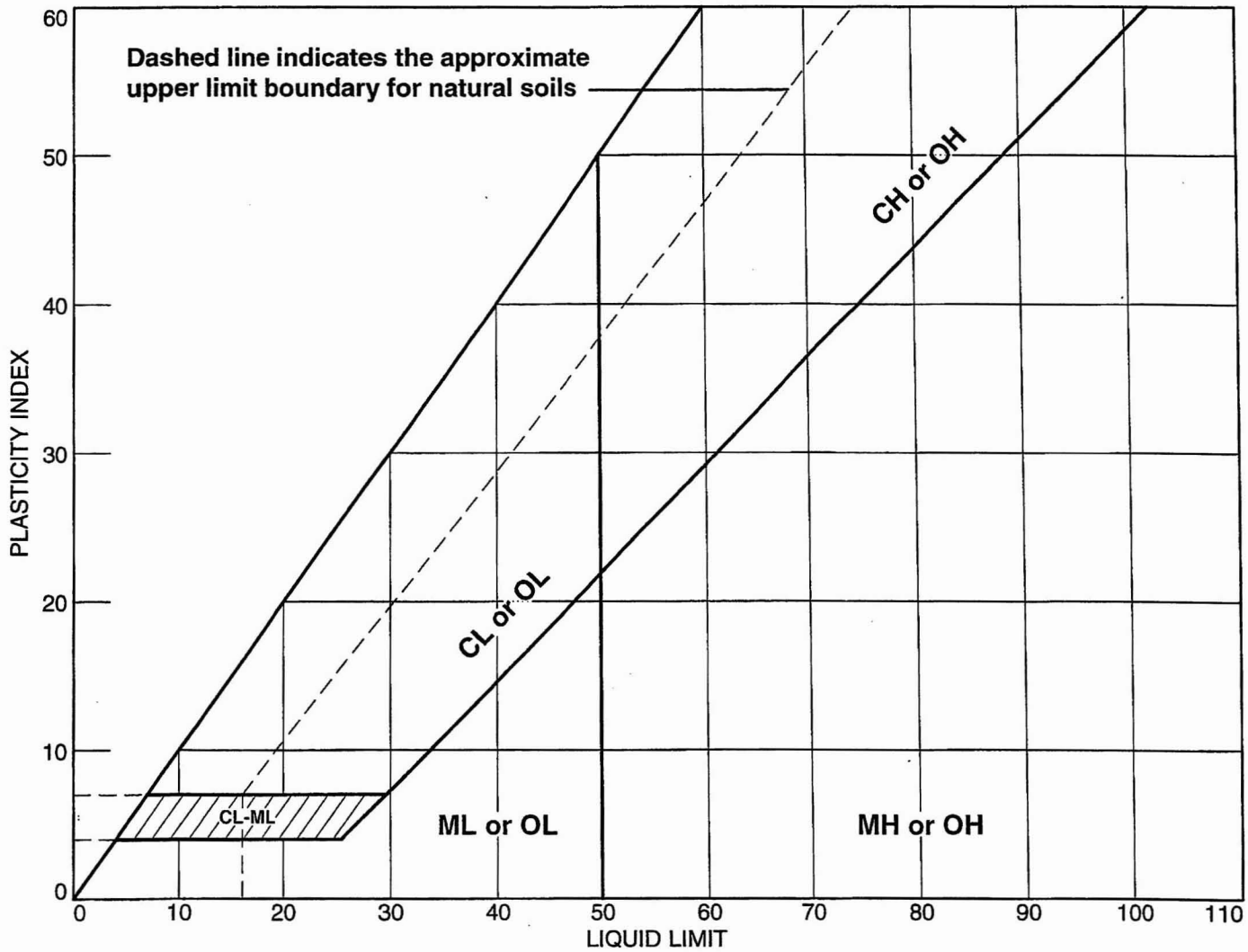
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	1.8	9.6	72.0	83.4	7.8	8.4	16.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0080	0.0308	0.1134	0.1540	0.2057	0.2348	0.3329	0.3808	0.4603	0.6992

Fineness Modulus	C_u	C_c
1.08	29.52	12.70

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-2160	SS-33	193.5-195	19.1	NP	NV	NP	SM

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468071777
Figure NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

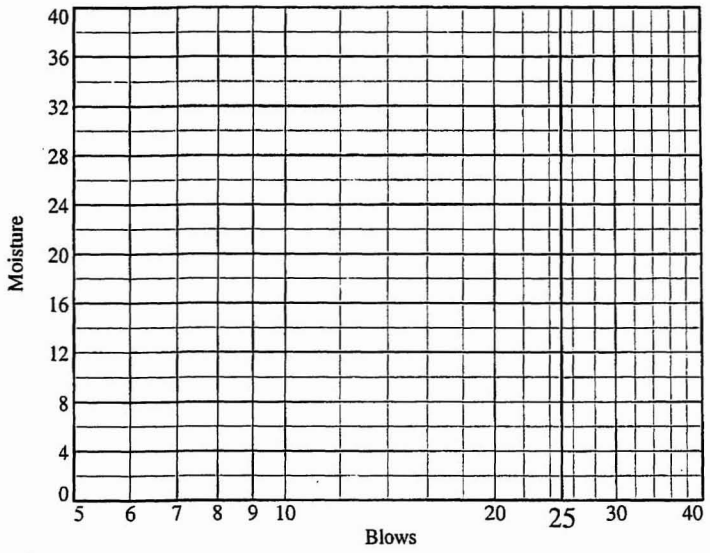
LIQUID AND PLASTIC LIMIT TEST DATA

1/25/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2160
Depth: 193.5-195 **Sample Number:** SS-33
Material Description: Pale Brown Silty SAND
USCS: SM **AASHTO:** A-2-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare						
Dry+Tare						
Tare						
# Blows						
Moisture						



Liquid Limit= NV
Plastic Limit= NP
Plasticity Index= NP
Natural Moisture= 19.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare					
Dry+Tare					
Tare					
Moisture					

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
86.80	74.36	9.30	19.1

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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: 1/13/08

SAMPLE IDENTIFICATION: B-2160 SS-33

(A) Mass of oven-dried soil, grams:		52.26
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.90
(C) Mass of pycnometer, water and soil, grams:		687.56
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.4
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.666
(F)	***Correction factor:***	0.99947
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.665

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%
Silty SAND (SM)

EQUIPMENT USED
SCALES : 3.1.19
OVEN : 5.1.16
THERMOMETER : 5.1.01
PYCNOMETER : P-5

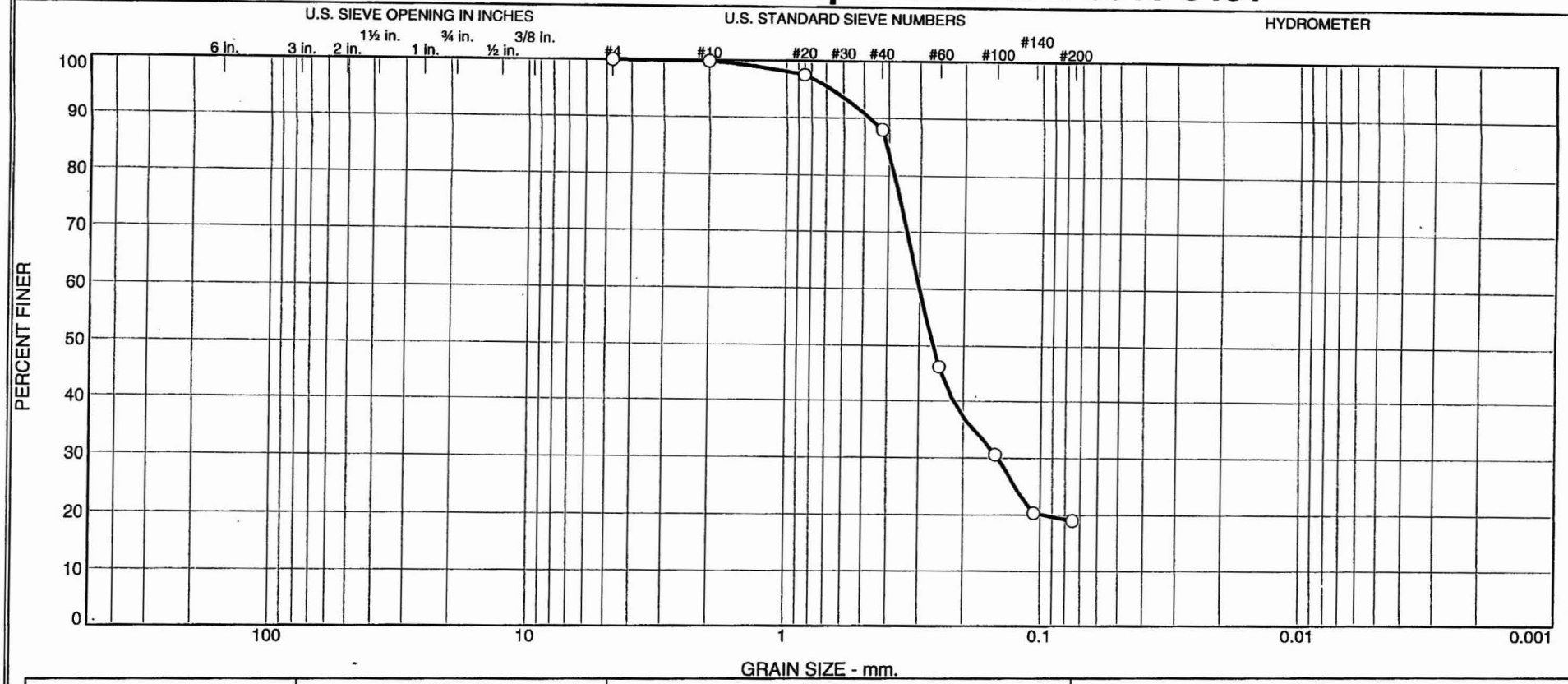
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

PSC 1-25-08

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	11.8	69.1	19.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2160	SS-34	198.5-200	11-12-08	SC	Pale Brown Clayey SAND (Visual)	21.2		

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

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Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY.
ND = Not determined
Specific gravity = 2.657 (ASTM D 2794-07)

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-2160
Depth: 198.5-200 **Sample Number:** SS-34
Material Description: Pale Brown Clayey SAND (Visual)
Date: 11-12-08 **Natural Moisture:** 21.2
USCS Class.: SC
Testing Remarks: SIEVE ANALYSIS ONLY.
ND = Not determined
Specific gravity = 2.657 (ASTM D 2794-07)
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
170.85	0.00	0.00	#4	0.00	100.0
			#10	0.25	99.9
97.59	0.00	0.00	#20	2.27	97.5
			#40	11.53	88.1
			#60	52.42	46.2
			#100	67.65	30.6
			#140	77.67	20.4
			#200	79.02	19.0

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	11.8	69.1	81.0			19.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0963	0.1466	0.2649	0.3004	0.3790	0.4054	0.4740	0.6676

Fineness Modulus
1.17

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: 1/14/08

SAMPLE IDENTIFICATION: B-2160 SS-34

(A) Mass of oven-dried soil, grams:		50.40
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.92
(C) Mass of pycnometer, water and soil, grams:		686.36
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.2
(G) Specific Gravity at observed temperature:	A / [B- (C - A)]	2.658
(F)	***Correction factor:***	0.99952
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.657

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%
Clayey SAND (SC) - visual

EQUIPMENT USED
SCALES : 3.1.19
OVEN : 5.1.16
THERMOMETER : 5.1.01
PYCNOMETER : P-5

TESTED BY: CS

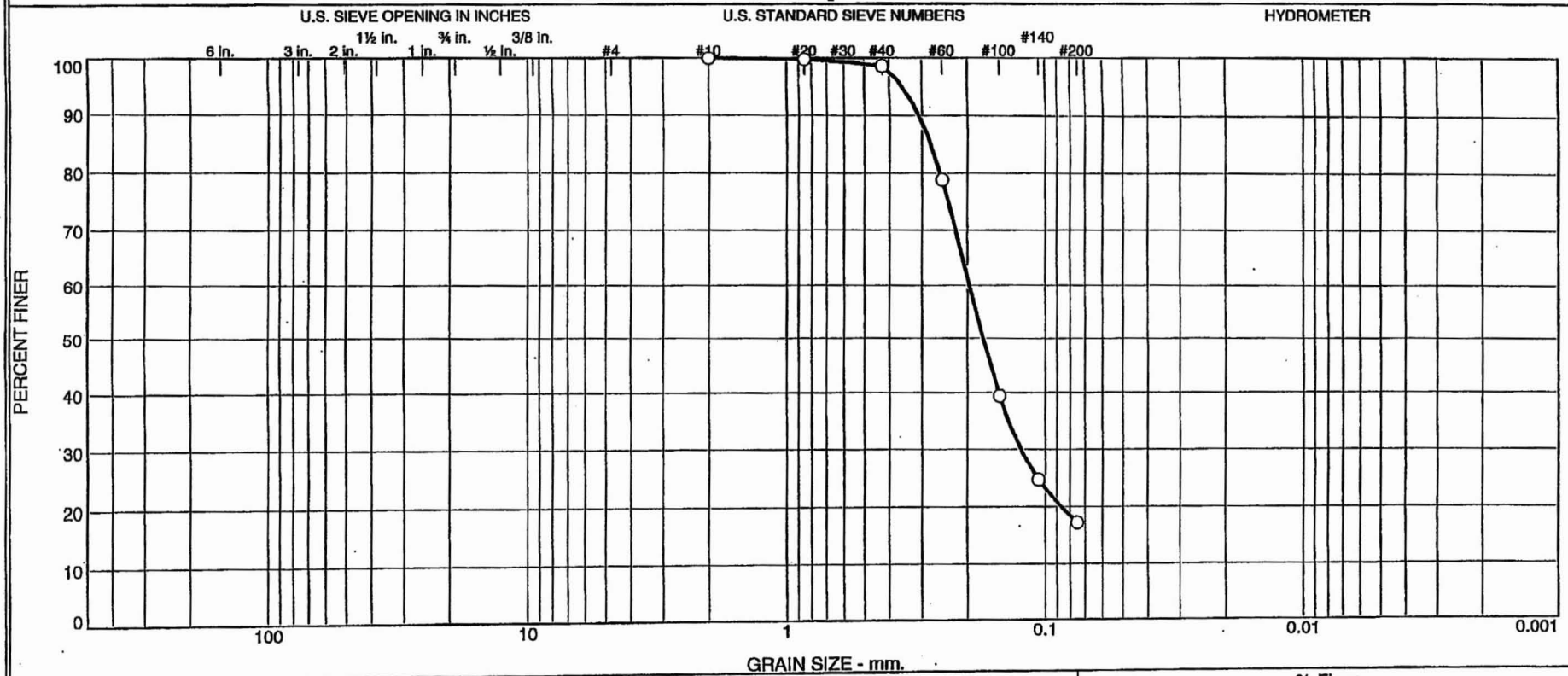
\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Boring B-2169

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	1.4	81.4	17.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2169	SS-33	198.5-200.5'	12-14-07	SC	Pale Yellow Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

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Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

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-2169
Depth: 198.5-200.5'
Sample Number: SS-33
Material Description: Pale Yellow Clayey SAND (Visual)
Date: 12-14-07
Natural Moisture: ND
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SC
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
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
271.15	0.00	0.00	#10	0.00	100.0
102.04	0.00	0.00	#20	0.23	99.8
			#40	1.43	98.6
			#60	21.59	78.8
			#100	61.84	39.4
			#140	76.82	24.7
			#200	84.45	17.2

Fractional Components

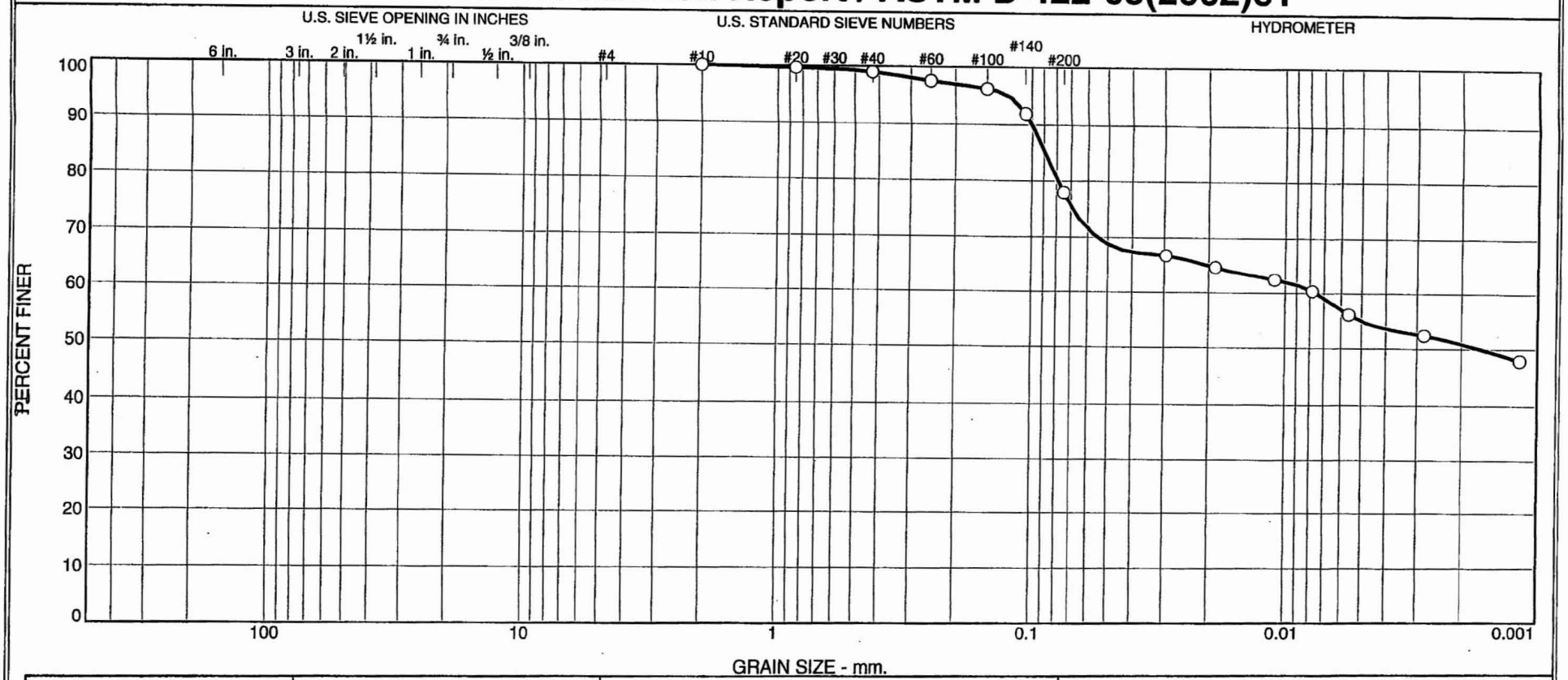
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.4	81.4	82.8			17.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0866	0.1245	0.1738	0.1963	0.2545	0.2770	0.3078	0.3565

Fineness Modulus
0.73

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	1.1	21.0	22.9	55.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-35	213.5-215'	12-15-07	CH	Pale Yellow Fat CLAY with Sand	24.3	54	26

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
Organic content = 1.6% (ASTM D-2974-07)

Tested By: CS Checked By: LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 213.5-215' **Sample Number:** SS-35
Material Description: Pale Yellow Fat CLAY with Sand
Date: 12-15-07 **Natural Moisture:** 24.3
Liquid Limit: 54 **Plastic Limit:** 26 **USCS Class.:** CH
Testing Remarks: Specific Gravity is assumed
Organic content = 1.6% (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
215.05	0.00	0.00	#10	0.00	100.0
48.71	0.00	0.00	#20	0.19	99.6
			#40	0.52	98.9
			#60	1.24	97.5
			#100	1.89	96.1
			#140	3.96	91.9
			#200	10.75	77.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.71
Hygroscopic moisture correction:
Moist weight and tare = 27.34
Dry weight and tare = 26.90
Tare weight = 15.48
Hygroscopic moisture = 3.9%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.5	36.0	31.7	0.0130	37.0	10.2	0.0295	66.8
5.00	22.5	35.0	30.7	0.0130	36.0	10.4	0.0188	64.7
15.00	22.3	34.0	29.6	0.0131	35.0	10.6	0.0110	62.5
30.00	22.4	33.0	28.6	0.0131	34.0	10.7	0.0078	60.4
60.00	22.4	31.0	26.6	0.0131	32.0	11.0	0.0056	56.2
240.00	23.1	29.0	24.8	0.0129	30.0	11.4	0.0028	52.4
1440.00	22.7	27.0	22.7	0.0130	28.0	11.7	0.0012	47.9

MACTEC, Inc.

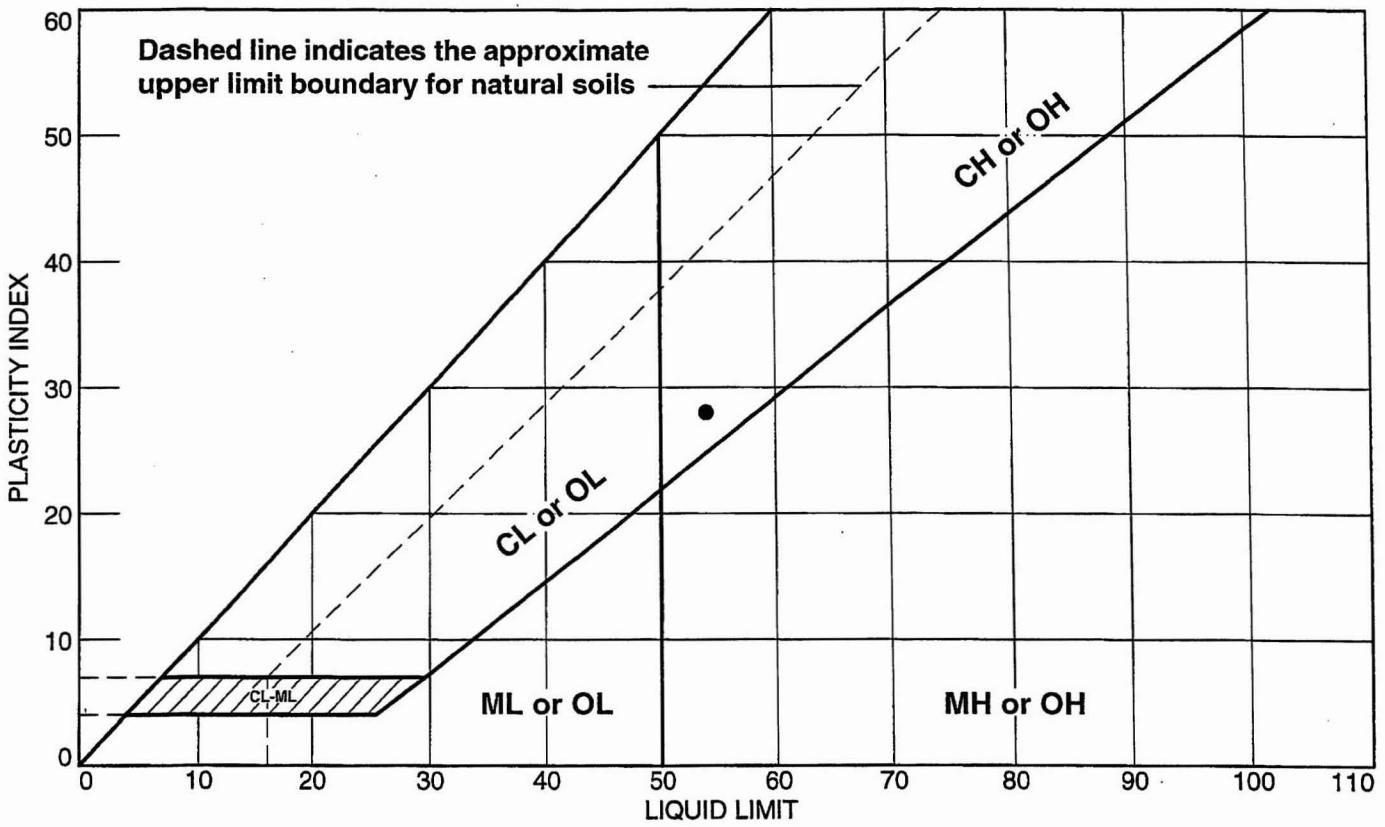
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.1	21.0	22.1	22.9	55.0	77.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0017	0.0075	0.0790	0.0886	0.1001	0.1247

Fineness Modulus
0.07

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-2169	SS-35	213.5-215'	24.3	26	54	28	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** N/A

Tested By: CS **Checked By:** LBJ DSC 1-25-08

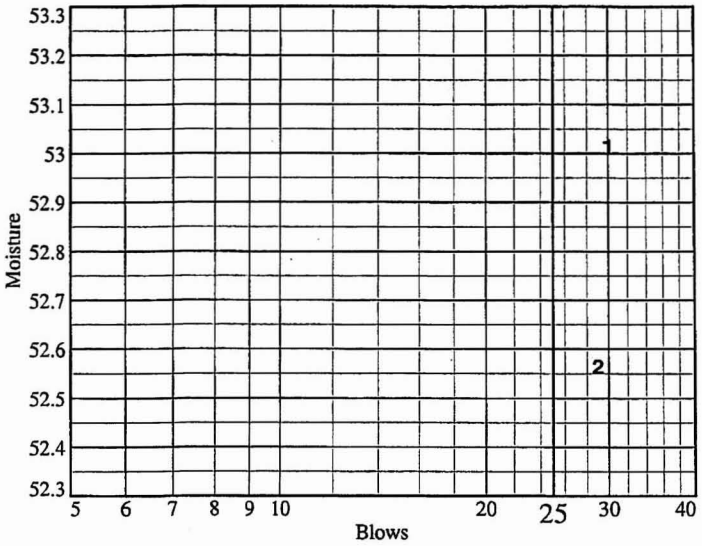
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 213.5-215'
Sample Number: SS-35
Material Description: Pale Yellow Fat CLAY with Sand
USCS: CH
AASHTO: A-7-6(23)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	36.64	36.89				
Dry+Tare	31.10	31.46				
Tare	20.65	21.13				
# Blows	30	29				
Moisture	53.0	52.6				



