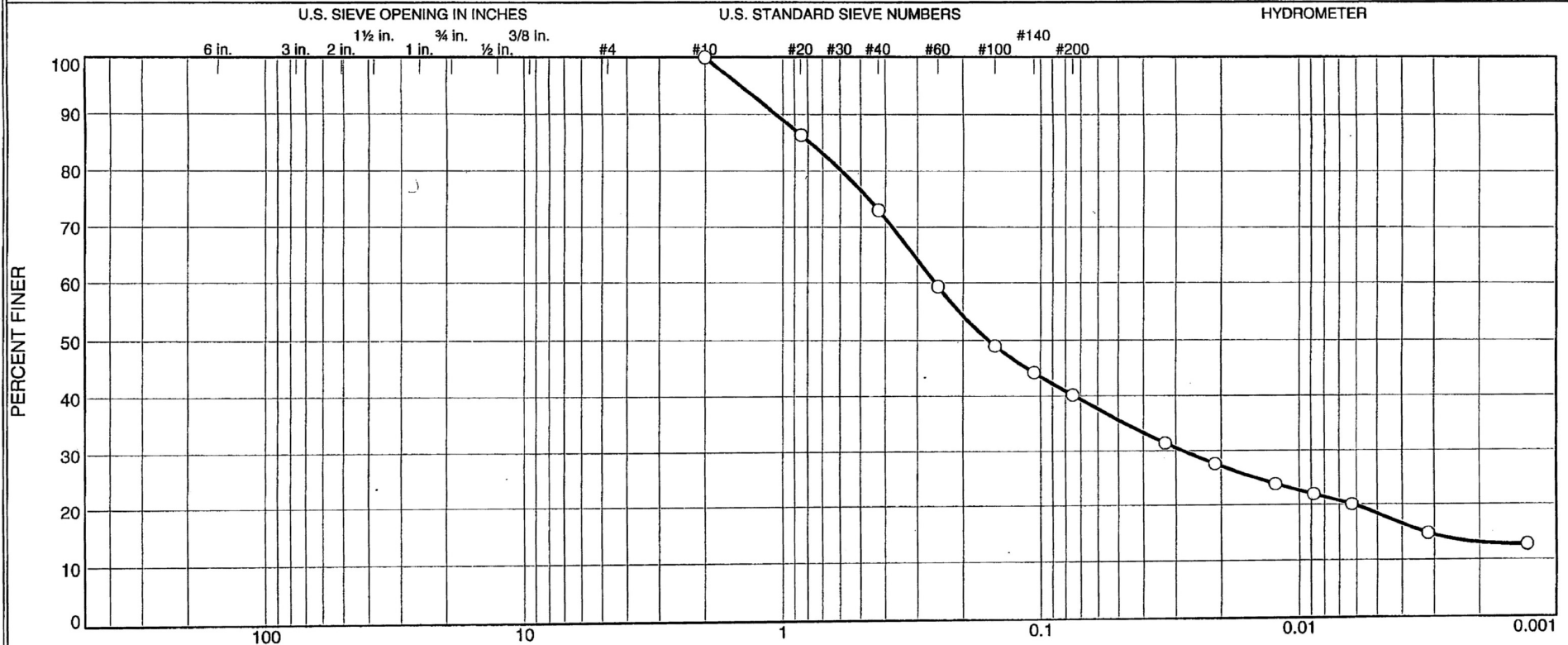


Particle Size Distribution Report / ASTM D 422-63(2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	27.0	32.9	21.8	18.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2269UD	UD-15	216.2	12-3-07	SC	Light Gray Clayey SAND	16.6	26	14

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777

Figure *NA*

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.660 (ASTM D854-06)

Tested By: CS

Checked By: LBJ ZHU 4-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/10/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2269UD

Depth: 216.2

Sample Number: UD-15

Material Description: Light Gray Clayey SAND

Date: 12-3-07

Natural Moisture: 16.6

Liquid Limit: 26

Plastic Limit: 14

USCS Class.: SC

Testing Remarks: Specific Gravity = 2.660 (ASTM D854-06)

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
275.18	0.00	0.00	#10	0.00	100.0
53.43	0.00	0.00	#20	7.29	86.4
			#40	14.42	73.0
			#60	21.71	59.4
			#100	27.26	49.0
			#140	29.84	44.2
			#200	31.99	40.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 53.43

Hygroscopic moisture correction:

Moist weight and tare = 29.61

Dry weight and tare = 29.42

Tare weight = 15.46

Hygroscopic moisture = 1.4%

Table of composite correction values:

Temp., deg. C: 12.9 29.9

Comp. corr.: -8.0 -2.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.660

Hydrometer type = 152H

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

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.1	21.0	16.6	0.0131	22.0	12.7	0.0330	31.4
5.00	23.1	19.0	14.6	0.0131	20.0	13.0	0.0211	27.6
15.00	23.1	17.0	12.6	0.0131	18.0	13.3	0.0124	23.8
30.00	23.1	16.0	11.6	0.0131	17.0	13.5	0.0088	22.0
60.00	23.1	15.0	10.6	0.0131	16.0	13.7	0.0063	20.1
240.00	23.6	12.0	7.8	0.0130	13.0	14.2	0.0032	14.7
1440.00	23.5	11.0	6.7	0.0130	12.0	14.3	0.0013	12.8

MACTEC, Inc.

Fractional Components

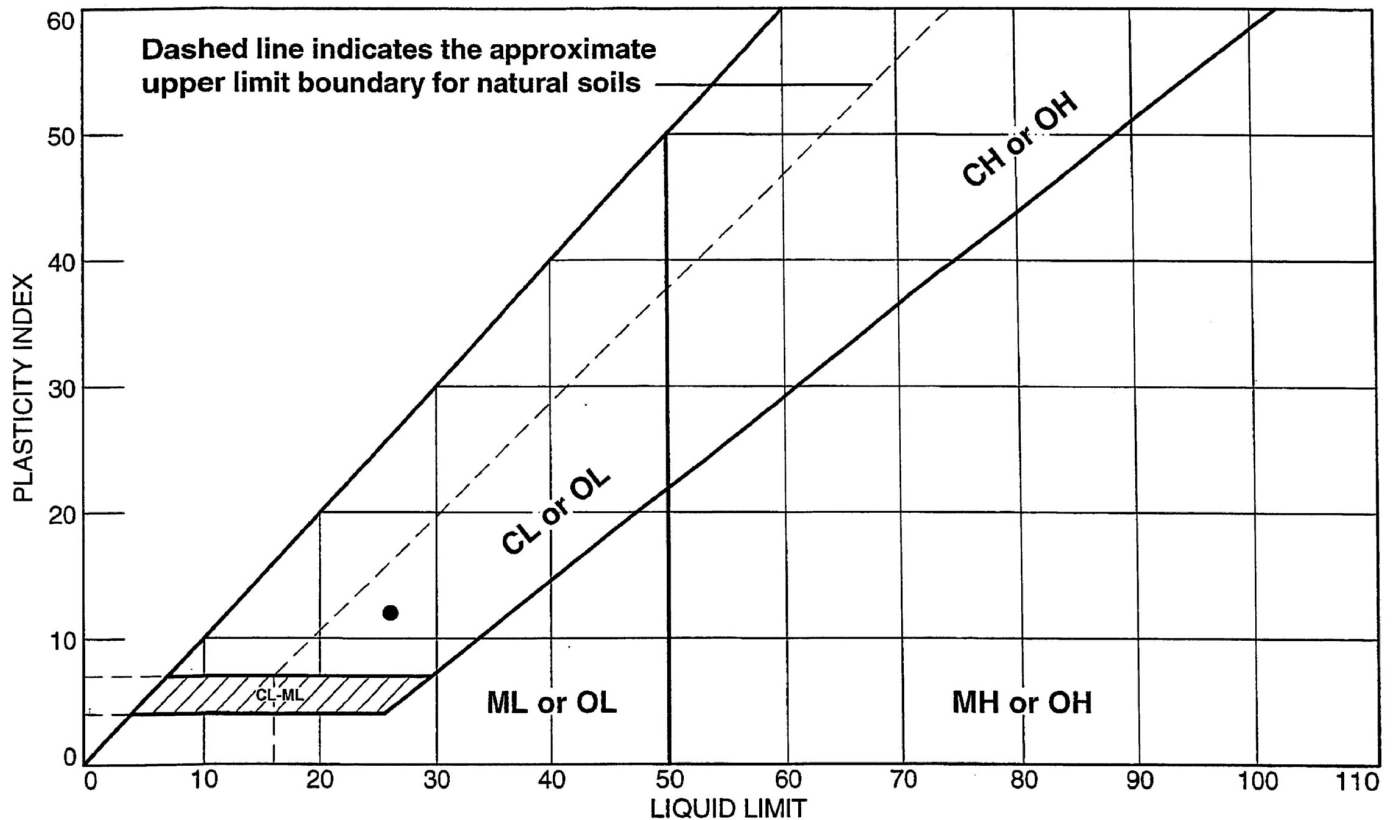
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	27.0	32.9	59.9	21.8	18.3	40.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0033	0.0062	0.0282	0.1595	0.2565	0.5912	0.7837	1.0622	1.4537

