



Village of Superior,
Douglas County Wisconsin
PO Box 3065, 6702 Ogden Avenue,
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On Thursday, December 9, 2021, the regular monthly board meeting for the Village of Superior will be held at 7 P.M. at the Village Hall, 6702 Ogden Avenue. At 6:30 P.M. accounts payable vouchers will be approved.

SUBJECT: Regular Board Meeting MINUTES

- Meeting called to order. Roll call. All board members present as well as Clerk-Treasurer, Marsha Wick and 6 residents.
- Open Meeting Compliance Check: notice posted at Village Hall, Four Star Construction, Udeen Trucking and the Village bowl.
- Park & Rec Committee update –
- Neighborhood watch committee- update on activities, Katie Gallagher
- Douglas County Supervisor, Pat Ryan report/comment ...
- *Communications*
 - WI DNR< RE: Public notice of an air pollution control permit for the superior refining co. hearing to be held Dec, 20 at noon via a zoom conference.
 - General Code RE: quote for codification services, requested a quote for an editorial and legal analysis of our ordinances. Choice of two packages: Package 1 is a comprehensive recodification @ \$6950 Package 2 is an editorial and legal analysis at \$3464 plus option 1 phase 2 \$4800, option 2 estimate upon request. Discussion, Greg made a motion to table until January meeting, seconded by John, approved.
 - Tax bills are running behind due to a software update issue delaying the bills arriving in my office to fold and stuff to mail out.
- *Reports of Village Officers:*
 - **Greg Young, Trustee:** CMAR has been accepted by the DNR as presented. All grades are an 'A'. everything running as it should.
 - **Joe Podgorak, Trustee:** attended the webinar about reducing phosphorus in stormwater. First snow event of the season last Sunday had Mike out plowing on Sunday and back during the night to plow in the heavy winds and snow. He did a fine job keeping up and making the village streets safe.
 - **John Wick, President:** also attended the stormwater phosphorus reduction webinar along with Marsha.
- Motion made by Greg to approve the treasurers report of November 11, 2021,seconded by Joe, approved.

- Motion made by Greg to approve the signed vouchers, seconded by Joe, approved.
- Motion made by Greg to approve the Board Meeting Minutes of November 11, 2021, seconded by Joe, approved.
- Old Business:
 - MSA; memo: attached.

New Business:

- Election Inspectors : This appointment will cover the next election cycle: January 1, 2022 through December 31, 2023. Receiving no list from either party, Nominated are: Bettie Thompson, chief election inspector, Marcia Olson, election inspector and Mary Beth Pince, election inspector, motion made by Greg to appoint the aforementioned to a two year term, seconded by Joe, all in favor, approved.
- Discussion on the DLS landfill in regards to leachate going into the sewer ponds, what does it contain? Could it be a possible result of our metal and phosphorus being high? discussion Greg and Joe to get samples from DLS leachate to be tested. Greg made a motion to table further action until January, seconded by Joe, approved.
- Motion to open meeting to Public Comments, (notice received by clerk, for agenda items ONLY)
- Greg made a motion to adjourn, seconded by Joe, approved and adjourned at 7:40pm

Respectfully Submitted by:

Marsha K. Wick
Clerk/Treasurer



Memo

To: Village of Superior
From: Pat Morrow, P.E., Scott Chilson, P.E., Rahim Ansari
Subject: Facility Planning Considerations
Date: December 6, 2021

As MSA Professional Services moves forward with Facility Planning for the Wastewater Treatment Facility (WWTF), we have identified additional information and/or considerations that we would like the Village's input and assistance with.

