



Wastewater Operations CIP Presentation

*Chris Nastally, Director of
Wastewater Engineering*



CIP # 211008, Contract # 2002190

(Rehabilitation of Ferric Chloride Feed System at PS1 & Complex B Sludge Lines)

Project Information

- Type of Project: Design-Bid-Build
- GLWA Project Manager: Chris Breinling, P.E.
- GLWA Contracting Officer's Rep: Philip Kora, P.E.
- Design Consultant/Engineer: Hazen & Sawyer
- Contractor: Weiss Construction Company

CIP # 211008, Contract # 2002190

(Rehabilitation of Ferric Chloride Feed System at PS1 & Complex B Sludge Lines)

Contract Value: \$9,839,000.00

Construction Milestones

- Notice to Proceed: April 5, 2021
- Substantial Completion: October 5, 2022
- Final Completion: April 5, 2023

Project Goal

- Rehabilitate the Ferric Chloride system at PS-1 and decommission and demolish old existing PS-1 ferric chloride storage tanks, which have reached the end of their service life.
- Rehabilitate existing 16-inch SCB-30 TWAS Line between Complex B and Complex A, restoring existing line capacity for TWAS transfer with acid cleaning

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(Rehabilitation of Ferric Chloride Feed System at PS1 & Complex B Sludge Lines)

Project Overview – Package A

- Construct new ferric chloride feed system which originates at the PS-2 chemical feed room.
- Consolidate all ferric chloride chemical skids (7 total) in one facility at WRRF (PS-2) to allow for efficient Operation and Maintenance activities
- Right-size bulk liquid ferric chloride storage capacity

Project Overview – Package B

- Construct a temporary TWAS bypass line from Complex B to Complex A
- Provide new valving and return abandoned yard piping to service
- Clean and restore existing SCB-30 TWAS pipe to full capacity
- Challenges includes railroad crossing and yard piping exploration within congested underground utility areas at WRRF

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(Rehabilitation of Ferric Chloride Feed System at PS1 & Complex B Sludge Lines)

Current Activities

- Chemical feed pullbox installation between PS-2 and pipe gallery complete
- Chemical feed pullbox installation between pipe gallery and PS-1 complete
- Continued work to prepare PS-2 chemical feed room for new skids underway including masonry placement
- Control panels, Ovation cabinets in fabrication off-site by PCI



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Existing ferric chloride storage tanks will be demolished at PS-1 grit tank process area



Installation of new pullboxes (PB-1 through PB-4) between PS-2 and pipe gallery completed Spring 2022

CIP # 213007, Contract # CON-197

(Modifications to Incinerator Sludge Feed System in C-II at WRRF)

□ Project Information

- Type of Project: Design-Bid-Build
- GLWA Project Manager: Chris Breinling, P.E.
- GLWA Contracting Officer's Rep: Philip Kora, P.E.
- Design Consultant/Engineer: Black & Veatch
- Contractor: Weiss Construction Company
- Current Contract Value: \$20,386,814
- Start work date: April 2, 2018
- Revised final completion date: January 31, 2023

CIP # 213007, Contract # CON-197

Modifications to Incinerator Sludge Feed System in C-II at WRRF

Project Overview

- Construct ten new belt conveyors to re-establish sludge conveyance capacity from Complex I Belt Filter Presses to all eight operational Complex II Incinerators. New belts replace equipment that was damaged in March 2016 fire event at Complex II.
- Replace all sixteen screw conveyors with new dual-auger units with multi-speed VFD controls
- Replace nine motor control centers serving the existing Complex II Incinerator ancillary systems (burners, fans, controls).
- Repaint all of Dewatering Complex II and portions of Incineration Complex II to address smoke damage from original fire
- Replace all lighting in Complex I BFP room and Complex II BFP room
- Replace four outdated strainers with eight new Autostrainers for SFE filtering

CIP # 213007, Contract # CON-197

Modifications to Incinerator Sludge Feed System in C-II at WRRF

Current Status

- All ten replacement belt conveyors are currently installed
- All sixteen screw conveyors are replaced
- All VFD and Motor Control Centers are replaced



G-Belt to H-Belt transition



Dewatering II Repainting

CIP # 213007, Contract # CON-197

Modifications to Incinerator Sludge Feed System in C-II at WRRF

Current Status

- Working to address sludge spillage at P-belts and screw conveyors



P-Belt Plow Assembly



New SFE Strainers #4A & #4B

CIP Project # 216006

(Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities)

