

Project Info

-  26 / 12 / 16
-  CC8™ Bulk Rolls Rolls
-  1,000m²
-  Longitudinal layers
-  Tiplam Vale Fertilizantes VLI Cubatao, Brazil
-  GRN - Construções Sustentáveis
-  Drainage of water into channels to prevent soil from saturation, due to the low water table.







The completed installation

In December 2016, Concrete Canvas® GCCM* (CC) was used to line a drainage channel at Cubatão, Santos, São Paulo State, Brazil. The Tiplam Port expansion, is situated in a very flat location, with constant drainage issues including the water table being very close to the surface. All new roads that form part of the Port expansion require drainage channels. Due to the region and time of year, constant heavy downpours, almost daily, made more conventional channel lining methods such as the use of poured concrete, virtually impossible.

It was extremely difficult to excavate and grade the channels given the harsh weather conditions. Sand, soil, stones and in some cases, rocks, were removed prior to installation, this proved to be very challenging as a rapid install was then required before the rain would upset the entire operation. CC's main advantages over conventional concrete are speed and ease of install, cost savings, durability and environmental friendliness.

1,000m² of CC8™ was installed in a longitudinal layout by Service Provider GRN Ambiental, for VLI/Vale. The CC was delivered to the site by truck, and unloaded, one bulk roll at a time, on to steel stands for manual unrolling. The CC was jointed with 35mm stainless screws (via an auto-feed driver) at 150mm centres. The CC was fixed to the ground with 10mm Ø, 60cm steel pegs at 1.5m intervals, into anchor trenches situated at either side of the channel shoulders'. The anchor trenches were then back-filled with soil to provide a neat termination detail and prevent water ingress.

*Geosynthetic Cementitious Composite Mat



The CC being mounted onto a static spreader beam



The CC being walked into place from the mounted Bulk Roll



The completed channel

Hydration was achieved via a 15,000m³ water truck and two man crew, using a hose and sprinkler combination, despite the adverse wet weather conditions.

1,000m² of CC8™ was installed in 3 weeks by 11 people. The long installation time was due to the harsh wet weather conditions and lightning, which required a full evacuation of the site regularly because the location was very open.

Successful drainage was achieved in all areas where the CC was installed, with the water then being channelled into the existing supplementary drainage system.

“CC was the fastest, cleanest system for channel lining, and able to line between downpours, and ditch excavation. Rain destroys excavation rapidly, and sandy soil shifts during the rain. CC well installed despite these adverse conditions. First 1,000m² completed and Tender for next 2,625m² expected to be contracted by March 2017.”

GRN - Construções Sustentáveis