- 1. Sludge Sampling and Analytical Testing on all four (4) ponds at the WWTF.** Sludge test results from September 2021 indicate elevated levels of various metals in the sludge from the primary ponds. The levels are near or above the allowable thresholds for land application. Historically (2016 and 2010 sampling events), sludge was collected from the secondary ponds, and that sludge did not have elevated levels of metals. We request that the Village obtain additional metal concentration data so that we may better understand current sludge conditions in all four ponds. This will be important for evaluating the potential for natural attenuation or if a sludge blending option exists, with the goal of avoiding the expenses of landfill disposal. Sludge testing may occur at the Village's discretion (preferably this fall or winter), but individual composite samples from each of the four ponds should be taken and analyzed. We also recommend that the source of the metals be investigated. This data will allow MSA to further evaluate alternatives and perform a cost estimate reflective of current conditions.
- 2. A “sludge judge” test performed in multiple locations within all four (4) ponds at the WWTF.** While sludge samples are collected for metals sampling, we recommend that the Village also perform sludge depth measurements at multiple locations within each of the four ponds. We will use the sludge depth measurements to calculate overall sludge volumes

and learn more about the ability to mix sludge from the secondary lagoons with sludge from the primary lagoons as a possible approach for meeting the land application ceiling limits for sludge heavy metal concentrations. We can help the Village with the development of a sampling scheme and path for moving forward.

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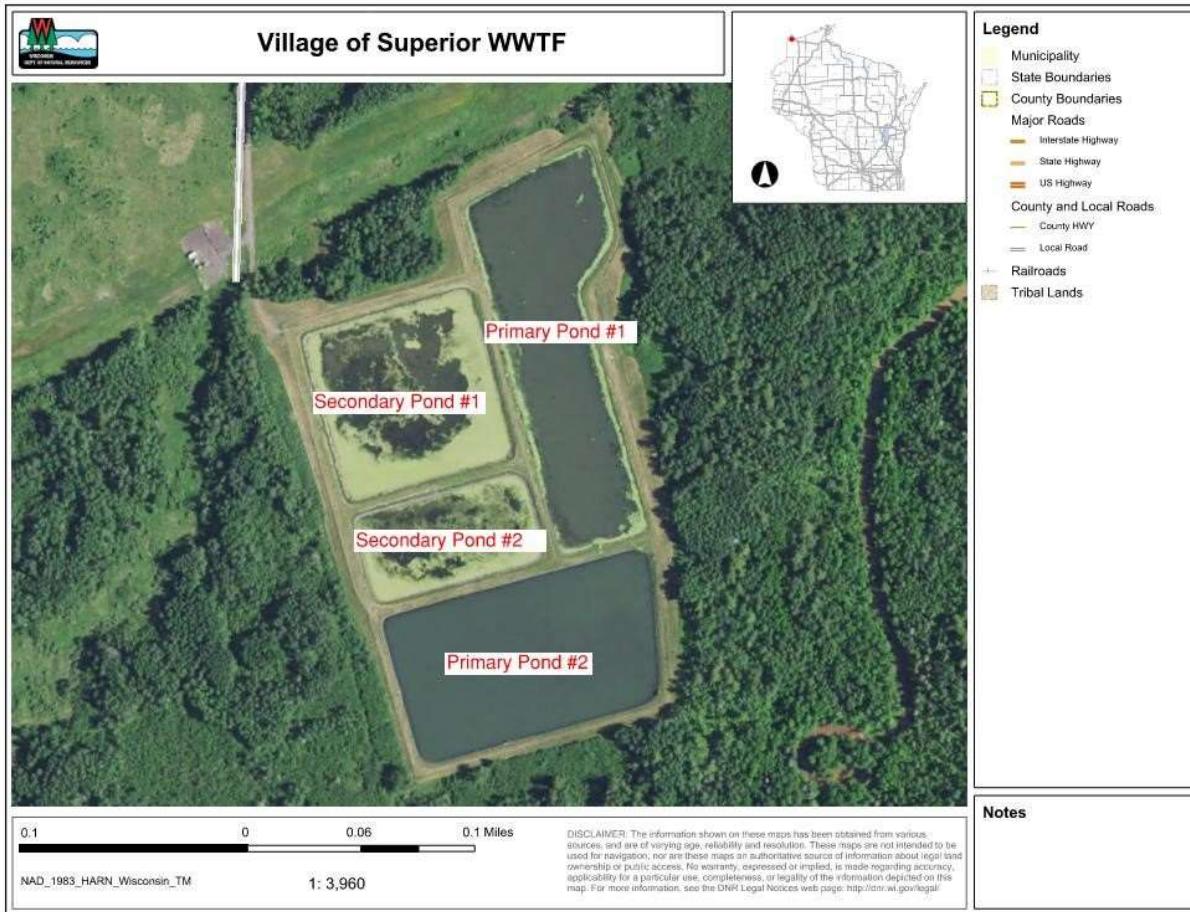
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3. Records of sludge removal from the ponds at the WWTF.

