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ADMINISTRATION - *Jon Haukaas, Director of Public Works*

AUTHORIZE THE MAYOR AND CITY MANAGER TO ENTER INTO A PROFESSIONAL SERVICES CONTRACT WITH BARR ENGINEERING FOR FACILITY CONDITION ASSESSMENTS OF WTP 1-3

A number of necessary improvements have been identified for our existing Water Treatment Plants in the Capital Improvement Budget and several more have been suggested as we were performing our SCADA Improvement projects. In an effort to be efficient and fully understand the needs, staff decided to take a step back and seek to conduct a comprehensive review of facility needs and conditions assessment at each site.

Staff developed a general Scope of Work and then began to process to select appropriate consultants to propose on the work. A review of our past Requests for Proposal (RFP) revealed that there is clearly a single consultant that is uniquely situated to perform this work. Barr Engineering has been the consultant selected through multiple openly advertised processes. This includes a RFP for updating the City of Blaine Water System Plan in March 2017, an RFP for the SCADA System Evaluation and Improvement in March 2017, an RFP for Wellhouse Improvements in April 2018, and an RFP for the design of our Water Treatment Plant No. 4 in May 2018. Other work performed relating to our Water System include the Wellhead Protection Plan(2017), the NE Wellfield Study (2017), and the Radio Path Study (2018).

Staff is recommending that we build on our previous investments and the knowledge gained by Barr Engineering of our Water System to perform a full Facility Condition Assessment of Water Treatment Plant Nos. 1-3 with recommendations that can then be included in future Capital Projects.

Proposed Scope of Work

The attached proposal from Barr Engineering provides full details and schedule of the work for six major identified tasks. A high level overview is as follows:

Task 1: Condition Assessment and 2021 WTP 1-3 Upgrades

Task 1 will be divided into two phases:

- *Phase 1: Condition Assessment* is included in this proposal.
- *Phase 2: Design of Upgrades* will be included in a future proposal after the

City of Blaine has developed a scope based on information presented in the condition assessment.

Objective: Determine the condition of each water treatment plant and its individual components, and identify those elements that need rehabilitation or replacement.

Phase 1: Barr, CBS Squared, and City staff will make site visits to assess the existing conditions of facilities at each plant. CBS Squared will perform an onsite existing conditions assessment of interior and exterior architectural components of the City of Blaine's three WTP buildings. The inspection data provided following the assessment will include condition of each component, useful life remaining, and recommended action (e.g., clean, paint, and replace). Inspection will include the fire suppression system. The data will be provided in a to-be-determined Excel spreadsheet that the City can import into their asset management system, PubWorks.

During the site visits Barr will inspect interior water treatment process piping, equipment, chemical addition systems, backwash systems and electrical components. The inspection will exclude HVAC components (which have been recently replaced), and cameras (to be replaced via a separate project). However, even these recently replaced components will be given an asset management grade for setting baseline total plant condition. The exterior inspection will be limited to doors and windows, including hardware, building masonry, rain gutters and downspouts, pavement and slabs adjacent to the building, and the roof of the WTP 3 building.

Following the site visits, a technical memo recording observations and assessing the condition of facilities in each plant will be prepared. The condition assessment will be prepared using a grading system and terminology compatible with Pub Works, the City's existing asset management software. The condition assessment will include recommendations for work to be included in the 2021 WTP 1-3 upgrades project. We expect the potential scope of work identified during the condition assessment for Phase 2 will include coatings, casements, hardware, lighting, and electrical systems.

Task 2: Chlorine Disinfection Feasibility Study

Objective: determine what method of potable water disinfection is in the city's best interests in the long term for each water treatment plant.

This task includes a feasibility study comparing alternatives for chlorine disinfection. The alternatives considered will include:

- Maintaining the existing large-cylinder gas chlorine disinfection system.

- Replacement of the existing system with bulk-liquid hypochlorite.
- Replacement of the existing system using on-site generation of hypochlorite.

Task 3: Automatic Valve Feasibility Study

Objective: determine if the existing filter control valves are adequate for continued use or should be replaced by new valves with more sophisticated operation and position indication.

This task includes a feasibility study comparing alternatives for upgrade of existing automatic valves. The alternatives considered will include:

- Maintaining the existing pneumatically actuated valves.
- Maintaining existing pneumatically actuated valves and add valve position switches.
- Replacing existing pneumatic valves with electrically actuated valves with position switches.
- Maintaining the existing hydraulically actuated, flow control valves.
- Replacing the existing hydraulic actuated valves with electrically actuated, flow control valves.

Task 4: Flow Meter Feasibility Study

Objective: determine if all plant flow meters at each facility should be changed out in favor of electromagnetic flow meters.

This task includes a feasibility study comparing alternatives for replacement of existing flow meters. The alternatives considered will include:

- Maintaining the existing propeller meters.
- Replacing existing meters with electromagnetic flow meters.

Task 5: Dehumidifier Feasibility Study

Objective: determine if the existing method of plant dehumidification is appropriate or if replacement with a new method is in the city's be interest in the long term.

This task includes a feasibility study comparing alternatives for replacement of the existing dehumidification system. The alternatives considered will include:

- Replacing the existing system in kind (desiccant based system).
- Replacing the existing system with an alternate product (refrigerant based system).

Task 6: Backwash Reclaim Feasibility Study

Objective: identify methods to improve backwash water recovery and limit discharge to sanitary sewer.

This task includes a feasibility study comparing alternatives for improving the performance of the existing backwash reclaim system at each of the water treatment plants. The alternatives considered will include:

- Maintaining the existing system with modifications to operating conditions.

- Chemical addition methods to improve settling of backwash.
- Physical improvements to the backwash tanks to improve settling (IE adding plates or baffles)
- Complete system replacement with a lamella type backwash reclamation system.

Financial Impact
The engineering services under this proposal are estimated at a cost of $63,600. Funds will come from the Water Enterprise Funds.

Future Work
Construction improvements will be bid under a separate contract. The initial assessment estimates the improvements at $1.55M. These estimates are included in the 2021 and 2022 Water Fund Capital Improvement Program proposals.

By motion authorize the Mayor and City Manager to enter into a contract with Barr Engineering for the Facility Condition Assessments at Water Treatment Plants 1-3 in the amount of $63,600.