

SPECIAL MEETING OF THE BOARD OF DIRECTORS MEETING AGENDA

7:00 PM May 27, 2020

Meeting will be held by WebEx video conferencing and phone:

For video conferencing on your computer, enter into your web browser:

<https://meetingsamer9.webex.com/meet/tyler.thompson>

For joining by phone, please dial +1-408-418-9388 and enter the access code: 626 368 138, followed by #, when prompted. Also, please note that this is not a toll-free number, and associated charges from your phone provider may apply.

- I. **Call to Order**, Chair, Jim Lindner
- II. **Approval of Agenda**
- III. **Visitors and Presentations**
 - A. Public visitors – non agenda items
- IV. **Consent Agenda** 🐦
 - A. Approval of Minutes April 22, 2020
- V. **Business**
 - A. Projects
 - 1. Goose Lake Alum Treatment Grant – Phil 🐦
 - B. Administration
 - 1. LMCIT VLA WMO Insurance Renewal - Phil 🐦
 - C. Cost Share
 - 1. Landscape Level 2 Grant App.: 2020-04 Monda Lam. Creek Restoration Ext, VH - Tyler 🐦
- VI. **Discussion /Updates**
 - A. **Lambert Lake project EAW status**
 - B. **Blue Thumb resilient yard webinar**
- XI. **Adjourn**

Next regular meeting: June 24, 2020

News:

Lambert Meander EAW

Upcoming Webinars: vlawmo.org/events

June 11: Resilient Yards



MINUTES OF THE BOARD OF DIRECTORS – APRIL 2020 BOARD MEETING
 April 22nd, 2020

Attendance		Present	Absent
Jim Lindner, Chair	City of Gem Lake	X	
Marty Long	City of North Oaks		X
Rob Rafferty, Secretary-Treasurer	City of Lino Lakes	X	
Ed Prudhon	White Bear Township	X	
Dan Jones	City of White Bear Lake	X	
Patricia Youker	City of Vadnais Heights	X	
Phil Belfiori	Administrator	X	
Stephanie McNamara	Administrator (retiring)	X	
Brian Corcoran	Water Resources Mgr.	X	
Dawn Tanner	Program Development Coord.	X	
Nick Voss	Education & Outreach Coord.	X	
Tyler Thompson	GIS Watershed Tech.	X	

Others in attendance: Paul Duxbury (VLAWMO TEC commissioner & rep.); Liz Towne & Chris Knopik (CLA Associates); Greg Wilson (Barr Engineering); Bob Larson (VLAWMO TEC)

I. Call to Order

The meeting was called to order at 7:02 pm by Chair Lindner, and a roll call was made for the Board Directors for the electronic video conferencing meeting, also available by telephone call-in. Chair Linder read aloud the electronic meeting statute protocol.

Roll call: Lindner: present Long: absent Rafferty: present Jones: present Prudhon: present Youker: present Prudhon: present

II. Approval of Agenda

The agenda for the April 22nd, 2020 Board meeting was presented for approval, Chair Lindner asked for any additions or corrections; none requested.

A motion was made by Rafferty and seconded by Youker to approve the April meeting agenda, as presented. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye Prudhon: aye. Motion passed.

III. Visitors and Presentations

A. 2019 Financial Report and Audit

Chris Knopik and Liz Towne from Clifton Larson Allen LLP (CLA) presented VLAWMO’s 2019 Financial Report and Audit to the Board of Directors. The audit, financial report, governance letter and the internal control letter were included in the Board packet. Upon approval, these documents will be sent to the Board of Water & Soil Resources (BWSR) and the State Auditor’s Office, along with copies going to each of VLAWMO’s member JPA municipalities. **Staff recommended that Board accept the 2019 Financial Report and Audit documents and approve them for distribution.**

Discussion: Youker asked for clarification of a \$7,650 unavailable revenue for 2019. Knopik explained that these are outstanding income inflows that weren’t yet available for 2019. Rafferty asked about the recommended percentage of the general fund balance, as it’s just below 40% and has been growing the last few years, but questioned if a higher percentage closer to 50% was advised, and at what time rate this should be accrued. Knopik noted that a 50% general fund balance would be a safer and allowable level to attain in case funding inflows are disrupted, as VLAWMO relies upon its special assessments for cash flow revenues. Knopik recommended moving at the same rate of time as VLAWMO has been for accruing a 50% general fund savings, and continuing to chip away at this goal and reaching it in 2-3 years would be advisable. Prudhon

questioned whether Ramsey County pushing back property taxes until July 15, 2020 may have an effect on cash flow. Knopik answered that a majority of tax payments should be on time, though to expect another small payment made later in the year for delayed collected assessments, due to COVID-19 delays.

A motion was made by Jones and seconded by Youker to approve the 2019 VLAWMO Financial Report and Audit documents, and to allow for distribution. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye Prudhon: aye. Motion passed.

B. TEC Report and Financial

Duxbury presented the April TEC Report and that there are 2 recommendations for the Board, postpone the CB grant until January 2021 and for WBF to move with BMP 14. McNamara offered to go over any questions on the April Financial Report, as both Reports were included in the April Board packet.

C. Award presentation: Stephanie McNamara

After just over 30 years in serving with the Vadnais Lake Area WMO, Stephanie McNamara is retiring. Staff presented her with an award and certificate for 30 years of service. Jones noted that McNamara was the moving piece in VLAWMO's direction, and thanked her for her service. Rafferty echoed Jones comments and thanked her for service to VLAWMO and for years of educating him on watershed topics and business. Prudhon noted that he appreciates her years of service and a planning for a celebration should be in order, when allowed. Youker noted that she has not had the pleasure to know her as long as the others, but appreciates her taking her under her wing and the time that they have gotten to spend together.

D. Public Visitors – non-agenda items

None.

IV. Consent Agenda

A. Approval of Minutes: March 25, 2020

The minutes from the March 25th, 2020 Special Board meeting are placed on the consent agenda for approval, as presented.

B. Project update reports: Birch SLMP, Frog and Toad Story Map, W Vadnais Carp Project, Lambert EAW, Birch Lake 4th & Otter.

C. 2019 Annual Report, report summary, water monitoring summary

A motion was made by Jones and seconded by Rafferty to approve the April Board meeting consent agenda, as presented. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye. Prudhon: abstains Motion passed.

V. Business

A. Administration

1. Administrator

Belfiori noted that the short memo before them is to approve the outgoing Administrator's severance package, as guided per the employee handbook.

Discussion: none.

A motion was made by Rafferty and seconded by Youker to approve the outgoing Administrator's severance. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye Prudhon: aye. Motion passed.

2. Draft 2021 Budget - discussion

McNamara presented that a preliminary working-budget is in draft form, and requested that the Board have a preliminary discussion on the 2021 budget direction, for current and future priorities and to consider possible economic realities due to the unprecedented COVID-19 crisis. McNamara also asked the Board to determine which members would be available to join for the discussion.

Discussion: Rafferty posited that keeping the same group for budget planning as in 2020 could be beneficial for continuity, and that perhaps a more conservative approach to the

2021 budget may be in order, due to current and future fiscal issues related to COVID-19. It may also be possible that projects coming up for bid may come in lower, if they go out for bid earlier in the year. Rafferty asked for Administrator Belfiori's input. Belfiori noted that VLAWMO has a considerable project load, going into 2021, that will either be entering into construction, or already being constructed, and that shifting budgeting may be necessary to keep project momentum. Prudhon noted that projects coming in for bid have been coming in drastically lower, and this may be a good time to continue on for projects, for the possibility of prices coming in lower. Jones added that a modest 2-4% increase in the 2021 budget may be possible, though he also gave credit for the possibility of projects and expenses coming in lower. Rafferty noted that while this is not business as usual, business must continue.

A motion was made by Prudhon and seconded by Jones to proceed with the VLAWMO 2021 Draft Budget process and to appoint Board members Lindner, Rafferty, Jones and TEC member Jesse Ferrell to the Budget subcommittee. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye. Prudhon: aye. Motion passed.

B. Education and Outreach

1. White Bear Center for the Arts – Community Blue Grant Amendment

Voss presented that the project is posed for being postpone until 2021 based on the community and in-person nature of the project, due to COVID-19 restrictions, in place. Staff is asking the project is approved, as amended, to approve rescheduling of the project.

Discussion: Lindner noted that keeping touch with the project partners and updating on a regular basis should be pursued.

A motion was made by Prudhon and seconded by Youker to approve the amended White Bear Center for the Arts Community Blue Grant agreement, until 2021 or a time where the project is allowed to advance. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye. Prudhon: aye. Motion passed.

C. Projects

1. Lambert Lake – Preparation for CPL Grant

Tanner updated that the project 90% plans are nearly complete and staff has been working with the DNR on permitting, as well on the EAW for the project. No action item was needed for the CPL grant application, and noted that if additional funds are needed after going out for bid, funds will be pursued at that time, but is not necessary right now. **ACTION ITEM CANCELED.**

Discussion: none.

2. Goose Lake Alum Treatment Grant

Belfiori overviewed new updates, as relating to the Goose Lake alum treatment, and where staff is at working with BWSR to attempt to pursue mutually acceptable grant assurances. New information includes an updated Technical Memo from Barr Engineering, along with new project graphics were presented. Wilson explained the anticipated total phosphorus removals that have been modeled, based upon the averages of the last several years of water quality monitoring data. Engineer Wilson presented a graphic to the Board that explained the technical justification for his recommendation on project assurances "metrics" and explained the range of practical lake phosphorus concentrations that would be expected with the Alum project. Belfiori noted that BWSR has not yet agreed to any proposed assurance parameters, and staff is proposing several other assurance items, along with in-lake management strategies, and supporting subwatershed BMPs for a holistic subwatershed approach. Belfiori outlined 3 recommendations and 2 motions for the Board to consider: 1.) establish a May 27 Special Meeting of the Board of Directors to move on action items that are anticipated after BWSR responds; 2). Authorizing staff to move forward with supporting complementary projects to prepare for an alum treatment, of which, costs are not covered by BWSR grant funding; and

3.) the inclusion on 1-3 Directors of the Board for discussion and direction on BWSR's assurance direction before the May special board meeting.

Discussion: Jones asked for clarification subwatershed projects, and if their implementation would benefit an alum project. It was confirmed that these supporting BMPs will reduce nutrient loading into East Goose Lake.

A motion was made by Jones and seconded by Rafferty to schedule a Special Board meeting of the Board of Directors for May 27, 2020, to authorize staff to move forward and incur expenses for in-lake management projects and to appoint Directors Jones and Lindner to discuss BWSR assurances before the May 27 Special Board meeting. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye Prudhon: aye. Motion passed.

3. WBF Goose Lake Subwatershed BMP Selection & Proceeding

Thompson presented that the Watershed Based Funding option BMP search has netted a small group of feasible projects with one that currently appears, based on early technical analysis, to be the best fit within VLAWMO's modeling parameters to meet the Watershed Based Funding total phosphorus reduction criteria of 3-6 lbs per year. The identified proposed "BMP 14" would be an iron-enhanced sand filter on the NW intersection of Highway 61 and Cedar Avenue in White Bear Lake. Staff anticipate to begin the process to start to investigate by contacting agencies to partner on this project, as well as Rush Line BRT project staff, as this is a proposed location for a future BRT stop. Staff is recommending moving forward with initial investigation and planning for this "BMP 14", as well as authorizing Tyler Thompson as the project representative and manager.

Discussion: Prudhon noted that the proposed project location is encroaching onto the adjacent parking lot and questioned whether this could cause complications. Thompson addressed that this is, indeed, an approximate placement location for the BMP, and final location will be set once the project plans mature. Jones noted that the 6 lb/year reduction in TP is lower than the current Birch Lake filter, but the project cost is roughly the same and asked for insight into this. Thompson addressed that the modeled reduction is lower than the Birch Lake filter due to the smaller watershed loading that BMP 14 would be treating, as compared to the Birch Lake filter.

A motion was made by Jones and seconded by Prudhon to authorize moving forward with initial investigation and planning for BMP 14 and authorizing Tyler Thompson as project representative and manager. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye Prudhon: aye. Motion passed.

VIII. **Discussion** Rafferty noted he would like to welcome Phil Belfiori to the team and he's looking forward to working together over the coming years.

IX. **Administration Communication**

None.

X. **Adjourn**

A motion was made by Rafferty and seconded by Prudhon to adjourn at 8:49 pm. Vote: Lindner: aye Rafferty: aye Jones: aye Youker: aye. Prudhon: aye. Motion passed.

Minutes compiled and submitted by Tyler Thompson.

To: VLAMWO Board

From: Phil Belfiori, Administrator

Date: May 21, 2020

Re: Discussion and Consideration of the proposed East Goose Lake Alum Treatment Grant and Project

The purpose of the memo is to provide the Board with background, analysis, options and recommendations (from both Board members Lindner and Jones as well as from staff) related to the proposed East Goose Lake Alum Treatment Grant and Project.

The attached PowerPoint presentation (**Attachment 1**) is meant to compliment this memo, serves as a summary of the main points and will be the format to present this information to the Board at the 5/27 Special meeting.

Background /Update on the East Goose Lake Alum Treatment Project grant

At the April Board meeting, staff provided the Board with an update on the Alum Treatment Grant for East Goose Lake since the March Special Board meeting. Staff summarized a technical memo submitted to BWSR dated 4/15/20 from Greg Wilson (Barr Engineering Project Engineer) that provided his recommendations on measurable “metrics” for BWSR grant required project assurances. Staff also summarized VLAWMO’s response letter dated 4/16/20 which attempted to respond to BWSR’s 2/24/20 letter. Engineer Wilson presented a graphic to the Board that explained the technical justification for his recommendation on project assurances “metrics” and explained the range of practical lake phosphorus concentrations that would be expected with the Alum project. Staff also notified the Board that BWSR had concerns about the Engineers recommended measurable “metrics” /projects assurances. The Board then approved scheduling a special VLAWMO Board meeting for tonight (5/27/20) to consider the East Goose Lake Alum grant and project and also identified that Board members Linder and Jones would meet in mid-May to discuss BWSR’s written feedback on assurances and discuss next steps.

VLAWMO staff received initial BWSR response to the VLAWMO 4/16/20 letter on 5/6/20. In the response BWR staff identified that they would require the following project assurance standards be met for the next 15 years See excerpt below from the BWSR 5/6/20 email:

I have attached a draft of a project assurance agreement.. The “P” standard requirement has been bumped up by 20% (from 60 µg/L to 72 µg/L) to account for being “in the threshold” as identified in the Grant Application: “Response to grant application Question 6(B).

Staff then held a meeting with BWSR staff on 5/11/20 to further discuss the BWSR required project assurances agreement and to ask questions /provide suggested alternate language related to the clarifying the BWSR requirements.

BWSR staff followed up on 5/19/20 with the final proposed assurance agreement (see attachment 2). Attachment 2 also includes the BWSR 2/24/20 letter from the Board's background and reference. The project's assurance standards required within this BWSR proposed assurance agreement (which was the same standards as discussed with Board members Jones and Lindner) are summarized as follows:

"If WMO lake water quality monitoring data collected for East Goose Lake indicates that lake surface water quality does not fall within 20% of the state water quality standard for total phosphorous of <72 µg/L and either the chlorophyll-a (<20 µg/L) or secchi depth (>1 m) criteria, for three out of any five years for the effective 15 year life of the PROJECT, the WMO agrees to undertake additional actions (including additional alum treatments if needed) at the WMO's expense to reduce internal and external phosphorous load reductions to achieve the PROJECT annual numeric surface water quality target identified for East Goose Lake."

Scientific Analysis of Project's Assurance Standards Required within this Assurance Agreement

Based on the numeric standards identified in the BWSR project assurance standards (**attachment 1**), project engineer Wilson has included the attached graphic (see slide 4 and 5) to guide his presentation at the 5/27/20 Special Board meeting. At this Special Board meeting, Engineer Wilson will provide a summary of the scientific background related to the proposed Alum project and discuss his technical findings on the proposed project assurance standards.

Options for Board Consideration

The VLAWMO staff team has identified the following two possible options for Board Consideration:

Option 1- Approve the BWSR assurance agreement and corresponding grant agreement and work plan.

The Board packet includes a lengthy list of materials (as is summarized under "attachments" at the end of this memo as **Attachment 4**) related to option 1:

Option 1 project timeline is included in slide 8-9 in the attached powerpoint (Attachment 1)

In summary, Option 1 would allow for more outside revenue for project implementation in years 2020-22 and would potentially allow for project implementation earlier (given the required project implementation grant window timeline runs through end of 2022). The two fundamental challenges with option 1 include:

1. The lack of ability to response to possible future financial and scientific uncertainties throughout the 15 required assurance period; and
2. The related amount of short/med./long term costs borne solely by VLAWMO without the ability to adapt or manage project costs as it implements.

Option 2- approve and authorize staff to pursue an “**adaptive lake management**” program on East Goose Lake.

Option 2 would include the actions and timeline as identified on slide 13 of attachment 1. If the Board were to approve option 2 there would also be required Board motion to authorize staff to send a letter to the BWSR notifying them that the VLAWMO Board wishes to stop the negotiation process on the assurance agreement and therefore authorizes staff to send communication to BWSR notify them that the VLAWMO Board has decided to not approve the 15 year proposed assurance agreement or the required grant work plan/ grant agreement.

Option 2 provides the VLAWMO Board with an additional viable option that:

- Continues to pursue the actions identified in BWSR grant application. This option also does not change the overall outcome of the East Goose Lake comprehensive management program including the focus to attempt to address the elevated internal loading in the Lake;
- Allows for an adaptive management process. This will allow for management flexibility throughout the life of the whole lake management program and will allow the Board to manage cost as it implements. (See slide 12);
- Would not require the Board “lock in” to a contractually obligated mandate as defined in the BWSR assurance document for 15 years.

As described in slide 13, upon completion of the first ± 3 years of implementation of this option 2 - adaptive lake management approach, the process will use “real world” project evaluation to adapt and then design the next phase of management. Overall option 2 has both short term and mid /and long term budgeting benefits given the ability to adapt /manage the project budget every ± 3 years. An examples would be that after one treatment cycle or phase VLAWMO would evaluate effectiveness and if actions are not performing as intended, costs /budgets can be managed to include only those management actions that were successful.

Option 2 does include the loss of the BWSR grant revenue over the first 3 years of the project and therefore an increase in VLAWMO overall project expenditures over the short-term (see Budget implications discussion below). Initial 2021 /short term draft budget projections also identify that project implementation timing would likely need to be modified with 2021 project implementation including bullhead removal, possible fish stocking and possible demonstration aeration management program. The first phase of the proposed Alum application could occur in 2022 with project evaluation for the planning /initiation of “phase 2” (for 2023-25) program occurring in 2023.

It should be noted that Option 2 could also include an “option 2A” which would be to reapply for the BWSR Clean Water Funds after the first phase (in $\pm 2-3$ years).

Financial Breakdown /Budget Implications of Proposed Options

The BWSR project assurances agreement would be required to be approved as part of option 1 (see attachment 2) This assurance agreement would require VLAWMO to become contractually responsible for the standards stated in the agreement for the required 15 life span on the proposed Alum project.

To further explore the estimated costs of this financial commitment and to compare the two options as described above, staff has prepared the following:

- **Attachment 3-** includes the summary of the rough estimate 15 year VLAWMO project costs- option 1 vs. option 2. In summary, it is estimated that the VLAWMO cost for ongoing operation of the whole lake management approach for option 1 (approve the BWSR grant /assurance agreement) would in the range of \$435,000 – over \$600,000 depending on how many VLAWMO additional alum applications are required during the mandated 15 year period.

Staff also evaluated the short term financial and budget implications of option 1 and option 2... Two points could be summarize this financial evaluation:

- 1) 2021 budgeting focus- Both options (particularly option 2) would require small budgets for the 5 subwatersheds project budgets with exception of the Goose Lake and Lambert subwatershed. This has already being explored by staff given the large project timing/status currently underway in these subwatersheds.
- 2) Project timing- Timing of project implementation for Option 2 is proposed to start later than option 1 due to budgeting considerations to date.

Summary of Board Chair Lindner and Board Member Jones discussion

Per the Board direction at the 4/22/20 Board meeting, staff and the project engineer held a WebEx discussion with Board members Lindner and Jones on 5/15/20. Staff and engineer provided an overview of the project and grant background, a scientific analysis of the BWSR assurance standards, a summary of two possible options to recommended to the full board, a series of cost comparison tables for each option and a staff recommendation. Members Lindner and Jones had several questions of the project staff team including (but not limited to) the scientific basis of the BWSR project assurance standards, the specific areas of concerns listed in the BWSR February 24, 2020 letter to VLAWMO and questions about the long term financial implications of option 1 vs. option 2. The two Board members then discussed the possible options to recommend to the full Board and upon further discussion came to a consensus to recommend Option 2.

Staff Recommendation

Staff believe that both options described above are viable options, have potential to successfully improve the overall water quality of East Goose Lake, and continue to be consistent with the science that identifies that this lake management approach / alum treatment will work. A comprehensive whole lake management program will be necessary under either option and will need to be “practical” from a budget stand point while also being adaptable to the ever changing financial, social/political and scientific variables.

If in the 2021 budgets (short term) targets can be set to focus financial resources towards this proposed project while also shifting the timing of project implementation, then option 2 provides for more of an ability to update and manage project costs (both short and long term) based on real world successes and evaluation results. Option 2 also does not require the VLAWMO Board commit to a 15 year assurance agreement that can’t change through time. Lastly, option 2 allows for a better and more practical framework for stakeholders engagement while also continuing to focus on the water quality improvement realities of this Lake. Based on the overall program benefits listed above and given the consensus discussion /recommendations as provided by Board members Jones and Lindner, staff recommend that the Board pursue option 2 (the adaptive lake management program) for East Goose Lake.

Board Consideration and Action

Proposed Board motion if the Board wishes to pursue Option 1: Approve the BWSR assurance agreement, BWSR grant agreement and Grant work plan.

- Proposed Motion – _____ moves to approve Resolution **01-2020**
Second by _____.

Proposed Motions if the Board wishes to pursue Option 2:

- Board member _____ moves to authorize staff to take the necessary steps to pursue the “Adaptive Lake Management program” for East Goose Lake as described in the Board packet materials for the 5/21/20 special board meeting as “Option 2”.
- Board member _____ Moves to direct staff to Stop the negotiation process on the BWSR proposed project assurance agreement and therefore authorize staff to send communication to BWSR notify them that the VLAWMO Board has decided to not approve the 15 year proposed assurance agreement or the required grant work plan/ grant agreement for the East Goose Lake Alum Treatment grant.

Note that staff (with option 2) will continue to implement the activities identified in the motion passed at the April 22 Board meeting including: initiating the public engagement plan/ process, Initiate planning for the fish management plan including implementation of a Bullhead harvest (anticipated in 2020 or 2021) and a possible aerator installation and/or stocking program and design /construction of the Boat launch. Staff would also incorporate option 2: Adaptive Lake Management program into the upcoming 2021 budget development discussions and process.

Attached:

Attachment 1 – PowerPoint presentation for the 5/27 Board meeting

Attachment 2 – BWSR proposed project assurance agreement (sent on 5/19/20) and 2/24/20 BWSR letter for reference

Attachment 3- Rough Estimate 15 year VLAWMO project costs- option 1 vs. option 2.

Attachment 4- Materials related to option 1:

- Resolution 20-01
- Letter of support UMRSWPP
- Grant agreement with BWSR for the “Goose Lake Alum Treatment 2020” FY2020 CWF Competitive Project and Practices grant.
- Final Assurance agreement for the “Goose Lake Alum Treatment 2020” FY2020 CWF Competitive Project and Practices grant.
 - Attachment for the assurance agreement:
 - Exhibit A -Feasibility Study - VLAWMO East and West Goose Lake Oak Knoll Pond Feasibility Study_2018_FINAL_2019-09-04
 - Exhibit B -Grant application - Goose Lake Alum Treatment 2020_2020-05-20_09
 - Exhibit C -Work Plan and Grant Agreement
- Project location maps(2)

Discussion and Consideration of the proposed East Goose Lake Alum Treatment Grant and Project



Special Board Meeting – May 27, 2020

Items covered in this presentation

- Background /Update on the East Goose Lake Alum Treatment Project grant
- Scientific Analysis
- Discussion on Options
- Financial Breakdown/Budget Implications of Proposed Options
- Board member Lindner and Jones and Staff Recommendations
- Proposed Motions for Option 1 and Option 2



Background

- Summary of April VLAWMO Board meeting
 - Greg Wilson technical memo (4/15/20)
 - VLAWMO's response letter (4/16/20) responding to BWSR's 2/24/20 letter
 - Board scheduled special VLAWMO Board meeting (tonight)
 - Identified Board members Linder and Jones would meet in mid-May
- BWSR response to the VLAWMO 4/16/20 letter on 5/6/20.
 - *Phosphorus assurance standard (required to be met for 15 years) is 72 µg/L based on language cited in the VLAMWO grant application.*
- Meeting with BWSR staff on 5/11/20 – assurance standards did not change.
- On 5/13/20 BWSR - “We still has some significant concerns”



Background

- BWSR staff followed up on 5/19/20 with the final proposed assurance agreement for the grant (**see attachment 2**).
- The project's assurance standards required are summarized as follows:

“If WMO lake water quality monitoring data collected for East Goose Lake indicates that lake surface water quality does not fall within 20% of the state water quality standard for total phosphorous of $<72 \mu\text{g/L}$ and either the chlorophyll-a ($<20 \mu\text{g/L}$) or secchi depth ($>1 \text{ m}$) criteria, for three out of any five years for the effective 15 year life of the PROJECT, the WMO agrees to undertake additional actions (including additional alum treatments if needed) at the WMO’s expense to reduce internal and external phosphorous load reductions to achieve the PROJECT annual numeric surface water quality target identified for East Goose Lake.”



