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**TO:** Chairperson Vered Meltzer and Members of the Utilities Committee

**FROM:** Chris Stempa, Utilities Deputy Director

**DATE:** January 26, 2022

**RE:** *Approve: Sole Source Engineering Services Contract to McMahon as part of 2022 AWWTP Preliminary Heat Exchanger and Blended Sludge Piping Replacement Project in the amount of \$26,300 with a 10% contingency of \$2,630 for a Project Total not to exceed \$28,930*

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**BACKGROUND:**

McMahon provided an engineering services proposal for the 2022 Appleton Wastewater Treatment Plant (AWWTP) Preliminary Heat Exchanger and Blended Sludge Piping Replacement Project. The staff rationale for soliciting a proposal was founded on the work McMahon had and continues to perform as part of the 2019 AWWTP Improvements Project. The following is a list of the individual rehabilitation and replacement projects within the 2019 AWWTP Improvements Project engineering services umbrella.

1. Biogas Waste Gas System Rehabilitation
2. Filtrate Pipe Modifications
3. Filtrate Storage Tank Repairs
4. Outside Chemical Offload Secondary Containment Repairs
5. Return Activated Sludge (RAS) pump replacement
6. Blended Sludge Piping Replacement
7. Plant Effluent Pumping Station #2 Pump Replacement (2020 CIP)
8. Primary Clarifier #5 and #6 Drive Replacement (2020 CIP)

A few months in advance of the public bid advertisement staff observed multiple leaks along the blended sludge pipe extending from the MK-Tunnel down the vertical elevator chase of K-Building to the basement level below. The risk of failure within the nearly 30-year-old pipe which was affected by chloride and microbiologically influenced corrosion (MIC) necessitated that the blended sludge pipe be replaced as part of the 2019 AWWTP Improvements Project. That decision required the AWWTP staff to remove the blended sludge Preliminary Heat Exchanger (HEX) replacement which was originally intended to be part of the 2019 AWWTP Improvements Project bid documents because of limited budgetary funding. Although the HEX was removed, the intent was to complete the work as soon as possible.

The preliminary HEX is comprised of eight (8) 32.5-foot lengths of concentric, tube-in-tube carbon steel pipe with long sweeping 180-degree uninsulated return elbows that transfer the sludge from one length of the HEX to the other. The preliminary HEX is used to preheat blended sludge (e.g. raw primary sludge, thickened waste activated sludge, primary scum and hauled-in high-strength industrial waste) from the Raw Sludge Blending Tank before being pumped to primary digestion. Each 2.2-million-gallon anaerobic digester has its own HEX system to maintain the 95°F sludge operating temperature target required for mesophilic bacteria.

The preliminary HEX was shut down in 2019 and remains offline due to deterioration noted previously with other sections of blended sludge pipe. Even without the preliminary HEX, the primary digesters are still capable of consistently achieving the 95°F target since they are supported by independent HEXs. However, the ability to reach the target temperature would be severely jeopardized if one of the two primary digester HEXs were to fail in conjunction with the offline preliminary HEX. Hence, the motivation to advance the work as part of the 2022 capital improvements project (CIP).

## **PROPOSAL**

The sole source contract proposal provided by McMahon takes advantage of engineering design work and bidding documentation already completed on the preliminary HEX and blended sludge pipe replacement as part of the 2019 AWWTP Improvements Project. McMahon identified a corrosion resistant coating for the blended sludge pipe and is sensitive to the challenges the replacement work presents to sustaining uninterrupted treatment operations. McMahon's prior work and familiarity with this scope is highlighted in their proposed fee (summarized below) for design, bidding, and construction management services which is about 50% of what was allocated in the CIP budget (i.e., 12.5% of estimated construction costs based on project complexity).

### **2022 AWWTP Blended Sludge Piping Replacement Project Fee**

<b>Service</b>	<b>Fee</b>
Design	\$12,900
Bidding Phase	\$2,900
Construction Management	\$10,500

**Total \$26,300**

## **RECOMMENDATION**

Approval of a sole source Engineering contract for 2022 Preliminary Heat Exchanger and Blended Sludge Piping Replacement Project to McMahon in the amount of \$26,300 with a 10% contingency of \$2,630 for a Project Total not to exceed \$28,930

If you have any questions or require additional information regarding this project, please contact Chris Stempa at 920-832-5945.