

Concrete Cloth™

Geosynthetic Cementitious Composite Mat



Project Overview

Coo & Van Loo, an engineering design firm out of Phoenix, Arizona, commonly encounters the design of channels with steep grades located in remote areas of the Southwest. The options available to them are riprap, cement stabilized soil (called soil cement), cast-in-place concrete, shotcrete, among other erosion control methods. Wanting to expand their range of options, they decided to specify Concrete Cloth GCCM for Channel 8 on the Wetherill Heights Road Improvements and Drainage Plan.

Where relatively flat grades are designed, soil cement was specified. However, Channel 8 had grades over 20 percent and would experience much higher velocities, creating greater erosion potential than other areas on site.

Solution

For many of the flatter grades soil cement has worked very well. For steeper grades the soil cement is designed to be much thicker than when it is used for flatter grades. This thicker section is more expensive than the thinner section that is adequate where flatter grades exist. However, the design engineer needed a better option.

Ultimately, Concrete Cloth GCCM was chosen to line the channel and the outside edges were buried two feet deep so that the sheet flow of water perpendicular to the channel would not undermine the material.

Significant savings are possible when Concrete Cloth material replaces a thick section of soil cement. Typically, soil cement is constructed in lifts eight to 12 inches thick. Thicker sections that are constructed of multiple lifts are much more expensive than Concrete Cloth GCCM. For this reason, Concrete Cloth material was chosen.

Before the start of the installation, heavy rain had caused significant erosion. The contractor had a significant amount of re-grading work not only at the location of channel 8, but across the project area. Directly at the location of Channel 8 the channel was graded and trenches were dug for burial of the outside edges of the Concrete Cloth material.

Results

The contractor was expecting the installation to take up to four days to install. Needless to say, installing the entire 12,000 square feet on the first day was a welcome surprise. Although it rained during installation and after finishing, the material remained unaffected. Soil cement could not have been installed in these conditions, which would have set the project back even further, forcing the contractor to re-grade the area after another washout and subsequently increasing project costs.

Total project cost of the installation only of the Concrete Cloth material, not including grading, was less than a dollar a square foot. The speed of the installation exceeded everyone's expectations, especially in the rain. The contractor's pre-installation planning allowed the contractor to complete the project in two days. Next time the contractor will have the experience to complete this type of project in one day.

Project Details

Application: Channel lining

Client: Kayenta Township, Navajo Co.

Location: Kayenta, AZ

Product Used: CC8, approx. 12,000 sf

Installation: September 2013

Installer: Pine River Construction, Inc

Takeaway

Concrete Cloth material enabled the installer to continue work in rainy conditions and complete the project on-time and under budget.



The entire 12,000 square feet of Concrete Cloth material was installed in one day, despite rainy conditions.



Concrete Cloth™

Channel Lining



Pre-installation preparation



Laying the Concrete Cloth material



Hydrating the Concrete Cloth material