

IRMAK - KARABÜK - ZONGULDAK RAILWAY PROJECT

ZONGULDAK, KARABÜK, ÇANKIRI, KARADENİZ, TURKEY

Simple Drapery

Problem

In the scope of the modernization project of the existing railway route between Irmak, Karabuk and Zonguldak, which has the aim to increase the general route safety and travel speed of the trains, rockfall events have been monitored at several areas of the 320 km long route.

During a site visit of our technical team the railway route was evaluated and in most of the cases rocks in small to medium sizes were detected as potential high-risk areas. Next to these areas, some slopes were evaluated as high-risk areas due to the bigger rock sizes and the steep angles of the slopes. Taking the block sizes, height of the slopes and slope angle into consideration an overall risk assessment of the railway route was generated and high-risk areas were highlighted especially as potential threats towards the railway construction, trains and human lives.

Solution

In accordance to the above mentioned rockfall potential, several sections of the railway route were protected by double-twisted wire mesh in a simple drapery system. Previous to the installation of the simple drapery wire mesh system, the surfaces of selected slopes were cleaned from rock material which was about to fall. The surface cleaning measures were especially necessary for slopes with middle to big sized blocks and zones with a high amount of clayish material due to which the stability of the rocks in between was drastically decreased.

After cleaning the slope surfaces from potential high-risk blocks, the passive protection system for the different slope surfaces was evaluated according to the block sizes and potential rockfall energy. The utilization of wire mesh constructed from 3mm wire ropes with 8x10 mesh size, heavy galvanization and double twisted mesh structure was seen sufficient.

The installation of above mentioned technical solution covered an area of a total of 33.500 m³ Double-Twisted Wire Mesh; the installation began on 21st of July 2014 and was completed on 25th of December 2015.

Client: T.C. DEVLET DEMİRYOLLARI

Designer / Consultant: MACCAFERRI TURKEY

Contractor: YAPI MERKEZİ - MÖN ADİ ORTAKLIĞI

Products used (Qty.)

- DT Mesh 153.400 m²

Date of construction: 07/2014 - 12/2015



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