COMPACTION TEST REPORT/ ASTM D-1557-02

Curve No.: TP-5

Project No.: 6468061472 **Date:** 12/2/06

Project: NORTH ANNA COL PROJECT

Location: TEST PIT # 5 2B3 1/22/07

Elev./Depth: 0-2.3 **Sample No.** TP-5

Remarks: ND= NOT DETERMINED

MATERIAL DESCRIPTION

Description: Tan sandy clay (VISUAL)

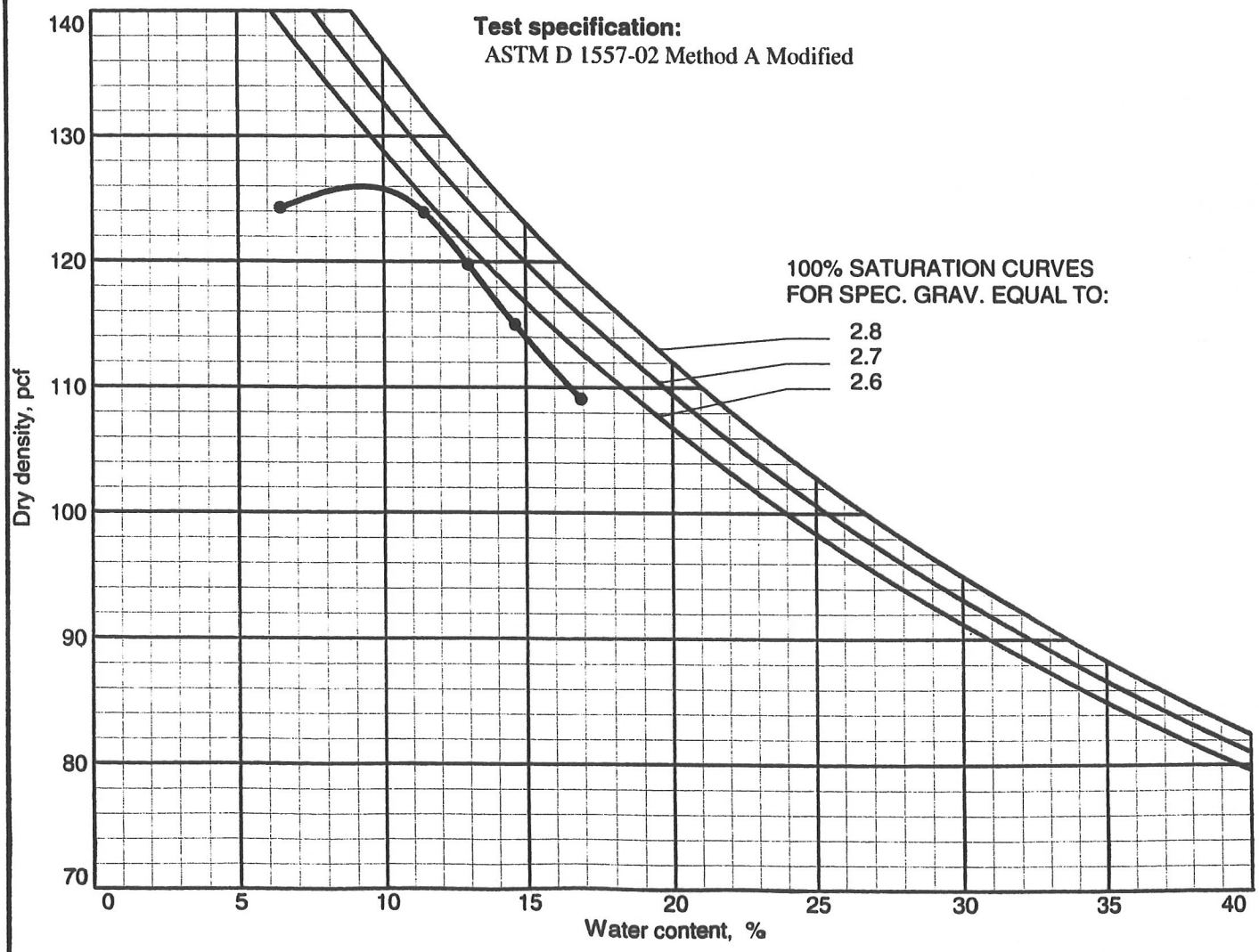
Classifications - **USCS:** ND **AASHTO:** ND

