

ABSTRAK

Penelitian ini bertujuan mendesain dinding penahan tanah (DPT) tipe kantilever berdasarkan parameter geoteknik tiga lapisan tanah. Data tanah yang digunakan bersifat fiktif, terdiri dari lapisan atas (*Sandy Clay*), lapisan tengah (*Clayey Sand*), dan lapisan bawah (*Hard Silty Clay*). Metode perencanaan dilakukan dengan *trial and error* untuk menentukan dimensi optimal, perhitungan tekanan tanah lateral menggunakan teori Rankine, serta pengecekan stabilitas mengacu pada SNI Geoteknik 8460:2017. Penulangan direncanakan sesuai SNI Beton Bertulang 2847:2019. Hasil perhitungan menunjukkan dimensi DPT Kantilever adalah tinggi 8 m, panjang telapak 4,4 m, dan tebal badan dinding atas 0,4 m, tebal dinding bawah 0,8 m. Kestabilan terhadap guling (*overturning*), geser (*sliding*), dan daya dukung tanah (*bearing capacity*) telah tercapai dengan faktor keamanan yang sesuai standar. Stabilitas guling (*overturning*) = $2.45 > 2$, Stabilitas geser (*sliding*) = $1.60 > 1.5$, Stabilitas daya dukung = $10.10 > 3$. Penulangan dinding penahan tanah kantilever direncanakan berdasarkan gaya-gaya yang bekerja pada dinding penahan tanah kantilever, Tulangan lentur di pasang = D25-150 mm, Tulangan horizontal di pasang = D16-250 mm, Tulangan *heel* di pasang = D22-220 mm, Tulangan *toe* dipasang = D16-220 mm.

Kata Kunci: Dinding penahan tanah, kantilever, tekanan tanah lateral, stabilitas, geoteknik, Beton bertulang.

ABSTRACT

This study aims to design a cantilever retaining wall (DPT) based on the geotechnical parameters of three soil layers. The soil data used is fictitious, consisting of the top layer (Sandy Clay), the middle layer (Clayey Sand), and the bottom layer (Hard Silty Clay). The planning method is carried out by trial and error to determine the optimal dimensions, calculating lateral earth pressure using Rankine's theory, and checking stability referring to SNI Geoteknik 8460:2017. Reinforcement is planned according to SNI Reinforced Concrete 2847:2019. The calculation results show that the dimensions of the Cantilever DPT are 8 m high, 4.4 m long, and the thickness of the upper wall body is 0.4 m, the thickness of the lower wall is 0.8 m. Stability against overturning, sliding, and soil bearing capacity has been achieved with a safety factor that meets the standards. Overturning stability = $2.45 > 2$, sliding stability = $1.60 > 1.5$, bearing capacity stability = $10.10 > 3$. The reinforcement of the cantilever retaining wall is planned based on the forces acting on the cantilever retaining wall. Flexural reinforcement is installed = D25-150 mm, horizontal reinforcement is installed = D16-250 mm, heel reinforcement is installed = D22-220 mm, and toe reinforcement is installed = D16-220 mm.

Keywords: Retaining wall, cantilever, lateral earth pressure, stability, geotechnical engineering, reinforced concrete.