Fineness Modulus
1.15

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-2269UD	UD-15	216.2	16.6	14	26	12	SC

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ ZHU 4-28-08

LIQUID AND PLASTIC LIMIT TEST DATA

4/10/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2269UD

Depth: 216.2

Sample Number: UD-15

Material Description: Light Gray Clayey SAND

USCS: SC

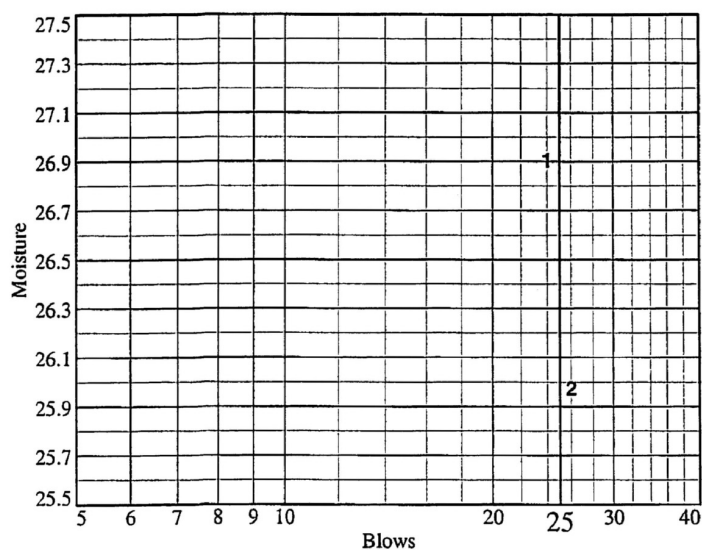
AASHTO: A-6(1)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	35.66	33.28				
Dry+Tare	31.39	29.62				
Tare	15.52	15.53				
# Blows	24	26				
Moisture	26.9	26.0				



Liquid Limit= 26
 Plastic Limit= 14
 Plasticity Index= 12
 Natural Moisture= 16.6
 Liquidity Index= 0.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.07	21.28			
Dry+Tare	21.32	20.56			
Tare	15.78	15.53			
Moisture	13.5	14.3			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
236.46	203.83	6.76	16.6

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

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

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 3/5/08

SAMPLE IDENTIFICATION: B 2269UD, UD-15

(A) Mass of oven-dried soil, grams:	75.86
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.61
(C) Mass of pycnometer, water and soil, grams:	703.97
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	23.1
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.662
(F)	Correction factor: 0.99931
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.660

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 :

Clayey SAND (SC)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-6

TESTED BY: CS

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

REVIEWED BY: Brian Johnson

DSC 3-15-08

[illegible]

NM value from average of strength tests performed
Specific Gravity = 2.69 (ASTM D 854-06)

DSC
3-31-08

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468-07-1777

Sample Data

Source: B-2269UD
Sample No.: UD-16
Elev. or Depth: 280-281.2 Ft Sample Length(in./cm.): ID#8176
Location: B-2269UD
Description: Light Gray Clayey SAND
Date: 12/15/07 PL: 17 LL: 26 PI: 9
USCS Classification: SC AASHTO Classification:
Testing Remarks: Tested by: EH Reviewed by: HJ

NM value from average of strength tests performed
Specific Gravity = 2.69 (ASTM D 854-06)

Mechanical Analysis Data

Initial
Dry sample and tare= 69.72
Tare = 14.54
Dry sample weight = 55.18
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.54	99.0
# 40	7.72	86.0
# 60	19.00	65.6
# 100	35.90	34.9
# 140	41.42	24.9
# 200	43.20	21.7

Hydrometer Analysis Data

Separation sieve is #200
Percent -#200 based upon complete sample= 21.7
Weight of hydrometer sample: 11.98
Calculated biased weight= 55.21
Automatic temperature correction
Composite correction at 20 deg C = -5.4

Meniscus correction only= 0
Specific gravity of solids= 2.687
Specific gravity correction factor= 0.992
Hydrometer type: 152H
Effective depth 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	15.0	10.2	0.0130	15.0	13.8	0.0343	18.3
5.00	22.8	15.0	10.2	0.0130	15.0	13.8	0.0217	18.3
15.00	22.8	14.0	9.2	0.0130	14.0	14.0	0.0126	16.5

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
30.00	22.8	13.5	8.7	0.0130	13.5	14.1	0.0089	15.7
60.00	22.8	13.0	8.2	0.0130	13.0	14.2	0.0063	14.8
240.00	22.8	12.5	7.7	0.0130	12.5	14.2	0.0032	13.9
1461.00	22.8	12.0	7.2	0.0130	12.0	14.3	0.0013	13.0

Fractional Components

Gravel/Sand based on #4

Sand/Fines based on #200

% COBBLES = % GRAVEL =

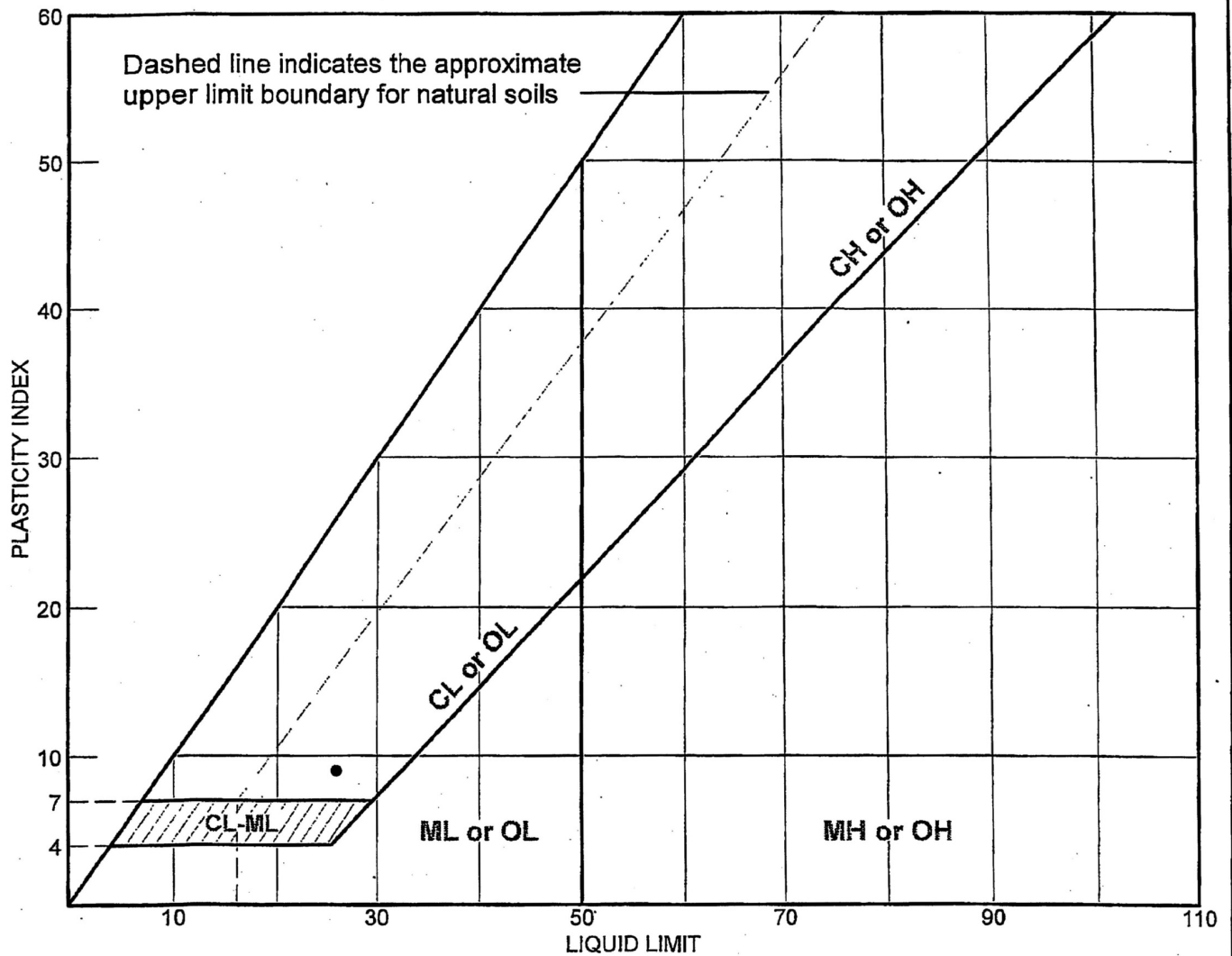
% SAND = 78.3 (% coarse = % medium = 14.0 % fine = 64.3)

