

LIQUID AND PLASTIC LIMIT TEST DATA

1/29/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 23.5-25.0

Sample Number: SS-8

Material Description: Very Pale Brown Fat CLAY

USCS: CH

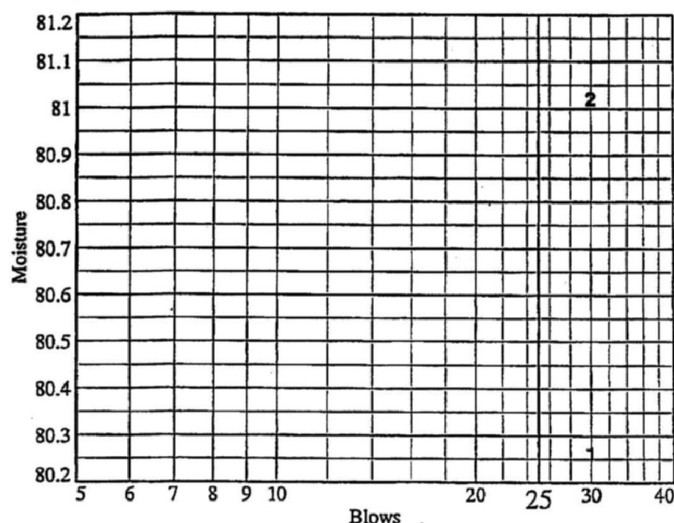
AASHTO: A-7-5(61)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.93	30.38				
Dry+Tare	22.44	23.72				
Tare	15.60	15.50				
# Blows	30	30				
Moisture	80.3	81.0				



Liquid Limit=	82
Plastic Limit=	30
Plasticity Index=	52
Natural Moisture=	28.3
Liquidity Index=	0.0

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	23.38	22.01		
Dry+Tare	21.58	20.50		
Tare	15.47	15.51		
Moisture	29.5	30.3		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
93.50	75.94	13.80	28.3

MACTEC, Inc.

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER

PERCENT FINER

Sieve / Hydrometer	Percent Finer (%)
6 in.	100
3 in.	100
2 in.	100
1 1/2 in.	100
1 in.	100
3/4 in.	100
3/8 in.	100
#4	100
#10	100
#20	100
#30	100
#40	100
#60	100
#100	100
#140	99
#200	98
Hydrometer 100	93
Hydrometer 75	90
Hydrometer 60	88
Hydrometer 45	86
Hydrometer 30	82
Hydrometer 25	78

GRAIN SIZE - mm.							
% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	1.5	12.6	85.4

[illegible]

Raleigh, North Carolina

GRAIN SIZE DISTRIBUTION TEST DATA

3/12/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 28.5-30.0

Sample Number: SS-9

Material Description: Yellow Fat CLAY

Date: 1-3-08

Natural Moisture: 25.4

Liquid Limit: 85

Plastic Limit: 28

USCS Class.: CH

Testing Remarks: Specific Gravity is assumed

Organic Content = 5.0% (ASTM D 2974-07)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
247.51	0.00	0.00	#10	0.00	100.0
49.58	0.00	0.00	#20	0.00	100.0
			#40	0.25	99.5
			#60	0.35	99.3
			#100	0.43	99.1
			#140	0.59	98.8
			#200	0.99	98.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 49.58

Hygroscopic moisture correction:

Moist weight and tare = 28.40

Dry weight and tare = 28.29

Tare weight = 15.50

Hygroscopic moisture = 0.9%

Table of composite correction values:

Temp., deg. C: 12.8 27.3

Comp. corr.: -7.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	51.0	46.4	0.0132	52.0	7.8	0.0260	93.4
5.00	21.6	50.0	45.4	0.0132	51.0	7.9	0.0166	91.4
15.00	21.5	49.0	44.4	0.0132	50.0	8.1	0.0097	89.3
30.00	21.6	48.0	43.4	0.0132	49.0	8.3	0.0069	87.4
60.00	21.5	47.0	42.4	0.0132	48.0	8.4	0.0049	85.3
240.00	21.5	46.0	41.4	0.0132	47.0	8.6	0.0025	83.3
1440.00	20.9	43.5	38.7	0.0133	44.5	9.0	0.0011	77.9

MACTEC, Inc.

Fractional Components

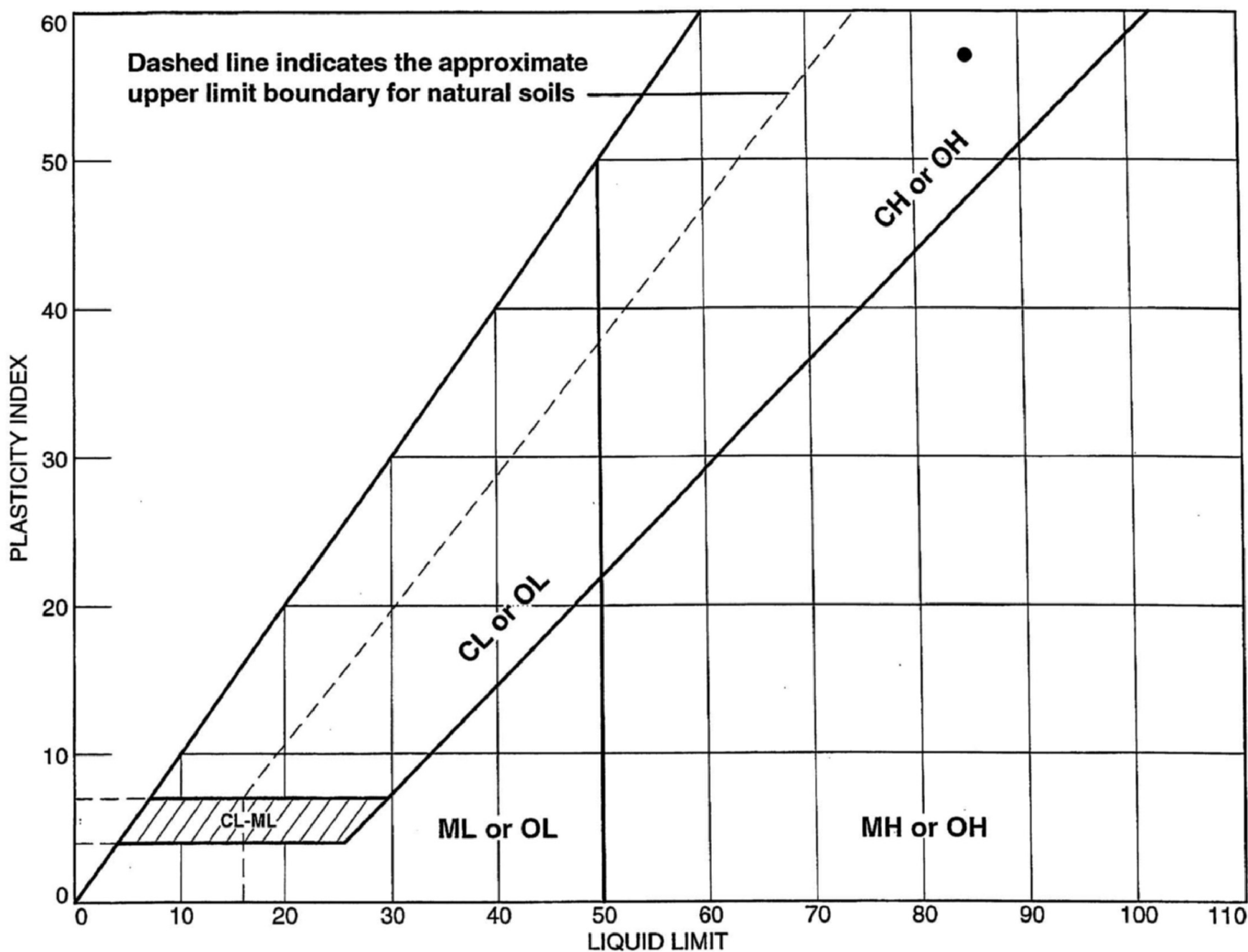
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	1.5	2.0	12.6	85.4	98.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0014	0.0046	0.0113	0.0361

Fineness Modulus
0.02

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2170R	SS-9	28.5-30.0	25.4	28	85	57	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

KAW 1/26/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 28.5-30.0

Sample Number: SS-9

Material Description: Yellow Fat CLAY

USCS: CH

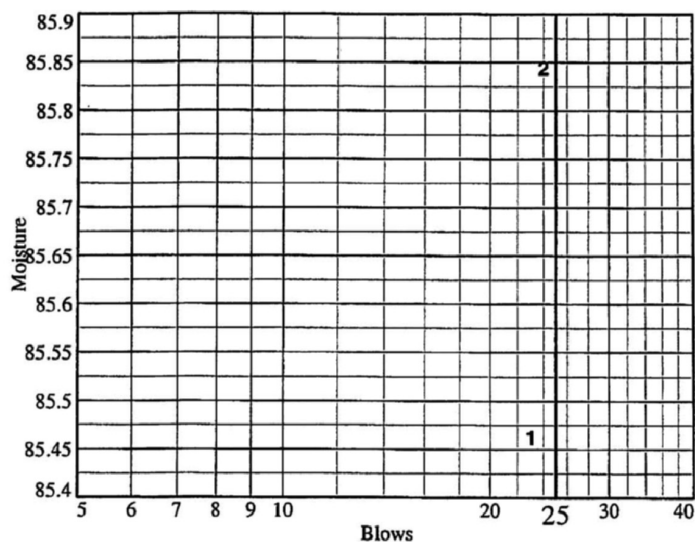
AASHTO: A-7-6(66)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.13	27.67				
Dry+Tare	22.31	22.03				
Tare	15.50	15.46				
# Blows	23	24				
Moisture	85.5	85.8				



