



# Government Housing Facility



## Ground Improvement – Installing Aggregate Piers

### PROJECT OVERVIEW

A government housing authority was adding a living facility to include two, (4) story concrete buildings connected by a sky walk, totaling approximately 25,500 square feet in plan.

### REQUIREMENTS AND CHALLENGES

The general soil conditions consisted of very soft, clayey silt extending approximately 15 to 30 feet below grade, which was underlain by relatively dense sands. The project required that the ground be improved to an allowable bearing pressure of 4,500 psf with maximum settlements of 1 inch. The foundations consisted of large mat foundations with loads over 2,000 kips, isolated columns, and strip footings.

### SOLUTION AND RESULTS

CNC Foundations installed Vibro Stone Columns (VSCs) throughout the 25,500 sf foot print of the building. Some of the structural loads of the columns were 480 kips and wall loads at 6 kips per lineal feet. The site was wide opening so we were able to coordinate rock deliveries and stage materials throughout the site as needed.

Also, incremental weather (rain) did not impede production because the underlying soil consisted of sand, which drained the site efficiently. We performed numerous tests to assure the VSCs met the project tolerances.

This project was high profiled with several interest parties involved. We completed the ground improvement work ahead of schedule which was important enabling the project to get off to a good start. The VSCs tested within the project's tolerances.

We performed one (1) full scale modulus test and two (2) plate load tests to validate the design and installation of the VSCs. The full scale load test had a quarter of an inch deflection at 1.5DL (17.55 kips). The two plate load tests had less than 0.14" deflection at 1.0DL.

## Project Details

### SECTOR

Government Housing Facility

### LOCATION

East Saint Louis, Illinois

### APPLICATION(S)

Vibratory Stone Columns (VSCs) / Aggregate Piers

