MINNEHAHA CREEK
WATERSHED DISTRICT
QUALITY OF WATER, QUALITY OF LIFE

Meeting: Board of Managers
Meeting date: 4/14/2022
Agenda Item #: 11.1
Request for Board Action

Title:	Authorization to Contract with Stantec for Wassermann Lake Alum Treatment Design and Construction Oversight
Resolution number:	22-021
Prepared by:	Name: Anna Brown Phone: (952) 641-4522 Abrown@minnehahacreek.org
Reviewed by:	Name/Title: Brian Beck, Research and Monitoring Program Manager
Recommended action:	Award a contract for design and construction oversight for the second alum treatment on Wassermann Lake in Victoria
Schedule:	July 2022: Approval of design and request for quotes August 2022: Contract award October 2022: Alum application Dec 2022: Grant closeout
Budget considerations:	Fund name and code: 3-3156 Fund budget: $360,000 (includes $270,675 BWSR Clean Water Fund grant) Expenditures to date: $147,209 Requested amount of funding: $31,000
Past Board action:	Res # 19-072 Authorization to Apply for BWSR Clean Water Funds Res # 20-020 Approval of Project Grant Agreement Res # 20-050 Project Ordering for Internal Load Management on Wassermann Res # 20-051 Approval of BWSR Project Agreement Res # 21-025 Contract Award for Wassermann Lake Alum Treatment

Summary:
Since adoption of the 2017 Water Management Plan, MCWD has been working to implement high impact capital projects within the SMCHB subwatershed, with particular focus in the City of Victoria and Laketown Township, where current land use pressure presents a unique opportunity to implement projects concurrent with development. Under this plan, MCWD has invested substantially in both watershed and in-lake management activities in the restoration of Wassermann Lake, an impaired waterbody within the city of Victoria.

In 2016, MCWD partnered with Lennar Corporation to restore vegetative diversity and predevelopment hydrology in a 22 acre wetland along the upstream segment of Six Mile Creek, improving habitat and nutrient cycling. Since 2018, MCWD has been working on a subwatershed wide carp management program that has effectively reduced the carp population in Wassermann, improving aquatic plant communities and slowing sediment and nutrient resuspension in the water column. In spring 2019 and Spring 2021, MCWD applied alum in the six-acre pond on the Wassermann West property, resulting in a 75 pound per year decrease in phosphorus loading to Wassermann Lake. Finally, in 2021 MCWD and the City completed construction of a 33.5 acre park preserve and habitat restoration project on the west shore of Lake Wassermann which offers an opportunity to showcase the improvements to Wassermann Lake and the SMCHB Subwatershed while creating a unique recreational asset for Victoria residents.

Internal loading is the last remaining significant source of nutrient pollution in Lake Wassermann. The 2013 SMCHB Diagnostic Study estimates an annual internal release rate of 375 pounds per year, the largest nutrient source identified in Wassermann Lake**.** The alum treatment is projected to reduce internal loading by an estimated 90%, for a reduction of 336 pounds per year.

In January 2020, MCWD was awarded a Clean Water Fund grant from the Board of Water and Soil Resources, positioning us for an initial alum treatment in spring 2021 and fall 2022. The total budget for this project is $355,900, including $284,720 in grant funds and $71,180 in match. MCWD's match funds will be allocated to feasibility, pre- and post-project sediment analysis, and some of the cost of treatment. The grant dollars will be allocated exclusively to alum treatment. The first alum treatment was completed in May 2022.

Wassermann Lake Alum Treatment Design and Construction Oversight

Following the first application on Wassermann Lake, MCWD has a remaining budget amount of $208,000 for the design and treatment of Wassermann Lake. At the April 11, 2022, staff will seek approval of a contract for $31,000 with Stantec to develop the specifications and dosing recommendations for the second alum treatment and provide oversight of the treatment. The scope of work includes:

- Oversight of sediment core collection and analysis, in coordination with the University of Wisconsin – Stout to evaluate the effectiveness of the first alum treatment and make recommendations for the second alum treatment based on the sediment core analysis
- Revise the specifications from the initial alum dose to improve the standards around required qualifications and equipment for the second alum treatment
- Provide quote solicitation support
- Provide field oversight of the implementation of the alum dosing

The proposed schedule is based on an expected alum treatment in October 2022. Alum treatment is sensitive to temperature and pH of the water, often presenting a narrow window of opportunity for optimum application conditions. In order to meet this timeline, MCWD will seek contract approval in early August 2022 to provide sufficient notice to contractors for a fall treatment.

