

Memo



To: Clay Pearson, City Manager

From: Mahogany Isabell, Project Manager

CC: Trent Epperson, Assistant City Manager
Robert D. Upton, P.E., Director of Engineering
Clarence Wittwer, Director of Public Works
David Van Riper, Assistant Director of Public Works
Skipper Jones, Assistant Director of Capital Construction

11/7/2019

To: Mayor and City Council members

Upcoming movement forward on various improvements to water system around Bailey Road. Clay

Date: November 7, 2019

Re: Amendment to Engineering Contract for Bailey Water Plant Improvements

Purpose

This memo provides information about the progress on the Bailey Water Plant Improvements project and the proposed engineering services contract amendment to the Design Contract for this project. The amendment will increase the scope of the design to address water quality issues caused by the Magnolia Water Well. This Amendment is scheduled for presentation to Council on the November 25, 2019 agenda.

Background

The Bailey Road water plant is located along the north side of Bailey Road and at the west side of the railroad overpass. This site contains an 1,800 gallons per minute (gpm) well, a single 1 million gallon (MG) ground storage tank (GST), a 1MG elevated storage tank (EST), chemical feed pumps and tanks, and 3 booster pumps.

The well and site was constructed in 2005 and has a history of high iron and manganese levels that have been the focus of long running complaints particularly during the winter months when water use decreases. Manganese and iron are non-regulated secondary constituents and, while not dangerous to the public, elevated levels can cause taste, odor, and appearance complaints. The well and plant was taken out of service in April 2014 due to these complaints. The ground storage tank (GST) and booster station portion of the plant was proposed to be returned to service to act as a re-pressurization station to move water into another area of the service area and attempt to improve age of water in the distribution system. However, during the process of refilling the GST, January 2018, to return to service it was damaged by over-filling.

The City selected EHT Engineering to provide design services for the construction of a new GST, **pilot testing for a water treatment system to remove the high iron and manganese levels, and the design of the treatment system.** Due to the specialized nature of the GST, the project was split into two phases. Phase 1 is the GST and Phase 2 is building the treatment system and related components to address the water quality issues.

Phase 1

The plans for the new GST were bid out in June 2019 and the contract for construction was awarded to DN Tanks on August 26, 2019. Construction will begin on that project in November 2019.

Phase 2

The pilot testing for the green sand filter was completed in July 2019. The resulting recommendation was to install a “green sand” filtration system at the Bailey Plant to remove the iron and manganese from the ground water. Once the treatment process was selected, EHT began working on the full-scale design.

Additional Project Scope Purpose

Separately, the City was receiving complaints from residents about taste and odor in the service area of the **Magnolia well**, the well was investigated, and it was determined that the well had a dissolved gas issue that was likely contributing to the complaints. To be pro-active the well was taken offline in June 2018 and water from the Alice water plant was supplied into the service area.

While the pilot treatment system was being tested at the Bailey Road well (June/July 2019), the opportunity to test the same system at the Magnolia well presented itself at no cost to the current contract. Although the current project did not include any funds to address the issues at the Magnolia well, staff elected to be proactive and evaluate if this type of treatment system could address the dissolved gas at the Magnolia Well. The pilot test was set up on the Magnolia well water and the system performed very effectively for removal of the dissolved gas issue. With this information presented in the report of findings, staff begin to evaluate the option of being able to treat the Magnolia water with the new treatment process that will be located at the Bailey Road water plant. The ability to treat the Magnolia water would require piping the water to the Bailey water plant for treatment at a single location and increase the size of the treatment equipment to handle water flows from both wells. The Magnolia water would then be delivered into the distribution system from the Bailey water plant.

The proposed treatment process will allow the City to continue to rely on these two sources for water contributions to the overall consumption. These two wells are necessary to provide adequate water supply as required by the Texas Commission on Environmental Quality (TCEQ) and as identified in the City’s water model, for both average day demand as well as peak day demand, as we approach build-out of the City.