Liquid Limit= 54
Plastic Limit= 26
Plasticity Index= 28
Natural Moisture= 24.3
Liquidity Index= -0.1

Plastic Limit Data

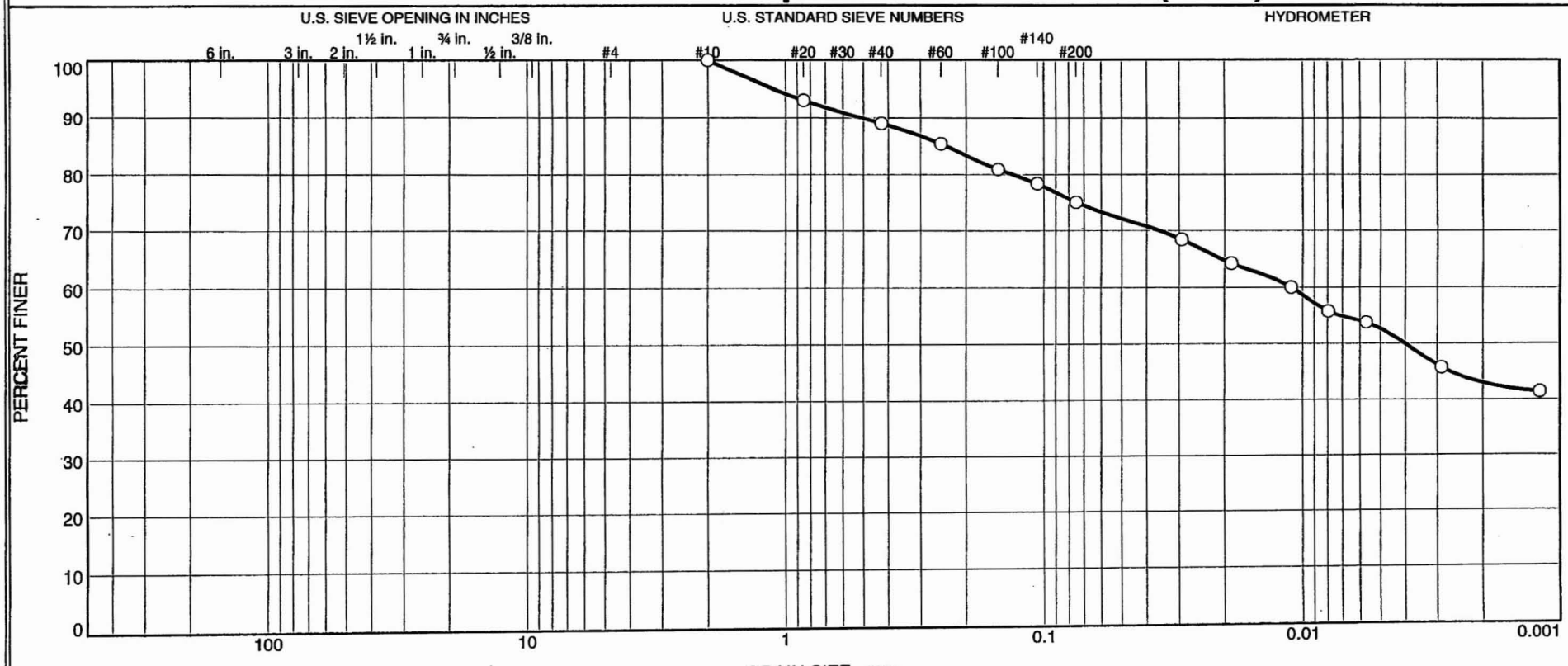
Run No.	1	2	3	4	
Wet+Tare	22.23	22.90			
Dry+Tare	19.98	20.49			
Tare	11.14	11.20			
Moisture	25.5	25.9			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
96.70	79.09	6.60	24.3

MACTEC, Inc.

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



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	11.0	13.9	22.4	52.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2169	SS-36	218.5-220'	12-15-07	CH	Pale Yellow Fat CLAY with Sand	26.7	52	16

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure N/A

MACTEC, Inc.

Raleigh, North Carolina

O Specific Gravity = 2.694 (ASTM D-854-06)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 218.5-220' **Sample Number:** SS-36
Material Description: Pale Yellow Fat CLAY with Sand
Date: 12-15-07 **Natural Moisture:** 26.7
Liquid Limit: 52 **Plastic Limit:** 16 **USCS Class.:** CH
Testing Remarks: Specific Gravity = 2.694 (ASTM D-854-06)
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
216.18	0.00	0.00	#10	0.00	100.0
48.95	0.00	0.00	#20	3.40	93.1
			#40	5.37	89.0
			#60	7.11	85.5
			#100	9.33	80.9
			#140	10.55	78.4
			#200	12.19	75.1

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 = 28.31
Dry weight and tare = 27.86
Tare weight = 15.54
Hygroscopic moisture = 3.7%
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 = 2.694
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	37.0	32.6	0.0131	38.0	10.1	0.0293	68.5
5.00	22.4	35.0	30.6	0.0131	36.0	10.4	0.0189	64.3
15.00	22.4	33.0	28.6	0.0131	34.0	10.7	0.0111	60.1
30.00	22.3	31.0	26.6	0.0131	32.0	11.0	0.0079	55.8
60.00	22.4	30.0	25.6	0.0131	31.0	11.2	0.0057	53.8
240.00	23.0	26.0	21.8	0.0130	27.0	11.9	0.0029	45.7
1440.00	22.7	24.0	19.7	0.0130	25.0	12.2	0.0012	41.4

MACTEC, Inc.

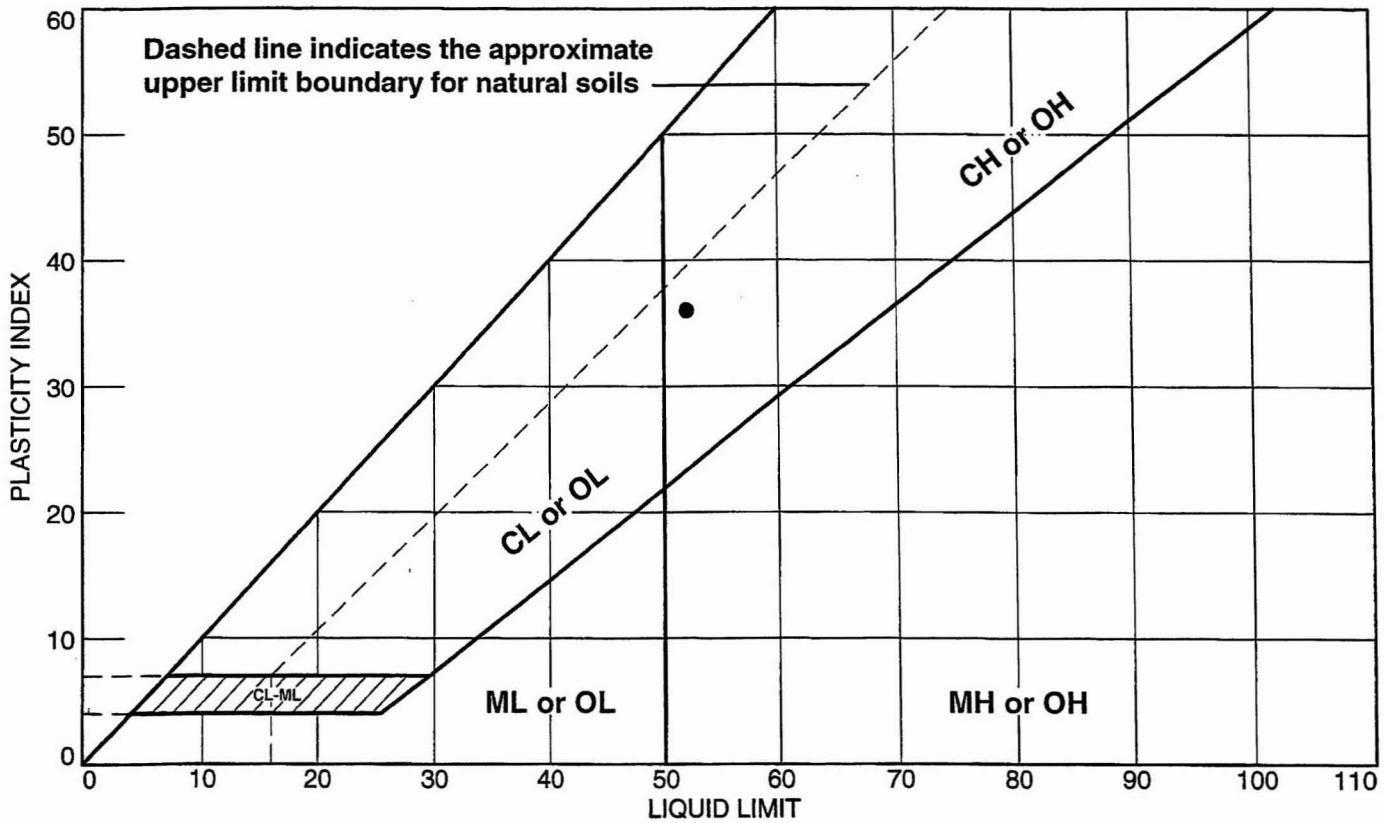
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	11.0	13.9	24.9	22.4	52.7	75.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0040	0.0110	0.1312	0.2366	0.5065	1.1091

Fineness Modulus
0.46

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-2169	SS-36	218.5-220'	26.7	16	52	36	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

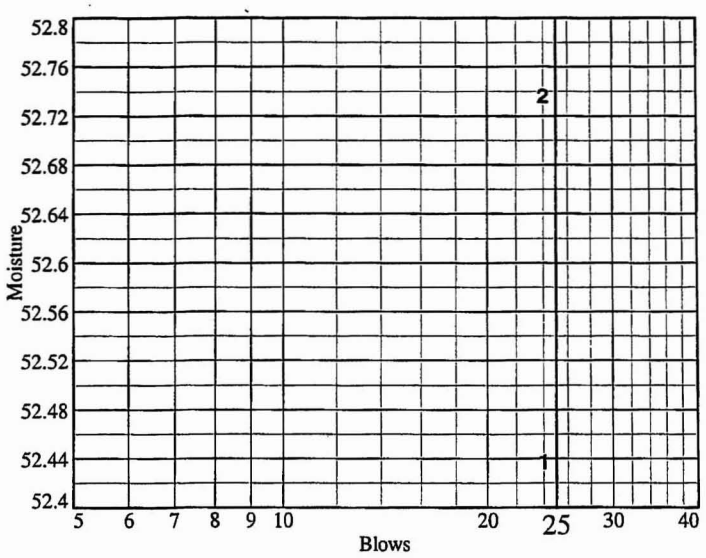
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 218.5-220'
Sample Number: SS-36
Material Description: Pale Yellow Fat CLAY with Sand
USCS: CH
AASHTO: A-7-6(26)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.95	30.01				
Dry+Tare	25.68	25.00				
Tare	15.63	15.50				
# Blows	24	24				
Moisture	52.4	52.7				



Liquid Limit= 52
Plastic Limit= 16
Plasticity Index= 36
Natural Moisture= 26.7
Liquidity Index= 0.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.90	24.90			
Dry+Tare	17.84	23.59			
Tare	11.20	15.50			
Moisture	16.0	16.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
118.60	95.58	9.50	26.7

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: 1/13/08

SAMPLE IDENTIFICATION: B-2169 SS-36

(A) Mass of oven-dried soil, grams:		50.87
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.62
(C) Mass of pycnometer, water and soil, grams:		688.62
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		23.0
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.696
(F)	***Correction factor:***	0.99933
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.694

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **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-6

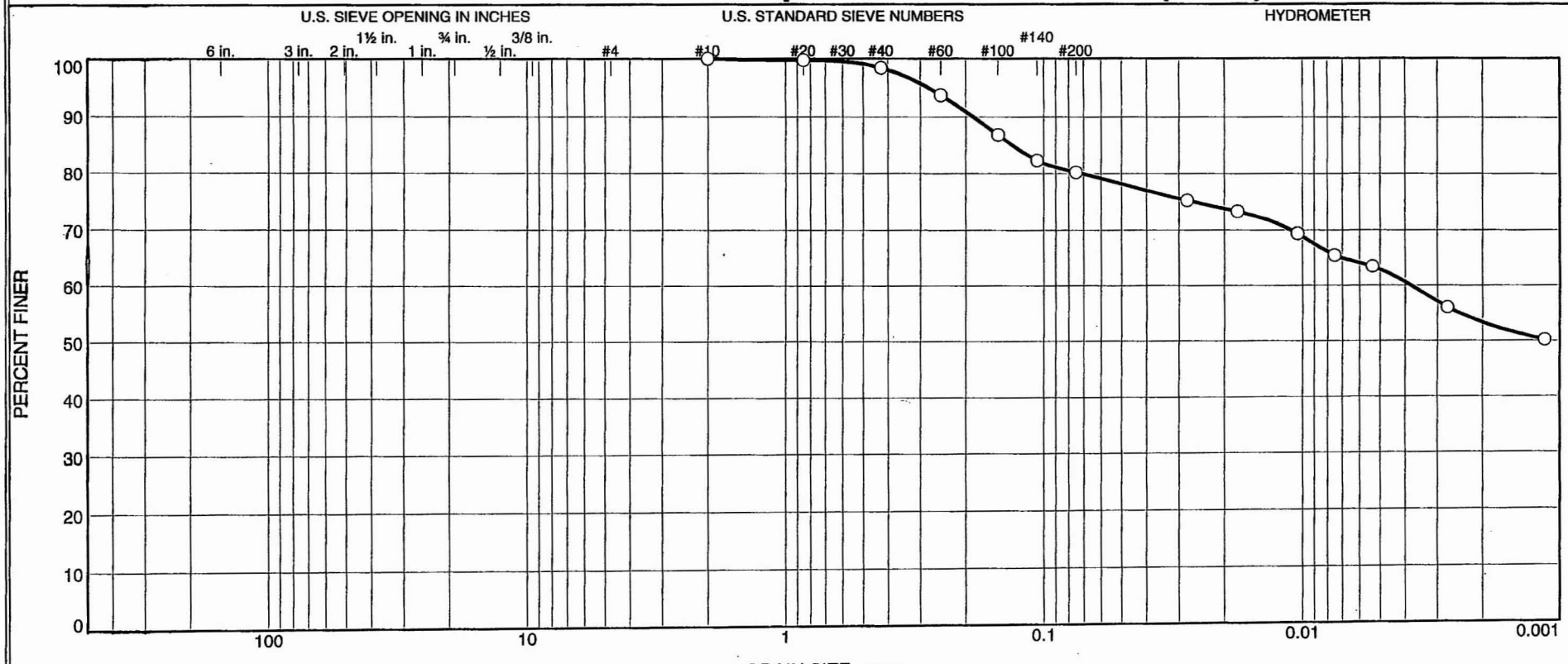
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

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



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	1.6	18.2	17.2	63.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2169	SS-37	228.5-230'	12-15-07	CH	Pale Yellow Fat CLAY with sand	20.9	57	24

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O Specific Gravity is assumed

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-2169
Depth: 228.5-230' **Sample Number:** SS-37
Material Description: Pale Yellow Fat CLAY with sand
Date: 12-15-07 **Natural Moisture:** 20.9
Liquid Limit: 57 **Plastic Limit:** 24 **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
215.69	0.00	0.00	#10	0.00	100.0
52.59	0.00	0.00	#20	0.15	99.7
			#40	0.85	98.4
			#60	3.33	93.7
			#100	6.89	86.9
			#140	9.29	82.3
			#200	10.40	80.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.59
Hygroscopic moisture correction:
Moist weight and tare = 27.99
Dry weight and tare = 27.56
Tare weight = 15.47
Hygroscopic moisture = 3.6%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	43.0	38.6	0.0131	44.0	9.1	0.0278	75.2
5.00	22.3	42.0	37.6	0.0131	43.0	9.2	0.0178	73.3
15.00	22.4	40.0	35.6	0.0131	41.0	9.6	0.0104	69.4
30.00	22.4	38.0	33.6	0.0131	39.0	9.9	0.0075	65.5
60.00	22.3	37.0	32.6	0.0131	38.0	10.1	0.0054	63.5
240.00	22.9	33.0	28.8	0.0130	34.0	10.7	0.0027	56.1
1440.00	22.8	30.0	25.8	0.0130	31.0	11.2	0.0011	50.2

MACTEC, Inc.

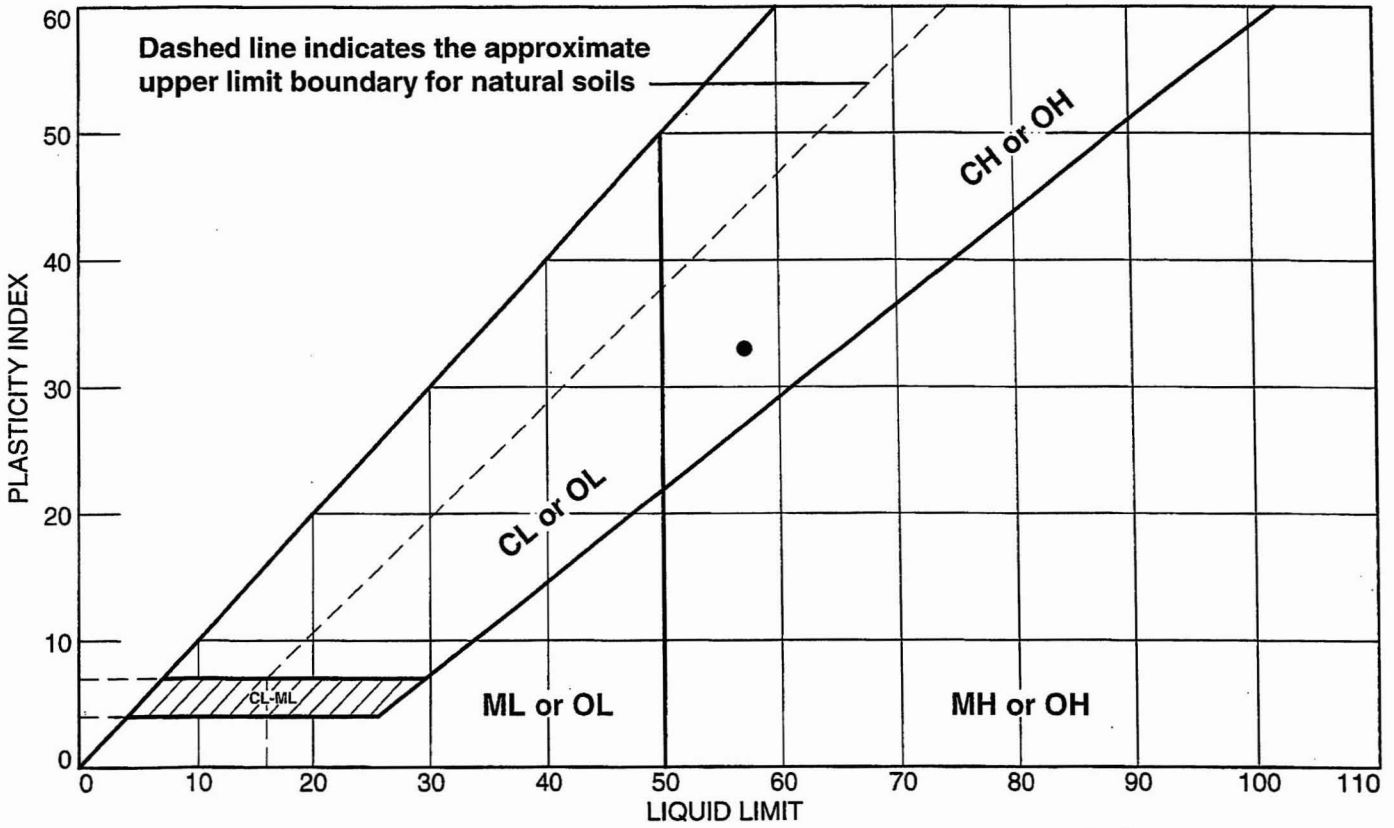
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.6	18.2	19.8	17.2	63.0	80.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0038	0.0715	0.1316	0.1870	0.2818

Fineness Modulus
0.18

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-2169	SS-37	228.5-230'	20.9	24	57	33	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

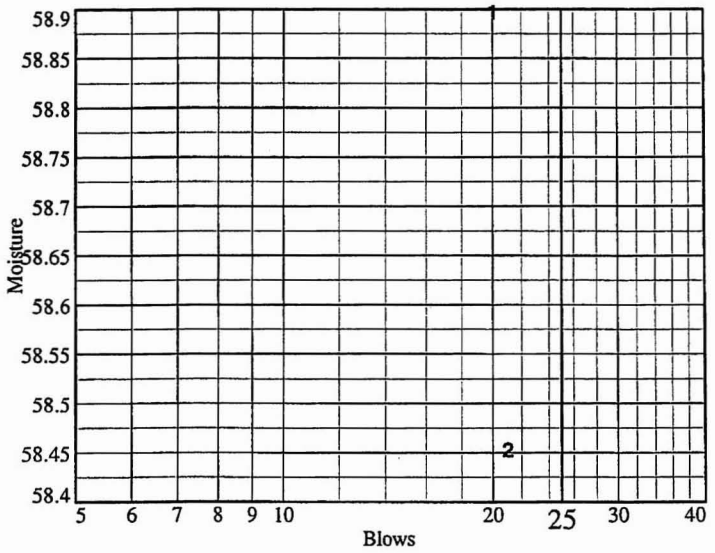
LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 228.5-230'
Sample Number: SS-37
Material Description: Pale Yellow Fat CLAY with sand
USCS: CH
AASHTO: A-7-6(28)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.87	30.84				
Dry+Tare	25.78	25.17				
Tare	15.44	15.47				
# Blows	20	21				
Moisture	58.9	58.5				



Liquid Limit= 57
Plastic Limit= 24
Plasticity Index= 33
Natural Moisture= 20.9
Liquidity Index= -0.1

Plastic Limit Data

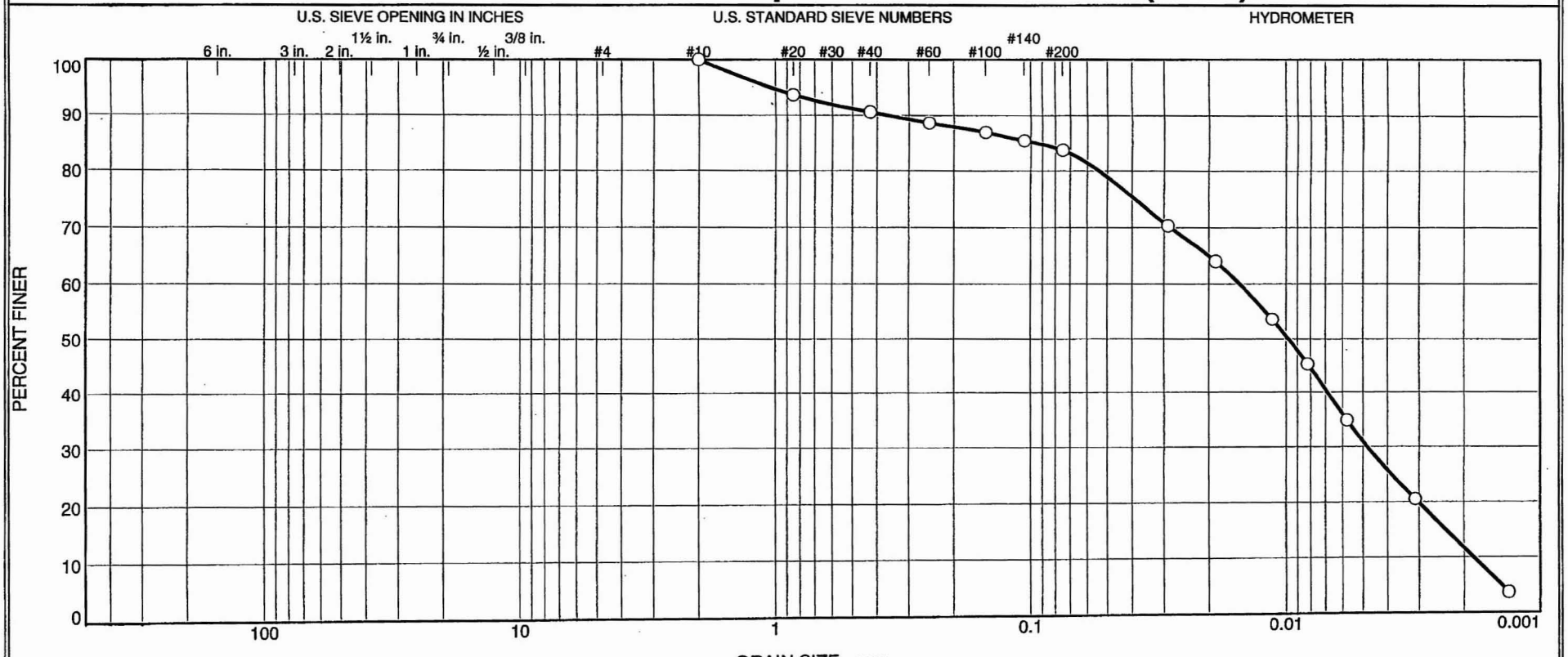
Run No.	1	2	3	4	
Wet+Tare	22.62	22.05			
Dry+Tare	21.24	20.79			
Tare	15.49	15.48			
Moisture	24.0	23.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
94.90	80.09	9.20	20.9

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	9.4	6.9	52.7	31.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-38	238.5-240'	12-15-07	CL	Pale Yellow Lean CLAY with sand	13.5	46	17

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: C **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 238.5-240'
Sample Number: SS-38
Material Description: Pale Yellow Lean CLAY with sand
Date: 12-15-07
Natural Moisture: 13.5
Liquid Limit: 46
Plastic Limit: 17
USCS Class.: CL
Testing Remarks: Specific Gravity is assumed
Tested by: C
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
211.01	0.00	0.00	#10	0.00	100.0
48.58	0.00	0.00	#20	3.10	93.6
			#40	4.57	90.6
			#60	5.50	88.7
			#100	6.34	86.9
			#140	7.08	85.4
			#200	7.91	83.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.58
Hygroscopic moisture correction:
Moist weight and tare = 27.85
Dry weight and tare = 27.54
Tare weight = 15.64
Hygroscopic moisture = 2.6%
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 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.5	38.0	33.7	0.0130	39.0	9.9	0.0290	70.3
5.00	22.4	35.0	30.6	0.0131	36.0	10.4	0.0188	64.0
15.00	22.4	30.0	25.6	0.0131	31.0	11.2	0.0113	53.6
30.00	22.5	26.0	21.7	0.0130	27.0	11.9	0.0082	45.3
65.00	22.4	21.0	16.6	0.0131	22.0	12.7	0.0058	34.8
240.00	23.1	14.0	9.8	0.0129	15.0	13.8	0.0031	20.6
1440.00	22.8	6.0	1.8	0.0130	7.0	15.1	0.0013	3.7

MACTEC, Inc.

