



Legislation Details (With Text)

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Engineering Services for the Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities
CIP# 216006
Sponsors: Navid Mehran
Indexes: Wastewater Operations
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Date	Ver.	Action By	Action	Result
11/25/2020	1	Board of Directors	Approved	Pass
11/12/2020	1	Operations and Resources Committee	Recommended for Approval	Pass

Contract No. 1903601

Engineering Services for the Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities
CIP# 216006

Agenda of: November 25, 2020

Item No.: **2020-399**

Amount: \$1,650,899.00

TO: The Honorable
Board of Directors
Great Lakes Water Authority

FROM: Sue F. McCormick
Chief Executive Officer
Great Lakes Water Authority

DATE: November 4, 2020

RE: **Contract No. 1903601**
Engineering Services for the Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities

Vendor: CDM Smith Michigan, Inc.

MOTION

Upon recommendation of Navid Mehram, Chief Operating Officer - Wastewater Operating Services, the Board of Directors (Board) of the Great Lakes Water Authority (GLWA), authorizes the Chief Executive Officer (CEO) to **enter into Contract No. 1903601, “Engineering Services for the Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities” with CDM Smith Michigan, Inc., at a cost not to exceed \$1,650,899 for an initial duration of 792 days to be increased when the duration of construction is known;** and authorizes the CEO to take such other action as may be necessary to accomplish the intent of this vote.

BACKGROUND

The goal of the Assessment and Rehabilitation of Water Resource Recovery Facility (WRRF) Yard Piping and Underground Utilities is to:

- Provide GLWA with reliable underground utilities.
- Create redundant feeds for critical equipment.
- Provide additional isolation valves to improve system isolation without taking large process areas out of service.
- Update existing model (pipe networks, hydraulics) for screened final effluent (SFE), Secondary Water system, (SW), and Potable Water system (PW) with current demands to right size the system.
- Replace and right size the natural gas system.
- Rehabilitate or replace compressed air, secondary water, potable water, steam and sewer service.
- Create record drawings that include existing utilities and utilities installed as part of this project.
- Create an inventory, complete condition assessment and risk profile for underground utilities.
- The WRRF facility was originally constructed in the 1940’s and experienced several expansions over the years. Similarly, the underground utilities that support the facilities were installed and majority have exceeded their useful life.

Potable Water (1 to 16-inch cast or ductile iron): There is a complex potable water network through the facility that is partially looped to the transmission mains that service the WRRF.

Secondary Water (6 to 16-inch cast or ductile iron): The secondary water system is supplied by the WRRF’s potable water system. Secondary water is defined as city-quality water that passes through an air gap. The air gap protects the city potable water system from contamination by WRRF processes.

Screened Final Effluent (3 to 60-inch cast or ductile iron) Supplied by the SFE Pump Station for numerous uses at the facility. A reliable source of SFE is required for the WRRF to meet air emissions requirements and to operate many of the other treatment processes.

Natural Gas (low pressure: 1 to 4-inch unknown material, high pressure: 1 to 10-inch unknown material): The function of the natural gas supply is to provide the WRRF with the necessary gas for the operation of incinerators, furnaces, boilers and water heaters. The gas is transmitted to the

WRRF through four transmission lines.

Compressed Air (2 to 6-inch unknown material) The compressed air supply to the facilities is divided into two systems, service air and instrument air with two air compressors assigned to each system.

Steam (4 to 8-inch unknown material) The steam system is used for building heating, steam absorption water chillers and WRRF processes.

Sewer (4 to 36-inch unknown material) The sewer system at the WRRF receives and transports flow from a variety of sources, including storm water runoff, sanitary and floor drain flows from site buildings, and constant and intermittent process discharges at the WRRF.

Electrical Meter Summary

The WRRF includes several electrical meters throughout the WRRF.

Maintaining adequate utility service to the treatment processes during construction of the improvements will be the most significant challenge on this project. Temporary shutdowns for each system may be required to perform the work.

JUSTIFICATION

The yard piping and underground utilities are vital to the operations of the WRRF. The reliability and resiliency of these systems will be maintained with the successful execution of this project. The Secondary Water system needs to be relocated or completely refurbished to provide uninterrupted water for fire protection and process applications such as seal water to the pumps. Multiple utilities including potable water, secondary water (low, intermediate, and high pressure), screened final effluent, natural gas, electrical, sewer/drain, steam, and compressed air have not been evaluated since their installation. Many of which have been installed since the WRRF was constructed in 1940 and record drawing and pipe inventory information for underground utilities may not be reliable. Additionally, as some processes and equipment have been decommissioned, associated utilities have been abandoned in place while prevailing utilities may have not been properly resized (“right sized”) for the new demand.

Based on the complexity and the nature of this project the GLWA team elected to utilize Construction Management (CM) at Risk approach. This type of delivery will allow for the proposed Construction Manager **Christman Company**, Engineer **CDM Smith Michigan, Inc.**, and GLWA to work in partnership in determining the needs of the project, while selecting the most effective construction method to complete the rehabilitation. This approach allows for added engagement from the constructor from the ground level of the project which will ultimately minimize the disruptions to operations while providing the most cost-effective delivery for GLWA. This method of delivery minimizes the risk of the unknown utility location, condition at the time of construction, and constructability that is likely experienced with traditional design, bid, build approach.

FINANCIAL PLAN IMPACT

Summary: Sufficient funds are provided in the financial plan for this project.

Funding Source: Construction Bond Fund

Cost Center: Wastewater

Expense Type: Design (5421-892211.000-617950-211006)

Estimated Cost by Year and Related Estimating Variance: See table below.

Fiscal Year

FY 2020 Plan	184,000.00
FY 2021 Plan	443,000.00
FY 2022 Plan	443,000.00
FY 2023 Plan	443,000.00
FY 2024 Plan	444,000.00
FY 2025 Plan	443,000.00
<u>FY 2026+ Plan</u>	<u>10,000.00</u>

Financial Plan Estimate	2,410,000.00
Proposed Contract Award	<u>1,650,899.00</u>
Positive Estimate Variance	\$759,101.00

This positive estimating variance will be adjusted to capital reserves.

SAVINGS, COST OPTIMIZATION, AND REVENUE ENHANCEMENT IMPACT

This project provides for the design of Engineering Services for the Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities. The cost savings are not determinable at the time of award.

COMMITTEE REVIEW

This item was presented to the Operations and Resources Committee at its meeting on November 12, 2020. The Operations and Resources Committee unanimously recommended that the GLWA Board adopt the resolution as presented.

SHARED SERVICES IMPACT

This item does not impact the shared services agreement between GLWA and DWSD.