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July 31, 2014

Ms. Margaret Johnson
District Administrator
Middle Fork Crow River Watershed District
189 County Road 8 NE
P.O. Box 8
Spicer, Minnesota 56288

Re: Proposal & Estimate for Engineer's Report for Diamond Lake Mechanical
Harvesting and/or Chemical Treatment of Invasive Vegetative Species

Dear Margaret:

Wenck Associates, Inc., (Wenck) is pleased to submit this proposal for the Diamond Lake Mechanical and/or Chemical Treatment of Invasive Vegetative Species Engineer's Report. This proposal contains all of the information in your Request for Proposals, as well as optional tasks which may be of benefit to the project. As you consider your needs for this project, please consider the following primary reasons for selecting Wenck:

- We have already successfully completed this process for the Middle Fork Crow River Watershed District on Nest Lake along with numerous other lakes similar to Diamond. This experience will create efficiencies in the development of alternatives and calculation of life-cycle costs.
- We have proven experience developing solutions and working on a range of approaches for management of curly leaf pondweed which are practical and cost-effective. This will enable for the District to bring the best solution forward to the Diamond Lake Area Recreation Association, and further strengthen the working relationship between the two organizations.
- We are able to effectively work with stakeholders when going through the petition process. Through proactive communication and outreach we are able to garner buy-in, limiting District costs associated with ongoing questions and clarifications requested by the public.

We are excited about the opportunity to work with you on this project. Please call me at 763-479-4244 if you have any questions.

Sincerely,

WENCK ASSOCIATES, INC.

Chris Meehan
Principal/Project Manager

Joe Bischoff
Principal

Enclosure

PROPOSAL FOR Diamond Lake Mechanical Harvesting and/or Chemical Treatment of Invasive Vegetative Species

Prepared for:



174 Lake Avenue N.
PO Box 8
Spicer, MN 56288
Phone/Fax: 320-796-0888

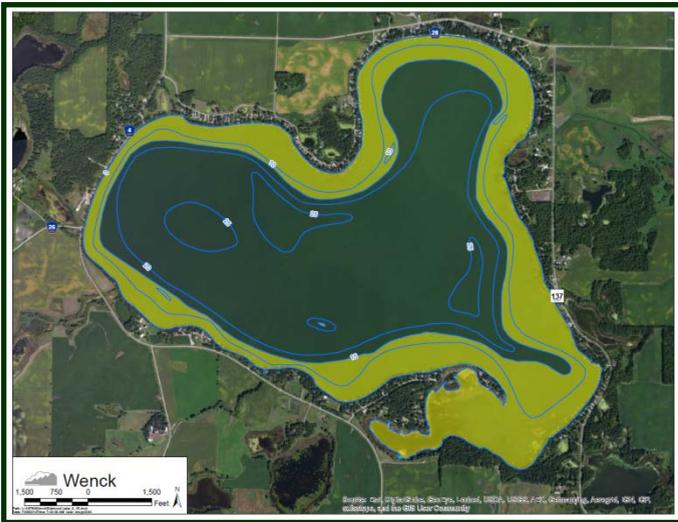
Email: chad@mfcrow.org

Prepared by:



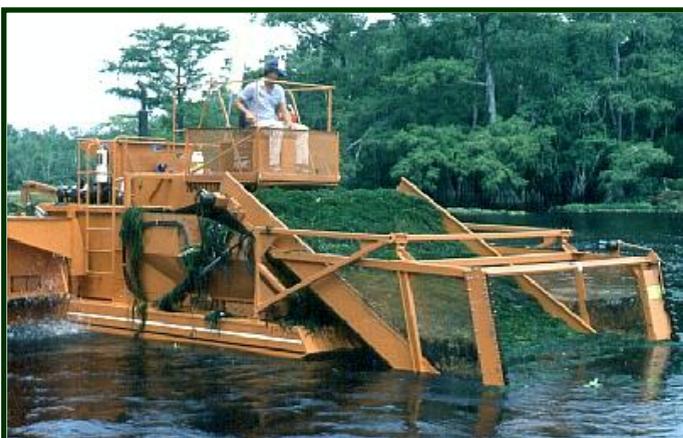
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MFCROW.ORG

middle fork crow watershed district



Approach/Scope

We are aware of the significance of this project for the Middle Fork Crow River Watershed District (MFCRWD). As a District built on developing strong relationships by delivering results Wenck Associates, Inc. intends to continue this approach through the attached work plan. The approach developed for this project looks to continue this tradition through a well thought out scope of work and proactive approach to communicate with stakeholders.

