of marshes, wet meadows, peatlands, fens, and groundwater discharge sites. Common vegetation in these communities consists of cattail, (*Typha spp.*), bulrushes (*Scirpus spp.*), arrowheads (*Sagittaria spp.*), sedges, (*Carex spp.*), and bluejoint (*Calamagrostis canadensis*). SCGN species that utilize these habitats consist of Sedge wren (*Cistothorus stellaris*), yellow rails (*Coturnicops noveboracensis*), Nelson's sharp-tailed sparrows (*Ammospiza nelsoni*), two-spotted skipper (*Euphyes bimacula*), least bitterns (*Ixobrychus exilis*), American bittern (*Botaurus lentiginosus*), marsh wren (*Cistothorus palustris*), and Virginia rail (*Rallus limicola*).

Lake-Shallow:

Lake-Shallow is described as permanent or semi-permanent water bodies less than 15 feet (5 meters) deep. Habitat in shallow lakes consists of Stands of emergent and floating-leaved aquatic plants such as cattails, bulrush (*Schoenoplectus spp.*, *Scirpus spp., Bolboschoenus spp.*), water lily (*Nymphaea* spp.), and reeds (several genera), as well as submerged plants such as coontail (*Ceratophyllum demersum*). SGCN species dependent on this habitat include lesser scaup (*Aythya affinis*), northern pintail (*Anas acuta*), common moorhen (*Gallinula chloropus*), least bittern, American bittern, marsh wren, Virginia rail, and Forster's tern (*Sterna forsteri*).

River-Headwater to Large:

This habitat category exhibits significant variability across the state. The habitat most relevant to the proposed project is characterized by streams with complex geomorphology, often featuring dams that restrict connectivity. The distribution of aquatic species is strongly influenced by geographic barriers, with the historical impacts of glaciation and stream channel connections playing a key role in shaping the animal communities found in these watershed provinces today. SGCN that utilize these systems include the redside dace (*Clinostomus elongatus*), plains topminnow (*Fundulus sciadicus*), Creek heelsplitter (*Lasmigona compressa*), largescale stoneroller (*Campostoma oligolepis*), black redhorse (*Moxostoma duquesnei*), greater redhorse (*Moxostoma valenciennesi*), least darter (*Etheostoma microperca*), and the crystal darter (*Crystallaria asprella*).

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota Biological Survey Sites of Biodiversity Significance, andother sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-_____) and/or correspondence number (MCE-2024-00928)) from which the data were obtained and attach the Natural Heritage Review letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

A query of the MnDNR Natural Heritage Information System (NHIS) was conducted on November 7, 2024 (Correspondence: MCE 2024-00928) and indicated that there are no known occurrences of state-listed endangered or threatened species located within the vicinity of the project. Three state-listed special concern species have been documented in the vicinity of the project area. The NHIS review is provided in Appendix C.

Table 9 – Species of Concern within the Project Vicinity

Common Name	Group	State Status	Federal Status
Spiral Ditchgrass (*Ruppia cirrhosa)*	Vascular Plant	Special Concern	None
Lake Sturgeon (*Acipenser fulvescens)*	Vertebrate Animal	Special Concern	None
Mudpuppy (*Necturus maculosus)*	Vertebrate Animal	Special Concern	None

No Minnesota Biological Survey (MBS) Sites of Biodiversity Significance, MnDNR Native Plant Communities, MnDNR Old Growth Stands, or Minnesota Prairie Conservation Plans are located within the project area or surrounding 330 feet. No Calcareous Fens are located within 5 miles of the site, and no Important Bird Areas are located within one mile of the site. The NHIS query also indicated that no Habitat Conservation Plans or Rusty Patch Bumblebee (*Bombus affinis*) occurrences have been recorded at the project site. One Lakes of Biological Significance was identified within 330 feet of the project area. This feature is identified in the public water basin inventory as Mill (03037700). It is listed as High biological significance with a plant rank of two. High biological significance is defined by the following criteria.

- Two of the following: high aquatic plant richness, high floristic quality, or a population of an endangered or threatened plant species,
- Populations of more than one fish species of special concern and/or SGCN,
- One or more of the following: colonial waterbird nesting area, history of endangered or threatened colonial waterbird nesting, presence of endangered, threatened, special concern lake bird species, five lake bird SGCN,
- Loon nesting on large lakes,
- Mudpuppy presence.

The northern long-eared bat is currently listed as a state special concern species in Minnesota; however, the USFWS published a final rule on November 29, 2022, to reclassify the northern long eared bat from a threatened listing to endangered under the Endangered Species Act (ESA). This new status is effective as of January 30th, 2023. Due to the nature of the project and the need for federal permits, this review includes evaluation of this federal species.

A query of the USFWS Information for Planning and Consultation (IPaC) database was generated to identify federally listed endangered, threatened, or candidate species with potential to occur within a one-mile buffer of the project area. The IPaC query identified the northern long-eared bat (*Myotis septentrionalis*), the grey wolf (*Canis lupus*), the monarch butterfly (*Danaus plexippus*), Suckley's cuckoo bumble bee (*Bombus suckleyi*), and the western regal fritillary (*Argynnis idalia occidentalis*). A brief description of habitat needs for each of these species and their listing status is included below in Table 10. The full IPaC report and determination keys can be viewed in Appendix D.

Table 10 – Federal Threatened and Endangered Species within One Mile of the Project Area

Species	Federal Status	Habitat Description
Northern long-eared bat *(Myotis septentrionalis)*	Endangered	Relies on the bark of live trees and snags or dead trees for summer roosting and overwinters in caves and mines. Males and non-reproductive females may also roost in cooler places, like caves and mines. Forested habitat is not only used for roosting but also foraging and travel between suitable habitat fragments. (United States Fish and Wildlife Service)
Grey wolf *(Canis lupus)*	Threatened	Live in a variety of habitats ranging from forests to mountains to deserts to swamps. Most wolves have home ranges in forested regions that contain prey. Primary prey consists of deer, moose, and beavers. Wolves are social animals that are often found in packs. They mate in February and wolf pups are raised in underground dens. (United States Fish and Wildlife Service)
Monarch butterfly *(Danaus Plexippus)*	Proposed Threatened	Monarchs are habitat generalists that may use many different types of plant communities for foraging and nectar sources but is dependent on the presence of milkweed (*Asclepias spp.)* for larval rearing. Adults will nectar from milkweed species while in bloom but will utilize many other nectar sources during the spring and fall, prior to and after the bloom season for milkweed. (United States Fish and Wildlife Service)
Suckley's cuckoo bumble bee (*Bombus suckleyi*)	Proposed Endangered	This species is a social parasite whose nesting occurs exclusively in the nests of other bees, most commonly in the nests of the western bumblebee (*Bombus occidentalis).* Their primary habitat consists of open grassy areas, urban parks, gardens, chaparral, shrub areas, and mountain meadows. They are generalist foragers that feed on native wildflowers and prefer aster species from the following genera *Chrysothamnus*, *Cirsium*, and *Solidago*. (Nature Serve Expolorer)
Western regal fritillary *(Argynnis idalia occidentalis)*	Proposed Threatened	The species prefers undisturbed native mixed-grass and tall-grass prairies ranging from dry to wet moisture regimes. Nectar species are required to support adults from June to September and they may use a wide variety of species, including non-native flowers. The larvae are dependent on several violet species for food sources, but most commonly feed on prairie violet (*Viola pedatifida*). (Minnesota Department of Natural Resources)

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

No MBS Sites of Biodiversity Significance, MnDNR Native Plant Communities, MnDNR Old Growth Stands, Minnesota Prairie Conservation Plans, Calcareous Fens, Important Bird Areas or Habitat Conservation Plans or Rusty Patch Bumblebee occurrences have been recorded within or near the project site, and no impacts to these features are expected. There are no anticipated permanent adverse impacts to fish, wildlife, or plant communities as a result of the proposed project.

One Lakes of Biological Significance was identified within 330 feet of the project area. This feature is identified in the public water basin inventory as Mill Pond (03037700).

During the modification of Bucks Mill Dam and construction of the spillway and rock riffle structures, temporary adverse impacts and displacement of species may occur in the existing dam footprint, immediate Pelican River surroundings, and upland construction area. These temporary in-river impacts may displace aquatic and semi aquatic plants, mammals, reptiles, fish, and other aquatic species. To minimize impacts to fish populations, specifically the lake sturgeon, in river construction activities will occur outside of the fish spawning season (May-June). It is anticipated that following construction, habitat and passage for all impacted organisms would be increased and improved with the removal of the dam barrier.

The removal of 1.12 acres of trees is proposed as part of the project. Northern long eared bats (NLEB) utilize trees for summer roosting. As such, any tree removal should occur outside of the NLEB pup-rearing season (June 1 to July 31).

The proposed project is not anticipated to result in adverse impacts on the grey wolf. The proposed project proposes little to no impact to habitats utilized by grey wolves and their food sources in Minnesota.

The proposed project is not anticipated to result in adverse impacts to monarch butterflies or the western regal fritillary. The existing condition of the project area is a concreate dam and a disturbed wooded area. Currently, there is little to no pollinator habitat at the project area, therefore no adverse impacts to pollinators, including the monarch butterfly and western regal fritillary will occur as a result of the proposed project.

The proposed project is anticipated to result in a positive impact on fish and wildlife. The existing dam structure is a barrier that cuts off passage for fish and other aquatic species. The proposed dam modification consists of a spillway with a series of rock and riffle structures that will allow for fish passage, increased habitat for aquatic species, such as the mudpuppy, and the river to fully function hydraulically.

Invasive Species Prevention

The MnDNR Operation Order 113 requires preventing or limiting the introduction, establishment, and spread of invasive species during activities on public waters and MnDNR-administered lands. The Contractors shall prevent invasive species from entering into or spreading within a project site by cleaning equipment and clothing prior to arriving at the project site. If the equipment or clothing arrives at the project site with soil, aggregate material, mulch, vegetation (including seeds) or animals, it shall be cleaned by Contractor furnished tool or equipment (brush/broom, compressed air or pressure washer) at the staging area. Cleaning using a heated pressure washer is the recommended cleaning method. The Contractor shall dispose of material cleaned from equipment and clothing at a location determined by the Project Supervisor. If the material cannot be disposed of onsite, secure material prior to transport (sealed container, covered truck, or wrap with tarp) and legally dispose of off-site.

If the Project Supervisor has determined that invasive species are within the project limits, the Contractor shall meet the following requirements.

- The Project Supervisor shall identify the known infested sites to be avoided.
- The parking and staging areas and travel routes shall not be within the invasive species area.
- The Contractor shall clean equipment and clothing and dispose of material as noted above, prior to leaving the project limits.
- Where there are multiple sites and at least one contains invasive species, the intent is to start work at the site with the fewest number of invasive plants, leaving the most heavily infested sites to last.
- The Contractor shall make every effort to schedule operations and site visits to avoid the spread of invasive species.
- If the Project Supervisor or Contractor discovers additional invasive species infestation areas during construction, the Contractor is to stop operations in the newly discovered infested area until a resolution can be accepted by the Project Supervisor.

d. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish,wildlife, plant communities, ecosystems, and sensitive ecological resources.

The following measures will be used to avoid, minimize, or mitigate adverse effects to fish and wildlife, and their habitats.

- The removal of mature trees will occur outside of the NLEB pup-rearing season (June 1 to July 31) and peak nesting season for birds protected by the Migratory Bird Treaty Act (April 1 to June 15).
- In river construction activities will occur outside of the fish spawning season (May-June).
- Construction BMPs will be used to minimize impacts to fish, wildlife, or their habitats including wildlife friendly erosion mesh and sediment control measures.

15. Historic properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or inclose proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

A Cultural Resources Review was completed on November 26, 2024, by the Minnesota Historical Society (MNHS) Archaeology Department with the MnDNR (Appendix E). The Cultural Resources Review revealed no intact cultural deposits within the project area. Historical records and a visual field examination confirmed the absence of significant archaeological sites. Although the surrounding region includes precontact sites, such as burial mounds and artifact scatters, none were found within the immediate Area of Potential Effects (APE). The significant reshaping of the landscape over more than a century of development made systematic archaeological investigations unnecessary.

Two architectural properties aged 45 years or older—Kingsbury Lock and Buck's Mill Dam—were identified and evaluated. Kingsbury Lock, constructed in 1908 to facilitate navigation on the Pelican River, has been inoperative since 1920 and now consists only of degraded concrete walls. Its lack of functional features, structural integrity, and historical context disqualifies it from meeting the eligibility criteria for listing in the National Register of Historic Places (NRHP). Similarly, Buck's Mill Dam, built in 1936–1937 under the Works Progress Administration (WPA), is not NRHP-eligible. Although the dam retains much of its original structure, it lacks the WPA plaque, a key element for its historical association and significance. Both structures fail to convey their historical significance due to compromised integrity.

The review also noted a third aboveground structure, a former restaurant building near the dam. Built in 1980, it is currently ineligible for NRHP consideration due to its age but may require evaluation if the project continues into 2025, when the structure would meet the 45-year threshold.

The review found no historic properties requiring preservation under current regulations. It recommended no further archaeological or architectural investigations are needed unless federal permitting introduces new compliance requirements. The findings suggest that the proposed modifications and removals will not adversely affect historically significant resources, allowing the project to proceed with minimal cultural impact.

16. Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visualeffects such as vapor plumes or glare from intense lights. Discuss the potential visual effects fromthe project. Identify any measures to avoid, minimize, or mitigate visual effects.

There are no scenic views or vistas within the project corridor. During construction, nearby properties and local residents may experience dust clouds and vapor plumes. To minimize these impacts, dust control measures will be implemented, such as keeping the soil moist, applying dust suppressant chemicals, reducing machinery speed on exposed soils, and limiting overall soil disturbances. Construction activities will be limited to standard working hours.

17. Air

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effectsfrom stationary source emissions.

There will be no stationary source emissions involved with this project. Any air emissions produced will be temporary and on the scale of normal construction activities.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimizeor mitigate vehicle-related emissions.

Project-related vehicle emissions will be consistent with typical construction activities, including emissions from construction crew personal vehicles and heavy construction equipment. The effect of the project's traffic generation on air emissions is anticipated to be minimal and temporary. All equipment will be maintained according to factory-suggested operations and maintenance intervals to ensure efficiency. No additional measures have been developed or are planned to minimize or mitigate vehicle-related emissions.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust andodors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize ormitigate the effects of dust and odors.

Most of the construction will take place within the stream, resulting in minimal impacts to dust and odor. Odor disturbances will be limited to emissions from construction equipment and will only affect the immediate construction area, primarily consisting of exhaust from diesel engines. Dust and odors may also arise during the removal of the lock and key structure, but these will be confined to the construction area and will be temporary. Dust generated during construction will be minimized through standard control measures, such as applying water to gravel roads for site access and limiting the extent and duration of exposed soil conditions.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

a. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to cometo that conclusion and any GHG emission sources not included in the total calculation.

The proposed project is the removal and replacement of the lock and key structure and associated infrastructure. The replacement includes the construction of a concrete spillway with a series of rock and riffle structures along with replacing the culverts. Greenhouse gas emissions are expected during the removal and replacement of the lock and key structure from mobile equipment combustion, land use conversion, and off-site waste management. No operational GHG emissions are anticipated following construction.

The proposed project will require the use of both heavy machinery (off-road) and other light duty (on-road) vehicles during construction. The machinery and light duty vehicles require the use of diesel or gasoline to function and will result in GHG emissions. The sources of emissions are described and quantified utilizing the EPA's Simplified GHG Emissions Calculator (SGEC) (Simplified GHG Emissions Calculator) (Table 11).

Demolition and construction GHG emissions include:

- Mobile, On-road vehicles: Medium to heavy-duty truck, delivery trucks, and haul trucks; construction crew personal vehicles (light duty trucks)
- Mobile, Off-road equipment: Construction equipment that includes dump trucks, excavators, loaders, dozers, skid steers, wheeled backhoes, tractors, blades, rollers, water pumps, drill rigs, generator sets, and other construction equipment.
- Land use conversion: A total of 1.34 acres of land will be converted
- Off-site waste management: Disposal of concrete from the dam and general municipal solid waste

On-road vehicle emissions include those generated by the supervisors monitoring progress of the project in pickup trucks, delivery trucks to bring equipment and supplies to the project site, as well as passenger vehicles for workers commuting to the site. Additional on-road emissions will be generated from haul trucks removing soil, steel, and concrete waste. The number of haul trucks was estimated based on the potential number of trips for the contractor to remove the soil and haul to an approved location, as well as the contractor taking the steel to an approved recycling facility. The construction mobile on-road emissions may be adjusted depending upon the contractor and the equipment used. A conservative vehicle age of 10 years (2015) was used for all on-road emissions estimates. Emissions estimates for on road emissions are included in Table 11.

Off-road mobile equipment includes heavy construction equipment (listed above), diesel trucks, and pick-up trucks. For a conservative estimation of emissions, three months of total construction time was assumed. Emissions estimates for off road emissions are included in Table 11.

There is a change of land use from wooded areas to the new dam and emergency spillway areas where approximately 1.12 acres of forest land will be removed to construct the spillways and revegetated with grass species. An additional 0.22 acres of wetlands are expected to be converted to grass areas as well. Thus, the two land use conversion activities evaluated for emissions include wetlands converted to grassland and forest land converted to grassland. These estimated emissions are found in Table 11.

Emissions from the removal of the dam are considered in the Off-site Waste Management category in Table 11. It is estimated that 166 cubic yards of concrete will be landfilled. Emissions from placing waste from packaging materials and other municipal solid waste into a landfill are also considered and included with the Off-site Waste Management category. These emissions are summarized in Table 11.

The following tables are examples; other layouts are acceptable for providing GHG quantification results

Table 11 – Estimated Construction Emissions and Calculation Methods

Scope	Type of Emission	CO2 Emissions (tons/year)	CH4 Emissions (tons/year)	N2O Emissions (tons/year)	Project-related CO2e Emissions (tons/year)	Calculation method(s) and Source*
Scope 1 (Mobile on-Road Equipment)	Combustion	110.17	9.90E-04	1.98E-03	0.615	1
Scope 1 (Mobile off-Road Equipment)	Combustion	287.49	0.0285	0.0018	1.858	1
Scope 2	Land Use	NA	NA	NA	6.0779	2
Scope 3	Waste Disposal	NA	NA	NA	6.64	3

1. EPA Simplified GHG Emissions Calculator (SGEC)
2. EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2020
3. EPA 2023 Emission Factors for Greenhouse Gas Inventories Table 9

b. GHG Assessment

i. Describe any mitigation considered to reduce the project's GHG emissions.

The District would encourage the selected contractor to reduce GHG emissions from construction, which may include proper maintenance of vehicles and construction equipment, turning off equipment when not in use, and using energy efficient lighting for construction.

ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project's GHG emissions. Explain why the selected mitigation was preferred.

The mitigation measures listed are primarily for construction activities as opposed to ongoing operational activities.

iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

Given the nature of the project, mitigation measures listed are proposed to reduce its GHG emissions during construction, as emissions will be localized and confined to the construction phase. Once completed, the project will not produce any GHG emissions during its normal operations. Periodic maintenance may be needed to ensure the proper functioning of the rock riffle structure and spillway.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including:

1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to statenoise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigatethe effects of noise.

Project-related noise generation is anticipated to be temporary and will result only from the construction of the project. There will be no operational noises associated with the project. Noise sources will include those typical of heavy construction equipment and equipment use comply with applicable working hour ordinances.

20. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

During the construction phase of the Buck's Mill Dam project, Bucksmill Drive will be closed at the dam, requiring detour routes for traffic. The eastbound detour route will extend approximately 4.38 miles, while the westbound detour will cover approximately 2.05 miles (Figure 16). These detours will temporarily alter local traffic patterns but are designed to ensure the safe and efficient movement of vehicles during the construction period.

The project area currently has no designated parking spaces associated with the dam, and no additional permanent parking spaces are planned. Temporary parking for construction vehicles and equipment will be arranged in designated staging areas near the site to minimize disruptions to local traffic. Bucksmill Drive is primarily a local roadway with limited traffic volume. The detours are

expected to accommodate local residential and occasional recreational traffic, with the estimated total average daily traffic (ADT) for the detour routes anticipated to remain low, reflecting the rural nature of the area.

Peak traffic on the detour routes is likely to occur during morning and evening commute hours, consistent with typical local patterns. Construction-related traffic, such as deliveries of materials and the movement of equipment, will be intermittent and scheduled to avoid peak hours whenever feasible.

The project location is rural, with no existing public transit services or formal alternative transportation modes in the immediate vicinity. However, pedestrians and cyclists may be impacted by the detours, and appropriate signage will be installed to inform and guide all road users safely around the construction zone. Efforts will focus on minimizing traffic disruptions through coordination with local authorities and residents, ensuring that detour routes are well-marked and maintained to mitigate inconvenience and provide safe traffic flow throughout the construction phase.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.*If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 *(available at: http://www.dot.state.mn.us/accessmanagement/resources.html)* or a similar local guidance.

The temporary closure of Bucksmill Drive at the dam and the implementation of detour routes during construction are expected to cause only minor traffic congestion on the affected roads, as the area is rural with relatively low baseline traffic volumes. The eastbound detour route, measuring approximately 4.38 miles, and the westbound detour route, spanning approximately 2.05 miles, will re-distribute local traffic without significant increases in congestion due to the limited vehicle use of Bucksmill Drive. Slight increases in travel times for local residents are anticipated, particularly during peak commute hours. However, as Bucksmill Drive is not a major arterial route, these impacts are expected to remain localized and minimal. Peak-hour traffic is unlikely to exceed 250 vehicles, and total daily trips are estimated to remain well below 2,500 vehicles, negating the need for a formal traffic impact study under the Minnesota Department of Transportation's Access Management Manual guidelines.

To minimize traffic disruptions, several measures will be implemented. Clear and visible signage will be placed along the detour routes to guide drivers safely and efficiently around the construction zone. Emergency service providers will also be informed of the road closure and detour routes to avoid delays in response times and ensure public safety. The project is not expected to have significant impacts on the regional transportation system, given the rural setting and low baseline traffic volume. The closure of Bucksmill Drive and the associated detour routes will primarily affect local traffic, with no disruptions anticipated to regional or arterial road networks. Coordination with local authorities will further mitigate traffic impacts and support smooth travel conditions during construction.

With these traffic management measures, public communication, and proactive road maintenance, safe and efficient travel conditions will be maintained throughout the construction phase. Once the project is complete, traffic on Bucksmill Drive is expected to resume its usual patterns, with no long-term impacts on the regional transportation system.

c. Identify measures that will be taken to minimize or mitigate project related transportationeffects.

To minimize transportation-related effects of the project, several measures will be implemented during the construction phase. Effective detour management will be a priority, with clear and highly visible signage installed at key intersections to guide drivers along the eastbound and westbound detour routes. Advance notice of the closure and detour plans will be communicated through local media, social media, and community bulletins to ensure residents and businesses are well-informed. Emergency services will be informed of the closure, and detour plans to prevent delays in response times. Schools and local businesses will also be engaged to adjust bus routes and ensure continued access for customers and deliveries. Construction scheduling will be managed to reduce disruptions. The most disruptive activities, such as heavy equipment deliveries, will be scheduled during off-peak traffic hours whenever possible.

21. Cumulative potential effects

(Preparers can leave this item blank if cumulative potential effects areaddressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

Geographic scale and timeframes of project related environmental effects that could combine with other effects are described below.

Natural Resource Impacts

The proposed project will include construction within a landscape made up of forested areas, streams, wetlands, and lakes. Construction activities will impact some of these resources. Construction activities will include:

- Vegetation removal such as clearing trees, shrubs, and herbaceous cover on the ground.
- Soil disturbance due to excavation and grading.
- Permanent and temporary wetland, lake, and stream alterations.
- Temporary construction noise that may disturb wildlife.

Impacts to aquatic resources are subject to State and Federal regulations and will require authorization through the Federal CWA, implemented by the United States Army Corps of Engineers, and a Minnesota Wetland Conservation Act (WCA) permit and MnDNR Public Waters Work Permit.

During construction, the aquatic habitat will be impacted through dredging and fill of the lake bed and riverbed. The project will ultimately improve fish and wildlife habitat, but the construction of the fish passage will temporarily hinder habitat utilization and cause temporary dispersal.

Wetlands: The geographic scale for wetlands includes impacts to those near Buck's Mill dam, Bucksmill Drive, and the Pelican River. Some impacts to wetlands are expected to be temporary and permanent. Approximately 0.22 acres of permanent wetland impacts are expected due to construction.

Water Quality: Removal of the structural remains of Kingsbury Lock, replacement of Buck's Mill dam spillway, and construction of the rock and riffle structures could cause a short-term introduction of sediment-laden runoff into the Pelican River, downstream of the project site prior to completion of the project.

Rare Species/Features: Identified state and federal listed species are noted in Item 14 as being on or within close proximity to the proposed project. Species effects are also described in this item.

Traffic: Bucksmill Drive travels over the Pelican River via a box culvert that is proposed to be modified. Bucksmill Drive will be closed during the project construction and will include a 4.38-mile-long eastbound detour and 2.05-mile-long westbound detour.

There are no other anticipated projects, activities, or existing conditions that would result in significant adverse environmental effects.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographicscales and timeframes identified above.

There are no foreseeable future projects that will intersect the scale and timeframe of the proposed project.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmentaleffects due to these cumulative effects.

There are no cumulative potential effects anticipated with this project that would adversely alter or modify environmental conditions or pose potential harm to the environment or wellbeing of individuals living within the area of the project.

22. Other potential environmental effects

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environmentwill be affected, and identify measures that will be taken to minimize and mitigate these effects.

There are no additional environmental effects other than what has been provided in this EAW.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** EnvironmentalAssessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of myknowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60,respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature _____ Date March 28, 2025

Title Tera Guetter, Adminstrator

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Appendix A

Well Logs

Minnesota Unique Well Number

483406

County Becker
Quad Lake
Quad ID 238B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 07/16/1993
Update Date 09/23/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
HOWTS, L.GENE	138	41	W	31	CDBDCB

Elevation 1352 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W DETROIT LAKES MN 56501

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
TOP SOIL	0	2		
SAND	2	28		
SANDY CLAY	28	162		
SAND	162	192		

Remarks

HAND PUMP ON WELL.

Well Depth 192 ft. **Depth Completed** 192 ft. **Date Well Completed** 09/23/1992

Drill Method Non-specified Rotary **Drill Fluid** Water

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 172 ft.	lbs./ft.	8 in. To 192 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** plastic **Make** CERTAINTEED

Diameter	Slot/Gauze	Length	Set	
4 in.	20	20 ft.	172 ft.	192 ft.

Static Water Level

44 ft. land surface Measure 09/23/1992

Pumping Level (below land surface)

ft. 1 hrs. Pumping at 80 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☒ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
neat cement	0	0 ft.	28 ft.

Nearest Known Source of Contamination

300 feet Southeas Direction Body of water Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/23/1992

Manufacturer's name USED HAND PUMP

Model Number HP 0 Volt

Length of drop pipe 75 ft Capacity g.p. Typ Other (see

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)

System UTM - NAD83, Zone 15, Meters X 277267 Y 5178046

Unique Number Verification Information from Input Date 01/15/1998

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Lako Well Co.	91339	LAKO, P.

Minnesota Unique Well Number

639689

County Becker
Quad Lake
Quad ID 238B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 03/13/2002
Update Date 05/27/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
LEWIS, MIKE &	138	41	W	31	CABCAA

Elevation 1333 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W 10425 BUCK MILLS DR DETROIT LAKES MN 56501

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	10	RED	SOFT
SAND & GRAVEL	10	45	TAN	SOFT
CLAY	45	70	BLUE	SOFT
CLAY & SAND LENSES	70	92	BLUE	SOFT
CLAY	92	280	BLUE	SOFT
CLAY & SAND LENSES	280	319	BLUE	SOFT
SAND	319	330	GRAY	SOFT

Remarks

Well Depth 330 ft. **Depth Completed** 330 ft. **Date Well Completed** 05/26/2000

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Glued

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 322 ft.	lbs./ft.	6.7 in. To 330 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
4 in.	10	8 ft.	322 ft. 330 ft.

Static Water Level

20 ft. land surface Measure 05/26/2000

Pumping Level (below land surface)

Wellhead Completion

Pitless adapter manufacturer MAASS Model 4JC1

☒ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	5 Sacks	0 ft.	80 ft.

Nearest Known Source of Contamination

80 feet South Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 08/16/2000

Manufacturer's name JACUZZI

Model Number HP 0.5 Volt 220

Length of drop pipe 60 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-gray Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 277262 Y 5178520

Unique Number Verification Address verification Input Date 05/27/2014

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Olson Well Drilling	14229	MONROE, S.

Minnesota Unique Well Number

786372

County Becker
Quad Lake
Quad ID 238B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/18/2013
Update Date 05/27/2014
Received Date 03/24/2012

Well Name	Township	Range	Dir	Section	Subsection
HOUTS,	138	41	W	31	CDCABA

Elevation 1348 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Well 10162 BUCKS MILL DR DETROIT LAKES MN 56501

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND/GRAVEL	0	25	BROWN	MEDIUM
GRAVEL/CLAY	25	48	BLU/GRY	MEDIUM
SAND	48	55		MEDIUM

Remarks

Well Depth 55 ft. **Depth Completed** 55 ft. **Date Well Completed** 03/24/2012

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 50 ft.	lbs./ft.	8 in. To 55 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
4 in.	18	5 ft.	50 ft. 55 ft.

Static Water Level

25 ft. land surface Measure 03/24/2012

Pumping Level (below land surface)

55 ft. 2 hrs. Pumping at 50 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model B4BO

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	3 Sacks	ft.	50 ft.

Nearest Known Source of Contamination

75 feet North Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 03/24/2012

Manufacturer's name FRANKLIN

Model Number 10LD05S42 HP 0.5 Volt 230

Length of drop pipe 40 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 277311 Y 5178019

Unique Number Verification Site Plan Input Date 04/15/2014

Angled Drill Hole

Well Contractor

Antonsen Well Drilling, Inc. 2147 SHIPMAN, H.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

796172

County Becker
Quad Lake
Quad ID 238B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/30/2014
Update Date 09/23/2014
Received Date 01/27/2014

Well Name	Township	Range	Dir	Section	Subsection
ROACH, JOE &	138	41	W	31	BCCCBD

Elevation 1359 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Well 23000 MILL POND RD DETROIT LAKES MN 56501

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND & GRAVEL	0	28	BROWN	SOFT
SAND & GRAVEL	28	43	GRAY	SOFT
SANDY CLAY	43	51	GRAY	HARD
SAND	51	58	GRAY	SOFT

Remarks

Well Depth 58 ft. **Depth Completed** 58 ft. **Date Well Completed** 05/31/2013

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 54 ft.	1.9 lbs./ft.	6.5 in. To 58 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
3 in.	10	4 ft.	54 ft.	58 ft.
in.	5	ft.	ft.	ft.

Static Water Level

40 ft. land surface Measure 05/31/2013

Pumping Level (below land surface)

45 ft. 1 hrs. Pumping at 15 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model 4A0

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	3 Sacks	ft.	50 ft.

Nearest Known Source of Contamination

85 feet Southeas Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 06/02/2013

Manufacturer's name SCHAFER

Model Number S1050 HP 0.5 Volt 230

Length of drop pipe 45 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. Water

Last Strat sand-gray Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 276818 Y 5178718

Unique Number Verification Tax Records Input Date 09/23/2014

Angled Drill Hole

Well Contractor

Krueger Water Wells, Inc. 2132 KRAFT, C.

Licensee Business Lic. or Reg. No. Name of Driller

Appendix B

Wetland Delineation Report

Wetland Delineation Report

Bucks Mill Dam Modification

October 2024
Becker County, MN
Moore Project No. 24327

moore
engineering, inc.

