



Bass Pro Shops Outdoor World

Olathe, Kansas

The Rammed Aggregate Pier® System provided significant cost savings and schedule advantages as compared to conventional overexcavation and replacement

Description: Construction of a two-story slab on grade retail structure. Typical column loads range from 180 to 392 kips and exterior continuous wall loads are on the order of 9.7 kips.

Subsurface Conditions: The soil profile generally consists of clay fill and stiff to very stiff high plasticity clay overlying limestone, sandstone and shale bedrock. Groundwater was not encountered.

Geopier Solution: The Geopier GP3® system was developed to reinforce the existing fill and high plasticity clay soils and support shallow foundations. GP3® elements were installed to provide support for conventional spread footings. The Geopier installation allowed for foundations to be designed using an allowable bearing pressure of 5,500 psf. Use of the Rammed Aggregate Pier® (RAP) system provided significant cost savings and schedule advantages as compared to conventional overexcavation and replacement that would otherwise have been required.



PROJECT TEAM

Geotechnical Engineer:

Maxim Technologies

Structural Engineer:

Mettemeyer Engineering, LLC

General Contractor:

Maegrace, LLC

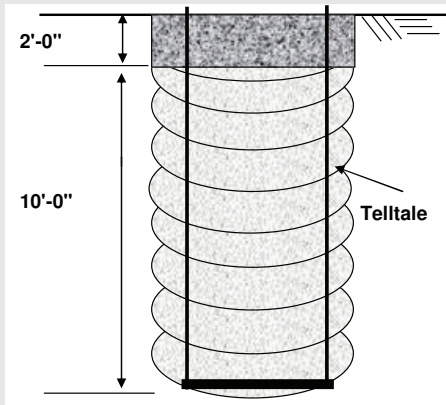
Geopier Installer:

Foundation Service Corporation

Geopier Designer:

GFC - Midwest

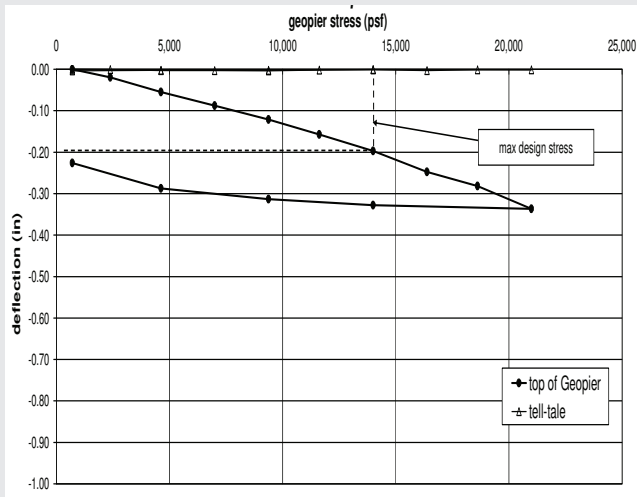
MODULUS TEST PIER SETUP



The non-production RAP used for modulus testing was installed through the fill and native clay soils to a depth of 12 feet. A steel telltale plate with sleeved rods extending to the ground surface was installed to the bottom of the RAP. Deflection measurements were taken during the modulus test. A two foot thick concrete cap was poured over the top of the RAP for testing purposes.

Modulus test results showed about 0.19 inches of movement at top-of-pier stress level of 13,996 psf.

MODULUS TEST RESULTS



The results of the modulus test indicate that a deflection of 0.19 inches was observed at the maximum top-of-RAP design stress of 13,996 psf. The corresponding RAP stiffness modulus of 493 pci far exceeded the assumed design stiffness of 150 pci.