

Village of Superior, WI

CLIENT LIAISON:

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DATE:

January 10, 2024



A picture of one of the lagoons at the Village's WWTF. Wastewater is treated in these ponds and then discharged to the Pokegama River per the Village's discharge permit.

WASTEWATER FACILITY PLAN

Background

The Village of Superior owns and operates a wastewater treatment facility, located just west of the Village. The WWTF consists of four stabilization ponds, providing over 400 days of detention time at current average flows. The treated effluent from the WWTF is currently discharged seasonally (April, May, June, September, to a drainageway tributary to the Pokegama River.

The Village's current wastewater pollution discharge elimination system (WPDES) permit, which was reissued on April 1, 2019, includes a compliance schedule for meeting Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus. These limits consist of monthly average (0.075 mg/L) and 6-month average (0.225 mg/L) concentration limits which are significantly more stringent than the WWTF's current interim total phosphorus limit of 2.3 mg/L. Per the compliance schedule in the Village's WPDES permit, the Village must submit plans and specifications for compliance with phosphorus limits by March 31, 2025.

Based on current WWTF treatment performance, the Village is not expected to meet this limit without upgrades or compliance alternatives. Per the Village of Superior's *Wastewater Facility Plan* (August 2022) various alternatives were evaluated. The two most feasible alternatives were:

- Alternative No. 1 Regionalization with the City of Superior
- Alternative No. 2 Outfall Relocation to the Nemadji River

In either alternative, the Village would maintain current treatment performance. Alternative No. 2 was the recommended alternative as it presents the lowest cost to the Village on a 20-Year Present Worth Analysis. Note that the *Wastewater Facility Plan* does not commit the Village to upgrades, funding, or changes to sewer rates. It is an evaluation document with proposed pipe routes, building layouts, and equipment sizing which may change during design.

PROJECT UPDATE

Proposed Scope of Project

The following upgrades were included as part of the project:

- Influent Lift Station Upgrades
 - o Eliminate existing legacy electrical service (provide new service)
 - o Upgrade submersible pumps
 - o Replace instrumentation, monitoring, and control equipment
 - o New communications and reporting system
 - o Replace standby generator
 - o Rehabilitation of existing wet well structures

- Chemical Feed Building (Acid Feed for upcoming Ammonia limit)
 - o FRP Prefabricated building
 - o Chemical feed dual pump skid
 - o Chemical storage
 - o Safety equipment per DNR requirements
 - o Electrical service to the WWTF

- Effluent Pumping Station and 6" Forcemain to Nemadji River
 - o Concrete wet well and valve structure
 - o Submersible pumps
 - o Control panel and monitoring
 - o 6" HDPE Forcemain (directional drill)
 - o Air release valve structures

The initial route proposed for outfall relocation is the most direct route and does not go through any wetlands. Construction through wetlands requires winter construction, Chapter 30 permits, and adds many technical complexities to the project. Per Village instruction, this route is being reevaluated by MSA, but will likely require construction through some wetlands.

Pond Sludge

As part of the annual maintenance costs for this project, costs were included for sludge removal from the ponds. Pond sludge resides at the bottom of the ponds and is a product of biological treatment of wastewater. This is a typical maintenance item for lagoon facilities and is typically done every 10 – 20 years (depending on wastewater characteristics). The ponds at the WWTF currently have low sludge levels (approximately 3 – 4 inches) and sludge removal is not immediately necessary. At the time of sludge removal, if concentration of metals are beyond DNR limits, then the sludge must be landfilled. The Village is performing sludge testing this winter for metals to determine if the sludge would be eligible for land application.

The WWTF currently accepts leachate from the demolitions landfill, which contains elevated concentrations of metals, which settle out into the pond sludge. The Village has the option to refuse reception of leachate, which over time, can help “dilute” the pond sludge (natural attenuation). The proposed project upgrades for permit compliance are not related to pond sludge. This is a typical annual maintenance and operation cost for lagoon facilities and was included in the annual costs for the Village for continued operation of the WWTF. If the Village were to regionalize with the City, then the WWTF would need to be abandoned and sludge would have to be removed within 2 years of abandonment.

PROJECT UPDATE

Funding and Sewer Rates

The Village is eligible for a low-interest loan from DNR Clean Water Fund as well as principal forgiveness on the loan. MSA has also submitted the Village’s 2024 application for USACE Section 154 funding, a 75%-25% reimbursement program on water-related infrastructure projects for Northern Wisconsin communities. The sewer rates estimated below assume pond sludge must be landfilled and vary in amount of principal forgiveness and USACE funding.

Financing Info	CWFP without PF	CWFP with PF	CWFP with PF & USACE Applied to Entire Project
Project Information	Relocation FM		
Estimated Capital Cost	\$3,844,000	\$3,844,000	\$3,844,000
Estimated Grant	N/A	N/A	\$2,883,000
Estimated Principal Forgiveness	N/A	\$961,000	\$961,000
Principal Loan Amount	\$3,844,000	\$2,883,000	\$0
Subsidized Interest Rate for Village	2.145%	2.145%	2.145%
Loan Term	20 Years	20 Years	20 Years
Total Annual Debt (O&M, Debt Service, etc.)	\$414,958	\$349,401	\$152,730
Current Average Monthly Sewer User Rate	\$25	\$25	\$25
Proposed Monthly Sewer User Rate (Estimated)	\$108	\$91	\$40
Proposed Sewer Rate, as % of 2015-2019 MHI	1.84%	1.55%	0.68%

* MSA is not acting in the role of Municipal Advisor. For financial advice related to the corresponding project, the client is encouraged to discuss their finances with internal and/or external advisors before making decisions incurring debt and/or supporting those obligations.

Schedule

Given the compliance schedule provided on the Village’s WPDES Permit, the Village has flexibility when design and construction should take place. The Village must move forward with design *no later* than July 1, 2024 to have plans and specifications ready to submit to DNR by the March 31, 2025 deadline in the WPDES Permit Compliance Schedule.

PROJECT UPDATE

However, given the September 30, 2024 submittal deadline for the DNR Clean Water Fund loan and grant application, equipment procurement and delivery times, and market conditions, *it is recommended the Village move forward with design by early Spring 2024 and submit Plans, Specifications, and Clean Water Fund Funding Application by September 30, 2024. This approach, while slightly ahead of schedule, makes the most sense in terms of funding, design, and construction flexibility.*

Item	Approximate Date
Submitted Application for USACE Section 154 Funding for FY 2024	September 2023
Authored Letters to Local Representatives and Elected Officials for Funding	September 2023
Submitted Intent to Apply (ITA) and Priority Evaluation and Ranking Forms (PERF)	October 2023
Submit Facility Plan Amendment to DNR (reflecting the effluent pump station)	January 2024
Begin Design of Project	March 2024
Receive Funding Decision for USACE Section 154 Funding	Spring/Summer 2024
Submit Clean Water Fund Loan and Grant Application to WDNR	September 2024
Submit Plans and Specs for Upgrades to WDNR	September 2024
Submit Application for USACE Section 154 Funding for FY 2025 if needed	September 2024
WDNR Approval of Plans and Specs	December 2024
Bid Project	February 2025
Commence Construction	April 2025
Complete Construction	March 31, 2027
WPDES Compliance Schedule Milestone - Submit Plans and Specs for Upgrades	March 31, 2025
WPDES Compliance Schedule Milestone - Commence Construction	June 30, 2025
WPDES Compliance Schedule Milestone - Complete Construction	March 31, 2027