

August 17, 2021

To: Proposal Department,
Stantec
12075 Corporate Parkway
Suite 200
Mequon, WI
53092

c/o Aaron Volkening

Subject: Request for Proposal, Refined Order-of-Magnitude, develop an engineering and construction Order-of-Magnitude estimate for Silver Lake Management District, Waushara County WI

Topic: Northeast Pump/gravity feed water evacuation option from Silver Lake into Thorstead/Bruce creek which feeds Lake Alpine. Provide an updated Order-of-Magnitude (OOM) estimate for implementation of the project.

Big Silver Lake (WI State Highway 21 & State Highway 73) is investigating methods to relieve storm runoff /lake water pressure on Silver Lake. Silver Lake is a seepage lake where water input consists of inflow culverts, storm runoff, and natural springs. In periods of heavy rain events the lake receives significant surface water runoff from the Highway 21 and 73 corridors east of the Wautoma WI. Heavy rain events result in standing water on Hwy 21 & 73 with full drainage ditches along the highway corridor. Water from Booth's marsh also flows into the lake via a 24" culvert under WI State highway 73, just southeast of the highway 21 & 73 intersection. When water levels in the lake reach certain levels, water also flows into Silver Lake from the Highway 21 culvert between Silver Lake and Lake Irogami. Water from Silver Lake flows into Lake Irogami only when Silver Lake is at least ½ foot over Ordinary High-Water Mark (OHWM) of elevation 867.0 feet.

Lake Irogami has a weir which moves water downstream into Lake Alpine and Bruce/Thorstead creek and Lake Poygan watershed. The Silver Lake Sanitary District (SLSD) maintains and operates the weir in cooperation with Lake Irogami Management District. The WI DNR permit for the weir has a maximum flow of 10 cubic ft/sec (CFS). The flow was close to this maximum in the fall of 2019 when Silver Lake was approximately 2 feet over the OHWM (Elevation 868.85 ft).

Silver Lake Management District is not a party to the weir operation agreement. Events this summer have led to the Irogami Lake District to instruct the Sanitary District to close the weir and maintain a higher water level in Lake Irogami. Opening the weir was denied by the Irogami lake district on July 16th. On July 19th, Waushara County Zoning and Land conservation provided a Silver Lake measurement of elevation 867.99. Silver Lake was 1 foot over the OHWM on July 19th.

The Irogami board wanted to let evaporation follow the normal course. The folly in this decision was the weather. Even with temperatures in the mid to high 90's, the corresponding dew points were 68 or greater. The atmosphere was laden with moisture leaving little margin for evaporation to occur. This theory was confirmed when county zoning measured all lakes within Silver Lake Sanitary District on August 3rd. The August 3rd elevation of Silver Lake was 867.90. In a 16-day period evaporation only accounted for 0.09' or slightly greater than 1" of evaporative water loss.

If the weir had been open the entire month of July, Silver Lake would have been drawn down to 867.61 feet. Severe storm events on Saturday and Sunday, August 7th and 8th led to a total rainfall of 8.46

inches (source NOAA 36-hour rainfall chart for state of WI). Had the Irogami weir been operational during the July, Silver Lake would have had a 5.28" cushion to receive the onslaught of water.

The lack of cooperation of the Lake Irogami Management district has led the board of Silver Lake Management District (SLMD) to review past alternatives discussed to relieve water pressure on the lake/drainage basin. Silver Lake Sanitary District engaged Stantec Inc to provide possible options for storm water/high water relief in 2019. Several of the prior options are not feasible due to the White River watershed not listed by the WI DNR as having Eurasian Water Milfoil and Zebra Mussel invasive species. The invasive species constraint negates any movement of water from Silver to Booth's marsh (indirect or direct), and then to the White River.

Silver Lake Management District would like to engage Stantec to provide an updated Order-of-Magnitude (OOM) estimate for the Silver Lake Northeast to Bruce Creek option proposed on the March 25th, 2019 Stantec presentation. Aron Volkening (Stantec), presented to the Silver Lake Sanitary District at the district offices. Other lakes within Marion Township were present. Silver Lake Management District realizes the maximum flow into Bruce/Thorstead creek is limited to 10 CFS. If the new outlet is built, the combined flow from the Irogami weir and new outlet cannot exceed 10 CFS.

