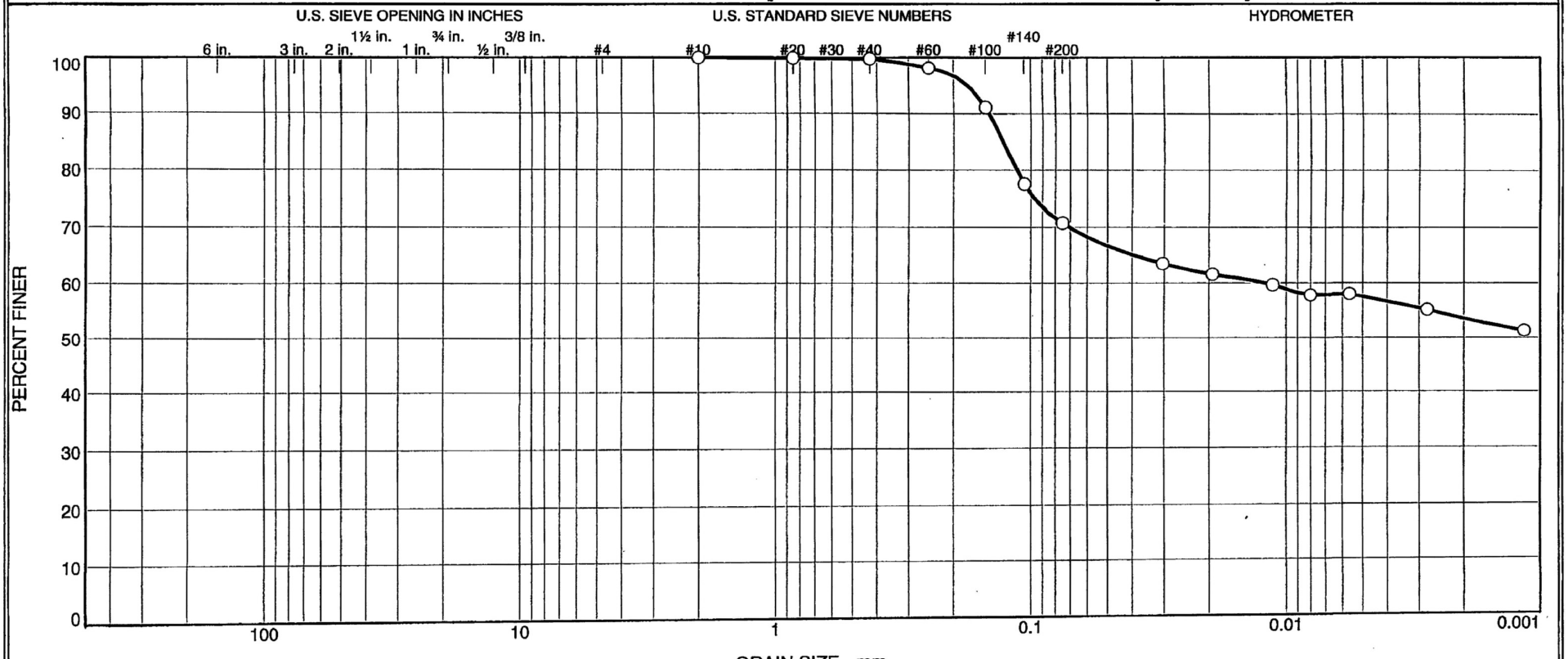
Particle Size Distribution Report / ASTM D- 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.2	29.1	13.1	57.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2182A	SS-17A	68.5-69.5	11/29/07	CL	Brownish Gray Lean CLAY with sand	24.1	33	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 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2182A
Depth: 68.5-69.5 **Sample Number:** SS-17A
Material Description: Brownish Gray Lean CLAY with sand
Date: 11/29/07 **Natural Moisture:** 24.1
Liquid Limit: 33 **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
198.68	0.00	0.00	#10	0.00	100.0
52.51	0.00	0.00	#20	0.06	99.9
			#40	0.13	99.8
			#60	1.01	98.1
			#100	4.68	91.1
			#140	11.76	77.6
			#200	15.36	70.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.51
Hygroscopic moisture correction:
Moist weight and tare = 27.28
Dry weight and tare = 26.95
Tare weight = 15.55
Hygroscopic moisture = 2.9%
Table of composite correction values:

Temp., deg. C:	12.2	27.1
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	18.8	38.0	32.8	0.0136	39.0	9.9	0.0304	63.5
5.00	18.8	37.0	31.8	0.0136	38.0	10.1	0.0194	61.6
15.00	18.9	36.0	30.8	0.0136	37.0	10.2	0.0113	59.7
30.00	19.1	35.0	29.9	0.0136	36.0	10.4	0.0080	57.8
60.00	19.5	35.0	30.0	0.0135	36.0	10.4	0.0056	58.1
240.00	21.5	33.0	28.5	0.0132	34.0	10.7	0.0028	55.2
1440.00	21.5	31.0	26.5	0.0132	32.0	11.0	0.0012	51.3

MACTEC, Inc.