Liquid Limit= 85
 Plastic Limit= 28
 Plasticity Index= 57
 Natural Moisture= 25.4
 Liquidity Index= 0.0

Plastic Limit Data

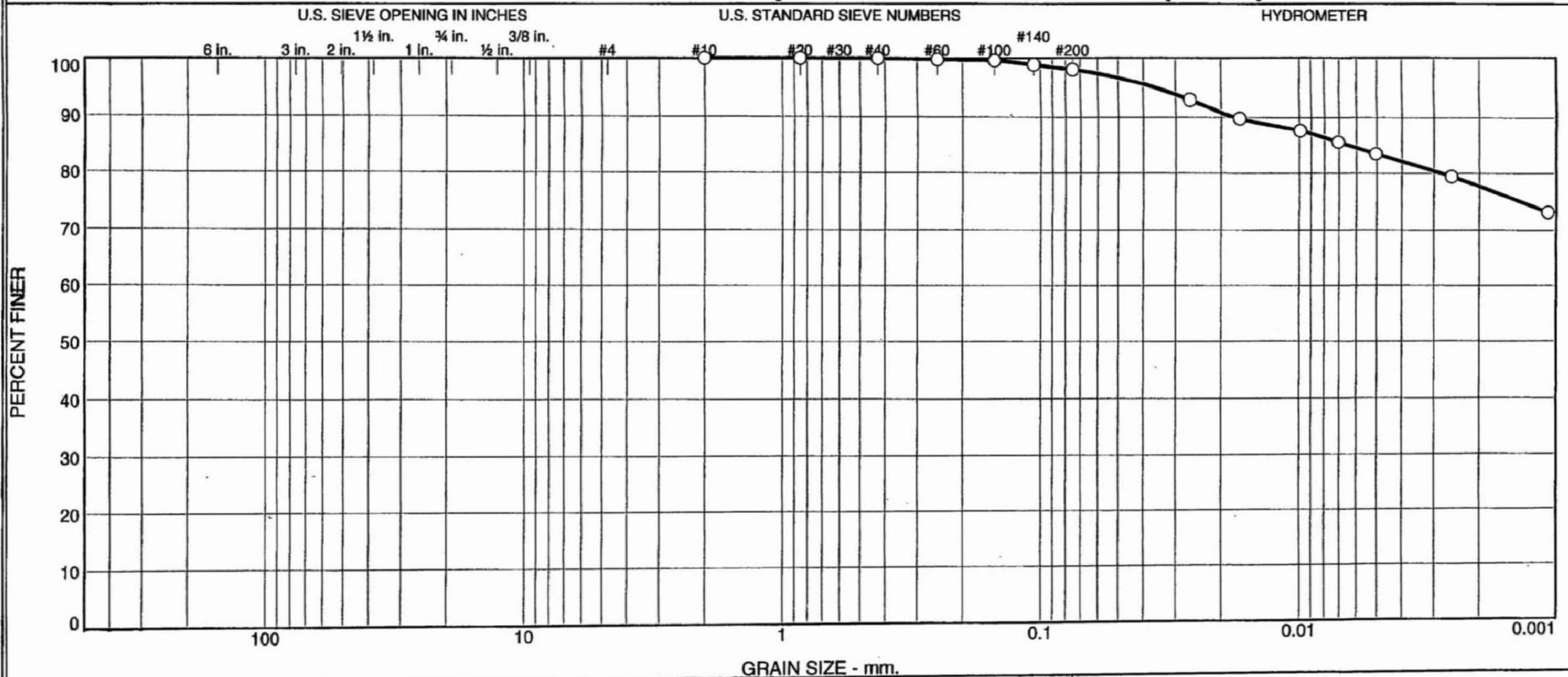
Run No.	1	2	3	4
Wet+Tare	24.68	23.93		
Dry+Tare	22.69	22.07		
Tare	15.60	15.49		
Moisture	28.1	28.3		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
121.67	98.36	6.70	25.4

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63 (2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	1.9	14.5	83.5

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2170R	SS-10	33.5-35.0	1-3-08	CH	Yellow and Light Greenish Gray Fat CLAY	26.7	88	29

Client Bechtel		MACTEC, Inc.	○ Specific Gravity is assumed
Project Exelon Texas COL (Victoria)			
Project No. 6468071777	Figure NA	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ KAW 1/26/08

GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 33.5-35.0

Sample Number: SS-10

Material Description: Yellow and Light Greenish Gray Fat CLAY

Date: 1-3-08

Natural Moisture: 26.7

Liquid Limit: 88

Plastic Limit: 29

USCS Class.: CH

Testing Remarks: Specific Gravity is assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
231.78	0.00	0.00	#10	0.00	100.0
50.74	0.00	0.00	#20	0.00	100.0
			#40	0.03	99.9
			#60	0.12	99.8
			#100	0.21	99.6
			#140	0.59	98.8
			#200	1.01	98.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 50.74

Hygroscopic moisture correction:

Moist weight and tare = 27.42

Dry weight and tare = 26.73

Tare weight = 15.46

Hygroscopic moisture = 6.1%

Table of composite correction values:

Temp., deg. C: 12.8 27.3

Comp. corr.: -7.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	49.5	44.9	0.0132	50.5	8.0	0.0264	92.9
5.00	21.5	48.0	43.4	0.0132	49.0	8.3	0.0170	89.8
15.00	21.5	47.0	42.4	0.0132	48.0	8.4	0.0099	87.7
30.00	21.6	46.0	41.4	0.0132	47.0	8.6	0.0071	85.7
60.00	21.5	45.0	40.4	0.0132	46.0	8.8	0.0050	83.6
240.00	21.5	43.0	38.4	0.0132	44.0	9.1	0.0026	79.4
1440.00	21.4	40.0	35.4	0.0132	41.0	9.6	0.0011	73.2

MACTEC, Inc.

Fractional Components

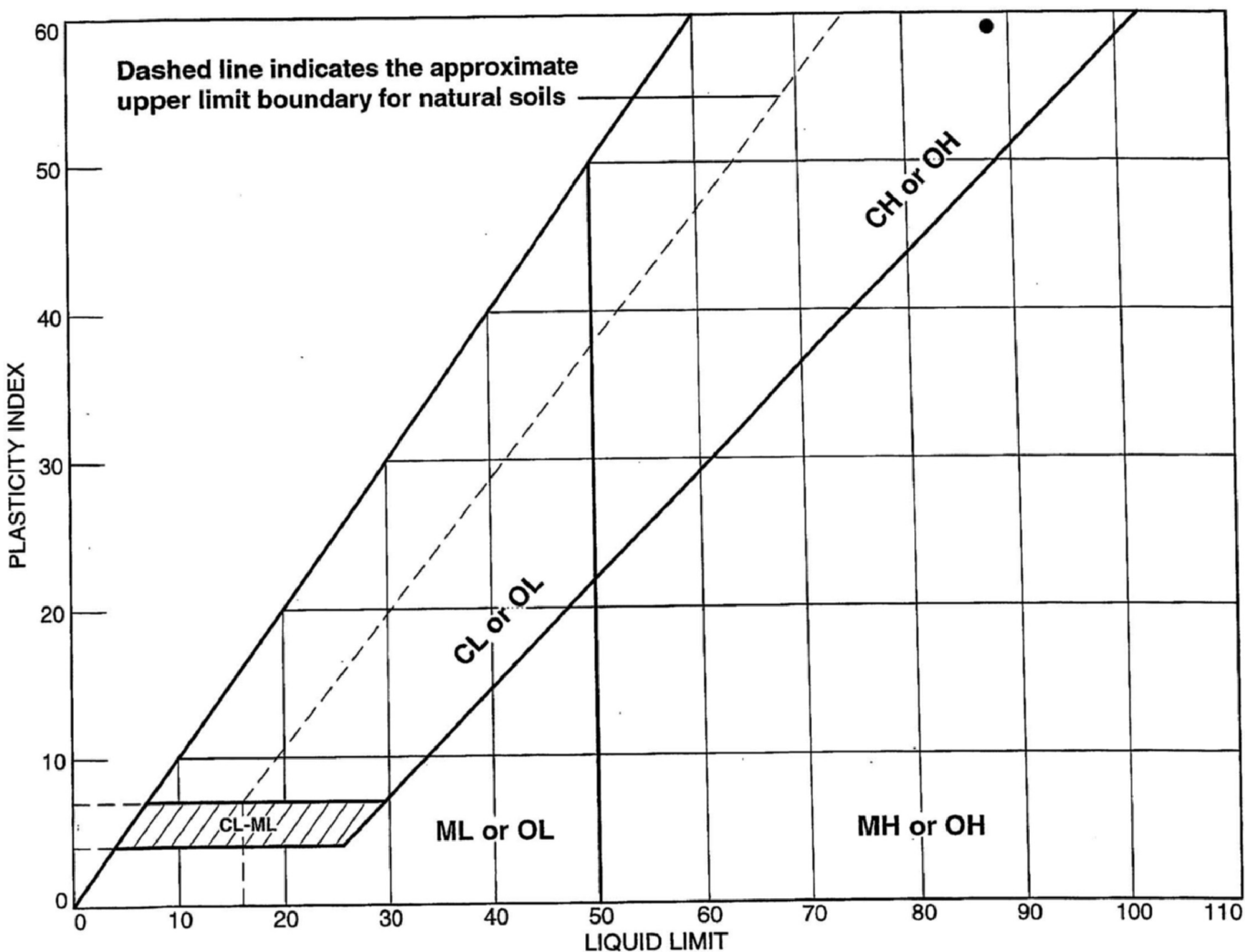
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	1.9	2.0	14.5	83.5	98.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0028	0.0063	0.0177	0.0362