Nat. Moist. = 9.4 % **Sp.G. =** ND

Liquid Limit = ND **Plasticity Index =** ND

% > No.4 = 9.4 % **% < No.200 =** ND %

TEST RESULTS
Maximum dry density = 126.0 pcf
Optimum moisture = 9.2 %



Figure

MACTEC, Inc.

MOISTURE DENSITY TEST DATA

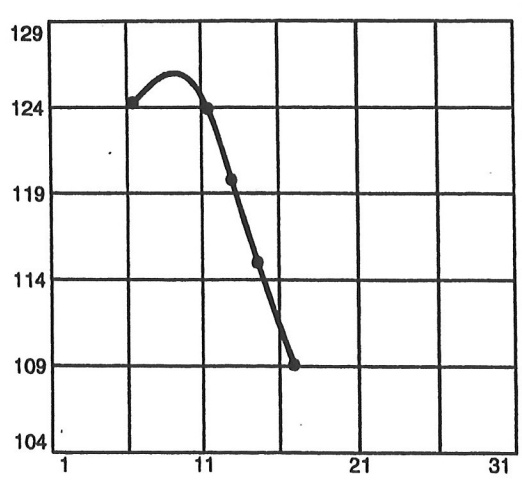
Client: Dominion Nuclear North Anna
Project: NORTH ANNA COL PROJECT
Project Number: 6468061472

Specimen Data

Source: TEST PIT 5
Sample No.: TP-5
Elev. or Depth: 0-2.3 **Sample Length(in./cm.):** 30
Location:
Description: Tan sandy clay (VISUAL)
Liquid Limit: ND **Plasticity Index:** ND **Natural Moisture:** 9.4
Date: 12/2/06 **USCS Classification:** ND **AASHTO Classification:** ND
Testing Remarks: ND= NOT DETERMINED
Percent retained on No.4 sieve: 9.4
Percent passing No. 200 sieve: ND **Specific gravity:** ND

Test Data And Results For Curve TP-5

Type of test: ASTM D 1557-02 Method A Modified
Mold Dia.: 4.00 in. **Hammer Wt.:** 10 lb. **Drop:** 18 in.
Layers: five **Blows per Layer:** 25



POINT NO.	1	2	3	4	5
WM + WS	4104.1	4051.1	3985.9	4145.8	4057.4
WM	2060.0	2060.0	2060.0	2060.0	2060.0
WW+T	528.70	528.60	567.40	550.60	559.40
WD+T	469.00	462.30	486.70	495.00	526.20
TARE	9.20	9.10	9.10	9.10	9.20
MOIST	13.0	14.6	16.9	11.4	6.4
MOISTURE	13.0	14.6	16.9	11.4	6.4
DRY DEN	119.8	115.0	109.1	123.9	124.3

Max dry den= 126.0 pcf **Opt moisture=** 9.2 %

COMPACTION TEST REPORT/ ASTM D-1557-02

Curve No.: TP-6

Project No.: 6468061472 **Date:** 12/2/06

Project: NORTH ANNA COL PROJECT

Location: TEST PIT # 6 JAG 1/22/07

Elev./Depth: 0-4.3 **Sample No.** TP-6

Remarks: ND= NOT DETERMINED

MATERIAL DESCRIPTION

Description: Tan silty clayey sand (VISUAL)

