City of Cocoa
Task Order 2021-21
Viera Booster Station Chloramination Improvements – Permitting and Design Services

Objective and Background

Under this Task Order, Jacobs Engineering Group, Inc. (Jacobs) will provide engineering services for the design and permitting of a new ammonium sulfate storage and feed system at the Viera Booster Station. Services proposed by Jacobs in this Task Order will be performed in accordance with the contract terms of the Agreement for Continuing Engineering Services for Water System awarded by the City of Cocoa on February 5, 2020.

The City of Cocoa's potable water distribution system contains three booster stations. The booster stations serve to boost system pressures and total chlorine residual while also providing storage of potable water for periods of high demand, such as for fire flows. The City's distribution system utilizes monochloramines as the secondary disinfectant. Based on analysis of the City's potable water distribution system water quality data, both injection of sodium hypochlorite and ammonium sulfate are required to significantly boost chloramine residuals in the distribution system. There is not enough free ammonia present in the distribution system to produce a significant amount of monochloramines when dosed with only sodium hypochlorite. Therefore, a new ammonium sulfate storage and feed system is required at the Viera Booster Station to boost monochloramine residual in the distribution system near the site.

The ammonium sulfate system will be designed based on historical flow and chemical use data, the initial booster station design criteria (i.e. existing pump capacities) and will provide storage for up to 30 days of supply at the estimated average use rate. The installation of new ammonium sulfate storage and feed systems will likely require a major modification to the existing FDEP permits for the booster stations because ammonium sulfate is not currently used at these locations.

Scope of Work

Task 1 Design Services

Task 1.1 – Preliminary Design

A preliminary design report will be developed to accompany the request for a minor modification to the FDEP permit. The report will provide background on the existing distribution system water quality including concerns with reduced total chlorine residuals at the far ends of the distribution system which could be alleviated with this project. Objectives and impacts to consider will be defined related to the addition of ammonium sulfate storage and feed systems. The report will include a discussion of the recommended dosing location in relation to existing equipment and will discuss recommended process instrumentation to control the dose. A preliminary control narrative will be provided to discuss dosing controls and operation. The report will address the items referenced in FAC 62-555.520(4) and will include some preliminary design drawings to depict the modifications.

A draft preliminary design report will be issued to the City for review. One meeting will be held with the City to review the 30% design and discuss comments. After resolution of comments from the City, Jacobs will finalize the report.

Task 1.2 – Final Design

Final design documents will be developed that include drawings and technical specifications. The design will include a new ammonium sulfate storage and feed system at the Viera Booster Station. The design may include minor piping and valve modifications, as required to achieve effective dosing of ammonium sulfate. Equipment required for storage, pumping, transferring, injecting, mixing and dose control of ammonium sulfate will be included. The design documents will include a control narrative and I/O list, but programming will be provided by the City's automation consultant under a separate Task Order.

A Class 2 cost estimate will be prepared in accordance with the American Association for Advancement of Cost Estimating (AAACE). The cost estimate will be delivered with the final design documents.

Draft final design documents will be issued to the City for review. One meeting will be held with the City to review the 90% design and discuss comments. After resolution of comments from the City, Jacobs will finalize the design documents for bidding.

Task 2 Permitting Services

Jacobs will provide permitting services to include the following tasks;

Task 2.1 – FDEP Construction Permit

Jacobs will prepare and submit supporting documentation, permit application and preliminary drawings to FDEP for modification of the Viera Booster Station. The permit application will only be for a modification to the sites and no rerating will be required. One response to a request for additional information from FDEP will be prepared.

Task 2.2 – Brevard County Building Department Permit

Prepare documentation as required for the Brevard County Building Department. Prepare one response to a request for additional information provided by the Brevard County Building Department during the permit review process, to assist with the Contractor's formal permit application process.

Deliverables

- Preliminary Design Report (30% Design) – Electronic submission (.pdf format) of the design report including preliminary drawings and meeting minutes.
- Final Design Documents (90% Design) – Electronic submission (.pdf format) of the construction drawings, specifications, design details.
- Bid Documents (100% Design) – Electronic submission (.pdf format) of the construction drawings, specifications, and design details.
- Permitting sets will be provided to the permitting agencies per the requirements of each agency.
- Construction cost estimate will be prepared for the Draft Design Documents (90%).

Assumptions

The following key assumptions apply:

1. The design will be based on the federal, state, and local codes and standards in effect on the effective date of the authorization to proceed.
2. Existing sodium hypochlorite storage capacity and feed capacity is adequate and does not require modifications.
3. Existing finished water storage and pumping capacity is adequate and does not require modifications.
4. Existing communications systems required for process control is adequate for additional communication signals added under this project.
5. Permit fees will be paid directly by the City.
6. Permitting budget is based on responding to one Request for Additional Information (RFI) from FDEP and one RFI from the Brevard County Building Department.
7. No meetings are included in this budget for meetings with the regulatory agencies.
8. Invitation to Bid documents, or the Division 0 specifications, will be developed by the City. The final drawings, technical specifications and Division 1 specifications will be developed by Jacobs.
9. The cost estimate will be prepared in accordance with the American Association for Advancement of Cost Estimating (AAACE) Class 2 cost estimate. All estimates of probable construction cost used for planning the project will be developed using the appropriate estimate class for completion of the design and consistent with Industry Standards, Association for the Advancement of Cost Engineering adjusted for local site conditions. The final construction cost can only be determined after competitive bidding of the project by City. In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the project, Engineer has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by operating personnel or third parties; and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, Engineer makes no warranty that City's actual project costs, financial aspects, economic feasibility, or schedules will not vary from Engineer's opinions, analyses, projections, or estimates.
10. There is no intermediate deliverable between the Preliminary Design (30%) and Final Design (90/100%).
11. Design documents will be prepared for a single construction contract.
12. Jacobs master technical specifications (Division 1 - 49) will be used as the basis for all specifications. The City will provide procurement and contracting requirements in Microsoft Word format for Jacobs to edit for project specific requirements.
13. The drawings will follow Jacobs CAE/CAD standards. Microstation will be used to develop the drawings.
14. Bidding services and services during construction shall be provided under a separate contract.
15. The project schedule includes timeframes for Jacobs' design deliverables but does not include a schedule for permitting approval and permitting services. The timeframe for permitting services and permitting approval may exceed the project schedule defined in Table 1.
16. The addition of ammonium sulfate storage and feed equipment to the existing building does not result in modification of the current fire code classification of the building.
17. Jacobs will reasonably rely upon the accuracy and completeness of the information and data provided by the City or other third parties without independent verification.