We understand the objective of this report is to develop a plan which improves water quality, navigation, distribution of costs, aesthetics, expands area of management along with maintaining economic benefits of the lake. We also understand this is a key tactic to addressing internal loading on Diamond Lake and is strategy toward meeting Total Maximum Daily Load (TMDL) goals for the lake.

Our understanding of the project is based our continual interaction with the District, our familiarity with the Diamond Lake, and our experience developing lake management plans. Based on these interactions and information, the following approach to the Diamond Lake Mechanical Harvesting and/or Chemical Treatment of Invasive Species Project includes all of the items in your petition, in addition to optional tasks which will ensure the success of project.

Task 1: Compile Existing Information

- **Wenck Tasks:** We will review pertinent existing background materials including any existing point intercept survey data by the DNR, the Diamond Lake TMDL, and existing DNR lake survey data and field observations.
- **Deliverables:** Wenck will provide a brief summary of information collected and its contents.
- **Information Needed from District:** Wenck would ask that District provide digital or scanned copies of all information collected on Diamond Lake to Wenck as soon as possible.

Task 2: Informational Interview/Stakeholder Meeting

- **Wenck Tasks:** Based on our previous review of existing information and understanding of the lake we suggest, and include as part of our scope, the completion of a workshop as soon as possible. The purpose of this workshop would be to jointly develop the list of priorities for curly leaf pondweed management. Information from this workshop would also be used to define three scenarios for analysis, thereby helping create buy-in from the community. Consensus on a clear set of approaches for evaluation in subsequent stages of the project is essential at the outset.
 - As part of stakeholder meeting we will provide approaches for curly leaf management which are both chemical and mechanical in nature.
 - Through the meeting we will also identify other factors for consideration.
 - The goal of the meeting will be to development up to three different management scenarios.
- **Deliverables:** Wenck will create presentation of the current lake status along with descriptions of alternatives to move forward with into the project alternatives analysis.
- **Information Needed from District:** Wenck would ask assistance from the District in selecting a location to host the meeting along with outreach to relevant stakeholder groups.

Approach/Scope (cont'd)

Task 3: Project Analysis/Benefits/Impacts

- **Wenck Tasks:** As a result of the stakeholder meeting Wenck will utilize our existing relationships with vendors who deal with curly leaf pondweed management to develop benefits, costs, and feasibility of each of the three alternatives developed in the stakeholder meeting.
 - Through this task we will assess environmental impacts on fisheries and fish habitat.
 - Phosphorus removal estimates will be based on literature values for phosphorus tissue content and mass per acre. Narrative descriptions will also be completed describing the potential for and the mechanisms for phosphorus sediment release from curly leaf pondweed senescence
 - Life cycle cost analysis based on a \$/acre/yr. cost basis
 - Discussion and comparison of the alternative scenarios.
- **Deliverables:** Wenck will provide a comprehensive analysis of selected alternatives to be incorporated in the Engineer's report
- **Information Needed from District:** Wenck would look to the District to provide feedback on output from alternatives analyzed prior to incorporation into the Engineer's report.

Task 4: Engineer's Report

- **Wenck Task:** Through the selection of alternatives and feedback from the District, recommendations will be developed and an Engineer's Report prepared in accordance with Minnesota Statutes 103D.711.
- **Deliverables:** An Engineer's report in accordance with Minnesota Statutes 103D.711.
- **Information Needed from District:** Wenck would look to the District to provide feedback on the draft Engineer's report prior to the Board Presentation.

Task 5: Board Presentation

- **Wenck Task:** The Engineer's report and findings will be presented to the Board.
- **Deliverables:** A presentation summarizing the findings of the Engineer's Report and a recommendation on feasible solutions.
- **Information Needed from District:** Wenck would ask assistance from the District in scheduling the presentation at an appropriate Board meeting along with communication to stakeholders on the meeting date.

Task 6: Final Hearing

- **Wenck Tasks:** If the project is found feasible and the Board does decide to move forward with the project Wenck will attend and participate at the public hearing in accordance with Minnesota Statutes.
- **Deliverables:** A presentation summarizing the findings of the Engineer's Report and a recommendation on feasible solutions.
- **Information Needed from District:** Wenck would ask assistance from the District in scheduling the hearing at an appropriate location along with communication to stakeholders on the meeting date.

