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VLAWMO
Vadnais Lake Area
Water Management Organization

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VLAWMO TECHNICAL COMMISSION MEETING

8:00 AM July 10, 2024

Vadnais Heights City Hall, Council Chambers, 800 County Road E East, Vadnais Heights, MN 55127

Action items: 🐝

I. Call to Order – 8:00am – Chair Tessier

II. Approval of Agenda 🐝

III. Approval of Minutes (June 12, 2024) 🐝

IV. Administration & Operations

A. Financial Report for July and Authorization for Payment (Report will be sent to TEC members on Monday July 8 via email and hard copies also provided at meeting) – Phil 🐝

B. Nominations open for 2024 Annual Watershed Awards- Nick **p. 10**

C. Introduction to MN Climate Adaptation Partnership (MCAP) mapping tool- Nick **p. 11**

V. Programs- Lauren

A. LL2 2024-03 Three Oaks Smart Irrigation Controller Application Update **p. 22**

B. LL2 2024-04 City of Vadnais Heights Smart Irrigation Controllers 🐝 **p. 34**

VI. Projects - Dawn

A. Watershed Management Plan update **p. 12**

B. Spent Lime Demonstration Project update **p. 13**

C. Wilkinson Deep-water Wetland update **p. 13**

D. Wilkinson meander preliminary feasibility scope completed/memo from SEH **p. 41**

E. Birch Lake AIS hand-pulling completed **p. 55**

F. EWM sampling underway for Charley, Deep, and Pleasant Lake and NHIS database update **p. 17**

G. Meet the Goats completed and goat grazing underway **p. 18**

VII. Commissioner Reports

VIII. NOHOA

IX. Ramsey Soil & Water Conservation Division

X. St. Paul Regional Water Services

XI. Public Comment

XII. Next meetings: TEC: August 14, 2024, Board Meeting: August 28, 2024

XIII. Adjourn 🐝

Upcoming Events: Visit vlawmo.org/events

Summer BMP tours: July 30, August 6, August 19, August 20

WBL MarketFest Environmental Resource Expo: July 25

Vadnais Lake Area Water Management Organization
Technical Commission (TEC) Minutes
June 12, 2024
Vadnais Heights City Hall, Council Chambers
800 County Road E East, Vadnais Heights, MN 55127

Commission Members Present:

Gloria Tessier	Gem Lake (GL)
Nick Ousky	Vadnais Heights (VH)
Susan Miller	City of North Oaks (NO)
Mike Grochala	City of Lino Lakes (LL) alternate
Jami Philip	White Bear Township (WBT)

Absent: Terry Huntrods (White Bear Lake), Andy Nelson (Lino Lakes)

Others in attendance: Phil Belfiori, Lauren Sampedro, Brian Corcoran, Dawn Tanner (VLAWMO staff), Jeremy Erickson (SPRWS)

I. Call to Order

Chair Tessier called the meeting to order at 8:02 am.

II. Approval of Agenda

It was moved by Commissioner Philip and seconded by Commissioner Ousky to approve the June 12, 2024 TEC agenda.

Administrator Belfiori stated staff are actually proposing a revised meeting agenda that indicates item VI.A. is an action item. Staff recommended approval of the revised agenda.

It was moved by Commissioner Ousky and seconded by Commissioner Miller to approve the revised June 12, 2024 TEC agenda. Vote: all aye. Motion passed.

III. Approval of Minutes (May 8, 2024)

It was moved by Commissioner Miller and seconded by Commissioner Philip to approve the May 8th meeting minutes as presented. Vote: all aye. Motion passed.

IV. Administration & Operations

A. June Financial Report and Authorization for Payment

Administrator Belfiori outlined the June financial report as included in the packet. Highlights included expenses related to water quality monitoring, watershed management planning,

Lambert Creek feasibility study and potential iron enhanced sand filter at Columbia Park, spent lime loads at the demonstration project, finalization of the Polar Lake reuse study, carp removal, and finalization of the East Vadnais Lake subwatershed resiliency study. Staff recommended approval.

It was moved by Commissioner Ousky and seconded by Commissioner Philip to approve the June Financial Report for payment. Vote: all aye. Motion passed.

B. June TEC Report to the Board of Directors

Administrator Belfiori presented highlights contained in the TEC report, including work on moving forward potential projects from the East Vadnais Lake subwatershed resiliency study, continuing work on the spent lime project, finalizing the 2025 budget that will be considered at the June 26th Board of Directors meeting, continuing progress on the watershed management plan, and significant activity with the VLAWMO grant programs.

It was moved by Chair Tessier and seconded by Commissioner Miller to approve the June TEC Report to Board. Vote: all aye. Motion passed.

V. Programs

A. SHG 2024-05 Ulm Turf Replacement

Sampedro presented a proposed turfgrass replacement project located in the City of White Bear Lake. The applicant heard about the VLAWMO grant programs through word of mouth. She discussed the project would be in a high traffic area and the applicant proposed replacing the existing turfgrass with native pollinator plants.

Commissioner Miller noted that this could not be a more visible project site. Commissioner Philip echoed Commissioner Miller's comments. Commissioner Miller asked if signage will be provided for the project. Sampedro confirmed staff has signage available, but staff are considering pursuing additional signage for this project.

It was moved by Commissioner Miller and seconded by Commissioner Grochala to approve SHG 2024-05 in the amount of $1,250. Vote: all aye. Motion passed.

B. SHG 2024-06 Gmeinder Pollinator Garden

Sampedro presented a proposed pollinator garden project located in the City of Vadnais Heights. Sampedro noted the project is close to a grant project recently approved by the TEC this year and that she connected the two grant applicants. Sampedro summarized the planting plan proposed for the project.

It was moved by Commissioner Ousky and seconded by Commissioner Miller to approve SHG 2024-06 in the amount of $562.50. Vote: all aye. Motion passed.

C. SHG 2024-07 Farmer Turf Replacement

Sampedro presented a proposed turfgrass replacement project located in the City of North Oaks. The project is located west of the channel between Deep and Pleasant Lakes. The project would focus on replacing the existing turfgrass with native pollinator plants. Sampedro noted this project is the first phase with a second phase planned for next year.

Commissioner Miller asked where the plants were sourced from. Sampedro responded she is not aware of the source, but stated the applicant is hiring a landscaper to complete the project.

It was moved by Commissioner Ousky and seconded by Commissioner Philip to approve SHG 2024-07 in the amount of $1,250. Vote: all aye. Motion passed.

D. SHG 2024-08 Steenson Turf Replacement

Sampedro noted the application packet materials were provided separately prior to the meeting. The applicant proposed a turfgrass replacement project in the City of North Oaks. She said the project is located in the direct subwatershed of Pleasant Lake and would focus on replacing the existing turfgrass and creeping charlie with low mow/no mow fescue grass.

Commissioner Miller asked how the turf area will be managed. Sampedro responded the applicant is hiring Prairie Restorations who is proposing to spray herbicide two different times and burn the area before adding the fescue grass seed.

It was moved by Commissioner Grochala and seconded by Commissioner Miller to approve SHG 2024-08 in the amount of $1,000. Vote: all aye. Motion passed.

E. FY'24-25 BWSR WBIF Grant Program Process

Sampedro introduced the BWSR Watershed-based Implementation Funding (WBIF) program for fiscal year 2024-2025. She noted that BWSR funding allocations were increased for this next funding cycle and the Vadnais Lake Area Watershed Planning Area is eligible for $147,921. Sampedro described the general activities and project types that are eligible for the grant funding and noted that projects must primarily benefit water quality to be a grant-eligible project.

Sampedro discussed the next steps for requesting grant funds including the requirement of holding at least one convene meeting with planning area partners. She stated prior to scheduling the convene meeting, BWSR requires the selection of up to two decision-making

representatives from municipalities within the planning area and asked if the TEC would like to self-select a representative.

Commissioner Miller ask if non-staff TEC members could be a municipal representative. Administrator Belfiori discussed they could with close collaboration with municipal staff, especially those involved and familiar with the municipality's capital improvement project planning and VLAWMO's five-year partnership projects table. Commissioner Miller recommended staff contact the City administrators to request the self-selection of representatives. Sampedro responded she will follow up today's discussion with a group email to municipal staff and encourage email recipients to reply all. Sampedro noted BWSR guidance does not provide detail on if the municipal representative needs to be staff. She added TEC meetings were chosen as the previous starting point for the municipal representative discussion since the municipalities are already represented in one room and it can be difficult to collaborate through email. She stated she would contact the municipalities through an email for the selection of the two municipal representatives.

Sampedro presented the next step of the WBIF process is to select a convene meeting coordinator and suggested the TEC considers VLAWMO to serve in that role.

It was moved by Commissioner Ousky and seconded by Commissioner Miller for VLAWMO to serve as convene meeting coordinator. Vote: all aye. Motion passed

Sampedro provided background on the existing partnership work occurring through the current grant's funding cycle, which ends in 2025. She stated staff are initially recommending the consideration of directing the 24-25 funding cycle allocation for the Vadnais Lake Planning Area to partnership projects through VLAWMO's Landscape Level 2 Grant program since it is working well under the current grant funding cycle. She described the key deadlines for securing funding through the BWSR WBIF program.

VI. Projects

A. Watershed Management Plan update and prioritiy issues

Administrator Belfiori provided background on the watershed management plan (WMP) update process. He stated VLAWMO is on the initiate step, which includes the identification of priority issues for the WMP that was completed through a robust engagement process. He discussed that though the issues presented today are ranked with a 1, 2 or 3, all of the issues presented are priority issues that will be included in the WMP since they are interconnected. He stated the ranking process is required by state statute and staff involved partnership groups in the prioritization process.

Tanner provided background on the information used for the rankings including feedback staff received during the April 24 Initial Planning Meeting, responses from the public, feedback from the TEC and Board surveys, responses from the 60-day review authorities, and feedback

during the capital improvement project (CIP) partner table discussions. She provided hand outs to TEC members of the summarized feedback and proposed issue rankings. Tanner noted Houston Engineering staff assisted VLAWMO with synthesizing the feedback received and developing the issue rankings to be consistent with the feedback. She presented an overview of how the feedback was synthesized and how the rankings were weighted for the priority issues. She asked TEC members to focus their review on how the material was synthesized and if it reflects their feedback from the TEC survey. She said TEC members can recommend any changes or shifts to the rankings and that staff are requesting the TEC make a recommendation to the Board of Directors.

Commissioner Miller asked if staff had any surprises when reviewing the feedback on priority issues. Tanner responded staff were surprised emerging contaminants and chlorides were ranked high by the TEC and 60-day review authorities. Administrator Belfiori added that staff were surprised that climate resiliency and environmental justice were ranked low. He stated other agencies are including these issues in their planning documents and VLAWMO will weave these issues throughout the WMP like the other agencies. He said groundwater issues are continuing to come up more as well and a few issues that were not currently in the WMP, such as shoreline and streambank erosion.

Commissioner Miller asked how closely VLAWMO's current projects match the average priority issue rankings and if we see areas where we may need to change our projects to match the priority rankings. Tanner responsed that it's more that the projects should align with the issues rather than rankings. She stated VLAWMO's projects are already meeting our goals and we are getting new opportunities for outreach, such as in environmental justice areas. Administrator Belfiori added that the rankings closely align overall.

Chair Tessier asked how the TEC can dynamically change the decisions when there are many input levels and processes. Administrator Belfiori responded staff are looking for the TEC's feedback on if the identified priority issues overall align with the TEC's expectations or if anything is missing that should have been included.

