9 THINGS TO KNOW ABOUT...

BRIDGE TOWERS AND DRILLED SHAFT INSTALLATION

Construction of towers that will support the Gordie Howe International Bridge is currently underway at the Canadian and US project sites. As with any large infrastructure project, an important component is building a strong foundation, especially one for the longest main span of any cable-stayed bridge in North America. The first step is the installation of drilled shafts that will support the bridge towers.

1 BRIDGE TOWERS

There will be two bridge towers built on land - one in Canada and one in the US. The towers are built on piers. Each tower is supported by 12 drilled shafts, six on each leg.

2 SUPPORT

The four bridge piers are critical in supporting the two bridge towers that will hold up the main span of the Gordie Howe International Bridge. The bridge towers will be 220 metres/750 feet tall and will rival the height of the tallest building of the GM Renaissance Center.

3 STRONG FOUNDATIONS

Each drilled shaft starts with the installation of a caisson. A caisson is a large watertight chamber that allows water to be pumped out so the work environment stays dry. These caissons are 3 metres/10 feet in diameter, and 37 metres/122 feet tall., and are drilled into the ground to a depth of 29.5 metres/97 feet. That's equivalent to a nine-story building.

4 REBAR CAGE

A rebar cage is a group of steel bars used as a tension device in reinforced concrete structures to strengthen and aid the concrete under tension. These cages are 41 metres/134 feet in height and weigh 75,274 kg/ 165,950 lbs.

5 CONCRETE FILL

Once the rebar cages are inserted into the caissons, they are filled with concrete. The rebar cage and settling of the concrete is what allows the shafts to support the overall structure. In total, one caisson will contain approximately 262,000 litres/69,000 gallons of concrete fill.

6 EXTENSIVE TESTING

Extensive testing is undertaken before the construction of the drilled shafts takes place for the bridge pier. A test shaft is created to allow the construction team to verify the design for the final version of the shafts that will be drilled. In addition, it assists in verifying the techniques that will be used to produce the drilled shafts that will form the foundation.

7 INSTALLATION TIME

The amount of time to finish the installation on one drilled shaft is approximately four days.

8 CURRENT STATUS

To date, there are nine of 12 drilled shafts installed on the Canadian bridge site, with completion on track for the end of 2019. Similar work is starting in the US.

9 TOTAL SUPPORTED WEIGHT

Upon completion of the Gordie Howe International Bridge, the bridge tower footings will support a total bridge tower weight of 151,060 kiloNewton (kN) (AASHTO).

PONT INTERNATIONAL GORDIE HOWE INTERNATIONAL BRIDGE