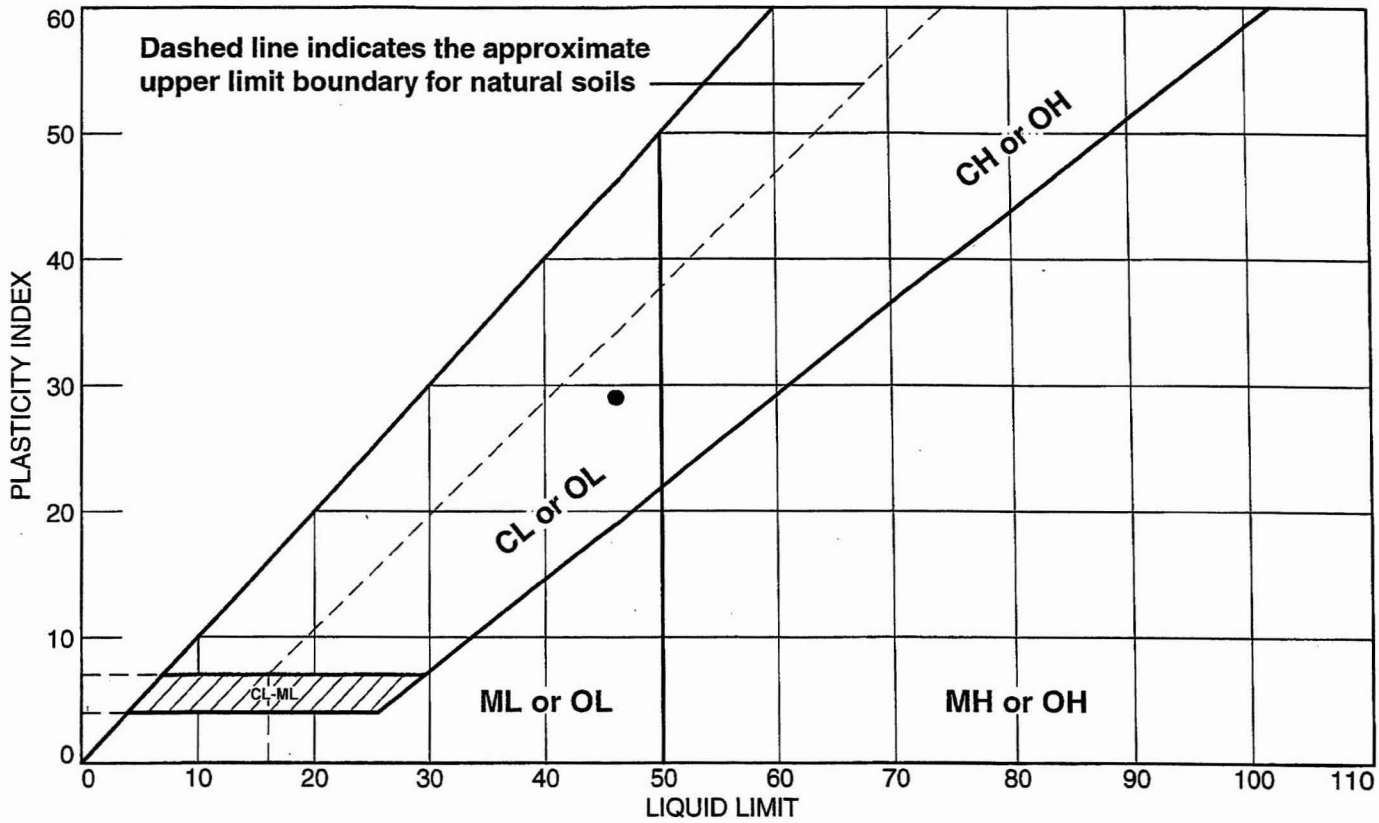
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	9.4	6.9	16.3	52.7	31.0	83.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0018	0.0024	0.0030	0.0048	0.0098	0.0151	0.0538	0.0952	0.3627	1.0571

Fineness Modulus	C_u	C_c
0.36	8.24	0.83

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-2169	SS-38	238.5-240'	13.5	17	46	29	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

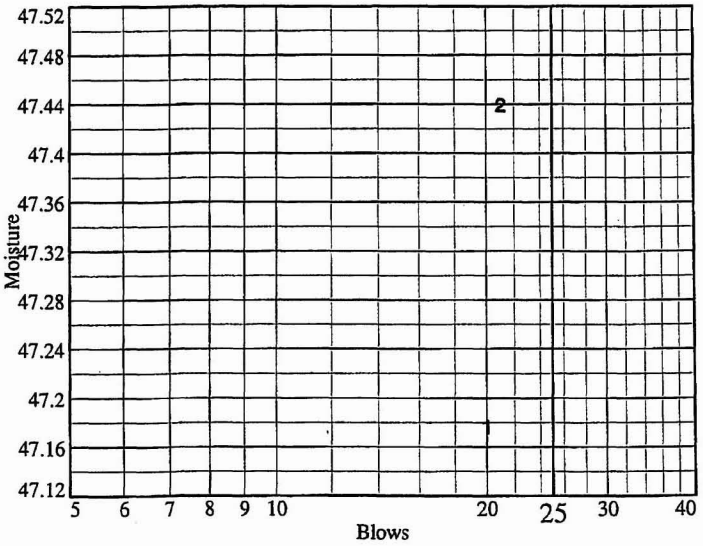
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 238.5-240'
Sample Number: SS-38
Material Description: Pale Yellow Lean CLAY with sand
USCS: CL
AASHTO: A-7-6(24)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	41.18	40.24				
Dry+Tare	36.00	33.94				
Tare	25.02	20.66				
# Blows	20	21				
Moisture	47.2	47.4				



Liquid Limit= 46
Plastic Limit= 17
Plasticity Index= 29
Natural Moisture= 13.5
Liquidity Index= -0.1

Plastic Limit Data

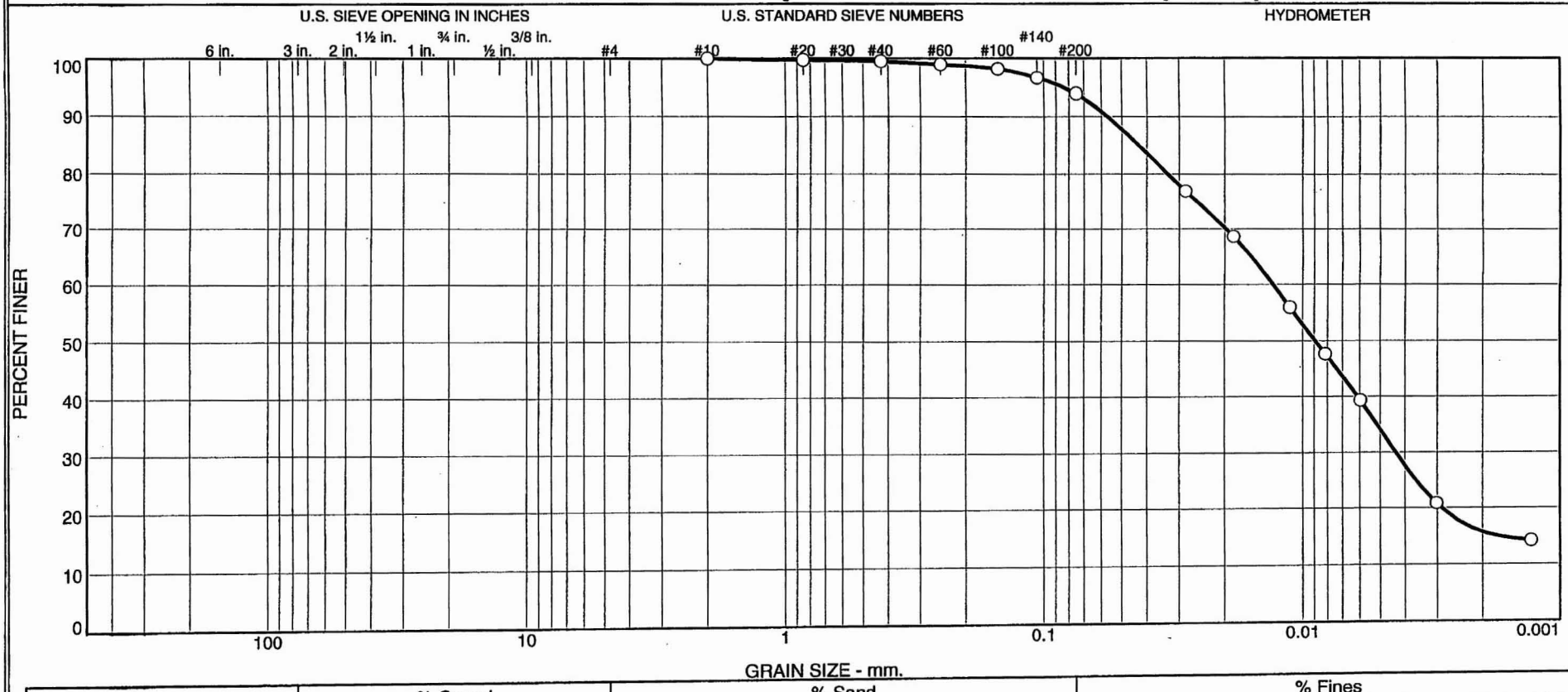
Run No.	1	2	3	4	
Wet+Tare	23.17	23.08			
Dry+Tare	22.07	21.98			
Tare	15.49	15.66			
Moisture	16.7	17.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
99.80	89.04	9.20	13.5

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	5.7	59.6	34.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-39	248.5-250'	12-15-07	CL	Pale Yellow Lean CLAY	16.5	49	23

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
Organic content = 1.5% (ASTM D-2794-07)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 248.5-250' **Sample Number:** SS-39
Material Description: Pale Yellow Lean CLAY
Date: 12-15-07 **Natural Moisture:** 16.5
Liquid Limit: 49 **Plastic Limit:** 23 **USCS Class.:** CL
Testing Remarks: Specific Gravity is assumed
Organic content = 1.5% (ASTM D-2794-07)
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
254.30	0.00	0.00	#10	0.00	100.0
48.47	0.00	0.00	#20	0.14	99.7
			#40	0.25	99.5
			#60	0.52	98.9
			#100	0.91	98.1
			#140	1.65	96.6
			#200	2.99	93.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.47
Hygroscopic moisture correction:
Moist weight and tare = 25.77
Dry weight and tare = 25.35
Tare weight = 11.15
Hygroscopic moisture = 3.0%
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 = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	41.0	36.6	0.0131	42.0	9.4	0.0283	77.0
5.00	22.5	37.0	32.7	0.0130	38.0	10.1	0.0185	68.6
15.00	22.5	31.0	26.7	0.0130	32.0	11.0	0.0112	56.0
30.00	22.5	27.0	22.7	0.0130	28.0	11.7	0.0081	47.6
59.00	22.6	23.0	18.7	0.0130	24.0	12.4	0.0060	39.3
252.00	23.4	14.0	9.9	0.0129	15.0	13.8	0.0030	20.8
1440.00	22.9	11.0	6.8	0.0130	12.0	14.3	0.0013	14.3

MACTEC, Inc.

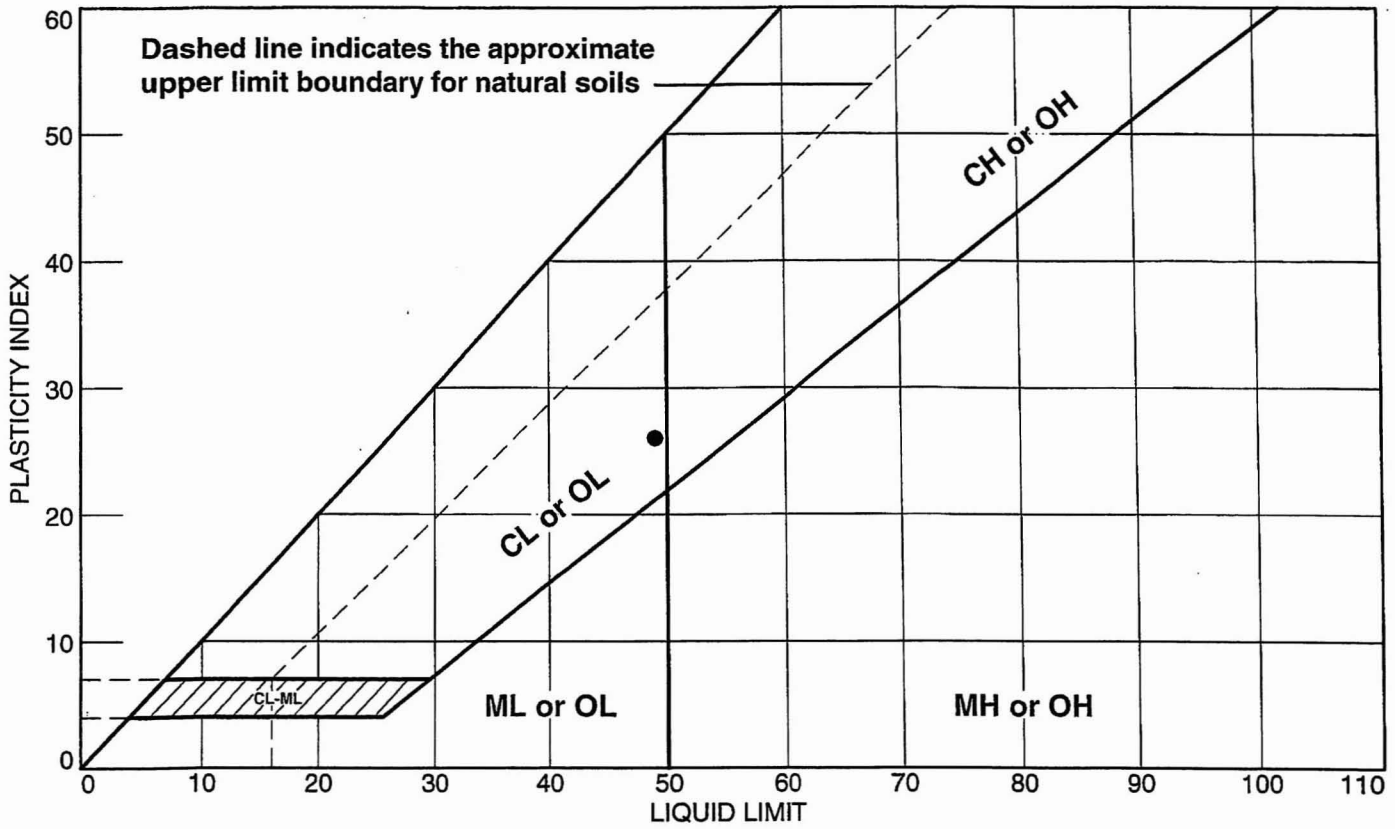
Fractional Components

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	5.7	6.2	59.6	34.2	93.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0017	0.0029	0.0043	0.0089	0.0130	0.0331	0.0428	0.0567	0.0845

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-2169	SS-39	248.5-250'	16.5	23	49	26	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

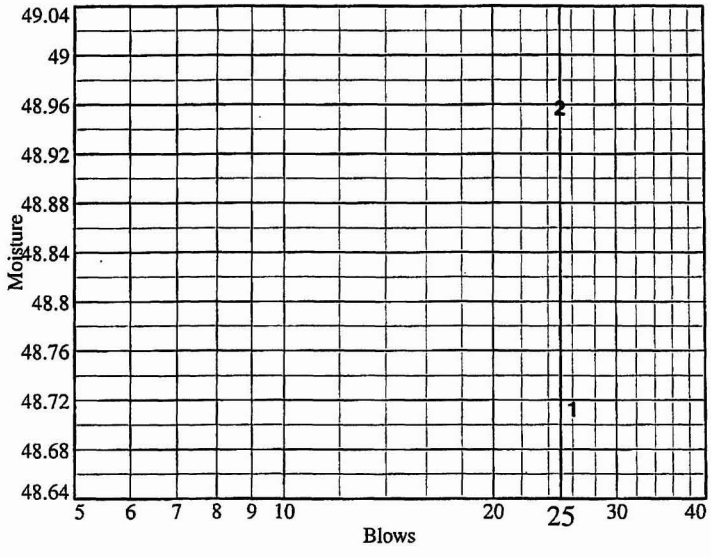
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 248.5-250'
Sample Number: SS-39
Material Description: Pale Yellow Lean CLAY
USCS: CL
AASHTO: A-7-6(27)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	36.16	36.24				
Dry+Tare	31.24	30.84				
Tare	21.14	19.81				
# Blows	26	25				
Moisture	48.7	49.0				



Liquid Limit= 49
Plastic Limit= 23
Plasticity Index= 26
Natural Moisture= 16.5
Liquidity Index= -0.2

Plastic Limit Data

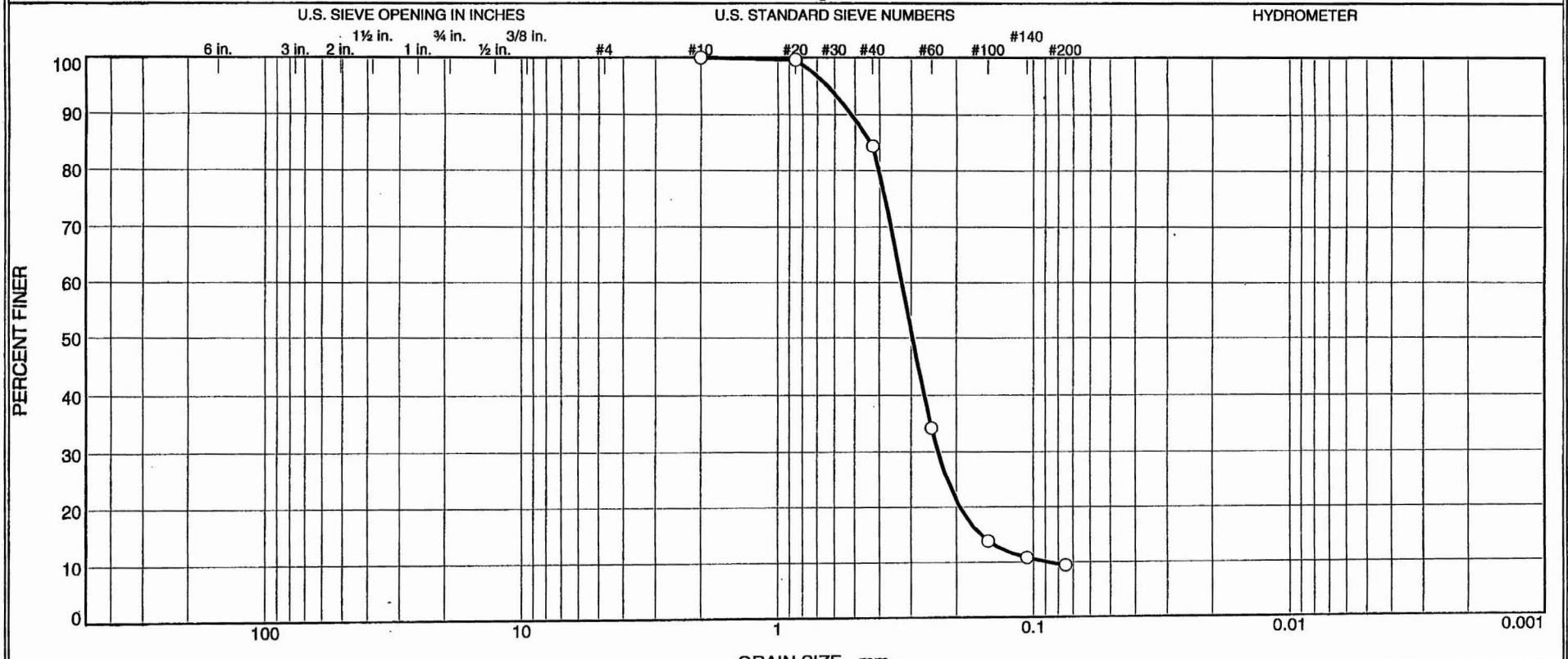
Run No.	1	2	3	4	
Wet+Tare	24.30	24.90			
Dry+Tare	22.70	23.15			
Tare	15.50	15.49			
Moisture	22.2	22.8			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
131.90	114.50	9.30	16.5

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	15.5	75.0	9.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-40	258.5-260'	12-15-07	SP-SC	Pale Yellow Poorly Graded SAND with clay (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not determined

Tested By: CS **Checked By:** LBJ DSC 3-17-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/25/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 258.5-260' **Sample Number:** SS-40
Material Description: Pale Yellow Poorly Graded SAND with clay (Visual)
Date: 12-15-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SC
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not determined
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
221.68	0.00	0.00	#10	0.00	100.0
102.96	0.00	0.00	#20	0.39	99.6
			#40	16.00	84.5
			#60	67.66	34.3
			#100	88.65	13.9
			#140	91.79	10.8
			#200	93.23	9.5

Fractional Components

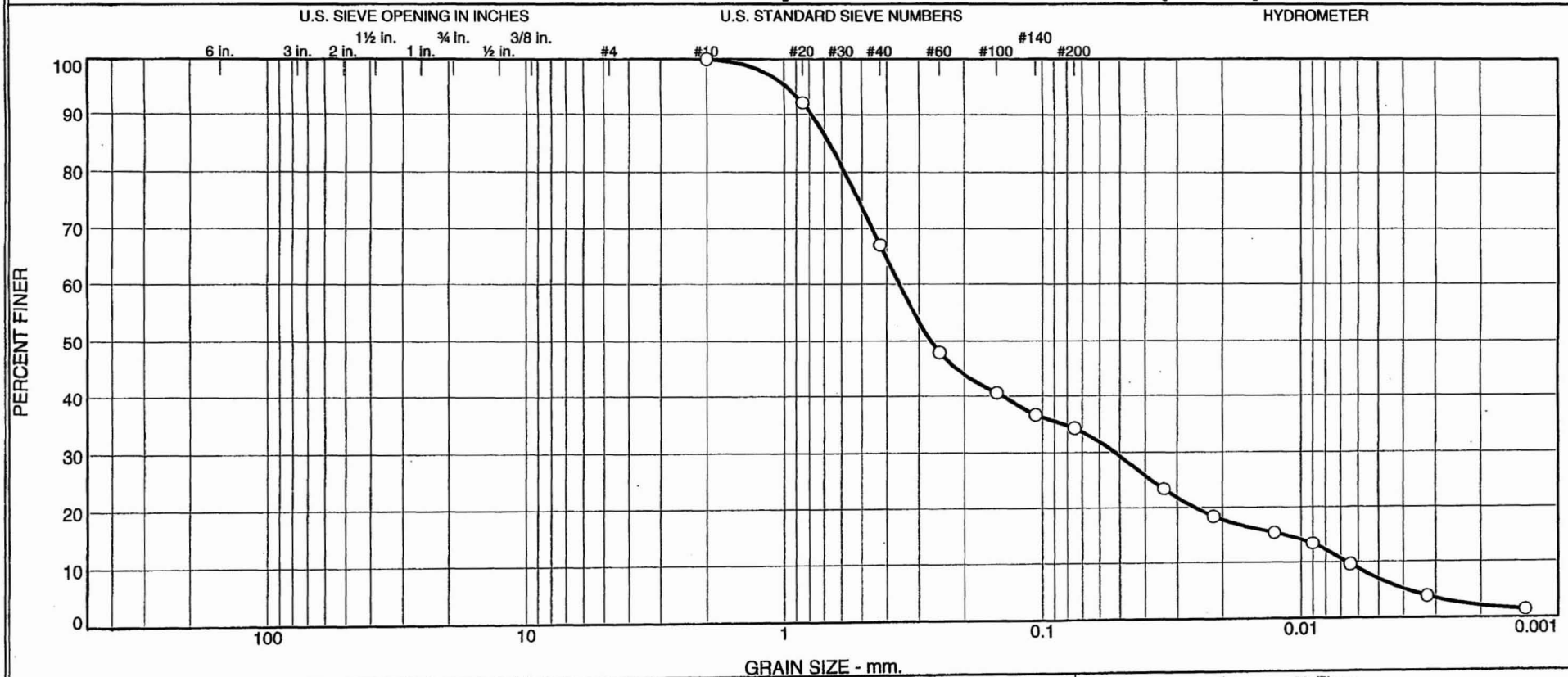
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	15.5	75.0	90.5			9.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0873	0.1604	0.1936	0.2357	0.2966	0.3267	0.4016	0.4324	0.5151	0.6393

Fineness Modulus	C_u	C_c
1.42	3.74	1.95

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	33.0	32.7	27.3	7.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-41	268.5-270'	12-16-07	SC	Pale Yellow Clayey SAND	18.4	43	13

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.699(ASTM D-854-06)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 268.5-270' **Sample Number:** SS-41
Material Description: Pale Yellow Clayey SAND
Date: 12-16-07 **Natural Moisture:** 18.4
Liquid Limit: 43 **Plastic Limit:** 13 **USCS Class.:** SC
Testing Remarks: Specific Gravity = 2.699(ASTM D-854-06)
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
243.85	0.00	0.00	#10	0.00	100.0
50.43	0.00	0.00	#20	3.96	92.1
			#40	16.63	67.0
			#60	26.29	47.9
			#100	29.95	40.6
			#140	31.90	36.7
			#200	33.11	34.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.43
Hygroscopic moisture correction:
Moist weight and tare = 27.09
Dry weight and tare = 26.84
Tare weight = 15.27
Hygroscopic moisture = 2.2%
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 = 2.699
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.6	16.0	11.7	0.0130	17.0	13.5	0.0338	23.5
5.00	22.5	13.5	9.2	0.0130	14.5	13.9	0.0218	18.4
15.00	22.6	12.0	7.7	0.0130	13.0	14.2	0.0127	15.4
30.00	22.5	11.0	6.7	0.0130	12.0	14.3	0.0090	13.4
60.00	22.9	9.0	4.8	0.0130	10.0	14.7	0.0064	9.6
240.00	23.4	6.0	1.9	0.0129	7.0	15.1	0.0032	3.9
1440.00	22.7	5.0	0.7	0.0130	6.0	15.3	0.0013	1.5

MACTEC, Inc.