Commissioner Miller stated she reviewed the rankings for each priority issue and did not observe any substantial differences and is comfortable with the rankings. Chair Tessier said she trusts the process and feels it is going in the right direction. Tanner noted there will be more opportunities for review at future WMP stages.

<u>It was moved by Commissioner Miller and seconded by Commissioner Philip to recommend to the Board of Directors to authorize priority issues with non-material changes.</u>

B. Spent lime demonstration projet pay request and update

Tanner provided an update that a spent lime pay request was received that the TEC approved this morning with the bills. She said work is continuing on the project and a spent lime load will be applied today in the shallow zone with eight loads remaining after that.

C. Tamarack alum RFQ update

Tanner stated staff are continuing to coordinate with Barr Engineering on the Tamarack Lake alum project. She said a RFQ was sent out, but no quotes were received. Barr Engineering is discussing the project with local contractors to see if a quote can be submitted.

Commissioner Miller asked what the key problems are for receiving quotes. Tanner responded the feasibility of the project is a bit difficult because the alum doses required are different between Tamarack and Wilkinson lakes and access is a challenge because neither lake has a boat launch. Tanner added that staff anticipated the issues, but felt there are viable strategies for working through them. She said one of the main issues could be contractors currently have a lot of business and they may not want/need to work on a project with access challenges. She said staff are waiting to hear more from Barr Engineering after their discussions with contractors.

D. Pleasant Lake carp removal update

Tanner provided an update that there has been a lot of carp activity since the initial carp removal run earlier this spring. Several carp removals have occurred and about 12,000 pounds of carp have been removed so far. She said the new carp barrier allows the carp to be captured more efficiently and prevent them from going to Deep Lake.

Commissioner Miller asked if the carp removal is done for the year. Tanner responded staff anticipate it is over for the year. She said two tagged carp were repeatedly found in the Pleasant Lake culvert area where neighbors reported carp activity and where a group of carp was observed by VLAWMO staff. She stated there is an antenna and temporary barrier at the culvert so we can document the carp movement and prevent access to the shallow pond at the other side of the culvert. Tanner added that she found where carp have also been spending time in Charley Lake and will be checking to see if any of the radio-tagged carp are in Charley.

Commissioner Philip asked what the removed carp are used for. Tanner responded they are used for fertilizer on farm fields. The carp removal research permit with MN DNR doesn't allow for selling them to market.

E. Deep Lake MOU with NOHOA

Tanner presented a MOU with NOHOA proposing to split the cost with VLAWMO to remove and replace buckthorn that was identified in a prioritization study. She recommended the TEC approve moving the MOU forward to the Board for approval.

It was moved by Commissioner Philip and seconded by Chair Tessier to recommend the Board of Directors sign the MOU with NOHOA at the June regular Board meeting and VLAWMO staff to return the fully executed MOU to NOHOA.

F. Wilkinson Deep-water wetland update

Tanner highlighted that Houston Engineering has been coordinating some final work on the Wilkinson deepwater wetland project. There were concerns about compaction in the immediate construction area and the contractor has alleviated this, re-seeded the area, and installed erosion control blanket. Staff are expecting a final payment to be recommended for approval at the June Board meeting. Tanner added eagle chicks are being cared for by the parents and learning to fly. Monitoring samples have also been taken for the project to collect information for the MPCA.

G. Scope with SEH for Wilkinson potential meander feasibility

Tanner stated staff have been working with SEH on a feasibility study scope for a potential meander project at Wilkinson Lake. Staff had preliminary meetings with permitting agencies. The scope will include plan development with an alternate option since wetland areas can be difficult to work in and dry conditions can't be expected. She added the DNR is expected to have feedback on the meander path and flow rates, which will be included in SEH's scope. She said staff are anticipating the scope will be ready for the TEC's review at the next meeting. Staff are working with Ramsey County Soil and Water Conservation Division for potential additional funding for investigating the meander project.

Commissioner Miller asked if the meander would be north of the existing Wilkinson Lake project. Tanner confirmed and said the new meander would start at the road crossing at the north end of the current project site and likely will access some of the upland area. An alternate path could be near the boardwalk. She said that the final extent of constructability will depend upon rainfall and water levels during the construction year.

H. Birch Lake pre-survey completed and permit underway

Tanner presented a Eurasian Watermilfoil (EWM) and Curly-leaf Pondweed (CLP) pre-survey was completed in partnership with BLID. She said the EWM spread has decreased and staff were able to find the remaining areas, but the CLP area is more widely distributed this year. She said this information has been provided to the DNR, BLID, and Dive Guys and a handpulling is planned for next Monday. She added a post survey will occur after the handpulling.

Tanner highlighted a Meet the Goats public engagement event on the TEC agenda that will be held at the Vadnais Heights City Hall. She invited TEC members to attend.

VII. Commissioner Reports

None.

VIII. NOHOA

None.

IX. Ramsey Soil & Water Conservation Division

None.

X. St. Paul Regional Water Services

None.

XI. Public Comment

None.

XII. Next Meetings:

Next TEC meeting July 10, 2024. Next BOD meeting June 26, 2024.

XIII. Adjourn

It was moved by Commissioner Ousky and seconded by Commissioner Philip to adjourn the meeting at 9:26 am. Vote: all aye. Motion passed.

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TEC Staff Memo – July 10, 2024

IV. Administration & Operations

A. July Financial Report and Consider Authorization for Payment

Please find the July financial report and authorization to pay bills in the ePacket for consideration and approval. Report will be sent to TEC members on Monday July 8 via email and hard copies also provided at meeting.

B. Reminder on Annual Watershed Awards – nominations now open

Staff invite TEC, Board and affiliates to take a brief pause to assess the great work being done in our various watershed communities. 2024 will be the 6th year of VLAWMO's watershed award program. The watershed awards are a great way for VLAWMO to acknowledge and thank the many partners and leaders helping to protect our watershed and creatively blend local water resources into our regular operations.

Now that the year is past the halfway point, what projects and efforts have shown a potential to be nominated for an award so far?

The award program is divided into two categories: Watershed Partner Award (municipality, state, school, or county partnerships and efforts), and the Watershed Steward Award (residents, volunteers, businesses, VLAWMO grant program recipients, education and community service efforts).

Example of eligible nominations include:

- Reference or official implementation of VLAWMO water plan, policy, education material, communications campaigns, or website.
- Water conservation efforts such as the pursuit of new tools, policies, and infrastructure to support water conservation.
- Partnership and leadership on an in-ground project such as stormwater Best Management Practices (BMPs), landscape and ditch/drainage improvements, or stormwater filters. Maintenance and demonstrated ownership of these features.
- Utilizing a stormwater BMP such as a raingarden as an educational or demonstration tool.
- Innovations and growth in programs like the Wetland Conservation Act, MS4 permits (Municipal Separate Storm Sewer System permit), turf maintenance best practices, and others.
- Service projects, volunteer efforts, and demonstrated initiative to lead or communicate about watershed practices in community settings (i.e. smart salting, native plants, alternative groundcovers, lo-mow lawns/bee lawns, and various water-friendly yard care practices reflected on the VLAWMO website and in the Good Neighbor Guide).

Find more information on nominations and nomination forms (digital or hardcopy) on our Watershed Awards webpage. For questions on nominating, exploring eligibility, or completing a nomination form, contact VLAWMO staff.

Nominations are due November 1st, 2024. The TEC will vote on nominations at the November TEC meeting, and award recipients will be announced at the December TEC meeting.

C. Climate Adaptation Tool

Staff are excited to share a new tool developed by the Minnesota Climate Adaptation Partnership. The tool (MN CliMAT – MN Climate Mapping and Analysis Tool) provides highly localized climate modeling. The tool can both introduce the idea of climate adaptation and support communities in better integrating climate adaptation into their work.

Capabilities of the tool include:

- Running simulations: 2059, 2079, or 2099. Comparing time periods.
- Focusing on precipitation, temperature, soils, lakes, and more
- Adjusting local models according to different climate "scenarios" hypotheticals in level of atmospheric carbon. Comparing different emissions scenarios.
- Investigating for year, season, or month

Examples of possible data to target:

- How much precipitation falls at one time, or how much falls over an extended period of time. Consider these for topics like construction, roadways, heat and electricity, and local flooding.
- Humidity on crops and disease thresholds and public health.
- Soil temperature: Construction agriculture, forestry, wetland and natural systems of water conveyance
- Number of days that exceed 90 degrees: A marker for heat-related illnesses or likelihood of Harmful Algal Blooms (HABs)
- Lake temperatures at the lake bottom or surface of lake: Nutrient cycling, recreation considerations.

Staff recommend approaching the tool in context of current weather and water level trends. This can help to filter and streamline the abundance of information and options, which can be intimidating or confusing. Starting with some basics according to what's relevant will help develop a familiarity that can use the tool again in the future for new circumstances based on needs and current issues.

VLAWMO staff example video:
https://youtu.be/azB4ChI_cx8
Climate Adaptation Partnership complete webinar:
https://www.youtube.com/watch?v=wV-d8r_UrpQ

V. Programs

A. LL2 2024-03 Three Oaks Smart Irrigation Controllers Application Update

The Three Oaks Homeowners' Association (HOA) submitted a Landscape Level 2 grant application for irrigation system upgrades including the completion of an irrigation audit and the installation of a smart irrigation controller that serves a 23-acre neighborhood in White Bear Township. The irrigation audit will investigate the existing irrigation system's sprinkler heads to determine if changes can be made to create a more efficient irrigation system. The current system overwaters specific areas and lacks smart features. A newer-technology Weathermatic smart irrigation controller with a flow sensor and a weather-based sensor will be installed to reduce water use. The HOA received one bid for the audit at $3,500.00 and two bids for the smart irrigation controller, with the lowest bid at $4,220.00. The total estimated cost is based on the lowest bid and the audit cost of $7,720.00. Staff recommended a 90% grant funding level up to $6,948.00 to the Board of Directors at their June 26th meeting and the Board approved the application.

B. LL2 2024-04 City of Vadnais Heights Smart Irrigation Controllers

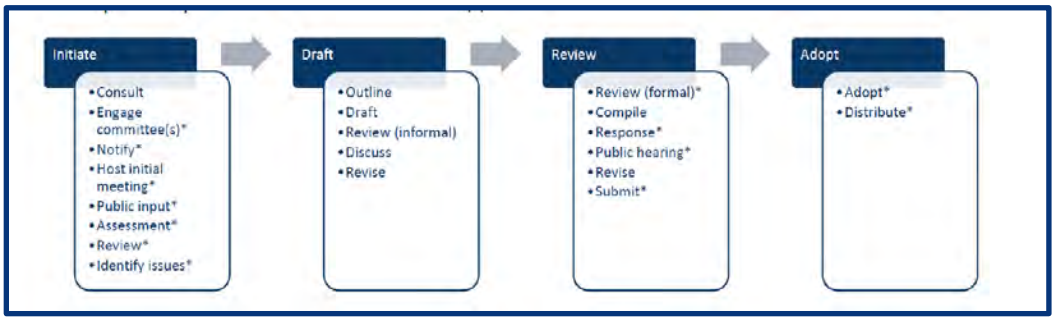
The City of Vadnais Heights submitted a Landscape Level 2 grant application that builds on the 2023 partnership with VLAWMO on installing smart irrigation controllers at public properties owned by the City to reduce groundwater usage. The application proposes two new smart irrigation controller systems at the Vadnais Heights City Hall and Koehler Meadows Park. In 2023, a trial Baseline-brand smart irrigation controller was piloted by the City at City Hall. It was loaned from Peterson Companies and the City is now ready to purchase its own smart irrigation controller at City Hall. As part of the 2023 project, the City tested both a weather-based and soil-based smart irrigation controller type (Baseline) and found it prefers weather-based Hunter smart irrigation controllers. This project will install two Hunter weather-based smart irrigation controllers with flow sensors to further reduce the City's groundwater usage. Two bids were received for the project and the total estimated cost is based on the lowest bid of $8,177.00. Staff recommends approval of LL2 2024-04 in the amount of 90% of eligible project expenses, not to exceed $7,359.30 in accordance with program guidelines.

