

YHT (HIGH-SPEED TRAIN) BILECIK STATION ROCKFALL PREVENTION PROJECT

BILECIK, ANATOLIAN AREA, TURKEY

Dynamic Barriers

Problem

The Bilecik Station is located at a crucial point along the High-Speed Train (YHT) line that is connecting Turkey's major cities Ankara and Istanbul. Due to the mountainous area, especially the tunnels and surrounding areas require significant attention in terms of safety. In this region, there are four distinct tunnel portals, each surrounded by steep slopes. The potential rockfall from these slopes poses a threat to the safety of the trains. In the moment the high-speed train exits the tunnel, the transition from darkness to light limits the visibility, making it impossible to perform an emergency stop. In this context, the tunnel portals emerge as high-risk areas. Therefore, the administration requested protective measures to prevent rockfalls at the tunnel portals.

Solution

A comprehensive set of engineering solutions has been implemented to enhance safety against the high-risk rockfall hazards surrounding the tunnel portals at Bilecik Station. The most significant of these measures is the installation of a 5000 kJ Rockfall Barrier, standing at 9 meters in height, covering an area of 540 m². This barrier is designed to prevent potential rockfalls and ensure the safe passage of trains through the tunnel portals. This is the highest rockfall barrier that has ever been installed in Turkey until this day. This innovation represents a highly effective solution that is tailored to local conditions while prioritizing safety and engineering efficiency.

Additionally, to secure the surrounding slopes, stabilization work has been carried out over an area of 8000 m², utilizing HEA Panels, Double Twisted Wire Mesh, and surface anchors. These measures provide a robust structure to prevent further destabilization of the slopes and effectively mitigate the risk of rockfalls.

These measures co

Client: RAILWAY AUTHORITIES (HIGH-SPEED)

Designer / Consultant: MACCAFERRI

Contractor: AYN PETROL COMPANY

Products used (Qty.)

- Panels	8.000,00
- Rockfall Barriers	540,00

Date of construction: 03/2019 - 09/2019

[Google Maps](#)

[Google Earth](#)



TUNNEL T-19 PORTAL VIEW



TUNNEL T-19 PORTAL VIEW



HEA PANEL INSTALLATION



HEA PANEL INSTALLATION AT TUNNEL PORTAL