

Project Info



08 / 18 / 22



CCX-M™ Bulk Rolls



8600ft²



Transverse layers



Charlottesville, Virginia,
USA



Curtis Contracting for
Virginia Department of
Transport (VDOT)



CCX-MAT™ (CCX-M™)
installed to line a v-ditch
in close proximity to
an adjacent trafficked
intersection providing
erosion control.



Completed CCX-M™ Installation

In August 22, CCX-MAT™ GCCM* (CCX-M™) was used to provide erosion control to a newly installed V-ditch in Charlottesville, Virginia off Interstate 64 for the Virginia Department of Transport (VDOT). 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 to cast in place concrete and was selected based on its overall feasibility, including competitive cost, speed and ease of installation. The works were carried out by Curtis Contracting for VDOT.

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.

*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



Anchor trenches back filled



Image title

CCX-MTM was delivered to site on pallets consisting of 3 Bulk Rolls of 82 ft long by 6.2 ft wide. The rolls weighed approximately 1500 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-MTM was drawn off the rolls by hand and cut to length.

The pre-cut CCX-MTM lengths of approximately 7 ft each were carried into position by hand and placed in a transverse layup. CCX-MTM was overlapped by a minimum of 4 inches. The underlaps of each joint were hydrated and a single $\frac{1}{3}$ -inch bead of adhesive applied 2 inches from the underlap edge. The overlaps were then fixed with 1 $\frac{1}{4}$ -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-MTM 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 of CCX-MTM due to drying shrinkage, a sandbag was placed as temporary ballast to each overlap immediately after hydration. This was left in place for a minimum of 24 hours from 1st hydration. After hydration the anchor trenches were then back filled with the excavated subgrade.

In total, approximately 8600 ft² were 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.

Both Curtis Contracting and VDOT were impressed with the speed ease of installation as well as the rapid set and robustness of CCX-MTM. CCX-MTM is now being considered by VDOT for future projects.

