

Aplikasi direct method cone penetration test untuk wilayah Jakarta = The application of direct method cone penetration test in Jakarta

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Abstrak

Daya dukung fondasi dapat dihitung dengan perhitungan direct method CPT. Dikarenakan direct method yang bervariasi, diperlukan evaluasi untuk mengetahui metode manakah yang paling mendekati dengan kondisi aktual di lapangan. Dalam penelitian ini, digunakan 8 metode direct method CPT, yaitu: Schmertmann, De Ruiter dan Beringen, LCPC, Aoki De Alencar, Penpile, Price dan Wardle, Philipponnat, dan Wesley. Jumlah data yang digunakan 55 tiang dengan jenis fondasi tiang bor dan fondasi tiang pancang. Hasil perhitungan direct method CPT dan hasil loading test, hasil loading test yang diinterpretasi dengan metode Chin dan Decourt dan hasil PDA, kemudian dianalisis menggunakan persamaan best-fit line, rata-rata dan standar deviasi, dan log distribusi normal dengan keakuratan 20%. Berdasarkan analisis tersebut, dapat diketahui bahwa metode LCPC merupakan metode yang paling cocok digunakan di wilayah Jakarta karena hasil perhitungannya yang cenderung mendekati hasil interpretasi loading test, dengan nilai rank index terkecil di antara direct method lainnya. Direct method CPT lebih direkomendasikan untuk digunakan sebagai perhitungan daya dukung fondasi tiang pancang.

There are several direct methods to estimate bearing capacity of pile foundation using cone penetration test (CPT). Hence, it is interesting to evaluate which method that suitable for a certain condition or specific locations. In this study, 55 foundation piles, which consisted of bored piles and driven piles, are used in order to determine the bearing capacity using the following methods: Schmertmann, de Ruiter dan Beringen, LCPC, Aoki and De Alencar, Penpile, Price and Wardle, Philipponnat and Wesley. The pile capacities will be compared to the measured pile capacities, from static pile load tests, which interpreted by Chin method and Decourt method, and the results from PDA testing. The statistical analyses used in this paper are the best fit line, mean and standard deviation, and log distribution with 20% of accuracy. Result shows that LCPC method is the most suitable direct method used in studied location as it has the best agreement among the seventh methods. The cone penetration test direct method is more suitable used for driven piles.