

Stabilisation Of Railway Level Crossing

INDUSTRY

Infrastructure

STRUCTURE

Railway

PROBLEM

Ground subsidence

LOCATION

NSW, Australia

DURATION / YEAR

2 days / 2001

TECHNOLOGY

Uretek Slab Lifting &
Uretek Deep Injection

BUSINESS UNIT

Mainmark Australia



Summary

A road and railway level crossing area on the NSW South Coast had subsided and was rocking, not only with the passage of trains, but also with road traffic. Both road and rail traffic had to significantly reduce speed to traverse the crossing safely.

In just two days Mainmark technicians completely re-levelled and stabilised the area with injections of expanding resins into the subgrade beneath the concrete slab that crossed the road and supported the rails.

Objectives

The objectives were to raise and re-level the slab to which the rails were bolted and then to strengthen and stabilise the subbase ground to prevent continuance of the movement caused by rail and road traffic over the crossing area.

Solution

There was 73mm subsidence towards the centre of the slab which had a wearing surface of bitumen. This subsidence was corrected first.

Working on one side of the road at a time, the Mainmark technicians injected Uretek expanding, engineered structural resins to raise and re-level the slab. These injections were made through the 500mm thick concrete slab at one metre centres along the outside of the rails, and at approximately 500mm centres between the rails.

Once the slab was re-levelled, the subbase was compacted by Uretek Deep-Injection. This was carried out with injections at depths of between 750mm and 1500mm below the surface, strengthening the foundation ground substantially.

Slab deflection under load was reduced to an acceptable minimum. The whole crossing area was returned to its design levels, stabilised and re-supported. Just 30 minutes after completion of the Mainmark remediation, both road and rail traffic could resume full normal operation.