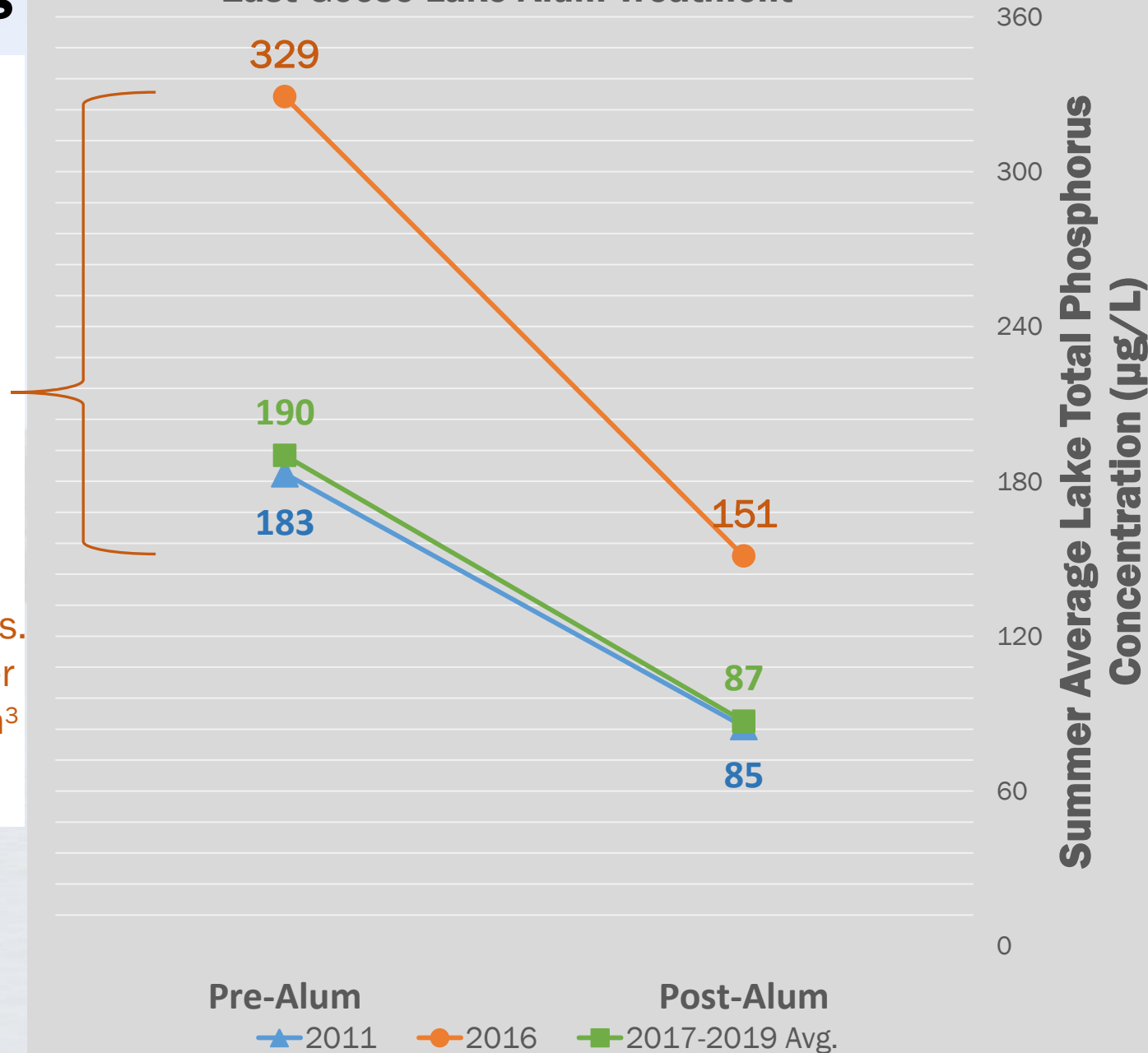
Scientific Analysis

Surface Water Quality Assurances²

Conduct annual monitoring and analyze summer average TP concentration:

Minimum 50% reduction, for 3 out of any consecutive 5 yrs. for 10 years after alum application³

Water Quality Modeling for an East Goose Lake Alum Treatment¹



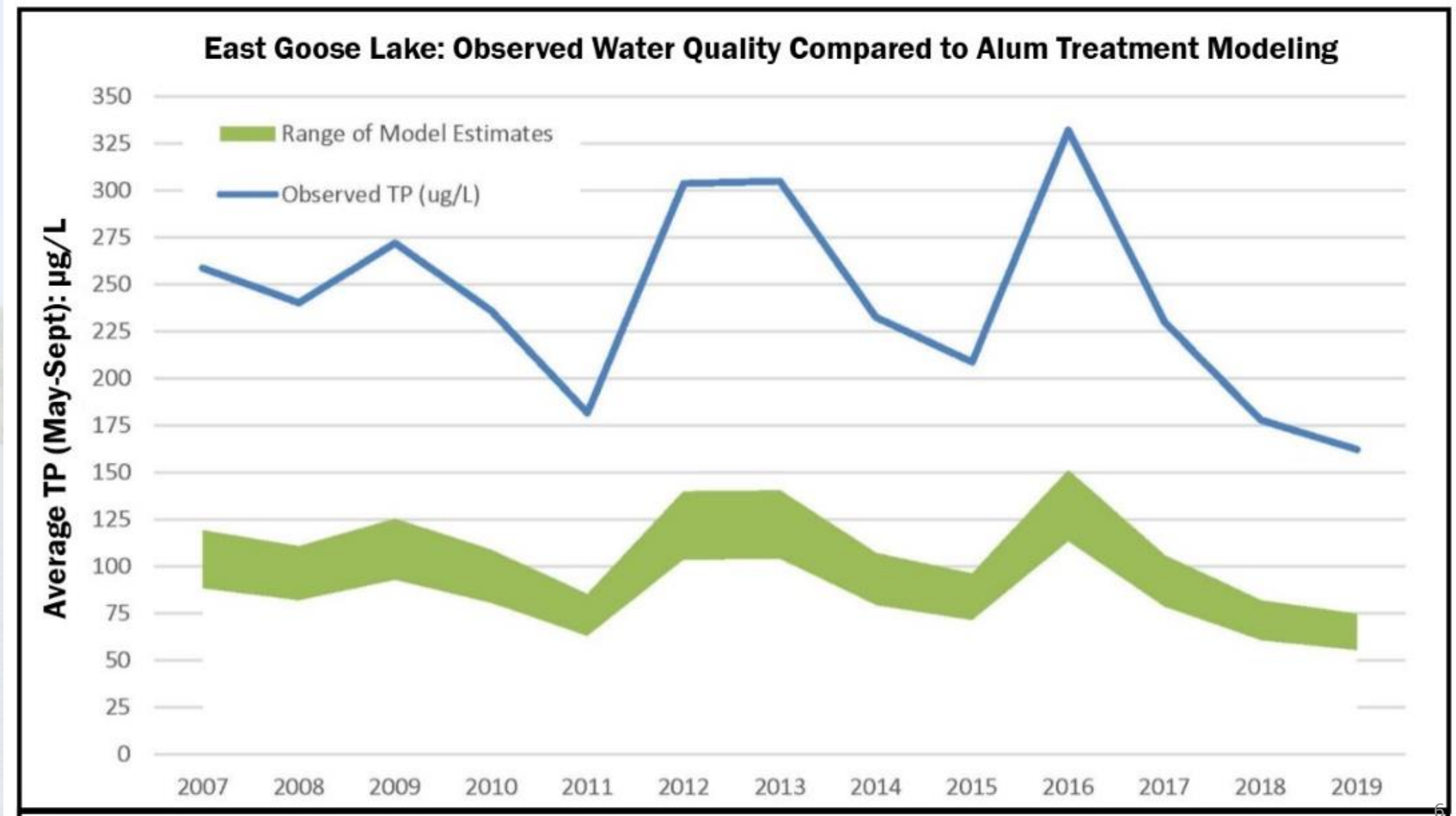
¹ Numbers and percentages as simulated in 2018 Barr In-Lake Treatment Feasibility Study.

² Represents engineer's recommended measurable metric for project assurances, based on proposed outcome identified in grant application.

³ VLAWMO commits to this assurance.



Scientific analysis



Discussing the options

Option one: Approve the BWSR assurance agreement, grant agreement and work plan.

- See staff memo for list of materials contained in the Board packet- **See attachment 4**

Option two: Approve /authorize staff to pursue an “adaptive lake management” program on East Goose Lake.



Implementation of grant:

Option one tentative timeline: 2020-2022

- **2020:** Engineering for proposed 2020 alum application (phase 1) Q 2
- **2020:** Stakeholder engagement and outreach Q 2/3
- **2020:** Boat landing construction Q 2/3
- **2020:** Bullhead removal - Contract for bullhead removal in East and West Q4
- **2020:** Implement alum application Q4



Implementation of grant:

Option one Tentative timeline: 2020-2022 (Continued)

- **2020:** Possible - install aerator and run power supply Q4
- **2021 and 2022:** Water quality monitoring and possible sediment release rate analysis post alum project
- **2021/22:** Fish Survey, CLP treatment and possible starting other veg. management activities, Vegetation survey.
- **2022:** Implement 2nd alum application
- Grant closeout 12/31/22.
- **2023- 2037: 15 years of VLAMWO Funded Oper. And Maintenance**



Option one benefits and challenges

Benefits:

- more outside revenue for project implementation in years 2020-22;
- allow for project implementation earlier (given the required project implementation grant window timeline runs through end of 2022).

Challenges:

- Lack of ability to response to possible future financial, and scientific uncertainties throughout the 15 required assurance period;
- amount of short/med./long term costs borne solely by VLAWMO without the ability to adapt or manage project costs as it implements.



Discussing the options

Option one: Approve the BWSR assurance agreement and corresponding grant agreement and work plan.

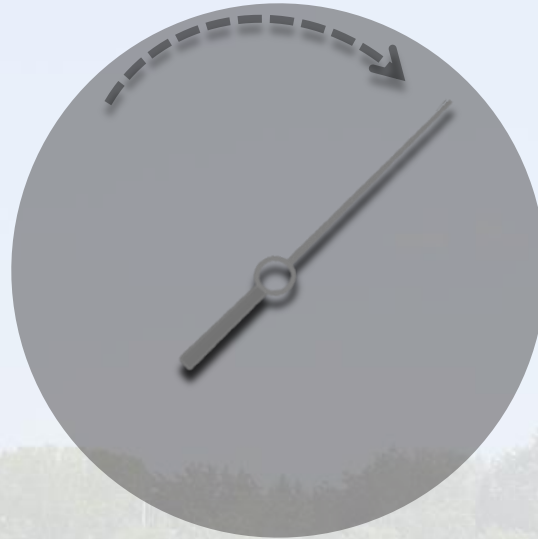
Option two: Approve /authorize staff to pursue an “**adaptive lake management**” program on East Goose Lake.



A Draft for Goose Lake Adaptive Management: Option two

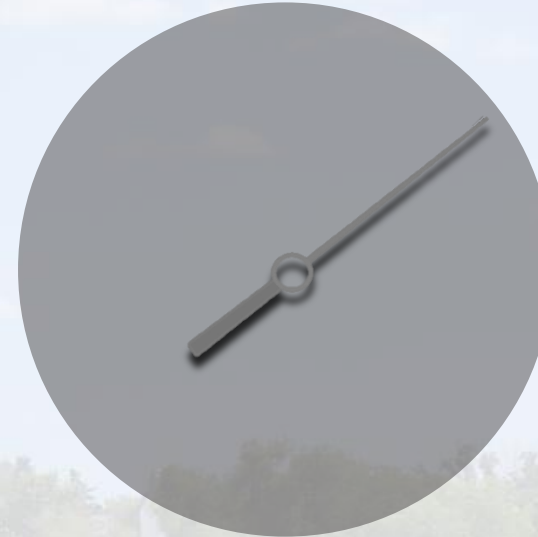
Alum Treatment

Adaptable Measurements:
In-lake TP levels
Sediment cores



Vegetation Management

Adaptable Measurements:
Curly-leaf pondweed growth
Other AIS
Lake recreation use



Turn the Dials: Every 3 years based on Project Evaluation & Stakeholder Engagement

Fish Management

Adaptable Measurements:
Bullhead monitoring
Bullhead removal



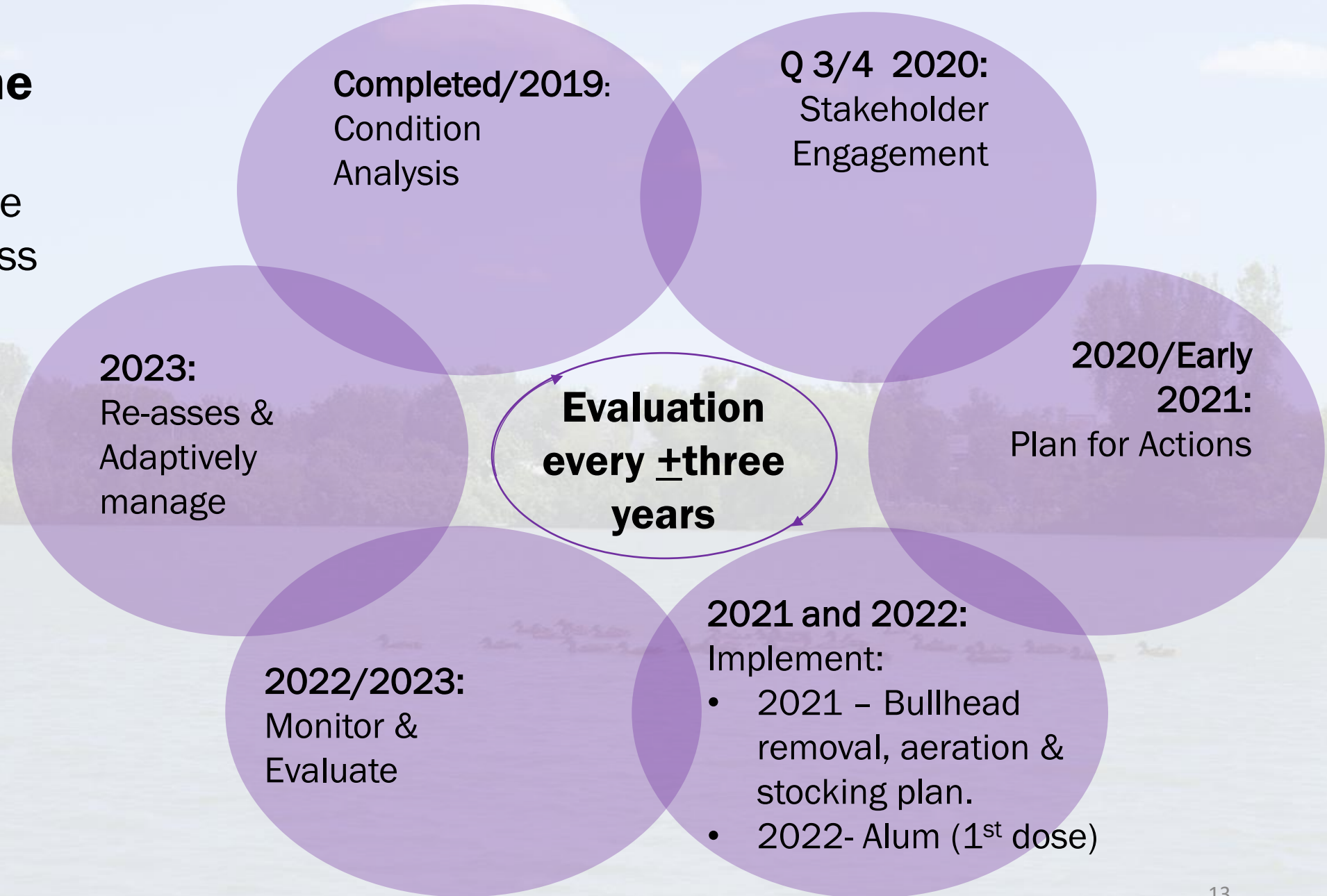
Subwatershed BMP's*

Adaptable Measurements:
TP removal
BMP effectiveness monitoring



Option two tentative timeline and process:

Goose Lake Adaptive Management Process



Option two benefits and challenges

Benefits:

- Has both short term and mid /and long term budgeting benefits given the ability to manage and “customize” the project budget every \pm 3 years.
- The process will use “real world” project /science based evaluation to adapt and then design the next phase of management.
- “Does not take the foot off the throttle” - Would keep a strong emphasis on the actively pursuing projects to address the internal loading issue while also allowing for time and the framework for open communication/dialogue between the diverse stakeholder groups.
- *Option 2 could also include an “option 2A” which would be to reapply for the BWSR Clean Water Funds after the first phase (in \pm 2-3 years).*



Option two benefits and challenges

Continued

Challenges:

- Does include the loss of the BWSR grant revenue over the first 3 years of the project and therefore an increase in VLAWMO only overall project expenditures over the short-term.
- Initial 2021 /short term draft budget projections – Based on anticipated budget levels, project implementation timing would likely include bullhead removal/ fish stocking and a possible demonstration aeration management program in 2021 with the first phase Alum application anticipated to occur in 2022.



Financial breakdown: Implications of the proposed options

Option 1: The BWSR project assurances agreement will require VLAWMO to become contractually responsible for the standards stated in the agreement for the required 15 life span on the proposed Alum project.

- It is estimated that the VLAMWO cost for ongoing operation of the whole lake management approach for option 1 (approve the BWSR grant /assurance agreement) would in the range of \$435,000 – over \$600,000 depending on how many VLAWMO additional alum applications are required during the mandated 15 year period.

See attachment 3



Financial breakdown: Implications of proposed options

Option 2: Provides for more of an ability to update and manage project costs (both short and long term) based on real world successes and evaluation results.

- Adaptable to the ever changing financial, social/political and scientific variables.
- Timing of project implementation for Option 2 is proposed to start later than option 1 due to budgeting considerations to date.

See attachment 3



Financial breakdown: Budget implications in the short term (2021)

Given the multiple large scale projects planned for implementation in 2021 and in factoring anticipated future budget levels :

- Timing of this overall project implementation will need to be evaluated and both options (particularly option 2) would require small budget for the 5 subwatersheds project budgets with exception of the Goose Lake and Lambert subwatershed in 2021.



Board subcommittee summary: 5/15/20

Chair Lindner and Board Member Jones

- Staff and engineer provided background, the scientific analysis, summary of two possible options, cost comparisons and a staff recommendation.
- Members Lindner and Jones had several questions and discussed options
- Upon further discussion, came to a consensus on which option to recommend to the full board. – Option 2.
- *Comments from Chair Lindner and /or Board Member Jones?*



Subcommittee and staff recommendation

Staff Recommendation: Option two

- Provides for more of an ability to update and manage project costs (both short and long term) based on real world successes and evaluation results.
- Does not require the VLAWMO Board commit to a 15 year assurance agreement that can't change through time.
- Is the “practical” option from a budget stand point while also being adaptable to the ever changing financial, social/political and scientific variables.
- Allows for a better framework for stakeholders engagement while also continuing to focus on the water quality improvement realities of this Lake.



Board consideration for next actions

- **Proposed Board motion if the Board wishes to pursue Option 1:**
Approve the BWSR assurance agreement, BWSR grant agreement and Grant work plan.
- Proposed Motion – _____ moves to approve Resolution **01-2020**
Second by _____.



Board consideration for next actions

- **Proposed Motions if the Board wishes to pursue Option 2:**
 - Board member _____ moves to authorize staff to take the necessary steps to pursue the “Adaptive Lake Management program” for East Goose Lake as described in the Board packet materials for the 5/21/20 special board meeting as “Option 2”.
 - Board member _____ Moves to direct staff to Stop the negotiation process on the BWSR proposed project assurance agreement and therefore authorize staff to send communication to BWSR notify them that the VLAWMO Board has decided to not approve the 15 year proposed assurance agreement or the required grant work plan/ grant agreement for the East Goose Lake Alum Treatment grant.



FISCAL YEAR 2020 CLEAN WATER FUND COMPETITIVE GRANT PROGRAM PROJECT AGREEMENT

Vadnais Lake Area Watershed Management Organization Goose Lake Alum Treatment 2020

This Fiscal Year 2020 Clean Water Fund Competitive Grant Program Project Agreement (“**AGREEMENT**”) is made as of this ____ day of _____, 2020 by and between the Vadnais Lake Area Watershed Management Organization, a joint powers watershed management organization (“**WMO**”), and the Board of Water and Soil Resources, a Minnesota municipal corporation (“**BWSR**”). The WMO and the BWSR may hereinafter be referred to individually as a “party” or collectively as the “parties.”

RECITALS

- A. The internal nutrient loading of phosphorus in the lakes within the WMO’s watershed is a serious concern and is within the scope of what the WMO may address as part of its Fourth Generation Water Resources Management Plan the DISTRICT adopted October 26, 2016;
- B. The WMO conducted a feasibility study dated August 2018 called “East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study” and attached hereto as Exhibit A (“**Feasibility Study**”);
- C. The WMO sought Fiscal Year (FY) 2020 Clean Water Fund (CWF) Competitive Projects and Practices grant funds from BWSR to complete an alum treatment on East Goose Lake as described in the WMO’s “Goose Lake Alum Treatment 2020” FY2020 CWF Competitive Project and Practices grant application attached hereto as Exhibit B (collectively, the “**PROJECT**”);
- D. BWSR awarded the WMO FY 2020 CWF Competitive Projects and Practices Grant C20-6375, grant funds in the amount of \$190,000 (“**GRANT**”) with a local match by the WMO in the amount of \$47,500, for completion of the PROJECT;
- E. The WMO will submit a GRANT work plan for the PROJECT and BWSR and the WMO will mutually enter into a GRANT agreement for the release, use and reimbursement of GRANT funds by the WMO on eligible PROJECT expenditures for completion of the PROJECT in accordance with the BWSR approved GRANT work plan and GRANT agreement, attached hereto as Exhibit C.
- F. As a condition of release of the GRANT funds and reimbursement of eligible PROJECT expenditures, BWSR requires a statement of technical and project assurance that the PROJECT will be effective at reducing internal nutrient loading of phosphorous in East Goose Lake resulting in the lake being within a 20% threshold of meeting the shallow lake state water quality standard for total phosphorus of <72 µg/L, for at least 15 years in accordance with the FY 2020 CWF Competitive Projects and Practices grant application and GRANT work plan; and

- G. The WMO agrees to carry out the PROJECT in accordance with the terms and conditions of the FY2020 CWF GRANT Agreement and this Agreement.

AGREEMENT

In consideration of the mutual promises and covenants contained herein, the parties hereby agree as follows:

1. PROJECT. The WMO agrees to complete the PROJECT in accordance with the FY 2020 CWF Competitive Projects and Practices grant application “Goose Lake Alum Treatment Project”, attached hereto as Exhibit B, the GRANT work plan and GRANT Agreement for the PROJECT attached hereto as Exhibit C and the following:
 - (a) The WMO shall comply with all applicable contracting laws in hiring contractors to complete the PROJECT.
 - (b) The WMO shall be responsible for ensuring any required permits or permission required to complete the PROJECT are obtained.
 - (c) The WMO has engaged the services of CONSULTANT (e.g. Wenck Associates, Inc.), a Minnesota engineering firm that employs engineers, lake ecologists and limnologists, and soil geochemistry scientists experienced in developing lake alum dosing recommendations, and designing, inspecting, monitoring, and overseeing implementation of lake alum treatment projects, including TECHNICAL PROVIDER(S) (e.g. names -- Ed Matthiesen, P.E.), who will provide the technical project oversight and project certification.
 - (d) The WMO will utilize GRANT funds to complete the PROJECT and apply the alum treatment to East Goose Lake in two doses, the first in 2020 and the second in 2022.
 - (e) The WMO will utilize local funds to complete and implement a rough fish management program, and stakeholder engagement activities as described in the GRANT WORK PLAN, for the effective life (15 years) of the PROJECT, to provide assurances to BWSR that the PROJECT will provide the water quality benefits designed and intended and the PROJECT is effective for the intended lifespan.
 - (f) The WMO will conduct and collect, at a minimum, annual lake water quality monitoring data for East Goose Lake, to track the effectiveness of the alum treatment in reducing the lake bottom sediment release of phosphorous and achieving the PROJECT water quality goal of reducing internal nutrient loading of phosphorus in East Goose Lake resulting in the lake being within a 20% threshold of meeting the shallow lake state water quality standard for total phosphorus of <72 µg/L , for at least 15 years. The WMO shall make data, information and progress updates available as part of its annual progress reporting to BWSR and upon request.

- (g) The feasibility study completed and grant application from the WMO identified that completion of the PROJECT would put East Goose Lake at the threshold of meeting State water quality standards of 60 micrograms (μg)/L total phosphorous, 20 μg /L chlorophyll-*a*, and 1.0 meter (m) secchi depth. If WMO lake water quality monitoring data collected for East Goose Lake indicates that lake surface water quality does not fall within 20% of the state water quality standard for total phosphorous of $<72 \mu\text{g}/\text{L}$ and either the chlorophyll-*a* ($<20 \mu\text{g}/\text{L}$) or secchi depth ($>1 \text{ m}$) criteria, for three out of any five years for the effective 15 year life of the PROJECT, the WMO agrees to undertake additional actions (including additional alum treatments if needed) at the WMO's expense to reduce internal and external phosphorous load reductions to achieve the PROJECT annual numeric surface water quality target identified for East Goose Lake. The WMO will notify BWSR when corrective actions are needed and what those actions will be.
2. Audit. All WMO books, records, documents, and accounting procedures related to the PROJECT are subject to examination by BWSR.
 3. Data Practices. The WMO shall retain and make available data related to the letting of contracts and the conducting of the PROJECT in accordance with the Minnesota Government Data Practices Act.
 4. Term. This AGREEMENT shall be in effect as of the date first written above and shall terminate upon the end of the 15year effective life of the PROJECT. The beginning date for the PROJECT effective life is the same date the WMO's technical provider certifies the PROJECT and the PROJECT is considered complete. The end date for the PROJECT effective life shall be 15 years from the beginning date. Subsequent rough fish management activities, vegetation management activities, stakeholder engagement activities, monitoring, testing and other actions as contemplated herein shall be completed as described during the term of this AGREEMENT.
 5. Entire Agreement. This AGREEMENT, including the recitals and the exhibits which are incorporated in and made part hereof, constitutes the entire understanding between the parties regarding the Project. No modifications to this AGREEMENT shall be valid unless reduced to writing and signed by both parties.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized officers on behalf of the parties as of the day and date first above written.

**VADNAIS LAKE AREA WATERSHED
MANAGEMENT ORGANIZATION**

By: _____
Its Chair

And by: _____
Its Secretary

Date: _____

BOARD OF WATER AND SOIL RESOURCES

By: _____

Its: _____

Date: _____

EXHIBIT A

East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study

(attached hereto)

EXHIBIT B

Fiscal Year 2020 Clean Water Fund Competitive Project and Practices grant application “Goose Lake Alum Treatment 2020”

(attached hereto)

EXHIBIT C

Fiscal Year 2020 Clean Water Fund Competitive Project and Practices “Goose Lake Alum Treatment 2020” Grant Agreement

(attached hereto)



February 24, 2020

Stephanie McNamara
Administrator
Vadnais Lake Area Watershed Management Organization
800 East County Road East
Vadnais Heights, MN 55127

RE: FY2020 Clean Water Fund Competitive Projects and Practices Grant Award

Dear Ms. McNamara,

On January 22, 2020 the Board of Water and Soil Resources (BWSR) authorized the allocation of funds for the fiscal year (FY) 2020 Clean Water Fund (CWF) Competitive Grants to successful applicants for the Projects and Practices, Projects and Practices Drinking Water, and Multipurpose Drainage Management grants. The Vadnais Lake Area Watershed Management Organization (VLAWMO) was notified following this meeting, that the project proposal *Goose Lake Alum Treatment 2020* (grant ID: C20-6375), was awarded a \$190,000 CWF Projects and Practices grant. Successful applicants were awarded funding based on the scope, intent and expectations of the project proposed in their grant application.

Applications were required to be submitted for available funding in each program beginning July 1, 2019 and ending September 9, 2019. The project proposals were reviewed, scored and ranked by an interagency review committee consisting of representatives from BWSR, the Pollution Control Agency, the Department of Agriculture, the Department of Health, and the Department of Natural Resources. At their December 18, 2019 meeting, BWSR's Grants Program and Policy Committee reviewed the proposed allocations and recommended approval to the BWSR Board.

Based on the ranking criteria presented in the table at the end of this letter, project proposals are solely reviewed and scored based on the information provide in an applicant's response to the application questions and content of any required supplemental documentation. For requests for eligible in-lake management activities, such as alum treatments, a feasibility study that included specific required content, was a required supplemental application attachment as described in the FY2020 Clean Water Fund Competitive Grants RFP.

During the application review process, BWSR was made aware of potential new developments regarding the VLAWMO Goose Lake Alum Treatment project, which indicated an altered project scope from what was presented in VLAWMO's project proposal. As previously indicated, funding applications were reviewed, scored and ranked solely based on the content of an applicant's grant proposal.

After notice of the grant award, BWSR met with VLAWMO staff on February 18, 2020 to review the project developments brought to BWSR's attention during the application review process, review the current status and scope of the Goose Lake Alum Treatment project, and to review BWSR's concerns regarding project assurances to ensure that the Goose Lake Alum Treatment project provides the successful 10-15 year water quality

outcomes as described in VLAWMO's CWF grant proposal for the project. BWSR requires assurances from grantees to ensure that installed/implemented projects and practices: 1) meet the purposes of the grant program through which it was funded, 2) remain in place and are effective for the intended lifespan, and 3) provide the water quality benefits designed and intended. BWSR's concerns are summarized below.

VLAWMO Proposed Project Assurances

1. VLAWMO's grant application cited multiple times (see below references) that the City of White Bear Lake was moving forward with development of an ordinance, at the recommendation of VLAWMO, to prevent motorized boat traffic as a means to protect the effectiveness and longevity of the proposed alum treatment. Per the project feasibility study *East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study*, Goose Lake is a shallow urban lake that has a high potential for lake sediment resuspension (Page 3).

BWSR has concerns regarding the project assurances VLAWMO, as the BWSR grantee, could provide if a boating restriction is no longer being recommended or under consideration, that 1) would be equivalent with that proposed in VLAWMO's grant application and 2) ensure the intended water quality benefits and longevity (effective lifespan) of the alum treatment.

From Grant Application C20-6375 Goose Lake Alum Treatment 2020

VLAWMO Excerpt Response: Question 3. Describe the methods used to identify, inventory, and target the root cause (most critical pollution source(s) or threat(s)). Describe any related additional targeting efforts that will be completed prior to installing the projects or practices identified in this proposal.

"VLAWMO has targeted efforts underway. We held a series of targeted Goose Lake stakeholder meetings. Presentations included individual stakeholder options to improve water quality, alum treatment process and Q&A, and vegetation restoration following an alum treatment. Stakeholder meetings are complemented by newspaper articles and regular updates on the VLAWMO website. The VLAWMO Board provided a formal recommendation to the City as of Aug. 28, 2019. The City is taking that information forward to develop an ordinance to prevent motorized boat traffic and protect the alum treatment."

