

Case Study

6' Diameter Shafts/Statnamic Testing

Date: July 2007

Owner: Washington State Department of Transportation

Job: SR 20 Fredonia Vicinity Test Shafts

Location: Fredonia, Washington

General Contractor: Pile Contractors, Inc.

This project was managed by the Washington State Department of Transportation and funded by the Federal Highway Administration to establish design parameters for bridge foundation designs in the Pacific Northwest.

Pile Contractors installed two six foot diameter shafts 53 feet deep in soft ground alongside State Route 20 near Anacortes, Washington. One shaft was installed with traditional rebar and unimproved base. The second shaft was installed with a steel plate and concrete ring attached to the bottom of the rebar cage to allow post grouting and tip improvement. In addition, the shafts were formed using a special self consolidating concrete mix supplied by Concrete NorWest.

The shafts were cased full length using an APE 200 vibro hammer, and drilled with a Sunward 20/70 drill rig. The reinforcing steel was set with a Manitowoc M80W service crane. Post grouting was performed by Northwest Cascade Inc.



Load tests were performed by Applied Foundation Testing using the Statnamic testing methods to over 2000 tons per shaft. The standard pile was tested twice in one day to verify pile mobilization and the improved base pile was tested once to compare data.

WSDOT and local engineers witnessed the tests and resultant data indicated that the shafts were capable of supporting greater loads than previously calculated.

