

SLOPE PROTECTION AT BUKIT BERAPIT TAIPING, PERAK, MALAYSIA

Slope Protection

Problem

Railway system is one of the important infrastructure networks in Malaysia serving as passenger commuter and freight transport. The total length of the railway network covered the whole Peninsular Malaysia is about 1,600km and is operating by Keretapi Tanah Melayu Berhad (KTMB) that wholly owned by the Malaysian government.

In early of 2009, KTMB reported that the train services were disrupted several times due to shallow slope failure along the railway track near Bukit Berapit in Taiping, Perak. The shallow slope failure consists of surficial soil erosion and falling of loose rocks from the slope (average size about 0.5m in diameter) into the railway track. Total height of the slope was approximately 25m, with problematic stretch more than 250m in length.

Solution

In addition, Steelgrid BO150 was proposed to be laid on top of the Enkamat to further strengthen and prevent detachment of loose rocks from the slope. Steelgrid is a composite material consist of steel cables integrate with double twisted wire mesh where the longitudinal & transverse steel cables help to increase the drapery stiffness and effectively transfer stresses to the connecting soil nails. For some areas with larger rocks overhung on the slope, HEA Panels which made of high tensile steel cables (woven into form of rhomboid shape mesh) were used together with the installed rock bolts for the slope cortical strengthening.

Client: Keretapi Tanah Melayu Berhad (KTMB)

Designer / Consultant: MIMM RESOURCES SDN BHD

Contractor: SEMERAH MENTARI (M) SDN BHD

Products used (Qty.)

- Steelgrid HR	7000 M2
- HEA Panels	500 M2
- MacMat	7000 M2

Date of construction: 04/2010 - 08/2010



before construction



During Construction



after construction