



Title: Authorization to Execute a Contract to Analyze MCWD Stormwater Pond Survey Data and Develop Maintenance Recommendations

Resolution number: 22-046

Prepared by: Name: Tiffany Schaufler
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Reviewed by: Name/Title: N/A

Recommended action: Authorization to enter into a contract with Stantec Consulting Services Inc. to review past MCWD stormwater data, inventory MCWD's stormwater ponds, identify survey and maintenance recommendations for the next 20 years, and identify retrofit/enhancement opportunities that could increase the water quality function of existing MCWD stormwater ponds.

Schedule: September 2022: Review Pond Data
October 2022: Inventory Ponds and Develop Maintenance Recommendations
November-December 2022: Identify Retrofit/Enhancement Opportunities

Budget considerations: Fund name and code: 2-2003-4550 – Project Maintenance and Land Management
Fund budget: \$1,974,212
Expenditures to date: \$168,867.81
Requested amount of funding: \$48,620 (\$44,200 + 10% contingency)

Past Board action:	Res # 17-018	Authorization to Award Contract for 2017 Stormwater Pond Sediment Surveys
	Res # 18-023	Authorization to Award Contract for 2018 Stormwater Pond Sediment Surveys
	Res # 19-078	Authorization to Award Contract for 2019 Stormwater Pond Annual Survey and Maintenance
	Res # 20-023	Authorization to Execute a Contract with Wenck for 2020 Stormwater Pond Annual Survey and Maintenance
	Res # 21-021	Authorization to Execute a Contract for 2021 Annual Stormwater Pond Maintenance

Summary:

The Minnehaha Creek Watershed District (MCWD) constructed its first stormwater pond in 1985. Since 1985, MCWD has constructed 25 stormwater ponds across the watershed. MCWD is responsible for the inspection and/or maintenance of these 25 stormwater ponds through ownership or cooperative agreement with its partner communities. Inspection and maintenance of these facilities is necessary to ensure that the ponds function as designed and continue to accrue their designed water resource benefit. The MCWD Board of Managers has an established policy that dictates cyclical investigation and maintenance of its stormwater management infrastructure to ensure long term water quality and water quantity function of the systems.

In 2010, the Project Maintenance and Land Management (PMLM) Program recommended pond sediment surveys of six to eleven ponds each year on a three-year rotation in order to adhere to the policy established by the Board. To conduct this work, the PMLM program budgets annually to perform sediment surveys on a certain number of ponds. Since 2010, Stantec (formerly Wenck) has performed over 90 sediment surveys on the 25 stormwater ponds that MCWD is responsible for inspecting and/or maintaining (see the stormwater pond database in Attachment A). Generally, this means that each stormwater pond has been surveyed by Stantec three or four times over the past 12 years and has resulted in a considerable dataset that can be used to inform pond performance, sediment accumulate rates, estimated survey needs, estimated cleanout years, and estimated cleanout costs for each stormwater pond.

MCWD staff have reviewed this stormwater pond dataset with Stantec and discussed staff's desire to develop a data-driven, predictive approach to stormwater pond maintenance for the PMLM program. Based on that discussion, Stantec developed a scope of work (Attachment B) which would include:

1. **Pond Data Review:** Review and synthesize the metrics for each pond, including why it was built, the watershed size that drains to it, water quality monitoring data, sediment survey data, and dredging data.
2. **Pond Inventory & Maintenance Planning:** Using the data from the task 1 above, categorize the ponds into performing, underperforming, or not performing.
 - a. For the ponds that are performing, develop asset management information including estimated survey dates (including adjustments to the survey rotation for each pond), cleanout dates, and budgetary estimates for surveys and cleanouts over the next 20 years.
 - b. For ponds that are underperforming or not performing, MCWD and Stantec staff may discuss a second phase of work which would investigate and diagnose why the pond is not performing as designed and recommend retrofit options.
3. **Identify Pond Retrofit Opportunities:** For the performing ponds, identify concept-level enhancement/retrofit opportunities that could improve water quality benefits, and considers climate adaptation needs that were recently identified in MCWD's Climate Action Framework.