PREPARED FOR

Tera Guetter, Administrator
Pelican River Watershed District
211 Holmes St W, Suite 201
Detroit Lakes, MN 56501

PREPARED BY

Phillip Oswald, Environmental Scientist
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REVIEWED BY

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Moore Engineering, Inc.
MN Certified Wetland Delineator #1177
Greg.Meyer@mooreengineeringinc.com

moore engineering, inc.

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1. Introduction

The Pelican River Watershed District (District) is partnering with the Minnesota Department of Natural Resources (MnDNR) to act as local sponsor and fiscal agent of a project for the modification of Bucks Mill Dam on the Pelican River downstream of Lake Melissa and immediately upstream of Bucks Mill Drive, a township road. The project area is located around Bucks Mill Dam approximately 10 miles south of Detroit Lakes, MN Section 31 of Township 138N, Range 41W (See Figure 1). The project area consists of a corridor along the Pelican River as it flows through the dam. Fieldwork was performed by Moore Engineering Inc. ("Moore") staff Greg Meyer and Dylan Kruzel on October 7th, 2024. Precipitation conditions at the time of the site visit was slightly drier than normal according to APT analysis (Appendix A).

Wetlands are defined in the Federal Register (1982) as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

An area must have three elements present in order to be delineated as a wetland:

1) Greater than 50% dominance of hydrophytic plant species.
2) Hydric soil substrate.
3) Wetland hydrology during the growing season.

This report summarizes the methodology used during the investigation, documents the findings of the investigation, and summarizes areas that were found to meet wetland criteria or identified as other aquatic resources.

2. Methods

Moore staff reviewed U.S. Geological Survey (USGS) topographic maps, U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soil survey data, and U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) for the project area prior to performing the wetland delineation onsite. Findings of this desktop analysis are described below. A field visit was conducted October 7, 2024, to verify the offsite review findings and to document current conditions.

2.1 Field Wetland Delineation

Wetlands were delineated on site according to the USACE 1987 Wetland Delineation Manual ('87 Manual) and the USACE 2012 Regional Supplement to the USACE Wetland Delineation Manual: Midwest Region (Version 2.0). Wetlands and other waters were mapped with a sub-meter accurate handheld GPS unit (Trimble R1 GNSS receiver and tablet, or similar device). USACE wetland data sheets are provided in Appendix B.

2.2 Antecedent Precipitation Analysis

Analysis of 90-day antecedent precipitation conditions was conducted using the MnDNR, Division of Ecological and Water Resources, and Minnesota State Climatology Office data (USACE Antecedent Precipitation Tool was unavailable for use).

3. Results

Moore conducted an off-site review of information prior to October 7th, 2024, site visit. See Figure 5 for delineated features.

3.1 Desktop General Information Review

National Wetland Inventory

The USFWS NWI data indicates two L2UBH designations, one PFO1A designation, one PFO1C designation, one PUBFx designation and a PEM1Ad designation within the project area (Figure 2). This complex consists of the Pelican River, Mill Pond, Minnow Pond, and associated wetlands and extends beyond the project area.

Public Waters Inventory

The MnDNR Public Waters Inventory (PWI) showed Mill Pond (ID: 03037700), Minnow Pond, Buck Lake (ID: 03047300), and Pelican River (ID: 101508) within or adjacent to the project area. The National Hydrography Dataset showed one Lake/Pond (Minnow Pond) and the Pelican River within the project area (Figure 3).

Soil Survey

The NRCS Web Soil Survey SSURGO data were reviewed for relevant soil information for the project area (Figure 4). Table 1 below provides a summary of soil map units present in the project area and their respective hydric ratings.

Table 1: Summary of Mapped Soils Within the Project Area

Map Unit Symbol	Map Unit Name	Hydric Rating*
540	Seelyeville-Seelyeville, ponded, complex, 0 to 1 percent slopes	100
721E	Corliss loamy sand, 20 to 35 percent slopes	0
778C	Dorset-Corliss complex, 6-12 percent slopes	5
1111	Nidaros muck, frequently flooded	100
1195C	Sybil-Eagleview complex, 8 to 15 percent slopes	4
W	Water	0

* Soil map units are composed of one or more distinct soil series, each of which is rated as hydric or not hydric. The hydric rating indicates the predicted areal percentage of hydric soil series within each map unit.

Precipitation

A review of the Minnesota State Climatology Office data indicates the site experienced slightly drier than normal conditions in the 90 days prior to the site visit (Appendix A). USACE Antecedent Precipitation Tool was unavailable for use.

3.2 Field Delineation

Two wetlands, two lakes, and one perennial river were delineated within the project area. They are described in Table 4 and in the narrative below. USACE Wetland Determination Field Data Sheets are provided in Appendix B. Photos of the delineated features are provided in Appendix C.

Table 4: Wetlands within the project area

Wetland ID	Circ 39	Cowardin	Acres in Project Area
Wetland 1	Type 3	PEM1C	0.32
Wetland 2	Type 1	PFO1C	0.71
Mill Pond	Type 5	L2UBH	0.48
Minnow Pond	Type 5	L2UBH	0.46
1A – Pelican River	Type 90	R2UBH	0.18 (214 LF)
1B – Pelican River	Type 90	R2UBH	1.34 (1,167 LF)

Wetland 1 is a Type 3 (PEM1C) shallow marsh located in a historic oxbow of the Pelican River, east of Bucks Mill Drive. It was dominated by American basswood, bur oak, European buckthorn, common prickly ash, red-osier dogwood, and reed canary grass. The water table was observed at 2 inches beneath the soil surface at the wetland point. Wetland 1 featured Histosol (A1) as the hydric soil indicator. Upland vegetation at the sample location consisted of a dominance of FACU species, such as American basswood, common prickly ash, and zigzag goldenrod. Wetland 1 was identified as a PFO1C wetland according to the NWI and was mapped as partially hydric soils (Sybil-Eagleview complex) according to the soil survey. Wetland 1 appears to be isolated and separated from the Pelican River by an upland rise.

Wetland 2 is a Type 1 (PFO1C) Floodplain Forest located in a historic oxbow of the Pelican River, west of Bucks Mill Drive. It was dominated by box elder, sandbar willow, red-osier dogwood, and reed canary grass. Saturation (A3) was observed at 8 inches beneath the soil surface at the wetland point. Wetland 2 featured Sandy Redox (S5) as the hydric soil indicator. Upland vegetation at the sample location consisted of a dominance of FAC-FACW species, such as box elder, red-osier dogwood, reed canary grass, and easter prickly gooseberry. Wetland 2 was identified as a PFO1A wetland according to the NWI and was mapped as partially hydric soils (Sybil-Eagleview complex) according to the soil survey. Wetland 2 is associated with the Pelican River and partially separated by an upland berm that rises along the edge of the riverbank. High water from the Pelican River may flow into the wetland and through as water was observed flowing from the interior of Wetland 2 into the Pelican River in the southern portion of the wetland.

3.3 Other Areas

Mill Pond is a Type 5 (L2UBH) open water-lake that was formed when the Pelican River was impounded by Bucks Mill Dam. Mill Pond extends beyond the project area to the northeast. The Pelican River flows south through Lake Melissa and through Mill Pond where it discharges via a manmade dam (Bucks Mill Dam). At the time of the field delineation, the depth within the project area ranged from 1-5-ft deep. The published ordinary high-water (OHW) elevation is 1328.70-ft on MnDNR Lakefinder. There is an inlet structure in the northwest portion of the resource, adjacent to the dam, which discharges hydrology into Minnow Pond.

Minnow Pond is a Type 5 (L2UBH) open water lake that extends outside the project area to the west. There is a maintenance road that separates this resource from the Pelican River. The water elevation of Minnow Pond is controlled by a manmade dam outside and south of the project area. Minnow Pond is temporarily flooded throughout the year for fish spawning activities. Hydrology in Minnow Pond is provided by Mill Pond via an inlet structure located adjacent to the dam. Hydrology from Minnow Pond flows south and into Buck Lake. There is no published OHW elevation for Minnow Pond. At the time of visit, the depth within the project area ranged from 1-3-ft deep.

Pelican River is a Type 90 (R2UBH), a perennial river that is confined within its moderate to steep side slopes. The river flows south to southwest through the project area, traveling under Bucks Mill Drive via a double box culvert. Hydrology is received from overland flow and Mill Pond upstream, where these resources are split through the dam. The ordinary high-water mark (OHWM) was determined based on several characteristics of the resource; natural lines impressed on bank, vegetation matted down, leaf litter washed away, change in plant community, water staining on leaf trunks, change in soil character, and the presence of woody vegetation and litter debris. The average width of the tributary ranges from 50-ft to 60-ft wide, with the current depth 1-3-ft deep within the project area. The bottom is primarily well sorted sand with cobbles, gravel, and boulders found along the banks. Investigation points were evaluated along the riverbank to determine the OHWM and to also confirm the presence and connection with Wetland 2 (just south of Bucks Mill Drive).

4. References

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FIGURES

moore engineering, inc.

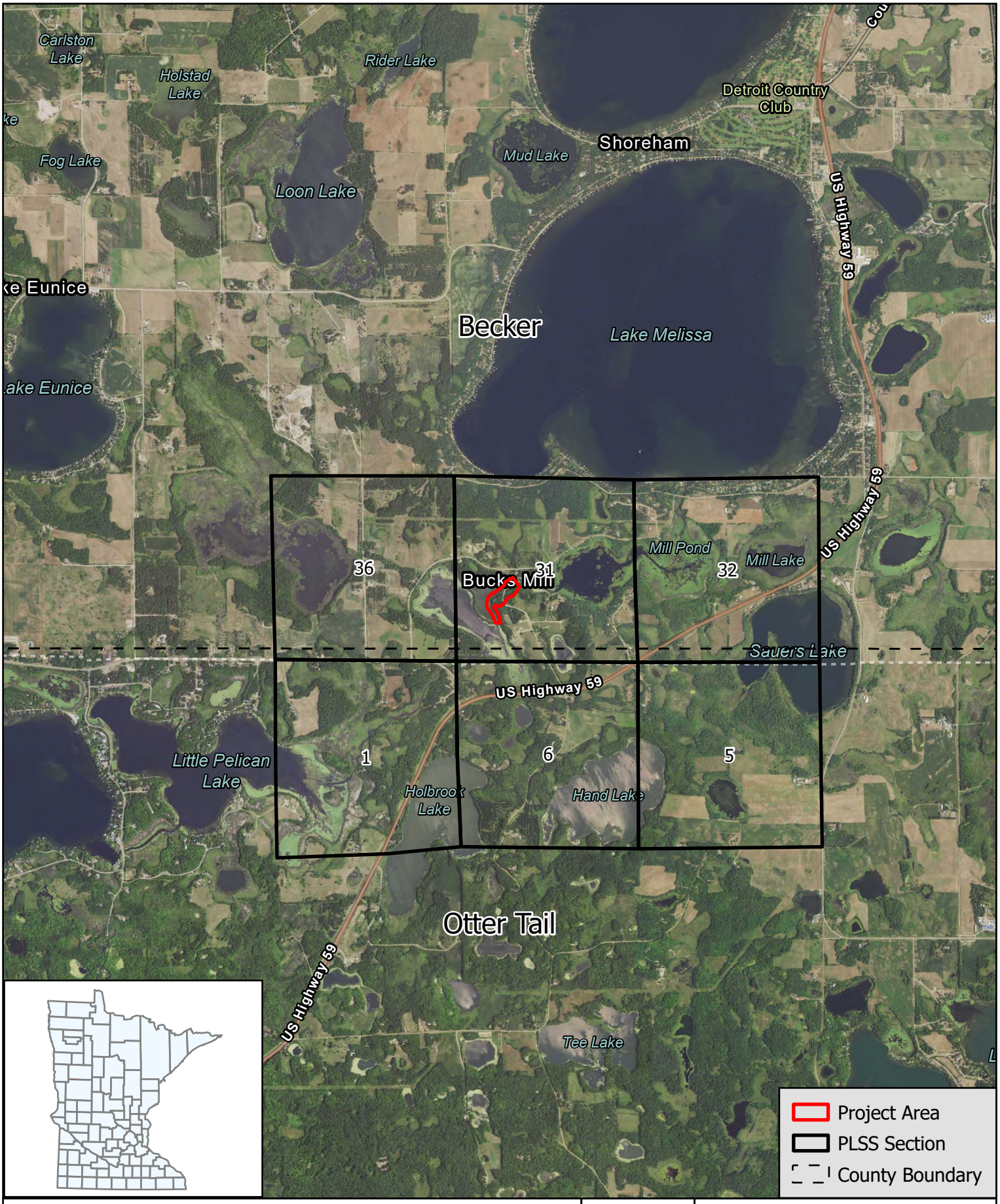

Figure 1- Site Location Map
Bucks Mill
Becker County, Minnesota

0 0.5 1 Miles

N W E S

moore engineering, inc.

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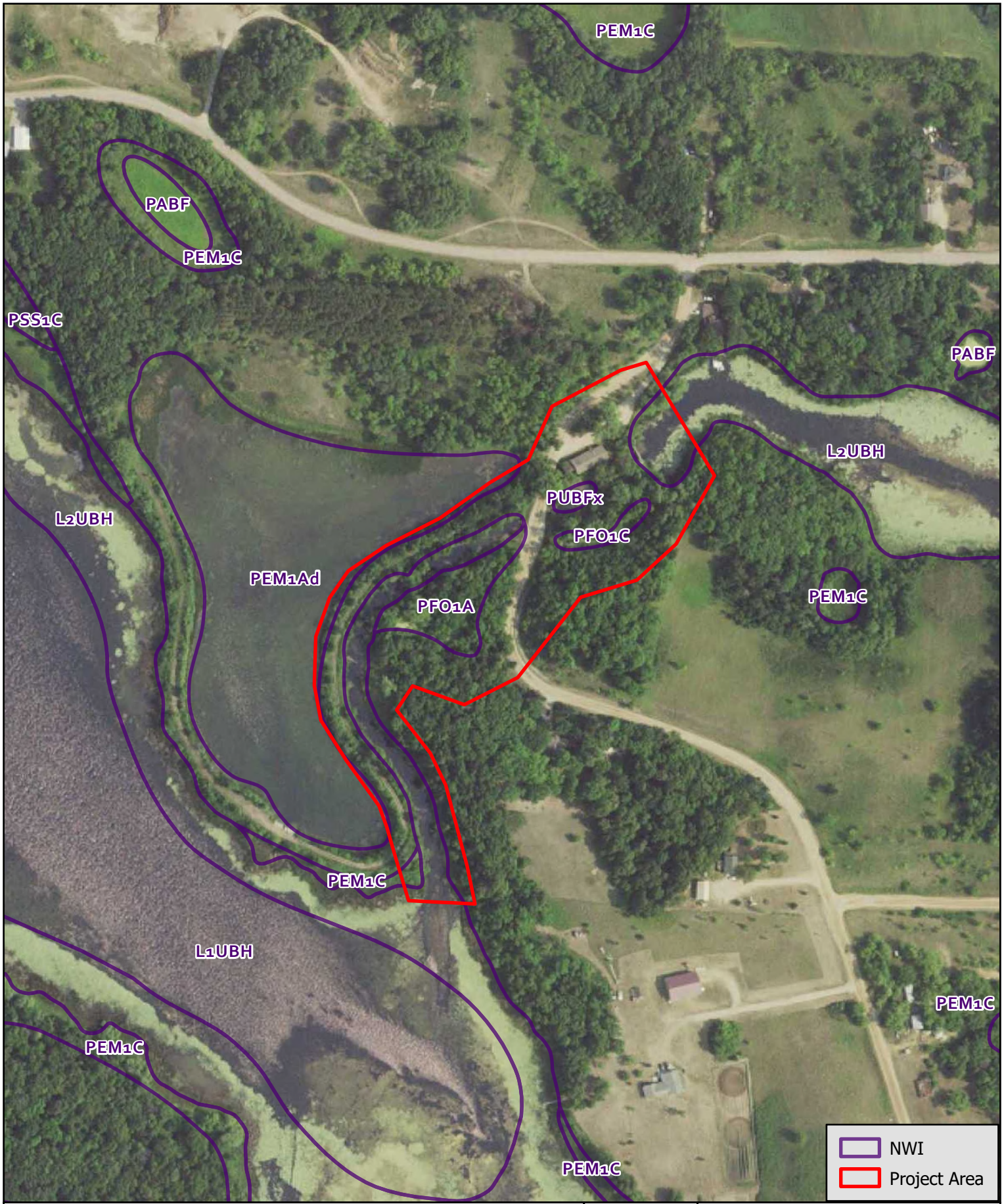

Figure 2- National Wetlands Inventory
Bucks Mill
Becker County, Minnesota

0 150 300 US Feet
1:3,600

N
W E
S

moore engineering, inc.

Created By: PJO Date Created: 10/10/24 Date Saved: 10/10/24 Date Exported: 10/10/24
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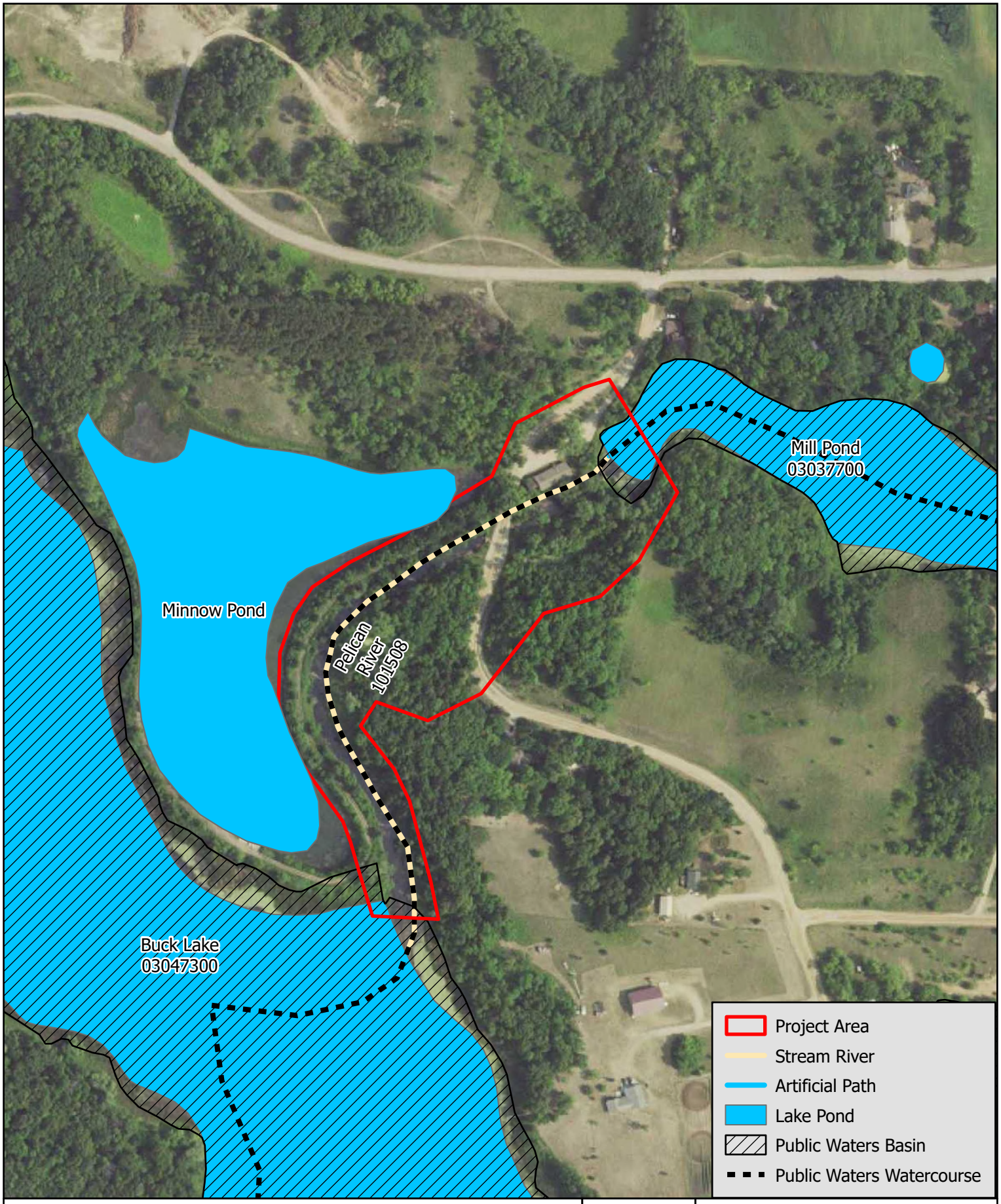

Figure 3- Water Resources
Bucks Mill
Becker County, Minnesota

0 150 300 US Feet
1:3,600

N W E S

moore engineering, inc.

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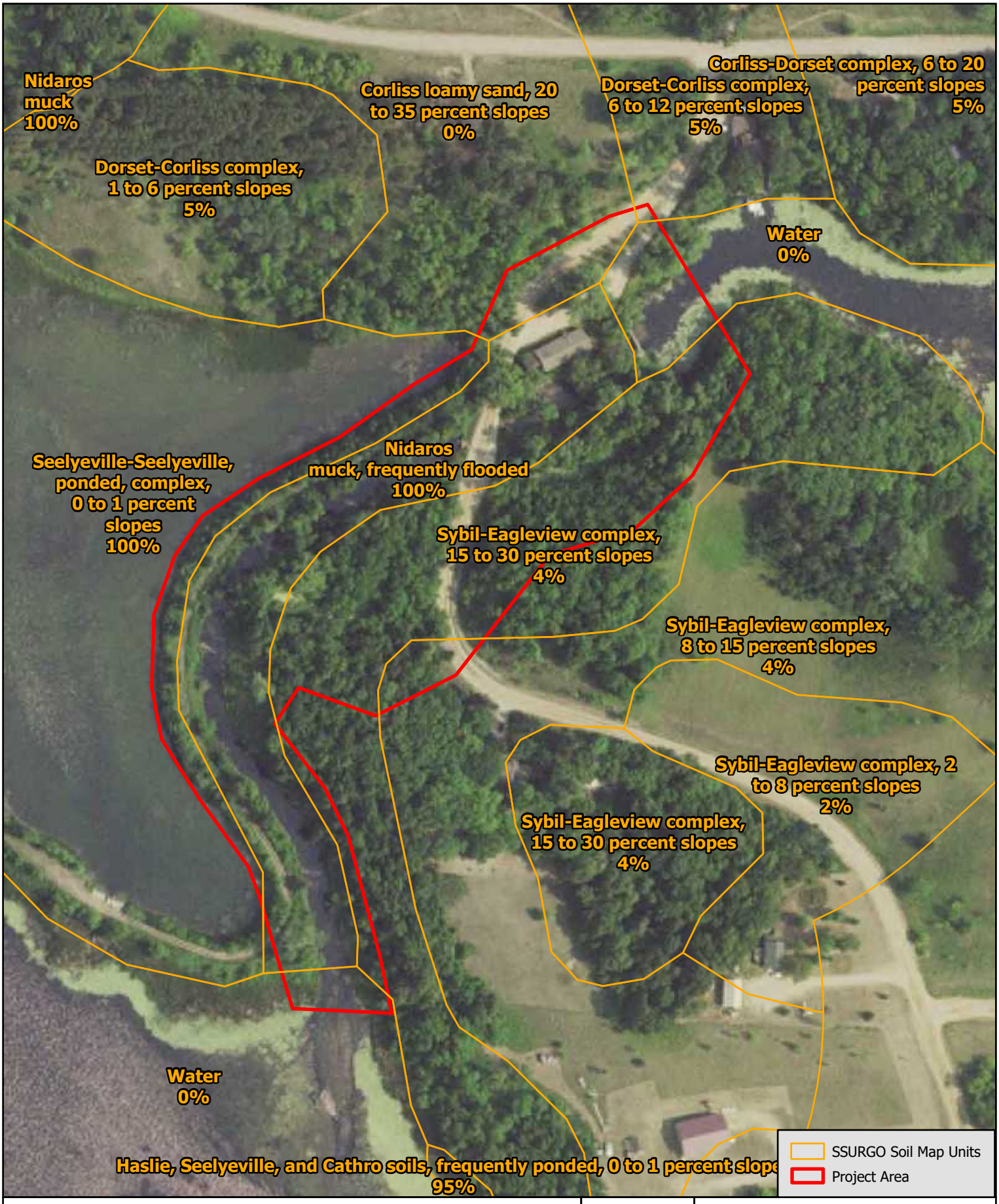

Figure 4- SSURGO Soil Map Units
Bucks Mill
Becker County, Minnesota

0 100 200 US Feet
1:2,400

N W E S

moore engineering, inc.

Created By: PJO Date Created: 10/10/24 Date Saved: 10/10/24Date Exported: 10/10/24
Delineated By: GWM, DJK (Moore Engineering, Inc) Delineated on: 10/07/24 Aerial Image: 2021 County NAIP SIDS
T:\Projects\24300\24327\10_ArcPro\WetlandCollectionTemplate\EnvironmentalTemplate.aprx

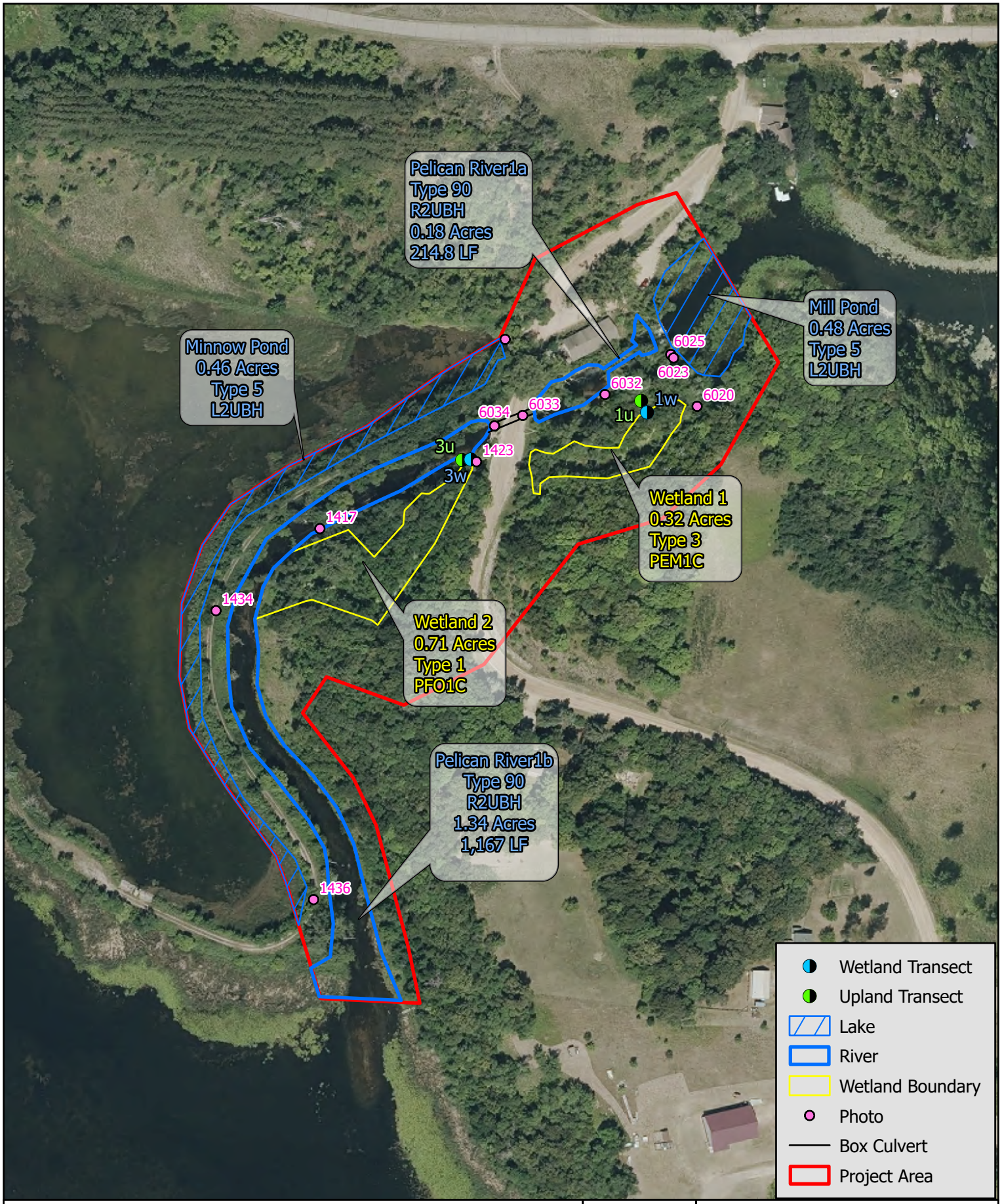

Figure 5- Delineated Aquatic Features
Bucks Mill
Becker County, Minnesota

0 100 200 US Feet
1:2,400

N W E S

moore engineering, inc.

Created By: PJO Date Created: 10/10/23 Date Saved: 10/25/24 Date Exported: 10/25/24
Delineated By: GWM, DJK (Moore Engineering, Inc) Delineated on: 10/07/24 Aerial Image: 2023 County NAIP SIDS
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Appendix A – Site Visit Precipitation Data

moore engineering, inc.