Approach/Scope (cont'd)

Optional Tasks:

The critical nature of communication in a project like this lend themselves to additional public participation, but based on the requirements of Minnesota Statutes we have provided a scope which meets those requirements. However, based on our understanding and the District's view of public education and involvement we would suggest holding an additional stakeholder meeting. We suggest holding the public meeting/open house before alternatives are finalized and incorporated in the Engineer's Report. Communication of project benefits, priorities and limitations will be key for the assessment and to garner stakeholder buy-in. If requested, we can provide cost estimate for these services.

Firm Qualifications

Previous Project Management Experience

Wenck has extensive experience dealing with petitioned projects, completing Engineer’s Reports, and with curly leaf pondweed projects.

Our experience with project petitions and Engineer’s Reports comes as a result of our role as a leading supplier of Engineering Services to Minnesota Watershed Management Organizations. We currently provide services to over 20 watershed organizations. In this capacity we have helped address many petitioned projects and completed numerous Engineer’s Reports. In short, we are intimately familiar with MN State 103D.705, 103D.711, and 103D.715 requirements.

Our current expertise with curly leaf pondweed management is highlighted in the examples below which include working previously with the MFCRWD, Sauk River Watershed District and the City of Stillwater. Wenck has also completed over 20 other projects in the past five years focused on management of Aquatic Invasive Species. In all of these projects we evaluated

- Alternative analysis, including chemical and mechanical management options
- Cost estimating and cost sharing
- Estimating phosphorus reduction benefits
- Project benefits
- Permitting

Project Team

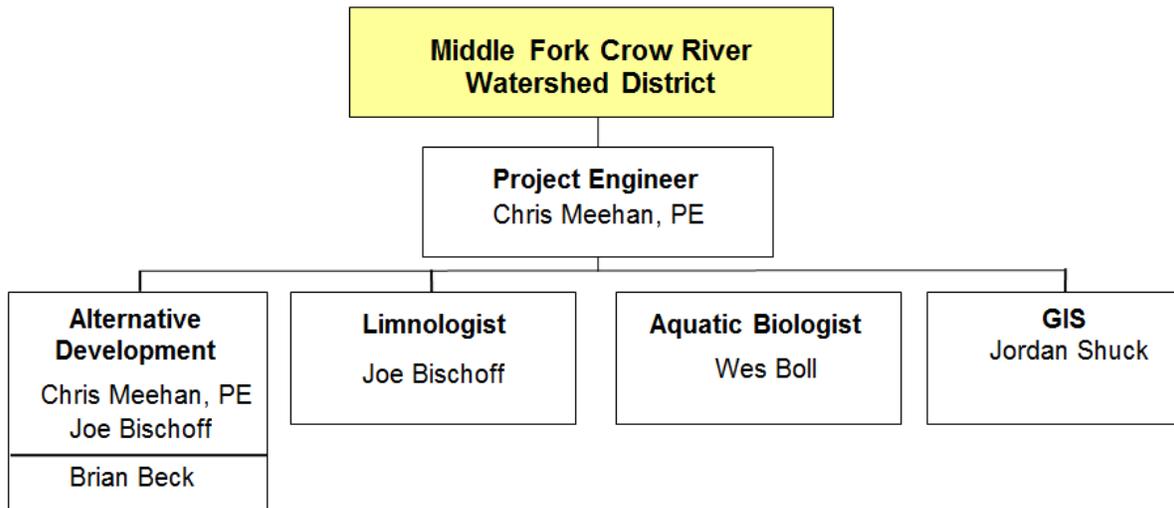
MFCRWD’s project team has been selected to build on relationships developed with the Board of Managers and District Staff. These relationships have been built through working on numerous projects with the District including the Nest Lake Aquatic Plant Management Plan, Loon Creek Stabilization project, the rules process along with shoreline stabilization projects.

Chris Meehan will continue to serve as the District’s point-of-contact. He has enjoyed the opportunity to work with you more regularly and looks forward to the opportunity of serving the District on this project. An organizational chart is provided below to demonstrate how the team will interact with the District.

