

Facts & Figures

Owner: Town of Arlington, TN
Type of Project: A new wastewater treatment plant and interceptor sewer
Engineer: Fisher & Arnold, Inc., Memphis, TN

Construction Managers: Hill Brothers Construction, Inc., Poplar Bluff, MO (wastewater treatment plant); Hill-Huffman Construction LLC, Poplar Bluff, MO (interceptor sewer)

Size: 7,500 square feet (wastewater treatment plant — total of four buildings)

Cost: \$9.5 million (wastewater treatment plant); \$3.6 million (interceptor sewer)

Construction Time: August 2005 - June 2007 (wastewater treatment plant); December 2005 - June 2007 (interceptor sewer)

The Need: A new wastewater treatment plant and interceptor sewer for a growing Tennessee town

The Challenge: Choosing a building site that fit strict criteria

Supportive Team Member

Bay Products, Inc
Odor Control

Raney Truss
Manufacturers

Arlington, Tennessee

Arlington Wastewater Treatment Plant and Loosahatchie Interceptor Sewer

Since the 2000 census, the town of Arlington, Tenn., has seen its population triple and has projected growth of more than 400 percent for the next 20 years. It is estimated that the town's wastewater treatment plant will be at full capacity by the end of 2007, necessitating an additional 2.5 million gallons daily (MGD) wastewater treatment plant and sewer system to accommodate the town's population explosion.

With discharge standards becoming more stringent, the town could not construct a plant similar to the old one, which uses an aerated lagoon system to clean the water. Instead, the type of plant recommended for Arlington was a Sequencing Batch Reactor (SBR), according to Scott Daniel, PE, of Fisher & Arnold, Inc., the project's engineer. The biological process utilized in the SBR is similar to treatment plants that use a continuous flow to clean the water, however, this system treats wastewater in a batch process.

With this new facility, aeration and clarification of the wastewater takes place in a single basin, rather than two separate basins, reducing construction costs by more than seven percent. Since the new treatment plant is some distance away



from the aerated lagoons, a gravity interceptor sewer system was constructed as well to transport the wastewater to the new plant.

"Gravity interceptor sewers provide excellent service and have the advantage of minimal operational cost, reliability for decades, and in Arlington would allow three pump stations to be taken out of service," said Daniel. However, these sewers do not come without higher capital costs. The project consisted of more than 18,350 feet of piping, with sizes varying from 18 inches wide to more than 30 inches wide.

In addition to the wastewater treatment plant and interceptor sewer, the project included an access road, an administration building, an electrical building and a pump/blower building.

Choosing a site for the new wastewater treatment plant was

difficult. A treatment plant of this size needs at least a 10-acre site, located more than 1,000 feet from any existing residences. In addition, said Daniel, the ideal site should be relatively level and reasonably accessible, yet inconspicuous. A review of flood and tax maps showed a property north of Highway 70 and west of Highway 385 that would be an acceptable location. The site contains more than 122 acres, of which more than 20 acres is located outside the floodway, and therefore was ideal for the construction of the plant.

Even though this plant was constructed with the area's population growth in mind, future expansion was already built in so the plant can eventually handle 5.0 MGD. "Several things were designed and constructed into this project to allow for a cost-effective expansion that will not disrupt the current treatment," said Daniel. "This site should serve the town's needs for many years." ■

— Ian McClure



Photos courtesy of Fisher & Arnold, Inc.