VI. Projects

A. Watershed Management Plan Update

The priority issues were approved by the Board at the June 26, 2024, regular meeting. There were no changes made to the list, wording, nor rank of the priority issues that were provided to and recommended by the TEC at the June 12, 2024, meeting. The Initiate phase is now complete. HEI is working with the VLAWMO team

now to transition to the Draft phase, as specified by BWSR.



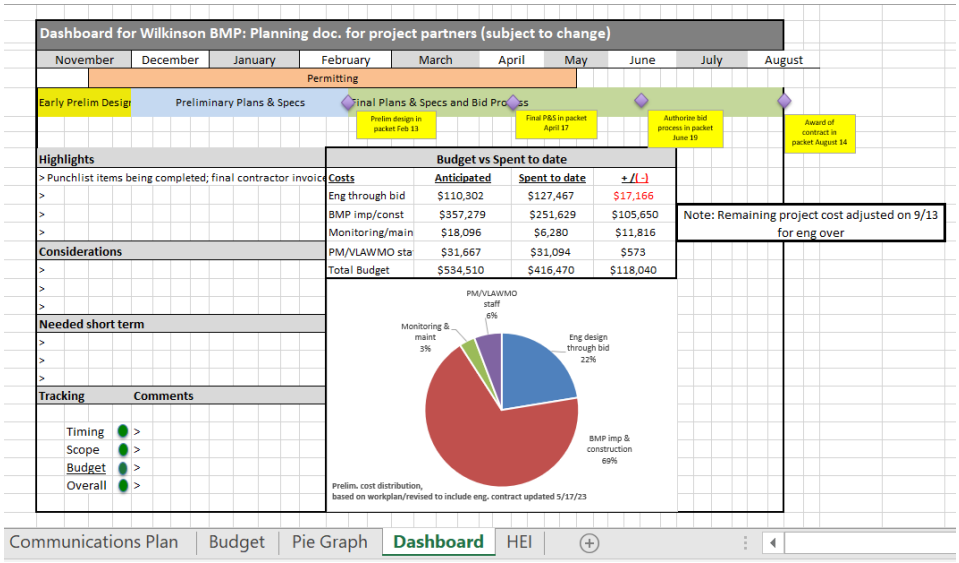
B. Spent Lime Demonstration Project Update

At the time of packet preparation, 8 deep and 9 shallow loads will have been completed. The full dose specified 8 deep and 14 shallow loads. Five loads remain.

C. Wilkinson Deep-water Wetland Update

Project completion is moving along smoothly. A request for payment was received by VLAWMO and authorized for payment by the Board at the June 26, 2024, regular meeting. A final request for payment including minor remaining punch list items and retainage is anticipated soon. The immature eagles had fledged from the nest during the week of June 24. Both immature eagles were observed in the project area. With that final observation, eagle monitoring at the project site is now complete. VLAWMO staff are delighted with the nest success and project-related habitat improvements.

The current project dashboard is shown below:



D. Wilkinson Meander Preliminary Feasibility Memo and Next-phase Scope

The preliminary feasibility work for a potential meander project to the north of the Wilkinson deep-water wetland restoration project has been completed by SEH. The final memo has been received by VLAWMO staff and shared with potential project partners and permitting entities. Ramsey County SWCD is leading the next-phase scope using some of their BWSR grant funds. The next-phase scope will include data collection next steps as requested by permitting entities. The next-phase scope will include some geotechnical investigation and survey work for a total amount of $9,999. That work has been authorized and is now underway with SEH. VLAWMO appreciates this partnership effort with RCSWCD and BWSR.

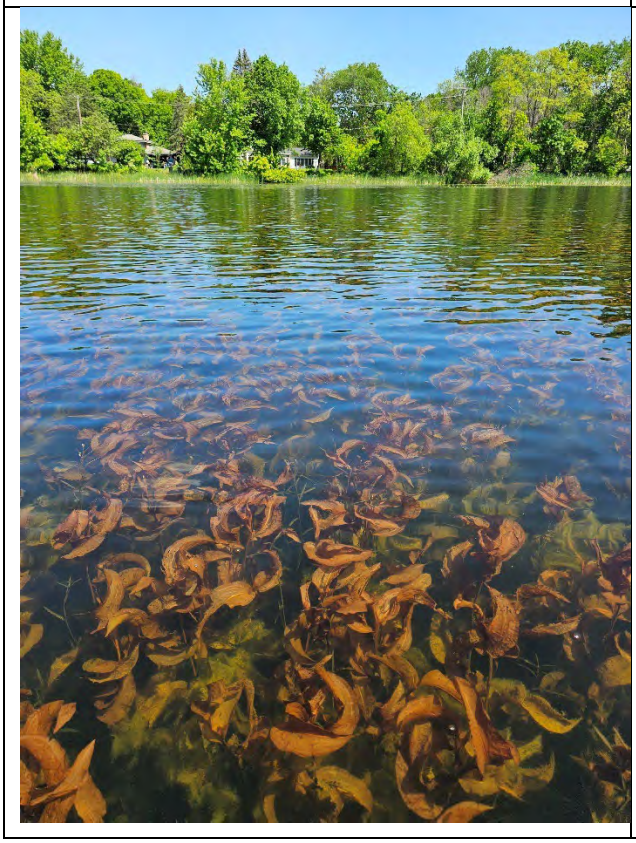
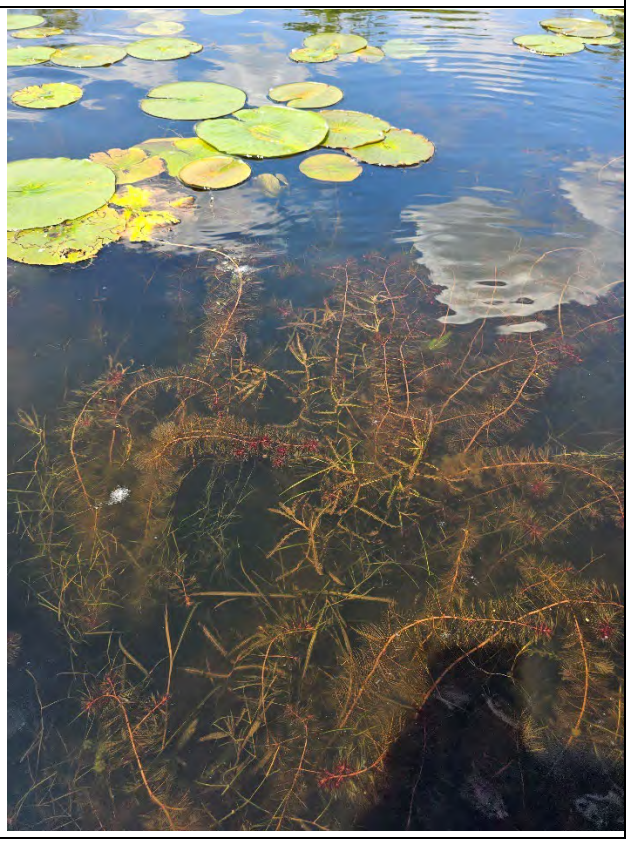
The final memo from SEH for the preliminary feasibility work and next-phase scope with RCSWCD are both attached in the packet.

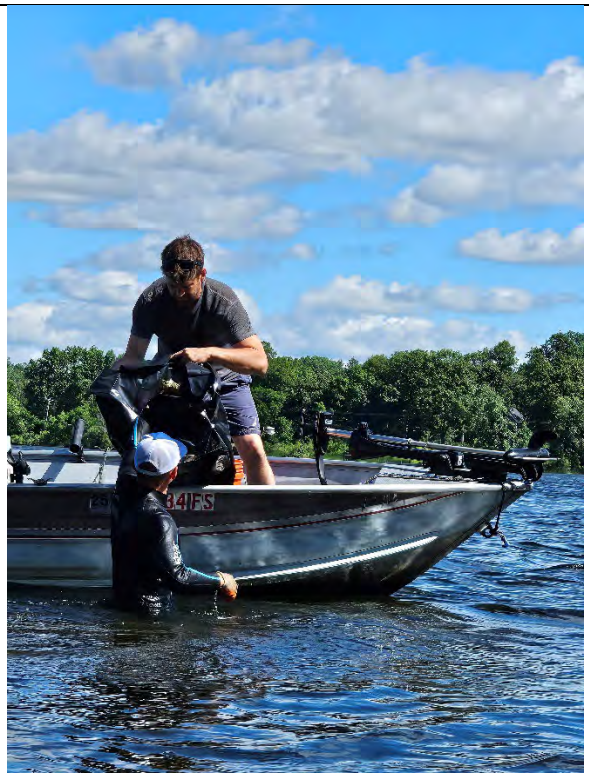
E. Birch Lake AIS Hand-Pulling

The Birch Lake EWM and CLP hand-pulling effort with Dive Guys was completed during the week of June 24, 2024. Two half days were completed, with one on June 26 and the other June 27 (see report from Dive Guys attached in the packet). VLAWMO staff joined the Dive Guys crew both days to provide additional information as needed, take photos, and help to document the extent of removal. Dive Guys successfully removed EWM from the areas indicated in the survey. EWM is now only sparsely present in very shallow area and as small isolated stems. The removal effort is highly successful. The CLP experienced a good year and expanded its presence during 2024. CLP had been cut by the mechanical removal so was not removed during the hand-pulling effort—it was no longer detectable. A follow-up survey will be completed by RCSWCD and VLAWMO staff to further document the results of the hand-pulling effort. The results will be shared with the TEC when the survey is done.

VLAWMO staff are especially grateful to the ongoing partnership with BLID that is now in its third year. Dive Guys has recommended that we keep the hand-pulling effort split between two days and move one of those days up to a few weeks earlier in the season to target CLP.

The CLP infestation is thought to be fairly recent in Birch Lake and was newly documentation as a result of this partnership project.

A healthy native plant community appears to be protecting Birch Lake from more widespread colonization of aquatic invasive plant species (EWM and CLP). One of those natives that is also an indicator of good water quality is Large-leaf pondweed, shown below.	The Eurasian watermilfoil that remains in Birch Lake is primarily located and thick in very shallow areas with a high coverage of native water lilies. An example of a larger EWM plant in and amongst the lilies is shown below.
	

