

March 6, 2014

Ms. Claire Bleser
District Administrator
Riley Purgatory Bluff Creek Watershed District
8080 Mitchell Rd
Eden Prairie, MN 55344

Re: Proposal for Services
Aquatic Vegetation Management in Mitchell and Red Rock Lake and Lake Lucy

Thank you for the opportunity to provide this proposal to assist the Riley Purgatory Bluff Creek Watershed District (herein the "District") with the development of an Aquatic Vegetation Management Plan for Mitchell and Red Rock Lake and Lake Lucy. Wenck is uniquely positioned to help the District manage shallow lakes due to our staff expertise and involvement in state-wide shallow lake management groups. Specifically, Wenck offers the following experience and expertise to the Aquatic Vegetation Management Plan for Mitchell and Red Rock Lake and Lake Lucy:

1. **Staff Experience.** Wenck's staff has been managing lakes in Minnesota for over 30 years, including projects such as vegetation management, alum addition, hypolimnetic aeration, and hydrologic control. Furthermore, Wenck staff includes limnologists, fisheries biologists, and wetland ecologists to support our extensive engineering capabilities. Wenck believes this multidisciplinary approach provides a comprehensive understanding of shallow lake management.
2. **Leader in Shallow Lake Management.** Wenck staff have supported and led the Shallow Lake Forum which brings together state-wide experts in shallow lakes. This experience has expanded the technical breadth of Wenck's shallow lake expertise and built partnerships with the Minnesota DNR, Ducks Unlimited, and other technical groups actively managing shallow lakes.
3. **Experience Developing Lake Vegetation Management Plans.** Wenck has conducted aquatic vegetation surveys and assessments for numerous lakes in Minnesota. Most of these plans required difficult and often contentious differences among lake users and

agencies responsible for managing the lakes. Wenck successfully negotiated these differences to develop scientifically rigorous management plans that meet the desired outcomes of our clients and the lake users.

PROJECT TEAM

Wenck's project team provides a broad range of experience in managing vegetation in shallow lakes, from biological aspects through life-cycle engineering cost estimates. Joe Bischoff (aquatic ecologist) will serve as project manager, supported by Chris Meehan, P.E. (Principal Engineer), Jeff Strom (limnologist), Jeff Madejczyk (fisheries biologist), Wes Boll (aquatic vegetation specialist) and Jordan Shuck (GIS). As with previous projects, this team is committed to direct communication and coordination with District staff to ensure that the project outcome is the most effective use of resources toward achieving the District's goals.

Summary paragraphs are provided below for critical team members; detailed resumes are available at your request.



Joe Bischoff, M.S., Principal – Project Manager, Limnologist

Joe has more than 16 years of experience as a limnologist and water quality scientist. He has served as project manager and technical lead for multidisciplinary projects including lake and watershed restoration. Joe routinely leads projects including all aspects of lake management such as watershed studies, sediment chemistry, aquatic vegetation management, fisheries management, alum dosing and specifications, lake drawdown, and other management techniques. Joe sits on the North American Lake Management Society's Policy Committee and was involved in the planning and execution of the Shallow Lake Forum.

Joe has been the project manager and lead scientist for numerous lake water quality studies and management plans, including the following:

- Management plans for Lily, McKusick, and Long Lakes in Stillwater, MN
- Lily, Long and McKusick Aquatic Management Plans, Stillwater, MN
- Nest Lake Management Plan, Middle Fork Crow River Watershed District, MN
- Clear and Bald Eagle Lake Implementation Plans, Twin Cities, MN
- Bald Eagle Lake Alum Dosing and Technical Specifications, Twin Cities, MN
- Crystal Lake Internal Nutrient Load Control Feasibility Study, Robbinsdale, MN
- Bald Eagle Lake TMDL and Implementation Plan, White Bear Lake, MN



Chris Meehan, P.E., Principal – Project Engineer

Chris has more than 13 years of experience in the fields of watershed planning, lake restoration, water quantity and quality modeling, environmental review, and stream restoration design and construction management. He has served as project manager and project engineer on several multidisciplinary projects and previously worked for the DNR on the identification and management of AIS. Chris served as a project manager in preparing the Lake Susan UAA update for the District which focused on developing practical solutions to reduce phosphorus loading to Lake Susan. The result of the project was the identification of cost effective strategies which would achieve 300% of the necessary load reductions necessary to delist Lake Susan.

