ANALISIS PERENCANAAN PONDASI JEMBATAN DI SULAWEUSI UTARA MENGGUNAKAN ANALISIS GROUP PILE

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ABSTRAK

Tugas akhir ini membahas mengenai analisis kebutuhan pondasi jembatan di Sulaweusi Utara dengan jenis pondasi caisson/sumuran pada abutment satu dan pondasi tiang pancang beton pada abutment dua. Jenis pondasi tiang yang digunakan berbeda karena merupakan pengaruh dari jenis dan konsistensi tanah pada lokasi tersebut. Analisis ini dilakukan untuk mendapatkan dimensi dan jumlah kebutuhan tiang pada setiap abutment dengan memperhitungkan faktor keamanan kuat tekan, tarik dan deformasi tiang arah aksial maupun lateral. Berdasarkan analisis kebutuhan tiang podasi didapat bahwa pondasi pada abutment satu menggunakan pondasi sumuran caisson dengan dimensi 10x12x3 m yang sudah memperhitungkan kondisi bearing, guling dan geser, sedangkan untuk kebutuhan tiang pondasi pancang beton didapat jumlah tiang sebanyak 42 buah (6x7) dengan panjang tiang 18 m hingga bertumpu pada tanah keras dengan diameter tiang 600 mm yang sudah memperhitungakan faktor keamanan tarik dan tekan untk kondisi statik sebesar 3 dan kondisi gempa sebesar 1.67.

Kata Kunci: Simulasi model, analisis pondasi, dinding penahan tanah, longsoran, tiang pancang beton, Pondasi sumuran, dan Group Pile V19.

ANALYSIS OF BRIDGE FOUNDATION PLANNING IN NORTH SULAWESI USING GROUP PILE ANALYSIS.. **(Ahmad Sopyan, 2112207013, Chandra Afriade Siregar, ST.MT**
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ABSTRACT

This final project discusses the analysis of bridge foundation needs in North Sulawesi with the type of caisson/well foundation on abutment one and concrete pile foundation on abutment two. The type of pile foundation used is different because it is the influence of the type and consistency of the soil at that location. This analysis is carried out to obtain the dimensions and number of pile requirements for each abutment by taking into account the factors of safety for compressive strength, tensile and pile deformation in axial and lateral directions. Based on the analysis of the needs of the foundation piles, it was found that the foundation on the abutment one uses a caisson well foundation with dimensions of 10x12x3 m which has taken into account the conditions of bearing, bolster and shear, while for the needs of the concrete pile foundation, the number of piles obtained is 42 pieces (6x7) with a pile length of 18 m. until it rests on hard ground with a pile diameter of 600 mm which has taken into account the tensile and compressive safety factors for static conditions of 3 and earthquake conditions of 1.67.

Key word: *Model simulation, foundation analysis, retaining walls, landslides, concrete piles, well foundations, and Group Pile V19.*