



Hazen and Sawyer  
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**CITY OF HALLANDALE BEACH**  
**FY 2018-2019-012 Continuing Professional Architectural and Engineering Services and**  
**Other Services**  
**Discipline: Water Resources/Stormwater/Wastewater**

**CIP No. P2510**

**HAZEN AND SAWYER**  
**WORK AUTHORIZATION No. W2024-022**

**WTP RO Skid 2 Addition Design and CMS**  
**Scope of Services: May 7, 2025**

*In accordance with Resolution No. 2020-054, RFP #FY 2018-2019-012 Continuing Professional Architectural and Engineering Services and Other Services, the following scope of services is provided by Hazen and Sawyer (CONSULTANT) as requested by the City of Hallandale Beach (CITY) to provide Water Resources, Stormwater Design, and Wastewater Engineering.*

## **BACKGROUND**

The City of Hallandale Beach (CITY) owns and operates a series of potable water supply wells and treats the Biscayne aquifer well water through lime softening. Per- and polyfluoroalkyl substances (PFAS) have recently been detected in the CITY's wells. PFAS are a group of manufactured chemicals used to make coatings that resist heat, oils, stains, grease, and water. Throughout production and use, PFAS can migrate into soil and water, eventually entering drinking water sources. PFAS do not break down naturally in the environment, making them a persistent contaminant that can accumulate over time. The CITY's existing lime softening water treatment plant (WTP) cannot remove these contaminants. United States Environmental Protection Agency (US EPA) regulations, promulgated in April 2024, require PFAS be removed to below the regulatory limits of four parts per trillion before March 2029. Further, to avoid potential issuance of Notice of Violations related to the three quarters prior to the deadline, treatment must be installed and operational by end of second quarter 2028.

While the CITY is planning for Floridan aquifer as the long term water supply for capacity expansion and/or as the water supply if the CITY wells are intruded by salt water, the CITY requests HAZEN design the interim connections of the CITY wells to the existing 2.0 million gallons per day (mgd) Reverse Osmosis (RO) Skid and also design a second 2.0 mgd RO Skid to treat the CITY's raw water allocation (nominally 4 mgd) from the Biscayne aquifer. This project is part of a planned system of improvements to enable the CITY to convert to 100% membrane treatment and attain PFAS compliance by the US EPA deadline.

In parallel, the CITY will continue to investigate and develop the Floridan aquifer supply to meet future treatment capacity expansion requirements for the CITY.

## **SCOPE OF SERVICES**

The Scope of Work to be performed includes design, permitting, bid assistance, and construction administration services.

The project shall include the following major elements:

- Connect membrane building to existing City Well Nos. 7, 8, and 9 raw water piping

- Interconnect to accommodate future piping from Floridan Aquifer wells and sand separators
- RO skid of 2.0 MGD capacity with feed pump and appurtenances
- Cartridge filter
- Interconnecting piping in membrane building

## **TASK 1 – DESIGN**

CONSULTANT shall prepare detailed design drawings and technical specifications for the project. This set of documents shall be used for permitting and will be submitted to the CITY for review and comment prior to preparation of final bid documents. CONSULTANT shall meet the following design milestones:

1. 60% Design Submittal: CONSULTANT shall provide CITY with three hard copies and one electronic copy (PDF format) of 60% design documents (drawings and technical specifications).
2. 60% Review Meeting and Meeting Notes: CONSULTANT shall meet with CITY to receive and discuss CITY's review comments. CONSULTANT shall incorporate into the design documents the review comments from CITY as required. Meeting notes shall be prepared by CONSULTANT and distributed electronically to attendees.
3. 100% Design Submittal: CONSULTANT shall provide CITY with three hard copies (additional copies will be provided if needed) and one electronic copy (PDF format) of 100% design documents. Hard copy drawings shall be 22-inch by 34-inch. Drawings will be signed and sealed for use in the City's "dry run" review, if required.
4. Construction Cost Estimate: CONSULTANT shall submit a construction cost estimate and submit it with the 100% design documents.

