

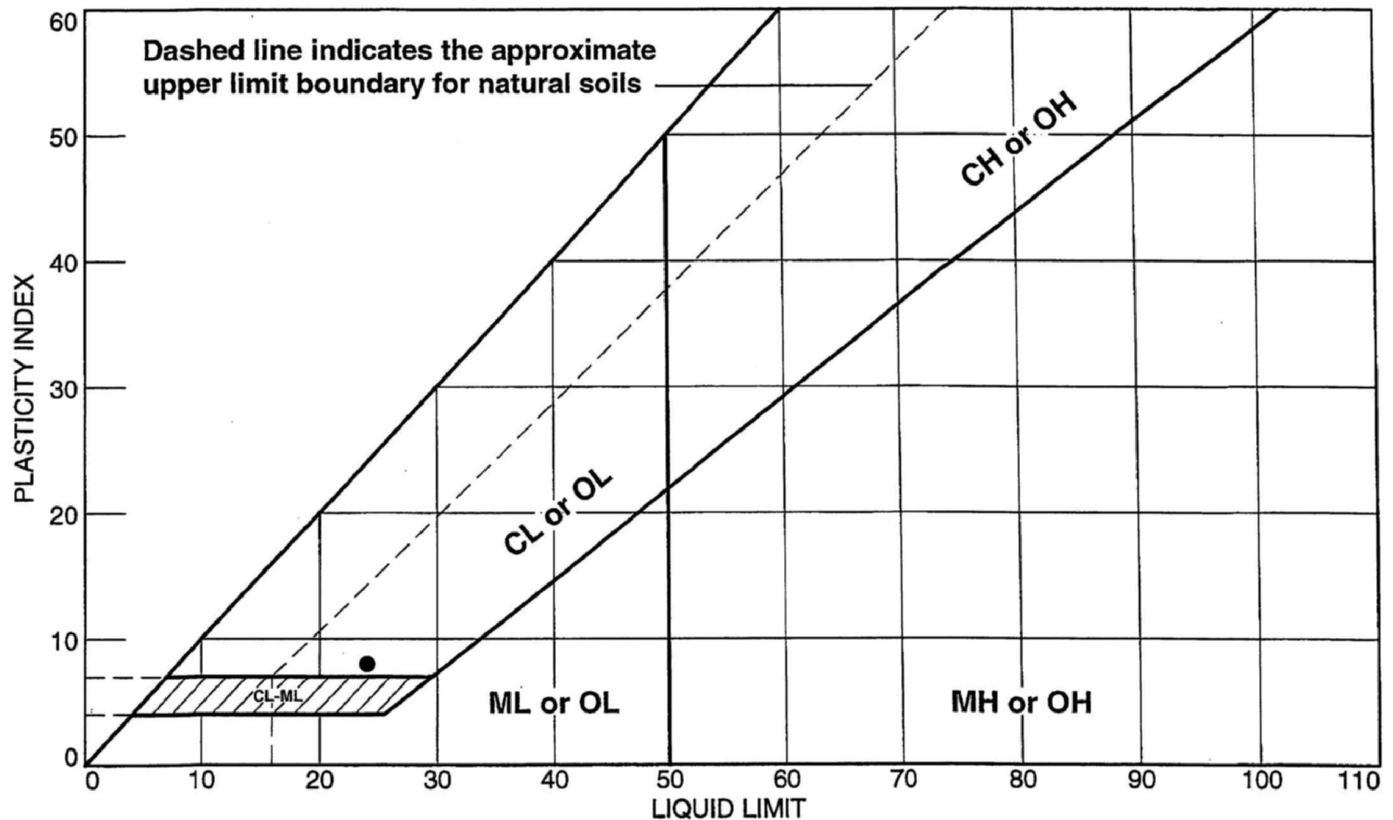
Fractional Components

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	37.6	37.7	42.5	19.8	62.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0053	0.0191	0.0582	0.0721	0.0969	0.1051	0.1164	0.1362

Fineness Modulus
0.03

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2321	SS-7	18.5-20.0	16.6	16	24	8	CL

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

DSC 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 18.5-20.0

Sample Number: SS-7

Material Description: Light Yellowish Brown Sandy Lean CLAY

USCS: CL

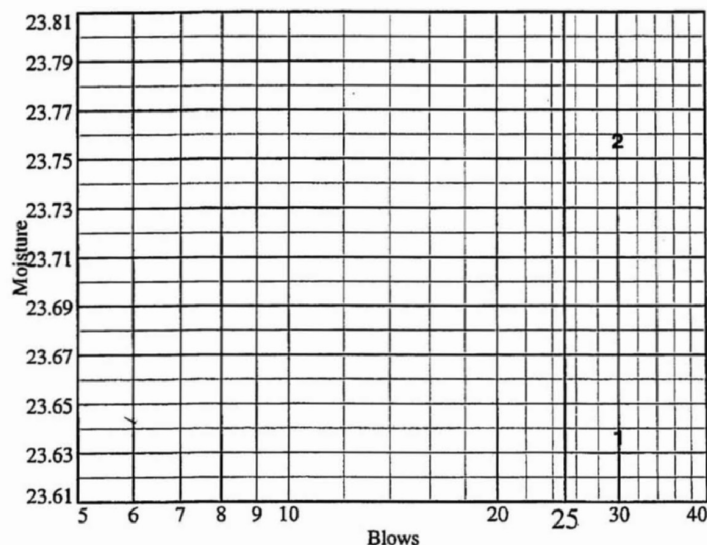
AASHTO: A-4(2)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.79	25.69				
Dry+Tare	25.45	23.73				
Tare	15.55	15.48				
# Blows	30	30				
Moisture	23.6	23.8				



Liquid Limit= 24
 Plastic Limit= 16
 Plasticity Index= 8
 Natural Moisture= 16.6
 Liquidity Index= 0.1

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	26.93	27.18		
Dry+Tare	25.36	25.54		
Tare	15.44	15.68		
Moisture	15.8	16.6		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
145.53	125.74	6.68	16.6

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: 2/1/2008

SAMPLE IDENTIFICATION: B-2321, SS-7

(A) Mass of oven-dried soil, grams:	50.07
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.72
(C) Mass of pycnometer, water and soil, grams:	688.00
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	22.2
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.665
(F) <i>Correction factor:</i>	0.99952
(G x F) SPECIFIC GRAVITY @ 20°C:	2.663

MATERIAL TESTED:

☒ X
- # 4

☐
- # 10

PREPARATION METHOD:

☒ X
DRY

☐
WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Sandy Lean CLAY (CL)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNO METER : P-6

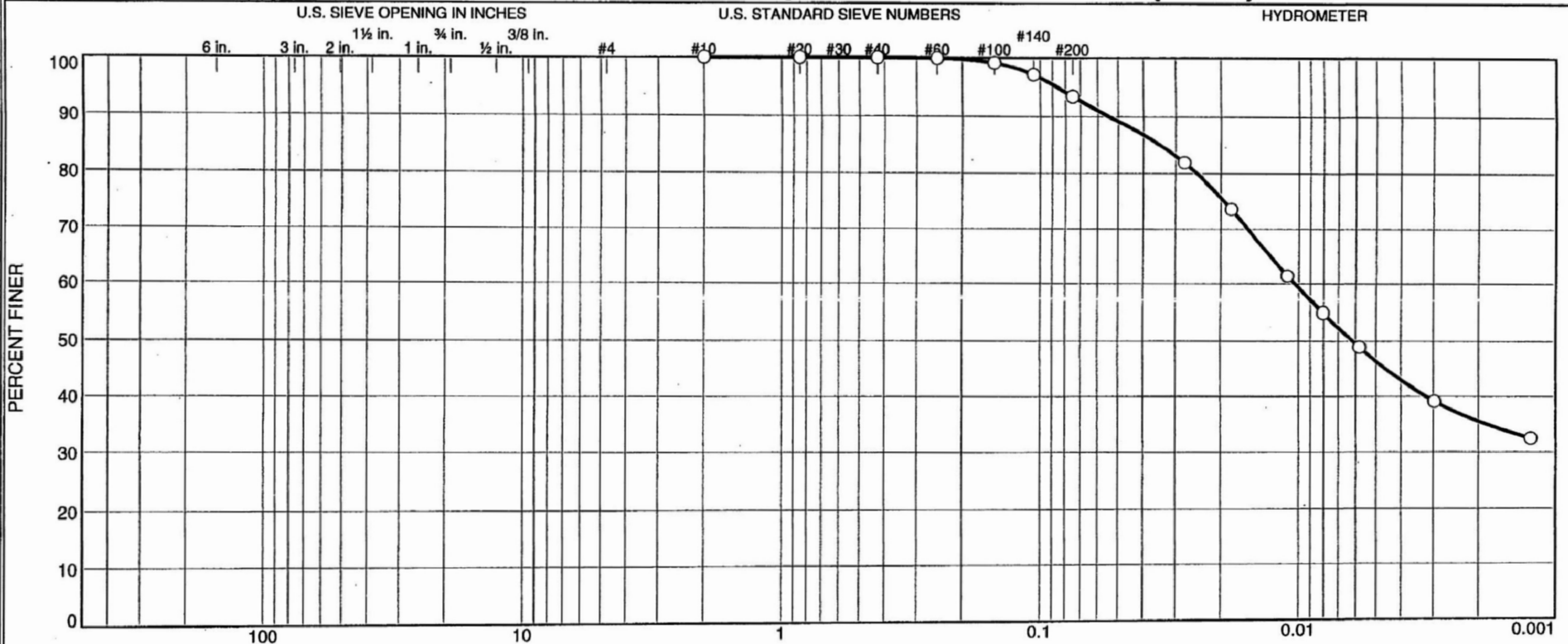
TESTED BY: CS

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

REVIEWED BY: Brian Johnson

DSC 2-28-08

Particle Size Distribution Report / ASTM D422-63(2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	6.7	47.0	46.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2321	SS-8	23.5-25.0	12-14-07	CL	Pale Yellow Lean CLAY	16.3	42	15

