ABSTRACT

Indah Permatasari
13318301

(xxii + 139 + Appendices)

Foundation is a structural element that distributes either axial or lateral load transferred from upper structural element, to the ground. Foundation's working mechanism is by distributing the load to the bottom tip of the foundation, and transmitting the load to the surrounding soils of the pile by friction of the surface of the pile and the soil. Data that are used for pile design are two boring holes, BH-01 and BH-02, dominated by silt type soil. Methods used for calculations are Meyerhof's for end bearing capacity and friction bearing capacity, semi-empirical method and vesic's for settlement and Brom's Method for lateral bearing capacity and deflection. Reinforcement calculation are done according to SNI 2847:2019. The foundation is designed circle-shaped with diameter from the result of trial and error of 0,5 m and 26 m in length. The results are, ultimate bearing capacity of a single driven pile value is 213,68 tonne on BH-01 and 245,66 tonne on BH-02. The settlement caused by group of piles are 0,077 mm for 2 and 4 piles on BH-01 and 0,083 mm for 2 and 4 piles on BH-02. As for lateral bearing capacity for group of piles are 57,75 tonne for 2 piles and 115,26 tonne for 4 piles on BH-01. The value of lateral bearing capacity on BH-02 is 54,33 tonne for 2 piles and 108,43 tonne for 4 piles. The pile cap design used for both BH-01 and BH-02 is done by trial and error, and the final dimension used is 1100 × 2350 mm for the configuration of 2 piles, and 2350 × 2350 mm for the configuration of 4 piles. The cost estimation for the work and design of driven pile as well as its pile cap is Rp5.788.744.339,-.

Keyword*s: Deep Foundation, Driven Pile, Silt Type Soil, Meyerhof, Broms.*