Ground Stabilization Allows for Expansion in Flood Plain

The Ironhouse Sanitary District wastewater-treatment plant serving parts of Contra Costa County in Northern Calif., is approaching capacity and requires expansion to meet demand. But the land allocated for a new plant is within the 100-year flood plain with high groundwater, compressible soils and liquefaction potential.

A subsurface investigation revealed that the upper 14 to 18 ft of soil underlying the site consisted of medium-stiff to soft clay with localized weak compressible soils and loose-to-medium dense sands. Below that is medium-dense to very dense sands and stiff-to-hard clay. Groundwater was present 2 to 4 ft below the surface, and there is seismic potential.

To mitigate the total and differential settlement associated with problematic soils, the most attractive ground-improvement methods for the site were Rammed Aggregate Pier® (RAP) elements or stone columns.

The Geopier Impact™ system, a common RAP ground improvement system for loose saturated sands and in compressible soils, was chosen to improve the ground. It uses a patented displacement mandrel to reinforce soils, and allows installation with no spoils and no need for casing.

The low-lying 6.5-acre Ironhouse Sanitary District site is less than 1,000 ft from the south shoreline of the Big Break Slough in the San Joaquin/Sacramento River Delta.

Aggregate is placed into the displacement mandrel and RAP elements are constructed by direct vertical-ramming energy to densely compact successive lifts of crushed rock to form high-stiffness elements. The vertical-ramming action also increases the lateral stress and improves the soils surrounding the cavity, which results in foundation-settlement control and bearing pressures of 450 to 1,000 psf for static loads.

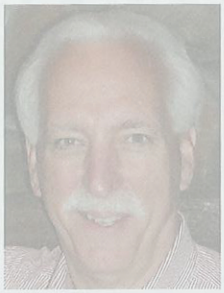
The RAP drive depths extended to 22 ft below the ground surface. Seismic settlement control was verified by post-installation CPT testing within the matrix soil reporting values ranging from 80 to 150 tsf to post-installation values of 150 to 300 tsf, exceeding the minimum requirements for the project. Over 2,400 RAP elements were installed in six weeks with two crews working five days a week. ■

Construction Industry Sees Rental Growth in North America

In early 2011, Volvo Rents set a course to not only operate a franchise network of rental centers, but also manage and grow a network of company-owned stores. And while the bulk of Volvo Rents' growth has been through the acquisitions of independently owned construction equipment rental companies, the opening of new stores has played an integral role in the company's expansion strategy.

In the last six months, Volvo Rents has opened a total of 10 new rental centers throughout North America, including nine in the United States and one in Canada. In that same time period, it acquired 10 independent rental companies composed of 32 locations.

Yes, acquisitions have been a great way for us to expand our North American footprint, but it's not the only way. We have taken decisive steps to help our business grow and succeed through multiple strategies, and it is these strategies that separate us from our competitors and further distinguish us as the leader in the construction equipment industry.



Mike Crouch, Vice President of Business Development, Volvo Rents

Another strategy that has aided Volvo Rents in its exceptional growth over the past 18 months has been the local decision making, as ideally the person closest to a customer should be making decisions on how best to service them.

In addition to an expanding line of Volvo compact equipment–such as backhoe and skid steer loaders, compact wheel loaders, compact excavators and compaction equipment–Volvo Rents stores carry a comprehensive line of essential equipment and tools for the construction, commercial, industrial and homeowner markets. Air compressors, power generation, material handling and small tools can be found at your local Volvo Rents location. The focus is on daily, weekly and monthly rentals.

The opening of these new stores comes at a perfect time, as the recession continues to force contractors to be financially prudent. Currently, the U.S. is undergoing an unprecedented shift from buying equipment to renting, as construction equipment rental revenue grows an average of 7% annually. ■