## **TASK 2 –Permitting**

CONSULTANT shall prepare and submit permit applications for the construction of the proposed skid and appurtenances, yard piping, and interconnects. CONSULTANT shall prepare permit applications and backup documents as required by each entity. Backup documents may consist of description of methods, figures, calculations, drawings, specifications, etc. A list of agencies anticipated to require permits are provided below:

- Florida Department of Environmental Protection
- Broward County Environmental Protection and Growth Management Department
- City of Hallandale Beach Building Department Dry Run Review

CONSULTANT shall meet with the CITY Building Department to review the drawings and technical specifications. All comments received in a timely manner shall be addressed by inclusion into the bid documents or by inclusion through an addendum.

All permit fees shall be paid by CITY. It is assumed that no other permits will be necessary for the completion of this work, other than those to be obtained by the Contractor in accordance with the normal engineering standard-of-care. The Engineer's technical specifications shall define the Contractor's

responsibility relative to permits it is required to obtain (e.g., Stormwater Pollution Prevention Plan, dewatering).

### **TASK 3 – BIDDING SERVICES**

CONSULTANT shall perform the following services during the bidding phase of the project:

- Preparation of Final Bid Documents: CONSULTANT shall make final revisions to the documents based on review comments received by permitting agencies and the CITY. CONSULTANT shall provide one (1) electronic PDF copy and three (3) hard copies of the drawings and specifications to the CITY. It is anticipated that the CITY will prepare all documentation required to support the Front End for each bid package.
- Respond to Bidder Questions and Prepare Addenda: CONSULTANT shall provide responses to bidder questions to the CITY's Purchasing Department for uploading to a web based system. Where required, CONSULTANT shall prepare written addenda to the Contract as needed to clarify technical requirements of the Bid Documents.
- Conformed Documents: CONSULTANT shall prepare conformed documents which incorporate addenda as well as the executed contract into a final set of construction documents. CONSULTANT shall provide one (1) electronic PDF copy and three (3) hard copies of the conformed documents to the CITY.

CITY shall perform the following services:

- Distribute bid documents to contractors requesting documents
- Maintain a list of plan holders
- Issue addenda to plan holders
- Bid evaluation
- Provide CONSULTANT with a copy of the bid tabulation prepared by CITY

### **TASK 4 – CONSTRUCTION ADMINISTRATION SERVICES**

The construction period for this project is assumed to be 600 calendar days. Engineering services provided by the CONSULTANT during the construction period shall include the following:

#### **4.1 – ASSISTANCE TO CONTRACTOR FOR PROCURING AGENCY PERMIT AND APPROVAL**

- Environmental Review: CONSULTANT shall submit the contract documents to the Broward County Environmental Protection and Growth Management Department for review and approval prior to the Contractor submitting the plans to the City Building Department.
- Building Department: CONSULTANT shall provide assistance to the Contractor for procuring the Building Department permit from the CITY. CONSULTANT shall participate in one meeting with the Building Department to resolve outstanding issues. CONSULTANT shall address comments from the Building Department and prepare drawing modifications in response to these comments if required.

#### **4.2 – GENERAL MANAGEMENT**

CONSULTANT shall provide services for general management during construction. Such management activities shall include project coordination and general correspondence with the CITY, permitting

agencies and Contractor, coordinating and scheduling specialty inspections, and general correspondence with the CITY, construction contractor and subcontractors. CONSULTANT shall be responsible for requests for contract interpretations and clarifications required by the contractors or CITY which do not result in the submittal of formal Requests for Information.

A construction document website shall be maintained by the Engineer. The website shall be accessible to the CITY and the Contractor. Construction documentation, including shop drawings and meeting minutes, shall be maintained on the website.

