

# CHANCE™ HELICAL PULLDOWN® MICROPILES REPORT

## A CASE HISTORY

Chance Civil Construction Distributor:  
Intech Anchoring Systems, Livonia, MI

**Project:** RPS Warehouse  
Ann Arbor, MI

**Engineer:** Carl Bobish Associates  
Rochester Hills, MI

**Contractor:** Calculus Construction  
Farmington Hills, MI

### The Problem:

This warehouse had been built on a deep bed of peat. The perimeter foundation and all columns were on pilings. The 8" -thick reinforced floor slab was placed on grade with no additional support. Over time, the floor had sunk as much as 4 ft. in a 10,000-sq.-ft. area of the warehouse, whereas the columns and foundation had remained stable.

The soil was peat and soft clays, with N values ranging as low as 1 to a depth of 60 ft.

Over the course of three years, the owner had conferred with several engineers and contractors in search of a cost-effective remedy. One of these engineers referred the owner to Calculus Construction.

### The Solution:

Calculus Construction analyzed the situation and proposed replacing the floor with a post-tensioned floor over Chance HELICAL PULLDOWN® Micropiles. The post-tensioned floor would eliminate the need for grade beams, require fewer piles and permit the floor to be thinner while providing the same capacities as a traditional reinforced floor, but at less cost and reduced weight.

When the owner agreed to this approach, Calculus engaged Carl Bobish Associates to execute the



structural floor design and required pile layout and capacities. Calculus selected the HELICAL PULLDOWN® Micropile because it was the most cost-effective solution providing the required 100-kip-per-pile ultimate capacity.

The HELICAL PULLDOWN® Micropile size and configuration used was the SS175 (1 3/4" square shaft) with 8", 10" and 12" diameter helices installed 60 ft.

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A.B. Chance, a Division of Hubbell Power Systems, Inc.  
210 N. Allen St.  
Centralia, MO 65240  
Phone: 573-682-8414  
Fax: 573-682-8660

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deep. Each pile included a 6" diameter grout column around the shaft above the helices.

Because the floor was to be supported by the piles and post-tensioned tendons, Calculus elected to use foam

blocks in lieu of sand backfill. Lighter and easier to install around the piles without risk of damage to the piles with a dozer, this added no negative skin friction and no pressure on the perimeter foundation.

