

Client
City of Boca Raton

Scope of Services
Preparation of construction drawings and technical specifications, and permitting services.

Contact
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Start Date
03/2018

Completion Date
12/2020

Key MBC Staff
Frank A. Brinson, P.E.
Andrew Barba, P.E.
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Key Features
Project included design of a washwater recovery basin, supernatant decanting system, settled sludge handling, and a washwater return pumping system. The project also included yard piping improvements, electrical improvements, associated sitework and instrumentation and controls.

Water Treatment Plant Washwater Recovery Upgrades Design

Boca Raton, Florida



Background

The Glades Road Water Treatment Plant utilizes a combination of conventional lime softening (30 million gallons per day (mgd) capacity) and membrane softening (40 mgd capacity). The lime softening treatment process includes a washwater recovery basin and return pumping system for the treatment (settling) and recycle of the filter backwash water and other recyclable treatment process streams. The existing concrete washwater recovery basin is over 35 years old and is exhibiting typical signs of aging.

To maintain the efficiency and integrity of the existing lime softening treatment process, the City desired to design and construct a new washwater recovery system. The proposed system will consist of a washwater recovery basin, a supernatant decanting system, settled sludge handling, and a washwater return pumping system. This new system will be independent of the existing system and will provide the option for redundancy and reliability, as well as allow the City to make repairs and/or modifications to the existing system and surrounding structures and space without interfering with normal plant operations.

The Project

The design scope included the following improvements:



- Construction of an octagonal concrete, open-top washwater recovery basin to receive and treat plant recycle streams (e.g., filter backwash water, filter to waste from the pressure filters, and filter to waste from the gravity filters in the future).
- Construction of a supernatant decanting system, settled sludge handling, and washwater return pumping system. The return pumping system will consist of a cast-in-place concrete wetwell adjacent to the washwater recovery basin and three return pumps. The pumps will be controlled by the liquid level in the wetwell.
- Replacement of fourteen (14) existing valve actuators including surrounding lighting and all related electrical, and instrumentation and control systems.
- Yard piping improvements to connect the new system to the filter washwater waste piping, sludge thickener feed piping, and washwater return piping.
- Associated sitework, geotechnical and foundation construction.
- Electrical improvements to provide power to the washwater return pump station.
- Instrumentation and controls associated with the recovery basin and return pumping system.

MBC scope of services for this project included:

- Preparation of Construction Drawings and Technical Specifications
- Opinion of Probable Construction Cost
- Permitting services

The design phase is complete and the Florida Department of Health in Palm Beach County construction permit has been issued.