#### **4.3 – MEETINGS**

- Preconstruction Conference: CONSULTANT will conduct a preconstruction conference attended by representatives of CITY, construction contractor, and permitting agencies as required. CONSULTANT will prepare the agenda and the meeting minutes.
- Progress Meetings: CONSULTANT shall participate in meetings with the CITY and Contractor to discuss the project progress. CONSULTANT shall chair the meetings and prepare and issue the agenda and meeting minutes. It is assumed that up to 30 progress meetings will be held during the course of construction.
- Pre-Pour Concrete Conference: CONSULTANT shall conduct a pre-pour concrete conference attended by the Contractor and representatives of the CITY. CONSULTANT shall provide the attendees with a summary of the meeting which will be distributed electronically.

All meeting documentation including agendas and minutes will be distributed electronically.

#### **4.4 – CONTRACT INTERPRETATIONS AND CLARIFICATIONS**

CONSULTANT shall issue as necessary technical interpretations and clarifications of the Contract Documents in a timely manner. CONSULTANT shall determine the acceptability of the construction contractor's work and make recommendations on all requests of the construction contractor and the CITY as to the acceptability of construction or interpretation of the technical requirements of the Contract Documents.

#### **4.5 – CHANGE ORDERS**

CONSULTANT shall develop/issue requests for routing project cost and/or schedule changes from the CONTRACTOR. Changes may be the result of unforeseen conditions or interferences arising during routine progress of work or additional improvements requested by CITY after the project bid date. CONSULTANT shall negotiate with the Contractor the scope and cost of contract change orders. CONSULTANT shall prepare an analysis of the change request with a statement noting whether the requested cost impacts are fair and reasonable. CONSULTANT's analysis of the change request shall be forwarded to CITY for processing. It is noted that these services do not include claims analysis or litigation support.

#### **4.6 – SUBMITTALS**

CONSULTANT shall receive and review shop drawing and any other submittals which the construction contractor is required to submit. Review shall be completed within 21 working days of receipt of the submittal except for special items requiring longer review time if so noted in the Contract Documents. The review shall be for conformance with the design intent and compliance with the information presented in the Contract Documents. CONSULTANT shall determine the acceptability of materials and equipment proposed by the construction contractor. Submittals shall be returned to the contractor for distribution. Shop drawing logs, submittal history, review status and related information shall be tracked by CONSULTANT.

The level of effort is based on a total of 135 submittals.

#### **4.7 – PAY REQUESTS**

CONSULTANT shall review applications for payment and accompanying data, determine the amounts owed, and recommend approval of payments due the Contractor. The CONSULTANT's recommendation of any payment requested in an application for payment constitutes a representation by CONSULTANT to the CITY, based on CONSULTANT's on-site observations of construction in progress as an experienced and qualified professional and on CONSULTANT's review of the application for payment and the accompanying data and schedules, that construction has progressed to the point indicated. In addition, it is understood that to the best of the CONSULTANT's knowledge, information and belief, the quality of construction is in substantial accordance with the Contract Documents; subject to an evaluation of construction upon substantial completion, to the results of any subsequent tests called for in the Contract Documents, and any qualifications stated in the recommendation; and that the Contractor is due the amount recommended. This activity includes review and recommendation of one payment application per month of construction and one final payment application for the project.

#### **4.8 – Periodic Site Inspections**

CONSULTANT shall conduct periodic on-site observations of construction in progress to assist in determining if construction is proceeding in substantial accordance with the Contract Documents, and that the completed construction conforms with the Contract Documents. The CITY will provide an on-site inspector responsible for the day-to-day observation of the construction contractor's work and compliance with the contract requirements. Specific duties of CONSULTANT for this task include documenting project progress and departures from the Contract Documents, advise as requested with problems/concerns raised by CITY's on-site inspector, and observation of special testing such as pipeline pressure testing and bacteriological sampling.

