

## Project Info



26 / 01 / 15



CC8™ Bulk Rolls



375m<sup>2</sup>



Vertical layers



Dasmarinas, Cavite,  
Philippines



PGA - Earth Structure  
Solutions, Inc.



To replace the damaged  
existing concrete lining



PGA - EARTH STRUCTURE SOLUTIONS



The completed installation

In January 2015, Concrete Canvas® GCCM\* (CC) was used as a Slope Protection solution at Dasmarinas, Cavite, Philippines. The main objective was to replace an existing damaged concrete lining. Initially the client wanted to replace the damaged concrete lining with a reinforced concrete wall. Upon seeing a CC presentation made by PGA - Earth Structure Solutions, Inc., Suntrust Properties found the installation advantages to be extremely attractive. A CC based installation was more economical than a reinforced concrete solution, as it would not have required any formworks etc.

The works were carried out by PGA - Earth Structure Solutions, Inc. towards the end of the Summer season, approaching the rainy season. The whole area measured from 4m to 7m at its highest point by 52.5m wide. Prior to installation, the existing damaged concrete lining was removed along with the manual removal of any vegetation at the upper section of the slope.

Concrete Canvas® is a cement impregnated geotextile that hardens on hydration to form a durable, fibre reinforced, impermeable concrete layer. The material was deployed from large bulk rolls mounted on spreader beam equipment, this is usually the case for larger projects and where plant is available. CC can be cut to the exact size of any given application, eliminating waste and accommodating variations in profile. CC's main advantages over conventional concrete are speed and ease of install, cost savings, durability and environmental friendliness.

\*Geosynthetic Cementitious Composite Mat







Existing damaged concrete lining



Holes were pre-drilled for the grouted anchors



The CC was pegged into the anchor trenches



CC will accommodate any variations in profile



The CC was installed around the anchor protrusions



The installation nearing completion





The complete installation, a further proposal including the use of CC was required for the other side of the bridge

The was CC was laid vertically with 100mm overlaps. Grouted anchors were installed (1.5m x 16mm Ø) for additional stability on the slope. Clear-Fix sealant was used at each overlap with stainless screws at 200mm centres to joint the material. Steel pegs were used to fix the Concrete Canvas® into the anchor trench, this was then backfilled. Hydration was achieved via an ordinary garden hose pipe and nozzle combination.

The project was a success. On completion, a proposal was required for the other side of the bridge as Suntrust Properties wanted to plan preventative protection measures since viewing the completed installation.

“Based on our estimates, our proposal was significantly lower as our mobilisation costs were much smaller and in this case, a CC-based system was more economical than a reinforced concrete solution which required formworks.

There will always be tricky quality control issues when building heavy concrete walls in areas of highly fluctuating water levels. Using Concrete Canvas® allowed us to hurdle over a lot of those issues. There would not have been any compromises as far as quality was concerned had the high river water levels lingered.”

Statement from - PGA - Earth Structure Solutions, Inc.