

Case Study

application | Versa Lok-Wall
location | LaCrosse County, WI
product | Miragrid®

job owner
engineer
contractor

Wisconsin DOT, District 5
Service Engineering St. Paul, MN
Timme Construction Endeavor, WI

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

A highly erodable sandstone slope face alongside the proposed new road required that a standard Wisconsin DOT "split face" concrete block retaining wall be built to prevent further erosion of the slope. However, after reviewing the site and analyzing the overall height of the wall, designers at the DOT District 5 determined that an unreinforced "split face" retaining wall would not adequately address the structural and aesthetic requirements of the project.

THE DESIGN

To solve the problem, a Miragrid® reinforced Versa-Lok Retaining Wall System was proposed by the contractor, Timme Construction. The Miragrid® reinforced wall was proposed because of its ability to meet the DOT's structural requirements for the 8.5 meters maximum height wall and its aesthetic appeal. The wall design was prepared by Service Engineering of St. Paul, MN and approved by the DOT's District 5 geotechnical engineers.

THE CONSTRUCTION

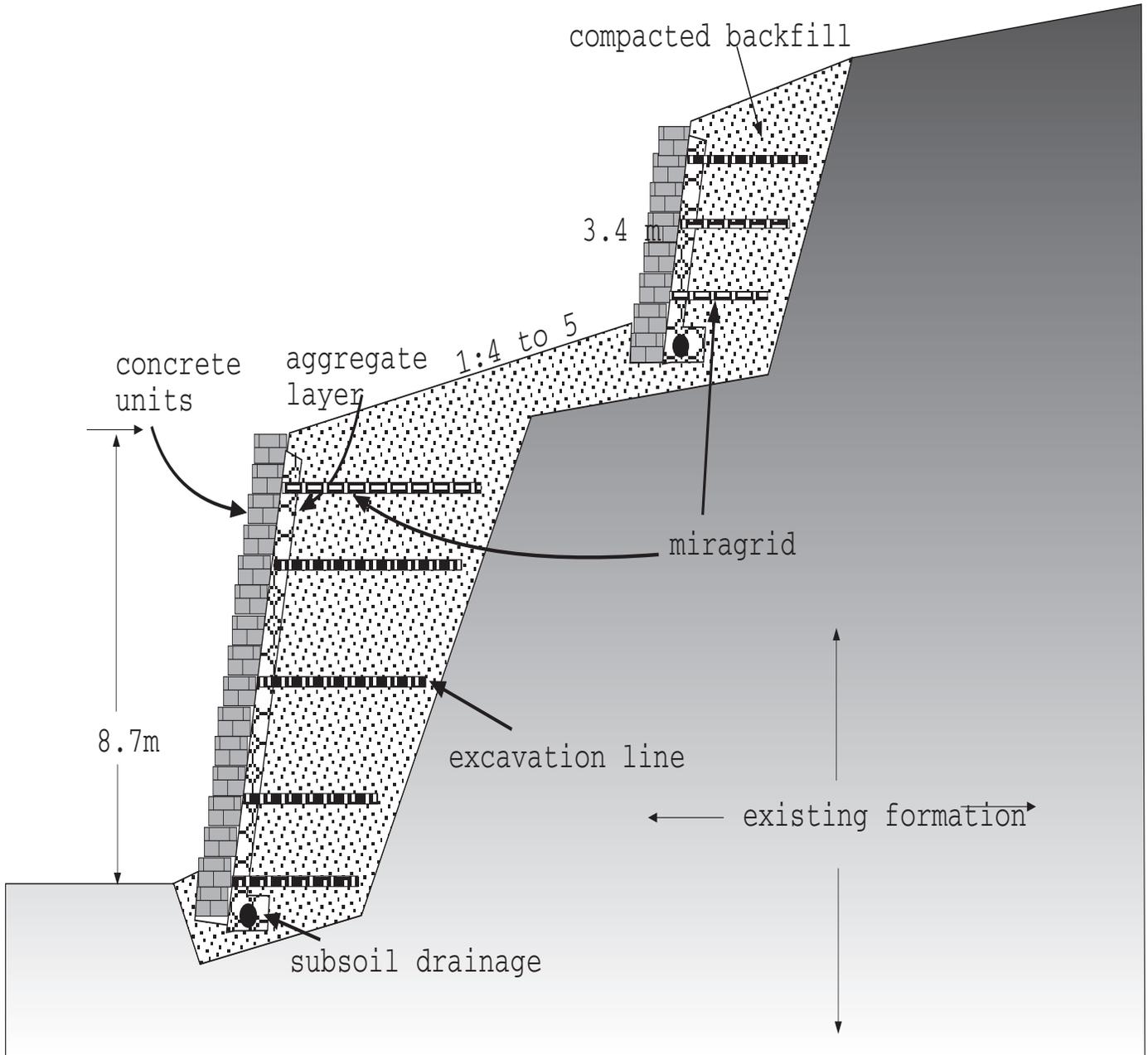
Construction of the wall began in April 1992 with preparation of the compacted granular base. After placing the first base course of Versa-Lok blocks, the contractor backfilled the one foot immediately behind the block units

with crushed gravel and then the remainder of the reinforced zone of the wall with the locally available backfill material called for in the design. The backfill was then compacted and the first layer of Miragrid® was cut to the proper length and placed over the Versa-Lok block units. Versa-Tuf alignment pins were placed in the base course of block. The Miragrid® was then pulled taut and staked into place. The next lift of backfill material was placed by one of Timme's hydraulic excavators and compacted to the required density. This procedure continued until the wall reached its required height. Special attention was paid to the alignment of the wall face and to each block course to assure a uniform installation. After the construction of the lower wall was completed, concrete footings were poured on the rock ledge above the lower wall to provide a base for the upper wall. Since the upper wall was built directly on the sandstone bedrock, a typical compacted granular base was not necessary to provide flexibility for the system. Erosion control matting was used on the top slopes of each wall to prevent erosion until vegetation could take hold. Chain link fencing was installed at the top of each wall to complete the project.

THE PERFORMANCE

The use of geosynthetic reinforced segmental retaining walls significantly reduces cost and installation time, while providing proven solutions. The use of Miragrid®, along with the Versa-Lok retaining wall system, provided the best project solution for the Wisconsin DOT.





Miragrid® Reinforced Segmental Retaining Wall

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