VLAWMO Excerpt Response: Question 4. How does this proposal fit with complimentary work that you and your partners are implementing to achieve the goal(s) for the priority water resource(s) of concern? Describe the comprehensive management approach to this water resource(s) with examples such as: other financial assistance or incentive programs, easements, regulatory enforcement, or community engagement activities that are directly or indirectly related to this proposal.

"Regulatory enforcement is also underway for East Goose Lake. There are about a dozen landowners that have homes on East Goose. Of these, 4-6 have motorized boats, and one of their valued uses is waterskiing. VLAWMO has been working with these landowners by conducting a survey, engaging in conversation, compiling and presenting a thorough literature review of the science of alum treatments, and working with the City to pass an ordinance prohibiting motorized boat traffic during the 3 years of the alum treatment and either limiting motor size or continuing to prohibit motorized traffic beyond. VLAWMO is directly supporting the City Council as the process continues."

VLAWMO Excerpt Response: Question 6. (A) What portion of the water quality goal will be achieved through this application? Where applicable, identify the annual reduction in pollutant(s) that will be achieved or avoided for the water resource if this project is completed. (B) Describe the effects this application will have on the root cause of the issue it will address (most critical pollution source(s) or threat(s)).

“VLAWMO has been working on 2 tasks to protect the lake bottom from disturbance. The first was removing rough fish and working to repair the fish community. During 2013 and 2014, 16,000 pounds of bullhead were removed. A follow-up survey in 2017 showed that population reductions were sustained. A second follow-up survey is scheduled for fall 2019. The second task involves assisting the City of White Bear Lake in enacting an ordinance to limit motorized boating (Described previously).”

VLAWMO Excerpt Response: Question 9. What steps have been taken or are expected to ensure that project implementation can begin soon after the grant award? Describe general environmental review and permitting needs required by the project (list if needed). Also, describe any discussions with landowners, status of agreements/contracts, contingency plans, and other elements essential to project implementation.

“To ensure the effective lifespan of an alum treatment, VLAWMO has developed a specific boating restriction plan for East Goose Lake and has formally recommended this to the City of White Bear Lake for adoption and implementation as a City Ordinance. VLAWMO is also be working with MN DNR on vegetation management as previously described. That work includes a transplant permit for native vegetation that is in place and valid for 3 years.”

2. VLAWMO’s grant application (see below reference) also indicated that the WMO completed rough fish management and removals to also help minimize lake sediment disturbances. The project feasibility study also noted successful control of rough fish through bullhead removals completed between 2012 and 2015 (Page 13, *East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study*). However, preliminary results of the most recent fish survey (Fall 2019) for Goose Lake, indicated that the rough fish removal efforts provided only short-term success and that bullhead populations are once again high (Page 15, October 23, 2019 VLAWMO Board of Directors Meeting Packet – Project Updates – Goose Lake Fish Survey).

BWSR has concerns regarding the potential for sediment disturbance and resuspension given the current density of rough fish present in Goose Lake. It is unclear if the alum treatment would achieve the intended water quality benefits for the effective life of the practice, as proposed in the grant application. It is also unclear if the proposed alum treatment would be feasible to complete within the timeframe of the grant, if a long-term management strategy for rough fish needs to be developed and management activities also need to be completed prior to the alum treatment.

From Grant Application C20-6375 Goose Lake Alum Treatment 2020

VLAWMO Excerpt Response: Question 6. (A) What portion of the water quality goal will be achieved through this application? Where applicable, identify the annual reduction in pollutant(s) that will be achieved or avoided for the water resource if this project is completed. (B) Describe the effects this application will have on the root cause of the issue it will address (most critical pollution source(s) or threat(s)).

“VLAWMO has been working on 2 tasks to protect the lake bottom from disturbance. The first was removing rough fish and working to repair the fish community. During 2013 and 2014, 16,000 pounds of

bullhead were removed. A follow-up survey in 2017 showed that population reductions were sustained. A second follow-up survey is scheduled for fall 2019.”

3. VLAWMO’s grant application (see below references) identified stakeholder engagement activities completed by the WMO and noted that the most recent meeting with stakeholders was held in January 2019. The project feasibility study references several stakeholder engagement activities completed between 2016 and 2018, and also stated that the direction for future action was to proceed with a grant application for the alum treatment (Page 17-18, *East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study*)).

BWSR recognizes that VLAWMO has engaged stakeholders regarding this project, however, it was apparent that in recent months a contingent of lake residents are currently not in support of the boating restriction, nor with project moving forward due to concerns regarding the regrowth of aquatic vegetation. BWSR has concerns regarding the feasibility and ability to complete the project as proposed with the grant application, within the timeframe allowed for the grant, without the stakeholder and resident support. It is unclear if the opposition to the project would be able to be mediated and project would be able to be completed within the timeframe allowed by the grant.

From Grant Application C20-6375 Goose Lake Alum Treatment 2020

VLAWMO Excerpt Response: Question 3. Describe the methods used to identify, inventory, and target the root cause (most critical pollution source(s) or threat(s)). Describe any related additional targeting efforts that will be completed prior to installing the projects or practices identified in this proposal.

“VLAWMO has targeted efforts underway. We held a series of targeted Goose Lake stakeholder meetings. Presentations included individual stakeholder options to improve water quality, alum treatment process and Q&A, and vegetation restoration following an alum treatment. Stakeholder meetings are complemented by newspaper articles and regular updates on the VLAWMO website.”

VLAWMO Excerpt Response: Question 9. What steps have been taken or are expected to ensure that project implementation can begin soon after the grant award? Describe general environmental review and permitting needs required by the project (list if needed). Also, describe any discussions with landowners, status of agreements/contracts, contingency plans, and other elements essential to project implementation.

“A series of stakeholder meeting have been facilitated including involvement from state agencies (DNR, MPCA, BWSR), property owners, City staff, Ramsey County staff, policy makers, and VLAWMO staff to discuss implications of different projects, including alum treatment, and to seek direction on which project to pursue for East Goose Lake. The most recent stakeholder meeting was held in January, 2019.”

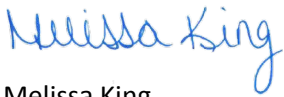
Since the time of application submittal to BWSR, the three key attributes of the proposed project described above have changed in extent and scope. BWSR is requesting that VLAWMO reassess the feasibility of completing the project within the allotted timeframe allowed, as proposed in the grant application.

If VLAWMO determines that it will not be feasible to complete the project as proposed, BWSR requests that VLAWMO take action no later than April 15, 2020 to not accept the grant award. This action would not adversely impact VLAWMO’s eligibility to submit applications for future grant funding opportunities or impact the consideration of an award of any future grant funds. It also will not prevent VLAWMO from submitting a future grant proposal for funding for an alum treatment on Goose Lake, or another eligible project/activity.

If VLAWMO determines that it will be feasible to complete the project as proposed in the application, within the allotted timeframe, VLAWMO will need to demonstrate that BWSR's project assurance concerns above, are sufficiently addressed prior to BWSR approval of the grant work plan and execution of the grant agreement. As previously conveyed to VLAWMO staff, BWSR has established April 15, 2020 as the deadline for submittal of the grant work plan and May 15, 2020 as the deadline for execution of the grant agreement.

I will be attending the February 26, 2020 VLAWMO Board meeting. I would be happy to review and discuss the content of the letter in more detail, if needed. Please feel free to contact me with any questions at 651.350.8845.

Sincerely,



Melissa King
Board Conservationist

CC: Kevin Bigalke, BWSR Assistant Director of Regional Operation
Marcey Westrick, BWSR Clean Water Coordinator

FY2020 Clean Water Fund Competitive Project and Practices – Project Proposal Ranking Criteria (below).

Ranking Criteria – Projects and Practices

BWSR staff initially review all applications for eligibility. Eligible applications are further screened and forwarded to an interagency work team (BWSR, MPCA, MDA, MDH and DNR) that will review and rank Projects and Practices applications in order to make a funding recommendation to the BWSR Board.

Projects and Practices Ranking Criteria	
Ranking Criteria	Maximum Points Possible
<u>Project Abstract</u> : The project abstract succinctly describes what results the applicant is trying to achieve and how they intend to achieve those results.	5
<u>Prioritization (Relationship to Plans)</u> : The proposal is based on priority protection or restoration actions listed in or derived from an approved local water management plan and is linked to statewide Clean Water Fund priorities and public benefits.	20
<u>Targeting</u> : The proposed project addresses identified critical pollution sources or risks impacting the water resource(s).	25
<u>Measurable Outcomes and Project Impact</u> : The proposed project has a quantifiable reduction in pollution for restoration projects or measurable outputs for protection projects and directly addresses the water quality concern identified in the application.	25
<u>Cost Effectiveness and Feasibility</u> : The application identifies a cost effective and feasible solution to address the non-point pollution concern(s).	15
<u>Project Readiness</u> : The application has a set of specific activities that can be implemented soon after grant award.	10
Total Points Available	100

Rough Estimate 15 year VLAWMO project costs - Draft for discussion purposes only. Do not cite or quote.

Option 1 - Attachment 3

Aerator The aire-02 units are about \$2000 each sold by [aeration industries](#) they cost about \$300 a year to run 2 units. These are not designed to prevent anoxic conditions, they're designed to give a small aerated refuge for fish, and would not be sufficient for a highly reducing lake goose. A pump and baffle system can't work for all lakes, you need a good inlet/outlet location for the system. (they have to be far enough apart, have a decent elevation difference, and you'll want to own the land you put it on.) Note that aire-02 units do not provide as much air as a pump and baffle system. Pumps can run around \$20,000 depending on size, and frequently require \$5000 rebuilds. A 15 hp pumps cost \$4000 a year to run. We have a couple vendors we work with for those, if you decide to go that route. But, we build our own water piping network out of PVC. I assume that would cost a lot to have done out of house. Feel free to call to discuss further.

yearly	every other year	every 3 to 4 years	one time cost	<u>Whole Lake Comprehensive Mgt.</u>	
			x	Additional VLAWMO covered Alum application	\$ 95,000
			x	Engineering / phase 3 application	\$ 25,000
		x		Bullhead removal - Contract for bullhead removal in East and West	\$ 15,000
	x	x		Fish surveys - Blue Water Science	\$ 3,200
	x			Public engagement and outreach	\$ 2,500
			x?	Implementation of Aeration and stocking plan	\$ 30,000
x				CLP - Lake Management Inc.	\$ 5,000
	x			Veg. Survey - per RSWD 2019	\$ 3,100
x??				Veg. Harvester -	\$ 10,000
x				O&M - aerator, misc	\$ 4,000
			x	boat landing	\$ 10,000
				total	\$ 202,800
\$ 19,000	\$ 8,800	\$ 18,200	\$ 160,000		
\$ 285,000	\$ 66,000	\$ 54,600	\$ 30,000		\$ 435,600
\$ 285,000	\$ 66,000	\$ 54,600	\$ 160,000		\$ 565,600
\$ 285,000	\$ 66,000	\$ 54,600	\$ 255,000		\$ 660,600

- per Ramsey County/rwmwd

placeholder CRWD 050820. \$10K RWMWD.

Requires Board policy discussion. May be brought forward as part of stakeholder engagement. placeholder - collected 2. \$180/hr. for upto 30 days =30K. (2500/day at 10 ac./day) assume 50 acres=12.5K. Cost Share?? .

15 Year Total (with no additional Alum)

15 Year Total (with 1 additional Alum)

15 Year Total (with 2 additional Alum)

Option 2 - Attachment 3 Adaptive Lake Management

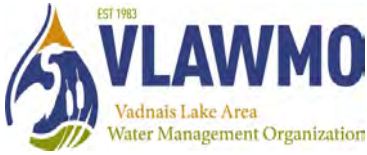
	Phase 3 (adaptive mgmt of treatments) year5-15	project evaluation /stakeholder engagement. Between ph. 2 and 3.	Phase 2 est. Costs (additional alum after assessment of first treatment) tentative 2023 to 2025.	project evaluation /stakeholder engagement - between ph. 1 and 2.	Phase 1 est. Costs (Q3 2020 - 2023) see attached process/timeline graphic		
	x?		x		x	Whole Lake Adaptive Mgt.	
	x?		x		x	VLAWMO covered Alum application (2021/23) or (2022/24)	\$ 95,000
	x?		x		x	Engineering / 1 application	\$ 25,000
	x?		x		x	Bullhead removal - Contract for bullhead removal in East and West	\$ 15,000
	x?		x?		x	Fish surveys - Blue Water Science	\$ 3,200
	x?		x		x	Public engagement and outreach	\$ 2,500
	x?		x?			CLP - Lake Management Inc.	\$ 5,000
	x?		x			Veg. Survey - per RSWD 2019	\$ 3,100
					x	boat landing	\$ 10,000
	x?		x?		x ?	Implementation of Aeration and stocking plan	\$ 30,000
	x?		x?		x?	O&M - aerator, misc	\$ 4,000
	x?		optional		optional	Veg. Harvester	\$ 10,000
						total	\$ 202,800
		if continue to be "working" on most "dials".	\$137,500- \$175,000	Keep "dials" high?	\$150,000 - 202,800		
						Total cost of Phase (range)	

Aerator The aire-02 units are about \$2000 each sold by [aeration industries](#) they cost about \$300 a year to run 2 units. These are not designed to prevent anoxic conditions, they're designed to give a small aerated refuge for fish, and would not be sufficient for a highly reducing lake goose. A pump and baffle system can't work for all lakes, you need a good inlet/outlet location for the system. (they have to be far enough apart, have a decent elevation difference, and you'll want to own the land you put it on.) Note that aire-02 units do not provide as much air as a pump and baffle system. Pumps can run around \$20,000 depending on size, and frequently require \$5000 rebuilds. A 15 hp pumps cost \$4000 a year to run. We have a couple vendors we work with for those, if you decide to go that route. But, we build our own water piping network out of PVC. I assume that would cost a lot to have done out of house. Feel free to call to discuss further.

placeholder CRWD 050820 (\$331 per acre diquat treatment per Lake Management Inc 05082020). RWMWD \$10K.

- per Ramsey County/rwmwd

Requires Board policy discussion. May be brought forward as part of stakeholder engagement. placeholder - collected 2. \$180/hr. for upto 30 days =30K. (2500/day at 10 ac./day) assume 50 acres=12.5K. Cost Share?? .



For Option 1

RESOLUTION 01-2020

Of the Vadnais Lake Area Water Management Organization (VLAWMO)

Resolution Acceptance of the Goose Lake Alum Treatment project work plan, grant project assurance agreement and authorizing execution of the Goose Lake Alum Treatment project grant agreement

May 27, 2020

Director _____ introduced the following resolution and moved its adoption. Director _____ seconded the motion.

A RESOLUTION FOR APPROVAL of the Goose Lake Alum Treatment project work plan, approval of the project assurance agreement and authorizing execution of the Goose Lake Alum Treatment project grant agreement

Whereas, VLAWMO has identified East Goose Lake as a priority waterbody in its Water Management Plan and has identified the potential for an alum treatment project as part of the management of the internal loading occurring in the Lake, and

Whereas, VLAWMO submitted a grant application for FY 2020 CWF Competitive Projects and Practices Grant C20-6375, grant funds in the amount of \$190,000 to obtain funding to partially fund the implementation of a proposed alum treatment project on East Goose Lake and BWSR awarded these grant funds, and

Whereas, VLAWMO has finalized a work plan and project assurance agreement with the Board of Water and Soil Resources for implementation of the grant, and

THEREFORE, BE IT RESOLVED, that the VLAWMO Board hereby approves the grant agreement, with the workplan and the project assurances agreement, and authorizes the District administrator to execute the grant agreement and submit the grant agreement, assurances agreement and workplan to the Board of Water and Soil Resources, with any final non-material changes and on advice of counsel.

The question was on the adoption of the resolution and there were __ yeas and __ nays as follows:

	<u>Yea</u>	<u>Nay</u>	<u>Absent</u>
<i>Dan Jones</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Ed Prudhon</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Rob Rafferty</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Marty Long</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Patricia Youker</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Jim Lindner</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

_____ Board Chair _____ Date

_____ Attest _____ Date



UPPER MISSISSIPPI RIVER SOURCE WATER PROTECTION PROJECT
SAINT CLOUD • MINNEAPOLIS • SAINT PAUL

MARILYN BAYERL, PROJECT COORDINATOR
9083 STATE HWY 114 SW
ALEXANDRIA, MN 56308
PHONE: 320-766-6126

September 3, 2019

Ms. Melissa King
Board Conservationist
Minnesota Board of Water and Soil Resources
520 Lafayette Road, North
St. Paul, MN 55155

Ms. King:

I am writing to you on behalf of the Upper Mississippi River Source Water Protection Project (UMRSWPP), a collaboration between the drinking water utilities of Minneapolis, St. Cloud, and Saint Paul, in support of the Vadnais Lake Area Water Management Organization's (VLAWMO) Clean Water Fund grant application for conducting an alum treatment in Goose Lake.

Goose Lake, an impaired water for phosphorus, with levels more than double the State standard, flows into East Vadnais Lake via Lambert Creek. East Vadnais is the immediate upstream reservoir for the Saint Paul Regional Water Services drinking water treatment plant which provides drinking water for 425,000 people in St. Paul and the surrounding area.

The proposed alum treatment and use restrictions in Goose Lake will reduce the internal nutrient loading to the lake, and ultimately mitigate some of the loading to East Vadnais Lake.

Our organization has a long and productive history of working with VLAWMO to further natural resource management within the Vadnais Lake Watershed, which is part of the Upper Mississippi River Basin. We have enjoyed partnering with VLAWMO which has over 30 years of joint powers organization and successful project management.

The UMRSWPP is in full support of VLAWMO seeking Clean Water Funds for this project. We urge BWSR to consider VLAWMO's proposal.

We remain committed to our long-standing partnership with VLAWMO and continued water resource stewardship.

Sincerely,

Marilyn Bayerl, Bayerl Water Resources
Water Resources Specialist
UMRSWPP Coordinator

**FY 2020 STATE OF MINNESOTA
 BOARD OF WATER and SOIL RESOURCES
 CLEAN WATER FUND COMPETITIVE GRANTS PROGRAM
 GRANT AGREEMENT**

Vendor:	0000209380	VN#:	
PO#:	3000011706	Date Paid:	

This Grant Agreement is between the State of Minnesota, acting through its Board of Water and Soil Resources (Board) and **Vadnais Lake Area WMO, 800 East County Road E Vadnais Heights Minnesota 55127** (Grantee).

<i>This grant is for the following Grant Programs :</i>		
C20-6375	Goose Lake Alum Treatment 2020	\$190,000

Total Grant Awarded: \$190,000

Recitals

1. The Laws of Minnesota 2019, 1st Special Session, Chapter 2, Article 2, Section 7(b)&(j), appropriated Clean Water Funds (CWF) to the Board for the FY 2020 Clean Water Fund Projects & Practices Grants.
2. The Board adopted the FY20 Clean Water Fund Competitive Grant Policy and authorized the FY20 Clean Water Fund Program through Board Order #19-32.
3. The Board adopted Board Order #20-05 to allocate funds for the FY 2020 Clean Water Fund Competitive Grants Program.
4. The Grantee has submitted a BWSR approved work plan for this Program, which is incorporated into this Grant Agreement by reference.
5. The Grantee represents that it is duly qualified and agrees to perform all services described in this Grant Agreement to the satisfaction of the State.
6. As a condition of the grant, Grantee agrees to minimize administration costs.

Authorized Representative

The State’s Authorized Representative is Marcey Westrick, Clean Water Coordinator, BWSR, 520 Lafayette Road North, Saint Paul, MN 55155, 651-284-4153, or her successor, and has the responsibility to monitor the Grantee’s performance and the authority to accept the services and performance provided under this Grant Agreement.

The Grantee’s Authorized Representative is:

TITLE: Phil Belfiori – Administrator
ADDRESS: 800 East County Rd E
CITY: Vadnais Heights
TELEPHONE NUMBER: (651) 204-6075

If the Grantee’s Authorized Representative changes at any time during this Grant Agreement, the Grantees must immediately notify the Board.

Grant Agreement

1. **Terms of the Grant Agreement.**
 - 1.1. **Effective date:** The date the Board obtains all required signatures under Minn. Stat. § 16B.98, Subd. 5. **The State will notify the Grantee when this Grant Agreement has been executed. The Grantee must not begin work under this Grant Agreement until it is executed.**
 - 1.2. **Expiration date: December 31, 2022**, or until all obligations have been satisfactorily fulfilled, whichever comes first.
 - 1.3. **Survival of Terms:** The following clauses survive the expiration date or cancellation of this Grant Agreement: 7. Liability; 8. State Audits; 9. Government Data Practices; 11. Publicity and Endorsement; 12. Governing Law, Jurisdiction, and Venue; 14. Data Disclosure; and 19. Intellectual Property Rights.

2. **Grantee's Duties.**

- 2.1. The Grantee will comply with required grants management policies and procedures set forth through Minn. Stat § 16B.97, Subd.4(a)(1). The Grantee is responsible for the specific duties for the Program as follows:
- 2.2. **Implementation:** The Grantee will implement their work plan, which is incorporated into this Grant Agreement by reference.
- 2.3. **Reporting:** All data and information provided in a Grantee's report shall be considered public.
 - 2.3.1. The Grantee will submit an annual progress report to the Board by February 1 of each year on the status of Program implementation by the Grantee. Information provided must conform to the requirements and formats set by the Board. All individual grants over \$500,000 will also require a reporting expenditure by June 30 of each year.
 - 2.3.2. The Grantee will prominently display on its website the Clean Water Legacy Logo and a link to the Legislative Coordinating Commission website.
 - 2.3.3. Final Progress Report: The Grantee will submit a final progress report to the Board by February 1, 2023 or within 30 days of completion of the project, whichever occurs sooner. Information provided must conform to the requirements and formats set by the Board.
- 2.4. **Match:** The Grantee will ensure any local match requirement will be provided as stated in Grantee's approved work plan.

3. **Time.**

The Grantee must comply with all the time requirements described in this Grant Agreement. In the performance of this Grant Agreement, time is of the essence.

4. **Terms of Payment.**

- 4.1. Grant funds will be distributed in three installments: 1) The first payment of 50% will be distributed after the execution of the Grant Agreement. 2) The second payment of 40% will be distributed after the first payment of 50% has been expended and reporting requirements have been met. An eLINK Interim Financial Report that summarizes expenditures of the first 50% must be signed by the Grantee and approved by BWSR. Selected grantees may be required at this point to submit documentation of the expenditures reported on the Interim Financial Report for verification. 3) The third payment of 10% will be distributed after the grant has been fully expended and reporting requirements are met. The final, 10% payment must be requested within 30 days of the expiration date of the Grant Agreement. An eLINK Final Financial Report that summarizes final expenditures for the grant must be signed by the Grantee and approved by BWSR.
- 4.2. All costs must be incurred within the grant period.
- 4.3. All incurred costs must be paid before the amount of unspent funds is determined. Unspent grant funds must be returned within 30 days of the expiration date of the Grant Agreement.
- 4.4. The obligation of the State under this Grant Agreement will not exceed the amount listed above.
- 4.5. This grant includes an advance payment of 50% of the grant's total amount. Advance payments allow the Grantee to have adequate operating capital for start-up costs, ensure their financial commitment to landowners and contractors, and to better schedule work into the future.

5. **Conditions of Payment.**

- 5.1. All services provided by the Grantee under this Grant Agreement must be performed to the State's satisfaction, as set forth in this Grant Agreement and in the BWSR approved work plan for this Program. Compliance will be determined at the sole discretion of the State's Authorized Representative and in accordance with all applicable federal, State, and local laws, policies, ordinances, rules, FY20 Clean Water Fund Competitive Grant Program Policy, and regulations. The Grantee will not receive payment for work found by the State to be unsatisfactory or performed in violation of federal, State or local law.
- 5.2. Minnesota Statutes §103C.401 (2018) establishes BWSR's obligation to assure program compliance. If the noncompliance is severe, or if work under the grant agreement is found by BWSR to be unsatisfactory or performed in violation of federal, State, or local law, BWSR has the authority to require the repayment of grant funds or withhold payment on grants from other programs.

6. **Assignment, Amendments, and Waiver**

- 6.1. **Assignment.** The Grantee may neither assign nor transfer any rights or obligations under this Grant Agreement without the prior consent of the State and a fully executed Assignment Agreement, executed and approved by the same parties who executed and approved this Grant Agreement, or their successors in office.
- 6.2. **Amendments.** Any amendments to this Grant Agreement must be in writing and will not be effective until it has been approved and executed by the same parties who approved and executed the original Grant Agreement, or their successors in office. Amendments must be executed prior to the expiration of the original Grant Agreement or any amendments thereto.

6.3. **Waiver.** If the State fails to enforce any provision of this Grant Agreement, that failure does not waive the provision or its right to enforce it.

7. **Liability.**

The Grantee must indemnify, save, and hold the State, its agents, and employees harmless from any claims or causes of action, including attorney's fees incurred by the State, arising from the performance of this Grant Agreement by the Grantee or the Grantee's agents or employees. This clause will not be construed to bar any legal remedies the Grantee may have for the State's failure to fulfill its obligations under this Grant Agreement.

8. **State Audits.**

Under Minn. Stat. § 16B.98, Subd. 8, the Grantee's books, records, documents, and accounting procedures and practices of the Grantee or other party relevant to this Grant Agreement or transaction are subject to examination by the Board and/or the State Auditor or Legislative Auditor, as appropriate, for a minimum of six years from the end of this Grant Agreement, receipt and approval of all final reports, or the required period of time to satisfy all State and program retention requirements, whichever is later.

8.1. The books, records, documents, accounting procedures and practices of the Grantee and its designated local units of government and contractors relevant to this grant, may be examined at any time by the Board or Board's designee and are subject to verification. The Grantee or delegated local unit of government will maintain records relating to the receipt and expenditure of grant funds.

9. **Government Data Practices.**

The Grantee and State must comply with the Minnesota Government Data Practices Act, Minn. Stat. Ch. 13, as it applies to all data provided by the State under this Grant Agreement, and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by the Grantee under this Grant Agreement. The civil remedies of Minn. Stat. § 13.08 apply to the release of the data referred to in this clause by either the Grantee or the State.

10. **Workers' Compensation.**

The Grantee certifies that it is in compliance with Minn. Stat. § 176.181, Subd. 2, pertaining to workers' compensation insurance coverage. The Grantee's employees and agents will not be considered State employees. Any claims that may arise under the Minnesota Workers' Compensation Act on behalf of these employees and any claims made by any third party as a consequence of any act or omission on the part of these employees are in no way the State's obligation or responsibility.

11. **Publicity and Endorsement.**

11.1. **Publicity.** Any publicity regarding the subject matter of this Grant Agreement must identify the Board as the sponsoring agency. For purposes of this provision, publicity includes notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for the Grantee individually or jointly with others, or any subcontractors, with respect to the program, publications, or services provided resulting from this Grant Agreement.

11.2. **Endorsement.** The Grantee must not claim that the State endorses its products or services

12. **Governing Law, Jurisdiction, and Venue.**

Minnesota law, without regard to its choice-of-law provisions, governs this Grant Agreement. Venue for all legal proceedings out of this Grant Agreement, or its breach, must be in the appropriate State or federal court with competent jurisdiction in Ramsey County, Minnesota.

13. **Termination.**

13.1. The State may cancel this Grant Agreement at any time, with or without cause, upon 30 days' written notice to the Grantee. Upon termination, the Grantee will be entitled to payment, determined on a pro rata basis, for services satisfactorily performed.

13.2. In the event of a lawsuit, an appropriation from a Clean Water Fund is canceled to the extent that a court determines that the appropriation unconstitutionally substitutes for a traditional source of funding.

13.3. The State may immediately terminate this grant contract if the State finds that there has been a failure to comply with the provisions of this grant contract, that reasonable progress has not been made or that the purposes for which the funds were granted have not been or will not be fulfilled. The State may take action to protect the interests of the State of Minnesota, including the refusal to disburse additional funds and requiring the return of all or part of the funds already disbursed.

14. Data Disclosure.

Under Minn. Stat. § 270C.65, Subd. 3, and other applicable law, the Grantee consents to disclosure of its social security number, federal employer tax identification number, and/or Minnesota tax identification number, already provided to the State, to federal and State tax agencies and State personnel involved in the payment of State obligations. These identification numbers may be used in the enforcement of federal and State tax laws which could result in action requiring the Grantee to file State tax returns and pay delinquent State tax liabilities, if any.