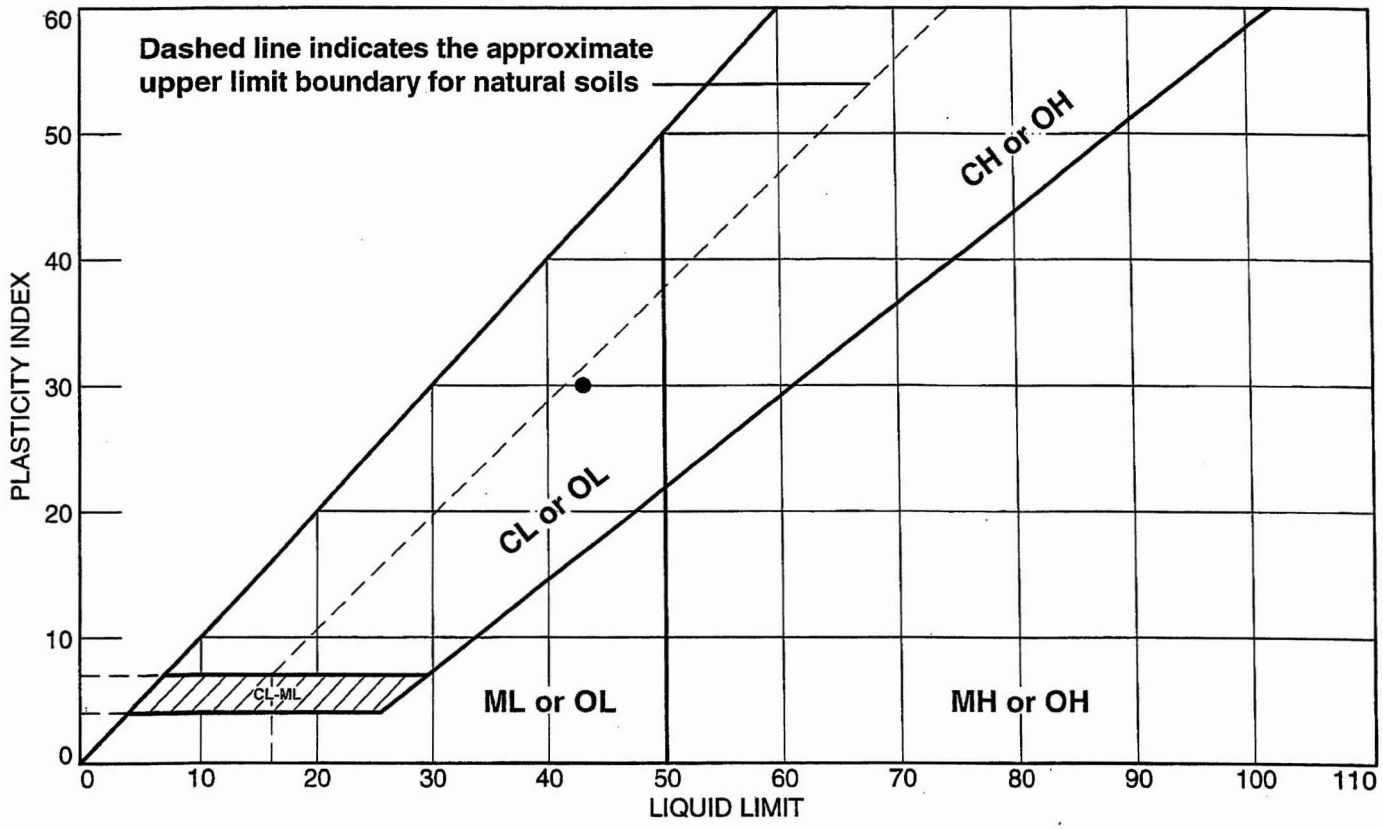
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	33.0	32.7	65.7	27.3	7.0	34.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0066	0.0115	0.0258	0.0521	0.2707	0.3588	0.5834	0.6685	0.7832	0.9752

Fineness Modulus	C_u	C_c
1.27	54.00	1.14

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-2169	SS-41	268.5-270'	18.4	13	43	30	SC

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

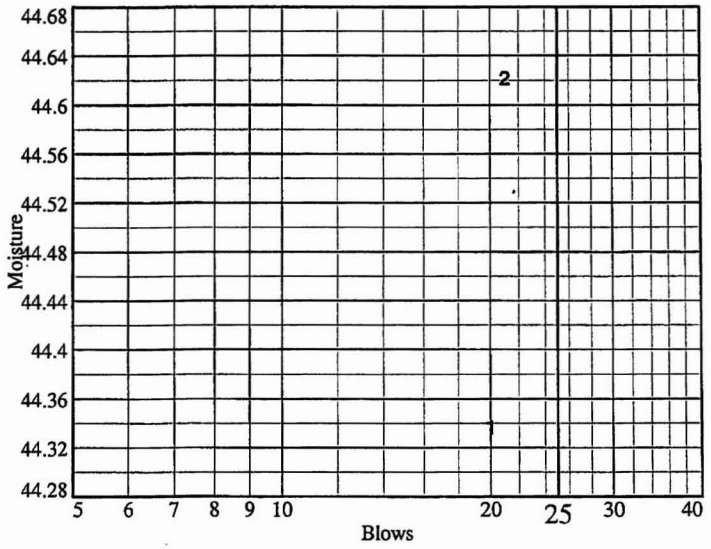
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 268.5-270'
Sample Number: SS-41
Material Description: Pale Yellow Clayey SAND
USCS: SC
AASHTO: A-2-7(4)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	35.72	36.39				
Dry+Tare	31.14	31.37				
Tare	20.81	20.12				
# Blows	20	21				
Moisture	44.3	44.6				



Liquid Limit= 43
Plastic Limit= 13
Plasticity Index= 30
Natural Moisture= 18.4
Liquidity Index= 0.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.20	25.50			
Dry+Tare	23.22	24.38			
Tare	15.50	15.60			
Moisture	12.7	12.8			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
124.60	106.28	6.70	18.4

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: 1/14/08

SAMPLE IDENTIFICATION: B-2169 SS-41

(A) Mass of oven-dried soil, grams:		72.86
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.61
(C) Mass of pycnometer, water and soil, grams:		702.49
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		23.1
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.701
(F)	***Correction factor:***	0.99931
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.699

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%

Clayey SAND (SC)

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

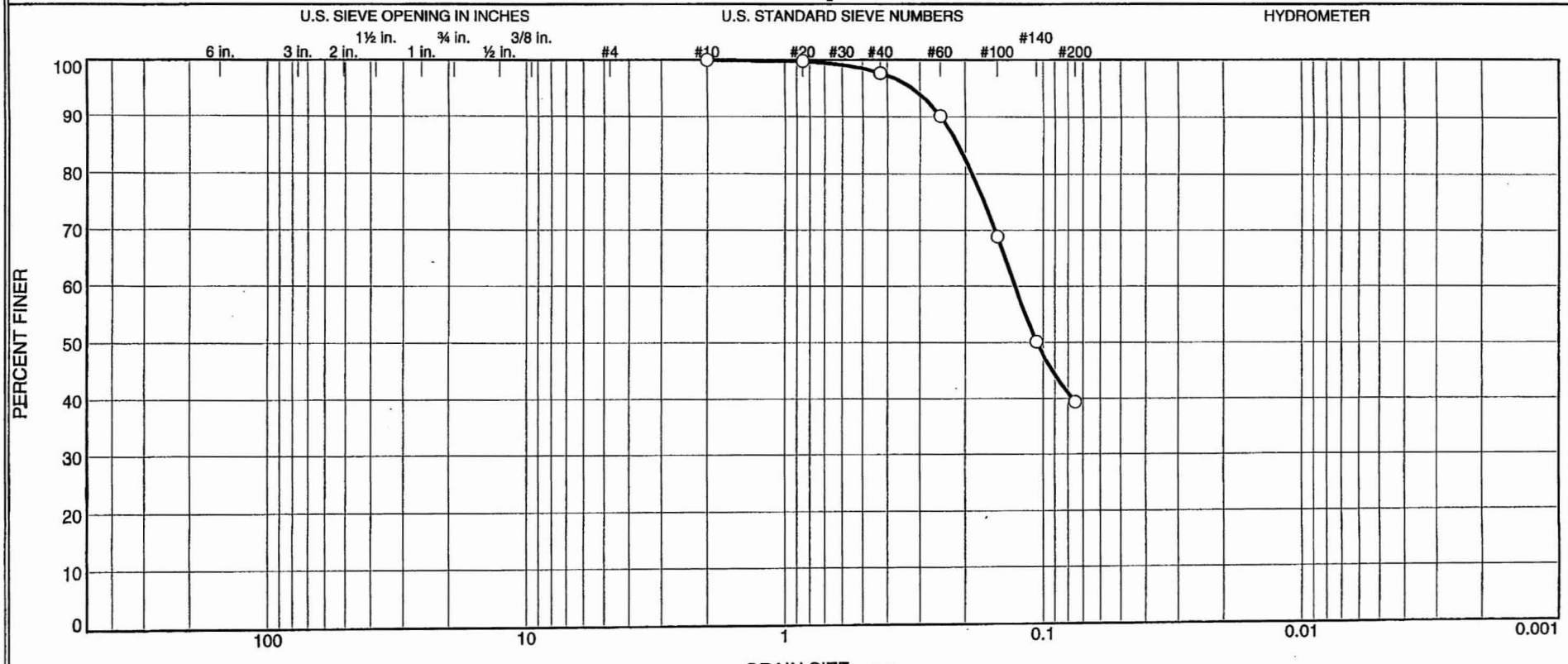
PYCNOMETER : P-6

TESTED BY: CS

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

REVIEWED BY: DSC 1-25-08

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	2.4	58.2	39.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-42	278.5-280'	12-16-07	SC	White Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY.
ND = Not determined

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 278.5-280'
Sample Number: SS-42
Material Description: White Clayey SAND (Visual)
Date: 12-16-07
Natural Moisture: ND
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SC
Testing Remarks: SIEVE ANALYSIS ONLY.
ND = Not determined
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
200.86	0.00	0.00	#10	0.00	100.0
101.63	0.00	0.00	#20	0.25	99.8
			#40	2.40	97.6
			#60	10.03	90.1
			#100	31.61	68.9
			#140	50.63	50.2
			#200	61.60	39.4

Fractional Components

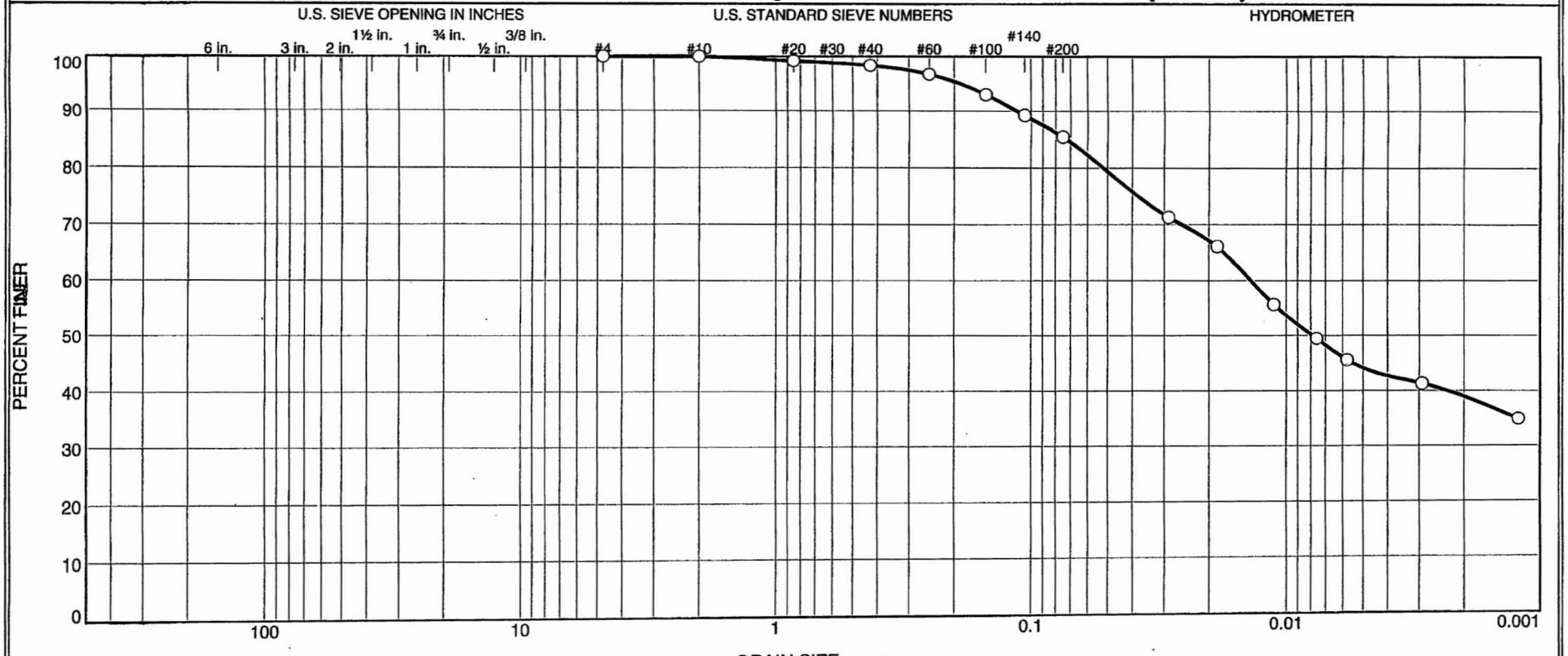
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.4	58.2	60.6			39.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1056	0.1282	0.1878	0.2127	0.2488	0.3202

Fineness Modulus
0.38

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	1.7	12.9	41.4	44.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-43	288.5-290'	12-16-07	CH	Pale Yellow Fat CLAY	22.1	56	24

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed.
Organic content = 2.7% (ASTM D-2794-07)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 288.5-290' **Sample Number:** SS-43
Material Description: Pale Yellow Fat CLAY
Date: 12-16-07 **Natural Moisture:** 22.1
Liquid Limit: 56 **Plastic Limit:** 24 **USCS Class.:** CH
Testing Remarks: Specific Gravity is assumed.
Organic content = 2.7% (ASTM D-2794-07)
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
223.47	0.00	0.00	#4	0.00	100.0
			#10	0.01	100.0
49.22	0.00	0.00	#20	0.41	99.2
			#40	0.83	98.3
			#60	1.62	96.7
			#100	3.46	93.0
			#140	5.28	89.3
			#200	7.17	85.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =49.22
Hygroscopic moisture correction:
Moist weight and tare = 27.09
Dry weight and tare = 26.68
Tare weight = 15.53
Hygroscopic moisture = 3.7%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.7	38.5	34.2	0.0130	39.5	9.8	0.0288	71.3
5.00	22.8	36.0	31.8	0.0130	37.0	10.2	0.0186	66.2
15.00	22.7	31.0	26.7	0.0130	32.0	11.0	0.0112	55.7
34.00	22.7	28.0	23.7	0.0130	29.0	11.5	0.0076	49.4
60.00	23.0	26.0	21.8	0.0130	27.0	11.9	0.0058	45.4
240.00	23.0	24.0	19.8	0.0130	25.0	12.2	0.0029	41.3
1440.00	22.8	21.0	16.8	0.0130	22.0	12.7	0.0012	34.9

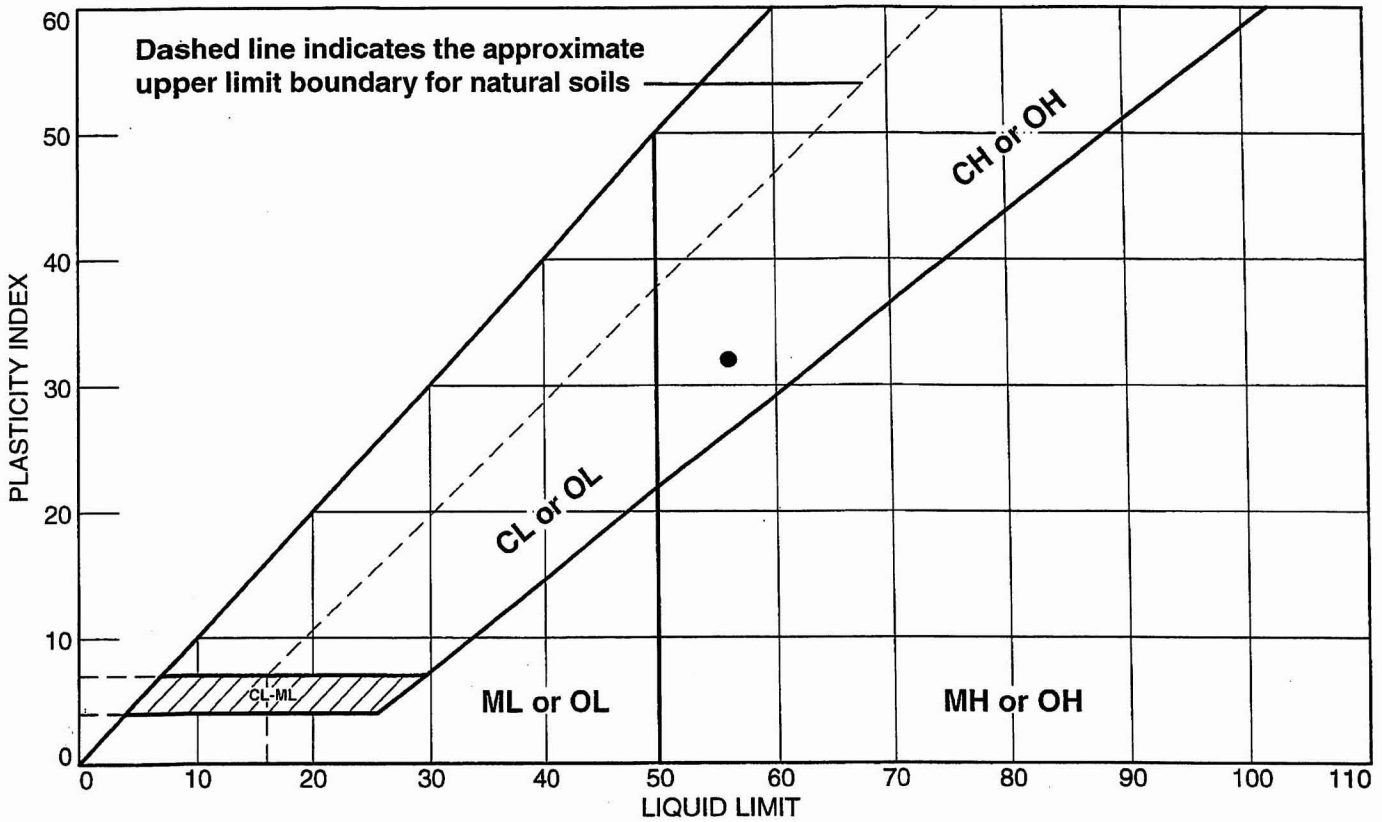
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.7	12.9	14.6	41.4	44.0	85.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0079	0.0137	0.0519	0.0725	0.1134	0.1899

Fineness Modulus
0.11

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-2169	SS-43	288.5-290'	22.1	24	56	32	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

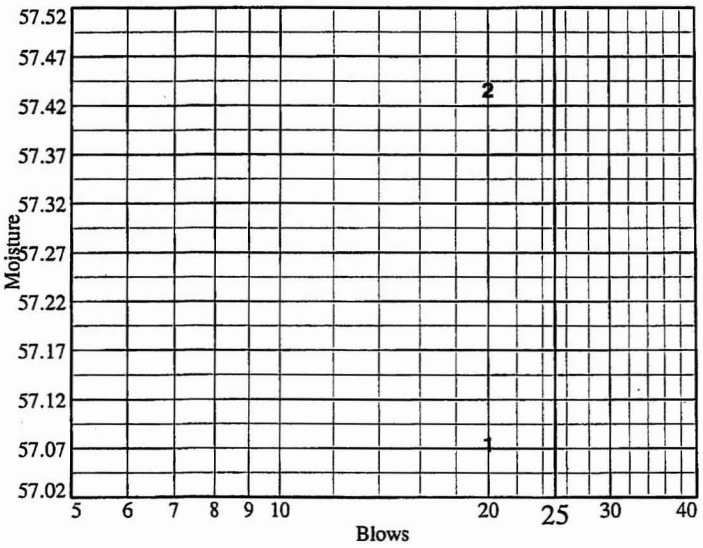
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 288.5-290'
Sample Number: SS-43
Material Description: Pale Yellow Fat CLAY
USCS: CH
AASHTO: A-7-6(29)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	37.10	31.66				
Dry+Tare	31.13	25.79				
Tare	20.67	15.57				
# Blows	20	20				
Moisture	57.1	57.4				



Liquid Limit= 56
Plastic Limit= 24
Plasticity Index= 32
Natural Moisture= 22.1
Liquidity Index= -0.1

Plastic Limit Data

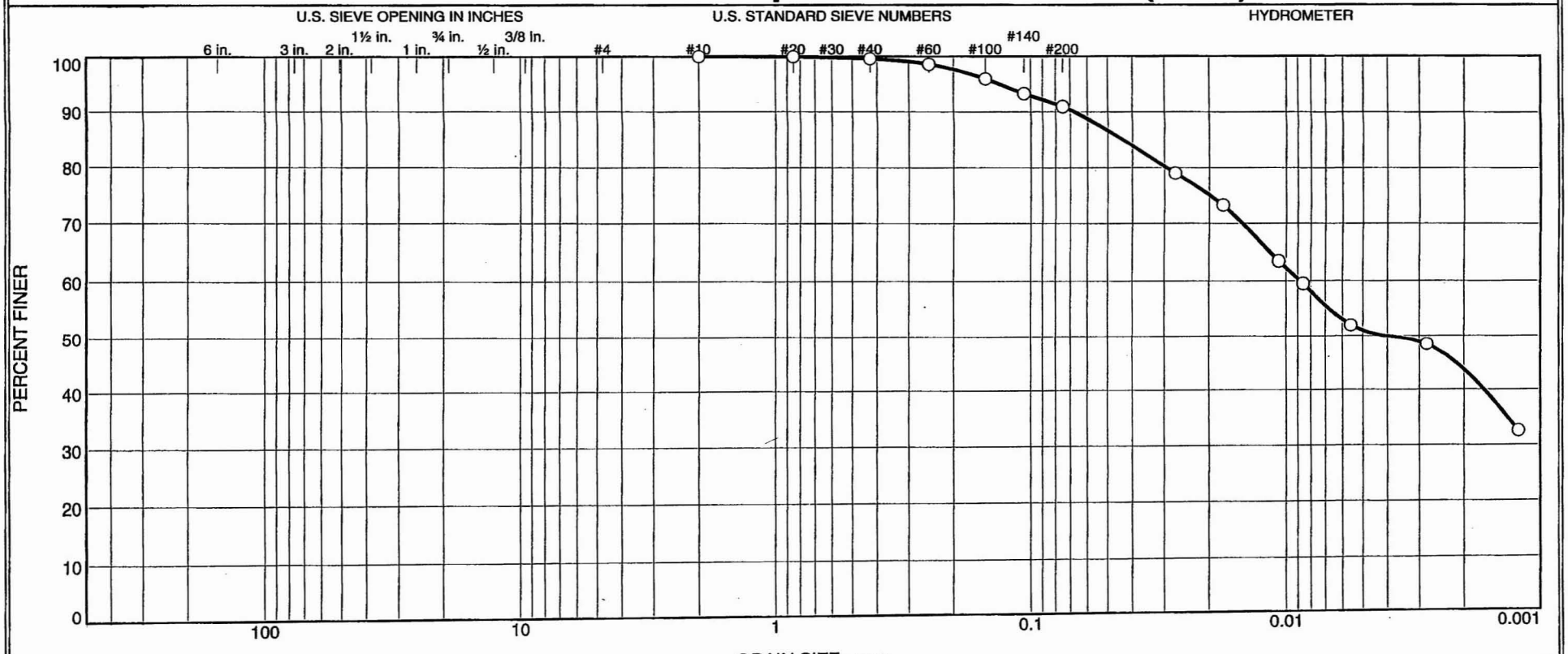
Run No.	1	2	3	4	
Wet+Tare	23.20	24.84			
Dry+Tare	21.74	23.00			
Tare	15.73	15.55			
Moisture	24.3	24.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
146.60	121.32	6.80	22.1

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	0.4	8.7	39.9	51.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-44	298.5-300'	12-17-08	CH	Reddish Brown Fat CLAY	24.5	63	25

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 298.5-300'
Sample Number: SS-44
Material Description: Reddish Brown Fat CLAY
Date: 12-17-08
Natural Moisture: 24.5
Liquid Limit: 63
Plastic Limit: 25
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
208.55	0.00	0.00	#10	0.00	100.0
52.88	0.00	0.00	#20	0.02	100.0
			#40	0.23	99.6
			#60	0.75	98.6
			#100	2.18	95.9
			#140	3.58	93.2
			#200	4.80	90.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.87
Hygroscopic moisture correction:
Moist weight and tare = 23.85
Dry weight and tare = 23.39
Tare weight = 11.08
Hygroscopic moisture = 3.7%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.7	45.0	40.7	0.0130	46.0	8.8	0.0272	79.0
5.00	22.7	42.0	37.7	0.0130	43.0	9.2	0.0177	73.2
15.00	22.7	37.0	32.7	0.0130	38.0	10.1	0.0107	63.5
24.00	22.6	35.0	30.7	0.0130	36.0	10.4	0.0086	59.6
60.00	22.9	31.0	26.8	0.0130	32.0	11.0	0.0056	52.0
240.00	23.5	29.0	25.0	0.0129	30.0	11.4	0.0028	48.4
1440.00	22.9	21.0	16.8	0.0130	22.0	12.7	0.0012	32.6

MACTEC, Inc.

