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Memorandum

NOTE: Scope of work approved with test trenching to be completed only if the Minneapolis Park and Recreation Board enrolls in the Voluntary Investigation and Cleanup (VIC) Program.

To: Bassett Creek Watershed Management Commission
From: Barr Engineering Co.
Subject: Item 6Diii – Consider Approval of Proposal to Prepare Feasibility Study for the Bryn Mawr Meadows Water Quality Improvement Project (2019 CIP Project BC-5)
BCWMC September 21, 2017 Meeting Agenda
Date: September 13, 2017

6Diii. Consider Approval of Proposal to Prepare Feasibility Study for the Bryn Mawr Meadows Water Quality Improvement Project (2019 CIP Project BC-5)

Recommendations:

1. Consider approving the scope of work and $107,500 budget presented in this memorandum and direct the Engineer to complete the feasibility study for the Bryn Mawr Meadows Water Quality Improvement Project (2019 CIP Project BC-5), scheduled for construction in 2019.
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 for this project.
3. Direct the Engineer to prepare a feasibility study that complies with the requirements of the USACE and BCWMC criteria.

Background

The proposed Bryn Mawr Meadows Water Quality Improvement Project is in the BCWMC's current CIP (Table 5-3, as amended in July 2017). It is listed as project BC-5 with a cost of $500,000. At its March 16, 2017 meeting, the Commission approved the 5-year (working) CIP, which included project BC-5, scheduled for construction in 2019.

This project was described as option 7 in the June 2000 Bassett Creek Main Stem Watershed Management Plan. The project is to construct stormwater best management practices (BMP) in the Bryn Mawr park area within the City of Minneapolis. The BMP is proposed to treat runoff from 209 acres of land to remove an estimated 22 pounds of phosphorus per year, on average.

The project was originally recommended for 2016 at an estimated cost of $160,000. However, after a site visit, watershed information review, and discussions, the City of Minneapolis decided to defer the project for a later time because of the Minneapolis Park & Recreation Board's upcoming master plan process for the park; the master plan was to include locations where stormwater runoff could be addressed. It was also determined that the BMP would likely cost more than the $160,000 originally estimated.

As is required for BCWMC CIP Projects, a feasibility study must be completed prior to BCWMC holding a hearing and ordering the project. The feasibility study will develop conceptual designs of the water quality improvement project, estimate the amount of annual phosphorus that would be removed by the BMP, review the permitting requirements, and develop concept plans and cost estimates for the project.

This project is consistent with the goals (Section 4.1) and policies (Sections 4.2.1, 4.2.2, 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. This project was included in the RMP, so the RMP protocols apply to this project. With the completion of the protocols, we expect the USACE 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 a BCWMC feasibility study. 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.

The water quality improvement project area includes the Bryn Mawr Meadows Park, residential areas to the west, with connection to Bassett Creek to the north through the City of Minneapolis vehicle impound lot. The impound lot is the site of the former Irving Avenue Dump, a closed Minnesota state superfund site, where dump debris and contaminated soil remains. Based on review of the Hennepin County Environmental Data Access Tool, environmental contamination associated with the Bryn Mawr Park property has not been identified, but the site was filled in during the early 1900's and the content and source of the fill is unknown. The proposed project area also contains very poor geotechnical conditions based on the local geology in the area and information obtained from investigations completed at nearby properties. Some existing storm sewer lines have been constructed on pilings.

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, the feasibility study must address most of the RMP protocols. 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, MPRB and City of Minneapolis staff to identify the most-effective means to gather input from the public and other affected stakeholders.

Figure 1 shows the project area covered by this feasibility study.

Below is a summary of the work scope components for this feasibility study:

1) Project Meetings

a) Project kick-off meeting with BCWMC staff, commissioners, MPRB staff and City of Minneapolis staff, and prepare meeting notes.

b) Meeting with BCWMC staff, MPRB staff, Minneapolis staff, USACE, MnDNR, and MPCA to discuss concept alternatives and review permit requirements for project, and prepare meeting minutes to confirm regulatory agencies' discussion results.

