



Memo

To: Clay Pearson, City Manager

From: Skipper Jones, Assistant Director Capital Proj

CC: Trent Epperson, Assistant City Manager
Robert Upton, Director Engineering and Capital
Clarence Wittwer, Director Public Works
David Van Riper, Assistant Director Public Works

2/21/2019
To: Mayor and City
Council members
Forthcoming engineering work
for our surface water treatment
plant. Clay

Date: February 21, 2019

Re: Surface Water Treatment Plant - Water Product

PURPOSE

This memo provides information about progress on the Surface Water Treatment Plant project and the proposed Final Design contract for Package 2, the Treatment Plant. The contract is scheduled to be on the March 4th, 2019 City Council meeting.

BACKGROUND

In April 2017, Council awarded Preliminary Design contracts for Package 1, the Pre-Sedimentation Basin (Freese and Nichols), Package 2, the Treatment Plant (CDM Smith), and in April 2018 Council awarded the Preliminary Design contract for Package 3 for the Ground Storage, High Service Pump Station and Transmission lines (Stantec). All three preliminary design packages have been completed and are being reviewed by Staff.

In January, 2019 Staff published the Request for Qualifications & Proposal for Construction Manager at Risk (CMAR). The CMAR is to be selected on the basis of experiences, qualifications and proposed fees. On February 7 the City received Qualification and Fee Proposals from two well qualified firms and has begun the process of evaluating and ranking those firms, a process that will culminate in interviews the week of February 25th. The CMAR will play a key role in participating and guiding the final design process to ensure constructability and a cost effective design.

FINAL DESIGN CONTRACT

The project schedule calls for the longest lead-time design package, Package 2, to begin Final Design in March, 2019 in order to be complete by January, 2020. Staff have reviewed several iterations of the scope and fee proposal beginning in January and through these multiple exchanges have negotiated a final design contract that includes the following scope of work.

Basic Services include:

- Preparation of construction documents (plans and specifications) for the construction of the treatment plant package.

- Project management; establish and manage the processes and protocols to execute the work, including schedule compliance, communications with sub-consultants and Owner's Rep as well as designers for Packages 1 and 3, document management, coordination of specifications, tracking action items and deliverables, and coordination with the CMAR, including monthly meetings and program coordination meetings.
- Quality Assurance and Quality Control with internal senior engineering staff for review of technical feasibility, constructability, discipline coordination and coordination of specifications.
- Separate discipline review meetings with City Staff at 60 and 90% approximately 5 separate meetings for each review for a total of ten half day meetings utilizing 3D modeling technology for reality visualization.
- 60% and 90% Plans and Specifications
- Coordination with TCEQ and Texas Department of Licensing and Registration, including meeting with TCEQ in Austin to review specific critical design elements in order to ensure timely review and approval of the plans and provide written responses to any and all questions or comments including making any necessary changes required.
- Final plans and Specification based on City, CMAR and TCEQ comments so that the CMAR can prepare individual bid and procurement packages for sub-contractor and vendor bidding.

Proposed Fee for Basic Services totals \$4,358,698. This equates to approximately 6.1% of the estimated Package 2 construction cost of approximately \$71,400,000, (not including the Granulated Activated Carbon (GAC) contactor)

Additional Services include (time and material not to exceed as authorized by the City):

- Coordination with CMAR during design including
 - Attending additional coordination meetings
 - Participation in constructability and value engineering option meetings
 - Review of CMAR total cost estimate and bid proposals from sub-contractors and vendors
 - Reviews of proposed schedules for CMAR delivery
- Membrane Pre-Selection
 - Preparation of technical specifications, drawings and calculations to solicit capital costs, warranty provisions annual power consumption and annual chemical requirements and then the evaluation of proposals received from the equipment suppliers including evaluation of capital and operating costs and non-economic factors
- Air Quality Permit Coordination
 - Preparation of required permit application and supporting documentation to obtain air quality permits for the backup power diesel generators
- Coordination with and obtaining approvals from Brazoria Drainage District #4 for site drainage and detention plans, including hydrologic and hydraulic analyses
- Design of the GAC Contactors, Chlorine Contact Tank and Transfer Pump Station from 30% (current status) to 100%. This particular activity will require specific Owner authorization prior to proceeding.
- Arc Flash Study to determine and identify potential for electrical energy to cause dangerous flashes at various locations within the electrical distribution system and to provide recommendations for personal protective equipment to be used when operating these systems and equipment.

