CCX™
Innovation on a Roll

SLOPE PROTECTION

Project Info

- 09 / 10 / 21
- CCX-U™ Bulk Rolls
- 93m²
- Vertical layers
- Warehouse, JT Ross Park Northfield, Durban, South Africa
- Adferiad Pty Ltd
- CCX-Utility (CCX-U™) was installed as slope protection below a perimeter fence line.

Completed slope protection works

In October 2021, CCX-U™ GCCM* was used to provide slope protection below a fence of the newly constructed Warehouse at JT Ross Park Northfield in Durban, preventing erosion during rainfall events.

During the rainy season, the slope is susceptible to erosion and the project engineer assessed that a slope protection solution was required to prevent encroachment into the site. To meet programme and budgets, the solution needed to be quick and cost effective to install.

Alternative methods were considered, however installing CCX-U™ was found to be the best solution as it has less impact on the environment, is faster to install, required less people to carry out the work and no additional machinery was needed.

CCX-U™ is a Type II GCCM as defined in ASTM D8364 - Standard Specification for GCCMs. CCX-M™ is suitable for providing slope erosion protection to soil subgrades and was chosen for this project to suit the abrasion, wear and loading requirements. ASTM D8364 is the only internationally recognised GCCM specification standard and defines the minimum performance values based on the use of test methods that are specific to GCCM materials. It is an important resource for clients, consultants and contractors wishing to ensure the GCCM used on their project is fit for purpose.

The works were carried out by Adferiad Pty Ltd under the supervision of the main contractor and client WBHO / JT Ross.

*Geosynthetic Cementitious Composite Mat

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CCX-U™ measured before cutting and installing

CCX-U™ Installed transversely down the slope

CCX-U™ fixed with 6x50mm masonry anchors

Overlapping layers secured with 100mm screws in zigzag pattern

CCX-U™ fully hydrated and anchor trench filled

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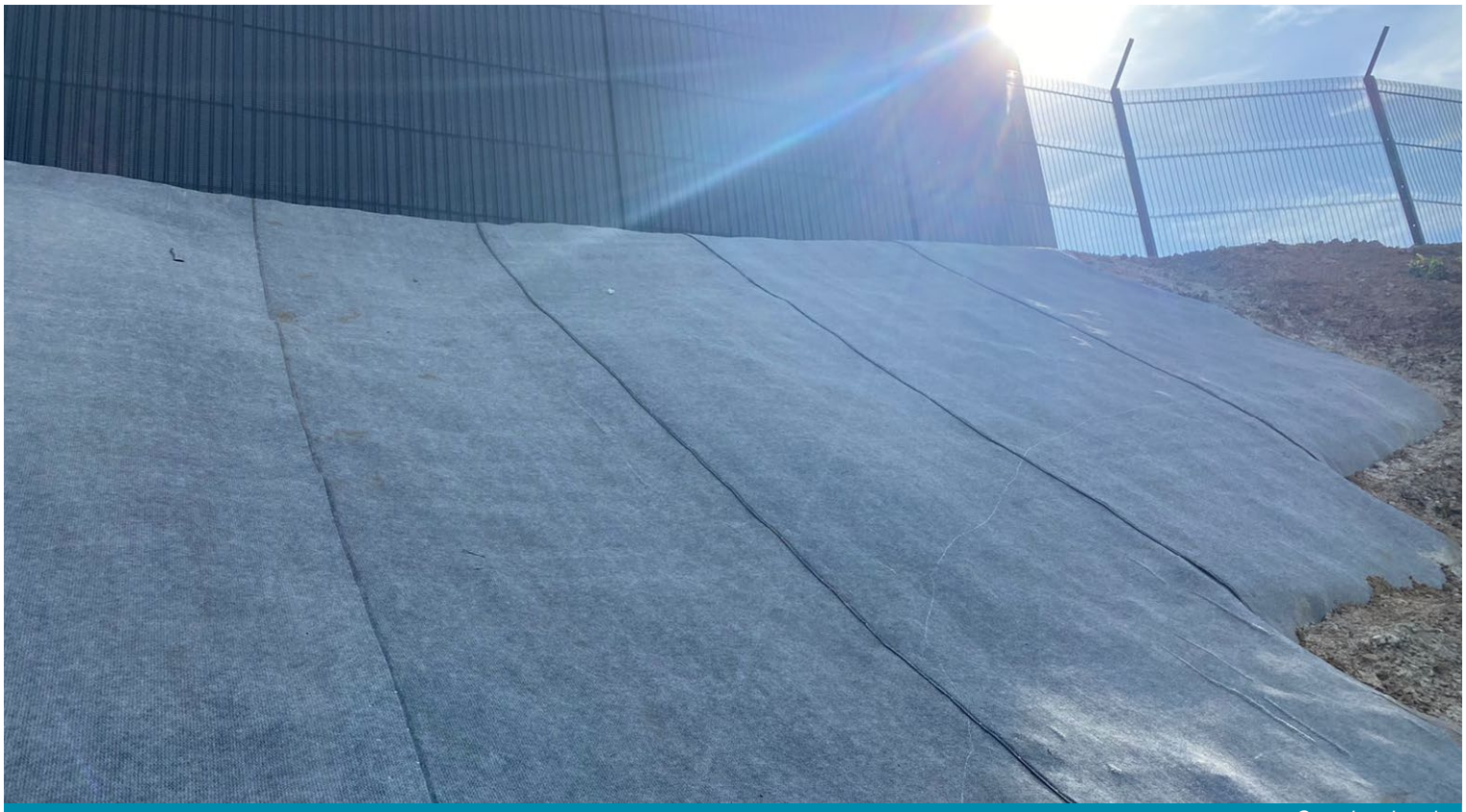

Completed works

Prior to CCX-U™ being installed, all vegetation on the slope was removed and voids were filled in to create an even surface. A 200x200mm anchor trench was excavated at the toe of the embankment by hand.

As the site had very limited access for heavy machinery, the CCX-U™ was offloaded by a telehandler close to the installation point. One Bulk Roll of CCX-U™ was unrolled and cut to the desired length using a stanley knife. Once cut, the strips of CCX-U™ were transported by hand and laid transversely and temporarily secured with 300mm long galvanised pegs to each 100mm overlap.

Due to a pre-existing fence and concrete kerb at the crest, the CCX-U™ was fixed into the concrete kerb with 6x50mm masonry anchors with a galvanised 50mm washer at a spacing of 200mm. The CCX-U™ was cut to sit flush around fence posts and a sealant was applied along the entire crest perimeter edge to reduce water ingress and potential for undermining. To prevent movement or lifting between the overlapping edges of CCX-U™, each overlap was secured with 100mm stainless steel screws and positioned in a zigzag pattern. Once the CCX-U™ was secured, it was hydrated twice, 30 minutes after the first hydration until saturated. Once fully cured the anchor trench was backfilled with 4% cement soilcrete and compacted.

93m^2 , including earthworks, was installed in two days with a team of 4 people with the works having to be completed quickly before the rainy season began.

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