

DRAFT

August 13, 2009

RE: Bassett Creek Watershed Management
Commission
Sweeney Lake TMDL – Draft Report
SEH No. ABCWMC070100

Dave Hanson
1030 Angelo Drive
Golden Valley, MN 55422

Dear Dave:

Thank you for submitting your comment letter of July 29, 2009, on the Draft Sweeney Lake Total Phosphorus TMDL Report (Draft Report). We have also reviewed the email you forwarded to us from Robert Laing of CLEAN-FLO International.

We know you have invested a lot of time and effort towards improving the Lake over the years and appreciate the time and effort you and other members of the Lake Association have taken to be a critical part the process. We especially appreciate the historical perspective you have provided over the past two-plus years. Based on our review of the information you have provided, we see two main areas of concern and comment: the effects of aeration on weed growth and water quality; and the benefits of improvements at Schaper Pond. Each of these is discussed below, with the project team's response in bold text.

1. Weed Growth, Water Quality and Aeration. **First, as suggested in the second paragraph on page 2 of your letter, the two years of monitoring without the operation of the aeration system has not harmed the lake. As we discussed when we visited in person, the most significant factor causing the increase in weed and algae growth you are seeing is the improved water clarity in the surface waters of Sweeney Lake over the last few years. In fact, the data Mr. Laing provided to you in his email helps illustrate this point. Published literature has demonstrated that there is a one to one relationship between lake clarity and the depth of weed growth. For example, if Secchi disk depth is 1.0 meters, weeds (aquatic plants) will grow in areas of the lake that are 1.0 meters deep or less.**

In years prior to 2007, there were generally one to three monitored days per year with a secchi reading greater than 2.0 meters. In 2007 there were no days with readings greater than 2.0 meters and you did not see a significant change in weed growth in 2007. Then in 2008, there were five days with readings greater than 2.0, a significant improvement in water clarity in the year you first observed the change in weed and algae growth. Also note that TP levels in the surface waters were generally lower (better) in 2008 than in 2007. So the lower TP conditions did not reduce weed growth in 2008 as the clarity of the water was the limiting factor for weed growth.

When we spoke in person earlier this summer, we discussed the longer-term changes that you may see in Sweeney Lake as the implementation program proceeds. It is worth reiterating here that as the clarity of the water continues to improve with reduced TP loads, you will likely continue to see additional weed growth.

Regarding the impacts of aeration on the release of phosphorus for the sediments, you are correct that early in the study the project team suggested that additional aeration may help to reduce the release of phosphorus from the sediments into the water column. We also suggested that less, or no, aeration in the critical summer period could also be a better situation that would reduce the mixing of phosphorus within the water column. The conclusions presented in the Draft Report indicate that the aeration system may or may be increasing or decreasing the overall internal loading to the lake, relative to non-aerated conditions. The Draft Report further states that winter aeration is likely a good long-term strategy for the lake and likely has real fisheries benefits.

Regarding the comment in Mr. Laing's email on the Effect of Alum on Fish. The suggestion that "Alum coats the gills of fish during alum application to cause suffocation" is inappropriate. The Minnesota Pollution Control Agency has decided to grant permits for alum treatment of lakes after a rigorous scientific review of available literature on the potential effects of alum and the chemistry of alum. Alum treatment applied with care and consideration of the conditions upon which treatment is conducted will not cause fish kills.

2. Schaper Pond Modifications. We agree that modifications at Schaper pond will help to reduce the loading of both TSS and TP to Sweeney Lake. The Management Plan (Table 8.4) includes this activity as one of the possible implementation items to reduce the external loading. The estimated reduction is on the order of 40 pounds per year of total phosphorus. When looking at the total external load to Sweeney Lake needed to meet the state standard, the 40 pound annual reduction is less than 10 percent of the 460 pound annual reduction needed looking at only external sources. Again, we agree that improvements at Schaper Pond will help, but they are only a portion of the total solution.

