



Town of Castle Rock

Agenda Memorandum

Agenda Date: 5/21/2019

Item #: 11. **File #:** TMP 2019-356

To: Honorable Mayor and Members of Town Council

From: Mark Marlowe, P.E., Director of Castle Rock Water

Resolution Authorizing Change Order Number Two to the Construction Contract between the Town of Castle Rock and Global Underground Corporation, and Approving an Increase in the Contract Sum and the Town-Managed Contingency for the Red Hawk Reuse Pipeline Project

Executive Summary

Castle Rock Water is seeking Town Council approval of a Resolution (**Attachment A**) approving a change order (**Exhibit 1**) for an increase of \$501,993 in the contract sum of the construction contract with Global Underground Corporation (Global), for Red Hawk Reuse Pipeline Construction Services, and increasing the Town-managed contingency by \$50,000. Town Council approved the original contract with Global in the amount of \$1,381,314, and authorized a contingency of \$207,200. The proposed amendment includes conversion of 2,050 feet of proposed open trench construction to trenchless horizontal directional drill (HDD) construction along Prairie Hawk Drive. It also adds construction of an additional 1,000 feet of HDD construction underneath Plum Creek, as well as open trench construction of 900 feet of pipe to replace failed existing reuse pipeline. The change order would increase the total contract amount for the work by \$501,993, and extend the overall project schedule by thirty days.

Castle Rock Water staff is working with Global Underground to construct approximately three and a half miles of new dedicated 8-inch reuse pipeline, with limited design documents, on an accelerated schedule with completion targeted for summer 2019. The contract amendment is needed due to recent information regarding existing utility conflicts along Prairie Hawk Drive, and a recently completed condition assessment of the existing reuse pipeline under Plum Creek. Staff believes the scope changes included in Change Order Number Two (CO2) will help avoid conflicts with the existing utilities and avoid costly removal and replacement of large sections of new pavement within Prairie Hawk Drive. The scope also includes replacement of existing 32-year old reuse waterline under Plum Creek. The condition of this existing waterline was not known at the time of the original contract with Global. Two different methods for rehabilitating the existing reuse waterline were examined. Rehabilitation costs were similar to new HDD construction under the creek, and considered to have lower probabilities for success due to the unknown condition of the existing pipeline. Staff recommends HDD replacement of the existing infrastructure.

Total estimated costs for this project are shown in the table below.

PCWRA Pump Station - Engineering	\$ 43,000
PCWRA Pump Station - Construction	\$ 427,857
Reuse Pipeline Construction	\$2,224,125
Railroad Crossing Permitting	\$ 30,000
Survey and Geotech	\$ 100,000
Well 176 Modifications	\$ 100,000
Estimated Project Costs:	\$2,924,982

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

On March 27, 2019 the Castle Rock Water Commission voted unanimously to recommend approval of a construction contract with Global Underground for the Red Hawk Reuse Pipeline.

On April 2, 2019 Town Council voted 5-0 to approve a construction contract with Global Underground Corporation for the Red Hawk Reuse Pipeline in the amount of \$1,381,314, and authorizing available contingency of \$207,200.

Discussion

Red Hawk Ridge Golf Course utilizes a dedicated deep well that pumps untreated raw water to the golf course pond for use in turf irrigation. Peak summer irrigation demand at the golf course can exceed 600,000 gallons per day. This demand exceeds the golf course's available supply by approximately 200,000 gallons per day. Frequently, in high demand season, water staff supplements the golf course with raw water from the municipal supply system to meet the additional irrigation demand. On occasion, water staff has also supplemented the golf course with potable water from the distribution system.

Castle Rock Water staff is implementing a project to deliver reclaimed water from Plum Creek Water Reclamation Authority's treatment facility to the golf course for irrigation use. Delivering reclaimed water to the golf course will reduce demands on the Town's deep aquifer and alluvial groundwater raw water supply, treatment, and potable distribution systems. Reclaimed water will provide useful nutrients to golf course turf and help the Town pursue the strategic plan objective of maximizing use of water rights, including reusable water. The existing deep well at the golf course will be repurposed for potable water supply once the reclaimed water system is in place. Castle Rock Water staff is targeting the availability of reclaimed water irrigation supply for the golf course by July 2019.

