



Ground Improvement for Parking Facility



THE PROBLEM

CNC Foundations recently completed ground improvement using rigid inclusions to support a new seven-story parking garage in Peoria, Ill. The parking garage is designed to connect via skywalk to the existing OSF HealthCare Center. One of the challenges with this jobsite was the variation of the soil strata and glacial till sloping downward across the site. Differential settlement is the primary concern, as there is approximately 10 ft in footing elevation change for the proposed parking garage, which will be connected to the existing hospital with the skywalk. This leaves very little room for error, with a maximum total settlement of 1 in.

OUR SOLUTION

To support the high load capacity, CNC Foundations determined that rigid inclusions and a load transfer platform were required to provide the composite allowable bearing pressure of 5,500 psf. for this project. The rigid inclusions were socketed into the glacial till deposits to meet the 1 in. total and .5 in. of differential settlement requirement. On the northern end of the site, where the glacial deposits were shallower, aggregate piers were used to support the parking garage.

QUALITY ASSURANCE AND CONTROL

CNC Foundations has created a comprehensive quality control and assurance procedure for every project. Each project is validated by an outside, third-party design firm. This process guarantees an independent peer review on each project to ensure that the design will meet the requirements for the project. CNC Foundations also maintains a computer data acquisition system on its aggregate pier equipment. This allows the rig operator to monitor the flot depth and flot hydraulic pressure and to visually verify the placement of the rock in real time as the aggregate pier is installed.

Because of this, CNC Foundations' operators provide the full time quality control for the installation of every aggregate pier. CNC Foundations performs a minimum of one full-scale load test on each project. The aggregate pier design submittal includes the calculated pier elastic modulus (pier stiffness) and the top of pier stresses for each footing type on the jobsite. Full-scale load testing is performed on a sacrificial aggregate pier installed at a location determined by the engineer of record.

