

**UNIT WEIGHTS, VOID RATIO, POROSITY, AND DEGREE OF SATURATION
(Volumetric Method)**

Date _____

Project _____

Boring No. _____

Water Content

Sample or specimen No.							
Tare No.							
Weight in grams	Tare plus wet soil						
	Tare plus dry soil						
	Water	W W					
	Tare						
	Dry Soil	W S					
Water content		W					

Weight-Volume Relations

Sample or specimen No.							
Cylinder No.							
Centi-Meters	Height of cylinder	H					
	Inside diameter of cylinder	D					
Weight in grams	Soil and container						
	Container						
	Wet soil	W					
	Dry soil	W S					
Specific gravity of soil		G S					
Volume in cc	Wet soil (volume of cylinder)	V					
	Dry soil = W_S / G_S	V S					
lb per cu ft	Wet unit wt = $(W/V) 62.4$	γ_m					
	Dry unit wt = $(W_S / V) 62.4$	γ_d					
Void ratio = $(V - V_S) / V_S$		e					
Porosity, % = $[(V - V_S) / V] \times 100$		n					
Degree of saturation, % = $[(V_W / (V - V_S))] \times 100$		s					

Volume of cylinder, $V = \frac{\pi D^2 H}{4}$

Volume of water = $V_W = \frac{W_W}{\text{specific gravity of water}^*}$

* Specific gravity of water in metric system = 1 (approx)

Remarks _____

Technician _____ Computed by _____ Checked by _____