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# Memorandum

**To:** Bassett Creek Watershed Management Commission
**From:** Barr Engineering Co.
**Subject:** Item 5A – Consider Approval of Proposal to Prepare Feasibility Study for Mt. Olivet Stream Stabilization Project and Parkers Lake Drainage Improvement Project (2021 CIP Projects ML-20 and PL-7)
BCWMC August 15, 2019 Meeting
**Date:** August 7, 2019

## 5A. Consider Approval of Proposal to Prepare Feasibility Study for Mt. Olivet Stream Stabilization Project and Parkers Lake Drainage Improvement Project (2021 CIP Projects ML-20 and PL-7)

## Recommendations:

1. Consider approving the scope of work and $93,100 budget presented in this memorandum and direct the Engineer to complete the feasibility study for the Mt. Olivet stream stabilization project and the Parkers Lake drainage improvement project (ML-20 and PL-7, respectively), scheduled for construction in 2021 and 2022.
2. Direct the Engineer to consult with the U.S. Army Corps of Engineers (USACE) to determine whether the Resources Management Plan Pre-application Consultation Protocols may apply to these projects.
3. Direct the Engineer to prepare a feasibility study that complies with the requirements of the USACE and BCWMC criteria.

## Background

The proposed Mt. Olivet stream stabilization project and the Parkers Lake drainage improvement project are in the Bassett Creek Watershed Management Commission's (BCWMC) current CIP (Table 5-3, as amended in 2018), listed as projects ML-20 and PL-7, respectively, each with an total estimated cost of $400,000. At its April 18, 2019 meeting, the Commission approved the 5-year (working) CIP, which included projects ML-20 and PL-7, scheduled for construction in 2021 and 2022.

Both projects are located in Plymouth. The proposed Mt. Olivet stabilization project would address needed stabilization along a reach starting at Old Rockford Road and continuing downstream for approximately 1,300 feet (see Figure 1). The Mt. Olivet drainage area flows into Medicine Lake, which is impaired for total phosphorus. The majority of the land use in the 192-acre watershed is single family detached residential, multi-family residential and park/recreation land; other land uses include institutional and undeveloped.

The Parkers Lake drainage improvement project would address needed stabilization and other drainage/stormwater management improvements along a reach beginning at 18th Avenue North and continuing downstream 1,100 feet to just northwest of the intersection of County Road 6 and Niagara Lane North (see Figure 2). Three Rivers Park District monitoring (on behalf of the City of Plymouth) found the 150-acre area draining to this reach to be contributing high levels of chlorides to Parkers Lake (Parkers Lake is impaired for chlorides). The majority of the land use in the 150-acre watershed is single family attached residential, multi-family residential and park land; other land uses include industrial, single family detached and undeveloped.

The proposed projects will improve habitat and improve downstream water quality by reducing sediment loading to the targeted waterways, thus minimizing sediment passing downstream to Medicine Lake and Parkers Lake.

As is required for BCWMC CIP Projects, a feasibility study must be completed prior to BCWMC holding a hearing and ordering the project. One feasibility study will be prepared to address both projects. The feasibility study will estimate the amount of erosion taking place within each study area, and discuss the feasibility of different options to stabilize each reach. For the Parkers Lake project, the feasibility study will also discuss options to improve drainage (including whether the channel should be replaced with a pipe to convey flows), reduce chloride loading and improve the water quality treatment in the watershed (e.g., improvements to the existing stormwater pond or upstream water quality improvements). Each feasibility study will also review the permitting requirements, and develop a concept plan and cost estimate for each project.

These projects are consistent with the goals (Section 4.1) and policies (Sections 4.2.1, 4.2.5, 4.2.8 and 4.2.10) in the 2015 – 2025 BCWMC Watershed Management Plan.

The BCWMC completed a Resource Management Plan (RMP) in 2009 through which the USACE and the BCWMC agreed on a series of steps, work items, deliverables (called "protocols") that must be accomplished and submitted to complete the RMP process and USACE review/approval process. Although these projects were not included in the RMP, the USACE has allowed the RMP protocols to be applied to other projects not specifically included in the RMP. With the completion of the protocols, we expect the USACE permit application process to move more quickly than it would otherwise. Most of the protocols must be addressed as part of the feasibility study, in addition to the usual tasks that would be performed as part of any feasibility study under the criteria adopted by the BCWMC in October 2013. In general, the protocols require compliance with Section 106 of the National Historic Preservation Act, compliance with Section 404 of the Clean Water Act, and Clean Water Act Section 401 Water Quality Certification. Compliance with Section 106 typically requires a cultural resources inventory.

