



GEO-FOUNDATIONS Contractors Inc.

London Street Generating Station



Date: 2006

Technology: Rock Anchors

London Street Generating Station, owned and operated by Peterborough Utilities Inc, is a 1900s era structure on the Ottawa River just upstream of downtown Peterborough. Its spillway bays are divided from one another by 12 piers. In 2006, as part of PUI's ongoing program to upgrade its numerous generating facilities, 24 post-tensioned rock anchors – two for each of the dam's 12 piers – were installed by Geo-Foundations.

The rock anchors – all identical to one another – were 18 metres long, encapsulated, 36 mm diameter, 1225 MPa ultimate stress, solid bar rock anchors constructed and post-tensioned using two-stage grouting. All of the holes, inclined 15° from vertical towards upstream, were consolidation grouted and re-drilled. Down stage grouting – progressive rounds of grouting and re-drilling to advance a hole through insufficiently consolidated (caving) ground – was required at most of the holes located within the three piers located ovetop the original river's outlet channel. Once all the holes were sufficiently treated and ready for anchor installation, the anchors were each installed in one piece by hoisting with a boom truck staged from atop the dam's timber deck.



Rock anchor installation by boom truck crane

Post-tensioning took place between stages of grouting. After the first stage (bond zone) grout cured to sufficient strength, the rock anchor tendons were each tensioned to the test load of 982 kN, then reduced to 876 kN and locked off. Second stage grouting filled the annulus between each rock anchor's tensioned free length and its hole wall.



Rock anchor drilling at Pier 12



London Street Dam's twelve spillway piers