Hazen and Sawyer
4000 Hollywood Blvd., Suite 750N
Hollywood, FL 33021 • 954.987.0066

August 21, 2024

Michael F. Bailey, PE
Utilities Director
City of Pembroke Pines
8300 South Palm Drive
Pembroke Pines, FL 33025

Re: Pembroke Pines Wastewater Treatment Plant
Task Order 11 - Headworks Preliminary Engineering Report

Dear Mr. Bailey:

As requested, Hazen and Sawyer, D.P.C. (Hazen) is pleased to offer engineering services for the development of a Preliminary Engineering Report for a new headworks facility at the City of Pembroke Pines (City) Wastewater Treatment Plant.

Background

The City owns and operates the Pembroke Pines Wastewater Treatment Plant (WWTP) which provides service to customers west of University Boulevard within the City corporate limits. The WWTP consists of three treatment units in the West Plant and two treatment units in the East Plant, serviced by a common headworks building. The headworks building was originally constructed as part of the WWTP's 1989 expansion. The corrosive environment and years of service have caused significant deterioration of the screening channels, grit channels, and effluent channels. The anticipated costs for rehabilitating this facility while maintaining plant operations has resulted in the City exploring the option to fully replace this unit process.

The City has requested the services of Hazen to prepare a Preliminary Engineering Report (PER) for the design of a new headworks facility. The scope of services for this work is described herein.

Scope of Services

Task 1 – Project Kickoff and Data Compilation

Hazen shall collect and compile drawings, record information, and operating data related to the existing headworks facility from Hazen and City sources. Hazen shall chair a Project Kick Off meeting followed by a field inspection to confirm key information defined on the existing records. City preferences, concerns, and potential sites for the new facility will be documented as part of this activity. Meeting minutes shall be prepared by Hazen and issued electronically to the attendees. In addition to gathering data from the existing headworks facility, an objective of this task is to determine design criteria for the new facility.

Job no. 04800-011

Task 2 – Alternative Evaluation

The proposed headworks facility is anticipated to include a screening system, a grit removal system, and an odor control system. Typical screening systems at municipal WWTPs include screens, conveyance, and washing/compacting of screenings. Grit removal systems include grit removal, conveyance, and dewatering operations. An odor control system is recommended to reduce odors to surrounding areas as well as to provide sufficient fresh air changes to the headworks facility to prolong the life of the structure and equipment. The purpose of this task is to review and evaluate technologies for screening, grit removal, and odor control.

Hazen shall review up to four technologies for screening, including:

- Perforated plate screens
- Center flow band screens
- Step screens
- Continuous belt screens

It is noted that the City recently purchased two Aqua Guard® automatic continuous belt screens manufactured by Parkson. The review of the continuous belt screen technology shall include the feasibility of re-using these screens as part of the new headworks.

For the grit removal system, the following alternative technologies will be reviewed:

- Detritors
- Vortex grit collectors
- Headcell units

Grit system evaluation will be based on manufacturer data and no pilot testing will be performed. Screenings washer/compactors and grit cyclone/classifiers are the most common technologies used in South FL to handle collected screenings and grit. This equipment will be included as part of the data evaluation for the proposed headworks.

For the odor control system, the following odor control technologies are appropriate for consideration at the City's WWTP and shall be evaluated as part of this task order:

- Chemical scrubbers
- Biological oxidation
- Dry media adsorption

Task 3 – Hydraulic Evaluation

Hazen will review the hydraulic profile of the existing headworks facility to establish boundary conditions for a new facility. It is the understanding of Hazen that additional pumping facilities to increase available headloss through the headworks is not desired by the City. A preliminary hydraulic evaluation based on available data and existing facility conditions will be used to exclude potential screenings and/or grit removal technologies due to excessive head requirements. This task includes 40 hours of field work for flow measuring and/or level recording at the existing facility if required.

Task 4 – Preliminary Engineering Report

Hazen shall prepare a Preliminary Engineering Report (PER) summarizing the findings of Tasks 1 through 3. The report shall include drawings illustrating the layout of the proposed headworks facility and process flow diagrams. The proposed outline of the report is as follows:

Section 1 – Introduction
Section 2 – Existing Facilities
Section 3 – Design Criteria
Section 4 – Screening System, Grit Removal System, and Odor Control System Alternatives
Section 5 – Hydraulic Evaluation
Section 6 – Cost Estimates and Implementation Schedule
Section 7 – Permitting Requirements
Section 8 – Key Results, Conclusions, and Recommendations

The PER shall be submitted to the City electronically in PDF format. Hazen shall meet with City staff to receive and discuss City's review comments. Minutes from the review meeting will be prepared and provided electronically by Hazen to the City. Hazen shall revise the PER to incorporate City review comments as necessary and submit a final PER.

Task 5 – Optional Review of Other Facilities

Hazen will perform a telephone survey of different operating installations for the screenings system and grit removal system technologies previously identified. It is anticipated that two manufacturer installations for each technology will be surveyed. The telephone survey form will be developed by Hazen and approved by the City prior to use.

Hazen will perform field inspections with City staff of up to four operating installations in the Palm Beach, Broward, or Miami Dade County area. Four trips of one day per trip are planned. The purpose of the field inspections is to confirm the appropriate experience and to assist Hazen and the City with selecting the most appropriate technology for use at the WWTP.

Key Assumptions

- Development of population projections and determination of future flows to the headworks facility are not included.
- No grit analyses are included in this scope of work.
- The review meeting with City staff shall be held within two weeks of submittal of the draft PER.
- All data compilation will be from existing City and Hazen sources. No topographic survey, geotechnical borings, or subsurface utility locations are included as part of this task order.
- An update of the entire plant hydraulic profile at buildout flow conditions is not anticipated. Hydraulic evaluation is limited to the headworks facility.

