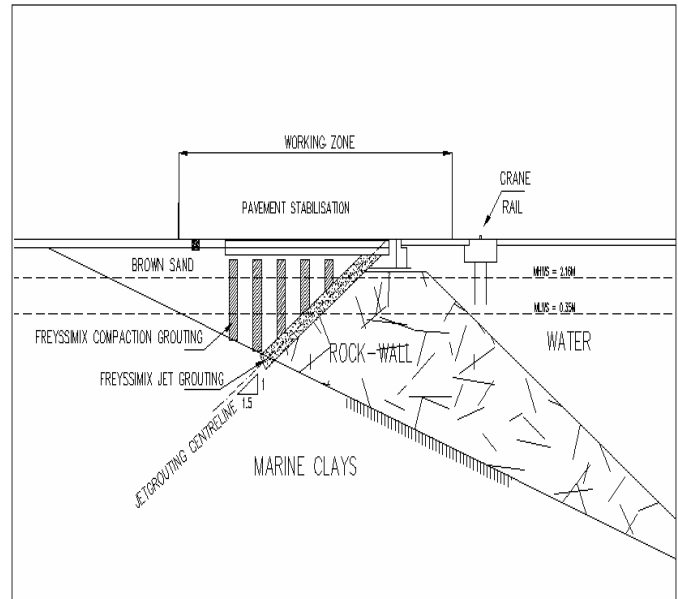
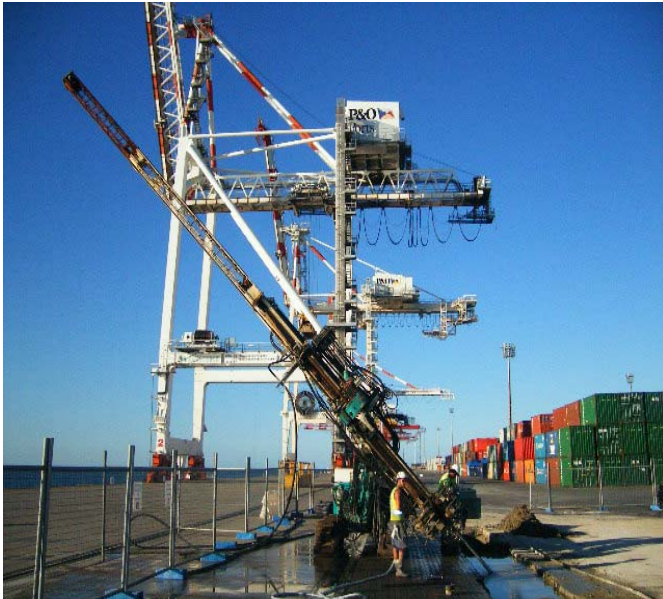


FISHERMAN ISLANDS, BRISBANE

PAVEMENT REHABILITATION WORKS TO BERTHS 4 AND 5



Sustainable Technology



Client: Port of Brisbane Corporation
Consultant: URS/Golder Associates

Specialist Contractor: Austress Menard Pty Ltd

THE PROJECT

The Port of Brisbane lies at the mouth of the Brisbane River in the environmentally sensitive Moreton Bay Marine Park. Berths 4&5 were constructed around 1980 and the pavement areas directly behind the wharves were showing signs of settlement. The settlement is due to the apparent loss of sand material through the berth rock-wall caused by tidal action. The area of pavement affected by the soil erosion was a strip running parallel to the wharves, 16m wide by 600m long. The wharves were in constant use by P&O and the repair works had to be completed with minimal disruption by P&O's operations.

The main objectives of the remediation works were principally to:

- Stabilise the sand fill subgrade and prevent further erosion and loss of sand material through the rock-wall
- Maintain an effective sub-surface drainage system in the sand subgrade material to avoid the build-up of groundwater pressures.
- Maintain (or temporarily divert) existing wharf services. Replace the pavement surface post completion of remedial works.

AUSTRESS MENARD'S ROLE

To meet the client's scope requirements Austress Menard designed a two stage soil treatment scheme.

Stop the tidal flow of water in the subgrade material
Austress Menard proposed the construction of a continuous

(or contiguous) barrier comprising interlocked jet grouted columns. This barrier was to be installed parallel to the back side of the rock-wall at an angle of 30% and columns were to be nominally 9-10m long. The quasi-imperviousness of the barrier and its resistance would negate any rapid movement of sea water and therefore its erosive effects in the subgrade.

Densify the loose sand layers in the subgrade

Austress Menard proposed to treat the loose subgrade material behind the rock-wall by compacting it to regain adequate bearing capacity. The sands were densified by compaction grouting.

Maintain sub-surface drainage

Austress Menard installed vertical drains through the jet grout barrier to allow excess groundwater to pass freely without eroding the subgrade material.

Further to the technical solutions Austress Menard had to pay particular attention to safety, quality and environmental restraints specific to working in an active port environment. These included, but were not limited to, identifying and working safely and with minimal impact on P&O's shipping and cargo operations and finally managing all the potential environmental issues associated with working in a 'live' port environment directly adjacent to the Brisbane River. The project was completed successfully and ahead of schedule thanks to the co-operation of the client and P&O.