

Soil Bearing Capacity of Shallow Foundation and Consolidation Settlement at Around the Prospective Area of Sei Gong Dam Batam

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Abstract : Batam city within next five years are expected to experience water crisis. Sei Gong dam which is located in the Sijantung village, Galang District, Batam City, Riau Islands Province is one of 13 dams that will be built to solve the problems of raw water crisis in the Batam city. The purpose of this study are to determine the condition of engineering geology around Sei Gong Dam area, knowing the value of the soil bearing capacity and recommended pile foundation, and knowing the characteristics of the soil consolidation as one of the factors that affect the incidence of soil subsidence. Based on calculations for shallow foundation in general - soil shear condition and local - soil condition indicates that the highest value in ultimate soil bearing capacity (q_u) for each depth was in the square foundations at two meters depth. The zonations of shallow foundation of the research area are divided into five zones, they are bearing capacity zone <10 ton/m², bearing capacity zone 10-15 ton/m², bearing capacity zone 15-20 ton/m², bearing capacity zone 20-25 ton/m², and bearing capacity zone >25 ton/m². Based on the parameters of soil engineering analysis, Sei Gong Dam areas at the middle part has a higher value for land subsidence.

Keywords : ultimate bearing capacity, type of foundation, consolidation, land subsidence, Batam

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