

ANALISIS FUNGSI BANGUNAN PENGENDALI SEDIMEN

(Studi Kasus: Sabo Dam PA-C5 Kojor, Sungai Pabelan, Kabupaten Magelang)

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ABSTRAK

Bangunan *Sabo Dam* PA-C5 Kojor merupakan salah satu bangunan pengendali sedimen yang berada di aliran Sungai Pabelan. *Sabo Dam* PA-C5 Kojor selesai dibangun pada tahun 2013 pasca terjadinya banjir lahar erupsi Gunung Merapi 2010, karena *Sabo Dam* PA-C5 Kojor merupakan bangunan baru penulis ingin mengetahui bagaimanakah stabilitas, efektivitas, dan gerusan lokal bangunan yang diharapkan mampu menahan material banjir lahar yang akan mendatang. Tujuan dari penelitian ini adalah untuk menganalisis stabilitas bangunan terhadap gaya guling, geser, daya dukung fondasi, panjang lintasan kritis, kedalaman gerusan lokal, dan efektivitas *Sabo Dam* dengan percobaan debit tahun rencana. Hasil perhitungan analisis ini menunjukkan stabilitas guling (4,30 m), stabilitas geser (0,61 m), daya dukung fondasi maksimum (29,60 ton/m²), daya dukung tanah minimum (3,22 ton/m²), panjang lintasan kritis (6,59 m), dan kedalaman gerusan lokal (3.01 m), dimana dari perhitungan tersebut dinyatakan aman kecuali untuk stabilitas terhadap geser. Hasil dari analisis ini menunjukkan bahwa *Sabo Dam* PA-C5 Kojor dinyatakan stabil, aman terhadap gerusan lokal, dan efektif dalam menahan sedimen yang terbawa saat terjadi banjir lahar kedepannya.

Kata kunci: Sungai Pabelan, *Sabo Dam* PA-C5 Kojor, Stabilitas guling, Stabilitas Geser, Daya dukung tanah fondasi, Panjang lintasan kritis, Gerusan lokal.

FUNCTION ANALYSIS OF SEDIMENT CONTROL BUILDING

(Case Study: Sabo Dam PA-C5 Kojor, Pabelan River, Magelang Regency)

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ABSTRACT

The Sabo Dam PA-C5 Kojor building is one of the sediment control structures located in the Pabelan River flow. Sabo Dam PA-C5 Kojor was completed in 2013 after the 2010 eruption of Mount Merapi. Because Sabo Dam PA-C5 Kojor is a new building, the author wanted to know how the stability, effectiveness, and local scour of the building are expected to be able to withstand lava flood material. that will come. The purpose of this study was to analyze the stability of the building against overturning, shearing, foundation bearing capacity, critical path length, local scour depth, and the effectiveness of the Sabo Dam with the design year discharge experiment. The results of this analysis show the overturning stability (4.30 m), shear stability (0.61 m), maximum foundation bearing capacity (29.60 tons/m²), minimum soil bearing capacity (3.22 tons/m²), length critical path (6.59 m), and local scour depth (3.01 m), which from these calculations are declared safe except for stability against shear. The results of this analysis indicate that the Sabo Dam PA-C5 Kojor is declared stable, safe against local scour, and effective in retaining sediment carried during future lava floods.

Keywords: *Pabelan River, Sabo Dam PA-C5 Kojor, Rolling stability, Shear stability, Foundation soil bearing capacity, Critical path length, Local scour.*