Wentzville, Missouri Water Reclamation Project

PROJECT TEAM:

Owner:	City of Wentzville, MO
Engineer:	Carollo Engineers
General Contractor:	Goodwin Brothers Construction
Ground Improvement Contractor:	Subsurface Constructors, Inc.
Geotechnical Engineer:	Midwest Engineering Services, Inc.

PROJECT DESCRIPTION

This project was a plant expansion for the existing facility. The expansion consisted of a new headworks building, treatment tank, blower building, effluent meter Structure, UV disinfection and post aeration basin, and sludge holding tank.

Soil conditions consisted of soft clayey silts (ML) underlain by lean clays. Beneath the lean clays were wet sands and gravels extending to apparent bedrock, where the original borings were terminated. The upper clayey silt soils and underlying lean clays were relatively soft to medium stiff. The sands and gravels were loose to medium dense.

The initial geotechnical report recommended an allowable bearing capacity of less than 1,500 pounds per square foot (psf). Project designers were requiring bearing capacities ranging from 2,000 psf to 3,500 psf (depending on the structure) along with maintaining settlements to tolerable limits. Subsurface Constructors, Inc. used vibro stone columns ground improvement to meet the required loading and settlement criteria. Stone columns penetrated through the upper clayey silts and lean clays and improved the sands and gravels to support the structures. Approximately 1,500 stone columns were installed in approximately 30 days.