**Case Study**

**Chance® Helical Piles Supporting Concrete Culvert – Barrie, ON**  
April 2009

**The Problem:**
- City of Barrie had a program to replace an existing culvert due to age and the requirement for increased capacity
- Soil profile consisted of a peat layer with fill and loose sand changing to harder sand and silt layers with depth
- Site characterized by a high water table which limited use of caissons
- Older buildings in close proximity to construction area thus vibration free installation required

**The Solution:**
- Chance Helical Piles were chosen for the project based on several reasons:
  - Installation not affected by high water table
  - No vibration during installation
  - More cost effective solution than other technologies
- Helical Piles were battered 5 degrees to the outside to ensure load zones under helical plates were greater than 3 diameters apart

**Product Used:** (378) Chance® Helical Pulldown Micropiles® with 150 mm (6") diameter grout column

**Length:** 5.0 to 11.0 m (15 to 35 ft)

**Loads:** 335 KN (75 kips) allowable load in compression

**Finishing:** All helical piers were furnished with a 200 mm square x 25 mm (8”x8”x1”) steel plate which was cast into the grade beam

**Load Tests:** (19) load tests completed throughout the length of the project

**Structural Engineer:** SWS Engineering Inc.
**Soil Investigation Engineer:** Trow Associates Inc.
**Inspection Engineer:** Trow Associates Inc.
**Chance® Helical Pile Installer:** EBS Engineering and Construction Limited

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*Installed piers cast in grade beam*

*Load test being completed on a production pier*

*Grade beam forming before reinforcing steel added*

*Overview of working area and culvert structure*