% SILT = 7.3 % CLAY = 14.4

D85= 0.41 D60= 0.23 D50= 0.19

D30= 0.13 D15= 0.01

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-2269UD	UD-16	280-281.2 Ft.	18.6	17	26	9	SC

**MACTEC ENGINEERING
AND
CONSULTING, INC.**

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468-07-1777

Lab No. 8176

DSC
7-31-08

LIQUID AND PLASTIC LIMIT TEST DATA

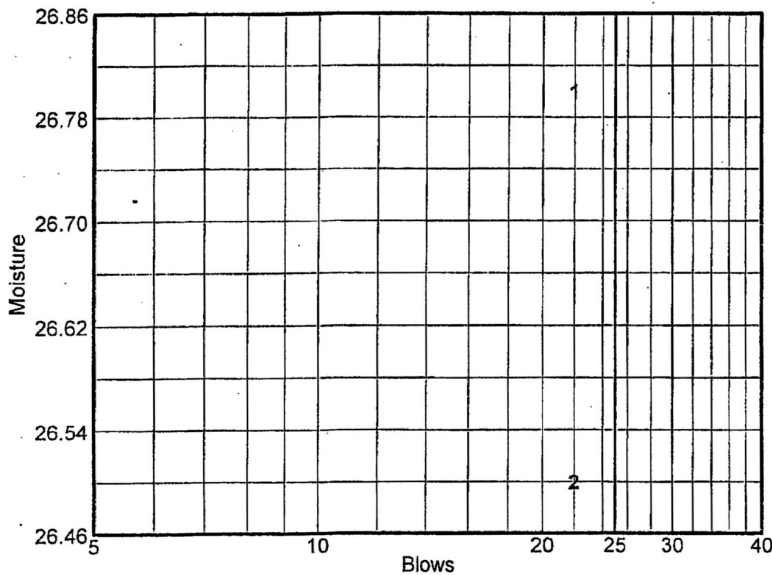
Client: Bechtel
 Project: Exelon Texas COL (Victoria)
 Project Number: 6468-07-1777

Sample Data

Source: B-2269UD
 Sample No.: UD-16
 Elev. or Depth: 280-281.2 Ft Sample Length(in./cm.): ID#8176
 Location: B-2269UD
 Description: Light Gray Clayey SAND
 Water Content: 18.6 USCS: SC AASHTO:

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.18	33.37				
Dry+Tare	30.47	30.62				
Tare	20.35	20.24				
# Blows	22	22				
Moisture	26.8	26.5				



Liquid Limit= 26
 Plastic Limit= 17
 Plasticity Index= 9

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.65	28.29			
Dry+Tare	26.65	27.25			
Tare	20.73	21.05			
Moisture	16.9	16.8			

MACTEC ENGINEERING AND CONSULTING, INC.

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

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 2/8/08

SAMPLE IDENTIFICATION: B-2269UD, UD-16 @ 280-281.2 Ft.

(A) Mass of oven-dried soil, grams:	36.43
(B) Mass of pycnometer filled with water at test temperature (T), grams:	338.40
(C) Mass of pycnometer, water and soil, grams:	361.28
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	22.5
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.689
(F)	Correction factor: 0.99945
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.687

MATERIAL TESTED:

☐

- # 4

☒

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100 %

Clayey SAND (SC)

EQUIPMENT USED

SCALES : 418

OVEN : 144

THERMOMETER : 2759

PYCNOMETER : 2054

TESTED BY: EH

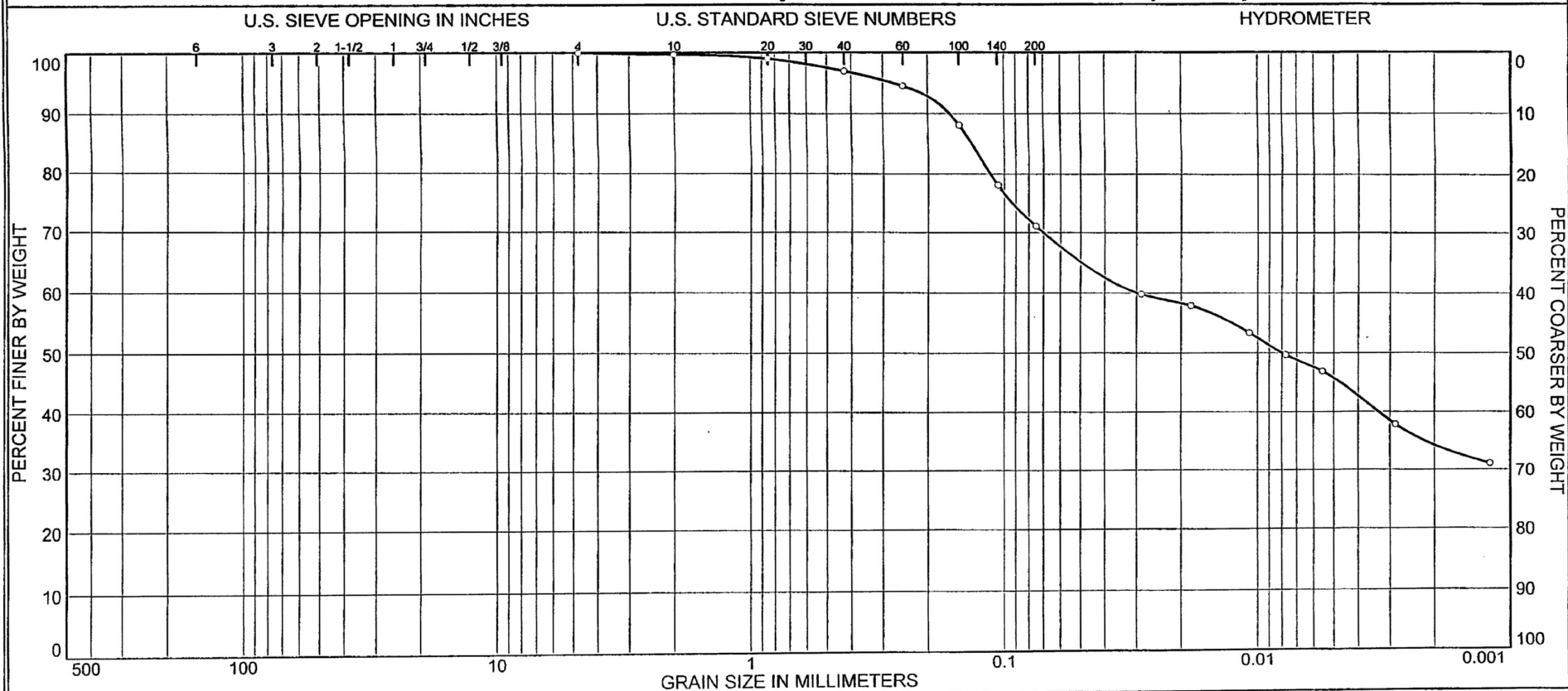
\\Test Reports\\Soils\\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: Harry Johnson

