Briarwood/Dawnview Water Quality Improvement Project

Briarwood/Dawnview BCWMC Project BC-7

FINAL REPORT
March 17, 2016

I. Project Timeline and Key Documents

A feasibility study for the Briarwood/Dawnview Water Quality Improvement Project was completed in April 2013 by the City's consultant, WSB & Associates. The project was ordered by the Bassett Creek Watershed Management Commission (Commission) in September 2013 through Resolution 13-05. Construction plans were developed by WSB. The 50% design plans and 90% design plans were approved by the Commission in April and September 2014, respectively.

The feasibility study, resolution ordering the project, and design plans can be found online at: http://www.bassettcreekwmo.org/index.php?cID=274.

An agreement between the City and the Commission for design and construction of the project was approved September 19, 2013.

Project construction milestones include:

- December 2014 – award contract
- January 2015 – construction begins
- March 2015 – pond excavation substantially complete
- June 2015 – utility work and restoration substantially complete
- September 2015 – final walkthrough, some vegetation touch up remains
- October 2015 – project acceptance, final payment processed
- October 2017 – two-year warranty period ends

II. Project Area

The project area consists of an approximately one acre site located in Golden Valley, just east of Trunk Highway 100 and ½ mile north of CSAH 66, adjacent to Dawnview Terrace.

Project location map is on the following page:

Briarwood/Dawnview
Water Quality Project
city of golden valley
Print Date: 9/23/2013
Sources:
Hennepin County Surveyors Office for
Property Lines (2011).
Markhurd for 2-Foot Contours (2008).
0
405
810
1,620
Feet
34th Ave N
Scott Ave N
Drake Rd
33rd Ave N
Lilac Dr N
Stockman
Park
Cross Ln
Adell Ave
Lowry Ter
Gearty
Park
Triton Dr
Glenden Ter
Elmdale Rd
Normandy Pl
Cherokee Pl
Perry Ave N
Orchard Ave N
Noble Ave Frontage Rd
Culver Rd
Dawnview Ter
Dona Ln
27th Ave N
Briarwood
Marie Ln W
Marie Ln E
Egret
Pond
Hampton Rd
Nature
Area
Briar-
wood
Pond
Unity Ave N
Regent Ave N
Quail Ave N
Major Ave N
Lee Ave N
Merribee Dr
Bassett
Creek Ln
Bassett Creek Dr
Bassett Creek
Kentley Ave
Manchester Dr
Heritage
Cir
Brunswick Ave N
Lamplighter Ln
Zane Ave N
Brookridge Ave N
Vale Crest Rd
Winfield Ave
Hwy 100
Wynnwood Rd
Colorado
Ave N
Westbrook
Rd
Westmore Way
Westbrook Rd
Minnaqua Dr
Kenneth Way
Adair Ave N
Bassett
Creek
Park
Pond
Bassett
Creek
Nature
Area
Minnaqua
Pond
Toledo Ave N
Windsor Way
Markay Ridge
Spruce Tr
Westbend Rd
Ordway
Valery
Rd
Heathbrooke
Cir
Major
Cir
Duluth St
Logis
Pond
County Rd 66
Lilac
Pond
Duluth
North
Pond
Greenview
Ln
Scott Ave N
Sorell Ave
Sinclair
Pond
Duluth
Pond
Lilac Dr N
Duluth Ln
Golden Valley Rd
Noble Dr
100
66

III. Project Description and Outcomes

Previous conditions of the site had a 42 inch diameter storm water pipe discharging directly into Bassett Creek. The 182 acre sub watershed discharging into the creek through this pipe had no treatment for storm water runoff.

The proposed project was to create a storm water quality treatment pond upstream of the creek that would pretreat storm water before discharging into Bassett Creek. The 4.96 ac. ft. storm water retention pond was constructed just east of Bassett Creek in the Briarwood Nature Area. The storm sewer was diverted to direct storm water to enter the pond, allowing for settlement and pre-treatment before reaching the outlet and discharging into Bassett Creek.

