ENGINEER'S REPORT

BUCK'S MILL DAM MODIFICATION

Prepared for

Pelican River Watershed District

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Certification

I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

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For Review
Version 1
Revised Date: 07/18/2025
Project No. 24327

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1. EXECUTIVE SUMMARY

Buck's Mill Dam is a site of local importance that needs safety improvements, improved recreational access, and ecological improvements, particularly for fish passage. It is located on the Pelican River downstream of Lake Melissa and immediately upstream of Bucksmill Dr, a township road, see Figure 1. The proposed project would modify the existing Dam structure with the addition of a series of rock riffle structures as well replacing the culverts beneath Bucksmill Dr.

Owner
Name: Minnesota Department of Natural Resources (MnDNR)
Address: 500 Lafayette Road
Saint Paul, Minnesota 55155

Dam Purpose: Recreation, Wildlife Habitat, Aesthetic or Landscape Enhancement, Fish Rearing, and Water Quality Improvement

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

Dam Information (MnDNR Dam Finder)
Dam Name: Buck's Mill Dam
NID#: MN01638
Type: Concrete
Height: 10 ft
Storage Capacity: 2600 acre-ft

1.1 Background and Purpose

The purpose of this project is to enhance the Pelican River's ecological health, improve fish passage, and address public safety concerns. This will be accomplished by modifying the existing Dam infrastructure 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. 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 culverts through Bucksmill Dr. The modifications will ensure the river functions with a more natural hydrologic regime, improving habitat connectivity and overall river health.

2. EXISTING CONDITIONS

2.1 Existing Channel Structures

The existing Dam is a concrete structure with stop logs in eight different bays. Two of the eight bays are capable of a full drawdown. The existing catwalk, over the crest of the Dam, has a single railing and allows for access to each side of the Dam. In conjunction with the Dam, there is a water intake for the Minnow Pond attached to the north bank of the Dam.

Between the Dam and the Bucksmill Dr crossing is an old concrete lock. This lock is in disrepair with deteriorating concrete and exposed rebar. Within this lock is a narrow channel through which the flow must pass and the velocities spike.

A combination of the walkway over the Dam and lock downstream presents a public safety hazard this project is aiming to address.

2.2 Existing Buildings

There is a privately owned structure on the parcel directly north of the Dam. The existing channel alignment is directed at this structure and there is erosion that may migrate toward the foundation in the future.

2.3 Culvert Assessment

Two existing 10-foot x 5-foot RCB culverts were assessed as part of this project. One existing culvert is located at the outlet of Lake Melissa, under South Melissa Drive, which will not be replaced, was studied to evaluate potential influence on the hydraulic performance of the Dam. The other existing culvert under Bucksmill Dr will be replaced with an adjusted size and elevation to accommodate the proposed design.

2.4 Groundwater

Groundwater levels were documented during exploration borings completed by Braun Intertec. It is expected the construction will encounter groundwater and need to manage it accordingly. Boring logs can be found in Appendix G.

2.5 Sediment

Significant sediment build up was not encountered upstream of the Dam during the site survey in 2024. The construction activity will not draw down the water so, with or without a sediment load, there are not currently concerns of sediment migrating downstream.

2.6 Wetlands

Wetlands in the project area were evaluated as part of the Environmental Assessment Worksheet (EAW), which is included in Appendix C. This evaluation included a wetland delineation, mapping of wetland boundaries, and impact tables summarizing potential effects from the project. The assessment concluded with a “no loss” finding. This means the proposed work avoids and minimizes impacts on wetlands to the extent that no replacement or mitigation is required. Appendix C contains the full documentation of this process, including figures and regulatory findings for agency review.

3. DESIGN OBJECTIVES AND CRITERIA

3.1 Survey Data Collection

Topographic survey data was collected on 10/3/24 & 10/4/24 for the purpose of documenting existing conditions of the site. Survey of South Melissa Dr, Bucksmill Dr, and the Buck's Mill Dam and King's Lock was completed along with bathymetric data through the pool in front of the Dam. Additionally, a drone aerial was captured during field collection efforts. All survey data were gathered in MN Geoid 18 – NGVD 1988 datum under MN Becker Co ground coordinates using U.S. Feet and is shown as such in the plans.

3.2 Project Layout

To provide clarity for the purposes of funding and permitting, the project is split into two different plan sets. One plan for the Dam modifications (Appendix A) and the other for the Bucksmill Dr crossing (Appendix B).

3.2.1 Dam Modifications

The design plans for the updated Buck's Mill Dam are included in Appendix A. The existing Dam has tall concrete piers that stick up above the top of the Dam to support a walkway with a railing. The project proposes to remove the walkway and trim the piers, so they are level with the top of the Dam.

The concrete wall on the north side of the Dam will remain, but the wall on the south side will be cut down to match the top of the Dam. The proposed design will keep the same water level as the current Dam by keeping the top of the Dam (called the weir elevation) the same.

New sheet piling will be pushed into the ground to reinforce and extend the Dam's influence. The sheet piling will connect to the south wall of the Dam and continue into a newly built bank on the south side. In addition to reshaping the Dam weir, the sheet pile stops water from piping through the bank and bypassing the Dam. This new Dam weir shifts the river alignment slightly to the south. This adjustment helps keep the water from eroding near the building on the north side.

Downstream of the Dam, an in-channel rock riffle structure will be built. This structure will continue approximately 550-feet, extending beyond Bucksmill Dr. Rock riffle structures help fish swim through the area and have a gentle slope at the road crossing to make passage easier.

Each section of rocks, called a riffle weir, steps down 0.6-feet (~7-inches) from the one before it. The riffles are shaped like waves that curve back and forth across the channel. Most of the riffles have 2 or 3 wave shapes (arches), which is called the 2/3/2 design (2 arches, then 3 arches, then 2 again). This design gives the fish more places to rest and creates small habitats for other aquatic animals. The outer arms of the riffle weirs slope up at 1.5% then stop about 2 feet above the river bottom where they meet the banks. Both the 3-arch wave and 2-arch wave are about 75 feet long. The arms vary from 8 to 23 feet long.

A new southern bank will also be built, with a path on top. This berm is a critical component of the riffle structure, designed to stabilize the southern bank between the channel and an existing wetland. It will also contain the 100-year water surface elevation and preserve the channel geometry necessary

for the rock weirs to function. In addition to its primary purpose, the berm will also provide access for Dam maintenance and public access to Mill Pond.

Appendix A includes the full design plans and cross sections for the Buck's Mill Dam, including dimensions, elevations, grading, and sheet pile layout.

Appendix E summarizes the design decisions for the proposed project, including fish passage requirements, riffle structure geometry, and modeling criteria.

Appendix H provides the engineer's cost estimate for the Dam work, including major line items such as earthwork, riprap, and sheet piling.

3.2.2 Township Road Modifications

The Bucksmill Dr crossing over the Pelican River (Appendix B) will remain in its current location, with the road raised to accommodate the new riverbed elevation due to the riffle structure. Two main culverts will go under the road and two extra culverts, called floodplain culverts, will sit higher, and carry water only during higher water levels. The two main culverts will have gravel within the pipe bottom to promote fish passage (Appendix F).

The road will meet MNDOT clear zone safety requirements on the shoulders. Railings will also be placed on top of the culverts for added pedestrian safety. The Township requested crushed granite to be placed where people might walk near the river. This granite will be used on the road shoulder and above the culverts. There will be parking places provided on the side of the road.

Appendix B includes plan and profile sheets for the road crossing, showing culvert placement, road grades, railing layout, and parking accommodations.

Appendix F outlines the design decisions that shaped the road and culvert configuration, including conversations with the Township, pedestrian access requests, and MnDNR fish passage guidance.

Appendix I contains the engineer's estimate for the road construction portion of the project, including culverts, surfacing, and safety features.

4. HYDROLOGY

While multiple sources of hydrology exist—such as the conservative estimates from StreamStats and the attenuated flows from the 2011 HEC-HMS model—it was important to hold flow conditions constant between the existing and proposed models [1]. This approach allows for a direct, apples-to-apples comparison of hydraulic performance. By using the same flow inputs in both the existing and proposed models, we can confidently evaluate whether the project will result in any changes to water surface elevations, velocities, or flow distribution. This method eliminates uncertainty and supports a clear demonstration that the project does not negatively impact upstream or downstream conditions under the same hydrologic events.

The hydrology for the 2-D HEC-RAS model used for the design of Buck's Mill Dam is from the USGS program StreamStats [2]. Hydrology included the 2-, 5-, 10-, 25-, 50-, and 100-yr events. The 10-, 25-, and 100-yr events were modeled in the 2-D HEC-RAS model (hydraulic results shown in the hydraulic

report in Appendix D). The hydrology from StreamStats is conservative with high discharges due to not accounting for attenuation from the upstream lakes, such as Lake Sallie, Lake Melissa, and Mill Pond. A study was completed in 2011 by Houston Engineering Inc., called the *Basin Wide Modeling Approach* study, focusing on tributaries of the Red River of the North upstream of Halstad, Minnesota. HEC-HMS models were created for each of those watersheds upstream of Halstad, MN, including the Ottertail River watershed which includes the Pelican River through Lake Melissa (Buck's Mill Dam was not modeled in the HMS model). The Ottertail River HEC-HMS model shows much lower discharges at Lake Melissa compared to StreamStats due to accounting for attenuation of the upstream lakes. Conservative flow estimates from StreamStats were selected for modeling to avoid assumptions about upstream lake levels and ensure safety margins. Modeling the Dam and assuming constant discharge through the lake outlets (including Buck's Mill Dam), eliminates assumptions for starting lake level elevations for the upstream lakes. Table 1 shows the comparison between the peak discharges between the 2011 HEC-HMS model and from StreamStats at the Lake Melissa outlet. Table 2 shows the StreamStats peak discharges at Buck's Mill Dam (about one mile downstream of Lake Melissa outlet), used for this study.

The Lake Melissa outlet is an existing culvert that is not planned to be replaced through this project but was modeled to review impacts. The modeling results show the existing culvert still has capacity greater than the 100-yr event. These impacts were evaluated for the flows in Table 2 with more information in Appendix D.

Table 1 - HEC-HMS vs StreamStats Peak Discharges at Lake Melissa Outlet

Event	Peak Discharge (cfs)	
	HEC-HMS Model	StreamStats
2-yr 24-hour	31	129
5-yr 24-hour	42	206
10-yr 24-hour	53	260
25-yr 24-hour	66	332
50-yr 24-hour	81	388
100-yr 24-hour	102	444

Table 2 - StreamStats Peak Discharges at Buck's Mill Dam

Event	Peak Discharge (cfs)
	StreamStats
2-yr 24-hour	149
5-yr 24-hour	238
10-yr 24-hour	300
25-yr 24-hour	383
50-yr 24-hour	448
100-yr 24-hour	513

The full hydraulic report can be found in Appendix D.

5. GEOTECHNICAL DESIGN & EVALUATION

The geotechnical design was completed by Braun Intertec and is incorporated into the final plans and specifications. Their report included soil borings, which confirmed that the site had suitable subgrade material to support the Dam modifications. Based on those findings, the report recommended using sheet pile adjacent to the Dam to help stabilize the slope. These findings and recommendations are included in the full geotechnical report provided in Appendix G.

6. PERMITTING

This section includes Table 3, summarizing anticipated permits potentially required for this project. The list is only meant as guidance and may not be exhaustive. An Environmental Assessment Worksheet (EAW) is under separate coverage and further refine the permitting requirements. According to MN Statute 4410.3100, a project may not be started, and permits may not be granted until the completion of an EAW with a negative declaration for an EIS is issued. The project EAW is complete, and permits are actively being prepared currently. The EAW is included for review in Appendix C.

Table 3: Permitting

Agency	Permit	Description/Purpose
Minnesota Rules 4410.4300	Environmental Assessment Worksheet (EAW)	Finding of Facts and Record of Decision drafted 5/16 and signed by Board
United States Army Corps of Engineers	Clean Water Act Section 404	Work within waters of the U.S. Pending submittal
MnDNR	Public Waters Work Permit	Pending submittal
	Dam Safety Permit	Pending submittal
Becker County	Wetland Conservation Act (WCA)	Pending submittal
	Conditional Use Permit	Pending submittal
Minnesota Pollution Control Agency (MPCA)	Section 401 Water Quality Certification	Permit unlikely needed
	Storm Water Pollution Prevention Plan (SWPPP)	Moore will prepare a SWPPP with the plans

7. PROJECT FOOTPRINT

The project is primarily located on public property with minor impacts to private land. The private land impacted includes the structure and parking area on the north bank. The project team has been in contact with the owners and will obtain a temporary construction easement to complete the work.

8. PROJECT ENGAGEMENT

From the outset, the project team prioritized proactive and transparent public engagement. A public-facing website was developed to provide ongoing updates, background materials, and details accessible to all. Advisory Committee meetings have been held to gather input and ensure that key stakeholders remain informed and involved throughout the process. In addition, a blog series was launched to break down technical topics such as how seasonal water levels will remain unchanged during and after the project.

Beyond online engagement, the team has hosted several in-person events, including project kickoff and informational meetings, to offer residents opportunities to ask questions and learn more about the goals and timeline. A construction-specific informational meeting is planned to help prepare the public for upcoming activity. The project also seeks to honor local history through a permanent on-site plaque commemorating the removed lock and modified Dam, as well as a dedicated display at the local museum that explores the site's historical context and transformation. These efforts reflect a strong commitment to community inclusion, education, and long-term stewardship.

9. OPERATION AND MAINTENANCE

There are several operation and maintenance items that will be required once the project is complete. The project should decrease the amount of maintenance currently required by the Dam but will still require attention and inspections. This is not an exhaustive list but will be part of an O & M manual that will be created along with the record drawings:

- Clearing debris from the Minnow Pond intake
- Clearing debris at the Dam crest
- Adjusting boulders that may have moved
- Inspecting the berm for piping and erosion

10. COST ESTIMATE

Road	Construction Subtotal	$1,290,000
	Soft Costs and Contingencies	$390,000
Dam	Construction Subtotal	$1,480,000
	Soft Costs and Contingencies	$440,000
	Total Project	$3,600,000

Detailed cost estimates can be found in Appendix H and Appendix I.

11. FUNDING

The MnDNR has investigated a variety of funding sources for the Project. Table 4 below, provides a high-level summary of each funding source. This list is current at the time of this report.

Table 4: Funding

Funding Source	Type	Program	Award Amount
LSOHF	State	Lessard-Sams Outdoor Heritage Fund	$1,000,000+
One Minnesota Budget	State	Get Out MORE	$1,000,000
Clean Water Legacy Fund	State	Culvert/Bridge Replacement Incentive Program	TBD (25% of the crossing)
USFWS	Federal	National Fish Passage Program	$375,000

12. REFERENCES

[1] "StreamStats," U.S. Geological Survey, [Online]. Available: https://www.usgs.gov/streamstats. [Accessed 2024].

[2] Hydrologic Engineering Center, *HEC-RAS v6.3.1,* Davis, CA: U.S. Army Corps of Engineers, October 2022.

[3] Minnesota Department of Natural Resources, "Reconnecting Rivers: Natural Channel Design in Dam Removal and Fish Passage," Fergus Falls, MN, January 2010.

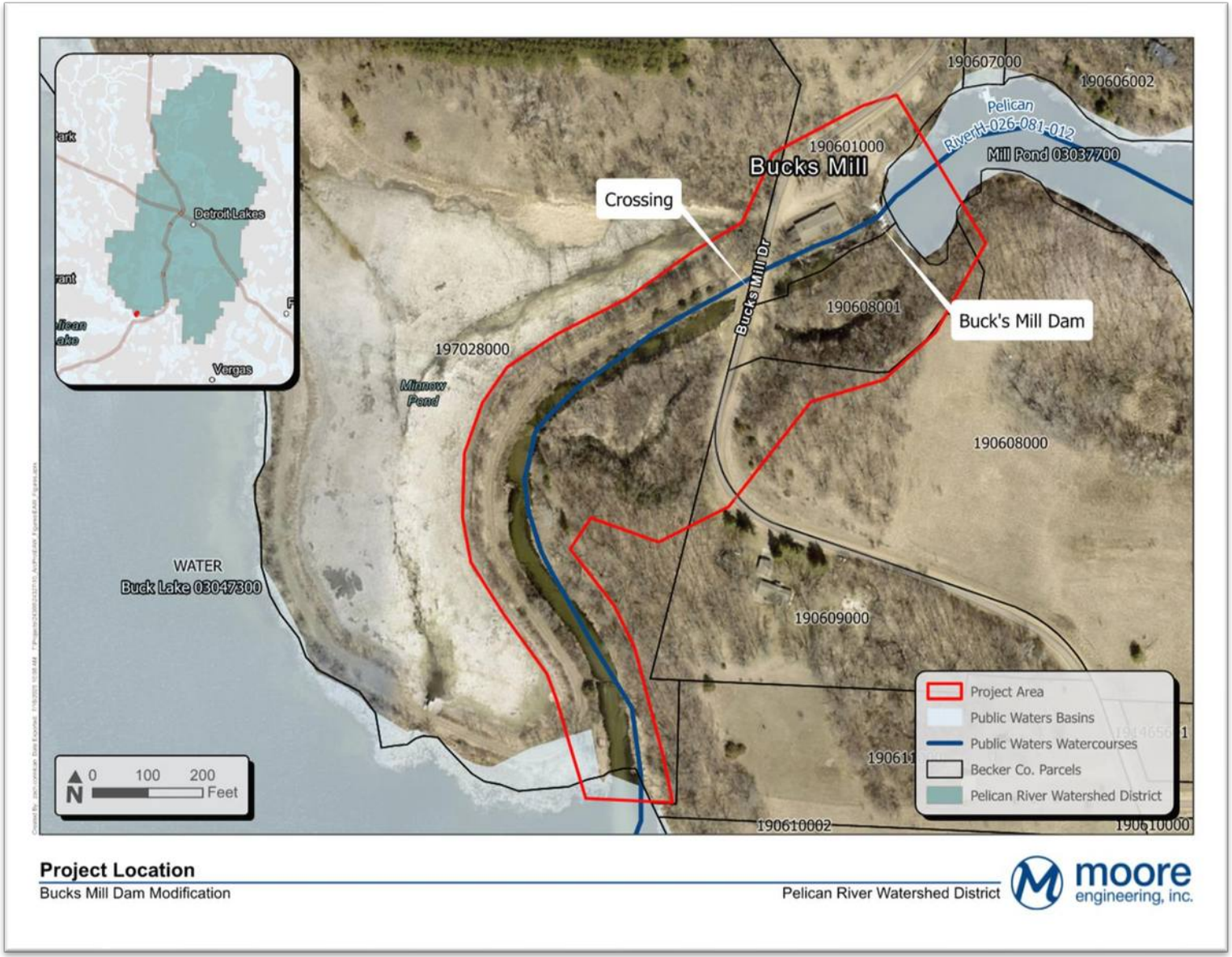


Figure 1: Project Location

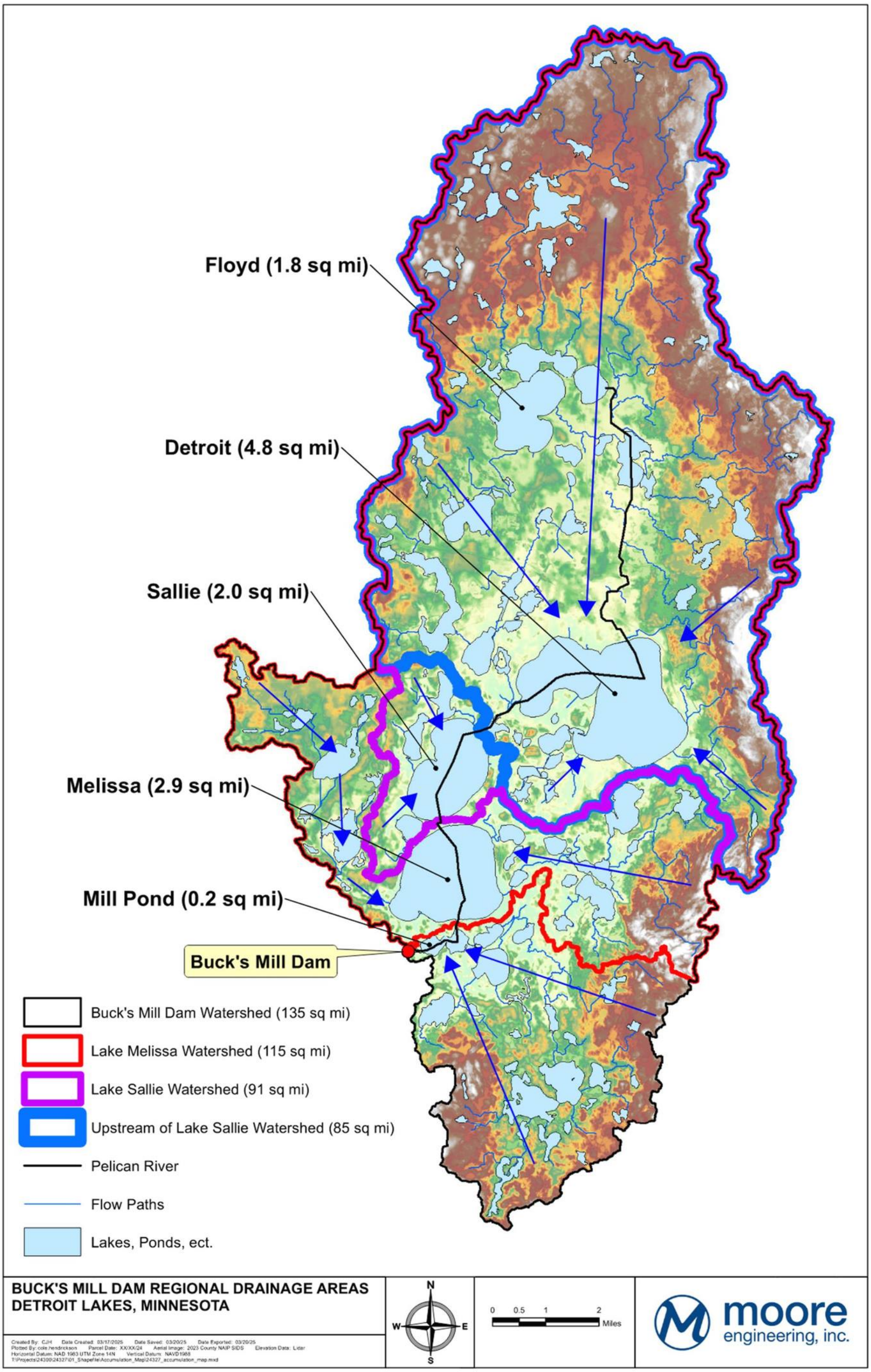


Figure 2: Watershed

Appendix A Preliminary Plans - Dam

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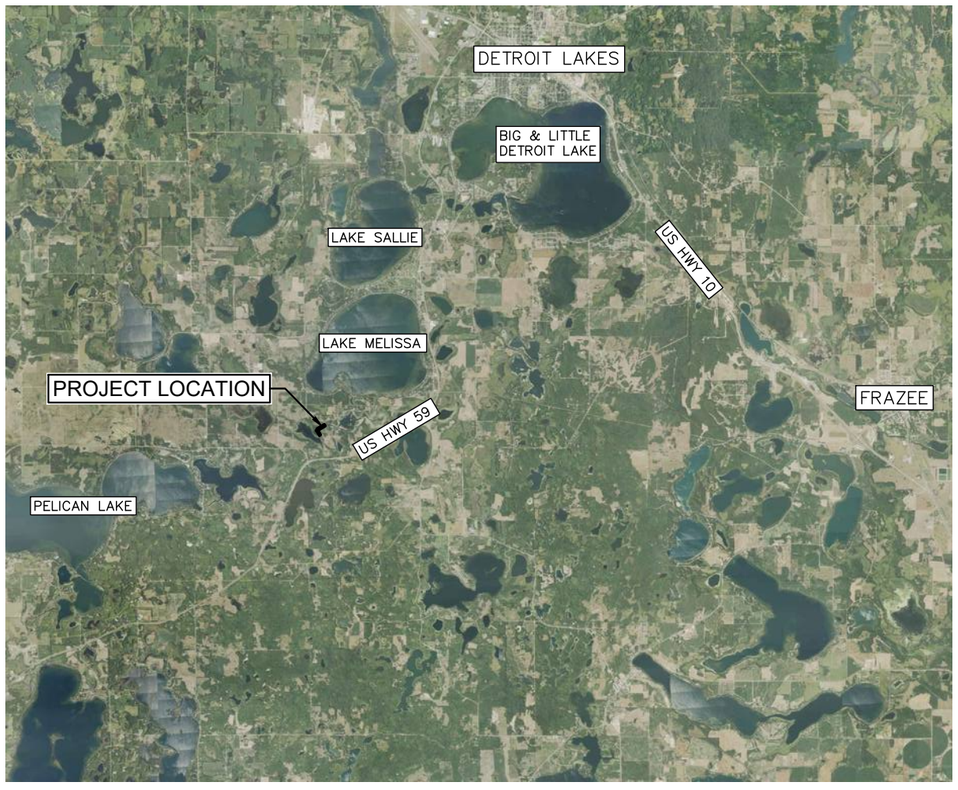
BUCK'S MILL DAM - DAM IMPROVEMENTS

PELICAN RIVER WATERSHED DISTRICT

BECKER COUNTY, MINNESOTA

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VICINITY MAP



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PROJECT No. 24327

PRELIMINARY

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PRELIMINARY

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GENERAL
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
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DATE:	07.15.2025
REV DATE:	----
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RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

G-002

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CIVIL LEGEND

EXISTING

- BENCHMARK
- IRON MONUMENT FOUND
- EXISTING PROPERTY LINE
- EXISTING PLAT LOT LINE
- EXISTING RIGHT OF WAY LINE
- EXISTING EASEMENT LINE
- EXISTING PLAT EASEMENT LINE
- EXISTING GAS LINE MARKER
- EXISTING GAS GATE VALVE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING LIGHT POLE W/SIGN
- EXISTING GUY WIRE
- EXISTING TRAFFIC SIGNAL ARM
- EXISTING SIGN
- EXISTING CULVERT W/FLARED END SECTION (F.E.S.)
- EXISTING FLARED END SECTION (F.E.S.)
- EXISTING CURB STOP
- EXISTING HYDRANT W/GATE VALVE
- EXISTING GATE VALVE
- EXISTING PROPANE TANK
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER CLEANOUT
- EXISTING STORM SEWER CATCH BASIN
- EXISTING STORM SEWER MANHOLE
- EXISTING WATER MAIN
- EXISTING WATER SERVICE W/CURB STOP
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER (RELINE W/ CIPP)
- EXISTING SANITARY FORCEMAIN
- EXISTING SANITARY SEWER SERVICE
- EXISTING STORM SEWER
- EXISTING STORM SEWER FORCEMAIN
- EXISTING STEAM PIPE
- EXISTING AIR CONDITIONER
- EXISTING UTILITY PEDESTAL
- EXISTING UTILITY MANHOLE
- EXISTING UTILITY VAULT
- EXISTING UNDERGROUND COMMUNICATIONS
- EXISTING UNDERGROUND FIBER
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD TELEPHONE
- EXISTING UNDERGROUND TELEVISION
- EXISTING OVERHEAD TELEVISION
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING OVERHEAD POWER
- EXISTING BARBED WIRE FENCE
- EXISTING CHAIN LINK/STEEL FENCE
- EXISTING PVC/WOOD FENCE
- EXISTING RAILROAD
- EXISTING SHRUB
- EXISTING STUMP
- EXISTING BOULDER
- EXISTING TREE/TREE CLUSTER
- EXISTING SPRINKLER HEAD
- EXISTING CLUSTER BOX UNIT (CBU)
- EXISTING MAILBOX
- EXISTING CURB AND GUTTER

PROPOSED

- NEW PROPERTY LINE
- NEWPLAT LOT LINE
- NEW RIGHT OF WAY LINE
- NEW EASEMENT LINE
- NEW PLAT EASEMENT LINE
- CONSTRUCTION EASEMENT
- CONSTRUCTION LIMITS
- NEW LIGHT POLE
- NEW LIGHT POLE W/SIGN
- NEW GUY WIRE
- NEW SIGN
- TRAFFIC CONTROL – DRUM
- TRAFFIC CONTROL – TUBULAR MARKER
- NEW CULVERT W/FLARED END SECTION (F.E.S.)
- NEW FLARED END SECTION (F.E.S.)
- NEW CURB STOP
- NEW HYDRANT W/GATE VALVE
- NEW GATE VALVE
- NEW TAPPING SLEEVE
- NEW FITTINGS
- NEW PLUG
- NEW SANITARY SEWER MANHOLE
- NEW SANITARY SEWER CLEANOUT
- NEW STORM SEWER CATCH BASIN
- NEW STORM SEWER MANHOLE
- NEW WATER MAIN
- NEW WATER MAIN (DIRECTIONAL DRILLED OR CASED)
- NEW WATER SERVICE W/CURB STOP (S.B. ELEV.)
- NEW SANITARY SEWER
- NEW SANITARY SEWER (DIRECTIONAL DRILLED OR CASED)
- NEW SANITARY FORCEMAIN
- NEW SANITARY SEWER SERVICE (S.S. ELEV.)
- NEW STORM SEWER
- NEW STORM SEWER (DIRECTIONAL DRILLED OR CASED)
- NEW STORM SEWER FORCEMAIN
- NEW STEAM PIPE
- INSULATION PER DETAIL
- NEW BARBED WIRE FENCE
- NEW CHAIN LINK/STEEL FENCE
- NEW PVC/WOOD FENCE
- NEW CLUSTER BOX UNIT (CBU)
- NEW MAILBOX
- NEW LARGE DECIDUOUS TREE
- NEW SMALL DECIDUOUS TREE
- NEW SHRUB
- NEW LARGE EVERGREEN TREE
- NEW SMALL EVERGREEN TREE

REMOVALS

- INDICATES REMOVAL
- REMOVE CURB AND GUTTER
- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE PAVEMENT
- REMOVE AGGREGATE SURFACE

PAVEMENT REHAB

- UNIFORM MILL & OVERLAY
- TAPERED MILL & OVERLAY
- LEVELING COURSE
- RECLAIM
- ASPHALT PATCH
- CHIP SEAL

PAVEMENT

- NEW INFLOW CURB AND GUTTER
- NEW OUTFLOW CURB AND GUTTER
- NEW ASPHALT SURFACE
- NEW CONCRETE SURFACE
- NEW GRANULAR SURFACE
- NEW CRUSHED CONCRETE SURFACE
- NEW DECORATIVE COLORED CONCRETE
- NEW ASPHALT SIDEWALK/MULTI–USE PATH
- NEW CONCRETE SIDEWALK/MULTI–USE PATH
- NEW CONCRETE APPROACH/DRIVEWAY
- NEW DETECTABLE WARNING PANEL
- NEW GRAVEL APPROACH/DRIVEWAY
- NEW CONCRETE VALLEY GUTTER
- NEW MEDIAN NOSE APRON
- NEW ADA RAMP W/WARNING PANEL

SOIL DISTURBANCE

- DISTURBANCE AREA / TOPSOIL REMOVAL
- REMOVE STOCKPILE
- EXISTING STOCKPILE
- TEMPORARY STOCKPILE
- PERMANENT STOCKPILE
- REAR YARD GRADING
- GRASS BUFFER STRIP

SOIL STABILIZATION

- DISTURBED SOIL STABILIZATION
- STRAW MULCH
- SEEDING & STRAW MULCH
- SEEDING & HYDRO MULCH
- TOPSOIL, SEEDING & STRAW MULCH
- TOPSOIL, SEEDING & HYDRO MULCH
- TOPSOIL, SEEDING & BLANKET

MISCELLANEOUS

- EXISTING RIPRAP
- NEW RIPRAP
- EXISTING LANDSCAPING AREA
- NEW LANDSCAPING AREA
- EXISTING WATER SURFACE
- NEW WATER SURFACE
- EXISTING WETLAND

EROSION CONTROL

- DRAINAGE BREAK LINE
- EXISTING DRAINAGE DIRECTION
- 2.0% FINISHED DRAINAGE DIRECTION & SLOPE
- 4:1 FINISHED GRADE
- 895 EXISTING CONTOUR ELEVATION
- 895 FINISHED CONTOUR ELEVATION
- FL: 900.07 GRADE ELEVATIONS
- SEDIMENTATION CONTROL WATTLE
- SEDIMENTATION CONTROL FENCE
- ROCK CHECK
- S.C.E. STABILIZED CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- INLET PROTECTION DEVICE

ABBREVIATIONS:

BOC	=	BACK OF CURB
BOW	=	BACK OF WALK
C	=	COMMUNICATION
CB#	=	STORM SEWER CATCH BASIN
CIPP	=	CURED IN PLACE PIPE
CL	=	CENTERLINE
CSP	=	CORRUGATED STEEL PIPE
CO#	=	SANITARY SEWER CLEANOUT
CS#	=	CONTROL STRUCTURE
DIA	=	DIAMETER
DIP	=	DUCTILE IRON PIPE
E	=	ELECTRICAL
ECC	=	EDGE OF CRUSHED CONCRETE
EG	=	EXISTING GRADE
EOC	=	EDGE OF CONCRETE
EOG	=	EDGE OF GRAVEL
EOP	=	EDGE OF PAVEMENT
EOW	=	EDGE OF WALK
EX	=	EXISTING
F	=	FIBER OPTIC
FES	=	FLARED END SECTION
FG	=	FINISHED GRADE
FL	=	FLOWLINE
FM	=	FORCEMAIN
G	=	GAS LINE
HP	=	HIGH POINT
INV	=	INVERT
LP	=	LOW POINT
MA	=	MATCH
M#	=	STORM SEWER MANHOLE
MT#	=	STORM SEWER TEE MANHOLE
MM#	=	STORM SEWER MULTI–MANHOLE
MC	=	MIDPOINT OF CURVE
OHP	=	OVERHEAD POWER
OHT	=	OVERHEAD TELEPHONE
OHTV	=	OVERHEAD TELEVISION
PC	=	POINT OF CURVATURE
PRC	=	POINT OF REVERSE CURVE
PVC	=	POLYVINYL CHLORIDE PIPE
PT	=	POINT OF TANGENCY
RIM	=	RIM OF STRUCTURE
S#	=	SANITARY SEWER MANHOLE
S.B. ELEV	=	STOP BOX ELEVATION
S.S. ELEV	=	SANITARY SEWER SERVICE INVERT
SS	=	SANITARY SEWER
ST	=	STORM SEWER
STA	=	ALIGNMENT STATION
T	=	TELEPHONE
TOC	=	TOP OF CONCRETE
TOP	=	TOP OF PAVEMENT
TOP	=	TOP OF PIPE
TOW	=	TOP OF WALK
TR#	=	SANITARY TELEVISING RISER
TRANS	=	TRANSFORMER
TV	=	TELEVISION
U	=	UTILITY (UNKNOWN UTILITY)

PRELIMINARY

moore engineering, inc.

CIVIL
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
CIVIL LEGEND

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-001

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_Cover.dwg

Project Description/Location:
The Buck's Mill Dam project involves modification and reconstruction activities along the Pelican River in Lake View Township, near Detroit Lakes, Becker County, Minnesota. The project will remove the existing aging concrete dam structure and replace it with a more naturalized rock and riffle spillway to restore river flow and improve fish passage. Construction activities will include site grading and excavation within the river channel and adjacent banks, placement of rock and riprap to form the spillway and stabilize banks, and removal of the existing pedestrian catwalk and its supporting concrete piers. These activities will reshape the riverbed and create a series of rock weirs and pools designed to accommodate variable flow conditions and enhance aquatic habitat. Additional construction activities will occur along Buck's Mill Drive, which crosses the river immediately upstream of the dam. This portion of the project will include removal of the existing concrete box culvert and bridge structure (MnDOT Bridge 03J28) and replacement with a new culvert and bridge that meet current hydraulic and safety standards. Construction here will involve road grading, excavation, culvert installation, concrete and gravel surfacing, and reconstruction of the roadway approaches.

Land Feature Changes:
Total disturbed area: 1.87 acres
Total existing impervious area: 0.48 acres
Total proposed impervious area: 1.44 acres
Total proposed net change in impervious area: 0.96 acres

Project Contacts:

	Agency	Contact	Phone No.
Owner:	Pelican River Watershed District	Tera Guetter	(218) 846-0436
Partner:	MNDNR Fisheries	Fisheries	218-846-8290
Contractor:	TBD	TBD	TBD
State:	MPCA	MPCA Duty Officer	(651) 649-5451

Chain of Responsibility:
The Contractor is the permitee for the national pollutant discharge elimination system (NPDES) construction permit. The contractor is responsible to comply with all aspects of the NPDES construction permit at all times until the notice of termination (NOT) has been filed with the MPCA. The contractor will develop a chain of command with all operators on the site to ensure that the SWPPP with be implemented and stay in effect until the construction project is complete, the entire site has undergone final stabilization, and a notice of termination (NOT) has been submitted to the MPCA.

Contractors Responsibilities:
The Contractor shall be responsible for compliance with, monitoring, and maintenance of the requirement of the MPCA general storm water permit for construction activity. The Contractor must identify a certified erosion and sediment control supervisor. This person must be knowledgeable and experienced in the application of erosion prevention and sediment control bmp's. This person is to oversee the implementation of this SWPPP, and the installation, inspection, and maintenance of the erosion prevention and sediment control bmp's before, during, and after construction. The SWPPP is to remain in effect until the project is complete, the entire site has undergone final stabilization, and the MPCA permit been terminated.

Project Personnel and Training:
Name of person with Best Management Practices (BMP) experience who will oversee SWPPP implementation and coordinate with contractor:
TBD and will be documented in this SWPPP narrative prior to start of construction. (First name, last name, company)

SWPPP Designer:
Company: Moore Engineering Inc.
Name: Kelsey Kline
Email: Kelsey.kline@mooreengineeringinc.com
Phone: 320-281-5493
Training date(s): 5/1/2025
Training activity/content: Design of Construction SWPPP, University of Minnesota

Individual overseeing implementation, revision and/or amendment of the SWPPP that are available for an onsite inspection within 72 hours upon request of MPCA:
TBD and will be documented in this SWPPP narrative prior to start of construction.
Company: [ ]
Name: [ ]
Email: [ ]
Phone: [ ]
Training date(s): [ ]
Training activity/content: [ ]
Instructor(s) name(s): [ ]

Individual performing or supervising the installation, maintenance and repair of BMPs:
TBD and will be documented in this SWPPP narrative prior to start of construction.
Company: [ ]
Name: [ ]
Email: [ ]
Phone: [ ]
Training date(s): [ ]
Training activity/content: [ ]
Instructor(s) name(s): [ ]

Discharges to special and impaired waters:
There are no construction related special or impaired waters within one mile of the project site that will receive stormwater runoff. If the project does discharge into a special or impaired water the contractor must comply with MNR100001 Permit 2018 reference 23 of the NPDES Permit. No TMDL Implementation Plans currently exist for the receiving waters on this project.

Discharges to Wetlands:
A wetland delineation was completed in October 2024 and boundaries/types were approved on November 25, 2024. The project will have impacts to wetlands, but a WCA-CWA Joint Application will be obtained. Discharging into a wetland must comply with MNR100001 Permit 2018 reference 22 of the NPDES Permit.

Stormwater mitigation measures proposed to be part of the final project in any environmental review document, endangered species review, archeological or other required local, state, or federal review conducted for the project:
There are no stormwater mitigation measures required as a result of an environmental, archeological or agency review. All mitigation measures-have been addressed in this plan set or the special provisions.

Any required site assessments for groundwater or soil contamination:
No site assessment for groundwater or soil contamination was conducted prior to construction for the project.

Estimated Quantities:

Item	Estimated Quantity
Silt Fence	148 LF
Sediment Control Wattle	1,238 LF
Seeding Area	0.48 Acres

SWPPP Amendments:
Permitee must amend SWPPP as necessary to include additional requirements to correct problems identified or address the following situations:
1. There is a change in design, construction, operation, maintenance, weather or seasonal conditions.
2. Inspections or investigations by site owner or operators, USEPA or MPCA officials determine the SWPPP is not minimizing discharge of pollutants to surface waters or underground waters or discharges are causing water quality standard exceedances.
3. The SWPPP is not achieving the objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of the permit.
4. The MPCA determines that the project's stormwater discharges may cause, have reasonable potential to cause, or contribute to non-attainment of any applicable water quality standard, or the SWPPP does not incorporate the applicable requirements of the permit.

BMP Selection and Installation:
Permittees must select, install, and maintain the BMPs identified in this SWPPP and in the NPDES permit in an appropriate and functional manner and in accordance with relevant manufacturer specifications and accepted engineering practices.

Erosion/Sediment Control Measures:
Erosion and sediment control measures must comply with MNR100001 Permit 2018 reference 8 and 9 of the NPDES Permit.
A. Areas not to be disturbed must be properly marked before work begins.
B. Must minimize the need for disturbance of portions of the project with steep slopes.
C. Exposed soils (including stockpiles) must have erosion protection/cover initiated immediately and completed within 14 days.
D. For DNR Public Waters with "work in waters restrictions" during specified fish spawning time frames, stabilization must be completed for all exposed soil areas within 200 feet of the water's edge, and draining to the water, within 24 hours during the restriction period.
E. The wetted perimeter of the last 200 linear feet of ditches must be stabilized within 24 hours of connecting to a surface water or property line.
F. Temporary or permanent ditches or swales that are being used as a sediment containment system during construction must be stabilized within 24 hours after no longer being used as a sediment containment system.
G. Pipe outlets must have energy dissipation within 24 hours of connecting to a surface water or permanent stormwater treatment system.
H. Mulch, hydro mulch, tackifier, polyacrylamide, or similar erosion prevention practices cannot be used within the normal wetted perimeter of drainage ditches or swale sections with a continuous slope greater than 2%.
I. Must not disturb more land than what can be effectively inspected and maintained.
J. Sediment control practices must be established on downgradient perimeters and upgradient of any buffer zones.
K. If downgradient sediment controls are overloaded, based on frequent failure or excessive maintenance requirements, install additional upgradient sediment control practices or redundant BMPs to eliminate the overloading.
L. Sediment control practices must be established at the base of stockpiles on the downgradient perimeter.
M. Stockpiles must be located outside of natural buffers or surface waters, including stormwater conveyances (e.g., curb and gutter systems) unless there is a bypass.
N. Permittees must install temporary sediment basins as required in Section 14 of the NPDES Permit.
O. Inlet protection BMPs shall be placed at all storm sewer system inlets prior to any work in those areas.
P. Inlet protection may be removed for a particular inlet if a safety concern is identified, and it must be documented in this SWPPP.
Q. Vehicle tracking BMPs must be established where vehicles are exiting the site to minimize street tracking. Sediment tracked onto a public street must be removed within 24 hours.
R. Must re-install all sediment control practices adjusted or removed to accommodate short-term activities immediately after the short-term activity is completed or before the next precipitation event even if the short-term activity is not complete.
S. Street sweeping must be used in addition to vehicle tracking BMPs if the vehicle tracking BMPs alone are not adequate to prevent sediment tracking.
T. Topsoil must be preserved unless infeasible.
U. Soil compaction must be minimized.
V. Discharges from BMPs must be directed to vegetated areas, unless infeasible.
W. 50-foot natural buffers must be preserved or (if maintaining buffer is infeasible) redundant sediment controls must be provided when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.

PRELIMINARY

moore engineering, inc.

CIVIL
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SWPPP NOTES

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-002

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_Cover.dwg

Dewatering:
Dewatering related to the construction activity must comply with MNR100001 Permit 2018 reference 10 of the NPDES Permit. Turbid or sediment-laden waters must be discharged to a temporary or permanent sedimentation basin unless infeasible. If infeasible, the water must be treated by an appropriate BMP before discharge into a surface water. Discharge from dewatering must be protected from erosion and scouring by an acceptable energy dissipation method, such as rock riprap, or sandbags. If using filters with backwash water, backwash water must be hauled away for disposal, returned to the beginning of the treatment process, or incorporated into the site in a manner that does not erode into runoff. Temporary dewatering activities may be required. Therefore, it is possible that a permit for the temporary appropriation of waters of the state, non-irrigation from MNDNR will be required for this project. The contractor is responsible for obtaining this permit prior to commencing dewatering activities.

Site Inspection and Maintenance:
Inspections must comply with MNR100001 Permit 2018 reference 11 of the NPDES Permit. A trained person (as identified in item 21.2.b. of the NPDES Permit) must inspect the entire construction site a minimum of once every seven days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. Inspect and maintain all temporary and permanent stormwater treatment BMPs, and erosion prevention and sediment control BMPS until the site has undergone final stabilization and the NOT has been submitted. Inspect surface water including drainage ditches and conveyance systems for evidence of erosion and sediment deposition. Inspect construction site vehicle exit locations, streets, and curb and gutter systems within and adjacent to the project for evidence of sedimentation from erosion or tracked sediment from vehicles. Inspect infiltration areas for signs of sediment deposition and compaction.

Record all inspections and maintenance activities in writing within 24 hours of above stated rainfall. Submit inspection reports in a format that is acceptable to the project engineer. Include the following in the records of each inspection:

A. Date and time of inspection.
B. Name of person(s) conducting inspection.
C. Accurate findings of inspections, including the specific location where corrective actions are needed.
D. Corrective actions taken (including dates, times, and party completing maintenance activities).
E. Date and amount of all rainfall events greater than 0.5 inch in 24 hours. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
F. If any discharge is observed during the inspection, it must be recorded. Discharge should also be photographed and described.
G. Any amendments to the SWPPP proposed as a result of the inspection must be documented as required in Section 6 within seven (7) calendar days.
H. All photographs of dewatering activities and documentation of nuisance conditions as a result of dewatering

Maintenance requirements are as listed below:

A. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.
B. All deltas and sediment deposits must be removed from surface waters (including drainage ways, catch basins, and other drainage systems). Removal and stabilization must be completed within seven days of discovery. Contact all appropriate authorities prior to working in surface waters.
C. Sediment on paved surfaces must be removed within one calendar day of discovery, or within a shorter time to avoid a safety hazard.
D. Perimeter control devices must be repaired, replaced, or supplemented when nonfunctional or sediment reaches one-half the height of the device. Complete repairs by the end of the next business day following discovery.
E. Temporary and permanent sediment basins must be drained, and sediment removed when the depth of sediment collected reaches one-half storage volume.
F. Dewatering operations must be inspected and photographed at the beginning and at least once every 24 hours during operation.
G. Repair or replace inlet protection devices within 24 hours of discovery when they become nonfunctional, or sediment reaches 1/2 the height and/or depth of the device.

Methods to minimize soil compaction and preserve topsoil:
The contractor is responsible for marking areas that are not to be disturbed on the site. These areas must be marked prior to any construction occurring with stakes, flags, signs, or other appropriate methods. The contractor is responsible for not allowing construction equipment and vehicles to enter these areas in order to minimize soil compaction. Whenever feasible, the contractor must preserve topsoil from the construction site.

Pollution Prevention Measures:

A. Store all building products that have potential to leach pollutants, landscape materials, pesticides, fertilizers, and treatment chemicals under cover (e.g., plastic sheeting or temporary roofs) to minimize contact with stormwater.
B. Store, collect and dispose solid waste in compliance with Minn. R. Ch. 7035.
C. Limit vehicle and equipment washing to a defined area of the site. Contain runoff from the washing area to a temporary sediment basin or other effective control. Properly dispose of all waste generated by vehicles and equipment washing. Engine degreasing is not allowed on the site.
D. Provide effective containment for all liquid and solid wastes generated by washout of concrete, stucco, paint, form release oils, curing compounds and other construction materials. Liquid and solid washout wastes must not contact the ground. The liquid and solid waste that is produced must be disposed of in compliance with the MPCA rules. A sign must be installed indicating the location of the washout facility.
E. Portable toilets must be positioned so that they are secure and sanitary waste will be properly disposed of.
F. Fuel and maintain vehicles in a designated contained area whenever feasible. Use drip pans or absorbents to prevent the discharge of spills or leaked chemicals. Provide a spill kit at each location that vehicles and equipment are fueled or maintained at. Spills must be reported and cleaned up immediately as required by Minn. Stat. 115.061.
G. Store all hazardous materials and toxic waste (including but not limited to oil, diesel fuel, gasoline, hydraulic fluids, paint, petroleum-based products, wood preservatives, additives, curing compounds, and acids) in sealed containers with secondary containment. Storage and disposal of hazardous waste materials must be in compliance with Minn. R. ch. 7045

Permit Termination Conditions:
A Notice of Termination (NOT) can be submitted to the MPCA once the following guidelines are met:

A. Permanent uniform perennial vegetative cover must be established at minimum 70% density of its expected final growth.
B. The permanent stormwater treatment system is constructed, meets all requirements, and is operating as designed.
C. All temporary synthetic erosion prevention and sediment control BMPs must be removed, and the surrounding area must be restored to as designed.
D. Clean out sediment from conveyance systems and permanent stormwater treatment systems (return to design capacity).
E. For residential sites, install temporary erosion protection and downgradient perimeter control and distribute the MPCA's Homeowner Fact Sheet.
F. For construction on agricultural lands, the disturbed land must be returned to its preconstruction agricultural use.
G. When submitting the NOT ground or aerial photographs must be included to show the requirements of Section 13.2 of the NPDES Permit have been met.

Stabilization Time Frames:

A. Initiate stabilization immediately when construction has temporarily or permanently ceased on any portion of the site. Complete stabilization within the time frame listed. In many instances this will require stabilization to occur more than once during the course of the project.
B. Stabilize wetted perimeter of ditch (i.e. where the ditch gets wet).
C. Application of mulch, hydromulch, tackifier and polyarylamide are not acceptable stabilization methods in these areas.
D. Stabilize all areas of the site prior to the onset of winter. Any work still being performed will be snow mulched, seeded, and blanketed within the time frames in the NPDES permit.
E. Topsoil berms must be stabilized in order to be considered perimeter control BMPS. Use rapid stabilization method 2, 3, or 4 as directed by the engineer. The seed mix used in the rapid stabilization may be substituted as follows:
    a. Single year construction between May 1- August 1, seed with seed mixture 21-111
    b. Single year construction between August 1and October 31, seed with seed mixture 21-112
    c. Multi-year construction 22-111
F. Keep ditches and exposed soils in an even rough graded condition in order to be able to apply erosion control mulches, hydromulches and blankets.
G.

Area	Time Frame
Last 200 lineal feet of drainage ditch or swale	Within 24 hours of connection to surface water or property edge
Remaining portions of drainage ditch or swale	14 days
Pipe and culvert outlets	24 hours
Exposed soils and stockpiles	14 days
Within 200 feet of a public water	24 hours

Temporary Sediment Basins:
No temporary sediment basins are required, is needed the contractor must construct the temporary sedimentation basins to be compliant with MNR100001 Permit 2018 reference 14 of the NPDES Permit. Temporary sediment basins must be located outside of surface waters and any buffer zone and constructed prior to disturbing 10 or more acres of soil draining to a common location.

Permanent Stormwater Treatment Systems:
There are no permanent stormwater treatment systems needed for the proposed project. If there is a permanent stormwater treatment system needed later in the project the contractor must design and implement the permanent stormwater treatment systems to be compliant with MNR100001 Permit 2023 reference 15 of the NPDES Permit.

Infeasibility Documentation:
No infeasible documentation requirements are anticipated for the project.

Record Retention:
The SWPPP must be kept at the site during construction by the permittee who has operational control of that portion of the site. The SWPPP and associated records must be stored and maintained by an employee or representative of the Owner for 3 years after the submission of the NOT. Responsibility for overseeing the records will be transferred to another employee or representative should the current personnel become uninvolved with the project or Owner. These records must include the following:

1. The final SWPPP
2. Any other stormwater related permits required for the project
3. Records of all inspection and maintenance conducted during construction
4. All permanent operation and maintenance agreements that have been implemented, including all right-of-way, contracts, covenants and other binding requirements regarding perpetual maintenance
5. All required calculations for design of the temporary and permanent Stormwater Management Systems.

Permanent Cover:
Permanent cover is achieved when vegetative cover is established at minimum 70% density of its expected final growth. This can be done by using permanent seeding with mulch, erosion control blankets, riprap, gravel, concrete, bituminous, etc. The specific permanent cover types can be found in the plan sheets.

Construction Phasing:
Construction phasing will be implemented throughout the entire project. BMP's will be installed prior to construction activity and will be maintained throughout construction.

Chemical Treatment Systems:
Must use polymers, flocculants, or other sedimentation treatment chemicals in accordance with accepted engineering practices. Must be in compliance with MNR100001 Permit 2018 reference 9.18 of the NPDES Permit and Minn. R. 7090.

PRELIMINARY

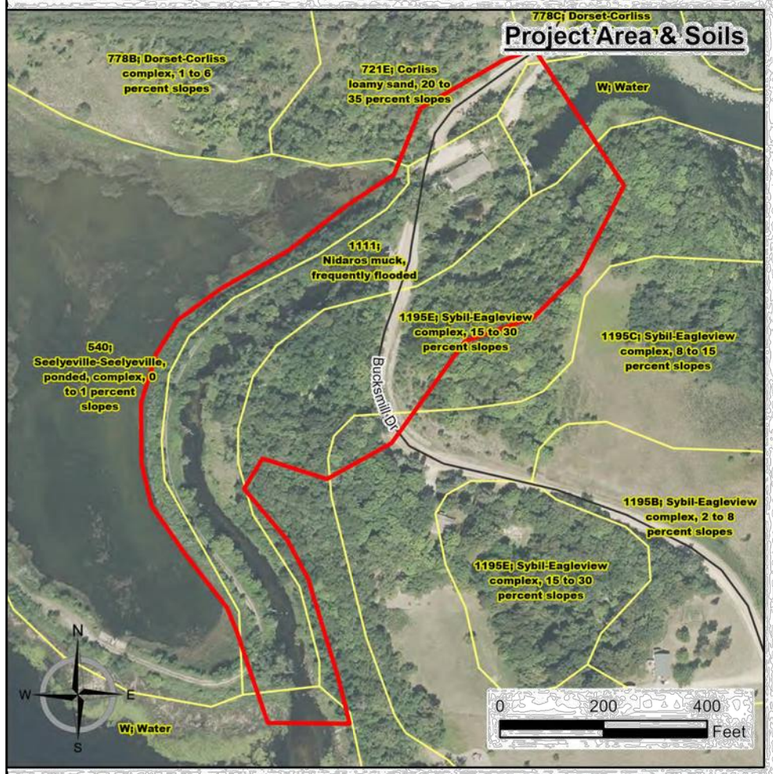
moore engineering, inc.

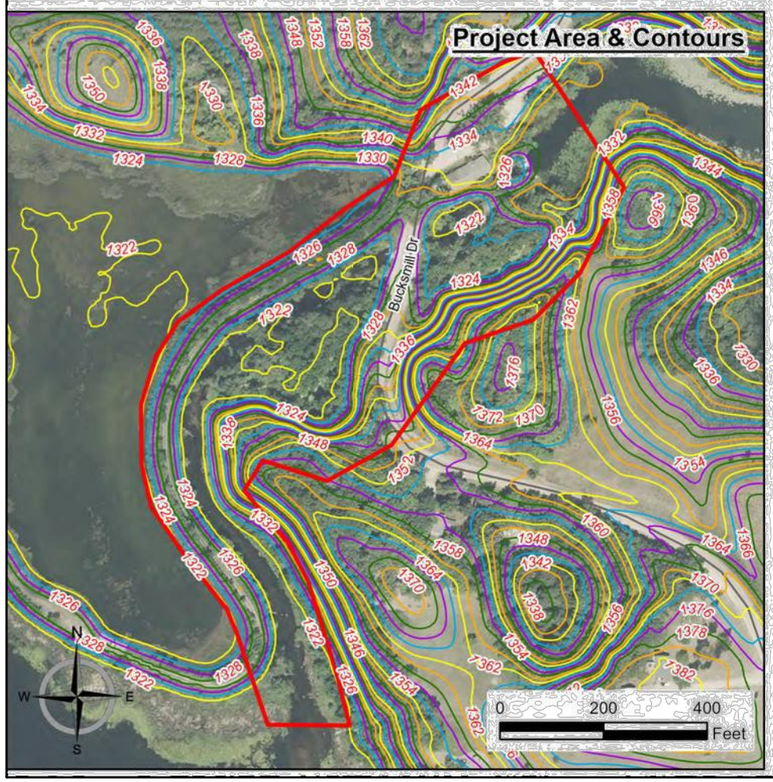
CIVIL
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SWPPP NOTES

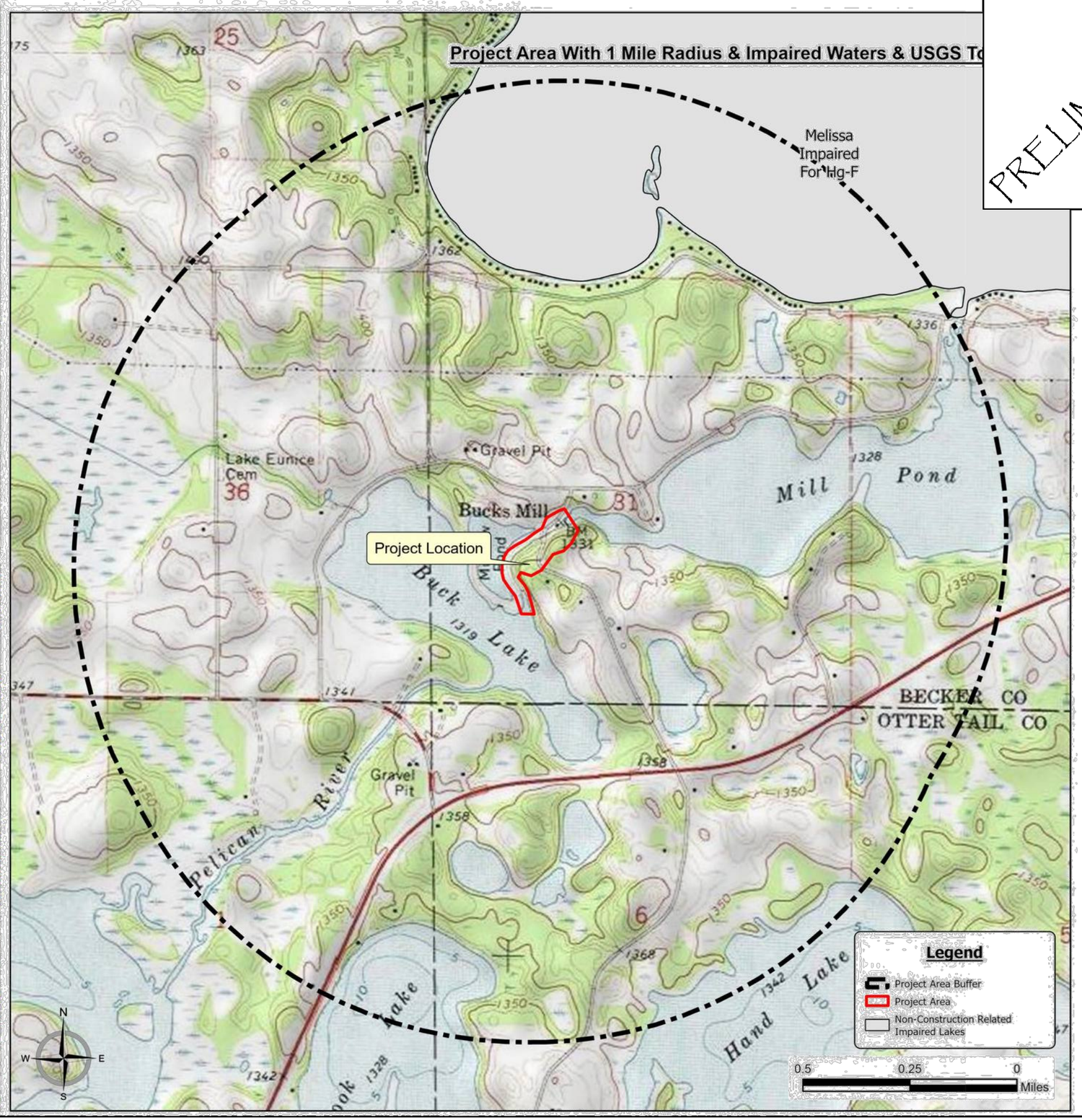
DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-003

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_Cover.dwg







PRELIMINARY

moore
engineering, inc.

CIVIL
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SWPPP MAPS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-004

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PRELIMINARY

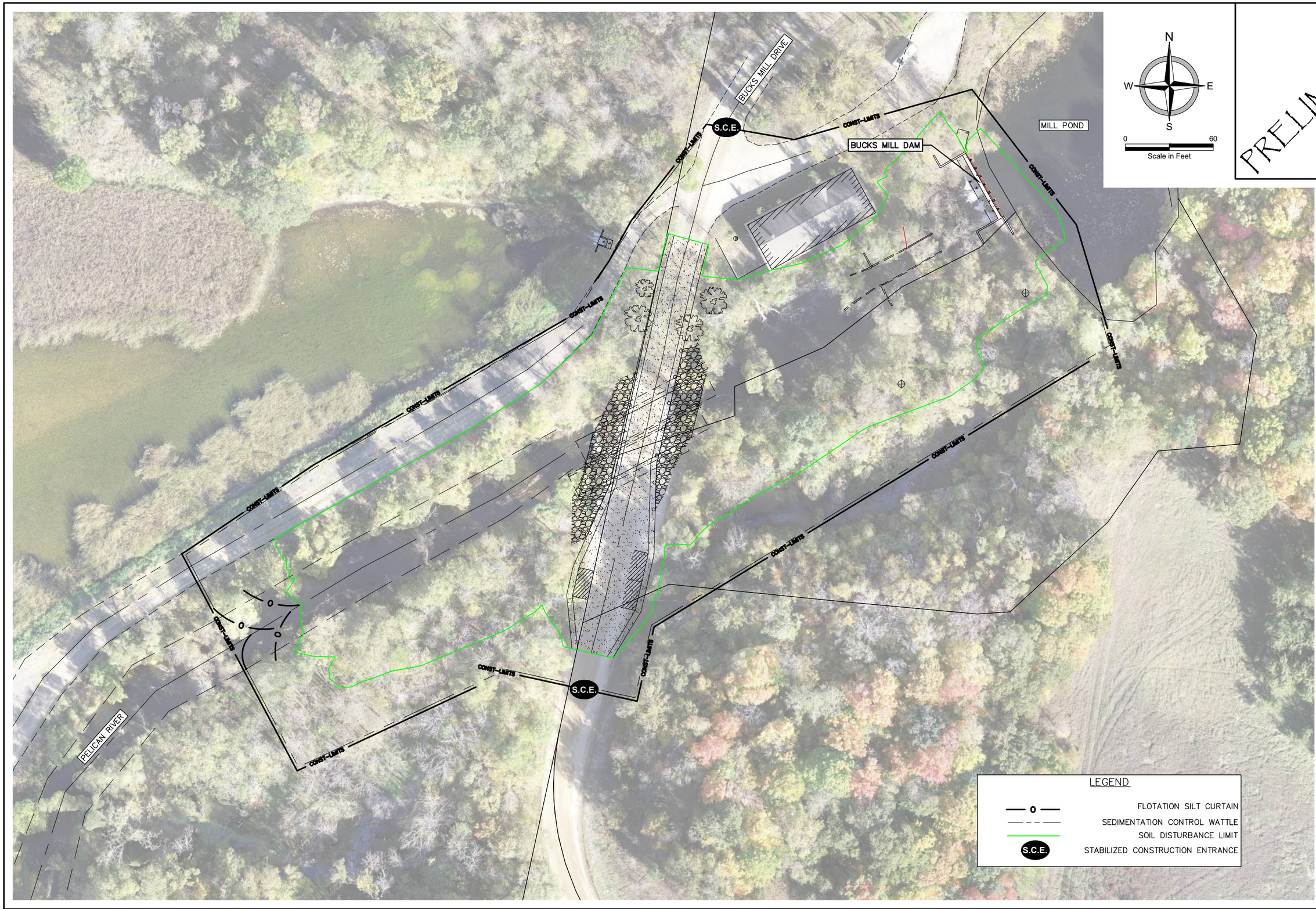
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engineering, inc.

PROJECT LAYOUTS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SITE ACCESS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-101

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PRELIMINARY

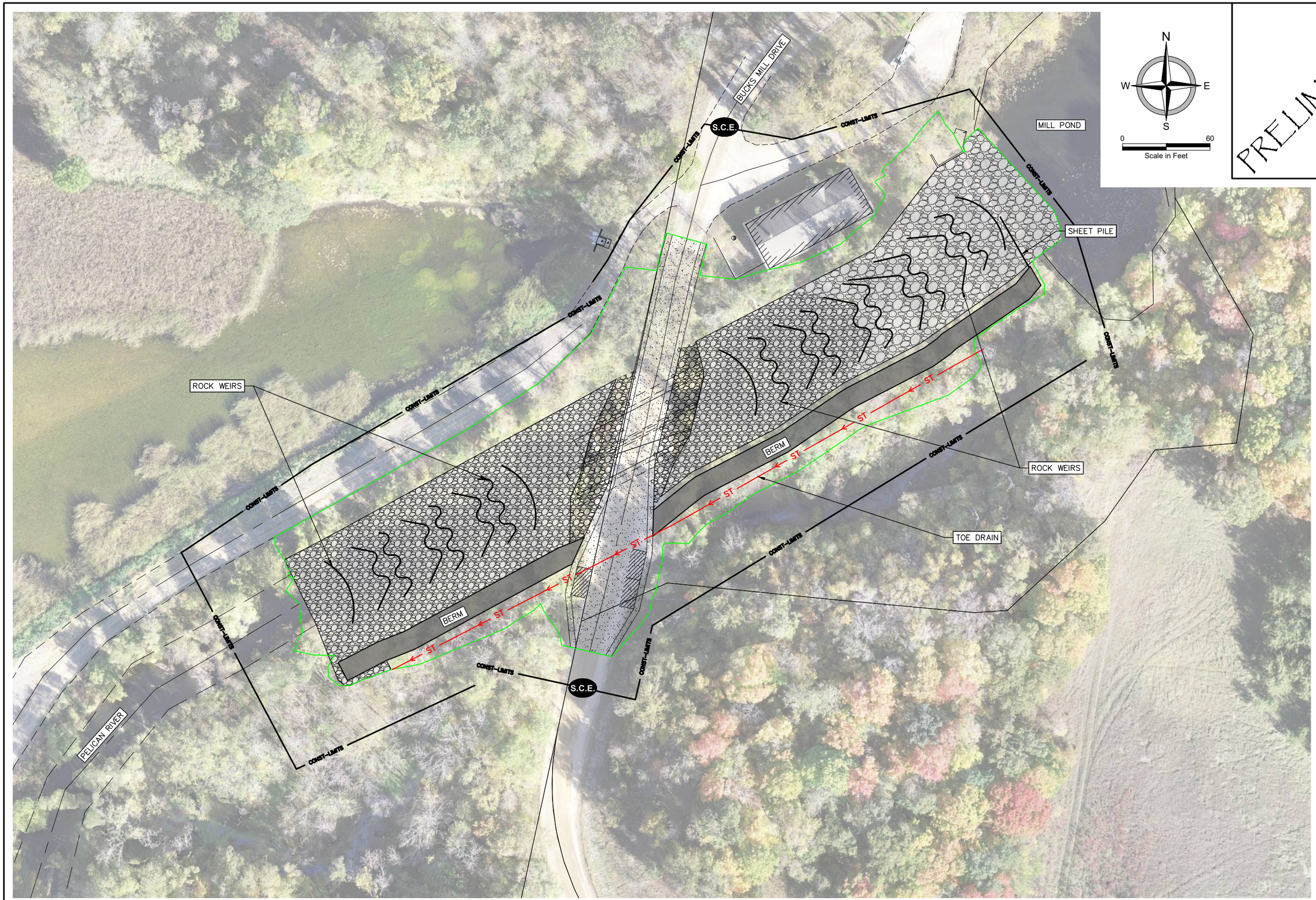
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PROJECT LAYOUTS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TEMPORARY EROSION & SEDIMENT CONTROL

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-102

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PRELIMINARY

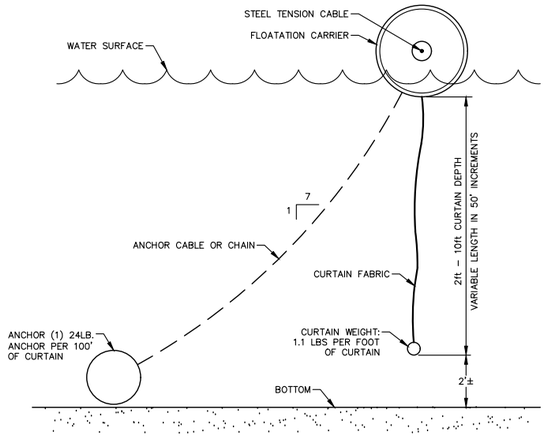
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PROJECT LAYOUTS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED CONDITIONS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-103

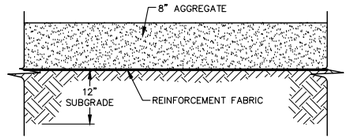
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NOTES:
1. DOUBLE SILT CURTAINS SHOULD BE SPACED 10' APART
2. CONSTRUCT IN ACCORDANCE WITH (NDDOT SECTION 262) (MnDOT SECTION 2573 AND 3887.)

FLOATING SILT CURTAIN DETAIL

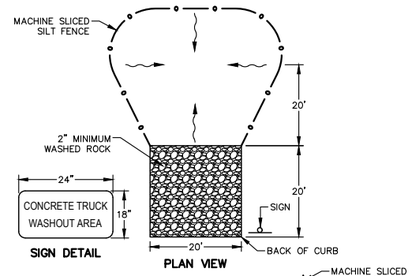
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NOTE:
1. SUBGRADE TO BE SCARIFIED TO DEPTH SHOWN AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

AGGREGATE SURFACED SECTION - REGULAR

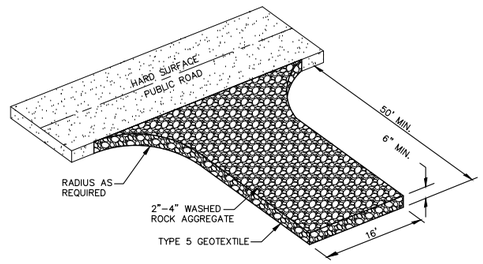
NO SCALE *SITE-VA-41.1 10.20.20*



NOTES:
1. ALL WASHING OF CONCRETE TRUCKS WILL BE CONDUCTED AT THIS SITE.
2. ALL DIMENSIONS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON SITE CONSTRAINTS.
3. WHEN WASHOUT PIT IS NO LONGER NEEDED, SOLIDIFIED CONCRETE AND THE ROCK PAD SHALL BE DISPOSED OF OFF–SITE AND THE AREA SHALL BE LEVELED OUT TO MATCH THE SURROUNDING GRADE AND SEEDED.

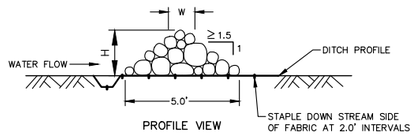
CONCRETE WASHOUT AREA

NO SCALE *MUNI-312500-3 06.21.18*



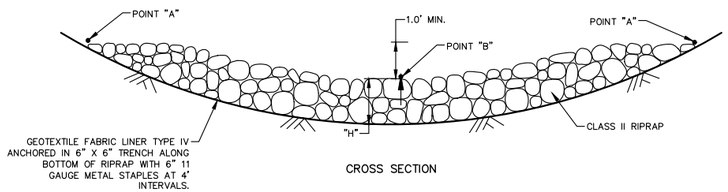
TEMPORARY ROCK - SITE ENTRANCE

NO SCALE *WRG-312500-04 02.15.17*



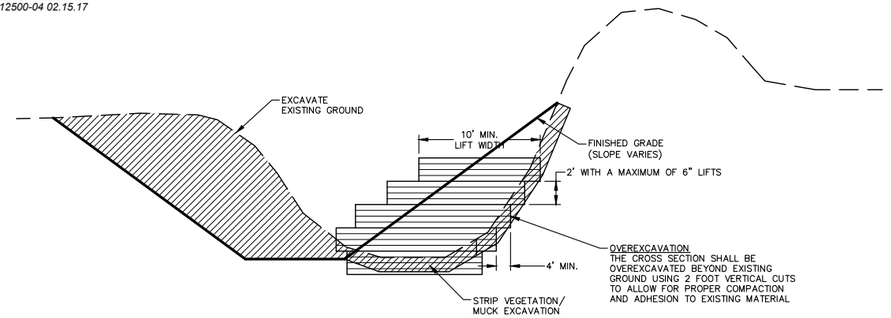
NOTES:
1. ROCK DITCH CHEK SHALL BE REMOVED FROM CLEAR ZONE AFTER SEEDING OR TURF IS ESTABLISHED AND PRIOR TO FINAL ACCEPTANCE.
2. POINT "A" MUST BE 1'–0" MIN. HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE CHECK AND NOT AROUND THE ENDS.

HEIGHT OF CHECK (H)	CLASS RIPRAP	TOP WIDTH (W)
2'–0"	II	12"–18"



TEMPORARY ROCK CHECK DETAIL

NO SCALE *WRG-312500-05 02.15.17*



EMBANKMENT NOTES:
1. THE CROSS–SECTION SHALL BE OVEREXCAVATED BEYOND EXISTING GROUND USING 2 FOOT VERTICAL CUTS TO ALLOW FOR PROPER COMPACTION AND ADHESION TO EXISTING MATERIAL.
2. THE EMBANKMENT MATERIAL SHALL BE OBTAINED BY AN APPROVED BORROW PIT.
3. SEE THE SPECS FOR MATERIAL DETAILS.
4. OVEREXCAVATION/OVERBUILD NEEDED TO FILL THE CHANNEL SLOPE, AS PER THE DETAIL SHOWN, IS INCIDENTAL TO THE BASE IMPORT BID ITEM.

TYPICAL SECTION - CHANNEL EXCAVATION & FILL

NO SCALE

PRELIMINARY

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DETAILS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TYPICAL DETAILS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-201

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_Details.dwg

PRELIMINARY

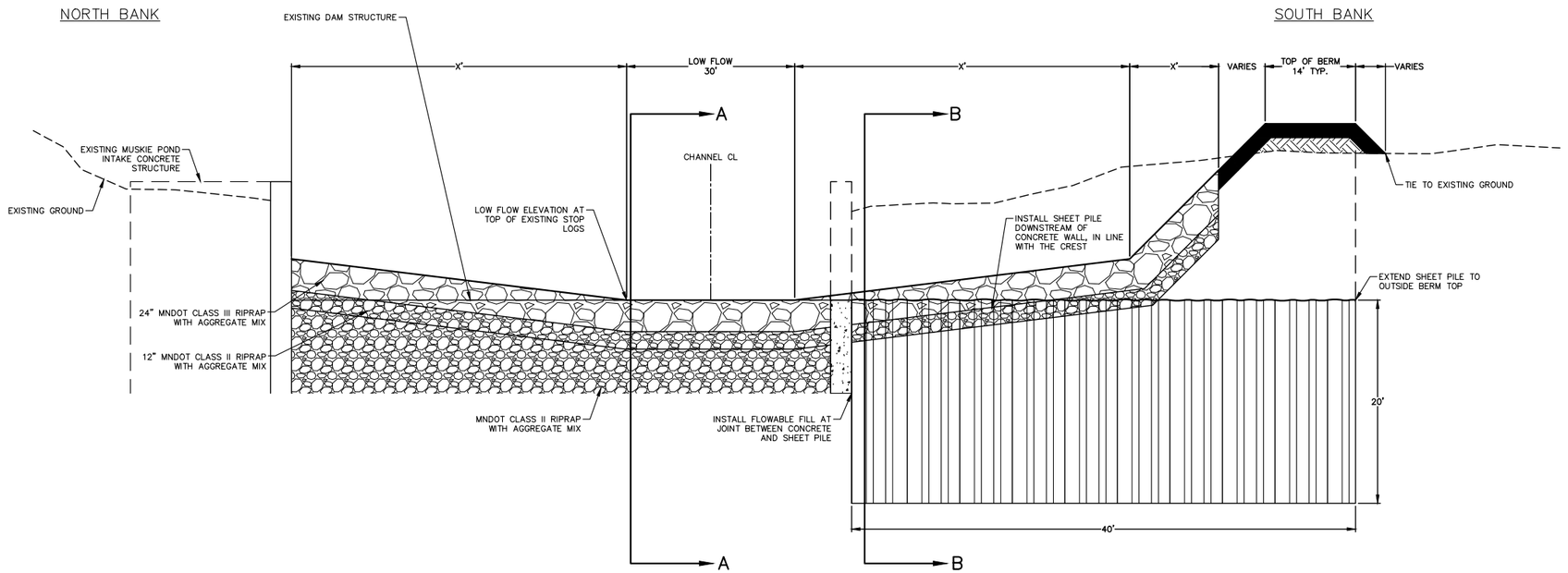
SHEETPILE STRUCTURE PAY LIMITS

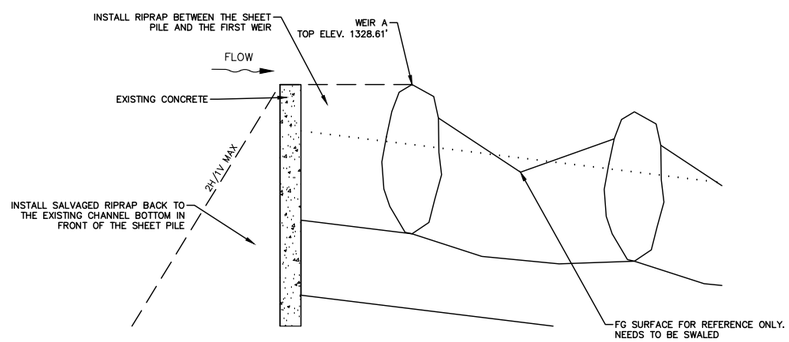
HEIGHT	LENGTH	AREA
20'	40'	800 S.F.

NOTES:
1. SHEETPILE STRUCTURE SHALL BE XXXX-XX. USE OF OTHER SHEETPILE SECTIONS MUST BE APPROVED BY THE ENGINEER.
2. THE SHEET PILE SHALL HINGE TO MATCH THE PLAN VIEW ALIGNMENT.

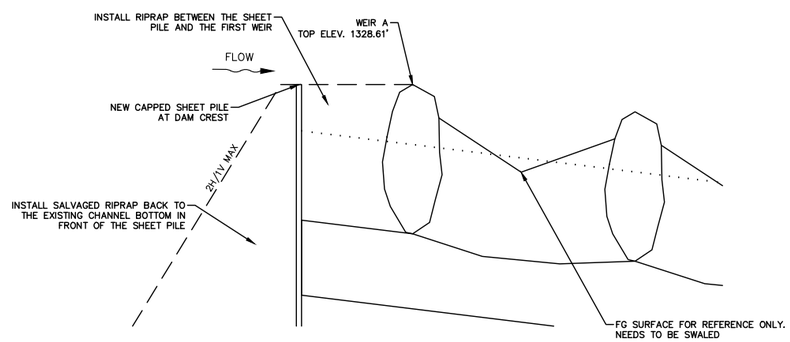
DAM CREST CROSS SECTION - LOOKING UPSTREAM

NO SCALE





TYP. SECTION A-A (CREST AT EXISTING WEIR)
NO SCALE



TYP. SECTION B-B (CREST AT NEW SHEET PILE WEIR)
NO SCALE

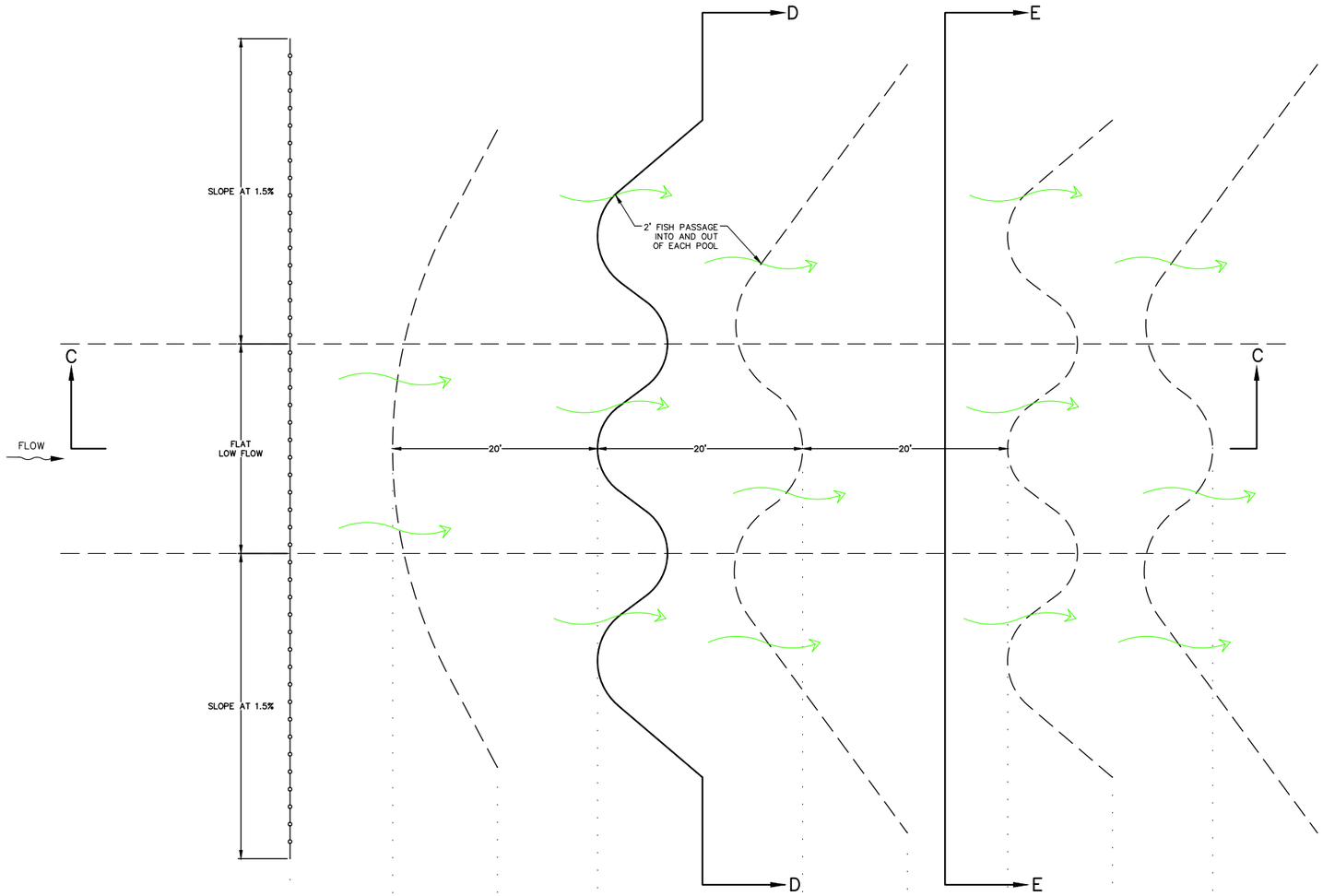
moore engineering, inc.

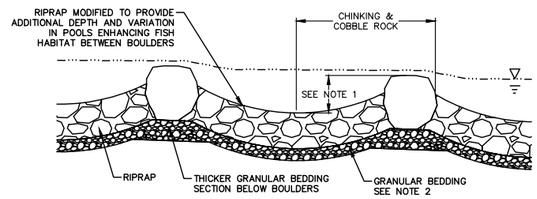
DETAILS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TYPICAL DETAILS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-202

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_Details.dwg

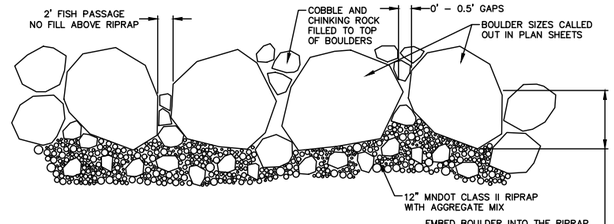




DETAIL: FISH RESTING POOL

NO SCALE

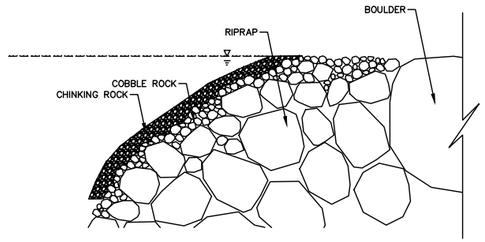
NOTES:
1. 3.5' DEPTH OF RESTING POOL IS AT THE CENTERLINE OF THE CHANNEL. THE DEPTH TAPERS TO 0' AT THE TOE OF THE RIVER BANK SLOPE.
2. ADD A SWALE TO THE GRANULAR BEDDING TO HELP SHAPE THE RIPRAP. THIS SWALE IS NOT SHOWN ON THE SURFACE SO WILL BE FIELD FIT.



DETAIL: BOULDERS

NO SCALE

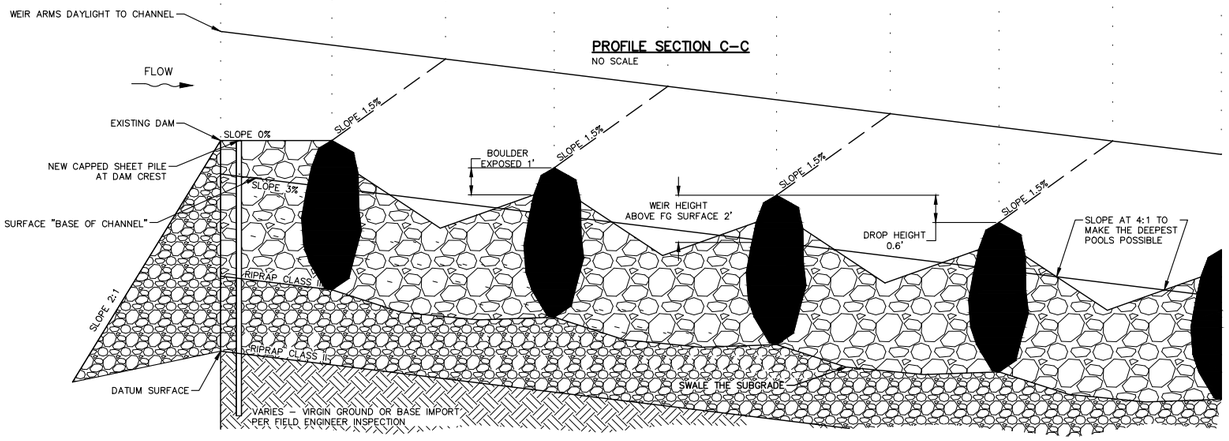
NOTES:
1. BOULDER GAPS WILL BE ADJUSTED UNDER FLOW CONDITIONS AFTER ORIGINAL PLACEMENT UNDER THE DIRECTION OF THE ENGINEER.
2. EACH BOULDER WILL BE STACKED TO SUPPORT THE ONE UPSTREAM WITH 0' – .5' GAPS.
3. ONE 2' FISH PASSAGE GAP WILL OSCILLATE ON EITHER SIDE OF THE FRONT BOULDER FROM WEIR TO WEIR.



DETAIL: UPSTREAM CHINKING

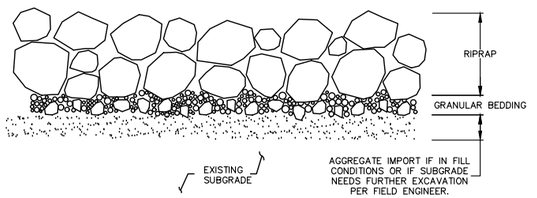
NO SCALE

NOTES:
1. FILL THE UPSTREAM SIDE OF EACH WEIR WITH RIPRAP, COBBLE, AND CHINKING ROCK. THE GOAL IS TO FILL ALL THE GAPS EXCEPT THE FISH PASSAGE. THIS WILL HOLD THE POOL BETWEEN EACH WEIR.



PROFILE SECTION C–C

NO SCALE



DETAIL: ROCK RAPIDS (TYP)

NO SCALE

NOTES:
1. BOULDERS ARE NOT SHOWN.
2. ENGINEER SHALL INSPECT THE SUBGRADE FOR APPROVAL BEFORE GRANULAR FILTER INSTALLATION. CONTRACTOR IS RESPONSIBLE TO ENSURE THE ENGINEER APPROVES THE SUBGRADE BEFORE PLACING FILL.

PRELIMINARY

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DETAILS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TYPICAL DETAILS

DATE:	07.15.2025
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PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

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FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_Details.dwg

PRELIMINARY

NOTES:

BOULDERS
1. THE NUMBER OF BOULDERS IN EACH ROCK WEIR WILL VARY, DEPENDING ON THE SHAPE OF THE WEIR AND SIZE OF THE BOULDERS.
 1.1. GAPS IN BOULDERS SHALL BE BETWEEN 0" AND 24".
 1.2. THERE MUST BE ONE 12" ENTRANCE AND ONE 12" EXIT TO EACH POOL.
 1.3. THERE MUST BE ONE FLOW PATH, DOWN THE LOW FLOW PORTION OF THE ENTIRE STRUCTURE, OF POOLS WITH 24" GAPS.
2. EACH WEIR SHALL HAVE BOULDERS INTEGRATED INTO THE BANKS.
3. FISHING BOULDERS SHALL BE FIELD FIT, AS DIRECTED BY THE FIELD ENGINEER.
 3.1. THESE BOULDERS SHALL HAVE A FLAT AREA THAT IS ORIENTATED FOR PEDESTRIANS TO STAND ON.
4. ADDITIONAL BOULDERS SHALL BE ADDED BETWEEN THE WEIRS, AS DIRECTED BY THE FIELD ENGINEER.

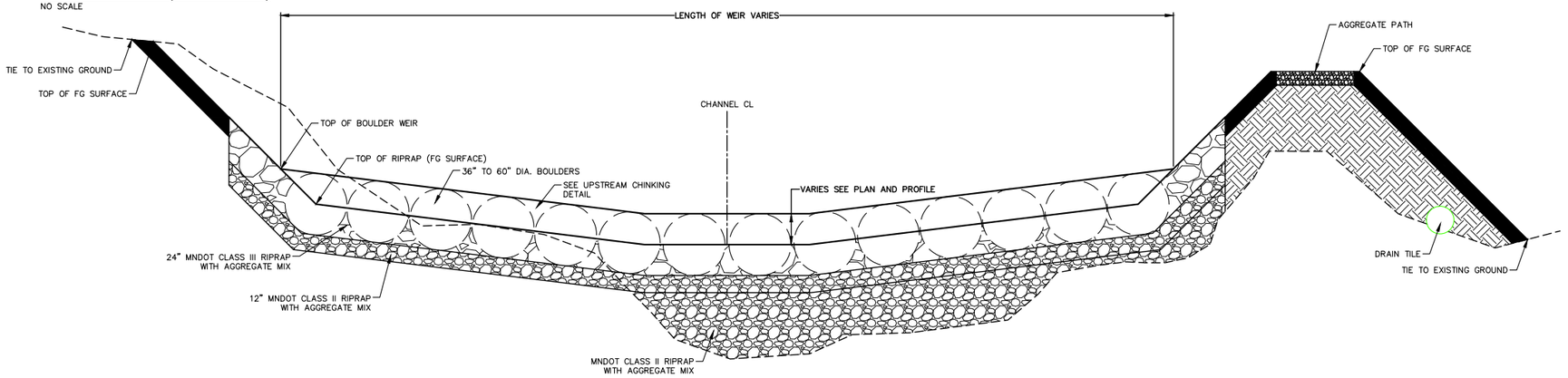
RIPRAP
5. THE INTENT OF THE DESIGN IS TO KEEP WATER POOLING AND FLOWING ON TOP OF THE STRUCTURE, NOT THROUGH IT. THEREFORE, MIX ALL RIPRAP WITH A WELL GRADED MIX OF AGGREGATE (NO. 40 SIEVE TO 3") TO CREATE A NO-VOID STRUCTURE. ENSURE THIS MIX IS GRADED AND INSTALLED TO PREVENT BEING WASHED OUT BY THE RIVER'S CURRENT.
 5.1. THE CONTRACTOR SHOULD MAKE THEIR OWN ASSUMPTIONS ON MIXING RATIO BETWEEN THE WELL GRADED AGGREGATE AND DIFFERENT TYPES OF RIPRAP BUT A RATIO OF 1 CY RIPRAP TO 1 CY AGGREGATE WAS USED FOR ASSUMPTIONS IN THIS PLAN.
 5.2. WITH ENGINEER'S APPROVAL, EXCESS CHANNEL EXCAVATION MAY BE USED FOR FILLING VOIDS.
 5.3. ENGINEER MAY REQUIRE ADDITIONAL AGGREGATE MIX TO INSTALLED.

NORTH BANK

SOUTH BANK

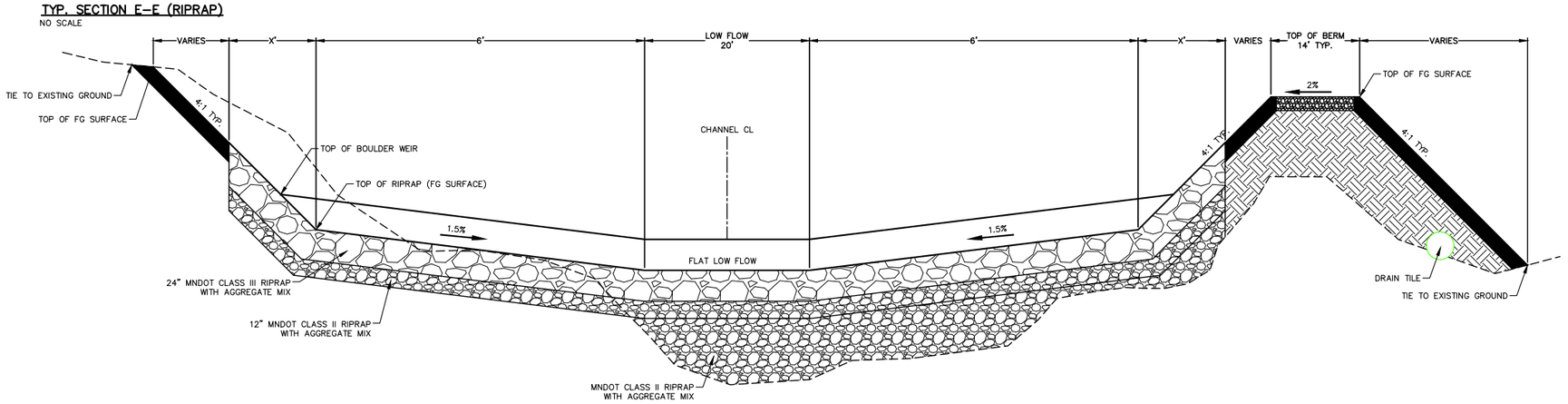
TYP. SECTION D-D (BOULDER WEIR)

NO SCALE



TYP. SECTION E-E (RIPRAP)

NO SCALE



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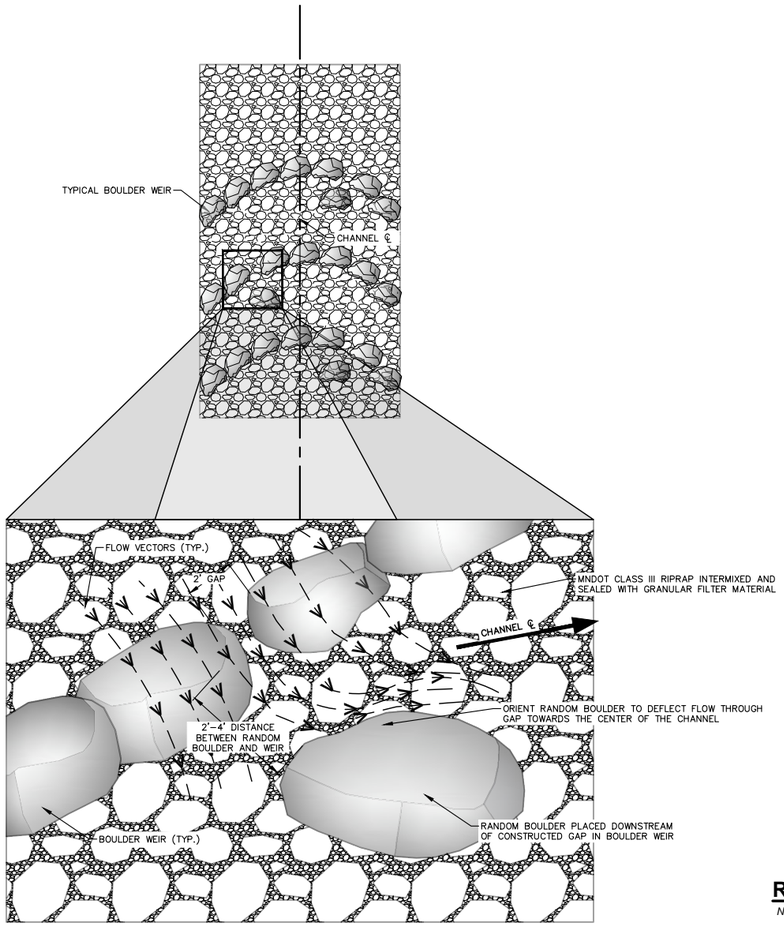
DETAILS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TYPICAL DETAILS

DATE:	07.15.2025
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RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

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FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_Details.dwg

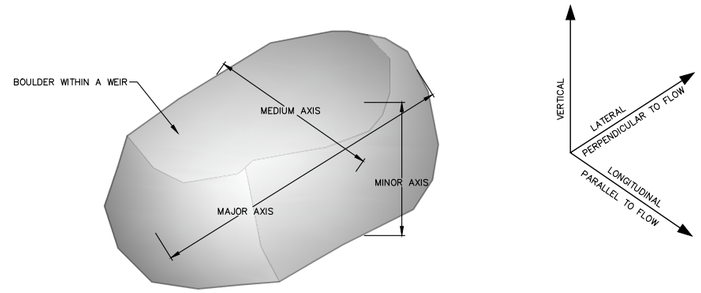
PRELIMINARY



RANDOM BOULDER PLACEMENT

NO SCALE *07.08.25*

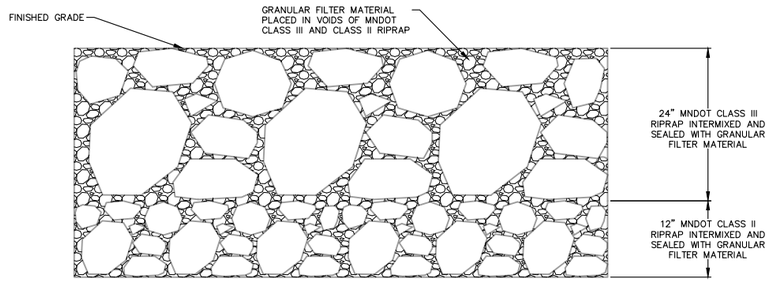
NOTES:
1. BOULDER PLACEMENT DOWNSTREAM OF CONSTRUCTED FISH GAPS SHALL BE APPROVED BY THE ENGINEER OR ENGINEER'S REPRESENTATIVE.
2. THE ENGINEER OR ENGINEER'S REPRESENTATIVE SHALL HAVE THE DISCRETION TO REQUIRE THE CONTRACTOR TO ADJUST OR MOVE BOULDERS AS NECESSARY.



ROCK WEIR BOULDER PLACEMENT RELATICE TO FLOW

NO SCALE *07.08.25*

NOTES:
1. BOULDERS SHALL BE PLACED SO THAT THE MAJOR AXIS (LONGEST BOULDER DIMENSION) IS PERPENDICULAR TO THE FLOW.
2. THE MAJOR AXIS OF THE BOULDER SHALL GENERALLY BE ALIGNED WITH THE ARCH SHAPE OF THE WEIR
3. THE TOP OF THE BOULDER WEIR SHALL BE THE SURFACE THAT CONTAINS THE FEWEST NUMBER OF SIGNIFICANT IRREGULARITIES. FRACTURED PORTIONS OF THE BOULDER SHALL BE ORIENTED DOWNWARD OR AS DIRECTED BY THE ENGINEER.
4. THE MINOR AND MEDIUM AXES OF THE BOULDER CAN BE PLACED ALONG EITHER THE LATERAL OR VERTICAL DIMENSION
5. THE ENGINEER OR ENGINEER'S REPRESENTATIVE SHALL HAVE THE DISCRETION TO REQUIRE THE CONTRACTOR TO ADJUST OR MOVE BOULDERS AS NECESSARY.



RIPRAP AND GRANULAR FILTER MIXTURE TO SEAL ROCK ARCH RAPIDS

NO SCALE *07.08.25*

NOTES:
1. BOULDERS NOT SHOWN.
2. THE ENGINEER SHALL INSPECT THE SUBGRADE TO ENSURE THAT UNSUITABLE MATERIAL IS NOT PRESENT AND SUBGRADE IS PROPERLY COMPACTED PRIOR TO PLACEMENT OF MNDOT CLASS II RIPRAP.
3. FILL MATERIAL PLACED BELOW THE CLASS II RIPRAP SHALL CONSIST OF SUITABLE CHANNEL EXCAVATION MATERIAL AS DETERMINED BY THE ENGINEER OR MNDOT CLASS II RIPRAP.
4. MNDOT CLASS III AND CLASS II RIPRAP SHALL BE INTERMIXED WITH GRANULAR FILTER MATERIAL TO THE SATISFACTION OF THE ENGINEER.

