



Wirth Lake Boardwalk Project in Minnesota - Most Piles Installed from Floating Barge. Work Site Takes a Direct Hit from a Tornado.

May - August, 2011



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Project Name & Location:	Wirth Lake Boardwalk - Near Minneapolis
Project Date:	May - August, 2011
Project Type:	286 Helical Piles with H Style Caps for Above Grade Lateral Support
Helical Pile Installation Contractor:	Lipe Brothers Construction - Duluth, MN
Geotechnical Engineers:	Braun Interec
Project Design Engineers:	Magnum Geo-Solutions, Fort Collins, CO
Helical Piles Specifications:	(286) 3.0" dia, Magnum 325B, with 8", 10" and 12" Helicies, 6 KIPS Compression Loads, Galvanized
Soils & Embedment Depth:	Sand Soils; Blow Counts Ranged in the 8 b.p.f. range; 60 ft. Average Embedment
Project Timeline:	20 Weeks Including Delays from Tornado
Helical Pile Manufacturer:	Magnum Piering, Inc., Cincinnati, OH

Project Overview

This project involved installing helical piles and caps for two boardwalks over and around Wirth Lake near Minneapolis, MN. The project consisted of two phases. Phase one included the installation of helical piles over water working from a barge. Phase two included the installation of helical piles in an extremely wet area of the spillway feeding the lake. Installation crews hit an underground spring during phase two and had to grout fill in and around some of the helical piles in that section of the job site. Load tests were conducted in each phase of the project. Unfortunately a tornado came through the job site and passed directly over where the barges and boats were moored one weekend. The tornado launched both of the pontoon boats over the four lane highway adjacent to the job site. It tore the sunroof out of the excavator, and blew away the portable toilet and most of the small tools away that were kept on the barge.



A floating barge was used to install helical piles for the section of the boardwalk that is over water.

The section that was not over water was also challenging due to the very wet soil conditions.

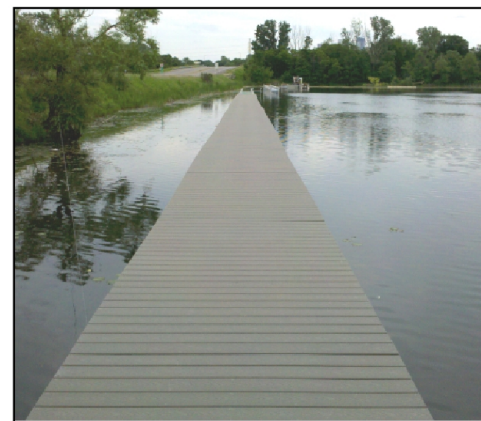


An H Bracket Cap design was used to provide the necessary lateral stability for the boardwalk. All piles and caps were hot-dipped galvanized for maximum corrosion protection.

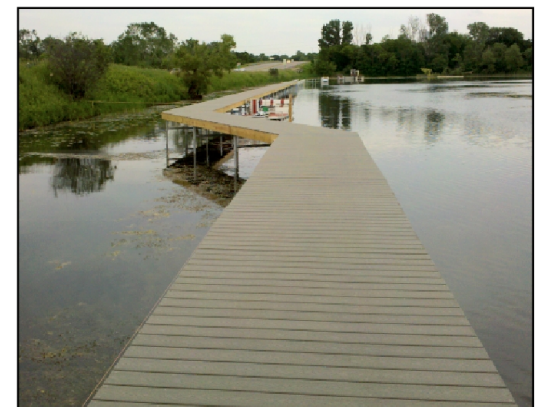


Load tests were required for each phase of the project.

The boardwalk is six feet wide and is constructed of green treated lumber, Trex decking and ornamental iron railings.



During construction, a tornado passed directly over the job site one weekend. The boats and barges were moored, but the tornado tore them loose from the moorings and blew them across the adjacent roadway.



Significant damage resulted, and many small tools were blown away and never found.

