

## **ABSTRACT**

Yaris Rahmat Gunawan  
10320358

(xxvi + 159 + Attachments)

*The foundations is a base part of a building that distribute either the lateral or axial load to the supporting soil below the building. The pile foundations is used whenever the hard soil is located too deep. The data used is in the form of one boring hole data, namely DB-1, with the dominant soil type is clay. The Methods that used in the planning of the foundation is Meyerhof method for the calculation of end pile bearing capacity and concrete blanket, Semi-empirical method for the calculation of single pile settlement, Vessic method for the calculation of pile group settlement, and Broms method for the calculation of lateral bearing capacity and pile deflection. The calculation of reinforcement of the pile and the pile cap is based on SNI 2847:2019 about structural concrete requirements for building buildings. The foundation is planned with a trial and error diameter of 0.6 meters for 13.5 meters long pile. Based on the results of the calculation on DB-1, the bearing capacity of a single pile is 262.61 tons with a total number of piles needed as many as 43 piles. The pile group settlement is obtained 5.01 cm for 2 piles, 9.14 cm for 3 piles, 14.16 cm for 5 piles and 15.29 for 6 piles. The lateral bearing capacity for the pile group on DB-1 is 524.11 tons for 2 piles, 784.51 tons for 3 piles, 1308.62 for 5 piles, and 1570.12 for 6 piles. The dimensions of the planned pile cap on DB-1 based on the results of trial and error are of 4 types, namely pile cap 1 with dimensions of  $900 \times 2400$  mm for a 2-pile configuration, pile cap 2 with dimensions of  $3000 \times 3000$  mm for a 3-pile configuration, pile cap 3 with dimensions of  $8400 \times 900$  mm for a 6-pile configuration, and pile cap 4 with dimensions of  $1200 \times 7200$  mm for 5 piles. The calculation of the cost budget plan refers to the Regulation of the Minister of PUPR No. 8 of 2023. The results of the calculation of the cost budget plan for pile foundation work and pile cap are IDR 3.280.495.332,- for 43 pillars. The cost budget per 1 pile is IDR 76.290.589,-.*

**Keywords:** Foundations, Piles, Clay, Meyerhof, Vessic.