

ABSTRACT

PT. Kaltim Batu Manunggal is an coal mining companies in Kutai Kartanegara, East Kalimantan province. Mining activity conducted by making a tiered slope. The slopes were not based on geotechnical studies, so the slope geometry was made the same regardless of differences in the characteristics of the rock mass there. Same treatment to slope geometry regardless of characteristics of the rock mass have a low confidence rate of slope stability.

The research was conducted to classify the rock mass with the system rock mass rating (RMR) and geological strength index (GSI). The research was conducted on two kind rocks in two different locations, claystone in Loop 2 and sandstone in Loop 5.

RMR values obtained from rating of the five parameters RMR at each location is Loop 2 = 63 and Loop 5 = 52. GSI value are reduction as many as 8 of the value of RMR (Saptono, 2012), so that the GSI values obtained at each research location is Loop 2 = 55 and Loop 5 = 44.

To get the cohesion (c) and friction angle (ϕ) in the rock mass at research sites used approach Hoek & Brown failure criterion (2002). Cohesion (c) and the friction angle (ϕ) at each research locations are Loop 2 = 35 kN/m², 26,99° and Loop 5 = 42 kN/m², 37,76°.

From the analysis it can be concluded that the results of the analysis conducted, the exact determination is GSI Saptono (2012), recommendation for a single slope for loop 2 is 6 m, slope angle 35° and single slope for loop 5 is 6 m, slope angle 40°. For the overall slope loop 2 is 42 m, angle slope 25° and overall slope loop 5 is 42 m, angle slope 28°. Activities to maintain the stability slopes in the study area is the monitoring system.