Fineness Modulus
0.01

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2170R	SS-10	33.5-35.0	26.7	29	88	59	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: S

Checked By: LBJ KAW 1/26/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 33.5-35.0

Sample Number: SS-10

Material Description: Yellow and Light Greenish Gray Fat CLAY

USCS: CH

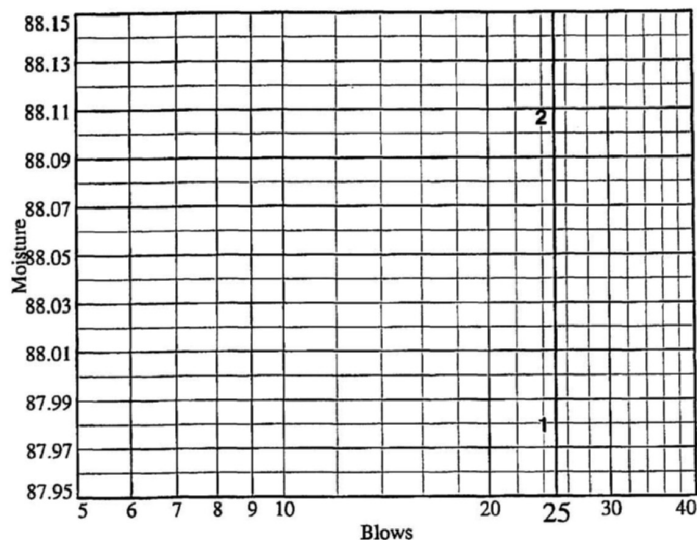
AASHTO: A-7-6(68)

Tested by: S

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	22.76	23.33				
Dry+Tare	19.32	19.70				
Tare	15.41	15.58				
# Blows	24	24				
Moisture	88.0	88.1				



Liquid Limit= 88
 Plastic Limit= 29
 Plasticity Index= 59
 Natural Moisture= 26.7
 Liquidity Index= 0.0

Plastic Limit Data

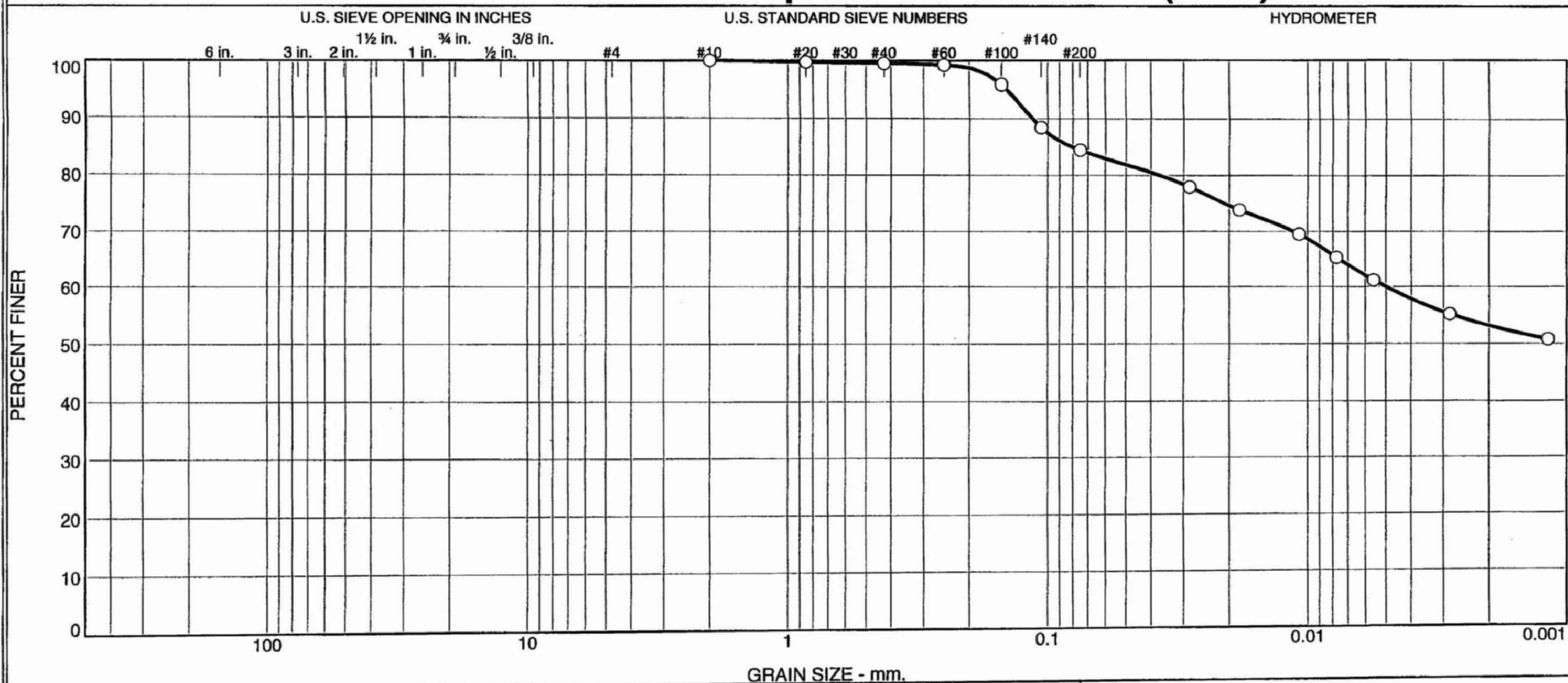
Run No.	1	2	3	4
Wet+Tare	22.37	22.90		
Dry+Tare	20.87	21.24		
Tare	15.60	15.49		
Moisture	28.5	28.9		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
74.66	60.35	6.70	26.7

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	15.0	24.5	60.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2170R	SS-11	38.5-40	1-4-08	CH	Yellow mottled Light Greenish Gray Fat CLAY with sand	21.7	56	22

Client Bechtel		MACTEC, Inc.	Raleigh, North Carolina	○ Specific Gravity = 2.686 (ASTM D854-06) Organic Content = 4.7% (ASTM D 2974-07)
Project Exelon Texas COL (Victoria)				
Project No. 6468071777	Figure NA			

Tested By: CS

Checked By: LBJ

DSC 3-13-08

GRAIN SIZE DISTRIBUTION TEST DATA

3/12/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 38.5-40

Sample Number: SS-11

Material Description: Yellow mottled Light Greenish Gray Fat CLAY with sand

Date: 1-4-08

Natural Moisture: 21.7

Liquid Limit: 56

Plastic Limit: 22

USCS Class.: CH

Testing Remarks: Specific Gravity = 2.686 (ASTM D854-06)

Organic Content = 4.7% (ASTM D 2974-07)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
251.69	0.00	0.00	#10	0.00	100.0
49.56	0.00	0.00	#20	0.13	99.7
			#40	0.25	99.5
			#60	0.40	99.2
			#100	2.08	95.8
			#140	5.73	88.4
			#200	7.69	84.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 49.56

Hygroscopic moisture correction:

Moist weight and tare = 23.06

Dry weight and tare = 22.60

Tare weight = 11.05

Hygroscopic moisture = 4.0%

Table of composite correction values:

Temp., deg. C: 12.8 27.3

Comp. corr.: -7.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.686

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.7	42.0	37.5	0.0132	43.0	9.2	0.0284	78.0
5.00	21.7	40.0	35.5	0.0132	41.0	9.6	0.0183	73.8
15.00	21.5	38.0	33.4	0.0133	39.0	9.9	0.0108	69.5
30.00	21.5	36.0	31.4	0.0133	37.0	10.2	0.0077	65.4
60.00	21.5	34.0	29.4	0.0133	35.0	10.6	0.0056	61.2
240.00	21.8	31.0	26.5	0.0132	32.0	11.0	0.0028	55.1
1440.00	21.5	29.0	24.4	0.0133	30.0	11.4	0.0012	50.8

MACTEC, Inc.