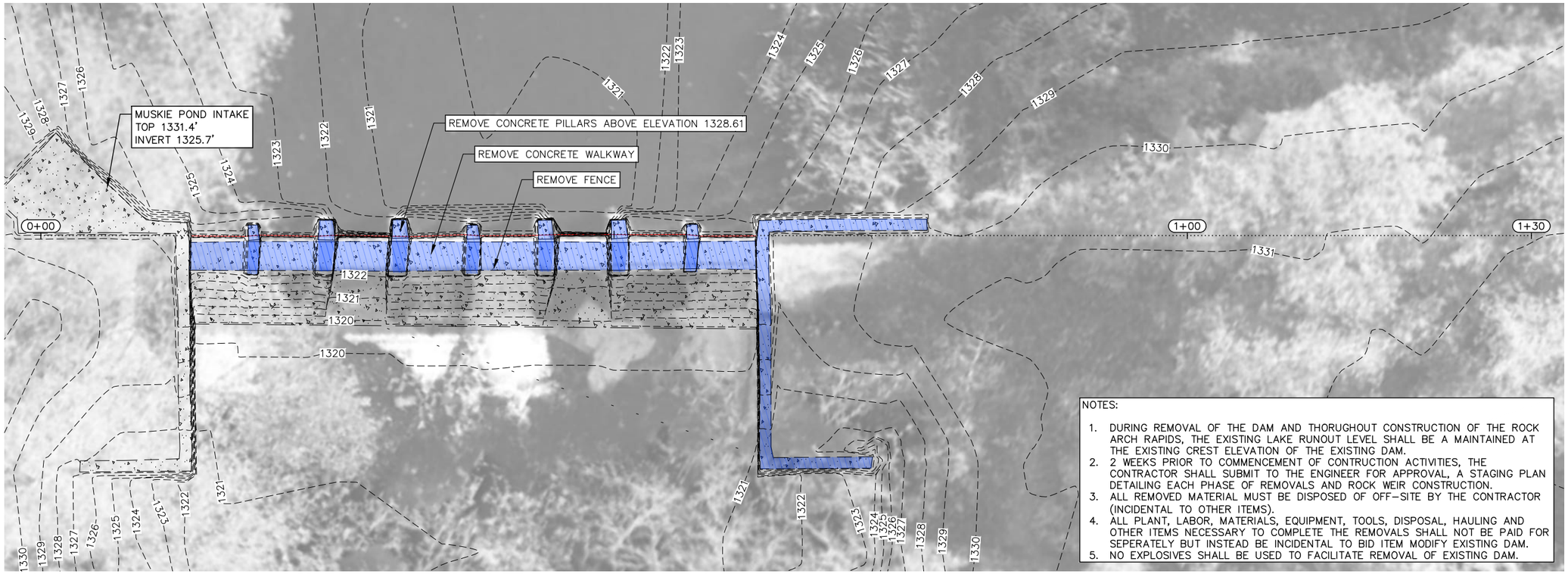
moore engineering, inc.

DETAILS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TYPICAL DETAILS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

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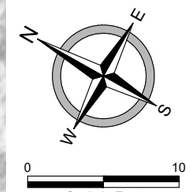
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NOTES:

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.

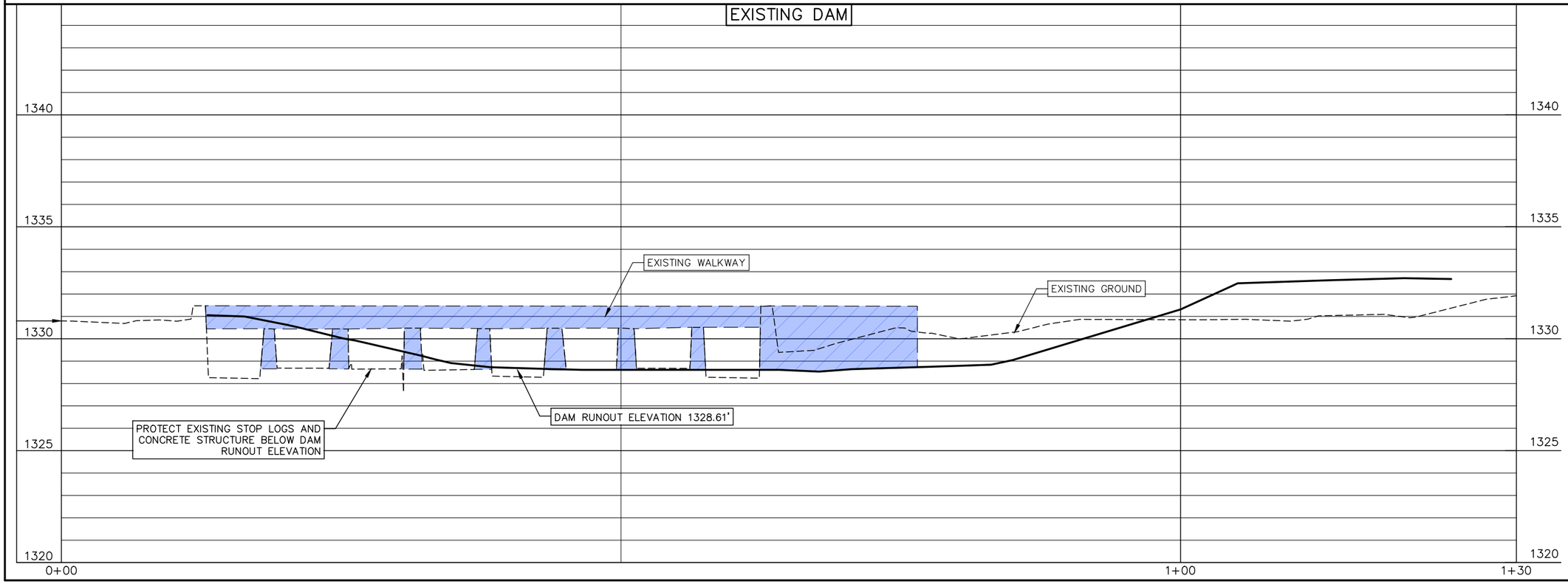
PRELIMINARY



0 10
Scale in Feet

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EXISTING DAM

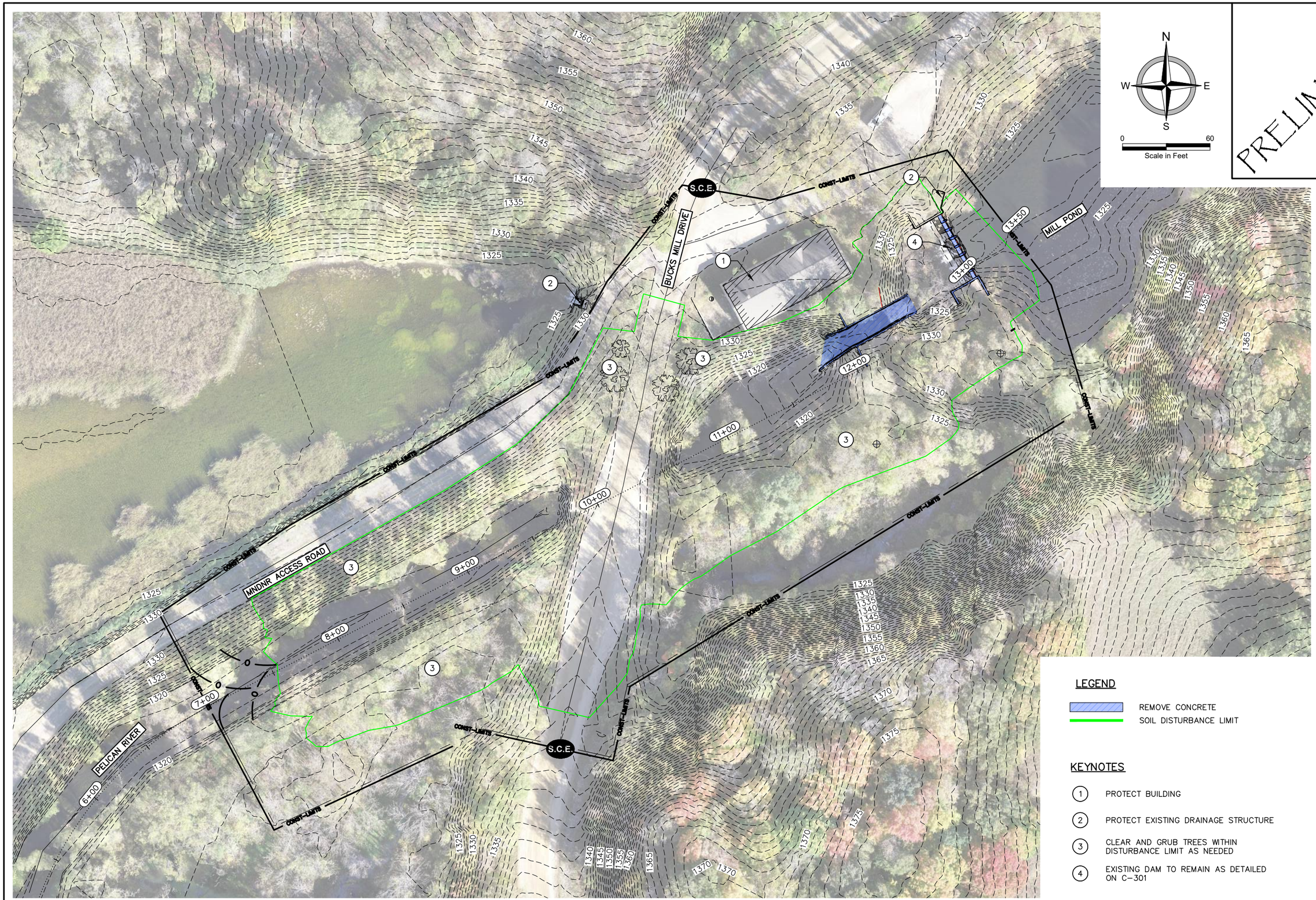


REMOVALS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
DAM REMOVAL

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-301

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_PP.dwg



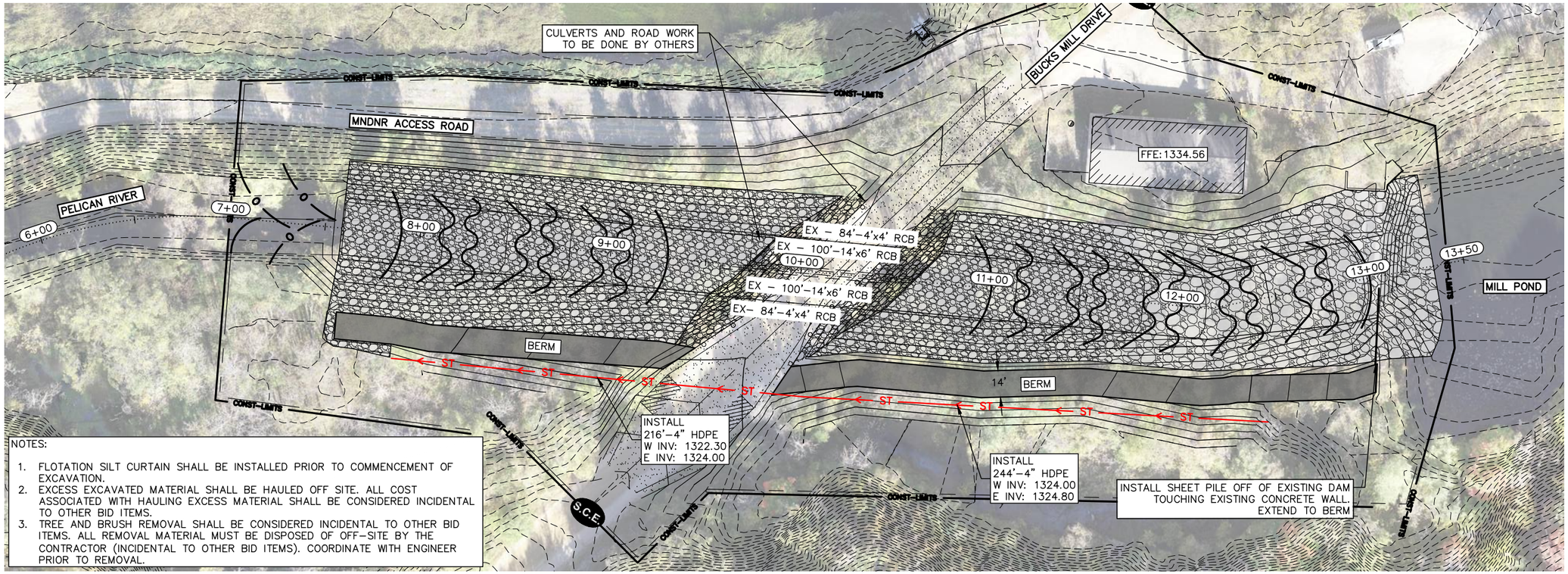
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REMOVALS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
REMOVALS

DATE:	07.15.2025
REV DATE:	---
REV NUM:	---
RECORD:	---
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-302

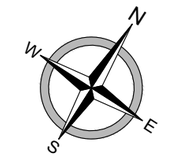
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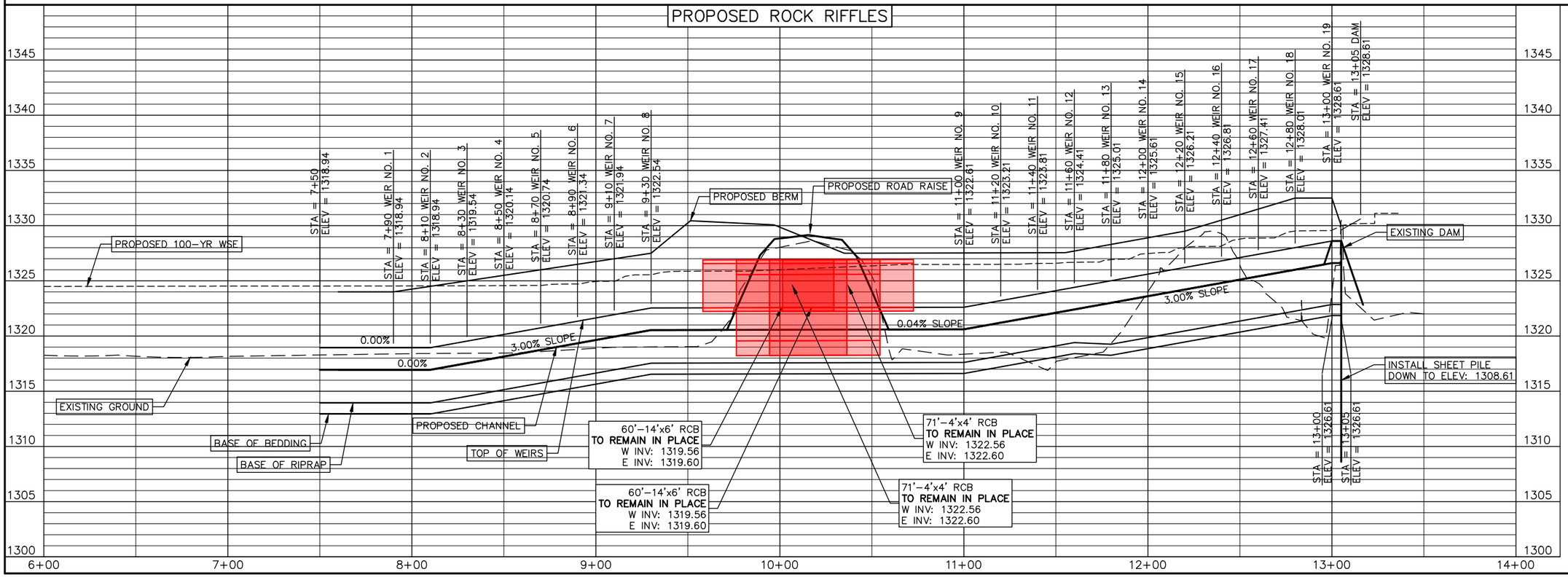
NOTES:

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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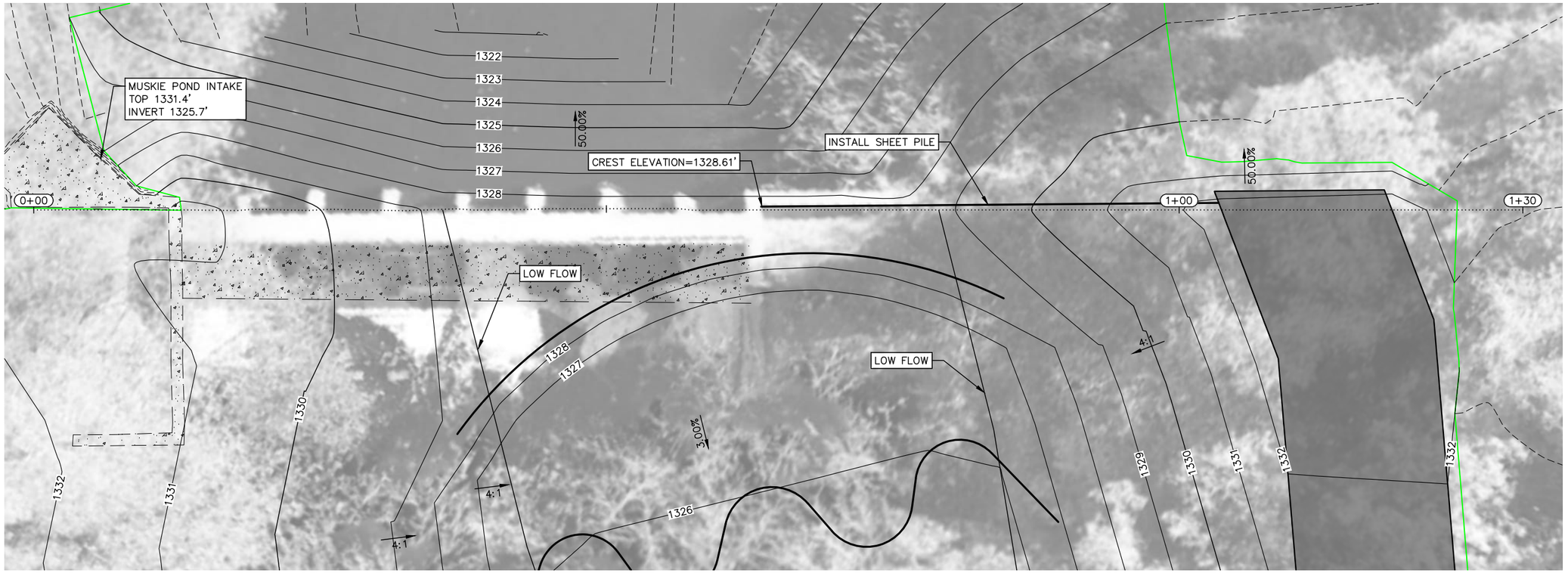


PLAN & PROFILE
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED ROCK RIFFLES

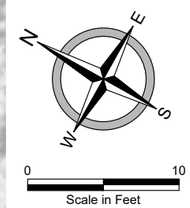
DATE:	07.15.2025
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PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-401

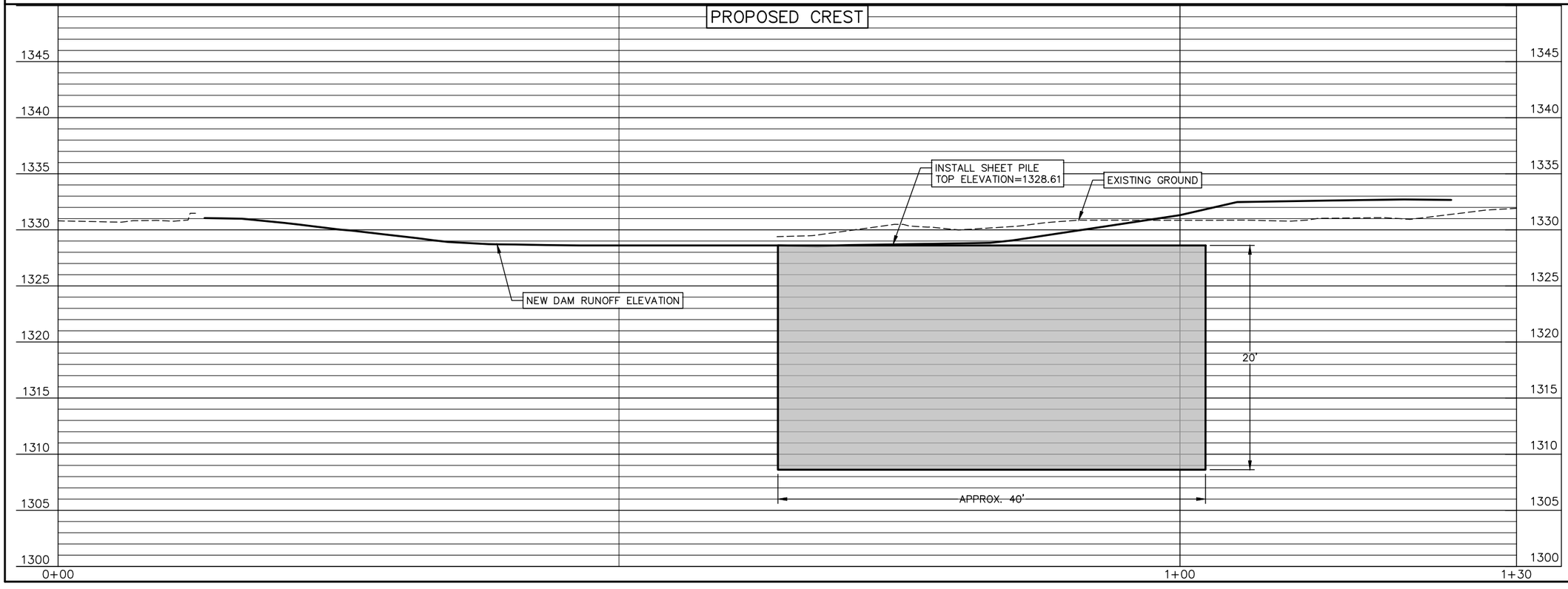
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PRELIMINARY



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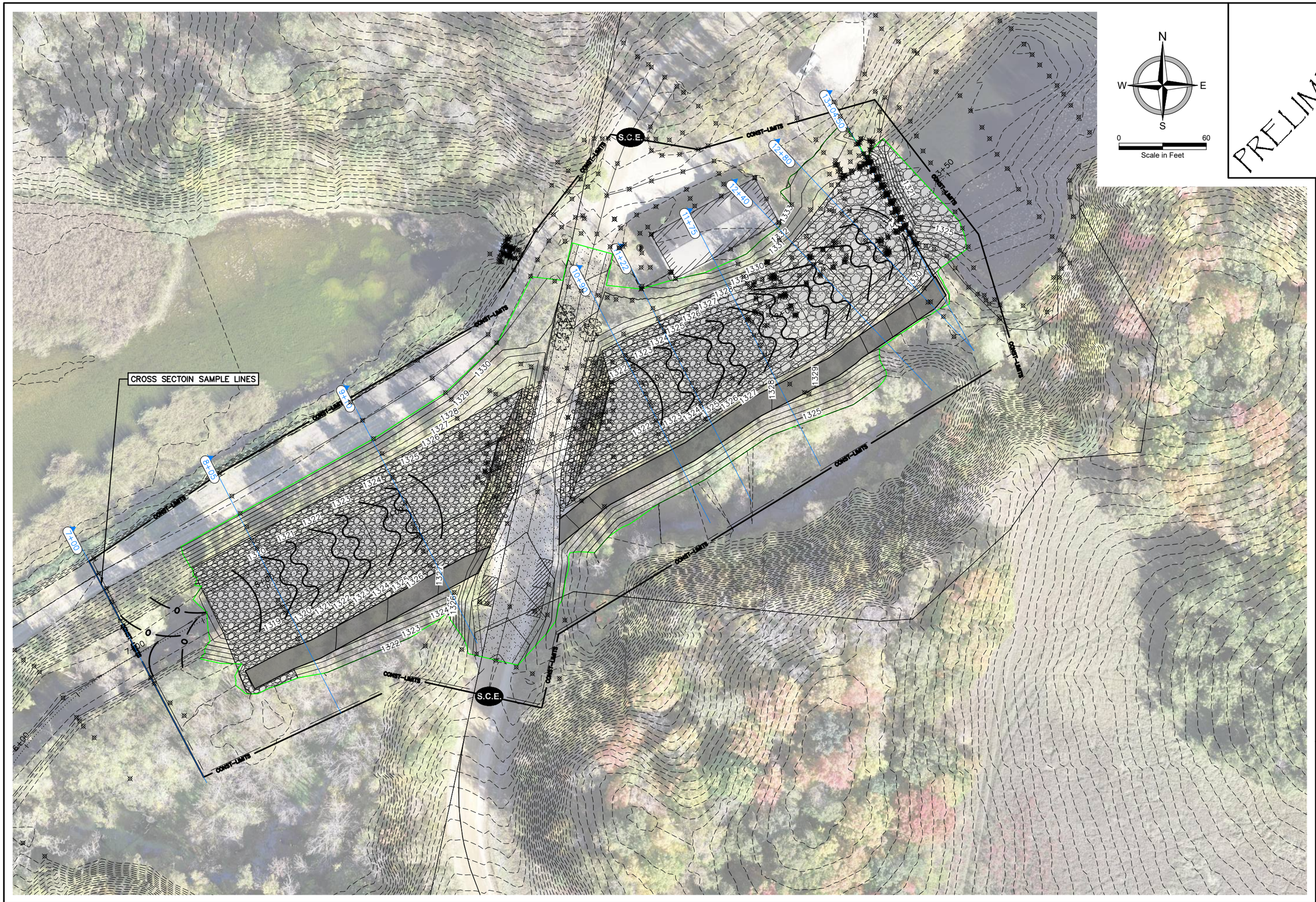


SITE PLANS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
GRADING PLAN

DATE:	07.15.2025
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DRAFTER:	DWA
REVIEWER:	JMH

C-601

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PRELIMINARY

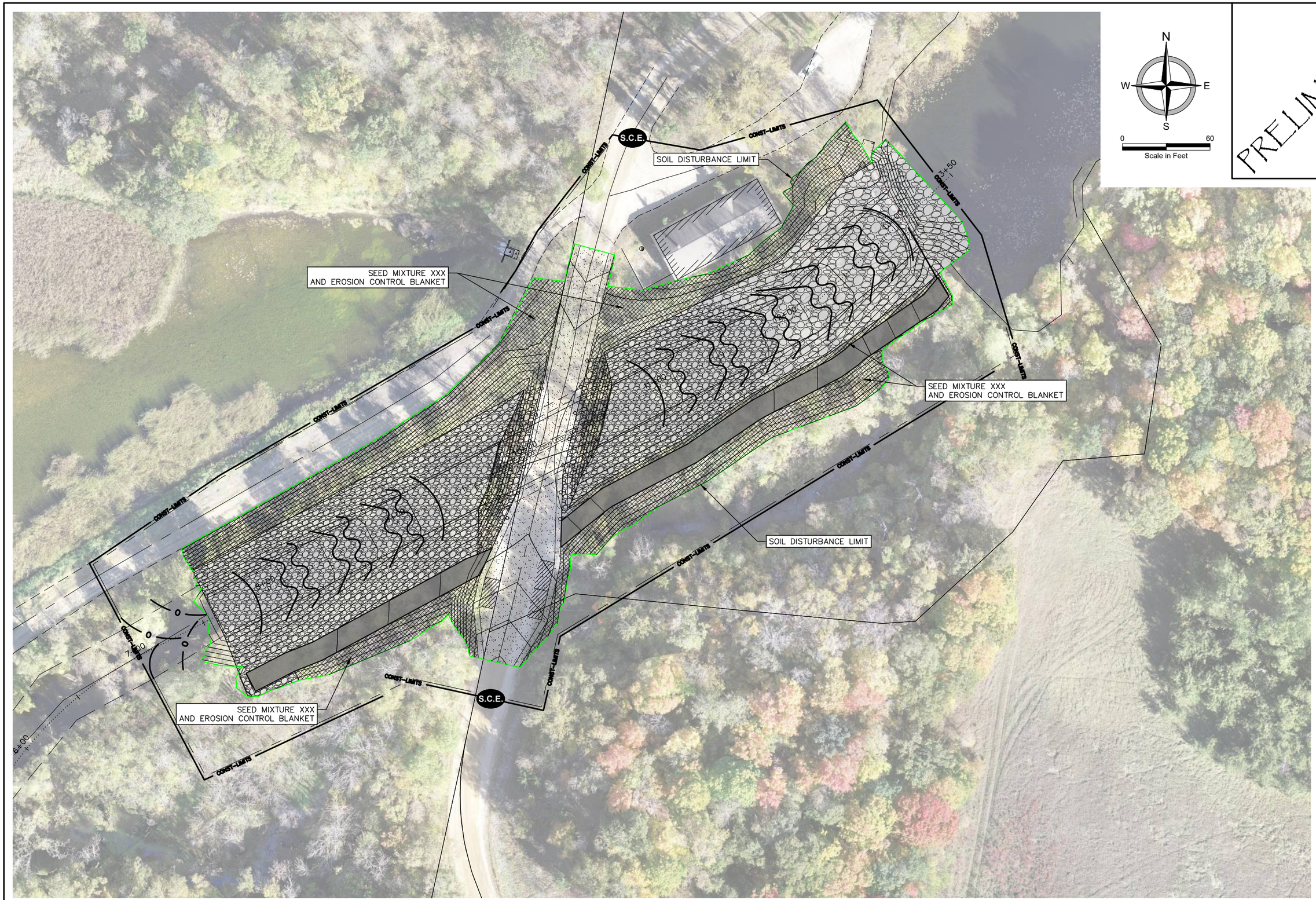
moore engineering, inc.

SITE PLANS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
GRADING PLAN

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-602

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_Site.dwg



PRELIMINARY

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SITE PLANS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
LANDSCAPING PLAN

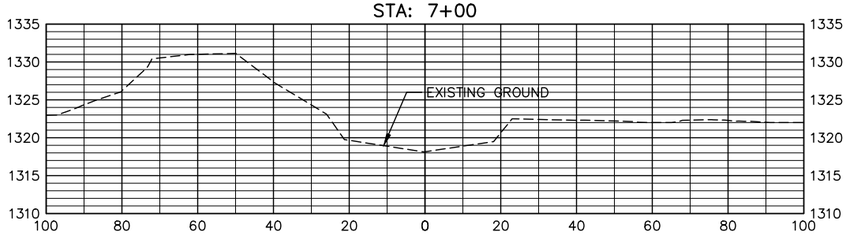
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RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-603

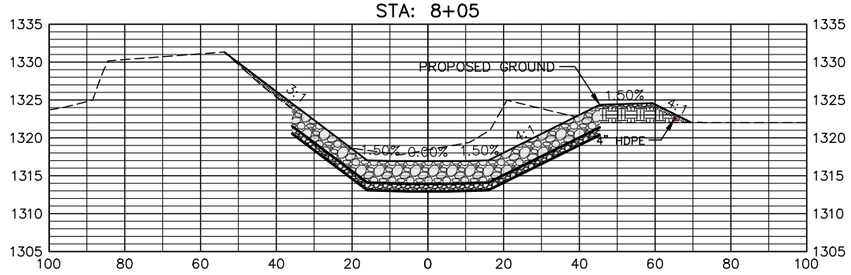
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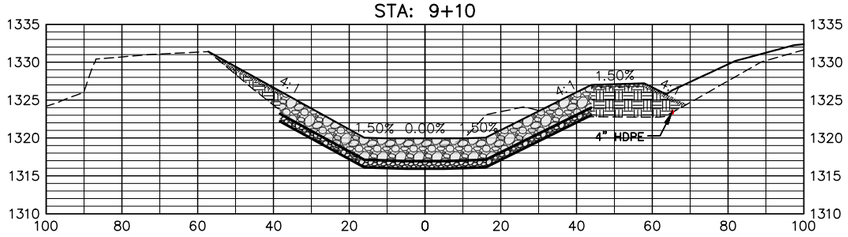
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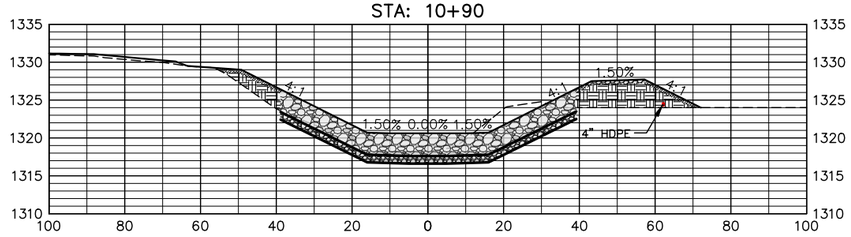
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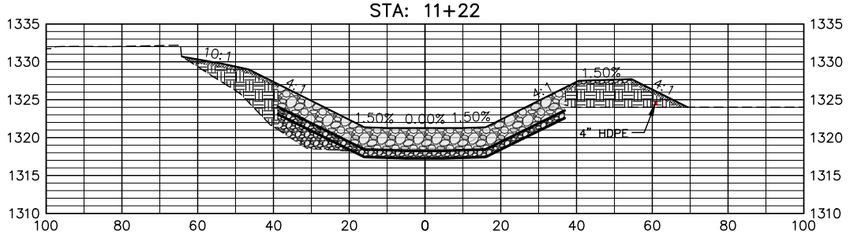
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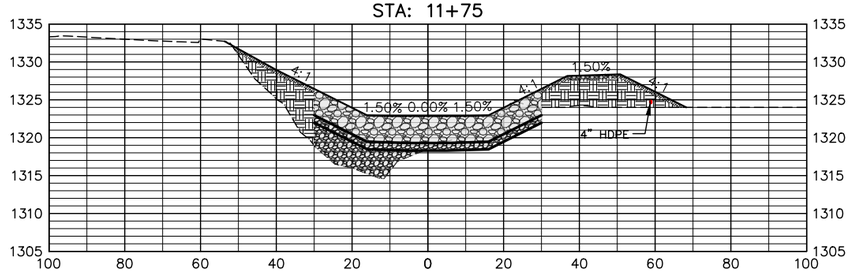
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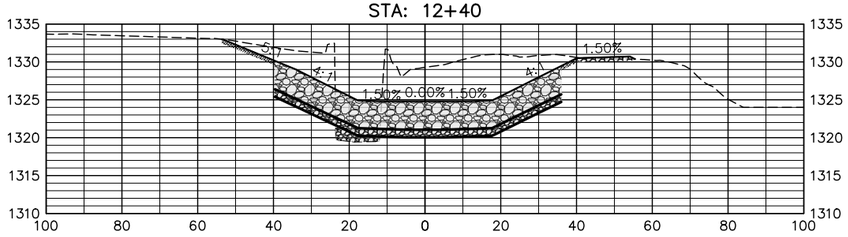
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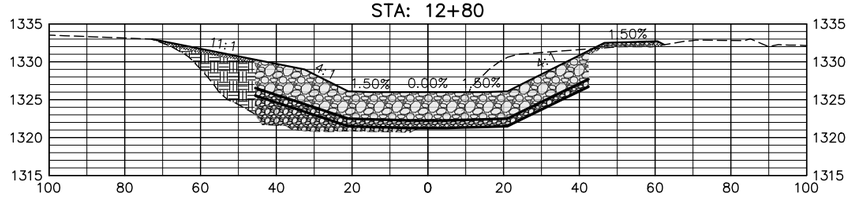
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STA: 12+40



STA: 12+80



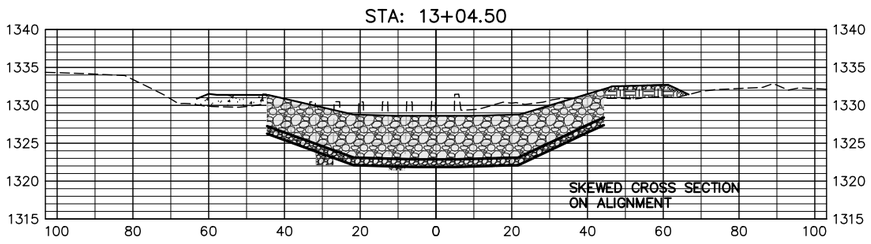
moore engineering, inc.

CROSS SECTIONS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
CROSS SECTIONS

DATE:	07.15.2025
REV DATE:	----
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MANAGER:	JMH
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DRAFTER:	DWA
REVIEWER:	JMH

C-801

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PRELIMINARY

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EARTHWORK VOLUMES

Station	Cut Area (Ft^2)	Fill Area (Ft^2)	Cut Vol (Yd^3)	Fill Vol (Yd^3)	Total Cut (Yd^3)	Total Fill (Yd^3)
7+00	0.00	0.00	0.00	0.00	0.00	0.00
8+05	144.25	82.11	280.49	159.66	280.49	159.66
9+10	34.47	222.17	347.52	591.65	628.01	751.31
10+90	25.37	257.27	199.45	1598.13	827.46	2349.43
11+22	0.00	394.30	15.03	386.12	842.49	2735.55
11+75	0.56	475.31	0.55	853.51	843.04	3589.06
12+40	278.72	70.56	337.61	648.63	1180.65	4237.69
12+80	80.45	426.58	266.05	368.25	1446.70	4605.94
13+04.50	45.28	214.40	57.05	290.82	1503.75	4896.76

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Bedding Datum vs EG	**1.0000**	**1.0000**	36953.6304 Sq. Ft.	364.40 Cu. Yd.	5085.93 Cu. Yd.	4721.54 Cu. Yd.<Fill>
FG vs 30in Riprap Datum	**1.0000**	**1.0000**	10106.9231 Sq. Ft.	1452.59 Cu. Yd.	0.00 Cu. Yd.	1452.59 Cu. Yd.<Cut>
Bedding & Topsoil Datum vs EG	**1.0000**	**1.0000**	63102.8655 Sq. Ft.	2308.06 Cu. Yd.	4399.88 Cu. Yd.	2091.81 Cu. Yd.<Fill>
EG VS DAM Production	**1.0000**	**1.0000**	65501.5330 Sq. Ft.	1367.92 Cu. Yd.	4502.87 Cu. Yd.	3134.94 Cu. Yd.<Fill>
FG vs 24in Riprap	**1.0000**	**1.0000**	26909.1811 Sq. Ft.	2985.58 Cu. Yd.	0.00 Cu. Yd.	2985.58 Cu. Yd.<Cut>
Riprap Datum vs Bedding Datum 24in area	**1.0000**	**1.0000**	27091.1590 Sq. Ft.	1003.45 Cu. Yd.	0.00 Cu. Yd.	1003.45 Cu. Yd.<Cut>
FG vs Topsoil Datum	**1.0000**	**1.0000**	26166.4241 Sq. Ft.	484.56 Cu. Yd.	0.00 Cu. Yd.	484.56 Cu. Yd.<Cut>
Riprap Datum vs Bedding Datum 30in area	**1.0000**	**1.0000**	10106.9231 Sq. Ft.	374.33 Cu. Yd.	0.00 Cu. Yd.	374.33 Cu. Yd.<Cut>
Totals			265938.6390 Sq. Ft.	10340.90 Cu. Yd.	13988.68 Cu. Yd.	3647.77 Cu. Yd.<Fill>

CROSS SECTIONS
BUCK'S MILL DAM - DAM IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
CROSS SECTIONS

DATE:	07.15.2025
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DRAFTER:	DWA
REVIEWER:	JMH

C-802

Appendix B Preliminary Plans - Road

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_CoverRoad.dwg

BUCK'S MILL DAM - ROAD IMPROVEMENTS

PELICAN RIVER WATERSHED DISTRICT

BECKER COUNTY, MINNESOTA

moore engineering, inc.
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VICINITY MAP



N
W E
S

PROJECT No. 24327

PRELIMINARY

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PRELIMINARY

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		C-003	SWPPP NOTES
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GENERAL
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TABLE OF CONTENTS

DATE:	07.15.2025
REV DATE:	----
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DRAFTER:	DWA
REVIEWER:	JMH

G-002

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_CoverRoad.dwg

CIVIL LEGEND

EXISTING

- BENCHMARK
- IRON MONUMENT FOUND
- EXISTING PROPERTY LINE
- EXISTING PLAT LOT LINE
- EXISTING RIGHT OF WAY LINE
- EXISTING EASEMENT LINE
- EXISTING PLAT EASEMENT LINE
- EXISTING GAS LINE MARKER
- EXISTING GAS GATE VALVE
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING LIGHT POLE W/SIGN
- EXISTING GUY WIRE
- EXISTING TRAFFIC SIGNAL ARM
- EXISTING SIGN
- EXISTING CULVERT W/FLARED END SECTION (F.E.S.)
- EXISTING FLARED END SECTION (F.E.S.)
- EXISTING CURB STOP
- EXISTING HYDRANT W/GATE VALVE
- EXISTING GATE VALVE
- EXISTING PROPANE TANK
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER CLEANOUT
- EXISTING STORM SEWER CATCH BASIN
- EXISTING STORM SEWER MANHOLE
- W — EXISTING WATER MAIN
- EXISTING WATER SERVICE W/CURB STOP
- SS — EXISTING SANITARY SEWER
- SS — EXISTING SANITARY SEWER (RELINE W/ CIPP)
- SS–FM — EXISTING SANITARY FORCEMAIN
- EXISTING SANITARY SEWER SERVICE
- ST — EXISTING STORM SEWER
- ST–FM — EXISTING STORM SEWER FORCEMAIN
- STEAM — EXISTING STEAM PIPE
- EXISTING AIR CONDITIONER
- U — EXISTING UTILITY PEDESTAL
- EXISTING UTILITY MANHOLE
- EXISTING UTILITY VAULT
- C — EXISTING UNDERGROUND COMMUNICATIONS
- F — EXISTING UNDERGROUND FIBER
- T — EXISTING UNDERGROUND TELEPHONE
- OHT — EXISTING OVERHEAD TELEPHONE
- TV — EXISTING UNDERGROUND TELEVISION
- OHTV — EXISTING OVERHEAD TELEVISION
- G — EXISTING UNDERGROUND GAS
- E — EXISTING UNDERGROUND ELECTRIC
- OHP — EXISTING OVERHEAD POWER
- X — EXISTING BARBED WIRE FENCE
- EXISTING CHAIN LINK/STEEL FENCE
- EXISTING PVC/WOOD FENCE
- EXISTING RAILROAD
- EXISTING SHRUB
- EXISTING STUMP
- EXISTING BOULDER
- EXISTING TREE/TREE CLUSTER
- EXISTING SPRINKLER HEAD
- 12 — EXISTING CLUSTER BOX UNIT (CBU)
- EXISTING MAILBOX
- EXISTING CURB AND GUTTER

PROPOSED

- NEW PROPERTY LINE
- NEW PLAT LOT LINE
- NEW RIGHT OF WAY LINE
- NEW EASEMENT LINE
- NEW PLAT EASEMENT LINE
- CONST–ESMT — CONSTRUCTION EASEMENT
- CONST–LIMITS — CONSTRUCTION LIMITS
- NEW LIGHT POLE
- NEW LIGHT POLE W/SIGN
- NEW GUY WIRE
- NEW SIGN
- TRAFFIC CONTROL – DRUM
- TRAFFIC CONTROL – TUBULAR MARKER
- NEW CULVERT W/FLARED END SECTION (F.E.S.)
- NEW FLARED END SECTION (F.E.S.)
- NEW CURB STOP
- NEW HYDRANT W/GATE VALVE
- NEW GATE VALVE
- NEW TAPPING SLEEVE
- NEW FITTINGS
- NEW PLUG
- NEW SANITARY SEWER MANHOLE
- NEW SANITARY SEWER CLEANOUT
- NEW STORM SEWER CATCH BASIN
- NEW STORM SEWER MANHOLE
- W — NEW WATER MAIN
- W — NEW WATER MAIN (DIRECTIONAL DRILLED, CASED OR BURST)
- NEW WATER SERVICE W/CURB STOP (S.B. ELEV.)
- SS — NEW SANITARY SEWER
- SS — NEW SANITARY SEWER (DIRECTIONAL DRILLED OR CASED)
- SS–FM — NEW SANITARY FORCEMAIN
- NEW SANITARY SEWER SERVICE (S.S. ELEV.)
- ST — NEW STORM SEWER
- ST — NEW STORM SEWER (DIRECTIONAL DRILLED OR CASED)
- ST–FM — NEW STORM SEWER FORCEMAIN
- STEAM — NEW STEAM PIPE
- IN — INSULATION PER DETAIL
- X — NEW BARBED WIRE FENCE
- NEW CHAIN LINK/STEEL FENCE
- NEW PVC/WOOD FENCE
- 12 — NEW CLUSTER BOX UNIT (CBU)
- NEW MAILBOX
- NEW LARGE DECIDUOUS TREE
- NEW SMALL DECIDUOUS TREE
- NEW SHRUB
- NEW LARGE EVERGREEN TREE
- NEW SMALL EVERGREEN TREE

REMOVALS

- SS — INDICATES REMOVAL
- REMOVE CURB AND GUTTER
- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE PAVEMENT
- REMOVE AGGREGATE SURFACE

PAVEMENT REHAB

- UNIFORM MILL & OVERLAY
- TAPERED MILL & OVERLAY
- LEVELING COURSE
- RECLAIM
- ASPHALT PATCH
- CHIP SEAL

PAVEMENT

- NEW INFLOW CURB AND GUTTER
- NEW OUTFLOW CURB AND GUTTER
- NEW ASPHALT SURFACE
- NEW CONCRETE SURFACE
- NEW GRANULAR SURFACE
- NEW CRUSHED CONCRETE SURFACE
- NEW DECORATIVE COLORED CONCRETE
- NEW ASPHALT SIDEWALK/MULTI–USE PATH
- NEW CONCRETE SIDEWALK/MULTI–USE PATH
- NEW CONCRETE APPROACH/DRIVEWAY
- NEW DETECTABLE WARNING PANEL
- NEW GRAVEL APPROACH/DRIVEWAY
- NEW CONCRETE VALLEY GUTTER
- NEW MEDIAN NOSE APRON
- NEW ADA RAMP W/WARNING PANEL

SOIL DISTURBANCE

- DISTURBANCE AREA / TOPSOIL REMOVAL
- REMOVE STOCKPILE
- EXISTING STOCKPILE
- TEMPORARY STOCKPILE
- PERMANENT STOCKPILE
- REAR YARD GRADING
- GRASS BUFFER STRIP

SOIL STABILIZATION

- DISTURBED SOIL STABILIZATION
- STRAW MULCH
- SEEDING & STRAW MULCH
- SEEDING & HYDRO MULCH
- TOPSOIL, SEEDING & STRAW MULCH
- TOPSOIL, SEEDING & HYDRO MULCH
- TOPSOIL, SEEDING & BLANKET

MISCELLANEOUS

- EXISTING RIPRAP
- NEW RIPRAP
- EXISTING LANDSCAPING AREA
- NEW LANDSCAPING AREA
- EXISTING WATER SURFACE
- NEW WATER SURFACE
- EXISTING WETLAND

EROSION CONTROL

- DRAINAGE BREAK LINE
- EXISTING DRAINAGE DIRECTION
- 2.0% — FINISHED DRAINAGE DIRECTION & SLOPE
- 4:1 — FINISHED GRADE
- 895 — EXISTING CONTOUR ELEVATION
- 895 — FINISHED CONTOUR ELEVATION
- FL: 900.07 — GRADE ELEVATIONS
- SEDIMENTATION CONTROL WATTLE
- SEDIMENTATION CONTROL FENCE
- ROCK CHECK
- S.C.E. — STABILIZED CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- INLET PROTECTION DEVICE

ABBREVIATIONS:

BOC = BACK OF CURB
BOW = BACK OF WALK
C = COMMUNICATION
CB# = STORM SEWER CATCH BASIN
CIPP = CURED IN PLACE PIPE
CL = CENTERLINE
CSP = CORRUGATED STEEL PIPE
CO# = SANITARY SEWER CLEANOUT
CS# = CONTROL STRUCTURE
DIA = DIAMETER
DIP = DUCTILE IRON PIPE
E = ELECTRICAL
ECC = EDGE OF CRUSHED CONCRETE
EG = EXISTING GRADE
EOC = EDGE OF CONCRETE
EOG = EDGE OF GRAVEL
EOP = EDGE OF PAVEMENT
EOW = EDGE OF WALK
EX = EXISTING
F = FIBER OPTIC
FES = FLARED END SECTION
FG = FINISHED GRADE
FL = FLOWLINE
FM = FORCEMAIN
G = GAS LINE
HP = HIGH POINT
INV = INVERT
LP = LOW POINT
MA = MATCH
M# = STORM SEWER MANHOLE
MT# = STORM SEWER TEE MANHOLE
MM# = STORM SEWER MULTI–MANHOLE
MC = MIDPOINT OF CURVE
OHP = OVERHEAD POWER
OHT = OVERHEAD TELEPHONE
OHTV = OVERHEAD TELEVISION
PC = POINT OF CURVATURE
PRC = POINT OF REVERSE CURVE
PVC = POLYVINYL CHLORIDE PIPE
PT = POINT OF TANGENCY
RIM = RIM OF STRUCTURE
S# = SANITARY SEWER MANHOLE
S.B. ELEV = STOP BOX ELEVATION
S.S. ELEV = SANITARY SEWER SERVICE INVERT
SS = SANITARY SEWER
ST = STORM SEWER
STA = ALIGNMENT STATION
T = TELEPHONE
TOC = TOP OF CONCRETE
TOP = TOP OF PAVEMENT
TOP = TOP OF PIPE
TOW = TOP OF WALK
TR# = SANITARY TELEVISING RISER
TRANS = TRANSFORMER
TV = TELEVISION
U = UTILITY (UNKNOWN UTILITY)

PRELIMINARY

moore engineering, inc.

CIVIL
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
CIVIL LEGEND

DATE:	07.15.2025
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C-001

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_CoverRoad.dwg

Project Description/Location:
The Buck's Mill Dam project involves modification and reconstruction activities along the Pelican River in Lake View Township, near Detroit Lakes, Becker County, Minnesota. The project will remove the existing aging concrete dam structure and replace it with a more naturalized rock and riffle spillway to restore river flow and improve fish passage. Construction activities will include site grading and excavation within the river channel and adjacent banks, placement of rock and riprap to form the spillway and stabilize banks, and removal of the existing pedestrian catwalk and its supporting concrete piers. These activities will reshape the riverbed and create a series of rock weirs and pools designed to accommodate variable flow conditions and enhance aquatic habitat. Additional construction activities will occur along Buck's Mill Drive, which crosses the river immediately upstream of the dam. This portion of the project will include removal of the existing concrete box culvert and bridge structure (MnDOT Bridge 03J28) and replacement with a new culvert and bridge that meet current hydraulic and safety standards. Construction here will involve road grading, excavation, culvert installation, concrete and gravel surfacing, and reconstruction of the roadway approaches.

Land Feature Changes:
Total disturbed area: 1.87 acres
Total existing impervious area: 0.48 acres
Total proposed impervious area: 1.44 acres
Total proposed net change in impervious area: 0.96 acres

Project Contacts:

	Agency	Contact	Phone No.
Owner:	Pelican River Watershed District	Tera Guetter	(218) 846-0436
Partner:	MNDNR Fisheries	Fisheries	218-846-8290
Contractor:	TBD	TBD	TBD
State:	MPCA	MPCA Duty Officer	(651) 649-5451

Chain of Responsibility:
The Contractor is the permitee for the national pollutant discharge elimination system (NPDES) construction permit. The contractor is responsible to comply with all aspects of the NPDES construction permit at all times until the notice of termination (NOT) has been filed with the MPCA. The contractor will develop a chain of command with all operators on the site to ensure that the SWPPP with be implemented and stay in effect until the construction project is complete, the entire site has undergone final stabilization, and a notice of termination (NOT) has been submitted to the MPCA.

Contractors Responsibilities:
The Contractor shall be responsible for compliance with, monitoring, and maintenance of the requirement of the MPCA general storm water permit for construction activity. The Contractor must identify a certified erosion and sediment control supervisor. This person must be knowledgeable and experienced in the application of erosion prevention and sediment control bmp's. This person is to oversee the implementation of this SWPPP, and the installation, inspection, and maintenance of the erosion prevention and sediment control bmp's before, during, and after construction. The SWPPP is to remain in effect until the project is complete, the entire site has undergone final stabilization, and the MPCA permit been terminated.

Project Personnel and Training:
Name of person with Best Management Practices (BMP) experience who will oversee SWPPP implementation and coordinate with contractor:
TBD and will be documented in this SWPPP narrative prior to start of construction. (First name, last name, company)

SWPPP Designer:
Company: Moore Engineering Inc.
Name: Kelsey Kline
Email: Kelsey.kline@mooreengineeringinc.com
Phone: 320-281-5493
Training date(s): 5/1/2025
Training activity/content: Design of Construction SWPPP, University of Minnesota

Individual overseeing implementation, revision and/or amendment of the SWPPP that are available for an onsite inspection within 72 hours upon request of MPCA:
TBD and will be documented in this SWPPP narrative prior to start of construction.
Company: [ ]
Name: [ ]
Email: [ ]
Phone: [ ]
Training date(s): [ ]
Training activity/content: [ ]
Instructor(s) name(s): [ ]

Individual performing or supervising the installation, maintenance and repair of BMPs:
TBD and will be documented in this SWPPP narrative prior to start of construction.
Company: [ ]
Name: [ ]
Email: [ ]
Phone: [ ]
Training date(s): [ ]
Training activity/content: [ ]
Instructor(s) name(s): [ ]

Discharges to special and impaired waters:
There are no construction related special or impaired waters within one mile of the project site that will receive stormwater runoff. If the project does discharge into a special or impaired water the contractor must comply with MNR100001 Permit 2018 reference 23 of the NPDES Permit. No TMDL Implementation Plans currently exist for the receiving waters on this project.

Discharges to Wetlands:
A wetland delineation was completed in October 2024 and boundaries/types were approved on November 25, 2024. The project will have impacts to wetlands, but a WCA-CWA Joint Application will be obtained. Discharging into a wetland must comply with MNR100001 Permit 2018 reference 22 of the NPDES Permit.

Stormwater mitigation measures proposed to be part of the final project in any environmental review document, endangered species review, archeological or other required local, state, or federal review conducted for the project:
There are no stormwater mitigation measures required as a result of an environmental, archeological or agency review. All mitigation measures-have been addressed in this plan set or the special provisions.

Any required site assessments for groundwater or soil contamination:
No site assessment for groundwater or soil contamination was conducted prior to construction for the project.

Estimated Quantities:

Item	Estimated Quantity
Silt Fence	148 LF
Sediment Control Wattle	1,238 LF
Seeding Area	0.48 Acres

SWPPP Amendments:
Permitee must amend SWPPP as necessary to include additional requirements to correct problems identified or address the following situations:
1. There is a change in design, construction, operation, maintenance, weather or seasonal conditions.
2. Inspections or investigations by site owner or operators, USEPA or MPCA officials determine the SWPPP is not minimizing discharge of pollutants to surface waters or underground waters or discharges are causing water quality standard exceedances.
3. The SWPPP is not achieving the objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of the permit.
4. The MPCA determines that the project's stormwater discharges may cause, have reasonable potential to cause, or contribute to non-attainment of any applicable water quality standard, or the SWPPP does not incorporate the applicable requirements of the permit.

BMP Selection and Installation:
Permittees must select, install, and maintain the BMPs identified in this SWPPP and in the NPDES permit in an appropriate and functional manner and in accordance with relevant manufacturer specifications and accepted engineering practices.

Erosion/Sediment Control Measures:
Erosion and sediment control measures must comply with MNR100001 Permit 2018 reference 8 and 9 of the NPDES Permit.
A. Areas not to be disturbed must be properly marked before work begins.
B. Must minimize the need for disturbance of portions of the project with steep slopes.
C. Exposed soils (including stockpiles) must have erosion protection/cover initiated immediately and completed within 14 days.
D. For DNR Public Waters with "work in waters restrictions" during specified fish spawning time frames, stabilization must be completed for all exposed soil areas within 200 feet of the water's edge, and draining to the water, within 24 hours during the restriction period.
E. The wetted perimeter of the last 200 linear feet of ditches must be stabilized within 24 hours of connecting to a surface water or property line.
F. Temporary or permanent ditches or swales that are being used as a sediment containment system during construction must be stabilized within 24 hours after no longer being used as a sediment containment system.
G. Pipe outlets must have energy dissipation within 24 hours of connecting to a surface water or permanent stormwater treatment system.
H. Mulch, hydro mulch, tackifier, polyacrylamide, or similar erosion prevention practices cannot be used within the normal wetted perimeter of drainage ditches or swale sections with a continuous slope greater than 2%.
I. Must not disturb more land than what can be effectively inspected and maintained.
J. Sediment control practices must be established on downgradient perimeters and upgradient of any buffer zones.
K. If downgradient sediment controls are overloaded, based on frequent failure or excessive maintenance requirements, install additional upgradient sediment control practices or redundant BMPs to eliminate the overloading.
L. Sediment control practices must be established at the base of stockpiles on the downgradient perimeter.
M. Stockpiles must be located outside of natural buffers or surface waters, including stormwater conveyances (e.g., curb and gutter systems) unless there is a bypass.
N. Permittees must install temporary sediment basins as required in Section 14 of the NPDES Permit.
O. Inlet protection BMPs shall be placed at all storm sewer system inlets prior to any work in those areas.
P. Inlet protection may be removed for a particular inlet if a safety concern is identified, and it must be documented in this SWPPP.
Q. Vehicle tracking BMPs must be established where vehicles are exiting the site to minimize street tracking. Sediment tracked onto a public street must be removed within 24 hours.
R. Must re-install all sediment control practices adjusted or removed to accommodate short-term activities immediately after the short-term activity is completed or before the next precipitation event even if the short-term activity is not complete.
S. Street sweeping must be used in addition to vehicle tracking BMPs if the vehicle tracking BMPs alone are not adequate to prevent sediment tracking.
T. Topsoil must be preserved unless infeasible.
U. Soil compaction must be minimized.
V. Discharges from BMPs must be directed to vegetated areas, unless infeasible.
W. 50-foot natural buffers must be preserved or (if maintaining buffer is infeasible) redundant sediment controls must be provided when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.

PRELIMINARY

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CIVIL
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SWPPP NOTES

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-002

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_CoverRoad.dwg

Dewatering:
Dewatering related to the construction activity must comply with MNR100001 Permit 2018 reference 10 of the NPDES Permit. Turbid or sediment-laden waters must be discharged to a temporary or permanent sedimentation basin unless infeasible. If infeasible, the water must be treated by an appropriate BMP before discharge into a surface water. Discharge from dewatering must be protected from erosion and scouring by an acceptable energy dissipation method, such as rock riprap, or sandbags. If using filters with backwash water, backwash water must be hauled away for disposal, returned to the beginning of the treatment process, or incorporated into the site in a manner that does not erode into runoff. Temporary dewatering activities may be required. Therefore, it is possible that a permit for the temporary appropriation of waters of the state, non-irrigation from MNDNR will be required for this project. The contractor is responsible for obtaining this permit prior to commencing dewatering activities.

Site Inspection and Maintenance:
Inspections must comply with MNR100001 Permit 2018 reference 11 of the NPDES Permit. A trained person (as identified in item 21.2.b. of the NPDES Permit) must inspect the entire construction site a minimum of once every seven days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. Inspect and maintain all temporary and permanent stormwater treatment BMPs, and erosion prevention and sediment control BMPS until the site has undergone final stabilization and the NOT has been submitted. Inspect surface water including drainage ditches and conveyance systems for evidence of erosion and sediment deposition. Inspect construction site vehicle exit locations, streets, and curb and gutter systems within and adjacent to the project for evidence of sedimentation from erosion or tracked sediment from vehicles. Inspect infiltration areas for signs of sediment deposition and compaction.

Record all inspections and maintenance activities in writing within 24 hours of above stated rainfall. Submit inspection reports in a format that is acceptable to the project engineer. Include the following in the records of each inspection:

A. Date and time of inspection.
B. Name of person(s) conducting inspection.
C. Accurate findings of inspections, including the specific location where corrective actions are needed.
D. Corrective actions taken (including dates, times, and party completing maintenance activities).
E. Date and amount of all rainfall events greater than 0.5 inch in 24 hours. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
F. If any discharge is observed during the inspection, it must be recorded. Discharge should also be photographed and described.
G. Any amendments to the SWPPP proposed as a result of the inspection must be documented as required in Section 6 within seven (7) calendar days.
H. All photographs of dewatering activities and documentation of nuisance conditions as a result of dewatering

Maintenance requirements are as listed below:

A. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.
B. All deltas and sediment deposits must be removed from surface waters (including drainage ways, catch basins, and other drainage systems). Removal and stabilization must be completed within seven days of discovery. Contact all appropriate authorities prior to working in surface waters.
C. Sediment on paved surfaces must be removed within one calendar day of discovery, or within a shorter time to avoid a safety hazard.
D. Perimeter control devices must be repaired, replaced, or supplemented when nonfunctional or sediment reaches one-half the height of the device. Complete repairs by the end of the next business day following discovery.
E. Temporary and permanent sediment basins must be drained, and sediment removed when the depth of sediment collected reaches one-half storage volume.
F. Dewatering operations must be inspected and photographed at the beginning and at least once every 24 hours during operation.
G. Repair or replace inlet protection devices within 24 hours of discovery when they become nonfunctional, or sediment reaches 1/2 the height and/or depth of the device.

Methods to minimize soil compaction and preserve topsoil:
The contractor is responsible for marking areas that are not to be disturbed on the site. These areas must be marked prior to any construction occurring with stakes, flags, signs, or other appropriate methods. The contractor is responsible for not allowing construction equipment and vehicles to enter these areas in order to minimize soil compaction. Whenever feasible, the contractor must preserve topsoil from the construction site.

Pollution Prevention Measures:

A. Store all building products that have potential to leach pollutants, landscape materials, pesticides, fertilizers, and treatment chemicals under cover (e.g., plastic sheeting or temporary roofs) to minimize contact with stormwater.
B. Store, collect and dispose solid waste in compliance with Minn. R. Ch. 7035.
C. Limit vehicle and equipment washing to a defined area of the site. Contain runoff from the washing area to a temporary sediment basin or other effective control. Properly dispose of all waste generated by vehicles and equipment washing. Engine degreasing is not allowed on the site.
D. Provide effective containment for all liquid and solid wastes generated by washout of concrete, stucco, paint, form release oils, curing compounds and other construction materials. Liquid and solid washout wastes must not contact the ground. The liquid and solid waste that is produced must be disposed of in compliance with the MPCA rules. A sign must be installed indicating the location of the washout facility.
E. Portable toilets must be positioned so that they are secure and sanitary waste will be properly disposed of.
F. Fuel and maintain vehicles in a designated contained area whenever feasible. Use drip pans or absorbents to prevent the discharge of spills or leaked chemicals. Provide a spill kit at each location that vehicles and equipment are fueled or maintained at. Spills must be reported and cleaned up immediately as required by Minn. Stat. 115.061.
G. Store all hazardous materials and toxic waste (including but not limited to oil, diesel fuel, gasoline, hydraulic fluids, paint, petroleum-based products, wood preservatives, additives, curing compounds, and acids) in sealed containers with secondary containment. Storage and disposal of hazardous waste materials must be in compliance with Minn. R. ch. 7045

Permit Termination Conditions:
A Notice of Termination (NOT) can be submitted to the MPCA once the following guidelines are met:

A. Permanent uniform perennial vegetative cover must be established at minimum 70% density of its expected final growth.
B. The permanent stormwater treatment system is constructed, meets all requirements, and is operating as designed.
C. All temporary synthetic erosion prevention and sediment control BMPs must be removed, and the surrounding area must be restored to as designed.
D. Clean out sediment from conveyance systems and permanent stormwater treatment systems (return to design capacity).
E. For residential sites, install temporary erosion protection and downgradient perimeter control and distribute the MPCA's Homeowner Fact Sheet.
F. For construction on agricultural lands, the disturbed land must be returned to its preconstruction agricultural use.
G. When submitting the NOT ground or aerial photographs must be included to show the requirements of Section 13.2 of the NPDES Permit have been met.

Stabilization Time Frames:

A. Initiate stabilization immediately when construction has temporarily or permanently ceased on any portion of the site. Complete stabilization within the time frame listed. In many instances this will require stabilization to occur more than once during the course of the project.
B. Stabilize wetted perimeter of ditch (i.e. where the ditch gets wet).
C. Application of mulch, hydromulch, tackifier and polyarylamide are not acceptable stabilization methods in these areas.
D. Stabilize all areas of the site prior to the onset of winter. Any work still being performed will be snow mulched, seeded, and blanketed within the time frames in the NPDES permit.
E. Topsoil berms must be stabilized in order to be considered perimeter control BMPS. Use rapid stabilization method 2, 3, or 4 as directed by the engineer. The seed mix used in the rapid stabilization may be substituted as follows:
    a. Single year construction between May 1- August 1, seed with seed mixture 21-111
    b. Single year construction between August 1and October 31, seed with seed mixture 21-112
    c. Multi-year construction 22-111
F. Keep ditches and exposed soils in an even rough graded condition in order to be able to apply erosion control mulches, hydromulches and blankets.
G.

Area	Time Frame
Last 200 lineal feet of drainage ditch or swale	Within 24 hours of connection to surface water or property edge
Remaining portions of drainage ditch or swale	14 days
Pipe and culvert outlets	24 hours
Exposed soils and stockpiles	14 days
Within 200 feet of a public water	24 hours

Temporary Sediment Basins:
No temporary sediment basins are required, is needed the contractor must construct the temporary sedimentation basins to be compliant with MNR100001 Permit 2018 reference 14 of the NPDES Permit. Temporary sediment basins must be located outside of surface waters and any buffer zone and constructed prior to disturbing 10 or more acres of soil draining to a common location.

Permanent Stormwater Treatment Systems:
There are no permanent stormwater treatment systems needed for the proposed project. If there is a permanent stormwater treatment system needed later in the project the contractor must design and implement the permanent stormwater treatment systems to be compliant with MNR100001 Permit 2023 reference 15 of the NPDES Permit.

Infeasibility Documentation:
No infeasible documentation requirements are anticipated for the project.

Record Retention:
The SWPPP must be kept at the site during construction by the permittee who has operational control of that portion of the site. The SWPPP and associated records must be stored and maintained by an employee or representative of the Owner for 3 years after the submission of the NOT. Responsibility for overseeing the records will be transferred to another employee or representative should the current personnel become uninvolved with the project or Owner. These records must include the following:

1. The final SWPPP
2. Any other stormwater related permits required for the project
3. Records of all inspection and maintenance conducted during construction
4. All permanent operation and maintenance agreements that have been implemented, including all right-of-way, contracts, covenants and other binding requirements regarding perpetual maintenance
5. All required calculations for design of the temporary and permanent Stormwater Management Systems.

Permanent Cover:
Permanent cover is achieved when vegetative cover is established at minimum 70% density of its expected final growth. This can be done by using permanent seeding with mulch, erosion control blankets, riprap, gravel, concrete, bituminous, etc. The specific permanent cover types can be found in the plan sheets.

Construction Phasing:
Construction phasing will be implemented throughout the entire project. BMP's will be installed prior to construction activity and will be maintained throughout construction.

Chemical Treatment Systems:
Must use polymers, flocculants, or other sedimentation treatment chemicals in accordance with accepted engineering practices. Must be in compliance with MNR100001 Permit 2018 reference 9.18 of the NPDES Permit and Minn. R. 7090.

PRELIMINARY

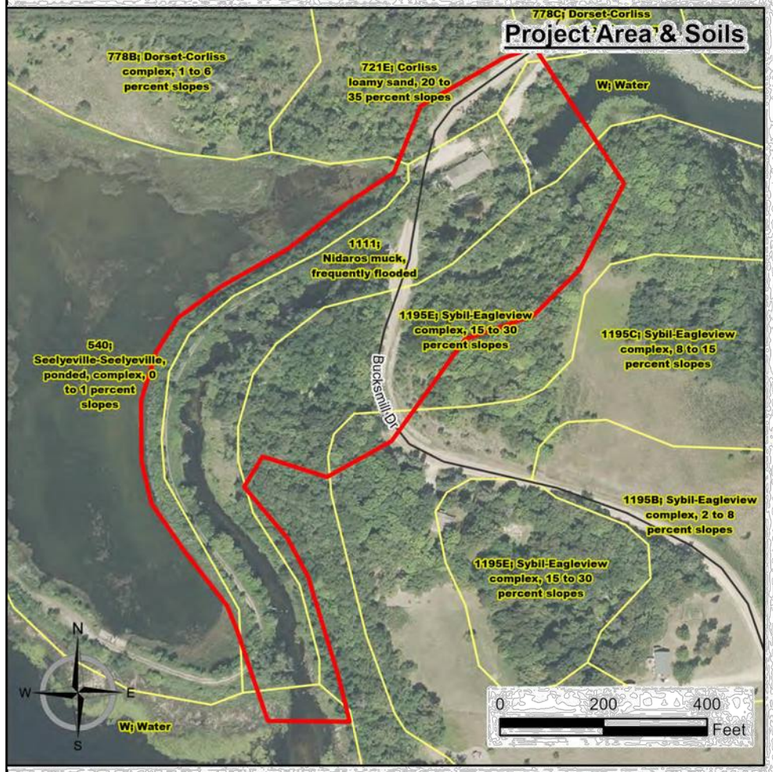
moore engineering, inc.

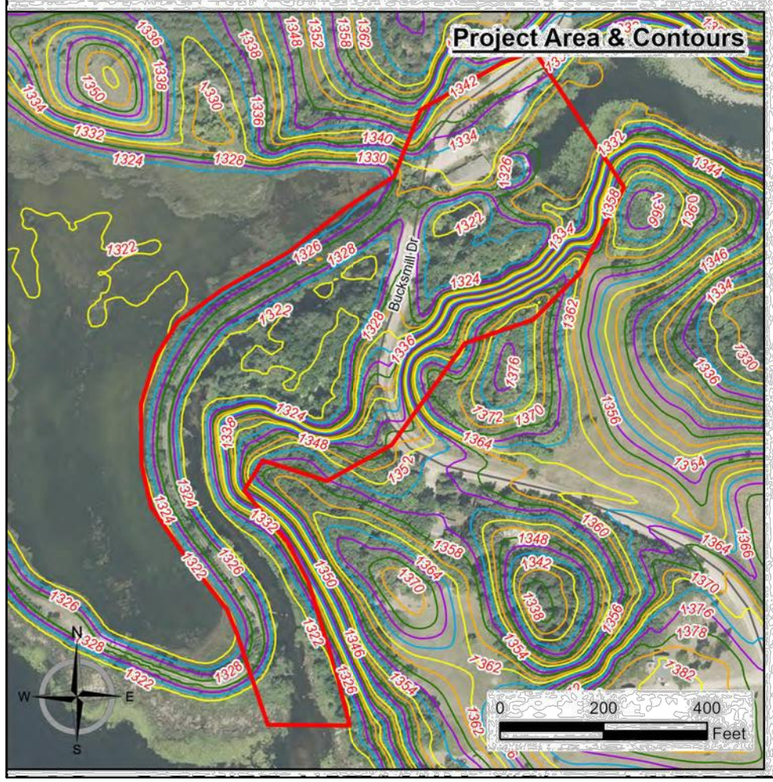
CIVIL
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SWPPP NOTES

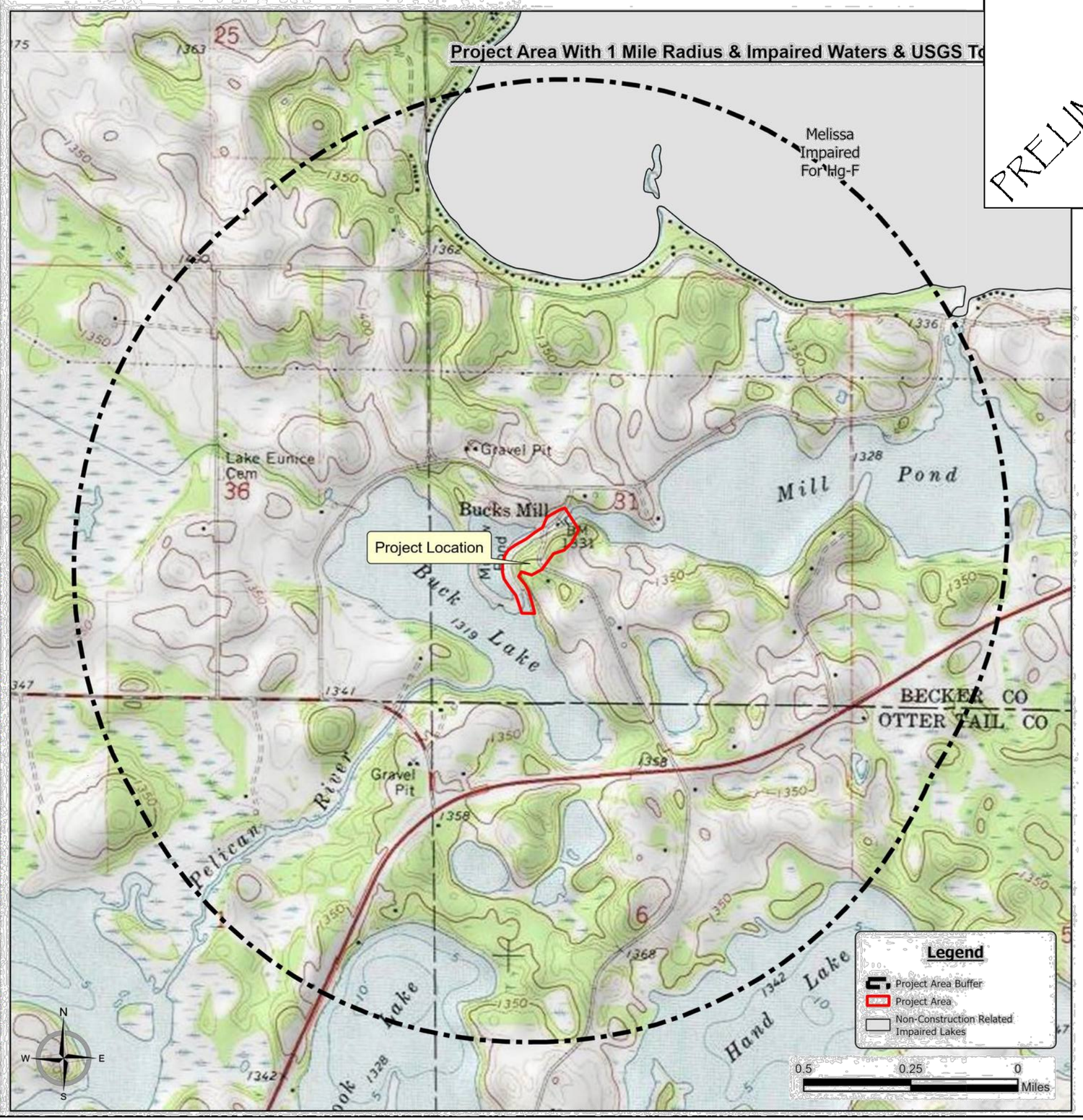
DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-003

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_CoverRoad.dwg







PRELIMINARY

moore
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CIVIL
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SWPPP MAPS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-004

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PRELIMINARY

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PROJECT LAYOUTS
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SITE ACCESS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-101

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PRELIMINARY

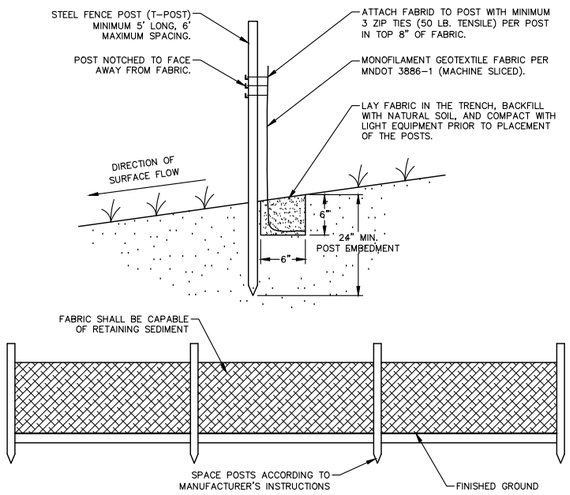
moore engineering, inc.

PROJECT LAYOUTS
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED CONDITIONS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-102

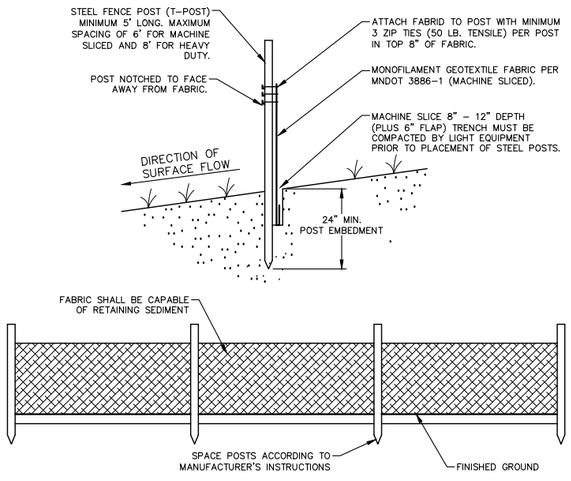
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STANDARD SILT FENCE DETAIL

NO SCALE *WRG-312500-01 02.15.17*

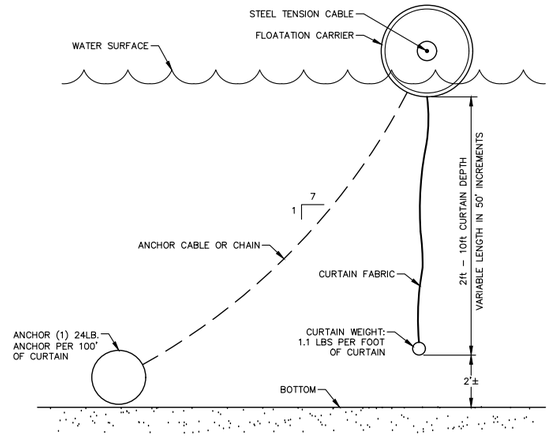
NOTES:
1. INSPECT AND REPAIR AFTER EACH STORM EVENT, AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENTS SHALL BE DEPOSITED IN AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.



MACHINED SILT FENCE DETAIL

NO SCALE *WRG-312500-02 12.15.17*

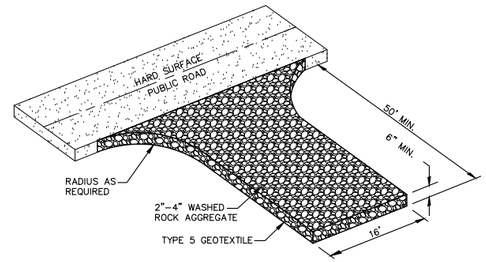
NOTES:
1. INSPECT AND REPAIR AFTER EACH STORM EVENT, AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENTS SHALL BE DEPOSITED IN AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.



NOTES:
1. DOUBLE SILT CURTAINS SHOULD BE SPACED 10' APART
2. CONSTRUCT IN ACCORDANCE WITH (NDDOT SECTION 262)

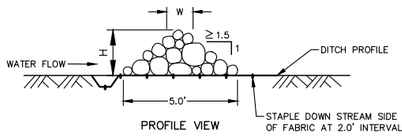
FLOATING SILT CURTAIN DETAIL

NO SCALE *MUNI-312500-8 06.21.18*



TEMPORARY ROCK - SITE ENTRANCE

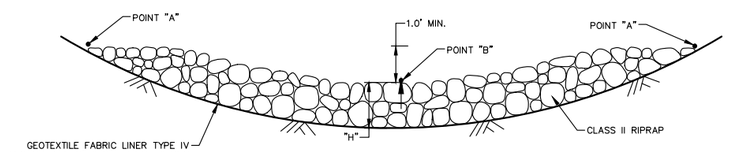
NO SCALE *WRG-312500-04 02.15.17*



PROFILE VIEW

NOTES:
1. ROCK DITCH CHEK SHALL BE REMOVED FROM CLEAR ZONE AFTER SEEDING OR TURF IS ESTABLISHED AND PRIOR TO FINAL ACCEPTANCE.
2. POINT "A" MUST BE 1'-0" MIN. HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE CHECK AND NOT AROUND THE ENDS.

HEIGHT OF CHECK (H)	CLASS RIPRAP	TOP WIDTH (W)
2'-0"	II	12"-18"



CROSS SECTION

TEMPORARY ROCK CHECK DETAIL

NO SCALE *WRG-312500-05 02.15.17*

PRELIMINARY

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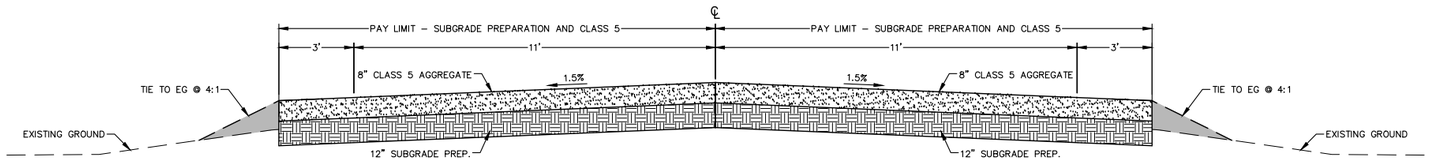
DETAILS
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TYPICAL DETAILS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-201

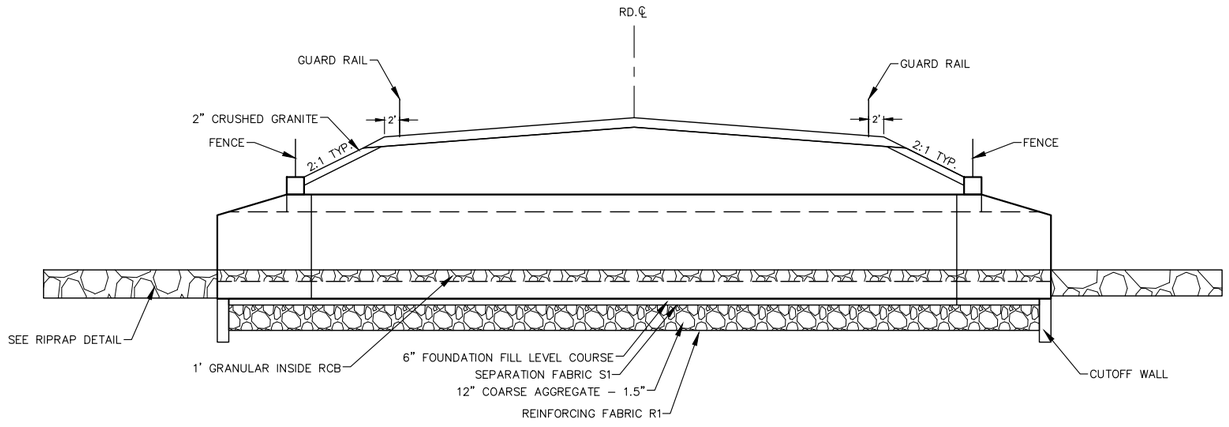
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PRELIMINARY



RURAL AGGREGATE SURFACED STREET SECTION

NO SCALE *XXTH AVE. ST: 0+00-0+00*



BOX CULVERT SECTION DETAIL

NO SCALE

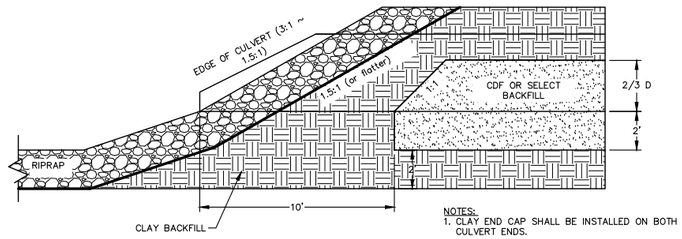
moore engineering, inc.

DETAILS
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TYPICAL DETAILS

DATE:	07.15.2025
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MANAGER:	JMH
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REVIEWER:	JMH

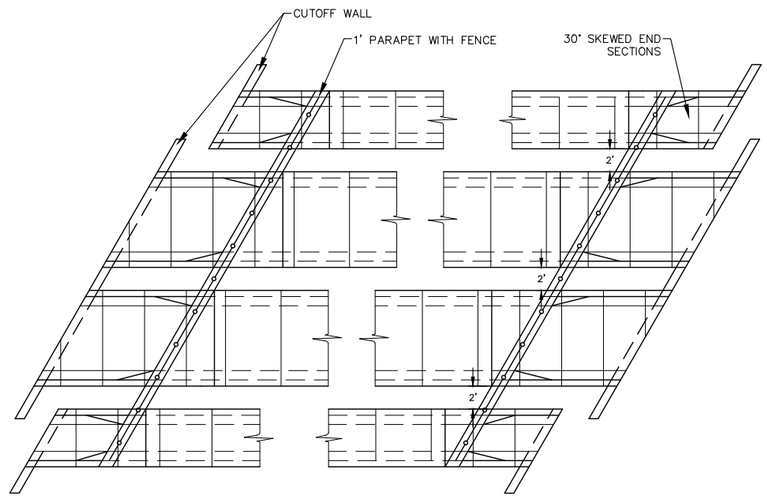
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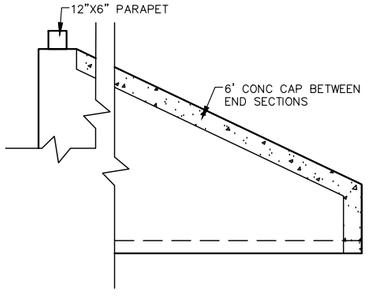
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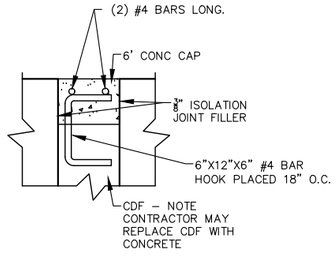
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TYPICAL RCB DETAIL

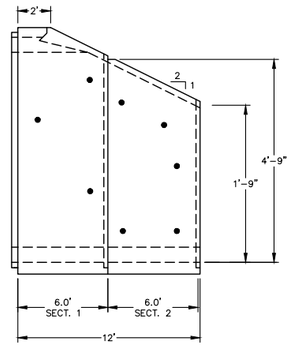
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CONCRETE CAP DETAIL

NO SCALE



BOX CULVERT SLOPED END SECTION

NO SCALE *XXXXX-XX 02.23.17*

PRELIMINARY

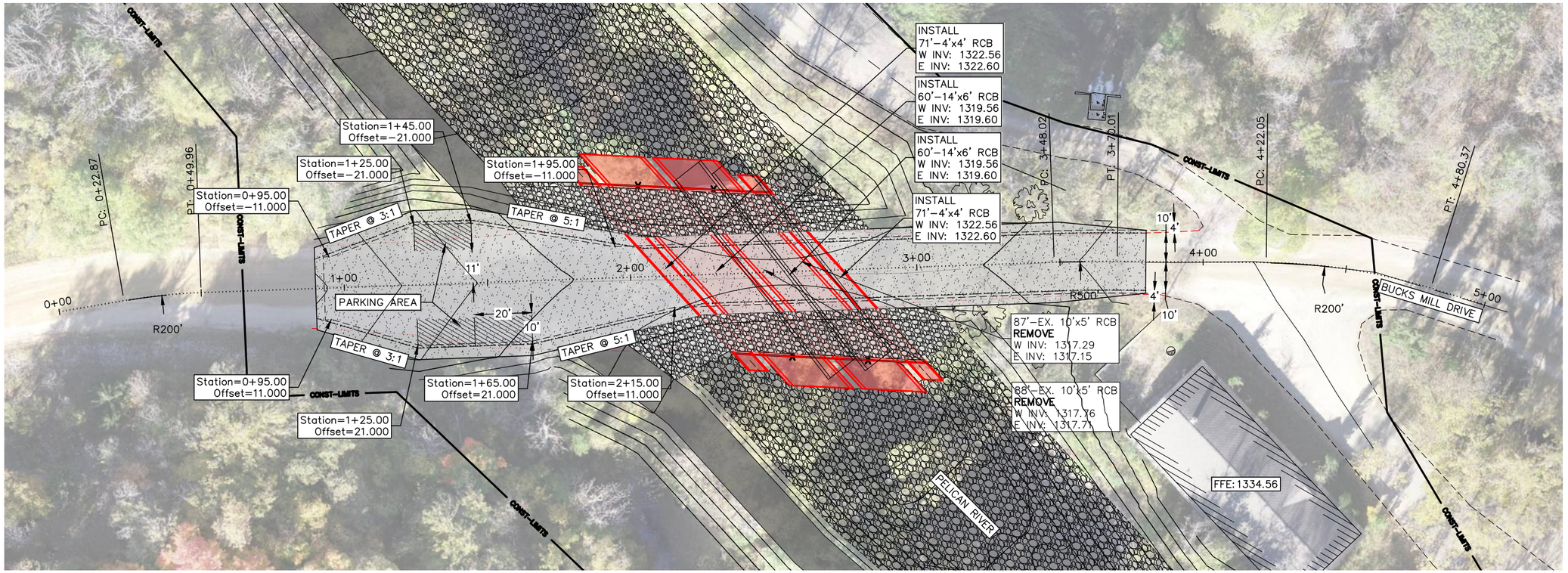
moore engineering, inc.

DETAILS
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TYPICAL DETAILS

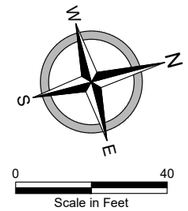
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REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-203

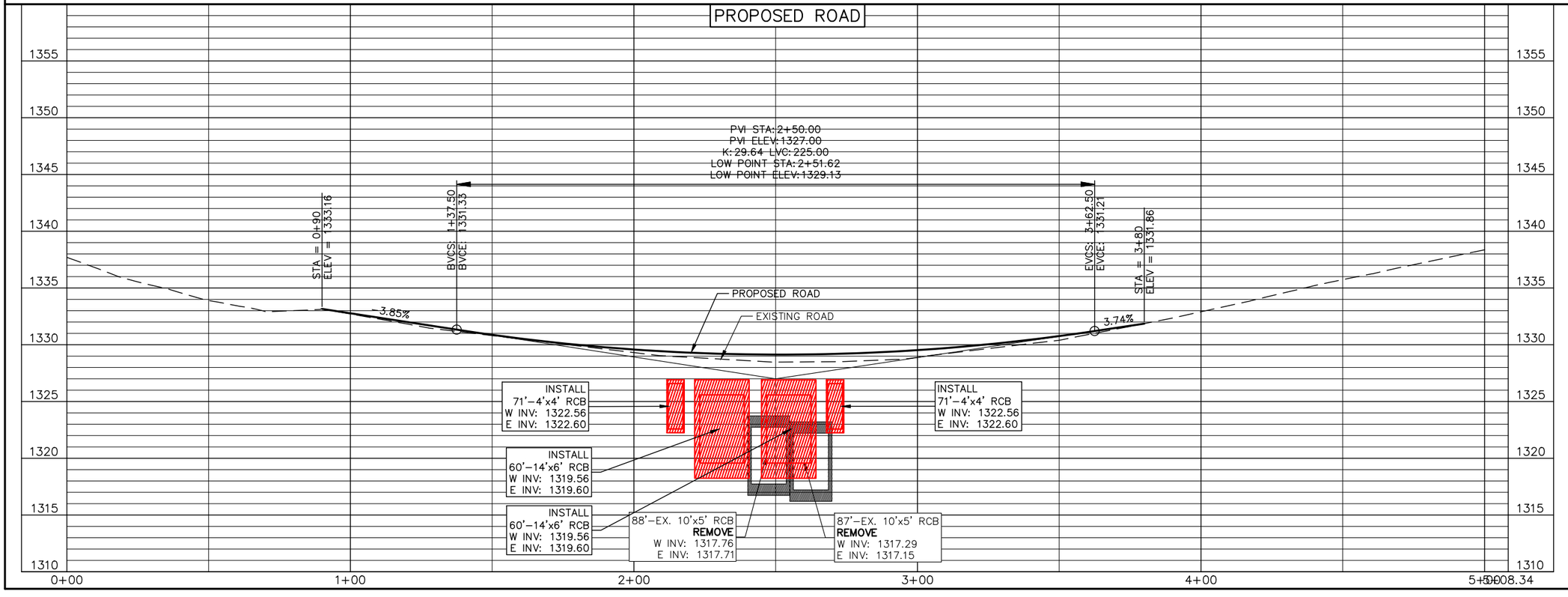
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PRELIMINARY



moore engineering, inc.



ROADWAY
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
ROADWAY RECONSTRUCT

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-401

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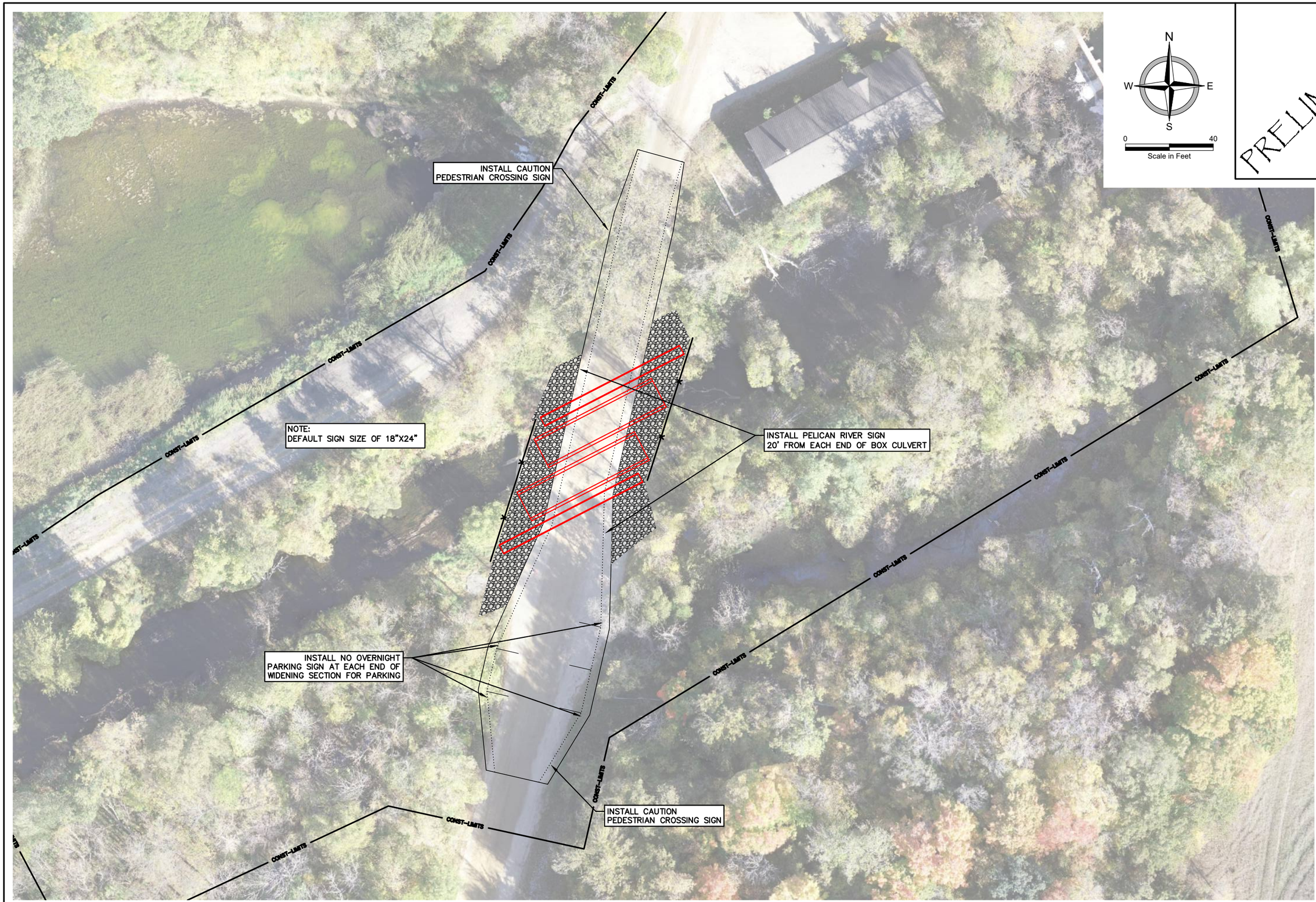
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TRAFFIC CONTROL
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
TEMPORARY TRAFFIC CONTROL PLAN

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-701

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PRELIMINARY

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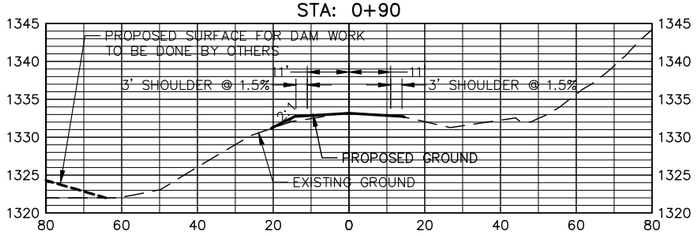
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BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
SIGNAGE PLAN

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

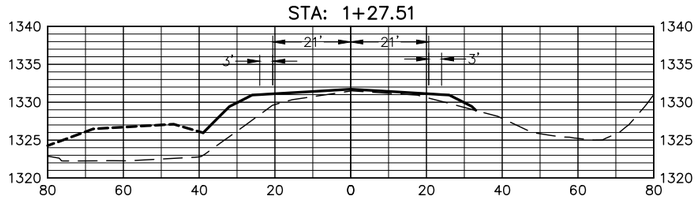
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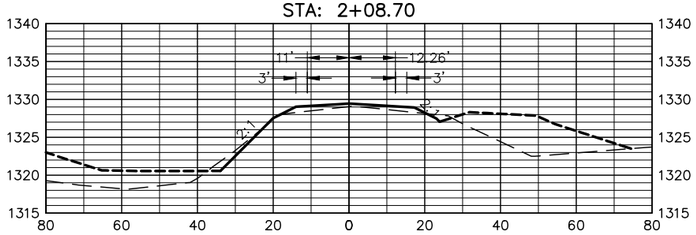
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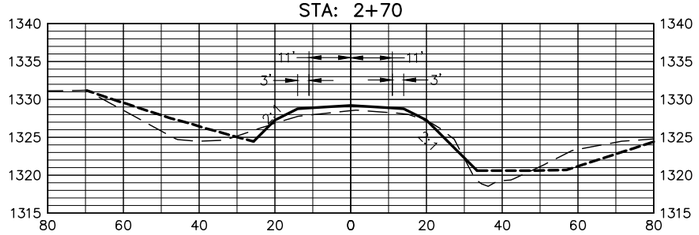
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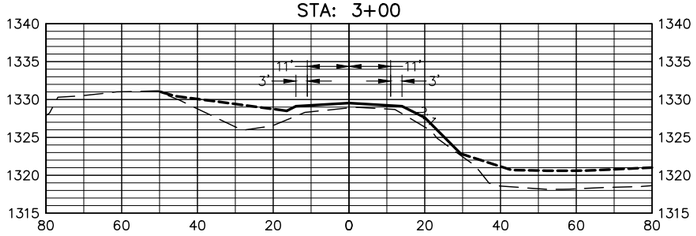
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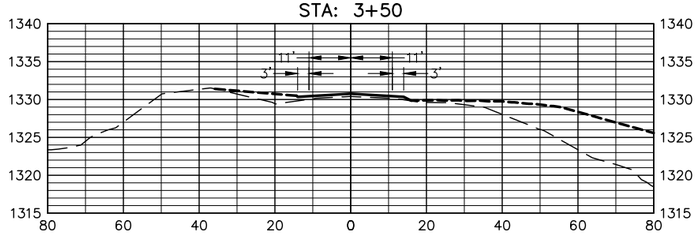
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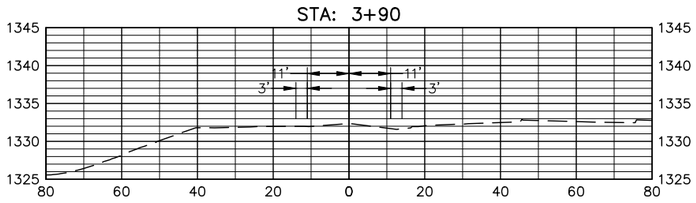
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EARTHWORK VOLUMES

Station	Cut Area (Ft^2)	Fill Area (Ft^2)	Cut Vol (Yd^3)	Fill Vol (Yd^3)	Total Cut (Yd^3)	Total Fill (Yd^3)
0+90	0.04	5.75	0.00	0.00	0.00	0.00
1+27.51	0.00	88.76	0.03	65.65	0.03	65.65
2+08.70	7.93	19.05	11.92	162.08	11.95	227.73
2+70	9.19	29.71	19.44	55.35	31.39	283.08
3+00	0.00	36.00	5.11	36.51	36.50	319.59
3+50	0.00	10.46	0.00	43.03	36.50	362.62
3+90	0.00	0.00	0.00	7.75	36.50	370.37

PRELIMINARY

moore engineering, inc.

CROSS SECTIONS
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
CROSS SECTIONS

DATE:	07.15.2025
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-801

Appendix C Environmental Assessment Worksheet (EAW)

Buck's Mill Dam Modification

Environmental Assessment Worksheet

March 2025
Moore Project No. 24327

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

PREPARED BY
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moore
engineering, inc.

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December 2022 version

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
Fax: N/A
Email: tera.guetter@arvig.net

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
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- 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

Lako Well Co. 91339 LAKO, P.

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

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	Depth Completed	Date Well Completed
330 ft.	330 ft.	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
Olson Well Drilling 14229 MONROE, S.
Licensee Business Lic. or Reg. No. Name of Driller

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

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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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Natural Resource Conservation Service (NRCS) (n.d.). Web soil survey. Retrieved October 10, 2024, from https://websoilsurvey.sc.egov.usda.gov/App/HomePage.html

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FIGURES

Figure 1.....Site Location
Figure 2.....National Wetland Inventory
Figure 3.....National Hydrography Dataset
Figure 4.....Soil Survey
Figure 5.....Delineated Aquatic Resources

moore engineering, inc.