## Content and Scope of Feasibility Study

The feasibility study will address and include the feasibility study criteria adopted by the BCWMC in October 2013:

- Analysis of multiple alternatives with the context of Commission objectives, including the following for each alternative:
    - Pros and cons analysis
    - Cost estimate for construction and a "30-year cost"
    - Analysis of life expectancy
    - Summarize each alternative for the Commission to judge its merits
    - Cost estimate for annualized cost per pound of pollutant removal
- Evaluation of new and/or innovative approaches
- Identification of permitting requirements

As noted earlier, most of the RMP protocols must be addressed as part of the feasibility study. In addition to the tasks above, the feasibility study will include the identification of wetland impacts to meet the RMP pre-application protocols.

In addition to the RMP protocols and specific criteria adopted by the BCMWC, it is important to gather stakeholder input. The BCWMC Engineer will work with the BCWMC Administrator and City of Plymouth staff to identify the most-effective means to gather input from the public and other affected stakeholders.

Below is a summary of the required feasibility study content for of this project:

## 1) Project Meetings

a) Project kick-off meeting with BCWMC staff, commissioners, and city of Plymouth staff and preparation of meeting notes.

b) Meeting with BCWMC staff, city of Plymouth staff, and agency staff (i.e., USACE, MnDNR, and MPCA), as needed, to discuss concept alternatives and review permit requirements for project, and prepare meeting minutes to confirm discussion results.

c) Biweekly updates to the project team providing updates on work completed, upcoming work, and any outstanding data requests throughout the project.

## 2) Field Investigations

a) Barr will complete site visits of each reach to evaluate the reach and identify potential project features to address erosion concerns.

b) Wetland delineations – Barr will perform a wetland delineation for each project reach. The survey will be completed for the project reach and within a 50-foot buffer on either side of the reach to account for future work activities. Barr will perform a field wetland delineation in accordance with the Routine Level 2 procedures specified in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual ("1987 Manual", USACE, 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010), and the 2013 Guidance for Submittal of Wetland Delineation Reports to the USACE and Wetland Conservation Act (WCA)

Local Government Units (LGUs) in Minnesota. We will record wetland boundaries using a GPS unit with sub-meter accuracy and can flag wetland boundaries if requested by BCWMC or the LGU. We will prepare a wetland delineation report that includes a brief description of the proposed project, general environmental information, wetland type classifications, descriptions of the delineated wetlands, and a discussion of regulations and the administering authorities. The report will also include wetland data forms, precipitation analysis, and site photographs. Barr also will obtain a Wetland Type and Boundary Approval from the LGU. Our cost estimate includes a wetland functions and values assessment (i.e., a Minnesota Rapid Assessment Method, or MNRAM, analysis) of all of the delineated wetlands.

c) Desktop environmental review – Barr will conduct a review of the Minnesota Pollution Control Agency's (MPCA) "What's in my Neighborhood?" database to assess the potential for prior contamination at the project sites. A summary of this data review will be included in the feasibility study. Due to historic land use in the project areas being primarily residential, park, and church-related, we assume that a Phase I environmental site assessment will not need to be completed for this project. The project should proceed with a contingency plan in place if contamination were to be encountered during construction.

d) Topographic and utility location survey – Barr will complete topographic and utility location surveys for each project area. Underground utilities will be located based on the location of manhole structures in the field, available as-built/construction plan drawings from the City, and utilization of a Gopher State One Call utility locate. We assume that city of Plymouth staff will provide available utility data in electronic format.

e) Tree location, diameter, species, and condition survey – As part of the topographic survey, we will also survey all trees with a diameter of 4 inches or greater, recording the diameter, species, and condition (e.g. dead/live, shaggy/peeling/deeply furrowed bark) of the trees. In addition to helping with estimated project costs for the various scenarios (if tree removal is required), the tree survey will help determine if the trees within the project area could provide habitat for the northern long eared bat (endangered).

f) Threatened and endangered species desktop review – Barr will perform a desktop review of the available databases to determine the potential for adverse impacts to state and federally listed species.

g) Cultural resources desktop review - In anticipation of future permitting for project development, Barr will request review of the existing database from the State Historic Preservation Office (SHPO) for information related to known historic and archaeological resources in the project vicinity and will summarize any available information in the feasibility report. This work does not include a Phase I cultural resources review; if one is needed, it would be performed during final design.

h) Project easements – The proposed projects are located on a combination of private and public properties. For portions that cross private property, easement acquisitio would be required. Easement acquisition needs will be identified as part of the feasibility study; easement survey and acquisition will be completed during final design.