Fractional Components

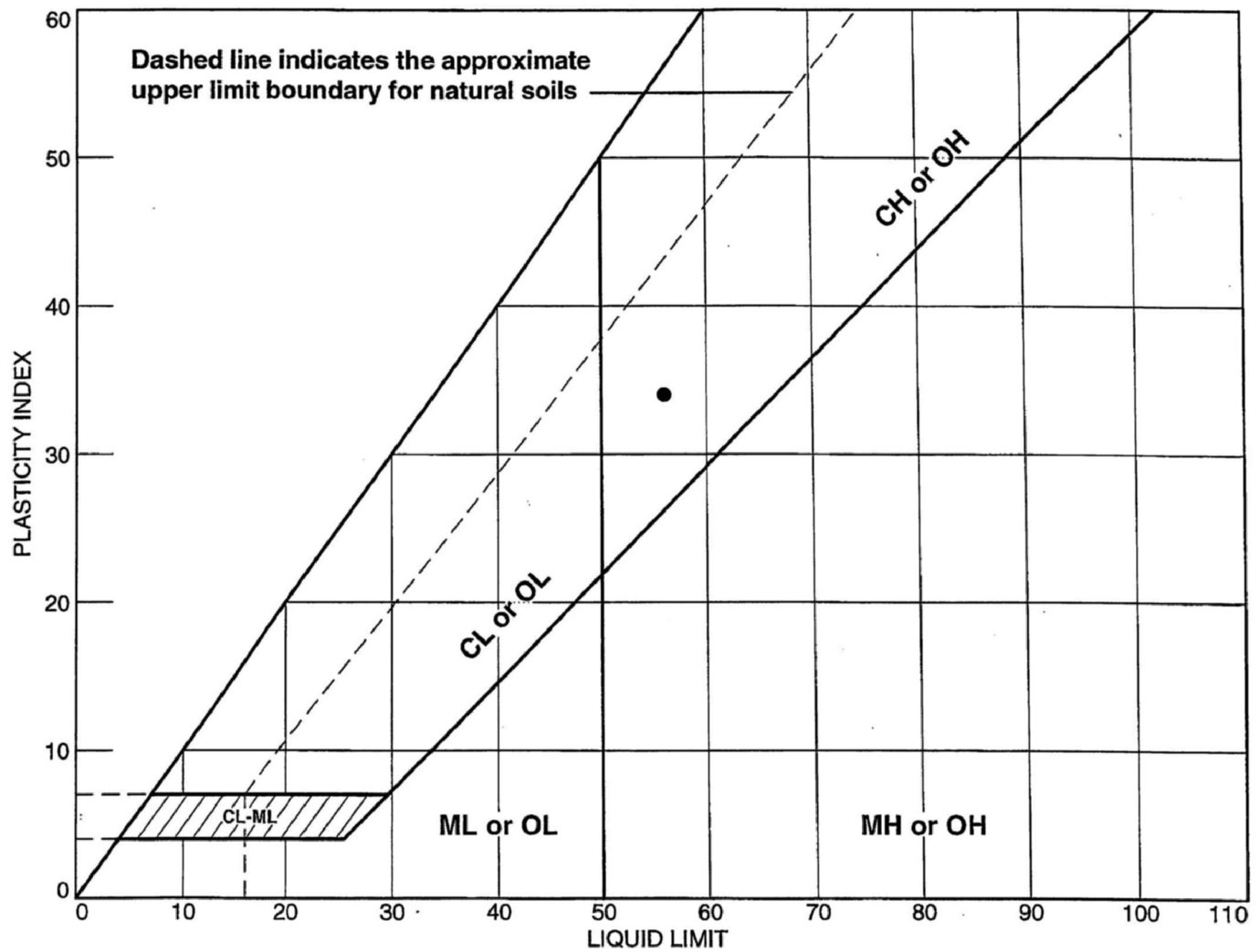
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	15.0	15.5	24.5	60.0	84.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
					0.0050	0.0371	0.0802	0.1146	0.1436

Fineness Modulus
0.05

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2170R	SS-11	38.5-40	21.7	22	56	34	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas CO₂ (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ KAW 1/26/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 38.5-40

Sample Number: SS-11

Material Description: Yellow mottled Light Greenish Gray Fat CLAY with sand

USCS: CH

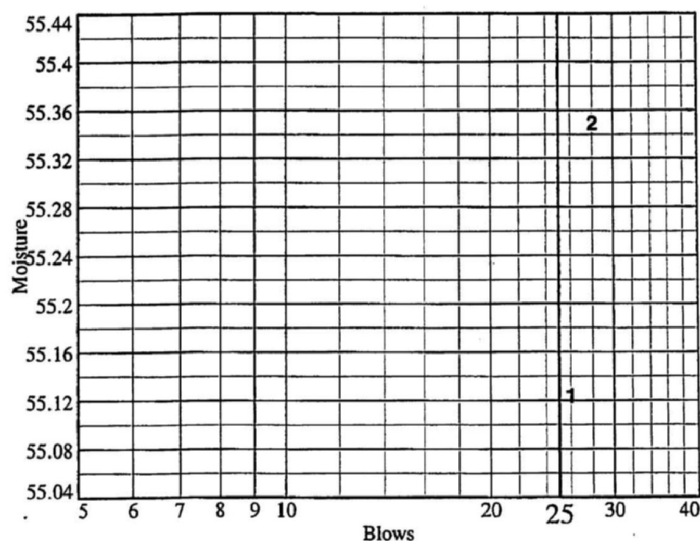
AASHTO: A-7-6(30)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.71	23.16				
Dry+Tare	22.16	20.47				
Tare	15.72	15.61				
# Blows	26	28				
Moisture	55.1	55.3				



Liquid Limit= 56
 Plastic Limit= 22
 Plasticity Index= 34
 Natural Moisture= 21.7
 Liquidity Index= 0.0

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	22.84	23.07		
Dry+Tare	21.52	21.77		
Tare	15.50	15.76		
Moisture	21.9	21.6		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
197.66	163.67	6.81	21.7

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 3/12/08

SAMPLE IDENTIFICATION: B-2170R SS-11

(A) Mass of oven-dried soil, grams:	52.36
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.76
(C) Mass of pycnometer, water and soil, grams:	689.63
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.7
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.687
(F) <i>Correction factor:</i>	0.99963
(G x F) SPECIFIC GRAVITY @ 20°C:	2.686

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100%

Fat CLAY with sand (CH)

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-4

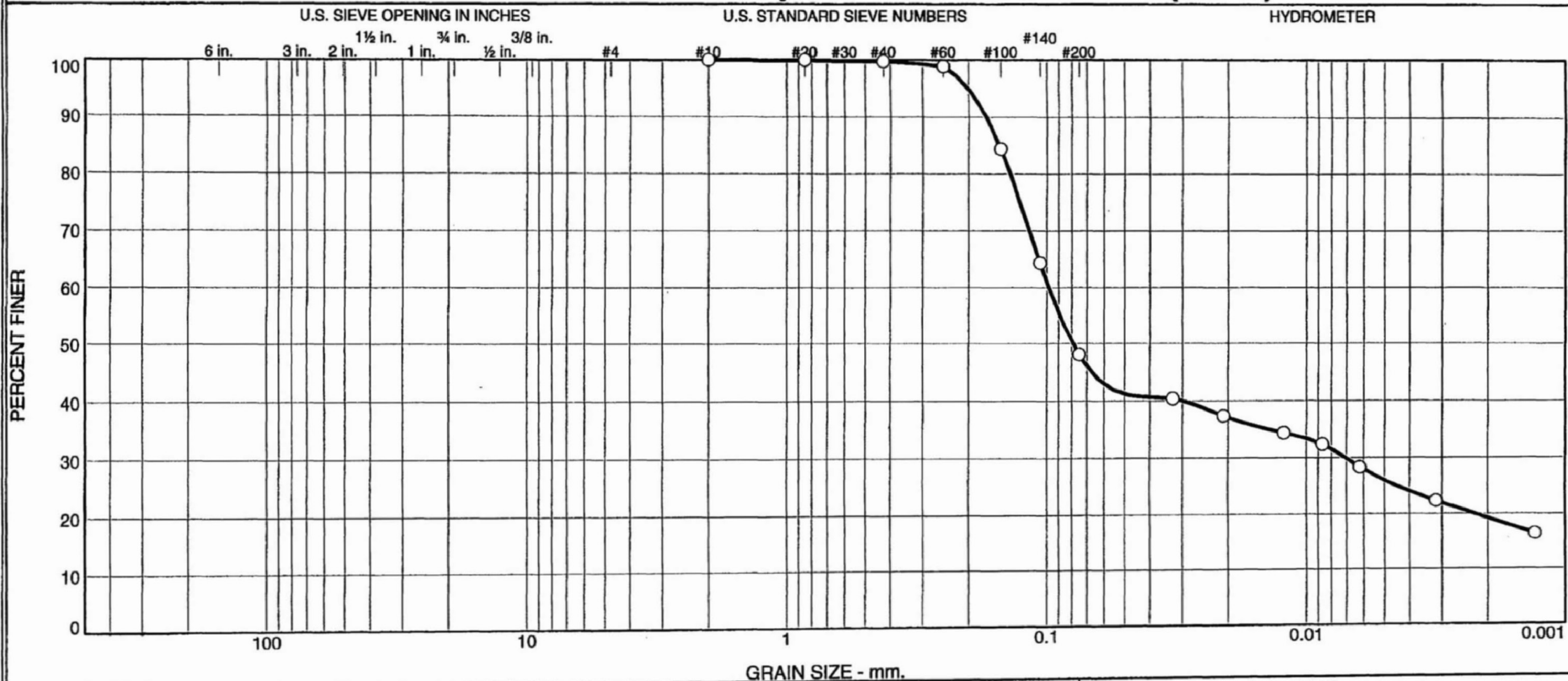
TESTED BY: CS

\\Test Reports\\Soils\\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: Brian Johnson