Please confirm construction year and sludge removal year for each of the ponds. If records exist of total volume of sludge removed, please provide. A diagram of the ponds is provided below.

Pond No.	Year Constructed	Sludge Removal Year	Years of Sludge Accumulation
Primary Pond #1	1982	1995	25
Primary Pond #2	2003	N/A	18
Secondary Pond #1	1963	1995	25
Secondary Pond #2	1982	1995	25



4. Lift Station Upgrades. Much of the electrical controls and related equipment at the Lift Station was installed circa 1995 and is therefore 26 years old and would likely be 30 years old by the time any capital projects might occur to replace it. Because the Wastewater Facility Plan requires us to consider capital projects likely to be necessary within the next 20 years, the Village may wish to consider replacement of much of the equipment, at least for the facility planning process in order to be conservative in our planning costs. Specific items are further discussed in the paragraphs below.

Electrical Service

The electrical service at the lift station is a 120/240V Delta arrangement. This is a “legacy” electrical service, and therefore typically no longer supported by electrical utilities. In many cases, the utility will not force a service upgrade until an upgrade or major change occurs. If this service were to fail or be damaged at any point, the electric utility could require the Village to upgrade the service. We recommend that the Village contact Superior Water and Light to inquire relating to their stance on the existing service remaining in place or being upgraded. We can also assist with this process.

An upgrade of the service to a true 3-phase system would impact all electrical system components and process equipment (ie the RWW Pumps). Assuming the Village is

supportive of the elimination of the legacy service and setting yourselves up for the long-term, we would plan for the upgrade of the existing legacy service to a 3 phase 120/208V Wye service which is typical for water/wastewater utilities with motor loads less than 15 HP. Upgrading as part of this project will avoid the risk that the service is required to be upgraded while this project is underway or in the near future.

Pumps, Controls and Communications

Initial calculations indicate that based on 20-year projected flows, the current lift station pumps will need to be upgraded to provide the necessary peak flow pumping capacity. Replacement pumps would be similarly sized but would have increased capacity to handle projected peak instantaneous flows and would be suitable for the new 3-phase electrical service.

Much of the equipment and respective controls at the lift station was installed in 1995. There are newer, standard methods available for monitoring the alarms and status/performance of the lift station, as well as systems to track flow data, provide collection and trending of the data to help identify problems, and assist in filing out the monthly DNR flow reports (DMRs). The City may wish to include these items in any upgrades. Essentially, we would recommend replacement of the pump control panel and new instrumentation, in addition to adding minimalistic SCADA or Smart-PLC based system that is suitable for the small lift station and relative needs of the Village. It would not be overcomplicated with bells and whistles, but the goal would be to assist operations and practical functionality. These newer systems provide a degree of automation and time savings resulting from digital collection and summarization of flow and pump runtime data. Upgrades to a more sophisticated system would likely be a necessity if regionalization with the City of Superior were the final compliance option.

Overall, the recommended upgrades would likely include new RWW pumps, new flow meter, new pump control panel, new lighting or other panel(s), SCADA or Smart-HMI or similar, and telemetry of lift station status and flow rates and daily flow totals to the Village Hall and City of Superior (if applicable). Some equipment may remain in place based on the system integrator/electrician input, potential City of Superior requirements, and Village input. However, for planning purposes we recommend the Village consider inclusion of these items in the Facility Plan. Please advise whether you would like us to include the above functionality.