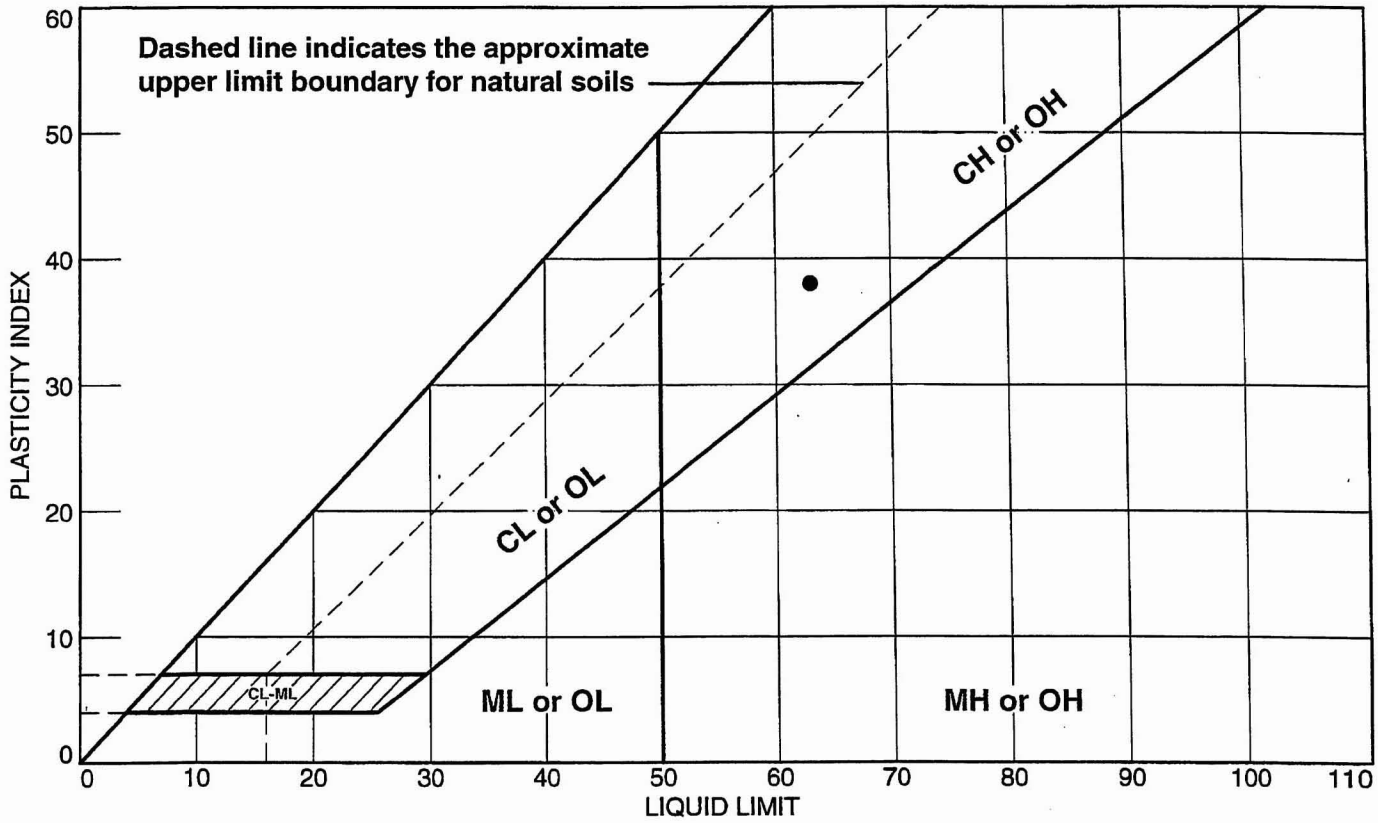
Fractional Components

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	8.7	9.1	39.9	51.0	90.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0041	0.0088	0.0294	0.0431	0.0673	0.1337

Fineness Modulus
0.05

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-2169	SS-44	298.5-300'	24.5	25	63	38	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

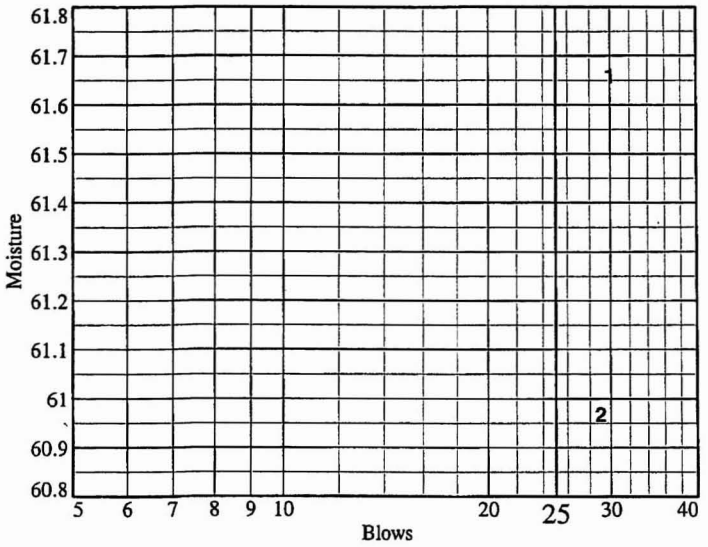
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 298.5-300'
Sample Number: SS-44
Material Description: Reddish Brown Fat CLAY
USCS: CH
AASHTO: A-7-6(39)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.86	33.00				
Dry+Tare	25.62	26.33				
Tare	15.50	15.39				
# Blows	30	29				
Moisture	61.7	61.0				



Liquid Limit= 63
Plastic Limit= 25
Plasticity Index= 38
Natural Moisture= 24.5
Liquidity Index= 0.0

Plastic Limit Data

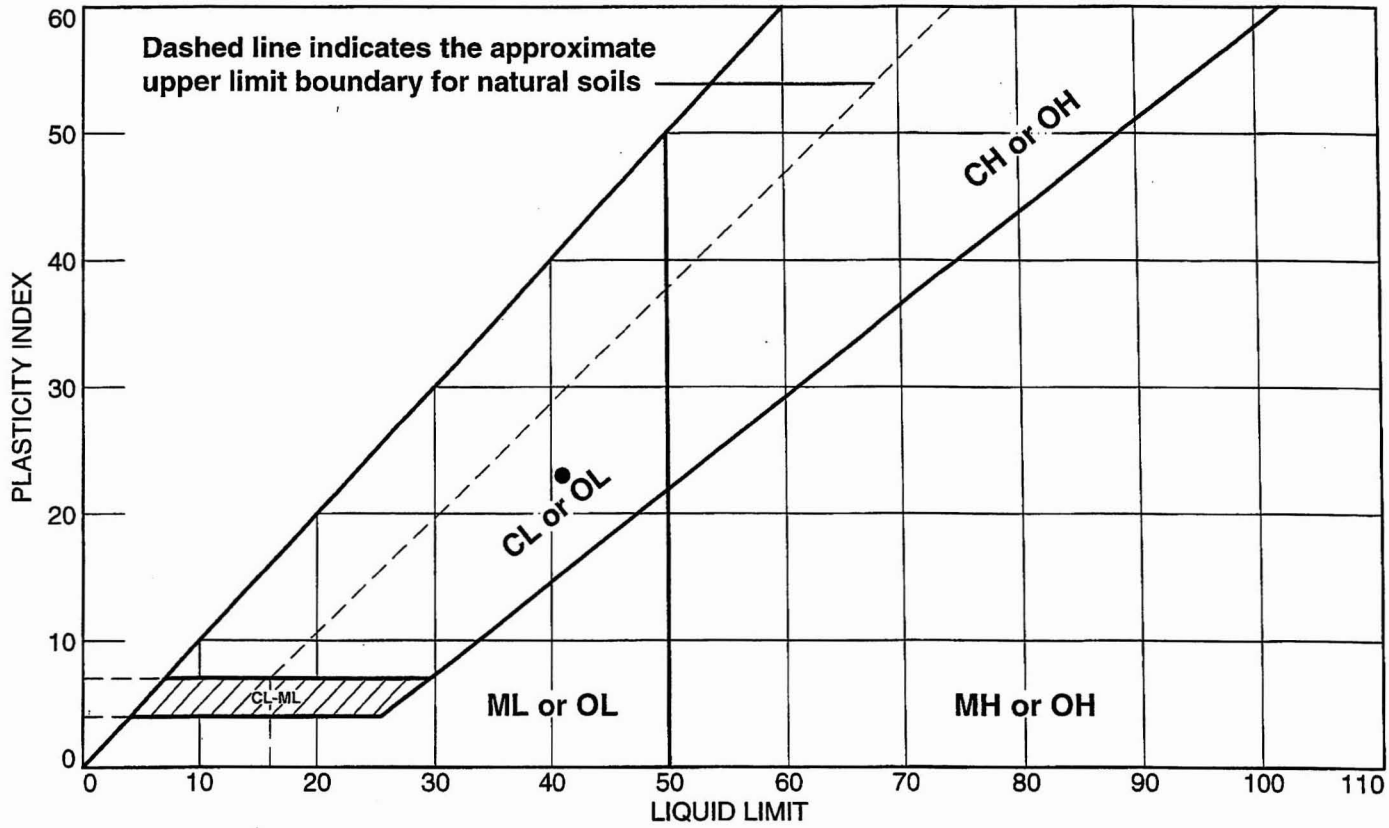
Run No.	1	2	3	4	
Wet+Tare	25.49	21.98			
Dry+Tare	23.48	20.69			
Tare	15.58	15.46			
Moisture	25.4	24.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
91.10	74.48	6.70	24.5

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-2169	SS-45	308.5-310'	21.6	18	41	23	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 646807177T **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

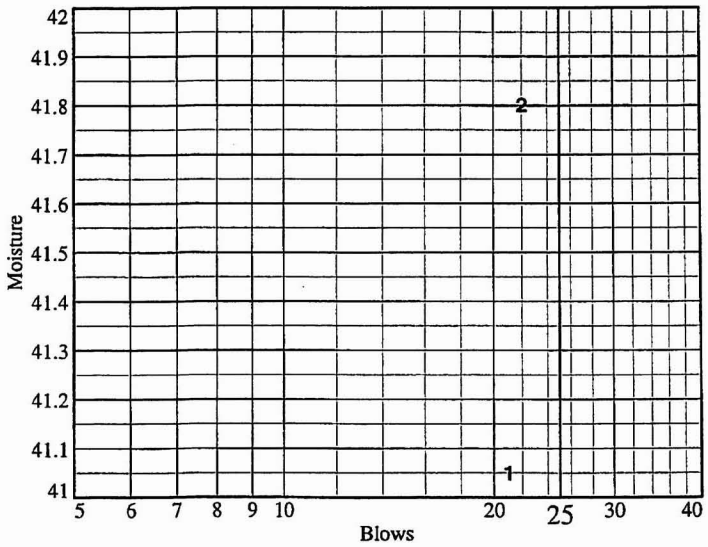
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 308.5-310' **Sample Number:** SS-45
Material Description: Reddish Yellow Lean CLAY
ATTERBERG LIMITS TESTING ONLY
USCS: CL
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.61	26.87				
Dry+Tare	24.78	23.53				
Tare	15.45	15.54				
# Blows	21	22				
Moisture	41.1	41.8				



Liquid Limit= 41
Plastic Limit= 18
Plasticity Index= 23
Natural Moisture= 21.6
Liquidity Index= 0.2

Plastic Limit Data

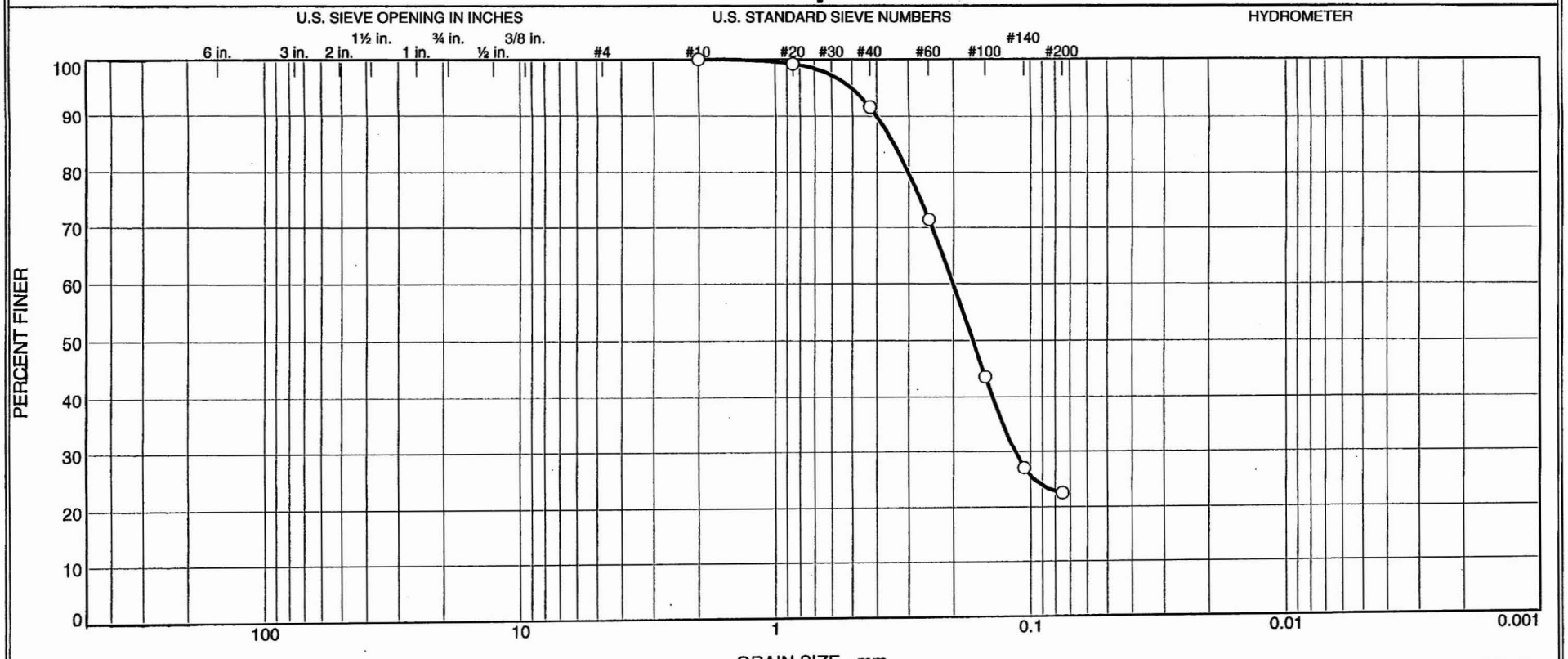
Run No.	1	2	3	4	
Wet+Tare	19.80	22.19			
Dry+Tare	18.46	21.15			
Tare	11.19	15.50			
Moisture	18.4	18.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
81.60	68.30	6.70	21.6

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	8.4	69.1	22.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-47	328.5-330'	12-17-07	SM	Light Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not determined

Tested By: CS Checked By: LBL DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 328.5-330'
Sample Number: SS-47
Material Description: Light Gray Silty SAND (Visual)
Date: 12-17-07
Natural Moisture: ND
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not determined
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
152.66	0.00	0.00	#10	0.00	100.0
100.12	0.00	0.00	#20	0.85	99.2
			#40	8.45	91.6
			#60	28.56	71.5
			#100	56.49	43.6
			#140	73.02	27.1
			#200	77.55	22.5

Fractional Components

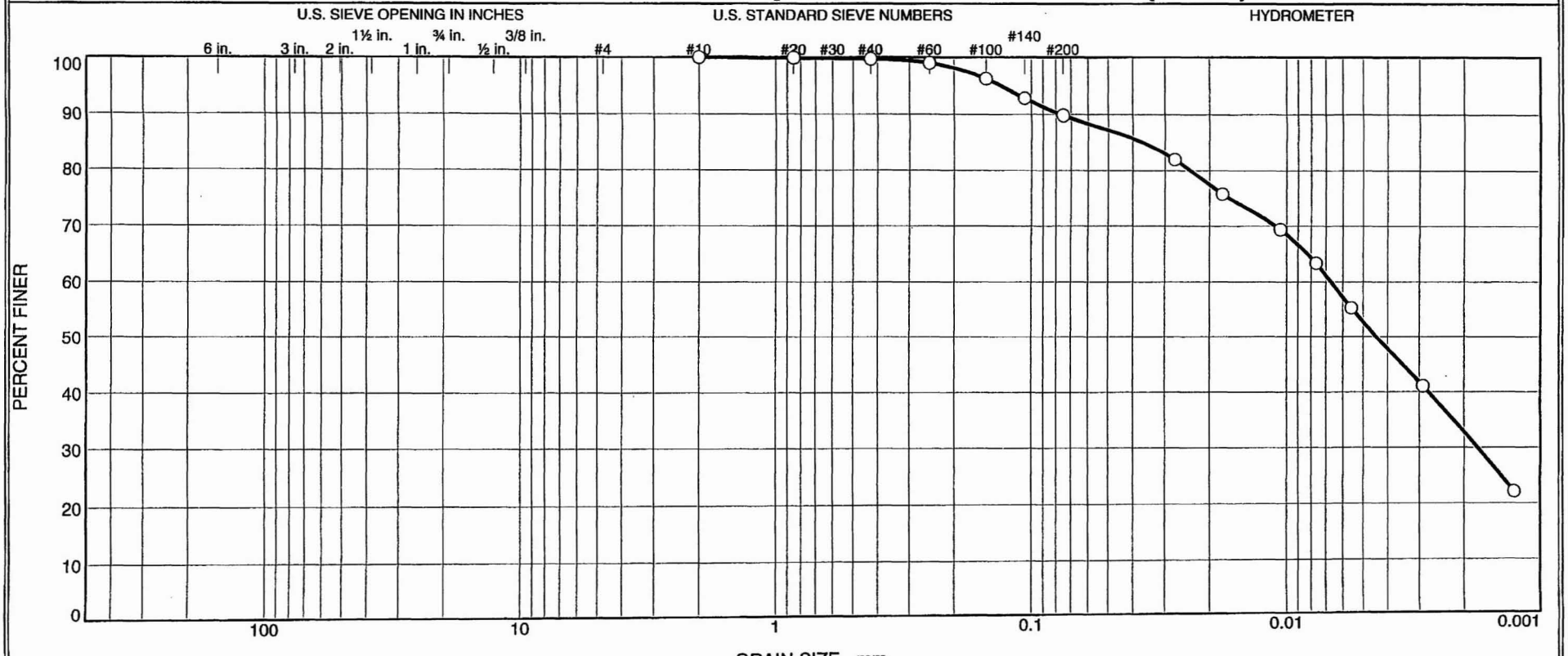
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	8.4	69.1	77.5			22.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1151	0.1679	0.2007	0.3015	0.3428	0.4006	0.5034

Fineness Modulus
0.80

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	0.3	9.8	37.2	52.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-48	338.5-340'	12-17-08	CH	Light Yellowish Brown Fat CLAY	27.2	67	26

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 2-6-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/6/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 338.5-340' **Sample Number:** SS-48
Material Description: Light Yellowish Brown Fat CLAY
Date: 12-17-08 **Natural Moisture:** 27.2
Liquid Limit: 67 **Plastic Limit:** 26 **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
145.37	0.00	0.00	#10	0.00	100.0
50.19	0.00	0.00	#20	0.06	99.9
			#40	0.14	99.7
			#60	0.48	99.0
			#100	1.88	96.3
			#140	3.61	92.8
			#200	5.08	89.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.19
Hygroscopic moisture correction:
Moist weight and tare = 27.46
Dry weight and tare = 26.95
Tare weight = 15.64
Hygroscopic moisture = 4.5%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.0	44.0	39.8	0.0130	45.0	8.9	0.0274	82.0
5.00	22.9	41.0	36.8	0.0130	42.0	9.4	0.0178	75.7
15.00	22.7	38.0	33.7	0.0130	39.0	9.9	0.0106	69.5
30.00	22.9	35.0	30.8	0.0130	36.0	10.4	0.0076	63.4
60.00	23.1	31.0	26.8	0.0129	32.0	11.0	0.0056	55.3
240.00	23.5	24.0	20.0	0.0129	25.0	12.2	0.0029	41.1
1440.00	22.7	15.0	10.7	0.0130	16.0	13.7	0.0013	22.1

MACTEC, Inc.

