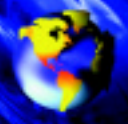




System Application



SMITH & LOVELESS INC.

www.smithandloveless.com

Wastewater Treatment at Botanical Gardens is Discrete and FAST®



Application Profile: Lone Jack, MO
S&L Equipment: Modular FAST®
Installed: 1998

Imagine strolling through breath-takingly beautiful botanical gardens when suddenly you stumble upon a wastewater treatment plant. The sweet aroma and sights of various types of flowers and plants are suddenly replaced by an unsightly treatment tank. This is an image that Powell Gardens, a privately-owned botanical garden attraction, did not want for its hundreds of thousands of annual visitors. Its 835-acre facility has both a new visitor center and a cafeteria to accommodate its near 500 daily patrons. Because an increasing number of visitors use the new visitor center and cafeteria, Powell Gardens needed an on-site wastewater treatment plant that could handle variable flow conditions— daily patronage can vary from 100 to 3,000 depending on events—yet remain discrete.

The wastewater treatment plant design was based on an average daily attendance of five hundred visitors — 40 lbs. BOD per day, @ 7,500 gallons per day. Similarly, the aesthetic requirements necessitated a treatment plant that blended in with the environment—even enhance it. Taking all of these factors into consideration, the unique, below-grade Modular FAST aerobic process by Smith & Loveless was selected and designed.

Following a primary septic sized for 24 hour detention, the wastewater enters the Modular FAST System for 85-90 percent BOD removal. The resulting crystal clear effluent is further refined naturally as it flows through a constructed wetland, which drains into a nearby stream.

The fixed-film Modular FAST system provides a high surface area to volume ratio with its completely submerged media. Bacteria attaches to and grows on the media, which prevents solids washout. More importantly, the FAST media provides a stable environment for the bacteria to grow, eliminating the need for return activated sludge, which minimizes operator attention. The Modular FAST system contains no filters to clean or replace, and has only one moving part, the remote air blower. The air blower supplies air which provides oxygen for the bacteria to grow and multiply.

With the Modular FAST system in place, Powell Gardens' visitors can fully enjoy the sights and scents of the gardens.



Smith & Loveless provided the Modular FAST wastewater treatment system (top, mostly unseen) to a botanical gardens to help the facility preserve its precious natural and aesthetic landscape while, at the same time, meet the growing wastewater treatment demands from its visitor center (bottom).

Actual Effluent Data — Lone Jack, Missouri

Design Flow:	7,500 GPD
Avg. Flow:	3,000 GPD
Effluent	Avg.
BOD	10.25
TSS	8.92

Data filed by the owner with the State of Missouri between March 2000 and June 2001.

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Smith & Loveless Inc. System Innovators for global pumping, water and wastewater treatment

FAST® System Helps to Preserve Botanical Gardens Natural Setting



attracting hundreds of thousands of annual visitors



natural beauty is key for this 835-acre setting



testing the Modular **FAST** system



the underground Modular **FAST** during operation (aeration)



constructed wetland



crystal clear effluent is released



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