

ANALISIS STABILITAS SABO DAM TR-RRD2 KALI TRINGSING KABUPATEN MAGELANG

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ABSTRAK

Bangunan Sabo Dam TR-RRD2 Kali Tringsing merupakan salah satu bangunan pengendali sedimen yang berada di aliran Sungai Kali Tringsing. Sabo Dam TR-RRD2 Kali Tringsing selesai dibangun pada tahun 2021. Tujuan dari penelitian ini adalah untuk menganalisis stabilitas bangunan terhadap gaya guling, geser, daya dukung fondasi, lintasan kritis, dan efektivitas Sabo Dam dengan percobaan debit tahun rencana 50 tahun Hasil perhitungan debit kala ulang 50 tahun menggunakan metode HSS Nakayasu, debit aliran dikali dengan konsentrasi sedimen didapat hasil sebesar 232,749 m³/s, dan Analisis stabilitas guling (2.50m), stabilitas geser (2,78 m), daya dukung fondasi maksimum (28 ton/m³), daya dukung tanah minimum (3,71 ton/m²), dan panjang lintasan kritis (1,96 m), dimana dari perhitungan tersebut dinyatakan aman. Hasil dari analisis ini menunjukkan bahwa Sabo Dam TR-RRD2 Kali Tringsing dinyatakan stabil dan efektif dalam menahan sedimen yang terbawa saat terjadi banjir lahar kedepannya.

Kata kunci: Sungai Kali Tringsing, Sabo Dam TR-RRD2, Stabilitas guling, Stabilitas Geser, Daya dukung tanah fondasi, Panjang lintasan kritis.

STABILITY ANALYSIS OF SABO DAM TR-RRD2 KALI TRINGSING, MAGELANG REGENCY

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ABSTRACT

The Sabo Dam TR-RRD2 Kali Tringsing building is one of the sediment control structures located in the Kali Tringsing River. Sabo Dam TR-RRD2 Kali Tringsing will be completed in 2021. The purpose of this study is to analyze the stability of the building against overturning, shear, foundation bearing capacity, critical path, and the effectiveness of the Sabo Dam with a 50-year plan year discharge trial. The results of calculating the 50-year return period discharge using the HSS Nakayasu method, the flow rate multiplied by the sediment concentration yields 232.749 m³/s, and analysis of overturning stability (2.50m), shear stability (2.78 m), maximum foundation bearing capacity (28 ton/m³), minimum soil carrying capacity (3.71 ton/m²), and critical path length (1.96 m), which from these calculations is declared safe. The results of this analysis indicate that Sabo Dam TR-RRD2 Kali Tringsing is declared stable and effective in holding back the sediment carried during future lava floods.

Keywords: *Kali Tringsing River, Sabo Dam TR-RRD2, Overturn Stability, Shear Stability, Foundation Soil Bearing Capacity, Critical Path Length.*