



200 Feet of Sanitary Sewer Pipe Supported On ECP Helical Torque Anchors™ Canton, Ohio



The soil bank stabilized with sheet piles and tieback anchors

The stream bank restoration project required the installation of 150 feet of PZ 27 sheet piling with an 8x8x9/16 inch whaler placed at the top of the sheet piling. 24 ECP Torque Anchor™ tiebacks were installed to retain the top of the sheet piling. Connection to the whaler was by a transition and 1-3/4 inch continuous threaded bar, washer and nut. The tieback configuration consisted of a seven foot length of 1-3/4 inch solid square steel shaft with three helical plates attached to the bottom. The helical plate design consisted of an 8 inch diameter flight with a spiral cut leading edge, a 10 inch and a 12 inch diameter plate. Extension sections were attached to the helical lead to reach an average length of 66 feet where the final shaft torsion of 7,500 ft-lb was achieved.

Replacing 200 feet of six foot diameter sanitary sewer line required the general contractor, Lockhart Concrete to redirect the sewage during pipeline construction. The new sanitary sewer line was designed to rest in saddles supported by ECP Torque Anchor™ tubular shaft helical piles. The project required 54 piles to support 23 concrete saddles along the new pipeline along with two structures with access holes for maintenance.

The City of Canton, Ohio needed to replace a six foot diameter sanitary sewer line that was failing as a result of lateral movement caused by bank erosion of the Tuscarawas River along with settlement due to insufficient support from the soft clay soil underlying the pipeline.

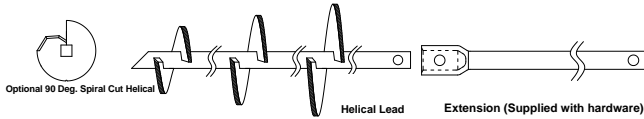
The original plan was to stabilize the bank with soil nails, but the engineers at Trimmerman Geotechnical determined that the soil conditions would not permit stabilization by this method. The engineer along with Midwest Foundation Tech provided an alternate solution for embankment stabilization with a plan to install sheet piling along with helical tieback anchors.



A worker applies tension to the tieback anchor at the top of the sheet pile.



This is a view of the finished sheet piling wall used to stabilize the embankment.



This shows typical Torque Anchor design along with a detail of a spiral cut leading edge specified on the first plate.

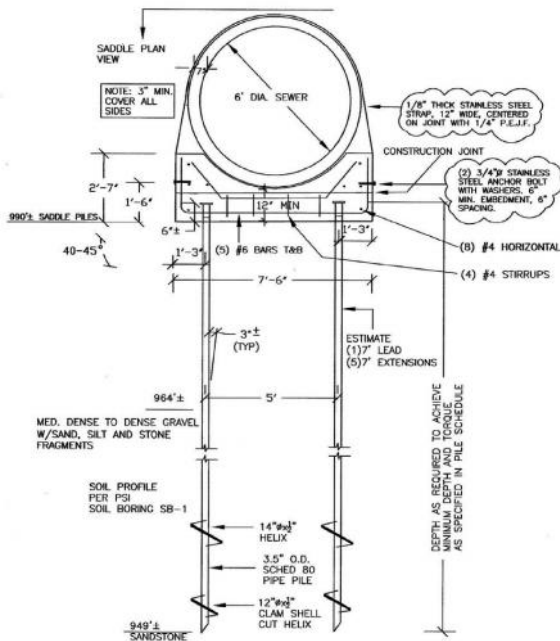


A tubular helical pile is being installed for pipe support with a Bobcat mini-excavator and a 12,000 ft-lb gear motor.

The helical pile configuration for pipeline support was a seven foot length of 3-1/2 inch diameter tubular steel shaft with two helical plates attached to the bottom. The helical plate design consisted of a 12 inch diameter flight with a spiral cut leading edge followed by a 14 inch diameter plate. Extension sections were attached to the lead shaft to reach an average depth of 40 feet. The final shaft torsion of 9,500 ft-lb was reached before terminating the pile installation. The machine operator was unable to see the workers in the excavation, which made the pile installation a challenge.



This is a view of the pipeline before backfilling. Notice the 12 inch wide stainless steel straps.



Earth Contact Products, LLC
 ECP Helical Torque Anchors™
 “Designed and Engineered to Perform”

Project Summary	
Project:	Installation of 200 feet of sanitary sewer line.
Geotech. Engineer	Tinnerman Geotechnical Group, Akron OH www.gpdgroup.com
General Contractor	Lockhart Concrete Co. Akron, OH
Installing Contractor	Midwest Foundation Technologies, Inc. Massillon, OH www.midwestfoundationtech.com)
Tieback Products Installed:	ECP HTAF-175-84 8c-10-12 Torque Anchors™ 1-3/4 Solid Sq. Shaft – 8” spiral cut plate, 10” & 12” Diameter Plates ECP TAT-175-HD Transition and Threaded Bar
Number of Placements:	24
Average installed length:	66 ft
Installation Torque:	7,500 ft-lb
Ultimate Capacity:	75,000 lb
Helical Pile Products Installed:	ECP HTAF-350-84 12c-14 Torque Anchors™ 3-1/2” Diameter Tubular Shaft Pile – 12” spiral cut plate & 14” Diameter Plate ECP TAB-350 Tension Pile Cap – 8x8x3/4”
Number of Placements:	54
Average Depth:	40 ft
Installation Torque:	9,500 ft-lb
Ultimate Capacity:	76,000 lb