










Project Info

-  08 / 18 / 22
-  CCX-M™ Bulk Rolls
-  # 8,600ft²
-  Transverse layers
-  Charlottesville, Virginia, USA
-  Curtis Contracting
-  CCX-MAT™ (CCX-M™) installed to provide erosion control a v-ditch located in close proximity to an adjacent trafficked intersection.

Completed CCX-M™ Installation

In August 2022, CCX-MAT™ GCCM* (CCX-M™) was used to provide erosion control to a newly installed V-ditch in Charlottesville, Virginia, off Interstate 64. Access to site was limited with construction in close proximity to the adjacent trafficked intersection.

Cast in place concrete was previously specified for lining of the V-ditch but cost and access to site for readymix concrete trucks became prohibitive. CCX-M™ was proposed as an alternative and was selected based on its overall feasibility, including competitive cost, speed and ease of installation. The works were carried out by Curtis Contracting.

CCX-M™ is a **Type II GCCM** as defined in **ASTM D8364** - Standard Specification for GCCMs. CCX-M™ is suitable for lining hydraulic structures with both soil and solid subgrades and was chosen for this project to suit the abrasion, and loading requirements.

The subgrade was composed predominantly of shales requiring careful attention to excavation and dressing of the V-ditch profile. The V-ditch profile was cut with an excavator bucket approximately 5 feet wide by 1 foot deep with shallow anchor trenches approximately 6 inches deep at 4 inches from the ditch crest. Site conditions at the time of installation were hot with temperatures reaching in excess of 85° F.

CCX-M™ was delivered to site on pallets consisting of 3 Bulk Rolls of 82 ft long by 6.2 ft wide. The rolls weighed approximately 1,500 lbs each. The palletized rolls were stored on site under a weatherproof plastic sheet. The Bulk Rolls were mounted on a spreader beam and lifted by excavator. CCX-M™ was drawn off the rolls by hand and cut to length.

*Geosynthetic Cementitious Composite Mat



V-ditch dug with excavator



CCX-M™ cut to desired length with hand tools



CCX-M™ laid transversely



Overlapping layers sealed and screwed



CCX-M™ hydrated



Temporary ballasting sandbags



Completed works

The pre-cut CCX-M™ lengths of approximately 7ft each were carried into position by hand and placed in a transverse layup. CCX-M™ was overlapped by a minimum of 4 inches. The underlaps of each joint were hydrated and a single 1/3 -inch bead of adhesive applied 2 inches from the underlap edge. The overlaps were then fixed with 1 1/4-inch stainless steel screws at 4-inch spacing, 2 inches from the overlap edge. Each overlap was pegged within the anchor trench with a 12-inch J-peg.

CCX-M™ was hydrated to saturation 3 times with the 1st, 2nd and 3rd hydration applied within 30 minutes of each other. To ensure close conformity to the V-ditch profile and mitigate any lifting due to drying shrinkage, a sandbag was placed as temporary ballast to each CCX-M™ overlap immediately after hydration. The sandbags were left in place for a minimum of 24 hours from 1st hydration. After hydration the anchor trenches were back filled with excavated subgrade material.

In total, approximately 8,600 ft² of CCX-M™ installed by 6 installers over a duration of 5 days. Installation rates were dictated by the speed of excavation and dressing of the hard shale subgrades and could have progressed at a much greater speed.

Curtis Contracting was impressed with the speed ease of installation as well as the rapid set and robustness of CCX-M™. CCX-M™ is now being considered for future projects.