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Becker** township number: **138N**
township name: **Lake View** range number: **41W**
nearest community: **Bucks Mill** section number: **31**

Aerial photograph or site visit date:
Monday, October 7, 2024

Score using 1991-2020 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **September 2024**	second prior month: **August 2024**	third prior month: **July 2024**
estimated precipitation total for this location:	**0.42**	**3.82**	**4.01**
there is a 30% chance this location will have less than:	1.92	2.18	3.00
there is a 30% chance this location will have more than:	3.57	3.50	4.03
type of month: dry normal wet	**dry**	**normal**	**normal**
monthly score	**3 * 1 = 3**	**2 * 2 = 4**	**1 * 2 = 2**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**9 (dry)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Appendix B – USACE Wetland Data Sheets

moore engineering, inc.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bucks Mill Dam City/County: Becker Sampling Date: 10/7/2024

Applicant/Owner: Moore Engineering, Inc. State: MN Sampling Point: 1u

Investigator(s): GWM, DJK (Moore Engineering, Inc.) Section, Township, Range: 31-138N-41W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex

Slope (%): 1% Lat: 46.722466 Long: -95.914594 Datum: NAD83

Soil Map Unit Name: 1195E Sybil-Eagleview complex, 15-30% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	
Hydric Soil Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Upland comparison point. slope between mill and wetland.Precipitation is below average for time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Tilia americana	40	Y	FACU
2. ulmus aericana	30	Y	FACW
3.			
4.			
5.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Zanthoxylum americanum	30	Y	FACU
2. Ribes cynosbati	20	Y	FACU
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Solidago flexicaulis	25	Y	FACU
2. Urtica dioica	10	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	35	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 1u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					CS	Coarse sand
8-14	10YR 2/2	100					SL	
14-24	10YR 5/2	90	10YR 3/6	10	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bucks Mill Dam City/County: Becker Sampling Date: 10/7/2024

Applicant/Owner: Moore Engineering, Inc. State: MN Sampling Point: 1w

Investigator(s): GWM, DJK (Moore Engineering, Inc.) Section, Township, Range: 31-138N-41W

Landform (hillslope, terrace, etc.): Oxbow depression Local relief (concave, convex, none): Concave

Slope (%): 1% Lat: 46.722429 Long: -95.914555 Datum: NAD83

Soil Map Unit Name: 1195E Sybil-Eagleview complex, 15-30% slopes NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Oxbow wetland. Precipitation is below average for time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Tilia americana	40	Y	FACU
2. Quercus macrocarpa	20	Y	FAC
3.			
4.			
5.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Rhamnus cathartica	15	Y	FAC
2. Zanthoxylum americanum	15	Y	FACU
3. Cornus alba	10	Y	FACW
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	15	Y	FACW
2. Carex lacustris	5	N	OBL
3. Pilea fontana	5	N	OBL
4. Symphyotrichum lanceolatum	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 1w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 2/1	100					ML	Mucky Loam/Sapric

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [X] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] 2 cm Muck (A10)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] 5 cm Mucky Peat or Peat (S3)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- [ ] Coast Prairie Redox (A16)
- [ ] Dark Surface (S7)
- [ ] Iron-Manganese Masses (F12)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [X] No [ ]

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [ ] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Gauge or Well Data (D9)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Drainage Patterns (B10)
- [X] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [X] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [X] No [ ] Depth (inches): 1

Water Table Present? Yes [X] No [ ] Depth (inches): 2

Saturation Present? (includes capillary fringe) Yes [X] No [ ] Depth (inches): 0

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bucks Mill Dam City/County: Becker Sampling Date: 10/7/2024

Applicant/Owner: Moore Engineering, Inc. State: MN Sampling Point: 3u

Investigator(s): GWM, DJK (Moore Engineering, Inc.) Section, Township, Range: 31-138N-41W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex

Slope (%): 1% Lat: 46.722187 Long: -95.915706 Datum: NAD83

Soil Map Unit Name: 1195E Sybil-Eagleview complex, 15-30% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Upland comparison point. Precipitation is below average for time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	15	Y	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus alba	15	Y	FACW
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Phalris arundinacea	80	Y	FACW
2. Ribes cynosbati	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 3u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	100						Coarse sand
10-24	10YR 5/1	98	10YR 3/6	2	C	M	CS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bucks Mill Dam City/County: Becker Sampling Date: 10/7/2024

Applicant/Owner: Moore Engineering, Inc. State: MN Sampling Point: 3w

Investigator(s): GWM, DJK (Moore Engineering, Inc.) Section, Township, Range: 31-138N-41W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex

Slope (%): 1% Lat: 46.722172 Long: -95.915658 Datum: NAD83

Soil Map Unit Name: 1111 Nidaros muck, frequently flooded NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Oxbow wetland - drains into Pelican River. Precipitation is below average for time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	20	Y	FAC
2. Salix interior	10	Y	FACW
3.			
4.			
5.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus alba	15	Y	FACW
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	75	Y	FACW
2. Urtica dioica	15	N	FACW
3. Quercus macroparpa	10	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 3w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/1	100					CS	Coarse sand
8-24	10YR 5/1	95	10YR 3/6	5	C	M	CS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 8

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C – Site Photos

moore engineering, inc.

Photo ID Number: 6020 (Wetland 1)

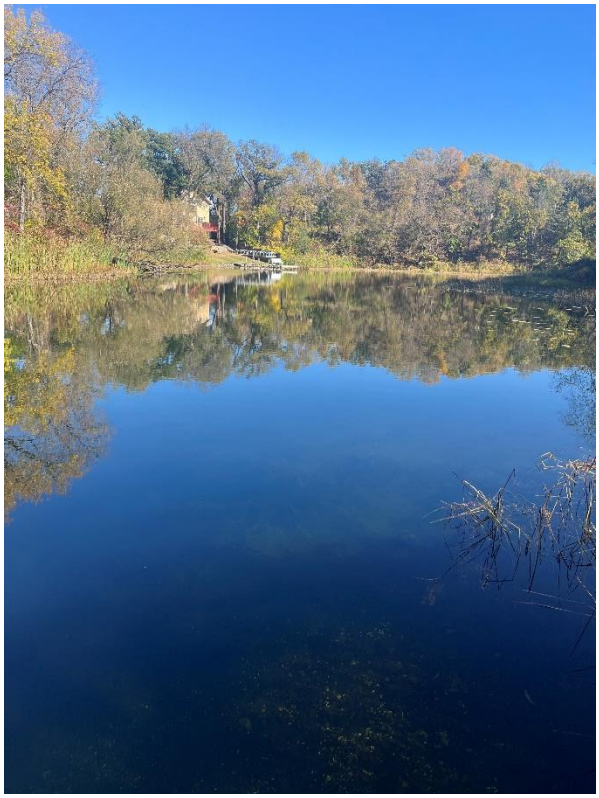


Photo ID Number: 6025 (Mill Pond)

Photo ID Number: 6023 (Bucks Mill Dam)

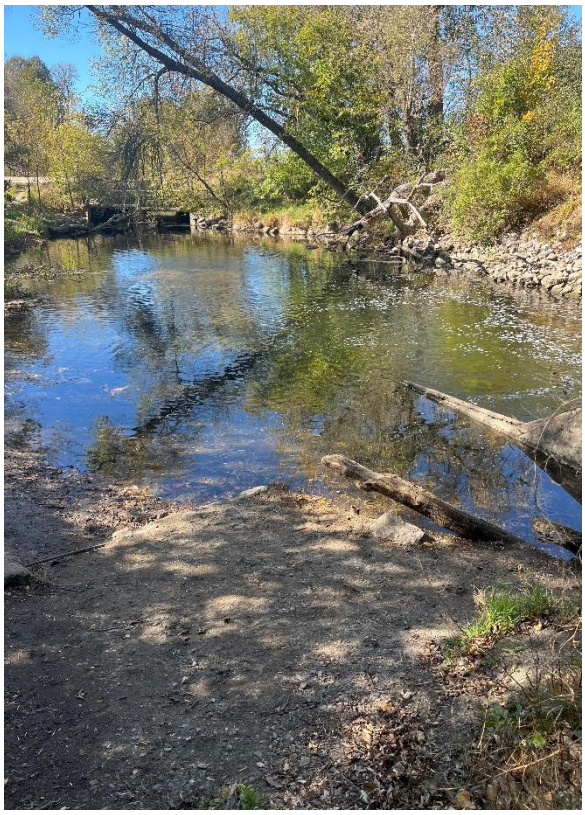


Photo ID Number: 6032 (Pelican River 1a)

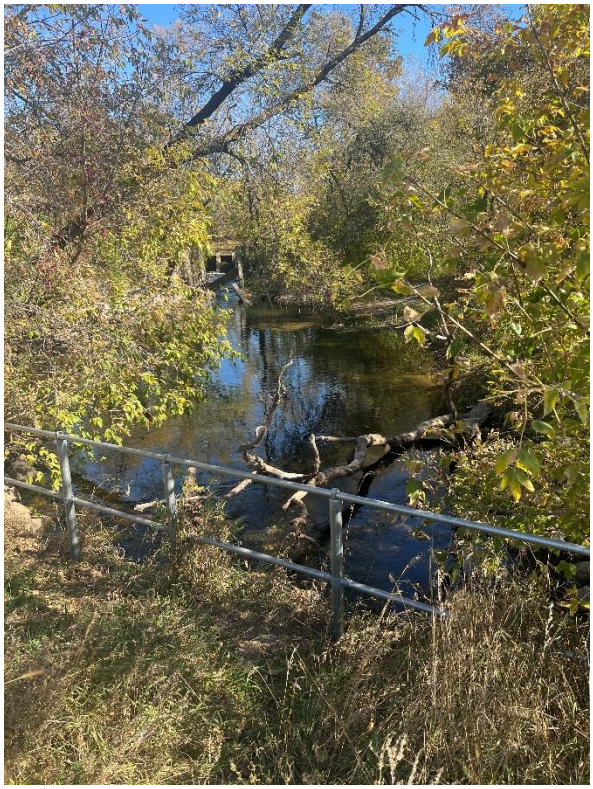


Photo ID Number: 6033 (Pelican River 1a)

Photo ID Number: 6034 (Pelican River 1b)

Photo ID Number: 1423 (Wetland 2)

Photo ID Number: N/A (Minnow Pond)

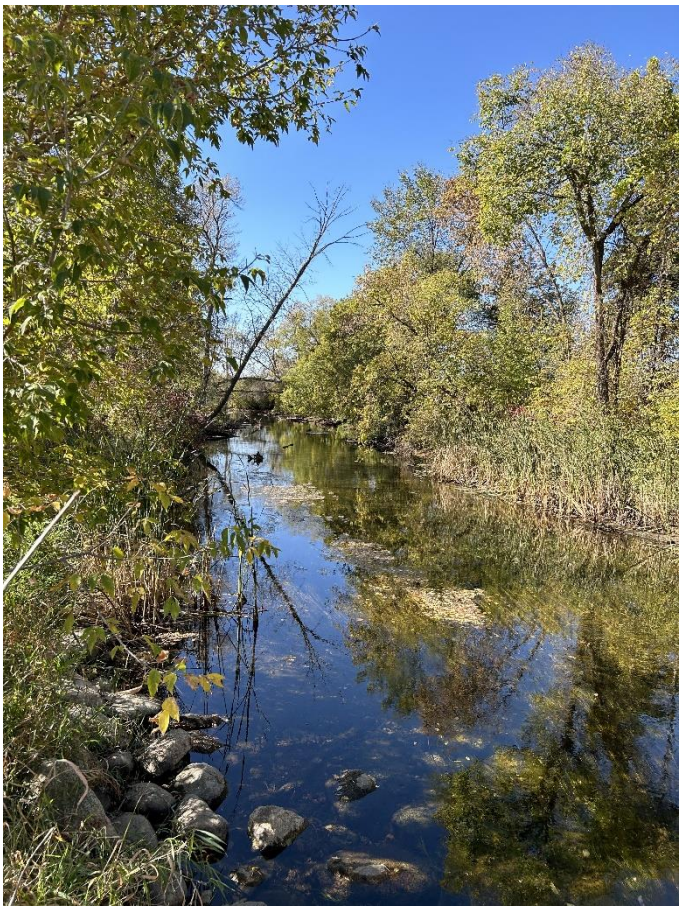


Photo ID Number: 1417 (Pelican River 1b)

Photo ID Number: 1434 (Pelican River and Minnow Pond)

Photo ID Number: 1436 (Minnow Pond)

Appendix C

NHIS Review

Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Bucks Mill Dam Modification

Project Proposer: Pelican River Watershed District

Project Type: Natural Resource Management, Drainage & Flood Control

Project Type Activities: Lakeshore;Structure Removal or Bridge Removal;Waterbody or watercourse impacts (e.g., dewatering, discharge, excavation, fill, runoff, sedimentation, changes in hydrology))

TRS: T138 R41 S31

County(s): Becker

DNR Admin Region(s): Northwest

Reason Requested: State EAW

Project Description: The proposed project would modify the existing Dam structure and replace it with a spillway with a series of rock and riffle structures. The project may ...

Existing Land Uses: The site is currently Buck's Mill Dam. The Dam was originally constructed in 1871 as part of a limber mill, in 1908 a lock was built for navigation.

Landcover / Habitat Impacted: Primary impacts will be directly to the stream channel. There will also be minimal impacts to the streambank and surrounding land.

Waterbodies Affected: Buck's Mill Dam is on the Pelican River which is downstream of Lake Melisa, immediately downstream of Mill Pond and immediately upstream of Buck Lake and Minnow Pond.

Groundwater Resources Affected: Groundwater is not anticipated to be affected.

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	Comments	Lakeshore - Recommendations
Ecologically Significant Area	Comments	Lakes - Recommendations
State-Listed Endangered or Threatened Species	No Comments	No Further Review Required
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	No Records	Visit IPaC For Federal Review

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

November 7, 2024

Project ID: MCE #2024-00928

Kelsey Kline
Moore Engineering Inc.
3315 Roosevelt Road
St. Cloud, MN 56301

RE: Automated Natural Heritage Review of the proposed Bucks Mill Dam Modification
See Cover Page for location and project details.

Dear Kelsey Kline,

As requested, the above project has been reviewed for potential effects to rare features. Based on this review, the following rare features may be adversely affected by the proposed project:

Project Type and/or Project Type Activity Comments

- Lakeshore developments can negatively impact water quality and fish and wildlife habitat by increasing nutrients, pollutants, erosion, and sedimentation. Maintaining native vegetation along lakeshores is one way to reduce these negative impacts. The combination of upland, lakeshore, and aquatic plants creates a buffer zone that provides numerous ecological benefits. Lakeshore and upland plants help stabilize banks and protect the shoreline from erosion by absorbing the forces of wind, waves, and boat traffic. They also filter pollutants that would otherwise drain from the watershed into the lake, thereby protecting water quality. Most noticeably, lakeshore and upland plants provide a variety of vital habitat components for fish and wildlife including food, protection from weather and predators, denning sites and nursery areas for young, perching and sunning sites for birds and turtles, and flyways and travel corridors. Aquatic plants produce oxygen, purify lake water by stabilizing bottom sediments and reducing nutrient cycling, and provide underwater cover for fish. As such, if a buffer zone of native vegetation is present within the project boundary, the DNR recommends that it be maintained and enhanced. If not, the DNR recommends that one be established.

  For additional information on aquatic plants and lakeshore management, please refer to the DNR's Lakescaping and Natural Buffers & Lakescaping online resources. The DNR book Lakescaping for Wildlife and Water Quality also covers a wide array of topics associated with managing lakeshore property and includes techniques to prevent shoreline erosion and to restore wildlife habitat, wildflowers, and water quality. Another reference is Restore Your Shore, an online interactive multimedia program that guides users through the process of protecting a natural shoreline or

restoring a degraded shore with a natural buffer zone.

Ecologically Significant Area

- One or more Lakes of Biological Significance may be impacted by the proposed project. Lakes of Biological Significance are high quality lakes based on the aquatic plant, fish, bird, or amphibian communities present within the lake. To be included in this layer, a lake only needs to meet the criteria for one of these four community types. The lake is assigned a biological significance of Outstanding, High, or Moderate based on the community with the highest quality. Given the ecological significance of these lakes, disturbance should be minimized during construction, operation, and maintenance activities. Actions to avoid or minimize disturbance include, but are not limited to, the following recommendations:
    - Avoid the removal of shoreline vegetation,
    - Implement stringent/redundant erosion prevention and sediment control practices,
    - Prevent the spread of invasive species,
    - Use only herbicides approved for application within shoreline/riparian areas,
    - Minimize use of fertilizer.

State-Listed Endangered or Threatened Species

No state-listed endangered or threatened species have been documented in the vicinity of the project.

State-Listed Species of Special Concern

Taxonomic Group	Common Name	Scientific Name	Water Regime	Habitat	Federal Status
Vascular Plant	Spiral Ditchgrass	Ruppia cirrhosa	aquatic	Littoral Zone of Lake	
Vertebrate Animal	Lake Sturgeon	Acipenser fulvescens		Large Rivers, Littoral Zone of Lake, Deep Water Zone of Lake	
Vertebrate Animal	Mudpuppy	Necturus maculosus		Large Rivers, Littoral Zone of Lake, Medium Rivers and Streams, Deep Water Zone of Lake	

- The above table identifies state-listed species of special concern that have been documented in the vicinity of your project. If suitable habitat for any of these species occurs within your project footprint or activity impact area, the project may negatively impact those species. To avoid impacting state-listed species of special concern, the DNR recommends modifying the location of project activities to avoid suitable habitat or modifying the timing of project activities to avoid the presence of the species. Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts. Species-specific comments, if any, appear below.

Federally Listed Species

The Natural Heritage Information System does not contain any records for federally listed species within one mile of the proposed project. Please note, however, that not all federally listed species are tracked within the NHIS. To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and the project description provided on the cover page. If project details change or construction has not occurred within one year, please resubmit the project for review before initiating project activities.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Jim Drake Jim Drake
Natural Heritage Review Specialist
James.F.Drake@state.mn.us

Links: USFWS Information for Planning and Consultation (IPaC) tool
Information for Planning and Consultation (IPaC) tool
DNR Regional Environmental Assessment Ecologist Contact Info
https://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

Bucks Mill Dam Modification

Aerial Imagery With Locator Map

N
W E
S

0 0.13 0.25 0.5 0.75 1 Miles

Project_Boundary

Project Type: Natural Resource Management, Drainage & Flood Control

Project Size (acres): 10.77

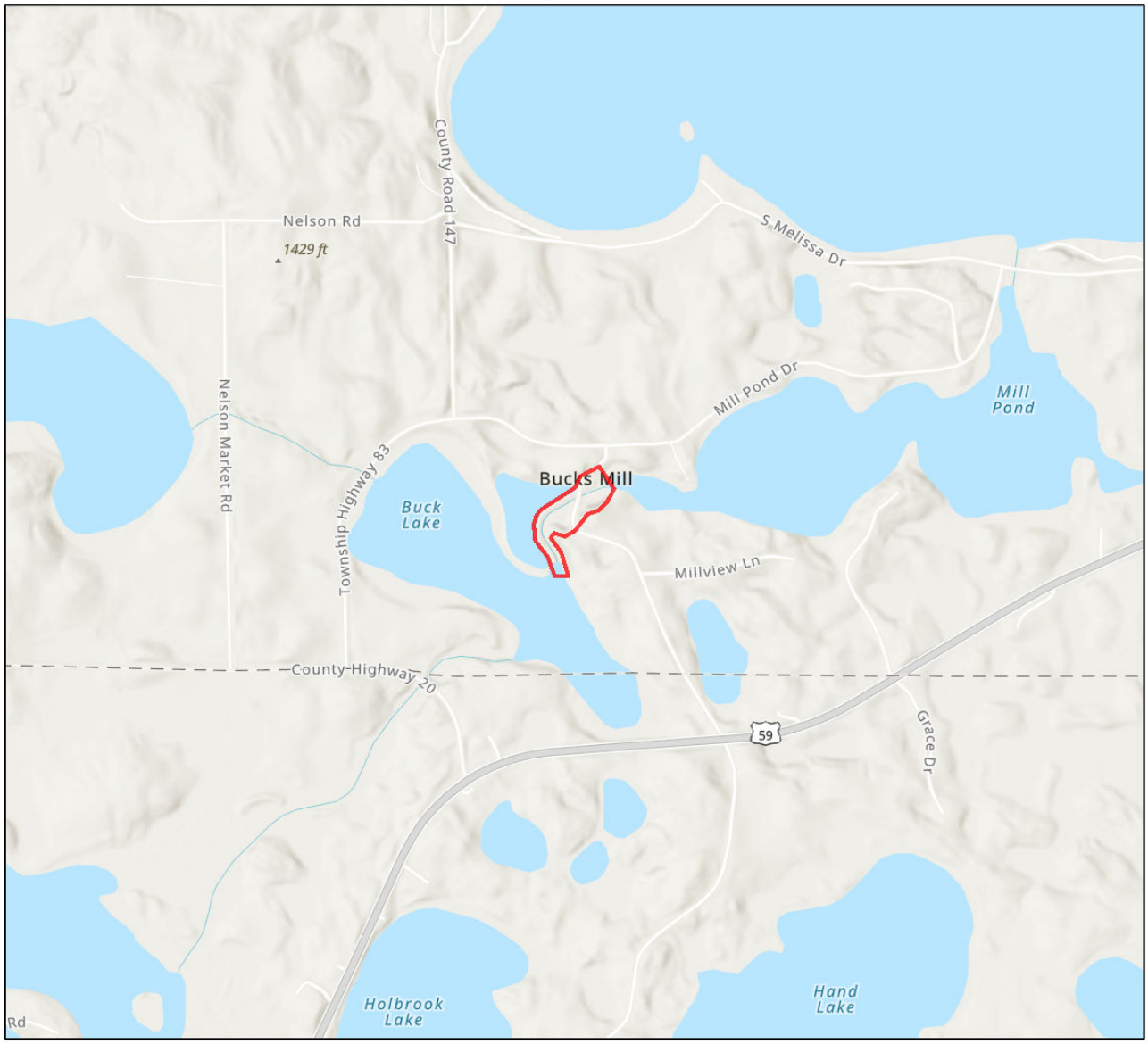
County(s): Becker

TRS: T138 R41 S31

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Maxar
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

Bucks Mill Dam Modification

USA Topo Basemap With Locator Map



N
W E
S

0 0.130.25 0.5 0.75 1 Miles

Project_Boundary

Project Type: Natural Resource Management, Drainage & Flood Control

Project Size (acres): 10.77

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Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, NASA, NGA, USGS, FEMA
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

Conservation Planning Report: Bucks Mill Dam Modification

This document is intended for planning purposes only for the area of interest defined by the user. The report identifies ecologically significant areas documented within the defined area of interest plus any additional search distance indicated below. These ecologically significant areas can be viewed in the Explore Tab of the Minnesota Conservation Explorer. Please visit MN Geospatial Commons for downloadable GIS data.

This document does not meet the criteria for a Natural Heritage Review. If a Natural Heritage Review is needed, please define an Area of Interest in the Explore Tab and click on the Natural Heritage Review option.

This document does not include known occurrences of state-listed or federally listed species.

MBS Sites of Biodiversity Significance

Search distance = 330 feet

Minnesota Biological Survey (MBS) Sites of Biodiversity Significance are areas with varying levels of native biodiversity that may contain high quality native plant communities, rare plants, rare animals, and/or animal aggregations. A Biodiversity Significance Rank is assigned on the basis of the number of rare species, the quality of the native plant communities, size of the site, and context within the landscape. MBS Sites are ranked Outstanding, High, or Moderate. Areas ranked as Below were found to be disturbed and are retained in the layer as negative data. These areas do not meet the minimum biodiversity threshold for statewide significance but may have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, buffers surrounding higher quality natural areas, or as areas with high potential for restoration of native habitat. The DNR recommends avoidance of MBS Sites of Biodiversity Significance ranked High or Outstanding.

Wetlands within MBS Sites of Outstanding or High Biodiversity Significance may be considered Rare Natural Communities under the Wetland Conservation Act. For technical guidance on Rare Natural Communities, please visit WCA Program Guidance and Information.

For more information please visit MBS Sites of Biodiversity Significance.

SEARCH RESULTS: No features were found within the search area.

DNR Native Plant Communities

Search distance = 330 feet

A native plant community is a group of native plants that interact with each other and with their environment in ways not greatly altered by modern human activity or by introduced organisms. These groups of native plant species form recognizable units, such as oak savannas, pine forests, or marshes, that tend to repeat over space and time. Native plant communities are classified and described by considering vegetation, hydrology, landforms, soils, and natural disturbance regimes.

DNR Native Plant Community types and subtypes are given a Conservation Status Rank that reflects the relative rarity and endangerment of the community type in Minnesota. Conservation Status Ranks range from S1 (critically imperiled) to S5 (secure, common, widespread, and abundant). Native plant communities with a Conservation Status Rank of S1 through S3 are considered rare in the state. The DNR recommends avoidance of rare native plant communities.

Wetland native plant communities with a conservation status rank of S1 through S3 may also be considered Rare Natural Communities under the Wetland Conservation Act. For technical guidance on Rare Natural Communities, please visit WCA Program Guidance and Information.

DNR Native Plant Communities may be given a Condition Rank that reflects the degree of ecological integrity of a specific occurrence of a native plant community. The Condition Rank is based on species composition, vegetation structure, ecological processes and functions, level of human disturbance, presence of exotic species, and other factors. Condition Ranks range from A-rank (excellent ecological integrity) to D-rank (poor ecological integrity. A Condition Rank of NR means Not Ranked and a Condition Rank of MULTI mean multiple ranks are present because the record is a native plant community complex.

For more information please visit Minnesota's Native Plant Communities.

SEARCH RESULTS: No features were found within the search area.

Calcareous Fens

Search distance = 5 miles

A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota under the Wetland Conservation Act (*Minnesota Statutes*, section 103G.223). Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. For more information regarding calcareous fens, please see the Calcareous Fen Fact Sheet or review the List of Known Calcareous Fens.

SEARCH RESULTS: No features were found within the search area.

DNR Old Growth Stands

Search distance = 330 feet

Old-growth forests are natural forests that have developed over a long period of time, generally at least 120 years, without experiencing severe, stand-replacing disturbances such as fires, windstorms, or logging. Old-growth forests are a unique, nearly vanished piece of Minnesota's history and ecology; less than 4% of Minnesota's old-growth forests remain. The DNR recommends avoidance of all DNR Old Growth Stands. The following DNR Old Growth Stands have been documented within the search area.

SEARCH RESULTS: No features were found within the search area.

MN Prairie Conservation Plan

Search distance = 330 feet

The Minnesota Prairie Conservation Plan, a twenty-five year strategy for accelerating prairie conservation in the state, identifies Core Areas, Corridors, and Corridor Complexes as areas to focus conservation efforts. The Plan's strategies include protection, enhancement, and restoration of grassland and wetland habitat. To meet the Plan's goals, approaches within Core Areas will need to include restoration and approaches within Corridors will need to include conservation of grassland habitat which can provide stepping stones between larger Core Areas.

SEARCH RESULTS: No features were found within the search area.

Important Bird Areas

Search distance = 1 mile

Important Bird Areas, identified by Audubon Minnesota in partnership with the DNR, are part of an international conservation effort aimed at conserving globally important bird habitats. They are voluntary and non-regulatory, but the designation demonstrates the significant ecological value of the area.

SEARCH RESULTS: No features were found within the search area.

Lakes of Biological Significance

Search distance = 330 feet

Lakes of Biological Significance are high quality lakes as determined by the aquatic plant, fish, bird, or amphibian communities present within the lake. To be included in this layer, a lake only needs to meet the criteria for one of these four community types. The lake is assigned a biological significance of Outstanding, High, or Moderate based on the community with the highest quality.

The following Lakes of Biological Significance are within the search area:

Public Water Basin Name	Biological Significance	Plant Rank	Fish Rank	Amphibian Rank	Bird Rank
Mill	High	2			

USFWS Habitat Conservation Plans

A Habitat Conservation Plan (HCP) is a mechanism for compliance with the federal Endangered Species Act for a given set of activities and protected species. An HCP is required by the U.S. Fish and Wildlife Service (USFWS) as part of an application for an incidental take permit (ITP). The ITP allows the permit holder to proceed with activities covered in the HCP that could result in the unintentional take of federally listed species.

Lakes States Forest Management Bat Habitat Conservation Plan (Bat HCP): (search distance = 0; within area of interest only) This HCP was created to provide flexibility to the Minnesota Department of Natural Resources (DNR) to manage forests while addressing federal Endangered Species Act (ESA) regulations related to federally threatened and endangered bat species. The Bat HCP covers three bat species within Minnesota: northern long-eared bat, little brown bat, and tricolored bat. This report is intended to help non-federal, non-DNR landowners evaluate their potential eligibility for the Landowner Enrollment Program of the Bat HCP (For DNR-administered land, DNR staff should refer to the Bat HCP Implementation Policy).

Landowner Enrollment Program – DNR's incidental take permit may be extended through the Landowner Enrollment Program (LEP) to eligible non-federal landowners who conduct forest management activities. Landowners may be eligible to enroll in the LEP if they are a county land administrator, own more than 10,000 acres, or own land that overlaps a Bat HCP feature. The results below indicate if the defined area of interest overlaps a Bat HCP feature. For more information on how to enroll in the LEP, please visit the Landowner Enrollment Program (LEP).

SEARCH RESULTS: No Bat HCP features were found within the area of interest. Landowners are only eligible to apply for the Landowner Enrollment Program if they are a county land administrator or they own more than 10,000 acres.

USFWS Regulatory Layers

To ensure compliance with federal law, conduct a federal regulatory review using the U.S. Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool. This report is not a substitution for a Section 7 review.

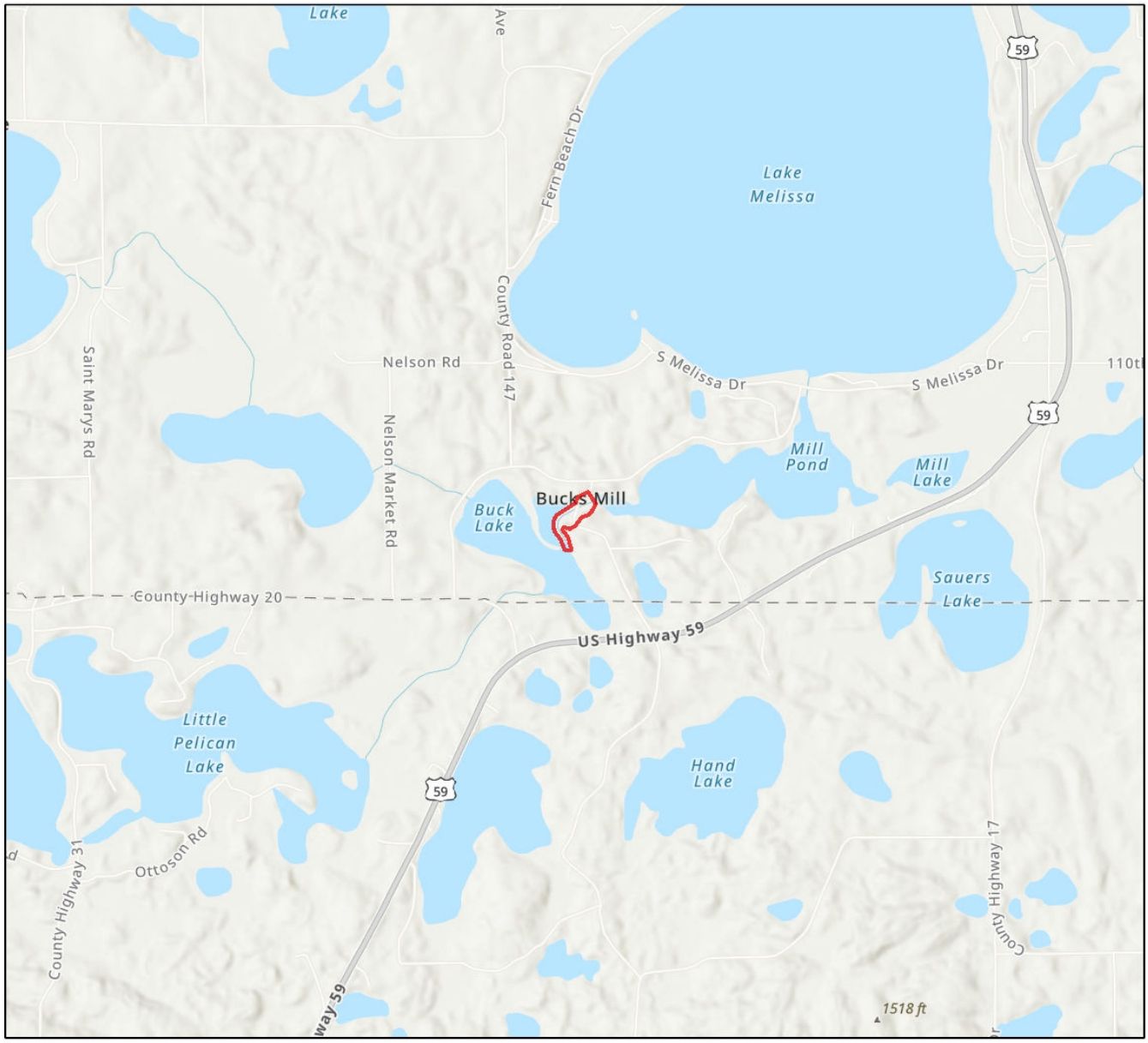
For informational purposes only, this tool currently checks the following USFWS Regulatory Layers:

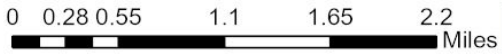
Rusty Patched Bumblebee High Potential Zones: (*search distance = 0; within area of interest only*) The rusty patched bumble bee (*Bombus affinis*), federally listed as endangered, is likely to be present in suitable habitat within the high potential zones. From April through October this species uses underground nests in upland grasslands, shrublands, and forest edges, and forages where nectar and pollen are available. From October through April the species overwinters under tree litter in upland forests and woodlands. The rusty patched bumble bee may be impacted by a variety of land management activities including, but not limited to, prescribed fire, tree-removal, haying, grazing, herbicide use, pesticide use, land-clearing, soil disturbance or compaction, or use of non-native bees. The USFWS RPBB guidance provides guidance on avoiding impacts to rusty patched bumble bee and a key for determining if actions are likely to affect the species; the determination key can be found in the appendix. Please visit the USFWS Rusty Patched Bumble Bee Map for the most current locations of High Potential Zones.

