

## Case Study

**application** | Permanent Geosynthetic Wrapped Face MSE Wall  
**location** | North America  
**product** | Miramesh® SG, Miragrid® 10XT & 5XT

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

Today, Mechanically Stabilized Earth (MSE) retaining walls are commonplace on building sites and along roadways. The typical wall facing is a precast concrete facing panel and masonry block. However, through innovation and design, TenCate has developed the first permanent geosynthetic wrapped face MSE wall using Miramesh® SG synthetic grass geosynthetic combined with Miragrid® XT geogrid soil reinforcement.

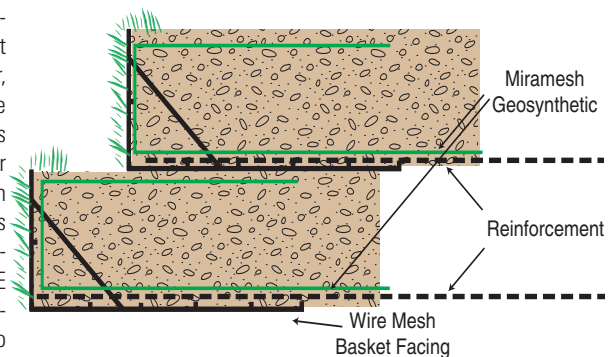
### THE DESIGN

On this project, significant grade changes were encountered on a new highway alignment through beautiful mountainous terrain. Vertical retaining walls were needed to support the new roadway in the limited access space. In order to satisfy the project economics, the owner chose MSE retaining walls, geosynthet-

ic wrapped face MSE walls provide vertical grade separations at significantly less cost. However, the long term design life of the geosynthetic face has always been the limiting factor in their use. The MSE wall system design providing the best solution was Miramesh® SG synthetic grass-geosynthetic wrapped face MSE wall with Miragrid® XT soil reinforcement geogrids. The benefit to the owner is an economical and structurally sound permanent green wall face with no maintenance.

### THE CONSTRUCTION

Miramesh® SG synthetic grass face geosynthetic consists of an 18 inch wide synthetic grass strip embedded in the 8 ft wide Miramesh® biaxial green geogrid mesh. The artificial grass strip makes up the exposed wall face while the remaining Miramesh® SG is used as an embedment anchor into the wall structure. Temporary forms were used at the wall face in the installation of the geosynthetic wrapped face MSE wall. Miramesh® SG is placed inside the tempo-



rary form. On this project, the contractor chose two types of forming systems. On one wall temporary wood forms were attached to steel brackets inserted into the wall face and moved up with each geogrid lift. On another wall, the contractor bent welded wire reinforcement into L-shaped wire baskets.



Miramesh® SG synthetic grass wall face



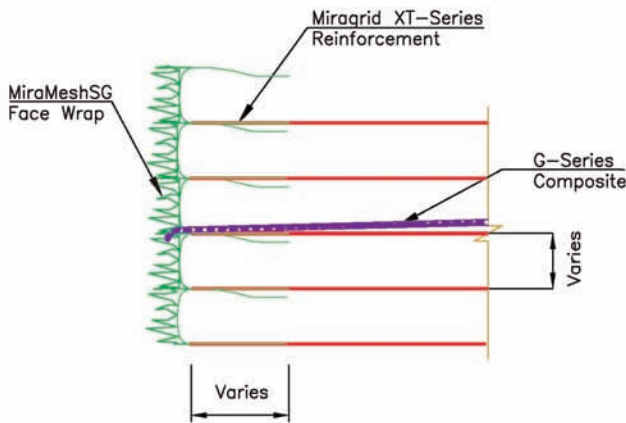
Wood forms used during wall installation

**THE PERFORMANCE**

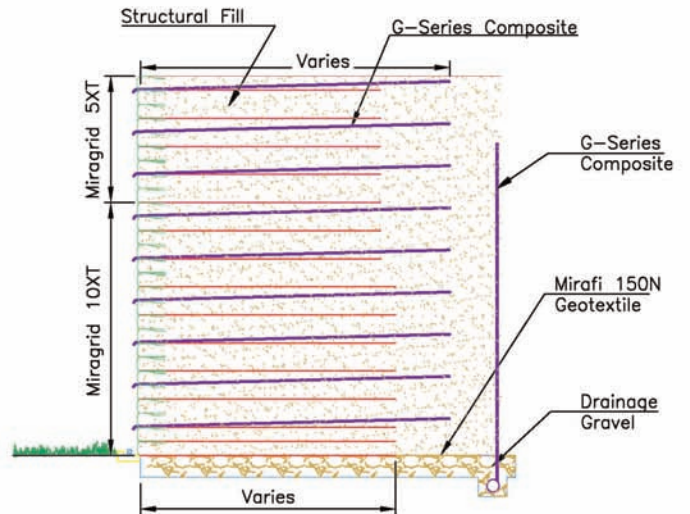
In a beautiful mountain area with large vertical grade separations, permanent geosynthetic wrapped face MSE walls were constructed along the new highway alignment. On this project, the use of Miramesh® SG synthetic grass face wall facing provides aesthetically pleasing, economical, structurally sound and maintenance free MSE retaining walls. The walls reach heights of 40ft. The total wall area exceeds 50,000SF of wall face.



Wire baskets used during wall installation



CROSS SECTION DETAIL  
NOT TO SCALE



CROSS SECTION DETAIL  
MSE WALL WITH MIRAGRID XT SERIES  
NOT TO SCALE

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365 South Holland Drive Tel 800 685 9990 Fax 706 693 4400  
Pendergrass, GA 30567 Tel 706 693 2226 www.mirafi.com

