



## Techno Metal Post Dealer Installs (31) Helical Piles for a New Residential Retaining Wall Project on a Difficult Site in Des Moines, Iowa

Summer, 2017



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<b>Project Name &amp; Location:</b>	Residential Retaining Wall - Des Moines, Iowa
<b>Project Date:</b>	Summer 2017
<b>Project Type:</b>	Residential Retaining Wall
<b>Helical Pile Installation Contractor:</b>	Techno Metal Post of Central Iowa
<b>Helical Piles Specifications:</b>	(16) Model P3 3.5" (88.9 mm) Round Shaft Piles with 10", 12" Helix Bearing Plates; (15) Model P5 5.563" (141.3 mm) Round Shaft Piles with 12" Helix Bearing Plates; Non-Galvanized
<b>Soils &amp; Installation Depths:</b>	Black Dirt and Clay Over Shale at 14'; Average Installation Depth of 14 ft. (4.27 m)
<b>Installation Timeline:</b>	(1) Week
<b>Helical Pile Manufacturer:</b>	Techno Metal Post - Thetford Mines, QC Canada

### Project Description

When the Techno Metal Post dealer in Iowa, Corey DePenning, was approached by a customer for a retaining wall, he remembered seeing an original stained wood and steel retaining wall project carried out by another Techno Metal Post dealer near Toronto, Canada. He submitted the idea to the customer, and without further ado the design was accepted. Retaining walls of this type are more commonly seen in commercial projects, but helical piles can be used at any size scale, which makes a residential

retaining wall on helical piles an effective and durable solution. The wall, being 100' long and 6' to 10' tall, depending on the section, turned out to be a challenge because of the time frame allotted for this job and the difficult area to work in, but very well worth it seeing the great looking end results.



The WF Beams, Channels, Plates, and Techno Metal Post helical products had to be 50 KSI minimum and 10-16 kips was

required for the tie-back. The project was supervised by a certified engineer from the state of Iowa who recommended the use of P5's (5.563" x 0.258" O.D shaft) with 12" helix for the vertical "Soldier" piles, every 6', as well as P3's (3.5" x 0.216" O.D shaft) with dual 10-12" helix, installed at a 15-degree angle for the tie backs. The design was based upon SM-SC-ML type backfill with a prescriptive 85 PCF lateral earth pressure per ASCE 7 Table 3.2-1. The piles were driven by the EM-1 machine, in black dirt, clay and even shale at 14' below ground.

