

CASE STUDY

Portland, TN



CANTSINK™
— SUPPORTING INNOVATION —



SITUATION

The construction of a Zaxby's Restaurant in Portland, TN required a deep foundation system for unstable soils. The contractor, Dimension Construction, working with an engineering plan designed by the Foundation Firm, enlisted Cantsink to manufacture and install the helical piles to serve as the foundation system for new construction.

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SCOPE OF WORK

A new-construction Zaxby's restaurant, located in Portland, Tennessee, was to be built on very soft soils incapable of supporting a conventional shallow foundation. Dimension Construction, Inc. served as general contractor. Cantsink Helical Piles were selected to serve as a deep foundation system for the new building, transferring structural loads off the weak surface soils and onto deeper, competent bearing strata.

ANCHOR SYSTEM

A total of 84 helical piles were installed across two pile configurations: 2.5" schedule 40 piles, 7 feet in length with a triple 10"/12"/14" galvanized helix, and 3.00" schedule 40 piles with the same triple 10"/12"/14" galvanized helix configuration. The 2.5" piles were installed to a depth of 28 feet, while the 3.00" piles were installed to a depth of 21 feet, with each pile advanced to competent bearing soils capable of supporting the design loads.

Two helical pile configurations were specified for this project, rated as follows:

2.50-40L07-10-12-14 — Compression capacity: 27 kips | Tension capacity: 18 kips | Maximum installation torque: 7,000 ft-lbs

3.00-40L07-10-12-14 — Compression capacity: 24 kips | Tension capacity: 24 kips | Maximum installation torque: 11,500 ft-lbs

The helical pier design loads (Service ASD) were HP1 = 27 kips and HP2 = 35 kips. Installation was performed using two torque motors matched to each pile condition: an Eskridge 5016-22F55 for HP1, and a Prodig X12K5 for HP2.

RESULT

All 84 helical piles were installed to their specified depths — 28 feet for the 2.5" piles and 21 feet for the 3.00" piles — with each pile driven to the design torque required to meet its rated load capacity. The completed pile foundation provided Dimension Construction with a reliable, deep-bearing foundation system capable of supporting the new Zaxby's building despite the very soft native soils at the Portland, Tennessee site.