

**Work Order No. 01- Change Order 01**  
**Applicable to Agreement Dated June 1, 2017**  
**between**

**Barr Engineering Co. (Barr)**  
**4300 MarketPointe Dr.**  
**Bloomington, MN 55435**

**City of Blaine (City)**  
**10801 Town Square Drive NE**  
**Blaine, MN 55449**

Designated Representative:

Designated Representative:

Contract representative: Brian LeMon  
Day-to-day contact: Michelle Stockness

Jon Haukaas

**I. Scope of Work:**

This letter consists of an amendment to Work Order No. 01, with Change Order 01, that Barr and our subconsultants (Bolton & Menk Inc., LSEngineers Inc., Karges-Faulconbridge Inc., and Wilkus Architects) are performing as follows.

**A. Phase 1: Preliminary Design- Additional scope:**

Following authorization from city staff, Barr or one of our subconsultants performed the following tasks for Phase 1:

1. Added scope: roof mounted solar concept in preliminary design
  - Solar power evaluation or designs were not included in the original contract scope.
  - The city council directed Barr to evaluate adding solar to WTP4 at the August 9, 2018 council meeting during a presentation of preliminary WTP4 design concepts to City Council.
  - Preliminary design tasks included estimation of solar capacity, space requirements, design requirements, preliminary layout, conversations with vendors, and cost estimate.
  - Additional fee: \$838.00
2. Added scope: green roof concepts
  - Rooftop green roof design was not included in the original contract scope.
  - As an extra to the original contract, outside of the base bid, the city chose to add services for "additional site sustainability features above minimum requirements and collaboration with Rice Creek Watershed District (RCWD)." This additional scope entailed meeting with RCWD to review preliminary site concepts and adding site sustainability such as raingardens, pervious pavement, native plantings and other features to improve stormwater management and site sustainability onsite and at grade.
  - The high groundwater levels and site constraints prevented the reservoir roofs from being buried to match existing site grades. Instead the reservoir green roofs need to be architectural roofs that are included with building design as opposed to civil site grading designs.
  - Architectural green roofs are packaged systems that require specialized building design including structural roof design, roof drainage, and vendor coordination.

- Preliminary design tasks included estimation of green roof options, layout, and costs.
  - Additional fee: \$354.00
3. Added scope: Expansion of WTP4 project limits (approximately doubled).
- The original WTP4 site extents were from Lexington Avenue to the future roadway, approximately 4.8 acres. The site was not going to extend west of the future roadway per discussions at the project kickoff meeting on June 20, 2018.
  - After elimination of the future fire station west of the future road, and direction to build a regional stormwater pond as large as possible, the site extents were increased from 4.8 acres, including the WTP4 building, to 7 acres at a preliminary design meeting on July 19, 2018.
  - Preliminary design tasks included additional conceptual site design, access road concepts to Well 19, and design of a large regional stormwater pond.
  - Additional fee: \$2,287.00

Phase 1 meetings: No additional scope:

Phase 1 deliverables: No additional scope:

B. Phase 2: Detailed Design- Additional scope

Following authorization from city staff, Barr or one of our subconsultants performed the following tasks for Phase 2:

1. Added scope: solar ready roof and electrical design
  - Solar was not included in the original contract.
  - City council directed Barr to evaluate adding solar to WTP4 at the August 9, 2018 council meeting during a presentation of preliminary WTP4 design concepts to City Council.
  - During detailed design, a memo was created for city council dated September 27, 2018 that described potential rooftop solar concepts for WTP4.
  - The design team was directed by city staff to plan for solar PV on the WTP4 rooftop and to make the building solar ready at the October 25, 2018 design meeting. The solar PV panels would be bid, installed and maintained by a separate contractor after WTP4 construction is complete.
  - Detailed design tasks included preliminary solar array layout for building design construction, structural loading determinations, revised roof structural design, adjustment of rooftop mechanical equipment locations, electrical interconnect determinations, utility design requirements, rooftop conduit design, and electrical interconnect design.
  - Additional fee: \$26,040.00
2. Added scope: green roofs over reservoirs
  - Architectural green roofs were not included in the original contract per discussion above under preliminary design.
  - Detailed design included revised reservoir structural design, revised rooftop architectural design, revised site drainage, and architectural specifications for the green roof.
  - Additional fee: \$20,412.00

