FINAL DATA REPORT Rev. 2
GEOTECHNICAL EXPLORATION AND TESTING

TURKEY POINT COL PROJECT
FLORIDA CITY, FLORIDA

October 6, 2008

VOLUME 3
Appendix E – Laboratory Test Data

Prepared By:

MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

MACTEC Project No. 6468-07-1950

Prepared For:

Bechtel Power Corporation
Subcontract No. 25409-102-HC4-CY00-00001

FINAL DATA REPORT Rev. 2
GEOTECHNICAL EXPLORATION AND TESTING

TURKEY POINT COL PROJECT
FLORIDA CITY, FLORIDA

October 6, 2008

VOLUME 3
Appendix E – Laboratory Test Data

Prepared By:

MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

MACTEC Project No. 6468-07-1950

Prepared For:

Bechtel Power Corporation
Subcontract No. 25409-102-HC4-CY00-00001

Contents

E.1 Soil Laboratory Test Data
- Soil Index Tests 600 Series Boreholes
- Soil Index Tests 700 Series Boreholes
- Soil Laboratory Tests Test Pits
- Soil Strength Tests
- Soil Chemical Tests
- Carbonate Content Tests

E.2 Laboratory Tests on Rock Cores

APPENDIX E.1

LABORATORY TEST RESULTS ON SOIL SAMPLES

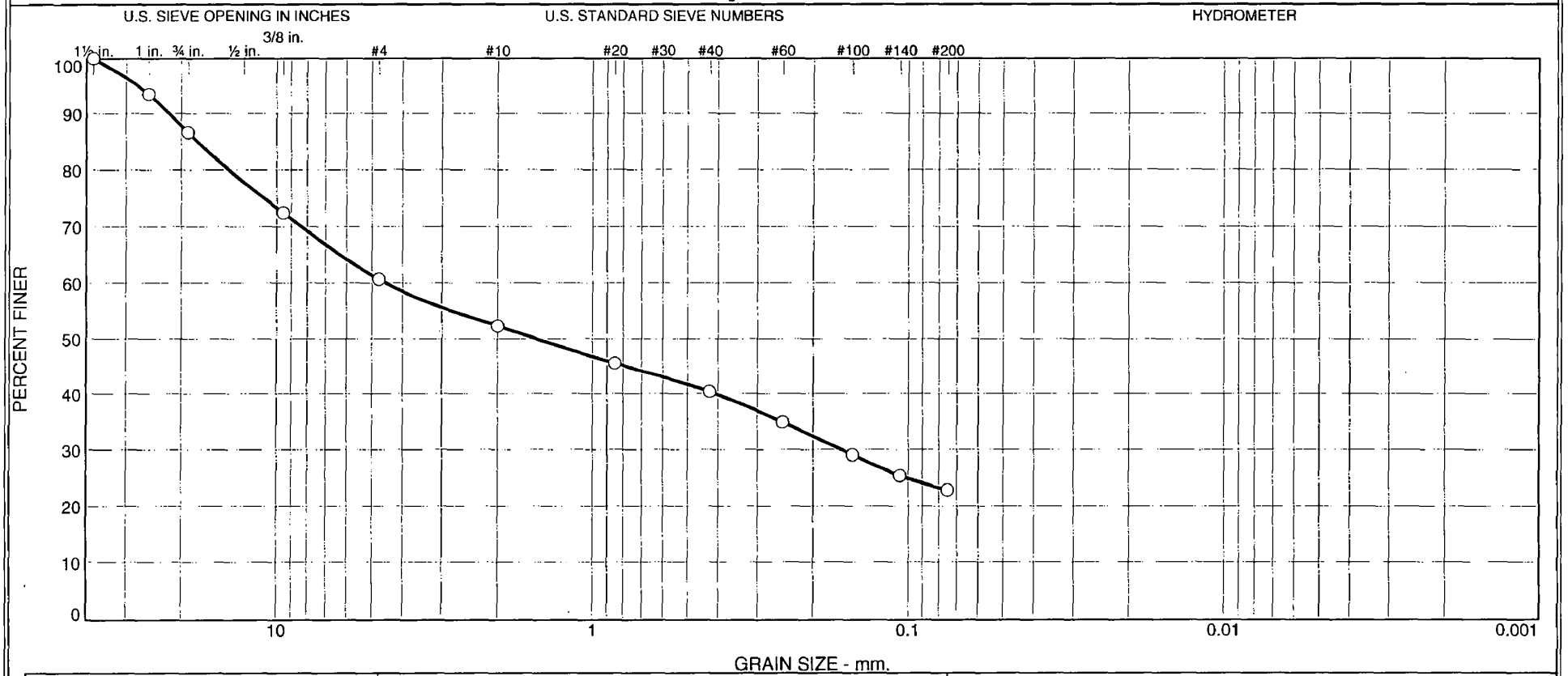
APPENDIX E.1

SOIL LABORATORY TESTS

- **Soil Index Tests 600 Series Boreholes**
- **Soil Index Tests 700 Series Boreholes**
- **Soil Laboratory Tests Test Pits**
- **Soil Strength Tests**
- **Soil Chemical Tests**
- **Carbonate Content Tests**

Soil Index Tests-
600 Series Boreholes

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	13	26	9	12	17	23	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-3	5.3-6.8	2/24/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 5.3-6.8 **Sample Number:** 601-3
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
395.32	0.00	0.00	1.5	0.00	100
			1	25.55	94
			3/4	53.03	87
			3/8"	109.10	72
			#4	155.32	61
			#10	188.42	52
99.67	0.00	0.00	#20	12.93	46
			#40	22.80	40
			#60	33.13	35
			#100	44.24	29
			#140	51.28	25
			#200	56.13	23

Fractional Components

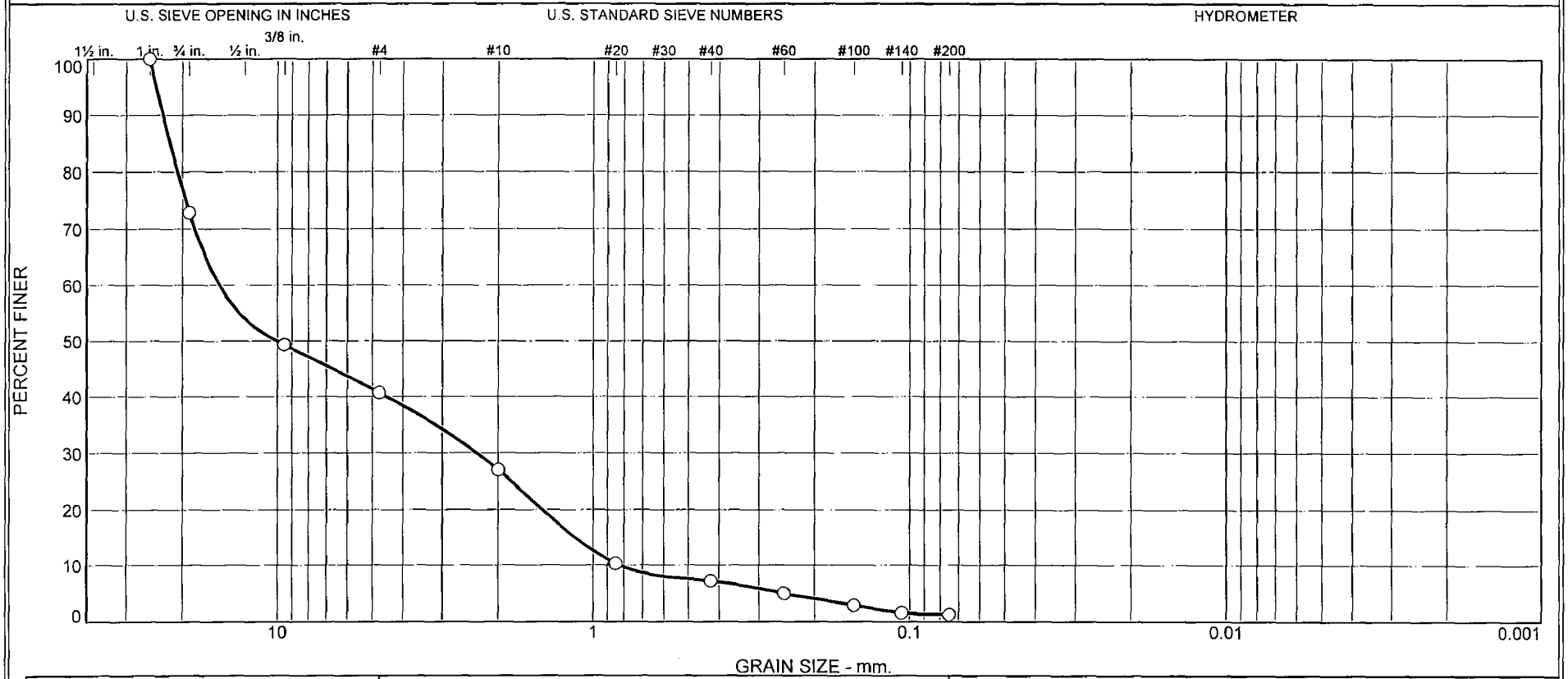
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	13	26	39	9	12	17	38			23

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1621	1.4990	4.5007	14.1689	17.8253	21.8423	27.3405

Fineness Modulus
3.69

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	27	32	14	20	6	1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-5	9.7-11.2	2/24/08	GP	White Poorly Graded GRAVEL with sand	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent=93% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 9.7-11.2 **Sample Number:** 601-5
Material Description: White Poorly Graded GRAVEL with sand
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent=93% (ASTM D 4373-02)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =239.18
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.18	0.00	0.00	1	0.00	100
			3/4	64.86	73
			3/8"	121.26	49
			#4	141.99	41
			#10	174.55	27
			#20	214.57	10
			#40	222.01	7
			#60	227.31	5
			#100	232.24	3
			#140	235.36	2
			#200	236.18	1

Fractional Components

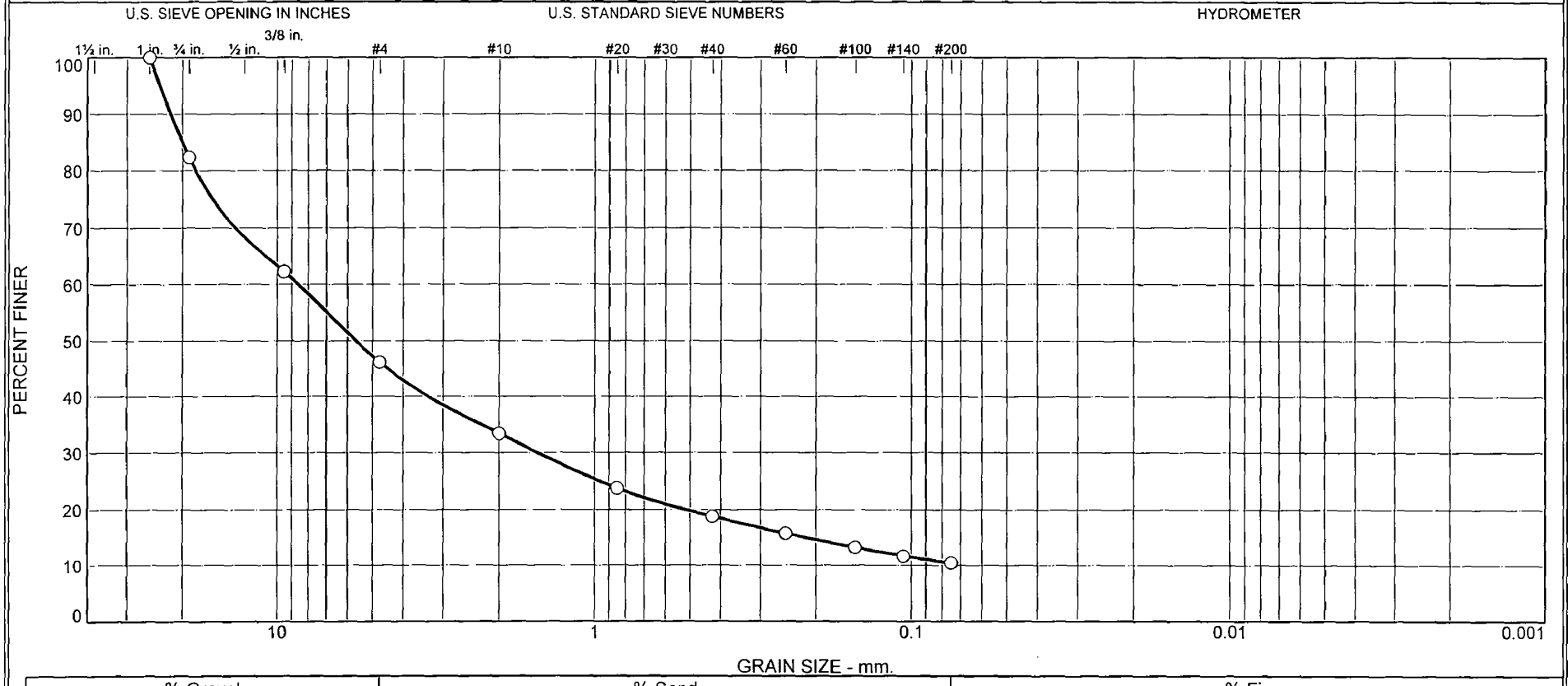
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	27	32	59	14	20	6	40			1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.8281	1.1424	1.4484	2.3339	10.0655	15.2871	20.7412	21.8852	23.0291	24.1944

Fineness Modulus	C_u	C_c
5.75	18.46	0.43

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	18	36	13	14	9	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-6	12.5-14.0	2/24/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 12.5-14.0 **Sample Number:** 601-6
Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
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
645.99	0.00	0.00	1	0.00	100
			3/4	113.93	82
			3/8"	243.36	62
			#4	348.05	46
			#10	430.39	33
103.58	0.00	0.00	#20	29.98	24
			#40	45.29	19
			#60	54.69	16
			#100	62.44	13
			#140	67.22	12
			#200	71.16	10

Fractional Components

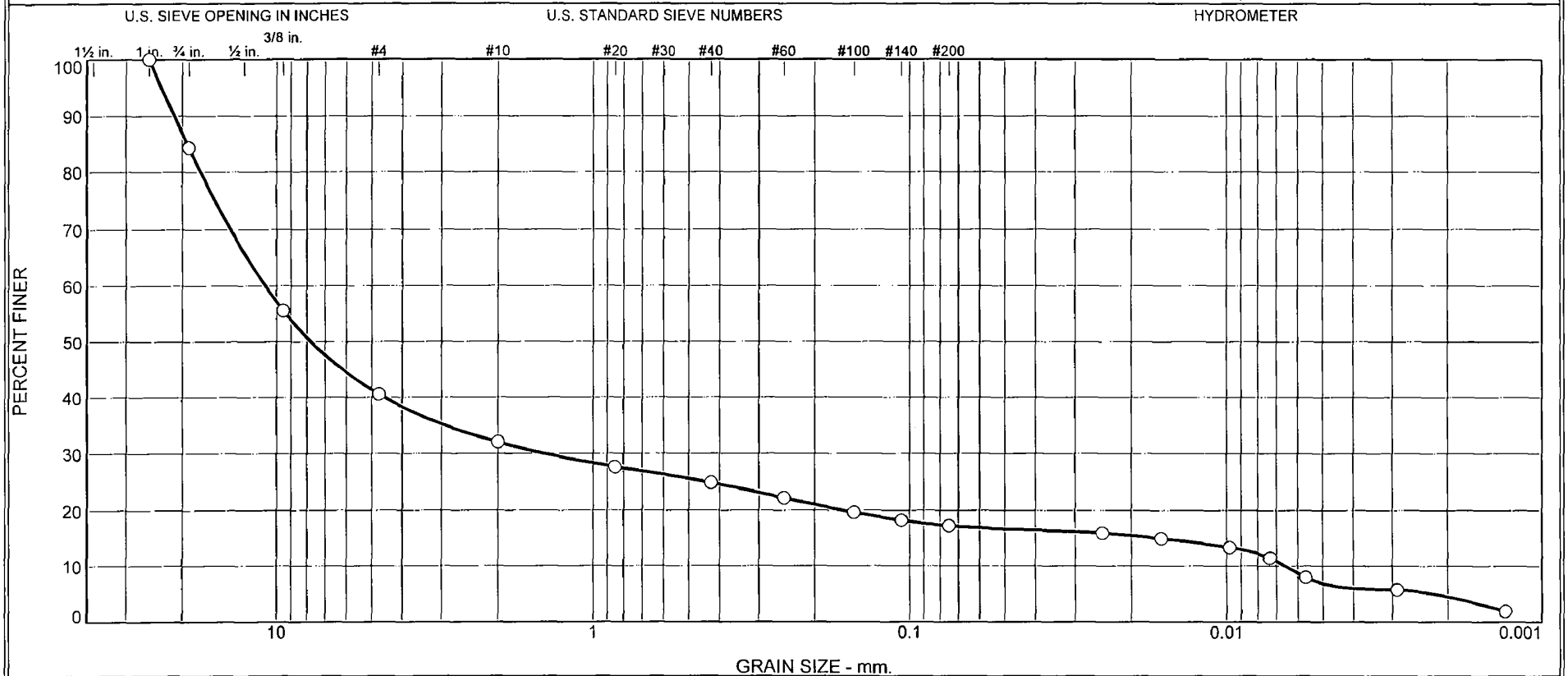
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	18	36	54	13	14	9	36			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.2159	0.5182	1.5141	5.6566	8.5737	18.1463	20.0105	21.7746	23.5479

Fineness Modulus
4.96

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	15.6	43.9	8.5	7.2	7.6	10.4	6.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-8	21.4-22.9	2/25/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is Assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 21.4-22.9 **Sample Number:** 601-8
Material Description: White Silty GRAVEL with sand (Visual)
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is Assumed
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
494.50	0.00	0.00	1	0.00	100.0
			3/4	77.30	84.4
			3/8"	219.50	55.6
			#4	294.00	40.5
			#10	336.30	32.0
99.99	0.00	0.00	#20	13.71	27.6
			#40	22.49	24.8
			#60	30.71	22.2
			#100	38.63	19.6
			#140	43.11	18.2
			#200	46.12	17.2

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =32.0
Weight of hydrometer sample =99.99
Hygroscopic moisture correction:
Moist weight and tare = 27.71
Dry weight and tare = 27.64
Tare weight = 15.65
Hygroscopic moisture =0.6%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.4	55.0	50.0	0.0131	56.0	7.1	0.0246	15.9
5.00	22.4	52.0	47.0	0.0131	53.0	7.6	0.0161	15.0
15.00	22.3	47.0	42.0	0.0131	48.0	8.4	0.0098	13.4
30.00	22.3	41.0	36.0	0.0131	42.0	9.4	0.0073	11.5
60.00	22.3	30.0	25.0	0.0131	31.0	11.2	0.0056	8.0
250.00	22.4	23.0	18.0	0.0131	24.0	12.4	0.0029	5.7
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	1.9

MACTEC Engineering and Consulting, Inc.

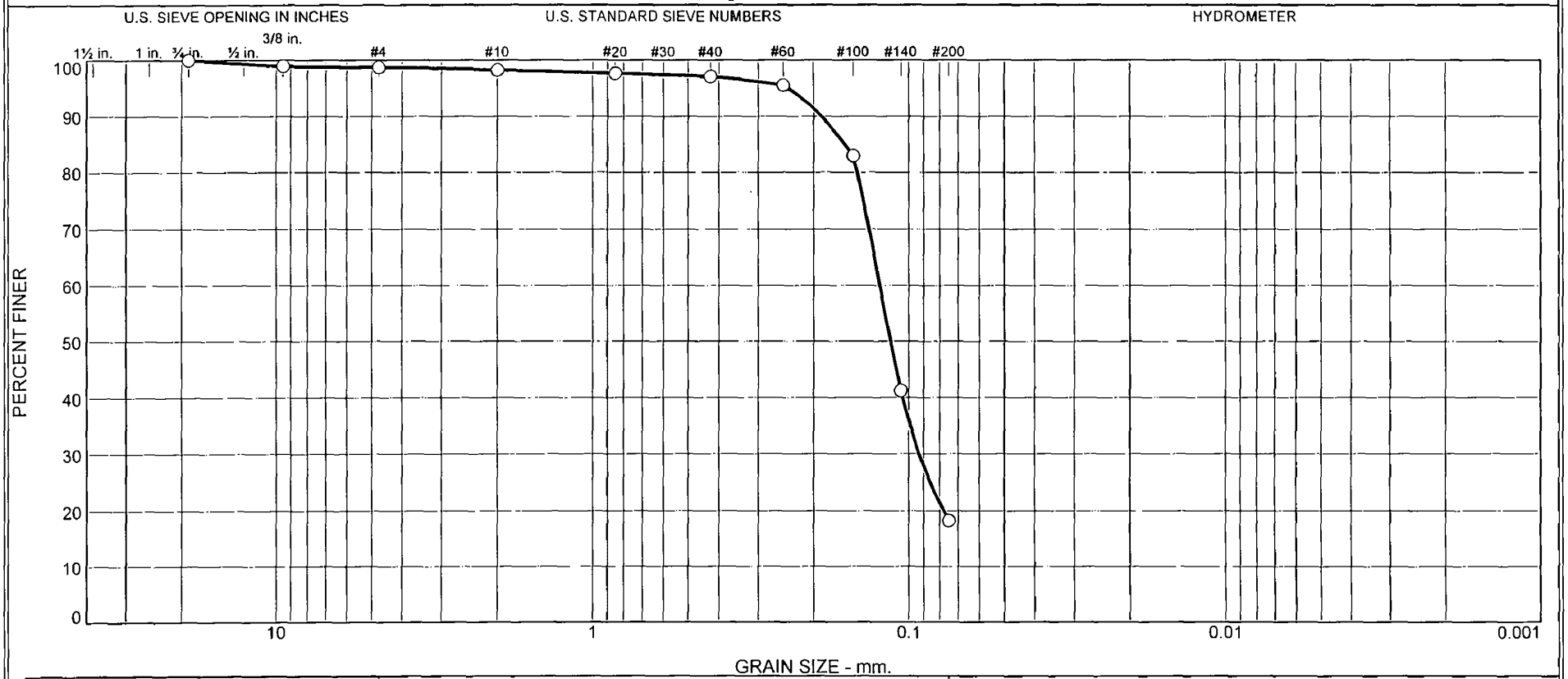
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	15.6	43.9	59.5	8.5	7.2	7.6	23.3	10.4	6.8	17.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0066	0.0163	0.1623	1.4278	7.7783	10.8827	17.4700	19.2837	21.1873	23.2134

Fineness Modulus	C_u	C_c
4.88	1660.90	28.59

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	1	1	79	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-10B	122.0-122.7	3/5/08	SM	Light Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 122.0-122.7 **Sample Number:** 601-10B
Material Description: Light Gray Silty SAND (Visual)
Date: 3/5/08 **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
376.50	0.00	0.00	3/4	0.00	100
			3/8"	3.87	99
			#4	4.84	99
			#10	6.58	98
101.38	0.00	0.00	#20	0.61	98
			#40	1.17	97
			#60	2.83	96
			#100	15.80	83
			#140	58.88	41
			#200	82.59	18

Fractional Components

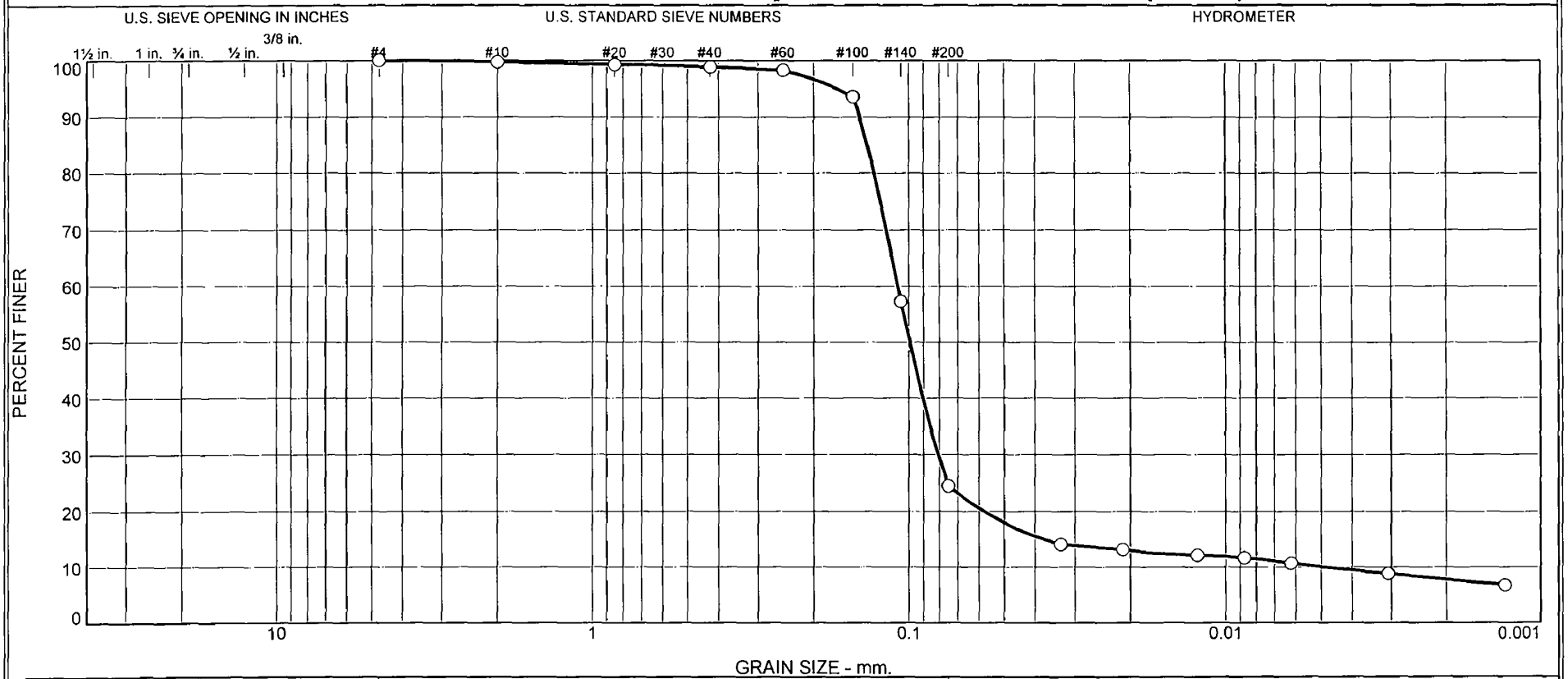
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	1	1	79	81			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0779	0.0931	0.1144	0.1236	0.1455	0.1594	0.1893	0.2415

Fineness Modulus
0.30

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.2	0.9	74.4	14.4	10.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-11	128.3-129.8	3/6/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 128.3-129.8 **Sample Number:** 601-11
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
351.05	0.00	0.00	#4	0.00	100.0
			#10	0.79	99.8
101.60	0.00	0.00	#20	0.50	99.3
			#40	0.88	98.9
			#60	1.54	98.3
			#100	6.25	93.6
			#140	43.23	57.3
			#200	76.68	24.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.8
Weight of hydrometer sample =101.60
Hygroscopic moisture correction:
Moist weight and tare = 29.23
Dry weight and tare = 29.22
Tare weight = 15.25
Hygroscopic moisture =0.1%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.4	19.5	14.5	0.0131	20.5	12.9	0.0332	14.1
5.00	22.4	18.5	13.5	0.0131	19.5	13.1	0.0211	13.2
15.00	22.3	17.5	12.5	0.0131	18.5	13.3	0.0123	12.2
30.00	22.3	17.0	12.0	0.0131	18.0	13.3	0.0087	11.7
60.00	22.3	16.0	11.0	0.0131	17.0	13.5	0.0062	10.7
250.00	22.6	14.0	9.1	0.0130	15.0	13.8	0.0031	8.8
1440.00	22.1	12.0	7.0	0.0131	13.0	14.2	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

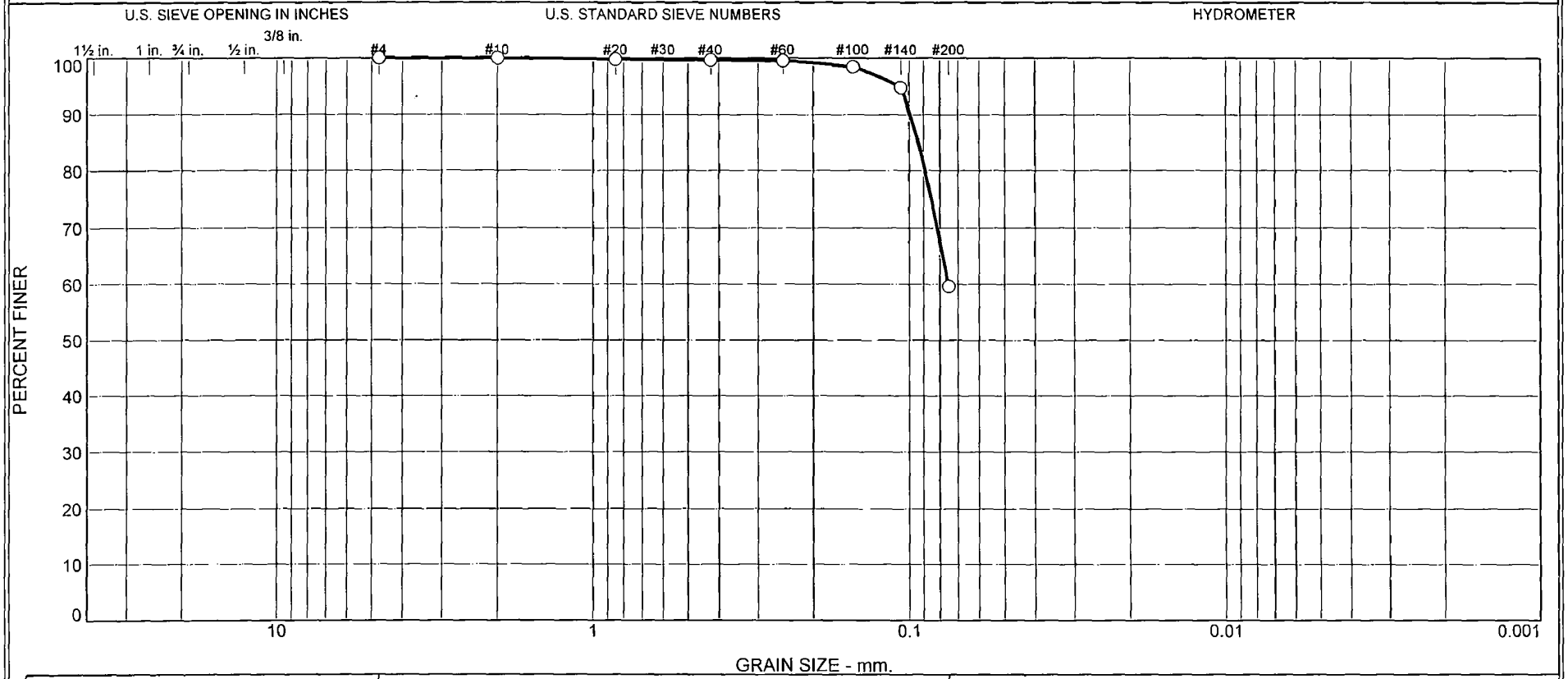
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.9	74.4	75.5	14.4	10.1	24.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0048	0.0376	0.0579	0.0809	0.0994	0.1084	0.1288	0.1352	0.1429	0.1680

Fineness Modulus	C_u	C_c
0.09	22.44	12.49

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	40	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-14	158.4-159.9	3/9/08	CL	Greenish Gray Lean CLAY with sand	ND	24	14

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 158.4-159.9 **Sample Number:** 601-14
Material Description: Greenish Gray Lean CLAY with sand
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: 24 **Plastic Limit:** 14 **USCS Class.:** CL
Testing Remarks: SIEVE ANALYSIS ONLY
ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13
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
328.01	0.00	0.00	#4	0.00	100
			#10	0.04	100
98.01	0.00	0.00	#20	0.19	100
			#40	0.32	100
			#60	0.42	100
			#100	1.50	98
			#140	5.10	95
			#200	39.55	60

Fractional Components

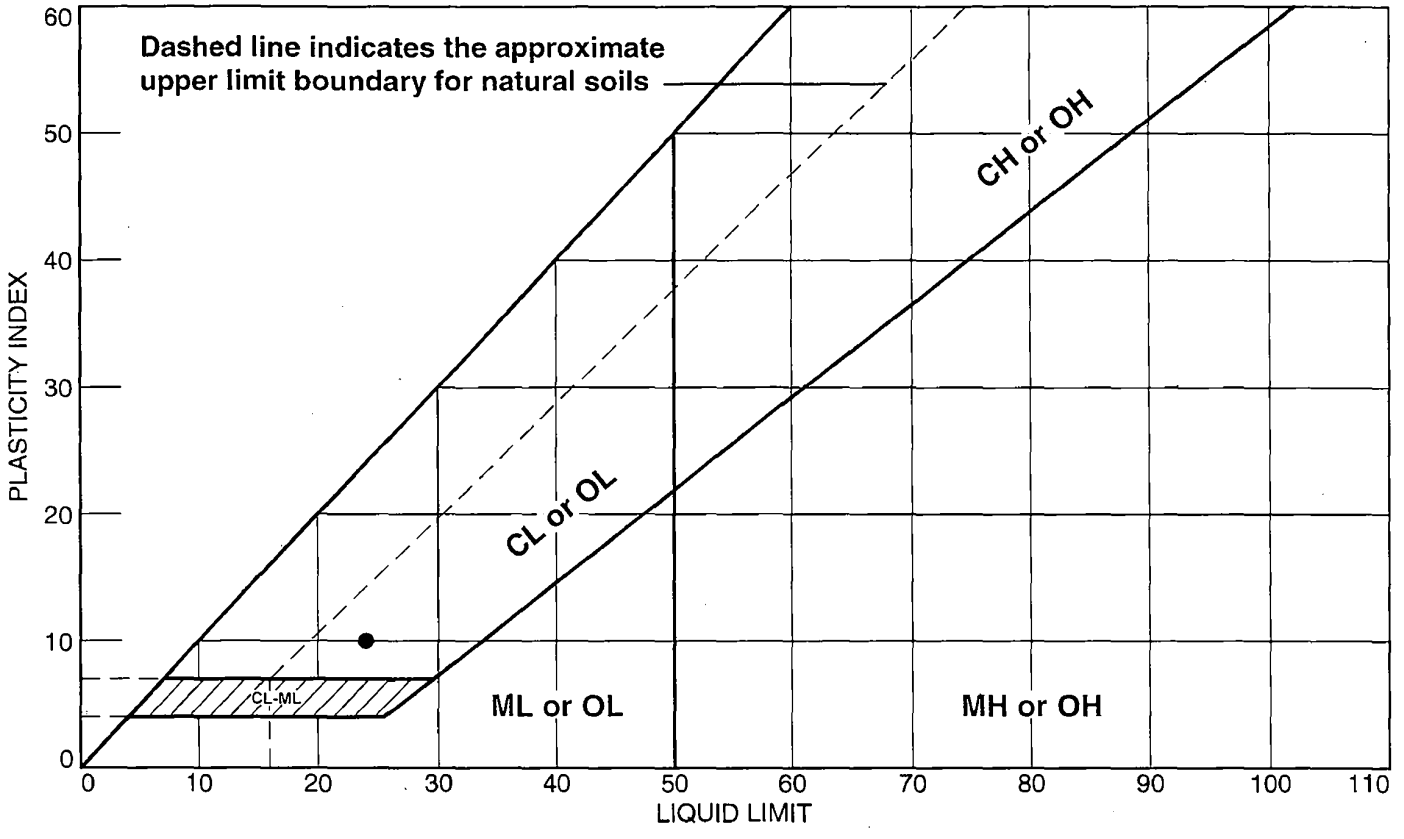
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	40	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0752	0.0889	0.0934	0.0988	0.1077

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-601(DH)	601-14	158.4-159.9	ND	14	24	10	CL

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

ZHU 7/22/08

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

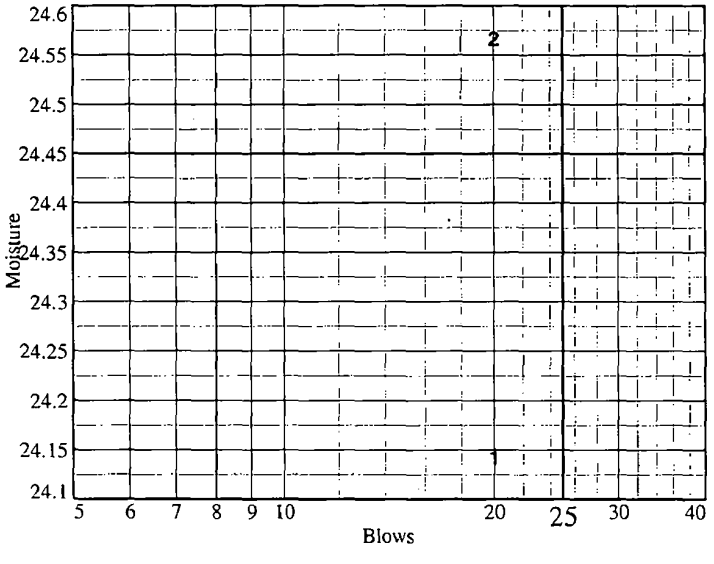
LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 158.4-159.9 **Sample Number:** 601-14
Material Description: Greenish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-4(3)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.97	34.94				
Dry+Tare	30.38	31.11				
Tare	15.51	15.52				
# Blows	20	20				
Moisture	24.1	24.6				



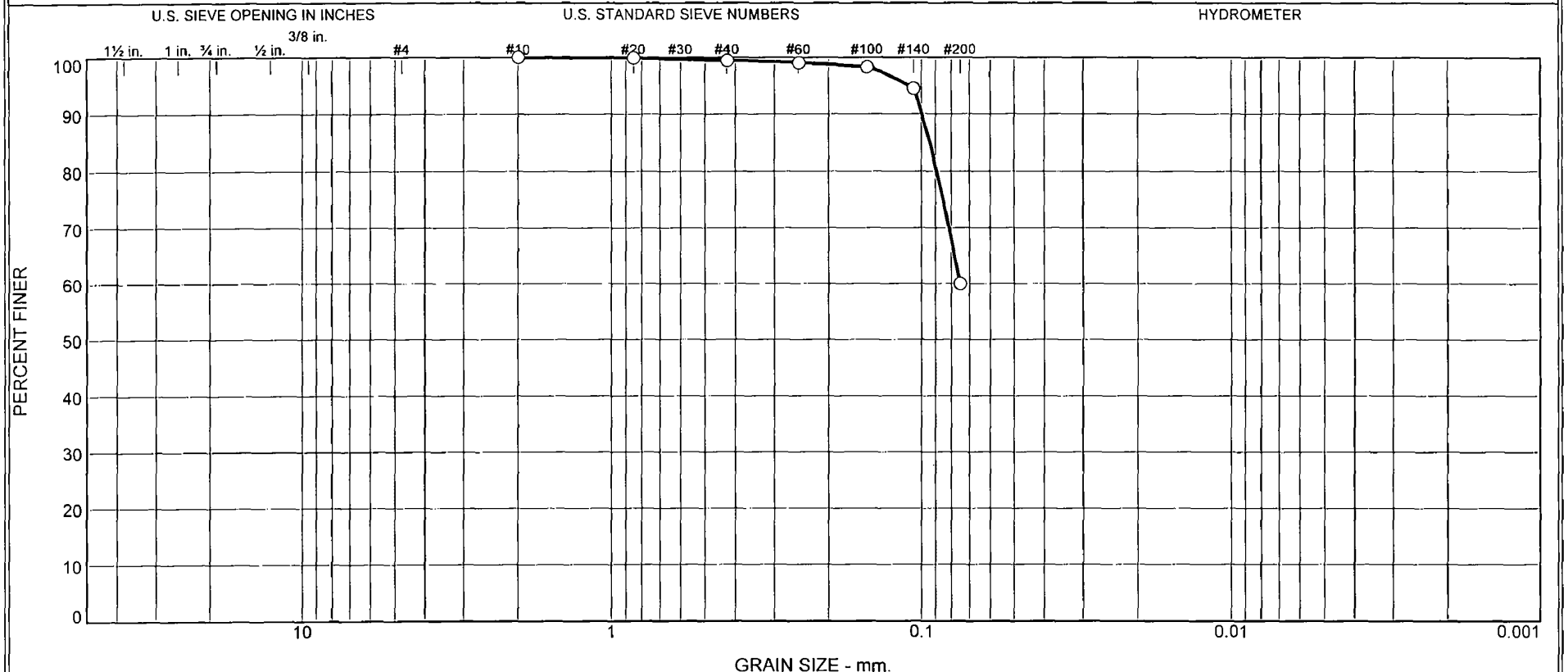
Liquid Limit= 24
Plastic Limit= 14
Plasticity Index= 10
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.12	23.91			
Dry+Tare	23.08	22.87			
Tare	15.52	15.57			
Moisture	13.8	14.2			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	39	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-16	178.4-179.9	3/19/08	ML	Greenish Gray Sandy SILT	ND	22	20

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 178.4-179.9 **Sample Number:** 601-16
Material Description: Greenish Gray Sandy SILT
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: 22 **Plastic Limit:** 20 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
298.31	0.00	0.00	#10	0.00	100
95.79	0.00	0.00	#20	0.07	100
			#40	0.52	99
			#60	0.91	99
			#100	1.63	98
			#140	5.29	94
			#200	38.30	60

Fractional Components

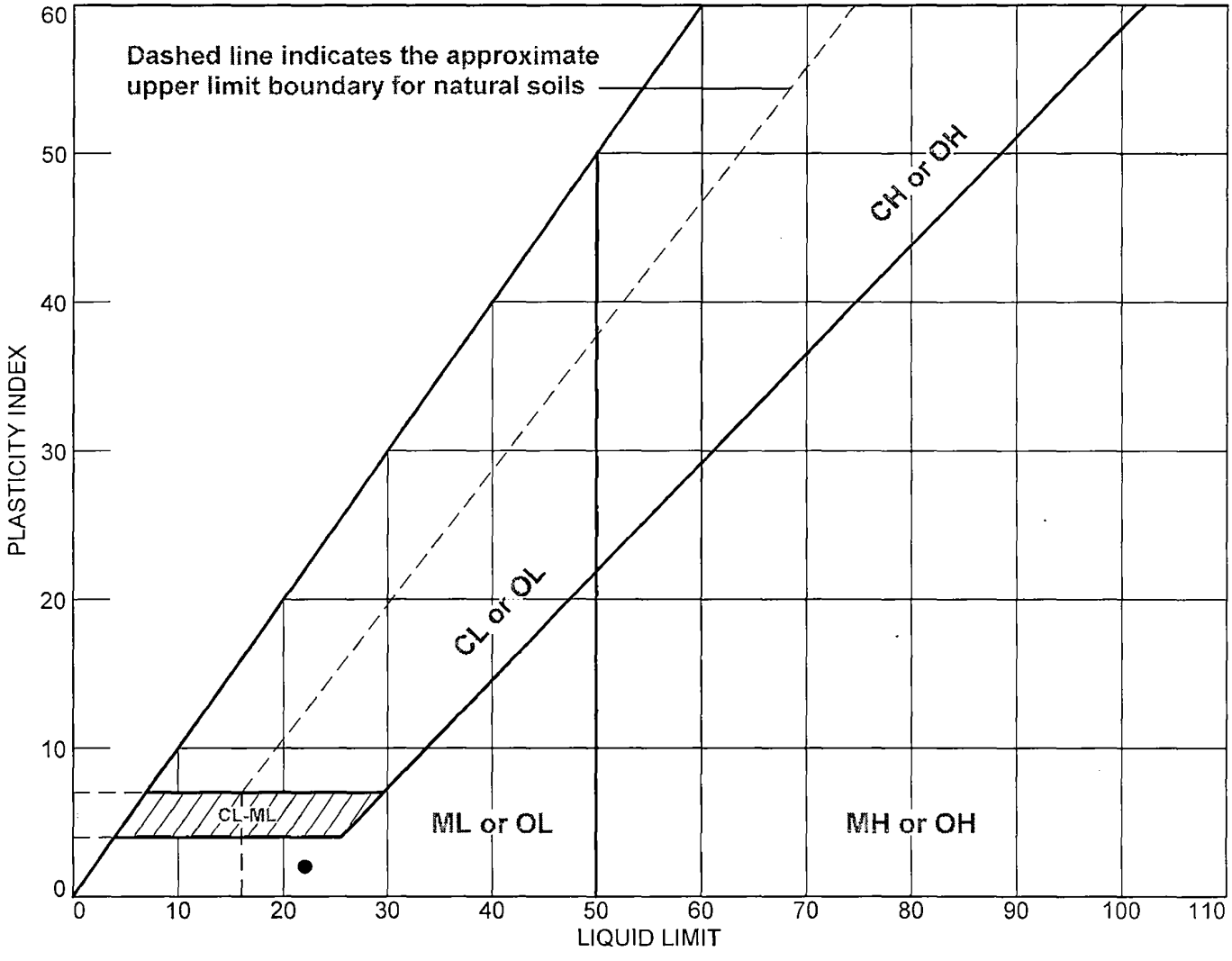
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0890	0.0935	0.0991	0.1099

Fineness Modulus
0.03

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-601(DH)	601-16	178.4-179.9	ND	20	22	2	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

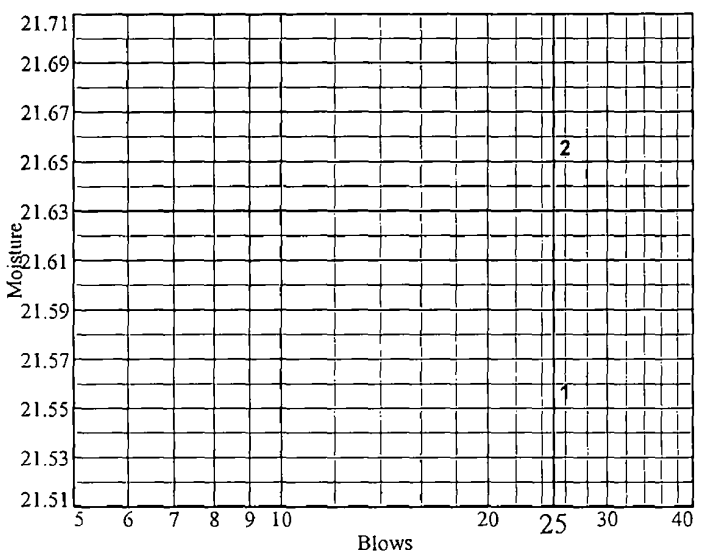
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 178.4-179.9 **Sample Number:** 601-16
Material Description: Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.67	30.06				
Dry+Tare	27.15	27.47				
Tare	15.46	15.51				
# Blows	26	26				
Moisture	21.6	21.7				



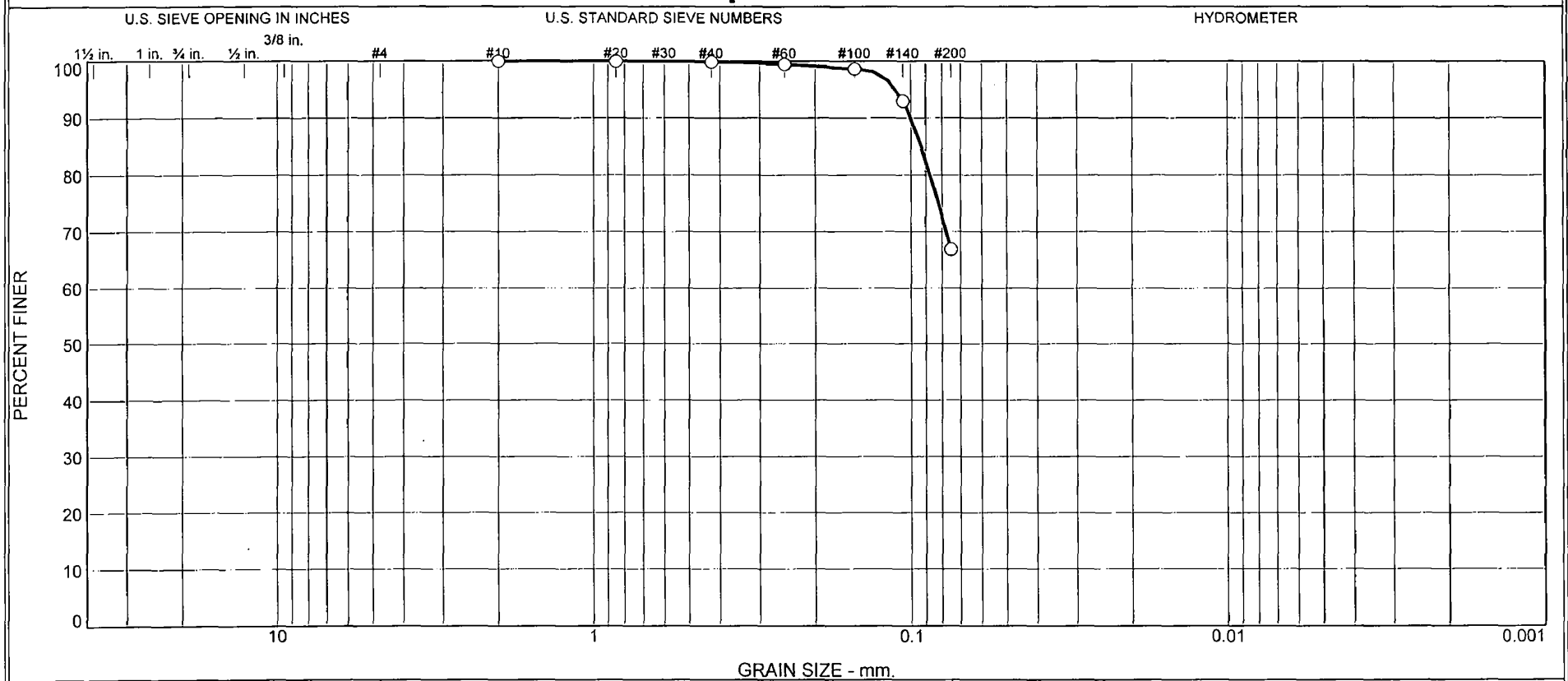
Liquid Limit= 22
Plastic Limit= 20
Plasticity Index= 2
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	25.34	20.60			
Dry+Tare	23.67	19.02			
Tare	15.50	11.23			
Moisture	20.4	20.3			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	33	67	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-18	198.4-199.9	3/20/08	CL	Greenish Gray Lean CLAY with sand	ND	25	12

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 198.4-199.9 **Sample Number:** 601-18
Material Description: Greenish Gray Lean CLAY with sand
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: 25 **Plastic Limit:** 12 **USCS Class.:** CL
Testing Remarks: SIEVE ANALYSIS ONLY
ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13
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
284.39	0.00	0.00	#10	0.00	100
104.52	0.00	0.00	#20	0.02	100
			#40	0.14	100
			#60	0.56	99
			#100	1.47	99
			#140	7.39	93
			#200	34.56	67

Fractional Components

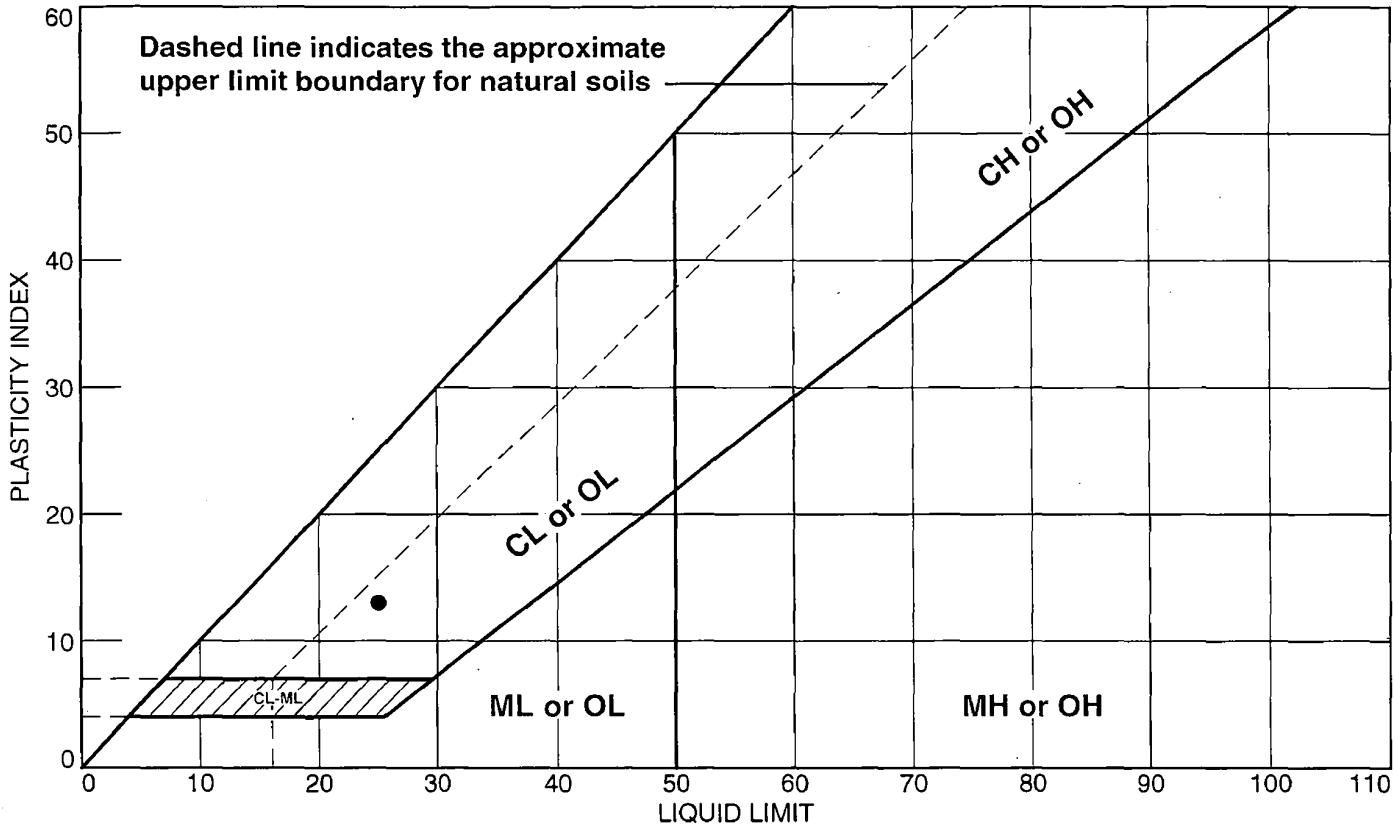
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	33	33			67

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0871	0.0930	0.1002	0.1117

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-601(DH)	601-18	198.4-199.9	ND	12	25	13	CL

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

ZHU 7/22/08

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

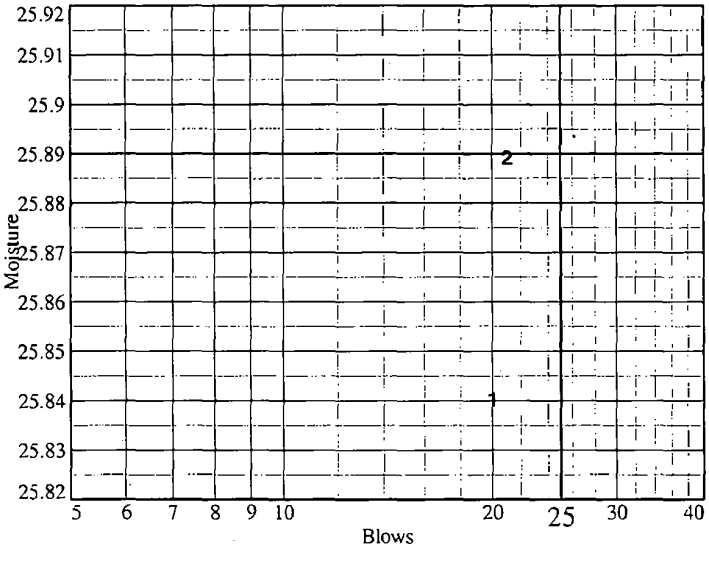
LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 198.4-199.9 **Sample Number:** 601-18
Material Description: Greenish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-6(6)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.45	34.61				
Dry+Tare	29.76	30.68				
Tare	15.48	15.50				
# Blows	20	21				
Moisture	25.8	25.9				



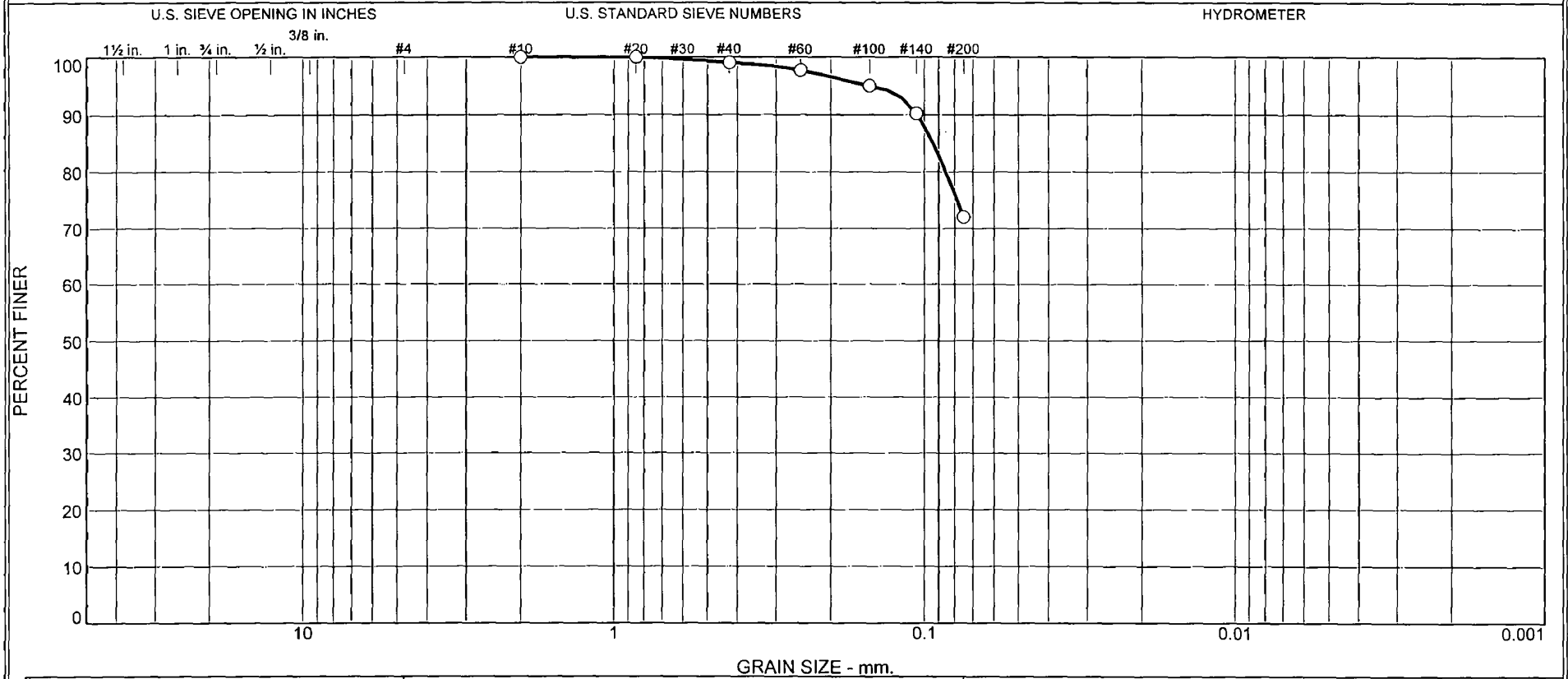
Liquid Limit= 25
Plastic Limit= 12
Plasticity Index= 13
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.45	24.19			
Dry+Tare	23.48	23.25			
Tare	15.46	15.52			
Moisture	12.1	12.2			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	27	72	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-19	208.4-209.9	3/20/08	CL	Dark Greenish Gray Lean CLAY with sand	ND	34	21

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 208.4-209.9 **Sample Number:** 601-19
Material Description: Dark Greenish Gray Lean CLAY with sand
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: 34 **Plastic Limit:** 21 **USCS Class.:** CL
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
452.67	0.00	0.00	#10	0.00	100
92.26	0.00	0.00	#20	0.04	100
			#40	0.88	99
			#60	2.11	98
			#100	4.63	95
			#140	8.99	90
			#200	25.79	72

Fractional Components

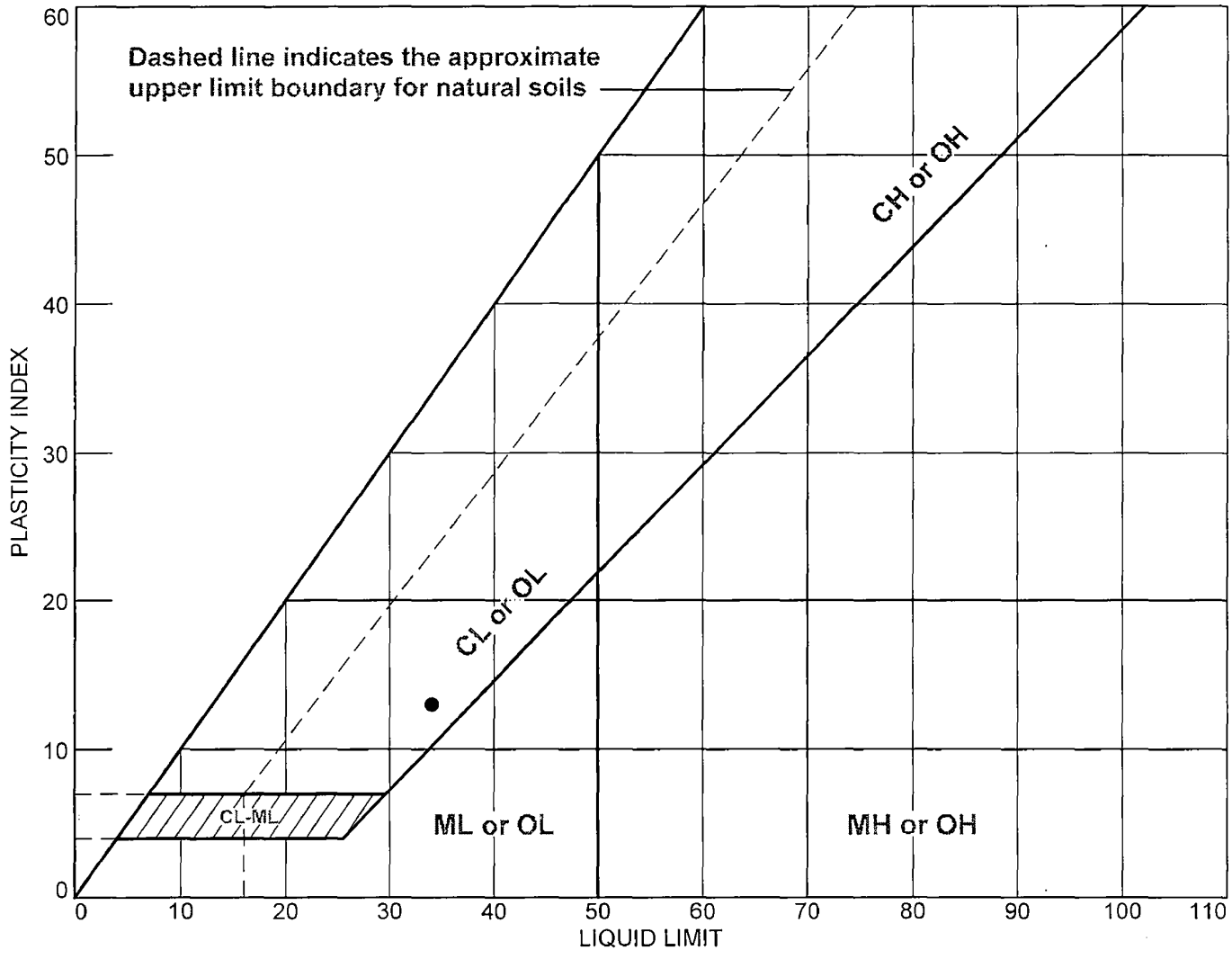
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	27	28			72

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0854	0.0936	0.1052	0.1506

Fineness Modulus
0.07

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-601(DH)	601-19	208.4-209.9	ND	21	34	13	CL

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

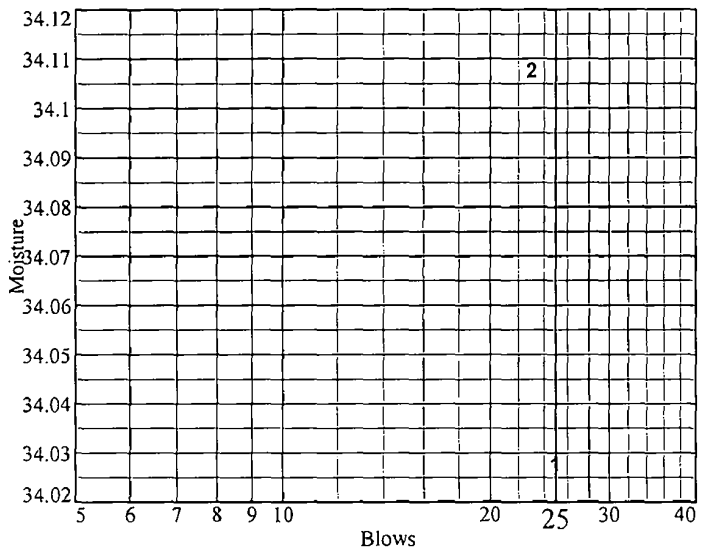
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 208.4-209.9 **Sample Number:** 601-19
Material Description: Dark Greenish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-6(8)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.00	28.19				
Dry+Tare	24.06	24.96				
Tare	15.42	15.49				
# Blows	25	23				
Moisture	34.0	34.1				



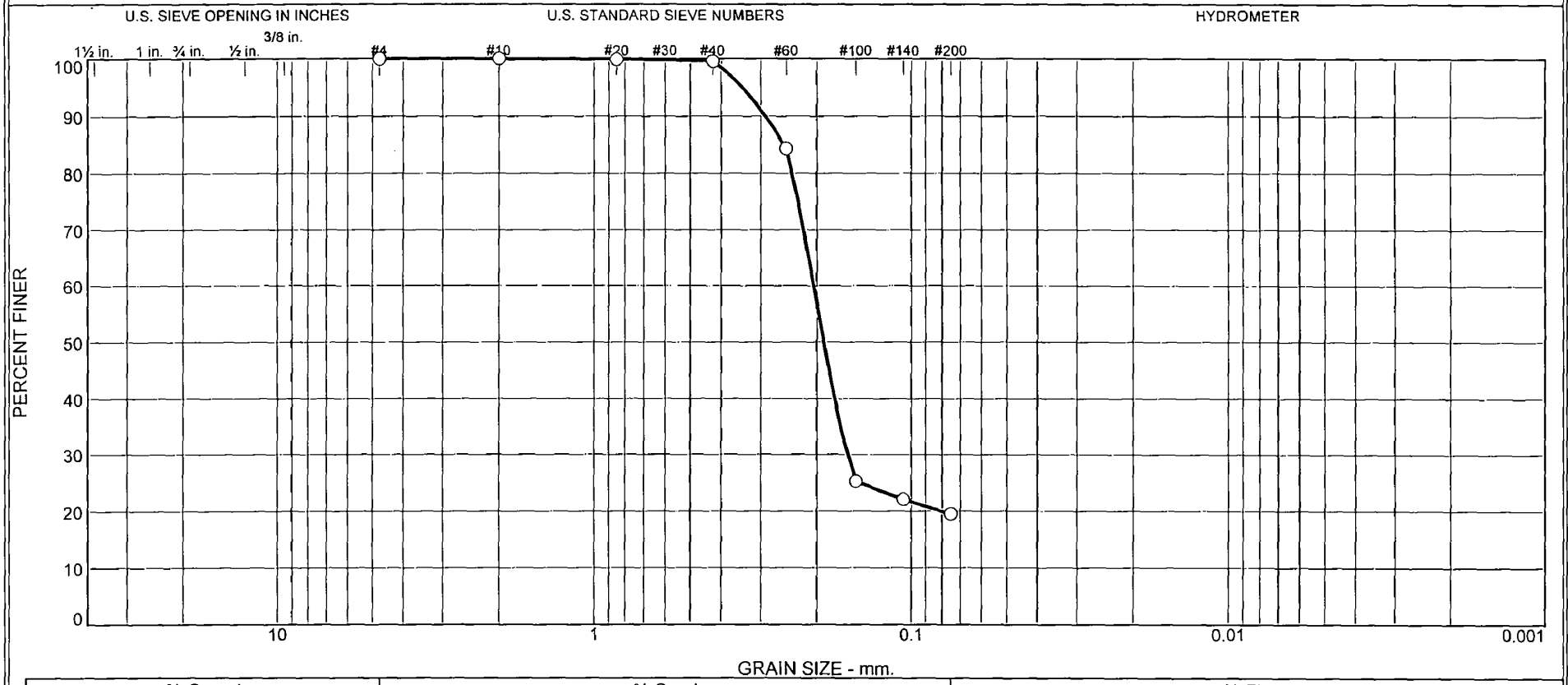
Liquid Limit= 34
Plastic Limit= 21
Plasticity Index= 13
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	21.69	19.98			
Dry+Tare	20.56	18.44			
Tare	15.25	11.12			
Moisture	21.3	21.0			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	80	20	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-23	248.4-249.9	3/20/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel
Project Turkey Point COL
Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent=21% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 248.4-249.9 **Sample Number:** 601-23
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent=21% (ASTM D 4373-02)
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
291.65	0.00	0.00	#4	0.00	100
			#10	0.04	100
100.38	0.00	0.00	#20	0.08	100
			#40	0.42	100
			#60	15.69	84
			#100	75.07	25
			#140	78.24	22
			#200	80.76	20

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	80	80			20

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0804	0.1597	0.1898	0.2044	0.2396	0.2540	0.2907	0.3432

Fineness Modulus
0.84

MACTEC Engineering and Consulting, 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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: B-601DH-23,(248.4-249.9)

(A) Mass of oven-dried soil, grams:		75.70
(B) Mass of pycnometer filled with water at test temperature (T), grams:		675.77
(C) Mass of pycnometer, water and soil, grams:		723.39
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.4
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.696
(F)	***Correction factor:***	0.99970
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.695

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

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

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) (Visual)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

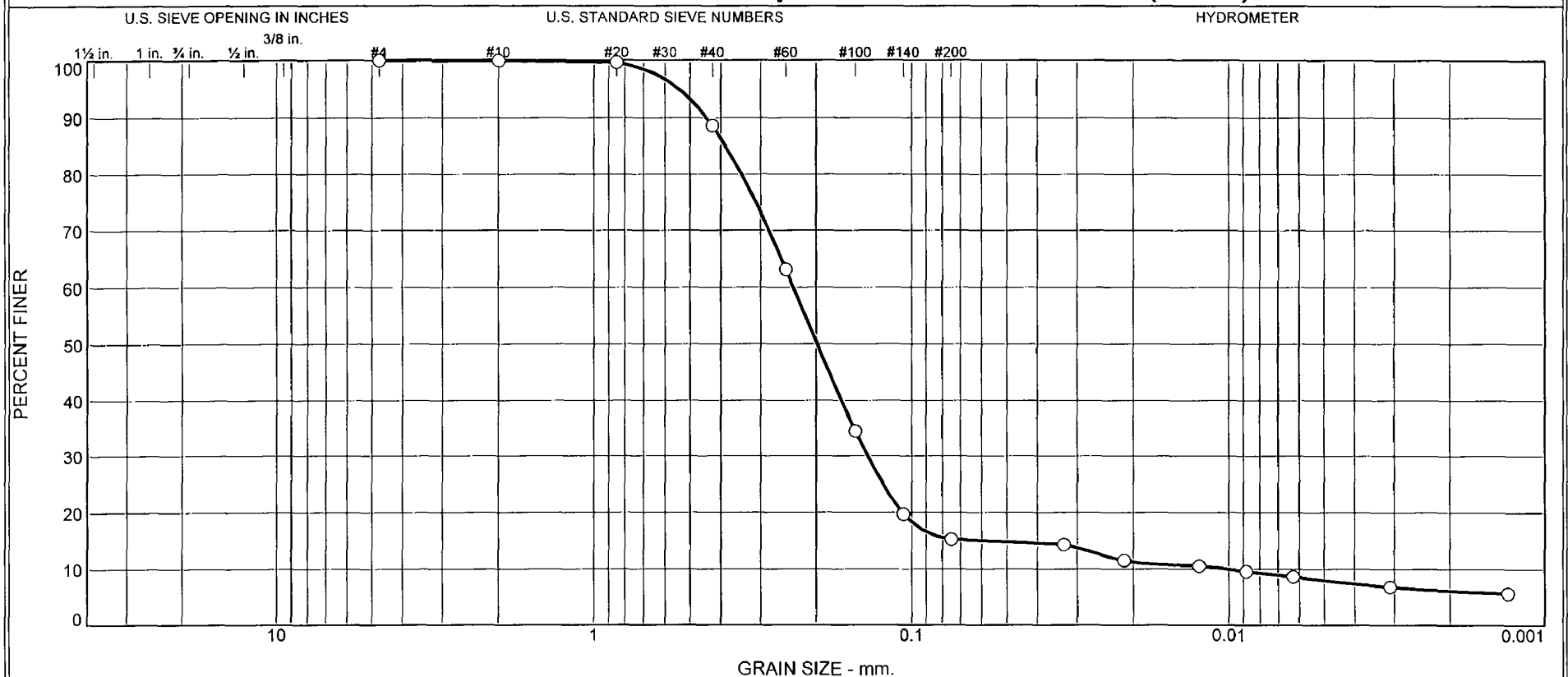
PYCNOMETER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

ZHU 8/19/08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	11.4	73.3	7.3	8.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-28	298.4-299.9	3/23/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 298.4-299.9 **Sample Number:** 601-28
Material Description: Olive Gray Silty SAND (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
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
373.62	0.00	0.00	#4	0.00	100.0
			#10	0.15	100.0
104.67	0.00	0.00	#20	0.31	99.7
			#40	11.90	88.6
			#60	38.53	63.2
			#100	68.60	34.4
			#140	84.03	19.7
			#200	88.65	15.3

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.68
Hygroscopic moisture correction:
Moist weight and tare = 25.35
Dry weight and tare = 25.21
Tare weight = 11.17
Hygroscopic moisture =1.0%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.4	20.0	15.0	0.0131	21.0	12.9	0.0331	14.4
5.00	22.4	17.0	12.0	0.0131	18.0	13.3	0.0213	11.5
15.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0124	10.5
30.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0088	9.6
60.00	22.5	14.0	9.1	0.0130	15.0	13.8	0.0063	8.7
250.00	22.8	12.0	7.2	0.0130	13.0	14.2	0.0031	6.8
1440.00	22.1	11.0	6.0	0.0131	12.0	14.3	0.0013	5.7

MACTEC Engineering and Consulting, Inc.

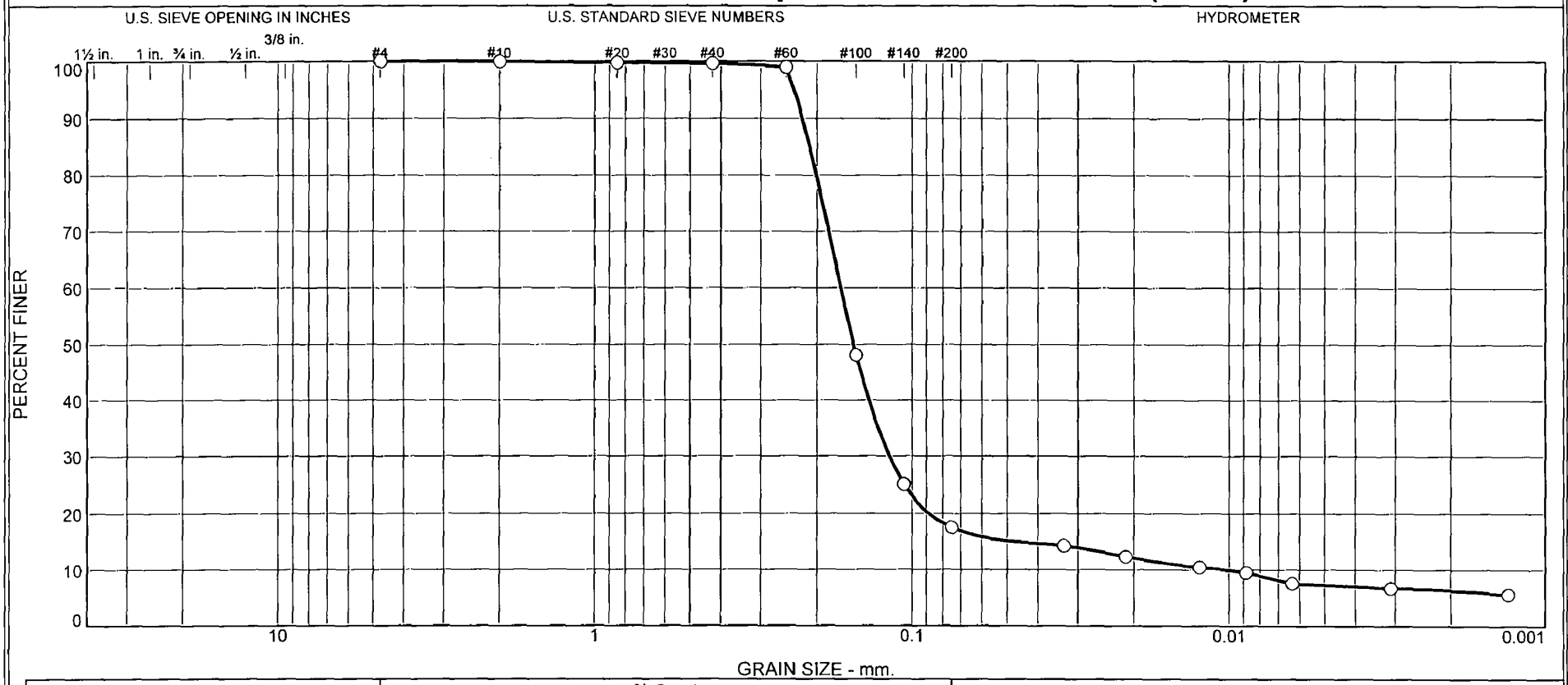
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	11.4	73.3	84.7	7.3	8.0	15.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0101	0.0579	0.1071	0.1374	0.1986	0.2365	0.3444	0.3861	0.4437	0.5421

Fineness Modulus	C_u	C_c
0.96	23.52	7.95

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.4	82.1	10.2	7.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-32	338.4-339.2	3/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 338.4-339.2 **Sample Number:** 601-32
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
326.71	0.00	0.00	#4	0.00	100.0
			#10	0.07	100.0
104.39	0.00	0.00	#20	0.21	99.8
			#40	0.36	99.6
			#60	1.04	99.0
			#100	54.16	48.1
			#140	78.24	25.0
			#200	86.08	17.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.39
Hygroscopic moisture correction:
Moist weight and tare = 29.13
Dry weight and tare = 29.10
Tare weight = 15.44
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.3	20.0	15.0	0.0131	21.0	12.9	0.0331	14.3
5.00	22.3	18.0	13.0	0.0131	19.0	13.2	0.0212	12.4
15.00	22.3	16.0	11.0	0.0131	17.0	13.5	0.0124	10.5
30.00	22.3	15.0	10.0	0.0131	16.0	13.7	0.0088	9.5
60.00	22.3	13.0	8.0	0.0131	14.0	14.0	0.0063	7.6
250.00	22.7	12.0	7.1	0.0130	13.0	14.2	0.0031	6.8
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	5.6

MACTEC Engineering and Consulting, Inc.

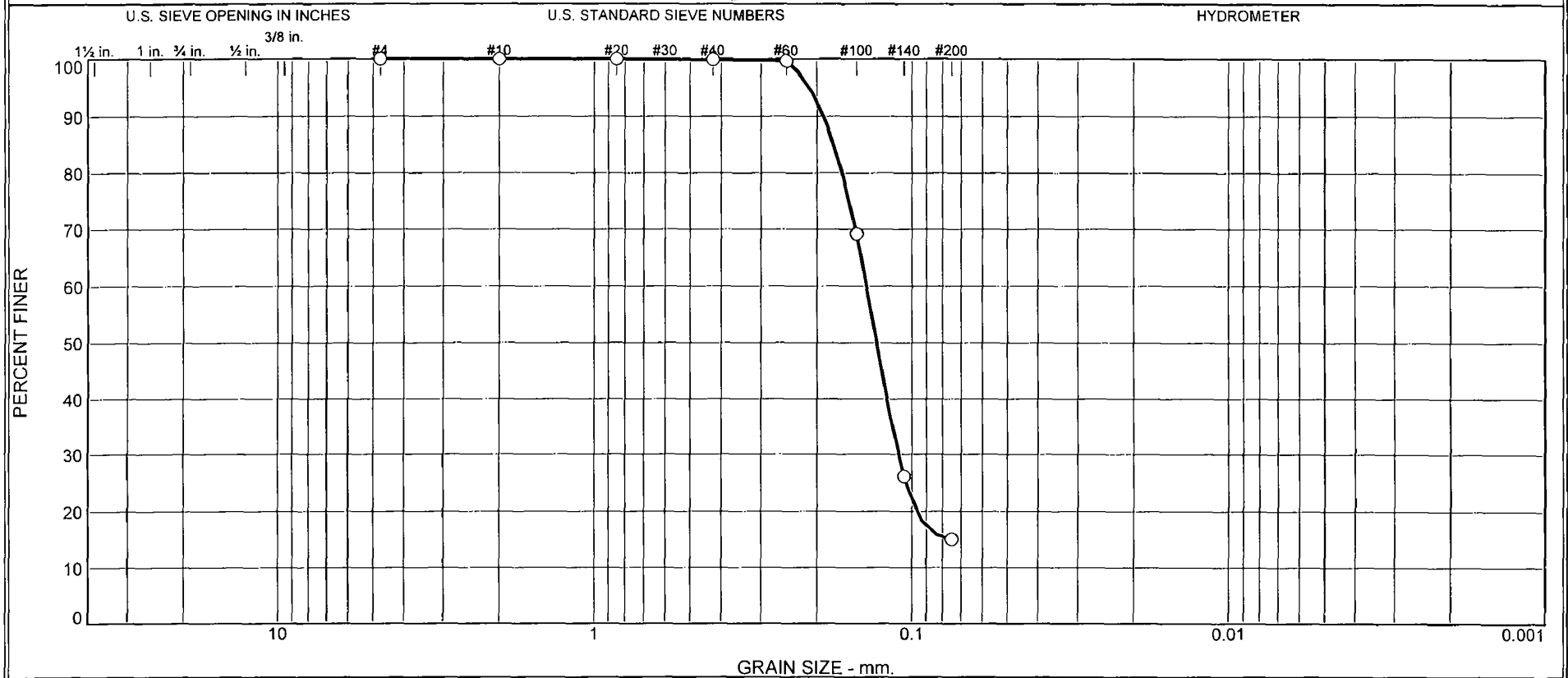
Fractional Components

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	82.1	82.5	10.2	7.3	17.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0101	0.0472	0.0890	0.1178	0.1529	0.1679	0.2006	0.2105	0.2217	0.2354

Fineness Modulus	C_u	C_c
0.53	16.58	8.16

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	85	15	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-34	358.4-358.9	3/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 358.4-358.9 **Sample Number:** 601-34
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/24/08 **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
250.25	0.00	0.00	#4	0.00	100
			#10	0.09	100
100.10	0.00	0.00	#20	0.02	100
			#40	0.10	100
			#60	0.36	100
			#100	30.86	69
			#140	74.01	26
			#200	85.01	15

Fractional Components

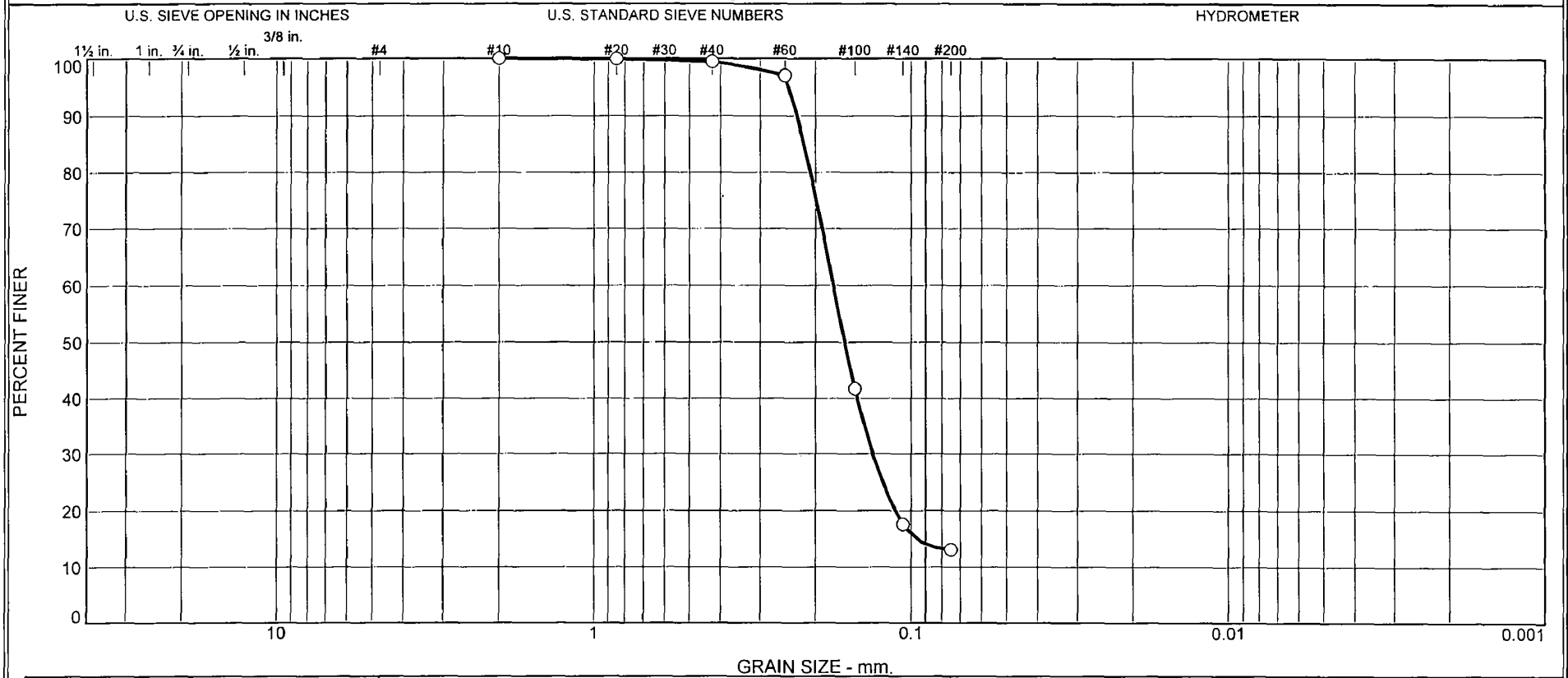
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	85	85			15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0968	0.1105	0.1296	0.1395	0.1666	0.1771	0.1909	0.2115

Fineness Modulus
0.31

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	86	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-36	378.4-379.1	3/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** lbj DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 378.4-379.1 **Sample Number:** 601-36
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/25/08 **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
207.13	0.00	0.00	#10	0.00	100
100.79	0.00	0.00	#20	0.10	100
			#40	0.58	99
			#60	3.02	97
			#100	58.74	42
			#140	83.08	18
			#200	87.58	13

Fractional Components

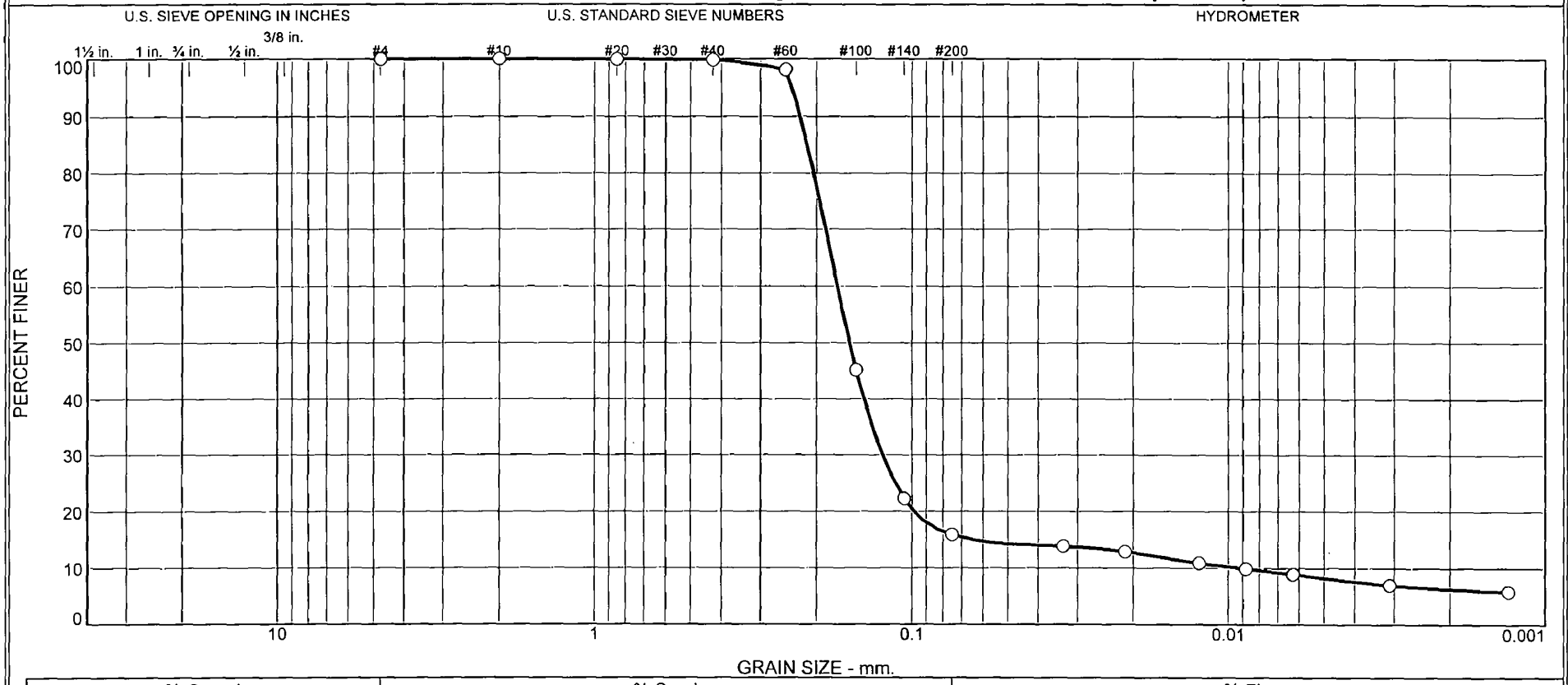
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	86	87			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0963	0.1125	0.1320	0.1616	0.1756	0.2074	0.2172	0.2285	0.2428

Fineness Modulus
0.61

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	84.0	7.6	8.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-38	398.4-399.2	3/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel
Project Turkey Point COL
Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYRODMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 398.4-399.2 **Sample Number:** 601-38
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYRODMETER ONLY
Specific Gravity is assumed
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
173.68	0.00	0.00	#4	0.00	100.0
			#10	0.01	100.0
101.30	0.00	0.00	#20	0.03	100.0
			#40	0.14	99.9
			#60	1.89	98.1
			#100	55.51	45.2
			#140	78.76	22.2
			#200	85.17	15.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =101.30
Hygroscopic moisture correction:
Moist weight and tare = 28.03
Dry weight and tare = 27.87
Tare weight = 15.10
Hygroscopic moisture =1.3%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.4	19.0	14.0	0.0131	20.0	13.0	0.0333	13.9
5.00	22.4	18.0	13.0	0.0131	19.0	13.2	0.0212	12.9
15.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0124	10.9
30.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0088	9.9
60.00	22.4	14.0	9.0	0.0131	15.0	13.8	0.0063	8.9
250.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0031	7.0
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	5.9

MACTEC Engineering and Consulting, Inc.