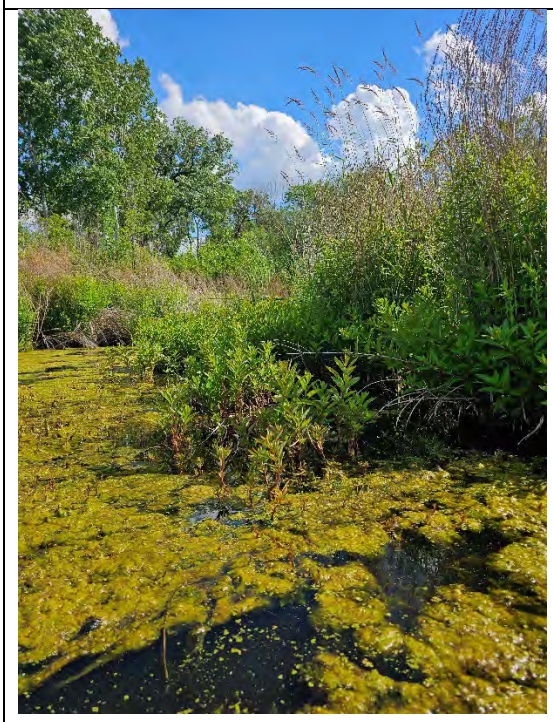
Large CLP plants were detected on the pre-survey with RCSWCD and VLAWMO. These plants may have been dying back by the time that the hand-pulling was completed. They were likely also removed by the mechanical removal that was conducted on the lake. CLP was not successfully harvested as part of the hand-pulling effort because it was not detected.	Dive Guys conducted AIS removal on June 26 and 27. The effort was highly successful for EWM. A follow-up survey will be shared when it is completed to show final results of the hand-pulling effort in 2024.
	

F. **EWM Sampling for Charley, Deep, and Pleasant Lakes and NHIS Database Update**
When the MN DNR Biological Survey staff visited VLAWMO lakes in recent years, they worked to establish rare plants that are found in Charley, Deep, and Pleasant Lake, among others. As part of that effort, they also identified other native and invasive species that were encountered while they were in the field.

MN DNR staff contacted VLAWMO staff during 2023 to let them know that EWM samples collected in Charley, Deep, and Pleasant Lakes all showed intermediate characteristics (between native and invasive watermilfoil) and could not be conclusively identified. VLAWMO staff are collecting samples from these 3 lakes to add to the samples collected in 2022 on Birch Lake. The Birch Lake samples have been identified to hybrid strain, using DNA analysis, and are part of a statewide database that is run by the University of Minnesota and Montana State University.

As part of EWM sampling on Charley Lake, VLAWMO staff located a plant species of conservation concern, water willow (*Decodon verticillatus*). This species is also found on other connected lakes. As part of the NHIS license agreement, VLAWMO agrees to provide additional observations for species of conservation concern. This report was sent to MN DNR. It had also been reported as part of the MN DNR MBS survey and will be updated in the NHIS database.

Invasive common carp were also observed as part of this visit. The observations have been provided to Carp Solutions and are being used to inform recommended actions for carp removal in 2025.

Water willow on Charley Lake	Common carp in uprooted plant area with high turbidity in Charley Lake
	

G. Meet the Goats Completed and Grazing Underway

The Meet the Goats event with the City of Vadnais Heights at Vadnais Heights City Hall on June 27, 4-6 pm, was well attended and received by the community. The goat headband project for kids, native plant give-away, baby goat visiting, entry of the goats to the wooded wetland area, wetland walk featuring wildlife from the remote camera monitoring in the wooded wetland, self-guided walking tour of native planting sites at City Hall, and ice cream snacks were all popular. VLAWMO staff are grateful for this innovative partnership with the City of Vadnais Heights.

Photos from Meet the Goats event

VLAWMO
Vadnais Lake Area
Water Management Organization

800 County Road E East, Vadnais Heights, MN 55127
www.vlawmo.org; Office@vlawmo.org


removal, and
for 2024!
GOATS
4134
ion!

LL2 Grant Application

Submit completed application to:
Lauren Sampedro
lauren.sampedro@vlawmo.org

Approved by VLAWMO Board 6/26/24

Applicant Information:

Organization Name:	Advantage Townhome for Three Oaks HOA
Project Contact:	Renaye Harn
Address:	1310 Hwy 96 E. Ste 214
City/Township, State, Zip:	White Bear Lake, MN 55110
Phone:	651-429-2223
Email:	Harn@advtm.com

Project Summary:

ESTIMATED TOTAL PROJECT COST ($)	$7,720.00
AMOUNT REQUESTED	$6,948
EXPECTED PROJECT COMPLETION (Month, Year)	July 2024

PROJECT TYPE:

- ☐ Water Quality Treatment
- ☐ Stormwater Rate and Volume Control
- ☑ Groundwater Conservation
- ☐ Other

If other, please describe the proposed project: An irrigation audit and a smart controller for our 28 home HOA.

Project Background:

Describe the project location and water resources that will benefit from the project. What issues will be addressed with this project?	A full irrigation audit and new irrigation controller for our 28 home HOA on Mehegan Lane and Court in White Bear Township.Our irrigation system is only four years old but the planners/installers put in the cheapest one possible and our water bills have averaged around $20,000 a year. We are interested in a more efficient system that will conserve water.

Project Background: Continued

Provide estimated water quality results, stormwater rate/volume reduction, or groundwater conservation benefits associated with the project.	Water bills have averaged around $20,000 a year for our HOA and have budgeted $21,000 for 2024. The new controller will give us more control and reduce overall water usage and restricting flow from sprinkler heads where the irrigation audit recommends. Also with the new controller we can control sprinkler times to be adjusted to individual lot needs. Half the lots need less than they are getting and these controls alone can cut our water use in half.
Describe the public education and outreach efforts or signage planned for the project.	VLAWMO can use our expected success in any promotional materials with other HOAs.
List or describe any partnerships or other forms of support for the project, including external funding sources.	Possible rebate from White Bear Township if their program is extended.

Project Specifications:

TOTAL PROPERTY AREA (Acres)	23.67 acres	Total PROJECT SIZE (Sq Ft)	N/A
IMPERVIOUS AREA DRAINING TO PROJECT (Sq Ft):	N/A	PERVIOUS AREA DRAINING TO PROJECT (Sq Ft):	N/A

Required Attachments:

- ⇒ Detailed final plan set of the proposed project that includes the estimated, quantitative outcomes of the project.
- ⇒ At least 2 bids for construction of proposed project.
- ⇒ Detailed project budget estimate with itemized materials and costs that equal the total project cost.


THREE OAKS HOA
1070 - 1119 Mehegan Lane
5500 - 5520 Mehegan Court
White Bear Township, MN 55127
Outlot A
Common Elements
0
5520
5517
5516
5513
5509
5508
5504
5500
1071
1113
1115
1070
1074
1078
1082
1086
1090
1094
1098
1102
1106
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This Service Agreement ("Agreement") is being made between **Three Oaks** (Herein referred to as "You" or "Your") and **Global Irrigation Solutions**, LLC. (Herein referred to as "We" or "Our") on May 21, 2024. **Three Oaks** and Global Irrigation Solutions, LLC. may also be referred to as "Party" or together as the "Parties". This Agreement will become effective on the date of signed acceptance ("Effective Date").

1) **Services**

We agree to perform the services ("Services") listed in this Section 1a. The Parties acknowledge that their obligations pursuant to this Agreement serve as good and valuable consideration for this Agreement.

a. Services will include a "Stage 1" irrigation system audit(s) whereby a Certified Landscape Water Manager (CLWM)/ Landscape Irrigation Auditor (CLIA) will conduct a walk-through of the Three Oaks irrigation systems during the irrigation season. The consultant will catalogue major system components and observe and document system performance by operating the irrigation system and observing and calculating water flow, piping, zone/ station layouts, nozzle selections, system wiring and controls, etc. The consultant will include analysis and justification of recommended system enhancements including presence and functionality of rain sensing equipment (per MN law), etc. Upon completion of the Stage 1 audit, the consultant will generate a written report of findings, situation opinion and recommendations for system changes, if any.

b. Consultant will provide to Three Oaks:

- Summary report that describes the process and findings.
- Zone by zone review
- List of recommendations
- Potential for savings
- For systems with estimated watering efficiency above 50%, consultant will furnish irrigation schedules with monthly adjustment
- For systems with estimated watering efficiency below 50%, no irrigation schedules will be provided

2) **Compensation**

a) Total Cost of the Services: $**150/hour** and any expenses (none expected)

3) **Expenses**

We will be reimbursed by You for any reasonable and necessary additional expenses incurred in providing the Services detailed above should unseen issues arise in performance of the Services listed above. You must pre-approve all expenses.

4) **Estimated Costs**
System evaluation and written report - **$3,500 (Three thousand five hundred dollars)**

5) **Payment**
Invoiced amounts are due upon receipt of the invoice. Payment may be made by Check, direct EFT, or Credit Card. Check payments must be made to:

Global Irrigation Solutions, LLC.
12090 N Thornydale Road
Suite 110, PMB 318
Marana, AZ 85658

6) **Timing**
Audits will be scheduled for week of June 3rd (or as close as possible based on weather and availability of support personnel.

7) **Term**
The term of this Agreement is [six] (6) months from the Effective Date, unless terminated earlier for other reasons available in this Agreement.

8) **Termination**
a) If either Party wants to terminate the Agreement before the termination date, they must provide the other Party a seven (7) day written notice. If You terminate the Agreement before the Services have been completed, You will be liable to Us for a pro rata share of the total cost of the Services as outlined in Section 2.
b) This Agreement will automatically terminate when both Parties have performed all of their obligations under the Agreement and all payments have been received.

9) **Relationship of the Parties**
a) No Exclusivity. The Parties understand that this Agreement is not an exclusive arrangement. The Parties agree that they are free to enter into other similar agreements with other parties.
b) Independent Contractors. The Parties to this Agreement are independent contractors. Neither Party is an agent, representative, partner, or employee of the other Party.

10) **Waiver**
Neither Party can waive any provision of this Agreement, or any rights or obligations under this Agreement, unless agreed to in writing by the Parties. If any provision, right, or obligation is waived, it's only waived to the extent agreed to in writing

11) Amendments

This Agreement may be modified as needed. To make a modification, the Parties have to agree to the modification in writing (an "Amendment"). The terms of this Agreement will apply to any Amendment the Parties make.

12) Assignment

The Parties may not assign the responsibilities that they have under this Agreement to anyone else unless both Parties agree to the assignment in writing

13) Dispute Resolution

a) Negotiation. In the event of a dispute, the Parties agree to work towards a resolution through good faith negotiation.
b) Mediation/Arbitration. If negation is unsuccessful, either Party may initiate mediation or binding arbitration in the State of Florida.
c) Litigation and Choice of Law. If litigation is necessary this Agreement will be interpreted based on the laws of the State of Florida, regardless of any conflict of law issues that may arise. The Parties agree the dispute will be resolved at a court of competent jurisdiction in the State of Florida.
d) Attorney's Fees. In the event mediation is required, the prevailing party, will be able to recover its attorney's fees and other reasonable costs for a dispute resolved by binding arbitration or litigation.

14) Entire Agreement

This Agreement puts the Parties entire understanding of the Services to be performed and anything else the Parties have agreed to in black and white. This Agreement supersedes any other written or verbal communications between the Parties.

15) Severability

If any section of this Agreement is found to be invalid, illegal, or unenforceable, the rest of the Agreement will still stand.

16) Notices

All notices under this Agreement must be sent by email with read receipt, or by certified or registered mail with return receipt requested.

17) Notices must be sent to:

Three Oaks	Global Irrigation Solutions, LLC.
Attn: Renaye Harn Advantage Townhome Management 13110 Suite 214 Highway 96 White Bear Lake, MN 55110	Attn: Craig Otto 945 Proctor Ave, NW Elk River, MN 55330 Craig@globalirrigationsolutions.com

By signing below, the Parties agree to the terms of this Agreement.

Global Irrigation Solutions, LLC.