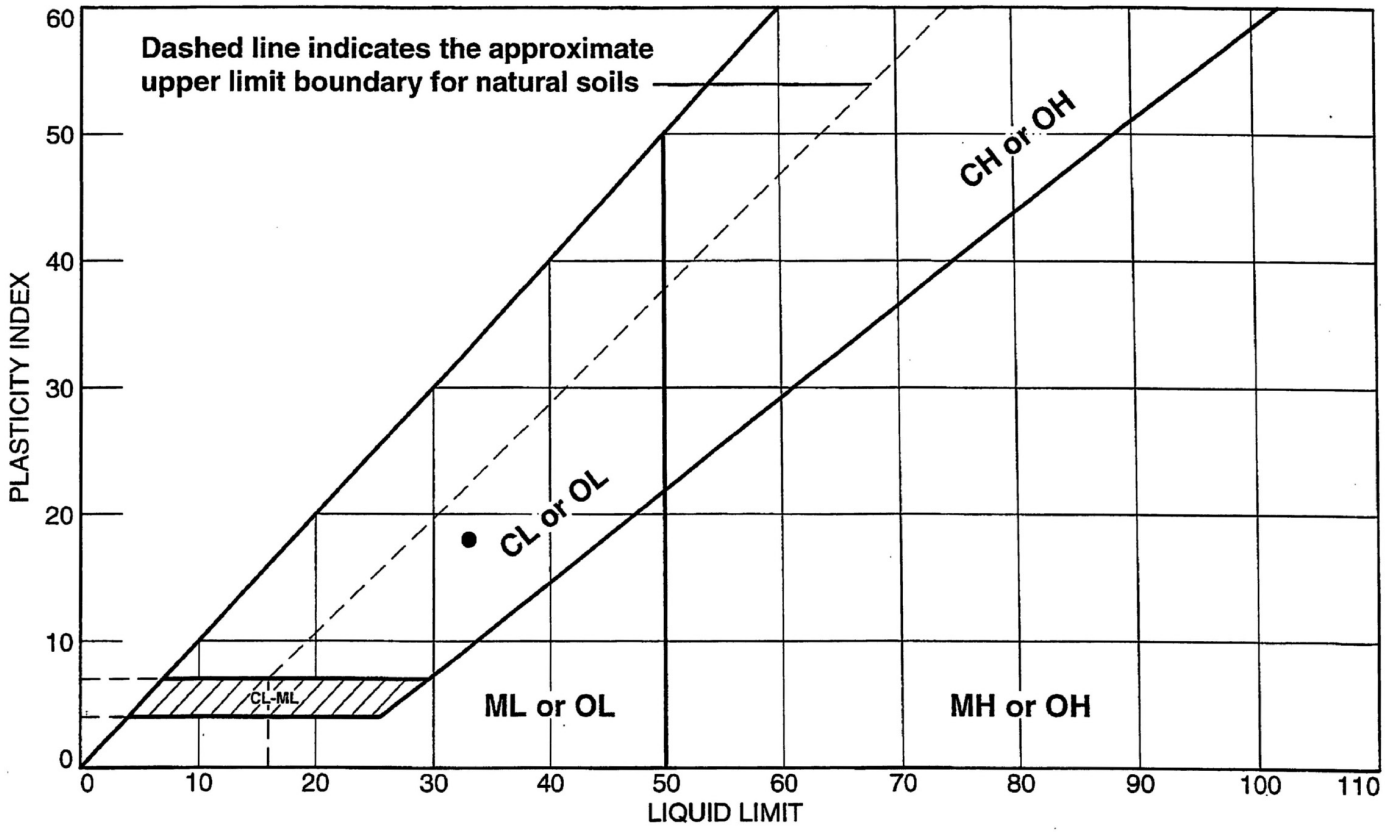
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	29.1	29.3	13.1	57.6	70.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0120	0.1133	0.1280	0.1453	0.1759

Fineness Modulus
0.10

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-2182A	SS-17A	68.5-69.5	24.1	15	33	18	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

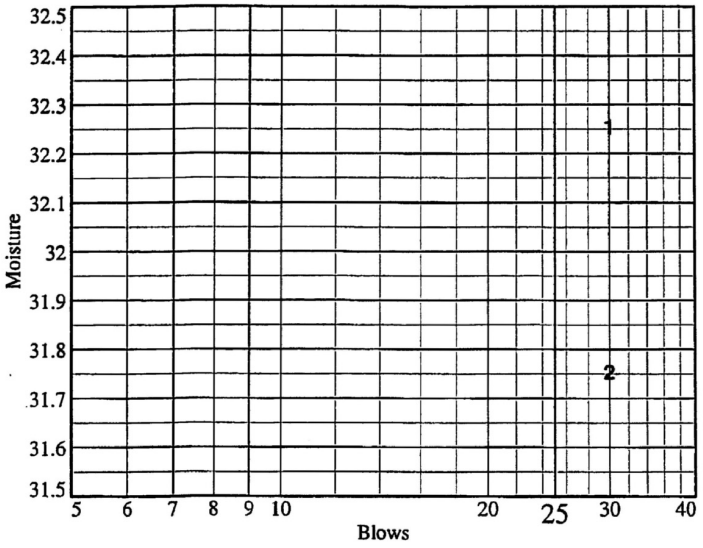
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2182A
Depth: 68.5-69.5 **Sample Number:** SS-17A
Material Description: Brownish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-6(10)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.49	31.72				
Dry+Tare	26.10	27.83				
Tare	15.59	15.58				
# Blows	30	30				
Moisture	32.3	31.8				



Liquid Limit= 33
Plastic Limit= 15
Plasticity Index= 18
Natural Moisture= 24.1
Liquidity Index= 0.5