## 3) Evaluation and Concept Plans

a) Develop concepts for each project, considering input from stakeholders. For the Parkers Lake project, this includes developing seven concepts—one concept for pipe conveyance and two concepts each for chloride reduction, stream restoration, and water quality treatment improvement (e.g., water re-use, stormwater pond improvements, and/or upstream water quality improvements). For the Mt. Olivet project, this includes developing up to two concepts for stream restoration. The development of concepts for both projects will consider tree removal estimates for each concept (if applicable), including removals needed to gain access to implement each concept.

   i) Analyze the alternatives for addressing identified issues within each reach.

   ii) Develop draft concept plans and cost estimates for each project

   iii) Refine concept plans and cost estimates based on input from city staff and BCWMC.

b) Use of the BCWMC P8 model to estimate the pollutant removals resulting from the project concepts related to stormwater quality treatment improvements and pipe conveyance. We will use the BWSR calculator or other tool to quantify pollutant removals for the stream restoration concepts. We will also use the City of Plymouth/Three Rivers Park District chloride monitoring data to estimate chloride reductions and estimate/verify other pollutant reductions. We will use the BCWMC Phase 2 XP-SWMM model results to review flow information for the reaches, and will use the Phase 2 XP-SWMM model to evaluate the Parkers Lake project pipe conveyance concept, and possibly, the stormwater quality treatment concept (e.g., if a pond).

c) Identify permitting requirements for the concepts, based on wetland delineations and other compiled data, and one (1) meeting with city and agency staff (see task 1b).

d) Develop cost estimates for the project, including a "30-year cost," analysis of life expectancy, and annualized cost per pound of pollutant removal for water quality treatment portions of the project.

e) Develop tree removal estimates for each concept, including removals needed to gain access to implement each concept.

## 4) Public Engagement

a) Coordinate with BCWMC Administrator and City staff to determine the best means to gather public input, such as mailings, newspaper articles, open houses, etc. Primary group for public discussions will be the nearby residents, property owners and adjacent property owners including

representatives of Mt. Olivet church (Mt. Olivet project); and Lakeview Commons and, possibly, park users (Parkers Lake project). The budget for this task includes time to prepare for and attend two public meetings early in the process (one for each project), after the development of concept plans. This task also includes assisting with the public involvement process as necessary – preparing handouts, boards, and/or presentations, and recording and compiling comments. We assume that meeting coordination, expenses, and set-up will be largely completed by the BCWMC Administrator, with assistance from the City.

### 5) Feasibility Study Report

a) Prepare draft report for review by city staff, and BCWMC staff/interested commissioners; revise report based upon review comments.

b) Present draft feasibility study findings at BCWMC meeting.

c) Prepare final report for presentation and approval at BCWMC meeting.

## Cost Estimate

The table below summarizes our cost estimate for the scope of work outlined above.

| Tasks | Estimated Total |
|---|---|
| 1) Project Meetings | $ 9,200 |
| 2) Field Investigations | $23,200 |
| 3) Evaluation and Concept Plans | $37,400 |
| 4) Public Engagement | $ 8,000 |
| 5) Feasibility Report | $15,300 |
| **Total** | $93,100 |

## Schedule

We will complete the tasks and milestones outlined in the scope of work on the following schedule.

| Tasks and milestones | Estimated Schedule |
|---|---|
| Kick-off meeting with BCWMC and City of Plymouth staff | August 2019 |
| Topographic and utility survey | August/September 2019 |
| Wetland review/delineations | August/September 2019 |
| Combined agency field review/TEP review | August/September 2019 |
| Desktop environmental review ("What's in My Neighborhood?") | August 2019 |
| Desktop Review – threatened and endangered species, cultural resources | August/September 2019 |
| Meeting with BCWMC, city, and agency staff | September/October 2019 |
| Develop concept alternatives and cost estimates | October 2019 – January 2020 |
| Public meeting | January/February 2020 |
| Submit draft feasibility report for city and BCWMC staff review | March 13, 2020 |
| City and BCWMC staff complete review | March 27, 2020 |
| Submit draft feasibility report for BCWMC review at Commission meeting | April 8, 2020 |
| BCWMC completes review at Commission meeting | April 16, 2020 |
| Submit final feasibility report for BCWMC review at Commission meeting | May 13, 2020 |
| Final Feasibility Report – BCWMC approval at Commission meeting | May 21, 2020 |


Project Area

Ponds and Wetlands

0 150 300

Feet

Bassett Creek Watershed Management Commission

# MOUNT OLIVET STREAM RESTORATION PROJECT AREA

FIGURE 1


Project Area

Ponds and Wetlands

N

0 150 300

Feet

Bassett Creek Watershed Management Commission

# PARKERS LAKE DRAINAGE IMPROVEMENTS PROJECT AREA

FIGURE 2