memo

Project Name |	Long Lake Chloride Source Evaluation Proposal	**Date** |	4-3-2025
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, District Administrator		
From / Contact info |	Anne Wilkinson, PhD, Camilla Correll, PE		

Background

In 2021, Long Lake was listed as impaired for chloride. The Brown's Creek and Long Lake 2020 Trend Analysis evaluates the chloride concentrations in the Long Lake tributary at 62nd Street from 2011-2020. Chloride concentrations in the tributary to Long Lake exceeded the chronic standard of 230 mg/L three separate times in the months of March through May. The highest observed chloride concentration was 421 mg/L. The high concentrations in the tributary to Long Lake indicate that there is a source of chloride in the watershed that contributes to the high chloride concentrations in the tributary and downstream in Long Lake. The trend in flow weighted mean concentration (FWMC) in the tributary to Long Lake shows an increasing trend.

Water softener salt and road salt are the two largest sources of chloride in the Twin Cities Metropolitan Area. The recommendation from the Brown's Creek and Long Lake 2020 Trend Analysis Report is that management decisions should be made to stop the accumulation of chloride in the watershed. There are no feasible best management practices to remove chloride in a watershed. Therefore, it is recommended that the BCWD conduct a source assessment to better characterize the sources to Long Lake and provide outreach and education to reduce the export of chloride downstream.

Scope of Services

This proposal serves as a response to the recommendation for a source assessment of chloride in the Long Lake Watershed, as well as a better understanding of the extent of the impairment. The following is a proposed scope and budget for the chloride monitoring in the Long Lake watershed and in Long Lake in 2025. The following sections outline the proposed tasks.

Task 1. Stormwater Infrastructure Monitoring

According to the Brown's Creek and Long Lake 2020 Trend Analysis Report, there were three exceedances of the chronic chloride standard of 230 mg/L in the tributary. Therefore, the tributary to Long Lake is contributing to the elevated chloride concentrations in Long Lake. However, it is not well understood where in the watershed the chloride is coming from. The tributary is not the only possible source for chloride in the watershed, EOR also identified several locations directly draining to the lake that should be investigated. For example, stormwater ponds can accumulate and discharge high concentrations of chloride downstream.

The Washington Conservation District (WCD) will visit six stormwater ponds within the Marketplace complex, Figure 1. At each proposed monitoring location SWCD staff will collect monthly chloride samples from the surface and the bottom of the ponds from April to October.

Task 2. In-lake monitoring

Long Lake has elevated chloride concentrations and is listed as impaired. Thus far, chloride was only sampled at the bottom of the deep hole in the northern-most lobe Long Lake.. BCWD would benefit from better understanding the extent of the chloride contamination within the lake itself to determine the threat of chloride to the aquatic organisms in Long Lake.

WCD will sample three locations at different parts of Long Lake and Sinnet's Pond (formerly the Jackson Wildlife Management Area)once in spring and once in fall, Figure 1. WCD will collect epilimnetic (surface layer) samples at all four locations and an additional hypolimnetic (deep) sample at the deep hole in the northern-most lobe. The other three shallower locations are only 5 feet deep, thus the epilimnetic sample is representative of the entire water column at those sampling locations.

Task 3. Data Analysis and Report

EOR will analyze the data collected by the WCD and develop a summary report that identifies the hotspots within the Marketplace complex ponds as well as within Long lake itself. The report will offer outreach recommendations for reducing sources to Long Lake from area partners.

Fee Summary

Table 1 summarizes the labor, lab fees, and associated costs for the tasks described above.

Table 1. Scope of Services for Long Lake Chloride Source Assessment

Task	Description	EOR Estimated Hours	WCD Labor Cost	Lab fees	Estimated Cost
1	Stormwater Infrastructure		$6,330*	$840*	$7,170*
2	In-lake		$603*	$100*	$703*
4	Data Analysis and Report	24	-	-	$3,932
	Total	**24**	**$6,933**	**$940**	**$11,805**

** The existing agreement with the Washington Conservation District already includes this work.*

Requested Action

1. Approve scope of services and the additional funds not to exceed $3,932 for Emmons and Olivier's Task 4 Data Analysis and Report from account 929-0013.