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure *N4*

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS

Checked By: LBJ

DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 23.5-25.0

Sample Number: SS-8

Material Description: Pale Yellow Lean CLAY

Date: 12-14-07

Natural Moisture: 16.3

Liquid Limit: 42

Plastic Limit: 15

USCS Class.: CL

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
215.98	0.00	0.00	#10	0.00	100.0
49.33	0.00	0.00	#20	0.00	100.0
			#40	0.00	100.0
			#60	0.04	99.9
			#100	0.43	99.1
			#140	1.43	97.1
			#200	3.29	93.3

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 49.33

Hygroscopic moisture correction:

Moist weight and tare = 27.17

Dry weight and tare = 26.88

Tare weight = 15.54

Hygroscopic moisture = 2.6%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	21.1	45.0	39.9	0.0133	46.0	8.8	0.0277	82.0
5.00	20.9	41.0	35.8	0.0133	42.0	9.4	0.0182	73.6
15.00	21.1	35.0	29.9	0.0133	36.0	10.4	0.0110	61.5
30.00	20.8	32.0	26.8	0.0133	33.0	10.9	0.0080	55.1
60.00	20.8	29.0	23.8	0.0133	30.0	11.4	0.0058	48.9
240.00	21.5	24.0	19.0	0.0132	25.0	12.2	0.0030	39.1
1440.00	20.8	21.0	15.8	0.0133	22.0	12.7	0.0012	32.5

MACTEC, Inc.

Fractional Components

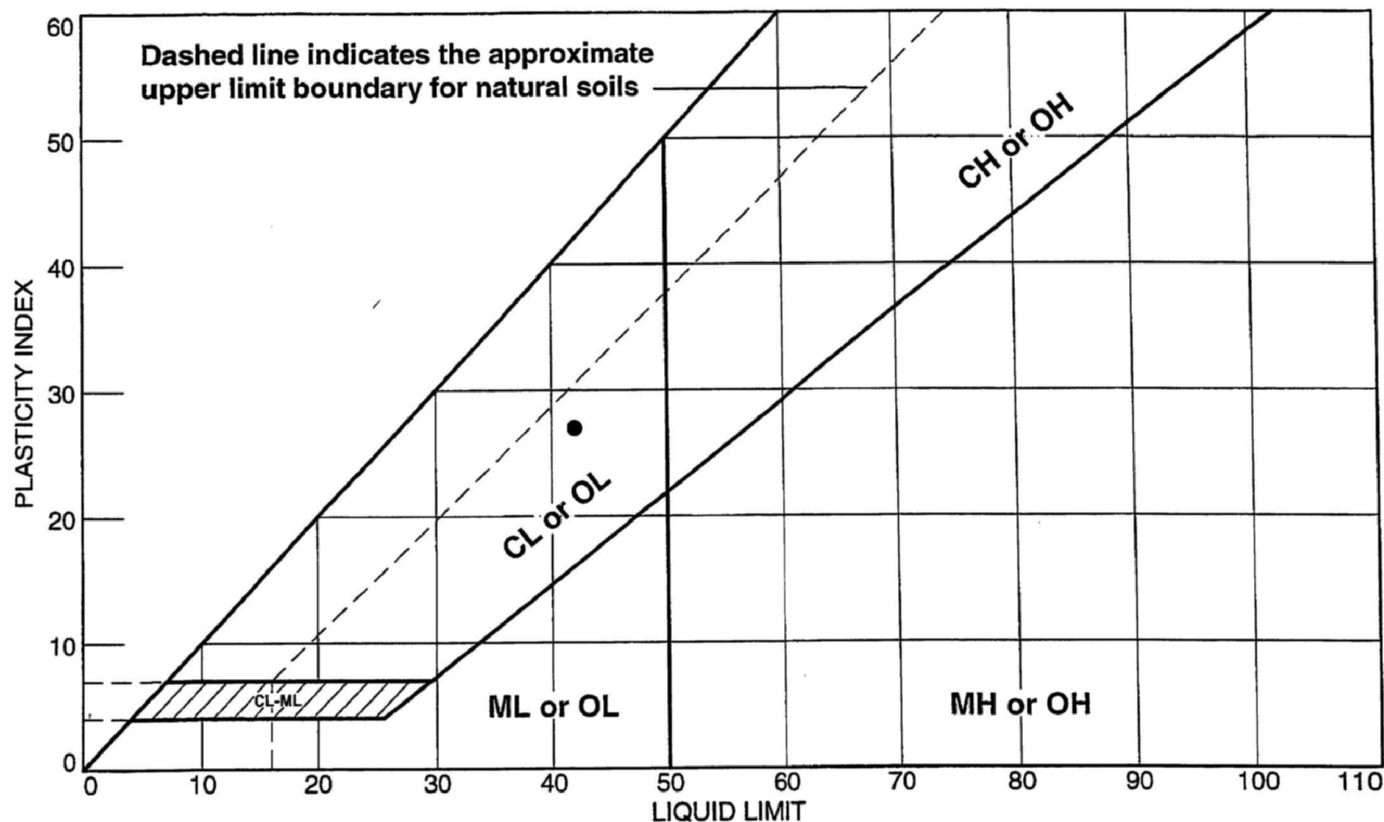
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	6.7	6.7	47.0	46.3	93.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0062	0.0103	0.0247	0.0341	0.0541	0.0868

Fineness Modulus
0.01

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2321	SS-8	23.5-25.0	16.3	15	42	27	CL

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure *NA*

Tested By: CS

Checked By: LBJ

DSC 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 23.5-25.0

Sample Number: SS-8

Material Description: Pale Yellow Lean CLAY

USCS: CL

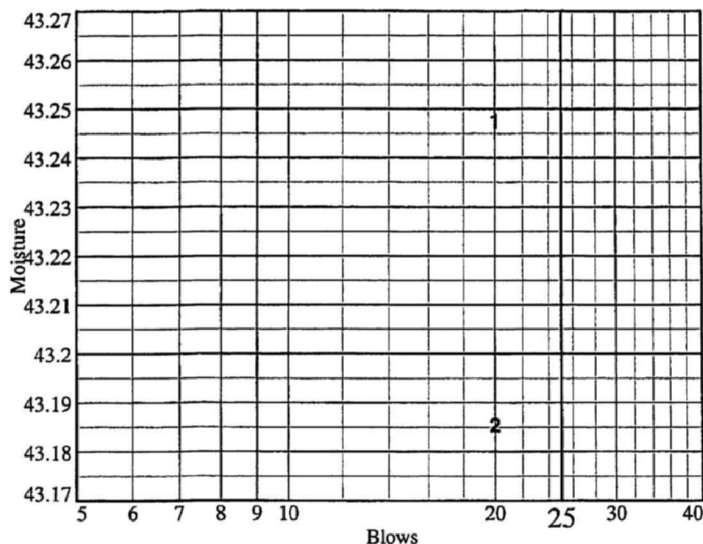
AASHTO: A-7-6(25)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.70	24.17				
Dry+Tare	22.01	21.54				
Tare	15.79	15.45				
# Blows	20	20				
Moisture	43.2	43.2				



Liquid Limit= 42
 Plastic Limit= 15
 Plasticity Index= 27
 Natural Moisture= 16.3
 Liquidity Index= 0.0

