Main Street Triangle Parking Structure

Ground Improvement – Installing Aggregate Piers

PROJECT OVERVIEW

A 5 story mixed-use building (parking garage and restaurant) constructed in Orland Park. The building will be used for parking and a future restaurant.

REQUIREMENTS AND CHALLENGES

Existing uncontrolled fill extended 15 to 18 feet below existing grade, the cohesive fill was variable in consistency, containing concrete, brick, and asphalt pieces and layers. An additional 2 to 3 feet of buried topsoil and/or marginal strength soils were often found underlying the fill materials. These materials were deemed unsuitable for foundation support. The soils would need to be improved to 7,000 psf and only allowing for 1 inch total and Â½ inch differential settlement.

SOLUTION AND RESULTS

The geotechnical engineer of record offered three different solutions;

- Drilled Piers found to be cost prohibitive
- Remove and replace the existing fill found to be cost prohibitive
- Install Vibratory Stone Columns to improve the uncontrolled fill.
- CNC Foundations was hired to design and install their Vibratory Stone Column system.

Our design and methods of constructing Vibratory Stone Columns allowed for a cost-effective solution and allowed the general contractor to meet their schedule. Testing on a sacrificial and production piles confirmed the design and soil parameters used in the design.

Project Details

SECTOR
Parking Structure

LOCATION
Chicagoland / Orland Park, Illinois

APPLICATION(S)
Aggregate Piers / Vibratory Stone Columns (VSCs) for Ground Improvement

1ST CHOICE