

ASSESSMENT OF EMBEDMENT DEPTH OF ANCHORED SHEET PILE WALLS IN GRANULAR AND COHESIVE SOILS

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Abstract

This paper aims to deal with the assessment of the embedment depth of anchored sheet pile walls in granular and cohesive soils. When the height of the backfill material behind the sheet pile wall exceeds about 10 m, it is more appropriate to design and construct anchored sheet pile walls. Anchors minimize the depth of the required penetration by the sheet piles and also reduces the cross section area and the weight of the sheet piles needed for construction. The design of anchored sheet pile walls is based on Rankine's Earth Pressure Theory and Limit Equilibrium Method is used to conduct the assessment of embedment depth of the anchored sheet pile walls. The diagrams of net pressure distribution are presented for each case considered in this paper. The water level and the dredge lines are considered during the analysis. After following the whole design procedure for anchored sheet pile walls, the theoretical and the actual depths of embedment are determined for each case considered. Considering that the embedment depth is strongly related to the soil strength parameters, an attempt is done to determine the embedment depth of the sheet piles in variance of the soil strength parameters. When analysing the sheet pile wall, which penetrates in granular soils, the embedment depth is determined for different values of internal friction angles. When analysing the sheet pile wall, which penetrates in cohesive soils, the embedment depth is determined for different values of undrained shear strength. All the results are presented in graphs and are discussed at the conclusions section of the paper.

Keywords: *Anchor, Sheet Pile, Embedment Depth, Granular Soil, Cohesive Soil*