Plastic Limit Data

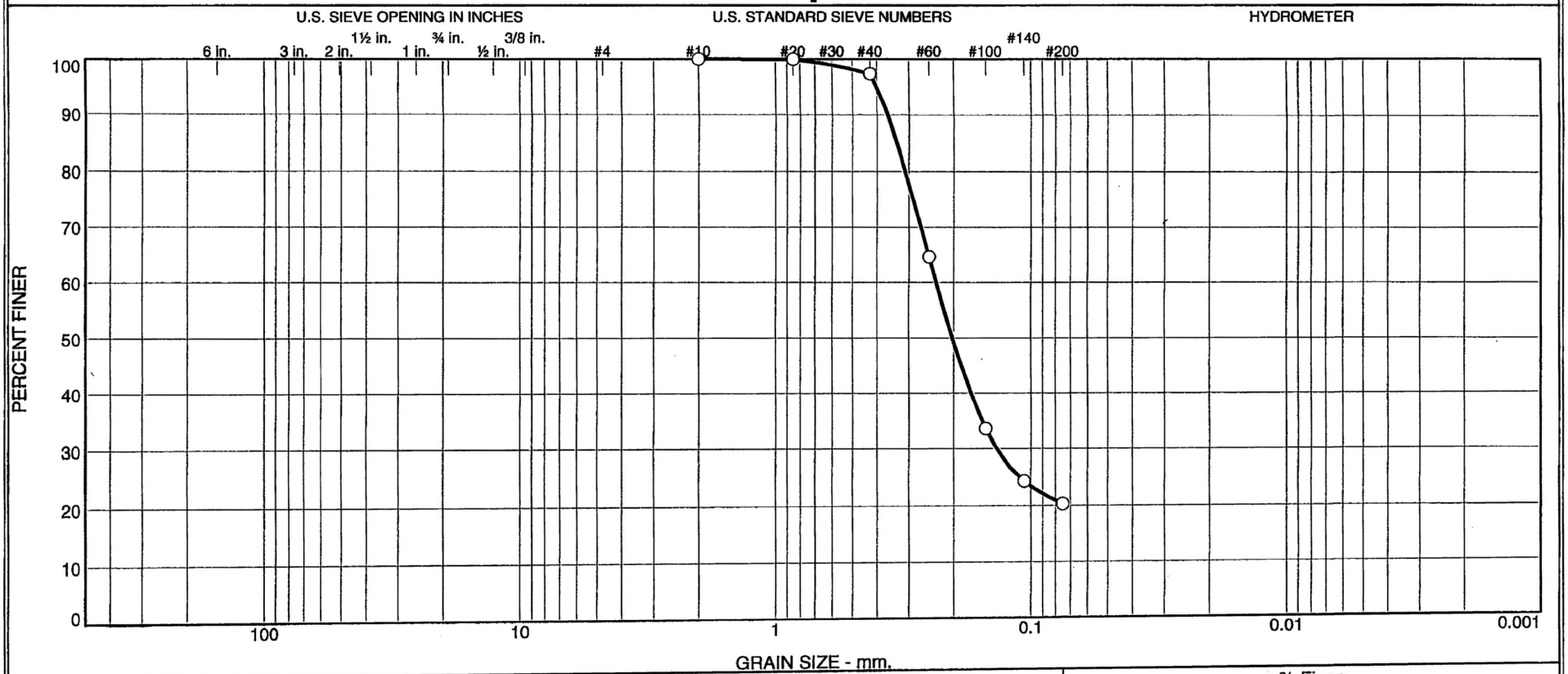
Run No.	1	2	3	4	
Wet+Tare	23.40	23.20			
Dry+Tare	22.38	22.17			
Tare	15.50	15.60			
Moisture	14.8	15.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
144.90	118.10	6.80	24.1

MACTEC, Inc.

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	2.6	77.1	20.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2182A	SS-17B	69.5-70	11/29/07	SC	Brownish Gray Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O 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-2182A
Depth: 69.5-70 **Sample Number:** SS-17B
Material Description: Brownish Gray Clayey SAND (Visual)
Date: 11/29/07 **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
269.66	0.00	0.00	#10	0.00	100.0
106.14	0.00	0.00	#20	0.07	99.9
			#40	2.80	97.4
			#60	37.54	64.6
			#100	70.49	33.6
			#140	80.33	24.3
			#200	84.56	20.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =106.14
Hygroscopic moisture correction:
Moist weight and tare = 35.81
Dry weight and tare = 35.60
Tare weight = 24.78
Hygroscopic moisture = 1.9%
Table of composite correction values:

Temp., deg. C:	12.2	27.1
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.7
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Fractional Components