Plastic Limit Data

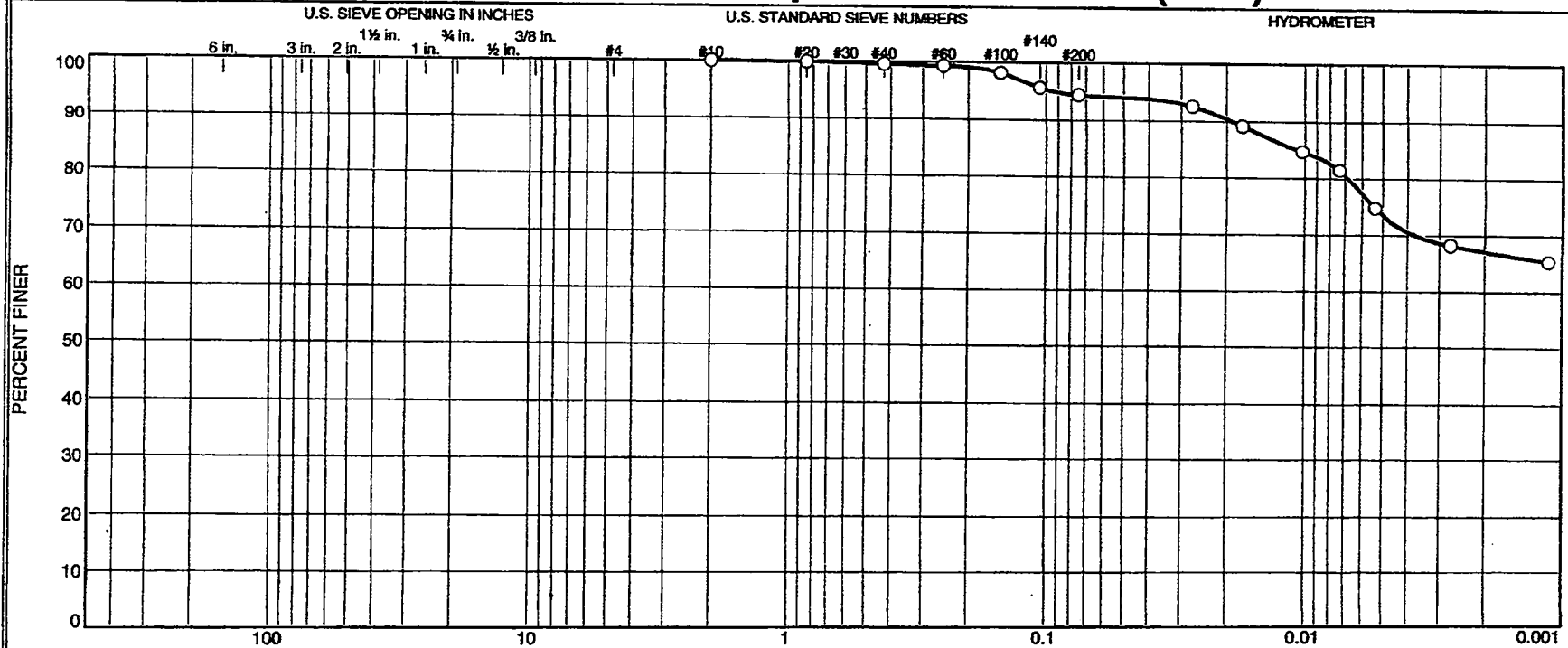
Run No.	1	2	3	4
Wet+Tare	24.14	23.99		
Dry+Tare	23.05	22.90		
Tare	15.46	15.50		
Moisture	14.4	14.7		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
105.28	91.44	6.70	16.3

MACTEC, Inc.

Particle Size Distribution Report / ASTM D422-63(2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	5.2	21.0	73.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2321	SS-9	28.5-30.0	12-15-07	CH	Pale Yellow Fat CLAY	21.8	70	20

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

Tested By: CS

Checked By: LBJ

DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 28.5-30.0

Sample Number: SS-9

Material Description: Pale Yellow Fat CLAY

Date: 12-15-07

Natural Moisture: 21.8

Liquid Limit: 70

Plastic Limit: 20

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
212.75	0.00	0.00	#10	0.00	100.0
47.02	0.00	0.00	#20	0.07	99.9
			#40	0.19	99.6
			#60	0.31	99.3
			#100	0.86	98.2
			#140	2.07	95.6
			#200	2.65	94.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 47.02

Hygroscopic moisture correction:

Moist weight and tare = 27.97

Dry weight and tare = 27.40

Tare weight = 15.45

Hygroscopic moisture = 4.8%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	21.4	47.0	42.0	0.0132	48.0	8.4	0.0271	92.5
5.00	21.4	45.5	40.5	0.0132	46.5	8.7	0.0174	89.2
15.00	21.4	43.5	38.5	0.0132	44.5	9.0	0.0102	84.8
30.00	21.4	42.0	37.0	0.0132	43.0	9.2	0.0073	81.5
60.00	21.1	39.0	33.9	0.0133	40.0	9.7	0.0053	74.7
240.00	21.5	36.0	31.0	0.0132	37.0	10.2	0.0027	68.4
1440.00	20.7	35.0	29.8	0.0133	36.0	10.4	0.0011	65.6

MACTEC, Inc.

Fractional Components

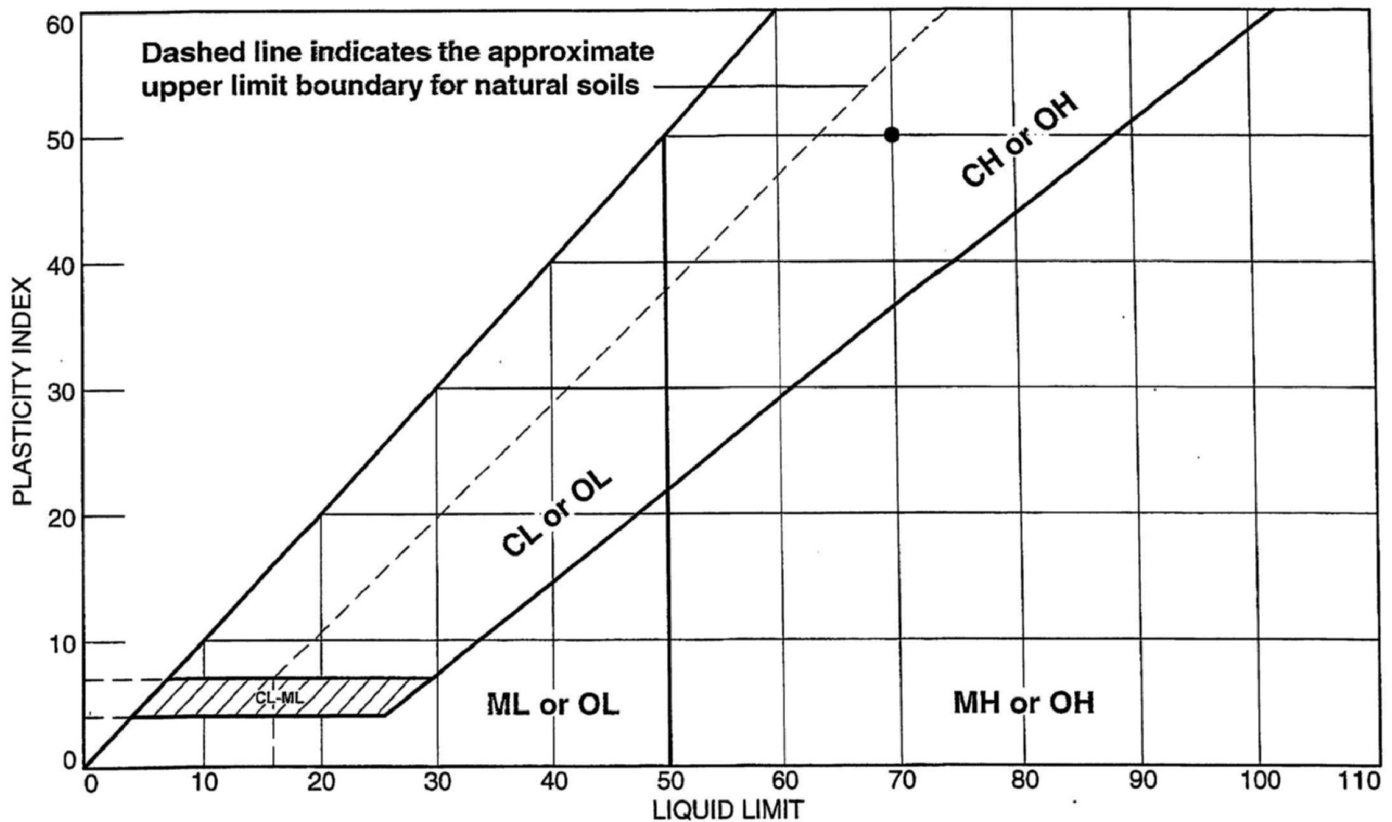
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	5.2	5.6	21.0	73.4	94.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0068	0.0105	0.0190	0.0945