SEARCH RESULTS: No features were found within the search area.

Bucks Mill Dam Modification

Conservation Planning Map





Area of Interest

Size (acres): 10.77

County(s): Becker

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, NASA, NGA, USGS, FEMA
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

Appendix D

IPaC and Determination Keys

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 01/15/2025 15:54:59 UTC
Project Code: 2025-0017818
Project Name: Bucks Mill Dam Reconstruction

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species
The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance
Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, USDA Rural Development projects, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

We recommend running the project (if it qualifies) through our **Minnesota-Wisconsin Federal Endangered Species Determination Key (Minnesota-Wisconsin ("D-key"))**. A demonstration video showing how-to access and use the determination key is available. Please note that the Minnesota-Wisconsin D-key is the third option of 3 available d-keys. D-keys are tools to help Federal agencies and other project proponents determine if their proposed action has the potential to adversely affect federally listed species and designated critical habitat. The Minnesota-Wisconsin D-key includes a structured set of questions that assists a project proponent in determining whether a proposed project qualifies for a certain predetermined consultation outcome for all federally listed species found in Minnesota and Wisconsin (except for the northern long-eared bat- see below), which includes determinations of “no effect” or “may affect, not likely to adversely affect." In each case, the Service has compiled and analyzed the best available information on the species’ biology and the impacts of certain activities to support these determinations.

If your completed d-key output letter shows a "No Effect" (NE) determination for all listed species, print your IPaC output letter for your files to document your compliance with the Endangered Species Act.

For Federal projects with a “Not Likely to Adversely Affect” (NLAA) determination, our concurrence becomes valid if you do not hear otherwise from us after a 30-day review period, as indicated in your letter.

If your d-key output letter indicates additional coordination with the Minnesota-Wisconsin Ecological Services Field Office is necessary (i.e., you get a “May Affect” determination), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of the key; ESA compliance cannot be concluded using the key for “May Affect” determinations unless otherwise indicated in your output letter.

Note: Once you obtain your official species list, you are not required to continue in IPaC with d-keys, although in most cases these tools should expedite your review. If you choose to make an effects determination on your own, you may do so. If the project is a Federal Action, you may want to review our section 7 step-by-step instructions before making your determinations.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats
Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

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 for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), 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. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected. For bat activity dates, please review Appendix L in the Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A monoculture stand of shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC

species list report for your records.

If any of the above activities are proposed, and the northern long-eared bat appears on the user's species list, the federal project user will be directed to either the northern long-eared bat and tricolored bat range-wide D-key or the Federal Highways Administration, Federal Railways Administration, and Federal Transit Administration Indiana bat/Northern long-eared bat D-key, depending on the type of project and federal agency involvement. Similar to the Minnesota-Wisconsin D-key, these d-keys helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. Additional information about available tools can be found on the Service's northern long-eared bat website.

Whooping Crane
Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of Whooping Cranes in the Eastern United States."

Other Trust Resources and Activities
Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. It is the responsibility of the project proponent to survey the area for any migratory bird nests. If there is an eagle nest on-site while work is on-going, eagles may be disturbed. We recommend avoiding and minimizing disturbance to eagles whenever practicable. If you cannot avoid eagle disturbance, you may seek a permit. A nest take permit is always required for removal, relocation, or obstruction of an eagle nest. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination
While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. **Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.**

Minnesota
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

Wisconsin
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
(952) 858-0793

PROJECT SUMMARY

Project Code: 2025-0017818
Project Name: Bucks Mill Dam Reconstruction
Project Type: Dam - Maintenance/Modification
Project Description: The Pelican River Watershed District (District) is partnering with the Minnesota Department of Natural Resources (MnDNR) to act as local sponsor and fiscal agent of a project for the modification of Bucks Mill Dam on the Pelican River downstream of Lake Melissa and immediately upstream of Bucks Mill Drive, a township road. The project area is located around Bucks Mill Dam approximately 10 miles south of Detroit Lakes, MN Section 31 of Township 138N, Range 41W. The project area consists of a corridor along the Pelican River as it flows through the dam.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.7216157,-95.91564835260806,14z

Counties: Becker and Otter Tail counties, Minnesota

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf *Canis lupus* Population: MN There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4488	Threatened
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Suckley"s Cuckoo Bumble Bee *Bombus suckleyi* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered
Western Regal Fritillary *Argynnis idalia occidentalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/12017	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

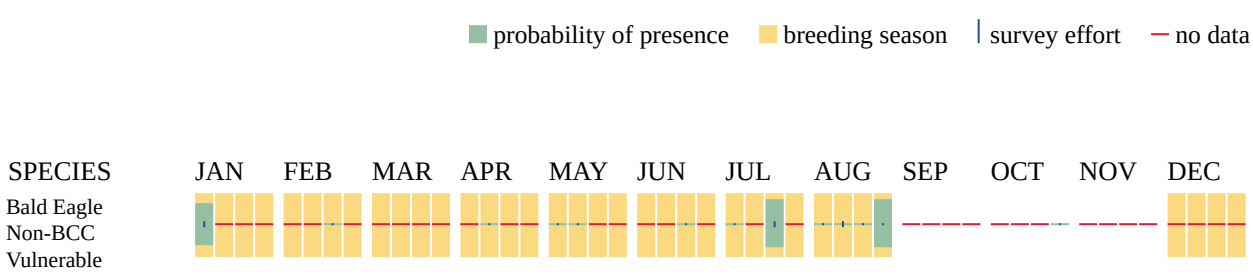
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black Tern *Chlidonias niger surinamenisis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

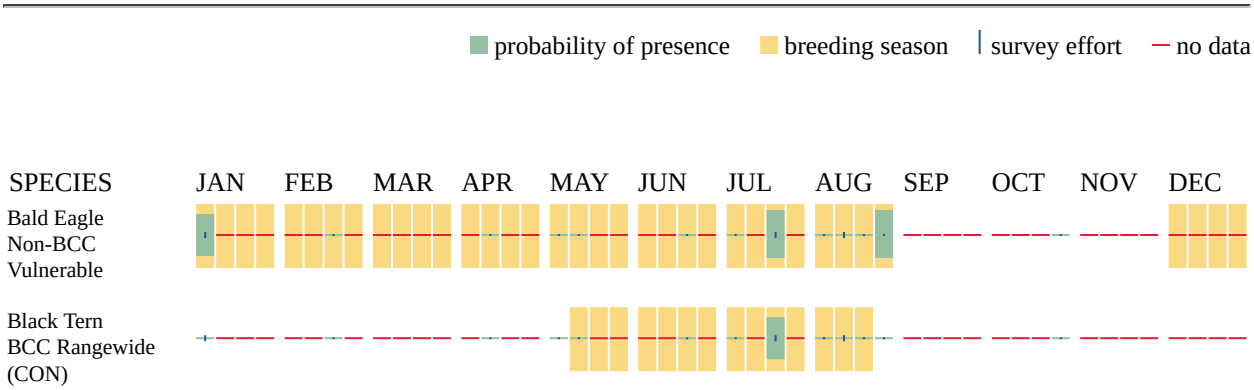
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R5UBH

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1C
- PFO1A
- PFO1C
- PFO1D

FRESHWATER POND

- PUBH
- PABF
- PUBF
- PUBFx

LAKE

- L1UBH
- L2UBH

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C
- PEM1D
- PEM1Ad

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Nick Omodt
Address: 2 Carlson Pkwy N Suite 110
City: Plymouth
State: MN
Zip: 55447
Email nick.omodt@mooreengineeringinc.com
Phone: 6126990427

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Minnesota Department of Natural Resources

You have indicated that your project falls under or receives funding through the following special project authorities:

- BIPARTISAN INFRASTRUCTURE LAW (BIL) (OTHER)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 12/16/2024 23:20:58 UTC
Project code: 2025-0017818
Project Name: Bucks Mill Dam Reconstruction

Subject: Verification letter for 'Bucks Mill Dam Reconstruction' for specified threatened and endangered species that may occur in your proposed project location consistent with the Minnesota-Wisconsin Endangered Species Determination Key (Minnesota-Wisconsin DKey).

Dear Nick Omodt:

The U.S. Fish and Wildlife Service (Service) received on **December 16, 2024** your effect determination(s) for the 'Bucks Mill Dam Reconstruction' (Action) using the Minnesota-Wisconsin DKey within the Information for Planning and Consultation (IPaC) system. You have submitted this key to satisfy requirements under Section 7(a)(2). The Service developed this system in accordance of with the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 et seq.).

Based on your answers and the assistance of the Service's Minnesota-Wisconsin DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Gray Wolf (*Canis lupus*)	Threatened	NLAA
Monarch Butterfly (*Danaus plexippus*)	Proposed Threatened	No effect

Determination Information

The Service will notify you within 30 calendar days if we determine that this proposed Action does not meet the criteria for a "may affect, not likely to adversely affect" (NLAA) determination for Federally listed species in Minnesota and Wisconsin. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the Minnesota-Wisconsin Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that were unanticipated. In such instances, the Minnesota-Wisconsin Ecological Services Field Office may request additional information to verify the effects determination reached through the Minnesota-Wisconsin DKey.

Additional Information

Sufficient project details: Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

Future project changes: The Service recommends that you contact the Minnesota-Wisconsin Ecological Services Field Office or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committed.

For non-Federal representatives: Please note that when a project requires consultation under section 7 of the Act, the Service must consult directly with the Federal action agency unless that agency formally designates a non-Federal representative (50 CFR 402.08). Non-Federal representatives may prepare analyses or conduct informal consultations; however, the ultimate responsibility for section 7 compliance under the Act remains with the Federal agency. Please include the Federal action agency in additional correspondence regarding this project.

Species-specific information

Gray Wolf: Please notify the Service if there is observed gray wolf activity during project implementation that could indicate a den or rendezvous site in close proximity (e.g., multiple wolves observed).

Bald and Golden Eagles: Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the “taking” of bald and golden eagles and defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Eagle Act’s implementing regulations define disturb as “… to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

The following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion:

- Northern Long-eared Bat *Myotis septentrionalis* Endangered
- Western Regal Fritillary *Argynnis idalia occidentalis* Proposed Threatened

Coordination with the Service is not complete if additional coordination is advised above for any species.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Bucks Mill Dam Reconstruction

2. Description

The following description was provided for the project 'Bucks Mill Dam Reconstruction':

> The Pelican River Watershed District (District) is partnering with the Minnesota Department of Natural Resources (MnDNR) to act as local sponsor and fiscal agent of a project for the modification of Bucks Mill Dam on the Pelican River downstream of Lake Melissa and immediately upstream of Bucks Mill Drive, a township road. The project area is located around Bucks Mill Dam approximately 10 miles south of Detroit Lakes, MN Section 31 of Township 138N, Range 41W. The project area consists of a corridor along the Pelican River as it flows through the dam.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.7216157,-95.91564835260806,14z

QUALIFICATION INTERVIEW

1. This determination key is intended to assist the user in evaluating the effects of their actions on Federally listed species in Minnesota and Wisconsin. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Additionally, this key DOES NOT cover wind development, purposeful take (e.g., for research or surveys), communication towers that have guy wires or are over 450 feet in height, aerial or other large-scale application of any chemical (such as insecticide or herbicide), and approval of long-term permits or plans (e.g., FERC licenses, HCP's).

   Click **YES** to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

   Yes
2. Is the action being funded, authorized, or carried out by a Federal agency?

   Yes
3. Are you the Federal agency or designated non-federal representative?

   No
4. Does the action involve the installation or operation of wind turbines?

   No
5. Does the action involve purposeful take of a listed animal?

   No
6. Does the action involve a new communications tower?

   No
7. Does the activity involve aerial or other large-scale application of ANY chemical, including pesticides (insecticide, herbicide, fungicide, rodenticide, etc)?

   No
8. Will your action permanently affect local hydrology?

   No
9. Will your action temporarily affect local hydrology?

   No
10. Will your project have any direct impacts to a stream or river (e.g., Horizontal Directional Drilling (HDD), hydrostatic testing, stream/road crossings, new stormwater outfall discharge, dams, other in-stream work, etc.)?

    Yes

11. Does your project have the potential to impact the riparian zone or indirectly impact a stream/river (e.g., cut and fill; horizontal directional drilling; construction; vegetation removal; pesticide or fertilizer application; discharge; runoff of sediment or pollutants; increase in erosion, etc.)?

    Note: Consider all potential effects of the action, including those that may happen later in time and outside and downstream of the immediate area involved in the action.

    Endangered Species Act regulation defines "effects of the action" to include all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (50 CFR 402.02).

    Yes

12. Will your action disturb the ground or existing vegetation?

    Note: This includes any off-road vehicle access, soil compaction (enough to collapse a rodent burrow), digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application (herbicide, fungicide), vegetation management (including removal or maintenance using equipment or prescribed fire), cultivation, development, etc.

    Yes

13. Will your action include spraying insecticides?

    No

14. Does your action area occur entirely within an already developed area?

    Note: Already developed areas are already paved, covered by existing structures, manicured lawns, industrial sites, or cultivated cropland, AND do not contain trees that could be roosting habitat. Be aware that listed species may occur in areas with natural, or semi-natural, vegetation immediately adjacent to existing utilities (e.g. roadways, railways) or within utility rights-of-way such as overhead transmission line corridors, and can utilize suitable trees, bridges, or culverts for roosting even in urban dominated landscapes (so these are not considered "already developed areas" for the purposes of this question). If unsure, select NO..

    No

15. Is there any potential for the action to harm wolves directly (e.g., mammal trapping, poison bait), or indirectly (e.g., increasing vehicle use that may result in vehicle strikes, exposure to potential human persecution)?

    No

16. [Hidden Semantic] Does the action area intersect the Threatened gray wolf AOI?

    Automatically answered

    Yes

17. [Hidden Semantic] Does the action area intersect the monarch butterfly species list area?

    Automatically answered

    Yes

18. Under the ESA, monarchs remain warranted but precluded by listing actions of higher priority. The monarch is a candidate for listing at this time. The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary.

    If your project will have no effect on monarch butterflies (for example, if your project won't affect their habitat or individuals), then you can make a "no effect" determination for this project.

    Are you making a "no effect" determination for monarch?

    Yes

IPAC USER CONTACT INFORMATION

Agency: County of Becker
Name: Nick Omodt
Address: 2 Carlson Pkwy N Suite 110
City: Plymouth
State: MN
Zip: 55447
Email nick.omodt@mooreengineeringinc.com
Phone: 6126990427

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 12/16/2024 23:36:53 UTC
Project code: 2025-0017818
Project Name: Bucks Mill Dam Reconstruction

Federal Nexus: yes
Federal Action Agency (if applicable): County of Becker

Subject: Technical assistance for 'Bucks Mill Dam Reconstruction'

Dear Nick Omodt:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on December 16, 2024, for 'Bucks Mill Dam Reconstruction' (here forward, Project). This project has been assigned Project Code 2025-0017818 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your project, the Project may need to apply the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office***

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the following effect determination(s):

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	NLAA

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Gray Wolf *Canis lupus* Threatened
- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Western Regal Fritillary *Argynnis idalia occidentalis* Proposed Threatened

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above. Note that if a new species is listed that may be affected by the identified action before it is complete, additional review is recommended to ensure compliance with the Endangered Species Act.

Next Steps

Consultation with the Service is necessary. The project has a federal nexus (e.g., Federal funds, permit, etc.), but you are not the federal action agency or its designated (in writing) non-federal representative. Therefore, the ESA consultation status is incomplete and no project activities should occur until consultation between the Service and the Federal action agency (or designated non-federal representative), is completed.

As the federal agency or designated non-federal representative deems appropriate, they should submit their determination of effects to the Service by doing the following.

1. Log into IPaC using an agency email account and click on My Projects, click "Search by record locator" to find this Project using **328-154288537**. (Alternatively, the originator of the project in IPaC can add the agency representative to the project by using the Add Member button on the project home page.)
2. Review the answers to the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key to ensure that they are accurate.
3. Click on Review/ Finalize to convert the ‘not likely to adversely affect’ technical assistance letter to a concurrence letter. Download the concurrence letter for your files if needed.

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or

amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place before project implements any changes which are final or commits additional resources.

If you have any questions regarding this letter or need further assistance, please contact the Minnesota-Wisconsin Ecological Services Field Office and reference Project Code 2025-0017818 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Bucks Mill Dam Reconstruction

2. Description

The following description was provided for the project 'Bucks Mill Dam Reconstruction':

> The Pelican River Watershed District (District) is partnering with the Minnesota Department of Natural Resources (MnDNR) to act as local sponsor and fiscal agent of a project for the modification of Bucks Mill Dam on the Pelican River downstream of Lake Melissa and immediately upstream of Bucks Mill Drive, a township road. The project area is located around Bucks Mill Dam approximately 10 miles south of Detroit Lakes, MN Section 31 of Township 138N, Range 41W. The project area consists of a corridor along the Pelican River as it flows through the dam.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.7216157,-95.91564835260806,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   No

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

10. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

11. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

    No

12. Does the action area contain (1) talus or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

    No

13. Will the action cause effects to a bridge?

    Note: Covered bridges should be considered as bridges in this question.

    No

14. Will the action result in effects to a culvert or tunnel at any time of year?

    Yes

15. Does the culvert or tunnel equal or exceed 23 feet (7.0 meters) in length?

    Yes

16. Do the interior dimensions of the culvert or tunnel **equal or exceed 4.5 feet (1.3 meters) in height (minimum height for northern long-eared bat)**?

    No

17. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

18. Does the action include the intentional exclusion of bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

19. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

20. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

21. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic permanently or temporarily on one or more existing roads?

    Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

22. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

23. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

24. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

25. Will the action include drilling or blasting?

    No

26. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

27. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

28. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

29. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

30. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes

31. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

    No

32. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

    No

33. Does the project intersect with the 0- 9.9% forest density category?

    Automatically answered
    No

34. Does the project intersect with the 10.0- 19.9% forest density category map?

    Automatically answered
    Yes

35. Does the project intersect with the 20.0- 29.9% forest density category map?

    Automatically answered
    Yes

36. Does the project intersect with the 30.0- 100% forest density category map?

    Automatically answered
    Yes

37. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 5 acres in total extent?

    No

38. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

39. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

40. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Automatically answered
    No

41. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

42. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    If unsure, answer "Yes."

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

43. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

44. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

45. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area?

    Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    No

46. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

1.1

IPAC USER CONTACT INFORMATION

Agency: County of Becker
Name: Nick Omodt
Address: 2 Carlson Pkwy N Suite 110
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State: MN
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Email nick.omodt@mooreengineeringinc.com
Phone: 6126990427

Appendix E

Cultural Resources Review

DEPARTMENT OF NATURAL RESOURCES
500 Lafayette Road • St. Paul, MN • 55155-40

11/26/24

Kelly Gragg-Johnson
Environmental Review Program Specialist
State Historic Preservation Office
50 Sherburne Ave, Suite 203
St Paul, MN 55155

RE: **Project:** Cultural Resources Review of Buck's Mill Dam Modification and Lock Removal, Detroit Lakes, Becker County, Minnesota (Figure 1)
Project Number: FSH-2415
Location: NE 1/4 SW 1/4 Section 31 T138N 41W
Project Type: State
MN State License: N/A

Dear Kelly Gragg-Johnson:

This letter report documents the *Cultural Resource Review of Buck's Mill Dam Modification and Lock Removal, Detroit Lakes, Becker County, Minnesota.* The Minnesota Department of Natural Resources (DNR), Division of Fish and Wildlife is proposing to fully remove structural remains of Kingsbury Lock, a navigational lock constructed in 1908 on the Pelican River approximately seven miles southwest of Detroit Lakes, Minnesota.[1] Additionally, DNR Division of Fish and Wildlife proposes alterations to Buck's Mill Dam, built in 1937, including removal of a pedestrian catwalk and its concrete support piers.[2] The project also entails replacing a concrete bridge and culvert (MnDOT Bridge 03J28) constructed in 2004 with a new structure.[3] The total area of potential effects (APE) for the project (combined archaeology and architectural history APE) is approximately 10.55 acres (Figure 2). The State of Minnesota allocated funding for the project with no current federal involvement. However, a permit from the United States Army Corps of Engineers (USACE) is anticipated at a later stage in the project timeline, thus introducing a federal nexus. At present, DNR acts as the state agency funding, permitting, and executing the proposed work. As such, DNR is responsible for compliance with Minnesota State Statutes, Ch. 138, including the Minnesota Historic Sites Act (Minn. Stat. 138.661-138.666), Minnesota Field

[1] Isaacs, Aaron, 2013. "Pelican Valley Navigation Company." *MNopedia.* Electronic document, https://www.mnopedia.org/structure/pelican-valley-navigation-company, accessed October 30, 2024; American Canal Society, 2000. "Canal Index: Detroit Lakes and Pelican River Slack Water Navigation Company Canal." Electronic document, https://americancanalsociety.org/wp-content/uploads/2019/08/Pelican-River-Lakes-rvsd5.pdf, accessed October 30, 2024.
[2] Minnesota Department of Natural Resources, 1936. "Plan of Structure: Buck's Mill Site." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota.
[3] Minnesota Department of Transportation, 2024. "Minnesota Structure Inventory Report, Bridge ID: 03J28, Bucksmill Dr over Pelican River." Electronic document, https://reports.dot.state.mn.us/bridgerptviewer/Viewer.aspx?rName=Bridge+Inspection+and+Inventory+Report&rFormat=p&Roadways=2&AgencyName=0&Selection+Criteria-Inspection+Period=6&BridgeInfoToggle=1&Sort+Order=1&RouteSystem=All&RouteNumber=All&BeginRefPoint=All&EndRefPoint=All&ShowOldElements=0&ShowNBEInspections=1&ShowTitlePage=0&inspBegDate=All&inspEndDate=All&rFormat=p&SingleBridge=03J28&Select, accessed November 20, 2024.

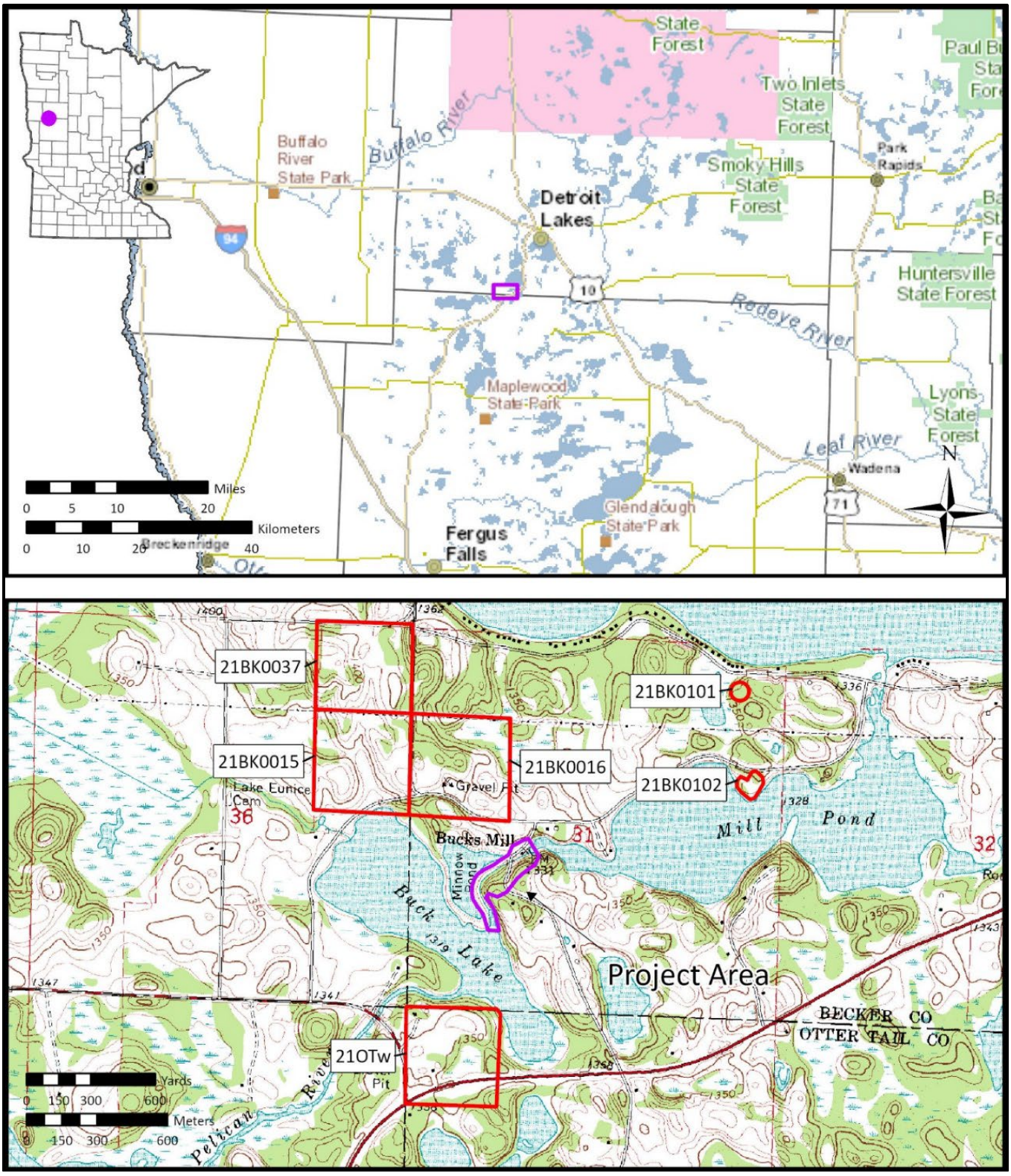

Figure 1. Location of the FSH-2415 project APE and nearby cultural resources, Becker County, Minnesota.[4]

[4] United States Geological Survey, 1973. "Lake Franklin, Minn. NW/4 Vergas 15' Quadrangle." Historical Topo Map Explorer. Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html#maps=&loc=-95.92,46.72&LoD=13.66, accessed November 7, 2024.

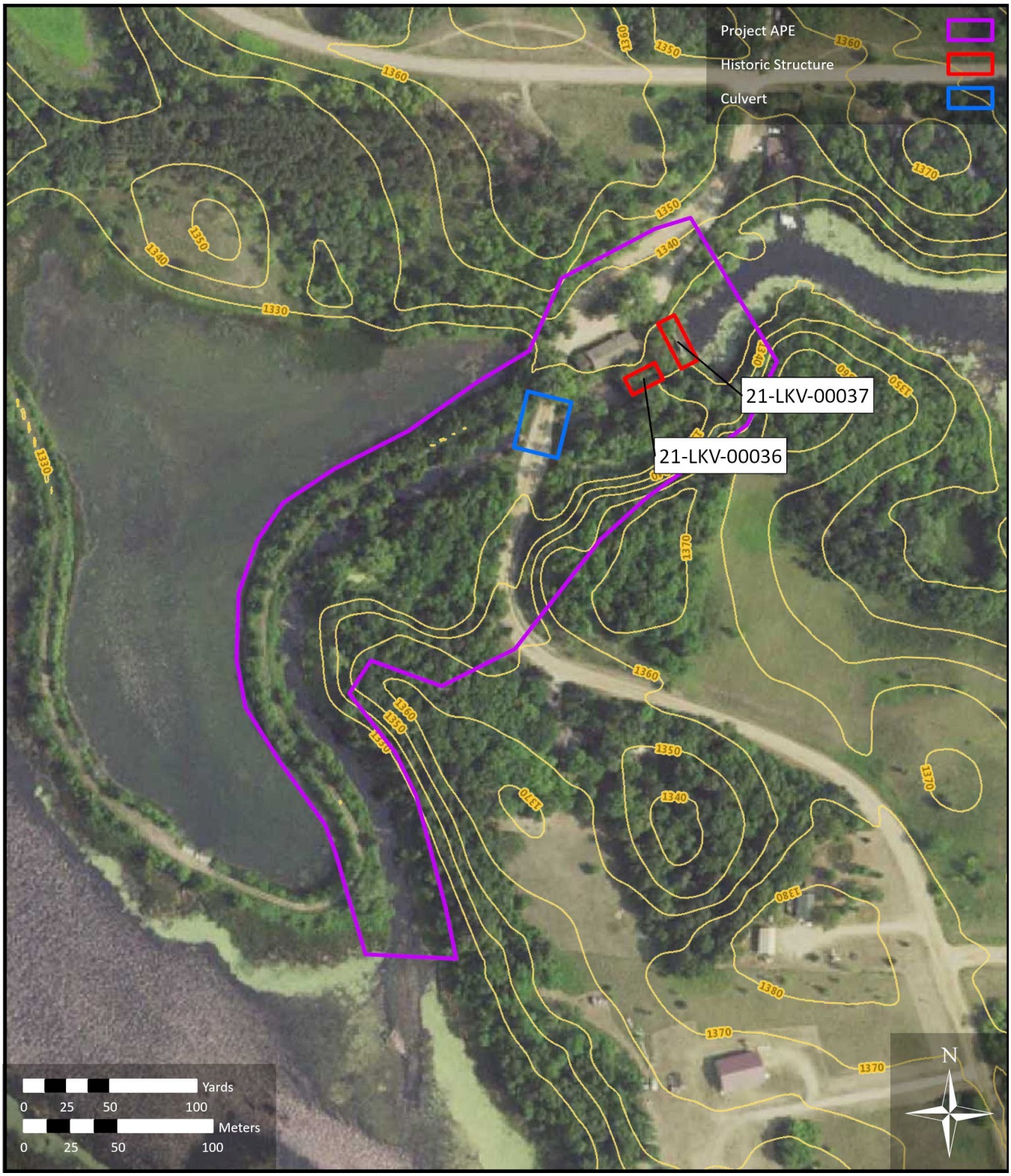

Figure 2. Detail of FSH-2415 project APE.

Archaeology Act (Minn. Stat. 138.40)[5], and the Private Cemeteries Act (Minn. Stat. 307.08)[6]. The Minnesota Historical Society (MNHS) Archaeology Department completed this review on behalf of the DNR.

Staff of the Minnesota Forestry and Fish and Wildlife Cultural Resource Program at MNHS, including Jeffrey Pulvermacher and Kylee Glen, completed the Phase IA cultural resource investigation. Matthew Radermacher served as the archaeological Principal Investigator, and Emily Walter reviewed the project for potential impacts to aboveground resources. A visual examination of the project area completed on June 19, 2024, identified two architectural history resources aged 45 years or more: Kingsbury Lock and Buck's Mill Dam. The visual examination also determined that intact cultural deposits are unlikely to be present and a systematic archaeological investigation was not needed due to the significant disturbance and reshaping of the landscape from more than 100 years of development.

Records Review & Background

Prior to initiation of the Phase I archaeological field reconnaissance, MNHS staff conducted archival research through the Office of the State Archaeologist (OSA) online Portal and the Minnesota State Historic Preservation Office (SHPO) Historic Inventory Portal (MnSHIP) to better characterize the documented historic and precontact character across this portion of Becker County, Minnesota. MNHS cultural resource staff examined data from the National Register of Historic Places (NRHP), the Minnesota inventories of archaeological and aboveground resources, previous cultural resource management reporting, and available historical maps and aerial photographs. This section documents the archival background research collected for this project.

Examination of the OSA online Portal indicates there are no recorded sites within the project APE. Table 1 summarizes the archaeological sites recorded within one mile of the project area.

