



Legislation Details (With Text)

File #: 2023-134 **Version:** 1 **Name:**
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On agenda: 4/26/2023 **Final action:** 4/26/2023
Title: Proposed Amendment No. 1
Contract No. 1904337
PS-2 Bar Racks Replacements and Grit Collection System Improvements
CIP #211007 / BCE Score: 75.70
Sponsors: Navid Mehran
Indexes: Wastewater Operations
Code sections:
Attachments:

Date	Ver.	Action By	Action	Result
4/26/2023	1	Board of Directors	Approved	Pass
4/12/2023	1	Operations and Resources Committee	Recommended for Approval	Pass

Proposed Amendment No. 1
Contract No. 1904337
PS-2 Bar Racks Replacements and Grit Collection System Improvements
CIP #211007 / BCE Score: 75.70

Agenda of: April 26, 2023
Item No.: **2023-134**
Amount: Original Contract \$11,307,128.58
Proposed Amendment No.1 496,159.80
Total Revised Contract \$11,803,288.38

TO: The Honorable
Board of Directors
Great Lakes Water Authority

FROM: Suzanne R. Coffey, P.E.
Chief Executive Officer
Great Lakes Water Authority

DATE: March 30, 2023

RE: **Proposed Amendment No. 1**
Contract No. 1904337
PS-2 Bar Racks Replacements and Grit Collection System Improvements

Vendor: Hazen and Sawyer

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. 1904337, Proposed Amendment No. 1, “PS-2 Bar Racks Replacements and Grit Collection System Improvements” with Hazen and Sawyer, at an increased cost of \$496,159.80 for a total cost not to exceed \$11,803,288.38 with no increase in duration for a total duration of 2,403 days;** and authorizes the CEO to take such other action as may be necessary to accomplish the intent of this vote.

BACKGROUND

On September 23, 2020, the GLWA Board of Directors authorized the award of the above referenced project to Hazen and Sawyer to perform planning, preliminary design, detailed design, and construction services for the Pump Station-2 Bar Racks Replacements and Grit Collection System Improvements (PS2RG) project. The improvements include the following key elements: replacement of the existing bar screens; improvements to the grit removal system; sluicing trough for screening collection to screenings compaction prior to disposal; and addition of grit classifiers for grit washing/dewatering for optimal disposal. The project is currently in detailed design, at the 90% design submittal phase.

The current screenings and grit handling at the Water Resource Recovery Facility (WRRF) is currently labor intensive, requiring dedicated operations staff, particularly during wet weather events. The PS2RG improvements are intended to significantly improve the removal of screenings and grit through smaller opening-sized screens and enhanced grit removal systems while optimizing and automating many components of the process. The removal of more material at the plant influent will reduce the volume of debris and grit that enters the plant which can accelerate equipment wear, and cause equipment failures in downstream plant processes. GLWA also plans to make similar improvements at PS-1 Rack and Grit in the future.

As a result of the screen bar spacing being reduced to provide a greater level of screening for this project, and the addition of an enhanced grit collection & conveyance system, quantities of screenings and grit collected will increase after the improvements to PS-2 and further when similar improvements are made at PS-1 in the future.

Near the time of the 50% submittal, GLWA requested that Hazen and Sawyer assist in the development and evaluation of concepts for consolidated handling of grit and screenings from PS-1 and PS-2. GLWA's objectives for this evaluation included the following:

- Identify an integrated handling strategy for grit and screenings across both PS-1 and PS-2 and plan for that strategy now to ensure proper coordination with the future PS-1 rack & grit project.
- Streamline personnel requirements as much as possible across the two facilities.
- Optimize use of site area/assets.
- Optimize/modify layouts of the designed PS-2 screenings handling area and Grit Processing Facility (GPF), considering future strategies for PS-1 grit and screenings handling.

Hazen and Sawyer reviewed additional historical data at the plant to develop combined PS-1/PS-2 criteria for grit and screenings generation, developed multiple concepts for a combined transfer station (CTS), collaborated with GLWA to shortlist the most advantageous alternatives, evaluated shortlist alternatives including present worth analysis and considered modifications to the PS-2 screenings handling area and the PS2GPF.

JUSTIFICATION

The current screenings and grit handling at the WRRF is labor intensive, requiring staff to be dedicated to the handling of

screenings and grit, particularly during wet weather events. Through the development of the proposed project, it became apparent to GLWA that the quantities of screenings and grit collected will increase significantly at the PS-2 facility and further when improvements are made at PS-1 making the current labor-intensive process even more challenging. The holistic look at the entire system (PS-1/PS-2) was essential to ensure the investment being made for this project was properly coordinated with future improvements to PS-1.

This out of scope evaluation included the following for comparing the alternatives: several workshops with GLWA; detailed review of the design criteria and screening/grit generation; concept development and shortlisting of alternatives; development of probable construction costs; and present worth analysis. The alternative evaluations resulted in additional modifications to the proposed Screening and Grit Process Facility (GPF) for optimal operations including:

- The GPF layout was modified to reduce the footprint and reduce overall costs for the proposed building by reducing the number of grit classifiers from eight to six and reducing the number of loadout bays from four to three. However, a conveyor system will be added for higher grit production times, providing the ability to move grit out of the facility and onto an external pad for loadout after a wet weather event. These changes to the GPF optimized capital cost, but also minimized the need for moving containers/gravel trains during storm events.
- Screenings area - incorporate three fully redundant trains, along with three separate large debris racks. Each of the racks will be installed in a separate parallel branch of the sluice, downstream of an isolation gate and provide a duty/dual standby configuration. This modification increases the capacity for screenings in the sluicing trough, which will provide capacity for the anticipated peak screenings production. This change also increases the amount of storage within the screenings handling area, minimizing the need for container removal/replacement during storm events.

Unfortunately, the changes referenced above required the Hazen and Sawyer team to revise the basis of design, and also perform some re-design to the 50% design submittal. GLWA wastewater engineering negotiated the change with Hazen and Sawyer and believes the proposed change is justified.

PROJECT MANAGEMENT STATUS

Original Contract Time	2,403 days (10/20/2020 - 05/19/2027)
Proposed Amendment No. 1	0 days
New Contract Time	2,403 days (10/20/2020 - 05/19/2027)

PROJECT ESTIMATE

Original Contract Price	\$ 11,307,128.58
Proposed Amendment No. 1	496,159.80
New Contract Total	\$ 11,803,288.38

FINANCIAL PLAN IMPACT

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

Funding Source: Sewer Construction Fund

Cost Center: Wastewater

Expense Type: Design (5421-892211.000-617950-211007)

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

Original Contract Price	\$11,307,128.58
Proposed Amendment No. 1	496,159.80
New Contract Total	\$11,803,288.38
Amended Financial Plan Estimate	<u>\$11,307,000.00</u>
Estimating Variance:	(\$496,288.38)

COMMITTEE REVIEW

This item was presented to the Operations and Resources Committee at its meeting on April 12, 2023. 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.