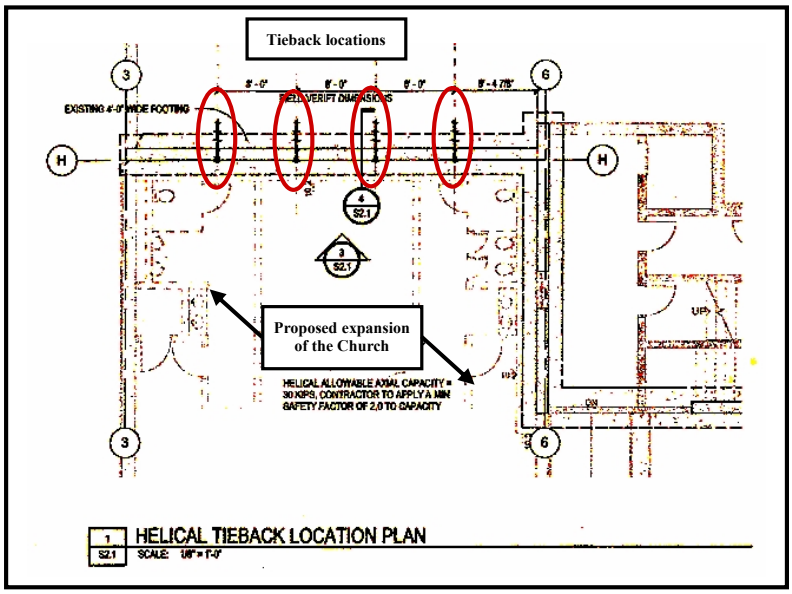
EppConcrete

WE FIX BASEMENTS

Tieback Anchors Support Wall During Church Expansion

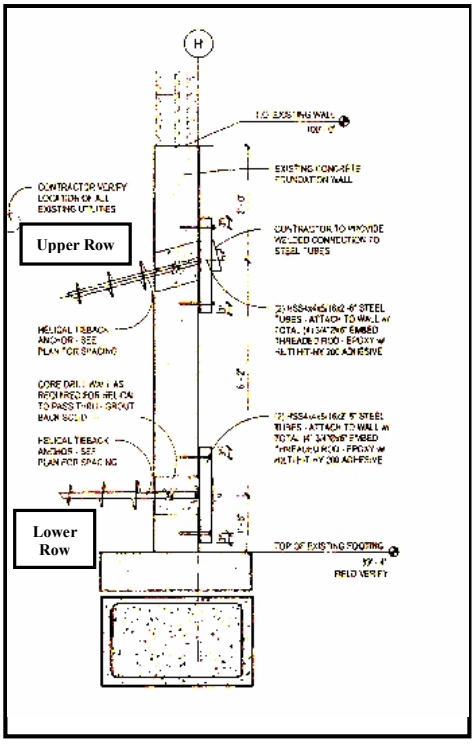
Lincoln, NE



ECP Torque Anchors™ were used to stabilize an existing 13 foot tall foundation wall during excavation for an addition to the church. The engineer calculated that each Torque Anchor™ wall placement required to support 30,000 pounds lateral force. A factor of safety of two was specified. Calculations determined that the concrete wall would be able to support a span of eight feet between helical tieback anchors.

The configuration specified was three eight inch diameter helical plates attached to a 1-3/4 inch solid square lead shaft measuring 7 feet long. The design called for two rows of four tieback anchors. The first row of anchors was specified at three feet from the top of the stem wall to be installed with a 15^0 downward angle. The second row of anchors was to be installed horizontally at 11-1/2 feet from the top of the wall.

The first order of business was to drill the concrete wall to allow for installation of the tieback anchors. Approximately four feet of foundation wall was excavated to allow access to drill holes through the wall. Each ECP Torque Anchor™ was installed to a specified shaft torsion that provided an ultimate capacity of 60,000 pounds. The length of shaft required from the face of the wall ranged from 28 to 35 feet



Once all tieback anchors in the upper row were installed, a transition from the square anchor shaft to a continuously threaded bar was attached to each tieback anchor. Then each placement received a galvanized steel wall plate, flat washer and nut. Each anchor was loaded to 30,000 pounds to meet the engineer's design load specifications.

Following the installation of the first row of anchors, the general contractor excavated the soil to the depth required for construction of the new footings. The weather was a factor and additional time was required for the general

contractor to finish excavations before Epp Concrete could install the lower row anchors. The project was completed in approximately two weeks.

This job was finished within budget. All of the ECP Torque Anchor™ helical tieback anchors were installed to the engineer's specifications, inspected and approved.

Project Summary		
Project:	**Stem Wall Support and Stabilization**	
Engineer:	**Jason L. Suelter, PE** **Clark Architectural Collabrative, Lincoln, NE**	
Installer:	**Epp Concrete – Lincoln, NE** *www.eppconcrete.com*	
Product Installed:	**ECP TAF-175-84 08-08-08 Torque Anchor™** **ECP TAE-175 Extensions**	
Number of Placements: 8		**Install Torque: 6,144 to 6,400 ft-lb**
Ultimate Capacity: 60,000 lb.		**Design Load: 30,000 lb.**
Installed Length: 28 – 35 ft.		**Factor of Safety: 2.0 : 1**

Photographs:

1. A hydraulic gear motor was mounted to the front of a skid steer machine which provided the necessary shaft torsion to advance and seat the anchors deep into the soil. This machine also installed the anchors at the specified 15^0 downward angle required by the engineer.

2. The upper row of helical anchors have been installed. The core drilled round holes drilled through the concrete wall were then enlarged to allow for the anchor to be installed with the 15^0 downward angle. Notice the all-thread bars extending from the wall openings. These bars will connect to the wall plates shown in photo 3.

3. The installation of the upper row of Torque Anchor™ tiebacks is shown completed. All anchors have a 30,000 pound design load applied. Now further excavation of the wall may commence.

4. The completed ECP Torque Anchor™ tieback installation is shown here. The lower anchors were located at 18 inches above the spread footing. The soil was not excavated to finished elevation by the general contractor until after all tieback anchors were loaded to design specifications.

ECP Torque Anchors™

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