

## Memorandum

To: Bassett Creek Watershed Management Commission  
From: Barr Engineering Co.  
Subject: Item 6E – Review of Main Stem Restoration Project; Golden Valley Rd. to Irving Ave. N. – 50% Development Plans (CIP 2012 CR)  
BCWMC September 19, 2013 Meeting Agenda  
Date: September 12, 2013  
Project: 23270051 2013 626

### 6E. Review of Main Stem Restoration Project; Golden Valley Rd. to Irving Ave. N. – 50% Development Plans (CIP 2012 CR)

#### Summary

**Proposed Work:** Main Stem of Bassett Creek Restoration Project (CIP 2012 CR)

**Basis for Commission Review:** 50% plan review

**Change in Impervious Surface:** N.A.

**Recommendation:** Conditional Approval

The Minneapolis Park and Recreation Board (MPRB) Main Stem of Bassett Creek restoration project (CIP 2012 CR) is being funded by the BCWMC's ad valorem levy (via Hennepin County) and by a Minnesota Board of Water and Soil Resources Clean Water Fund Grant. The MPRB provided the 50% design plans to the BCWMC for review and comment, as set forth in the BCWMC CIP project flow chart developed by the TAC.

#### Feasibility Study Summary

The Feasibility Report for the 2012 Bassett Creek Main Stem Restoration Project – Golden Valley Road to Irving Avenue North (Barr, June 2011) was completed by the BCWMC to develop approaches to stabilize eroding stream banks along the Main Stem of Bassett Creek. Between Golden Valley Road and Irving Avenue North, Bassett Creek flows through Golden Valley and Minneapolis, and is nearly entirely contained within MPRB-owned land in Theodore Wirth Regional Park, Theodore Wirth Golf Course, and city parks. The goal of the project is to reduce the phosphorus loading to the Main Stem of Bassett Creek by 60 pounds per year and to consolidate sediments in an in-stream pond upstream of Highway 55. Eight stabilization sites with severe or moderate erosion were identified in the feasibility study, along with the sediment consolidation in the pond.

The feasibility study developed conceptual stabilization approaches for each of the eight erosion sites. The approaches used combinations of riprap, grading, biolog, j-vanes, root wads, live stakes, and

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native plantings. It also developed a conceptual approach to the pond drawdown to achieve the goals of sediment consolidation, vegetation re-growth, and invasive species control.

## Previous reviews

The cooperative agreement for this project between the BCWMC and the City of Minneapolis acknowledges that the City will act through the MPRB to construct the project. On behalf of the BCWMC, the Commission Engineer met twice with MPRB and its consultant to discuss the project during different design phases. The first meeting occurred on April 26, 2013 at MPRB headquarters to discuss the project approach and preliminary/conceptual plans. The second meeting occurred on June 4, 2013 at the Theodore Wirth Golf Course chalet and was followed by visits to each of the restoration sites to discuss concept plans.

## Recommendations

The BCWMC Engineer recommends that the BCWMC: 1) approve (with conditions) the 50% design drawings and 2) authorize the MPRB to proceed with final plans and contract documents.

Although we understand these drawings are still preliminary, note the following initial review comments. Additional necessary minor edits (spelling, formatting, etc.) were also communicated to the design team.

1. Sheet 2 appears to show several easements outside of the project area. If the easements are unrelated to the proposed project, then they should be removed from the plan set.
2. The “Description of Proposed Improvements” on Sheet 3 appears to contain some items not included in the proposed project (e.g. cross vanes) and omit items that are included in the proposed project (e.g. live fascines). This description should be corrected.
3. The detail for a fishing block on Sheet 4 shows limestone blocks stacked on top of each other to provide a smooth surface from which to fish. The detail should be modified or notes added to the detail to describe how the limestone blocks will be secured together. A portion of the limestone blocks are to be cantilevered over the water and excessive weight on the cantilevered portion may cause the top limestone slab to overturn. Plan details should include methods for securing the blocks or computations should be provided to demonstrate the blocks are stable.
4. Construction access and construction limits should be shown on Sheets 10 – 19.
5. On Sheets 13 – 19, there are many locations calling for clearing vegetation, grading and installing biolug and fascine. Biolug and fascines (and live stakes) are generally installed by hand and do not always require significant clearing for their installation. The value of existing vegetation and the need to grade existing stream banks should be evaluated to determine if extensive clearing and grading is necessary or if installation by hand within the confines of the existing vegetation would be appropriate.