Completion of this project reduced the overall pollutant load to the Main Stem of Bassett Creek. The feasibility report for the project estimated that the proposed project would reduce total phosphorus by 35 pounds per year and total suspended solids by 21 tons per year. After construction, the P-8 model shows that 40 pounds of total phosphorus and 23 tons of total suspended solids will be removed annually.

The completed project added pre-treatment to a 182 acre sub-watershed that previously had no treatment before discharging into Bassett Creek. As a result, the tax payers and community will receive increased water quality downstream of the project. The pond will treat and remove suspended solids and debris, and will increase phosphorus removal. After construction of the pond, a native vegetative buffer was installed to act as a buffer and filter sediment and pollutants from overland flow before reaching the pond. The native vegetative buffer has a mixture of native flowers that are beneficial to pollinators and will add color throughout the growing season.

IV. Budget and Funding

The Engineers estimate for the project was $217,800.00. WSB & Associates was the consultant for the project and had a cost of $32,099.25 for professional services during the project. The contract for construction was awarded for $187,440.75. However, the final cost for the project construction was $203,432.05. After tree and brush removal, a survey was conducted showing that more material would need to be excavated to build the pond to meet the design standards. The original contract amount was 6,500 Cubic Yards and the final amount removed was 8,200 Cubic Yards. This resulted in an increase of $22,950.00 and was the only major change to the plans during construction. There were also several quantities that came in under budget for the project such as removal of side walk and curb and gutter that resulted in being under quantity by $6,958.70 for these items.

The project was funded by Commission funds and implemented by the City of Golden Valley. The City incurred cost for in-kind staff hours for project management, construction observation, and reporting.

Break down of construction-related costs:

- Removals (clearing, bituminous, side walk)- 8%
- Erosion Control- 3%
- Restoration- 6%
- Pond construction- 61%
- Utility work (water main relocation, storm sewer work, etc.) - 22%

V. Lessons Learned

Obtaining an accurate topographic survey

Due to the dense tree cover it was difficult to obtain an accurate topographic survey. This caused the project to go over quantity on excavation because the original information used was found to be inaccurate once the trees were removed. For future projects removing trees prior to survey work would be beneficial.

Creating a long term maintenance plan for the native vegetation

The contractor was responsible for establishing native vegetation surrounding the pond. Ensuring that the vegetation is properly managed and maintained after the project is completed is important. In order to establish a healthy buffer, the native species will need to be managed and invasive species removed to ensure long term results. The City was able to add the long term vegetation maintenance to our existing native restoration program.

Communicating expectations with stake holders

Early in the process, City staff met with stake holders to get an understanding of what the neighborhood was expecting from this project. As the project went forward, staff communicated with the neighborhood defining the expectations and goals of the project. Stake holders were made aware of the type of activity, equipment, and work that was going to take place. The success of this project was strongly based on ensuring the stakeholders understood the construction plan and the contractor implemented the plan.