HJ

DSC 3-31-08

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



% COBBLES	% GRAVEL		% SAND			% FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.3	2.8	25.8	25.3	45.8

SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
2269UD	UD-18	375-376.6 Ft.	12/05/07	CL	Very Pale Brown Lean CLAY with sand	22.3	46	14

Client Bechtel		MACTEC ENGINEERING AND CONSULTING, INC.	○ Tested by: EH Reviewed by: HJ	NM value from first strength test performed. Specific Gravity = 2.78 (ASTM D 854-06)	HJ DSC 3-3-08
Project Exelon Texas COL (Victoria)					
Project No. 6468-07-1777					
Lab No.	8252				

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468-07-1777

Sample Data

Source: B-2269UD
Sample No.: UD-18
Elev. or Depth: 375-376.6 Ft Sample Length(in./cm.): ID#8252
Location: B-2269UD
Description: Very Pale Brown Lean CLAY with sand
Date: 12/05/07 PL: 14 LL: 46 PI: 32
USCS Classification: CL AASHTO Classification:
Testing Remarks: Tested by: EH Reviewed by: HJ

NM value from first strength test performed.
Specific Gravity = 2.78 (ASTM D 854-06)

Mechanical Analysis Data

	Initial	
Dry sample and tare=	68.93	
Tare =	15.87	
Dry sample weight =	53.06	
Tare for cumulative weight retained=	.00	
Sieve	Cumul. Wt. retained	Percent finer
# 4	0.00	100.0
# 10	0.17	99.7
# 20	0.52	99.0
# 40	1.63	96.9
# 60	2.93	94.5
# 100	6.31	88.1
# 140	11.64	78.1
# 200	15.33	71.1

Hydrometer Analysis Data

Separation sieve is #200
Percent -#200 based upon complete sample= 71.1
Weight of hydrometer sample: 37.73
Calculated biased weight= 53.07
Automatic temperature correction
Composite correction at 20 deg C = -5.4

Meniscus correction only= 0
Specific gravity of solids= 2.781
Specific gravity correction factor= 0.972
Hydrometer type: 152H
Effective depth 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	37.5	32.6	0.0127	37.5	10.1	0.0287	59.8
5.00	22.5	36.5	31.6	0.0127	36.5	10.3	0.0183	57.9
15.00	22.5	34.0	29.1	0.0127	34.0	10.7	0.0108	53.4
30.00	22.5	32.0	27.1	0.0127	32.0	11.0	0.0077	49.7
60.00	22.5	30.5	25.6	0.0127	30.5	11.3	0.0055	46.9
240.00	22.8	25.5	20.7	0.0127	25.5	12.1	0.0029	37.9
1440.00	21.9	22.0	17.0	0.0128	22.0	12.7	0.0012	31.1

Fractional Components

Gravel/Sand based on #4

Sand/Fines based on #200

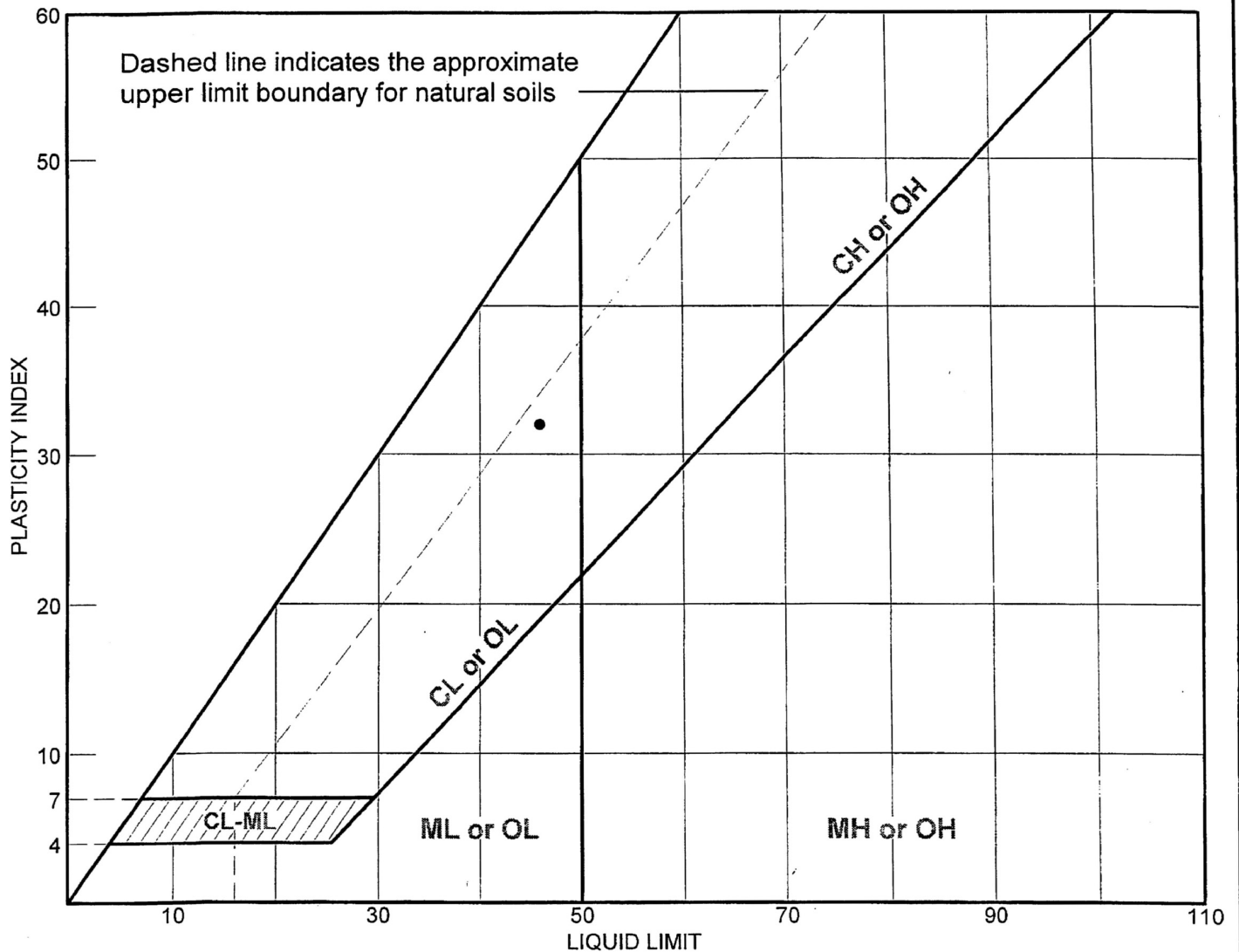
% COBBLES = % GRAVEL =

% SAND = 28.9 (% coarse = 0.3 % medium = 2.8 % fine = 25.8)

% SILT = 25.3 % CLAY = 45.8

D₈₅= 0.13 D₆₀= 0.03 D₅₀= 0.01

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	2269UD	UD-18	375-376.6 Ft.	22.3	14	46	32	CL