At the July 28, 2022, MCWD Board Meeting, staff will seek approval of a contract for \$44,200 with Stantec to review MCWD's stormwater pond data and develop maintenance recommendations. Staff is recommending this contract be awarded to Stantec without competitive solicitation due to Stantec's (and formerly Wenck's) 12+ years of experience performing over 90 sediment surveys on MCWD's 25 stormwater ponds, and their past experience performing water quality monitoring on MCWD's stormwater ponds. For these reasons, Stantec is uniquely qualified to perform the data review, maintenance planning, and identification of retrofits for MCWD's stormwater ponds.

Supporting documents:

- Attachment A: Stormwater Pond Database
- Attachment B: Stantec Consulting Services Inc. Scope of Work



RESOLUTION

Resolution number: 22-046

Title: Authorization to Execute a Contract to Analyze MCWD Stormwater Pond Survey Data and Develop Maintenance Recommendations

WHEREAS the Minnehaha Creek Watershed District (MCWD) engages in regional capital improvement projects as described in its Water Resources Management Plan; and

WHEREAS the MCWD has a policy that dictates cyclical investigation and maintenance of its stormwater management infrastructure and conducts pond sediment surveys on the 25 regional ponds that MCWD is responsible for inspecting and maintaining; and

WHEREAS the Project Maintenance and Land Management (PMLM) Program annually plans and budgets for pond sediment surveys and since 2010 has gathered data on over 90 stormwater pond sediment surveys; and

WHEREAS the PMLM Program desires to develop a data-driven and predictive approach to stormwater pond maintenance planning and budgeting; and

WHEREAS since 2010, Stantec Consulting Services Inc. (formerly Wenck) has performed over 90 sediment surveys on MCWD's 25 stormwater ponds and has specific knowledge of the ponds, their sediment accumulation rates, and their past maintenance history; and

WHEREAS internal Governance Policy #6 provides for a competitive process when purchasing any professional service in excess of \$25,000, but staff recommends, and the Board finds, that it is appropriate to deviate from that policy in light of Stantec's unique knowledge of the hydrologic and hydraulic behavior of the Minnehaha Creek watershed and the organizational goals of the District, as well as its work to date in monitoring stormwater ponds in MCWD, which together make Stantec uniquely qualified to develop a sound and cost effective product.

NOW, THEREFORE, BE IT RESOLVED that the Minnehaha Creek Watershed District Board of Managers authorizes the District Administrator, on advice of counsel, to execute a contract with Stantec Consulting Services Inc. to review MCWD's stormwater pond data and develop maintenance recommendations in the amount of \$44,200 and authorizes the Administrator to execute change orders as necessary in the not-to-exceed amount of \$48,620.

Resolution Number 22-046 was moved by Manager _____, seconded by Manager _____. Motion to adopt the resolution ___ ayes, ___ nays, ___ abstentions. Date: 7/28/2022