DSC 3-13-08

Particle Size Distribution Report / ASTM D 422-63 (2002)e1



GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 43.5-45.0

Sample Number: SS-12

Material Description: Brownish Yellow Clayey SAND

Date: 1-4-08

Natural Moisture: 14.3

Liquid Limit: 25

Plastic Limit: 15

USCS Class.: SC

Testing Remarks: Specific Gravity is assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
294.01	0.00	0.00	#10	0.00	100.0
50.22	0.00	0.00	#20	0.03	99.9
			#40	0.14	99.7
			#60	0.56	98.9
			#100	7.83	84.4
			#140	17.87	64.4
			#200	26.07	48.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 50.22

Hygroscopic moisture correction:

Moist weight and tare = 27.38

Dry weight and tare = 27.19

Tare weight = 15.49

Hygroscopic moisture = 1.6%

Table of composite correction values:

Temp., deg. C: 12.8 27.3

Comp. corr.: -7.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.8	25.0	20.2	0.0133	26.0	12.0	0.0326	40.4
5.00	20.8	23.5	18.7	0.0133	24.5	12.3	0.0209	37.4
15.00	20.7	22.0	17.2	0.0133	23.0	12.5	0.0122	34.4
30.00	20.7	21.0	16.2	0.0133	22.0	12.7	0.0087	32.4
60.00	20.7	19.0	14.2	0.0133	20.0	13.0	0.0062	28.4
240.00	20.7	16.0	11.2	0.0133	17.0	13.5	0.0032	22.4
1440.00	20.8	13.0	8.2	0.0133	14.0	14.0	0.0013	16.4

MACTEC, Inc.

Fractional Components

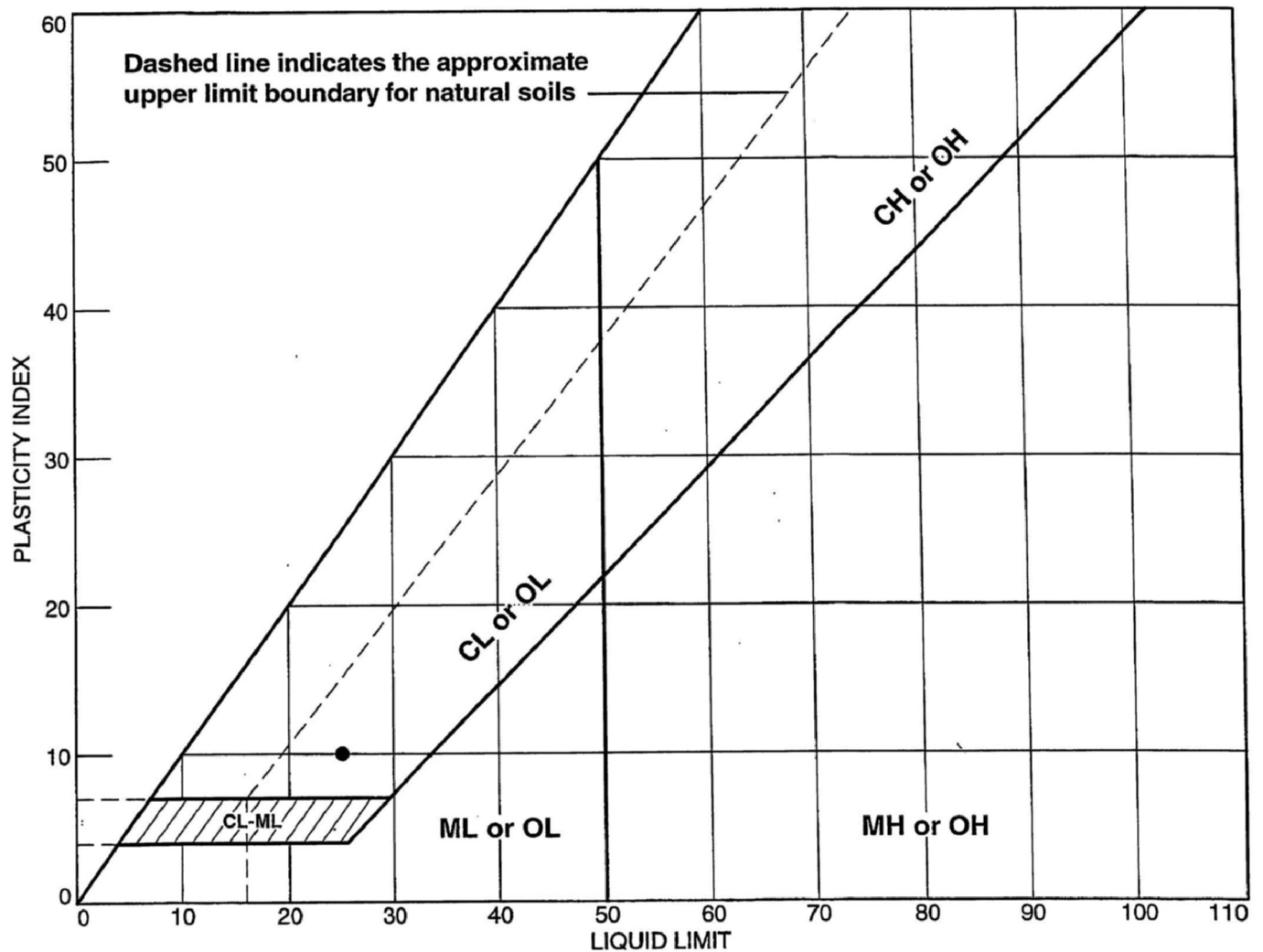
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	51.6	51.9	22.1	26.0	48.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0022	0.0071	0.0791	0.0980	0.1380	0.1518	0.1707	0.2004

Fineness Modulus
0.17

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2170R	SS-12	43.5-45.0	14.3	15	25	10	SC

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ KAW 11/26/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 43.5-45.0

Sample Number: SS-12

Material Description: Brownish Yellow Clayey SAND

USCS: SC

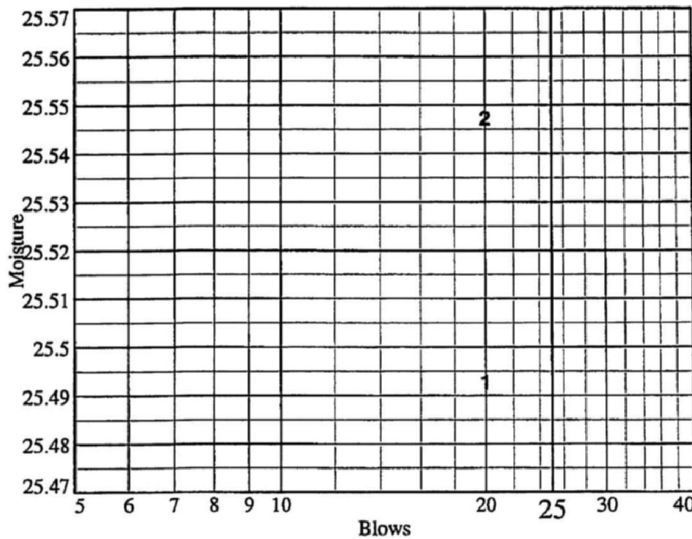
AASHTO: A-4(2)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	34.92	34.38				
Dry+Tare	31.04	30.53				
Tare	15.82	15.46				
# Blows	20	20				
Moisture	25.5	25.5				



Liquid Limit= 25
 Plastic Limit= 15
 Plasticity Index= 10
 Natural Moisture= 14.3
 Liquidity Index= -0.1

