

# **“GEOLOGI DAN ANALISIS GEOTEKNIK DAYA DUKUNG TANAH PADA JALAN TOL (*EXIT*) PEMALANG-BATANG SEKSI 4 KOTA PEKALONGAN JAWA TENGAH”**

## **Sari**

Wilayah Kota Pekalongan merupakan wilayah dengan pertumbuhan penduduk dan pembangunan infrastruktur yang cukup pesat. Untuk perencanaan pembangunan di wilayah ini diperlukan kajian geologi teknik untuk mendapatkan informasi kekuatan lapisan tanah dan daya dukung tanah. Penelitian ini bertujuan untuk menjelaskan kondisi geologi daerah penelitian dan melakukan analisis daya dukung tanah pada pembangunan Jalan *Exit* Tol Kota Pekalongan. Penelitian lapangan meliputi pemetaan permukaan, dan pengambilan data lapangan berupa data CPT, Bor, SPT, dan sample tanah. Analisis laboratorium meliputi batas-atas atterberg, berat spesifik tanah, ukuran butir, dan geser langsung. Analisis daya dukung tanah pada data Bor menggunakan metode Terzaghi dan data CPT menggunakan metode L.Helminer. Hasil penelitian yaitu geologi daerah penelitian terdiri dari 3 satuan geomorfologi regional yaitu dataran pantai, punggungan aliran lahar dan punggungan aliran lava, daerah penelitian masuk kedalam satuan dataran pantai, sementara pada stratigrafi regional masuk kedalam 4 formasi yaitu formasi damar, formasi gunungapi jembangan, formasi kipas alluvial dan formasi alluvial, daerah penelitian masuk kedalam formasi alluvial. Berdasarkan analisis daya dukung tanah metode Terzaghi didapat daya dukung izin sebesar 11,03838467 ton/m<sup>2</sup> (BH1), 11,43339413 ton/m<sup>2</sup> (BH2), 7,650714933 ton/m<sup>2</sup> (BH3) dan 7,614775457 ton/m<sup>2</sup> (BH4), sedangkan menggunakan metode L. Herminier didapat nilai daya dukung izin sebesar 44, 4443 ton/m<sup>2</sup> pada semua titik CPT (8 titik).

**Kata Kunci :** Jalan Exit Tol Pekalongan, kondisi geologi, karakteristik geologi teknik, sondir, pengeboran teknik, Daya dukung tanah.

***GEOLOGY AND GEOTECHNICAL ANALYSIS OF SOIL BEARING  
CAPACITY ON THE TOLL (EXIT) PEMALANG – BATANG SECTION 4  
PEKALONGAN CENTRAL JAVA***

**Abstrack**

Pekalongan is a region with quite rapid population growth and infrastructure development. For the development planning in this region, the study of technical geology is required to get information about soil layer strength and soil bearing capacity. This research is aimed to explain the geological condition of the research area and to analyze the soil bearing capacity on the building of Exit Toll in Pekalongan. The field research consisted of surface mapping and the field data taking such as CPT, Bor, SPT, and soil samples. The laboratory analysis consisted of attenberg boundaries, specific soil weight, grain size, and direct shear. Terzaghi method used to analyze the soil bearing capacity in Bor, while L. Helminer method used to analyze the CPT. This research showed that the geology of the research area consists of three regional geomorphology units which are coastal plain, lava flow ridge, the research area belongs to coastal plain unit. Meanwhile, the regional stratigraphy belongs to four formations which are torch formation, vase formation, alluvial fan formation, and alluvial formation and the research area belongs to alluvial formation. According to the analysis of soil bearing capacity used Terzaghi method, the allowable bearing capacity are 11,03838467 ton/m<sup>2</sup> (BH1), 11,43339413 ton/m<sup>2</sup> (BH2), 7,650714933 ton/m<sup>2</sup> (BH3), and 7,614775457 ton/m<sup>2</sup> (BH4). Meanwhile, the allowable bearing capacity by L. Herminier method is 44, 4443 ton/m<sup>2</sup> at all points of CPT (8 points).

**Keywords:** Exit Toll Pekalongan, geological conditions, technical geological characteristics, sondir, engineering drilling, soil bearing capacity