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U.S. Army Corps of Engineers (USACE)

# FALLING-HEAD PERMEABILITY TEST

For use of this form, see EM 1110-2-1906; the Proponent agency is CECW-EC.

**Purpose**: This purpose of this form is to document falling-head permeability tests.

Date: _____

Project: _____

Boring No.: _____ Sample or Specimen No.: _____

## 1. Sample and Specimen

| | | | | | | |
|---|---|---|---|---|---|---|
| a. Weight In Grams | (1) Tare Plus Dry Soil | | | e. Diameter of Specimen, cm. | D | |
| | (2) Tare | | | f. Area of Specimen, Square cm. | A | |
| | (3) Dry Soil | $W_S$ | | g. Initial Height of Specimen, cm. | L | |
| b. Specific Gravity | | G | | h. Initial Volume of Specimen, cc = AL | V | |
| c. Volume of Solids, cc = $W_S$ /G | | $V_S$ | | i. Initial Void Ratio = (V - $V_S$) /$V_S$ | e | |
| d. Area of Standpipe, sq. cm. | | a | | j. Constant = (2.303 x a) /A | C | |

| 2. Test Number | | 1 | | 2 | | 3 | |
|---|---|---|---|---|---|---|---|
| (1) Height of Specimen, cm. | L | | | | | | |
| (2) Void Ratio = (AL - $V_S$) /$V_S$ | e | | | | | | |
| | | a. | b. | a. | b. | a. | b. |
| (3) Initial Time | $t_o$ | | | | | | |
| (4) Final Time | $t_f$ | | | | | | |
| (5) Elapsed Time, Seconds = $t_f$ - $t_0$ | t | | | | | | |
| (6) Initial Head, cm. | $h_o$ | | | | | | |
| (7) Final Head, cm. | $h_f$ | | | | | | |
| (8) LOG ( $h_o$ / $h_f$) | | | | | | | |
| (9) Water Temperature, $^oC$ | T | | | | | | |
| (10) Viscosity Correction Factor (1) | $R_T$ | | | | | | |
| (11) Coefficient of Permeability,(2) cm./sec. | $k_{20}$ | | | | | | |
| | Avg. | | | | | | |

3. (1) Correction factor for viscosity of water at 20$^o$C obtained from Table VII-1 (10).

(2) $k_{20}$ = 2.303 (a/A) (L/t) (log $h_O/h_f$) ($R_t$) = (CL/t) (log $h_O/h_f$) ($R_t$) Item (11)

4. Remarks

| | | |
|---|---|---|
| 5a. Technician (*Last, First Mi*) | b. Date | c. Technician's Signature |
| 6a. Computed By (*Last, First Mi*) | b. Date | c. Computed By Signature |
| 7a. Checked By (*Last, First Mi*) | b. Date | c. Checked By Signature |