

Macro Enterprises, Ltd.

New York Hospital - Queens Underground Parking Structure

Macro Enterprises completed the design and installation of a sheeting and underpinning system for a 35 foot deep excavation for a new underground parking garage.

The sheeting system consisted of steel soldier beams, timber lagging and earth tie-backs. Soldier beams were installed ***without impact noise or vibration*** by advancing a continuous flight hollow shaft auger into the ground. A self-hardening slurry was pumped through the hollow shaft to hold the hole open while the auger was being withdrawn. The soldier beam was lowered into the slurried hole. After the slurry hardened, timber lagging and earth tie-backs were installed as the excavation proceeded.



Concrete underpinning was performed using alternate pit sequence. The underpinning was constructed using two lifts due to the difficulty of excavating large boulders and cobbles which were encountered in the sheeted pits. Sheeted pits were hand excavated to 20 feet deep for the first lift. Reinforcing steel was installed and concrete was poured. Steel plates and wedges and drypack were used to transfer building loads onto the underpinning. Earth tiebacks of 100kip capacity were drilled, tested and locked-off to provide lateral support of the underpinning as excavation proceeded to the bottom of the first lift of underpinning. Then the entire underpinning and tieback procedure was repeated to advance the underpinning to the required subgrade elevation.



Construction Manager:
Foundation Contractor:
Shoring Contractor:

Barr & Barr Inc.
Bove Industries, Inc.
Macro Enterprises, Ltd.

