

Case Study

application | Mechanically Stabilized Earth Wall
location | Schnecksville, PA - Route 309
product | Miragrid® 7XT, 8XT, 10XT & 1100NPA

job owner | PennDOT
engineer | PennDOT
contractor | J.D. Eckman

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

Increased growth in the Schnecksville area of Pennsylvania required a road reconfiguration project. The project consisted of major road widening, intersection realignment and replacement of an old low-volume road by relocating and constructing a new wider, high volume road, with as little impact on a wetland area as possible.

THE DESIGN

A Mechanically Stabilized Earth (MSE) wall was chosen as the best option to minimize the impact through the wetland area. The MSE wall was also more cost effective and was considerably faster and easier to construct.

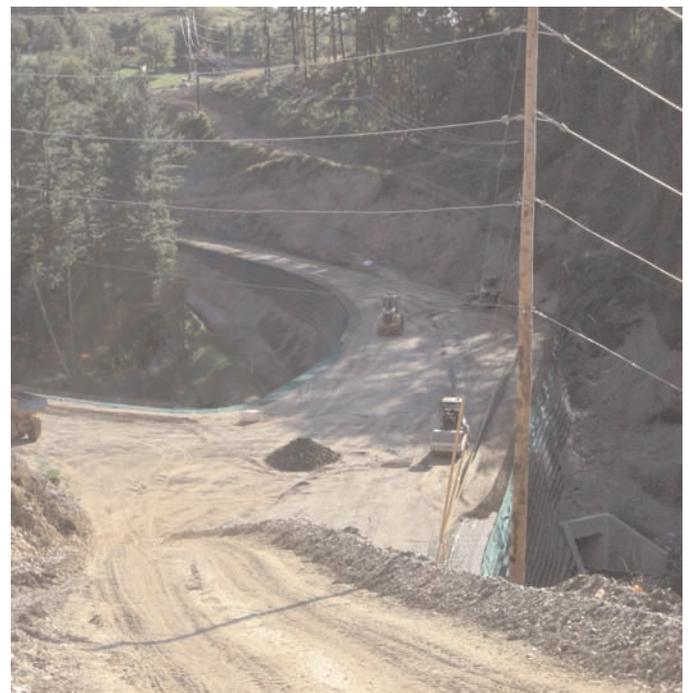
To minimize the structure's footprint, the walls were designed with a 0.5' batter, thus reducing the overall footprint of the raised roadway. The new roadway is 1050' long with a 450' spur and has heights up to 50'.



Beginning of the project showing the first lift.



Box culvert entrance head-wall.



Overhead view of construction of roadway and spur.

THE CONSTRUCTION

Once a new, larger culvert was installed, construction of the MSE wall began. Utilizing welded wire forms, Miragrid® XT geogrids were placed as the primary reinforcement and a turf reinforcement mat was placed in the face of the form. 3" minus fill from onsite was placed and compacted in 9" lifts. Mirafi® 1100NPA was installed as a secondary reinforcement with additional compacted fill on top. The turf reinforcement mat was then folded over to retain the soil in the face of the form. This process was continued until to the desired elevation was achieved.

THE PERFORMANCE

The state and the contractor are very pleased with the outcome of the MSE wall. What was considered to be the difficult portion of the project turned out to be the least troublesome. By utilizing Miragrid® XT uniaxial reinforcement geogrids and high strength geotextiles, the contractor was able to construct an alternate roadway instead of a bridge with little environmental impact and in a timely and cost effective manner.



Final elevation.



Midway through construction of the roadway and spur.

TenCate™ Geosynthetics North America assumes no liability for the accuracy or completeness of this information or for the ultimate use by the purchaser. TenCate™ Geosynthetics North America disclaims any and all express, implied, or statutory standards, warranties or guarantees, including without limitation any implied warranty as to merchantability or fitness for a particular purpose or arising from a course of dealing or usage of trade as to any equipment, materials, or information furnished herewith. This document should not be construed as engineering advice.

Mirafi® is a registered trademark of TenCate™ Geosynthetics North America.

12.08