Fineness Modulus
0.03

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2321	SS-9	28.5-30.0	21.8	20	70	50	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure N/A

Tested By: CS

Checked By: LBJ DSC 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 28.5-30.0

Sample Number: SS-9

Material Description: Pale Yellow Fat CLAY

USCS: CH

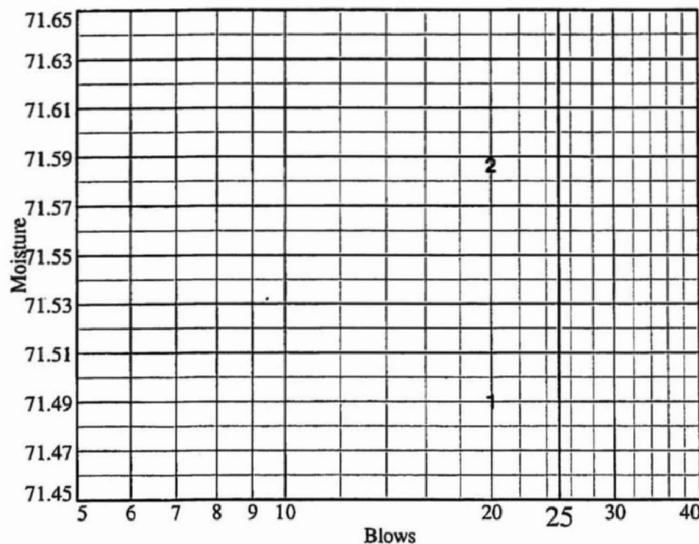
AASHTO: A-7-6(52)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.48	24.90				
Dry+Tare	20.17	21.02				
Tare	15.54	15.60				
# Blows	20	20				
Moisture	71.5	71.6				



Liquid Limit= 70
 Plastic Limit= 20
 Plasticity Index= 50
 Natural Moisture= 21.8
 Liquidity Index= 0.0

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	22.49	23.64		
Dry+Tare	21.36	22.29		
Tare	15.65	15.56		
Moisture	19.8	20.1		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
108.49	90.33	7.01	21.8

MACTEC, Inc.

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER

PERCENT FINER

GRAIN SIZE - mm.

Grain Size (mm)	Percent Finer (%)	Method
10	100	Sieve
4.75	100	Sieve
2.0	100	Sieve
0.85	100	Sieve
0.425	100	Sieve
0.25	99	Sieve
0.15	98	Sieve
0.106	93	Sieve
0.075	90	Sieve
0.0475	82	Hydrometer
0.025	75	Hydrometer
0.015	72	Hydrometer
0.0075	68	Hydrometer
0.00425	64	Hydrometer
0.0025	56	Hydrometer
0.0015	51	Hydrometer

GRAIN SIZE - mm.							
% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.2	8.6	27.7	62.5

[illegible]

Client Bechtel		MACTEC, Inc. Raleigh, North Carolina	☐ Specific Gravity is assumed
Project Exelon Texas COL (Victoria Reservoir)			
Project No. 6468071777	Figure <i>N/A</i>		

GRAIN SIZE DISTRIBUTION TEST DATA

2/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 33.5-35.0

Sample Number: SS-10

Material Description: Light Gray Fat CLAY

Date: 12-15-07

Natural Moisture: 18.1

Liquid Limit: 63

Plastic Limit: 23

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
206.01	0.00	0.00	#10	0.00	100.0
50.17	0.00	0.00	#20	0.33	99.3
			#40	0.61	98.8
			#60	0.88	98.2
			#100	1.86	96.3
			#140	3.49	93.0
			#200	4.92	90.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 50.17

Hygroscopic moisture correction:

Moist weight and tare = 28.73

Dry weight and tare = 28.31

Tare weight = 15.56

Hygroscopic moisture = 3.3%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	21.9	45.0	40.2	0.0131	46.0	8.8	0.0275	81.8
5.00	21.9	42.0	37.2	0.0131	43.0	9.2	0.0179	75.7
15.00	21.9	40.0	35.2	0.0131	41.0	9.6	0.0105	71.6
30.00	21.7	38.0	33.1	0.0132	39.0	9.9	0.0076	67.4
60.00	21.9	36.0	31.2	0.0131	37.0	10.2	0.0054	63.5
240.00	21.9	32.0	27.2	0.0131	33.0	10.9	0.0028	55.3
1440.00	20.9	30.0	24.8	0.0133	31.0	11.2	0.0012	50.5

MACTEC, Inc.

Regional Components

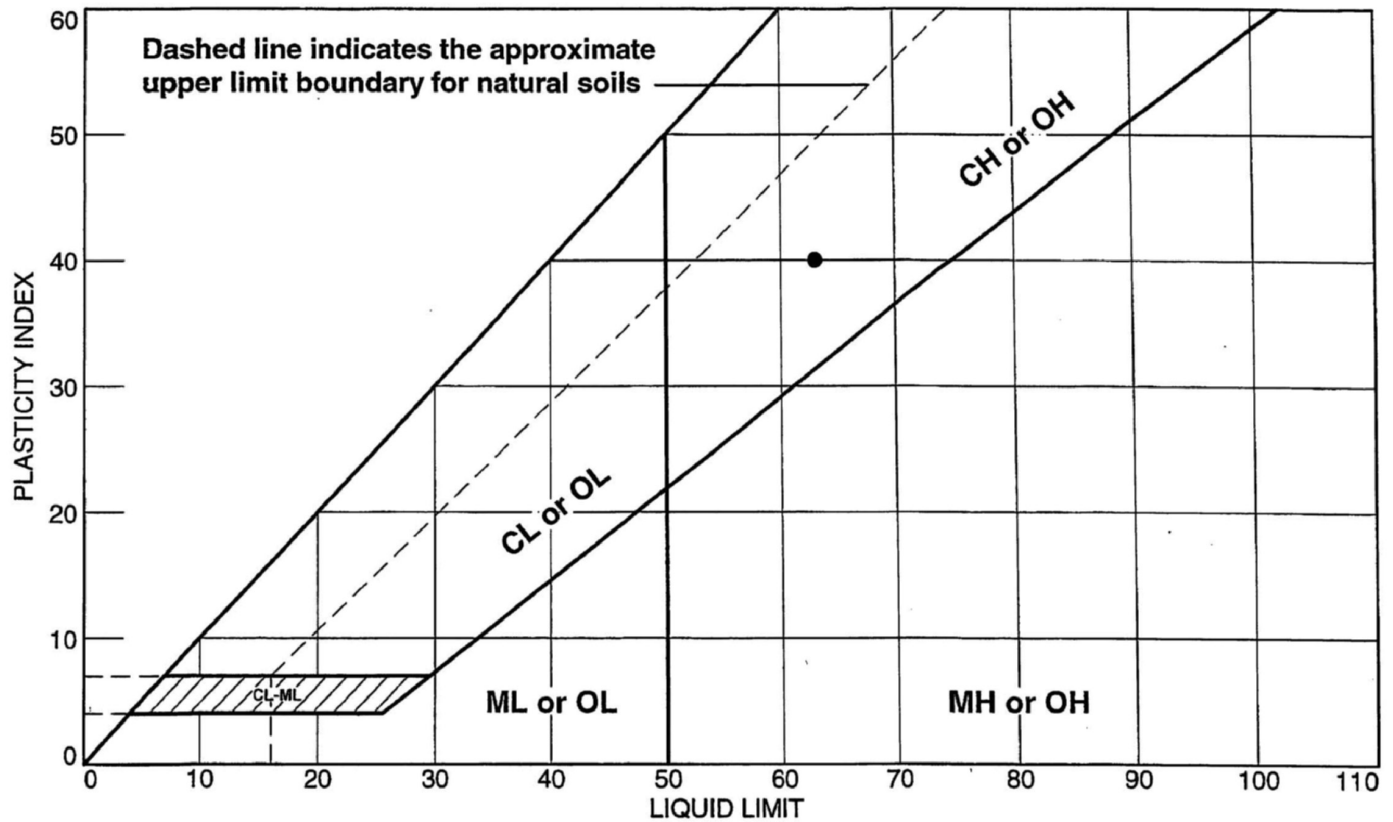
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.2	8.6	9.8	27.7	62.5	90.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
					0.0041	0.0243	0.0363	0.0730	0.1293

Fineness Modulus
0.07

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2321	SS-10	33.5-35.0	18.1	23	63	40	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

