Job Spotlight

Toll Brothers Inc. teamed with Dutchland Inc., Yerkes Associates, and MGK Industries, Inc. to design and build the 140,000 gallons-per-day Turners Mill Wastewater Treatment Plant and onsite pump station. The Chadds Ford /Turners Mill WWTP is another successful project that Toll Brothers decided to team up with Dutchland, Inc. to facilitate their needs to complete a new quality development project.

Turners Mill Project
Delaware Co., PA

The project site is located at the intersection of Ring Road and Baltimore Pike (Rt. 1) in Delaware County, PA. Responsibility for the design plans and report of the wastewater treatment plant was split between Dutchland, Inc. and Yerkes Associates.

This project needed a coordinated effort between Yerkes, Dutchland Inc., and Toll Brothers to complete a substantial amount of work in a relatively short amount of time to meet deadlines for submission to DEP and approval by the township for construction.

Dutchland, Inc. provided the treatment plant design plans and process design report consisting, of the precast post-tensioned concrete structure with two trains, each processing 70,000 gallons-per-day, all internal piping, internal equipment, and structural calculations. The process design report includes a description of the operation for the treatment plant in addition to calculations used to determine tank sizes, pump horsepower, pipe diameter, disinfection requirements and necessary blower system requirements.

The work, coordinated in joint effort with the two review engineers and bi-weekly meetings to facilitate a fast-track project, produced what was needed for design submittals within approximately a seven week time frame. These were impressive coordination efforts between all parties and our own Dutchland, Inc. drafting and design teams.

Consideration for a sequential batch reactor type WWTP was reviewed early on, and for economic reasons it was decided that if new test results could be provided to DEP to allow changes in the effluent limits, then an extended aeration type plant could be built. In doing so, the costs savings to the client for supplying an extended aeration system vs. SBR WWTP of this size, would run somewhere in the range of $80,000 - $120,000 for the base plant. Total savings with the original extended aeration plant design and the addition of anoxic zones and a tertiary filter, in essence, was approximately $200,000.00 for the plant vs. the SBR of equal size.

Prior to submitting on the WWTP to DEP, Toll Brothers looked at doing a hydro study and was determined to have DEP change the effluent limit requirements to a stream discharged. To make this happen, Dutchland had to test effluent samples from the previously completed extended aeration treatment facilities, Riviera at Concord, and Rivercrest for Total Nitrogen, Phosphorus and Ammonia. Yerkes also took test samples from four locations along Harvey's Run, the effluent discharge location, and Brandywine Creek, to which Harvey's Run is a tributary.

Once the ACT 537 submission was complete, the test data collected demonstrated actual effluent limits that could be achieved by constructing an extended air WWTP. The Turners Mill plant represents the new BNR (biological nutrient removal) plants that Dutchland, Inc. is now designing to meet the Chesapeake Bay Initative.