This contract is being awarded to Stantec without competitive solicitation due to their previous experience on the project, including their assistance on developing the initial project feasibility report and their work developing the project specifications for the first alum treatment on Lake Wassermann. Awarding the contract to Stantec positions MCWD for a more cost-effective design process because they can build on the existing specification package rather than redevelop the specifications from scratch. For these reasons, Stantec is uniquely qualification to perform the design and construction oversight work for the Wassermann Internal Load Management Project

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RESOLUTION

Resolution number: 22-021

Title: Authorization to Contract with Stantec for Wassermann Lake Alum Treatment Design and Construction Oversight

WHEREAS pursuant to Resolution 14-047 the MCWD Board of Managers has identified the Six Mile Creek-Halsted Bay (SMCHB) Subwatershed as a priority area for focusing District planning activities and coordination efforts with subwatershed partners;

WHEREAS in January 2018 the Board of Managers adopted the MCWD Watershed Management Plan (WMP), which incorporated a comprehensive restoration strategy for the SMCHB subwatershed to achieve MCWD's goals of protecting and improving water quality, water quantity, ecological integrity, and thriving communities through land use and water integration. The WMP includes a capital improvement plan the Wassermann Lake Internal Load Management as an implementation projects;

WHEREAS in March 2020, the Board of Managers accepted a grant award of $284,720 through the BWSR Clean Water Fund grant program for the implementation of the Wassermann Lake Internal Load Management project;

WHEREAS on June 23, 2020, the Board of Managers ordered the Wassermann Lake Internal Load Management Project in fulfillment of the MCWD WMP's identification of the project as a planned capital investment to reduce internal nutrient loading, improve water clarity, and create a more abundant and diverse aquatic vegetation community with alum treatments;

WHEREAS on September 24, 2020, the Board of Managers approved a contract with Wenck Associates (Stantec) to analyze collected water chemistry and sediment data to develop specifications for alum treatment of Wassermann Lake and to provide construction oversight of the alum application;

WHEREAS on January 22, 2021, Wenck Associates (Stantec) provided a technical memo recommending alum application and prescribing dosing and specific treatment areas of Wassermann Lake and the Wassermann West Pond to develop a request for quotes for these treatments;

WHEREAS on January 28, 2021, the Board of Managers authorized the release of a request for quotes for the Wassermann Lake alum treatment;

WHEREAS on March 25, 2021, The Board of Managers awarded a contract to Clarke Aquatic Services for the first alum treatment on Wassermann Lake, and that applications was carried out in May 2021;

WHEREAS in March 2022, staff solicited a scope of work from Stantec to develop alum dose recommendations, coordination of sediment core analysis with University of Wisconsin-Stout, specification development, and construction oversight for the second Alum Treatment on Wassermann Lake;

WHEREAS Stantec is uniquely qualified to develop specifications for the alum treatment of Wassermann Lake due to their experience with water quality projects within the SMCHB subwatershed and prior experience performing feasibility, design, and construction oversight of the 2021 alum treatment of Wassermann Lake.

NOW, THEREFORE, BE IT RESOLVED, that the Minnehaha Creek Watershed District Board of Managers hereby authorizes the District Administrator, on advice of counsel, to execute a contract with Stantec for $31,000 to develop specifications and provide construction oversight for the Wassermann Lake internal load management project.

Resolution Number 21-021 was moved by Manager _____, seconded by Manager _____. Motion to adopt the resolution ___ ayes, ___ nays, ___abstentions. Date: April 14, 2022

_____ Date: _____
Secretary

Stantec Consulting Services Inc.
7500 Olson Memorial Highway Suite 300, Golden Valley MN 55427-4886

April 6, 2022

Attention:
Anna Brown and Kailey Cermak
Minnehaha Creek Watershed District
15320 Minnetonka Blvd
Minnetonka, MN 55345

Dear Anna and Kailey,

Reference: Scope of Work for Wasserman Lake Alum Treatment Second Dose Design/Oversight

Thank you for the opportunity to continue to provide our services to the Minnehaha Creek Watershed District (District). As requested, Stantec Consulting Inc (Stantec) has prepared this proposal to assist the District in developing the final design, technical specifications, bid documents, contractor selection, and oversight of the second alum application for Wassermann Lake. The following sections describe our scope of work for implementing the 2022 Wassermann Lake alum treatment.