We currently provide Engineering Services to:

- Middle Fork Crow River Watershed District
- Sauk River Watershed District
- North Fork Crow River Watershed District
- Clearwater River Watershed District
- Crow River Organization of Water
- Coon Creek Watershed District
- Minnehaha Creek Watershed District
- Pelican Lake Watershed District
- Riley-Purgatory-Bluff Creek Watershed District
- Rice Creek Watershed District
- Shell Rock River Watershed District
- Carnelian Marine Saint Croix Watershed District
- Capital Region Watershed District
- Yellow Medicine Watershed District
- Shingle Creek Watershed Management Organization
- Mississippi Watershed Management Organization
- West Mississippi Watershed Management Organization
- Vermillion River Watershed Joint Powers Organization
- Middle St. Croix River Watershed Management Organization

Firm Qualifications (cont'd)



Chris Meehan, Project Manager



Chris served as the Project Engineer on Nest Lake Aquatic Plant Management Plan, Big Sauk Lake Aquatic Plant Harvesting Project, Lily-McKusik-Long Lake Management Plans, Big Sauk Lake Aquatic Plant Alternatives projects noted below. Chris has over 15 years of experience in the fields of watershed planning, lake management, water quality, environmental review, and aquatic restoration. Mr. Meehan has served as project manager and project engineer on several multidisciplinary projects.

He has also served as a field technician for the Minnesota Department of Natural Resources where he completed 50 lake surveys and through his graduate work at the University of Minnesota, has extensive experience with completing macrophyte surveys, quantification and analysis.

Mr. Meehan's experience with curly leaf pond weed management alternatives in combination with his graduate work gives the MFCRWD a Project Manager with extensive experience completing Engineer's reports in addition to macrophyte management.

Joe Bischoff, M.S., Principal – Aquatic Ecologist and Limnologist



Joe has more than 16 years of experience in the fields of water resources and environmental assessment. He has served as project manager and technical lead for numerous multidisciplinary projects in lake and watershed restoration. His project and technical experience includes water quality planning and analysis, water quality modeling, watershed assessment, wetlands ecology, stream ecology and restoration, lake restoration, nonpoint source pollution, Geographic Information Systems (GIS), and Total Maximum Daily Loads (TMDLs). Joe has experience using the

P8 Urban Catchment Model, FLUX, and BATHTUB package models as well as using mass balance equations and statistics to analyze water quality.

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

Firm Qualifications (cont'd)

- Management plans for Lily, McKusick, and Long Lakes in Stillwater, MN
- Management plans for 13 lakes in Shingle Creek Watershed, Twin Cities, MN
- Management plan and diagnostic study for Twin Lake, Twin Cities, MN
- Twin Lake Management Plan and Diagnostic Study, Twin Cities, MN
- Crystal Lake Internal Nutrient Load Control Feasibility Study, Robbinsdale, MN
- Bald Eagle Lake TMDL and Implementation Plan, White Bear Lake, MN

Wes Boll, WDC, Aquatic Vegetation



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.

Jordan Shuck - GIS



Jordan's has focused primarily on GIS support for water resources and environmental engineering projects. He has expertise with ArcView 3.3, ArcGIS 8.x through 10.x, ArcGIS Spatial Analyst, ArcGIS 3D Analyst, ArcINFO, and ArcSWAT.

Jordan provided GIS support for the recent City of Eden Prairie stormwater pond inventory and assessment, a project that used GIS to determine permanent and flood storage areas and volumes, sediment volumes, pond bathymetry, and other features of approximately 240 basins in the City. He has also provided GIS analysis and ArcSWAT modeling for many TMDL studies and has served as a GIS specialist for a variety of watershed district projects, including several for the Shingle Creek Watershed Management Commission, the Coon Creek Watershed District, and the Minnehaha Creek Watershed District.

Brian Beck, Water Quality Scientist



Mr. Beck has two years of experience working on water quality data analysis, water quality modeling, sulfate geochemistry, data processing and analysis, technical report writing, and water quality monitoring. Mr. Beck graduated from the University of Minnesota - Duluth in 2012 with a MS in Water Resource Science with an emphasis in environmental chemistry. He has worked as a hydrologic and water quality modeler to develop and write TMDLs for turbidity, bacteria, and nutrients in impaired water bodies. Mr. Beck has experience using BATHTUB, PONDNET, ArcMap, and PHREEQC equilibrium geochemical modeling software.

Environmental Organizations and/or Government Unit Experience

Wenck staff have the leadership and experience necessary to balance the needs and goals of the MFCRWD while working with public agency staff along with homeowners to ensure your goals are preserved, allowing for mutual benefit and protection of water resources. Wenck has effectively coordinated between watershed districts and local stakeholder groups for more than 25 years.

