



GEOFABRICS CASE STUDY



LAND RECLAMATION & REPLENISHMENT AT FUNAFUTI ISLAND, TUVALU

PRODUCTS USED

ELCOROCK® GEOSYNTHETIC SAND CONTAINER

- Made in Australia with Texcel geotextile, a unique staple fibre blend of polyester and polypropylene, providing flexibility and allowing the product to resist the natural forces of the marine environment
- Filled with sand and used to form a stabilising and defensive barrier against erosion in harsh coastal environments by building breakwaters, sea walls, revetments, groynes and artificial reefs
- Highly resistant to abrasion, hydrocarbon, impact damage and UV degradation
- Precise size and shape can be made to meet site specific requirements



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PROJECT DESCRIPTION

While building an airstrip during World War II, large quantities of coral at Tuvalu were dug up and carted off to be crushed and mixed for the tarmac. The vast pits that were left behind across Funafuti, called “borrow pits,” were never filled and eventually began to be used for refuse. This not only caused sanitation problems but also significant damage to coral communities and the surrounding ecosystem. The remnants of the existing seawall, littered along the coastline, amplified a breach that threatened the island splitting into two.

Under the coastal and climate change adaptation project, Tuvalu reclaimed land, lost to sea. The local government emulated solutions helping to build protective barriers in the fight against rising seas, surges and king tides, including one to buffer the capital, Funafuti. Over 6 hectares of actual area had been remediated from all the ‘borrow pits’, so it was a significant investment in land rehabilitation for Tuvalu.

OUR SOLUTION

Geofabrics, working closely with Hall Contracting in their dredging program, provided detailed design support during installation of the Elcorock geosynthetic containers. Calibre Consulting NZ was the design engineer to the project. 60,000m² of Bidim A44 was used to line the borrow pits prior to backfilling with clean dredge soil. 500 Elcorock ER250V was used for the reconstruction of the seawall storm ridge. 900m² of Texcel 600R was applied to the confined walls for land reclamation at the Queen Elizabeth Park. Geofabrics further provided onsite support for training, filling materials for the Elcorock containers and placement of the Elcorock.

The Funafuti reclamation increased the size of the town substantially creating more open space for the community, improved hygiene levels and minimised pollution. The completion of the project helped improve the island’s resilience to the impacts of rising sea levels, severe storm systems and coastal erosion.



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