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MEMORANDUM

WATER & RESOURCE RECOVERY FACILITY

To: Greg Jenkins, Interim City Administrator

CC: Nancy Lueck, Finance Director
Cinda Hilger, Secretary Duties

From: Jon Koch, WRRF Director

Date: December 27, 2019

Re: Papoose Grounding Study

INTRODUCTION: A grounding study is required by Muscatine Power and Water (MPW) to complete the new variable frequency drive (VFD) installations at the Papoose Lift Station. Stanley Consultants has submitted a Professional Services Agreement (PSA) for an amount not to exceed \$5,700.00 to complete this study. This small study will be taken from the Lift Station operating budget and absorbed from other line items.

BACKGROUND: Three new budgeted VFD's have been installed in the Papoose Lift Station. These VFD's start and modulate the speed of the motors for the pumps. These were installed with temporary grounding as the old MPW transformer supplying power was a 3-wire service with no ground or neutral. The new VFD's require that they be grounded to the transformer. MPW is requiring that an engineering study be performed and engineered drawings be produced to outline how to add grounding or neutral wiring to all equipment running from the transformer including Papoose Lift Station and the Mississippi Mist fountain.

RECOMMENDATION/RATIONALE: Staff recommends approval of the Stanley Consultant PSA in the amount not to exceed \$5,700.00 to complete the required Papoose Grounding Study.

BACKGROUND:

1. Draft PSA

Background

The City of Muscatine (Client) Water Resource Recovery Facility (WRRF) owns and operates the Papoose Creek Pump Station (PCPS) located at the Muscatine riverfront. Muscatine Power and Water (MPW) is changing the transformer that provides electrical service to PCPS, the Mississippi Mist fountain pump station (FPS), and riverfront park lighting. Client owns and operates PCPS, FPS and the park lighting systems.

Client recently replaced PCPS VFDs. The new VFDs have a ground bus at the bottom, but the service into the PCLS is a 3-wire service (2 sets of phase conductors) with no ground or neutral. VFD supplier requires that the VFDs be grounded.

The intended scope of this project is to gather enough data and information to be able to produce an engineering drawing to add grounding to the PCLS and other services as required by MPW and as desired by the Client.

Basic Services

Consultant will perform the following Professional Services:

Data Gathering/Plan Development

1. Meet at PCPS with Client staff. (already accomplished)
2. Review existing PCPS and FPS system drawings. FPS drawings to be provided by Client.
3. Meet at PCPS with representatives from MPW, Muscatine Parks & Rec, Muscatine WRRF, and the Muscatine Building Department electrical inspector.
 - a. Field examine existing electrical systems.
 - b. Verify objectives/purpose of the grounding project.
 - c. Determine consensus approach to meeting the grounding requirements of the utility and WRRF.
 - d. Determine any further actions, responsible parties, and deadlines.
 - e. Summarize meeting in electronic notes distributed to attendees.
4. Develop draft grounding plan drawing and send to the meeting attendees for review and comment.
5. Finalize grounding plan drawing sealed by professional engineer. Provide two half-size (11x17) printed copies and an electronic pdf file for Client use.

Additional Services

1. Field investigations and testing.
2. Resolution of conflicting directions from the involved parties.
3. Changes made due to building department review after sealed drawing produced.
4. Additional trips, site visits, meetings over above those listed in Basic Services.
5. Construction Support.
6. Additional services not included in Basic Services.

Proposed Compensation