ABSTRAK

Pondasi merupakan bagian dari sistem struktur yang berfungsi meneruskan beban dari struktur bagian atas, kelapisan tanah bagian bawah, tanpa mengakibatkan keruntuhan geser tanah dan penurunan tanah (*settlement*) yang berlebihan penentuan jenis pondasi yang akan digunakan bergantung pada hasil investigasi awal penyelidikan tanah. Dalam pembangunan jalur kereta api lintas medan binjai, menggunakan pondasi borepile. pada pembangunan jalur kereta api lintas medan binjai menggunakan pondasi borpile yang digunakan sebanyak 8 buah kemudian disatukan dengan (*pile group*) diameter borpile Ø1200 mm, disatukani dengan pile cap ukuran lebar 11 m dan Panjang 5 meter. hasil penyelidikan tanah yang dilakukan dengan pengeboran tanah (*borelog test*) sedalam 40 m, ditemukan rata-rata lapisan terhadap tanah pasir memiliki *Consistency dense to very dense.* hasil pengujian dilaboratorium sampel bor 38 Depth 6,50 – 7,00 m, merupakan tanah Lanau berlempung dengan kapasitas tinggi, rekomendasi tiang borepile berdasarkan perbandingan nilai daya dukung hasil *soil investigestion* terhadap nilai daya dukung sesuai DED diperoleh sampel bor 38 Depth 35 Meter dengan nilai daya dukung 10580 KN. Kapasitas daya dukung : Kedalaman 14 m, Qult = 385,68 ton, Qijin = 154,27 ton. Kedalaman 14,5 m, Qult = 580,32 ton, Qijin = 232,13 ton. Kedalaman 15 m, Qult = 611,58 ton, Qijin = 244,63 ton. Bahwasanya, nilai Qult dan Qijin kedalaman yang diambil dari data uji tanah lapangan. Yaitu : Data N-SPT (Standard Penetration Test). Kapasitas tiang kelompok : Vtotal = 17.459 kg (menggunakan kombinasi pembebanan), Qgroup = 284.477 kg. Bahwasanya, nilai Vtotal < Qgroup, sehingga apabila beban keseluruhan/total Bekerja dapat dipikul oleh keseluruhan tiang kelompok pondasi bored pile.

Kata Kunci : Pondasi, Bored Pile, Pile Group, N-SPT.

ABSTRACT

The foundation is part of the structural system that functions to transmit the load from the upper structure to the lower soil layer without causing excessive shear collapse and settlement. The determination of the type of foundation to be used depends on the results of the initial soil investigation. In the construction of the Binjai cross-field railway line, a borepile foundation is used. In the construction of the Binjai cross-field railway line, 8 borepile foundations are used, then combined with a (pile group) diameter of Ø1200 mm, combined with a pile cap measuring 11 m wide and 5 meters long. The results of the soil investigation carried out by drilling the soil (borelog test) to a depth of 40 m, found that the average layer of sandy soil has a consistency of dense to very dense. The results of laboratory tests on drilled samples 38 Depth 6.50 - 7.00 m, are clayey silt soil with high capacity, recommendations for borepile piles based on the comparison of the bearing capacity value of the soil investigation results to the bearing capacity value according to the DED, a 38 Depth 35 Meter drill sample was obtained with a bearing capacity value of 10580 KN. Bearing capacity: Depth 14 m, Qult = 385.68 tons, Qijin = 154.27 tons. Depth 14.5 m, Qult = 580.32 tons, Qijin = 232.13 tons. Depth 15 m, Qult = 611.58 tons, Qijin = 244.63 tons. That, the Qult and Qijin depth values are taken from field soil test data. Namely: N-SPT (Standard Penetration Test) Data. Group pile capacity: Vtotal = 17,459 kg (using a combination of loads), Qgroup = 284,477 kg. That, the value of Vtotal < Qgroup, so that if the overall load/total Work can be borne by the entire pile group of bored pile foundations.

Keywords: Foundation, Bored Pile, Pile Group, N-SPT.