DSC 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 33.5-35.0

Sample Number: SS-10

Material Description: Light Gray Fat CLAY

USCS: CH

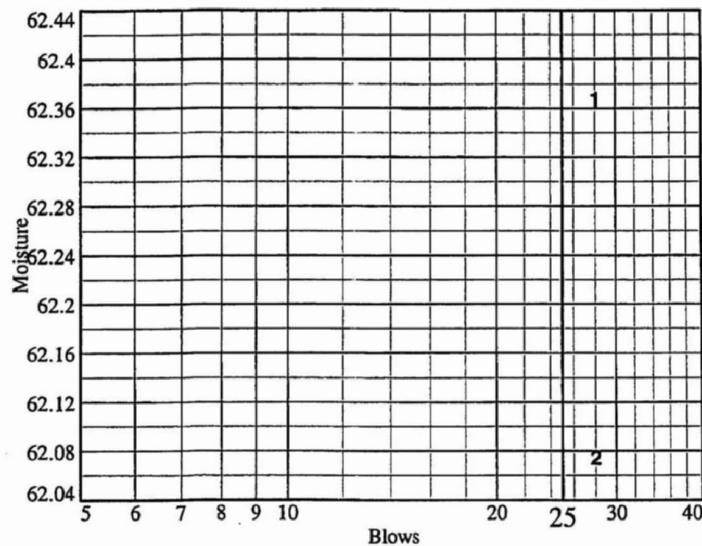
AASHTO: A-7-6(40)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.64	24.57				
Dry+Tare	21.11	21.10				
Tare	15.45	15.51				
# Blows	28	28				
Moisture	62.4	62.1				



Liquid Limit= 63
 Plastic Limit= 23
 Plasticity Index= 40
 Natural Moisture= 18.1
 Liquidity Index= -0.1

Plastic Limit Data

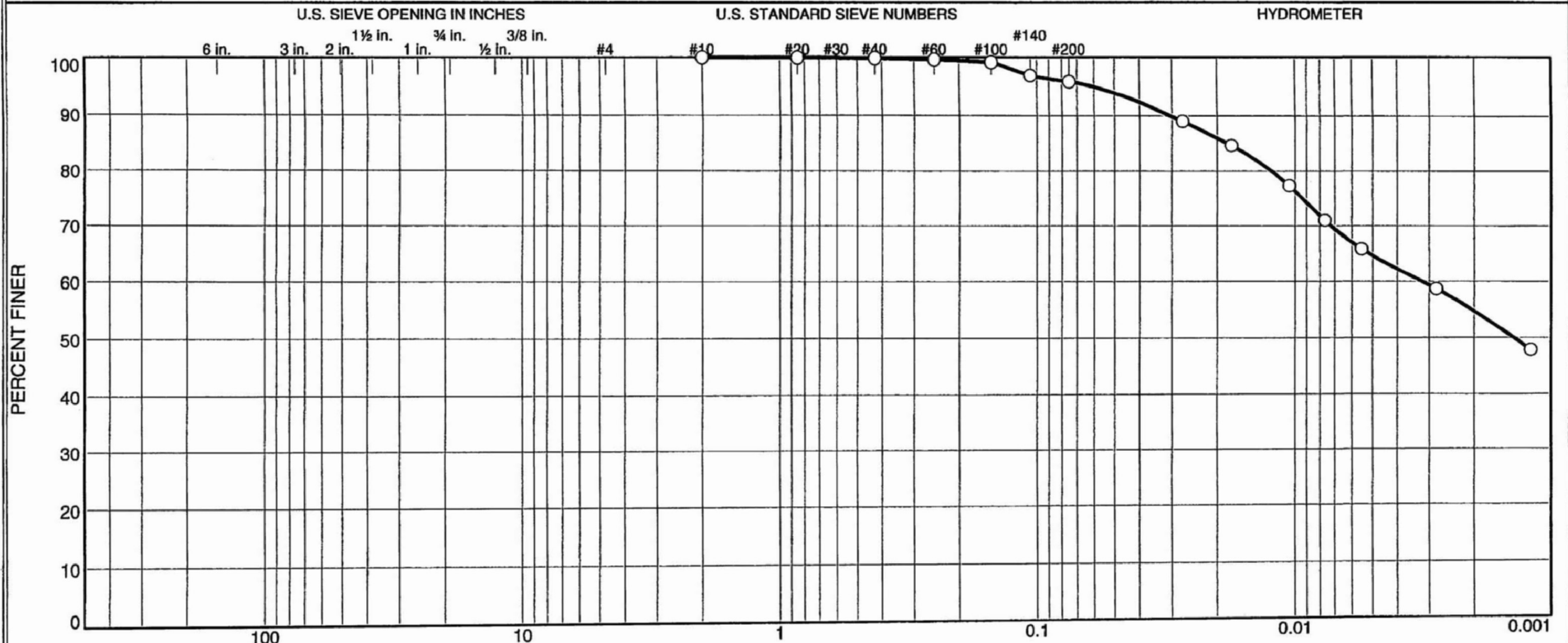
Run No.	1	2	3	4
Wet+Tare	23.07	22.60		
Dry+Tare	21.65	21.27		
Tare	15.50	15.59		
Moisture	23.1	23.4		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
116.63	100.24	9.58	18.1

MACTEC, Inc.

Particle Size Distribution Report / ASTM D422-63(2002)e1



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	4.0	31.1	64.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2321	SS-11	38.5-40.0	12-15-08	CH	Light Gray Fat CLAY	20.1	59	26

Client Bechtel		MACTEC, Inc.	Specific Gravity = 2.668 (ASTM D854-06)
Project Exelon Texas COL (Victoria Reservoir)			
Project No. 6468071777	Figure NA	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 38.5-40.0

Sample Number: SS-11

Material Description: Light Gray Fat CLAY

Date: 12-15-08

Natural Moisture: 20.1

Liquid Limit: 59

Plastic Limit: 26

USCS Class.: CH

Testing Remarks: Specific Gravity = 2.668 (ASTM D854-06)

Tested by: CS

Checked by: LBJ

Siege Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
188.04	0.00	0.00	#10	0.00	100.0
49.31	0.00	0.00	#20	0.02	100.0
			#40	0.08	99.8
			#60	0.19	99.6
			#100	0.41	99.2
			#140	1.52	96.9
			#200	2.05	95.8

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 49.31

Hygroscopic moisture correction:

Moist weight and tare = 28.95

Dry weight and tare = 28.47

Tare weight = 15.54

Hygroscopic moisture = 3.7%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.668

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	21.4	47.5	42.5	0.0133	48.5	8.3	0.0272	89.0
5.00	21.2	45.5	40.4	0.0134	46.5	8.7	0.0176	84.7
15.00	21.2	42.0	36.9	0.0134	43.0	9.2	0.0105	77.4
30.00	21.1	39.0	33.9	0.0134	40.0	9.7	0.0076	71.0
60.00	21.2	36.5	31.4	0.0134	37.5	10.1	0.0055	65.8
240.00	21.5	33.0	28.0	0.0133	34.0	10.7	0.0028	58.7
1440.00	21.0	28.0	22.9	0.0134	29.0	11.5	0.0012	47.9

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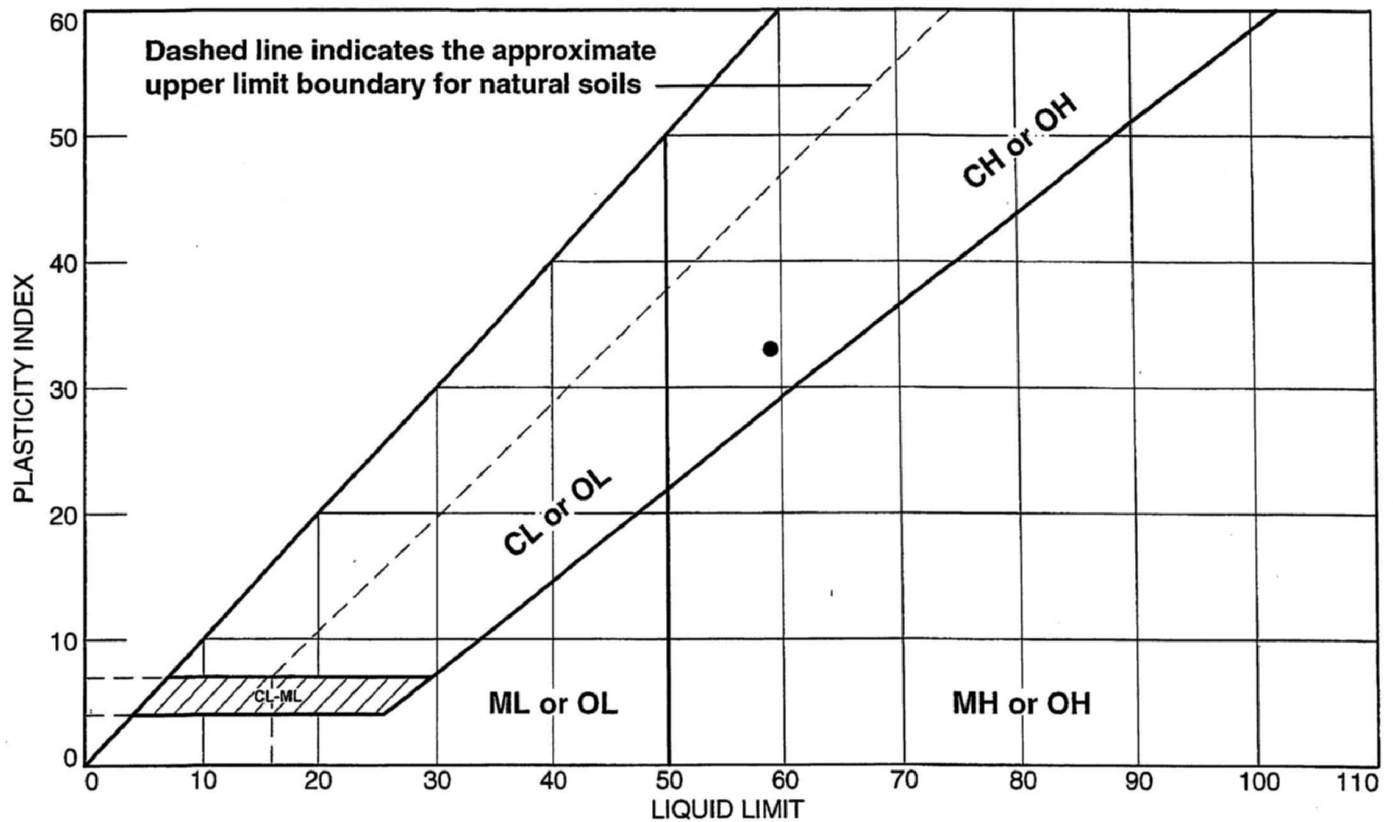
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	4.0	4.2	31.1	64.7	95.8