Background

In May of 2021, Wasserman Lake received the first dose of an alum treatment to reduce internal loading to the lake. It is Stantec's understanding that the District has approximately $200,000 remaining in grant funds to support the 2022 alum treatment. Unit costs per gallon for alum and buffer are higher than in previous years and are subject to ongoing market fluctuations. Precise unit costs will not be available until the bidding process in Task 1.4 (discussed further below); however, Stantec has acquired 2022 cost estimates for alum applications based on a range of typical doses and surface area. These conservative estimates include materials and contractor mobilization/demobilization fees, which are further described below.

Stantec has estimated material and alum contractor costs using the prescribed volumes as specified in Wenck's (now Stantec) Technical Memo, "Wasserman Lake 1st Dose Alum Treatment Recommendations (DRAFT)", dated January 22, 2021. In that memo, the total alum + buffer volumes are the same for the first and second doses (Alum = 21,153 gallons; Buffer =10, 577 gallons). Our conservative estimate for the chemical materials plus applicator mobilization/demobilization cost to complete the 2nd planned dose is $169,000. Thus, the scope of work presented in this letter assumes $31,000 available for Stantec support of the alum treatment, collection of sediment cores, analytical lab costs for 2022 sediment coring, application oversight, and contingency budget to account for adjustments to the alum material + contractor costs and application duration. The following sections describe our proposed scope of work in more detail.

Reference: **Scope of Work for Wasserman Lake Alum Treatment Second Dose Design/Oversight**

Services Provided

Task 1. Wasserman Lake Alum Treatment Support

Stantec proposes the following subtasks outlined below, to provide the support for the second dose of the alum treatment on Wasserman Lake.

Task 1.1 –Sediment Core Collection & Analysis

- Stantec will collect sediment cores in Summer 2022 to evaluate success of the first alum treatment to suppress internal phosphorus loading and to confirm the previously calculated buffered alum dose that is planned for October 2022.
    - A subset of sediment cores will be incubated in the laboratory at UW-Stout for quantification of phosphorus release rates following the 2021 alum application but prior to the 2022 application.
    - Another subset of sediment cores will be analysed at UW-Stout for quantification of mobile and immobile phosphorus fractions, which will be compared to the 2021 data and used to evaluate the planned buffered alum dose for October 2022.
- Stantec anticipates collection of eight total sediment cores in spring/early summer of 2022, which will be delivered to UW-Stout for incubation and fractionation analysis.
    - One core from four locations will sectioned into 2-cm increments (to a total vertical depth of 10 cm) for quantification of mobile and immobile phosphorus fractions. Sediment cores will be collected from same approximate locations as Core 1, Core 2, Core 4 and Core 6 in the 2021 sediment sampling event as described in the previously mentioned technical memo.
    - Two cores from two locations will be collected and delivered to UW-Stout for laboratory incubation under anoxic conditions to measure sediment phosphorus release rates. Sediment core locations will correspond to Core 1 and Core 3 sampling locations from 2021 sediment sampling event as described in the previously mentioned technical memo.

Task 1.2 – Data Review and Evaluation of Planned Alum Dose

- Stantec will review the historic and recent water quality data collected by the District as part of the 2022 dose evaluation.
- Stantec will analyse the sediment core data to evaluate success of the alum treatments to mitigate sediment release of phosphorus and compare to the pre-treatment sediment core data.
- Stantec will use these analyses to confirm the alum treatment area and the previously determined chemical dosing rate to meet internal load reduction goals/targets.

Task 1.3 - Alum Application Specifications and Bid Documents Support

- Stantec will develop the alum dosing specifications and bid documents for the second dose for Wassermann Lake.
- The technical specifications and bid documents for the alum application will include application rates, locations, timing, equipment requirements, staging, maps for access and staging, and

any other necessary information needed to solicit bids from qualified alum applicators with experience in similarly scaled projects.

- Currently, permits are not required in the state of Minnesota for alum treatments to lakes. The MPCA requests a letter of intent to apply alum with documentation of previously completed studies supporting in-lake treatment of sediment phosphorus. Stantec assumes that the District will prepare and deliver to the letter MPCA. Stantec will be available to respond to questions and/or provide technical specifications and dosing information to the MPCA upon request.

Task 1.4 - Contractor Selection and Contractor Management

- Stantec will assist the district with reviewing quotes and provide contractor recommendations to the District.
- Stantec will provide responses to pre-quote questions, support quote analysis and review with District staff.