Table 1. Archaeological Sites Recorded within One Mile of the FSH-2415 APE

Site Number	Site Name	Site Description	Distance from APE (miles)
21BK0015[7]	N/A	Precontact burial mounds	0.30
21BK0016[8]	N/A	Precontact village	0.06
21BK0037[9]	Hildebrand Burials	Precontact burials	0.45
21BK0101[10]	West Pond	Precontact lithic findspot	0.67
21BK0102[11]	Mill Lake	Precontact artifact scatter	0.57

[5] State of Minnesota, 2023 "Minnesota Statutes: Chapter 138." Electronic document, https://www.revisor.mn.gov/statutes/cite/138, accessed March 2024.
[6] State of Minnesota, 2023 "Minnesota Statutes: Chapter 307.08." Electronic document, https://www.revisor.mn.gov/statutes/cite/307.08, accessed March 2024.
[7] 21BK0015 Site Form, 1995, 21BK0015 Site Form. Leslie D. Peterson. On file at OSA & SHPO and at URL: https://osaportal.gisdata.mn.gov/ArchSites/Details/19514, accessed November 20, 2024.
[8] 21BK0016 Site Form, 1995, 21BK0016 Site Form. Amy L. Ollendorf. On file at OSA & SHPO and at URL: https://osaportal.gisdata.mn.gov/ArchSites/Details/19513, accessed November 20, 2024.
[9] 21BK0037 Site Form, 1995, 21BK0037 Site Form. Amy L. Ollendorf. On file at OSA & SHPO and at URL: https://osaportal.gisdata.mn.gov/ArchSites/Details/33540, accessed November 20, 2024.
[10] 21BK0101 Site Form, 2002, 21BK0101 Site Form. Dr. Christy A. Hohman-Caine. On file at OSA & SHPO and at URL: https://osaportal.gisdata.mn.gov/ArchSites/Details/26536, accessed November 20, 2024.
[11] 21BK0102 Site Form, 2002, 21BK0102 Site Form. Dr. Christy A. Hohman-Caine. On file at OSA & SHPO and at URL: https://osaportal.gisdata.mn.gov/ArchSites/Details/26538, accessed November 20, 2024.

The architecture history review found no architectural properties listed in the NRHP, Minnesota State Register of Historic Places, or Minnesota State Historic Sites network in or adjacent to the project area. Furthermore, no architectural properties in or near the project area are currently inventoried with the SHPO. MnDOT Bridge 03J28 was constructed in 2004 and does not meet the age threshold for consideration as a historic property.
United States Fish and Wildlife Service (USFWS) contracted 106 Group in 2022 to complete a reconnaissance level architectural history survey for "properties near the Bucks [sic] Mill Dam."[12] Historian Steve Gallo of 106 Group prepared Minnesota Individual Property Inventory Forms for Kingsbury Lock (BK-LKV-00036) and Buck's Mill Dam (BK-LKV-00037).[13] Gallo drafted a report for the two properties, but also included a brief overview of a "Restaurant" building—identified as FN2—on the north bank of the Pelican River. Gallo estimated the Restaurant's construction date to 1995 and therefore determined it "not of age" for reconnaissance level survey. Due to changing project circumstances, 106 Group never submitted the inventory forms or report to SHPO.

Thorough examination of historic maps and aerial photographs confirms the presence of two properties in the project area that are at least 45 years of age. Another architectural property in the project area is aged only 44 years. Table 2 outlines the historic maps and aerials consulted to understand landscape change in the project area over time.

The project area resides within the ancestral lands of the Dakota people. In the late seventeenth century, the Ojibwe pushed west across the St. Croix River into what is now called Minnesota, with some bands claiming land near present-day Detroit Lakes.[14] The Ojibwe ceded land in north-central Minnesota to the federal government in 1855 via the Treaty of Washington, including the project area.[15] The United States General Land Office (GLO) first surveyed the land where Buck's Mill Dam now sits in 1871. The GLO map depicts the Pelican River winding southwest through Section 31 of Township 138 North, Range 41 West. There are no structures or landowners noted on the plat map. The land paralleling the Pelican River on either side is reportedly low-lying wetlands.[16]

A topographic map drafted by the United States Geological Survey (USGS) in 1915 shows hydrologic change in the project area. Whereas the Pelican River flowed in a crooked, narrow path south from Lake Melissa through the section in the 1871 GLO map, the USGS map displays a swollen "Mill Pond," impounded by "Buck's Mill" instead. The map appears to indicate the presence of two buildings and several roads in the project area at that time.[17]

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[12] Gallo, Steve, 2022. *Reconnaissance Architectural History Survey for Properties Near Bucks Mill Dam.* Report prepared for the United States Fish and Wildlife Service. On file at Minnesota Department of Natural Resources, St. Paul, Minnesota.
[13] Gallo, Steve, 2022. "Kingsbury Lock (BK-LKV-00036)." Minnesota Individual Property Inventory Form, on file at Minnesota Department of Natural Resources, St. Paul, Minnesota; Gallo, Steve, 2022. "Bucks Mill Dam (BK-LKV-00037)." Minnesota Individual Property Inventory Form, on file at Minnesota Department of Natural Resources, St. Paul, Minnesota.
[14] Bemidji State University, 2024. "Anishinaabe Timeline." Electronic document, https://www.bemidjistate.edu/airc/community-resources/anishinaabe-timeline/, accessed November 12, 2024.
[15] Stone, Andrew, 2015. "Treaty of Washington, 1855." *MNopedia.* Electronic document, https://www.mnopedia.org/event/treaty-washington-1855, accessed November 12, 2024.
[16] General Land Office, Bureau of Land Management, 1871, "Township No. 138 N, Range No. 41 W, 5th Mer." Electronic document, https://glorecords.blm.gov/details/survey/default.aspx?dm_id=115493&sid=zedgwgtj.fwi&surveyDetailsTabIndex=1, accessed November 7, 2024.
[17] United States Geological Survey, 1915. "Minnesota: Vergas Quadrangle." *Historical Topo Map Explorer.* Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html#maps=&loc=-95.92,46.72&LoD=13.66, accessed November 7, 2024.

A plat map published by the State of Minnesota just one year later confirms that a road crossed the water at a pinch in the Pelican River. The plat shows both "S. Buck" and "W. J. Buck" as landowners to the river's north. W. J. Buck's property hosted one building. "H. H. B.", landowner of the northwest quarter of the southwest quarter of Section 31, had two buildings on their property. There is no other development evident in the 1916 plat map.[18]

In a 1953 aerial photograph, the Buck's Mill Dam is seen retaining water in a reservoir between Lake Melissa and Buck Lake. A gravel road passes over the Pelican River downstream from the dam. The project area is largely vegetated with deciduous trees hugging the river between the Mill Pond and Buck Lake. No buildings or structures are visible in the project area apart from Buck's Mill Dam.[19]

A topographic map produced by the USGS in 1973 shows a building on the northern banks of the Pelican River immediately downstream of the Buck's Mill Dam. However, the largest change between the 1953 and 1973 is the irregularly shaped "Minnow Pond" southwest of the dam and project area. The "Minnow Pond" does not appear hydrologically connected to either the Pelican River, Buck Lake, or the Mill Pond. The "Minnow Pond" is located immediately west of a southward bend in the Pelican River, where the water heads toward Buck Lake.[20]

In 1979, a rectangular clearing appears in the trees that line the Pelican River's northern banks. The clearing is within eyesight of the Buck's Mill Dam.[21] By 1981, a brown-roofed, rectangular building filled the space the removed trees left behind. Just north of its crossing over the Pelican River, the gravel roadway widens into an oval-shaped parking area with a forested median.[22]

Table 2. Historical Maps and Aerial Photography Consulted for FSH-2415

Date	Prepared By	Historical Map/Aerial Title
1871	General Land Office, Bureau of Land Management[23]	Township No. 138 N, Range No. 41 W, 5th Mer.
1915	USGS[24]	Minnesota: Vergas Quadrangle
1916	State of Minnesota[25]	Plat Book of the State of Minnesota: Becker County, Minnesota
1953	Minnesota Historical Aerial Photographs Online[26]	BXO-7M-147

[18] State of Minnesota, 1916. "Becker County, Minnesota." John R. Borchert Map Library. Electronic document, https://geo.lib.umn.edu/plat_books/stateofmn1916/reference/map00814.jpg, accessed November 7, 2024.
[19] Minnesota Historical Aerial Photographs Online, 1953. "BXO-7M-147." *John R. Borchert Map Library*. Electronic document, https://maps.dnr.state.mn.us/airphotos/usda/bxo/y1953/bxo07m147.jpg, accessed November 7, 2024.
[20] United States Geological Survey, 1973. "Lake Franklin, Minn. NW/4 Vergas 15' Quadrangle*." Historical Topo Map Explorer*. Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html#maps=&loc=-95.92,46.72&LoD=13.66, accessed November 7, 2024.
[21] John R. Borchert Map Library, 1979. "MN005 Lake View 31 1979." Electronic document, https://geo.lib.umn.edu/AerialSlides2/Becker/Lake_View_T138_R41/31/MN005_Lake_View_31_1979.jpg, accessed November 7, 2024.
[22] John R. Borchert Map Library, 1981. "MN005 Lake View 31 1981." Electronic document, https://geo.lib.umn.edu/AerialSlides2/Becker/Lake_View_T138_R41/31/MN005_Lake_View_31_1981.jpg, accessed November 7, 2024.
[23] General Land Office, Bureau of Land Management, 1871, "Township No. 138 N, Range No. 41 W, 5th Mer." Electronic document, https://glorecords.blm.gov/details/survey/default.aspx?dm_id=115493&sid=zedgwgtj.fwi&surveyDetailsTabIndex=1, accessed November 7, 2024.
[24] United States Geological Survey, 1915. "Minnesota: Vergas Quadrangle." *Historical Topo Map Explorer.* Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html#maps=&loc=-95.92,46.72&LoD=13.66, accessed November 7, 2024.
[25] State of Minnesota, 1916. "Becker County, Minnesota." John R. Borchert Map Library. Electronic document, https://geo.lib.umn.edu/plat_books/stateofmn1916/reference/map00814.jpg, accessed November 7, 2024.
[26] Minnesota Historical Aerial Photographs Online, 1953. "BXO-7M-147." *John R. Borchert Map Library*. Electronic document, https://maps.dnr.state.mn.us/airphotos/usda/bxo/y1953/bxo07m147.jpg, accessed November 7, 2024.

Date	Prepared By	Historical Map/Aerial Title
1973	USGS[27]	Lake Franklin, Minn. NW/4 Vergas 15' Quadrangle
1979	John R. Borchert Map Library[28]	MN005 Lake View 31 1979
1981	John R. Borchert Map Library[29]	MN005 Lake View 31 1981

History of Pelican River Navigation and Buck's Mill Area

The Northern Pacific Railway (NP) arrived in the small village of Detroit—now known as Detroit Lakes—for the first time in 1871. The transcontinental passenger and freight railroad made a permanent community on Detroit Lake possible. By 1873, Detroit had the only grain-elevator along the NP west of Duluth. An 1877 vote to declare Detroit the seat of Becker County reflected the village's blossoming significance as a railroad stopover town.[30] Detroit's population tripled between 1880 and 1890, growing from 554 to 1,510.[31] Residents created a permanent service industry in Detroit via hotels, banks, and grocers. But one entrepreneurial man in Detroit, John K. West, wanted to take the local economy a little farther—a couple lakes farther, in fact.

In the 1880s, Detroit positioned itself as a destination for "the pleasure seeker, the sportsman or the invalid."[32] West welcomed visitors with open arms. He exhibited an insatiable desire for new enterprises. In addition to operating an ice harvesting business and bottling plant on the northern shore of Detroit Lake, West eagerly stuck his hands into Detroit's flourishing tourism industry. He looked to Detroit Lake to find his fortune. In 1886, West began introducing tourists to Detroit Lake's scenery aboard his 14 x 32-foot, canopy-covered barge. West wrapped up his summer boat business in 1889 because his economic dreams outgrew his dinky little boat.[33]Along with investors George D. Hamilton, a local newspaper editor, and Jeff H. Irish, West organized the "Pelican Valley Navigation Company" in mid-summer 1888. The trio set out to transform the Pelican River, a "shallow, crooked brook-like stream through which it was very difficult to move a small row boat [sic]," into a navigable channel for both tourism and industrial traffic.[34] A similar company incorporated six years earlier to construct a water route between Detroit and Pelican Lakes. The Detroit Lake and Pelican River Slack Water Navigation Company fizzled out without accomplishing its goal. John K. West's Pelican Valley Navigation Company, however, wasted no time.[35]

[27] United States Geological Survey, 1973. "Lake Franklin, Minn. NW/4 Vergas 15' Quadrangle*." Historical Topo Map Explorer*. Electronic document, https://livingatlas.arcgis.com/topomapexplorer/index.html#maps=&loc=-95.92,46.72&LoD=13.66, accessed November 7, 2024.
[28] John R. Borchert Map Library, 1979. "MN005 Lake View 31 1979." Electronic document, https://geo.lib.umn.edu/AerialSlides2/Becker/Lake_View_T138_R41/31/MN005_Lake_View_31_1979.jpg, accessed November 7, 2024.
[29] John R. Borchert Map Library, 1981. "MN005 Lake View 31 1981." Electronic document, https://geo.lib.umn.edu/AerialSlides2/Becker/Lake_View_T138_R41/31/MN005_Lake_View_31_1981.jpg, accessed November 7, 2024.
[30] Detroit Lakes Tourism Bureau and Regional Chamber of Commerce, 2024, "Visit Detroit Lakes: History." Electronic document, https://visitdetroitlakes.com/about/history/, accessed November 1, 2024.
[31] United States Decennial Census, 1880. "1880 Census: Volume 1. Statistics of the Population of the United States." Electronic document, https://www2.census.gov/library/publications/decennial/1880/vol-01-population/1880_v1-10.pdf, accessed November 8, 2024: 224; U.S. Decennial Census, 1890. "Twelfth Census of the United States Census Bulletin: Population of Minnesota by Counties and Minor Civil Divisions." Electronic document, https://www2.census.gov/library/publications/decennial/1900/bulletins/demographic/30-population-mn.pdf, accessed November 8, 2024.
[32] Teague, Guy E. and Ken Prentice, 1971. *Horse and Buggy Days at Detroit Lakes*. Lakes Publishing Company, Detroit Lakes, Minnesota.
[33] Gallo, Steve, 2022. *Reconnaissance Architectural History Survey for Properties Near Bucks Mill Dam.* Report prepared for the United States Fish and Wildlife Service. On file at Minnesota Department of Natural Resources, St. Paul, Minnesota: 5.
[34] West, Jessie and Alvin H. Wilcox, 1907. *A Pioneer History of Becker County, Minnesota.* Pioneer Press Company, St. Paul, Minnesota: 476.
[35] Ibid; Isaacs, Aaron, 2013. "Pelican Valley Navigation Company." *MNopedia.* Electronic document, https://www.mnopedia.org/structure/pelican-valley-navigation-company, accessed October 30, 2024.

West and his business partners began construction on a temporary dam at the outlet of Detroit Lake on September 1, 1888, to stop the Pelican River's flow and expose the riverbed. With shovels, wheelbarrows, and determination, the company dredged a channel between Detroit and Muskrat Lakes.[36] They pushed onward, dredging a one-mile channel through Muskrat Lake—reportedly more marsh than lake.[37] Then, the trio repeated the damming process to groom the connection between Muskrat Lake and Lake Sallie. At this junction, Pelican River Navigation Company installed its first lock, featuring a 5'11" drop.[38] Pelican Valley Navigation Company sited Dunton Lock on the northeast corner of Lake Sallie and opened it to commercial navigation in August 1889.[39]

A small resort community called Shoreham formed on the southern shore of Lake Sallie. West launched a series of scenic "pleasure excursions" between Detroit and Shoreham in 1889 to reap the financial benefits of his hard dredging work.[40] West launched his first steamboat, the *Minnie Corliss,* on Detroit Lake on April 30, 1889.[41] The *Lady of the Lake* traveled from Detroit to the Shoreham Hotel, located adjacent to the boat dock in Shoreham, on July 25, 1889. The *Lady of the Lake's* maiden voyage signaled the start of robust steamboat tourism in Becker County. Pelican Valley Navigation Company carefully aligned its steamboat schedule with that of NP's passenger train service to maximize the number of guests from Fargo, Duluth, Minneapolis, and St. Paul aboard its ships. In 1894, NP reduced fares between Fargo, North Dakota, and Detroit, Minnesota, to encourage weekend travel between the two cities. Northern Pacific serviced Detroit with 14 passenger trains per day at that time.[42] Historians Susan Granger et al. write in a NRHP nomination for a city park in Detroit Lakes, "Trains brought visitors from Fargo, Minneapolis, Canada, and elsewhere and deposited them at one of the city's two depots where they were often met by wagons and buses. Many visitors then transferred to steam and paddle boats that brought them to hotels and cabins in areas not yet reached by decent roads."[43] Accommodations development specifically followed steamboat traffic. Dunton Locks, the midpoint along Pelican Valley Navigation Company's Detroit to Shoreham route, became the site of the Dunton Locks resort, complete with cabins, a hotel, and a nightclub.[44] Luxury hotels constructed and managed by businessmen like West represented a new era of hospitality in Detroit, where building design and hotel amenities considered visitors interested in outdoor recreation rather than merchants in town on business.[45]

[36] West, Jessie and Alvin H. Wilcox, 1907. *A Pioneer History of Becker County, Minnesota.* Pioneer Press Company, St. Paul, Minnesota: 476.
[37] Isaacs, Aaron, 2013. "Pelican Valley Navigation Company." *MNopedia.* Electronic document, https://www.mnopedia.org/structure/pelican-valley-navigation-company, accessed October 30, 2024.
[38] West, Jessie and Alvin H. Wilcox, 1907. *A Pioneer History of Becker County, Minnesota.* Pioneer Press Company, St. Paul, Minnesota: 476; American Canal Society, 2000. "Canal Index: Detroit Lakes and Pelican River Slack Water Navigation Company Canal." Electronic document, https://americancanalsociety.org/wp-content/uploads/2019/08/Pelican-River-Lakes-rvsd5.pdf, accessed October 30, 2024.
[39] American Canal Society, 2000. "Canal Index: Detroit Lakes and Pelican River Slack Water Navigation Company Canal." Electronic document, https://americancanalsociety.org/wp-content/uploads/2019/08/Pelican-River-Lakes-rvsd5.pdf, accessed October 30, 2024: 1.
[40] Granger, Sue, Scott Kelly, and Liz Morrison, 2007. "Detroit Lakes City Park." National Register of Historic Places Registration Form, submitted to the Minnesota State Historic Preservation Office, St. Paul, Minnesota. Electronic document, https://s3.amazonaws.com/NARAprodstorage/lz/electronic-records/rg-079/NPS_MN/08000466.pdf, accessed November 1, 2024: Section 8, 3.
[41] Gallo, Steve, 2022. *Reconnaissance Architectural History Survey for Properties Near Bucks Mill Dam.* Report prepared for the United States Fish and Wildlife Service. On file at Minnesota Department of Natural Resources, St. Paul, Minnesota: 5.
[42] Granger, Sue, Scott Kelly, and Liz Morrison, 2007. "Detroit Lakes City Park." National Register of Historic Places Registration Form, submitted to the Minnesota State Historic Preservation Office, St. Paul, Minnesota. Electronic document, https://s3.amazonaws.com/NARAprodstorage/lz/electronic-records/rg-079/NPS_MN/08000466.pdf, accessed November 1, 2024: Section 8, 2.
[43] Ibid.
[44] Isaacs, Aaron, 2013. "Pelican Valley Navigation Company." *MNopedia.* Electronic document, https://www.mnopedia.org/structure/pelican-valley-navigation-company, accessed October 30, 2024.
[45] Ibid.

Simeon and William Buck, two of the earliest Euro-American settlers in Becker County's Lake View Township, "started the city at Buck's mill" in 1871.[46] The following year, the pair constructed a sawmill and a dam to power it, transforming the free-flowing Pelican River into a mill pond. They hoped to profit from the dense deciduous forest surrounding their new home.[47] The Buck Brothers faced environmental and financial challenges, most notably several flooding events that washed out their hand-built dams, but they persevered. And John K. West and company took notice.[48] The Pelican Valley Navigation Company dredged the winding channel across the isthmus between Lakes Sallie and Melissa to extend navigation all the way to Buck's Mill, south of Lake Melissa. Buck's Mill served as the southern terminus for Pelican Valley Navigation Company steamboats until 1908.[49] While resorts ringing Lake Melissa received a fair number of steamboat passengers as overnight guests, few tourists stayed aboard the boat as far south as Buck's Mill. The additional venture beyond Lake Melissa, through Mill Pond to Buck's Mill principally existed to pick up lumber from the Buck Brothers' sawmill and deliver it to Detroit for local sale or transport on the NP. Lumber sawn by the Bucks Brothers made its way to the NP railroad spur at West's Fargo-Detroit Ice Company, sometimes called the "ice track," for workers to load onto railcars.[50] Jessie West, wife to John K. West, writes in *Pioneer History of Becker County,* published in 1907:

> After the cottage season was over the steamer was used to tow cordwood from Buck's dam to the railroad until winter stopped the work. For a number of years this same thing continued. Each season the towing of wood and logs was carried on until the price of timber at Buck's dam became so high as to leave no profit in the undertaking. No towing has been done since 1899, but the boats have run regularly throughout the summer season carrying passengers to and from the cottage settlements on the lower lakes, making three trips daily and carrying a large number of passengers. It has been and is now the intention of the Navigation Company to extend the improvements of the channels connecting the other lakes in the chain until all are made navigable. This will be done as fast as business will warrant.[51]

In the face of waning profit margins in timber transportation, the Pelican Valley Navigation Company pushed the limits of navigation further downstream hoping to expand its remarkably successful tourist cruises.

Pelican Valley Navigation Company built Kingsbury Lock in 1908 to circumvent Buck's Mill Dam. The lock facilitated a 12-foot drop in water level. The company then dredged a one-mile channel in the Pelican River to Little Pelican Lake, where it installed the three-foot-drop Johnson Lock. Boats traversed Little Pelican Lake to the Pelican Inn on the lake's southwest shore. Then, steamboat captains navigated their final passage on the chain of lakes to reach Big Pelican Lake. Pelican Valley Navigation Company ran thrice-daily service to Shoreham, with more infrequent

[46] West, Jessie and Alvin H. Wilcox, 1907. *A Pioneer History of Becker County, Minnesota.* Pioneer Press Company, St. Paul, Minnesota: 476.
[47] Ibid.
[48] Gallo, Steve, 2022. *Reconnaissance Architectural History Survey for Properties Near Bucks Mill Dam.* Report prepared for the United States Fish and Wildlife Service. On file at Minnesota Department of Natural Resources, St. Paul, Minnesota: 6.
[49] American Canal Society, 2000. "Canal Index: Detroit Lakes and Pelican River Slack Water Navigation Company Canal." Electronic document, https://americancanalsociety.org/wp-content/uploads/2019/08/Pelican-River-Lakes-rvsd5.pdf, accessed October 30, 2024; Isaacs, Aaron, 2013. "Pelican Valley Navigation Company." *MNopedia.* Electronic document, https://www.mnopedia.org/structure/pelican-valley-navigation-company, accessed October 30, 2024.
[50] West, Jessie and Alvin H. Wilcox, 1907. *A Pioneer History of Becker County, Minnesota.* Pioneer Press Company, St. Paul, Minnesota: 477.
[51] Ibid.

service to Big Pelican Lake.[52] Nonetheless, with the help of Kingsbury Lock, the extension beyond Buck's Mill Dam expanded tourism offerings in the Detroit area.

Field Review

A visual examination of the project area completed on June 19, 2024, determined that intact cultural deposits are unlikely to be present within the project APE. Construction is limited to areas immediately adjacent to the channel between Mill and Minnow Ponds and will only impact areas previously disturbed by more than 100 years of development. The river channel has been previously altered to accommodate the lock and dam, and the project APE is almost entirely comprised of historic fill to create stable landforms for the structures, nearby roads and culvert, and the riprap embankment that separates Minnow Pond. Remaining areas include the previously stabilized streambank and steep hillsides along the southeastern margins of the project. As such, MNHS cultural resource staff determined a systematic archaeological investigation was unnecessary; MNHS cultural resource staff limited field review to a Phase 1A survey as described in the *State Archaeologist's Manual for Archaeological Projects in Minnesota.*[53]

Field review confirmed the presence of two architectural history properties in the project area. Kingsbury Lock and Buck's Mill Dam are described below. Both properties received an updated Minnesota Individual Property Inventory Form uploaded to MnSHIP that contain greater detail about the property's historic context, integrity, and NRHP eligibility.

Kingsbury Lock (BK-LKV-00036)

Kingsbury Lock is a non-operational concrete lock on the Pelican River in Lake View Township, Becker County, Minnesota (Photograph 1). Two concrete walls align parallel to one another on the northwest and southeast banks of the Pelican River, approximately 40 feet downstream from the Works Progress Administration (WPA)-constructed Buck's Mill Dam (BK-LKV-00037).[54] The lock is located approximately 160 feet east of Bucksmill Drive, an unpaved road traveling north to south. A dirt driveway branches off Bucksmill Drive north of the Pelican River. The driveway opens into a parking area for a rectangular, side-gabled building formerly occupied by a restaurant.[55] Aerial imagery captured in 2019 shows a narrow, naturally surfaced path extending south from this parking area to the northern banks of the Pelican River. This path offers pedestrian circulation—albeit illegal circulation without prior landowner permission—to and from the lock from the north.[56] Field photographs captured by DNR Fish and Wildlife/MNHS cultural resource specialists in June 2024 indicate the presence of an eroded, naturally surfaced "volunteer" trail leading to Pelican River from the south. The trail terminates near the southwest corner of Kingsbury Lock's southeast channel wall.

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[52] Isaacs, Aaron, 2013. "Pelican Valley Navigation Company." *MNopedia.* Electronic document, https://www.mnopedia.org/structure/pelican-valley-navigation-company, accessed October 30, 2024.

[53] Anfinson, S. F., 2011, *State Archaeologist's Manual for Archaeological Projects in Minnesota.* Office of the State Archaeologist. St. Paul, Minnesota.

[54] Gallo, Steve, 2022. "Bucks Mill Dam (BK-LKV-00037)." Minnesota Individual Property Inventory Form, on file at Minnesota Department of Natural Resources, St. Paul, Minnesota; Minnesota Department of Natural Resources, 1936. "Plan of Structure: Buck's Mill Site." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota.

[55] Gallo, Steve, 2022. *Reconnaissance Architectural History Survey for Properties Near Bucks Mill Dam.* Report prepared for the United States Fish and Wildlife Service. On file at Minnesota Department of Natural Resources, St. Paul, Minnesota.

[56] Bowe, Nathan, 2021. "Fish-friendly Becker County moves forward on Bucks Mill Dam project." *Detroit Lakes Tribune.* Electronic document, https://www.dl-online.com/news/fish-friendly-becker-county-moves-forward-on-bucks-mill-dam-project, accessed October 31, 2024; National Agricultural Imagery Program, 2019. "Minnesota Aerial Imagery 2019." Electronic document, https://umn.maps.arcgis.com/apps/StoryMapBasic/index.html?appid=4b4f4ac549094ca0ab766068138f7f54, accessed October 23, 2024.

The Pelican Valley Navigation Company constructed the lock in 1908 to open the Pelican River downstream of Buck's Mill to commercial navigation.[57] Yet at present, Kingsbury Lock is inoperative; the structure is simply two decaying concrete walls on either side of the Pelican River. The walls are shaped like an irregular trapezoid, with a higher, flat center and "legs" on either side that slope down toward the river. At their highest point, the walls measure approximately 12 feet high—its discernible height dependent on water levels controlled by the nearby Buck's Mill Dam—while the channel measures 15 feet wide.[58] A thick, rectangular concrete beam juts up from the riverbed diagonally, pierces the water's surface, and rests against the southeast wall of the lock. Additionally, a freestanding right triangle of concrete sits in the river adjacent to the southwest edge of the southeast channel wall. Notably, no concrete right triangle appears on the opposite side of the Pelican River. In historian Steve Gallo's drafted but unsubmitted Minnesota Individual Property Inventory Form for Kingsbury Lock dated June 2022, Gallo describes a chain link fence atop the lock's northwest wall. Similarly, Gallo reports a concrete slab "approximately five feet northwest of the northwest wall."[59] However, MNHS cultural resource staff could not verify the presence of these two features on private land in the dense, summer vegetation.

Photograph 1. View of Kingsbury Lock in June 2024, facing northeast. Photograph courtesy of Jeff Pulvermacher, 2024.

[57] Isaacs, Aaron, 2013. "Pelican Valley Navigation Company." *MNopedia.* Electronic document, https://www.mnopedia.org/structure/pelican-valley-navigation-company, accessed October 30, 2024.
[58] Gallo, Steve, 2022. "Kingsbury Lock (BK-LKV-00036)." Minnesota Individual Property Inventory Form, on file at Minnesota Department of Natural Resources, St. Paul, Minnesota: 4.
[59] Ibid.

Statement of Significance

Kingsbury Lock extended commercial navigation on the Pelican River, thereby facilitating the expansion of tourism in the Detroit Lakes region in the early 20th century. Consequently, the lock exhibits local significance under NRHP Criterion A in transportation and commerce from 1908 to 1918.

Kingsbury Lock resulted from the collaborative efforts of area businessmen, organized as the Pelican Valley Navigation Company. However, John K. West—core partner in the Pelican Valley Navigation Company—played a pivotal role in both the development of the lock and the tourism industry in Becker County at large. Kingsbury Lock possesses significant associations with John K. West, an individual who made significant contributions to the history of Detroit Lakes and Pelican River communities. Yet, the lock does not seem the most representative example of West's historically significant contributions; West's associations with Kingsbury lock span only ten years (1908-1918). Other properties associated with "the Father of Tourism" for more of his productive life are likely to be better candidates for NRHP listing under Criterion B.

Kingsbury Lock appears common in type and style and does not embody distinctive characteristics of a type, period, or method of construction, nor represent the work of a master architect. Therefore, Kingsbury Lock does not appear significant under NRHP Criterion C.

Lastly, the physical material of Kingsbury Lock has not yielded, nor is likely to yield, important information in history or prehistory. Kingsbury Lock appears to feature a common, well-documented lock design that utilized widely available materials.[60] Therefore, Kingsbury Lock possesses low information potential and it appears ineligible under NRHP Criterion D.

Integrity

Kingsbury Lock possesses strong integrity of location. The structure's integrity of setting is poor, however. When the Pelican Valley Navigation Company constructed Kingsbury Lock, the Buck Brothers operated a sawmill powered by a timber-framed dam.[61] The navigation company sited the lock adjacent to the dam to provide passage around Buck's Mill Dam for commercial steamboats. After the Buck Brothers abandoned their dam and sawmill, the WPA built a new dam immediately upstream of Kingsbury Lock from 1936 to 1937. The concrete weir dam alters the river's characteristics and flow from Kingsbury Lock's period of significance. In addition to the now missing Buck Brother's sawmill and timber dam, a one-story, gable-roofed building constructed approximately in 1980 sits immediately northwest of Kingsbury Lock, changing the lock's viewshed.[62]

Kingsbury Lock lacks design integrity. Because the Pelican Valley Navigation Company intentionally dismantled the lock in 1920—allegedly per the request of area farmers—what little remains of Kingsbury Lock is inoperable as a lock and unnavigable by large boats like West's

[60] National Park Service, 1990. *How to Apply the National Register Criteria for Evaluation.* Electronic document, https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf, accessed October 30, 2024.
[61] Mayfield, Pippi, 2021. *Becker County, Minnesota in the 20th Century.* Becker County Historical Society, Detroit Lakes, Minnesota: 146.
[62] Becker County, Minnesota, 2024. "Parcel Number: 190601000." *Becker County Parcel Information.* Electronic document, https://gis-server.co.becker.mn.us/www/parcel_info.aspx?PARCEL=190601000, accessed October 23, 2024.

tourist steamboats.[63] Key design elements that distinguish a structure as a lock, such as control gates, are missing. Furthermore, demolition erased Kingsbury Lock's defining 12-foot-rise in water level. With only two concrete sidewalls left, Kingsbury Lock demonstrates poor integrity of materials, too. Integrity of workmanship is not relevant to a resource of this type. Historic feeling and association are inhibited by the demolition of the related Buck Brother's sawmill and dam and the later construction of the WPA dam. There is little visual evidence of Kingsbury Lock's history as a lock for commercial navigation. In fact, a DNR dam engineer mistook the remaining lock sidewalls for a defunct dam in 2010.[64] Kingsbury Lock struggles to convey its historical associations with commercial navigation on the Pelican River, resulting in poor integrity of association and feeling.