Signed: _____

Name: Craig Otto

Title: Principal

Date: 5/21/2024

Client

Signed: _____

Name: _____

Title: _____

Date: _____

HORTICULTURE SERVICES
2930 Quant Ave. N
Stillwater, MN 55082
651-433-4338
info@horticultureservices.com
www.horticultureservices.com

Proposal

Customer Purchase Order	Proposal No.	Date
	13168	4/16/2024
Job	**Account No.**	**Terms**
Three Oaks	722	

Submitted To:
Three Oaks
5444 Mehegan Lane
North Oaks, MN 55127

We propose to furnish the following scope of work. To be billed upon completion, applicable sales tax not included.

This proposal contains two options, only one of which would be completed.

The first option ("Controller - Weathermatic without FSMV") is for the installation of the Weathermatic SmartLink irrigation management system as detailed above on the first page of the separate Weathermatic information document. This option does not include the Flow Sensor Master Valve (FSMV).

The second option ("Controller - Weathermatic with FSMV") is for the installation of the Weathermatic SmartLink irrigation management system as detailed above on the first page of the separate Weathermatic information document, as well as the optional addition of the Flow Sensor Master Valve as detailed above on page two of the proposal.

Please initial next to the option you would like to proceed with.

Controller - Weathermatic without FSMV

This option is for the installation of the Weathermatic SmartLink irrigation management system bundle without the Flow Sensor Master Valve option.

Each Weathermatic SmartLink bundle includes: one Weathermatic SmartLine controller, one SmartLink aircard, one Weather Station Sensor, one year of the internet service plan, and one year warranty.

Description	Quantity	Unit	Price
Controller, Weathermatic 25-48 Zone Bundle w/ Service Plan	1.00	Ea	2,960.76
Labor Irrigation Specialist - Controller Install and Setup	2.50	HR	351.48

Price	$3,312.24

_____ Initial to Accept

Controller - Weathermatic with FSMV

This option is for the installation of the Weathermatic SmartLink irrigation management system bundle and a Flow Sensor Master Valve.

Each Weathermatic SmartLink bundle includes: one Weathermatic SmartLine controller, one SmartLink aircard with Flow Sensor Master Valve support, one Weather Station Sensor, one year of the internet service plan, and one year warranty.

The Flow Sensor Master Valve will be installed underground on the system irrigation main line.

Description	Quantity	Unit	Price
Flow Control Weathermatic - 1.5" PVC Flow Sensor Assembly	1.00	Ea	1,344.89
Controller, Weathermatic 25-48 Zone Flow Bundle w/ Service Plan	1.00	Ea	3,565.05
Labor Irrigation Specialist - Flow Sensor Installation	6.00	HR	843.55
Labor Irrigation Specialist - Controller Install and Setup	2.50	HR	351.48

Price	$6,104.97

Initial to Accept

Accepted:

Three Oaks

Date

Terms & Conditions

- Pricing valid for 60 days.
- When excavation is required, the contractor is responsible for having public utilities marked.
- Locating and marking of private utilities is the responsibility of the customer. Contractor is not responsible for damage to unmarked private utilities such as underground dog fences or private electrical wires.

PROPOSAL

7296

PETERSON Companies

8326 WYOMING TRAIL | CHISAGO CITY, MN 55013
(P) 651-257-6864 | (F) 651-257-3393
www.petersoncompanies.net

TO Steve Louris
Centerville Rd & Maheegan Lane
Lino Lakes, MN 55127

QUOTE DATE	VALID THRU	FOR	SALES REP
5/20/2024	6/18/2024	Controller Upgrade	

Price includes installing a Wifi controller with Cell kit. Price also includes installing a master valve and flow sensor with set up of everything.

ITEM NO	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED
	1	Controller Update	4,220.00	4,220.00*

* means item is non-taxable

TOTAL AMOUNT $4,220.00

If any changes, whether intentional or unintentional, are made to the site before the project begins, this proposal may be adjusted or possibly deemed null and void.
All project invoices are COD.

V.A. Three Oaks HOA
Smart Irrigation Controller Update
LL2 2024-03 Grant Application

Lauren Sampedro
TEC Meeting
7/10/2024

EST 1983 VLAWMO Vadnais Lake Area Water Management Organization

LL2 2024-03 Location Aerial

Bid Summary

- Irrigation Audit
  - Global Irrigation Solutions: $3,500
- Smart Irrigation Controller
  - Horticulture Services: $6,104.97
  - Peterson Companies: $4,220.00

Audit + Horticulture Services Bid = $9,604.97
Audit + Peterson Companies Bid = $7,720.00 Low Bid

LL2 Grant Application

Submit completed application to:
Lauren Sampedro
lauren.sampedro@vlawmo.org

Applicant Information:

Organization Name:	City of Vadnais Heights
Project Contact:	Erin Spry, Natural Resource Specialist
Address:	800 East County Road E
City/Township, State, Zip:	Vadnais Heights, MN, 55127
Phone:	651-204-6056
Email:	erin.spry@cityvadnaisheights.com

Project Summary:

ESTIMATED TOTAL PROJECT COST ($)	$8,177.00
AMOUNT REQUESTED	$7,359.30
EXPECTED PROJECT COMPLETION (Month, Year)	09/2024

PROJECT TYPE:

- ( ) Water Quality Treatment
- ( ) Stormwater Rate and Volume Control
- (X) Groundwater Conservation
- ( ) Other

If other, please describe the proposed project: _____

Project Background:

Describe the project location and water resources that will benefit from the project. What issues will be addressed with this project?	Smart irrigation system controllers conserve water by monitoring weather conditions and adjusting irrigation schedules according to need. Smart irrigation system controllers installed at City Hall and at Kohler Park can help Vadnais Heights to use only the necessary amount of water for the City's maintained turf areas. This project will reduce water waste, limit runoff issues, and provide a water resource stewardship example to residents and businesses in Vadnais Heights.

Project Background: Continued

Provide estimated water quality results, stormwater rate/volume reduction, or groundwater conservation benefits associated with the project.	"Smart irrigation" can reduce water use by 30%. Reducing water use in our parks can reduce pressure on our groundwater resources and therefore help to secure a sustainable groundwater future. Water quality can be expected to improve via a reduction in runoff from turf areas.
Describe the public education and outreach efforts or signage planned for the project.	The City will notify the Vadnais Press Pubs of the Irrigation System upgrades at Kohler and City Hall. Information on the controller installation will be included in educational campaigns on Water Conservation on the City's website and on social media.
List or describe any partnerships or other forms of support for the project, including external funding sources.	N/A

Project Specifications:

TOTAL PROPERTY AREA (Acres)	~30	Total PROJECT SIZE (Sq Ft)	N/A
IMPERVIOUS AREA DRAINING TO PROJECT (Sq Ft):	N/A	PERVIOUS AREA DRAINING TO PROJECT (Sq Ft):	N/A

Required Attachments:

- ⇒ Detailed final plan set of the proposed project that includes the estimated, quantitative outcomes of the project.
- ⇒ At least 2 bids for construction of proposed project.
- ⇒ Detailed project budget estimate with itemized materials and costs that equal the total project cost.

HORTICULTURE SERVICES
2930 Quant Ave. N
Stillwater, MN 55082
651-433-4338
info@horticultureservices.com
www.horticultureservices.com

Proposal

Customer Purchase Order	Proposal No.	Date
	13547	6/26/2024
Job	**Account No.**	**Terms**
City of Vadnais Heights		

Project:
City of Vadnais Heights

,

We propose to furnish the following scope of work. To be billed upon completion, applicable sales tax not included.

This proposal is for the installation of the necessary irrigation equipment for both the Vadnais Heights City Hall and Kohler Meadows Park irrigation system to access the Hunter Centralus network to allow remote control.

See the two separate sections below for information regarding the pricing and details for each location.

The pricing in this proposal assumes that both proposal sections below will be approved and completed.

Controller – City Hall

Location:
Vadnais Heights City Hall

We will replace the existing irrigation controller with a new Hunter ACC2 irrigation controller. A Hunter Wifi Communication Module will be installed on the controller to allow the controller to connect to the City Hall wifi network. By connecting via wifi, an ongoing paid subscription will not be necessary for the controller to be controlled and monitored remotely via Centralus.
We will connect the existing flow sensor to the new ACC2 irrigation controller. Based on the pictures and info supplied to us by City Hall we believe the existing flow sensor will be compatible with the ACC2. This proposal assumes the existing flow sensor is compatible and with the ACC2.

This proposal includes materials and installation labor, and assumes the Wifi connection and Centralus registration will be performed by the person who will be using the controller. Let Jake at Horticulture Services know if connection assistance will be needed from us as well.

Description	Quantity	Unit	Price/Unit	Price
Hunter ACC2 Controller - 18 Zone	1.00	Ea	1,581.90	1,581.90
Hunter Wifi Module for ACC2	1.00	Ea	450.35	450.35
Labor Irrigation Specialist	3.50	HR	140.59	492.07

Subtotal	$2,524.32

Controller - Kohler Meadows Park

Location:
Kohler Meadows Park

The existing irrigation controller will be replaced with a Hunter ACC2 irrigation controller.
We will install a Hunter Cellular Communication Module to allow remote control via Hunter Centralus.

This proposal includes materials and installation labor, and assumes the setup of the cellular connection and Centralus registration will be performed by the person who will be using the controller. Let Jake at Horticulture Services know if connection assistance will be needed from us as well.
We will install a flow sensor underground on the main line near the controller to allow flow sensing.

Please note: An additional ongoing Hunter service plan subscription will be required for internet connectivity via the Cellular Communication Module. This service plan will need to be activated separately from this proposal.

Description	Quantity	Unit	Price/Unit	Price
Hunter ACC2 Controller - 36 Zone	1.00	Ea	2,840.68	2,840.68
Labor Irrigation Specialist	10.00	HR	140.59	1,405.92
Flow Control - 2" PVC Tee Flow Sensor	1.00	Ea	1,009.05	1,009.05
PVC Coupling - 2" Slip	1.00	Ea	2.02	2.02
PVC Slip Fix - 2"	1.00	Ea	54.42	54.42
Hunter ACC2 Cellular Connection Module	1.00	Ea	899.84	899.84

Subtotal	$6,211.93

Total Price	$8,736.25

Accepted:

_____ _____

Date

- Pricing Valid for 60 days
- Following Customer approval of proposal, changes or revisions may be subject to additional charges.
- When excavation is required, the contractor is responsible for having public utilities marked.
- Locating and marking of private utilities is the responsibility of the customer. Contractor is not responsible for damage to unmarked private utilities such as underground dog fences or private electrical wires.

PROPOSAL

DATE: 6/4/2024
COMPANY: City Of Vadnais Heights

EXPIRATION DATE: 3/30/2023
SUBMITTED BY: Ryan Potvin
PHONE: 612-366-7175

CONTACT: Erin Spry
PHONE: 651-204-6056
EMAIL: Erin.Spry@cityvadnaisheights.com

PROJECT NAME: Hunter Centralus Controller
LOCATION: Multiple sites

ITEM #	DESCRIPTION	Quantity	Unit of Measure	UNIT PRICE	TOTAL
1	City Hall 14 zone ACC2 Controller hook to existing Flow Sensor, cell Mod	1	LS	$ 2,563.00	$ 2,563.00
3	Kohler Part- 42 zone ACC2 Controller, cell Mod	1	LS	$ 3,925.00	$ 3,925.00
4	Flow Sensor with wire to controller	1	EA	$ 589.00	$ 589.00
5	Service tech installation hours	10	HR	$ 110.00	$ 1,100.00
				TOTAL:	$ 8,177.00

NOTES AND INCLUSIONS:
Installation of controllers and flow sensor are billed at T&M. The pricing above includes the controller and the components to make it work online thru Centralus, city hall controller will take about 1.5Hr for installation, Kohler Park will take 3.5-5 hrs. to install controller and flow will take around 2-3Hr.