Classifications - **USCS:** ND **AASHTO:** ND

Nat. Moist. = 18.2 %

Liquid Limit = ND

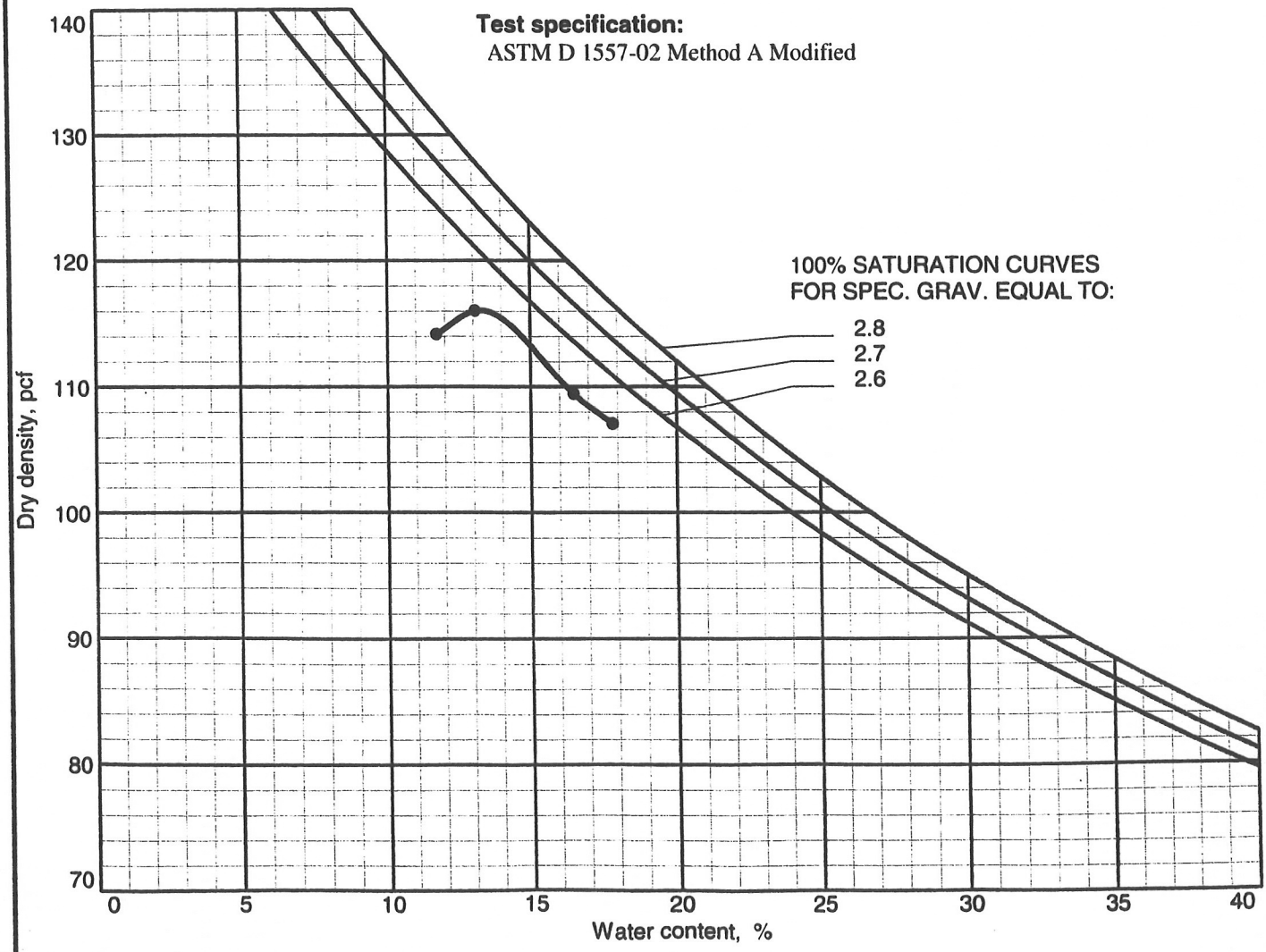
% > No.4 = 2.9 %

Sp.G. =

Plasticity Index = ND

% < No.200 = ND %

TEST RESULTS
Maximum dry density = 116.1 pcf
Optimum moisture = 13.2 %



Figure

MOISTURE DENSITY TEST DATA

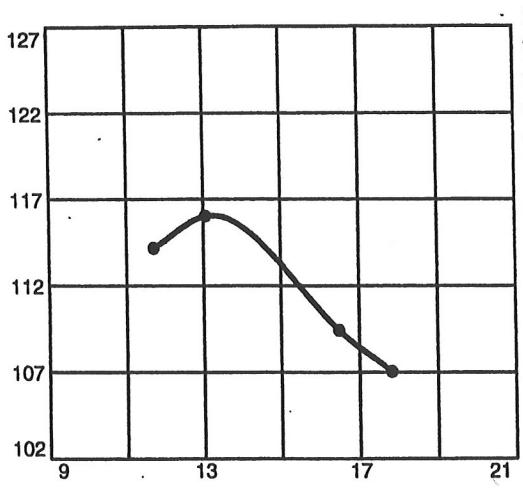
Client: Dominion Nuclear North Anna
Project: NORTH ANNA COL PROJECT
Project Number: 6468061472

Specimen Data

Source: TEST PIT 6
Sample No.: TP-6
Elev. or Depth: 0-4.3 **Sample Length(in./cm.):** 51
Location:
Description: Tan silty clayey sand (VISUAL)
Liquid Limit: ND **Plasticity Index:** ND **Natural Moisture:** 18.2
Date: 12/2/06 **USCS Classification:** ND **AASHTO Classification:** ND
Testing Remarks: ND= NOT DETERMINED
Percent retained on No.4 sieve: 2.9
Percent passing No. 200 sieve: ND **Specific gravity:**

Test Data And Results For Curve TP-6

Type of test: ASTM D 1557-02 Method A Modified
Mold Dia.: 4.00 in. **Hammer Wt.:** 10 lb. **Drop:** 18 in.
Layers: five **Blows per Layer:** 25

