CONCRETE CANVAS®

CHANNEL LINING

Project Info

- June 2018
- CC8™ Bulk Rolls
- 2250m²
- Transverse layers
- Five Mile Lane, Barry, Wales, UK
- Alun Griffiths
- CC8™ used to line a newly constructed crest drainage channel alongside of a new road cutting.

Completed installation

The Five Mile Lane Improvements Project aims to improve safety along the existing A4226 road (also known as Five Mile Lane) in Barry, South Wales. The scheme involves a combination of improvements including construction of a new road that bypasses the winding central station of the existing road.

In June 2018, Concrete Canvas (CC) GCCM* was specified to provide a channel lining solution to a newly constructed trapezoidal drainage channel that was cut into the eastern crest of the new road cutting.

The works were carried out by Principal Contractor, Alun Griffiths, for the Vale of Glamorgan Council, with consultation services provided by Capita.

Given the volume and flow rates anticipated, the channel required lining to prevent water ingress into the cutting and scouring of the invert.

CC was delivered in bulk rolls of the specified 8mm variant (CC8™) and mounted onto a spreader beam for easy deployment. The material was laid transversely across the width of the channel, starting downstream to allow for the creation of material overlaps in the direction of water flow to prevent ingress.

*Geosynthetic Cementitious Composite Mat

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Excavator used to prepare channel

Channel profile following excavation

Trapezoidal channel profile

CC deployed from spreader beam, cut to required length

Edges of CC material secured using ground pegs

Stainless steel screws used to joint CC overlaps

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Fixing and jointing details

4000L bowser used for hydration

Hydration

Completed installation following hydration

Anchor trenches backfilled for neat termination and to prevent ingress

Upstream view of channel

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Completed channel section

The material was cut to length on site to reduce material wastage and accommodate variations in profile width or channel curvature. Each transverse layer was secured within the anchor trench using 250mm ground pegs through the overlapped layers. The material was then also jointed along the overlaps at 150mm intervals using 30mm stainless steel screws, placed 30mm away from the leading edge.

Following jointing and fixing, the CC was hydrated using a 4000-litre bowser and pump. CC reaches 80% strength just 24 hours after hydration, after which time, the anchor trenches were backfilled to bury the material edges, providing a neat termination and preventing any water ingress.

Once set, CC forms a thin, durable, water proof and fibre reinforced concrete layer, providing 7.5x greater abrasion resistance than a poured OPC alternative.

Over 2250m^2 of CC8™ material was installed in less than four days by a crew of 4, using minimal plant.

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