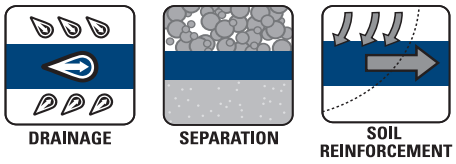
TENCATE Mirafi®



Case Study

application	Reinforced Soil Slope
location	Bennington Bypass, Bennington, VT
product	Miragrid® 24XT , 2XT and Mirafi® 180N
job owner	VT Agency of Transportation
engineer	GZA GeoEnvironmental, Inc.
contractor	J. A. McDonald

TenCate™ develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

THE CHALLENGE

The Bennington Bypass will function as an alternate route for US Route 7 and Vermont Route 9 in the Bennington, VT area. The Bypass will provide through traffic with a convenient, high capacity highway around downtown Bennington and Old Bennington. This will reduce delays, improve safety and decrease congestion for through traffic and local traffic. In addition, it will allow better use of the local street system by residential and commercial traffic as well as pedestrians, bicyclists and other users of the local streets.

THE DESIGN

In order to support a 700' bridge, designers were challenged to design a support system for the west abutment over the Furnace Brook section of the project.

One option to support the west abutment was to incorporate steel piles and compacted earth. However, soil borings indicated only medium dense soil which would require the steel piles to be driven in excess of 25 meters. Therefore, the reinforced soil slope was considered to be the best option for support.

THE CONSTRUCTION

After excavating and compacting the base elevation for the support pad, a perimeter drain was installed using Mirafi® 180N. Fourteen panels of Miragrid® 24XT, the strongest manufactured geogrid, was then installed as the primary reinforcement with embedment lengths of 34 meters. Granular borrow from onsite was trucked in using a D350 material hauler and spread to thickness of 200mm using a John Deere 550 dozer and then compacted to 95% maximum density by a CAT 563 vibrator/compactor. At 400mm, a secondary reinforcement layer of Miragrid® 2XT with an embedment length of 1.8 meters was installed.

This procedure was continued in four stages with each stage having primary embedment lengths of 34m, 23m, 14.5m and 10m utilizing up to 18 panels in each stage. Final height of the reinforced slope was 17 meters. The face of the slope was covered with Mirafi® 180N and covered with riprap and the side slopes were vegetated.

Base elevation with perimeter drain being installed.

First layer of Miragrid® 24XT placed at base elevation.

BELOW: Final elevation of support pad for west abutment.

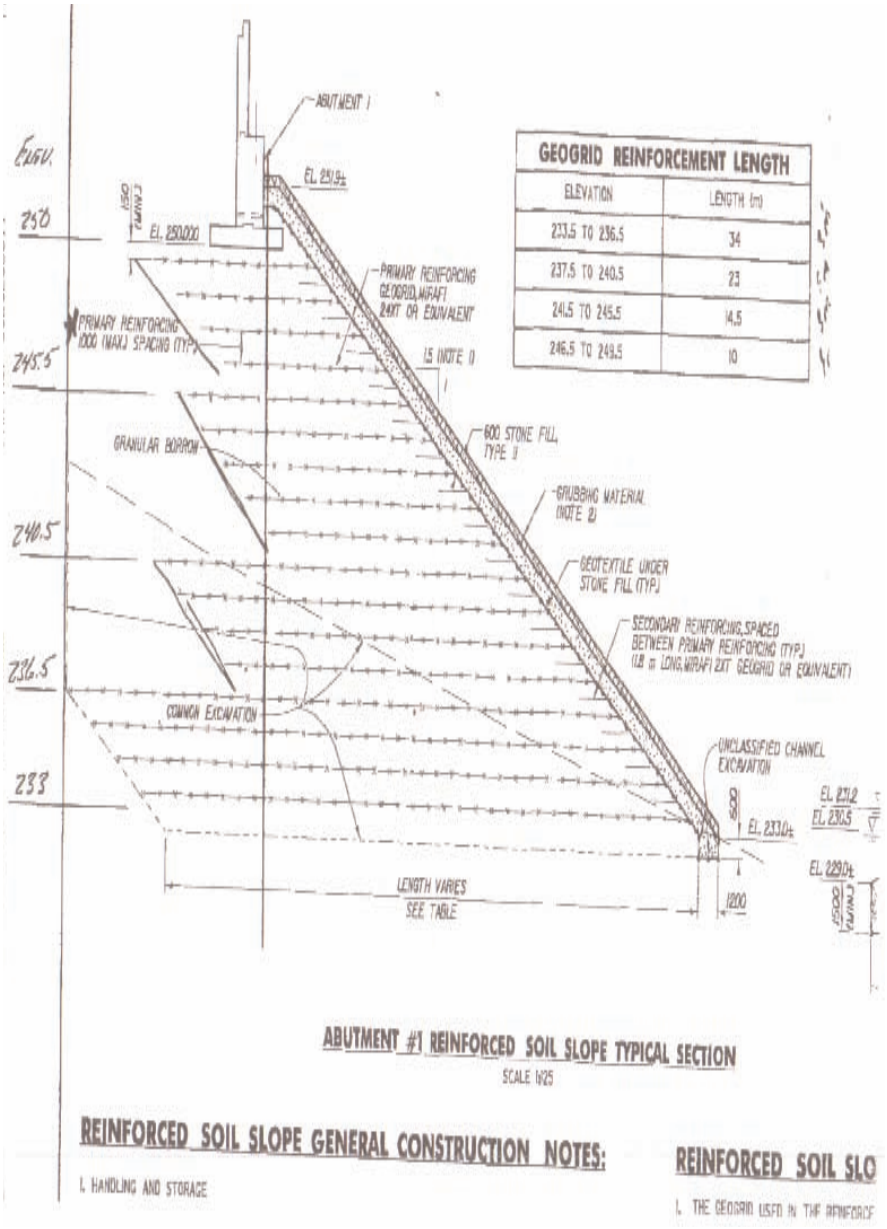
Protective & Outdoor Fabrics
Aerospace Composites
Armour Composites
Geosynthetics
Industrial Fabrics
Synthetic Grass

TENCATE™
materials that make a difference

THE PERFORMANCE

By utilizing a reinforced soil slope over the steel piles, the contractor was able to construct a support pad for the bridge abutment. The contractor was able to construct this support pad using minimal equipment and labor and in a timely fashion thus creating considerable cost savings for the state.

Facing of slope using onsite rip rap and vegetation.



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