

OTTAWA LIGHT RAIL TRAIN – SHORING SHAFTS ON LYON & RIDEAU STATIONS

PROPERTY: OLRT CONSTRUCTORS

GENERAL CONTRACTOR: ELLIS DON, SNC LAVALIN, DRAGADOS CANADA JOINT VENTURE

SCOPE OF WORK: DESIGN/BUILD SHORING FOR STATIONS ACCESS

INTRODUCTION

This Job Report is about the Design / Built Shoring installation on Lyon Station and Rideau Station entrances and shafts for the Ottawa Light Rail Train Project.

SCOPE OF WORK

SITE Canada have award the design / building of the shoring system installation of OLRT entrances and shafts as follow:

Lyon Station

West Entrance shaft and Bridge Deck

West TVS Shaft

HVAC Shaft

East TVS Shaft

Rideau Station

West Entrance and Tunnel Access Portal

LYON STATION

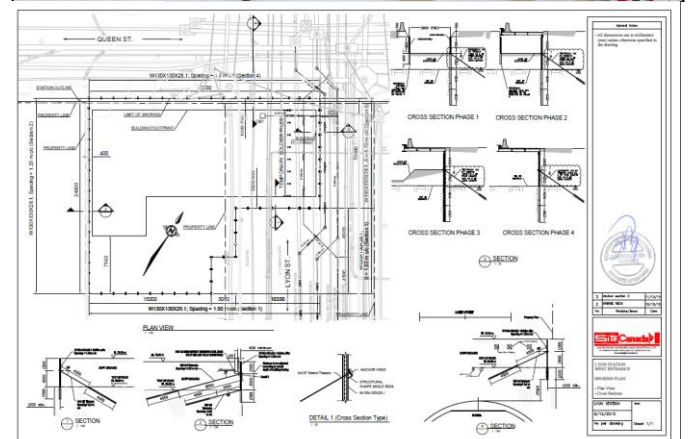
The Lyon Station shoring have been performed with a Soldier pile and wood lagging design solution to avoid any settlement on the buildings, utilities, and street boundaries when the soft-ground excavation.



The soldier piles are installed after drilling 200 mm diameter boreholes with an embedded on the rock layer between 1.5 to 2 meters grouted with cement.

The excavation has made in simultaneous installation of wood lagging between soldier piles until the level of tie-backs / struts installation, and after the struts installation or stressing of the tie-backs until the top of the rock.

A bridge deck installation has been need on the west entrance to permit complete the shoring below the traffic of Lyon Street.



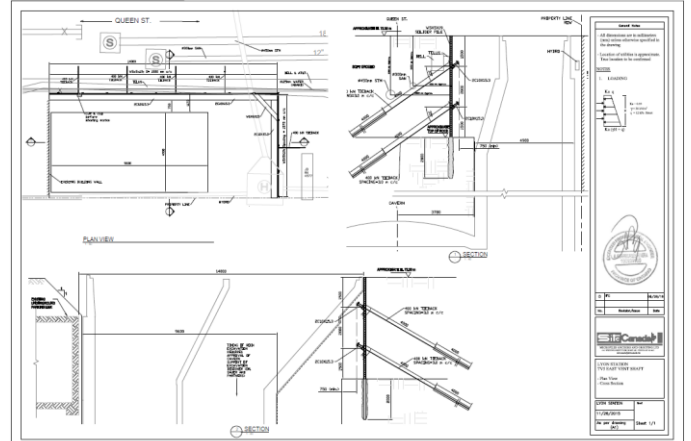
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After the line drilling, blast and rock excavation and removal, the stabilization proceeds until the bottom stage by stage by soil nailing with Rock Bolts, Wire mesh, and shotcrete installation.



After the last stage of excavation, the connection has been made with the Cavern Station.

LYON STATION SHAFTS

The Lyon Station TVS West, TVS East and HVAC Shaft have follow the same Design of the West Entrance Shaft. Soldier Piles and Wood lagging on Soft ground, Rock Bolts, Wire mesh and shotcrete on the Shale Rock.



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RIDEAU STATION

The shoring of Rideau station has been designed with a Micropile wall solution with a layer of shotcrete and wire mesh and two to four lines of tie-backs.

The Micropiles with 200 mm diameter have in the deepest excavation zone a N80 steel casing of 139mm diameter and on the small section a casing of 114mm.



Between each stage of excavation the wire mesh as installed welded to the Micropiles and the shotcrete sprayed closing the gap between the Micropile steel casing.



After the installation and stressing of the tie-backs the cycle has been repeated until the bottom of the excavation in the West side of the shoring.

On the East side the excavation has stopped on the elevation needed to install the umbrella of Micropiles for the future gallery connection between the entrance and the Station.

