STUDI KARAKTERISTIK
FISIK DAN MEKANIS TANAH CLAY SHALE
(Studi Kasus Ruas Jalan Tol Serang – Panimbang STA 53+900)

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ABSTRAK

Penelitian ini dilatarbelakangi oleh permasalahan karakteristik tanah clay shale yang bersifat ekspansif dan tidak stabil, sehingga dapat menimbulkan gangguan serius pada konstruksi infrastruktur seperti jalan tol. Tujuan dari penelitian ini adalah untuk mengetahui sifat fisik dan mekanis tanah clay shale pada lokasi proyek Jalan Tol Serang–Panimbang STA 53+900. Metode yang digunakan dalam penelitian ini meliputi serangkaian pengujian laboratorium terhadap sampel tanah, seperti uji berat jenis, kadar air, gradasi butiran, batas Atterberg, XRD, serta pengujian mekanis seperti CBR, UCS, triaxial, dan swelling. Hasil penelitian menunjukkan bahwa tanah clay shale pada lokasi tersebut memiliki nilai CBR rendah, plastisitas tinggi, dan daya dukung yang buruk, sehingga diperlukan upaya stabilisasi untuk meningkatkan kualitas tanah sebelum digunakan sebagai lapis pondasi jalan.

Kata Kunci : Clay Shale, Karakteristik Fisik dan Mekanis, CBR, Triaxial, Swelling

PHYSICAL AND MECHANICAL

CHARACTERISTICS STUDY OF CLAY SHALE SOIL

(Case Study of the Serang-Panimbang Toll Road Section STA 53+900)

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ABSTRACT

This research is motivated by the problem of the characteristics of clay shale soil which is expansive and unstable, so it can cause serious disruption to infrastructure construction such as toll roads. The purpose of this study is to determine the physical and mechanical properties of clay shale soil at the Serang-Panimbang Toll Road project site STA 53+900. The methods used in this study include a series of laboratory tests on soil samples, such as specific gravity, water content, grain gradation, Atterberg limits, XRD, and mechanical tests such as CBR, UCS, triaxial, and swelling. The results of the study indicate that the clay shale soil at the location has a low CBR value, high plasticity, and poor bearing capacity, so stabilization efforts are needed to improve the quality of the soil before it is used as a road foundation layer.

Keyword : Clay Shale, Physical and Mechanical Characteristics, CBR, Triaxial, Swelling