



GEO-FOUNDATIONS Contractors Inc.

Bay Dundas Development



Date: 2004 - 2005

Technology: Micropiles

Opened for business early in 2006, the mixed use Bay Dundas Development in Toronto, which includes a Canadian Tire retail store and the Ryerson School of Business, is supported by a deep foundation system consisting partially of micropiles designed and constructed by Geo-Foundations.

Prior to its closure in 2001, an elevated parking structure occupied a significant portion of the site's footprint. The basement and sub-basement of the former structure were preserved while the superstructure was demolished down to street level to make room for the development's new centrepiece 9-storey tower. Within this preserved below-grade space, there were two options for constructing new deep foundations – caissons drilled to rock, or micropiles. The caisson option posed two sobering challenges to the project's constructors, PCL, that were both eliminated by the eventual selection of micropiles. First, the micropiles were installed with small equipment hoisted into the sub-basement – drilling of caissons would have necessitated significant temporary re-shoring of the basement and ground floor structural slabs to support loading induced by the caisson drilling equipment. Second, the micropiles were started weeks before the elevated parking structure was demolished down to ground floor. Instead of having to wait for demolition to be complete before construction of caissons could begin, PCL was able to achieve completion of new foundations and new framing up to the ground floor slab coincident with completion of demolition above, shaving several weeks off their already aggressive schedule.

Beneath the new tower, 66 micropiles were installed to support new columns and a new elevator core, and to augment a pair of existing caissons. Several static compression load tests were conducted to prove the micropiles' capacity. A later phase of construction at this development also included the installation of 22 micropiles by Geo-Foundations to support new elevators and escalators.



Triple-bar reinforced tension micropiles for the new elevator core foundation



Hoisting the drill into the sub-basement in the midst of tower demolition above



Static compressive load testing in the sub-basement