



Staff Report

TO: City Council
FROM: Kristine Day, Assistant City Manager
DATE: June 1, 2021
SUBJECT: **City Council Approval to Purchase the High-Pressure Spray System and Repairs to the Fine Screens for a Not to Exceed Price of \$150,000**

Background and Analysis:

Fine Screen High-Pressure Cleaning System:

The expansion of the City's wastewater treatment plant (Plant) began construction in October 2018. Phase I of construction has been completed and the Contractor (WM Lyles) is making good progress on Phase II. As part of the original design, new fine screens were installed downstream of the headworks barscreens to protect the membrane treatment system. The fine screens have very small 2 mm openings and prevent any large debris from damaging the membranes. The screens are automatically cleaned using an automated spray system that operates at approximately 100 psi. The successful performance of the fine screens is integral to the overall operation of the Plant, and these screens are very sensitive to changes in suspended solid concentrations in the influent. Because of this sensitivity and a few mechanical issues, the screens have experienced overflow conditions on a few occasions. These overflows have been contained on-site and several mitigation steps have been implemented in attempts to eliminate future overflow conditions. The steps taken include:

1. Worked with the manufacturer, Huber Technology, Inc. (Huber), to check and adjust the safety trip settings to allow higher suspended solids loads to be processed by the screens;
2. Implemented a mixing system at the Influent Pump Station (IPS) to mix the wetwell and improve consistency of the solids concentration being delivered to the fine screens;
3. Adjusted IPS programming to pump water levels down in the wetwell to decrease solids deposition in the IPS; and

4. City staff is manually pressure washing (daily at approximately 1500 psi) the fine screens in order to remove fibrous material that comes in through the sewer collection system and plugs the screen perforations. This fibrous material does not get removed with the standard spray system. During one of these manual cleanings, a small portion of one screen was damaged when the pressure washer nozzle got stuck between the screen and the channel wall. The damaged screen panel needs to be replaced.

In addition to the measures listed above, the equalization basin will be completed in the near future and will eliminate peak flows being delivered to the fine screens and will also serve as a diversion away from the fine screens in the case of a problem. City staff believe that all of these measures have and will significantly improve the operation of the fine screens, but none of these relieves the burden on City staff of pressure washing the screens each day. The presence of the fibrous material is not typical in municipal wastewater and is generally associated with industrial discharges. City staff have discussed this issue with Huber, and they indicated that they have over 100 installations of this screen and only a few installations where the standard spray system is not adequate to clean the screens. Each of these exceptions are systems with industrial discharges and high fibrous concentrations.

Because of the continuing labor requirement and concerns for operator safety, City staff and design team have been working with Huber to develop a solution to the cleaning issue for the fine screens. Huber has recommended installing a high-pressure spray system be installed on the screens. The high-pressure system will operate at approximately 1500 psi and has rotating nozzles to cut and remove the fibrous material that is collecting on the screens. This is a solution that has been implemented at Huber's other installations and has rectified the problem. The lead time for the equipment is 8-10 weeks after placing the order and installation will take less than a week. The cost for the equipment and repair of the damaged screen panel is currently being negotiated. The quoted prices are roughly \$31,000 for the repair and \$110,000 for the pressure washing system. The draft quotes from Huber are attached. There is also preparation work that will need to be completed by W.M. Lyles as a separate change order, which includes removing the screens from the channels, conduit, wiring, control panel, and minimal water piping.

Fiscal Impact:

WWTP	Budget Amount	Paid to Date	Remaining
Design	\$ 2,697,942.63	\$ 2,582,963.91	\$ 114,978.72

Construction Management	\$ 5,382,475.75	\$ 5,268,186.54	\$ 114,289.21
Equipment	\$ 252,906.00	\$ 256,216.13	\$ (3,310.13)
Permits	\$ 324,776.76	\$ 121,450.10	\$ 203,326.66
Construction	\$ 53,910,737.00	\$ 46,982,163.60	\$ 6,928,573.40
Contingency	\$ 5,624,252.52	\$ 2,516,296.08	\$ 3,107,956.44
Unallocated	\$ 2,441,341.72	\$ -	\$ 2,441,341.72
Total	\$70,634,432.38	\$57,727,276.36	\$12,907,156.02

Recommended Action:

Approve the purchase of the high-pressure spray system and repairs to the fine screens for a not to exceed price of \$150,000 payable to Huber Technology, Inc.

Attachments:

- A. Quotation 71008961
- B. Quotation 71008918