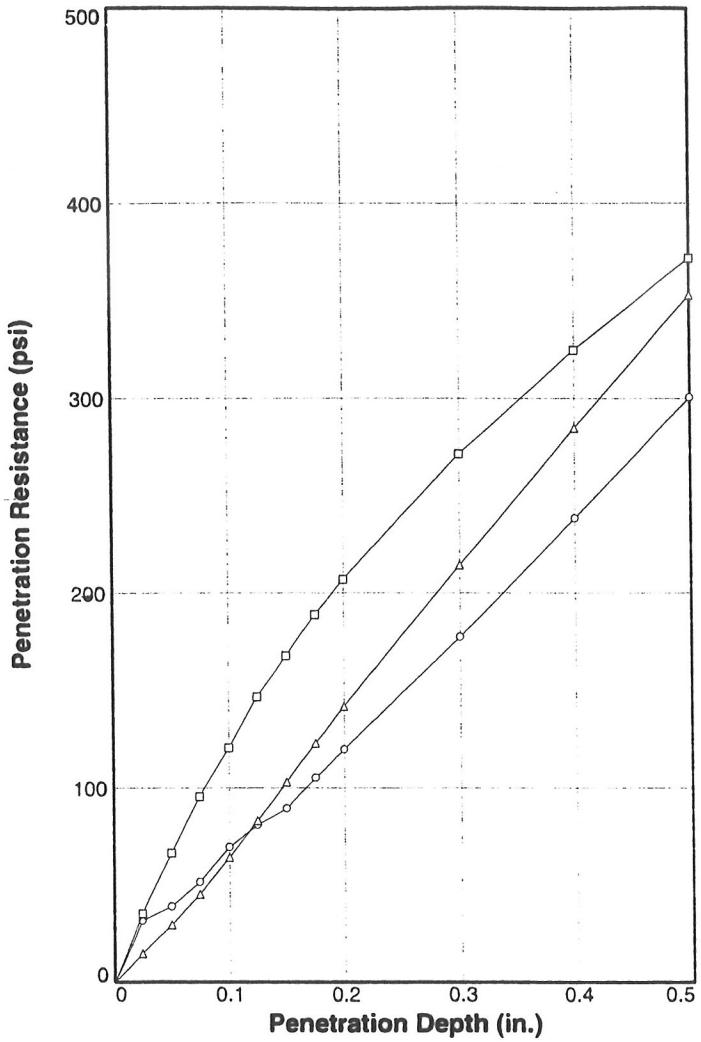


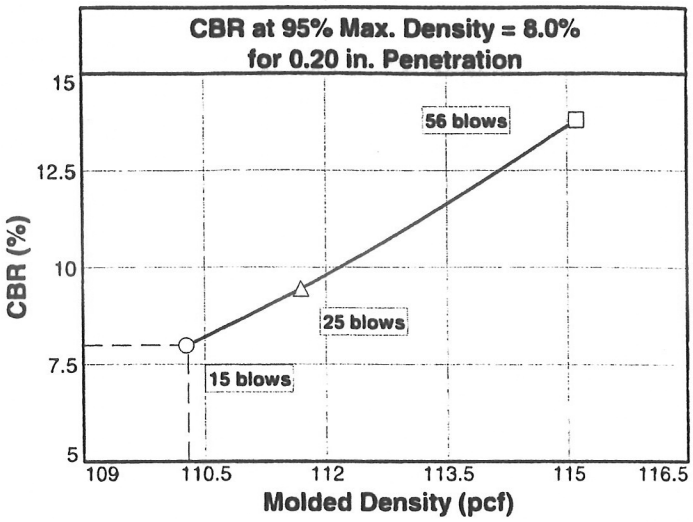
POINT NO.	1	2	3	4
WM + WS	3985.1	4041.5	3965.0	3986.1
WM	2060.0	2060.0	2060.0	2060.0
WW+T	537.50	536.90	545.30	524.70
WD+T	462.80	475.90	464.20	470.70
TARE	9.70	9.20	9.20	9.30
MOIST	16.5	13.1	17.8	11.7
MOISTURE	16.5	13.1	17.8	11.7
DRY DEN	109.4	116.0	107.0	114.2

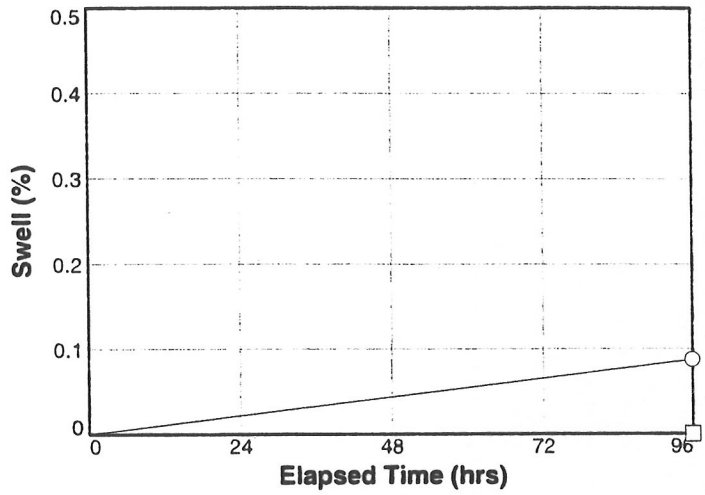
Max dry den= 116.1 pcf **Opt moisture=** 13.2 %

BEARING RATIO TEST REPORT

ASTM D 1883-99 65 LBJ 1/23/07







	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	110.3	95	12.3	110.2	94.9	13.9	6.9	8.0	0.000	10.0	0.1
2 △	111.7	96.2	12.7	111.7	96.2	14.3	6.4	9.5	0.000	10.0	0
3 □	115.1	99.1	12.3	115.1	99.2	13.3	12.1	13.8	0.000	10.01	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Tan silty clayey sand (VISUAL)	ND	116.1	13.2	ND	ND

Project No: 6468061472

Project: NORTH ANNA COL PROJECT

Source of Sample: TEST PIT 6 **Depth:** 0-4.3

Sample Number: TP-6

Date: 12/2/06

Test Description/Remarks:

Tested in accordance with ASTM D-1883-05 section 7.1.2

Specimen # 1 was compacted with 15 blows per layer, due to the very low compaction at 10 blows.