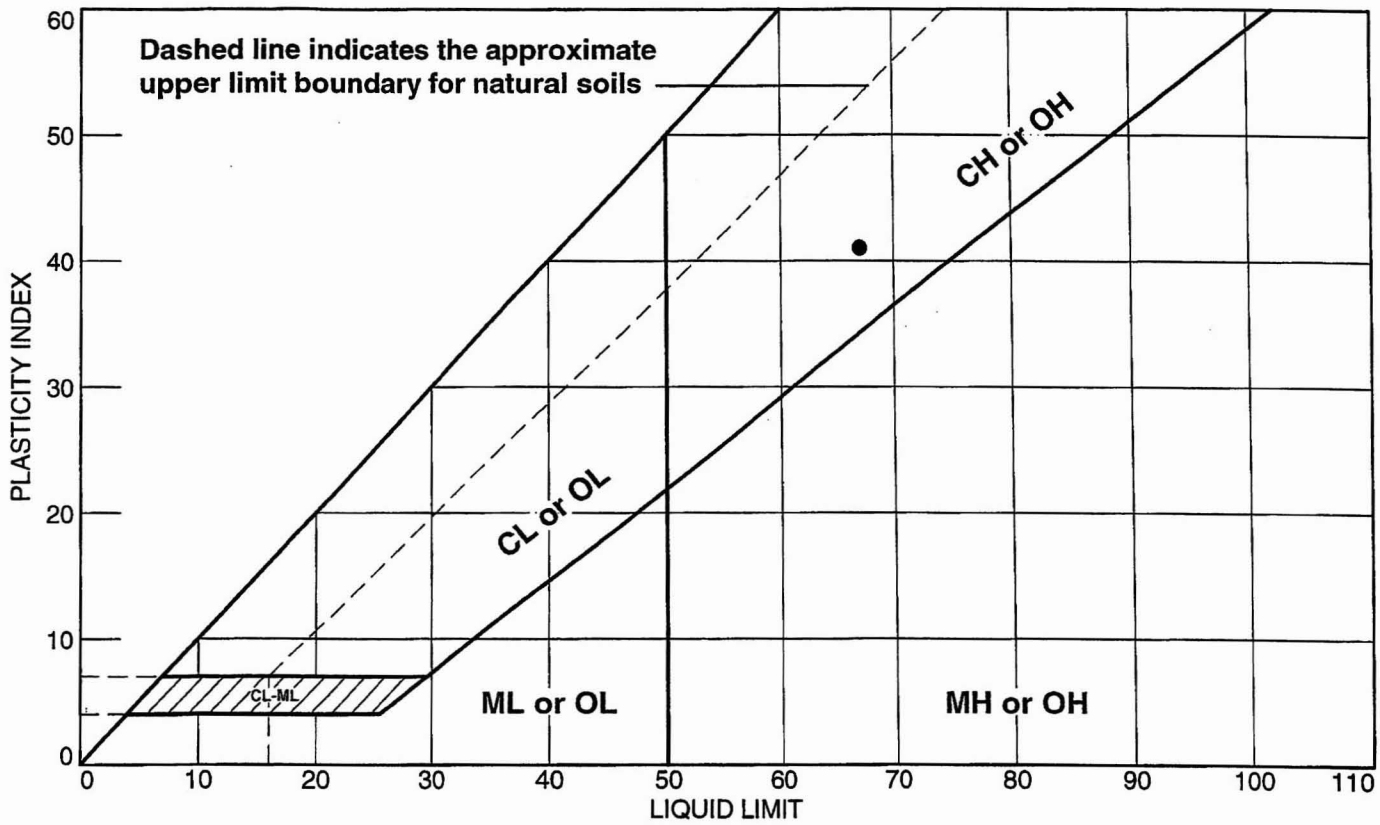
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	9.8	10.1	37.2	52.7	89.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0018	0.0044	0.0067	0.0238	0.0363	0.0763	0.1314

Fineness Modulus
0.05

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-2169	SS-48	338.5-340'	27.2	26	67	41	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ

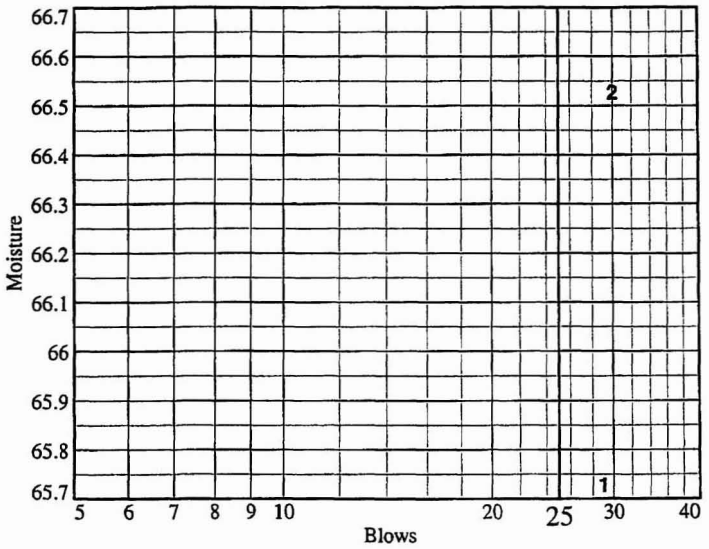
LIQUID AND PLASTIC LIMIT TEST DATA

2/6/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 338.5-340'
Sample Number: SS-48
Material Description: Light Yellowish Brown Fat CLAY
USCS: CH
AASHTO: A-7-6(42)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.38	31.66				
Dry+Tare	25.07	25.26				
Tare	15.47	15.64				
# Blows	29	30				
Moisture	65.7	66.5				



Liquid Limit= 67
Plastic Limit= 26
Plasticity Index= 41
Natural Moisture= 27.2
Liquidity Index= 0.0

Plastic Limit Data

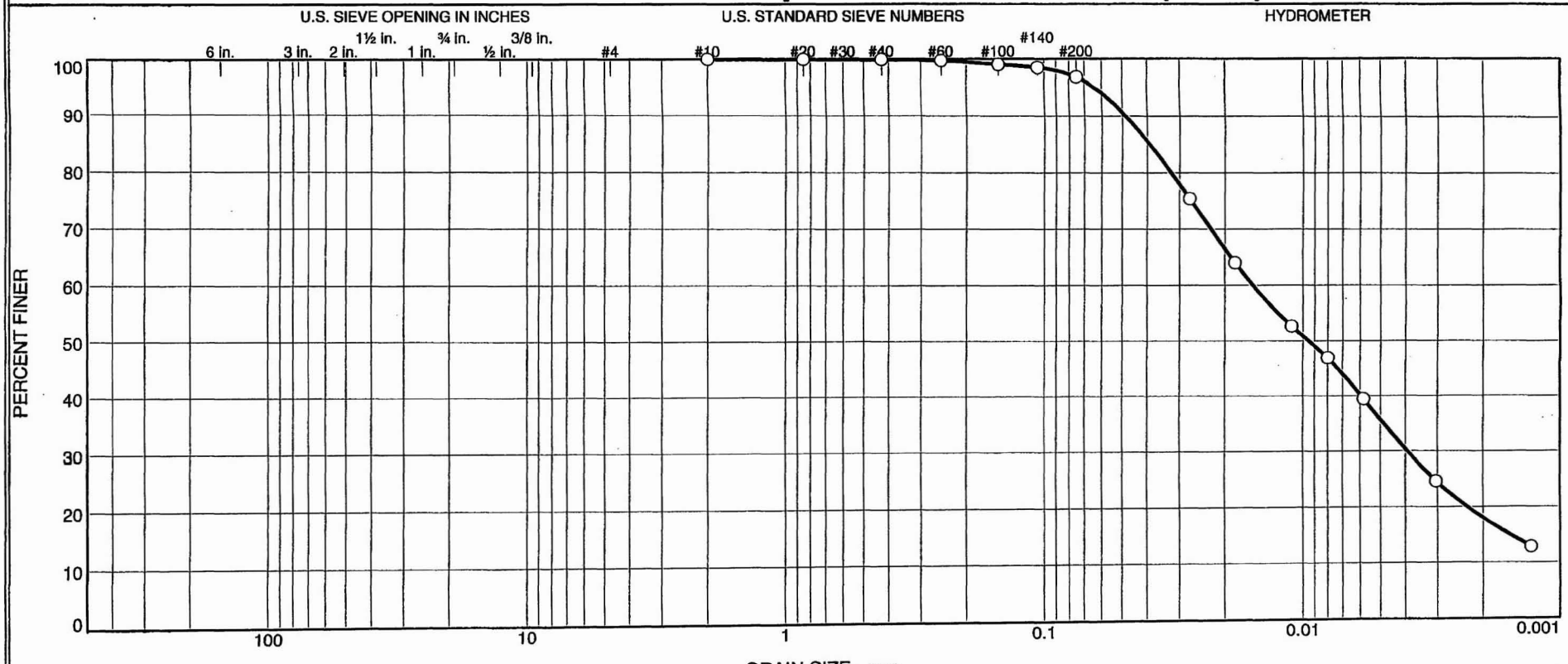
Run No.	1	2	3	4	
Wet+Tare	22.84	20.93			
Dry+Tare	21.32	18.93			
Tare	15.51	11.22			
Moisture	26.2	25.9			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
53.40	44.00	9.40	27.2

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	3.1	61.0	35.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-49	348.5-350'	12-18-07	CH	Brownish Yellow Fat CLAY	21.5	52	18

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 348.5-350' **Sample Number:** SS-49
Material Description: Brownish Yellow Fat CLAY
Date: 12-18-07 **Natural Moisture:** 21.5
Liquid Limit: 52 **Plastic Limit:** 18 **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
214.70	0.00	0.00	#10	0.00	100.0
53.61	0.00	0.00	#20	0.03	99.9
			#40	0.05	99.9
			#60	0.16	99.7
			#100	0.52	99.0
			#140	0.82	98.5
			#200	1.72	96.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =53.61
Hygroscopic moisture correction:
Moist weight and tare = 27.86
Dry weight and tare = 27.53
Tare weight = 15.47
Hygroscopic moisture = 2.7%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.9	44.0	39.8	0.0130	45.0	8.9	0.0274	75.4
5.00	22.9	38.0	33.8	0.0130	39.0	9.9	0.0183	64.0
15.00	22.9	32.0	27.8	0.0130	33.0	10.9	0.0111	52.7
30.00	22.8	29.0	24.8	0.0130	30.0	11.4	0.0080	46.9
60.00	23.0	25.0	20.8	0.0130	26.0	12.0	0.0058	39.4
240.00	23.6	17.0	13.0	0.0129	18.0	13.3	0.0030	24.6
1440.00	22.9	11.0	6.8	0.0130	12.0	14.3	0.0013	12.9

MACTEC, Inc.

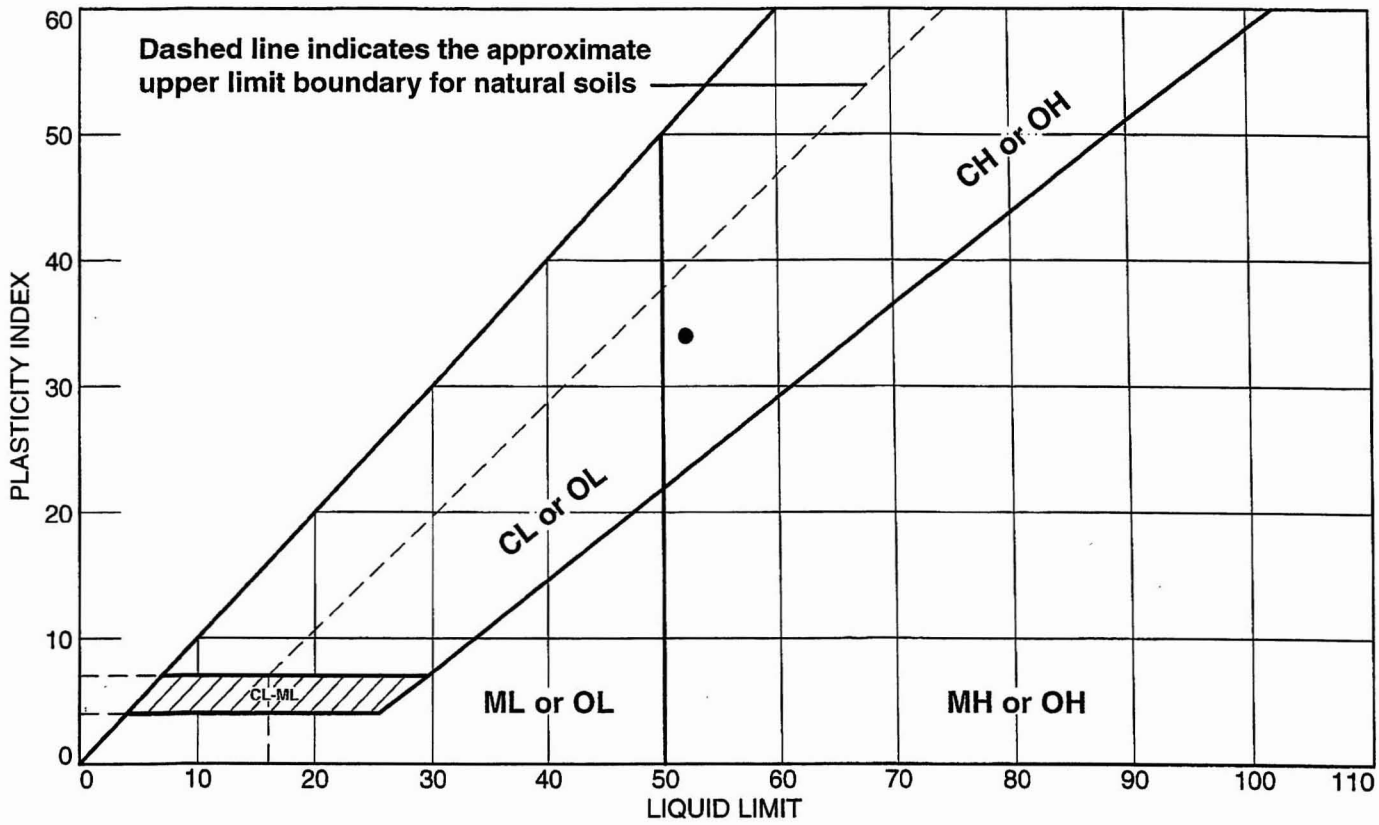
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	3.1	3.2	61.0	35.8	96.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0016	0.0023	0.0039	0.0095	0.0156	0.0323	0.0391	0.0485	0.0643

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-2169	SS-49	348.5-350'	21.5	18	52	34	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

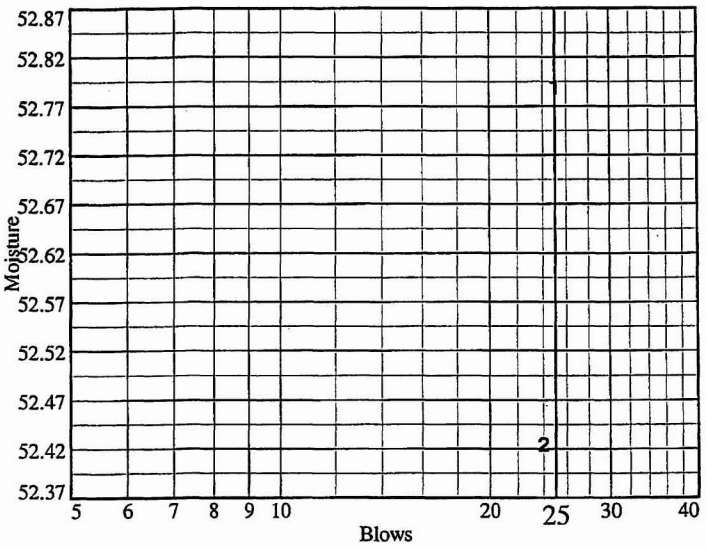
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 348.5-350'
Sample Number: SS-49
Material Description: Brownish Yellow Fat CLAY
USCS: CH
AASHTO: A-7-6(36)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.69	31.88				
Dry+Tare	24.77	26.26				
Tare	15.45	15.54				
# Blows	25	24				
Moisture	52.8	52.4				



Liquid Limit= 52
Plastic Limit= 18
Plasticity Index= 34
Natural Moisture= 21.5
Liquidity Index= 0.1

Plastic Limit Data

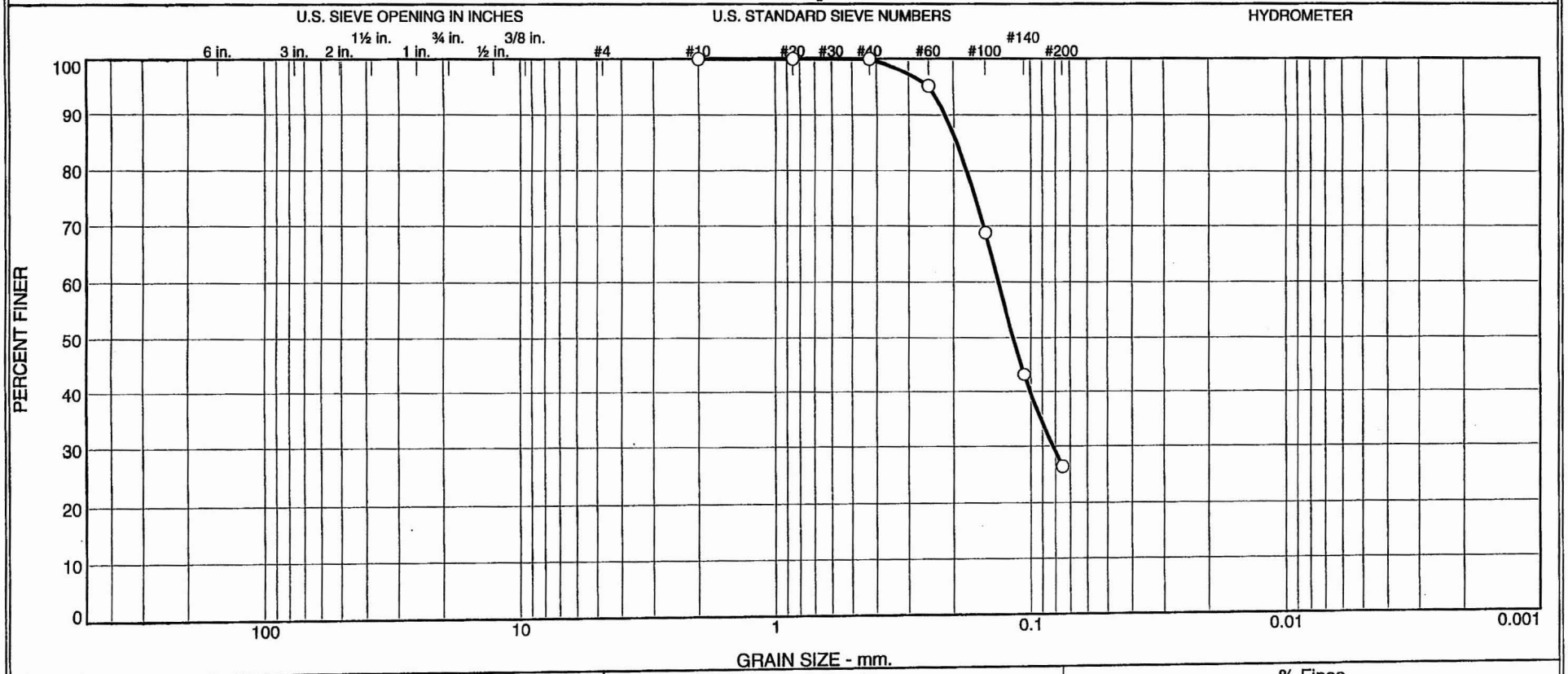
Run No.	1	2	3	4	
Wet+Tare	23.13	24.12			
Dry+Tare	21.96	22.84			
Tare	15.52	15.52			
Moisture	18.2	17.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
118.70	99.35	9.30	21.5

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	73.5	26.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-50	358.5-360'	12/18/07	SC	Pale Yellow Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not determined

Tested By: CS Checked By: LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 358.5-360'
Sample Number: SS-50
Material Description: Pale Yellow Clayey SAND (Visual)
Date: 12/18/07
Natural Moisture: ND
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SC
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not determined
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
112.80	0.00	0.00	#10	0.00	100.0
98.45	0.00	0.00	#20	0.00	100.0
			#40	0.07	99.9
			#60	4.77	95.2
			#100	30.72	68.8
			#140	55.99	43.1
			#200	72.50	26.4

Fractional Components

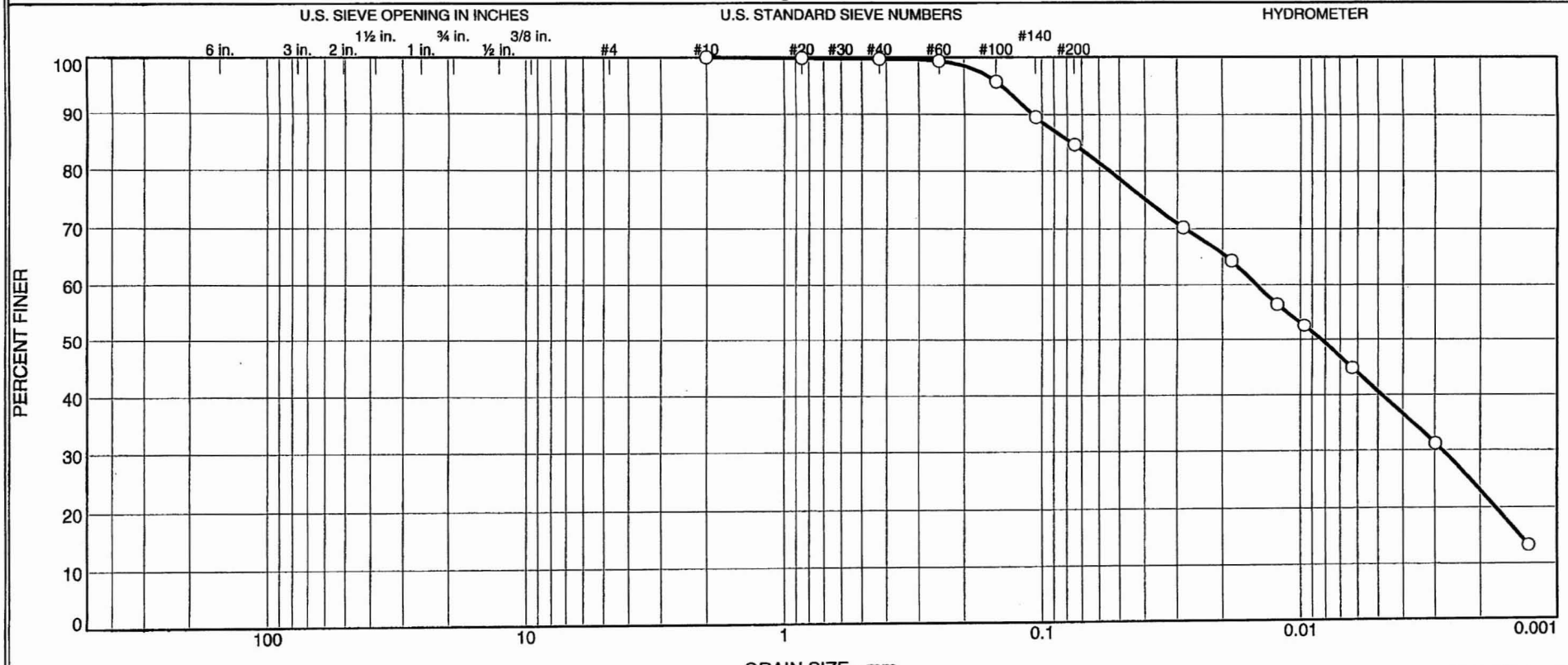
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	73.5	73.6			26.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0819	0.1171	0.1336	0.1775	0.1941	0.2158	0.2486

Fineness Modulus
0.34

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	0.3	15.1	44.0	40.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-51	368.5-370'	12-18-07	CH	Brownish Yellow Fat CLAY with sand	23.0	60	25

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
Organic content = 2.3% (ASTM D-2974-07)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 368.5-370' **Sample Number:** SS-51
Material Description: Brownish Yellow Fat CLAY with sand
Date: 12-18-07 **Natural Moisture:** 23.0
Liquid Limit: 60 **Plastic Limit:** 25 **USCS Class.:** CH
Testing Remarks: Specific Gravity is assumed
Organic content = 2.3% (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
219.70	0.00	0.00	#10	0.00	100.0
52.21	0.00	0.00	#20	0.08	99.8
			#40	0.14	99.7
			#60	0.34	99.3
			#100	2.24	95.7
			#140	5.46	89.5
			#200	8.02	84.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.21
Hygroscopic moisture correction:
Moist weight and tare = 29.77
Dry weight and tare = 29.26
Tare weight = 15.48
Hygroscopic moisture = 3.7%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.8	40.0	35.8	0.0130	41.0	9.6	0.0284	70.2
5.00	22.8	37.0	32.8	0.0130	38.0	10.1	0.0184	64.3
12.00	22.8	33.0	28.8	0.0130	34.0	10.7	0.0123	56.5
20.00	22.9	31.0	26.8	0.0130	32.0	11.0	0.0096	52.6
50.00	22.9	27.0	22.8	0.0130	28.0	11.7	0.0063	44.8
240.00	23.4	20.0	15.9	0.0129	21.0	12.9	0.0030	31.3
1440.00	22.9	11.0	6.8	0.0130	12.0	14.3	0.0013	13.3

MACTEC, Inc.

