

INTISARI

ANALISIS DAN EVALUASI *SHEET PILE* PROYEK PENGAMANAN PIPA GAS PT PGN DAMPAK PEMBANGUNAN *DOUBLE TRACK* KERETA API JALUR TROSOBO-KRIAN, SIDOARJO, JAWA TIMUR

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Jalur Trosobo – Krian, Sidoarjo – Jawa Timur adalah salah satu lokasi yang dilalui pipa gas PT PGN Tbk. Dari *plotting* pembagian zona, sepanjang 2125,82 meter jalur pipa berpotensi di area antara as rel *double track* dan *slope ballast* (zona 2). Zona 2 dilakukan perbaikan dengan *soil inprovement* dan *concrete slab*. Konstruksi pengamanan pipa zona 2 diperlukan penggalan sedalam 1,5 m, sehingga perlu dipasang *sheet pile* untuk menghindari longsor. Tujuan penulisan Proyek Akhir untuk analisis kedalaman *sheet pile* secara manual dan analisis dengan aplikasi *GEO 5 Sheeting Design*.

Perhitungan kedalaman *sheet pile* secara manual menggunakan metode gaya aktif dan pasif Rankine. Profil *sheet pile* menggunakan katalog Nippon Steel. Perencanaan kedalaman dan profil *sheet pile* juga dianalisis menggunakan aplikasi *GEO 5 Sheeting Design*. Data tanah yang digunakan adalah hasil uji tanah pada titik 7, 3 dan 1 dengan mempertimbangkan kedekatan lokasi. Hasil analisis berupa nilai kedalaman dan profil *sheet pile*.

Perhitungan manual tes tanah titik 7, 3, dan 1 berturut-turut 8,76 m, 8,48 m, dan 8,86 m dengan profil NS-SP-IV(400 x 170), NS-SP-III_A (400 x 150), dan NS-SP-IV(400 x 170). Hasil analisis kedalaman dan profil *steel sheet pile* menggunakan aplikasi *GEO 5 Sheeting Design* titik 7, 3, 1 berturut-turut adalah 10,85 m, 11,69 m, 9,48m dengan profil PU 400 x 170, PU 400 x 170, dan PU 400 x 125.

Kata kunci : turap kantilever, *steel sheet pile*

ABSTRACT

ANALYSIS AND EVALUATION OF THE SHEET PILE IN GAS PIPELINE SECURITY PROJECT OF PT PGN, THE IMPACT OF THE DEVELOPMENT OF TRISOBO-KRIAN DOUBLE TRACK RAILWAY, SIDOARJO, JAWA TIMUR

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The railway track of Trisobo-Krian, Sidoarjo – East Java is one of the areas which are passed by the gas pipeline of PT PGN Tbk. Based on zone plotting, 2125,82 meters of the pipeline is located in the area between rail bearings and slope ballast (zone 2). Zone 2 is under construction with soil improvement and concrete slab. The construction of the pipeline security requires excavation with 1,5 meters depth, which needs to be equipped with sheet pile to avoid landslides. The aim of this final project is to analyze the depth of the sheet pile both manually and automatically using GEO 5 Setting Design application.

The depth of the sheet pile was calculated manually using the methods of Rankine's passive and active soil **pressures**. Sheet pile profiles were made using Nippon steel catalog. The planning of the sheet pile depth and the sheet pile profiles were also analyzed using Geo 5 Sheeting Design Application. The data used in the analysis were the results of soil tests in point 7, point 3, and point 1, which were chosen because of the proximity to the location. The results of the analysis were the depth values and the sheet pile profiles.

The manual calculation result shows that the depth in the point 7,3, and 1 sequentially are 8,76 meter , 8,48 meter, dan 8,86 meter with the profiles NS-SP-IV(400 x 170), NS-SP-III_A (400 x 150), and NS-SP-IV(400-170). The depth analysis using GEO 5 *Sheeting Design* shows that the depth in the poin 7,3, and 1 sequentially are 10,85 meter; 11,69 meter; and 9,48 meter with the profiles of PU 400 x 170, PU 400 x 170, and PU 400 x 125.

Keywords: cantilever wall, steel sheet pile