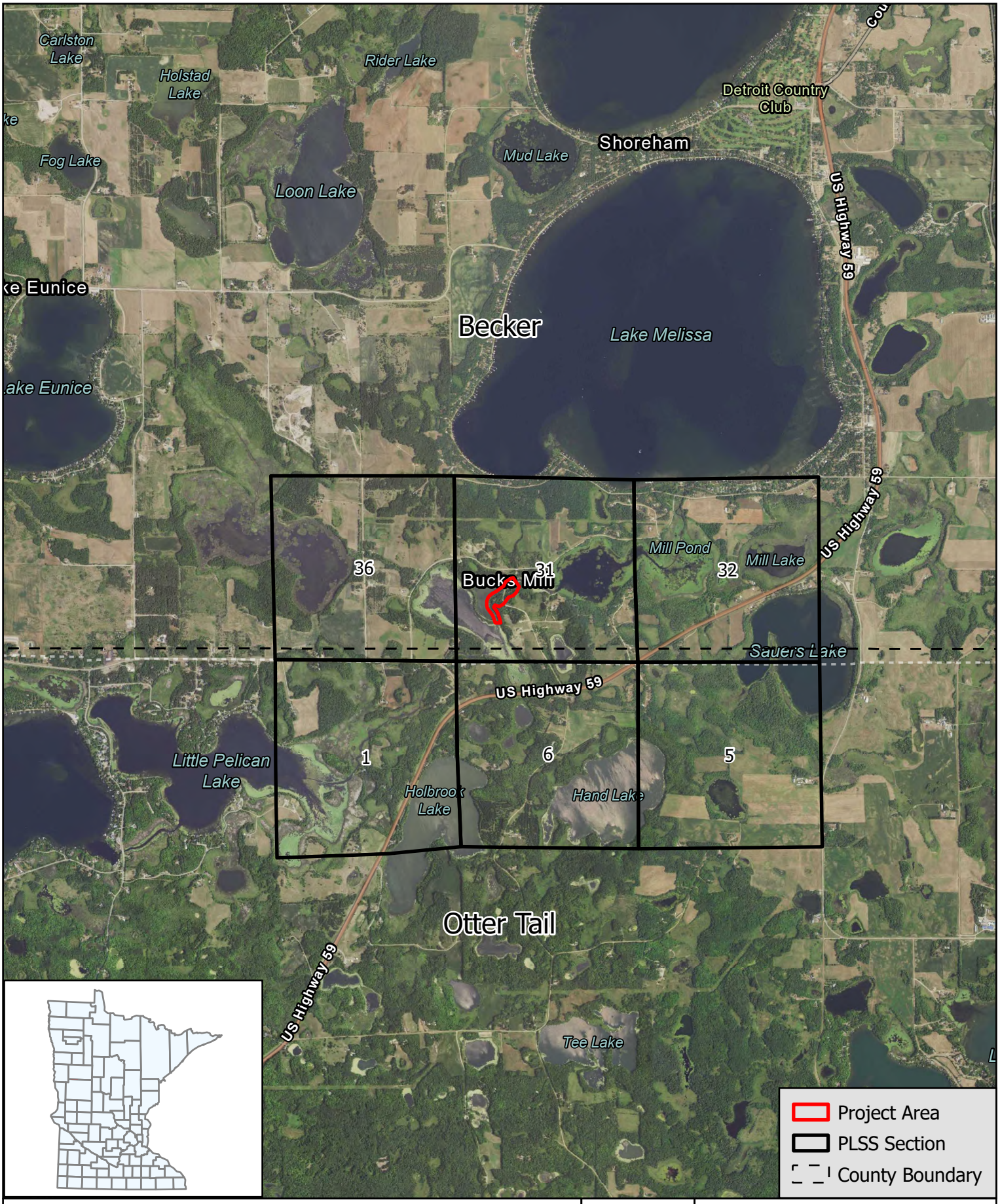


Figure 1- Site Location Map
Bucks Mill
Becker County, Minnesota

0 0.5 1 Miles

N W E S

moore engineering, inc.

Created By: PJO Date Created: 10/10/24 Date Saved: 10/10/24Date Exported: 10/10/24
Delineated By: NAME (Moore Engineering, Inc) Delineated on: 10/7/24 Aerial Image: 2021 County NAIP SIDS
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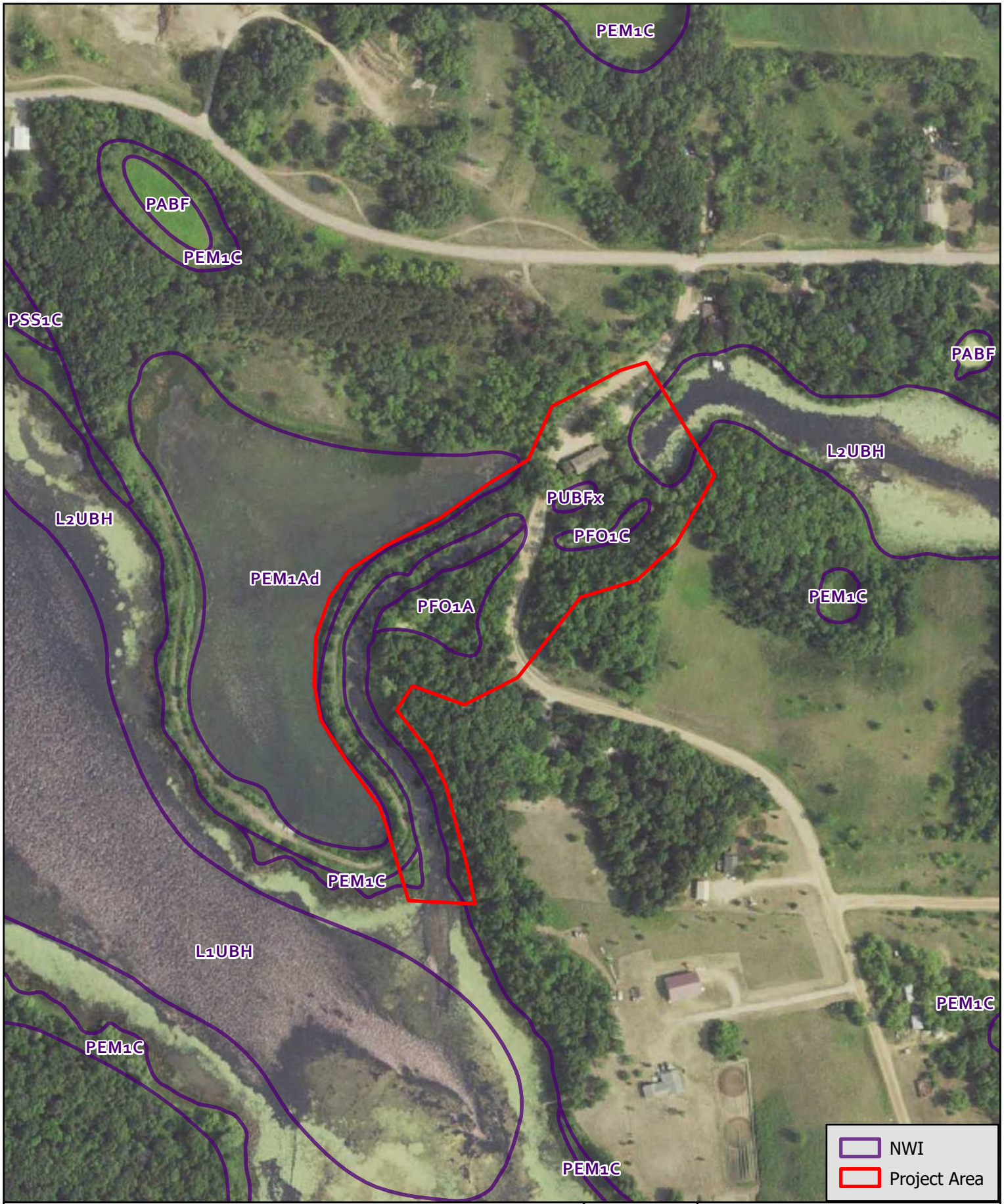


Figure 2- National Wetlands Inventory
Bucks Mill
Becker County, Minnesota

0 150 300 US Feet
1:3,600

N
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moore engineering, inc.

Created By: PJO Date Created: 10/10/24 Date Saved: 10/10/24 Date Exported: 10/10/24
Delineated By: GWM, DJK (Moore Engineering, Inc) Delineated on: 10/7/24 Aerial Image: 2021 County NAIP SIDS
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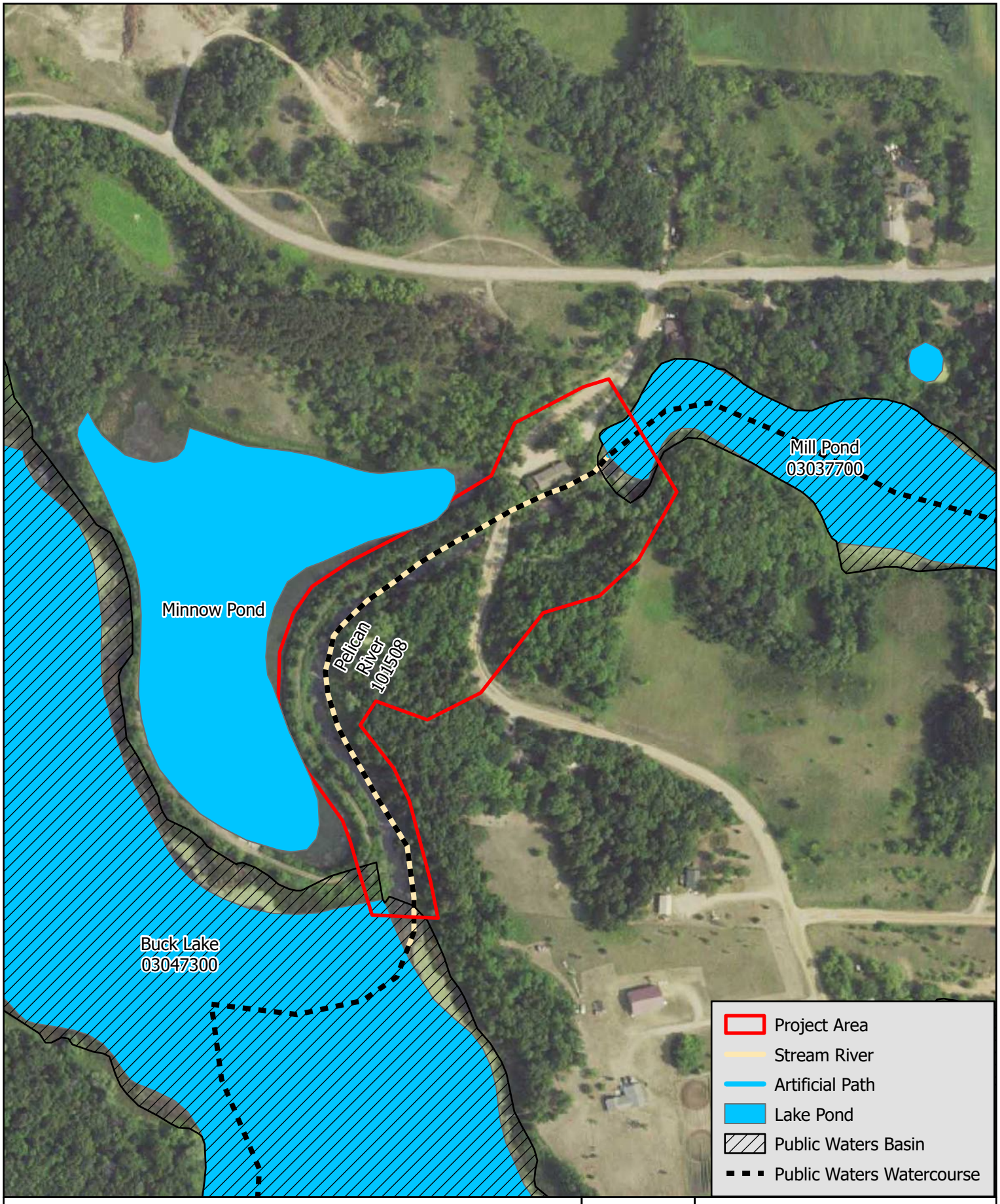


Figure 3- Water Resources
Bucks Mill
Becker County, Minnesota

0 150 300 US Feet
1:3,600

N W E S

moore engineering, inc.

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Delineated By: GWM, DJK (Moore Engineering, Inc) Delineated on: 10/07/24 Aerial Image: 2021 County NAIP SIDS
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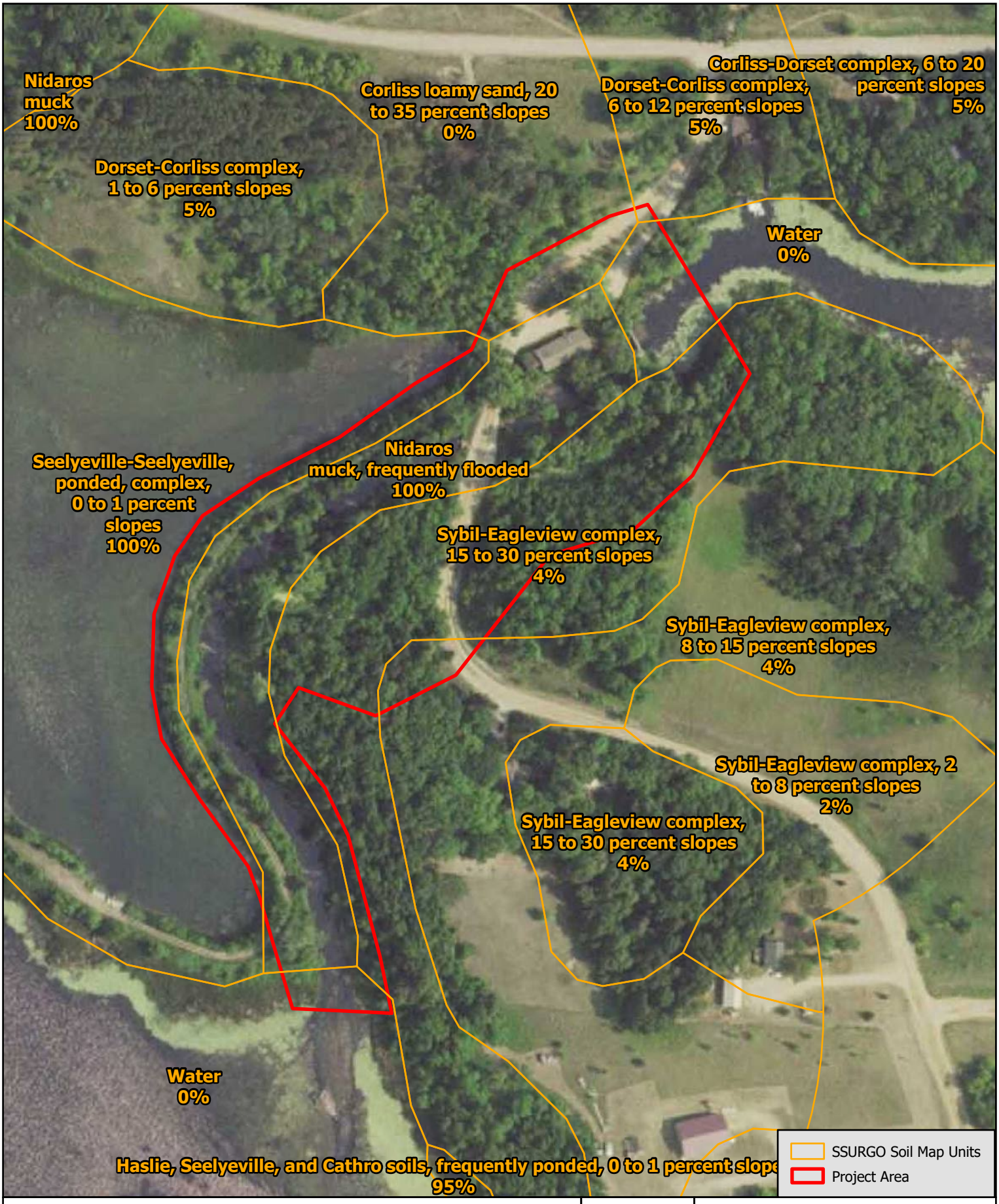


Figure 4- SSURGO Soil Map Units
Bucks Mill
Becker County, Minnesota

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
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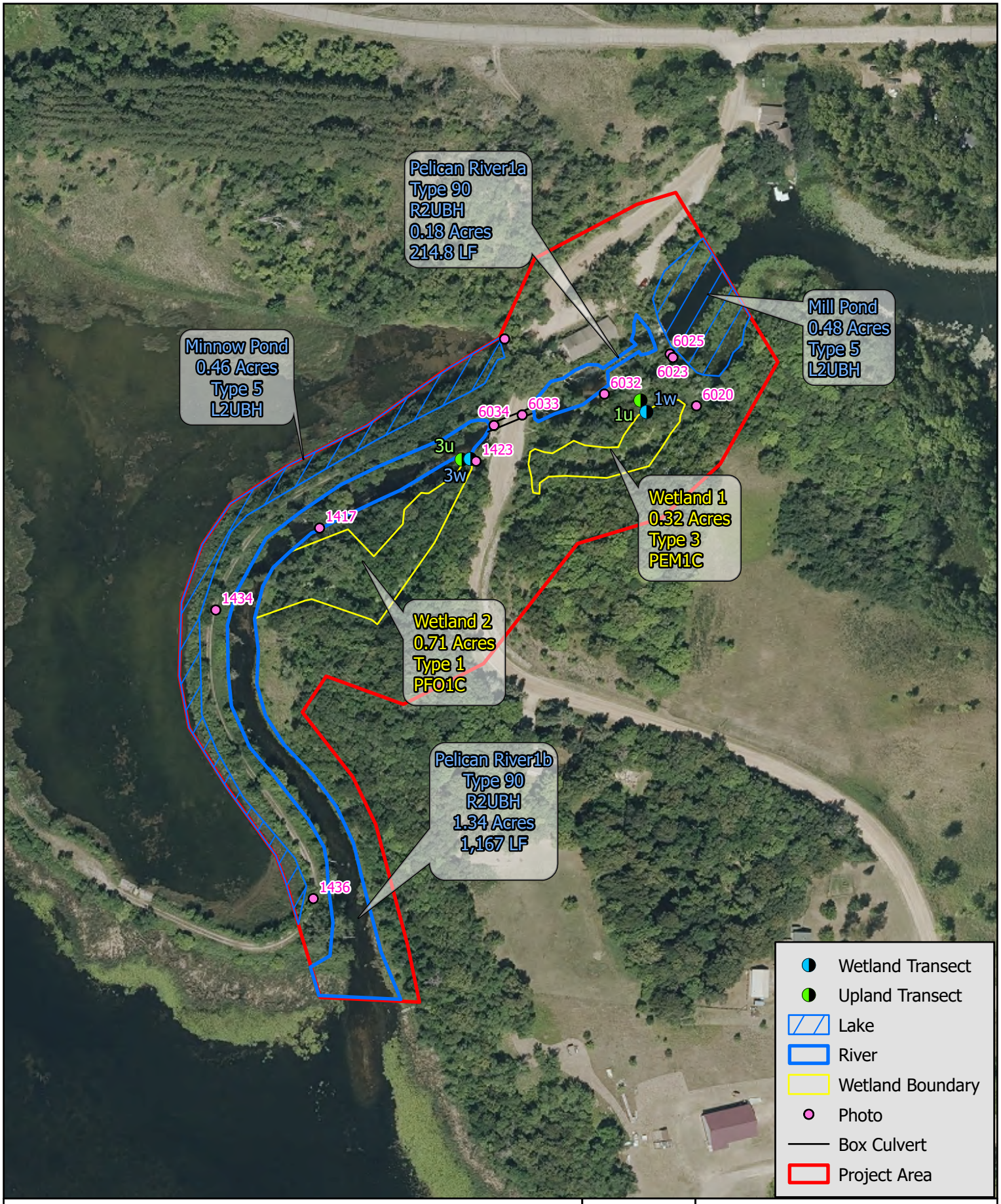


Figure 5- Delineated Aquatic Features
Bucks Mill
Becker County, Minnesota

0 100 200 US Feet
1:2,400

N W E S

moore engineering, inc.

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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)

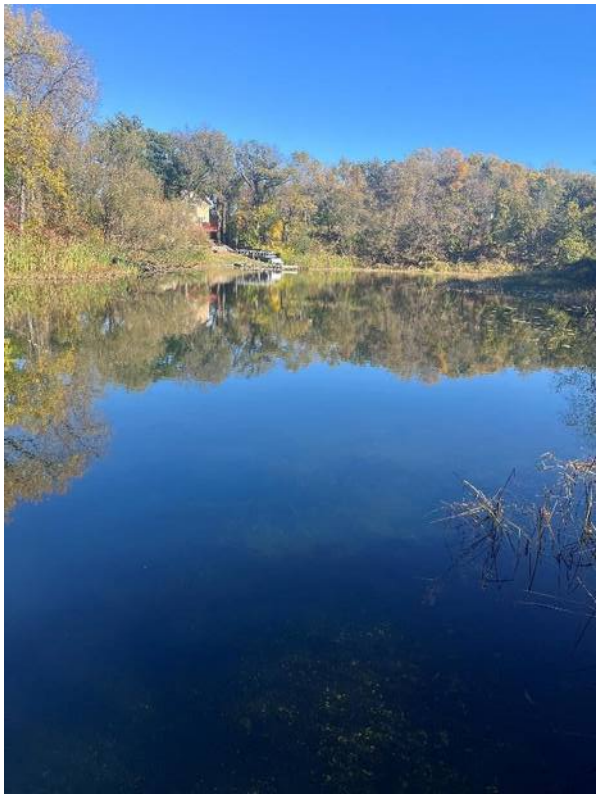


Photo ID Number: 6025 (Mill Pond)



Photo ID Number: 6023 (Bucks Mill Dam)



Photo ID Number: 6032 (Pelican River 1a)

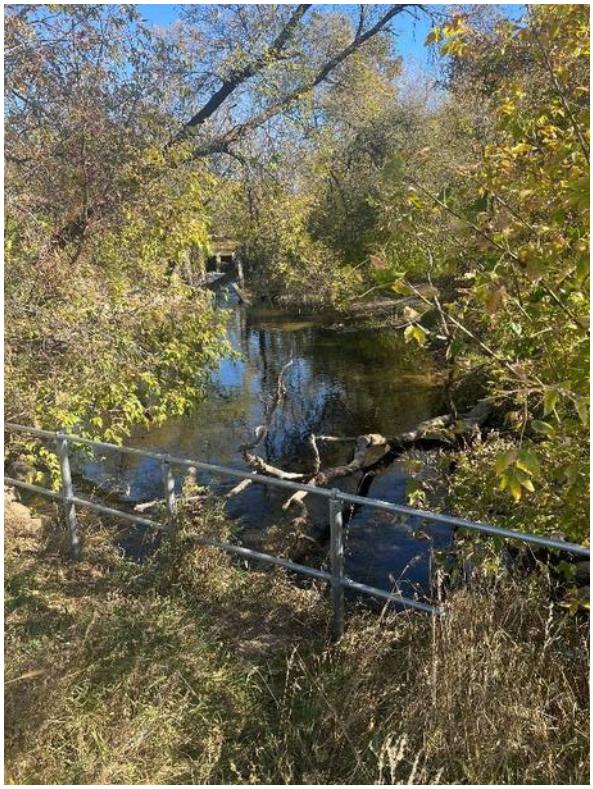


Photo ID Number: 6033 (Pelican River 1a)



Photo ID Number: 6034 (Pelican River 1b)



Photo ID Number: 1423 (Wetland 2)



Photo ID Number: N/A (Minnow Pond)

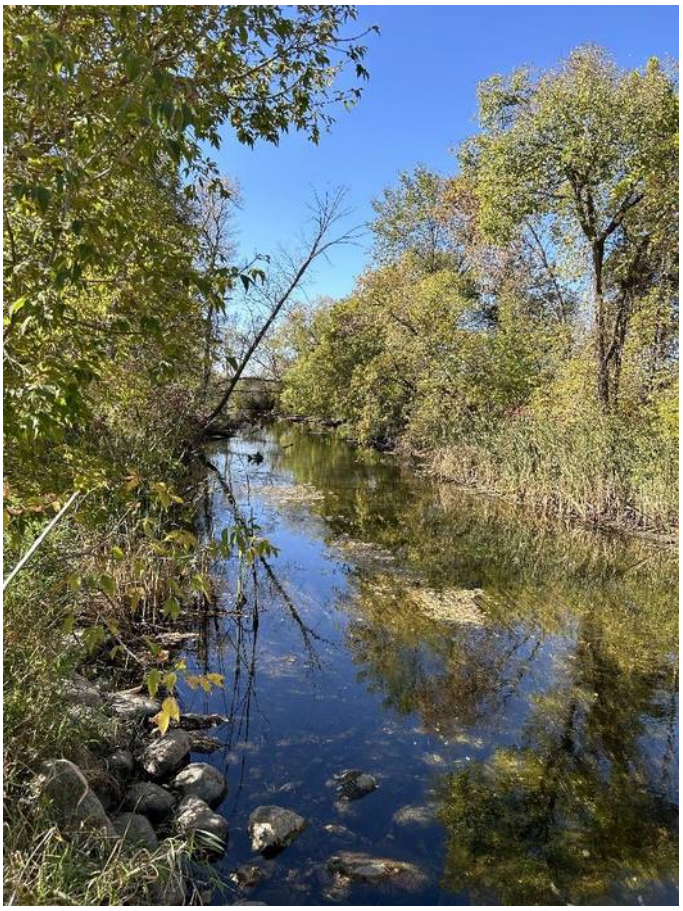


Photo ID Number: 1417 (Pelican River 1b)



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 0.130.25 0.5 0.75 1 Miles

Project_Boundary



Project Type: Natural Resource Management, Drainage & Flood Control

Project Size (acres): 10.77

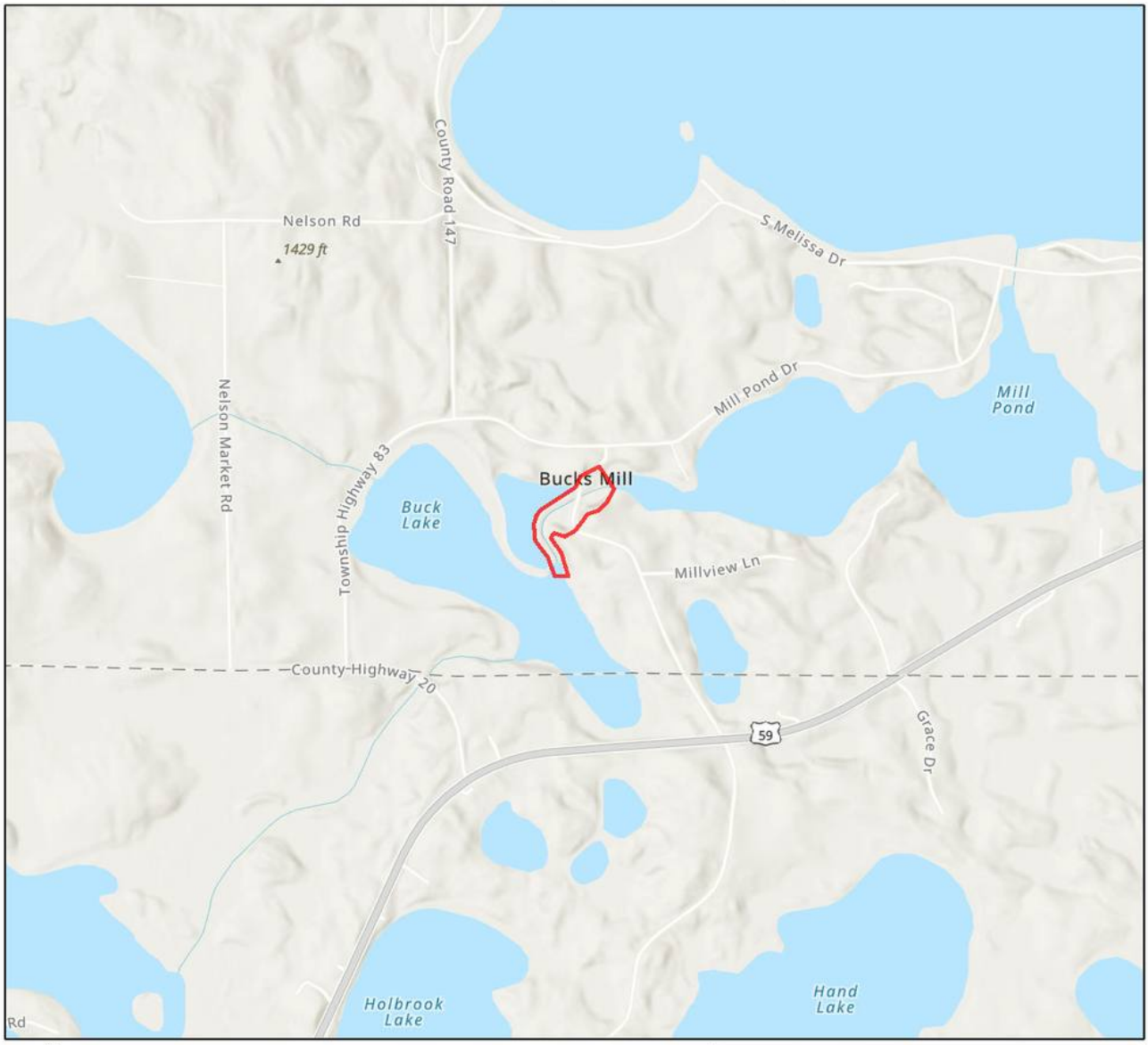
County(s): Becker

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 0.13 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
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.

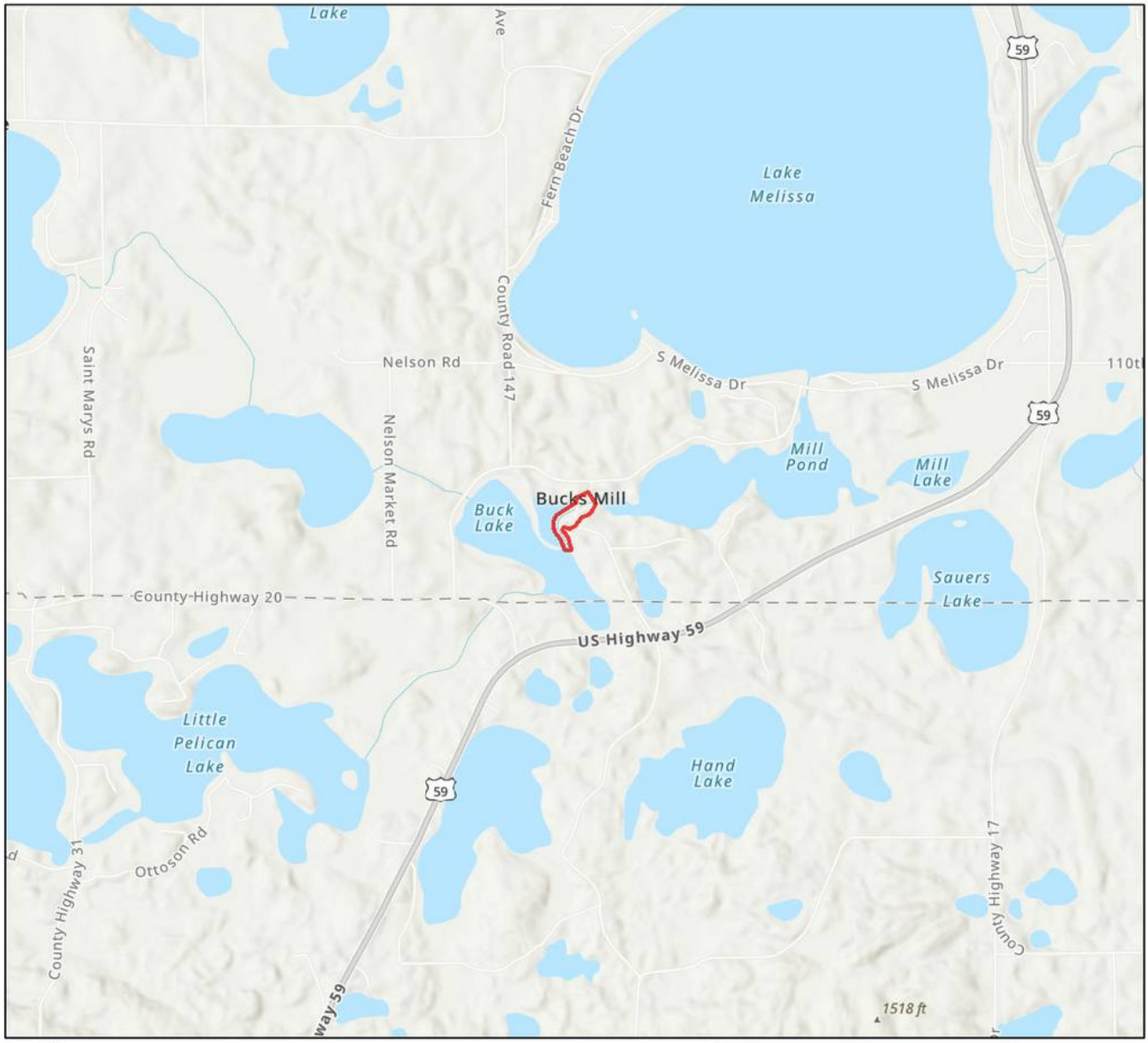
For informational purposes only, this tool currently checks the following USFWS Regulatory Layers:

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



N
W E
S

0 0.28 0.55 1.1 1.65 2.2 Miles

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.

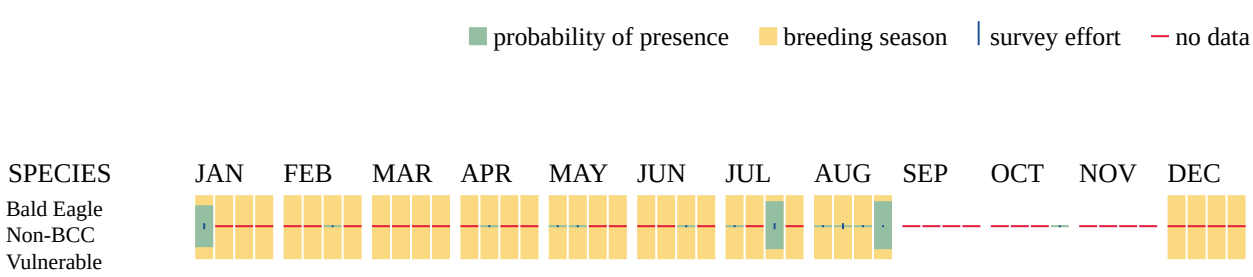
Probability of Presence (▪)

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.

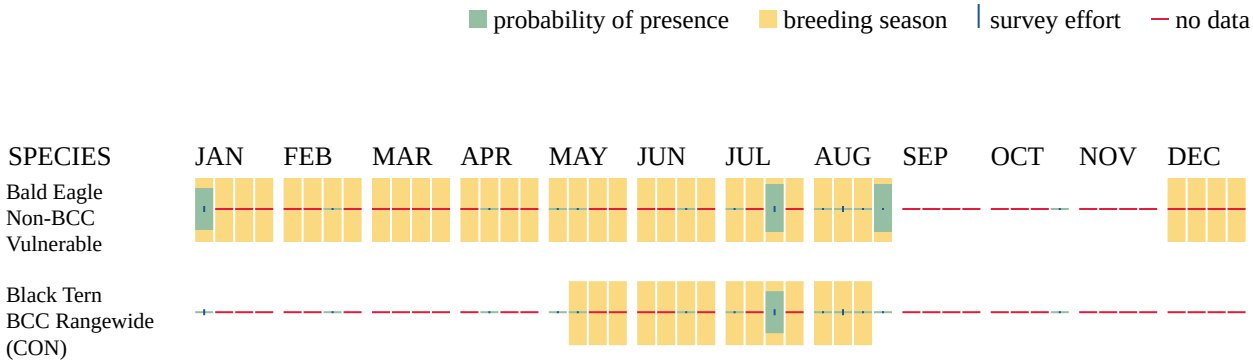
Probability of Presence (■)

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
City: Plymouth
State: MN
Zip: 55447
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.

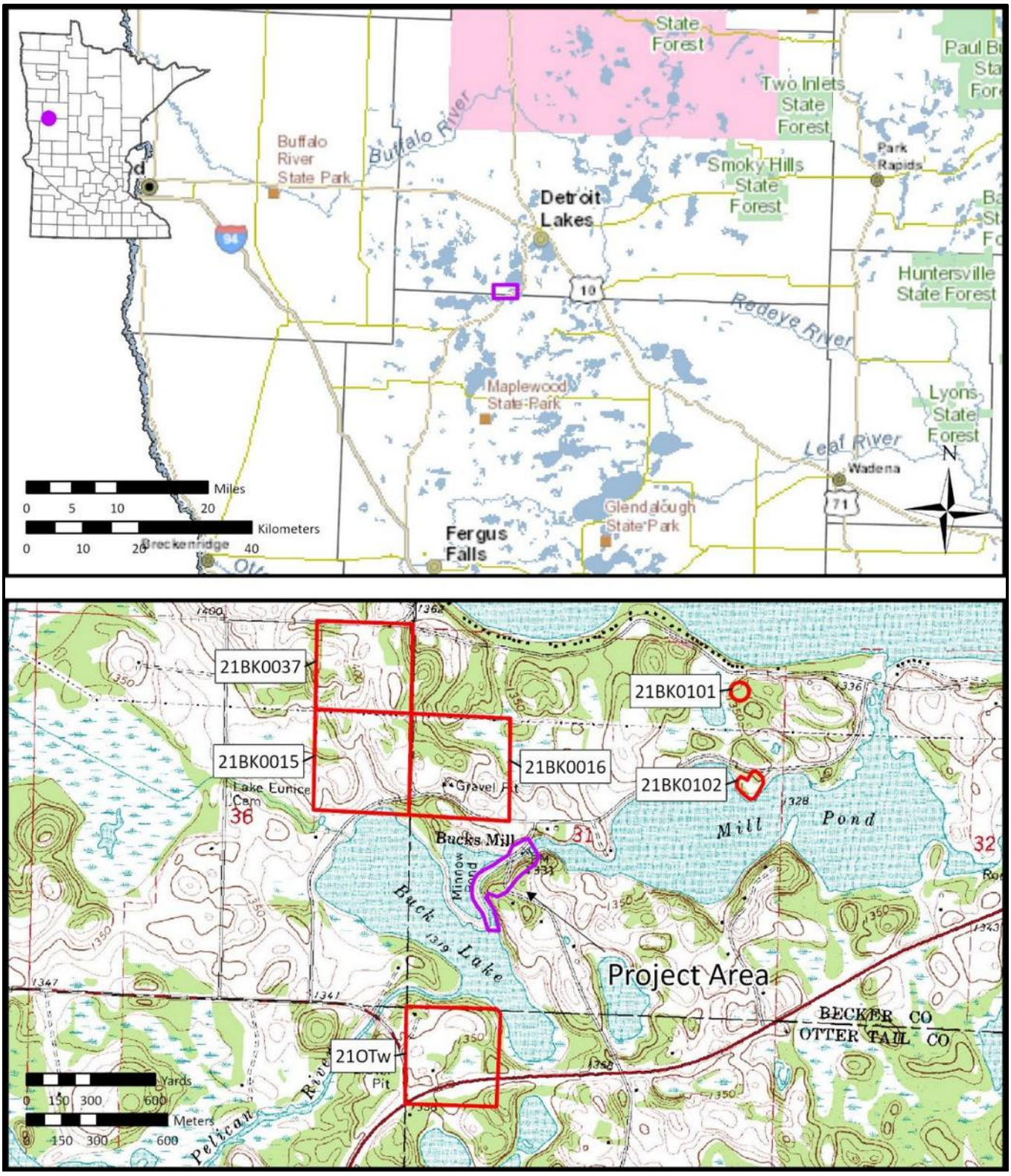


Figure 1. Location of the FSH-2415 project APE and nearby cultural resources, Becker County, Minnesota.[4]

[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.

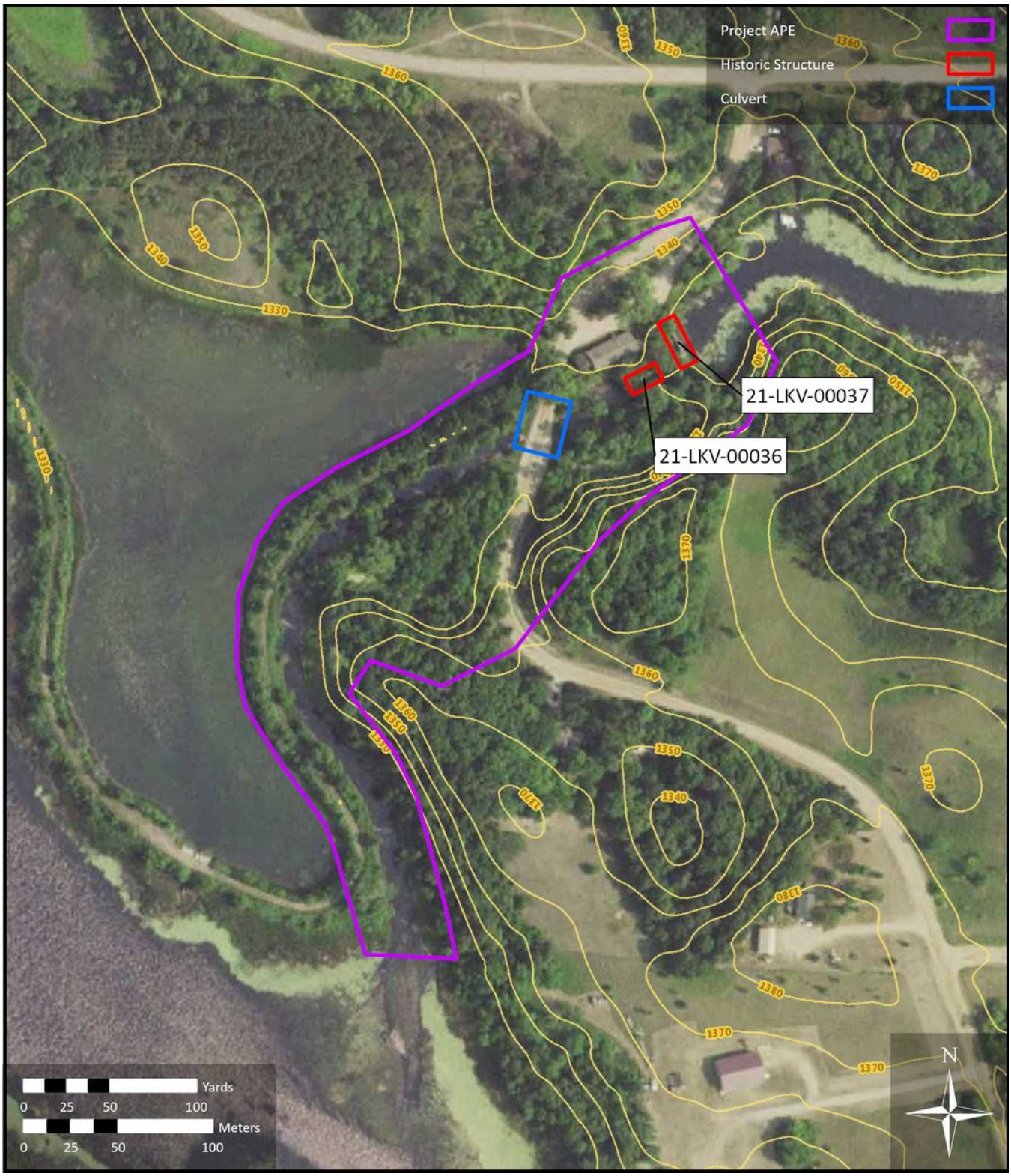


Figure 2. Detail of FSH-2415 project APE.

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,

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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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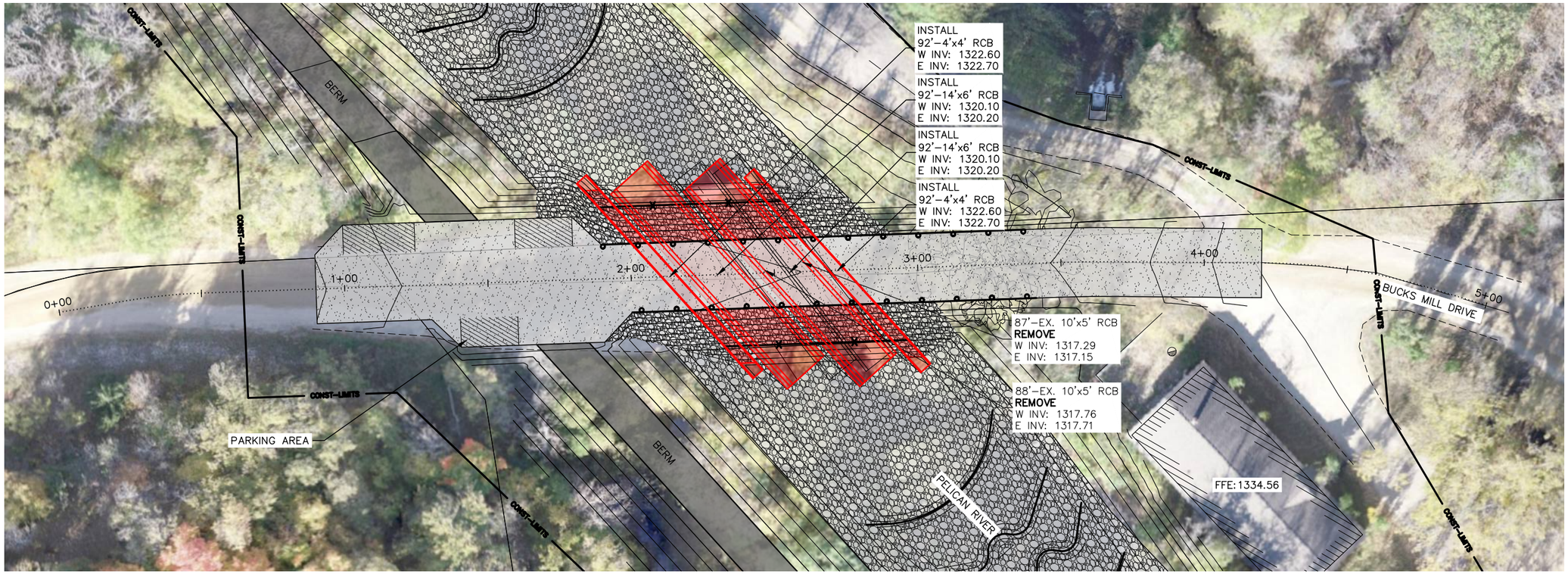
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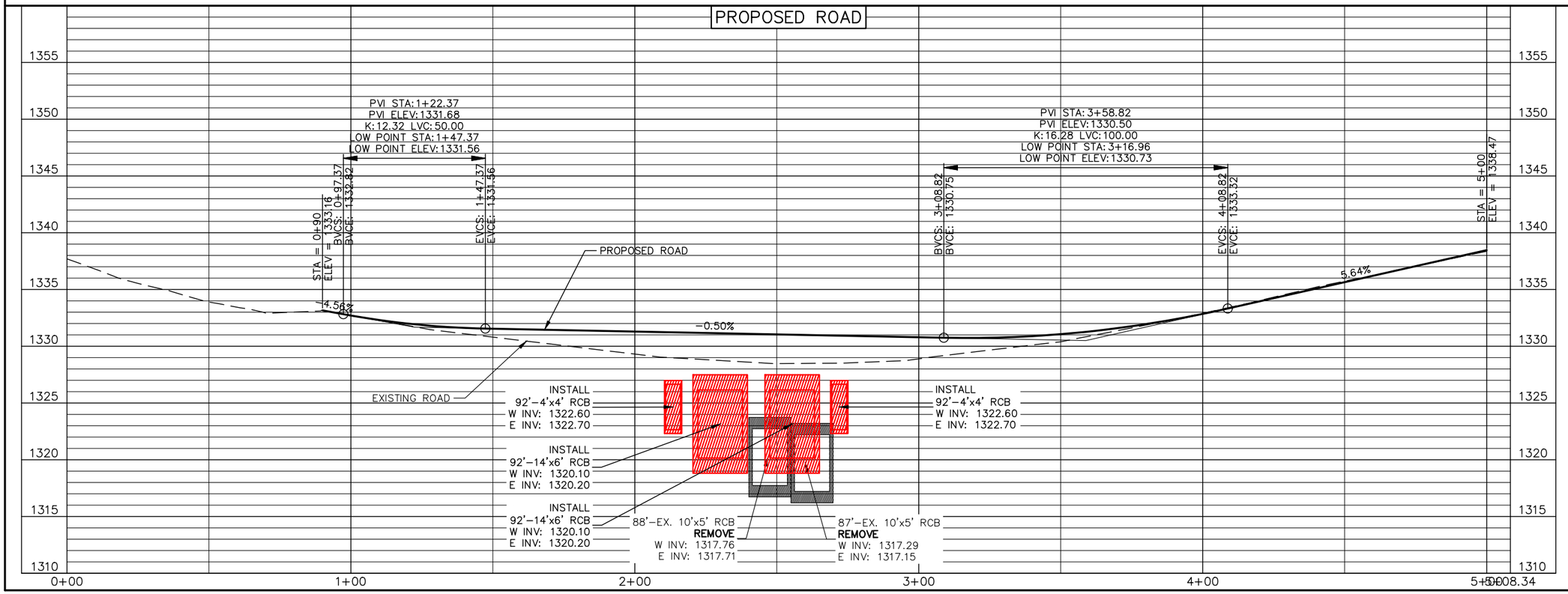
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BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED CONDITIONS

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REV NUM:	----
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MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

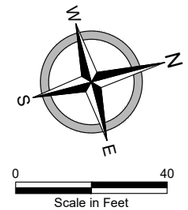
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PRELIMINARY



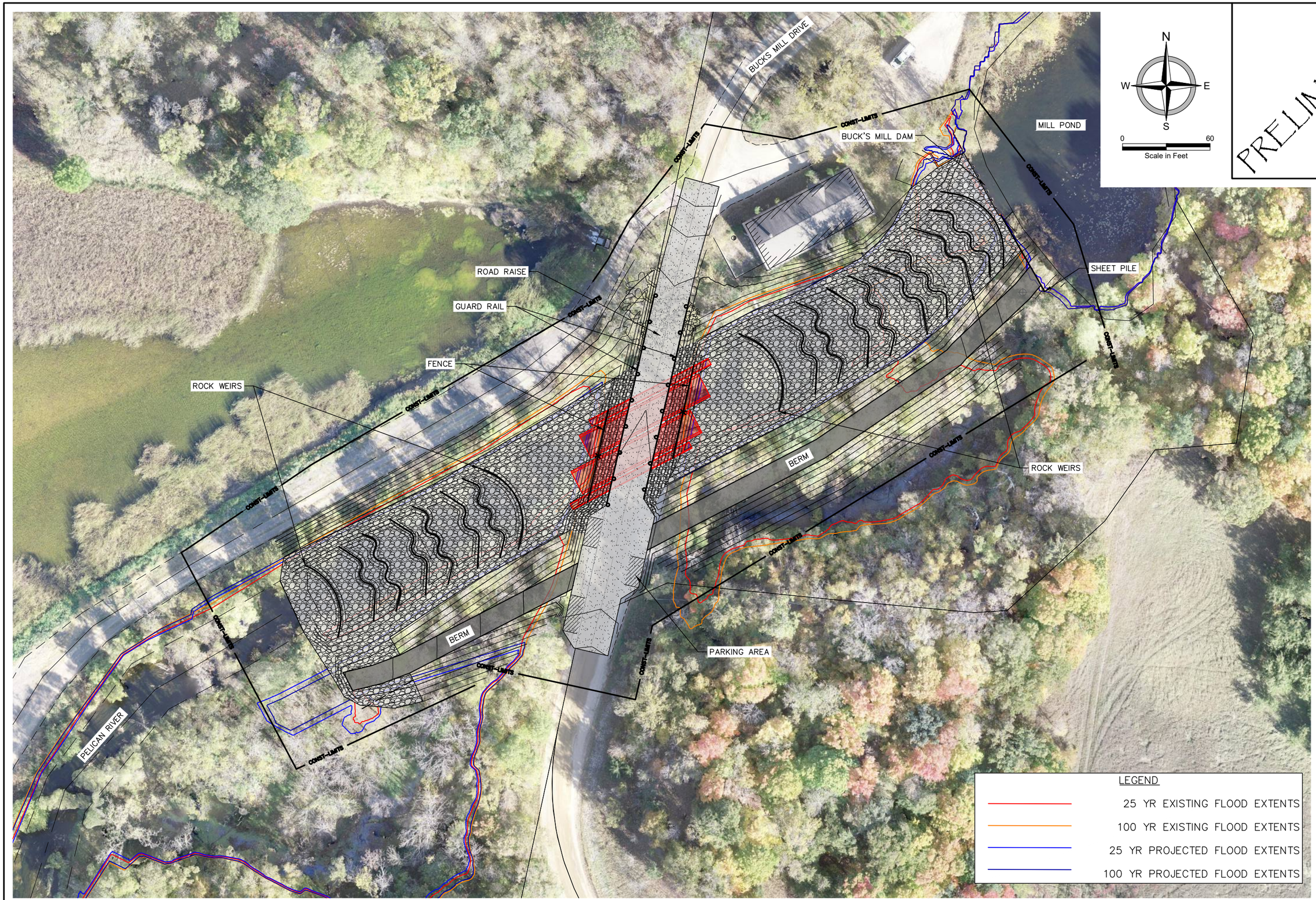
moore engineering, inc.

ROADWAY
BUCK'S MILL DAM - ROAD IMPROVEMENTS
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
ROADWAY RECONSTRUCT

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REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-401

FILE LOCATION: R:\Projects\24000\24300\24327\CIVIL\PRODUCTION\24327_ProjectLayouts.dwg



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PRELIMINARY

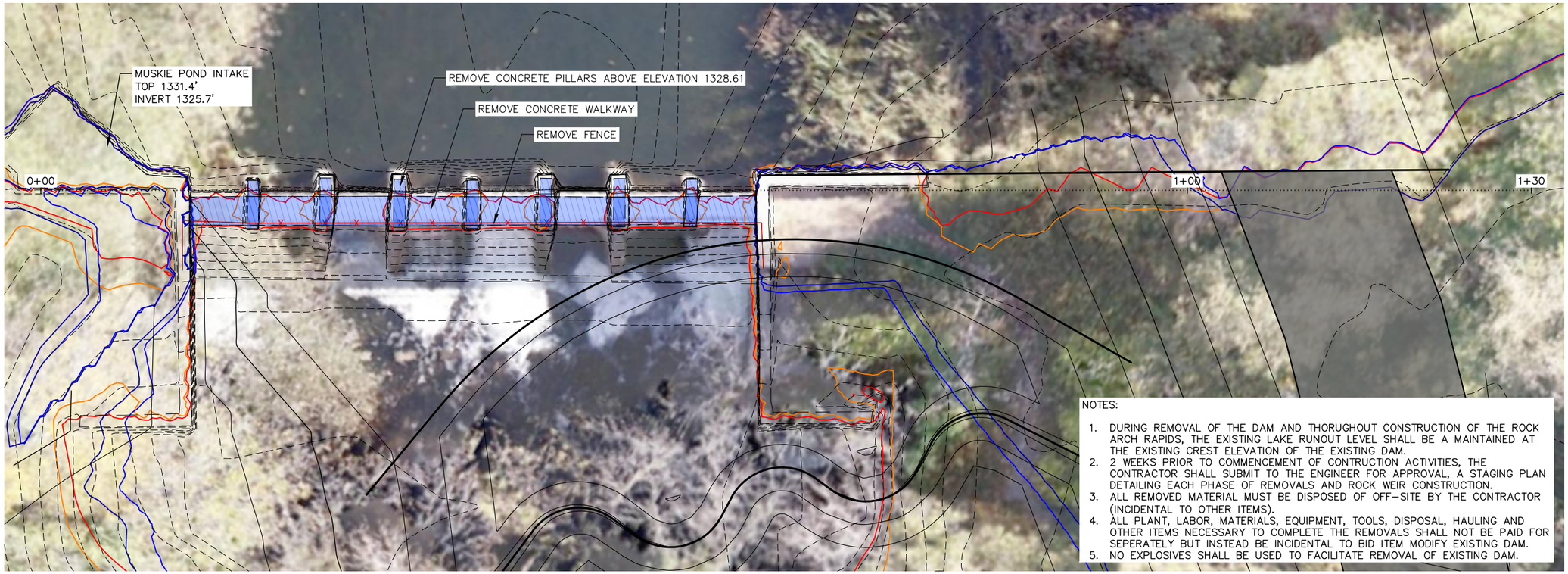
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PROJECT LAYOUTS
BUCK'S MILL DAM
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED CONDITIONS

DATE:	02.04.25
REV DATE:	----
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MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

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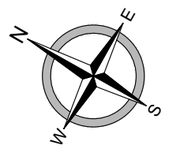
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NOTES:

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.

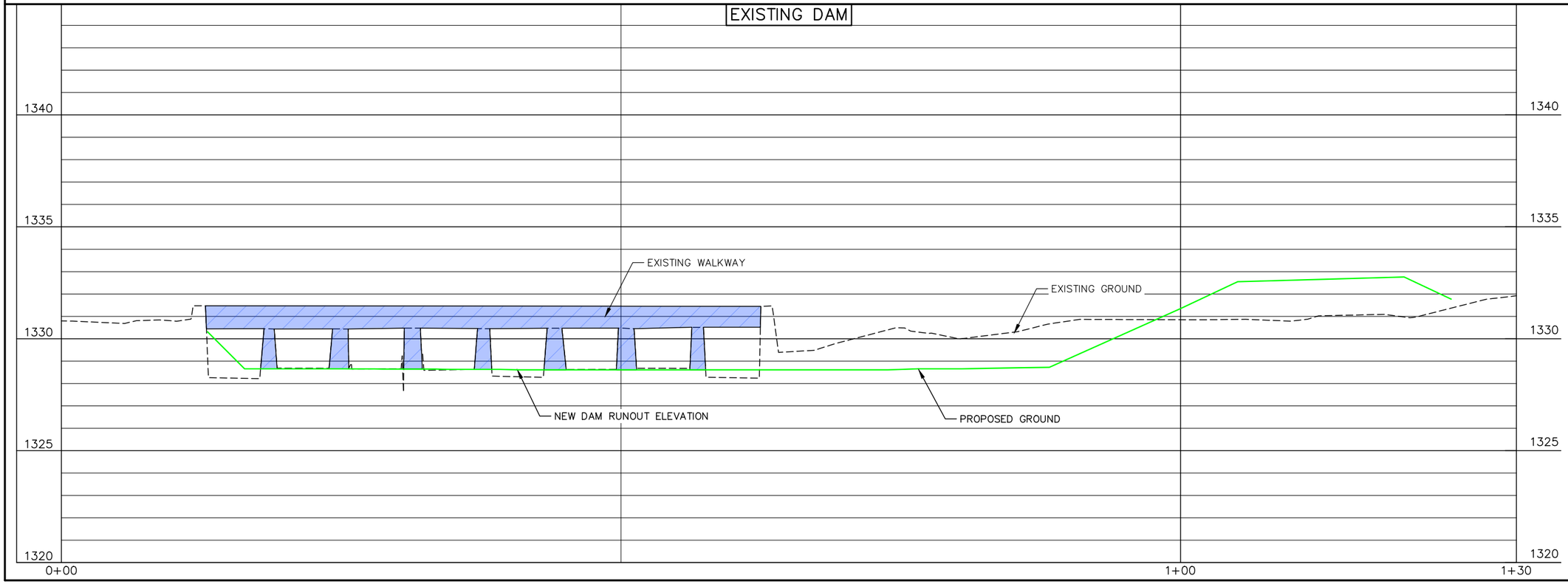
PRELIMINARY



0 10
Scale in Feet

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engineering, inc.

EXISTING DAM

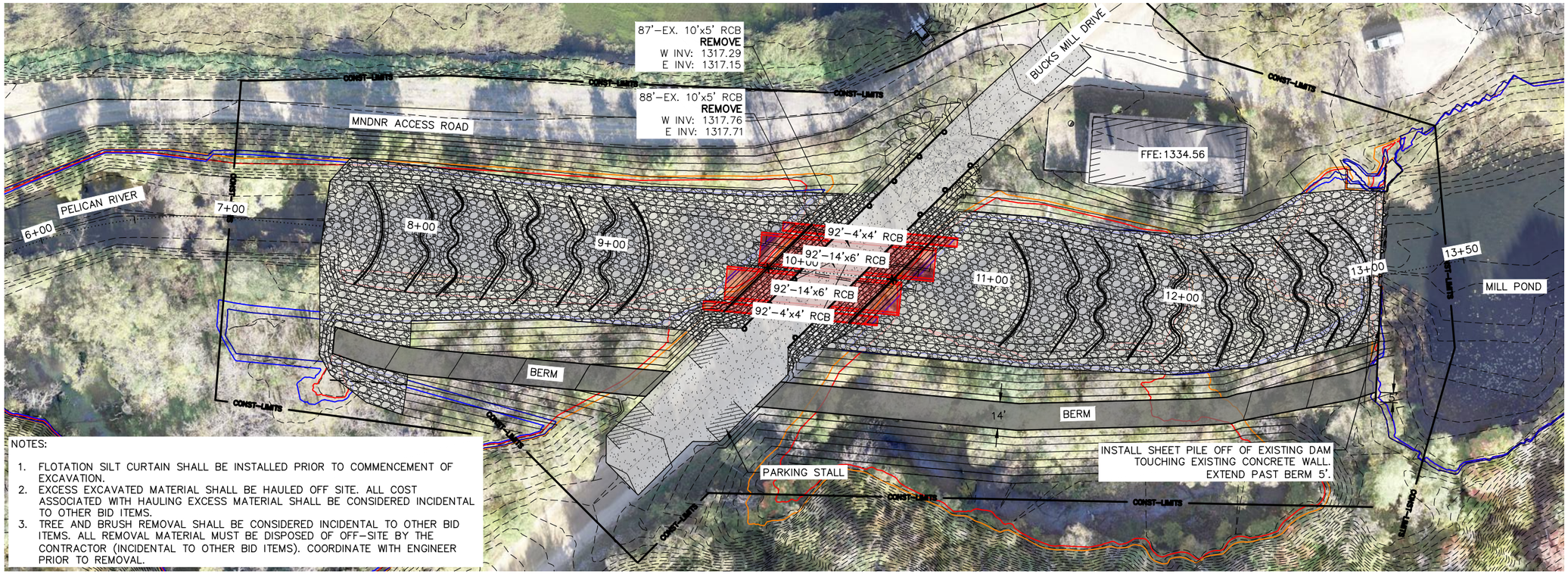


REMOVALS
BUCK'S MILL DAM
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
DAM REMOVAL PLAN

DATE:	02.04.25
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-301

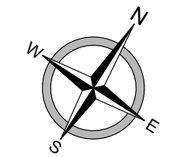
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NOTES:

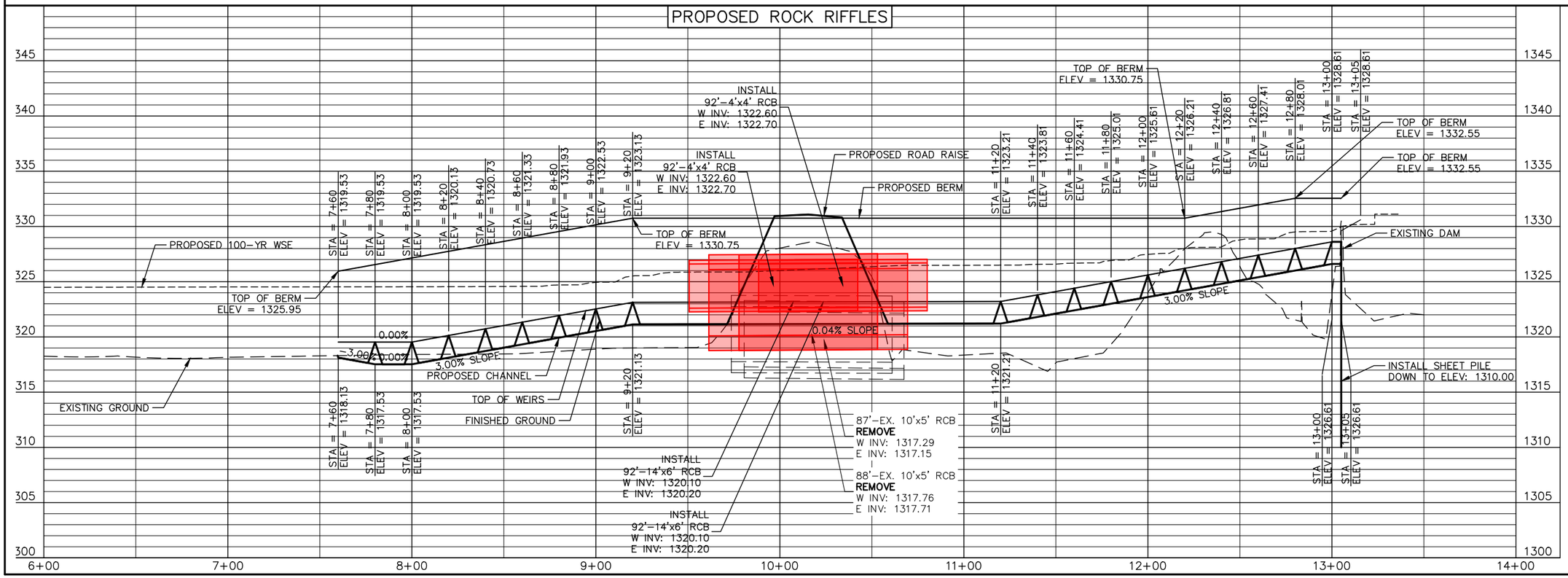
1. FLOTATION SILT CURTAIN SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF EXCAVATION.
2. EXCESS EXCAVATED MATERIAL SHALL BE HAULED OFF SITE. ALL COST ASSOCIATED WITH HAULING EXCESS MATERIAL SHALL BE CONSIDERED INCIDENTAL TO OTHER BID ITEMS.
3. TREE AND BRUSH REMOVAL SHALL BE CONSIDERED INCIDENTAL TO OTHER 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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PROPOSED ROCK RIFFLES



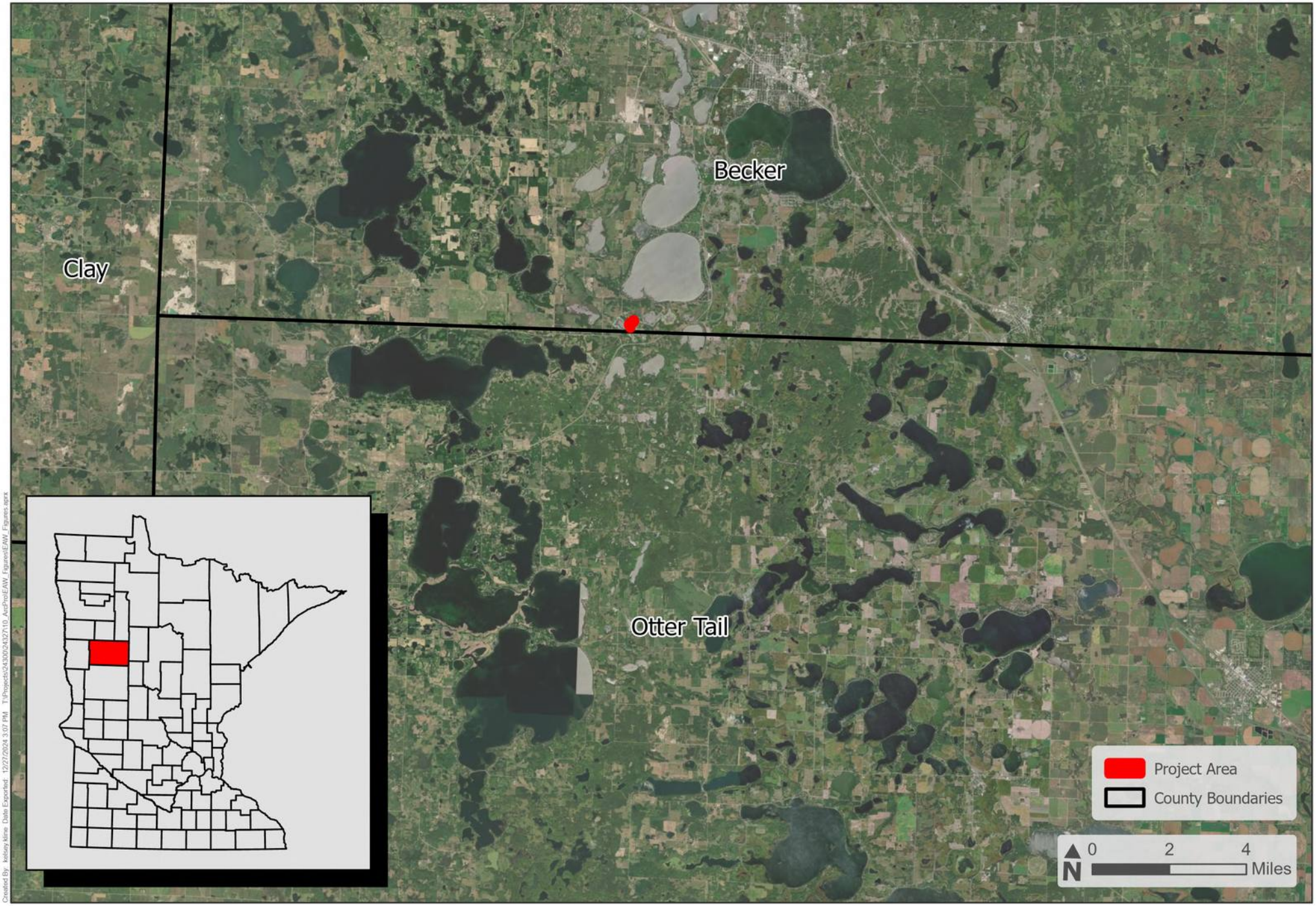
PLAN & PROFILE
BUCK'S MILL DAM
PELICAN RIVER WATERSHED DISTRICT
BECKER COUNTY, MINNESOTA
PROPOSED ROCK RIFFLES

DATE:	02.04.25
REV DATE:	----
REV NUM:	----
RECORD:	----
PROJECT No.	24327
MANAGER:	JMH
DESIGNER:	ZAC
DRAFTER:	DWA
REVIEWER:	JMH

C-401

Figure 1

Project Location



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Project Location

Bucks Mill Dam Modification

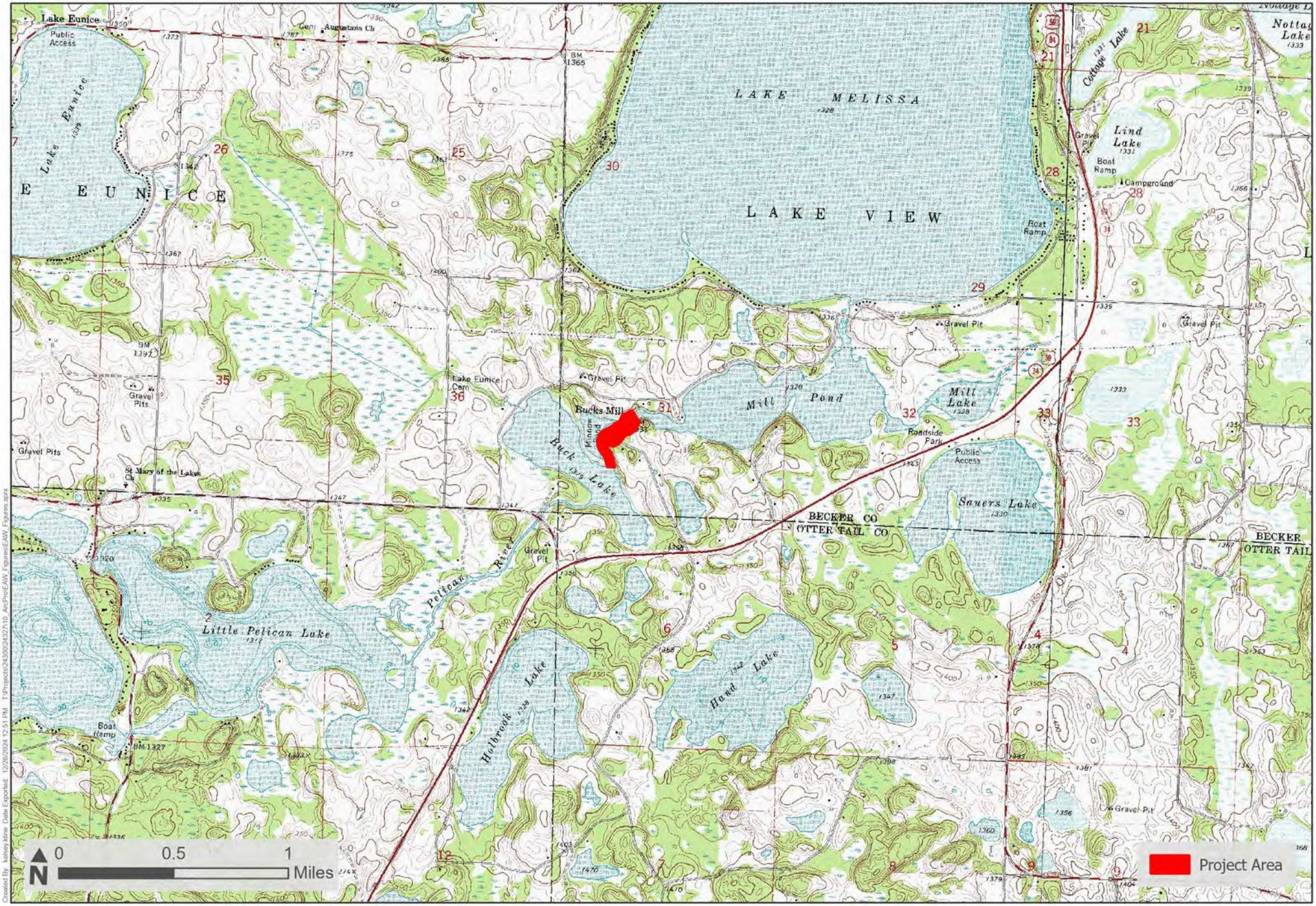
Figure 1

Pelican River Watershed District

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Figure 2

USGS Topographic Map



USGS Topographic Map

Bucks Mill Dam Modification

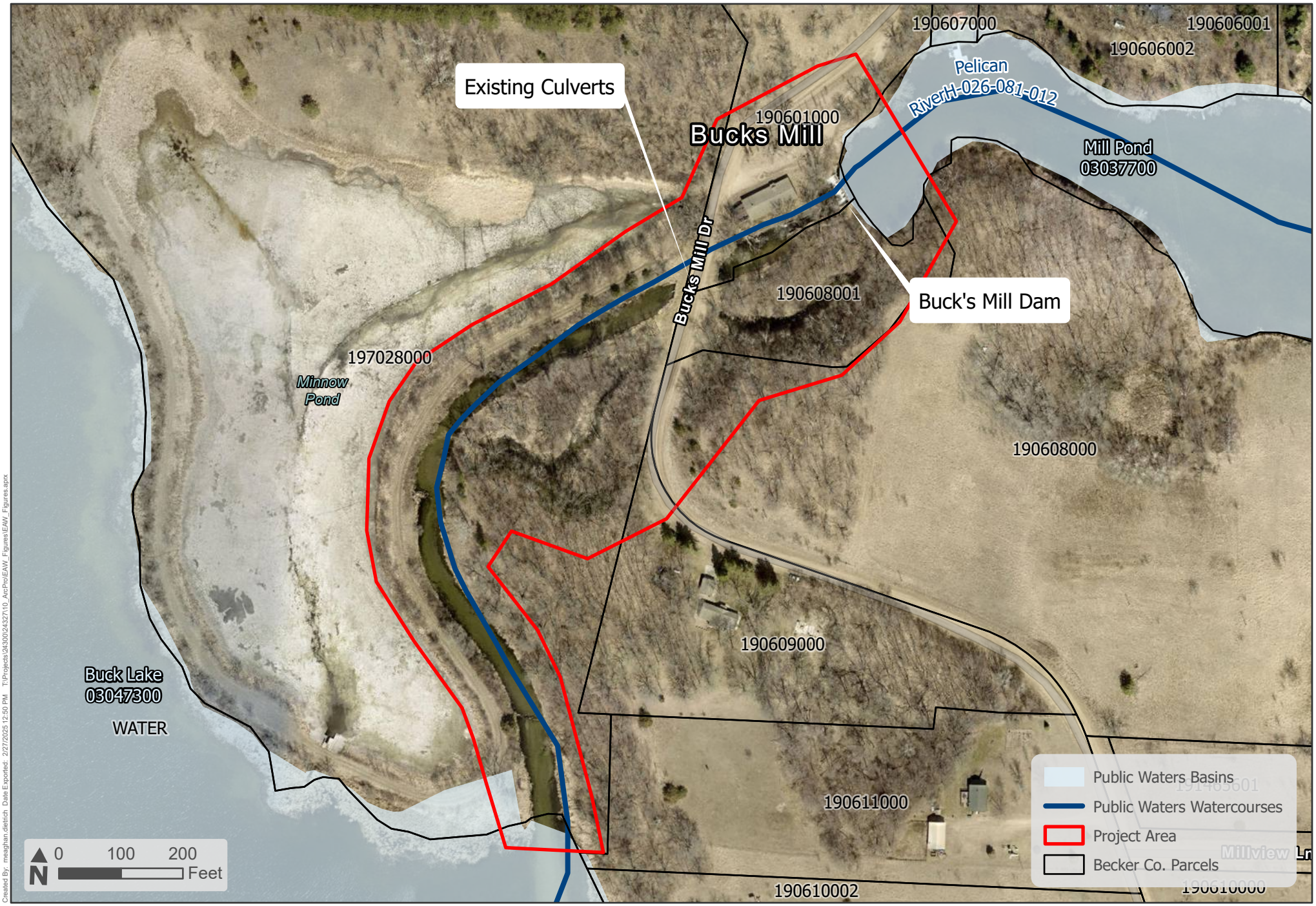
Figure 2

Pelican River Watershed District

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Figure 3

Existing Site Conditions



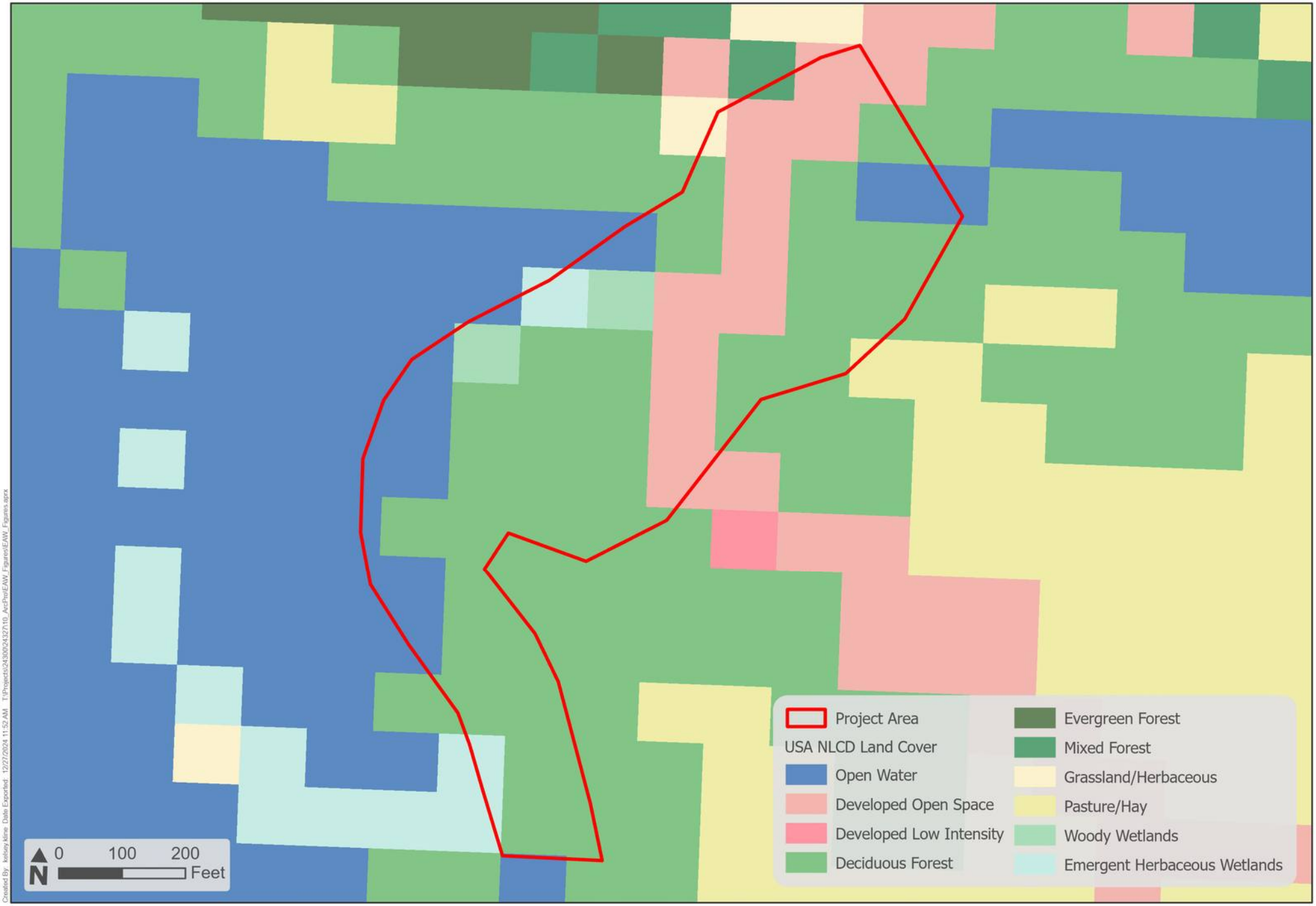
Existing Conditions
Bucks Mill Dam Modification

Figure 3
Pelican River Watershed District

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Figure 4

2019 NLCD



2019 National Land Cover Data

Bucks Mill Dam Modification

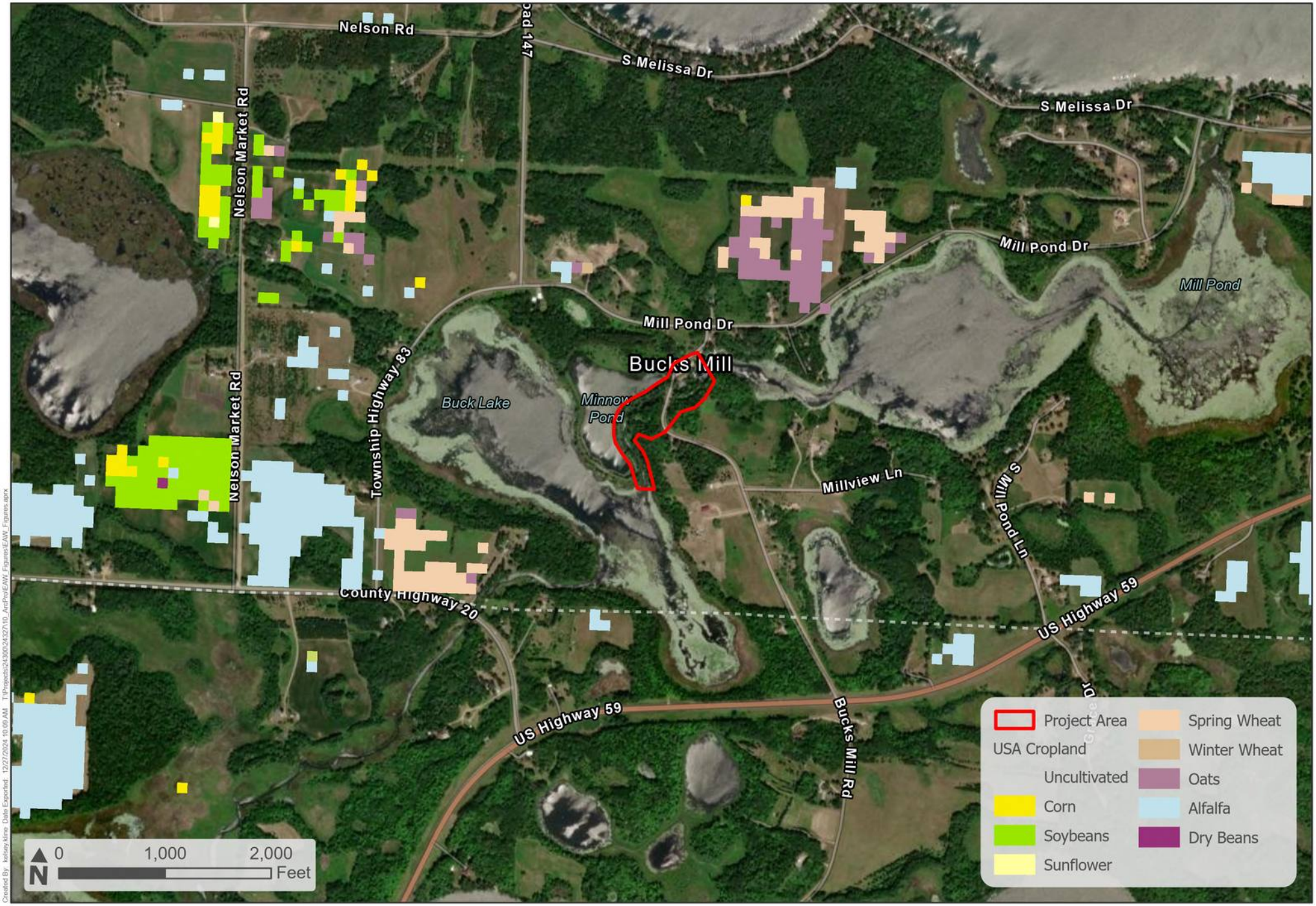
Figure 4

Pelican River Watershed District

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Figure 5

Cropland Data



Cropland

Bucks Mill Dam Modification

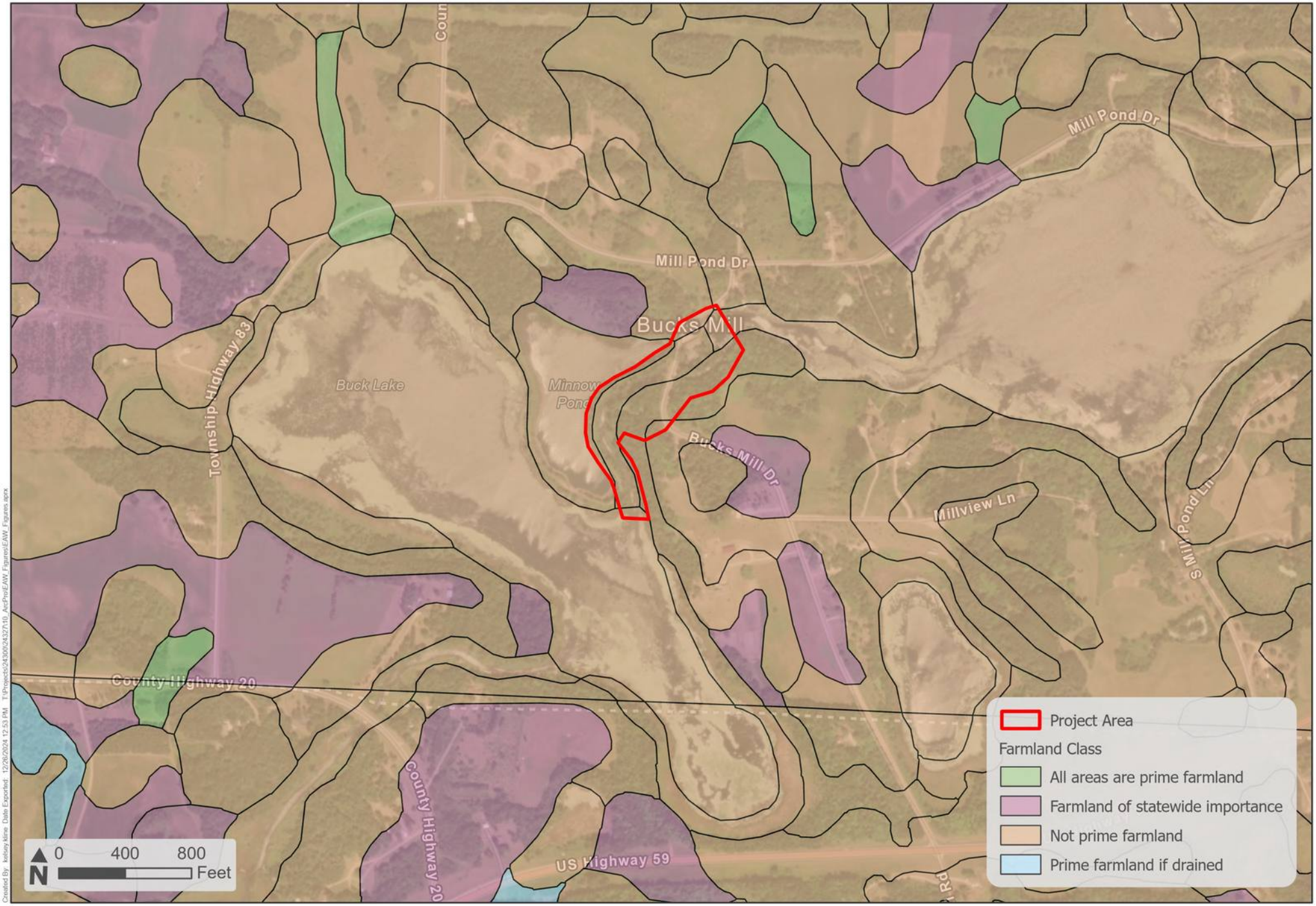
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Pelican River Watershed District

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Figure 6

Prime Farmland



Prime Farmland

Bucks Mill Dam Modification

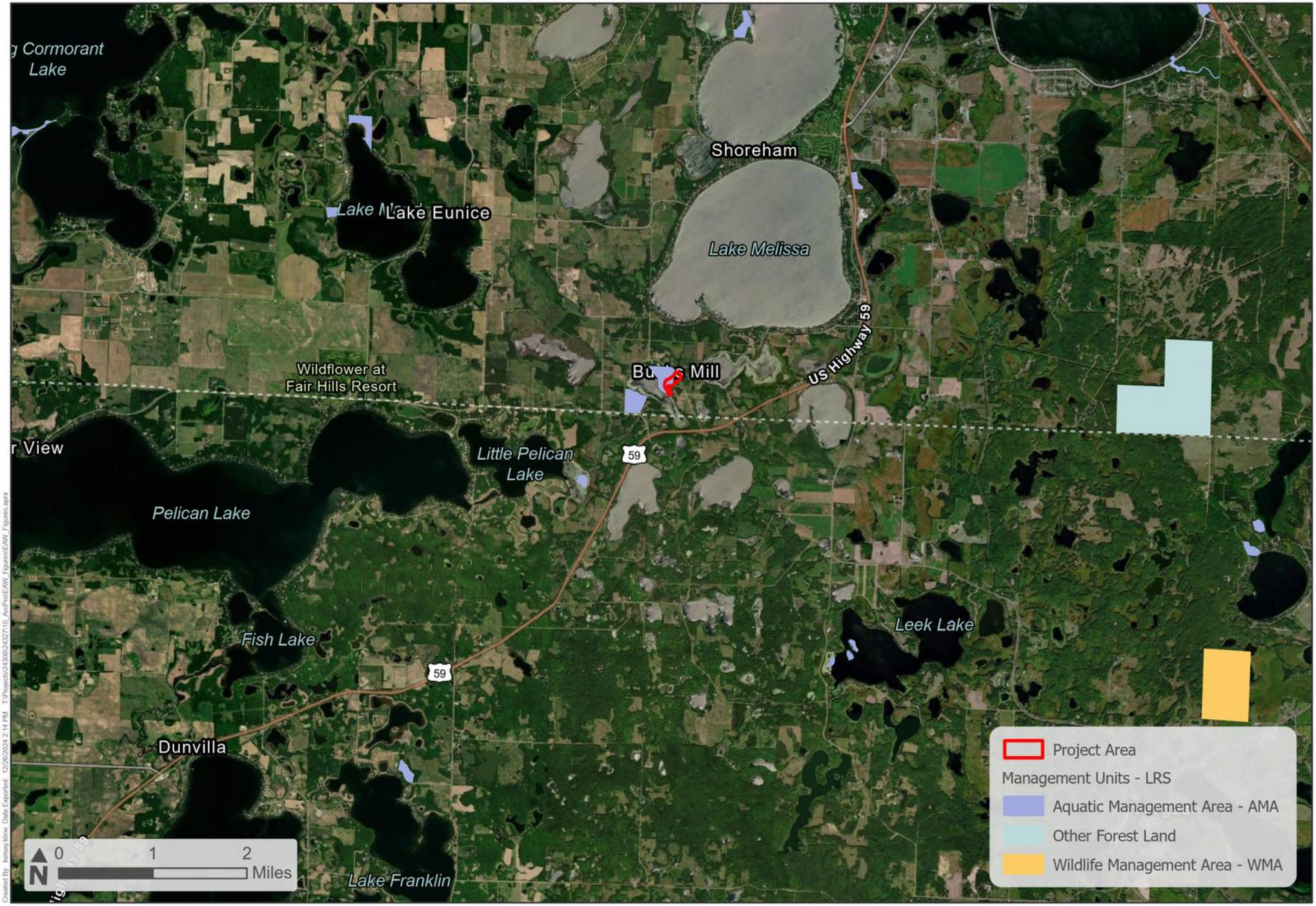
Figure 6

Pelican River Watershed District

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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

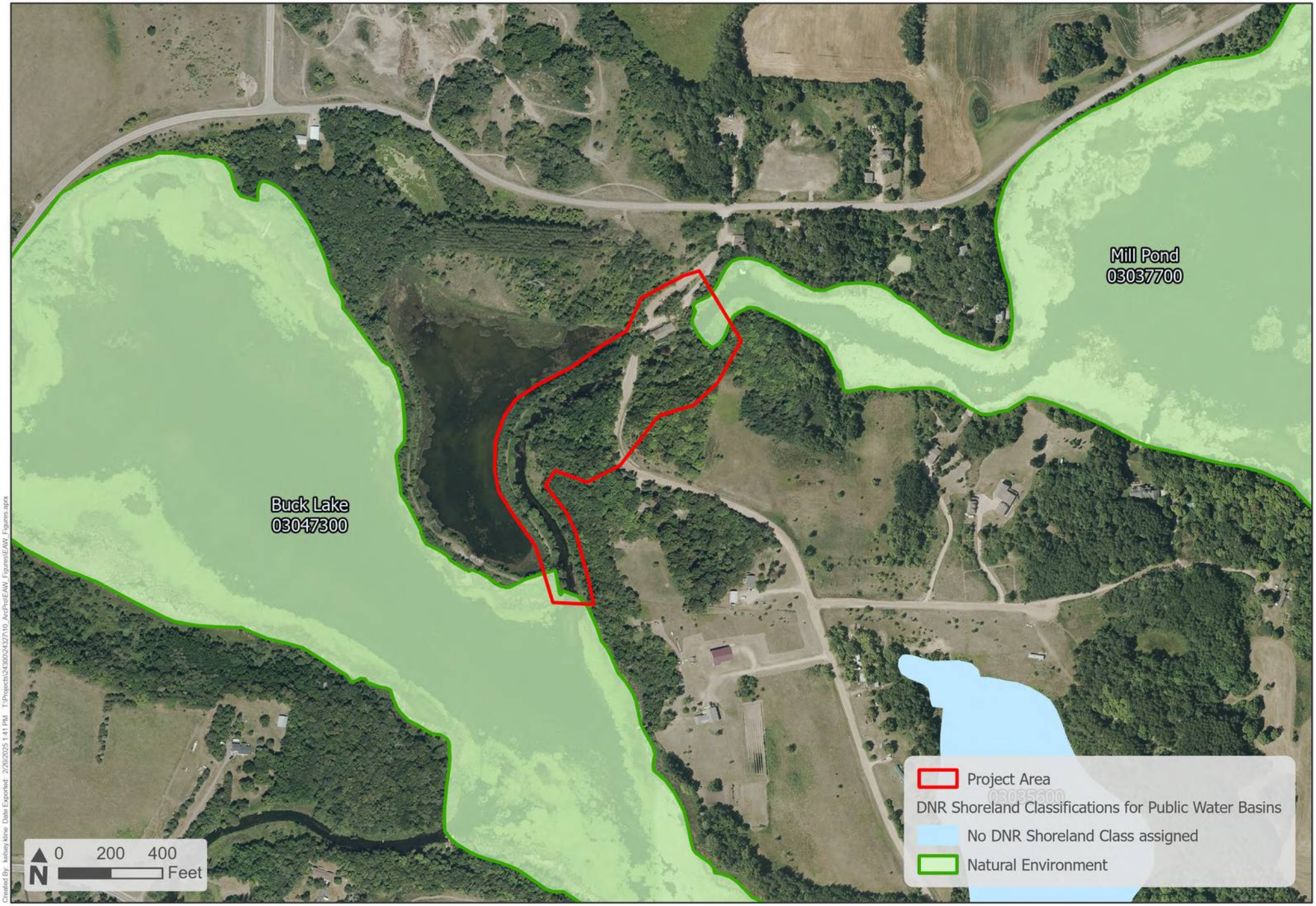
FEMA's National Flood Hazard Layer (NFHL) Viewer

with Web AppBuilder for ArcGIS



Figure 9

Shoreland



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Shoreland

Bucks Mill Dam Modification

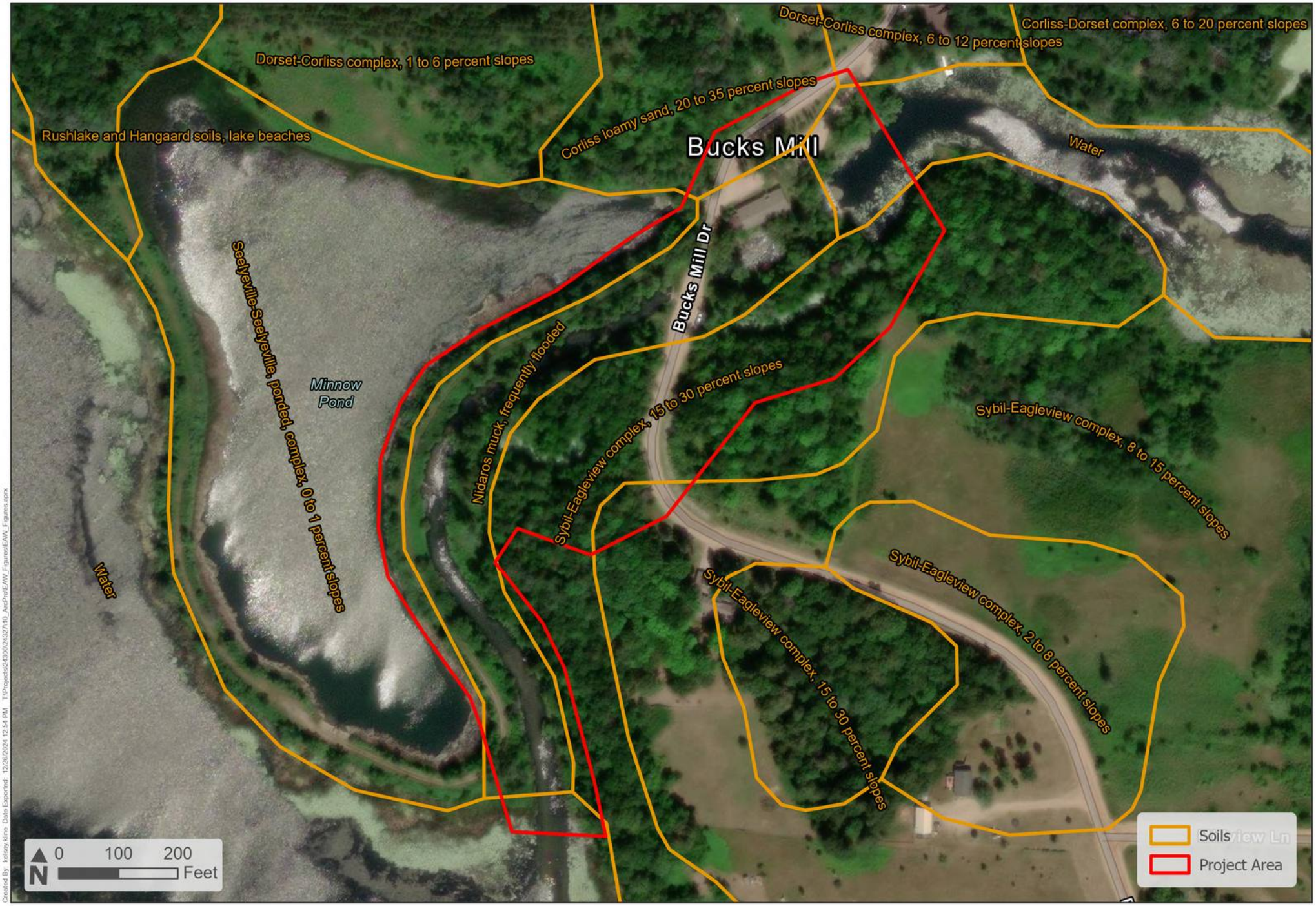
Figure 9

Pelican River Watershed District

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Figure 10

SSURGO Soils Data



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SSURGO Soils

Bucks Mill Dam Modification

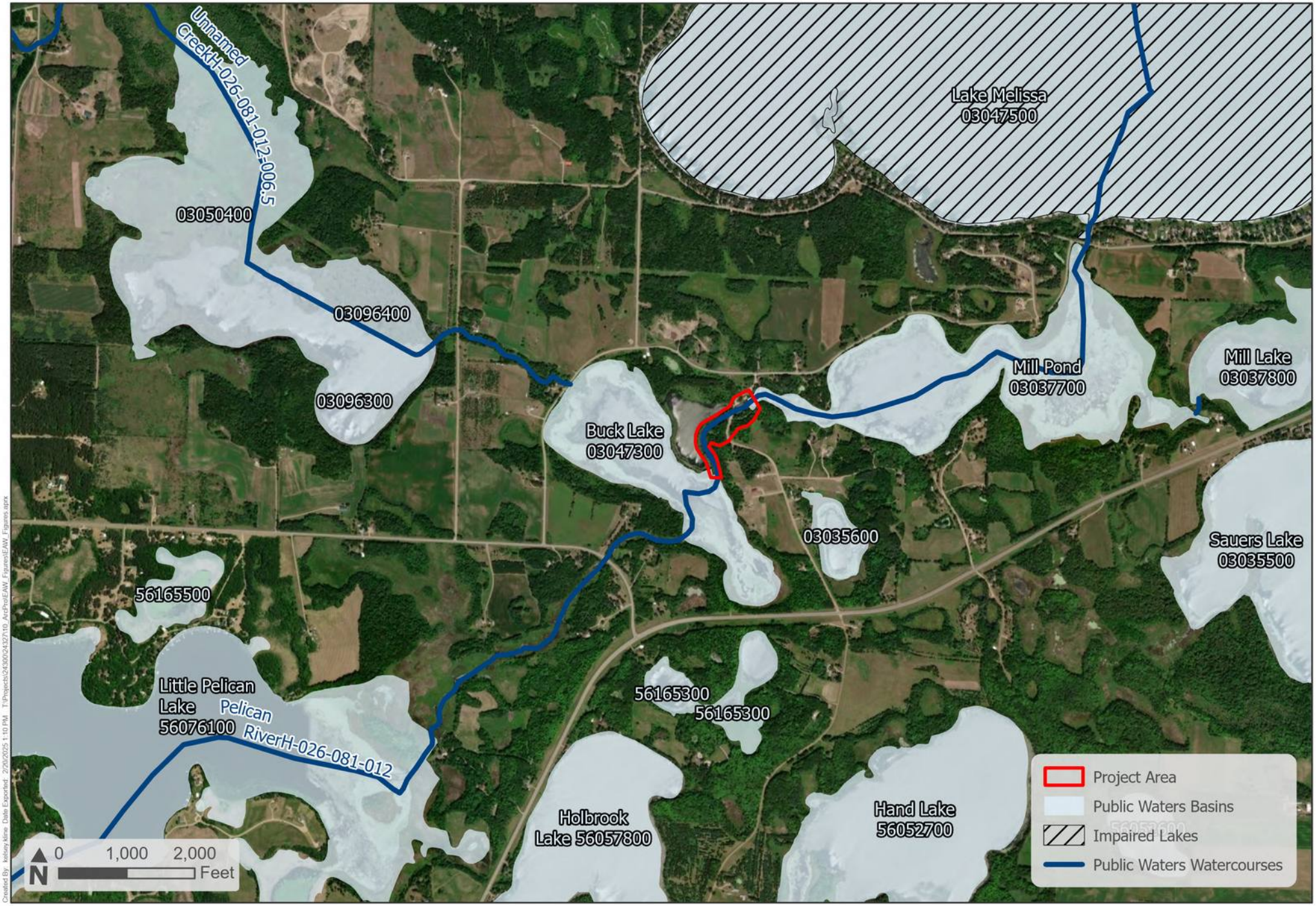
Figure 10

Pelican River Watershed District

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Figure 11

Surface Waters



Surface Waters

Bucks Mill Dam Modification

Figure 11

Pelican River Watershed District

moore engineering, inc.

