



## Community College



### Deep Foundations – Installing Micropiles

#### PROJECT OVERVIEW

A Community College was constructing a new academic facility. The sub-surface soil conditions consisted of half engineered fill and half virgin soil. The virgin soil conditions generally consisted of a silty sandy mix down to approximately 25 feet.

The fill material was a poorly compacted fill with blow counts in the 2 to 3 range, down to approximately 18 feet. At the 25 foot depth there was a Glacial Till with blow counts in the 25 range. At the 50 foot depth, there was a higher blow count Glacial Till that was in the 40 blow count range.

#### REQUIREMENTS AND CHALLENGES

The major issue in construction was the building situated engineered fill began to settle, allowing 4 of the 8 columns to rotate both horizontally and vertically.

The design requirements for this new facility included the 4 affected columns to be supported in order to allow the building columns to support the new building. The Engineer of Record gave CNC Foundations the factored design loads of 650 Kips per column.

#### SOLUTION AND RESULTS

Based on the sub-surface conditions, the design requirements, and the urgency of the failed columns, we chose Hollow Bar Micropiles to solve the problem. The piles were installed through the existing column pads and attached to the column pads to provide minimal disturbance to the fill material. Overall, CNC Foundations installed 24 Hollow Bar Micropiles to support the existing columns.

The project was completed in 4 days. The Hollow Bar Micropiles were installed, and the columns were cut and readjusted to sit square on the footing as designed. Working in a low overhead clearance of only 13 feet, we were able to use multiple mast adjustments in installing the Hollow Bar Micropiles saving hours of installation time, and providing the owner considerable cost savings.

### Project Details

#### SECTOR

Community College  
Educational Facility

#### LOCATION

Normal, IL

#### APPLICATION(S)

Limited Access Micropiles  
Grouted Tendons