Plastic Limit Data

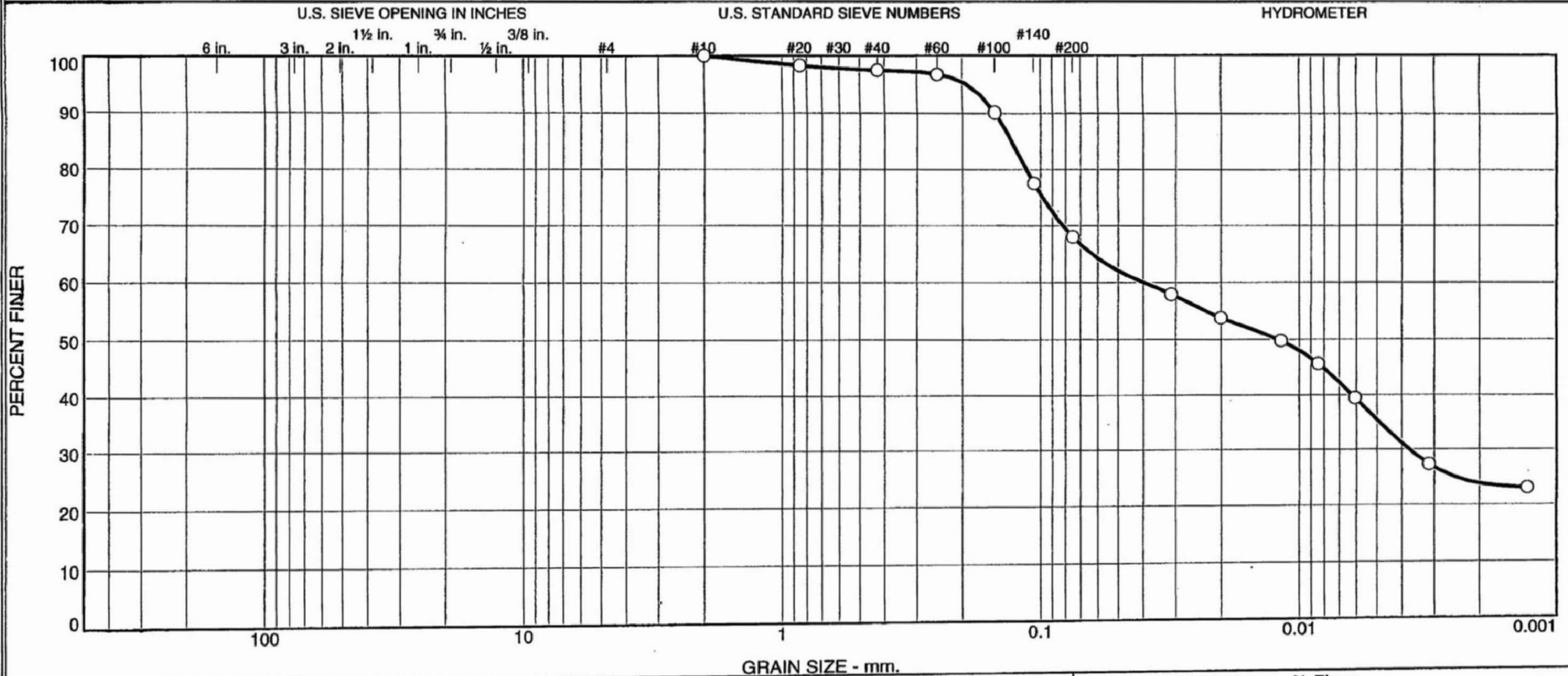
Run No.	1	2	3	4
Wet+Tare	23.33	23.03		
Dry+Tare	22.29	22.04		
Tare	15.61	15.51		
Moisture	15.6	15.2		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
112.25	99.05	6.87	14.3

MACTEC, Inc.

Particle Size Distribution Report / ASTM D-422-63(2002)e1



GRAIN SIZE DISTRIBUTION TEST DATA

1/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 48.5-50.0

Sample Number: SS-13

Material Description: Yellow Sandy Lean CLAY

Date: 1-4-08

Natural Moisture: 15.3

Liquid Limit: 28

Plastic Limit: 13

USCS Class.: CL

Testing Remarks: Specific Gravity = 2.671 (ASTM D2794-07)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
262.51	0.00	0.00	#10	0.00	100.0
48.95	0.00	0.00	#20	0.83	98.3
			#40	1.25	97.4
			#60	1.60	96.7
			#100	4.85	90.1
			#140	10.99	77.5
			#200	15.64	68.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 48.95

Hygroscopic moisture correction:

Moist weight and tare = 27.68

Dry weight and tare = 27.51

Tare weight = 15.67

Hygroscopic moisture = 1.4%

Table of composite correction values:

Temp., deg. C: 12.8 27.3

Comp. corr.: -7.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.671

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.5	33.0	28.1	0.0135	34.0	10.7	0.0312	58.0
5.00	20.5	31.0	26.1	0.0135	32.0	11.0	0.0200	53.9
15.00	20.5	29.0	24.1	0.0135	30.0	11.4	0.0117	49.8
30.00	20.5	27.0	22.1	0.0135	28.0	11.7	0.0084	45.6
60.00	20.6	24.0	19.2	0.0135	25.0	12.2	0.0061	39.5
240.00	20.9	18.0	13.2	0.0134	19.0	13.2	0.0031	27.3
1440.00	20.7	16.0	11.2	0.0134	17.0	13.5	0.0013	23.1

MACTEC, Inc.

Fractional Components

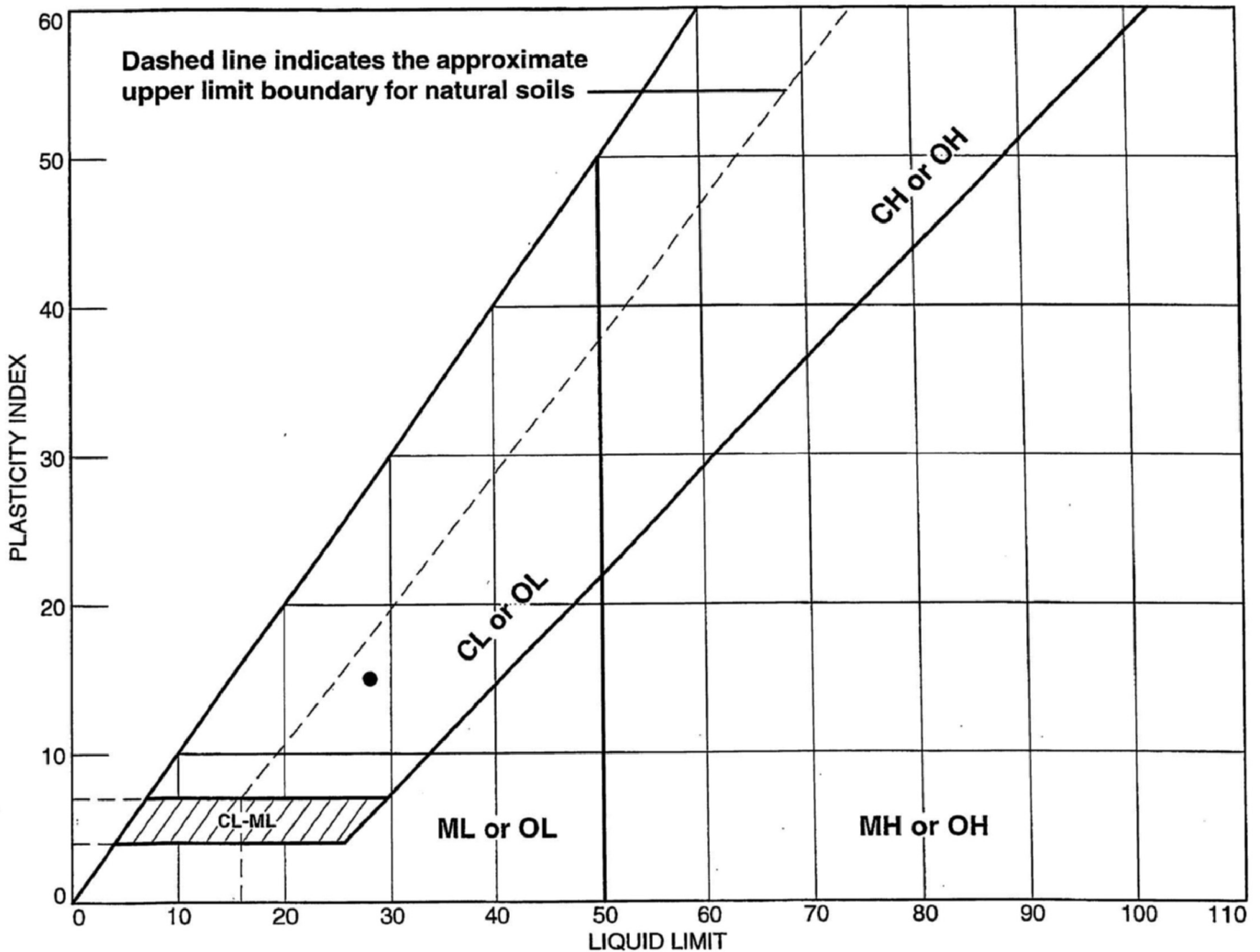
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.6	29.4	32.0	32.5	35.5	68.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0038	0.0121	0.0397	0.1133	0.1291	0.1495	0.1929

Fineness Modulus
0.16

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2170R	SS-13	48.5-50.0	15.3	13	28	15	CL

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ KAW 1/26/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 48.5-50.0

Sample Number: SS-13

Material Description: Yellow Sandy Lean CLAY

USCS: CL

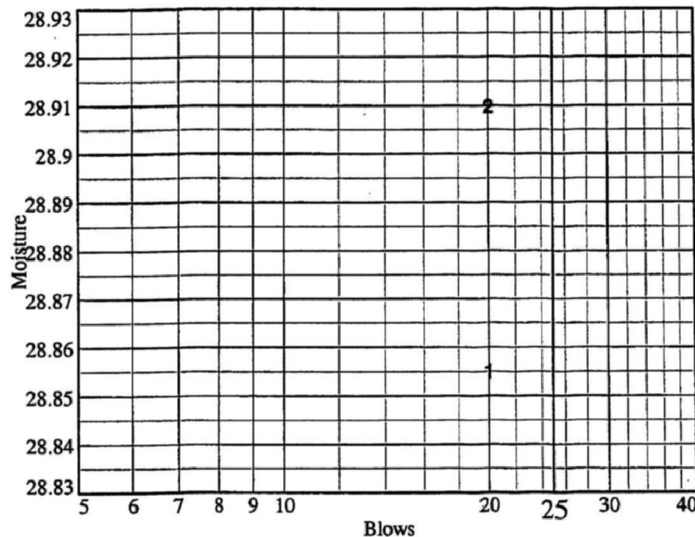
AASHTO: A-6(7)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	35.16	34.42				
Dry+Tare	30.80	30.15				
Tare	15.69	15.38				
# Blows	20	20				
Moisture	28.9	28.9				