Figure 12

National Wetland Inventory



National Wetland Inventory

Bucks Mill Dam Modification

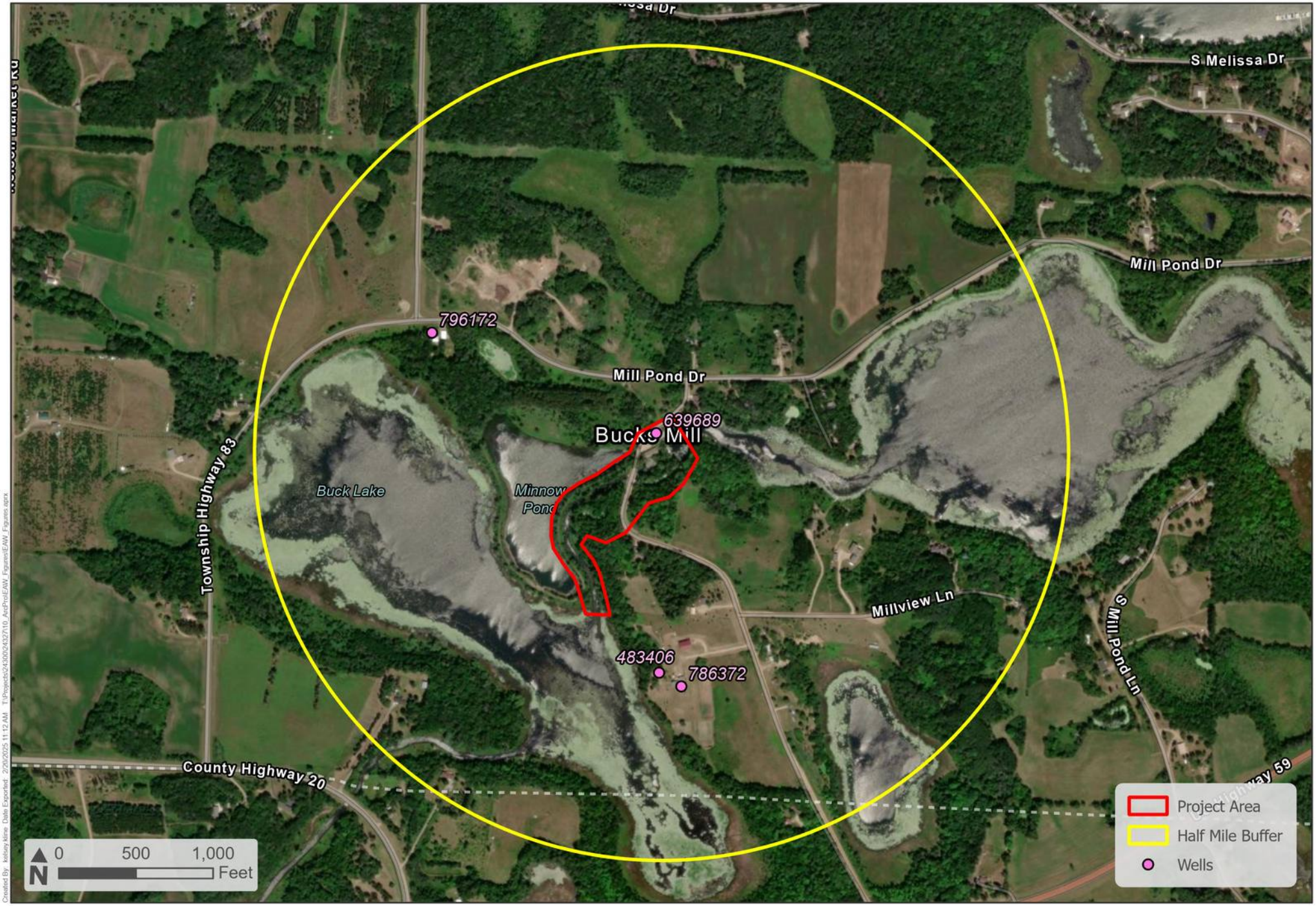
Figure 12

Pelican River Watershed District

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Figure 13

Groundwater Wells



Groundwater Wells

Bucks Mill Dam Modification

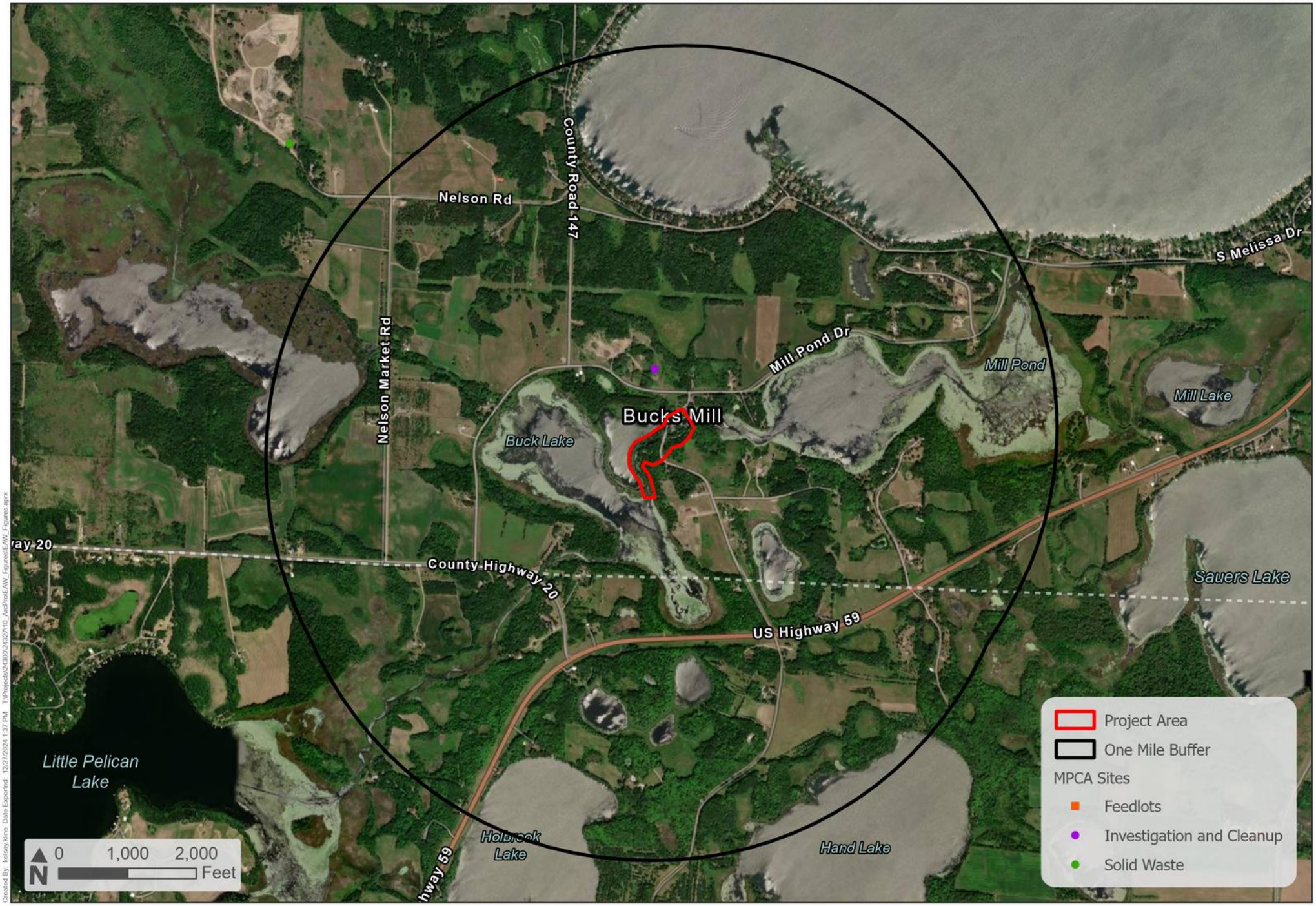
Figure 13

Pelican River Watershed District

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Figure 14

MPCA What's in My Neighborhood



MPCA What's in My Neighborhood

Bucks Mill Dam Modification

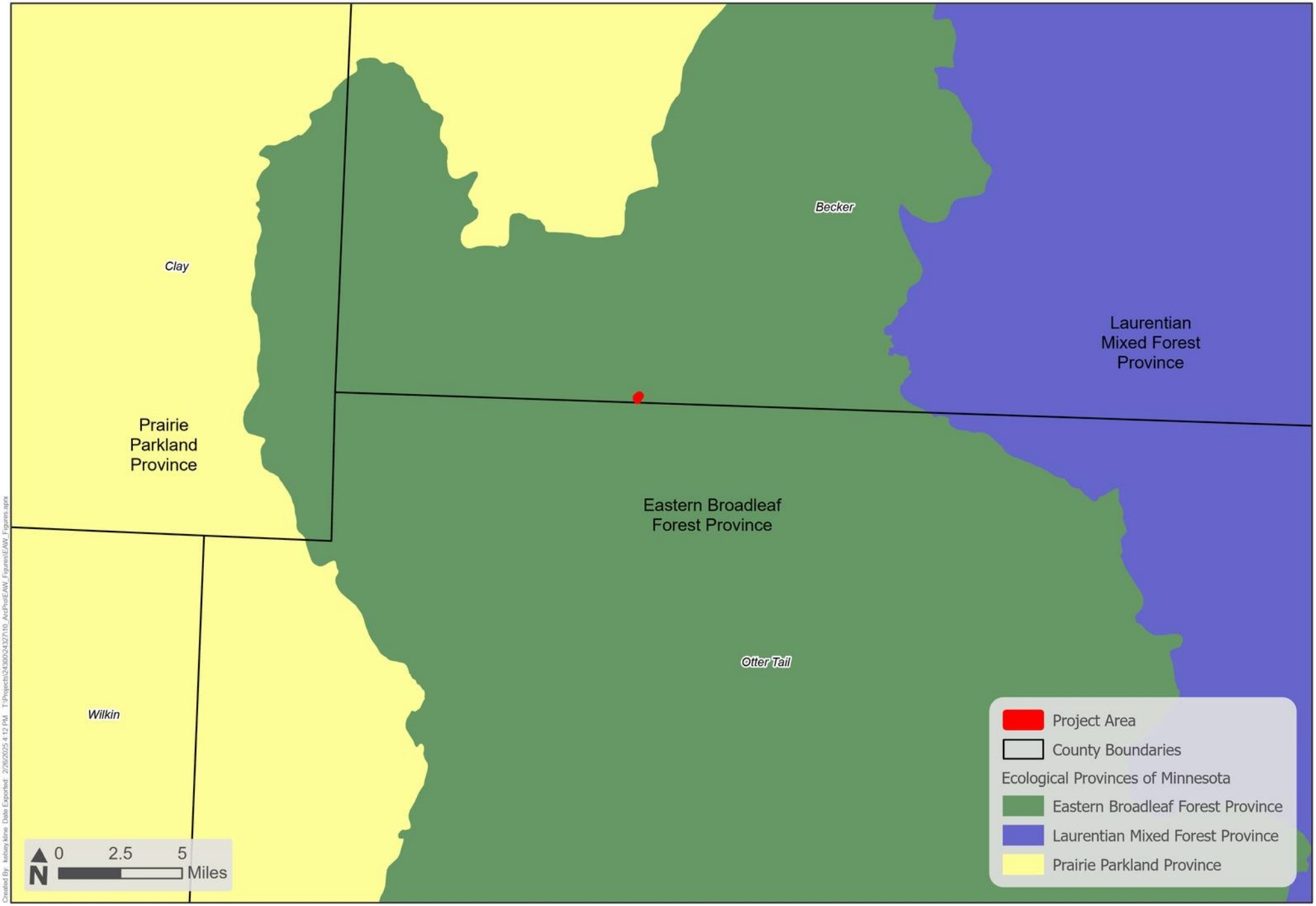
Figure 14

Pelican River Watershed District

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Figure 15

Ecological Data



Ecological Data

Bucks Mill Dam Modification

Figure 15

Pelican River Watershed District

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Figure 16

Detour Route



Detour Route

Bucks Mill Dam Modification

Figure 16

Pelican River Watershed District

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Appendix D Hydraulic Report

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1. INTRODUCTION

This appendix contains detailed information for the hydraulic analysis conducted for the Bucks Mill Dam project.

2. HYDROLOGY

The hydrology developed for this study is discussed in the main report in Section 4. The table below are peak discharges at Bucks Mill Dam used for this study.

Table 1 - Peak Discharges at Bucks Mill Dam

Event	Peak Discharge (cfs)
2-year	149
5-year	238
10-year	300
25-year	383
50-year	448
100-year	513

3. DESIGN OBJECTIVES AND CRITERIA

3.1 Riprap Design

The dam was designed to meet the criteria as defined by the Minnesota Department of Natural Resources (MNDNR) in the 2010 report *Reconnecting Rivers: Natural Channel Design in Dam Removal and Fish Passage* [1]. The event that produces the highest velocities across the rock riffles, permanent rock checks, and in the channel is the 100-yr event where there is no backwater effect. The 100-year event sometimes does not have the highest velocity in the downstream portion of the riffles but has the highest depth, which means the 100-year event controls for the required riprap size. As a result, the 100-yr event is the design event for riprap sizing around the rock weirs.

The riprap sizing around the Bucks Mill Dam rock riffles is based on two different equations, with the riprap design using the most conservative result of the two equations. Below is the first equation used to determine the required stone size around the rock weir structures for steep channels, in the 1991 USACE Engineers Manual, *EM 1110-2-1601* [2]. That equation was used to size the riprap and rock riffles at Kathryn Dam in Barnes County, North Dakota [3].

$$D_{30} = \frac{1.95 * S^{0.555} q^{2/3}}{g^{1/3}}$$

The variable *S* is the channel slope, which is a slope of 0.03 ft/ft across the rock riffles (except for the most downstream rock riffle, which is at the same elevation as the rock riffle that is upstream). The Minnesota DNR has a requirement of the slope of the channel across the center of the rock weir

structures to be less than 5% (0.05 ft/ft), which in this case meets the requirements [1]. The variable *q* is the unit discharge per unit width of the channel bottom width. The total discharge per unit width in this analysis only considers the flow area across the 20-foot bottom width using the maximum velocity along the rock riffle or permanent rock check structures and the flow depth upstream of the rock weir with the highest velocity shows the gradations for the riprap with a specific weight of 165 pcf, which is the specific weight assumption for the riprap sizing around the Bucks Mill Dam rock weirs. The calculated D_{30} size is used in Table 2 (Table 3-1 from the 1991 USACE Engineers Manual EM 1110-2-1601) to determine the proposed riprap size. In this study to be conservative, it is assumed that rounded rock will be used.

The second equation used to size riprap (shown below) is based on shear stress calculations and regressions of shear stress to incipient diameter of particle moved in rivers. The calculated D_{50} size is converted from centimeters to feet and then converted to D_{30} (dividing D_{50} by 1.22) to use Table 2 to determine the size of riprap (D_{100}) to be used. The second equation only applies where there is no backwater effect, which only applies from the dam weir to rock riffle 14.

$$Depth\ (mm)\ x\ slope\ (ft/ft) = D_{50}\ (cm)$$

Table 3 shows the required diameter in inches for the riprap layer around the rock weir at each riffle structure, based on the most conservative riprap size using the two equations above. To minimize the variability of riprap sizes through the rock riffles, some of the calculated sizes were rounded up to use the same size for long stretches through the riffles. It was assumed 30-inch diameter riprap would be used from the dam weir to past rock riffle 14 and 24-inch diameter downstream form there to about 25 feet past the most downstream rock weir. The layer thickness of the riprap is proposed to be 1.5 times the proposed diameter shown in Table 3.

The 19 rock riffle structures will have boulders used for the rock weirs. The size of boulders used for the rock weirs follows standards used from the Minnesota DNR, which recommends using boulders of 3 feet to 6 feet [1]. The Bucks Mill Dam design will use boulders ranging from 4 feet to 6 feet.

Table 2 - Gradations for Riprap

Table 3-1
Gradations for Riprap Placement in the Dry, Low-Turbulence Zones

		Limits of Stone Weight, lb[1], for Percent Lighter by Weight							
	D_{100}(max)	100		50		15		D_{30}(min)	D_{60}(min)
	in.	Max	Min	Max[2]	Min	Max[2]	Min	ft	ft
*	9	36	15	11	7	5	2	0.37	0.53 *
	12	86	35	26	17	13	5	0.48	0.70
	15	169	67	50	34	25	11	0.61	0.88
	18	292	117	86	58	43	18	0.73	1.06
	21	463	185	137	93	69	29	0.85	1.23
	24	691	276	205	138	102	43	0.97	1.40
	27	984	394	292	197	146	62	1.10	1.59
	30	1,350	540	400	270	200	84	1.22	1.77
	33	1,797	719	532	359	266	112	1.34	1.96
	36	2,331	933	691	467	346	146	1.46	2.11
	42	3,704	1,482	1,098	741	549	232	1.70	2.47
	48	5,529	2,212	1,638	1,106	819	346	1.95	2.82
	54	7,873	3,149	2,335	1,575	1,168	492	2.19	3.17

***Note: The specific weight of the riprap is 165 pcf**

Table 3 - Required Size of Riprap around each Riffle Structure

Rock Riffle	Invert Elevation (ft)	100-yr Maximum Velocity† (fps)	100-yr Maximum Depth† (ft.)	Calculated Riprap size (in.) around rock riffle (assuming rounded rock)	Proposed Riprap size (in.) around rock riffle (assuming rounded rock)*
19	1328.61	11.3	1.6	24	30
18	1328.01	8.5	3.2	30	
17	1327.41	8.3	3.3	30	
16	1326.81	8.2	3.3	30	
15	1326.21	9.0	3.4	30	
14	1325.61	8.1	3.4	30	
13	1325.01	6.9	3.6	24	24
12	1324.41	6.3	3.8	24	
11	1323.81	4.6	4.2	24	
10	1323.21	3.7	4.6	18	
9	1322.61	3.1	5.2	18	
8	1322.68	4.2	4.7	24	
7	1322.08	3.3	5.2	18	
6	1321.48	2.4	5.8	18	
5	1320.88	2.3	6.4	18	
4	1320.28	1.8	7.0	18	
3	1319.68	1.8	7.6	18	
2	1319.08	1.4	8.2	18	
1	1319.08	1.5	8.2	18	

†This is the corresponding velocity and depth during the peak unit discharge (q, cfs/ft) that requires the largest stone size, which is what is used for the design. This is the maximum velocity along the entire length of the weir, and to be conservative the depth is assumed on the channel bottom immediately upstream of the weir.

***To limit changes in riprap sizes through the riffles, some of these sizes are higher than what was calculated.**

3.2 Riprap Design Conclusion

The model results show the project provides significant velocity reductions throughout the project area. Velocities for the design event (100-year) at the rock weirs were reduced from 11.3 fps at the upstream rock riffle to 1.5 fps at the downstream rock riffle. It should be noted that this study is preliminary and if the project is to proceed the models used for this analysis should be updated to conform to the final design of the project.

4. HYDRAULIC DESIGN AND HEC-RAS 2-D MODLEING

4.1 General

Hydraulic modeling was performed using the Hydrologic Engineering Center River Analysis System (HEC-RAS) version 6.5 [4]. The upstream limit of the model begins at the downstream portion of Mill Pond (on the Pelican River) about 50 feet upstream of Bucks Mill Dam extending on the Pelican River to about 3,500 feet downstream of the downstream riffle of the new proposed Bucks Mill Dam, which spans through Buck Lake downstream of the dam and ends just downstream of the Becker Co. Rd. 20

crossing. It was not necessary to model the upstream Mill Pond and Lake Melissa due to the upstream lake elevations being controlled by the Bucks Mill Dam outlet.

An unsteady flow constant discharge model was created to model Bucks Mill Dam. Due to the variability of the lake elevations of Mill Pond and Lake Melissa upstream of the dam and Buck Lake downstream of the dam, it was decided to use a constant discharge which eliminates the uncertainty of the initial lake elevations. The lake elevations in the model eventually reach an equalization point when the discharge approaches the calculated constant discharge. Using the constant discharge method is a conservative approach for the dam design due to the excess in volume compared to short duration storm events. The HEC-RAS 2-D model extents is shown in Figure 1.

4.2 Project Layout

4.3 Coordinate System

The vertical datum used for the unsteady HEC-RAS 2-D model is the North American Vertical Datum of 1988 (NAVD88). The horizontal datum used is North America Datum (NAD) 1983 HARN adjusted to Becker County, MN ground coordinates using U.S. feet.

4.4 Boundary Conditions

A constant discharge flow hydrograph with a normal depth slope was applied at the upstream end of the model just upstream of Bucks Mill Dam. The discharge starts low, ramping up to the calculated constant discharge for each event. Due to the upstream end of the model being on Mill Pond, an extremely flat slope was used for the normal depth slope (0.0001 ft/ft). The downstream boundary condition on the Pelican River downstream of Becker Co. Rd. 20 uses the normal depth condition. The model is far enough downstream that the normal depth of the downstream end of the model has almost no effect on the water surface elevations at the dam.

4.5 2-D Model Domain

The 2-D model domain in the HEC-RAS model is primarily confined to the floodplain extents of the largest modeled event. The size of the mesh cells in the model is generally 50-feet wide with refinement areas of smaller mesh cells of 10-feet wide along the Pelican River channel, and a refinement area with 2-foot cells around the existing and proposed Bucks Mill Dam to model the rock riffles of the dam with greater accuracy.

4.6 2-D Internal Connections

The rock riffles are modeled as internal 2-D area connections within the HEC-RAS model. The calculations in HEC-RAS across each internal 2-D connection, including the rock riffles, use the 2-D equation rather than the weir equation since the riffles are almost always submerged (except for the dam weir, which is modeled as the weir equation due to being less submerged). Model stability is better when using the 2-D equation. To model the rock riffles in greater detail, the mesh cells along each riffle are only two feet wide, smaller than the cells in most of the model. This is due to the proximity of each rock riffle in the series (especially the sides of the riffle), requiring finer detail in the mesh.

4.7 Culverts

All culverts in the model across roadways where there was a breakline were added into the HEC-RAS model to prevent attenuation and loss of flow to accurately model the flow. Culverts that were not surveyed were identified using Google Earth, and the length, size, and type were estimated by aerial imagery. Any culvert that looked small in the imagery and was hard to identify the size and type was assumed to be a 24-inch corrugated steel pipe (CSP) culvert. The culvert inverts were estimated by the LiDAR elevations. The elevation of each mesh cell was derived from the LiDAR surface (DEM) directly. The model requires that the culvert invert should not be lower than the elevation of the mesh cell. Due to this, terrain modifications were applied to the surface in RAS mapper at culverts that used surveyed or proposed elevations that were lower than the terrain elevation. Small polygons were burned into the terrain upstream and downstream of the culvert to lower the terrain to the surveyed or proposed elevations.

4.8 Manning's n Values

A land cover raster grid was used for the Manning's n values in the 2-D model. The land cover data is from the 2022 National Land Cover Database (NCLD), and the raster dataset is in 2-foot by 2-foot resolution. Ony the project features have a 2-foot resolution and the rest of the Manning's n data from the NCLD is 30-meter resolution. The land cover raster was clipped within the 2-D model area. The Manning's n values in the model are generally consistent with the recommended values from the HEC-RAS 2-D User's Manual [5]. A high percentage of the watershed consists of cultivated crops, which are assumed to have a Manning's n value of 0.045. For project conditions, the proposed grading is assumed to have a Manning's n value of 0.035. The n value for the riprap around the rock riffles depends on the size of riprap used, and the n value was adjusted to be higher in the riprap areas due to the high submergence of the riprap. The selection of n values for the riprap is based on the EM 1110-2-1601 - "Hydraulic Design of Flood Control Channels" [2]. The riprap around the rock riffle areas and the boulders for the rock riffles assume n values of 0.046 and 0.054, respectively. Table 4 shows the Manning's n values that were assumed for each land use category.

Table 4 - Manning's n Values used for each Land Use Category

Land Use	Manning's n Value
Open Water	0.03
Developed, Open Space	0.035
Developed, Low Intensity	0.08
Developed, Medium Intensity	0.12
Developed, High Intensity	0.15
Forest	0.1
Shrub Scrub	0.08
Barren Land	0.03
Grassland, Pasture	0.05
Cultivated Crops	0.045
Woody Wetlands	0.1
Herbaceous Wetlands	0.04
Channel	0.035-0.04

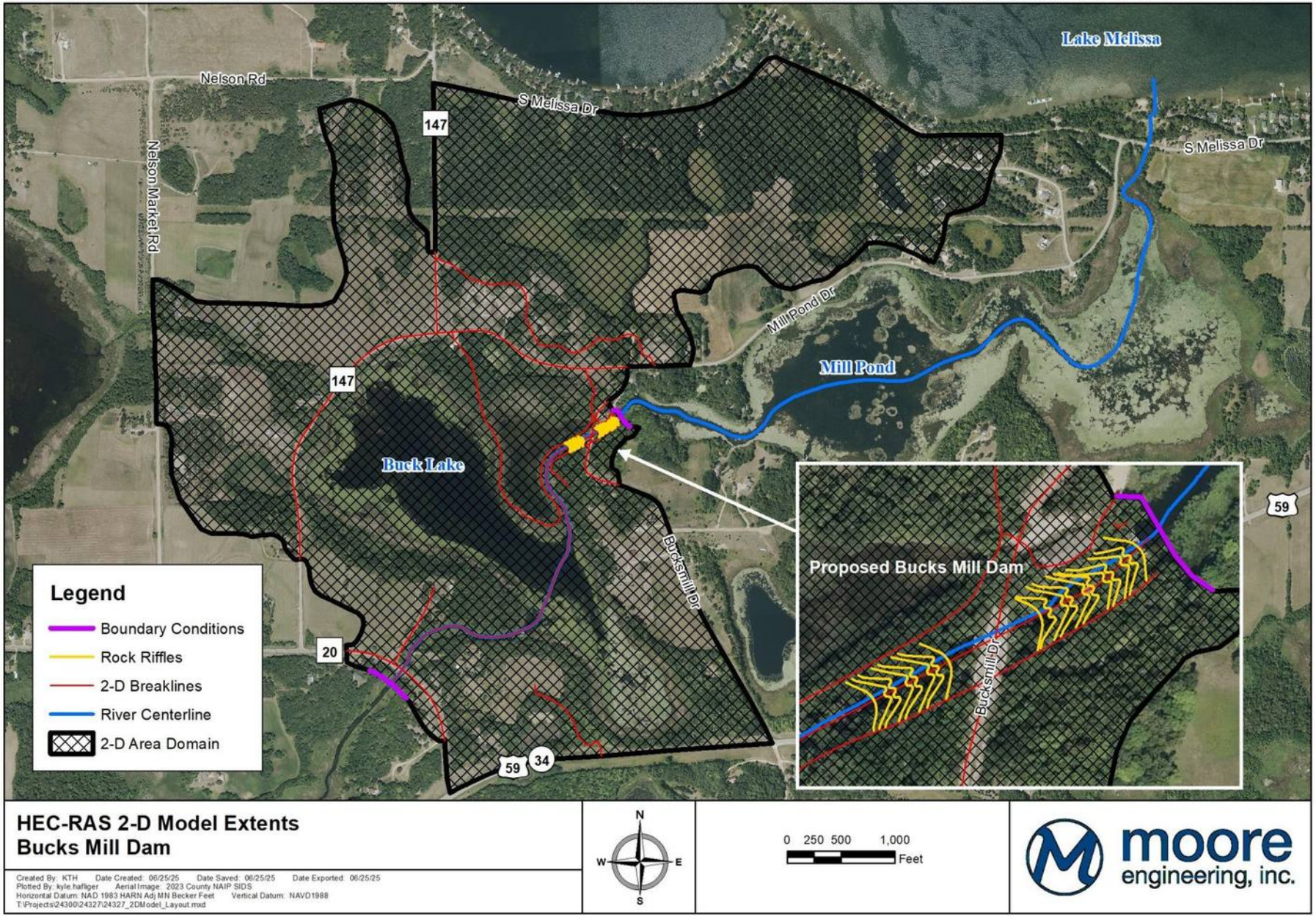


Figure 1 - HEC-RAS 2-D Model Extents

4.9 Hydraulic Results

4.9.1 Proposed Culvert Design

The culvert crossing on Bucks Mill Dr. will be replaced as part of the project for the proposed dam, between the two series of rock riffles (between rock riffle 8 and 9). The existing crossing consists of two 10x5 RCB's and the proposed crossing consists of two 14x6 RCB's with two 4x4 RCB's (one on both sides of the 14x6 RCB's) to allow additional flow during high flow conditions. The proposed 14x6 RCB's will be countersunk into the ground one foot which gives a 5-foot clearance from the channel. The goal is to reduce the average culvert velocity during proposed conditions to under 2.5 fps for fish passage purposes during bankfull stage (which is between the 2 and 5-year event), based on model results. Based on the results, culvert velocities are below 2.5 fps for the 5-year event and lower. Table 5 shows the average culvert outlet velocities for existing and project conditions.

Table 5 - Average Culvert Outlet Velocities (fps) at Bucks Mill Dr.

Event	Existing	Proposed
2-year	1.7	1.8
5-year	2.4	2.4
10-year	3.0	2.7
25-year	3.8	3.0
50-year	4.5	3.1
100-year	5.1	3.2

4.9.2 Maximum Velocity through the Dam

The proposed peak velocity for the 100-yr event is at the most upstream rock riffle (11.3 fps) and is 31-percent higher than the peak velocity through the existing dam of 8.6 fps. The proposed 100-year peak velocity is reduced to below the peak existing velocity starting at riffle 14 (6th most upstream rock riffle). The peak velocity of the existing dam is in the waterfall area formed immediately downstream of the gates of the dam inlet. The peak velocity of the proposed dam is through the most upstream rock riffle (riffle 19). For the 25-year event and smaller, the peak proposed velocity is smaller compared to the peak existing velocity. Table 6 shows the peak velocity through Bucks Mill Dam for each event under existing and proposed conditions.

For the area through the proposed dam that doesn't have a backwater effect from Buck Lake (from the dam weir inlet to rock riffle 14), the 100-year event has the highest velocities through the dam. Downstream of riffle 14, it varies to which event produces the highest velocity. Due to the greater depth for the 100-year event, the 100-year event still gives the most conservative design for the rip-rap around the rock riffles. Table 7 shows the proposed maximum velocity across each individual rock riffle structure, for each 24-hour event. Figure 2 through Figure 5 show the existing and proposed velocity profiles for each event for the entire reach through Bucks Mill Dam.

Table 6 - Existing vs Proposed Maximum Velocities (fps) through Bucks Mill Dam

Event	Existing	Proposed
2-year	14.5	8.0
5-year	14.2	9.0
10-year	13.1	9.8
25-year	10.9	10.7
50-year	10.0	11.2
100-year	8.6	11.3

Table 7 - Maximum Rock Riffle Velocities (fps)

Rock Riffle	Event					
	2-year	5-year	10-year	25-year	50-year	100-year
19	8.0	9.0	9.8	10.7	11.2	11.3
18	6.5	7.4	7.8	8.2	8.5	8.5
17	6.2	6.7	7.1	7.5	7.9	8.3
16	5.8	6.5	7.1	7.6	6.6	8.2
15	6.2	7.2	7.8	8.4	8.7	9.0
14	5.9	6.7	7.5	7.9	8.1	8.1
13	6.3	6.9	7.2	7.4	7.4	6.9
12	5.7	6.3	6.7	6.9	6.7	6.3
11	5.8	6.2	6.1	5.7	5.2	4.6
10	5.2	5.2	4.9	4.3	4.0	3.7
9	3.7	3.9	3.8	3.6	3.3	3.1
8	6.5	6.4	5.8	5.2	4.6	4.2
7	5.5	4.4	3.7	3.7	3.5	3.3
6	4.4	3.3	2.9	2.7	2.5	2.4
5	2.9	2.3	2.3	2.3	2.3	2.3
4	2.4	2.0	1.9	1.8	1.8	1.8
3	1.5	1.6	1.6	1.7	1.8	1.8
2	1.1	1.2	1.3	1.3	1.4	1.4
1	1.1	1.2	1.3	1.4	1.9	1.5

***Note: The rock riffles are numbered from downstream to upstream with riffle 19 being the most upstream riffle structure. This is the maximum velocity along the entire length of the weir.**

4.9.3 Water Surface Elevation Profiles

Figure 6 and Figure 7 show the existing and proposed 100-year water surface elevation profile for the entire reach through Bucks Mill Dam. Based on the proposed dam design there are no upstream impacts for the 100-year event on Mill Pond upstream of the dam with proposed water surface elevations on Mill Pond being 0.03 feet lower than existing conditions. Table 8 shows simulated maximum water surface elevations upstream of Bucks Mill Dam for each event under existing and

proposed conditions. These elevations are used to evaluate hydraulic performance and not a model of actual event water levels. Based on results, the proposed dam provides benefits for events with return periods of 50 years and greater.

Table 8 - Peak Water Surface Elevations Upstream of Bucks Mill Dam

Event	Existing	Proposed
2-year	1329.75	1329.87
5-year	1330.18	1330.26
10-year	1330.44	1330.49
25-year	1330.77	1330.78
50-year	1331.00	1330.98
100-year	1331.20	1331.17

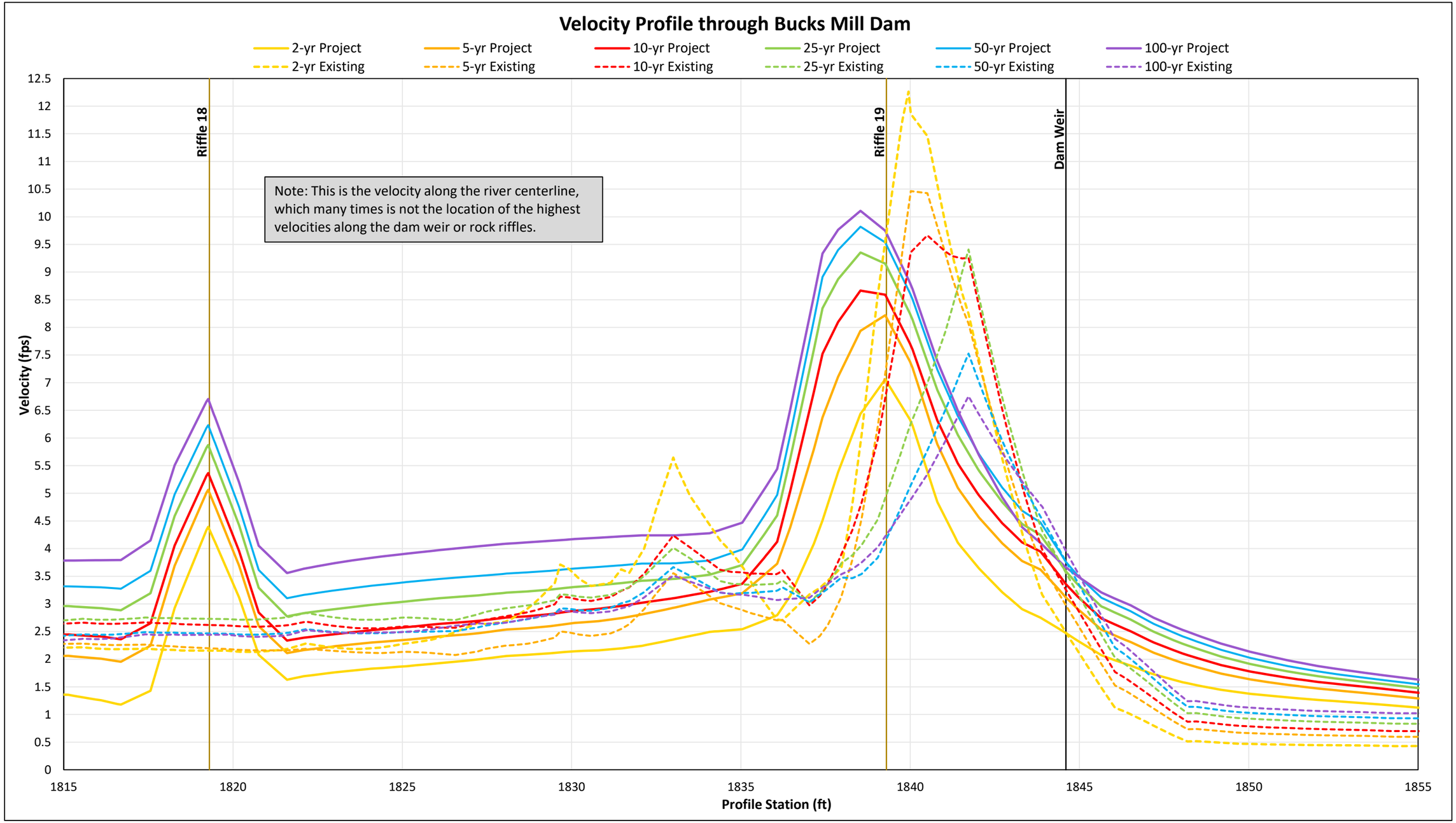


Figure 2 - Existing and Proposed Velocity Profiles Near the Dam Inlet

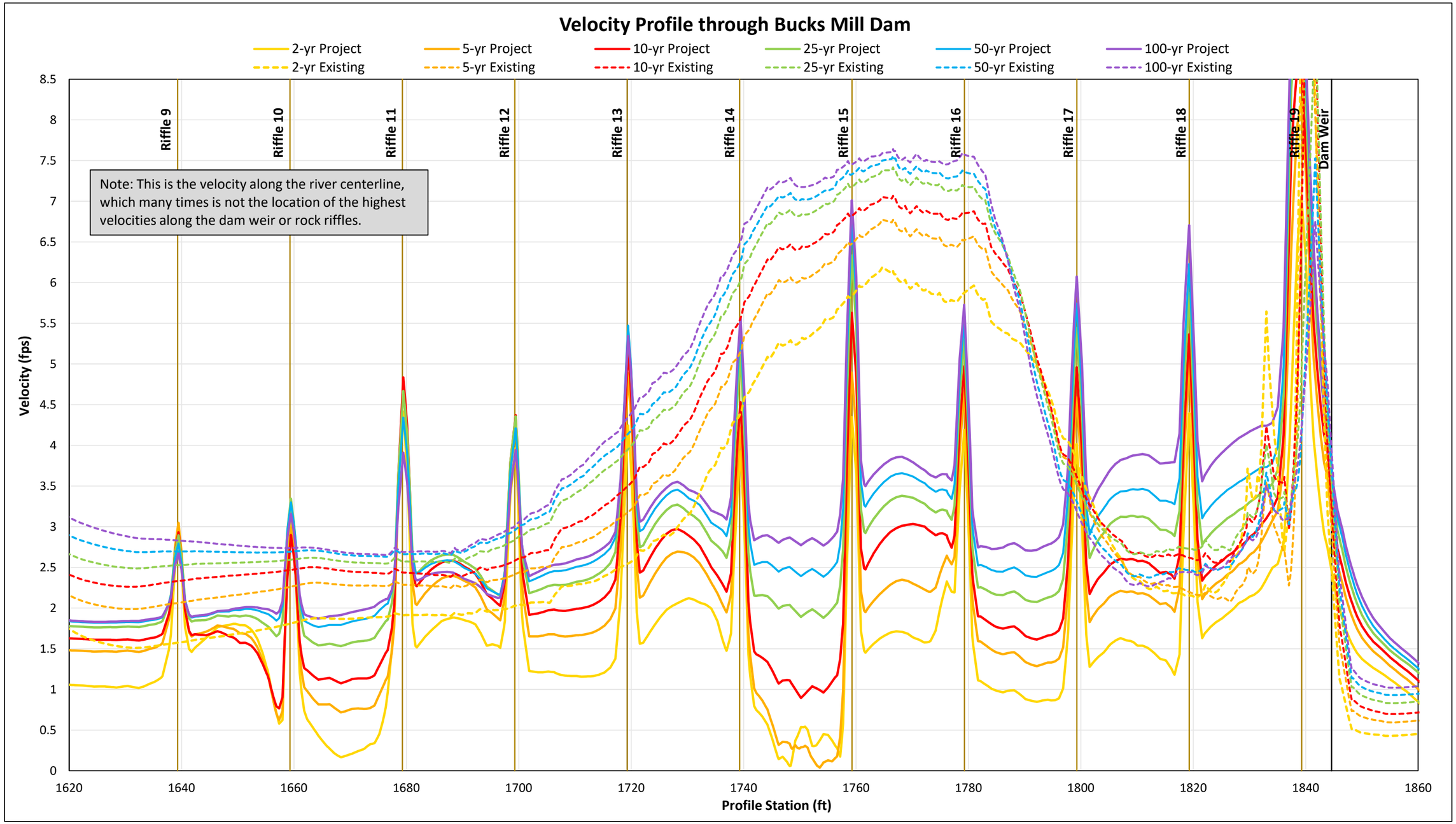


Figure 3 - Existing and Proposed Velocity Profiles (profile Station 1860 to 1620)

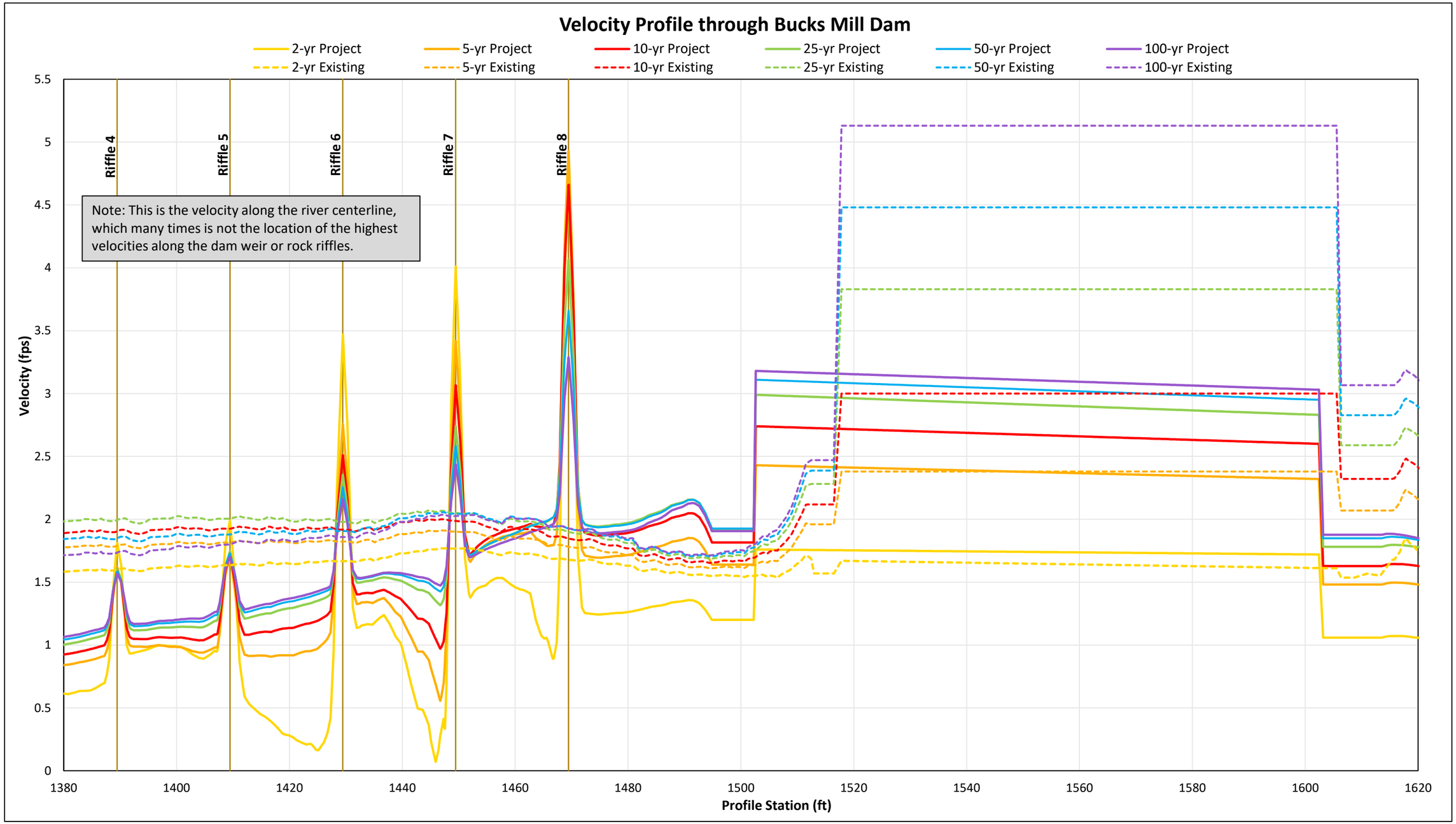


Figure 4 - Existing and Proposed Velocity Profiles (Station 1620 to 1380)

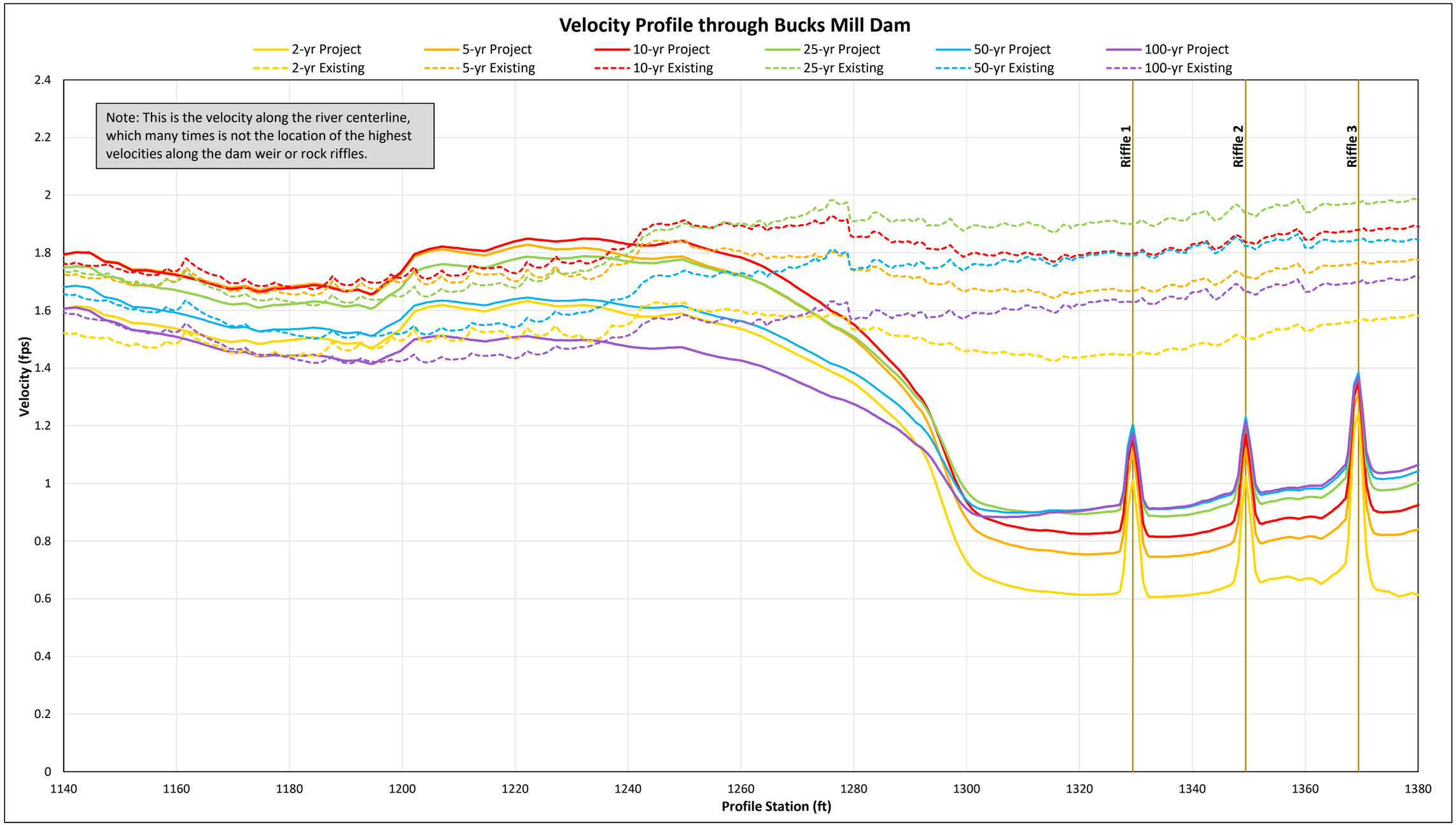


Figure 5 - Existing and Proposed Velocity Profiles (Station 1380 to 1140)

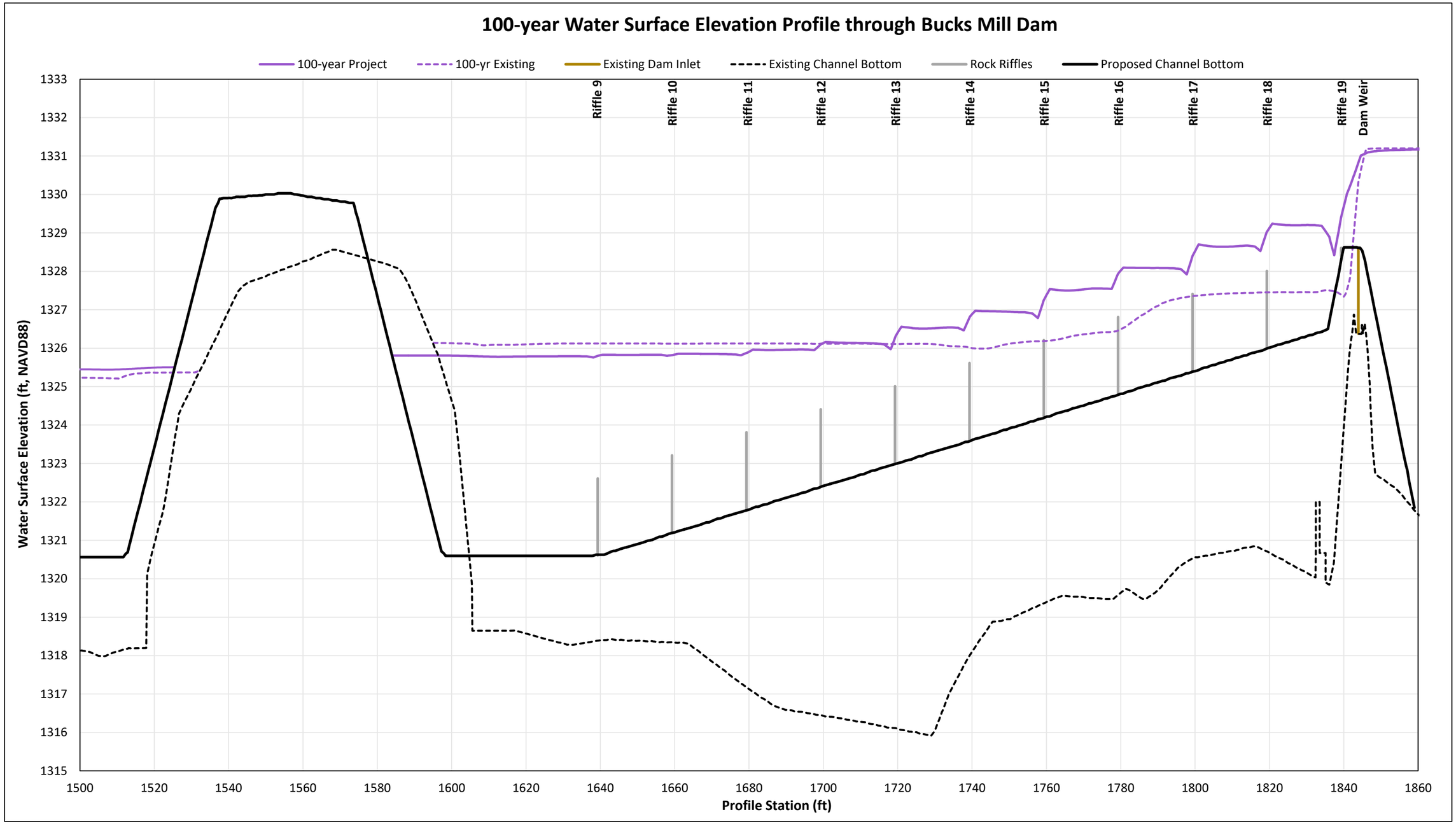


Figure 6 - 100-year Existing and Proposed Water Surface Elevation Profile (Station 1860 to 1500)

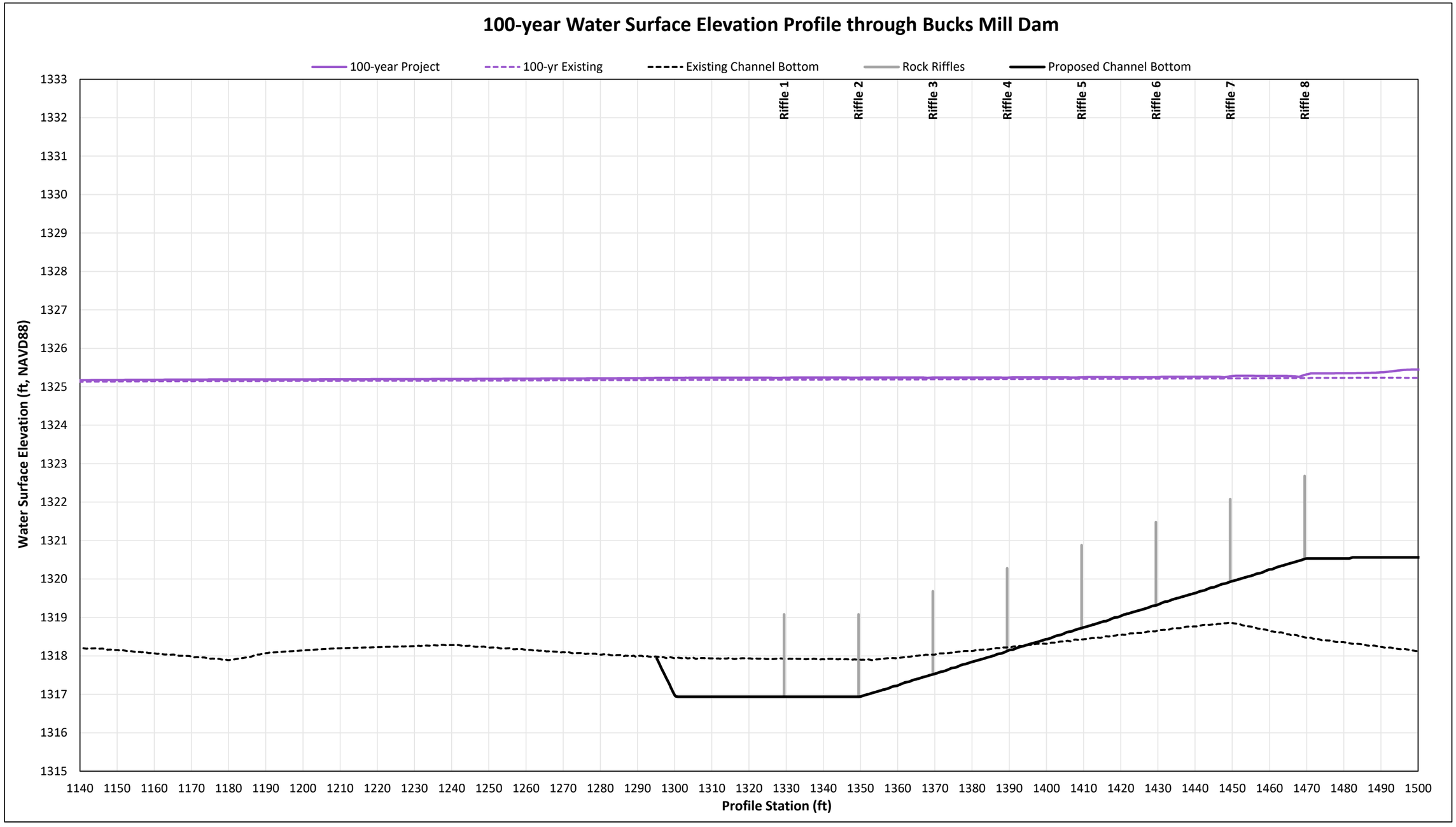


Figure 7 - 100-year Existing and Proposed Water Surface Elevation Profile (Station 1500 to 1140)

5. LAKE MELISSA OUTLET

5.1 General

The existing culvert through South Melissa Drive, at the outlet of Lake Melissa, was modeled using Bentley Systems CulvertMaster version 10.03.00.03 to check for hydraulic capacity during the design events [6].

Crossing Information:

- Field measured size: 171” x 107” (88 sq ft)
- Modeled size: 168” x 103” (83 sq ft)
- Invert Upstream: 1325.99’ (Top 1334.91’)
- Invert Downstream: 1325.96’
- Overtopping Road Centerline: 1340.80’
- Length: 64 ft
- Entrace Loss Mitered to Slope: Ke = 0.70

Table 9 - CulvertMaster Results

Event	Peak Discharge (cfs)	HW Elev. (ft)	Velocity (fps)
10-yr 24-hour	260	1330.77	8.44
100-yr 24-hour	444	1332.43	10.08

The results from CulvertMaster indicate there is not an overtopping event in this evaluation and no need for upsizing the crossing.

6. REFERENCES

[1] Minnesota Department of Natural Resources, "Reconnecting Rivers: Natural Channel Design in Dam Removal and Fish Passage," Fergus Falls, MN, January 2010.

[2] U.S. Army Corps of Engineers, *Engineering and Design - Hydraulic Design of Flood Control Channels. In: Engineer Manual No. 1110-2-1601,* 1994.

[3] Barr Engineering Inc., "Kathryn Dam Repurposing Project," Bismarck, ND, May 2019.

[4] Hydrologic Engineering Center, *HEC-RAS v6.5,* Davis, CA: U.S. Army Corps of Engineers, February 2024.

[5] Hydrologic Engineering Center, "HEC-RAS River Analysis System - 2-D Modeling User's Manual, Version 6.0," U.S. Army Corps of Engineers, May 2021.

[6] Bentley Systems, Inc., *CulvertMaster v10.03.00.03,* March 2020.

Appendix E Rock Riffle Structure Design

This section summarizes key decisions and discussion points from project meetings.

1. Rock Riffle Structure Design

    a. Standard design guidance from the MnDNR for the structure was given to Moore at the onset of the project. This was given in both verbally and written, referencing the Reconnecting Rivers document [3].

        i. Bed grade <= 3%

        ii. 15 foot – 30-foot pools

        iii. Use the 2/3/2 design

            1. Rather than a single arch, this is a modified design with 2 arches in one weir then 3 in the next then back to 2 in the following. This allows the sag of one arch to rest on the crest of the next. It also provides more resting areas for the fish.

            2. The geometry of the 2/3/2 design was reviewed and approved by the MnDNR during the 60% design review meeting.

        iv. All fish passage gaps are 2 feet – 3 feet wide and perpendicular to the flow

        v. There is a maximum of 0.6 feet of head loss per weir

        vi. A 1.5% slope is used along the cross section of the weir on either side of the flat low flow channel.

        vii. The base riprap is all the same gradation with extents up to the 100-yr event. Below the base riprap is a bedding for MnDOT Class 2 riprap.

            1. The gradation sizing can be seen in Appendix D

            2. Both gradations of riprap are to be mixed with a well graded mix of aggregate varying from the no. 40 sieve up to 3-inch stones and applied as a single, well-mixed building material to form a solid, no-void ramp. The mix of aggregate should be such that it is not blown out of the riprap by the rivers current but instead forces flow over the riprap. Excess channel excavation can be used for filling voids with engineers' approval. Some contractors have estimated the qty to be near 1 cy of well graded mix of aggregate to 1 cy of riprap. Engineer may require additional aggregate mix to be installed. The well graded mix of aggregate is considered incidental to riprap.

    b. The Dam weir geometry, low flow width, and channel width was created through iterations of modeling to be near, but not above, the existing conditions models.

c. The Dam banks are sloped at 4:1 upstream of the crossing then transition closer to 3:1 as they tie into the existing Minnow Pond Road on the north bank.

2. Dam Runnout Elevation

    a. The runout elevation of the Dam was determined by MnDNR per an email to Garret Monson from Paul LeClaire on 09/30/2024. The body of the email is below:

"Amanda informed me that you were asking about the current lake level on Melissa and how that relates to the levels at Buck's Mill Dam. I did stop out at the Dam site after our meeting last week. I didn't have survey equipment with me, but based on the gage reading at the Dam site and some investigation I did after getting back to my desk, it looks like the water level at the Dam was approximately 0.2 feet above the lake runout elevation on Wednesday last week.

Below I have a quick summary of how I came to that conclusion.

- The runout elevation for the Dam (from MnDNR Lakes DB) is 1327.51 ft, NGVD 29.
- The gage reading on the abutment on Wednesday was about 4.7 ft. The zero elevation from that gage (also from the MnDNR Lakes DB) is 1323.05 ft, NGVD 29. Therefore, the elevation of the lake today was approximately 1327.75 ft, NGVD 29 (1323.05+4.7). Or, about 0.2 feet above the runout elevation.
- Based on what I observed for the water level over the Dam, it seemed as though the two tenths of depth over the Dam crest matched well with the elevations provided in the previous two bullets. That is, what was out there on Wednesday for a Dam crest is likely what the runout elevation will be for the constructed rapids. "

    b. This means the runout elevation of 1327.51ft NGVD 29 from MnDNR Lakes DB is correct. To convert this elevation, Chris Heyer with MEI sent the following email on 10/30/2024:

"The conversion from 88 to 29 datum for lake melissa is **subtract 1.10 feet** from 88 to get to 29 datum. Likewise to relate the 29 datum on Lake Melissa to 1912 datum on Pelican you **add 0.58** feet to 29 datum. This is based on the information posted for the benchmark on the Dam that we shot per DNR:

Elevation: 1330.4 ft **Datum:** NGVD 29 (ft)

Date Set: 01/29/1970 **Location:** T138R41S31

Description: Found 2004. USGS disk in left end of right upstream abutment of Buck's Mill outlet Dam on Mill Lake (3-377). [Note: Add 0.58 feet to NGVD 1929 elevations to equate to MSL 1912.] [Note: Elevation = 1331.50 NAVD 88 as per GPS survey 3/4/15.]"

c. Using the elevation from Paul of 1327.51ft in NGVD 29, we can convert the elevation to NAVD 88 as follows: 1327.51 feet NGVD 29 + 1.1 feet = 1328.61 feet NAVD 88 Runout Elevation

d. In addition to the information provided by Paul LeClaire, Rodger Hemphill emailed Garret with additional documentation from 2005 on 11/20/24. The email's body is below which references the document Requisition for Surface Water/Hydrographic Services Req. No. 2005-10.

"Paul's numbers look to be correct with the information we have for the runout elevation of the Dam. You asked for documentation we have on file to confirm so I am attaching the 2005 survey for Mill Lake or Mill Pond (it is listed as both names) that shows the shots taken then."

e. This document (attached to this Appendix) states the runout elevation is 1327.51 feet in NGVD 29, with survey data to support. It also goes into OHW calcs for both Lake Melissa and Mill Pond. This elevation is the same as was provided by Paul from the MnDNR Lakes DB.

f. Based on these two reference points, the runout elevation of the Buck's Mill is 1328.61 feet in NAVD 88.

Appendix F Road Crossing Design

This section summarizes key decisions and discussion points from project meetings.

3. Road Design

    a. Per conversations with the Township in October – November 2024, Becker County standards are to be used as the baseline for the design criteria. These two documents from Becker County are referenced below and part of this Appendix:

        i. Zoning Ordinance of Becker County (Dated 12072023)

            1. Section 8-93 referencing "Township Roads"

                a. Minimum grade is 0.5%

                b. Maximum grade is 8.0% per Table 8-2

                c. Horizontal Alignment – Minimum Radii of Center Line is 100 feet per Table 8-3

                d. Vertical Alignment – Minimum Parabolic Curve Length is 50 feet per Table 8-4

        ii. Becker County General Requirements for Construction of Public Road In Sub-Divisions

            1. See Appendix A within the Sub-Division doc, referencing the "Class "B" Road"

                a. *24 foot graded to width (Moore modified the width to 10 foot lanes and 4 foot shoulders per MR 8820.9922, Subp. 4 (b))

                b. *3:1 inslopes (Moore modified the inslopes to 4:1 within the 10-foot clear zone per MR 8820.9922, Subp. 4 (g). The inslopes past the clear zone were modified to 2:1 past the 10-foot clear zone)

                c. 2-foot ditch separation

                d. 4-foot ditch bottom

                e. 3:1 backslopes

                f. *3-inch aggregate surface at 1,170 cubic yards per mile (Township modified to 8-inch aggregate surface)

* Becker County standards that were modified, as noted.

b. Pedestrian access and parking were part of the original plan when this project was started by the MnDNR. Public access has historically been from the north but will be from the southern bank after construction. The Township requested parallel parking stalls, a minimum of 10 feet wide.

c. Surfacing along the road inslope was requested to be 2" crushed granite, by the Township. They have had success with this material in other locations frequented by the public for fishing.

d. Special provision requested by the Township – The Contractor is to have haul routes approved with Township supervisors prior to construction. All damage to haul roads must be repaired by the Contractor. Dust control is the responsibility of the Contractor along the haul route.

e. Based on a 30 mph design speed and the existing approach grades, a single vertical curve was selected at the culvert crossing to optimize both headlight sight distance and comfort sight distance, while also maintaining minimum fill depth over the proposed box culverts.

   According to MnDOT's Facility Design Guide:

   i. The goal K-value for headlight sight distance at 30 mph is 36 (Figure 5:3-4.04C), and

   ii. The goal K-value for comfort sight distance is 19 (Figure 5:3-4.04D)

   The proposed design uses a vertical curve length of 225 feet, resulting in a K-value of approximately 29.6. Although slightly below the headlight sight distance recommendation, this design exceeds the comfort criterion and is a significant improvement over the existing profile, which has a sharper grade break and lower K-value.

   Several site-specific factors support this deviation from MnDOT's target K-value:

   i. The roadway is a low-volume township road (ADT < 150) with a posted speed of 30 mph, reducing the likelihood of nighttime, high-speed travel.

   ii. The horizontal alignment is nearly straight, improving forward visibility through the sag.

   iii. Forgiving roadside slopes (4:1) and the absence of fixed hazards enhance roadside safety.

   iv. Extending the curve to meet K=36 would require raising the roadway profile, leading to longer culverts, deeper fills, and higher construction costs without meaningful safety benefit.

The proposed vertical curve represents a context-sensitive solution that balances safety, drainage, ride comfort, and cost, and is appropriate for the rural setting and roadway classification.

4. Culvert Design

    a. The MnDNR's contract with Moore was to install box culverts as part of this project. Installing box culverts was decided on before Moore became involved so this report cannot speak to that decision.

        i. The MnDNR requested Moore contact the Becker County Engineer to discuss a bridge option. The DNR would like to investigate a bridge instead of box culverts for two main reasons. One being a potentially lower cost than box culverts, the other being improved fish passage. The Township does not want to take on a crossing other than the planned RCB crossing. A meeting to discuss this was held virtually on 01/21/2025 with Brian Shepard.

            1. Ultimately, the MnDNR did not want to move forward with a bridge option.

        ii. The MnDNR requested the Township gather information from residents if there was interest in abandoning the road and removing the crossing.

            1. In early 2025, the Township gathered resident feedback and ultimately voted not to abandon the road. No petitions were brought to the board for road abandonment as of the time this report was written.

    b. The MnDNR did not want more than 2 main culverts for fish passage purposes.

    c. The culverts were upsized to meet the MnDNR's criteria of 2.5 – 3 fps during bankfull conditions.

    d. The 2 main culverts were sunk 1 foot below the invert to allow for an aggregate base for fish passage.

    e. The weirs were designed to allow for standing water in the culverts for fish passage.

    f. The MnDNR proposed adding perched floodplain culverts to improve flood flow and fish passage.

        i. Per direction from the MnDNR, the culverts were perched 1.5 feet – 2.5 feet above the channel bottom.

Zoning Ordinance
Of
Becker County

Adopted: May 5, 1971

Amended:

April 22, 1980
October 7, 1986
November 24, 1992
March 23, 1993
June 23, 1998
August 22, 1998
February 27, 2001
March 26, 2002
November 24, 2004
March 22, 2005
November 22, 2005
July 25, 2006
September 25, 2007
December 18, 2007
November 24, 2009
June 22, 2010
June 28, 2011
March 27, 2012
March 26, 2013
May 28, 2013
June 25, 2013
May 20, 2014
June 24, 2014
May 19, 2015
August 18, 2015
October 20, 2015
March 15, 2016
June 21, 2016
December 19, 2017
April 17, 2018
January 22, 2019
May 21, 2019
February 4, 2020
March 17, 2020
June 16, 2020
September 15, 2020
July 20, 2021
August 17, 2021
September 21, 2021
February 15, 2022
April 5, 2022

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CHAPTER 1 INTRODUCTORY PROVISIONS

Section 1 Purposes

This Ordinance is enacted for the following purposes:

A. To promote and protect the health, safety, and general welfare throughout Becker County.
B. To lessen congestion in public rights-of-way, secure safety from fire, panic, and other dangers.
C. To provide adequate light and air, facilitating the adequate provisions of water, sewerage, and other public requirements.
D. To conserve the value of properties and encourage the most appropriate use of land.
E. To preserve and enhance the economic values and use of agricultural land.
F. To preserve and enhance the quality of surface waters.
G. To conserve the economic and natural environmental values of shorelands.
H. To provide for the wise use of water and related land resources of the County.
I. To accommodate the communication needs of residents and businesses while protecting the public health, safety, and general welfare.
J. To assist the subdivider in harmonizing his interest with those of the County at large, as well as with those of the local municipalities located within the County.
K. To prevent piecemeal planning of subdivision, undesirable, disconnected patchwork of pattern, and poor circulation of traffic.
L. To correlate land subdivision with the County Comprehensive Plan.
M. To secure the rights of the public, with respect to public lands and waters.
N. To improve land records by establishing standards for surveys and plats
O. To discourage inferior development that might adversely affect property values.
P. To establish subdivision development at standards compatible with affected municipalities with the County.
Q. To provide clear, reliable, and cost-effective technical standards and criteria for individual subsurface sewage treatment systems.
R. To provide a framework for a local individual subsurface sewage treatment system permitting and inspection program.
S. To describe the responsibilities, licensing, and enforcement requirements for individual subsurface sewage treatment system professionals.

Section 2 Statutory Authorization

This Ordinance is enacted pursuant to the following statutes and rules:

A. Minnesota Statutes Chapter 394, as amended, authorizing county planning and zoning activities;
B. Minnesota Rules, Parts 6120.2500 - 6120.3900, as may be amended, establishing minimum standards for regulation of shoreland areas;
C. Minnesota Statutes, Chapter 103G, as may be amended, containing water law of the State;
D. Minnesota Statues, Chapters 115 and 116, as may be amended, containing state-wide pollution prevention policies;
E. Minnesota Statutes Chapter 505 and 515C, as may be amended, governing the platting of land and common interest communities; and
F. Minnesota Statutes, Chapters 103F, 103G, 115, and 116, and Minnesota Rules Section 7080-7083, as may be amended, establishing the minimum standards and criteria for individual subsurface sewage treatment systems to

protect the surface and ground waters of the state.

Section 3 Title

This Ordinance incorporates and updates the previous Becker County zoning ordinance, subdivision ordinance, and individual subsurface sewage treatment ordinance. This unified ordinance shall be known, and may be cited and referred to, as the "Becker County Zoning Ordinance"; when referred to in this Ordinance, it shall be known as "This Ordinance."

Section 4 Jurisdiction

The jurisdiction of this Ordinance shall apply to all areas of Becker County outside the incorporated limits of municipalities, except for the following:

A. Municipal extraterritorial jurisdiction for subdivision approval. Applications for development within Becker County where the development parcel lies within the extraterritorial jurisdiction area of a municipality that has exercised extraterritorial jurisdiction shall be subject to the subdivision review of such municipality, which may vary from county subdivision provisions. However, the zoning regulations of Becker County as contained in this Ordinance shall remain in effect within any municipal extraterritorial jurisdiction area.

B. Township zoning adopted. Land within Becker County may be subject to zoning and subdivision regulations adopted by the township where the land is located. Where townships have adopted regulations that conflict with the provisions of this Ordinance, the most restrictive provisions shall apply. Where Townships have adopted an ordinance pursuant to applicable statutes, it shall be the responsibility of the property owner to secure necessary permits from the township zoning official or township board. Becker County is not responsible for the administration of township regulations.

Section 5 Scope

After the effective date of this Ordinance the following activities in Becker County shall conform to this Ordinance:

A. The use of all property and every structure or portion of a structure erected, altered, added to or relocated;

B. The platting or subdivision of any lot, tract, or parcel of land; and

C. The location, design, installation, use, and maintenance of individual subsurface sewage treatment systems.

Any existing building or structure and any existing use of property that does not conform to this Ordinance may be continued, extended, or changed only as provided by the provisions of this Ordinance relating to nonconforming uses and Minnesota Statutes Chapter 394.

Section 6 Interpretation and Greater Restrictions

The provisions of this Ordinance are the minimum requirements for the promotion of the public health, safety, comfort, convenience and general welfare. If the provisions of this Ordinance impose greater restrictions than those of any statute, other ordinance or regulation, the provisions of this Ordinance shall be controlling. If the provisions of any statute, other ordinance or regulation impose greater restrictions than this Ordinance, the provisions of the statute, other ordinance or regulation shall be controlling.

Section 7 Headings

Section and paragraph headings used in this ordinance are for convenience only and do not define, limit, or construe the contents of the ordinance.

Section 8 Rules

For the purpose of this Ordinance the following general rules shall apply:

A. Words used in the present tense shall include the future.
B. Words in the singular shall include the plural, and the plural the singular.
C. The word "shall" is mandatory and not discretionary.
D. All distances, unless otherwise specified, shall be measured horizontally.

Section 9 Severability/Validity

If any section, subdivision, clause, or portion of this Ordinance is ruled unconstitutional or invalid, the remainder of this Ordinance shall remain in effect.

Section 10 Abrogation

The enactment of this Ordinance does not repeal, abrogate, or impair any existing easements, covenants, or deed restrictions but if this Ordinance imposes greater restrictions, this Ordinance shall prevail.

Section 11 Date of Effect

This Ordinance incorporates and updates the previous Becker County zoning ordinance, subdivision ordinance, and individual subsurface sewage treatment ordinance, each of which was in effect at the time of adoption of this Ordinance. The provisions of this Ordinance have been adopted and amended upon resolution of the Becker County Board and shall be in full force and effect from the effective date of first adoption or amendment. The effective dates of adoption and amendment are maintained by and available from the Zoning Administrator.

CHAPTER 2 ADMINISTRATION

Section 1 Zoning Administrator

A. **Office established; Term.** The office of Zoning Administrator is hereby established. The Board of County Commissioners may appoint one or more persons to this office. The term of office of the Zoning Administrator shall be indefinite and shall terminate at the pleasure of the Board of County Commissioners.

B. **Duties.** The duties of the Zoning Administrator shall include the following:

1. Enforce and administer this Ordinance;
2. Issue site permits and sewer permits and maintain records thereof;
3. Receive and forward to the Board of County Commissioners and the County Planning Commission all applications for amendments to this Ordinance;
4. Receive and forward all applications and petitions for matters to come before the Board of Adjustment;
5. Receive and forward to the Board of County Commissioners and the County Planning Commission all applications for plats, subdivisions or conditional use permits;
6. Inspect construction and development to insure that the standards of this Ordinance are being complied with;
7. Provide and maintain a public information bureau relative to matters arising out of this Ordinance; and
8. Maintain the Official County Zoning Map.

Section 2 Planning Commission

A. **Creation and membership.** A Planning Commission is established. The Commission is vested with the authority as provided by this Ordinance and by Minnesota Statutes, Chapter 394 as amended. The Commission shall be composed of not more than eleven (11) members. Each Commissioner shall appoint two Becker County residents and the Board of Adjustments shall appoint one member. The Becker County Board may appoint one or more Commissioners to the Planning Commission as a liaison. A term shall be for a period of not more than four (4) years with one third of the members appointed each year. Each member shall be entitled to one (1) vote. No voting member of the Commission shall have received, during the two (2) years prior to appointment, any substantial portion of income from business operations involving the development of land within the county. An appointment to fill a vacancy shall be only for the unexpired portion of the term.

B. **Quorum.** A quorum of the Planning Commission members shall be required to conduct office business. A quorum shall consist of fifty percent of the members.

C. **Officers.** The Planning Commission shall elect a chair and secretary from among its members. **Conduct.** The Commission may call for the removal of any member for non-performance of duty or misconduct in office. Upon a second meeting absence in a Twelve (12) month period, the Secretary may notify the member of such absence via letter. If a member has three (3) absences in any twelve (12) month period, the Secretary may certify this fact to the Commission and the Commission may notify the County Board.

D. **Duties and responsibilities.** The Planning Commission shall review and make recommendations to the Board of County Commissioners on their findings on the following applications:

1. Zone change amendments to the Official Zoning Map.
2. Conditional use permits;
3. Applications for plats or the subdivision of land;
4. Planned unit developments: residential or commercial;
5. Non-shoreland multi-unit developments and shoreland conservation subdivision developments;
6. Comprehensive plan; or

7. Text amendments to the zoning ordinance.

Section 3 Board of Adjustment

A. **Creation and membership.** A Board of Adjustment is established. The Board is vested with the authority as provided by this ordinance and by Minnesota Statutes, Chapter 394, as amended. The Board shall consist of seven (7) members. A quorum shall consist of four (4) members. Four (4) of the board members shall be from the unincorporated area of the County and one (1) shall be a member of the County Planning Commission. No elected officer of the County or employee of the Board of County Commissioners shall serve as a member of the Board of Adjustment. The Board members shall be appointed by the Board of County Commissioners.

B. **Officers.** The Board of Adjustment shall elect a chair and vice chair from among its members and shall appoint a secretary who need not be a member of the board.

C. **Rules and record keeping.** The Board of Adjustment shall adopt rules for the transaction of its business and shall keep a public record of its transactions, findings, and determinations.

D. **Meetings.** The meetings of the Board of Adjustment shall be held at the call of the chairman and at such other times as the Board in its rules or procedure may specify.

E. **Conflict of interest.** Any question of whether a particular issue involves a conflict of interest sufficient to disqualify a regular board member from voting shall be decided by majority vote of all regular board members except the member who is being challenged.

F. **Powers.** The Board of Adjustment shall have the following powers:

1. To grant variances from the strict application of any of the provisions of this Ordinance.
2. To hear and decide appeals from and review any order, requirement, decision, or determination made by any administrative official charged with enforcing this ordinance.
3. To permit the extension of a zoning district where the boundary line divides a lot in one ownership at the time of the passage of this Ordinance, but the extension of any district shall not exceed one hundred (100) feet.
4. Consideration of Townships. In exercising its powers the Board of Adjustment shall consider the town board's recommendation when the Board of Adjustment's decision directly affects land within the township.

G. **Board Conduct.** The Board may call for the removal of any member for non-performance of duty or misconduct in office. Upon a second meeting absence in a twelve (12) month period, the Secretary may notify the member of such absence via letter. If a member has three (3) absences in any twelve (12) month period, the Secretary may certify this face to the Board and the Board may notify the County Board.

CHAPTER 3 NONCONFORMITIES

Section 1 Non-Conforming Structures and Uses Allowed to Continue

Non-conforming uses and non-conforming structures are uses and structures lawfully in existence prior to the adoption of this Ordinance that do not meet the requirements of this Ordinance for the zoning district in which they are located. Non-conforming uses and structures shall be allowed to continue if they comply with the provisions in this Chapter.

A. **Exemption.** Structures found to be non-conforming only because of height, yard or area requirements shall be exempt from the provisions of this Chapter.

B. **Conformity encouraged.** All non-conforming uses and non-conforming structures are encouraged to convert to conformity whenever possible.

C. **Change of title no effect.** Change of title or change of right to possession shall not affect the allowed continuation of a non-conforming use.

Section 2 Discontinuance

A. **Non-conforming use.** If a non-conforming use of any building or premises is discontinued or its normal operation stopped for one (1) year, the use shall thereafter conform to the regulations of the district in which it is located.

B. **Non-conforming sign.** If the use of a non-conforming advertising sign structure is discontinued or its normal operation stopped for six (6) months, the structure shall be moved by the owner or lessor.

Section 3 Change of Use

If no structural alterations are made, a non-conforming use of a building may be changed to another non-conforming use of the same or more restricted classification. The foregoing provisions also shall apply to non-conforming uses in districts hereafter changed. Whenever a non-conforming use has been changed to a more restricted use or to a conforming use, such use shall not later be changed to a less restricted use.

Section 4 Residential Alterations

Alterations may be made to a residential building containing non-conforming residential units if they will improve the livability of the units and if they do not increase the number of dwelling units in the building.

Section 5 Restoration

Restoration of a non-conformity shall adhere to MN Statute § 394.36 Subd. 4.

Section 6 Normal Maintenance

Routine upkeep of a structure that does not involve the replacement of the main structural frame or walls, or changes in exterior dimensions of a structure is permitted. Routine upkeep includes, but is not limited to: work performed on the interior of the structure; painting; replacement of siding, windows, doors, soffit, fascia, shingles, additional doors or windows; new floorboards to decks. Under no conditions shall repairs and maintenance constitute replacement of the main structural frame, walls, or changes in the exterior dimensions. Removal of the structure or any part of a structure, and rebuilding on an existing slab or foundation constitutes new construction. Replacement of an existing slab, foundation, or floor constitutes new construction, whether done by removal or raising of the structure

Section 7 Additions and expansion of a nonconforming principal structure.

Additions and expansions of a nonconforming principal structure may be allowed one time without a variance provided all of the following criteria will be met. However, the Zoning administrator may refer to the Board of Adjustment for variance consideration any application presenting extraordinary circumstances.

1. The property does not have a previously approved variance and there have been no prior additions to the existing structure.
2. The addition/expansion will not decrease the setback of the existing structure from the ordinary high water level.
3. The addition/expansion will not exceed fifty (50) percent of the total living area of the existing structure and the completed structure cannot be larger than 1500 square feet in lot area coverage.
4. The existing structure may be expanded vertically, but limited to twenty-four (24) feet total structure height and limited to 1500 square feet in total structure living space and no increase in the lot area coverage.
5. The existing structure must be located outside the shore impact zone.
6. The completed project is subject to the protection zone criteria specified in Chapter 6, Section 10, Paragraph E,
7. Impervious surface coverage of the parcel or lot shall not exceed 25 percent.
8. The existing structure and proposed addition/expansion must meet all other setback distance requirements of this Ordinance.

Section 8 Lots of Record

A lot that was a buildable lot before the enactment of this ordinance is a lot of record. A lot of record is a buildable lot though it does not meet the requirements of this Ordinance but is subject to the requirements in paragraphs A through C, immediately below. Any legal access established prior to 1971 and which has continuously existed shall constitute legal access for the purposes of this section. The use of a lot of record shall conform to the requirements of this Ordinance.

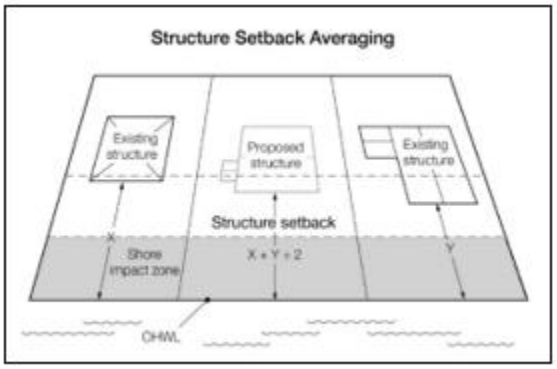
A. **Side yards.** Side yard requirements on a lot of record shall conform as nearly as possible to the requirements of this Ordinance. If compliance is not possible the side yard shall not be less than five (5) feet or ten percent (10%) of the lot width at the building line whichever is larger. The eave of the structure cannot encroach more than two (2) feet toward the side property line.

B. **Setback averaging.** Setback averaging is the horizontal distance of a proposed structure obtained by adding the horizontal distance, as measured from the ordinary high water mark of the lake, of the like structures on the adjacent lots and dividing that sum by two (2).

   1. If structures exist on the adjoining lots on both sides of a proposed building site, the required setbacks shall be that of the average horizontal distance of the like structures, not to exceed the required lake setback. (Example: deck to deck, house to house)
   2. If a building on one side of a lot does not comply with the setback requirements of this ordinance and if the lot on the other side is vacant, or if the structure exceeds the required setback, the setback for the lot shall be equal to one half (1/2) the sum of the horizontal distance as measured from the ordinary high water mark of the lake to the like structure and the setback required by this ordinance, not to exceed the required lake setback
   3. Notwithstanding the above, a building site shall not be located in whole or in part within a shore impact zone or a bluff impact zone.
   4. 4. Whenever the setback averaging method is allowed to establish a lakeside structure setback and the property is a substandard size property, as provided for in subsections B1 and B 2, above, the deficiency area between the setback determined by the setback averaging and the setback required by this Ordinance must be mitigated by a shoreline vegetative buffer, a shoreline berm, or other on-site

stormwater management systems. If mitigated by a shoreline vegetative buffer, the buffer must be certified annually.

5. If a dwelling unit is used for the lakeshore averaging, the dwelling must be of average livable condition.



C. Existing nonconforming lots in shoreland areas. This subdivision applies to shoreland lots of record in the office of the county recorder on the date of adoption of local shoreland controls that do not meet the requirements for lot size or lot width. The county shall regulate the use of nonconforming lots of record and the repair, replacement, maintenance, improvement, or expansion of nonconforming uses and structures in shoreland areas according to this subdivision.

1. A nonconforming single lot of record located within a shoreland area may be allowed as a building site without variances from lot size requirements, provided that:
   a. all structure and septic system setback distance requirements can be met;
   b. a Type 1 sewage treatment system consistent with Minnesota Rules, chapter 7080, or successor rules, can be installed or the lot is connected to a public sewer; and
   c. the impervious surface coverage does not exceed 25 percent of the lot.
2. In a group of two or more contiguous lots of record under a common ownership, an individual lot must be considered as a separate parcel of land for the purpose of sale or development, if it meets the following requirements:
   a. the lot must be at least 66 percent of the dimensional standard for lot width and lot size for the shoreland classification;
   b. the lot must be connected to a public sewer, if available, or must be suitable for the installation of a Type 1 sewage treatment system consistent with Minnesota Rules, chapter 7080, or successor rules, and local government controls;
   c. impervious surface coverage must not exceed 25 percent of each lot; and
   d. development of the lot must be consistent with an adopted comprehensive plan.
3. A lot subject to paragraph (c) not meeting the requirements of paragraph (c) must be combined with the one or more contiguous lots so they equal one or more conforming lots as much as possible.
4. Notwithstanding paragraph (c), contiguous nonconforming lots of record in shoreland areas under a common ownership must be able to be sold or purchased individually if each lot contained a habitable residential dwelling at the time the lots came under common ownership and the lots are suitable for, or served by, a sewage treatment system consistent with the requirements of section 115.55, or successor rules, and Minnesota Rules, chapter 7080, or successor rules, or connected to a public sewer.
5. In evaluating all variances, zoning, and building permit applications, or conditional use requests, the County zoning authority shall require the property owner to address, when appropriate, storm water runoff management, reducing impervious surfaces, increasing setback, restoration of wetlands, vegetative buffers, sewage treatment and water supply capabilities, and other conservation-designed actions.

6. A portion of a conforming lot may be separated from an existing parcel as long as the remainder of the existing parcel meets the lot size and sewage system requirements of the zoning district for a new lot and the newly created parcel is combined with an adjacent parcel.
7. Natural environment lots subdivided prior to 2016 shall be deemed conforming lots with verification of a dated survey, allowing them to be sold separately.

Section 9 Non-Conforming Signs

A. **Continuation of non-conforming signs.** Business signs on the premises of a non-conforming building or use may be continued, but shall not be increased in number, area, height, or illumination.

B. **New signs may be allowed.** New signs may be erected only upon the complete removal of all other signs existing on the effective date of this Ordinance. These signs may be illuminated, but no flashing, rotating, or moving signs shall be permitted.

C. **Change requires compliance.** No sign erected before the passage of this Ordinance shall be rebuilt, altered, or moved to a new location without being brought into compliance with the requirements of this Ordinance.

Section 10 Non-Conforming Junk Yards

A. **Discontinuance required; Exception.** No junk yard may continue as a non-conforming use after the effective date of this Ordinance, except that a junk yard may continue as a non-conforming use in the General Agriculture (GA), Commercial (C) or Industry District (I), if it is completely enclosed within a building, fence, screen planting or other device that completely screens the operations of the junk yard.

B. **Screening requirements.** Screening required in paragraph A, immediately above, shall meet the following provisions:

1. **Approval.** Plans for the screening device shall be approved by the County Planning Commission and the Board of County Commissioners before it is erected or put into place.

2. **Conditional use.** Upon installation of such approved plans and device, the junk yard shall be considered a legal conditional use and shall be subject to conditions, reviews, and all procedures in Chapter 8 Section 11, for conditional use permits.

Section 11 Mitigation Requirements for Nonconformities in Shoreland Areas

This Section establishes procedures for the placement of structures on nonconforming lots that do not meet the minimum lot size standards in Chapter 5, Section 2. The development or redevelopment of nonconforming lots, including but not limited to nonconforming setback regulations, shall require mitigation actions such as restoring shoreline vegetative buffers, reestablishing shoreline berms, management of roof drainage on-site, and removal of impervious surface in the shore impact zone.

A. **Development worksheet required.** On forms supplied by the Zoning Administrator, applications for the placement of structures or other impervious surfaces on nonconforming lots in shoreland areas shall include a completed development worksheet calculating the number of mitigation units required as specified in subsection B, below. The application shall also include the applicant's planned mitigation actions meeting the requirements in subsection C, below.

B. **Calculation of mitigation requirement units.** The calculation of required mitigation units shall be based on the following provisions.

1. **Nonconforming lake setback.** The minimum requirement that must be met for structure setbacks from lake shoreline is determined by a setback average plus twenty (20) feet measurement or the most restrictive adjacent property building setback. The structure setback applies to all structures, including but not limited to: decks, patios, landings, and stairs. In all cases, structures must be outside the shore impact zone. Setback deficiency

from the minimum setback is allowed with offsetting mitigation. Each foot of setback deficiency represents one (1) mitigation requirement unit.

2. **Nonconforming impervious surface.** Impervious surface is not allowed to exceed twenty-five percent (25%) coverage. Impervious surfaces include, but are not limited to: streets, roofs, sidewalks, driveways, parking lots, and similar facilities and areas covered with gravel, concrete, bituminous, compacted sand, lime rock, clay or other surfaces that substantially reduce or prevent the infiltration of water. Surface coverage between fifteen percent (15%) and twenty-five percent (25%) is allowed with offsetting mitigation. Each percentage point of impervious surface greater than fifteen percent (15%) represents five (5) mitigation requirement units.

   a. **Pervious decks.** Decks shall be considered pervious if all of the following conditions are met:

      (1) Maximum material (board) width is eight inches (8");

      (2) Minimum spacing between material (boards) is one-quarter inch (1/4"); and

      (3) The area under the deck is pervious material.

      Decks not meeting these requirements shall be considered as impervious.

3. **Nonconformities within the shore impact zone.** Structures and other impervious surfaces are not allowed in the shore impact zone, with the exception of landings, stairs and other uses meeting the requirements of Chapter 6, Sections 3 and 4, and limited to a total of thirty-two (32) square feet. Existing structures and existing impervious surfaces may be removed and mitigation credits are allowed for shore impact zone removals.

C. **Options for meeting mitigation requirements.** The following options are available to the applicant in order to satisfy the required mitigation units for nonconformities in shoreland areas.

1. **Mitigation options for nonconforming lake setback.** Deficiencies in lake setback requirements must be mitigated by the following options:

   a. **Increasing structure setback from the lake.** One (1) mitigation unit credit is allowed for each one foot (1') closer structures are located to the standard setback line.

   b. **Approved vegetative buffer.** Establishing an approved vegetative buffer adjacent to the ordinary high water level and parallel to the shoreline is a mitigation option for deficiencies in lake setbacks. The minimum vegetative buffer required to earn mitigation units is a twenty feet (20') linear by fifteen feet (15') deep buffer. Ten (10) mitigation unit credits are allowed for establishing the minimum vegetative buffer. An additional ten (10) mitigation unit credits is provided for each ten feet (10') linear by fifteen feet (15') deep shoreline buffer increment. An additional ten (10) mitigation unit credits are also allowed for each ten-foot (10') linear segment of the buffer that is expanded to twenty-five feet (25') deep.

   c. **Removal of nonconformities in shore impact zone.** Five (5) mitigation unit credits are allowed for the removal of each fifty (50) square feet of structures or other impervious surfaces from the shore impact zone.

2. **Mitigation options for nonconforming impervious surface.** Nonconforming impervious surface deficiencies must be mitigated by the following options:

   a. **Reduction of impervious surface.** Reducing impervious surface that exceeds the fifteen percent (15%) threshold in subsection B.2, above. Five (5) mitigation unit credits are allowed for each percentage point reduction between twenty-five percent (25%) and fifteen percent (15%).

   b. **On-site stormwater management.** Divert water runoff from structures or other impervious surfaces to an approved stormwater management system. Ten (10) mitigation unit credits are allowed for each three hundred and fifty (350) square feet of surface area from which runoff will be contained on the property through discharge to the stormwater system.

   c. **Shoreline protection berm.** Establish a berm not less than twelve inches (12") above grade and parallel to the shoreline to contain or control stormwater runoff. Ten (10) mitigation unit credits are allowed for each twenty-five feet (25') of protected shoreline. This mitigation option is only available to properties with less than eight percent (8%) grade to the lake.

d. **Removal of nonconformities in shore impact zone.** Five (5) mitigation unit credits are allowed for the removal of each fifty (50) square feet of structures or other impervious surfaces from the shore impact zone.

D. **Approval of site plan and storm water plan required.** The applicant's planned mitigation activities meeting the requirements of this Section shall be documented by a site plan and storm water plan approved by the Zoning Administrator and filed with the approved development permit.

E. **Installation and maintenance required.** The mitigation activities satisfying the requirements of this Section that are approved as part of a development permit shall be installed and maintained as a condition of occupancy. The property shall be subject to inspection as necessary by the governing authority of Becker County.

F. **Recorded on deed.** Mitigation requirements approved under this Section shall be recorded with the deed of the permitted property and shall remain with the property deed through subsequent ownerships.

CHAPTER 4 GENERAL PROVISIONS APPLYING TO LAND USE DISTRICTS

Section 1 Purposes of Zoning Districts

The land use districts shall be shown on the Official Zoning Map for Becker County. These land use districts are in conformance with the criteria specified in Minnesota Rules, Part 6120.3200, and are based on consideration of:

A. The management of areas unsuitable for development due to wet soils, steep slopes, flooding, inadequate drainage, severe erosion potential, presence of significant historic sites, or any other feature likely to be harmful to the health, safety, or welfare of the residents of the community.

B. The reservation of areas suitable for residential development from encroachment by commercial and industrial uses.

C. The centralization of service facilities for residential areas and enhancement of economic growth for those areas suitable for limited commercial development.

D. The management of areas for commercial or industrial uses that, by their nature, require location in shoreland areas.

E. The protection of valuable agricultural lands from conversion to other uses.

F. The preservation and enhancement of the quality of water based recreational use of public waters including provisions for public accesses.

Section 2 Land Use District Descriptions

A. **Special Protection District.** The Special Protection (SP) District is intended to be used for two basic purposes. The first purpose is to limit and properly manage development in areas that are unsuitable for development or uses due to flooding, erosion, limiting soil conditions, steep slopes, or other major physical constraints. A second purpose is to manage and preserve areas with special historical, natural, or biological characteristics.

B. **Residential District.** The Residential (RES) District is primarily intended to allow low to medium density seasonal and year-round residential uses on lands suitable for such uses. It is also intended to prevent establishment of various commercial, industrial, and other uses in these areas that cause conflicts or problems for residential uses. Some nonresidential uses with minimal impacts on residential uses are allowed if properly managed under conditional use procedures.

C. **High Density Residential District.** The High Density Residential (HDR) District is intended for use on lands with heterogeneous mixes of soils, vegetation, and topography that are not well suited to residential development using standard, lot-block subdivisions. This approach enables these areas to be developed, often with higher lot-block densities, while also avoiding and preserving unsuitable terrain and soils.

D. **Water Oriented Commercial District.** The Water Oriented Commercial (WOC) District is intended to be used only to provide for existing or future commercial uses adjacent to water resources that are functionally dependent on such close proximity.

E. **Commercial District.** The Commercial (C) District is intended to be used only for lands already developed or suitable for development with concentrated urban, particularly commercial, land uses. It should not be used on natural environment lakes or remote river classes. Other intensive urban uses such as commercial planned unit developments are allowed in this district if handled by conditional use permits.

F. **General Agriculture District.** The General Agriculture (GA) District is intended to provide a district that will allow suitable areas of Becker County to be retained in agricultural use and prevent scattered non-farm development; secure economy in governmental expenditures for public services, utilities and schools, and permit the use and enjoyment of lakes, rivers and streams by non-farm land uses based on a reasonable attempt to recognize the general purpose of this district.

G. **Industry District.** The Industry (I) District is intended to provide areas for various industrial uses near highways and existing urban areas. It is recognized that industrial uses are an important part of the County's land use pattern. The regulations for this district are intended to encourage industrial development that is compatible with surrounding or abutting districts.

Section 3 Official Zoning Map

The location and boundaries of the districts established by this Ordinance are set forth on the zoning maps. These maps shall be known as the "Official Zoning Map". These maps, consisting of sheets and all notations, references and data shown on them are incorporated by reference into this Ordinance and shall be as much a part of it as if all were fully described in this Ordinance. It shall be the responsibility of the Zoning Administrator to maintain these maps, and amendments shall be recorded on the Official Zoning Maps within thirty (30) days after official publication of amendments. The Official Zoning Maps shall be kept on file in the Zoning Administrator's office. The original and copies of the Official Zoning Map may be kept and distributed in electronic format.