 Secretary Date: July 28, 2022

Attachment A

Subwatershed & Pond Name	Background Information			Survey Information				Future Planning		Past Dredging Information					
	Year Built	Maintenance Responsibility	As-Built Pool Volume (CY)	Next Survey	Surveys	Accumulated Sediment (CY)	% Full	Sediment Accumulation Rate (%/yr)	Estimated Cleanout Year	Estimated Cleanout Cost	Dredge Years	Dredge Cost	Dredge Amount Removed (CY)	Cost per Cubic Yard	BaP Level (mg/kg)
Minnehaha Creek															
60th and 1st Pond	2000	Minneapolis		?	2013			North Bay: 0" of sediment; SW Bay: 37.2" of sediment; NE Bay: 9.4" of sediment							
Cedar Meadows-Basin 1 (West) Wet Detention Basin	1996	MCWD	13,000	2024	2004 2007 2010 2014 2020 - May			Dredged 2" of sed. 9% insignificant 18%	6%	2025		2004 \$41,574	2750	\$15.12	Below 2
Cedar Meadows - Basin 2 (East) Wetland	1996	MCWD	5,710	2024	2020 - May	2,180	38%		3%	2023					
Excelsior Pond	2013	MCWD	2,385	2024	2016 2019 - Sept			14% 37%	1.30%	2039					
Nokomis-Amelia	2001	MCWD	22,247	2024	2010 2016 2019 - Sept			Dredged 13% 21% 7.95%	5%	2023	\$300-\$600k	2010/11 \$48,175	2147	\$22.44	0.1679 mg/kg
Nokomis-Gateway	2001	MCWD	5,516	2024	2010 2016 2019 - Sept			2% 4% 3%	0.70%	2039+					
Nokomis-Knoll	2001	MCWD	6,743	2024	2005 2013 2016 2019 - Sept			NR Depth of sediment 16% 16%	0.00%	2039					
SW Bde Maka Ska - Cell 1	1999	MCWD	4,980	2024	2004 2007 2011 2017 2018 - May 2018-2019 2021 - June			Dredged < 1" sediment 37% 38% 38% 42% Dredged 92%		2025	53k	2004 \$57,417 2011/12 \$116,039	3120 2024 \$57	\$18 2,959 mg/kg	0.414 & 0.988 mg/kg Below SLV and SRV levels - unregulated fill
SW Bde Maka Ska - Cell 2	1999	MCWD	12,690	2024	2004 2007 2011 2020 - May			Dredged insignificant insignificant 22%		2030, dependent on Cell 1					Below 2
Pamela Park - Cell 1	2001	Edina completed first, now MCWD thereafter	3,550	2024	2011 2015 2018 - May 2018-2019 2021 - June			insignificant 36% 39% Dredged 68%		2025	549k	Dec. 2018 \$77,850 Feb. 2019 (Edina paid)	1800	\$43.25	2.146 & 3.206 - Greater than SRV Tier 2 Industrial Waste (Contaminated)
Pamela Park - Cell 2	2001	Edina-1st dredging, MCWD thereafter	3,580	2024	2011 2015 2018 - May 2021 - June			insignificant 21% 38% 30%	0%	2041+					1.687 & 3.566
Pamela Park - Cell 3	2001	Edina-1st dredging, MCWD thereafter	4,640	2024	2011 2015 2018 - May 2021 - June			insignificant 4% 18% 15%	-1%	2041+					
Twin Lakes Park Pond	1996	MCWD	6,840	2024	2004 2007 2010 2011 2012 2014 - May 2017 - April 2020 - May 2021 - June			Dredged NR 31% 43% Dredged 13% 14% 38% 42%		2023	578k	2004 \$19,945 2012 \$99,159	3403 2080	\$6 \$48	Level 3 14,698 mg/kg
Long Lake Creek															
County Road 6 Pond	1998	MCWD	19,602	2024	2005 2011 2016 2019 - Sept			NR insignificant 6% 10%	1.30%	2039					
Deer Hill Pond-North	1996	MCWD		2023	2007 2013 2018 - May			< 1" of sediment 4.8" of sediment 5%							
Deer Hill Pond-South	1996	MCWD		2023	2007 2018 - May			insignificant insignificant							
Long Lake Park-North	1996	MCWD	4,930	2024	2004 2010 2014 2017 2020 - May			Dredged insignificant 20% 10% 35%	8%	2023	\$611-\$184k	2004 \$16,678	2420	\$6.88	Below 2
Long Lake Park-South	1996	MCWD	2,510	2024	2006 2010 2014 2017 2020 - May			Dredged insignificant 20% 23% 30%	3%	2021 - Dredge with North pond for cost eff.	\$31k-\$94k	2006 no dredging records			
Gleason Lake Creek															
Gleason Lake North - Pond 1	1995	MCWD	1,520	2023	2006 2011 2012 2015 2018 - May 2021 - June			NR 80% Dredged 0% 37% 38%	1%	2041+		2012 \$67,995	900	\$70	3,206 mg/kg
Gleason Lake North - Pond 2	2008	MCWD	1,050	2023	2006 2015 2018 - May 2021 - June			NR 57% Dredged 14% 17%	1%	2041+		2016 \$45,064	892 (Pond 2&3)	\$51	7935 mg/kg
Gleason Lake North - Pond 3	2008	MCWD	1,160	2023	2006 2015 2018 - May 2021 - June			NR 58% Dredged 12% 25%	6%	2025	514k	2016 \$45,064	892 (Pond 2&3)	\$51	1,2765 mg/kg
Glenbrook Pond	1994	Wayzata		2023	2013 2016 2017			Depth of sediment 44% Dredged				2017/18 \$463,500	16,000	\$29	
Lake Minnetonka															
Lakeside Pond	1994	Wayzata			2006 2010 2014 2024			NR 30% 42% 42%							\$100,500
Gideon Glen	2006	Shoreview	1,965	2024	2016 2019 - Sept			6% 9%	0.30%	2039+					
Swan Lake	2008	MCWD	15,800	2023	2014 2017 2020 - May			21% 7% 13%	2%	2039					
Painter Creek															
Johnson/Rolling Hills	2008	MCWD	625	2023	2013 2015 2018 - May 2021 - June			4% of sediment 23% 26% 26%	1%	2041+					
Painter Marsh	1985	MCWD	46,800	2023	2007 2010 2015 2020 - May			9" of sediment insignificant 18% 18%	0%	2040+					
South Katrina Pond	1985	MCWD	4,210	2023	2011 2015 2018 - May 2021 - June			insignificant 5% 17% 25%	4%	2027	55k				
Six Mile Creek															
Steiger Wetland Pond (1988)	1988	MCWD		??	2015			75%							