Generator

The current generator was installed prior to 1995. The unit, while robust, has aged considerably and would at a minimum require upgrades to continue servicing the lift station in the event the electrical service was upgraded. The generator should be inspected by a local Kohler technician to determine whether the generator voltage output can be changed, and if the unit will be serviceable for the next 20 years. If the generator cannot be upgraded, or if it cannot be confidently serviced over the next 20 years due to age and performance concerns, MSA recommends installing a new generator. A new Automatic Transfer Switch (ATS) will be required at the station, regardless of whether the existing generator is re-used or a new generator is provided. For planning purposes, we recommend the Village consider inclusion

of a new generator in the Facility Plan, unless a local service technician is very confident the generator can perform adequately and be serviceable for the next 20 years. If the Village would like MSA to contact the Kohler technician who currently services the existing generator, please provide us with the contact information.

Structure Lids and Hatches

The concrete structure lids and hatches of the wet well, valve vault, and flow metering vault are aged and do not have safety (fall protection) grating under the hatches to our knowledge. Municipalities often replace the lids and hatches of existing structures when upgrades occur, so that fall protection safety grating can be provided and any deterioration that has occurred to the concrete lids can be resolved by replacing the concrete lid itself.

In addition, there are some non-compliance items in terms of the current electrical code and/or the National Fire Protection Association (NFPA) Chapter 820 standards that could be remedied at a minimal cost, while increasing safety by reducing or eliminating hazards. These items include conduit penetrations into the various lift station vaults and into junction boxes. MSA recommends that these items be included in the Facility Plan, as they will set the Village up for safe operation for the next 20+ years. Please advise whether you would like us to include the replacement of these items.

Summary

Given that the lift station would be roughly 30 years old by the time any significant upgrades might occur, we recommend that the Village include the various upgrades and replacements discussed within this memo as part of the 20-year plan. DNR will also expect, or at minimum *strongly recommend*, that the Facility Plan include or address these items, as the Wisconsin Administrative Code Chapter NR 110 has specific requirements for facility planning and evaluation of existing equipment. We can include them in the Plan at this time, and if further information (such as subsequent inspections or evaluations or additional Village input/knowledge) becomes available during the preliminary design process, we can remove them from the project scope.

We respectfully request that the Village discuss these items internally and come to agreement whether you would like us to include them in the Facility Plan. There is a chance we could leave some of the items “as-is” if you truly wish but you would be reducing reliability and increasing the chance of mechanical failure. Further, anything likely to fail within the 20-year planning period technically should be included in the Facility Plan. On a related note, anything replaced as part of the Facility Plan would likely come with some form of principal forgiveness (grant), especially if the project moves forward in the next few years under the new historic levels of infrastructure funding that we are seeing from the Federal Government.

Please feel free to contact me to discuss, at pmorrow@msa-ps.com, or by phone at 608.355.8910.



UPDATE

A Review of MSA's Commitment to Your
Community



Village of Superior, WI

CLIENT LIAISON:

Pat Morrow, P.E.

Phone: (608) 355-8910 Cell: (608) 963-2094 pmorrow@msa-ps.com

DATE:

December 6, 2021

Main Lift Station influent manhole, wetwell, Crane, electrical J-box, valve vault, and flow metering manhole.

WASTEWATER FACILITY PLAN

Lift Station

The Village's Main Lift Station was constructed in 1995 and therefore more than 25 years old. The lift station was provided with electrical service, controls, and equipment as required. Typical lifespans for electrical controls and related equipment range from 15-20 years. The equipment is beyond its typical expected service life and should be considered for replacement in the Facility Plan. MSA recommends upgrading the lift station with updated electrical service, controls, communications, and equipment including raw wastewater pumps and potentially a new generator. In addition, concrete lids and hatches at the main lift station are at least 25 years old and replacement with new concrete lids and hatches with safety (fall protection) grating is recommended. However, if the Village does not wish to replace some of these items, we can plan for re-use of as much as possible, but anything anticipated to fail within the next 20 years should be included in the Plan.

Further information about these upgrades are provided in the Facility Planning Considerations Memo dated December 6, 2021.