- 1) A re-evaluation of the 3/24/2019 Stantec Silver Lake Northeast to Bruce Creek option (page 22 of attachment 1)
- 2) Your firm's proposal response should include a contract with cost estimate to provide a revised Order-of-Magnitude (OOM) for the above project. The revised OOM is needed to help the SLMD board determine which path to pursue to mitigate storm water events. The revised OOM Needs to include the following and SLMD desires these estimates to be separated out in the project total:
 - a) Base Construction estimate (\$1.634M). Please update total and break out this cost into the following components
 - i) Pumping Station.
 - (1) Is the pump station included and permanent? A pump station whether permanent or temporary needs to have a pump flow control mechanism to vary the GPM outlet so Silver Lake Sanitary District does not exceed the 10 CFS permitted flow.
 - (2) Does building the pad, access road on land, and lake intake for hookup to a temporary roll-in pump create any cost savings.
 - (3) Estimate for the infrastructure for a temporary intake pump (pad, access, intake).
 - (4) Estimate on what renting a temporary pump with the capacity to flow 10 CFS maximum (Consider 2.a.iii below).
 - ii) Drainage Piping.
 - (1) 3/24/19 OOM States 9.9 Kft of pipe required.
 - (2) Is this all gravity draining then once water lifted to Hwy 21 to marsh/Bruce Creek next to 20th Drive and Chicago Avenue?
 - iii) Is a lift station pump required after the initial water output from Silver Lake pump?
 - (1) Or is the pump scaled larger to account for head height and pipe loss in route to the outlet?
 - (2) What is the GPM capacity of a pump to meet 10 CFS maximum flow?
 - iv) Outlet to marsh and Bruce Creek. Break out the cost necessary to prevent erosion at the outlet for
 - (1) Concrete apron
 - (2) Geotech or equivalent fabric
 - (3) Riprap necessary
 - (4) Construction necessary to create a WI DNR approved outlet.
 - b) Update Cost estimate (\$572K) for a full-scale engineering and construction plan.

- c) Update construction amount subtotal with contingency (\$2.288M)
- d) Any permits or agency fees required (Not included in 3/24/19 OOM).
- 3) Are there any land parcels involved which would require land easement acquisition costs?
 - a) How many parcels if any require an easement?
 - b) Can current roadway right of ways be utilized for the proposed path?
 - c) If so, would only the Marion Township and WI Department of Transportation be involved?
- 4) Agencies which would need to be involved in the planning and design phase of the project. As a minimum SLMD believes the following agencies would have some approval or permitting process.
 - a) Waushara County Land Conservation and Zoning
 - b) State of WI Highway Department.
 - c) WI Dept of Natural Resources (DNR)
 - d) US Army Corp of Engineers, Storm, and floodwater management.
 - e) Township of Marion Wi
 - f) Silver Lake Sanitary District.
- 5) Any grants or funding sources which may be available to aide in implementation of the project?

Your response should be sent to:
Silver Lake Management District
Attn: RFP for Lake Pumping
PO Box 302
Wautoma, WI 54982

Questions may be directed to
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Attachments:

1. Stantec_032519_2slidesPerPage_opt.pdf (Stantec proposal on Options)
2. Silver_Lake_Inflow_Points.docx (Compiled by SLMD board members for input into 2022 Silver Lake Management Plan which developed by Onterra, Inc).
3. Hwy21_Culvert_Weir_Elevations.pdf (Reference of Highway 21 culvert elevations, outflow from Silver Lake occurs in extreme high-water conditions, such as in 2019 when Silver Lake was at 868.85 ft or 1.85 ft over OHWM of 867.0).
4. Cumulative_Silver_Lake_Levels.xlsx. (Historical water levels for 4 lakes within Silver Lake Sanitary District: Silver Lake, Irogami Lake, Little Hills Lake, Deer Lake. Lake Alpine is man-made lake, elevation is constant due to Bruce/Thorstead creek inflow and dam outlet.
5. HighWater_Recap.pdf (Reference, presentation to Silver Lake Owners in 2019 high water crisis and no wake conditions implemented)