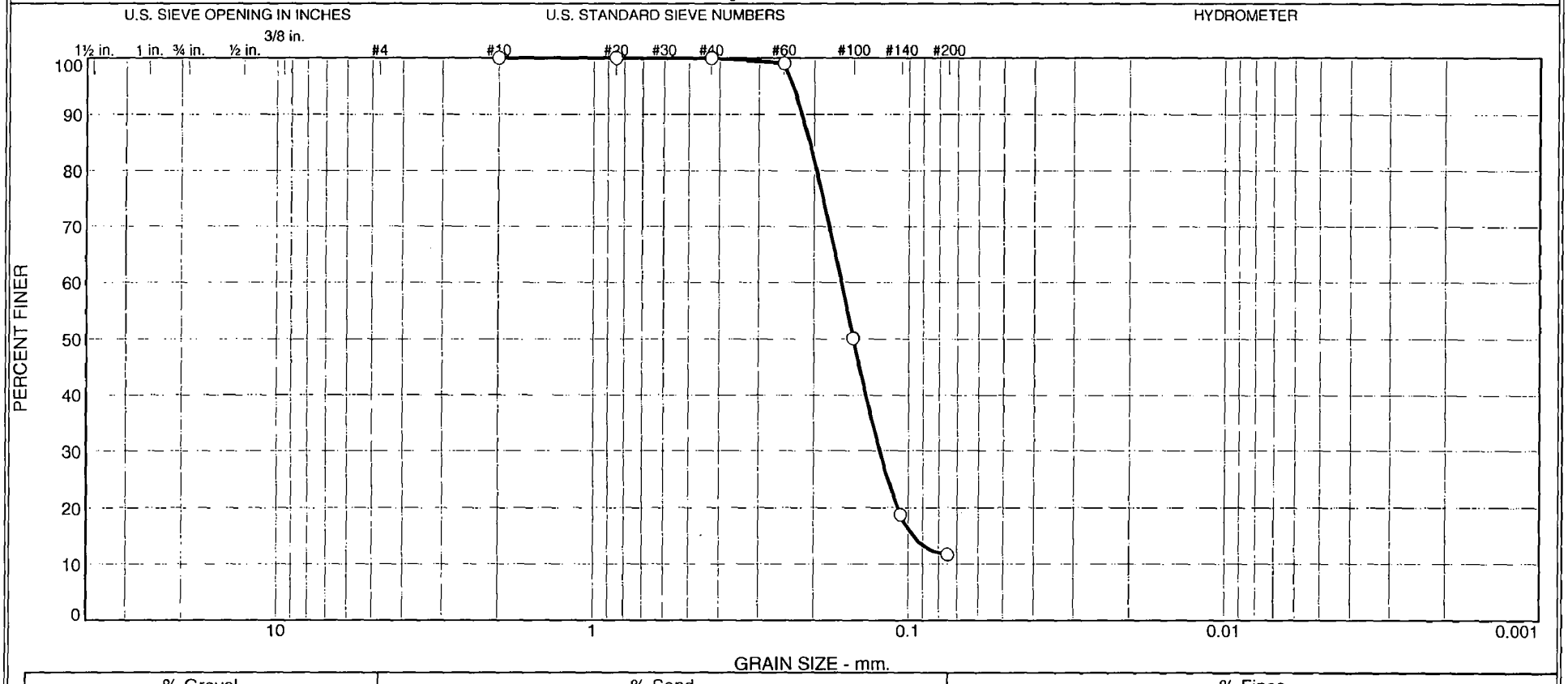
Fractional Components

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	84.0	84.1	7.6	8.3	15.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0090	0.0641	0.0987	0.1241	0.1571	0.1717	0.2039	0.2137	0.2250	0.2388

Fineness Modulus	C_u	C_c
0.56	19.02	9.93

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	88	12	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-39	418.4-419.2	3/25/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 418.4-419.2 **Sample Number:** 601-39
Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)
Date: 3/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-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
237.36	0.00	0.00	#10	0.00	100
105.25	0.00	0.00	#20	0.03	100
			#40	0.06	100
			#60	0.99	99
			#100	52.43	50
			#140	85.46	19
			#200	92.96	12

Fractional Components

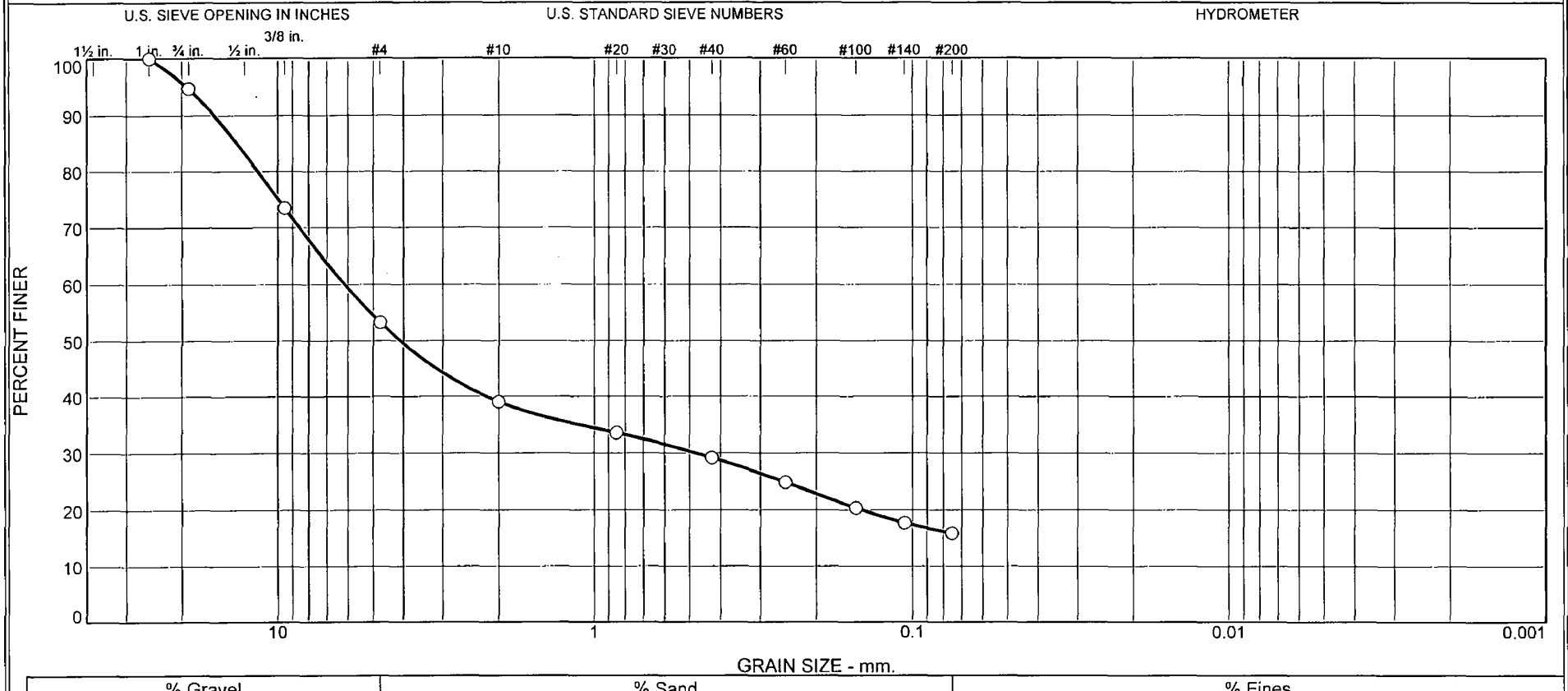
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	88	88			12

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0968	0.1082	0.1235	0.1498	0.1635	0.1961	0.2064	0.2184	0.2333

Fineness Modulus
0.50

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	5	42	14	10	13	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-602	602-3	4.8-6.3	3/10/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 4.8-6.3 **Sample Number:** 602-3
Material Description: White Silty GRAVEL with sand (Visual)
Date: 3/10/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
313.60	0.00	0.00	1	0.00	100
			3/4	16.44	95
			3/8"	83.07	74
			#4	146.48	53
			#10	191.25	39
95.03	0.00	0.00	#20	13.26	34
			#40	24.01	29
			#60	34.57	25
			#100	45.46	20
			#140	51.87	18
			#200	56.35	16

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	42	47	14	10	13	37			16

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1438	0.4771	4.1023	6.1498	11.5453	13.4294	15.8185	19.2615

Fineness Modulus
4.24

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.6	0.3	0.8	78.0	11.9	8.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-9	122.6-124.1	3/18/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 122.6-124.1 **Sample Number:** 602-9
Material Description: White Silty SAND (Visual)
Date: 3/18/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
375.70	0.00	0.00	3/8"	0.00	100.0
			#4	2.23	99.4
			#10	3.26	99.1
98.37	0.00	0.00	#20	0.37	98.8
			#40	0.79	98.3
			#60	2.02	97.1
			#100	10.77	88.3
			#140	55.10	43.6
			#200	78.26	20.3

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.1
Weight of hydrometer sample =98.37
Hygroscopic moisture correction:
Moist weight and tare = 28.84
Dry weight and tare = 28.74
Tare weight = 15.53
Hygroscopic moisture =0.8%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.9	18.0	12.9	0.0131	19.0	13.2	0.0337	13.0
5.00	21.9	17.0	11.9	0.0131	18.0	13.3	0.0215	12.0
15.00	21.9	16.0	10.9	0.0131	17.0	13.5	0.0125	11.0
30.00	21.9	15.0	9.9	0.0131	16.0	13.7	0.0089	10.0
60.00	21.7	14.0	8.9	0.0132	15.0	13.8	0.0063	8.9
250.00	21.6	13.0	7.8	0.0132	14.0	14.0	0.0031	7.9
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	5.8

MACTEC Engineering and Consulting, Inc.

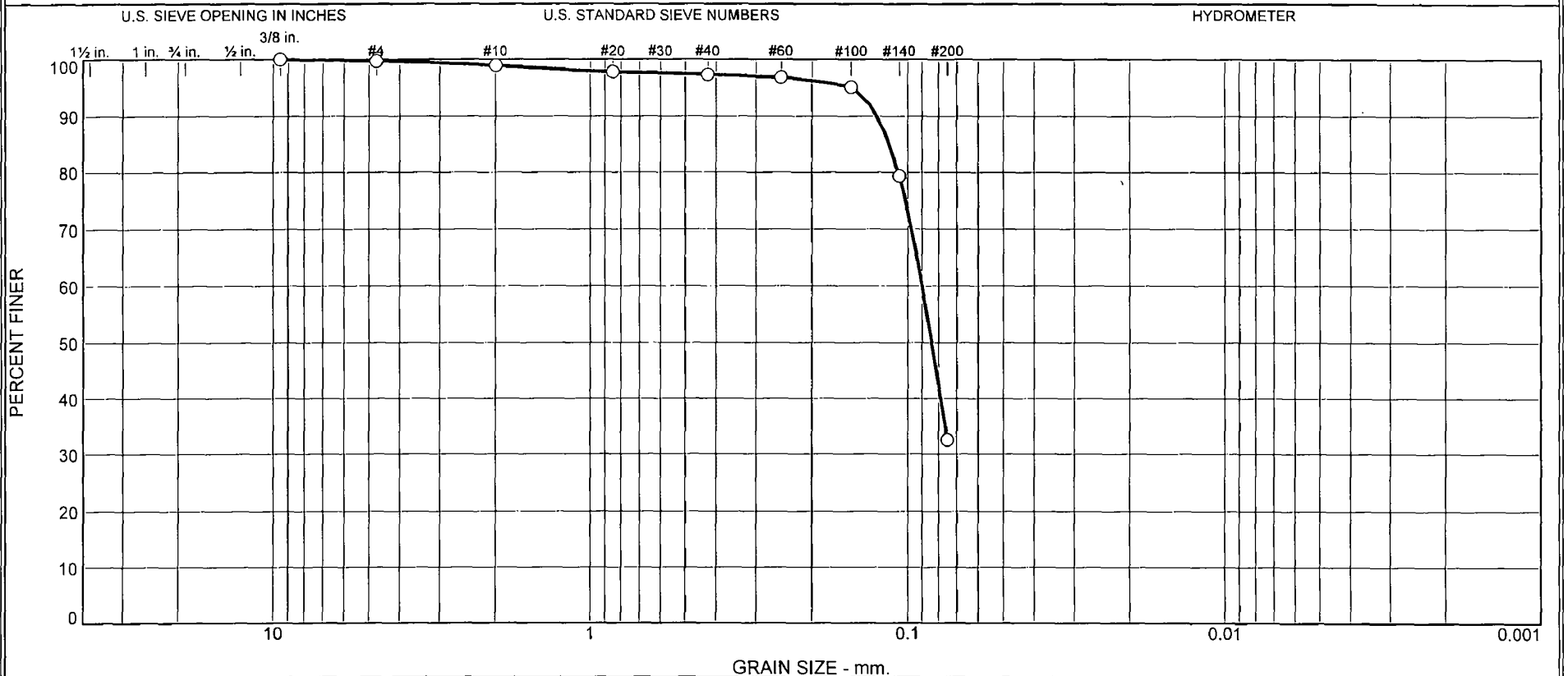
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	0.3	0.8	78.0	79.1	11.9	8.4	20.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0090	0.0462	0.0735	0.0913	0.1116	0.1201	0.1391	0.1452	0.1614	0.2110

Fineness Modulus	C_u	C_c
0.18	13.36	7.71

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	1	2	64	33	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-11	142.5-144.0	3/18/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 142.5-144.0 **Sample Number:** 602-11
Material Description: Olive Gray Silty SAND (Visual)
Date: 3/18/08 **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
331.43	0.00	0.00	3/8"	0.00	100
			#4	1.04	100
			#10	3.59	99
99.39	0.00	0.00	#20	1.14	98
			#40	1.63	97
			#60	2.08	97
			#100	3.83	95
			#140	19.66	79
			#200	66.69	33

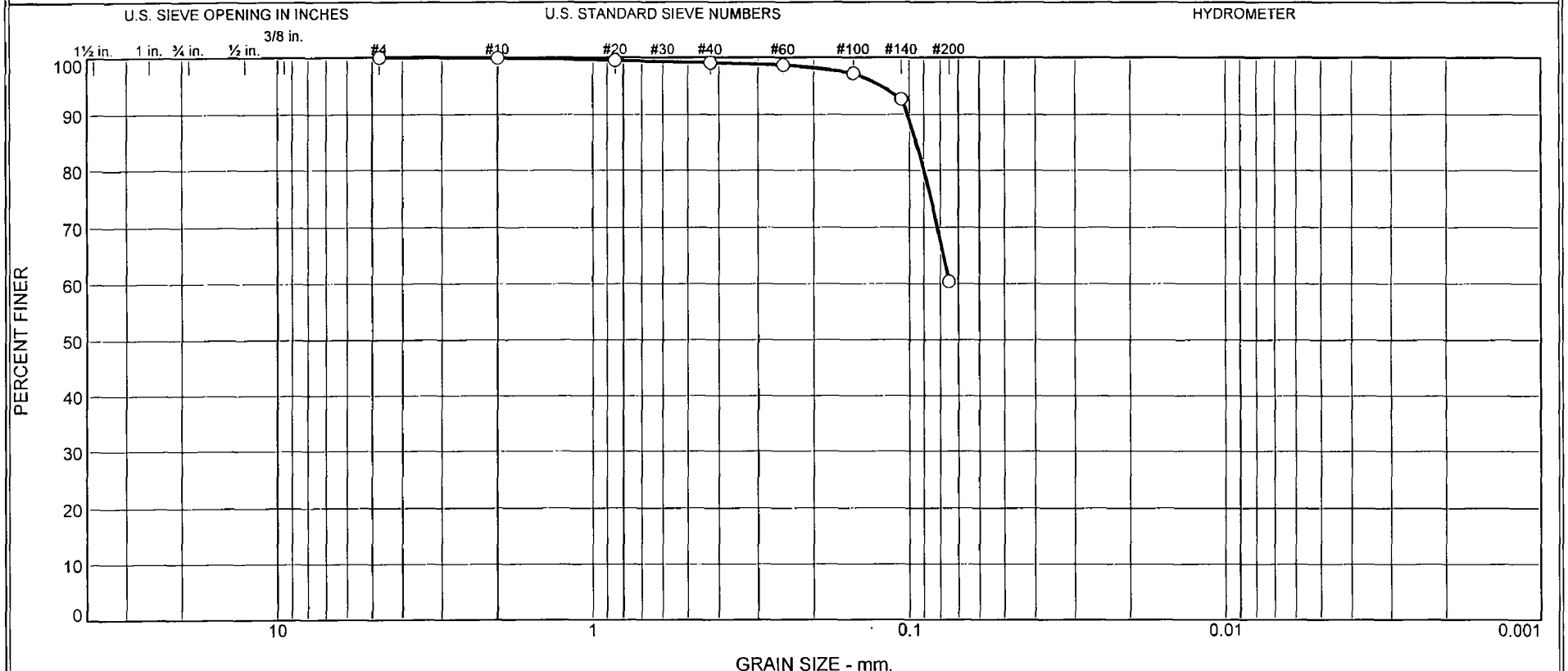
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	2	64	67			33

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0840	0.0900	0.1068	0.1137	0.1244	0.1490

Fineness Modulus
0.13

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	39	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-13	162.6-164.1	3/18/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 162.6-164.1 **Sample Number:** 602-13
Material Description: Olive Gray Sandy SILT (Visual)
Date: 3/18/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
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
381.33	0.00	0.00	#4	0.00	100
			#10	0.28	100
100.44	0.00	0.00	#20	0.43	99
			#40	0.86	99
			#60	1.25	99
			#100	2.73	97
			#140	7.26	93
			#200	39.74	60

Fractional Components

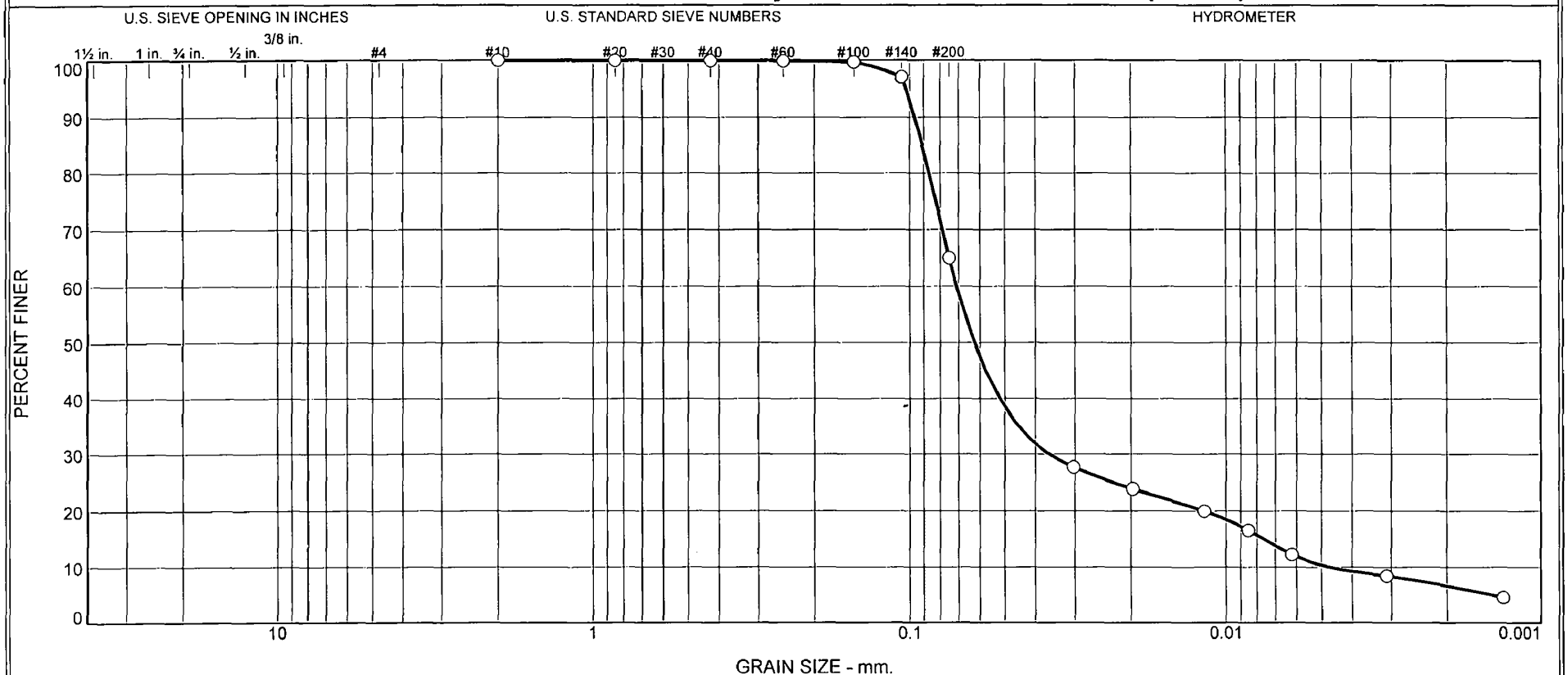
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0899	0.0949	0.1013	0.1232

Fineness Modulus
0.05

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	34.9	54.7	10.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-16	192.6-194.1	3/18/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 192.6-194.1 **Sample Number:** 602-16
Material Description: Olive Gray Sandy SILT (Visual)
Date: 3/18/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
275.22	0.00	0.00	#10	0.00	100.0
103.48	0.00	0.00	#20	0.00	100.0
			#40	0.03	100.0
			#60	0.07	99.9
			#100	0.28	99.7
			#140	3.05	97.1
			#200	36.15	65.1

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =103.48
Hygroscopic moisture correction:
Moist weight and tare = 29.91
Dry weight and tare = 29.83
Tare weight = 15.46
Hygroscopic moisture =0.6%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.5	34.0	28.8	0.0132	35.0	10.6	0.0303	27.7
5.00	21.7	30.0	24.9	0.0132	31.0	11.2	0.0197	23.9
15.00	21.5	26.0	20.8	0.0132	27.0	11.9	0.0117	20.0
30.00	21.4	22.5	17.3	0.0132	23.5	12.4	0.0085	16.6
60.00	21.4	18.0	12.8	0.0132	19.0	13.2	0.0062	12.3
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.4
1440.00	21.4	10.0	4.8	0.0132	11.0	14.5	0.0013	4.6

MACTEC Engineering and Consulting, Inc.

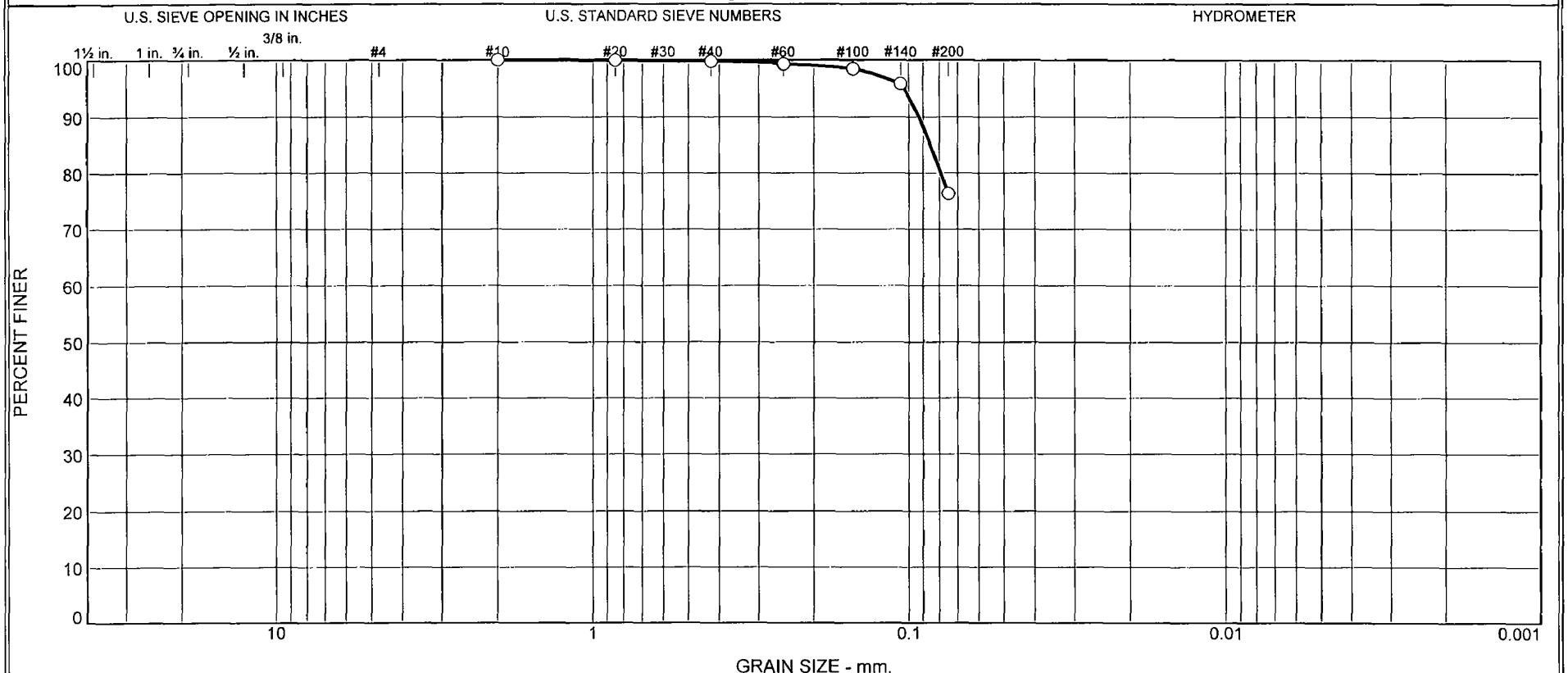
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	34.9	34.9	54.7	10.4	65.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0047	0.0076	0.0118	0.0363	0.0623	0.0710	0.0867	0.0910	0.0961	0.1025

Fineness Modulus	C_u	C_c
0.00	15.07	3.94

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	24	76	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-17	202.6-204.1	3/19/08	ML	Olive Gray SILT with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 202.6-204.1 **Sample Number:** 602-17
Material Description: Olive Gray SILT with sand (Visual)
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
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
277.11	0.00	0.00	#10	0.00	100
100.07	0.00	0.00	#20	0.05	100
			#40	0.21	100
			#60	0.68	99
			#100	1.51	98
			#140	4.20	96
			#200	23.65	76

Fractional Components

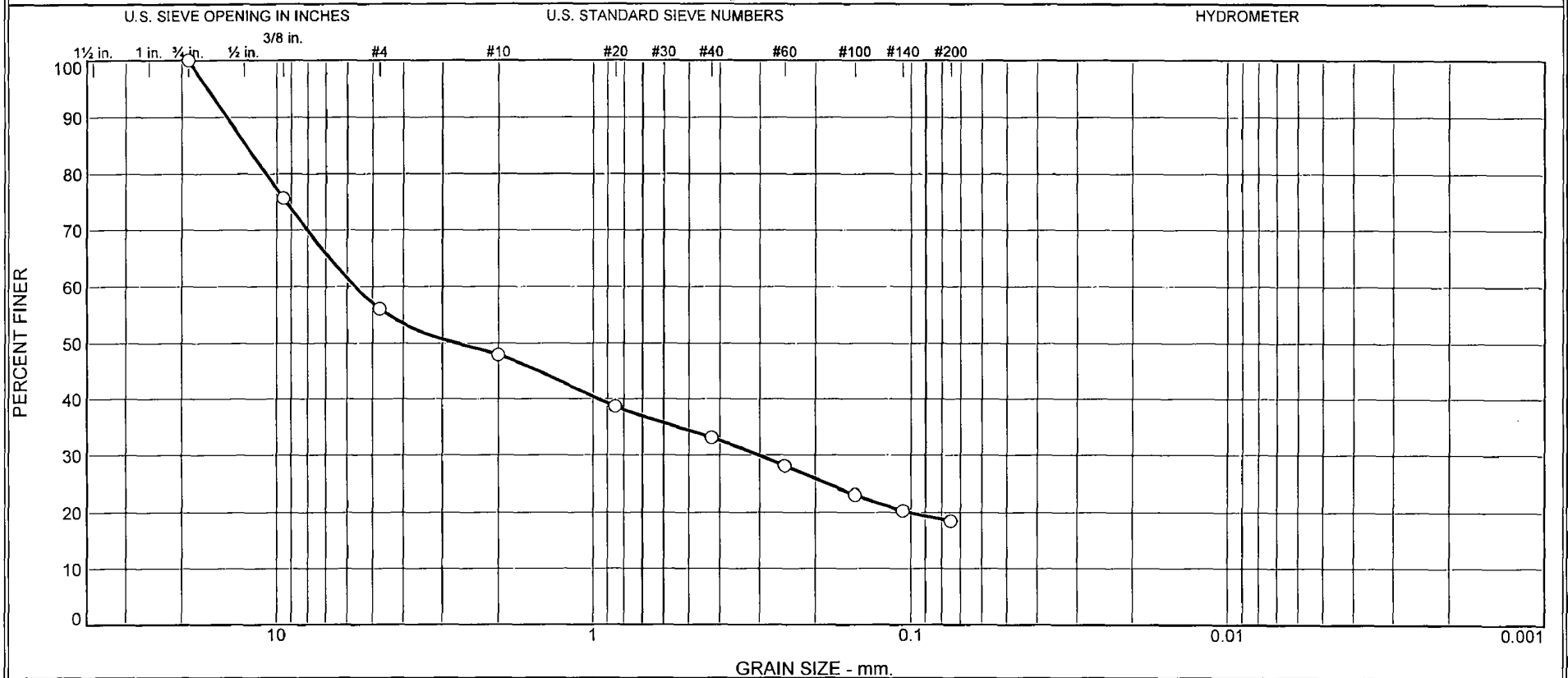
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	24	24			76

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0791	0.0853	0.0928	0.1035

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	44	8	15	15	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-3	5.0-6.5	2/14/08	GM	White Silty GRAVEL with sand (Visual)	ND		NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 90% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 5.0-6.5 **Sample Number:** 603-3
Material Description: White Silty GRAVEL with sand (Visual)
Date: 2/14/08 **Natural Moisture:** ND
Plastic Limit: NP **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 90% (ASTM D 4373-02)
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
295.21	0.00	0.00	3/4	0.00	100
			3/8"	71.80	76
			#4	129.51	56
			#10	153.80	48
95.46	0.00	0.00	#20	18.45	39
			#40	29.52	33
			#60	39.34	28
			#100	49.46	23
			#140	55.03	20
			#200	58.71	18

Fractional Components

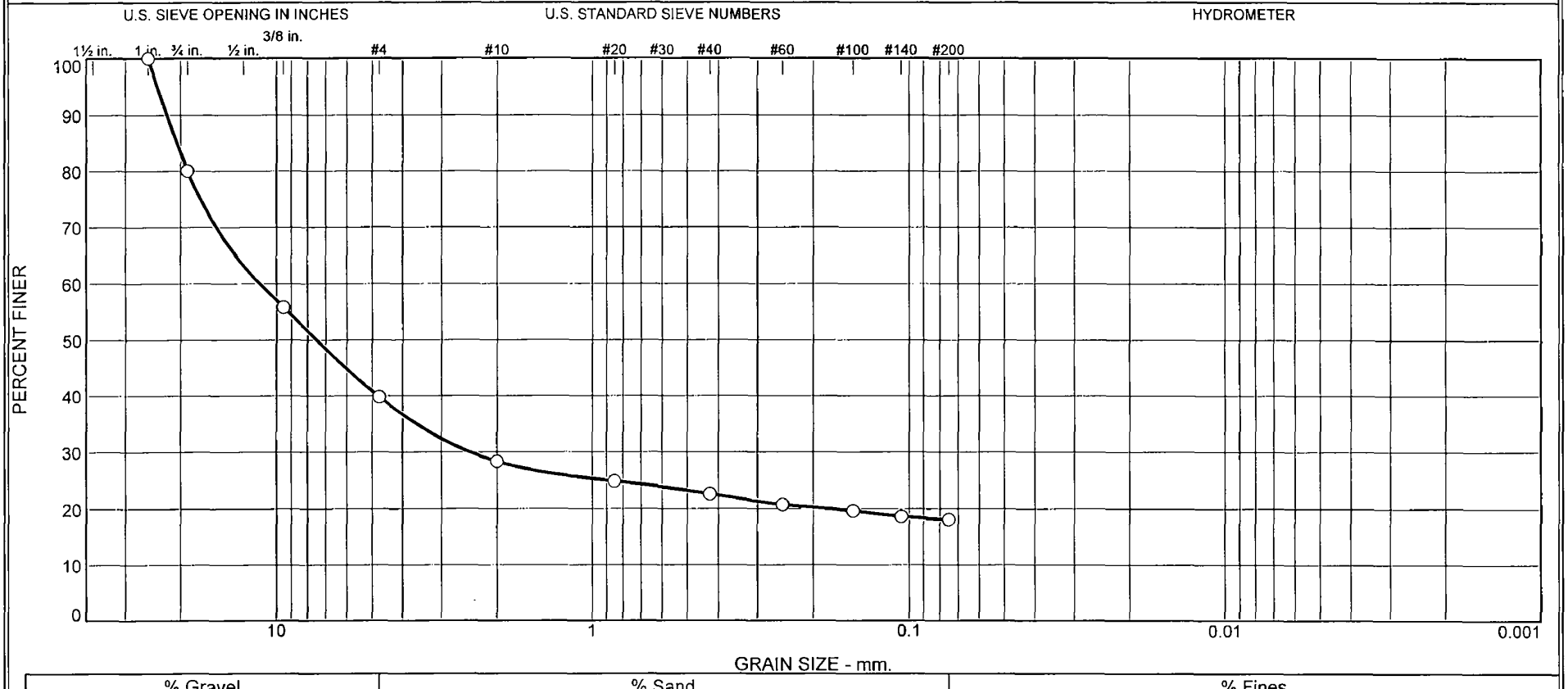
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	44	44	8	15	15	38			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1013	0.3011	2.7112	5.6772	10.8098	12.4826	14.3864	16.5598

Fineness Modulus
3.88

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	20	40	12	5	5	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-5	10.0-11.5	12/14/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 10.0-11.5 **Sample Number:** 603-5
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 12/14/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 211.79
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
211.79	0.00	0.00	1	0.00	100
			3/4	42.18	80
			3/8"	93.44	56
			#4	127.61	40
			#10	151.82	28
			#20	159.05	25
			#40	163.81	23
			#60	167.87	21
			#100	170.22	20
			#140	172.28	19
			#200	173.46	18

Fractional Components

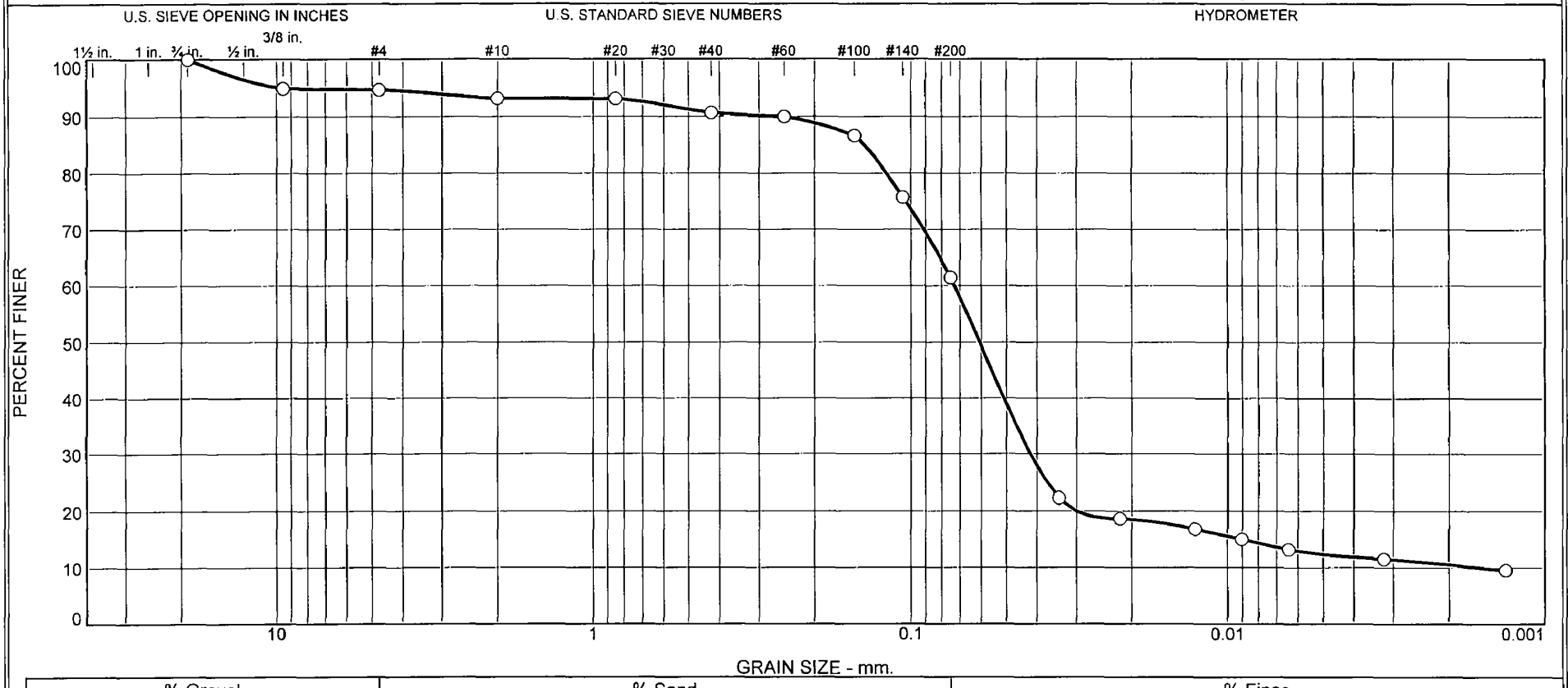
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	20	40	60	12	5	5	22			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1772	2.4388	7.4719	11.2948	19.0228	20.6016	22.1566	23.7421

Fineness Modulus
5.04

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	5.3	1.5	2.5	29.3	49.0	12.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-8	120.5-122.0	2/21/08	ML	Light Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 19% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 120.5-122.0 **Sample Number:** 603-8
Material Description: Light Gray Sandy SILT (Visual)
Date: 2/21/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 19% (ASTM D 4373-02)
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
321.25	0.00	0.00	3/4	0.00	100.0
			3/8"	16.24	94.9
			#4	17.03	94.7
			#10	21.96	93.2
50.89	0.00	0.00	#20	0.02	93.1
			#40	1.37	90.7
			#60	1.75	90.0
			#100	3.56	86.6
			#140	9.50	75.8
			#200	17.35	61.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =93.2
Weight of hydrometer sample =50.89
Hygroscopic moisture correction:
Moist weight and tare = 29.43
Dry weight and tare = 29.40
Tare weight = 15.49
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.0	18.0	12.3	0.0133	19.0	13.2	0.0341	22.3
5.00	21.0	16.0	10.3	0.0133	17.0	13.5	0.0218	18.6
15.00	21.0	15.0	9.3	0.0133	16.0	13.7	0.0127	16.8
30.00	21.0	14.0	8.3	0.0133	15.0	13.8	0.0090	15.0
60.00	21.0	13.0	7.3	0.0133	14.0	14.0	0.0064	13.2
240.00	21.3	12.0	6.3	0.0132	13.0	14.2	0.0032	11.5
1440.00	20.9	11.0	5.3	0.0133	12.0	14.3	0.0013	9.5

MACTEC Engineering and Consulting, Inc.

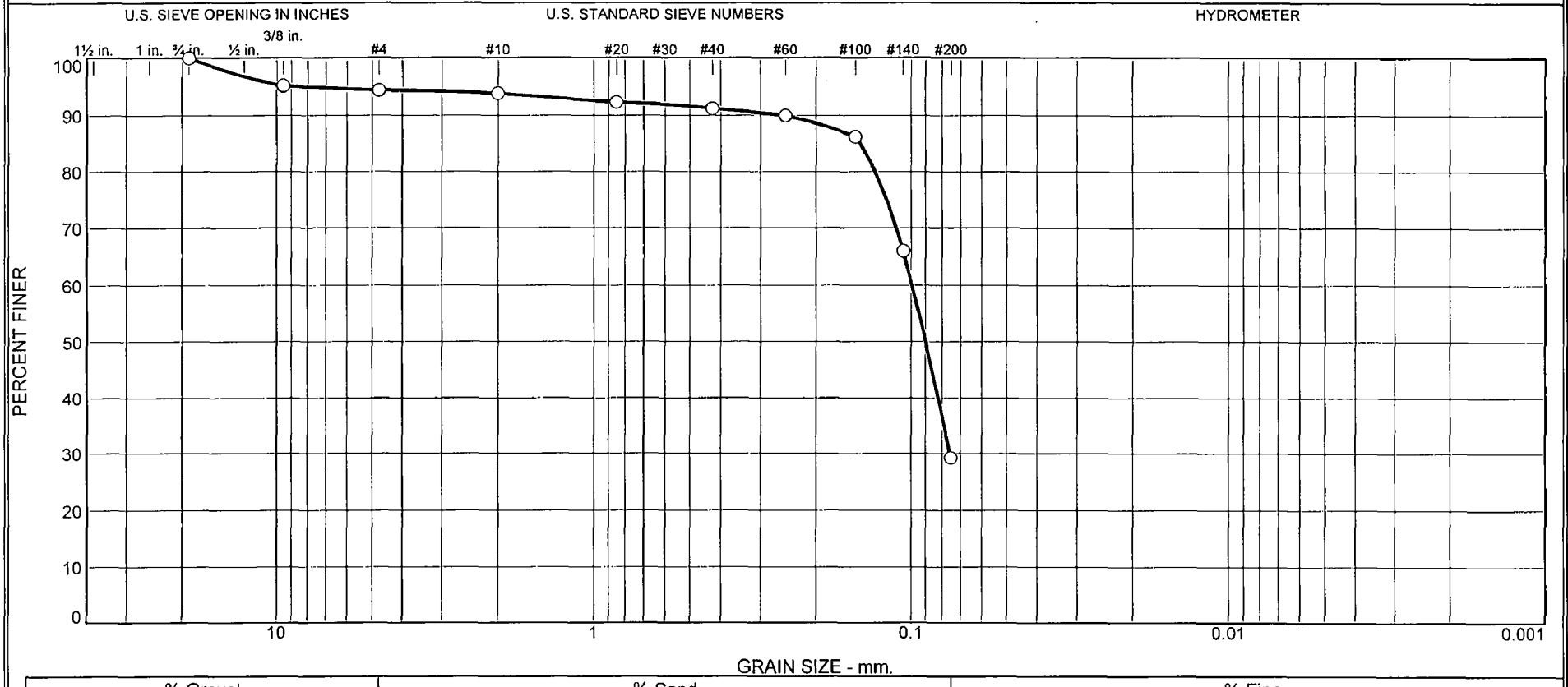
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.3	5.3	1.5	2.5	29.3	33.3	49.0	12.4	61.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0090	0.0302	0.0421	0.0608	0.0729	0.1191	0.1399	0.2713	9.6783

Fineness Modulus	C_u	C_c
0.55	45.57	15.16

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	6	0	3	62	29	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-10	131.7-133.2	2/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 131.7-133.2 **Sample Number:** 603-10
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/21/08 **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
310.54	0.00	0.00	3/4	0.00	100
			3/8"	14.89	95
			#4	17.36	94
			#10	19.12	94
101.42	0.00	0.00	#20	1.66	92
			#40	2.85	91
			#60	4.22	90
			#100	8.25	86
			#140	30.10	66
			#200	69.84	29

Fractional Components

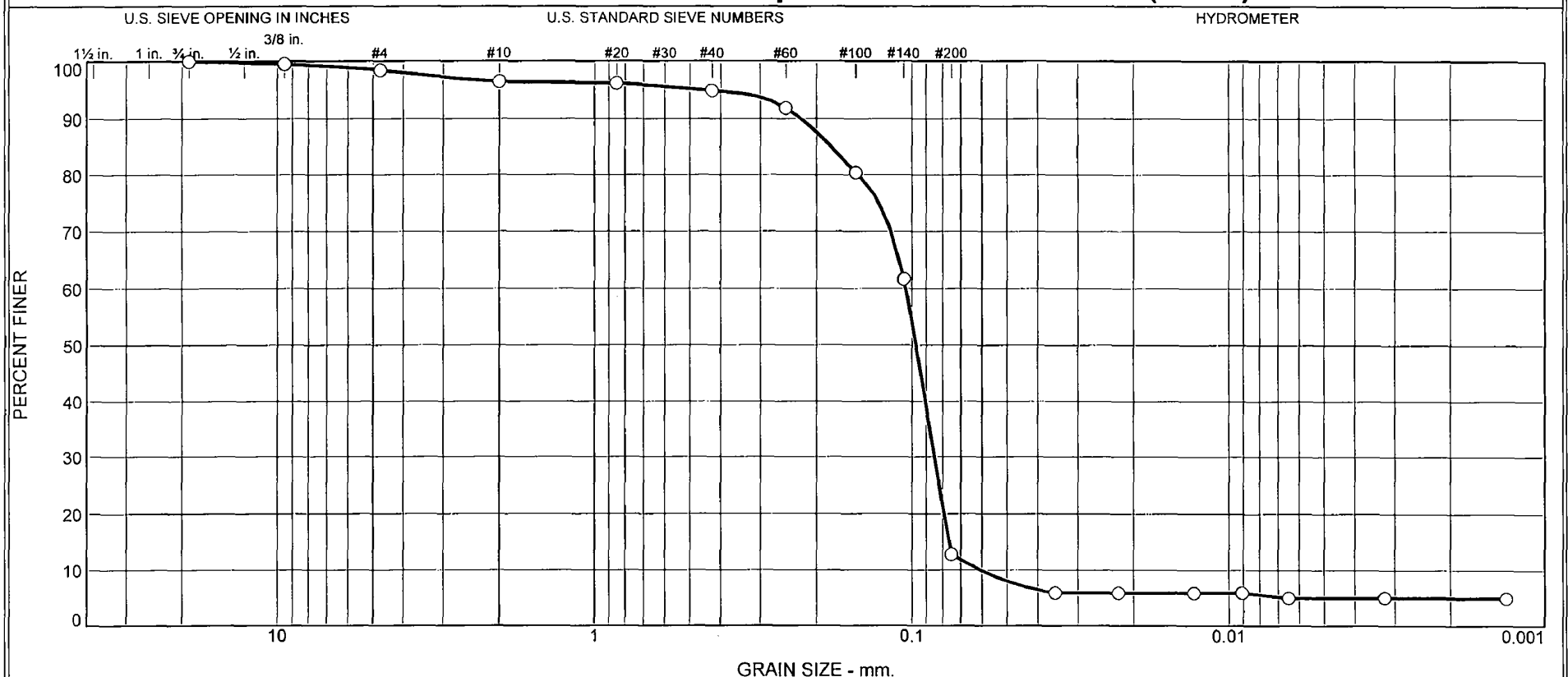
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	0	3	62	65			29

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0755	0.0901	0.0993	0.1295	0.1447	0.2557	8.1462

Fineness Modulus
0.55

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	1.5	2.0	1.6	82.1	7.8	5.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-603	603-11	136.4-137.9	2/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 40% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 136.4-137.9 **Sample Number:** 603-11
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/21/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 40% (ASTM D 4373-02)
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
264.90	0.00	0.00	3/4	0.00	100.0
			3/8"	1.27	99.5
			#4	4.09	98.5
			#10	9.24	96.5
101.57	0.00	0.00	#20	0.31	96.2
			#40	1.69	94.9
			#60	4.91	91.8
			#100	16.91	80.4
			#140	36.66	61.7
			#200	88.09	12.8

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =96.5
Weight of hydrometer sample =101.56
Hygroscopic moisture correction:
Moist weight and tare = 27.62
Dry weight and tare = 27.60
Tare weight = 15.42
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.1	12.0	6.3	0.0133	13.0	14.2	0.0353	5.9
5.00	21.1	12.0	6.3	0.0133	13.0	14.2	0.0223	5.9
15.00	21.1	12.0	6.3	0.0133	13.0	14.2	0.0129	5.9
30.00	21.2	12.0	6.3	0.0132	13.0	14.2	0.0091	6.0
60.00	21.2	11.0	5.3	0.0132	12.0	14.3	0.0065	5.0
240.00	21.4	11.0	5.4	0.0132	12.0	14.3	0.0032	5.1
1440.00	20.9	11.0	5.3	0.0133	12.0	14.3	0.0013	4.9

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.5	1.5	2.0	1.6	82.1	85.7	7.8	5.0	12.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0606	0.0764	0.0794	0.0850	0.0969	0.1045	0.1474	0.1792	0.2240	0.4464

Fineness Modulus	C_u	C_c
0.39	1.72	1.14

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	58	42	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-14	149.7-151.2	1/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 149.7-151.2 **Sample Number:** 603-14
Material Description: Greenish Gray Silty SAND (Visual)
Date: 1/21/08 **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
359.67	0.00	0.00	#4	0.00	100
			#10	0.09	100
99.64	0.00	0.00	#20	0.11	100
			#40	0.20	100
			#60	0.38	100
			#100	1.38	99
			#140	8.87	91
			#200	58.20	42

Fractional Components

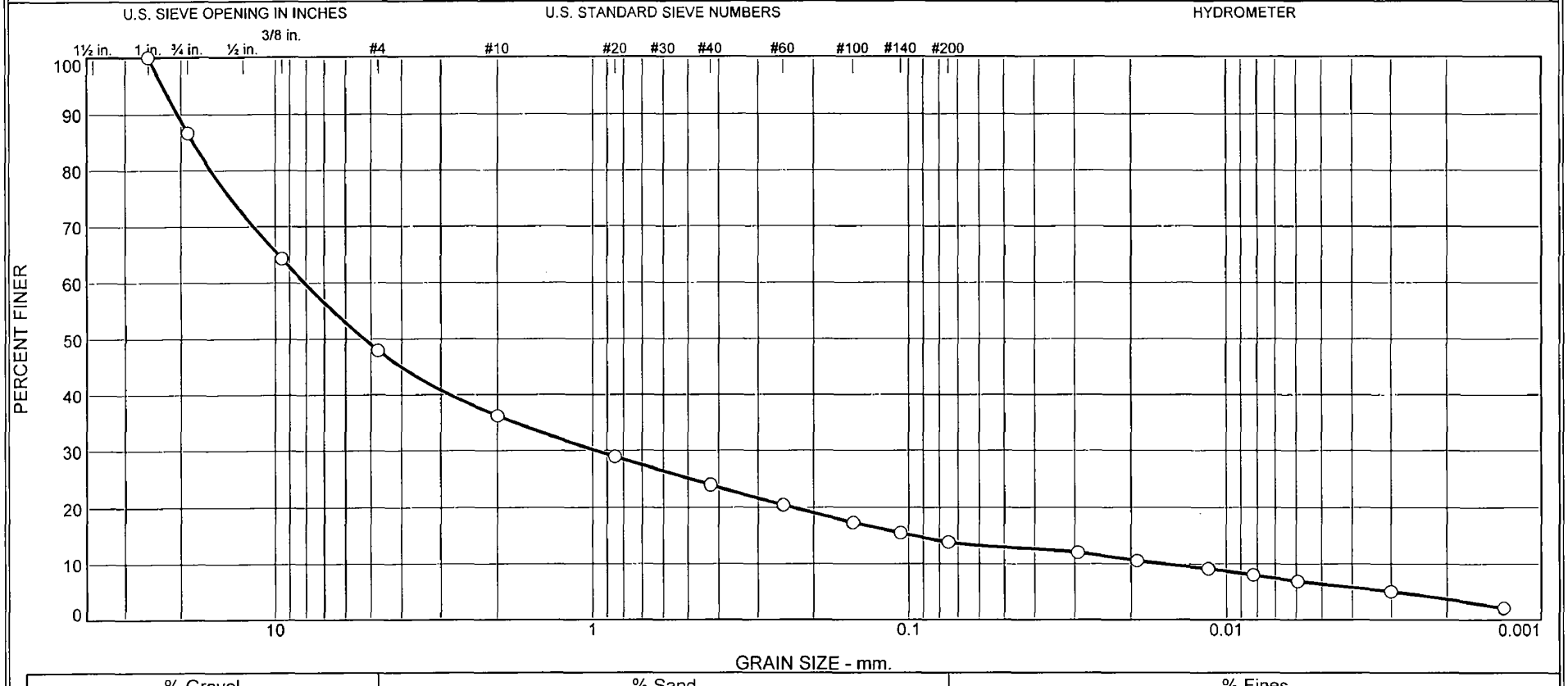
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	58	58			42

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0787	0.0835	0.0955	0.0996	0.1047	0.1232

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	13.3	38.7	11.8	12.2	10.1	7.5	6.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-604(DH)	604-4	8.5-10.0	3/19/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-604(DH)
Depth: 8.5-10.0 **Sample Number:** 604-4
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
381.16	0.00	0.00	1	0.00	100.0
			3/4	50.77	86.7
			3/8"	136.26	64.3
			#4	198.16	48.0
			#10	243.30	36.2
98.26	0.00	0.00	#20	19.67	28.9
			#40	33.11	24.0
			#60	42.71	20.4
			#100	51.23	17.3
			#140	56.22	15.5
			#200	60.58	13.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =36.2
Weight of hydrometer sample =98.26
Hygroscopic moisture correction:
Moist weight and tare = 27.58
Dry weight and tare = 27.50
Tare weight = 15.86
Hygroscopic moisture =0.7%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.7	38.0	32.9	0.0132	39.0	9.9	0.0293	12.0
5.00	21.7	34.0	28.9	0.0132	35.0	10.6	0.0191	10.6
15.00	21.7	30.0	24.9	0.0132	31.0	11.2	0.0114	9.1
30.00	21.7	27.0	21.9	0.0132	28.0	11.7	0.0082	8.0
60.00	21.6	24.0	18.8	0.0132	25.0	12.2	0.0059	6.9
250.00	21.5	19.0	13.8	0.0132	20.0	13.0	0.0030	5.1
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	2.1

MACTEC Engineering and Consulting, Inc.

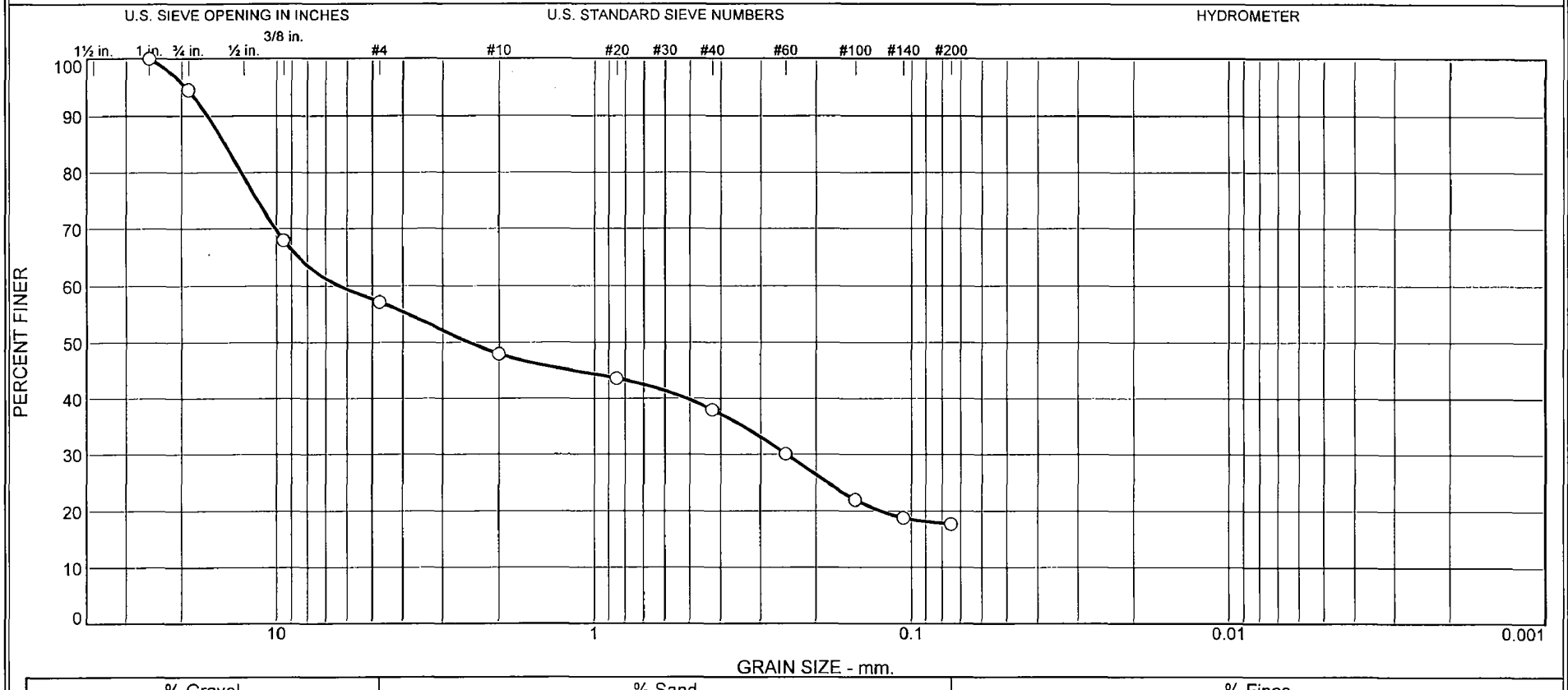
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	13.3	38.7	52.0	11.8	12.2	10.1	34.1	7.5	6.4	13.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0158	0.0966	0.2333	0.9795	5.2522	8.0843	16.0625	18.2956	20.5500	22.8873

Fineness Modulus	C_u	C_c
4.66	513.26	7.53

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	38	9	10	20	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-604(DH)	604-9	28.5-30.0	3/19/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-604(DH)
Depth: 28.5-30.0 **Sample Number:** 604-9
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =208.56
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
208.56	0.00	0.00	1	0.00	100
			3/4	11.35	95
			3/8"	66.72	68
			#4	89.27	57
			#10	108.54	48
			#20	117.60	44
			#40	129.32	38
			#60	145.83	30
			#100	162.77	22
			#140	169.39	19
			#200	171.61	18

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	38	43	9	10	20	39			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1254	0.2489	2.4815	6.3428	12.9644	14.5801	16.5447	19.3719

Fineness Modulus
3.89

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	0	2	68	29	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-604(DH)	604-13	138.5-140.0	3/23/08	SM	Greenish Gray Silty SAND (Visual)	ND		NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-604(DH)
Depth: 138.5-140.0 **Sample Number:** 604-13
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Plastic Limit: NP **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
327.18	0.00	0.00	3/8"	0.00	100
			#4	1.98	99
			#10	3.74	99
99.15	0.00	0.00	#20	1.24	98
			#40	2.09	97
			#60	3.08	96
			#100	6.35	93
			#140	30.47	68
			#200	69.96	29

Fractional Components

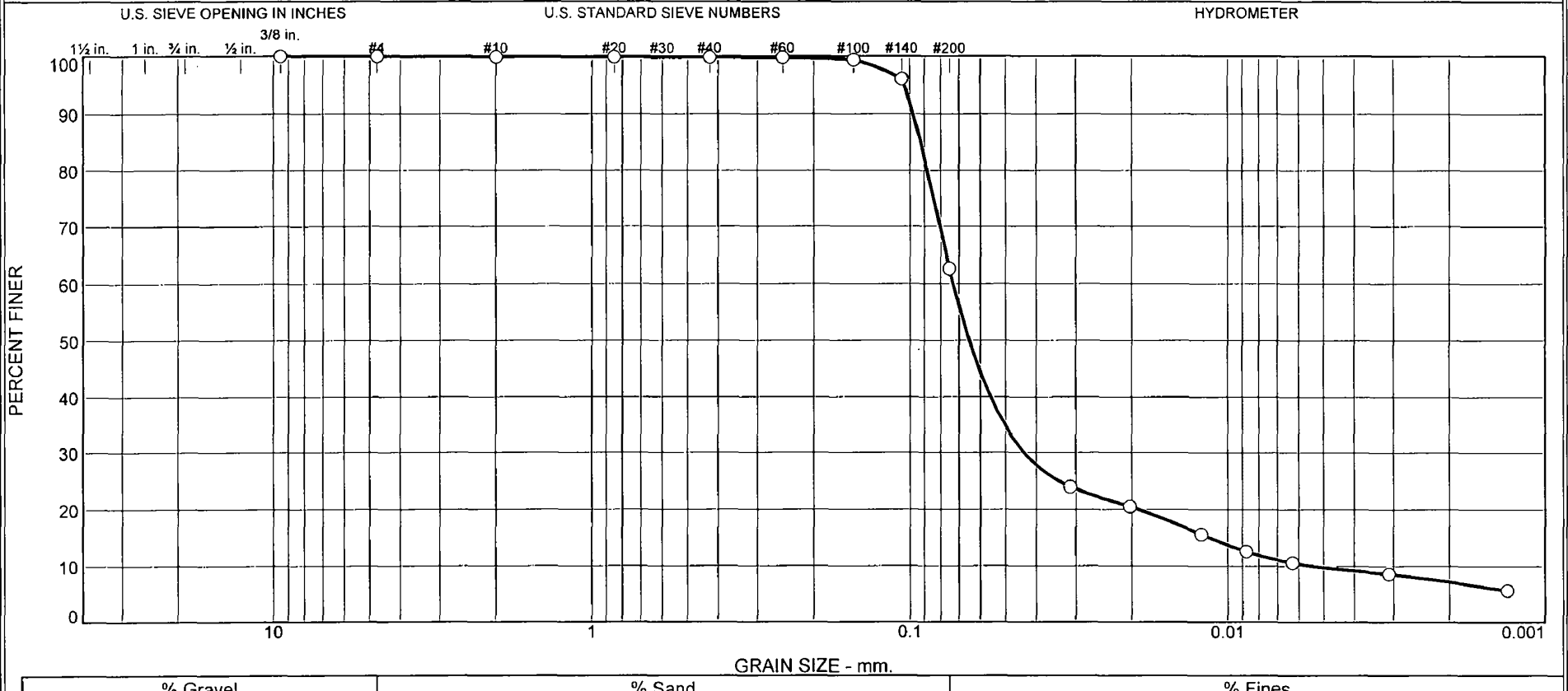
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	0	2	68	70			29

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0756	0.0893	0.0976	0.1209	0.1297	0.1415	0.2127

Fineness Modulus
0.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.1	37.2	52.8	9.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-604(DH)	604-15	163.5-165.0	3/23/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ PSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-604(DH)
Depth: 163.5-165.0 **Sample Number:** 604-15
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
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
307.36	0.00	0.00	3/8"	0.00	100.0
			#4	0.13	100.0
			#10	0.38	99.9
100.91	0.00	0.00	#20	0.02	99.9
			#40	0.07	99.8
			#60	0.11	99.8
			#100	0.52	99.4
			#140	3.83	96.1
			#200	37.65	62.6

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.9
Weight of hydrometer sample =100.91
Hygroscopic moisture correction:
Moist weight and tare = 28.52
Dry weight and tare = 28.49
Tare weight = 15.54
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.8	29.5	24.4	0.0131	30.5	11.3	0.0312	23.9
5.00	21.8	26.0	20.9	0.0131	27.0	11.9	0.0203	20.5
15.00	21.8	21.0	15.9	0.0131	22.0	12.7	0.0121	15.6
30.00	21.5	18.0	12.8	0.0132	19.0	13.2	0.0087	12.6
60.00	21.4	16.0	10.8	0.0132	17.0	13.5	0.0063	10.6
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.6
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	5.7

MACTEC Engineering and Consulting, Inc.

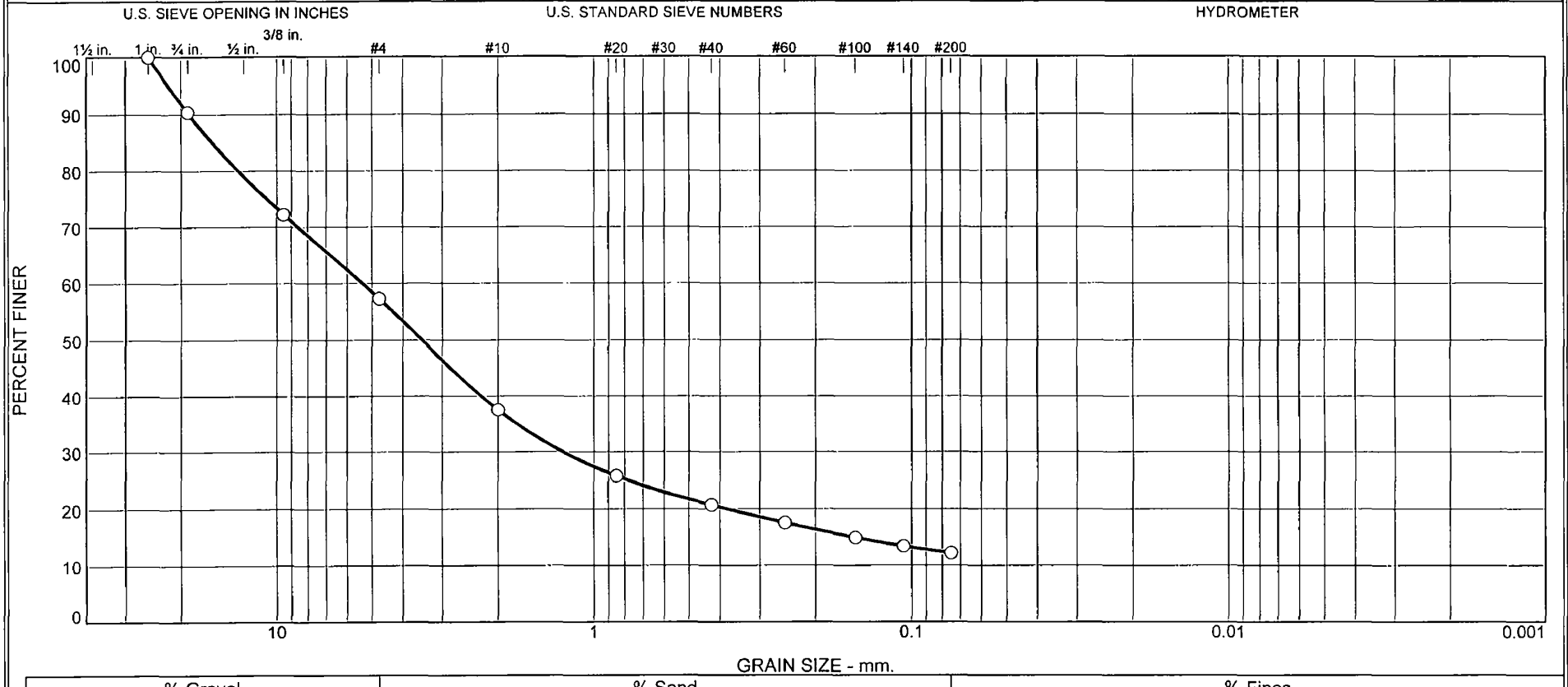
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.1	37.2	37.4	52.8	9.8	62.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0054	0.0114	0.0191	0.0438	0.0651	0.0730	0.0881	0.0925	0.0975	0.1041

Fineness Modulus	C_u	C_c
0.01	13.54	4.86

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	10	33	19	17	9	12	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-4	7.5-9.0	2/23/08	SP-SM	Light Gray Poorly Graded SAND with silt and gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 7.5-9.0 **Sample Number:** 605-4
Material Description: Light Gray Poorly Graded SAND with silt and gravel (Visual)
Date: 2/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)
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
391.14	0.00	0.00	1	0.00	100
			3/4	37.79	90
			3/8"	108.42	72
			#4	166.99	57
			#10	244.46	38
103.60	0.00	0.00	#20	32.55	26
			#40	46.49	21
			#60	55.07	18
			#100	62.35	15
			#140	66.53	13
			#200	69.93	12

Fractional Components

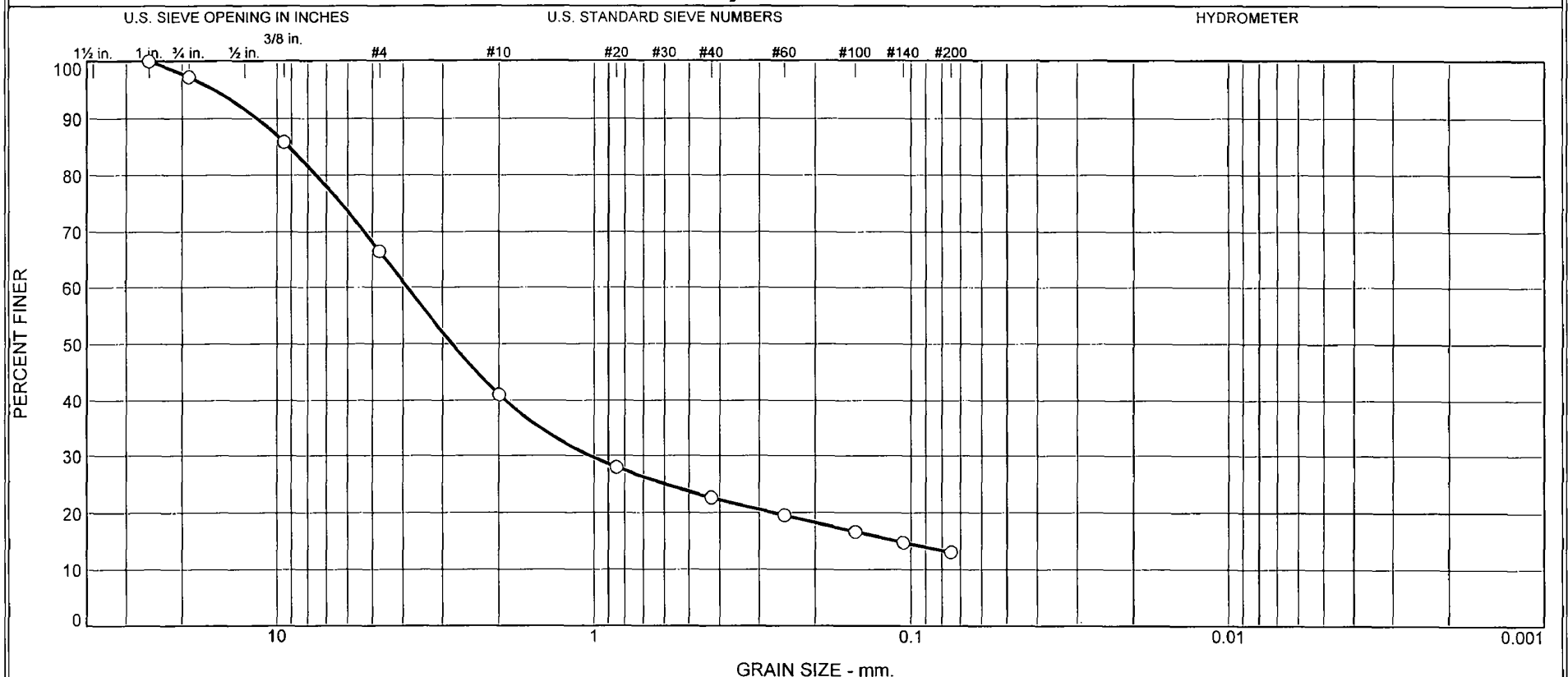
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	33	43	19	17	9	45			12

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1522	0.3805	1.2546	3.4858	5.3607	13.2163	15.9319	18.8463	21.9564

Fineness Modulus
4.53

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	3	31	25	18	10	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-6	12.5-14.0	2/23/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 12.5-14.0 **Sample Number:** 605-6
Material Description: White Silty SAND with gravel (Visual)
Date: 2/23/08 **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
321.47	0.00	0.00	1	0.00	100
			3/4	8.80	97
			3/8"	45.34	86
			#4	107.78	66
			#10	189.72	41
99.21	0.00	0.00	#20	31.59	28
			#40	44.42	23
			#60	51.94	20
			#100	58.80	17
			#140	63.30	15
			#200	67.54	13

Fractional Components

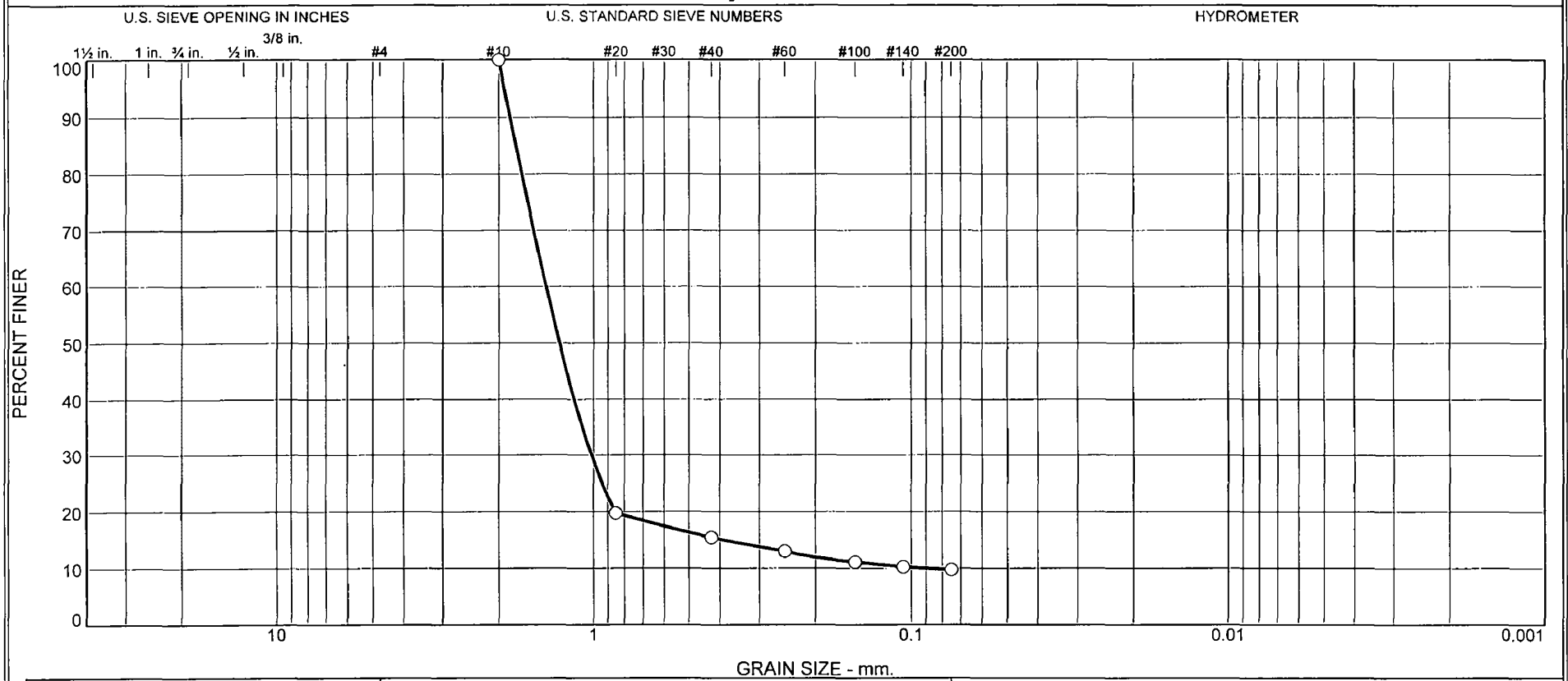
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	3	31	34	25	18	10	53			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1094	0.2719	1.0346	2.8041	3.8740	7.5121	9.1616	11.6114	15.8249

Fineness Modulus
4.11

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	85	5	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-8	20.0-21.5	2/23/08	SP-SM	Light Gray Poorly Graded SAND with silt (Visual)	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 20.0-21.5 **Sample Number:** 605-8
Material Description: Light Gray Poorly Graded SAND with silt (Visual)
Date: 2/23/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** =239.71
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.71	0.00	0.00	#10	0.00	100
			#20	192.32	20
			#40	202.63	15
			#60	208.46	13
			#100	213.11	11
			#140	215.17	10
			#200	216.35	10

Fractional Components

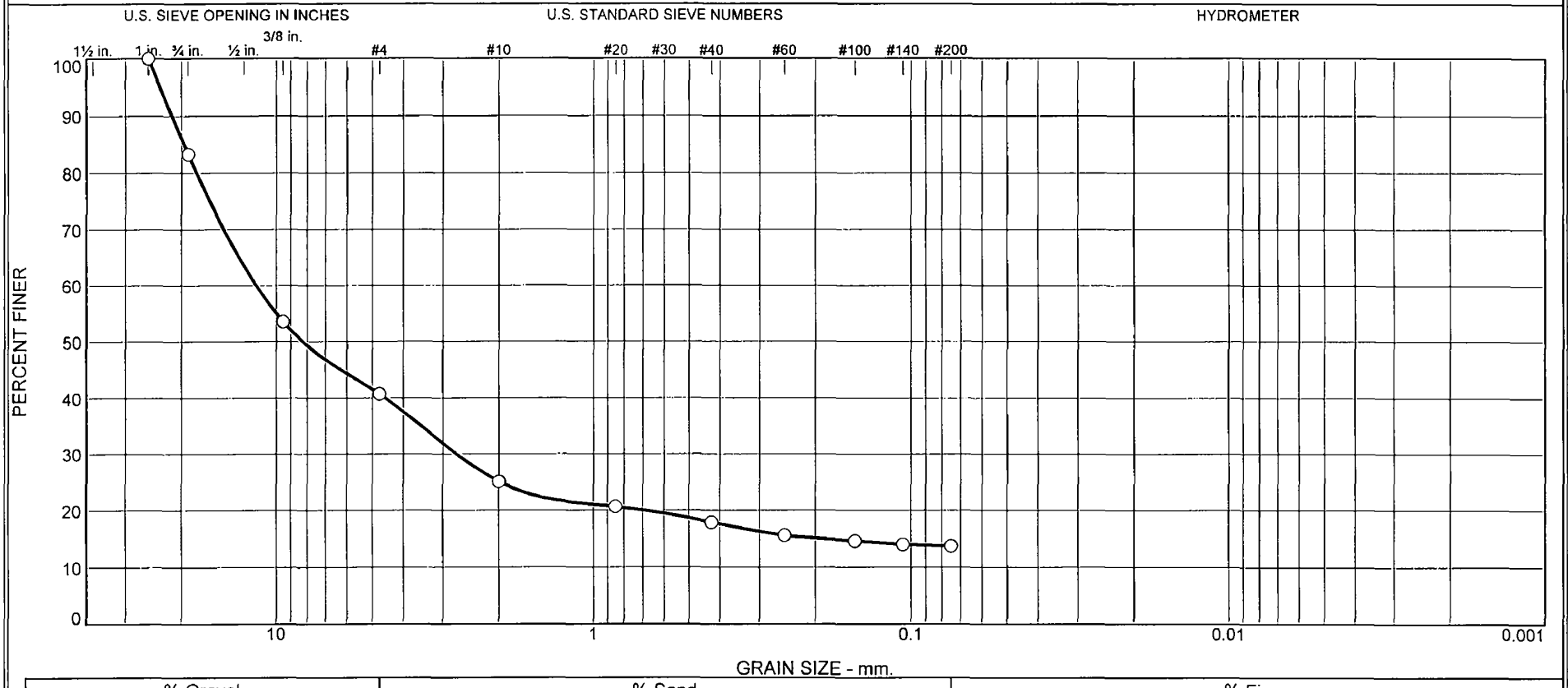
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	85	5	90			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0921	0.3863	0.8546	1.0164	1.2830	1.4138	1.6895	1.7631	1.8392	1.9180

Fineness Modulus	C_u	C_c
3.16	15.36	7.94

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	17	42	16	7	4	14	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-10	30-31.5	2/23/08	GM	Very Pale Brown Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 30-31.5 **Sample Number:** 605-10
Material Description: Very Pale Brown Silty GRAVEL with sand (Visual)
Date: 2/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** =238.36
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
238.36	0.00	0.00	1	0.00	100
			3/4	39.72	83
			3/8"	110.73	54
			#4	141.32	41
			#10	178.74	25
			#20	189.20	21
			#40	195.77	18
			#60	201.12	16
			#100	203.46	15
			#140	204.92	14
			#200	205.63	14

Fractional Components

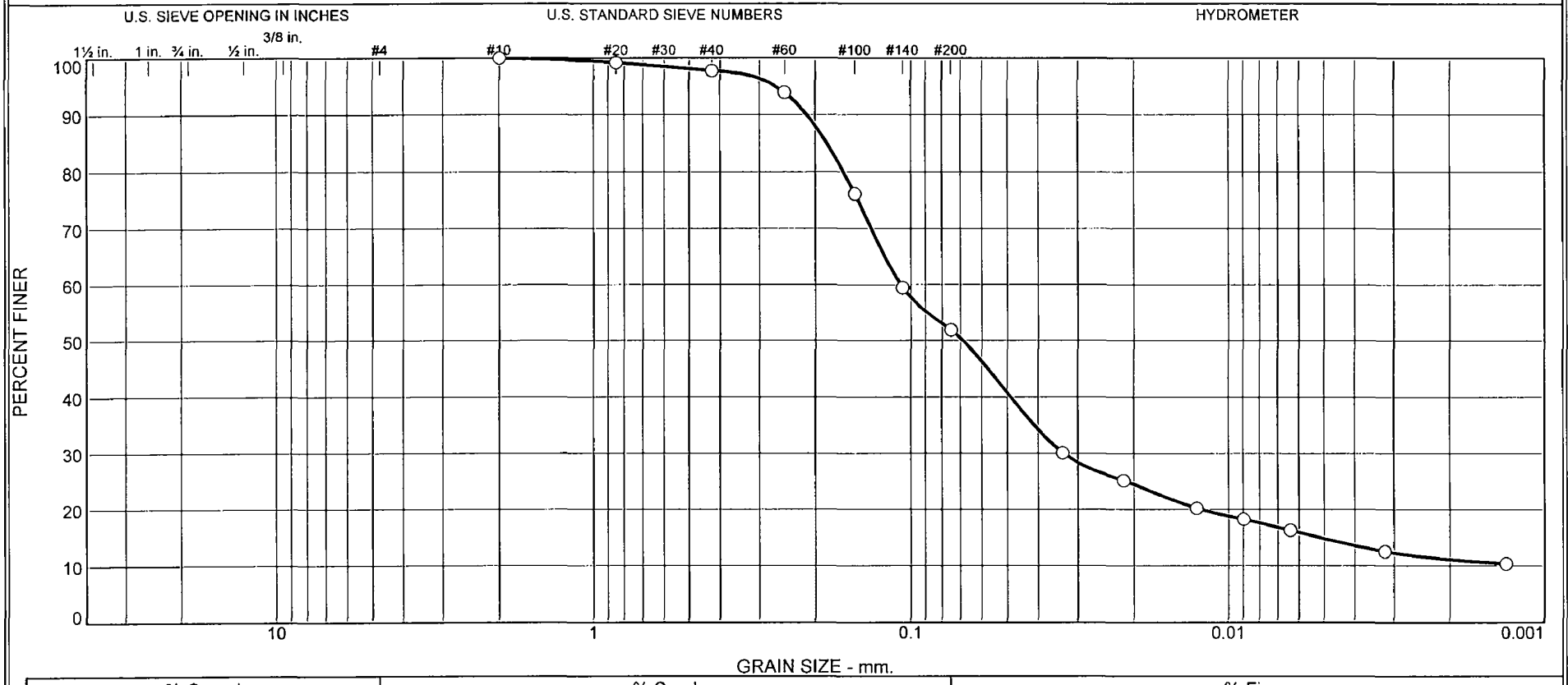
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	42	59	16	7	4	27			14

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1876	0.6960	2.7250	8.2540	11.5952	17.9166	19.6281	21.4271	23.3409

Fineness Modulus
5.23

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	2.3	45.8	37.1	14.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-12	119.9-121.4	2/25/08	ML	Light Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 27% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 119.9-121.4 **Sample Number:** 605-12
Material Description: Light Gray Sandy SILT (Visual)
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 27% (ASTM D 4373-02)
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
342.84	0.00	0.00	#10	0.00	100.0
50.44	0.00	0.00	#20	0.42	99.2
			#40	1.14	97.7
			#60	3.08	93.9
			#100	12.04	76.1
			#140	20.45	59.5
			#200	24.27	51.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =50.44
Hygroscopic moisture correction:
Moist weight and tare = 28.55
Dry weight and tare = 28.50
Tare weight = 15.63
Hygroscopic moisture =0.4%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.0	21.0	15.3	0.0133	22.0	12.7	0.0334	30.1
5.00	20.9	18.5	12.8	0.0133	19.5	13.1	0.0215	25.1
15.00	20.9	16.0	10.3	0.0133	17.0	13.5	0.0126	20.2
30.00	20.9	15.0	9.3	0.0133	16.0	13.7	0.0090	18.2
60.00	20.9	14.0	8.3	0.0133	15.0	13.8	0.0064	16.2
240.00	21.4	12.0	6.4	0.0132	13.0	14.2	0.0032	12.5
1440.00	21.0	11.0	5.3	0.0133	12.0	14.3	0.0013	10.4

MACTEC Engineering and Consulting, Inc.

