CONCRETE CANVAS®

CHANNEL LINING

Project Info

- 08 / 09 / 18
- CC8™ Bulk Rolls
- 125m²
- Transverse layers
- Hidden Valley Gold Mine, Lae, Papua New Guinea
- Hidden Valley Construction Team
- CC8™ was used to line a diversion channel used to prevent run-off water from flowing into the Hamatta Mine Pit

Installation of CC at Hidden Valley Gold Mine in Papua New Guinea

Concrete Canvas® (CC) GCCM* was trialled in September 2018 as a channel lining solution for the Hidden Valley (HV) Gold Mine in Lae, Papua New Guinea. The aim of the project was to line a series of channels designed to prevent run-off water from flowing into the Hamatta Mine Pit.

Lae experiences extremely high rates of rainfall, averaging around 4500mm per year. These regular heavy downpours cause serious erosion problems with exposed soils as well as flooding and geotechnical instability to earthworks. The heavy falls had to be diverted to prevent the pit at the bottom of the mine being flooded, further preventing loss of production.

Stone pitched concrete drainage was initially chosen for the installation, but CC was used as it would be easier to install, and the process would take less time. CC was also chosen due to the limited access on site, which would have complicated logistical requirements for other methods.

Prior to installation, vegetation was removed and the side ditch re-graded. The CC was delivered to site in bulk rolls, and dispensed from a spreader beam hung from a 20T excavator. The material was laid transversely across the channel's width, with 200mm ground pegs used to secure the material in pre-dug anchor trenches at every joint, placed every 1m.

*Geosynthetic Cementitious Composite Mat

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Mine site

Channel profile cut from substrate

Excavator used to prepare channel

Deployment of CC

Applying sealant to CC overlaps

Jointing CC overlaps

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Hydration of CC

The CC was laid with overlaps shingled in the direction of water flow. Adhesive sealant beads and 30mm stainless steel collated screws used to joint the overlaps and 200mm centres following hydration of the material below the overlaps. Hand tools were used to carry out the installation and preparatory works, including a hand knife, hammer and shovel.

Following installation, hydration was given using a 7kL water cater with pressure hose and repeated three times at 25-minute intervals to ensure adequate hydration in the high temperatures and dry conditions.

Just two hours were required for ground preparation on the site, followed by a further two hours for installation, and another two hours for hydration. The installation of 125m^2 of CC8™ material was completed within one day by a team of nine. The works were carried out by the HV Construction Team with consultation provided by Concrete Canvas Australia. The project was a success, with the client satisfied with the overall result of the project. Since this installation, they have placed further orders of Concrete Canvas® material, this time in batched roll format, to continue the project.

The HV mine now has a cost-effective solution to control flooding on their sites and prevent down time. The CC material was delivered on time and the client has reported the product is performing as expected.

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