Chris has also been the project manager and lead engineer for numerous management plans and water resource projects which have dealt with aquatic vegetation and AIS, including the following:

- Lily, Long and McKusick Aquatic Management Plans, Stillwater, MN
- Nest Lake Management Plan, Middle Fork Crow River Watershed District, MN
- Sauk Lake Vegetation Management plans in Sauk Centre, MN
- Rice Lake Nutrient TMDL, Paynesville, MN
- Plymouth Creek Stream Restoration, Plymouth, MN



Wes Boll, WDC, Aquatic Vegetation Specialist

Wes has been involved in a wide variety of professional duties focusing primarily on aquatic vegetation management, wetland management, biological inventories, and surface water quality monitoring. Wes has been involved in numerous aquatic vegetation surveys and management plans where he has conducted field analysis on threat potential of AIS. Wes has been part of teams which have evaluated prevention and management solutions to AIS. He is also a Certified Wetland Delineator in the State of Minnesota and has performed wetland delineations throughout Minnesota. He is skilled at identifying and classifying aquatic vegetation, hydric soils, and indicators of wetland hydrology.



Jeff Madejczyk, Fisheries Biologist

Jeff has worked as an environmental scientist on a wide variety of projects over a twelve year period. His background and education are in fisheries biology and aquatic ecology. Jeff has served as both a project manager and a project scientist on a variety of ecological monitoring, TMDL, and environmental permitting efforts, including fish and macroinvertebrate monitoring, endangered species analysis, utility corridor studies, storm water permitting, contaminated sediment permitting, and construction permitting activities.

PROJECT EXAMPLES

The Wenck project team is ideally suited for this project because of our experience addressing holistic ecosystem management of lakes, wetlands, and streams in urban environments. Our team understands the challenges associated with managing aquatic vegetation in shallow recreational lakes, including the threats of Aquatic Invasive Species in Minnesota, and excels in recommending appropriate and cost-effective strategies focused on achieving measurable outcomes. Projects highlighted below demonstrate our experience with similar projects.

Aquatic Plant Management Plans for Lily, McKusick, and Long Lakes, Stillwater, Minnesota.

Wenck developed aquatic vegetation management plans for Lily, Long and McKusick Lakes in Stillwater, Minnesota. AIS species were present in all lakes and required analysis on cost effective approaches to manage current infestations along with methods to prevent contamination of adjacent lakes. As part of the plan stakeholder input was gathered to optimize implementation strategies due to limited City resources. The result of active stakeholder input upfront resulted in streamline adoption of the plan by the City.



Nest Lake Aquatic Plant Management Plan, Middle Fork Crow River Watershed District.

Wenck completed comprehensive analysis of AIS for Nest Lake in Kandiyohi County. The project involved evaluating multiple management and prevention alternatives as part of a long-term management plan. Through the project Wenck led stakeholder input, strategic planning sessions, and cost-benefit analysis for the preferred alternatives. The project was awarded the “2012 Project of the Year” by the Middle Fork Crow River Watershed District.

Six Mile Creek Watershed Diagnostic Study, Minnehaha Creek Watershed District.

Wenck developed a diagnostic study for the Six Mile Creek subwatershed, which drains Halsted’s Bay in Lake Minnetonka. The Six Mile Creek watershed includes over 12 shallow and deep interconnected lakes facing stressors such as carp, invasive aquatic vegetation, ditched and drained wetlands and development. Wenck conducted aquatic vegetation surveys, analyzed fisheries data, and used water quality data to develop an ecologically-based approach for managing the lakes and the watersheds.



Lake Susan UAA Update, Riley Purgatory Bluff Creek Watershed District.

Wenck assisted the District with updating a holistic plan for the management of Lake Susan in the City of Chanhassen. Wenck worked with stakeholders to identify outcomes focused on delisting Lake Susan through cost-effective BMP implementation. Wenck's depth of experience led to the development of BMPs that could cost-effectively achieve over 300% of the needed load reductions.



Gleason Lake Management Plan, Minnehaha Creek Watershed District.

Wenck led the development of an AIS management plan for Gleason Lake in Plymouth. The lake management strategy included biotic response analysis of the fish and invertebrate communities to the vegetation management along with the calculation of biotic integrity scores for the lake. Collaborative stakeholder involvement up front, along with thorough analysis of feasible alternatives, led to a plan that the District is able to implement cost-effectively.



PROJECT UNDERSTANDING AND GENERAL APPROACH

It is our understanding that the District would like to develop aquatic vegetation management plans for Mitchell and Red Rock Lake and Lake Lucy. The purpose of the plans is to outline long-term vegetation management strategies aimed at protecting their aesthetic and ecological values. A primary focus of the management plans is to clearly define user goals and objectives for the lakes, the tools and techniques available for achieving those goals, who is responsible for each of the goals and the costs associated with any identified management activities. Wenck also understands that these lakes may be in a relatively fragile state in terms of switching between the clear and turbid water states. One of the challenges of developing long term goals for these will be to focus on stabilizing the lakes in the clear lake state.

