

SARI

Bendungan Jlantah terletak pada Desa Tlobo, Karang Sari Kecamatan Jatiyoso dan Desa Jumantoro, Kadipiro dan sekitarnya, Kecamatan Jumapolo Kabupaten Karanganyar, Provinsi Jawa Tengah. Bendungan ini dibangun untuk membendung Sungai Jlantah, bendungan ini dibangun memiliki tujuan untuk menjadi suplai air irigasi bagi masyarakat sekitarnya. Berdasarkan stratigrafi regional daerah bendungan masuk pada Formasi Lahar Lawu (Qlla). Terdapat struktur regional berupa sesar turun diperkirakan yang dipotong oleh sesar geser pada bagian timur laut lokasi penelitian. Penelitian ini bertujuan untuk menentukan karakteristik geologi teknik, daya dukung batuan pondasi dan sudut pemotongan lereng aman. Penentuan karakteristik geologi teknik, daya dukung batuan pondasi dan sudut pemotongan lereng aman menggunakan metode pemetaan geologi teknik skala 1:12.500 yang memiliki 4 aspek yaitu aspek geomorfologi, aspek batuan dan tanah, aspek struktur geologi dan aspek air tanah. Hasil penelitian menunjukkan geomorfologi pada daerah penelitian adalah satuan perbukitan vulkanik berlereng curam. Lokasi penelitian dibagi menjadi 2 satuan litologi yaitu lapili tuf dan breksi tuf, berdasarkan aspek batuan dan tanah, lokasi penelitian dibagi menjadi 2 kualitas massa batuan yaitu kualitas massa batuan buruk (*poor*) dan sangat buruk (*very poor*). Dari aspek struktur geologi, terdapat sesar geser sinistra diperkirakan yang memiliki arah timurlaut – baratdaya. Ketinggian muka air tanah pada lokasi penelitian berkisar 1 – 30 meter bawah muka tanah, setelah adanya air genangan waduk ketinggian muka air tanahnya berkisar 1 – 10 meter bawah muka tanah. Satuan geologi teknik daerah penelitian dibagi menjadi 3 yaitu lapili tuf lapuk tinggi, lapili tuf lapuk sangat tinggi dan breksi tuf lapuk tinggi. Daya dukung batuan pondasi berdasarkan hasil konversi nilai GSI ke RMR adalah 135 – 45 T/m² dengan nilai sudut pemotongan lereng aman sebesar 45⁰.

Kata Kunci : Bendungan Jlantah, karakteristik geologi teknik, daya dukung batuan pondasi, sudut pemotongan lereng aman

ABSTRACT

The Jlantah Dam is located in Tlobo Village, Karangsari Jatiyoso District and Jumanoro Village, Kadipiro and its surroundings, Jumapolo District, Karanganyar Regency, Central Java Province. This dam was built to bank the Jlantah River, this dam was built to become an irrigation water supply for the surrounding community. Based on regional stratigraphy, the dam area is included in the Lahar Lawu (Qlla) Formation. There is a regional structure in the form of an estimated normal fault which is cut by a shear fault in the northeast of the study area. This study aims to determine the characteristics of the engineering geology, bearing capacity of the foundation rock and the angle of safe slope cutting. Determination of technical geological characteristics, bearing capacity of foundation rock and safe slope cutting angle using the 1: 12,500 scale engineering geological mapping method which has 4 aspects that is geomorphological aspects, rock and soil aspects, geological structural aspects and hydrological aspects. The results showed that the geomorphology in the study area was a unit of volcanic hills with steep slopes. The research location is divided into 2 lithological units, namely lapilli tuff and tuff breccia. Based on the aspects of rock and soil, the research location is divided into 2 rock mass qualities, namely poor rock mass quality and very poor rock mass quality. From the aspect of geological structure, there is an estimated sinistra shear fault which has a northeast-southwest direction. The groundwater level at the research location ranges from 1 - 30 meters below ground level, after the presence of water in the reservoir the ground water level ranges from 1 - 10 meters below ground level. The technical geology unit of the research area is divided into 3, namely high weathered tuffs, very high weathered tuffs and high weathered tuff breccia. The bearing capacity of the foundation rock based on the conversion of the GSI value to RMR is 135 - 45 T / m² with a safe slope cutting angle value of 45°.

Keywords : *Jlantah Dam, engineering geological characteristics, bearing capacity of foundation rock, safe slope cutting angle*