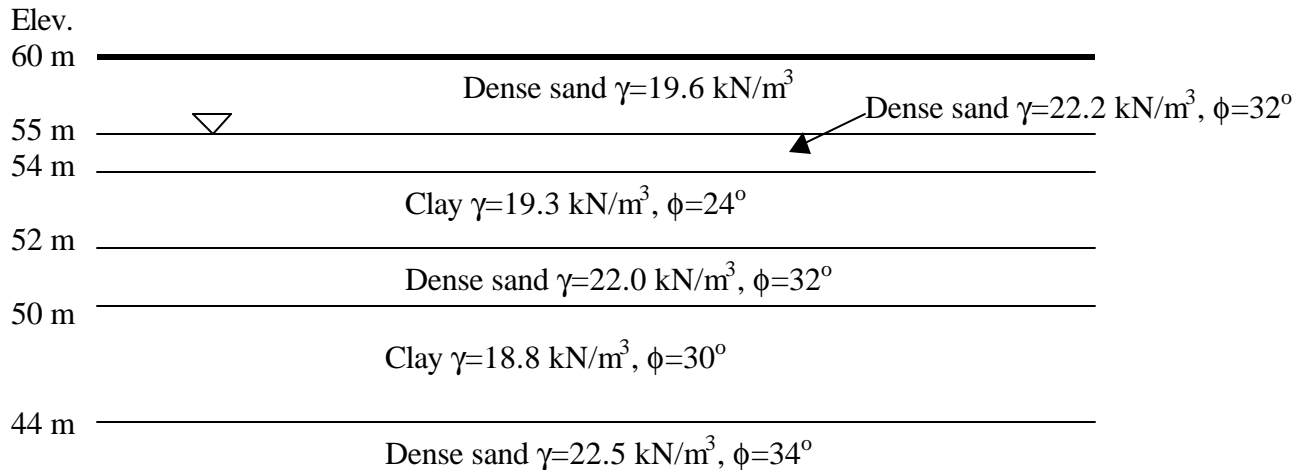


**CIV E. 354**  
**Geotechnical Engineering II**  
**Assignment 1 – Review**

1. For the strata shown below, calculate the pore water pressure and the total and effective vertical and horizontal stresses at elevations 40, 48, 51, and 53 m.



2. Data collected from a consolidated undrained (Cu) triaxial test on fully saturated overconsolidated till are presented below:

Vertical Dial Reading (mm)	$\sigma_1 - \sigma_3$ (kPa)	$\sigma_1$ (kPa)	U (kPa)
0	0	138	15
2.5	106	244	22
5.0	174	312	34
7.5	207	345	41
10.0	223	361	43
12.5	233	371	43
15	236	374	42
17.5	236	374	41

Initial specimen height = 142.3 mm    Cell pressure = 138 kPa    Back pressure = 15 kPa

- a) Plot the stress-strain curve ( $\sigma_1 - \sigma_3$  vs  $\epsilon$ )  
 b) Determine the undrained shear strength ( $C_u$ ) of the sample
3. Calculate the maximum and minimum principal stresses and the maximum shear stress in the elements shown below. Use the Mohr circle method.