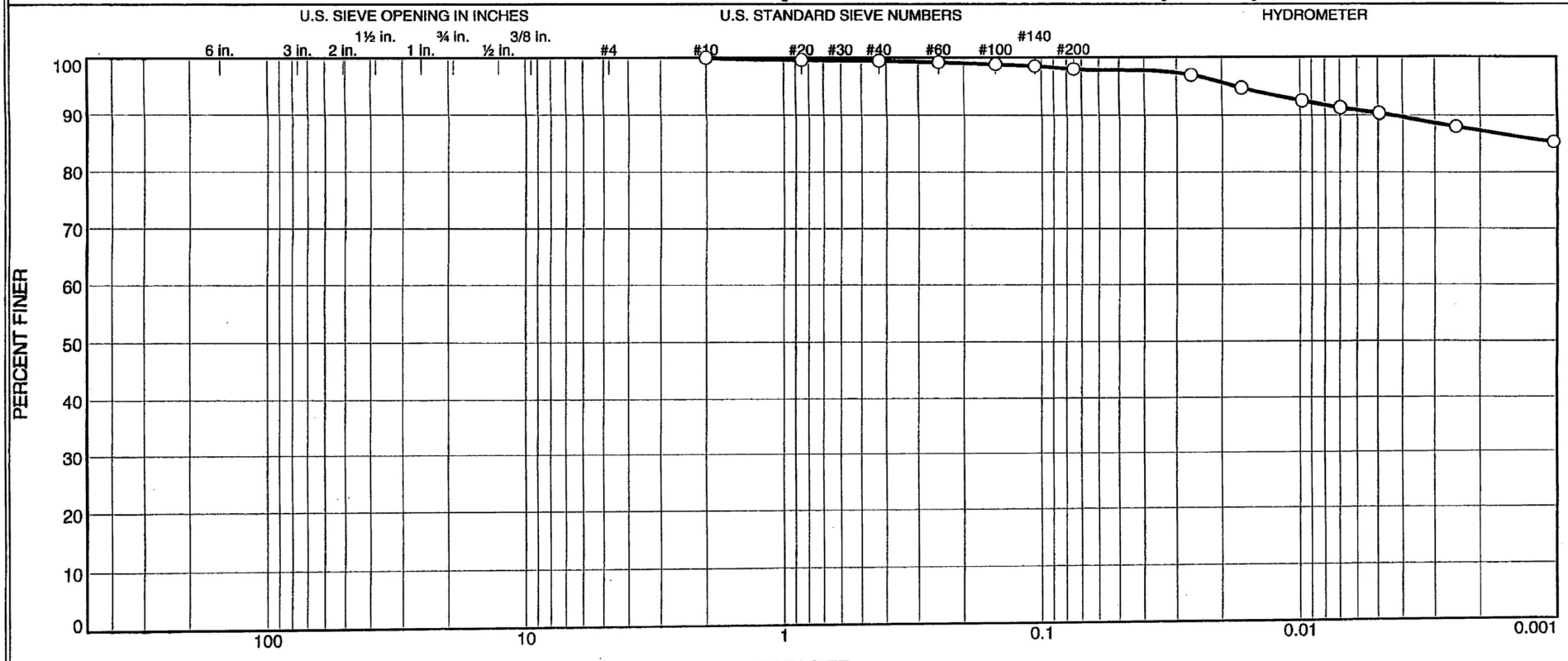
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.6	77.1	79.7			20.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1359	0.2026	0.2344	0.3097	0.3340	0.3630	0.4008

Fineness Modulus
0.90

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	1.5	7.5	90.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2182A	SS-18	73.5-75	11/29/07	CH	Reddish Brown Fat CLAY	26.1	95	26

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 1-26-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2182A
Depth: 73.5-75 **Sample Number:** SS-18
Material Description: Reddish Brown Fat CLAY
Date: 11/29/07 **Natural Moisture:** 26.1
Liquid Limit: 95 **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
213.35	0.00	0.00	#10	0.00	100.0
48.44	0.00	0.00	#20	0.21	99.6
			#40	0.27	99.4
			#60	0.41	99.2
			#100	0.59	98.8
			#140	0.75	98.5
			#200	1.02	97.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.44
Hygroscopic moisture correction:
Moist weight and tare = 43.25
Dry weight and tare = 42.53
Tare weight = 31.75
Hygroscopic moisture = 6.7%
Table of composite correction values:

Temp., deg. C:	12.2	27.1
Comp. corr.:	-8.0	-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	49.0	44.5	0.0130	50.0	8.1	0.0262	96.8
5.00	22.5	48.0	43.5	0.0130	49.0	8.3	0.0168	94.6
15.00	22.5	47.0	42.5	0.0130	48.0	8.4	0.0098	92.5
30.00	22.4	46.5	41.9	0.0131	47.5	8.5	0.0069	91.3
60.00	22.6	46.0	41.5	0.0130	47.0	8.6	0.0049	90.4
240.00	22.5	45.0	40.5	0.0130	46.0	8.8	0.0025	88.1
1440.00	21.8	44.0	39.2	0.0131	45.0	8.9	0.0010	85.4

MACTEC, Inc.

