

Galana Tanks

Matola, Mozambique

Construction of several storage tanks for the Galana Bulk Fuel Storage facility.



The project

This project entailed the design and construction of piled foundations for an oil storage terminal in Matola. This terminal is used to store and channel Galana's oil products for both the local market and for re-export to the neighbouring hinterland countries.

The Galana tanks site is located in Matola, Mozambique, near the TCM (Matola Coal Terminal) and this development comprised the construction of five storage tanks for the Galana bulk fuel storage facility, which included 2 x 25m Ø gasoil tanks, 2 x 25m Ø mogas tanks and 1 x 21m Ø jet A1 tank.

The challenge

Due to limited geotechnical information, we undertook a comprehensive soils investigation, of 6 boreholes (with standard penetration test - SPT), 6 dynamic penetration super heavy - DPSH tests and 1 trial pit. The geotechnical report was compiled by an external company.

The soil profile generally consisted of medium dense to very dense clayey fine sand with calcretized nodules to depths of between 6m and 9mbgl followed by SPT refusal on very soft to soft rock sandstone.

The solution

Considering the shallow sandstone rock found on site, 610mm diameter Franki DCIS enlarged-base piles with a compressive capacity of 2200k were proposed. The DCIS (driven cast in-situ piles) were predrilled to a predetermined depth, and driven to refusal on the sandstone rock, at depths between 5.5m and 7.5m, where after the enlarged-base was constructed.

One test pile was installed and a static load test was done to 1.5 times the working load. The pile performed very well with settlement of less than 5mm at working load.

The integrity of some piles was also tested using the time-based / reflectogram method and the piles were shown to have no structural defects in the concrete shaft.

Project facts

Owner(s)

Galana

Solutions

Heavy foundations

Keller business unit(s)

Keller Mozambique

Markets

Industrial

Main contractor(s)

Steval Engineering

Techniques

Franki (DCIS) piles

Engineer(s)

Neda Engineering Group

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