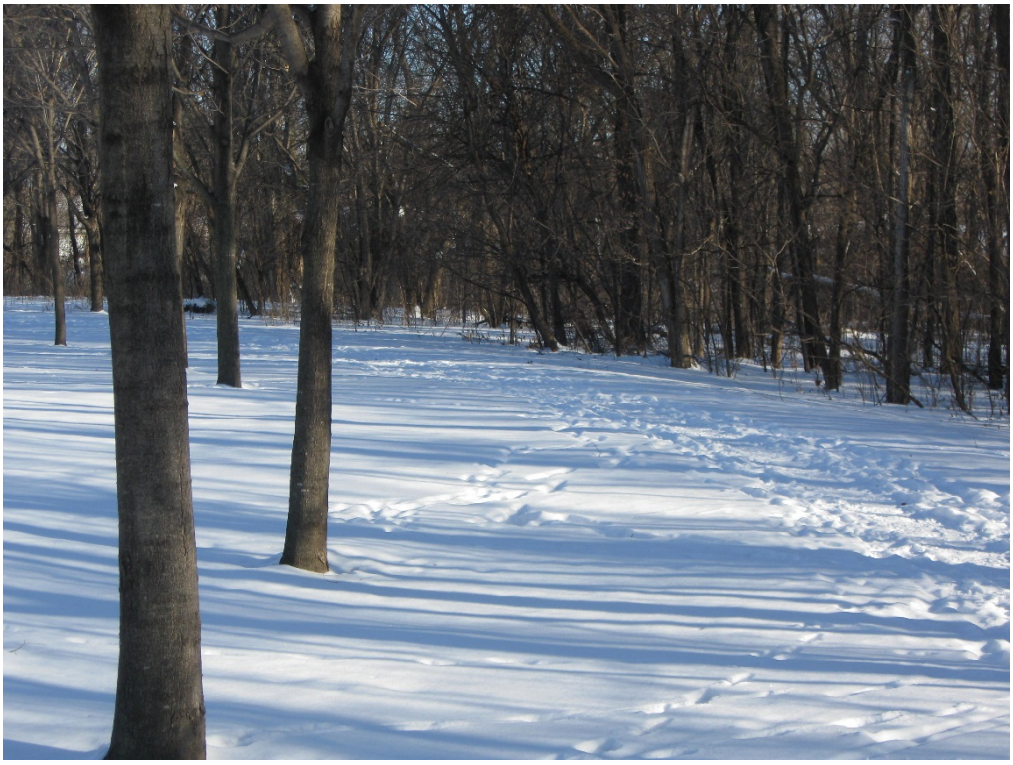
VI. Maintenance

The City of Golden Valley will be responsible for the maintenance of the pond. Anticipated maintenance will include pond dredging upon sedimentation reaching 50% of the storage volume, which is estimated to be once every twenty years.

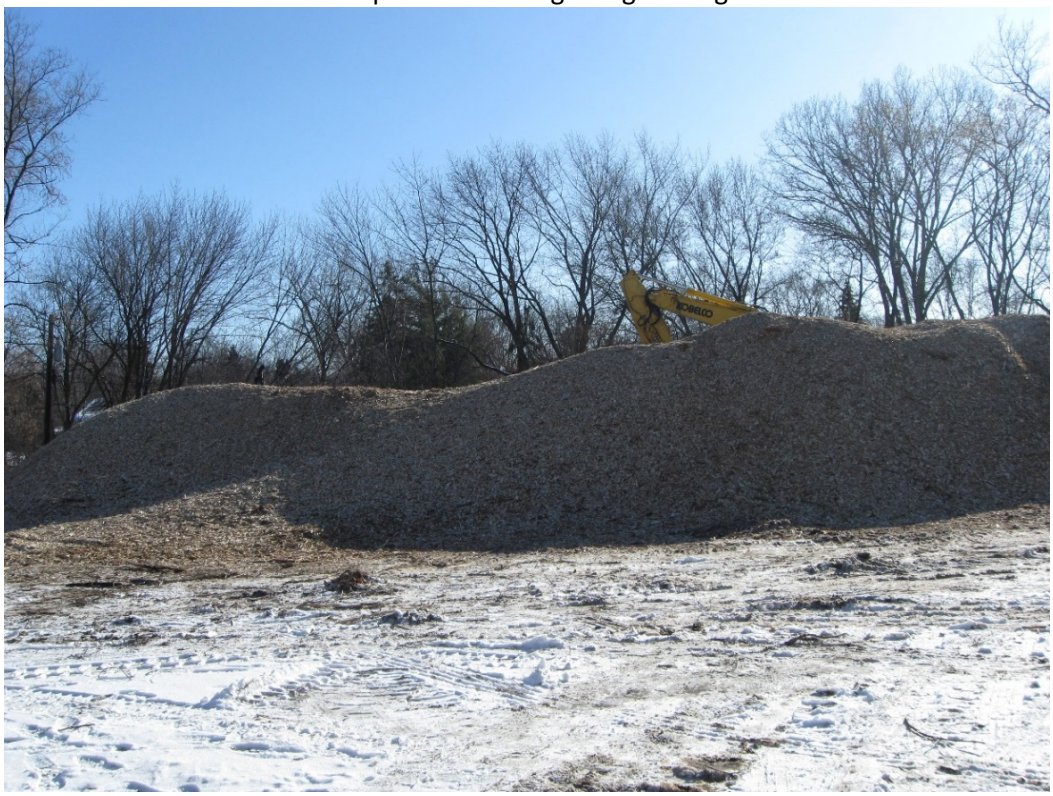
Other maintenance includes native vegetation establishment and preservation. It is the responsibility of the contractor to establish the native vegetation for the first two years after final project completion. After that, the City will add this pond to their list of wetlands and ponds that Prairie Restoration is contracted to maintain.