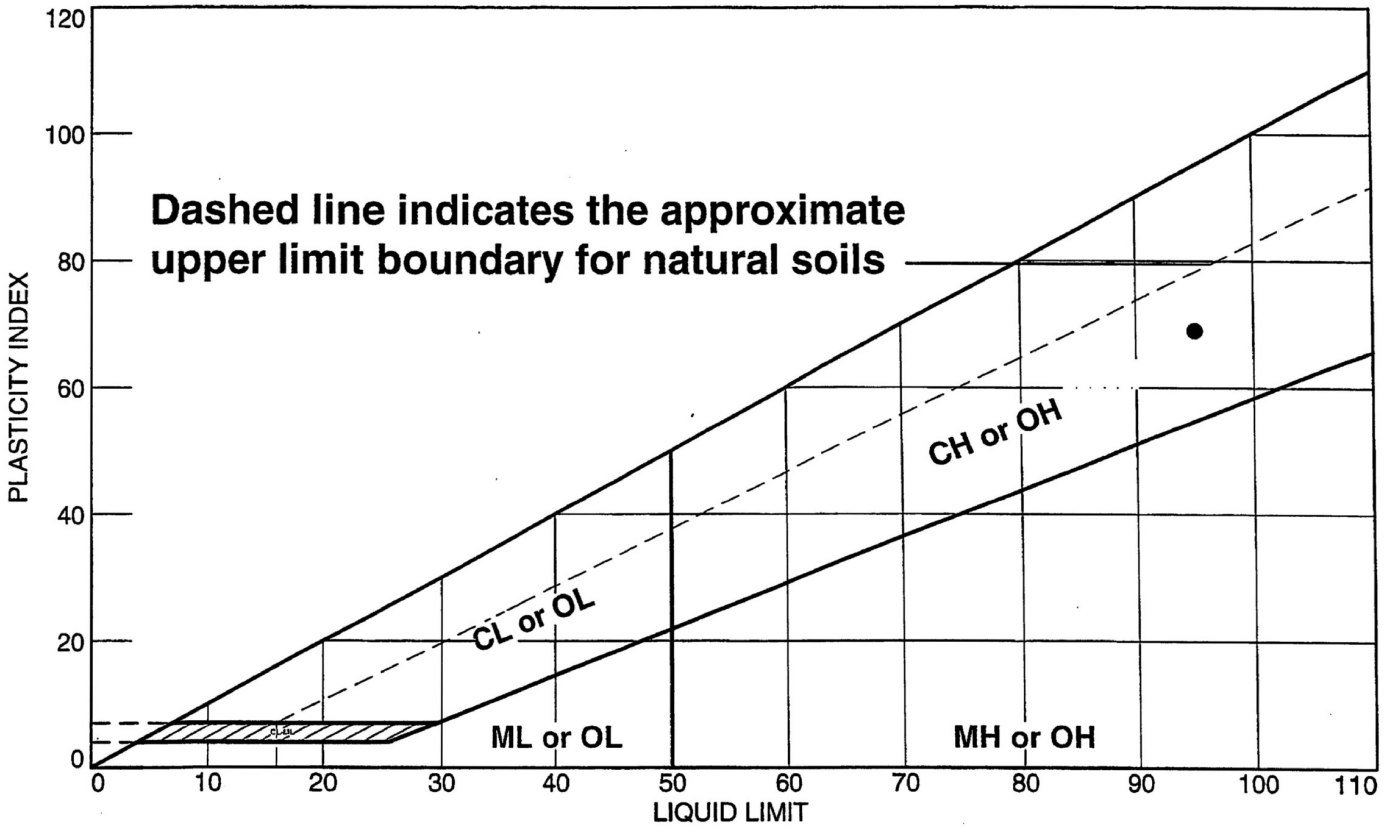
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	1.5	2.1	7.5	90.4	97.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								0.0044	0.0180

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-2182A	SS-18	73.5-75	26.1	26	95	69	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 1-26-08

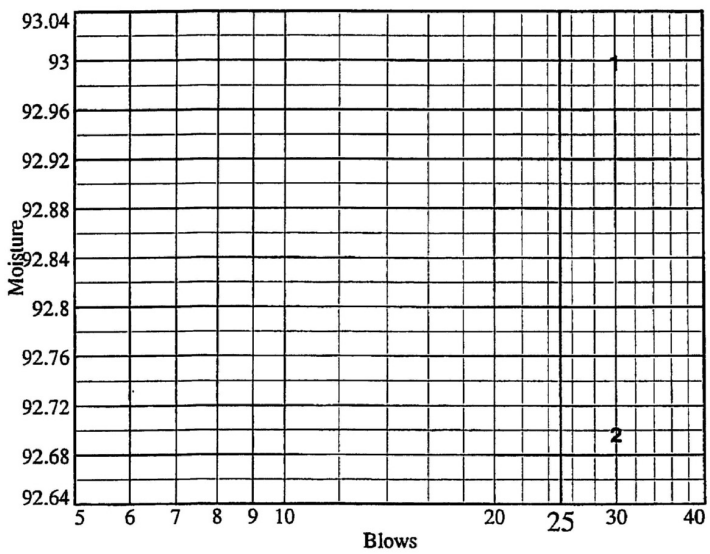
LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2182A
Depth: 73.5-75 **Sample Number:** SS-18
Material Description: Reddish Brown Fat CLAY
USCS: CH **AASHTO:** A-7-6(79)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.08	26.01				
Dry+Tare	20.90	21.06				
Tare	15.33	15.72				
# Blows	30	30				
Moisture	93.0	92.7				



Liquid Limit= 95
Plastic Limit= 26
Plasticity Index= 69
Natural Moisture= 26.1
Liquidity Index= 0.0

