

Deerfoot and Bow River Crossings



PROJECT DESCRIPTION

In order to supply adequate electricity to the new South Health Campus Hospital in South Calgary, ENMAX was required to provide a new feeder line from Substation 54. The designed route, for the 7km 14-way duct structure, included the crossing of the Bow River as well as the Deerfoot Trail Highway. This project consisted of the construction of the four trenchless crossings, two at the Bow River and two at Deerfoot Trail, to complete the feeder line. Robert B. Somerville was contracted by ENMAX to complete the site preparation, construction of the crossings, supply and assembly of HDPE conduits, supply of conduit spacers, installation of conduits and spacers in the trenchless boreholes, installation of thermal grout in the trenchless crossings and site remediation. The Deerfoot Trail trenchless crossing was completed by means of Pipejacking/Micro Tunnelling technique through a silty sand ground condition. Two 165m precast concrete liners, with an internal diameter of 1200mm, were installed by a micro tunnel bore machine while 2.5m sections of the concrete liner were pushed in behind the bore machine to complete the tunnel. Seven (7) 150mm and three (3) 100mm DR11 HDPE pipes were bundled using a series of wheeled spider type bore spacers and installed in each tunnel. The 100mm pipes were then used to thermal grout inject the tunnel void. The Bow River crossings were completed by horizontal directional drilling (HDD) technique. Both drill crossings were drilled through rock and required the installation of 30m of 1200mm diameter entry casing through granular subsurface material to reach solid bedrock. Both drills were 228m in length from entry to exit, to a maximum depth of over 20m and to a final bore hole diameter of

Client

ENMAX Power Corporation

Job Number

12203

Work Type

Distribution Powerlines

Location

Alberta

Role

General Contractor

1070mm. Once the drill was complete a bundle of seven (7) 150mm and three (3) 100mm DR11 HDPE pipes were bundled using a series of spider type bore spacers and pulled back through each bore hole. The 100mm pipes were then used to thermal grout inject the bore hole void. A total of over 8000m of DR11 HPDE pipe was butt fused as well as over 650m³ of thermal grout installed to complete all the trenchless crossings under one of Calgary's main highways and most significant fresh water course.

