CONCRETE CANVAS®

CHANNEL LINING

Project Info

- 18 / 01 / 18
- CC8™ Batched Rolls
- 375m²
- Transverse layers
- Jubilee Lake, Royal Wootton Bassett, Wiltshire, UK
- Dyer and Butler
- CC8™ used to provide erosion protection to a drainage channel carrying water from an outfall pipe to a silt trap lagoon

pba peterbrett now part of Stantec

DYER & BUTLER A part of MGroup Services

Completed CC lined channel showing evidence of 'greening'

In January 2018, Concrete Canvas® (CC) GCCM* was specified to provide erosion protection to a drainage channel carrying water from an outfall pipe to a silt trap lagoon before entering the Jubilee Lake in Royal Wootton Bassett, Wiltshire, UK.

The original channel was only part lined in a concrete block system; over time the unlined section of channel had eroded away, undermining the concrete blocks and creating a 3m deep scour hole at the interface. Trees had also grown through voids in the concrete blocks, an issue which needed to be addressed and prevented from reoccurring.

Lining the entire channel with concrete blocks as a solution to the issues was considered, however this could have allowed trees to re-establish in the channel again. More significantly, there would also be a repeated manual handling consideration in placing so many blocks without mechanical access.

As a result, it was decided to remove overgrown vegetation, re-establish the channel to the original profile with imported cohesive fill material, then line the entire channel with CC to provide scour protection, suitable for in-channel velocities of up to 8m/s.

*Geosynthetic Cementitious Composite Mat

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Scour hole created by undermining of concrete block system

Trees cut out of concrete block channel

Pipe used to divert water

Scour filled with clay and channel formed using sandbags and concrete blinding

Delivery of batched rolls on a muddy site

CC installed over concrete blocks and sandbags

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Preparatory works ongoing in conjunction with installation

Proximity of channel to silt lagoon

Section of lined channel

Section of channel installation prior to backfilling

CC easily accomodated protruding pipework

Completed channel leading into silt lagoon

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Completed channel entering silt trap lagoon

Grouted pipe detail

CC bedding in 9 months after completion

Upstream section of channel

Poured concrete fillet at interface with headwall

Moss growth forming in invert

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Channel in full flow with velocities up to 8ms^{-1}

Prior to the installation, vegetation and trees were removed. However, most of the concrete block system was kept in place, as it was planned to install CC on top in order to minimise groundworks required, and mitigate any unnecessary works as site access was limited. Water from the outfall was diverted via plastic pipe, and the channel re-established with imported cohesive fill material. Anchor trenches were then dug by hand. The specified CC8™ batched rolls were delivered and installed as preparatory works progressed.

The rolls were moved into position by hand and laid transversely, with shingled overlapping layers jointed with screws and sealant. The edges of the CC material were fixed in anchor trenches at 1m intervals using ground pegs.

The 75m long channel was lined and works completed within 3 weeks. Works were carried out by Dyer and Butler for Royal Wootton Bassett Town Council with Consultancy provided by Peter Brett Associates, now part of Stantec. A team of 4 installers completed the project during the winter months, despite inclement and muddy conditions on a site with limited access.

The project was a success, with the CC lined channel allowing water from the outfall pipe to be conveyed without any further scour and erosion of the channel. Since completion of the project, the material has begun to 'green' and blend in with the natural surroundings.

"Concrete Canvas was selected as a channel liner due to its erosion-resistant properties and ease of installation. The Concrete Canvas was installed on top of existing block work which reduced the excavation and material disposal requirements. I would recommend the installation of concrete canvas where high flow velocities are anticipated and a flexible solution is required, particularly for locations where access is poor."

Greg Bowles, Senior Engineer of Peter Brett Associates, now part of Stantec

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