Section 4 District Boundaries

A. **Boundaries defined.** The boundaries between districts are, unless otherwise indicated, the center lines of highways, roads, streets, alleys or railroad rights-of-way or such lines extended or lines parallel or perpendicular thereto, or section, half-section, quarter-section, quarter-quarter-section, or other fractional section lines of the United States public land surveys, as established by law. Where figures are shown on the Official Zoning Map between a road and a district boundary line, they indicate that the district boundary line runs parallel to the road centerline a distance from to the number of feet indicated, unless otherwise indicated.

B. **Process for interpreting boundaries.** If interpretation is needed as to the exact location of the boundaries of a district as shown on the Official Zoning Map, the Board of Adjustment shall make the necessary interpretation. The person contesting the location of the district boundary shall be given a reasonable opportunity to present his case to the Board and submit his own technical evidence if he so desires.

Section 5 Reclassification of Districts

The Zoning Districts previously established shall remain in effect until modified by amendment of the Official Zoning Map through a rezoning process, but they shall be reclassified as follows:

Table 4-1 Reclassification of zoning districts

Zoning District	Reclassified Zoning District
Agriculture and Conservation (A-1)	General Agriculture (GA)
General Agriculture (A-2)	General Agriculture (GA)
General Residential (R-1)	Residential District (RES)
Suburban Residential (R-2)	Residential District (RES)
Lakeshore Residential (R-3)	Residential District (RES)
Commercial Recreation (C-1) – which is riparian	Water Oriented Commercial District (WOC)
Highway Commercial (C-2) – which is riparian	Water Oriented Commercial District (WOC)
General Commercial (C-1) – which is riparian	Water Oriented Commercial District (WOC)
Commercial Recreation (C-1) – which is not riparian	Commercial District (C)
Highway Commercial (C-2) – which is not riparian	Commercial District (C)
General Commercial (C-1) – which is not riparian	Commercial District (C)
Limited Industrial (I-1)	Industry (I)
General Industrial (I-2)	Industry (I)

Section 6 Future Detachment

Any land detached from an incorporated municipality and placed under the jurisdiction of this Ordinance in the future shall be placed in the General Agriculture (GA) District until placed in another district by action of the Board of County Commissioners after recommendation of the County Planning Commission.

Section 7 Descriptions of Lake, River, and Stream Classes

A. **DNR Shoreland Classification System.** The public waters of the County have been classified by the Department of Natural Resources as shown in the tables in Appendix A to this Ordinance consistent with the criteria found in Minnesota Rules part 6120.3000, and the Public Waters Inventory Map for the County. The criteria used by the Department of Natural Resources for classification include the following:

1. Preservation of natural areas;
2. Present ownership and development of shoreland areas;
3. Shoreland soil types and their engineering capabilities;
4. Topographic characteristics;
5. Vegetative cover;
6. In-water physical characteristics, values, and constraints;
7. Recreational use of the surface water;
8. Road and service center accessibility;
9. Socioeconomic development needs and plans as they involve water and related land resources;
10. The land requirements of industry which, by its nature, requires location in shoreland areas; and
11. The necessity to preserve and restore certain areas having significant historical or ecological value.

B. **Relationship of public water classes to land use districts.** Public waters are classified as described in this Section. Each classified public water has a mapped shoreland zone as described in Section 7 of this Chapter. Each mapped shoreland zone is regulated by a land use district that establishes permitted and conditional uses, density, lot size, dimensional standards, and other provisions. The land use district designation for each mapped shoreland zone

surrounding a classified public water is listed in Appendix A. Generally, mapped shoreland zones that surround Natural Environment Lakes are regulated as SP-Special Protection Districts; and mapped shoreland zones that surround Recreational Development Lakes are regulated as RD Residential Development Districts. In addition to the zoning district provisions, other performance standards and provisions of this Ordinance shall apply to shoreland districts.

C. **Public water classes in Becker County.** The classes of public waters are: natural environment lakes; recreational development lakes; general development lakes; remote river segments; forested river segments; transition river segments; agricultural river segments; and tributary river segments. All the river classes except tributary consist of watercourses that have been identified as being recreationally significant on a statewide basis. The tributary class consists of all other watercourses identified in the Protected Waters Inventory. General descriptions of each class follow:

1. **Natural environment lakes.** Natural environment lakes are small, often shallow lakes with limited capacities for assimilating the impacts of development and recreational use. They often have adjacent lands with substantial constraints for development such as high water tables, exposed bedrock, and unsuitable soils. These lakes, particularly in rural areas, usually do not have much existing development or recreational use.
2. **Recreational development lakes.** Recreational development lakes are medium-sized lakes of varying depths and shapes with a variety of landform, soil, and groundwater situations on the lands around them. They often are characterized by moderate levels of recreational use and existing development. Development consists mainly of seasonal and year-round residences and recreationally oriented commercial uses. Many of these lakes have capacities for accommodating additional development and use.
3. **General development lakes.** General development lakes are large, deep lakes or lakes of varying sizes and depths with high levels and mixes of existing development. These lakes are extensively used for recreation and, except for the very large lakes, are heavily developed around the shore. Second and third tiers of development are common. The larger examples in this class can accommodate additional development and use.
4. **Remote river segments.** Remote river segments are located in roadless, forested, sparsely populated areas. Common land uses include multiple-use forestry, some recreation facilities, and occasional seasonal or year-round residential. Low intensity recreational uses of these river segments and adjacent lands are common. This class has limited potential for additional development and recreational use due to land suitability and road access constraints.
5. **Forested river segments.** Forested river segments are located in forested, sparsely to moderately populated areas. Predominant land uses include multiple-use forestry, some recreation facilities, seasonal residential, and, within commuting distances of several cities, some year-round residential. Low-intensity recreational uses of these rivers and adjacent lands are common. This class has substantial potential for additional development and recreational use.
6. **Transition river segments.** Transition river segments are located within the middle reaches of rivers. Common land uses include forested within riparian strips and mixtures of cultivated, pasture, and forested beyond. Some seasonal and year-round residential development exists.
7. **Agricultural river segments.** Agricultural river segments are located in well-road, intensively cultivated areas. Cultivated crops are the predominant land use, with some pasture and occasional feedlots, small municipalities, and small forested areas. Residential development is not common, but some year-round residential use is occurring within commuting distances of cities. Overall recreational use of these waters and adjacent lands is low. Although potential exists for additional development and recreation, water quality constraints and competing land uses, particularly agriculture, will inhibit expansions.
8. **Tributary river segments.** Tributary river segments consist of watercourses mapped in the Protected Waters Inventory that have not been assigned one of the river classes in paragraphs 4 through 7, immediately above. These segments have a wide variety of existing land and recreational use characteristics. The segments have considerable potential for additional development and recreational use, particularly those located near roads and cities.

Section 8 Shoreland Areas

Mapped shoreland areas. The extent of the shoreland areas for the public water bodies listed in Section 7, above, shall be as shown on the Official Zoning Map and shall include all land within the following distances from public waters:

A. One thousand feet (1,000') from the ordinary high water level or a lake, pond, or flowage; and

B. Three hundred feet (300') from the ordinary high water level of a river or stream.

C. The limits of shoreland districts may be reduced whenever the waters involved are bounded by natural topographic divides which extend landward for a lesser distance and when approved by the Commissioner of the Department of Natural Resources.

Section 9 Water Systems

A. **Public water facilities.** Public water facilities, including pipe fittings, hydrants, etc., shall be installed and maintained as required by standards and specifications as established by the Board of County Commissioners, and the Minnesota Department of Health.

B. **Community water systems.** If public water facilities are not available, the Board of County Commissioners may grant a franchise for water facilities, to serve all properties within the area where a complete and adequate community water distribution system is designed, and complete plans for the system are submitted to and approved by the Board of County Commissioners and the Minnesota State Department of Health.

C. **Individual wells.** Individual wells shall be constructed and maintained according to standards and regulations approved by the Board of County Commissioners and the Water Well Construction Code of the Minnesota Department of Health.

Section 10 Individual subsurface sewage treatment Systems (ISTS)

This is an ordinance authorizing and providing for sewage treatment and soil dispersal in unsewered areas of the county. It establishes:

1) Minimum standards for and regulation of individual sewage treatment systems (ISTS) and mid-sized Subsurface Sewage Treatment Systems (MSTS) (collectively referred to as SSTS) in unsewered incorporated and unincorporated areas of Becker County, incorporating by reference minimum standards established by Minnesota statutes and administrative rules of the Minnesota Pollution Control Agency,
2) Requirements for issuing permits for installation, alteration, repair, or expansion of SSTS,
3) Requirements for all SSTS permitted under the revised Minnesota Rules, Chapters 7080 and 7081 to be operated under an approved management plan,
4) Standards for upgrade, repair, replacement, or abandonment of SSTS,
5) Penalties for failure to comply with these provisions,
6) Provisions for enforcement of these requirements, and
7) Standards which promote the health, safety and welfare of the public as reflected in Minnesota Statutes sections 115.55, 145A.05, 375.51, 394.21-394.37, and 471.82, the County Comprehensive Plan and the County Zoning and Shoreland Ordinance.

A. PURPOSE, INTENT AND AUTHORITY

1. Purpose. The purpose of this ordinance is to establish minimum requirements for regulation of ISTS and MSTS for the treatment and dispersal of sewage within the applicable jurisdiction of the County to protect public health and safety, groundwater quality, and prevent or eliminate the development of public nuisances. It is intended to serve the best interests of the County's citizens by protecting its health, safety, general welfare, and natural resources.

2. Intent. It is intended by the County that this Ordinance will promote the following:

A. The protection of lakes, rivers and streams, wetlands, and groundwater in Becker County essential to the promotion of public health, safety, welfare, socioeconomic growth, and development of the County.

B. The regulation of proper SSTS construction, reconstruction, repair, and maintenance to prevent the entry and migration of contaminants, thereby protecting the degradation of surface water and groundwater quality.
C. The establishment of minimum standards for SSTS placement, design, construction, reconstruction, repair, and maintenance to prevent contamination and, if contamination is discovered, the identification and control of its consequences and the abatement of its source and migration.
D. The appropriate utilization of privy vaults and other non-water carried sewage collection and storage facilities.
E. The provision of technical assistance and education, plan review, inspections, SSTS surveys and complaint investigations to prevent and control water-borne diseases, lake degradation, groundwater related hazards, and public nuisance conditions.

3. **Authority.** This Ordinance is adopted pursuant to Minnesota Statutes, Section 115.55; Minnesota Statutes, Sections 145A.01 through 145A.08; Minnesota Statutes, Section 375.51; or successor statutes, and Minnesota Rules, Chapter 7080, Chapter 7081, Chapter 7082; or successor rules.

B. GENERAL PROVISIONS

1. **SCOPE**. This Ordinance regulates the siting, design, installation, alterations, operation, maintenance, monitoring, and management of all SSTS within the County's applicable jurisdiction including, but not necessarily limited to individual SSTS and cluster or community SSTS, privy vaults, and other non-water carried SSTS. All sewage generated in unsewered areas of the County shall be treated and dispersed by an approved SSTS that is sited, designed, installed, operated, and maintained in accordance with the provisions of this Ordinance or by a system that has been permitted by the MPCA.
2. **JURISDICTION.** The jurisdiction of this Ordinance shall include all lands of the County except for incorporated areas that administer a Subsurface Sewage Treatment System (SSTS) program by Ordinance within their incorporated jurisdiction, which is at least as strict as this Ordinance and has been approved by the County. The County Planning and Zoning Department shall keep a current list of local jurisdictions within the County administering a SSTS program.
3. **ADMINSTRATION**
   a. **COUNTY ADMINISTRATION**. The County Planning and Zoning Department shall administer the SSTS program and all provisions of this Ordinance. At appropriate times, the County shall review this and revise and update this Ordinance as necessary. The County shall employ or retain under contract qualified and appropriately licensed professionals to administer and operate the SSTS program.
   b. **STATE OF MINNESOTA**. Where a single SSTS or group of SSTS under single ownership within one-half mile of each other, have a design flow greater than 10,000 gallons per day, the owner or owners shall make application for and obtain a State Disposal System permit from MPCA. For any SSTS that has a measured daily flow for a consecutive seven-day period, which equals or exceeds 10,000 gallons per day, a State Disposal System permit is required. SSTS serving establishments or facilities licensed or otherwise regulated by the State shall conform to the requirements of this Ordinance.
   c. **CITIES AND TOWNSHIPS**. Any jurisdiction within the County that regulates SSTS must comply with the standards and requirements of this Ordinance. The standards and ordinance of the jurisdiction may be administratively and technically more restrictive than this Ordinance.
4. **VALIDITY**. The validity of any part of this Ordinance shall not be affected by the invalidity of any other parts of this Ordinance where the part can be given effect irrespective of any invalid part or parts.
5. **LIABILITY**. Any liability or responsibility shall not be imposed upon the department or agency or any of its officials, employees, or other contract agent, its employees, agents, or servants thereof for damage resulting from the defective construction, operation, or abandonment of any onsite or cluster treatment system regulated under this rule by reason of standards, requirements, or inspections authorized hereunder.

C. GENERAL REQUIREMENTS

1. **RETROACTIVITY**
   a. **All SSTS**. Except as explicitly set forth in Article IV, Section 1.02, all provisions of this Ordinance shall apply to any SSTS regardless of the date it was originally permitted.
   b. **Existing Permits**. Unexpired permits, which were issued prior to the effective date, shall remain valid under the terms and conditions of the original permit until the original expiration date or until a change in system ownership whichever is earlier.

c. **SSTS on Lots Created After January 23, 1996**. All lots created after January 23, 1996 must have a minimum of two soil treatment and dispersal areas that can support trenches, seepage beds, mounds, and at-grade systems as described in Minnesota Rules, Chapters 7080. 2200 through 7080.2230 or site conditions described in 7081.0270, Subp. 3 through 7.

d. **Existing SSTS without Permits**. Existing SSTS with no permits of record shall require a permit and be brought into compliance with the requirements of this Ordinance regardless of the date they were originally constructed.

2. **UPGRADE, REPAIR, REPLACEMENT, AND ABANDONMENT**

a. **SSTS Capacity Expansions**. Expansion of an existing SSTS must include any system upgrades that are necessary to bring the entire system into compliance with the prevailing provisions of this Ordinance at the time of the expansion.

b. **Bedroom Additions**. The owner is allowed five (5) years from the date of issuance of a bedroom addition permit to upgrade, repair, replace or abandon an existing system if the following conditions apply:
   (1) The Planning and Zoning Department issues a permit to add a bedroom;
   (2) A SSTS inspection is triggered by a bedroom addition permit request;
   (3) The existing system was installed between May 27, 1989 and January 3, 1996;
   (4) The SSTS does not comply with Minnesota Rules, Chapter 7080.1500, Subp. 4.B.;
   (5) The SSTS is not determined to be an imminent threat to public health or safety in accordance with Minnesota Rules, Chapter 7080.1500, Subp. 4.A.

c. **Failure to Protect Groundwater**. An SSTS that is determined not to be protective of groundwater in accordance with Minnesota Rules, Chapter 7080.1500,Subp.4.B shall be upgraded, repaired, replaced or abandoned by the owner in accordance with the provisions of this Ordinance within ten (10) months of receipt of a Notice of Noncompliance.

d. **Imminent Threat to Public Health or Safety**. An SSTS that is determined to be an imminent threat to public health or safety in accordance with Minnesota Rules, Chapter 7080.1500,Subp.4A shall be upgraded, repaired, replaced or abandoned by the owner in accordance with the provisions of this Ordinance within thirty (30) days of receipt of a Notice of Noncompliance.

   An SSTS posing an imminent threat to public health or safety shall be pumped within 24 hours of the determination that the SSTS is an imminent threat and managed as a holding tank until an SSTS upgrade is completed.

e. **Abandonment**. Any SSTS, or any component thereof, which is no longer intended to be used, must be abandoned in accordance with Minnesota Rules, Chapter 7080.2500.

3. **SSTS IN FLOODPLAINS**. SSTS shall not be located in a floodway and wherever possible, location within any part of a floodplain shall be avoided. If no option exists to locate a SSTS outside of a floodplain, location within the flood fringe is allowed if the requirements in Minnesota Rules, Chapter 7080.2270 and all relevant local requirements are met.

4. **CLASS V INJECTION WELLS**. All owners of new or replacement SSTS that are considered to be Class V injection wells, as defined in the Code of Federal Regulations, title 40, part 144, are required by the Federal Government to submit SSTS inventory information to the Environmental Protection Agency as described in CFR40 part 144. Further, owners are required to identify all Class V injection wells in property transfer disclosures.

5. **SSTS PRACTITIONER LICENSING**. No person shall engage in site evaluation, inspection, design, installation, construction, alternation, extension, repair, maintenance, or pumping of SSTS without an appropriate and valid license issued by MPCA in accordance with Minnesota Rules, Chapter 7083 except as exempted in 7083.0700.

6. **PROHIBITIONS**

a. **Occupancy or Use of a Building without a Compliant SSTS**. It is unlawful for any person to maintain, occupy, or use any building intended for habitation that is not provided with a wastewater treatment system that disposes of wastewater in a manner that does not comply with the provisions of this Ordinance.

b. **Sewage Discharge to Ground Surface or Surface Water**. It is unlawful for any person to construct, maintain, or use any SSTS system regulated under this Ordinance that results in raw or partially treated

wastewater seeping to the ground surface or flowing into any surface water. Any surface discharging system must be permitted under the National Pollutant Discharge Elimination System program by the MPCA.

c. Sewage Discharge to a Well or Boring. It is unlawful for any person to discharge raw or treated wastewater into any well or boring as described in Minnesota Rules, Chapter 4725.2050, or any other excavation in the ground that is not in compliance with this ordinance.

d. Discharge of Hazardous or Deleterious Materials. It is unlawful for any person to discharge into any treatment system regulated under this Ordinance any hazardous or deleterious material that adversely affects the treatment or dispersal performance of the system or groundwater quality.

D. SSTS STANDARDS

1. STANDARDS ADOPTED BY REFERENCE. The County hereby adopts by reference 2012 Minnesota Rules, Chapters 7080 and 7081 for SSTS and MSTS systems larger than 2500 gallons per day and 2006 Minnesota Rules, Chapter 7080 for Type I, II, and III SSTS under 2500 gallons per day with residential strength and SSTS that serve any food, beverage, and lodging establishments under 2500 gallons per day provided the effluent discharge does not exceed standards in MN Rule 7080.2150, Subp. 3(K)in their entirety as now constituted and from time to time amended. This adoption does not supersede the County's right or ability to adopt local standards that are in compliance with Minnesota Statute 115.55.

2. AMENDMENTS TO THE ADOPTED STANDARDS

a. List of Adopted Standards

(1) 2006 Rule 7080.0130 (Sewage Tanks), except for 7080.0130 subp 3A shall be replaced with 2012 Rule 7080.1900 - .1920 and .1950 -.2020. Residential tank sizing may be from 2006 Rule 7080.0130 subp 3A. (2006 Rule parts included parts on aerobic tanks, which have been superseded by registered products).

(2) 2006 Rule 7080.0170 subp 2 B(2), (3), and (4); C 2 b (2) and (3); D (1) (a), (b) and (c); D (3), (8), (12), and (13) and subp 5 B (1) shall be replaced by 2012 Rule 7080.2150 except for subpart 3E, the soil sizing charts. (2006 Rule parts included standards for rock, gravel less pipe and chambers that were superseded by registered products).

(3) Fifteen percent (15%) flexibility on soil separation shall be allowed as defined in 2012 Rule 7080.1500 subp 4 D.

(4) Homeowners are prohibited from installing SSTS that have been designed for pressure distribution or contain a pump and/or a lift station.

(5) All dwellings will be sized for a Classification I Dwelling with a minimum of 300 gallons per day.

(6) A pump tank must either include an alternating two-pump system or have a minimum total capacity of 500 gallons for design flow values of 600 gallons per day or less or 100 percent of the design flow for design flow values of greater than 600 gallons per day.

(7) Operating Permits and Management Permits will be required for systems designed under 2006 Rule 7080.0178 and 7080.0179.

(8) Operating Permits and Management Permits will be required for MSTS or any other system deemed by the Department in accordance to 2012 Rule 7082.0600 and herein adopted by reference.

b. Determination of Hydraulic Loading Rate and SSTS Sizing

Table V entitled ""Soil Sizing Factors for Determining bottom Area for Trenches and Seepage Beds Using Percolation Tests" and Table Va entitled "Soil Sizing Factors for Determining Bottom Area for Trenches and Seepage Beds Using Detailed Soil Descriptions and Absorption Ratios for Determining Mound Absorption Areas Using Detailed Soil Descriptions" from 2006 Minnesota Rules, Chapter 7080.0170, Subp. 2 and herein adopted by reference shall both be used to size SSTS infiltration areas using the larger sizing factor of the two for SSTS design for Type I, Type II and Type III SSTS with flows under 2500 gallons per day

Table IX entitled "Loading Rates for Determining Bottom Absorption Area for Trenches and Seepage Beds for Effluent Treatment Level C and Absorption Ratios for Determining Mound Absorption Areas Using Detail Soil Descriptions" and Table IXa entitled "Loading Rates for Determining Bottom Absorption Area for Trenches and Seepage Beds for Effluent Treatment Level C and Absorption Ratios for Determining Mound Absorption Areas Using Percolation Tests" from 2012 Minnesota Rules, Chapter 7080.2150, Subp. 3(E) and herein adopted by reference shall both be used to size SSTS infiltration areas using the larger sizing factor of the two for SSTS design for Type IV and Type V SSTS and SSTS with flows over 2500 gallons per day.

c. Compliance Criteria for Existing SSTS. SSTS built after March 31, 1996 or SSTS located in a Shoreland area, wellhead Protection area, or serving a food, beverage, or lodging establishment as defined under 7080.1100, Subp. 84 shall have a three-foot vertical separation between the bottom soil infiltrative surface and the periodically saturated soil and/or bedrock. Existing systems that have no more than a 15 percent reduction in this separation distance (a separation distance no less than 30.6 inches) to account for settling of sand or soil, normal variation of separation distance measurements and interpretation of limiting layer characteristics may be considered compliant under this Ordinance. The vertical separation measurement shall be made outside the area of system influence but in an area of similar soil. 7080.1500, Subp.4

d. Holding Tanks. Holding tanks may be allowed if the following criteria is met:

Holding tanks meeting the above-mentioned criteria may be used for structures with limited water use as determined by the Department under the following conditions:

(1) The owner shall install a holding tank in accordance with Minnesota Rules Chapter 7080.2290.

(2) An alarm device shall be installed that identifies when the holding tank is at seventy-five (75) percent capacity per Minnesota Rules, Chapter 7080.2290 Subp.F.

(3) The owner shall maintain a valid contract with a licensed maintainer to pump and haul the holding tank contents to a licensed treatment facility or an MPCA approved land application site. This requirement is waived if the owner is a farmer who is exempt from licensing under Minnesota Statute 115.56, subd. 2, paragraph (b), clause (3).

Failure to meet these requirements shall constitute a violation of this Ordinance and will result in enforcement actions being taken by the County.

3. **VARIANCES**

a. Variance From Standards. An affected property owner or designated representative may request a variance from the standards as specified in this ordinance pursuant to this Section. The Department shall have the authority to grant administrative variances when the purposes and intent of the variance are consistent with this Section, the County's Zoning Ordinance, and the County's Water Management Plan. The Department may approve variance from standards and criteria not specifically listed on a case-by-case basis. No variance shall be granted except under the following circumstances:

(1) There are unique conditions affecting the property as a result of lot size, layout, shape, topography, soil conditions or other circumstances which the current landowners did not cause or have any control over; and

(2) Variance approval will not adversely affect the health or safety of persons residing or working in the area adjacent to the property and will not be materially detrimental to the public welfare or damaging to the property or improvements in the area adjacent to the property of the applicant and that granting of the variance will not adversely impact water quality.

b. Variances Pertaining to Other Affected Agencies. Variances that pertain to the standards and requirement of the State of Minnesota must be approved by the affected State Agency pursuant to the requirements of that State Agency.

(1) Variances pertaining to well setbacks are governed by Minn. Rules Chapters 4720 and 4725 and shall only be approved by the Minnesota Department of Health through their variance procedure.

(2) Variance request to deviate from the design flow determination procedures in Minnesota Rules, Chapter 7081.0110 if the deviation reduces the average daily estimated flow from greater than 10,000 gallons per day to less than 10,000 gallons per day, or to provisions in 7080.2150, Subp. 2 and 7081.0080, Subp. 2 through 5 regarding the vertical separation required beneath the treatment and soil dispersal system and seasonally saturated soil or bedrock from the required three feet of unsaturated soil material (except as provided in 7082.1700, Subp. 4D) must be approved by MPCA. Variances to wells and water supply lines must be approved by the MPCA.

c. Conditions of Administrative Variances. Administrative variances granted will require the following:

1. Side property line variances require a written, signed, and notarized property line agreement signed by the adjoining property owner and must be submitted with the construction permit application.
2. Road right of way variance require written authorization from the road authority must be submitted with the construction permit application.

3. Administrative variances granted shall automatically expire if the system is not installed within one year of the grant of the variance.
4. Property owners may appeal the Department's decision to deny the variance in accordance with the County's established policies and appeal procedures.

E. SSTS PERMITTING

1. **PERMIT REQUIRED**. It is unlawful for any person to construct, install, modify, replace, or operate a SSTS without the appropriate permit from the Planning and Zoning Department, Becker County. The issuing of any permit, variance, or conditional use under the provisions of this ordinance shall not absolve the applicant of responsibility to obtain any other required permit.
2. **CONSTRUCTION PERMIT**. A construction permit shall be obtained by the property owner or an agent of the property owner from the County prior to the installation, construction, replacement, modification, alteration, repair, or capacity expansion of a SSTS. The purpose of this permit is to ensure that the proposed construction activity is sited, designed, and constructed in accordance with the provisions of this Ordinance by appropriately certified and/or licensed practitioner(s).
   - **a. Activities Requiring a Construction Permit**. A construction permit is required for installation of a new SSTS, for replacement of an existing SSTS, or for any repair or replacement of components that will alter the original function of the system, change the treatment capacity of the system, change the location of the system, or otherwise change the original system's design, layout, or function.
   - **b. Activities Not Requiring a Permit**. A construction permit is not required for minor repairs or replacements of system components that do not alter the original function of the system, change the treatment capacity of the system, change the location of the system, or otherwise change the original system's design, layout, or function.
   - **c. Construction Permit Required to Obtain Site Permit**. For any property on which a SSTS permit is required, approval and issuance of a valid SSTS Construction Permit must be obtained before a site or land use permit may be issued by the Department.
   - **d. Conformance to Prevailing Requirements**. Any activity involving an existing system that requires a Construction Permit shall require that the entire system be brought into compliance with this Ordinance.
   - **e. Permit Application Requirements**. Construction Permit applications shall be made on forms provided by the Planning and Zoning Department and signed by the applicant and an appropriately certified practitioner including the practitioner's certification number and date of expiration. The applications shall include the documents listed in items A through E below.
     (1) Name, mailing address, telephone number, and email address.
     (2) Property Identification Number and address or other description of property location.
     (3) Site Evaluation Report as described in Minnesota Rules, Chapter 7080.1730
     (4) Design Report as described in Minnesota Rules, Chapter 7080.2430.
     (5) Management Plan as described in Minnesota Rules, Chapter 7082.0600.
   - **f. Application Review and Response**. The Department shall review a permit application and supporting documents. Upon satisfaction that the proposed work will conform to the provisions of this Ordinance, the Department shall issue a written permit authorizing construction of the SSTS as designed. In the event the applicant makes a significant change to the approved application, the applicant must file an amended application detailing the changed conditions for approval prior to initiating or continuing construction, modification, or operation for approval or denial. The Department shall complete the review of the amended application within ten (10) working days of receipt of the amended application. If the permit application is incomplete or does not meet the requirements of this ordinance the Department shall deny the application. A notice of denial shall be provided to the applicant, which must state the reason for the denial.
   - **g. Appeal**. The applicant may appeal the Departments decision to deny the Construction Permit in accordance with the County's established policies and appeal procedures.
   - **h. Permit Expiration**. The Construction Permit is valid for a period of no more than one year from its date of issue. Satisfactory completion of construction shall be determined by receipt of final record drawings and a signed certification that the construction or installation of the system was completed in reasonable conformance with the approved design documents by a qualified employee of the Department or a

licensed inspection business, which is authorized by the Department and independent of the owner and the SSTS installer.

i. **Extensions and Renewals**. The Department may grant an extension of the Construction Permit if the construction has commenced prior to the original expiration date of the permit. (The permit may be extended for a period of no more than six (6) months.

j. **Transferability**. A Construction Permit shall not be transferred to a new owner. The new owner must apply for a new Construction Permit in accordance with this section.

k. **Suspension or Revocation**. The Department may suspend or revoke a Construction Permit issued under this section for any false statements, misrepresentations of facts on which the Construction Permit was issued, or unauthorized changes to the system design that alter the original function of the system, change the treatment capacity of the system, change the location of the system, or otherwise change the original system's design, layout, or function. A notice of suspension or revocation and the reasons for the suspension or revocation shall be conveyed in writing to the permit holder. If suspended or revoked, installation or modification of a treatment system may not commence or continue until a valid Construction Permit is obtained.

l. **Posting**. The Construction Permit shall be posted on the property in such a location and manner so that the permit is visible and available for inspection until construction is completed and certified.

3. ABANDONMENT CERTIFICATION

a. **Purpose**. The purpose of the System Abandonment Certification is to ensure that a treatment system no longer in service is abandoned within a reasonable time following decommissioning and in a manner that protects public health, safety, and water quality. It also terminates all permits associated with the system.

b. **Abandonment Requirements**

(1) Whenever the use of a SSTS or any system component is discontinued as the result of a system repair, modification, replacement or decommissioning following connection to a municipal or private sanitary sewer, or condemnation or demolition of a building served by the system, further use of the system or any system component for any purpose under this Ordinance shall be prohibited.

(2) Continued use of a treatment tank where the tank is to become an integral part of a replacement system or a sanitary sewer system requires the prior written approval of the Department.

(3) An owner of an SSTS must retain a licensed installation business to abandon all components of the treatment system within sixty (60) calendar days of a system. Abandonment shall be completed in accordance with Minnesota Rules, Chapter 7080.2500. No prior notification of the Department of an owner's intent to abandon a system is necessary.

(4) A report of abandonment certified by the licensed installation business shall be submitted to the Department. The report shall include:

(1) Owner's name and contact information
(2) Property address
(3) System construction permit and operating permit
(4) The reason(s) for abandonment
(5) A brief description of the abandonment methods used, description of the system components removed or abandoned in place, and disposition of any materials or residuals.

c. **Abandonment Certificate**. Upon receipt of an abandonment report and its determination that the SSTS has been abandoned according to the requirements of this Ordinance, the Department shall issue an abandonment certificate. If the abandonment is not completed according the requirements of this ordinance the County shall notify the owner of the SSTS of the deficiencies, which shall be corrected within thirty (30) calendar days of the notice.

F. COMPLIANCE MANAGEMENT

1. PUBLIC EDUCATION OUTREACH. Programs shall be provided by the Department and/or others to increase public awareness and knowledge of SSTS. Programs may include distribution of educational materials through various forms of media and SSTS workshops focusing on SSTS planning, construction, operation, maintenance, and management.

2. COMPLIANCE INSPECTION PROGRAM

a. Department Responsibility. It is the responsibility of the Department, or its agent, to perform various SSTS compliance inspections periodically to assure that the requirements of this Ordinance are met.

(1) SSTS compliance inspections must be performed:
   (a) To ensure compliance with applicable requirements;
   (b) To ensure system compliance before issuance of a permit for addition of a bedroom unless the permit application is made during the period of November 1 to April 30, provided a compliance inspection is performed before the following June 1 and the applicant submits a certificate of compliance by the following September 30;
   (c) For all new SSTS construction or replacement;
   (d) For an evaluation, investigation, inspection, recommendation, or other process used to prepare a disclosure statement if conducted by a party who is not the SSTS owner. Such an inspection constitutes a compliance inspection and shall be conducted in accordance with Minnesota Rules, Chapter 7082.0700 using the SSTS inspection report forms provided by MPCA.

(2) All compliance inspections must be performed and signed by licensed inspection businesses or qualified employees certified as inspectors.

(3) The Department shall be given access to enter a property at any reasonable time to inspect and/or monitor the SSTS system. As used in this paragraph, "property" does not include a residence or private building. The Department shall notify the owner of the Department's intent to inspect the SSTS least two (2) days in advance of the intended inspection.

(4) No person shall hinder or otherwise interfere with the Department's employees in the performance of their duties and responsibilities pursuant to this ordinance. Refusal to allow reasonable access to the property by the Department shall be deemed a separate and distinct offense.

b. New Construction or Replacement

(1) Compliance inspections must be performed on new or replacement SSTS to determine compliance with Minnesota Rules, Chapters 7080 or 7081. SSTS found not to be in compliance with 7080.1500, Subp. 4A or 7081.0080, Subp. 3 must be repaired or replaced within ten (10) months or as directed under Minnesota Statutes, Chapter 145A. SSTS that are determined to have operation or monitoring deficiencies must immediately be maintained, monitored, or otherwise managed according to the operating permit. SSTS found to be noncompliant with other applicable requirements must be repaired or replaced according to the Department's requirements.

(2) It is the responsibility of the SSTS owner or the owner's agent to notify the Department two (2) calendar days prior to any permitted work on the SSTS.

(3) A Certificate of Compliance for new SSTS construction or replacement, which shall be valid for five (5) years, shall be issued by the Department if the Department has reasonable assurance that the system was built in accordance with the applicable requirements as specified in the construction permit.

(4) The certificate of compliance must include a certified statement by the certified inspector or qualified employee who conducted the inspection that the SSTS is or is not in compliance with the ordinance requirements. If the SSTS is determined not to be in compliance with the applicable requirements, a notice of noncompliance must be issued to the owner, which includes a statement specifying those ordinance provisions with which the SSTS does not comply.

(5) The certificate of compliance or notice of noncompliance must be submitted to the Department no later than fifteen (15) calendar days after the date the inspection was performed. The Department shall deliver the certificate of compliance or notice of noncompliance to the owner or the owner's agent within fifteen (15) calendar days of receipt from the certified inspector. No SSTS shall be placed into operation until a valid certificated of compliance has been issued.

(6) Certificates of compliance for new construction or replacement shall remain valid for five (5) years from the date of issue unless the Department finds evidence of noncompliance.

c. Existing Systems

(1) Compliance inspections shall be required when any of the following conditions occur:
   (a) When a construction permit is required to repair, modify, or upgrade an existing system;
   (b) Any time there is an expansion of use of the building being served by an existing SSTS which may impact the performance of the system;

(c) Any time there is a change in use of the property being served by an existing SSTS which may impact the performance of the system;
(d) At any time as required by this Ordinance or the Department deems appropriate such as upon receipt of a complaint or other notice of a system malfunction.

(2) Compliance inspections of existing SSTS shall be reported on the inspection report forms provided by MPCA. The following conditions, must be assessed, or verified:
(a) Watertightness assessment of all treatment tanks including a leakage report;
(b) Vertical separation distance between the bottom of the soil treatment and dispersal system and the periodically saturated soil or bedrock including a vertical separation verification report; Chapter 7082.0700, Subp. 3(2) requires that a vertical separation report include verifications by two independent parties, which may be licensed inspection businesses and/or a qualified employee inspector with jurisdiction. If there is a dispute between the two verifying inspectors, the disputing parties must follow the local dispute resolution procedures. If no local dispute resolution procedures exist, the dispute resolution procedure described in 7080.0700, Subp. 5 must be followed.
(c) Sewage backup, surface seepage, or surface discharge including a hydraulic function report.

(3) The certificate of compliance must include a certified statement by a Qualified Employee or licensed inspection business, indicating whether the SSTS is in compliance with the ordinance requirements. If the SSTS is determined not to be in compliance with the applicable requirements, a notice of noncompliance must include a statement specifying those ordinance provisions with which the SSTS does not comply. A construction permit application must be submitted to the Department if the required corrective action is not a minor repair.

(4) The certificate of compliance or notice of noncompliance must be submitted to the Department no later than fifteen (15) calendar days after the date the inspection was performed. The Department shall deliver the certificate of compliance or notice of noncompliance to the owner or the owner's agent within fifteen (15) calendar days of receipt from the licensed inspection business.

(5) Certificates of compliance for existing SSTS shall remain valid for three (3) years from the date of issue unless the Department finds evidence of noncompliance.

G. ENFORCEMENT

1. VIOLATIONS

a. Cause to Issue a Notice of Violation. Any person, firm, agent, or corporation who violates any of the provisions of this Ordinance, or who fails, neglects, or refuses to comply with the provisions of this Ordinance, including violations of conditions and safeguards, or who knowingly makes any material false statement or knowing omission in any document required to be submitted under the provisions hereof, shall be guilty of a misdemeanor and upon conviction thereof, shall be punishable as defined by Minnesota State Statutes. Each day that a violation exists shall constitute a separate offense.

b. Notice of Violation. The Department shall serve, in person or by mail, a notice of violation to any person determined to be violating provisions of this Ordinance. The notice of violation shall contain:
(1) A statement documenting the findings of fact determined through observations, inspections, or investigations;
(2) A list of specific violation(s) of this Ordinance;
(3) Specific requirements for correction or removal of the specified violation(s); and
(4) A mandatory time schedule for correction, removal, and compliance with this ordinance.

c. Cease and Desist Orders. Cease and desist orders may be issued when the Department has probable cause that an activity regulated by this or any other County Ordinance is being or has been conducted without a permit or in violation of a permit. When work has been stopped by a cease and desist order, the work shall not resume until the reason for the work stoppage has been completely satisfied, any administrative fees paid, and the cease and desist order lifted.

2. PROSECUTION. In the event of a violation or threatened violation of this Ordinance, the County may, in addition to other remedies, initiate appropriate civil action or proceedings to prevent, prosecute, restrain, correct, or abate such violations or threatened violations and the County Attorney shall have authority to commence such civil action. The Department and County Attorney may take such actions as may be necessary to enforce the provisions of this ordinance.

3. **STATE NOTIFICATION OF VIOLATION**. In accordance with state law, the Department shall notify the MPCA of any inspection, installation, design, construction, alteration, or repair of an SSTS by a licensed/certified person or any septage removal by a licensed pumper that is performed in violation of the provisions of this Ordinance.
4. **COSTS AND REIMBURSEMENTS**. If the Department is required to remove or abate an imminent threat to public health or safety, the Department may recover all costs incurred in removal or abatement in a civil action, including legal fees; at the discretion of the County Board, the cost of an enforcement action under this ordinance may be assessed and charged against the real property on which the public health nuisance was located. The County Auditor shall extend the cost as assessed and charged on the tax roll against said real property.

H. RECORD KEEPING. The County shall maintain a current record of all permitted systems. The record shall contain all permit applications, issued permits, fees assessed, variance requests, certificates of compliance, notices of noncompliance, enforcement proceedings, site evaluation reports, design reports, record drawings, management plans, maintenance reports, an annual list of all sewage tanks installed in the county sorted by licensed installation businesses, and other records relevant to each system.

I. ANNUAL REPORT. The department shall provide an annual report of SSTS permitting activities to MPCA no later than February 1 for the previous calendar year.

J. FEES. From time to time, the County Board shall establish fees for activities undertaken by the Department pursuant to this Ordinance. Fees shall be due and payable at a time and in a manner to be determined by the department.

K. INTERPRETATION. In their interpretation and application, the provisions of this Ordinance shall be held to be minimum requirements and shall be liberally construed in favor of the County and shall not be deemed a limitation or repeal of any other powers granted by Minnesota Statutes.

M. SEVERABILITY. If any section, clause, provision, or portion of this ordinance is adjudged unconstitutional or invalid by a court of law, the remainder of this Ordinance shall not be affected and shall remain in full force.

N. ABROGATION AND GREATER RESTRICTIONS. It is not intended by this Ordinance to repeal, abrogate, or impair any other existing County ordinance, easements, covenants, or deed restrictions. However, where this Ordinance imposes greater restrictions, the provisions of this Ordinance shall prevail. All other Ordinances inconsistent with this ordinance are hereby repealed to the extent of the inconsistency only.

Section 11 Essential Services

The following provisions govern permits and information filing requirements for local and non-local essential services.

A. **Permit required.** Since essential and transmission services as defined by this Ordinance may have an effect upon urbanized areas of the County, County land uses, highway location, park and recreation areas, ecology, and preservation of natural environment a permit is required before starting any condemnation action or construction of proposed local or through-County transmission services in any zoning district.

B. **Procedure for through County, non-local services.** In addition to the requirements for a conditional use permit in Chapter 8, Section 11, transmission services, i.e. utility service such as high voltage (35 KV or greater) electrical power or bulk gas or fuel being transferred from station to station or micro-wave relay transmission and not intended for enroute consumption shall follow the following procedure:

1. **Submission to Planning Commission.** The application for the conditional use permit, all maps and accompanying data submitted to the Zoning Administrator shall be forwarded to the Becker County Planning Commission along with the Administrator's and Engineer's reports for review and recommendation regarding the relationship to urban growth, land uses, highway, environment, recreation, and park areas.

2. **Timely review required.** Recognizing a need for timely and adequate service by owners of essential services, the County shall act upon all information filing within ninety (90) days of receipt by the Zoning Administrator and Engineer.

3. **Additional information.** In the process of deliberation, the County can call upon such sources of information public or private as they deem necessary to clarify problems and otherwise provide information necessary to their decision.

C. **Procedure for local services.** Any application for a permit for essential services for immediate local distribution to the general public within the County and further located within or adjacent to any county highway or county state aid highway right-of-way shall follow the following procedure:

1. **Application and information.** The applicant shall file with the County Engineer, on forms supplied by the County**,** an application for such permit accompanied with maps showing the locations, alignment and type of service proposed.

2. **Review process.** The application and accompanying data shall be reviewed by the County Engineer and the County Engineer may issue the permit after determining that the application is acceptable and in the best interest of the County.

3. **Additional requirements of approval.** The County Engineer may require in conjunction with the issuance of the permit that:

   a. The applicant submits as-built drawings of the essential service after construction.

   b. The applicant constructs the essential service to take into consideration contemplated widening, regrading or relocation of a county highway or state aid highway.

4. **Timely review required.** Recognizing the need for adequate and timely service by owners of essential services, the County Engineer shall act upon all information filings or permit applications at the earliest opportunity.

5. **Additional information.** In the process of deliberation, the County can call upon such sources of information public or private as they deem necessary to clarify problems and otherwise provide information necessary to their decision.

6. **Temporary distribution services.** Temporary distribution services to residences and similar structures may be made prior to application for an issuance of a permit for local essential services as described above, however, if the services are to be made permanent, or if permanent service is to be installed, application for such services shall be made to the County Engineer within five (5) working days from the date of the installation of the temporary services and shall become subject to issuance of said permit.

CHAPTER 5 LAND USE DISTRICT ALLOWED USES AND DIMENSIONAL REQUIREMENTS

Section 1 Table of Permitted, Conditional and Not Permitted Uses by District

The following table, Table 5-1, establishes the allowed uses in zoning districts within Becker County. The following rules shall apply to the use table:

A. **Permitted uses**. Uses specified with a "P" are permitted uses in the district designated provided that the use complies with all other applicable provisions of this Ordinance.

B. **Conditional uses.** Uses specified with a "C" are allowed as conditional uses in the district designated if granted through the conditional use process and provided that the use complies with all other applicable provisions of this Ordinance.

C. **Uses specifically not permitted.** Uses specified with an "N" are not permitted in the district designated.

D. **Use interpretation.** If a use is not listed or does not have a designated type of use, the use may be allowed if it is of the same general character as those listed as Permitted (P), or Conditional (C) uses in the use table, provided the use is deemed fitting and compatible to the district by the Becker County Planning Commission, and is not listed as a Not Permitted (N) Use.

E. **Industrial land use classes.** All allowable industrial uses will be categorized in one or more of the following general classifications:

   1. **Manufacturing** - Any manufacturing use or process including repairing, assembling, fabricating, altering, converting, finishing, processing, treating, testing, packaging, crop drying, or bottling of the itemized materials.
   2. **Warehousing, Storage, Wholesaling** - The storage, handling, assembly and distribution of goods and materials for wholesaling or on-site use of the itemized materials; or
   3. **Administrative offices** for the conduct of the allowable manufacturing, warehousing, storage, and wholesaling operations.
   4. **Determination of use type.** The products or materials involved, and the type of operation will determine whether the use is permitted or conditional and in which zoning district the use is allowed.

Table 5-1 Permitted, conditional and not permitted uses by land use district on following pages.

	Table 5-1 Land Use Districts																	
	General Agriculture		Special Protection		Residential			High Density Residential		Water Oriented Commercial			Commercial			Industry	
Use Type	All Lakes Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes	NE Lakes & Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	Mfg	Adm. & Whsg
A. Agricultural Uses																	
Agricultural building	P	P	P	P	C	C	C										
Cropland and pasture	P	P	P	P	C	C	C										
Feedlots, agricultural	P	P	C	C													
Feedlots, commercial	C	C	C	C													
Forestry	P	P	P	P	P	P	P			P	P		P	P	P		
B. Residential Uses																	
Single-family residence-one per lot	P*	P*	C	C	P	P	P	P	P								
Duplex residential, twin homes					P	N –NE P-Rivers	P	P	P								
Home occupation[1]	C	C			C	C	C	C	C								
Group care facility	C	C			C	C	C	C	C								

*One temporary single family residential unit may be permitted in an agricultural zone if one of the following apply: the residential unit is occupied by persons who are engaged in the care of an elder, engaged in the occupation of farming on the premises or a family member. Once this use ceases, the residential unit must be removed from the property within one year.

[1] When home occupation use does not exceed one-third (1/3) the floor area of the dwelling or an accessory building not exceeding the floor area of the building.

	Table 5-1 Land Use Districts																
	General Agriculture		Special Protection		Residential			High Density Residential		Water Oriented Commercial			Commercial			Industry	
Use Type	All Lakes Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes	NE Lakes & Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	Mfg	Adm. & Whsg
Conservation subdivision development	C		C		C	C		C	C								
C. Recreational Uses																	
Parks and historic sites	C	C	C	C	C	C	C	C	C	C	C		C	C	C		
Public										C	C		P	C	C		
Semipublic					C	C	C	C	C	C	C		P	C	C		
Single recreational vehicle[2]	P	P			P	P	P										
D. Institutional Uses																	
Cemetery	C	C	C	C													
Church[3]	P	P	P	P	P	P	P	P	P	P	P		P	P	P		
School[4]	C	C			C	C	C	C	C								
Nursing home	C	C															
E. Commercial and Industrial Uses																	
Airports, helicopters																C	C

[2] Limited to a one (1) year renewable permit.
[3] A church must not be located closer than fifty feet (50') to any agricultural or residential lot line.
[4] A school must not be located closer than fifty feet (50') to any agricultural or residential lot line.

	Table 5-1 Land Use Districts																
	General Agriculture		Special Protection		Residential			High Density Residential		Water Oriented Commercial			Commercial			Industry	
Use Type	All Lakes Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes	NE Lakes & Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	Mfg	Adm. & Whsg
Apparel manufacturing																C	P
Chemicals and allied products																C	C
Commercial, general	C	C	C	C						C	C		P	P	P		
Commercial, surface water oriented								C	C	P	C						
Commercial, planned unit development (PUD)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Extractive use	C	C	C	C	C	C	C						C	C	C		
Fabricated metal products																C	P
Food and kindred products																C	P
Furniture and fixtures																C	P
Junk or salvage yard	N	C											N	N	C	C	C
Lumber yard																C	P
Paper and allied products																C	P
Petroleum refining																C	C
Printing																C	P

	Table 5-1 Land Use Districts																
	General Agriculture		Special Protection		Residential			High Density Residential		Water Oriented Commercial			Commercial			Industry	
Use Type	All Lakes Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes	NE Lakes & Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	Mfg	Adm. & Whsg
Professional, scientific instruments, photographic, optical, watches, clocks, etc.																C	P
Rentals: Long/short term vacation rental	P	P	C	C	P	P	P	P	P	P	P	P	P	P	P	P	P
Retail sales of manufactured or warehoused products																C	P
Rubber and plastic products																C	P
Saw mills	C	C											C	C	C	C	P
Saw mills, portable	P	P	P	P									P	P	P		
Stone, clay, and glass products																C	P
Textile mill																C	P
Truck terminal, shop, and yard																C	P
Wholesaling																C	P

	Table 5-1 Land Use Districts																
	General Agriculture		Special Protection		Residential			High Density Residential		Water Oriented Commercial			Commercial			Industry	
Use Type	All Lakes Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes	NE Lakes & Rivers	Non Shore land	All Lakes Rivers	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	GD & RD Lakes Rivers	NE Lakes	Non Shore land	Mfg	Adm. & Whsg
F. Essential Services and Towers																	
Essential services[5] - Water supply buildings, reservoirs, elevated tanks, sewage treatment facilities, gas regulator stations, electric substations, microwave relay towers, radio or television transmission towers and stations and service buildings, or transmission lines over 100,000 volts	C	C	C	C	C	C	C	C	C	C	C		C	C	C	C	P
Essential services – all others	P	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P
Tower facilities	N	C	N	C	N	N	C	N	C	N	N	C	N	N	C		
G. Other Uses																	
Mass gathering	C	C											C	C	C	C	C
Storage Structure	P	P	C	C	P	P	P	C	C	P	P	P	P	P	P	P	P

[5] Essential services of this type must not be located closer than fifty feet (50') to any agricultural or residential lot line.

Section 2 Height, Yard, Setback, Area and Lot Width and Depth Requirements

The following provisions regarding height, yard, setback, area, lot width and lot depth shall be met for structures, buildings, and individual subsurface sewage treatment systems in Becker County.

A. **Multiple setbacks.** If more than one setback applies to a site all setbacks shall be observed.

B. **Lot width measurement.** Lot width standards shall be met at both the ordinary high-water level and at the building setback line.

C. **Setback averaging.** Setback averaging is the horizontal distance of a proposed structure obtained by adding the horizontal distance, as measured from the ordinary high-water mark of the lake, of the like structures on the adjacent lots and dividing that sum by two (2).

1. If structures exist on the adjoining lots on both sides of a proposed building site, the required setbacks shall be that of the average horizontal distance of the like structures plus twenty (20) feet, not to exceed the required lake setback (Example: deck to deck, house to house).

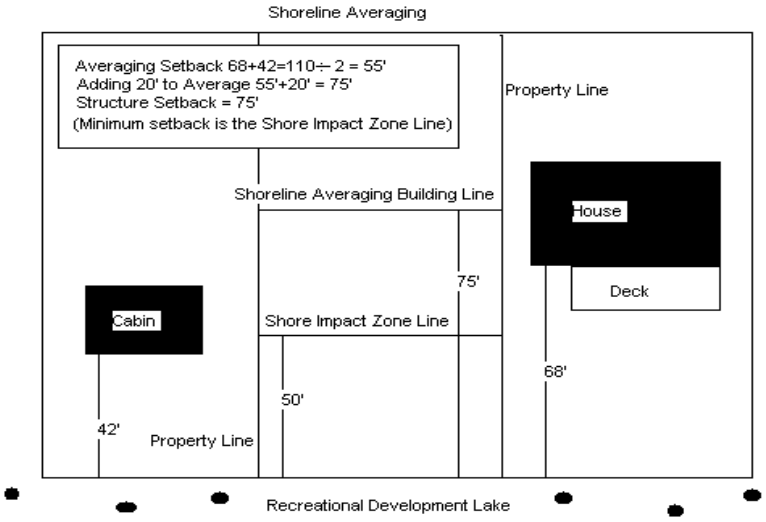
2. If a building on one side of a lot does not comply with the setback requirements of this ordinance and if the lot on the other side is vacant, or if the structure on the lot exceeds the required setback, the setback for the lot shall be equal to one half (1/2) the sum of the horizontal distance as measured from the ordinary high water mark of the lake to the like structure and the setback required by this ordinance plus twenty (20) feet, not to exceed the required lake setback.

3. Notwithstanding the above, a building site shall not be located in whole or in part within a shore impact zone or a bluff impact zone.

4. Whenever the setback averaging method is allowed to establish a lakeside structure setback and the property is a substandard size property**,** as provided for in subsections C.1 and C.2, above, the deficiency area between the setback determined by the setback averaging and the setback required by this Ordinance must be mitigated by the installation of a shoreline vegetative buffer. The criteria and provisions for the shoreline vegetative buffer contained in Chapter 3, Section 11, Mitigation Requirements for Nonconformities in Shoreland Areas, are applicable.

5. If a dwelling unit is used for the lakeshore averaging, the dwelling must be of average livable condition.

6. Adjacent like structures used for the setback averaging must be located within the width and area of a standard size lot.



D. **Structure and sewage treatment system setbacks in shoreland areas.** In addition to all other setback requirements, structures and sewage treatment systems shall be setback a minimum of the following distances from the ordinary high water level in shoreland areas. Setbacks are indicated in feet.

Table 5-2 Minimum setbacks for structures and sewage treatment systems in shoreland areas

	Public Water Classification – See Appendix A						
	Lakes			Rivers and Streams			
	Natural Environment	Recreational Development	General Development	Remote	Forested & Transition	Agriculture & Tributary	Protected Waters
Structure setback lake lots	150	100	75	200	150	100	50
Sewage treatment system setback	150	75	50	150	100	75	50

E. **Protected Waters.** Protected waters that are not currently classified as natural environment lakes shall have a fifty (50) foot buffer of natural vegetation between the protected water and any structure, septic system, or use.

F. **Bluff impact zones.** Structures and accessory facilities, except stairways and landings, shall not be placed within bluff impact zones.

G. **Bluff, cemetery, historic site setbacks.** In shoreland areas, the following additional structure setbacks apply, regardless of the classification of the waterbody:

Table 5-3 Minimum setbacks for bluffs, cemeteries, and historic sites in shoreland areas

Setback from	**Setback**
Top of bluff	30 feet
Unplatted cemetery	50 feet
Significant historic site	50 feet

H**. Setbacks for commercial uses without water-oriented needs.** A commercial use that has no need to be located on the water but is located on a lot or parcel with public water frontage, shall either:

1. **Double setback.** Be set back double the normal ordinary high water level setback or;
2. **Screening.** Be substantially screened from view from the water by vegetation or topography, assuming summer, leaf-on conditions.

I. **Docks and piers.** Docks and piers shall be exempt from the setbacks for shoreland areas except that any projection into the water shall maintain a minimum side yard setback equal to that required in the applicable zoning district and shall be parallel with an extension into the water of the side yard lot line.

J. **Residential planned unit developments.** Residential subdivisions with lot sizes smaller than or dwelling unit densities exceeding those in Table 5-5, below**,** shall be designed and approved as a Conservation Subdivision Development under Chapter 8, Section 7.

1. **Limit on multi-family development.** No more than twenty-five percent (25%) of a lake's shoreline can be in duplex, triplex, or quad developments.

K. **Additional setbacks requirements for specific uses.** The following setbacks are required for the specified uses.

1. Churches shall not be located closer than fifty feet (50') to any lot line of an adjoining parcel that is used for agricultural or residential use.
2. Essential services shall not be located closer than fifty feet (50') to any lot line of an adjoining parcel that is used for agricultural or residential use.
3. Schools shall not be located closer than fifty feet (50') to any lot line of an adjoining parcel that is used for agricultural or residential use.
4. A twin home shall be exempt from the side yard requirements of this Ordinance on the common boundary between the dwellings.

L. **Nonconforming Deck Additions.** A deck addition not meeting the required setback from the ordinary high water level may be allowed without a variance if all of the following criteria and standards are met:

1. The structure existed on the date the Becker County Zoning Ordinance shoreland structure setbacks were established.
2. A thorough evaluation of the property and structure reveals no reasonable location for a deck meeting or exceeding the existing ordinary high water level setback of the structure.
3. The deck encroachment toward the ordinary high water level does not exceed twelve (12) feet of the current structure setback or required setback for new construction.
4. The deck is no more than 240 square feet in size.
5. The deck addition cannot extend into the shore impact zone.
6. The deck is constructed in a pervious manner, and is not roofed, enclosed or screened; and
7. Notwithstanding any existing impervious areas below a second story deck, the ground underneath a deck must remain pervious.

M. Guest cottages. One guest cottage may be located on a lot, which meets or exceeds the duplex lot area and width dimensions presented in Table 5-5, below, provided the following standards are met:

1. **Cottage located with smallest duplex building envelope possible.** If the lot exceeds the minimum lot dimensions for duplex lot, the guest cottage shall be located within the smallest duplex-sized lot that could be created including the principal dwelling unit;
2. **Size and height limits.** A guest cottage shall not cover more than seven hundred (700) square feet of land surface and shall not exceed fifteen feet (15') in height; and
3. **Screening.** A guest cottage shall be located or designed to reduce its visibility from public waters and adjacent shorelands by use of vegetation, topography, increased setbacks, or color, assuming summer leaf-on conditions.
4. **Storage structures are not a guest cabin.** A storage structure, such as a garage, shall not be used as a guest cabin capable of providing independent human habitation.

N. **Temporary guest cottage.** One (1) recreational vehicle may be occupied temporarily as a guest cottage on a lot, which meets or exceeds single lot area and width dimensions if occupied for less than seven (7) days in any thirty (30) day period. A recreational vehicle occupied as a guest cottage shall meet all setback requirements.

O. **Number of stories.** Table 5-4 establishes the maximum number of stories allowed by district**.** If the average slope of a lot is greater than one (1) foot rise or fall in seven feet (7') of horizontal distance from the established street elevation at the property line, one (1) story in addition to the number permitted in the district in which the lot is situated shall be permitted on the downhill side of any building.

P. **Double frontage lots.** On double frontage lots, the required front yard setback shall be provided on both streets.

Q. **Table 5-4,** on the following page, establishes the minimum height, yard, setback, area, lot width and lot depth requirements for the land use districts.

R. **Front yard setback averaging.** Is the horizontal distance of a proposed structure obtained by adding the horizontal distances, as measured from the right-of-way or centerline of a public road, of the structures on the adjacent lots and dividing that sum by (2). If either adjacent lot is vacant then the standard setback shall apply to the average calculation. The average shall not exceed the appropriate measurement required by table 5-4 and in no case may a structure be placed in the right-of-way.

S. **Table 5-5,** establishes the minimum lot area and lot width requirements for shoreland areas in any land use district.

1. Riparian lots are any lot with shoreline.
2. Non-riparian lots are lots within shoreland areas with no shoreline.

Table 5-4: Height, yard, setback, area, lot width and lot depth requirements for land use districts

Minimum Requirements	Land Use District						
	General Agriculture	Special Protection	Residential	High Density Residential	Water Oriented Commercial	Commercial	Industry
Minimum lot area (in acres or square feet)							
On-lot sewer and water	2.5 acres	5 acres	1 acre	1/2 acre	3 acres	1 acre	1 acre
Public or community sewer and water	NA	NA	10,000 sq. ft.	10,000 sq. ft.	3 acres	1 acre	30,000 sq. ft.
Minimum side yard [6] setback	10	20	10	10	15/30[7]	15/30[7]	15/50[8]
Minimum Buildable Area	8500n sq. ft.	8500 sq. ft.	8500 sq. ft.	8500 sq. ft.	8500 sq. ft.	8500 sq. ft.	8500 sq. ft.

[6] A twin home is exempt from the side yard requirements on the common boundary.
[7] Minimum side yard setbacks is 15 feet when adjacent property is the same district but 30 feet when adjacent property is a different district.
[8] Minimum side yard setbacks is 15 feet when adjacent property is the same district but 50 feet when adjacent property is a different district.

Minimum rear yard setbacks (in feet)	40/20[15]	40/20[15]	40/20[15]	40/20[15]	50	40/20[15]	NA/50
Maximum building height (stories/feet)	2.5/30	2.5/35	2.5/30	2.5/30	45	45	45
Maximum impervious surface coverage for Land Use Districts	**Land Use District**						
	General Agriculture	**Special Protection**	**Residential**	**High Density Residential**	**Water Oriented Commercial**	**Commercial**	**Industry**
Maximum floor area coverage	NA	NA	NA	35%	35%	40%	50%
Maximum impervious surface coverage in the shoreland	25%	20%	25%	25%	25%	%	%
Maximum impervious surface coverage outside the shoreland	50%/65%*	20%	40%	65%	NA	65%/75%*	65%/75%*

*****Building area may not exceed the first percentage listed in the table and all other impervious surfaces may not exceed the second number listed.

Table 5-4.5 Minimum Front yard setbacks for shoreland and non-shoreland areas in any land use district.

Minimum Requirements	**All Measurements are From the Right-of-Way**	
	Shoreland	**Non-Shoreland**
Township	20/45[16]	20[17]/30
County Road	45	30
U.S. and State Highways	50	30
Expressways & 4-Lane Highways	50	30

[15] Setback for primary structure is 40 feet and setback for a detached storage structure is 20 feet.
[16] For primary structures on non-riparian lots.
[17] For detached storage structures.

Table 5-5: Minimum lot area and minimum width standards for shoreland areas in any land use district

Minimum area in square feet and minimum lot width in feet

Minimum lot area and minimum lot width standards for Lakes - Lake lots	**Lake Classification – See Appendix A**							
	RD Recreational Development				**GD General Development**			
	Riparian lots		**Non-riparian lots behind conforming riparian lots**		**Riparian lots**		**Non-riparian lots behind conforming riparian lots**	
	Area	**Width**	**Area**	**Width**	**Area**	**Width**	**Area**	**Width**
Single	40,000	150	40,000	150	20,000	100	40,000	150
Duplex	80,000	225	80,000	265	40,000	180	80,000	265
Special Protection	100,000	250	100,000	250	100,000	250	100,000	250
Minimum lot area and minimum lot width standards for Lakes - Lake lots	**Lake Classification – See Appendix A**							
	RD Recreational Development				**GD General Development**			
	Riparian lots		**Non-riparian lots behind nonconforming riparian lots**		**Riparian lots**		**Non-riparian lots behind nonconforming riparian lots**	
	Area	**Width**	**Area**	**Width**	**Area**	**Width**	**Area**	**Width**
Single	40,000	150	60,000	225	20,000	100	40,000	150
Duplex	80,000	225	80,000	265	40,000	180	80,000	265
Special Protection	100,000	250	100,000	250	100,000	250	100,000	250

Minimum lot area and minimum lot width standards for Lakes – Lake lots	**Lake Classification – See Appendix A**			
	NE Natural Environment Lakes			
	Riparian lots		**Non-riparian lots 400 ft and greater from OHW**	
	Area	**Width**	**Area**	**Width**
Protection Tier 1	100,000	250	2.5 acres	200
Protection Tier 2	120,000	300	2.5 acres	200
Protection Tier 3	140,000	350	2.5 acres	200

Minimum lot area and minimum lot width standards for Rivers and Streams	**River or Stream Classification – See Appendix A**									
	Remote River		**Forested River**		**Transition River**		**Agriculture River**		**Tributary River**	
	Area	**Width**	**Area**	**Width**	**Area**	**Width**	**Area**	**Width**	**Area**	**Width**
Single	80,000	300	80,000	200	40,000	250	40,000	150	40,000	100
Duplex	80,000	450	80,000	300	40,000	375	40,000	225	40,000	150

Natural environment lots subdivided prior to 2016 shall be deemed conforming lots with verification of a dated survey.

CHAPTER 6 ADDITIONAL STANDARDS APPLYING TO SHORELAND AREAS AND PUBLIC WATERS

Section 1 Intent

The intent of this Chapter is to establish controls over lakeshore, river, and stream development independent of the other provisions in this Ordinance. The standards in this section shall apply to all shoreland areas within the County and shall supersede the requirements of the rest of this Ordinance. Other provisions of this Ordinance shall apply to shoreland areas in addition to provisions in this Chapter.

Section 2 Floodplain Requirements

Structures shall be placed according to any floodplain regulations applicable to the site. If these controls do not exist, the elevation to which the lowest floor, including basement, is placed or flood-proofed must be determined as follows:

A. **For lakes.** The elevation for structures near lakes shall be achieved by placing the lowest floor at a level above the highest known water level, or three feet (3') above the ordinary high water level, whichever is higher. The high water level has been established for some lakes in Becker County.

B. **For rivers and streams.** The elevation for structures near rivers and streams shall be achieved by placing the lowest floor at least three feet (3') above the flood of record if data is available. If data is not available, by placing the lowest floor at least three feet (3') above the ordinary high water level, or by conducting a technical evaluation to determine effects of the proposed construction upon flood stages and flood flows and to establish a flood protection elevation. Under all three approaches, technical evaluations must be done by a qualified engineer or hydrologist consistent with Minnesota Rules parts 6120.5000 to 6120.6200 governing the management of flood plain areas. If more than one approach is used, the highest flood protection elevation determined shall be used for placing structures and other facilities.

C. **Exception for accessory structures.** Water-oriented accessory structures may have the lowest floor placed lower than the elevation determined in this Section if the structure is constructed of flood-resistant materials to the elevation required for structures in A and B, electrical and mechanical equipment is placed above the elevation and, if long duration flooding is anticipated, the structure is built to withstand ice action and wind-driven waves and debris.

Section 3 Water-Oriented Accessory Structures

A. **When allowed.** A lot may have one (1) water-oriented accessory structure not meeting the normal structure setback in Chapter 5, Section 2, Table 5-2 of this Ordinance if the following design requirements are met.

B. **Design requirements.** The water oriented accessory structure shall comply with the following provisions:

1. **Height and size.** The structure exclusive of safety rails, must not exceed in height the elevation of the lot measured at the building setback line from the ordinary high water level, must not be more than twelve feet (12') above grade in height and cannot occupy an area greater than one hundred twenty (120) square feet. The elevation of the lot must be measured perpendicular to the location of the structure. Detached decks must not exceed eight feet (8') above grade at any point and must be pervious;

2. **Setback.** The structure must be placed at the toe of a steep slope or bluff, but no closer than ten (10) feet from the ordinary high water level or ice ridge, whichever is greater**.** On lots where the elevation permits a water oriented structure but the elevation is not a steep slope or bluff, the minimum setback shall be twenty (20) feet from the ordinary high water level or the ice ridge, whichever is greater;
3. **Visibility.** The structure shall be treated to reduce visibility as viewed from public waters and adjacent shorelands by vegetation, topography, increased setbacks or color, assuming summer, leaf-on conditions;
4. **Roof.** The roof may be used as a deck with safety rails not exceeding three feet (3'), but shall not be enclosed or used as a storage area;
5. **Not for habitation.** The structure shall not be designed or used for human habitation and shall not contain a potable water supply or sewage disposal facilities.
6. **Location.** The structure shall be placed within the center one-third (1/3) of the lot unless a steep slope or bluff interferes with the placement of the structure, then the structure may be placed in the most suitable location on the lot meeting the side yard setbacks.

Section 4 Stairways, Lifts, and Landings

Stairways and lifts are the preferred alternative to land alterations for achieving access up and down bluffs and steep slopes to the lakeshore. Stairways and lifts shall meet the following design requirements:

A. **Maximum width.** Stairways and lifts shall not exceed four feet (4') in width on residential lots. Wider stairways may be used for commercial properties, public open-space recreational properties, and planned unit developments;

B. **Landings.** Landings for stairways and lifts on residential lots shall not exceed thirty-two (32) square feet in area. Landings larger than thirty-two (32) square feet may be used for commercial properties, public open-space recreational properties, and planned unit developments. A landing at the bottom of a steep slope or bluff may have an area up to forty-eight (48) square feet if the staircase exceeds ten feet (10) in height;

C. **Canopies and roofs.** Canopies or roofs are not allowed on stairways, lifts, or landings;

D. **Construction must limit disturbance.** Stairways, lifts, and landings may be either constructed above the ground on posts or pilings, or placed into the ground, provided they are designed and built in a manner that ensures control of soil erosion, limits vegetation and soil disturbance and prevents increased water runoff to the water body;

E. **Visibility.** Stairways, lifts, and landings shall be located, whenever practical, in the most visually inconspicuous portions of lots, as viewed from the surface of the public water assuming summer, leaf-on conditions, whenever practical; and

F. **Facilities for the disabled.** Facilities such as ramps, lifts, or paths for physically handicapped persons are allowed for access to shore areas.

Section 5 Steep Slopes

The Zoning Administrator shall evaluate possible soil erosion impacts and development visibility from public waters before issuing a permit for construction of driveways, structures, or other improvements on steep slopes. When determined necessary, conditions shall be attached to issued permits to prevent erosion and to preserve existing vegetation screening of structures, vehicles, and other facilities as viewed from the surface of public waters, assuming summer, leaf-on vegetation.

Section 6 Fertilizer and Pesticide Use

Use of fertilizers and pesticides in all districts shall minimize runoff into public waters by use of earth, vegetation, or both. Fertilizer containing phosphorus may not be applied in shore impact zones, in bluff impact zones or on steep slopes.

Section 7 Vegetation Alterations

The removal and alteration of vegetation on lots or parcels in shoreland areas is allowed subject to the standards in this Section.

A. **Exemptions.** Vegetation alteration necessary for the construction of structures and sewage treatment systems and the construction of roads, driveways and parking areas regulated by Chapter 6, Section 9; agricultural uses as regulated by Chapter 6, Section 12; and forest management as regulated by Chapter 6, Section13; are exempt from the vegetation alteration standards in this Section.

B. **Shore impact zone.** Removal of trees more than two inches (2") in diameter at the height of four feet (4') from the ground is not allowed within a shore impact zone except during construction pursuant to a building permit for a Water Oriented Structure. Removal of other natural vegetation within a shore impact zone is allowed only if it is done in a manner that will prevent increased erosion.

C. **Bluff impact zone and steep slopes.** Removal of natural vegetation within bluff impact zones and on steep slopes that drain toward a lake or river is not allowed.

D. **Forest land conversion.** Removal of natural vegetation for forest land conversion to another use outside the shore or bluff impact zones or steep slopes is allowable as a conditional use if forestry best management practices are followed as established by the Minnesota Department of Natural Resources and an erosion control and sedimentation plan is developed and approved by the Becker County Soil and Water Conservation District.

E. **Creation of view area.** In shore and bluff impact zones and on steep slopes, pruning, and trimming of trees is allowed to provide a view to the water from the principal dwelling site and for access paths, provided that:

   1. **Best management practices used.** Pruning and trimming procedures follow best management practices recommended by the Minnesota Extension Service;

   2. **Screening.** The screening of structures, vehicles, or other facilities as viewed from the water, assuming summer, leaf-on conditions, is not substantially reduced; and

   3. **Shading of water.** Existing shading of water surfaces is preserved.

F. **Safety hazards.** The above provisions are not applicable to the removal of trees, limbs, or branches that are dead, diseased, or pose safety hazards.

G. **Access path.** One access path is allowed from the residence to the shore provided that it is no wider than ten feet (10') and does not promote erosion or drainage to the water body.

Section 8 Retaining Walls

A. **Pre-application Meeting.** In order to avoid costly revisions of retaining wall plans, the property owner and/or contractor may have a preliminary on-site meeting with the Environmental Review Technical Panel. The preliminary meeting is to insure that the applicant is informed of the procedural requirements or limitations imposed by the ordinances. The property owner and/or contractor may present a conceptual plan to the Zoning Office to have a meeting scheduled with the Environmental Review Technical Panel.

B. **Conditional Use Permit.** A conditional use permit is required to place a retaining wall structure in a shore impact zone or a bluff impact zone or replace an existing failing retaining wall and will not be issued unless;

1. The retaining wall is designed to correct an established shoreland erosion problem;
2. The retaining wall is suitable given the demonstrated shoreland usage needs;
3. The retaining wall may be required to be designed by a registered professional engineer or landscape architect, depending on the scope of the project; and
4. The dimensions of the retaining wall are the minimum necessary to control the shoreland erosion problem.

Retaining walls located in the Pelican River Watershed District or Cormorant Lakes Watershed District do not require a permit from Becker County and will be reviewed and considered by the Watershed District in which it is located.

Section 9 Placement and Design of Roads, Driveways, and Parking Areas

The following design standards shall be met in the placement and design of roads, driveways, and parking areas in shoreland areas.

A. **Maximum screening.** Roads, driveways, and parking areas shall be designed to take advantage of natural vegetation and topography to achieve maximum screening from view from public waters.

B. **Minimize erosion.** Roads, driveways, and parking areas shall be designed and constructed to minimize and control erosion consistent with the field office technical guides of the Becker County Soil and Water Conservation District, or other applicable technical materials.

C. **Location.** Roads, driveways, and parking areas shall meet structure setbacks and shall not be placed within bluff and shore impact zones when other reasonable and feasible placement alternatives exist. If no alternatives exist, they may be placed within these areas but they shall be designed to minimize adverse impacts.

D. **Watercraft access.** Public and commercial watercraft access ramps, approach roads, and access-related parking areas may be placed within shore impact zones provided the vegetative screening and erosion control conditions of this Section are met. Commercial facilities shall comply with the topographical change provisions of Chapter 8, Section 14, Land Alteration Permit.

Section 10 Storm Water Management Standards

Development activities in shoreland areas shall conform to the following stormwater management standards.

A. **Use of existing natural features preferred.** Existing natural drainageways, wetlands, and vegetated soil surfaces shall be used to convey, store, filter, and retain stormwater runoff before discharge to public waters, if possible.

B. **Performance standards.** Development shall be planned and conducted in a manner that will minimize the extent of disturbed areas, runoff velocities, erosion potential, and reduce and delay runoff volumes. Disturbed areas shall be stabilized and protected as soon as possible and sediment shall be retained on the site.

C. **Standards for constructed facilities.** When development density, topographic features, and soil and vegetation conditions are not sufficient to handle stormwater runoff adequately using natural features

and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, waterways, and ponds may be used.

1. Preference shall be given to designs using surface drainage, vegetation, and infiltration rather than buried pipes and man-made materials and facilities.
2. When constructed facilities are used for stormwater management, the application for a building permit shall contain a certification by a registered professional engineer that they will be designed and installed consistent with the field office technical guide of the Becker Soil and Water Conservation District.
3. New constructed stormwater outfalls to public waters shall provide for filtering or settling of suspended solids and skimming of surface debris before discharge.

D. **Impervious Surface Coverage for Zoning Districts.** Impervious surface coverage of lots shall conform to the following limits:

1. Impervious surface coverage shall not exceed twenty-five percent (25%) of the lot area for lots in residential, agricultural, high density and water oriented commercial districts.
2. Impervious surface coverage shall not exceed thirty percent (30%) of the lot area for lots in commercial districts.
3. Impervious surface coverage shall not exceed thirty-five percent (35%) of the lot area for lots in industry districts.
4. Impervious surface coverage shall not exceed twenty percent (20%) of the lot area for lots in special protection districts.
5. If a lot is segregated by a public easement road, the lot area on one side of the public easement road shall not be used to calculate the amount of impervious lot coverage on the opposite side of the public easement road.

E. Impervious Surface Coverage for Riparian Shoreland Lots:

1. A protective zone shall be established on each lot. The protective zone will be calculated by using the total lot area within 150 feet of the lake.
2. Impervious surface coverage may not exceed fifteen percent (15%) of the protection zone area without mitigation as outlined in Chapter 3 Section 11 of this ordinance.
3. Impervious surface coverage exceeding fifteen percent (15%) of the protection zone area without mitigation as outlined in Chapter 3 Section 11 must be located outside the protection zone area.
4. Notwithstanding the above, impervious surface coverage for a shoreland lot shall not exceed twenty-five (25%) percent.
5. If a lot is segregated by a public easement road, the lot area on one side of the public easement road shall not be used to calculate the amount of impervious lot coverage on the opposite side of the public easement road.

Section 11 Standards for Commercial, Industrial, Public, and Semipublic Uses

Surface water-oriented commercial uses and industrial, public, or semipublic uses with similar needs to have access to and use of public waters may be located on parcels or lots with frontage on public waters. Those uses with water-oriented needs shall meet the following standards:

A. **Screening of parking.** In addition to meeting impervious coverage limits, setbacks, and other zoning standards in this Ordinance, the uses shall be designed to incorporate topographic and vegetative screening of parking areas and structures;

B. **Watercraft facility design.** Uses that require short-term watercraft mooring for patrons shall centralize these facilities and design them to avoid obstructions of navigation and to be the minimum size necessary to meet the need; and

C. **Signs and lighting standards.** Uses that depend on patrons arriving by watercraft may use signs and lighting to convey needed information to the public, subject to the following general standards:

1. No advertising signs or supporting facilities for signs may be placed in or upon public waters. Signs conveying information or safety messages may be placed in or on public waters by a public authority or under a permit issued by the county sheriff;

2. Signs may be placed, when necessary, within the shore impact zone if they are designed and sized to be the minimum necessary to convey needed information. They shall only convey the location and name of the establishment and the general types of goods or services available. The signs shall not contain other detailed information such as product brands and prices, shall not be located higher than ten feet (10') above the ground, and shall not exceed thirty-two (32) square feet in size. If illuminated by artificial lights, the lights shall be shielded or directed to prevent illumination out across public waters; and

3. Other outside lighting may be located within the shore impact zone or over public waters if it is used primarily to illuminate potential safety hazards and is shielded or otherwise directed to prevent direct illumination out across public waters. This does not preclude use of navigational lights.

Section 12 Agricultural Use Standards

Agricultural uses in shoreland areas shall conform to the following standards.

A. **Steep slopes, shore, and bluff impact zones.** Where general cultivation farming, grazing, nurseries, horticulture, truck farming, sod farming, and wild crop harvesting are allowed steep slopes and shore and bluff impact zones shall be maintained in permanent vegetation or operated under an approved conservation plan (Resource Management Systems) consistent with the field office technical guides of the Becker County Soil and Water Conservation District or the United States Soil Conservation Service, as provided by a qualified individual or agency.

B. **Feedlots.** Animal feedlots shall meet the following standards:

1. New feedlots shall not be located in the shoreland of watercourses or in bluff impact zones and shall be at least three hundred feet (300') from the ordinary high water level of all public waters basins.

2. Modifications may be made to existing feedlots that are located within three hundred feet (300') of the ordinary high water level or within a bluff impact zone if the modifications do not extend the feedlot closer to the ordinary high water level setback or further into the bluff impact zone.

3. A certificate of compliance, interim permit, or animal feedlot permit, when required by Minnesota Regulations, parts 7020.0100 to 7020.1900, shall be obtained by the owner or operator of an animal feedlot.

Section 13 Forest Management Standards

The harvesting of timber and associated reforestation within shoreland areas, but outside shore impact zones, shall be conducted consistent with the provisions of the Minnesota Nonpoint Source Pollution Assessment-Forestry and the provisions of Water Quality in Forest Management "Best Management Practices in Minnesota." Within shore impact zones, these activities require a conditional use permit.

Section 14 Alterations within Public Waters

Any alteration to the bed of public waters, including construction of channels, ditches, lagoons dredging of bottom, muck or weeds or filling in a lake or river bed, including marshlands shall receive approval by the State Commissioner of Natural Resources, the County Planning Commission and Board of County Commissioners before the start of operations

CHAPTER 7 ADDITIONAL REQUIREMENTS APPLYING TO SPECIFIC LAND USES

Section 1 Intent

The standards in this Chapter are established to provide supplemental regulations to address the unique characteristics of certain land uses.

Section 2 Applicability

The standards in this Chapter apply to specific land uses within any zoning districts in which they are allowed, whether the uses are permitted or conditional. The standards in this chapter shall apply in addition to the general criteria for conditional uses in Chapter 8, Section 11, and all other applicable regulations.

Section 3 Adult Uses and Sexually Oriented Businesses

A. **Purposes.** In the development and adoption of the provisions in this Ordinance regulating adult uses and sexually oriented businesses in Becker County, it is recognized that:

1. **Community impacts.** Adult uses and sexually oriented businesses have an impact on the community including:

   a. There are some adult business uses, which have serious objectionable operational characteristics, particularly when located in close proximity to residential neighborhoods.

   b. These business uses have deleterious impact upon property values.

   c. These business uses frequently become places of criminality.

2. **Protection of youth.** It is the further purpose of this ordinance to protect the well being of the youth of the community from objectionable operational characteristics of these uses by regulating and restricting their close proximity to established facilities such as, but not limited to, churches, parks, schools, and residential areas.

3. **Criminal behavior.** It is the belief of the County that, just as advertising is designed to stimulate one's appetite for desired goods and services, an overabundance or preoccupation with sexual displays or materials arouses the appetites of those so preoccupied and encourages criminal sexual behavior.

4. **Balancing of legitimate interests.** In recognition of the protections afforded to the citizens of the United States under the First and Fourteenth Amendments to the Constitution of the United States, it is neither the intent nor effect of this ordinance to inhibit the freedom of speech or the press. The provisions herein have neither the purpose nor effect of imposing a limitation or restriction on the content of any communicative materials, including sexually oriented materials. Similarly, it is neither the intent nor effect of this ordinance to restrict or deny access by adults to sexually oriented materials protected by the First Amendment, or to deny access by distributors and exhibitors of sexually oriented entertainment to their intended market. This ordinance represents a balancing of the legitimate ends of the County by imposing an incidental, content-neutral place, time, and manner of regulation of sexually oriented entertainment to sexually oriented businesses without limiting alternative avenues of communication, and at the same time, requiring the business to carry its financial share of law enforcement activities. The special

regulations deemed necessary to control the undesirable effects arising from these enterprises are set forth in this ordinance.

B. **Findings.** The Becker County Board of Commissioners makes the following findings about the effect adult uses and sexually oriented businesses have on the character of the County's neighborhoods. In making the findings, the County Commissioners accept the recommendations of staff that have studied the experiences of other areas about such businesses: City of St. Cloud, MN, the Minnesota Attorney General, the City of Los Angeles, CA, the City of St. Paul, MN, the City of Austin, TX, Adams County, CO, St. Croix County, WI, the City of New York, NY, and various other cities throughout the country that have studied the impact of adult uses and sexually oriented businesses. These studies have concluded that adult uses and sexually oriented businesses have adverse impacts on the surrounding neighborhoods. Based on these studies, the County Commissioners conclude:

1. **Burden on law enforcement.** Adult uses and sexually oriented businesses can contribute to an increase in crime in the area where such businesses are located. This can be a burden to the County crime prevention programs and law enforcement services.

2. **Effect on residential neighborhoods.** Adult uses and sexually oriented businesses can significantly contribute to the deterioration of the residential neighborhoods and can increase neighborhood blight. These businesses also can impair the character and quality of the residential housing in the area where such businesses are located. This situation can lessen the amount of desirable housing for residents.

3. **Effect of concentration.** The concentration of adult uses and sexually oriented businesses in one area can greatly affect the area where such businesses are concentrated and on the quality of life. A cycle of decay can result from the influx and concentration of adult uses and sexually oriented businesses. Others may perceive the presence of such businesses as an indication that the area is deteriorating and the results can be devastating. That is, other businesses move out of the vicinity and residents flee from the area. Lower property values that can result from the concentration of such businesses erode the County's tax base and contribute to the blight.

4. **Secondary impacts.** Adult uses and sexually oriented businesses have adverse secondary impacts of the type discussed above.

5. **Protection of health, safety, and general welfare.** It is necessary to provide for the special and express regulations of businesses, establishments or commercial enterprises that operate as adult body painting, adult studios, adult bookstores, adult cabarets, adult car washes, adult companionship establishments, adult hotels or motels, adult massage parlors or health clubs, adult motion picture arcades or theaters, adult modeling studios, adult novelty businesses, adult saunas, and similar adult oriented services operating under various names to protect the public health, safety and welfare, and to guard against inception and transmission of disease.

6. **Inspection, permitting and regulation necessary.** The commercial enterprises such as the types described in paragraph 5 above and all other similar establishments whose services include sessions offered to adults conducted in private by members of the same or opposite sex, and the employing of personnel with no specialized training are susceptible to operations, contravening, subverting, or endangering with the morals of the County by being the site of acts of prostitution, illicit sex, and occasions of violent crimes, thus requiring close inspection, permitting and regulations.

7. **Demand on public services.** Control and regulation of commercial establishments of these types, in view of the abuses often perpetrated, require intensive efforts by the Sheriff's department and other departments of the County. It is necessary for the County to provide services to all Becker County without concentrating the public services in one area. The concentrated use of County services detracts from and reduces the level of services available to

the rest of Becker County. Thus, these types of establishments can diminish the ability of the County to protect and promote the general health, welfare, morals, and safety of the citizens of Becker County.

C. **Intent of regulations.** The County Board of Commissioners adopts the following land use and permitting regulations, recognizing that it has an interest in the present and future character of the County's residential and commercial neighborhoods. These regulations are to lessen the detrimental and adverse effects adult uses and sexually oriented businesses have on adjacent land uses and protect and promote the health, safety and welfare of the resident of Becker County.

D. **License Required.** No person, firm or corporation shall own or operate an adult use or sexually oriented business in Becker County without having first secured a license as provided herein. The license shall be one of two types.

1. Adult use principal; or
2. Adult use accessory.

E. **Application requirements.** The County shall provide an application for an adult use or sexually oriented business license.

1. **Information required.** This application shall include the following information:

a. **Applicant/owner information.** The legal and full name, residence, phone number and birth date of the applicant, if an individual; and, if a corporation, partnership, LLC, or similar entity, the legal full names, residences, phone numbers, and birth dates of those owners holding more than five percent (5%) of the issued and outstanding stock of the corporation or ownership interest in a partnership, LLC, or similar entity.

b. **Operator information.** The legal full name, address, phone number and birth date of the operator and manager of such operation, if different from the owners.

c. **Location.** The address and legal description of the building, establishment, or premises where the adult use or sexually oriented business is to be located.

d. **Prior convictions and licenses.** A statement detailing each gross misdemeanor or felony of which the applicant or, for a corporation, the owners holding more than five percent (5%) of the issued and outstanding stock of the corporation or ownership interest in a partnership, LLC, or similar entity, have been convicted, and whether the applicant has ever applied for or held a license to operate a similar type of business in other counties or cities.

e. **Activities.** The activities and type of business to be conducted.

f. **Hours.** The hours of operation.

g. **Access restrictions.** The provisions made to restrict access to minors.

h. **Building and operations plan.** A building plan of the premises detailing internal operations and activities.

i. **Remodeling.** A description or building plan that details all proposed interior and exterior changes to an existing building or structure.

j. **Boundaries and location of structures.** A scaled drawing defining property boundaries and distances to structures and sewage treatment systems.

k. **True information/Change of information.** Each application shall contain a provision on the application in bold print stating that withholding of information or the providing of false or misleading information will be grounds for the denial or revocation of a license. Any changes in the information provided on the application or provided during the investigation shall be provided to the Zoning Administrator in writing, and the Zoning Administrator shall

report the changes to the County Board of Commissioners. Failure to report such changes by the applicant(s) or the licensee may result in the denial or revocation of a license.

2. **Fees.** Each application for a license shall be accompanied by a fee, as set by the resolution of the County Board of Commissioners, for payment in full of the required application and investigative fees for the license as established. All fees shall be paid at time of application.

   a. **Expiration date/Proration of fees.** All licenses shall expire on the last day of December in each year. The County shall issue each license for one (1) year, except if part of the license year has elapsed when the application is made the County may issue a license for the remainder of the year for a prorated fee. In computing such fee, the County shall count any unexpired fraction of a month as one (1) month.

   b. **Late fees.** License fees shall be considered past due as of January 1 if not paid. Late fees will be assesses on all past due license applications.

   c. **County Board sets fees.** The annual fee, investigative fee, and late fees for the adult use or sexually oriented business license shall be established by resolution of the County Board of Commissioners.

   d. **Refunds prohibited.** No part of any annual fee, investigative fee and late fee as required by this ordinance shall be refunded.

F. **Process for granting of license.** The County shall investigate all facts set out in the application. After the County finishes the investigation, the County shall grant approval of the application if all requirements of this Ordinance are met.

G. **Restrictions on issuance of license.** The following restrictions shall be placed on the granting of an adult use or sexually oriented business license.

1. **Licensee non-transferable.** The County shall only issue the license to the applicant. The license shall not be transferred to another holder.

2. **Location non-transferable.** The County shall only issue each license for the premises or location described in the application. No license may be transferred to another location or place without the approval of the County Board of Commissioners.

H. **Applicants ineligible for license.** The County shall not grant a license to nor may one be held by any person who:

1. Is under twenty-one (21) years of age;
2. Has been convicted of a felony;
3. Is not the proprietor of the establishment for which the license is issued;
4. Has not paid the license and investigative fees required by the Ordinance;
5. Is not a citizen of the United States; or
6. Has had an adult use or similar permit or license revoked under any Ordinance or statute similar to this Ordinance.
7. No license shall be granted for adult uses or sexually oriented businesses if a licensee has been convicted of a violation of this Ordinance, or where any license hereunder has been revoked for cause, until one (1) year has elapsed after such conviction or revocation.
8. Except for uses lawfully existing at the time of this Ordinance, no license shall be granted for any adult use or sexually oriented business where the premises do not meet all County Ordinance requirements, all building and fire codes requirements, and all provision of state and federal law.

I. **Conditions of license.** The following conditions shall be part of a license for an adult use or sexually oriented business and the conditions shall be met on a continuing basis.

1. **All licenses – principal and accessory.**

a. **Other laws.** Every license shall be granted subject to the conditions in the following subdivisions and all other provisions of this Ordinance and any applicable county, state, and federal law. No adult use or sexually oriented business shall engage in any activity or conduct or permit any other person to engage in any activity or conduct in or about the adult use establishment that is prohibited by any ordinance of Becker County, the laws of the State of Minnesota or the United States of America. Nothing in this Ordinance shall be construed as authorizing or permitting conduct that is prohibited or regulated by other statues or ordinances prohibiting the exhibition, sale, or distribution of obscene materials generally, or the exhibition, sale, or distribution of specified materials to minors.

b. **Posting.** All licenses shall be posted in a conspicuous place.

c. **Minors.** No minor shall be allowed in or on the premises of an adult use or sexually oriented business. No adult goods, materials or services shall be offered, sold, transferred, conveyed, given, displayed, or bartered to any minor.

d. **Right of entry and inspection.** Any designated inspection office or law enforcement officer of the County shall have the right to enter, inspect, and search the premises of a licensee during business hours to ensure compliance with age and liquor requirements.

e. **Licensee responsible for compliance.** Every licensee shall be responsible for the conduct of their place of business and shall maintain conditions consistent with this Ordinance and the County Ordinance generally.

f. **Separation distances from specific other uses.** No adult use or sexually oriented business shall be located closer than one thousand three hundred twenty feet (1320') from the property line of any residential structure, place of worship, school, public park, shoreland areas, open space, licensed child care or day care center in any city or county. Measurements shall be made in a straight horizontal line, without regard to city or county boundaries, intervening structures or objects, from the nearest point of the actual business premises of the adult use or sexually oriented business to the nearest building used as a residential structure, place of worship, school, public park, open space, licensed child care or day care center.

g. **Number of uses per building limited.** The County prohibits any building owner or operator from having more than one (1) of the following uses, tenants or activities in the same building structure: Adult body painting studios, adult book stores, adult car washes, adult hotels or adult motels, adult motion pictures theaters, adult mini motion picture theaters, adult massage parlors, adult health/sport clubs, adult sauna/steam room/bathhouses, adult companionship establishments, adult rap/conversation parlors, adult novelty businesses, adult motion picture arcade, adult modeling studios, and other premises, enterprises or establishments, businesses or places open to some or all members of the public at or in which there is an emphasis on the presentation or display, depiction, or description of "specified sexual activities" or "specified anatomical areas" that the public can see.

2. **Special requirements for live adult entertainment.**

a. **Performers.** All performers, dancers, and persons providing live entertainment distinguished or characterized by an emphasis on matters depicting, describing, or relating to specified sexual activities or specified anatomical areas in the licensed facility or in areas adjoining the licensed facility where entertainment can be seen by patrons, customers, or spectators, shall:

(1) Provide social entertainment on a platform intended for that purpose which is raised at least two feet (2') from the level of the floor;

(2) Provide said entertainment at a distance no closer than six feet (6') to any patron;

(3) Not fondle or caress any patron; and

(4) Not solicit any pay or gratuity from any patron.

b. **Patrons.** No patron, customer or spectator of a licensed facility providing live entertainment distinguished or characterized by an emphasis on matters depicting, describing, or relating to specified sexual activities or specified anatomical areas shall:

(5) Fondle or caress any performer, dancer, or other person, providing live entertainment; or

(6) Pay or give any gratuity to any performer, dancer or other person providing live entertainment.

3. **Conditions of license – Adult use principal or sexually oriented business principal.** The County permits adult use principal and sexually oriented businesses principal subject to the following conditions:

a. **Separation distances between adult uses.** No adult use principal or sexually oriented business principal shall be located closer than one thousand three hundred twenty feet (1320') from any other adult use principal or sexually oriented business principal. Measurements shall be made in a straight horizontal line, without regard to city or county boundaries, intervening structures, or objects, from the nearest point of the actual business premises of the adult use principal or sexually oriented business principal to the nearest point of the actual business premises of any other adult use principal or sexually oriented business principal.

b. **Liquor.** An adult use principal or sexually oriented business principal shall not sell or dispense intoxicating or non-intoxicating liquors, nor shall it be located within one thousand three hundred twenty feet (1320') of a building that contains a business that sells or dispenses intoxicating or non-intoxicating liquors. An adult use principal or sexually oriented business principal shall not allow the consumption of intoxicating liquor or non-intoxicating liquors anywhere on a premise containing that use or business.

c. **Off-site impacts.** No adult use principal or sexually oriented business principal shall be conducted in any manner that permits the perception or observation from any property not approved as an adult use of any materials depicting, describing, or relating to "specified sexual activities" or "specified anatomical areas" by any visual or auditory media including display, decoration, sign, show window, sound transmission or other means.

d. **Required sign.** All adult use principal and sexually oriented business principal shall prominently display a sign at the entrance and located within two feet (2') of the door opening device of the adult use establishment or section of the establishment devoted to adult books or materials which states: "This business sells or displays material containing adult themes. Persons under eighteen (18) years of age shall not enter".

e. **Hours limited.** No adult use principal or sexually oriented business principal shall be open between the hours of 1:00 a.m. and 8:00 a.m. on the days of Monday through Saturday, nor between 1:00 a.m. and 12:00 p.m. (Noon) on Sunday.

4. **Conditions of license – Adult use accessory.** The County permits adult use accessory and sexually oriented businesses accessory subject to the following conditions:

a. **Separation distances between adult uses.** No adult use accessory or sexually oriented business shall be located closer than one thousand three hundred twenty feet (1320') from any other adult use accessory or sexually oriented business. Measurements shall be made in a straight horizontal line, without regard to city or county boundaries, intervening structures, or objects, from the nearest point of the actual business premises of the adult use accessory or sexually oriented business.

J. **Revocation, suspension, or non-renewal of license.**

1. **Causes for revocation, suspension, or non-renewal.** The Zoning Administrator may revoke, suspend, or not renew a license upon recommendation of the assigned staff, MN Department of Health Official and/or Fire Marshal, or the County Sheriff that shows that the licensee, it's owners, managers, employees, agents, or any other interested parties have engaged in any of the following conduct:

   a. Fraud, deception or misrepresentation in securing a license;

   b. Habitual drunkenness or intemperance in use of controlled substance under Minnesota Statutes Chapter 152;

   c. Engaging in conduct involving moral turpitude or permitting or allowing others within their employ or agency to engage in conduct involving moral turpitude or failing to prevent agents, officers, or employees in engaging in conduct involving moral turpitude;

   d. Failure to follow any requirements of the Ordinances of Becker County regarding sanitary and safety conditions, zoning requirements, or ordinances, the violation of which involves moral turpitude, or failure to follow the requirements of this Ordinance;

   e. Conviction of an offense involving moral turpitude;

   f. Conviction of a felony.

2. **Appeal to County Board.** The license holder may appeal such suspension, revocation, or non-renewal to the County Board of Commissioners. The County Board of Commissioners shall consider the appeal at the regularly scheduled public hearing within thirty (30) days from the service of the notice of appeal to the Zoning Administrator.

   a. At the conclusion of the hearing, the County Board of Commissioners may order:

      (1) The revocation, suspension or non-renewal affirmed; or

      (2) That the revocation, suspension, or non-renewal be lifted and that the license be returned to the certified holder.

   b. The decision of the County Board of Commissioners is final.

   c. An appeal must be accompanied by a letter of credit, cashiers check, or cash in the amount of one thousand dollars ($1000). If the decision of the Zoning Administrator is upheld, the County is entitled to recover expenses and return any balance that may remain. If the decision is overturned, the full amount will be refunded to the license holder.

K. **Sign restrictions.** The following sign regulations shall apply to all adult uses or sexually oriented businesses in Becker County. These regulations are to protect children from exposure to sexually oriented or shocking signs and materials and to preserve the value of property near adult use and sexually oriented businesses. These regulations are in addition to any other provisions of the County's regulations.

1. All signs shall be flat wall or freestanding signs. No sign shall be located on the roof or contain any flashing or rotating lights, moving elements or electronically or mechanical changing messages.

2. The County's sign regulations in Chapter 7, Section 15 of this Ordinance, Becker County, Minnesota shall regulate the number, size, and location of signs allowed for an adult use or sexually oriented businesses.

3. No merchandise, photos, or pictures of any products or entertainment on the premises shall be displayed in window areas or any area where they can be viewed from the sidewalk or public

right of way adjoining the building or structure in which the adult use or sexually oriented business is located.

4. No signs shall be placed in any window.
5. A two (2) foot square sign may be placed on the door to state hours of operation and admittance to adults only.

Section 4 Commercial and Industrial Performance Standards

A. **Intent.** This Section is enacted to provide that commercial and industrial uses of land and buildings shall be maintained with proper appearance from streets and adjoining properties and to provide that each permitted use shall be a good neighbor to adjoining properties.

B. **Performance standards.** Commercial and industrial uses shall meet the following performance standards.

1. **Landscaping.** All required yards shall either be open landscaped and green areas or be left in a natural state. If any yards are to be landscaped, they shall be landscaped attractively with lawn, trees, shrubs, etc. Any areas left in a natural state shall be properly maintained in a sightly and well-kept condition. Commercial and industrial yards adjoining any residential district shall be landscaped with buffer planting screens. Plans of such screen shall be submitted for approval as a part of the site plan.
2. **Noise**. Noise shall be measured on any property line of the tract on which the operation is located. Noise shall be muffled so as not to become objectionable due to intermittence, beat frequency, shrillness, or intensity.
3. **Odors**. If a use may result in odors that would be offensive to occupants of adjacent or nearby properties the Zoning Administrator may require detailed plans for the prevention of the odors before issuing a building permit.
4. **Glare**. Glare, whether direct or reflected, such as from floodlights or high temperature processes, and as differentiated from general illumination, shall not be visible beyond any property line.
5. **Exterior lighting.** Any lights used for exterior illumination shall direct light away from adjoining properties.
6. **Vibration**. Vibration shall not be discernible at any property line to the human sense of feeling for three (3) minutes or more duration in any one (1) hour.
7. **Smoke**. Any use established, enlarged, or remodeled after the effective date of this Ordinance shall be so operated as to meet the minimum requirements of the Minnesota Pollution Control Agency for the emission of smoke or other particulate matter.
8. **Dust**. See item **7,** Smoke, above.
9. **Fumes or Gases**. Fumes or gases shall not be emitted at any point in concentrations or amounts that are noxious, toxic or corrosive. Detailed plans for the elimination of fumes or gases may be required before the issuance of a building permit.
10. **Hazard**. Every operation shall be carried on with reasonable precautions against fire and explosion hazards.
11. **Use of river water.** Industrial plants which use river water for cooling processes within their operations shall safeguard against impeding the natural flow of the immediate stream or to pollute, including thermal pollution of its waters.

C. **Standards for location of commercial or industrial uses near other uses.** Commercial and industrial uses located near uses of lesser intensity may have detrimental side effects. The location of the commercial or industrial use should be based upon the relationship of the proposed use and adjacent properties so any offensive emissions or excess traffic or location of dangerous, explosive, or otherwise hazardous materials do not detract from or endanger said adjacent lands. Considerations for approval of a request should involve storage techniques, safety measures to be incorporated, containment of stored facilities in case of failure of safety measures, wind direction, deflection of blast forces, screening of visually objectionable uses, monitoring devices or techniques, lighting, location and direction and similar design standard criteria.

D. **Proof of compliance.** In order to assure compliance with the performance standards set forth above, the Board of County Commissioners may require the owner or operator of any permitted or conditional use to have made such investigations and tests as may be required to show adherence to the performance standards. Such investigation and tests as are required to be made shall be carried out by an independent testing organization selected by the County.

Section 5 Extraction of Materials and Minerals

The following regulations shall apply to the extraction of materials and minerals in any land use district.

A. **Conditional use permit required.** No person shall extract any sand, gravel, stone, coal, clay, peat, subsoil, topsoil, or mineral from the land for sale without first obtaining a conditional use permit.

B. **Exemption for public roadway projects.** Extraction sites to be used for public roadway projects are exempt from provisions of this section.

1. **Land alteration permit required.** Any operator who has a public roadway construction contract shall be granted a land alteration permit provided the following conditions are met:

   a. The operator shall provide evidence that the operator has been awarded a contract for public roadway construction. The contract shall state that the operator shall reclaim the nonmetallic mining site according to the most recent edition of the Minnesota Department of Transportation Standards Specifications for Construction, with the additional requirements of any applicable sections of this Ordinance.

   b. The operator shall provide a copy of the contracting agency's Completion Certificate upon completion of the project.

   c. All other provisions of the Becker County Zoning Ordinance shall apply.

C. **Application for extraction conditional use permit.** Application for the conditional use permit shall be made at the office of the Zoning Administrator and the applicant shall furnish the information required:

1. **Applicant information.** Applicant's true name and address.

2. **Property description.** A legal description of the location of the pit or excavation or where it is proposed to be or where the impounded waters are to be maintained.

