

**APPENDIX G**

**Physical Testing Laboratory Data**

Tested by: CMB  
 Computed by: PC  
 Checked by: CMB

SPECIFIC GRAVITY TEST ASTM D 854

PROJECT NO. 62403053 DATE 05/20/08

FLASK NO.	8	8	8	8
BORING	B-845	B-845	B-851	B-851
SAMPLE NO.	--	--	--	--
DEPTH (feet)	0.5 - 1.0	2.5 - 3.0	14.5 - 15.0	19.5 - 20.0
TARE NO.	24	4	32	4
DRY + TARE, g	154.56	156.02	157.80	159.44
TARE, g	107.95	109.73	108.12	109.73
OVEN DRY SOIL, g	46.61	46.29	49.68	49.71
SAMPLE TEMP., °C	19.5	18.7	18.5	20.0
SAMPLE+PYCNOMETER, g	693.09	694.06	696.34	696.13
DRY PYCNOMETER, g	166.10	166.10	166.10	166.10
VOLUME PYCNOMETER, mL	499.40	499.40	499.40	499.40
DENSITY OF WATER @ °C	0.99831	0.99847	0.9985	0.99821
WATER+PYCNOMETER @ °C, g	664.66	664.74	664.75	664.61
SPECIFIC GRAVITY @ °C	2.564	2.728	2.746	2.733
K @ °C	1.0001	1.00026	1.0003	1
SPECIFIC GRAVITY @ 20° C	2.565	2.729	2.747	2.733

POROSITY WORKSHEET CALCULATION

Va = Volume of air  
 Vw = Volume of water  
 Vv = Volume of voids  
 Vd - Volume of dry soil  
 V = Total volume  
 Ma = Mass of air (=0)  
 Mw = Mass of water  
 Md = Mass of dry soil  
 M = Total mass

VOLUME OF VOIDS	VOIDS		MASS
	Va	AIR	Ma=0
	Vw	WATER	Mw
	Vd	SOIL	Md
	V	TOTAL	M

JOB NO.: 62403053  
 BORING NO.: B-845  
 DEPTH (Feet): 0.5-1.0

VOLUME OF VOIDS	VOIDS (cc)		MASS (gms)
	Va	AIR	Ma=0
	Vw	WATER	Mw
	Vd	SOIL	Md
	V	TOTAL	M

Height 5.332 in.

Diameter 2.887 in.

Weight 958.19 gms

Volume 571.97 cc

DENSITY WET 104.6 pcf 1.68 g/cc

DENSITY DRY 79.2 pcf 1.27 g/cc

Wet + Tare 155.96 gms

Dry + Tare 130.67 gms

Tare 51.86 gms

MC, % 32.1

Specific Gravity = 2.565

Void Ratio (e) = Vv/Vd = 1.022

Porosity (n) = Vv/V

Total = 0.51 50.6 %

Air Filled = 0.10 9.9 %

Water Filled = 0.41 40.7 %

Porosity values not representative of effective porosity.

Va = Volume of air  
 Vw = Volume of water  
 Vv = Volume of voids  
 Vd - Volume of dry soil  
 V = Total volume  
 Ma = Mass of air (=0)  
 Mw = Mass of water  
 Md = Mass of dry soil  
 M = Total mass

VOLUME OF VOIDS	VOIDS		MASS
	Va	AIR	Ma=0
	Vw	WATER	Mw
	Vd	SOIL	Md
	V	TOTAL	M

JOB NO.: 62403053  
 BORING NO.: B-845  
 DEPTH (Feet): 2.5-3.0

VOLUME OF VOIDS	VOIDS (cc)		MASS (gms)
	Va	AIR	Ma=0
	Vw	WATER	Mw
	Vd	SOIL	Md
	V	TOTAL	M

Height 3.933 in.

Diameter 2.865 in.

Weight 790.04 gms

Volume 415.49 cc

DENSITY WET 118.7 pcf 1.90 g/cc

DENSITY DRY 91.4 pcf 1.46 g/cc

Wet + Tare 154.70 gms

Dry + Tare 130.83 gms

Tare 50.85 gms

MC, % 29.8

Specific Gravity = 2.729

Void Ratio (e) = Vv/Vd = 0.864

Porosity (n) = Vv/V

Total n = 0.46 46.3 %

Air Filled = 0.03 2.6 %

Water Filled = 0.44 43.7 %

Porosity values not representative of effective porosity.