Plum Creek Water Reclamation Authority (PCWRA) has existing infrastructure that delivers reclaimed water to three golf courses in Castle Pines. Additional pump station infrastructure is needed at PCWRA to deliver reclaimed water to the Red Hawk Ridge Golf Course. Burns and McDonnell Engineering (Burns and McDonnell) and Moltz Construction (Moltz) are currently working on design and construction of the reclamation facility expansion. Staff is working with Burns and McDonnell

and Moltz to design and construct pump station improvements at PCWRA that will be capable of sending reclaimed water to the Red Hawk Ridge Golf Course.

Through a competitive RFP process, staff previously contracted with Global for construction services on approximately three miles of new 8-inch dedicated reuse pipeline between PCWRA and Red Hawk Ridge Golf Course. A proposed pipeline alignment was identified by staff that makes use of existing Town properties and minimizes land acquisition. Staff proposed open trench construction of the new pipeline along Prairie Hawk Drive. Recently, utility field locates have been completed indicating that the proposed corridor is extremely congested with existing Town and Intermountain Rural Electric Association (IREA) utilities. Upon further review, staff believes that trenchless HDD construction beneath Prairie Hawk Drive is the best option to help avoid conflicts with the existing utilities and avoid costly removal and replacement of large sections of new pavement within Prairie Hawk Drive.

The original transmission pipeline plan also intended to utilize 1,900 feet of existing 16-inch reuse pipeline near the Plum Creek Water Reclamation Authority (PCWRA). The existing reuse pipeline was installed in 1987 and had never been placed into use. Castle Rock Water staff recently pressure tested the existing pipeline and found it unable to hold anticipated operating water pressure. Staff evaluated two different options for pipe rehabilitation (slip-lining and cured in place pipe), and one option for pipe replacement utilizing trenchless HDD construction. The anticipated rehabilitation costs were nearly the same as HDD pipe replacement, but carry additional challenges and higher risks for potential failure. Rehabilitation options would also require additional time and expenses to fully evaluate if the existing pipeline could be successfully rehabilitated. Staff is of the opinion that pipeline replacement with new HDD construction under Plum Creek will have the highest probability of success and lowest impact to the proposed project completion schedule.

Global's contract already includes scope for construction of multiple HDD crossings under roadways along the proposed alignment. The original contract included 17,425 feet of new pipeline construction (15,800 feet of open trench/1,625 feet of trenchless). Proposed CO2 revises the overall project scope to 19,325 feet of new pipeline construction (14,650 feet of open trench/4,675 feet of trenchless). The proposed scope changes are indicated in the pipeline alignment shown on the map (**Attachment B**). Due to the increase in overall pipeline length, as well as revision of a significant portion of construction from open trench to trenchless, both contract price and contract time have been increased. The contract price will be increased to \$1,883,307, and the contract time will be extended thirty days.

Budget Impact

Funding for this project was included in the approved 2019 budget as follows:

Project	Account Number	2019 Budget	Change Order #2	Additional Contingency	Available Balance
Red Hawk Reuse Line	211-4375-443.76-99	\$2,455,300	\$ 501,993	\$50,000	\$ 503,973

Staff anticipates a second quarter project budget amendment up to \$500,000 could be necessary for

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completion of the project.

