

WATER PURIFICATION PLANT TANK ANCHORING PROJECT

Helical anchors, installed by Innovative Piering, were used to combat buoyancy uplift for an underground tank at a water purification plant in Fort Wayne, Indiana.

Project: FTW #10937

General Contractor: Ottenweller Contracting, LLC

Architect/Structural Engineer: Arcadis U.S., Inc.

Geotechnical Engineer: Alt & Witzig Engineering, Inc.

Location: Ft. Wayne, Indiana

The City of Fort Wayne was improving their water purification plant. This included retrofitting an existing tank with aeration equipment. Additionally, as the existing tank resides in a flood plain, there was significant risk of the tank becoming buoyant and floating.

The underground concrete tank was 17' deep. This presented some unique challenges for operations. Safety planning and management were paramount to the project success. Ladders were used for personnel entry & exit. All tools, heavy equipment and materials had to be lowered into the tank via a 50T crane.

The general contractor, Ottenweller Contracting, LLC, had to core drill 90 holes through the 2' thick concrete floor of the tank. Once all of the concrete cores were removed from the tank, Innovative Piering was able to begin the helical piercing operations.

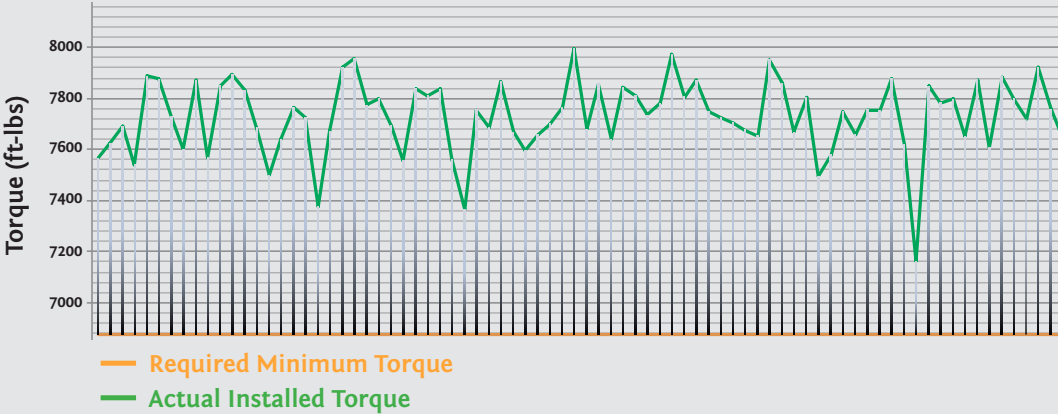


The heavy equipment and helical pier materials were lowered into the tank. Innovative Piering began installing the 90 helical anchors. The load requirements were 50-kip Ultimate, in tension. The soils were extremely poor below the tank. In order to achieve the required tension/pull-out resistance, Innovative Piering utilized MacLean Power Systems 2.875" helical anchors, each installed to a minimum depth of 35'. The helical configuration for each pile included twin 14"/14" helical extensions to be able to provide the required uplift resistance. It took approximately 7 full working days to install the 90 helical anchors.

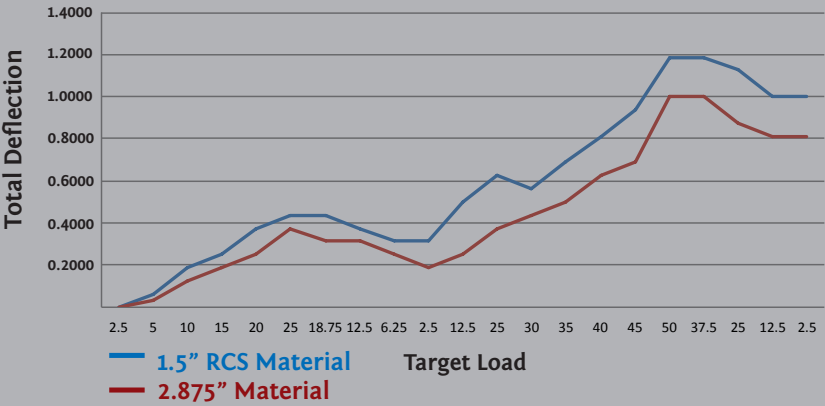


Slab Piers - Installation Torque

10 piles were beam tested during this project. This included one sacrificial, pre-production pile that was tested to 200% of the design load, or 50-kip Ultimate. This pile test reported 13/16" deflection, which was satisfactory to the engineered specs. Innovative Piering also performed 9 production pile beam tests, which were tested to 100% design load, or 25-kip. All of which passed the requirements with only 3/8" deflection or less.



Beam Load Test



VALUE:

Throughout the project, Innovative Piering utilized a torque monitoring computer. This specialty computer gives Innovative Piering the ability to produce a spreadsheet that displays the time, date, pile name/number, depth, torque and other pertinent info. This is a valuable tool, as it prevents mistakes and provides a real time deliverable that can be electronically distributed within 24 hours.