POROSITY WORKSHEET CALCULATION

Va = Volume of air  
 Vw = Volume of water  
 Vv = Volume of voids  
 Vd - Volume of dry soil  
 V = Total volume  
 Ma = Mass of air (=0)  
 Mw = Mass of water  
 Md = Mass of dry soil  
 M = Total mass

VOLUME OF VOIDS	VOIDS		MASS
	Va	AIR	Ma=0
	Vw	WATER	Mw
	Vd	SOIL	Md
	V	TOTAL	M

JOB NO.: 62403053  
 BORING NO.: B-851  
 DEPTH (Feet): 14.5-15.0

	VOIDS (cc)		MASS (gms)
	4.49	AIR	0.00
127.02	122.53	WATER	122.53
	376.00	SOIL	1032.86
	503.02	TOTAL	1155.39

Height 4.805 in.  
 Diameter 2.852 in.  
 Weight 1155.39 gms  
 Volume 503.02 cc

Specific Gravity = 2.747

Void Ratio (e) = Vv/Vd = 0.338

DENSITY WET 143.4 pcf 2.30 g/cc  
 DENSITY DRY 128.2 pcf 2.05 g/cc

Porosity (n) = Vv/V

Wet + Tare 166.52 gms  
 Dry + Tare 155.21 gms  
 Tare 59.87 gms

Total = 0.25 25.3 %  
 Air Filled = 0.01 0.9 %  
 Water Filled = 0.24 24.4 %

MC, % 11.9

Porosity values not representative of effective porosity.

Va = Volume of air  
 Vw = Volume of water  
 Vv = Volume of voids  
 Vd - Volume of dry soil  
 V = Total volume  
 Ma = Mass of air (=0)  
 Mw = Mass of water  
 Md = Mass of dry soil  
 M = Total mass

VOLUME OF VOIDS	VOIDS		MASS
	Va	AIR	Ma=0
	Vw	WATER	Mw
	Vd	SOIL	Md
	V	TOTAL	M

JOB NO.: 62403053  
 BORING NO.: B-851  
 DEPTH (Feet): 19.5-20.0

	VOIDS (cc)		MASS (gms)
	2.21	AIR	0.00
119.76	117.56	WATER	117.56
	367.63	SOIL	1004.73
	487.40	TOTAL	1122.29

Height 4.633 in.  
 Diameter 2.859 in.  
 Weight 1122.29 gms  
 Volume 487.40 cc

Specific Gravity = 2.733

Void Ratio (e) = Vv/Vd = 0.326

DENSITY WET 143.7 pcf 2.30 g/cc  
 DENSITY DRY 128.7 pcf 2.06 g/cc

Porosity (n) = Vv/V

Wet + Tare 165.98 gms  
 Dry + Tare 155.32 gms  
 Tare 64.21 gms

Total n = 0.25 24.6 %  
 Air Filled = 0.00 0.5 %  
 Water Filled = 0.24 24.1 %

MC, % 11.7

Porosity values not representative of effective porosity.

DENSITY TESTS

Project No. 02403053

Technician cuB

Date 05/19/08

BORING NO.	B-845	B-845	B-851	B-851				
SAMPLE NO.	--	--	--	--				
DEPTH	0.5-1.0	2.5-3.0	14.5-15	19.5-20				
JAR NO.	(2)	(2)	(2)	(2)				
DESCRIPTION	(4) V. DK Gr CL Bricks, Brick Frag Fill	(#2) Gr-Br CL	(5G5) Gr CL w/5a Tr Gr	(4) Gr CL w/5a Tr Gr				
HEIGHT (inches)	5.332	<del>3.933</del> 3.933	4.805	4.633				
DIAMETER (inches)	2.887	2.865	2.852	2.859				
WEIGHT (grams)	958.19	790.04	1155.39	1122.29				
K								
DENSITY WET	104.6	118.7	143.4	143.7				
DENSITY DRY	79.2	91.4	128.2	128.7				
PR								
MOISTURE CONTENT								
TARE NO.	16	12	10	2				
WET WEIGHT + TARE	155.96	154.70	144.52	165.98				
DRY WEIGHT + TARE	130.67	130.83	155.21	155.32				
WATER								
TARE	5186	5085	5987	6421				
SOIL								
% WATER	32.1	29.8	11.9	11.7				

Computed By PC

Checked By cuB

SPECIFIC GRAVITY TEST

Project No. G2403053

Date 05/20/08

Flask No.	8=166.10	8	8	8		
Boring	B-845	B-845	B-851	B-851		
Depth	0.5-1.0	2.5-3.0	14.5-15	19.5-20		
Material						
T <sub>x</sub> /K	19.5°C	18.7°C	18.5°C	20.0°C		
Container No.	24	4	32	4		
W <sub>o</sub> + Tare	154.56	156.00	157.80	159.44		
Tare	107.95	109.73	108.12	109.73		
W <sub>o</sub>						
W <sub>a</sub>						
W <sub>o</sub> + W <sub>a</sub>						
W <sub>b</sub>	693.09	694.06	696.34	696.13		
W <sub>o</sub> + (W <sub>a</sub> - W <sub>b</sub> )						
G <sub>s</sub> (Uncorrected)						
G <sub>s</sub> , $\frac{T_x}{20C}$ (Corrected)	2.565	2.729	2.747	2.733		

- T<sub>x</sub> = Temperature of contents of Volumetric Flask when W<sub>b</sub> was determined in °C
- W<sub>o</sub> = Weight of sample of oven-dry soil in grams
- W<sub>a</sub> = Weight of Volumetric Flask filled with water at T<sub>x</sub>
- W<sub>b</sub> = Weight of Volumetric Flask filled with water and soil at T<sub>x</sub>
- K = Correction Factor for water at T<sub>x</sub>

Tested by: CMB

Computed by: PC

Checked by: CMB