The CITY's on-site inspector shall perform the following duties:

- Conferences and Meetings: Attend meetings with construction contractor, such as progress meetings, job conferences and other project-related meetings.
- Liaison: Assist in CONSULTANT's communications with construction contractor, CITY, permitting agencies, residents, businesses and the public.
- Construction Observation: Conduct on-site observations of construction in progress (including field tests), to assist in determining if construction is proceeding in substantial accordance with the Contract Documents, and that completed construction conforms to the Contract Documents.

Inform CONSULTANT and CITY and the construction contractor whenever onsite inspector believes that any construction is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspections, tests or approval required to be made, or has been damaged before final payment. Immediately inform the construction contractor upon the commencement of any construction requiring a submittal if the submittal has not been accepted. Visually inspect and review suitability and method of storage of materials, equipment and supplies delivered to the construction site in accordance with the Contract Documents.

- Observe Regulatory Agency Inspections: Accompany visiting inspectors representing public or other agencies having jurisdiction over the project, record the outcome of these inspections in the daily reports which shall be recorded on standard forms.
- Daily Log: Keep daily logs recording hours on the job site, weather conditions, data pertaining to questions of extras or deductions, list of visiting officials and representatives of manufacturers, permitting agencies, suppliers and distributors, daily activities, decisions, observations in general and specific observations in more detail as in observing test procedures. Daily logs shall be forwarded to CONSULTANT on a weekly basis.
- Coordination: Coordinate testing, oversee substantial and final completion inspections, coordinate delivery of spare parts and warranties, and maintain the punch list. Coordinate with CITY's testing laboratory to schedule laboratory tests as requested by the contractor and required by the Contract Documents. Coordinate with the CITY and Contractor for necessary shutdowns and interruptions of CITY facilities.
- Photographic Record: Provide a photographic record of the construction, beginning with pre-construction documentation and completing with post-construction photographs. Photographs shall be digital type taken to define the progress of the project and unusual or important construction events as deemed necessary.

#### **4.9 – Startup Services**

CONSULTANT shall monitor startup activities and shall participate during the plant startup phase of the project. Participation shall include, but not be limited to, signal loop testing including electrical and instrumentation terminations, instrument calibrations and VFD parameter verifications, coordination of new signals with existing SCADA system, process tuning during startup, and skid startup activities. The level of effort for this task is based on up to 120 hours of onsite participation.

#### **4.10 – Specialty Discipline Site Reviews**

CONSULTANT shall undertake periodic site reviews sufficient for all Engineers of Record to certify completion of the project for each discipline. The following estimated hours are assumed for specialty site reviews over the duration of the construction project:

- Civil 24 hours
- Structural 40 hours
- Mechanical 40 hours
- Electrical 40 hours
- Instrumentation 40 hours

#### **4.11 – Witness Testing**

CONSULTANT shall observe, record, and report appropriate details relative to factory testing required in the Contract Documents. Factory witness testing includes out of town testing of the membrane feed pump

and local factory testing of the instrumentation and control system.

## **Task 5 – Closeout Services**

### **5.1 – Project Closeouts/Certifications**

Upon receiving notice from the Contractor advising CONSULTANT that the project is substantially complete, CONSULTANT, in conjunction with CITY staff, will schedule and conduct a review of the project, develop a list of items needing completion or correction, forward said list to the contractor and provide written recommendations to CITY concerning the acceptability of work done and the use of the project. CONSULTANT shall perform final inspection in conjunction with CITY, and assist CITY in closing out the construction contract. These services shall include providing recommendations concerning acceptance of Project, and preparing necessary documents such as lien waivers, Contractor's final affidavit, close-out change order, final payment application, and warranty letters from Contractor. CONSULTANT shall also assist in closing out the construction contract by certifying final construction to jurisdictional agencies.

