INTISARI

Salah satu bagian konstruksi bendungan adalah saluran pengelak tipe terowongan. Penelitian dilakukan untuk menentukan karakteristik geologi teknik permukaan daerah sekitar terowongan saluran pengelak dan menentukan kualitas massa batuan bukaan terowongan saluran pengelak Bendungan Kuningan. Data yang digunakan meliputi data material penyusun dari pemetaan geologi teknik berupa kondisi geomorfologi, kondisi batuan dan tanah, kondisi struktur geologi, dan kondisi hidrogeologi. Metode penelitian yang digunakan yaitu pemetaan geologi teknik skala 1:5000 untuk menentukan karakteristik geologi teknik dan metode *Rock Mass Rating* untuk menentukan kualitas massa batuan bukaan terowongan. Hasil penelitian menunjukan daerah penelitian terdiri dari 3 satuan geomorfologi, yaitu dataran fluvial, perbukitan struktural berlereng agak curam, dan perbukitan struktural berlereng curam. Berdasarkan kondisi batuan dan tanah serta kualitasnya, daerah penelitian terdiri dari 11 satuan geologi teknik yaitu batupasir tufan lapuk sedang memiliki kualitas sedang, batupasir tufan lapuk rendah kualitas sedang, breksi vulkanik lapuk sedang kualitas sedang, breksi vulkanik lapuk rendah kualitas sedang, batupasir karbonatan sisipan batulempung lapuk sedang kualitas sedang, batupasir karbonatan sisipan batulempung lapuk rendah kualitas sedang, perselingan batupasir karbonatan dan batulempung lapuk sedang kualitas buruk-sedang, perselingan batupasir karbonatan dan batulempung lapuk rendah kualitas buruk-sedang, endapan breksi vulkanik lapuk sedang kualitas sedang, endapan lempung pasiran *easy digging* dan endapan pasir lempungan *easy digging*. Struktur geologi: kekar gerus, sesar geser sinistral Randusari, sesar geser sinistral Randusari diperkirakan, sesar naik Randusari, dan antiklin Randusari serta sesar normal Randusari diperkirakan. Hidrogeologi memiliki kedalaman muka air tanah yang dangkal dan terdapat dua sumber air yaitu air sungai Cikaro dan *seepage*. Kualitas massa batuan bukaan awal terowongan *lattice* 20-24 memiliki kualitas buruk-sedang, dan *lattice* 25-29 memiliki kualitas sedang-baik. Karakteristik geologi teknik permukaan berpengaruh pada konstruksi terowongan saluran pengelak yang berpotensi gerakan massa *landslide*, kualitas massa batuan rendah, sedang, dan baik, struktur geologi menurunkan kualitas massa batuan, hidrogeologi mempercepat pelapukan dan penurunan kualitas massa batuan. Kualitas massa batuan bukaan terowongan mengkonfirmasi kualitas massa batuan permukaan dan kualitas massa batuan bukaan-bukaan selanjutnya diprediksi lebih baik dibandingkan kualitas massa batuan permukaan.

Kata kunci: Terowongan saluran pengelak, karakteristik geologi teknik, kualitas massa batuan, dan sistem penyangga massa batuan

Abstract

One of the part of dam construction is diversion tunnel. This research's existence is to determine characteristic of surface engineering geology in area around of diversion tunnel and to determine rock mass quality of excavated tunnel of Kuningan Dam. The data consist of containment material data by engineering geological mapping, geomorphological condition, rocks and soil condition, geological structure condition, and hydrogeological condition. The research methods used engineering geological mapping scale 1:5000 to determine characteristic of engineering geology and Rock Mass Rating methods to determine rock mass quality of excavated tunnel. Result of the research shown the area has 3 geomorphological units, they are fluvial plain, moderately steeped slope structural hills, and steeped slope structural hills. Based on condition of rocks and soil and quality in the research area there are 11 engineering geological units, they are: moderately weathered tuffaceous sandstone with fair quality, slightly weathered tuffaceous sandstone with fair quality, moderately weathered vulcanic breccia with fair quality, slightly weathered vulcanic breccia with fair quality, moderately weathered calcareous sandstone intercalated claystone with fair quality, slightly weathered calcareous sandstone intercalated claystone with fair quality, moderately weatehred interbedded calcareous sandstone with claystone with poor-fair quality, slightly weathered interbedded calcareous sandstone with claystone with poor-fair quality, moderately weathered deposit vulcanic breccia with fair quality, easy digging sandy clay deposit and easy digging clayey sand deposit. Geological structures: compressional fracture, Randusari sinistral shear fault, Randusari sinistral shear fault estimated, Randusari thrusfault, and Randusari anticline also Randusari normal fault estimated. Hydrogeology has depth of ground water table is shallow and there are two sources of water that the Cikaro river and seepage. Rock mass quality of the excavated tunnel lattice 20-24 has poor up to fair quality, and lattice 25-29 has fair up to good quality. Characteristic of surface engineering geology has effect on diversion tunnel construction whic has landslide mass movement potency, rock mass quality are poor, fair, and good, geological structure diminish rock mass quality, hidrogeological condition accelerate weathering and decreasing rock mass quality. Rock mass quality of excavated tunnel confirm the surface rock mass quality and rock mass quality of the next excavated tunnel is better predicted than rock mass quality of the surface.

Keywords: *Diversion tunnel, engineering geological properties, rock mass quality, and rock mass support system*