**MACTEC ENGINEERING
AND
CONSULTING, INC.**

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468-07-1777

Lab No. 8252

LIQUID AND PLASTIC LIMIT TEST DATA

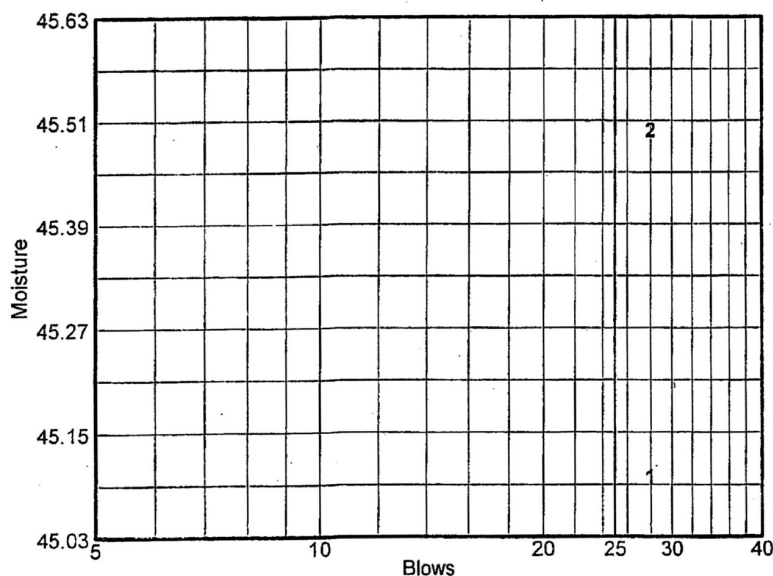
Client: Bechtel
 Project: Exelon Texas COL (Victoria)
 Project Number: 6468-07-1777

Sample Data

Source: B-2269UD
 Sample No.: UD-18
 Elev. or Depth: 375-376.6 Ft Sample Length(in./cm.): ID#8252
 Location: B-2269UD
 Description: Very Pale Brown Lean CLAY with sand
 Water Content: 22.3 USCS: CL AASHTO:

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.73	29.96				
Dry+Tare	27.86	26.6				
Tare	19.28	19.21				
# Blows	28	28				
Moisture	45.1	45.5				



Liquid Limit= 46
 Plastic Limit= 14
 Plasticity Index= 32

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	28.16	27.96			
Dry+Tare	27.1	26.86			
Tare	19.64	19.3			
Moisture	14.2	14.6			

MACTEC ENGINEERING AND CONSULTING, INC.

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

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 2/8/08

SAMPLE IDENTIFICATION: B-2269UD, UD-18 @ 375-376.6 Ft.

(A) Mass of oven-dried soil, grams:	31.97
(B) Mass of pycnometer filled with water at test temperature (T), grams:	343.10
(C) Mass of pycnometer, water and soil, grams:	363.58
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	22.5
(G) Specific Gravity at observed temperature: $A / [B - (C - A)]$	2.782
(F) <i>Correction factor:</i>	0.99945
(G x F) SPECIFIC GRAVITY @ 20°C:	2.781

MATERIAL TESTED:

☐

- # 4

☒

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100 %

Lean CLAY with sand (CL)

EQUIPMENT USED

SCALES : 418

OVEN : 144

THERMOMETER : 2759

PYCNO METER : 2053

TESTED BY: EH

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

REVIEWED BY: Harry Johnson

DSC
3-3-08

U.S. SIEVE OPENING IN INCHES	U.S. STANDARD SIEVE NUMBERS	HYDROMETER
------------------------------	-----------------------------	------------

[illegible]

MACTEC, Inc.
Raleigh, North Carolina

○ Specific Gravity = 2.690 (ASTM D854-06)

Checked By: LBJ ZHU 4-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/10/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2269UD

Depth: 380.0

Sample Number: UD-19

Material Description: Light Gray Fat CLAY

Date: 12-5-07

Natural Moisture: 28.5

Liquid Limit: 88

Plastic Limit: 31

USCS Class.: CH

Testing Remarks: Specific Gravity = 2.690 (ASTM D854-06)

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
186.19	0.00	0.00	#10	0.00	100.0
46.32	0.00	0.00	#20	0.01	100.0
			#40	0.08	99.8
			#60	0.17	99.6
			#100	0.92	98.0
			#140	1.74	96.2
			#200	2.39	94.8

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 46.32

Hygroscopic moisture correction:

Moist weight and tare = 28.93

Dry weight and tare = 28.27

Tare weight = 15.77

Hygroscopic moisture = 5.3%

Table of composite correction values:

Temp., deg. C: 12.9 29.9

Comp. corr.: -8.0 -2.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.690

Hydrometer type = 152H

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

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.6	45.0	40.4	0.0131	46.0	8.8	0.0273	91.1
5.00	22.7	44.0	39.5	0.0130	45.0	8.9	0.0174	88.9
15.00	22.7	43.0	38.5	0.0130	44.0	9.1	0.0101	86.6
30.00	22.7	42.0	37.5	0.0130	43.0	9.2	0.0072	84.4
60.00	22.7	41.0	36.5	0.0130	42.0	9.4	0.0052	82.1
240.00	23.1	39.5	35.1	0.0130	40.5	9.7	0.0026	79.1
1440.00	23.4	38.0	33.7	0.0129	39.0	9.9	0.0011	75.9

MACTEC, Inc.

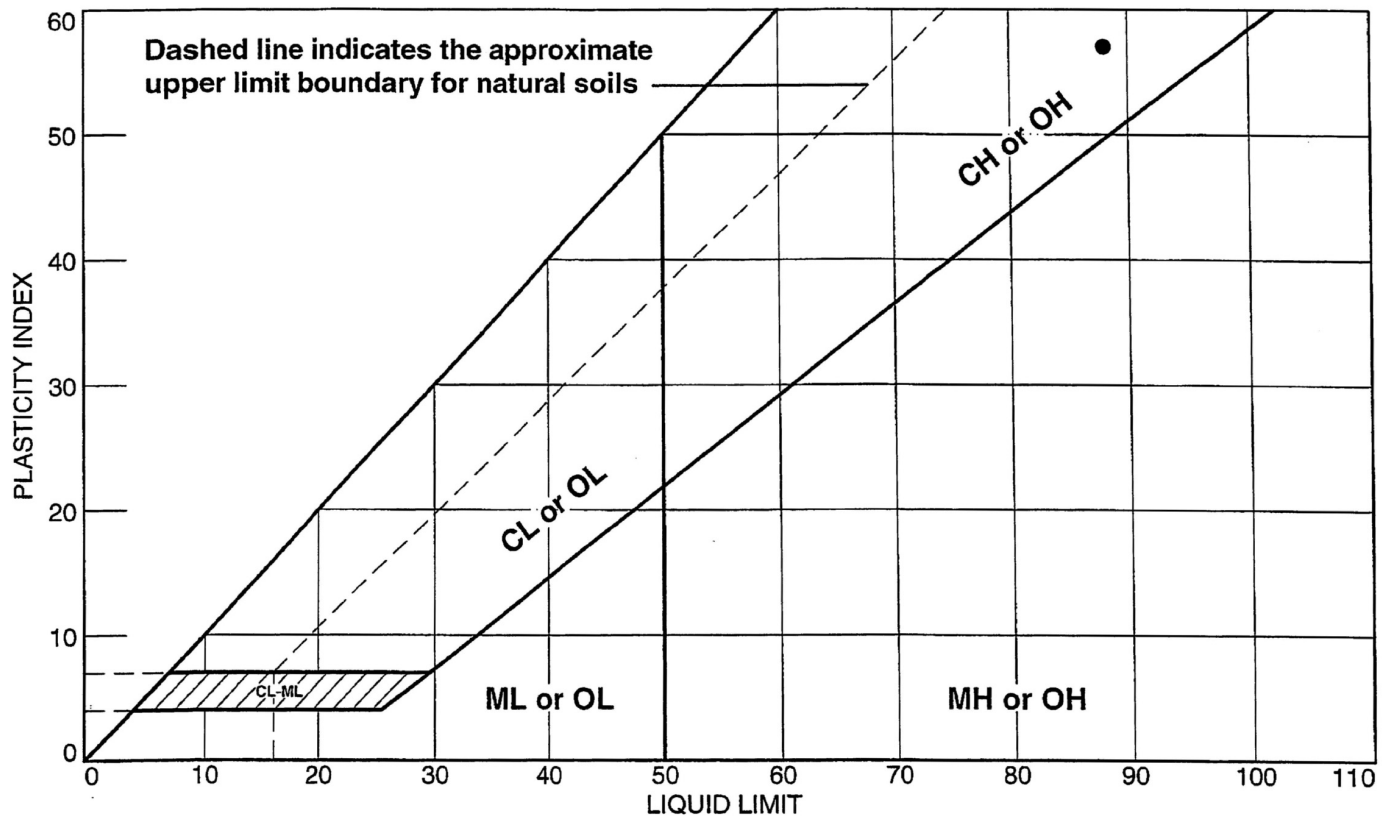
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	5.0	5.2	12.9	81.9	94.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0033	0.0079	0.0221	0.0784