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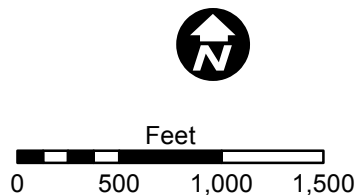
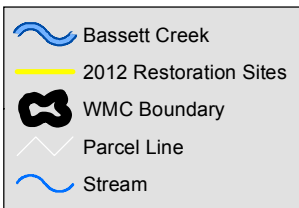
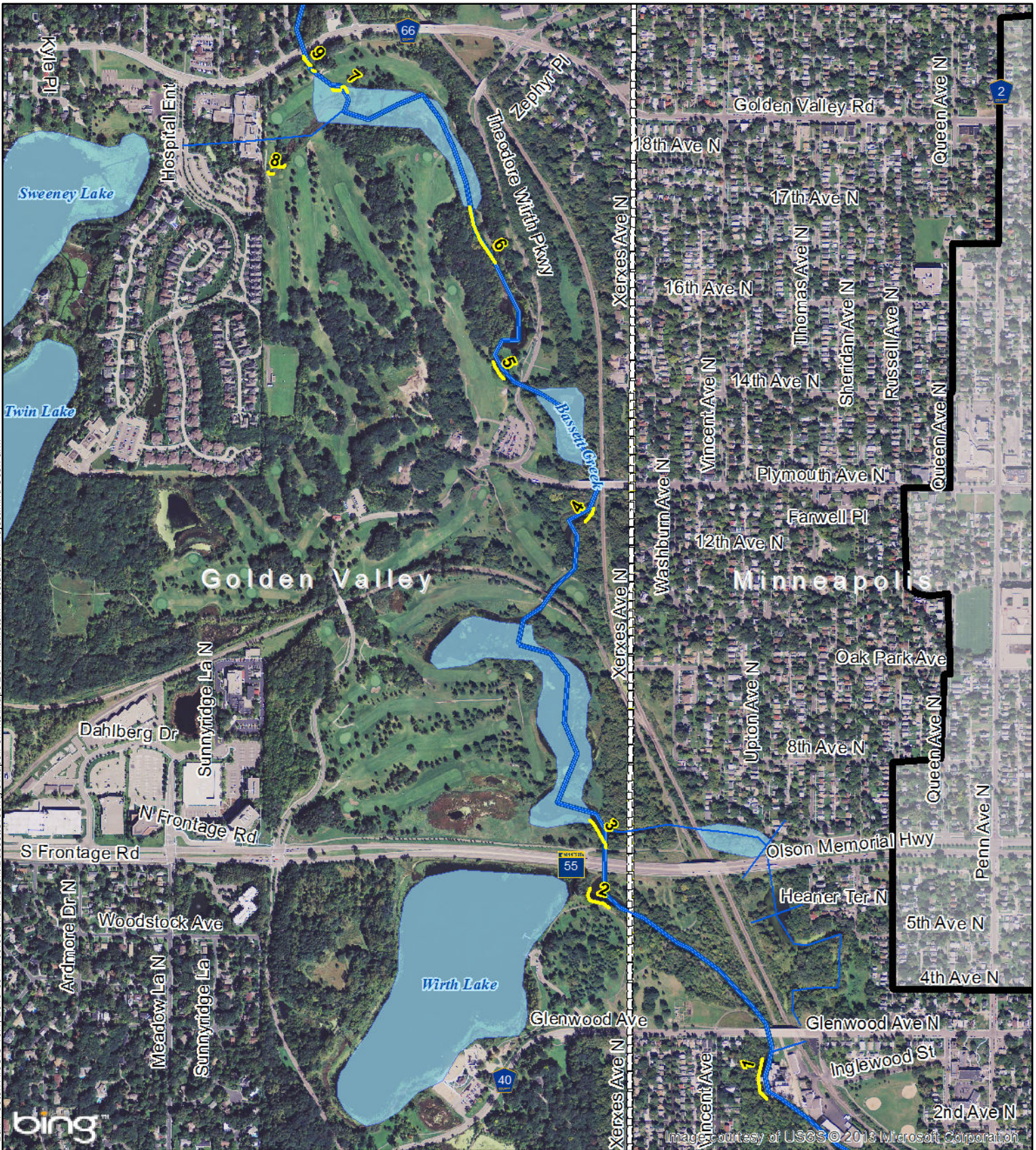
6. Sheets 13 – 19 show the placement of several rock vanes and root wads. The design elevations for each of these features should be included in the plans.
7. Sheets 13-19 show the placement of some rock vanes and root wads quite close together, particularly on Sheet 13 (Station 160+50) and Sheet 16 (Station 113+50). Notes in the plan set state that actual locations of vanes and root wads will be staked in the field. Nonetheless, the placement of all vanes and root wads (Sheets 13-19) should be evaluated and the plans should be modified as necessary to reflect anticipated placement as accurately as possible.
8. Sheets 13 – 19 show the use of fieldstone boulder stabilization in several locations. The design elevation of these features should be included in the plans.
9. On Sheet 13, between stations 160+00 and 162+00, the proposed fascines would likely successfully stabilize the stream banks; however, willows can grow quite tall and may provide an unintended hazard for the golf course. Native grasses or other shrub species would also work in this location. The design team should consult with the golf course planners to agree on a planting plan.
10. On Sheet 14, VRSS is proposed between stations 137+50 to 143+50 with willows (live stakes) as the primary vegetation planted between the VRSS layers. The west bank is well-forested and may provide significant shading to all or portions of the VRSS. We recommend evaluating the anticipated light exposure for the VRSS to ensure the light will be sufficient for willow live stakes to grow. In case of insufficient light, we recommend modifying the planting plan as necessary.
11. On Sheet 14, a callout states that the stone wall will be removed from the stream. Removing the wall will cause disturbance to the channel, so details should be provided about the channel restoration after wall removal. Alternatively, the need to remove the wall could be re-evaluated, especially given the historical context of the wall and the condition of the stream in that area.
12. On Sheet 15, approximately 20 trees are to be removed between Station 128+00 and 131+00, with vanes, biolog and fascines to be installed along the bank. It appears that all trees along this bank are to be removed. It is possible to install vanes without removing all adjacent vegetation. The need to remove all trees along this bank should be re-evaluated with consideration of actual current erosion, the potential for future erosion, and value of existing mature trees.
13. On Sheet 19, the transition between the biolog and riprap can result in erosion behind the riprap if the transition is not constructed properly. The plan set should include a detailed view of this area to clarify the transition.
14. The plans call for removal of dozens of trees with hundreds of feet of fascine to be installed along the stream banks. Willows can be excellent species to help stabilize stream banks and are often available for harvesting for use in fascines. Dogwood species can also be used in similar situations as willow; however harvesting sites are generally not as plentiful. If it is not possible to