Liquid Limit= 28
 Plastic Limit= 13
 Plasticity Index= 15
 Natural Moisture= 15.3
 Liquidity Index= 0.2

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	23.60	23.01		
Dry+Tare	22.64	22.13		
Tare	15.50	15.51		
Moisture	13.4	13.3		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
99.79	87.45	6.65	15.3

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 3/12/08

SAMPLE IDENTIFICATION: B-2170R SS-13

(A) Mass of oven-dried soil, grams:	49.67
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.71
(C) Mass of pycnometer, water and soil, grams:	687.79
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	22.1
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.672
(F)	Correction factor: 0.99954
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.671

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100%

Sandy Lean CLAY (CL)

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-6

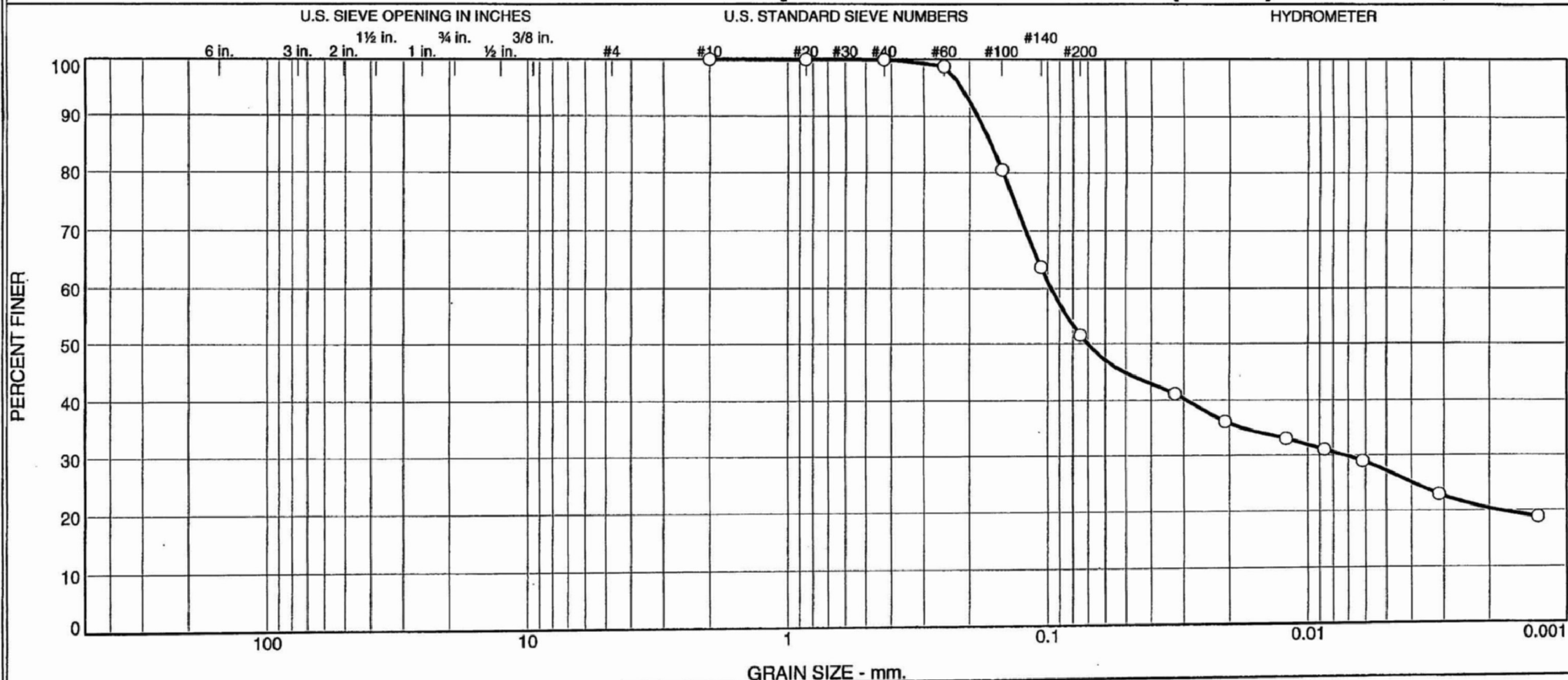
TESTED BY: CS

\\Test Reports\\Soils\\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: Brian Johnson

DSC 3-13-08

Particle Size Distribution Report / ASTM D 422-63 (2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	48.3	24.3	27.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2170R	SS-14	53.5-55.0	1-4-08	CL-ML	Very Pale Brown Sandy Silty CLAY	19.6	24	17

Client Bechtel		MACTEC, Inc. Raleigh, North Carolina	○ Specific gravity is assumed
Project Exelon Texas COL (Victoria)			
Project No. 6468071777	Figure NA		

Tested By: CS

Checked By: LBJ KAW 11/26/08

GRAIN SIZE DISTRIBUTION TEST DATA

1/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 53.5-55.0

Sample Number: SS-14

Material Description: Very Pale Brown Sandy Silty CLAY

Date: 1-4-08

Natural Moisture: 19.6

Liquid Limit: 24

Plastic Limit: 17

USCS Class.: CL-ML

Testing Remarks: Specific gravity is assumed

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
267.70	0.00	0.00	#10	0.00	100.0
49.64	0.00	0.00	#20	0.02	100.0
			#40	0.05	99.9
			#60	0.62	98.8
			#100	9.69	80.5
			#140	18.00	63.7
			#200	24.04	51.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 49.64

Hygroscopic moisture correction:

Moist weight and tare = 27.32

Dry weight and tare = 27.19

Tare weight = 15.24

Hygroscopic moisture = 1.1%

Table of composite correction values:

Temp., deg. C: 12.8 27.3

Comp. corr.: -7.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	25.0	20.4	0.0132	26.0	12.0	0.0323	41.1
5.00	21.7	22.5	18.0	0.0132	23.5	12.4	0.0208	36.2
15.00	21.6	21.0	16.4	0.0132	22.0	12.7	0.0121	33.1
30.00	21.6	20.0	15.4	0.0132	21.0	12.9	0.0086	31.1
60.00	21.5	19.0	14.4	0.0132	20.0	13.0	0.0061	29.0
240.00	21.5	16.0	11.4	0.0132	17.0	13.5	0.0031	23.0
1440.00	21.4	14.0	9.4	0.0132	15.0	13.8	0.0013	18.9

MACTEC, Inc.

Fractional Components

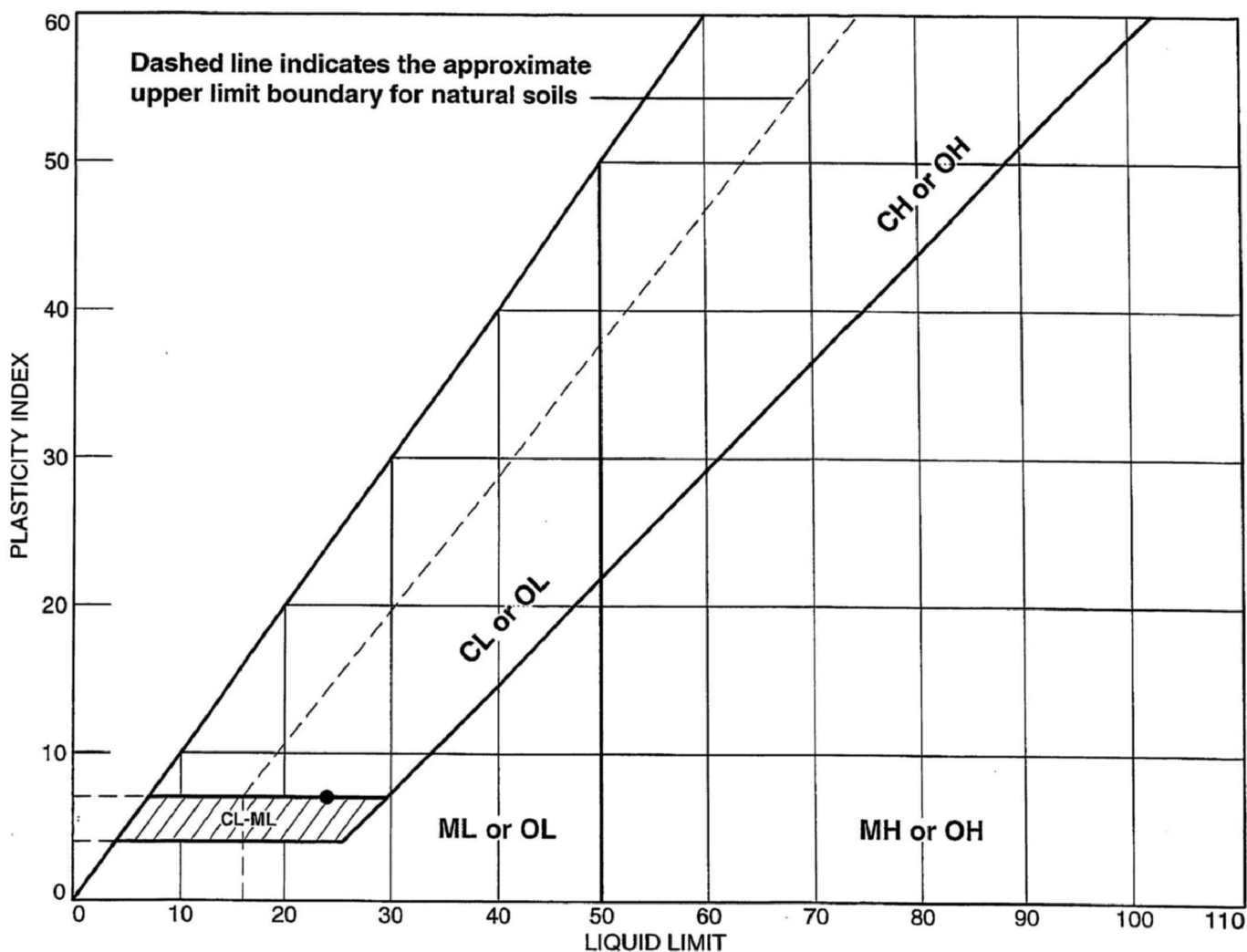
Cobbles	Gravel			Sand				Fines
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	
0.0	0.0	0.0	0.0	0.0	0.1	48.3	48.4	51.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0018	0.0072	0.0702	0.0969	0.1485	0.1653	0.1859	0.2142