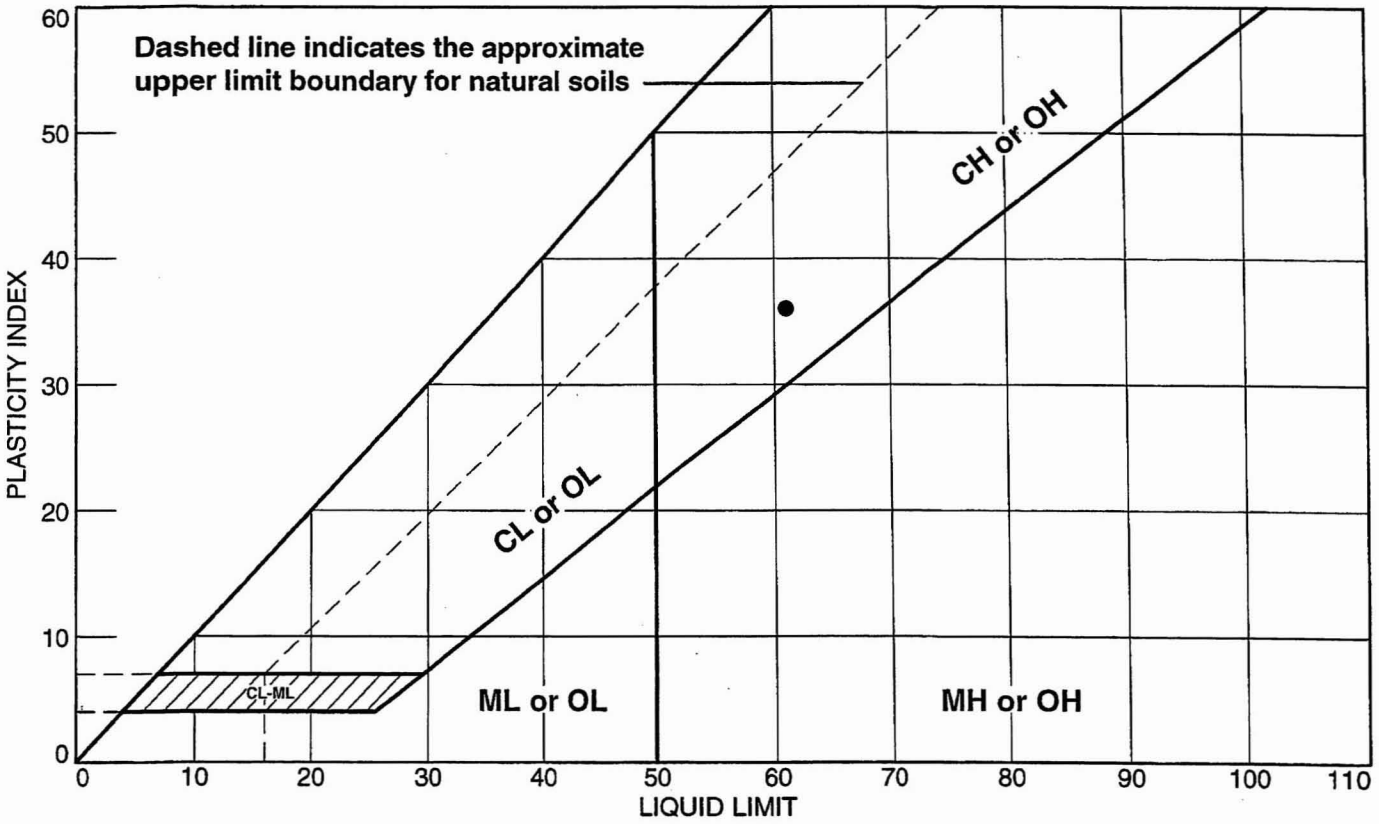
Fractional Components

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	15.1	15.4	44.0	40.6	84.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0014	0.0017	0.0028	0.0083	0.0147	0.0547	0.0770	0.1089	0.1433

Fineness Modulus
0.05

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-2169	SS-51	368.5-370'	23.0	25	61	36	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

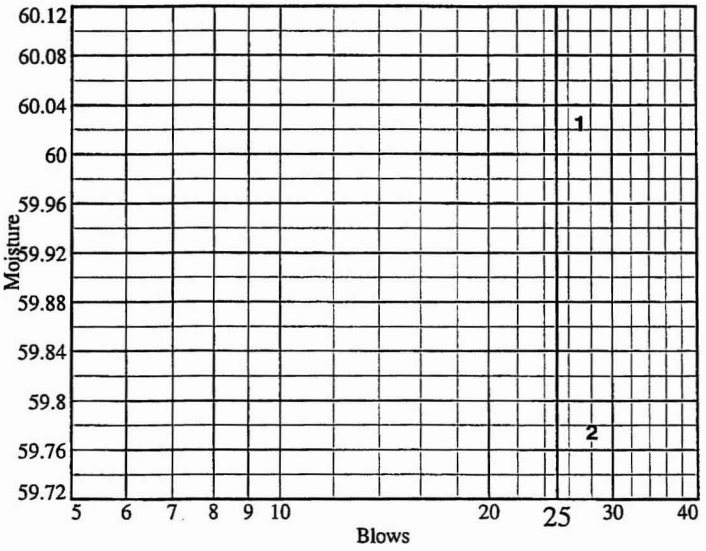
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 368.5-370'
Sample Number: SS-51
Material Description: Brownish Yellow Fat CLAY with sand
USCS: CH
AASHTO: A-7-6(33)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.21	31.09				
Dry+Tare	23.42	25.25				
Tare	15.44	15.48				
# Blows	27	28				
Moisture	60.0	59.8				



Liquid Limit= 61
Plastic Limit= 25
Plasticity Index= 36
Natural Moisture= 23.0
Liquidity Index= -0.1

Plastic Limit Data

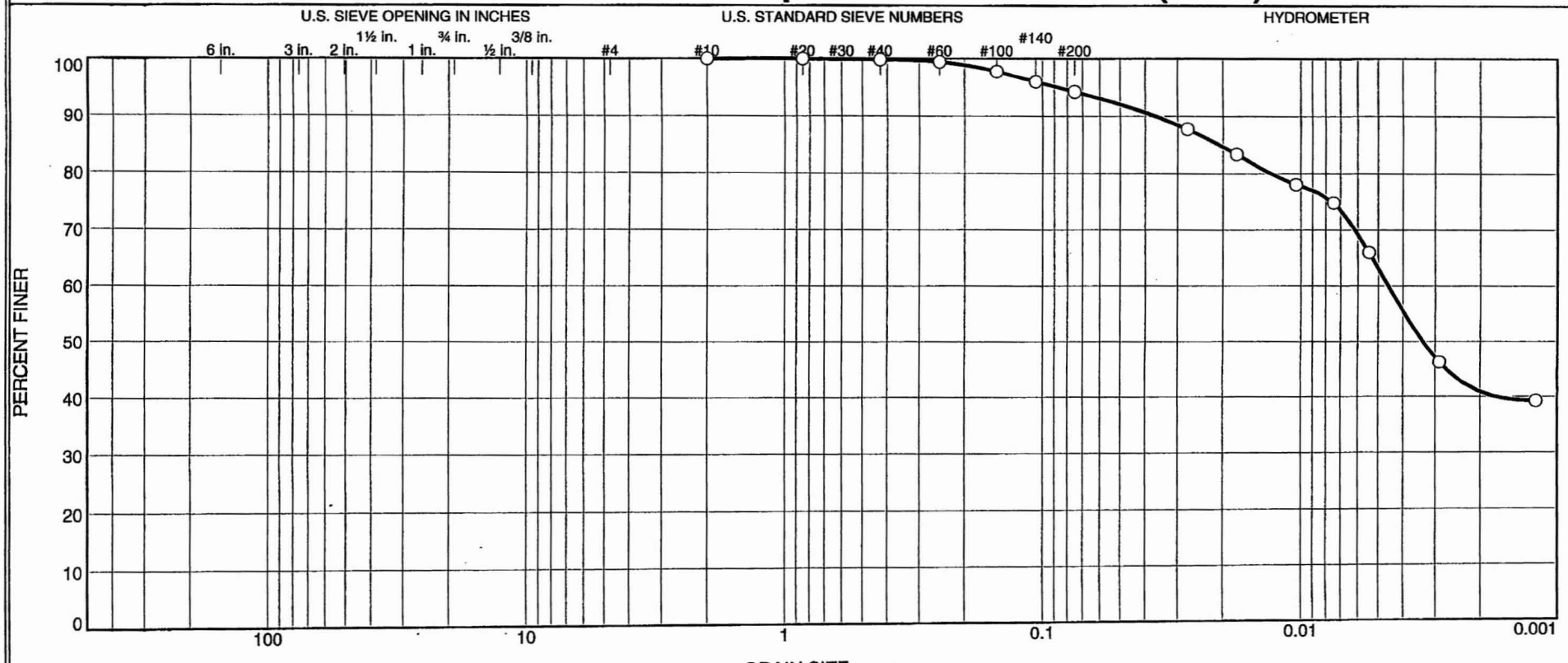
Run No.	1	2	3	4	
Wet+Tare	22.79	22.04			
Dry+Tare	21.35	20.69			
Tare	15.43	15.32			
Moisture	24.3	25.1			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
102.00	84.14	6.60	23.0

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	0.2	5.6	31.1	63.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-52	378.5-380.5'	12-12-08	CH	Very Pale Brown Fat CLAY	36.1	92	30

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 378.5-380.5' **Sample Number:** SS-52
Material Description: Very Pale Brown Fat CLAY
Date: 12-12-08 **Natural Moisture:** 36.1
Liquid Limit: 92 **Plastic Limit:** 30 **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
179.77	0.00	0.00	#10	0.00	100.0
47.36	0.00	0.00	#20	0.02	100.0
			#40	0.08	99.8
			#60	0.27	99.4
			#100	1.07	97.7
			#140	1.93	95.9
			#200	2.75	94.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =47.36
Hygroscopic moisture correction:
Moist weight and tare = 28.69
Dry weight and tare = 27.96
Tare weight = 15.49
Hygroscopic moisture = 5.9%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.7	44.0	39.7	0.0130	45.0	8.9	0.0275	87.8
5.00	22.7	42.0	37.7	0.0130	43.0	9.2	0.0177	83.4
15.00	22.9	39.5	35.3	0.0130	40.5	9.7	0.0104	78.0
30.00	23.0	38.0	33.8	0.0130	39.0	9.9	0.0074	74.7
60.00	23.1	34.0	29.8	0.0129	35.0	10.6	0.0054	66.0
240.00	23.3	25.0	20.9	0.0129	26.0	12.0	0.0029	46.2
1440.00	22.8	22.0	17.8	0.0130	23.0	12.5	0.0012	39.3

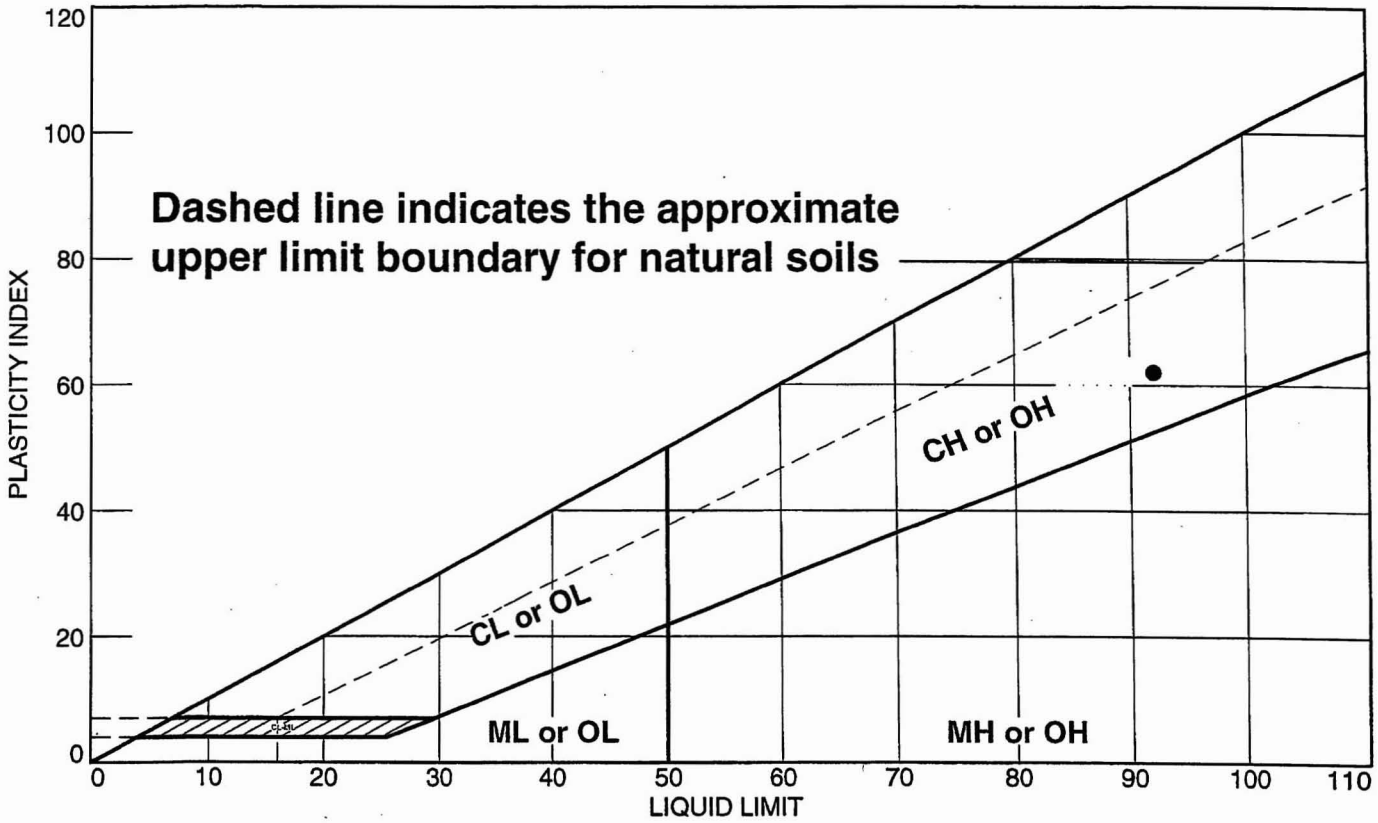
Fractional Components

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	5.6	5.8	31.1	63.1	94.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0034	0.0046	0.0130	0.0205	0.0362	0.0883

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-2169	SS-52	378.5-380.5'	36.1	30	92	62	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

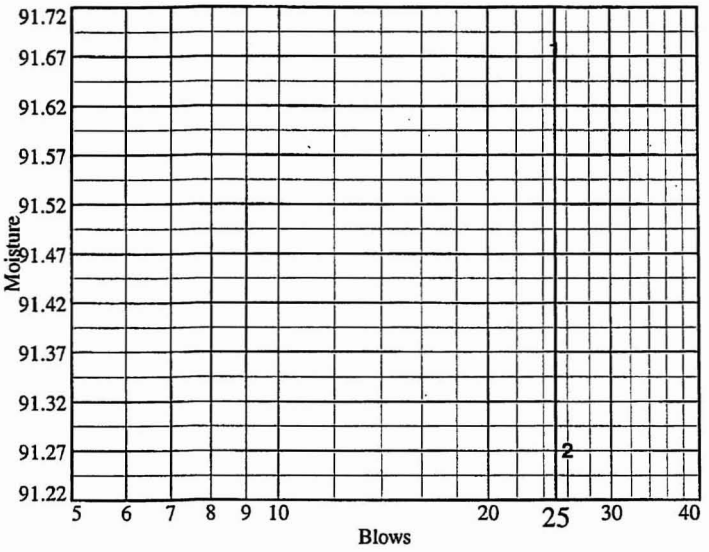
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 378.5-380.5'
Sample Number: SS-52
Material Description: Very Pale Brown Fat CLAY
USCS: CH
AASHTO: A-7-5(68)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.48	27.95				
Dry+Tare	23.32	21.99				
Tare	15.51	15.46				
# Blows	25	26				
Moisture	91.7	91.3				



Liquid Limit= 92
Plastic Limit= 30
Plasticity Index= 62
Natural Moisture= 36.1
Liquidity Index= 0.1

Plastic Limit Data

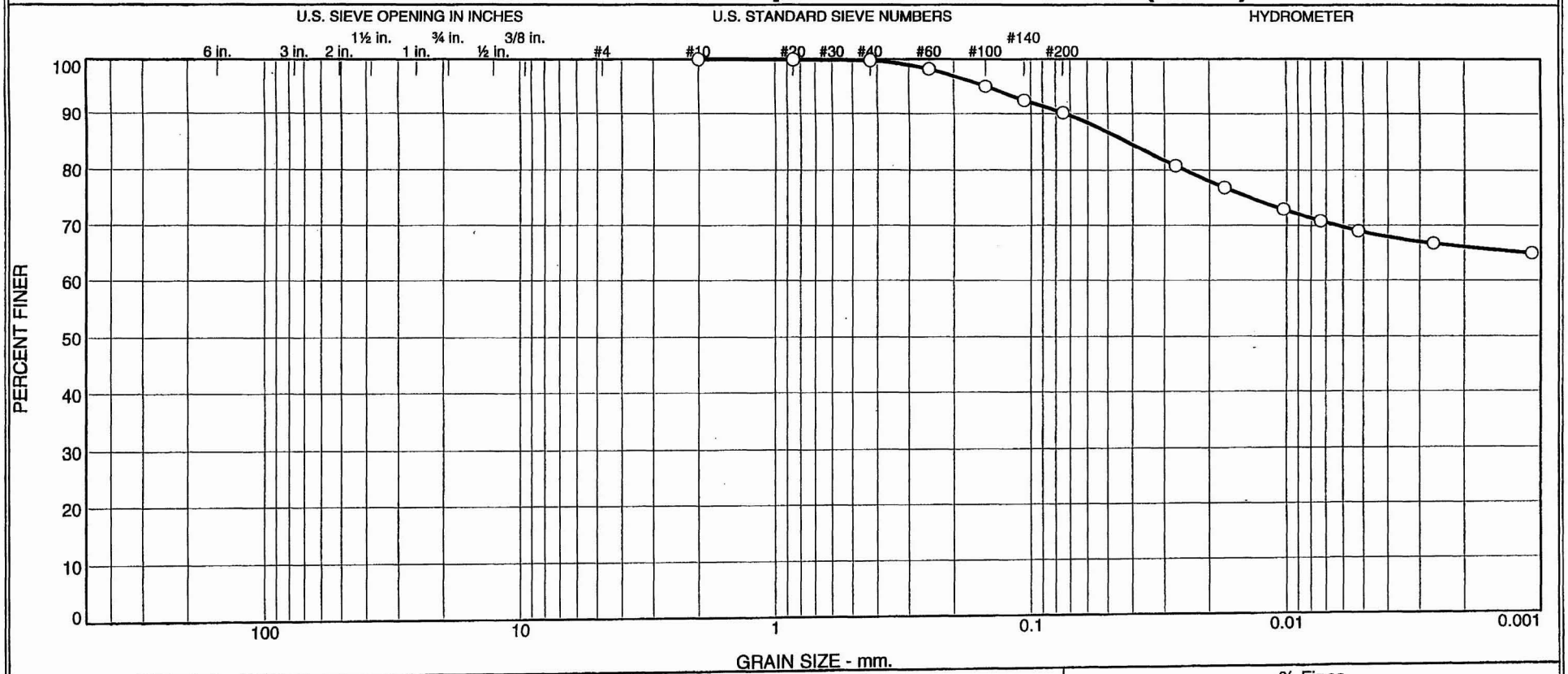
Run No.	1	2	3	4	
Wet+Tare	22.20	22.60			
Dry+Tare	20.67	20.95			
Tare	15.60	15.40			
Moisture	30.2	29.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
61.60	47.01	6.60	36.1

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	0.2	9.6	21.4	68.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-53	388.5-390'	12-19-07	CH	Light Gray Fat CLAY	30.5	70	30

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 388.5-390'
Sample Number: SS-53
Material Description: Light Gray Fat CLAY
Date: 12-19-07
Natural Moisture: 30.5
Liquid Limit: 70
Plastic Limit: 30
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
212.18	0.00	0.00	#10	0.00	100.0
51.90	0.00	0.00	#20	0.02	100.0
			#40	0.09	99.8
			#60	0.90	98.3
			#100	2.59	95.0
			#140	3.93	92.4
			#200	5.10	90.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =51.89
Hygroscopic moisture correction:
Moist weight and tare = 27.46
Dry weight and tare = 27.00
Tare weight = 15.61
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 = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.7	45.0	40.7	0.0130	46.0	8.8	0.0272	80.8
5.00	22.9	43.0	38.8	0.0130	44.0	9.1	0.0175	76.9
15.00	22.9	41.0	36.8	0.0130	42.0	9.4	0.0103	72.9
30.00	22.7	40.0	35.7	0.0130	41.0	9.6	0.0073	70.8
60.00	23.0	39.0	34.8	0.0130	40.0	9.7	0.0052	69.0
240.00	22.5	38.0	33.7	0.0130	39.0	9.9	0.0026	66.8
1440.00	22.9	37.0	32.8	0.0130	38.0	10.1	0.0011	65.0

MACTEC, Inc.

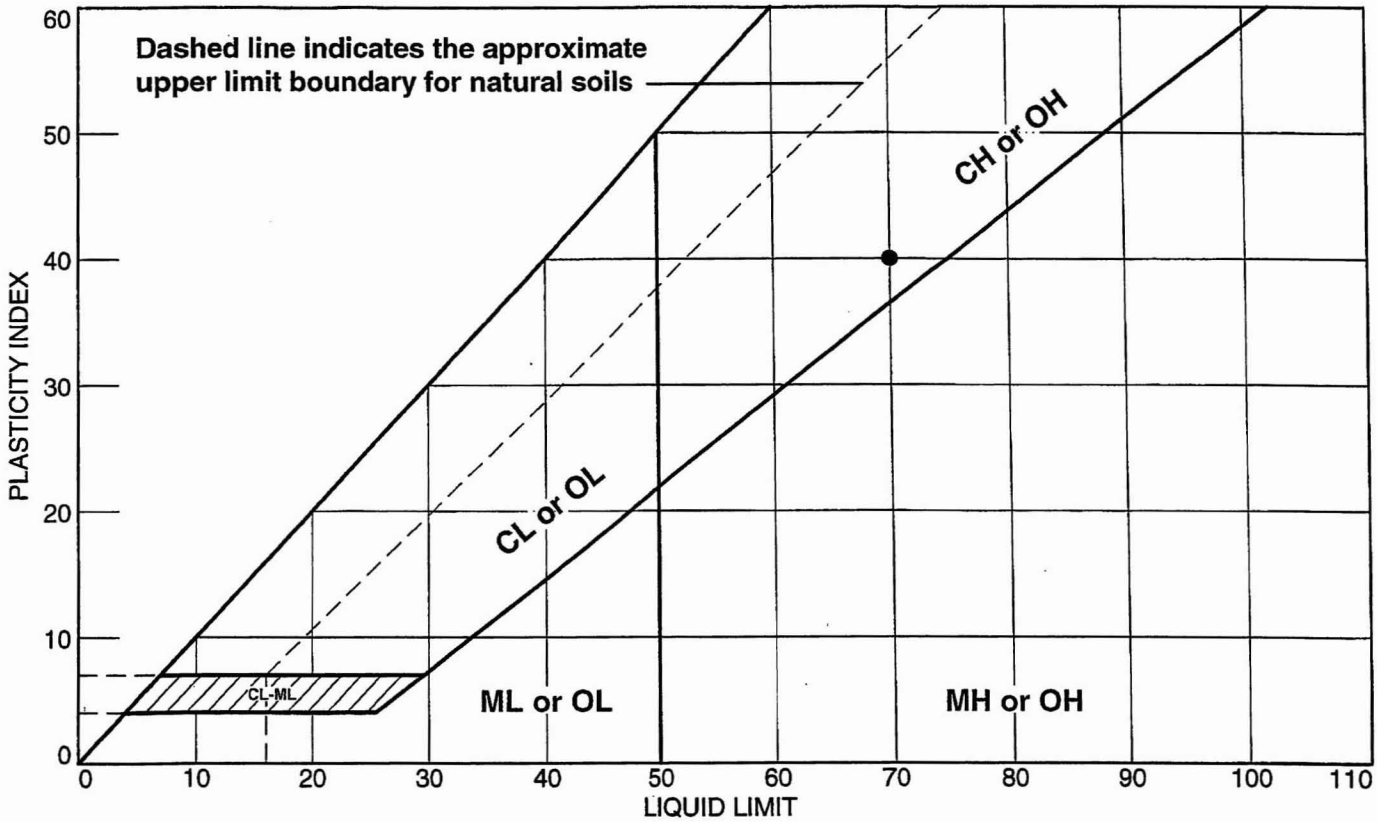
Fractional Components

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	9.6	9.8	21.4	68.8	90.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0251	0.0418	0.0732	0.1498

Fineness Modulus
0.06

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-2169	SS-53	388.5-390'	30.5	30	70	40	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

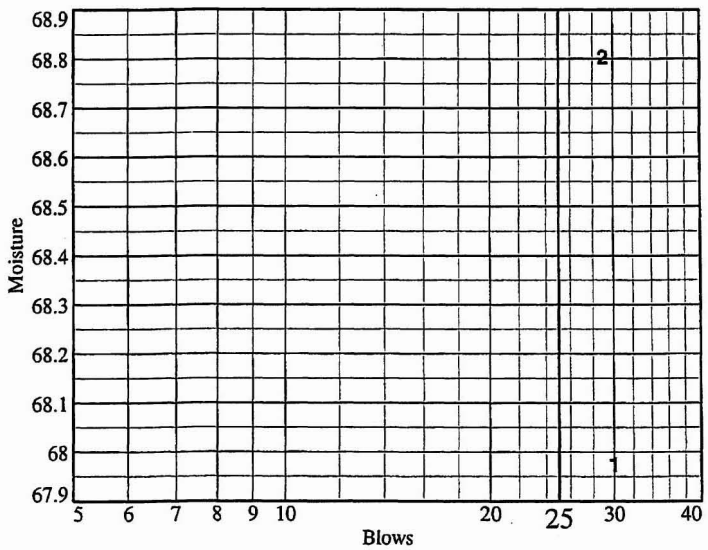
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 388.5-390'
Sample Number: SS-53
Material Description: Light Gray Fat CLAY
USCS: CH
AASHTO: A-7-5(42)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.15	29.21				
Dry+Tare	23.61	23.74				
Tare	15.46	15.79				
# Blows	30	29				
Moisture	68.0	68.8				



Liquid Limit= 70
Plastic Limit= 30
Plasticity Index= 40
Natural Moisture= 30.5
Liquidity Index= 0.0

Plastic Limit Data

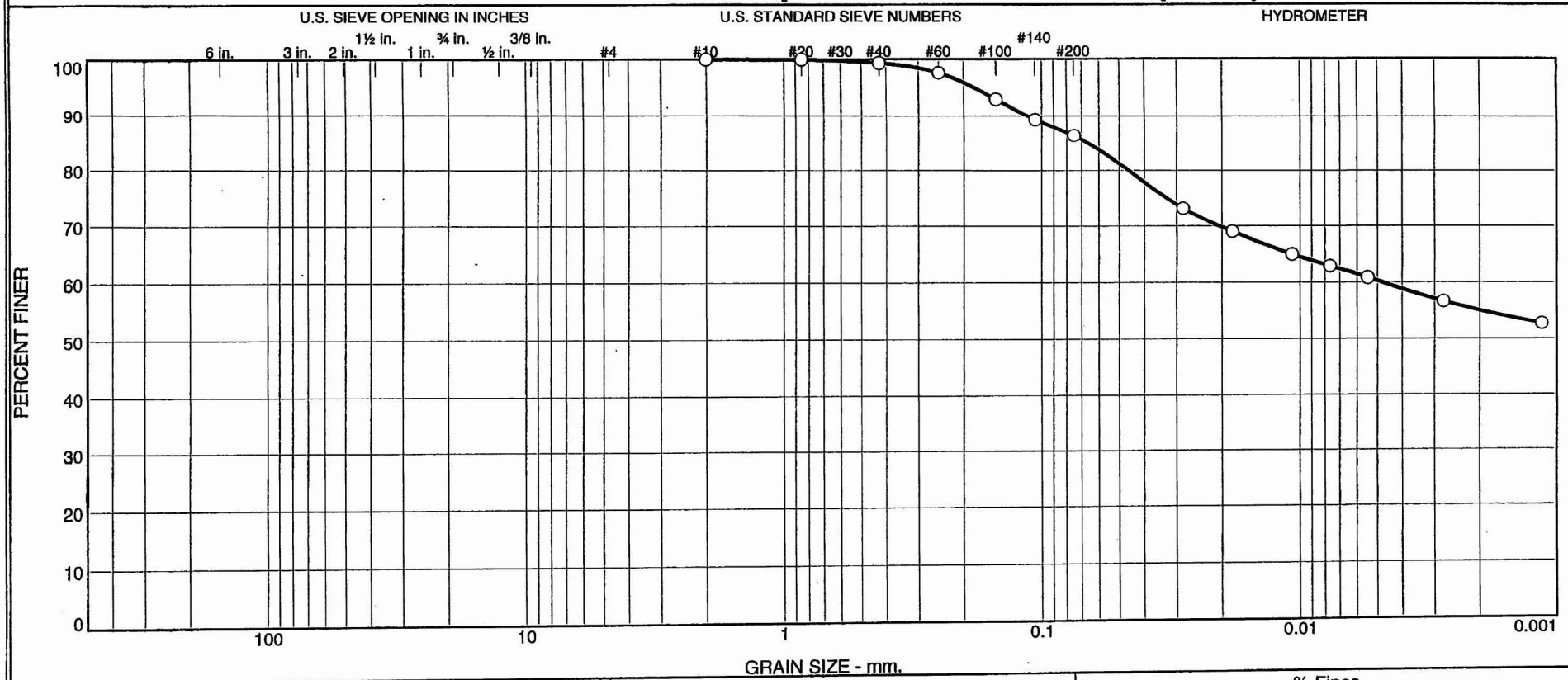
Run No.	1	2	3	4	
Wet+Tare	22.43	23.43			
Dry+Tare	20.89	21.61			
Tare	15.85	15.47			
Moisture	30.6	29.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
128.10	100.32	9.20	30.5

MACTEC, Inc.