VII. Photos

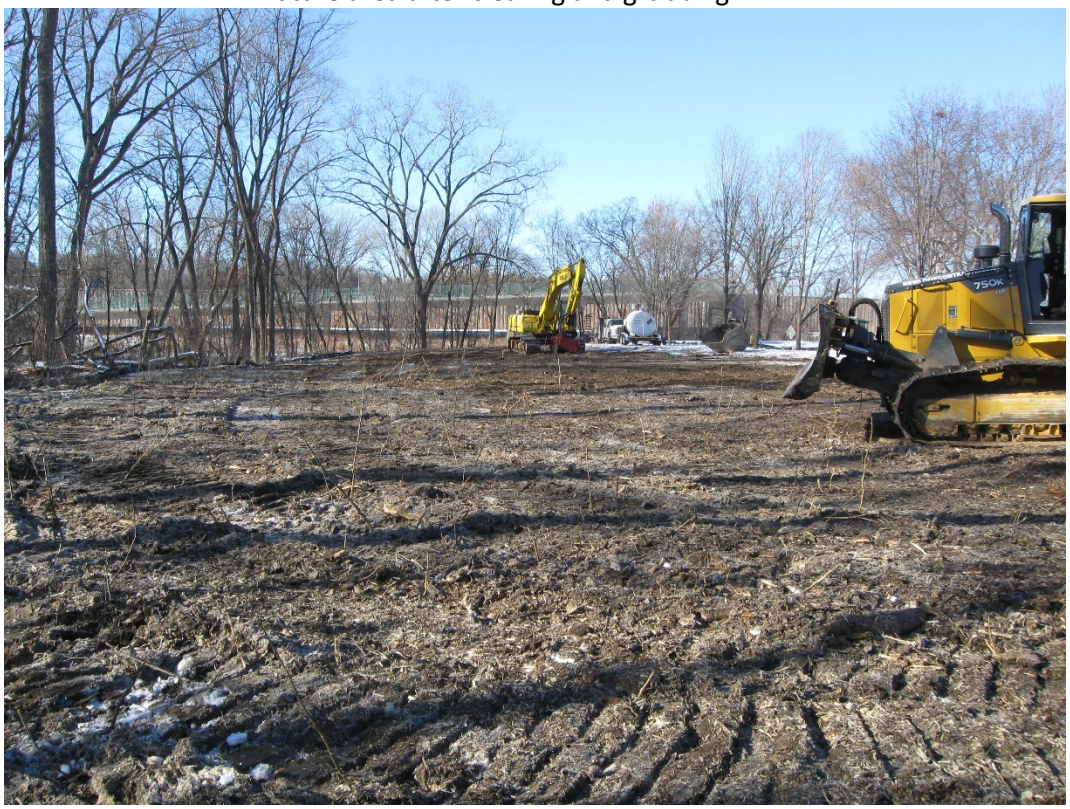
Nature area before construction



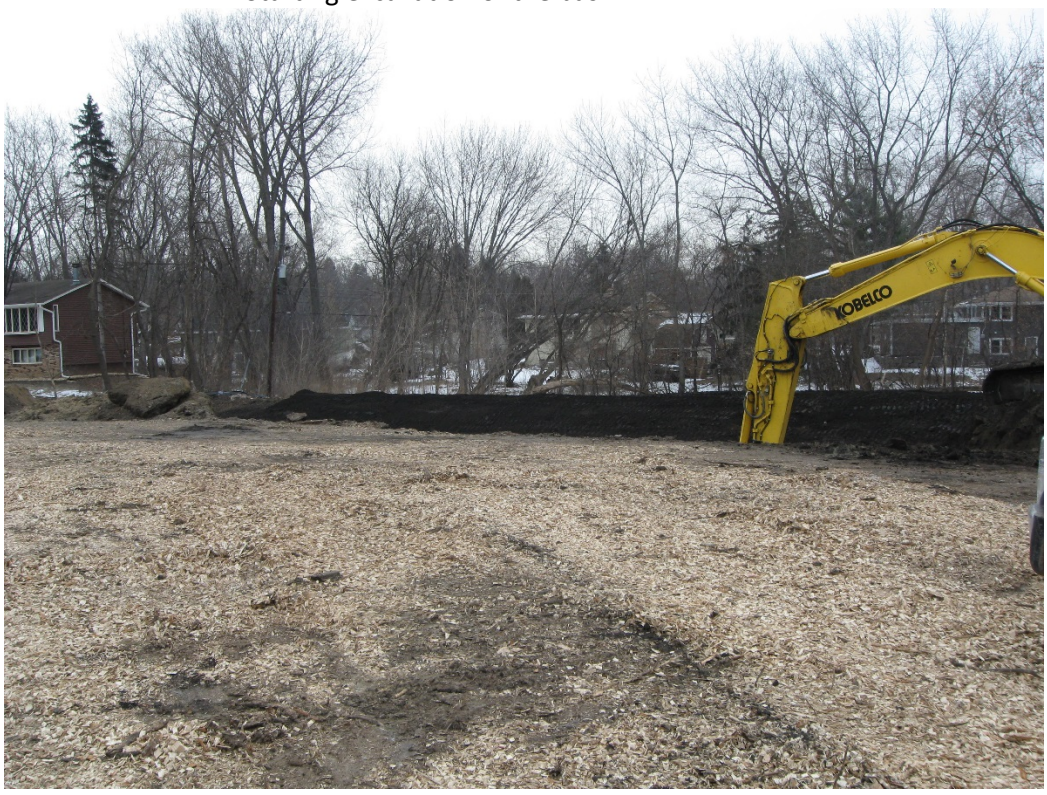
