

Marina Ship-lift Slab Area Re-habilitated

INDUSTRY

Industrial

STRUCTURE

Hardstand

PROBLEM

Sinking Hardstand

LOCATION

Mackay, Queensland,
Australia

DURATION / YEAR

1/2 day / 2015

TECHNOLOGY

Uretek Slab Lifting and
Uretek Deep Injection

BUSINESS UNIT

Mainmark Australia

Right: Before.
Far right: After.



Summary

Using expanding structural resins, Mainmark completely re-supported and re-levelled a large and busy marina ship-lifter slab area in just half a day: a highly effective result with a huge time saving compared with the alternative of removal and replacement.

Objectives

The ship-lifter slab area of the marina in Mackay, Queensland, had sustained major cracking, which damaged the integrity of the slab and jeopardised the operations of the marina business.

This also brought into question the safety of the operators and the craft that were transported over the area.

The cracking in the concrete had been caused by the loss of support immediately beneath the paving, all the way to the seabed. This loss of support was attributed to the migration of fine particles due to the ebb and flow of tidal action in the marina.

As this was a particularly busy marina, the potential time loss that would be caused by removing and replacing the slabs and the fill beneath them, was too great to be considered.

Solution

Mainmark used Uretek structural, expanding resin

injections to re-support and re-level the slabs. The area was re-levelled by Uretek Slab-Lifting applied directly under the slabs. The foundation ground was compacted and greatly strengthened by Deep-Injection of Uretek resins to a depth of 3m.

Uretek resins expand very strongly and are controlled by experienced technicians, constantly monitoring the situation with laser levels. Any voids are filled aggressively by the expanding resins and in this case the resin injection also served to displace the water that had infiltrated the foundation soil behind the marina seawall.

The Uretek resin injection densified the foundation ground, greatly increasing its load-bearing capacity.

Continued injection immediately under the slabs across the whole area raised them to the required levels and ensured an even displacement of the loads across the entire slab area.

Following this treatment, the slab cracking was stitched with an epoxy repair compound and locked together with tie-rods.

The whole project, including establishment and equipment removal, took just six hours to complete.

The slab was re-supported and raised to within 5mm of its design specifications and the area was trafficable within 30 minutes of completion of the project.