2) Field Investigations

a) Gather available existing data from city of Minneapolis and MPRB, including sewer plats. See Figure 1 for location of storm sewer within the park, and Figure 2 for the pipeshed that drains to the 66-inch reinforced concrete pipe sewer which outlets into Bassett Creek.

b) Environmental investigation –Given the history of filling at the property, Barr will perform an environmental test trench investigation in Bryn Mawr Park to assess whether debris is present in the fill soils and to collect soil samples for laboratory analysis for potential environmental contaminants. Up to 8 test trenches are assumed to be completed with soil samples analyzed for parameters commonly identified in urban fill (polycyclic aromatic hydrocarbons, RCRA metals and diesel range organics). Soil samples will also be collected from the fill layer in proposed geotechnical boring locations (see below). We will use the results of the proposed environmental investigations in the park, along with existing environmental information from past investigations for the City of Minneapolis Impound Lot, to assess environmental risks and potential cleanup costs.

c) Geotechnical investigation - The intent of the geotechnical investigation is to provide a baseline understanding of the geotechnical conditions in the proposed project area. Prior to construction and design, a more detailed geotechnical investigation and engineering evaluation report will be

necessary once specific design plans are finalized. Based on existing information and a review of the regional geology, the project area is anticipated to consist of lacustrine clay deposits overlying terrace deposits and glacial till soils. Deep foundation systems will likely be required for most, if not all, structures across the project area.

The preliminary geotechnical investigation will include the following scope of work:

i) Advance four soil borings to a maximum depth of 100 feet, depending on conditions encountered. The soil borings will be advanced using hollow-stem auger or mud rotary drilling techniques with samples obtained continuously to a depth of 15 feet and at 5-foot intervals thereafter in accordance with procedures outlined in ASTM D1586, Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils.

ii) Document geotechnical characteristics of soil including depth to sediment/fill contacts (if any), SPT results (N-values), moisture content, and depth to water as applicable.

iii) Perform a limited program of laboratory testing on recovered soil samples, which may include Atterberg limits, moisture content, grain size distribution tests, and strength testing.

iv) Perform additional environmental field screening as described above.

v) Abandon soil borings in accordance with state requirements.

vi) Prepare a Preliminary Geotechnical Investigation Report, which outlines the results of the subsurface investigation, provides a preliminary assessment of the site geotechnical conditions and potential deep foundation systems, and highlights the general constructability of the site.

d) Wetland delineations – Barr performed a wetland delineation in the portion of the project area along Bassett Creek in 2016, as part of the 2017 Main Stem Channel Restoration Project feasibility study. According to the wetland delineation report, no wetlands were found along the creek in this area. Given how high groundwater is at the park, it is possible wetlands are present within the Bryn Mawr Meadows park boundary. If wetlands are found within the project area during the site evaluation, Barr will perform a field wetland delineation in accordance with the Routine Level 2 procedures specified in the USACE's 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 WCA LGUs in MN. We will identify/flag and record wetland boundaries using a GPS unit with sub-meter accuracy. We will create a wetland delineation report that includes the wetland type classifications and descriptions of the delineated wetlands, a brief description of the proposed project, general environmental information, 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 Local

Government Unit (LGU). Our cost estimate also includes a wetland functions and values assessment (i.e., a Minnesota Rapid Assessment Method, or MNRAM, analysis). Results of the MNRAM analysis will be included in the wetland delineation report if wetlands are found.

If no wetlands are found within the Bryn Mawr Meadows project area then a MNRAM would not be needed, and there would be less data to analyze and present in the report. In this situation, we would prepare a wetland determination report that describes field conditions within the park boundary instead of wetland descriptions.

e) Topographic and utility location survey – We will complete a topographic and utility location survey for the project area. We will locate underground utilities based on the location of manhole structures in the field, as-built/construction plan drawings from the City, and utilization of a Gopher State One Call utility locate. We will conduct the survey in NAVD88 and use available City of Minneapolis or Hennepin County benchmarks. Surface features such as paving, parking lots, etc., will not be surveyed. Basic locations of these elements will be shown via an aerial photograph. The park will be undergoing a master plan in the future, and it is likely locations of these features will change when the master plan is implemented. The survey will concentrate on buried utilities, and confirming the accuracy of the LIDAR data available for the site. The portion of Bassett Creek near the project area was surveyed in 2017 for the Main Stem Stream Restoration project. That survey data will be used to complete the feasibility study.

