

**Client:**

Berkel and Company  
ABE Enterprises  
Holder Construction

**Location:**

Atlanta, GA

**Services Provided:**

- Design and installation of instrumentation system and monitoring of the construction
- Design review of excavation support system and prediction of expected movements

**Value Provided:**

- Real-time monitoring kept track of lateral deflection and settlement
- Correlated movement to construction activities as they occurred so causes of larger movements than expected could be identified
- Provided up to date performance information so project team could be confident that it was safe to continue with the work

## Background & Project Challenges

Cox Media Group constructed a new 20-story tower building with a 7-level underground parking garage at their corporate headquarters in Atlanta, GA. Construction required an 81-ft-deep excavation and dewatering system to lower the water table by 40-ft. The support of excavation system consisted of soldier piles and shotcrete lagging held in place with up to 5 rows of tiebacks.

Phase I of the project had experienced several inches of lateral and vertical displacement that caused a delay in the project and extra work. To reduce the chance of unexpected performance on this phase, Geocomp was retained to predict the expected performance of the Contractor's design and to install a real-time monitoring system to monitor movements of representative points during construction.



## Geocomp Role & Accomplishments

Finite element analyses performed by Geocomp on selected wall sections helped validate the Contractor's design and provided predicted movements to help establish alert levels for each monitoring point. Geocomp successfully monitored lateral movements and settlement of the excavation support system (ESS), existing parking deck, existing building, and roadway adjacent to the deep excavation. Movement were measured to 1 mm precision using two robotic total stations monitoring 80 survey prisms attached to the structures and 4 in-place inclinometers installed on selected H-piles. Geocomp also monitored groundwater levels with 4 piezometers in 4 open stand-pipes within the excavation.

Key team members were kept informed with daily reports from Geocomp's iSiteCentral™ web-based monitoring system. Email messages were sent whenever any monitoring point showed movement greater than the pre-established threshold limits and alert limits. Some measured movements were larger than predicted and this was determined to be due to extra loading placed just outside of the excavation support system and differences in the construction sequencing from what had been modeled. The messaging system allowed the project team to keep track of the movement and determine appropriate courses of action. Monitoring continued after the excavation had reached the deepest point and during construction of the new parking deck to confirm that movements had stabilized.