Please sign below for acceptance of Proposal as stated. We appreciate the opportunity to provide you with this proposal and look forward to working with you. Please feel free to contact me with any questions.

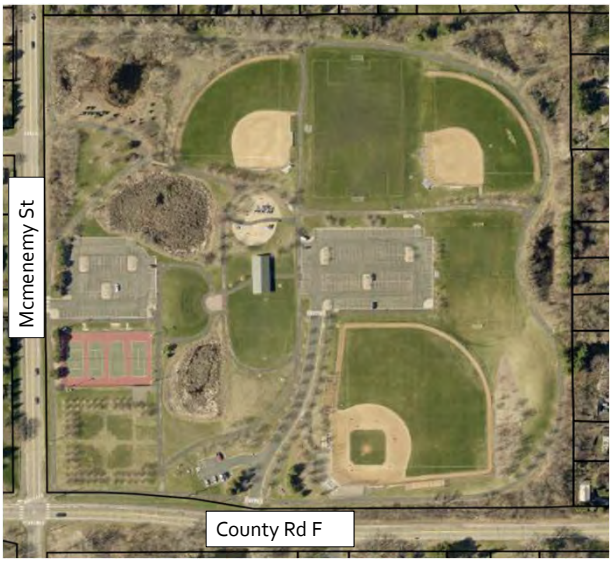
SIGNATURE: _____
NAME: _____
TITLE: _____
PHONE: _____
DATE: _____

V.B. City of Vadnais Heights
Smart Irrigation Controllers
LL2 2024-04 Grant Application

Lauren Sampedro
TEC Meeting
7/10/2024

EST 1983 VLAWMO Vadnais Lake Area Water Management Organization

LL2 2024-04 Location Aerial



Kohler Meadows Park

Vadnais Heights City Hall

Bid Summary

- City Hall:
  - Install new Hunter ACC2 smart controller and cell/wifi module
- Kohler Meadows Park
  - Install new Hunter ACC2 smart controller and cell/wifi module
  - Install flow sensor
- Technician Install Labor

Total Bid from Horticulture Services: $8,736.25

Total Bid from Peterson Companies: $8,177.00

Building a Better World for All of Us®

June 14, 2024

RE: Ramsey County
Wilkinson Lake Meander
SEH No. 171749 14.00

Ann White Eagle
SWCD Director
Ramsey County
2015 Van Dyke St.
Maplewood, MN 55109

Dear Ms. White Eagle:

SEH is providing this proposal to investigate the potential for a meander project on the south side of Wilkinson Lake; flowing from the current deep-water wetland restoration to the access road north of Wilkinson Lake (approximately 1,800-2,000 feet).

The Vadnais Lake Area Water Management Organization (VLAWMO) is currently working with SEH to evaluate the feasibility of the meander project, which includes estimated pollutant reductions, alternative analysis, pre-permitting, and constructability. The Ramsey County SWCD is interested in this project as part of their Soil Health Program.

SEH is proposing the following scope of work to further evaluate the constructability and permitting aspects of the project, which will help to better define feasibility and overall costs.

Geotechnical Data Collection and Evaluation
SEH Geotechnical Staff will attempt up to 5 hand auger borings at accessible locations along the proposed stream alignment. The hand auger borings will collect soils data up to 4 feet in depth depending on the conditions encountered. Due to likelihood of organic soils and shallow groundwater hand auger borings may be very difficult to advance. In addition, we will use a static cone to test soil strength at each location.

The purpose of the hand auger borings is to observe the types of soils present along the proposed excavation. Static cone penetrometer tests will be performed to collect information about the soil consistency.

Geotechnical Memorandum
SEH will prepare a technical memorandum describing the geotechnical and water level conditions observed during the hand auger boring site visit. The technical memorandum will summarize observations from the hand auger borings and/or static cone tests. The memo will also provide general recommendations relative to the excavation of the stream meander and channel side slopes. Design of contractor's access, dewatering, or temporary shoring are not included in this scope.

Constructability Evaluation
The project team will evaluate constructability and site access. The evaluation will consider the nature of the proposed construction, soil and water characteristics at the site, and potential access routes. SEH will provide a memorandum that summarizes considerations and recommendations for construction.

Surveying
SEH survey staff will visit the site to take survey shots of the stream channel. The main goal of this survey will be to determine the approximate extents of the Wilkinson Lake Ordinary High Water Level (OHWL) in relation to the stream. We have included one full day of surveying, which includes post-processing of the survey data. A figure will be developed showing the survey results and estimated location of the OHWL. A full topographic survey for final design purposes has not been included at this time.

Meetings
We have included time for up to three meetings with Ramsey County, VLAWMO, Regulatory Agencies, and Stakeholders. SEH staff will prepare agendas for each meeting and will prepare meeting minutes following each meeting to document comments and decisions made.

DELIVERABLES
- Geotechnical technical memorandum regarding soil conditions, constructability evaluation, and site access recommendations.
- Figure showing survey results and estimated OHWL
- Meeting agendas and meeting minutes.

SCHEDULE AND COMPENSATION
SEH will be begin work within 2 weeks from Notice-to-Proceed. We will complete the scope of work within 8 weeks from Notice-to-Proceed.

The work described in this task order is estimated to be $9,999, which includes labor and expenses. SEH will bill the project on a lump sum basis, which will be billed monthly. A breakdown by task is shown in the table below:

Geotechnical Data Collection and Evaluation	$3,199
Geotechnical Memorandum	$1,042
Constructability Evaluation	$1,194
Surveying	$2,536
Meetings	$2,028
TOTAL	**$9,999**

We are looking forward to working with Ramsey County on this project. If you have any questions, feel free to contact Jeremy Walgrave at 651-490-2000 or jwalgrave@sehinc.com.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

Jeremy Walgrave, PE, CFM
Project Manager

jjw
c: Phil Belfiori, Dawn Tanner

x:\uz\v\vadla\171749\1-genl\10-setup-cont\ramse-wilkinson\wilkinson-meander-proposal-rcswcd-5jun2024.docx

SIGNATURES:

RAMSEY COUNTY PARKS & RECREATION ("COUNTY")

By _____ on 06/17/2024
Date

Mark McCabe its Ramsey County Parks & Recreation Director
Print Name Print Title

SHORT ELLIOTT HENDRICKSON, INC.

By _____ on 6/24/2024
Date

Brad Woznak its RPCL – Water Resources
Print Name Print Title

Building a Better World for All of Us®

MEMORANDUM

TO: Phil Belfiori, Administrator
Dawn Tanner, Program Development Coordinator
Vadnais Lake Area Water Management Organization (VLAWMO)

FROM: Mark Christenson, Water Resources Engineer
SEH

DATE: June 25, 2024

RE: Task Order No. 2023-02: Wilkinson Meander Concept Analysis
SEH No. VADNA 171749 14.00

BACKGROUND

A portion of the stream south of Wilkinson Lake is being considered for restoration. This memo will discuss the feasibility of restoring the channel to a more natural alignment with greater floodplain connectivity improving channel geomorphology, habitat, and water quality.

Wilkinson Lake discharges to Deep Lake via an outfall control structure which includes multiple weirs within a fish barrier. The outlet was constructed in 1994 with weir elevations ranging from 894.2 to 894.6 (NGVD 29). Wilkinson Lake's ordinary high water (OHW) elevation is 895.2 (NGVD 29). Lake level data collected by VLAWMO suggests that the average water level in the lake is about 895 (NAVD 88).

EXISTING CONDITIONS

Currently the stream runs straight from south to north through a wetland complex, ultimately discharging to Wilkinson Lake. The reach being considered for restoration is located between the local road located approximately 2,200 feet south of Wilkinson Lake and the boardwalk located approximately 890 feet south of Wilkinson Lake. The stream was straightened at some unknown point in the past and has maintained the current alignment. The earliest aerial imagery found (1938) show the straightened channel as it exists today, therefore the pre-altered stream alignment is unknown. Figure 1 shows the USGS StreamStats drainage area to the stream.

A site visit was performed on November 17, 2023. The upstream and downstream ends of the proposed meander were visited to assess existing conditions and take preliminary field measurements to aide in channel analysis. A 24" CMP with a flared end section crosses the local road and discharges to the existing channel on the upstream end of the study area. There is some erosion at the pipe outlet and the pipe is somewhat misaligned with the channel, discharging more northwest rather than straight north. Bankfull width was measured at 24 ft approximately 150 ft downstream (north) of the pipe outlet. The water in the stream on this day was visibly flowing at approximately 1 foot deep and 3 feet wide. Side slopes were measured approximately at 6:1 (H:V) and banks were dry.

The downstream location was visited via the boardwalk that crosses the wetland complex, south of Wilkinson Lake. Water in the stream on this day was approximately 3 feet deep and extended at least 100 to 150 on either side of the channel. The channel was visible but completely inundated with a bankfull

width approximately 14 feet. The water was stagnant during this time and suspected to be approximately the same elevation as the lake level. Side slopes were measured at approximately 6:1 (H:V).

WATERSHED HYDROLOGY/BANKFULL DISCHARGE

There are various sources of data available for the Wilkinson Lake watershed, including VLAWMO's XPSWMM model and other studies, the Total Maximum Daily Load (TMDL) and Protection Study, and available USGS StreamStats and other Minnesota Department of Natural Resources (MnDNR) data. Peak flow rates from the existing XPSWMM model and StreamStats are summarized in **Table 1**. Note that the XPSWMM model shows much lower flow rates in comparison to the StreamStats regression equations.

Table 1: Summary of Peak Flow Rates to Wilkinson via Southern Stream

Flow Event	XPSWMM Model (cfs)	StreamStats (cfs)
1-yr	5.9	--
1.5-yr	--	26.3
2-yr	8.2	33.1
10-yr	19.9	63.4
25-yr	32.2	80
50-yr	35.1	92.8
100-yr	39.3	106

In stream analysis and restoration, the bankfull stage is important. It is the stage at which the stream connects with the floodplain; the water level reaches top of bank just before spilling out onto the floodplain, where flow is attenuated and subsequently receives water quality benefits. It is important to consider that the project area is downstream of homes and businesses and choosing the correct bankfull discharge is important to avoid any impacts, real or perceived, to existing infrastructure. In an idealized scenario, the bankfull discharge is thought to be between the 1- and 2-year event, generally closer to the 1-year event.

The Minnesota Department of Natural Resources (MnDNR) has regional curves that calculate bankfull statistics based on drainage area size for any given stream reach. For the nearby Lambert Lake meander project, the DNR suggested the Rosgen Stillwater, Minnesota curve is a good representation of the metro area, but the Eastern Minnesota Curve is also available for comparison. **Table 2** summarizes the bankfull discharge values across both DNR regional curves, the XPSWMM model, and the StreamStats regression equations. As **Table 2** shows, the StreamStats 1.5-year flowrate falls between the Rosgen Stillwater curve and the Eastern Minnesota curve and all three are on the same order of magnitude. Because there is general agreement between these three data sources, the StreamStats regression curve value was used for concept development of the potential meander. It is recommended that a more detailed analysis be performed prior to final design to ensure no adverse impacts would be caused by the project.

