

Project Info



08 / 13



CC5™ Bulk Rolls



190m²



Transverse layers



Scottish Borders,
Scotland, UK



Castle Group Scotland



CC5™ used to
remediate a dilapidated
ARMCO culvert.



Completed installation

In August 2013, Concrete Canvas® GCCM (CC) was used to reline an ARMCO steel corrugated pipe which formed part of a culvert in the Scottish borders. The existing 1-2mm bitumen coating inside the pipe had broken down through flow erosion and weathering, resulting in an increase in silt, debris and vegetation growth within the culvert which had started to compromise it and cause the ARMCO to degrade. Installing a new culvert was cost prohibitive and would involve temporary lane closures of the nearby A7 trunk road. Re-spraying culverts with bitumen is now generally prohibited by the Scottish Environment Protection Agency (SEPA) due to the potential for environmental damage, and any remediation solution would need SEPA approval. Glass Reinforced Plastic (GRP) was also considered, but this would have to be specially made to fit the culvert, leading to increased cost and lead time. CC was chosen due to its speed of installation, ability to easily accommodate changes in culvert profile and minimal environmental impact, having been authorised for use in live water courses by the UK Environment Agency on previous projects.

Prior to installation, the culvert was cleared of any silt and other debris and the bitumen lining removed using a pressure washer. A semi-dry grout mix was then applied to the lower half of the pipe to fill in the corrugations before bulk rolls of CC5™ were delivered and cut to length on site, minimising wastage. The CC was then laid transversely, with layers overlapping by 100mm in the direction of water flow and fixed to the pipe at 200mm centres using stainless steel tech screws before being hydrated.

The installation was completed in a total of a week and a half, including preparation. Castle Group Scotland were impressed with the ease and speed with which CC was installed, as well as its minimal environmental impact and increased lifespan compared to bitumen. CC also provided a cost saving compared to using GRP.

*Geosynthetic Cementitious Composite Mat





Flow erosion had caused the existing bitumen lining to break down



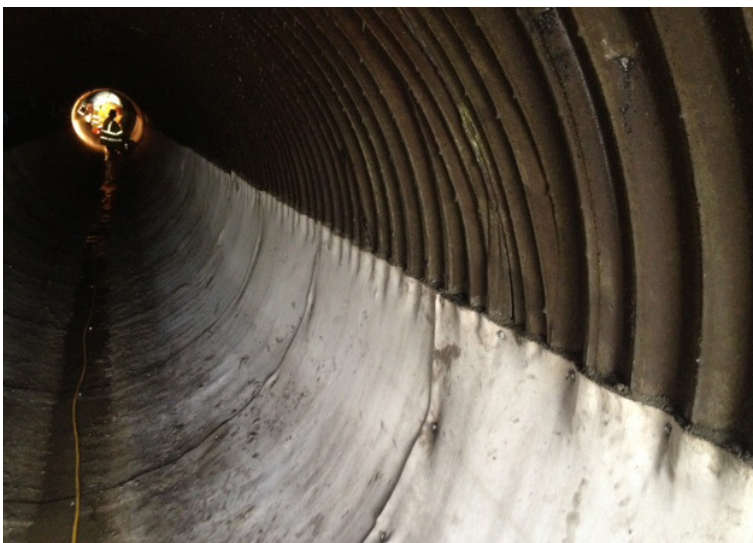
The culvert was pressure washed to remove the degraded bitumen



Semi-dry grout was applied to fill in the corrugations



CC5 was applied in transverse layers inside the culvert



Stainless tech screws were used to fix the CC8 to the pipe



Relined culvert section