

INTISARI

Pembangunan Jalan Tol Solo – Yogyakarta – *Yogyakarta International Airport* merupakan bagian sistem jaringan jalan tol trans Jawa yang akan menghubungkan provinsi Jawa Tengah dengan Daerah Istimewa Yogyakarta dan menjadi akses pendukung menuju bandara *Yogyakarta International Airport*. PT. Adhi Karya (Persero) sebagai kontraktor pelaksana bertanggung jawab untuk merealisasikan pekerjaan struktur jembatan sebagai akses pendukung jalan tol dan masyarakat sekitar pada seksi 1 paket 1.1 STA 0 + 00 s/d STA 22 + 300. Pondasi jembatan yang digunakan pada seksi 1 paket 1.1 adalah pondasi *bored pile*.

Tujuan dari penelitian ini untuk mengetahui kapasitas dukung dan penurunan tiang pondasi *bored pile* berdasarkan data *soil penetration test* (SPT), menganalisis pelaksanaan pekerjaan *bored pile*, membandingkan dan mengevaluasi kapasitas dukung dan penurunan dengan hasil uji PDA *test* di lapangan serta mengevaluasi hasil kondisi pondasi tiang *bored pile* berdasarkan uji PIT di lapangan.

Hasil analisis didapatkan nilai kapasitas dukung izin tiang dengan perhitungan metode Meyerhof (1976), Reese dan Wright (1977), Reese dan O'Neill (1989) berturut-turut adalah 312,89 ton, 333,15 ton, dan 305,05 ton. Nilai tahanan lateral izin yang didapatkan dengan perhitungan metode Broms adalah 35,8 ton berdasarkan kekakuan tiang. Analisis penurunan tiang dengan beban seragam dengan perhitungan metode Poulos dan Davis (1980), Vesic (1977), dan plaxis 8.6 didapatkan nilai sebesar masing-masing 9,2 mm, 20,93 mm, dan 38,41 mm. Pelaksanaan pondasi *bored pile* yang dilakukan pada *abutment* 1 menggunakan metode *casing*. Berdasarkan pengujian PDA *test* dan PIT di lapangan didapatkan nilai kapasitas dukung izin tiang sebesar 306,33 ton dan penurunan sebesar 3 mm serta keutuhan tiang di lapangan menunjukkan tidak ada patahan atau retakan pada tiang sehingga pelaksanaan di lapangan sudah sesuai rencana.

Kata Kunci : *bored pile*, kapasitas daya dukung izin, penurunan, PDA *test*, PIT

ABSTRACT

The construction of the Solo – Yogyakarta – Yogyakarta International Airport Toll Road is part of the trans Java toll road network system that will connect the province of Central Java with the Special Region of Yogyakarta and become supporting access to the Yogyakarta International Airport. PT. Adhi Karya (Persero) as the contractor is responsible for realizing the bridge structure work as supporting access for toll roads and surrounding communities in section 1 package 1.1 STA 0 + 00 to STA 22 + 300. The bridge foundation used in section 1 package 1.1 is bored pile foundation.

The purpose of this study was to determine the bearing capacity and settlement of bored pile foundations based on soil penetration test (SPT) data, analyze the implementation of bored pile work, compare and evaluate the bearing and settlement capacity with the results of the PDA test in the field and evaluate the results of the bored pile foundation conditions. pile based on the PIT test in the field.

The results of the analysis showed that the value of the bearing capacity of the pile permit by calculating the methods of Meyerhof (1976), Reese and Wright (1977), Reese and O'Neill (1989) were 312.89 tons, 333.15 tons, and 305.05 tons, respectively. The allowable lateral resistance value obtained by calculating the Broms method is 35,8 tons based on pile stiffness. Analysis of pile settlement with uniform load using Poulos and Davis (1980), Vesic (1977), and plaxis 8.6 methods obtained values of 9.2 mm, 20.93 mm, and 20.13 mm, respectively. The implementation of the bored pile foundation carried out on abutment 1 uses the casing method. Based on the PDA test and PIT testing in the field, the value of the permit bearing capacity of the pile was 306.33 tons and a decrease of 3 mm and the integrity of the pile in the field showed that there were no fractures or cracks in the pile so that the implementation in the field was according to plan.

Keywords: bored pile, bearing capacity, settlement, PDA test, PIT