Firm Qualifications (cont'd)

Wenck has successfully worked with a significant number of potential partner agencies, LGUs, research institutions to deliver effective solutions. All of the projects highlighted below required Wenck staff to coordinate with various agencies, municipalities, and private interests, including Lake Associations and the Minnesota Department of Natural Resources (MnDNR). We will continue this collaborative approach in working with the MFCRWD and Diamond Lake Area Recreation Association

Aquatic Invasive Species Experience

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

Wenck completed comprehensive analysis and Engineer's Report on 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 lead stakeholder input, strategic planning sessions, and cost-benefit analysis for the preferred alternatives. The effective stakeholder involvement and solutions developed led to the project being awarded the "2012 Project of the Year" by the Middle Fork Crow River Watershed District.



Big Sauk Lake Aquatic Plant Harvesting Project Engineer's Report Sauk River Watershed District

A petition by the City of Sauk Centre to the Sauk River Watershed District (SCWD) required an Engineer's report on the potential of a new weed harvesting project, redetermining benefited properties and reassessing costs for the weed harvesting. The SRWD had been successfully operating an aquatic plant harvesting program since 1991. However, the City of Sauk Centre believed there was a need and necessity for a new aquatic plant harvesting project for the purpose of improving water quality, improving use of the lake for navigation, maintaining the economic benefit of the lake to the City of Sauk Centre; and for distributing the project cost to all benefited parties, expanding the area of weed harvesting, and increasing the aesthetics of Big Sauk Lake.

Upon being retained for the projects, Wenck worked with District staff and stakeholders to understand the constraints of the existing program and the desired outcome of the petitioners. Proactive participation with stakeholders resulted in three final alternatives being evaluated. The results of the analysis determined the project was feasible and would provide significant benefit to affected property owners.

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

Wenck developed of 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.

Big Sauk Lake Aquatic Plant Alternatives, Sauk River Watershed District.

Based on the success of the Big Sauk Lake Aquatic Plant Harvesting Project Wenck was retained to complete a comprehensive analysis of curly leaf pondweed management alternatives. Through the study, eighteen different management alternatives for curly leaf pondweed were evaluated to determine the cost-

Firm Qualifications (cont'd)

effectiveness of new methods of treatment. The project involved public meetings, long-range planning, and economic analysis. The study created the platform for the District to address potential future alternative management options of the invasive macrophyte.

Client References

As a testament to our proven experience to deliver results, we welcome you to contact the following references regarding our past successful projects:

Joel Peterson
Nest Lake Association
Jw_peterson@yahoo.com
(320) 220-1683

John Kolb
Rinke Noonan
jkolb@rnoon.com
(320) 656-3503

Chad Anderson
Merjent (Former MFCRWD Administrator)
canderson@merjent.com
(651) 208-8924

Shawn Sanders, PE
Director of Public Works
City of Stillwater
Phone (651) 430-8835
ssanders@ci.stillwater.mn.us

Budget

**Middle Fork Crow River Watershed District
Diamond Lake Mechanical Haversting and/or Chemical Treatment of Invasive Species**

Wenck Staff

| | <i>Chris Meehan</i> | <i>Joe Bischoff</i> | <i>Wes Boll</i> | <i>Jordan Shuck</i> | <i>Brian Beck</i> | <i>Indirect Expenses</i> | <i>Task Total</i> |
|--|---------------------|---------------------|-----------------|---------------------|-------------------|--------------------------|-------------------|
| Hourly Rate | \$175 | \$160 | \$110 | \$110 | \$97 | | |
| Task | | | | | | | |
| 1 Collect & Review Existing Data | 1 | | | 2 | 4 | \$ 25 | \$808 |
| 2. Informational Interview/Stakeholder Meeting | 6 | | | 1 | 12 | \$ 125 | \$2,449 |
| 3. Project Analysis/Benefits/Impacts | 2 | 2 | 2 | 2 | 12 | \$ 25 | \$2,299 |
| 4. Engineer's Report | 2 | 1 | 1 | 2 | 12 | \$ 25 | \$2,029 |
| 5. Board Presentation | 6 | 2 | | 2 | 4 | \$ 125 | \$2,103 |
| 6. Final Hearing | 6 | | | | 4 | \$ 125 | \$1,563 |
| | | | | | | | |
| Total Hours | 23 | 5 | 3 | 9 | 48 | \$ 450 | |
| Cost | \$4,025 | \$800 | \$330 | \$990 | \$4,656 | \$ 450 | \$11,251 |