3. Added scope: large full span concrete garage roof, with additional storage and a bathroom.
  - The original design included a large garage onsite, assumed to be a traditional design with half span roof with center columns and beam supports, similar to the maintenance facility, with cold storage/meter room and no bathroom.
  - Per city discussions, a memo was created, dated October 2, 2018, that outlined alternate garage design options for the city including full span concrete, full span steel, half span concrete, and half span steel.
  - At the October 25, 2018 meeting, city staff selected the full span concrete roof with precast walls to avoid having supporting columns in the garage. Additional features were added per city request including shelving and a bathroom with a shower in the garage.
  - Detailed design tasks included revised structural, architectural, and mechanical design.
  - Additional fee: \$28,360.00
4. Added scope: expansion of WTP4 project limits including survey and site civil design.
  - As discussed above, the site extents were increased from 4.8 acres, including the WTP4 building, to 7 acres at a preliminary design meeting on July 19, 2018.
  - Detailed design tasks included additional site design and stormwater management including site survey, design of a new large regional stormwater pond west of the future road, underground piping to collect stormwater from WTP4 to the pond, and an outlet to the stormwater ditch at the western property boundary.
  - Additional fee: \$67,130.00
5. Added scope: added police break room
  - A police break room was not included in the original concept design or contract for WTP4.
  - An email from city staff to the Barr team on August 14, 2018 requested the potential addition of a police break room at WTP4.
  - At the August 23, 2019 design meeting, city staff decided to add a small break room with a bathroom off the main entrance door to WTP4 with separate and secure access for City of Blaine police.
  - Designed design tasks included architectural building layout revisions, structural wall revisions, new plumbing designs to accommodate the bathroom, and new electrical power locations.
  - Additional fee: \$5,600.00
6. Added scope: rainwater reuse from roof for water efficiency
  - A rainwater catchment system to collect rainwater from the roof was not included in the original design.
  - As an extra to the original contract, outside of the base bid, the city chose to add services for "additional site sustainability features above minimum requirements and collaboration with Rice Creek Watershed District." This additional scope entailed meeting with RCWD to review preliminary site concepts and adding site sustainability such as raingardens, pervious pavement, native plantings and other features to improve stormwater management onsite and at grade. This did not include features to improve water efficiency of the building.

- At the July 26, 2018 preliminary design meeting, the city directed staff to add a cistern in the northwest corner of WTP4 to increase the overall water efficiency of WTP4 building and to reduce potable water use for site irrigation.
  - Detailed design tasks included cistern design, mechanical piping connections to roof drainage systems, rainwater filtration design, structural design for a concrete pad, and civil design for reuse water distribution onsite for irrigation.
  - Additional fee: \$13,158.00
7. Added scope: hoist in the pump room
- A hoist in the pump room was not in the original contract.
  - The city requested a hoist in the pump room at preliminary design meeting on July 12 instead of a forklift for pump removal.
  - Detailed design tasks included structural design.
  - Additional fee: \$2,000.00
8. Added scope: water fill station near Tower 4 and replacement of public works fill station control panel
- A water fill station was not included in the original contract.
  - As discussed at the July 19, 2019 preliminary design meeting, the city requested a water fill station on site at WTP4 near Tower 4. This would add a second fill station in the City of Blaine, as the single existing fill station is housed at the public works facility. The city requested that the existing control panel at the public works facility be replaced to the same model as the new fill station control panel so that they are the same.
  - Detailed design tasks included underground water utility piping connections, fill station design, site civil design for the truck turn around, mechanical design for heating and cooling of the building, and electrical power and communications design.
  - Additional fee: \$9,955.00
9. Added scope: wetland permitting and submittals
- As discussed at the initial meeting with RCWD on August 30, 2018, Barr would prepare the wetland delineation report and application for submittal. City staff would submit the wetland delineation application and permit for regulatory approval and handle the wetland replacement and mitigation with their own staff and the purchase of credits.
  - The original contract scope included wetland delineation report by the Barr team for city submittal.
  - Per a conversation with city staff dated March 12, 2019 the city asked Barr to prepare and submit the RCWD wetland permitting and restoration plan for approval on their behalf.
  - Additional scope has been needed to coordinate with the watershed district and facilitate permit approval, including a permit review meeting with them on Monday April 15 to discuss permitting timelines and approved site activities, full permit submittal, and permit application clarifications for approval.
  - Additional fee: \$20,670.00
10. Added scope: WTP site visits
- Site visits to existing water treatment plans were held in the preliminary design phase, but additional visits were not included in the detailed design phase.

