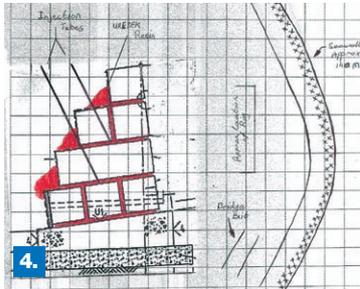


South Perth Seawall Rehabilitation

- INDUSTRY
Infrastructure
- STRUCTURE
Seawall
- PROBLEM
Void Filling and Sealing
- LOCATION
Perth, Australia
- DURATION / YEAR
7 days / 2010
- TECHNOLOGY
Uretek Deep Injection
- BUSINESS UNIT
Mainmark Australia



Summary

The sandstone block seawall on the Swan River beside the Kwinana Freeway had suffered considerable erosion from tidal forces over the decades since its construction in 1970.

In seven days Mainmark restored the integrity of the structure, filling voids and joint lines by injecting Uretek structural resin.

Objectives

The objectives were to fill the many voids that had developed due to the erosion of fines and to reseal the joints between the blockwork of the structure to help stave off future erosion.

The road pavement above and behind the wall was also to be re-supported by this void-filling.

Solution

The wall section to be treated was approximately 45m long, 3m high and 2m from front to back. Ground-penetrating radar showed the structure to be heavily voided throughout.

Rehabilitation had been attempted four years previously by other parties using injection of concrete

under hydraulic pressure. It had achieved very limited success.

Preparation for the injection of Uretek resins began with the planning of two rows of holes, laid out in a zig-zag pattern. The holes were drilled down from the shoulder of the roadway and angled down as shown in the diagram above to facilitate complete filling of voids and joints by the strongly expanding Uretek structural resin.

The emergence of the expanding resins from the face of the seawall was one indication that voids and joints had been filled. Another indicator was a very small lift in the roadway shoulder and pavement. Complete void-filling was confirmed by thorough probing through all joints.

In just seven days, the seawall area was shown to have been completely rehabilitated as required.

Pictured above: 1. The South Perth Seawall. 2. Probing at low tide to confirm void-filling. 3. Injection from above and behind the wall. 4. Diagram of planned injection zones.