Geocomp
Trusted to help mitigate risk

PROJECT BRIEF

East Side Access Tunneling & Excavation

PROJECT PROFILE

CLIENT:
Metropolitan Transit Authority (MTA)

LOCATION:
New York City, NY

VALUE:
- Automated instrumentation provided alerts to unacceptable movement during construction

SERVICES PROVIDED:
- Instrumentation to monitor tilt, strain and liquid levels

"Geocomp managed the geotechnical instrumentation data and provided alerts to unacceptable movement during the tunnel excavation."

INSTALLATION OF GEOTECHNICAL INSTRUMENTS & DATA MANAGEMENT COLLECTION

Geocomp managed the geotechnical instrumentation data on the Manhattan Approach Tunnels and Queens Open-Cut Excavation. Tunnel boring machine (TBM) equipment was used to bore four TBM drives from the existing tunnel under 63rd Street and Second Avenue to the south end of the GCT tail tracks. The work also included excavation of cross passages between the tunnels and a central instrument room. An open-cut structure was created and then decked over to serve as the TBM launch area for the Queens tunnels prior to its permanent use as an interlocking and emergency exit/ventilation facility.

BACKGROUND

The East Side Access (ESA) project in New York City connects the Long Island Rail Road's (LIRR) Main and Port Washington lines in Queens to a new LIRR terminal beneath Grand Central Terminal in Manhattan. The connection increases the LIRR's capacity into Manhattan, dramatically shortening travel time for Long Island and eastern Queens commuters traveling to the East Side of Manhattan. Prior to construction, geotechnical instruments were installed above ground and in the subway tunnels to measure any movement, settlement, tilt, strain, and induced vibrations from tunneling, excavation, and construction activities. Instruments include automated motorized total stations (AMTS) with reflective prismatic targets, manual survey points, inclinometers, extensometers, observation wells, tilt meters, seismographs, dynamic strain gages, and liquid level settlement systems (LLSS). Many of the instruments are designed to be read remotely and automatically.