Attachment B



Stantec Consulting Services Inc.

7500 Olson Memorial Highway

Suite 300

Golden Valley MN 55427-4886

July 25, 2022

Tiffany Schaufler

15320 Minnetonka Blvd

Minnetonka, MN 55345

Dear Tiffany Schaufler,

Reference: MCWD Stormwater Pond Capital Improvement Planning

Background

Stantec Consulting, Inc. (Stantec) is pleased to submit a scope of work and schedule to generate a comprehensive inventory of the 25 stormwater ponds maintained by MCWD. This work will build off previously completed survey work done by Stantec (and formerly Wenck) and will identify why each pond was built, the design intent of the pond, the performance history of the pond, and future recommendations for monitoring and maintenance (including costs and schedule).

At the conclusion of this work, Stantec will categorize the ponds, based on the design intent, as either performing, underperforming, or not performing. For the ponds that are found to be performing, Stantec will provide estimated cleanout dates/costs for each of the basins, recommended sedimentation survey frequency for each basin, and identify concept-level enhancement opportunities. For the ponds that are found to be underperforming or not performing, Stantec and MCWD staff can discuss a second phase to this scope of work which would diagnose why the pond is not performing as designed.

Stantec proposes the following tasks to complete the project:

- **Task 1: Pond Data Review:** Review and synthesize the metrics for each pond, including: why it was built, the watershed size that drains to it, any past monitoring data, past survey data, and past dredging data.
- **Task 2: Pond Inventory & Maintenance Planning:** Using the synthesis from Task 1, categorize the ponds into: performing, under performing, and not performing. For the ponds that are performing, compile estimated survey dates, cleanout dates, and budgetary cleanout cost estimates for each basin.
- **Task 3: Identify Retrofit Opportunities:** For the performing ponds, identify concept-level enhancement/retrofit opportunities.

Task 1 Pond Data Review:

Stantec will complete a review of historic data, including design plans, past water quality monitoring reports, and past sedimentation accumulation surveys, to allow summarization of design intent and reasonable expectations for performance of each pond.

Review will include:

Reference: MCWD Stormwater Pond Capital Improvement Planning

- Review contributing watersheds to understand size, drainage area and construction activity
- Review original design metrics of the pond
- Review past monitoring data
- Compile sedimentation rates from previous memos
- Cross check MCWD's provided summary table

Outcomes:

- Understanding of design intent and reasonable expectations for functionality of each pond based on design, past performance, and contributing areas.

Assumptions:

- MCWD will provide past monitoring data and design intent data for Stantec to review. Wenck performed and summarized past pond monitoring data for:
 - Twin Lakes Park Pond: 1996, 1997, 1998
 - Cedar Meadows: 1997, 1998
 - Deer Hill Pond: 1996, 1997, 1998
 - Country Road 6 Pond: 1998
 - Bde Maka Ska Pond: 1999
- Historic sedimentation surveys that have been completed by Stantec (formerly Wenck).
- Review of historic construction activity will be based on the MCWD GIS database for permit applications within each pond's contributing drainage area. It is assumed that MCWD will provide this GIS database.

Deliverables and meetings:

- Technical Memorandum summarizing the pond data. Memo will include a summary table identifying the construction year, contributing watershed area, design intent, and analysis about past performance of each pond.