- At the detailed design meeting on October 25, the city requested site visits to the City of Brooklyn Center and the City of Eagan in order to facilitate final design decisions on office space and the lamella clarifier.
- Additional design tasks included labor time to visit the facilities.
- Additional fee: \$2,400.00

11. Added scope: 95% design review meeting

- At the request of the City, we held an additional design meeting on January 23, 2019, between 90% design and final bid set to review the 95% design documents.
- Detailed design tasks included a review of the 95% design, the current 3D model of the treatment plant building, present concepts for city to decide on the final architectural renderings, and get city feedback on the remaining site and building design decisions for bidding.
- Additional fee: \$2,170.00

Phase 2 meetings:

1. Added scope: 95% design review meeting on January 23, 2019.
2. Added scope: Permit review meeting with Rice Creek Watershed District on Monday April 15, 2019.

Phase 2 deliverables:

1. Added scope: meeting minutes from January 23, 2019

C. Phase 3: Bidding- No additional scope

D. Phase 4: Construction Administration

After written authorization to proceed, Barr or one of our subconsultants shall perform the following tasks for Phase 4:

1. Added scope: additional 5 months of construction administration, increasing the total construction administration duration from 20 to 25 months.
2. Substantial completion moved from October 30, 2020 to March 30, 2021
3. Final completion moved from April 30, 2021 to September 31, 2021
4. Additional fee: \$231,000

Phase 4 meetings- Added scope:

1. Added scope: Weekly construction meetings

Phase 4 deliverables-Additional scope:

1. Meeting minutes
2. Biweekly email updates

E. Phase 5: Start-Up and Commissioning- No additional scope

## II. Service Assumptions Upon Which Maximum Compensation is Based

Phase	Duration	Fee	Change Order 1	Revised Fee
Phase 1: Preliminary Design	6 weeks	\$134,400	\$3,479	\$137,879
Phase 2: Design	6 months	\$803,700	\$197,895	\$1,001,595
Phase 3: Bidding and Award	2 months	\$33,000	\$0	\$33,000
<b>Total Preliminary/Design/Bidding (lump sum fee)</b>		<b>\$971,100</b>	<b>\$201,374</b>	<b>\$1,172,474</b>
Phase 4: Construction Administration	25 months	\$924,000	\$231,000	\$1,155,000
Phase 5: Start-up and Commissioning	6 months	\$75,000	\$0	\$75,000
<b>Total Construction/Start-Up &amp; Commissioning (est. time &amp; materials fee)</b>		<b>\$999,000</b>	<b>\$231,000</b>	<b>\$1,230,000</b>
<b>Project total</b>		<b>\$1,970,100</b>	<b>\$432,374</b>	<b>\$2,402,474</b>

The total for Change Order No. 1 for existing Work Order No. 1 amounts to \$432,374.00.

Our revised design fee (\$1,172,474) is a lump sum total including preliminary design, design, bidding and award.

Construction phase services are estimated based on similar projects and are proposed to be provided on a time-and-materials basis with the revised estimated fee (\$1,230,000). Because this is proposed on a time and materials basis we will only bill up to the amount actually needed to complete the work. The engineer has no direct control over the scheduling or operations of the project contractor, weather or equipment delivery which can impact construction timing. Based on these unknowns, we have provided a maximum duration based on construction lasting up to 25 months. We propose an estimated hourly contract for construction, start-up, and commissioning services.

## III. Assumptions Upon Which Schedule is Based

phase/task	duration	est. start date	est. completion date
Award	1 day	May 18, 2018	May 18, 2018
Phase 1: Preliminary Design	6 weeks	June 20, 2018	July 27, 2018
Phase 2: Design	6 months	July 30, 2018	January 25, 2019
Phase 3: Bidding and Award	3 months	January 28, 2019	March 29, 2019
Phase 4: Construction Administration	25 months	April 1, 2019	March 30, 2021
Phase 5: Start-up and Commissioning	4 weeks	March 1, 2021	March 30, 2021
Operations Assistance	6 months	April 1, 2021	September 31, 2021

ACCEPTED AND AGREED TO:  
BARR ENGINEERING CO.

CITY OF BLAINE, MINNESOTA

By: 

Title: Vice President

Date: 05/16/2019

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_