



Victoria Station Upgrade London Underground Limited

Location: London, United Kingdom

Date: 2007 – 2011

Structure: Passenger Tunnels

Length: Approximately 1,000 feet(300 meters)

Cross-Section: 5.6 meters (18.3 feet) at springline

Geology: Fill, Alluvium (Peat, Silt, and Clay), Sandy Gravel and Sand, London Clay; Groundwater Table Approximately 20 – 28 feet (6 – 8 meters) Below the Surface

Cost: Approximately US \$800 Million

Client: Mott MacDonald, Ltd.

Owner: London Underground Limited (LUL)



Figure 1. Historic Victoria Railway Station above tunnel alignment for future underground station upgrade and enlargement.

Engineering and Design Services for Ground Improvement, Building Protection, and Tunnel Construction:

Extreme passenger congestion in two interconnected London Underground Stations, the Victoria Line and District /Circle Line Stations (both underground), required an extensive upgrade program.

Gall Zeidler Consultants (GZ) provided engineering and design services for the ground improvement, building protection, construction of passenger connection tunnels, tunnel junctions and ventilation and egress shafts for this project. Mined tunneling primarily used Sprayed Concrete Lining (SCL) / New Austrian Tunnel Method (NATM). Extensive jet grouting was used for the ground improvement. The Project also included two new escalator tunnels constructed using SCL / NATM and two ticket halls using cut and cover method. All structural elements were built under confined space conditions and at shallow depths. Tunneling using SCL / NATM occurred mainly in the London Clay and sandy gravels.

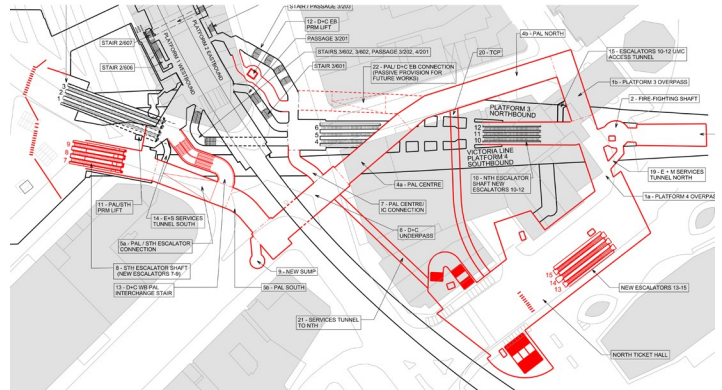


Figure 2. Schematic layout of upgrade and extension works.