

Project Info



September 2015



CC8™ Bulk Rolls



125m²



Longitudinal layers



Ravensdale, Washington,
USA



Tacoma Water



CC used to remediate a rusting culvert in a trial to establish CC's suitability for culvert lining projects in the area



Joining CC layers using self-tapping screws

In September 2015, Concrete Canvas® (CC) GCCM* was used to line a culvert for the City of Tacoma Water in Washington, USA. The project was carried out as a trial to determine the suitability of CC for other projects in the area. The City of Tacoma invited several other departments along with county and state agencies to observe the installation.

The culvert was found to be rusting but still structurally sound. Remove the culvert and completely replacing it would have been very costly, with culvert replacement projects often costing upwards of \$150,000 depending on the infrastructure on site and the complexity of the project. CC can be installed as a remediation solution with projects costing 2%-10% of the cost of replacement with work being carried out in a matter of days rather than weeks or months.

CC has been approved for use in live water courses due to its low wash out rate and low alkaline reserve, simplifying the installation process and making it an eco-friendly concrete alternative. There is also no requirement for specialist equipment or labour, allowing for on-site training and rapid installation with basic hand tools. The material also has a design life of approximately 50 years.

The CC was delivered to site in bulk rolls, which were held from above the culvert using a small backhoe with a spreader beam attachment. The CC was pulled into the culvert, covering the full length of approximately 52 linear meters. The CC was then cut using a utility knife and a second length of material was pulled in. The lengths of CC overlapped by 100mm in the centre of the culvert floor, extending up the sides of the culvert.

*Geosynthetic Cementitious Composite Mat



The CC was fixed to the culvert using self-tapping screws and washers at intervals of 200mm. The raw side edges of the CC were then sealed to prevent ingress during periods of high water. The overlap in the centre of the culvert floor was then sealed using Sika 1A Sealant to ensure a waterproof joint. Self-tapping screws with washers were then also applied along the joint to secure it to the culvert floor. Once this process was completed along the full length of the culvert, the CC was hydrated using a fire hose and local water line.

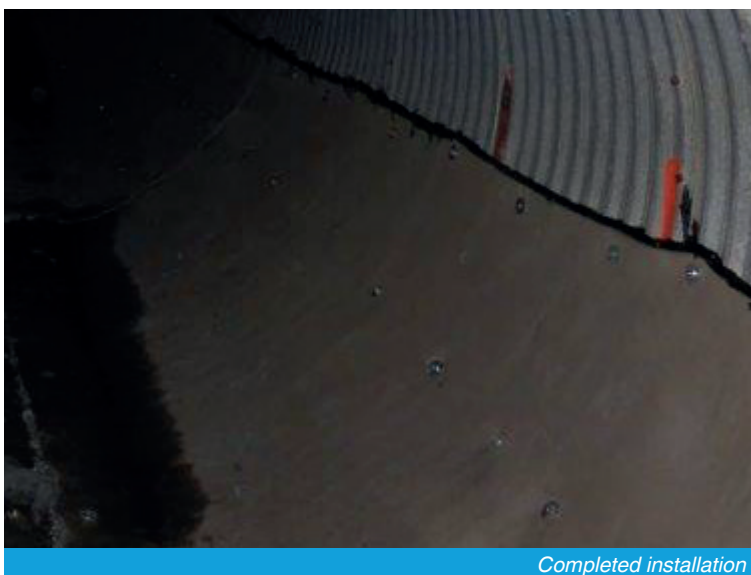
The installation was carried out in just 2 days by a team of 8, utilising just one bulk roll of CC8™. The time spent a total of three days on site, with the first day used to carry out preparatory works, while the CC was installed on the following two days.



Site access restrictions meant CC had to be deployed from above the culvert



Sealant was used to create a waterproof joint at the overlap of CC layers



Completed installation