15. Prevailing Wage.

It is the responsibility of the Grantee or contractor to pay prevailing wage for projects that include construction work of \$25,000 or more, prevailing wage rules apply per Minn. Stat. §§ 177.41 through 177.44. All laborers and mechanics employed by grant recipients and subcontractors funded in whole or in part with these State funds shall be paid wages at a rate not less than those prevailing on projects of a character similar in the locality. Bid requests must state the project is subject to prevailing wage.

16. Municipal Contracting Law.

Per Minn. Stat. § 471.345, grantees that are municipalities as defined in Subd. 1 of this statute must follow the Uniform Municipal Contracting Law. Supporting documentation of the bidding process utilized to contract services must be included in the Grantee's financial records, including support documentation justifying a single/sole source bid, if applicable.

17. Constitutional Compliance.

It is the responsibility of the Grantee to comply with requirements of the Minnesota Constitution regarding the use of Clean Water Funds to supplement traditional sources of funding.

18. Signage.

It is the responsibility of the Grantee to comply with requirements for project signage as provided in Minnesota Laws 2010, Chapter 361, Article 3, Section 5(b) for Clean Water Fund projects.

19. Intellectual Property Rights.

The State owns all rights, title, and interest in all of the intellectual property rights, including copyrights, patents, trade secrets, trademarks, and service marks in the Works and Documents *created and paid for under this grant*. Works means all inventions, improvements, discoveries, (whether or not patentable), databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, and disks conceived, reduced to practice, created or originated by the Grantee, its employees, agents, and subcontractors, either individually or jointly with others in the performance of this grant. Work includes "Documents." Documents are the originals of any databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, disks, or other materials, whether in tangible or electronic forms, prepared by the Grantee, its employees, agents or subcontractors, in the performance of this grant. The Documents will be the exclusive property of the State and all such Documents must be immediately returned to the State by the Grantee upon completion or cancellation of this grant at the State's request. To the extent possible, those Works eligible for copyright protection under the United State Copyright Act will be deemed to be "works made for hire." The Grantee assigns all right, title, and interest it may have in the Works and the Documents to the State. The Grantee must, at the request of the State, execute all papers and perform all other acts necessary to transfer or record the State's ownership interest in the Works and Documents.

IN WITNESS WHEREOF, the parties have caused this Grant Agreement to be duly executed intending to be bound thereby.

Approved:

Vadnais Lake Area WMO

Board of Water and Soil Resources

By: _____
(print)

By: _____

(signature)

Title: _____

Title: _____

Date: _____

Date: _____

**FISCAL YEAR 2020 CLEAN WATER FUND COMPETITIVE GRANT PROGRAM
PROJECT AGREEMENT**

Vadnais Lake Area Watershed Management Organization Goose Lake Alum Treatment 2020

This Fiscal Year 2020 Clean Water Fund Competitive Grant Program Project Agreement (“**AGREEMENT**”) is made as of this 27th day of May, 2020 by and between the Vadnais Lake Area Watershed Management Organization, a joint powers watershed management organization (“**WMO**”), and the Board of Water and Soil Resources, a Minnesota municipal corporation (“**BWSR**”). The WMO and the BWSR may hereinafter be referred to individually as a “party” or collectively as the “parties.”

RECITALS

- A. The internal nutrient loading of phosphorus in the lakes within the WMO’s watershed is a serious concern and is within the scope of what the WMO may address as part of its Fourth Generation Water Resources Management Plan the DISTRICT adopted October 26, 2016;
- B. The WMO conducted a feasibility study dated August 2018 called “East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study” and attached hereto as Exhibit A (“**Feasibility Study**”);
- C. The WMO sought Fiscal Year (FY) 2020 Clean Water Fund (CWF) Competitive Projects and Practices grant funds from BWSR to complete an alum treatment on East Goose Lake as described in the WMO’s “Goose Lake Alum Treatment 2020” FY2020 CWF Competitive Project and Practices grant application attached hereto as Exhibit B (collectively, the “**PROJECT**”);
- D. BWSR awarded the WMO FY 2020 CWF Competitive Projects and Practices Grant C20-6375, grant funds in the amount of \$190,000 (“**GRANT**”) with a local match by the WMO in the amount of \$47,500, for completion of the **PROJECT**;
- E. The WMO will submit a **GRANT** work plan for the **PROJECT** and BWSR and the WMO will mutually enter into a **GRANT** agreement for the release, use and reimbursement of **GRANT** funds by the WMO on eligible **PROJECT** expenditures for completion of the **PROJECT** in accordance with the BWSR approved **GRANT** work plan and **GRANT** agreement, attached hereto as Exhibit C.
- F. As a condition of release of the **GRANT** funds and reimbursement of eligible **PROJECT** expenditures, BWSR requires a statement of technical and project assurance that the **PROJECT** will be effective at reducing internal nutrient loading of phosphorous in East Goose Lake resulting in the lake being within a 20% threshold of meeting the shallow lake state water quality standard for total phosphorus of <72 µg/L, for at least 15 years in accordance with the FY 2020 CWF Competitive Projects and Practices grant application and **GRANT** work plan; and

G. The WMO agrees to carry out the PROJECT in accordance with the terms and conditions of the FY2020 CWF GRANT Agreement and this Agreement.

AGREEMENT

In consideration of the mutual promises and covenants contained herein, the parties hereby agree as follows:

1. **PROJECT.** The WMO agrees to complete the PROJECT in accordance with the FY 2020 CWF Competitive Projects and Practices grant application “Goose Lake Alum Treatment Project”, attached hereto as Exhibit B, the GRANT work plan and GRANT Agreement for the PROJECT attached hereto as Exhibit C and the following:
 - (a) The WMO shall comply with all applicable contracting laws in hiring contractors to complete the PROJECT.
 - (b) The WMO shall be responsible for ensuring any required permits or permission required to complete the PROJECT are obtained.
 - (c) The WMO has engaged the services of CONSULTANT CONSULTANT (e.g. Wenek Associates, Inc. Barr Engineering Inc), a Minnesota engineering firm that employs engineers, lake ecologists and limnologists, and soil geochemistry scientists experienced in developing lake alum dosing recommendations, and designing, inspecting, monitoring, and overseeing implementation of lake alum treatment projects, including TECHNICAL PROVIDER(S) (e.g. names — Ed Matthiesen, P.E.) Greg Wilson, who will provide the technical project oversight and project certification.
 - (d) The WMO will utilize GRANT funds to complete the PROJECT and apply the alum treatment to East Goose Lake in two doses, the first in 2020 and the second in 2022.
 - (e) The WMO will utilize local funds to complete and implement a rough fish management program, and stakeholder engagement activities as described in the GRANT WORK PLAN, for the effective life (15 years) of the PROJECT, to provide assurances to BWSR that the PROJECT will provide the water quality benefits designed and intended and the PROJECT is effective for the intended lifespan.
 - (f) The WMO will conduct and collect, at a minimum, annual lake water quality monitoring data for East Goose Lake, to track the effectiveness of the alum treatment in reducing the lake bottom sediment release of phosphorous and achieving the PROJECT water quality goal of reducing internal nutrient loading of phosphorus in East Goose Lake resulting in the lake being within a 20% threshold of meeting the shallow lake state water quality standard for total phosphorus of <72 µg/L , for at least 15 years. The WMO shall make data, information and progress updates available as part of its annual progress reporting to BWSR and upon request.

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- (g) The feasibility study completed and grant application from the WMO identified that completion of the PROJECT would put East Goose Lake at the threshold of meeting State water quality standards of 60 micrograms (μg)/L total phosphorous, 20 μg /L chlorophyll-*a*, and 1.0 meter (m) secchi depth. If WMO lake water quality monitoring data collected for East Goose Lake indicates that lake surface water quality does not fall within 20% of the state water quality standard for total phosphorous of $<72 \mu\text{g}/\text{L}$ and either the chlorophyll-*a* ($<20 \mu\text{g}/\text{L}$) or secchi depth ($>1 \text{ m}$) criteria, for three out of any five years for the effective 15 year life of the PROJECT, the WMO agrees to undertake additional actions (including additional alum treatments if needed) at the WMO's expense to reduce internal and external phosphorous load reductions to achieve the PROJECT annual numeric surface water quality target identified for East Goose Lake. The WMO will notify BWSR when corrective actions are needed and what those actions will be.
2. Audit. All WMO books, records, documents, and accounting procedures related to the PROJECT are subject to examination by BWSR.
 3. Data Practices. The WMO shall retain and make available data related to the letting of contracts and the conducting of the PROJECT in accordance with the Minnesota Government Data Practices Act.
 4. Term. This AGREEMENT shall be in effect as of the date first written above and shall terminate upon the end of the 15year effective life of the PROJECT. The beginning date for the PROJECT effective life is the same date the WMO's technical provider certifies the PROJECT and the PROJECT is considered complete. The end date for the PROJECT effective life shall be 15 years from the beginning date. Subsequent rough fish management activities, vegetation management activities, stakeholder engagement activities, monitoring, testing and other actions as contemplated herein shall be completed as described during the term of this AGREEMENT.
 5. Entire Agreement. This AGREEMENT, including the recitals and the exhibits which are incorporated in and made part hereof, constitutes the entire understanding between the parties regarding the Project. No modifications to this AGREEMENT shall be valid unless reduced to writing and signed by both parties.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized officers on behalf of the parties as of the day and date first above written.

**VADNAIS LAKE AREA WATERSHED
MANAGEMENT ORGANIZATION**

By: _____
Its Chair

And by: _____
Its Secretary

Date: _____

BOARD OF WATER AND SOIL RESOURCES

By: _____

Its: _____

Date: _____

EXHIBIT A

East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study

(attached hereto)

EXHIBIT B

Fiscal Year 2020 Clean Water Fund Competitive Project and Practices grant application “Goose Lake Alum Treatment 2020”

(attached hereto)

EXHIBIT C
Fiscal Year 2020 Clean Water Fund Competitive Project and Practices “Goose Lake Alum Treatment 2020” Grant Agreement

(attached hereto)

East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study

Prepared for
Vadnais Lake Area Water Management Organization (VLAWMO)

August, 2018



East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study

Prepared for
Vadnais Lake Area Water Management Organization (VLAWMO)

August, 2018

East Goose and West Goose Lakes (and Oak Knoll Pond) In-Lake Treatment Feasibility Study

August, 2018

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1.0 Project Background and Purpose

Barr Engineering Company (Barr) was retained by Vadnais Lake Area Water Management Organization (VLAWMO) to provide engineering services to build on past efforts (Barr, 2017) by completing sediment monitoring and aluminum sulfate (alum) dosing for East and West Goose Lake, and optionally, Oak Knoll Pond to improve the lake/pond and downstream lake water quality. This feasibility study includes sediment core collection/analysis, determination of an alum dosage plan, and compilation/consolidation of supporting information for a BWSR grant application to complete in-lake management practices.

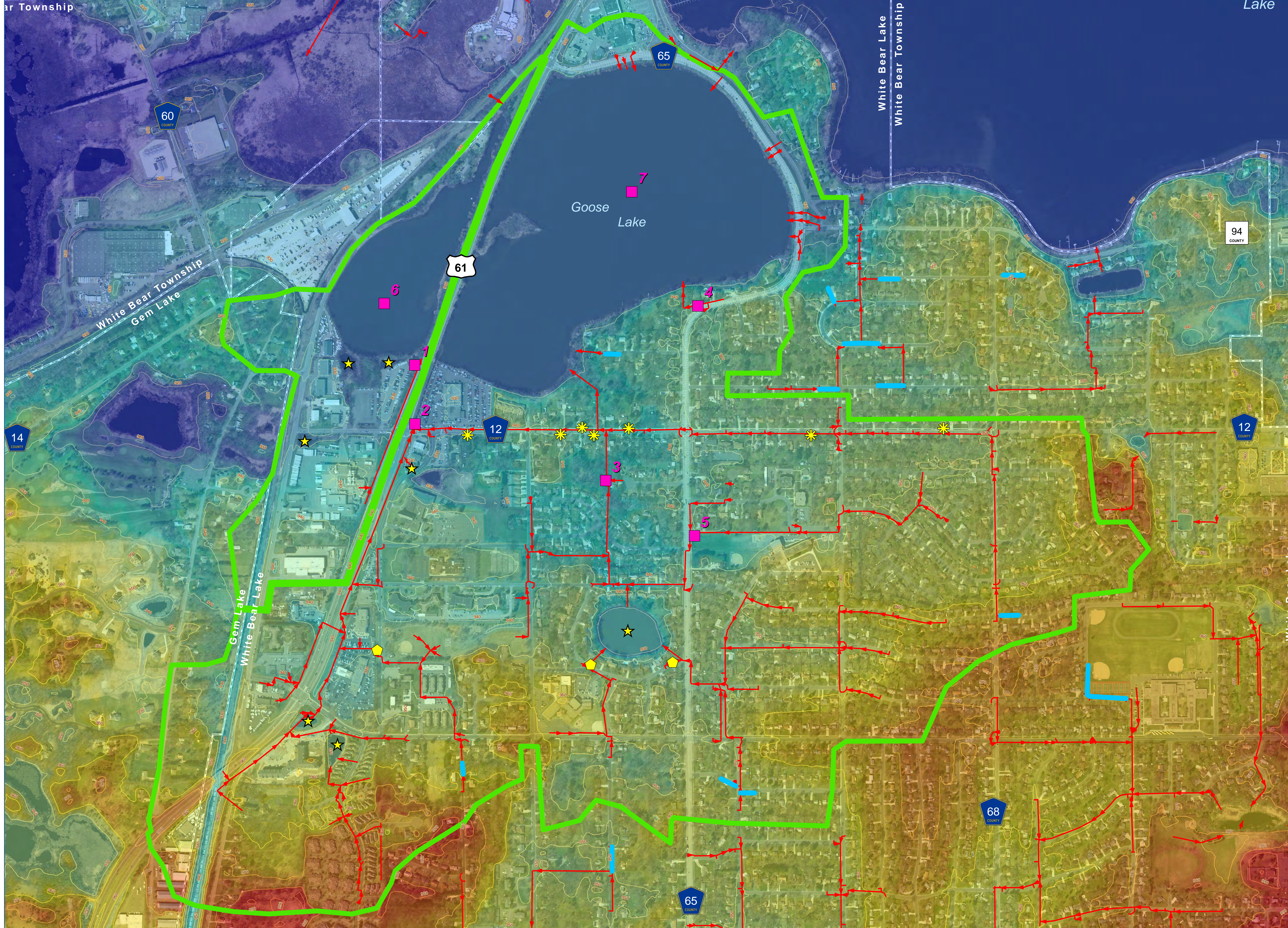
Figure 1-1 shows the topography, watershed divides and drainage patterns for East and West Goose Lakes while the same information, including subcatchments and monitoring stations. Table 1-1 shows the lake morphology/depth and other watershed/water body characteristics for each basin (as published in the TMDL report).

Table 1-1 Lake Morphology and Watershed Characteristics

Parameter	East Goose Lake	West Goose Lake
Surface Area (acres)	116	24
Average Depth (feet)	5.5	4.4
Maximum Depth (feet)	9	7
Residence Time (years)	2.3	0.3
Direct Drainage Area (acres)	578	239

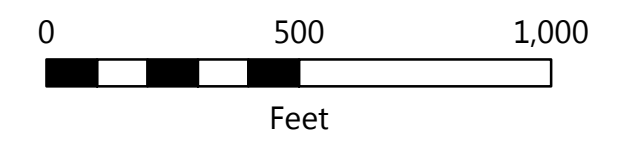
1.1 Summary of Lake TMDLs and Past Studies

In preparing for a stakeholder charrette (Barr, 2017), the Barr/Young Environmental team systematically reviewed reports and data collected on Goose Lake and Wilkinson Lake, including the total maximum daily load (TMDL) report and implementation plan (2014), sustainable lake management plans (2014 updated in 2017), storm sewer and treatment practice plans, proposed redevelopment plans, fish (2012 & 2017) and aquatic plant survey reports (2010 & 2014), bathymetric surveys and internal loading analyses (2010, 2015). Through the stakeholder participation process and personal communications we also became more aware of the potential for boating impacts on water quality changes in the Goose Lake.



- Lake Watersheds
- Storm Sewer
- Existing BMPs**
 - POND
 - RWG
 - SP
 - Storm Retention Area Boundary
 - 10-Foot Elevation Contour
 - 2-Foot Elevation Contour
- Recommended BMPs

Aerial Imagery: Ramsey County/MnGeo 2016



EAST AND WEST
GOOSE LAKE WATERSHED
Vadnais Lakes Area
Watershed Management
Organization

FIGURE 1-1

The TMDL report (Wenck, 2014a) and implementation plan (VLAWMO, 2014) estimated internal and watershed loading and called for the following total phosphorus load reductions for the respective lakes:

- 91% reduction for East Goose Lake—corresponds to 96% reduction of internal load and 63% reduction from stormwater runoff or 88% of current loading is internal and 11% from the watershed
- 70% reduction for West Goose Lake—corresponds to 71% reduction of internal load, 77% reduction from East Goose Lake and 86% reduction from stormwater runoff or 82% of current loading is internal or coming from E. Goose and 15% of the load coming from the watershed.

The high percentage of internal loading on both lakes has focused the direction additional studies since the publishing of the TMDL report. This included increased monitoring, several sediment studies and updated fish and vegetation studies.

Anoxic sediment phosphorus release rates determined from laboratory experiments on Goose Lake cores (James, 2010 and Wenck, 2014b) were approximately an order of magnitude lower than the release rates used for the lake water quality modeling in the TMDL study. The difference in internal load was attributed to resuspension associated with motor boat activity (Wenck, 2014a). A subsequent study (UW Stout and Wenck, 2015) of sediment resuspension as a potential phosphorus source indicated that Goose Lake sediment has a high potential for resuspension (due to its particulate size and specific gravity characteristics), but does not release or desorb phosphorus and plays a minor role in contributing bioavailable phosphorus to the lake.

Lake and watershed modeling, along with the associated GIS mapping, from the TMDL study were obtained and reviewed for use in the most recent feasibility analysis. Additional concerns with the TMDL modeling are discussed in Section 2.1, in which it was determined that the following data gaps and limitations of the past analyses would also need to be addressed to better evaluate the sources of phosphorus during the critical condition and potential improvement options for the respective study lakes:

- The P8 watershed modeling from the TMDL study did not simulate the existing Best Management Practices (BMPs) in the West and East Goose Lake watersheds. As discussed in Section 2, this may have led to overestimated phosphorus loadings for each watershed in the TMDL study.
- The GIS mapping (and associated P8 watershed modeling) from the TMDL study included a significant landlocked area from Gem Lake in the West Goose Lake watershed. This may have also led to overestimated phosphorus loading for this watershed in the TMDL study.

VLAWMO will be further clarifying watershed loading into both basins of Goose Lake and identifying the most cost-effective best management practices utilizing the watershed based funding grant. Barr will be updating the hydrologic and hydraulic modeling for the subwatershed, identifying and completing concept designs for three BMPs and then helping with construction oversight of the selected BMP (2018-2019).

1.2 Summary of Recent Water Quality Monitoring

Table 1-2 shows the eleven-year summer average total phosphorus concentrations observed for each lake, as well as the average surface water concentration measured in Oak Knoll Pond during 2017. All three water bodies experience low dissolved oxygen in the bottom waters, periodically, during the summer months.

Table 1-2 Observed Lake and Pond Water Quality

Water Body	Average Summer Total Phosphorus Concentration ($\mu\text{g/L}$), 2007-2017
East Goose	255
West Goose	175
Oak Knoll Pond	168 (2017 only)

Figures 1-2, 1-3 and 1-4 show how the last ten years of average summer total phosphorus, chlorophyll-a and Secchi disc transparency, respectively, have varied for each lake. The first four years of the records shown in each figure represent the data used for the TMDL analyses of the respective lakes. The monitoring data shows that the lakes are not meeting any of the three shallow lake criteria during the period of record. Figure 1-2 shows that average total phosphorus concentrations were generally better for the lakes in 2011 and significantly worse in 2016. As a result, these two years became the focus of the updated lake and watershed modeling discussed in Section 2.

Figure 1-2 Summer Average (June-Sept.) Total Phosphorus Concentrations ($\mu\text{g/L}$) since 2007

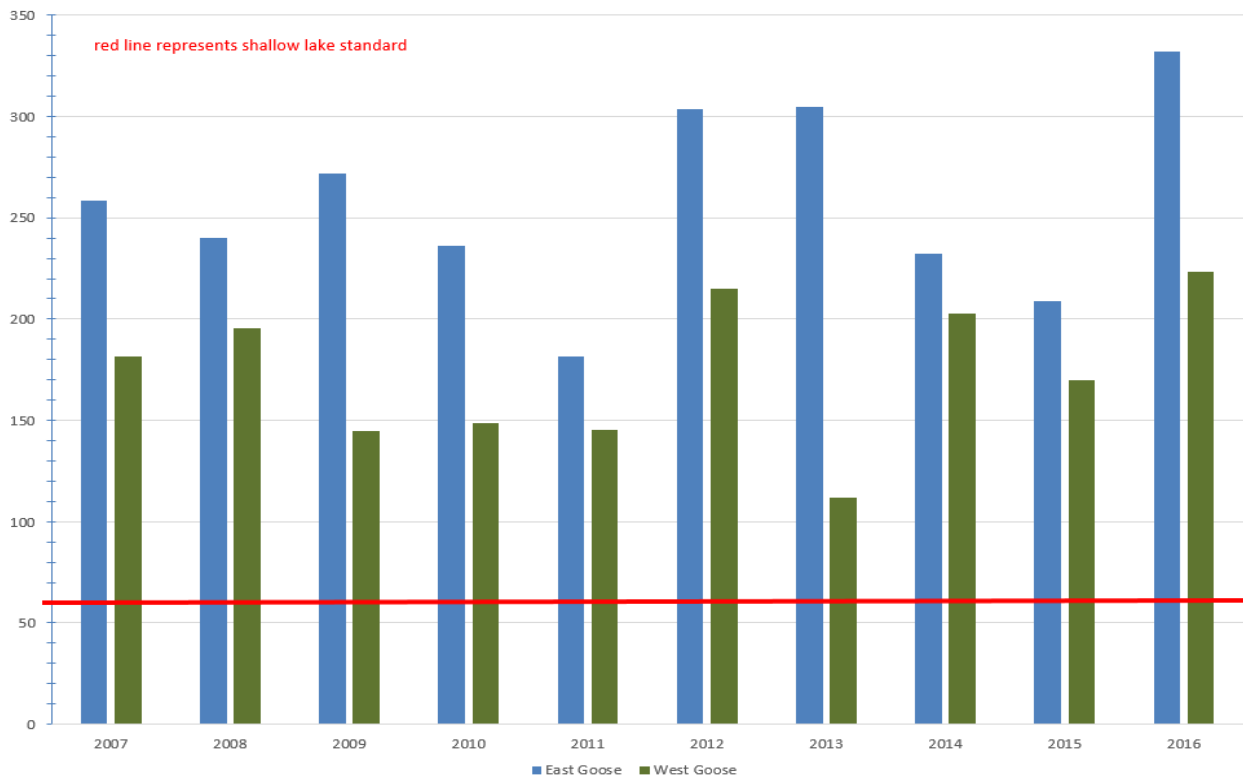


Figure 1-3 Summer Average (June-Sept.) Chlorophyll-a Concentrations ($\mu\text{g/L}$) since 2007

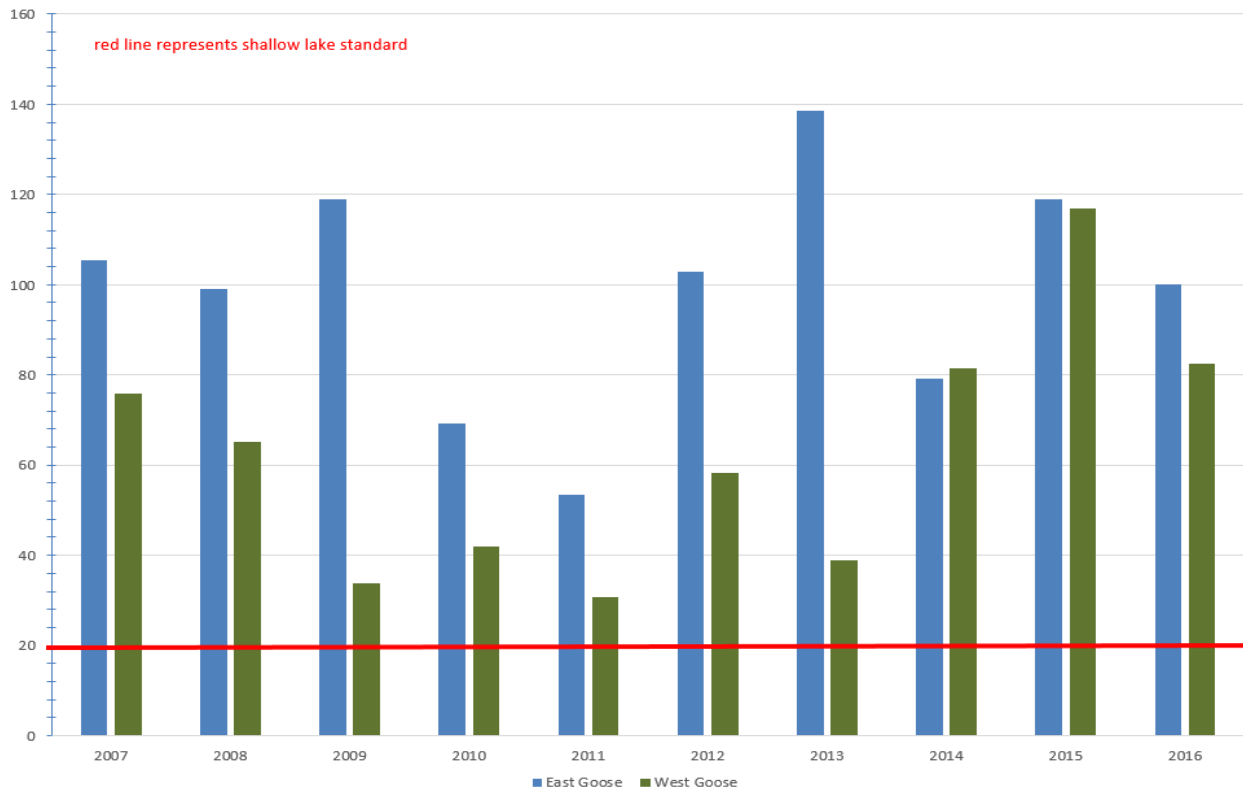


Figure 1-4 Summer Average (June-Sept.) Secchi Disc Transparency (meters) since 2007



1.3 Current Analysis of Lake Sediment Cores

Phosphorus from stormwater over time accumulates in the bottom sediments of lakes and ponds. During the spring and fall, this phosphorus is largely tied-up and the sediments, but during the warm summer months the phosphorus can be released from bottom sediments and move upward into the water column. This can lead to summer and sometimes early fall algal blooms. Not all of the phosphorus that is incorporated into bottom sediments releases into the water column. Phosphorus in sediment is typically attached to something and can be found in the following forms (often referred to as “fractions”): calcium bound phosphorus (Ca-P), aluminum bound phosphorus (Al-P), iron bound phosphorus (Fe-P), and organically bound P (Org-P). Ca-P and Al-P are largely inert and are immobilized in the bottom sediment. Org-P decays over time and release phosphorus into the water column over the course of several years. Fe-P is the phosphorus form that readily releases into the water column during warm summer months as oxygen is depleted in the sediment.

The primary purposes of collecting sediment cores is to quantify the amount of Fe-P and Org-P in sediment. The more Fe-P and Org-P in sediment the more alum will need to be applied to immobilize these phosphorus fractions. In general, aluminum treatment (either as alum or sodium aluminate, for example), forces the Fe-P to bind to aluminum and form Al-P (the inert form of aluminum). In most cases, alum treatments are designed to also provide excess aluminum in sediment which can then bind phosphorus years after the treatment. When aluminum in the form of alum or other solutions is added to a pond, it forms an aluminum hydroxide floc that settles to the lake bottom. The aluminum floc will mix into the top few to several inches of sediment over time and becomes diluted. The sediment phosphorus

data collected at different depths was used to help determine the expected sediment mixing depth for each lake.

The total mass of Fe-P and Org-P in the actively mixed layers of sediment were determined for each lake. Alum doses were then calculated for each lake by determining an appropriate Al:Al-P ratio following techniques designed by Pilgrim et al. (2007).