D10	D15	D20	D30	D50	D60	D80	D85	D90	D95
				0.0014	0.0032	0.0123	0.0181	0.0303	0.0606

Fineness Modulus
0.01

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2321	SS-11	38.5-40.0	20.1	26	59	33	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure *NA*

Tested By: CS

Checked By: LBJ

DSC 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 38.5-40.0

Sample Number: SS-11

Material Description: Light Gray Fat CLAY

USCS: CH

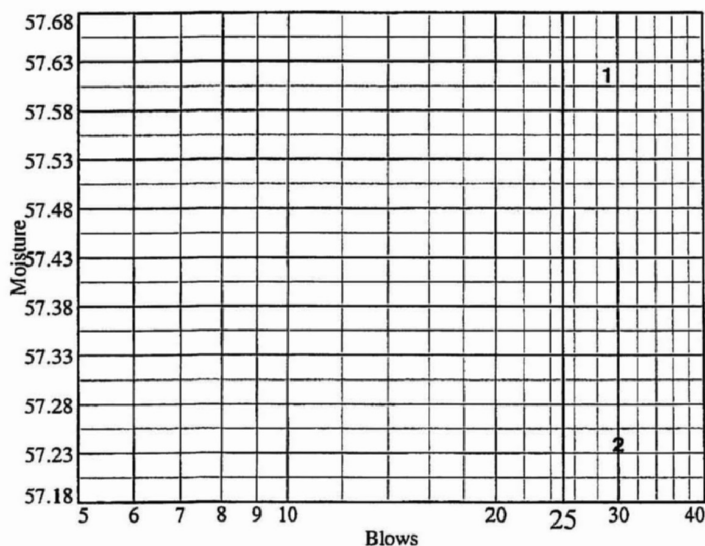
AASHTO: A-7-6(37)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	35.74	31.88				
Dry+Tare	28.44	25.95				
Tare	15.77	15.59				
# Blows	29	30				
Moisture	57.6	57.2				



Liquid Limit= 59
 Plastic Limit= 26
 Plasticity Index= 33
 Natural Moisture= 20.1
 Liquidity Index= -0.2

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	23.61	23.03		
Dry+Tare	21.95	21.48		
Tare	15.40	15.48		
Moisture	25.3	25.8		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
143.09	120.25	6.80	20.1

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: 2/5/2008

SAMPLE IDENTIFICATION: B-2321, SS-11

(A) Mass of oven-dried soil, grams:	50.62
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.77
(C) Mass of pycnometer, water and soil, grams:	688.42
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.6
(G) Specific Gravity at observed temperature: $A / [B - (C - A)]$	2.668
(F) <i>Correction factor:</i>	0.99966
(G x F) SPECIFIC GRAVITY @ 20°C:	2.668

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNO METER : P-6

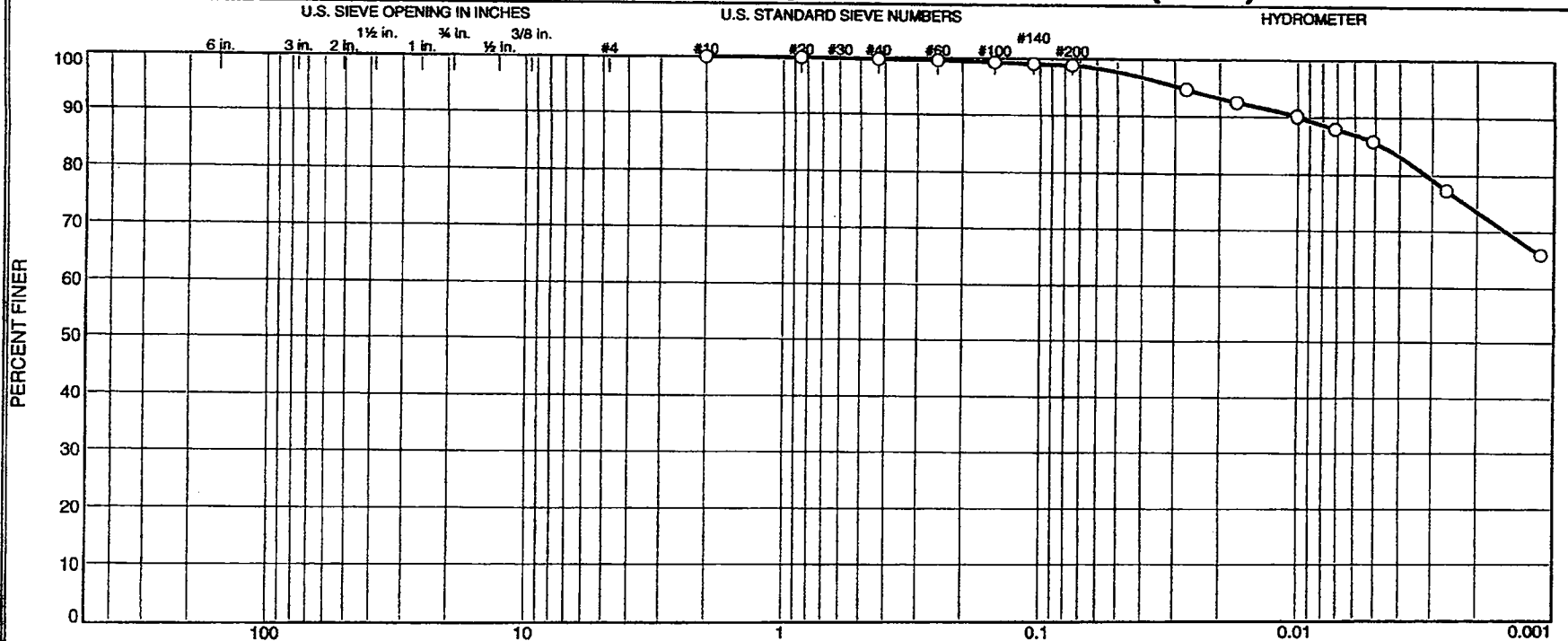
TESTED BY: CS

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

REVIEWED BY: Brian Johnson

DSC 2-27-08

Particle Size Distribution Report / ASTM D422-63(2002)e1



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	0.9	13.2	85.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2321	SS-12	43.5-45.0	12-15-07	CH	Light Yellowish Brown Fat CLAY	26.4	90	36

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure *NA*

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS

Checked By: LBJ DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 43.5-45.0

Sample Number: SS-12

Material Description: Light Yellowish Brown Fat CLAY

Date: 12-15-07

Natural Moisture: 26.4

Liquid Limit: 90

Plastic Limit: 36

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
173.23	0.00	0.00	#10	0.00	100.0
47.13	0.00	0.00	#20	0.02	100.0
			#40	0.11	99.8
			#60	0.18	99.6
			#100	0.32	99.3
			#140	0.44	99.1
			#200	0.54	98.9

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 47.13

Hygroscopic moisture correction:

Moist weight and tare = 28.54

Dry weight and tare = 27.89

Tare weight = 15.47

Hygroscopic moisture = 5.2%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	21.0	48.0	42.9	0.0133	49.0	8.3	0.0270	94.6
5.00	21.0	47.0	41.9	0.0133	48.0	8.4	0.0172	92.4
15.00	20.9	46.0	40.8	0.0133	47.0	8.6	0.0101	90.1
30.00	21.1	45.0	39.9	0.0133	46.0	8.8	0.0072	88.1
60.00	21.1	44.0	38.9	0.0133	45.0	8.9	0.0051	85.9
240.00	21.5	40.0	35.0	0.0132	41.0	9.6	0.0026	77.4
1440.00	21.1	35.0	29.9	0.0133	36.0	10.4	0.0011	66.0

MACTEC, Inc.

