MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH
Djillali Bounaama University - Khemis Miliana
Faculty of Science and Technology
Department of Civil Engineering
Level: 2nd Year Engineering
Module: MDS1

## Series of Practical Work N°02 : Soil Identification and classification

Exercise No. 01

A sample of 773.1 g of moist sandy soil was taken. The volume of the excavation corresponding to the sample collection is 405 cm3. After drying, the mass is reduced to 697.2 g. Tests show that the grain density (Gs or Ds) is 2.65. With this data, let's calculate:

1. The total bulk density and the dry soil bulk density
2. The total unit weight
3. The water content
4. The void ratio
5. The porosity
6. The degree of saturation
7.

Exercise No. 02

A reconnaissance survey was carried out,

and the cross-section is given below.

	Sample n°1	**Sample n°2**
Total weight of the soil Volume total du sol (wet)	0.48 N	0,68 N
Total volume of the soil	3 x 10-5 m^3	4,3 x10-5 m^3
Dry weight (after oven-drying at 105 °C)	0,30 N	0,40 N
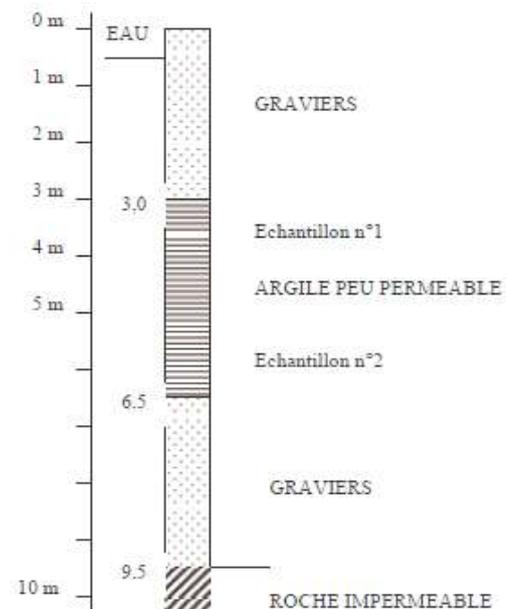
Determine:
a) The unit weight γ and the water content w
b) The void ratio, assuming that the unit weight of solid particles γs is equal to 27 kN/m3
c) The degree of saturation Sr, under the same assumption

Exercise No. 03 (Classification Example)

Let's proceed with the classification of soils A and B. The results of particle size analyses and consistency limits measurement tests are given below.

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Seive	% Passing	
	Soil A	**Soil B**
5mm	41	100
2.5mm	32	96
400 µm	21	87
80 µm	16	71
W_L (%)	28	38
W_P(%)	21	26
Ip (%)	17	12
W_L (%) on the oven-dried soil	-	25