SOIL SUCTION, WATER CONTENT, AND SPECIFIC VOLUME

For use of this form, see TM 5-818-7; proponent agency is US Army Corps of Engineers.

PROJECT _____ BORING/SAMPLE/DEPTH _____ DATE _____

SOIL SUCTION	PSYCHROMETER NO.												
	SAMPLE CONTAINER NO.												
	WATER CONTENT INCREMENT (0, +, -)												
	THERMOCOUPLE OUTPUT	t, MILLIVOLTS											
		T*, °C											
	PSYCHROMETER OUTPUT	E_T, MICROVOLTS											
		$E^{**}_{25°C}$, MICROVOLTS											
	SOIL SUCTION †, TONS/FT^2	T											
WATER CONTENT	TARE NO.												
	WEIGHT IN GRAMS	TARE PLUS WET SOIL											
		TARE PLUS DRY SOIL											
		WATER W_w											
		TARE											
		DRY SOIL W_s											
	WATER CONTENT, PERCENT	w											
WEIGHT-VOLUME RELATIONS	TEST TEMPERATURE OF WATER, °C												
	WEIGHT IN GRAMS	WET SOIL AND WAX IN AIR											
		WET SOIL W											
		WAX											
		WET SOIL AND WAX IN WATER											
		DRY SOIL †† W_s											
	SPECIFIC GRAVITY OF SOIL	G_s											
	VOLUME IN CC	WET SOIL AND WAX ‡											
		WAX											
		WET SOIL V											
		DRY SOIL = W_s/G_s V_s											
	DENSITY PCF	WET DENSITY = (W/V) 62.4 γ_m											
		DRY DENSITY = (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											
	SPECIFIC VOLUME = $1/\gamma_d$	v_T											

* T °C = t/0.0395

** $E_{25} = E_T/(0.325 + 0.027T)$

† SEE INDIVIDUAL PSYCHROMETER CALIBRATION LINE

†† IF NOT MEASURED DIRECTLY, MAY BE COMPUTED AS FOLLOWS: $W = \frac{w}{1 + 0.01\,w}$

‡ VOLUME OF WET SOIL AND WAX = $\frac{\left(\text{WEIGHT OF WET SOIL AND WAX IN AIR}\right) - \left(\text{WEIGHT OF WET SOIL AND WAX IN WATER}\right)}{\text{DENSITY OF WATER AT TEST TEMPERATURE}}$

VOLUME OF WAX = $\frac{\text{WEIGHT OF WAX}}{\text{SPECIFIC GRAVITY AT WAX}}$

DA FORM 5182-R, MAR 83

USAPA V1.00