Gall Zeidler Consultants
Geotechnics | Tunnel Design | Engineering

East Side Access Tunneling Under Northern Boulevard New York Metropolitan Transportation Authority / Long Island Rail Road

Location: New York, New York

Date: 2001 – 2012

Structure: Tunnel Under Northern Boulevard

Length: 100 feet (30.5 meters)

Cross-Section: Width: 64 feet (19.5 meters)
42.6 feet (13 meters)

Geology: Mixed Glacial Deposits, Including Sandy Silts, Silts, Clays, and Minor Portions of Bedrock in the Tunnel Invert Consisting Predominantly of Strong Genesis and Schistose Gneiss

Cost: Approximately $115 Million

Client: General Engineering Consultant (GEC) a JV of Parsons Brinckerhoff, STV, and Parsons

Owner: Metropolitan Transportation Authority / Long Island Rail Road (MTA / LIRR)

Expert Consulting, SEM Design, and Construction Support Services:

The CQ039 Contract is part of the East Side Access (ESA) Project which is one of the most complex, ongoing transportation projects in the United States. The project will connect the Long Island Rail Road's (LIRR) Main and Port Washington lines in Queens to a new LIRR terminal beneath Grand Central Terminal (GCT) in Manhattan. The new connection will increase the LIRR's capacity into Manhattan and dramatically shorten travel time for Long Island and eastern Queens commuters traveling to the East Side of Manhattan.

Gall Zeidler Consultants (GZ) provided design and design representation during construction for this tunneling under Northern Boulevard. Representation included quality assurance and quality control of Sequential Excavation Method (SEM) activities, the Independent Subway System (IND) underground subway and the Brooklyn-Manhattan Transit (BMT) elevated subway. The work included: ground improvement / freezing for tunnel pre-support, underpinning of the BMT foundations, SEM and initial support installation, geotechnical instrumentation / monitoring, and final structural reinforced lining. Tunneling was through soft-ground consisting of sandy silts, silts, clays, and rock in the invert under a high ground water level.

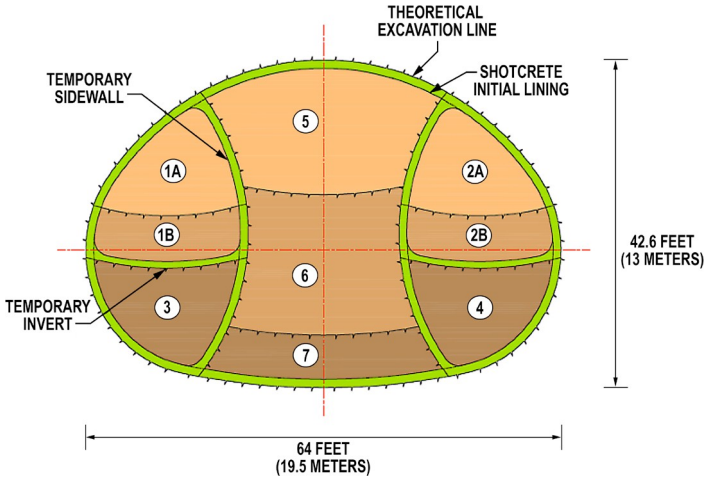

Figure 1. Cross-section with excavation sequence (Stage 1 – 7).

Figure 2. Drift 5 (center drift) excavation and support trailing behind Drift 1 (left drift) excavation and support.