BEARING RATIO TEST REPORT

MACTEC, Inc.

Figure _____

BEARING RATIO TESTING RESULTS
(ASTM D 1883-~~99~~)05 [illegible] 1/23/07

Date:	12/2/06		
Project No.:	6468061472		
Project:	NORTH ANNA COL PROJECT		
Location:	TEST PIT 6		
Depth:	0-4.3	**Sample Number:**	TP-6
Material Description:	Tan silty clayey sand (VISUAL)		
USCS Classification:	ND		
Liquid Limit:	ND	**Plasticity Index:**	ND

Test Description:	Tested in accordance with ASTM D-1883-05 section 7.1.2		
Maximum Dry Density:	116.1	**Optimum Moisture Content:**	13.2
Testing Remarks:	Specimen # 1 was compacted with 15 blows per layer, due to the very low compaction at 10		

Sample 1 (15 Blows; Surcharge: 10.0 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 197.5 Wt. Soil+Tare, gms. 176.7 Wt. Tare, gms. 8.2 Moisture, % 12.3

Unit Weight

Wt. Mold+Soil, gms. 8378 Wt. Mold, gms. 4154 Ht. Soil, in. 4.594 Density, pcf 110.3

Swell Data

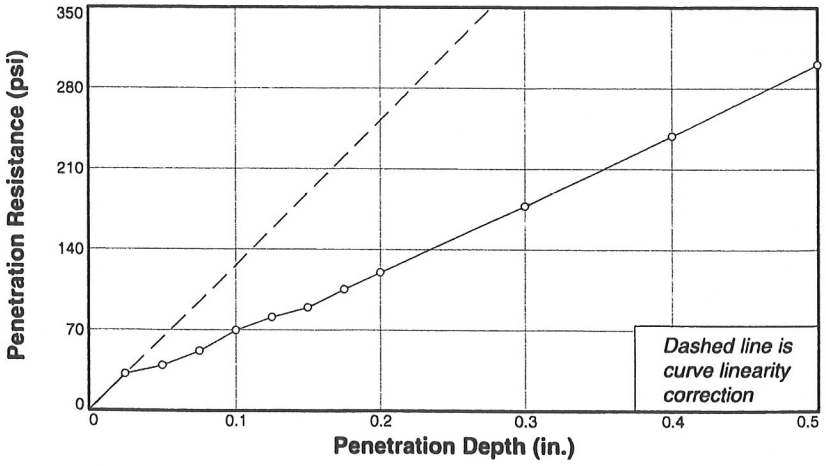
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	115	0.0
96	119	0.1

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	681.7	595.1	16.6	15.0
Middle	1189.6	1050.9	13.7	13.4
Bottom	1189.6	1050.9	13.3	13.4

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	30	31.5	
0.05	37	38.9	
0.075	49	51.5	
0.1	66	69.3	6.9
0.125	77	80.9	
0.15	85	89.3	
0.175	100	105.0	
0.2	114	119.8	8.0
0.3	169	177.5	9.3
0.4	227	238.5	10.4
0.5	286	300.4	11.6



Sample 2 (25 Blows; Surcharge: 10.0 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 378.2 | Wt. Soil+Tare, gms. 337.2 | Wt. Tare, gms. 14.6 | Moisture, % 12.7

Unit Weight

Wt. Mold+Soil, gms. 8444 | Wt. Mold, gms. 4162 | Ht. Soil, in. 4.583 | Density, pcf 111.7