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



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.6	13.0	26.1	60.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2169	SS-54	398.5-400'	12-19-07	CH	Pale Yellow Fat CLAY	32.9	63	24

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 398.5-400' **Sample Number:** SS-54
Material Description: Pale Yellow Fat CLAY
Date: 12-19-07 **Natural Moisture:** 32.9
Liquid Limit: 63 **Plastic Limit:** 24 **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
208.71	0.00	0.00	#10	0.00	100.0
50.33	0.00	0.00	#20	0.03	99.9
			#40	0.32	99.4
			#60	1.20	97.6
			#100	3.53	93.0
			#140	5.36	89.4
			#200	6.82	86.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.34
Hygroscopic moisture correction:
Moist weight and tare = 22.05
Dry weight and tare = 21.64
Tare weight = 11.19
Hygroscopic moisture = 3.9%
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 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.1	40.0	35.8	0.0129	41.0	9.6	0.0283	73.2
5.00	23.0	38.0	33.8	0.0130	39.0	9.9	0.0182	69.0
15.00	22.9	36.0	31.8	0.0130	37.0	10.2	0.0107	64.9
30.00	22.9	35.0	30.8	0.0130	36.0	10.4	0.0076	62.9
60.00	22.9	34.0	29.8	0.0130	35.0	10.6	0.0054	60.8
240.00	22.8	32.0	27.8	0.0130	33.0	10.9	0.0028	56.7
1440.00	23.0	30.0	25.8	0.0130	31.0	11.2	0.0011	52.7

MACTEC, Inc.

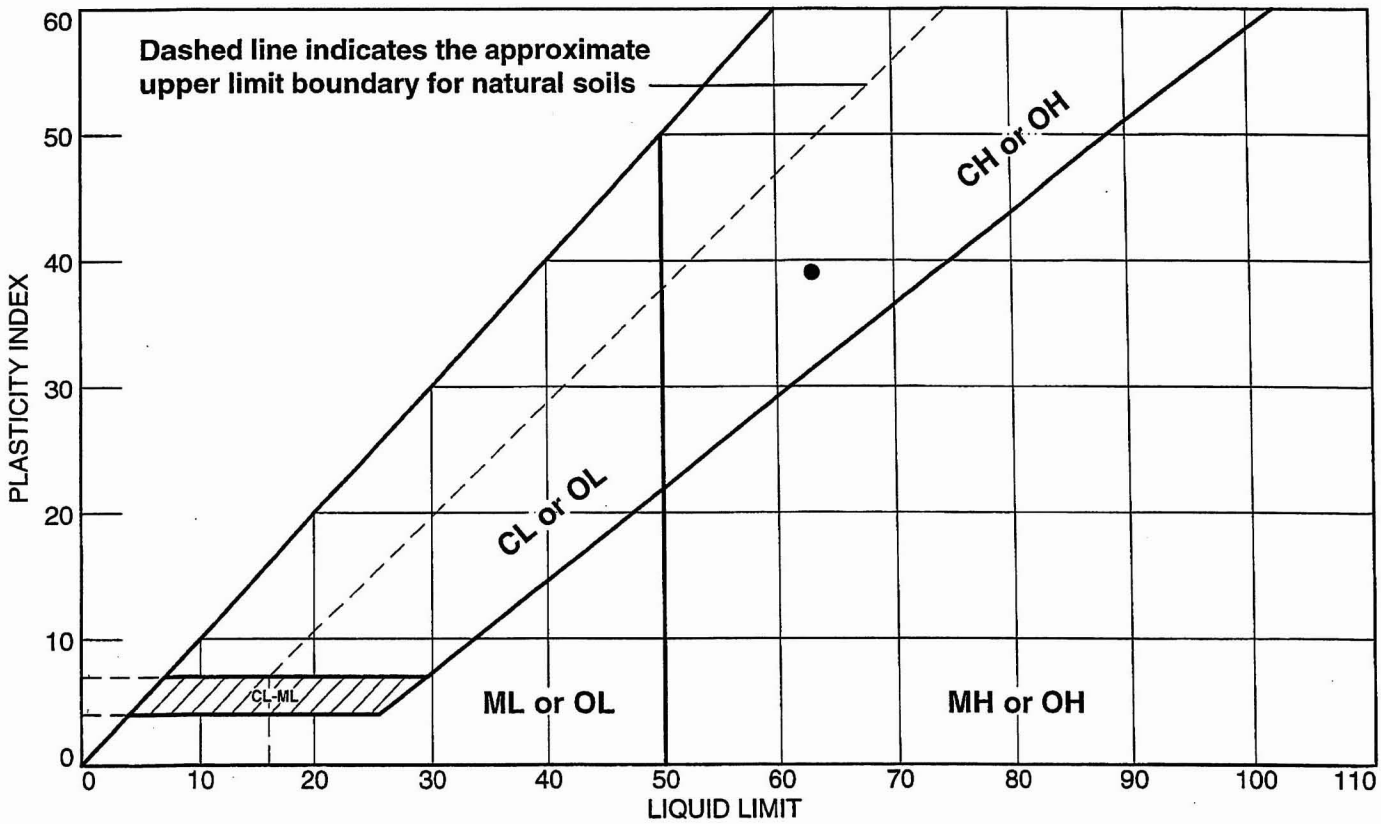
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	13.0	13.6	26.1	60.3	86.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0048	0.0460	0.0657	0.1136	0.1818

Fineness Modulus
0.09

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-2169	SS-54	398.5-400'	32.9	24	63	39	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

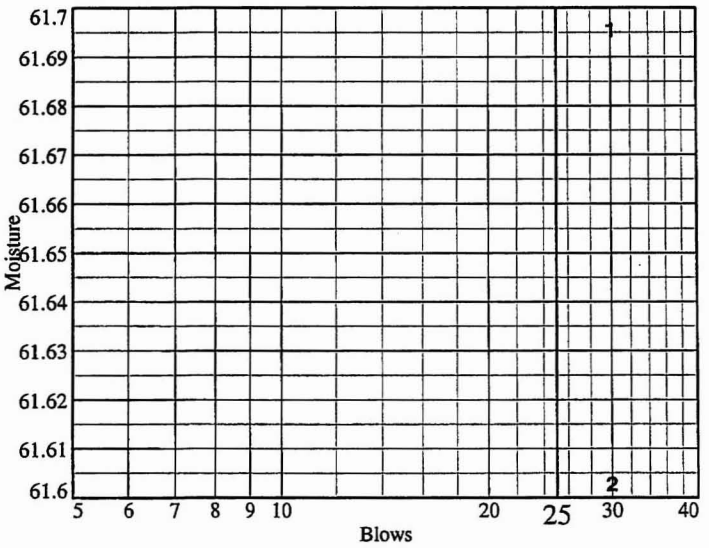
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 398.5-400'
Sample Number: SS-54
Material Description: Pale Yellow 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	31.28	28.93				
Dry+Tare	25.24	23.78				
Tare	15.45	15.42				
# Blows	30	30				
Moisture	61.7	61.6				



Liquid Limit= 63
Plastic Limit= 24
Plasticity Index= 39
Natural Moisture= 32.9
Liquidity Index= 0.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	19.70	24.90			
Dry+Tare	18.01	23.13			
Tare	11.10	15.80			
Moisture	24.5	24.1			

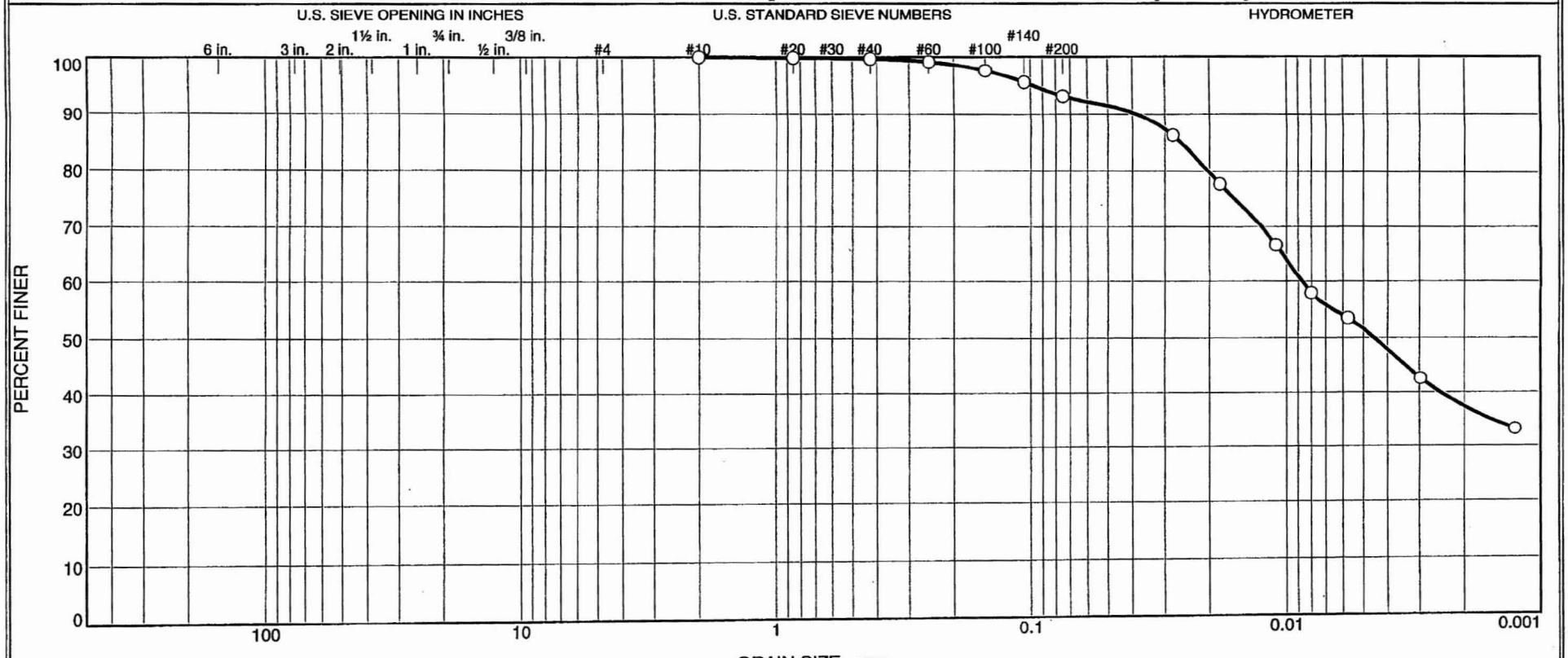
Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
102.80	79.06	6.80	32.9

MACTEC, Inc.

Boring B-2170

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	0.3	6.6	41.4	51.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2170	SS-31	158.5-160.0	12-14-07	CL	Greenish Gray Lean CLAY	15.1	44	15

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 2-6-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/6/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2170
Depth: 158.5-160.0 **Sample Number:** SS-31
Material Description: Greenish Gray Lean CLAY
Date: 12-14-07 **Natural Moisture:** 15.1
Liquid Limit: 44 **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
273.59	0.00	0.00	#10	0.00	100.0
46.16	0.00	0.00	#20	0.06	99.9
			#40	0.16	99.7
			#60	0.40	99.1
			#100	1.11	97.6
			#140	2.06	95.5
			#200	3.18	93.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =46.16
Hygroscopic moisture correction:
Moist weight and tare = 26.80
Dry weight and tare = 26.55
Tare weight = 15.40
Hygroscopic moisture = 2.2%
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 = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	44.0	39.4	0.0132	45.0	8.9	0.0278	86.4
5.00	21.8	40.0	35.5	0.0131	41.0	9.6	0.0182	77.7
15.00	21.7	35.0	30.5	0.0132	36.0	10.4	0.0110	66.7
30.00	21.7	31.0	26.5	0.0132	32.0	11.0	0.0080	57.9
60.00	21.7	29.0	24.5	0.0132	30.0	11.4	0.0057	53.6
240.00	21.6	24.0	19.4	0.0132	25.0	12.2	0.0030	42.6
1440.00	20.6	20.0	15.2	0.0133	21.0	12.9	0.0013	33.2

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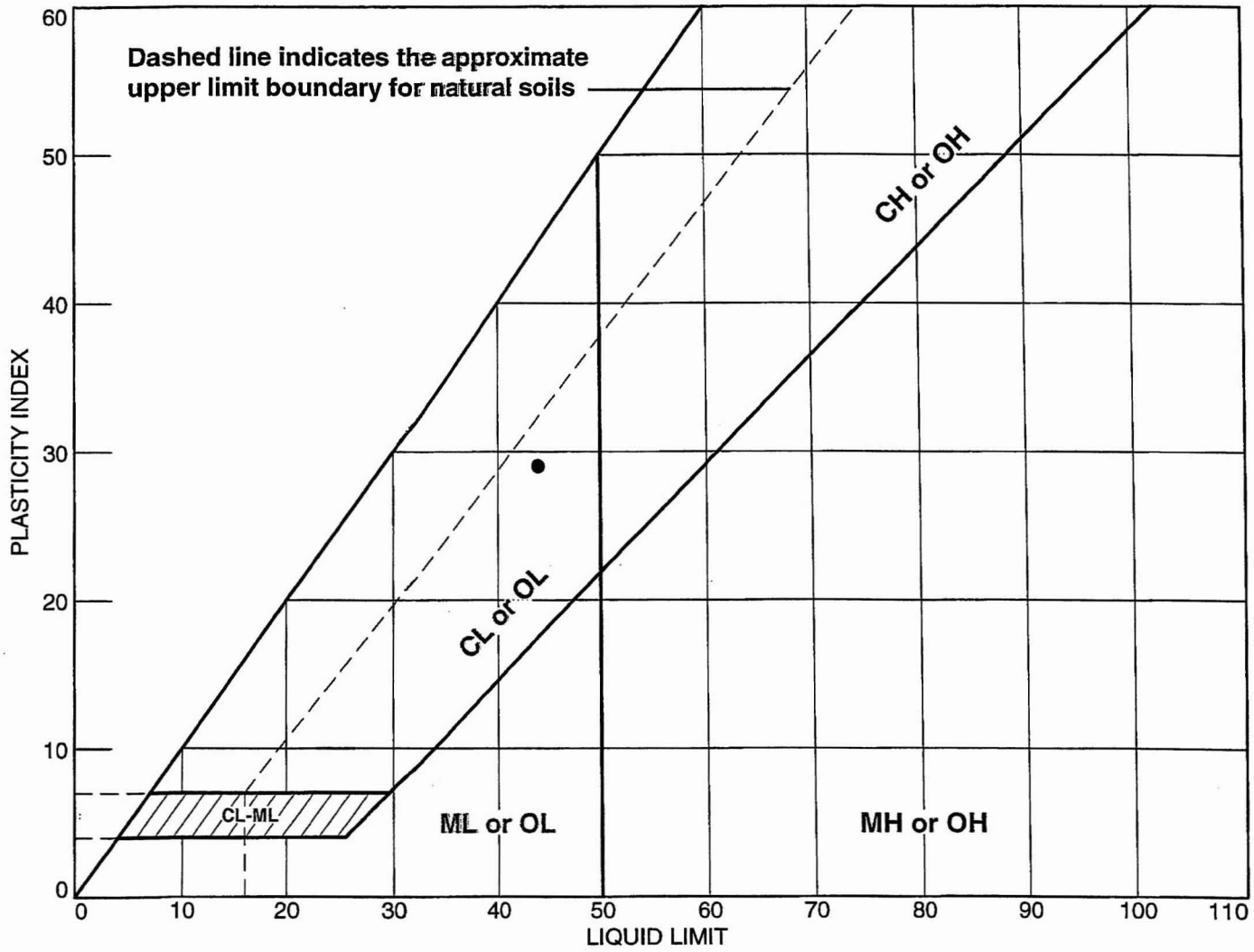
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	6.6	6.9	41.4	51.7	93.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0045	0.0087	0.0202	0.0258	0.0383	0.0985

Fineness Modulus
0.03

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-2170	SS-31	158.5-160.0	15.1	15	44	29	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ

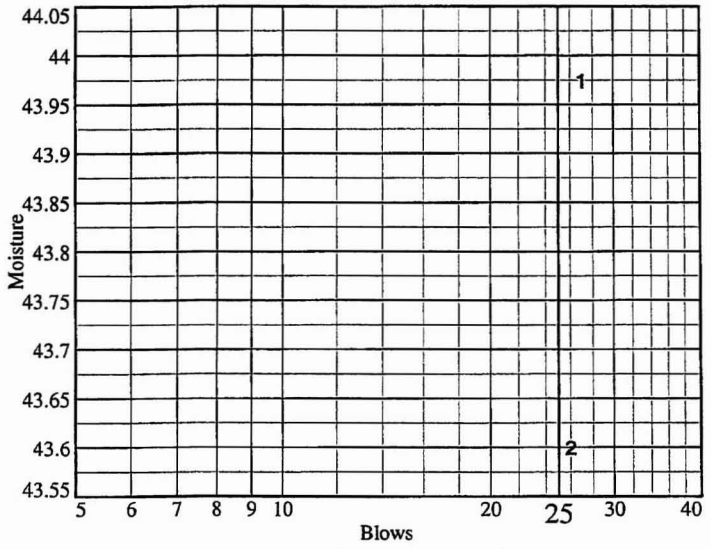
LIQUID AND PLASTIC LIMIT TEST DATA

2/6/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2170
Depth: 158.5-160.0 **Sample Number:** SS-31
Material Description: Greenish Gray Lean CLAY
USCS: CL **AASHTO:** A-7-6(28)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.33	33.36				
Dry+Tare	27.93	27.91				
Tare	15.65	15.41				
# Blows	27	26				
Moisture	44.0	43.6				



Liquid Limit= 44
Plastic Limit= 15
Plasticity Index= 29
Natural Moisture= 15.1
Liquidity Index= 0.0

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.30	24.68			
Dry+Tare	25.78	23.48			
Tare	15.59	15.46			
Moisture	14.9	15.0			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
97.26	85.69	9.20	15.1

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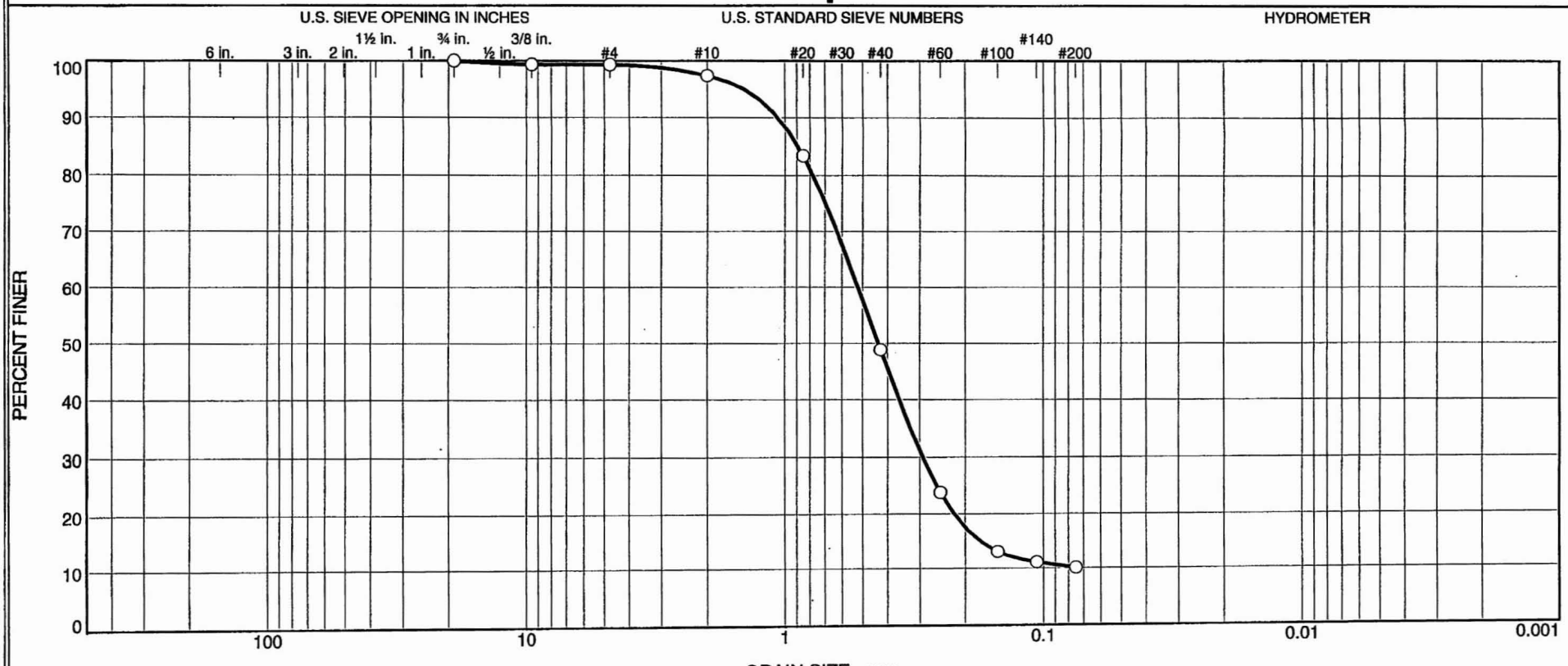
Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.6	2.0	48.6	38.7	10.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2170	SS-32	168.5-170.0	12-15-07	SP-SC	Very Pale Brown Poorly Graded SAND with clay (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not determined

Tested By: LBJ **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-2170
Depth: 168.5-170.0 **Sample Number:** SS-32
Material Description: Very Pale Brown Poorly Graded SAND with clay (Visual)
Date: 12-15-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SC
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not determined
Tested by: LBJ **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
230.79	0.00	0.00	3/4	0.00	100.0
			3/8"	1.45	99.4
			#4	1.48	99.4
			#10	6.03	97.4
101.52	0.00	0.00	#20	14.56	83.4
			#40	50.61	48.8
			#60	76.65	23.9
			#100	87.89	13.1
			#140	89.92	11.1
			#200	90.99	10.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	2.0	48.6	38.7	89.3			10.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1746	0.2208	0.2922	0.4341	0.5203	0.7784	0.8897	1.0640	1.4409

Fineness Modulus
1.99

MACTEC, Inc.