



LAKE SHAMINEAU LAKE IMPROVEMENT DISTRICT

**Annual Meeting
Lake Shamineau High Water Outlet Overview
August 27, 2022**



Introduction

- Mike Opat, PE – Project Manager
 - 19+ years of experience
 - Managed numerous high water outlet projects
 - Managed the recently completed Little McDonald, Kerbs & Paul Lake Improvement District's outlet project near Perham, MN
 - Role: Assist the Lake Shamineau Lake Improvement District with the development of a permanent outlet that will mitigate the ongoing high water problems around the lake.
- The HEI team has successfully completed many similar high water outlet projects in the region.
 - HEI also has extensive experience working with ditch authorities throughout MN
- We design projects, we don't build them.



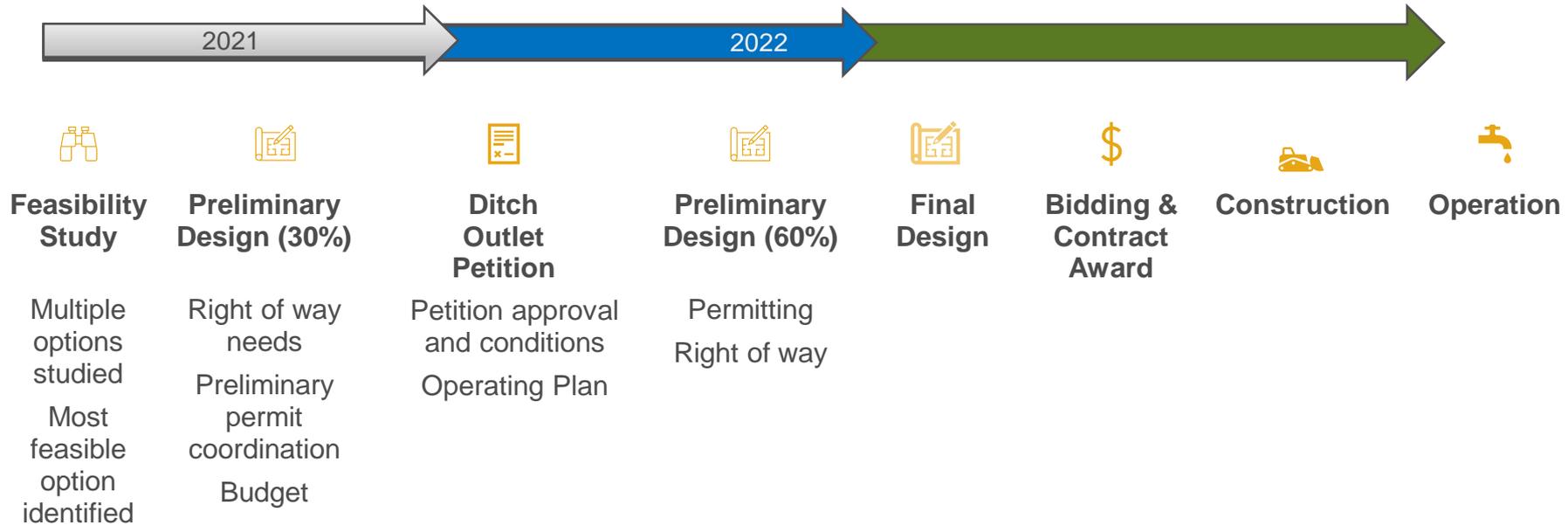
Outline

- Approach & Timeline
- Project Overview
 - Pump station
 - Filters
 - Route
 - Downstream considerations
- Operating Plan
- Estimated costs
- Next steps





LSLID PROJECT OVERVIEW- APPROACH & TIMELINE





LSLID PROJECT OVERVIEW

Feasibility Studies

- Multiple options and routes were studied
- Outlet to TCD 41 is the most feasible