Outfall Relocation to Nemadji River

We have evaluated relocation of the discharge to the Nemadji River where phosphorus and most likely all other limits will be within the facility's current operating capabilities. A potential route and preliminary cost estimate for this alternative has been completed. We are waiting on a response from the WDNR regarding the Village's updated Effluent Limits Request for Outfall Relocation on the Nemadji River. We will share the results of the Effluent Limits Request with the Village when available.

UPDATE



Regionalization with the City of Superior

A potential route and preliminary cost estimate for this alternative has been completed. Further communication with the City of Superior on potential Lift Station requirements is being undertaken. As part of the regionalization alternative, the current WWTF would need to be abandoned in accordance with Wisconsin DNR requirements. Abandonment would consist of sludge removal and disposal (within 2 years of being off-line), re-grading to prevent standing water, breaching the berms/dikes, and re-vegetating to prevent soil erosion.

Summary

The ability to move the outfall vs. the need to regionalize with the City of Superior will come down to whichever option is most cost-effective for the Village and also satisfy the DNR/EPA antidegradation and anti-backsliding requirements as previously discussed with the Village. Final cost estimates depend greatly on the following factors:

- **Volume of sludge present in the lagoons.** Sludge depth testing will provide this information and assist in formulating final cost estimates.

- **Sludge disposal requirements.** Metals testing of sludge from the lagoons will help determine the feasibility of sludge blending and landfill application vs landfill disposal.
- **Identification of metals contributor.** Identifying and potentially reducing the contribution of metals into the Village's wastewater collection system may allow the Village to avoid costly landfill disposal fees in the future.
- **Extent of lift station upgrades.** Whether the Village pursues Outfall Relocation or Regionalization, upgrades to the main lift station are recommended. This is because the existing equipment serving the station will be approaching 30 years old at the time of any upgrade. Replacement of equipment and controls will help maintain proper function for the next 20+ years. The extent of upgrades will also be dependent on City of Superior requirements in the event Regionalization is pursued. The City would most likely have requirements with respect to flow monitoring, reporting, summarization, and lift station activity and pump status.

The removal and disposal of sludge is highly dependent on the sludge depth and metal concentration. Updated costs and feasibility will be determined once that data is analyzed. We recommend that the Village take sludge depth measurements this winter if it is safe to do so (through the ice) and get a better idea of sludge quantities and collect additional metals samples at that time. This would be important for evaluating whether a sludge blending option exists, with the goal of avoiding the expenses of landfilling. We also recommend that the source of the metals be investigated. Lastly, we recommend the Village contact their local Kohler technician, system integrator, and electrical utility (Superior Water and Light) to determine which equipment require immediate upgrades.

Further information is provided in the Facility Planning Considerations Memo dated December 6, 2021. Upon review of the memo, please provide comment regarding the scope of upgrades the Village would like to incorporate. Please contact Pat Morrow with any questions or to discuss the Memo.

Next steps include analyzing sludge data collected by the Village, finalization of cost estimates and 20-year present value analyses, setting up a meeting with the City and Village, and evaluating the economics and possible sewer rate impacts of each option.



Pictured above is the original Kohler generator that was pre-existing in 1995 and relocated to the new building at that time. This generator is wired for the existing, 'legacy' electrical service and would need to be upgraded (if possible) or replaced with a new generator if the electrical service is replaced. Recommend that the Kohler service technician/representative be contacted to obtain his opinion on longevity of existing unit and whether expected to be serviceable for the next 20 years in terms of parts availability, etc.



Pictured above is the interior of the maintenance building (built 1995). The electrical service in this building is considered a legacy service (120/240V Delta service) and is recommended to be upgraded if the Village is agreeable to it. Input from Superior Water & Light is also recommended to obtain their position/stance on whether they would support the re-use of the existing service for the next 20+ years.

A new pump control panel with PLC and minimalistic Supervisory Control and Data Acquisition (SCADA) system or Smart HMI or similar system is recommended. Alarm dialer may be reused as backup, depending on final solution. Replacement of Rosemont flow meter and transmitter may be recommended depending on age, condition, and expected longevity of existing unit. Chart recorder can likely be reused.