

TE-6 Geotextile, TE-BX20 PP Grid,
Concrete Canvas GCCM CC8

WHAT:

Use of Titan's TE-6 Geotextile, TE-BX20 PP Grid and Concrete Canvas® GCCM rolls for a culvert replacement and headwall reinforcement project.

APPLICATION:

Removal and installation of a 1.5M Corrugated steel Pipe, using Titan's TE-6 non woven Geotextile and Titan's TE-BX20 PP Biaxial Geogrid as ground reinforcement and Concrete Canvas rolls for the culvert headwalls.

CONVENTIONAL SOLUTION:

The conventional solution would be to hard armor the culvert headwalls with rip rap. Rip rap is extremely hard to find in Saskatchewan. In addition it is very expensive and does not perform well.

TITAN SOLUTION:

Titan recommended non woven geotextile be placed in bottom of trench and the BX20PP be laid on top of the non woven. Sand was then laid on top as a bedding that was compacted. The culvert was placed in the trench, with backfill put around the culvert and the entire area was compacted.

The RM put the 6oz non woven geotextile with the BX20PP on top of the compacted fill above the culvert approximately 450mm under the roadway top, making sure to extend past the trench into the solid roadway. Providing excellent ground stabilization for vehicle traffic. Both ends of the culvert slopes were prepared for the Concrete Canvas® (CC), keeping in mind the 4 key installation principles. Twenty-five square meters of CC8 batch rolls were installed on both ends of the culvert outfalls. The CC edges were all anchored and fixed into an anchor trench. Hydration was completed using an onsite water source. The anchor trenches were then back filled.

Concrete Canvas® general installation guidance, generic drawings of the installation process, along with fixing and jointing details were provided.

The RM did the entire installation with out any further questions or issues.



▼ PRODUCT DESCRIPTION:

TE-6 Non-Woven Geotextile

Titan's non woven Geotextiles provide the containment and erosion control industries with the highest quality geotextiles available. These needle-punched geotextiles are made of 100% polypropylene staple fibers, which are formed into a random network for dimensional stability. They resist ultraviolet deterioration, rotting, biological degradation, naturally encountered basics, and acids. Non woven geotextiles are used in many applications such as drainage, filtration, separation, and soil reinforcement.

TE-BX20 PP Biaxial Geogrids

TE-BXPP is a biaxial geogrid designed to increase the bearing capacity and stabilization of low load bearing soils.

It is manufactured out of virgin polypropylene (PP) using a unique punching and drawing process whereby the polypropylene sheet is stretched in two directions, machine (longitudinal) and cross-machine (transverse). This geogrid features uniform square/rectangular apertures with thick integral nodes, and thick/wide ribs. Its uniform geometric design allows for strong mechanical interlock with soil particles.

Concrete Canvas® GCCM

This revolutionary product is part of a new class of construction material known as a Geosynthetic Cementitious Composite Mat (GCCM).

A GCCM is a factory assembled geosynthetic composite consisting of a cementitious layer contained within one or multiple layers of geosynthetic materials. Concrete Canvas® is a flexible, concrete filled geosynthetic that hardens on hydration to form a thin, durable, waterproof and low-carbon concrete layer. Essentially, it's concrete on a roll and allows concrete construction without the need for plant or mixing equipment: just add water. Concrete Canvas® is typically used to replace conventional concrete (in-situ, precast or sprayed) for erosion control, remediation and construction applications. As a GCCM supplier, we offer Concrete Canvas® in 3 thicknesses: CC5, CC8 and CC13, which are 5, 8 and 13mm thick respectively. It is also available in three formats, man portable Batched Rolls, Bulk Rolls and Wide Rolls; which is why it is coined Concrete on a Roll.

▼ BENEFITS:

- More cost effective than conventional rip rap
- Quick and easy to install
- No special equipment required for installation

▼ PROJECT HIGHLIGHTS:

Project:

Culvert replacement and headwall reinforcement

Location:

RM of Bengough

Installation:

Summer 2020

Owner:

Rural Municipality of Bengough, Saskatchewan

Consulting Engineer:

General Contractor:

RM of Bengough

Product Solution/System:

TE-6 Geotextile (1 roll), TE-BX20 PP Grid (2 rolls)
Concrete Canvas GCCM CC8 (10 rolls)

Product Supplier:

Titan Environmental Containment Ltd. Manitoba, Canada
(Supplied the products, and offered design service and technical guidance)



Concrete Canvas batched rolls installed around culvert headwalls.

Contact us for more information:

TITAN ENVIRONMENTAL CONTAINMENT

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