MARINE STRUCTURES

PORT BOTANY EXPANSION

Dynamic Compation, Marine & Land Vibro Compaction, Wick Drains & Jet Grouting

AUSTRALIA

Owner
Sydney Ports Authority Ltd
Engineer
Coffey
General contractor
Baulderstone JDN JV
Period of works
October 2010-August 2011

Main figures

Vibrocompaction
Marine Vibro Compaction: 800,000 m3 treated
Land Vibro Compaction: 1.37M m3
Dynamic compaction
5.87M m3 treated
25 t dynamic compaction weight from 23m high

Project description

The context was the expansion of Port Botany in Sydney that was constructed near the existing Patrick Terminal. This expansion allowed to provide significant additional capacity to meet projected long term trade growth.

Ground conditions

Menard was subcontracted to carry out the Ground Compaction Works for all fill material dredged from Botany Bay in Sydney, as part of the expansion project of the existing port through reclamation of 60 hectares of land.

Solution

The solution consisted in:

- Marine Vibro Compaction – Carried out from a marine barge using V48 vibroflot supplied by Vibro Services GmbH mounted on a 130t Sumitomo crane. The bottom level of compaction was -30m from water level and we treated up to -13m. The overall volume of material treated was 800,000 cubic metres.

- Land Vibro Compaction – Carried out using a crane mounted V48 vibroflot supplied by Vibro Services GmbH. The depth of ground compacted was down to -22m. The overall quantity of material compacted was 1.37M cubic metres.

- Dynamic Compaction – This utilised a specialist Leibherr 883 and 885 crane dropping a 25t dynamic compaction weight from a height of 23m. The volume of material treated with this method was 5.87M cubic metres.

- Ancillary works carried out were jet grouting as well as the installation of wick drains.