Fineness Modulus
0.02

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-2269UD	UD-19	380.0	28.5	31	88	57	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure *NA*

Tested By: CS

Checked By: LBJ *ZHU 4-28-08*

LIQUID AND PLASTIC LIMIT TEST DATA

4/10/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2269UD

Depth: 380.0

Sample Number: UD-19

Material Description: Light Gray Fat CLAY

USCS: CH

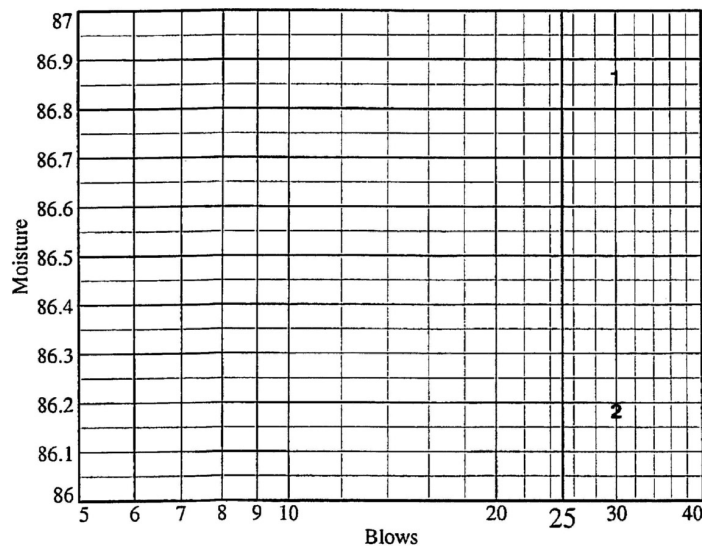
AASHTO: A-7-5(64)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.22	32.38				
Dry+Tare	23.88	24.52				
Tare	15.43	15.40				
# Blows	30	30				
Moisture	86.9	86.2				



Liquid Limit= 88
 Plastic Limit= 31
 Plasticity Index= 57
 Natural Moisture= 28.5
 Liquidity Index= 0.0

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.54	24.90			
Dry+Tare	21.67	22.70			
Tare	15.57	15.50			
Moisture	30.7	30.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
167.69	132.06	6.88	28.5

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

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

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 3/6/08

SAMPLE IDENTIFICATION: B 2269UD, UD-19

(A) Mass of oven-dried soil, grams:	49.86
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.55
(C) Mass of pycnometer, water and soil, grams:	686.89
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	23.0
(G) Specific Gravity at observed temperature: $A / [B - (C - A)]$	2.692
(F) Correction factor:	0.99933
(G x F) SPECIFIC GRAVITY @ 20°C:	2.690

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 :100

Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

PYCNO METER : P-3

TESTED BY:CS

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

REVIEWED BY: Brian Johnson

DSC 3-15-08

145
DSC
3-3-08

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468-07-1777

Sample Data

Source: B-2269UD
Sample No.: UD-20
Elev. or Depth: 400-402.1 Ft Sample Length(in./cm.): ID#8253
Location: B-2269UD
Description: Light Gray Mottled Brownish Yellow Fat CLAY
Date: 12/06/07 PL: 20 LL: 63 PI: 43
USCS Classification: CH AASHTO Classification:
Testing Remarks: Tested by:EH Reviewed by: HJ

NM value from first strength test performed.
Specific Gravity = 2.77 (ASTM D 854-06)

Mechanical Analysis Data

	Initial	
Dry sample and tare=	65.88	
Tare =	16.03	
Dry sample weight =	49.85	
Tare for cumulative weight retained=	.00	
Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.06	99.9
# 40	0.12	99.8
# 60	0.29	99.4
# 100	1.23	97.5
# 140	2.81	94.4
# 200	4.11	91.8

Hydrometer Analysis Data

Separation sieve is #200
Percent -#200 based upon complete sample= 91.8
Weight of hydrometer sample: 45.74
Calculated biased weight= 49.83
Automatic temperature correction
Composite correction at 20 deg C = -5.4

Meniscus correction only= 0
Specific gravity of solids= 2.772
Specific gravity correction factor= 0.974
Hydrometer type: 152H
Effective depth $L = 16.294964 - 0.164 \times R_m$

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	21.9	49.5	44.5	0.0129	49.5	8.2	0.0260	87.0
5.00	21.9	47.0	42.0	0.0129	47.0	8.6	0.0169	82.1
15.00	21.9	43.5	38.5	0.0129	43.5	9.2	0.0101	75.2

MACTEC Engineering and Consulting, Inc.

Elapsed time, min	Temp, Actual deg C reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
30.00	21.9	41.5	36.5	0.0129	41.5	9.5	71.3
60.00	21.9	39.0	34.0	0.0129	39.0	9.9	66.4
240.00	22.2	33.5	28.6	0.0128	33.5	10.8	55.8
1440.00	21.7	29.0	23.9	0.0129	29.0	11.5	46.8

