



METROS

EDMONTON VALLEY LINE LRT

Foundation Piles

CANADA

**Owner**

City of Edmonton

Engineer

ARUP

General contractor

TransEd Partnership

Period of works

December 2016-December 2017

Main figures

Concrete11,724 m³**Bored piles**

83 Cast In Place Piles diameters 1800mm and 2500mm with up to 50.00m

Rotary LDA no drilling mud

38 Cast in Place piles diameters 1800mm and 2500mm with up to 50.00m.

Rotary LDA drilling mud

45 Cast in Place piles diameters 1800mm and 2500mm with up to 50.00m

Pile Load Testing

3 (three) sacrificial O'Cell pile tests -27 MN

4 Statnamic Proof Tests - 15 MN



Project description

SB Canada was retained by TransEd Partnership for the installation of the piles for the Elevated Guideways and Whitemud LRT Bridge on the Valley Line LRT Project in Edmonton. SB Canada's scope of work included the performance of preliminary O'Cell static Load Tests, Supply and Installation of 1800 mm and 2500 mm piles with lengths up to 50.00m and Statnamic Proof Tests on representative piles. It also included very stringent Quality Control requirement like Geotechnical Pile Monitoring, Material Testing, Cross Hole Sonic Logging, PIT testing among others. The work area extended over 12.0 km with piles being installed in close vicinity to CN/CP rail tracks at 2 locations and major traffic arteries at 3 locations.

Ground conditions

Soil Conditions consisted on an alternation of clay, silt and sand ovetop the Clay Shale/ Sandstone bedrock found at depths ranging from 8.00 m to 35.00m Water and gas bearing coal layers were found within the bedrock at discrete locations.

Solution

The large project footprint and the need to work in the close vicinity/cross multiple traffic arteries and CN/CP tracks required a special consideration for the site logistics, rig movement and safe work and lifting procedures to guarantee the protection of the public and infrastructure. The varying soil conditions along the project, required a versatile pile installation methodology compatible with the distance between piles, depth of sloughing layers and low temperatures over the winter months. SB Canada adopted two main methodologies consisting of top casing installed with a vibrohammer in the areas where bedrock was found within 15.0m of the working grade and polymer slurry drilling in areas where the sloughing layers were found past 15.0 m. SB Canada worked over 52,000 hours without recordable incidents or negative impact on traffic and nearby infrastructure.



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