Recommendation

It is recommended that Kingsbury Lock (BK-LKV-00036) is ineligible for listing in the NRHP because it lacks the integrity necessary to convey its historical significance.

Buck's Mill Dam (BK-LKV-00037)

Buck's Mill Dam—also commonly documented as "Bucks Mill Dam"—is a concrete gravity weir dam on the Pelican River in Lakeview Township, Becker County, Minnesota (Photograph 2). The dam is located approximately seven miles southwest of Detroit Lakes. Works Progress Administration laborers constructed the dam from 1936 to 1937 to sustain the 154.5-acre Mill Pond.[65] Buck's Mill Dam is one of 173 dams master-planned by the WPA in the late 1930s to conserve rainwater, create jobs, and offer recreational opportunities in a period of economic crisis.[66] The DNR Division of Fish and Wildlife owns, operates, and maintains the dam. However, the State of Minnesota does not own the land immediately north of the dam. Therefore, DNR maintains an easement with the private property owner, Bucks Mill Incorporated, for maintenance and construction access.[67] This easement does not include access for the public.[68] DNR recently acquired a parcel on the southern banks of the Pelican River at Buck's Mill Dam; Becker County transferred ownership of the land via cooperative grant to facilitate a modification project at Buck's Mill Dam.[69]

The dam is located approximately 200 feet east of Bucksmill Drive, an unpaved road traveling north to south. A dirt driveway branches off Bucksmill Drive north of the Pelican River. The driveway opens into a parking area for a rectangular, side-gabled building formerly occupied by a

[63] Gallo, Steve, 2022. "Kingsbury Lock (BK-LKV-00036)." Minnesota Individual Property Inventory Form, on file at the Minnesota Department of Natural Resources, St. Paul, Minnesota; Mayfield, Pippi, 2021. *Becker County, Minnesota in the 20th Century.* Becker County Historical Society, Detroit Lakes, Minnesota: 147.

[64] Minnesota Department of Natural Resources, 2010. Descriptions of DNR-owned dams on Lake Sallie, Lake Melissa, and Buck's Lake. In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota.

[65] Minnesota Department of Natural Resources, 1936. "Plan of Structure: Buck's Mill Site." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota; Minnesota Department of Natural Resources, 2024. "Mill (03037700)." *LakeFinder.* Electronic document, https://www.dnr.state.mn.us/lakefind/lake.html?id=03037700, accessed October 22, 2024; Gallo, Steve, 2022. "

[66] Minneapolis Journal, 1936. "173 Dams to Store Water in Lakes and Streams Planned for State as WPA Job." 26 January:38. Minneapolis, Minnesota.

[67] Minnesota Department of Natural Resources, 2024. "Division of Fish and Wildlife Cultural Resource Review Request: Buck's Mill AMA." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota; Becker County, Minnesota, 2024. "Parcel Number: 190601000." *Becker County Parcel Information.* Electronic document, https://gis-server.co.becker.mn.us/www/parcel_info.aspx?PARCEL=190601000, accessed October 23, 2024.

[68] Bowe, Nathan, 2021. "Fish-friendly Becker County moves forward on Bucks Mill Dam project." *Detroit Lakes Tribune.* Electronic document, https://www.dl-online.com/news/fish-friendly-becker-county-moves-forward-on-bucks-mill-dam-project, accessed October 31, 2024.

[69] Minnesota Department of Natural Resources, 2024. "Division of Fish and Wildlife Cultural Resource Review Request: Buck's Mill AMA." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota

restaurant.[70]Aerial imagery captured in 2019 shows a narrow, naturally surfaced path extending south from this parking area over the dam to the opposite side of the Pelican River. This path offers pedestrian circulation to and from the dam site from the north.[71] However, much like Kingsbury Lock, this access route is trespassing without prior landowner permission.

Federal relief laborers constructed Buck's Mill Dam on a north-south axis across the Pelican River from 1936 to 1937. The dam stretches 49.6 feet across the once rippling Pelican River to sustain a placid Mill Pond. Concrete piers divide the dam into eight bays. Each bay measures five feet wide and originally sported timber stop logs carefully fitted inside metal-reinforced vertical slots.[72] Several stop logs decayed and/or disappeared over the dam's nearly 90 years retaining water; dam owner DNR replaced two missing stop logs in 2012.[73] Historic plans and a photograph taken shortly following dam construction reveals 12 concrete baffle piers evenly spaced just beyond the concrete apron on the dam's downstream side.[74] However, these 12 baffle piers are presently submerged and therefore no longer visible. Buck's Mill Dam is flanked on either side by C-shaped concrete abutments composed of three concrete walls: one wall sits perpendicular to the river flow and faces upstream; another rests parallel to the river's flow and faces an identical wall on the opposite side of the Pelican River; the final wall of the C-shaped abutment is positioned perpendicular to water flow, facing downstream. The C-shaped abutment sits higher on the upstream side of the dam, then slopes downward to a shorter height on the downstream side. The dam's seven concrete piers and concrete embankments support a narrow catwalk crossing the dam and river. A metal railing on the catwalk's downstream side protects pedestrians on the catwalk from falling over the dam.

Statement of Significance

Published in 2013, *Evaluating Minnesota's Historic Dams: A Framework for Management* outlines registration requirements for the state's WPA Type "C" Dams. Arnott et al. state that a WPA-constructed dam is eligible for listing in the NRHP under Criteria A for its associations with the federal relief era in Minnesota if the WPA funded the construction of a dam then built with local labor and supplies, and the dam "was or is useful to a local community… in a visible and accessible location."[75] WPA-built conservation dams must help maintain water levels for recreation, tourism, or harvesting natural resources like wild rice and fish.[76] Per these guidelines, Buck's Mill Dam exhibits significance as a product of federal spending for local recreational infrastructure under NRHP Criterion A. Additionally, Buck's Mill Dam is an example of a modified WPA Type "C" Dam in Minnesota. WPA Type "C" Dams display a distinct design featuring a concrete sill and small apron, five-foot-wide bays, and wooden stop logs—all present

[70] Gallo, Steve, 2022. *Reconnaissance Architectural History Survey for Properties Near Bucks Mill Dam.* Report prepared for the United States Fish and Wildlife Service. On file at Minnesota Department of Natural Resources, St. Paul, Minnesota: i.
[71] Bowe, Nathan, 2021. "Fish-friendly Becker County moves forward on Bucks Mill Dam project." *Detroit Lakes Tribune.* Electronic document, https://www.dl-online.com/news/fish-friendly-becker-county-moves-forward-on-bucks-mill-dam-project, accessed October 31, 2024; National Agricultural Imagery Program, 2019. "Minnesota Aerial Imagery 2019." Electronic document, https://umn.maps.arcgis.com/apps/StoryMapBasic/index.html?appid=4b4f4ac549094ca0ab766068138f7f54, accessed October 23, 2024.
[72] Minnesota Department of Natural Resources, 1936. "Plan of Structure: Buck's Mill Site." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota.
[73] Minnesota Department of Natural Resources, 2012. "Requisition for Technical Services: Bucks Mill Dam." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota.
[74] Minnesota Department of Natural Resources, 1936. "Plan of Structure: Buck's Mill Site." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota; Gallo, Steve, 2022. "Bucks Mill Dam (BK-LKV-00037)." Minnesota Individual Property Inventory Form, on file at Minnesota Department of Natural Resources, St. Paul, Minnesota: 4.
[75] Arnott, Sigrid, Douglas A. Birk, and David Maki, 2013. *Evaluating Minnesota's Historic Dams: A Framework for Management*. Prepared for the Minnesota Historical Society and the Oversight Board of the Minnesota Statewide Survey of Historical and Archaeological Sites: 116.
[76] Ibid.

in Buck's Mill Dam. As a WPA Type "C" Dam in Minnesota, Buck's Mill Dam exhibits significance under NRHP Criterion C.

Photograph 2. Overview of Buck's Mill Dam, facing north/northeast (DNR 2020).

Statement of Significance

Published in 2013, *Evaluating Minnesota's Historic Dams: A Framework for Management* outlines registration requirements for the state's WPA Type "C" Dams. Arnott et al. state that a WPA-constructed dam is eligible for listing in the NRHP under Criteria A for its associations with the federal relief era in Minnesota if the WPA funded the construction of a dam then built with local labor and supplies, and the dam "was or is useful to a local community… in a visible and accessible location."[77] WPA-built conservation dams must help maintain water levels for recreation, tourism, or harvesting natural resources like wild rice and fish.[78] Per these guidelines, Buck's Mill Dam exhibits significance as a product of federal spending for local recreational infrastructure under NRHP Criterion A. Additionally, Buck's Mill Dam is an example of a modified WPA Type "C" Dam in Minnesota. WPA Type "C" Dams display a distinct design featuring a concrete sill and small apron, five-foot-wide bays, and wooden stop logs—all present in Buck's Mill Dam. As a WPA Type "C" Dam in Minnesota, Buck's Mill Dam exhibits significance under NRHP Criterion C.

As the product of a Depression-era federal relief program, Buck's Mill Dam is associated with collaboration at the local, state, and national levels and cannot be attributed to the role of a singular significant individual. Despite earning its name from the Buck Family—early settlers to the township and local sawmill owners—the presently extant Buck's Mill Dam possesses no direct connection to Simeon or William Buck; the brothers did not construct nor utilize the dam.

[77] Arnott, Sigrid, Douglas A. Birk, and David Maki, 2013. *Evaluating Minnesota's Historic Dams: A Framework for Management*. Prepared for the Minnesota Historical Society and the Oversight Board of the Minnesota Statewide Survey of Historical and Archaeological Sites: 116.
[78] Ibid.

Therefore, Buck's Mill Dam is not "associated with individuals whose specific contributions to history" can be defined as "demonstrably important within a local, State, or national historic context."[79] Buck's Mill Dam does not exhibit significance under NRHP Criterion B.

Lastly, the physical material of Buck's Mill Dam has not yielded, nor is likely to yield, important information in history or prehistory. Buck's Mill Dam features a well-documented, standardized WPA design that utilizes consistent materials across Minnesota.[80] Buck's Mill Dam possesses low information potential and is not eligible under NRHP Criterion D.

Integrity

Evaluating Minnesota's Historic Dams: A Framework for Management designates strict integrity guidelines for the NRHP-eligibility of WPA dams in Minnesota; the restrictive criteria ensures that instances of this standardized, common property type demonstrate exceptional integrity and ability to convey their significance before they are registered in the NRHP. For a WPA Type C Dam to be eligible for listing in the NRHP, *Evaluating Minnesota's Historic Dams'* authors state that the dam must at a minimum possess: the essential elements required to impound water as defined in drawn plans (design); a similar character to the historic setting and flowage (setting); an expression of local materials and labor (materials and workmanship); and the WPA plaque (feeling and association).[81]

Buck's Mill Dam exhibits strong integrity of location. The dam's immediate surroundings have seen minor development since its construction in the late 1930s, chiefly the construction of a rectangular, side-gabled building below the dam in 1980.[82] Dense deciduous vegetation separates the building from the river, eliminating a direct sightline between the dam and the restaurant-turned-residence in summer. Kingsbury Lock (BK-LKV-00036)—constructed 30 years before Buck's Mill Dam—still stands immediately downstream of the dam. The Pelican River's hydrology appears consistent with mid-20th century character. Therefore, Buck's Mill Dam retains good integrity of setting.

Buck's Mill Dam impounds water as defined in drawn plans, despite hiccups with disappearing stop logs over the years. Piers show signs of minor concrete scouring but remain ultimately intact and not sawn down.[83] Intact slots allow the use of stop logs, and original piers support the catwalk and its handrail. The catwalk allows for dam repair and inspection and offers visitors pedestrian circulation across the Pelican River, as outlined in original plans. The dam's WPA plaque, however, is missing. Therefore, according to the integrity guidelines outlined in *Evaluating*

[79] National Park Service, 1990. *How to Apply the National Register Criteria for Evaluation.* Electronic document, https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf, accessed October 30, 2024: 14.
[80] National Park Service, 1990. *How to Apply the National Register Criteria for Evaluation.* Electronic document, https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf, accessed October 30, 2024: 21; Arnott, Sigrid, Douglas A. Birk, and David Maki, 2013. *Evaluating Minnesota's Historic Dams: A Framework for Management*. Prepared for the Minnesota Historical Society and the Oversight Board of the Minnesota Statewide Survey of Historical and Archaeological Sites: 71.
[81] Arnott, Sigrid, Douglas A. Birk, and David Maki, 2013. *Evaluating Minnesota's Historic Dams: A Framework for Management*. Prepared for the Minnesota Historical Society and the Oversight Board of the Minnesota Statewide Survey of Historical and Archaeological Sites: 116-117.
[82] Becker County, Minnesota, 2024. "Parcel Number: 190601000." *Becker County Parcel Information.* Electronic document, https://gis-server.co.becker.mn.us/www/parcel_info.aspx?PARCEL=190601000, accessed October 23, 2024.
[83] Minnesota Department of Natural Resources, 2018. "Dam Inspection Report: Buck's Mill (NID# MN01638)." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota.

Minnesota's Historic Dams: A Framework for Management, Buck's Mill Dam exhibits good design integrity.[84]

Similarly, Buck's Mill Dam retains good integrity of materials. Replacement stop logs, such as those DNR installed in 2012 to restore the dam's water control capacity, do not affect the material integrity of this property type.[85] Buck's Mill Dam's concrete displays craftmanship in the chamfered corners typical of WPA Type "C" Dam. A DNR dam inspection report recorded in 2018 calls attention to minor concrete scouring and cracking on the catwalk, support piers, and retaining walls.[86] However, minimal concrete decay does not obscure the workmanship visible throughout the dam. Buck's Mill Dam possesses good integrity of workmanship.

Good integrity of setting, design, materials, and workmanship promote a historic feeling at Buck's Mill Dam. The WPA plaque appears absent, which limits the structure's expression of its association with WPA history. Without its WPA plaque to communicate the association of the dam with federal relief construction, Buck's Mill Dam lacks integrity of association.

Recommendation

Evaluating Minnesota's Historic Dams: A Framework for Management asserts that a WPA Type "C" Dam must possess integrity in every category to be eligible for listing in the NRHP. It is therefore recommended that Buck's Mill Dam (BK-LKV-00037) is ineligible for listing in the NRHP because without the WPA plaque, it does not meet the minimum integrity requirements for registration outlined in *Evaluating Minnesota's Historic Dams: A Framework for Management*[87].

Restaurant Building

In the reconnaissance level survey completed in 2022, 106 Group identified a "restaurant" building in the Buck's Mill Dam area. Gallo reported the building did not meet the age requirement for survey at that time; he estimated a construction date of 1995 based on available aerial imagery. Therefore, Gallo did not recommend intensive survey or an NRHP evaluation for the Restaurant. However, Becker County asserts the "single-family/owner occupied" building went up in 1980.[88] Aerial imagery from 1981 shows a brown, rectangular building in the exact footprint of the extant building.[89] The nondescript gable roof building is 44 years old at present and consequently does not meet criteria for survey and evaluation.

Archaeological Results

During the visual examination of the APE, MNHS cultural resource staff determined that intact cultural deposits are unlikely to be present and systematic archaeological investigation was not

[84] Arnott, Sigrid, Douglas A. Birk, and David Maki, 2013. *Evaluating Minnesota's Historic Dams: A Framework for Management*. Prepared for the Minnesota Historical Society and the Oversight Board of the Minnesota Statewide Survey of Historical and Archaeological Sites: 116.

[85] Minnesota Department of Natural Resources, 2012. "Requisition for Technical Services: Bucks Mill Dam." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota; Arnott, Sigrid, Douglas A. Birk, and David Maki, 2013. *Evaluating Minnesota's Historic Dams: A Framework for Management*. Prepared for the Minnesota Historical Society and the Oversight Board of the Minnesota Statewide Survey of Historical and Archaeological Sites: 117.

[86] Minnesota Department of Natural Resources, 2018. "Dam Inspection Report: Buck's Mill (NID# MN01638)." In Dam Safety Files at Minnesota Department of Natural Resources Central Office, St. Paul, Minnesota.

[87] Arnott, Sigrid, Douglas A. Birk, and David Maki, 2013. *Evaluating Minnesota's Historic Dams: A Framework for Management*. Prepared for the Minnesota Historical Society and the Oversight Board of the Minnesota Statewide Survey of Historical and Archaeological Sites:

[88] Becker County, 2024. "Parcel Number: 190601000." *Becker County Parcel Information.* Electronic document, https://gis-server.co.becker.mn.us/www/parcel_info.aspx?PARCEL=190601000, accessed October 23, 2024.

[89] John R. Borchert Map Library, 1981. "MN005 Lake View 31 1981." Electronic document, https://geo.lib.umn.edu/AerialSlides2/Becker/Lake_View_T138_R41/31/MN005_Lake_View_31_1981.jpg, accessed November 7, 2024.

needed due to the significant disturbance and reshaping of the landscape from more than 100 years of development.

Architectural History Results
There are two architectural history resources aged 45 years or more in or adjacent to the project area. Neither Kingsbury Lock (BK-LKV-00036) nor Buck's Mill Dam (BK-LKV-00037) are listed in the NRHP, Minnesota State Register of Historic Places, or Minnesota State Historic Sites network. Due to the potential for the project to require a USACE permit, and therefore be subject to Section 106 review, MNHS cultural resource staff evaluated both properties for NRHP eligibility and determined that neither structure exhibited the necessary integrity to convey its historical significance. A third above ground resource, the restaurant building, is currently 44 years old and therefore, MNHS cultural resource staff did not survey the property at this time. However, should the project continue into 2025 and should DNR introduce a federal nexus, the restaurant building will be 45 years old and therefore require intensive survey and evaluation.

Management Recommendations
MNHS cultural resource staff completed an archaeological reconnaissance survey and architectural history review of *Buck's Mill Dam Modification and Lock Removal, Becker County, Minnesota*. The archaeological survey revealed no archaeological resources and a no historic properties finding is recommended for archaeological considerations. The architectural history review found two architectural history properties aged 45 years or more in, or adjacent to, the project area. However, it is recommended neither Kingsbury Lock (BK-LKV-00036) nor Buck's Mill Dam (BK-LKV-00037) meet integrity requirements for NRHP eligibility. Therefore, a no historic properties finding is recommended for architectural history review. If a federal nexus is introduced, additional cultural resources review is required.

Sincerely,

Miranda Van Vleet
Program Manager/Historian III
MNHS Archaeology Dept.
miranda.VanVleet@state.mn.us
miranda.vanvleet@mnhs.org

Matthew Radermacher
Program Manager/Archaeologist III
MNHS Archaeology Dept.
matthew.radermacher@state.mn.us
matthew.radermacher@mnhs.org

cc: Amanda Gronhovd, Office of the State Archaeologist
Minnesota Indian Affairs Council
Jennifer Olson, Minnesota Department of Natural Resources

Appendix F

Preliminary Design Plans

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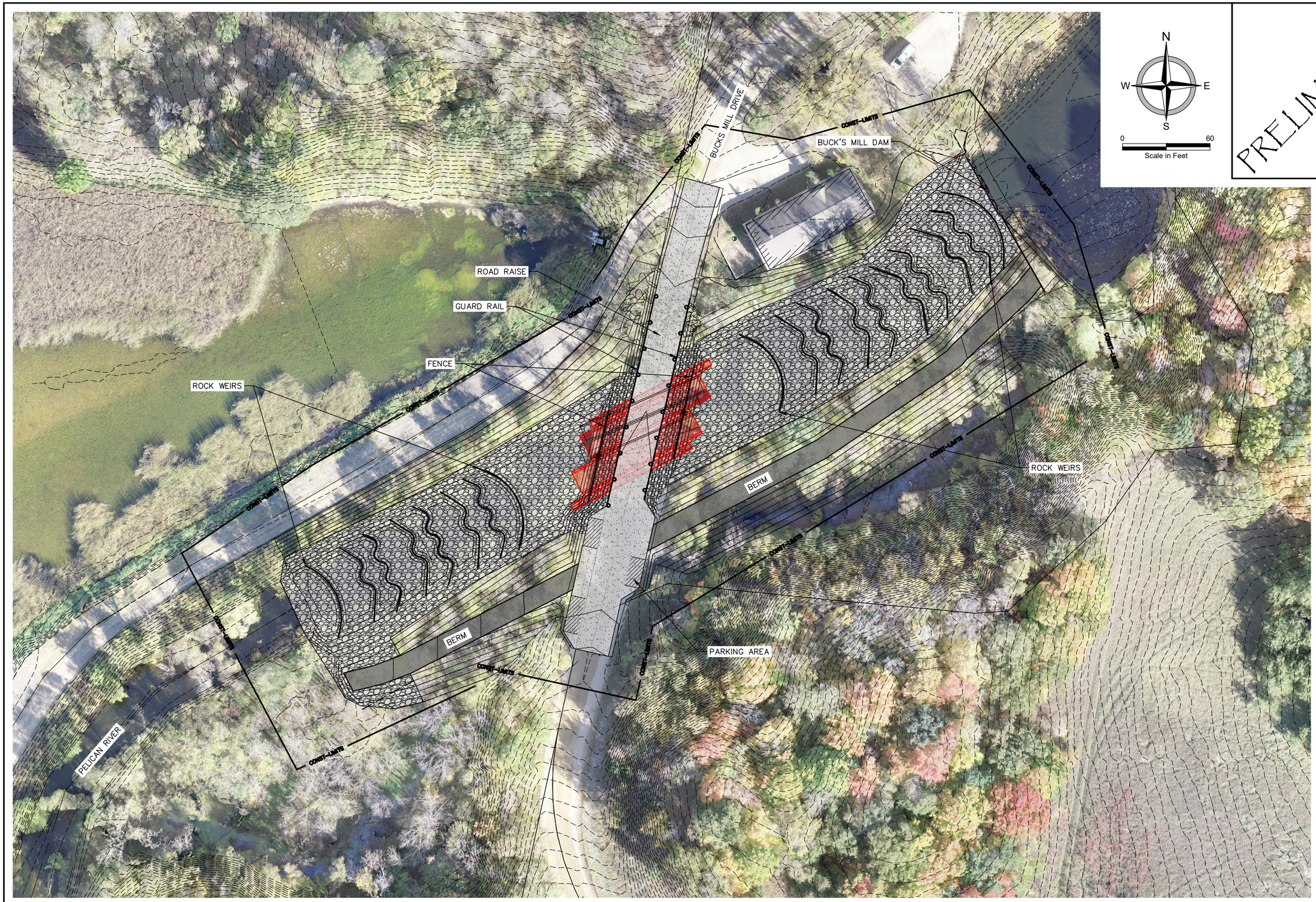

moore engineering, inc.

PROJECT LAYOUTS
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED CONDITIONS

DATE:	02.04.25
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REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-102

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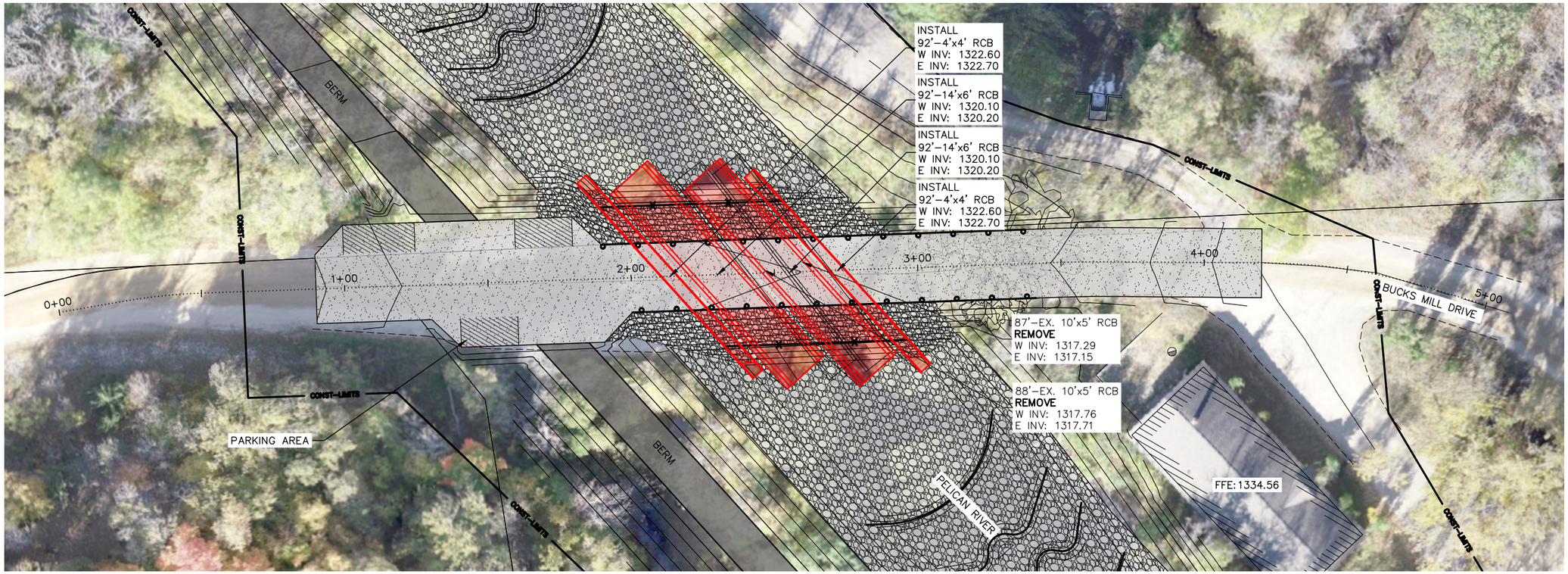
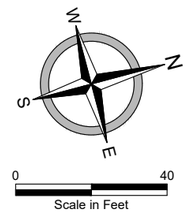


PRELIMINARY



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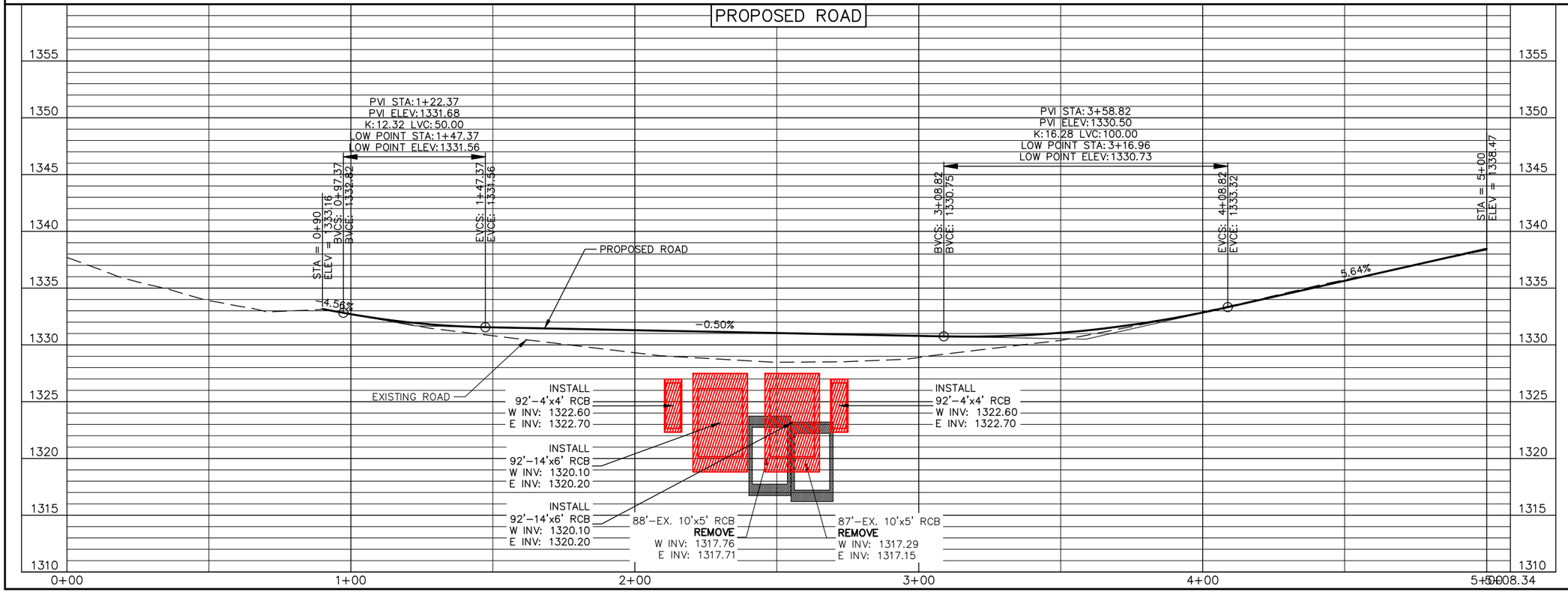

ROADWAY
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
ROADWAY RECONSTRUCT

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REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

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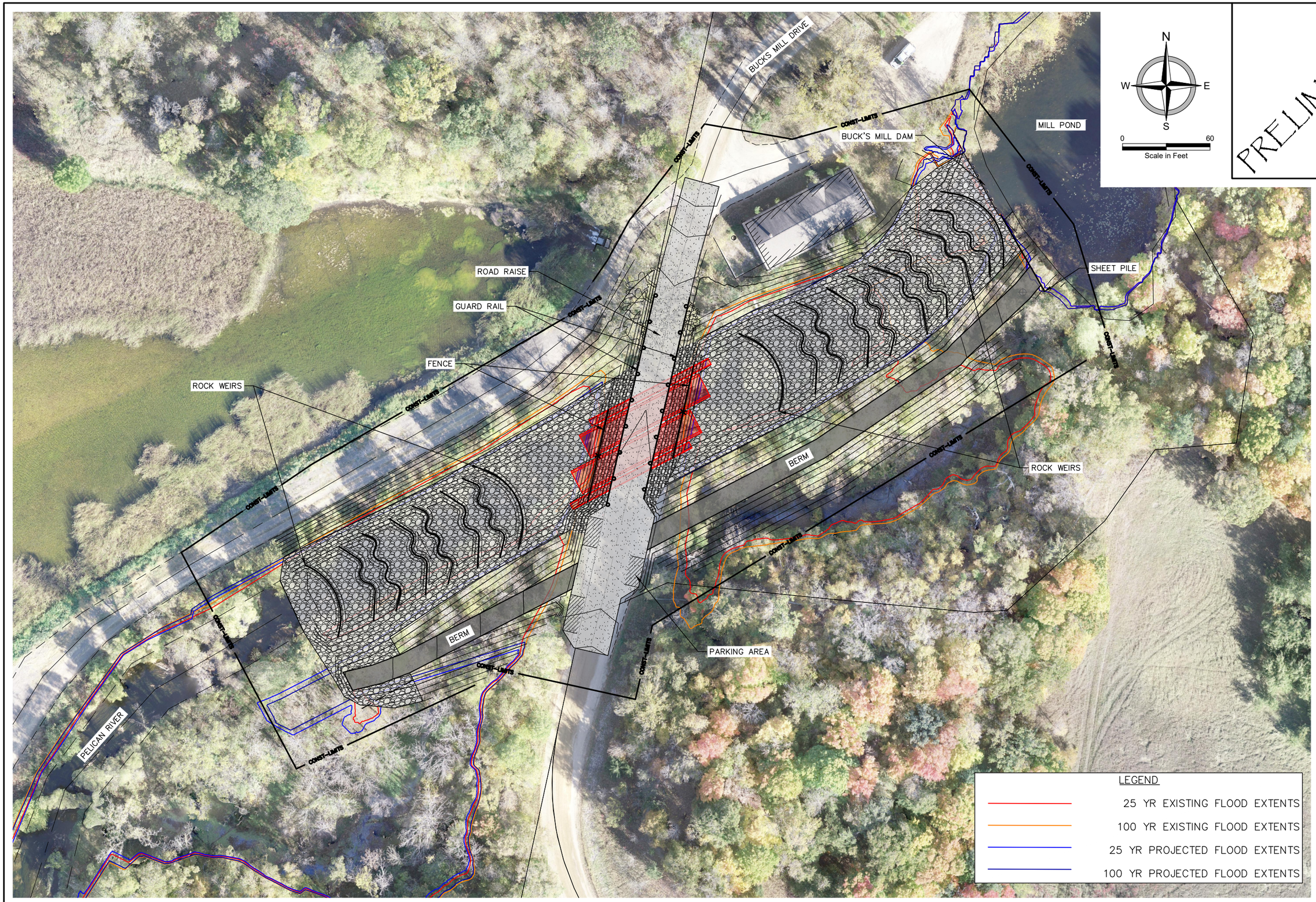