Fractional Components

Gravel/Sand based on #4

Sand/Fines based on #200

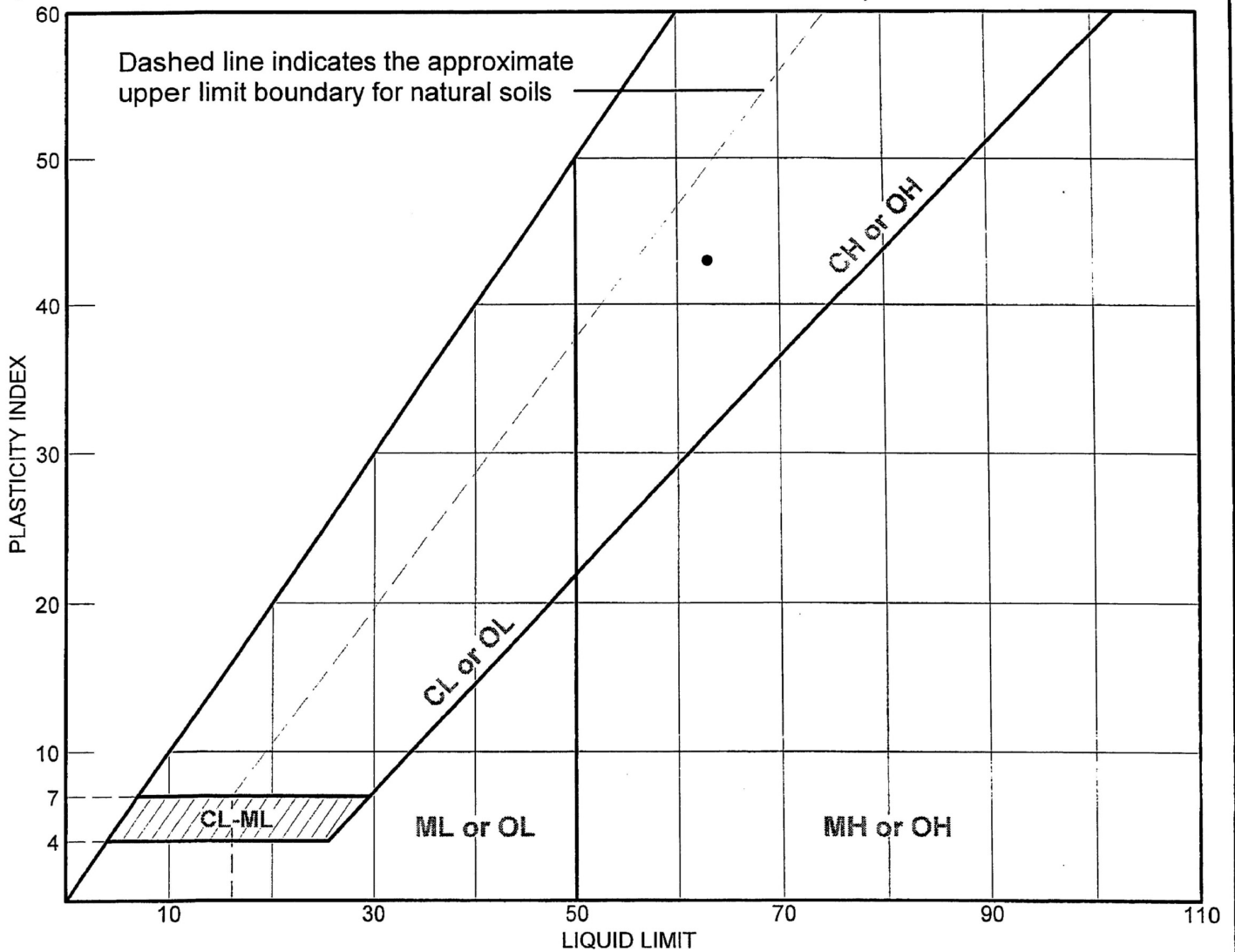
% COBBLES = % GRAVEL =

% SAND = 8.2 (% coarse = % medium = 0.2 % fine = 8.0)

% SILT = 26.1 % CLAY = 65.7

D₈₅= 0.02 D₆₀= 0.00 D₅₀= 0.00

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	2269UD	UD-20	400-402.1 Ft.	24.1	20	63	43	CH

**MACTEC ENGINEERING
AND
CONSULTING, INC.**

Client: Bechtel
Project: Exelon Texas COL (Victoria)

Project No.: 6468-07-1777

Lab No. 8253

LIQUID AND PLASTIC LIMIT TEST DATA

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468-07-1777

Sample Data

Source: B-2269UD
Sample No.: UD-20
Elev. or Depth: 400-402.1 Ft **Sample Length(in./cm.):** ID#8253
Location: B-2269UD
Description: Light Gray Mottled Brownish Yellow Fat CLAY
Water Content: 24.1 **USCS:** CH **AASHTO:**

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.51	28.57				
Dry+Tare	25.82	25.25				
Tare	19.89	19.91				
# Blows	29	30				
Moisture	62.2	62.2				

Liquid Limit= 63
Plastic Limit= 20
Plasticity Index= 43

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	25.63	25.19			
Dry+Tare	24.64	24.09			
Tare	19.67	18.5			
Moisture	19.9	19.7			

MACTEC ENGINEERING AND CONSULTING, INC.

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

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 2/8/08

SAMPLE IDENTIFICATION: B-2269UD, UD-20 @ 400-402.1 Ft.

(A) Mass of oven-dried soil, grams:	40.97
(B) Mass of pycnometer filled with water at test temperature (T), grams:	346.75
(C) Mass of pycnometer, water and soil, grams:	372.95
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	23.3
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.774
(F) <i>Correction factor:</i>	0.99926
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.772

MATERIAL TESTED:

☐

- # 4

☒

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100 %

Fat CLAY (CH)

EQUIPMENT USED

SCALES : 418

OVEN : 144

THERMOMETER : 2759

PYCNOMETER : 2053

TESTED BY: EH

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

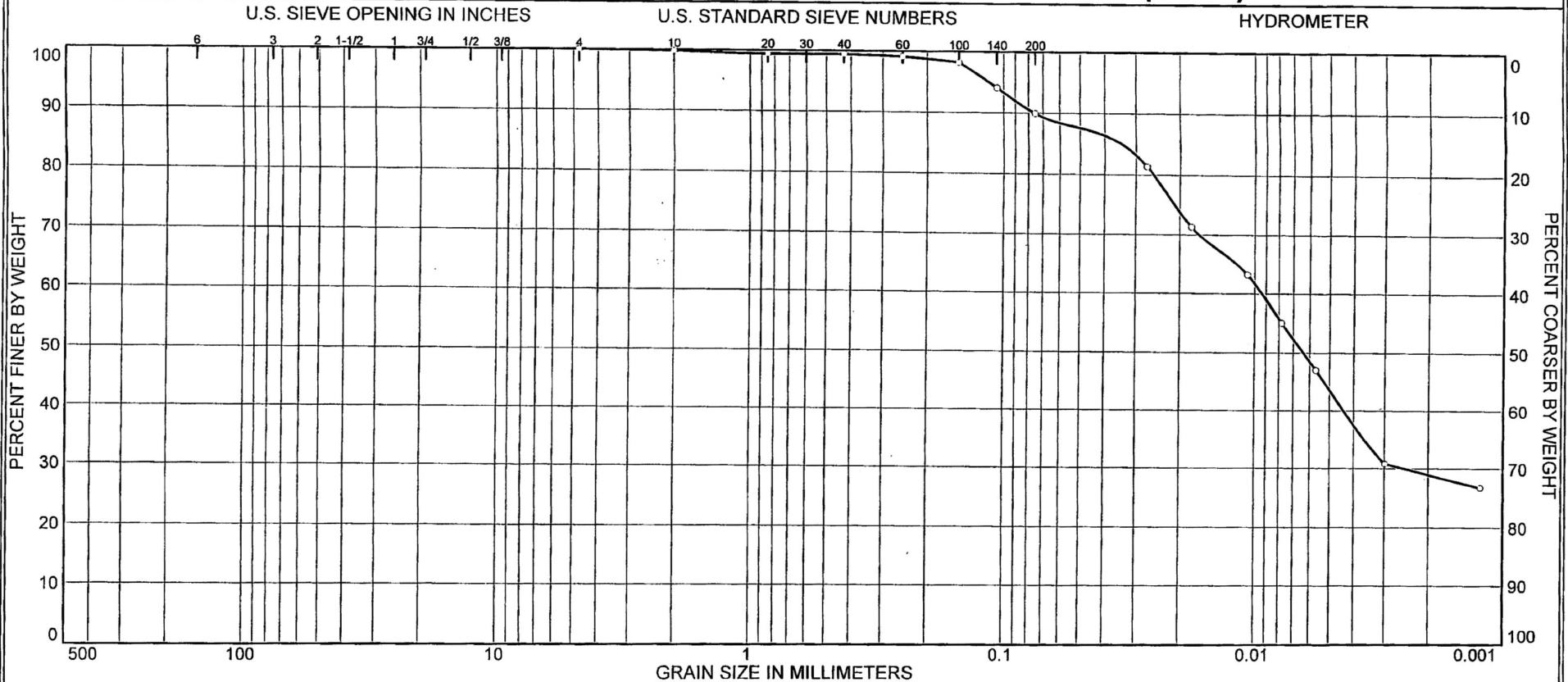
REVIEWED BY: Harry Johnson

DSC
3-3-08

HJ

Boring B-2274UD

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



% COBBLES	% GRAVEL		% SAND			% FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.2	0.4	9.5	46.3	43.6

SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
2274UD	UD-1	10.2'-11.9'	01/06/08	CL	Light Yellowish Brown Lean CLAY	16.4	33	15

Client Bechtel
 Project Exelon Texas COL (Victoria)
 Project No. 6468-07-1777 Lab No. 8312

**MACTEC ENGINEERING
 AND
 CONSULTING, INC.**

Tested by: EH Reviewed by: HJ
 NM value from first strength test performed.
 Specific Gravity = 2.75 (ASTM D 854-06)
 DSC
 3-3-08

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468-07-1777

Sample Data

Source: B-2274UD
Sample No.: UD-1
Elev. or Depth: 10.2-11.9 Ft Sample Length(in./cm.): ID#8312
Location: 2274UD
Description: Light Yellowish Brown Lean CLAY
Date: 01/06/08 PL: 15 LL: 33 PI: 18
USCS Classification: CL AASHTO Classification:
Testing Remarks: Tested by: EH Reviewed by: HJ

NM value from first strength test performed.
Specific Gravity = 2.75 (ASTM D 854-06)