3. **Mining plan.** A mining plan containing the following information:
   a. **Map.** A general map of the area defining:
      (1) Property boundaries;
      (2) Location and names of all streams and roads on or within three hundred feet (300') of the project site;
      (3) Location of structures on or adjacent to the site, identifying the purpose of each structure;
      (4) Boundaries of previous excavations on the property;

(5) Location and description of proposed mining site boundary stakes with the permanent reference point described.

b. **Operations plan**. A plan for the operation of the extractive use shall include the following information:

(1) **Land use.** A narrative outlining current land use.

(2) **Material.** An inventory of material to be excavated.

(3) **Groundwater.** Observed or estimated depth to groundwater.

(4) **Method of extraction.** The description is to include the method of mining.

(5) **Timetable.** A timetable for commencement and cessation of mining, operations if seasonal operations are intended, the months of operation shall be identified. The timetable should include hours of operation.

(6) **Topsoil management.** A plan for management of topsoil removed to expose material to be mined.

(7) **Erosion control plan.** A plan for temporary erosion control measures and temporary stabilization measures to be used during excavation.

(8) **Screening plan.** Measures to be taken to screen the operation from view of surrounding land uses or an explanation of why such measures are not needed

(9) **Noise control.** Measures to be taken to control noise from affecting surrounding land uses.

(10) **Dust control.** Measures to be taken to control dust from affecting surrounding land uses.

(11) **Pollution control.** Control measures to minimize any pollution potential from equipment, tanks, chemical storage sheds etc.

(12) **Haul routes.** A list of highways, roads, and other public ways in the county to be used for the hauling of any material removed.

c. **Site plan and staging plan.** A site plan and staging plan including the following information:

(1) Site plan drawing and description of the sequential stages of the mining activity. The drawing shall show the location of the planned staged boundary locations and extent of the mining site.

(2) The plan is to include, but not be limited to, mining refuse dumps, sediment and/or wash ponds and sediment basins.

(3) Estimated total volume of materials to be extracted by phase.

d. **Reclamation plan**. A post mining management plan shall be included with the application. A progressive or staged phasing of a reclamation plan is preferred. The intent is designed to minimize environmental problems, safety issues erosion and ground water contamination. If the site is five (5) acres or less and is to be worked for one (1) year or less, the site is to be reclaimed within twelve (12) months of the stoppage of operations.

D. **Extractive use standards.**

1. **Shoreland areas.** Processing machinery in shoreland shall be located consistent with all setback standards for structures from ordinary high water levels of public waters and from bluffs.
2. **Metals and peat.** Mining of metallic minerals and peat shall meet the provisions of Minnesota Statutes, Sections 93.44 to 93.51.

E. **Bond may be required.** Bond may be required by the Board of County Commissioners in such form and sum as the Board shall determine, with sufficient surety running to the County, conditioned to

pay the County the extraordinary cost and expense of repairing, from time to time, any highways, streets or other public ways where repair work is made necessary by the special burden resulting from hauling and travel, in removing materials from any extractive process, the amount of cost and expense to be determined by the County Engineer; and conditioned further to comply with all the requirements of this Subdivision and the particular permit, and to pay any expense the County may incur by reason of doing anything required to be done by any applicant to whom a permit is issued.

Section 6 Fences

Fences shall be permitted in all yards and along all property lines subject to the following regulations:

A. **Height.** The following height limits shall apply to fences.

1. Fences shall not exceed six feet (6') in agriculture and residential districts, and ten feet in (10') commercial and industrial districts, except that fences located in front yard setbacks in residential districts or shore impact zones shall not exceed four feet (4') in height.
2. If a side lot line is adjacent to a street or roadway, fencing shall not exceed four feet (4') in height and shall be located within the lot setback lines.
3. Fences located within the setback lines of the lot shall not exceed ten feet (10') in height.
4. Fences in excess of the above limits may be permitted by conditional use permit except that a fence shall never exceed the height of the principal structure.

B. **Best side to neighbors.** That side of a fence that is uninterrupted by posts or similar structural components fastening the fence upright or attaching the fence to the ground shall face abutting property.

C. **Walls and hedges considered fences.** Walls and hedges as well as living plant material or inorganic material sited, placed, or planted along property lines or in required setback areas that present the appearance of a continuous structure shall be considered a fence for the interpretation of this Ordinance. This is not to include trees or plants or decorative structures that are planted at random and which do not hinder roadway vision or detract from the quality of light or air to adjacent properties.

D. **Within owners lot.** All fencing, whether by fence or hedge landscape, shall be accomplished on the property where the fence landscape originates. Fencing, branches, leaves or any overhang into adjacent property shall not be permitted except by permission of the adjacent landowner.

E. **Exemption.** Fences normally associated with agricultural operations such as barbed wire fencing and snow fencing shall be exempt from the requirements of this Ordinance.

Section 7 Height Regulations

A. **Maximum height.** Maximum height limits are established for each land use district in Table 5-4 in Chapter 5. In any instance of a variance or conditional use allowing a greater height, there shall be a maximum height limitation of one hundred and fifty feet (150') on all structures within Becker County. Any tower, spire, etc., may exceed this height only after obtaining a conditional use permit and then only after obtaining a letter of clearance from the Federal Aeronautics Administration and the Airport Commission for any airport located within ten (10) miles of the structure proposed to exceed the height limitation.

1. **Exceptions.** Height limitations set forth in Table 5-4 in Chapter 5 may be increased by one hundred percent (100%) to a maximum of three hundred feet (300') when applied to the following:
   a. Monuments

b. Flag poles
c. Cooling towers
d. Grain elevators
e. Church spires, belfries, or domes that do not contain usable space
f. Water towers
g. Chimneys or smokestacks
h. Radio or television transmitting towers, micro-wave relay towers
i. Utility poles or towers

Section 8 Home Occupations

Allowed home occupation uses located in a dwelling shall occupy no more than one-third (1/3) of the floor area of the dwelling. Allowed home occupation uses located in an accessory building shall occupy space not exceeding the floor area of the dwelling located on the same lot or parcel.

Section 9 Mobile Home Parks and Multiple Family Dwellings

The location proposed for a mobile home parks or multiple dwellings as a conditional use in General Agriculture or residential zone shall have one or more of the following characteristics:

A. The proposed location shall be adjacent to heavy traffic carriers such as collector routes or greater in traffic capacity as defined in the Becker County Comprehensive Plan.

B. The proposed location shall be adjacent to or in near proximity to commercially zoned land uses.

C. The proposed location shall be part of a planned unit development where adjacent residences were aware of the land use types before their purchase of a lot or parcel in the planned unit development.

D. The proposed location is comprised of relatively flat terrain (less than 10% grade).

E. The proposed location is in an area of similar land uses.

Section 10 Non-Residential Uses in GA, RES and HDR Districts

A. **Non-residential uses except industrial.** Recreational uses, public and semi-public uses such as churches, schools, utility buildings, club houses associated with golf courses, etc., are generally traffic generators, bringing people and automotive traffic into the General Agriculture, Residential or High Density Residential zone. Therefore, in considering an application for conditional uses in a General Agriculture, Residential or High Density Residential zone, particular attention shall be paid to the following:

1. Proximity to traffic generator routes and to the intersection of these routes as opposed other minor roads.
2. Setbacks from adjacent property for screening and landscaping should be adequate.
3. Screening of intensive use areas, such as parking, signing, or lighted areas should be accomplished.
4. Fencing or similar systems to keep people off of adjacent properties.

5. Consideration of limiting hours of use to provide compatibility with neighbors in such case where noise may be a limiting factor.

6. In case of dangerous site work or potentially hazardous site or land development, adequate protection shall be taken to exclude attractive nuisances.

B. **Industrial uses.** Industrial uses of the land such as public service buildings or structures, railroad yards and mineral extraction are generally dependent upon service factors, terrain, or natural resources for location rather then the usual social-economic factors of land use; consequently, safeguards should concentrate upon safety and screening features as opposed to traffic routes and adjacent land uses. Access should be considered so as to be the least detrimental and safest to adjacent uses.

Section 11 Parking and Loading Requirements

All parking and loading areas shall conform to the provisions in this Section.

A. **Minimum size for parking spaces.** Each required parking space shall contain a minimum area of not less than three hundred (300) square feet, including access drives, a width of not less than nine feet (9') and a depth of not less than twenty feet (20').

B. **Access drives.** Access drives shall conform to the following provisions**.**

1. Parking and loading spaces shall have proper access from a public right-of-way.

2. The number and width of access drives shall be located to minimize traffic congestion and abnormal traffic hazard. Frontage roads or service roads may be required when they are necessary to maintain traffic safety.

3. Vehicular access to business or industrial uses across property in any residential district shall be prohibited.

C. **Required loading areas.** Loading and unloading areas for goods, supplies and services shall be sufficient to meet the requirements of each use. All loading spaces shall be sufficient to meet the requirements of each use and shall provide adequate space for storage and maneuvering of the vehicles they are designed to serve. Each loading space shall contain a minimum area of not less than five hundred (500) square feet.

D. **Reduction of existing parking and loading spaces.** On-site parking facilities existing on the effective date of this Ordinance shall not be reduced below that required by this Ordinance for a similar new building or use.

E. **Not for storage.** Required parking or loading space shall not be used for storage of goods or for storage of vehicles that are inoperable or for sale or rent.

F. **Yards/setbacks.** On-site parking and loading facilities shall not be subject to front yard, side yard and rear yard regulations, except that:

1. **Commercial districts.** In a (WOC, C) commercial district, no parking or loading space shall be located within ten feet (10') of any property line that abuts a road or highway right-of-way, or any residential or agricultural district.

2. **Industrial districts.** In (I) industrial districts, no parking or loading space shall be located within ten feet (10') of any property line that abuts a highway right-of-way line, or any residential, special protection, or agricultural district except railroad loading areas.

G. **Buffer fences and planting screens.** On-site parking and loading areas near or abutting residential districts shall be screened by a buffer fence of adequate design or a planted buffer screen. Plans of

the screen or fence shall be submitted for approval as part of the required site or plat plan, and the fence or landscaping shall be installed as a part of the initial construction.

H. **Location of parking facilities and combined facilities.** Required on-site parking space shall be provided on the same lot as the principal building or use. Parking spaces shall be located to make their use convenient and logical to the customer and to discourage customer parking on roadways or adjacent properties.

I. **Joint facilities.** Combined or joint parking facilities may be provided for one (1) or more buildings or uses in commercial districts and in industrial districts, if the total number of spaces is equal to the sum of the requirements for each building or use.

J. **Construction and maintenance.**

1. **Commercial and industrial districts.** In (WOC, C) commercial districts and in (I) industrial districts, parking areas and access drives shall be covered with a dust-free, all-weather surface with proper surface drainage, as required by the County Engineer.

2. **Responsible party.** The operator of the principal building or use shall maintain parking and loading areas, access drives and yard areas in a neat and adequate manner.

K. **Lighting.** Lighting for any parking or loading areas shall be reflected away from the public right-of-way and nearby or adjacent residential or agricultural districts and shall be so turned or shaded to prevent direct lighting or visibility from adjacent residential or agricultural property.

L. **Required site plan.** Any application for a building permit shall include a site plan or plot plan drawn to scale and dimension, showing on-site parking and loading space to be provided in compliance with the Ordinance.

M. **Required number of on-site parking spaces.** On-site parking areas of sufficient size to provide parking for patrons, customers, suppliers, visitors, and employees shall be provided on the premises of each use. The minimum number of required on-site parking spaces for specific uses are listed in Table 7-1, below. In addition to the requirements in Table 7-1, company vehicles normally kept on the premises shall be provided an additional space.

1. **Computing requirements.** In computing the number of parking spaces required, the following rules shall govern:
   a. Floor space shall mean the gross floor area of the building.
   b. If fractional spaces result, the parking spaces required shall be rounded to the nearest whole number.
   c. The parking space requirement for a use not mentioned in this Ordinance shall be the same as required for a use of similar nature.
2. **Buildings with multiple uses per floor.** Parking spaces for buildings containing more than one type of floor space use shall be computed for the entire building using the formula for the most restrictive parking space requirement.

Table 7-1 Minimum number of on-site parking spaces required by land use

Land use	Minimum number of required parking spaces	Unit of measure for gross area
Automotive, Service stations	4+2	Each service bay
Automotive, Trailer or marine sales and service	1	Every 500 square feet of sales and service area
Bowling alleys	5	Each bowling lane

Fast food and commercial recreation	20+1	Every 20 square feet
Manufacturing and processing	The greater of one (1) space per each two (2) employees on a major shift or one (1) space per each 1,000 square feet of floor area	
Motel or hotel	1	Each rental sleeping unit
Office and service, research, or testing	1	Every 500 square feet of floor area
Public and private schools	2	Each classroom
Public and private athletic clubs	20+1	Every 500 square feet in main building
Land use	**Minimum number of required parking spaces**	**Unit of measure for gross area**
Assembly auditoriums or exhibition halls	1	Every 4 seats in main seating area
Residential dwelling units	2	Each dwelling unit
Restaurant, café, or night club	1	Every 75 square feet of floor area of total building
Retail sales and service establishments	1	Every 200 square feet of floor area of total building
Wholesale	1	Every 400 square feet of floor area of total building
Storage and warehouse	1	Every 600 square feet of floor area of total building

Section 12 Recreational Vehicles

Where permitted as specified in Table 5-1, Table of Uses, recreational vehicles may be used as a dwelling only if all of the following requirements are met:

A. **District standards are met.** The minimum lot size, setbacks and other dimensional standards are met for the district where the recreational vehicle is located.

B. **Site permit required.** A site permit is obtained from the Zoning Administrator. One (1) recreational vehicle may be occupied temporarily as a guest cottage on a lot, which meets or exceeds single lot area and width dimensions if occupied for less than seven (7) days in any thirty (30) day period without a permit. A recreational vehicle occupied as a guest cottage shall meet all setback requirements.

C. **Guest Cottage.** One recreational vehicle may be occupied temporarily as a guest cottage on a lot, which meets or exceeds single lot area and width dimensions, if occupied for less than seven (7) days in any 30 day period. A recreational vehicle occupied as a guest cottage shall meet all setback requirements.

Section 13 Residential Uses in Commercial and Industrial Districts

Residential uses in Commercial and Industrial districts should be limited to the necessity of operating the principal purpose of the districts such as housing for watchmen, etc. If a residential type of land use is permitted, such as a mobile home park, concern shall be taken in providing a good living environment in the park and the isolation of the park through screening, from adjacent uses, as well as meeting the general criteria for a conditional use in Chapter 8, Section 11 of this Ordinance.

Section 14 Signs

All signs, except official, public, traffic and street signs, shall conform to this section and any other ordinances or regulations of Becker County.

A. **General provisions**. The following regulations shall apply to all signs:

1. **Prohibited signs.** The following signs shall be prohibited in all districts.

   a. **Not within public right-of-way.** Signs other than traffic control or warning signs posted by governmental agencies or public utilities shall not be located within the public right-of-way or easements.

   b. **Fake emergency signs prohibited.** Flashing or rotating signs resembling emergency vehicles or State or County equipment shall not be located in any district.

   c. **Fake official signs prohibited** No sign shall resemble any official marker erected by a governmental agency.

   d. **Prohibited locations.** No sign shall obstruct any window, door, fire escape, stairway or opening intended to provide light, air, ingress or egress for any building or structure.

2. **Maintenance requirements.** Signs shall meet the following maintenance standards in all districts.

   a. **Surrounding area.** The owner, lessee or manager of any ground sign and the owner of the land on which the sign is located shall keep grass or weeds and other growth cut and debris and rubbish cleaned up and removed from the lot on which a sign is located.

   b. **Sign and structure.** Advertising signs, business signs and nameplate signs that are rotted, unsafe or unsightly shall be repaired or removed by the owner or lessee of the property upon which the sign stands upon notice by the Zoning Administrator.

3. **Standards for signs painted on buildings.** Signs painted on a building shall be governed by the square footage limitations specified for the appropriate zoning districts. These signs shall be repainted periodically and shall be kept in good condition.

4. **Lighting.** If a sign is illuminated, the source of light shall be directed so as not to shine upon any part of a residence or into any residential district or any roadway.

5. **State law controls.** Laws regulating advertising devices along State Highways shall take precedence if they are more restrictive than these regulations.

6. **Signs not requiring a permit.** Signs that are in total thirty-five (35) square feet in size or smaller that are located on property advertising the occupants own business or products do not require a license or permit fee. They shall conform to the regulations of this Ordinance.

B. **Provisions regulating signs in specific districts.** The following provisions shall apply to signs in the land use districts indicated.

1. **Signs in (GA) General Agriculture and the (SP, RES and HDR) residential districts.**

   a. **Prohibited signs.** Advertising and business signs, other than the advertising and business signs specifically allowed in subsection b., immediately below, shall not be located in the GA, SP, RES and HDR Districts.

   b. **Allowed signs.** In the GA and SP, RES, and HDR Districts, no sign, except warning signs, shall be erected except:

      (1) **Nameplate.** A nameplate sign or professional nameplate sign identifying the owner or occupant of a building or dwelling unit if the surface area does not exceed two (2) square feet. The sign may be illuminated.

(2) **For-sale sign.** A sign for the lease or sale of a building or property, if the sign does not exceed twelve (12) square feet in surface area and is not be illuminated.

(3) **Advertising new subdivision.** Temporary signs advertising a new subdivision development; each subdivision or development shall be allowed the following signs:

a. One (1) sign located in the development not to exceed ninety-six (96) square feet in surface area, not more than fifteen feet (15') in height.

b. Directional signs not to exceed four (4) square feet in surface area. Each subdivision shall be limited to one directional sign per major thoroughfare approach to the subdivision or development. No directional sign shall be allowed on minor residential streets.

(4) **Temporary construction sign.** A temporary un-illuminated sign identifying an engineer, architect, contractor, or product engaged in or used in the construction of a building, if the sign does not exceed ninety-six (96) square feet each in surface area and is no more than fifteen feet (15') in height.

(5) **Public use and institutional identification signs.** One (1) identification sign, not to exceed thirty-five (35) square feet in area, for the following uses: church, school, hospital, parks and recreation areas or similar uses.

(6) **Resort identification signs.** Composite identification signs for resorts will be permitted to forty-eight (48) square feet in size if they conform to the county resort sign standards available through the county engineer. Each segment of the composite sign shall not exceed ten inches (10") by sixty inches (60"). These signs shall only display the name of the use and its activities and services. It may be illuminated, but not flashing.

(7) **Crop demonstration signs.** No advertising signs and billboards, except agricultural crop demonstration information signs, shall be permitted within six hundred sixty feet (660') of the highways designated as scenic routes or parkways on the official County Recreation Plan Map.

(8) **Home occupation.** For a conditional use permit for a home occupation, a sign shall not be larger than thirty two (32) square feet in size.

2. **Signs in (WOC) Water Oriented Commercial, (C) Commercial and (I) Industrial Districts.** In (WOC, C) commercial districts and (I) industrial districts, no sign, advertising sign or business sign shall be erected, except for the following:

a. Signs as permitted and regulated in agricultural and residential districts as specified in subsection B.1 of this Section.

b. **Advertising signs.** Advertising signs and billboards subject to the following provisions:

(1) **Number of sign structures allowed.** Advertising sign structures shall be limited to not more than one (1) for a lot of one hundred feet (100') frontage or less and to one (1) per each additional one hundred feet (100') of lot frontage.

(2) **Number of signs per structure.** An advertising structure shall not contain more than two (2) signs per facing in total of no more than four (4) signs per structure.

(3) **Maximum length.** Advertising structures shall be limited to no more than fifty-five feet (55') in total length.

(4) **Maximum height.** Advertising structures shall not exceed forty feet (40') in height above the average grade.

(5) **Separation distances.** No advertising sign shall be erected within one hundred feet (100') of any adjoining residential district.

(6) **Location restriction.** No advertising sign shall be permitted within any road or highway right-of-way or within one hundred ten feet (110') of an intersection right-of-way.

c. **Business signs.** Business signs, subject to the following provisions:

(1) **Free standing sign limits.** No more than one (1) free standing or pylon sign of not more than one hundred (100) square feet in surface area.

(2) **Total for all signs.** The total surface area of all business signs on a lot shall not exceed three (3) square feet per lineal foot of lot frontage or twenty percent (20%) of the front building face area or three hundred (300) square feet in area, whichever is greater.

(3) **Height limit.** No business sign, other than a freestanding sign, shall project above the height of the building.

C. **License and permit fees.**

1. **Application and annual inspection.** The owner or other person having control of any sign except residential, professional, and institutional name plate signs, church signs and warning signs, shall file an application for a permit to maintain the sign subject to an annual inspection of the sign. Application for these permits shall be accompanied by detailed plans and other information necessary to determine the location and compliance with all regulations.

2. **Permit time limit.** All permits shall be renewed by January 1st of each five (5) year period.

Section 15 Single Family Residences

No more than one single-family residence is allowed per lot or parcel unless the criteria of Chapter 5, Table 5-1 are met.

Section 16 Storage of Materials

Commercial and industrial districts. In commercial districts and industrial districts, open storage of materials in any required front, side or rear yard shall be prohibited. Any other outside storage shall be located or screened so as not to be visible from any residential district.

Section 17 Towers

A. **Purpose.** This Section is adopted in order to accommodate the communication needs of residents and businesses while protecting the public health, safety and general welfare. The Becker County Board of Commissioners find these regulations are necessary in order to:

1. Maximize the use of existing and approved towers and buildings in order to reduce the number of new towers necessary in order to provide wireless telecommunications services to the community;

2. Ensure wireless communication towers are designed, sited, and constructed in a manner consistent with the protection of the public health, safety, and general welfare; and

3. Require tower sites to be secured in order to discourage trespassing and vandalism.

B. **Tower uses allowed without a permit.** The following tower facilities will be allowed within all districts of Becker County including shoreland without obtaining either a building permit or a conditional use permit:

1. Antennas incidental to residential use;

2. Routine maintenance of existing tower facilities; and

3. The addition of antennas to a tower facility that meets the standards of this Section and does not increase the height of the tower facility (additional support structures will still require a building permit).

C. **Tower uses requiring only a building permit.** The following tower facilities will be allowed within Becker County without a conditional use permit, but do require a building permit:

1. Tower facilities that are located outside the shoreland and outside the residential zones or residential subdivisions that consist of an unlit monopole tower that does not extend more than one hundred feet (100') above ground level; and

2. The addition of an antenna or antennas on existing structures including, but not limited to, buildings, flag poles, church steeples, cupolas, ball field lights, power lines support device where no modifications are required to the existing structure if the antenna does not increase the height of the structure by more than twenty feet (20').

D. **Tower uses requiring a building permit and CUP.** All other tower facilities not listed in subsections B. and C., above, require a conditional use permit and building permit pursuant to the terms of this Ordinance.

E. **Standards for all towers.** All towers in Becker County shall meet the following standards.

1. **CUP towers prohibited in residential subdivision.** No conditional use permit shall be issued for a tower facility within a subdivision intended for residential use.

2. **Minimum setbacks.** Any tower shall conform with the following minimum setback requirements:

a. **Public water setback.** No tower facility shall be erected within two thousand six hundred forty feet (2640') of the ordinary high water level of any public water unless there is a finding that there is no other practical alternative location outside of that distance.

b. **Same as other structures in district.** In addition to the public water setback in subsection a., immediately above, tower facilities shall meet the setback requirements of the zoning district in which the tower facility is located.

c. **Fall zones.** The minimum distance to the nearest residential property line shall be equal to the height of the tower. The minimum distance to the nearest dwelling shall be the height of the tower plus one hundred feet (100').

3. **Required and prohibited signs.** The owner's name, telephone number and site identification number shall be posted on the gate of the perimeter fence. No other advertising or identification sign of any kind is permitted on the tower facility, except warning and equipment information required by the manufacturer or by federal, stated, or local authorities.

4. **Minimum removal of vegetation.** Removal or alteration of vegetation is allowed as necessary for the construction and erection of the tower facility including accessory buildings and supports, but shall be held to a minimum.

5. **Erosion control.** If erection of the tower or construction of tower facility will disturb any bluffs or steep slopes, the erosion control plan submitted with the application shall be complied with.

6. **Building and electrical code.** All towers erected or located within the County and all wiring therefore shall comply with the following requirements:

a. Towers and their antennas shall be certified by a qualified and licensed professional engineer to conform to the latest structural standards of the Uniform Building Code and all other applicable reviewing agencies.

b. Towers and their antennas shall be designed to conform to accepted electrical engineering methods and practices and to comply with the provisions of the National Electrical Code.

7. **Weather-proof materials.** Metal towers shall be constructed of, or treated with, corrosive resistant material.

8. **Co-location required.** In order to reduce the number of tower facilities needed within the county in the future, any proposed tower shall be designed, structurally, electrically, and in all respects to accommodate both the applicant's antennas and comparable antennas for additional users. For towers less than two hundred feet (200') in height, the structure shall be designed to accommodate at least four (4) additional providers. This requirement may be modified if the applicant demonstrates that such a design is not feasible for economic, technical, or physical reasons. To allow for future rearrangement of antennas upon the tower, the tower shall be designed to accept antennas mounted at no less than twenty-foot (20') intervals.

9. **Climbing deterrents.** All towers shall be reasonably protected against unauthorized climbing. The bottom of the tower, measured from ground level to twelve feet (12') above ground level, shall be designed in a manner to preclude unauthorized climbing or shall be enclosed by a six foot (6') high chain link fence with anti-climb barbed wire protection and a locked gate.

10. **Camouflage.** All towers and their antennas shall utilize building materials, colors, textures, screening, and landscaping that effectively blend the tower facilities with the surrounding natural setting and built environment to the greatest extent possible as determined by the office of the Zoning Administrator.

11. **Screening.** Trees and large shrubs, native to the area, shall be planted so that the facility is screened from adjacent residential properties. These trees and large shrubs shall be maintained for the life of the tower facility.

12. **Lighting.** Towers and their antennas shall not be illuminated by artificial means, except for camouflage purposes (designed as a lighted tower for a parking lot or a ball field) or the illumination is specifically required by the Federal Aviation Administration or other authority. No nighttime strobes shall be allowed unless specifically required by the Federal Aviation Administration or other authority.

13. **Prohibited in public right-of-way.** No part of any antenna or tower, nor any lines, cable, equipment, wires, or braces shall at any time extend across or over any part of the right-of-way, public street, highway, or sidewalk, without approval of the County through the building permit approval process.

14. **Insurance required.** All communication towers and their antennas shall be adequately insured for injury and property damage caused by collapse of the tower.

F. **Site permit application requirements for antennas mounted on roofs, walls, and existing towers.** In addition to the submittal requirements required elsewhere in this Ordinance, an application for a building permit for antennas to be mounted on an existing structure shall be accompanied by the following information:

1. **Site plan.** A site plan showing the location of the proposed antennas on the structure and documenting that the request meets the requirements of this Ordinance;

2. **Building plan.** A building plan showing the construction of the antennas, the proposed method of attaching them to the existing structure, and documenting that the request meets the requirements of this ordinance;

3. **Structural information.** Proof of the structure's or tower's ability to support the antennas; and

4. **Proof of no interference.** An intermodulation study to ensure there will be no interference with existing tenants or public safety telecommunication providers.

G. **CUP application requirements.** Application for a conditional use permit for a tower facility shall be submitted pursuant to the requirements of Chapter 8, Section 11 of this ordinance and shall be accompanied by the following:

1. **Site plan.** A site plan for the proposed tower facility site, which shall include the following:
   a. Graphic scale of the plan, not less than one inch to twenty feet (1":20');
   b. North directional arrow;
   c. Location and size of the proposed tower facility, support structures, accessory buildings, access driveways, public roads, parking fences, signs and landscaped areas;
   d. Building setback lines;
   e. Existing topography, with contour intervals of not more than ten feet (10'), related to the United States Geological Survey datum;
   f. The location of water courses, ravines, bridges, lakes, wetlands, wooded areas, rock outcroppings, bluffs, steep slopes, and other geological features within the site;
   g. Proposed surface drainage diagram for the site;
   h. Proposed screening; and
   i. Proposed removal of natural vegetation.
2. **Vicinity map.** Vicinity map showing land uses and existing residences and businesses within one-half (1/2) mile of the proposed tower.
3. **Co-location effort statement.** A sworn statement signed by applicant that the communications equipment for the proposed tower cannot be accommodated on an existing tower or building within a two (2) mile radius of the proposed tower due to one or more of the following reasons:
   a. The planned equipment would exceed the structural capacity of the existing or approved tower or building, as documented by a qualified and licensed professional engineer, and the existing or approved tower cannot be reinforced or modified to accommodate planned equipment at a reasonable cost.
   b. The planned equipment would cause interference materially impacting the usability of other existing or planned equipment at the tower or building as documented by a qualified and licensed professional engineer, and the interference cannot be prevented at a reasonable cost.
   c. No existing or approved towers or commercial/industrial buildings within a two-mile radius meet the radio frequency (RF) engineer.
   d. Existing or approved towers and commercial/industrial buildings within a two (2) mile radius cannot accommodate the planned equipment at a height necessary to function reasonably as documented by a qualified and licensed professional radio frequency (RF) engineer.
   e. In spite of best efforts, the applicant is unable to negotiate reasonable business terms regarding the lease or purchase of space on an existing tower. Proof of negotiations may be required**.**
   f. The applicant must demonstrate that a good faith effort to co-locate on existing towers and structures within a two (2) mile radius was made, but an agreement could not be reached.
4. **Future co-location agreement.** A commitment in writing from the applicant committing the applicant and its successors to allow the shared use of the tower facility if an additional user agrees in writing to meet reasonable industry terms and conditions for shared use.

5. **Erosion control plan.** If erection of the tower or construction of any tower facility will disturb any part of a bluff or a steep slope, the applicant shall provide an erosion control plan prepared by a landscape architect or professional engineer.
6. **FAA filing.** Proof of filing of an application with the Federal Aviation Administration or an engineer statement showing that no filing with the Federal Aviation Administration is necessary.
7. **FCC requirements.** A copy of the National Environmental Protection Act study required by the Federal Communication Commission. No antenna shall be installed on any tower facility until a Federal Communication license is issued for that antenna.
8. **Proof of insurance.** A copy of the Certificate of Insurance for liability and workers compensation insurance that requires notification to Becker County Planning and Zoning Office prior to cancellation. This insurance shall be kept in effect until the tower facility is removed.
9. **Financial guarantee.** An acceptable financial guarantee equal to one and one-half times the estimated cost of removing the tower facility and restoring the site to its original condition. The estimated cost shall be determined by the Becker County Zoning Administrator.
10. **Fees.** Filing fees as determined by the Becker County Board of Commissioners.

H. **Time frame for completion of construction.** Construction of an approved tower facility shall be completed within two (2) years from the date of the issuance of the conditional use permit. Landscaping and screening must be installed within the first growing season immediately following construction.

I. **Continued use of existing towers, abandonment, and removal.**
1. **Continued use.** Existing tower facilities may continue in use and routine maintenance may be performed on them, but they may not be altered, converted, modified, transformed, varied, added to, or changed in any way without complying with the terms of this Ordinance.
2. **Annual statement of use required.** The owner of an existing tower facility or any tower facility erected or constructed after the passage of this Ordinance shall file an annual statement on or before January 10th of each year following construction of the tower. If the statement is not filed by January 10th of any year, the County shall notify the owner in writing of failure to file. Failure to file a statement within sixty (60) days of receiving a notice of failure to file shall be prima facie evidence that the tower facility is no longer in use and may be considered abandoned.
3. **Abandonment and removal.** Tower facilities that are not in use for 180 consecutive days shall be deemed abandoned and shall be removed by the owner within 180 days from the date of the abandonment. Removal includes removal of the complete tower facility, including accessory buildings and related above ground infrastructures and restoration of the site to preexisting vegetative cover,
    a. **Multiple operators.** In case of multiple operators sharing the use of a single tower, the tower shall not be deemed abandoned until all users cease operations for a period of 180 consecutive days.
    b. **Removal by County.** If the tower facility is not removed in accordance with this subdivision, then the County, after 60 days notice to the owner or operator of the tower facility, may take legal action. The County's remedies may include obtaining a court order allowing the County to remove the tower facility at the cost of the owner or last operators.

J. **Maintenance required.** All tower facilities shall be maintained in a safe and clean condition. The tower facility owner shall be responsible for maintaining a graffiti, debris, and litter free site. The landscape plan shall be maintained for the life of the tower facility. If the facility is not maintained, the County may bring legal action. The County's remedies may include, after 60 days notice to the

owner or operators, an order allowing the County to complete the maintenance at the cost of the owners or operators of the tower facility.

Section 18 Used Buildings

A building that has been previously used elsewhere shall not be moved onto a property without first obtaining a site permit. This provision shall not apply to a building that is to be used for agricultural purposes.

Section 19 Yard Encroachment Regulations

The following provisions shall govern the encroachment of structures, portions of structures, and uses into required yards and setbacks.

A. **Measurement rule.** Measurements shall be taken from the nearest point of the wall of a building to the lot line in question.

B. **Encroachments by architectural features.**
1. Cornices, canopies, or eaves may extend into the required front yard a distance not exceeding four feet six inches (4'6").
2. Fire escapes may extend into the required front yard a distance not exceeding four feet six inches (4'6").
3. A landing place or uncovered porch may extend into the required front yard to a distance not exceeding six feet (6') if the landing place or porch has its floor no higher than the entrance floor of the building. An open railing no higher than four feet (4') may be placed around such place.
4. The above architectural features also may extend into any side or rear yard, except that no porch or terrace for the support of people, or outside stairway shall project into the required side yard distance.
5. On nonconforming lots, eaves of the structures shall not encroach the side lot line by more than two (2) feet.

C. **Fences, walls, hedges.**
1. No wall, fence, or hedge over four feet (4') in height may occupy any part of a required front yard in a residential district. On double frontage lots, the required front yard shall be provided on both streets.

D. **Clear sight requirements.**
1. The required front yard of a corner lot shall not contain any wall, fence or other structure, tree, shrub, or other growth that may cause danger to traffic on a road or public road by obscuring the view.
2. The required front yard of a corner lot shall be unobstructed above a height of three feet (3') in a triangular area, two (2) sides of which are the lines running along the side road lines between the road intersection and a point fifty feet (50') from the intersection, and the third side of which is the line between the latter two points.
3. If a lot is located at the intersection of two (2) or more roads or highways there shall be a front yard setback on each road or highway side of each corner lot. No accessory buildings shall project beyond the front yard of either road.

Section 20 Yard Maintenance and Landscaping Requirements

Commercial and industrial districts. In all commercial districts and industrial districts, all required yards shall be either open landscaped and green areas or be left in a natural state, except as provided in

Chapter 6, Section 7. If any yards are to be landscaped, they shall be landscaped attractively with lawn, trees, shrubs, etc. Any areas left in a natural state shall be properly maintained in a sightly and well-kept condition. Yards adjoining any residential districts shall be landscaped with planting buffer screens. Plans for such screens shall be submitted as a part of the application for building permit and installed as a part of the initial construction.

Section 21 Mass Gathering

A. **Purpose.** No person, firm or corporation shall conduct, maintain, operate, promote, organize, manage, or advertise, nor sell or give tickets of admission to, a show, exhibition or assembly of any nature (hereinafter called assembly) for which it is planned or may reasonable be expected that 300 or more persons attending the assembly may remain, or may be permitted to remain, upon the site, lot, field, or tract of land (hereinafter called premises) upon which the exhibition, show, or assembly is conducted for more than eighteen consecutive hours, except as permitted by this ordinance.

B. **Application.** The applicant for license shall make application in writing, verified under oath by the applicant or, if a corporation is applicant, by its president and secretary, filed with the County Auditor not less than sixty (60) days prior to the proposed beginning date of the assembly and shall set forth:

1. The full name, age, residence, and mailing address of the applicant, or names and addresses of the partners if applicant is a partnership, or the names of the stock of the corporation if the applicant is a corporation.
2. A legal description of the premises upon which it is proposed to conducts the assembly, with the names and addresses of all persons owning an interest in the premises, stating the nature of the interest.
3. The nature and purpose of the assembly, the proposed beginning date, and the period during which the assembly will be conducted, and a detailed statement of the manner in which it will be conducted.
4. The maximum number of persons which the applicant will permit to assemble on the premises at any time during the assembly, which number shall be stated as a condition of any license which may be issued.
5. The plans of the applicant to limit and control admission to the premises to the maximum number of persons stated in the license, and for controlling and parking vehicles of persons assembling on the premises.
6. Description of existing facilities, and plans for proposed construction and alteration of, sewage, garbage and waste disposal systems, toilets, urinals, sinks, wash basins, drains; the source of water supply and plans for water distribution on the premises and methods of fire protection to be used during such assembly.
7. The proposed method of lighting the structures and premises during the assembly.
8. The number, location, and power of amplifiers and speakers, and the plans for sound control during the assembly, if applicable.
9. Plans for maintenance of security and order on the premises, including the proposed number, deployment, and hours of availability of security guards upon the premises prior to, during, and immediately after the close of the assembly.
10. Plans for the preparation and distribution of food and refreshments upon the premises.

11. Plans for telephone facilities to the premises reasonably available to persons assembling and to law enforcement agents and county officers and employees.
12. Plans for medical services, including buildings therefore, the names and hours of availability of physicians and nurses, and provisions for ambulance and other emergency services.

C. **Fees.** The application shall be accompanied by a license fee and a bond in an amount set by the County Board of Commissioners with sureties to be approved by the County of Becker conditioned that the licenses (a) carries out all of the plans and keeps and performs all of the conditions of the application and license, (b) maintain order on the premises, (c) leave the premises in neat and respectable condition, (d) pay, when due, to the person or persons entitled thereto, all debts and obligations incurred in promoting, advertising, and conducting and operating the assembly, and (e) indemnify and hold harmless the County of Becker, its officers, agents, and employees, from any liability or causes of action arising in any way from the conduct of the assembly, The bond shall run for a period of one (1) year. If the applicant has made application for a like assembly at the same location for four (4) consecutive years immediately preceding the application under consideration, the Becker County Board of Commissioners may, in its sole discretion, waive the license fee and/or the bond referred to above.

D. **Board Action.** In considering applications for license, the County Board shall consider the character of the applicant, the nature of the assembly, the place thereof, the length of time during which it is to be conducted, and the adequacy of facilities for the protection of the public peace, healthy, safety, and welfare to be provided on the premises and in the area of the assembly, and plans to secure compliance with the conditions of the license.

1. Within twenty (20) days of filing of application, the County shall consider the application:

   a. If the application is denied, the County shall inform the applicant in writing of the reasons for denying the applications; if the objection can be corrected, the applicant may amend the application and resubmit it for approval.
   b. If the application is approve, the applicant shall be given an approval report which shall permit the applicant to proceed according to the plans stated in; the application, provided, however, that such approval shall not relieve the applicant from compliance with all applicable statutes, ordinances, and regulations.
   c. Plans and statements submitted in an approved application shall be deemed a condition of the approval report and of any license issued pursuant thereto, whether or not stated in the report or license.

E. **Filing Operation Plan with County Auditor.** Not less than ten days prior to the start of the assembly the applicant shall file with the County Auditor:

1. The names, addresses and credentials of all security guards to be employed during the assembly.

2. The names and addresses of all food and service concessionaires who would be permitted to operate on the premises, with the license or permit number of each.

3. A report showing completion of all construction and installation necessary to comply with the application for license, or in the event that such remain incomplete, evidence satisfactory to the County that completion will be had prior to the scheduled commencement of the assembly. Upon receipt of such report and after making such investigation and inspection of the premises as it may deem proper, and finding that all plans and requirements stated in the application have been or will be complied with, the County shall issue a license. The license shall at all times permit law enforcement officers and agents and officers of the county to enter upon the premises upon which the assembly is to be, or is being, conducted.

F. **Limitations.** No licensee shall sell tickets to, nor permit to assemble, more than the number of persons stated in the license.

G. **Revocation of License.** The license may be revoked at any time if any of the conditions of the approval report of license are not performed or complied with, or cease to be performed or complied with. The County shall forthwith, upon revocation, serve upon the licensee a notice specifying the way or ways in which the licensee has failed to comply: upon satisfactory proof of compliance, the County Board, may, in its discretion, reinstate said license.

H. **Cease and Desist.** If the license shall be denied or revoked, the applicant and all persons under the applicant's direction and control shall forthwith cease and desist from all acts for the promotion, advertisement, organization, and operation of the assembly, and shall do all things necessary to advise persons who may intend to assemble of the refusal or revocation of license, and shall do all things necessary to disperse persons who may have assembled upon the premises.

I. **Enforcement.** Any person, firm, corporation, or association violating or failing to comply with any provision of this ordinance, or any licensee who fails to comply with the conditions of a license, shall be subject to a fine of not more than $700.00, or to imprisonment for not more than ninety (90) days, or both. The County Attorney may institute in the name of the county any appropriate actions or proceedings for the enforcement of this ordinance and the conditions of licenses issued pursuant to it. The promotion, conduct, operation, or maintenance of an assembly in violation of this ordinance or any license issued pursuant to it is hereby declared a public nuisance.

J. **Indoor Assembly.** This ordinance shall not require a license for an indoor assembly at an established and permanent stadium, auditorium arena or place of worship where the reasonably anticipated assembly does not exceed the maximum seating capacity of the structure by more than 250 persons.

K. **Validity.** If any section or part of this ordinance is for any reason held to be invalid, such decision shall not affect the validity of the remaining portions hereof.

L. **Adoption.** This ordinance shall become effective upon its adoption and publication according to law and will amend and supersede that ordinance passed by the Becker County Board of Commissioners on the 5th day of June, 1974. This was adopted and signed the 11th day of April, 1989.

Section 22 Animal Density Regulations

A. Shoreland District – Agricultural Zones - 20 Acre Parcels and less
   1. Riparian lots
      a. Only domestic animals permitted within 300 feet of the ordinary high water mark of the lake.
      b. 4 Acres minimum and more than 300 feet from public waters, 1 animal unit is permitted
      c. Greater than 4 Acres and more than 300 feet from public waters – 1 additional animal unit for each additional 2 acres
      d. Supplemental feed plan must be in place year round;
      e. Manure removed regularly or if composted must be in a manner to protect surface and groundwater;
      f. Fencing to control animal units is required
   2. Non Riparian parcels
      a. 4 Acres minimum and more than 300 feet from public waters, 1 animal unit is permitted
      b. Greater than 4 Acres and more than 300 feet from public waters – 1 additional animal unit for each additional 2 acres
      c. Supplemental feed plan must be in place year round;
      d. Manure removed regularly or if composted must be in a manner to protect surface and groundwater;
      e. Fencing to control animal units is required.
   3. Keeping of Wild and/or Exotic animals will require a conditional use permit.
   4. The number of juvenile animals less than six (6) months of age is not limited provided they are offspring to an allowed adult animal. Once the juvenile reaches the age of six (6) months, the animal shall be counted as an adult.

B. Non Shoreland District – Agricultural Zones - 20 Acre Parcels and less
   1. 4 Acres minimum, 1 animal unit is permitted
   2. Greater than 4 Acres – 1 additional animal unit for each additional 2 acres
      a. Supplemental feed plan must be in place year round;
      b. Manure removed regularly or if composted must be in a manner to protect surface and groundwater;
      c. Fencing to control animal units is required.
   3. Keeping of Wild and/or Exotic animals will require a conditional use permit.
   4. The number of juvenile animals less than six (6) months of age is not limited provided they are offspring to an allowed adult animal. Once the juvenile reaches the age of six (6) months, the animal shall be counted as an adult.

CHAPTER 8 PERMITS AND APPLICATION REVIEW PROCESSES

Section 1 General Application Provisions That Apply to All Permits and Subdivisions

A. **General application requirements.** Applications for all permits or subdivisions shall comply with the provisions in this subsection. Additional application requirements may apply as specified elsewhere in this Ordinance.

B. **Application forms.** Application for a permit or subdivision will be made on forms designated by the County and shall be submitted to the Zoning Administrator.

C. **Fees.** An application for a permit or subdivision shall be accompanied by a fee as established by the Board of County Commissioners.

Section 2 Public Hearing Requirements

Whenever a public hearing is required prior to official action the procedures in this Section shall be followed.

A. **Notice requirements.** Notice of the time, place, and purpose of any public hearing shall be given by publication in the official newspaper of the County, at least ten (10) days before the hearing. Written notice of the time, place, and purpose of the public hearing shall be sent to entities in the following list. For the purpose of notification, ownership of property shall be determined by the tax record for the previous year. The notification to affected property owners shall include both a legal description and a common description of the property in question with a brief explanation of the intended purpose for which the application is filed.

   1. **Property owners - Incorporated areas.** Property owners of record within five hundred feet (500') of the affected property in incorporated areas.

   2. **Property owners - Unincorporated areas.** In unincorporated areas the notice shall be sent to property owners as follows:

      a. **Variances.** In the case of variances, to owners of record within five hundred feet (500') of the affected property;

      b. **CUPs.** In the case of conditional use permits, to owners of record within one quarter mile of the affected property or to the ten (10) properties nearest to the affected property, whichever would provide notice to the greatest number of owners; and

      c. **Other public hearings.** In the case of all other official controls, including but not limited to zoning district change**,** zoning regulations and subdivision regulations, to owners of record within one half (1/2) mile of the affected property.

   3. **Cities.** In the case of amendments to this Ordinance notice of public hearings also shall be sent to the governing bodies of all towns and all municipalities located within the county.

   4. **Townships.** Written notice also shall be given to the board of town supervisors of the town in which the affected property is located, and the municipal council of any municipality within two (2) miles of the affected property.

   5. **Shoreland areas – DNR notice.** If the application involves lands within the shoreland areas of the County, notice of the application, along with supporting documentation described in this Ordinance, shall be forwarded to the State Commissioner of Natural Resources for review and

comment in sufficient time to give the State Commissioner at least ten (10) days in which to respond to the application;

6. **Watershed districts.** If the application involves land within a watershed district, notice of the application, along with supporting documentation described in this Ordinance, shall be forwarded to the Chair of the Watershed Board for review and comment in sufficient time to give the Chair at least ten (10) days in which to respond to the application.

B. **When required.** At least one (1) public hearing shall be required as part of the review process for an application for a map amendment (rezoning), text amendment, conditional use permit, variance, or appeal. Upon receipt in proper form of the application and other requested material, the Becker County Planning Commission or Board of Adjustment shall hold the required public hearing in a location to be prescribed by the Planning Commission or Board of Adjustment.

C. **Application requirements.** An application for a map amendment (rezoning), text amendment, conditional use permit, variance or appeal shall be accompanied by a map or plat showing all properties within one half mile of the boundaries of the property affected by the change. The application also shall include names and addresses of the owners of all such properties.

D. **Findings.** Following a public hearing, the Becker County Planning Commission or Board of Adjustment shall make a report of its findings and recommendations on the proposed request and shall file a copy with the applicant, the Board of County Commissioners, and the Zoning Administrator.

Section 3 General Review Standards That Apply to All Permits and Subdivisions

The provisions in this subsection shall be applied by the reviewing staff or official body to all permit or subdivision applications. Additional provisions may apply as specified elsewhere in this Ordinance.

A. **One dwelling.** Only one dwelling unit is permitted per lot or parcel of land, unless the criteria of Chapter 5, Table 5-1 are met.

B. **County policy on easements.** The following provisions shall apply if an application includes an easement:

1. **Survey required.** Every application involving an easement must be accompanied by a survey of the land area that is subject to the easement;

2. **Value of easement.** The cost of the easement is the appraised market value of the land over which the easement runs.

3. **Responsible entity.** It is the responsibility of each owner or township to obtain all necessary easements.

C. **Land alteration standards.** Land alterations pursuant to a permit or subdivision approval issued under this Ordinance shall be subject to the following regulations:

1. **General land alteration standards.**

a. **Incidental to permitted or conditional use.** Land alterations shall not be allowed unless the use is incidental to a permitted or conditional use and does not adversely affect adjacent or nearby properties.

b. **Ground exposure and revegetation.** Any land alteration shall be accomplished in a manner that assures that the least possible amount of bare ground is exposed for the shortest time possible. Bare ground shall be covered temporarily with mulches or similar materials. A permanent vegetation cover shall be established as soon as possible after any excavation.

c. **Erosion control.** Soil erosion shall be minimized and efforts shall be taken to trap sediments before they reach any surface water feature. Altered areas shall be stabilized to acceptable erosion control standards consistent with the field office technical guides of the Becker Soil and Water Conservation District and the Natural Resource Conservation Service (NCRS);

2. **Shoreland areas.** Land alteration in shoreland areas shall meet the following standards in addition to the other provisions of this subsection.

   a. **Prohibited activities.** No land alteration permit will be granted for any land alteration that will result in:

      (1) The destruction of natural vegetation except as allowed in Chapter 6, Section 7 of this Ordinance;

      (2) Increased shoreline erosion;

      (3) Increased runoff to a lake; or

      (4) Increased runoff to adjacent properties.

   b. **DNR approval required.** Any topographical changes below the ordinary high water level of public waters shall first be authorized by the Commissioner of the Department of Natural Resources.

   c. **Placement of material.** Fill or excavated material shall not be placed in a manner that creates an unstable slope and shall not be placed in a bluff impact zone.

   d. **Riprap.** Natural rock riprap, including associated grading of the shoreline and placement of a filter blanket, may be placed in a shore impact zone.

   e. **Certification by professional.** The Zoning Administrator may require, and for a land alteration within the shore impact zone or a bluff impact zone shall require, an applicant to provide certification from a landscape architect or professional engineer that the land alteration standards of Chapter 8, Section 3, subsection C. of this Ordinance have been followed.

3. **Wetlands.** An application for a permit or subdivision approval for a project that includes any grading or filling in any type 2, 3, 4, 5, 6, 7, or 8 wetland shall contain a description of the extent the proposed activity would affect the following functional qualities of the wetland:

   a. Sediment and pollutant trapping and retention;

   b. Storage of surface runoff to prevent or reduce flood damage;

   c. Fish and wildlife habitat;

   d. Recreational use;

   e. Shoreline or bank stabilization; and

   f. Noteworthiness, including special qualities such as historic significance, critical habitat for endangered plants and animals, or others.

4. **Steep slopes.** If a project requires fill or excavated material to be placed on steep slopes the plans accompanying the application shall demonstrate that the slope will have continued slope stability and will not create finished slopes of thirty percent (30%) or greater.

D. **Impervious surface coverage.** Impervious surface coverage of all lots shall not exceed the allowable percentage of the lot area in the appropriate Zoning District as specified in Table 5-4 of this Ordinance**.**

Section 4 Site Permits

A. **When required.** No person, firm, or corporation shall erect, alter, repair, place or replace a building or structure without first getting a site permit.

1. **Exceptions.** An alteration or repair that does not change the exterior dimensions of a building or structure does not require a site permit. A site permit is not required for such buildings or structures as agricultural buildings, fish houses, play houses, dog kennels, or swing sets; however, the required building setbacks shall apply.

B. **Application requirements.** Each application for a site permit shall be accompanied by a plan drawn to scale showing the dimension of the lot to be built upon and the size and location of the building or structure and accessory buildings or structures to be erected or placed.

C. **Application review criteria.** The Zoning Administrator shall issue the site permit only if the plans and the application comply with this Ordinance.

D. **Length of permit.** The site permit will be valid for a period of one (1) year. If the exterior of the structure is not complete within one year, a one (1) time, one (1) year extension may be permitted.

E. **Road frontage requirement.** No site permit shall be issued for a lot, plot or tract of land not having frontage on a public road unless:

1. The property has no access to a public road except by an easement over the land of others;
2. The easement from the property to a public road must be at least thirty-three (33) feet wide when servicing one (1) or two (2) tracts of land;
3. The easement from the property to the public road must be at least sixty-six (66) feet wide when servicing three (3) or more tracts of land; except that this provision does not apply to property that is accessed by a forest management road; and
4. The easement from the property to the public road has a graded and serviceable driving surface.

Section 5 Subdivision of Land

A. **When required.** A subdivision application and approval of subdivision plat conforming to the provisions of this Section is required in any of the following circumstances.

1. **Platting of land.** Any plat filed after enactment of this Ordinance for each subdivision or each part thereof lying within the jurisdiction of this Ordinance shall be prepared, presented for approval, and recorded as prescribed by this Ordinance.
2. **Division of land into two or more parts.** These regulations shall apply to the subdivision of any lot, tract, or parcel of land into two (2) or more lots, tracts or the division of land including the re-subdivision or re-platting of land or lots.

a. Exemptions. The following subdivisions shall be exempt from the requirements of this Section:

(1) **All large tracts.** The subdivision of land into tracts all of which are larger than five (5) acres in area located outside the shoreland district and all of which are larger than twenty (20) acres within the shoreland district; unless the project meets the exemption criteria of the Environmental Review Technical Panel.

(2) **Enlargement of existing lots.** The subdivision of a lot for the purpose of attachment to contiguous lots where no lots less than five (5) acres in area left unattached.

(3) **Governmental or utility use.** Conveyances to a governmental unit or public utility for the purpose of roads, streets residual, substations, poles, towers, telephone booths, etc.

(4) **Non-riparian lots.** Non-riparian lots not meeting the required size of the zoning district unless the provisions of subsection M of this Section 5.

3. **Subdivision of tracts into 3 or fewer parcels.** All subdivisions of tracts into three (3) or fewer parcels that are not exempted from subdivision review under 2., above, shall conform to the provisions of subsection J. of this Section 5.

4. **Metes and bounds transfers.** All conveyances which are exempted in subsection 2., above, in which the land conveyed is described by metes and bounds are subject to subsection K. of this Section 5.

B. **Approvals required.**

1. **Approvals necessary for acceptance of subdivision plats.**

a. **County approvals.** Before any plat shall be recorded or be of any validity, it shall be approved by the County Planning Commission and by the Board of County Commissioners as having fulfilled the requirements of this Ordinance.

b. **Cities.** Where any municipality has adopted extra-territorial subdivision platting regulations as provided by State law and the Townships in the extra territorial area have not thereafter enacted subdivision regulations, any proposed plat lying within two (2) miles of said municipality shall be submitted to and approved by said municipality. Upon approval of the preliminary and final plat from said municipality both the preliminary and final plat shall be submitted to Becker County Planning and Zoning for review to ensure the plat is consistent with requirements of the Becker County Zoning Ordinance. The plat shall be exempt from the Becker County Planning Commission.

c. **Townships.** Where any township in Becker County has adopted platting regulations as provided by State law, any proposed plat lying within said township shall also be submitted to and approved by said township.

2. **Approval required before recording of plat.** No plat of any subdivision shall be entitled to record in the Becker County Recorder's Office or have any validity until the plat thereof has been prepared, approved, and acknowledged in the manner prescribed by this Ordinance.

3. **Approval required before issuance of site permits.** No site permits shall be issued by Becker County for the construction of any building, structure, or improvement to the land or to any lot in a subdivision, as defined herein, until all requirements of this Ordinance have been complied with.

C. **Land suitability required.** Each lot created through subdivision, including planned unit developments, must be suitable in its natural state for the proposed use with minimal alteration. Suitability analysis shall consider all of the following conditions:

1. Susceptibility to flooding;
2. Existence of wetlands
3. Soil and rock formations with severe limitations for development;
4. Severe erosion potential;
5. Steep topography;
6. Inadequate water supply or sewage treatment capabilities;
7. Near-shore aquatic conditions unsuitable for water-based recreation;
8. Important fish and wildlife habitat;
9. Presence of significant historic sites; or
10. Any other feature of the natural land likely to be harmful to the health, safety, or welfare of future residents of the proposed subdivision or County.

D. **Procedure for review of subdivision applications and preliminary plats.** Applications for subdivision of land shall meet the requirements of this Ordinance, shall include a preliminary plat meeting the data requirements of subsection E., below, and shall be submitted to the Zoning Administrator on forms developed Becker County Zoning Department. The procedure for reviewing subdivision applications will follow the steps in this subsection.

1. **Staff review of applications for completeness and date of submission:** Applications shall be reviewed within ten (10) working days for completeness by the Zoning Administrator upon receipt and prior to forwarding an application to the Planning Commission or County Board. An incomplete application shall be returned to the applicant with specific information on deficiencies in the application and remedies for such deficiencies. Any date referring to the date of submission of a completed application shall mean the date upon which a complete application was submitted, it shall not mean the date upon which an incomplete application was submitted.

2. **Filing fee.** The subdivision application and preliminary plat shall be accompanied by a fee as established by the County Board. Such fees to be used for the expense of the County in connection with the review, inspection, approval or disapproval of said plat, which may thereafter be submitted.

3. **Compliance and site suitability review:** Upon receipt of a completed application and filing fee, the Zoning Administrator shall review the application and preliminary plat for conformance with this Ordinance and site characteristics for development suitability meeting the provisions of Chapter 8, Section 5, subsection C., above.

4. **Review by the County Planning Commission.** The Zoning Administrator shall forward completed subdivision applications and preliminary plats to the County Planning Commission. The Planning Commission shall hold a public hearing on said application and preliminary plat. The public hearing shall conform to the provisions of Chapter 8, Section 2, of this Ordinance. The Planning Commission shall approve the preliminary plat with findings that contain conditions for approval or shall state reasons for denial of the plat. A denial of a plat by the Planning Commission shall be reviewed by the County Board for final action on the plat. In case the plat is disapproved, the subdivider shall be notified of the reason for such action and what requirements will be necessary to meet the approval of the Planning Commission.
5. **Review by the County Board.** After the public hearing and review of the preliminary plat by the Planning Commission, such preliminary plat, together with the recommendations of the Planning Commission, shall be submitted to the County Board for consideration. Approval or disapproval of the preliminary plat shall be conveyed to the subdivider in writing within ten (10) days after the meeting of the County Board at which such plat was considered. In case the plat is disapproved, the subdivider shall be notified of the reason for such action and what requirements will be necessary to meet the approval of the County Board.
6. **Preliminary plat approval not final approval – Final plat required.** The approval of the preliminary plat does not constitute an acceptance of the subdivision, but is deemed to be an authorization to proceed with the final plat. This approval of the preliminary plat shall be effective for a period of two (2) years unless an extension is granted by the County Board. The subdivider may file a final plat limited to such portion of the preliminary plat, which he proposes to record and develop at the time, provided that such portion must conform to all requirements of this Ordinance. If some portion of the final plat has not been submitted for approval within this period, a preliminary plat must again be submitted to the Planning Commission and the County Board for approval.

E. **Preliminary plat data required.** The subdivider shall prepare and submit a preliminary plat as follows, together with any necessary supplementary information:

1. **Legal description.** Legal description of the property to be subdivided
2. **Five (5) copies** of a preliminary plat of any proposed subdivision containing the following information:

a. Proposed name of subdivision; names shall not duplicate or too closely resemble names of existing subdivisions.

b. Names and addresses of the subdivider and the designer making the plat.

c. Graphic scale of plat, not less than one (1) inch to one hundred (100) feet.

d. Date and north point.

e. Existing conditions:

(1) Location, width, and name or identifying number of each existing or platted street, road or other public way, railroad, the utility right-of-way, parks wildlife, and other public open spaces, and permanent buildings, within or adjacent to the proposed subdivision.

(2) All existing sewers, water mains, gas mains, culverts, power or communication cables or other underground installations within the proposed subdivision or immediately adjacent thereto.

f. Proposed development:

(1) The location and width of proposed streets, roads, alleys, pedestrian ways, and easements.

(2) The location and character of all proposed public utility lines including sewers (storm and sanitary), water, gas, and power lines.

(3) Layout, numbers and approximate dimensions of lots and the number or letter of each block.

(4) Location of septic system site and an alternate septic systems site as required by Minnesota Rules 7080.0300 subpart 2.

(5) Location and size of proposed parks, playgrounds, churches, school sites, or other special uses of land to be considered for dedication to public use, or to be reserved by deed of covenant for the use of all property owners in the subdivision and any conditions of such dedication or reservation.

(6) Building setback lines with dimensions.

(7) Each lot shall have at least one building site with an area of more than two thousand (2,000) square feet. A building site shall be entirely within the setback lines and shall not contain any part of a bluff impact zone or shore impact zone or wetland.

(8) Existing topography, with contour intervals of not less than five feet (5’), related to United States Geological Survey datum.

(9) Also the location of water courses, ravines, bridges, lakes, springs, near shore aquatic vegetation, wetlands, wooded areas, bluffs, steep slopes, rock outcroppings, approximate acreage of each such feature, and other such features as may be pertinent to the subdivision.

(10) Proposed surface drainage diagrams for lots in the form of arrows, proposed contours, or other appropriate method.

(11) Ordinary High Water Level or highest known high water level.

g. Supplementary requirements: Upon request of the Planning commission, supplementary information shall be submitted; such supplementary information may include the following:

(1) Two (2) copies of profiles for each proposed street and road, showing existing grades and proposed approximate grades and gradients on the centerline. The location of proposed culverts and bridges shall also be shown.

(2) Vicinity sketch, at a legible scale, to show the relation of the plat to its surroundings.

(3) Soil tests and reports, as specified by the County Engineer, by an approved soils laboratory.

F. **Procedure for review of final plats.** After the preliminary plat has been approved, the final plat may be submitted for approval as follows:

1. **Review by the County Planning Commission.** The final plat shall be submitted to the Zoning Administrator in the Becker County Planning and Zoning Office. The Zoning Administer shall review the final plat for conformance with the preliminary plat approval and any conditions thereof. The Zoning Administrator shall forward the final plat with a report to the Planning Commission. The Planning Commission shall approve the final plat if it is in conformance with the preliminary plat approval and any conditions thereof. In case the plat is disapproved, the subdivider shall be notified of the reason for such action and what requirements shall be necessary to meet the approval of the Planning Commission.

2. **Review by the County Board.** After review and approval of the final plat by the Planning Commission, such final plat, together with the recommendation of the Planning Commission, shall be submitted to the County Board for action. If accepted, the final plat shall be approved by resolution, which resolution shall provide for the acceptance of all streets, roads, alleys, easements, or other public ways, and parks, or other open spaces dedicated to public purposes. If disapproved, the grounds for any refusal to approve a plat shall be set forth in the proceedings of the Board and reported to the subdivider applying for such approval.

3. **Requirements of final plat approval.**

a. **Development agreement required.** Before a final plat is approved by the County Board, the subdivider of the land covered by the said plat shall execute and submit to the County Board an agreement, which shall be binding on his or their heirs, personal representatives and assigns, that he will cause no private construction to be made on said plat of file or cause to be filed any application for building permits for such construction until all improvements required under this Ordinance have been made or arranged for in the manner following as respects the highways, roads, or streets to which the lots sought to be constructed have access.

b. **Financial assurance required.** Prior to making of such required improvements, the subdivider shall deposit with the County Auditor an amount equal to one and one quarter (1 1/4) times the County's estimated cost of such improvements, either in cash or an indemnity bond, with sureties satisfactory to the County, conditioned upon the payment of all construction costs incurred in making of such improvements and all expenses incurred by the County for engineering and legal fees and other expenses in connection with the making of such improvements.

c. **County Engineer certification.** No final plat shall be approved by the County Board without first receiving a report from the County Engineer certifying that the improvements described herein, together with the agreements and documents required herein, meet the minimum requirements of all applicable ordinances. Drawings showing all improvements as built shall be filed with the County Engineer.

d. **Flooding standards.** No final plat shall be approved by the County Board on land subject to flooding or containing poor drainage facilities and on land, which would make adequate drainage of the streets or roads and lots impossible. However, if the subdivider agrees to make improvements, which will, in the opinion of the County Engineer, make the area suitable for use without interfering with the flow of water under flood conditions, the final plat of the subdivision may be approved.

e. **Inspections of improvements.** All of the required improvements to be installed under the provisions of the Ordinance shall be inspected during the course of their construction by the County Engineer. All of the inspection costs pursuant thereto shall be paid by the subdivider.

G**. Final plat data required.** The subdivider shall submit a final plat together with any necessary supplementary information**,** including:

1. **Recording fee.** The filing should be accompanied by the fees for recording the plat with the County Recorder.

2. **One (1) copy of a final plat prepared for recording purposes.** The final plat shall be prepared in accordance with provisions of Minnesota State Statutes and as required below:

   a. Name of the subdivision, which shall not duplicate or too closely approximate the name of any existing subdivision.

   b. Location by section, township, range, county, and state, and including descriptive boundaries of the subdivision, based on an accurate traverse, giving angular and linear dimensions which must mathematically close and which boundaries must be shown in relation to a known section, quarter section or quarter-quarter section corner, or Subdivision Plat of Record. The allowable error of closure on any portion of a final plat shall be one tenth (0.1) of one (1) foot.

   c. The location of monuments shall be shown and described on the final plat. Permanent markers shall be placed at each corner of every block or portion of a block, points of curvature and points of tangency or road lines, and at each angle point on the boundary of the subdivision. A permanent marker shall be deemed to be a steel rod or pipe, one half (1/2) inch or larger in diameter marked with the surveyor's registration number. In situations where conditions prohibit the placing of markers in the locations prescribed above, offset markers will be permitted. The exact location of all markers shall be shown on the final plat, together with accurate bearings and distances. Permanent monuments shall be placed at all quarter section and quarter corners within the subdivision or on its perimeter.

   d. Location of lots, streets, roads, highways, alleys, parks, and other features, with accurate dimensions in feet and decimals of feet with the length of radii and/or arcs of all curves, and with all other information necessary to reproduce the plat on the ground shall be shown. Dimensions shall be shown from all angle points of curve to lot lines.

   e. Lots shall be numbered clearly. If blocks are to be numbered or lettered, these shall be shown clearly in the center of the block. All lots shall be assigned an address number in accordance to the Becker County E-911 Ordinance and policies.

   f. The exact locations, widths, and names of all roads to be dedicated.

   g. Location and width of all easements to be dedicated.

h. Scale of plat (the scale to be shown graphically and in feet per inch), date, and north point.

i. Statement dedicating all easements as follows: Easements for installation and maintenance of utilities and drainage facilities are reserved over, under and along the strips marked "utility easements".

j. Statement dedicating all highways, streets, roads, alleys, and other public areas not previously dedicated as follows: Roads, alleys, and other public areas shown on this plat and not heretofore dedicated to public use are hereby so dedicated.

k. The subdivider shall submit with the final plat an opinion by an attorney admitted to the practice of law in the State of Minnesota certifying that the developer has good and marketable title to the property being subdivided including any property being dedicated to the public use.

3. **Certifications required. The following certification shall appear on the final plat:**

a. Notarized certification by owner, and by any mortgage holder of record, of the adoption of the plat and the dedication of streets, roads, and other public areas.

b. Notarized certification by a registered land surveyor, to the effect that the plat represents a survey made by him and that monuments and markers shown therein exist as located and that all dimensional and geodetic details are correct.

c. Certification showing that all taxes and special assessments due on the property have been paid in full.

d. Certification that the requirements of Minnesota Statute 505.03 relating to written comments and recommendations by the Commissioner of Transportation and County Highway Engineer have been compiled with.

e. Certification by the Chairman of the Town Board of the township in which the plat is located that

(1) the township has accepted and agrees to maintain all roads and streets dedicated by the plat;

(2) the township and the developer have entered into a written agreement relating to acceptance and maintenance of all roads dedicated by the plat; or

(3) that the township has not accepted or agreed to maintain the roads and streets dedicated by the plat. If an agreement has been entered into between the developer and the township, that agreement shall be filed with the County Recorder before the plat shall be accepted for recording.

f. Space for certificates of approval to be filled in by the signatures of the Chairman of the County Planning Commission and the Chairman of the County Board.

(1) The form of approval by the Planning Commission is as follows:

Approved by the Becker County Planning Commission this _____ day of _____,____.

Signed:_____

Chairman

Attest:_____

Secretary

(2) The form of approval of the Board of County Commissioners is as follows:

Approved by Becker County, Minnesota, this_____ day of _____, ____.

Signed:_____

Chairman, Board of County Commissioners

Attest:_____

County Administrator

4. **Supplementary documents and information may be required as follows:**

   a. A complete set of street profiles showing grade lines as constructed.

   b. Copies of any private restrictions affecting the subdivision or any part thereof.

   c. Signatures of municipal or township officials approving the plat when such approval is required by State Law.

   d. Upon approval by the County Board, the plat shall be filed with the County Recorder.

H**. Subdivision design standards.** Each subdivision application shall contain a plat that conforms to the following general design standards.

1. **Blocks.**

   a. **Block length.** In general, intersecting street and roads, determining block lengths, shall be provided at such intervals as to serve cross-traffic adequately and to meet existing streets and roads. Where no existing plats control, the blocks in residential subdivisions shall normally not exceed thirteen hundred twenty feet (1,320') in length, except where topography or other conditions justify a departure from this maximum. In blocks longer than eight hundred feet (800'), pedestrian ways and/or easements through the block may be required near the center of the block. Blocks for business or industrial use should normally not exceed six hundred feet (600') in length.

   b. **Block width.** The width of the block shall normally be sufficient to allow two (2) tiers of lots of appropriate depth. Blocks intended for business or industrial use shall be of such width as to be considered most suitable for their respective use, including adequate space for off-street parking and deliveries.

2. **Lots.**

   a. **Minimum lot size.** The minimum lot area, lot width, and lot depth shall conform to the requirements of the Zoning District in which the plat is situated as required by Chapter 5, Section 2, of this Ordinance.

   b. **Corner lots.** Corner lots for residential use shall have additional width to permit appropriate building setback from both roads as required by the Chapter 5, Section 2, of this Ordinance.

   c. **Side lines.** Sidelines of lots shall be approximately at right angles to road or street lines or radial to curve road or street lines.

   d. **Double frontage lots.** Double frontage lots shall be avoided except where lots back on a highway or other arterial road, or where topographic or other conditions render subdividing

otherwise unreasonable. Such double frontage lots shall have an additional depth of at least ten feet (10') in order to allow space for screen planting along the back lot line.

e. **Minimum road frontage.** Every lot must have at least sixty-six feet (66') of frontage on a public dedicated road or street other than an alley except that a lot created by a Surveyor's Sketch is not required to have frontage on a public road if access is provided:

(1) The easement from the property to a public road must be at least thirty-three (33) feet wide when servicing one (1) or two (2) tracts of land;

(2) The easement from the property to the public road must be at least sixty-six (66) feet wide when servicing three (3) or more tracts of land; except that this provision does not apply to property that is accessed by a forest management road;

(3) The easement from the property to the public road has a graded and serviceable driving surface.

f. Setbacks. Setback or building lines shall be shown on all lots intended for residential use and shall not be less than the setback required by Chapter 5, Section 2, of this Ordinance. On those lots, which are intended for business or industrial use, the setback shall not be less than the setback required by Chapter 5, Section 2, of this Ordinance.

3. **Roads, Highways, Streets and Alleys.**

a. **Conformance with Comprehensive Plan.** The arrangement of highways shall conform as nearly as possible to the Becker County Comprehensive Plan.

b. **All proposed streets or roads shall be offered for dedication as public rights-of-way.** No private streets or roads shall be permitted.

c. **Connectivity to adjacent roads and parcels required.** Roads and streets shall connect with roads and streets already dedicated in adjoining or adjacent subdivisions, or provide for future connections to adjoining unsubdivided tracts, or shall be a reasonable projection of roads in the nearest subdivided tracts. Dead-end streets and roads shall not be prohibited, but proper cul-de-sacs or other approved means of turning traffic around will be permitted where topography or other conditions justify their use**,** and if the alternative proposed meets the following conditions:

(1) Cul-de-sac alternatives shall meet the National Fire code. Cul-de-sacs shall include a terminal turn-around, which shall be provided at the closed end, with an outside curb or shoulder radius of at least fifty feet (50') and a right-of-way radius of not less than seventy feet (70').

(2) The Hammerhead alternative, also known as a "T" and the "L" Terminal will be allowed and shall be subject to township road standards in which the plat is located. Specifications outlined in Appendix B. The minimum leg length for this alternative is sixty feet (60').

(3) The other approved turn-arounds in (1) and (2), immediately above**,** will have a roadway width which matches the main street or road width of the plat and will have minimum radii matching the class of the road approved.

d. **Criteria for highway arrangement.** The arrangement of highways shall be considered in their relation to the reasonable circulation of traffic, to topographic conditions, to runoff storm water, to public convenience and safety, and in their appropriate relation to the proposed uses of the area to be served.

e. **Standard for local roads.** Local roads and streets should be planned so as to discourage their use by non-local traffic.

f. **Plan for future roads.** Where the plat to be submitted includes only part of the tract owned or intended for development by the subdivider, a tentative plan of a proposed future street and road system for the portion shall be prepared and submitted by the subdivider, if required.

g. **Plan for future re-subdivision.** When a tract is subdivided into larger than normal building lots or parcels, such lots or parcels shall be so arranged as to permit the logical location and openings of future roads and appropriate re-subdivision, with provision for adequate utility connections for such re-subdivision.

h. **Right-angle intersections.** Roads shall be designed so as to intersect as nearly as possible at right angles, except where topography or other conditions justify variations. The minimum angle of intersection of roads shall be seventy (70) degrees. Road intersection jogs with an offset of less than one hundred twenty-five feet (125') shall be avoided.

i. **Plan for frontage roads.** Wherever the proposed subdivision contains or is adjacent to the right-of-way of a State or Federal highway, provision shall be made for a frontage road approximately parallel and adjacent to the boundary of such right-of-way, or for a road at a distance suitable for the appropriate use of land between such road and right-of-way. Such distance shall be determined with due consideration for the minimum distance required for approach connections to future grade separations, or for lot depths.

j. **Alleys.** Alleys shall be provided in commercial and industrial districts, except that this requirement may be waived where other definite and assured provision is made for service access, such as on-site loading, unloading, and parking consistent with and adequate for the uses proposed. Except where justified by special conditions, such as the continuation of an existing alley in the same block, alleys will not be approved in residential districts. Alleys, where provided, shall not be less than twenty feet (20') wide. Dead-end alleys shall be avoided wherever possible, but if unavoidable, such dead-end alleys may be approved if adequate turn-around facilities are provided at the closed end.

k. **Half streets prohibited.** Dedication of half streets or roads will not be approved, except where it is essential to the reasonable development of the subdivision and in conformity with the other requirements of these regulations, where it is found that it will be practical to require the dedication of the other half when the adjoining property is subdivided or where it becomes necessary to acquire the remaining half by condemnation so that it may be improved in the public interest.

l. **Minimum ROW widths.** For all public ways hereafter dedicated the minimum right-of-way widths for streets, roads and highways shall be as shown in the Becker County Comprehensive Plan, and where not shown therein, the minimum right-of-way width for streets, roads, highways, alleys, or pedestrian ways included in any subdivision shall not be less than the minimum dimensions for each classification as follows in Table 8-1, except for the following.

   (1) Where the existing or anticipated traffic on major and minor arterial highways warrants greater widths or right-of-way, these shall be required.

   (2) Right-of-way widths for major intercity highways shall also meet standards established by the Minnesota State Highway Department.

Table 8-1: Minimum Right-of-Way Widths

Minimum Right-of-Way Widths

Major Intercity and Regional Highways		
	Major Intercity Highway	150 feet
Arterial Highways		
	Major Arterial Highway	150 feet
	Minor Arterial Highway	100 feet
	Township Roads	66 feet
	Frontage Roads	66 feet
	Alley	20 feet
	Pedestrian Way	10 feet

m. **Road and highway grades.** The grades in all streets, roads, highways, and alleys in any subdivision shall not be greater than the maximum grades for each classification as follows in Table 8-2. In addition, there shall be a minimum grade on all roads and highways of not less than five-tenths of one percent (0.5%).

Table 8-2: Maximum road grades

Maximum Road Grades		
Major Intercity and Regional Highways		
	Major Intercity Expressway	As required by the MN Dept. of Transportation
	Major Intercity Highway	
Arterial Highways		
	Major Arterial Highway	5 percent
	Minor Arterial Highway	6 percent
	Township Roads	8 percent
	Alley	8 percent

n. **Road and highway horizontal alignment**. The horizontal alignment standards on all roads, highways and streets shall be as follows in Table 8-3. In addition, there shall be a tangent between all reversed curves of at least one hundred feet (100') except for cul-de-sacs.

Table 8-3: Road and highway horizontal alignments

Horizontal Alignment – Radii of Center Line		
Major Intercity and Regional Highways		
	Major Intercity Expressway	As required by the MN Dept. of Transportation
	Major Intercity Highway	
Arterial Highways		
	Major Arterial Highway	500 feet
	Minor Arterial Highway	300 feet
	Township Roads	100 feet

o. **Road and highway vertical alignment**. All changes in street grades shall be connected by vertical parabolic curves of such length as specified in Table 8-4.

Table 8-4: Road and highway vertical alignments

Vertical Alignment – Parabolic Curve Length		
Major Intercity and Regional Highways		
	Major Intercity Expressway	As required by the MN Dept. of Transportation
	Major Intercity Highway	
Arterial Highways		
	Major Arterial Highway	150 foot minimum
	Minor Arterial Highway	150 foot minimum
	Township Roads	50 foot minimum

4. **Utility and stormwater management easements.**

a. **Utility easements.**

(1) **Minimum width.** An easement for utilities shall be provided along lot boundaries where necessary to form a continuous right-of-way, at least twenty feet (20') in width. If necessary for the extension of main water or sewer lines or similar utilities, easements of greater width may be required along lot liens or across lots.

(2) **Connection to adjoining properties.** Utility easements shall connect with easements established in adjoining properties.

(3) **Utility pole guys.** Additional easements for pole guys should be provided at the outside of turns. Where possible, lot lines shall be arranged to bisect the exterior angle so that pole guys will fall along side lot lines.

b. **Stormwater management easements.** Where a subdivision contains or is traversed by a water course, drainage way, channel, lake or stream, a storm water easement, drainage right-of-way or park dedication, whichever the Planning Commission may deem the most adequate, conforming substantially with the lines of such water course, shall be provided, together with such further width or construction, or both, as will be adequate for the storm water drainage of the area. The width of such easements shall be determined by the County Engineer.

c. **Changing easements prohibited.** These easements, when approved, shall not thereafter be changed without the approval of the County Board, by ordinance, or upon the recommendation of the Planning Commission.

I. **Improvements required for all subdivisions.**

1. **Road and highway improvements.**

a. All roads shall be graded, including the subgrade of the areas to be paved, in accordance with standards and specifications for road construction as approved by the County Board.

b. All roads shall be improved in accordance with the standards and specifications for road construction as approved by the County Board and shall conform to one or more of the classes of roads shown in Appendix B as determined at the time of the preliminary plat approval and shall comply with the minimum standards of the township in which the plat is located.

c. All roads to be paved shall be of an overall width in accordance with the standards and specifications for road construction as approved by the County Board.

d. Curb and gutter shall be constructed as required by the standards and specifications for road construction as approved by the County Board.

e. Storm sewers, culverts, storm water inlets, and other drainage facilities will be required where they are necessary to insure adequate storm water drainage for the subdivision and protection for lakes, watercourses, and wetlands. Where required, such drainage facilities shall be constructed in accordance with the standards and specifications for road construction as approved by the County Board.

f. Road traffic signs conforming to the Minnesota Manual of Uniform Traffic Control Devices shall be installed on each street or road as required.

2. **Sanitary sewer and water distribution improvements.**

a. Sanitary sewers, both public and private, shall be installed as required by standards and specifications as approved by the County Board.

b. Water facilities, both public and private, including pipefittings, hydrant, etc., shall be specifications as approved by the County Board.

3. **Public utilities.**

a. Where telephone, electric and/or gas service lines are to be placed underground entirely, conduits or cables shall be placed within easements or dedicated public ways in such a manner so as not to conflict with other underground services. All drainage and other underground utility installations, which traverse privately owned property, shall be protected by easements.

J. **Subdivision of a tract of land into three or fewer tracts.** Applications involving tracts of land that are proposed to be subdivided into three (3) or fewer tracts, but are not exempt from subdivision review under Chapter 8, Section 5, subsection A.2, may be reviewed according to the procedures in this subsection. The design of such subdivisions shall conform to the requirements of this subsection. Within a three (3) year period, a total of three (3) tracts of land may be subdivided from a parent tract by a certificate of survey. Additional tracts may be created through the public hearing process.

1. **When allowed.** Any quarter-quarter section, government lot, or smaller tract of land which was under single ownership on the effective date of this Ordinance may be subdivided into three or fewer tracts without following the preceding provisions for a plat if a surveyor's sketch of the proposed subdivision is submitted and approved in accordance with the procedures in this subsection J.

2. **Review procedure.**

a. **Within a shoreland area.**

(1) **Administrative Review.** The surveyor's sketch shall be submitted to the Zoning Administrator for approval. The Zoning Administrator shall approve the surveyor's sketch only if it meets or exceeds two and one half (2.5) acres. The Zoning Administrator reserved the right to refer the certificate of survey to the Planning Commission and County Board of Commissioners for consideration with any subdivision proposal presenting extraordinary circumstances. Approval or disapproval of the proposed subdivision shall be conveyed to the subdivider in writing fifteen (15) days after the submission. If the proposed subdivision is disapproved, the subdivider shall be notified in writing of the reasons for the disapproval. The approval of the proposed subdivision together with a copy of the surveyor's sketch shall be filed with the County Recorder before any conveyances of the subdivided lots shall be valid.

(2) Review by the Planning Commission. The surveyor's sketch shall be submitted to the Zoning Administrator in the Becker County Planning and Zoning Office. The County Planning Commission shall hold a public hearing on said proposed subdivision. The public hearing shall conform to the provisions of Chapter 8, Section 2, of this Ordinance. The Planning Commission shall approve the subdivision with findings that contain conditions for approval or shall state reasons for denial. A denial of a subdivision by the Planning Commission shall be reviewed by the County Board for final action. In case the proposed subdivision is disapproved, the subdivider shall be notified of the reason for such action and what requirements will be necessary to meet the approval of the Planning Commission.

(3) **Review by the County Board.** After the public hearing and review of the proposed subdivision by the Planning Commission, such proposed subdivision, together with the recommendations of the Planning Commission, shall be submitted to the County Board for consideration. Approval or disapproval of the proposed subdivision shall be conveyed to the subdivider in writing ten (10) days after the meeting of the County Board at which such proposed subdivision was considered. In case the proposed subdivision is disapproved, the subdivider shall be notified in writing of the reasons for the disapproval.

The approval of a proposed subdivision together with a copy of the surveyor's sketch shall be filed with the County Recorder before any conveyances of the subdivided lots shall be valid.

b. **Outside of shoreland areas.**

(1) **Administrative review.** The surveyor's sketch shall be submitted to the Zoning Administrator for approval. The Zoning Administrator shall approve the surveyor's sketch only if it complies with the requirements of this Ordinance. Approval or disapproval of the proposed subdivision shall be conveyed to the subdivider in writing fifteen (15) days after the submission. If the proposed subdivision is disapproved, the subdivider shall be notified in writing of the reasons for the disapproval. The approval of the proposed subdivision together with a copy of the surveyor's sketch shall be filed with the County Recorder before any conveyances of the subdivided lots shall be valid.

3. **Design standards.** All tracts created with the subdivision process provided for in this subsection J. shall conform to the design standards for platted lots set forth in Chapter 8, Section 5, subsection H. 2 of this Ordinance.

4. **Surveyor's sketch requirements.** Five (5) copies of a surveyor's sketch shall be submitted by the subdivider and shall contain the following information:

a. **Tract boundaries.** Location by section, township, range, county, and state, and including descriptive boundaries of each tract based on an accurate traverse, giving angular and linear dimensions which must mathematically close and which boundaries must be shown in relation to a known section, quarter section or quarter-quarter section corner. The allowable error of closure on any portion of a tract shall be one tenth of one foot (0.1').

b. **Monuments.** The location of monuments shall be shown and described on the tract. Permanent markers shall be placed at each corner of every lot or portion of a lot, points of curvature and points of tangency or road lines, and at each angle point on the boundary of the tract. A permanent marker shall be deemed to be a steel rod or pipe, one half inch (1/2') or larger in diameter marked with the surveyor's registration number. In situations where conditions prohibit the placing of markers in the locations prescribed above, offset markers will be permitted. The exact location of all markers shall be shown on the surveyor's sketch together with accurate interior angles, bearings, and distances. Permanent monuments shall be placed at all quarter section and quarter corners within the subdivision or on its perimeter.

c. **Dimensions.** Location of lots, streets, roads, highways, alleys, parks, and other features, with accurate dimensions in feet and decimals of feet with the length of radii and/or arcs of all curves, and with all other information necessary to reproduce the tract on the ground shall be shown. Dimensions shall be shown from all angle points of curve to lot lines

d. **Setback lines.** Building setback lines with dimensions.

e. **Shoreland.** If the proposed subdivision is located in shoreland, the location of the ordinary high water level and any bluffs, steep slopes and wetlands.

f. **Names and addresses** of the subdivider and the surveyor who prepared the sketch.

g. **Scale of plat** (the scale to be shown graphically and in feet per inch of not less than one (1) inch to one hundred (100) feet), date, and north point.

h. **Date prepared**.

i. **Legal description.** The legal description to be used to describe each lot. All lots shall be assigned an address number in accordance to the Becker County E-911 Ordinance and policies.

j. **Surveyor's certification.** Certification by the surveyor preparing the sketch that the surveyor is registered by the State of Minnesota and that each description is legally sufficient to locate the boundary lines of the lots shown.

k. **Large remnant tracts.** If a remnant tract is larger than five (5) acres and is not going to be conveyed the surveyor's sketch can be modified as follows:

(1) The boundaries of the remnant tract need not be shown,

(2) Permanent markers do not have to be placed on the boundaries of the remnant tract, and

(3) A legal description of the remnant tract does not have to be provided.

K. **Registered surveys and conveyance by metes and bounds.**

1. **Registered land surveys.** It is the intention of this Ordinance that all registered land surveys in Becker County shall be presented to the Planning Commission in the form of a preliminary plat in accordance with the standards set forth in this Ordinance for preliminary plats and that the Planning Commission shall first approve the arrangement, sizes, and relationships of proposed tracts in such registered land surveys, and that tracts to be used as easements or roads should be so dedicated. Unless such approvals have been obtained from the Planning Commission and County Board in accordance with the standards set forth in this Ordinance, building permits will be withheld for buildings on tracts which have been so subdivided by registered land surveys and the County may refuse to take over tracts as streets or roads, or to improve, repair or maintain any such tracts unless so approved.

2. **Conveyance by Metes and Bounds.**

a. **Use of metes and bounds conveyance limited.** No conveyance in which the land conveyed is described by metes and bounds shall be made or recorded unless such parcel was a separate parcel of record at the effective date of this Ordinance or unless a surveyor's sketch is first submitted to the Office of the Zoning Administrator and presented to the County Recorder along with a copy of the conveyance.

b. **Surveyor's sketch required.** A surveyor's sketch is required for a metes and bounds conveyance and the surveyor's sketch shall contain the same information required by Section 5, subsection J. 4 of this Chapter except that:

(1) No permanent monuments need be set; and

(2) If the sole purpose of the conveyance is to modify a boundary line, only the modified boundary line need be shown on the sketch.

3. **Enforcement.** Building permits will be withheld for buildings on tracts, which have been subdivided and conveyed by metes and bounds without submission of a surveyor's sketch and the County may refuse to take over tracts as streets or roads or to improve, repair or maintain any such tracts.

L. **Enforcement.** The provisions of this Chapter shall be enforced in the following manner in addition to the general enforcement powers in Chapter 9 of this Ordinance.

1. **Recorder's responsibilities.** The County Recorder shall submit to the Office of Zoning Administration copies of any documents presented for filing which appear to be in violation of this ordinance. The Zoning Administrator shall examine each such instrument to determine whether the proposed conveyance complies with this ordinance. If the conveyance does not comply with this ordinance, the Zoning Administrator shall give notice by mail of the potential violation to the parties to the conveyance.

2. **Sale of lots from unrecorded plats.** It shall be unlawful to sell, trade, or otherwise convey any lot or parcel of land in violation of this ordinance.

3. **Misrepresentations as to construction, supervision, or inspection of improvements.** It shall be unlawful for any subdivider, person, firm or corporation owning an addition or subdivision of land within the County to represent that any improvement upon any of the highways, roads, streets or alleys of said addition or subdivision or any sewer in said addition or subdivision has been constructed according to the plans and specifications approved by the County Board, or has been supervised or inspected by the County, when such improvements have not been so constructed, supervised, or inspected.

M. **Non-riparian lots.** Non-riparian lots not meeting the required size of the zoning district may be allowed if the following criteria are met;

1. Non-riparian lots described by metes and bounds conveyance must be described by legal description the riparian lot to which it is being attached to and the combined tract cannot be conveyed separately nor separated without county approval;
2. Non-riparian lots created by platting must include in the plat dedication the legal description of the riparian lot to which it is being attached and that neither can be conveyed separately nor separated without county approval;
3. The non-riparian lot and riparian lot must be located within two hundred (200) feet of each other;
4. To the extent practicable and feasible, non-riparian lot must be at least five thousand (5000) square feet including any non-buildable area;
5. A non-riparian lot shall not be created that limits the access or development of parcels adjacent to the same roadway;
6. The minimum road frontage of the non-riparian lot is fifty (50) feet;
7. All setbacks for the applicable zoning district shall apply to the non-riparian lots;
8. The lot area of the non-riparian lot cannot be used in the calculations of impervious coverage for the riparian lot;
9. The maximum lot coverage of the non-riparian lot cannot exceed twenty-five (25) percent of the area of the non-riparian lot.

N. **Minor Subdivision Exemption on Natural Environment Lakes.** When a property owner owns a lot that is not large enough to subdivide into two tracts meeting the required lake frontage and lot area, a one-time minor subdivision exemption may be allowed if the following conditions are met:

1. The existing tract is large enough to meet the required lake frontage and lot area standard for the appropriate lake size and the remnant tract meets or exceeds the State lake frontage and lot area standards for a natural environment lake.
2. The lake frontage and lot area must be divided equally or as near practical as possible; and
3. The minor subdivision does not create more than one (1) additional lot according to the lot size requirements of 4/17/14.

Section 6 Non –Shoreland Multi-Unit Developments (MUDs)

A. **Types of MUDs permissible.** Multi-unit developments (MUDs) are allowed for new projects on undeveloped land, redevelopment of previously built sites, or conversions of existing buildings and land. The land use districts in which they are an allowable use are identified in Table 5-1.

B. **Processing of MUDs.** Multi-unit developments shall be processed as a conditional use, except that an expansion to an existing commercial MUD involving six (6) or less new dwelling units or sites is permissible as a permitted use provided the total project density does not exceed the allowable densities calculated in the project density evaluation procedures in subsection D. of this section. Approval shall not be given until the environmental review process (EAW/EIS) is completed, if required.

C. **Application for a MUD.** The applicant for a MUD shall submit the following documents prior to final action being taken on the application request:

1. **Site plan and plat.** A site plan and plat for the project showing locations of property boundaries, surface water features, existing and proposed structures and other facilities, land alterations, sewage treatment and water supply systems (if public systems will not be provided), and topographic contours at ten foot (10') intervals or less. When a MUD is a combined commercial and residential development, the site plan and plat shall indicate and distinguish which buildings and portions of the project are residential, commercial, or a combination of the two. The plat shall comply with design standards and submission procedures of the Section 5 of this Chapter unless otherwise provided in this section.
   a. **Open space.** All common open space shall be labeled on the site plan. The site plan also shall contain a statement of the intended purpose of all open space.
2. **Property owner's association.** A property owner's association agreement (for residential MUDs) with mandatory membership which agreement shall meet the requirements of this section.
3. **Property restrictions.** Deed restrictions, covenants, permanent easements, or other instruments that:
   a. Properly address future vegetative and topographic alterations, construction of additional buildings, and construction of commercial buildings in residential MUDs; and
   b. Ensure the long-term preservation and maintenance of open space in accordance with the other provisions of this section.
4. **Master Plan.** When necessary, a master plan or drawing describing the project and the floor plan for all commercial structures to be occupied.
5. **Additional information.** Those additional documents as requested by the Planning Commission which are necessary to explain how the MUD will be designed and will function.

D. **General regulations**

1. **Density.** Except for individual lot area and frontage requirements, the multi-unit development project shall conform to the density requirements of the zoning district.
2. **Minimum lot sizes.** The multi-unit development project shall have a minimum individual lot size equal to two-thirds (2/3) the minimum requirements for the zoning district, except that street setbacks shall conform to that of the district.
3. **Commercial MUD density and site area.** There shall be maximum density and minimum site area for commercial MUDs as established in the zoning district under which the conditional use is requested. Land area requirements for dwelling units of the owner or persons employed by the owner, convenience stores or other buildings, shall be in addition to these requirements.

4. **Minimum area and frontage.** There shall be a minimum area requirement of six (6) acres with a minimum frontage on a public road of two hundred feet (200') for any MUD other than a mobile home park.

E. **Mobile home parks and recreational vehicle parks.** In addition to other provisions of this Section 6, the following regulations shall apply to mobile home or recreational vehicle parks reviewed as a MUD.

1. **Minimum area and frontage.** There shall be a minimum area requirement of eight (8) acres with a minimum frontage on a public road of three hundred feet (300') for any MUD for a mobile home park or recreational vehicle park.

2. **Recreation area size.** Every mobile home park and recreational vehicle park shall contain at least one (1) recreation area that shall contain five hundred (500) square feet of park area for each mobile home stand or pad in the mobile home park and two hundred (200) square feet of park area for each recreational vehicle stand or pad in a recreational vehicle park.

3. **Recreation area location.** The recreation area shall not be located in the side, front or rear yards of any mobile home and recreational vehicle stand or pad, but shall be in a separately defined area of the park.

4. **Lot coverage.** Maximum lot coverage for mobile home parks and recreational vehicle parks shall be twenty-five percent (25%) excluding roads and parking areas.

5. **Separation distance.** Minimum distance between mobile home and recreational vehicle units shall be twenty-five (25) and fifteen (15) feet respectively, the point of measurement being a straight horizontal line on a flat plane and at the closest point between the units being measured.

6. **Non-public street width.** Non-public streets in a MUDs for mobile home parks or recreational vehicle parks shall be at least fourteen feet (14') in width one way and twenty-four feet (24') in width two way to permit ease of access to the mobile home or recreational vehicle parking stand or pad for the placement or removal of a unit, without causing damage to or otherwise jeopardizing the safety of any occupants or mobile home or recreation vehicle in the park or court.

7. **Setbacks and landscaping.** There shall be a minimum setback of eighty feet (80') between the property line and any use within the mobile home or recreational vehicle park, the setback area shall be landscaped and screened by a fence or screen plantings of sufficient size to permit complete privacy for the residents of both the mobile home park, recreational vehicle park and adjacent properties.

8. **Parking.** In mobile home and recreational vehicle parks at least one (1) off-street parking space shall be provided at each stand or pad. All additional spaces required shall be located within three hundred feet (300') of the stand or pad.

9. **Storage lockers.** Enclosed storage lockers shall be provided either adjacent to the mobile home in a mobile home park or at such other place in the park as to be convenient to the unit for which it is provided. Large items such as boats, boat trailer, etc., shall not be stored at the site of the mobile stand or pad, but rather shall be stored in a separate screened area of the park.

10. **Maintenance.** The operator of any mobile home park, or a duly authorized attendant or caretaker, shall always be in charge to keep the mobile home park, its facilities and equipment, in a clean, orderly, and sanitary condition. The attendant or caretaker shall be answerable, with the operator, for the violation of any of these regulations to which the operator is subject.

F. **Street and parking requirements**.

1. **Parking.** Parking requirements shall be as prescribed in Chapter 7, Section 12 of this Ordinance.

2. **Commercial MUD streets.** Public streets and roads within a commercial MUD shall be designed to comply with the regulations in Chapter 8, Section 8, subsection H. of this Ordinance and the Becker County E-911 Ordinance.

G. **Maintenance and administration requirements.**

1. **Long-term existence.** Before final approval of a multi-unit development, adequate provisions shall be developed for preservation and maintenance in perpetuity of open spaces and for the continued existence and functioning of the development.

2. **Open space preservation.** Deed restrictions, covenants, permanent easements, public dedication and acceptance, or other equally effective and permanent means shall be provided to assure long-term preservation and maintenance of open space. The instruments shall include all of the following prohibitions:

   a. Commercial uses prohibited in residential multi-unit developments;

   b. Vegetation and land alterations other than routine maintenance;

   c. Construction of additional buildings or storage of vehicles and other materials; and

   d. Uncontrolled beaching of watercraft.

3. **Development organization and functioning.** Unless an equally effective alternative community framework is established all residential multi-unit developments shall use an owners association with the following features:

   a. Membership shall be mandatory for each dwelling unit or site purchaser and any successive purchasers;

   b. Each member shall pay a pro rata share of the association's expenses, and unpaid assessments can become liens on units or sites;

   c. Assessments shall be adjustable to accommodate changing conditions; and

   d. The association shall be responsible for insurance, taxes, and maintenance of all commonly owned property and facilities.

H. **Design requirements.**

1. **Open space design.** Multi-unit developments shall contain open space meeting the following requirements:

   a. **Size.** At least fifty percent (50%) of the total project area shall be preserved as open space, and the design of the open space shall conform to the following:

      (1) Dwelling units or sites, road rights-of-way, or land covered by road surfaces, parking areas, or structures, are developed areas and shall not be included in the computation of minimum open space;

      (2) Open space shall include areas with physical characteristics unsuitable for development in their natural state, and areas containing significant historic sites or unplatted cemeteries;

      (3) Open space may include outdoor recreational facilities for use by owners of dwelling units or sites, by guests and by the general public;

      (4) Open space may include sewage treatment systems if the use of the space is restricted to avoid adverse impacts on the systems.

2. **Park dedication.** The Planning Commission and County Board may determine that portions of the required open space (not to exceed five percent (5%) of the total site area), or an equivalent

value of the raw land will be dedicated to the County for public recreation or open space purposes.

3. **Erosion control and stormwater management.** Erosion control and stormwater management plans shall be developed and the MUD shall:

   a. **Erosion control design standard.** Erosion control systems shall be designed, and the construction managed, to reduce the likelihood of serious erosion occurring either during or after construction.

   b. **Method of control.** Erosion control shall be accomplished by limiting the amount and the length of time of bare ground exposure. Temporary ground covers, sediment entrapment facilities, vegetated buffer strips, or other appropriate techniques shall be used to reduce erosion impacts on surface water features. Erosion control plans approved by a Soil and Water Conservation District may be required if project size and site physical characteristics warrant; and

   c. **Stormwater management design standard.** Stormwater management systems shall be designed and constructed to effectively manage reasonably expected quantities and qualities of stormwater runoff.

   d. **Impervious surface limit.** In Non-Shoreland MUDs impervious surface coverage shall not exceed twenty-five percent (25%) of the MUD area.

4. **Centralization and design of facilities.** Facilities structures shall be centralized according to the following standards:

   a. **Utilities.** Multi-unit developments shall be connected to publicly owned water supply and sewer systems, if available. On-site water supply and sewage treatment systems shall be centralized and designed and installed to meet or exceed applicable standards or rules of the Minnesota Department of Health and Chapter 4 of this Ordinance. On-site sewage treatment systems shall be located on the most suitable areas of the development, and sufficient lawn area free of limiting factors shall be provided for a replacement soil treatment system for each sewage system.

   b. **Dwellings.** Dwelling units or sites shall be clustered into one or more groups and located on suitable areas of the development.

I. **Phasing of development.**

1. **Details and timing.** Any application for a MUD proposed to be constructed in phases shall include full details of the proposed phasing. The application shall state the time for beginning and completion of each phase.

2. **Assurances required.** The landowner or developer shall make such easements, covenants and other arrangements and shall furnish such performance bond or bonds as may be determined by the County Planning Commission and County Board to be reasonably required to assure performance and completion of private streets and utilities, landscaping and privately owned and maintained recreational facilities in accordance with the plan and to protect the public interest in the event of abandonment of the plan before completion.

J. **Minor modification to design.** The uniqueness of each proposal for a MUD requires that specifications and standards for streets, utilities and services may be subject to minor modifications from the specifications and standards established in this and other County ordinances governing their construction. The County Board may therefore, waive or modify the specifications or standards if it is found that they are not required in the interests of the residents or of the County. The plans and profiles of all streets, utilities and services shall be reviewed, modified, if necessary, and approved by the County Engineer prior to the final approval of the MUD plan by the County Board.

Section 7 Shoreland Conservation Subdivision Developments

A Conservation Subdivision is a method of development characterized by clustering homes adjacent to a permanently preserved common open space. Critical natural areas and community recreation areas are identified and protected. Vulnerable natural features are incorporated into the design, which provides for the preservation of significant native habitat and creates a balance between housing development and the ecology of shoreland areas.

A. **Purpose.** The purpose of these regulations is to establish procedures and criteria to evaluate conservation subdivision developments. It is intended to provide a relationship between buildings, and between building and sites, that cannot be accomplished by the one building-one lot application of the land use provisions of this ordinance. In order to encourage well-designed building groups, this section provides for the development of more than one structure upon a single lot or tract as well as the integral development of one or more lots as a single tract.

B. **Where allowed.** Conservation subdivision developments are allowed for new projects on undeveloped land, redevelopment of previously built sites, or conversions of existing buildings, resorts, campsites, and land use.

C. **Definition of residential development.** Shoreland conservation subdivision developments consisting of sites or units that are sold or leased for purposes of establishing the residence of the occupant, or any other method of transferring long term rights to lodging spaces, rooms, recreational vehicle sites, or parcels shall be considered residential and must comply with this section of the Ordinance.

D. **Review process for Conservation Subdivisions.**

1. **Conditional use permit required.** Conservation subdivision developments shall be processed as conditional uses.

2. **Pre-application.** The developer shall submit a pre-application conceptual plan to the Planning and Zoning Department for review of project plans. Conceptual plans shall contain, at a minimum, the following information:
   a. The project scope and number of units proposed;
   b. The size and configuration of the parcel;
   c. The presence and proximity to wetlands and lakes;
   d. Significant topographical or physical features;
   e. The presence of significant historic sites;
   f. The site suitability for individual subsurface sewage treatment systems, if they are to be installed;
   g. North arrow;
   h. Scale;
   i. Vicinity map; and
   j. Area dedicated for each site.