Plastic Limit Data

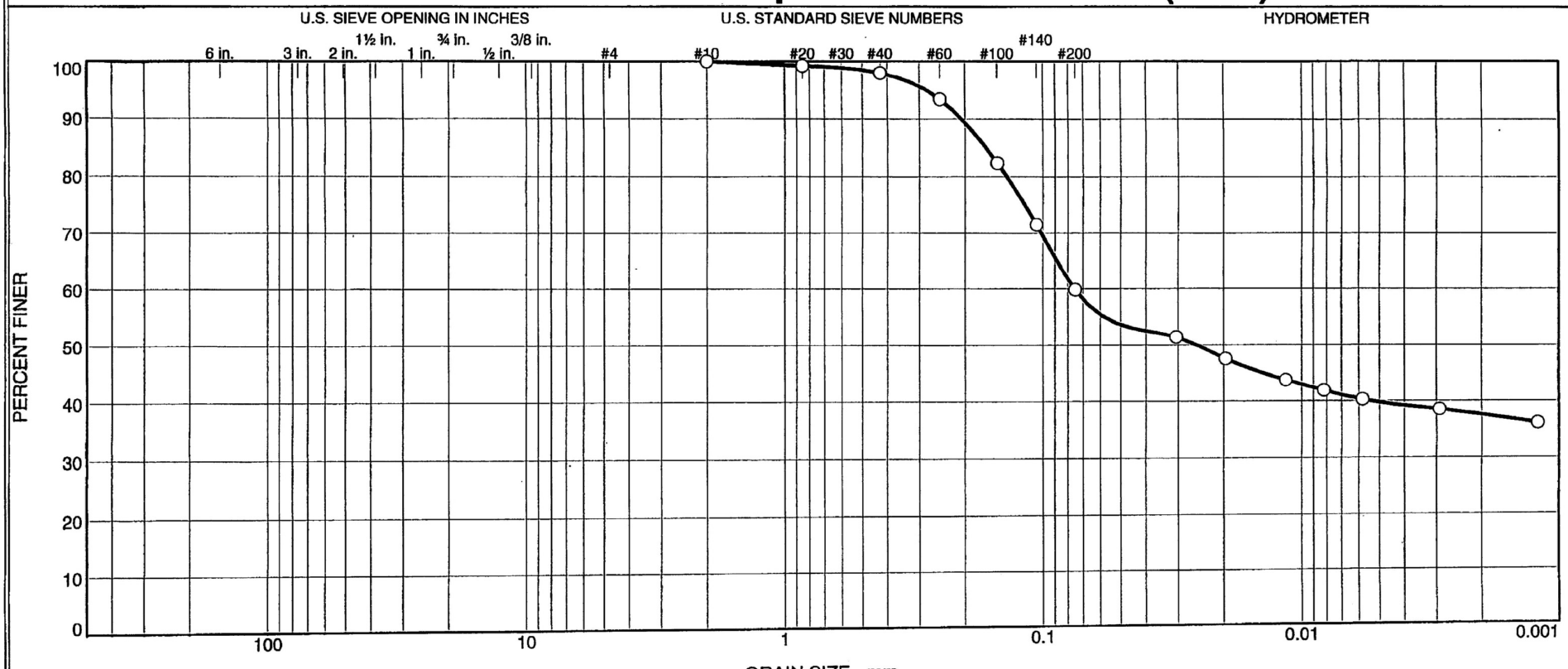
Run No.	1	2	3	4	
Wet+Tare	23.20	23.29			
Dry+Tare	21.60	21.70			
Tare	15.50	15.50			
Moisture	26.2	25.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
152.22	122.07	6.76	26.1

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	2.1	38.0	20.2	39.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2182A	SS-19	78.5-80	11/29/07	CL	Pinkish Gray Sandy Lean CLAY	14.1	39	13

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-2182A
Depth: 78.5-80 **Sample Number:** SS-19
Material Description: Pinkish Gray Sandy Lean CLAY
Date: 11/29/07 **Natural Moisture:** 14.1
Liquid Limit: 39 **Plastic Limit:** 13 **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
226.28	0.00	0.00	#10	0.00	100.0
54.08	0.00	0.00	#20	0.42	99.2
			#40	1.11	97.9
			#60	3.58	93.4
			#100	9.52	82.4
			#140	15.39	71.5
			#200	21.69	59.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =54.08
Hygroscopic moisture correction:
Moist weight and tare = 28.20
Dry weight and tare = 27.86
Tare weight = 15.58
Hygroscopic moisture = 2.8%
Table of composite correction values:

Temp., deg. C:	12.2	27.1
Comp. corr.:	-8.0	-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	22.2	32.0	27.4	0.0131	33.0	10.9	0.0305	51.4
5.00	22.0	30.0	25.3	0.0131	31.0	11.2	0.0196	47.5
15.00	22.0	28.0	23.3	0.0131	29.0	11.5	0.0115	43.8
30.00	22.0	27.0	22.3	0.0131	28.0	11.7	0.0082	41.9
60.00	22.4	26.0	21.4	0.0131	27.0	11.9	0.0058	40.3
240.00	22.6	25.0	20.5	0.0130	26.0	12.0	0.0029	38.5
1440.00	21.8	24.0	19.2	0.0131	25.0	12.2	0.0012	36.1

MACTEC, Inc.