The data provided to you on TSS loading for 2007 and 2008 was the preliminary data from Three Rivers Park District and was not the final data used in the analysis. The preliminary data you refer to in your letter showed TSS loading of 948,813 and 923,290 pounds of TSS per year, for 2007 and 2008, respectively. These data were in error due to an error in the inflow rating curve. The actual data show TSS loadings for 2007 and 2008 of 470,014 and 427,450 pounds per year, respectively. I have since sent this final spreadsheet to you via email.

Finally, you asked if the water leaving Sweeney had ever been tested. As part of the TMDL workplan, the water leaving the lake was assumed to be at the same concentration as the water at the surface of the lake at the two locations sampled.

Again, we appreciate your time and effort throughout this process. We expect to collect additional comments at the August 20, 2009, Commission Meeting and get direction from the Commission on when they would like to send the Draft Report to MPCA for their review. We will make the revised Draft Report available on the project webpages.

Sincerely,

August 13, 2009
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Ron Leaf, PE
Project Manager

c: Michael Welch, Chair, BCWMC
Len Kremer, PE, BCWMC Watershed Engineer

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DRAFT

August 12, 2009

RE: Bassett Creek Watershed Management
Commission
Sweeney Lake TMDL – Draft Report
SEH No. ABCWMC070100

Jeff Oliver, PE
City Engineer
City of Golden Valley
7800 Golden Valley Road
Golden Valley, MN 55427-4588

Dear Jeff:

Thank you for submitting comments on the Draft Sweeney Lake Total Phosphorus TMDL Report (Draft Report). We appreciate the time you and other members of the City of Golden Valley have taken to participate in the process to date and to review the Draft Report. This letter is intended to summarize how your comments have been, or will be, addressed.

First, in your cover letter you indicate that you agree with the approach taken in the Draft Report to allocate waste loads based on a categorical basis, except for MnDOT, which should be allocated an individual load.

Regarding the specific comments provide in your attached two-page table, we have addressed all of your requested changes. Relating to the four specific items below, you were not requesting changes to the Draft Report, but instead were requesting additional information and/or additional discussions with the Bassett Creek Watershed Management Commission (Commission). The project team's response is noted in bold text.

1. Table 6.5 - TP Removal of Existing BMPs. The City would like to review the list of BMPs to confirm the number and location of BMPs. **These data are available and will be sent to you under separate cover.**
2. Section 8.1 – Implementation Strategy. The City would like to have additional discussions with the Commission on the roles of the MS4s and Commission during implementation of this and other TMDLs. Specifically, a procedure for reporting needs to be defined. **We agree that defining these roles will improve the effectiveness of the implementation program. However, defining the roles is not a required element of the TMDL Report and was not identified in**

the project workplan. We suggest that these discussions take place concurrent with the MPCA review process. Based on our correspondence on August 11, 2009, we understand that the City agrees that the revised Draft Report should be submitted to MPCA and that these discussions can take place concurrent with the MPCA review.

3. Section 8.2.2 – Internal Loading Subheading “Chemical Treatment.” The City requests additional information on an existing alum dosing plant including effectiveness and ongoing operation and maintenance costs. **These data are being compiled and will be sent to you under separate cover.**
4. Section 8.2.2 – Internal Loading Subheading “Vegetation Management. Additional discussion should be included about the potential for this invasive plant species to have further impact on the internal loading as well as the cost for control. **A detailed assessment of curly leaf pond weed on the internal phosphorus loading was not part of the workplan for this study. However, the Commission’s has been conducting macrophyte surveys on Sweeney Lake and these surveys indicate a relative small portion of Sweeney Lake has curly leaf pond weed. Further, the internal loading from the sediment, as determined from the sediment cores taken from the Lake, indicate a very high internal load from the bottom sediments. While there may be some small internal load related to curly leaf pond weed, it has been determined to be insignificant relative to the internal loading from Lake sediments.**

Again, we appreciate the time City staff has taken throughout the process. We expect to collect additional comments at the August 20, 2009, Commission Meeting and get direction from the Commission on when they would like to send the Draft Report to MPCA for their review. We will make the revised Draft Report available on the project webpages.

Sincerely,

Ron Leaf, PE
Project Manager

c: Michael Welch, Chair, BCWMC
Len Kremer, PE, BCWMC Watershed Engineer