Wood chips from clearing and grubbing



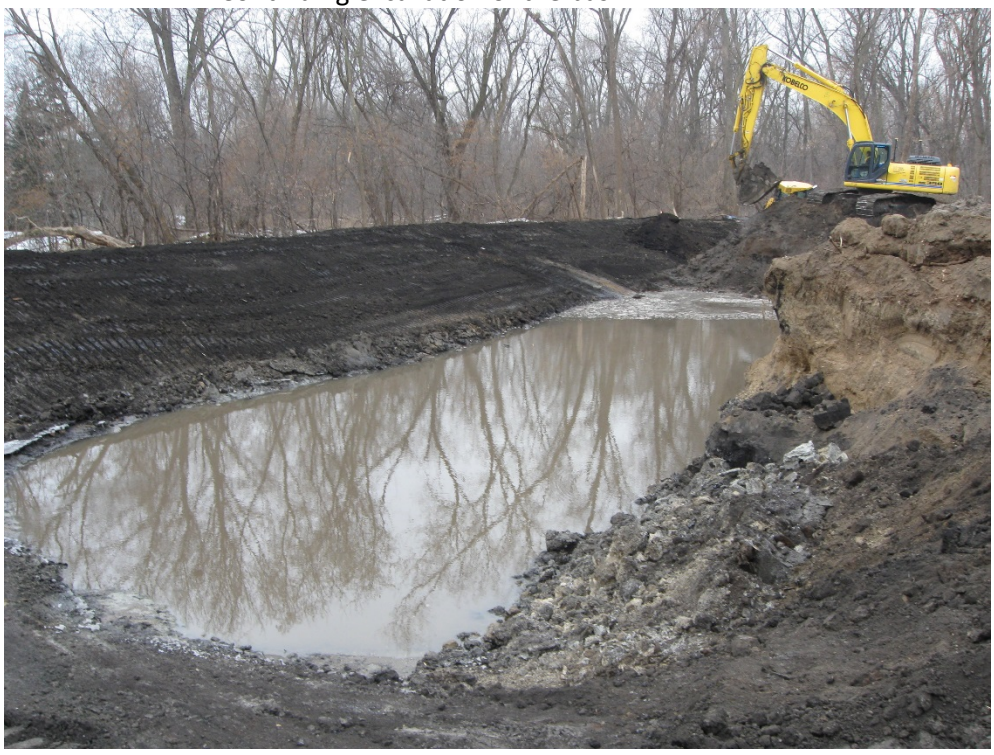
Nature area after clearing and grubbing



