

Marine Work

Piles

MOMA SANDS JETTY MOZAMBIQUE



Construction of a 405m long jetty, 16m above sea level



Value of "Leap frogging" compared to working on barges in a rising sea

As part of the Moma Heavy Mineral Sands development in Mozambique, Dura Solétanche Bachy was awarded with Group Five the contract for works involving maritime piling and the construction of a jetty stretching 405 m out to sea at an approximate height of 16 m above sea level.

Design

The alternative solution selected involved the installation of 95 no piles 610mm diameter metal piles for the jetty and 1,200mm diameter piles for the

THE CLIENT:	KENMARE RESOURCES PLC
THE CONSULTING ENGINEERS:	MULTIPLEX BATEMAN JOINT VENTURE
THE MAIN CONTRACTOR:	GROUP FIVE LTD
SPECIALIST FOUNDATIONS SUBCONTRACTOR:	DURA SOLÉTANCHE BACHY (PTY) LTD
DURATION OF WORKS:	SEPTEMBER 2005 - JUNE 2006

MAIN QUANTITIES:

- 405m long jetty
- 95 x 610mm Ø piles
- 6 x 1,200mm Ø berthing and mooring piles
- 3,500m vibro-drilled length



Pile transport in progress

berth and moorings. The jetty supports were put in place from the banks using the “leap frogging” progress method: the piling rig moves forward as the piles are installed.

Construction

The steel pontoon sections were assembled on the site, the tubes were transported from Johannesburg to Moma in 12m sections and then the pile tubes butted welded together to produce 36m long tubes.

Construction works commenced on the bank with the assembly of the RB61 crane and the main carriage “Boggie” specially designed and constructed by Dura Solétanche Bachy to run on rails along the jetty for the purpose of transporting the crane, the pile centering frame that allowed the piles to be installed as per specifications, the PTC50 vibratory driver and its power pack.

The 36 m long piles were collected from the welding area by an RB38 crane and transported the length of the jetty



Driving guide for a couple of piles

by two transport carriages up to the main carriage of the positioning crane. The piles were then vibration driven to set in one single length down to their final depth under the action of a 6 tonne hammer. Once the piles had been driven in pairs (“bent”) a bolted steel section of pontoon was added to act as a walkway. Every 48 hours, the carriage and the crane advanced by 9m to the next “bent” and the procedure was repeated up to “bent” N° 46 (92 piles), or a distance of 405m where finally reached.

The 3 no 610mm diameter piles were constructed along the jetty for the loading area, together with six 1,200mm diameter piles, excavated and concreted for berthing and mooring.



The extreme isolation conditions demanded fault-free logistics

