SPECIAL PRINT | CONCRETE TECHNOLOGY

WWTP Upgrade Gets Crystalline Waterproofing Protection
The wastewater collection system includes a conventional gravity sewer system with lift stations and force mains. The lift station will have an estimated design average flow of 587,000 gallons per day. Key in the new lift station design is a 32-ft deep, 10-ft x 10-ft underground wet well and valve vault with a 300,000 gallon storage basin. The lift station is located in an area with a high water table.

Kevin Hampe, utilities engineer with Alliance Water Resources, explains, “It’s imperative that we do everything we can to keep groundwater out and sewage in our structures. That’s why we looked for extra reinforcement to provide lifecycle protection of concrete structures from groundwater ingress and aggressive chemical attacks common in sewage.”

The Cochran Engineering & Surveying LLC, the project engineer, specified Xypex crystalline waterproofing admixture for all the concrete used to cast the underground concrete structures (both the wet well and the storage structure). Brian Gentges, project manager at Cochran, adds, “Concrete failing is a concern in this type of environment and the Xypex will ensure the integrity of the concrete strength over time.”

Specifically, the concrete crews added C-500 Admix at the concrete plant to about 480 cubic yards of Type III concrete (20 lbs of admix per cubic yard) for the poured-in-place walls and base of the lift station wet well and the excess flow storage structure. St. Louis Prestress, a provider of precast and prestressed concrete materials, also used C-500 Admix in the concrete mix for the precast rectangular beams that cross the top of the wet well, as specified by Cochran. The beams are 12-in. thick x 48-in. wide x 25-ft long.

Once complete in fall 2015, the lift station will send sewerage to the Spencer Creek Wastewater Treatment Facility in the City of St. Peters. Alliance Water Resources is the operations and maintenance manager for Public Water Supply District #2 and ECMWSA. ECMWSA’s service area includes an estimated population of about 2,150.
Second Orinoco River Bridge
Ciudad Guayana, Venezuela

Buried precast concrete products are susceptible to water infiltration and concrete deterioration. Manholes and septic tanks are especially vulnerable to sulfate and acid attack caused by microbial induced corrosion. Xypex Admix provides a unique solution to these problems. When added to the concrete mix, it provides integral waterproofing as well as increased acid resistance and sulfate protection.

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