

## ABSTRACT

PT. Multi Tambangjaya Utama is a coal mining company which is located in the village of Teluk Betung, District of Kuala Karo, South Barito, Central Kalimantan. The company uses open pit methods to make the levels of the mining activities. For the development of coal mining plan of PT. MTU is necessary to slope stability analysis in order to provide geotechnical recommendations to support the mining operations of the stability of slopes for excavation of coal and reduce potential Failure slopes.

Geotechnical study was conducted on the block Malintut 2. Before this pit can produce the necessary geotechnical studies conducted to study the characteristics of the rock mass in the candidate block Malintut 2. From the geotechnical study of the geometry can be determined safe. Based on consideration of topographical and geological conditions and adjust plans to mine coal seam there, then drilling for geotechnical data collection is done in three drill holes, these are MTU-GT02A, MTU-GT04, MTU-GT12.

Tests have been conducted in the laboratory of the rock samples are physical properties, direct shear test and compressive strength test. Of the compressive strength test  $<25$  MPa known material is classified as rock slopes are very weak, so it is possible potentially occur avalanche arc. Modeling uses limit equilibrium method with help of Slide Software 6.0 by Rocscience with slopes in the steady state guidelines for single slope is  $FK \geq 1.20$  and for the overall slope with  $FK \geq 1.30$  (Canmet, 1979).

Recommendations for single slope geometry of various geometrical configurations slopes and safety factor values that vary chosen height of 10 meters and angle of  $70^\circ$ . While the recommendations given for MTU-GT02A highwall slope height of 18 meters, angle of  $65^\circ$ , and berm width of 2 meters with a safety factor value of 1.861. MTU-GT04 highwall slope height of 26 meters, angle of  $64^\circ$ , and berm width of 2 meters with a safety factor value of 2.113. MTU-GT12 highwall slope height of 64 meters, angle of  $47^\circ$ , and berm width of 6 meters with a safety factor value of 1.486. MTU-GT02A Lowwall slopes with recommendation height of 18 meters, angle of  $16^\circ$ , the safety factor value of 2.666. MTU-GT04 Lowwall slopes recommendation height of 26 meters, angle of  $16^\circ$ , the safety factor value of 3.228. MTU-GT12 Lowwall slopes with recommendation height of 64 meters, angle of  $13^\circ$ , the safety factor value of 2.391