



Westin Hotel

Lake Mary, Florida

The Geopier Impact® system was recommended by the geotechnical engineer due to the silt content of the near surface soils and the presence of clay at depth

Description: This project provided support for a new seven story hotel. Design (compressive) loads at column footings ranged up to 726 kips and at the shear wall mats up to 2,066 kips.

Subsurface Conditions: Soil consisted of loose sand to depths of eight to 10 feet underlain by loose to medium dense silty to clayey sand and sand with silt extending to 20 to 25 feet. A five to 10 foot thick medium stiff to stiff clay layer was encountered at depths of 20 to 35 feet. Below the clay layer, was loose to very dense sand and silty sand to the maximum explored depth of 80 feet. The estimated seasonal high groundwater table indicated about three to six feet below existing grade.

Geopier Solution: After eliminating vibro-replacement ground improvement on the basis that it would have variable success due to the silt content of the near surface soils and the presence of clay at depth, and eliminating driven piles due to vibration-related risk of possible damage to surrounding buildings and utilities,



the geotechnical engineers chose the Intermediate Foundation® technology. Rammed Aggregate Pier® elements were installed by the Impact® system displacement method to depths of up to 25 feet below finished floor elevation, which provided an allowable bearing pressure of 6,000 psf and controlled settlement for dead and live loads of up to 726 kips for column footings and 2,066 kips for shear wall mats.

PROJECT TEAM

Owner:

Starwood Hotels & Resorts Worldwide, Inc.

Geotechnical Engineer:

Universal Engineering Sciences

Structural Engineer:

Bennett & Pless, Inc.

General Contractor:

BE & K Building Group, Inc.

Geopier Installer:

Peterson Contractors, Inc.

Geopier Designer:

GFC-Southeast Coast