Sediment cores were collected on October 25, 2017 in the following waterbodies: West Goose Lake (2 cores), East Goose Lake (4 cores), and Oak Knoll Pond (1 core) (see Figures 1-5, 1-6, and 1-7, respectively). Each sediment core was sliced into 2-cm sediment samples down to a depth of 10 cm, and 4 cm intervals were collected down to 18 cm or deeper. Sediment samples were returned to the Barr Engineering laboratory and analyzed for the phosphorus fractions identified previously. In general, Fe-P concentrations in the sediment of East Goose Lake and West Goose Lake were low, while organic-P was high, as shown in Figure 1-8. Phosphorus concentrations and physical characteristics were relatively similar among all four cores of East Goose Lake. The two sediment cores in West Goose Lake were also similar to one another (see Figure 1-8).

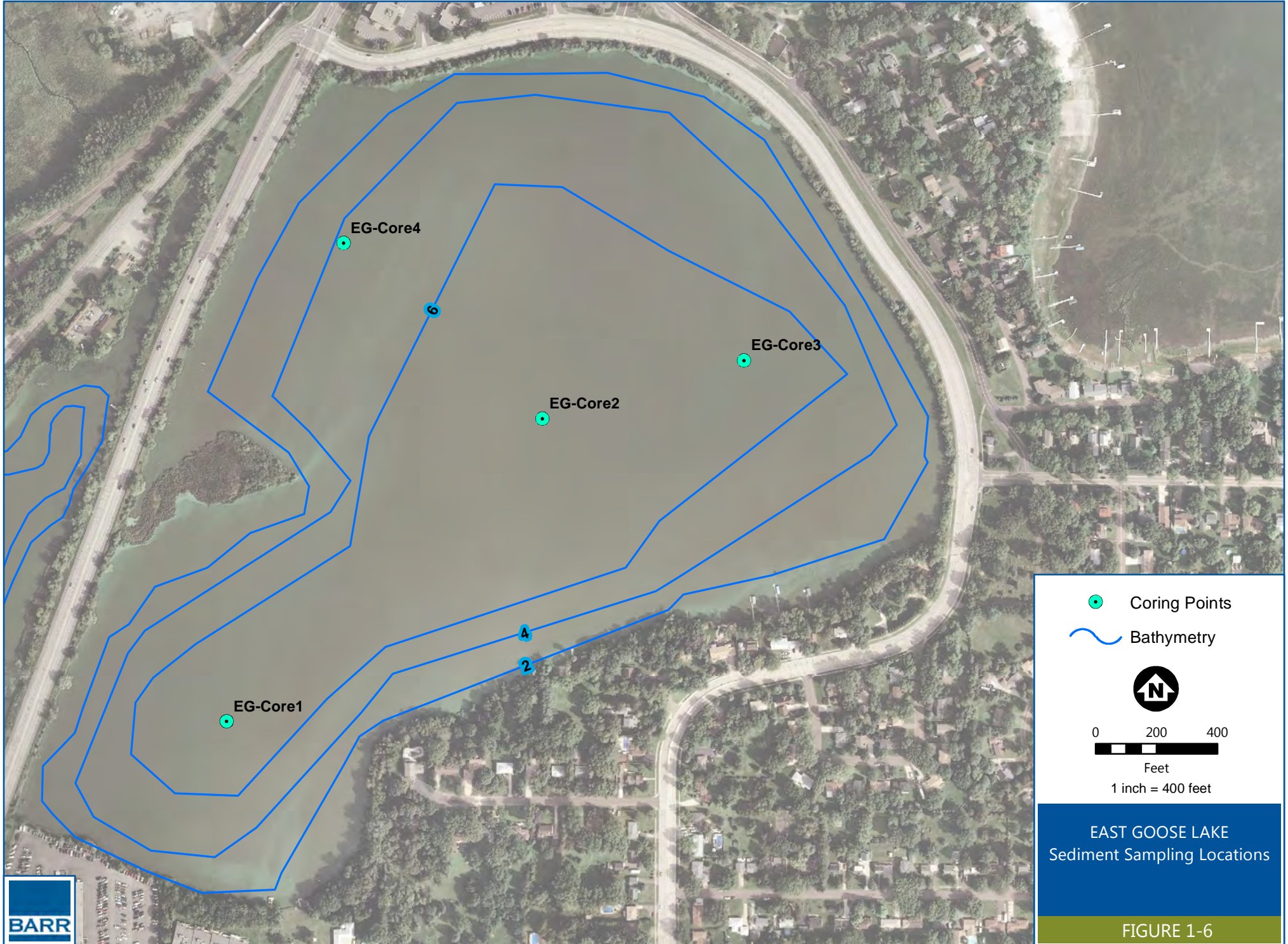


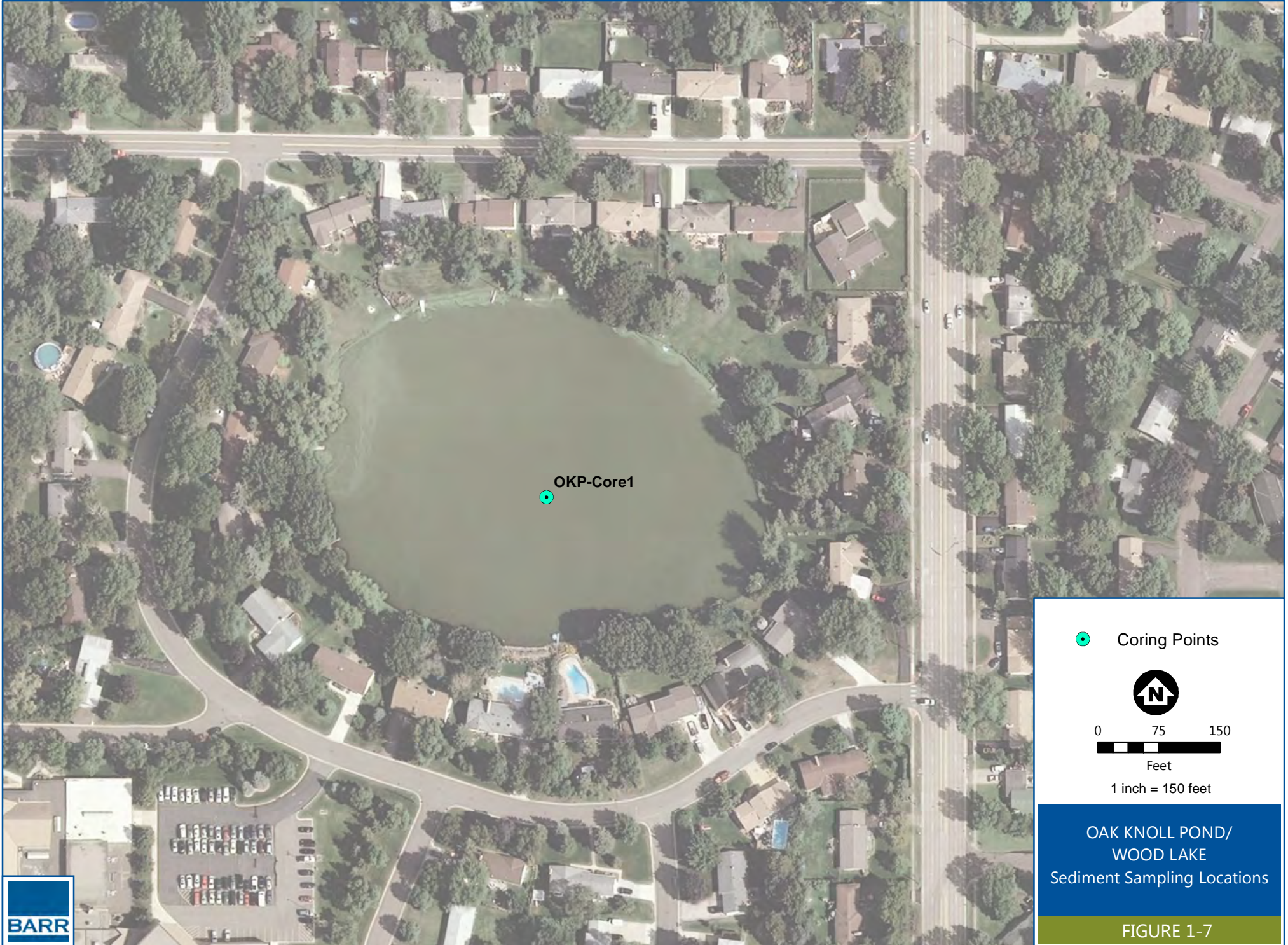
- Coring Points
- Bathymetry

0 100 200
Feet
1 inch = 200 feet

WEST GOOSE LAKE
Sediment Sampling Locations

FIGURE 1-5





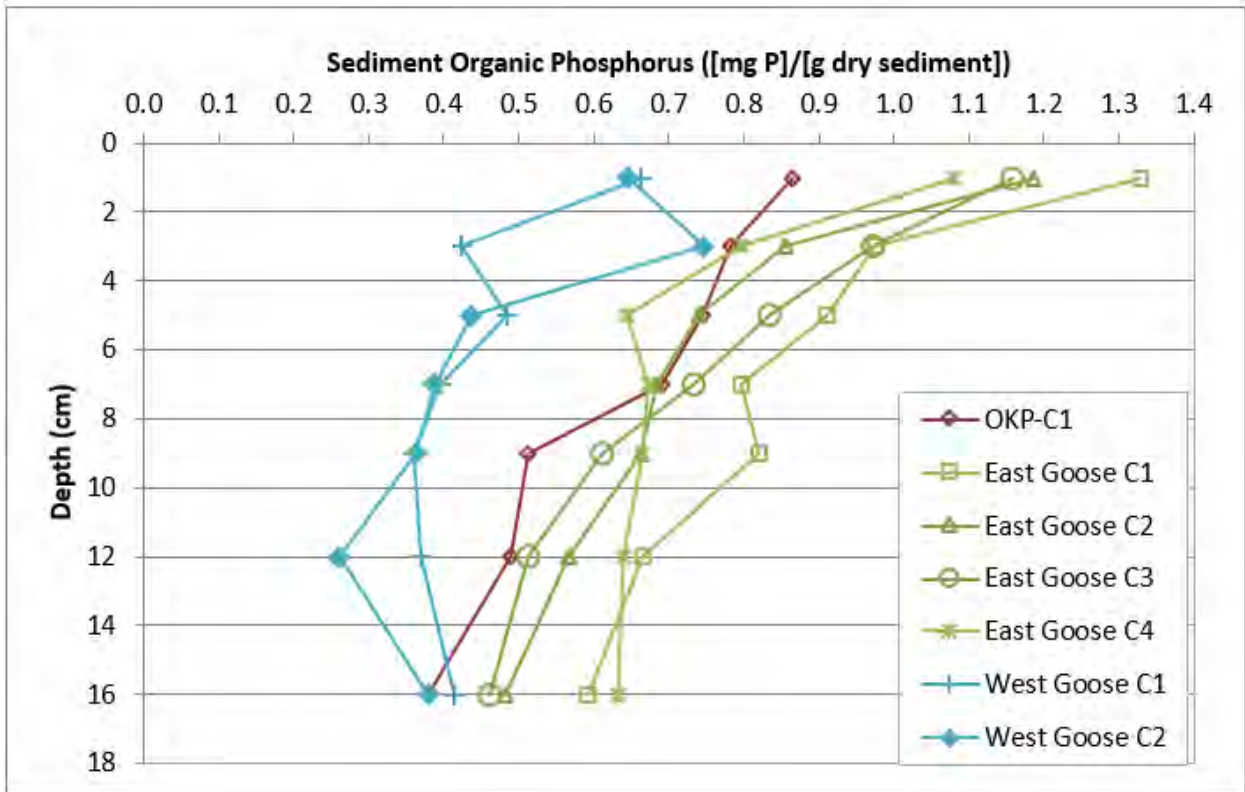
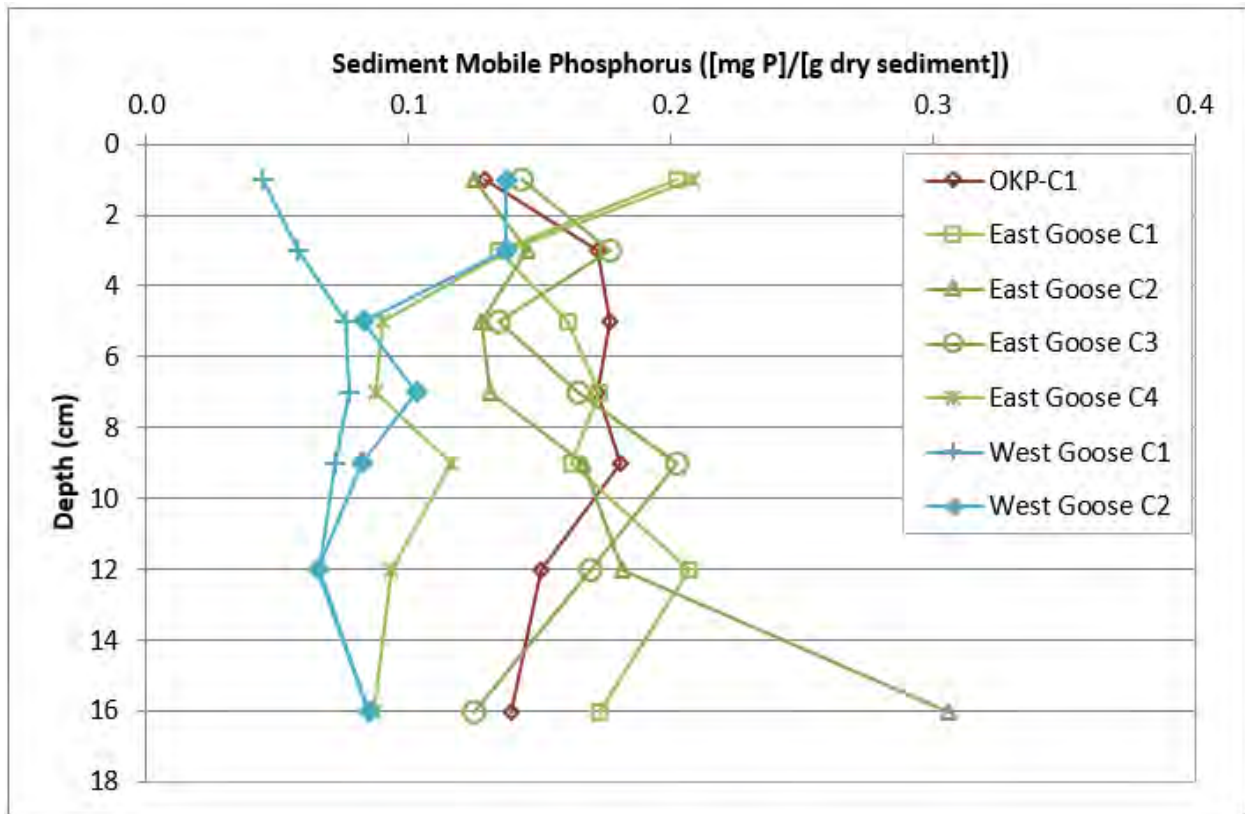


Figure 1-8 Results of Sediment Phosphorus Fractionations

2.0 Water Quality Modeling and Analysis

A key component to performing diagnoses is selecting a rigorous approach to evaluating potential water quality benefits. The simplified lake and watershed modeling approach used in the 2014 TMDL project did not account for intra-annual variations in lake water quality was not considered for use in the previous feasibility analysis (Barr, 2017) as it lumps parameters at an annual time scale, treats lakes as fully mixed in a steady-state with uniform residence time, and does not adequately distinguish internal phosphorus loading sources from watershed sources during the critical conditions for water quality impairment. Based on our review of the available monitoring data and understanding of the purpose of the feasibility study, an approach was developed for evaluating the primary drivers of water quality impairment in each lake that adds further clarity, because it is based on updated monitoring data and accounts for intra-annual variations and recent management actions. Differentiating the individual drivers of lake water quality is based on the observed dynamics of each lake to set realistic expectations for future management actions.

The approach for this analysis used existing monitoring data, professional judgment, and modeling to identify the best approach to cost-effectively improve lake water quality. Relevant subtasks included:

- Review current and historic water chemistry and biological data. Evaluate long- and short-term water quality trends.
- Review sediment phosphorus data and use it to estimate the internal phosphorus loading potential.
- Using existing watershed modeling, develop an updated lake phosphorus balance that includes phosphorus loads from watershed and in-lake sources and evaluate results to better understand the effect of varying climatic and sensitivity to management changes.
- Analyze fish data to evaluate potential impacts of carp and black bullhead on lake water quality and to determine the impact of water quality dynamics on the fish community.
- Consider the effects that recreational boating are expected to have on lake water quality.
- Integrate data analyses from above to diagnose causes of lake water quality problems, including feedback loops and dynamics between biological measurements and lake water quality observations.
- Evaluate water quality improvement options to identify feasible and cost-effective water quality improvement options for each lake basin.
- Complete an evaluation of feasible water quality improvement options to estimate expected lake water quality changes that could be attained.

2.1 Existing Management Practices

2.1.1 Watershed Best Management Practices (BMPs)

Figure 1-1 shows the locations in the East and West Goose Lake watersheds where the city of White Bear Lake and Ramsey County have previously implemented BMPs for stormwater treatment. These existing BMPs include seven ponds, seven rainwater gardens, three swirl separators and five infiltration pipes.

Since it wasn't clear how well these BMPs have been maintained and the watershed mapping did not delineate the direct drainage areas tributary to each practice, the updated P8 watershed modeling did not account for treatment for these BMPs (Barr, 2017). However, a sensitivity analysis was performed with the lake water quality modeling to evaluate how much a 50 percent reduction in stormwater total phosphorus loading (similar to what would be expected with widespread BMP implementation) during 2016 would influence the respective lake concentrations. Management actions were evaluated for the 2016 and 2011 conditions in East Goose Lake, as they represented wet and dry years, respectively (see Section 2.2).

In discussing the existing watershed BMPs (see Figure 1-1) with White Bear Lake staff it was understood that some of the practices may not have been inspected and/or maintained on a regular basis, or were in need of more documentation for maintenance activities (Barr, 2017). However, this past summer, a maintenance agreement was established for the rainwater gardens along County Road F in that the County hired an MCC crew to maintain the plantings and clean out the inlets. Future work will likely include weeding, trash removal, addition of mulch, supplemental plantings and replacement of the inlets, where necessary. Similarly, it is recommended that MS4 and VLAWMO staff coordinate to document inspections and maintenance of all existing watershed BMPs. Depending on existing BMP performance, it can be used to adapt future maintenance activities and inform or change the priority for implementing some of the BMPs identified in Section 4.

Based on an evaluation of the GIS mapping (see Figure 1-1), it is estimated that two-thirds of the East Goose Lake watershed is currently receiving stormwater treatment of the runoff phosphorus loading on an annual basis, while approximately 40 percent of the West Goose Lake watershed is receiving stormwater treatment.

2.1.2 Past In-Lake Treatment Measures and Aquatic Invasive Species Control

Other in-lake treatment measures completed within the past 15 years included the removal of nearly 19,000 pounds of bullheads from Goose Lake between 2012 and 2015, as well as ongoing herbicide spot treatments in West Goose Lake. An updated fish survey (Blue Water Science, 2017) indicates that commercial fishing successfully reduced bullhead densities and no other fish management is needed at this time. In addition, common carp were not observed during the fish survey.

Goose Lake had the lowest diversity of aquatic plant species relative to the other lakes surveyed for the TMDL study (Wenck, 2014a). VLAWMO staff identified only three species in each basin of the lake: narrowleaf pondweed and elodea (Canada waterweed). In East Goose Lake, plants were found along the shoreline edges of the Lake. In West Goose Lake plants were found throughout the lake, but consisted mostly of elodea, which was mostly concentrated along the eastern edge connecting to East Goose.

2.2 East Goose Lake

Updated lake and watershed modeling was developed for this study and optimized to reproduce the observed water quality for each lake during the summer periods of interest. Figure 2-1 shows how the predicted and measured total phosphorus concentrations compare during the summer of 2016 for East Goose Lake. Approximately 85 percent of the phosphorus load was attributed to sediment phosphorus release during this time period. As a result, Figure 2-1 also shows that the predicted phosphorus concentration in East Goose Lake would be much more sensitive to an 80 percent reduction in internal load (similar to what would be expected following an in-lake alum treatment) than it would have been in response to a 50 percent reduction in stormwater loading (similar to what would be expected with widespread BMP implementation) during 2016. It should also be noted that the results of these analyses are based on the same starting phosphorus concentration at the beginning of the summer. Over time, following full-scale BMP implementation or in-lake alum treatment, it is expected that the starting concentrations would be closer to the shallow lake standard at the beginning of each summer season. Based on the results shown in Figure 2-1, this in turn, should ensure that an in-lake alum treatment would maintain lake water quality at levels that would be consistent with the shallow lake standards.

Figure 2-1 2016 Water Quality Modeling Results for East Goose Lake

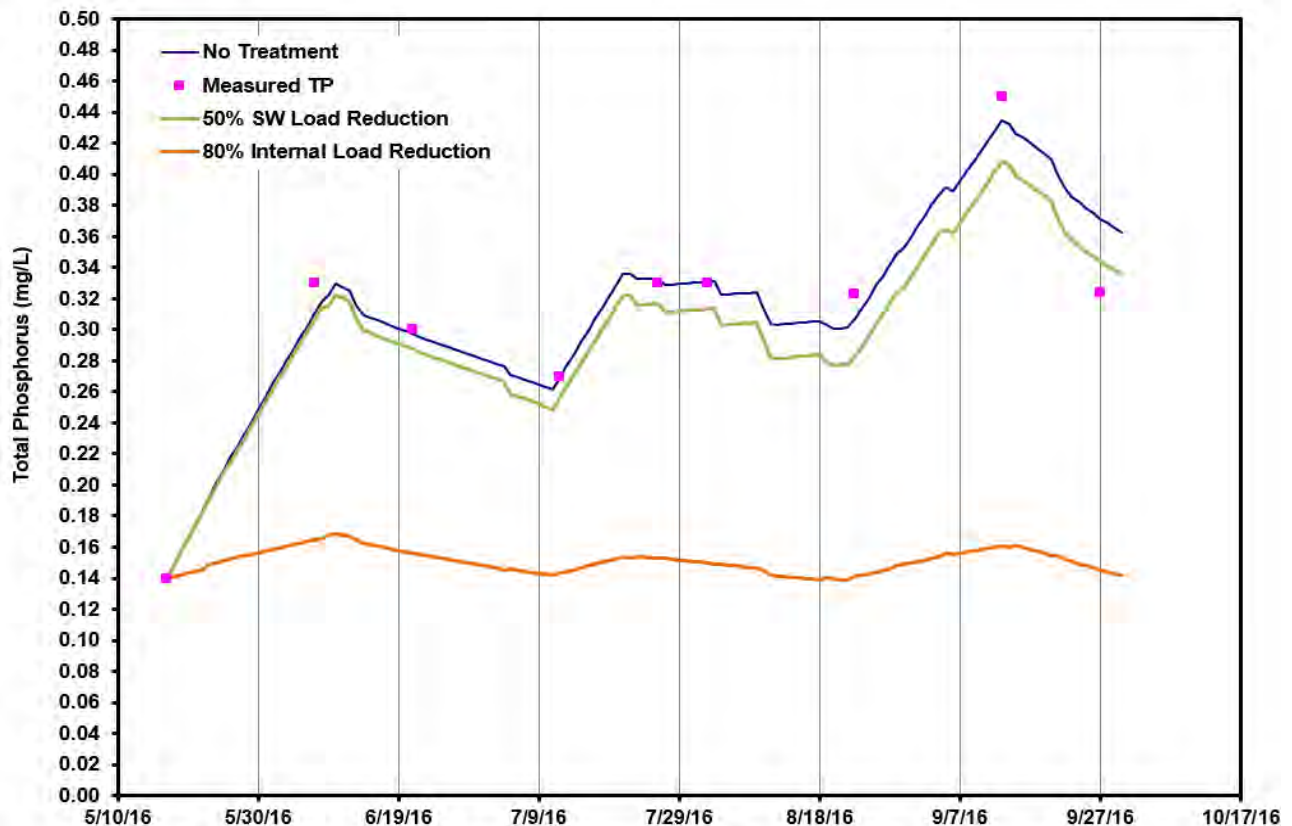
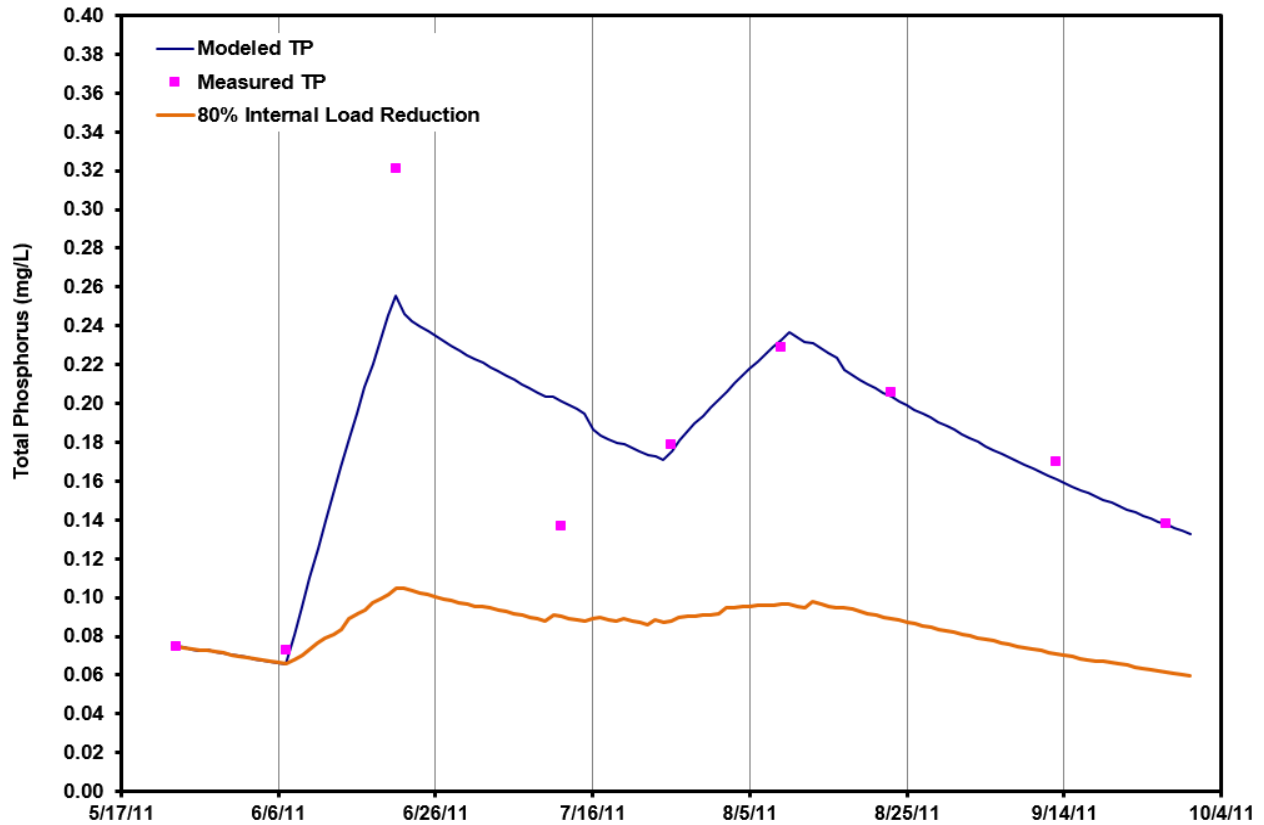


Figure 2-2 shows how the predicted and measured total phosphorus concentrations compare during the summer of 2011 for East Goose Lake. Approximately 80 percent of the phosphorus load was attributed to sediment phosphorus release during this time period. As a result, Figure 2-2 shows that the predicted

phosphorus concentration in East Goose Lake would respond well to an 80 percent reduction in internal load (similar to what would be expected following an in-lake alum treatment) during 2011. Again, based on the results shown in Figure 2-2, an in-lake alum treatment would maintain lake water quality at levels that would be consistent with the shallow lake standards.

