



PROJECT CASE STUDY

Location: Ligonier, IN
Engineering & General Contractor:
Structural Components – Boulder, CO
Completed: August 2013

Description

Existing communications tower with total height of 350' was undergoing modification to accommodate additional loading and sub-horizontal install. During the initial engineering phase, the I-beam post holding seven guy wires on the Northeast side of the tower and subsurface concrete foundation was found as insufficient for the additional load requirements.

Requirements & Challenges

Since the existing I-Beam post was encased in a concrete block footing, the design specified two helical piers installed at a 42° batter in a tension application on each side of the existing concrete footing. The anchors would be terminated below grade with a retention plate encased in a 7.6'x3'x4' concrete footing, with rebar cage pinned into the existing footing. The installation of the anchors required a local

wind speeds of less than 25mph, and with minimal disturbance to the existing footing during the excavation process to prevent unstable or lessened guy wire tension.

Solution

The two helical piers were designed for an ultimate capacity of 85kips each. 3D Structural excavated a narrow trench on each side of the existing footing parallel to the guy wire path. The excavation included a small portion of the adjacent asphalt parking lot. The rebar cage (#6 bar) was constructed with lateral bar embedment of 12" into the existing footing. Approximately 7CY of concrete at 4,000psi was added to finish the anchor reinforcement.

Results

All modifications were able to continue on schedule with successful installation of Helical reinforcement.

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