



## PROJECT BRIEF

# Harold Structures (ESA) Instrumentation & Monitoring

## PROJECT PROFILE

CLIENT:  
Tutor Perini

LOCATION:  
Manhattan, NY

### VALUE:

- Engineering design of support of excavation systems to support railroad tracks, buildings, bridge foundations, roadways, utilities and other existing structures
- Finite element solutions to prepare efficient designs based on displacement
- Helped ensure the protection of both railroad and city-owned structures, keeping communities safe on their daily commute

### SERVICES PROVIDED:

- Structural and geotechnical instrumentation
- Utilized various high-precision instrumentation techniques to monitor performance of pile load tests

“The instrumentation installed by Geocomp has helped to ensure the protection of both railroad and city-owned structures, thus keeping New Yorkers safe on their daily commutes.”



## GEOTECHNICAL INSTRUMENTATION & MONITORING

Tutor Perini selected Geocomp to furnish, install, maintain and monitor the required structural and geotechnical instrumentation for this project. Construction components included retaining walls, bridges, a substation, and a vehicular access bridge along with all the associated foundations and utilities. The monitoring system implemented by Geocomp included Automated Motorized Total Stations (AMTS) which monitor reflective prismatic targets on bridge structures, inclinometers in soil adjacent to critical subsurface structures, and piezometers to monitor groundwater levels adjacent to underground excavations. Geocomp also utilized various high-precision instrumentation techniques to monitor the performance of pile load tests within this contract. With Harold Interlocking being the busiest railroad interlocking in the country, the instrumentation installed by Geocomp has helped to ensure the protection of both railroad and city-owned structures, thus keeping New Yorkers safe on their daily commutes.



## BACKGROUND

The East Side Access (ESA) project in NYC connects the Long Island Railroad's Main and Port Washington lines in Queens to a new LIRR terminal beneath Grand Central Station in Manhattan. The new connection will increase the LIRR's capacity into Manhattan, relieve the overcrowded Penn Station, and dramatically shorten travel time for Long Island and eastern Queens commuters traveling to the East Side of Manhattan. A major part of the Queens construction includes the “Harold Structures” contracts. The purpose of these contracts is to reconfigure the existing Harold Interlocking and lead tracks to Amtrak's Sunnyside Yard, plus create more usable space for the railroad by widening the track structure.