



Irvine Gateway Parking Structure Irvine, CA

A combination of the Geopier Armorpack® and X1® systems were selected as the most economical solution to support a 5-story parking garage

Description: The project consisted of a 5-story parking structure with surrounding apartment buildings. Geopier Rammed Aggregate Piers (RAPs) were used as foundation support on previous parking structure projects completed nearby. The 5-story cast-in-place parking structure had columns loads as high as 900 kips and wall loads as high as 25 kips/lineal foot.

Subsurface Conditions: The site generally consisted of 25 to 40 feet of soft to stiff lean clay and silt underlain by 15 feet of medium dense to dense sand overlying stiff clay and dense sand. Soft silt and organics were encountered approximately 20 to 30 feet deep and could potentially cave during RAP installation.

Geopier Solution: Due to the high concentration of structural loads, stiff Rammed Aggregate Pier® (RAP) elements were required in order to control the large static settlement that was predicted. Additionally, the RAP installation method had to account for the potential caving soils encountered in the soil



explorations. An innovative design solution combined the use of 24-inch X1® and Armorpack® elements to a depth of 35 feet to control static settlement and reduce the risk of construction delay caused by the caving soils. A total of 970 Geopier elements were installed to support the parking structure in 7 weeks.

PROJECT TEAM

Geotechnical Engineer:
LGC Valley, Inc.

Structural Engineer:
INGENII, Inc.

Geopier Installer:
Western Ground Improvement

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130 Harbour Place Drive, Suite 280, Davidson, NC 28036
800.371.7470 | info@geopier.com | marketing@geopier.com
www.geopier.com



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