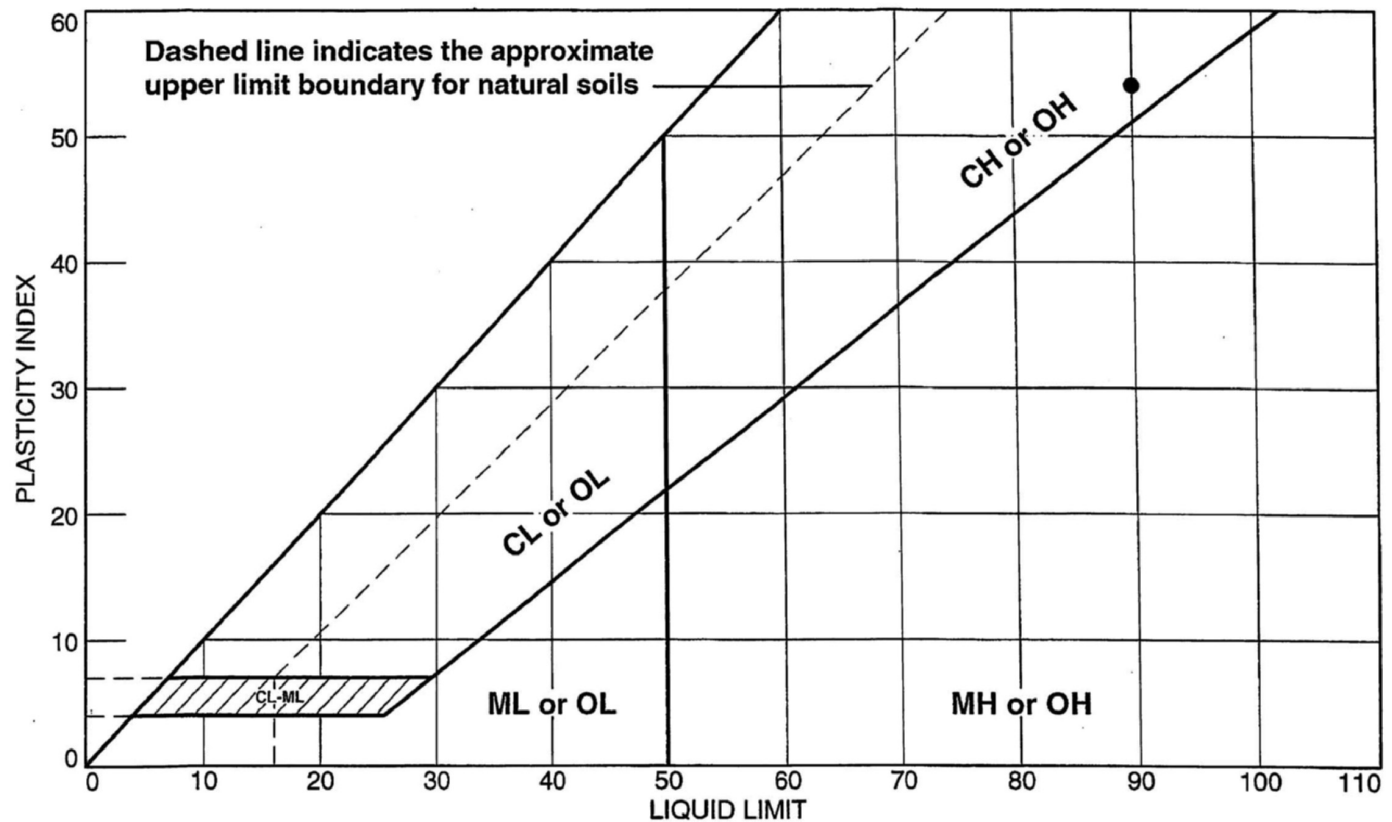
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	0.9	1.1	13.2	85.7	98.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0032	0.0047	0.0098	0.0289

Fineness Modulus
0.01

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2321	SS-12	43.5-45.0	26.4	36	90	54	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure *NA*

Tested By: CS

Checked By: LBJ DSC 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 43.5-45.0

Sample Number: SS-12

Material Description: Light Yellowish Brown Fat CLAY

USCS: CH

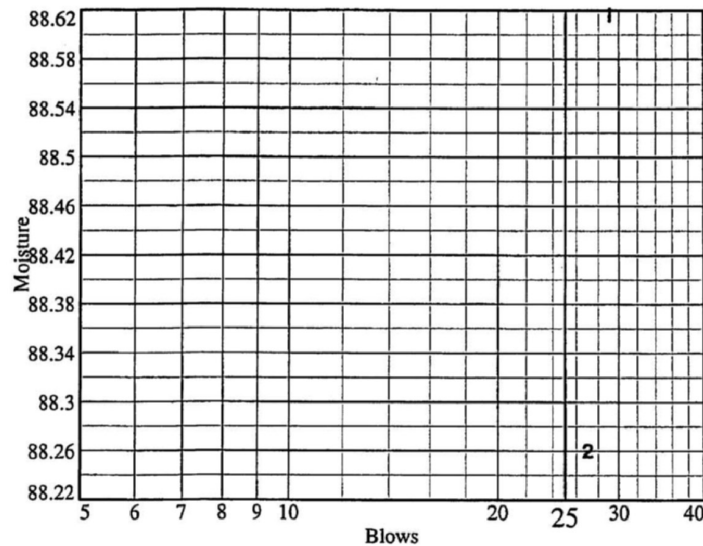
AASHTO: A-7-5(66)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.90	28.52				
Dry+Tare	23.66	22.43				
Tare	15.49	15.53				
# Blows	29	27				
Moisture	88.6	88.3				



Liquid Limit= 90
 Plastic Limit= 36
 Plasticity Index= 54
 Natural Moisture= 26.4
 Liquidity Index= -0.2

Plastic Limit Data

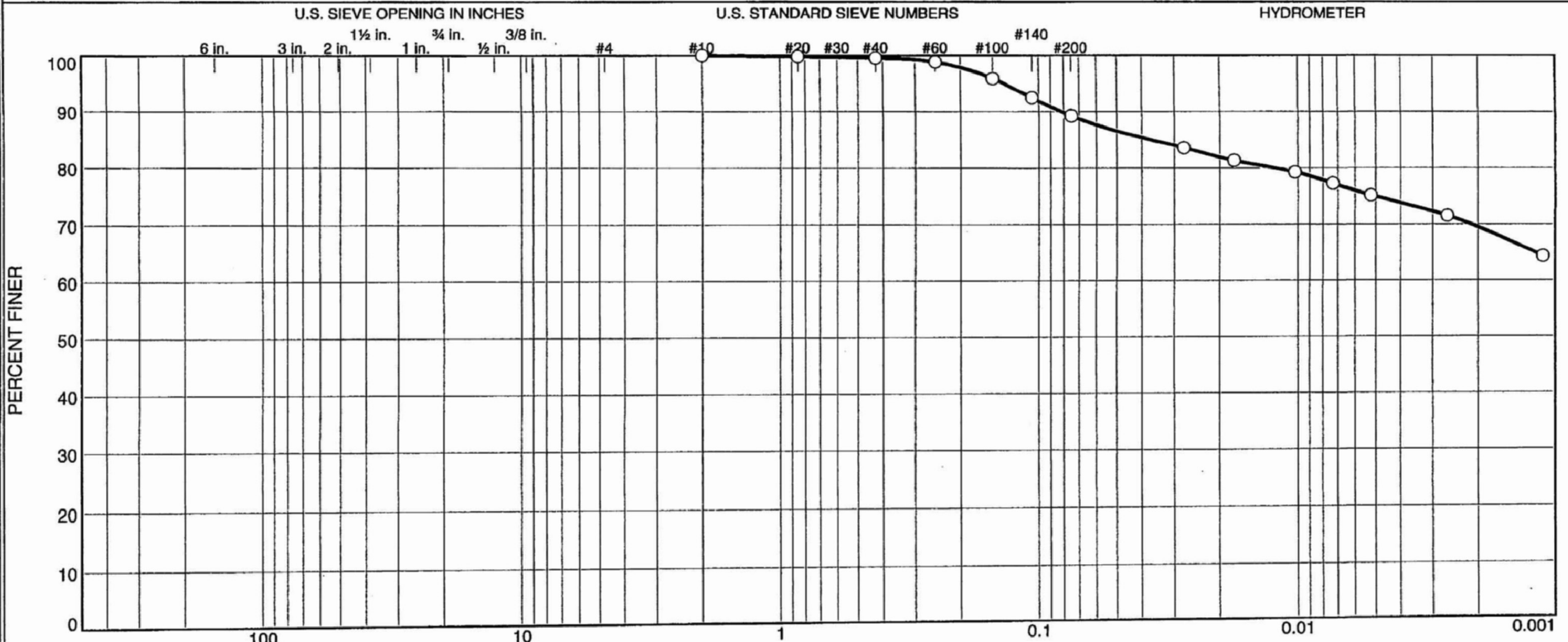
Run No.	1	2	3	4
Wet+Tare	22.19	23.08		
Dry+Tare	20.46	21.13		
Tare	15.68	15.74		
Moisture	36.2	36.2		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
91.95	74.66	9.29	26.4

MACTEC, Inc.