Permit Coordination

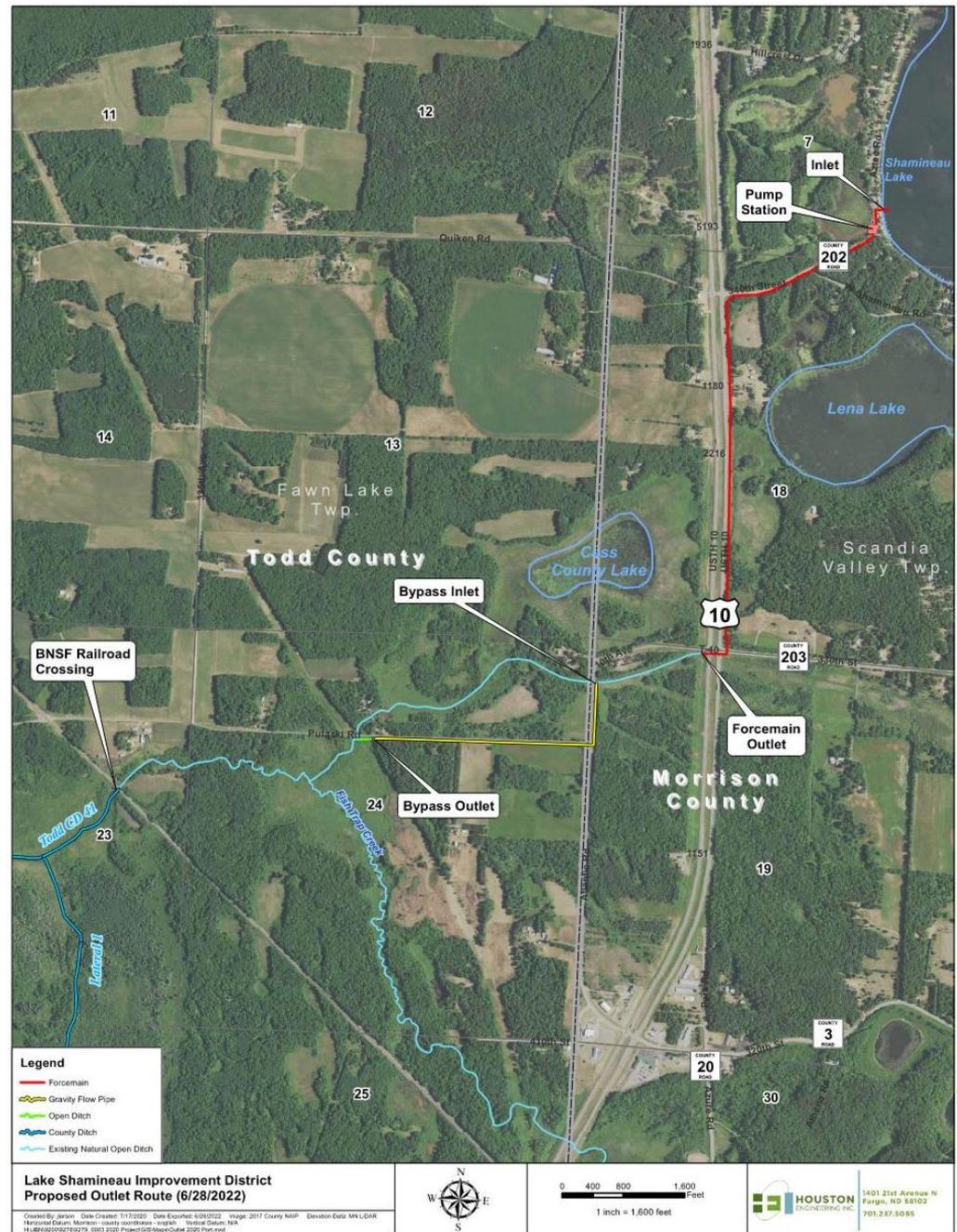
- **MnDOT:** [Permit approved.](#)
- **DNR:** [Permit approved.](#)
- **Morrison County:**
 - Zoning-
 - Pump station design conforms with zoning requirements
 - Formal application to be submitted after vote; quick review and approval anticipated.
 - Highway Department-
 - Will allow use of road of way, including road crossings
 - [Permit approved.](#)
- **Wetlands:**
 - Wetlands have been delineated and approved by Technical Evaluation Panel (TEP)
 - Wetland impacts and mitigation plan have been approved; wetland credits lined up
- **Townships:** All permits approved.