PRELIMINARY

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PROJECT LAYOUTS
BUCK'S MILL DAM
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED CONDITIONS

DATE:	02.04.25
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

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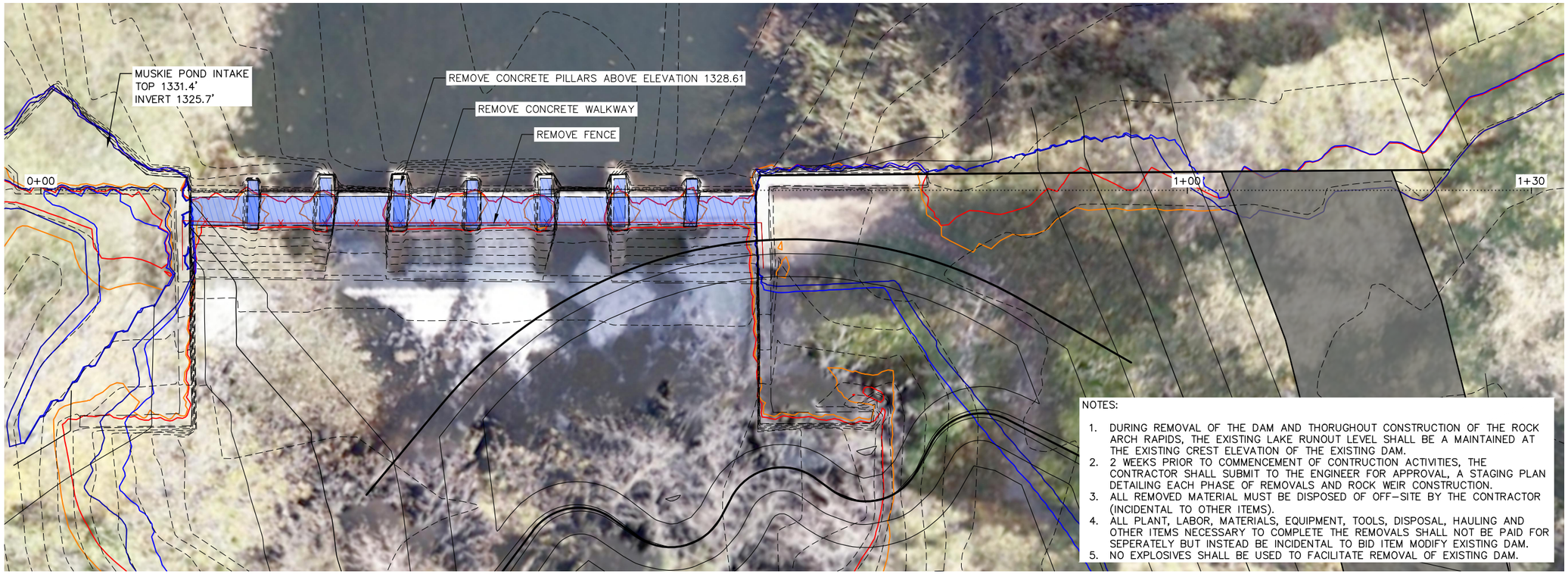


NOTES:

1. DURING REMOVAL OF THE DAM AND THORUGHOUT CONSTRUCTION OF THE ROCK ARCH RAPIDS, THE EXISTING LAKE RUNOUT LEVEL SHALL BE A MAINTAINED AT THE EXISTING CREST ELEVATION OF THE EXISTING DAM.
2. 2 WEEKS PRIOR TO COMMENCEMENT OF CONTRUCTION ACTIVITIES, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, A STAGING PLAN DETAILING EACH PHASE OF REMOVALS AND ROCK WEIR CONSTRUCTION.
3. ALL REMOVED MATERIAL MUST BE DISPOSED OF OFF-SITE BY THE CONTRACTOR (INCIDENTAL TO OTHER ITEMS).
4. ALL PLANT, LABOR, MATERIALS, EQUIPMENT, TOOLS, DISPOSAL, HAULING AND OTHER ITEMS NECESSARY TO COMPLETE THE REMOVALS SHALL NOT BE PAID FOR SEPERATELY BUT INSTEAD BE INCIDENTAL TO BID ITEM MODIFY EXISTING DAM.
5. NO EXPLOSIVES SHALL BE USED TO FACILITATE REMOVAL OF EXISTING DAM.

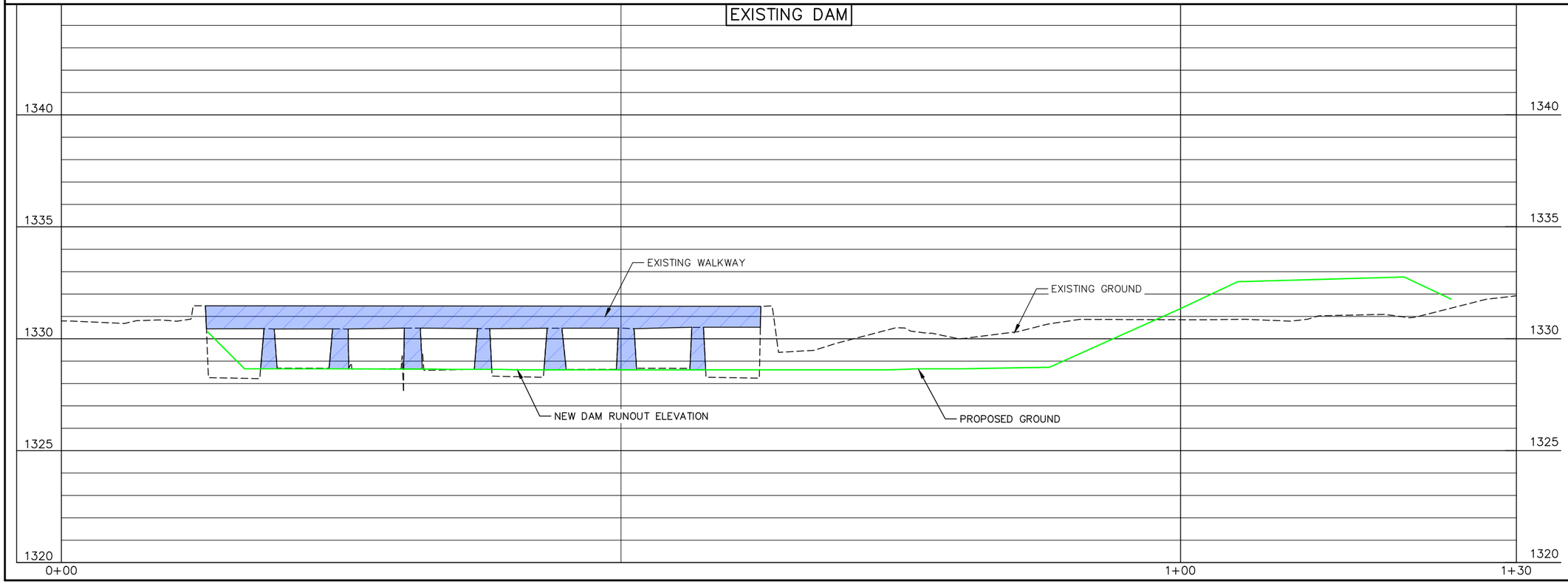
PRELIMINARY

N E S W

0 10
Scale in Feet

moore engineering, inc.

EXISTING DAM



REMOVALS
BUCK'S MILL DAM
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
DAM REMOVAL PLAN

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REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

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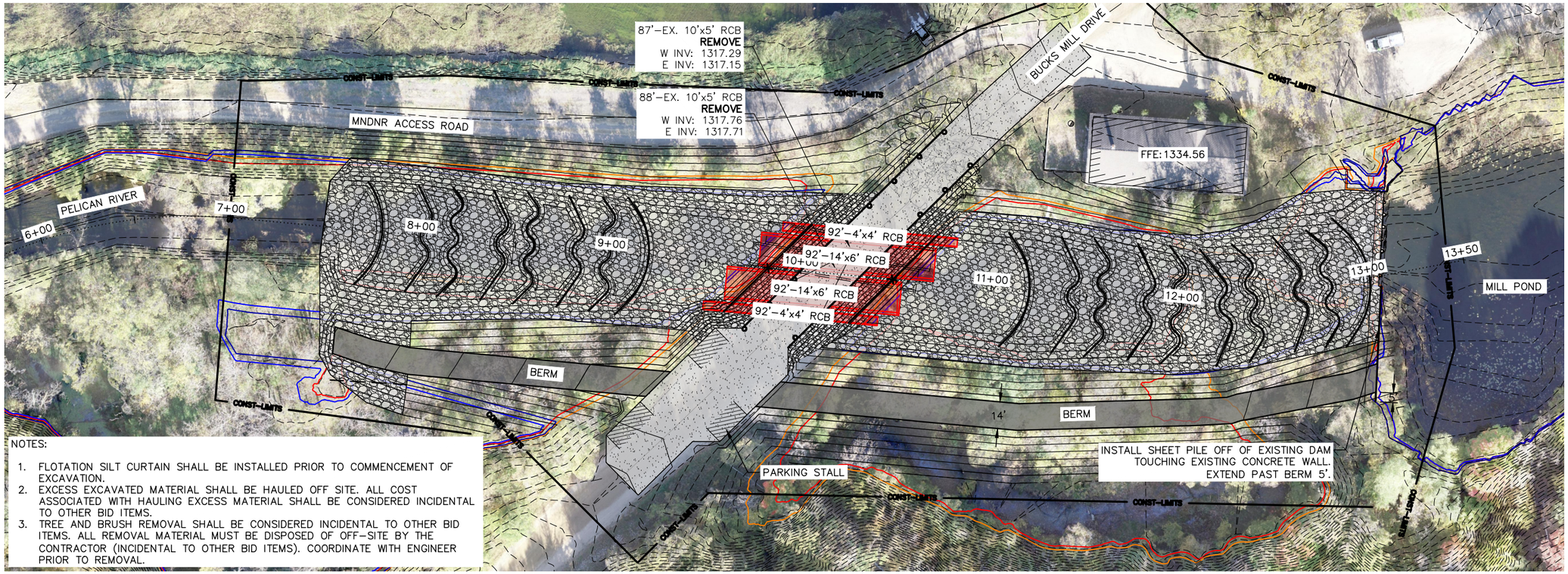
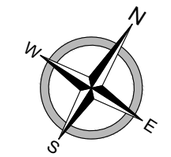


NOTES:

1. FLOTATION SILT CURTAIN SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF EXCAVATION.
2. EXCESS EXCAVATED MATERIAL SHALL BE HAULED OFF SITE. ALL COST ASSOCIATED WITH HAULING EXCESS MATERIAL SHALL BE CONSIDERED INCIDENTAL TO OTHER BID ITEMS.
3. TREE AND BRUSH REMOVAL SHALL BE CONSIDERED INCIDENTAL TO OTHER BID ITEMS. ALL REMOVAL MATERIAL MUST BE DISPOSED OF OFF-SITE BY THE CONTRACTOR (INCIDENTAL TO OTHER BID ITEMS). COORDINATE WITH ENGINEER PRIOR TO REMOVAL.

PRELIMINARY



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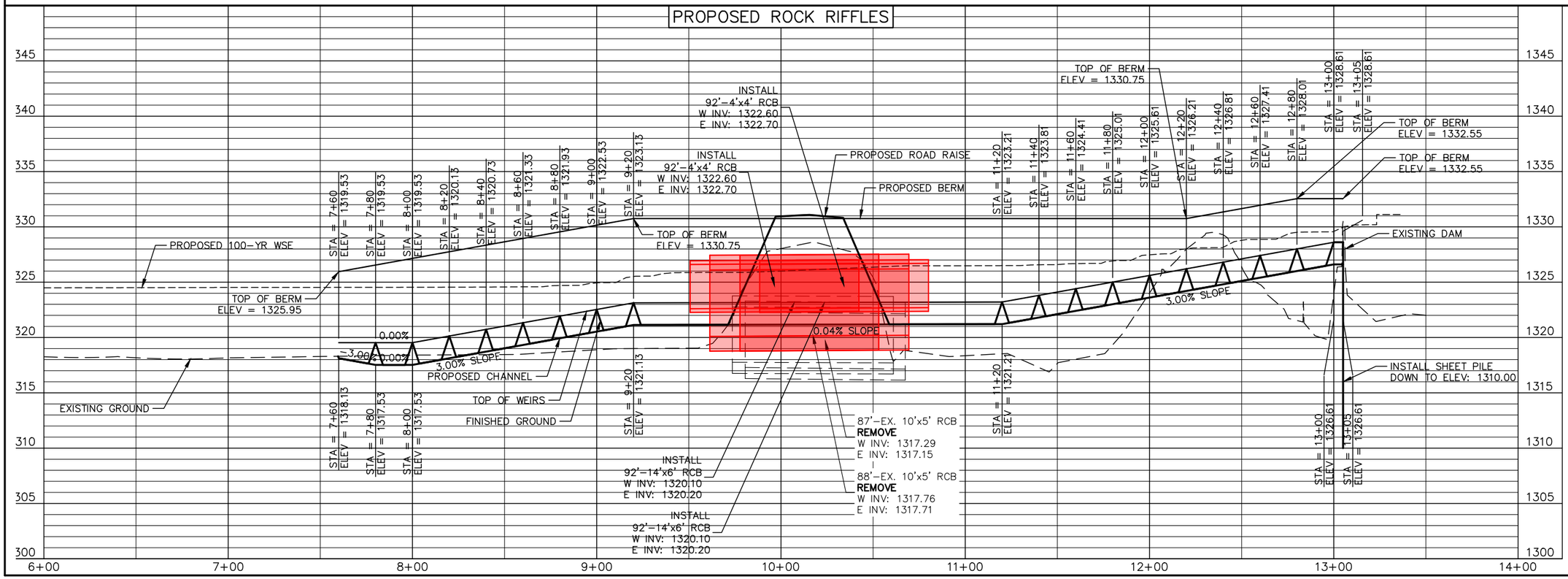
Scale in Feet

moore engineering, inc.

PROPOSED ROCK RIFFLES



PLAN & PROFILE
BUCK'S MILL DAM
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED ROCK RIFFLES

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REV DATE:	----
REV NUM:	----
RECORD:	----
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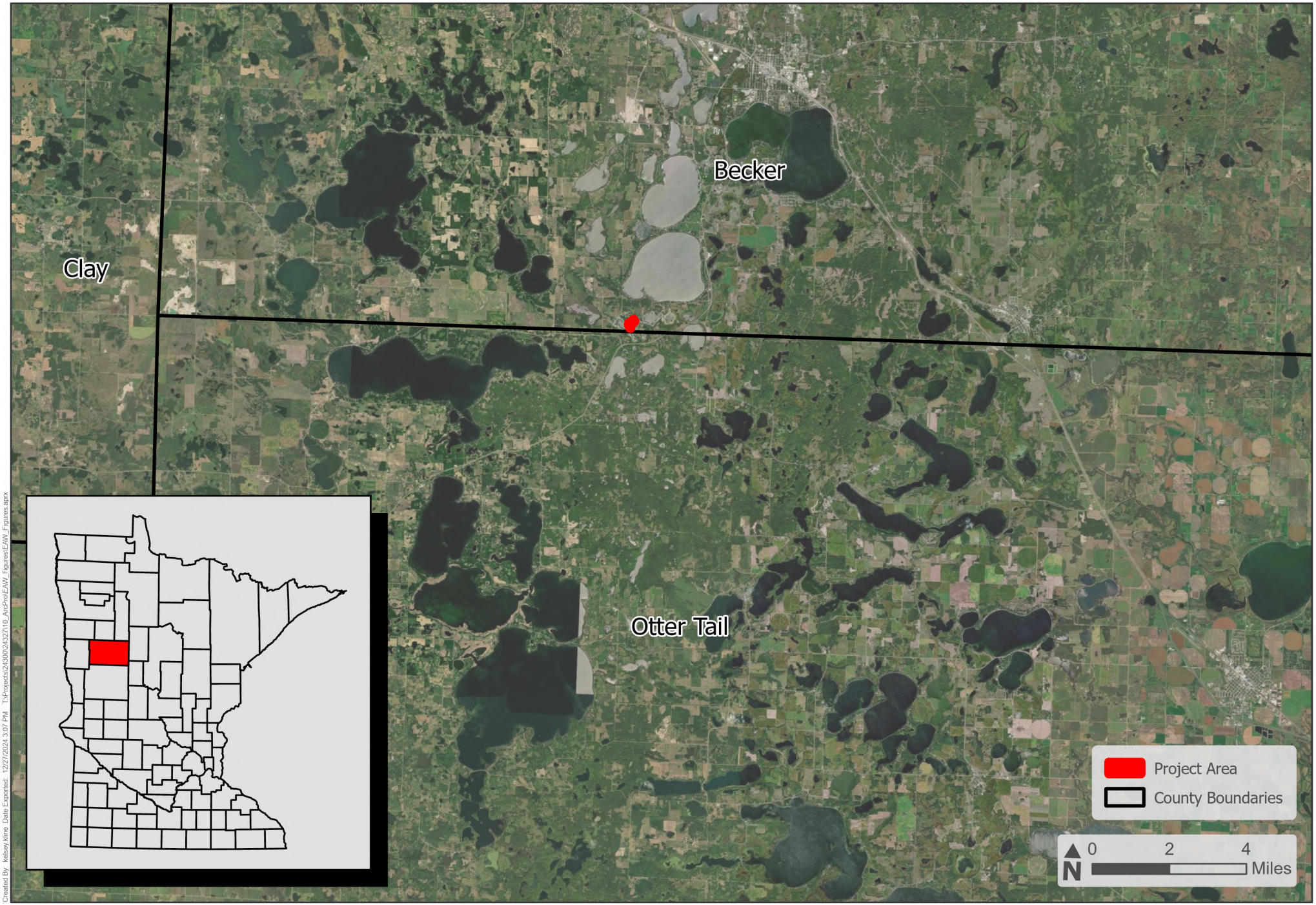
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-401

Figure 1

Project Location



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Project Location

Bucks Mill Dam Modification

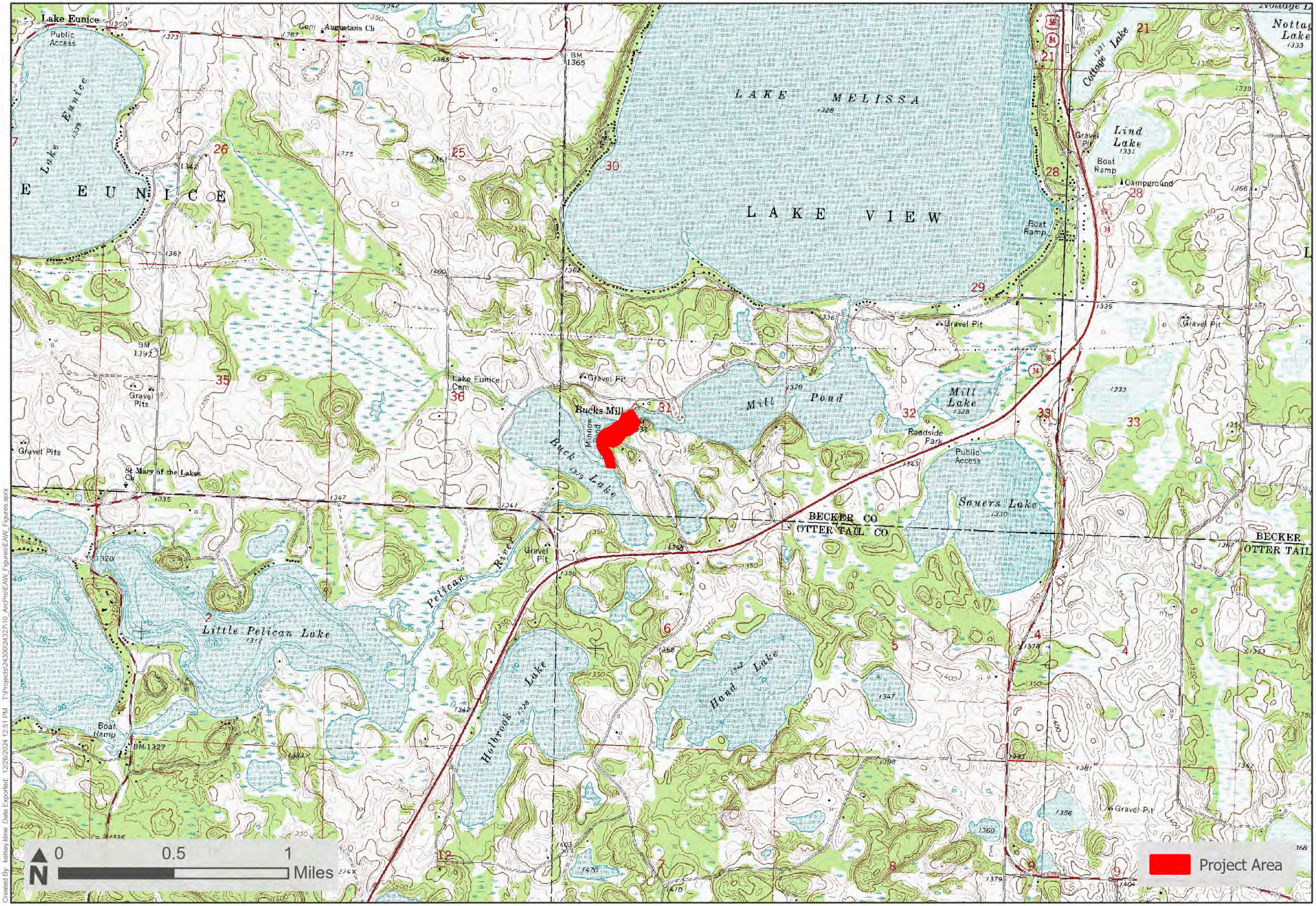
Figure 1

Pelican River Watershed District

moore engineering, inc.

Figure 2

USGS Topographic Map



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USGS Topographic Map

Bucks Mill Dam Modification

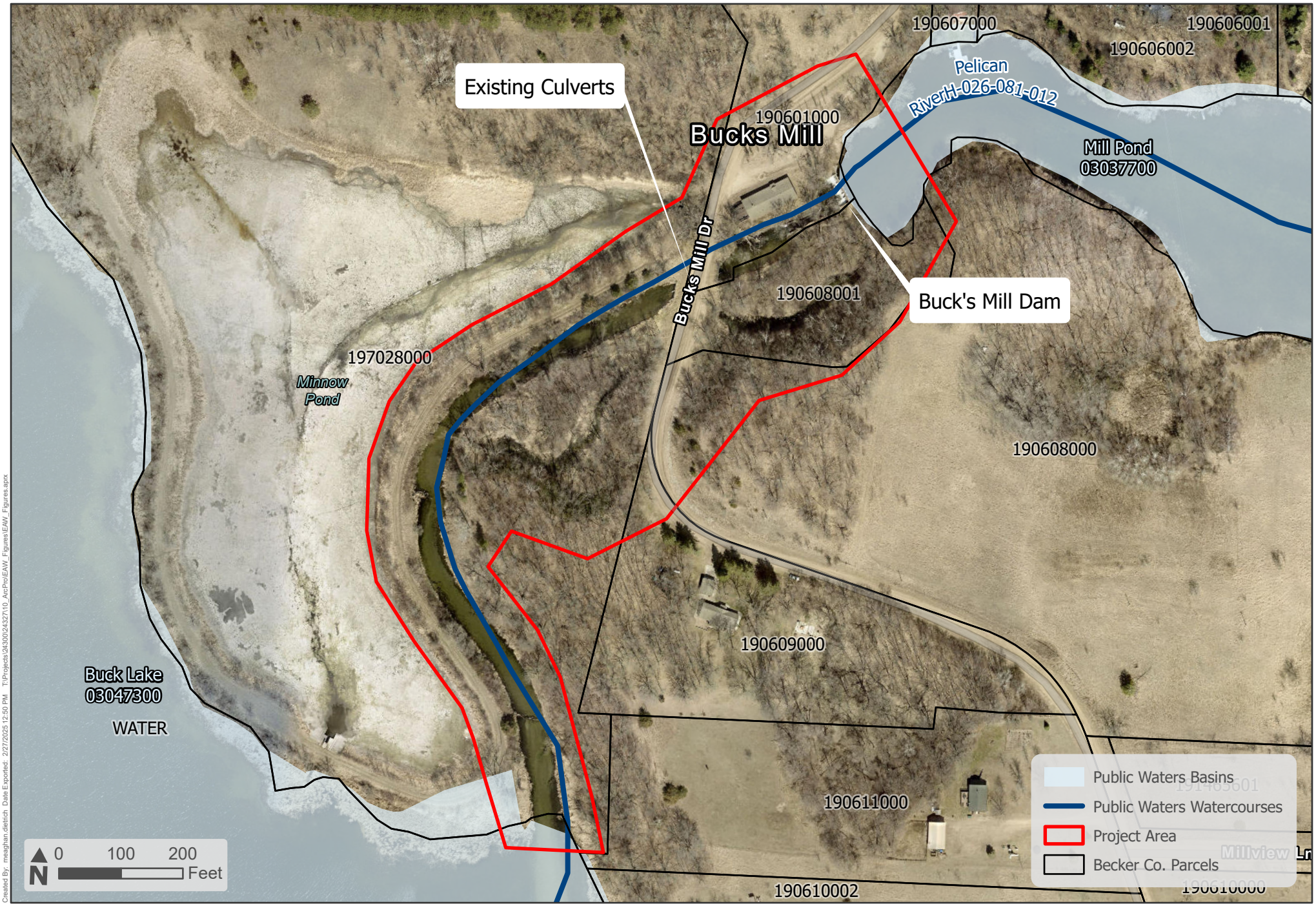
Figure 2

Pelican River Watershed District

moore engineering, inc.