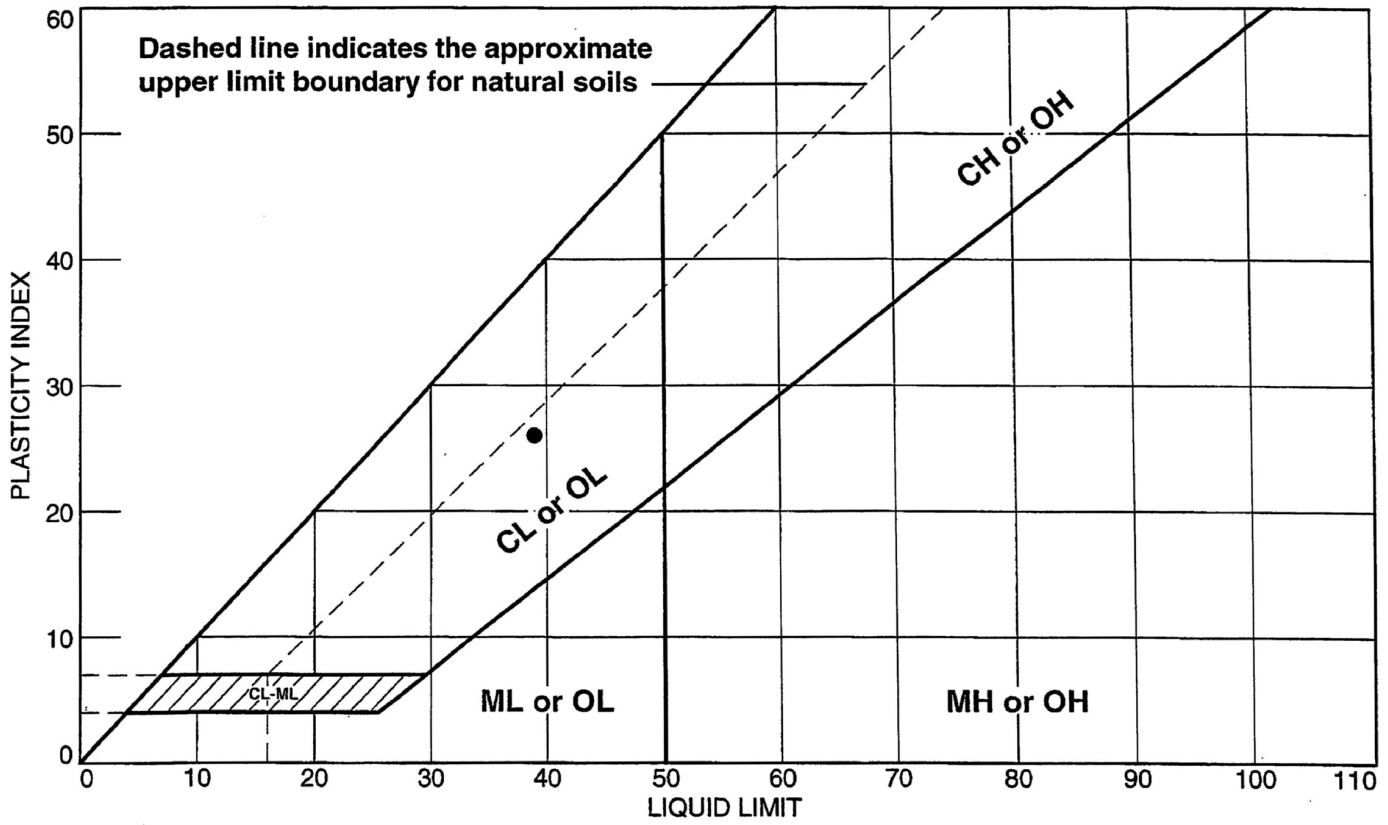
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.1	38.0	40.1	20.2	39.7	59.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0255	0.0753	0.1379	0.1655	0.2060	0.2832

Fineness Modulus
0.24

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-2182A	SS-19	78.5-80	14.1	13	39	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

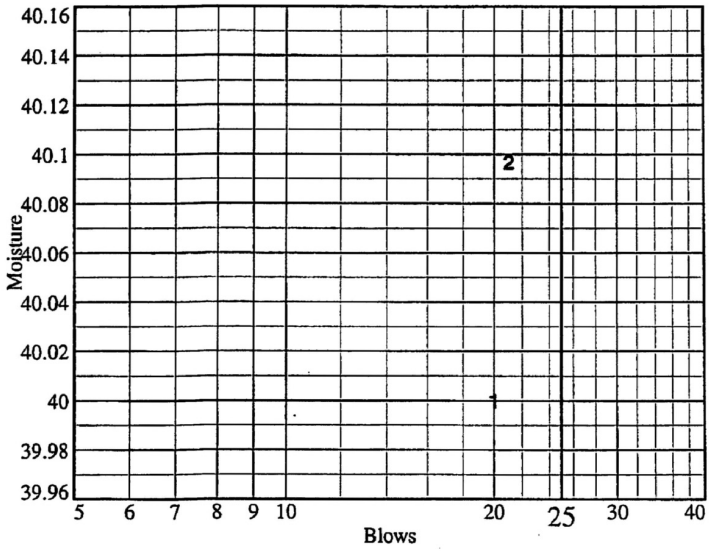
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2182A
Depth: 78.5-80 **Sample Number:** SS-19
Material Description: Pinkish Gray Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(12)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.16	29.88				
Dry+Tare	25.34	25.75				
Tare	15.79	15.45				
# Blows	20	21				
Moisture	40.0	40.1				



Liquid Limit= 39
Plastic Limit= 13
Plasticity Index= 26
Natural Moisture= 14.1
Liquidity Index= 0.0

