

ANALISA PERHITUNGAN DAYA DUKUNG DAN PENURUNAN PONDASI
TIANG TUNGGAL BERDASARKAN DATA SPT
STUDI KASUS PROYEK REHAB BERAT DERMAGA
DI PELABUHAN PULANG PISAU KALIMANTAN TENGAH

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ABSTRAK

Pondasi adalah bagian dari konstruksi bangunan yang bertugas meletakkan bangunan dan meneruskan beban bangunan atas ke dasar tanah yang cukup kuat.

Tujuan penelitian ini untuk mengetahui nilai perhitungan daya dukung dan penurunan pondasi tiang tunggal berdasarkan pengujian SPT pada Proyek Rehab Berat Dermaga yang berlokasi di Pelabuhan Pulang Pisau Kalimantan Tengah. Tiang pancang yang dihitung adalah material tiang pancang baja SPP. Metode untuk memperoleh nilai daya dukung aksial Meyerhof dan Luciano Decourt, daya dukung lateral menggunakan metode Brom's. Perhitungan nilai daya dukung berdasarkan data kalendering menggunakan formula Hiley dan penurunan tiang menggunakan metode Vesic.

Dari hasil analisa diperoleh nilai daya dukung aksial ijin pondasi metode Meyerhof, area Trestle (PC1) = 182,39 Ton, area Dermaga (PC2) = 199,08 Ton, (PC3) = 236,36 Ton. Sedangkan metode Luciano Decourt, diperoleh hasil pada area Trestle (PC1) = 220,57 Ton, area Dermaga (PC2) = 239,89 Ton dan (PC3) = 265,56 Ton. Berdasarkan data kalendering menggunakan formula Hiley, diperoleh nilai daya dukung aksial ijin pondasi area Trestle (PC1) = 224,20 Ton, dan pada area Dermaga (PC2) = 263,15 Ton dan (PC3) = 329,27 Ton.

Daya dukung lateral ijin pondasi dengan metode Brom's diperoleh hasil pondasi pada area trestle $H = 1,92$ Ton dan area Dermaga $H = 1,01$ Ton. Penurunan pondasi tiang menggunakan metode empiris Vesic diperoleh hasil penurunan pada area Trestle (PC1) = 0,92 cm, Dermaga (PC2) = 0,89 cm dan (PC3) = 0,89 cm. Nilai perhitungan menggunakan metode semi empiris Vesic diperoleh nilai penurunan pondasi (PC1) = 0,73 cm, (PC2) = 0,78 cm dan (PC3) = 0,81 cm. Dari hasil analisa perhitungan, daya dukung pondasi tiang memenuhi syarat.

Kata Kunci : Daya Dukung, Trestle, Hiley, SPT, SPP.

CALCULATION ANALYSIS OF BEARING CAPACITY AND SETTLEMENT
OF SINGLE PILE FOUNDATIONS BASED ON SPT DATA CASE STUDY OF
HEAVY REHABILITATION PROJECT
AT PULANG PISAU PORT CENTRAL OF KALIMANTAN

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ABSTRACT

The foundation is part of the building construction whose job is to lay the building and transmit the superstructure load to the ground which is strong enough. The foundation distributes the load on it to support certain soils that have sufficient bearing capacity.

The purpose of this study was to determine the calculation value of bearing capacity and settlement of single pile foundations based on the SPT test for the Jetty Heavy Rehabilitation Project located in Pulang Pisau Port, Central Kalimantan. The calculated piles are SPP steel pile materials. The method for obtaining the value of the axial bearing capacity of Meyerhof and Luciano Decourt, the lateral bearing capacity uses Brom's method. Calculation of bearing capacity based on calendering data uses the Hiley formula and pile settlement uses the Vesic method.

The results of the analysis obtained the value of the allowable axial bearing capacity of the foundation Meyerhof method, Trestle area (PC1) = 182.39 Tons, wharf area (PC2) = 199.08 Tons, (PC3) = 236.36 Tons. While the Luciano Decourt method, results were obtained in the Trestle area (PC1) = 220.57 tons, the dock area (PC2) = 239.89 tons and (PC3) = 265.56 tons. Based on calendering data using Hiley's formula, the axial bearing capacity of the Trestle area foundation permit (PC1) = 224.20 Tons, and in the wharf area (PC2) = 263.15 Tons and (PC3) = 329.27 Tons.

Allowable lateral bearing capacity of the foundation with Brom's method results obtained in the trestle area $H = 1.92$ Tons and the wharf area $H = 1.01$ Tons. Settlement of pile foundations using the Vesic empirical method obtained settlement results in the Trestle area (PC1) = 0.92 cm, Jetty (PC2) = 0.89 cm and (PC3) = 0.89 cm. Calculation values using the Vesic semi-empirical method obtained foundation settlement values (PC1) = 0.73 cm, (PC2) = 0.78 cm and (PC3) = 0.81 cm. Results of the calculation analysis, the bearing capacity of the pile foundation meets the requirements.

Keywords : Bearing Capacity, Trestle, Hiley, SPT, SPP.