To that end, Wenck proposes compiling baseline data on the plant communities, conducting a series of stakeholder meetings to identify goals and objectives, outlining the available plant management techniques, and developing approaches to meet the identified goals and objectives.

Wenck reviewed the data available for Mitchell and Red Rock Lake and Lake Lucy, including plant and aquatic invasive species surveys conducted by the City of Eden Prairie and data collected by Ray Newman at the University of Minnesota. We are also aware that there were data collected by the District's previous Engineer. Based on this initial review, there is a robust data set available to develop the aquatic management plans.

SCOPE OF WORK

Following is a scope of work to develop aquatic vegetation management plans for Mitchell and Red Rock Lake and Lake Lucy.

Task 1: Compile available data on aquatic vegetation and fisheries in Mitchell and Red Rock Lake and Lake Lucy.

The first step in the development of the aquatic vegetation management plans is to compile the existing data regarding aquatic vegetation in the lakes. A preliminary review of the data sets suggests that there is a very robust data for the development of the vegetation management plans, including analyses of invasive species (turion surveys, Curly leaf pondweed growth potential, extent and abundance). Wenck is also aware that there is a long history in these lakes of managing aquatic vegetation. A good timeline of plant management activities plus any other DNR data will need to be compiled for the lakes.

Wenck will also visit the local Minnesota DNR offices to compile fisheries data for the lakes, including fish kills, rough fish removal, stocking records and any other pertinent information. Fish, especially rough fish, can affect submerged aquatic vegetation communities. Compiling the appropriate fish data is critical in assessing the conditions and potential stressors to the vegetation community.

Task 2. Conduct a series of stakeholder meetings to develop issues, goals, and objectives for managing aquatic vegetation.

One of the primary objectives of the vegetation management plans is to clearly identify stakeholder goals and objectives and to outline the steps to achieving those goals. The goals developed by the stakeholder group need to be achievable, support the State beneficial uses of the lake, and improve overall conditions in the lake. Four meetings are proposed to cover the following topics:

1. Role of Vegetation in Lakes and Current Conditions
2. Lake Uses, Vegetation, and Desired Outcomes (develop goals and objectives)
3. Lake Vegetation Management Techniques and Costs
4. Review of Vegetation Management Plans

Meetings will be held individually for each lake (total of 12 meetings) but can be held consecutively on the same night for efficiency. The stakeholder process will use numerous civic engagement techniques including small group discussions.

Task 4. Develop plant management options and costs based on stakeholder developed goals and objectives.

Once the vegetation goals and objectives have been agreed upon by all of the parties, Wenck will develop a list of potential vegetation management techniques for each of the goals, including efficacy and costs. The techniques will be tailored to the objectives, including all pros and cons of the techniques. Any permitting requirements will also be identified. Wenck will work with the District and their partners to define the appropriate roles of the different Local Governing Units including the District, City, state agencies, and lake associations.

Task 5. Develop Aquatic Vegetation Management Plan reports for Mitchell and Red Rock Lake and Lake Lucy.

A final report for each lake will be developed. including the results of the data compilation, results of the stakeholder process, a review of the available management techniques, and an approach for managing aquatic vegetation in the lakes. An engineering cost estimate will also be included for the selected techniques.

COST ESTIMATE

The following table outlines our cost estimate for completing lake vegetation management plans for Mitchell and Red Rock Lake and Lake Lucy.

Task	Description	Cost
1	Compile available vegetation and fish data for the lakes.	\$3,636
2	Conduct a series of stakeholder meetings to develop issues, goals, and objectives for managing aquatic vegetation (4 meetings)	\$7,864
3	Develop plant management options and costs based on stakeholder developed goals and objectives.	\$3,012
4	Develop Aquatic Vegetation Management Plan.	\$8,748
Total		\$23,260

SCHEDULE

The project will take approximately six months to complete from the initiation of the project, assuming meetings are scheduled in a timely manner. A final report will be submitted to the District in October 2014.

On behalf of the 200-plus employee-owners of Wenck Associates, thank you again for this opportunity. If you have any questions or need further information, please feel free to contact me at (763) 479-4229 or jbischoff@wenck.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'JB', with a stylized flourish extending from the top right.

Joe Bischoff
Principal Aquatic Ecologist
Project Manager