Particle Size Distribution Report / ASTM D422-63(2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	10.3	14.4	74.9

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2321	SS-13	48.5-50.0	12-15-07	CH	Light Yellowish Brown Fat CLAY	24.4	82	28

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

Tested By: GS

Checked By: LBJ

DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 48.5-50.0

Sample Number: SS-13

Material Description: Light Yellowish Brown Fat CLAY

Date: 12-15-07

Natural Moisture: 24.4

Liquid Limit: 82

Plastic Limit: 28

USCS Class.: CH

Testing Remarks: Specific Gravity is assumed

Tested by: CS

Checked by: LBJ

Siege Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
203.42	0.00	0.00	#10	0.00	100.0
49.43	0.00	0.00	#20	0.10	99.8
			#40	0.22	99.6
			#60	0.58	98.8
			#100	2.06	95.8
			#140	3.73	92.5
			#200	5.30	89.3

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 49.43

Hygroscopic moisture correction:

Moist weight and tare = 29.82

Dry weight and tare = 29.27

Tare weight = 15.64

Hygroscopic moisture = 4.0%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	21.8	45.0	40.1	0.0131	46.0	8.8	0.0275	83.6
5.00	21.6	44.0	39.1	0.0132	45.0	8.9	0.0176	81.3
15.00	21.6	43.0	38.1	0.0132	44.0	9.1	0.0103	79.2
30.00	21.7	42.0	37.1	0.0132	43.0	9.2	0.0073	77.2
60.00	21.7	41.0	36.1	0.0132	42.0	9.4	0.0052	75.2
240.00	22.4	39.0	34.4	0.0131	40.0	9.7	0.0026	71.5
1440.00	21.1	36.0	30.9	0.0133	37.0	10.2	0.0011	64.3

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Fractional Components

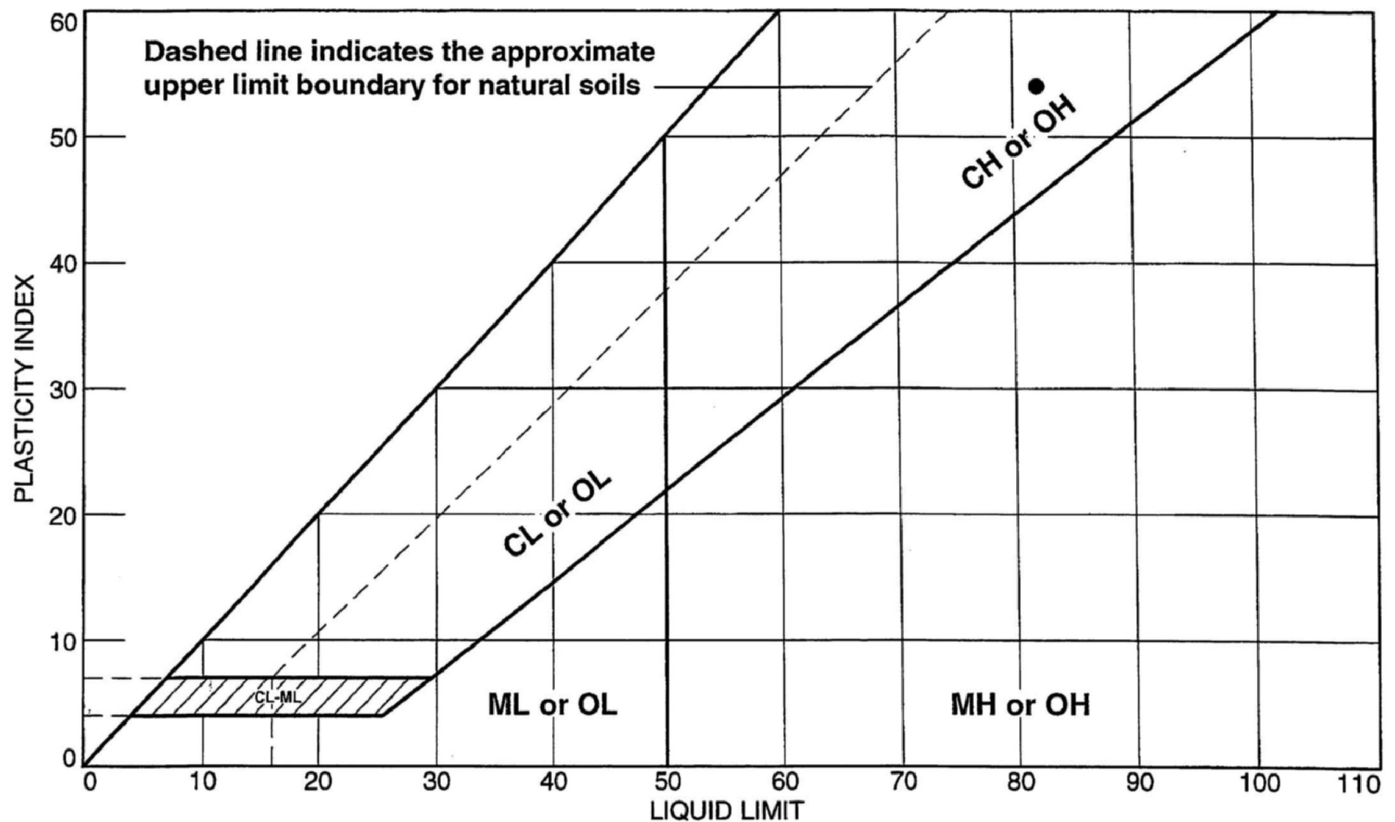
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	10.3	10.7	14.4	74.9	89.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0123	0.0369	0.0817	0.1369

Fineness Modulus
0.05

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2321	SS-13	48.5-50.0	24.4	28	82	54	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure **NA**

Tested By: CS

Checked By: LBJ

DSC 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2321

Depth: 48.5-50.0

Sample Number: SS-13

Material Description: Light Yellowish Brown Fat CLAY

USCS: CH

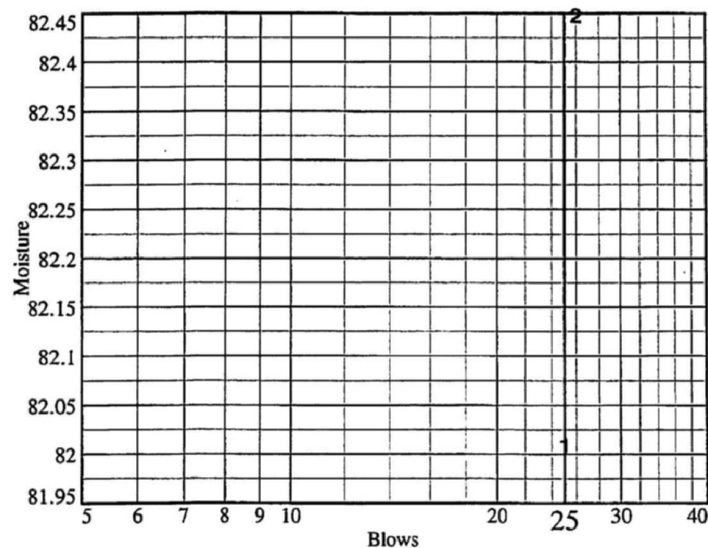
AASHTO: A-7-6(55)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.31	23.39				
Dry+Tare	19.80	19.82				
Tare	15.52	15.49				
# Blows	25	26				
Moisture	82.0	82.4				



Liquid Limit=	82
Plastic Limit=	28
Plasticity Index=	54
Natural Moisture=	24.4
Liquidity Index=	-0.1

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	21.55	21.62		
Dry+Tare	20.25	20.29		
Tare	15.49	15.55		
Moisture	27.3	28.1		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
95.50	78.15	6.99	24.4

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