

Project Info



09 / 04 / 19



CC5™ Bulk Rolls



2,800m²



Vertical layers



Warrego Highway, Roma,
Australia



TMR



CC5™ was used
to provide erosion
protection to a slope to
prevent shallow slip and
protect road users



Completed slope protection installation alongside the Warrego Highway in Roma, Australia

In April 2019, Concrete Canvas® (CC) GCCM* was used to prevent erosion and shallow slip of a roadside embankment at Warrego Highway in Roma, Australia.

The slope in question is made up of highly erodible soil, putting the embankment at serious risk of slip and endangering road users.

Alternatives considered were Crib Wall, Gabion Walls and Hydro mulching. However, existing utilities running through the batters meant crib and gabion walls could not be used, while hydro mulching would require lengthy lane closures as a result of the risk of back spray. CC was also considered, and was found to be a more cost-effective option than crib and gabion walls. It could also be installed without the need for lengthy lane closures, no risk of back spray or need for clean up post-installation. The preparation required for CC installation would also be significantly less, with little requirement for excavation.

Prior to installation, Public Underground Plants (PUPs) were identified and the batter slopes were cleared of vegetation. The substrate was then graded and levelled to provide a smooth profile on which the CC could be successfully installed.

*Geosynthetic Cementitious Composite Mat





Removing vegetation with excavator



Anchor trench marked out following initial ground preparation



Grading the slope profile



Digging anchor trenches at crest of slope



Mounting CC bulk rolls to spreader beam



Securing CC within anchor trenches



A spreader beam and plant made installation easier



Cutting CC to length with a disc cutter



Sealant used to provide a low permeability joint



Joining with screws



Termination around concrete kerb



Hydration



Completed installation on slope

The CC was laid vertically from crest to toe, with each subsequent layer overlapping the last by 100mm. The edge at the crest was fixed within an anchor trench using 380mm ground pegs, through the overlaps of the material. At the toe, CC was fixed with masonry bolts, again through each joint. Joints were then hydrated beneath the overlap, sealed using a single bead of adhesive sealant and jointed using stainless steel screws at 200mm centres. Intermediate pegs were also inserted down the length of the slope at 3m spacings through the overlaps to ensure intimate contact between the material and substrate.

Following completion of the installation, the material was hydrated three times at 30-minute intervals from both the crest and toe of the slope to ensure sufficient saturation. The anchor trenches were then backfilled to prevent ingress beneath the material and provide neat termination.

The installation team were unfamiliar with CC, but completed the installation in a total of eight days. They believe they could now carry out the same installation within six days with the experience and knowledge they now have of the process.

The project was carried out in temperatures of up to 30°C across two installation periods in the months of April and May. The team installed the material at rates of around 350m² per day.

The client will continue to assess the installation over the coming year, and will then decide whether or not the installation was successful and if CC could be used on future works.