Table 2: Summary of Bankfull Discharge Values

	Eastern MN Regional Curve	Rosgen Stillwater MN Class	XPSWMM Model**	StreamStats*
Bankfull Flow Rate (cfs)	36.4	19.3	7.1	26.3

*1.5-yr recurrence interval flow rate
**Linearly interpolated 1.5-yr event from 1 and 2-year events

PROPOSED CHANNEL CONCEPT

Concept Channel Cross Section

Based on the field visit data, the current ditch on the upstream end has a bankfull carrying capacity of approximately 79 cfs. This is much higher than any of the calculated discharge rates for bankfull rate and may indicate that the bankfull stage in the field was overestimated due to channel incision on the upstream end. It is recommended that more precise survey and analysis be performed prior to final design. The concept typical cross section, as seen on Figures 2 and 3 along with the concept alignment options, is shown to meet the Streamstats 1.5-yr recurrence interval (26.3 cfs).

Concept Alignments

Two meander concept pathways were prepared for this analysis. Both will meet the entrenchment ratio, W/D ratio, and sinuosity of a stream type E. The first proposed alignment (Figure 2) follows the current alignment down the middle of the wetland complex meandering back and forth until rejoining the current alignment just upstream (south) of the boardwalk. The total meander length shown on Figure 2 is 2,600 feet.

The second alignment (Figure 3) initially veers to the east running around an elevated topographic feature within the wetland. This option also proposes an oxbow restoration to increase floodplain storage and aid in water quality treatment. As with option 1, this alignment rejoins the current channel just upstream of the boardwalk. Both alignments rejoin the existing channel alignment at an approximate elevation of 895 (NAVD 88). The total meander length shown on Figure 3 is 2,400 feet + 200 feet of oxbow area.

Construction becomes more challenging as the project moves north due to challenging soil conditions. Due to the potential challenges, a “third” option (Figure 4) is recommended that refines the second alignment and has it rejoining the centerline further south. From here it meanders along the centerline. An oxbow is proposed as part of this option. The northern portion would be considered an alternate and would only be constructed if conditions are favorable for construction.

It is recommended that any concept consider the lake levels within final design. As discussed further in the construction considerations portion of the memorandum, there is a transition point in the wetland complex where the stream is essentially equalized with the lake level.

ESTIMATED POLLUTANT REMOVALS

Pollutant removal estimates can be difficult to make for a stream meander project. Much of the documentation and methodologies available are for practices that are designed to detain water in any event. For the purposes of this feasibility study, several assumptions were made to calculate potential removals for TP and TSS. Because pollutant removal (TP and TSS) only occurs when the floodplain is actually engaged, the removal efficiencies are calibrated to the frequency of events that would do this.

The assumption is that the floodplain is engaged for events greater than the 1.5-year discharge. Each event greater than the 1.5-year will have a different proportion of the flow that is interacting with the floodplain and thus available for pollutant removal (i.e. a 2-year event has approximately 20% of flow available for removal whereas a 50-year event has approximately 72% of flow available for removal). For the analysis, a weighted average of the flow available to the floodplain was taken based on the percent of flow available in any given event and the likelihood in any given year of each event occurring. This yields a result of an estimated average of 35% of flows are available to the floodplain on any given year. The analysis is summarized in **Table 3**.

Table 3: Frequency of Flows Exceeding Bankfull

Design Event (yr)	Flow Rates [cfs]	Flow available to floodplain [cfs]	Flow available to floodplain [%]	Likelihood of event in any given year [%]
1.5	26.4	0	0%	n/a
2	33.2	6.8	20%	50
5	51.3	24.9	49%	20
10	63.7	37.3	59%	10
25	80.3	53.9	67%	4
50	93.2	66.8	72%	2
100	106	79.6	75%	1
500	138	111.6	81%	0.2

Removals within the floodplain were estimated to be consistent with typical wetland removal rates as published by the MPCA, summarized below:

Median pollutant removal: TSS = 73%, DP = 0%, PP =69%, TP = 38%

where TSS=Total suspended solids, TP=Total phosphorus, PP=Particulate phosphorus, and DP=Dissolved phosphorus.

Based on this, it is estimated that the project would remove an estimated average of 101.4 pounds of TP and 15 tons of TSS each year. It is important to note that these estimates could vary significantly year to year. In a drought year, one might see little to no removals whereas in a wet year the removals could be significantly higher. The estimated pollutant removals for each event are summarized in **Table 4**.

Table 4: Estimated Pollutant Removals

Design Event (yr)	TP Removal [lbs/yr]	TSS Removal [tons/yr]
1.5	0.0	0.0
2	59.3	8.8
5	140.5	20.8
10	169.6	25.1
25	194.4	28.8
50	207.5	30.8
100	217.4	32.2
500	234.2	34.7

It is recommended that sampling and monitoring be considered to better refine these removals and removal potential in the future. Should the cross-sectional area be increased and thus an increase in carrying capacity within the bankfull width, removal potential would decrease.

CLIMATE RESILIENCY

Another consideration for this project is how it could aide the system in becoming more climate resilient. Due to the nature of it's developed watershed, this stream is flashy and sees high flows during heavy rain events. With climate change, the system will expect to see an increased frequency in these high-intensity events. With more frequent, higher-intensity events, having a system that is able to engage its floodplain more readily will help pollutant removal as well as aide in slowing down the higher velocities as the water gets spread out over the floodplain.

ESTIMATION OF PROJECT IMPLEMENTATION COSTS

Project implementation costs were estimated for the final concept identified above at $550,000 as this option allows for the project to be split up if needed. With the limited information available, cost estimation should be considered budgetary and would be refined as projects continue to progress. Permitting fees were not included in the cost estimate.

It is recognized that the timing of implementation activities may vary depending on several factors including funding and weather conditions, for example. It is also important to note that construction costs have seen notable increases in recent years, making estimation challenging. To help project future conditions, an assumed inflation factor based on an evaluation of previous cost increases over the last five years was applied to the estimated cost for the next several years, as summarized in **Table 5**, below.

Table 5: Summary of Implementation Cost Estimation with Inflation Factor

Year	Estimated Cost
2025	$ 570,000.00
2026	$ 600,000.00
2027	$ 630,000.00
2028	$ 660,000.00

CONSTRUCTION CONSIDERATIONS

The biggest consideration that should be taken into account for this project is the constructability of the actual meander. The stream flows through a peat dominated wetland. When dry it can be fairly stable, but the peat material is suspected to have a low unit weight, which means when it gets saturated it becomes very unstable. Given the right conditions, the project is still constructable. The potential saturated soil conditions should be investigated further and considered within any final design. It may be necessary to terminate construction limits at equivalent lake levels to ensure constructability and long-term stability. It is recommended that additional soil investigation and survey collection be performed prior to any final design.

AGENCY/STAKEHOLDER CONSIDERATIONS

On April 17, 2024, VLAWMO and SEH staff had a meeting with Staff from Minnesota Department of Natural Resources (MnDNR), North Oaks Company, United States Army Corps of Engineers (USACE), and the Minnesota Land Trust to discuss the proposed project. A second meeting with the Board of Water and Soil Resources (BWSR) took place on April 23, 2024. The project was discussed with each of the agencies and feedback was provided on their individual requirements.

- MnDNR
  - Will need elevations shown to make a determination of the DNR's jurisdictional boundary.
  - Will need survey of the existing ditch to identify location of the OHWL (895.2 NGVD 29).
- Minnesota Land Trust
  - Because the Land Trust owns the land, they will need to approve the project.
  - Will need to have Land Trust's restoration team sign off on the plans.
- USACE
  - The Project could fall under a Nationwide Permit (NWP) 27 for restoration.
  - Will need to demonstrate functional lift of the stream to qualify for NWP 27.
  - Quantify the temporary and permanent impacts to the wetland.
  - Are there impacts related to 106, threatened and endangered species.
  - Quantify how much material would be hauled offsite.
- BWSR
  - Project could qualify for Category D no loss for wetland enhancement or habitat improvement.
  - Questions about what to do with excavated material.
    - Soil to the south was found to have higher levels of arsenic that was determined to be site specific. It was important to keep that material on site.
    - Could just assume the whole area is wetland but a level 2 wetland delineation to identify upland areas where excavated material could be deposited on site is likely needed.
  - Plans showing
    - Overall project area
    - Overall wetland area
    - Where ditch plugs are going or any other fill
    - Detailed plans
    - Pre and Post model showing water quality impacts
    - WCA impacts
    - A discussion of the purpose and need of the project.

RECOMMENDED NEXT STEPS

Ramsey County has indicated that it has extra funds available to support this project. It is recommended that this money be used to survey the existing ditch to locate the OHWL. Additionally, it is recommended to perform a preliminary geotechnical investigation, to determine the nature of the soils on site and how stable they are. These will help determine what kind of channel dimensions can be achieved as well as gain some understanding of the constructability of the project from an equipment point of view.

MC/EKJ/JJW

c: Brad Woznak, CSM

Attachments
Figure 1: Drainage Area
Figure 2: Meander Option 1
Figure 3: Meander Option 2
Figure 4: Meander Option 3

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SEH

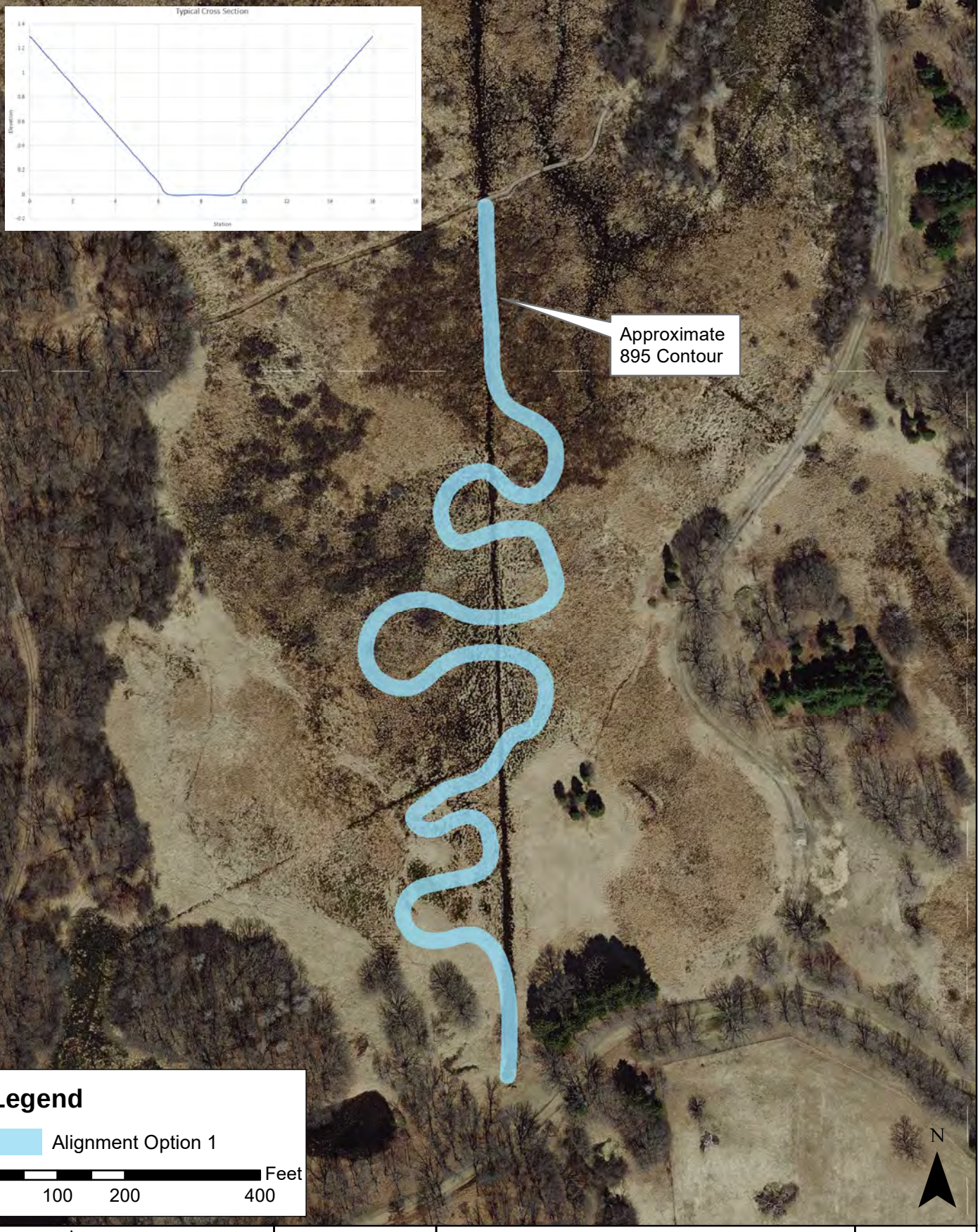
Project: VADLA 171749
Print Date: 2/21/2024