- Additional Geotechnical Engineering required to supplement existing information and evaluate subsurface conditions at locations impacted by value engineering to the Site Plan.
- Washwater Recovery Tank and Pumps additional design effort to add a separate re-use recovery system to handle membrane washwater recovery.

Proposed Fees for the Additional Services totals \$843,734

Total proposed fees for development of 100% plans and specifications for Package 2 is \$5,202,432.

SCHEDULE

As noted in previous communications the design schedule is critical to meeting the completion date for the plant. That schedule has drinking water from the plant flowing to the booster pumps stations in January 2023. Staff are estimating plant on-site work will require approximately two years to complete and commission (off-site work will begin within this schedule and will work to complete on that timeline) The schedule means that on-site construction must begin in early 2020 in order to complete by the end of 2022. The CMAR is required to provide its GMP based on 90% plans to lower the risk factor as much as possible while getting work started as early as possible. This requires that plant design to be completed to 90% in January 2020 allowing construction to begin once the GMP is accepted. Final Plans will be finished in March, 2020.

See Schedule exhibit attached

NEXT STEPS

Staff have received, and are currently assessing, qualifications for CMAR from two well qualified firms, Pepper Lawson Waterworks and McCarthy Building Companies. Interviews are scheduled to take place at the end of February leading to a selection and award for CMAR Pre-Construction Services in March. This will complete the design team for the project and the CMAR will begin to help guide and shape the final design for cost efficiency and constructability. Staff will bring to Council a Pre-Construction Services contract with the selected CMAR in March, 2019 with the recommendation to award. This will cover services to provide cost estimating, value engineering, constructability reviews and design guidance.

As the designers complete plans and specifications for the various equipment packages the CMAR will be able to release equipment packages for pricing and delivery schedules leading to purchase agreements and the initiation of shop drawings process for review and approvals by the team. This gets long lead-time items started as early as possible and scheduled for delivery allowing the CMAR to organize and manage the work flow to meet schedule.

At 90% plans and specifications, the CMAR will submit a Guaranteed Maximum Price (GMP) for the entire project and once the GMP negotiations are finalized, Staff will bring that Amendment to the CMAR contract to Council for approval and award of a construction contract and construction can begin.

Final Design proposals for Package 1, Pre-Sedimentation basin and Low Lift Pump Station, and Package 3, High Service Pump Station and transmission lines will be developed once the Preliminary Engineering package for both have been revised per review comments. These are likely to arrive for Council approval separately due to the time required to complete revisions stemming from Staff reviews. These are both smaller packages and can start after Package 2 begins without delaying the project. Both are currently anticipated in mid to late March and to go to Council in April.

Budget Info:

Funding Sources	Series	To Date	Future	Total Budget
W/S Revenue Bonds	2017B	6,012,500		6,012,500
Impact Fee - Debt	2017B	6,012,500		6,012,500
W/S Revenue Bonds	2018A	4,325,000		4,325,000
Impact Fee - Debt	2018A	4,325,000		4,325,000
W/S Revenue Bonds	Future		79,725,000	79,725,000
Impact Fee - Debt	Future		63,350,000	63,350,000
Cash				-
Other Funding Sources				-
Total Funding Sources		20,675,000	143,075,000	163,750,000

Expenditures	To Date	Future	Total
PER	9,378,750		9,378,750
Land		915,000	915,000
Design	5,395	12,000,000	12,005,395
Construction Contract		145,000,000	145,000,000
Construction Management/Inspection			-
Construction Materials Testing			-
FF&E			-
Total Expenditures	9,384,145	157,915,000	167,299,145

Project Balance/Contingency	(3,549,145)*
------------------------------------	---------------------

*Based on updated cost estimates from the PER. Budget deficit is being addressed in the FY20 CIP.

Schedule Info:

	Base Line	Current
Design Start - Package 1	March-17	May-17
Design Start - Package 2	March-17	May-17
Design Start - Package 3	March-17	April-18
Bid Start	March-20	
Construction Start	May-20	
Proposed Construction Completion	December-22	

Rain Days: N/A

SURFACE WATER PLANT LOCATION



Legend/Notes



1:35,415
1 inch = 2,942 feet



This product is for informational purposes only and may not be prepared or be suitable for legal, engineering, or surveying purposes.
MAP PREPARED: DECEMBER 18, 2018