### **5.2 – Record Drawings**

CONSULTANT prepare and distribute to the CITY within thirty (30) days of the date of receipt of final marked-up, red-lined field drawings from the Construction Contractor and CITY, two sets of 22" x 34" prints of the record drawings. CONSULTANT shall also deliver the AutoCAD electronic version of the record drawings. The record drawings shall incorporate those changes made during the construction process, based on the marked-up prints, drawings, and other data furnished by the Construction Contractor and CITY to CONSULTANT with each pay application.

### **5.3 – Plant Operations and Maintenance Manual**

CONSULTANT shall update the existing WTP Operations and Maintenance Manual to incorporate the new improvements. FDEP requires this manual to be in place prior to issuing clearance on Form 62-555.900(9). The update shall include general operational procedures and shall consolidate maintenance information, catalogs, and cut sheets for equipment. Updates shall be provided electronically in PDF format for CITY's use.

## **Task 6 – Raw Water Analysis and Sand Separators Addition**

### **6.1 – Raw Water Analysis**

CONSULTANT shall provide assistance to the CITY to analyze raw water data using a qualified laboratory. The analysis will be used to help evaluate if sand separators are recommended as part of the raw water process piping. A brief technical memorandum memorializing the results of this evaluation and recommendations for pre-treatment will be prepared.

### **6.2 – Sand Separators Addition**

Should the results of the raw water analysis and evaluation warrant, CONSULTANT shall update the construction contract documents to include sand separators, including technical specifications and drawings. This subtask includes efforts associated with modifying the design documents, inclusion into permitting documents, and construction administration activities associated with installation of the sand separators.

## **ASSUMPTIONS**

The following assumptions were made in preparation of the above scope:

1. The following items shall be reviewed, evaluated, and designed under separate task orders:
  - a. Additional well capacity
  - b. Modifications to existing wells
  - c. Upgrades to existing well pumps
  - d. Finished water chemical improvements
  - e. Additional emergency generator capacity
  - f. Additional concentrate disposal capacity, including upgrades to existing sanitary lift stations that may be required during injection well mechanical integrity testing
2. All permit and certification fees shall be paid by CITY.
3. CONSULTANT shall not be responsible for the acts or omissions of any construction contractor, any construction subcontractor, or any other person (except CONSULTANT's own employees, subconsultants or other agent) at the project site.
4. CONSULTANT shall not be responsible for contractor's means, methods, techniques, sequences or procedures of construction, or related safety precautions and programs.
5. CONSULTANT is not responsible for payment of any testing fees required by the contract documents.
6. CONSULTANT's scope of services does not include claims analysis or litigation support.
7. Working days are Monday through Friday, between the hours of 8AM and 5PM.

**PURSUANT TO SECTION 558.0035, FLORIDA STATUTES, A DESIGN PROFESSIONAL WHO IS AN INDIVIDUAL EMPLOYEE OR AGENT OF CONSULTANT MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE OCCURRING WITHIN THE COURSE AND SCOPE OF THIS CONTRACT.**



## SCHEDULE OF COMPLETION

The Schedule for the major work tasks is summarized below.

Task	Description	Duration for task/subtask (days)	Calendar Days From Notice To Proceed
1	Design Documents	300	300
2	Permitting	120	390
3	Bidding Services	120	510
4	Services During Construction	600	1,110
5	Closeout Services	90	1,200
6	Raw Water Analysis and Sand Separator Addition	300	300

A number of factors affecting the project are beyond the control of CONSULTANT, including work by others. Consequently, the schedule presented herein is dynamic and will be updated when appropriate.

## COMPENSATION

Compensation shall be made to CONSULTANT for a total amount not to exceed an upper limit of \$1,059,732 to be billed as summarized below.

