

## Innovative foundation pier is win-win solution

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LOS ANGELES – Neville Brothers Construction and Advanced Support Technology recently created a new method of installing a deep foundation system. They are assisting in development of the largest residential and commercial community ever proposed in this country. The project site is a marsh in the Los Angeles basin. The upper layer of organic soil on the site was deemed not suitable to support structures.

Initially, developers chose the conventional method of concrete driven piles to provide a foundation system. However, the noise and vibration of driving the piles were more disruptive to the site's surrounding neighbors and habitat than was acceptable. So Steven Neville, partner, Neville Brothers Construction, Los Angeles, began researching other deep foundation methods with Advanced Support Technology, Canyon Country, California. Advanced Support Technology is the local A. B. Chance Helical Anchor distributor.

They needed a method as effective as concrete driven piles without its extremely high levels of noise and vibration. The solution needed to drill 53 feet deep to the hard rock cobble capable of supporting buildings. This meant going through the construction site's 40-foot top layer of insubstantial soil then through 10 feet of hard packed sand.

Their innovative solution was to screw steel piers into the soil and fill them with concrete. Screwing the piers into the soil is similar to installing a typical helical anchor. An Eskridge D600 double planetary digger was attached to a Caterpillar 345B excavator. Using the excavator's 5,000 PSI and 90 GPM flow, the D600 digger provides the 50,000 foot-pounds of torque required to screw the hollow, 12 inch diameter, steel piers to a depth of 53 feet.

“Exhaustive testing of the new pile system indicated that loads of 500,000 pounds plus

could be obtained with little or no vibration or noise,” said Ken Drake, engineer, Advanced Support Technology.

“Additional problems associated with the installation of deep foundations in marshland areas were also overcome with this new method,” he said. “We discovered that when a pipe pile is screwed into the ground, the surrounding soils become super compressed. This tends to seal off any avenue for the water or gas to migrate.

“Additionally, this new pile system required only 15-20 minutes of actual machine time per pier,” said Drake. “When one compares the screw pile installed with the Eskridge

D600 drive head to a conventional concrete driven pile which takes approximately 45 minutes to an hour to install using a diesel hammer, the advantages are obvious.”

While the new screw pile has yet to be used in a permanent structure, Neville Construction expects to receive their first building permit to construct a new multi-story building shortly.

“Ease of installation, lack of measurable vibration, and verifiable capacities based upon applied installation torque make this new screw pipe pile installed with the Eskridge D600 drive head the future in deep foundations,” said Drake.

### ***Equipment:***

CAT 345B excavator

### ***Eskridge Product:***

D600 anchor drive

### ***Torque Rating:***

50,000 ft-lb



**Two sections of 26 foot pipe are being welded together at the job site in the Los Angeles basin. This is the first time that concrete filled steel piers have been screwed into the ground to provide a deep foundation system.**