CONCRETE CANVAS®

CHANNEL LINING

Project Info

- AUG 14 — 14 / 08 / 21
- CC8™ Bulk Rolls
- # — 550m²
- Transverse layers
- Pen Mill, Yeovil, Somerset
- NetworkRail/ Osborne/ Brendan Keogh Constructon
- i — CC8™ used to line a long surface run-off interceptor channel to prevent saturation of the slope causing small landslips and localised flooding of rail tracks.

NetworkRail

OSBORNE

B KEOGH CONSTRUCTION RAIL DIVISION

Completed installation of CC8™

In August 2021, B Keogh Construction worked to rapidly line a surface water interception channel with 8mm thick Concrete Canvas® (CC8™) GCCM*. The works were undertaken on the Wessex Route for Network Rail located in Yeovil, Somerset. The main contractor was Osborne who sub-contracted the construction work to B Keogh Construction.

During periods of heavy rainfall there was localised flooding of the railway line but also small landslips along the adjacent cutting. The decision was made to reprofile the cutting and create a channel to intercept surface water from nearby farmland. The channel needed to be resistant to scour so it was decided to line it with a GCCM.

CC8™ is a Type II GCCM as defined in ASTM D8364, it is suitable for use on soil subgrades and was chosen for this project to suit the abrasion, wear and loading requirements. CC8™ is also BBA certified with durability in excess of 120 years when used in erosion control applications.

Prior to installing the CC8™ material, B Keogh Construction cut a trapezoid open channel using a V-ditch bucket and excavator. All sharp rocks and protrusions were removed from the channel to prevent damaging the PVC backing of the CC8™. Any large voids within the channel were filled so that there was a uniform and smooth substrate ready to be covered with CC8™.

*Geosynthetic Cementitious Composite Mat

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Section of the channel excavated prior to installation

CC8™ suspended from a spreader beam, installed transversely

The CC8™ overlapped by 100mm and secured with 30mm screws

The edge of the CC8™ being pegged at the base of the anchor trench

Completed CC8™ installation

CC8™ installed to accomodate changes in channel profile

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Completed channel lining works

Concrete Canvas™ (CC™) is simple to install with tools that are readily available. At Pen Mill the material was delivered in Bulk Rolls and suspended in the air from a spreader beam for ease of installation. The groundworkers pulled the CC8™ material off the Bulk Roll and installed it across the channel in a transverse lay up.

Installation is typically up to 10x faster to install than traditional concrete products such as pre-cast concrete channel sections or poured in-situ concrete. Installation rates in excess of 200m^2 a day can be achieved with good access and the use of plant.

Once the CC8™ had been placed across the open channel it was pegged to the ground inside of 150mm deep anchor trenches. It is important that wind and water are prevented from undermining the material. This is best achieved by terminating CC inside of an anchor trench. Adjacent layers of the CC8™ material were overlapped by shingling in the direction of water flow and jointing. An 8mm thick continuous bead of approved sealant was applied to every overlap and 30mm long stainless-steel screws were then driven through the bead of sealant along the joint at 200mm spacings. Screwed and sealed joints dramatically reduce the permeability of the joint to minimise the escape of water into the ground.

B Keogh Construction ensured that any CC8™ installed during the day was fully hydrated at the end of every shift. All CC8™ must be properly hydrated with water in order to allow the material to set to form a hard concrete surface. Once the material had been hydrated the anchor trenches were then back-filled to prevent any wind and water ingress under the material.

As a result of installing Concrete Canvas at Yeovil Pen Mill, the contracting team saved time on-site, reduced the logistical footprint of the project and effectively future-proofed the local rail network against adverse weather events.

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