

Maydon Wharf Bunt Expansion

Durban, South Africa

Expansion of existing site bund storage tanks for FFS Tanks Terminals within the Port of Durban.



The project

This comprised of the installation of 3 No 2620cu.m bulk liquid storage tank bases. Keller designed and installed 4 No piles per tank - a total of 12 No. 1 180mm diameter temporary cased auger piles, to an average depth of 33.4m, with a design working load of 8500KN per pile.

The challenge

Competent rock level varied from pile to pile, as a result we had to oscillate temporary casing to different depths.

Back pressure at the toe of the casing due to highly weathered rock.

Concrete workability/initial set time not sufficient for the piling/tremie concrete operations.

The solution

Casing lengths were cut into shorter lengths of 1m, and 2m such that the variance on the depth of the oscillated temporary casing was accounted for.

Team had to oscillate temporary casing to the top of hard rock, as medium hard rock was posing risk of a soft bottom and/or back pressure at the toe of the pile.

Retardant agent was added to the mix without compromising the concrete characteristics.

Dynamic load test was conducted, and proof load/mobilized load was measured to be 18000kN.

No anomalies found on piles with presence of water (water table was 1m below ground level).

Project facts

Owner(s)

FFS Refiners (Pty)Ltd

Keller business unit(s)

Keller Geotechnics SA Pty (Ltd) - Johannesburg Branch

Main contractor(s)

Keller Geotechnics SA Pty (Ltd)

Solutions

Heavy foundations

Markets

Power

Techniques

Bored piles - cased

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