

Client
City of Boca Raton

Scope of Services
Professional engineering services for preparation of a needs assessment and conceptual design.

Contact
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Start Date
11/2018

Completion Date
08/2019

Key MBC Staff
Frank A. Brinson, P.E.
Audra McCafferty, P.E.
Andrew Barba, P.E.
Robert Landrum, E. I.
Mariell Soto, E.I.

Key Features
Project included investigation and evaluation of the current building structure and functioning to determine needed improvements.

Benefit to City
The City has utilized this report as a basis for rehabilitating and modifying the lime softening chemical building and the equipment within.

Lime Softening Chemical Building Renovation Needs Study Boca Raton, Florida



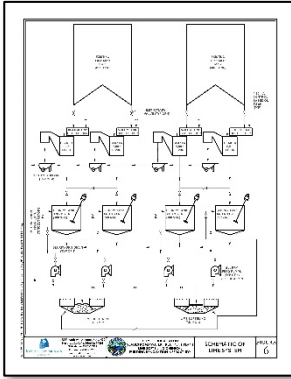
Background

The City of Boca Raton Glades Road Water Treatment Plant is a 70 million gallon per day (mgd) capacity facility that utilizes a combination of conventional lime softening and membrane softening to treat raw water from the Biscayne Aquifer. The lime softening treatment process includes a chemical building (Building 11) that houses the lime storage silos, lime slakers, lime feed equipment, a coagulant storage, preparation, and feed system, as well as other associated supporting systems and functions. Building 11 was constructed in the early 1970s and is in need of hurricane-hardening (specifically the lime silos) and renovation. The renovation will remove existing, out-of-service equipment and optimize the existing chemical processes, electrical systems, and the overall functions of the building.

Prior to performing the renovation design, the City wished to complete a comprehensive study on Building 11 to determine what upgrades are needed to hurricane-harden the building and silos, rehabilitate the building, modernize and upgrade the chemical handling, processing, and feed systems, and consolidate and optimize the electrical systems and other functions housed within the building.

The Project

MBC was authorized to prepare the Needs Study in November 2018. The Needs Study and report included the following:



- Structural evaluation of the integrity of the building and associated structures and equipment, including the two 497-ton capacity steel lime silos.
- Identification of structural needs, design criteria, and standards applicable for process/mechanical systems, including a hurricane hardening analysis.
- Identification of treatment process/mechanical functions provided by the building and determination of needed improvements for the renovation. Major treatment process systems addressed include the lime storage, preparation, and Investigation and documentation of the existing electrical service and power distribution systems associated with the building.
- Evaluation of alternatives for upgrading and/or consolidating the electrical systems to improve efficiency reliability and identification of design criteria and standards applicable to the potential electrical modifications.

The report was submitted to the City in August 2019. The City has utilized this report as a basis for rehabilitating and modifying the lime softening chemical building and the equipment within.

