

ANALISIS PERBANDINGAN DAYA DUKUNG PONDASI *BORED PILE* DENGAN HASIL *PILE DRIVING ANALYZER* (STUDI KASUS PROYEK JEMBATAN ARASKABU – SIANTAR)

ABSTRAK

Pondasi adalah suatu sistem rekayasa yang meneruskan beban yang di topang oleh pondasi dan beratnya sendiri kepada tanah dan batuan yang terletak dibawahnya. Penelitian ini bertujuan untuk mengetahui besarnya daya dukung dan penurunan yang terjadi pada pondasi. Penelitian ini bertujuan untuk mencari hasil evaluasi dan perbandingan daya dukung aksial pondasi *Bored Pile* serta besar penurunan yang terjadi dan kemudian hasil dari perbandingan dengan data pengujian *Pile Driving Analyzer*. Pada penelitian ini perhitungan analisis daya dukung menggunakan metode *Reese and O'neil* dan penurunan dihitung berdasarkan metode elastis tiang tunggal. Data tanah yang digunakan berupa data *Standard Penetration Test* yang dikorelasikan kedalam parameter-parameter tanah yang dibutuhkan dalam perhitungan analisis. Setelah dilakukan perhitungan daya dukung dan penurunan tiang bored pile, hasil perhitungan kemudian dibandingkan dengan hasil interpretasi dari data *Pile Driving Analyzer Test*. Hasil rata-rata daya dukung tiang dengan metode *Reese and O'neil* sebesar 341,49 ton dan rata-rata daya dukung *Pile Driving Analyzer Test* sebesar 380,17 ton. Sedangkan dari hasil perhitungan penurunan elastis tiang didapat rata-rata penurunan sebesar 4,68 mm. Dari hasil perhitungan didapat selisih perbandingan antara metode analitis dan hasil *Pile Driving Analyzer Test*, pada Pilar 1 didapatkan selisih perbandingan sebesar 29,39 ton atau 7,7%, pada Pilar 2 didapatkan selisih perbandingan sebesar 57,12 ton atau 14,2% dan pada Pilar 3 didapatkan selisih perbandingan sebesar 29,52 ton atau 8,3%.

Kata kunci : **Daya dukung, Bored pile, Penurunan Elastis, Pile Driving Analyzer.**

**COMPARISON ANALYSIS OF BEARING CAPACITY BORED PILE
FOUNDATION WITH PILE DRIVING ANALYZER RESULTS (CASE
STUDY OF ARASKABU – SIANTAR BRIDGE PROJECT)**

ABSTRACT

The foundation is an engineering system that transmits the load supported by the foundation and its weight to the soil and rock that lies below it. This study aims to determine the magnitude of the bearing capacity and settlement that occurs in the foundation. This study aims to find the results of the evaluation and comparison of the axial bearing capacity of the Bored Pile foundation and the magnitude of the settlement that occurs and then the results of the comparison with the Pile Driving Analyzer test data. In this study, the calculation of the carrying capacity analysis uses the Reese and O'neil method and the settlement is calculated based on the single pile elastic method. The soil data used is in the form of Standard Penetration Test data which is correlated to the soil parameters needed in the calculation of the analysis. After calculating the carrying capacity and decreasing the bored pile, the calculation results are then compared with the interpretation results of the Pile Driving Analyzer Test data. The average bearing capacity of the pile using the Reese and O'neil method is 341.49 tons and the average carrying capacity of the Pile Driving Analyzer Test is 380.17 tons. Meanwhile, from the calculation of the elastic settlement of the pile, an average decrease of 4.68 mm was obtained. From the calculation results, it is found that the difference in comparison between the analytical method and the results of the Pile Driving Analyzer Test, in Pillar 1 the difference in comparison is 29.39 tons or 7.7%, and in Pillar 2 the difference in comparison is 57.12 tons or 14.2% and in Pillar 3, the difference in comparison is 29.52 tons or 8.3%.

Key words: *Bearing capacity, Bored pile, Elastic settlement, Pile Driving Analyzer.*