   The City will video the existing 66" reinforced concrete pipe (RCP) storm sewer which outlets into Bassett Creek from Bryn Mawr Meadows. The video is not part of the feasibility scope, however information obtained from the video will be used to complete the feasibility study.

f) Tree location, diameter, species, and condition survey – MPRB will identify and locate all significant trees in the study area. MPRB will provide the location, diameter, species, and condition (e.g. dead/live, shaggy/peeling/deeply furrowed bark) of the trees to Barr in AutoCAD or GIS compatible format. In addition to helping with estimated project costs, the tree survey will help determine if the trees within the project area could provide habitat for the northern long eared bat (endangered).

g) Threatened and endangered species desktop review – In anticipation of a future environmental review, Barr will perform a desktop review of the available databases to determine the potential for adverse impacts to state and federally-listed species and will summarize findings in the feasibility report.

h) Cultural resources desktop review - In anticipation of a future environmental review, 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 vicinity of the project and will summarize any available information in the feasibility report.

3) Evaluation and Concept Plans

a) Development of up to 3 concepts for water quality treatment within Bryn Mawr Meadows Park.

b) Use of the BCWMC P8 model to estimate impacts to pollutant removals as a result of the project concepts.

c) Identify permitting requirements for the concepts, based on wetland delineations and other compiled data, and one (1) meeting with USACE, MnDNR and MPCA 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 the water quality treatment portion of the project.

4) Public Engagement

a) Public engagement will be coordinated through the North Service Area Community Advisory Committee which is established by the MPRB to facilitate park planning within the city. The BCWMC Administrator, city staff and/or MPRB staff will attend appropriate work groups and open houses scheduled throughout the park planning process. The budget for this task includes time to prepare for and attend one public meeting. Additional meetings will be addressed by MPRB, city staff, and the BCWMC Administrator. We assume that meeting coordination, expenses, and set-up will be largely completed by the BCWMC Administrator in close collaboration with the City.

b) Assist with public involvement process as necessary – prepare handouts, boards and/or presentation, and record and compile comments for one meeting.

5) Feasibility 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 approval at BCWMC meeting and use at future project hearing.

d) Present final feasibility study findings at BCWMC meeting.

Cost Estimate

Table 1 summarizes our cost estimate for the scope of work outlined above.

Table 1. Bryn Mawr Meadows Water Quality Improvement Project Feasibility Study Costs

Tasks	Estimated Total
1) Project Meetings	$5,000
2) Field Investigations	$69,800
3) Evaluation and Concept Plans	$16,700
4) Public Engagement	$3,500
5) Feasibility Report	$12,500
Total	**$107,500**

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, MPRB, and City of Minneapolis staff	September/October 2017
Wetland delineations & TEP review	September/October 2017
Topographic, utility, and tree survey	September/October 2017
Desktop Review – threatened and endangered species, cultural resources	October 2017
Meeting with BCWMC, City, MPRB, USACE, MN DNR and MPCA	November 2017
Develop concept alternatives and cost estimates	December 2017/January 2018
Public meeting #1	February 2018
Submit draft feasibility report for City, MPRB, and BCWMC staff review	March 9, 2018
City, MPRB, and BCWMC staff complete review	March 23, 2018
Submit draft feasibility report for BCWMC review at Commission meeting	April 11, 2018
BCWMC completes review at Commission meeting	April 19, 2018
Submit final feasibility report for BCWMC review at Commission meeting	May 9, 2018
Final Feasibility Report – BCWMC approval at Commission meeting	May 17, 2018

Barr Footer: ArcGIS 10.4.1, 2017-09-13 10:02 File: I:\Proposals\WR\2017\WR03P154_17_Bryn_Mawr_Meadows_CIP\Maps\Figure 1 Bryn Mawr Meadows.mxd User: rcs2

LiDAR Ground Surface Elevation Contours (Spring/Fall 2011)

- 10 ft Contour
- 2 ft Contour
- City of Minneapolis Public Works Property
- Hennepin County Parcels (2016)
- Feasibility Study Area
- Catch Basin
- Manhole
- Storm Pipe

Impound Lot Thickness of Fill

- 0 - 5 ft
- 5 - 10 ft
- 10 - 15 ft
- 15 - 20 ft
- 20 - 25 ft
- 25 - 30 ft
- 30 - 35 ft
- 35 - 40 ft
- 40 - 45 ft