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include dogwood cuttings in some fascines, then substituting fascines with dogwood shrubs in some locations should be considered to provide species diversity and create new harvest sites for future MPRB work. Furthermore, other shrub and tree species thrive in riparian zones even though they are not suitable for live stakes and live fascines. Increased diversity in the plantings is encouraged.

15. For the SWPPP notes and restoration plans, please note that
  - a. The restoration plan should show where new vegetation (including trees and shrubs) will be planted and where seed mixes will be used. The restoration plan should also describe how access paths will be restored.
  - b. The plans should show the locations of silt curtain placement to prevent sediment from washing downstream during construction.
  - c. Temporary or permanent mulch must be uniformly applied by mechanical or hydraulic means and stabilized by disc-anchoring or use of hydraulic soil stabilizers.
  - d. Temporary vegetative cover must be spread at 1.5 times the usual rate per acre. If temporary cover is to remain in place beyond the present growing season, two-thirds of the seed mix shall be composed of perennial grasses.
16. The BCWMC generally does not allow fill in the floodplain. If fill is placed in the floodplain, the BCWMC requires that compensating storage and/or channel improvement be provided so that the flood level is not increased at any point along the trunk system due to the fill.
17. Golden Valley and Minneapolis are the LGUs responsible for reviewing the project for conformance to the Minnesota Wetland Conservation Act.
18. Revised plans must be submitted to the BCWMC Engineer for review.



**LOCATION MAP**  
**Main Stem Restoration Project**  
**Golden Valley Road to Irving Avenue**  
**CIP 2012 CR**  
**50% Plan Review**  
**Golden Valley and Minneapolis, MN**