Task 2 Pond Inventory and Maintenance Planning

Using the data from Task 1, Stantec will categorize each pond as performing, underperforming, and not performing. For the ponds that are performing, Stantec will create a sedimentation survey plan that considers the accumulation rate and expected dredging date. The plan will be developed with the intention of targeting sedimentation monitoring, based on historic sedimentation data. Sedimentation surveys will be recommended less frequently for basins that have historically shown low sediment accumulation rates, and more frequently for basins with historically high sedimentation rates. Furthermore, sedimentation surveys will be recommended in advance of the estimated cleanout dates, to allow field verification of estimated maintenance needs. This task will include:

- Estimate cleanout dates based on historic sediment accumulation rates
- Generate budgetary cost of cleanout for each basin based on basin size and estimated volume of sediment to be removed at cleanout
- Identify ponds that have higher or lower accumulation than would be expected, to flag the basins

Reference: MCWD Stormwater Pond Capital Improvement Planning

for further investigation

Outcomes:

- A timeline of expected cleanout dates and budgetary costs to plan for capital maintenance of MCWD stormwater ponds over the next 20 years.
- An assessment on whether each pond is performing, under-performing, or not performing, in terms of sediment accumulation.

Assumptions:

- It is assumed that 10-12 ponds will be identified as performing.
- Sedimentation survey schedule will be based on previously collected data, and will not account for future development or planned land use changes.
- Estimates will be based on previously completed sedimentation surveys; no additional field work will be completed under this scope.
- Sedimentation survey schedule will be based on best interpretation of available data, and may prioritize use of recent data over historic data. Sedimentation projections may be based on the calculated average sedimentation rate.
- If future sedimentation surveys report notable changes to sedimentation rates, recommended survey dates and estimated dredge dates would need to be updated.
- Assessment of pond performance will be based on sedimentation accumulation over time, not on other water quality, ecological, water chemistry, aesthetic, or other parameters.
- Opinion of Probable Cost will be budgetary for planning purposes, and will consider recent bid data and future inflation.
- Pond cleanout thresholds will be based on current Minnesota Pollution Control Agency (MPCA) guidance ([link here](#)).

Deliverables and meetings:

- A timeline and budgetary opinion of probable cost of dredging over the next 20 years, itemized by pond.
- A survey plan over the next 20 years, in tabular / spreadsheet format.
- Technical Memorandum summarizing:
 - Which ponds are performing, underperforming, and not performing
 - Methods and assumptions used to categorize the ponds

Task 3 Identify Retrofit Opportunities

For the ponds that are performing, Stantec will complete a high-level opportunity screening to identify ponds that may be candidates for enhancements & retrofits to improve realization of water quality benefits. This analysis will be based on previously collected sedimentation data, previously collected instantaneous water quality parameters (sonde readings including dissolved oxygen, temperature, and conductivity profiles), and known watershed stressors.

For each pond identified as an opportunity location, 1 to 2 options for enhancements will be identified.

Reference: MCWD Stormwater Pond Capital Improvement Planning

Outcomes:

- A list of ponds that would be good candidates for enhancements.
- 1 to 2 options for enhancements on each pond identified.

Assumptions:

- As identified in Task 2 assumptions, it is assumed that 10-12 ponds will be identified as performing. Retrofits will not be identified for ponds that are deemed to be non-performing in Task 2.
- It is assumed that 4-6 ponds will be identified as candidates for enhancements / retrofits. The level of effort, and associated cost of analysis, will increase if MCWD desires additional opportunities be identified.
- Sizing, water quality modeling, and cost estimating for potential enhancement options will not be under this scope of work. This information can be provided under a separate scope of work, based on MCWD direction and interest.

Deliverables and meetings:

- Technical memorandum containing a list of ponds and enhancement / retrofit options.
- One meeting with District staff to review findings and recommendations.

Fee Estimate

Scope of Work	Fee Estimate
Task 1 – Pond Data Review	\$16,980
Task 2 – Pond Inventory & Maintenance Planning	\$17,400
Task 3 - Identify Retrofit Opportunities	\$9,800
TOTAL	\$44,200

The total cost above includes all reimbursable expenses including mileage, printing, and equipment costs.

Schedule

Task 1 – Pond Data Review: 5 weeks from receiving all data

Reference: MCWD Stormwater Pond Capital Improvement Planning

Task 2 – Pond Inventory & Maintenance Planning: 3 weeks from completion of Task 1

Task 3 – Identify Retrofit Opportunities: 3 weeks from completion of Task 2

Sincerely,

STANTEC CONSULTING SERVICES INC.



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