ABSTRAK

Keadaan struktur tanah sangat mempengaruhi tipe pondasi yang akan digunakan. Dalam tugas akhir ini, tanah yang diperhitungkan ialah tanah lunak yang basah dan menyimpan zat asam serta mempunyai kedalaman tanah keras yang cukup dalam.

Peneliti ingin merencanakan bangunan dengan menggunakan 3 pondasi yakni, pondasi tiang kayu pedaru, pondasi *bored pile,* dan pondasi tiang pancang precast dengan pembebanan gedung yang telah dimodelkan menggunakan aplikasi SAP200. Perancangan pondasi menggunakan metode statis berdasarkan hasil uji sondir. Tujuan dari analasis ini ialah membandingkan kapasitas dukung, keefektifan serta penurunan dari 3 pondasi. Perhitungan daya dukung menggunakan Metode *Schmertmann dan Notingham* dan Metode *Mayerhoff* dengan 2 dimensi berbeda ditiap pondasinya.

Hasil analisis kapasitas dukung pondasi tiang *bored pile* metode *Mayerhoff* diameter 30 cm dan 20 cm diperoleh masing-masing 1969,59 kN dan 1214,93 kN, dengan penurunan masing-masing 36,83 mm dan 66,16 mm dan metode *Schmertmann* dan *Notingham* dengan diameter 30cm diperoleh 9634,15 kN; pondasi tiang pancang precast metode *Mayerhof* dengan diameter 30 cm dan 35cm, diperoleh masing-masing sebesar 1957,85 kN dan 2369,38 kN , dengan penurunan masing-masing 38,63 mm dan 15,92 mm dan metode *Schmertmann* dan *Notingham* dengan diameter 30cm diperoleh 9599,25 kN; pondasi tiang kayu pedaru metode *Mayerhof* dengan diameter 30cm dan 20cm, diperoleh masing-masing sebesar 1219,07 kN dan 2008,51 kN dan metode *Schmertmann* dan *Notingham* dengan diameter 20cm diperoleh 9643, 48 kN, dengan penurunan diameter 30cm 57,72 mm dan metode *Schmertmann* dan *Notingham* dengan diameter 20cm ialah 30.94 dengan nilai P = 417,10 kN.

Kata kunci : Pondasi Tiang Kayu, Pancang Precast, Schmertmann dan Notingham, Penurunan.

ABSTRACT

The state of the soil structure greatly affect the type of foundation to be used. In this research paper, the examined soil is soft soil that is moist and acidic substance and has a hard soil depth that is deep enough.

The researcher wants to design the building by using 3 foundations namely, the wood foundation of pedaru wood, the bored pile foundation, and the precast pile foundation with loading building that has been modeled using the SAP200. The foundation design uses a static method based on the sondir test results. The purpose of this analysis is to compare the bearing capacity, effectiveness and subsidence of the 3 foundations. The calculation of bearing capacity uses the Schmertmann and Notingham Method and the Mayerhoff Method with 2 different dimensions in each foundation.

The analysis results of the bearing capacity of the bored pile foundation using Mayerhoff method with diameter of 30 cm and 20 cm were obtained at 1969,59 kN and 1214.93 kN, respectively with a subsidence of 36,83 mm and 66,16 mm and Schmertmann and Notingham method with diameter of 30 cm were obtained 9634,15 kN; the precast pile foundation in Mayerhof method with diameter of 30 cm and 35 cm, obtained respectively at 1957.85 kN and 2369.38 kN, with a subsidence of 38,63 mm and 15,92 mm respectively and Schmertmann and Notingham method with 30 cm diameter obtained 9599.25 kN; the wood foundation of pedaru wood in Mayerhof method with a diameter of 30 cm and 20 cm, obtained respectively at 1219,07 kN and 2008,51 kN and Schmertmann and Notingham method with 20cm diameter obtained 9643, 48 kN, with a decrease of 30 cm diameter 57,72 mm and Schmertmann and Notingham method with 20cm diameter obtained 30.94 mm respectively. The results of the analysis show that the bearing capacity is greater than the P value = 417.10 kN.

Keyword : Wood foundation, Precast pile foundation ,Schmertmann dan Notingham, subsidence