

Project Info

A55 North Wales Expressway Drainage Channels



09 / 03 / 16



CC8™ Bulk Rolls



4,125m²



Transverse layers



A55, North Wales



Jones Bros Ruthin
Civil Engineering UK



CC8™ used to line a
channel adjacent to the
A55 to reduce flooding
risks.



Completed CC lined channel section on the A55, a year after installation.

In March 2016, Concrete Canvas® GCCM* (CC) was used to line a road-side drainage channel. The channel was over 1500m long, and in need of erosion protection to reduce the risk of flooding on the road. The works were carried out by Jones Bros Civil Engineering UK on behalf of Gwynedd Council as part of a £22m Welsh Government project to improve safety and flood risks on a 2.2km stretch of the A55 between the Tai'r Meibion property and the Abergwyngregyn interchange.

The A55 is the main North Wales coastal route and part of Euroroute E22 Trans-European Transport Network (TEN-T). It is also an important link road for local towns and communities, providing the main connection to the A470 for the North-South and North-Mid Wales link. As a result, it is incredibly important for this road to be well maintained and in good working order.

Pre-cast concrete units were initially considered for this project; however, they would have required a high level of substrate preparation to ensure the low tolerance surfaces align and sat flush to the channel profile. CC can be installed up to ten times faster than conventional concrete solutions, and with a significantly smaller logistical footprint, reducing lane closures and inconvenience to motorists on the A55.

*Geosynthetic Cementitious Composite Mat





Site prior to ground preparation and installation



Site after ground preparation



CC was delivered to site in bulk rolls



CC was laid transversely and jointed with screws at the overlaps



A geotextile was laid to allow vegetation growth over the CC



CC edges were captured in backfilled anchor trenches



Completed installation

Despite inclement weather conditions throughout, CC's unique properties allowed for installation to continue even in wet weather. The CC was delivered to site in bulk rolls, mounted onto a spreader beam and attached to a 14T excavator. Prior to installation, the channel was made wider and less steep in some areas to prevent over topping. The CC was then laid transversely to accommodate the channel's varying profile and depth, with layers overlapping by 100mm in the direction of water flow. The CC was then fixed in the anchor trenches using 250mm steel ground pegs, and stainless steel screws at 150mm intervals through the overlaps. Complicated junctions were easily negotiated by the flexible material, which was cut to fit and fixed into place. Following hydration, the anchor trenches were then backfilled and vegetation mats applied to the banks.

A total of 4,125m² of CC8™ were installed in 4 weeks by a team of six, in challenging, inclemental weather conditions. The team installed the CC at a rate of approx. 375m² per day in conjunction with the preparation work to the channel. The introduction and lining of the drainage channel will protect the A55 from flooding and closure, which would otherwise cause significant delays and cost to an important trunk route in North Wales.

“The product has saved us a lot of time and has the same results as the traditional pre-cast concrete units method. Another benefit has been that we can install it in wet weather conditions, which would normally disrupt programme schedules using more traditional methods of channel lining. We believe it's the first time Jones Bros has used Concrete Canvas on a project and that it's one of the first times it has been used in North Wales for this type of application. It's fantastic that the client has approved its use and we're hopeful we'll use it on more projects going forward. The works have progressed ahead of schedule and using the concrete canvas has gone smoothly.”

Elliot Bidmead
Site Agent, Jones Brothers



Completed project, one year after installation.



Channel performing hydraulically as designed without maintenance.



Completed project, one year after installation.



Channel performing hydraulically as designed without maintenance.