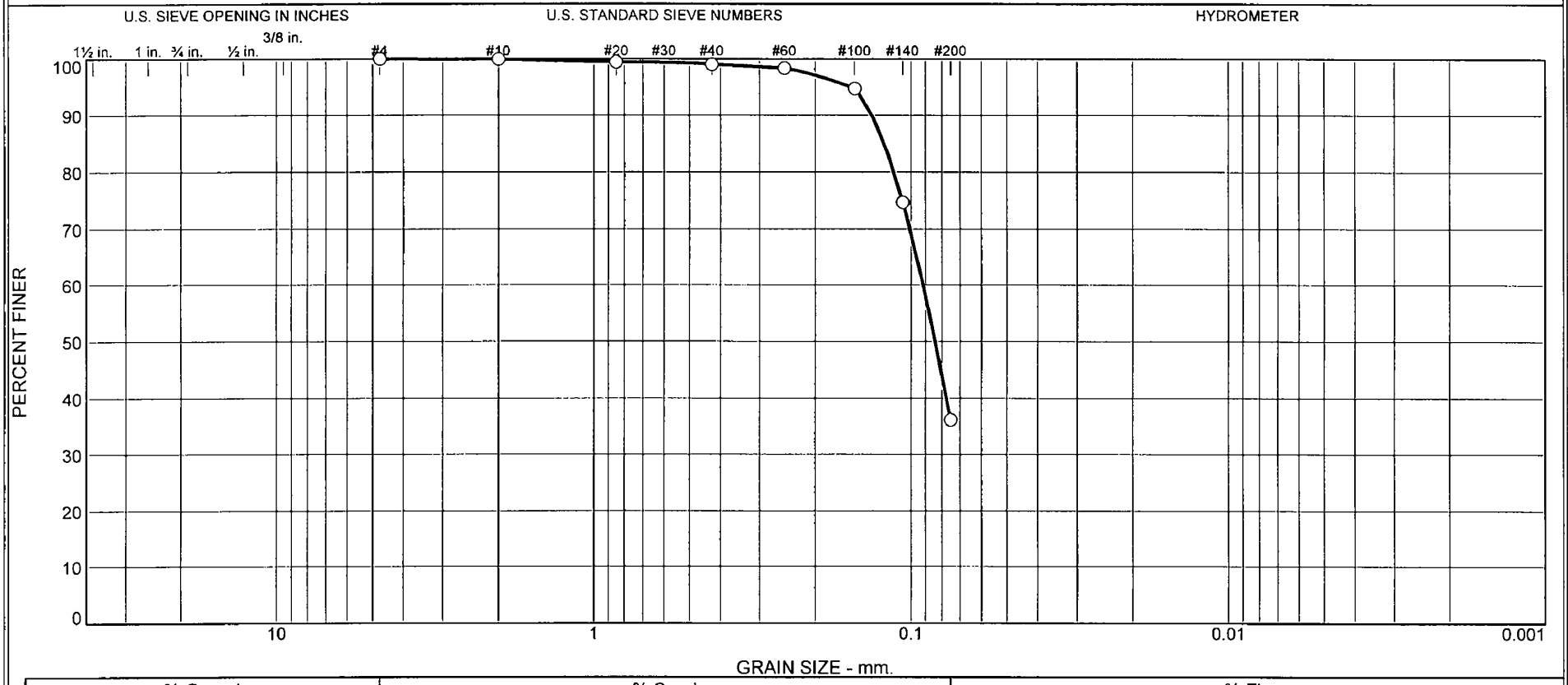
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.3	45.8	48.1	37.1	14.8	51.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0052	0.0123	0.0333	0.0689	0.1076	0.1627	0.1834	0.2126	0.2671

Fineness Modulus
0.29

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	63	36	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-15	131.4-132.9	2/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.669 (ASTM D854-06)
SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 30% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 131.4-132.9 **Sample Number:** 605-15
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: Specific Gravity = 2.669 (ASTM D854-06)
SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 30% (ASTM D 4373-02)
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
227.90	0.00	0.00	#4	0.00	100
			#10	0.11	100
102.28	0.00	0.00	#20	0.51	99
			#40	0.94	99
			#60	1.61	98
			#100	5.35	95
			#140	25.83	75
			#200	65.29	36

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	63	64			36

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0840	0.0916	0.1130	0.1214	0.1328	0.1542

Fineness Modulus
0.08

MACTEC Engineering and Consulting, 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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 3/28/08

SAMPLE IDENTIFICATION: B-605-15 (131.4-132.9)

(A) Mass of oven-dried soil, grams:	75.72
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.55
(C) Mass of pycnometer, water and soil, grams:	703.91
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.1
(G) Specific Gravity at observed temperature: A / [B - (C - A)]	2.670
(F) ***Correction factor:***	0.99977
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.669

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

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

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) (Visual)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

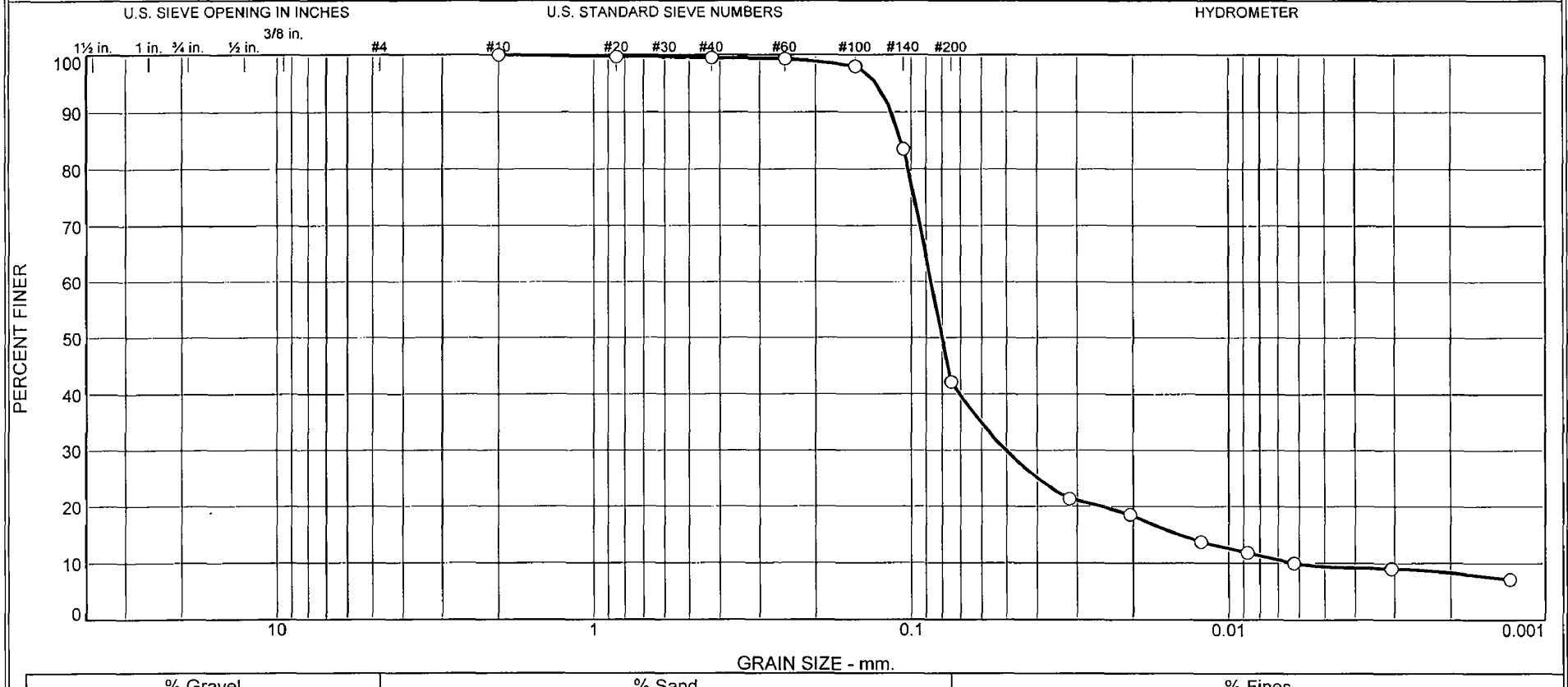
PYCNOMETER : P-6

TESTED BY: CS

REVIEWED BY: **Brian Johnson**

DSC 7-2-08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.5	57.3	32.8	9.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-18	144.9-146.4	2/26/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 144.9-146.4 **Sample Number:** 605-18
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
162.22	0.00	0.00	#10	0.00	100.0
104.26	0.00	0.00	#20	0.31	99.7
			#40	0.52	99.5
			#60	0.71	99.3
			#100	2.15	97.9
			#140	17.13	83.6
			#200	60.31	42.2

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.26
Hygroscopic moisture correction:
Moist weight and tare = 29.30
Dry weight and tare = 29.21
Tare weight = 15.52
Hygroscopic moisture =0.7%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.4	28.0	22.4	0.0132	29.0	11.5	0.0317	21.4
5.00	21.4	25.0	19.4	0.0132	26.0	12.0	0.0205	18.5
15.00	21.6	20.0	14.4	0.0132	21.0	12.9	0.0122	13.8
30.00	21.6	18.0	12.4	0.0132	19.0	13.2	0.0087	11.9
60.00	21.9	16.0	10.5	0.0131	17.0	13.5	0.0062	10.0
250.00	21.9	15.0	9.5	0.0131	16.0	13.7	0.0031	9.1
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.2

MACTEC Engineering and Consulting, Inc.

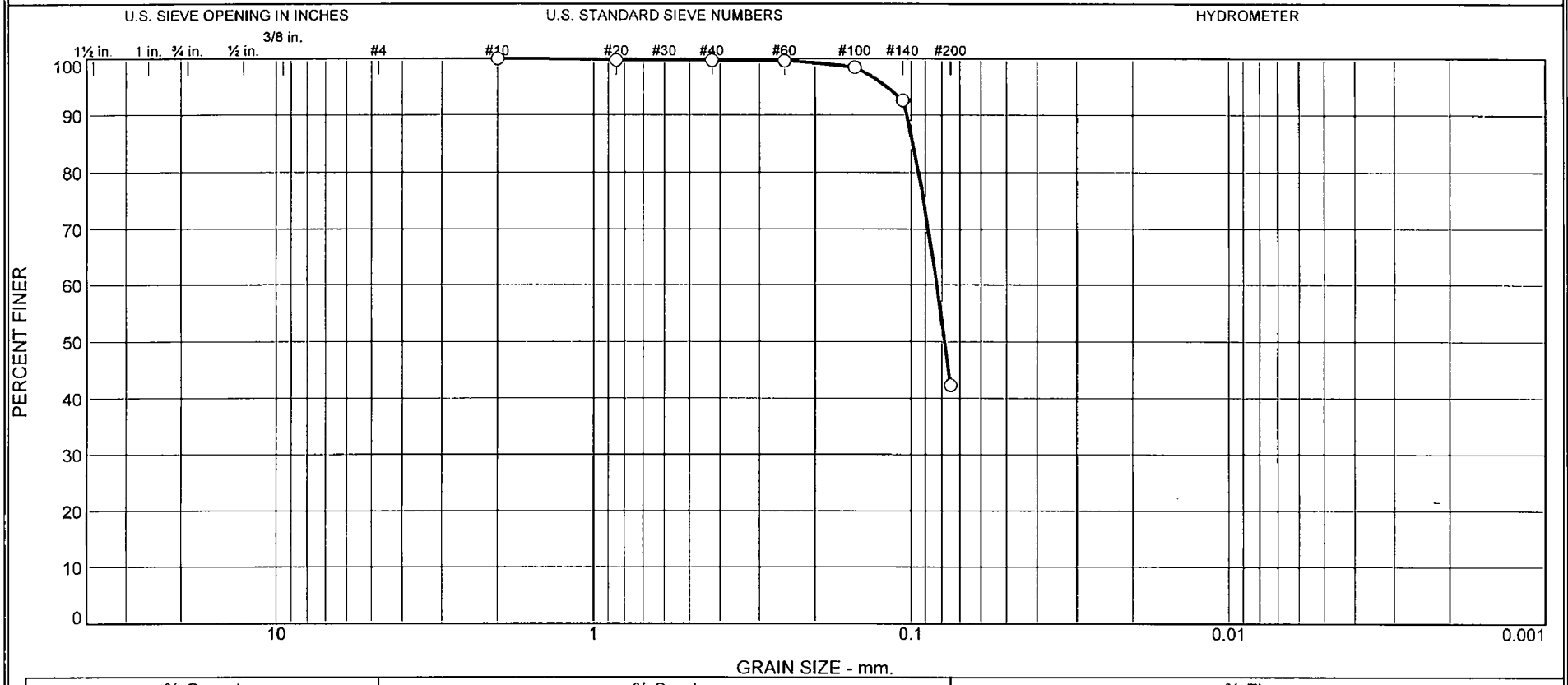
Fractional Components

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	57.3	57.8	32.8	9.4	42.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0062	0.0143	0.0253	0.0503	0.0803	0.0868	0.1022	0.1077	0.1154	0.1290

Fineness Modulus	C_u	C_c
0.03	13.98	4.70

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	58	42	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-20	154.9-156.4	2/26/08	SM	Greenish Gray Silty SAND(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 154.9-156.4 **Sample Number:** 605-20
Material Description: Greenish Gray Silty SAND(Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** =206.16
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
206.16	0.00	0.00	#10	0.00	100
			#20	0.46	100
			#40	0.59	100
			#60	0.77	100
			#100	3.19	98
			#140	15.25	93
			#200	118.89	42

Fractional Components

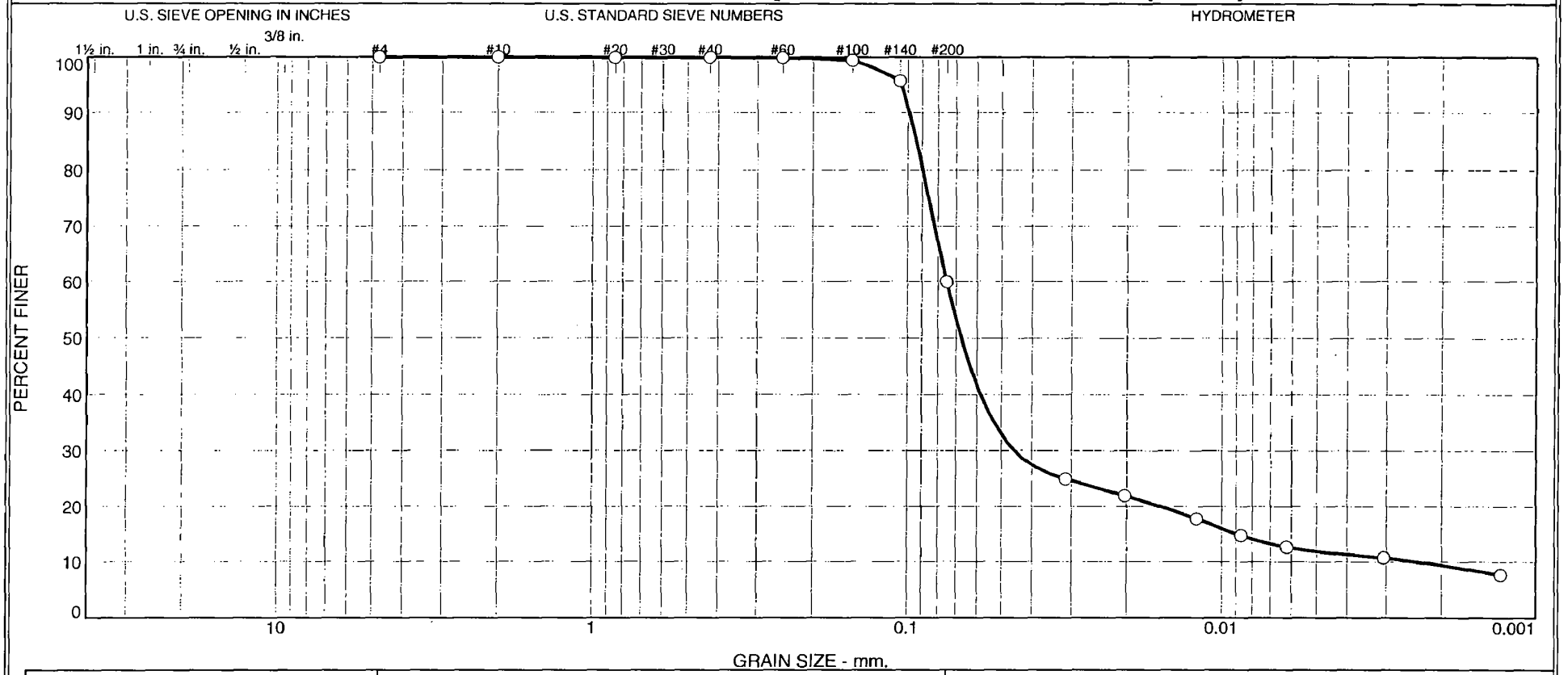
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	58	58			42

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0783	0.0829	0.0944	0.0982	0.1029	0.1190

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	39.9	48.1	11.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-22	164.5-166.0'	2/26/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 164.5-166.0' **Sample Number:** 605-22
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
207.37	0.00	0.00	#4	0.00	100.0
			#10	0.01	100.0
98.63	0.00	0.00	#20	0.03	100.0
			#40	0.06	99.9
			#60	0.09	99.9
			#100	0.59	99.4
			#140	4.23	95.7
			#200	39.48	60.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =98.63
Hygroscopic moisture correction:
Moist weight and tare = 30.32
Dry weight and tare = 29.97
Tare weight = 15.50
Hygroscopic moisture = 2.4%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.3	30.0	24.3	0.0132	31.0	11.2	0.0313	25.0
5.00	21.2	27.0	21.3	0.0132	28.0	11.7	0.0203	21.9
15.00	21.2	23.0	17.3	0.0132	24.0	12.4	0.0120	17.8
30.00	21.2	20.0	14.3	0.0132	21.0	12.9	0.0087	14.7
60.00	21.2	18.0	12.3	0.0132	19.0	13.2	0.0062	12.7
250.00	21.8	16.0	10.5	0.0131	17.0	13.5	0.0031	10.7
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.7

MACTEC Engineering and Consulting, 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	39.9	40.0	48.1	11.9	60.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0090	0.0156	0.0455	0.0674	0.0750	0.0894	0.0936	0.0984	0.1048

Fineness Modulus	C_u	C_c
0.01	31.71	11.65

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	40	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-24	174.5-176.0	2/26/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 174.5-176.0 **Sample Number:** 605-24
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =92.85
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
92.85	0.00	0.00	#10	0.00	100
			#20	0.11	100
			#40	0.42	100
			#60	0.99	99
			#100	5.39	94
			#140	11.87	87
			#200	37.06	60

Fractional Components

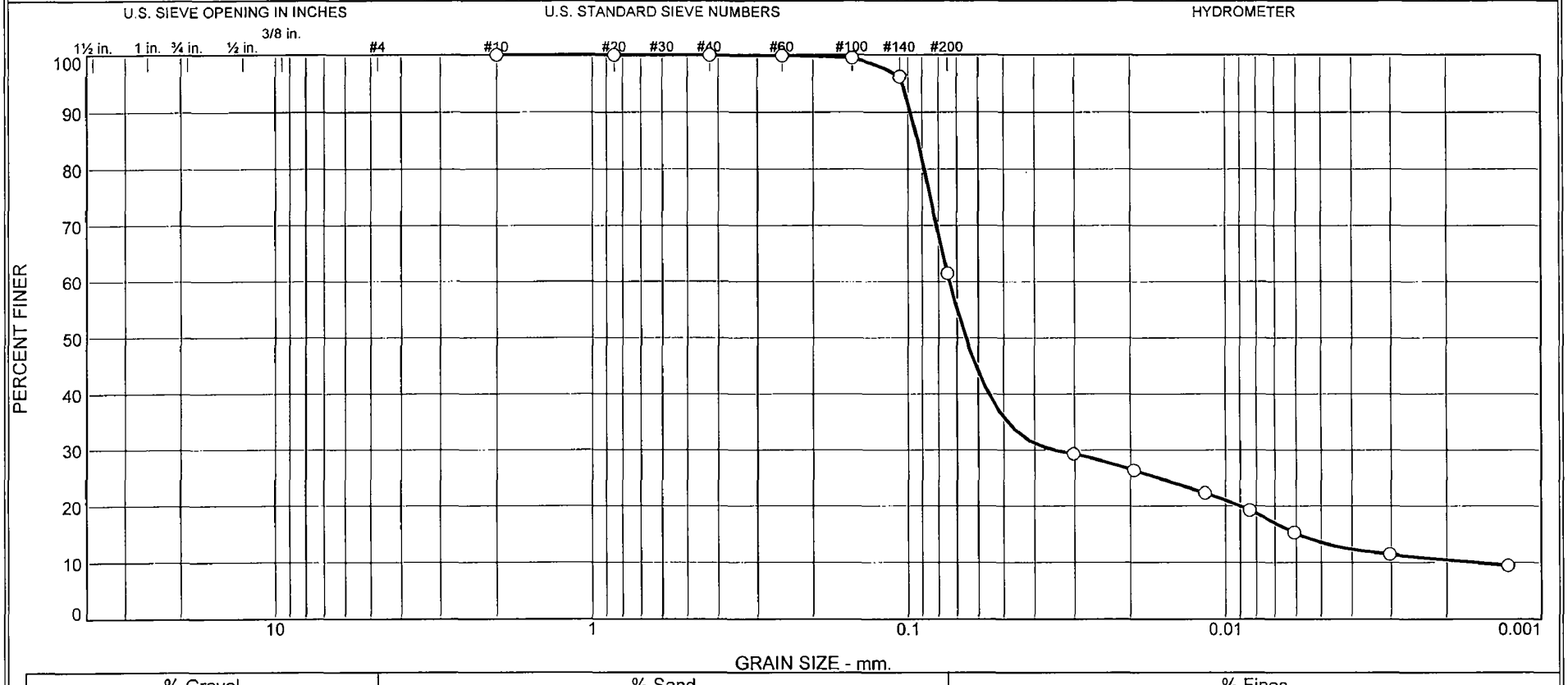
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	40	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0944	0.1017	0.1136	0.1644

Fineness Modulus
0.07

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	38.4	47.9	13.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-26	184.5-186.0	2/26/08	ML	Olive Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 24% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 184.5-186.0 **Sample Number:** 605-26
Material Description: Olive Sandy SILT (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 24% (ASTM D 4373-02)
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
176.02	0.00	0.00	#10	0.00	100.0
99.99	0.00	0.00	#20	0.02	100.0
			#40	0.06	99.9
			#60	0.13	99.9
			#100	0.51	99.5
			#140	3.81	96.2
			#200	38.52	61.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =99.99
Hygroscopic moisture correction:
Moist weight and tare = 29.10
Dry weight and tare = 28.98
Tare weight = 15.51
Hygroscopic moisture =0.9%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.2	35.0	29.3	0.0132	36.0	10.4	0.0302	29.3
5.00	21.2	32.0	26.3	0.0132	33.0	10.9	0.0195	26.3
15.00	21.1	28.0	22.3	0.0133	29.0	11.5	0.0116	22.3
30.00	21.1	25.0	19.3	0.0133	26.0	12.0	0.0084	19.3
60.00	21.3	21.0	15.3	0.0132	22.0	12.7	0.0061	15.3
250.00	22.0	17.0	11.5	0.0131	18.0	13.3	0.0030	11.5
1440.00	22.0	15.0	9.5	0.0131	16.0	13.7	0.0013	9.5

MACTEC Engineering and Consulting, Inc.

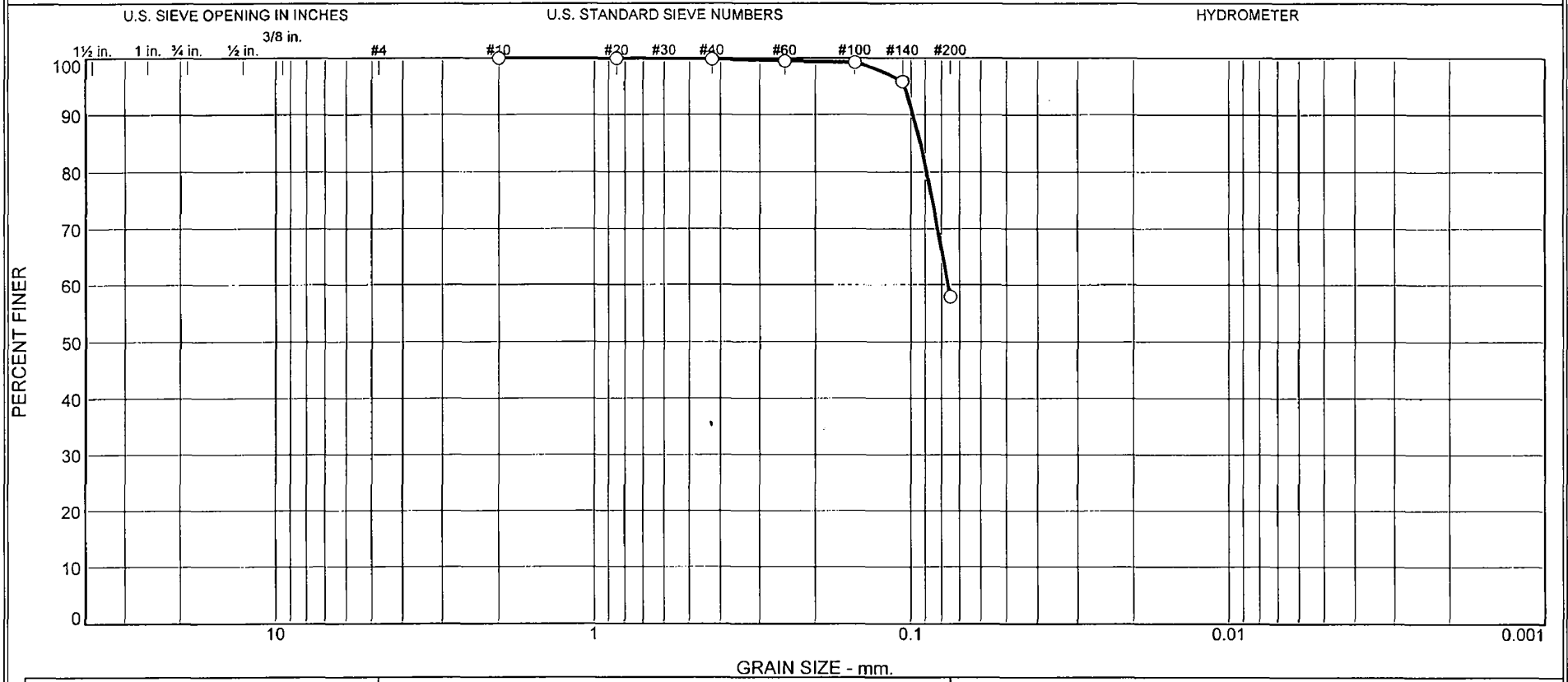
Fractional Components

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	38.4	38.5	47.9	13.6	61.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0059	0.0090	0.0348	0.0658	0.0739	0.0886	0.0929	0.0977	0.1040

Fineness Modulus	C_u	C_c
0.01	45.71	10.15

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	42	58	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-27	189.5-191.0	2/26/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 189.5-191.0 **Sample Number:** 605-27
Material Description: Olive Gray Sandy SILT (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
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
288.65	0.00	0.00	#10	0.00	100
100.61	0.00	0.00	#20	0.04	100
			#40	0.16	100
			#60	0.51	99
			#100	0.76	99
			#140	4.19	96
			#200	42.37	58

Fractional Components

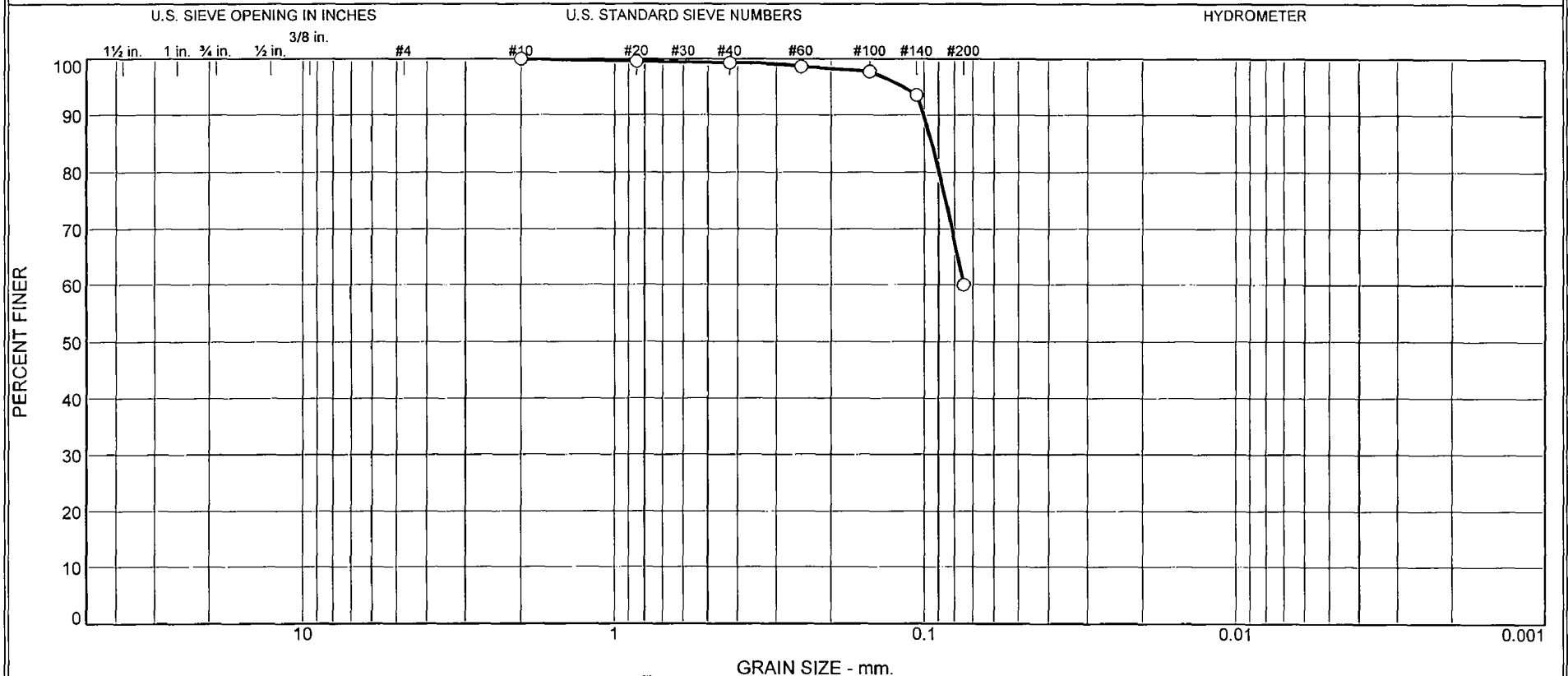
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	42	42			58

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0762	0.0890	0.0931	0.0980	0.1046

Fineness Modulus
0.01

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	39	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-28	194.5-196.0	2/27/08	CL-ML	Olive Gray Sandy Silty CLAY	ND	24	19

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 27% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 194.5-196.0 **Sample Number:** 605-28
Material Description: Olive Gray Sandy Silty CLAY
Date: 2/27/08 **Natural Moisture:** ND
Liquid Limit: 24 **Plastic Limit:** 19 **USCS Class.:** CL-ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 27% (ASTM D 4373-02)
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
252.46	0.00	0.00	#10	0.00	100
100.70	0.00	0.00	#20	0.43	100
			#40	0.71	99
			#60	1.39	99
			#100	2.28	98
			#140	6.45	94
			#200	40.27	60

Fractional Components

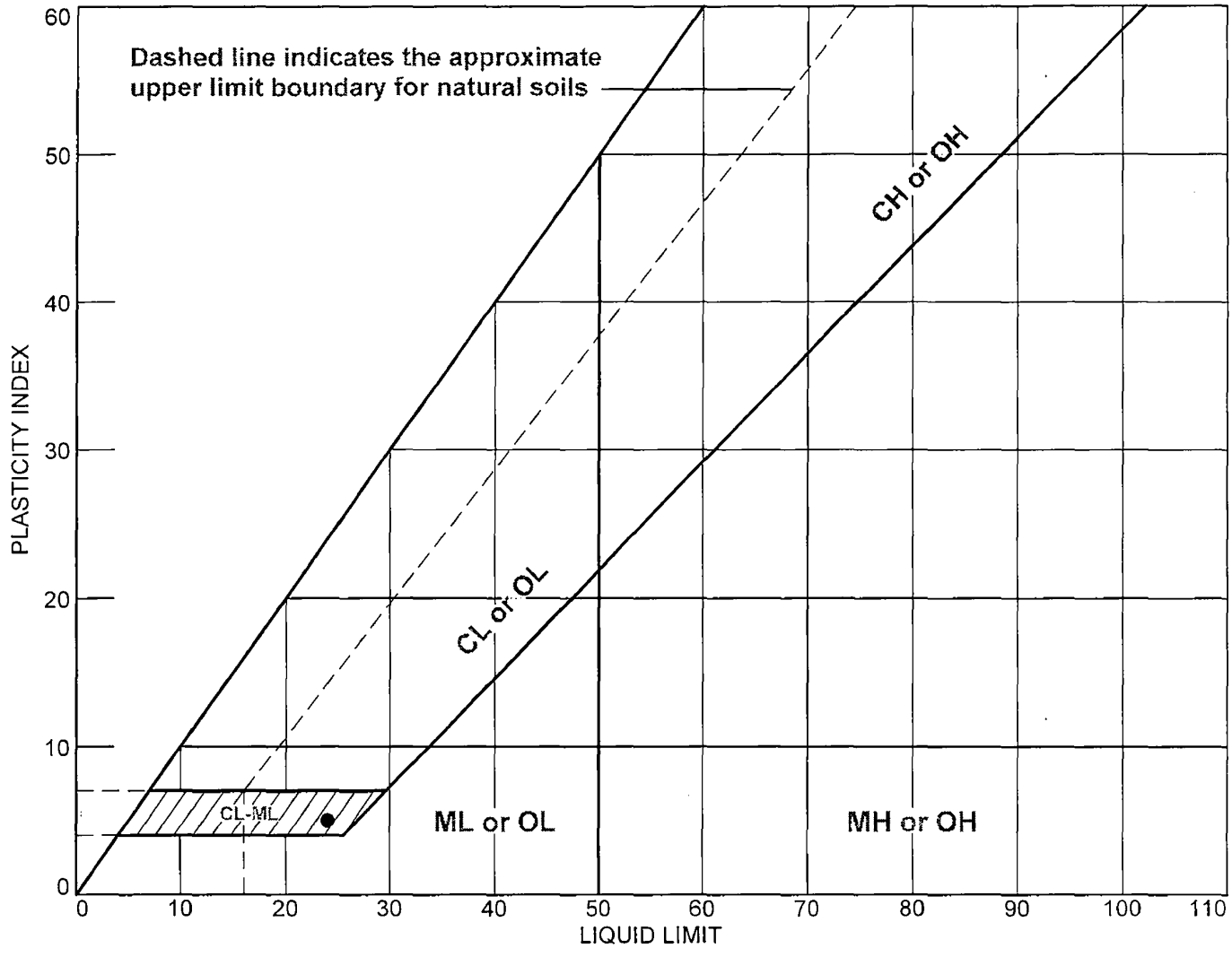
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0895	0.0942	0.1002	0.1165

Fineness Modulus
0.04

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-605	605-28	194.5-196.0	ND	19	24	5	CL-ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

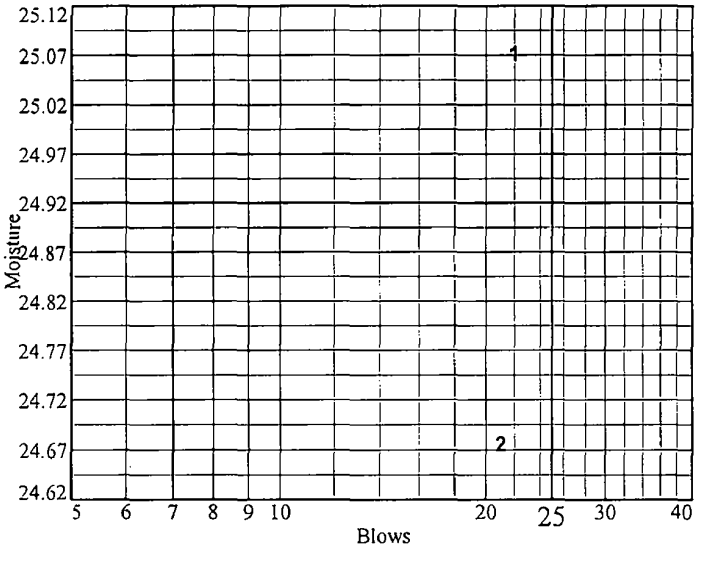
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 194.5-196.0 **Sample Number:** 605-28
Material Description: Olive Gray Sandy Silty CLAY
USCS: CL-ML **AASHTO:** A-4(1)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.18	30.88				
Dry+Tare	21.57	27.83				
Tare	11.16	15.47				
# Blows	22	21				
Moisture	25.1	24.7				



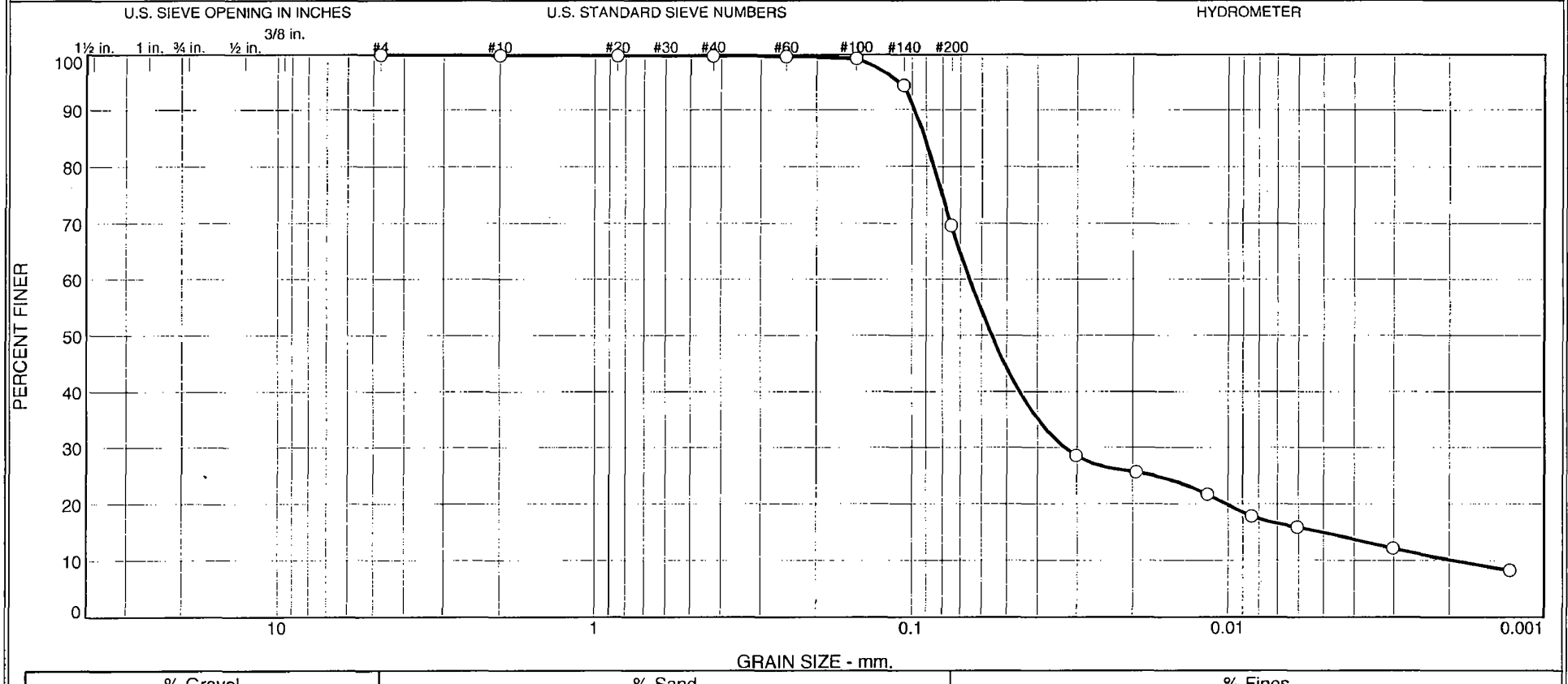
Liquid Limit= 24
Plastic Limit= 19
Plasticity Index= 5
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.20	24.32			
Dry+Tare	22.00	22.92			
Tare	15.51	15.36			
Moisture	18.5	18.5			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.1	30.1	54.7	15.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-29	199.5-201.0	2/27/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 199.5-201.0 **Sample Number:** 605-29
Material Description: Olive Gray Sandy SILT (Visual)
Date: 2/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
275.70	0.00	0.00	#4	0.00	100.0
			#10	0.26	99.9
102.52	0.00	0.00	#20	0.05	99.9
			#40	0.11	99.8
			#60	0.19	99.7
			#100	0.57	99.4
			#140	5.54	94.5
			#200	31.00	69.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =102.52
Hygroscopic moisture correction:
Moist weight and tare = 27.88
Dry weight and tare = 27.75
Tare weight = 15.50
Hygroscopic moisture = 1.1%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.2	35.0	29.3	0.0132	36.0	10.4	0.0302	28.6
5.00	21.2	32.0	26.3	0.0132	33.0	10.9	0.0195	25.6
15.00	21.3	28.0	22.3	0.0132	29.0	11.5	0.0116	21.8
30.00	21.3	24.0	18.3	0.0132	25.0	12.2	0.0084	17.9
60.00	21.3	22.0	16.3	0.0132	23.0	12.5	0.0060	15.9
250.00	21.9	18.0	12.5	0.0131	19.0	13.2	0.0030	12.2
1440.00	22.0	14.0	8.5	0.0131	15.0	13.8	0.0013	8.3

MACTEC Engineering and Consulting, Inc.

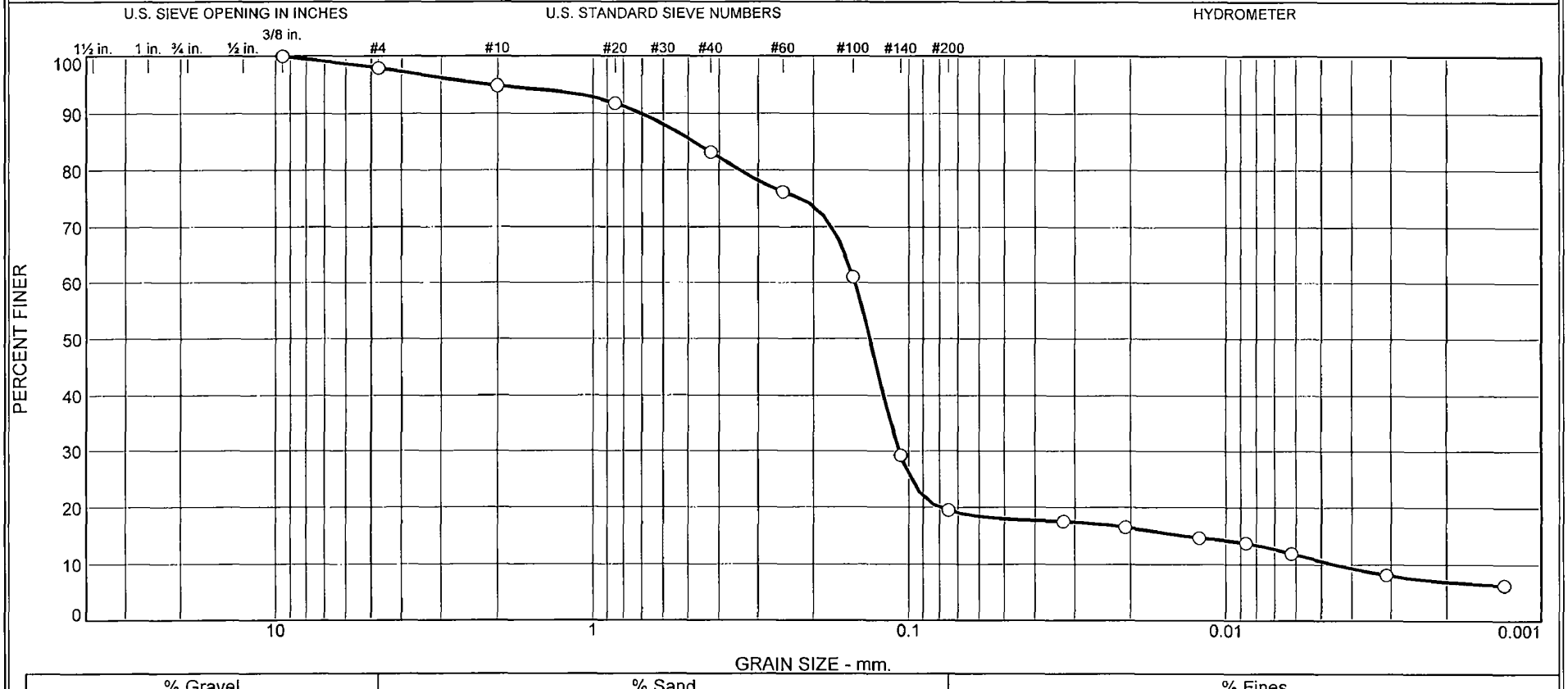
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.1	30.1	30.3	54.7	15.0	69.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0019	0.0050	0.0101	0.0328	0.0559	0.0657	0.0852	0.0909	0.0976	0.1088

Fineness Modulus	C_u	C_c
0.01	34.08	8.50

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	2.1	3.0	11.7	63.7	8.9	10.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-606	606-8	119.4-120.9	3/5/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ. DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-606
Depth: 119.4-120.9 **Sample Number:** 606-8
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/5/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
361.54	0.00	0.00	3/8"	0.00	100.0
			#4	7.51	97.9
			#10	18.60	94.9
100.87	0.00	0.00	#20	3.29	91.8
			#40	12.40	83.2
			#60	19.86	76.2
			#100	35.94	61.1
			#140	69.81	29.2
			#200	80.16	19.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =94.9
Weight of hydrometer sample =100.87
Hygroscopic moisture correction:
Moist weight and tare = 28.81
Dry weight and tare = 28.79
Tare weight = 15.55
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.5	24.0	18.8	0.0132	25.0	12.2	0.0326	17.5
5.00	21.4	23.0	17.8	0.0132	24.0	12.4	0.0208	16.6
15.00	21.4	21.0	15.8	0.0132	22.0	12.7	0.0122	14.7
30.00	21.4	20.0	14.8	0.0132	21.0	12.9	0.0086	13.8
60.00	21.4	18.0	12.8	0.0132	19.0	13.2	0.0062	11.9
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.2
1440.00	21.3	12.0	6.7	0.0132	13.0	14.2	0.0013	6.3

MACTEC Engineering and Consulting, Inc.

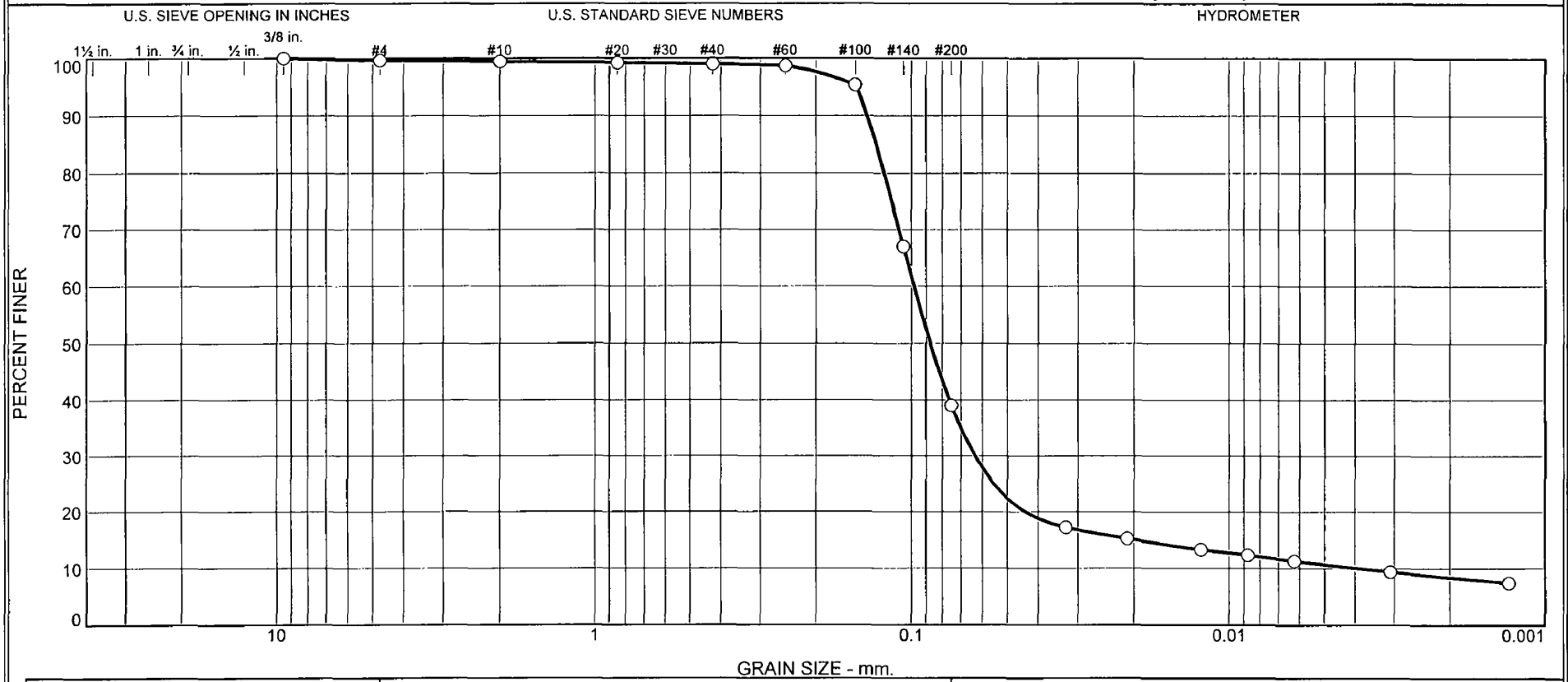
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.1	2.1	3.0	11.7	63.7	78.4	8.9	10.6	19.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0045	0.0135	0.0803	0.1072	0.1328	0.1480	0.3430	0.4801	0.7059	2.1136

Fineness Modulus	C_u	C_c
0.86	32.73	17.17

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.4	0.2	0.4	60.0	28.3	10.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-606	606-9	129.7-131.2	3/5/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-606
Depth: 129.7-131.2 **Sample Number:** 606-9
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/5/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
303.53	0.00	0.00	3/8"	0.00	100.0
			#4	1.08	99.6
			#10	1.71	99.4
102.10	0.00	0.00	#20	0.21	99.2
			#40	0.46	99.0
			#60	0.77	98.7
			#100	4.19	95.4
			#140	33.30	67.0
			#200	62.06	39.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.4
Weight of hydrometer sample =102.10
Hygroscopic moisture correction:
Moist weight and tare = 24.04
Dry weight and tare = 24.04
Tare weight = 11.09
Hygroscopic moisture =0.0%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.7	23.0	17.9	0.0132	24.0	12.4	0.0327	17.2
5.00	21.6	21.0	15.8	0.0132	22.0	12.7	0.0210	15.2
15.00	21.6	19.0	13.8	0.0132	20.0	13.0	0.0123	13.3
30.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0087	12.4
60.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0062	11.3
250.00	21.4	15.0	9.8	0.0132	16.0	13.7	0.0031	9.4
1440.00	21.3	13.0	7.7	0.0132	14.0	14.0	0.0013	7.5

MACTEC Engineering and Consulting, Inc.

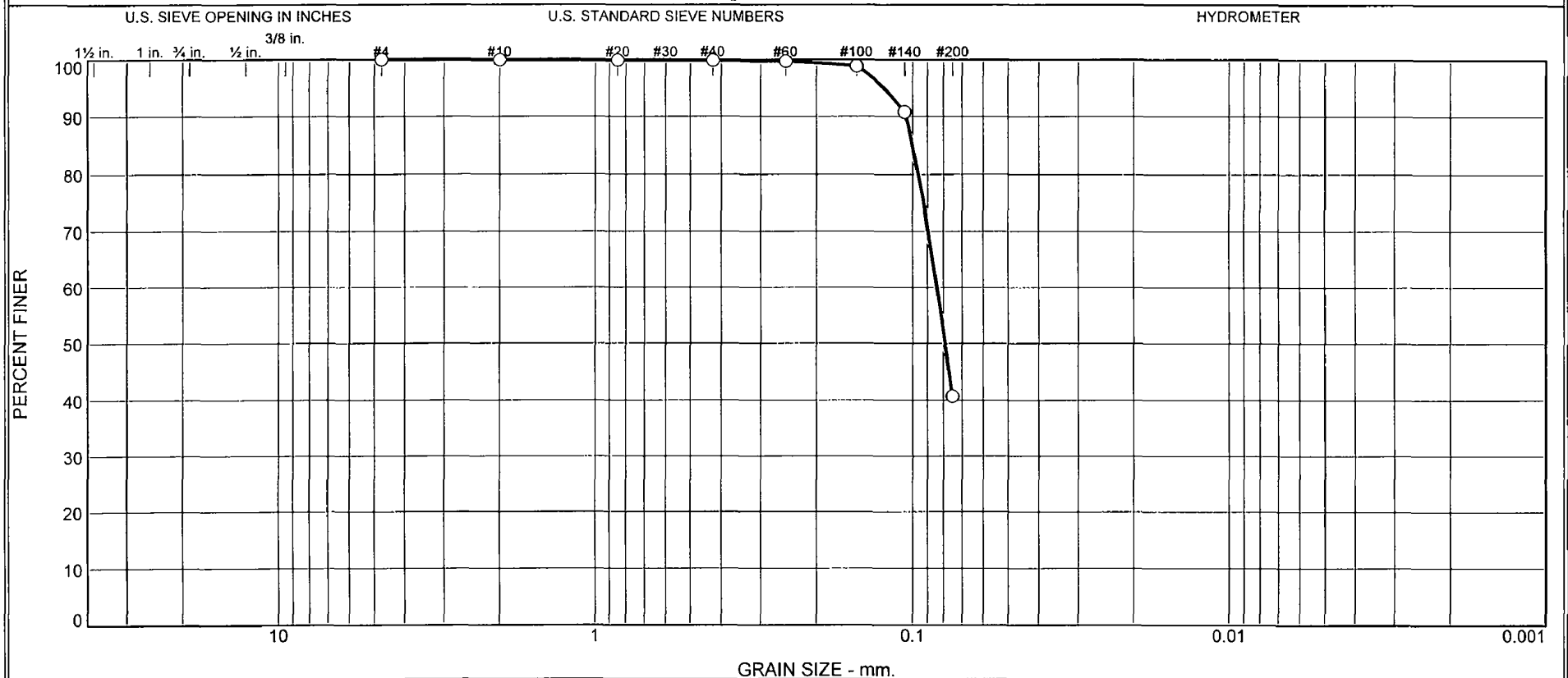
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.2	0.4	60.0	60.6	28.3	10.7	39.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0039	0.0197	0.0442	0.0633	0.0873	0.0982	0.1218	0.1291	0.1376	0.1490

Fineness Modulus	C_u	C_c
0.08	25.29	10.52

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	59	41	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-606	606-11	149.7-151.2	4/7/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-606
Depth: 149.7-151.2 **Sample Number:** 606-11
Material Description: Olive Gray Silty SAND (Visual)
Date: 4/7/08 **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
236.37	0.00	0.00	#4	0.00	100
			#10	0.05	100
99.28	0.00	0.00	#20	0.06	100
			#40	0.12	100
			#60	0.24	100
			#100	1.09	99
			#140	9.14	91
			#200	58.90	41

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	59	59			41

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0791	0.0839	0.0959	0.0999	0.1050	0.1230

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	27	11	14	21	22	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-3	5.0-6.5	3/7/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 5.0-6.5 **Sample Number:** 607-3
Material Description: White Silty SAND with gravel (Visual)
Date: 3/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)
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
342.18	0.00	0.00	1	0.00	100
			3/4	18.74	95
			3/8"	63.69	81
			#4	109.06	68
			#10	148.16	57
101.52	0.00	0.00	#20	13.61	49
			#40	25.08	43
			#60	37.35	36
			#100	50.58	28
			#140	58.27	24
			#200	63.00	22

Fractional Components

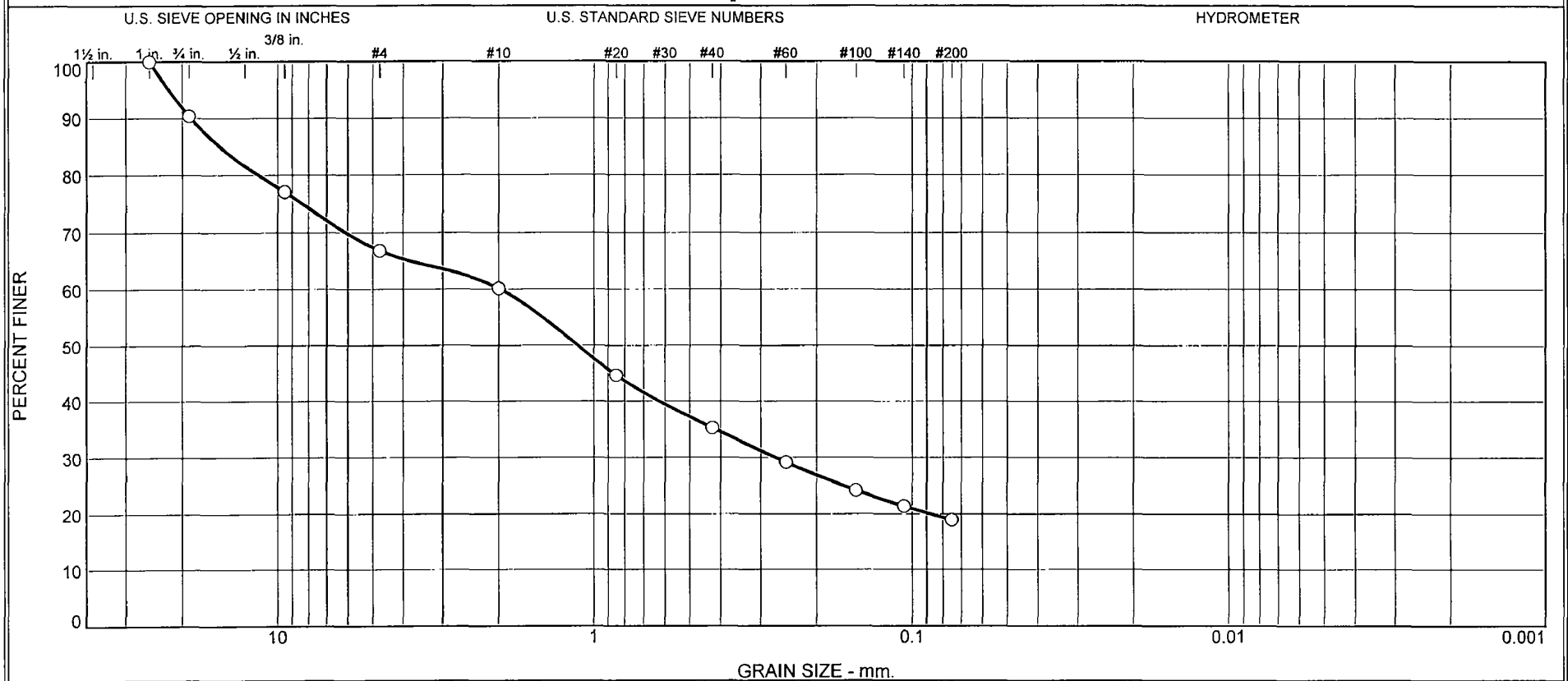
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	27	32	11	14	21	46			22

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1673	0.9481	2.6928	8.8753	11.4890	14.9759	19.5360

Fineness Modulus
3.33

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	10	23	7	25	16	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-6	12.5-14.0	3/7/08	SM	Light Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 12.5-14.0 **Sample Number:** 607-6
Material Description: Light Gray Silty SAND with gravel (Visual)
Date: 3/7/08 **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
490.55	0.00	0.00	1	0.00	100
			3/4	46.98	90
			3/8"	112.26	77
			#4	162.74	67
			#10	195.42	60
95.97	0.00	0.00	#20	24.74	45
			#40	39.77	35
			#60	49.47	29
			#100	57.40	24
			#140	61.88	21
			#200	65.73	19

Fractional Components

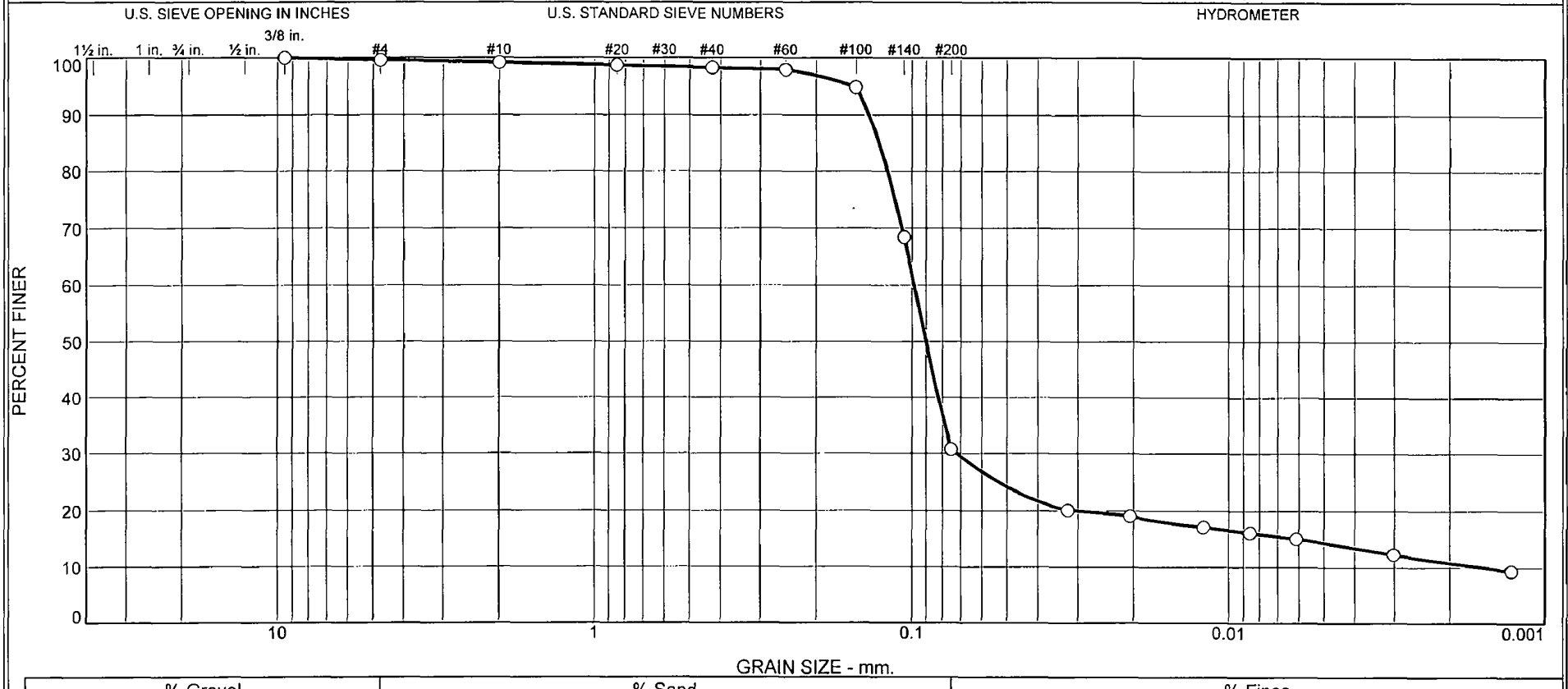
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	23	33	7	25	16	48			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0874	0.2702	1.1255	1.9744	11.4850	15.2601	18.7699	22.0136

Fineness Modulus
3.58

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.4	0.4	0.9	67.6	16.3	14.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-9	129.5-131.0	3/9/08	SM	Olive Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 19% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 129.5-131.0 **Sample Number:** 607-9
Material Description: Olive Silty SAND (Visual)
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 19% (ASTM D 4373-02)
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
296.07	0.00	0.00	3/8"	0.00	100.0
			#4	1.20	99.6
			#10	2.44	99.2
100.16	0.00	0.00	#20	0.50	98.7
			#40	0.91	98.3
			#60	1.27	97.9
			#100	4.38	94.8
			#140	31.03	68.5
			#200	69.13	30.7

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.2
Weight of hydrometer sample =100.16
Hygroscopic moisture correction:
Moist weight and tare = 29.04
Dry weight and tare = 28.93
Tare weight = 15.41
Hygroscopic moisture =0.8%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.2	26.0	20.3	0.0132	27.0	11.9	0.0323	20.1
5.00	21.2	25.0	19.3	0.0132	26.0	12.0	0.0205	19.1
15.00	21.2	23.0	17.3	0.0132	24.0	12.4	0.0120	17.1
30.00	21.2	22.0	16.3	0.0132	23.0	12.5	0.0086	16.1
60.00	21.1	21.0	15.3	0.0133	22.0	12.7	0.0061	15.1
250.00	21.8	18.0	12.5	0.0131	19.0	13.2	0.0030	12.3
1440.00	21.9	15.0	9.5	0.0131	16.0	13.7	0.0013	9.4

MACTEC Engineering and Consulting, Inc.

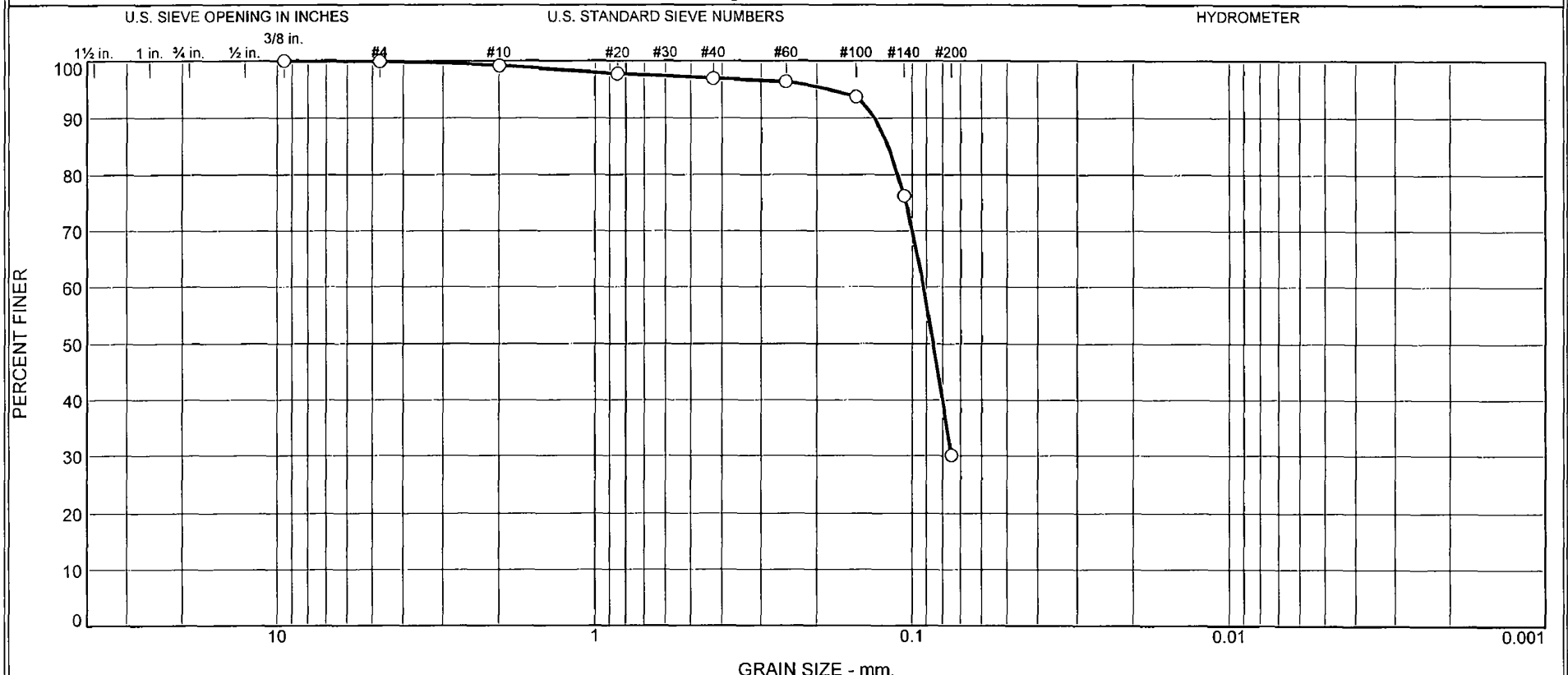
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.4	0.9	67.6	68.9	16.3	14.4	30.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0059	0.0310	0.0722	0.0902	0.0983	0.1193	0.1269	0.1364	0.1528

Fineness Modulus	C_u	C_c
0.11	62.90	33.93

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	1	2	67	30	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-10	139.5-141.0	3/9/08	SC-SM	Olive Silty, Clayey SAND	ND	18	14

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 139.5-141.0 **Sample Number:** 607-10
Material Description: Olive Silty, Clayey SAND
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: 18 **Plastic Limit:** 14 **USCS Class.:** SC-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
351.90	0.00	0.00	3/8"	0.00	100
			#4	0.48	100
			#10	2.86	99
103.43	0.00	0.00	#20	1.48	98
			#40	2.30	97
			#60	2.89	96
			#100	5.68	94
			#140	23.87	76
			#200	72.04	30

Fractional Components

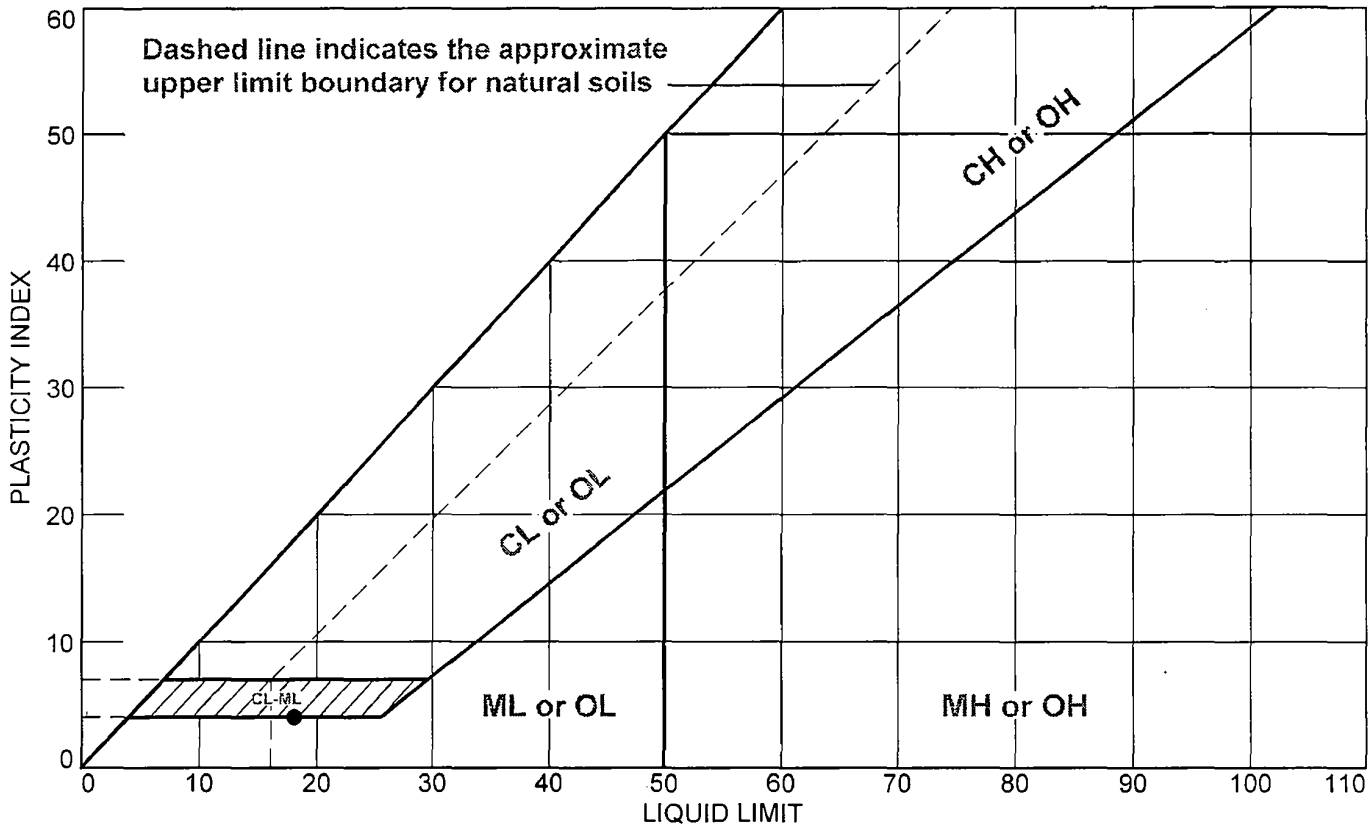
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	2	67	70			30

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0856	0.0920	0.1106	0.1187	0.1314	0.1820

Fineness Modulus
0.15

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-607	607-10	139.5-141.0	ND	14	18	4	SC-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

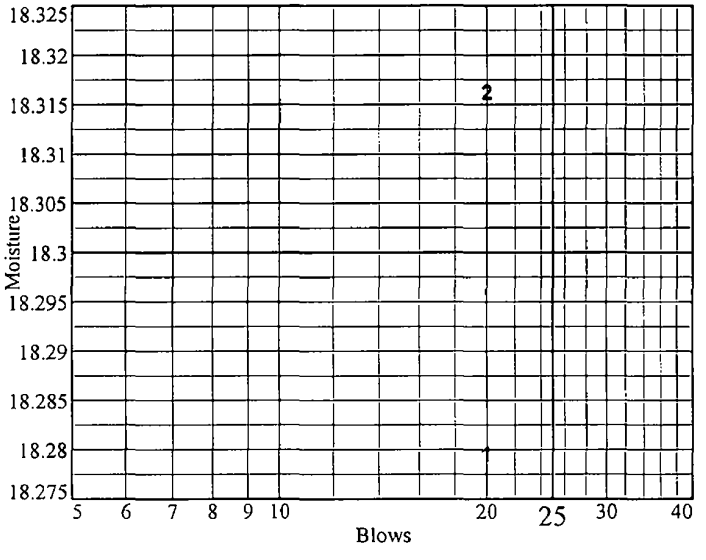
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 139.5-141.0 **Sample Number:** 607-10
Material Description: Olive Silty, Clayey SAND
USCS: SC-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	26.63	25.92				
Dry+Tare	24.93	24.31				
Tare	15.63	15.52				
# Blows	20	20				
Moisture	18.3	18.3				



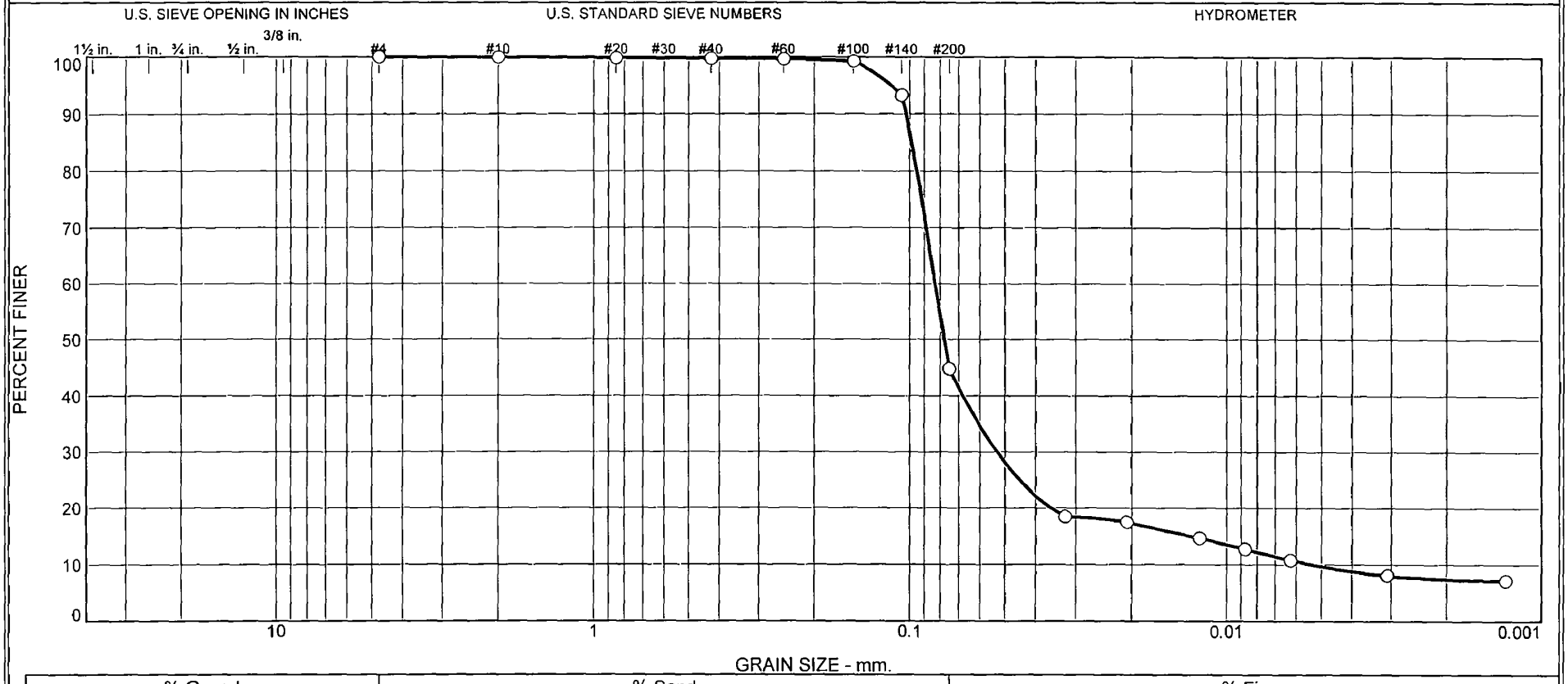
Liquid Limit= 18
Plastic Limit= 14
Plasticity Index= 4
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.44	24.61			
Dry+Tare	22.48	23.46			
Tare	15.48	15.62			
Moisture	13.7	14.7			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.2	55.0	35.0	9.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-12	151.0-152.5	3/9/08	SM	Olive Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 151.0-152.5 **Sample Number:** 607-12
Material Description: Olive Silty SAND (Visual)
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
290.13	0.00	0.00	#4	0.00	100.0
			#10	0.15	99.9
104.30	0.00	0.00	#20	0.13	99.8
			#40	0.21	99.7
			#60	0.28	99.7
			#100	0.70	99.3
			#140	7.00	93.2
			#200	57.62	44.7

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.9
Weight of hydrometer sample =104.30
Hygroscopic moisture correction:
Moist weight and tare = 28.90
Dry weight and tare = 28.82
Tare weight = 15.47
Hygroscopic moisture =0.6%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.4	25.0	19.4	0.0132	26.0	12.0	0.0324	18.5
5.00	21.2	24.0	18.3	0.0132	25.0	12.2	0.0207	17.5
15.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0122	14.6
30.00	21.2	19.0	13.3	0.0132	20.0	13.0	0.0087	12.7
60.00	21.1	17.0	11.3	0.0133	18.0	13.3	0.0063	10.8
250.00	21.9	14.0	8.5	0.0131	15.0	13.8	0.0031	8.1
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.2

MACTEC Engineering and Consulting, Inc.