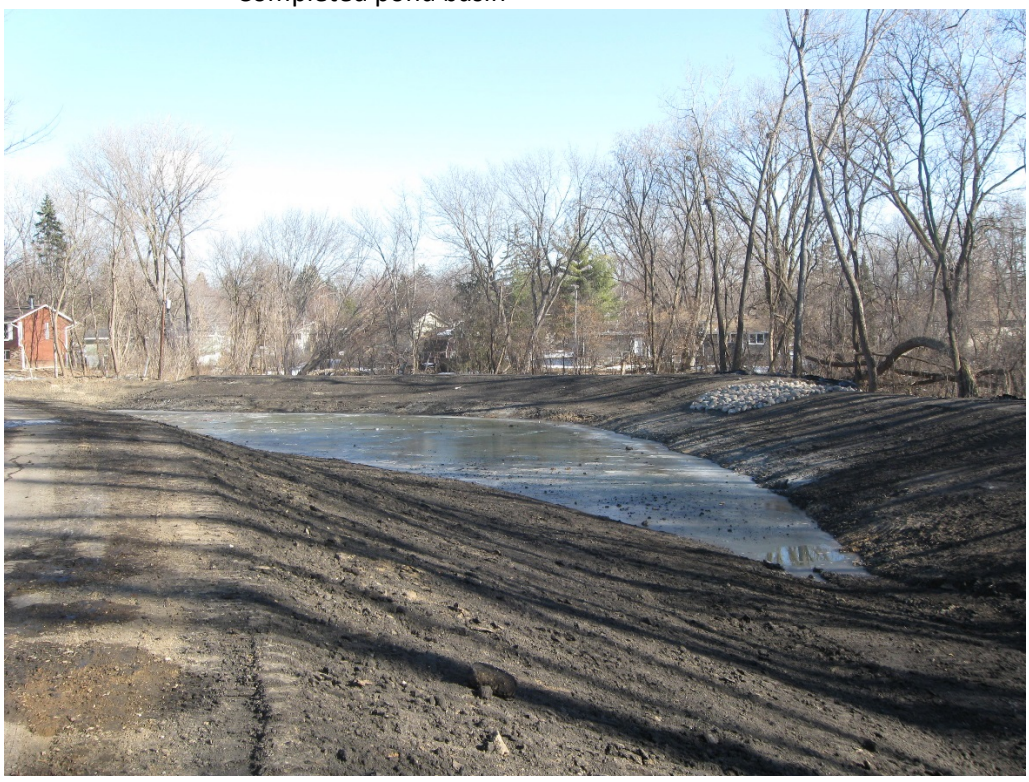
Starting excavation of the basin



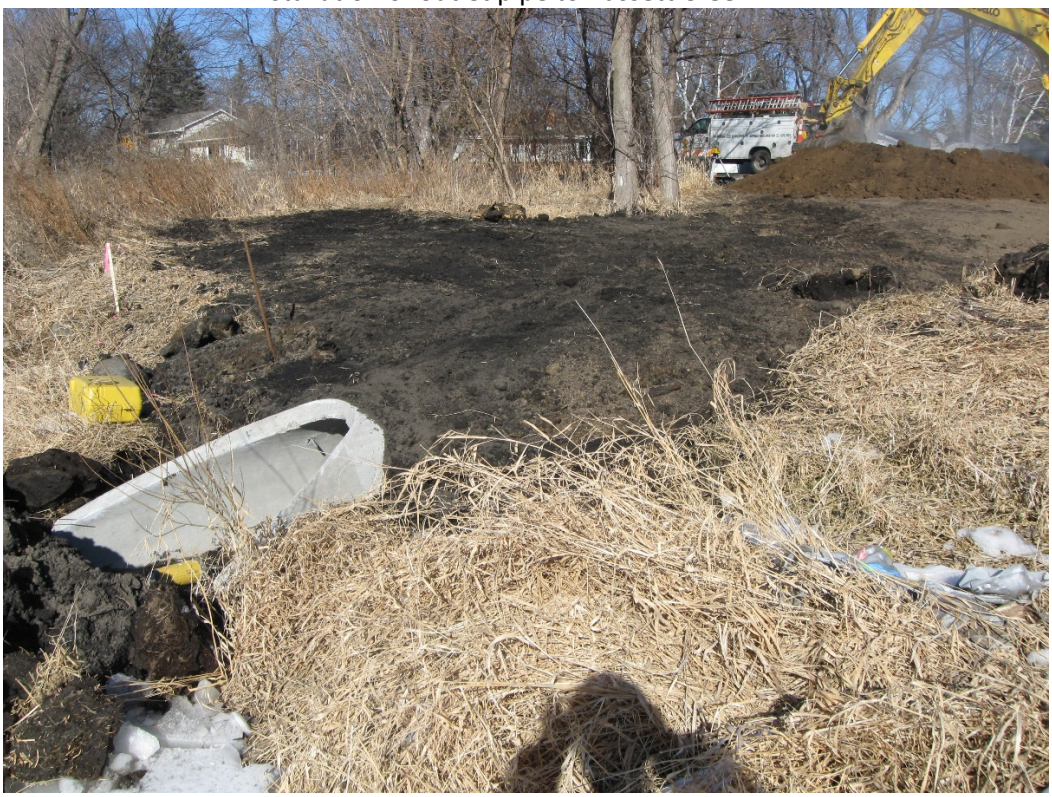
Continuing excavation of the basin