Fineness Modulus
0.20

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2170R	SS-14	53.5-55.0	19.6	17	24	7	CL-ML

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ KAW 1/26/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 53.5-55.0

Sample Number: SS-14

Material Description: Very Pale Brown Sandy Silty CLAY

USCS: CL-ML

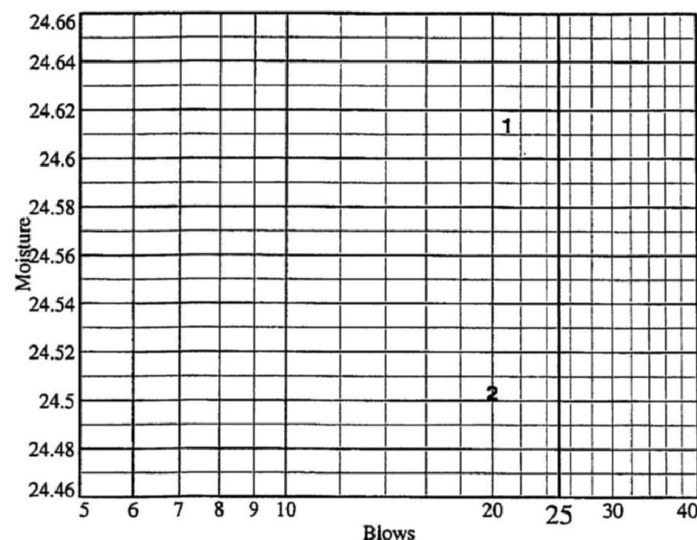
AASHTO: A-4(1)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.50	24.86				
Dry+Tare	25.95	23.01				
Tare	15.59	15.46				
# Blows	21	20				
Moisture	24.6	24.5				



Liquid Limit= 24
 Plastic Limit= 17
 Plasticity Index= 7
 Natural Moisture= 19.6
 Liquidity Index= 0.4

Plastic Limit Data

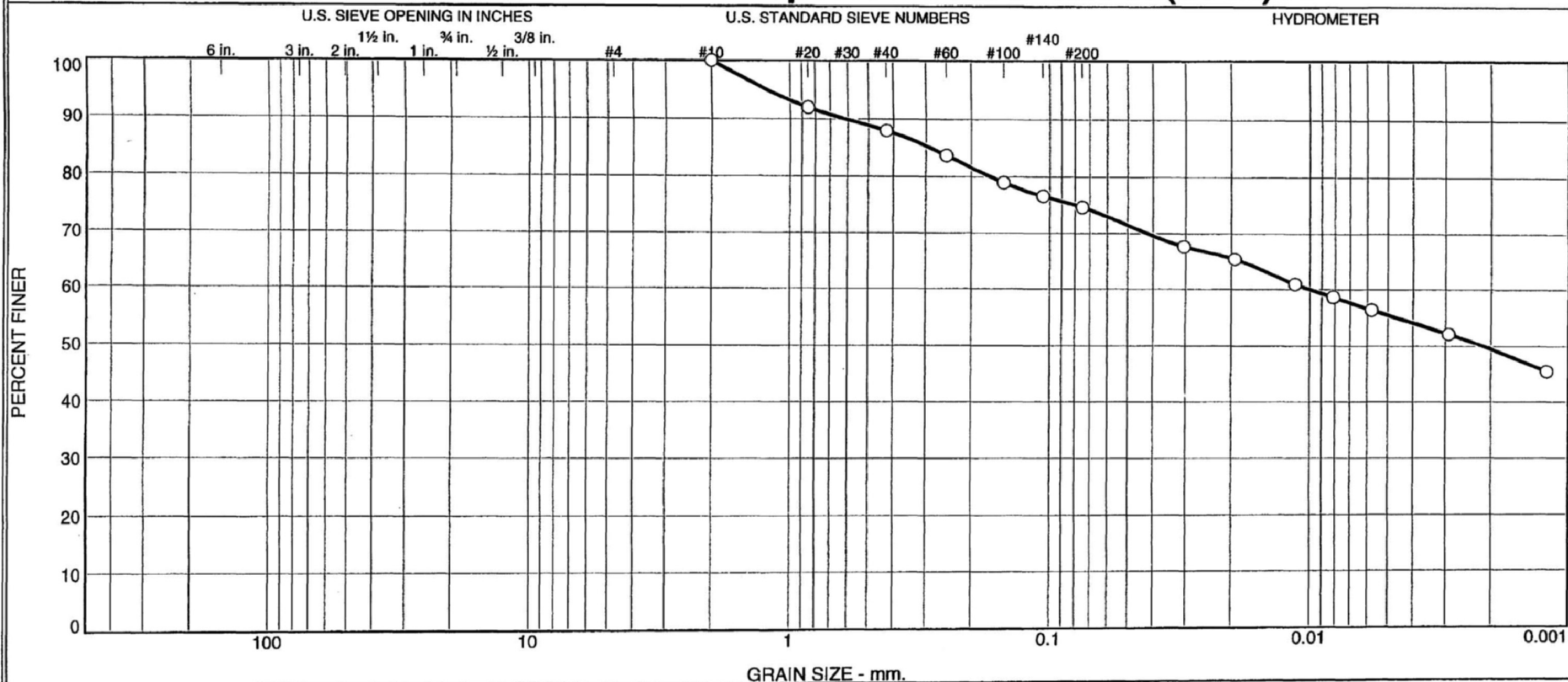
Run No.	1	2	3	4
Wet+Tare	22.61	23.13		
Dry+Tare	21.60	22.08		
Tare	15.49	15.91		
Moisture	16.5	17.0		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
96.52	82.25	9.44	19.6

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.0	13.3	19.2	55.5

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2170R	SS-15	58.5-60.0	1-4-08	CH	Pale Brown Fat CLAY with sand	22.3	63	25

Client Bechtel		MACTEC, Inc.	Raleigh, North Carolina	○ Specific Gravity = 2.703 (ASTM D854-06) Organic Content = 4.1% (ASTM D 2974-07)
Project Exelon Texas COL (Victoria)				
Project No. 6468071777	Figure NA			

Tested By: CS Checked By: LBJ DSC 3-13-08

GRAIN SIZE DISTRIBUTION TEST DATA

3/12/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 58.5-60.0

Sample Number: SS-15

Material Description: Pale Brown Fat CLAY with sand

Date: 1-4-08

Natural Moisture: 22.3

Liquid Limit: 63

Plastic Limit: 25

USCS Class.: CH

Testing Remarks: Specific Gravity = 2.703 (ASTM D854-06)

Organic Content = 4.1% (ASTM D 2974-07)

Tested by: CS

Checked by: LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
244.76	0.00	0.00	#10	0.00	100.0
47.12	0.00	0.00	#20	3.79	92.0
			#40	5.67	88.0
			#60	7.68	83.7
			#100	9.91	79.0
			#140	11.02	76.6
			#200	11.93	74.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 47.12

Hygroscopic moisture correction:

Moist weight and tare = 26.05

Dry weight and tare = 25.04

Tare weight = 11.09

Hygroscopic moisture = 7.2%

Table of composite correction values:

Temp., deg. C: 12.8 27.3

Comp. corr.: -7.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.703

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	35.0	30.1	0.0134	36.0	10.4	0.0305	67.7
5.00	20.4	34.0	29.1	0.0134	35.0	10.6	0.0194	65.4
15.00	20.4	32.0	27.1	0.0134	33.0	10.9	0.0114	60.9
30.00	20.4	31.0	26.1	0.0134	32.0	11.0	0.0081	58.7
60.00	20.4	30.0	25.1	0.0134	31.0	11.2	0.0058	56.4
240.00	20.9	28.0	23.2	0.0133	29.0	11.5	0.0029	52.3
1440.00	20.9	25.0	20.2	0.0133	26.0	12.0	0.0012	45.5

MACTEC, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	12.0	13.3	25.3	19.2	55.5	74.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0021	0.0100	0.1692	0.2885	0.6104	1.2270

Fineness Modulus
0.51

MACTEC, Inc.