

GEOSYNTHETICS

TenCate solutions for walls & slopes



Protective Fabrics
Space Composites
Aerospace Composites
Advanced Armour

Geosynthetics
Industrial Fabrics
Grass

 **TENCATE**
materials that make a difference

INTRODUCTION

For thousands of years, straw, sticks or branches have been used to reinforce clayey soils and improve the properties of adobe bricks, or of soil walls, thus permitting the construction of structures with greatly improved stability.

Extending this basic principle, the use of modern materials for soil reinforcement was pioneered in the 1960s, when man-made reinforcing elements were incorporated in soils. Since then, high-tenacity synthetic materials have found their way into structures in all parts of the globe, and the name Mechanically Stabilized Earth (MSE) has been coined to describe the soil-reinforcement system.

In the mid-1970s, reinforcement geotextiles paved the way for an unprecedented growth in the construction of MSE structures, and geosynthetics have now proven their ability to stabilize soils for over 30 years.

In infrastructure projects in which space has to be saved or land acquisition minimized, TenCate Geosynthetic soil-reinforcement technology has been used in the design and construction of steep slopes or walls. And the use of this technology also increases the stability of such structures.

MSE is typically used in such applications as:

- Retaining walls and steep slopes
- Bridge ramps and abutments
- Barriers to protect against avalanches and rockfalls
- Noise-protection bunds



OUR SOLUTION IS YOUR BENEFIT

Economy

Reinforced walls and slopes are unbeatable on cost for three reasons:

- Construction materials: marginal-quality local fill can be used in geosynthetic-reinforced retaining structures. This results in significant savings not only for the soil itself, but also on transport of high-grade soil, and removal of marginal material from site.
- Construction personnel: the construction of MSE structures is simple and requires no special equipment or know-how beyond traditional earthwork skills.
- Construction time: fill and backfill are usually one and the same material, and can be installed in one operation. A foundation is not normally required. And construction can be carried out in almost any weather, so that unforeseen pauses on account of bad weather are unlikely.

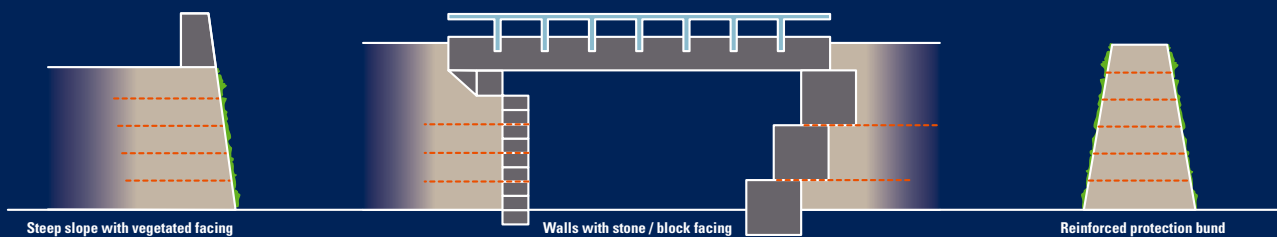
Flexibility

Geosynthetic reinforcement stabilizes the soil body and allows a variety of different facing solutions which can cater for virtually any visual requirement

Environment

MSE structures exhibit environmental benefits because of their favourable carbon footprint:

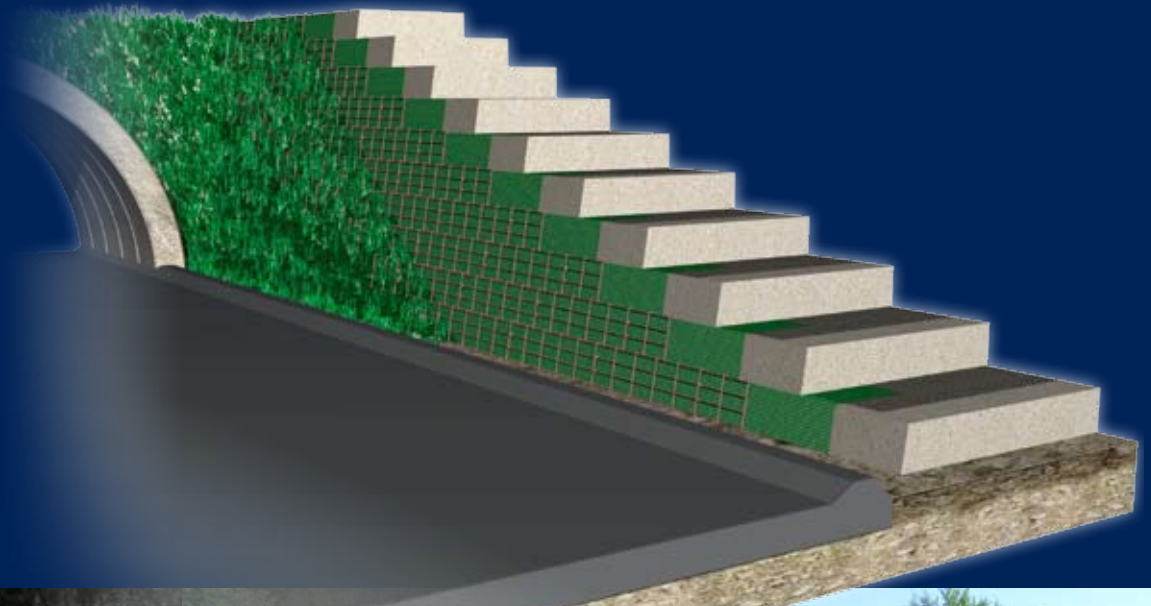
- Excavation and transport of high-grade fill material is reduced because reinforcing with geosynthetics allows lower-grade or marginal fill to be utilised
- Removal of poor-quality material from site is no longer necessary



STEEP SLOPES WITH VEGETATED FACINGS

TenCate Polyslope systems allow the construction of vegetated steep slopes with front inclinations up to 70°. Since local plants are usually used, the structure blends into the surrounding landscape within a very short time, and can subsequently often not be identified as a man-made structure. There are no limits on the construction height of such structures; using appropriate materials, heights of more than 30 m have already been