Task	Description	Compensation Type	Estimated Fee
1	Design Documents	Lump Sum	\$407,146
2	Permitting	Lump Sum	\$27,252
3	Bidding Services	Lump Sum	\$25,656
4	Services During Construction	Lump Sum	\$477,204
5	Closeout Services	Lump Sum	\$41,526
6	Raw Water Analysis and Sand Separator Addition	Lump Sum	\$50,448
	Reimbursables		\$30,500
<b>TOTAL</b>			<b>\$1,059,732</b>

**AUTHORIZATION - HAZEN AND SAWYER**

Accepted: Jennifer McMahon, P.E.  
Vice President

\_\_\_\_\_  
Date:

**AUTHORIZATION – CITY OF HALLANDALE BEACH**

Accepted: \_\_\_\_\_  
  
\_\_\_\_\_

\_\_\_\_\_  
Date:

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**WTP RO Skid 2 Addition Design and CMS**  
**Fee Estimate: May 7, 2025**

Task	Description	Hazen Labor									Task Totals
		Director, Engineering	Project Manager	Project Engineer	Engineer	Jr Engineer	Inspector	CADD Technician	Hours	Fee	
	Hourly Rates:	\$247.00	\$232.00	\$214.00	\$183.00	\$125.00	\$124.00	\$124.00			
<b>Task 1: DESIGN</b>											
1	Design Documents	48	480	320	400	146	0	1000	2394	\$407,146	\$407,146
<b>Task 2: PERMITTING</b>											
2	Permitting	4	8	24	40	48	0	48	172	\$27,252	\$27,252
<b>Task 3: BIDDING SERVICES</b>											
3	Bidding Services	8	16	24	32	48	0	24	152	\$25,656	\$25,656
<b>Task 4: CONSTRUCTION ADMINISTRATION SERVICES</b>											
4.1	Assistance to Contractor for Procuring Permits and Approvals	0	0	8	0	40	0	0	48	\$6,712	\$6,712
4.2	General Management	8	24	40	48	32	0	0	152	\$28,888	\$28,888
4.3	Meetings	4	16	40	8	0	0	0	68	\$14,724	\$14,724
4.4	Contract Interpretations and Clarifications	0	12	24	24	0	0	12	72	\$13,800	\$13,800
4.5	Change Orders	4	16	0	32	4	0	24	80	\$14,032	\$14,032
4.6	Submittals	12	120	300	320	288	0	40	1080	\$194,524	\$194,524
4.7	Pay Requests	0	40	0	0	0	40	0	80	\$14,240	\$14,240
4.8	Periodic Site Inspections	0	0	0	0	0	900	0	900	\$111,600	\$111,600
4.9	Startup Services	0	60	60	0	0	0	0	120	\$26,760	\$26,760
4.10	Specialty Discipline Site Reviews	88	24	0	72	0	0	0	184	\$40,480	\$40,480
4.11	Witness Testing	4	4	24	24	0	0	0	56	\$11,444	\$11,444
<b>Task 5: CLOSEOUT SERVICES</b>											
5.1	Project Closeouts/Certifications	0	8	12	24	40	0	0	84	\$13,816	\$13,816
5.2	Record Drawings	0	0	4	8	8	0	40	60	\$8,280	\$8,280
5.3	Plant Operations and Maintenance Manual	2	2	12	16	80	0	24	136	\$19,430	\$19,430
<b>Task 6: RAW WATER ANALYSIS AND SAND SEPARATORS ADDITION</b>											
6.1	Raw Water Analysis	8	12	24	32	48	0	8	132	\$22,744	\$22,744
6.2	Sand Separators Addition	8	12	24	32	48	24	24	172	\$27,704	\$27,704
<b>Total Labor</b>		<b>182</b>	<b>830</b>	<b>892</b>	<b>1,048</b>	<b>734</b>	<b>940</b>	<b>1,212</b>	<b>5,838</b>	<b>\$978,784</b>	<b>\$1,029,232</b>

**REIMBURSABLES**

Reproduction	\$30,500
Laboratory Analyses (allowance)	\$500
Geotechnical Borings and Report (allowance)	\$10,000
	\$20,000

**TOTAL PROJECT COST**

**\$1,059,732**