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CASE STUDY

Gibson Creek Equalization Facility | Nashville, Tennessee

Nashville Water Management Project Includes Corrosion-Resistant BILCO Doors

More than a decade ago, Nashville established a program to update its water management infrastructure. In February of 2024, one of the major pieces to solving that puzzle was put into place.

Workers completed an \$18.9 million project to supplement an existing pump station to help manage excessive flows in the existing sewer system. The Gibson Creek Equalization Facility included the construction of a 10-million-gallon pre-stressed concrete tank and a 22-million-gallon per day pump station. The storage tank is utilized when sewer flows exceed the capacity of the Gibson Creek Pump Station. The peak flows are stored until the flows in the system recede, and the stored volume can be conveyed through the system to treatment.

Clean Water Nashville approved the project, which was part of its Overflow Abatement program. The program, established in 2011, called for updating infrastructure to decrease sewer overflows, reduce health risks associated with exposure to bacteria and contaminants, and improve water quality in the Cumberland River and Davidson County's extensive network of streams, creeks and tributaries.

"The primary goal of the project is to improve the infrastructure due to a growing population and increase flow," according to Thomas Ward, Assistant Project Manager at Reeves Young, the general contractor for the project.

The new equalization storage tank is the centerpiece of the facility, and those tanks play an important role in wastewater management. Equalization tanks are designed to buffer flows to a wastewater treatment plant with variants in influent flow due to diurnal variation and wet weather events. Mixing is required in the basins to maintain solids in suspension, preventing deposition and equalizing load to the treatment plant.

In addition to the equalization tank, the Reeves Young team improved the existing pump station facility to address settlement and cracking issues and coping repairs. The plan also called for the construction of a new flow diversion structure vault, flow metering vault, equalization pump station and foundation work.

The project included 15 access doors manufactured by The BILCO Company. Various sizes were included in the project, including several H-20 doors that are reinforced for AASHTO H-20-wheel



loading. The doors allow access to valve vaults, a wet well and the diversion structure. Some doors were replaced on existing buildings at the pump station.

Wastewater treatment plants produce highly corrosive conditions that attack metal and concrete structures, causing deterioration of expensive replacement. The BILCO doors are manufactured with corrosion resistant materials and provide durability in a caustic environment.

"You need to have stainless steel when dealing with sewage treatment plants and corrosive materials," Ward said. "They also have gaskets to seal in moisture. From a containment standpoint, that's the biggest advantage to those doors."

BILCO doors are engineered with lift assistance for smooth, easy one-hand operation regardless of size, even on the unusually heavy H-20 doors. They also include hold-open arm locks to keep the cover in the open position, heavy duty construction and a positive latching mechanism to prevent unauthorized access. Compton Sales, BILCO's sales representative in Georgia, provided the doors for Reeves Young.

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