Map by: mchristenson
Projection: Ramsey County
Source: UMN, MnDNR

Drainage Area

Wilkinson Meander Feasibility
North Oaks, MN

Figure 1



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SEH

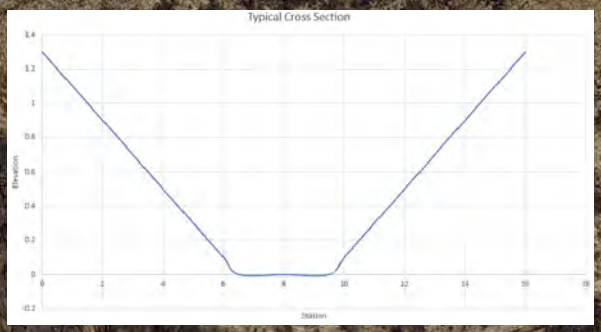
Project: VADLA 171749
Print Date: 2/16/2024

Map by: mchristenson
Projection: Ramsey County
Source: UMN, MnDNR

Meander Option 1

Wilkinson Meander Feasibility
North Oaks, MN

Figure 2



Approximate
895 Contour

Legend

Alignment Option 2

0 100 200 400 Feet

N

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SEH

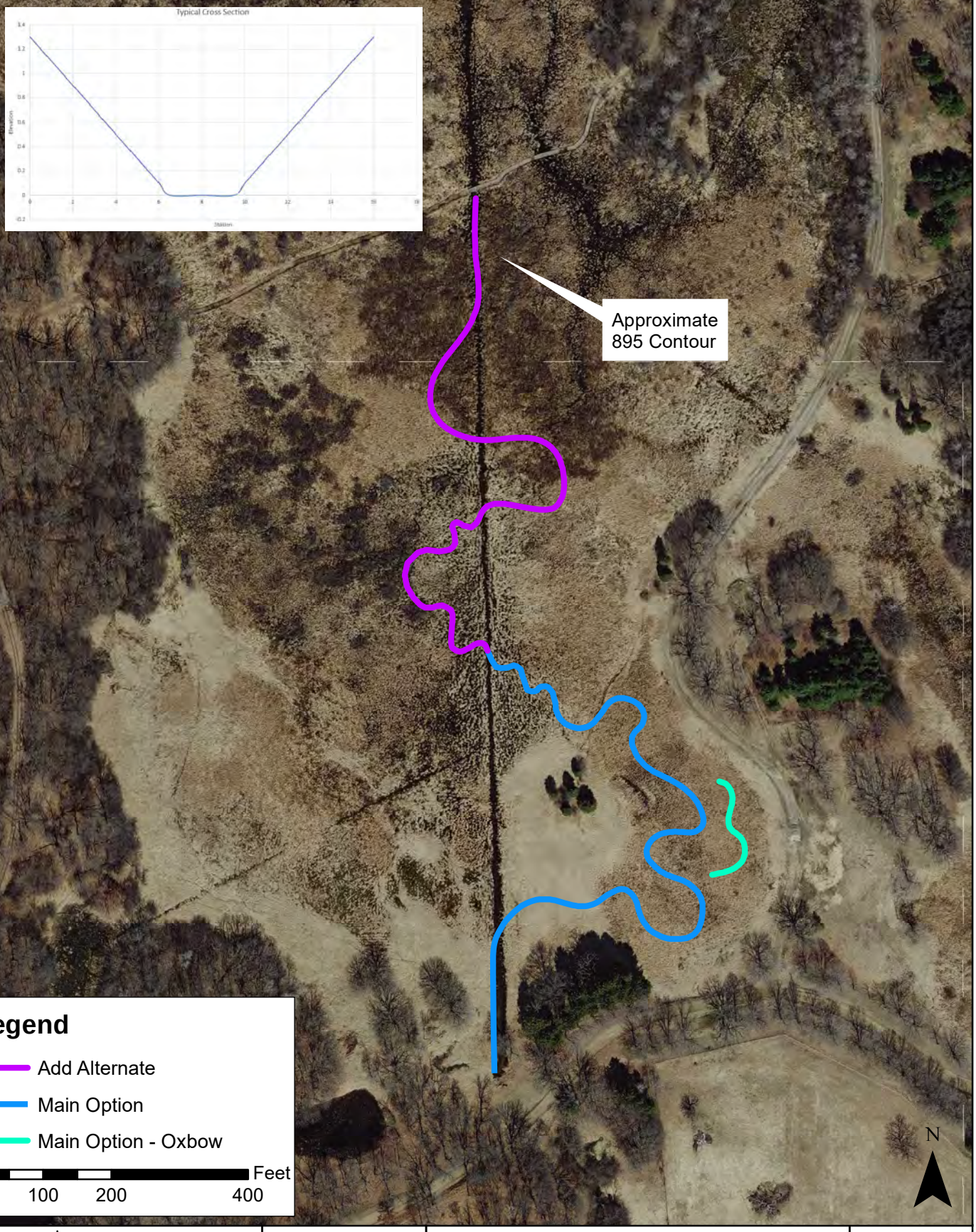
Project: VADLA 171749
Print Date: 2/16/2024

Map by: mchristenson
Projection: Ramsey County
Source: UMN, MnDNR

Meander Option 2

Wilkinson Meander Feasibility
North Oaks, MN

Figure 3



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SEH

Project: VADLA 171749
Print Date: 5/17/2024

Map by: mchristenson
Projection: Ramsey County
Source: UMN, MnDNR

Meander Option 3

Wilkinson Meander Feasibility
North Oaks, MN

Figure 4

Birch Lake Selective Hand-pulling Report

by: Matt Wilkie, Dive Guys Owner

Submitted to BLID and VLAWMO July 1, 2024

Objective

The objective of this project was to hand remove Eurasian Watermilfoil and Curly-leaf Pondweed. The goal was to remove the entire plants we encountered, including the root systems. And our allotment goal was to remove as much as possible in the appointed timeframe of 8 hrs.

Process

Our process was to first locate the plants using the GPS maps and observation. Once the plants were located, we hand-pulled the stalks by their root systems. The pulled plants were then carefully bagged into the boat for disposal.

Results

Day 1, 06/26/24, 10:15am – 2:15pm

We started this session by focusing on the south shoreline looking for EWM. We started at the boat launch and worked our way west up the shoreline. Sparse plants with some small clumps were encountered. There were generally only 1-3 plants per clump.

After treating the south shoreline, we motored the boat around the NE corner to check for EWM stalks. We did not find any in this area. This was very encouraging to see, as the NE corner had plenty of EWM the year before that we focused on removing.

We next went to the NW corner, where we found a fair amount of sporadic EWM plants. Most were smaller clumps of 1-5 stalks. We spent the majority of the remainder of our time in this area.

Upon getting back to the boat launch, we noticed a fair amount of EWM at or around the boat launch. We spent time removing EWM in this area, but we ran out of time before getting it all.

Notes: The wind was pretty strong out of the NW this day. It was far easier to treat the NW corner than the southern portions. Observation visibility was still very good from the boat in the southern areas. Overall, it was an efficient and productive day.

Day 2, 6/27/24, 8:30am – 12:30pm

We started this session by focusing on the EWM near the boat launch. It was deep enough that this area required us to dive to remove the stalks. The clumps were not very thick, but they were concentrated around the launch. We found roughly 30-40 plants in this small area.

We then went to the different CLP pondweed GPS locations to see if we could find any CLP plants. We did not find any plants. It is likely that the early Spring got the CLP growing fast early. As such, it likely matted at the water surface and was able to be retrieved by the mechanical harvester. While this seemed to be a good solution for this year, it will not be a good solution if the CLP spreads to areas closer to shore where the harvester cannot go. There is also concern that the harvester could actually spread the CLP as it cuts.

The next area we targeted was the SW corner. This area is covered with native lily pads. It also had the highest presence of EWM by far. The clumps here were large, often consisting of 10+ stalks. And there were a lot of them. We spent over two hours on this area alone, and unfortunately, we were not able to get it all. The good news is that the EWM was only present way back into the lily pads, roughly 70-100 yards in. This is good news because it makes it much more difficult for the EWM to spread. The thick lily pads serve as an entrapping barrier that prevents the EWM from easily moving. The not so good news is that the thick lily pads also made navigating very difficult for us, as we could only use paddles and not a motor. Targeting this area earlier in the spring, before the water lilies have covered much of the water surface is a recommendation to help increase coverage in this area next year.

We spent our last hour of work clearing the remaining EWM stalks in the NW corner. Visibility was extremely clear, and the EWM stood out like a sore thumb. It was very productive to snorkel around with goggles and locate the stalks that way.

Conclusion

Overall this project went very well. Our process was efficient and productive. It was very encouraging to see low EWM presence in areas that we treated last year.

The natural native vegetation is a big reason why this project is successful. It is pretty much always impossible to eradicate invasive species once they infest a lake. However, this does not seem to be the case with Birch Lake. The low water level and strong natural plant presence make it possible for the invasives to be completely choked out in areas where they have been hand pulled.

A recommendation for next year is to split the project into two different sessions, roughly one month apart. The first session (late May) would focus on the CLP, as well as the EWM in the lily pads. The CLP should still be rooted at this point, so it should not be at all difficult to find and

extract. The lily pads will not be nearly as thick, which will make navigating much more efficient for this area. The second session in later June would focus on the sporadic EWM stalks.

Adding Value to the Lake for Home Owners

While the strong presence of natural lake weeds is a great thing for the health of Birch Lake, it is not always desirable to residents who want to use the lake recreationally, especially for those who want to swim off and around their docks.

Our main specialty at Dive Guys is to remove nuisance lake weeds for homeowners so they can enjoy the water recreationally. Dive Guys would be willing to offer BLID members a group discount if people in the association would like to utilize our services.

Pricing

For submerged lake weed removal, Dive Guys charges $0.70/sq ft. If a resident wanted to clear an area that was 50 ft x 50 ft. This would be 2,500 sq ft, and cost would be: 2,500 sq ft x $0.70/sq ft = $1,750.

Pricing can be scaled to a resident's dock area. A group discount would be available if there were multiple people who signed up in advance.