

Alexandria Renew Enterprises State-of-the-Art Nutrient Upgrade



Capacity: 18 MG rectangular CSO tank

Structure Footprint: 415-ft by 256-ft

On-site Project Duration: 10 months

Total Precast Concrete Pieces: 1,733

Description: As part of Alexandria Renew's State-of-the-Art Nutrient Upgrade (SANUP) initiative, Dutchland, Inc. constructed an 18 million gallon precast concrete tank that enables Alex Renew to process 13 billion gallons of wastewater each year. The project was built by Clark/Ulliman Schutte under the Construction Manager at Risk (CMAR) delivery method. Dutchland was a subcontractor to Clark/Ulliman Schutte for the tank structure.

The precast tank consists of three levels with a building integrated into the tank. The main levels include a central pipe gallery buried 50-ft deep, twelve wet wells buried 47-ft deep, and the main tank structure buried 37-ft deep, with 12-ft above ground. The tank rests on 1,800 14-inch prestressed concrete piles that are used for both compression and tension and are attached to the base slab with strand. The tank is covered with a flat precast roof topped with granular fill and a synthetic playing surface to accommodate regulation soccer and lacrosse fields.

The tank was originally designed as a cast-in-place reinforced concrete structure. As a VE proposal, the tank was changed from a CIP structure to a precast post-tensioned structure. The justification for the change included net cost savings, schedule savings, a significant reduction in construction-related impacts to the surrounding community.