Scope of the Contract

To treat the water from both wells at the Bailey location, Staff is proposing the addition of a new waterline that connects the Magnolia Well to the proposed Treatment System at the Bailey Water Plant. This additional design effort will include minor piping changes to the existing ground storage tank and booster pumps at the Magnolia Water Plant, connections to the treatment system at Bailey and a larger treatment system to accommodate the additional flow from the Magnolia Well.

The scope of the work will include Preliminary and Final Design Services as approved to prepare the plans and specification for the additional work as proposed for a Lump Sum not to exceed in the amount of \$106,060.00. Additional Services include design survey, easement exhibit development, geotechnical report, railroad permit, development of an operations plan for the facility, and assistance with start-up. Additional services are estimated at \$46,790.00 and will be performed on a time and material basis as authorized by the City. Bidding and Construction Phase services while included in the original contract, were slightly increased for the additional work. The total amendment value to encompass this additional work for design of the pipeline between the plants, the onsite piping changes, and expanded treatment system is \$152,850.00.

Upon completion of the testing, staff requested that the consultant provide an estimated cost of the project based upon the current design parameters plus including the Magnolia well pipeline and increase the size of the treatment system to accommodate the additional flows. Staff met with EHT in mid-September to have

the costs presented and to review and discuss the costs. The budget below reflects the proposed construction costs to treat both wells, pipeline for the Magnolia well, increased treatment system and the installation of a sanitary sewer system to handle the backwash water. The current engineer's cost estimate is the first project estimate for the treatment system as the project is just starting the design phase. The recently adopted CIP has costs for this project that are based upon staff's estimates prior to any design level efforts and prior to confirming what type of treatment system would ultimately be selected. Upon review of the preliminary cost estimate, it is staff's determination that the current budget would be underfunded for the Bailey water plant treatment system based on the current construction market trends. Staff will continue to review estimates and the construction market as the design is moving closer to completion and will review the project budget at mid-year and during FY2021 CIP development to make the appropriate funding adjustments. Staff recommends that the Magnolia Well be included in this project to treat the existing water quality issues and to be able to meet the demands to provide adequate water supply as identified in the City's water model, for both average day demand as well as peak day demand, as we approach build-out of the City.

Budget Info

Funding Sources	Series	To Date	Future	Total Budget
General Revenue - Cash				-
Certificates of Obligation				-
Certificates of Obligation				-
General Obligation Bonds				-
W/S Revenue Bonds	2018B	620,000		620,000
W/S Revenue Bonds	2019B	4,240,000		4,240,000
Impact Fee - Debt				-
Other Funding Sources				-
Total Funding Sources		4,860,000	-	4,860,000

Expenditures	To Date	Future	Total
PER			-
Land			-
Design	380,760	152,850	533,610
Construction (Tank)	1,581,785		1,581,785
Construction (Pretreatment)		6,928,000	6,928,000
Construction Materials Testing		50,000	50,000
FF&E			-
Total Expenditures	1,962,545	7,130,850	9,093,395

Project Balance/Contingency	(4,233,395)*
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* As the project is further designed the cost estimates will be refined and additional funds will be requested, if necessary, during the appropriate CIP funding process.

Schedule

Staff expects to bring the proposal to Council in November for consideration and award. It is anticipated once the contract is approved design will take 6-8 months to develop plans and specifications and to submit to TCEQ. Construction after bidding is estimated to take 6-8 months.

Phase 1	Base Line	Current
Design Start	December-18	January-19
Bid Start	August-19	June-19
Construction Start	August-19	November-19
Proposed Construction Completion	November-20	

Phase 2	Base Line	Current
Design Start	December-18	January-19
Bid Start	August-20	
Construction Start	October-20	
Proposed Construction Completion	June-21	





Rain Days: N/A

Project Map

VICINITY MAP



Legend/Notes

 WTP	Wastewater Treatment Plant	 Sewer Line	Force
	Water Structure		Gravity



1:13,000
1 inch = 1,083 feet

 NORTH
This product is for informational purposes only and may not be prepared or be suitable for legal, engineering, or surveying purposes.
MAP PREPARED: NOVEMBER 8, 2019