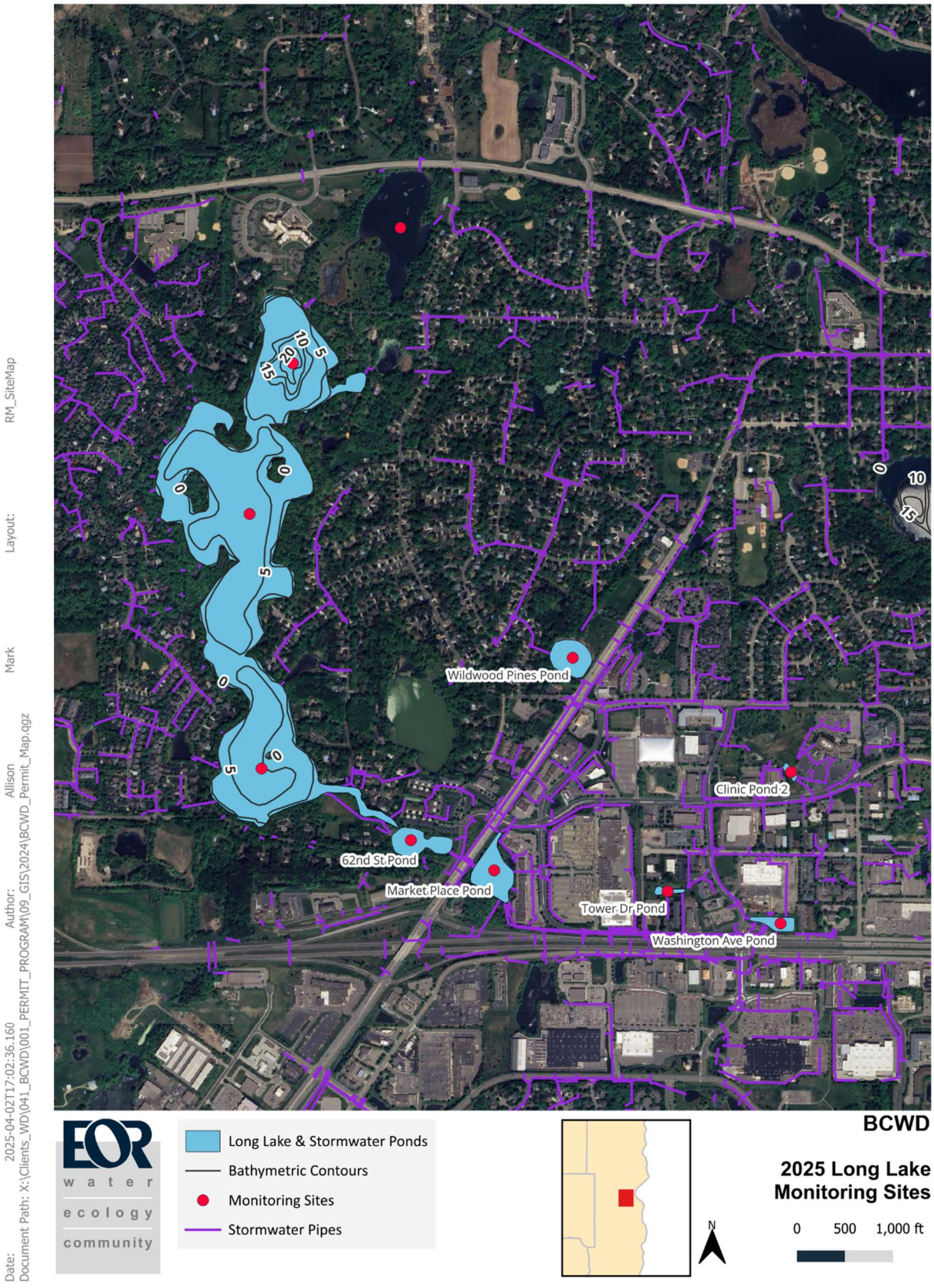

Figure 1: Proposed monitoring sites.