

SARI

Jalur Jalan Lintas Selatan dibangun di selatan Pulau Jawa untuk mendukung keterjangkauan antar daerah serta memajukan potensi wisata dan ekonomi daerah di selatan Pulau Jawa. Salah satu ruas jalan yang sedang dibangun dengan melakukan ekskavasi pada batuan di sekitar proyek adalah ruas Planjan Tepus Jalur Jalan Lintas Selatan (JJLS). Penelitian ini bertujuan untuk mengetahui karakteristik geologi teknik yang meliputi karakteristik geomorfologi, batuan dan tanah, struktur geologi dan kondisi air tanah serta kondisi kestabilan lereng pada ruas jalan Planjan Tepus STA 4+800 sampai STA 9 +700. Metode penelitian dilakukan dengan melakukan pemetaan geologi skala 1 : 25.000 dan analisis kestabilan lereng dengan metode *Bishop Simplified* dan *Morgenstern-Price*. Karakterisasi kualitas massa batuan dilakukan analisis penampang lereng menggunakan GSI (*Geological Strength Index*) dan tingkat pelapukan batuan. Daerah penelitian termasuk dalam satuan geomorfologi berupa dataran pantai landai, perbukitan karst agak curam, dan perbukitan karst curam. Dominasi struktur geologi berupa kekar dan sesar turun diperkirakan dengan arah orientasi dominan timur laut - barat daya. Didapatkan karakteristik geologi teknik berdasarkan GSI yang terdiri dari nilai 45 - 60 dan 60 - 75. Dengan satuan tingkat pelapukan yang terdiri dari floatstone agak lapuk, floatstone lapuk sedang, rudstone agak lapuk, dan rudstone lapuk sedang. Kondisi kestabilan lereng dengan faktor keamanan < 1.5 termasuk dalam kategori tidak stabil pada satuan rudstone lapuk sedang, sedangkan pada satuan floatstone agak lapuk, floatstone lapuk sedang, dan rudstone agak lapuk dengan nilai faktor keamanan > 1.5 termasuk ke dalam kategori stabil.

Kata Kunci : jalan, karakteristik geologi teknik, kualitas massa batuan, GSI, analisis kestabilan lereng

ABSTRACT

Construction of South Java Road was built to support the accessibility of inter-region transportation and also the tourism and economic factor development in the south of Java Island. A road construction project that was built by excavating the rocks around the area in 2020 is the Planjan Tepus section of South Java Road. This study aims to determine the characteristics of engineering geology which include geomorphological aspects, rock and soil aspects, geological structure and groundwater conditions as well as slope stability conditions on the Planjan Tepus road section STA 4+800 to STA 9+700. The research method was carried out by conducting geological mapping at a scale of 1: 25.000 and slope stability analysis using the Bishop Simplified method and Morgenstern-Price method. The rock mass quality characterization was carried out by cross-sectional analysis of the slopes using GSI (Geological Strength Index) and rock weathering level. The research area has some geomorphological units such as sloping coastal plains, slightly steep karst hills, and steep karst hills. The dominance of geological structures in the research area in a form of joints and estimated normal faults with the dominant orientation at northeast-southwest. The engineering geology characteristics were obtained based on the GSI which consisted of values of 45 - 60 and 60 - 75. The weathering level units consisted of slightly weathered floatstone, moderately weathered floatstone, slightly weathered rudstone, and moderately weathered rudstone. The condition of slope stability for moderately weathered rudstone units with a safety factor of < 1.5 was an unstable category, while slightly weathered floatstone, moderately weathered floatstone, and slightly weathered rudstone units with a safety factor value of > 1.5 are included in the stable category.

Keywords: road, engineering geology characterization, rock mass quality, GSI, slope stability analysis