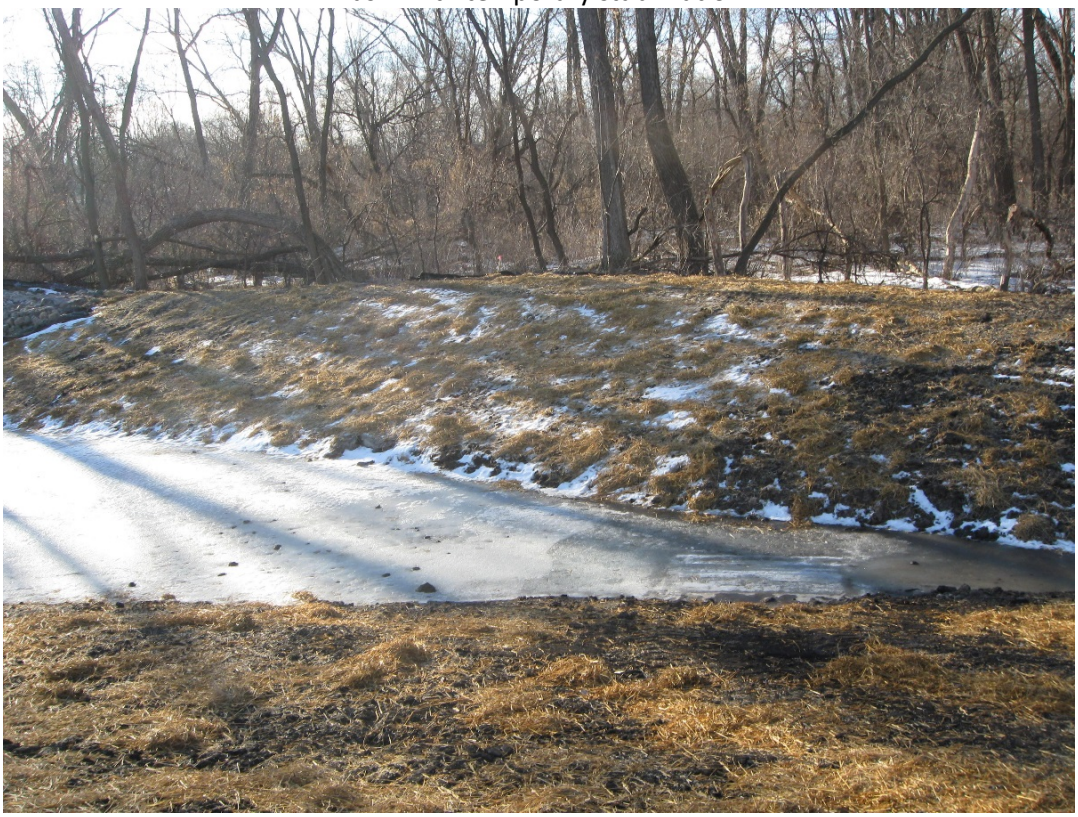
Completed pond basin



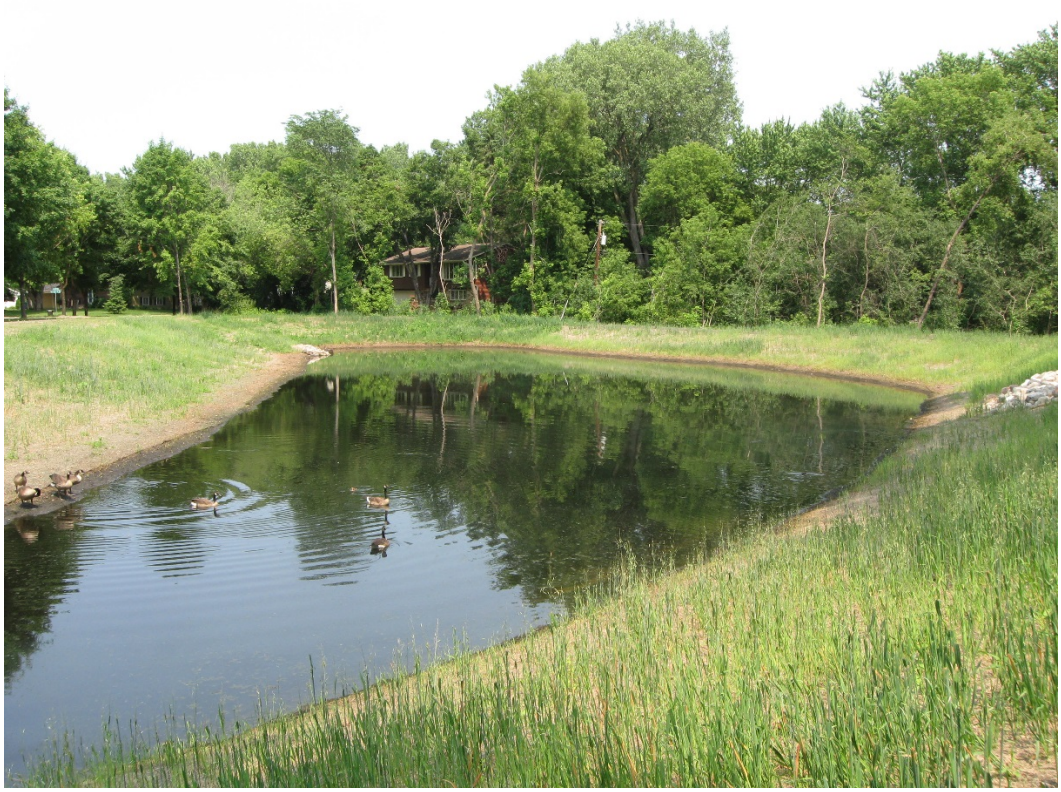
Installation of outlet pipe to Bassett Creek



Basin with temporary stabilization



Pond basin with cover vegetation emerging



Emergency pond overflow