Swell Data

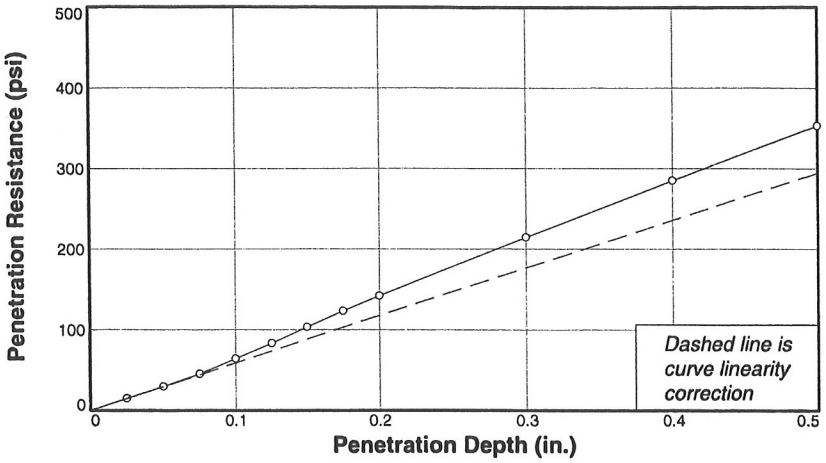
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	.110	0.0
96	.114	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	507.5	436.3	17.5	17.0
Middle	515.1	457.9	17.3	13.0
Bottom	515.1	457.9	17.3	13.0

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	14	14.7	
0.05	28	29.4	
0.075	43	45.2	
0.1	61	64.1	6.4
0.125	79	83.0	
0.15	98	102.9	
0.175	117	122.9	
0.2	135	141.8	9.5
0.3	204	214.3	11.3
0.4	271	284.7	12.4
0.5	336	353.0	13.6



Sample 3 (56 Blows; Surcharge: 10.01 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 466 | Wt. Soil+Tare, gms. 416.4 | Wt. Tare, gms. 14.5 | Moisture, % 12.3

Unit Weight

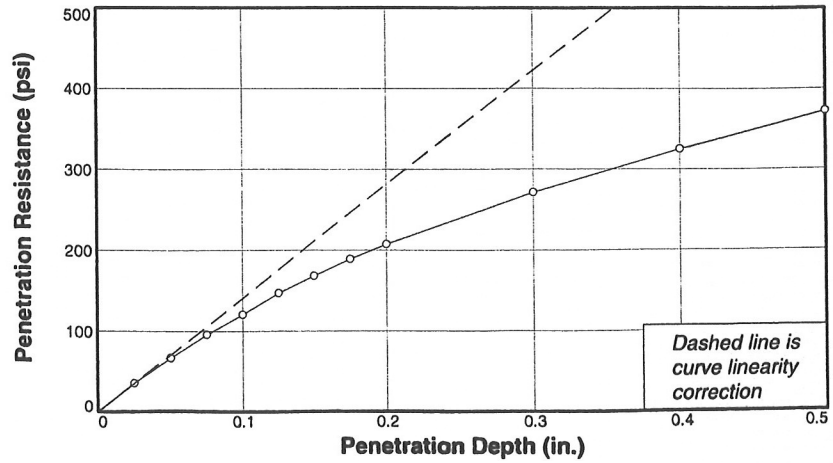
Wt. Mold+Soil, gms. 8597 | Wt. Mold, gms. 4196 | Ht. Soil, in. 4.585 | Density, pcf 115.1

Swell Data

Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	.125	0.0
96	.129	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	517.3	454.4	17	14.4
Middle	540.7	481.6	17.5	12.7
Bottom	540.7	481.6	17.5	12.7

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	35	35.2	
0.05	66	66.3	
0.075	95	95.5	
0.1	120	120.6	12.1
0.125	146	146.7	
0.15	167	167.8	
0.175	188	189.0	
0.2	206	207.0	13.8
0.3	270	271.4	14.3
0.4	323	324.6	14.1
0.5	370	371.9	14.3