Figure 2-2 2011 Water Quality Modeling Results for East Goose Lake

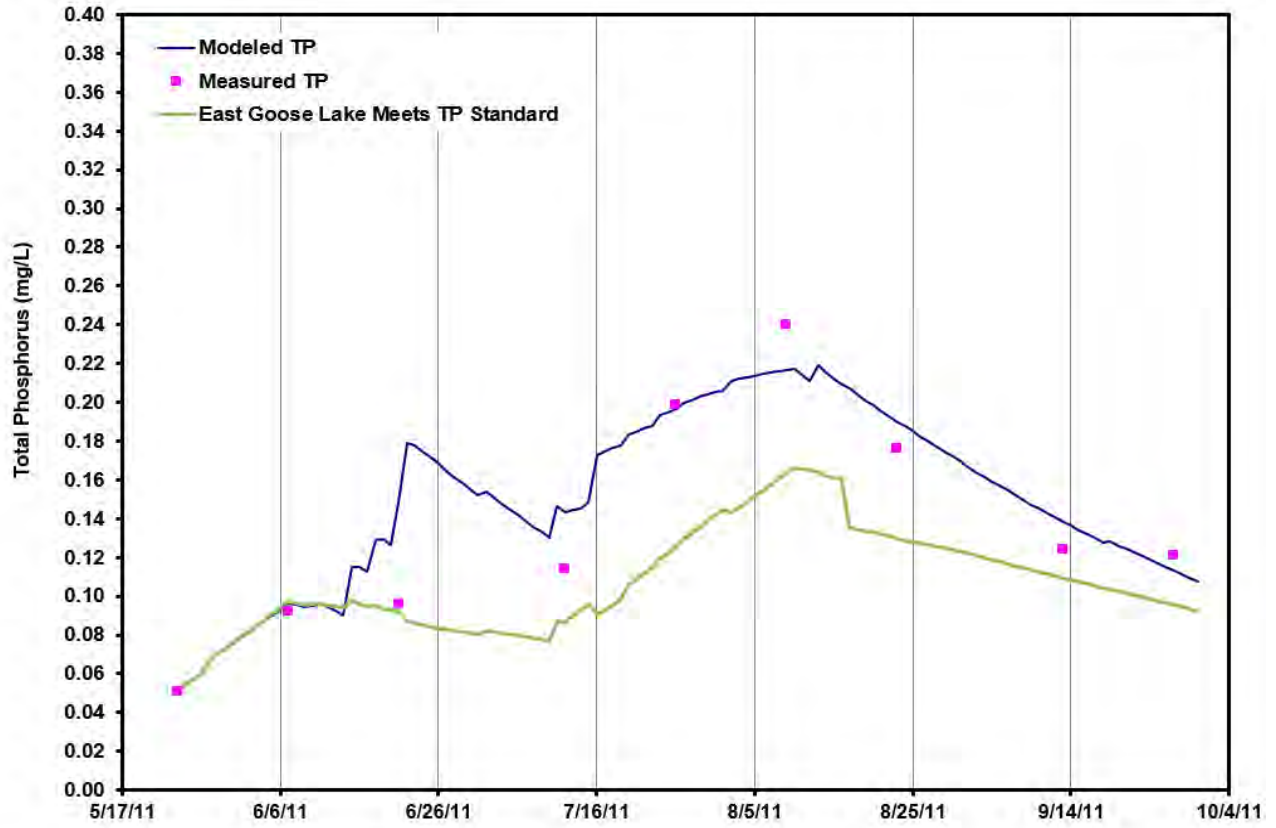


2.3 West Goose Lake

Figure 2-3 shows how the predicted and measured total phosphorus concentrations compare during the summer of 2011 for West Goose Lake. Approximately 26 percent of the phosphorus load was attributed to sediment phosphorus release, 34 percent can be attributed to stormwater runoff and 39 percent to upstream contributions from East Goose Lake during this time period. As a result, Figure 2-3 also shows that the predicted phosphorus concentration in West Goose Lake is more sensitive to a reduction in incoming phosphorus concentration from East Goose Lake (similar to what would be expected if East Goose Lake had a phosphorus concentration that met the 60 µg/L standard) during 2011. An in-lake alum treatment is also recommended for West Goose Lake as the modeling results indicate that it would be needed to ensure that the water quality goals/standards are met on a consistent basis. Over time, following an in-lake alum treatment (and to a lesser extent, full-scale BMP implementation), it is expected that the concentrations would be maintained closer to the shallow lake standard throughout the summer

season. This is confirmed by the fact that 65 percent of the phosphorus load to West Goose Lake is influenced by internal loading in both East and West Goose Lake.

Figure 2-3 2011 Water Quality Modeling Results for West Goose Lake



3.0 Social Implications of In-Lake Management

Understanding the inner working and prescribing management strategies of lake systems requires use of complex mathematical watershed and lake models. However, the resultant management strategies, although technically supported, are often difficult to convey to the public. To address the issue, a stakeholder engagement process was incorporated into the 2017 feasibility study (Barr, 2017). The goal of the stakeholder engagement process was to involve the public, regulatory agencies and VLAWMO staff in the process of identifying and vetting management solutions for each lake.

The 2016 Stakeholder Charrette was attended by members of the public, non-governmental organizations (Midwest Ski Otter Ski Club and North Oaks Homeowners Association), municipal agencies (Cities of North Oaks and White Bear Lake and Ramsey Conservation District), state government (Minnesota Department of Natural Resources and Minnesota Pollution Control Agency) and VLAWMO staff. The attendees convened for a state of the lake presentation for each lake followed by collaborative group discussions.

According to the groups, Goose Lake can support non-motorized activities, waterskiing, pontooning, and fishing for crappies and bass. The groups also acknowledged concerns about the absence of waterfowl and bald eagles, and the presence of curlyleaf pondweed. In addition to the concerns acknowledged, they also thought plant herbicides or harvesting warranted further investigation, as well as the correlation between bullhead removal and improvements in water quality and clarity, and whether water skiing and aquatic plants can coexist in Goose Lake.

When group attendees were asked about what role fish and aquatic plants play they were interested in discerning the difference between invasive and non-invasive plants. It was noted that the lakes have curlyleaf pondweed and Eurasian water milfoil edging into East Goose Lake from the southwest corner. Also, there was concern about the lack of species diversity and how that would affect the ecological functions of the lakes. They were also interested in an evaluation of the following:

- Investigating how fish and plants interact within the lake system and the possibility of using alum treatment on all or part of East Goose Lake;
- Encouraging recreational use in one of the Goose Lake basins. VLAWMO will address restricted boating through educational efforts.

Based on follow-up discussion with staff from State agencies and Board members, it was recommended (Barr, 2017) that VLAWMO complete a Lake Vegetation Management Plan (LVMP) and further evaluate in-lake management practices (see Section 4).

A follow-up stakeholder meeting held July 2018 discussed the results of the various reports. Direction for future action: Proceed with grant application for alum treatment. This is justified by the findings from the feasibility study that internal treatment is both more cost-effective and more relevant for the unique circumstances surrounding Goose Lake. The alum treatment will need a complementary vegetation management plan to address vegetation changes. See Section 4.2.3.

4.0 Summary

4.1 Potential Improvement Options

As discussed in Section 2.1, and shown in Figure 1-1, there are several existing BMPs in the East and West Goose Lake watershed. An evaluation of the storm sewer conveyances that did not have any existing stormwater treatment revealed that there are approximately five high-priority watershed locations where BMPs should be considered for implementation.

Table 4-1 provides rough estimates of planning level construction costs for the respective watershed BMPs at the recommended BMP locations, based on experience with similar practices in Metro lake watersheds. The annual load reductions expected for the watershed practices were estimated with the P8 model. The cost-effectiveness values in the table should be comparable as it is expected that these options will experience similar lifespans and/or timeframes for significant levels of operation and maintenance.

Table 4-1 Summary of Water Quality Improvement Options

Water Quality Improvement Option	Estimated Annual TP Reduction (lbs/yr)	Opinion of Potential Costs	Annual Cost per Pound TP Removed (\$/lb)
Option 1—Retrofit Lake Bay for Improved Stormwater Treatment	10	\$100,000	\$10,000
Option 2—Construct Off-Line Filtration System for Low Flows	25	\$300,000	\$12,000
Option 3—Construct Pond On-Line With 36"-dia. Storm Sewer	25	\$300,000	\$12,000
Option 4—Infiltration Pipe Upstream of Storm Sewer Outfall to East Goose Lake	5	\$50,000	\$10,000
Option 5—Infiltration Pipe on School Property	25	\$100,000	\$4,000
Option 6—Alum Treatment of West Goose Lake	100	\$55,000	\$550
Option 7—Alum Treatment of East Goose Lake	800	\$170,000	\$213

It is expected that wider-scale implementation of rainwater gardens throughout the watershed would be more cost-effective than the other watershed BMPs shown in Table 4-1, but they may not be feasible and would likely need to be implemented as a part of street reconstruction projects to realize significant cost savings. It is also expected that the alum treatment costs for Options 6 and 7 will be closer to the values shown, assuming that both basins are treated at the same time, as they reflect the current collection and analysis of additional sediment cores across each lake surface for phosphorus fractionations and dose

determinations. Table 4-1 confirms that in-lake alum treatment is significantly more cost-effective than the available watershed BMPs. Other than herbicide treatments and bullhead removal between 2012 and 2015, which successfully controlled the rough fish densities (Blue Water Science, 2017) but did not result in measurable changes to lake water quality, no other in-lake treatment alternatives were considered to be cost-effective and/or adequate to meet the water quality goals for the lakes.

4.2 Recommendations

4.2.1 Alum Treatment for East and West Goose Lakes

The application of aluminum has two expected mechanisms: (1) aluminum binds with iron-bound phosphorus in the sediment, thereby forming Al-P, and (2) a residual amount of unbound aluminum remains in the sediment and is available to bind phosphorus that is released from the decay of Org-P. For most lake systems alum dosing is designed to provide some amount of “excess” aluminum to bind phosphorus released from decayed Org-P. However, the aluminum added to the sediment will age over time and be less effective at capturing more phosphorus. Due to the high amount of Org-P in East Goose Lake and West Goose Lake sediment, it is recommended that the alum treatments of East Goose Lake and West Goose Lake be split into two applications separated by a few years or more in order to capture more of the Org-P in the sediment as it decays over time. By splitting the alum treatment into two applications separated by two or more years, more of the decomposing Org-P can be captured by the alum.

Two forms of aluminum are typically applied to lakes: alum and sodium aluminate. When alum is added to a lake, it will lower the pH (make it more acidic), while sodium aluminate will raise the pH (more basic). Therefore, these two chemicals are often added in combination to neutralize the pH effects during treatment. At lower doses, alum-only applications can be conducted without adversely affecting the pH (i.e. pH stays above 6). Alum is typically less expensive and easier to work with than sodium aluminate, and an alum-only treatment may be preferable when it will not cause an unacceptable change in pH. Alkalinity and pH were tested in each of the waterbodies on October 25, 2017. A higher alkalinity indicates a lake is more resistant to a change in pH from an alum treatment. East Goose Lake had the lowest alkalinity, and would therefore be most susceptible to a pH change from the addition of alum. A chemical model called PHREEQC was used to model the pH change from the prescribed alum dose to East Goose Lake; model inputs included the measured pH and alkalinity, and the prescribed alum dose. The model demonstrated that the pH would remain above 6.0 with an alum treatment only for the individual alum applications prescribed in Table 4-2. A minimal pH target of 6.0 will minimize the risk of adversely affecting aquatic life and ensure that aluminum hydroxide floc ($\text{Al}[\text{OH}]_3$) will form readily and settle quickly.

Table 4-2 Recommended Alum Dosing for Split Applications

Lake	First Application		Second Application		Total	
	gallons alum/acre	gallons alum	gallons alum/acre	gallons alum	gallons alum/acre	gallons alum
East Goose	288	27,329	288	27,329	575	54,658
West Goose	346	5,887	346	5,887	693	11,774

Alum is typically less expensive and easier to apply than a combined application of alum and sodium aluminate; therefore, it is recommended that alum-only treatments be utilized for East Goose and West Goose Lakes for the alum doses described in Table 4-2. The pH in the waterbody must be closely monitored during alum applications, and if the pH reaches the critical value of 6.0, the treatment should be stopped until the pH can recover. If pH and alkalinity conditions are different at the time of treatment and show a greater potential to lower pH below 6.0 during treatment, the treatment plan could be altered to replace a portion of the alum with sodium aluminate in order to buffer the pH.

Barr recommends that the alum treatments of East Goose Lake and West Goose Lake be split into two applications in order to capture more of the Org-P in the sediment that will decay over time. The second application would occur two or more years after the first application. Each alum-only application would be at a low enough dose that the lake’s pH would not be expected to lower below the threshold of 6.0, eliminating the need for a combined alum and sodium aluminate application. The recommended alum doses for East Goose Lake and West Goose Lake are summarized in Table 4-2.

Splitting the alum treatment into multiple applications would also allow for adjustments to the final alum dose, based on observations of water quality and/or sediment chemistry following the first application. The total estimated costs (including engineering and treatment oversight) for the recommended split application of alum to each lake are shown in Table 4-1. Typically, in-lake alum treatments are effective for 15 to 20 years, with shallow lakes experiencing shorter durations of effectiveness, depending on the extent of watershed treatment. However, it is expected that the split applications of alum, combined with the extent of stormwater treatment in the East Goose Lake watershed, will ensure that the effective life of the alum treatment is greater than ten years and would likely approach 15 years. VLAWMO will be responsible for any future maintenance that will be needed to achieve the effective life of the project.

4.2.2 Spent Lime for Internal Load Control in Oak Knoll Pond

Barr (1992) previously demonstrated the potential use of spent lime sludge from water treatment operations as a bottom sealer to prevent phosphorus release from anoxic sediments collected from Goose Lake. The study used a sediment/water microcosm approach that showed that various small doses of spent lime were capable of completely controlling sediment phosphorus release under anoxic conditions. Since these experiments were conducted, Barr has demonstrated the efficacy of using spent lime to treat phosphorus and solids in stormwater runoff, but in-lake treatment for sediment phosphorus control has not been attempted outside of the lab setting. Since a significant portion of the cost of in-lake alum

treatment is associated with the chemical costs, it is worth considering alternatives such as spent lime, which is a byproduct of water treatment operations that currently incurs significant expense for disposal by local utilities.

It is recommended that VLAWMO initiate a study, in cooperation with Barr, to evaluate pilot-scale implementation of this treatment approach in Oak Knoll Pond as well as development of the conceptual design and potential cost-effectiveness for full-scale implementation of in-lake treatment for any other watershed basins that are currently experiencing high levels of sediment phosphorus release. The recommended study objectives would include assessments of spent lime availability and transportation costs, savings in comparison with current disposal methods, the equipment needs and costs for surface water applications including both filter cake and slurry forms of spent lime, and assessments of sediment and surface water quality improvements as well as the overall life-cycle cost-effectiveness for comparison with other in-lake treatment options. It is expected that the consulting costs for this pilot-scale study could range from \$15,000 to \$30,000, depending on the treatment extent and monitoring requirements.

4.2.3 Lake Vegetation Management Plan (LVMP)

A lake vegetation management plan (LVMP) is a document the Minnesota Department of Natural Resources (DNR) develops with public input to address aquatic plant issues on a lake. The LVMP is intended to balance riparian property owner's interest in the use of shoreland and access to the lake with preservation of aquatic plants, which is important to the lake's ecological health. It is recommended that VLAWMO work with the DNR and the public to develop a LVMP for both East and West Goose Lakes that will prescribe the permitted aquatic plant management actions (mechanical and/or herbicides) for a five-year period, including controls for invasive plants and restoration of lake shore habitat. VLAWMO contracted the Ramsey Conservation District to perform an aquatic vegetation survey in 2014. VLAWMO will submit this survey to the DNR and inquire about whether the survey information can be used as the control for future plant management actions, or if further data collection is necessary.

VLAWMO staff has contacted DNR staff to determine next steps to create the LVMP. The Ski Otters and other stakeholders have indicated a willingness to be part of a task force to develop the LVMP. More fieldwork could be done in 2019, if needed. Documenting the invasive curly leaf pondweed will be done in the 2019 season. The Ski Otters have chemically treated the curly leaf population since 2008 using Aquathall. One year they tried harvesting with the Birch Lake harvesting machine but were concerned about vegetative spreading of the AIS. The task force of interested stakeholders could work over 2018-2019.

5.0 References

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Projects and Practices Application

Grant Name - Goose Lake Alum Treatment 2020

Grant ID - C20-6375

Organization - Vadnais Lake Area WMO

Allocation	Projects and Practices 2020	Grant Contact	Dawn Tanner
Total Grant Amount Requested	\$190,000.00	County(s)	Ramsey
Grant Match Amount	\$47,500	12 Digit HUC(s)	070102060802
Required Match %	25%	Applicant Organization	Vadnais Lake Area WMO
Calculated Match %	25%	Application Submitted Date	9/9/2019
Other Amount			
Project Abstract	<p>East Goose Lake (62-0034) in White Bear Lake, MN, is a listed impaired waterbody (303(d) Impaired Waters) for nutrient levels for recreational use. East Goose Lake total phosphorus (TP) and Chlorophyll-a levels average nearly 4 times shallow lake State standards. High nutrient levels have resulted in a lake that is devoid of vegetation and dominated by algae, including blue-green algae. VLAWMO seeks funding to perform a 2-phase alum treatment on East Goose Lake, as the most cost-effective means to remove biologically available phosphorus from the water column in East Goose and also improve the unnamed wetland, locally referred to as West Goose, located directly downstream (62—0126).</p> <p>Studies conducted on East Goose Lake show that 88% of East Goose Lake’s phosphorus loading is internal. Reports that provide more detail include the TMDL (Wenck, 2014) and feasibility study (Barr, 2018). A 91% overall reduction in phosphorus is needed to meet the MPCA TP standard for shallow lakes (Wenck, 2014).</p> <p>Historical accumulated inputs combined with external inputs led to the current internal load. East Goose Lake was</p>		

	<p>the discharge point for the White Bear Lake Wastewater Treatment Plant from the 1930s to the 1960s. Addressing problems in East Goose lake are important because it is part of the headwaters of Lambert Creek, tributary to East Vadnais Lake, which is the drinking water reservoir for more than 430,000 St. Paul residents. This area is also identified by the MDA Source Water Protection Area Map as High Priority (See attachments).</p> <p>External loading has been and continues to be reduced in the subwatershed. Best management practices (BMPs) have been completed including stormpond additions (N = 7), a network of raingardens on County Rd. F, and major redevelopment BMPs. In 2019, Barr Engineering completed hydraulic/hydrologic modeling to identify and provide preliminary designs of 3 projects (WBF Grant P19-3281). One of these projects will be implemented spring 2020.</p>
<p>Proposed Measurable Outcomes</p>	<p>An annual reduction of 800 lbs of phosphorus per year during treatment is projected in East Goose Lake with a lifespan of 10-15 years. Monitoring will be conducted twice per month, May through Sept. Long-term monitoring has been in place since 2007.</p>

Narrative

Questions & Answers	
	<p>Does your organization have any active competitive CWF grants? If so, specify FY and percentage spent. Also, explain your organization's capacity (including available FTEs or contracted resources) to effectively implement additional Clean Water Fund grant dollars.</p>
	<p>VLAWMO has one FY 2018 CWF grant (C18-2907) for implementation of an iron-enhanced sand filter on Birch Lake. Grant funding percentage spent is 0% to date. Construction has not begun. Final plans were completed this summer. A first round of project bidding occurred. There was a misinterpretation between engineering designs and contractor bids. Consequently, a second round of bidding will be conducted during winter 2019 for a spring 2020 construction.</p> <p>VLAWMO has 5 FTEs, 3 of which have experience with grant implementation and reporting. FTEs with BWSR grant experience include our Administrator, Program Development Coordinator, and GIS Watershed Technician. VLAWMO works with partners and especially engineering firms to design and develop plans for implementation. Barr Engineering is a contracted resource for this project. Barr conducted background studies for this alum treatment, including calculating dosage, timing, and costs. Barr also serves as an expert resource during stakeholder meetings and responds to questions as they arise.</p> <p>VLAWMO maintains current reporting on all active BWSR grants; works with community and agency partners for permitting and approvals; collaborates with City Councils and related representatives including City Administrators, engineers, environmental specialists, and others to build support and restrictions required to protect BMPs and ensure successful implementation; and maintains communication with our BWSR representative.</p> <p>VLAWMO works with watershed partners to plan and allocate match dollars required as part of CWF grant funding.</p>
	<p>Water Resource: Identify the water resource the application is targeting for water quality protection or restoration.</p>

Questions & Answers

East Goose Lake is targeted by this proposed alum treatment. The Lake is at the headwaters of Lambert Creek and flows 4 miles southwest to East Vadnais Lake, the drinking water reservoir for St. Paul and surrounding cities, serving more than 430,000 customers. The lake has high phosphorus levels, is devoid of vegetation, and has high incidence of algae blooms including blue-green algae. A map of the project area is included in attachments.

East Goose Lake is part of a large-scale restoration plan that VLAWMO is working on also with MPCA. East Goose Lake flows into Lambert Creek, which has high nutrients and is impaired for bacteria. The bacteria impairment and TMDL led to a 4-year bacteria study on the Creek that was completed in 2018. Results of the bacteria study informed a proposal for MPCA 319 funding. The proposal was successful, and VLAWMO is currently working on plans to re-meander the ditched channel flowing out of Lambert Lake and insert a network of biochar treatment cells to remove bacteria and nutrients. VLAWMO is contracting with SEH Engineering to finalize construction plans and working on permitting for that project currently. VLAWMO is also working with the University of Minnesota for the biochar treatment cell portion of the project.

The Lambert Creek project is relevant to East Goose Lake because East Goose Lake flows into Lambert Creek. The Creek is also high in nutrients. Biochar treatment cells will remove nutrients. Reducing nutrient delivery to these cells from East Goose Lake will also improve effectiveness of the Lambert Creek BMPs.

East Goose Lake has about a dozen landowners that live on the lake. The lake does not have public access, but it is highly visible in the watershed. Highway 61 bisects East and West Goose Lakes and is a major travel route in the watershed. Nearby White Bear Lake is just a couple of blocks away and a lake of biological significance with documented species of concern present.

Question 1 (17 points): (A) Describe why the water resource was identified in the plan as a priority resource. For the proposed project, identify the specific water management plan reference by plan organization (if different from the applicant), plan title, section, and page number. (B) In addition to the plan citation, provide a brief narrative description that explains whether this application fully or partially accomplishes the referenced activity. (C) Provide weblinks to all referenced plans.

(A) East Goose Lake is identified as a priority resource, due to its position as a headwaters and contributor to the St. Paul area drinking supply reservoir of East Vadnais Lake, and is severely impaired for nutrients by way of internal loading. In VLAWMO's Comprehensive Watershed Management Plan 2017-2026, Executive Summary, Page 4, Goal 1-1: Work to delist all waters within VLAWMO currently on the 303d Impaired Waters list; Strategy 1-1-1: Show measurable in-lake nutrient reductions in targeted impaired waters (Goose Lake, Wilkinson Lake, Gem Lake, and Gilfillan Lake) within the first 5 years of Plan implementation. Also Section 5, Plan Implementation and Roles, Page 48, Figure 15, under Goose Lake: "Internal load mitigation project implementation."

(B) This application fully and specifically accomplishes Strategy 1-1-1 in the referenced water plan, as well as project implementation under Plan Implementation and Roles, by implementing an in-lake treatment to show a "measurable in-lake reduction[s] in targeted impaired waters..." by way of an "Internal load mitigation project implementation."

Question 1. (C): Provide web link(s) to all referenced plans.

http://www.vlawmo.org/files/8115/5777/2245/2019_VLAWMO_Plan_Amendment_Public_Comment.pdf

Questions & Answers

<http://www.vlawmo.org/about/why-water-matters/>

Question 2 (3 points): (A) Describe how the resource of concern aligns with at least one of the statewide priorities referenced in the Nonpoint Priority Funding Plan. (also referenced in the “Projects and Practices” section of the RFP). (B) Describe the public benefits resulting from this proposal from both a local and state perspective.

(A) East Goose Lake is a headwaters of the drinking water reservoir for the greater St. Paul area, as directly mentioned under the bullet 1, priority 3 “Restore and protect water resources for public use and public health, including drinking water“. A feasibility study has also been completed for the Goose Lake Subwatershed (as referenced in the 5th bullet point), identifying the East Goose Lake alum treatment as well as projected effective life. Downstream, West Goose Lake hosts substantial recreation activity, and it is projected that an internal load treatment on East Goose will reduce nutrient levels downstream.

(B) Locally, thousands of cars pass through the middle of East and West Goose Lake on Highway 61. VLAWMO often receives comments every season on the aesthetics of the Lake. Our goal is to instill community pride back into East Goose Lake. A healthy fish population exists in the Lake, as documented in a 2017 fish survey. Although there is no public access on the lake, fishing along the shoreline is a popular recreational activity. The City of White Bear Lake has also expressed interest in renovating the City-owned property on the north shore to include a fishing pier. An alum treatment has the potential to not only revitalize the aesthetics of the Lake and surrounding area, but to restore appreciation and responsibility for clean water and stewardship in the public and surrounding community. From the greater-public’s standing, this is another opportunity to showcase how an impaired shallow lake can be restored and the positive impacts and benefits it can have on a local ecosystem and economy.

Question 3. (15 points) Describe the methods used to identify, inventory, and target the root cause (most critical pollution source(s) or threat(s)). Describe any related additional targeting efforts that will be completed prior to installing the projects or practices identified in this proposal.

As identified in the 2014 VLAWMO TMDL Implementation Plan and 2018 Feasibility Study, 88% of phosphorus loading to East Goose Lake is internal primarily from historical wastewater inputs, 11% is from watershed loading, and 1% is atmospheric. A 2-phase alum treatment of East Goose Lake is the most effective means of reducing nutrient levels, preventing pH fluctuations during dosing, and bringing the Lake closer to meeting the shallow lake State water-quality standard.

VLAWMO has targeted efforts underway. We held a series of targeted Goose Lake stakeholder meetings. Presentations included individual stakeholder options to improve water quality, alum treatment process and Q&A, and vegetation restoration following an alum treatment. Stakeholder meetings are complemented by newspaper articles and regular updates on the VLAWMO website. The VLAWMO Board provided a formal recommendation to the City as of Aug. 28, 2019. The City is taking that information forward to develop an ordinance to prevent motorized boat traffic and protect the alum treatment. A focused initiative was launched during spring 2019 with Watershed Partners, VLAWMO, and the City of White Bear Lake for a focused Goose Lake Adopt-a-Drain effort. VLAWMO and the City are promoting Adopt-a-Drain to residents and monitoring sign-ups.

The Goose Lake subwatershed has been the target of cost-share projects (described more in Q4 of this proposal). Additional BMPs have also been installed or are in the process of being installed with supervision by the City. Projects are remediating previously identified hotspots described in our 10-year plan, including the Polar Chevrolet Channel (See Q4).

Questions & Answers

In 2019, Barr completed hydraulic/hydrologic modeling to identify and provide preliminary designs of 3 projects (WBF Grant P19-3281). Modeling identified hotspots of nutrient inputs. One of these projects will be implemented during spring 2020. VLAWMO will pursue funding for the remaining 2 projects designed to 60%.

Question 4. (10 points): How does this proposal fit with complimentary work that you and your partners are implementing to achieve the goal(s) for the priority water resource(s) of concern? Describe the comprehensive management approach to this water resource(s) with examples such as: other financial assistance or incentive programs, easements, regulatory enforcement, or community engagement activities that are directly or indirectly related to this proposal.

In the 2018 Goose Lake Feasibility Study, 22 stormwater BMPs in place were highlighted and are estimated to be treating 2/3 of the stormwater runoff before it flows into East Goose Lake. These include stormwater ponds, large in-line raingardens, swirl separators, and infiltration pipes implemented by the City and Ramsey County.

For compliance with Watershed and City stormwater standards for redevelopment, several large-scale BMPs have been implemented over the years to achieve stormwater treatment and improve infiltration. Some examples include: 2 auto dealerships, a church parking lot reconstruction, City of White Bear Lake Public Works site reconstruction, and 5 road reconstructions. BMPs implemented include underground treatment cells, infiltration basins and raingardens, swirl separators, and storm ponds.

East Goose Lake is listed in VLAWMO's 10-year Plan as a prioritized targeted waterbody. VLAWMO is not a permitting agency, but it has carried out regular water-quality monitoring on East Goose since 2007, and has completed studies and reports on the Lake. VLAWMO utilized WBF funds to complete a Project Implementation Subwatershed Study for East Goose Lake and will implement at least 1 identified BMP capital improvement project (described in Q3).

Regulatory enforcement is also underway for East Goose Lake. There are about a dozen landowners that have homes on East Goose. Of these, 4-6 have motorized boats, and one of their valued uses is waterskiing. VLAWMO has been working with these landowners by conducting a survey, engaging in conversation, compiling and presenting a thorough literature review of the science of alum treatments, and working with the City to pass an ordinance prohibiting motorized boat traffic during the 3 years of the alum treatment and either limiting motor size or continuing to prohibit motorized traffic beyond. VLAWMO is directly supporting the City Council as the process continues.