Figure 3

Existing Site Conditions



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Existing Conditions
Bucks Mill Dam Modification

Figure 3
Pelican River Watershed District

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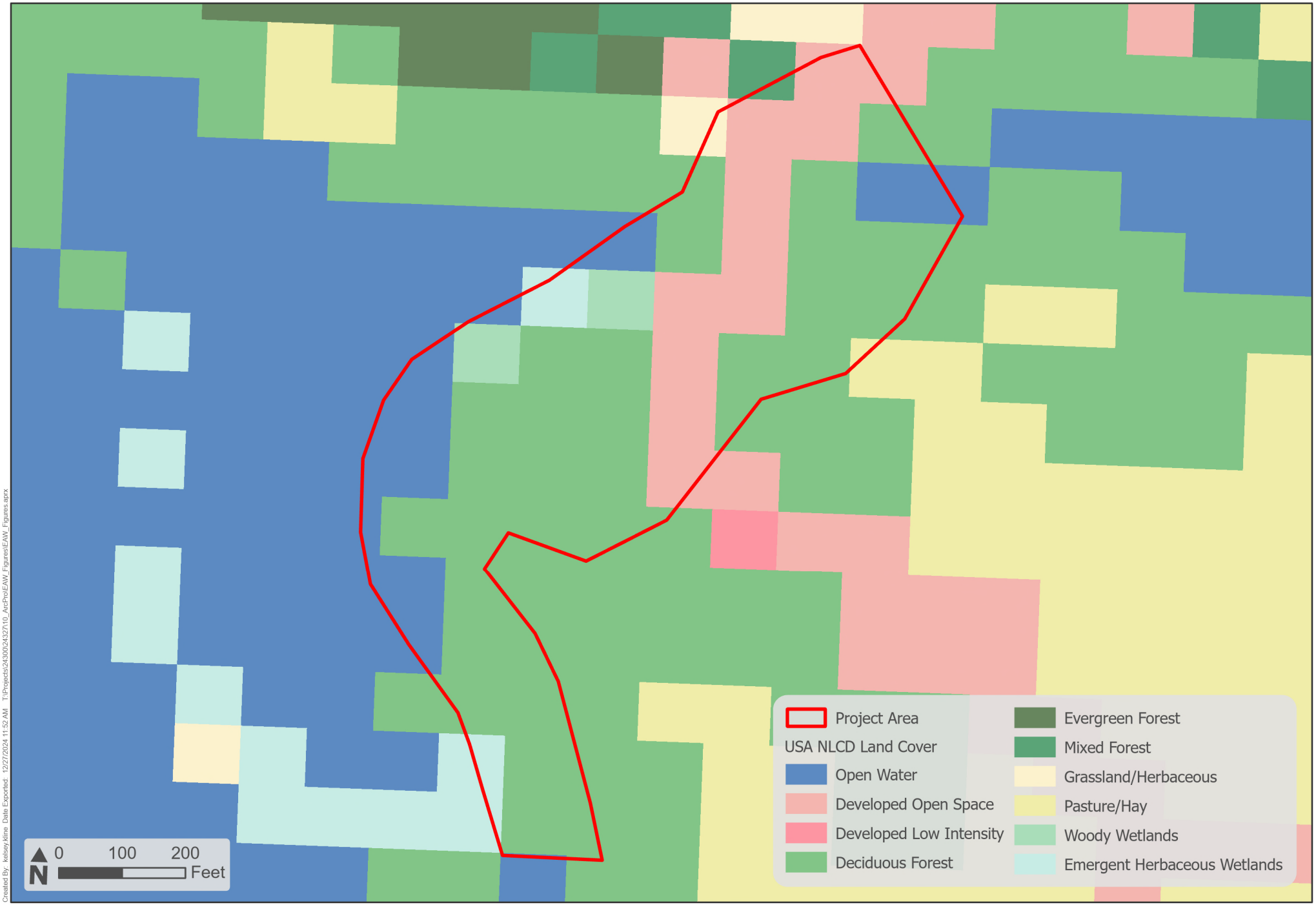
Figure 4

2019 NLCD



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2019 National Land Cover Data

Bucks Mill Dam Modification

Figure 4

Pelican River Watershed District

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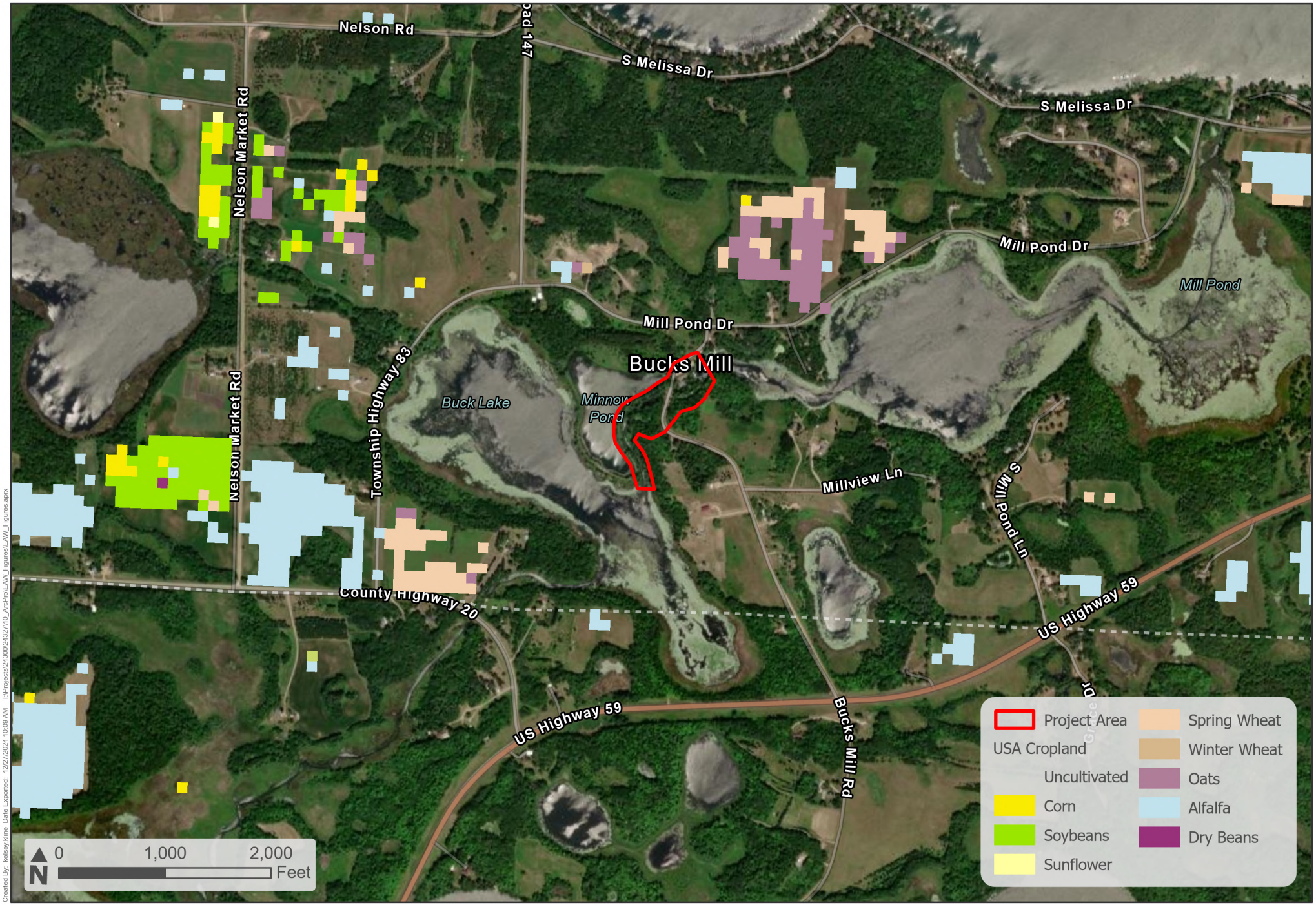
Figure 5

Cropland Data



Cropland

Bucks Mill Dam Modification

Figure 5

Pelican River Watershed District

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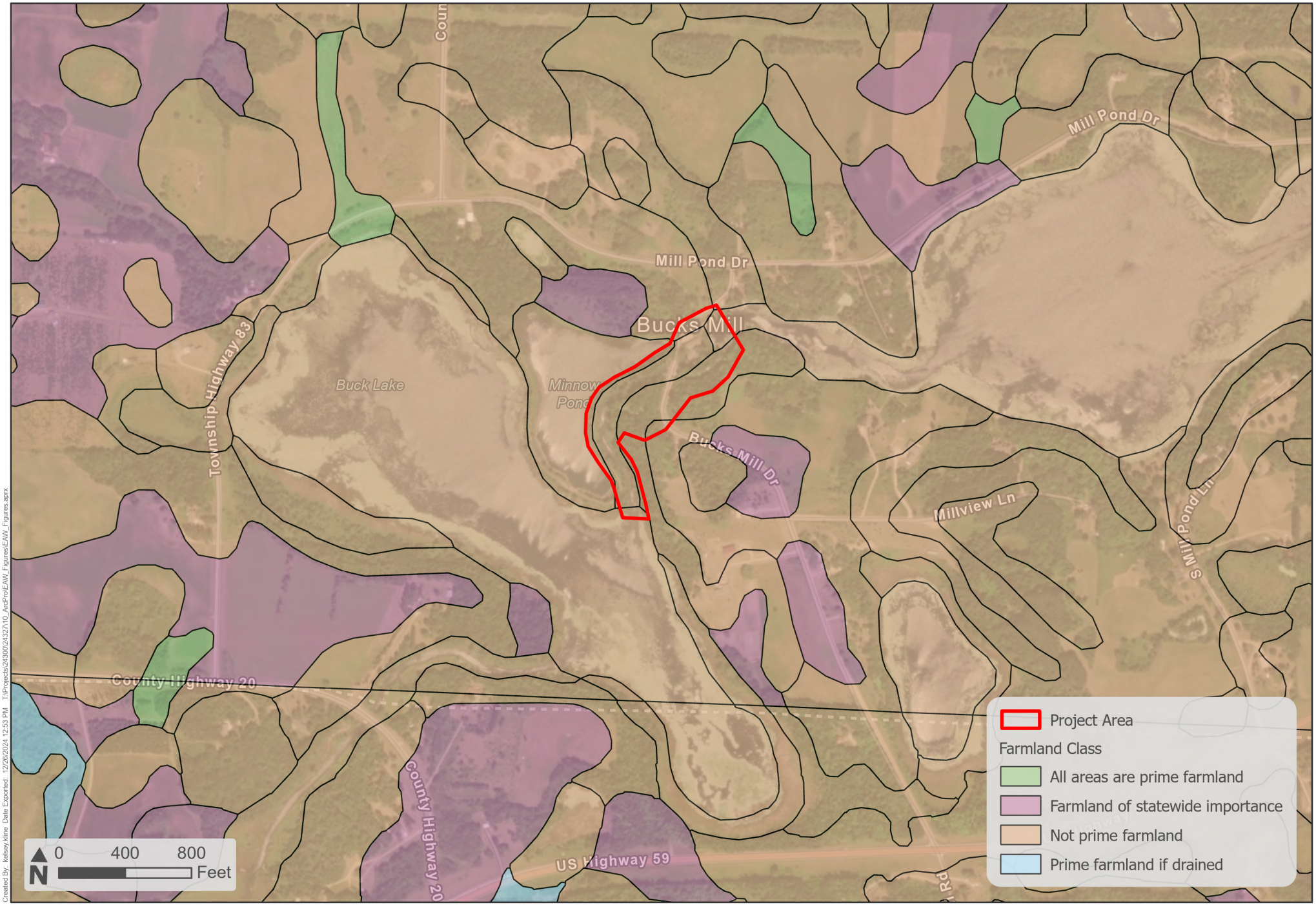
Figure 6

Prime Farmland



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Prime Farmland

Bucks Mill Dam Modification

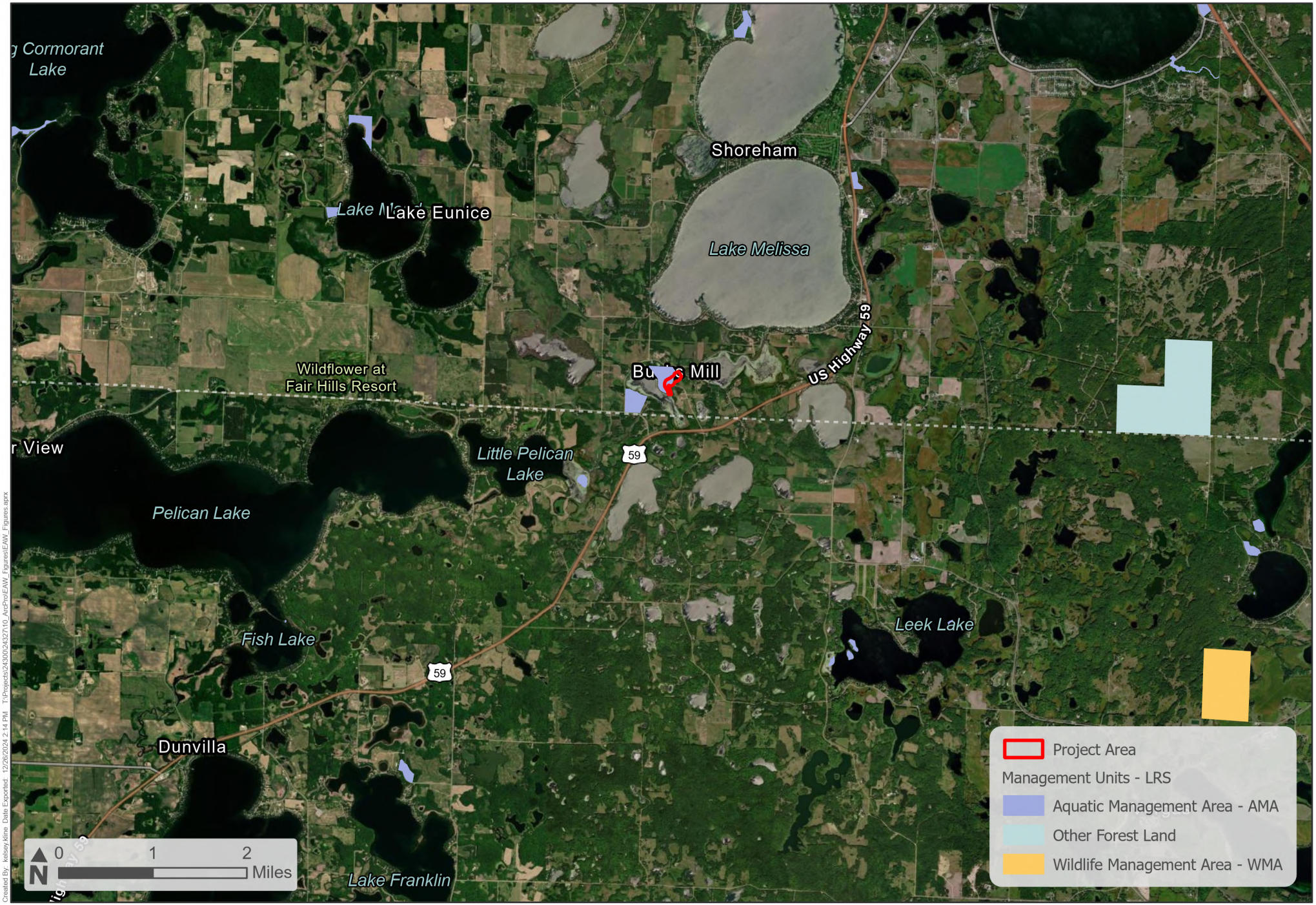
Figure 6

Pelican River Watershed District

moore engineering, inc.

Figure 7

Public Lands



Public Lands

Bucks Mill Dam Modification

Figure 7

Pelican River Watershed District

moore engineering, inc.

Figure 8

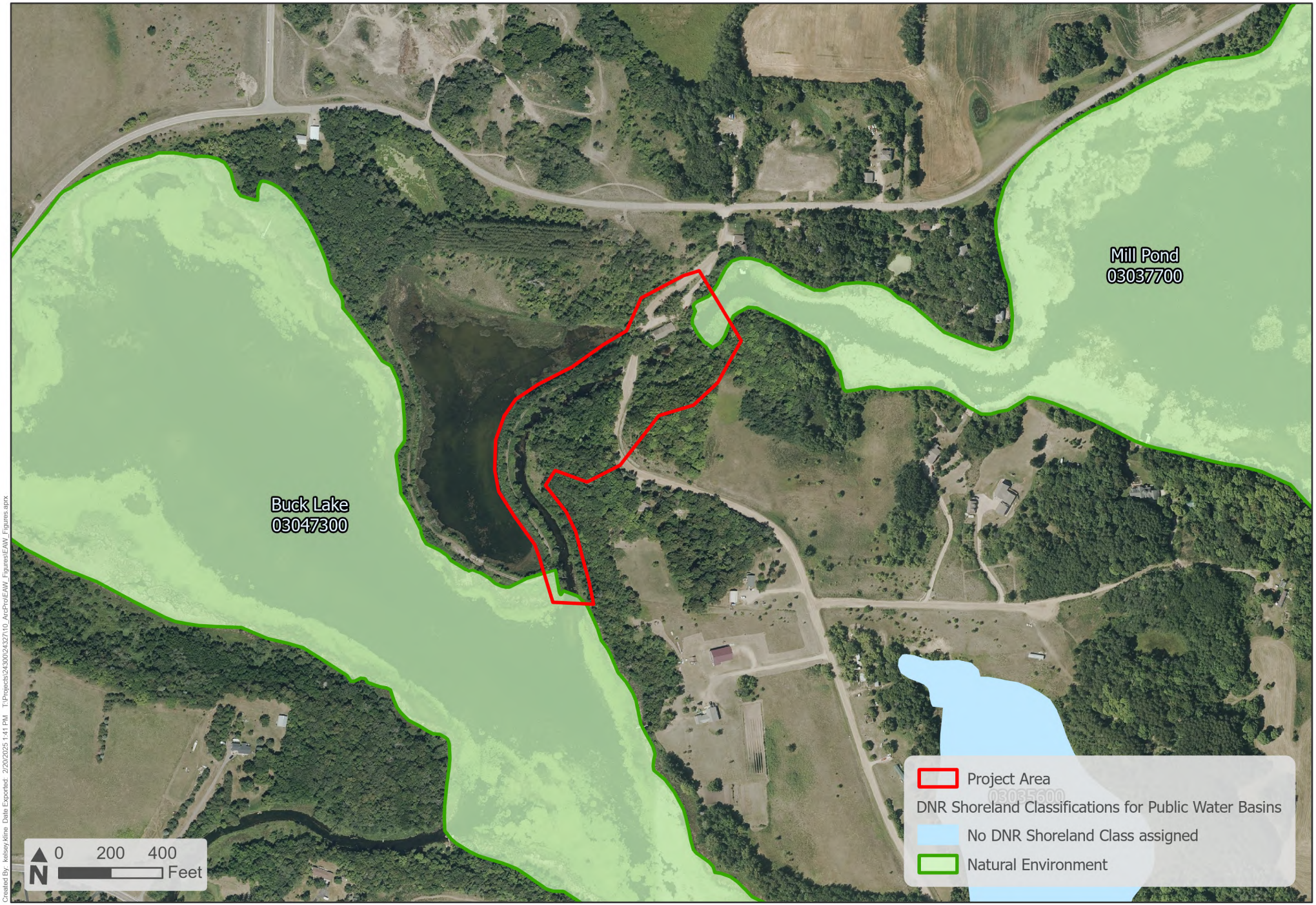
FEMA’s NFHL Viewer

FEMA's National Flood Hazard Layer (NFHL) Viewer

with Web AppBuilder for ArcGIS

Figure 9

Shoreland



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Shoreland

Bucks Mill Dam Modification

Figure 9

Pelican River Watershed District

moore engineering, inc.

Figure 10

SSURGO Soils Data

SSURGO Soils

Bucks Mill Dam Modification

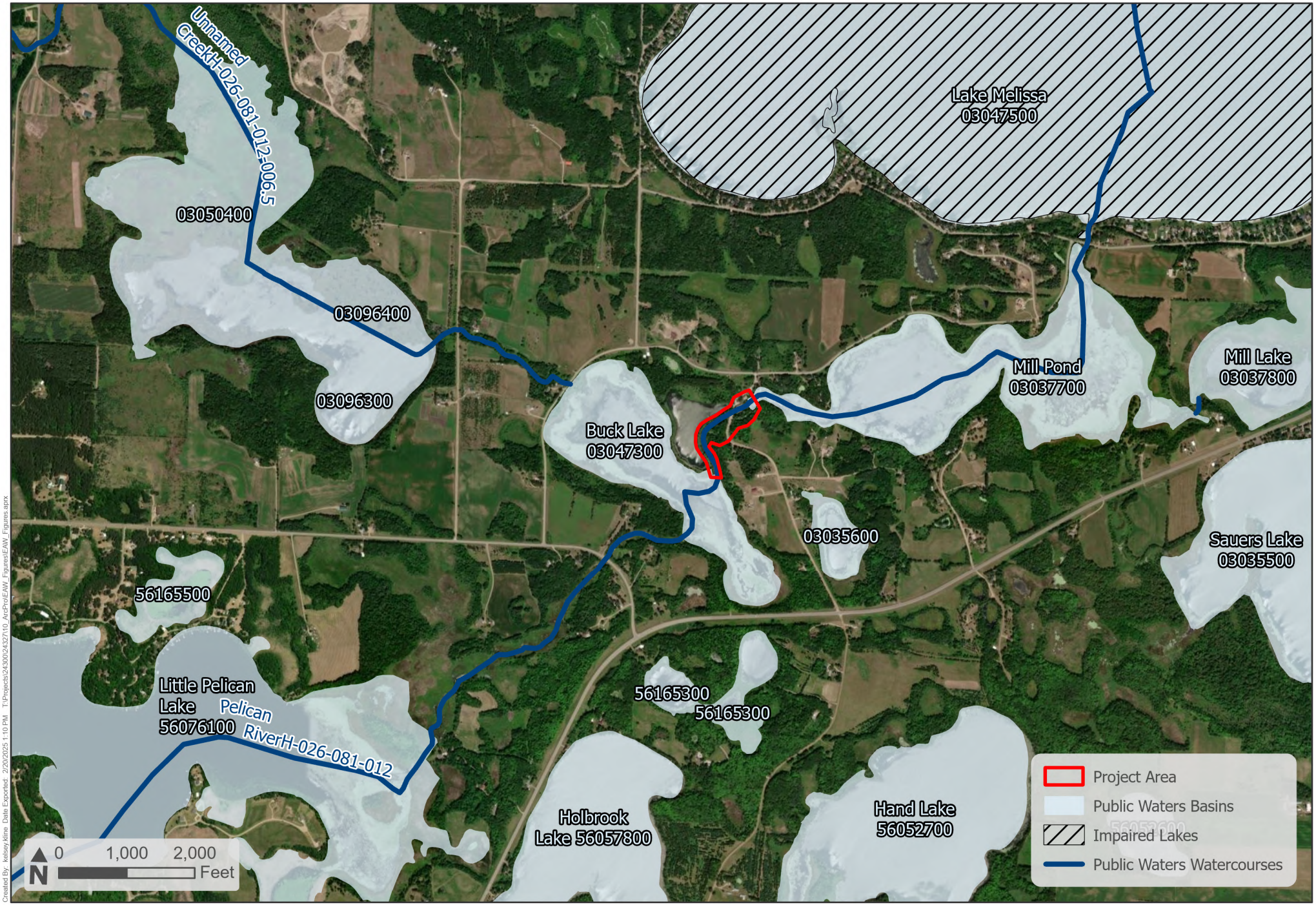
Figure 10

Pelican River Watershed District

moore engineering, inc.

Figure 11

Surface Waters



Surface Waters

Bucks Mill Dam Modification

Figure 11

Pelican River Watershed District

moore engineering, inc.

Figure 12

National Wetland Inventory

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National Wetland Inventory

Bucks Mill Dam Modification

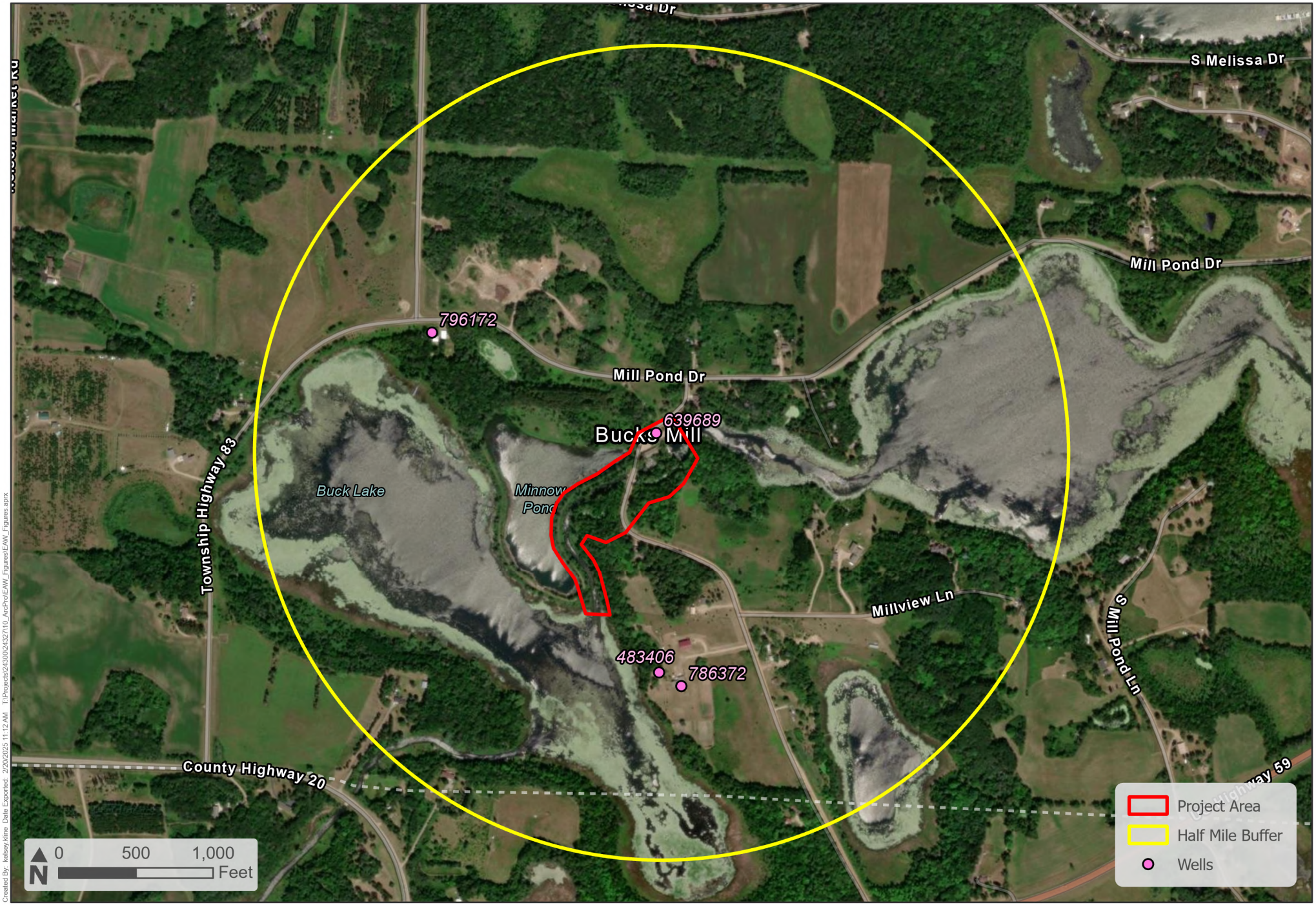
Figure 12

Pelican River Watershed District

moore engineering, inc.

Figure 13

Groundwater Wells



Groundwater Wells

Bucks Mill Dam Modification

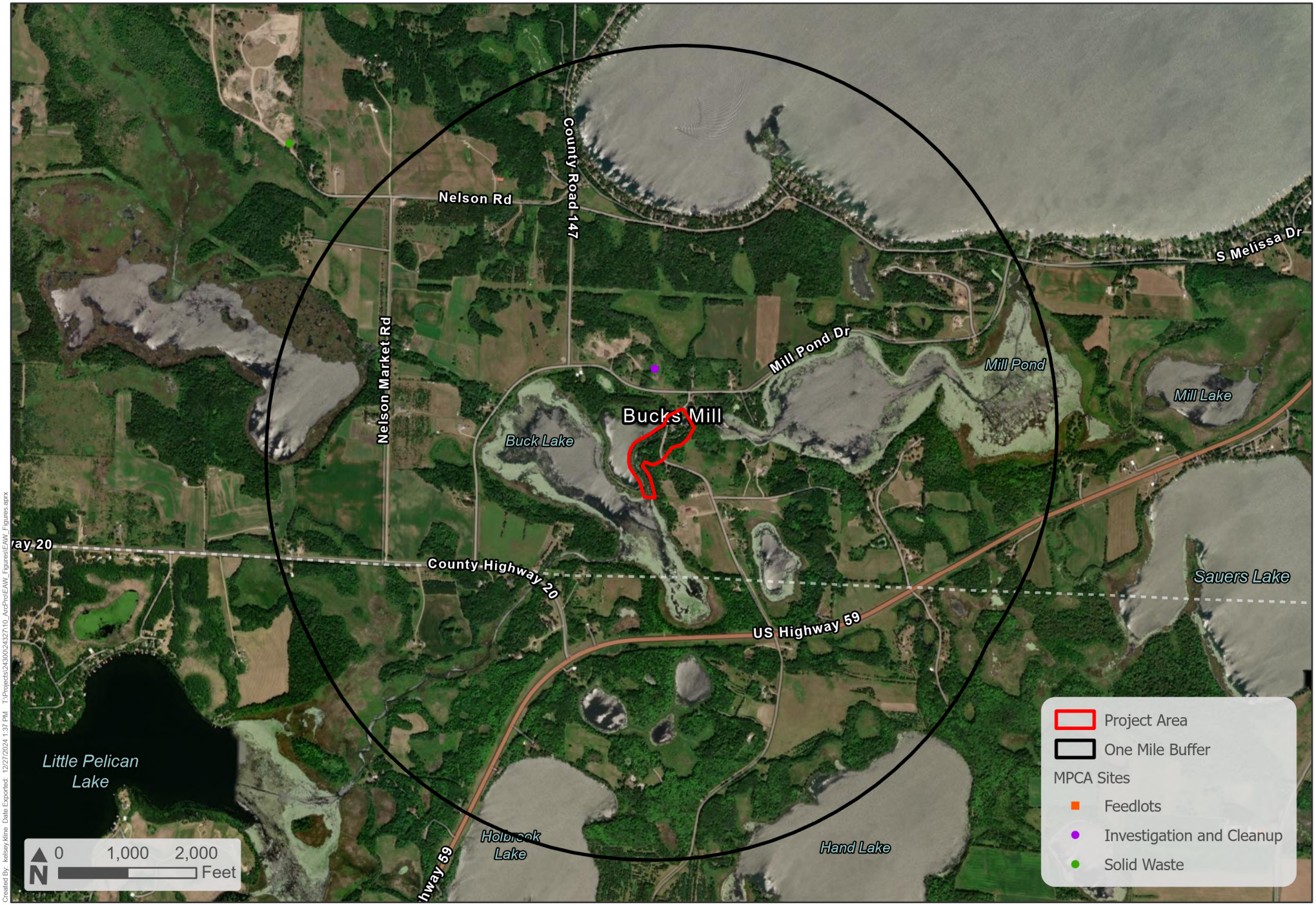
Figure 13

Pelican River Watershed District

moore engineering, inc.

Figure 14

MPCA What's in My Neighborhood



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MPCA What's in My Neighborhood

Bucks Mill Dam Modification

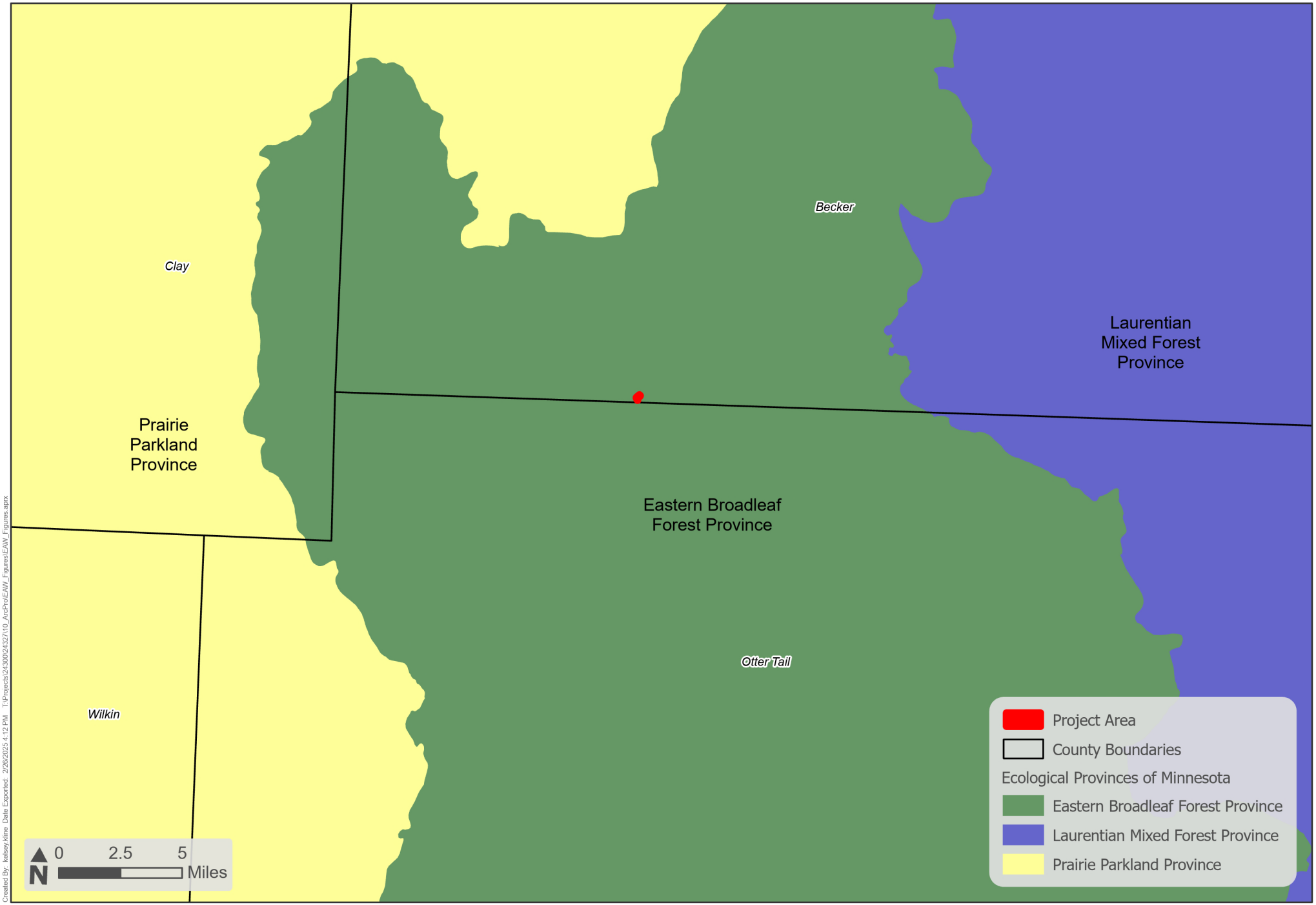
Figure 14

Pelican River Watershed District

moore engineering, inc.

Figure 15

Ecological Data



Ecological Data
Bucks Mill Dam Modification

Figure 15
Pelican River Watershed District

moore engineering, inc.

Figure 16

Detour Route

Detour Route

Bucks Mill Dam Modification

Figure 16

Pelican River Watershed District

moore engineering, inc.