

Project Info



08 / 04 / 19



CC5™ and CC8™ Bulk Rolls



13,200m²



Transverse and Vertical layers



Dammam, Saudi Arabia



FOQSCO



CC5™ and CC8™ were installed as channel lining and slope protection solutions on a rig site in Dammam owned by Saudi Aramco



Completed installation at a rig site in Dammam, Saudi Arabia

Concrete Canvas® (CC) GCCM* was specified as a channel lining and slope protection solution for a scheme which involved creating a passage for rainwater, so it did not damage the work site. The installation of 13,200m² of CC5™ and CC8™ was carried out on a rig site in Dammam, Saudi Arabia. The works were carried out by FOQSCO for Saudi Aramco.

The aim of the project had been to find a solution for lining and protecting the channel and slope around a culvert. This water management system would collect rain water and transport it to drainage pipes. The solution was required to protect the system from surface erosion caused by weathering and environmental degradation.

Conventional concrete would have been too tedious to implement, and would require significant vehicle movements and logistical requirements, numerous mixing trucks, and formwork which would be time consuming to put in place. The curing times for conventional methods were also taken into consideration and would have required significant downtime for the site.

CC was identified as the ideal solution and was ultimately chosen due to its rapid installation rates (as time was a critical factor), ease of use due to limited resources required for installation, and cost savings compared to more conventional methods.

*Geosynthetic Cementitious Composite Mat





Channel following ground prep



Slope following ground prep



A geotextile was laid prior to installing CC



Channel lining installation in progress



Corner detail



Completed installation along first section of slope



Formwork put in place for capturing CC in anchor trenches



Completed installation at complex corners



Completed channel installation



Filling anchor trenches with poured concrete



Completed slope protection installation following backfilling of anchor trenches



Completed installation around outflow pipes



Completed channel

Prior to the installation, the channel was excavated and any vegetation and sharp rocks were cleared by hand using shovels and a pickaxe. The channel and slopes were then levelled and compacted with a roller-compactor.

For installation within the channel, anchor trenches were cut into its shoulders using a JCB Backhoe and a layer of geotextile applied prior to laying the CC. Bulk rolls of CC8™ were transported to the site and hung from a spreader beam for deployment. CC was then cut to length using hand tools and laid transversely along the invert of the basin and across the ditch. A 100mm overlap was created between each subsequent CC layer and the overlapped joints were screwed together with stainless steel screws at 200mm intervals.

For the slope protection section, the installation followed the same process as for the channel lining installation. However, bulk rolls of CC5™ were used, and the material deployed vertically down the face of the slope, from crest to toe.

On both the channel and slope sections, hydration was carried out multiple times at the end of each working day using a hose with a sprinkler attachment. Steel bars were then installed within the anchor trenches to provide a neat and secure termination for the CC edges as per the request of the client, and sealed with poured concrete to prevent water ingress.

The project was completed within two weeks, with an average of 10 hours worked on site each day. The project was deemed a success in terms of the time taken to install CC and the ease of the installation process. Had the same project been carried out using conventional concrete, it could have taken in excess of four months to complete. However, using CC ensured substantial cost savings, speed and ease of installation.