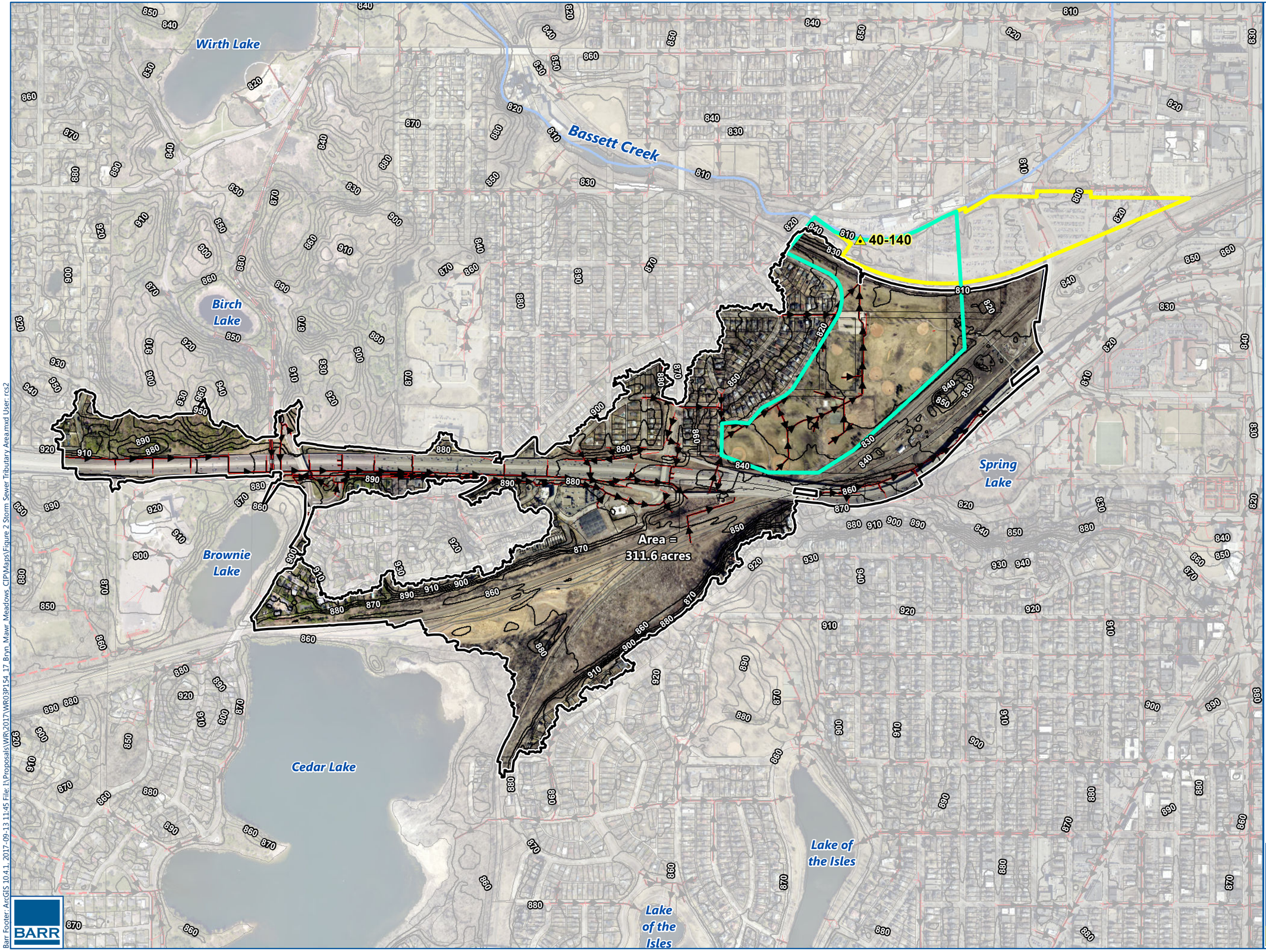
N

0 500

Feet

BRYN MAWR MEADOWS Water Quality Improvement Project

FIGURE 1



66-inch Reinforced Concrete Pipe Outfall to Bassett Creek

Approximate Outfall Pipeshed

Storm Sewers

- Storm Force Main
- Storm Main
- Storm Pipe In Pipe
- Storm Tunnel

LiDAR Ground Surface Elevation Contours (Spring/Fall 2011)

- 10 ft Contour

- City of Minneapolis Public Works Property
- Hennepin County Parcels (2016)
- Feasibility Study Area

N

0 500 1,000

Feet

STORM SEWER TRIBUTARY AREA
Bryn Mawr Meadows
Water Quality
Improvement Project

FIGURE 2

BARR

Barr Footer: ArcGIS 10.4.1, 2017-09-13 11:45 File: I:\Proposals\WRK_2017\WR03P154_17 Bryn_Mawr_Meadows_CIPMaps\Figure 2 Storm Sewer Tributary Area.mxd User: rcs2