

**EVALUASI DAN REKAYASA LERENG BEKAS TAMBANG BATU ANDESIT  
DI PADUKUHAN DENGKLENG, KALURAHAN WUKIRSARI,  
KAPANEWON IMOIRI, KABUPATEN BANTUL, DAERAH ISTIMEWA  
YOGYAKARTA**

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**INTISARI**

Peningkatan kebutuhan komoditas pertambangan bahan galian batuan terus meningkat seiring dengan meningkatnya jumlah penduduk. Sehingga saat ini banyak dilakukan proses eksploitasi bahan galian batuan. Di Padukuhan Dengkleng, Kalurahan Wukirsari, Kapanewon Imogiri, Kabupaten Bantul, Daerah Istimewa Yogyakarta dijumpai salah satu lereng bekas tambang yang ditinggalkan terletak di sekitar pemukiman warga. Salah satu lereng terdapat runtuh material akibat penggalian yang kurang terencana. Oleh karena itu, evaluasi kondisi eksisting lereng bekas tambang perlu dilakukan dan dapat dijadikan sebagai dasar dalam penentuan arahan pengelolaan lahan bekas tambang.

Penelitian ini bertujuan untuk mengetahui kondisi eksisting lereng, mengetahui tingkat kestabilan lereng berdasarkan nilai faktor keamanan (*safety factor*), serta menentukan arahan pengelolaan lereng berdasarkan nilai faktor keamanan (*safety factor*) di daerah penelitian. Penelitian dilakukan dengan metode kombinasi kuantitatif dan kualitatif. Metode analisis yang digunakan yaitu metode survei dan pemetaan lapangan, metode analisis laboratorium, *metode spancer*, dengan teknik pengambilan sampel berupa teknik *purposive sampling*.

Berdasarkan hasil analisis kestabilan lereng, pada lereng barat memiliki ketinggian 19 m, sudut kemiringan lereng  $60^\circ$ , nilai berat isi tanah  $81,423 \text{ N/cm}^3$ , berat isi tanah kering  $65,677 \text{ N/cm}^3$ , kadar air 23,974 %, kohesi  $13 \text{ kN/m}^2$ , serta sudut geser dalam sebesar  $25,5291^\circ$ . Sedangkan lereng timur memiliki ketinggian 33 m, sudut kemiringan lereng  $46^\circ$ , berat isi tanah sebesar  $75,259 \text{ N/cm}^3$ , berat isi tanah kering sebesar  $60,204 \text{ N/cm}^3$ , kadar air 25,005 %, kohesi  $13 \text{ kN/m}^2$ , serta sudut geser dalam sebesar  $27,628^\circ$ . Nilai FK pada lereng barat sebesar 0,463. Sedangkan lereng timur memiliki nilai FK sebesar 0,480. Kedua nilai FK tersebut termasuk dalam golongan lereng labil sesuai klasifikasi Bowles, 1989 dan berpotensi longsor menurut Kepmen ESDM. Arahan pengelolaan yang dapat dilakukan yaitu dengan rekayasa geometri lereng, rekayasa vegetasi lereng, dan pembuatan dinding penahan tanah. Rekayasa ini dapat meningkatkan nilai faktor keamanan lereng barat dari 0,463 menjadi 1,985 pada lereng keseluruhan, 2,426 pada *bench* pertama, 1,702 pada *bench* kedua, dan 1,914 pada *bench* terbawah. Sedangkan pada lereng timur dapat meningkatkan nilai FK menjadi 1,73 pada *bench* teratas, 2,63 pada *bench* kedua, dan 2,246 pada *bench* paling bawah. Sehingga dapat memenuhi kriteria lereng bekas tambang yang dapat diterima berdasarkan Kepmen ESDM No. 1827K/30/MEM/2018.

**Kata Kunci** : Kestabilan lereng, Metode *Spancer*, *Rocscience Slide*, Dinding penahan tanah

**ASSESSMENT AND SLOPE ENGINEERING OF ANDESITE QUARRY IN  
DENGKLENG HAMLET, WUKIRSARI VILLAGE, IMOGIRI SUBDISTRICT,  
BANTUL DISTRICT, YOGYAKARTA SPECIAL REGION**

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**ABSTRACT**

*The increasing need for rock excavation mining commodities continues as the population increases. So that currently there are many processes of exploitation of rock excavation materials. In Dengkleng hamlet, Wukirsari sub-district, Imogiri district, Bantul regency, Yogyakarta Special Region, one of the abandoned mining slopes is located around a residential area. One of the slopes has collapsed material due to unplanned excavation. Therefore, it is necessary to evaluate the existing condition of abandoned mine slopes and can be used as a basis for determining the direction of ex-mining land management.*

*This research aims to determine the existing condition of the slope, determine the level of slope stability based on the value of the safety factor, and determine the direction of slope management based on the value of the safety factor in the study area. The research method was a combination of quantitative and qualitative. The analysis methods used are field survey and mapping method, laboratory analysis method, spancer method, with sampling technique in the form of purposive sampling technique.*

*Based on the results of the slope stability analysis, the western slope has a height of 19 m, slope angle of 60°, soil bulk density of 81.423 N/cm<sup>3</sup>, dry soil bulk density of 65.677 N/cm<sup>3</sup>, moisture content of 23.974%, cohesion of 13 kN/m<sup>2</sup>, and inner shear angle of 25.5291°. While the eastern slope has a height of 33 m, slope angle of 46°, soil bulk density of 75.259 N/cm<sup>3</sup>, dry soil bulk density of 60.204 N/cm<sup>3</sup>, moisture content of 25.005%, cohesion of 13 kN/m<sup>2</sup>, and inner shear angle of 27.628°. The FK value on the west slope is 0.463. While the eastern slope has an FK value of 0.480. Both FK values are included in the class of unstable slopes according to Bowles classification, 1989 and have the potential for landslides according to the Minister of Energy and Mineral Resources Decree. The management strategies that can be done are engineered slope geometry, modified slope vegetation, and retaining wall construction. This engineering can increase the safety factor value of the west slope from 0.463 to 1.985 on the overall slope, 2.426 on the first bench, 1.702 on the second bench, and 1.914 on the bottom bench. Meanwhile, the eastern slope can increase the FK value to 1.73 on the top bench, 2.63 on the second bench, and 2.246 on the lowest bench. So that it can meet the criteria for acceptable ex-mining slopes based on Minister of Energy and Mineral Resources Decree No. 1827K/30/MEM/2018.*

**Keywords:** *Slope stability, Spancer Method, Rocscience Slide, Retaining wall*