Plastic Limit Data

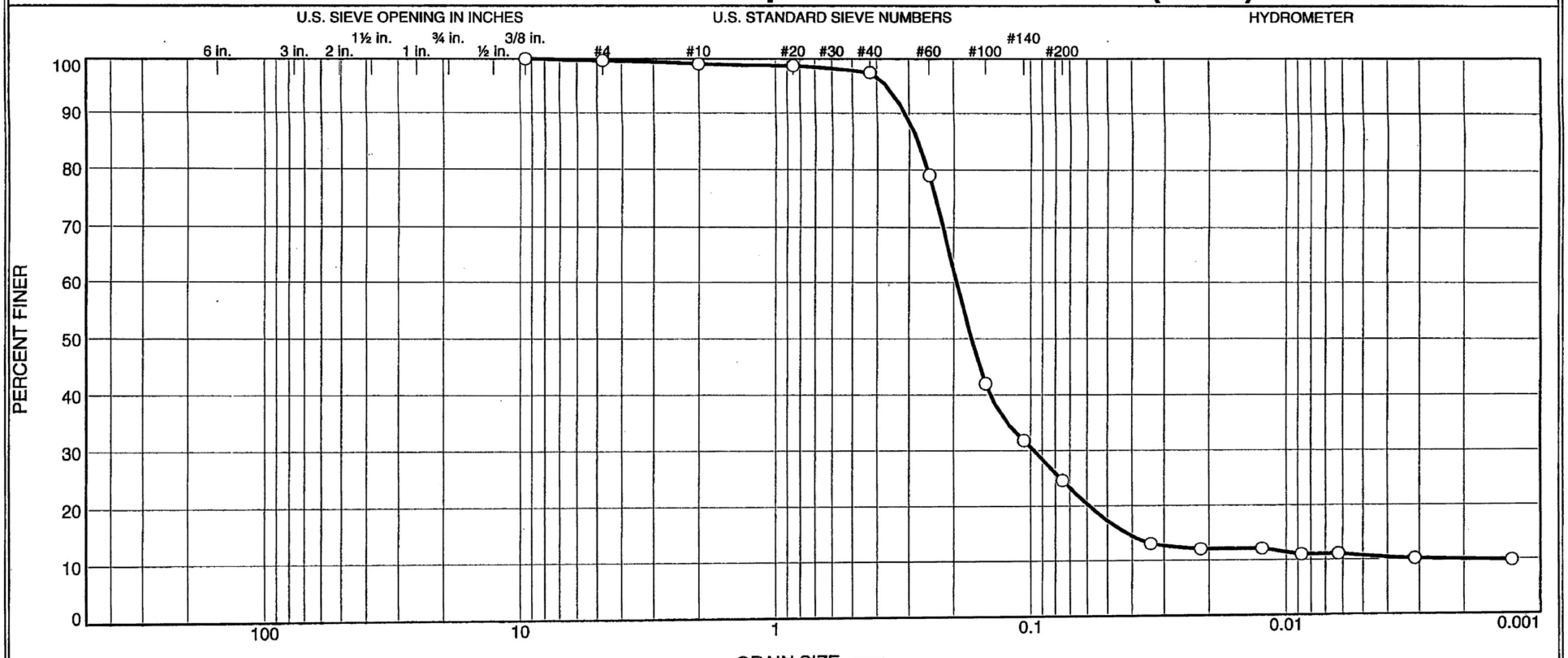
Run No.	1	2	3	4	
Wet+Tare	23.60	22.49			
Dry+Tare	22.70	21.36			
Tare	15.46	12.48			
Moisture	12.4	12.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
161.31	142.16	6.64	14.1

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	0.3	0.6	1.6	72.9	13.9	10.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2182A	SS-20	83.5-85	11/29/07	SC	Light Gray Clayey SAND	17.3	26	16

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-2182A
Depth: 83.5-85 **Sample Number:** SS-20
Material Description: Light Gray Clayey SAND
Date: 11/29/07 **Natural Moisture:** 17.3
Liquid Limit: 26 **Plastic Limit:** 16 **USCS Class.:** SC
Testing Remarks: Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
254.24	0.00	0.00	3/8	0.00	100.0
			#4	0.80	99.7
			#10	2.40	99.1
96.70	0.00	0.00	#20	0.32	98.7
			#40	1.56	97.5
			#60	19.52	79.1
			#100	55.68	42.0
			#140	65.62	31.8
			#200	72.66	24.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.1
Weight of hydrometer sample =96.7
Hygroscopic moisture correction:
Moist weight and tare = 33.19
Dry weight and tare = 32.95
Tare weight = 19.75
Hygroscopic moisture = 1.8%
Table of composite correction values:

Temp., deg. C:	12.2	27.1
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	22.1	17.0	12.7	0.0131	18.0	13.3	0.0338	13.1
5.00	22.1	16.0	11.7	0.0131	17.0	13.5	0.0215	12.0
15.00	22.3	16.0	11.7	0.0131	17.0	13.5	0.0124	12.1
31.00	22.1	15.0	10.7	0.0131	16.0	13.7	0.0087	11.0
60.00	22.4	15.0	10.7	0.0131	16.0	13.7	0.0062	11.1
240.00	22.7	14.0	9.8	0.0130	15.0	13.8	0.0031	10.1
1440.00	21.6	14.0	9.5	0.0132	15.0	13.8	0.0013	9.8

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Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.3	0.3	0.6	1.6	72.9	75.1	13.9	10.7	24.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0022	0.0419	0.0589	0.0968	0.1706	0.1944	0.2537	0.2771	0.3105	0.3680

Fineness Modulus	C_u	C_c
0.73	90.02	22.32