Compensation

The engineering services for this project will be performed on a Not-to-Exceed basis for the amount of $174,850.12. A fee schedule is attached.

Schedule

The services outlined in this Task Order will be completed within 240 days from date of Notice to Proceed. Engineering services for the project will be performed as part of our Continuing Professional Services Contract dated January 13, 2021. Services provided by Hazen shall be limited to those services specifically identified in this work authorization.

We look forward to your reply. Should you have any questions or require further information, please contact us.

Sincerely,

Jennifer McMahon, PE
Vice President

Enclosure

c: File 04800-011

City of Pembroke Pines
Wastewater Treatment Plant
Task Order No. 11 - Headworks Preliminary Engineering Report
Fee Schedule
August 21, 2024

Employee Title		Technical Expert / QAQC	Sr. Associate	Sr. Principal Engineer	Assistant Engineer	Lead CAD	Total H&S Hours	Cost
Person		McMahon	Silva/Wang	Kelly	Farmer	Johnson		
Billing Rate		$290.00	$260.00	$185.00	$130.00	$200.00		
Task	**Description**							
LABOR								
Task 1 - Project Kickoff and Data Compilation		**4**	**14**	**28**	**52**	**4**	**102**	**$17,540**
	Data Compilation		2	8	24			
	Kickoff Meeting, Site Visit, Minutes	4	8	8	12	4		
	Establish Design Criteria		4	12	16			
Task 2 - Alternative Evaluation		**4**	**18**	**68**	**104**	**0**	**194**	**$31,940**
	Screenings System	4	8	24	40			
	Grit Removal System		6	24	40			
	Odor Control System		4	20	24			
Task 3 - Hydraulic Evaluation		**10**	**76**	**32**	**72**	**0**	**190**	**$37,940**
	Existing Hydraulic Profile	4	24	8	12			
	Field Work and Data Compilation	2	12	8	48			
	Evaluation of Alternatives	4	40	16	12			
Task 4 - Preliminary Engineering Report		**10**	**32**	**100**	**124**	**76**	**342**	**$61,040**
	Draft Report	4	24	64	80	64		
	Review Meeting and Minutes	2	4	16	20	8		
	Final Report	4	4	20	24	4		
Task 5- Optional Review of Other Facilities		**0**	**10**	**40**	**72**	**0**	**122**	**$19,360**
	Telephone Survey		2	8	40			
	Field Inspections		8	32	32			
	SUBTOTAL (LABOR)	**28**	**150**	**268**	**424**	**80**	**950**	**$167,820**
DIRECT EXPENSES								
	Hillers Electrical Engineering Inc. - Electrical Coordination							$6,930.12
	Out-of-Pocket							$100
	SUBTOTAL (EXPENSES)							**$7,030.12**
	TOTAL (LABOR AND EXPENSES)							**$174,850.12**

The fee schedule is based upon an estimate of the personnel to work on the project. The actual breakdown of personnel and associated hours may vary based based upon availability and area of expertise. It is agreed that the the method of compensation is Not to Exceed which means the CONSULTANT shall perform the services set forth in the Work Authorization for total compensation in the amount of or less than the stated total.

HILLERS ELECTRICAL ENGINEERING, INC.

August 13, 2024

Zack Farmer, E.I, ENV SP
Associate Engineer II
Hazen and Sawyer
4000 Hollywood Blvd, 750N
Hollywood, FL 33021

Subject: City of Pembroke Pine Wastewater Treatment Plant – Headworks Preliminary Engineering Report (PER) – Electrical Coordination Scope

Dear Eric:

Hillers Electrical Engineering, Inc. (HEE) is pleased to provide Hazen and Sawyer, PC (Hazen) with this proposal for the electrical engineering report for the above-referenced project. Our electrical engineering report (PER) scope will include the following:

- Site visit and review of as-built drawings
- Coordination with other disciplines and prepare draft preliminary engineering report and attend review meeting
- Incorporate comments for final preliminary engineering report and submit final PER

Our proposed electrical engineering report not-to-exceed fee is $6,930.12, as shown in the attached spreadsheet.

HEE wishes to thank Hazen for the opportunity to assist with this project. Please do not hesitate to call me if you have any questions regarding this proposal or any other matter.

Sincerely,

Thein Win, P.E.
Business Development/Proposal/Hazen & Sawyer/PBP/Headworks Preliminary Engineering Report Electrical Coordination Scope.doc

Pembroke Pines Wastewater Treatment Plant - Headworks Preliminary Engineering Report Electrical Coordination Fee Breakdown
PER Fee Breakdown
HILLERS ELECTRICAL ENGINEERING, INC.

8/13/2024

Rate	**$181.67**	**$130.50**	**$150.00**	**$114.00**	**$121.67**	**$76.67**			
	Proj. Mgr.	Programmer	Project Engineer	Const. Coord.	CADD/Technician	Clerical	Total		TOTAL
PHASE OF WORK	Hours	Hours		Hours	Hours	Hours	Hours	Expenses	TASK COST
Design Phase									
Draft Preliminary Engineering Report (PER) and Review	30		4			2	36		**$6,203.44**
Final Preliminary Engineering Report	4						4		**$726.68**
Total Hours	34		4			2	40		
Not to Exceed Total Labor Cost	**$6,176.78**		**$600.00**			**$153.34**			**$6,930.12**

$6,930.12