Schedule

The duration of the services of this task order is estimated to be completed in 24 weeks.

TABLE 1
Project Schedule

Task/Activity	Schedule
Preliminary Design Report (30% Design Submittal); 1 meeting	8 weeks following Notice to Proceed
Construction Document Submittal (90% Design Submittal); 1 meeting	10 weeks following Preliminary Design Report comment adjudication
Final Bid Documents Submittal (100% Design Submittal); no meeting	4 weeks following Contract Document comment adjudication

Note: A meeting is anticipated to be held with the City within 2 weeks after the 30% and 90% design submittals.

Compensation

Compensation for the services authorized under this task order will be provided using the time and materials basis method with budgets between the tasks and expenses being interchangeable as needed. Costs are summarized below by task.

Task	Hours	Fee
TASK 1 – DESIGN SERVICES	472	$79,244
TASK 2 – PERMITTING SERVICES	30	$4,750
EXPENSES & SUBCONSULTANTS	N/A	$500
Grand Total		$84,494

Levels of effort for tasks are estimates based on the best information available at the time of task order development. As projects scopes are better defined, actual levels of effort required and associated fees might differ and require coordination between JACOBS and the City.

Acceptance

This Task Order shall become part of the Agreement upon execution by both parties.

Approved for City of Cocoa

By _____

Title _____

Date _____

Accepted for JACOBS Engineering Group

By _____
Francois Didier Menard, PE

Title Vice President

Date August 20, 2021

City of Cocoa Task Order 2021-21

Viera Booster Station Chloramination Improvements – Permitting and Design Services

Labor Hour Breakdown

		Per Diem Schedule Description									
		Principal/Senior Reviewer/Consultant/Senior Project Manager	Senior Professional Engineer/Scientist/Consultant	Mid-Level Professional Engineer/Scientist/Consultant/Project Manager	Professional Engineer/Scientist/Consultant/Project Manager	Junior Professional Engineer/Scientist/Consultant	Senior Construction Manager/Senior Designer	Construction Manager/Senior Technician		Labor Hours	Labor Fee
TASK #	**TASK NAME**	$235.00	$218.00	$199.00	$169.00	$142.00	$169.00	$142.00			
1.1	Preliminary Design	4	16	12	16	60	32			140	$23,448
1.2	Final Design	8	24	48	64	80	60	48		332	$55,796
									Task Subtotals	**472**	**$79,244**
2.1	FDEP Construction Permitting		4			8				12	$2,008
2.2	Orange County Building Department Permitting	2				16				18	$2,742
									Task Subtotals	**30**	**$4,750**
									Labor Total	**502**	**$83,994**
									Expenses		**$500**
									Subcontracts		**$0**
									Task Order Total		**$84,494**

EXHIBIT "A"
Jacobs Engineering Group Rate Schedule

Classification	Description	Rate
Engineer 9	Principal	$235
Engineer 8	Senior Reviewer/Consultant	$235
Engineer 7	Senior Project Manager	$235
Engineer 6	Senior Professional Engineer/Scientist/Consultant	$218
Engineer 5	Mid-Level Professional Engineer/Scientist/Consultant/Project Manager	$199
Engineer 4	Professional Engineer/Scientist/Consultant/Project Manager	$169
Engineer 3	Junior Professional Engineer/Scientist/Consultant	$142
Engineer 2	Project Engineer/Scientist/Consultant	$120
Engineer 1	Junior Project Engineer/Scientist/Consultant	$110
Engineer 0	Engineering Intern	$95
Technician 5	Senior Construction Manager/Senior Designer	$169
Technician 4	Construction Manager/Senior Technician	$142
Technician 3	Senior Construction Inspector	$120
Technician 2	Construction Inspector/Technician	$110
Technician 1	Junior Construction Inspector/Junior Technician	$85
Technician Aide	Technical Aide	$80
Office	Office/Project Administration	$85

Notes:

1. Billing rates for the City of Cocoa are designated for the length of this Agreement from February 2020 through January 2023.

2. These rates do not include other direct expense cost. Reimbursable other direct expenses shall be billed in accordance with the terms of the contract.

3. Billing rate schedule is for time basis work order and the City will be billed based on actual hours by category designated for an individual employee.

4. Jacobs reserves the right to request rate modifications for any future extensions to this agreement. Rate modifications must be established and agreed upon by both parties.

5. All copies, reproduction, subconsultant work, materials or equipment purchased or other direct costs shall be pass-thru cost without any mark-up.

6. Travel is reimbursable at the IRS rate for employees and specialists outside the Orlando office only.