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Department of Utilities
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TO: Chairperson Greg Dannecker and Members of the Utilities Committee

FROM: Chris Stempa, Utilities Deputy Director

DATE: October 3, 2017

RE: *Information: 2017 AWWTP Improvements Project Engineering Services Amendment #1 reducing Donohue total contract amount by \$25,945; Sole Source Hydraulic Analysis Contract to Donohue in the amount of \$11,980*

BACKGROUND:

The Appleton Wastewater Treatment Plant (AWWTP) Improvements Project engineering service contract was awarded to Donohue by Common Council in May 2017. This project is comprised by four individual capital improvement projects which includes WAS Pumping System Replacement, High Pressure Blower #3 Replacement, Digester Biogas Mix Compressor Glycol Cooling System, and Final Effluent Firm Pump Capacity Improvements.

In September the Utility requested that Donohue stop work on the Final Effluent Firm Pump Capacity Improvements task based upon preliminary findings. Estimated construction costs were more than double the original budget as a result of existing space constraints at the back of the plant including electrical distribution which would require upsizing to facilitate additional pumps or larger pumps.

Furthermore, questions arose regarding upstream hydraulic restrictions which necessitated a closer evaluation before the Utility could cost justify construction project of this nature. The last hydraulic analysis was performed nearly 20 years ago. The AWWTP will utilize an updated hydraulic analysis to identify "bottlenecks" restricting hydraulic capacity as the basis of a future project when or if needed. An updated hydraulic profile will also be included as part of the deliverables.

Preliminary engineering findings as part of Aeration Blower #3 Replacement project yielded questions associated with the oxygen transfer efficiency of the existing aeration system diffusers. Diffuser efficiency is a critical component of appropriately sizing the replacement blower and the process by which the AWWTP would operate one or more aeration blowers to meet peak oxygen demand needs. To help answer those questions Donohue will conduct aeration basin off-gas testing services through Redmon Engineering Company.

SUMMARY

AWWTP Improvements Project Engineering Services Amendment #1:

Amendment #1 eliminates effluent pumping final design and construction services from the “Project #1 – Final Effluent Firm Pump Capacity Improvements.” It adds aeration basin off-gas testing services through Redmon Engineering Company as part of “Project #4 – Aeration Blower #3 Replacement”.

Removal of engineering design and construction services as part of Project #1 decrease the overall budget by \$37,945. Compensation associated with off-gas testing services set forth in Project #4 total \$12,000. These changes result in a net contract reduction of \$25,945 for a total amended contract amount of \$202,519 (formerly \$228,464).

Please note that the fund balance identified within the Final Effluent Firm Pump Capacity Improvements budget for construction will be reallocated among the other three project tasks to ensure adequate funding exists following final design and bidding.

Updated Hydraulic Analysis:

Donohue will conduct forward flow hydraulic modeling and analysis through the wastewater treatment plant (e.g. preliminary treatment through disinfection) that will account for structural modifications completed since 2001. Structural modifications include gate valve additions at parshall flumes (2000), side wall extensions on final clarifiers, PE channel, and aeration splitter box (2004), and replacement bar screens #1, #2, and #3 (2010-2015). Deliverables will also include an updated hydraulic profile.

The independent contract was requested by the Enterprise Accounting Manager to segregate costs from original effluent capacity improvements project since the effluent capacity task would not be advanced. The funds to support the updated hydraulic analysis would be taken from the AWWTP O&M budget. Total compensation for work identified as part of this service agreement shall be a lump sum total not to exceed \$11,980.

If you have any questions regarding this project please contact Chris Stempa at ph: 832-5945