Design

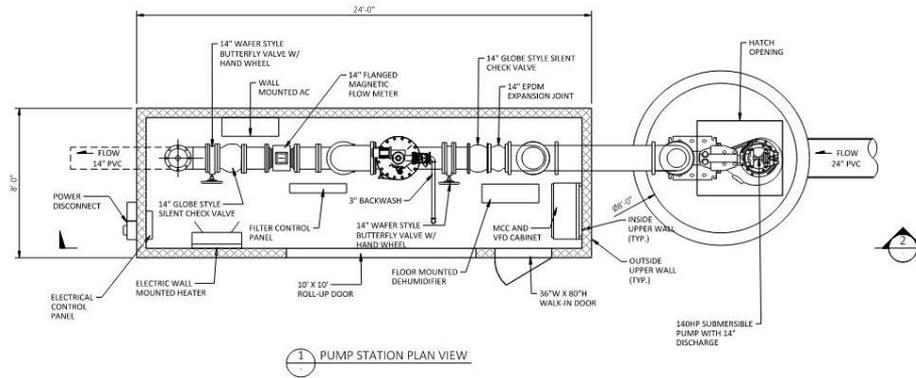
- Plans now at 60%+
- Updates were made to account for permitting requirements (MnDOT, DNR, Morrison County, wetlands, etc.)
- Final design to occur after vote

LSLID PROJECT OVERVIEW

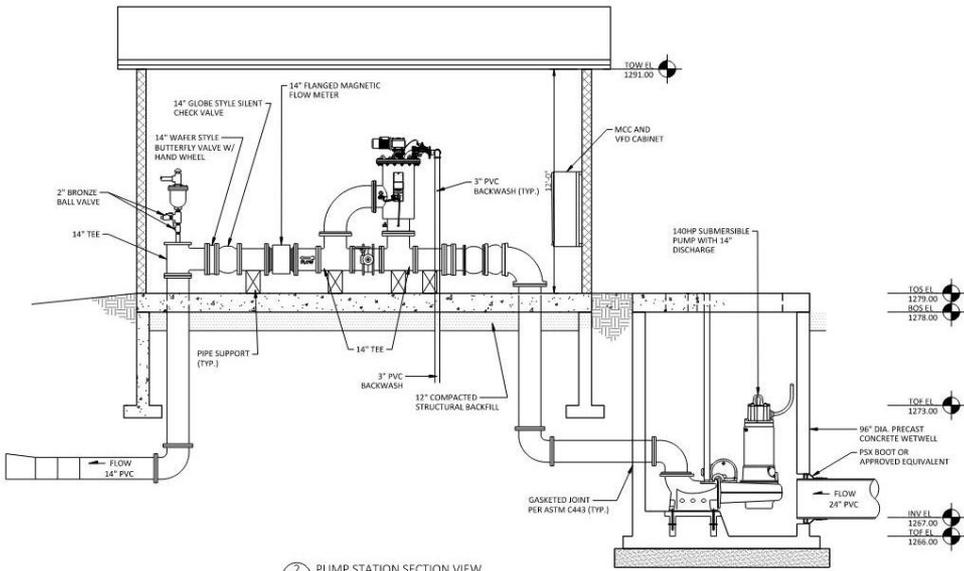
- Lake Intake
- Pump Station
 - Pump
 - AIS Filter
 - Building
- Forcemain (Pipe)
- Outlet
- Downstream
 - “Blue Line Ditch”
 - Bypass
 - Fisht Trap Creek/TCD 41



PUMPSTATION SCHEMATIC



1 PUMP STATION PLAN VIEW



2 PUMP STATION SECTION VIEW

- NOTES:**
- 24' X 8' TIMBER FRAME BUILDING WITH STEEL SIDING AND 3:1 PITCH ROOF WITH ASPHALT SHINGLES.
 - 10' X 10' ROLL-UP DOOR FOR FILTER SKID REMOVAL.
 - 8 - WET LOCATION, SURFACE MOUNTED LED LIGHTING FIXTURES.
 - 400A 277/480V 3 PHASE POWER SUPPLY.
 - VARIABLE SPEED PUMP OPERATION WITH USE OF FLOW METER, PRESSURE MEASUREMENTS, AND VARIABLE FREQUENCY DRIVE.