3. **Pre-application meeting.** In order to avoid costly revisions of plans and plats, the developer or the developer's representative, must have preliminary meetings with the Planning and Zoning and Environmental Review Technical Panel to insure that the applicant is informed of the procedural requirements or limitations imposed by other county ordinances or plans, prior to the development of the conservation subdivision development. Applicants shall present a conceptual plan to the Planning and Zoning Department and Environmental Review Technical Panel prior to the filing of the multi-unit development plans.

4. **Written authorization to proceed.** Applicant will receive written authorization from the Planning and Zoning Department to proceed with the preparation of the conservation subdivision development plan. This authorization may contain comments identifying particular issues, concerns, and items to address in the conservation subdivision development plan. No conservation subdivision development application will be accepted for review without this written authorization.

5. **Environmental review.** The Department, along with the assistance of the Environmental Review Technical Panel, may recommend that a discretionary Environmental Assessment Worksheet (EAW) be prepared for the proposed project or a project that meets mandatory threshold requirements for an EAW. If the Environmental Review Technical Panel recommends that an EAW is to be completed and the County Board of Commissioners approves this recommendation, the EAW must be completed prior to the conservation subdivision development conditional use permit application.

6. **Conditional use permit application.** The following documents must be submitted with a conservation subdivision development conditional use permit application:

    a. **Site plan or plat.** A site plan and/or plat for the project showing locations of property boundaries, surface water features, existing and proposed structures and other facilities, land alterations, sewage treatment and water supply systems (where public systems will not be provided), and topographical contours at two foot (2') intervals or less.

    b. **Declaration documents.** Declaration documents shall be provided with the application indicating the ultimate intended ownership of the lots or units within the conservation subdivision.

        (1) **CIC requirements.** If the subdivision will be a common interest community it shall be created in accordance with Minnesota Condominium Acts (Chapters 515 and 515A of the Minnesota Statutes) or a Common Interest Community (CIC) formed under Chapter 515B of the Minnesota Statutes (which would also include condominiums, cooperatives, a Planned Community that is not a condominium or a cooperative, or a Leasehold Common Interest Community).

        (2) **Documents required.** At minimum, there shall be provided by the applicant the Declaration for the Common Interest Community or planned unit development as well as copies of the Owners' Association documents, including, but not limited to, Articles of Incorporation and Bylaw of the Association or in the case of an Owners' Association which will be a limited liability company or a non-profit corporation, the Articles of Organization, Member Control Agreement and Operation Agreement.

    c. **Minimum content of application documents.** The following items must be permanently included in the Declaration Documents:

        (1) Vegetative and topographic alterations and maintenance;

        (2) The construction of additional buildings if allowed;

        (3) Regulation of shore recreation areas;

        (4) Long-term preservation plans and maintenance of open space and the shore impact zone;

        (5) Protection of wetlands from any future draining or filling;

        (6) Provisions for third-party management of individual subsurface sewage treatment systems.

    d. **Master plan.** A master plan/drawing describing the project and the site plan for the dedicated area of each site.

e. **Additional information.** Those additional documents as requested by the Planning & Zoning Department and the Planning Commission that are necessary to explain the conservation subdivision design and function.

E. **Suitable area and density calculation.** The suitable area and density will be calculated for each conservation subdivision development conditional use application according to the following provisions.

1. **Calculation of tiers.** The parcel is divided into tiers by locating one or more lines approximately parallel to the ordinary high water level at intervals set forth in the table 8.5 below. The first tier is closest to the water.

Table 8.5 Shoreland tier dimensions

Lake or River Classification	Tier Depth	
Public Water Classification	1st Tier	2nd Tier
General Development Lakes	200 feet	201-1000 feet
Recreational Development Lakes	267 feet	268–1000 feet
Natural Environment Lakes	400 feet	401–1000 feet
All River Classes – All classifications	300 feet	

2. **Suitable area calculation.** The suitable area within each tier is calculated by excluding from the tier area all wetlands, bluffs, public road right of ways, easements, or land below the ordinary high water level of Protected Waters. All suitable area of the project must be located within the shoreland district.

3. **Density calculation for General Developments Lakes and Recreational Development Lakes.**

a. **Maximum number of tiers.** A maximum of two tiers of development will be allowed.

b. **First tier density calculation.** The number of units in the first tier will be determined by the number of lots that would be allowed on the suitable area by a single-family residential subdivision.

c. **Second tier density calculation.** The number of units in the second tier will be determined by the number of lots that would be allowed by a single-family residential subdivision or one and one-half (1.5) times the number of lots in the first tier, which ever number is more restrictive.

4. **Design requirements for General Developments Lakes and Recreational Development Lakes.**

a. **Density transfers between tiers.** Allowable density and placement may be transferred from first tier to second tier.

b. **Maximum impervious surface.** Impervious surface coverage cannot exceed twenty-five percent (25%) of conservation subdivision development suitable area.

c. **Controlled access lots.** No controlled access lot is required. Space must be reserved in the first tier for access to shore recreation areas.

5. **Density calculation for Natural Environment Lakes.**

a. **Density calculation.** One tier of development will be allowed. The number of units will be determined by the number of lots that would be allowed on the suitable area.

(1) **Lakes larger than 250 acres.** The number of dwelling units will be determined by allowing one site for each 200 feet of lake frontage and 80,000 sq ft of suitable area

(2) **Lakes smaller than 250 acres.** The number of dwelling units will be determined by allowing one site for each 250 feet of lake frontage and 100,000 sq ft of suitable area.

6. **Design requirements for Natural Environment Lakes.**

a. **Maximum impervious surface.** Impervious surface coverage cannot exceed twenty-five percent (25%) of conservation subdivision development suitable area.

b. **Controlled access lot.** No controlled access lot is required. Space must be reserved for access to shore recreation areas.

F. **Open space requirements.** Multi-unit residential developments must contain open space meeting all of the following requirements:

1. **Preserved open space.** At least fifty percent (50%) of the total project area shall be preserved as open space**,** and the design of the open space shall conform to the following:

a. Dwelling units or sites, road rights-of-way, or land covered by road surfaces, parking areas, or structures, are developed areas and shall not be included in the computation of minimum open space;

b. Open space shall include areas with physical characteristics unsuitable for development in their natural state, and areas containing significant historic sites or unplatted cemeteries;

c. Open space may include outdoor recreational facilities for use by owners of dwelling units or sites, by guests and by the general public;

d. Open space may include sewage treatment systems if the use of the space is restricted to avoid adverse impacts on the systems; and

e. The shore impact zone must be included as open space. At least seventy percent (70%) of the shore impact zone must be a preservation area or a restoration area;

G. **Other design requirements.** In addition to other design requirements of this section, conservation subdivision developments must meet all of the following requirements:

1. **Shore recreation area.** A contiguous thirty percent (30%) of the shore impact zone or two hundred feet (200'), whichever is the most restrictive, may be used for shore recreation area. Evaluation for suitability of shore recreation areas must include consideration of land slope, water depth, upland and aquatic vegetation, presence of wetlands, soils, depth to ground water and bedrock or other relevant factors;

2. **Minimum setback.** There shall be a minimum setback of twenty feet (20') between any property line and any improved use within the development. The setback area shall be landscaped and screened by a fence or screen plantings of sufficient size to permit complete privacy for the residents of the development and adjacent properties; and

3. **Maximum impervious surface.** Impervious surface coverage cannot exceed twenty-five percent (25%) of conservation subdivision development suitable area.

H. **Erosion control and stormwater management.** Storm water management and grading plans that meet the design requirements set forth by the Environmental Review Technical Panel. The storm water management controls shall be constructed and maintained to effectively manage storm water runoff. This requirement does not substitute for review and permit requirements of other entities including MPCA, Watersheds, etc.

1. **Maximum impervious surface.** Impervious surface coverage cannot exceed twenty-five percent (25%) of conservation subdivision development suitable area.

I. **Centralization and design of facilities.** Centralization and design of facilities and structures must be done according to the following standards:

1. **Utilities.** Conservation subdivision developments shall be connected to publicly owned water supply and sewer systems, if available. On-site water supply shall be designed and installed to meet or exceed applicable standards or rules of the Minnesota Department of Health and Chapter 4 Section 9 of this Ordinance. On-site sewage treatment systems may be a single system or more than one centralized system, with the locations designated on the plan, and designed and installed to meet or exceed applicable standards or rules of the State of Minnesota and Chapter 4 Section 10 of this Ordinance. On-site sewage treatment systems shall be located on the most suitable areas of the development, and sufficient lawn area free of limiting factors shall be provided for a replacement soil treatment system for each sewage system.

2. **Dwellings.** Dwelling units or sites shall be clustered into one or more groups and located on suitable areas of the development.

3. **Shore recreation areas.** Shore recreation areas, including but not limited to swimming areas, docks and watercraft mooring areas must be centralized and located in areas suitable for them. Evaluation of suitability must include consideration of land slope, water depth, upland and aquatic vegetation, presence of wetlands, soils, depth to ground water and bedrock or other relevant factors.

4. **Docks.** The number of spaces provided for continuous docking of watercraft on a general development or recreational development lake shall not exceed one and one-half for each allowable dwelling unit in the first tier, with a maximum of one slip for each unit in the development. The number of spaces provided for continuous docking of watercraft on a natural environment lake shall not exceed one for each allowable dwelling in the development. Launching ramp facilities, including a small dock for short-term loading, and unloading equipment, and a day dock may be provided, if suitable, for use by the occupants of the development.

5. **Screened from lake view.** Structures, parking areas, and other facilities must be treated to reduce visibility as viewed from Protected Waters and adjacent shorelands by vegetation, topography, increased setbacks, color, or other means, assuming summer, leaf-on conditions. Vegetative and topographic screening must be preserved, if existing, or may be required to be provided.

6. **Accessory structures and facilities.** One water-oriented structure will be allowed. Maximum structure size is 120 sq ft. The minimum setback from the lake is twenty feet (20') from the ordinary high water mark or current water level, whichever is most restrictive.

7. **Minimum street width.** Non-public streets shall be a minimum of fourteen feet (14') in width one-way and twenty-four feet (24') in width two-way to permit ease of access, without causing damage to or otherwise jeopardizing the safety of any occupants in the development.

J. **Criteria for evaluation of conservation subdivision applications.** Before recommending the approval of the preliminary development plan and conditional use permit for a conservation subdivision, the Planning Commission shall find that all of the following criteria are satisfied:

1. The conservation subdivision development conforms to the regulations of the land use district in which it is proposed to be located;
2. The conservation subdivision development or unit thereof is of sufficient size, composition and arrangement that its construction, marketing and operation are feasible as a complete unit without dependence upon any subsequent unit;
3. The conservation subdivision development will not create an excessive burden on parks, schools, streets and other public facilities and utilities, which serve or are proposed to serve the multi-unit development;
4. The minimum area of land to be included in the conservation subdivision development is as designated in the land use district in which it is proposed to be located; and
5. Adequate provisions are developed for preservation and maintenance in perpetuity of open spaces and for the continued existence and functioning of the development.

K. **Maintenance and administration requirements.**

1. **Long-term existence.** Before final approval of a conservation subdivision development, adequate provisions shall be developed for preservation and maintenance in perpetuity of open spaces and for the continued existence and functioning of the development.
2. **Open space preservation.** Deed restrictions, covenants, permanent easements, public dedication and acceptance, or other equally effective and permanent means shall be provided to assure long-term preservation and maintenance of open space. The instruments shall include all of the following prohibitions:
   a. Commercial uses prohibited in multi-unit residential developments;
   b. Protection of vegetation is encouraged and topographic alterations shall be prohibited in the preservation areas and restoration areas;
   c. Prohibition of construction of additional buildings or storage of vehicles and other materials;
   d. Prohibition of uncontrolled beaching of watercraft; and
   e. Identification of all wetlands in the parcel with signs and protection against alterations of any type.

L. **Minor modification to design.** The uniqueness of each proposal for a conservation subdivision development requires that specifications and standards for streets, utilities and services may be subject to minor modifications from the specifications and standards established in this and other County ordinances governing their construction. The County Board may therefore, waive or modify the specifications or standards if it is found that they are not required in the interests of the residents or of the County. The plans and profiles of all streets, utilities and services shall be reviewed, modified, if necessary, and approved by the County Engineer prior to the final approval of the conservation subdivision development plan by the County Board.

M. **Design changes during development.**

1. **Minor design changes.** During the development of the approved conservation subdivision development, the Department may approve minor changes in the location, placement, and height of buildings, if such changes are required by engineering or other circumstances not foreseen at the time the preliminary plan was approved.
2. **Changes not allowed.** Changes in uses, rearrangement of lots, block and building tracts, or any changes in the provisions of the common open space require re-submission and re-approval of the preliminary plan by the Planning Commission.

N. **Conversions of existing uses.** Existing resorts or other land uses and facilities may be converted to conservation subdivision developments provided that the land is reclassified to the residential use category and all of the following standards are met:

1. **Application and correction of deficiencies.** At the time of conversion, the plan meets conservation subdivision development application and general regulation standards in subsection D of this Section and includes the correction of all site deficiencies such as water supply, sewer systems, storm water management, shoreline and bluffs;

2. **Density.** At the time of conversion, the plan meets shoreland residential density standards in subsection E of this Section.

3. **Brought into conformity with regulations.** At the time of conversion, the site is brought into conformity including: removal of buildings, units and recreational vehicle sites to the approved density, centralization of shore recreation facilities, restoration of the shore impact zone and all other open space requirements;

4. **Future replacement sites designated for nonconformities.** At the time of conversion, the plan designates a future site for replacement of each nonconforming unit including cabins, cottages, and recreational vehicle sites. Thus, a purchaser acquires an existing structure and the rights to a specific location for future replacement building or recreational vehicle site. The nonconforming structures can continue to be utilized until such time when a rebuild or replacement is proposed and then must comply with all ordinance standards at the pre-designated site, not to exceed ten years from the date of the approved conversion. Exterior expansions, normal maintenance or replacement of existing structures are allowed only if the structures are already located on its designated future site meeting the required lake classification setbacks.

O. **Phasing of development.**

1. **Details and timing.** Any application for a conservation subdivision development proposed to be constructed in phases shall include full details of the proposed phasing. The application shall state the time for beginning and completion of each phase.

2. **Assurances required.** The landowner or developer shall make such easements, covenants and other arrangements and shall furnish such performance bond or bonds as may be determined by the County Planning Commission and County Board to be reasonably required to assure performance and completion of private streets and utilities, landscaping and privately owned and maintained recreational facilities in accordance with the plan and to protect the public interest in the event of abandonment of the plan before completion.

Section 8 Controlled Access Lots

A. **Purpose.** The purpose of this Section is to manage water surface crowding, to reduce fish and wildlife disturbance, to prevent pollution to surface water by suspension of sediment, to maintain property values, and to maintain natural characteristics of shorelands, shoreland controls must regulate access to public waters.

B. **Application and review.** Application for a land subdivision with a controlled access lot shall follow the guidelines and procedures in Chapter 8, Section 5 of this Ordinance.

C. **Standards.** Access lots, or parcels of land that provide access to public waters for owners of riparian lots within a subdivision may be allowed where the local government determines that direct riparian access is not feasible due to the presence of protected vegetation, wetlands, or other critical fish or wildlife habitat. Access lots that provide riparian access for owners of non-riparian lots or parcels

shall be prohibited. Where allowed by local governments, access lots shall meet or exceed the following standards:

1. **Suitability and minimum lot sizes.** The lot shall meet the width and size requirements for residential lots in the respective lake classification, and be suitable for the intended use of controlled access lots.
2. **Conversion prohibited.** Existing residential lots shall not be converted to access lots for non-riparian subdivisions.
3. **Maximum watercraft storage.** If the lot is to be used for docking, mooring, or over-water storage, the number of spaces for continuous docking of watercraft shall not exceed docking criteria as outlined in the conservation subdivision development requirements in Chapter 8, Section 7.
4. **Ownership.** The access lot shall be jointly owned by owners of lots within the subdivision who are allowed riparian access rights of the access lot as determined by the first tier density criteria outlined in the conservation subdivision development requirements in Chapter 8, Section 7.
5. **Covenants.** Covenants or other equally effective legal instruments shall be developed that include provisions for the following:
    a. **Allowed users.** Provisions specifying the lot owners who have authority to use the access lot and the activities that are allowed.
    b. **Allowed activities.** Provisions identifying allowed activities may only include:
        (1) Watercraft launching, loading, mooring, or docking; and
        (2) Other outdoor recreational activities that do not significantly conflict with general public use of the public water or the enjoyment of normal property rights by adjacent property owners. Examples of the nonsignificant conflict activities include swimming, sunbathing, or picnicking.
    c. **Limits on vehicles and watercraft.** Provisions limiting the total number of vehicles, which will be parked and the total number of watercraft, which will be continuously moored, docked, or stored over water.
    d. **Common facilities.** Provisions requiring centralization of all common facilities and activities in the most suitable locations on the lot to minimize topographic and vegetation alterations.
    e. **Screening of view from lake.** Provisions requiring all parking areas, storage buildings, and other facilities to be screened by vegetation or topography as much as practical from view from the public water, assuming summer, leaf-on conditions.
6. **Location of shore recreation facilities.** Shore recreation facilities, including but not limited to swimming, docks, and watercraft mooring areas must be centralized and located in areas suitable for them. Evaluation of suitability must include consideration of land slope, water depth, upland and aquatic vegetation, presence of wetlands, soil type, depth to ground water and bedrock, or other relevant factors. Lake access must not impact critical fish or wildlife habitat as determined by the DNR. All wetlands must be identified with signs and protected against any alterations.
7. **Shore impact zone.** The controlled access lot must include preservation or restoration areas, at least seventy percent (70%) of the shore impact zone. The natural or restored area must be protected. The lot may use up to thirty percent (30%) or two hundred feet (200’), whichever is more restrictive, for shore recreation purposes.
8. **Placement of docks.** The landward end of all docks must be a minimum of ten feet (10’) from the nearest lot line. Docks must be placed so that no portion extends across the projection of the

setback from side lot lines into the lake and so as not to block access from an adjacent property owner to open water.

9. **Prohibitation.** Controlled access lots, or any lot, tract, or parcel of land, however designated or described, intended to be used to provide accesses to public waters for owners of non-riparian lots, shall be prohibited.

D. **Review process for controlled access lots.**

1. **Pre-application.** The developer shall submit a pre-application conceptual plan to the Planning and Zoning Department for review of project plans. Conceptual plans shall contain, at a minimum, the following information:
   a. The project scope and number of lots proposed;
   b. The size and configuration of the parcel;
   c. The presence and proximity to wetlands and lakes to the project;
   d. Significant topographical or physical features;
   e. The presence of significant historic sites;
   f. The site suitability for individual subsurface sewage treatment systems, if they are to be installed;
   g. North arrow;
   h. Scale; and
   i. Vicinity map.
2. **Pre-application meeting.** In order to avoid costly revisions of plans and plats, the developer or the developer's representative, must have preliminary meetings with the Planning and Zoning and Environmental Review Technical Panel to insure that the applicant is informed of the procedural requirements or limitations imposed by other county ordinances or plans, prior to development. Applicants shall present a conceptual plan to the Planning and Zoning Department and Environmental Review Technical Panel prior to the filing of the development plans.
3. **Written authorization to proceed.** Applicant will receive written authorization from the Planning and Zoning Department to proceed with the preparation of the development plan. This authorization may contain comments identifying particular issues, concerns, and items to address in the development plan. No development application will be accepted for review without this written authorization.
4. **Environmental review.** The Department, along with the assistance of the Environmental Review Technical Panel, may recommend that a discretionary Environmental Assessment Worksheet (EAW) be prepared for the proposed project or a project that meets mandatory threshold requirements for an EAW. If the Environmental Review Technical Panel recommends that an EAW is to be completed and the County Board of Commissioners approves this recommendation, the EAW must be completed prior to the development application.

Section 9 Commercial Planned Unit Developments

A. **Purpose and applicability.** The purpose of this Section is to establish procedures and criteria to evaluate commercial/transient multi-unit developments. It is intended to provide a relationship between buildings, and between building and sites, that cannot be accomplished by the one building-one lot application of the land use provisions of this Ordinance. In order to encourage well-designed building groups, this Section provides for the development of more than one structure upon a single lot or tract as well as the integral development of one or more lots as a single tract.

B. **Where allowed.** Commercial/transient multi-unit developments (MUDs) are allowed for new projects on undeveloped land, redevelopment of previously built sites, conversions of existing buildings, resorts, campsites, and land use.

C. **Definition.** Commercial/transient multi-unit developments consist of sites or units that allow transient occupancy of short-term lodging spaces, rooms, RV sites or parcels. "Transient occupancy" means occupancy when it is the intention of the parties that occupancy will be temporary. There is a rebuttable presumption that, if the unit occupied is the sole residence of the guest, the occupancy is not transient. There is a rebuttable presumption that, if the unit occupied is not the sole residence of the guest, the occupancy is transient.

D. **Applicability to licensed resorts, parks, and campgrounds.** Existing licensed resorts, RV parks and campgrounds that are licensed, with the Minnesota Department of Health as of April 26, 2005, *and continue to operate as a resort*, are only subject to the provisions of Section 10.

E. **Review process for Shoreland Commercial/Transient MUDs.**

1. **Conditional use permit required.** Shoreland commercial/transient multi-unit developments shall be processed as conditional use permits meeting the provisions of Chapter 8, Section 11 of this Ordinance.

2. **Pre-application meeting.** In order to avoid costly revisions of plans and plats, the subdivider or the subdivider's representative, must have preliminary meetings with the Planning and Zoning and Environmental Review Technical Panel to insure that the applicant is informed of the procedural requirements or limitations imposed by other County ordinances or plans, prior to the development of the commercial/transient multi-unit development. Applicants shall present a conceptual plan to the Planning and Zoning Department and Environmental Review Technical Panel prior to the filing of the commercial/transient multi-unit development plans.

3. **Pre-application.** The developer shall submit a pre-application conceptual plan to the Planning and Zoning Department for review of project plans. Conceptual plans shall contain, at a minimum, the following information:
   a. The project scope and number of units proposed;
   b. The size and configuration of the parcel;
   c. The presence and proximity to wetlands and lakes;
   d. Significant topographical or physical features including the general land contour, bluffs and low areas;
   e. Near shore aquatic conditions including vegetation, water depth, and lake bottom sediments;
   f. The presence of significant historic sites and past land use;
   g. The site suitability for individual subsurface sewage treatment systems, if they are to be installed;
   h. North arrow;
   i. Scale; and
   j. Vicinity map.

4. **Written authorization to proceed.** Applicant will receive written authorization from the Planning and Zoning Department to proceed with the preparation of the multi-unit development plan. This authorization may contain comments identifying particular issues, concerns, and items

to address in the multi-unit development plan. No commercial/transient multi-unit development application will be accepted for review without this written authorization.

5. **Environmental review.** The Department, along with the assistance of the Environmental Review Technical Panel, may recommend that a discretionary Environmental Assessment Worksheet (EAW) be prepared for the proposed project or a project that meets mandatory threshold requirements for an EAW. If the Environmental Review Technical Panel recommends that an EAW is to be completed and the County Board of Commissioners approves this recommendation, the EAW must be completed prior to the commercial/transient multi-unit development conditional use permit application.

6. **Conditional use permit application.** The following documents must be submitted with a commercial/transient multi-unit conditional use permit application:

   a. **Site plan or plat.** A site plan and/or plat for the project showing locations of property boundaries, surface water features, existing and proposed structures and other facilities, land alterations, sewage treatment and water supply systems (where public systems will not be provided), and topographical contours at two foot (2') intervals or less.

   b. **Documents.** Deed restrictions, covenants, permanent easements, or other enforceable instruments that:

      (1) Properly address vegetative and topographic alterations and maintenance;

      (2) Properly address the construction of additional buildings, if allowed;

      (3) Properly address the regulation of shore recreation facilities and watercraft docking,

      (4) Properly address the construction of commercial buildings, if allowed;

      (5) Ensure the long-term preservation and maintenance of open space and shore impact zone;

      (6) Protect wetlands from any future draining or filling;

   c. **Master plan.** A master plan/drawing describing the project and the site plan for the dedicated area of each site.

   d. **Additional information.** Those additional documents as requested by the Planning and Zoning Department and the Planning Commission that are necessary to explain the commercial/transient MUD design and function.

F. **Suitable area and density calculation.** The suitable area and density will be calculated for each commercial/transient MUD conditional use application according to the following provisions.

1. **Structure free zone.** The structure free zone is the area, which is designated and is consistent with the required lake classification structure setback from the ordinary high water level of the lake. This area shall remain free of all structures.

2. **Suitable area.** The suitable area shall be calculated by excluding from the area all wetlands, bluffs, public road right of ways, easements, or land below the ordinary high water level of public waters. All suitable area of the project must be located within the shoreland district. For density calculation, there shall be a maximum tier depth of two (2) times the lake frontage width.

3. **Density determination.**

   a. The number of units allowed will be determined by the amount of suitable area divided by the appropriate division factor determined by the amount of lakeshore frontage. Table 8-6**,** below, contains the division factors by lake classification for each lake frontage category.

   b. All structures or sites will be placed behind the structure free zone.

Table 8-6 Density division factors for commercial/ transient multi-unit developments

	Lake frontage length				
Division factors by lake class	300 ft to 599 ft	600 ft to 899 ft	900 ft to 1199 ft	1200 ft to 1499 ft	1500 ft plus
General Development lakes	30,000	25,000	20,000	15,000	10,000
Recreational Development lakes	35,000	30,000	25,000	20,000	15,000
Natural Environment lakes	40,000	35,000	30,000	25,000	20,000

G. **Open space requirements.** Commercial/transient multi-unit developments must contain open space meeting all of the following requirements:

1. At least fifty percent (50%) of the total project area shall be preserved as open space, and the design of the open space shall conform to the following:

   a. Dwelling units or sites, road rights-of-way, or land covered by road surfaces, parking areas, or structures, are developed areas and shall not be included in the computation of minimum open space;

   b. Open space shall include areas with physical characteristics unsuitable for development in their natural state, and areas containing significant historic sites or unplatted cemeteries;

   c. Open space may include outdoor recreational facilities;

   d. Open space may include subsurface sewage treatment systems if the use of the space is restricted to avoid adverse impacts on the systems; and

   e. The shore impact zone must be included as open space. At least seventy percent (70%) of the shore impact zone must be a preservation area or a restoration area.

H. **Other design requirements.** In addition to other design requirements of this Section, commercial/transient multi-unit developments must meet all of the following requirements:

1. **Minimum unit site dimensions.** A minimum of two thousand five-hundred (2,500) square feet is allowed per unit site. The unit site will be a minimum of fifty feet (50') wide.

2. **Side lot setback.** Structures must be ten feet (10') from the side lot line of the unit site.

3. **Shore recreation area.** A contiguous thirty percent (30%) of the shore impact zone or two hundred feet (200'), whichever is the most restrictive, may be used for shore recreation facility purposes. Evaluation for suitability of shore recreation areas must include consideration of land slope, water depth, upland and aquatic vegetation, presence of wetlands, soils, depth to ground water and bedrock or other relevant factors;

4. **Minimum setback.** There shall be a minimum setback of twenty feet (20') between any property line and any use within the development. The setback area shall be landscaped and screened by a fence or screen plantings of sufficient size to permit complete privacy for the residents of the development and adjacent properties; and

5. **Maximum impervious surface.** Impervious surface coverage cannot exceed twenty-five percent (25%) of commercial/transient MUD suitable area.

I. **Erosion control and stormwater management.** Commercial/transient MUDs must have storm water management and grading plans that are approved by the Planning and Zoning Department. The storm water management controls shall be constructed and maintained to effectively manage storm water runoff. This requirement does not substitute for review and permit requirements of other entities including MPCA, Watersheds, etc.

J. **Centralization and design of facilities.** Centralization and design of facilities and structures must be done according to the following standards:

1. **Utilities.** Commercial/transient multi-unit developments shall be connected to publicly owned water supply and sewer systems, if available. On-site water supply and sewage treatment systems shall be centralized and designed and installed to meet or exceed applicable standards or rules of the Minnesota Department of Health and Chapter 4, Section 10**,** of this Ordinance. On-site sewage treatment systems shall be located on the most suitable areas of the development, and sufficient lawn area free of limiting factors shall be provided for a replacement soil treatment system for each sewage system.
2. **Dwellings.** Dwelling units or sites shall be clustered into one or more groups and located on suitable areas of the development. They must be designed and located outside of the structure free zone.
3. **Shore recreation areas.** Shore recreation areas, including but not limited to swimming areas, docks and watercraft mooring areas must be centralized and located in areas suitable for them. Evaluation of suitability must include consideration of land slope, water depth, upland and aquatic vegetation, presence of wetlands, soils, depth to ground water and bedrock or other relevant factors.
4. **Docks.** The number of spaces provided for continuous docking of watercraft shall not exceed one and one-half for each allowable dwelling unit as established by the conservation subdivision development provisions in Chapter 8, Section 7, subsection I.4, of this Ordinance. Launching ramp facilities, including a small dock for short-term loading, and unloading equipment, may be provided, if suitable, for use by the occupants of the development.
5. **Screened from lake view.** Structures, parking areas, and other facilities must be treated to reduce visibility as viewed from Protected Waters and adjacent shorelands by vegetation, topography, increased setbacks, color, or other means, assuming summer, leaf-on conditions. Vegetative and topographic screening must be preserved, if existing, or may be required to be provided.
6. **Accessory structures and facilities.** Accessory structures and facilities must be located outside the structure free zone and must be centralized.
7. **Minimum street width.** Non-public streets shall be a minimum of fourteen feet (14') in width one-way and twenty-four feet (24') in width two-way to permit ease of access, without causing damage to or otherwise jeopardizing the safety of any occupants in the development.

K. **Criteria for evaluation of commercial/transient MUD conditional use applications.** Before recommending the approval of the preliminary development plan and conditional use permit for a commercial/transient MUD, the Planning Commission shall find that all of the following criteria are satisfied:

1. The MUD conforms to the regulations of the land use district in which it is proposed to be located;
2. The MUD or unit thereof is of sufficient size, composition and arrangement that its construction, marketing and operation are feasible as a complete unit without dependence upon any subsequent unit;
3. The MUD will not create an excessive burden on parks, schools, streets and other public facilities and utilities which serve or are proposed to serve the multi-unit development;
4. The minimum area of land to be included in the MUD shall be as designated in the land use district in which it is proposed to be located; and
5. Adequate provisions are developed for preservation and maintenance in perpetuity of open spaces and for the continued existence and functioning of the development.

L. **Maintenance and administration requirements.**

1. **Open space preservation.** Deed restrictions, covenants, permanent easements, public dedication and acceptance, or other equally effective and permanent means shall be provided to ensure long-term preservation and maintenance of open space. The instruments shall include all of the following protections:
   a. Vegetation topographic alterations shall be prohibited in the shore impact zone and restoration area except as part of an approved vegetation restoration plan;
   b. Construction of additional buildings or storage of vehicles and other materials is prohibited;
   c. Uncontrolled beaching of watercraft is prohibited; and
   d. All wetlands in the parcel shall be identified with signs and protected against alterations of any type.

M. **Design changes during development.**

1. **Minor design changes.** During the development of the approved commercial/transient MUD, the Planning and Zoning Department may approve minor changes in the location, placement, and height of buildings, if such changes are required by engineering or other circumstances not foreseen at the time the preliminary plan was approved.
2. **Changes not allowed.** Changes in uses, rearrangement of lots, block and building tracts, or any changes in the provisions of the common open space require re-submission and re-approval of the preliminary plan by the Planning Commission.

N. **Conversions of existing uses.** Existing resorts or other land uses and facilities may be converted to conservation subdivision developments meeting provisions of Chapter 8, Section 7 of this Ordinance, and provided that the land is reclassified to the residential use category and all of the following standards are met:

1. **Application and correction of deficiencies.** At the time of conversion, the plan meets the conservation subdivision development application and general regulation standards in Chapter 8, Section 7 of this Ordinance and includes the correction of all site deficiencies such as water supply, sewer systems, storm water management, shoreline and bluffs;
2. **Density.** At the time of conversion, the plan must meet conservation subdivision density standards in Chapter 8, Section 7, subsection E**,** of this Ordinance.
3. **Brought into conformity with regulations.** At the time of conversion, the site is brought into conformity including: removal of buildings, units and recreational vehicle sites to the approved density, centralization of shore recreation facilities, restoration of the shore impact zone and all other open space requirements;
4. **Future replacement sites designated for nonconformities.** At the time of conversion, the plan designates a future site for replacement of each nonconforming unit including cabins, cottages, and recreational vehicle sites. Thus, a purchaser acquires an existing structure and the rights to a specific location for future replacement building or recreational vehicle site. The nonconforming structures can continue to be utilized until such time when a rebuild or replacement is proposed and then must comply with all Ordinance standards at the pre-designated site, not to exceed ten years from the date of the approved conversion. Exterior expansions, normal maintenance or replacement of existing structures are allowed only if the structures is already located on its designated future site meeting the required lake classification setbacks.

O. **Phasing of development.**

1. **Details and timing.** Any application for a commercial/transient MUD proposed to be constructed in phases shall include full details of the proposed phasing. The application shall state the time for beginning and completion of each phase.

2. **Assurances required.** The landowner or developer shall make such easements, covenants and other arrangements and shall furnish such performance bond or bonds as may be determined by the County Planning Commission and County Board of Commissioners to be reasonably required to assure performance and completion of private streets and utilities, landscaping and privately owned and maintained recreational facilities in accordance with the plan and to protect the public interest in the event of abandonment of the plan before completion.

P. **Minor modification to design.** The uniqueness of each proposal for a commercial/transient MUD requires that specifications and standards for streets, utilities and services may be subject to minor modifications from the specifications and standards established in this and other County ordinances governing their construction. The County Board may therefore, waive or modify the specifications or standards if it is found that they are not required in the interests of the residents or of the County. The plans and profiles of all streets, utilities and services shall be reviewed, modified, if necessary, and approved by the County Engineer prior to the final approval of the MUD plan by the County Board.

Section 10 Existing Licensed Resorts

A. **Licensed resort expansion or replacement.** The provisions in this subsection are applicable only to proposed unit or area expansion or replacement for existing licensed resorts (Minnesota Department of Health license list as of April 26, 2005) so long as they continue to maintain licensed status and continue to operate as a resort at their present location. Expansion to an existing resort involving six (6) or more additional units, at once or cumulatively, or the conversion to or expansion by six (6) or more seasonal sites, at once or cumulatively, shall be processed as a conditional use.

1. **Exception to commercial/transient MUD density provisions.** Existing resorts, RV parks and campgrounds that are licensed and operational prior to the adoption of Chapter 8, Section 9, of this Ordinance are not subject to the density standards listed in Chapter 8, Section 9, subsection F, of this Ordinance. At the time of proposed unit or resort area expansion or replacement the allowable density of existing licensed resorts, RV parks, or campgrounds will be determined by existing conditional use permits or the previous commercial shoreland planned unit development (PUD) density evaluation listed under subsection 2., Suitable area and density evaluation, of Chapter 8, Section 10.

2. **Suitable area and density evaluation**.

a. **Density evaluation - Commercial PUD.** The maximum number of dwelling units allowed in a commercial shoreland PUD is determined for each tier of development as follows:

(1) **Calculation of tiers.** The PUD parcel is divided into tiers by locating one or more lines approximately parallel to the ordinary high water level at intervals set forth in the following Table 8-7. The first tier is closest to the water. There shall be no more than two (2) tiers for density evaluation purposes.

Table 8-7 Commercial PUD shoreland tier dimensions

	Tier Depth	
Lake or River Classification	1st Tier	2nd Tier
General Development Lakes	200 feet	201-1000 feet
Recreational Development Lakes	267 feet	268-1000 feet
Natural Environment Lakes	400 feet	401-1000 feet
All River Classes	300 feet	

(2) **Calculation of useable area.** The useable area of each tier is calculated by excluding from the tier area all wetlands, bluffs, public rights-of-way or land below the ordinary high water level.

(3) **Calculation of living units or sites.** The maximum number of living units or sites in a commercial PUD is computed as follows:

a. Determine the total habitable inside living area size of the existing dwelling units or sites within each tier. Computation of inside living area sizes need not include decks, patios, stoops, steps, garages, or porches and basements, unless they are habitable space.

b. Determine the total coverage area of the proposed dwelling units or sites within each tier.

(1) For each proposed tent camping site and primitive transient recreational vehicle site, assign four hundred (400) square feet.
(2) For each proposed manufactured home sites and newly constructed buildings in recreational camping areas or on existing resort grounds, coverage is the actual size of the manufactured home or building.
(3) For each proposed seasonal recreational vehicle site, assign two thousand (2000) square feet.

c. Select the appropriate ratio of land surface that can be covered by structures from Table 8-8.

Table 8-8 Commercial PUD/Resort Structure Area Ratios

Public Water Classes	1st Tier	2nd Tier
General Development Lake	0.125	0.075
Recreational Development Lake	0.075	0.075
Natural Environment Lake	0.038	0.038
Rivers/Streams – all classes	0.038	

d. Multiply the suitable area within each tier by the appropriate lake classification ratio to yield total floor area for each tier allowed to be used for dwelling units or sites.

e. Determine the maximum allowable number of existing and proposed dwelling units or sites for each tier by comparing the total structure coverage to that allowed in each tier.

f. A proposed Resort expansion and/or conversion is limited to this density calculation.

3. Allowable density required for expansions. Expansions to licensed resorts may be permitted provided that:

a. There is allowable density combining all tiers of the resort area as calculated by Chapter 8, Section 10 of this Ordinance, or permitted by an existing conditional use permit. Units may be added, if allowed by a total site density calculation (determined above) minus the existing units/sites located within all tiers of the resort area.

b. There is allowable density in tier 2 as calculated by Chapter 8, Section 10 of this Ordinance. Limited to the maximum individual tier density calculation (determined above); two units may be added in tier 2 for each unit removed from tier 1.

c. The resort has a conforming sewage treatment system.

4. **Nonconforming structure replacement and expansion – outside of the shore impact zone.** Licensed resorts may replace, improve, or expand nonconforming structures following these procedures:
   a. Existing nonconforming structures, located within the first tier, on a licensed resort may be replaced without regard to available density.
   b. Existing nonconforming structures must be replaced in their current location and there must be no expansion closer to the lake.
   c. Licensed resorts, at maximum density (calculated in Chapter 8, Section 10.), may add three hundred (300) square feet to the existing structures' livable area footprint if:
      (1) The unit size does not exceed one thousand five hundred (1,500) square feet with expansion;
      (2) The unit is not expanded closer to the lake;
      (3) These expansions will be approved one time per unit without issuance of a variance; and
      (4) The resort must have a conforming sewage treatment system.
5. **Nonconforming structure replacement and expansion – within the shore impact zone.** Existing nonconforming structures, if destroyed by fire or an Act of God will be permitted to rebuild in the same footprint as the previous structure.
   a. Deteriorated nonconforming structures may be allowed to rebuild if:
      (1) The resort has an approved storm water management plan; and
      (2) The resort has an approved shore impact zone restoration plan.
6. **Docking /mooring calculations.**
   a. A maximum of one mooring space per allowable unit/site or twenty-five (25) lineal feet of shoreline, whichever is most restrictive, may be provided for continuous mooring of watercraft at existing licensed resorts, RV parks, and campgrounds abutting public waters. Centralization of docking and mooring spaces is recommended. Additional mooring spaces/lifts may be allowed by variance with an approved centralized docking system.
   b. Boatlifts may be allowed and will be equal to one and one-half (1.5) times a mooring space calculated above.

Section 11 Conditional Use Permits

A. **Conditional uses allowed.** Conditional use permits may be issued only for the conditional uses allowed in the zoning district in which the land in the application is located. Conditional uses for each zoning district are specified in Chapter 5, Section 1, Table 5-1.

B. **Application.** An application for a conditional use permit shall be filed with the Zoning Administrator on a form prescribed by the Board of County Commissioners. The application shall be accompanied by such plans, elevations and site plans as prescribed by the County Planning Commission.

C. **Planning Commission public hearing.** Upon receipt in proper form of the application and other requested material, the Becker County Planning Commission shall hold at least one (1) public hearing in a location to be prescribed by the Planning Commission. Such public hearing shall conform to the provisions in Chapter 8, Section 2 of this Ordinance.

D. **Planning Commission report to the County Board.** For each application for a conditional use, the County Planning Commission shall report to the Board of County Commissioners its findings and recommendations, including the stipulation of additional conditions and guarantees that these conditions will be complied with when they are necessary for the protection of the public interest.

E. **County Board action.** Upon receipt of the report of the Planning Commission, the Board of County Commissioners shall hold whatever public hearings it deems advisable and shall decide whether to grant or deny a Conditional use permit.

F. **Findings and criteria.** No conditional use shall be recommended by County Planning Commission or granted by the Board of County Commissioners unless the Commission or the Board shall find that all of the following criteria are met:

1. **Affect on surrounding property.** That the conditional use will not harm the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish or impair property values within the immediate vicinity.

2. **Affect on orderly, consistent development.** That establishing the conditional use will not impede the normal, orderly development and improvement of surrounding vacant property for uses predominant in the area.

3. **Adequate facilities.** That adequate utilities, access roads, drainage and other necessary facilities have been or are being provided.

4. **Adequate parking.** That adequate measures have been or will be taken to provide sufficient off-street parking and loading space to serve the proposed use.

5. **Not a nuisance.** That adequate measures have been or will be taken to prevent or control offensive odor, fumes, dust, noise, and vibration, so none of these will constitute a nuisance, and to control lighted signs and other lights so that no disturbance to neighboring properties will result.

6. **Additional criteria for shoreland areas.** In Shoreland areas, it shall be found that adequate measures have been or will be taken to assure that:

   a. **Pollution.** Soil erosion or other possible pollution of public waters will be prevented, both during and after construction;

   b. **View from public waters.** That the visibility of structures and other facilities as viewed from public waters will be limited;

   c. **Adequate utilities.** That the site is adequate for water supply and on-site sewage treatment; and

   d. **Watercraft.** That the types, uses, and number of watercrafts that the project will generate can be safely accommodated.

G. **Report to DNR.** If an application for conditional use is for property located within the limits of the shoreland of public waters, the application shall be filed with the Commissioner of Natural Resources for comments at least 10 days before the official public hearing. A copy of the decision granting or

denying the conditional use application shall be sent to the State Commissioner within ten (10) days of the action.

H. **Continuing compliance with terms required.** Any use permitted under the terms of any conditional use permit shall be established and conducted in conformity with the terms and conditions of the permit.

I. **Expiration.** If two years after the date that the conditional use permit is granted and the use has not be implemented, the conditional use permit shall be null and void, unless a request for extension of time in which to complete the work has been granted by the Board of Commissioners. The request must be placed on the Board of Commissioners agenda prior to the expiration of the conditional use permit to request a one year extension with no limit on extension requests. The request for extension shall state facts showing a good faith attempt to complete the work permitted in the conditional use permit. If the permitted use was implemented, but the use has been discontinued for a period of two years, the conditional use permit shall also be null and void. This does not pertain to conditional use permits issued prior to December 1, 2009.

J. **Requirements for previously denied applications.** No application for a conditional use permit shall be resubmitted for a period of one year from the date that a request is denied by the Becker County Board of Commissioners, except the County Board may allow a new application if, in the discretion of the County Board, new evidence or a change in circumstances warrant it.

Section 12 Variances

A. **Review authority.** The Board of Adjustment shall have the exclusive power to order the issuance of variances from the terms of this Ordinance.

B. **Application.** Application for a variance or other adjustment shall be made to the Board of Adjustment in the form of a written application.

C. **Public hearing required.** Upon receipt of any application, the Board of Adjustment shall set a time and place for a public hearing on the application. Such public hearing shall conform to the provisions in Chapter 8, Section 2 of this Ordinance.

D. **Findings.** If the Board of Adjustment finds that a variance meets the criteria for granting a variance as specified in subsection I, below, the Board of Adjustment shall make written findings of the facts upon which its decision is based clearly identifying the specific conditions that exist which justify the granting of the variance. Copies of the findings shall be mailed to the applicant and to any other party who appears at the hearing and the town board.

E. **Conditions.** The Board of Adjustment may impose conditions in the granting of variances to insure compliance and to protect adjacent properties and the public interest.

F. **Recording of decision.** A certified copy of any order issued by the Board of Adjustment acting upon a request for a variance, shall be filed with the county recorder or registrar of titles for record. The order issued by the Board of Adjustment shall include the legal description of the property involved

G. **Appeals.** The decision of the Board of Adjustment shall be final except that any person or persons, or any department, board, or commission of the county or of the state shall have the right to appeal within thirty (30) days, after receipt of notice of decision, to the district court.

H. **Minimum variance necessary.** The variance granted shall be the minimum variance necessary to relieve the circumstance that justifies the variance.

I. **Criteria for granting variances.** A variance shall be granted only if all of the following criteria are met:

1. **Compliance with Statute.** The Board of Adjustment shall not grant a variance unless it finds that the standards of Minnesota Statutes Annotated section 394.27, subsection 7 have been met.
2. **Intent of Ordinance:** Variances shall only be permitted if they are in harmony with the general purposes and intent of this Ordinance.
3. **Hardship.** Variances shall only be permitted if there are practical physical difficulties or particular physical hardships when the strict letter of this Ordinance is imposed. "Hardship" as used in connection with the granting of a variance means the property in question cannot be put to a reasonable use if used under the conditions allowed by this Ordinance. Economic considerations alone shall not constitute a hardship if a reasonable use for the property exists under the terms of this ordinance. The Board of Adjustment may consider the inability to use solar energy systems a "hardship" in the granting of variances.
4. **Plight of Landowner.** Variances shall only be permitted if the plight of the landowner is due to

circumstances unique to the property not created by the landowner.

5. **Health and Safety.** Variances shall be permitted only if the granting of the variance will not materially adversely affect the health or safety of persons residing or working in the area adjacent to the property of the applicant and will not be materially detrimental to the public welfare or injurious to property or improvements in the area adjacent to the property of the applicant.

6. **Earth Shelter Construction.** Variances shall be permitted for earth-sheltered construction as defined in Minnesota Statutes when in harmony with this ordinance.

J. **Additional criteria for Shoreland setback variances.** Variances to the Shoreland setback provision of the ordinance may be granted under the following circumstances:

1. **Alternative sewage treatment method.** Where structures incorporate a method of sewage treatment other than soil absorption.

2. **Setback averaging.** Where development exists on both sides of a proposed building site, setbacks may be varied to conform to the existing setbacks.

3. **Unusual topography.** In areas of unusual topography or substantial elevation above the lake level, setbacks may be varied to allow a riparian owner reasonable use and enjoyment of his property.

K. **Prohibited variances.**

1. **ISTS non-compliance.** No variance shall be issued for replacement, or for the addition of a bedroom or bathroom on property served by a system unless the individual subsurface sewage treatment system is in compliance with the Becker County ordinance on individual subsurface sewage treatment systems as evidenced by a certificate of compliance.

2. **Prohibited uses.** No variance shall be granted that would allow any use that is prohibited in the zoning district in which the subject property is located.

L. **Notice of decision to DNR.** A notification of any decision involving shoreland areas shall be sent to the Commissioner of the Department of Natural Resources or the Commissioner's designated representative within ten (10) days. If the Department of Natural Resources has formally recommended denial of a variance and the variance is approved the notification also shall include the Board of Adjustment's record of the hearing and the findings and conclusions which supported approval.

M. **Expiration.** If two years after the date that the variance was granted, a zoning permit was not obtained and construction did not begin, the variance shall become null and void, unless a request for extension of time in which to complete the work has been granted by the Board of Adjustment. The request must be placed on the Board of Adjustment agenda prior to the expiration of the variance. The request for extension shall state facts showing a good faith attempt to complete the work permitted in the variance. This does not pertain to variances issued prior to December 1, 2009.

Section 13 Rezoning or Text Amendment

A. **Criteria for amendment.** This Ordinance may be amended whenever required by the public necessity and the general welfare.

B. **Who may request an amendment.** Proceedings for amendment of this Ordinance shall be initiated by:
   1. A petition of the owner or owners of actual property;
   2. A recommendation of the County Planning Commission;
   3. Or by action of the Board of County Commissioners.

C. **Application requirements.** An application for an amendment shall be filed with the Zoning Administrator. An application for a change in the boundaries of any zoning district shall be accompanied by a map or plat showing the boundaries proposed to be changed and all properties within one-half (1/2) mile of the boundaries to be changed, the application also shall include the names and addresses of the owners of all such properties.

D. **Planning Commission public hearing.** Upon receipt in proper form of the application and other requested material, the Becker County Planning Commission shall hold at least one public hearing as delineated in Chapter 8, Section 2, of this Ordinance.

E. **Planning Commission findings and decision.** Following the public hearing, the County Planning Commission shall make a report of its findings and recommendations on the proposed amendment and shall file a copy with the Board of County Commissioners and the Zoning Administrator within sixty (60) days after the hearing. If no report or recommendation is transmitted by the County Planning Commission within sixty (60) days after the hearing, the Board of County Commissioners may act without awaiting a recommendation.

F. **County Board hearing and decision.** Upon filing of the Planning Commission report or recommendation, the Board of County Commissioners may hold such public hearings upon the amendment as it deems advisable. After the hearings, if any, the Board of County Commissioners may adopt the amendment or any part thereof. The amendment shall be effective only if four-fifths (4/5) of all the members of the Board concur in its passage.

Section 14 Land Alteration Permit

A. **Land alteration permit required.** Except for public roads, public ditches, or public parking areas no land alterations shall be made until a land alteration permit meeting the requirements of Chapter 8, Section 3, subsection C of this Ordinance has been obtained from the Becker County Zoning Administrator unless the changes will result in:

   1. The movement of less than ten (10) cubic yards of material on steep slopes or within shore or bluff impact zones;

   2. The movement of less than fifty (50) cubic yards of material in other areas.

B. **Agricultural use exemption.** A land alteration permit is not required for a land alteration that is part of an agricultural use provided that the land alteration follows the Best Management Practices for farming as recommended by the University of Minnesota Extension Service, the Becker County Soil and Water District, Minnesota Pollution Control Agency, or a Federal Farm Program where such stipulations are placed as a result of enrollment in a farm program.

C. **May be part of another permit.** A separate land alteration permit is not required if a permit has been granted for construction of a structure or sewer system unless the information required for the land alteration permit was not included in the application for the permit.

D. **Statement regarding other permits.** An application for a permit for a project that includes land alterations shall contain a statement that all required permits, reviews, or approvals by other local, state, or federal agencies such as a watershed district, the Minnesota Department of Natural Resources, or the United States Army Corps of Engineers have been obtained or applied for.

E. **Certification by professional.** The Zoning Administrator may require, and for a land alteration within the shore impact zone or a bluff impact zone shall require, an applicant to provide certification from a landscape architect or professional engineer that the requirements of this subsection and the requirements of Chapter 8, Section 3, subsection C of this Ordinance have been followed.

Section 15 Multi-Unit Storage Structure Developments

A. Purpose and applicability. The purpose of this section is to establish the procedure and criteria to evaluate multi-unit storage structure developments for private ownership. It is intended to provide a means to create a development for privately owned storage structures.

B. Where allowed. Multi-unit storage structure developments are allowed for new projects on undeveloped land, redevelopment of previously developed land, or conversion of existing buildings in land use districts where storage structures are allowed.

C. Definition. Multi-unit storage structure developments consisting of sites or units that are sold for the purpose of private storage, work space or any other non-residential and non-commercial use associated with storage structures.

D. Review process. Multi-unit storage structure developments shall be considered a plat and processed as subdivisions of land into units, lots or parcels as outlined in Chapter 8, Section 5 of this ordinance.

E. Application for a Multi-unit storage structure development. The applicant for a multi-unit storage structure development shall submit the following documents prior to final action being taken on the application requests:

A. Preliminary site plan. A site plan for the project showing locations of property boundaries, surface water features, proposed units or lots, common elements and structures, land alterations, topographic contours at ten foot intervals or less and sewage treatment and water supply systems (if any are being proposed).

B. Property owners association. A property owner's association agreement with mandatory membership with the following features:

1. Membership shall be mandatory for each unit or site purchaser and any successive purchasers;

2. Each member shall pay a pro rata share of the association expenses and unpaid assessments can become liens on units or sites;

3. Assessments shall be adjustable to accommodate changing conditions; and

4. The association shall be responsible for insurance, taxes and maintenance of all commonly owned property and facilities.

5. Any changes to the association agreement related to the layout, impervious surface, surface water flow or other uses/features that were included in the approved site plan shall be submitted to the County for Planning Commission and County Board approval.

F. Design requirements.

A. Density. The density of multi-unit storage structure developments shall be determined by the allowable impervious surface coverage for the land use district.

B. Water and Septic. If water is being supplied to the units, it is recommended that a common well be utilized, if possible. If septic is being supplied to a unit, all systems must be designed and installed in accordance with Minnesota Rules Chapters 7080 through 7083 and Chapter 10, Section 4 of this ordinance. Under Minnesota Rules Chapters 7080 through 7083, holding tanks are a permitted system. However, lots that would require use of holding tanks must not be approved.

C. Erosion control and stormwater management. Erosion control and stormwater management shall be developed in accord with any Minnesota Pollution Control Agency requirements or Watershed District in which the multi-unit storage structure development is situated. If the multi-unit storage structure development is not located with and Watershed District or if the governing Watershed District nor MPCA does not have or require erosion control and stormwater management standards the multi-unit storage structure development shall:

1. Erosion control design standard. Erosion control systems shall be designed, and the construction managed, to reduce the likelihood of serious erosion occurring either during or after construction.

2. Method of control. Erosion control shall be accomplished by limiting the amount of and the length of time of bare ground exposure. Temporary ground covers, sediment entrapment facilities, vegetated buffer strips, or other appropriate techniques shall be used to reduce erosion impacts on surface water features. Erosion control plans approved by a Soil and Water Conservation District may be required if project size and site physical characteristics warrant; and

3. Stormwater management design standard. Stormwater management systems shall be designed and constructed to effectively manage reasonable expected quantities and qualities of stormwater runoff.

Section 16 Private or Vacation Home Rental

Where permitted as specified in Table 5-1, Table of Uses, rentals may be operated with an administrative permit only if all of the following requirements are met:

A. Permit required. An annual rental permit is obtained from the Zoning Director. One (1) structure shall be used to determine the maximum occupant density of the parcel. Permits shall be posted on-site and shall include name and contact information for the property owner or property manager. All permitted units shall post the department assigned permit number to all advertisement of the unit and the maximum number of occupants.

B. Property Owner or Manager. Should there be a need for management on site, a designated individual must be available twenty-four hours a day, seven days week and must be able to respond to the permitted rental within one hour of being contacted.

C. Certificate of Compliance. A current septic system certificate of compliance shall be provided to the Zoning Department upon permit application submittal.

D. Garbage. Garbage and recycling shall be stored completely enclosed. The owner or operator of the rental unit shall provide sufficient trash storage containers and service to accommodate the demand of the occupants.

E. Parking. On-site vehicle parking shall be designated by the approved permit. Public streets and right-of-way shall not be used for parking of trailers or overnight parking of vehicles by occupants.

F. Permit Transfer. In order for a permit to remain valid upon a change in ownership of the permitted property. All current information must be provided to the Zoning Department.
G. Rental log. A log of rental activity to include guest's names and contact info as well as dates of stay must be maintained by the property owner.
H. Other ordinances and licenses. All other County ordinance's and agency license's shall apply to this section.
I. Recreational Vehicle. One recreational vehicle on a vacant parcel may operate the rental unit.
J. Lodging tax, sales tax, etc. When applicable all required State, Federal, and Local tax must be submitted.
K. Density. Overnight guest occupancy is the maximum number of overnight guests allowed at a private/vacation home rental without a conditional use permit. Overnight guest occupancy shall not exceed the lesser of the following limits unless a conditional use permit has been granted to do so:

    1. Three (3) overnight guests per bedroom.

        OR

    2. The maximum number of overnight guests shall not exceed the total treatment capacity of the septic system in gallons per day divided by 50 gallons per overnight guest. (i.e. 450 gallons per day / 50 gallons per person = 9 guests.)
    3. Not more than a total of 12 overnight guests unless a conditional use permit has been issued where such a use is conditionally permitted.

CHAPTER 9 VIOLATION, ENFORCEMENT, FEES, AND APPEALS

Section 1 Violation

A. **Violation a misdemeanor.** Any person, firm or corporation who violates or who fail to comply with any of the provision of this ordinance or who make any false statement or omission in any document required to be submitted under the provisions shall be guilty of a misdemeanor and upon conviction shall be punished not more than the maximum penalty for a misdemeanor as prescribed by state law.

B. **Each day an offense.** Each day that a violation continues shall constitute a separate offense.

C. **Inspection fee for violations.** An inspection fee plus mileage may be charged for re-inspections of the property once the property owner has been notified of the violation.

Section 2 Enforcement

A. **Duty of enforcement.** It shall be the duty of the Zoning Administrator to enforce this Ordinance through the proper legal channels. It shall be the duty of the County Attorney and the Sheriff of Becker County when called upon to enforce this Ordinance.

B. **Stop work order.** When any work shall have been stopped by the Zoning Administrator for any reason, it shall not again be resumed until the reason for the work stoppage has been completely resolved.

C. **Civil enforcement.** The County, in addition to other remedies, may institute appropriate actions or proceedings to prevent, restrain, correct, or abate any violations or threatened violations, and it shall be the duty of the County Attorney to institute such action.

D. **Taxpayer action.** Any taxpayer or taxpayers of the County may institute mandamus proceedings in the District Court to compel specific performance by the official or officials of any duty required by this Ordinance.

Section 3 Fees and Fines

A. **Fee required.** A permit fee shall be paid by the applicant for any application required under this Ordinance.

B. **Amount of fee.** The amount of each fee shall be established by resolution of the Board of County Commissioners.

C. **After-the-fact fine.** The amount of each fine shall be established by resolution of the Board of County Commissioners. Fines may be assessed for beginning a project without proper permits, violating the terms and conditions of the permits, and after the fact variances and conditional use permits.

Section 4 Appeals

A. **Who may appeal.** Any aggrieved person or any department, board of bureau of a town, municipality, county, or state objecting to the ruling of any administrative official administering this Ordinance or any other ordinance adopted pursuant to Sections 394.21 to 394.37, Minnesota Statues, Chapter 559, Laws of 1959, as amended, shall have the right to appeal to the Board of Adjustment.

B. **Time period for appeal.** An appeal shall be taken within thirty (30) days of the order, requirement, decision, or determination appealed from.

C. **Filing with Board of Adjustment.** An appeal shall be taken by filing with the Board of Adjustment a notice of appeal specifying the ground for the affect.

D. **Public hearing.** The Board of Adjustment shall fix a reasonable time for the hearing of the appellant and give due notice of the hearing to the applicant and the officer from whom the appeal is taken and to the public and town board. The public hearing shall meet the requirements of Chapter 8, Section 2, of this Ordinance.

E. **Time period for decision.** The board of adjustment shall decide the appeal within fifteen (15) days of the hearing.

F. **Appeal stays underlying proceedings.** An appeal stays all proceedings in furtherance of the action appealed from unless the Board of Adjustment certifies that because of the facts stated in the certificate a stay would cause imminent peril to life or property.

G. **Form of decision.** The Board of Adjustment may reverse or affirm wholly or partly, or may modify the order, requirement, decision, or determination appealed from and to that end shall have all the powers of the officer from whom the appeal was taken and may direct the issuance of a permit. The reasons for the board's decision shall be stated in writing and mailed to any person appearing at the hearing.

H. **BOA decision appealable to District Court.** The decision of the Board of Adjustment shall be final, except that any person having an interest affected by the decision shall have the right to appeal to the District Court, provided the appeal is instituted within thirty (30) days after receipt of notice of the decision of the Board of Adjustment.

I. **Recording of decision.** A certified copy of any order issued by the Board of Adjustment acting upon an appeal from an order, requirement, decision or determination by administrative official, or a request for a variance, shall be filed with the county recorder or registrar of titles for record. The order issued by the Board of Adjustment shall include the legal description of the property involved.

J. **Board of County Commissioner's decision appealable to District Court.** The decision of the Board of County Commissioner's shall be final, except that any person having an interest affected by the decision shall have the right to appeal to the District Court, provided the appeal is instituted within thirty (30) days after receipt of notice of the decision by the Board of County Commissioner's. These decisions include conditional use permits, change of zone requests, and all subdivisions.

CHAPTER 10 Buffer Ordinance

Section 1 Statutory Authorization and Policy

1.1. **Statutory authorization.** This buffer ordinance is adopted pursuant to the authorization and policies contained in Minn. Stat. §103F.48, the Buffer Law, and the County planning and zoning enabling legislation in Minn. Stat. chapter 394.

1.2. **Purpose and intent.** It is the purpose and intent of the County to:

(a) Provide for riparian vegetated buffers and water quality practices to achieve the following purposes:

(1) Protect state water resources from erosion and runoff pollution;
(2) Stabilize soils, shores, and banks; and
(3) Protect or provide riparian corridors.

(b) Coordinate the implementation and enforcement of the water resources riparian protection requirements of Minn. Stat. §103F.48 with the shoreland management rules and ordinances adopted under the authority of Minn. Stat. §103F.201 to 103F.227 and the management of public drainage systems established under Minn. Stat. chapter 103E where applicable; and

(c) Provide efficient and effective direction to landowners and protection of surface water quality and related land resources.

Section 2 Definitions and General Provisions

2.1 Definitions. Unless specifically defined below, words or phrases used in this ordinance shall be interpreted to give them the same meaning they have in common usage and to give this ordinance it's most reasonable application. For the purpose of this ordinance, the words "must" and "shall" are mandatory and not permissive. All distances, unless otherwise specified, are measured horizontally.

2.1.1 "APO" means the administrative penalty order issued pursuant to Minn. Stat. §103F.48, subd. 7 and Minn. Stat. §103B.101, subd. 12a.

2.1.2 "Buffer" has the meaning provided in Minn. Stat. §103F.48, subd. 1(c).

2.1.3 "Buffer protection map" has the meaning provided in Minn. Stat. §103F.48, subd. 1(d) and which are available on the Department of Natural Resources website.

2.1.4 "BWSR" means the Board of Water and Soil Resources.

2.1.5 "Cultivation farming" means farming practices that disturb root or soil structure or that impair the viability of perennial vegetation due to cutting or harvesting near the soil surface.

2.1.6 "Drainage authority" has the meaning provided in Minn. Stat. §103E.005, subd. 9.

2.1.7 "Landowner" means the holder of the fee title, the holder's agents or assigns, any lessee, licensee, or operator of the real property and includes all land occupiers as defined by

Minn. Stat. §103F.401, subd. 7 or any other party conducting farming activities on or exercising control over the real property.

2.1.8 "Parcel" means a unit of real property that has been given a tax identification number maintained by the County.

2.1.9 "Public drainage system" has the meaning given to "drainage system" in Minn. Stat. §103E.005, subd. 12.

2.1.10 "Local water management authority" has the meaning provided in Minn. Stat. §103F.48, Subd. 1(g).

2.1.11 "Normal water level" means the level evidenced by the long-term presence of surface water as indicated directly by hydrophytic plants or hydric soils or indirectly determined via hydrological models or analysis.

2.1.112 "SWCD" means Soil and Water Conservation District.

2.2 Severability. If any section, clause, provision, or portion of this ordinance is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this ordinance shall not be affected thereby.

2.3 **Data sharing/management.**

2.3.1 The County may enter into arrangements with an SWCD, a watershed district if applicable, BWSR and other parties with respect to the creation and maintenance of, and access to, data concerning buffers and alternative practices under this ordinance.

2.3.2 The County will manage all such data in accordance with the Minnesota Data Practices Act and any other applicable laws.

Section 3 Jurisdiction

3.1 Jurisdiction. The provisions of this ordinance apply to all waters, including public drainage systems for which the County is not the drainage authority under Minn. Stat. chapter 103E, shown on the buffer protection map.

Section 4 Buffer Requirements

4.1 Buffer width. Except as provided in subsection 4.4 and 4.5, a landowner owning property adjacent to a water body identified on the buffer protection map must establish and maintain a buffer area as follows:

(a) For waters shown on the buffer protection map requiring a fifty (50) foot width buffer, the buffer width will be fifty (50) foot average and thirty (30) foot minimum width as provided in Minn. Stat. §103F.48, subd. 3 and as measured according to subsection 4.2; and

(b) For waters shown on the buffer protection map requiring a sixteen and a half (16.5) foot minimum width buffer, the buffer width will be sixteen and a half (16.5) feet as provided in Minn. Stat. §103F.48, subd. 3 and as measured according to subsection 4.2.

4.2 Measurement.

(a) The width of any required buffer on land adjacent to a water requiring a fifty (50) foot average width and a thirty (30) foot minimum width buffer shall be measured

from the top or crown of the bank. Where there is no defined bank, measurement must be from the edge of the normal water level as provided in Minn. Stat. §103F.48, subd. 3(c).

(b) The width of any required buffer on land adjacent to a water requiring a sixteen and a half (16.5) foot minimum width buffer shall be measured in the same manner as for measuring the vegetated grass strip under Minn. Stat. §103E.021, subd. 1 as provided in Minn. Stat. §103F.48, subd. 3(c).

4.3 **Use of buffer area.** Except as provided in sections 4.4 and 4.5 a buffer as defined in this ordinance may not be put to any use, included but not limited to cultivation farming, which would remove or prevent the permanent growth of perennial vegetation.

4.4 **Exemptions.** The requirement of section 4.1 does not apply to land that is exempted from the water resources riparian protection requirements under Minn. Stat. §103F.48, subd. 5.

4.5. **Alternative practices.** As provided in Minn. Stat. §103F.48, subd. 3(b) an owner of land that is used for cultivation farming may demonstrate compliance with subsection 4.1 by establishing and maintaining an alternative riparian water quality practice(s), or combination of structural, vegetative, and management practice(s) which provide water quality protection comparable to the water quality protection provided by a required buffer as defined in sections 4.1 to 4.3. The adequacy of any alternative practice allowed under this section shall be based on:

(a) the Natural Resources Conservation Service (NRCS) Field Office Technical Guide (FOTG);

(b) common alternative practices adopted and published by BWSR;

(c) practices based on local conditions approved by the SWCD that are consistent with the Natural Resources Conservation Service (NRCS) Field Office Technical Guide (FOTG); or

(d) other practices adopted by BWSR.

4.6 **Nonconformity.** Where the provisions of any statute, other ordinance or regulation imposes greater restrictions than this ordinance, the provisions of such shall be controlling. The continuation of nonconformities provided for by Minn. Stat. §394 and §462 shall not apply to compliance with this ordinance and Minn. Stat. §103F.48.

Section 5 Compliance Determinations

5.1 **Compliance determinations**. Compliance with the buffer requirements set forth in section 4 will be determined by the SWCD on a parcel by parcel basis. The compliance status of each bank, or edge of a waterbody on an individual parcel will be determined independently.

5.2 **Investigation and notification of noncompliance.** When the County identifies a potential noncompliance with the buffer requirements or receives a third party complaint from a private individual or entity, or from another public agency, it will consult with the SWCD to determine the appropriate course of action to document compliance status. This may include communication with the landowner, inspection, or other appropriate steps necessary to verify the compliance status of the parcel. On the basis of the evidence gathered in this process, the SWCD may issue a Notification of Noncompliance to the County. If the SWCD does not issue such a Notification, the County will not pursue a compliance or enforcement action under Minnesota Statutes §103F.48 and subsection 6.2.

At any time during process set forth in 5.2 and 5.3, the landowner may provide documentation of compliance to the SWCD.

5.2.1 **Compliance determination**. The SWCD will evaluate the available documentation, and/or evaluate and/or inspect the buffer and/or alternative practices to determine if the parcel is in compliance. Upon completion of the evaluation and/or inspection the SWCD shall issue a written compliance determination to the landowner, the County and BWSR. The SWCD may also issue a Validation of Compliance if applicable and requested by the landowner.

5.3 **Corrective Action Notice**. On receipt of an SWCD Notification of Noncompliance, the County will issue the landowner a Corrective Action Notice that will:

(a) include a list of corrective actions needed to come into compliance with the requirements of Minn. Stat. §103F.48;

(b) provide a timeline for complying with the corrective action notice;

(c) provide a compliance standard against which the County will judge the corrective action; and

(d) include a statement that failure to respond to this Notice may result in the assessment of criminal, civil or administrative penalties.

The County may send the landowner a combined Corrective Action Notice and APO as provided in section 6.2 so long as the combined Notice/APO includes all the required elements of both.

The County shall transmit the corrective action notice by either personal service to the landowner or by depositing the same in the U.S. Mail. If service is made by U.S. mail, the document is deemed received Seven (7) business days after the notice was placed in the U.S. mail. Failure of actual receipt of a corrective action notice that has either been personally served or served by depositing the same in the U.S. Mail shall not be deemed a defense in an enforcement proceeding under section 6.0. The County shall also send a copy of the Notice to the SWCD and BWSR.

Counties may modify the corrective actions and timeline for compliance, in accordance with section 5.2, to extend the compliance timeline for a modification that imposes a substantial new action or significantly accelerates the completion date for an action.

5.3.1 At any time after receipt of a corrective action notice, the landowner may provide documentation of compliance to the County. In addition, the landowner may supply information to the County or the SWCD in support of a request to modify a corrective action or the timeline for compliance. On the basis of any such submittal or at its own discretion, the County may make a written modification to the Corrective Action Notice or timeline for compliance. The County should also make a written determination documenting whether the noncompliance has been fully corrected. Any such modification of a compliance determination will be served on the landowner in the manner provided for in section 5.3. The County shall provide the SWCD and BWSR a written copy of any modification made pursuant to this provision.

5.3.2 The SWCD may, after an evaluation of the evidence documenting compliance submitted by the landowner, issue a written Validation of Compliance if requested by the landowner. Upon receipt by the County of a written compliance determination issued by the SWCD, the Corrective Action Notice will be deemed withdrawn for the purpose of section 6.0, and the subject property will not be subject to enforcement under that section.

Section 6 Enforcement

6.1 The County may issue an APO as provided for in Minn. Stat. §§103F.48, subd. 7(b) and (c) and 103B.101, subdivision 12a to a landowner who has failed to take the corrective action as set forth in the corrective action notice. For the APO to be effective it must be served on the landowner together with a copy of the corrective action notice or alternatively the County may serve the landowner with a combined Corrective Action Notice and APO so long as the combined Notice/APO includes all the elements of both. Service is effective either by personal service or by depositing the documents set forth herein in the U.S. Mail. Any penalty assessed in the APO shall continue to accrue until the violation is corrected as provided in the Corrective Action Notice and APO.

(a) Initial violation. The penalty for a landowner on a single parcel that has not previously been the subject of an APO issued by the County shall be:

i. $0 for 11 months after issuance of the Corrective Action Notice;
ii. $50 per parcel per month for the first six (6) months (180 days) following the time period in i; and
iii. $200 per parcel per month after six (6) months (180 days) following the time period in ii.

b) Repeat violation. The penalty for a landowner on a single parcel that has previously been the subject of an APO issued by the County shall be:

i. $50 per parcel per day for 180 days after issuance of the Corrective Action Notice; and
ii. $200 per parcel per day for after 180 days following the time period in i.

(c) Ongoing penalty assessment. Any penalty assessed under this section shall continue until the corrective action notice has been satisfied.

6.2.1 APO. To be valid the APO shall include, at a minimum:

i. The facts constituting the violation of the riparian protection and water quality practices requirements set forth in this section 4.0 of this ordinance or Minn. Stat. §103F.48 ;
ii. The specific statute and/or ordinance section(s) that has/have been violated;
iii. A written description of prior efforts to work with the landowner to resolve the violation;
iv. The amount of the penalty to be imposed;
v. The date the penalty will begin to accrue;
vi. The date that payment of the penalty is due;
vii. The date by which all or part of the penalty may be forgiven if the landowner has/have complied with the Corrective Action Notice; and
viii. A statement of the landowner's right to appeal the APO.

6.2.2 All or part of the penalty may be forgiven based on the correction of the noncompliance by the date specified in the APO by the landowner as provided in Minn. Stat. §103F.48, subd. 7(d).

6.2.3 A copy of the APO must be sent to the SWCD and BWSR.

6.2.4 An APO issued under this section may be appealed to the BWSR within 30 days of receipt by the landowner in accordance with the requirements set for the in Minn. Stat. §103F.48, subd. 9. Any APO that is not appealed within the 30 day period shall be deemed final.

6.3 Administrative Penalty Order Procedures

6.3.1 Statute of limitations. Any criminal enforcement action undertaken pursuant to section 6.1 of this ordinance must be undertaken within two years after the alleged violation was discovered or reasonably should have been discovered by the County. According to Minn. Stat. §541.07, the County has two years in which to commence an APO action after the date the violation is discovered. The goal is to complete the action as soon as reasonably practical, recognizing that situations for which data must be gathered, field investigations must be completed and/or modeling must be performed will require adequate time to complete the work and communicate with the landowner involved.

6.3.2 Compliance verification. Once a landowner has submitted written evidence of correction of the violation set forth in the notice of compliance, compliance must be verified. The County will:

i. Review and evaluate all information related to the APO to determine if the violation has been corrected;
ii. Verify compliance by site visit, re-inspection, examination of documentation, or other means as may be reasonable under the facts of the case; and
iii. Document compliance verification.

The County may consult with the SWCD when conducting a compliance verification.

6.3.3 Right to appeal. Within 30 days after receipt of the APO, a landowner may appeal the terms and conditions of an APO issued by a County to BWSR as provided in Minn. Stat. §103F.48, subd. 9. The appeal must be in writing and must include a copy of the APO that is being appealed, the basis for the appeal and any supporting evidence. The appeal may be submitted personally, by U.S. mail, or electronically, to the Executive Director of BWSR.

6.3.4 Penalty due. Unless the landowner appeals the APO as provided in section 6.3.3 the penalty specified in the APO becomes immediately due and payable to the County as set forth in the APO. If, however, the landowner submits written documentation that the violations has been corrected prior to the time the penalty becomes due and payable the County shall verify compliance and adjust the penalty to an amount the landowner would have owed had the penalty been paid on the date the landowner submitted written documentation of compliance. Written documentation of compliance may include a written validation of compliance issued by the SWCD.

However, if the County determines the violation was not fully corrected, the County shall notify the landowner by issuing a written letter of determination and depositing it in the U.S. Mail. Any determination sent by U.S. Mail shall be deemed received three business days after the letter of determination has been deposited in the U.S. Mail. The landowner shall have an additional 20 days after receipt of the letter of determination to pay the penalty or the time period specified in the APO as issued, whichever is later. The penalty will continue to accrue until the violation is corrected as provided in the Corrective Action Notice and APO.

6.3.5 Referral for collection of penalty. All penalties and interest assessed under an APO must be paid by the landowner within the time specified in this section. All payments shall be

made payable to the County. Any penalty or interest not received in the specified time may be collected by the County using any lawful means.

6.3.6 Reporting and documentation. The County shall maintain the following records for any potential violation of the riparian protection and water quality practices requirements. Said records shall include but are not limited to the following:

iv. The cause of the violation;
v. The magnitude and duration of the violation;
vi. Documentation showing whether the violation presents an actual or imminent risk to public health and safety;
vii. Documentation showing whether the violation has the potential to harm to the natural resources of the state;
viii. A record of past violations;
ix. Efforts by the SWCD, County, Watershed District or BWSR to assist the responsible party or parties to become compliant, including written and oral communications with the responsible party or parties ; and
x. Past and present corrective action efforts by the responsible party or parties.

CHAPTER 11 DEFINITIONS

Section 1 Rules

Certain words or terms used in this Ordinance shall be interpreted according to the following rules:

A. Whenever a word or term defined in Section 2., below, appears in the text of this Ordinance, its meaning shall be construed as set forth in such definition. If no set definition is given in the Ordinance, the word may be interpreted according to the dictionary definition.

B. Words used in the present tense shall include the future;

C. Words used in the singular shall include the plural and the plural the singular;

D. The word "structure" shall include the word "building" and the word "lot" shall include the word "piece" or "parcel";

E. The word "shall" is mandatory;

F. The word "may" is permissive; and

G. The word "person" includes a firm, association, partnership, trust, company, or corporation, as well as an individual.

Section 2 Definitions

For the purpose of this Ordinance, certain words and terms are hereby defined as follows;

Accessory use. See "Use, accessory."

Adult body painting studio. An establishment or business that provides the service of applying paint or other substance, whether transparent or non-transparent, to or on the body of a patron when such body is wholly or partially nude in the terms of "specified anatomical areas."

Adult book store. An establishment, building or business engaging in the barter, rental, or sale of items or merchandise consisting of printed matter, pictures, slides, records, audio tapes, video tapes, computer or video disks, motion picture film, or any other similar materials, if such shop is not open to the public generally but only to one or more classes of the public, excluding any minor because of age, if more than twenty percent (20%) of the useable floor area of the establishment, building or business, characterized by the emphasis on matters depicting, describing or related to "specified sexual activities" or "specified anatomical areas."

Adult cabaret. An establishment, building or business that provides dancing or other live entertainment if such dancing or live entertainment is distinguished or characterized by an emphasis on the performance or presentation, display, depiction, or description of "specified sexual activities" or "specified anatomical areas."

Adult car wash. A wash facility for any type of motor vehicle that allows employees, agent, independent contractors, or persons to appear in a state of partial or total nudity in terms of "specified anatomical areas."

Adult companionship establishment. An establishment or business, if such establishment excludes minors because of age, or which provides the service of engaging in or listening to conversation, talk or discussion between an employee of the establishment and customer, if such service is distinguished or characterized by an emphasis on "specified sexual activities" or "specified anatomical areas."

Adult entertainment facility. A building or space in which an admission is charged for the entrance, or food or non-alcoholic beverages area being sold or intended for consumption, and in which may be observed live presentation of entertainment distinguished or characterized by an emphasis on "specified sexual activities" or "specified anatomical areas."

Adult establishment. An establishment, building or business engaging in any of the following activities or which uses any of the following business procedures or practices:

1. Any business conducted exclusively for the patronage of adults and about which minors are specifically excluded from patronage either by law or by the operator of such business; or

2. Any other business that offers its patrons services, products or entertainment characterized by an emphasis on matters depicting, exposing, describing, discussing, or relating to "specified sexual activities" or "specified anatomical areas".

Specifically included in the term, but without limitation, are adult book stores, adult motion picture theaters, adult mini-motion picture theaters, adult massage parlors, adult health clubs, adult saunas, adult companionship establishments, adult cabarets, adult car washes, adult novelty businesses, adult motion picture arcades, adult modeling studios, adult hotels or motels, adult body painting studio.

Adult hotel or motel. A hotel or motel from which minors are specifically excluded from patronage and in which material is presented that is distinguished or characterized by an emphasis on "specified sexual activities" or "specified anatomical areas."

Adult massage parlor, health/sport club. A massage parlor or health sport club that restricts minors because of age or law, which provides services of massage if such services is distinguished or characterized by an emphasis on "specified sexual activities" or "specified anatomical areas."

Adult mini-motion picture theater. A business or establishment in an enclosed building with a capacity for less than fifty (50) persons used for the presenting of visual media material if such business as a prevailing practice excludes minors by age or law, or if said material is distinguished or characterized by an emphasis on "specified sexual activities" or "specified anatomical areas" for observation by patrons.

Adult modeling studio. An establishment or business whose major business is the provision of customers of figure models who are provided with the intent of providing sexual stimulation or sexual gratification to such customers who engage in "specified sexual activities" or emphasize "specified anatomical areas" while being observed, painted, painted upon, sketched, drawn, sculptured, photographed, or otherwise depicted by such customers.

Adult motion picture arcade. Any building or place to which the public is allowed or invited in which coin or slug operated or electronically, electrically or mechanically controlled still or motion picture machines, projectors, computers or other image producing devices that show images to five (5) or fewer persons per machine at once, and characterized by an emphasis on depicting or describing "specified sexual activities" or specified anatomical areas."

Adult motion picture theater. A business or establishment in an enclosed building with a capacity for fifty (50) or more persons used for the presenting of visual media material if such business as a prevailing practice excludes minors by age or law, or if said material is distinguished or characterized by an emphasis on "specified sexual activities" or "specified anatomical areas" for observation by patrons.

Adult novelty business. A business that has a principal activity for the sale of materials or devices that stimulate human genitals or devices designed for sexual stimulation or which depict or which relate to "specified sexual activities" or "specified anatomical areas."

Adult sauna/steam room/bathhouse. A business that excludes minors because of age, or which provides a steam bath or heat bathing room used for bathing, pleasure, relaxation or reducing, utilizing steam or hot air as a cleaning, relaxing, or reducing agent, if the service provided by the sauna/steam room/bathhouse is distinguished or characterized by an emphasis on "specified sexual activities" or "specified anatomical areas."

Adult use/sexually oriented business. Adult body painting studios, adult book stores, adult car washes, adult hotels or motels, adult motion pictures theaters, adult mini motion picture theaters, adult massage parlors, adult health/sport clubs, adult sauna/steam room/bath houses, adult companionship

establishments, adult rap/conversation parlors, adult novelty businesses, adult motion picture arcade, adult modeling studios and other premises, enterprises or establishments, businesses, or places open to some or all members of the public at or in which there is an emphasis on the presentation or display, depiction, or description of "specified sexual activities" or "specified anatomical areas" which the public could see. This definition does not apply to the practice of medicine, surgery, osteopathy, chiropractic, physical therapy, or podiatry by State licenses registered persons. Activities classified as obscene, defined by Minnesota Statues Section 617.241, are not lawful and are not included in the definitions of adult uses.

Adult uses, accessory. The offering of goods and/or services classified as adult uses on a limited scale that are incidental to the primary activities and goods and/or services offered by the establishment. Examples of such items include adult magazines, adult movies, adult novelties, and the like.

Adult uses, principal. The offering of goods and/or services classified as adult uses as a primary or sole activity of a business or establishment and include, but are not limited to the following: adult body painting studio; adult book store; adult cabaret; adult companionship establishments; adult entertainment facility; adult establishment; adult hotel or motel; adult massage parlor, health/sport club; adult mini-motion picture theater; adult modeling studio; adult motion picture arcade; adult motion picture theater; adult novelty business; or adult sauna/steam room/bathhouse.

Agriculture. The art or science of cultivation of the soil, the growing of soil crops, horticulture of crops, and forestry in the customary manner, the accessory raising of livestock and poultry, also packing, treating, or storing the produce raised on the premises. The term shall include incidental retail selling by the producer of products raised on the premises, provided that space necessary for parking of vehicles of customers shall be furnished off the public right-of-way.

Agricultural building or structure. Any building or structure, incidental to agriculture, existing or erected on land used principally for agriculture, with the exception of a dwelling.

Agricultural land. Land which is used for agriculture, including land temporarily removed from the agricultural use. See also "Agriculture."

Alley. A public right-of-way which affords a secondary means of access to abutting property.

Animal unit. A unit of measure used to compare differences in the production of animal manure that uses as a standard the amount of manure produced on a regular basis by a slaughter steer or heifer. For purposes of this rule, the following equivalents apply:

ANIMAL		UNIT	
One slaughter steer or heifer	1.0	animal	unit
One mature dairy cow	1.4	animal	unit

ANIMAL		UNIT	
One horse	1.0	animal	unit
One swine over 55 pounds	0.4	animal	unit
One sheep	0.1	animal	unit
One swine under 55 pounds	0.05	animal	unit
One turkey	0.018	animal	unit
One chicken	0.01	animal	unit

For animals not listed, the number of animal units is defined as the average weight of the animal divided by one thousand (1,000) pounds.

Antenna. Any structure or device used for the purpose of collecting or radiating electromagnetic waves, including, but not limited to, directional antennas, such as panels, microwave dishes, and satellite dishes, and omni-directional antennas, such as whips.

Attached. The sharing of a common wall or portion of a wall with a door, so that a person may travel between buildings without going outside.

Authorized Representative: An employee or agent of the County Planning and Zoning Department.

Automobile wrecking. See "Junk yards."

Bedrock. That layer of parent material which is consolidated and un-weathered. Bedrock also includes layers of which greater than fifty percent (50%) by volume consists of un-weathered in-place consolidated bedrock fragments.

Bedroom. Any room or unfinished area within a dwelling that might reasonably be used as a sleeping room.

Block. An area of land within a subdivision that is entirely bounded by a street, or by streets and the exterior boundary or boundaries of the subdivision, or a combination of the above with a river or a lake.

Bluff. A topographic feature such as a hill, cliff, or embankment having the following characteristics:

1. Part or all of the feature is located in a Shoreland area;
2. The slope rises at least twenty-five feet (25') above the ordinary high water level of the waterbody;
3. The grade of the slope from the toe of the bluff to any point twenty-five feet (25') or more above the ordinary high water level that averages thirty percent (30%) or greater; and
4. The slope must drain toward the waterbody.

An area otherwise within a bluff with an average slope of less than eighteen percent (18%) over a distance of fifty feet (50') or more, measured on the ground, shall not be considered part of the bluff.

Bluff impact zone. A bluff and land located within twenty feet (20') from the top of the bluff.

Board of Adjustments. The Becker County Board of Adjustments.

Buffer: An area of land consisting of established perennial vegetation, excluding invasive plants and noxious weeds, designed to intercept stormwater runoff, stabilize of soils, shores, and banks..

Buffer, Natural: An unmown, undisturbed natural or enhanced native perennial vegetation area, excluding invasive plants and noxious weeds, that is managed to stabilize and maintain the integrity of upland, shorelines, and stream channels, to reduce the impact of upland sources of water pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals, and to supply food, cover, and thermal protection to fish and other wildlife.

Buildable Area. The minimum continuous area remaining on a lot or parcel of land after all setback requirements, bluffs, all easements and rights-of-way, and wetlands are subtracted. The buildable area shall be accessible by public road frontage or an appropriate easement with a graded and serviceable driving surface.

Building. Any structure for the shelter, support or enclosure of persons, animals, chattel, or property of any kind. Each portion of a building separated by common walls without openings is a separate building. A structure used for essential services is not a building.

Building, agricultural. See "Agricultural building."

Building Code. The State of Minnesota Building Code contained in Minnesota Statutes Sections 16B.59 through 735.

Building height. The vertical distance from the average of the highest and lowest point of that portion of the lot covered by the building to the highest point of the roof, to the deck of mansard roofs or flat roofs, and to the mean height between eaves and ridge for gable, hip, and gambrel roofs.

Building line. See "Building setback line."

Building setback line. A line within a lot or other parcel of land parallel to the lot lines defining a portion of the lot between the setback line and the lot lines or on which buildings may not be placed.

Business. For the purpose of the provisions in Chapter 4, Section 10, *Individual subsurface sewage treatment Systems,* of this Ordinance, an individual or organization that conducts site evaluations or designs, installs, maintains, repairs, pumps, or inspects an individual subsurface sewage treatment system.

Campground. A parcel of land under single ownership, designed, constructed, and administrated for the placement of recreation vehicles, tents, or trailers.

Certificate of compliance, ISTS. A document written after a compliance inspection, certifying that an individual subsurface sewage treatment system is in compliance and signed by a qualified employee or licensee.

Certified statement. A statement signed by a licensee or qualified employee certifying that individual subsurface sewage treatment system work was completed in accordance with applicable requirements.

Cesspool. An underground pit or seepage tank into which raw sewage is discharged and from which the liquid seeps into the surrounding soil, bedrock, or other soil materials.

Channel. A natural or artificial depression of perceptible extent, with definite bed and banks to confine and conduct flowing water either continuously or periodically.

Class V Injection Well: A shallow well used to place a variety of fluids directly below the land surface, which includes a domestic SSTS serving more than 20 people. The US Environmental Protection Agency and delegated state groundwater programs permit these wells to inject wastes below the ground surface provided they meet certain requirements and do not endanger underground sources of drinking water. Class V motor vehicle waste disposal wells and large-capacity cesspools are specifically prohibited (see 40 CFR Parts 144 & 146).

Cluster System: A SSTS under some form of common ownership that collects wastewater from two or more dwellings or buildings and conveys it to a treatment and dispersal system located on an acceptable site near the dwellings or buildings.

Commercial use. The use of land or buildings for the sale, lease, rental or trade of products, goods, or services.

Commercial planned unit development. A planned unit development that provides transient short-term lodging spaces, rooms, or parcels. For example, hotels, motels, resorts, recreational vehicle, and camping parks.

Community water and sewer systems. Utilities systems serving a group of buildings, lots, or an area of the County, with the design and construction of such utility systems approved by the County and the State

of Minnesota. The system may be operated by any unit of government. In a planned unit development, the sewage water system may be managed and operated by the homeowners association or common interest community association.

Compliance inspection. Any evaluation, investigation, inspection, or other such process to make conclusions, recommendations, or statements regarding an individual subsurface sewage treatment system to reasonably assure an individual subsurface sewage treatment system is in compliance as specified under Chapter 4 Section 10. Compliance inspections must be conducted by a qualified employee or under a license independent of the owner and the installer.

Comprehensive Plan. The group of maps, charts and texts that make up the comprehensive long-range plan for the County.

Conditional use. A land use or development that would not be appropriate generally but may be allowed with appropriate controls upon a finding that certain conditions as detailed in this Ordinance exist.

Conservation Subdivision. See "shoreland conservation subdivision".

Contiguous. The sharing of a common lot line or boundary or any portion of a lot line or boundary, touching at any point.

County. The County of Becker, Minnesota.

County Board. The Board of County Commissioners of Becker County.

County Board of Commissioners. See "County Board."

County Planning Commission. The Becker County Planning Commission.

Covenants. See "Protective Covenants".

Deck. A horizontal, unenclosed platform with or without attached railings, seats, trellises, or other features, attached, or functionally related to a dwelling unit, principal use or site and extending at any point more than six inches (6") above ground.

Deck, impervious. A deck that does not meet the requirements of a pervious deck as defined in "deck, pervious".

Deck, pervious. A deck constructed under the following conditions: maximum material (board width is eight inches (8"); minimum spacing between material (boards) is one quarter inch (1/4"); and the area under the deck is pervious material.

Department. The Becker County Planning and Zoning Department unless otherwise provided herein.

Design Flow: The daily volume of wastewater, for which an SSTS is designed to treat and discharge.

DNR. The Minnesota Department of Natural Resources.

Depth of lot. See "Lot, depth."

Depth of rear lot. The mean horizontal distance between the rear line of the building and the centerline of an alley, where an alley exists, otherwise a rear lot line.

Design Flow: The daily volume of wastewater, for which an SSTS is designed to treat and discharge.

Design standards. The specifications to landowners or subdividers for the preparation of plats, both preliminary and final, indicating among other things, the optimum, minimum or maximum dimensions of such items as right-of-way, blocks, easements and lots.

Detached. Complete separation (including the complete separation of roofs, walls, and decks) or when a person travels between buildings by going outside.

Disclosure. For the purpose of the provisions in Chapter 4, Section 10, Individual subsurface sewage treatment Systems, of this Ordinance, "disclosure" means any conclusions or statements regarding an ISTS made by the owner of a property with or served by an ISTS to fulfill the requirements of Minnesota Statutes, section 115.55, subdivision 6.

District. A section of the County for which the regulations governing the height, area, use of buildings and premises are the same.

Domestic animal. Animals typically kept as household pets, such as but not limited to cats and dogs.

Duplex, triplex, and quad. A dwelling structure that has two, three, and four dwelling units, respectively, which units are attached by common walls and have separate sleeping, cooking, eating, living, and sanitation facilities.

Dwelling. Any building or part thereof which is designed or used exclusively for residential purposes by one or more human beings, either permanently, or transiently; A mobile home or Park Home shall be considered a dwelling and a travel trailer, recreational vehicle or tent shall not be considered a dwelling for purposes of this Ordinance.

Dwelling, multiple family. A dwelling structure that has more than four dwelling units attached by common walls each of which has separate sleeping, cooking, eating, living, and sanitation facilities.

Dwelling, single family. A dwelling structure that is the sole principle structure on a lot, which has common cooking, eating, and living facilities which is operated as a single housekeeping unit as distinguished from a boarding house, club house, fraternity house or hotel.

Dwelling site. A designated location for residential use by one or more persons using temporary or movable shelter, including camping and recreational vehicle sites.

Dwelling unit. Any structure or portion of a structure, or other shelter designed as short or long term living quarters for one or more persons, including rental or timeshare accommodations such as motel, hotel, and resort rooms and cabins.

Essential services. Overhead or underground electrical, gas, steam or water transmission distribution systems and structures, or collection, communication, supply or disposal systems and structures, used by public utilities, rural electric cooperatives, public cooperatives or governmental departments or commissions or as are required for protection of the public health, safety, or general welfare, including towers, poles, wires, mains, drains, microwave relay towers, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, and accessories in connection therewith, but not including buildings.

Expansions of non-conforming structures: Enlargement or any increase in a dimension, size, or area resulting in an increase in the livable area, any placement of a structure or part thereof where none existed before. Changes in roof pitch or structure height are not expansions as long as they do not increase livable space.

Extractive use. The removal of any sand, gravel, stone, coal, clay, peat, subsoil, topsoil, or mineral from the land for sale.

Failing system. Any individual subsurface sewage treatment system that discharges sewage to a seepage pit, cesspool, drywell, or leaching pit and any system with less than three feet of soil or sand between the

bottom of the distribution medium and the saturated soil level or bedrock. In addition, any system posing an imminent threat to public health or safety shall be considered failing.

Failure to Protect Groundwater: At a minimum, a SSTS that does not protect groundwater is considered to be a seepage pit, cesspool, drywell, leaching pit, or other pit; a SSTS with less than the required vertical separation distance, described in 2012 MR Chapter 7080.1500 Subp. 4 D and E (2006 MR Chapter 7080.0060, Subp 3); and a system not abandoned in accordance with part 2012 7080.2500 (2006 7080.0176). The determination of the threat to groundwater for other conditions must be made by a Qualified Employee or an individual licensed pursuant to Section 5 hereof.

Farming. See Definition- Agriculture.

Feedlot, agricultural. An enclosure for feeding, breeding, raising or the holding of livestock or poultry of less than 500 animal units, or mink and other fur bearing animals in less than fifteen (15) hutches, or is incidental to a farming operation which has enough land to produce the majority of feed to feed the animals and dispose of the manure (animal wastes).

Feedlot, commercial. An enclosure for the feeding, breeding, raising, or holding livestock, poultry or mink and other fur bearing animals that is not an agriculture feed lot. A pasture is a feedlot when the concentration of livestock, poultry, or other animals is such that a vegetation cover is not maintained.

Final plat. A drawing or map of a subdivision, meeting all of the requirements of the County and in such form as required by Becker County for the purposes of recording.

Floor area. The sum of the gross horizontal area of the several floors of a building measured from the exterior walls, including basements, and attached accessory buildings.

Floor area ratio (F.A.R.). The gross floor area of all structures on a lot divided by the gross lot area.

Footing. Part of the foundation bearing directly upon the earth. For the purpose of this Ordinance, the definitions of footing and foundation may be interchanged.

Forest land conversion. The clear cutting of forested lands to prepare for a new land use other than establishment of a subsequent forest stand.

Foundation. The lowest division of a building, wall, or the like, usually of masonry or treated wood, and partly or wholly below the surface of the ground. For the purposed of this Ordinance, the definitions of footing and foundation may be interchanged.

Fur farm. See Definitions Feedlot, Agricultural; Feedlot, Commercial.

Greywater. "Greywater" means sewage that does not contain toilet wastes.

Group care facility. A facility which provides resident services to one (1) or more individuals of whom one or more are unrelated and are handicapped, aged, or disabled, are undergoing rehabilitation, and are provided services to meet their needs. Category includes use such as homes for the physically handicapped, chemically dependent, maternity shelter and halfway houses.

Guest cottage. A structure having floor space equipped with cooking/kitchen facilities, water supply and/or sanitary disposal facilities, sleeping accommodations with any other amenities capable of providing independent human habitation. A structure that is capable of being used as a dwelling unit in addition to the primary dwelling on a lot.

Guest room. A room occupied by one (1) or more guests for compensation in which no provisions are made for cooking, but not including rooms in a dormitory primarily for sleeping purposes. In a suite of rooms without cooking facilities, each room that provides sleeping accommodations shall be counted as one (1) lodging room.

Guest quarters. A structure having floor space capable of providing for temporary human occupation, such as sleeping accommodations for short-term guest use. The incidental use of guest quarters is supplementary to the main dwelling unit.

Habitable Residential Dwelling. A structure having floor space equipped with cooking/kitchen facilities, water supply and/or sanitary disposal facilities, sleeping accommodations with any other amenities capable of providing independent human habitation.

Hazardous waste. "Hazardous waste" means any substance which, when discarded, meets the definition of hazardous waste in Minnesota Rules, chapter 7045.

Highway. Any public thoroughfare or vehicular right-of-way with a Federal, State numerical route designation; any public thoroughfare or vehicular right-of-way with a Becker County numerical route designation.

Highway, major intercity and regional. State and Federal highway routes within the County.

Highway, major arterial. The principal County highways; such arterial highways interconnect communities within Becker County and adjoining counties, and carry traffic between principal land use districts within Becker County.

Highway, minor arterial. The secondary County highways; such highways carry traffic between land use districts, but also provide ready access to private properties.

Home occupation. Any service occupation that is clearly secondary to the main use of the premises as a dwelling and does not change the character thereof or have any exterior evidence of the secondary use except for a sign as allowed in Chapter 7, Section 15 of this ordinance.

Hotel. See Definition - Motel.

Ice ridge. A modification to the topographical characteristics of the shore resulting from a water basins expanding and contracting ice sheet and consisting of a linear mound of soil generally parallel to the waters edge.

Imminent Threat to Public Health and Safety: At a minimum a SSTS with a discharge of sewage or sewage effluent to the ground surface, drainage systems, ditches, or storm water drains or directly to surface water; SSTS that cause a reoccurring sewage backup into a dwelling or other establishment; SSTS with electrical hazards; or sewage tanks with unsecured, damaged, or weak maintenance access covers. The determination of protectiveness for other conditions must be made by a Qualified Employee or a SSTS inspection business licensed pursuant to Section 5 hereof.

Impervious surface. Any material that substantially reduces or prevents the infiltration of water. Impervious surfaces include, but are not limited to: streets, roofs, sidewalks, driveways, parking lots, and similar facilities and areas covered with gravel, concrete, bituminous, compacted sand, lime rock, clay or other surfaces that substantially reduce or prevent the infiltration of water.

ISTS. "ISTS" means an individual subsurface sewage treatment system as defined under “individual subsurface sewage treatment system”.

ISTS professional. "ISTS professional" means a person who conducts site evaluations or designs, installs, alters, repairs, maintains, pumps, or inspects all or part of an individual subsurface sewage treatment system and is required to comply with applicable requirements.

Individual subsurface sewage treatment system. "Individual subsurface sewage treatment system" means a sewage treatment system, or part thereof, serving a dwelling, or other establishment, or group

thereof that uses subsurface soil treatment and disposal. Individual subsurface sewage treatment system includes holding tanks and privies.

Industrial use. The use of land or buildings for the production, manufacturing, warehousing, storage, or transfer of goods, products, commodities, or other wholesale items.

Junk. Materials including, but not limited to, used or abandoned barrels or drums; dismantled or inoperative industrial or commercial equipment or machinery; household rubbish, debris, or garbage; junk vehicles (as herein defined); and any of the following old, scrap or used items: metal, rags, paper, cardboard, plastic, rubber products, glass products, lumber products including pallets, appliances, motors, batteries and industrial or commercial fixtures.

Junk vehicles. Three or more motor vehicles or trailers which are wrecked, abandoned, dismantled, disabled, inoperative, or which do not have a valid license plate attached thereto, or parts of such motor vehicles or trailers. This definition does not include vehicles lawfully placed in storage within a completely enclosed building.

Junk yard. A site where junk (as herein defined) is bought, sold, exchanged, discarded, stored, kept, or allowed to accumulate. (This definition does not include properly licensed sanitary landfills or any location where the processing of used, discarded or salvaged materials are part of manufacturing operation located on the same property or contractors' storage yards).

Land alteration. Any change in the surface of the land.

Landscape position. "Landscape position" means the identification of the shape of the land or geomorphic setting of the soil. Terms used to describe landscape position include ridge, side slope, foot slope, closed depression or pothole, drainage way or swale, terrace, or floodplain.

Licensed family day care, Licensed group family day care, Licensed childcare center. A facility holding a license from Becker County or Minnesota pursuant to Minnesota Statutes Chapter 245A and/or Minnesota Rules Chapter 9502 or Chapter 9053, as amended.

Licensee. For the purpose of the provisions in Chapter 4, Section 10, Individual Sewage Treatment Systems, of this Ordinance, "licensee" means the person to whom a license under Minnesota Rules, part 7080.0705 is issued. The designated registered professional is subject to the same obligations as the licensee. The license must be applicable to the work being performed.

Lot. A parcel of land in separate ownership from all surrounding parcels.

Lot, accessory. A substandard size non-riparian lot permanently attached by deed to a riparian lot located within 200 feet for the purpose of, but not limited to, garages, storage sheds, gardens and septic system.

Lot area per dwelling unit. The lot area required for each dwelling unit in a dwelling structure.

Lot, buildable non riparian. A non riparian lot meeting the lot width and area requirements of the ordinance for the purpose of constructing dwellings and accessory structures.

Lot, corner. A lot having frontage on two intersecting streets. The greater dimension of a corner lot is its depth, and its lesser dimension is its width.

Lot, double frontage. An interior lot having frontage on two non-intersecting streets.

Lot, interior. A lot other than a corner lot.

Lot lines. The lines bounding a lot. A street or front lot line is a lot line adjacent to the public road frontage. On a lot with frontage on two public roads both lot lines adjacent to the public roads are the front lot lines. A rear lot line is a line opposite a front lot line. Side lot lines are lines that are not otherwise defined as rear or front lot lines.

