

Item 6B.
BCWMC 2-19-15
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February 10, 2015

Mr. Jeff Oliver, P.E.
City Engineer
City of Golden Valley
7800 Golden Valley Road
Golden Valley, MN 55427

**Re: 90% Design Plans – Schaper Pond Improvements Project
Golden Valley Project 13-28**

Dear Mr. Oliver:

Attached please find the 90% design plans for the Schaper Pond Improvements Project. The Bassett Creek Watershed Management Commission (BCWMC) is funding the Schaper Pond Improvements Project (BCWMC CIP SL-3) through a 2014 ad valorem tax levy (via Hennepin County). Per the cooperative agreement between the City of Golden Valley and the BCWMC, the city is to construct the project, and the plans and specifications are subject to approval by the Commission. The BCWMC approved the 50% design plans at their December 18, 2014 meeting. Per the BCWMC's CIP project flow chart, the 90% design plans for this project must also be submitted to the BCWMC for review and approval. If the attached 90% plans meet the city's approval, we recommend submitting them, along with this letter, to the BCWMC for inclusion in the meeting packet for their February 19th meeting. Barr staff will present the 90% plans to the BCWMC at the meeting and answer any questions from the BCWMC.

The remainder of this letter presents information about the feasibility study, the design features of the project, and approval/permitting needs.

Feasibility Study Summary and Selected Project

The Sweeney Lake Total Phosphorus Total Maximum Daily Load Study (TMDL study) was completed in 2011, and the implementation program in the TMDL study included several BMP options to reduce watershed phosphorus loads. One of the options called for modifying the flow through Schaper Pond so that it would be more efficient in removing phosphorus before discharging to Sweeney Lake. Schaper Pond is immediately upstream (south) of Sweeney Lake.

Following completion of the TMDL study, the BCWMC completed the *Feasibility Report for the Schaper Pond Improvement Project* (February 2012) to evaluate modification options within Schaper Pond to improve the pond's phosphorus removal performance. The study found two options to be viable: 1) dredging to increase the pond depth to improve particle settling, and 2) diversion of water within Schaper Pond to direct more of the flows to the northwest part of the pond.

The BCWMC selected the diversion option from the feasibility study for construction, because it would be the most cost-effective approach to improve the total phosphorus removal performance of the pond and meet the external load reduction required by the Sweeney Lake TMDL.

In September 2014, Barr performed a detailed alternatives analysis of three potential diversion options: 1) earthen berm, 2) sheet pile wall, and 3) floating water baffle. The analysis considered various advantages and disadvantages of each option and included a detailed assessment of probable lifecycle costs. Based on the results of the analysis, the city determined that the best option was the floating water baffle.

Design features – 90% plans

The primary design features of the proposed work, as shown on the 90% plans, include:

1. Installation of a floating water baffle. An approximately 380-foot long baffle would extend from the east side of the pond across the middle of the northwest lobe of the pond, directing flows to the northwest lobe. Under flow conditions up to 25 cfs, the bottom of the baffle curtain would rest on the pond bottom and the top of the curtain would float. However, the northernmost section of the baffle curtain would be shorter (i.e., the bottom of the curtain would be about two feet off the bottom) to allow flows to pass underneath the curtain.

Under higher-flow conditions (above 25 cfs), the bottom of the baffle curtain would rise off the pond bottom as the pond water level rises. The floating water baffle is designed to operate in this manner up to the 100-year flood event, an elevation range of 9.2 feet, from a normal water level of 827.6 feet to elevation 836.8 feet.

2. Cattail removal and berm construction. Rather than extend the floating water baffle across the shallow wetland area on the east side of the pond, the design calls for cutting an approximately one-foot deep, five-foot wide, and 100-foot long trench through the area. The trench would be backfilled with clean material and up to about one foot above the existing ground/pond bottom. This would result in approximately 534 square feet of wetland fill (permanent impacts) and 1,120 square feet of temporary wetland impacts during construction.
3. Other design features include the creation of two dedicated access areas for maintenance. One access would be located near the existing pond skimmer and result in approximately 233 square feet of wetland fill (permanent impacts). The other access would be located near the north end of the proposed floating water baffle (no wetland fill would result). These access areas will allow city maintenance crews to more safely and efficiently remove debris that accumulates on the upstream side of the skimmer and the floating water baffle. The access near the baffle would also provide for maintenance dredging of the northwest lobe of the pond.

The 50% design plans called for the removal of a 27-foot portion of the existing berm that separates the northwest lobe from the east "channel" portion of the pond. This design feature was deleted from the 90% plans to avoid the additional temporary wetland impacts resulting from removing the existing berm. The additional temporary wetland impacts would have put the project over the 2,000-square-foot threshold for the US Army Corps of Engineers general permit (see "Approvals/permit requirements" section below). We also found that the increased flow velocities between the floating baffle curtain and existing berm will be insignificant.

As stated in the feasibility study, the project is anticipated to achieve reductions in total phosphorus ranging from 81 – 156 pounds per year.

Approvals/permit requirements

In addition to BCWMC approval of the plans, other permits/approvals are required for this project, including:

- Minnesota Department of Natural Resources' (MDNR) public waters work permit and the associated Minnesota Pollution Control Agency (MPCA) review.
On December 23, 2014, the MPCA notified the City of Golden Valley and the BCWMC that the proposed project would be accepted by the MPCA Stormwater Program as a reduction in the wasteload of the Sweeney Lake TMDL. On February 11, we will submit the public waters work permit application package (through the MNDR's MPARS system) on behalf of the City of Golden Valley. Prior preliminary reviews by MDNR staff indicate the MDNR will likely approve the project. This permit application incorporates the feasible wetland mitigation options suggested by the MDNR in their January 2014 email to the BCWMC.
- Minnesota Wetland Conservation Act (WCA) approval
As noted above, under the "design features" section, the proposed project includes 767 square feet of wetland fill, which means the project requires wetland permitting and mitigation through the WCA. On February 10, we will also submit the WCA permit application package (joint notification form and other materials) on behalf of the city. The city will mitigate for the permanent wetland fill impacts by withdrawing wetland credits from one of the city's wetland banks.
- US Army Corps of Engineers (ACOE) approval
On January 6, 2015, we received confirmation from the ACOE that the project falls under a non-reporting category (A. Maintenance) of ACOE General Permit RGP-003-MN. As long as the general permit conditions are met, no application or notification to the ACOE is required. One of the general permit conditions requires that the sum of permanent and temporary wetland impacts not exceed 2,000 square feet.
- City permits
We anticipate that this project will require a City stormwater management permit for erosion and sediment control purposes; and a right-of-way management permit for temporary access on city property.
- Three Rivers Park District
The project work is adjacent to a Three Rivers Park District (TRPD) trail. The city will coordinate with TRPD regarding any potential temporary impacts to the trail resulting from construction.

Recommendations

We recommend that the city request 1) BCWMC approval of the 90% drawings, and 2) BCWMC authorization for the city to proceed with final plans and contract documents, permitting, and construction.

If you have any questions, please contact me at 952-832-2813 or kchandler@barr.com.

Sincerely,



Karen L. Chandler, P.E.
Senior Water Resources Engineer