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

August 31, 2020

Clece Aurelus, P.E.
CITY OF HOLLYWOOD
Department of Public Utilities
Engineering and Construction Services Division
Post Office Box 229045
Hollywood, Florida 33022

Hollywood Southern Regional WWTP
OFDB Odor Control System Replacement
City Project No. 19-9815
Amendment No. 1

Dear Mr. Aurelus:

As requested, Hazen and Sawyer, D.P.C. (Hazen) is pleased to offer engineering services for the replacement of the Oxygenation Flow Distribution Box Odor Control System at the Hollywood Southern Regional Wastewater Treatment Plant (SRWWTP).

BACKGROUND

The Oxygenation Flow Distribution Box (OFDB) receives preliminary treated sewage and apportions it among the five Oxygenation Trains. The existing OFDB chemical odor control system helps to treat the foul air released by the turbulent transfer of the flow. The City has determined that the system has reached the end of its useful life and requires replacement. Initially a biological odor control system was desired due to its reduced maintenance needs and preliminary discussions with Evoqua were held. Limited data gathering on hydrogen sulfide (H_2S) levels was also performed.

Under the original Scope of Services for this work authorization, treatment of foul air for the removal of Reduced Sulfur Compounds (RSC) was not envisioned. Based on recent information presented in the *Hollywood SRWWTP Oxygenation Flow Distribution Box Odor Control System Evaluation* technical memorandum, the City has determined that additional data collection is required to eliminate all H_2S and RSC odors. Additionally, the City has determined that the existing OFDB chemical scrubber odor control system should be replaced with a new chemical scrubber odor control system in lieu of a biological system. As such, the City has requested the following additional work efforts to be included as part of the overall scope of work for the project.

SCOPE OF SERVICES

Task 1 Amendment – Odor Control System Evaluation and Design

Hazen will develop a Monitoring Plan (Plan) to address collection of vapor-phase data (H_2S and a maximum of 20 sulfur-based compounds such as mercaptans and dimethyl sulfide) at the existing OFDB that will be used to size the proposed chemical scrubber odor control system. The Plan will include a description of parameter selection, required equipment and test methods, identified sampling locations, and a proposed sampling schedule. The draft Plan will be submitted

to the City staff for review and comment. Upon receipt of City comments, the Plan will be finalized and submitted to the City. No meetings are envisioned.

In accordance with the approved Plan, Hazen will collect and analyze vapor phase samples at the OFDB structure. It is anticipated that the continuous H_2S data recorder will be deployed for a seven (7) day period to capture data over a range of operating conditions, including one weekend. Four (4) RSC grab samples will be collected during that period, in an effort to obtain data representative of variable field conditions.

Hazen will evaluate the OFDB for the purposes of implementing a chemical scrubber odor control system to control odors caused by H_2S and RSCs based on data collected to serve as the basis for design. A brief Technical Memorandum (TM) will be prepared to discuss chemical scrubbing technologies and to present a conceptual level site plan, equipment sizing and selection, a preliminary opinion of probable construction cost, and other pertinent engineering considerations. The TM will be submitted to City staff for review and comment. Upon receipt of City comments, the TM will be finalized and submitted to the City. No meetings are envisioned.

Hazen shall consult chemical scrubber odor control system suppliers and prepare construction contract documents (plans and specifications) showing the scope, extent, and character of the work to be performed by the contractor. At the 90% design stage, five (5) sets of plans and technical specifications will be submitted for review and comment. A total of 23 drawings are estimated for the project. A preliminary list of additional drawings is as follows:

Additional Drawings	**No.**
Odor Control System Plan	2
Instrumentation Details	1
Total	**3**

Hazen shall submit 90% plans and specifications and attend one meeting during the design stage to receive final comments. City comments will be incorporated for the 100% design documents. Five sets of the final plans and specifications for construction will be provided along with the engineer's opinion of probable construction cost.

COMPENSATION

The additional engineering services for this project will be performed for the lump sum amount of $37,191. A fee breakdown is attached.

SCHEDULE

We anticipate completion of the amended scope of work associated with the 90% submittal within 8 months from receipt of the Notice-to-Proceed and requested information from manufacturers.

Engineering services for the project will be performed as part of our Professional Services Agreement for General Engineering Hazen Services (Agreement) dated August 2017. Services provided by Hazen and Sawyer, D.P.C. shall be limited to those services specifically identified in this work order.

We look forward to your reply. In the meantime, should you have any questions, please contact us.

Hazen

Very truly yours,

Hazen AND SAWYER, P.C.

J. Philip Cooke, P.E.
Senior Associate

c: File No. 4321-016/1.0

Attachment

CITY OF HOLLYWOOD
SOUTHERN REGIONAL WASTEWATER TREATMENT PLANT
OFDB Odor Control System Replacement - Amendment No. 1
Fee Breakdown

	Labor Hours												
Tasks	***Senior Officer***	***Senior Associate***	***Associate***	***Senior Principal Engineer***	***Principal Engineer***	***Engineer***	***Senior Designer***	***Principal Designer***	***Senior Drafter***	***Admin Assistant***	***Subtotal***		***Fee***
LABOR													
Task 1 Amendment - Odor Sys Eval & Design	0	22	0	6	92	44	24	0	24	16	228	$	34,691
Subtotal	0	22	0	6	92	44	24	0	24	16	228	**$**	**34,691**
DIRECT EXPENSES													
Sampling Equipment & Laboratory Analysis												$	2,500
Subtotal												**$**	**2,500**
Total (Lump Sum)												**$**	**37,191**
Maximum Hourly Labor Rate	274.12	261.80	212.52	181.72	166.32	123.20	151.84	147.84	95.48	73.92			