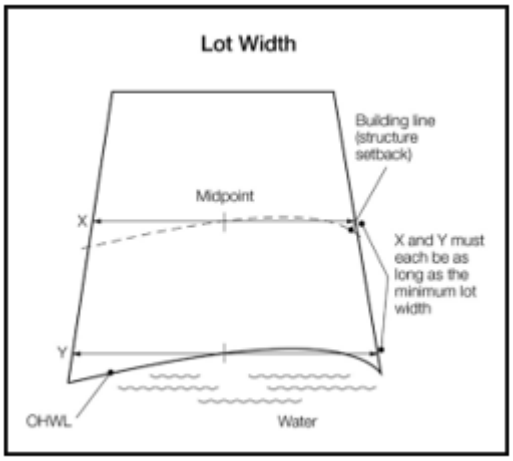
Lot of record. A lot that was buildable before the May 5, 1971 enactment of this Ordinance.

Lot, sewered. A lot that has access to publicly owned sewer service.

Lot, unsewered. A lot that does not have access to publicly owned sewer service.

Lot width, non-riparian. The shortest distance between lot lines measured at the building setback line from the road or rear setback line if served by an easement.

Lot width, riparian. The shortest distance between side lot lines measured at the building setback line from the OHW. This shall also be the minimum width abutting the ordinary high water level of the adjacent lake or river at the side lot lines.



Maintenance and/or repair. Normal upkeep of a structure that does not involve the replacement of the main structural frame or walls, or changes in the exterior dimensions of the structure, such as, but not limited to: work performed on the interior of the structure; painting; replacement of siding, windows, doors, soffit, facia, shingles, additional doors, or windows; new floorboards to decks. Under no conditions shall repairs and maintenance constitute replacement of the main structural frame, walls, or the exterior dimensions. Removal of the structure or any part of a structure and rebuilding on an existing slab or foundation constitutes new construction.

Malfunction: The partial or complete loss of function of a SSTS component, which requires a corrective action to restore its intended function.

Management Plan: A plan that describes necessary and recommended routine operational and maintenance requirements, periodic examination, adjustment, and testing, and the frequency of each to ensure system performance meets the treatment expectations, including a planned course of action to prevent an illegal discharge.

Manufactured home. A non-mobile housing unit that is fabricated at a central factory and transported to a building site where it is permanently affixed.

Marina. An in-land or off-shore structure for the concentrated mooring of five or more watercraft.

Mass gathering. A Mass Gathering is a gathering of people together on one (1) Site for any purpose where it is planned or may reasonably be expected that more than three hundred (300) persons attending the assembly will remain on the Site for more than eighteen (18) consecutive hours.

Metes and bounds. A method of describing property lines by their direction and distance from an easily identifiable point.

Minor. Any person under the age of eighteen (18) years.

Minor Repair: The repair or replacement of an existing damaged or faulty component/part of an SSTS that will return the SSTS to its operable condition. The repair shall not alter the original area, dimensions, design, specifications, or concept of the SSTS.

Mobile home. A factory-built living unit more than eleven (11) feet in width, with over 400 square feet of living area excluding entrance, closets, and accessory buildings, equipped with the necessary service connections to be readily movable as a unit on its own running gear and designed to be used as a dwelling unit without a permanent foundation.

Mobile home park. A parcel of land under single ownership, or with individually owned lots, designed, constructed, and administered for the placement of Mobile Homes.

Modular home. See Definition - Manufactured Home.

Motel. A building containing guest rooms where, for compensation, lodging or lodging and meals are provided to ten (10) or more persons.

MPCA: Minnesota Pollution Control Agency.

Multi unit development (M.U.D.). A type of development that is characterized by a unified site design for a number of dwelling units or dwelling sites on a parcel, whether for sale, rent, or lease, clustering of these units or sites to provide areas of common open space, density increases, and mix of structure types and land uses. These developments may be organized and operated as condominiums, time-share condominiums, cooperatives, full fee ownership, commercial enterprises, or any combination of these, or cluster developments of dwelling units, residential condominiums, townhouses, apartment buildings, campgrounds, recreational vehicle parks, resorts, hotels, motels, and conversions of structures and land uses to these uses.

Multi unit residential development (M.U.R.D.). A planned unit development for long term residential use containing more than five dwellings units or sites. See " shoreland conservation subdivision development".

Nonconforming structure or use. A structure or use lawfully in existence on the effective date of this Ordinance and not conforming to the regulations for the district in which it is situated.

Nudity: The showing of the human male or female genitals or pubic area with less than fully opaque covering; the showing of the female breast with less than fully opaque covering of any portion thereof below a point immediately above the top of the areola; or the depiction or showing of the coverage of male genitals in a discernibly turgid state.

Open space. Undeveloped land within the development that has been designated, dedicated, and reserved or restricted in perpetuity from further development and is set aside for the use and enjoyment by residents of the development. Open space shall not be part of unit sites. Open space shall be substantially free of structures, but may contain historic structures and archaeological sites, wetlands, subsurface sewage treatment facilities and/or such recreational facilities for residents as indicated on the approved development plan.

Ordinary high water level (OHWL). The boundary of public waters and wetlands, and shall be an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape. The ordinary high water level is commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For water-courses,

the ordinary high water level is the elevation of the top of the bank of the channel. For reservoirs and flowages the ordinary high water level shall be the operating elevation of the normal summer pool.

Other establishment. For the purpose of the provisions in Chapter 4, Section 10, Individual subsurface sewage treatment Systems, of this Ordinance, "other establishment" means any public or private structure other than a dwelling which generates sewage.

Owner. For the purpose of the provisions in Chapter 4, Section 10, Individual subsurface sewage treatment Systems, of this Ordinance, "owner" means any person having possession of, control over, or title to property with an individual subsurface sewage treatment system.

Park home. A factory-built structure, up to twelve (12) feet wide, with up to 400 square feet of living area including entrance and building additions, with the necessary service connections and constructed to be readily movable as a unit on its own running gear or trailer, and designed to be used as a seasonal dwelling unit without permanent foundation in a Recreational Vehicle Park. Also referred to as Park Models or Park Model Homes.

Parks and playgrounds. Public lands and open spaces in Becker County dedicated or reserved for recreation purposes.

Pasture. Areas where grass or other growing plants are used as feed for grazing.

Pedestrian way. A public or private right-of-way across a block or within a block to provide access for pedestrians and which may be used for the installation of utility lines.

Percentage of grade. On street centerline, means the distance vertically (up or down) from the horizontal in feet and tenths of a foot for each one hundred feet of horizontal distance.

Permit. A building, construction, sanitary, planning, zoning, or other such permit issued for new construction, replacement, repair, alteration, or extension of an individual subsurface sewage treatment system, including artificial drainage and collector systems. Permit also means a permit issued for the addition of a bedroom or bathroom on property served by an individual subsurface sewage treatment system.

Permittee. Any person who is named on a permit issued pursuant to this ordinance.

Permitting authority. Any unit of government, state agency, or any authorized representative who administers or enforces ordinances or laws or rules through permits.

Place of worship: A building or space that is principally used as a place where people of the same faith or religion regularly assemble for worship.

Planned unit development (PUD). see “Conservation Subdivision Development”

Planning Commission. The Becker County Planning Commission as defined in Minnesota Statute Section 394.30.

Plat. A tract other than one unit of a recorded plat occupied and used or intended to be improved by the erection of buildings.

Preliminary plat. A tentative drawing or map of a proposed subdivision meeting the requirements herein enumerated.

Preservation area. An area that is to be left in its natural state with soils, plants, grasses, shrubs, and trees and is to be left in and protected from alteration or development.

Private or Vacation Home Rental. Any home, cabin, condominium, bedroom, or similar building that is advertised as, or held out to be, a place where sleeping accommodations are furnished to the public on a nightly, weekly, or for less than a 30-day time period, and is not a bed and breakfast, resort, hotel, or motel.

Protective covenants. Contracts made between private parties as to the manner in which land may be used, with the view to protecting and preserving the physical and economic integrity of any given area.

Public library. Any library that provides free access to all residents of a city or county without discrimination and is organized under Minnesota Statutes Chapter 134.

Public park. A park reservation, playground, beach, or recreation or community center in the County owned, leased, or used wholly or in part by the city, county, state, school district, or federal government for recreational purposes.

Public waters. Any public waters or wetlands as defined in Minnesota Statutes, section 103G.005, subdivisions 15 and 19, or identified as public waters or wetlands by the inventory prepared pursuant to Minnesota Statutes, section 103G.201.

Qualified employee. For the purpose of the provisions in Chapter 4, Section 10, Individual subsurface sewage treatment Systems, of this Ordinance, "qualified employee" means an employee of state or local government who conducts site evaluations or designs; installs, maintains, pumps, or inspects individual subsurface sewage treatment systems as part of employment duties and is registered on the ISTS professional register with specialty area endorsements applicable to the work being conducted. A qualified employee may be an apprentice if the individual has specialty area endorsements applicable to the work to be completed, has fulfilled the contractual requirement under Minnesota Rules, part 7080.0815, subpart 1, item B or C, and has been issued performance restrictions.

Record Drawings: A set of drawings which to the fullest extent possible document the final in-place location, size, and type of all SSTS components including the results of any materials testing performed and a description of conditions during construction of the system.

Recreation facilities. Activities occurring outdoors including, but not limited to, unpaved hiking trails, unpaved biking trails, golf courses, parks.

Recreation vehicle. A vehicle with or without motor power designed for highway travel on its own wheels, constructed and equipped as a temporary living quarters while traveling or during hunting, fishing or vacation season. The term "Recreation Vehicle" shall include camp cars, camp bus, motor homes, "5th" wheelers, and travel trailers up to eight (8) feet six (6) inches in width plus a four (4) foot expansion unit, and forty (40) feet in length.

Recreational vehicle park. A parcel of land under single ownership, or with individually owned lots, designed, constructed, and administrated for the placement of Recreation Vehicles or Park Homes.

Repairs. See Maintenance and/or repair.

Replacement. The replacement of an existing sewage tank, holding tank, dosing chamber, artificial drainage, privy, collector system, or soil treatment system.

Residential planned unit development. See “Conservation Subdivision Development”.

Resort. A development of one or more buildings for lease or rent as temporary residences on one tract of land for the purpose of providing recreation and entertainment especially to vacationers.

Restaurants. "Restaurants" mean establishments that prepare and serve meals and at which multiple use dishes and utensils are washed.

Restoration area. An area that is to be brought back to its previous or original condition with native soils, plants, grasses, shrubs, and trees as determined by the DNR, local watersheds and Soil and Water Conservation.

Riparian. Bordering on a body of public water.

Road. A public right-of-way affording primary access by pedestrians and vehicles to abutting properties, whether designated as a street, highway, thoroughfare, parkway, throughway road, avenue, boulevard, lane, place, cartway or however otherwise designated.

Road cul-de-sac. A minor street or road with only one outlet and having an appropriate terminal for the safe and convenient reversal of traffic movement.

Road width. The shortest distance between lines of lots delineating the road right-of-way.

Salvage yard. Land or buildings where products resulting from disassembling or wrecking of automobiles or other vehicles are purchased, sold, exchanged, stored, cleaned, packed, or handled, except that the storage of three (3) or more inoperative motor vehicles for a period in excess of three (3) months is a junk yard.

Saturated soil. The highest elevation in the soil where periodically depleted oxygen levels occur because of soil voids being filled with water. Saturated soil is evidenced by presence of soil mottling or other information.

School. A building or space that is principally used as a place where twenty-five (25) or more persons receive a full course of educational instruction. Any post-secondary or post high school educational building, including any college or other vocational technical college, shall not be deemed a school for the purpose of this Ordinance.

Seepage bed. An excavated area larger than 36 inches in width which contains drain field rock and has more than one distribution pipe.

Seepage pit, or leaching pit, or dry well. An underground pit into which a sewage tank discharges effluent and from which the liquid seeps into the surrounding soil at a loading rate greater than 1.20 gallons per day per square foot or with a hydraulic head greater than 30 inches.

Semipublic use. The use of land by a private, nonprofit organization, other than a church, to provide a public service that is ordinarily open to persons other than the organization's members.

Sensitive resource management. The preservation and management of areas unsuitable for development in their natural state due to constraints such as shallow soils over groundwater or bedrock, highly erosive or expansive soils, steep slopes, susceptibility to flooding, or occurrence of flora or fauna in need of special protection.

Septage. Solids and liquids removed during periodic maintenance of an individual subsurface sewage treatment system, or solids and liquids which are removed from toilet waste treatment devices or a holding tank.

Septic tank. Any watertight, covered receptacle designed and constructed to receive the discharge of sewage from a building sewer, separate solids from liquid, digest organic matter, and store liquids through a period of detention, and allow the clarified liquids to discharge to a soil treatment system.

Setback. The minimum horizontal distance between a building, structure, sewage treatment system, or other facility and an ordinary high water level, top of the bluff, road, highway, property line, or other facility.

Sewage. Any water-carried domestic waste from any industrial, agricultural, or commercial establishment, or any dwelling or any other structure. Domestic waste includes liquid waste produced by toilets, bathing, laundry, culinary operations, and the floor drains associated with these sources. Animal waste and commercial or industrial waste are not considered domestic waste.

Sewage tank. A tank used in the treatment of sewage and includes septic tanks and aerobic tanks.

Sewage tank effluent. That liquid which flows from a septic or aerobic tank under normal operation.

Sewage treatment system. A septic tank and soil absorption system or other individual or cluster type sewage treatment system as described and regulated in Chapter 4, Section 10 of this Ordinance.

Sewer system. Pipelines or conduits, pumping stations, and force main, and all other construction, devices, appliances, or appurtenances used for conducting sewage or industrial waste or other wastes to a point of ultimate disposal.

Shore impact zone. Land located between the ordinary high water level of a public water and a line parallel to and 1/2 the setback from it except that on property used for agricultural purposes the shore impact zone boundary is a line parallel to and 50 feet from the ordinary high water level.

Shoreland. Land located within the following distances from Public Waters:

a. 1,000 feet from the ordinary high water level of a lake, pond or flowage, and

b. 300 feet from a river or stream, or the landward extent of a flood plain designated by this Ordinance on such a river or stream, whichever is greater.

The limits of shoreland may be reduced whenever the waters involved are bounded by natural topographic divides that extend landward from the waters for lesser distance and when approved by the Commissioner of the Department of Natural Resources.

Shoreland conservation subdivision development. A planned unit development consisting of sites or units that are sold, lease for periods longer than 28 days, or any other method of transferring long term rights to lodging spaces, rooms, RV sites, or parcels shall be considered permanent.

Shore recreation area. An area for activities occurring near the shoreline including, but not limited to, swimming areas, docking area and docks, watercraft mooring area, launching ramps where structures are not permitted.

Sign. A name, identification, description, display, illustration, or device that is affixed to or represented directly or indirectly upon a building, structure, or land in view of the public which directs attention to a product, place, activity, person, institution, or business. Warning signs of less than two (2) square feet in area shall be exempt from the definition of signs.

Sign, advertising. A sign that directs attention to a business, commodity, service, activity or entertainment not conducted, sold or offered upon the premises where sign is located; a billboard.

Sign, business. A sign that directs attention to a business or profession or to a commodity, service or entertainment sold or offered upon the premises where the sign is located.

Sign, flashing. An illuminated sign on which the illumination is not stationary or constant in intensity and color at all times during use.

Sign, illuminated. Any sign that has characters, letters, figures, designs, background, or outlines illuminated by electric lights or luminous tubes as a part of the sign.

Sign, nameplate. Any sign that states the name or address, or both, of the business or occupant of the lot where the sign is placed.

Sign, rotating. A sign that revolves or rotates on its axis by mechanical means.

Sign, surface area of. The entire area within a single, continuous perimeter enclosing the extreme limits of the actual sign surface. It does not include any structural elements outside the limits of the sign that do not form an integral part of the display. Only one side of a double-face or V-type sign structure shall be used in computing total surface area. If the sign surface areas of a double-face or V-type sign are of different sizes, the larger of the two faces shall be used to compute surface area.

Single family dwelling. See "Dwelling, single family".

Single family residential use. The use of the land or buildings for a single-family dwelling.

Significant historic site. means any archaeological site, standing structure, or other property that meets the criteria for eligibility to the National Register of Historic Places or is listed in the State Register of Historic Sites, or is determined to be an unplatted cemetery that falls under the provisions of Minnesota Statutes, section 307.08. A historic site meets these criteria if it is presently listed on either register or if it is determined to meet the qualifications for listing after review by the Minnesota State archaeologist or the director of the Minnesota Historical Society. All unplatted cemeteries are significant historic sites.

Site. The area bounded by the dimensions required for the proper location of the soil treatment system.

Slope. The ratio of vertical rise or fall to horizontal distance.

Soil textural classification. The soil particle sizes or textural classification as specified in the Soil Survey Manual, Agricultural Handbook No. 18, United States Department of Agriculture, 1993.

Soil treatment area. The area of trench, at-grade rock bed, or seepage bed bottom which is in direct contact with the distribution medium of the soil treatment system.

Soil treatment system. A system where sewage tank effluent is treated and disposed of into the soil by percolation and filtration, and includes trenches, seepage beds, drain fields, at-grade systems, and mound systems.

Specified anatomical areas. Anatomical areas consisting of:

a. Less than completely and opaquely covered human genitals, pubic region or pubic hair, buttock, anus, or female breast, or breast below the point immediately above the top of the areola or any combination of the foregoing; and/or

b. Human genitals in discernibly turgid state, even if completely or opaquely covered.

Specified Sexual Activities. Activities consisting of the following:

a. Actual or simulated sexual intercourse, oral copulation, anal intercourse, oral-anal copulation, bestiality, direct physical stimulation or fondling of unclothed genitals, pubic region, buttock, or female breast, flagellation, or torture in a sexual relationship, and any of the following sexually oriented acts or conduct: Anilingus, buggery, coprophagy, coprophilia, cunnilingus, fellatio, necrophilia, pederasty, pedophilia, picquerism, sapphism, sodomy, zooerasty; or

b. Human genitals in the state of sexual stimulation, arousal, or tumescence; or

c. Use or acts of human or animal ejaculation, sexual intercourse, sodomy, oral copulation, coitus, or masturbation; or

d. Fondling or touching of human genitals, pubic regions or pubic hair, buttocks, female breast; or

e. Stimulations involving a person or persons, any of whom are nude, clad in undergarments or in sexually revealing costumes, who are engaged in activities involving the flagellation, torture, fettering, binding, or other physical restraint of any such person; or

f. Erotic or lewd touching, fondling or other sexually oriented contact with an animal by a human; or

g. Human excretion, urination, menstruation, vaginal or anal irrigation; or

h. Any combination of the above.

SDS and NPDES permits. State Disposal System and National Pollutant Discharge Elimination System permits issued by the Minnesota Pollution Control Agency to regulate individual subsurface sewage treatment systems.

Steep slope. Land that is not suited for agricultural activity or development due to slope steepness and the site's soil characteristics, as mapped and described in available county soil surveys or other technical reports, unless appropriate design and construction techniques and farming practices are used in accordance with this Ordinance. If specific information is not available, steep slopes are lands having average slopes more than 12 percent, as measured over distances of 50 feet, measured on the ground, that are not bluffs.

Storage Structure. Any building or structure used for non-residential or non-commercial use.

Story. The portion of a building included between the surface of a floor and the surface of the next floor above it or, if there is no floor above, the space between the floor and the ceiling next above it.

Storage structure. Any building or structure used for non-residential or non-commercial use.

Structure. Anything constructed, erected or placed; which includes but is not limited to houses, garages, accessory buildings, decks, driveways, sidewalks, patios, fences, retaining walls, mobile homes, dog kennels and signs.

Structural alterations. Any change in the supporting members of a building or structure such as bearing walls, columns, beams, or girders.

Subdivider. Any individual firm, association, syndicate, co-partnership, corporation, trust, or other legal entity having sufficient proprietary interests in the land sought to be subdivided to commence and maintain proceedings to subdivide the same under this Ordinance.

Subdivision. Any tract of land that is to be or which has been divided into two or more parcels.

Suitable area. The area within each tier that is calculated by excluding from the tier area all wetlands, bluffs, road right of way, easements, or land below the ordinary high water level of protected waters.

Surface water flooding. The 100-year flood plain along rivers and streams as defined by the Department of Natural Resources, or in the absence of such data, as defined by the largest flood of record; on lakes, high water levels as determined or recorded by the Department of Natural Resources or, in the case of no Department of Natural Resources record, by local records or experience. Other surface water flooding or high water areas should be determined by local information.

Surface water-oriented commercial use. The use of land for commercial purposes, where access to and use of a surface water feature is an integral part of the normal conductance of business. Marinas, resorts, and restaurants with transient docking facilities are examples of such use.

Tangent. A straight line that is perpendicular to the radius of a curve where a tangent meets a curve.

Ten-year flood. A flood which can be expected to occur, on an average, of once in ten years; or the elevation to which flood waters have a ten percent chance of rising in any given year.

Terrace. An active outdoor use area consisting of either a platformed area, earthen formed area, tiled area, or area otherwise so designated. For the purpose of this ordinance, a terrace is a structure and shall be subject to the required setbacks for the district in which it is located. Terraces as an accessory use to a farming operation shall be exempt from required setbacks.

Toe of the bluff. The point on a bluff where there is, as visually observed, a clearly identifiable break in the slope, from gentler to steeper slope above. If no break in the slope is apparent, the toe of the bluff shall be the lowest point on a bluff that is the lower end of a the lowest 50 foot segment, measured on the ground, with an average slope exceeding 18 percent.

Toilet waste. Waste commonly disposed of in toilets including fecal matter, urine, toilet paper, and any water used for flushing and specifically excluding sanitary napkins, tampons, and disposable diapers.

Toilet waste treatment devices. Privies and other devices including incinerating, composting, biological, chemical, recirculating, or holding toilets.

Top of the bluff. The point on a bluff where there is, as visually observed, a clearly identifiable break in the slope, from steeper to gentler slope above. If no break in the slope is apparent, the top of the bluff shall be the highest point on a bluff that is the upper end of the highest 50-foot segment, measured on the ground, with an average slope exceeding 18 percent.

Tower facility. Any structure more than 35 feet in height erected for the purpose of supporting, elevating, or attaching one or more antennas. The term also includes, supports and accessory buildings and structures.

Treatment Level: Treatment system performance levels defined in Minnesota Rules, Chapter 7083.4030, Table III for testing of proprietary treatment products, which include the following:
Level A: cBOD5 < 15 mg/L; TSS < 15 mg/L; fecal coliforms < 1,000/100 mL.
Level B: cBOD5 < 25 mg/L; TSS < 30 mg/L; fecal coliforms < 10,000/100 mL.
Level C: cBOD5 < 125 mg/L; TSS < 80 mg/L; fecal coliforms N/A.

Trench. An area excavated from 18 to 36 inches in width, which contains drain field rock or other distribution medium.

Twin home. A duplex where each unit is on a separate lot with the lot line constituting a common wall between units. Each unit of a twin home shall be considered a single family dwelling for the purpose of computing the area and width requirements for a lot.

Type I System: An ISTS that follows a standard trench, bed, at-grade, mound, or graywater system design in accordance with MPCA rules, Minnesota Rules, Chapter 7080.2200 through 7080.2240.

Type II System: An ISTS with acceptable modifications or sewage containment system that may be permitted for use on a site not meeting the conditions acceptable for a standard Type I system. These include systems on lots with rapidly permeable soils or lots in floodplains and privies or holding tanks.

Type III System: A custom designed ISTS having acceptable flow restriction devices to allow its use on a lot that cannot accommodate a standard Type I soil treatment and dispersal system.

Type IV System: An ISTS, having an approved pretreatment device and incorporating pressure distribution and dosing, that is capable of providing suitable treatment for use where the separation distance to a shallow saturated zone is less than the minimum allowed.

Type V System: An ISTS, which is a custom engineered design to accommodate the site taking into account pretreatment effluent quality, loading rates, loading methods, groundwater mounding, and other soil and other relevant soil, site, and wastewater characteristics such that groundwater contamination by viable fecal coliforms is prevented.

Unit site. An area controlled by owner including but not limited to structures, parking area, lawn, garden, patios, etc.

Use. The purpose to which land, premises, or a structure or building thereon is designated, arranged, or intended, or for which it is or may be occupied or maintained.

Use, accessory. A use clearly incidental or accessory to principal use of a lot or a building located on the same lot as the accessory use.

Variance. A modification or variation of the provisions of the Ordinance, as applied to a specific piece of property.

Vertical curve. The surface curvature on a road or highway center line located between lines of different percentage of grade.

Watercourse. A channel in which a flow of water occurs either continuously or intermittently in a definite direction. The term applies to either natural or artificially constructed channels.

Water oriented accessory structure or facility. A small, above ground building or other improvement, except stairways, fences, docks, and retaining walls, that, because of the relationship of its use to a surface water feature, reasonably needs to be located closer to public waters than the normal structure setback. Examples of such structures and facilities include boathouses, gazebos, screen houses, fish houses, pump houses, and detached decks.

Watertight. A device constructed so that no water can get into or out of the device except through designed inlets and outlets.

Wetland. A surface water feature classified as a wetland in the United States Fish and Wildlife Service Circular No. 39.

Yard. Any space in the same lot with a building, open and unobstructed from the ground to the sky.

Yard, front. A yard extending across the front of the lot between the side yard lines and lying between the center line of the township or county road and from the right-of-way of any other highway, and the nearest line of the building.

Yard, rear. A yard extending across the back of a lot between the side yard lines and the lying between the back line of the lot and the nearest line of the building. On a corner lot, only one line shall be a rear yard line, in which the rear yard line shall be opposite the street address. This shall be designated by the owner at the time a building permit is applied for or when a plat is submitted.

Yard, side. A yard extending across the side of a lot between the front and back lines and the nearest line of the building.

Zoning Administrator. The Becker County Zoning Administrator.

BECKER COUNTY HIGHWAY DEPARTMENT
200 East State Street, Detroit Lakes, MN 56501
Phone: (218) 847-4463 Fax (218) 846-2360

BECKER COUNTY

GENERAL REQUIREMENTS FOR CONSTRUCTION

OF PUBLIC ROAD IN SUB-DIVISIONS

SCOPE: The purpose of these requirements is to establish minimum uniform improvements for construction of roads in subdivisions.

GENERAL: Roads and streets must be located within limits of dedicated public right of way as shown on plats.

ROADWAY WIDTH: Driving surface, shoulder to shoulder, shall be at least 28 feet and be of uniform width with defined shoulder line with a minimum 22 feet of gravel surfacing.

DEPTH OF DITCHES: Separation of shoulder and ditch bottom shall be a minimum of two feet. A minimum ditch width of six feet is desirable and should be maintained.

SHOULDER SLOPES: Shall be approximately 4:1 or flatter.

BACKSLOPES: Shall be approximately 3:1 or flatter.

RIGHT-OF-WAY: 66 feet minimum.

EMBANKMENTS: Shall be selected material at least two feet higher than adjacent grounds and shall be stable and uniform.

CUL-DE-SACS: 75 feet radius minimum for right of way; 55 feet radius for outside shoulder.

DRAINAGE: Culverts shall be furnished and installed as is necessary to facilitate surface and ditch drainage.

HORIZONTAL ALIGNMENT: Shall not have sharp curvature as to impede sight distance. Radii to be noted on preliminary plat. A minimum radius of 100 feet is required and a minimum tangent between reversed curves equal to the radii of the reversed curves.

VERTICAL ALIGNMENT: Shall not have sharp crest vertical curvature that would present hazardous driving conditions or grades in excess of 8% or less than 0.5%. A minimum parabolic vertical curve of 50 feet is required.

SURFACING: Shall have a minimum gravel surfacing inplace to provide adequate stability for normal use in wet periods or to provide a gravel-wearing course. Estimated rate of application 700 cubic yards per mile of roadway.

FINISHING: All construction debris shall be removed from right of way. Construction areas shall be left in a neat and presentable condition. Topsoil should be salvaged and spread uniformly over slopes and ditches. These areas shall be dragged. All washouts must be repaired. Road authority may ask for seeding.

SIGNING: Signs shall be installed in strict conformance with the Minnesota Manual of Traffic Control Devices.

PROCESS FOR APPROVAL:

1. Preliminary plan (24" x 36" maximum) received from County Zoning Administrator.

2. County Engineer reviews plan and conducts on-site viewing of area.

3. County Engineer submits comments of preliminary plat to County Zoning Administrator, with copy to developer. If more information is required, developer or his agent shall submit in a timely manner (see Section 4.1C).

4. The contractor shall review the requirements of the road construction prior to commencing work. It is suggested that the contractor arrange a pre-construction site review with the County Engineer. Prior to removal of the construction equipment from project site, the contractor shall contact township supervisors and County Engineer for highway preliminary inspection. Developer or his representative requests County Engineer to review final construction of roads and appurtenances a <u>minimum</u> of two weeks in advance of signing plat. A paper copy of final plat shall accompany inspection request.

5. Comparison between preliminary and final plats and review final plat for conformance to Section 4.2.

6. Engineer submits report to County Board. The County Board shall not approve a final plat without first receiving a report from the County Engineer certifying that the improvements meet the minimum requirements (Section 5.1.3).

APPENDIX A

SUB-DIVISION ROAD CLASSIFICATIONS

Class “A” Road
This roadway is applicable for through township/local roads or when a roadway has high potential to be bituminous surfaced.

28 foot graded top width
4:1 inslopes
3 foot ditch separation
6 foot ditch bottom
4:1 backslopes
4 inch aggregate surface @ 1,825 cubic yards per mile

Class “B” Road
This roadway is applicable for recreation or general development lakes or larger subdivisions.

24 foot graded to width
3:1 inslopes
2 foot ditch separation
4 foot ditch bottom
3:1 backslopes
3 inch aggregate surface @ 1,170 cubic yards per mile

Class “C” Road
This roadway is applicable for access to natural environmental lakes or small subdivisions that are not immediately adjacent to other subdivisions or are connected by another roadway.

20 foot graded to width
3:1 inslopes
2 foot ditch separation
4 foot ditch bottom
2:1 backslopes
3 inch aggregate surface @ 980 cubic yards per mile

Appendix G Geotechnical Report

BRAUN INTERTEC

the science you build on

Geotechnical Evaluation Report

Bucks Mill Dam Rehabilitation
Bucks Mill Drive and Mill Pond Drive
Detroit Lakes, Minnesota

Prepared for

Moore Engineering, Inc.

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Professional Certification:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Ezra Ballinger, PE
Director, Principal Engineer
License Number: 49358
June 26, 2025

Project B2408555

Braun Intertec Corporation

June 26, 2025 Project B2408555

Zach Cormican, PE
Moore Engineering, Inc.
925 10th Avenue East
West Fargo, ND 58078

Re: Geotechnical Evaluation Report
Bucks Mill Dam Rehabilitation
Bucks Mill Drive and Mill Pond Drive
Detroit Lakes, Minnesota

Dear Mr. Cormican:

We are pleased to present this Geotechnical Evaluation Report for the dam rehabilitation and fish passage planned at the referenced site.

Thank you for making Braun Intertec Corporation (Braun Intertec) your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Ezra Ballinger at 701.205.2515 (eballinger@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION

Ezra Ballinger, PE
Director, Principal Engineer

Cody Mathiason, EI
Staff Engineer

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AA/EOE

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Appendix

Soil Boring Location Sketch
Fence Diagram
Log of Boring Sheets ST-03 and ST-04
Descriptive Terminology of Soil
Laboratory Testing Results

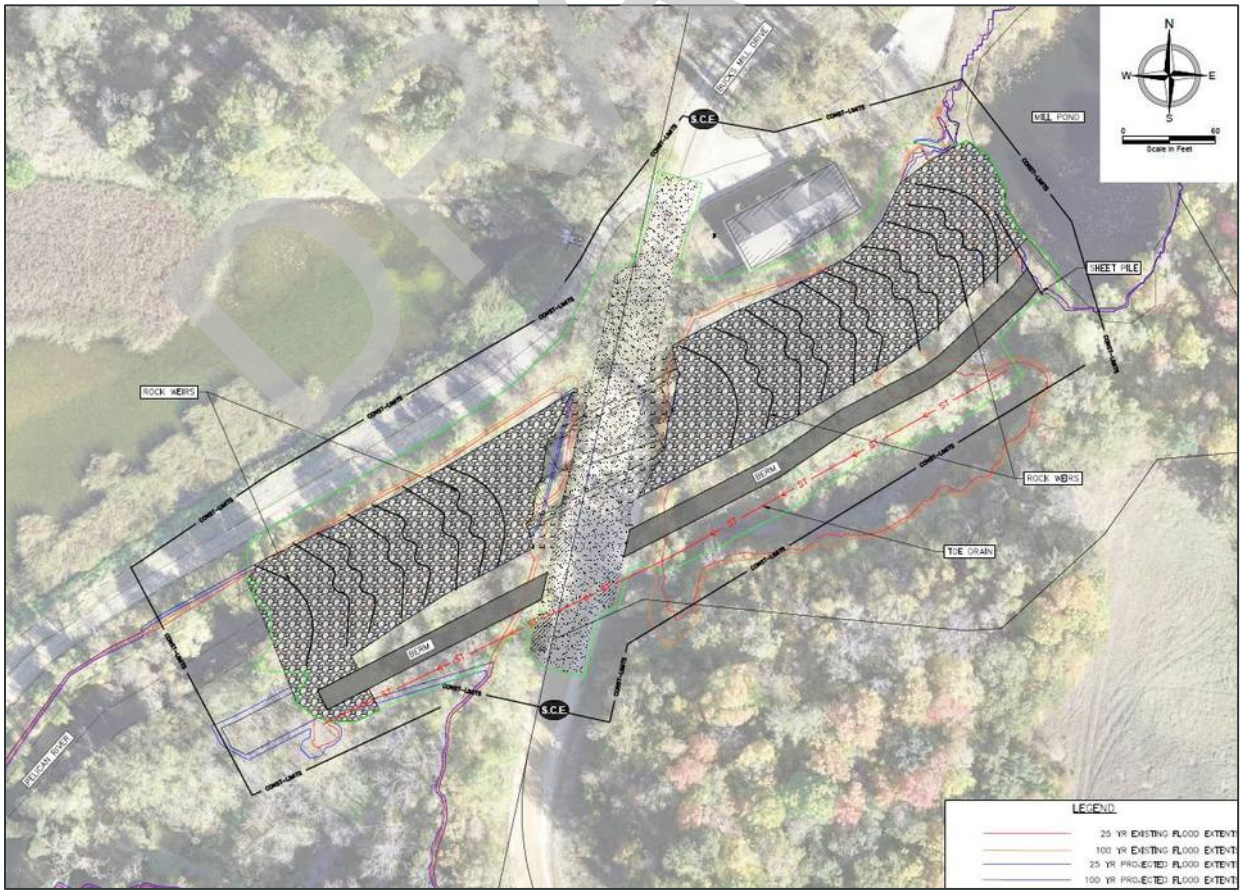
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A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the design and construction of the project, which will include modifications to the Bucks Mill Dam, the construction of fish passage around the south end of the dam and placement of new box culverts under the road. The dam improvements include removing the concrete dam walkway and pillars as well as fencing across the top of the dam and the southern projection of it where it ties into an existing berm on the north side of a wetland. A new outlet channel will be constructed from the berm and extending west that consists of several rock riffles. Sheet piling will extend from the portion of the concrete dam wall that will remain in place and tie into the existing south bank berm. The purpose of the sheet piling is to limit seepage. Figure 1 below shows these improvements.

Figure 1. Existing Dam Removal and Associated Improvements



Taken from preliminary design plans for the dam removal provided by Moore Engineering, Inc., dated April 18, 2025.

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The roadway improvements include raising Bucks Mill Drive about 1 to 2 feet where it crosses over the river channel so the rock riffles can pass through them at the necessary slope. Two existing box culverts will be removed and replaced with 4 new culverts. Two of the new culverts will be 14 feet high by 6 feet wide and the other two will be installed higher and consist of 4 feet high by 4 feet wide culverts. Figure 2 shows a layout of the road improvements with the red hatching under the roadway being the four culverts.

Figure 2. Layout of Roadway Improvements.



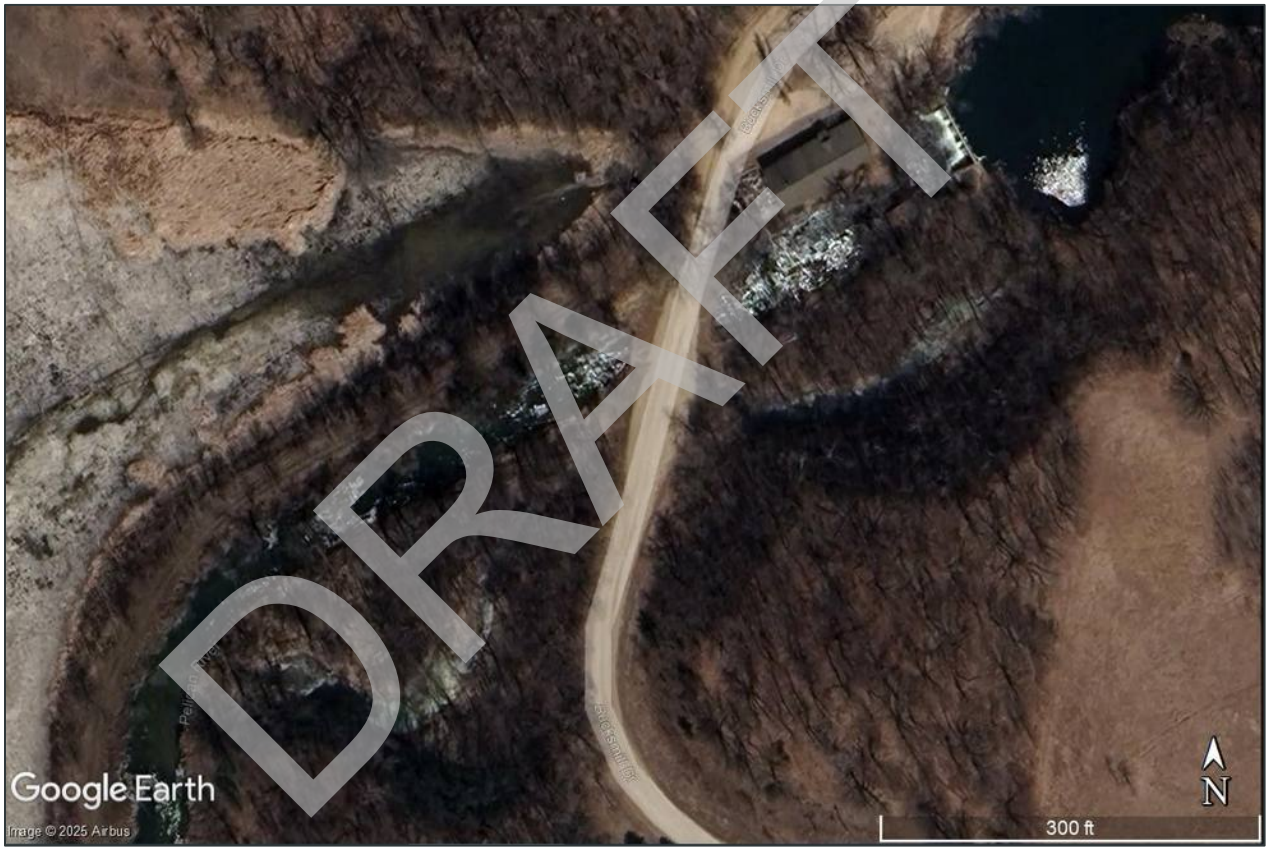
Taken from preliminary design plans for the roadway improvements provided by Moore Engineering, Inc., dated April 21, 2025.

We have described our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses, and/or recommendations.

A.2. Site Conditions and History

Currently, the site exists as the outfall from Bucks Mill Dam with Pelican river flowing along the area and then under Bucks Mill Drive through a culvert. Photograph 1 is a view of the area.

Photograph 1. Aerial Photograph of the Site in 2023



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A.3. Purpose

The purpose of our geotechnical evaluation is to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact on the project, and provide geotechnical recommendations for the design and construction of the planned improvements.

A.4. Background Information and Reference Documents

We reviewed the following information:

- Geologic Map of Minnesota Quaternary Geology, compiled by Barbara A. Lusardi, Angela S. Gowan, Jennifer M. McDonald, Katherine J. Marshall, Gary N. Meyer, and Kaleb G. Wagner, 2019, used to understand the site geology.
- Preliminary design plans for the Bucks Mill Dam – Road Improvements and Bucks Mill Dam provided by Moore Engineering, Inc. via email on April 25, 2025.
- Communications with Josh Hassell, PE and Zach Cormication, PE of Moore Engineering, Inc. regarding the proposed construction.

A.5. Scope of Services

We performed our scope of services for the project in accordance with our Proposal QTB201124 to Moore Engineering, Inc., dated August 2, 2024, and authorized on September 13, 2024. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Reviewing the background information and reference documents previously cited.

- Staking and clearing the exploration location of underground utilities. We selected and staked the new exploration locations. We acquired the surface elevations and locations with Trimble Catalyst Global Positioning System (GPS) technology. The Soil Boring Location Sketch included in the Appendix shows the approximate locations of the borings.

- Performing two standard penetration test (SPT) borings, denoted as ST-03 and ST-04, to nominal depths of 35 feet below grade across the site. Our scope of work originally included four SPT borings, but we were not able to access the other two locations, so we advanced a couple of hand augers.

- Performing laboratory testing on select samples to aid in soil classification and engineering analysis.

- Perform engineering analysis for support of the box culvert, rock riffle, sheet pile and the roadway grade raise.

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- Preparing this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, and recommendations for structure and pavement subgrade preparation and the design of box culverts, rock riffle structure, and pavements.

B. Results

B.1. Geologic Overview

The geologic map referenced indicates this area is underlain by sand to gravelly sand glacial outwash deposits.

We based the geologic origins used in this report on the soil types, laboratory testing, and available common knowledge of the geological history of the site. Because of the complex depositional history, geologic origins can be difficult to ascertain. We did not perform a detailed investigation of the geologic history for the site.

B.2. Boring Results

Table 1 provides a summary of the soil boring results; in the general order we encountered the strata. Please refer to the Log of Boring sheets in the Appendix for additional details. The Descriptive Terminology sheets in the Appendix include definitions of abbreviations used in Table 1.

Table 1. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Topsoil	SM	Not Applicable	▪ Encountered in hand augers performed east of roadway on the alignment of the rock riffle. ▪ About 1 to 1 1/2 feet thick. ▪ Dark brown to black and contained root matter. ▪ Moisture condition generally moist.
Fill	SW-SM	4 to 10 BPF	▪ Encountered from the surface in Borings ST-03 and ST-04. ▪ Moisture condition generally moist. ▪ Thicknesses at boring locations was 3 1/2 feet. ▪ Fine- to coarse-grained sand with gravel. ▪ Dark brown in color.

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Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Glacial Outwash	SP, SP-SM	3 to 19 BPF	▪ General penetration resistance of 5 to 10 BPF. ▪ Fine- to coarse-grained sand with varying amounts of gravel. ▪ Primarily gray in color. ▪ Moisture condition generally moist or wet.

*Abbreviations defined in the attached Descriptive Terminology sheets.

For simplicity in this report, we define existing fill to mean existing, uncontrolled, or undocumented fill.

B.3. Groundwater

Table 2 summarizes the depths where we observed groundwater; the attached Log of Boring sheets in the Appendix also include this information and additional details.

Table 2. Groundwater Summary

Location	Surface Elevation	Measured or Estimated Depth to Groundwater (feet)	Corresponding Groundwater Elevation (feet)
ST-03	1324	2	1322
ST-04	1321	7 1/2	1313 1/2

Project planning should expect groundwater will fluctuate in relation to seasonal and annual variations and also with the water level in the outflow from Buck's Mill Pond upstream of the dam.

B.4. Laboratory Test Results

The boring logs show the results of moisture content testing we performed, next to the tested sample depth. We also performed sieve analysis testing. The Appendix contains the results of these tests.

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The moisture content of the soils varied from approximately 4 to 5 percent above groundwater and 11 to 29 percent below groundwater, indicating that the material was well wet of its probable optimum moisture content at depth.

Our mechanical analyses indicated that the soils contained 2 to 9 percent silt and clay by weight. The soils had up to 45 percent gravel by weight.

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C. Recommendations

C.1. Design and Construction Discussion

C.1.a. Introduction

The rock riffle channel bottom will gradually drop from about 1329 at the south side of the dam to about 1319 where it ties into the Pelican River downstream from Bucks Mill Drive. The lowest box culverts under the roadway will have bottom of foundation elevations of approximately 1318 feet and the roadway will require about a 1 1/2 foot grade raise to pass over it. Roadway inslopes will be 2H:1V (Horizontal:Vertical) to match the existing slopes.

A berm constructed on the south side of the rock riffle channel separating it from the adjacent wetland will have a top elevation of 1333 feet at the dam, dropping to elevation 1329 feet and remaining at that elevation within about 50 to 100 feet of each side of Bucks Mill Drive, then dropping to about elevation 1326 feet. Grade raises at the berm will generally be about 3 to 4 feet along its length. Berm inslopes will be 4H:1V (Horizontal to Vertical). We recommend constructing a toe drain on the dry side of this berm to avoid long term seepage concerns.

A sheet pile weir/cutoff wall will extend from the end of the existing dam to the south until it crosses under the berm, a total length of about 60 feet. The top of the weir will be at elevation 1328 feet. The upstream side of the sheet pile will be backfilled with salvaged rip rap from the removals at a slope of 2H:1V and the rock riffle will be constructed on the downstream side, such that the sheet pile is supported on both sides by soil or riprap. We recommend this sheet pile be 20 feet long. Sheet pile suppliers or sealant manufacturers should be contacted to provide recommendations for sealing the joint between the existing concrete and the new sheet pile weir so that seepage is not a concern through the area.

C.1.b. Settlement

The proposed grade raises at the roadway centerline and along the berm are anticipated to induce about 1 to 2 inches of settlement. With the sand soils at the site, we anticipate the settlement will occur during construction.

C.1.c. Channel Subgrade Preparation

The surface soils away from the roadway consist of topsoil that is about 1 to 1 1/2 foot thick. This material will need to be separated from the underlying soils in cut areas and removed prior to placement of new fill in grade raise areas. The soils anticipated at the bottom of the channel will consist of fine- to coarse-grained sand that are generally loose. These soils are suitable for support of the rock riffles but will need to be surface compacted.

C.1.d. Existing Fill

The existing fill soils over the roadway are suitable for reuse as structural fill. If there is a gravel surfacing layer, it should be segregated from the underlying material and could potentially be reused. Additional testing will need to be performed to validate if this material is in conformance with gravel surfacing specifications by the local jurisdiction or their reference.

C.1.e. Groundwater

It is likely that some amount of dewatering in the sands will be needed to be able to excavate the channel and review the bottom conditions. In sands like on this site we recommend using well points or other means to lower the groundwater table at least 2 feet below the bottom of the planned excavation prior to beginning excavation. Water elevations will vary with the water in the Pelican River and Bucks Mill Pond and the contractor should understand the jurisdictions water management plan for the planned construction period. We recommend including a water management plan in the submittals the contractor is required to submit prior to beginning construction.

C.2. Site Grading and Subgrade Preparation

C.2.a. Box Culvert Subgrade Excavations

We recommend removing topsoil and existing fill below the proposed box culvert and in oversize areas. Additional excavation will likely be necessary to allow for the placement of a minimum of 1 foot of structural backfill below the bottom of the culvert. We also recommend having a geotechnical engineer, or an engineering technician working under the direction of a geotechnical engineer to evaluate the suitability of exposed subgrade soils to support the proposed structure.

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In order to provide a subgrade with relatively uniform support, we recommend the contractor scarify and recompact the excavation bottom to a depth of at least 12 inches. Compact the subgrade soils to a minimum of 98 percent of the material's standard Proctor maximum dry density (determined in accordance with ASTM D698).

C.2.b. Berm Subgrade Preparation

We recommend removing topsoil across the area that will receive fill to create the berm. This area is adjacent to a wetland and we anticipate it will have soft and wet subgrades. To provide a stable base for construction, we recommend considering a minimum overexcavation of 1 foot. If the bottoms of the excavations are wet or submerged, we recommend initially backfilling with at least 1 foot of clean 1-to-3-inch rock. The rock should be wrapped in stabilization fabric, completely enveloping the rock. This material will need to be imported.

C.2.c. Excavation Oversizing

When removing materials below the box culvert, we recommend the excavation extend outward and downward at a slope of 1H:1V (horizontal:vertical) or flatter from the bottom outside edge of the box culvert.

C.2.d. Excavated Slopes

Based on the borings, we anticipate on-site soils in excavation will consist of sands. These materials are considered Type C Soils under OSHA (Occupational Safety and Health Administration) guidelines. OSHA guidelines indicate unsupported excavations in Type C soils should have a gradient no steeper than 1 ½H:1V. Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This document states that excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

C.2.e. Excavation Dewatering

We recommend removing groundwater from the excavations so that all backfill and fabric can be placed "in the dry." Dewatering of high-permeability soils (e.g., sands) from within the excavation with conventional pumps has the potential to loosen the soils, due to upward flow. A well contractor should develop a dewatering plan; the design team should review this plan.

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C.2.f. Geotextile Fabric

After excavation has been completed and prior to backfilling, we recommend the overexcavation be fully enveloped with Minnesota Department of Transportation (MnDOT) Specification Section 3733.1 Type 5 or 6 Geotextile fabric. This same fabric can be used to wrap the rock under the berm as discussed in Section C.2.b above.

C.2.g. Engineered Fill Materials and Compaction

Table 3 below contains our recommendations for engineered fill materials. The berm fill materials will likely need to be imported.

Table 3. Engineered Fill Materials*

Locations To Be Used	Engineered Fill Classification	Possible Soil Type Descriptions	Gradation	Additional Requirements
Below box culvert	Structural Backfill	GP, GW, SP, SW	MnDOT 3138 Specification, Class 5 Aggregate Base	< 2% OC
Above bottom of box culvert, below roadway layer.	Non-structural fill	SP, SM, SC	100% passing 3-inch sieve	< 2% OC
Roadway	Pavement fill	SP, SM, SC	100% passing 3-inch sieve	< 2% OC PI < 15%
Berm	Berm Fill	SC, CL	100% passing 3-inch sieve	>45% passing #200 sieve < 2% OC PI < 15%

* More select soils comprised of coarse sands with < 5% passing #200 sieve may be needed to accommodate work occurring in periods of wet or freezing weather.

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We recommend spreading engineered fill in loose lifts of approximately 6 to 12 inches thick. We recommend compacting engineered fill in accordance with the criteria presented below in Table 4. The project documents should specify relative compaction of engineered fill, based on the structure located above the engineered fill, and vertical proximity to that structure.

Table 4. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor)	Moisture Content Variance from Optimum, percentage points	
		< 12% Passing #200 Sieve (typically, SP, SP-SM)	> 12% Passing #200 Sieve (typically, CL, SC, ML, SM)
Below box culvert and in oversizing zones	98	As needed to obtain compaction requirements and support construction operations.	Do not use.
Within 3 feet of pavement subgrade	100		-1 to +3
More than 3 feet below pavement subgrade (not below culvert)	95		±3
Berm Fill	95		±3

The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material. Frost should not penetrate under foundations during construction.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

C.2.h. Pavement Subgrade Preparation

We recommend the following steps for pavement subgrade preparation, understanding the site will have a grade change of about 2 feet or less. Note that project planning may need to require additional subcuts to limit frost heave.

1. Strip unsuitable soils consisting of topsoil, organic soils, peat, vegetation, existing structures, and pavements from the area, within 3 feet of the surface of the proposed pavement grade.

2. Have a geotechnical representative observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.

3. Surface compact to at least 95 percent of standard Proctor density.

4. Place pavement engineered fill to grade and compact in accordance with Section C.2.g to bottom of pavement section.

5. Proofroll the pavement subgrade as described in Section C.2.i.

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C.2.i. Pavement Subgrade Proofroll

After preparing the subgrade as described above and prior to the placement of the aggregate base, we recommend proofrolling the subgrade soils with a fully loaded tandem-axle truck. We also recommend having a geotechnical representative observe the proof-roll. Areas that fail the proofroll likely indicate soft or weak areas that will require additional soil correction work to support pavements.

The contractor should correct areas that display excessive yielding or rutting during the proofroll, as determined by the geotechnical representative. Possible options for subgrade correction include moisture conditioning and recompaction, subcutting and replacement with soil or crushed aggregate, chemical stabilization, and/or geotextiles.

C.2.j. Testing

We recommend relative moisture and compaction testing be performed in all backfill and fill placed at the site. Samples of proposed backfill and fill materials should be submitted to a testing laboratory at least three days prior to placement for evaluation of their suitability and determination of their optimum moisture contents and maximum dry densities. Testing frequencies and procedures can be taken from the State Aid for Local Transportation Schedule of Materials Control prepared by the Minnesota Department of Transportation.

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D. Procedures

D.1. Penetration Test Borings

We drilled the penetration test borings with an all-terrain tire-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2- or 5-foot intervals in general accordance with ASTM D1586. We collected thin-walled tube samples in general accordance with ASTM D1587 at selected depths. The boring logs show the actual sample intervals and corresponding depths.

We sealed penetration test boreholes meeting the Minnesota Department of Health (MDH) Environmental Borehole criteria with an MDH-approved grout.

D.2. Exploration Logs

D.2.a. Log of Boring Sheets

The Appendix includes Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials and present the results of penetration resistance tests performed. The logs also present the results of laboratory tests performed on penetration test samples, and groundwater measurements. The Appendix also includes a Fence Diagram intended to provide a summarized cross-sectional view of the soil profile across the site.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

D.2.b. Geologic Origins

We assigned geologic origins to the materials shown on the logs and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance testing performed for the project, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

D.3. Material Classification and Testing

D.3.a. Visual and Manual Classification

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system we used.

D.3.b. Laboratory Testing

The exploration logs in the Appendix note most of the results of the laboratory tests performed on geologic material samples. The remaining laboratory test results follow the exploration logs. We performed the tests in general accordance with ASTM procedures.

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D.4. Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test borings, and again after auger withdrawal. We then filled the boreholes or allowed them to remain open for an extended period of observation, as noted on the boring logs.

E. Qualifications

E.1. Variations in Subsurface Conditions

E.1.a. Material Strata

We developed our evaluation, analyses, and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation, and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may re-evaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

E.1.b. Groundwater Levels

We made groundwater measurements under the conditions reported herein and shown on the exploration logs and interpreted in the text of this report. Note that the observation periods were relatively short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

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E.2. Continuity of Professional Responsibility

E.2.a. Plan Review

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

E.2.b. Construction Observations and Testing

We recommend retaining us to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

E.3. Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

E.4. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

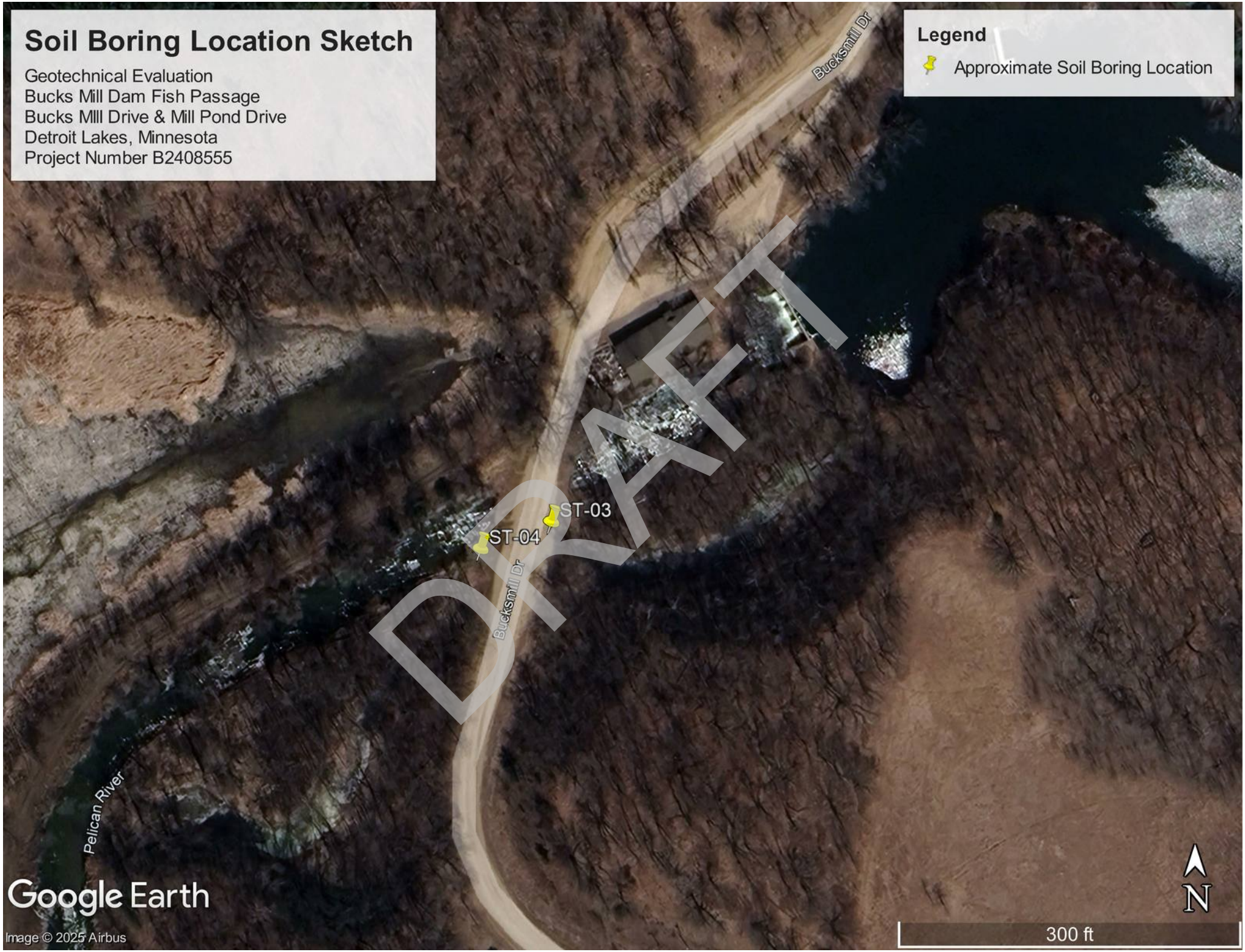
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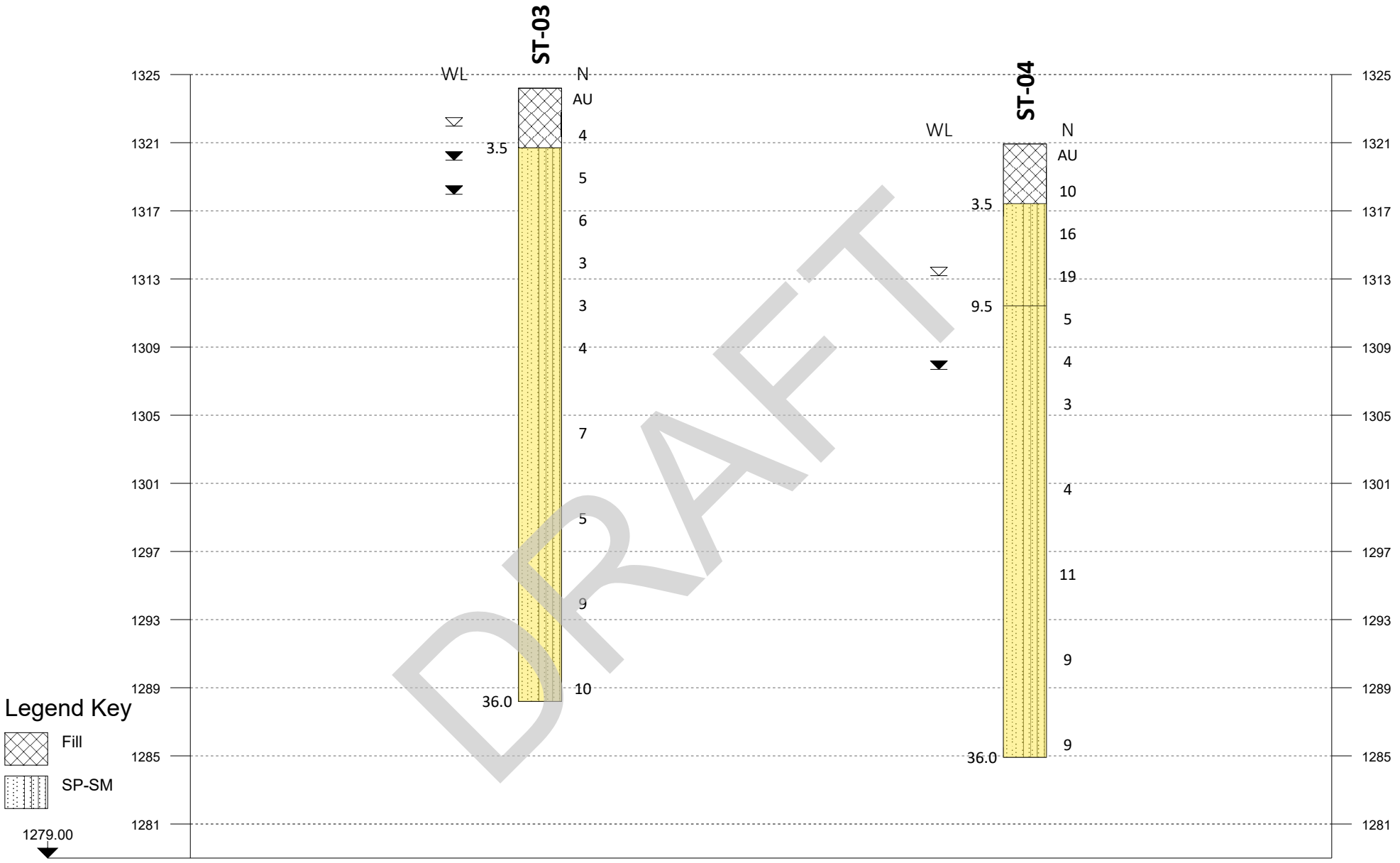
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Appendix

Soil Boring Location Sketch

Geotechnical Evaluation
Bucks Mill Dam Fish Passage
Bucks Mlll Drive & Mill Pond Drive
Detroit Lakes, Minnesota
Project Number B2408555





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SECTION LINE 1

Fence Diagram

Geotechnical Evaluation
Bucks Mill Dam Fish Passage
Bucks Mill Drive & Mill Pond Drive
Detroit Lakes , Minnesota

Project ID: B2408555
Vert. Scale: 1"= 8'
Hor. Scale: NTS
Date: 01/20/2025

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2408555
Geotechnical Evaluation
Bucks Mill Dam Fish Passage
Bucks Mill Drive & Mill Pond Drive
Detroit Lakes , Minnesota

BORING: **ST-03**
LOCATION: Captured with RTK GPS. See attached sketch.
DATUM: WGS84
LATITUDE: 46.722287 LONGITUDE: -95.915360
START DATE: 09/23/24 END DATE: 09/23/24
DRILLER: C. Gorman LOGGED BY: K. Dragos
SURFACE ELEVATION: 1324.2 ft RIG: 7508 METHOD: 3 1/4" HSA
SURFACING: Grass WEATHER: Clear

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		FILL: WELL-GRADED SAND with SILT and GRAVEL (SW-SM), fine to coarse-grained, trace roots, dark brown, moist		AU		4	
	▽	*Trace Sandy Clay chunks, dark gray from 2 to 3 1/2 feet*		2-2-2 (4) 8"		15	P200=7%
1320.7 3.5	▼	POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, little Gravel, gray, wet, very loose to loose (GLACIAL OUTWASH)	5	2-3-2 (5) 8"		22	
	▼			2-3-3 (6) 8"			
			10	1-1-2 (3) 8"		18	P200=6%
		Without Gravel below 12 feet		3-1-2 (3) 16"			
			15	1-2-2 (4) 16"			
			20	3-3-4 (7) 16"			
			25	2-2-3 (5) 14"		20	P200=5%
			30	3-4-5 (9) 16"			

Continued on next page

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2408555
Geotechnical Evaluation
Bucks Mill Dam Fish Passage
Bucks Mill Drive & Mill Pond Drive
Detroit Lakes , Minnesota

BORING: **ST-03**
LOCATION: Captured with RTK GPS. See attached sketch.
DATUM: WGS84
LATITUDE: 46.722287 LONGITUDE: -95.915360
DRILLER: C. Gorman LOGGED BY: K. Dragos START DATE: 09/23/24 END DATE: 09/23/24
SURFACE ELEVATION: 1324.2 ft RIG: 7508 METHOD: 3 1/4" HSA SURFACING: Grass WEATHER: Clear

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, little Gravel, gray, wet, very loose to loose (GLACIAL OUTWASH)					
			35	4-5-5 (10) 16"			
1288.2							
36.0		END OF BORING					Water observed at 2.0 feet while drilling.
		Boring then grouted					Water observed at 6.0 feet at end of drilling.
			40				Water observed at 4.0 feet immediately after withdrawal of auger.
			45				
			50				
			55				
			60				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2408555
Geotechnical Evaluation
Bucks Mill Dam Fish Passage
Bucks Mill Drive & Mill Pond Drive
Detroit Lakes , Minnesota

BORING: **ST-04**
LOCATION: Captured with RTK GPS. See attached sketch.
DATUM: WGS84
LATITUDE: 46.722191 LONGITUDE: -95.915638
START DATE: 09/23/24 END DATE: 09/23/24
SURFACE ELEVATION: 1320.9 ft
DRILLER: C. Gorman LOGGED BY: K. Dragos
RIG: 7508 METHOD: 3 1/4" HSA
SURFACING: Gravel Road WEATHER: Clear

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		FILL: WELL-GRADED SAND with SILT and GRAVEL (SW-SM), fine to coarse-grained, dark brown, moist		AU		5	
				3-5-5 (10) 8"		4	P200=9%
1317.4 3.5		POORLY GRADED SAND with SILT and GRAVEL (SP-SM), fine to coarse-grained, trace Clay chunks, dark brown, moist, medium dense (GLACIAL OUTWASH)	5	6-8-8 (16) 12"		12	
	▽			5-9-10 (19) 8"		11	P200=6%
1311.4 9.5		POORLY GRADED SAND with SILT (SP-SM), fine-grained, trace Gravel, gray, wet, very loose to loose (GLACIAL OUTWASH)	10	2-2-3 (5) 12"			
	▼			1-2-2 (4) 14"			
			15	1-1-2 (3) 16"		29	P200=5%
			20	1-2-2 (4) 16"			
		Medium dense at 25 feet	25	2-4-7 (11) 16"			
			30	2-4-5 (9) 16"		20	P200=2%

Continued on next page

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2408555
Geotechnical Evaluation
Bucks Mill Dam Fish Passage
Bucks Mill Drive & Mill Pond Drive
Detroit Lakes , Minnesota

BORING: **ST-04**
LOCATION: Captured with RTK GPS. See attached sketch.
DATUM: WGS84
LATITUDE: 46.722191 LONGITUDE: -95.915638
START DATE: 09/23/24 END DATE: 09/23/24
SURFACE ELEVATION: 1320.9 ft
DRILLER: C. Gorman
LOGGED BY: K. Dragos
RIG: 7508
METHOD: 3 1/4" HSA
SURFACING: Gravel Road
WEATHER: Clear

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		POORLY GRADED SAND with SILT (SP-SM), fine-grained, trace Gravel, gray, wet, very loose to loose (GLACIAL OUTWASH)					
		35		3-4-5 (9) 18"			
1284.9							
36.0		END OF BORING					Water observed at 7.5 feet while drilling.
		Boring then grouted					Water observed at 13.0 feet at end of drilling.
		40					Water not observed immediately after withdrawal of auger.
		45					
		50					
		55					
		60					

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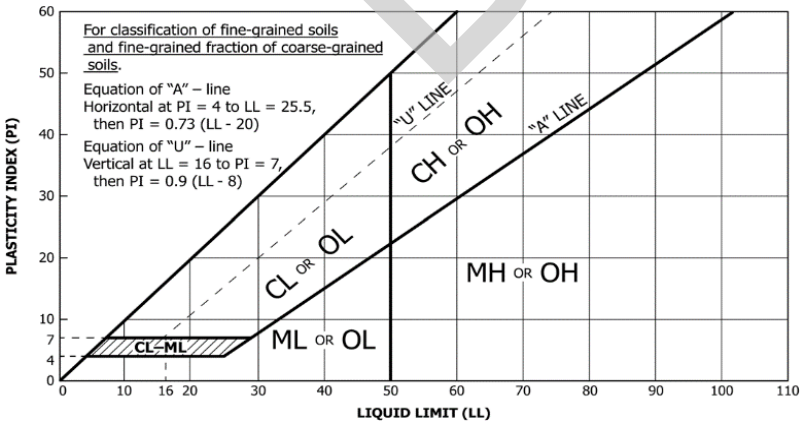
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Descriptive Terminology of Soil

Based on Standards ASTM D2487/2488
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines[C])	$C_u \geq 4$ and $1 \leq C_c \leq 3^D$	GW	Well-graded gravel[E]
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$)[D]	GP	Poorly graded gravel[E]
		Gravels with Fines (More than 12% fines[C])	Fines classify as ML or MH	GM	Silty gravel[E F G]
			Fines Classify as CL or CH	GC	Clayey gravel[E F G]
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines[H])	$C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand[I]
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$)[D]	SP	Poorly graded sand[I]
		Sands with Fines (More than 12% fines[H])	Fines classify as ML or MH	SM	Silty sand[F G I]
			Fines classify as CL or CH	SC	Clayey sand[F G I]
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K L M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OL	Organic clay[K L M N] / Organic silt[K L M O]
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay[K L M]
			PI plots below "A" line	MH	Elastic silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OH	Organic clay[K L M P] / Organic silt[K L M Q]
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

A. Based on the material passing the 3-inch (75-mm) sieve.
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
C. Gravels with 5 to 12% fines require dual symbols:
   GW-GM well-graded gravel with silt
   GW-GC well-graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
D. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains ≥ 15% sand, add "with sand" to group name.
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
G. If fines are organic, add "with organic fines" to group name.
H. Sands with 5 to 12% fines require dual symbols:
   SW-SM well-graded sand with silt
   SW-SC well-graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
I. If soil contains ≥ 15% gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
L. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
N. PI ≥ 4 and plots on or above "A" line.
O. PI < 4 or plots below "A" line.
P. PI plots on or above "A" line.
Q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	**q_p**	Pocket penetrometer strength, tsf
WD	Wet density, pcf	**q_U**	Unconfined compression test, tsf
P200	% Passing #200 sieve	**LL**	Liquid limit
MC	Moisture content, %	**PL**	Plastic limit
OC	Organic content, %	**PI**	Plasticity index

Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
  Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
  Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
  Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
  Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
  Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions[L, M]

trace..... 0 to 5%
little..... 6 to 14%
with..... ≥ 15%

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose ..... 0 to 4 BPF
Loose ..... 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils	Blows Per Foot	Approximate Unconfined Compressive Strength
Very soft	0 to 1 BPF	< 0.25 tsf
Soft	2 to 4 BPF	0.25 to 0.5 tsf
Medium	5 to 8 BPF	0.5 to 1 tsf
Stiff	9 to 15 BPF	1 to 2 tsf
Very Stiff	16 to 30 BPF	2 to 4 tsf
Hard	over 30 BPF	> 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:

Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling (▽), at the end of drilling (▼), or at some time after drilling (▼).

Sample Symbols

Standard Penetration Test
Modified California (MC)
Auger
Grab Sample
Rock Core
Thinwall (TW)/Shelby Tube (SH)
Texas Cone Penetrometer
Dynamic Cone Penetrometer

DRAFT

BRAUN INTERTEC
The Science You Build On.

Sieve Analysis Of Aggregate

ASTM C136

Report Date: 12/04/2024

526 10th St NE, Suite 300
PO Box 485
West Fargo, ND 58078
Phone: 701-232-8701

Client:

Moore Engineering, Inc.
925 10th Avenue East
Ste 101
West Fargo, ND 58078

Project:

B2408555
Bucks Mill Dam Fish Passage
Bucks Mill Drive and Mill Pond Drive
Detroit Lakes, MN 56501

Sample Information

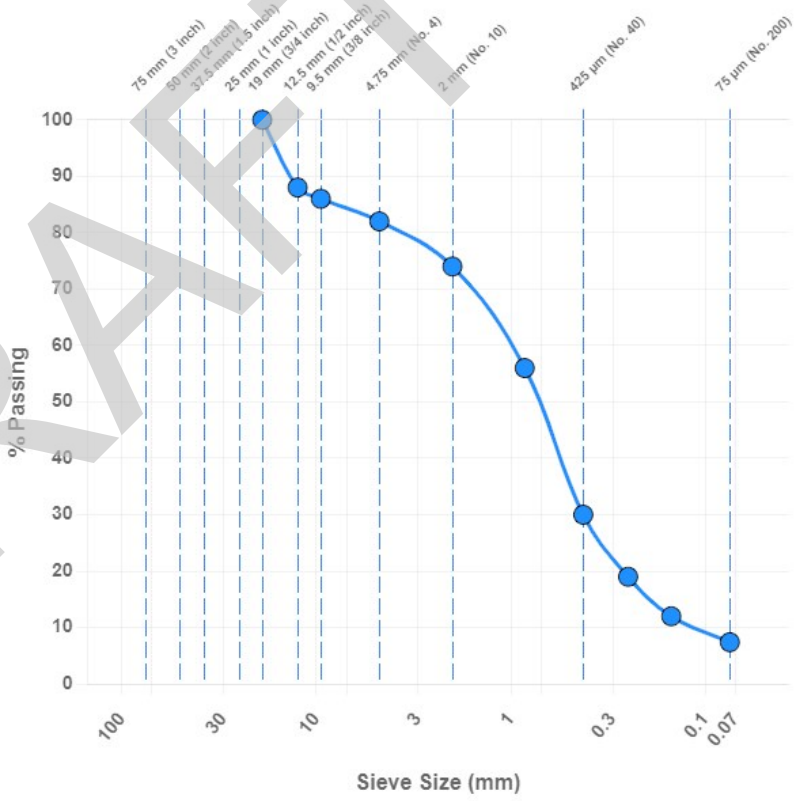
Sample Number: 634072
Sampled By: Drill Crew
Location Details: ST-03; 2.'-3.5'
Received Date: 11/22/2024
Tested Date: 12/02/2024

Alternate ID: Sample #2
Sample From: Auger Cuttings
Sample Date: 09/23/2024
Lab: 526 10th Street NE, Suite 300, West Fargo, ND
Tested By: Lage, Andrew

Laboratory Data

Sieve Size	Passing (%)	Specification
19 mm (3/4 inch)	100	
12.5 mm (1/2 inch)	88	
9.5 mm (3/8 inch)	86	
4.75 mm (No. 4)	82	
2 mm (No. 10)	74	
850 µm (No. 20)	56	
425 µm (No. 40)	30	
250 µm (No. 60)	19	
150 µm (No. 100)	12	
75 µm (No. 200)	7.4	

Gravel (%): 18.3 **Sand (%):** 74.4 **Silt & Clay (%):** 7.4



D_{60} (mm): 1.11 **D_{30} (mm):** 0.43 **D_{10} (mm):** 0.09 **C_U:** 12.33 **C_C:** 1.85

General

Results: The test is for informational purposes.

Remarks: Moisture Content = 14.5%

DRAFT

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BRAUN INTERTEC
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Sieve Analysis Of Aggregate

ASTM C136

Report Date: 12/04/2024

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PO Box 485
West Fargo, ND 58078
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Client:

Moore Engineering, Inc.
925 10th Avenue East
Ste 101
West Fargo, ND 58078

Project:

B2408555
Bucks Mill Dam Fish Passage
Bucks Mill Drive and Mill Pond Drive
Detroit Lakes, MN 56501

Sample Information

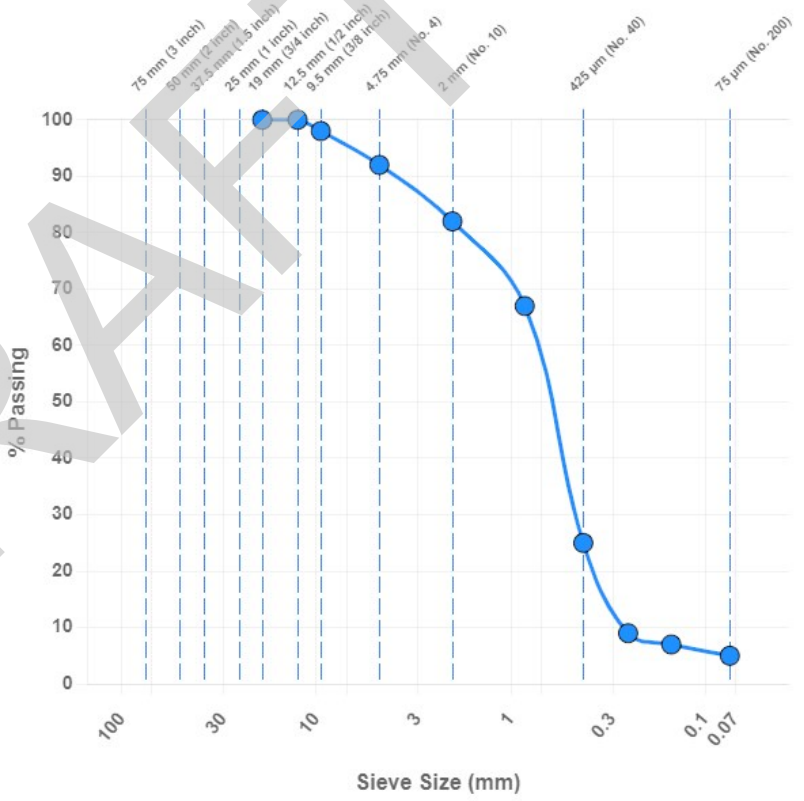
Sample Number: 634065
Sampled By: Drill Crew
Location Details: ST-03; 9.5'-11'
Received Date: 11/22/2024
Tested Date: 11/27/2024

Alternate ID: Sample #5
Sample From: Auger Cuttings
Sample Date: 09/23/2024
Lab: 526 10th Street NE, Suite 300, West Fargo, ND
Tested By: Lage, Andrew

Laboratory Data

Sieve Size	Passing (%)	Specification
19 mm (3/4 inch)	100	
12.5 mm (1/2 inch)	100	
9.5 mm (3/8 inch)	98	
4.75 mm (No. 4)	92	
2 mm (No. 10)	82	
850 µm (No. 20)	67	
425 µm (No. 40)	25	
250 µm (No. 60)	9	
150 µm (No. 100)	7	
75 µm (No. 200)	5.0	

Gravel (%): 8.5 **Sand (%):** 85.7 **Silt & Clay (%):** 5.8



D_{60} (mm): 0.78 **D_{30} (mm):** 0.48 **D_{10} (mm):** 0.26 **C_U:** 3.00 **C_C:** 1.14

General

Results: The test is for informational purposes.

Remarks: Moisture content = 18.4%

DRAFT

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Sieve Analysis Of Aggregate

ASTM C136

Report Date: 12/04/2024

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West Fargo, ND 58078
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925 10th Avenue East
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West Fargo, ND 58078

Project:

B2408555
Bucks Mill Dam Fish Passage
Bucks Mill Drive and Mill Pond Drive
Detroit Lakes, MN 56501

Sample Information

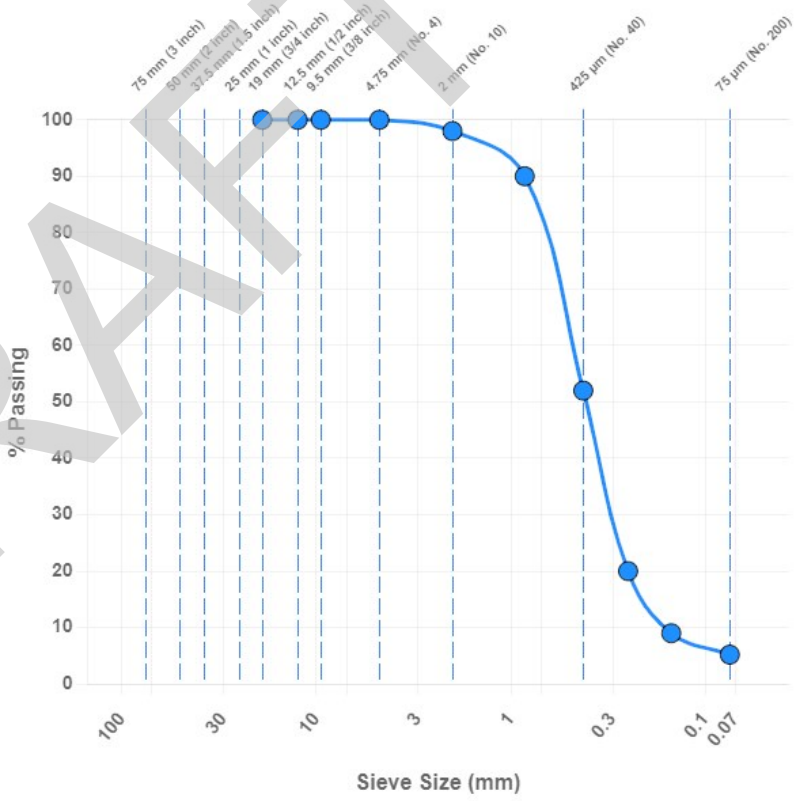
Sample Number: 634071
Sampled By: Drill Crew
Location Details: ST-03; 24.5'-26'
Received Date: 11/22/2024
Tested Date: 12/02/2024

Alternate ID: Sample #9
Sample From: Auger Cuttings
Sample Date: 09/23/2024
Lab: 526 10th Street NE, Suite 300, West Fargo, ND
Tested By: Lage, Andrew

Laboratory Data

Sieve Size	Passing (%)	Specification
19 mm (3/4 inch)	100	
12.5 mm (1/2 inch)	100	
9.5 mm (3/8 inch)	100	
4.75 mm (No. 4)	100	
2 mm (No. 10)	98	
850 µm (No. 20)	90	
425 µm (No. 40)	52	
250 µm (No. 60)	20	
150 µm (No. 100)	9	
75 µm (No. 200)	5.2	

Gravel (%): 0.0 **Sand (%):** 94.8 **Silt & Clay (%):** 5.2



D_{60} (mm): 0.51 **D_{30} (mm):** 0.30 **D_{10} (mm):** 0.16 **C_U:** 3.19 **C_C:** 1.10

General

Results: The test is for informational purposes.

Remarks: Moisture Content = 19.9%

DRAFT

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Sieve Analysis Of Aggregate

ASTM C136

Report Date: 12/04/2024

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PO Box 485
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Client:

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925 10th Avenue East
Ste 101
West Fargo, ND 58078

Project:

B2408555
Bucks Mill Dam Fish Passage
Bucks Mill Drive and Mill Pond Drive
Detroit Lakes, MN 56501

Sample Information

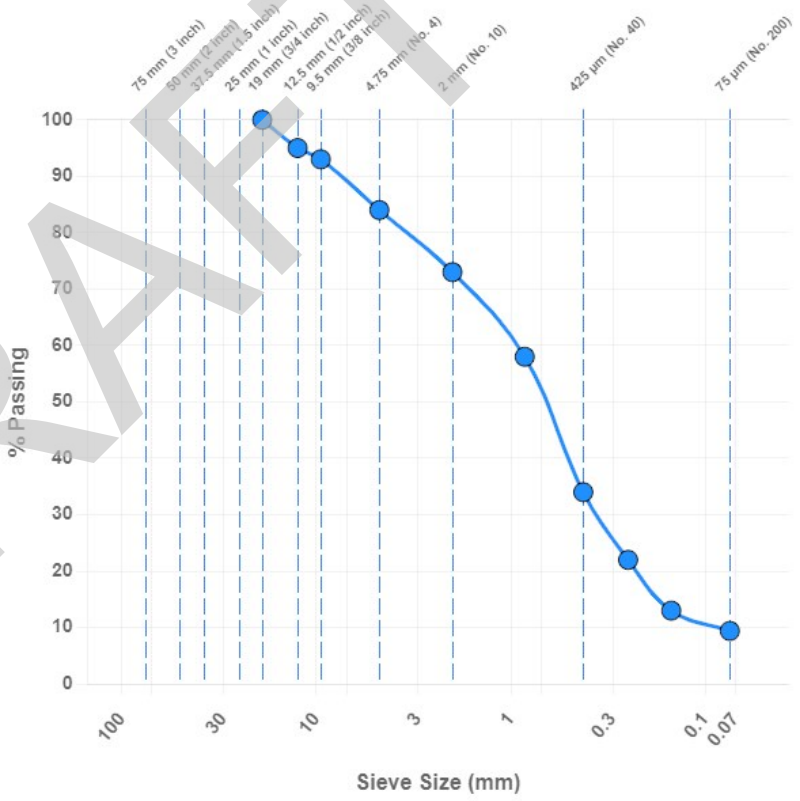
Sample Number: 634070
Sampled By: Drill Crew
Location Details: ST-04; 2.5'-3'
Received Date: 11/22/2024
Tested Date: 12/02/2024

Alternate ID: Sample #13
Sample From: Auger Cuttings
Sample Date: 09/23/2024
Lab: 526 10th Street NE, Suite 300, West Fargo, ND
Tested By: Lage, Andrew

Laboratory Data

Sieve Size	Passing (%)	Specification
19 mm (3/4 inch)	100	
12.5 mm (1/2 inch)	95	
9.5 mm (3/8 inch)	93	
4.75 mm (No. 4)	84	
2 mm (No. 10)	73	
850 µm (No. 20)	58	
425 µm (No. 40)	34	
250 µm (No. 60)	22	
150 µm (No. 100)	13	
75 µm (No. 200)	9.4	

Gravel (%): 16.1 **Sand (%):** 74.5 **Silt & Clay (%):** 9.4



D_{60} (mm): 1.00 **D_{30} (mm):** 0.37 **D_{10} (mm):** 0.09 **C_U:** 11.11 **C_C:** 1.52

General

Results: The test is for informational purposes.
Remarks: Moisture Content = 4.1%

DRAFT

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Sieve Analysis Of Aggregate

ASTM C136

Report Date: 12/04/2024

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PO Box 485
West Fargo, ND 58078
Phone: 701-232-8701

Client:

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925 10th Avenue East
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West Fargo, ND 58078

Project:

B2408555
Bucks Mill Dam Fish Passage
Bucks Mill Drive and Mill Pond Drive
Detroit Lakes, MN 56501

Sample Information

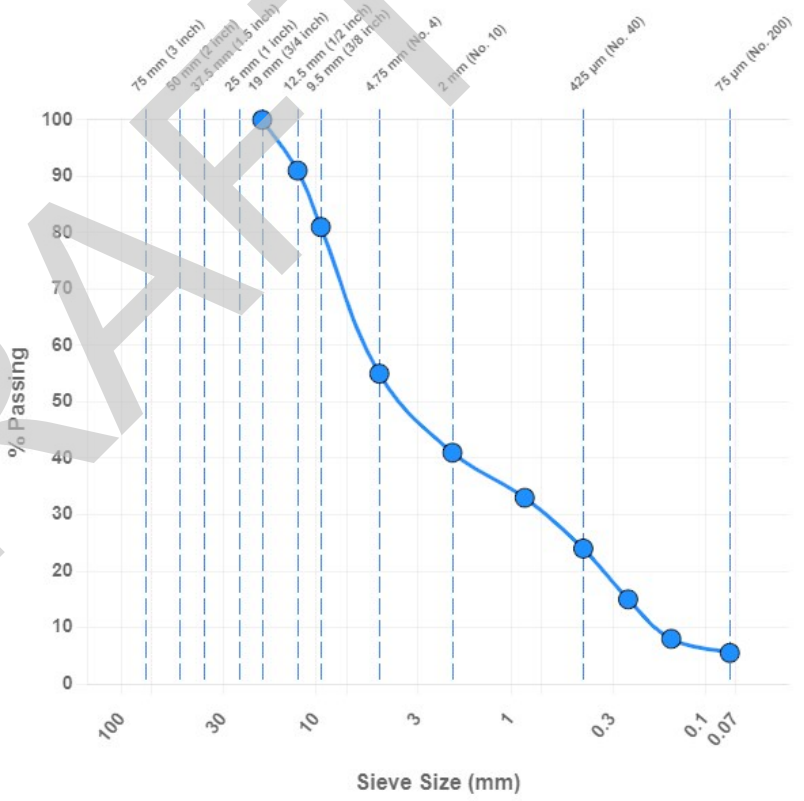
Sample Number: 634068
Sampled By: Drill Crew
Location Details: ST-04; 7'-8.5'
Received Date: 11/22/2024
Tested Date: 12/02/2024

Alternate ID: Sample #15
Sample From: Auger Cuttings
Sample Date: 09/23/2024
Lab: 526 10th Street NE, Suite 300, West Fargo, ND
Tested By: Lage, Andrew

Laboratory Data

Sieve Size	Passing (%)	Specification
19 mm (3/4 inch)	100	
12.5 mm (1/2 inch)	91	
9.5 mm (3/8 inch)	81	
4.75 mm (No. 4)	55	
2 mm (No. 10)	41	
850 µm (No. 20)	33	
425 µm (No. 40)	24	
250 µm (No. 60)	15	
150 µm (No. 100)	8	
75 µm (No. 200)	5.5	

Gravel (%): 44.7 **Sand (%):** 49.8 **Silt & Clay (%):** 5.5



D_{60} (mm): 5.66 **D_{30} (mm):** 0.71 **D_{10} (mm):** 0.18 **C_U:** 31.44 **C_C:** 0.49

General

Results: The test is for informational purposes.

Remarks: Moisture Content = 11.4

DRAFT

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Sieve Analysis Of Aggregate

ASTM C136

Report Date: 12/04/2024

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Bucks Mill Drive and Mill Pond Drive
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Sample Information

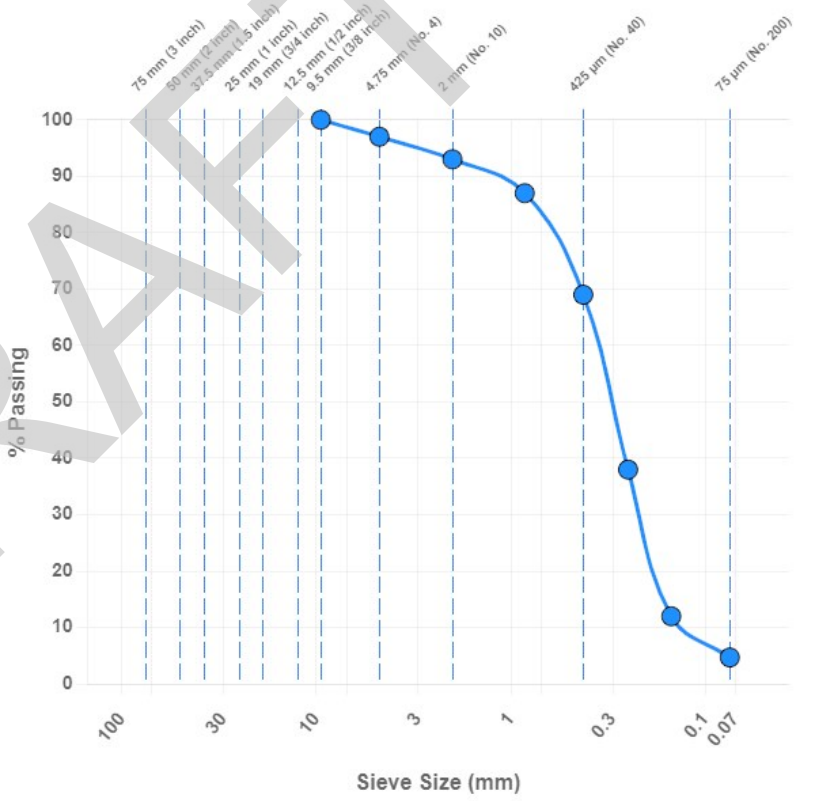
Sample Number: 634067
Sampled By: Drill Crew
Location Details: ST-04; 14.5'-16'
Received Date: 11/22/2024
Tested Date: 12/02/2024

Alternate ID: Sample #18
Sample From: Auger Cuttings
Sample Date: 09/23/2024
Lab: 526 10th Street NE, Suite 300, West Fargo, ND
Tested By: Lage, Andrew

Laboratory Data

Sieve Size	Passing (%)	Specification
9.5 mm (3/8 inch)	100	
4.75 mm (No. 4)	97	
2 mm (No. 10)	93	
850 µm (No. 20)	87	
425 µm (No. 40)	69	
250 µm (No. 60)	38	
150 µm (No. 100)	12	
75 µm (No. 200)	4.7	

Gravel (%): 3.0 **Sand (%):** 92.2 **Silt & Clay (%):** 4.7



D_{60} (mm): 0.37 **D_{30} (mm):** 0.22 **D_{10} (mm):** 0.13 **C_U:** 2.85 **C_C:** 1.01

General

Results: The test is for informational purposes.

Remarks: Moisture Content = 29.2%

DRAFT

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BRAUN INTERTEC
The Science You Build On.

Sieve Analysis Of Aggregate

ASTM C136

Report Date: 12/04/2024

526 10th St NE, Suite 300
PO Box 485
West Fargo, ND 58078
Phone: 701-232-8701

Client:

Moore Engineering, Inc.
925 10th Avenue East
Ste 101
West Fargo, ND 58078

Project:

B2408555
Bucks Mill Dam Fish Passage
Bucks Mill Drive and Mill Pond Drive
Detroit Lakes, MN 56501

Sample Information

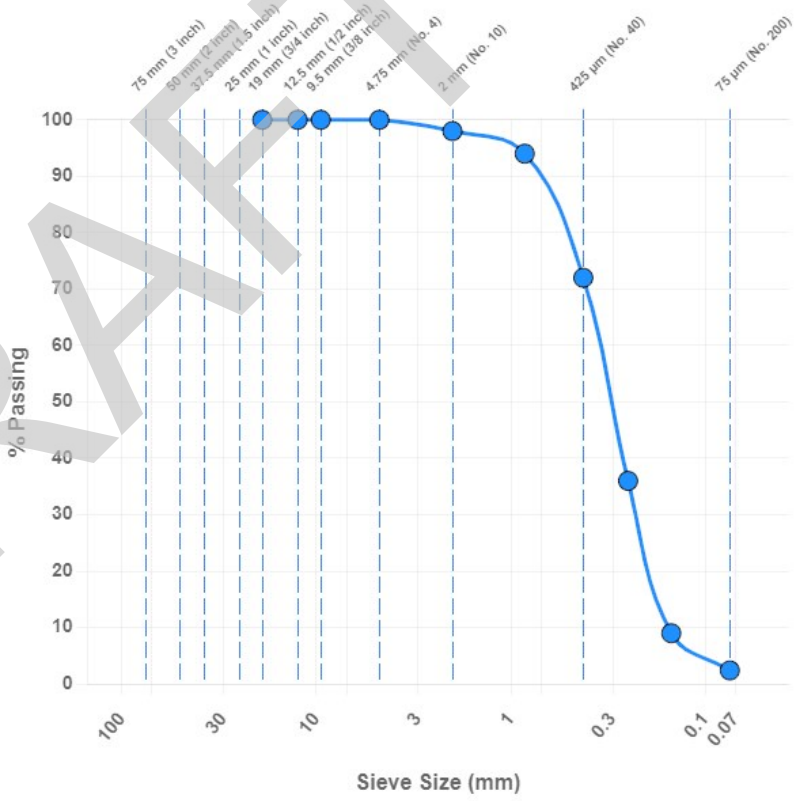
Sample Number: 634069
Sampled By: Drill Crew
Location Details: ST-04; 29.5'-31'
Received Date: 11/22/2024
Tested Date: 12/02/2024

Alternate ID: Sample #21
Sample From: Auger Cuttings
Sample Date: 09/23/2024
Lab: 526 10th Street NE, Suite 300, West Fargo, ND
Tested By: Lage, Andrew

Laboratory Data

Sieve Size	Passing (%)	Specification
19 mm (3/4 inch)	100	
12.5 mm (1/2 inch)	100	
9.5 mm (3/8 inch)	100	
4.75 mm (No. 4)	100	
2 mm (No. 10)	98	
850 µm (No. 20)	94	
425 µm (No. 40)	72	
250 µm (No. 60)	36	
150 µm (No. 100)	9	
75 µm (No. 200)	2.4	

Gravel (%): 0.2 **Sand (%):** 97.4 **Silt & Clay (%):** 2.4



D_{60} (mm): 0.37 **D_{30} (mm):** 0.23 **D_{10} (mm):** 0.15 **C_U:** 2.47 **C_C:** 0.95

General

Results: The test is for informational purposes.
Remarks: Moisture Content = 20.4%

DRAFT

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Appendix H Cost Estimate – Dam

Project #: 24327
Date Updated: 07/18/2025

Buck's Mill Dam - Dam Improvements
Pelican River Watershed District
Becker County, MN

Engineer's Preliminary Opinion of Cost

BID ITEM NO.	*& DESCRIPTION*	*UNIT*	*QUANTITY*	*UNIT PRICE*	*TOTAL*
General					
012000	Mobilization	LS	1	$140,000.00	$140,000.00
015000	Traffic Control	LS	1	$10,000.00	$10,000.00
015000	Dust Control	LF	1	$10,000.00	$10,000.00
312319	Dewatering / Control of Water	LS	1	$150,000.00	$150,000.00
312500	Storm Water Management	LS	1	$50,000.00	$50,000.00
Removals					
311000	Clearing and Grubbing	LS	1	$40,000.00	$40,000.00
024116	Catwalk & Pier Removal	LS	1	$20,000.00	$20,000.00
024116	Abutment Removal	LS	1	$20,000.00	$20,000.00
312213	Topsoil Stripping and Spreading	CY	1,180	$10.00	$11,800.00
024116	Riprap - Salvage & Replace	CY	820	$100.00	$82,000.00
Earthwork Items					
312213	Excavation	CY	3,300	$5.00	$16,500.00
312213	Emabnkment - Berm	CY	2,100	$15.00	$31,500.00
Rock Riffle Items					
314116	Sheet Piling	SF	652	$80.00	$52,160.00
313716.13	Fishing Boulders	EA	12	$700.00	$8,400.00
313716.13	Boulders	EA	405	$500.00	$202,500.00
313716.13	Riprap Class II	CY	2,100	$70.00	$147,000.00
313716.13	Riprap Class III	CY	2,600	$70.00	$182,000.00
313716.13	Aggregate Mix	CY	4,700	$50.00	$235,000.00
Landscaping Items					
323323	Trash Bins	EA	2	$2,500.00	$5,000.00
329300	Trees	EA	10	$1,500.00	$15,000.00
329300	Small plants	EA	20	$500.00	$10,000.00
Remaining Construction Items					
329219	Seeding & Mulching	ACRE	1.5	$2,000.00	$3,000.00
012000	Material Testing	LS	1	$25,000.00	$25,000.00
312500	Wattle	LF	100	$10.00	$1,000.00
312500	Floating Silt Curtain	LF	100	$25.00	$2,500.00
312500	Erosion control blanket	ACRE	0.75	$7,000.00	$5,250.00
				Construction Subtotal	$1,475,610.00
				Design & Construction Engineering (18%)	$266,000.00
				Project Contingencies (10%)	$178,390.00
				TOTAL PROJECT COST	$1,920,000.00

moore engineering, inc.

Appendix I Cost Estimate - Road

Project #: 24327
Date Updated: 07/18/2025

Buck's Mill Dam - Road Improvements
Pelican River Watershed District
Becker County, MN

Engineer's Preliminary Opinion of Cost

BID ITEM NO.	*& DESCRIPTION*	*UNIT*	*QUANTITY*	*UNIT PRICE*	*TOTAL*
General					
012000	Mobilization	LS	1	$120,000.00	$120,000.00
015000	Traffic Control	LS	1	$10,000.00	$10,000.00
015000	Dust Control	LF	1	$10,000.00	$10,000.00
312319	Dewatering / Control of Water	LS	1	$20,000.00	$20,000.00
312500	Storm Water Management	LS	1	$20,000.00	$20,000.00
Removals					
311000	Clearing and Grubbing	LS	1	$15,000.00	$15,000.00
024200	Removal of Pipe	LF	175	$185.00	$32,375.00
xxxx	Road Surface Aggregate Removal	SY	1,400	$25.00	$35,000.00
312213	Topsoil Stripping and Spreading	CY	320	$35.00	$11,200.00
xxxx	Riprap Remove All Sizes	CY	110	$50.00	$5,500.00
Installations					
312213	Common Embankment	CY	3,200	$25.00	$80,000.00
334213	RCB 14' x 6' End sections	EA	4	$22,000.00	$88,000.00
334213	RCB 4' x 4' End sections	EA	4	$4,000.00	$16,000.00
334213	RCB 14' x 6'	LF	176	$3,000.00	$528,000.00
334213	RCB 4' x 4'	LF	192	$700.00	$134,400.00
313700	Riprap - Class IV	CY	220	$100.00	$22,000.00
313700	Riprap - Class II	CY	38	$100.00	$3,800.00
313700	Crushed Granite	CY	190	$100.00	$19,000.00
313700	Granular Filter Material - Base	CY	250	$70.00	$17,500.00
313700	Aggregate Base Class 5	CY	240	$55.00	$13,200.00
xxxx	Guard Rail	LF	300	$90.00	$27,000.00
xxxx	Fence	LF	140	$90.00	$12,600.00
329219	Turf Establishment	SY	2,000	$6.00	$12,000.00
xxxx	Signage	LS	1	$10,000.00	$10,000.00
xxxx	Testing Allowance	ALLOWANCE	1	$25,000.00	$25,000.00
				Construction Subtotal	$1,287,575.00
				Design & Construction Engineering (18%)	$232,000.00
				Project Contingencies (10%)	$155,425.00
				TOTAL PROJECT COST	$1,675,000.00

moore engineering, inc.