Question 5. (10 points): (A) What is the primary pollutant(s) will this application specifically address? (B) Has a pollutant reduction goal been set (via TMDL or other study) in relation to the pollutant(s) or the water resource that is the subject of this application? If so, please state that goal (as both an annual pollution reduction AND overall percentage reduction, not as an in-stream or in-lake concentration number). (C) If no pollutant reduction goal has been set, describe the water quality trends or risks associated with the water resource or other management goals that have been established. (D) For protection projects, indicate measurable outputs such as acres of protected land, number of potential contaminant sources removed or managed, etc.

(A) Total phosphorus is the pollutant to be addressed by an alum treatment.

(B) A total pollutant reduction goal of 91% of total phosphorus loading (both internal and watershed loading combined), and a 96% internal loading reduction goal for total phosphorus was set in the 2014 TMDL Report and implementation plan (Wenck, 2014). This called for a 1832.8 lbs/year total reduction of total phosphorus, and 1706.1 lbs/year internal reduction of total phosphorus within East Goose Lake.

Questions & Answers

(C) N/A

(D) N/A

Question 6. (10 points): (A) What portion of the water quality goal will be achieved through this application? Where applicable, identify the annual reduction in pollutant(s) that will be achieved or avoided for the water resource if this project is completed. (B) Describe the effects this application will have on the root cause of the issue it will address (most critical pollution source(s) or threat(s)).

(A) The 2-phase alum treatment will bind phosphorus that was deposited into the lake through use of the lake as a wastewater receptacle in the 1930s-1960s. The alum treatment is administered in 2 phases to deliver the full dose in shallow lakes while maintaining stable pH levels. The pH will be monitored during the first half dose (scheduled for fall 2020, pending funding). The lake will be allowed to stabilize for a year before the remaining dose is administered.

Following an alum treatment, bound phosphorus settles in a floc layer onto the sediment. Initially, the floc layer is loose and disturbs easily. It compacts over months. Preventing disturbance to the bottom is critical in allowing a biofilm layer to settle over the top and maximize effectiveness of the treatment.

VLAWMO has been working on 2 tasks to protect the lake bottom from disturbance. The first was removing rough fish and working to repair the fish community. During 2013 and 2014, 16,000 pounds of bullhead were removed. A follow-up survey in 2017 showed that population reductions were sustained. A second follow-up survey is scheduled for fall 2019. The second task involves assisting the City of White Bear Lake in enacting an ordinance to limit motorized boating (Described previously).

(B) The project impacts water quality by clarifying the water column and allowing the establishment of aquatic vegetation. The alum treatment will achieve an 800 lbs/year removal of total phosphorus in the East Goose Lake basin. Along with the current watershed BMPs in place, an alum treatment will put East Goose Lake at the threshold of meeting the shallow lake state water quality standard of .06 mg/L of total phosphorus average per year.

VLAWMO also has next steps in place including monitoring and conducting early herbicide treatments for Curly-leaf pondweed (present in West Goose). VLAWMO has a transplant permit in place with MN DNR with a source lake in the watershed for native plants of the same ecotype.

Question 7. (5 points): If the project will have secondary benefits, specifically describe, (quantify if possible), those benefits. Examples: hydrologic benefits, enhancement of aquatic and terrestrial wildlife species, groundwater protection, enhancement of pollinator populations, or protection of rare and/or native species.

With improved water quality, aquatic vegetation will recover. VLAWMO will also supplement native vegetation. This will benefit wildlife, provide habitat, and stimulate ecosystem services.

A survey conducted by Ramsey County (RCSWCD) on June 13, 2019, showed that the lake was devoid of vegetation, dominated by algae, and that algae included blue-green algae with the potential to cause harmful algal blooms. The alum treatment will allow the lake to switch to a clear-water system with native plants instead of algae. Often this switch is rapid in shallow lakes.

VLAWMO is making progress in helping the native-plant community establish by securing a permit with MN DNR to transplant native aquatics into the lake. Gem Lake is not infested and is identified as the source lake. VLAWMO has identified target species and locations where these plants can be removed at low

Questions & Answers

densities to protect the source lake populations as well.

VLAWMO is being proactive in controlling potential invasive species in East Goose Lake. Curly-leaf pondweed (CLP) is present in West Goose and has been treated chemically and by mechanical removal in the past. The algae-dominated system in East Goose has likely prevented establishment of CLP. When water clarity improves, CLP may expand. VLAWMO is addressing that by collaborating with scientists at the University of Minnesota to identify optimal treatment timing for CLP (i.e., varies by year but need to be soon after ice-out because of the early growth cycle) and carry out treatment. VLAWMO will focus revegetation efforts around culverts in East Goose that connect it to West Goose because these are likely locations where CLP would initially establish.

Pollinator habitat has been reinforced through cost-share projects. These are not specifically improved with an alum treatment, but the Goose Lake Subwatershed is a priority area for Rusty patched bumble bees, and cost-share projects have been expanded to support these and other important pollinators.

Question 8. (15 points): A) Describe why the proposed project(s) in this application are considered to be the most cost effective and feasible means to attain water quality improvement or protection benefits to achieve or maintain water quality goals. Has any analysis been conducted to help substantiate this determination? Discuss why alternative practices were not selected. Factors to consider include, but are not limited to: BMP effectiveness, timing, site feasibility, practicality, and public acceptance. Note: For in-lake projects such as alum treatments or carp management, please refer to the feasibility study or series of studies that accompanies the grant application to assess alternatives and relative cost effectiveness. You will also need to attach a copy of this study within the Attachments tab. (B) If your application is proposing to use incentives above and beyond payments for practice costs, please describe rates, duration of payments and the rationale for the incentives' cost effectiveness. Note: For in-lake projects such as alum treatments or carp management, please refer to the feasibility study or series of studies that accompanies the grant application to assess alternatives and relative cost effectiveness. Please attach feasibility study to your application in eLINK.

Through analysis and modeling reported in the 2014 VLAWMO TMDL Implementation Plan (Wenck, 2014) and 2018 East Goose and West Goose Lakes In-Lake Treatment Feasibility Study (Barr, 2018), an in-lake alum dosing treatment has been determined to be the most cost-effective option to reduce internal phosphorus loading. At a cost of \$213 per pound of TP removed annually (Table 4-1, page 17; Barr, 2018), an alum treatment is by far the most feasible and cost-effective means to meet the shallow lake water-quality standard. For comparison, the next most cost-effective project is an on-line stormwater infiltration project at a cost of \$4,000 per pound of TP removed annually (Table 4-1, page 17; Barr, 2018).

Four sediment studies (2010, 2014, 2015, and 2017) have been completed on the lake. Results among these studies are consistent. The most recent sediment study, completed in 2017 by Barr Engineering, quantified the amount of Fe-P and Org-P to determine the proper volume and dosing necessary for a successful alum treatment. VLAWMO also has 20 years of monitoring data for East Goose Lake, including YSI data such as dissolved oxygen, pH, dissolved solids, and temperature that not only aided in more accurate dosing, but is a substantial benchmark to compare data, post-treatment, and a quantifiable determination of project success.

Alternative practices and best management practices identified, such as upstream, in-ground stormwater treatment are being pursued with Watershed Based Funding (Barr, 2018). However, these projects still will only achieve a fraction of total phosphorus removal that is necessary for East Goose Lake to meet State standards. One alternative practice that was not chosen or considered was sediment removal and dredging, as the cost of the project would be very high and, ultimately, infeasible.

Questions & Answers

Question 9. (8 points): What steps have been taken or are expected to ensure that project implementation can begin soon after the grant award? Describe general environmental review and permitting needs required by the project (list if needed). Also, describe any discussions with landowners, status of agreements/contracts, contingency plans, and other elements essential to project implementation.

As mentioned in other sections of the application, sediment studies, water-quality monitoring, and a feasibility study have been completed.

A series of stakeholder meeting have been facilitated including involvement from state agencies (DNR, MPCA, BWSR), property owners, City staff, Ramsey County staff, policy makers, and VLAWMO staff to discuss implications of different projects, including alum treatment, and to seek direction on which project to pursue for East Goose Lake. The most recent stakeholder meeting was held in January, 2019.

VLAWMO will move forward with oversight agencies on permitting requirements as soon as the project is selected for grant approval and funding. We have been in touch with MPCA regarding permitting. MPCA has changed the way they permit alum treatments. Because the treatment does not constitute an ongoing discharge, MPCA does not require a permit. They do require a letter of support from the agency. VLAWMO has provided all background information for such a letter. That has been reviewed by MPCA. The agency does not write cover letters of support prior to funding, so all components are ready to go, and MPCA has verified that they have all of the information needed to write a cover letter of support to VLAWMO once funding is received.

To ensure the effective lifespan of an alum treatment, VLAWMO has developed a specific boating restriction plan for East Goose Lake, and has formally recommended this to the City of White Bear Lake for adoption and implementation as a City Ordinance.

VLAWMO is also be working with MN DNR on vegetation management as previously described. That work includes a transplant permit for native vegetation that is in place and valid for 3 years.

Question 10. (2 points): What activities, if any proposed, will accompany your project(s) that will communicate the need, benefits, and long term impacts to your local community? This should go above and beyond the standard newsletters, signs and press releases.

VLAWMO plans to continue holding stakeholder meetings and events to maintain community engagement, continue to provide information about the project, and respond to questions. In addition, we will engage stakeholders in specific projects focused on the lake and subwatershed. Specific projects and programs include: Adopt-a-Drain, lakeshore restoration efforts, and revegetation workdays. The focused effort for Adopt-a-Drain was discussed in detail earlier in this proposal. That effort will continue and expand. Lakeshore restoration efforts are underway and in early proposal stages for East and West Goose Lakes, especially in areas of high erosion. We will support residents working to implement these efforts. We will be working on in-lake revegetation, also already discussed earlier in this proposal. Revegetation efforts will include the involvement of teams of volunteers. VLAWMO is currently implementing drop-in workdays for buckthorn removal in an infested wetland and at a site adjacent to a sand-iron filter that is being constructed. We will expand upon these workday models to include revegetation efforts in Goose Lake.

VLAWMO has an excellent relationship with local press publications including: North Oaks News, White Bear Press, and Vadnais Heights Press. We have written articles previously about Goose Lake and will continue to use these avenues of communication to reach residents with project details and updates. We also communicate regularly via our website and social media platforms and highlight projects in the watershed. We will highlight the Goose Lake alum treatment in all of these media platforms and share photos of the process as we go along.

Questions & Answers

Question 11. (0 points). All project applications for feedlots must include a work sheet with supplemental questions being answered. This worksheet is found on the BWSR webpage "Apply for Grants." Have you attached this worksheet?

N/A

The Constitutional Amendment requires that Amendment funding must not substitute traditional state funding. Briefly describe how this project will provide water quality benefits to the State of Minnesota without substituting existing funding.

Match funding for grant funds, if awarded, will be comprised of dollars coming directly from VLAWMO and its community partners, including the City of White Bear Lake and possibly Ramsey County. VLAWMO is a small WMO and funding for large Capital Improvement Projects such as this one would not be possible without Clean Water Funding or other State grant funds. VLAWMO has a long and successful track record of responsibly utilizing State funds to implement projects that maximize cost-effectiveness to improve and restore water quality.

Application Budget

Activity Name	Activity Description	Category	State Grant \$ Requested	Activity Lifespan (yrs)
Alum Treatment 1/2	Alum treatment dosing application 1 of 2. Increase in cost for alum treatment from \$170,000 in the feasibility study to the requested amount of \$190,000 is to reflect expected increase in cost from 2018 to the possible implementation year of 2020.	NON-STRUCTURAL MANAGEMENT PRACTICES	\$95,000.00	
Alum Treatment 2/2	Alum treatment dosing application 2 of 2. Increase in cost for alum treatment from \$170,000 in the feasibility study to the requested amount of \$190,000 is to reflect expected increase in cost from 2018 to the possible implementation year of 2020.	NON-STRUCTURAL MANAGEMENT PRACTICES	\$95,000.00	

Proposed Activity Indicators

Activity Name	Indicator Name	Value & Units	Waterbody	Calculation Tool	Comments
Alum Treatment 1/2	PHOSPHORUS (EST. REDUCTION)	800 LBS/YR	East Goose Lake	Other	PHREEQC model used. Indicator value reflects split

Activity Name	Indicator Name	Value & Units	Waterbody	Calculation Tool	Comments
					alum application.
Alum Treatment 2/2	PHOSPHORUS (EST. REDUCTION)	800 LBS/YR	East Goose Lake	Other	PHREEQC model used. Indicator value reflects split alum application.

Activity Details

Activity Name	Question	Answer
Alum Treatment 1/2	Dollar amount requested for Ag BMP Loan Program:	0
Alum Treatment 1/2	Dollar amount requested for CWP Loans:	0
Alum Treatment 2/2	Dollar amount requested for Ag BMP Loan Program:	0
Alum Treatment 2/2	Dollar amount requested for CWP Loans:	0

Application Image

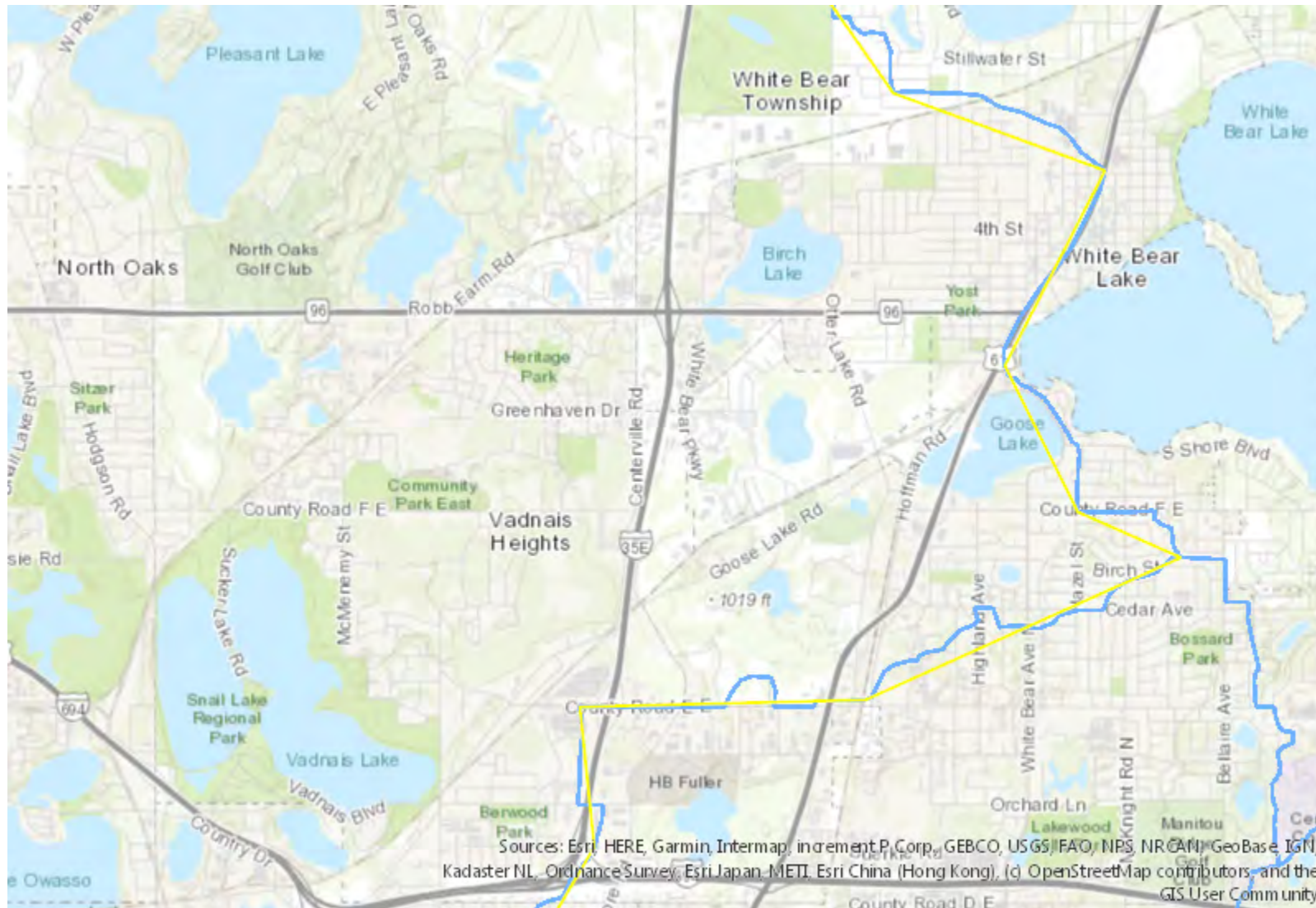
Figure 1: Goose Lake subwatershed with implemented infiltration basins and storm ponds. Pink boxes show locations for possible BMPs that VLAWMO is pursuing implementing over the next 2-3 years. These boxes include hotspots identified by Barr Engineering, the current alum treatment for East Goose, and major shoreline restoration on West Goose.



Figure 2: MDA Source Water Protection Areas shows priority areas in the Vadnais Lake Area Watershed. East Goose Lake is labelled and circled in the image. East Goose Lake has a designation of High Priority for drinking water source protection.



Map Image





Grant Workplan Projects and Practices 2020

Grant Title - Goose Lake Alum Treatment 2020

Grant ID - C20-6375

Organization - Vadnais Lake Area WMO

Original Awarded Amount	\$190,000.00	Grant Execution Date	
Required Match Amount	\$47,500.00	Original Grant End Date	12/31/2022
Required Match %	25%	Grant Day To Day Contact	Dawn Tanner
Current Awarded Amount	\$190,000.00	Current End Date	12/31/2022

Budget Summary

	Budgeted	Spent	Balance Remaining
Total Grant Amount	\$190,000.00	\$0.00	\$190,000.00
Total Match Amount	\$47,500.00	\$0.00	\$47,500.00
Total Other Funds	\$50,000.00	\$0.00	\$50,000.00
Total	\$287,500.00	\$0.00	\$287,500.00

**Grant balance remaining is the difference between the Awarded Amount and the Spent Amount. Other values compare budgeted and spent amounts.*

Budget Details

Activity Name	Activity Category	Source Type	Source Description	Budgeted	Spent	Last Transaction Date	Matching Fund
Alum Application and Engineering - Match	Non-Structural Management Practices	Local Fund	City of White Bear Lake & VLAWMO	\$47,500.00			Y
Alum Treatment 1/2	Non-Structural Management Practices	Current State Grant	Goose Lake Alum Treatment 2020	\$95,000.00			N

Activity Name	Activity Category	Source Type	Source Description	Budgeted	Spent	Last Transaction Date	Matching Fund
Alum Treatment 2/2	Non-Structural Management Practices	Current State Grant	Goose Lake Alum Treatment 2020	\$95,000.00			N
Create Restricted Lake Access	Special Projects	Local Fund	VLAWMO Funds	\$10,000.00			N
Education & Outreach/Stakeholder Engagement	Education/Information	Local Fund	VLAWMO Funds	\$4,000.00			N
Fish Management	Special Projects	Local Fund	VLAWMO Funds	\$16,000.00			N
Water Quality Monitoring	Monitoring/Data Collection	Local Fund	VLAWMO	\$20,000.00			N

Activity Details Summary

Activity Details	Total Action Count	Total Activity Mapped	Proposed Size / Unit	Actual Size / Unit
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Proposed Activity Indicators

Activity Name	Indicator Name	Value & Units	Waterbody	Calculation Tool	Comments
Alum Treatment 1/2	PHOSPHORUS (EST. REDUCTION)	800 LBS/YR	East Goose Lake	Other	PHREEQC model used. Indicator value reflects split alum application.
Alum Treatment 2/2	PHOSPHORUS (EST. REDUCTION)	800 LBS/YR	East Goose Lake	Other	PHREEQC model used. Indicator value reflects split alum application.

Grant Activity

Grant Activity - Alum Application and Engineering - Match	
Description	This includes alum applications, engineering and project oversight by Barr Engineering. Barr Engineering will oversee and coordinate alum applications. Cost share match will be provided by City of White Bear Lake and VLAWMO.
Category	NON-STRUCTURAL MANAGEMENT PRACTICES
Has Rates and Hours?	No

Grant Activity - Alum Treatment 1/2	
Description	Alum treatment dosing application 1 of 2. Increase in cost for alum treatment from \$170,000 in the feasibility study to the requested amount of \$190,000 is to reflect expected increase in cost from 2018 to the possible implementation year of 2020.
Category	NON-STRUCTURAL MANAGEMENT PRACTICES
Has Rates and Hours?	No

Grant Activity - Alum Treatment 2/2	
Description	Alum treatment dosing application 2 of 2. Increase in cost for alum treatment from \$170,000 in the feasibility study to the requested amount of \$190,000 is to reflect expected increase in cost from 2018 to the possible implementation year of 2020.
Category	NON-STRUCTURAL MANAGEMENT PRACTICES
Has Rates and Hours?	No

Grant Activity - Create Restricted Lake Access	
Description	Work with the City of White Bear Lake to establish a restricted use access to East Goose for monitoring and management activities.
Category	SPECIAL PROJECTS
Has Rates and Hours?	No

Grant Activity - Education & Outreach/Stakeholder Engagement

Description	Establish stakeholder engagement plan, the VLAWMO website, social media and other platforms will be utilized in the effort. An emphasis on dialogue as well as informational presentations will be made.
Category	EDUCATION/INFORMATION
Has Rates and Hours?	No

Grant Activity - Fish Management

Description	Schedule a fall 2020 preliminary bullhead harvest. Future harvest based on future fish survey results. Will be assessed for future game fish stocking. Fish surveys as needed.
Category	SPECIAL PROJECTS
Has Rates and Hours?	No

Grant Activity - Water Quality Monitoring

Description	Monitor water quality before and after alum applications for nutrient levels.
Category	MONITORING/DATA COLLECTION
Has Rates and Hours?	No

Grant Attachments

Document Name	Document Type	Description
2020 Competitive Grant	Grant Agreement	2020 Competitive Grant - Vadnais Lake Area WMO
Application	Workflow Generated	Workflow Generated - Application - 09/09/2019
Goose Lake Subwatershed Map and Drinking Water Source Protection Areas	Grant	Goose Lake Alum Treatment 2020
UMRSWPP letter of support for Goose Lake alum treatment	Grant	Goose Lake Alum Treatment 2020
VLAWMO East and West Goose Lake Feasibility Study 2018	Grant	Goose Lake Alum Treatment 2020
grantmap_24815_2019-09-09_01-23-41-PM.jpg	Grant	Goose Lake Alum Treatment 2020

Figure 1: Goose Lake subwatershed with implemented infiltration basins and storm ponds. Pink boxes show locations for possible BMPs that VLAWMO is pursuing implementing over the next 2-3 years. These boxes include hotspots identified by Barr Engineering, the current alum treatment for East Goose, and major shoreline restoration on West Goose.

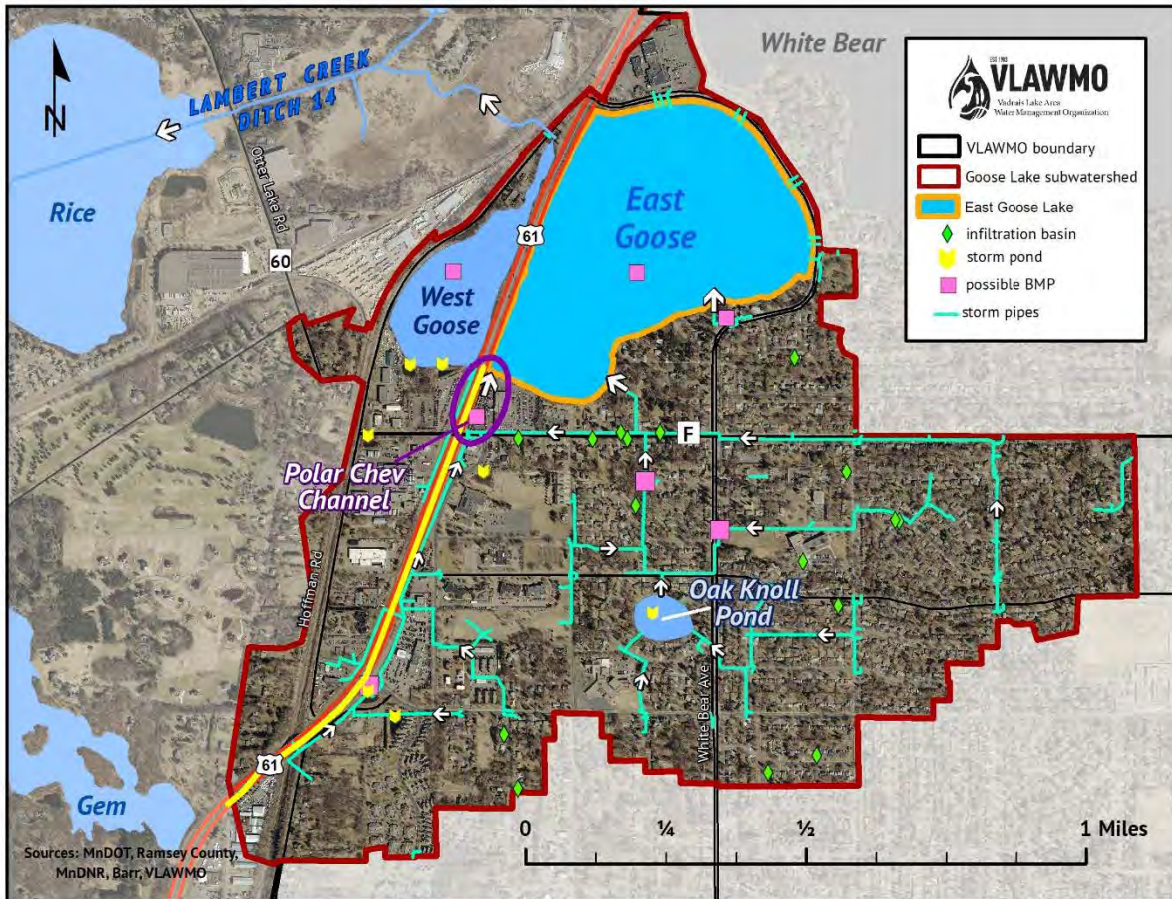
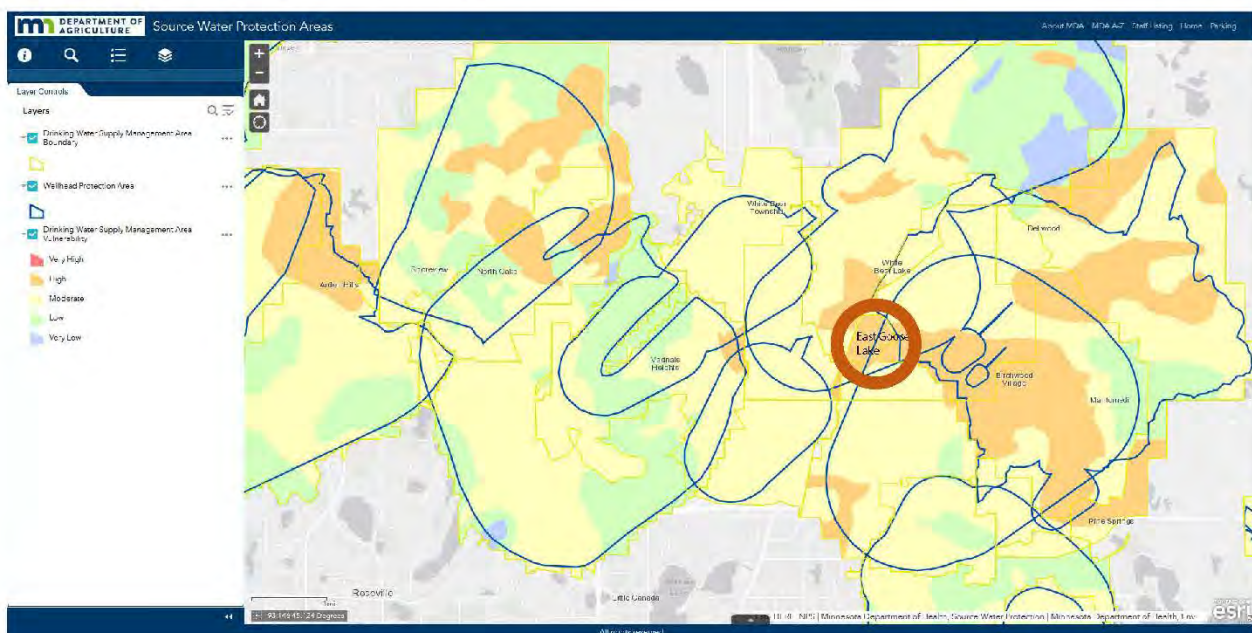
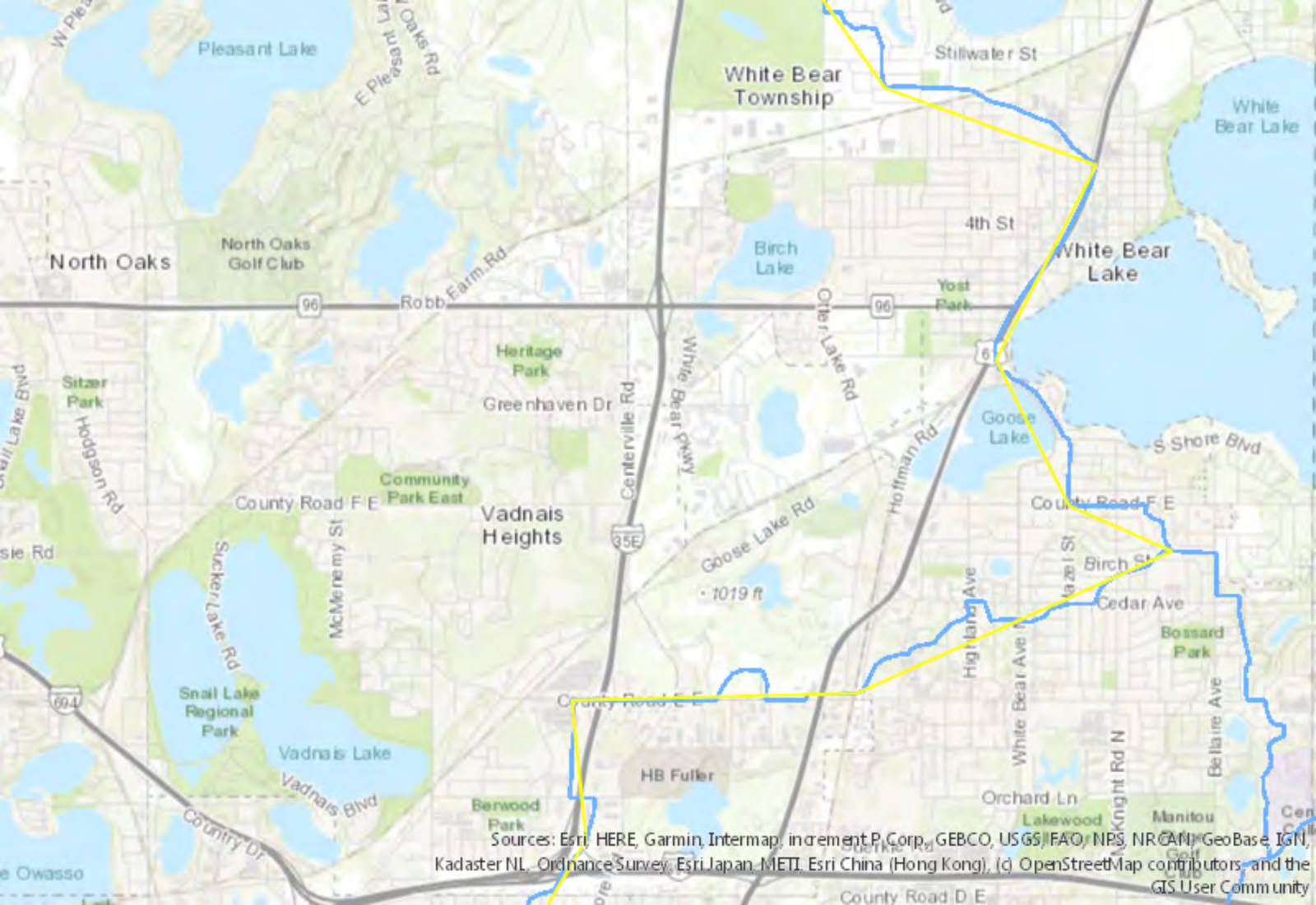


