

SLOPE PROTECTION AT THE TBILISI, GEORGIA

TBILISI, GLDANI, GEORGIA



TYPE OF PROJECT

Surface Strengthening And Support

YEAR OF CONSTRUCTION

2025

CLIENT

COMPANY BLACK SEA GROUP LTD

CONTRACTOR

COMPANY BLACK SEA GROUP LTD

DESIGNER

MACCAFERRI TURKEY

PROD. RELATED

MacMat HS (8510 M²)

Challenge

In the Gldani district of Tbilisi, a steep slope adjacent to a roadway was experiencing rockfalls and surface erosion due to weathering, freeze-thaw cycles, and rainfall. These processes caused fragmented rock material to detach and accumulate on the road, posing significant risks to traffic safety and vehicle integrity. Additionally, progressive surface erosion compromised the slope's stability, increasing the likelihood of larger-scale failures. Given the ongoing hazard and public safety concerns, an urgent and durable remedial solution was required.



Pre-Installation Condition of the Slope



Pre-Installation Condition of the Slope

Solution

MacMat HS30 8127 GN is a three-dimensional geomat made of UV-stabilized polypropylene fibers, integrated with a double-twisted steel wire mesh.

MacMat® HS is the latest generation of high performance geomat made from the extrusion of a polypropylene geomat on to Maccaferri Steelgrid, a mesh composed of double twisted steel wire hexagonal mesh with high tensile strength steel cables, woven into the mesh during the manufacturing process. The steel wire and the steel wire ropes are protected with a Zn-Al 5% coating in accordance with EN 10244-2, Class A. The mechanical performances of the product in terms of tensile strength and puncture resistance are the same as Steelgrid® System.

The system provides a dual function:

Erosion Control: The polypropylene mat structure reduces surface runoff velocity, protecting the soil against erosion. Its open structure also encourages vegetation growth, enabling long-term bioengineering reinforcement of the slope.

Rockfall Protection: The integrated steel mesh provides high tensile strength and mechanical resistance, effectively retaining loose rock fragments and preventing their detachment and fall onto the roadway.

The implemented solution significantly reduced the immediate risk of rockfall and halted further erosion on the slope. The combined use of mechanical restraint (through anchoring and steel mesh) and natural stabilization (through vegetation) has created a sustainable and resilient slope protection system. This solution not only enhanced roadway safety but also contributed to the long-term stability and environmental integration of the slope.



During the installation of Macmat HS30 8127 GN



After installation

During the installation of Macmat HS30 8127 GN



After installation

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