

CASE STUDY

Gabions & Reno Mattresses

Project: Esk Hampton Culvert
Date: Oct – Nov 2012
Client: Joe Wagner Earthmoving
Location: Esk Hampton Road South East QLD



Gabions/RenoTM Mattresses

The January 2011 flood waters damaged many roads in Queensland. One of these was a section of Esk-Hampton Road 12km east of Hampton. The road had been closed since as a result of numerous cut-slope failures and the collapse of the road.

The Esk Hampton Road winds its way down the Great Dividing Range starting at Hampton on the New England Highway and finishing at Esk on the Brisbane Valley Highway. The original culvert had been built during World War II by Italian prisoners of war labour gangs. New work included reconstructing 300 metres of the road and embankment, installing new culverts, drainage and new guardrails.

Roadtek Toowoomba had been on site since just after the floods to do emergency road works and close the road to all traffic. This necessitated a diversion onto smaller roads and a tight traffic light controlled turn through the local village of Ravensbourne.

Work commenced on the road in July 2012 with Roadtek Toowoomba taking on the road construction work and setting up a camp nearby.

Geofabrics were approached late August 2012 to assist in providing a design suggestion for a suitable drainage solution for the culvert. Based on some preliminary drawings and information supplied by the Transport Network Reconstruction Program, a preliminary hydrology analysis and proposed design solution were submitted using a combination of gabions and Reno mattresses from the Geofabrics Galmac/PVC coated range of products. These were to be installed over a layer of Bidim A44. The proposed design suggestion was accepted and approved with only some minor modifications to blend the base of the structure into the natural creek bed. Roadtek included a paragraph in their tender documents nominating Geofabrics Australasia Pty Ltd as the sole supplier of gabion and geotextile products for this project. (Reproduced at end of text below) They also included the Geofabrics Australasia design suggestion and drawings as part of the tender. A short tender process began mid-September with a seven day closing period.



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Toowoomba based Joe Wagner Earthmoving were the successful contractors and construction of the gabion and mattress structure was scheduled to begin early to mid-October.

Roadtek Toowoomba was approximately half way through the project when Joe Wagner Earthmoving came on site to commence the gabion structure. An anticipated time frame of three to four weeks was allocated for construction. Geofabrics representatives were regularly on site to provide assistance where required as the construction progressed and provided two pneumatic lacing tools to increase the efficiency and speed of the installation.

The end result is a stable structure which will cater for future water flows while blending in with the surrounding topography and landscape.

The total project cost including road works was \$6.72 million and brings the road up to current design standards. The road reopened on schedule in mid-December 2012.



Clause 17.1 Nominated Supplier

Product specifications are as per the attached drawings. All gabions, mattresses, geotextiles and other related material shall be sourced only from GEOFABRICS AUSTRALIA PTY LTD.

The subcontractor shall provide evidence of purchases from GEOFABRICS AUSTRALIA PTY LTD if requested by the main contractor.

The sub contractor shall be responsible for communication and coordination with GEOFABRICS AUSTRALIA PTY LTD for any purchases and/or deliveries and the main contractor shall not be responsible for any delay/disruptions caused by the nominated supplier.

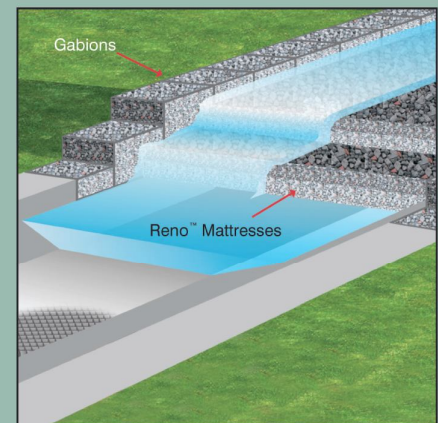


How Gabions and Reno™ Mattresses work

Gabions and **Reno™ Mattresses** are a trusted and technically sound way to retain earth and combat soil erosion. They have been used in Australia for the past 50 years, in locations ranging from remote mine sites to urban parklands. They both have a steel wire structure designed for maximum long-term durability, and are supported by a range of design software and installation tools.

Gabions are rectangular woven wire mesh baskets filled with rock to create flexible, permeable structures such as retaining walls for mining, industrial and road projects. They are also used for erosion control, bank stabilisation, architectural and urban design features, and weirs.

Reno™ Mattresses are thinner flexible cages made from double twisted woven wire mesh, filled with rock and divided into cells to limit movement of the rock fill during high-flow conditions. Because of their flexibility **Reno™ Mattresses** are used mainly for hydraulic applications such as weirs, scour protection along riverbanks, and embankment stability in channel linings. **Reno™ Mattresses** can handle water flows in excess of 6 m/sec for long durations.



Gabions and Reno™ Mattresses Installation

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