Invitation

Luncheon Seminar

STABILIZATION OF SOFT CLAY SITE FOR DEVELOPMENT USING RAMMED AGGREGATE PIERS

Mark Tigchelaar, GeoSolv Design/Build Inc.

Date: Tuesday, April 3, 2007
Time: Registration 11:45AM, Lunch at 12:00PM
Location: Agora Room - Centurion Conference and Event Center, 170 Colonnade Road South, Ottawa, ON (see attached map)
Admission: OGG Members $15, Non-members $20, Students $10
RSVP: To Baolin Wang (bwang@NRCan.gc.ca) before 2 pm, Friday, March 30, 2007

Event Sponsor - GeoSolv Design/Build Inc.
Abstract

The continued growth and development of large urban areas is leading to a lack of “good” building sites. Developers are now investing in sites with challenging soil conditions that were viewed in years past as being too difficult for construction. These sites often necessitate foundation support with deep foundations, massive overexcavation and replacement or wick drains and surcharge. The stabilization solution selection often involves a balance between cost and time.

A site in the Village of Orland Park, Illinois, a suburb of Chicago, Illinois, USA, remained undeveloped for years as the very soft clay soils presented significant remediation costs and schedule delays to the developers. With as much of 3.4 meters (11 feet) of new engineered fill required to achieve final grades, driven piles and structural floor slabs, EPS blocks, preloading and wick drains, and light weight fill were initially considered as options for support of building pads and roadways. To avoid the high costs of these options, while also meeting the demanding project schedule, Geopier® Rammed Aggregate Piers were selected for stabilization of the soft soils at the site.

This presentation describes the project details, soil conditions and the specifics of the Rammed Aggregate Pier design that allowed for reinforcement and stabilization of the soft soil site. The presentation describes the mechanisms and Rammed Aggregate Pier design approaches related to reduction of settlement magnitude, increase in the time rate of settlement and improved subgrade support capacity afforded by the Rammed Aggregate Pier system. Settlement monitoring data from the site are included to provide comparison between predicted and observed performance. This presentation is significant because it provides a documented case history that describes an option for addressing development of challenging soft soil sites when cost and schedule are major considerations.

About the Speaker

Mark Tigchelaar, P.Eng.
GeoSolv Design/Build Inc.
Gormley, ON

Mark Tigchelaar received his bachelor of applied science in Civil Engineering at University of Waterloo. Following receipt of his degree, Mark worked with a structural forensics firm providing technical support for structural failure investigations and structural fire damage audits. Mark then worked with a major manufacturing firm in Research and Development, developing systems for the repair and retrofit of above and below-ground infrastructure, including buried pipe repair systems all over North America, and column wrapping for corrosion repair and seismic upgrade. Mark then moved to a major geosynthetics company in Ontario, in the role of product manager, providing technical support to engineering firms and contractors throughout Ontario for a variety of products and engineered systems, including rammed aggregate pier systems.

Mark is now Vice President and Lead Engineer with GeoSolv Design/Build Inc., providing a complete design-build package with the Geopier Rammed Aggregate Pier system for support and settlement control for building foundations, transportation structures and other projects.