By	PRELIMINARY		Drawn by	Date	LAKE SHAMINEAU OUTLET PROJECT LAKE SHAMINEAU LAKE IMPROVEMENT DISTRICT MORRISON COUNTY	PUMP STATION PLAN & ELEVATION VIEW PROJECT NO. XXXX-XXX	SHEET M-1
			TRK	5-13-21			
			Checked by	Scale			
			MMO	AS SHOWN			

HOUSTON
engineering, inc.

Drawn by
TRK
Date
5-13-21
Checked by
MMO
Scale
AS SHOWN

LAKE SHAMINEAU OUTLET
LAKE SHAMINEAU LAKE IMPROVEMENT
MORRISON COUNTY

OPERATING PLAN

■ What is it?

- The Operating Plan is a formal document that governs the operation of the LSLID High-Water Outlet project
 - States when pump can be turned on, including specific criteria for downstream properties
 - States when it must be turned off, including specific criteria for downstream properties
 - Specifies when and where downstream water flow conditions must be monitored, including specific locations along TCD 41
- The Operating Plan is a condition attached to the DNR permit for the project
- Operation is dependent upon downstream conditions, even if properties around the lake are flooding

OPERATING PLAN

- Key Points:
 - LSLID will be required to monitor downstream conditions both prior to and while operating the pump.
 - Gauges/markers will be installed at key locations for the LSLID and the public to monitor
 - Primary & Secondary Gauges
 - Monitoring will occur more frequently as water levels approach critical elevations





Estimated Project Costs

- Preliminary level design → Preliminary level cost estimate
 - Currently at ~60% level design
 - Estimates will be refined as level of design increases
 - Estimates include all anticipated costs; including construction, engineering, right-of-way, permitting, utilities, legal, administration, etc.
 - Focus on higher cost items (pumps, filters, etc.)
 - Estimates include a contingency in the budget to account for uncertainties involved with the concept level design and unknowns that might come up



Estimated Project Costs

- The construction estimates are based on recent bids submitted by contractors on similar projects, and information from contractors and suppliers.
- A better picture of the actual cost of the LSLID project won't be known until the project is let for bids.
 - Actual costs could vary from estimates as market conditions, weather conditions, construction schedules, and other factors all impact the bids submitted by contractors.



Estimated Project Costs

- Estimated Total Construction Phase Costs: \$5,550,000
 - Construction, right-of-way, legal, engineering, permitting, contingency, etc.
 - Included contingency amount: \$550,000
- Estimated cost has increased since August of 2020
 - Design Changes: Hwy 10 crossing (MnDOT), Bypass
 - Inflation:
 - Material prices (pipe, pumps, control panels, etc.)
 - Fuel
 - Labor



Estimated Project Costs

- **Key Cost Factors:**
 - Dewatering: Required for intake installation, wet well construction, pipe installation; Costs will vary depending on contractor's desired means and methods, weather conditions, ice, etc; costs from similar LMKP LID project used
 - Filtration: Mechanical filter provides potential for resale if DNR determines filters are not required in the future; Eurasian watermilfoil
 - System Capacity: Costs currently reflect a 10 cfs system



LMKP Intake Installation (<https://www.lmkp-lid.com/>)



Estimated Project Costs

- Key Cost Factors:
 - Forcemain: Pipe prices are often impacted by petroleum prices and other variables, so actual costs will depend on conditions at the time of the bid
 - Pump Station Building: Will house filtration system and controls; Building allows for year around operation and will provide added sound abatement; Pump will be underground in a concrete structure



Estimated Project Costs

- Key Cost Factors:
 - Contingencies: The goal is to not spend any of the contingency funds. Any funds not spent would translate to a lower bond amount.
 - Including a contingency is good practice and mitigates delays and financial challenges
 - Value engineering has been ongoing and will be considered during future design phases to identify potential cost savings (dewatering, filtration, route, etc.)



Other Considerations

- Lead Times for Materials:
 - PVC pipe → +/- 30 weeks
 - Pump → +/- 14 weeks
- Schedule:
 - Construction timeline selected by LSLID will impact bids
 - Timeline including frozen conditions may allow contractors to work through ice for lake intake and trench through frozen wetlands → lower bids
 - Longer timeline may allow contractors to factor in lower material, fuel and labor costs



Next Steps

- After annual meeting:
 - Continued stakeholder outreach
 - Finalize permitting
 - Finalize right of way acquisition
 - Final design
 - Bidding
 - Construction