Mechanical Analysis Data

Sieve	Cumul. Wt. retained	Percent finer
Dry sample and tare=	Initial 64.44	
Tare =	16.13	
Dry sample weight =	48.31	
Tare for cumulative weight retained=	.00	
# 4	0.00	100.0
# 10	0.09	99.8
# 20	0.27	99.4
# 40	0.31	99.4
# 60	0.43	99.1
# 100	0.85	98.2
# 140	2.84	94.1
# 200	4.86	89.9

Hydrometer Analysis Data

Separation sieve is #200
Percent -#200 based upon complete sample= 89.9
Weight of hydrometer sample: 43.45
Calculated biased weight= 48.33
Automatic temperature correction
Composite correction at 20 deg C = -5.4

Meniscus correction only= 0
Specific gravity of solids= 2.749
Specific gravity correction factor= 0.979
Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, Actual deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	22.7	45.0	40.2	0.0128	45.0	8.9	0.0271	81.4
5.00	22.7	40.0	35.2	0.0128	40.0	9.7	0.0179	71.3
15.00	22.7	36.0	31.2	0.0128	36.0	10.4	0.0107	63.2
30.00	22.7	32.0	27.2	0.0128	32.0	11.0	0.0078	55.1
60.00	22.7	28.0	23.2	0.0128	28.0	11.7	0.0057	47.0
240.00	22.8	20.0	15.2	0.0128	20.0	13.0	0.0030	30.8
1440.00	22.8	18.0	13.2	0.0128	18.0	13.3	0.0012	26.8

Fractional Components

Gravel/Sand based on #4

Sand/Fines based on #200

% COBBLES = % GRAVEL =

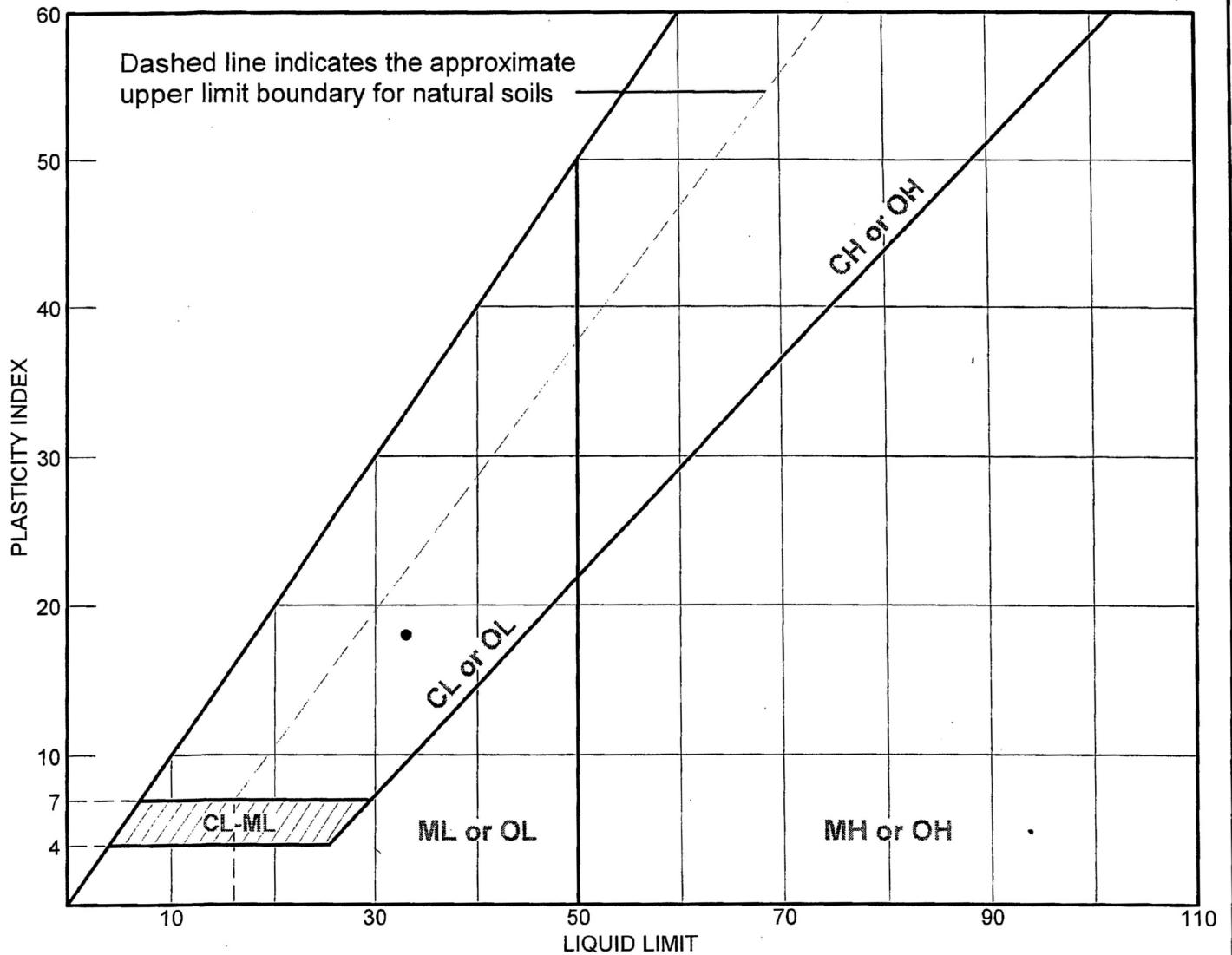
% SAND = 10.1 (% coarse = 0.2 % medium = 0.4 % fine = 9.5)

% SILT = 46.3 % CLAY = 43.6

D₈₅= 0.03 D₆₀= 0.01 D₅₀= 0.01

D₃₀= 0.00

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	2274UD	UD-1	10.2'-11.9'	16.4	15	33	18	CL

**MACTEC ENGINEERING
AND
CONSULTING, INC.**

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468-07-1777

Lab No. 8312

LIQUID AND PLASTIC LIMIT TEST DATA

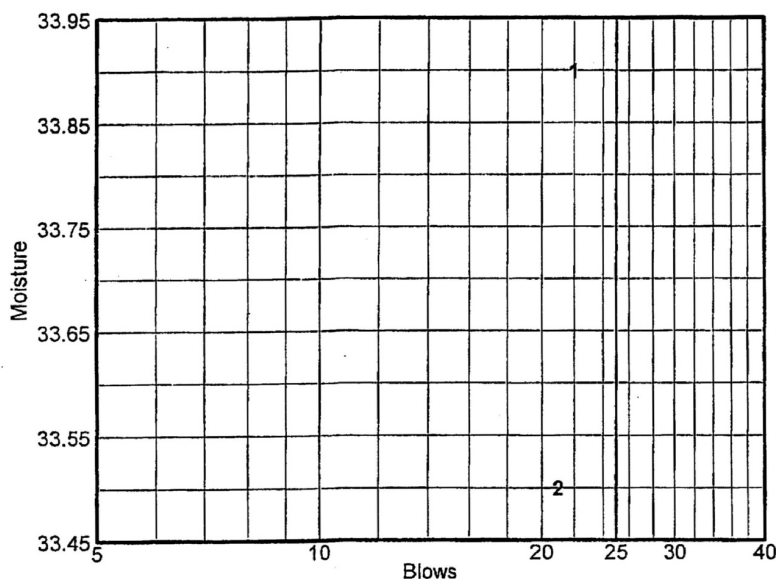
Client: Bechtel
 Project: Exelon Texas COL (Victoria)
 Project Number: 6468-07-1777

Sample Data

Source: B-2274UD
 Sample No.: UD-1
 Elev. or Depth: 10.2-11.9 Ft Sample Length(in./cm.): ID#8312
 Location: 2274UD
 Description: Light Yellowish Brown Lean CLAY
 Water Content: 16.4 USCS: CL AASHTO:

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.82	26.44				
Dry+Tare	24.50	23.48				
Tare	14.72	14.65				
# Blows	22	21				
Moisture	33.9	33.5				



Liquid Limit= 33
 Plastic Limit= 15
 Plasticity Index= 18

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.03	22.81			
Dry+Tare	21.90	21.71			
Tare	14.52	14.49			
Moisture	15.3	15.2			