Staff Recommendation

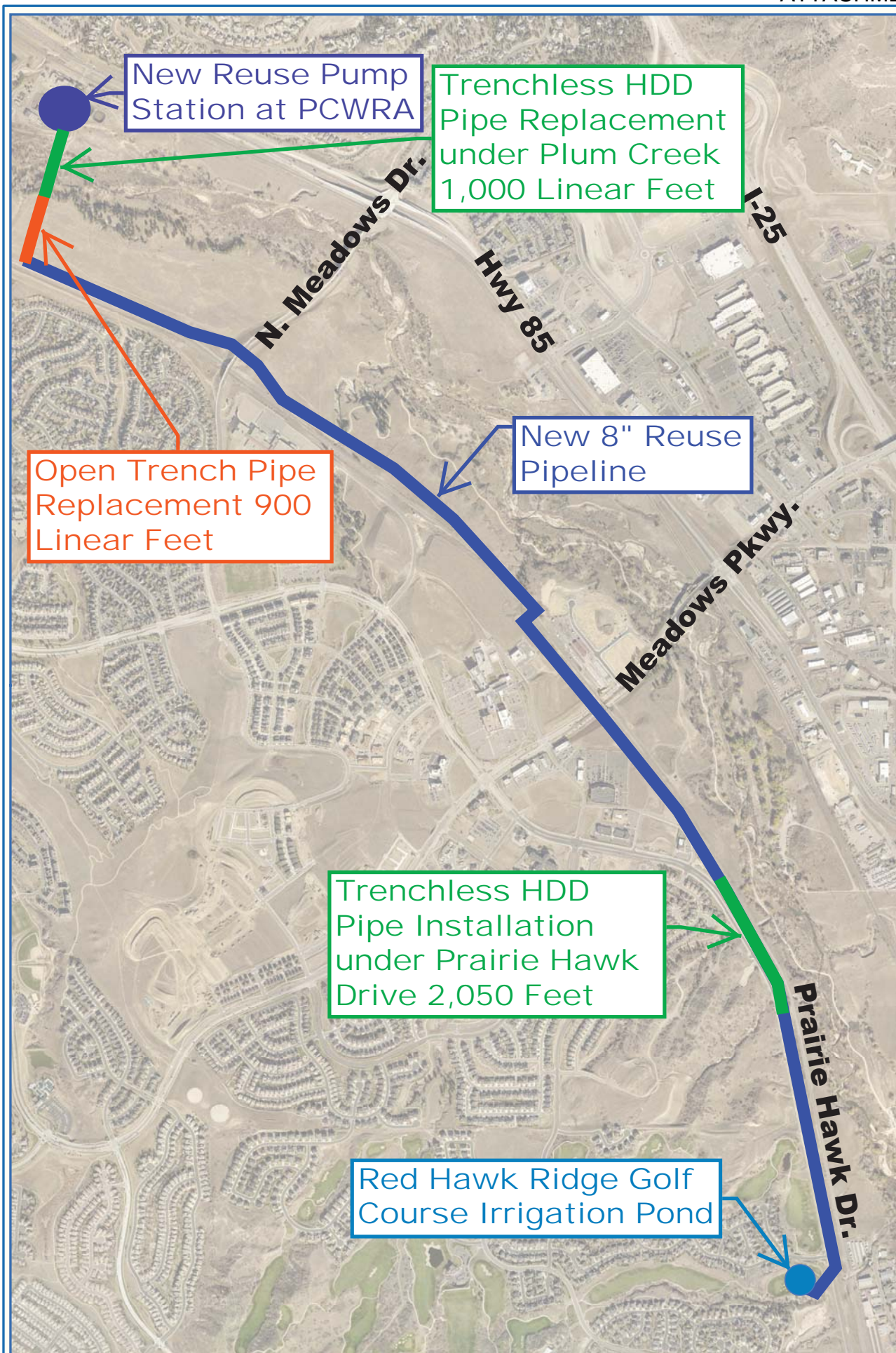
Staff requests Town Council approval of a Resolution authorizing a Change Order Number Two to the Construction Contract with Global Underground Corporation in the amount of \$501,993, and authorizing an increase in the project contingency by \$50,000, resulting in a total project authorization of \$2,140,507.

Proposed Motion

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

Attachments

Attachment A:	Resolution
Exhibit 1:	Change Order
Attachment B:	Map



0 500 1,000 2,000 3,000 Feet

1 inch = 1,000 feet



Disclaimer: The data presented has been compiled from various sources, each of which introduces varying degrees of inaccuracies or inconsistencies. Such discrepancies in data are inherent and in supplying this product the Town of Castle Rock assumes no liability for its use or accuracy. Questions or comments regarding the cartographic composition of this map including, but not limited to, errors, omissions, corrections, and/or updates, should be directed to the Utilities Department, Town of Castle Rock, (720) 733-6037. Copyright 2017, Town of Castle Rock Utilities Mapping.

**CASTLE ROCK
UTILITIES MAP
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