

Project Info



December 2017



CC8™



180m²



Longitudinal layers



Redbank Station,
Queensland, Australia



Queensland Rail
Engineers



CC used to line a
drainage channel
constructed as part of
a scheme to protect a
slope from erosion



Completed channel lining installation in Queensland, Australia

In December 2017, Concrete Canvas® GCCM* (CC) was used to line a drainage channel constructed as part of a project to provide erosion measures on a slope adjacent to a rail line in Queensland, Australia.

The slope in question was inspected in early 2017 and was found to be suffering from erosion caused by heavy sub-tropical rainfall and the moderately steep nature of the slope, which was also made up of highly erodible soils. Along with the limited access due to the proximity of the slope to the rail line, there were a number of 600mm deep service pits at the foot of the slope, the access of which was becoming compromised due to the eroded soil.

The client, Queensland Rail (QR) approached Geofabrics for support in this project, and expressed further concerns including their inability to schedule track closures to complete repair works, and a desire to establish a catch drain at the top of the slope, which had to be installed in a limited space due to the restrictions of a boundary fence.

Geofabrics considered several solutions and presented them to Queensland Rail. The design solution selected by QR incorporated gabion baskets, non-woven geotextiles, erosion control matting, a geoweb cellular confinement system and Concrete Canvas. The works were carried out by Queensland Rail engineers, with support provided by Geofabrics.

*Geosynthetic Cementitious Composite Mat





Slope prior to works



Slope following re-grading and gabion placement



Completed installation



Completed CC channel

After clearing the bank of vegetation, a single course of Gabions, 1m in height and width, were installed along the length of the embankment to form a permanent toe from which the slope could be re-graded, while ensuring underground services were protected and accessible. The slope was then protected using a three-layer system of the non-woven geotextile, the geoweb system, which was then filled with ballast materials, and the erosion control matting.

Following the work on the slope, a 'V' drain was created at the slope's crest, directly behind the anchor trench previously created and filled following the securing of the slope's protective system. Once the drain was shaped, it was lined with CC material which was secured using ground pegs at the edges, which were then buried in an anchor trench.

180m² of CC8™ were installed by 4 people. The use of CC allowed for easy installation despite the limited access on site, and restrictions created by the boundary fence. Had CC not been used, the process of lining the drainage channel would have been considerably more complex due to the limitations of using alternatives such as shotcrete, which would also produce rebound and require line closures. Due to the speed and ease of using CC, the installation team were able to install the CC quickly and meet their deadlines, completing the works before the Christmas holidays began.