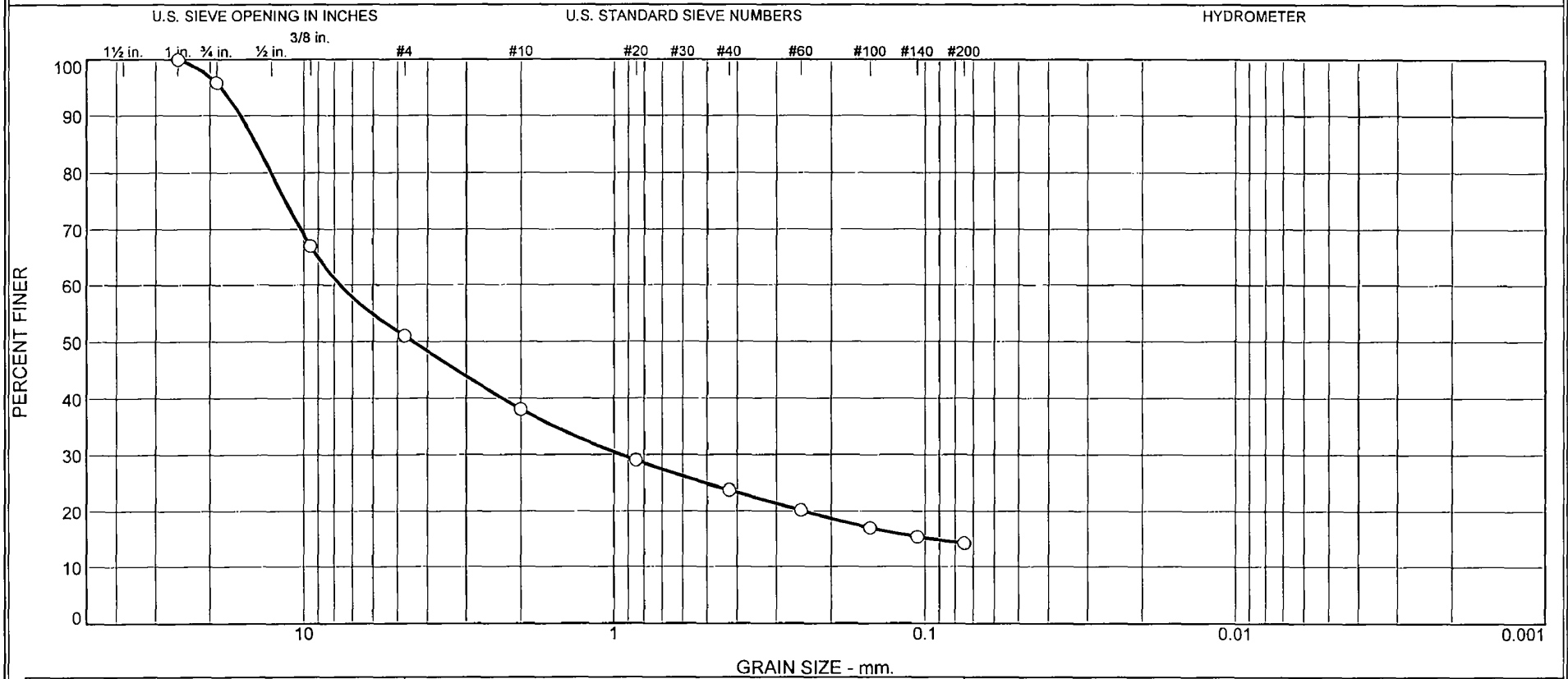
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	55.0	55.3	35.0	9.7	44.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0054	0.0131	0.0360	0.0530	0.0779	0.0832	0.0948	0.0983	0.1026	0.1146

Fineness Modulus	C_u	C_c
0.01	15.53	6.30

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	4	45	13	14	10	14	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-7	18.5-20.0	3/25/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 18.5-20.0 **Sample Number:** 608-7
Material Description: White Silty GRAVEL with sand (Visual)
Date: 3/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
474.13	0.00	0.00	1	0.00	100
			3/4	19.66	96
			3/8"	156.48	67
			#4	232.30	51
			#10	293.60	38
98.07	0.00	0.00	#20	23.34	29
			#40	37.01	24
			#60	46.24	20
			#100	54.37	17
			#140	58.47	15
			#200	61.48	14

Fractional Components

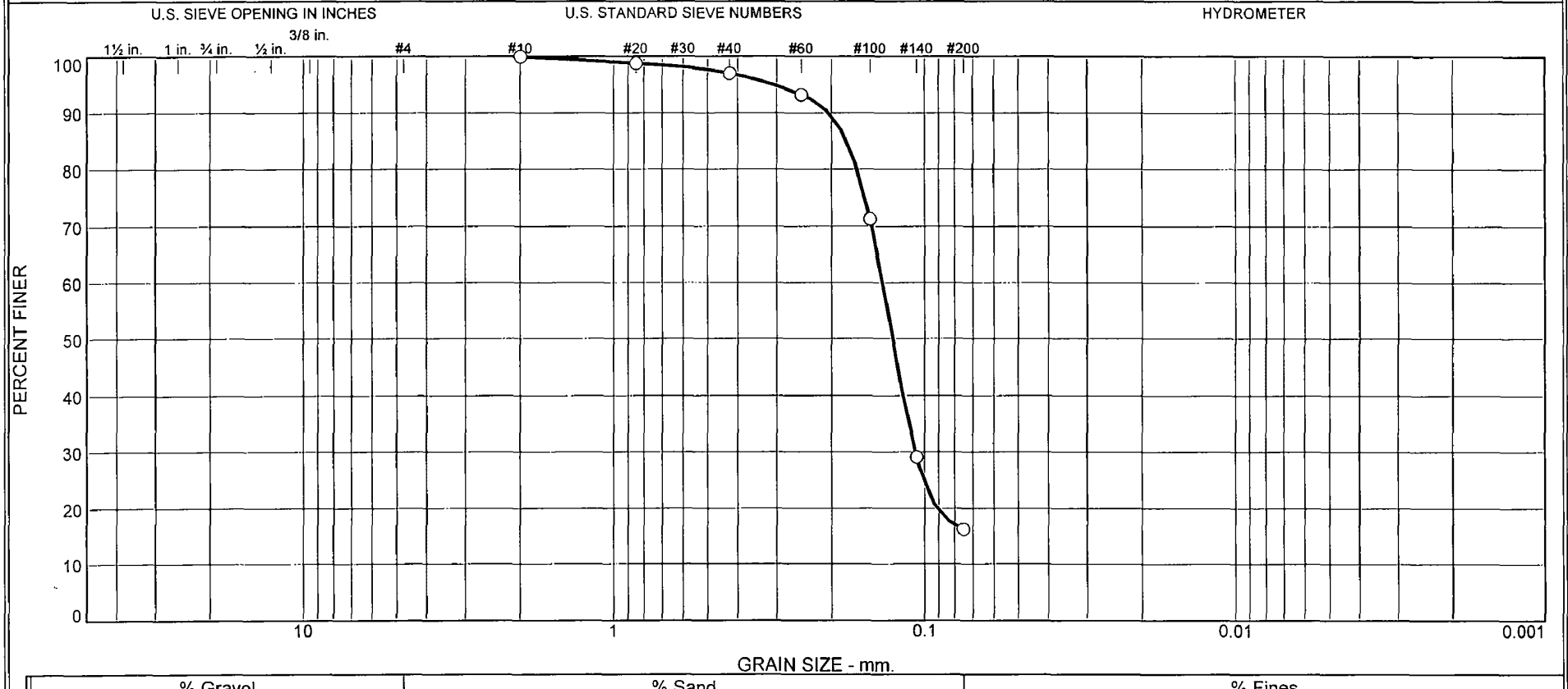
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	4	45	49	13	14	10	37			14

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0957	0.2454	0.9508	4.4531	7.6451	12.7424	14.1861	15.9434	18.4433

Fineness Modulus
4.49

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	3	81	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-11	117.8-119.3	3/27/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 117.8-119.3 **Sample Number:** 608-11
Material Description: Pale Yellow Silty SAND (Visual)
Date: 3/27/08 **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
312.88	0.00	0.00	#10	0.00	100
95.48	0.00	0.00	#20	1.14	99
			#40	2.84	97
			#60	6.48	93
			#100	27.42	71
			#140	67.72	29
			#200	79.94	16

Fractional Components

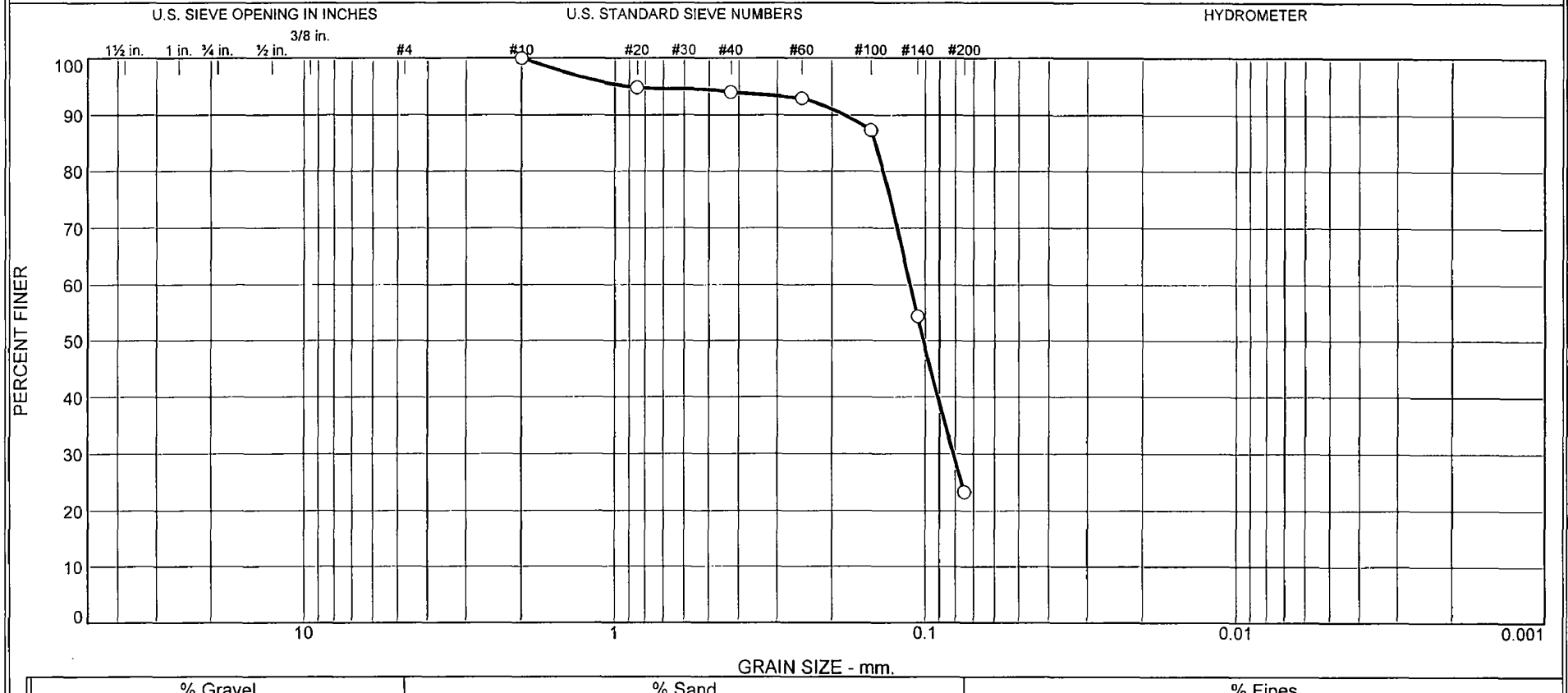
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	3	81	84			16

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0912	0.1071	0.1266	0.1365	0.1654	0.1792	0.2042	0.3058

Fineness Modulus
0.36

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	6	71	23	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-12	128.0-129.5	3/27/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 128.0-129.5 **Sample Number:** 608-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 104.19
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
104.19	0.00	0.00	#10	0.00	100
			#20	5.38	95
			#40	6.21	94
			#60	7.35	93
			#100	13.23	87
			#140	47.54	54
			#200	79.91	23

Fractional Components

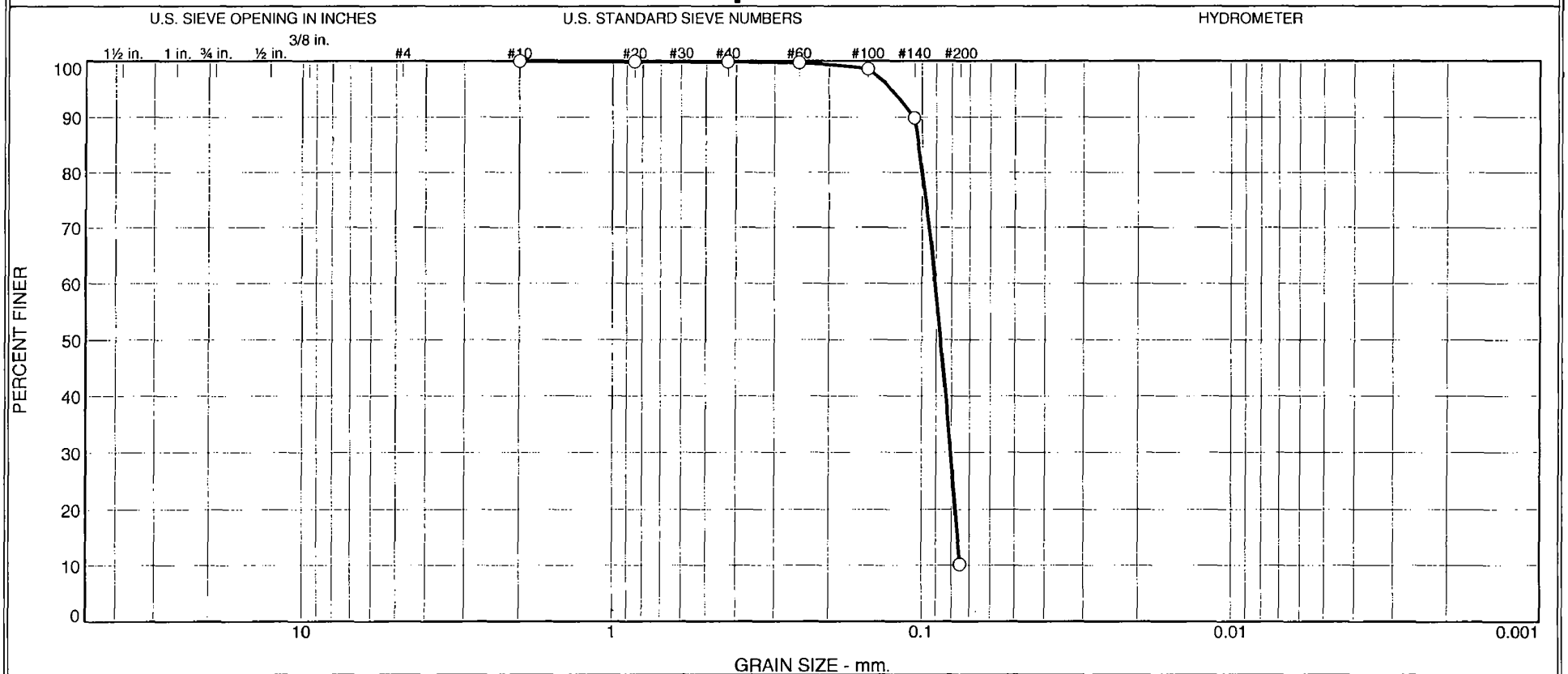
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	6	71	77			23

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0812	0.1015	0.1119	0.1363	0.1450	0.1825	0.9066

Fineness Modulus
0.29

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	90	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-14	148.0-149.5	3/27/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	NV	NP

Client Bechtel	**MACTEC Engineering and Consulting, Inc.**	○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY ND = Not Determined
Project Turkey Point COL		
Project No. 6468071950 Figure N/A	**Raleigh, North Carolina**	

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 148.0-149.5 **Sample Number:** 608-14
Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)
Date: 3/27/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
282.69	0.00	0.00	#10	0.00	100
99.77	0.00	0.00	#20	0.10	100
			#40	0.15	100
			#60	0.26	100
			#100	1.34	99
			#140	10.10	90
			#200	89.61	10

Fractional Components

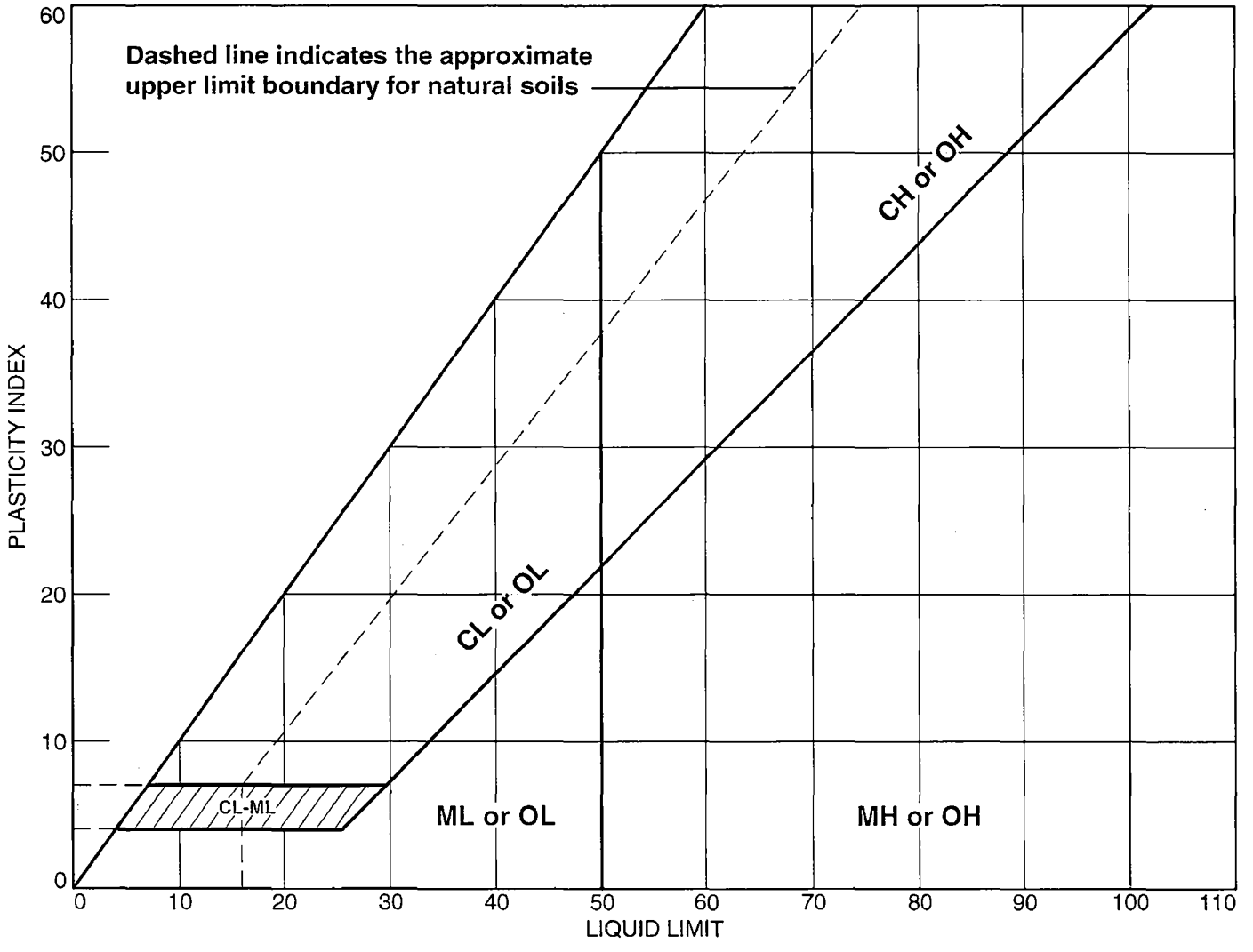
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	90	90			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0763	0.0777	0.0805	0.0867	0.0903	0.0994	0.1024	0.1064	0.1257

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-608(DH)	608-14	148.0-149.5	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

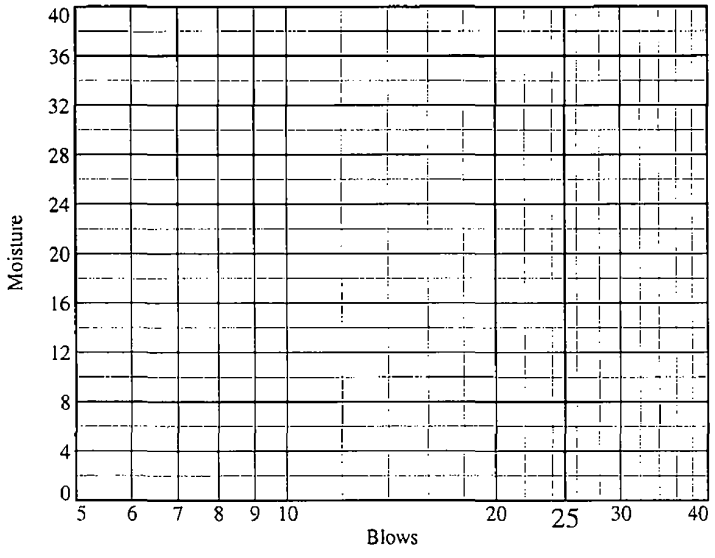
LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 148.0-149.5 **Sample Number:** 608-14
Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)
USCS: SP-SM **AASHTO:** A-3
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

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



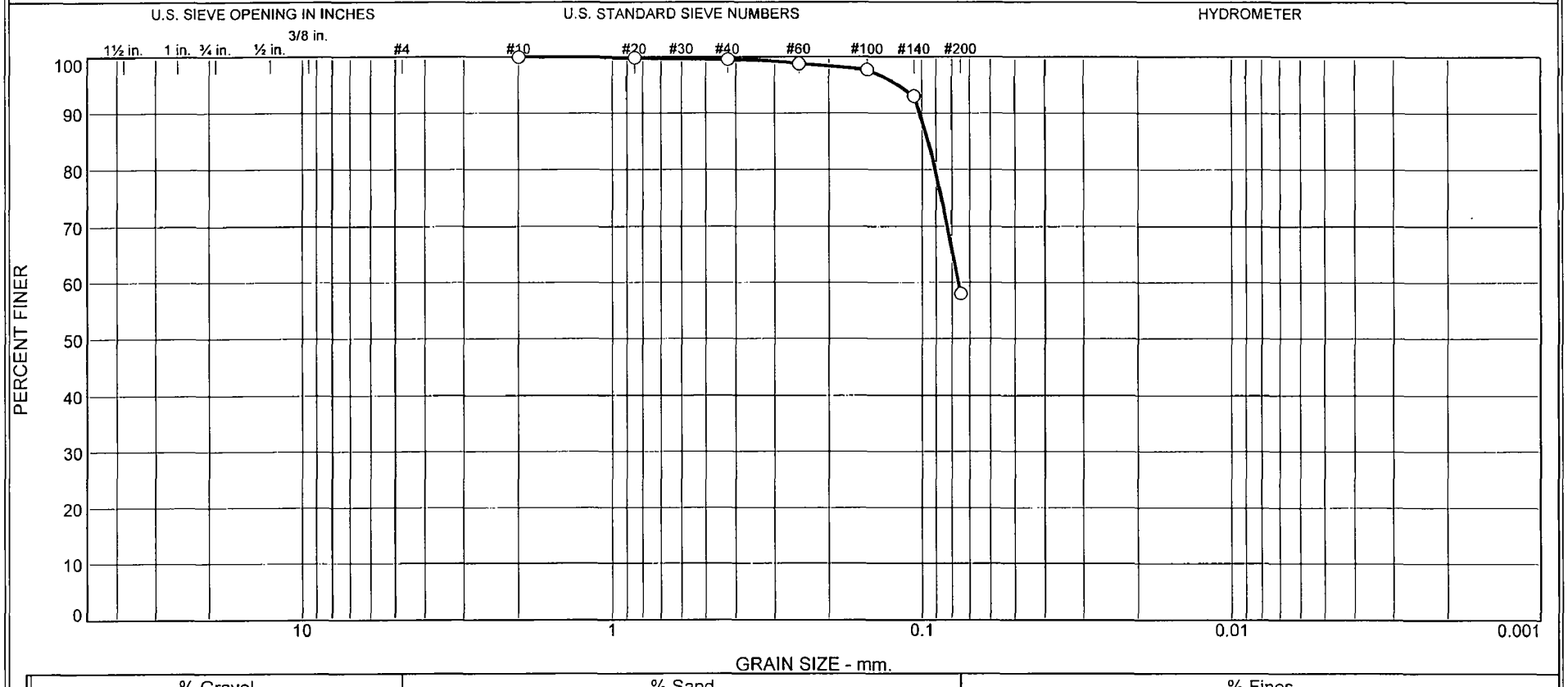
Liquid Limit= NV
Plastic Limit= NP
Plasticity Index= NP
Natural Moisture= ND

Plastic Limit Data

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

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	42	58	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-17	178.0-179.5	4/1/08	ML	Dark Greenish Gray Sandy SILT	ND	24	22

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 22% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 178.0-179.5 **Sample Number:** 608-17
Material Description: Dark Greenish Gray Sandy SILT
Date: 4/1/08 **Natural Moisture:** ND
Liquid Limit: 24 **Plastic Limit:** 22 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 22% (ASTM D 4373-02)
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
269.14	0.00	0.00	#10	0.00	100
100.15	0.00	0.00	#20	0.15	100
			#40	0.46	100
			#60	1.21	99
			#100	2.26	98
			#140	6.98	93
			#200	42.10	58

Fractional Components

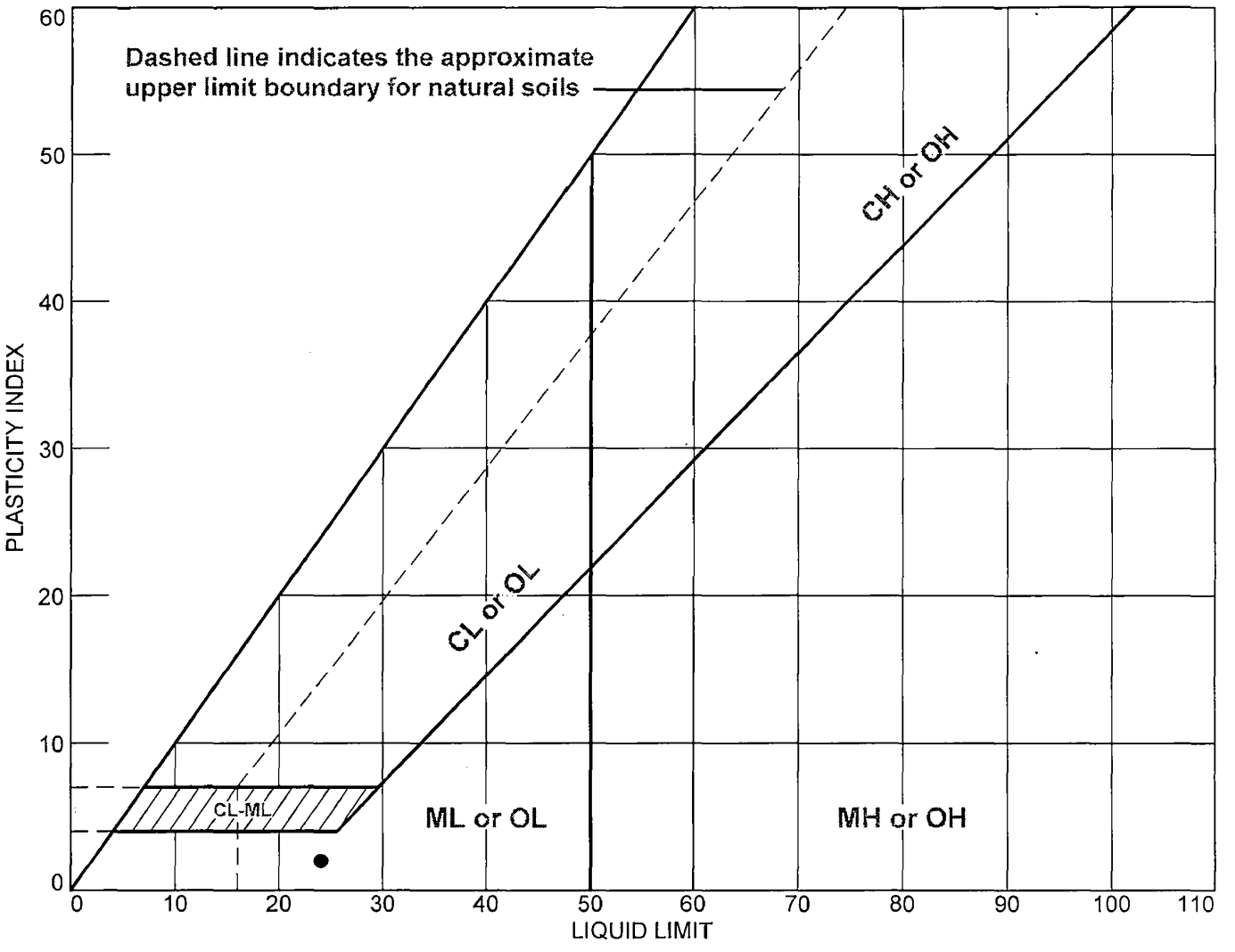
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	42	42			58

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0762	0.0905	0.0952	0.1012	0.1193

Fineness Modulus
0.03

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-608(DH)	608-17	178.0-179.5	ND	22	24	2	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

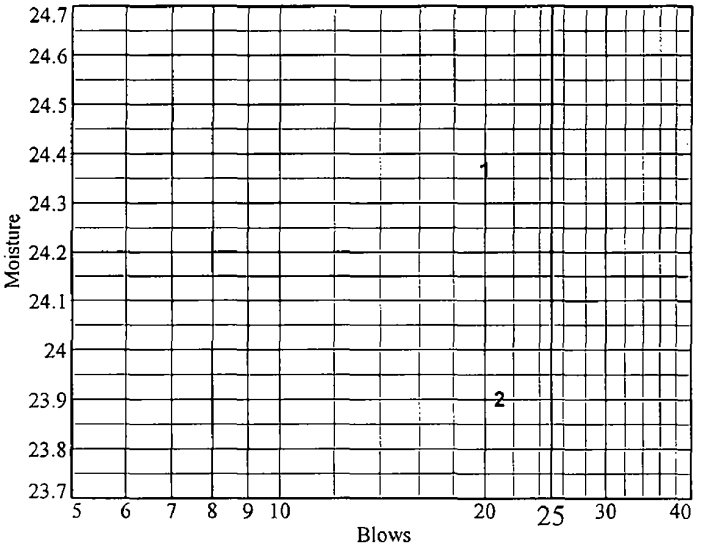
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 178.0-179.5 **Sample Number:** 608-17
Material Description: Dark Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.84	32.72				
Dry+Tare	29.46	29.40				
Tare	15.59	15.51				
# Blows	20	21				
Moisture	24.4	23.9				



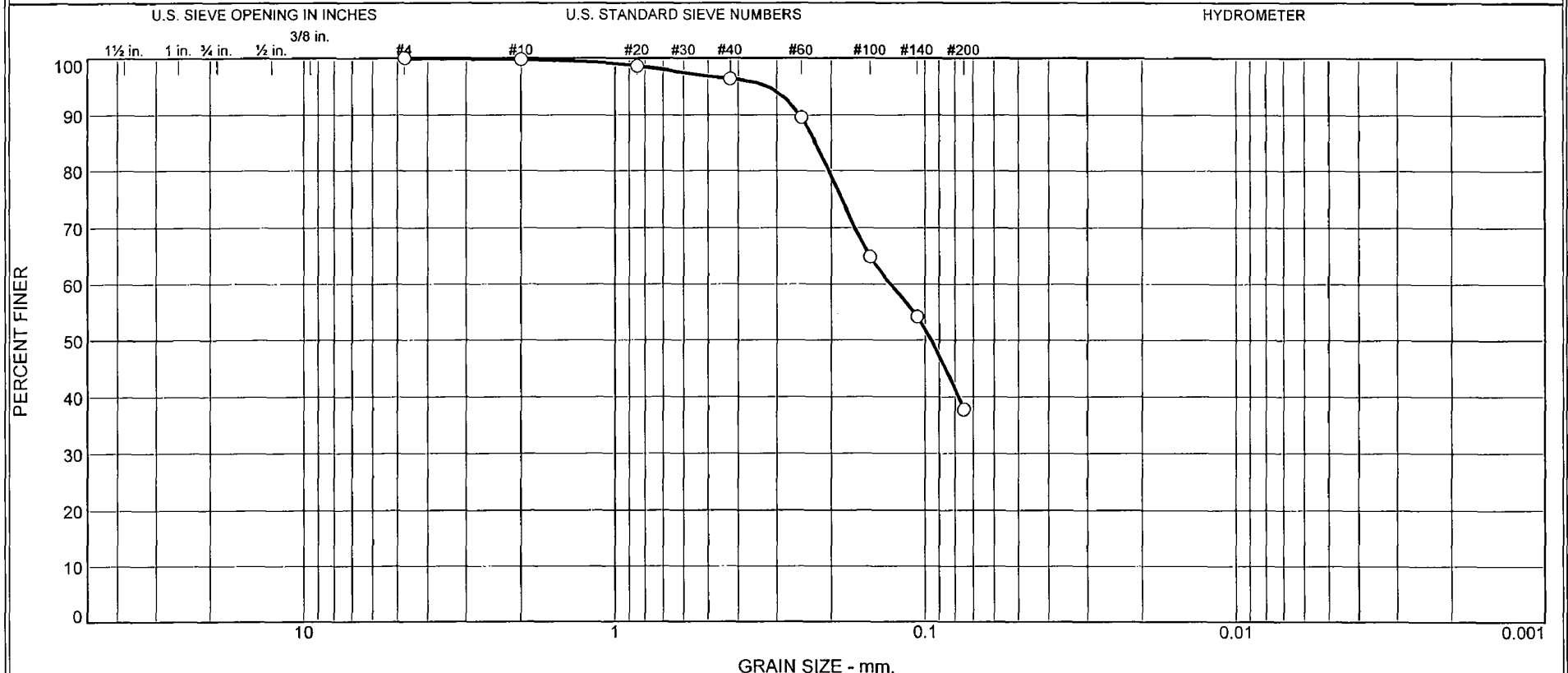
Liquid Limit= 24
Plastic Limit= 22
Plasticity Index= 2
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	26.75	28.10			
Dry+Tare	24.67	25.84			
Tare	15.60	15.51			
Moisture	22.9	21.9			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0	0	0	4	58	38	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-608(DH)	608-22	228.0-229.3	4/1/08	SM	Greenish Gray Silty SAND	ND	21	18

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 34% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 228.0-229.3 **Sample Number:** 608-22
Material Description: Greenish Gray Silty SAND
Date: 4/1/08 **Natural Moisture:** ND
Liquid Limit: 21 **Plastic Limit:** 18 **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 34% (ASTM D 4373-02)
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
263.22	0.00	0.00	#4	0.00	100
			#10	0.61	100
100.66	0.00	0.00	#20	1.13	99
			#40	3.44	96
			#60	10.31	90
			#100	35.21	65
			#140	45.88	54
			#200	62.56	38

Fractional Components

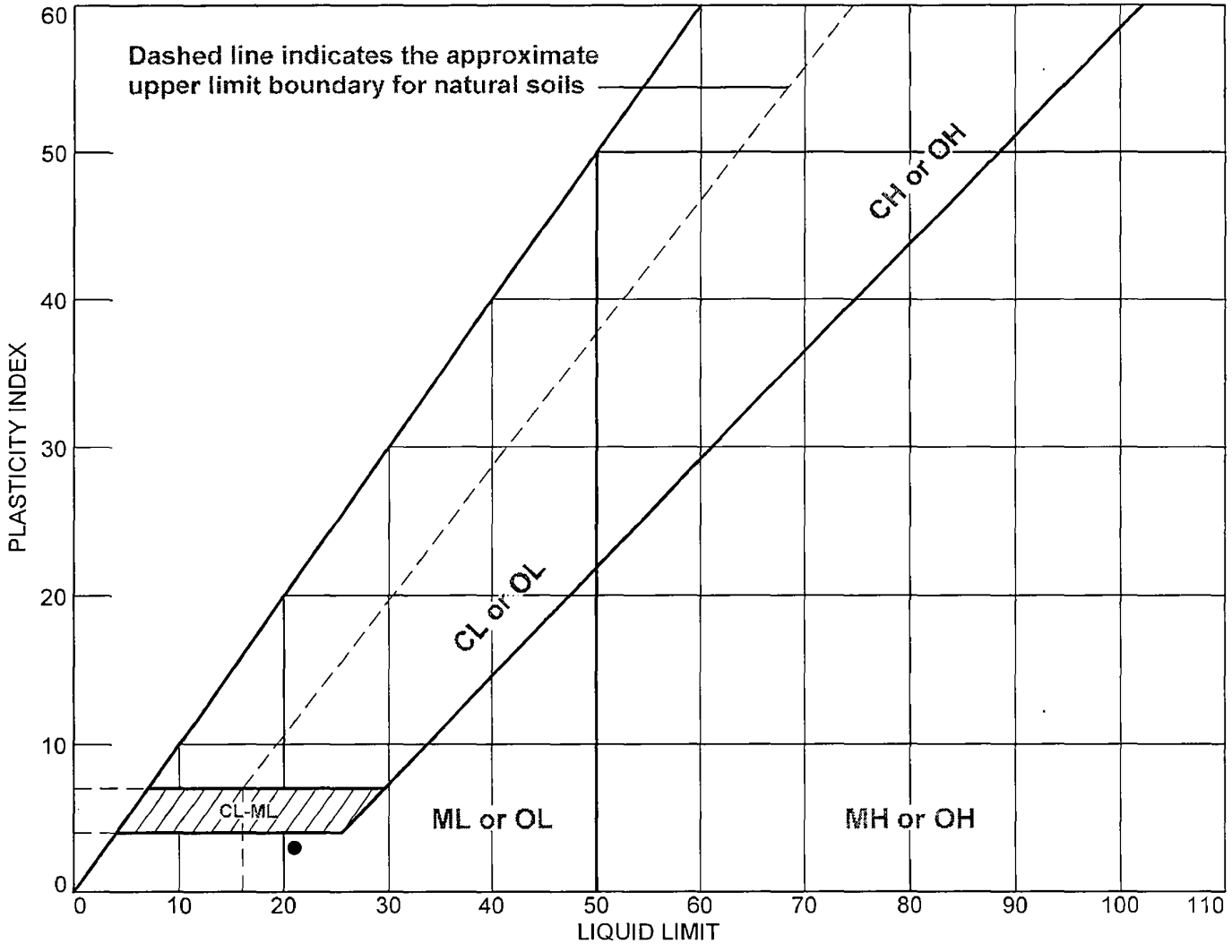
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	4	58	62			38

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0954	0.1287	0.2034	0.2245	0.2532	0.3200

Fineness Modulus
0.44

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-608(DH)	608-22	228.0-229.3	ND	18	21	3	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

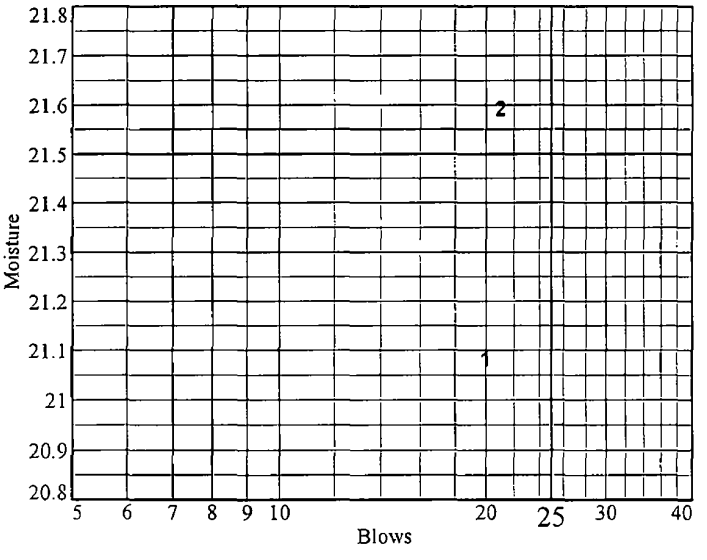
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 228.0-229.3 **Sample Number:** 608-22
Material Description: Greenish Gray Silty SAND
USCS: SM **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.91	31.79				
Dry+Tare	25.73	28.89				
Tare	15.39	15.46				
# Blows	20	21				
Moisture	21.1	21.6				



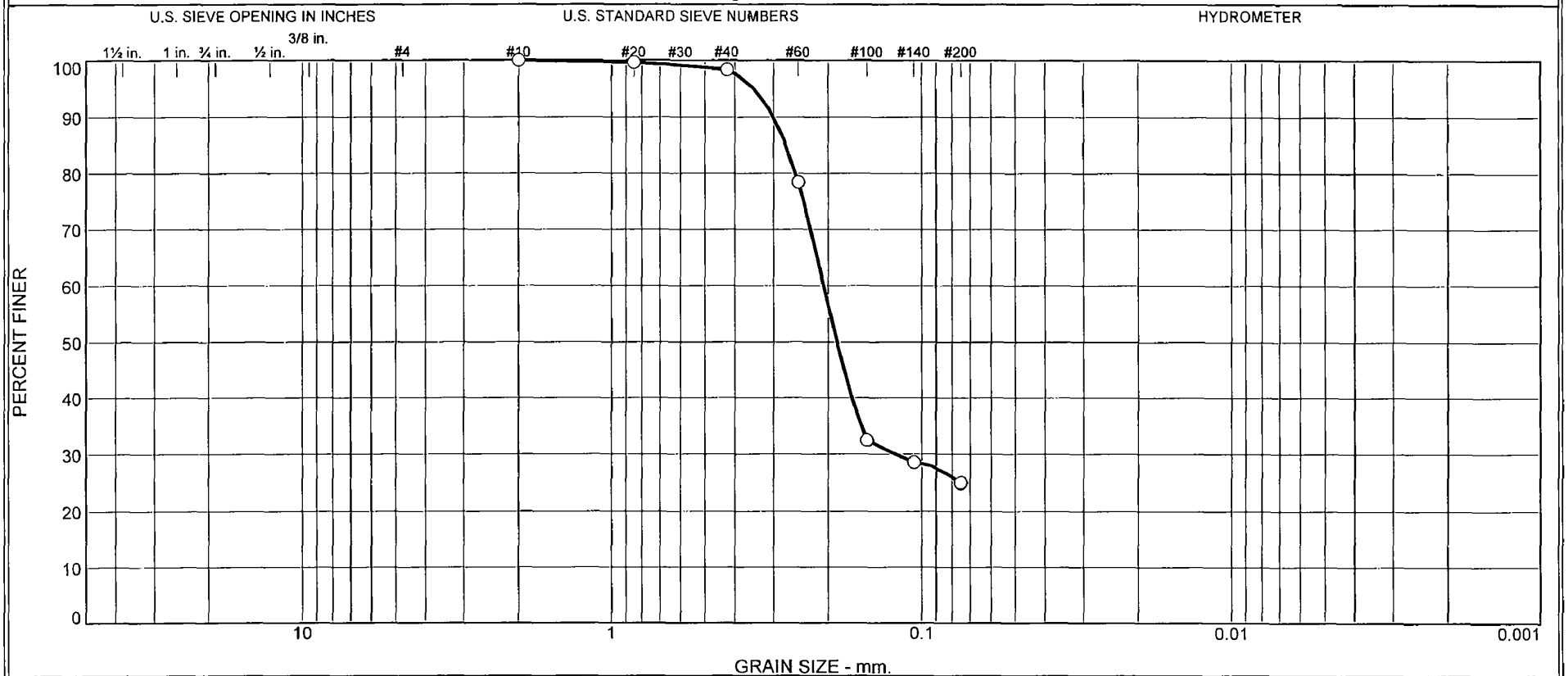
Liquid Limit= 21
Plastic Limit= 18
Plasticity Index= 3
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	25.36	26.36			
Dry+Tare	23.89	24.69			
Tare	15.55	15.49			
Moisture	17.6	18.2			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	2	73	25	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-24	248.9-250.4	4/2/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 248.9-250.4 **Sample Number:** 608-24
Material Description: Greenish Gray Silty SAND (Visual)
Date: 4/2/08 **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
257.27	0.00	0.00	#10	0.00	100
102.20	0.00	0.00	#20	0.39	100
			#40	1.68	98
			#60	22.02	78
			#100	69.05	32
			#140	73.02	29
			#200	76.66	25

Fractional Components

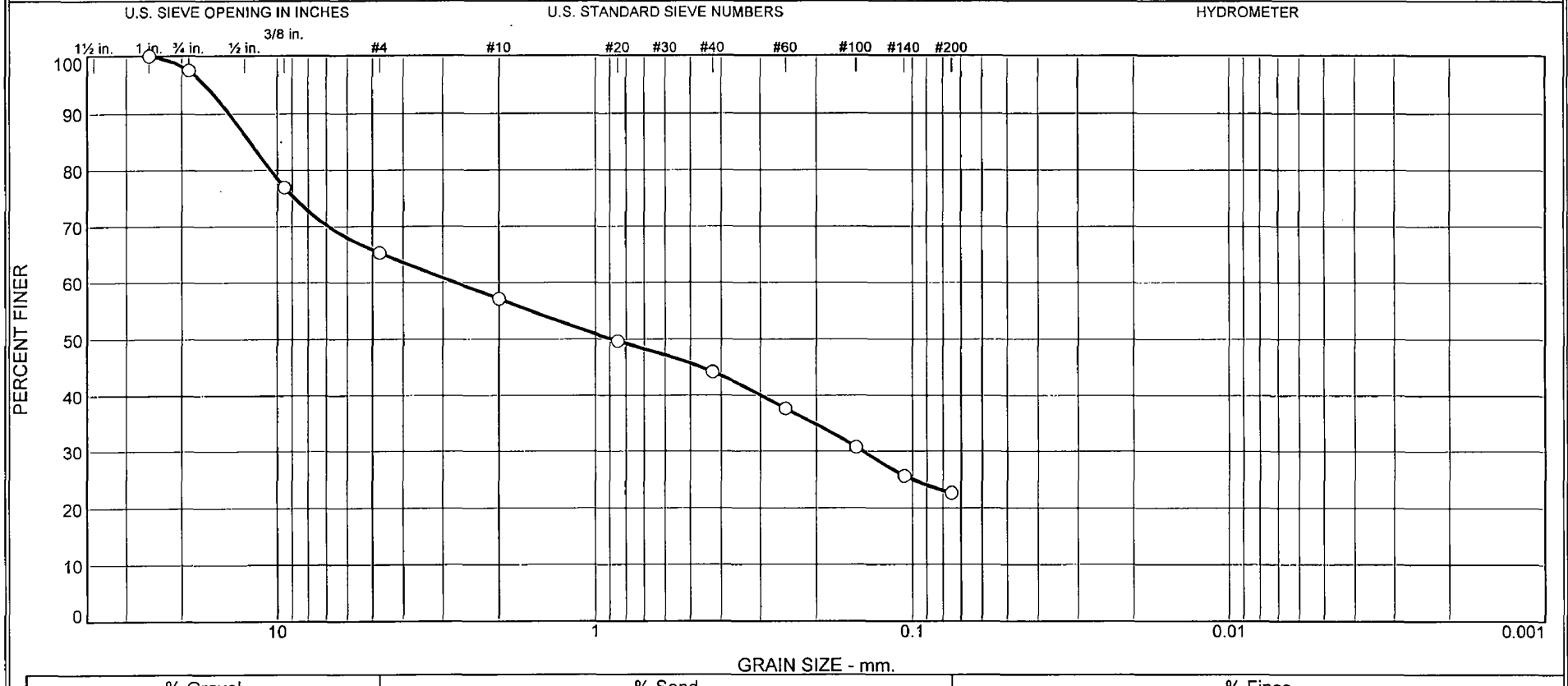
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	2	73	75			25

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1210	0.1875	0.2065	0.2549	0.2739	0.3007	0.3473

Fineness Modulus
0.79

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	2	33	8	13	21	23	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-609	609-3	5.0-6.5	3/10/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-609
Depth: 5.0-6.5 **Sample Number:** 609-3
Material Description: White Silty SAND with gravel (Visual)
Date: 3/10/08 **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
328.03	0.00	0.00	1	0.00	100
			3/4	8.13	98
			3/8"	75.46	77
			#4	113.84	65
			#10	140.65	57
98.00	0.00	0.00	#20	12.79	50
			#40	22.13	44
			#60	33.42	38
			#100	45.28	31
			#140	54.18	26
			#200	59.22	23

Fractional Components

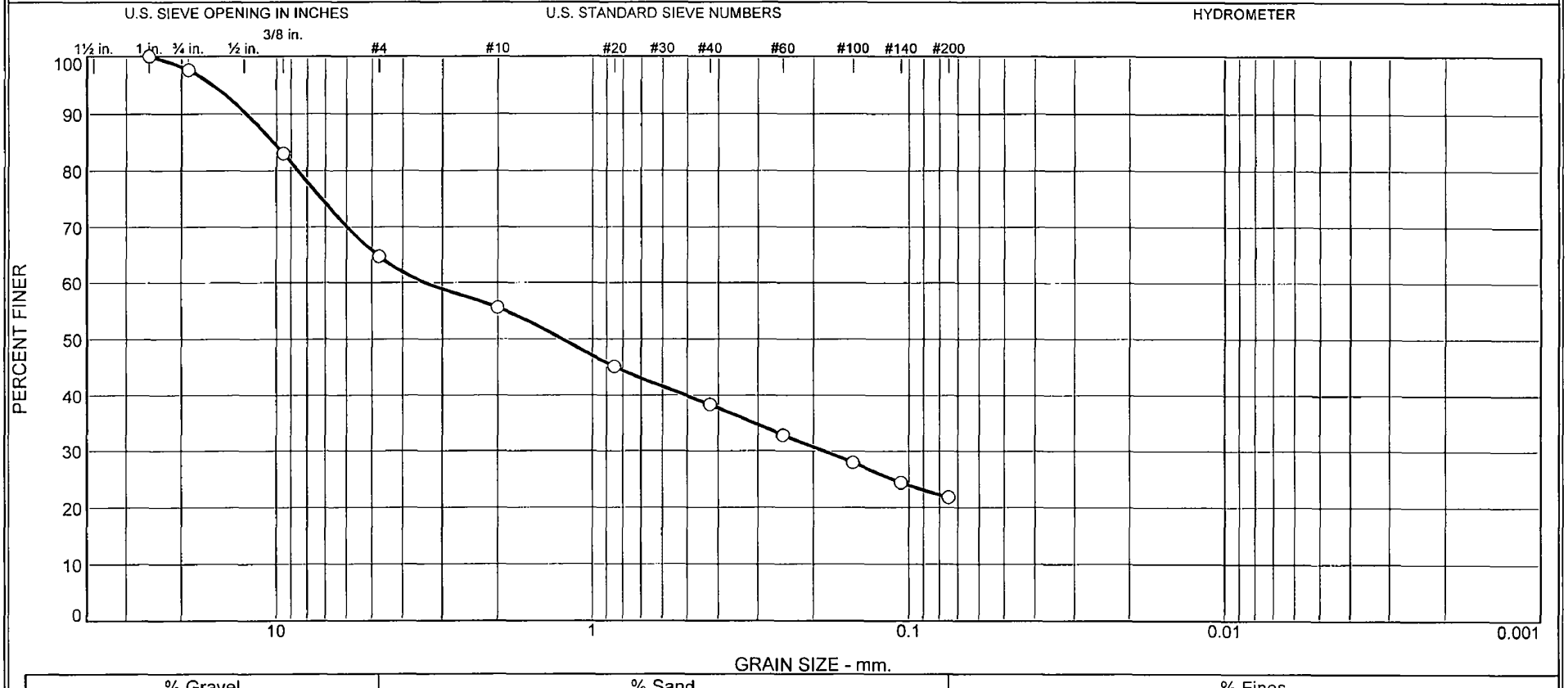
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	33	35	8	13	21	42		.	23

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1431	0.8882	2.7447	10.5227	12.2262	14.1970	16.8754

Fineness Modulus
3.31

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	2	33	9	18	16	22	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-610(DH)	610-4	7.5-9.0	3/24/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-610(DH)
Depth: 7.5-9.0 **Sample Number:** 610-4
Material Description: White Silty SAND with gravel (Visual)
Date: 3/24/08 **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
425.08	0.00	0.00	1	0.00	100
			3/4	10.07	98
			3/8"	72.07	83
			#4	150.00	65
			#10	188.90	56
96.14	0.00	0.00	#20	18.11	45
			#40	29.81	38
			#60	39.27	33
			#100	47.85	28
			#140	54.05	24
			#200	58.41	22

Fractional Components

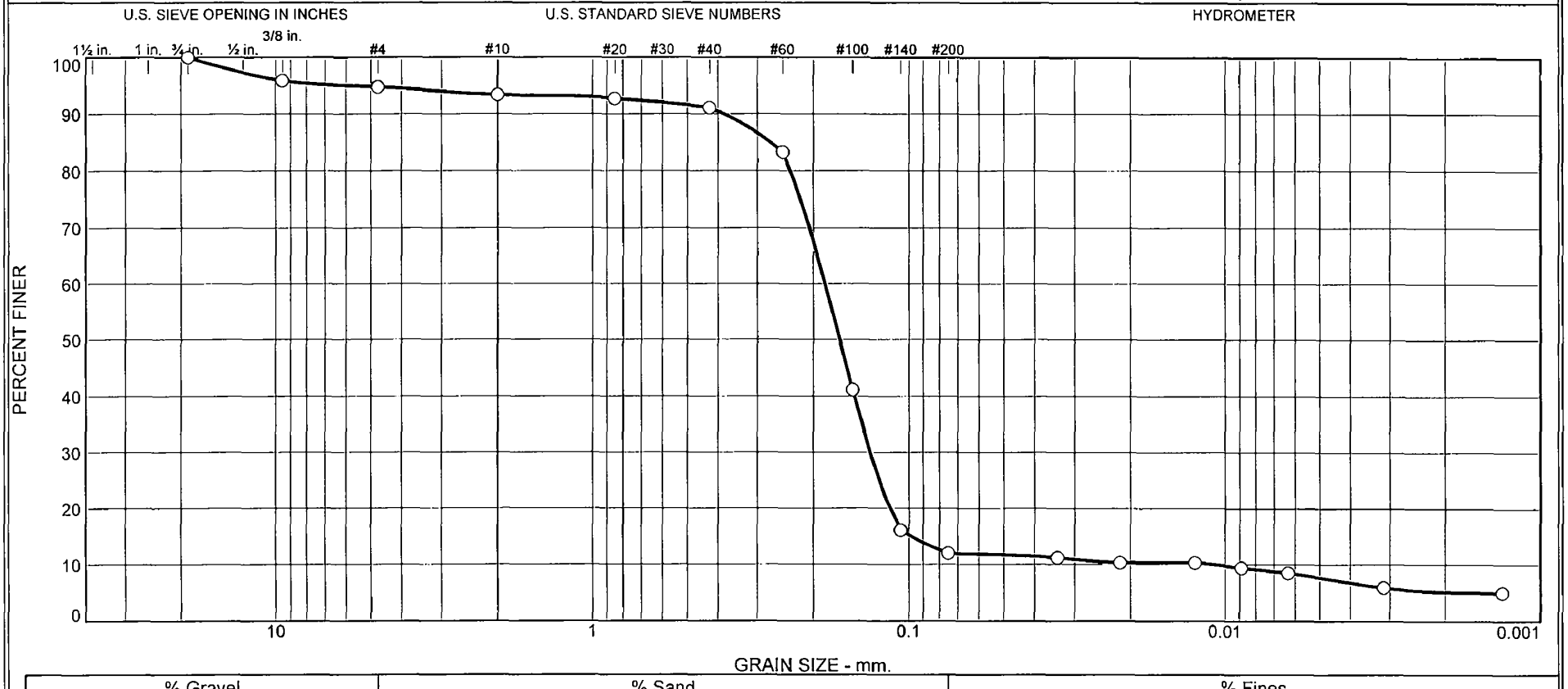
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	33	35	9	18	16	43			22

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1853	1.2512	3.3970	8.5554	10.2293	12.4668	15.9006

Fineness Modulus
3.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	5.3	1.3	2.3	79.1	4.3	7.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-610(DH)	610-8	116.0-117.5	3/26/08	SP-SM	Pale Yellow Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-610(DH)
Depth: 116.0-117.5 **Sample Number:** 610-8
Material Description: Pale Yellow Poorly Graded SAND with silt (Visual)
Date: 3/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
517.28	0.00	0.00	3/4	0.00	100.0
			3/8"	21.48	95.8
			#4	27.18	94.7
			#10	34.37	93.4
106.09	0.00	0.00	#20	0.77	92.7
			#40	2.61	91.1
			#60	11.46	83.3
			#100	59.38	41.1
			#140	87.83	16.1
			#200	92.50	12.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =93.4
Weight of hydrometer sample =106.09
Hygroscopic moisture correction:
Moist weight and tare = 23.57
Dry weight and tare = 23.49
Tare weight = 11.14
Hygroscopic moisture =0.6%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.4	18.0	12.8	0.0132	19.0	13.2	0.0339	11.2
5.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0216	10.3
15.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0125	10.3
30.00	21.3	16.0	10.7	0.0132	17.0	13.5	0.0089	9.4
60.00	21.3	15.0	9.7	0.0132	16.0	13.7	0.0063	8.5
250.00	21.5	12.0	6.8	0.0132	13.0	14.2	0.0031	6.0
1440.00	21.3	11.0	5.7	0.0132	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

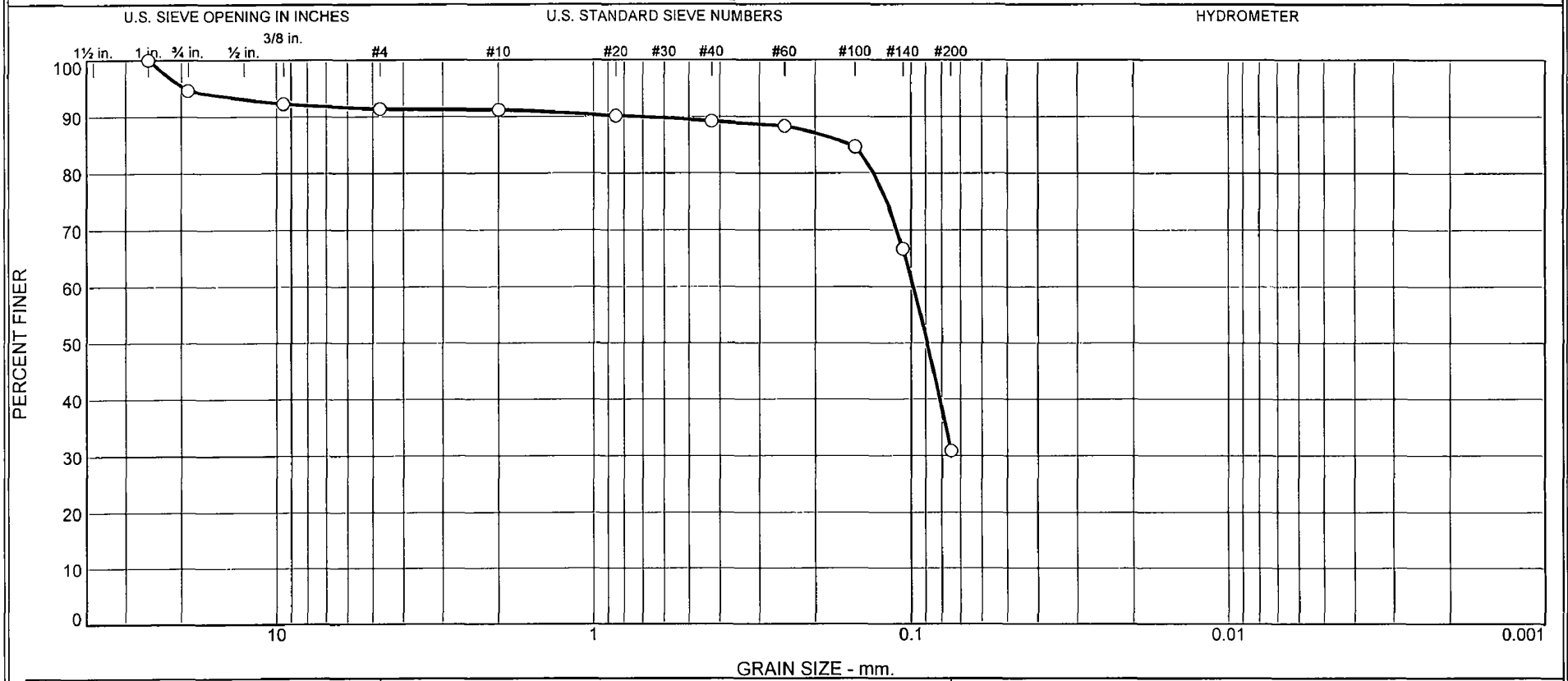
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.3	5.3	1.3	2.3	79.1	82.7	4.3	7.7	12.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0108	0.0985	0.1147	0.1321	0.1649	0.1835	0.2359	0.2737	0.3837	6.1795

Fineness Modulus	C_u	C_c
1.03	16.96	8.79

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	4	0	2	58	31	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-610(DH)	610-10	132.5-134.0	3/26/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-610(DH)
Depth: 132.5-134.0 **Sample Number:** 610-10
Material Description: Olive Gray Silty SAND (Visual)
Date: 3/26/08 **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
528.83	0.00	0.00	1	0.00	100
			3/4	28.41	95
			3/8"	40.83	92
			#4	45.57	91
			#10	46.64	91
98.89	0.00	0.00	#20	1.12	90
			#40	2.17	89
			#60	3.13	88
			#100	7.05	85
			#140	26.59	67
			#200	65.39	31

Fractional Components

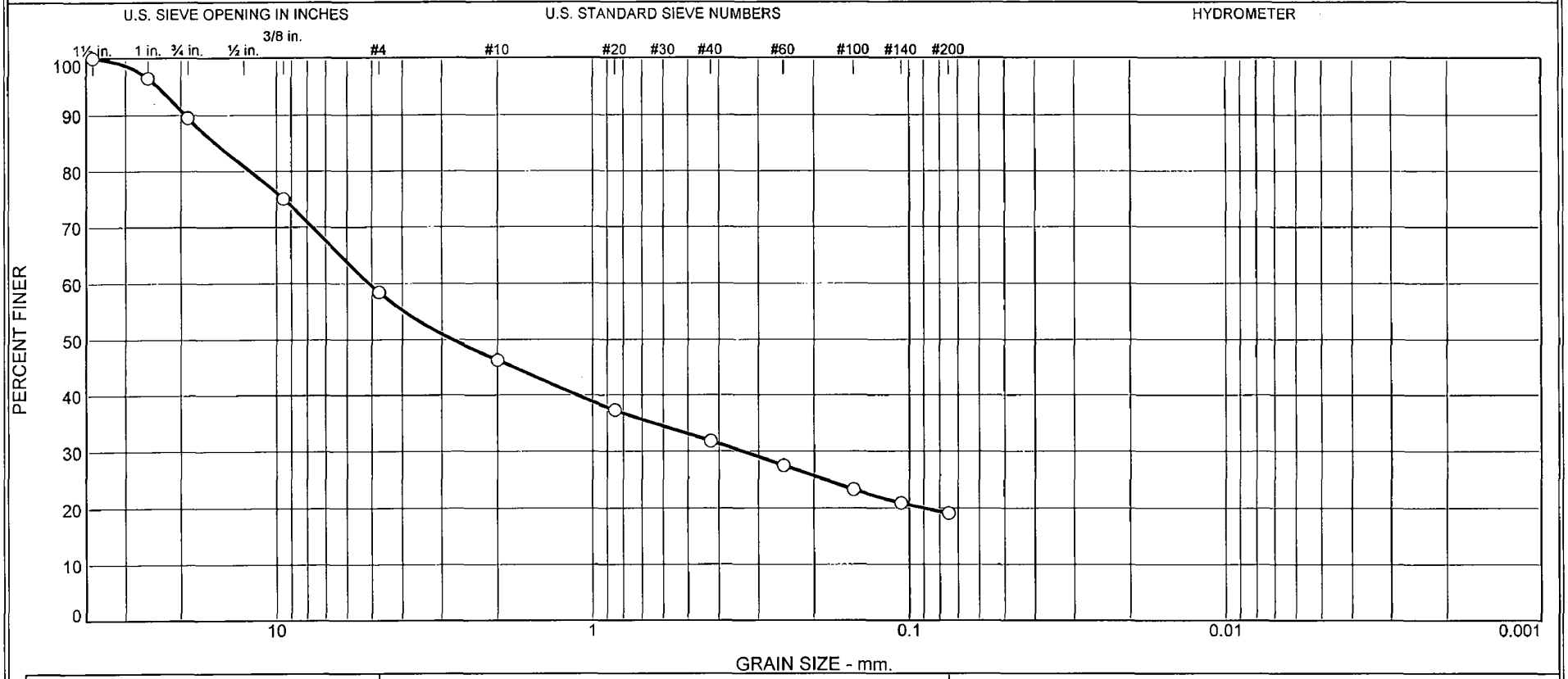
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	4	9	0	2	58	60			31

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0890	0.0983	0.1314	0.1551	0.7485	19.5453

Fineness Modulus
0.77

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	10	32	12	14	13	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-611	611-4	7.5-9.0	2/26/08	GM	Olive Silty GRAVEL (visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = NOT DETERMINED

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-611
Depth: 7.5-9.0 **Sample Number:** 611-4
Material Description: Olive Silty GRAVEL (visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
456.37	0.00	0.00	1.5	0.00	100
			1	15.82	97
			3/4	47.83	90
			3/8"	113.65	75
			#4	189.74	58
			#10	244.90	46
101.64	0.00	0.00	#20	19.91	37
			#40	31.89	32
			#60	41.32	27
			#100	50.49	23
			#140	55.78	21
			#200	59.77	19

Fractional Components

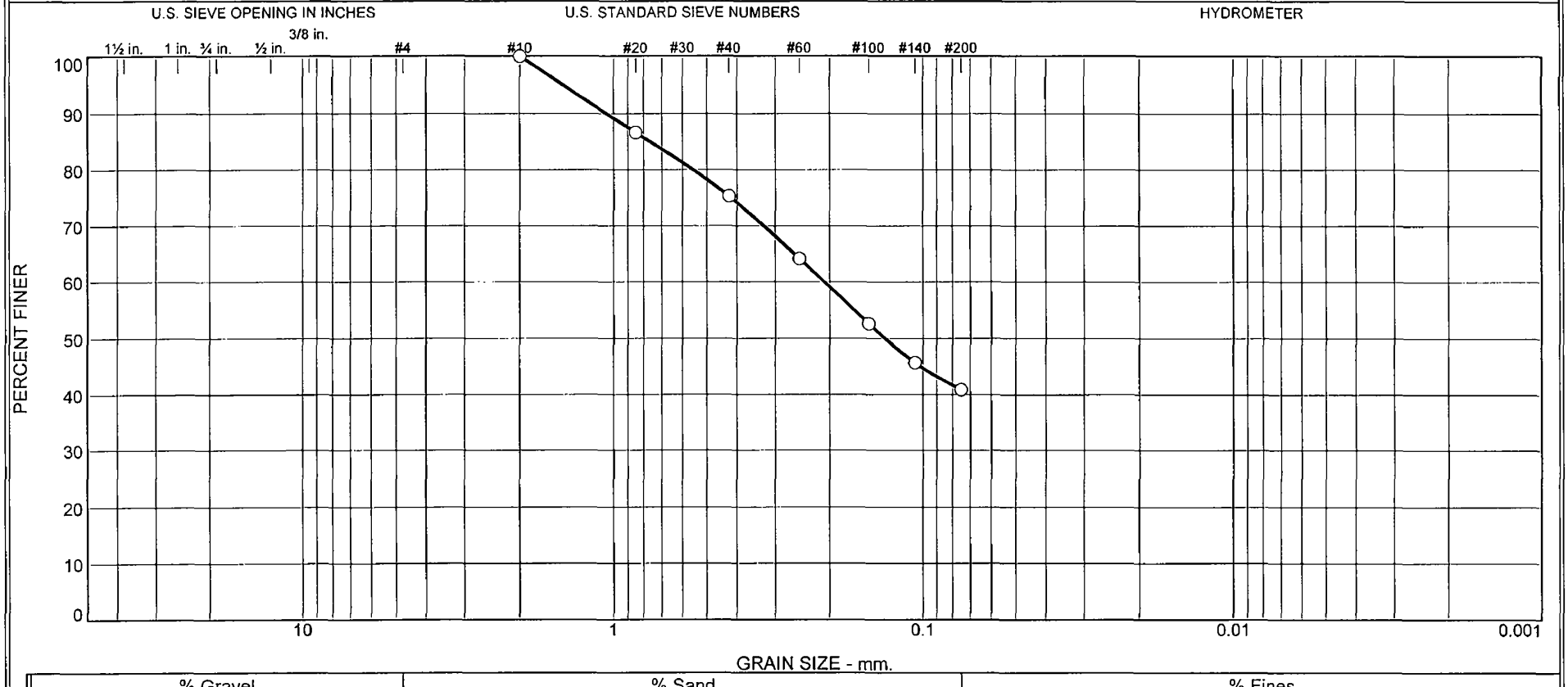
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	32	42	12	14	13	39			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0900	0.3384	2.7704	5.1110	12.1172	15.6202	19.4134	23.6131

Fineness Modulus
4.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	25	34	41	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-614	614-3	5.1-6.6	3/20/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-614
Depth: 5.1-6.6 **Sample Number:** 614-3
Material Description: White Silty SAND (Visual)
Date: 3/20/08 **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
357.66	0.00	0.00	#10	0.00	100
97.88	0.00	0.00	#20	13.07	87
			#40	24.14	75
			#60	35.11	64
			#100	46.37	53
			#140	53.15	46
			#200	57.88	41

Fractional Components

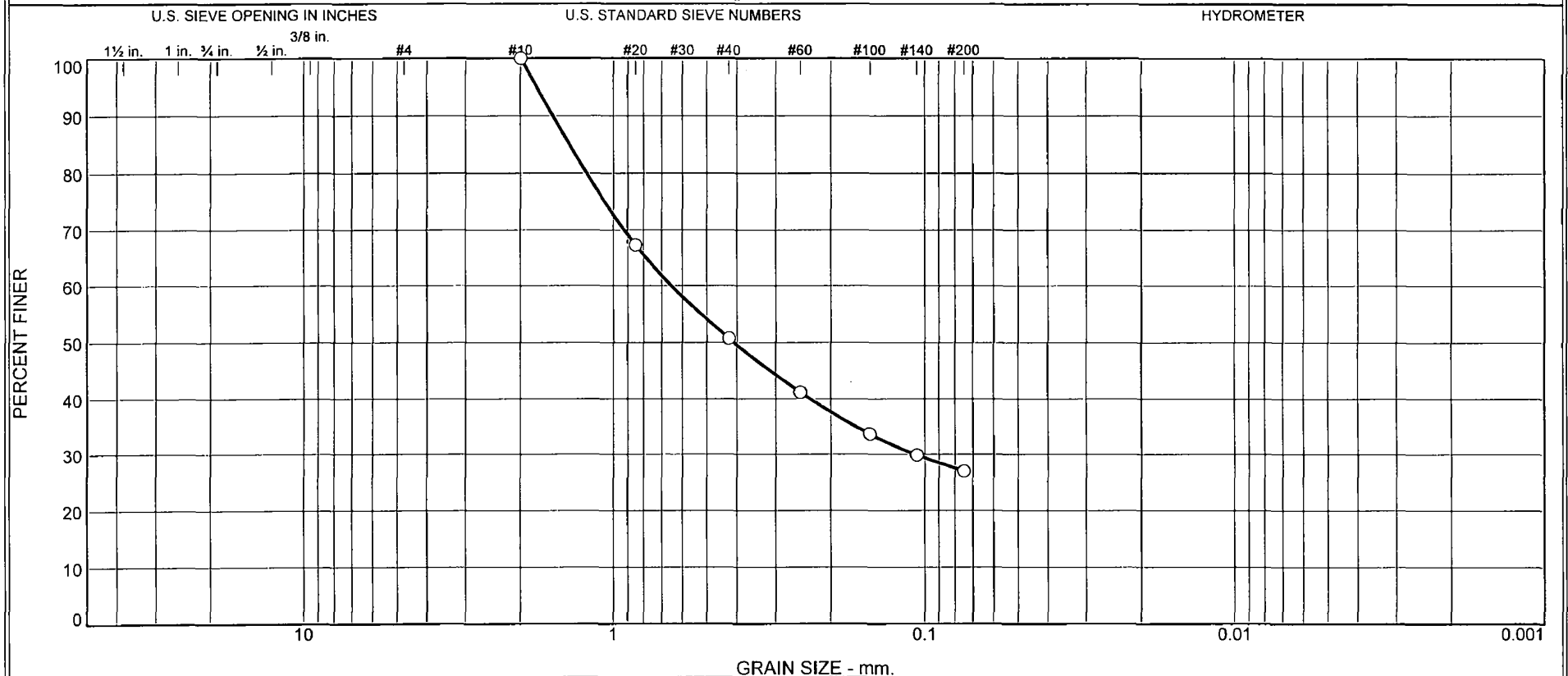
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	25	34	59			41

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1327	0.2084	0.5545	0.7628	1.0571	1.4562

Fineness Modulus
1.06

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	49	24	27	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-614	614-7	14.6-16.1	3/20/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-614
Depth: 14.6-16.1 **Sample Number:** 614-7
Material Description: White Silty SAND (Visual)
Date: 3/20/08 **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
426.31	0.00	0.00	#10	0.00	100
97.89	0.00	0.00	#20	31.95	67
			#40	48.22	51
			#60	57.60	41
			#100	64.92	34
			#140	68.63	30
			#200	71.48	27

Fractional Components

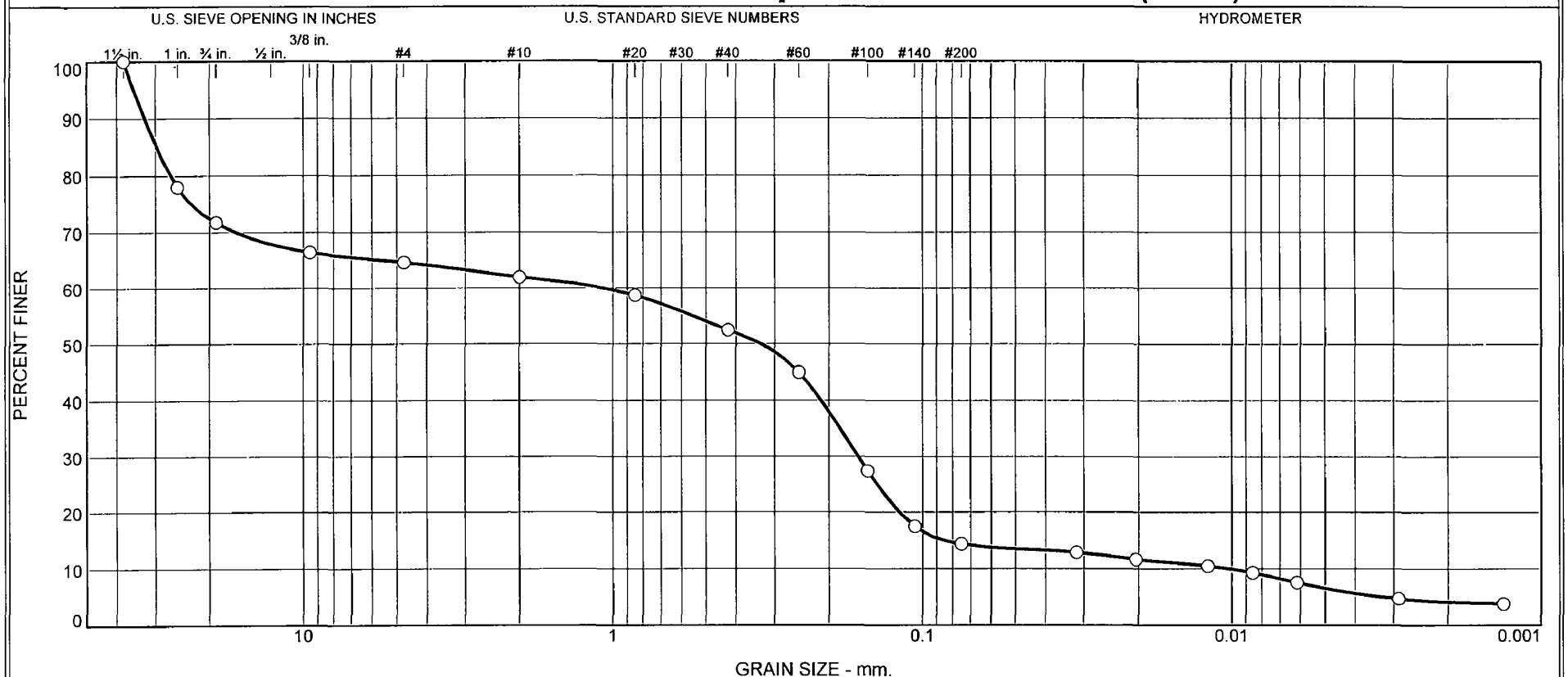
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	49	24	73			27

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1072	0.4092	0.6507	1.2226	1.3896	1.5724	1.7745

Fineness Modulus
1.85

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	28.2	7.1	2.7	9.5	38.2	7.7	6.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-614	614-11	116.4-117.9	3/22/08	SM	Light Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-614
Depth: 116.4-117.9 **Sample Number:** 614-11
Material Description: Light Gray Silty SAND with gravel (Visual)
Date: 3/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
405.70	0.00	0.00	1.5	0.00	100.0
			1	89.13	78.0
			3/4	114.60	71.8
			3/8"	136.02	66.5
			#4	143.39	64.7
			#10	154.24	62.0
104.38	0.00	0.00	#20	5.52	58.7
			#40	16.01	52.5
			#60	28.75	44.9
			#100	58.20	27.4
			#140	75.02	17.4
			#200	80.23	14.3

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =62.0
Weight of hydrometer sample =104.38
Hygroscopic moisture correction:
Moist weight and tare = 30.10
Dry weight and tare = 30.09
Tare weight = 15.74
Hygroscopic moisture =0.1%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.9	27.0	21.9	0.0131	28.0	11.7	0.0318	12.9
5.00	21.7	25.0	19.9	0.0132	26.0	12.0	0.0204	11.7
15.00	21.7	23.0	17.9	0.0132	24.0	12.4	0.0119	10.5
30.00	21.7	21.0	15.9	0.0132	22.0	12.7	0.0086	9.3
60.00	21.9	18.0	12.9	0.0131	19.0	13.2	0.0062	7.6
285.00	22.4	13.0	8.0	0.0131	14.0	14.0	0.0029	4.7
1440.00	20.5	12.0	6.5	0.0134	13.0	14.2	0.0013	3.8

MACTEC Engineering and Consulting, Inc.

