SARI

GEOLOGI DAN ANALISIS KESTABILAN LERENG DAERAH BUKIT PANCAR DAN SEKITARNYA, KECAMATAN BABAKAN MADANG, KABUPATEN BOGOR, PROVINSI JAWA BARAT

Disusun Oleh:

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Lokasi penelitian masuk kedalam wilayah Bukit Pancar, Kecamatan Babakan Madang, Kabupaten Bogor, Provinsi Jawa Barat. Penelitian dilakukan dengan melakukan studi pustaka, pemetaan geologi dan pengambilan data di lapangan, analisis laboratorium, dan analisis data geologi teknik berupa geometri lereng, sifat fisik tanah, serta sifat mekanik tanah menggunakan *Software Slide 6.0* untuk memperoleh nilai faktor keamanan (FK). Pemetaan dan pengambilan data dilakukan pada daerah seluas 25km^2 dengan koordinat 707000 mT – 712000 mT dan 9267000 mU 9272000 mU berdasarkan *Universal Transfer Mercator* (UTM) WGS84 Zona 48S pada skala peta 1 : 25.000.

Secara geomorfologi daerah penelitian terbagi menjadi 5 bentuklahan, yaitu bentuklahan Lereng Vulkanik (V1), Intrusi (V2), Tubuh Sungai (F2), Perbukitan Terkikis (D1), dan Perbukitan Struktural (S1). Litologi yang terdapat pada daerah penilitian berupa batulempung, batulempung karbonatan, batupasir, batupasir karbonatan, *wackestone*, intrusi andesit, lava andesit, breksi andesit, dan tuff. Stratigrafi daerah penelitian terdiri atas 4 satuan batuan dengan urutan paling tua ke muda yaitu: Satuan Batulempung sisipan Batupasir yang berumur Miosen Awal - Miosen Tengah (N8-N9), Satuan Intrusi Andesit yang berumur Miosen Tengah - Miosen Akhir, dan Satuan Lava Andesit dan Satuan Breksi Andesit yang berumur Pleistosen.

Struktur geologi yang berkembang pada daerah penelitian adalah sesar -sesar yang terdiri dari sesar mendatar kanan berarah timur laut – barat daya, berarah barat laut - tenggara, sesar mendatar kiri berarah timur laut – barat daya, dan sesar naik mendatar kanan berarah barat - timur. Analisis kestabilan lereng yang telah dilakukan menggunakan Metode Bishop pada *software Slide 6.0* menghasilkan nilai Faktor Keamanan (FK) pada Lereng 1 yaitu 1,061; Lereng 2 yaitu 1,082; dan Lereng 3 yaitu 2,125.

Kata Kunci: Geologi, analisis kestabilan lereng, metode Bishop, *Slide 6.0*.

ABSTRACT

GEOLOGY AND SLOPE STABILITY ANALYSIS OF BUKIT PANCAR AND SURROUNDING AREAS, BABAKAN MADANG SUB-DISTRICT, BOGOR DISTRICT, WEST JAVA PROVINCE

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The research location located in Bukit Pancar and it's surroundings, Babakan Madang District, Bogor Regency, West Java Province. The research was conducted by literature studies, geological mapping and data collection in the field, laboratory analysis, and geological engineering data analysis such as slope geometry, soil physical properties, and soil mechanical properties using Slide 6.0 Software to obtain the Factor of Safety (FoS) value. Mapping and data collection were carried out on an area of 25km^2, with it's coordinate 707000 mT - 712000 mT and 9267000 mU 9272000 mU based on the Universal Transfer Mercator (UTM) WGS84 Zone 48S at a map scale of 1 : 25.000.

Geomorphologically, the research area is divided into 5 landforms, namely Volcanic Slope (V1), Intrusion (V2), River Body (F2), Eroded Hills (D1), and Structural Hills (S1). Lithologies found in the research area are mudstone, carbonate mudstone, sandstone, carbonate sandstone, wackestone, andesite intrusion, andesite lava, andesite breccia, and tuff. The stratigraphy of the research area consisting 4 rock units in the orderfrom the oldest to youngest, namely: Early Miocene - Middle Miocene (N8-N9) aged Interbeded Claystone - Sandstone Intercalation Unit, Middle Miocene - Late Miocene aged Andesite Intrusion Unit, and Pleistocene aged Andesite Lava Unit and Andesite Breccia Unit.

The geological structures that developed in the study area are faults consisting of Normal Right Slip Fault with northeast-southwest trending, Right Normal Slip Fault with northwest-southeast trending, Left Slip Fault with northeast-southwest trending, Right Reverse Slip Fault with west-east trending. The slope stability analysis that has been carried out using the Bishop Method in Slide 6.0 software results in a Factor of Safety (FoS) value on Slope 1 of 1.061; Slope 2 of 1.082; and Slope 3 of 2.125.

***Keywords**: Geology, slope stability analysis, Bishop's method, Slide 6.0.*