Project Information

- Type of Project: Construction Manager At Risk (CMAR)
- GLWA Project Manager: Nicolas Nicolas, P.E.
- GLWA Contracting Officer's Rep: Philip Kora, P.E.
- Design Consultant/Engineer: CDM Smith Michigan, Inc.
- Construction Manager: The Christman Company

CIP Project # 216006

(Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities)

Background

- Under the CIP project no. 216006, two contract were awarded:
- Contract No. 1903601 “Yard piping Engineering Services” was awarded to CDM Smith Michigan (Engineer) on 12/28/20 for \$1,647,814.
- Contract No.1903598 “Construction Management At-Risk” was awarded to The Christman Company (Construction Manager) on 01/15/21 for \$4,863,051.
- GLWA retained both vendors under the two separate contracts for engineering and construction management services for the assessment and rehabilitation of GLWA -WRRF Yard Piping and Underground Utilities.

CIP Project # 216006

(Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities)

Background

The project focused on the nine following utilities:

- Gravity sewer/stormwater/drain;
- Potable Water;
- Secondary Water (low, intermediate, and high pressure);
- Screened Final Effluent (SFE);
- Steam;
- Natural Gas;
- Compressed Air;
- Primary Electrical (high voltage);
- Secondary Electrical (medium and low voltage).

CIP Project # 216006

(Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities)

Contract 1903601-Scope of work (Engineer)

CDM Smith will provide engineering services to review as-built drawing information, identify condition assessment work, develop a condition assessment plan (CAP), assess condition data, develop a Basis of Design Report (BODR), design replacement systems and rehabilitation requirements of systems as required, and develop a field-verified record drawing of the facility yard piping utility systems.

1903601- Milestones

Project Phase / Milestone	Milestone Date	Task Duration Months
Notice to proceed/Start Work Notice	12/2020	
Study Phase	12/2021	12 months
Preliminary Design Phase	8/2022	8 months
Final Design	2/2023	6 months
Bidding and Negotiation Phase	TBD by CM	TBD by CM
Construction Phase	TBD by CM	TBD by CM
Project Closeout	TBD by CM	TBD by CM

CIP Project # 216006

(Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities)

Contract 1903598 – Scope of work (Construction Manager)

The Construction Manager will be responsible for procuring surveyors, excavation services, condition assessment contractors, and managing fieldwork during the condition assessment phase of the project. They will also conduct rehabilitation and replacement services of select and deficient utilities as identified in the condition assessment phase and as recommended in the Basis of Design and as designed by CDM Smith.

1903598 Milestones

Project Phase / Milestone	MilestoneDate	Task DurationMonths
Notice to proceed/Start Work Notice	1/2021	
Study Phase	1/2022	12 months
Preliminary Design Phase	9/2022	8 months
Final Design	3/2023	6 months
Bidding and Negotiation Phase	5/2023	2 months
Construction Phase	1/2024	8 months
Project Closeout	5/2024	4 months

CIP Project # 216006

(Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities)



Pipe excavation, Pipe corrosion test, soil sampling test



Valve inspection and exercising

CIP Project # 216006

(Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities)

Current Status

- The Basis of Design Report (BODR) has been submitted by the Engineer (CDM)
- The BODR identified 96 replacement/rehabilitation items based on risk analysis
- Estimated cost to perform all 96 replacement/rehabilitation items is about \$42M.
- Of the 96, GLWA selected 21 items that benefit operations/maintenance the most with an estimated construction budget of about \$13M.
- Additional replacement/rehabilitation items may be added from the remaining 75 items.
- The Engineer (CDM) submitted a quote in the not to exceed amount of \$1.1M to perform the preliminary design and final design for the 21 items
- The Christman Company submitted a quote in the not-to-exceed amount of \$596,779 for providing the preliminary design and final design support for the 21 items until March 17, 2023.
- Amendment No.1 for CDM contract for \$434,722, and Change Order No.2 for Christman Contract for \$596,779 were approved by the Board in July 2022.
- A second amendment for the CDM Contract will be submitted for the additional fund needed to perform preliminary/final design for September Board approval.

Questions and Contact



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THANK YOU



GLWA

Great Lakes Water Authority