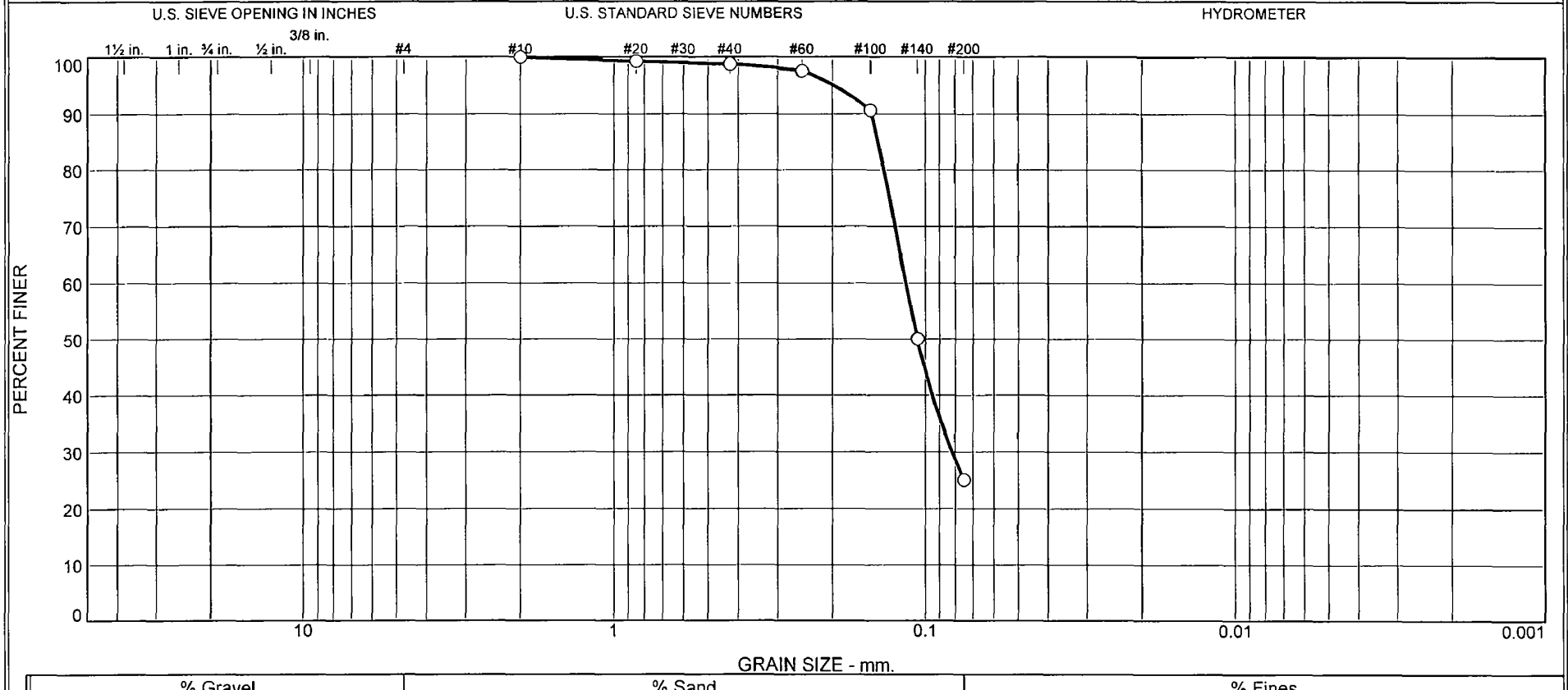
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	28.2	7.1	35.3	2.7	9.5	38.2	50.4	7.7	6.6	14.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0101	0.0863	0.1188	0.1610	0.3327	1.0710	26.7113	29.6533	32.4158	35.1930

Fineness Modulus	C_u	C_c
3.42	105.56	2.38

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	74	25	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-614	614-12	126.5-128.0	3/22/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-614
Depth: 126.5-128.0 **Sample Number:** 614-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/22/08 **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
269.90	0.00	0.00	#10	0.00	100
97.72	0.00	0.00	#20	0.71	99
			#40	1.18	99
			#60	2.35	98
			#100	9.17	91
			#140	48.77	50
			#200	73.26	25

Fractional Components

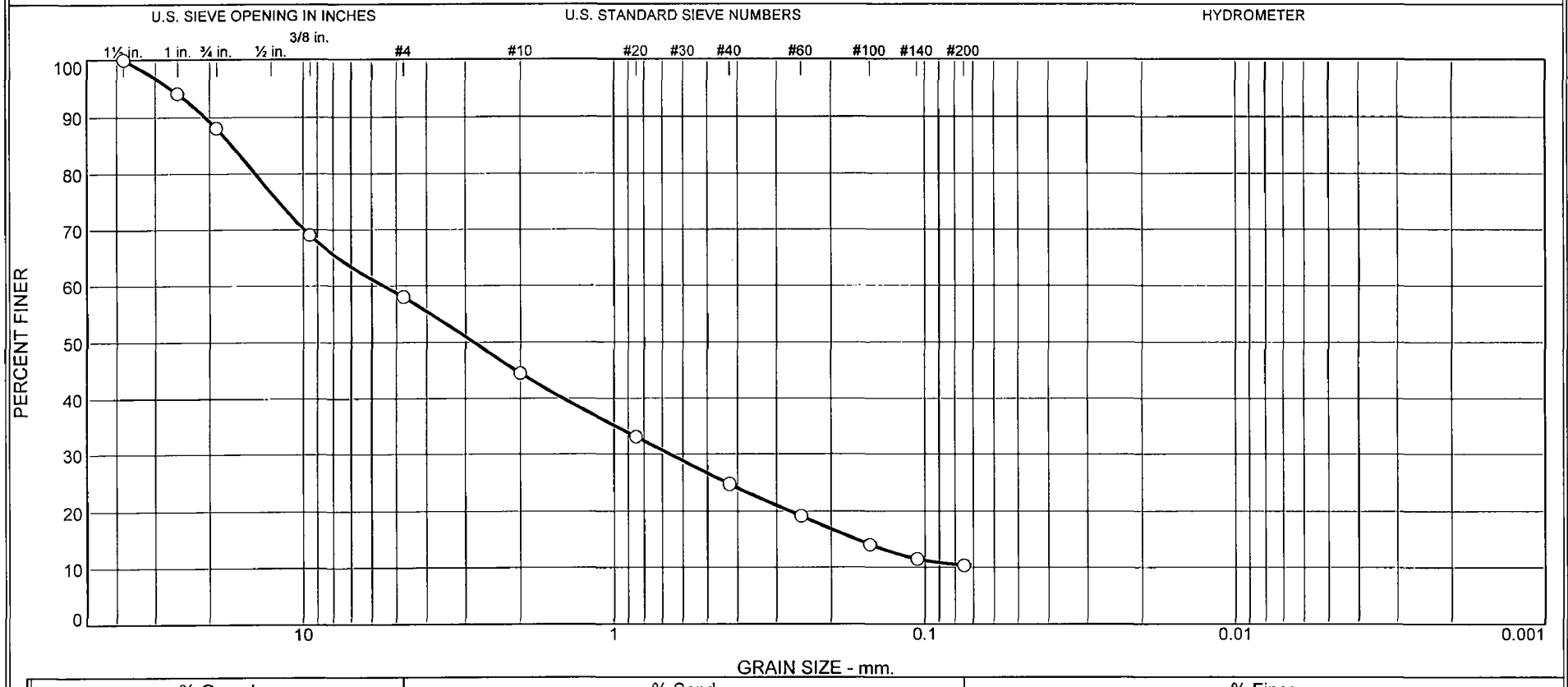
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	74	75			25

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0819	0.1059	0.1153	0.1352	0.1414	0.1489	0.1962

Fineness Modulus
0.13

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	12	30	13	20	15	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-616	616-9	24.5-26.0	3/20/08	SW-SM	White Well Graded SAND with silt and gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-616
Depth: 24.5-26.0 **Sample Number:** 616-9
Material Description: White Well Graded SAND with silt and gravel (Visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SW-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
507.56	0.00	0.00	1.5	0.00	100
			1	29.78	94
			3/4	60.69	88
			3/8"	156.96	69
			#4	213.20	58
			#10	281.60	45
98.12	0.00	0.00	#20	25.23	33
			#40	43.73	25
			#60	55.93	19
			#100	67.07	14
			#140	72.74	12
			#200	75.21	10

Fractional Components

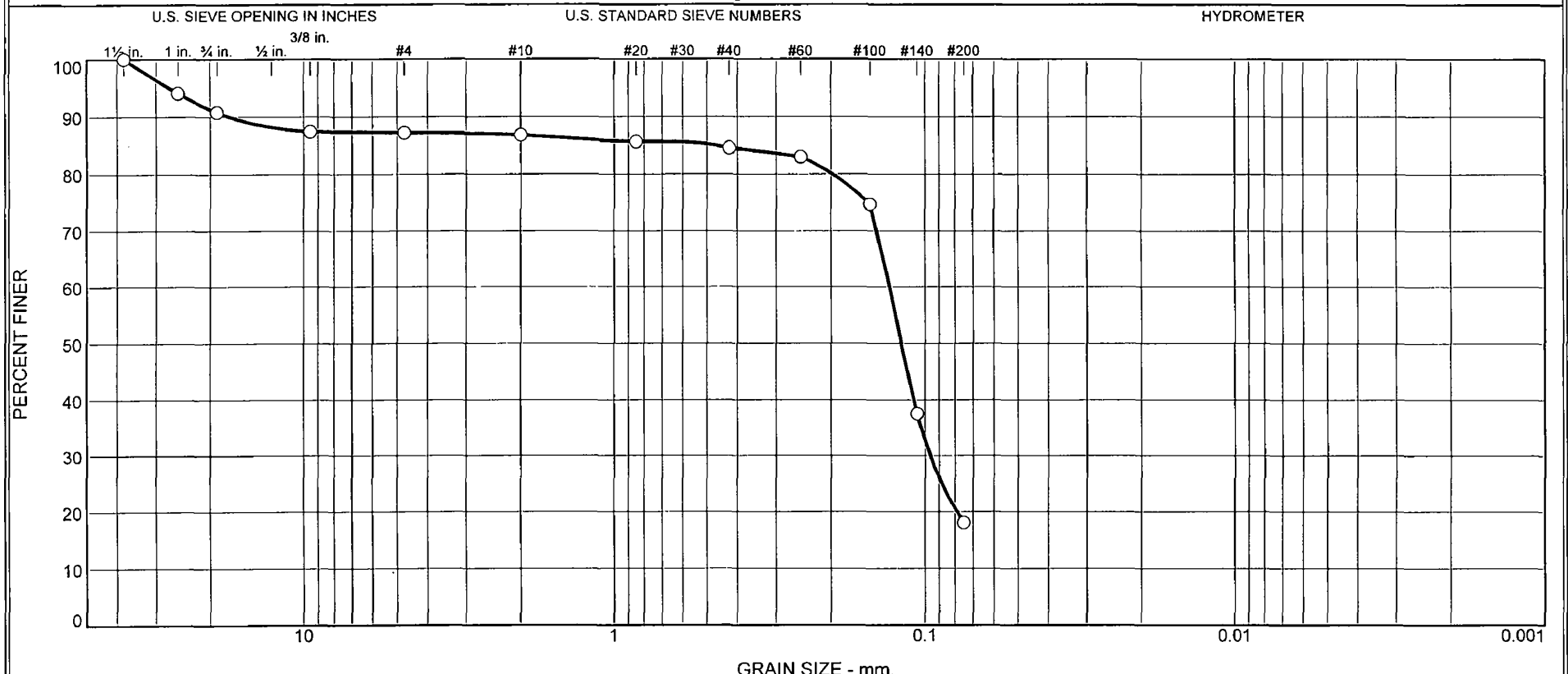
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	12	30	42	13	20	15	48			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1655	0.2720	0.6652	2.8307	5.5053	14.2438	16.9692	20.6824	26.7253

Fineness Modulus
4.37

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	9	4	0	2	67	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-616	616-12	123.5-125.0	3/21/08	SM	Light Brownish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-616
Depth: 123.5-125.0 **Sample Number:** 616-12
Material Description: Light Brownish Gray Silty SAND (Visual)
Date: 3/21/08 **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
461.17	0.00	0.00	1.5	0.00	100
			1	27.22	94
			3/4	42.51	91
			3/8"	57.99	87
			#4	58.97	87
			#10	60.82	87
100.73	0.00	0.00	#20	1.33	86
			#40	2.58	85
			#60	4.40	83
			#100	14.07	75
			#140	57.16	38
			#200	79.79	18

Fractional Components

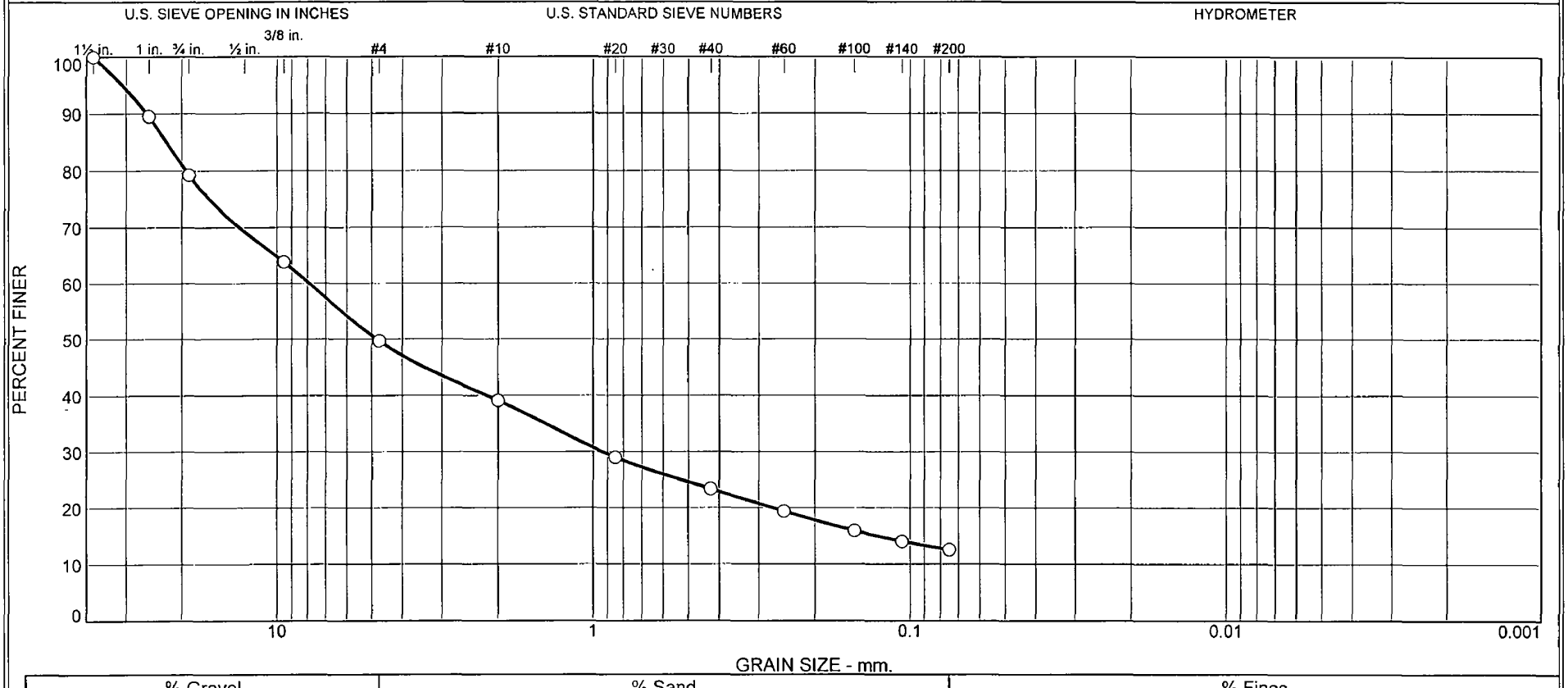
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	9	4	13	0	2	67	69			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0789	0.0964	0.1191	0.1297	0.1974	0.4651	17.4110	27.1476

Fineness Modulus
1.18

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	21	29	11	16	10	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-619	619-4	7.1-8.6	3/6/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-619
Depth: 7.1-8.6 **Sample Number:** 619-4
Material Description: White Silty GRAVEL with sand (Visual)
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
282.11	0.00	0.00	1.5	0.00	100
			1	29.71	89
			3/4	58.47	79
			3/8"	102.02	64
			#4	141.93	50
			#10	171.80	39
95.23	0.00	0.00	#20	24.64	29
			#40	38.26	23
			#60	48.03	19
			#100	56.58	16
			#140	61.14	14
			#200	64.73	13

Fractional Components

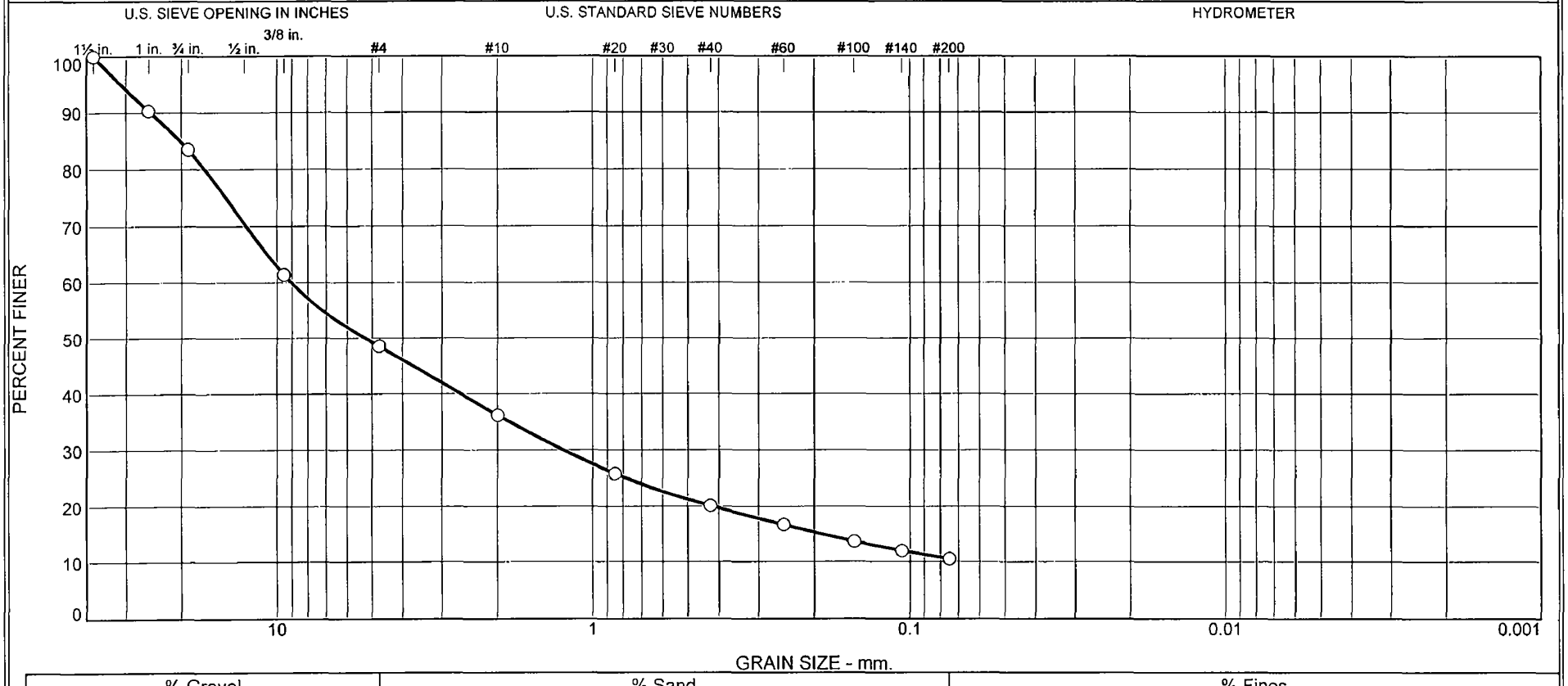
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	21	29	50	11	16	10	37			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1290	0.2715	0.9363	4.8355	7.8971	19.4686	22.3803	25.8177	30.7799

Fineness Modulus
4.71

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	17	34	13	16	9	11	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-619	619-6	12.1-13.6	3/6/08	GP-GM	White Well Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 91% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-619
Depth: 12.1-13.6 **Sample Number:** 619-6
Material Description: White Well Graded GRAVEL with silt and sand (Visual)
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 91% (ASTM D 4373-02)
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
380.46	0.00	0.00	1.5	0.00	100
			1	36.98	90
			3/4	62.78	83
			3/8"	146.87	61
			#4	195.80	49
			#10	242.64	36
105.15	0.00	0.00	#20	30.33	26
			#40	46.78	20
			#60	56.79	17
			#100	65.47	14
			#140	70.38	12
			#200	74.60	11

Fractional Components

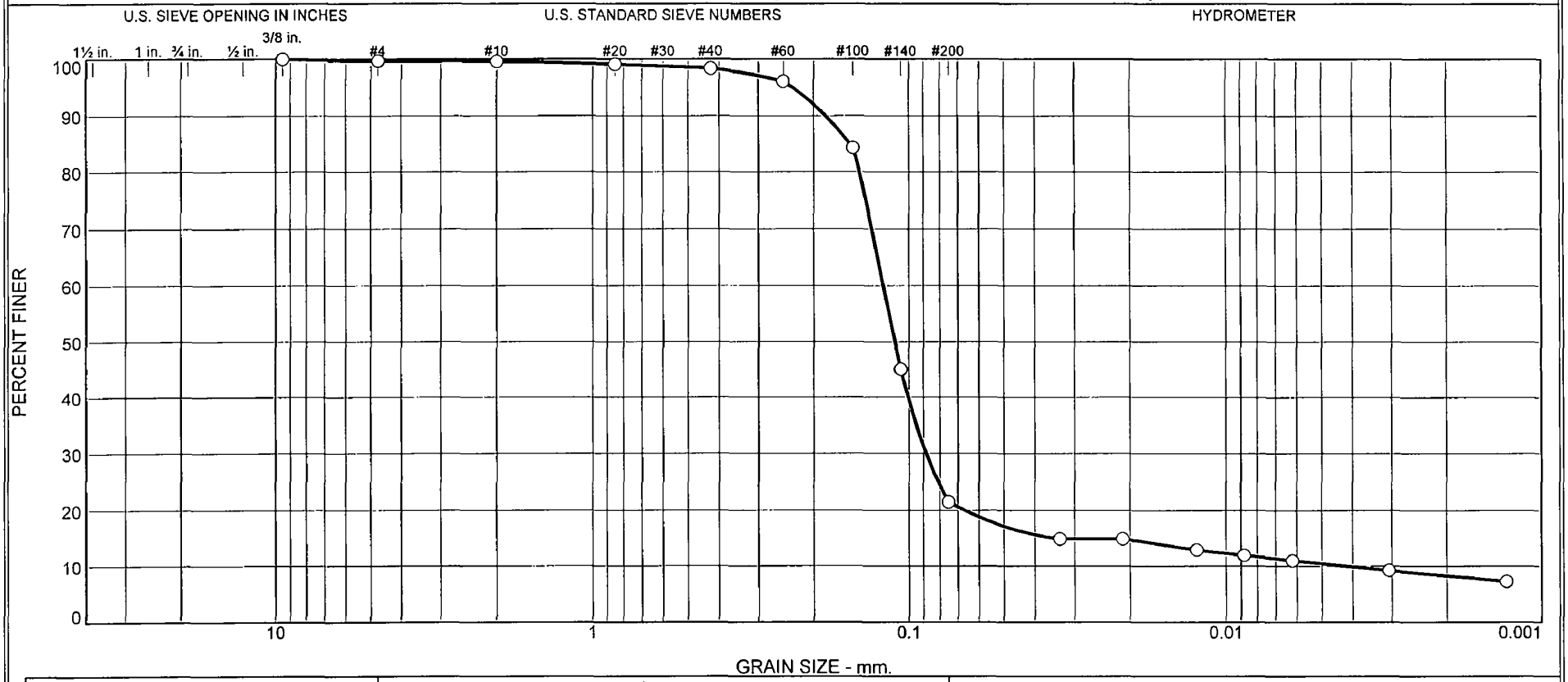
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	34	51	13	16	9	38			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1901	0.4184	1.2424	5.2646	9.0356	16.8970	20.1859	25.0861	31.0632

Fineness Modulus
4.85

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.3	0.1	1.2	76.9	11.0	10.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-619	619-8	121.6-123.1	3/9/08	SM	Pale Yellow Silty SAND(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 12% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-619
Depth: 121.6-123.1 **Sample Number:** 619-8
Material Description: Pale Yellow Silty SAND(Visual)
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 12% (ASTM D 4373-02)
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
373.99	0.00	0.00	3/8"	0.00	100.0
			#4	1.26	99.7
			#10	1.48	99.6
101.75	0.00	0.00	#20	0.55	99.1
			#40	1.24	98.4
			#60	3.59	96.1
			#100	15.61	84.3
			#140	55.73	45.0
			#200	79.82	21.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.6
Weight of hydrometer sample =101.75
Hygroscopic moisture correction:
Moist weight and tare = 29.66
Dry weight and tare = 29.59
Tare weight = 15.39
Hygroscopic moisture =0.5%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.2	21.0	15.3	0.0132	22.0	12.7	0.0334	14.9
5.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0211	14.9
15.00	21.1	19.0	13.3	0.0133	20.0	13.0	0.0124	12.9
30.00	21.1	18.0	12.3	0.0133	19.0	13.2	0.0088	12.0
61.00	21.2	17.0	11.3	0.0132	18.0	13.3	0.0062	11.0
250.00	22.0	15.0	9.5	0.0131	16.0	13.7	0.0031	9.3
1440.00	21.9	13.0	7.5	0.0131	14.0	14.0	0.0013	7.3

MACTEC Engineering and Consulting, Inc.

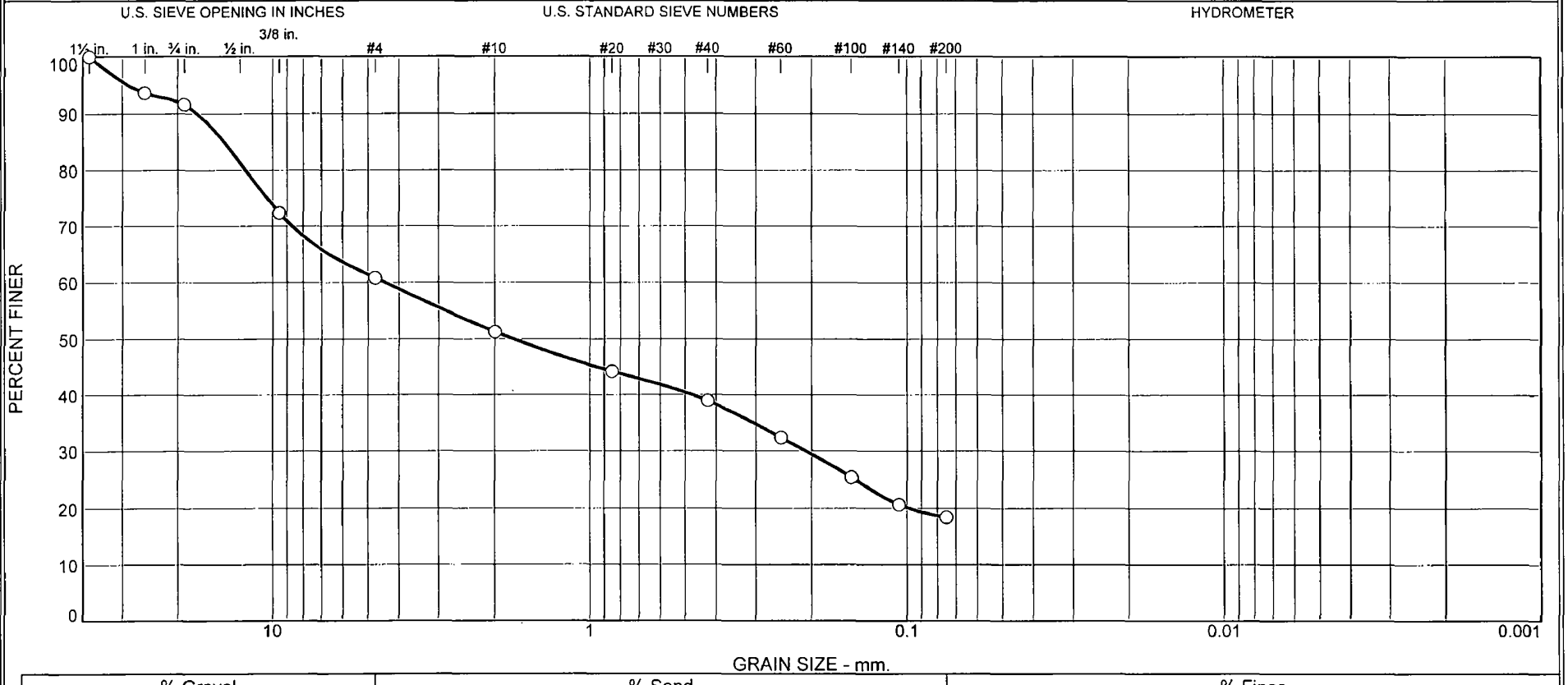
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.3	0.3	0.1	1.2	76.9	78.2	11.0	10.5	21.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0042	0.0343	0.0667	0.0886	0.1109	0.1205	0.1431	0.1532	0.1829	0.2326

Fineness Modulus	C_u	C_c
0.21	28.85	15.61

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	8	31	10	12	21	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-620(DH)	620-3	5.0-6.5	3/18/08	SM	Pale Yellow Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-620(DH)
Depth: 5.0-6.5 **Sample Number:** 620-3
Material Description: Pale Yellow Silty SAND with gravel (Visual)
Date: 3/18/08 **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
536.13	0.00	0.00	1.5	0.00	100
			1	34.31	94
			3/4	45.17	92
			3/8"	148.13	72
			#4	210.20	61
			#10	261.20	51
102.82	0.00	0.00	#20	14.19	44
			#40	24.84	39
			#60	38.02	32
			#100	51.89	25
			#140	61.40	21
			#200	65.96	18

Fractional Components

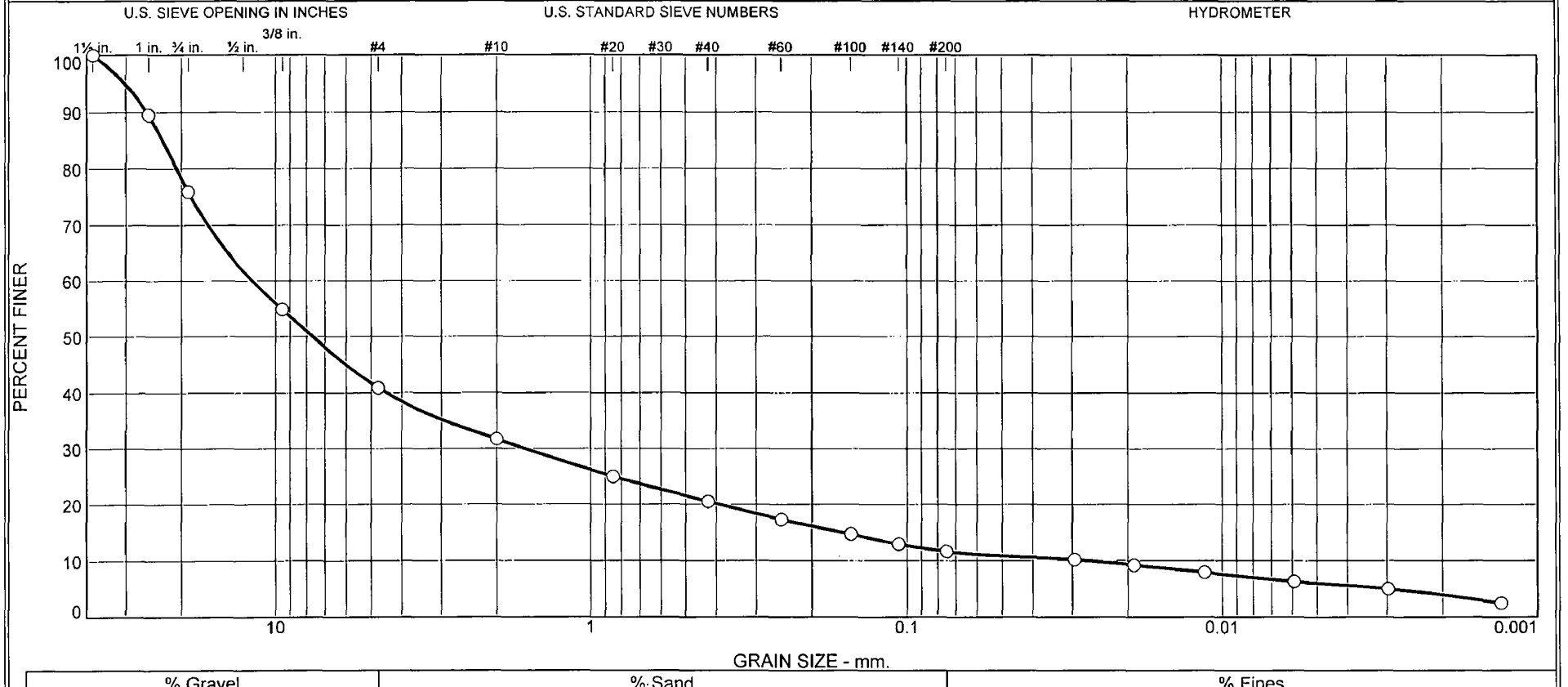
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	8	31	39	10	12	21	43			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0987	0.2096	1.7502	4.4323	12.1895	14.2676	17.3281	28.7421

Fineness Modulus
3.74

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	24.0	35.1	9.2	11.2	8.9	5.6	6.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-620(DH)	620-5	10.5-11.5	3/8/08	GP-GM	Pale Brown Poorly graded Silty GRAVEL (visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = NOT DETERMINED

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-620(DH)
Depth: 10.5-11.5 **Sample Number:** 620-5
Material Description: Pale Brown Poorly graded Silty GRAVEL (visual)
Date: 3/8/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
385.80	0.00	0.00	1.5	0.00	100.0
			1	40.64	89.5
			3/4	92.78	76.0
			3/8"	174.21	54.8
			#4	228.05	40.9
			#10	263.60	31.7
98.79	0.00	0.00	#20	21.00	24.9
			#40	34.82	20.5
			#60	44.91	17.3
			#100	52.88	14.7
			#140	58.40	13.0
			#200	62.51	11.6

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =31.7
Weight of hydrometer sample =98.79
Hygroscopic moisture correction:
Moist weight and tare = 28.90
Dry weight and tare = 28.79
Tare weight = 15.50
Hygroscopic moisture =0.8%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.8	37.0	31.9	0.0131	38.0	10.1	0.0295	10.2
5.00	21.8	34.0	28.9	0.0131	35.0	10.6	0.0191	9.2
15.00	21.8	30.0	24.9	0.0131	31.0	11.2	0.0114	8.0
60.00	21.5	25.0	19.8	0.0132	26.0	12.0	0.0059	6.3
250.00	21.5	21.0	15.8	0.0132	22.0	12.7	0.0030	5.1
1440.00	21.3	13.0	7.7	0.0132	14.0	14.0	0.0013	2.5

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	24.0	35.1	59.1	9.2	11.2	8.9	29.3	5.6	6.0	11.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0266	0.1586	0.3919	1.6314	7.6536	11.8678	20.7344	22.9670	25.7466	30.1254

Fineness Modulus	C_u	C_c
5.12	445.97	8.43

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	6	7	2	4	70	11	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-620(DH)	620-8	19.5-21.0	3/20/08	SP-SM	Brown Poorly graded Silty SAND (visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = NOT DETERMINED

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-620(DH)
Depth: 19.5-21.0 **Sample Number:** 620-8
Material Description: Brown Poorly graded Silty SAND (visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-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
340.56	0.00	0.00	1	0.00	100
			3/4	19.47	94
			3/8"	37.77	89
			#4	44.63	87
			#10	50.08	85
99.83	0.00	0.00	#20	2.22	83
			#40	4.88	81
			#60	11.05	76
			#100	35.35	55
			#140	73.83	22
			#200	86.82	11

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	7	13	2	4	70	76			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0917	0.1025	0.1163	0.1419	0.1598	0.3604	1.7295	12.4642	19.8669

Fineness Modulus
1.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	14	37	11	12	8	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-620(DH)	620-10	120.5-122.0	3/20/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-620(DH)
Depth: 120.5-122.0 **Sample Number:** 620-10
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
385.40	0.00	0.00	1.5	0.00	100
			1	16.45	96
			3/4	53.92	86
			3/8"	128.16	67
			#4	196.00	49
			#10	237.40	38
97.51	0.00	0.00	#20	20.78	30
			#40	31.65	26
			#60	38.55	23
			#100	45.63	20
			#140	49.26	19
			#200	52.00	18

Fractional Components

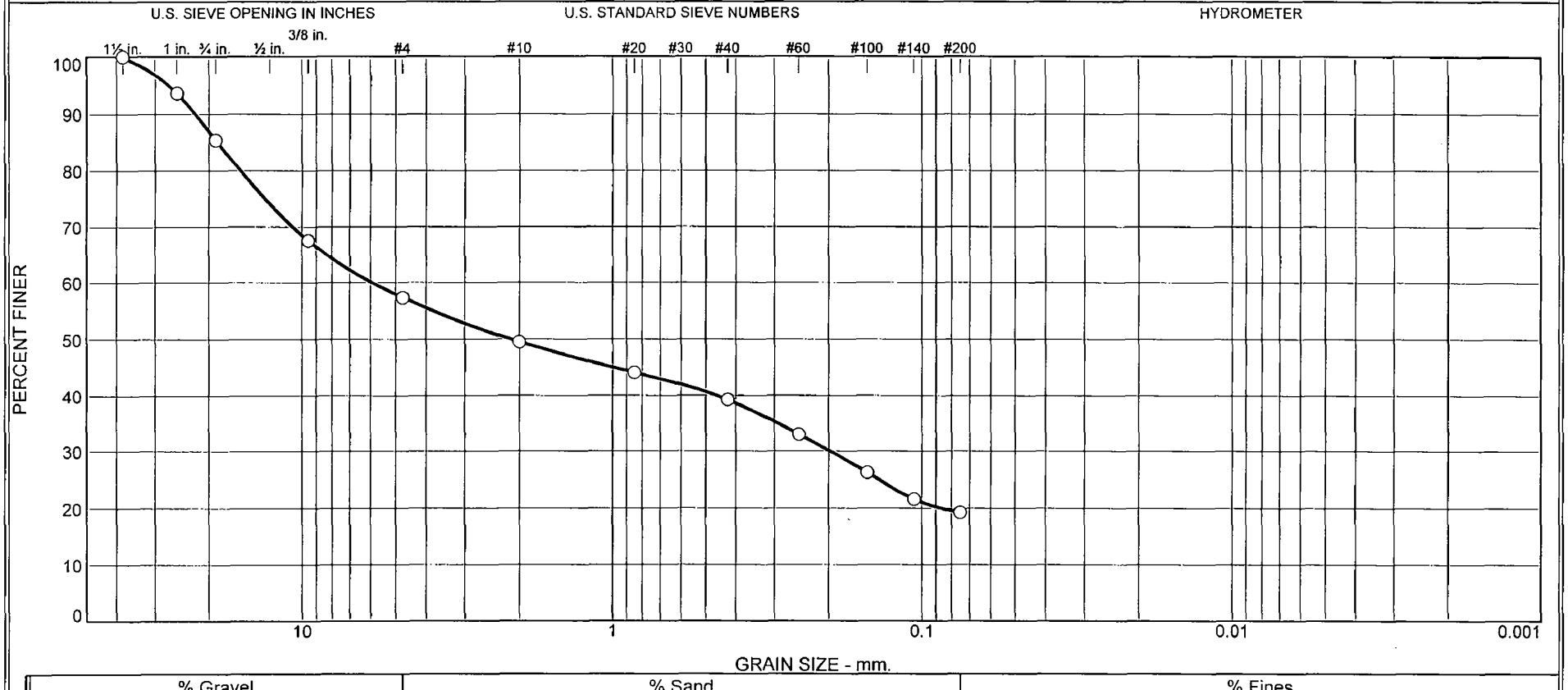
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	14	37	51	11	12	8	31			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1367	0.8269	4.9516	7.4047	15.8044	18.5052	21.2567	24.7118

Fineness Modulus
4.53

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	15	28	7	11	20	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-621	621-4	7.5-9.0	4/3/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-621
Depth: 7.5-9.0 **Sample Number:** 621-4
Material Description: White Silty GRAVEL with sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
364.77	0.00	0.00	1.5	0.00	100
			1	23.09	94
			3/4	53.16	85
			3/8"	118.41	68
			#4	155.49	57
			#10	184.03	50
54.34	0.00	0.00	#20	6.00	44
			#40	11.31	39
			#60	18.16	33
			#100	25.60	26
			#140	30.65	22
			#200	33.24	19

Fractional Components

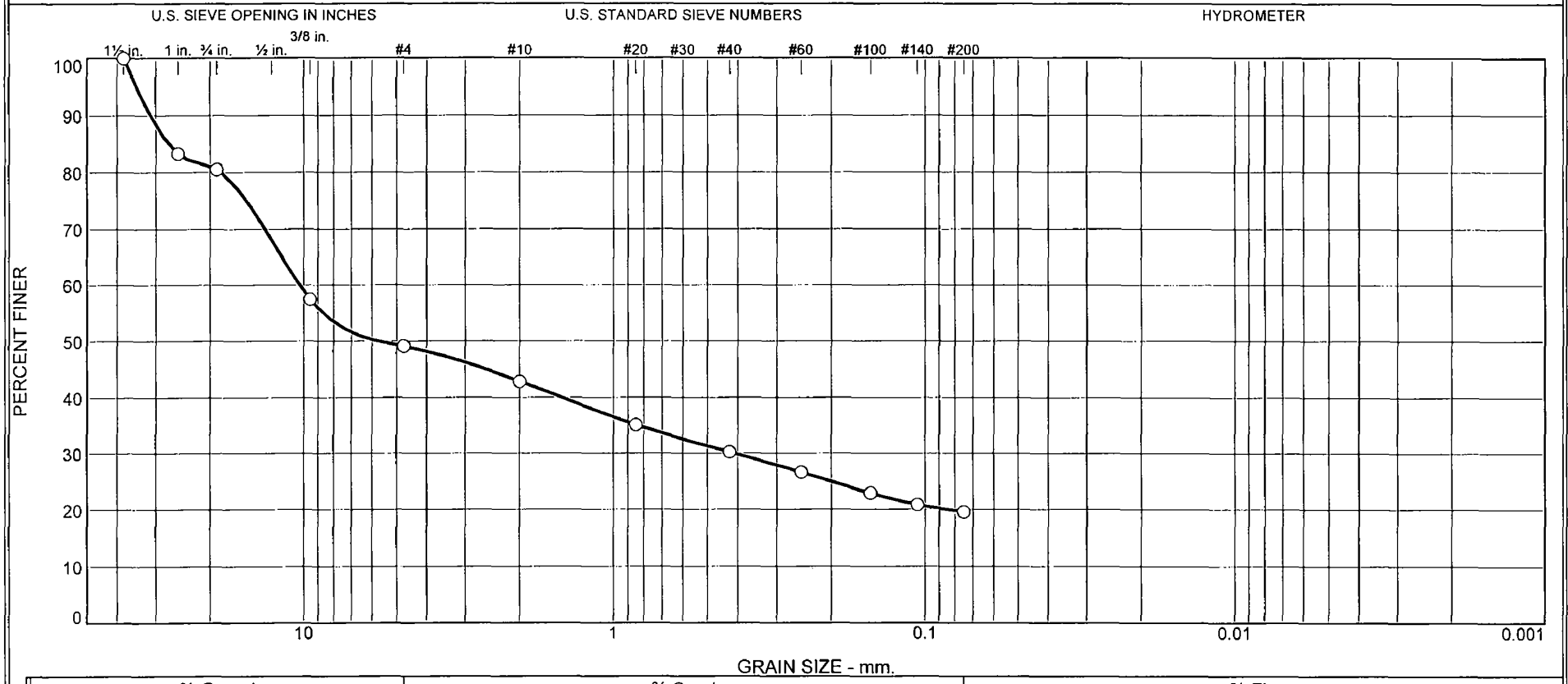
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	15	28	43	7	11	20	38			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0863	0.1982	2.1244	5.9352	15.8471	18.7848	22.1482	26.9956

Fineness Modulus
3.89

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	19	32	6	13	10	20	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-621	621-8	18.5-20.0	4/3/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-621
Depth: 18.5-20.0 **Sample Number:** 621-8
Material Description: White Silty GRAVEL with sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
367.59	0.00	0.00	1.5	0.00	100
			1	61.38	83
			3/4	71.57	81
			3/8"	156.33	57
			#4	187.07	49
			#10	210.10	43
95.93	0.00	0.00	#20	17.24	35
			#40	28.21	30
			#60	36.47	27
			#100	44.74	23
			#140	49.31	21
			#200	52.08	20

Fractional Components

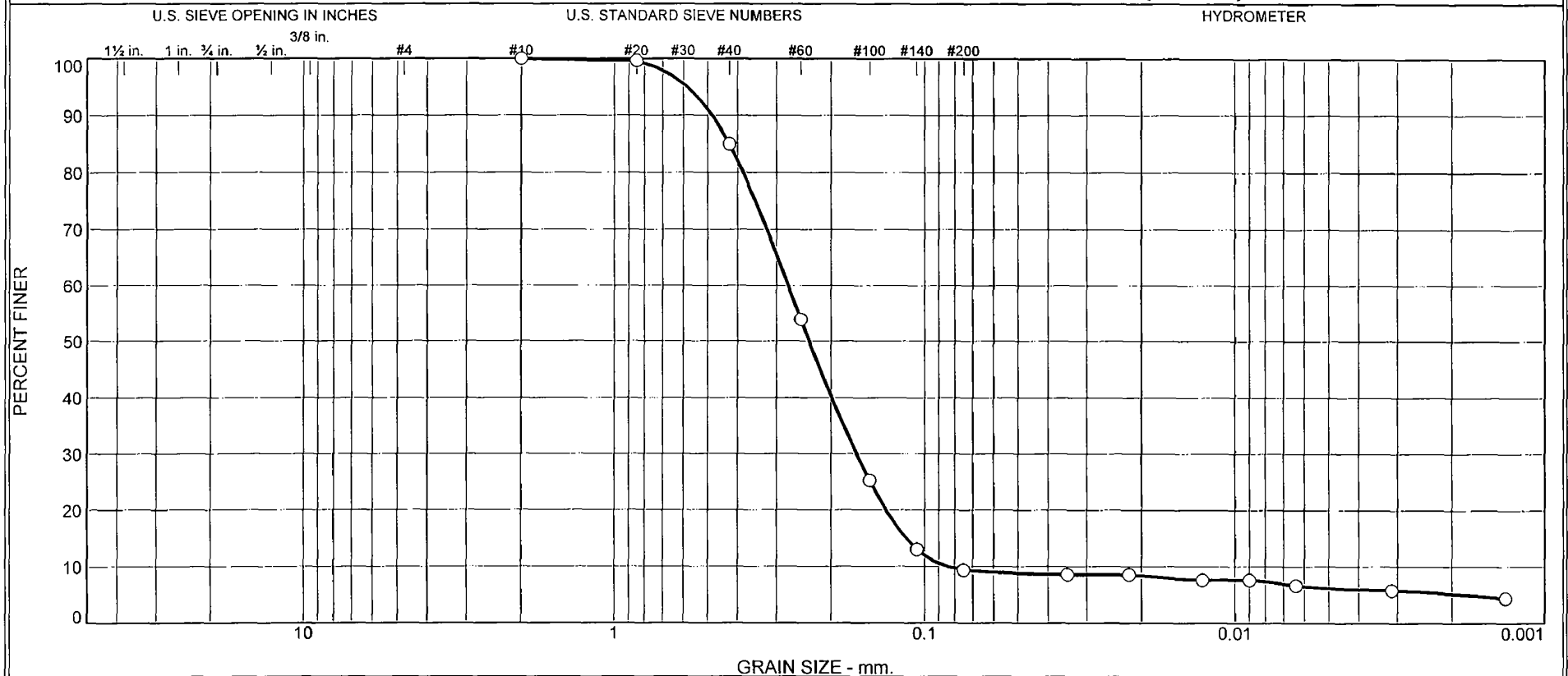
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	32	51	6	13	10	29			20

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0857	0.4098	5.7424	10.3036	18.4203	27.2192	31.1199	34.5760

Fineness Modulus
4.47

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	15.0	75.6	3.2	6.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-621	621-11	115.3-116.8	4/4/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed.

ZHu 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-621
Depth: 115.3-116.8 **Sample Number:** 621-11
Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)
Date: 4/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER 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
335.75	0.00	0.00	#10	0.00	100.0
102.52	0.00	0.00	#20	0.43	99.6
			#40	15.36	85.0
			#60	47.26	53.9
			#100	76.64	25.2
			#140	89.17	13.0
			#200	92.93	9.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =102.52
Hygroscopic moisture correction:
Moist weight and tare = 24.62
Dry weight and tare = 24.56
Tare weight = 11.16
Hygroscopic moisture =0.4%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.6	14.0	8.8	0.0132	15.0	13.8	0.0347	8.6
5.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0219	8.6
15.00	21.8	13.0	7.9	0.0131	14.0	14.0	0.0127	7.6
30.00	21.8	13.0	7.9	0.0131	14.0	14.0	0.0090	7.6
60.00	21.8	12.0	6.9	0.0131	13.0	14.2	0.0064	6.7
250.00	22.3	11.0	6.0	0.0131	12.0	14.3	0.0031	5.8
1440.00	20.7	10.0	4.6	0.0133	11.0	14.5	0.0013	4.4

MACTEC Engineering and Consulting, Inc.

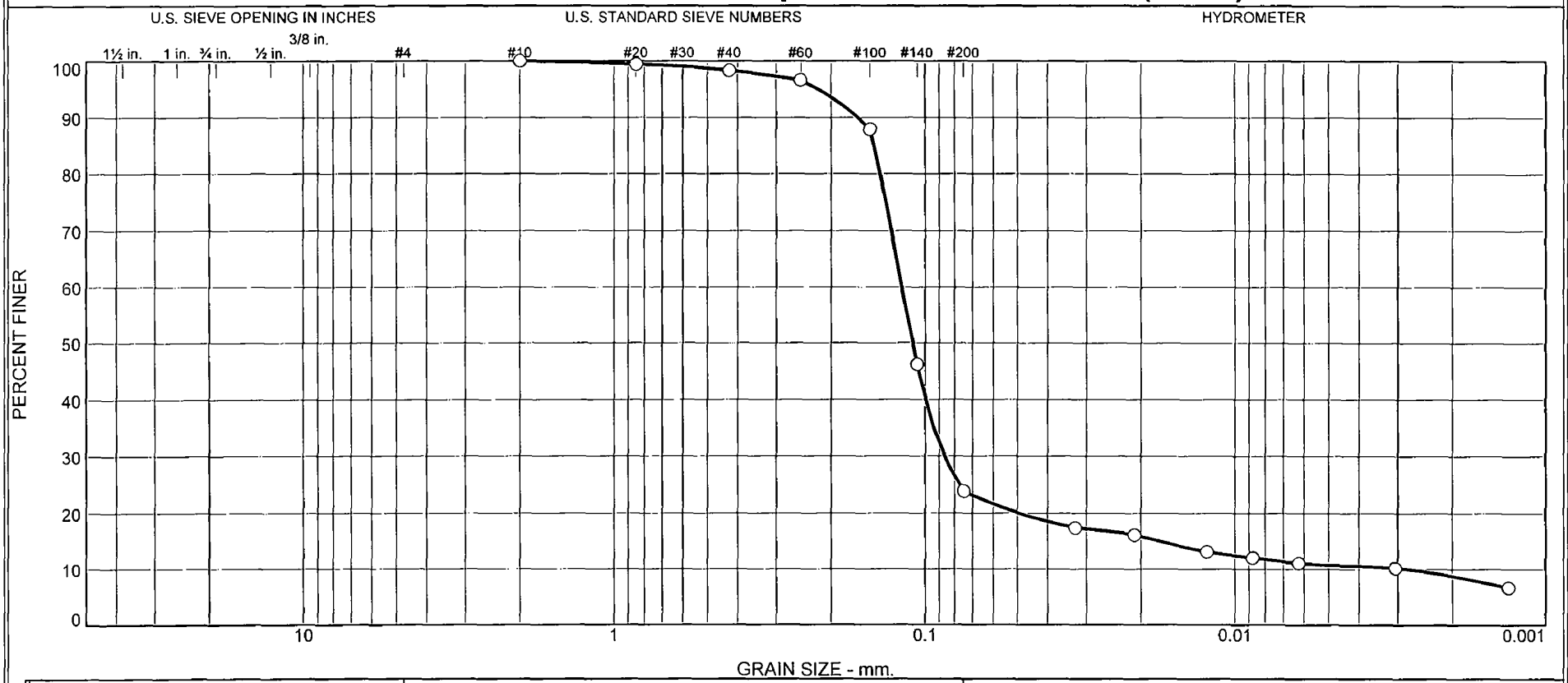
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	15.0	75.6	90.6	3.2	6.2	9.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0847	0.1146	0.1327	0.1655	0.2349	0.2750	0.3833	0.4248	0.4835	0.5829

Fineness Modulus	C_u	C_c
1.14	3.25	1.17

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.7	74.4	13.1	10.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-621	621-12	125.0-126.5	4/4/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-621
Depth: 125.0-126.5 **Sample Number:** 621-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 4/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
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
270.27	0.00	0.00	#10	0.00	100.0
98.93	0.00	0.00	#20	0.58	99.4
			#40	1.64	98.3
			#60	3.38	96.6
			#100	11.95	87.9
			#140	53.24	46.2
			#200	75.31	23.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =98.93
Hygroscopic moisture correction:
Moist weight and tare = 28.25
Dry weight and tare = 28.02
Tare weight = 15.04
Hygroscopic moisture =1.8%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.6	22.0	17.1	0.0130	23.0	12.5	0.0326	17.4
5.00	21.6	21.0	15.8	0.0132	22.0	12.7	0.0210	16.1
15.00	21.9	18.0	12.9	0.0131	19.0	13.2	0.0123	13.1
30.00	21.8	17.0	11.9	0.0131	18.0	13.3	0.0088	12.1
60.00	21.9	16.0	10.9	0.0131	17.0	13.5	0.0062	11.1
250.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0031	10.2
1440.00	20.8	12.0	6.6	0.0133	13.0	14.2	0.0013	6.7

MACTEC Engineering and Consulting, Inc.

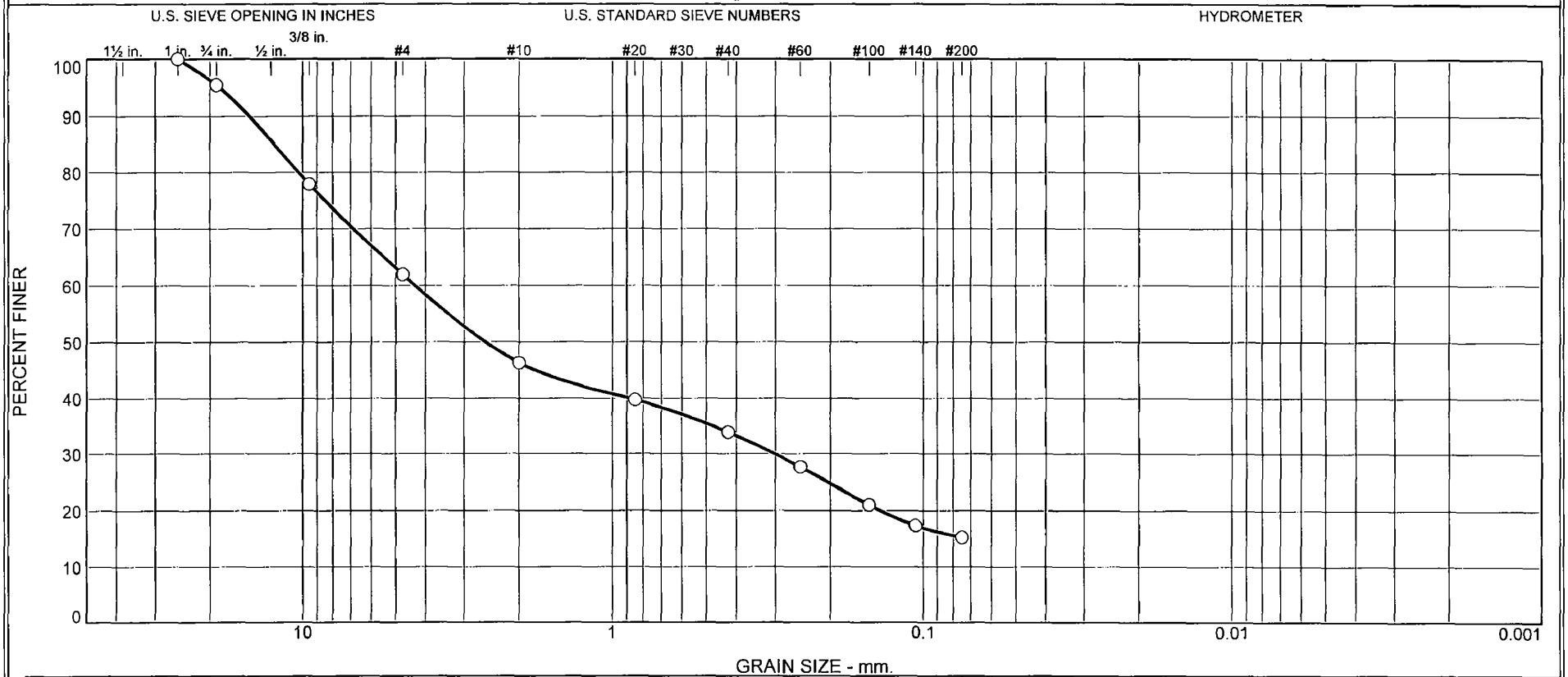
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.7	74.4	76.1	13.1	10.8	23.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0028	0.0174	0.0496	0.0864	0.1096	0.1187	0.1388	0.1454	0.1646	0.2191

Fineness Modulus	C_u	C_c
0.16	42.66	22.62

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	4	34	16	12	19	15	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-3	5.1-6.6	3/23/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 5.1-6.6 **Sample Number:** 625-3
Material Description: White Silty SAND with gravel (Visual)
Date: 3/23/08 **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
274.76	0.00	0.00	1	0.00	100
			3/4	12.34	96
			3/8"	60.65	78
			#4	104.47	62
			#10	147.47	46
102.31	0.00	0.00	#20	14.61	40
			#40	27.53	34
			#60	41.33	28
			#100	55.94	21
			#140	64.06	17
			#200	68.62	15

Fractional Components

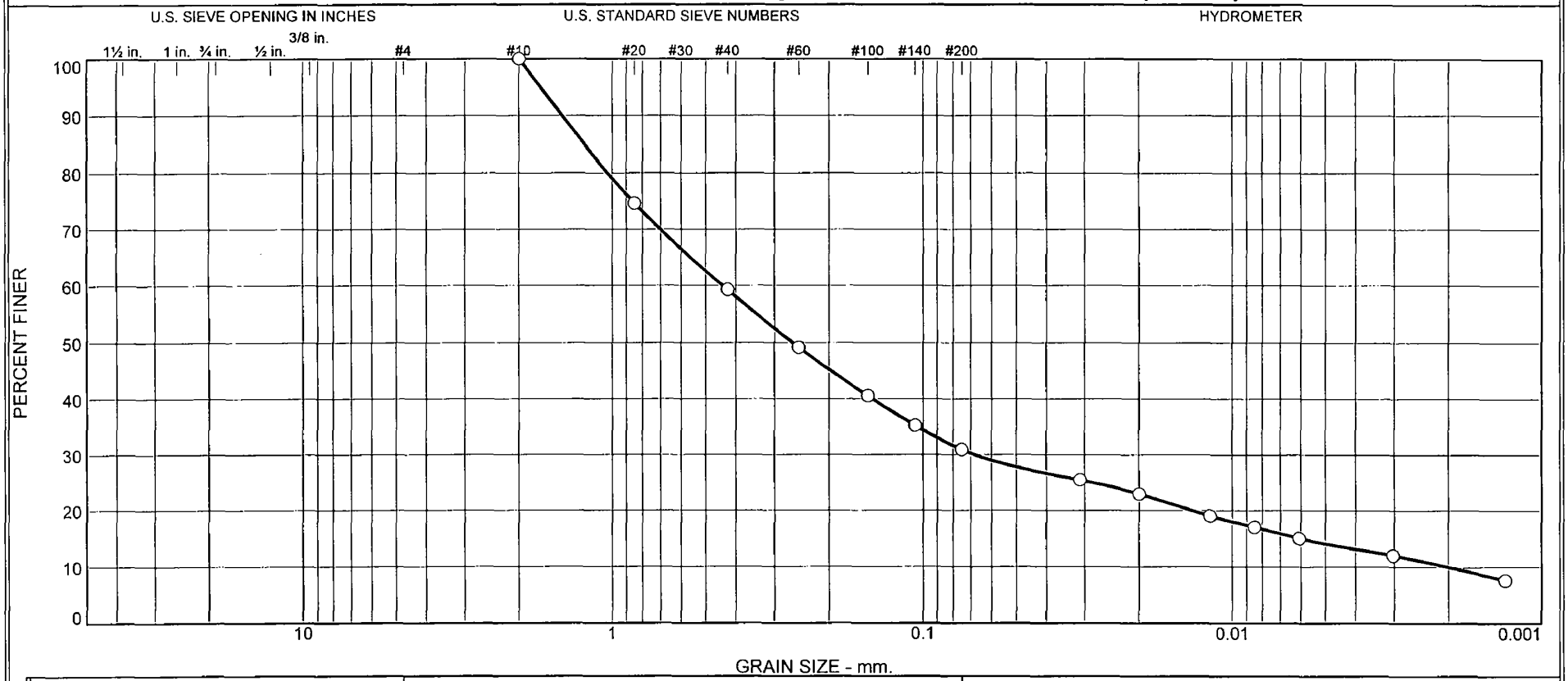
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	4	34	38	16	12	19	47			15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1381	0.3025	2.5711	4.3240	10.2952	12.3539	14.9108	18.5565

Fineness Modulus
3.86

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	40.7	28.3	16.9	14.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-6	12.5-14.0	3/23/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 12.5-14.0 **Sample Number:** 625-6
Material Description: White Silty SAND (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
462.60	0.00	0.00	#10	0.00	100.0
99.30	0.00	0.00	#20	25.16	74.7
			#40	40.41	59.3
			#60	50.50	49.1
			#100	59.06	40.5
			#140	64.27	35.3
			#200	68.56	31.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =99.30
Hygroscopic moisture correction:
Moist weight and tare = 30.01
Dry weight and tare = 29.87
Tare weight = 15.30
Hygroscopic moisture =1.0%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.6	30.5	25.3	0.0132	31.5	11.1	0.0311	25.5
5.00	21.6	28.0	22.8	0.0132	29.0	11.5	0.0200	23.0
15.00	21.9	24.0	18.9	0.0131	25.0	12.2	0.0118	19.0
30.00	21.9	22.0	16.9	0.0131	23.0	12.5	0.0085	17.0
60.00	22.0	20.0	14.9	0.0131	21.0	12.9	0.0061	15.0
250.00	22.1	17.0	12.0	0.0131	18.0	13.3	0.0030	12.0
1440.00	20.8	13.0	7.6	0.0133	14.0	14.0	0.0013	7.7

MACTEC Engineering and Consulting, Inc.

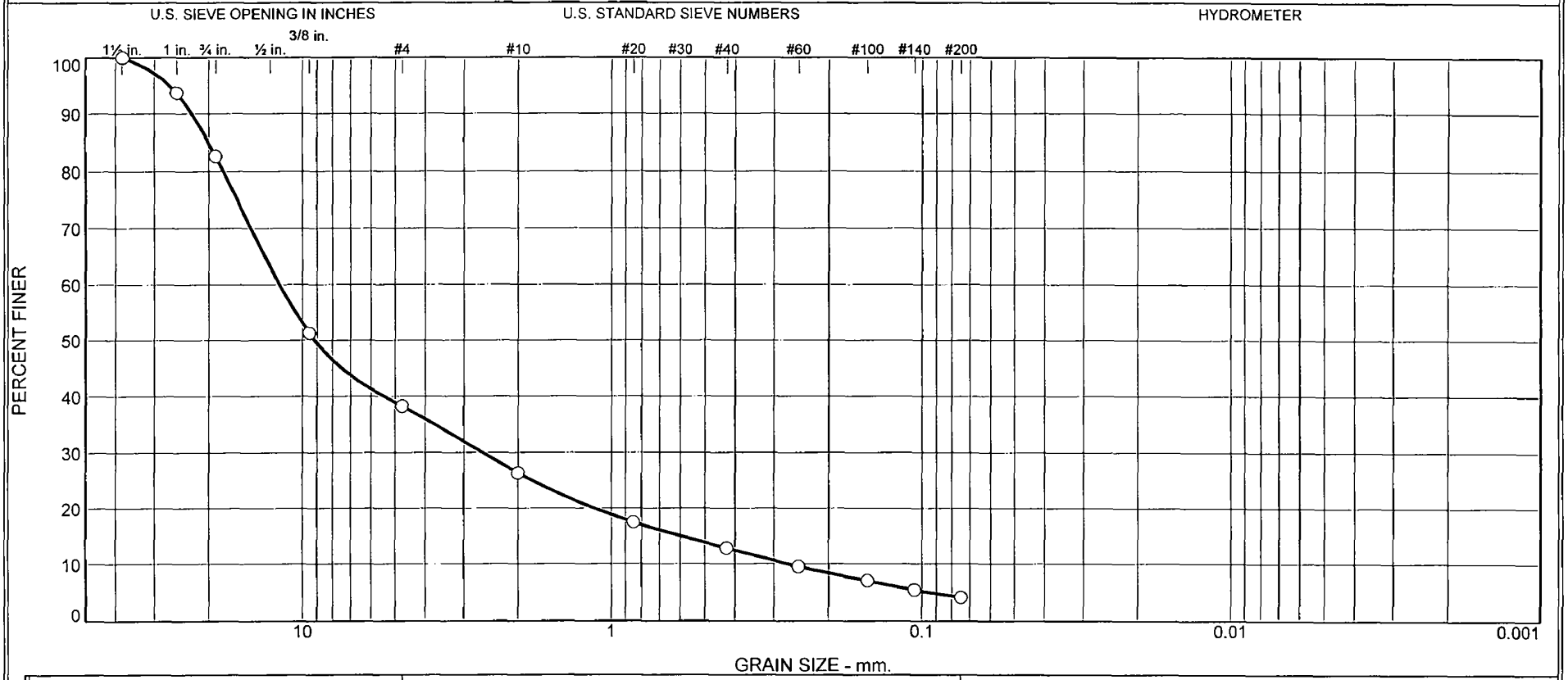
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	40.7	28.3	69.0	16.9	14.1	31.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0020	0.0060	0.0136	0.0679	0.2621	0.4400	1.0364	1.2320	1.4533	1.7067

Fineness Modulus	C_u	C_c
1.57	220.18	5.24

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	17	45	12	13	9	4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-625	625-7	15.2-16.4	3/23/08	GW	White Well graded GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 15.2-16.4 **Sample Number:** 625-7
Material Description: White Well graded GRAVEL with sand (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GW
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =316.87
Tare Wt. = 0.00
Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
316.87	0.00	0.00	1.5	0.00	100
			1	19.99	94
			3/4	54.88	83
			3/8"	154.26	51
			#4	195.60	38
			#10	233.40	26
			#20	261.50	17
			#40	276.20	13
			#60	286.60	10
			#100	294.50	7
			#140	299.60	5
			#200	303.80	4

Fractional Components

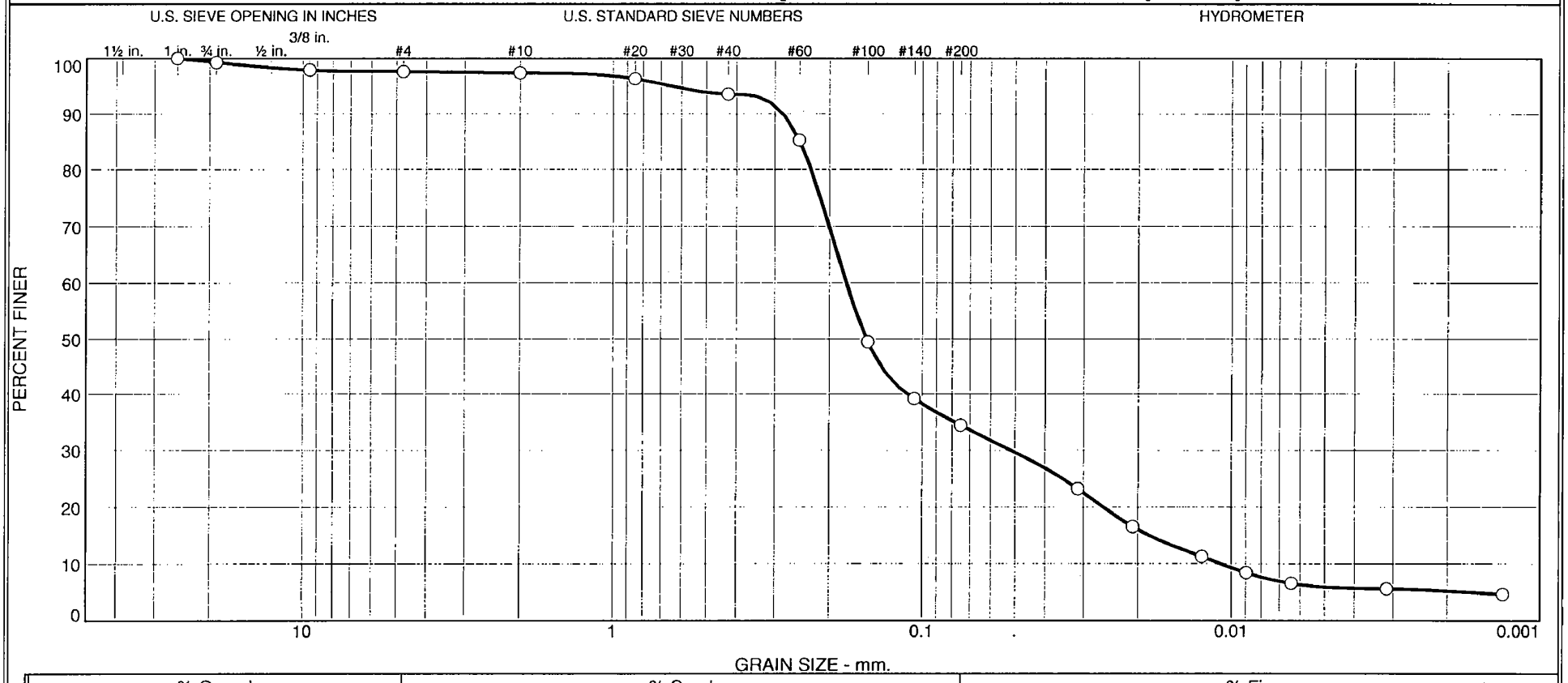
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	45	62	12	13	9	34			4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2705	0.5988	1.1371	2.6146	9.1418	11.8584	17.9834	20.0626	22.6885	26.7254

Fineness Modulus	C_u	C_c
5.46	43.85	2.13

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.7	1.6	0.3	3.8	59.2	28.5	5.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-8	120.4-121.3	5/8/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 120.4-121.3 **Sample Number:** 625-8
Material Description: Light Olive Gray Silty SAND (Visual)
Date: 5/8/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
399.76	0.00	0.00	1	0.00	100.0
			3/4	2.78	99.3
			3/8"	8.19	98.0
			#4	9.19	97.7
			#10	10.20	97.4
101.06	0.00	0.00	#20	1.10	96.4
			#40	3.98	93.6
			#60	12.67	85.2
			#100	49.76	49.5
			#140	60.45	39.2
			#200	65.36	34.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.4
Weight of hydrometer sample =101.06
Hygroscopic moisture correction:
Moist weight and tare = 27.63
Dry weight and tare = 27.58
Tare weight = 15.38
Hygroscopic moisture = 0.4%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
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	21.6	29.5	24.3	0.0132	30.5	11.3	0.0313	23.3
5.00	21.6	22.5	17.3	0.0132	23.5	12.4	0.0208	16.6
15.00	21.6	17.0	11.8	0.0132	18.0	13.3	0.0124	11.3
30.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0090	8.4
60.00	21.6	12.0	6.8	0.0132	13.0	14.2	0.0064	6.5
250.00	21.7	11.0	5.8	0.0132	12.0	14.3	0.0032	5.6
1440.00	21.6	10.0	4.8	0.0132	11.0	14.5	0.0013	4.6

MACTEC Engineering and Consulting, Inc.

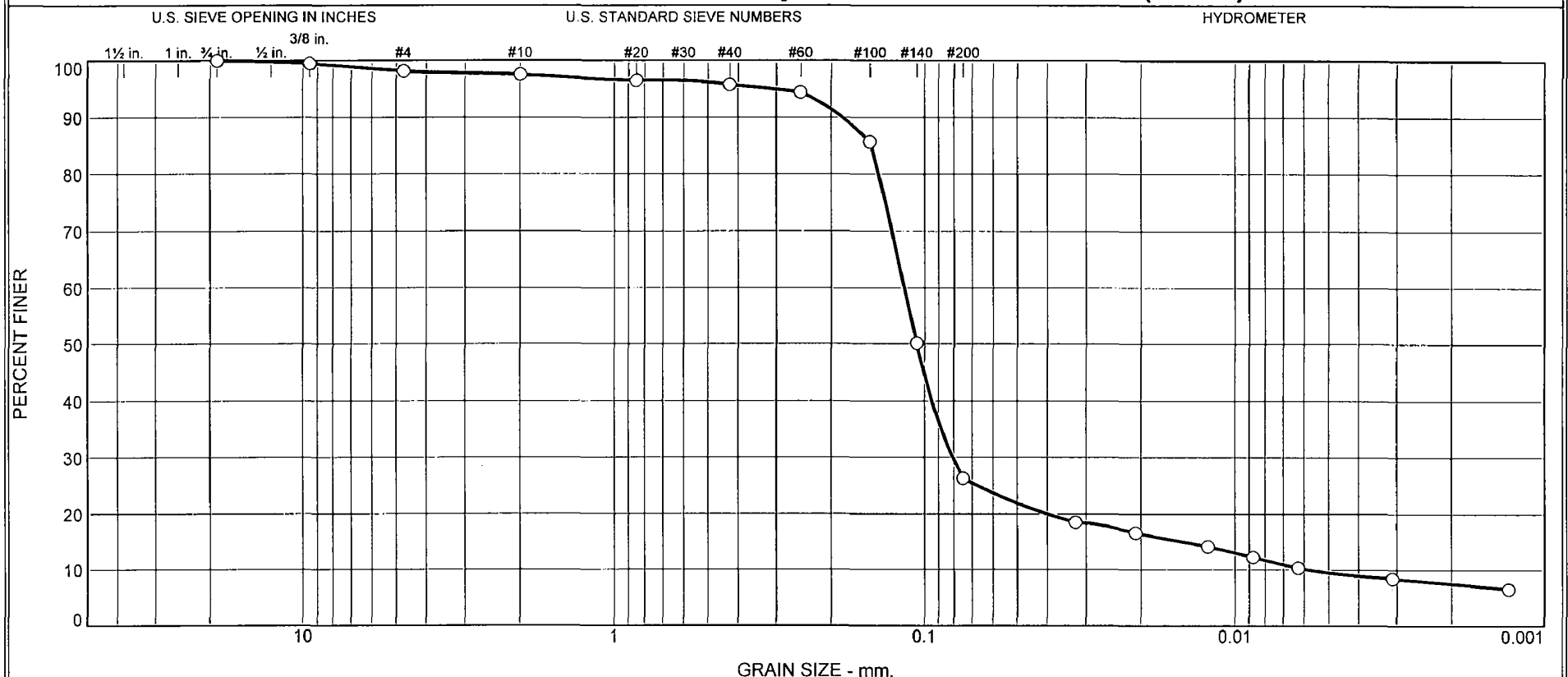
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.7	1.6	2.3	0.3	3.8	59.2	63.3	28.5	5.9	34.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0108	0.0184	0.0258	0.0514	0.1515	0.1758	0.2289	0.2489	0.2820	0.6366

Fineness Modulus	C_u	C_c
0.75	16.34	1.40

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	1.8	0.6	1.9	69.4	16.8	9.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-9	125.2-126.7	3/23/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 125.2-126.7 **Sample Number:** 625-9
Material Description: Light Olive Gray Silty SAND (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
341.32	0.00	0.00	3/4	0.00	100.0
			3/8"	1.72	99.5
			#4	6.17	98.2
			#10	8.32	97.6
101.01	0.00	0.00	#20	1.08	96.5
			#40	1.88	95.7
			#60	3.27	94.4
			#100	12.32	85.7
			#140	49.12	50.1
			#200	73.74	26.3

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =97.6
Weight of hydrometer sample =101.01
Hygroscopic moisture correction:
Moist weight and tare = 27.36
Dry weight and tare = 27.31
Tare weight = 15.31
Hygroscopic moisture =0.4%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
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	21.6	24.5	19.3	0.0132	25.5	12.1	0.0324	18.5
5.00	21.6	22.5	17.3	0.0132	23.5	12.4	0.0208	16.6
15.00	21.5	20.0	14.8	0.0132	21.0	12.9	0.0122	14.2
30.00	21.5	18.0	12.8	0.0132	19.0	13.2	0.0087	12.3
60.00	21.5	16.0	10.8	0.0132	17.0	13.5	0.0063	10.3
250.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0031	8.4
1440.00	21.6	12.0	6.8	0.0132	13.0	14.2	0.0013	6.5

MACTEC Engineering and Consulting, Inc.

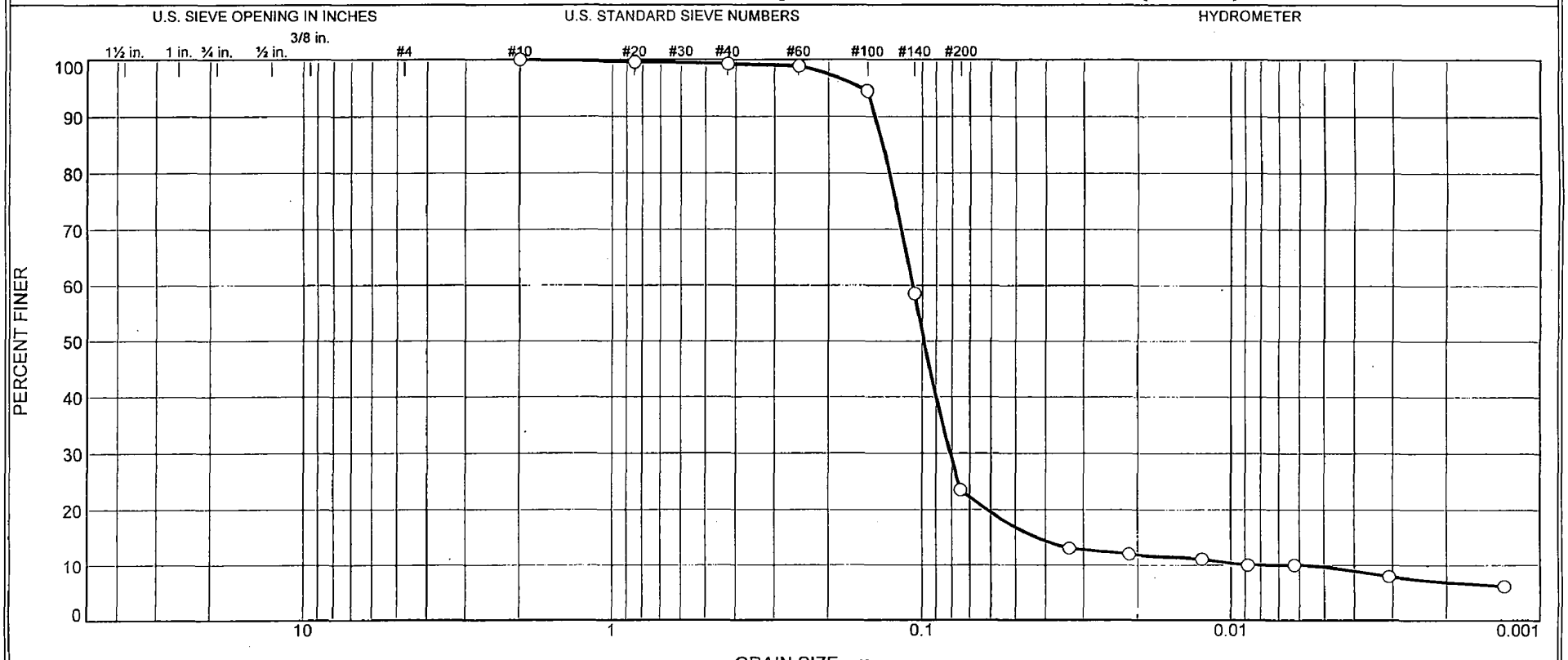
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.8	1.8	0.6	1.9	69.4	71.9	16.8	9.5	26.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0058	0.0147	0.0402	0.0811	0.1059	0.1163	0.1402	0.1487	0.1836	0.3069

Fineness Modulus	C_u	C_c
0.31	20.07	9.75

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.7	75.8	13.8	9.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-2	129.5-132	4/17/08	SM	Light Yellowish Brown Silty SAND	32.5	25	24

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 129.5-132 **Sample Number:** UD-2
Material Description: Light Yellowish Brown Silty SAND
Date: 4/17/08 **Natural Moisture:** 32.5
Liquid Limit: 25 **Plastic Limit:** 24 **USCS Class.:** SM
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
265.17	0.00	0.00	#10	0.00	100.0
99.11	0.00	0.00	#20	0.40	99.6
			#40	0.74	99.3
			#60	1.08	98.9
			#100	5.44	94.5
			#140	41.05	58.6
			#200	75.78	23.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =
Hygroscopic moisture correction:
Moist weight and tare = 24.98
Dry weight and tare = 24.97
Tare weight = 11.34
Hygroscopic moisture =0.1%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-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

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	19.0	13.1	0.0131	20.0	13.0	0.0335	13.1
5.00	21.9	18.0	12.1	0.0131	19.0	13.2	0.0213	12.1
15.00	21.9	17.0	11.1	0.0131	18.0	13.3	0.0124	11.1
30.00	21.9	16.0	10.1	0.0131	17.0	13.5	0.0088	10.1
60.00	21.9	16.0	10.1	0.0131	17.0	13.5	0.0062	10.1
250.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0031	8.0
1440.00	21.7	12.0	6.2	0.0132	13.0	14.2	0.0013	6.1

MACTEC Engineering and Consulting, Inc.

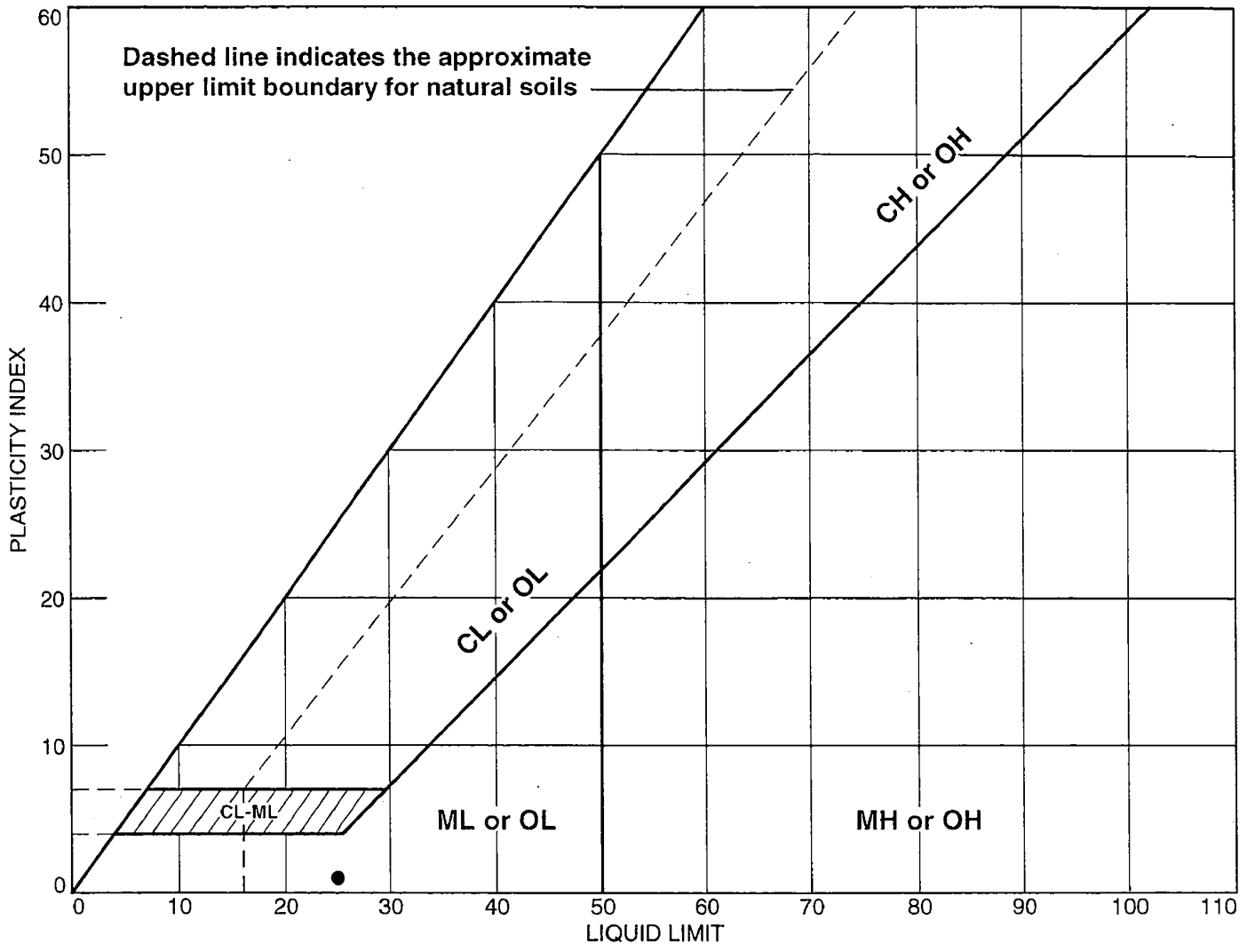
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	75.8	76.5	13.8	9.7	23.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0057	0.0424	0.0618	0.0813	0.0986	0.1073	0.1273	0.1336	0.1412	0.1561

Fineness Modulus	C_u	C_c
0.07	18.88	10.84

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
●	Boring B-630	UD-2	129.5-132	32.5	24	25	1	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

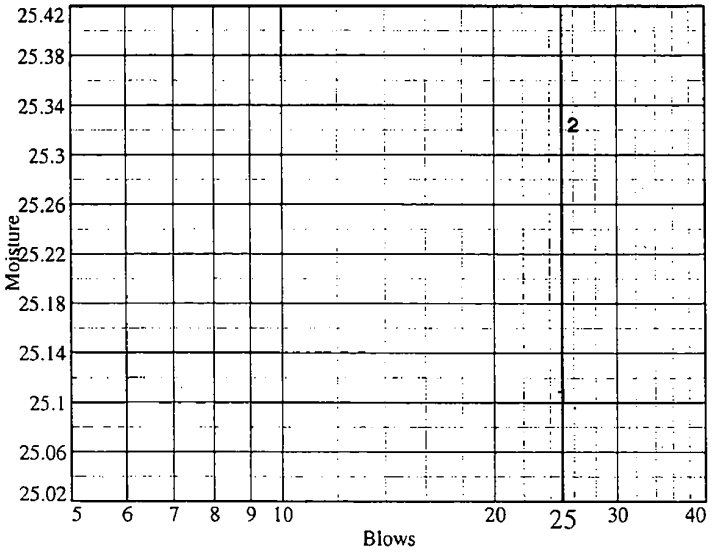
Tested By: CS **Checked By:** LBJ ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 129.5-132 **Sample Number:** UD-2
Material Description: Light Yellowish Brown Silty SAND
USCS: SM **AASHTO:** A-2-4(0)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare		26.79		33.21		
Dry+Tare	29.65	23.67				
Tare	15.47	11.35				
# Blows	25	26				
Moisture	25.1	25.3				



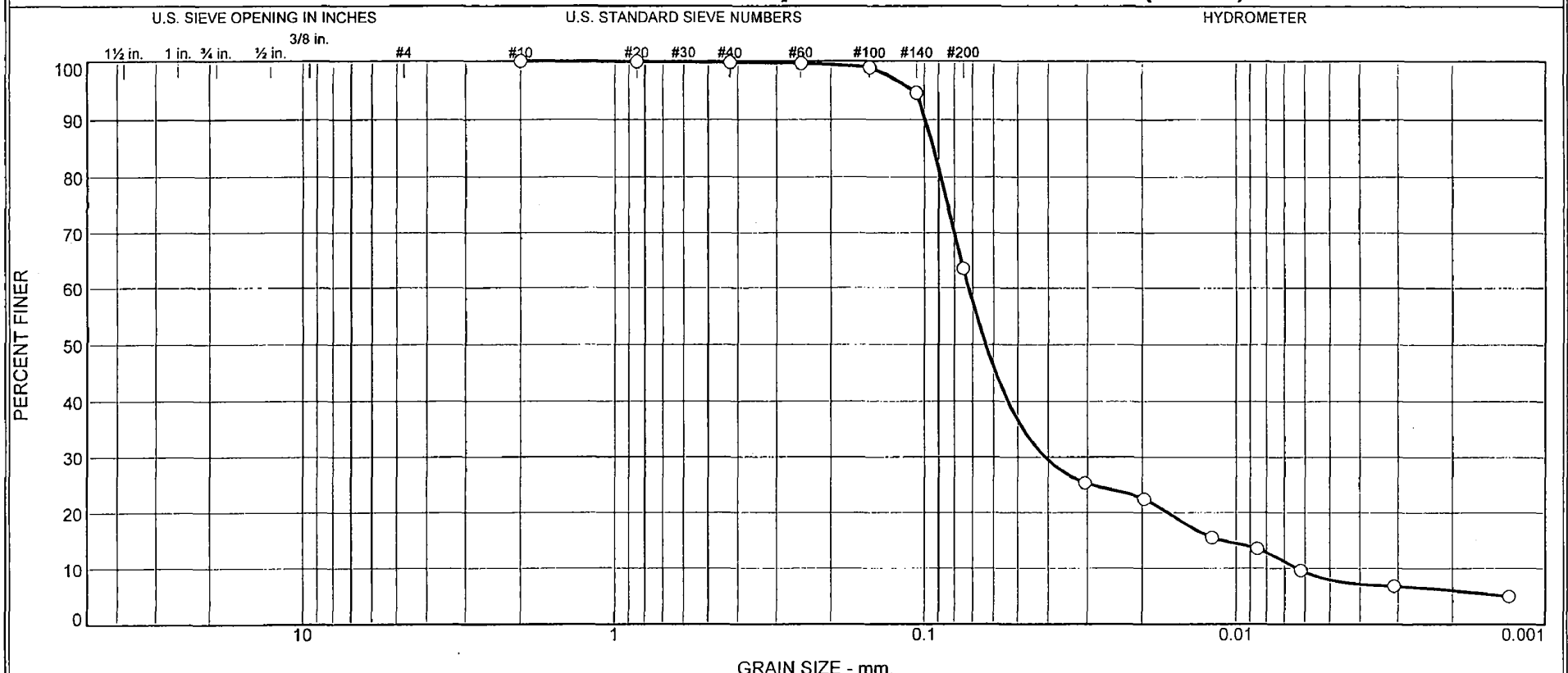
Liquid Limit= 25
Plastic Limit= 24
Plasticity Index= 1
Natural Moisture= 32.5
Liquidity Index= 8.5

Run No.	1	2	3	4	
Wet+Tare	33.26	33.56			
Dry+Tare	29.86	29.99			
Tare	15.50	15.49			
Moisture	23.7	24.6			

Wet+Tare	Dry+Tare	Tare	Moisture
129.58	99.47	6.77	32.5

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.2	36.3	55.6	7.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-8	161.5-163.1	4/18/08	ML	Greenish Gray Sandy SILT	31.4	26	24

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 161.5-163.1 **Sample Number:** UD-8
Material Description: Greenish Gray Sandy SILT
Date: 4/18/08 **Natural Moisture:** 31.4
Liquid Limit: 26 **Plastic Limit:** 24 **USCS Class.:** ML
Testing Remarks: Specific Gravity is Assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
260.32	0.00	0.00	#10	0.00	100.0
102.38	0.00	0.00	#20	0.09	99.9
			#40	0.23	99.8
			#60	0.38	99.6
			#100	1.13	98.9
			#140	5.53	94.6
			#200	37.35	63.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =102.38
Hygroscopic moisture correction:
Moist weight and tare = 27.38
Dry weight and tare = 27.30
Tare weight = 15.46
Hygroscopic moisture =0.7%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-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

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	32.0	26.0	0.0131	33.0	10.9	0.0305	25.3
5.00	22.3	29.0	23.0	0.0131	30.0	11.4	0.0197	22.4
15.00	22.3	22.0	16.0	0.0131	23.0	12.5	0.0119	15.5
30.00	22.3	20.0	14.0	0.0131	21.0	12.9	0.0086	13.6
60.00	22.3	16.0	10.0	0.0131	17.0	13.5	0.0062	9.7
250.00	22.3	13.0	7.0	0.0131	14.0	14.0	0.0031	6.8
1440.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

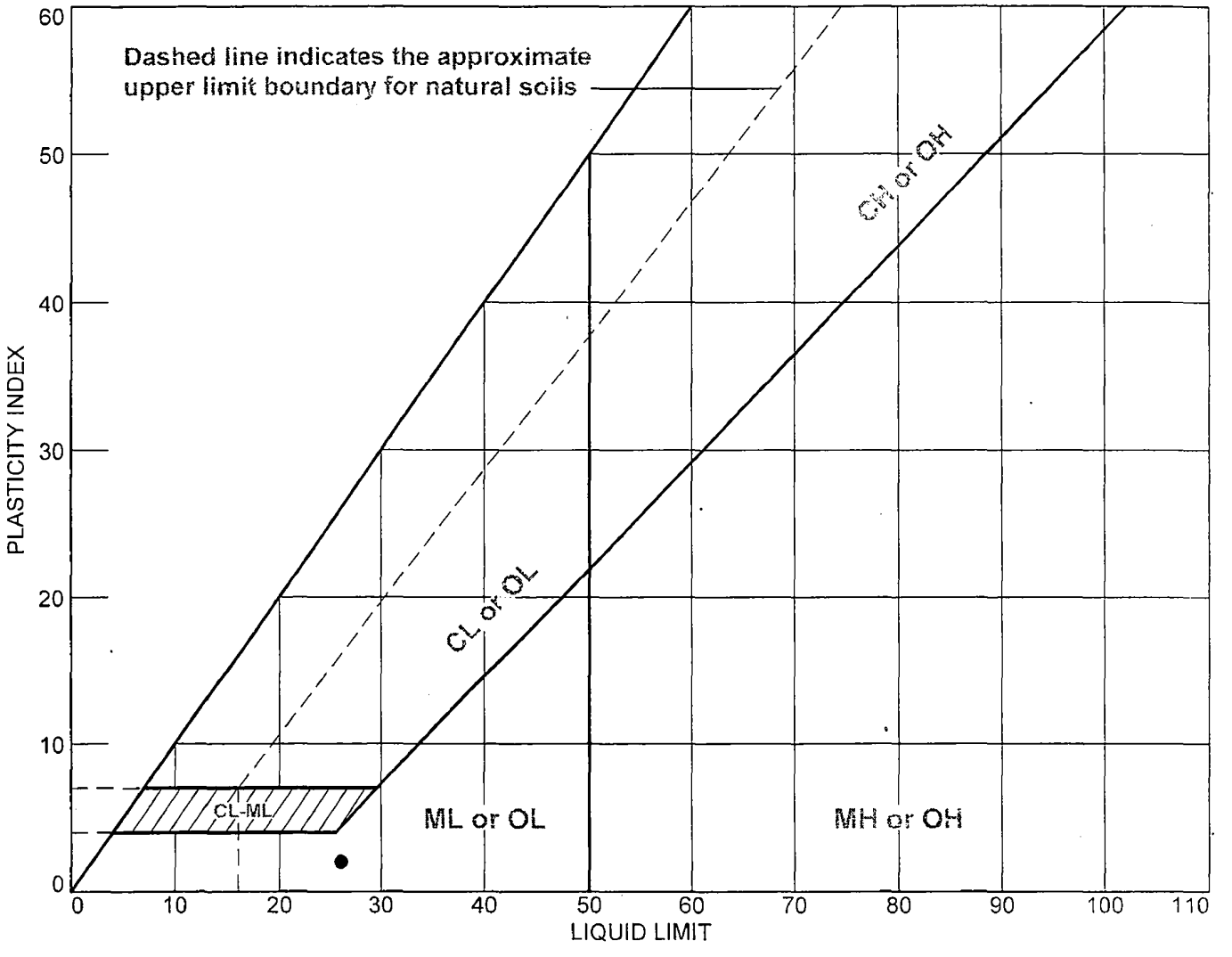
Fractional Components

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	36.3	36.5	55.6	7.9	63.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0064	0.0110	0.0165	0.0411	0.0636	0.0722	0.0885	0.0932	0.0989	0.1086

Fineness Modulus	C_u	C_c
0.02	11.36	3.68

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
●	Boring B-630	UD-8	161.5-163.1	31.4	24	26	2	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 Figure N/A

Tested By: CS **Checked By:** LBJ ZHU 7/22/08

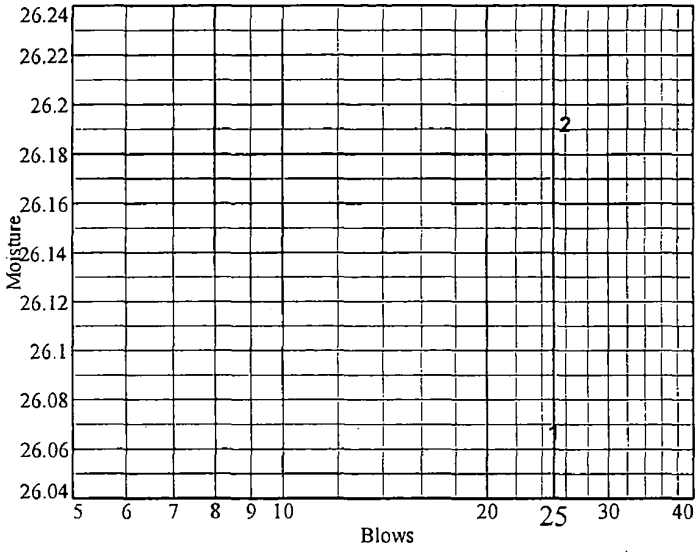
LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 161.5-163.1 **Sample Number:** UD-8
Material Description: Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	37.38	27.86				
Dry+Tare	32.86	24.40				
Tare	15.52	11.19				
# Blows	25	26				
Moisture	26.1	26.2				



Liquid Limit= 26
Plastic Limit= 24
Plasticity Index= 2
Natural Moisture= 31.4
Liquidity Index= 3.7

Plastic Limit Data

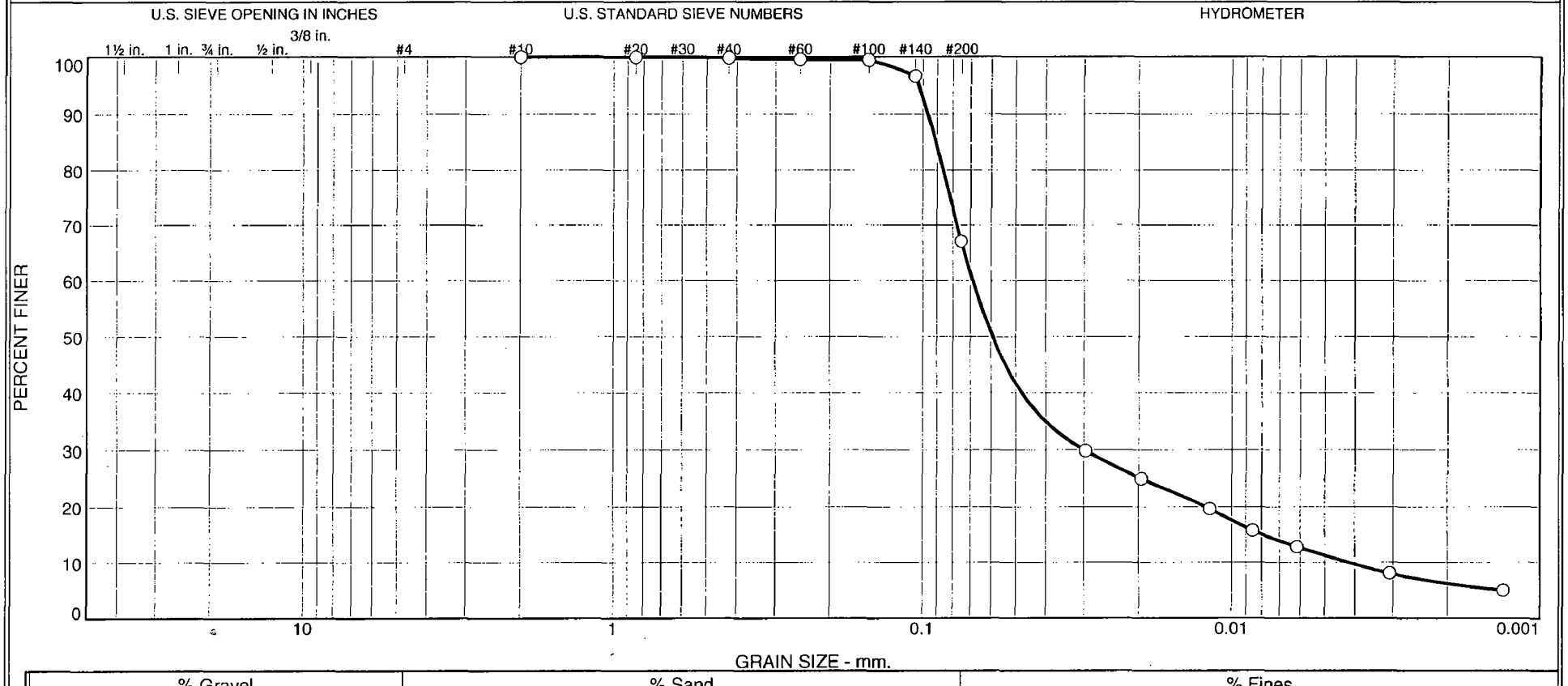
Run No.	1	2	3	4	
Wet+Tare	33.69	24.45			
Dry+Tare	30.25	21.86			
Tare	15.49	11.15			
Moisture	23.3	24.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
104.63	81.86	9.38	31.4

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.2	32.8	55.7	11.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-12	178.9'	4/19/08	ML	Greenish Gray Sandy SILT	NA	21	20

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
NA= Not Applicable
See triaxial test report for natural moisture.

