

YIGINLI TUNNEL CONNECTION AND DAM ROAD IMPROVEMENT PROJECT

SIIRT, SOUTHEAST TURKEY, TURKEY

Dynamic Barriers

Problem

Geotechnical investigations conducted along the northern section of the Kalender Village highway have provided a detailed assessment of the regional rock materials and slope excavation conditions. Since the slope height in the region reaches 300 meters and the slope of the slope reaches 72 degrees, it poses a serious risk of rockfall. In the studied area, medium-thick layered limestone, sandstone and claystone rocks in different colors of gray and beige were observed. During the slope investigation, the rock materials were found to have undergone significant weathering and fracturing. This condition constitutes a significant factor that increases the risk of rockfall onto the highway. In areas where discontinuities are frequent and closely spaced, this risk is expected to become more pronounced. Particularly in weathered and fractured zones, further rockfall events may occur over time due to environmental effects.

Solution

Initially, a drapery system was installed in the fractured and weathered areas of the slope. A total of 58,000 m² of Double Twisted Mesh (8x10 D27) was used in this application. This system limits the free movement of rock blocks, preventing them from falling onto the highway and enhancing safety for the road. Additionally, in high-risk zones, surface anchoring was applied for further reinforcement based on the geotechnical and engineering analysis performed with MACRO software. This additional support strengthens the slope's stability and further reduces the possibility of rockfall. For larger rock blocks, dynamic rockfall barriers with a capacity of 3,000 kJ were installed based on rockfall analysis conducted using Rocscience Rocfall software. In total, 3,150 m² of 3,000 kJ dynamic rock barriers (H: 5.0m) were installed in this project. These implemented solutions have significantly mitigated the risk of rockfall in the area and ensuring the safety of the highway.

Client: GENERAL DIRECTORATE OF STATE HYDRAULIC WORKS

Designer / Consultant: MACCAFERRI

Contractor: MAKTAŞ İNŞAAT

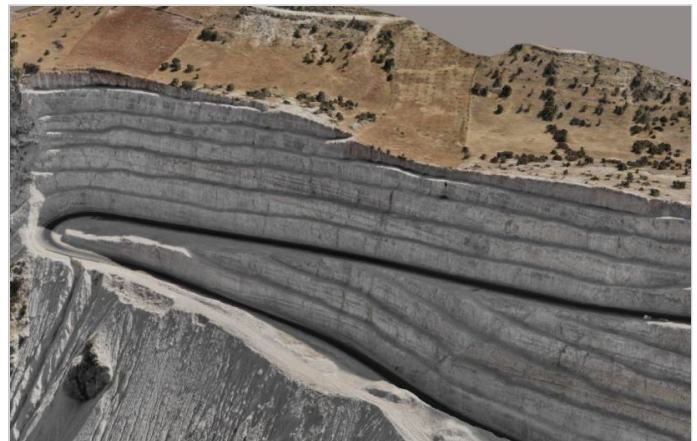
Products used (Qty.)

- Netting	58.000,00
- Rockfall Barriers	3.150,00

Date of construction: 09/2024 - 01/2025

[Google Maps](#)

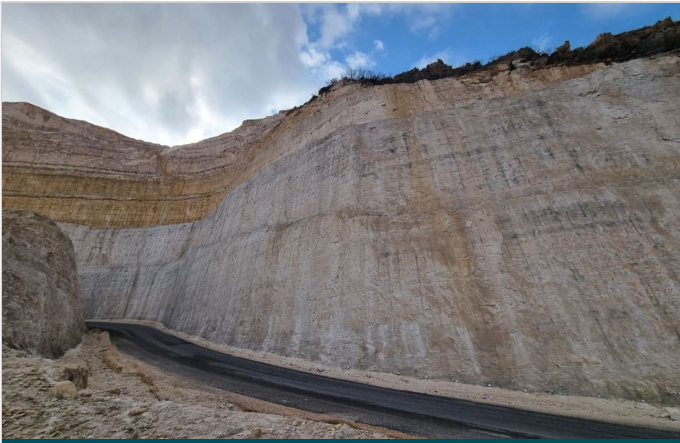
[Google Earth](#)



ARIAL VIEW OF THE PROJECT AREA



INSTALLATION PHASE



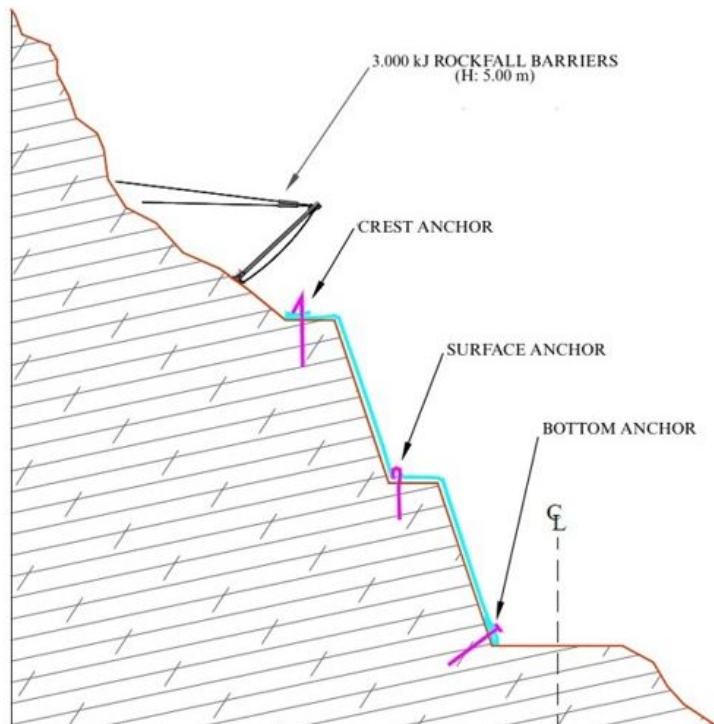
INSTALLED DT MESH



ROCKFALL BARRIER INSTALLATION



INSTALLED ROCKFALL BARRIER



TYPICAL CROSS-SECTION