



Sunrise at Cresskill Assisted Living Facility

Cresskill, New Jersey

Sunrise calls on the Geopier Impact® system to provide foundation support and prevent contamination migration

Description: Construction of a 3-story masonry-timber frame structure that will serve as an Assisted Living Facility. Wall footing loads were up to 6.7 kips per foot.

Subsurface Conditions: Approximately 4 to 10 feet of fill consisting of sand, silt, organic matter, concrete, rock, asphalt and rock fragments up to 12 inches covered the site. SPT N-values in the fill ranged from 4 to 73 bpf. The surficial fill layer was underlain by sand with varying amounts of gravel as well as silt and clay ranging from 39 to 51 feet below grade with N-values ranging from 2 to 52 bpf. Ground water was encountered at approximately 7 to 15 feet below ground surface.

Geopier Solution: Due to contamination at the site, timber piles would have penetrated through a clay-silt layer at a depth of 20 to 25 feet and allowed contamination to migrate into the underlying sand aquifer. In order to reinforce the fill and support building foundations, a total of 311 Impact® elements were installed. The Rammed Aggregate Pier® elements were designed for a capacity of 60 kips and extended to a depth of 19 feet in order to stay above the deeper sand aquifer.



PROJECT TEAM

Owner:

Sunrise Assisted Living

Geotechnical Engineer:

GTA, Inc.

Structural Engineer:

Ehlert Bryan Inc.

General Contractor:

Glen Construction Company, Inc.

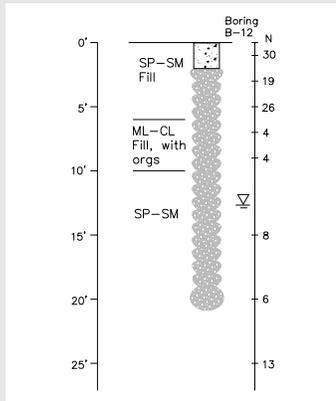
Geopier Installer:

GeoConstructors, Inc.

Geopier Designer:

GeoStructures, Inc.

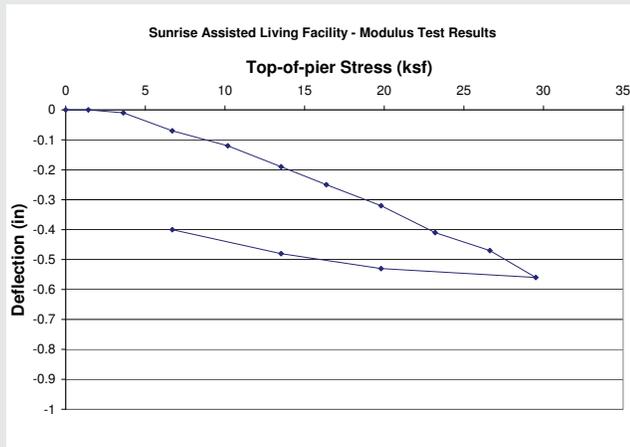
MODULUS TEST PIER SETUP



The test RAP was installed near boring B-12 to penetrate the upper sand fill and the underlying silt-clay fill. The RAP extended to a maximum depth of 19 feet below grade. A 2-foot thick, 24-inch diameter concrete cap was placed over the RAP for testing purposes.

Based on the high stiffness value at the design stress level, the Geopier solution proved to be a reliable foundation support option offering unsurpassed strength and stiffness.

MODULUS TEST RESULTS



The results of the modulus test indicate that a deflection of 0.32 inches was observed at a top-of-pier design stress of 19,800 psf. The corresponding RAP stiffness modulus of 430 pci exceeded the assumed design stiffness of 150 pci by more than triple. At a stress level of 29,500 psf, a deflection of 0.56 inches was noted. The corresponding RAP stiffness value was 366 pci. Based on the high stiffness value at the design stress level, the RAP solution proved to be a reliable foundation support option offering unsurpassed strength and stiffness.