Task 1.5 - Application Observation and Monitoring

- The second alum application for Wassermann is anticipated to occur in October 2022 and is expected to take approximately 4 days. Stantec's Project Manager will be on-site during the initial set-up period and during the early application.
- One Stantec staff person will be onsite during the entire application process to provide technical oversight of the application and monitor conditions during the application. Staff will utilize Stantec's boat and monitoring equipment to monitor water quality conditions throughout the application according to the requirements in the technical specifications.
- Daily logs will be recorded and provided to the District.

Task 1.6 - Project Management, Coordination and Meetings

- Project management is critically important for ensuring project delivery on time and budget. Stantec has included budget in this subtask for project management and general project coordination.
- Stantec will provide monthly project status reports to ensure project budgets and schedules are being met.
- Stantec will participate in meetings and email correspondence with District to discuss project status and coordinate of activities.

Task 1.7 – Contingency Support

- This subtask provides contingency budget to account for uncertainties in budgeting for the alum material plus applicator costs as well as the anticipated duration of the application and other unplanned contingencies that might occur over the project schedule.

Reference: **Scope of Work for Wasserman Lake Alum Treatment Second Dose Design/Oversight**

Fee Estimate, Schedule & Deliverables

Fee Estimate

Stantec will perform the work tasks described above at our most efficient discounted hourly rates that are currently used by MCWD along with direct expenses covering mileage, equipment, etc. with a total estimated fee of $31,000. The table below shows estimated fees and expenses by subtask. In the event that follow-up or out of scope items are identified or requested by the District, Stantec will work with the District to develop a scope and budget for the additional task(s) and will not proceed with identified task(s) without authorization from the District.

Task	Labor	Expenses	Total
1.1 Sediment Core Collection & Analysis	$2,300	$7,800	$10,100
1.2 Data Review & Evaluation of Planned Alum Dose	$3,200		$3,200
1.3 Alum Application Specifications and Bid Documents Support	$5,500		$5,500
1.4 Contractor Selection and Management	$1,350		$1,350
1.5 Application Observation and Monitoring	$5,000	$500	$5,500
1.6 Project Management, Coordination and Meetings	$1,700		$1,700
1.7 Continency Support	$3,650		$3,650
Total	**$22,700**	**$8,300**	**$31,000**

Reference: **Scope of Work for Wasserman Lake Alum Treatment Second Dose Design/Oversight**

Schedule

Stantec can begin work immediately upon receiving a Notice to Proceed from the District. The tentative schedule for completing each task is summarized in the following table, which is anticipated to be completed by November, 30 2022.

Task	Anticipated Completion Date
1.1 Sediment Core Collection & Analysis	May 15, 2022
1.2 Data Review & Evaluation of Planned Alum Dose	June 27, 2022
1.3 Alum Application Specifications and Bid Documents Support	June 27, 2022, draft to MCWD for review in anticipation of July 14, 2022 Board Meeting
1.4 Contractor Selection and Management	August 11, 2022, contract award anticipated at Board Meeting on August 11, 2022. A two-week quote period is anticipated for July 18-July 29, approximately.
1.5 Application Observation and Monitoring	October 2022
1.6 Project Management, Coordination and Meetings	November 30, 2022
1.7 Continency Support	November 30, 2022

Deliverables

Expected deliverable for each subtask are summarized in the table below.

Task	Deliverable
1.1 Sediment Core Collection & Analysis	Raw data
1.2 Data Review & Evaluation of Planned Alum Dose	Brief technical memo summarizing data evaluation and evaluation of 2nd alum dose
1.3 Alum Application Specifications and Bid Documents Support	Technical specifications and bid package
1.4 Contractor Selection and Management	Engineering cost estimate and contractor recommendation
1.5 Application Observation and Monitoring	Alum application observation log
1.6 Project Management, Coordination and Meetings	Monthly project status updates, meeting notes
1.7 Continency Support	None anticipated

Reference: **Scope of Work for Wasserman Lake Alum Treatment Second Dose Design/Oversight**

Project Team

The following Stantec staff have been selected to execute this Scope of Work. Other staff will be available as needed to complete the project on time and budget.

- Project Manager/Senior Limnologist: Dendy Lofton, PhD, CLM
- Assistant Project Manager/EIT: Anne Wilkinson, PhD, EIT
- Environmental Scientist/Field support: Conor Dougherty
- Principal/Senior Engineer: Chris Meehan, PE

Thank you for this opportunity to support the District in this project. Should you have any questions, or need clarification, please do not hesitate to contact us.

Regards,

Stantec Consulting Services Inc.

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