

ABSTRAK

Penelitian ini bertujuan mendesain dinding penahan tanah tipe kantilever (proyek paket penggantian jembatan air dingin). Data tanah diperoleh dari hasil *Boring Log* yang terdiri dari 2 lapisan tanah, untuk lapisan 0 sampai 2 meter terdapat jenis tanah lanau pasiran sisipan kerikil, untuk lapisan kedua dengan kedalaman 2 sampai 16,5 meter terdapat jenis tanah pasir lanauan sedikit kerikil sisipan batu. 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 4,4m, Panjang telapak 3,4m, tebal badan sisi atas 0,3m, tebal dinding bawah 0,6m. Kestabilan terhadap guling (*overturning*), geser (*sliding*), dan daya dukung tanah (*bearing capacity*) telah tercapai dengan faktor keamanan yang sesuai standar. Stabilitas Guling (*overturning*) = $2,25 \geq 1,5$. Stabilitas geser (*sliding*) = $2,5 \geq 1,5$. Stabilitas daya dukung = $3 \geq 3$. Penulangan dinding penahan tanah kantilever direncanakan berdasarkan gaya-gaya yang bekerja pada dinding penahan tanah kantilever, Tulangan lentur dipasang = $\emptyset 12-150$ mm, Tulangan Horizontal dipasang = $\emptyset 10-200$ mm, Tulangan *Heel* dipasang = D16-250 mm, Tulangan *Toe* dipasang = D13-200 mm.

Kata kunci : dinding penahan tanah, kantilever, tekanan tanah lateral, stabilitas, geoteknik, beton bertulang

ABSTRACT

This research aims to design a cantilever retaining wall (for a cold water bridge replacement project). Soil data was obtained from boring logs, which consist of two layers: the 0 to 2 meter layer consists of sandy silty soil with gravel interspersed, and the second layer, with a depth of 2 to 16.5 meters, consists of sandy silty soil with a little gravel interspersed with stone. The design method used trial and error to determine optimal dimensions, lateral earth pressure calculations using Rankine's theory, and stability checks referring to SNI Geotechnics 8460:2017. Reinforcement was planned in accordance with SNI Reinforced Concrete 2847:2019. The calculation results show that the dimensions of the cantilever retaining wall are 4.4 m high, 3.4 m long, 0.3 m thick on the top side, and 0.6 m thick on the bottom wall. Stability against overturning, sliding, and soil bearing capacity have been achieved with a safety factor that meets the standards. Overturning stability = $2.25 > 1.5$. Sliding stability = $2.5 > 1.5$. Bearing capacity stability = $3 > 3$. The reinforcement of the cantilever retaining wall is planned based on the forces acting on the cantilever retaining wall. Flexural reinforcement is installed = $\text{Ø}12\text{-}150$ mm, Horizontal reinforcement is installed = $\text{Ø}10\text{-}200$ mm, Heel reinforcement is installed = $D16\text{-}250$ mm, Toe reinforcement is installed = $D13\text{-}200$ mm.

Keywords: retaining wall, cantilever, lateral earth pressure, stability, geotechnics, reinforced concrete