# CASE STUDY

EBS ENGINEERING & CONSTRUCTION LIMITED

## *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


*Load test being completed on a production pier*

*Installed piers cast in grade beam*

***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

*Grade beam forming before reinforcing steel added*

***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

*Overview of working area and culvert structure*

*EBS Engineering and Construction Limited*
*320 Woolwich Street South*
*Breslau, Ontario*
*N0B 1M0*

*Telephone: 519-648-3613*
*Fax: 519-648-2526*
*Web: www.ebseng.com*
*E-mail: info@ebseng.com*

THE C3 GROUP