Figure 2: MDA Source Water Protection Areas shows priority areas in the Vadnais Lake Area Watershed. East Goose Lake is labelled and circled in the image. East Goose Lake has a designation of High Priority for drinking water source protection.





Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan (METI), Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



To: VLAWMO Board
From: Phil Belfiori, Administrator
Date: May 21, 2020
Re: LMC Liability coverage waiver form.

Background

The Board is required to consider the attached information related to the League of Minnesota Cities liability coverage waiver form. In the past the Board voted to not waive the monetary limits on municipal tort liability established by the MN Statutes Section 466.04 to the extent of the limits of the liability coverage obtained from LMCIT. According to Justin Bullis (VLAWMO’s Insurance agent), “You always want to select the ‘Does Not waive’ the monetary limit on municipal tort liability. The municipal tort 466.04 helps to protect government organizations / entities by limiting their liability”.

Proposed motion:

Board member _____ moves that the VLAWMO not waive the monetary limits on municipal tort liability established by Minnesota Statutes, Section 466.04 to the extent of the limits of the liability coverage obtained from the LMCIT.

Attachment

LMC liability coverage- Waiver Form

From: [Justin Bullis](#)
To: [Phil Belfiori](#)
Subject: RE: Filling out liability renewal form questions
Date: Monday, May 4, 2020 2:35:56 PM
Attachments: [image001.png](#)
[Waiver form for VLAWMO SIGNED.PDF](#)

Hi Phil,

Here is a copy of last years' waiver form for your records. You always want to select the 'Does Not waive' the monetary limit on municipal tort liability. The municipal tort 466.04 helps to protect government organizations / entities by limiting their liability.

Thank you!

Justin

Justin Bullis
Bullis Insurance Agency, LLC
Office (952)449-0089
Direct (952)698-7444
Fax (952)449-0208
Mobile (952)201-9572

Thank you for your business!
We grow by satisfied customers like you.

Confidentiality Notice: The information included in this e-mail including any attachments, is for the sole use of the intended recipient and may contain confidential and privileged information. Any unauthorized review, use, disclosure, distribution, or similar action is prohibited. If you are not the intended recipient, please contact the sender and destroy or return all copies of the original message

LIABILITY COVERAGE – WAIVER FORM

Members who obtain liability coverage through the League of Minnesota Cities Insurance Trust (LMCIT) must complete and return this form to LMCIT before the member's effective date of coverage. Return completed form to your underwriter or email to pstech@lmc.org.

The decision to waive or not waive the statutory tort limits must be made annually by the member's governing body, in consultation with its attorney if necessary.

Members who obtain liability coverage from LMCIT must decide whether to waive the statutory tort liability limits to the extent of the coverage purchased. The decision has the following effects:

- *If the member does not waive the statutory tort limits, an individual claimant could recover no more than \$500,000 on any claim to which the statutory tort limits apply. The total all claimants could recover for a single occurrence to which the statutory tort limits apply would be limited to \$1,500,000. These statutory tort limits would apply regardless of whether the member purchases the optional LMCIT excess liability coverage.*
- *If the member waives the statutory tort limits and does not purchase excess liability coverage, a single claimant could recover up to \$2,000,000 for a single occurrence (under the waive option, the tort cap liability limits are only waived to the extent of the member's liability coverage limits, and the LMCIT per occurrence limit is \$2,000,000). The total all claimants could recover for a single occurrence to which the statutory tort limits apply would also be limited to \$2,000,000, regardless of the number of claimants.*
- *If the member waives the statutory tort limits and purchases excess liability coverage, a single claimant could potentially recover an amount up to the limit of the coverage purchased. The total all claimants could recover for a single occurrence to which the statutory tort limits apply would also be limited to the amount of coverage purchased, regardless of the number of claimants.*

Claims to which the statutory municipal tort limits do not apply are not affected by this decision.

LMCIT Member Name:

Check one:

- The member **DOES NOT WAIVE** the monetary limits on municipal tort liability established by [Minn. Stat. § 466.04](#).
- The member **WAIVES** the monetary limits on municipal tort liability established by [Minn. Stat. § 466.04](#), to the extent of the limits of the liability coverage obtained from LMCIT.

Date of member's governing body meeting: _____

Signature: _____ Position: _____



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

To: VLAWMO Board of Directors

From: Tyler Thompson

Date: May 21, 2020

Re: V. C. 1. Cost Share Program – Landscape Level 2: 2020-04

V. C. 1. Landscape Level 2 Grant Application: 2020-04 Monda Lambert Creek Restoration Extension, Vadnais Heights.

Tony Monda, property owner where the last Lambert Creek, Koehler restoration was completed in 2017, contacted staff with an interest on extending that restoration further down his property. The applicant contacted Outdoor Lab, the contractor that completed the last restoration, to use existing designs to extend the restoration 60 linear feet of the creek bank on his property. This section of Lower Lambert Creek has very steep banks and is considered ideal and critical for restoration and stabilization to prevent further erosion.

The restoration would be 800 square feet in total size, extending up the streambank and would include hard armoring, as well as native seeds and plant plugs covered by jute blanket, just as the previous restoration had established. The design of this restoration is largely unchanged from the previous restoration due to how well the 2017 restoration has since held up over the past few years. The total project cost is \$8,003.30 and the Technical Commission recommended at their May 8th meeting that project be funded in the amount of \$4,416.30, which is the remaining fund balance of the Landscape Level 2 cost share program for 2020. If approved, this would be a 44.8% cost match from the property owner, over the typically-required 25%.

Recommendation: Staff and TEC are recommending to the Board for the approval and funding of the Landscape Level 2 grant application 2020-04 in the amount of \$4,416.30.



Vadnais Lake Area Water Management Organization
 800 East County Rd E
 Vadnais Heights, MN 55127
 www.vlawmo.org
 (651) 204-6070

LANDSCAPE LEVEL 2 GRANT APPLICATION FORM

Please submit form and required materials to: TYLER THOMPSON
tyler.thompson@vlawmo.org
 (651) 204-6071

Please fill in the application as best as possible and use additional pages if necessary. Refer to the Grant Guidance document for further information or contact Tyler Thompson with any questions.

APPLICANT INFORMATION

ORGANIZATION NAME: Anthony Monda (Homeowner)

CONTACT PERSON: Anthony Monda

ADDRESS: 448 Koehler Road CITY: Vadnais Heights ZIP: 55127

PHONE: 651-407-8349 EMAIL: tonymonda@yahoo.com

PROJECT SUMMARY

ESTIMATED TOTAL COST OF YOUR PROJECT: \$ 8,003.33 AMOUNT OF GRANT REQUESTED: \$ 4,416.30

AMOUNT & SOURCE OF MATCHING FUNDS? (25% MATCH REQUIRED): \$3,587.03 (44.8% match from applicant)

WHEN DO YOU PLAN TO COMPLETE YOUR PROJECT? July, 2020

TYPE OF PROJECT THAT WILL BE COMPLETED:

Raingarden/ Infiltration Basin Shoreline Restoration Native Plant Restoration Other

If other, please describe proposed project: _____

PROJECT BACKGROUND

DESCRIBE YOUR PROPERTY (INCLUDING WATER RESOURCES WHICH MAY BORDER THE PROPERTY), AND WHAT ISSUE YOU HOPE TO ADDRESS WITH THIS PROJECT.

Our property borders Lower Lambert Creek in Vadnais Heights. Currently, the steep streambank is eroding and sloughing. To permanently stabilize and prevent future erosion, we are looking to work with Outdoor Lab to extend the previous restoration project completed further upstream in 2017 further down onto our section of the creekbank.

WHAT RESULTS DO YOU HOPE TO ACHIEVE WITH THIS PROJECT?

With this creek bank restoration, we are working to permanently stabilize and prevent any more erosion of sediment and debris from depositing into Lambert Creek and going downstream. Both hard-armoring in the form of boulders and a Minnesota Woodland Edge native seed mix will be planted and secured with jute blanket to provide permanent bank stabilization.

HOW WILL THIS PROJECT BE USED TO EDUCATE THE PUBLIC ABOUT GOOD WATER RESOURCE STEWARDSHIP?

This project would be an extension of the 2017 Lambert Creek stream bank restoration which is open and accessible to the public. We are open to future VLAWMO site visits and tours to demonstrate and educate the public on the importance of stream bank restoration for the protection of downstream water quality.

PLEASE LIST OTHER PARTNERS WHO ARE PROVIDING FUNDING OR OTHER FORMS OF SUPPORT.

There are no other project funding partners. The grant match is coming entirely from the homeowner.

PROJECT SPECIFICATIONS

In order to be considered for a LL2 grant, information regarding the water quality benefit of your project (amount of stormwater and phosphorus captured) must be included. If you are working with a professional designer/contractor and they are able to determine the pollutant capture, include that information with the application. If they are not able to provide the data, please fill in the information below so that VLAWMO staff can perform the calculations.

TOTAL PROPERTY AREA (SQ.FT.): .29 acres PROJECT SIZE (SQ.FT.): 800 sq ft

IMPERVIOUS AREA DRAINING TO PROJECT (SQ.FT.): N/A PERVIOUS AREA DRAINING TO PROJECT (SQ.FT.): N/A

IF YOUR PROJECT IS A RAINGARDEN, PLEASE PROVIDE THE FOLLOWING INFORMATION

SOIL INFILTRATION RATE (INCHES/HR): N/A DEPTH OF RAINGARDEN (INCHES): N/A

ADDITIONAL REQUIRED MATERIALS



PROJECT DRAWINGS, SPECIFICATIONS, TIMELINE, ANTICIPATED PLANT LIST AND A DETAILED BUDGET MUST BE SUBMITTED IN ADDITION TO PROVIDING THE ABOVE INFORMATION.

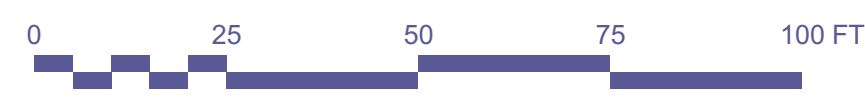
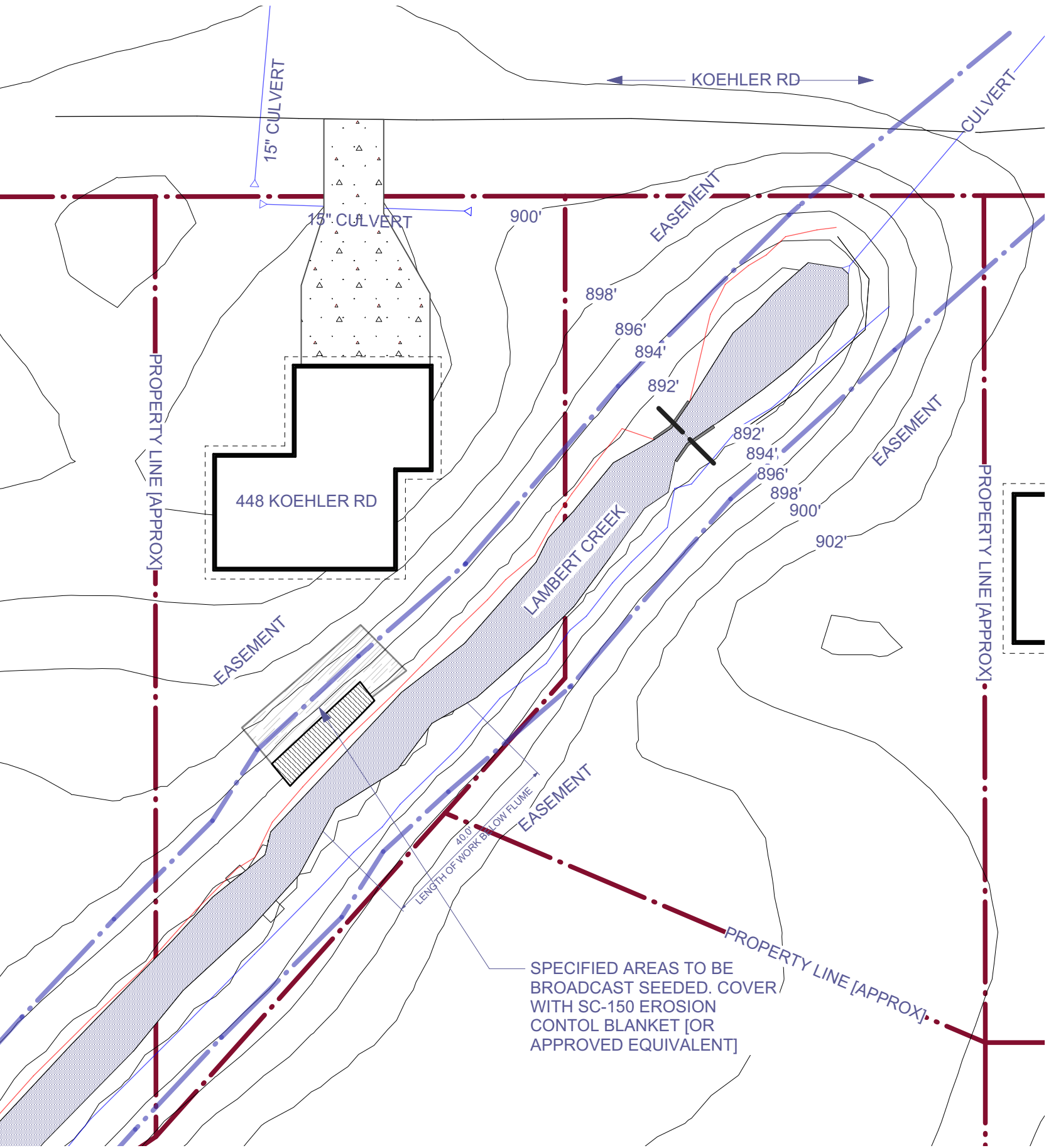
1 PLANTING SCHEDULE

SEEDING SCHEDULE			
SEED MIX	AREA PLANTED (ACRES)	PLS LBS./ACRE	TOTAL PLS LBS.
36-211	0.01	35.50	0.4 LB

PLUG PLANTING SCHEDULE				
QTY	SCIENTIFIC	COMMON	SIZE	SPACING
10	<i>ASCLEPIAS INCARNATA</i>	SWAMP MILKWEED	2" PLUG	36" O.C.
10	<i>CAREX STRICTA</i>	TUSsock SEDGE	2" PLUG	36" O.C.
10	<i>CAREX VULPINOIDEA</i>	FOX SEDGE	2" PLUG	36" O.C.
10	<i>EUPATORIUM PURPUREUM</i>	JOE PYE WEED	2" PLUG	36" O.C.
10	<i>IRIS VERSICOLOR</i>	BLUE FLAG IRIS	2" PLUG	36" O.C.
10	<i>LOBELIA CARDINALIS</i>	CARDINAL FLOWER	2" PLUG	36" O.C.

SHRUB PLANTING SCHEDULE				
QTY	SCIENTIFIC	COMMON	SIZE	SPACING
22	<i>DIERVILLA LONICERA</i>	DWARF BUSH HONEYSUCKLE	#2	5' O.C.

-  PROPOSED JUTE BLANKET
-  MN STATE SEED MIX 36-211 [WOODLAND EDGE South & West] ANNUAL RYE MIX 60% 211 MIX & 20% RYE




Tony Monda
448 Koehler Rd
Vadnais Heights, MN

Lambert Creek

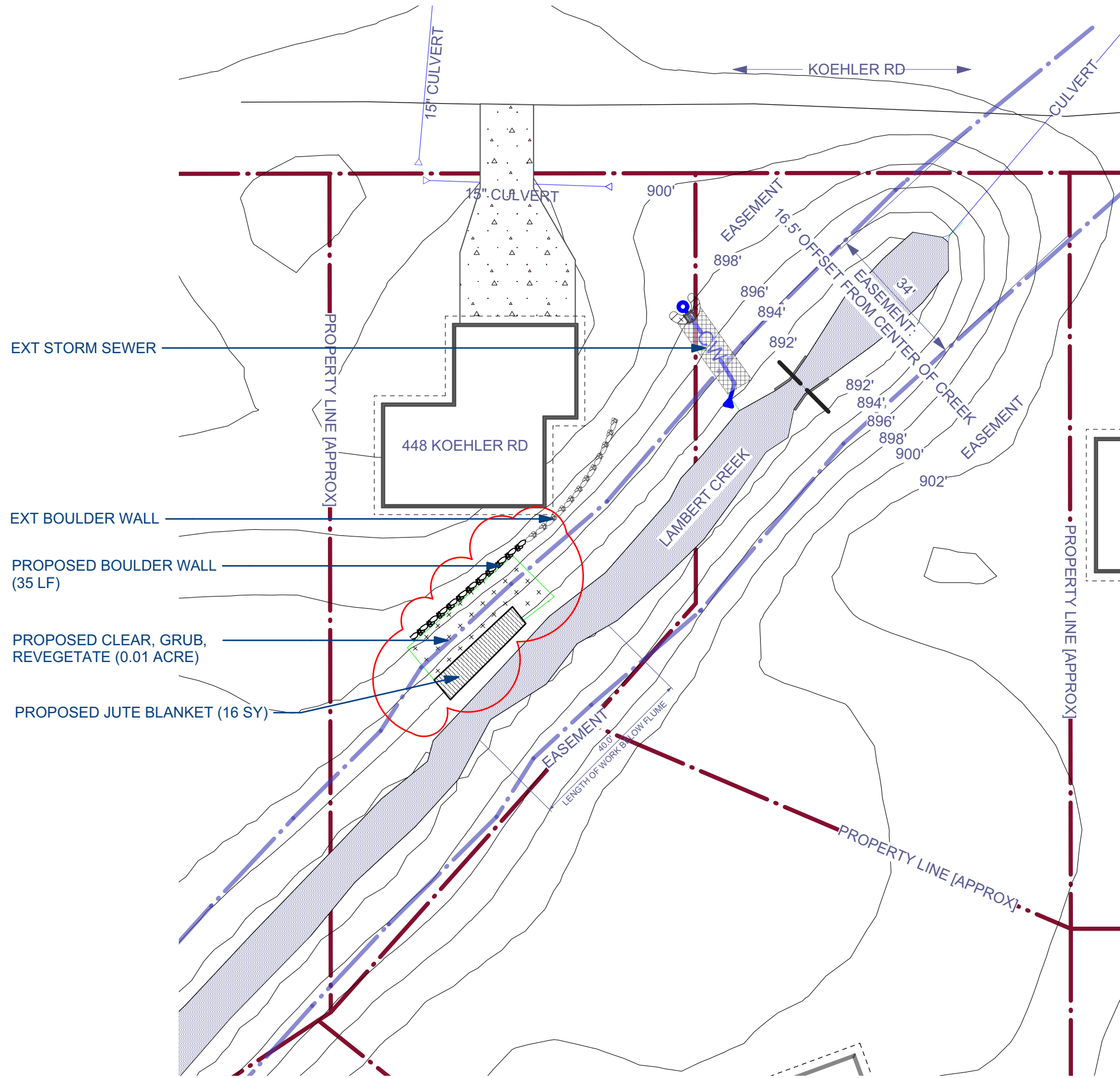
DATE	REVISIONS
4/20/20	EXTEND SHORELINE STABILIZATION PLAN
4/30/20	ADJUST PLANTING PLAN



Outdoor LAB
Landscape Design & Build
email: chuck@outdoorlab.net
phone: 651-202-3662
address: 147 Tenth Street East
St. Paul, Mn 55101

DRAWN BY	KO
CHECKED	CH
APPROVED	Approved
SCALE	See scale bar 
EDITED BY	EM

Date: 11/14/16



EXT STORM SEWER

EXT BOULDER WALL

PROPOSED BOULDER WALL
(35 LF)

PROPOSED CLEAR, GRUB,
REVEGETATE (0.01 ACRE)

PROPOSED JUTE BLANKET (16 SY)

448 KOEHLER RD

PROPERTY LINE [APPROX]

PROPERTY LINE [APPROX]

KOEHLER RD

15" CULVERT

15" CULVERT

CULVERT

EASEMENT

16.5' OFFSET FROM CENTER OF CREEK

EASEMENT

34'

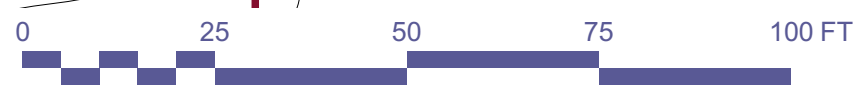
EASEMENT

EASEMENT

40.0' LOW FLUME

PROPERTY LINE [APPROX]

-  9 OZ JUTE BLANKET
-  CLEAR AND GRUB
-  REVEGETATE



Tony Monda
448 Koehler Rd
Vadnais Heights, MN

Lambert Creek

DATE	REVISIONS
4/20/20	EXTEND SHORELINE STABILIZATION PLAN
4/30/20	ADJUST PLANTING PLAN



Landscape Design & Build
email: chuck@outdoorlab.net
phone: 651-202-3662
address: 147 Tenth Street East
St. Paul, Mn 55101

DRAWN BY	KO
CHECKED	CH
APPROVED	Approved
SCALE	See scale bar
EDITED BY	EM

Date: 11/14/16

1196 7th Street East, St. Paul, Minnesota 55106

Project Manager: Emily Morton
 Job Name: Tony Monda
 Street Address: 448 Koehler Rd
 City, State, Zip: Vadnais Heights, MN
 Telephone (home): 651-407-8349
 Telephone (cell): _____
 Job Description: Shoreline Stabilization

Proposal Date: May 1, 2020
 Revised Date: _____
 Bill To: _____
 Street Address: _____
 City, State, Zip: _____
 Email Address: tonymonda@yahoo.com

Item	Description
Demo	Clear and Grub
Install	SC-150BN Erosion Control Blanket
Install	MNDOT 36-711 Seed Mix
Install	60 total - 2" Plugs at 36" Spacing
Install	18-24" Fieldstone Boulders
Install	Class 5 Base
Install	Geotextile Fabric
Install	3" Topsoil above boulder wall
Install	22 total - Dwarf Bush Honeysuckle at 5' spacing
Install	Site Restoration (Turf Repair)

Sub-Total		\$8,003.33
MN Sales tax	\$0.00000	\$0.00
New Total		\$8,003.33

Outdoor Lab Landscape Design Inc, Project Manager Date

Client's Signature Date

The undersigned agrees to the scope of work, price, and payment terms described above.
 Payment Terms: Net 30 Days

Plant materials are subject to availability and substitutions may be made as necessary. All trees and woody plant materials are warranted for one year from the date of the projects completion. Warranty does not cover lack of proper care, animal, vehicle, storm, drought, vandalism or human caused damage. Outdoor Lab Landscape Design Inc proposes to furnish material and labor complete in accordance with the above description of work to be completed and cost estimate. All work is to be completed in a workman like manner according to standard practices. Any alteration or deviation from the above description of work to be completed involving additional cost will be executed only upon written order and will be charged over and above this estimate. All labor and material is conclusively accepted as satisfactory unless expressed in writing within 60 days of performance. All agreements are contingent upon strikes, accident or delays beyond our control. Damage to driveways, underground structures (wires, cables, irrigation) is the responsibility of the party accepting this agreement. Measures shall be taken on the part of Outdoor Lab Landscape Design, Inc to ensure the site is prepared to prevent foreseeable damage due to weather during the installation period. Any delays or damage to landscaped area due to weather may be charged over and above this estimate. This agreement gives consent to Outdoor Lab the use of photograph of work completed by Outdoor Lab for training, literature and marketing of Outdoor Lab

PLEASE TAKE NOTICE: ANY PERSON OR COMPANY SUPPLYING LABOR OR MATERIALS FOR THIS IMPROVEMENT TO YOUR PROPERTY MAY FILE A LIEN AGAINST YOUR PROPERTY IF THAT PERSON OR COMPANY IS NOT PAID FOR THE CONTRIBUTIONS.
 UNDER MINNESOTA LAW, YOU HAVE THE RIGHT TO PAY PERSONS WHO SUPPLIED LABOR, EQUIPMENT, OR MATERIALS FOR THIS IMPROVEMENT DIRECTLY AND DEDUCT THIS FROM OUR CONTRACTORS PRICE, OR WITHHOLD THE AMOUNTS DUE THEM FROM US UNTIL 120 DAYS AFTER THE COMPLETION OF THE IMPROVEMENT UNLESS WE GIVE YOU A LIEN WAIVER SIGNED BY PERSONS WHO SUPPLIED ANY LABOR OR MATERIAL FOR THE IMPROVEMENT AND WHO GAVE YOU TIMELY NOTICE.