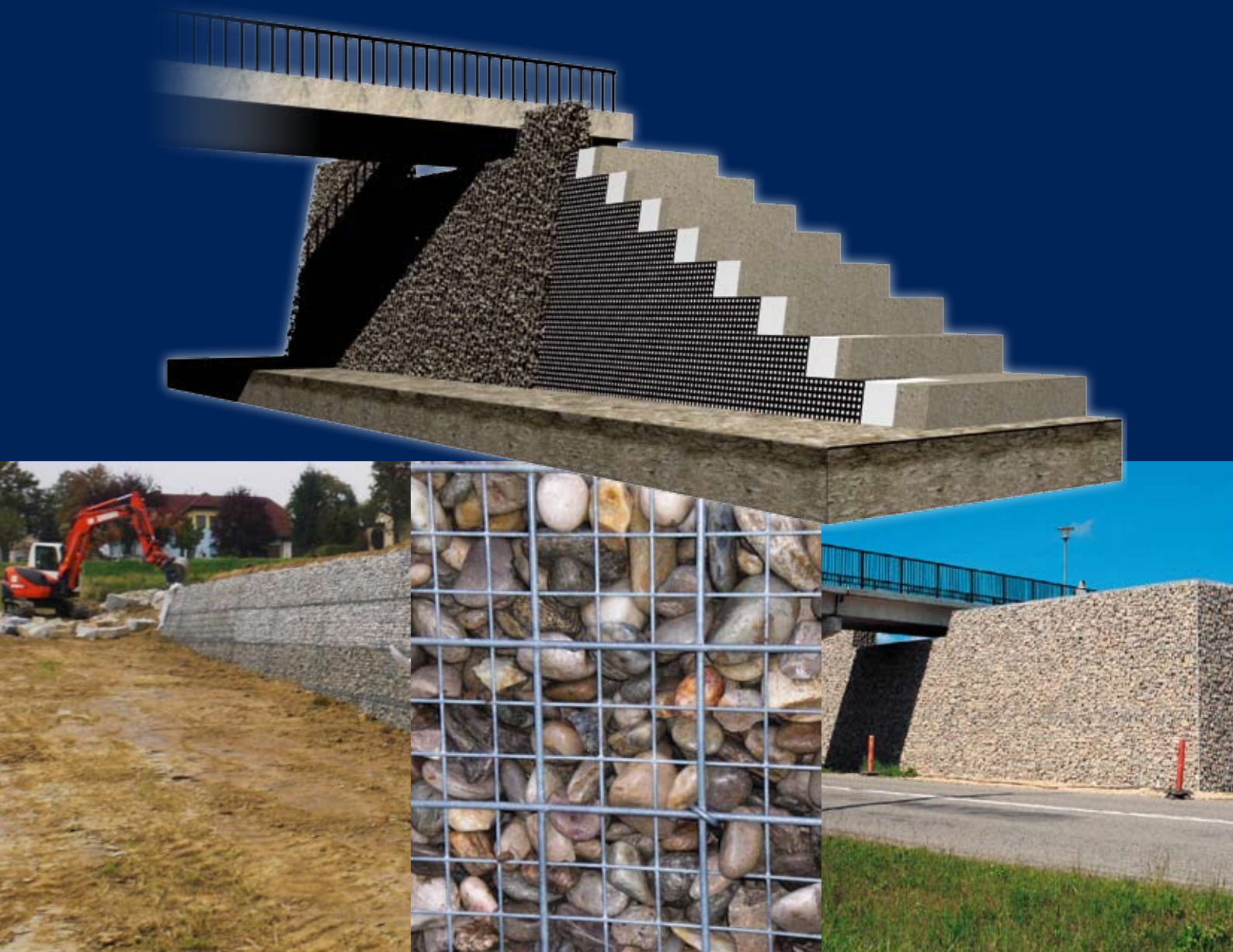
achieved. Service-life prediction of 120 years and more is state of the art. Both single-face slopes and bunds (steep-faced "walls" protecting against noise, avalanches or rock falls) can be found across the whole of Europe, in the USA, and in the Far East.



WALLS WITH STONE FACING

Dry-stone facings are an absolute eye catcher in urban surroundings, and such facings remain maintenance free, whilst providing a natural appearance. TenCate offers proven gabion-type systems permitting the construction of walls with slope angles up to 85° without the use of concrete. Individual architectural accents are achieved using stones in combination

with galvanized steel-mesh elements. The geosynthetic reinforcement of the soil mass behind the facing guarantees the necessary structural stability. Use of such stone-faced slopes spans a wide range of applications ranging from retaining walls in private gardens to bridge abutments.



REINFORCED BLOCK WALL

Segmental retaining walls (SRWs), also known as reinforced block walls, consist of a facing system of stacked precast concrete blocks.

These blocks interlock with one another and are held back by layers of reinforcement geosynthetics which also stabilize the retained soil. Typically, the geosynthetic chosen is a geogrid.

Blocks are available in a wide variety of shapes, sizes and colours which cater for all tastes. The final wall can be straight and simple, or be curved and have the appearance of a castle rampart. And the blocks can be made half open to allow them to be vegetated. TenCate Geosynthetics is the world-wide expert in this area. Thanks to our Tencate Miragrid range and to proven and tested connection capacity with practically any type of block, we are able to provide the optimum solution in this area.



TENCATE, A RELIABLE PARTNER

Besides offering systems for geosynthetic-reinforced walls and slopes with various facing options, our Engineering Department supports you in the following related areas:

- The technical skills and experience of our engineers ensure the most effective and economical solution
- Design suggestions are proposed to the consultant engineer using the most relevant and up-to-date design codes
- Help is given in the specification of our different slope and wall systems
- We provide installation support and advice to the contractor to help ensure that our geosynthetic-reinforced walls and slopes are correctly and efficiently constructed
- We provide comprehensive information material on all our systems, and on-line design assistance.

Further information can be found on our website:
www.tencategeosynthetics.com



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