ZHU 8-1-08

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

GRAIN SIZE DISTRIBUTION TEST DATA

8/1/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 178.9' **Sample Number:** UD-12
Material Description: Greenish Gray Sandy SILT
Date: 4/19/08 **Natural Moisture:** NA
Liquid Limit: 21 **Plastic Limit:** 20 **USCS Class.:** ML
Testing Remarks: Specific Gravity is assumed
NA= Not Applicable
See triaxial test report for natural moisture.
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
289.65	0.00	0.00	#10	0.00	100.0
102.26	0.00	0.00	#20	0.04	100.0
			#40	0.18	99.8
			#60	0.44	99.6
			#100	0.56	99.5
			#140	3.43	96.6
			#200	33.71	67.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =102.26
Hygroscopic moisture correction:
Moist weight and tare = 25.08
Dry weight and tare = 24.98
Tare weight = 11.37
Hygroscopic moisture = 0.7%
Table of composite correction values:

Temp., deg. C:	12.2	29.4
Comp. corr.:	-8.0	-4.0

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	21.5	36.5	30.7	0.0132	37.5	10.1	0.0297	29.9
5.00	21.5	31.5	25.7	0.0132	32.5	11.0	0.0195	25.0
15.00	21.5	26.0	20.2	0.0132	27.0	11.9	0.0117	19.6
30.00	21.4	22.0	16.1	0.0132	23.0	12.5	0.0085	15.7
60.00	21.6	19.0	13.2	0.0132	20.0	13.0	0.0061	12.8
250.00	22.2	14.0	8.3	0.0131	15.0	13.8	0.0031	8.1
1440.00	21.4	11.0	5.1	0.0132	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

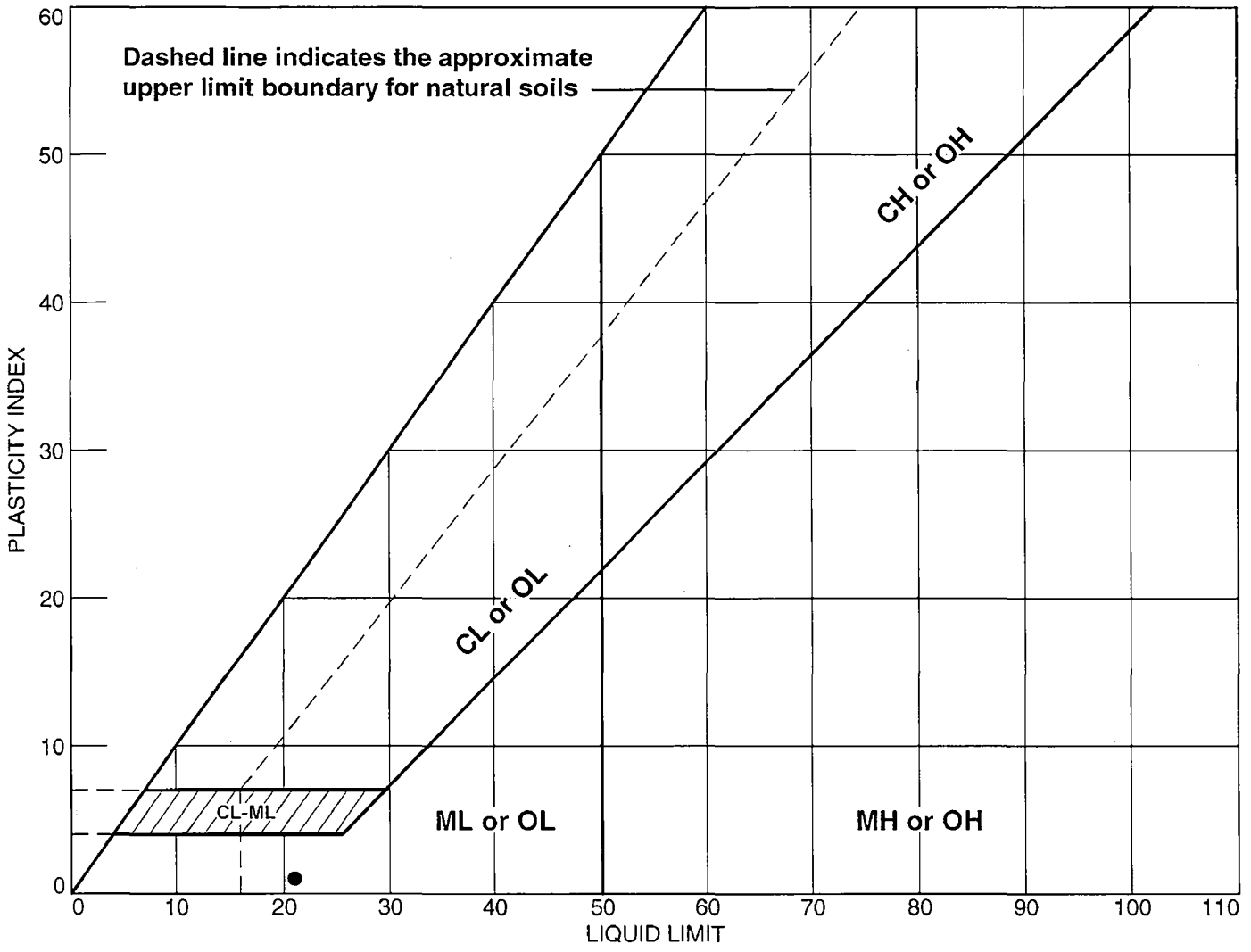
Fractional Components

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	32.8	33.0	55.7	11.3	67.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0042	0.0080	0.0121	0.0300	0.0594	0.0689	0.0859	0.0905	0.0959	0.1029

Fineness Modulus	C_u	C_c
0.01	16.52	3.13

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
●	Boring B-630	UD-12	178.9'	NA	20	21	1	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ ZHU 8-1-08

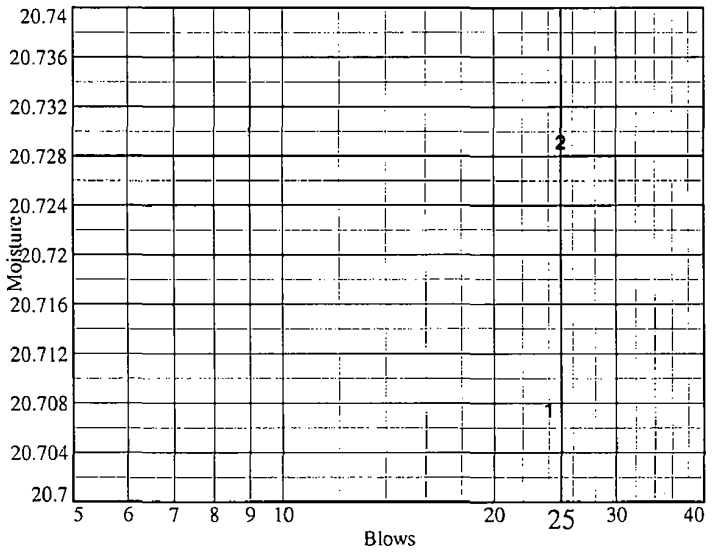
LIQUID AND PLASTIC LIMIT TEST DATA

8/1/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 178.9' **Sample Number:** UD-12
Material Description: Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.89	27.07				
Dry+Tare	29.08	25.08				
Tare	15.51	15.48				
# Blows	24	25				
Moisture	20.7	20.7				



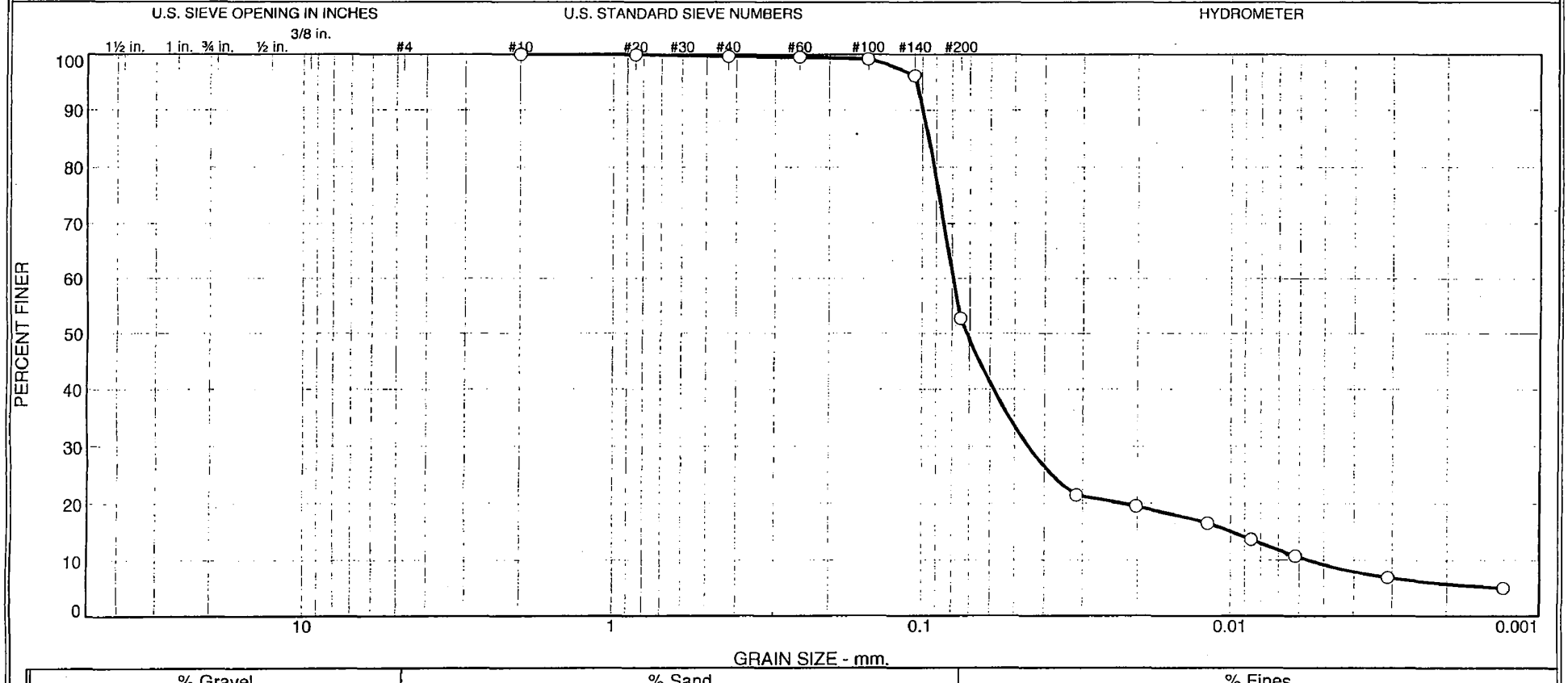
Liquid Limit= 21
Plastic Limit= 20
Plasticity Index= 1
Natural Moisture= NA

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.13	31.26			
Dry+Tare	24.53	28.64			
Tare	11.40	15.51			
Moisture	19.8	20.0			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.4	46.9	43.5	9.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-13	188.5-191	4/19/08	ML	Greenish Gray Brown Sandy SILT	30.0	22	19

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

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

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 188.5-191 **Sample Number:** UD-13
Material Description: Greenish Gray Brown Sandy SILT
Date: 4/19/08 **Natural Moisture:** 30.0
Liquid Limit: 22 **Plastic Limit:** 19 **USCS Class.:** ML
Testing Remarks: Specific Gravity is Assumed
Tested by: CS **Checked by:** LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
229.86	0.00	0.00	#10	0.00	100.0
101.50	0.00	0.00	#20	0.03	100.0
			#40	0.37	99.6
			#60	0.48	99.5
			#100	0.85	99.2
			#140	3.88	96.2
			#200	48.06	52.7

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =101.5
Hygroscopic moisture correction:
Moist weight and tare = 29.71
Dry weight and tare = 29.68
Tare weight = 15.63
Hygroscopic moisture = 0.2%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-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**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	28.0	22.0	0.0131	29.0	11.5	0.0314	21.5
5.00	22.3	26.0	20.0	0.0131	27.0	11.9	0.0201	19.5
15.00	22.3	23.0	17.0	0.0131	24.0	12.4	0.0119	16.6
30.00	22.2	20.0	14.0	0.0131	21.0	12.9	0.0086	13.7
60.00	22.2	17.0	11.0	0.0131	18.0	13.3	0.0062	10.8
250.00	22.0	13.0	7.1	0.0131	14.0	14.0	0.0031	6.9
1440.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

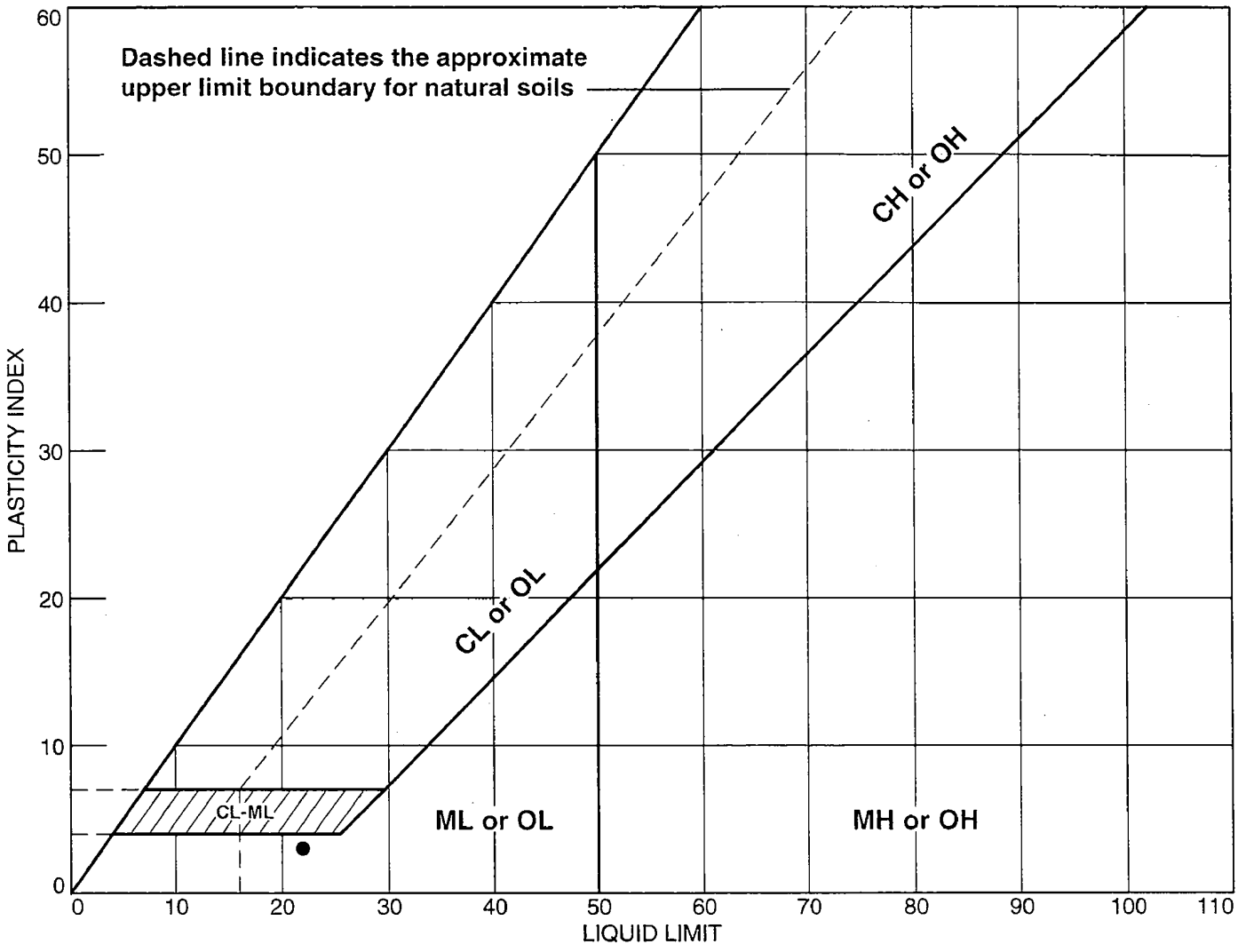
MACTEC Engineering and Consulting, Inc.

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	46.9	47.3	43.5	9.2	52.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0056	0.0098	0.0223	0.0450	0.0715	0.0793	0.0914	0.0950	0.0991	0.1044

Fineness Modulus	C_u	C_c
0.02	14.20	4.58

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
●	Boring B-630	UD-13	188.5-191	30.0	19	22	3	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

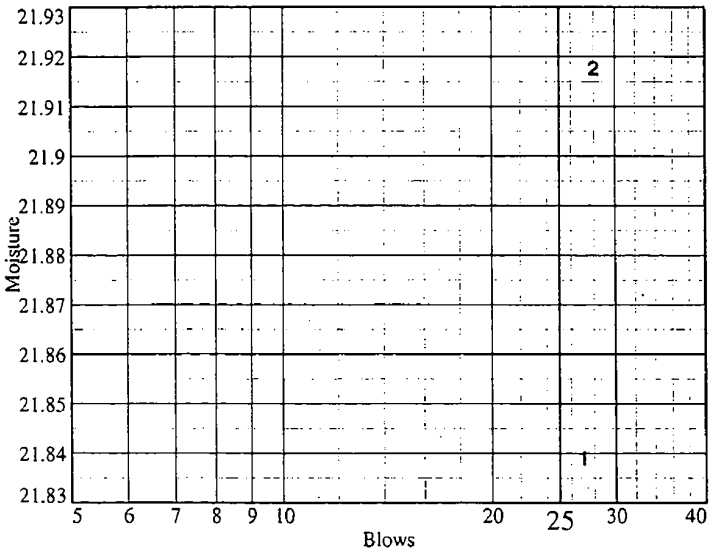
Tested By: CS **Checked By:** LBJ ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 188.5-191 **Sample Number:** UD-13
Material Description: Greenish Gray Brown Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	24.96	22.72				
Dry+Tare	22.49	20.64				
Tare	11.18	11.15				
# Blows	27	28				
Moisture	21.8	21.9				



Liquid Limit= 22
Plastic Limit= 19
Plasticity Index= 3
Natural Moisture= 30.0
Liquidity Index= 3.7

Plastic Limit Data

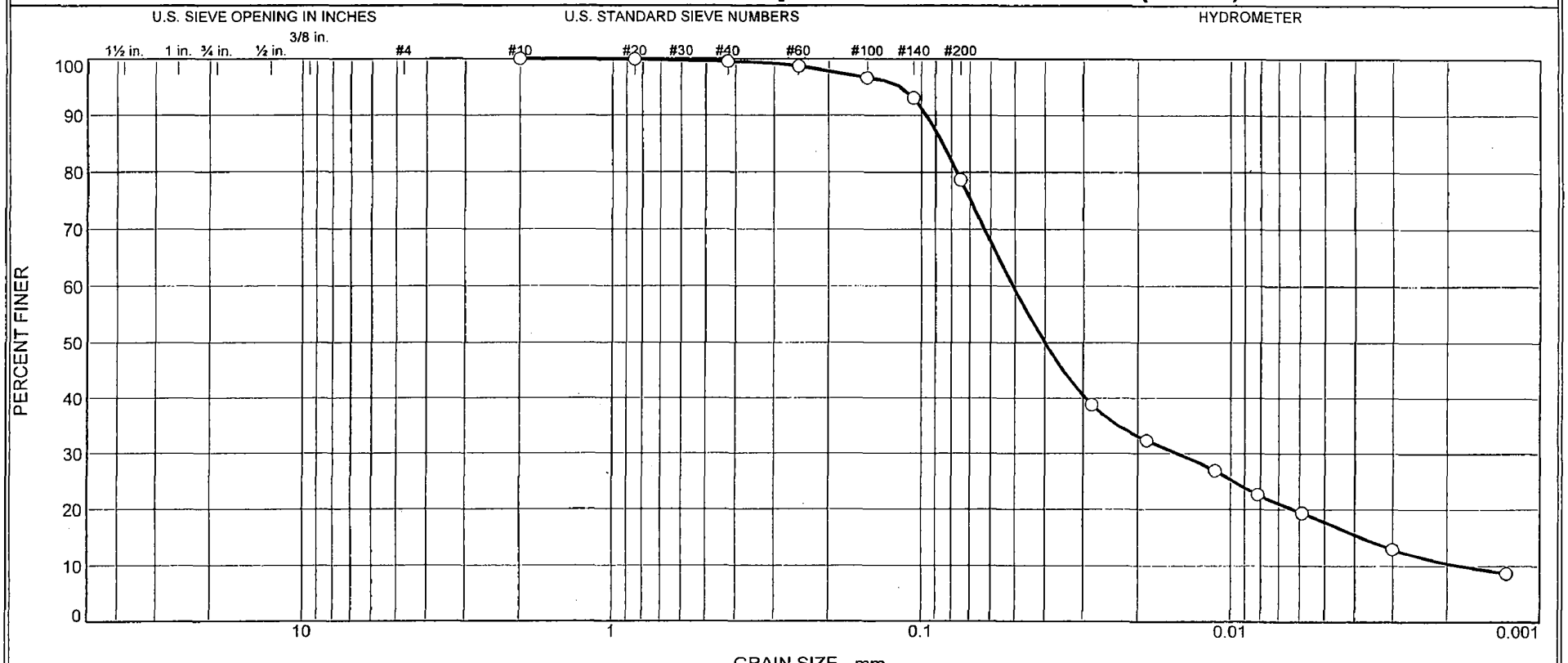
Run No.	1	2	3	4	
Wet+Tare	32.69	32.96			
Dry+Tare	29.89	30.23			
Tare	15.54	15.49			
Moisture	19.5	18.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
122.01	95.43	6.87	30.0

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.5	20.8	60.9	17.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-16	208.5-211	4-21-08	CL	Grayish Gray Lean CLAY with sand	29.8	34	24

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 208.5-211 **Sample Number:** UD-16
Material Description: Grayish Gray Lean CLAY with sand
Date: 4-21-08 **Natural Moisture:** 29.8
Liquid Limit: 34 **Plastic Limit:** 24 **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
253.26	0.00	0.00	#10	0.00	100.0
97.17	0.00	0.00	#20	0.09	99.9
			#40	0.49	99.5
			#60	1.27	98.7
			#100	3.30	96.6
			#140	6.69	93.1
			#200	20.67	78.7

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =97.17
Hygroscopic moisture correction:
Moist weight and tare = 22.63
Dry weight and tare = 22.00
Tare weight = 11.19
Hygroscopic moisture =5.8%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-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

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	42.0	36.0	0.0131	43.0	9.2	0.0282	38.8
5.00	22.1	36.0	30.0	0.0131	37.0	10.2	0.0187	32.4
15.00	22.2	31.0	25.0	0.0131	32.0	11.0	0.0112	26.9
30.00	22.2	27.0	21.0	0.0131	28.0	11.7	0.0082	22.6
60.00	22.2	24.0	18.0	0.0131	25.0	12.2	0.0059	19.4
250.00	22.0	18.0	12.1	0.0131	19.0	13.2	0.0030	13.0
1440.00	21.9	14.0	8.1	0.0131	15.0	13.8	0.0013	8.7

MACTEC Engineering and Consulting, Inc.

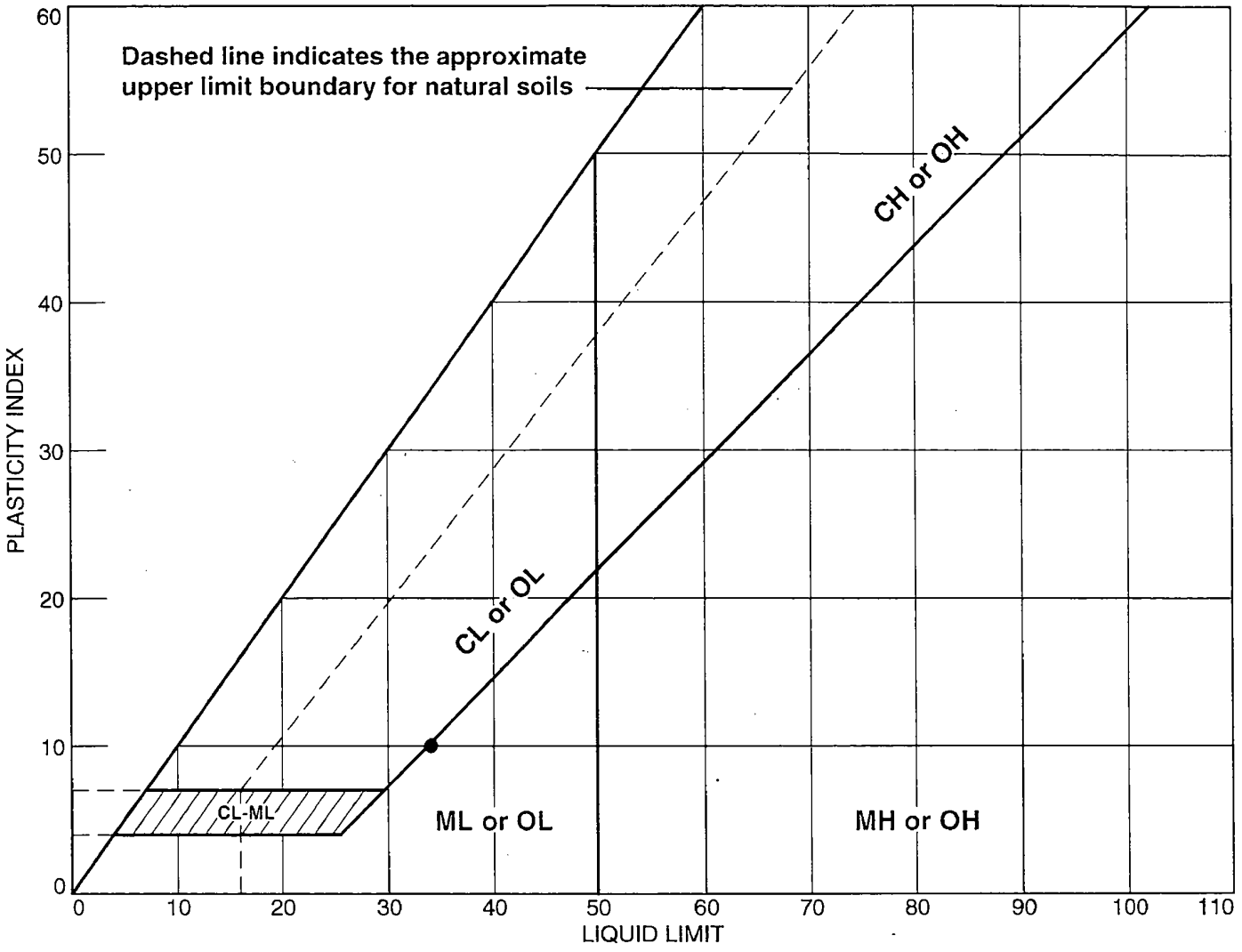
Fractional Components

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	20.8	21.3	60.9	17.8	78.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0018	0.0038	0.0063	0.0148	0.0401	0.0508	0.0770	0.0854	0.0961	0.1167

Fineness Modulus	C_u	C_c
0.05	28.25	2.41

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
●	Boring B-630	UD-16	208.5-211	29.8	24	34	10	CL

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** 4/4

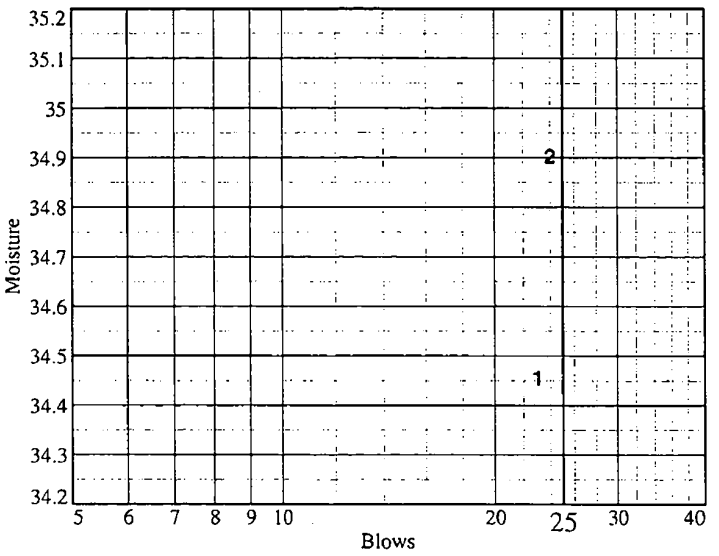
Tested By: CS **Checked By:** LBJ ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 208.5-211 **Sample Number:** UD-16
Material Description: Grayish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-4(7)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	29.43	32.31				
Dry+Tare	25.85	27.94				
Tare	15.46	15.42				
# Blows	23	24				
Moisture	34.5	34.9				



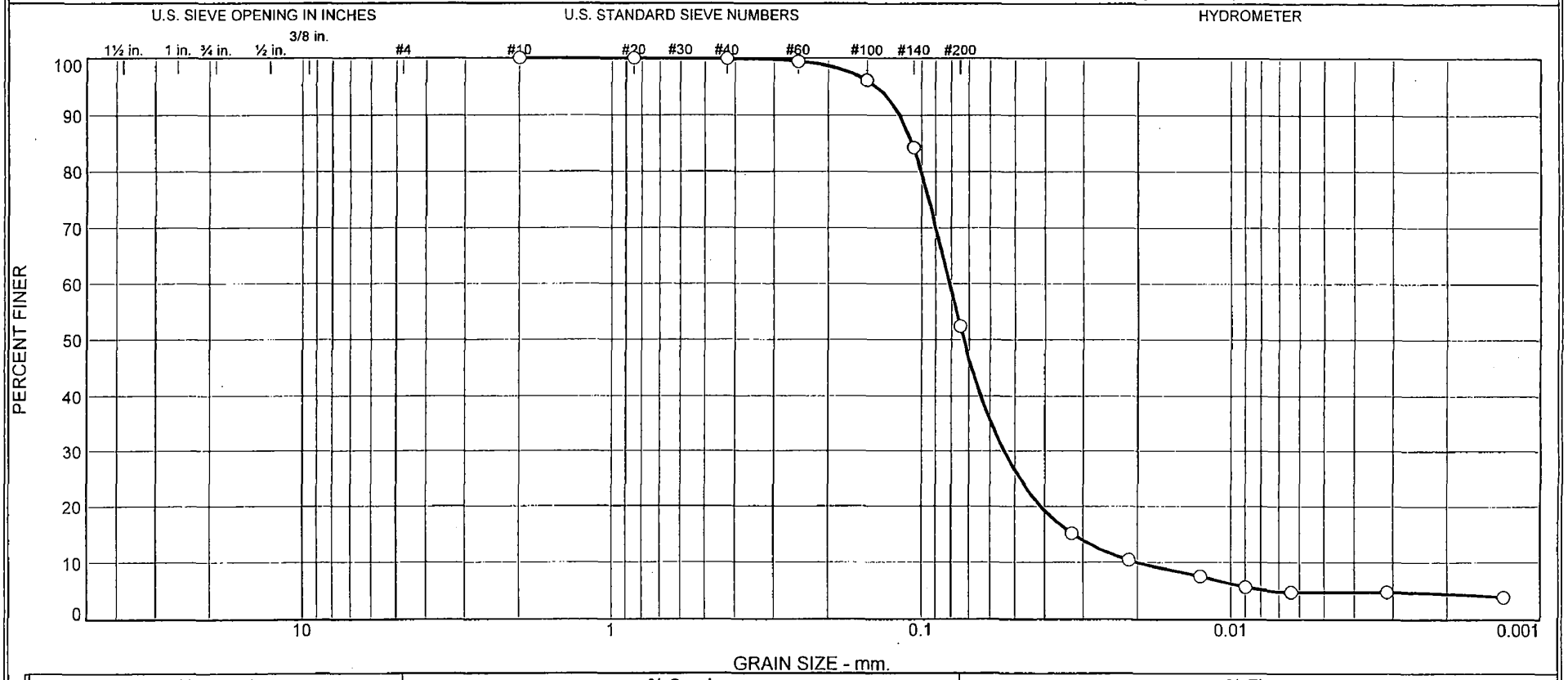
Liquid Limit= 34
Plastic Limit= 24
Plasticity Index= 10
Natural Moisture= 29.8
Liquidity Index= 0.6

Run No.	1	2	3	4	
Wet+Tare	23.58	19.34			
Dry+Tare	22.06	17.80			
Tare	15.68	11.25			
Moisture	23.8	23.5			

Wet+Tare	Dry+Tare	Tare	Moisture
113.39	88.86	6.66	29.8

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	47.5	47.6	4.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-19	228.5-231	4/22/08	ML	Greenish Gray Sandy SILT	23.6	24	21

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

Tested By: CS Checked By: LBJ ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 228.5-231 **Sample Number:** UD-19
Material Description: Greenish Gray Sandy SILT
Date: 4/22/08 **Natural Moisture:** 23.6
Liquid Limit: 24 **Plastic Limit:** 21 **USCS Class.:** ML
Testing Remarks: Specific Gravity is Assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
337.55	0.00	0.00	#10	0.00	100.0
104.79	0.00	0.00	#20	0.06	99.9
			#40	0.15	99.9
			#60	0.61	99.4
			#100	4.13	96.1
			#140	16.40	84.3
			#200	49.88	52.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.79
Hygroscopic moisture correction:
Moist weight and tare = 27.48
Dry weight and tare = 27.42
Tare weight = 15.51
Hygroscopic moisture =0.5%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-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**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	22.0	16.0	0.0131	23.0	12.5	0.0327	15.2
5.00	22.3	17.0	11.0	0.0131	18.0	13.3	0.0213	10.4
15.00	22.3	14.0	8.0	0.0131	15.0	13.8	0.0126	7.6
30.00	22.3	12.0	6.0	0.0131	13.0	14.2	0.0090	5.7
60.00	22.3	11.0	5.0	0.0131	12.0	14.3	0.0064	4.7
250.00	22.0	11.0	5.1	0.0131	12.0	14.3	0.0031	4.8
1440.00	21.9	10.0	4.1	0.0131	11.0	14.5	0.0013	3.9

MACTEC Engineering and Consulting, Inc.

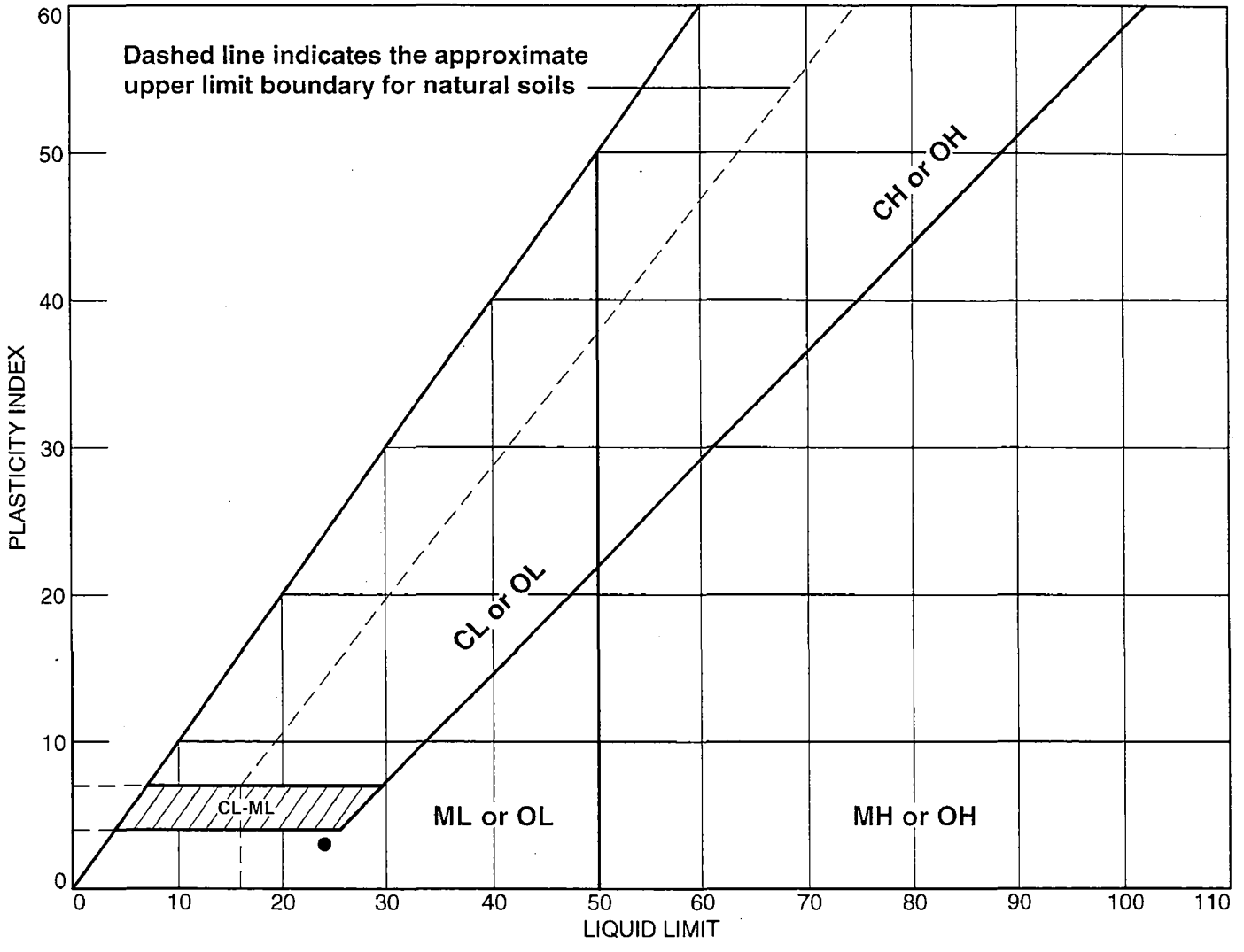
Fractional Components

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	47.5	47.6	47.6	4.8	52.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0201	0.0324	0.0413	0.0542	0.0730	0.0812	0.1001	0.1070	0.1174	0.1398

Fineness Modulus	C_u	C_c
0.04	4.05	1.80

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
●	Boring B-630	UD-19	228.5-231	23.6	21	24	3	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

ZHU 7/22/08

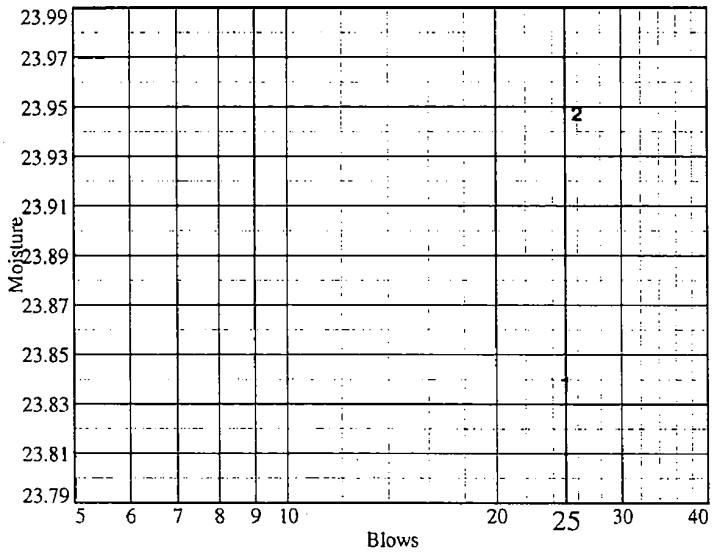
Tested By: CS **Checked By:** LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 228.5-231 **Sample Number:** UD-19
Material Description: Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	36.05	33.49				
Dry+Tare	32.10	30.02				
Tare	15.53	15.53				
# Blows	25	26				
Moisture	23.8	23.9				



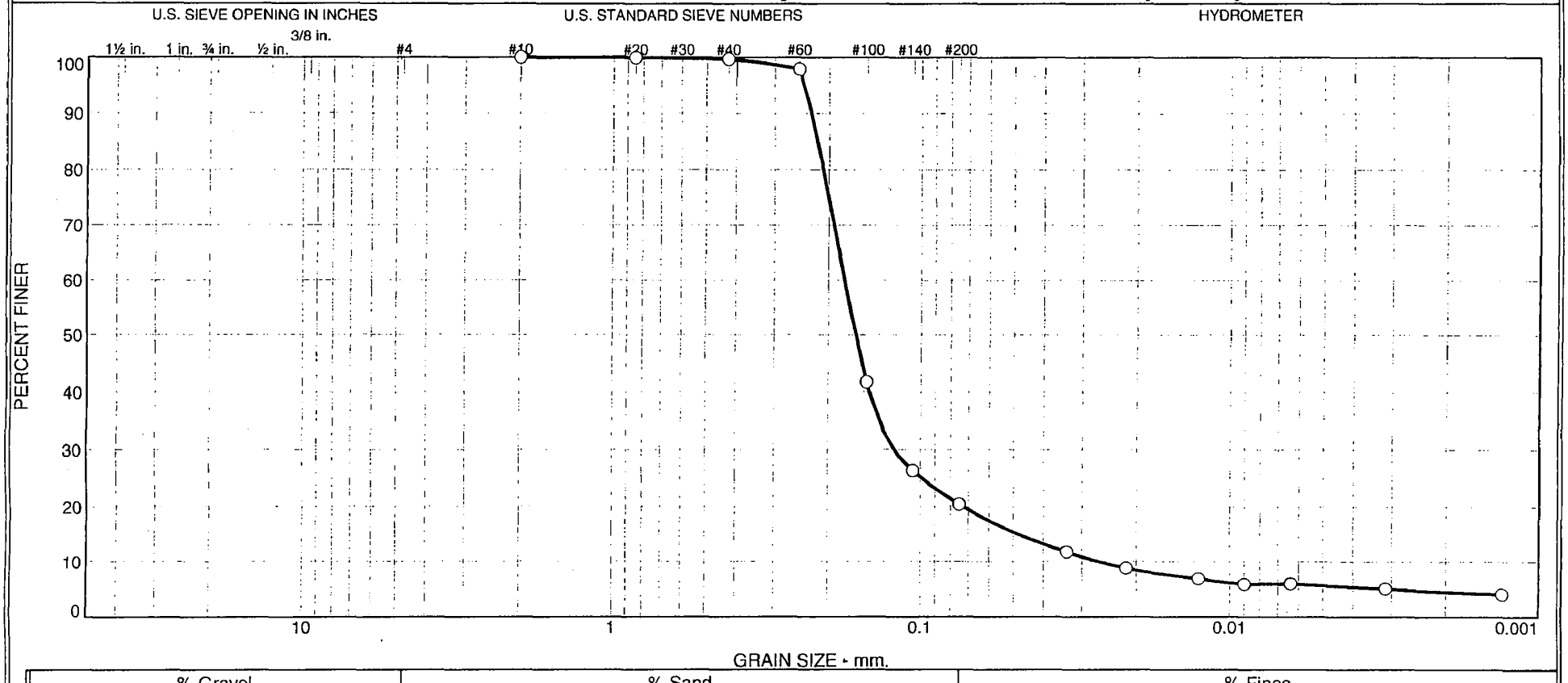
Liquid Limit= 24
Plastic Limit= 21
Plasticity Index= 3
Natural Moisture= 23.6
Liquidity Index= 0.9

Run No.	1	2	3	4	
Wet+Tare	32.26	31.69			
Dry+Tare	29.31	28.86			
Tare	15.55	15.56			
Moisture	21.4	21.3			

Wet+Tare	Dry+Tare	Tare	Moisture
150.70	123.29	6.90	23.6

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.3	79.3	14.8	5.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-23	258.5-261	4/23/08	SC-SM	Dark Greenish Gray Silty Clayey SAND	22.7	20	15

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

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

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 258.5-261 **Sample Number:** UD-23
Material Description: Dark Greenish Gray Silty Clayey SAND
Date: 4/23/08 **Natural Moisture:** 22.7
Liquid Limit: 20 **Plastic Limit:** 15 **USCS Class.:** SC-SM
Testing Remarks: Specific Gravity is Assumed
Tested by: CS **Checked by:** LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
308.25	0.00	0.00	#10	0.00	100.0
101.13	0.00	0.00	#20	0.03	100.0
			#40	0.28	99.7
			#60	2.06	98.0
			#100	58.95	41.7
			#140	74.49	26.3
			#200	80.45	20.4

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =101.13
Hygroscopic moisture correction:
Moist weight and tare = 27.70
Dry weight and tare = 27.68
Tare weight = 15.65
Hygroscopic moisture = 0.2%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-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

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	18.0	12.0	0.0131	19.0	13.2	0.0335	11.7
5.00	22.3	15.0	9.0	0.0131	16.0	13.7	0.0216	8.8
15.00	22.3	13.0	7.0	0.0131	14.0	14.0	0.0126	6.8
30.00	22.3	12.0	6.0	0.0131	13.0	14.2	0.0090	5.9
60.00	22.1	12.0	6.0	0.0131	13.0	14.2	0.0064	5.9
250.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0031	5.0
1440.00	21.9	10.0	4.1	0.0131	11.0	14.5	0.0013	4.0

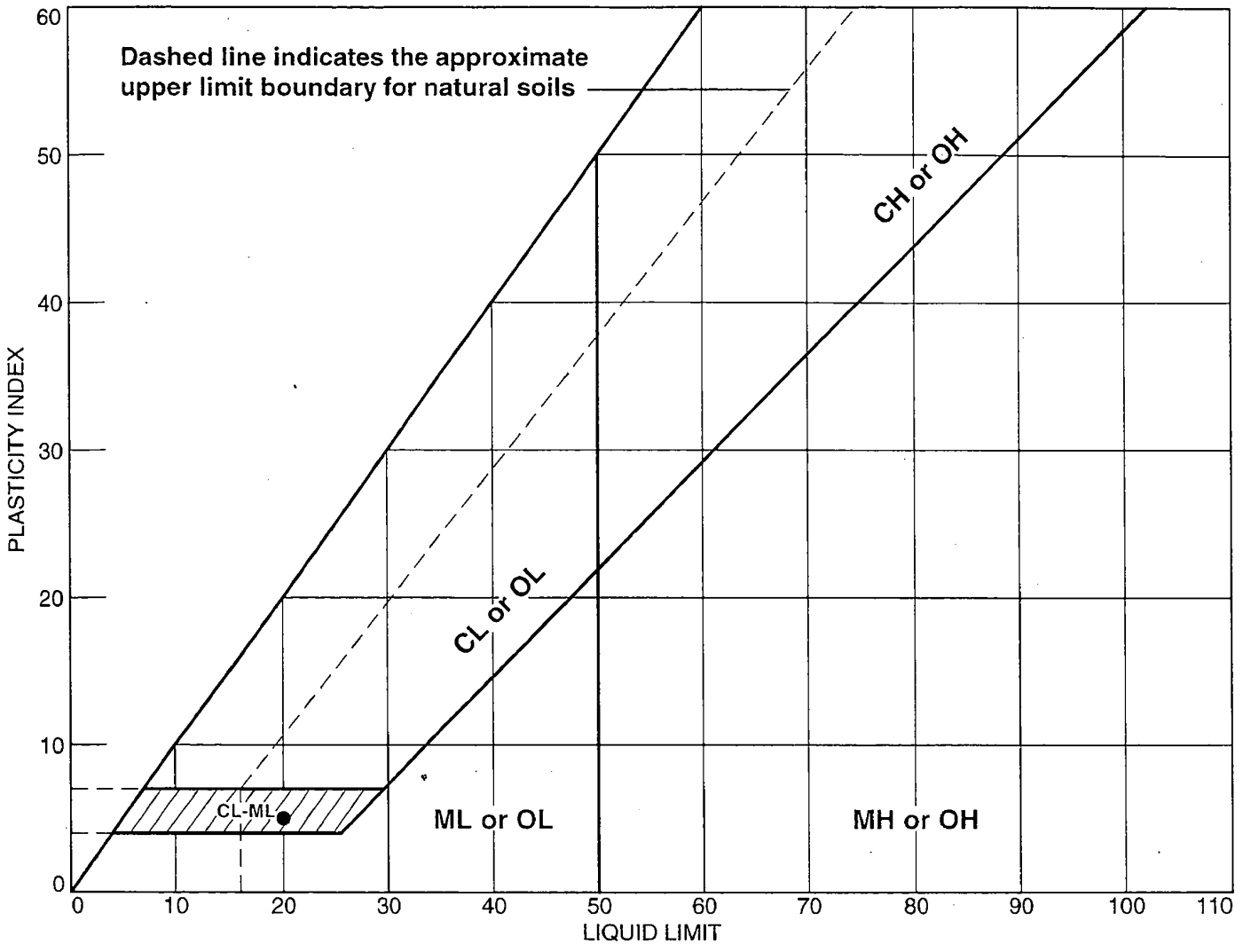
MACTEC Engineering and Consulting, Inc.

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	79.3	79.6	14.8	5.6	20.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0265	0.0479	0.0726	0.1221	0.1631	0.1775	0.2084	0.2175	0.2279	0.2405

Fineness Modulus	C_u	C_c
0.60	6.70	3.17

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
●	Boring B-630	UD-23	258.5-261	22.7	15	20	5	SC-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

ZHU 7/22/08

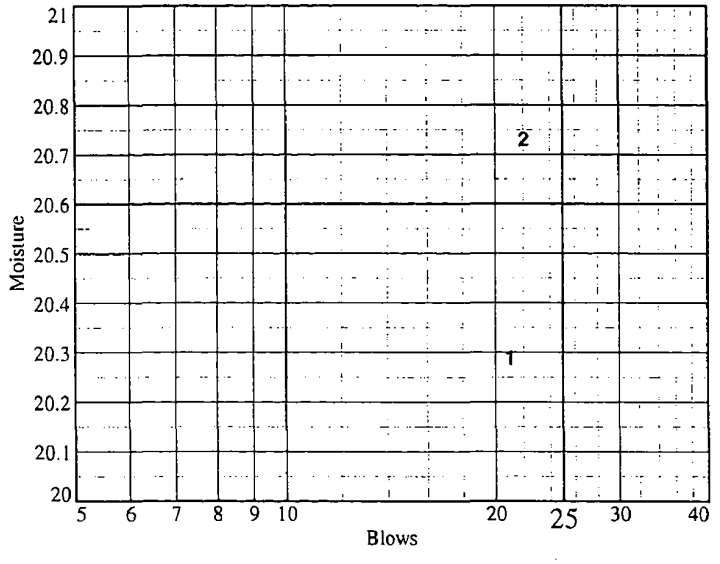
Tested By: CS **Checked By:** LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 258.5-261 **Sample Number:** UD-23
Material Description: Dark Greenish Gray Silty Clayey SAND
USCS: SC-SM **AASHTO:** A-2-4(0)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	30.48	26.94				
Dry+Tare	27.96	24.22				
Tare	15.54	11.10				
# Blows	21	22				
Moisture	20.3	20.7				



Liquid Limit= 20
Plastic Limit= 15
Plasticity Index= 5
Natural Moisture= 22.7
Liquidity Index= 1.5

Plastic Limit Data

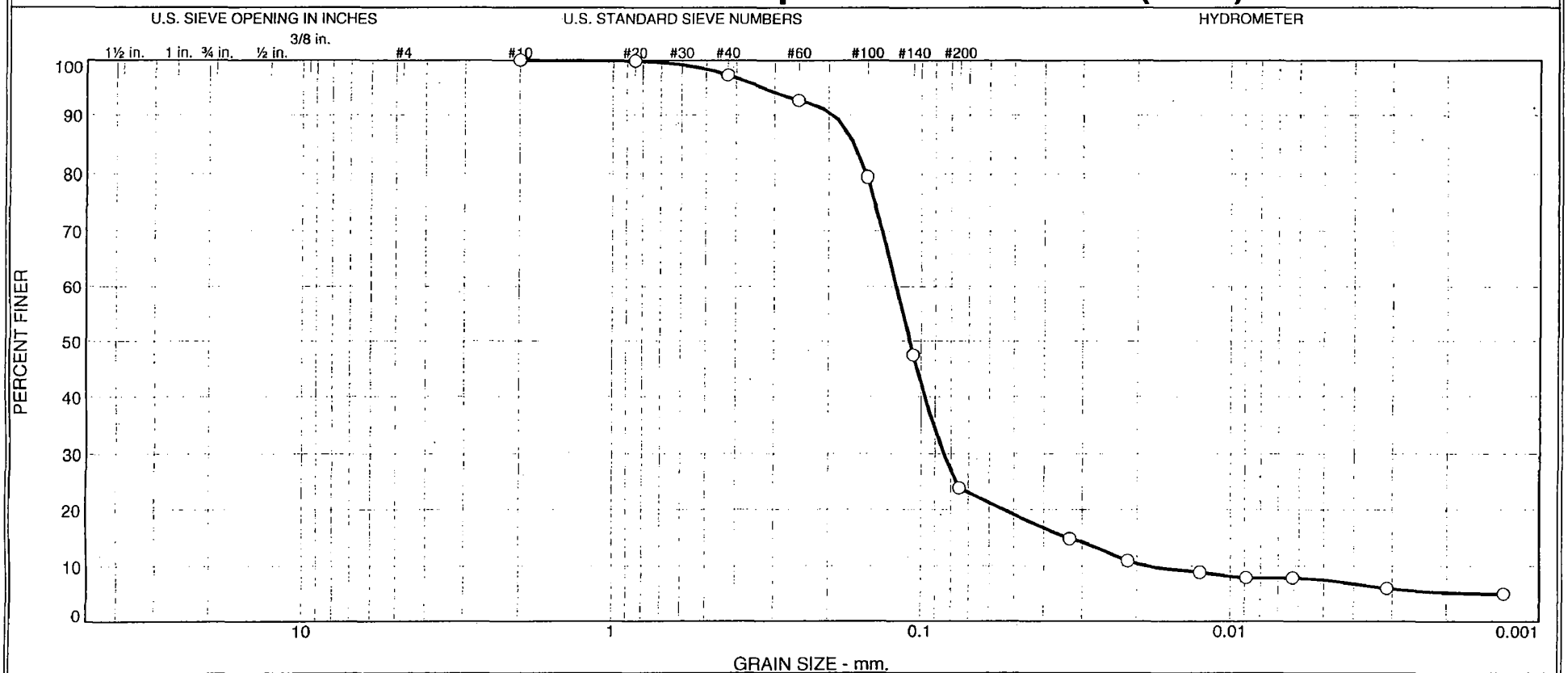
Run No.	1	2	3	4	
Wet+Tare	26.56	32.69			
Dry+Tare	24.53	30.36			
Tare	11.15	15.49			
Moisture	15.2	15.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
133.08	110.16	9.22	22.7

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	2.7	73.4	16.4	7.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-27	291.5-294	4/29/08	SM	Dark Greenish Gray Silty SAND	22.1	23	20

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/4

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

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

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 291.5-294 **Sample Number:** UD-27
Material Description: Dark Greenish Gray Silty SAND
Date: 4/29/08 **Natural Moisture:** 22.1
Liquid Limit: 23 **Plastic Limit:** 20 **USCS Class.:** SM
Testing Remarks: Specific Gravity is Assumed
Tested by: CS **Checked by:** LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
282.14	0.00	0.00	#10	0.00	100.0
100.92	0.00	0.00	#20	0.14	99.9
			#40	2.70	97.3
			#60	7.44	92.6
			#100	20.73	79.5
			#140	53.05	47.4
			#200	76.78	23.9

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =100.92
Hygroscopic moisture correction:
Moist weight and tare = 28.36
Dry weight and tare = 28.30
Tare weight = 15.55
Hygroscopic moisture = 0.5%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-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

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	21.0	15.0	0.0131	22.0	12.7	0.0330	14.8
5.00	22.1	17.0	11.0	0.0131	18.0	13.3	0.0214	10.9
15.00	22.1	15.0	9.0	0.0131	16.0	13.7	0.0125	8.9
30.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0089	7.9
60.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0063	7.9
250.00	21.9	12.0	6.1	0.0131	13.0	14.2	0.0031	6.0
1440.00	22.0	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

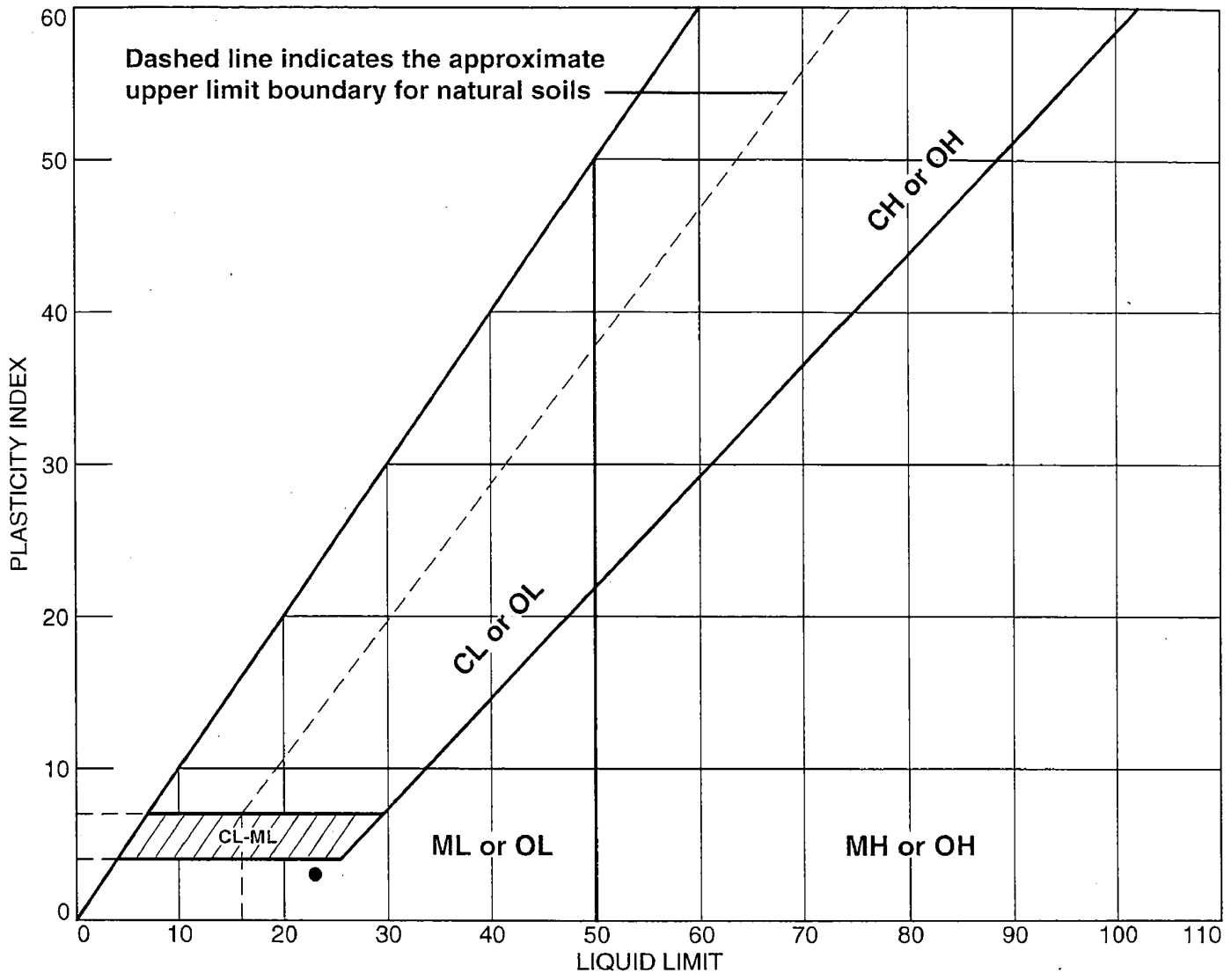
MACTEC Engineering and Consulting, Inc.

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.7	73.4	76.1	16.4	7.5	23.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0186	0.0336	0.0539	0.0843	0.1089	0.1206	0.1512	0.1652	0.1932	0.3293

Fineness Modulus	C_u	C_c
0.27	6.47	3.16

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
●	Boring B-630	UD-27	291.5-294	22.1	20	23	3	SM

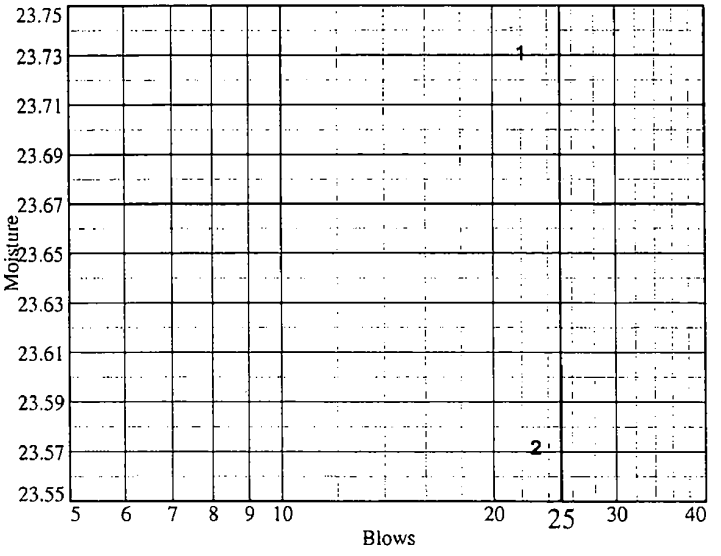
MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel	ZHU 7/22/08
	Project: Turkey Point COL	
Raleigh, North Carolina	**Project No.:** 6468071950	**Figure** N/A

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 291.5-294 **Sample Number:** UD-27
Material Description: Dark Greenish Gray Silty SAND
USCS: SM **AASHTO:** A-2-4(0)

Run No.	1	2	3	4	5	6
Wet+Tare	35.87	34.36				
Dry+Tare	31.99	30.77				
Tare	15.64	15.54				
# Blows	22	23				
Moisture	23.7	23.6				



Liquid Limit= 23
Plastic Limit= 20
Plasticity Index= 3
Natural Moisture= 22.1
Liquidity Index= 0.7

Run No.	1	2	3	4	
Wet+Tare	26.36	26.98			
Dry+Tare	24.56	25.02			
Tare	15.59	15.49			
Moisture	20.1	20.6			

Wet+Tare	Dry+Tare	Tare	Moisture
140.21	116.07	6.70	22.1

MACTEC Engineering and Consulting, Inc.

Soil Index Tests-
700 Series Boreholes

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	31	24	45	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-1	0.0-1.5	4/3/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 0.0-1.5 **Sample Number:** 701-1
Material Description: Olive Gray Silty SAND (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 62.11
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
62.11	0.00	0.00	#10	0.00	100
			#20	12.71	80
			#40	19.22	69
			#60	23.99	61
			#100	28.43	54
			#140	31.74	49
			#200	34.14	45

Fractional Components

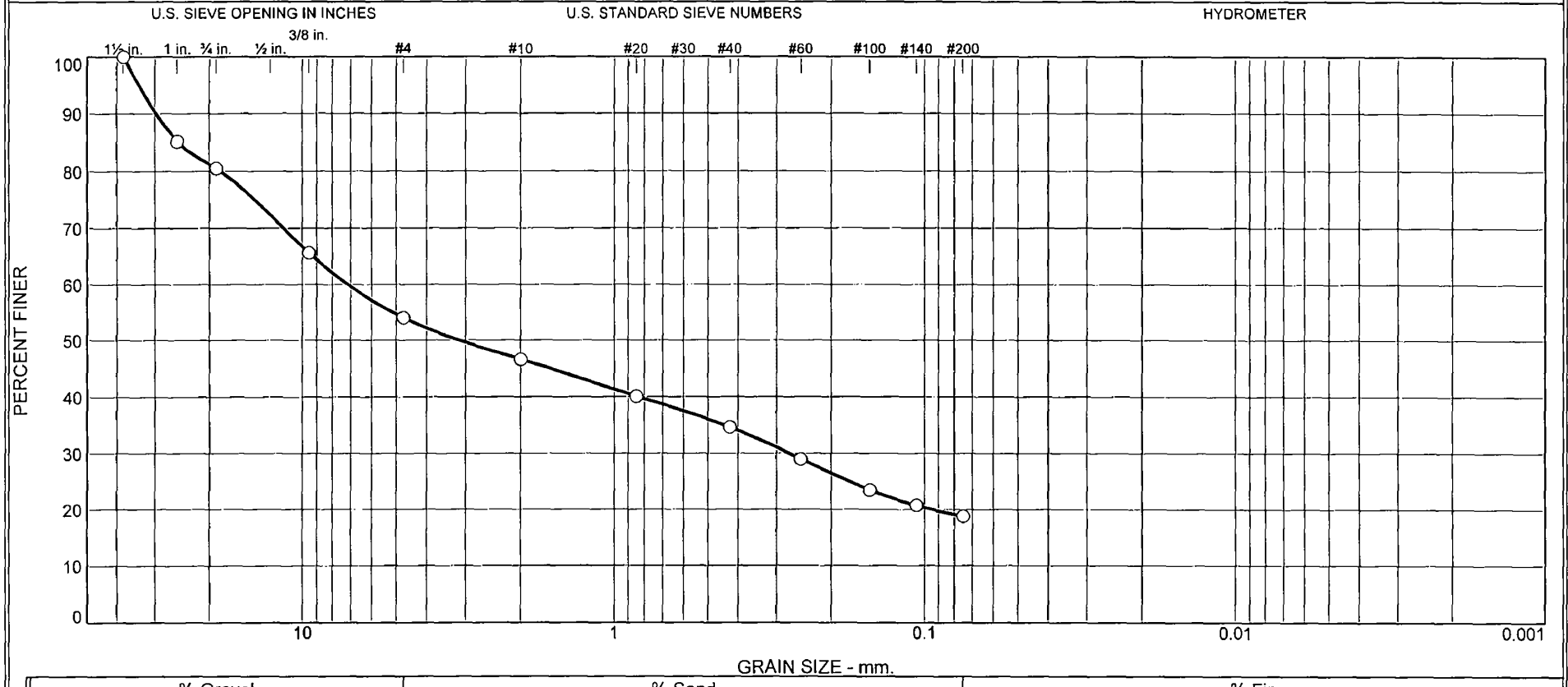
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	31	24	55			45

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1145	0.2262	0.8710	1.1042	1.3608	1.6545

Fineness Modulus
1.21

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	19	27	7	12	16	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-2B	2.9-4.0	4/3/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 2.9-4.0 **Sample Number:** 701-2B
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
548.50	0.00	0.00	1.5	0.00	100
			1	81.31	85
			3/4	106.90	81
			3/8	188.51	66
			#4	252.01	54
			#10	293.08	47
96.30	0.00	0.00	#20	13.42	40
			#40	24.66	35
			#60	36.32	29
			#100	47.72	23
			#140	53.44	21
			#200	57.45	19

Fractional Components

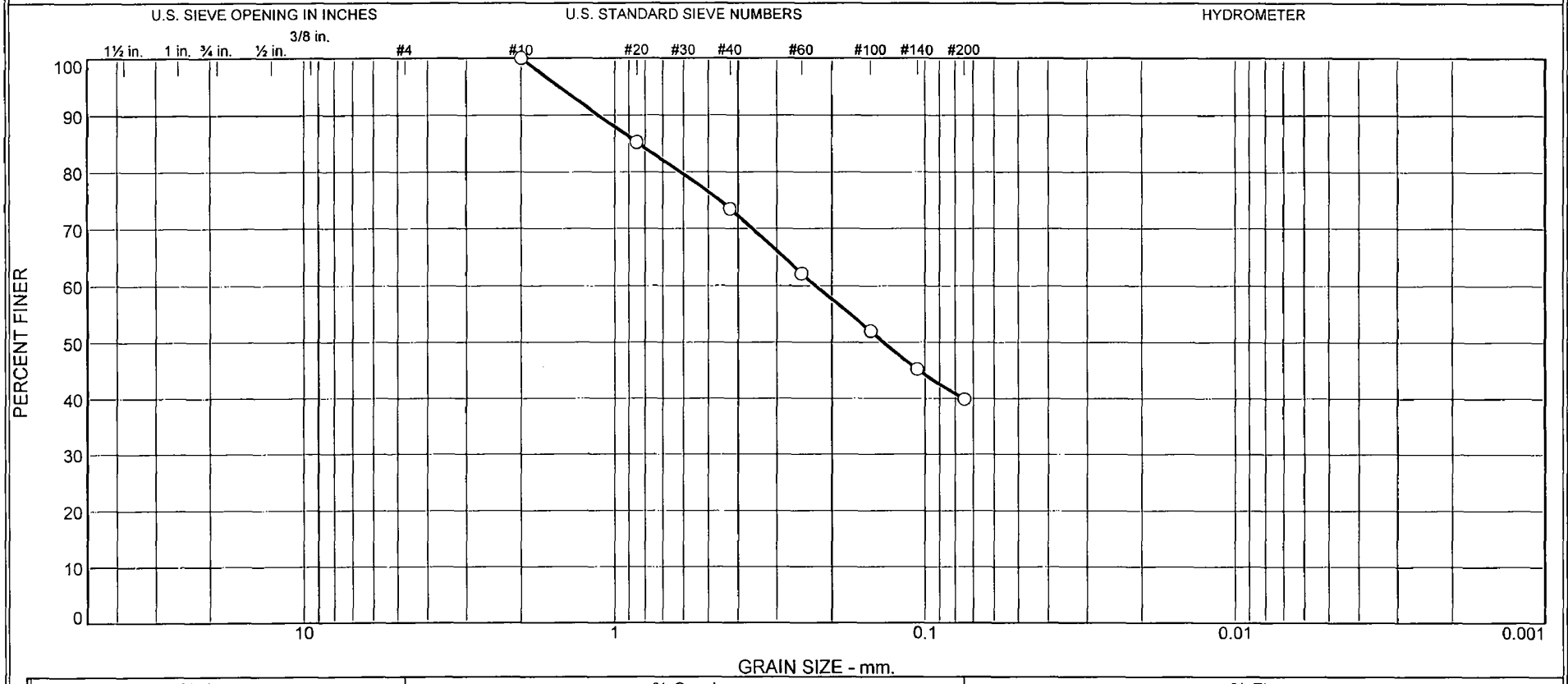
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	27	46	7	12	16	35			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0941	0.2730	3.1520	7.1427	18.4385	25.2089	29.7887	33.8684

Fineness Modulus
4.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	27	33	40	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-3	5.6-6.6	4/3/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 5.6-6.6 **Sample Number:** 701-3
Material Description: Pale Yellow Silty SAND (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)
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
311.96	0.00	0.00	#10	0.00	100
98.02	0.00	0.00	#20	14.44	85
			#40	26.03	73
			#60	37.07	62
			#100	47.04	52
			#140	53.68	45
			#200	58.90	40

Fractional Components

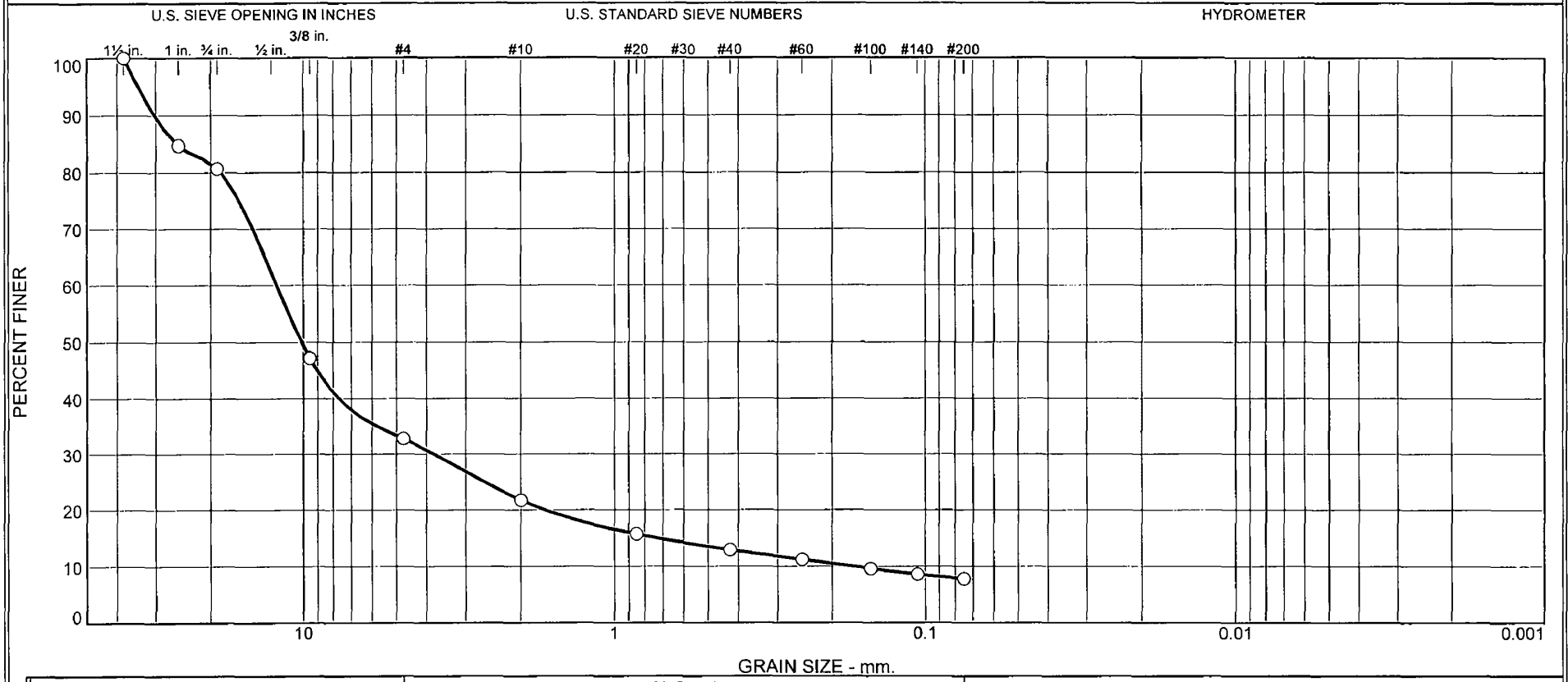
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	27	33	60			40

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1358	0.2248	0.6140	0.8361	1.1283	1.5059

Fineness Modulus
1.12

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	19	48	11	9	5	8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-6	12.5-14.0	4/3/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 12.5-14.0 **Sample Number:** 701-6
Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
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
341.78	0.00	0.00	1.5	0.00	100
			1	52.26	85
			3/4	65.92	81
			3/8"	180.66	47
			#4	229.70	33
			#10	267.50	22
			#20	288.00	16
			#40	297.50	13
			#60	303.40	11
			#100	308.91	10
			#140	312.32	9
			#200	315.00	8

Fractional Components

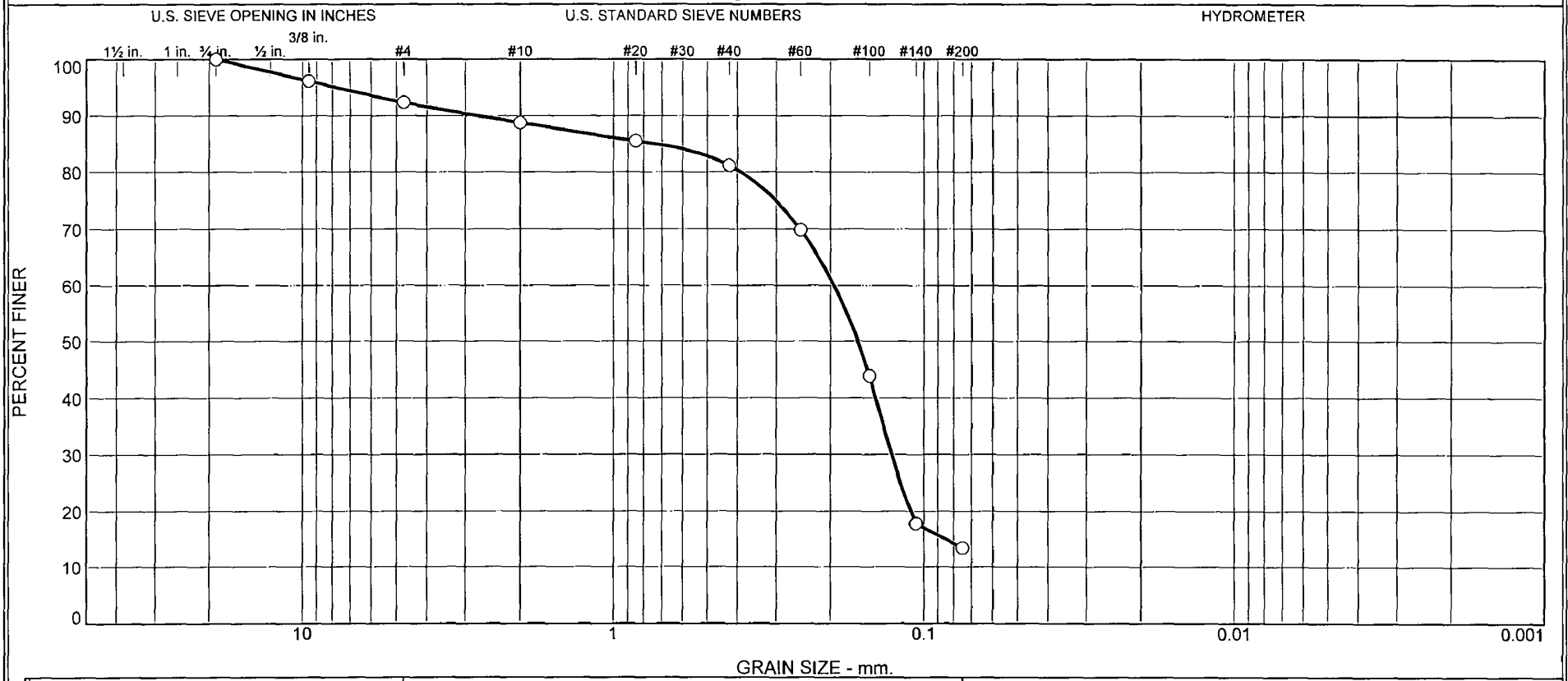
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	48	67	11	9	5	25			8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1696	0.7212	1.6763	3.7878	10.1325	12.1886	18.5175	25.7680	30.3633	34.1997

Fineness Modulus	C_u	C_c
5.63	71.85	6.94

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	8	3	8	68	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-8	115.5-117.0	4/3/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 115.5-117.0 **Sample Number:** 701-8
Material Description: White Silty SAND (Visual)
Date: 4/3/08 **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
316.72	0.00	0.00	3/4	0.00	100
			3/8"	12.11	96
			#4	24.25	92
			#10	35.54	89
101.86	0.00	0.00	#20	3.80	85
			#40	8.75	81
			#60	21.70	70
			#100	51.50	44
			#140	81.45	18
			#200	86.45	13

