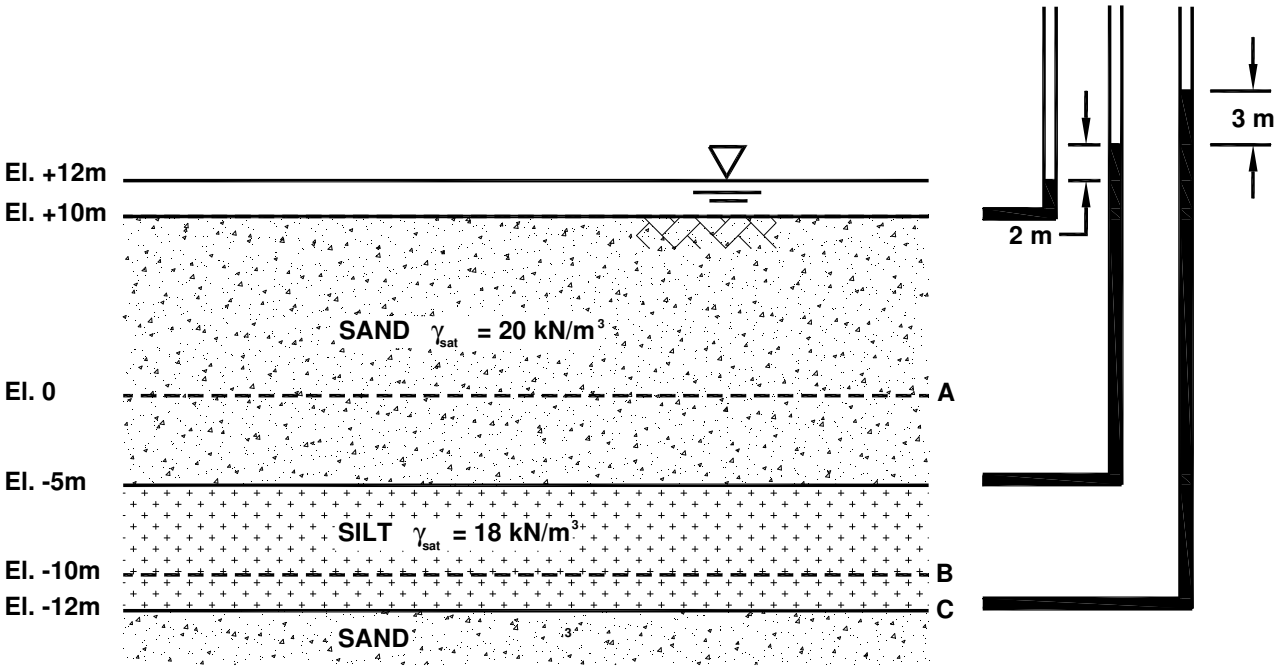
CVG3109 SOIL MECHANICS
MIDTERM REVIEW

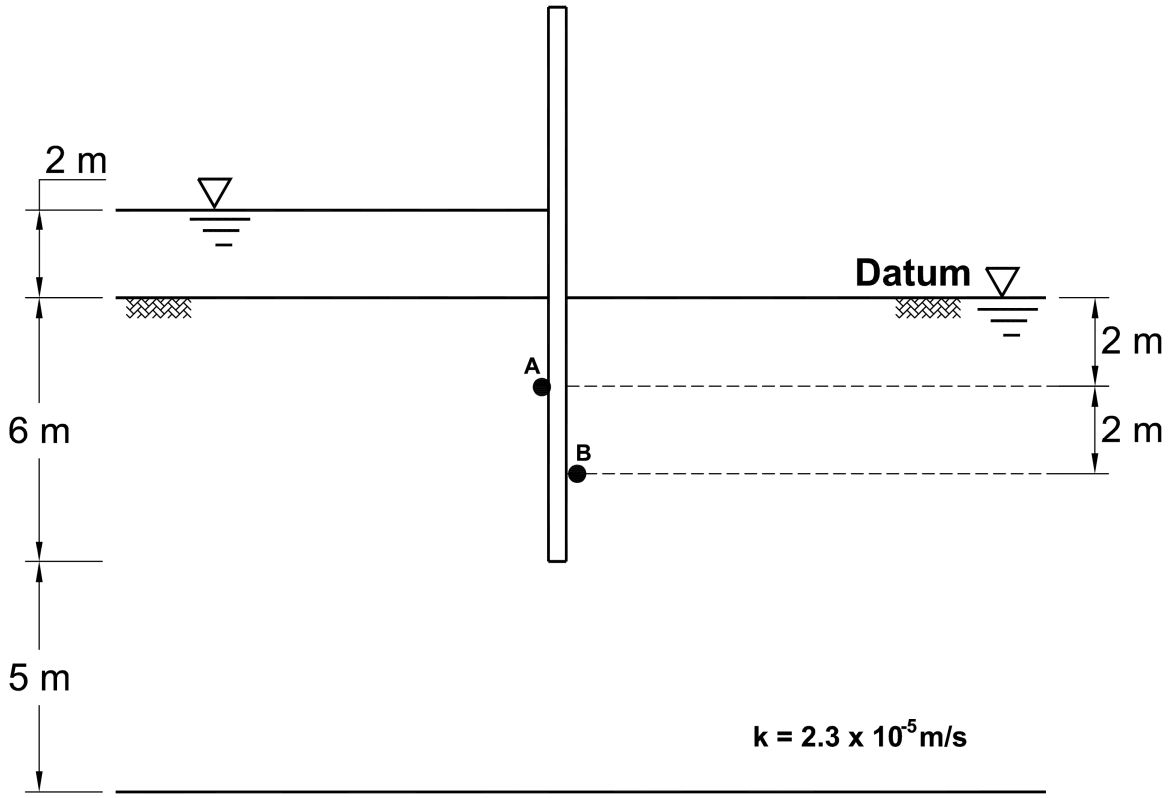
Q1

For the given soil profile, calculate the total stress, pore-water pressure and effective stress at points A, B, and C.



Q2

For the sheet piling shown below calculate the effective stress at points A and B (γ_{sat} = 20 kN/m^3). Determine the quantity of seepage per unit width under the sheet piling.



Q3

The soil profile at a site for a proposed office building consists of a layer of fine sand 10.4 m thick above a layer of overconsolidated clay (OCR=1.5) 2 m thick. Below the clay is a deposit of coarse sand. The groundwater table was observed at 3 m below ground level. The void ratio of the fine sand is 0.76 and the water content of the clay is 38%. The building will produce a vertical stress increase of 140 kPa in the middle of the clay layer. Estimate the primary consolidation settlement of the clay if C_c = 0.3, C_s=0.05, and G_s = 2.7 (all layers).