STAFF REPORT

To: Honorable Mayor and Members of Town Council

Through: David L. Corliss, Town Manager

From: Mark Marlowe, P.E., Director of Castle Rock Water
Matt Benak, P.E., Water Resources Manager
Walt Schwarz, P.E., CIP Project Manager

Title: **Resolution Approving a Services Agreement between Town of Castle Rock and Burns & McDonnell Engineering Company to complete Design Phase Engineering Services for PCWPF Expansion Project** *[1929 Liggett Rd. Castle Rock, CO 80109]*

Executive Summary

Castle Rock Water (CRW) staff requests approval of a Resolution (see ***Attachment A***) approving a Services Agreement (see ***Exhibit 1***) with Burns & McDonnell Engineering Company (BMcD) to complete design phase engineering services for the Plum Creek Water Purification Facility (PCWPF) Expansion project at a contract amount of $2,388,880. A competitive process was used to obtain proposals from qualified consulting firms, and BMcD's proposal met the qualitative requirements. This project is a key component to Castle Rock's long term renewable water plan and will expand the PCWPF treatment capacity from 6 million gallons per day (MGD) to 12 MGD. Facility improvements include but are not limited to expanding water treatment and solids handling systems, increasing high service pumping, and installing an emergency electrical generator.

Five consulting firms were invited to submit proposals in response to the Request for Proposals (RFP) issued on February 6, 2023. The design services require full time commitment of the firm's core project team to complete these services within the project schedule. Four of the firms decided not to submit proposals and either did not have the available resources to commit to this project or have not been competitive on past CRW PCWPF projects. For context, BMcD has completed the engineering for the original plant and the advanced treatment components of the plant.

BMcD is a nationally recognized engineering firm with offices located in Douglas County. They have recent experience completing projects using similar treatment technologies and project delivery methods that are planned for the PCWPF Expansion Project. This project will employ a Guaranteed Maximum Price Construction Management (GMPCM) delivery method to complete the project. Prior experience with

similar projects and alternate project delivery methods is a critical criterion in the consultant selection process, and BMcD has the requisite experience.

Staff recommends approval of the services agreement for $2,388,880, plus a Town-managed contingency of $119,444 (5%), for a total project authorization of $2,508,324. Completion of the design portion of this project is expected by Summer of 2024. Construction Work Package 1 is early procurement of long lead equipment packages and award of this package is expected in January 2024. Construction Work Package 2 is scheduled for completion in 2026. The total project budget with estimated costs for construction work items is shown in the table below. The total funding currently projected in the five-year capital plan is $60,000,000. A future budget amendment will be completed to fund any difference between current planning budget and construction cost estimates developed with contractor input and detailed project designs.

Design	Construction Services	Construction Package 1	Construction Package 2	Total
$2,508,000	$4,071,000	$8,723,000	$49,428,000	$64,730,000

History of Past Town Council, Boards & Commissions, or Other Discussions

Castle Rock Water staff presented this item to the Castle Rock Water Commission at their meeting held on March 22, 2023, and the Castle Rock Water Commission voted unanimously 6 to 0 to recommend Town Council approval of the Resolution as presented.

Discussion

A need for a sustainable long-term water supply was identified in the Town's Water Resources Strategic Master Plan and one of the major goals of that plan is establishment of a renewable, sustainable water supply that accounts for 75% of the annual demand for water in Castle Rock. Renewable water sources include East and West Plum Creek alluvial wells, and surface water using existing Town Water Rights, and imported surface water from outside of the Plum Creek Basin. PCWPF also purifies a majority of Castle Rock's reusable water supplies.

PCWPF is currently a 6 MGD facility receiving raw water from three main sources: Castle Rock Reservoir 1 (CRR1 - connected with diversion on Plum Creek near Sedalia), CR1 (a diversion on East Plum Creek near PCWPF), and various alluvial (renewable) and deep (Denver Basin/nonrenewable) groundwater wells. CRW is currently working with BMcD under separate contract on the Chatfield Pump Back Project. This pump back project will supply water to CRR1 and Castle Rock Reservoir 2 (CRR2) from Chatfield Reservoir, expanding CRW's renewable water sources and providing a high quality, low total dissolved solids (TDS) water source for TDS blending.