Fractional Components

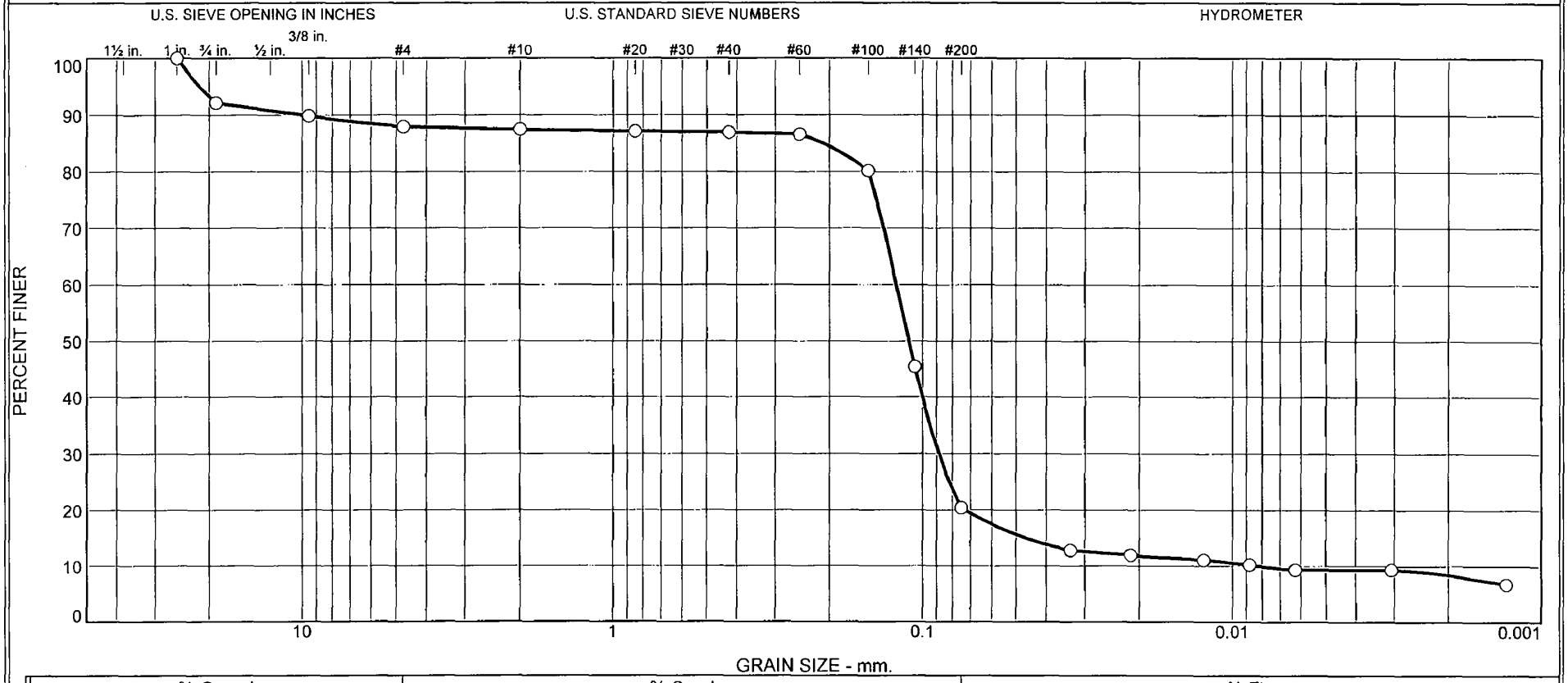
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	8	8	3	8	68	79			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0849	0.1105	0.1268	0.1633	0.1945	0.3904	0.7430	2.7450	7.7565

Fineness Modulus
1.32

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	7.8	4.3	0.5	0.5	66.5	11.0	9.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-9	122.7-124.2	4/7/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 122.7-124.2 **Sample Number:** 701-9
Material Description: White Silty SAND (Visual)
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
452.39	0.00	0.00	1	0.00	100.0
			3/4	35.33	92.2
			3/8"	45.84	89.9
			#4	54.55	87.9
			#10	56.90	87.4
100.73	0.00	0.00	#20	0.37	87.1
			#40	0.61	86.9
			#60	0.99	86.6
			#100	8.33	80.2
			#140	48.37	45.4
			#200	77.28	20.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =87.4
Weight of hydrometer sample =100.73
Hygroscopic moisture correction:
Moist weight and tare = 28.21
Dry weight and tare = 28.09
Tare weight = 15.44
Hygroscopic moisture =0.9%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
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	21.6	20.0	14.8	0.0132	21.0	12.9	0.0334	12.8
5.00	21.6	19.0	13.8	0.0132	20.0	13.0	0.0213	12.0
15.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0124	11.1
30.00	21.6	17.0	11.8	0.0132	18.0	13.3	0.0088	10.2
60.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0063	9.4
250.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0031	9.4
1440.00	21.6	13.0	7.8	0.0132	14.0	14.0	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

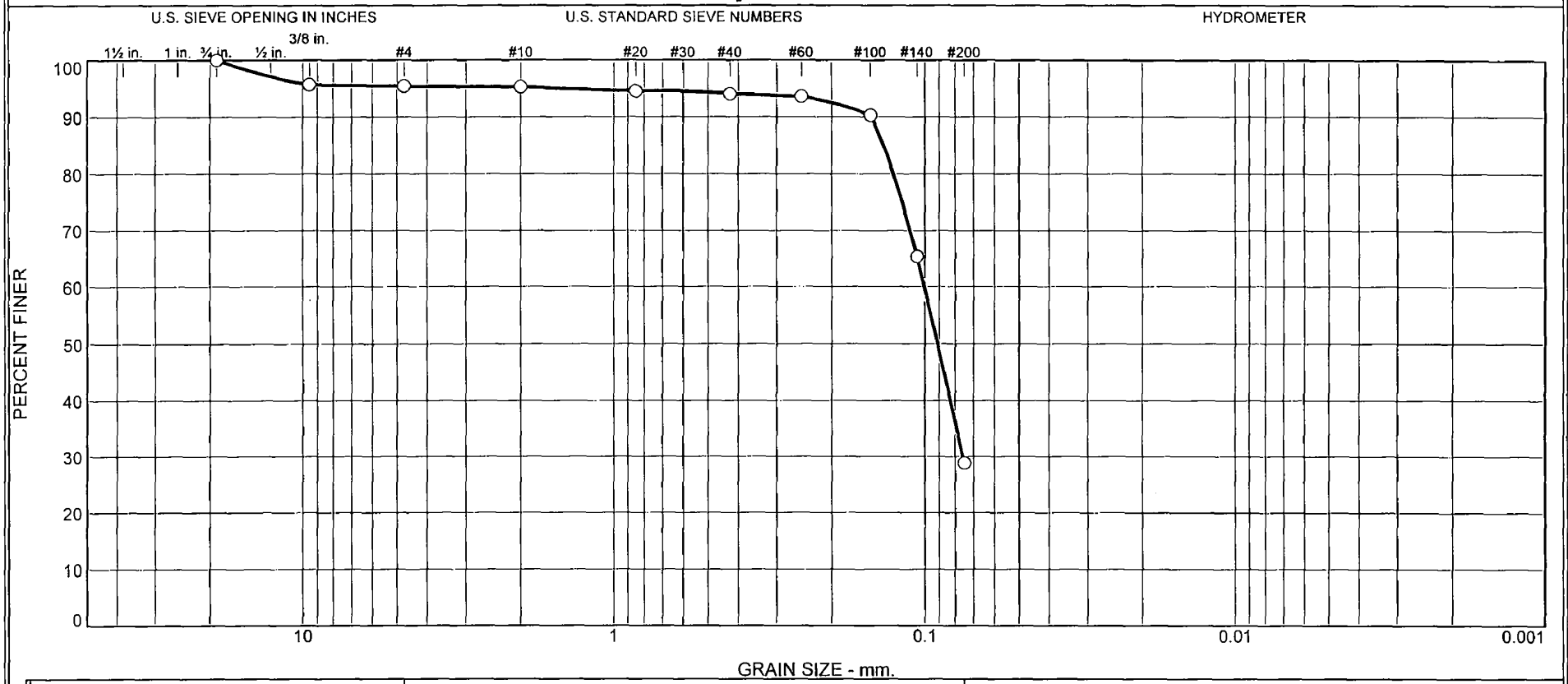
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	7.8	4.3	12.1	0.5	0.5	66.5	67.5	11.0	9.4	20.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0081	0.0466	0.0731	0.0886	0.1107	0.1213	0.1496	0.2089	9.9451	21.4615

Fineness Modulus	C_u	C_c
1.01	14.90	7.94

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	5	0	1	65	29	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-10	127.5-129.0	4/7/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 127.5-129.0 **Sample Number:** 701-10
Material Description: Light Olive Gray Silty SAND (Visual)
Date: 4/7/08 **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
311.68	0.00	0.00	3/4	0.00	100
			3/8"	13.56	96
			#4	14.38	95
			#10	14.78	95
100.12	0.00	0.00	#20	0.78	95
			#40	1.32	94
			#60	1.79	94
			#100	5.23	90
			#140	31.40	65
			#200	69.78	29

Fractional Components

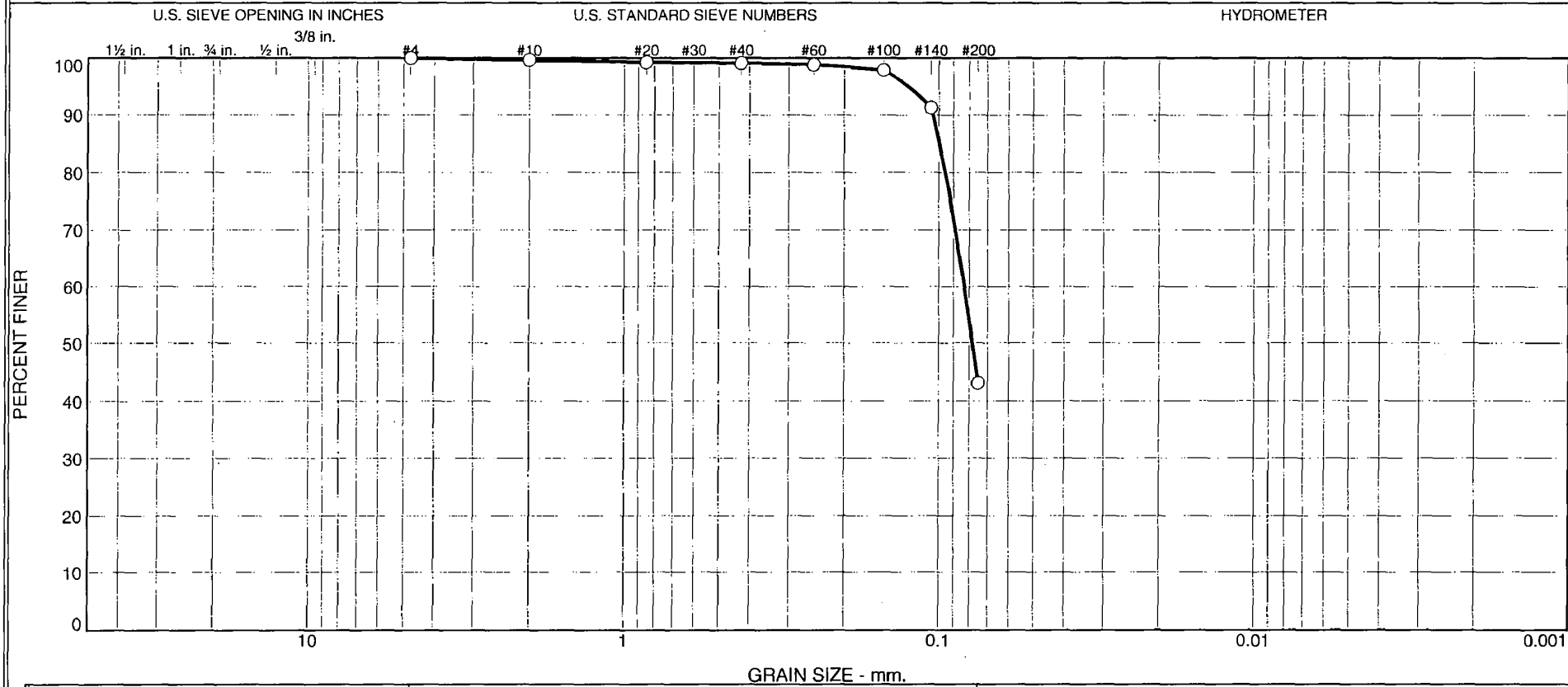
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	5	5	0	1	65	66			29

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0758	0.0910	0.1003	0.1258	0.1354	0.1490	1.5439

Fineness Modulus
0.41

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	56	43	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-12	147.5-149.0	4/7/08	SM	Olive Gray Silty SAND	ND	23	22

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 147.5-149.0 **Sample Number:** 701-12
Material Description: Olive Gray Silty SAND
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: 23 **Plastic Limit:** 22 **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
260.74	0.00	0.00	#4	0.00	100
			#10	0.95	100
103.66	0.00	0.00	#20	0.38	99
			#40	0.52	99
			#60	0.79	99
			#100	1.77	98
			#140	8.69	91
			#200	58.84	43

Fractional Components

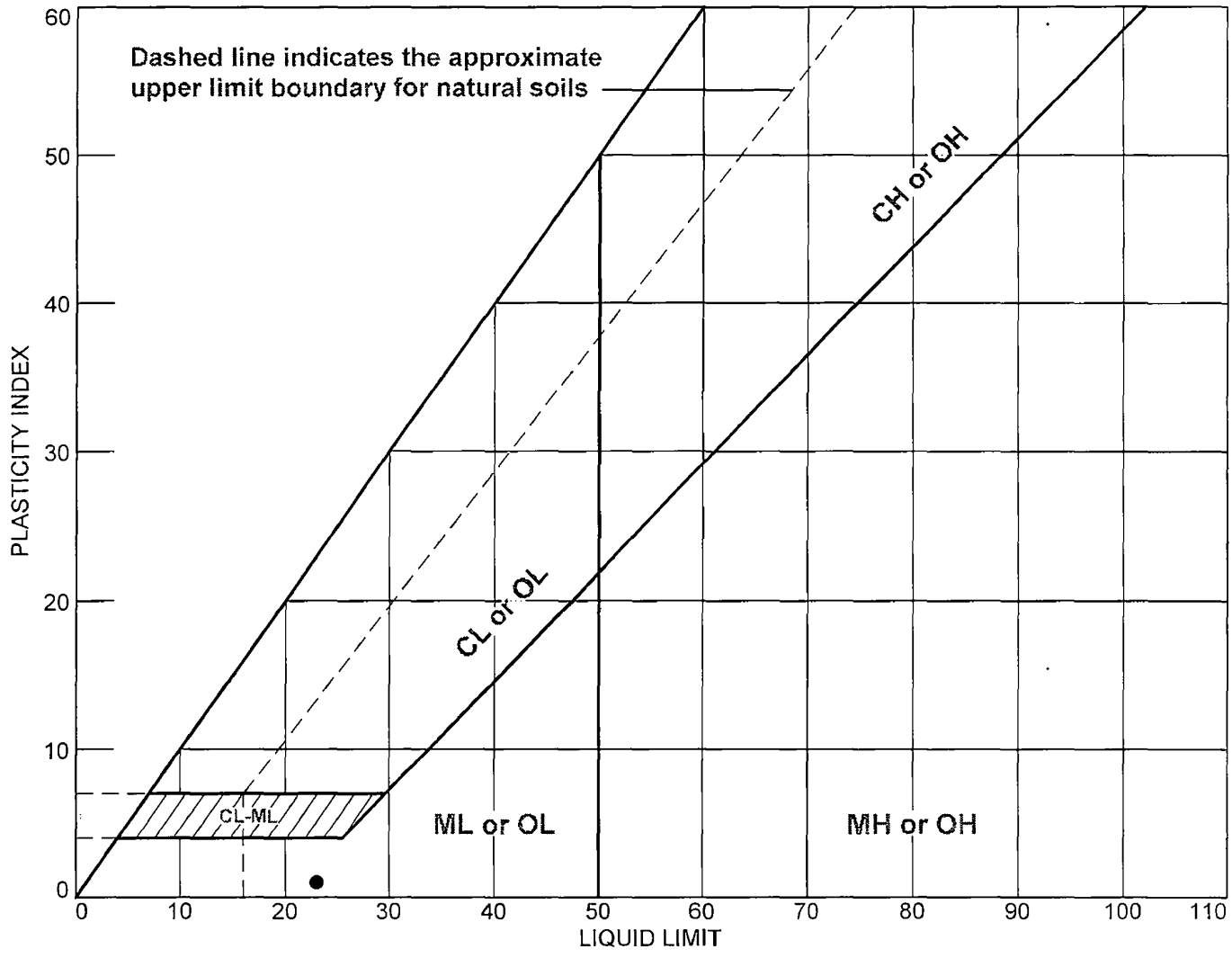
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	56	57			43

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0781	0.0830	0.0951	0.0992	0.1044	0.1247

Fineness Modulus
0.05

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-12	147.5-149.0	ND	22	23	1	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

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

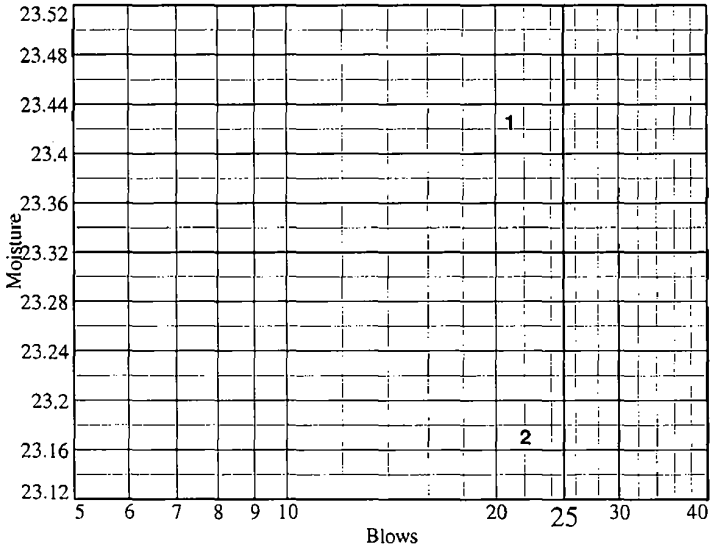
LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 147.5-149.0 **Sample Number:** 701-12
Material Description: Olive Gray Silty SAND
USCS: SM **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.47	30.57				
Dry+Tare	28.42	27.72				
Tare	15.40	15.42				
# Blows	21	22				
Moisture	23.4	23.2				



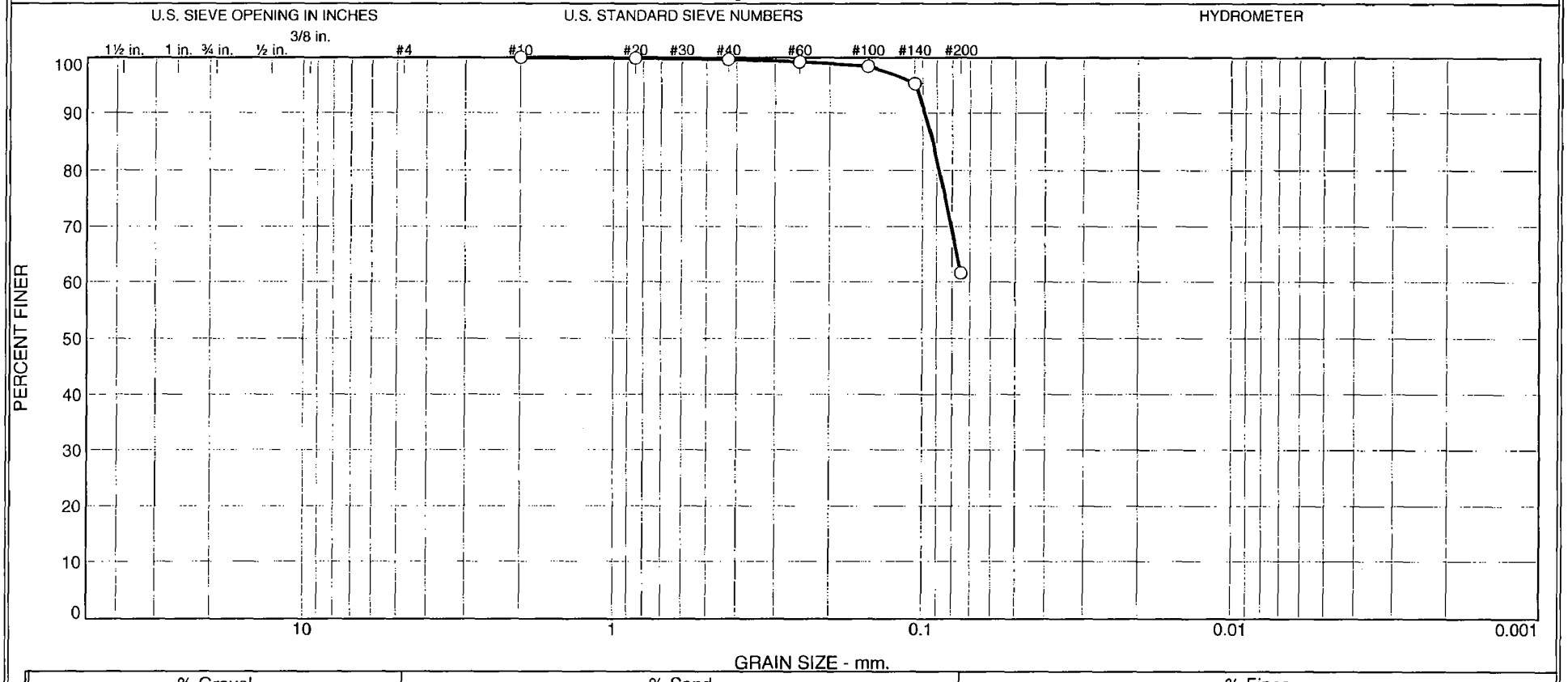
Liquid Limit= 23
Plastic Limit= 22
Plasticity Index= 1
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	32.23	28.80			
Dry+Tare	29.24	26.43			
Tare	15.82	15.63			
Moisture	22.3	21.9			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	38	62	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-15	172.5-174.0	4/7/08	ML	Olive Gray SILT with sand	ND	22	19

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 172.5-174.0 **Sample Number:** 701-15
Material Description: Olive Gray SILT with sand
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: 22 **Plastic Limit:** 19 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
372.91	0.00	0.00	#10	0.00	100
100.65	0.00	0.00	#20	0.10	100
			#40	0.34	100
			#60	0.76	99
			#100	1.56	98
			#140	4.73	95
			#200	38.60	62

Fractional Components

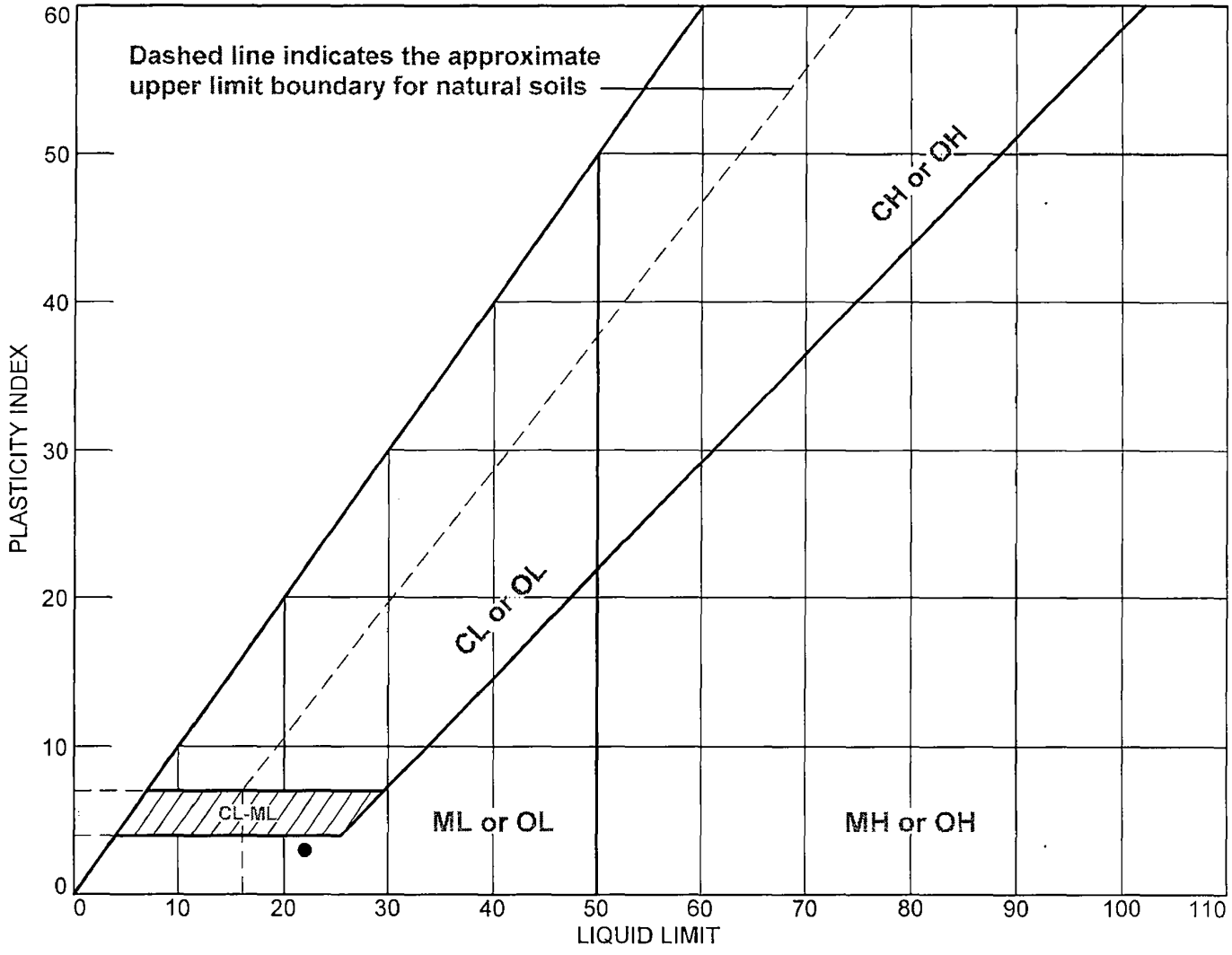
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	38	38			62

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0879	0.0924	0.0978	0.1054

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-15	172.5-174.0	ND	19	22	3	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

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

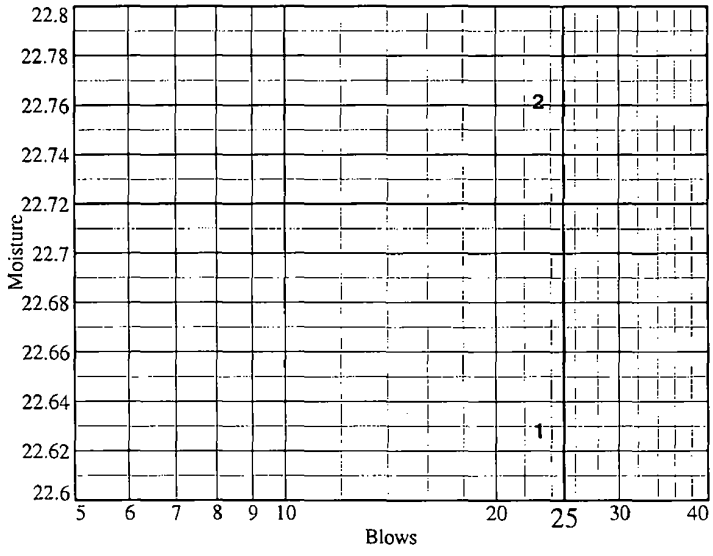
LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 172.5-174.0 **Sample Number:** 701-15
Material Description: Olive Gray SILT with sand
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.91	26.88				
Dry+Tare	29.69	24.77				
Tare	15.46	15.50				
# Blows	23	23				
Moisture	22.6	22.8				

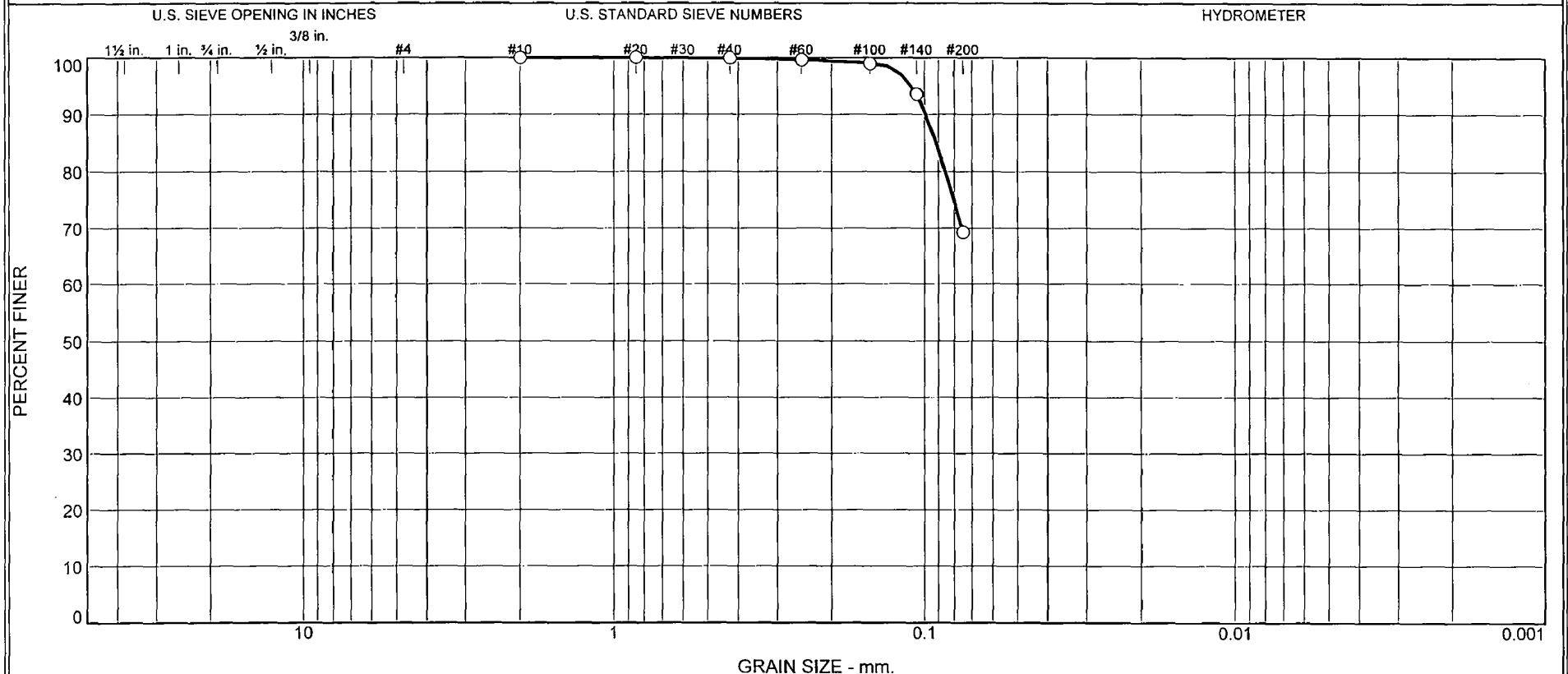


Liquid Limit= 22
Plastic Limit= 19
Plasticity Index= 3
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.72	27.48			
Dry+Tare	20.89	25.63			
Tare	11.19	15.60			
Moisture	18.9	18.4			

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	31	69	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-18	197.6-199.1	4/8/08	ML	Gray SILT with sand	ND	25	22

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 197.6-199.1 **Sample Number:** 701-18
Material Description: Gray SILT with sand
Date: 4/8/08 **Natural Moisture:** ND
Liquid Limit: 25 **Plastic Limit:** 22 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
300.26	0.00	0.00	#10	0.00	100
100.24	0.00	0.00	#20	0.01	100
			#40	0.11	100
			#60	0.36	100
			#100	1.02	99
			#140	6.46	94
			#200	30.79	69

Fractional Components

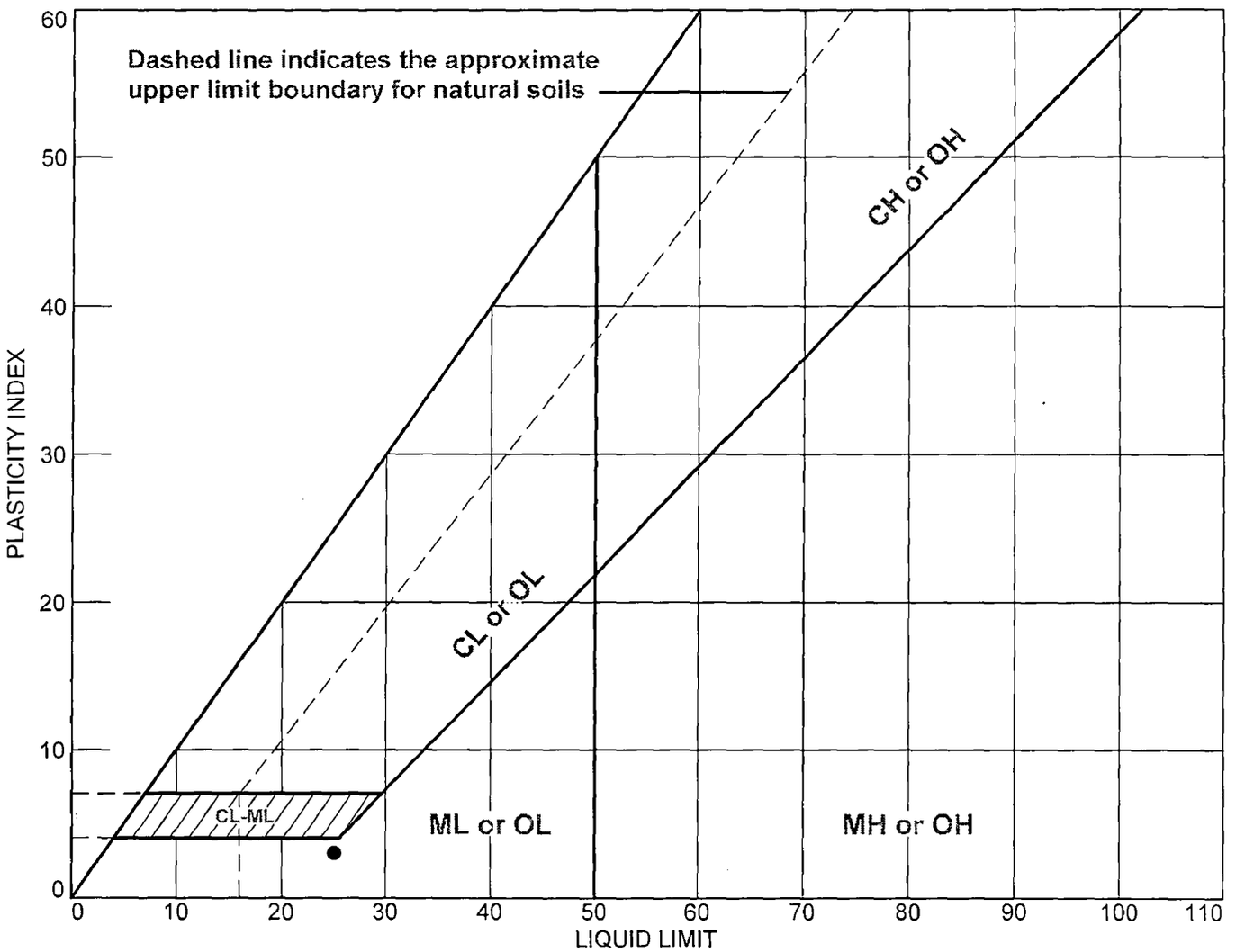
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	31	31			69

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0855	0.0914	0.0988	0.1100

Fineness Modulus
0.01

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-18	197.6-199.1	ND	22	25	3	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

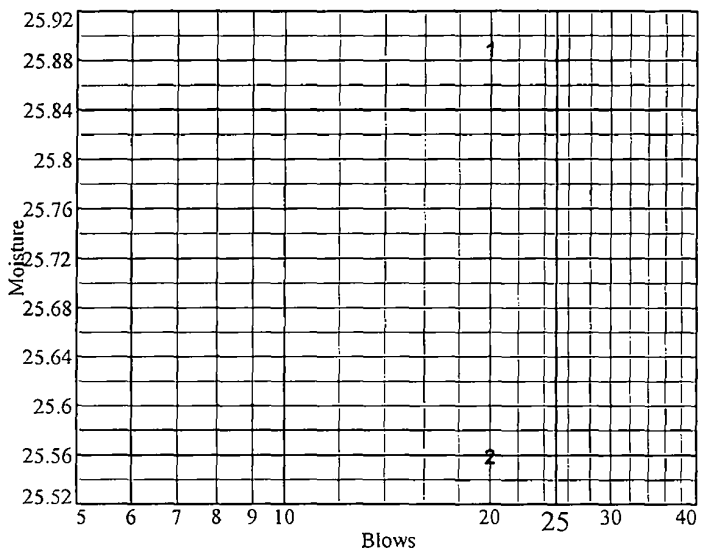
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 197.6-199.1 **Sample Number:** 701-18
Material Description: Gray SILT with sand
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.94	32.33				
Dry+Tare	28.59	28.90				
Tare	15.65	15.48				
# Blows	20	20				
Moisture	25.9	25.6				



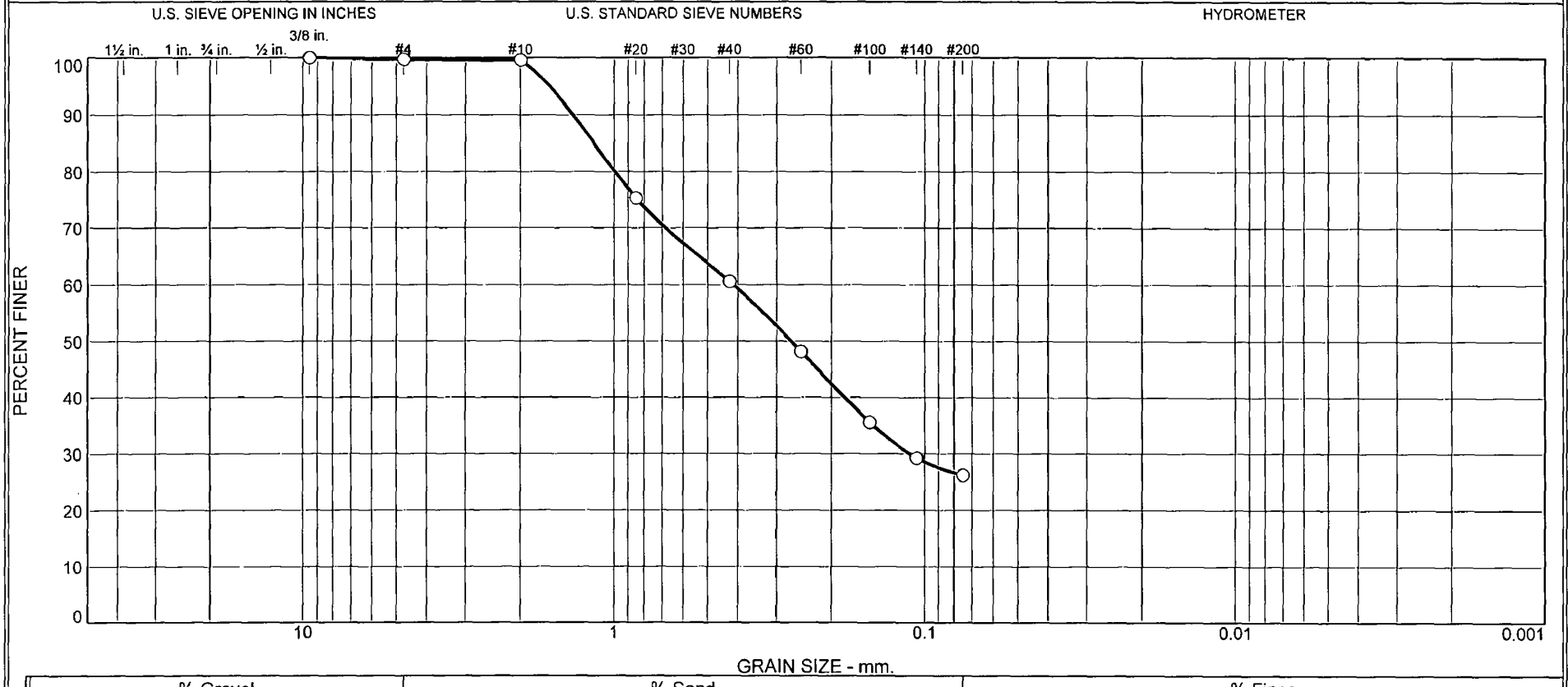
Liquid Limit= 25
Plastic Limit= 22
Plasticity Index= 3
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.85	23.62			
Dry+Tare	21.49	22.16			
Tare	15.52	15.48			
Moisture	22.8	21.9			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	39	35	26	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-19	207.6-209.1	4/8/08	SM	Gray Silty SAND	ND	29	24

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 207.6-209.1 **Sample Number:** 701-19
Material Description: Gray Silty SAND
Date: 4/8/08 **Natural Moisture:** ND
Liquid Limit: 29 **Plastic Limit:** 24 **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
247.93	0.00	0.00	3/8"	0.00	100
			#4	0.82	100
			#10	1.07	100
100.23	0.00	0.00	#20	24.44	75
			#40	39.26	61
			#60	51.73	48
			#100	64.49	36
			#140	70.81	29
			#200	73.89	26

Fractional Components

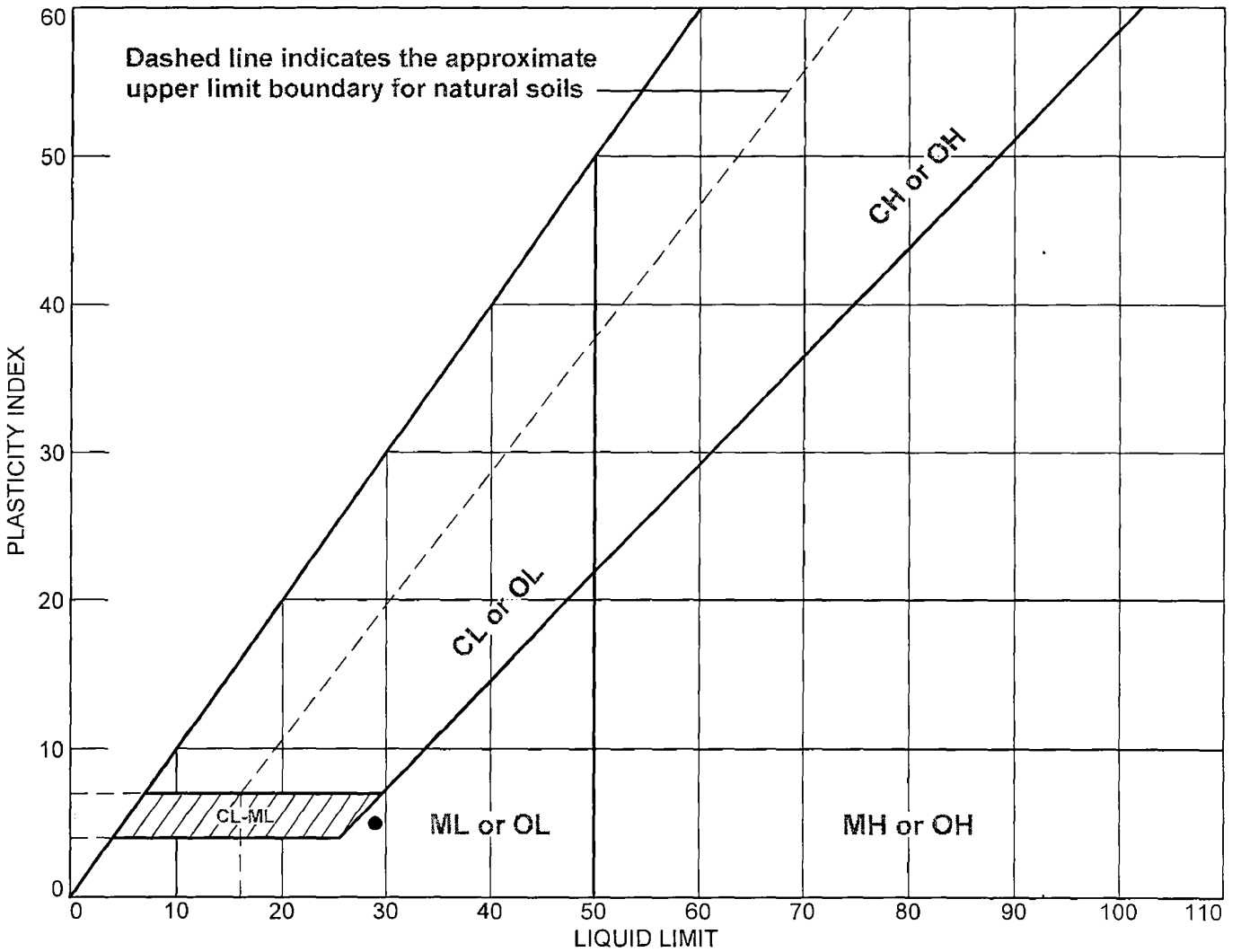
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	39	35	74			26

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1121	0.2687	0.4135	0.9958	1.1624	1.3580	1.6138

Fineness Modulus
1.60

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-19	207.6-209.1	ND	24	29	5	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

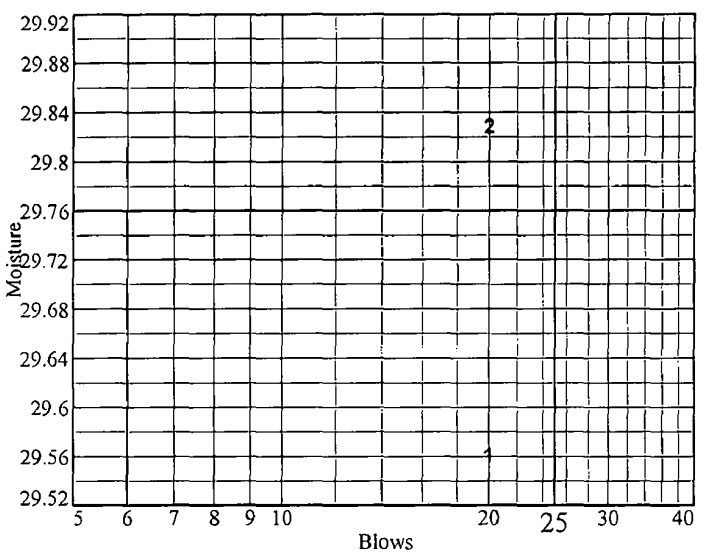
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 207.6-209.1 **Sample Number:** 701-19
Material Description: Gray 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	32.36	36.00				
Dry+Tare	28.52	31.29				
Tare	15.53	15.50				
# Blows	20	20				
Moisture	29.6	29.8				



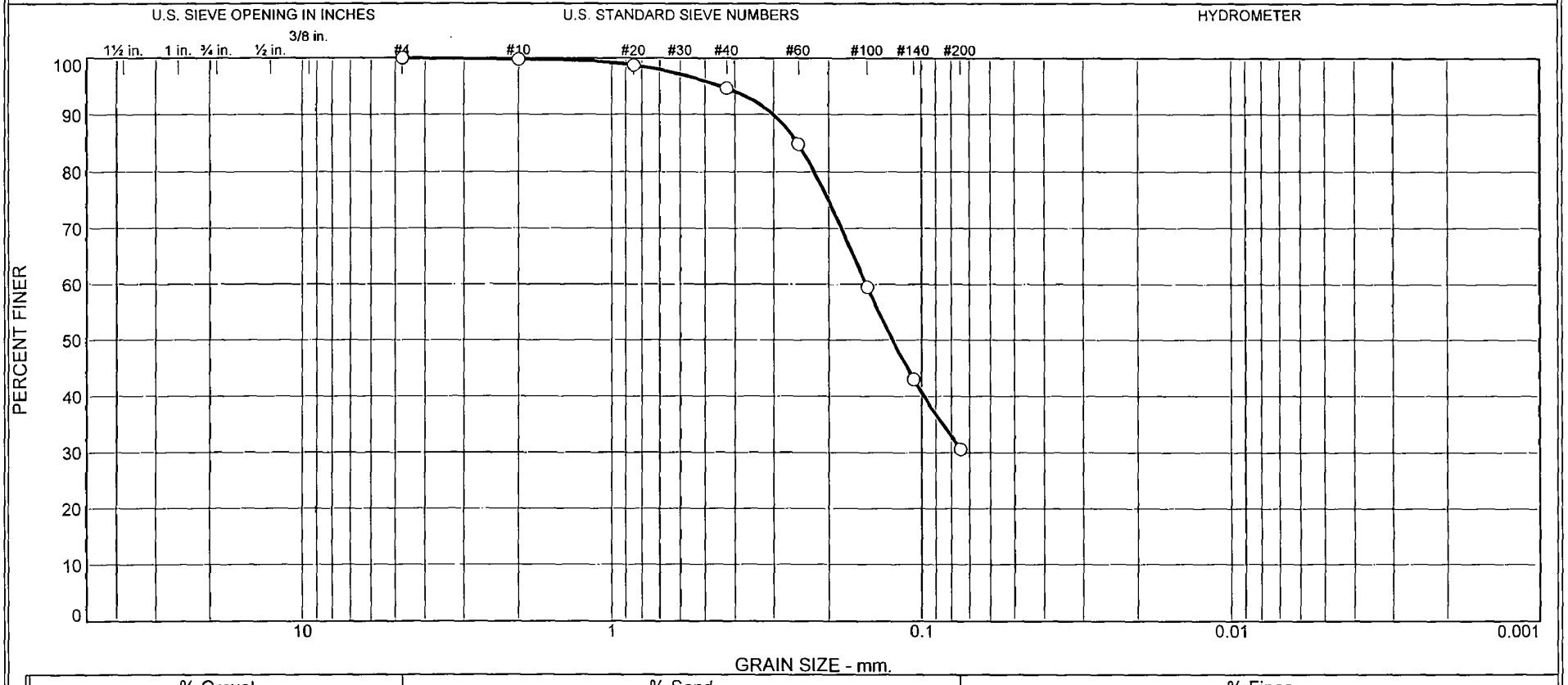
Liquid Limit= 29
Plastic Limit= 24
Plasticity Index= 5
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.13	24.14			
Dry+Tare	21.71	22.47			
Tare	15.65	15.53			
Moisture	23.4	24.1			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	5	64	31	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-20	217.5-219.0	4/8/08	SM	Olive Silty SAND	ND	25	22

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 217.5-219.0 **Sample Number:** 701-20
Material Description: Olive Silty SAND
Date: 4/8/08 **Natural Moisture:** ND
Liquid Limit: 25 **Plastic Limit:** 22 **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
321.75	0.00	0.00	#4	0.00	100
			#10	0.74	100
102.28	0.00	0.00	#20	1.04	99
			#40	5.29	95
			#60	15.28	85
			#100	41.26	60
			#140	58.21	43
			#200	70.91	31

Fractional Components

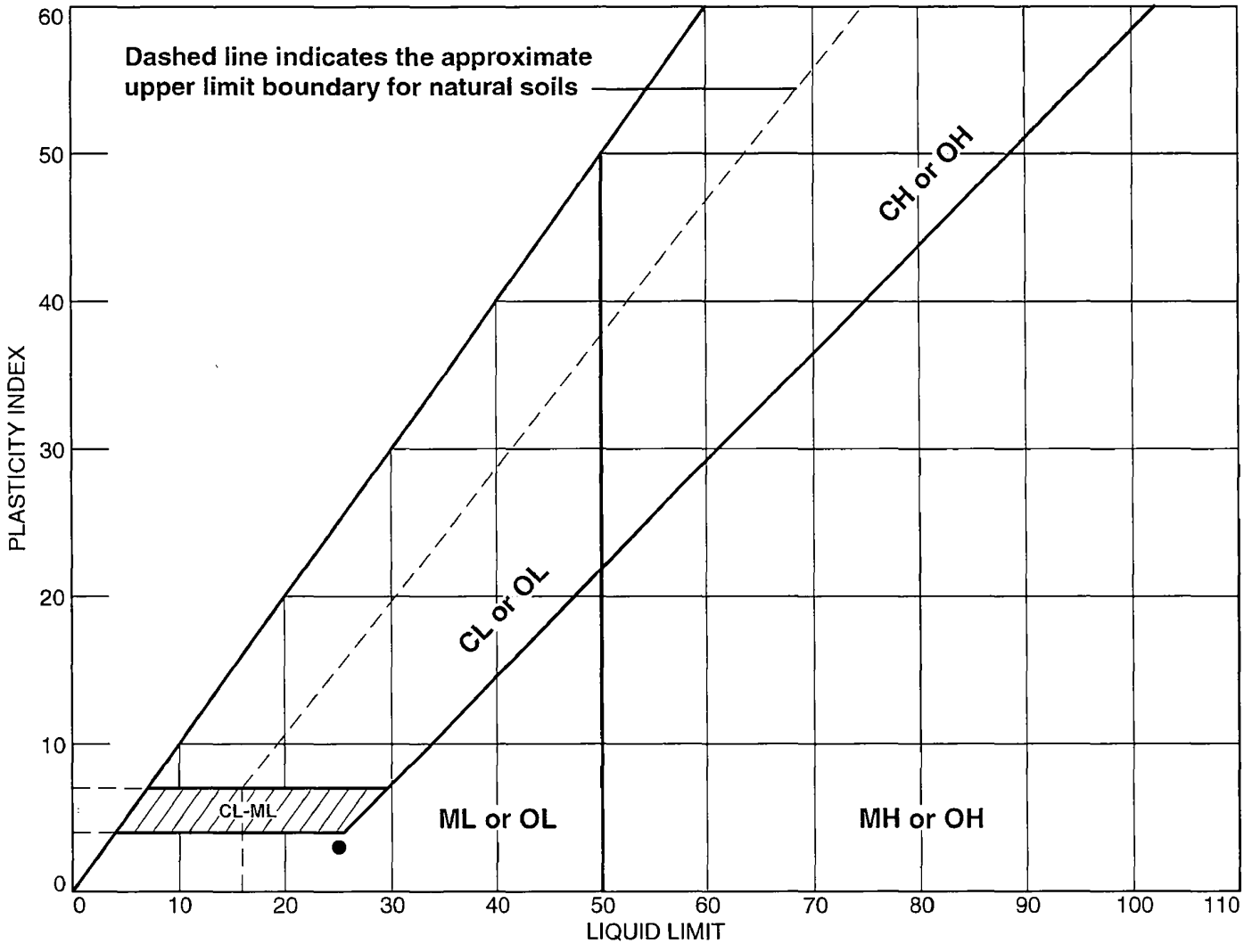
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	5	64	69			31

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1242	0.1513	0.2219	0.2510	0.3003	0.4450

Fineness Modulus
0.54

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-20	217.5-219.0	ND	22	25	3	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ ZHU 7-25-08

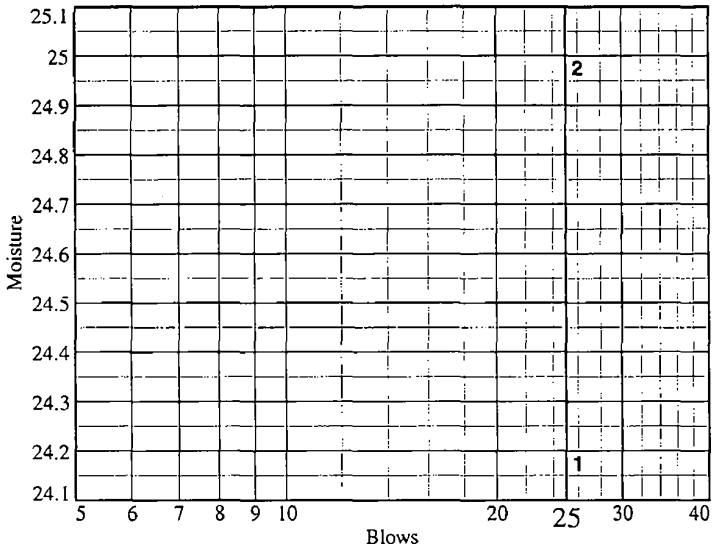
LIQUID AND PLASTIC LIMIT TEST DATA

7/28/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 217.5-219.0 **Sample Number:** 701-20
Material Description: Olive 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	31.30	29.36				
Dry+Tare	28.22	26.59				
Tare	15.48	15.50				
# Blows	26	26				
Moisture	24.2	25.0				



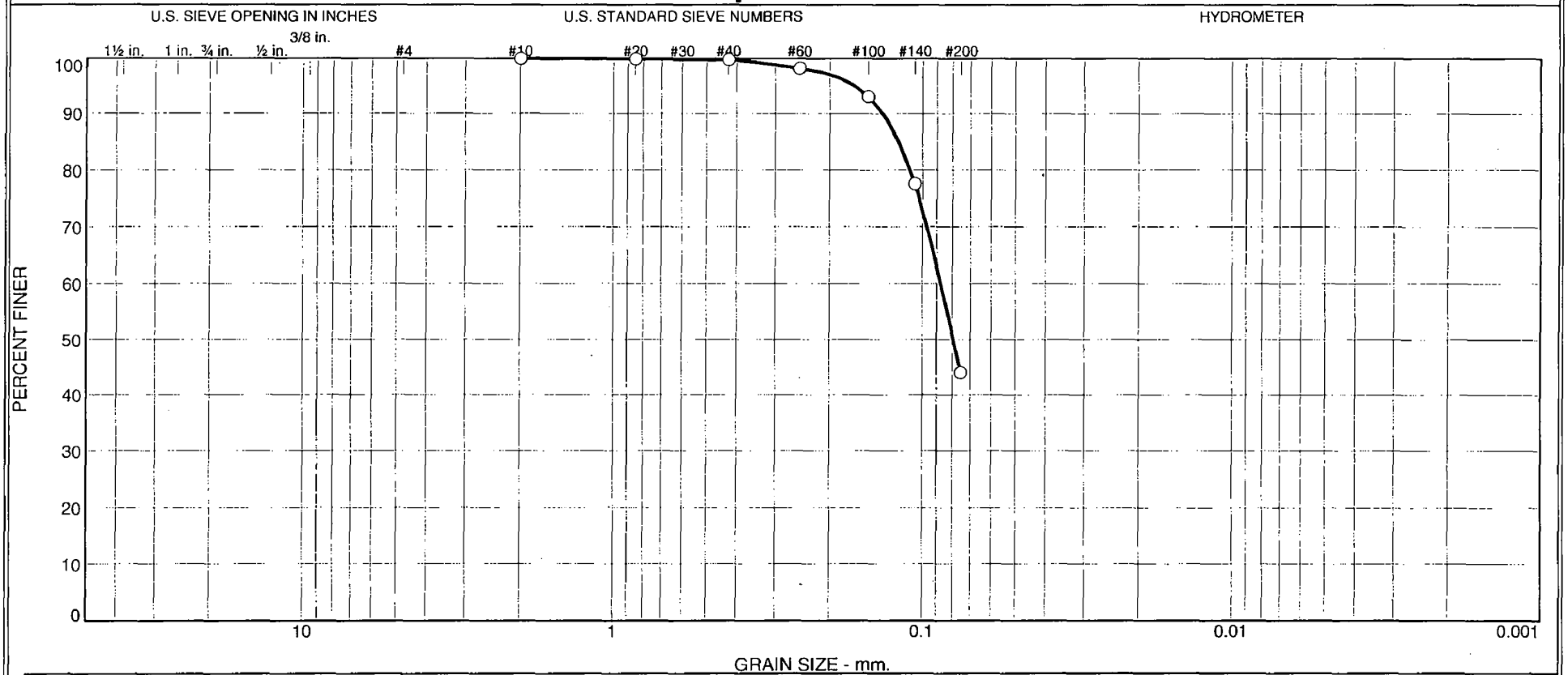
Liquid Limit= 25
Plastic Limit= 22
Plasticity Index= 3
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.77	26.41			
Dry+Tare	21.52	24.48			
Tare	15.75	15.51			
Moisture	21.7	21.5			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	56	44	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-22	237.5-239.0	4/9/08	SC-SM	Olive Gray Silty Clayey SAND	ND	21	17

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = NOT DETERMINED

ZHU 7/22/08

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

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 237.5-239.0 **Sample Number:** 701-22
Material Description: Olive Gray Silty Clayey SAND
Date: 4/9/08 **Natural Moisture:** ND
Liquid Limit: 21 **Plastic Limit:** 17 **USCS Class.:** SC-SM
Testing Remarks: 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
310.25	0.00	0.00	#10	0.00	100
99.74	0.00	0.00	#20	0.07	100
			#40	0.19	100
			#60	1.75	98
			#100	6.91	93
			#140	22.32	78
			#200	55.85	44

Fractional Components

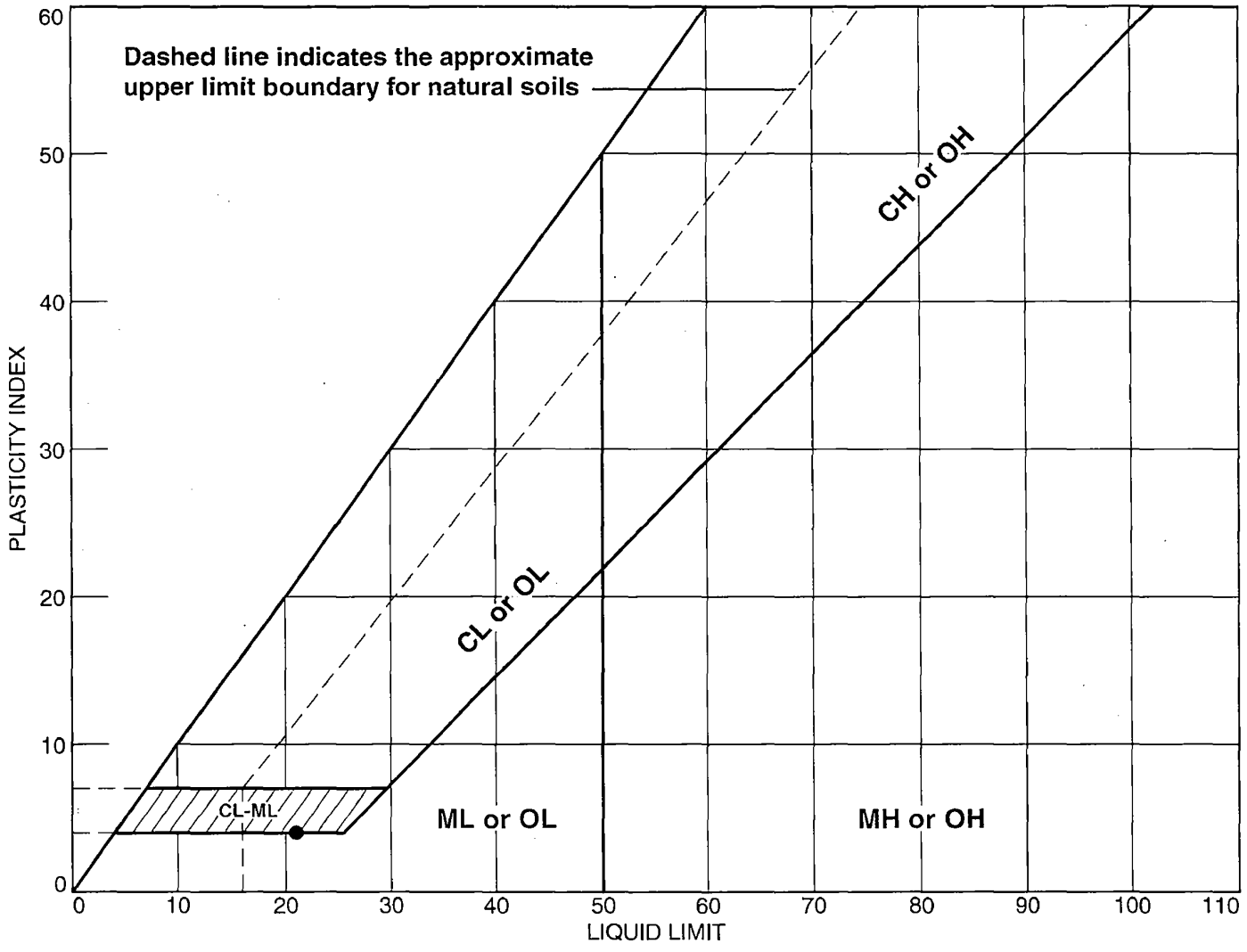
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	56	56			44

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0792	0.0871	0.1097	0.1195	0.1346	0.1653

Fineness Modulus
0.08

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-22	237.5-239.0	ND	17	21	4	SC-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel ZHU 7/22/08 **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

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

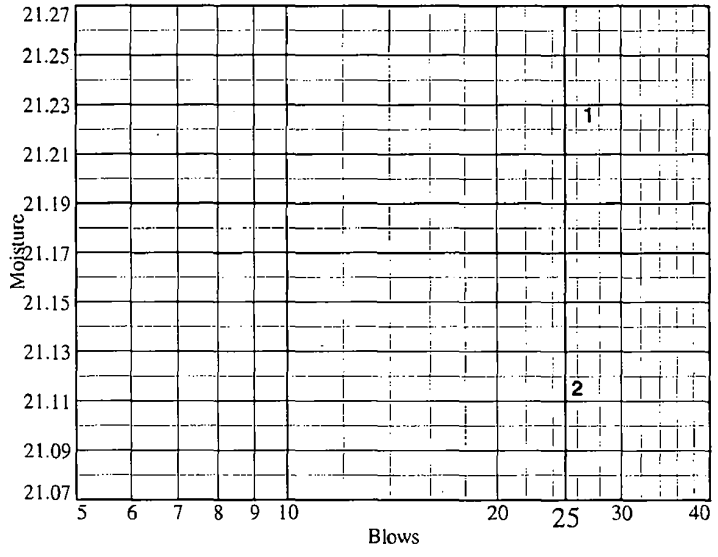
LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 237.5-239.0 **Sample Number:** 701-22
Material Description: Olive Gray Silty Clayey SAND
USCS: SC-SM **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.20	30.60				
Dry+Tare	28.43	27.95				
Tare	15.38	15.40				
# Blows	27	26				
Moisture	21.2	21.1				



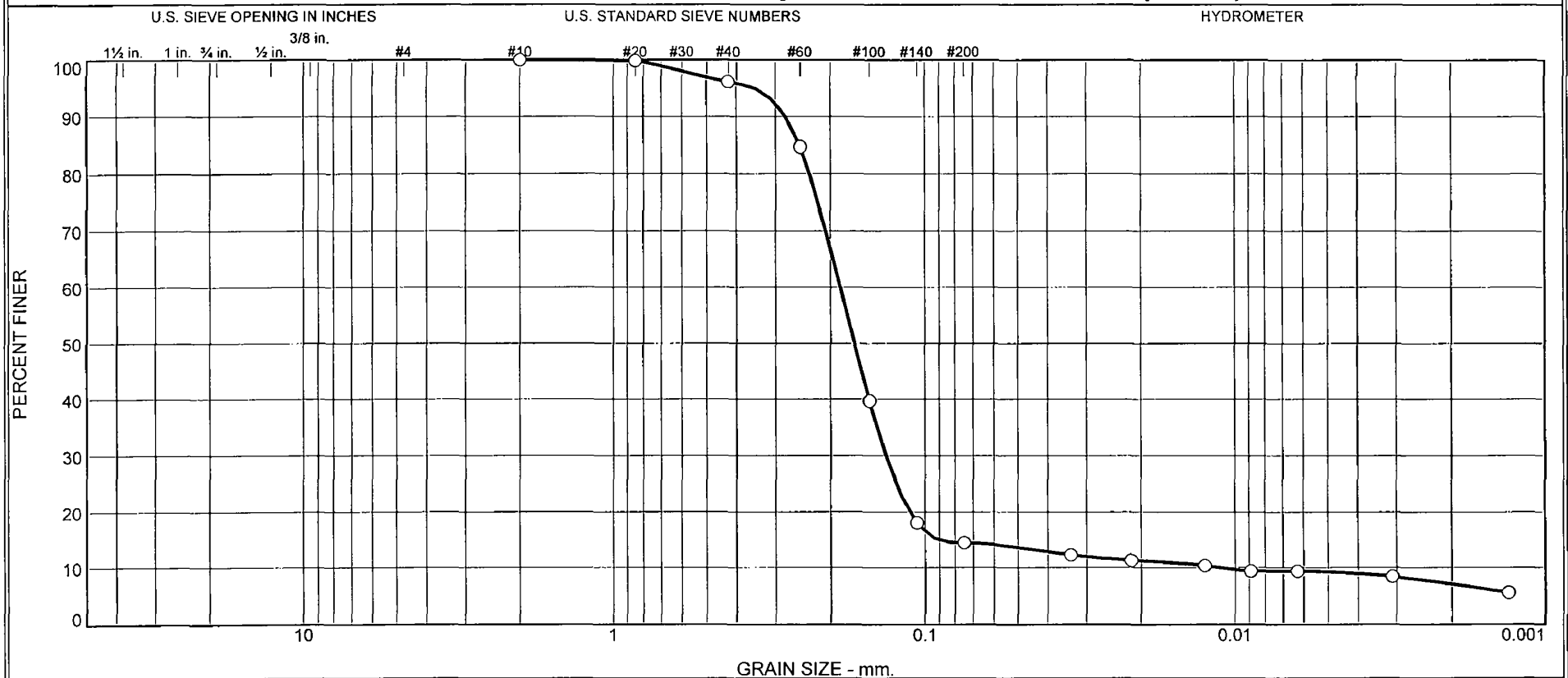
Liquid Limit= 21
Plastic Limit= 17
Plasticity Index= 4
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	21.85	24.08			
Dry+Tare	20.29	22.80			
Tare	11.19	15.53			
Moisture	17.1	17.6			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	3.9	81.6	5.3	9.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-28	297.5-299.0	4/10/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specfic Gravity is assumed
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 297.5-299.0 **Sample Number:** 701-28
Material Description: Olive Gray Silty SAND (Visual)
Date: 4/10/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specfic Gravity is assumed
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
399.56	0.00	0.00	#10	0.00	100.0
104.12	0.00	0.00	#20	0.14	99.9
			#40	4.03	96.1
			#60	16.01	84.6
			#100	62.84	39.6
			#140	85.33	18.0
			#200	89.06	14.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.11
Hygroscopic moisture correction:
Moist weight and tare = 29.72
Dry weight and tare = 29.62
Tare weight = 15.52
Hygroscopic moisture =0.7%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
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	21.6	18.0	12.8	0.0132	19.0	13.2	0.0338	12.3
5.00	21.6	17.0	11.8	0.0132	18.0	13.3	0.0215	11.3
15.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0125	10.3
30.00	21.6	15.0	9.8	0.0132	16.0	13.7	0.0089	9.4
60.00	21.6	15.0	9.8	0.0132	16.0	13.7	0.0063	9.4
250.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0031	8.4
1440.00	21.7	11.0	5.8	0.0132	12.0	14.3	0.0013	5.6

MACTEC Engineering and Consulting, 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	3.9	81.6	85.5	5.3	9.2	14.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0112	0.0907	0.1117	0.1329	0.1678	0.1860	0.2334	0.2516	0.2792	0.3493

Fineness Modulus	C_u	C_c
0.70	16.58	8.46

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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: B-701DH-28,(297.5-299.0)

(A) Mass of oven-dried soil, grams:	75.34
(B) Mass of pycnometer filled with water at test temperature (T), grams:	672.40
(C) Mass of pycnometer, water and soil, grams:	719.64
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.4
(G) Specific Gravity at observed temperature: A / [B - (C - A)]	2.681
(F) ***Correction factor:***	0.99970
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.680

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

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

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) (Visual)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

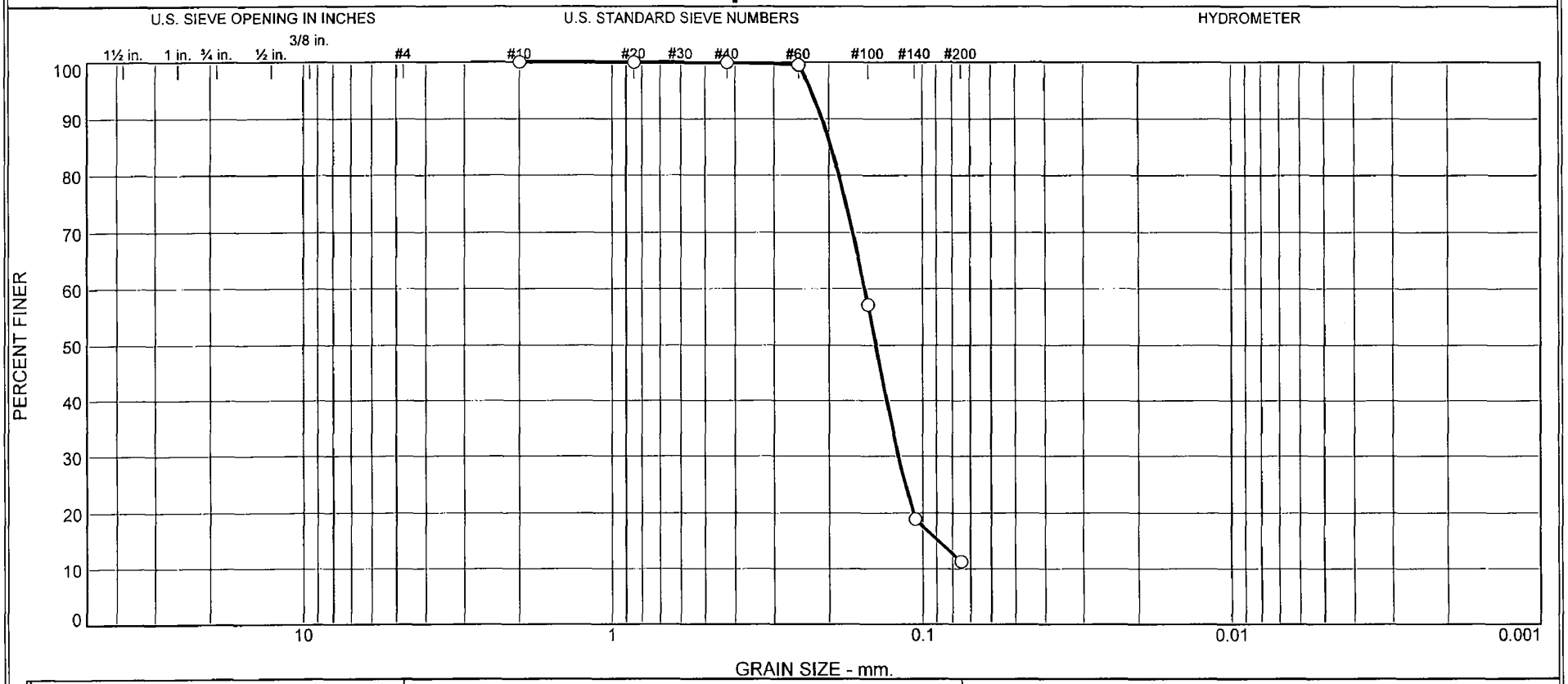
THERMOMETER :5.1.01

PYCNOMETER : P-8

TESTED BY: CS

REVIEWED BY: Brian Johnson

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	89	11	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-33	347.5-348.9	4/15/08	SP-SM	Gray Poorly Graded SAND with silt	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DJC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 347.5-348.9 **Sample Number:** 701-33
Material Description: Gray Poorly Graded SAND with silt
Date: 4/15/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
371.63	0.00	0.00	#10	0.00	100
98.54	0.00	0.00	#20	0.04	100
			#40	0.09	100
			#60	0.49	100
			#100	42.19	57
			#140	79.90	19
			#200	87.40	11

Fractional Components

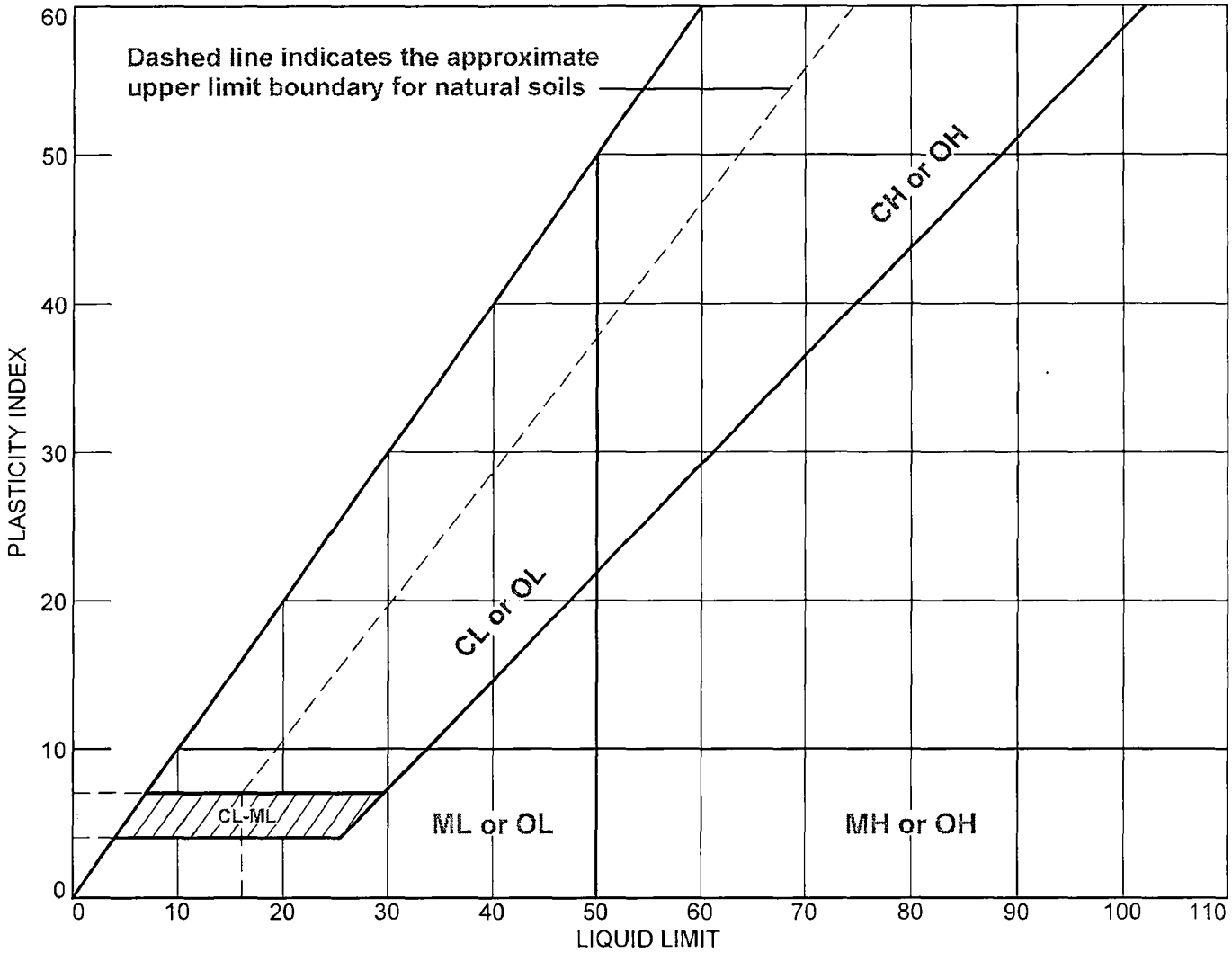
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	89	89			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0887	0.1076	0.1198	0.1415	0.1536	0.1855	0.1965	0.2096	0.2267

Fineness Modulus
0.43

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-33	347.5-348.9	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

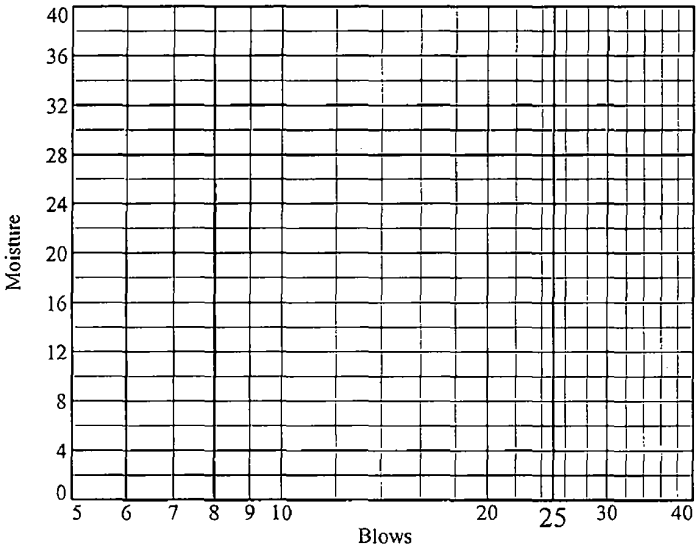
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 347.5-348.9 **Sample Number:** 701-33
Material Description: Gray Poorly Graded SAND with silt
USCS: SP-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						



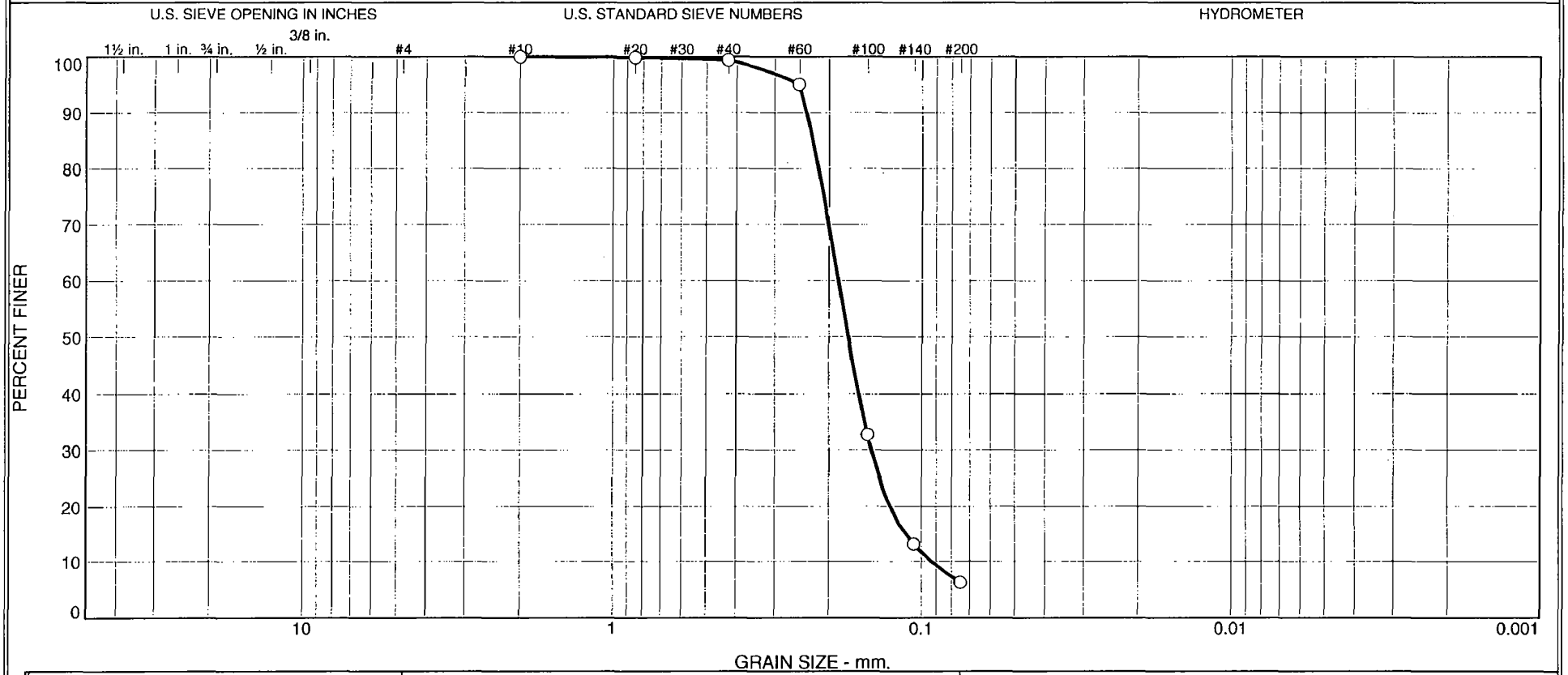
Liquid Limit= NV
Plastic Limit= NP
Plasticity Index= NP
Natural Moisture= ND

Plastic Limit Data

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

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	93	6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-38	397.5-398.8	4/17/08	SP-SM	Light Gray Poorly Graded SAND with silt	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 397.5-398.8 **Sample Number:** 701-38
Material Description: Light Gray Poorly Graded SAND with silt
Date: 4/17/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
318.31	0.00	0.00	#10	0.00	100
101.11	0.00	0.00	#20	0.09	100
			#40	0.55	99
			#60	4.96	95
			#100	67.99	33
			#140	87.83	13
			#200	94.81	6

Fractional Components

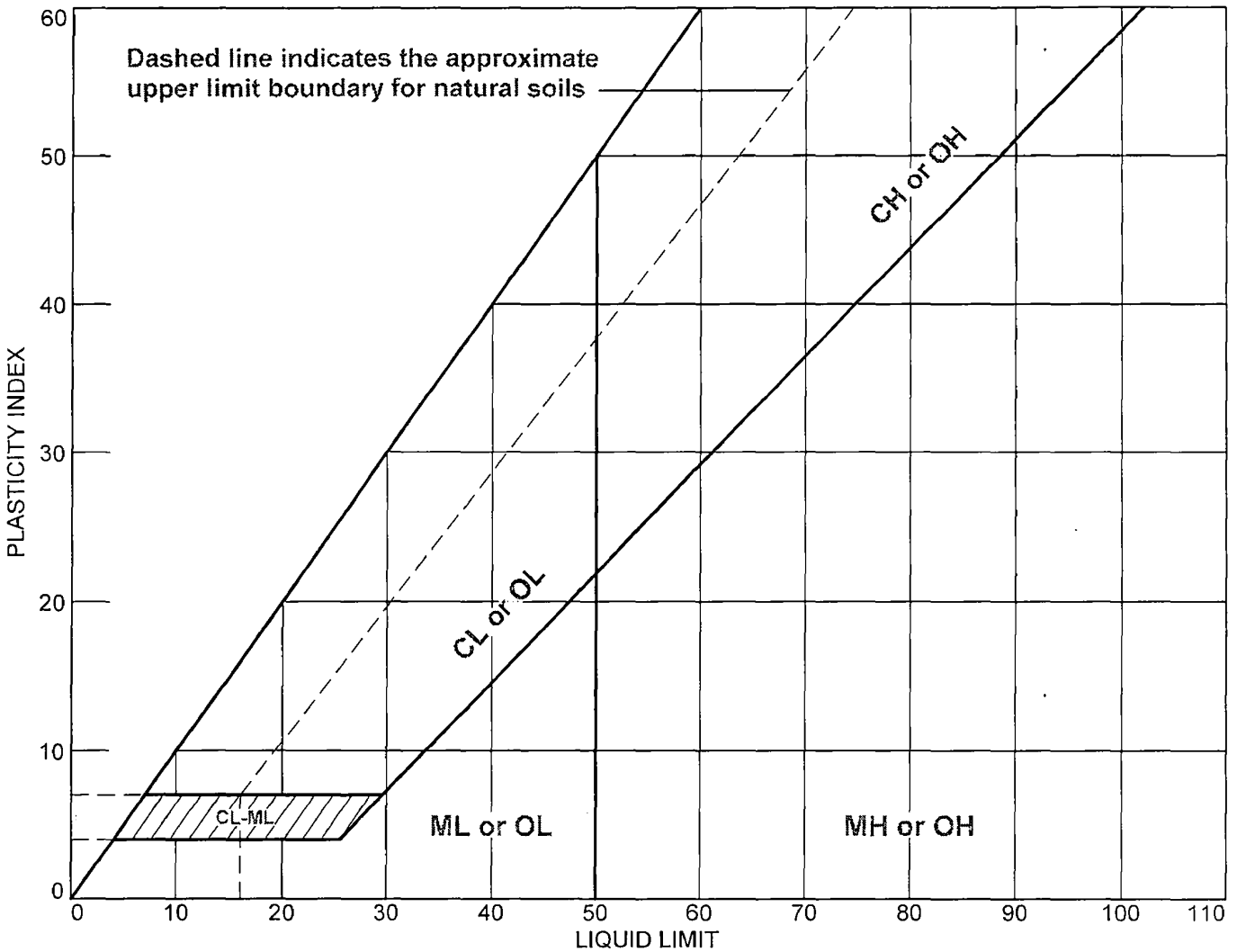
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	93	94			6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0931	0.1126	0.1265	0.1457	0.1732	0.1863	0.2161	0.2254	0.2361	0.2497

