

Project Info



20 / 03 / 17



CC5™ and CC8™
Bulk Rolls



6,500m²



Longitudinal and
Transverse layers



Bedwas Colliery,
South Wales, UK



Walters Group



CC5™ and CC8™ were
used to provide erosion
protection to dilapidated
sections of drainage
channel at a disused
mine.

WALTERS



Completed section of CC lined drainage channel at Bedwas Colliery

In March 2017, Concrete Canvas® GCCM* (CC) was used to provide an erosion protection layer for dilapidated sections of drainage channel as part of remedial drainage measures at the Bedwas Colliery site in South Wales.

Bedwas Colliery is a 20 hectare spoil tip, approximately 2 miles north of the town of Bedwas, and forms part of the historical mining legacy within the Caerphilly Basin in South Wales. Bedwas Colliery opened in 1913 and produced up to 675,000 tonnes of coal per year before its closure in 1985. The overburden and waste rock generated by Bedwas' mining activity formed the basis of the existing spoil tip. Now managed by Caerphilly County Borough Council (CCBC), the site has a network of drainage channels to manage surface run-off.

Due to the high flow of water through the existing tip drainage channels, heavy scouring had occurred, eroding the concrete and exposing the reinforcement below. Some sections had also experienced severe erosion to the side walls. Walters Group were appointed by CCBC to carry out the concrete repair works to a 340m section of drainage channel. The purpose of the works was to replace the existing side wall with a new wall case, inside the existing channel prior to lining. Two sections of drainage channels were then proposed for lining with CC, each approx. 1000 linear metres in length with varying profile widths.

*Geosynthetic Cementitious Composite Mat





Bulk roll delivery



Channel prior to works



Original concrete section of channel



CC was laid transversely



CC fixed to invert using shot-fired nails



Back filled anchor trenched edge detail filled



Completed remote access section

For speed of installation, CC bulk rolls were specified. However, this came with several challenges due to the hilltop location of the site and the steep access routes. In order to mitigate environmental impact, small access routes were created and most of the works were carried out from inside the existing channel. The up-slope side wall was replaced prior to lining and a fixing detail was put in place following a collaborative design process with CCBC, Walters, Concrete Canvas and Hilti.

The design specifications required CC8 lining longitudinally to the channel invert, followed by a CC5 lining transversely across the channel. This was carried out by the team, and the material positioned, fixed, jointed and hydrated as required to form the new concrete channel within the existing section.

6,500m² of CC5™ and CC8™ were installed in six weeks, avoiding lost time due to adverse weather conditions that would have delayed conventional options.

Martin Norris, Senior Engineer for CCBC commented the our works were undertaken “in a totally professional manner, on time and in budget” and scored the performance of the project 108 out of 115 in terms of client satisfaction.