THE ONE

TORONTO, ONTARIO, CANADA

Located in thriving downtown Toronto, The One, a new multiutility 306 m skyscraper will swagger over the skyline as the tallest building in Canada upon completion. Providing spectacular ambiance and unmatched views, The One will have seven levels of retail and restaurants, a 175-room hotel, and sixty residential floors that culminate with multi-level penthouses.

Subsurface stratigraphy starts with interlayered sand, silt, and clay overlying shale and some limestone. Caissons penetrating into the underlying shale-limestone stratum will support the skyscraper's mega-columns. Fugro Loadtest assisted Clark Construction Management Inc. and Anchor Shoring & Caissons Limited by testing the constructed 43-meter, 1.5-meter diameter, 1.4-meter diameter rock socket, caisson.

The load test goal was to provide side shear and unit end bearing values for the rock socket. Planning to challenge the rock end bearing capacity an O-Cell® assembly was placed at the bottom of the 6.8-meter rock socket with a reduced bearing area (1.07 m diameter) to concentrate the load in a smaller area and prove higher end bearing values. Five strain gages levels were installed above the O-Cell assembly in the rock socket and higher to measure the mobilized side resistance distribution.

The O-Cell test was conducted eleven days after concrete placement. Structuring the test in this manner allowed Fugro Loadtest to prove that the unit end bearing was 3 times that used in the initial design. This design calibration by testing allowed a significant foundation optimization providing substantial foundation cost savings.

PROJECT INFORMATION

- Owner: Mizrahi Developments
- Architect: Core Architects, Fosters & Partners
- General Contractor: Clark Construction Management Inc.
- Geotechnical Consultant: Terraprobe Consulting Engineers
- Drilling Contractor: Anchor Shoring & Caissons Ltd.
- Project Cost: $1 billion (estimated)
- Completion Date: December 2022

SERVICES PROVIDED

- Single level punch-out O-Cell test
- Assembling Instrumentation
- Installation of rebar cage into shaft
- Analysis and reporting of results

info@loadtest.com
LOADTEST.COM