

Project Info



01 / 11 / 22



CCT2™ Bulk Rolls



250m²



Transverse layers



Irish Rail Waterford
Plunkett Station,
Waterford City, Ireland



Cumnor Construction
Ltd



Installed to line a crest
drainage channel,
diverting water away to
prevent landslips and
rock falls caused by
saturation.



Completed Installation

In November 2022, Concrete Canvas® GCCM* was specified as a lining solution on a crest drainage channel located along a steep rock face located by a railway line at Waterford Plunkett Station, Waterford City, Ireland.

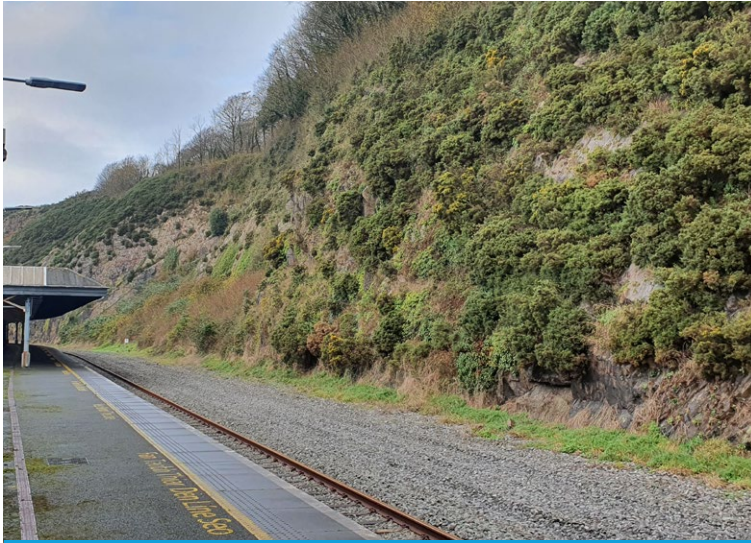
Historically, a number of landslides have occurred along the extents of the rock face at Plunkett Station. Irish Rail track inspection records provide evidence of this with rockfall of varying size being recorded frequently over the past 50 years. In order to secure the safety of this railway line, it was deemed that approximately 400m of the rock cutting, located immediately adjacent to the line in the vicinity of the existing Plunkett Station, would require remedial works.

The remedial works, included rock face stabilisation and formation of a 100m long interceptor channel at the crest of the in order to divert water away from the rock face.

Several lining solutions were considered for the interceptor channel during the design stage by Roughan & O'Donovan Consulting Engineers, which included a precast concrete channel option. However, it was decided that Concrete Canvas® was the ideal solution due to the difficult to access site at the top of a steep cliff and the speed and ease of installation.

*Geosynthetic Cementitious Composite Mat





Plunkett Station rock face prior to works



V-Bucket excavation



CCT2™ Measured prior to cutting



CCT2™ cut to desired length



Non-woven geotextile laid into channel



CCT2™ laid transversely & secured with 30mm stainless steel screws



CCT2™ pegged into anchor trenches



CCT2™ material prior to hydration



Channel terminated into precast headwall with 300mm pipe



Completed installation bedded in

The consulting engineer specified Concrete Canvas® CCT2™ material to line the channel. CCT2™ is a **Type II GCCM** as defined in [ASTM D8364](#), it is suitable for use on soil subgrades and was chosen for this project to suit the abrasion, wear and loading requirements.

Prior to the installation of the CCT2™, Cumnor Construction Ltd cut a new open channel at the top of the slope using a 13-tonne excavator with a v-ditch bucket attached. The CCT2™ Bulk Rolls were delivered to site and deployed using a spreader beam mounted on tracked plant machinery.

The contractor placed a non-woven geotextile underneath the CCT2™ material to compensate for the irregular subgrade and to keep the working area clean and tidy. The material was laid into the channel transversely and cut to specific profile length to eliminate wastage. The CCT2™ layers were overlapped by 100mm in the direction of water flow and were then screwed together at 200mm intervals using 30mm stainless steel screws.

The material was terminated into 150mm anchor trenches on either side of the channel and fixed to the substrate using 250mm ground pegs prior to being backfilled with material to prevent water undermining the material. The channel terminated into a newly installed precast headwall with a 300mm pipe which guided the run-off down the steep rock face and through a stilling tank and eventually into the River Suir.

The material was fully hydrated at the end of every shift with a hose from a 2000L water bowser. In total 250m² of CCT2™ was installed in 2 days with a team of five including the machine operator in a difficult to access location and inclement weather. By lining the channel with CCT2™, any future maintenance has been greatly reduced and the lined crest drainage channel will help manage the flow of water and prevent any slope failure in the future.