

Project Info



19 / 09 / 16



CC5™ Batched Rolls



50m²



Longitudinal layers



N4 Watervalboven,
Mpumalanga



WBHO



CC5™ was used to
line a 48m long culvert
located along the N4 toll
road in Watervalboven,



The culvert prior to installation

In September 2016, Concrete Canvas® GCCM* (CC) was used to remediate a culvert along the N4 toll route in Watervalboven, Mpumalanga, South Africa. The culvert had previously been lined with corrugated steel, however abrasion had damaged the galvanised layer of the material, which had lead to the rapid deterioration of the steel itself, particularly where water was trapped in the corrugations.

The culvert is 48 metres long, and 900mm in diameter, and was posing serious occupational and health risks to the people working in it. The culvert also posed the challenge of difficult access, which presented the team with a problem during the project.

Conventional remediation methods on a culvert of this size are very costly and complex, and removing and replacing the culvert in its entirety would also be very expensive and challenging. CC proved to be a much more feasible solution as it was less expensive, easier to install and could be cut and transported in smaller, manageable lengths to take the restrictions of the culvert into consideration.

The works were carried out by WBHO for TRAC, with input from consultants SMEC.

*Geosynthetic Cementitious Composite Mat





Existing corrugated steel culvert



Bulk roll



CC5™ was cut to 8m lengths for easy transportation on site



Laying CC5™ lengths in culvert



Fixing with pop rivets



Completed installation

*Completed installation*

50m² of CC5™ were installed in ten days, despite cramped conditions in the culvert, restricted access to the site and the challenge of the team needing to transport the material by hand in 8m sections.

The culvert was cleaned of all debris and standing water, before the team began to chip away the head wall at the inlet end in order to create an exposed edge to fix the CC to. The CC5™ was then cut to manageable lengths of 8m and carried down the slopes by the team to the inlet end. It was drawn through the culvert by hand, placed in position and pop-riveted to the existing steel culvert. Finally, the 8m cut sections were overlapped by 100mm and pop-riveted at the joints for additional security, the CC was then hydrated by hose pipe.

“With the use of the Concrete Canvas, the Client was able to keep the existing culvert in place, giving it a new lease of life. This is a huge cost saving when compared to replacing the culvert entirely.”

Christiaan Van Wyk
KayTech Engineered Fabrics