

Project Info



12 / 03 / 18



CC5™ Bulk Rolls



5600m²



Vertical layers



Haradh Gas Plant,
Saudi Arabia



FOQSCO



CC5™ used to provide
erosion protection
to slopes at a gas
plant owned by Saudi
Aramco



Completed installation at Saudi Aramco's Haradh Gas Plant

In December 2018, Concrete Canvas® was used to provide slope protection solution at Haradh Gas Plant in Saudi Arabia. The slope had suffered erosion as a result of environmental weathering, predominantly rainfall, which was causing surface slip and threatened to destabilise the plant foundation.

The sensitive infrastructure and site required a long term, maintenance-free solution that is cost effective, durable and easy to install. Concrete slabs were considered but would have been expensive and time consuming to install, with long lead times involved. CC was specified instead, providing effective vegetation suppression, while its durability would protect the slopes against the erosive forces of heavy rain and wind.

Prior to installation, any vegetation was removed from the slopes and loose soil and rocks were cleared using a Backhoe and shovel. All voids were then filled in and compacted to provide a smooth, even surface on which to install the CC.

Following ground preparation, bulk rolls of the specified CC5™ material were delivered to site and deployed from a spreader beam suspended from a backhoe. The CC was unrolled and cut to length before being transported to the crest of the slope and unrolled by hand.

*Geosynthetic Cementitious Composite Mat





Slope had suffered weathering erosion



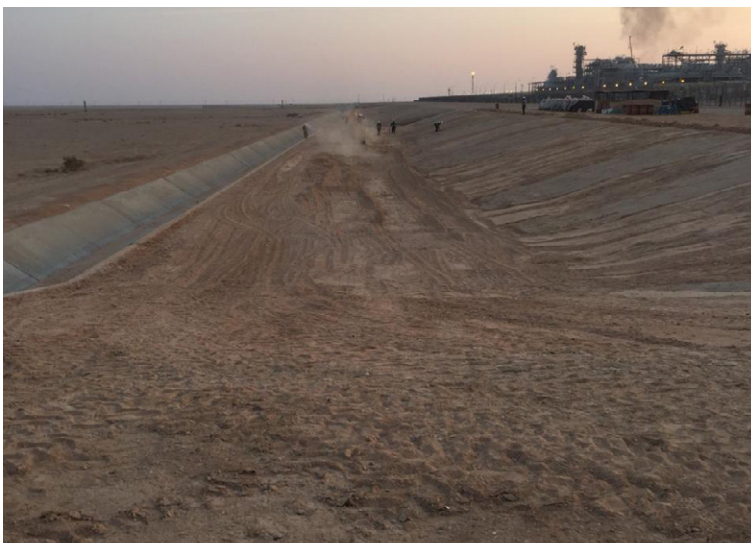
Vegetation removed using backhoe



Stones and loose sand removed



Anchor trenches dug by hand



Slope following ground preparation



CC cut to length on site



Batched CC moved into place by hand



Subsequent layers overlapped by 100mm



Section of slope following CC deployment



Termination at concrete channel using anchor bolts and steel bars



CC material following hydration



Screw jointed overlaps



Anchor trench backfilled with concrete



Completed section of slope following backfilling



Painting of CC as per client's specification at night



CC was painted once set to help the material blend in with surroundings

The CC was laid vertically down the face of the slope, with subsequent layers overlapping the previous by 100mm. At the crest, the CC was captured within an anchor trench, pre-dug during ground preparation works, and secured with ground pegs. At the toe, the lower layer of CC was hydrated at each overlap and jointed using stainless steel screws at 50mm intervals. The material was secured to the existing concrete channel at the toe using anchor bolts, inserted through the overlaps. Following installation, the CC was hydrated fully using a hose with a sprinkler attachment and water tank. Once set, the CC was painted to make it more sympathetic to its surroundings.

A total of 5600m² were installed in 15 days, with the crew of 7 working around 8 hours per day. The project was very successful, particularly in terms of reduced time on site, which minimised disruption on the site for client Saudi Aramco. The contractors, FOQSCO also noted the ease of installing the material.

As a whole, costs associated with labour and logistics were greatly reduced. The use of CC eliminated any requirement for shutting down assets, as well as clean-up operations often associated with alternatives like shotcrete.