The original PCWPF project was completed in 2014 and included 6 MGD capacity pretreatment facilities with aeration, rapid mix, flocculation, sedimentation, and greensand filtration (converted to biologically active carbon filters (BAC) with the Advanced Treatment (AT) project completed in 2021). The BAC filtration was followed

by membrane filtration and chemical addition to form chloramines for a disinfection residual in the distribution system. Other facilities constructed with the original PCWPF include a 174,000 gallon clearwell, high service pump station, chemical storage and feed systems. Where practical, areas like the chemical storage facilities were designed and constructed planning ahead for expansion to 12 MGD (no changes needed to chemical storage with this project). Additionally, items like engineered knock-out masonry wall sections are in place to facilitate access to the new pretreatment building.

In 2021 the PCWPF AT project was completed and added 6 MGD capacity of advanced treatment systems such as pre-ozone, BAC filtration, advanced oxidation with ozone and hydrogen peroxide, granular activated carbon adsorption, and ultraviolet (UV) disinfection. The multiple barrier approach was designed to treat source waters for removal of pathogens, organics, regulated drinking water contaminants, and nonregulated contaminants of emerging concern (CECs). The primary goal of the PCWPF AT Project is to meet or exceed requirements of the US EPA Safe Drinking Water Act, as well as additional requirements from the Colorado Department of Public Health and Environment (CDPHE). This project also included a 1,250 kilowatt (kW) diesel powered generator to power the AT Building up to 12 MGD capacity. ***Attachment B*** provides a general layout of the proposed expansion of PCWPF.

To continue using and expanding renewable water sources, CRW has decided to implement our long term plan to expand PCWPF's current treatment capacity of 6 MGD up to 12 MGD. Expanding PCWPF will also coincide with the completion of CRR2 and provide for keeping up with growing demands as the Town adds additional residents and businesses. Once expanded, PCWPF will be the largest facility in CRW's system. In general terms, with this project CRW will expand all treatment processes, modify the solids handling processes, install a new emergency electrical generator for the original PCWPF Building (houses high service pumping), and increased laboratory areas for additional sampling and water quality testing needs. For example, treatment system improvements will include a new building adjacent to the existing pretreatment building to house 6 MGD capacity of a new rapid mix basin, flocculation and sedimentation treatment steps, and new BAC filter bays. The project will add membrane filtration racks with 78 modules each to match existing racks. Ozone system improvements will include additional liquid oxygen storage with vaporizers, new ozone generators with chillers, ozone injection and destruct skids, and a new ozone loop reactor made of stainless steel piping. Ten granular activated carbon filters will be added in an expansion of the PCWPF AT building.

To maintain project schedule and efficiencies, CRW anticipates developing two work packages with the assistance of BMcD. Work Package 1 is expected to include long-lead equipment procurement (such as the ozone system package). Work Package 2 would be the remainder of work needed to complete the project.

CRW envisions retaining a Contractor through a GMPCM contract at the completion of the Schematic Design phase (30% Design Documents) for two Work Packages. The Contractor shall provide pre-construction phase services, including but not limited to: cost estimating, scheduling, constructability reviews, and value engineering all with the intent of developing a Final Guaranteed Maximum Price (FGMP) contract. BMcD will assist the Town in the Contractor selection process and provide coordination with the

Contractor throughout the Design Phase to assure that the Final GMP based on completed design documents is within the Town's estimated budget. This contracting method has been used successfully for the original PCWPF construction as well as the PCWPF AT project.

BMcD has a proven track record of completing similar projects with CRW and with other municipalities along the Colorado Front Range. They also have proven records successfully working with permitting agencies such as the Town and CDPHE. Construction phase services are not part of this current contract and would be negotiated and considered for award under a separate future contract. BMcD has successfully completed design through facility start-up services on previous projects and have consistently delivered excellent value and engineering services when completing CRW projects for the Town.

Budget Impact

Funding for this design project was budgeted in 2023 and will come from account 211-4375-443.77-75 Water Resources, CIP – Advanced Oxidation Facility. This account has a budget remaining of $3,195,000 for 2023.

Staff Recommendation

Staff and CRW Commission recommend that Town Council approve the Agreement as presented in Exhibit 1 in the amount of $2,388,880, plus a Town-managed contingency of $119,444 (5%), for a total project authorization of $2,508,324.

Proposed Motion

"I move to approve the Resolution as introduced by title."

Alternative Motions

"I move to approve the resolution as introduced by title, with the following conditions: (list conditions).

"I move to continue this item to the Town Council meeting on _____ date to allow additional time to (list information needed)."

Attachments

Attachment A: Resolution
Exhibit 1: Agreement
Attachment B: General Layout of the Proposed Expansion of PCWPF