CONCRETE CANVAS®

CHANNEL LINING

Project Info

- 27 / 01 / 2020
- CC8™ Wide Rolls
- 682m²
- Longitudinal layers
- Roseheyworth Recycling Centre, Abertillery, Wales
- Jim Davies Civil Engineering
- CC specified to formalise an existing channel to provide an effective water management system on the site of a new community recycling centre

Completed channel on site of future recycling centre in Abertillery, Wales

In January 2020, works began on a channel lining project at an industrial estate in Abertillery in the Ebbw Fach valley of South Wales.

The site in question was to become a recycling centre. Concrete Canvas® (CC) GCCM* was specified as a channel lining solution for a drainage channel which required formalising to provide an effective water management system on the site prior to works beginning on the recycling centre.

The channel lining works were carried out by Jim Davies Civil Engineering, who had prior experience of working with CC and therefore recommended the material for a rapid channel lining solution. An 8mm thick variant of CC (CC8™) was specified in Wide Rolls measuring 2.2m wide to reduce installation time.

Prior to installation, the channel was pumped from the existing concrete section downstream in order for excavation and profiling of the new channel to be carried out using an excavator and V-bucket. Rocks and large stones and tree roots were removed from the channel to prevent protrusions and formation of void spaces beneath the material. Anchor trenches were then dug on each shoulder. This was done by hand on the far side of the channel due to its very close proximity to a tree line.

*Geosynthetic Cementitious Composite Mat

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Site of recycling centre prior to works

CC was specified to line a drainage channel which required formalising

Existing concrete riprap lined channel section

Water pumped from channel to allow ground works to be carried out

Ground conditions on the site were very muddy

Final section of channel excavated prior to installation

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CC Wide Rolls deployed from excavator mounted spreader beam

A disc cutter was used to cut the CC to required lengths

Galvanised ground pegs used to secure CC edges within anchor trenches

Stainless steel screws and autofed screwdriver used for jointing overlaps

Excavator used to backfilland level anchor trenches

Water pumped from channel used to hydrate CC

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Completed installation

Completion of adjacent tarmac road

In service channel 3 months from installation

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Completed channel section; hay bails used as baffling to control flow velocity following hydration

Installation began upstream, with the CC Wide Rolls deployed from a specialist spreader beam mounted on the excavator. The material was deployed longitudinally, with the installation crew manually adjusting the position of the material where required to prevent wrinkling and ensure the edges sat within the anchor trenches.

The leading edge of a new roll was laid so as to overlap the trailing edge of the last by at least 100mm and joined using stainless steel screws. The final length of CC was cut at the downstream end using a disc cutter. The edges of the material along the length of the channel and at each end were secured within the anchor trenches using galvanised ground pegs and later backfilled for a neat termination and to prevent ingress of water below the CC.

At the end of each day, the material was hydrated using the pumped water from the existing concrete channel downstream and a hose attachment. On subsequent installation days, hay bails were used as temporary baffling to reduce the velocity of water flow during works.

A total of 682m^2 of CC8™ were installed by a team of three in five days, despite the poor ground conditions and access restrictions on site caused by the tree line. The use of CC on this project provided significant time savings when compared to traditional concreting methods which would have taken around three weeks to install; a saving of over 75%.

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