Fineness Modulus	C_u	C_c
0.71	2.00	1.22

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-38	397.5-398.8	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

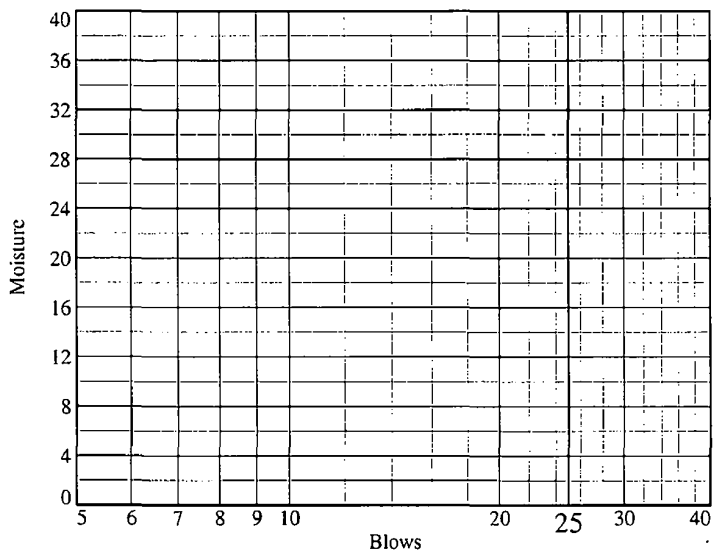
LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 397.5-398.8 **Sample Number:** 701-38
Material Description: Light Gray Poorly Graded SAND with silt
USCS: SP-SM **AASHTO:** A-3
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= ND

Plastic Limit Data

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

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	89	11	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-39	407.5-409.0	4/17/08	SP-SM	Olive Poorly Graded SAND with Silt	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 407.5-409.0 **Sample Number:** 701-39
Material Description: Olive Poorly Graded SAND with Silt
Date: 4/17/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
335.22	0.00	0.00	#10	0.00	100
105.09	0.00	0.00	#20	0.08	100
			#40	0.16	100
			#60	1.69	98
			#100	59.88	43
			#140	87.76	16
			#200	93.78	11

Fractional Components

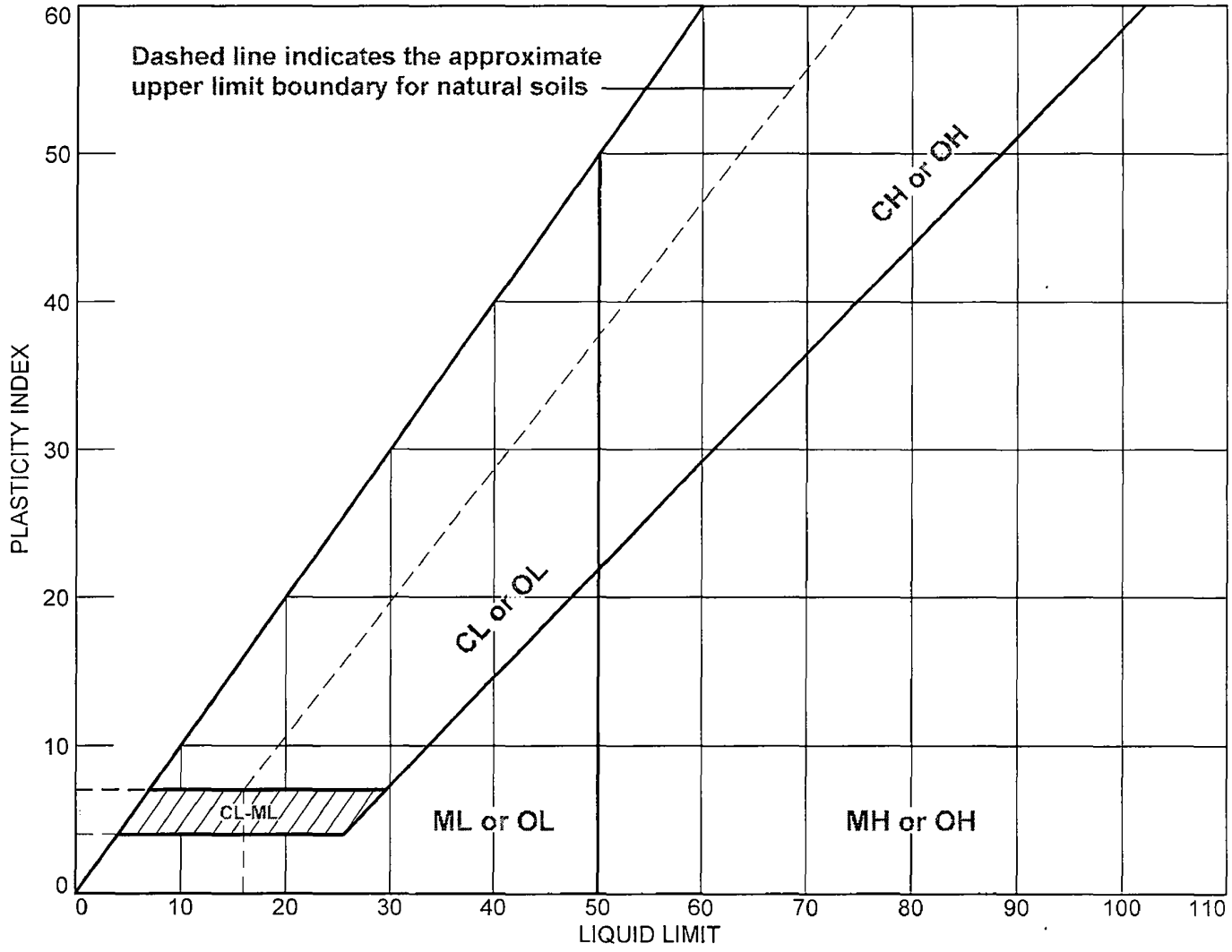
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	89	89			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1018	0.1139	0.1312	0.1595	0.1731	0.2042	0.2137	0.2247	0.2381

Fineness Modulus
0.58

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-39	407.5-409.0	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

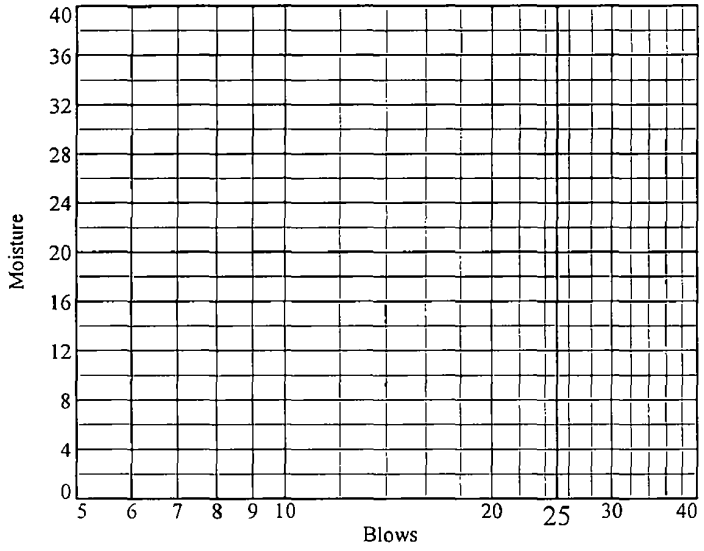
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 407.5-409.0 **Sample Number:** 701-39
Material Description: Olive Poorly Graded SAND with Silt
USCS: SP-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						



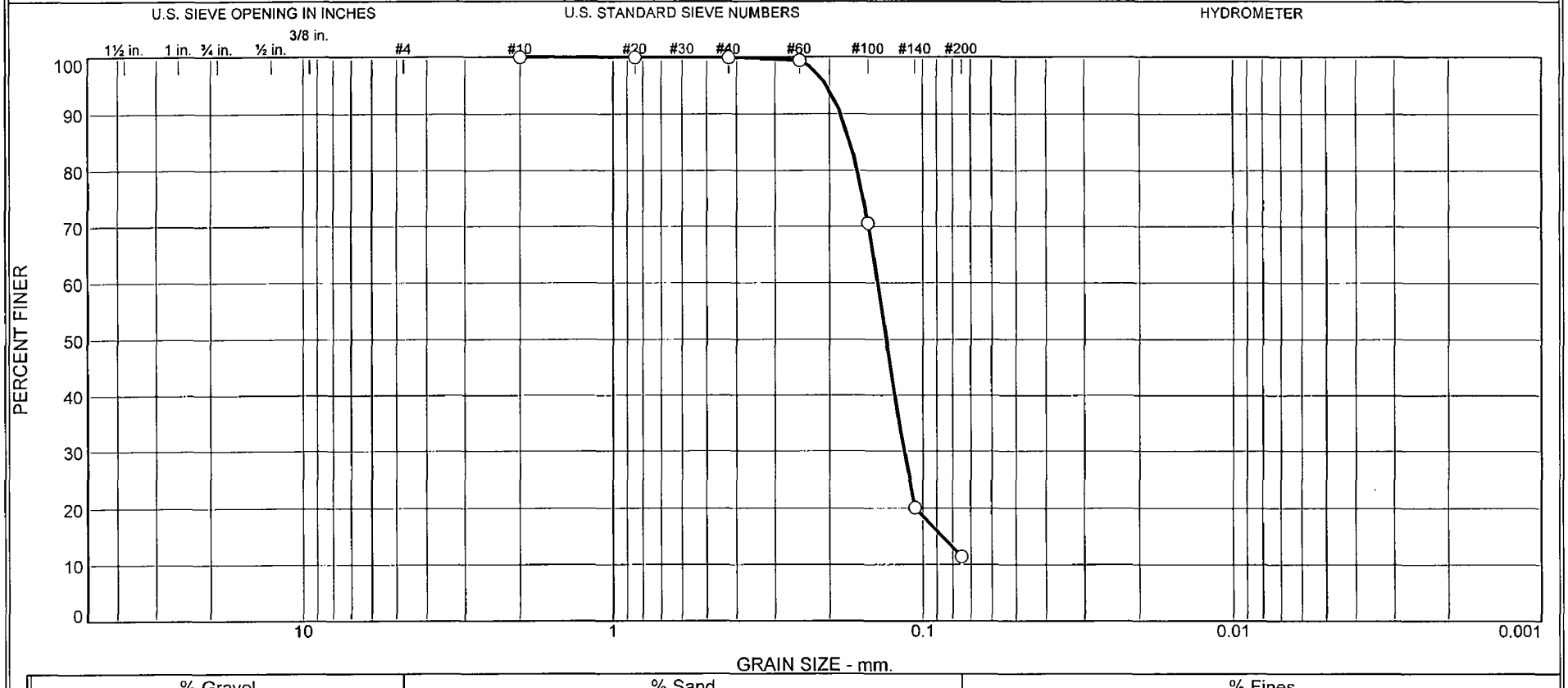
Liquid Limit= NV
Plastic Limit= NP
Plasticity Index= NP
Natural Moisture= ND

Plastic Limit Data

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

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	89	11	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-41	427.5-428.9	4-18-08	SP-SM	Olive Poorly Graded SAND with Silt	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 427.5-428.9 **Sample Number:** 701-41
Material Description: Olive Poorly Graded SAND with Silt
Date: 4-18-08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
316.41	0.00	0.00	#10	0.00	100
105.28	0.00	0.00	#20	0.05	100
			#40	0.08	100
			#60	0.63	99
			#100	30.95	71
			#140	84.07	20
			#200	93.25	11

Fractional Components

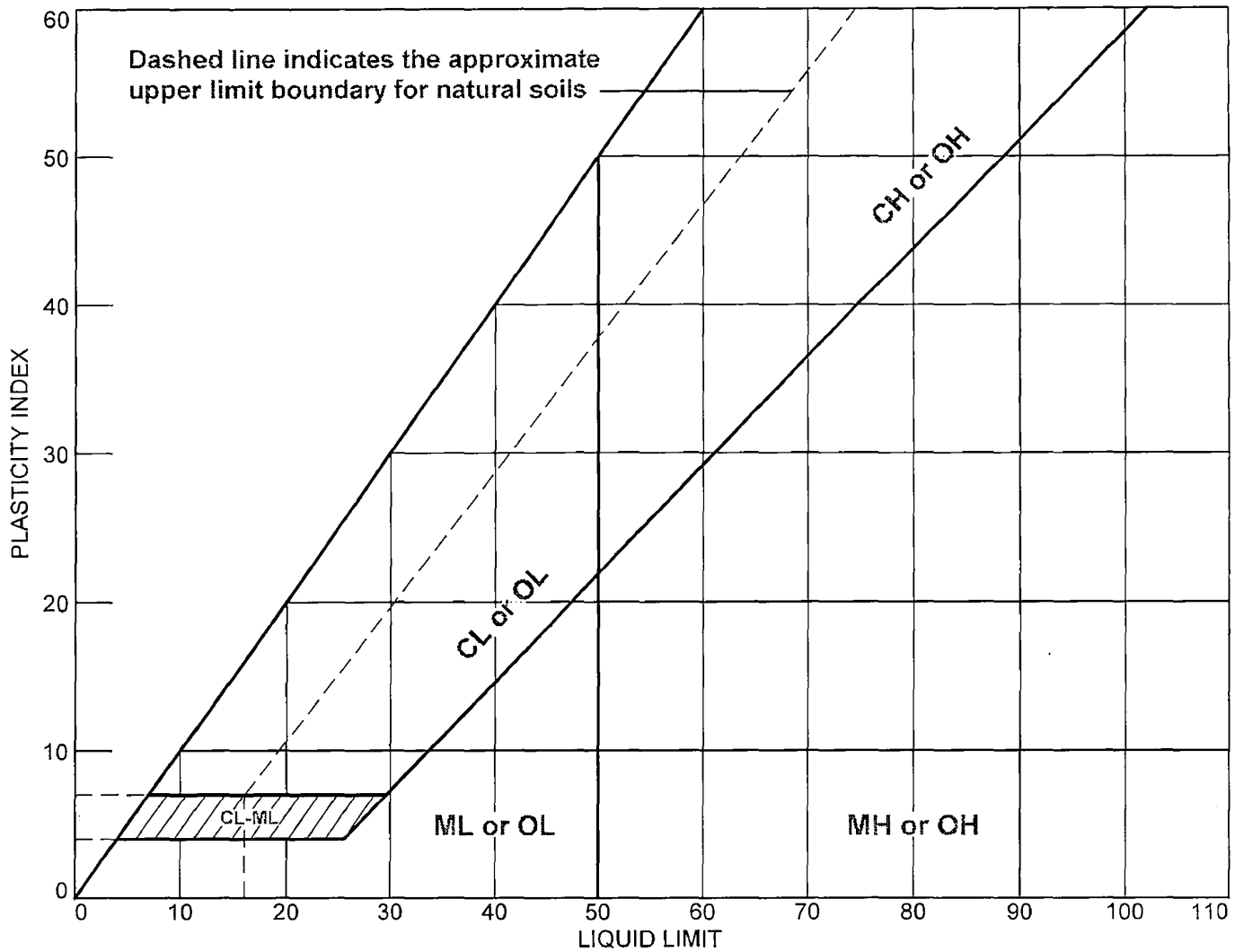
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	89	89			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0864	0.1054	0.1151	0.1310	0.1395	0.1626	0.1717	0.1840	0.2037

Fineness Modulus
0.30

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-41	427.5-428.9	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

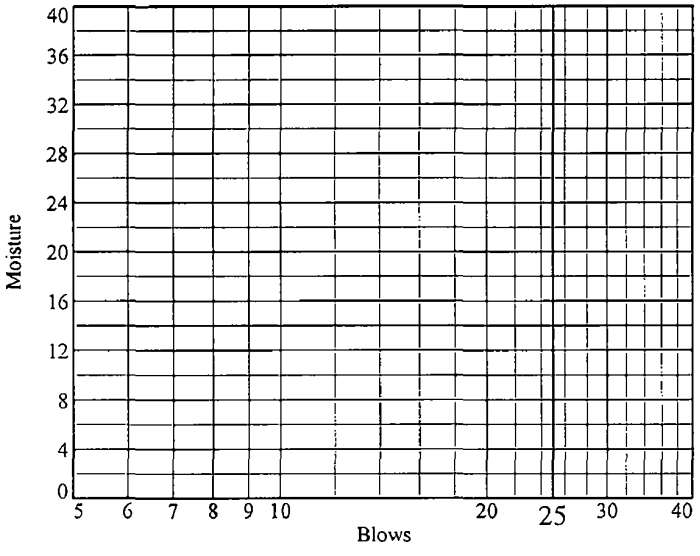
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 427.5-428.9 **Sample Number:** 701-41
Material Description: Olive Poorly Graded SAND with Silt
USCS: SP-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						



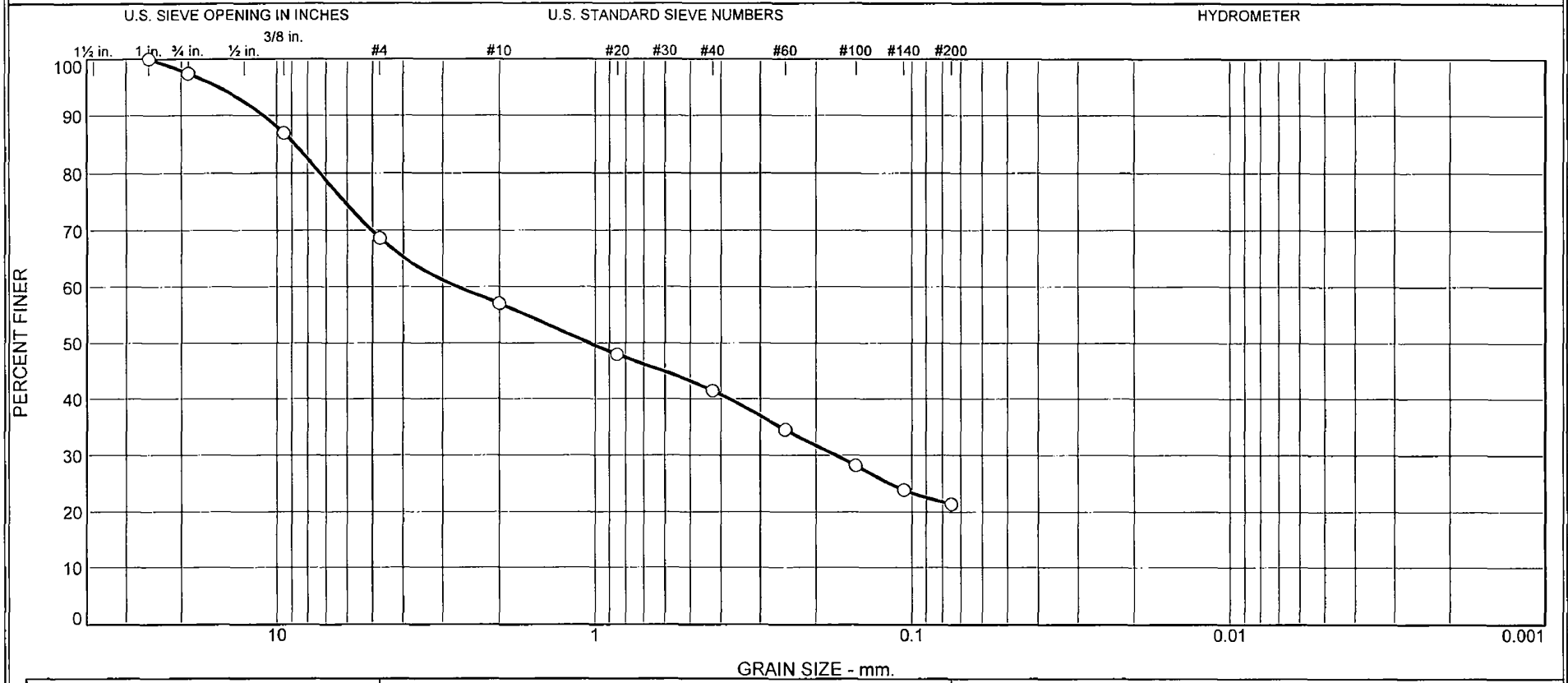
Liquid Limit= NV
Plastic Limit= NP
Plasticity Index= NP
Natural Moisture= ND

Plastic Limit Data

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

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	3	28	12	16	20	21	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-702	702-3	5.1-6.6	2/26/08	SM	Pale Brown Silty sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-702
Depth: 5.1-6.6 **Sample Number:** 702-3
Material Description: Pale Brown Silty sand (Visual)
Date: 2/26/08 **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
379.49	0.00	0.00	1	0.00	100
			3/4	9.66	97
			3/8"	49.78	87
			#4	119.19	69
			#10	163.07	57
99.88	0.00	0.00	#20	15.97	48
			#40	27.29	41
			#60	39.41	35
			#100	50.46	28
			#140	58.04	24
			#200	62.42	21

Fractional Components

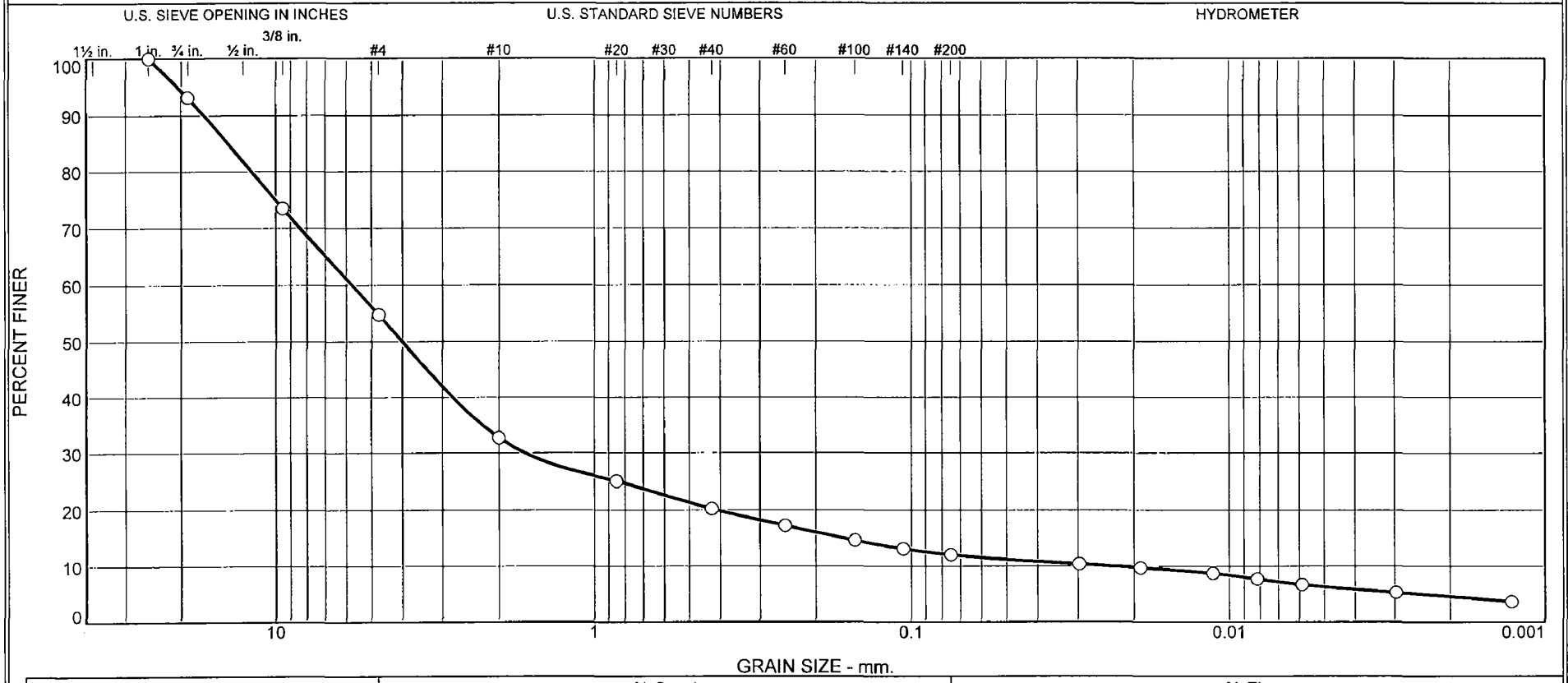
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	3	28	31	12	16	20	48			21

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1728	1.0461	2.6916	7.3156	8.8138	11.0421	15.2331

Fineness Modulus
3.27

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	6.8	38.4	22.1	12.5	8.1	5.8	6.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-702	702-7	14.7-16.2	2/26/08	GP-GM	Pale Brown Poorly graded Silty GRAVEL (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-702
Depth: 14.7-16.2 **Sample Number:** 702-7
Material Description: Pale Brown Poorly graded Silty GRAVEL (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
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
596.87	0.00	0.00	1	0.00	100.0
			3/4	40.87	93.2
			3/8"	158.22	73.5
			#4	269.90	54.8
			#10	401.50	32.7
96.23	0.00	0.00	#20	22.56	25.1
			#40	36.80	20.2
			#60	45.59	17.2
			#100	53.20	14.6
			#140	57.54	13.2
			#200	60.78	12.1

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =32.7
Weight of hydrometer sample =96.23
Hygroscopic moisture correction:
Moist weight and tare = 29.02
Dry weight and tare = 28.98
Tare weight = 15.47
Hygroscopic moisture =0.3%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
Comp. corr.:	-8.0	-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

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	36.0	30.9	0.0131	37.0	10.2	0.0297	10.4
5.00	21.9	34.0	28.9	0.0131	35.0	10.6	0.0191	9.8
15.00	21.9	31.0	25.9	0.0131	32.0	11.0	0.0113	8.7
30.00	21.9	28.0	22.9	0.0131	29.0	11.5	0.0081	7.7
60.00	21.8	25.0	19.9	0.0131	26.0	12.0	0.0059	6.7
250.00	21.5	21.0	15.8	0.0132	22.0	12.7	0.0030	5.3
1440.00	21.4	16.0	10.8	0.0132	17.0	13.5	0.0013	3.6

MACTEC Engineering and Consulting, Inc.

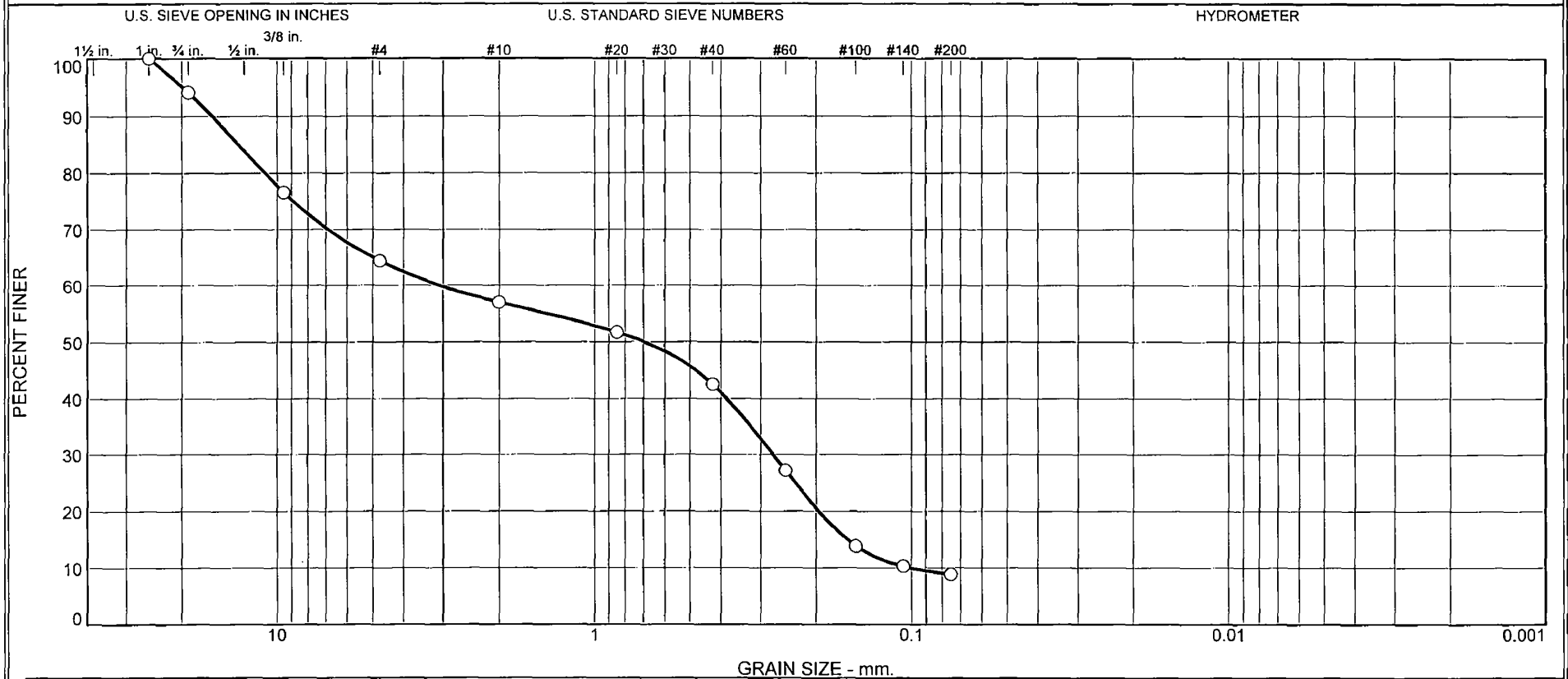
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	6.8	38.4	45.2	22.1	12.5	8.1	42.7	5.8	6.3	12.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0223	0.1618	0.4110	1.6577	4.0099	5.7596	11.9307	14.1582	16.9065	20.5185

Fineness Modulus	C_u	C_c
4.60	257.76	21.35

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	6	30	7	15	33	9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-702	702-10	31.0-32.5	2/27/08	SP-SM	Light Gray Poorly graded Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-702
Depth: 31.0-32.5 **Sample Number:** 702-10
Material Description: Light Gray Poorly graded Silty SAND (Visual)
Date: 2/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-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
455.59	0.00	0.00	1	0.00	100
			3/4	26.75	94
			3/8"	106.57	77
			#4	162.22	64
			#10	196.03	57
100.66	0.00	0.00	#20	9.39	52
			#40	25.57	42
			#60	52.72	27
			#100	76.10	14
			#140	82.50	10
			#200	84.98	9

Fractional Components

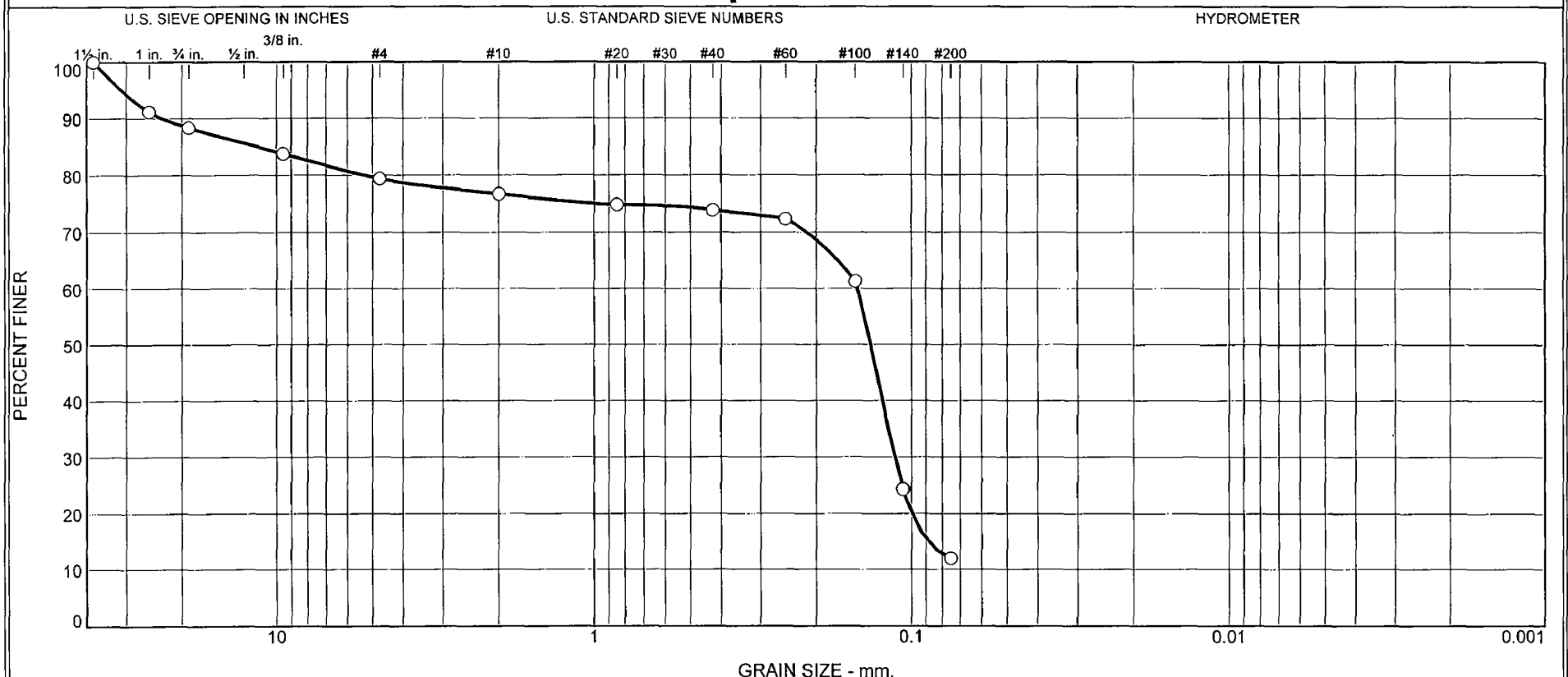
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	30	36	7	15	33	55			9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1007	0.1592	0.1965	0.2739	0.6968	3.0853	10.9384	13.2447	16.0446	19.8172

Fineness Modulus	C_u	C_c
3.58	30.63	0.24

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	12	9	2	3	62	12	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-702	702-12	119.2-120.7	3/4/08	SP-SM	Pale Brown Poorly graded SAND with Silt and Gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-702
Depth: 119.2-120.7 **Sample Number:** 702-12
Material Description: Pale Brown Poorly graded SAND with Silt and Gravel (Visual)
Date: 3/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-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
459.21	0.00	0.00	1.5	0.00	100
			1	40.56	91
			3/4	53.69	88
			3/8"	74.64	84
			#4	94.48	79
			#10	106.90	77
101.69	0.00	0.00	#20	2.51	75
			#40	3.81	74
			#60	5.80	72
			#100	20.39	61
			#140	69.45	24
			#200	85.85	12

Fractional Components

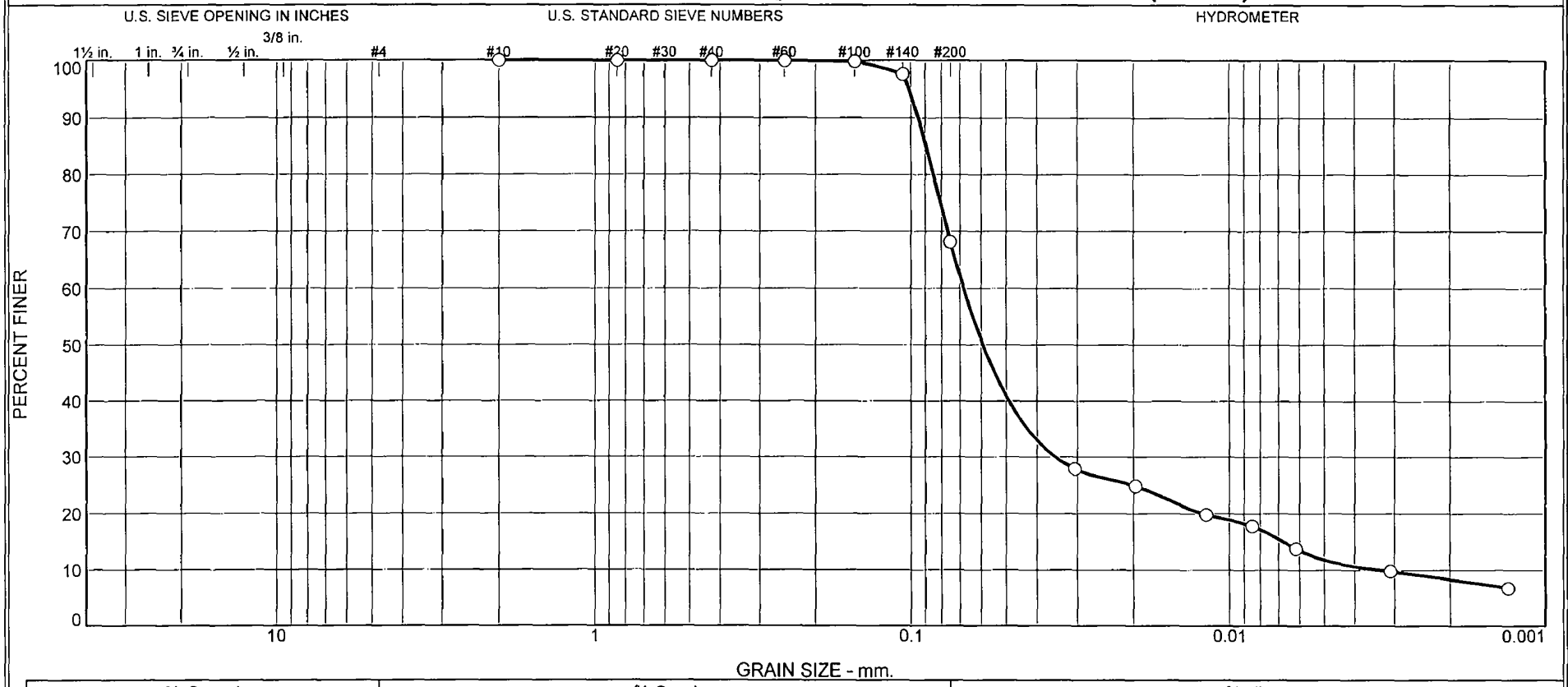
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	12	9	21	2	3	62	67			12

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0888	0.0997	0.1126	0.1342	0.1477	5.3046	11.5651	23.2001	31.0201

Fineness Modulus
1.87

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	31.7	56.4	11.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-702	702-21	176.2-177.7	3/5/08	ML	Greenish Gray SILT with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-702
Depth: 176.2-177.7 **Sample Number:** 702-21
Material Description: Greenish Gray SILT with sand (Visual)
Date: 3/5/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
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
283.17	0.00	0.00	#10	0.00	100.0
99.30	0.00	0.00	#20	0.03	100.0
			#40	0.05	99.9
			#60	0.07	99.9
			#100	0.21	99.8
			#140	2.41	97.6
			#200	31.61	68.2

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =99.30
Hygroscopic moisture correction:
Moist weight and tare = 25.93
Dry weight and tare = 25.86
Tare weight = 11.07
Hygroscopic moisture =0.5%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.6	33.0	27.8	0.0132	34.0	10.7	0.0305	27.8
5.00	21.6	30.0	24.8	0.0132	31.0	11.2	0.0197	24.8
15.00	21.5	25.0	19.8	0.0132	26.0	12.0	0.0118	19.8
30.00	21.5	23.0	17.8	0.0132	24.0	12.4	0.0085	17.8
60.00	21.4	19.0	13.8	0.0132	20.0	13.0	0.0062	13.8
250.00	21.4	15.0	9.8	0.0132	16.0	13.7	0.0031	9.8
1440.00	21.4	12.0	6.8	0.0132	13.0	14.2	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

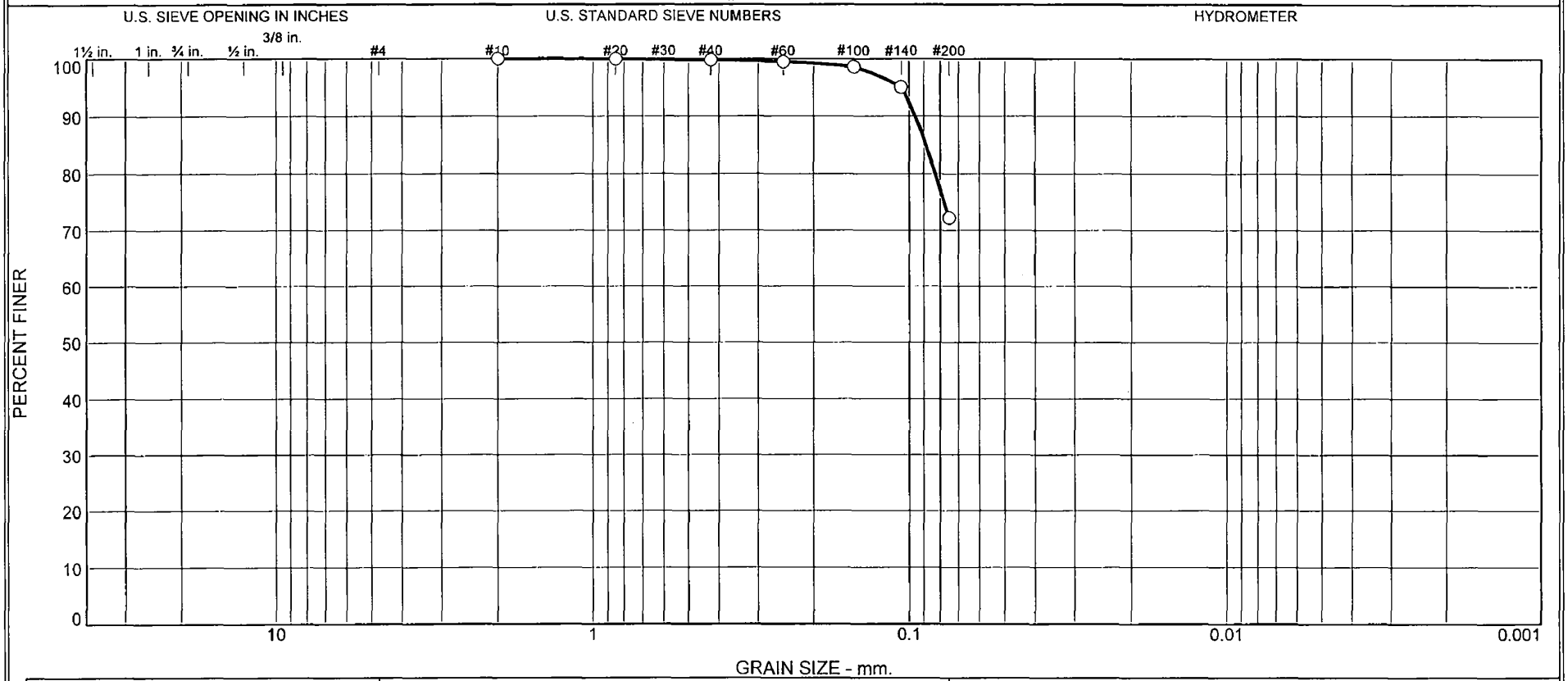
Fractional Components

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	31.7	31.8	56.4	11.8	68.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0033	0.0068	0.0121	0.0353	0.0592	0.0682	0.0848	0.0894	0.0946	0.1013

Fineness Modulus	C_u	C_c
0.00	20.49	5.48

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	28	72	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-702	702-23	196.2-197.7	3/6/08	ML	Greenish Gray SILT with sand	ND	22	20

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-702
Depth: 196.2-197.7 **Sample Number:** 702-23
Material Description: Greenish Gray SILT with sand
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: 22 **Plastic Limit:** 20 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
330.84	0.00	0.00	#10	0.00	100
97.40	0.00	0.00	#20	0.03	100
			#40	0.22	100
			#60	0.52	99
			#100	1.38	99
			#140	4.84	95
			#200	27.06	72

Fractional Components

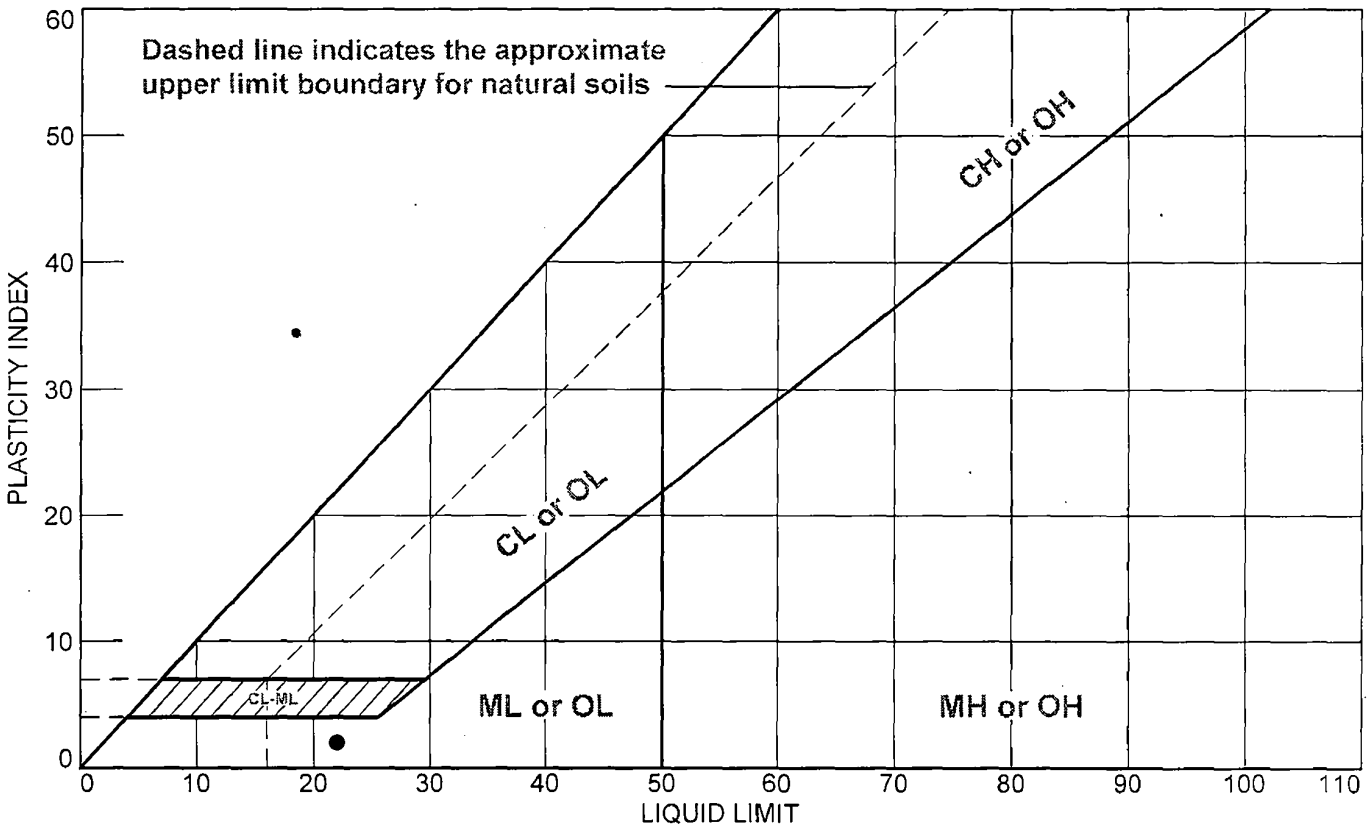
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	28	28			72

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0828	0.0886	0.0956	0.1059

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-702	702-23	196.2-197.7	ND	20	22	2	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ ZHU 7/23/08

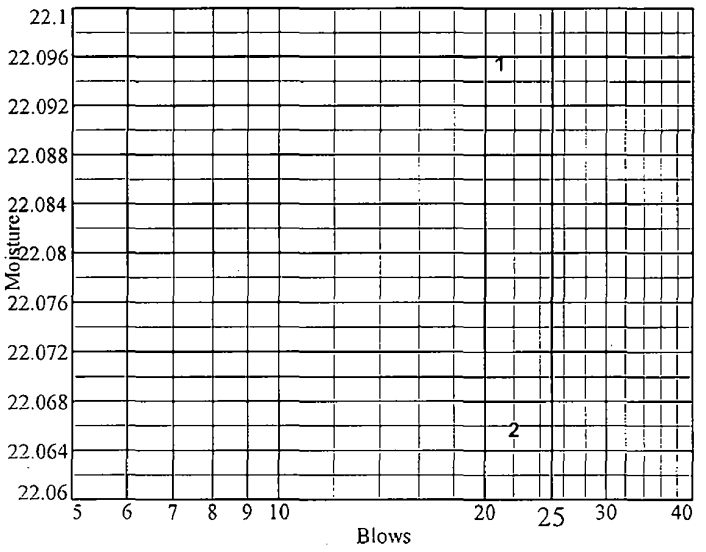
LIQUID AND PLASTIC LIMIT TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-702
Depth: 196.2-197.7 **Sample Number:** 702-23
Material Description: Greenish Gray SILT with sand
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.63	33.69				
Dry+Tare	29.53	30.40				
Tare	15.50	15.49				
# Blows	21	22				
Moisture	22.1	22.1				



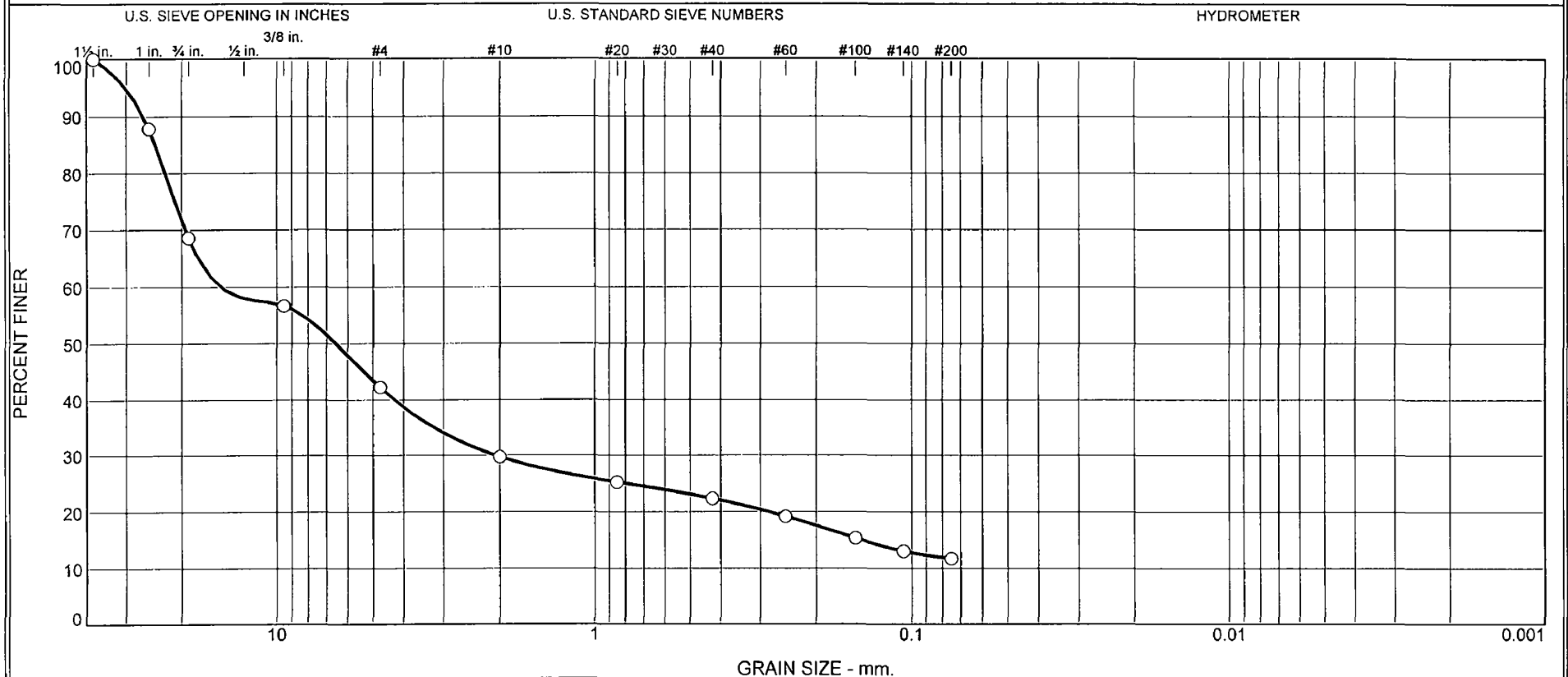
Liquid Limit= 22
Plastic Limit= 20
Plasticity Index= 2
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.56	23.69			
Dry+Tare	21.39	22.36			
Tare	15.50	15.49			
Moisture	19.9	19.4			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	31	27	12	8	10	12	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-703	703-3	5.2-6.7	2/22/08	GP-GM	White Poorly Graded GRAVEL with sand and silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-703
Depth: 5.2-6.7 **Sample Number:** 703-3
Material Description: White Poorly Graded GRAVEL with sand and silt (Visual)
Date: 2/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
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
490.76	0.00	0.00	1.5	0.00	100
			1	59.86	88
			3/4	154.12	69
			3/8"	212.60	57
			#4	283.64	42
			#10	344.99	30
101.54	0.00	0.00	#20	15.45	25
			#40	25.18	22
			#60	36.00	19
			#100	49.12	15
			#140	57.01	13
			#200	61.53	12

Fractional Components

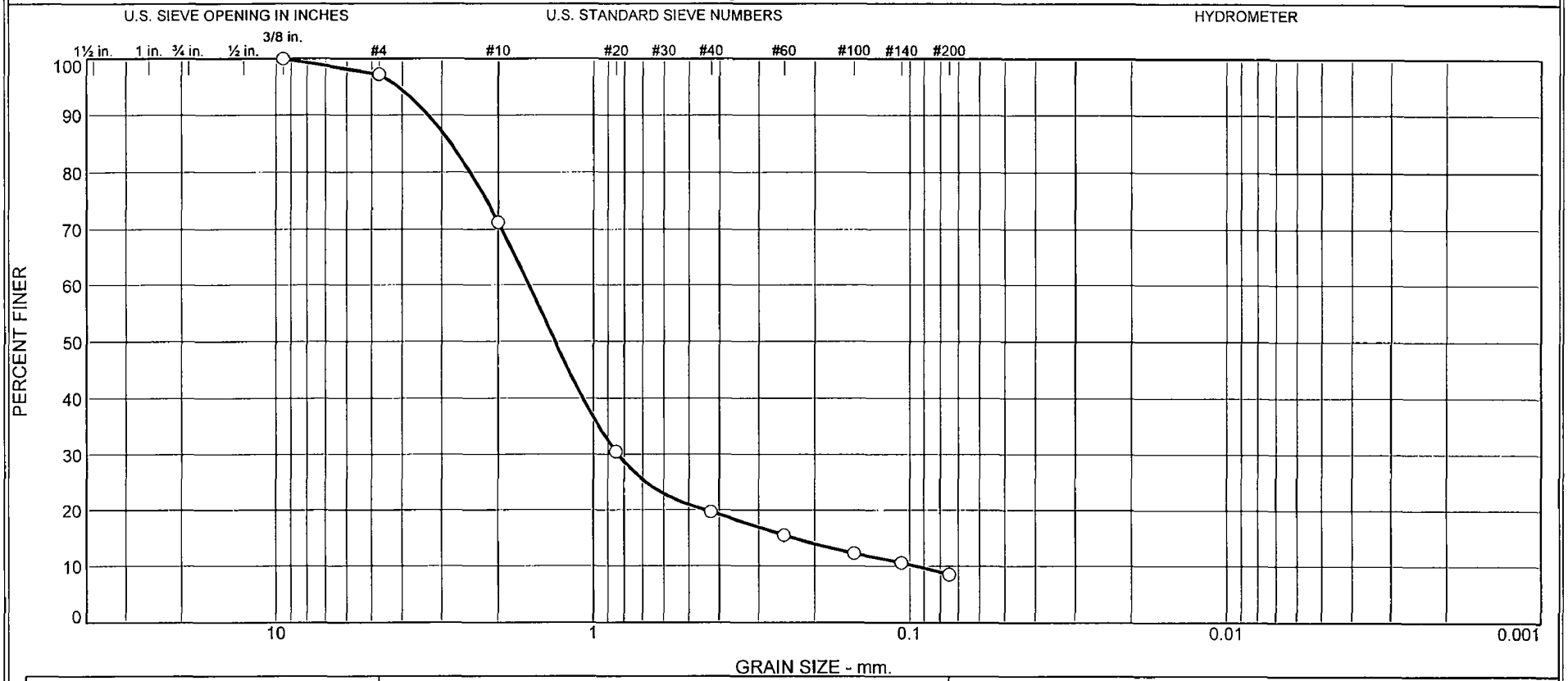
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	31	27	58	12	8	10	30			12

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1435	0.2826	2.0725	6.5368	15.0368	22.5629	24.2660	26.4700	30.0697

Fineness Modulus
5.15

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0	3	26	51	11	9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-703	703-6	12.3-13.8	2/22/08	SP-SM	White Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-703
Depth: 12.3-13.8 **Sample Number:** 703-6
Material Description: White Poorly Graded SAND with silt (Visual)
Date: 2/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)
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
212.82	0.00	0.00	3/8"	0.00	100
			#4	5.95	97
			#10	61.18	71
100.28	0.00	0.00	#20	57.40	30
			#40	72.60	20
			#60	78.50	15
			#100	83.05	12
			#140	85.42	11
			#200	88.31	9

Fractional Components

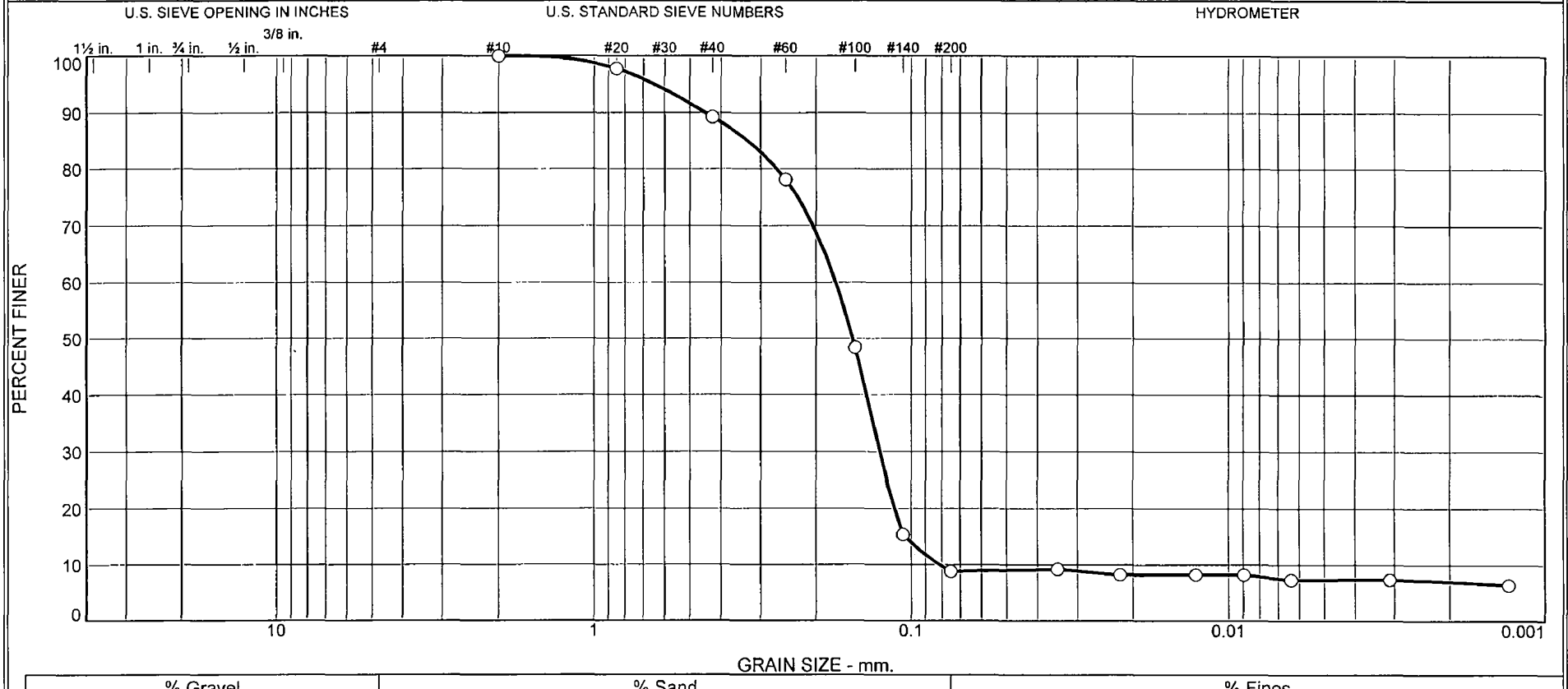
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	3	3	26	51	11	88			9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0958	0.2343	0.4437	0.8376	1.3219	1.5988	2.4516	2.8141	3.3184	4.1315

Fineness Modulus	C_u	C_c
3.28	16.69	4.58

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	10.8	80.4	1.5	7.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-703	703-9	118.6-120.1	3/9/08	SP-SM	White Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 12% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-703
Depth: 118.6-120.1 **Sample Number:** 703-9
Material Description: White Poorly Graded SAND with silt (Visual)
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 12% (ASTM D 4373-02)
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
280.38	0.00	0.00	#10	0.00	100.0
100.92	0.00	0.00	#20	2.26	97.8
			#40	10.85	89.2
			#60	22.11	78.1
			#100	52.17	48.3
			#140	85.41	15.4
			#200	92.03	8.8

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =100.92
Hygroscopic moisture correction:
Moist weight and tare = 29.30
Dry weight and tare = 29.26
Tare weight = 15.55
Hygroscopic moisture =0.3%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.4	15.0	9.4	0.0132	16.0	13.7	0.0345	9.2
5.00	21.5	14.0	8.4	0.0132	15.0	13.8	0.0220	8.3
15.00	21.5	14.0	8.4	0.0132	15.0	13.8	0.0127	8.3
30.00	21.5	14.0	8.4	0.0132	15.0	13.8	0.0090	8.3
60.00	21.7	13.0	7.4	0.0132	14.0	14.0	0.0064	7.3
250.00	21.9	13.0	7.5	0.0131	14.0	14.0	0.0031	7.4
1440.00	21.9	12.0	6.5	0.0131	13.0	14.2	0.0013	6.4

MACTEC Engineering and Consulting, Inc.

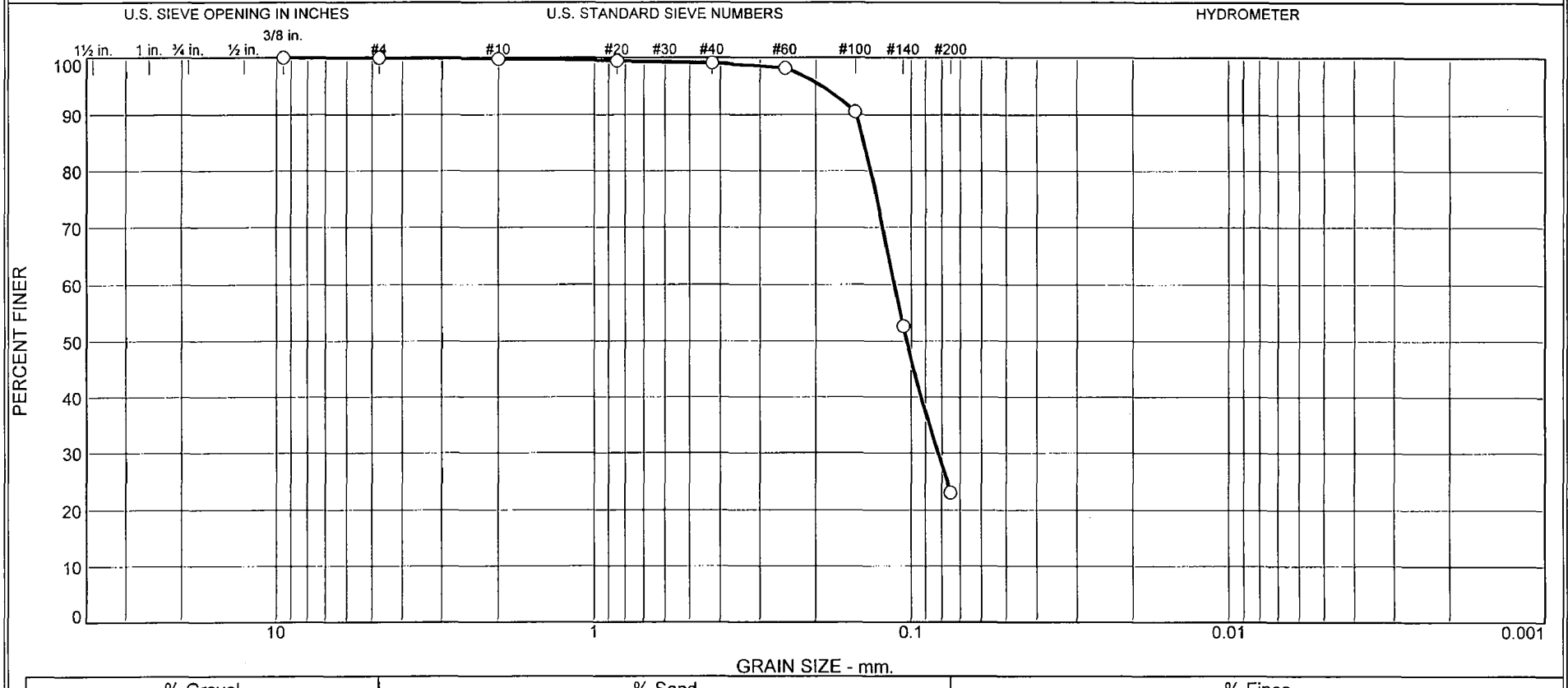
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	10.8	80.4	91.2	1.5	7.3	8.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0815	0.1044	0.1129	0.1256	0.1527	0.1727	0.2663	0.3293	0.4468	0.6445

Fineness Modulus	C_u	C_c
0.75	2.12	1.12

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	76	23	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-703	703-10	123.8-125.3	3/9/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
Specific Gravity = 2.662 (ASTM D 854-06)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-703
Depth: 123.8-125.3 **Sample Number:** 703-10
Material Description: Light Olive Gray Silty SAND (Visual)
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
Specific Gravity = 2.662 (ASTM D 854-06)
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
266.08	0.00	0.00	3/8"	0.00	100
			#4	0.17	100
			#10	0.57	100
100.11	0.00	0.00	#20	0.35	99
			#40	0.73	99
			#60	1.62	98
			#100	9.29	91
			#140	47.29	53
			#200	76.99	23

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	76	77			23

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0823	0.1034	0.1131	0.1341	0.1408	0.1490	0.1913

Fineness Modulus
0.12

MACTEC Engineering and Consulting, 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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 4/6/08

SAMPLE IDENTIFICATION: B-703-10

(A) Mass of oven-dried soil, grams:		75.03
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.74
(C) Mass of pycnometer, water and soil, grams:		702.59
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.4
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.663
(F)	***Correction factor:***	0.99970
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.662

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

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

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) - Visual

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

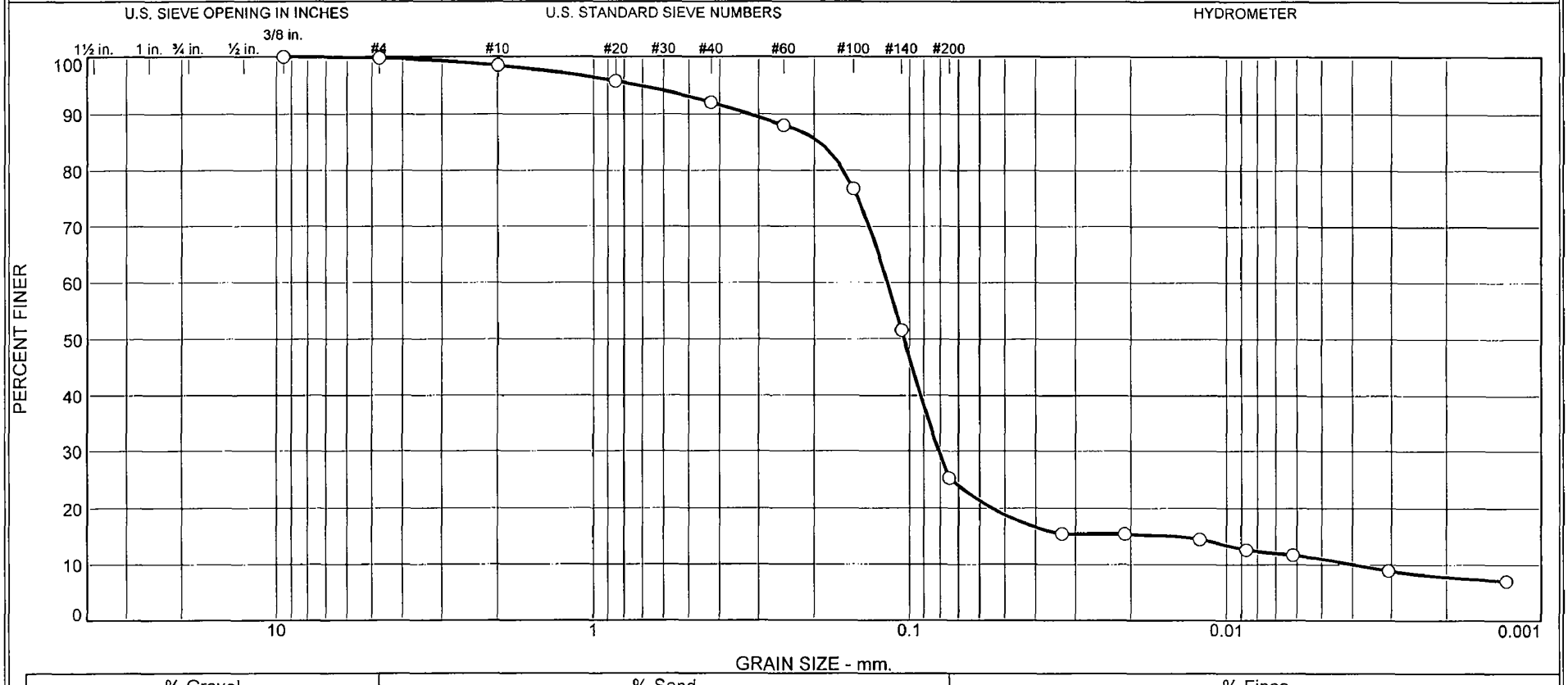
PYCNOMETER : P-3

TESTED BY: CS

REVIEWED BY: Brian Johnson

DSC 7-2-08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.2	1.3	6.5	66.8	14.2	11.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-703	703-12	133.5-135.0	2/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-703
Depth: 133.5-135.0 **Sample Number:** 703-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
259.82	0.00	0.00	3/8"	0.00	100.0
			#4	0.42	99.8
			#10	3.86	98.5
104.13	0.00	0.00	#20	2.88	95.8
			#40	6.85	92.0
			#60	11.13	88.0
			#100	23.00	76.8
			#140	49.56	51.6
			#200	77.49	25.2

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =98.5
Weight of hydrometer sample =104.13
Hygroscopic moisture correction:
Moist weight and tare = 29.60
Dry weight and tare = 29.53
Tare weight = 15.41
Hygroscopic moisture =0.5%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.5	22.0	16.4	0.0132	23.0	12.5	0.0330	15.4
5.00	21.5	22.0	16.4	0.0132	23.0	12.5	0.0209	15.4
15.00	21.5	21.0	15.4	0.0132	22.0	12.7	0.0121	14.5
30.00	21.7	19.0	13.4	0.0132	20.0	13.0	0.0087	12.6
60.00	21.7	18.0	12.4	0.0132	19.0	13.2	0.0062	11.7
250.00	22.1	15.0	9.5	0.0131	16.0	13.7	0.0031	9.0
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.1

MACTEC Engineering and Consulting, Inc.

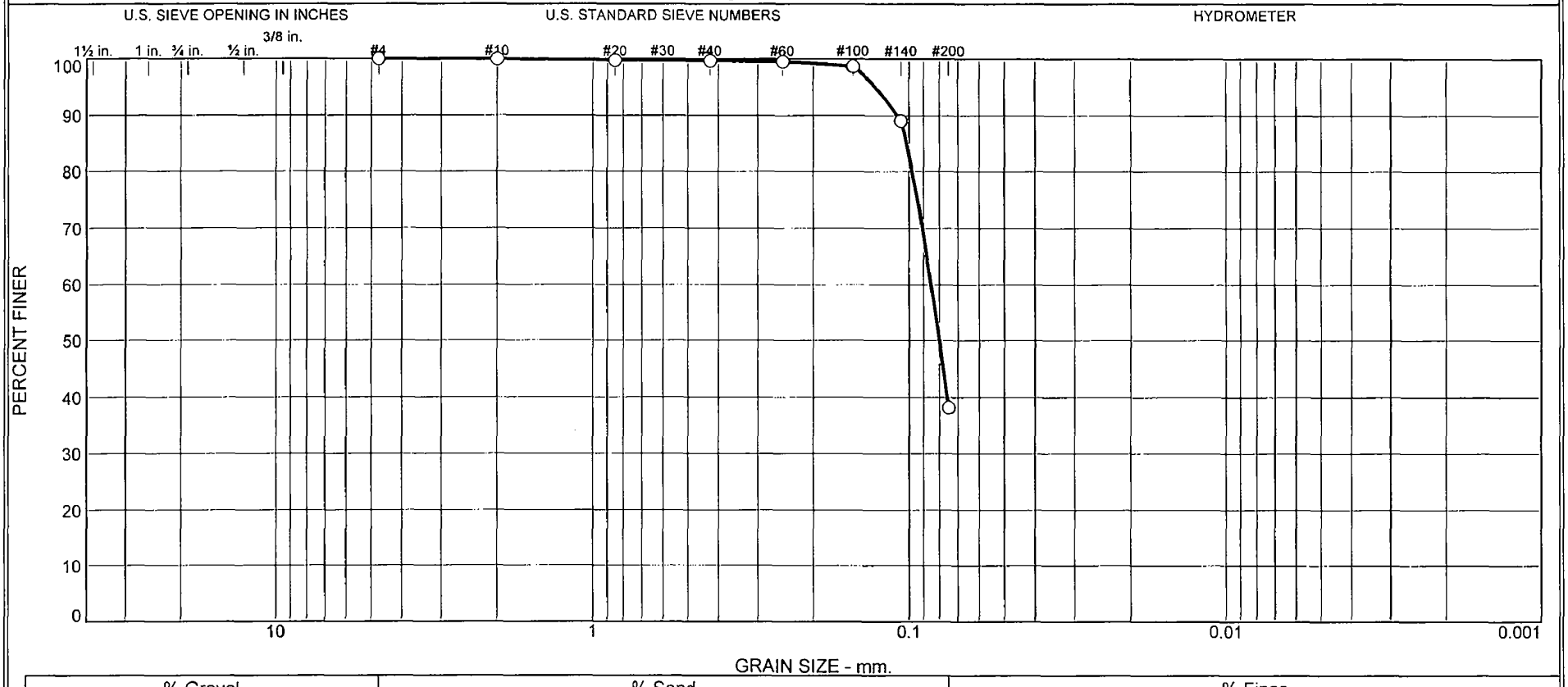
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	1.3	6.5	66.8	74.6	14.2	11.0	25.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0039	0.0144	0.0549	0.0809	0.1040	0.1173	0.1611	0.1921	0.3236	0.7119

Fineness Modulus	C_u	C_c
0.44	29.74	14.16

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	62	38	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-703	703-14	143.5-145.0	2/25/08	SC-SM	Greenish Gray Silty, Clayey SAND	ND	24	19

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-703
Depth: 143.5-145.0 **Sample Number:** 703-14
Material Description: Greenish Gray Silty, Clayey SAND
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: 24 **Plastic Limit:** 19 **USCS Class.:** SC-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
324.39	0.00	0.00	#4	0.00	100
			#10	0.12	100
99.73	0.00	0.00	#20	0.19	100
			#40	0.28	100
			#60	0.42	100
			#100	1.26	99
			#140	10.90	89
			#200	61.59	38

Fractional Components

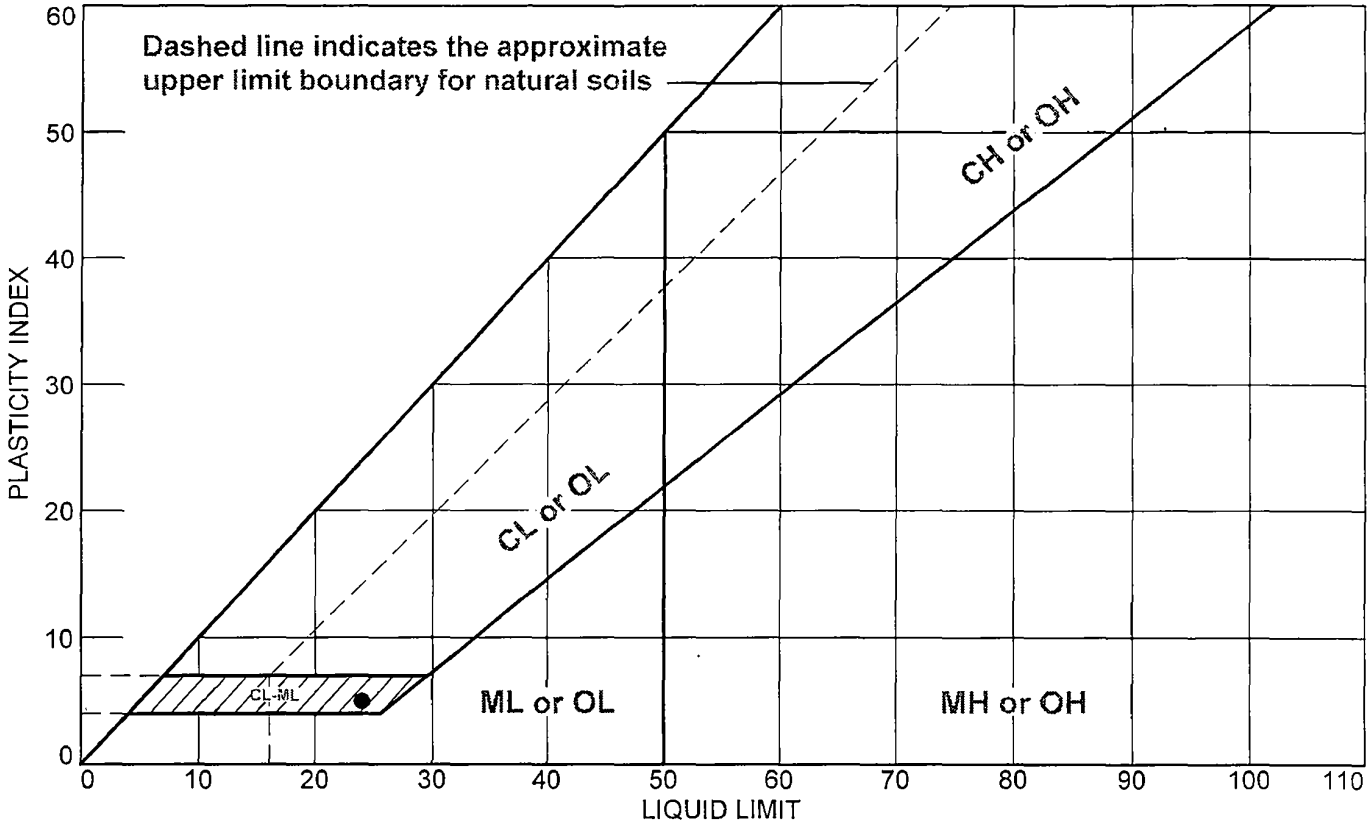
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	62	62			38

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0802	0.0851	0.0974	0.1017	0.1087	0.1271

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-703	703-14	143.5-145.0	ND	19	24	5	SC-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

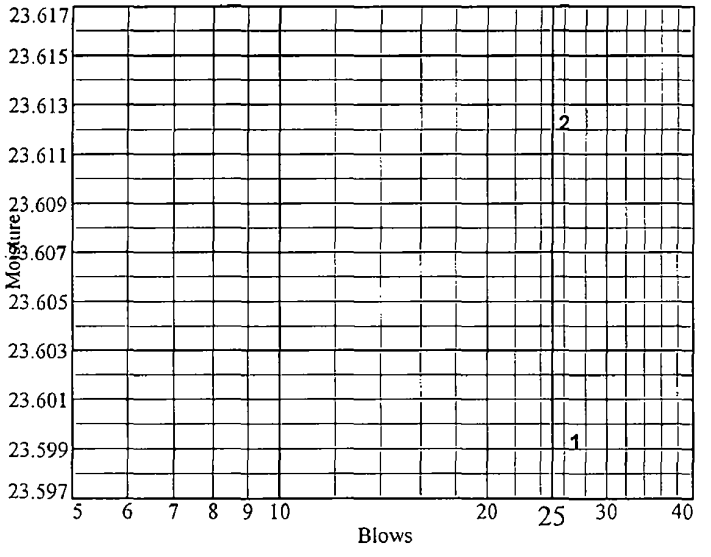
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-703
Depth: 143.5-145.0 **Sample Number:** 703-14
Material Description: Greenish Gray Silty, Clayey SAND
USCS: SC-SM **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.06	30.17				
Dry+Tare	27.28	27.32				
Tare	15.50	15.25				
# Blows	27	26				
Moisture	23.6	23.6				



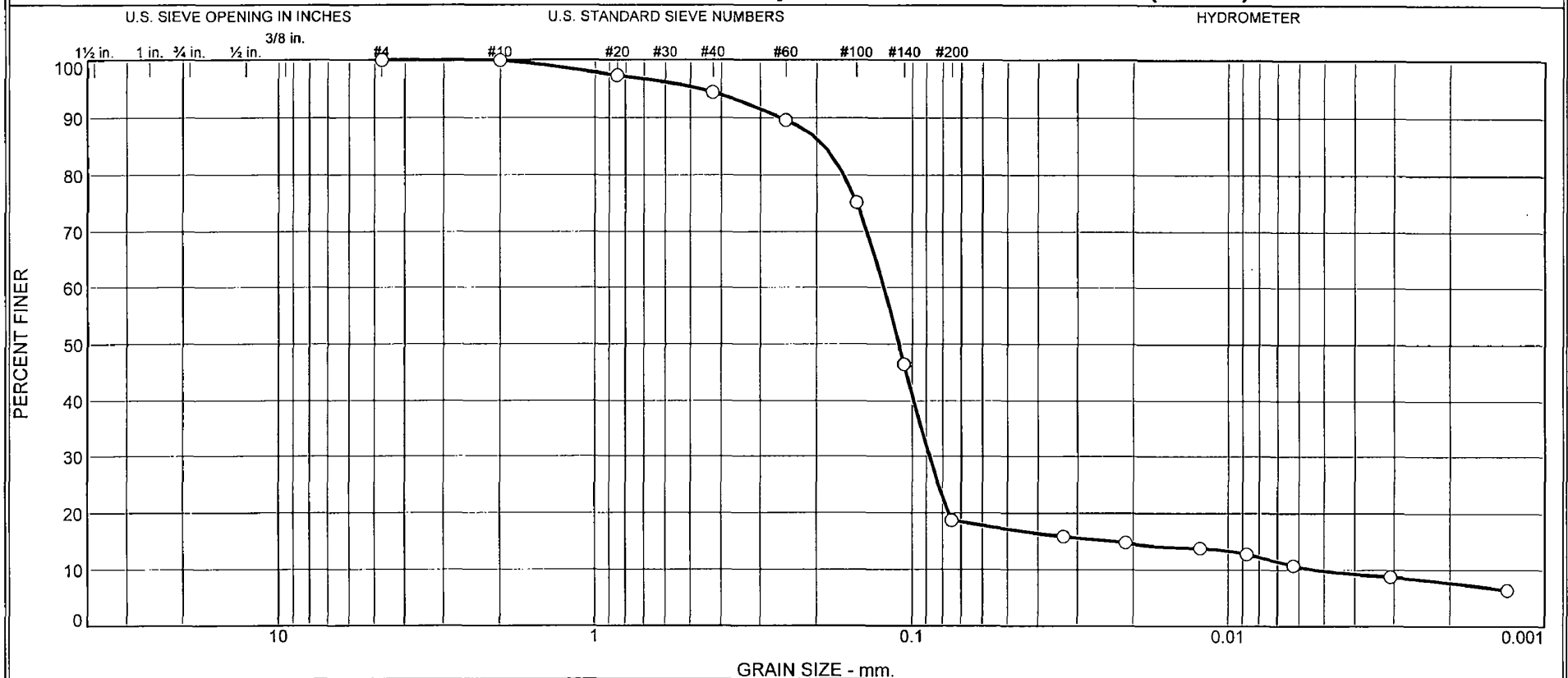
Liquid Limit= 24
Plastic Limit= 19
Plasticity Index= 5
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.08	23.86			
Dry+Tare	21.88	22.56			
Tare	15.44	15.62			
Moisture	18.6	18.7			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.1	5.4	75.8	8.9	9.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-703	703-15	148.5-150.0	2/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
Calcite Equivalent = 20% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-703
Depth: 148.5-150.0 **Sample Number:** 703-15
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
Calcite Equivalent = 20% (ASTM D 4373-02)
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
223.31	0.00	0.00	#4	0.00	100.0
			#10	0.12	99.9
98.42	0.00	0.00	#20	2.56	97.3
			#40	5.39	94.5
			#60	10.23	89.6
			#100	24.36	75.2
			#140	52.69	46.4
			#200	79.96	18.7

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.9
Weight of hydrometer sample =98.42
Hygroscopic moisture correction:
Moist weight and tare = 29.68
Dry weight and tare = 29.32
Tare weight = 15.48
Hygroscopic moisture =2.6%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.0	15.4	0.0132	22.0	12.7	0.0332	15.9
5.00	21.6	20.0	14.4	0.0132	21.0	12.9	0.0211	14.9
15.00	21.6	19.0	13.4	0.0132	20.0	13.0	0.0123	13.8
30.00	21.6	18.0	12.4	0.0132	19.0	13.2	0.0087	12.8
60.00	21.7	16.0	10.4	0.0132	17.0	13.5	0.0062	10.8
250.00	22.1	14.0	8.5	0.0131	15.0	13.8	0.0031	8.8
1440.00	20.9	12.0	6.3	0.0133	13.0	14.2	0.0013	6.4

MACTEC Engineering and Consulting, Inc.

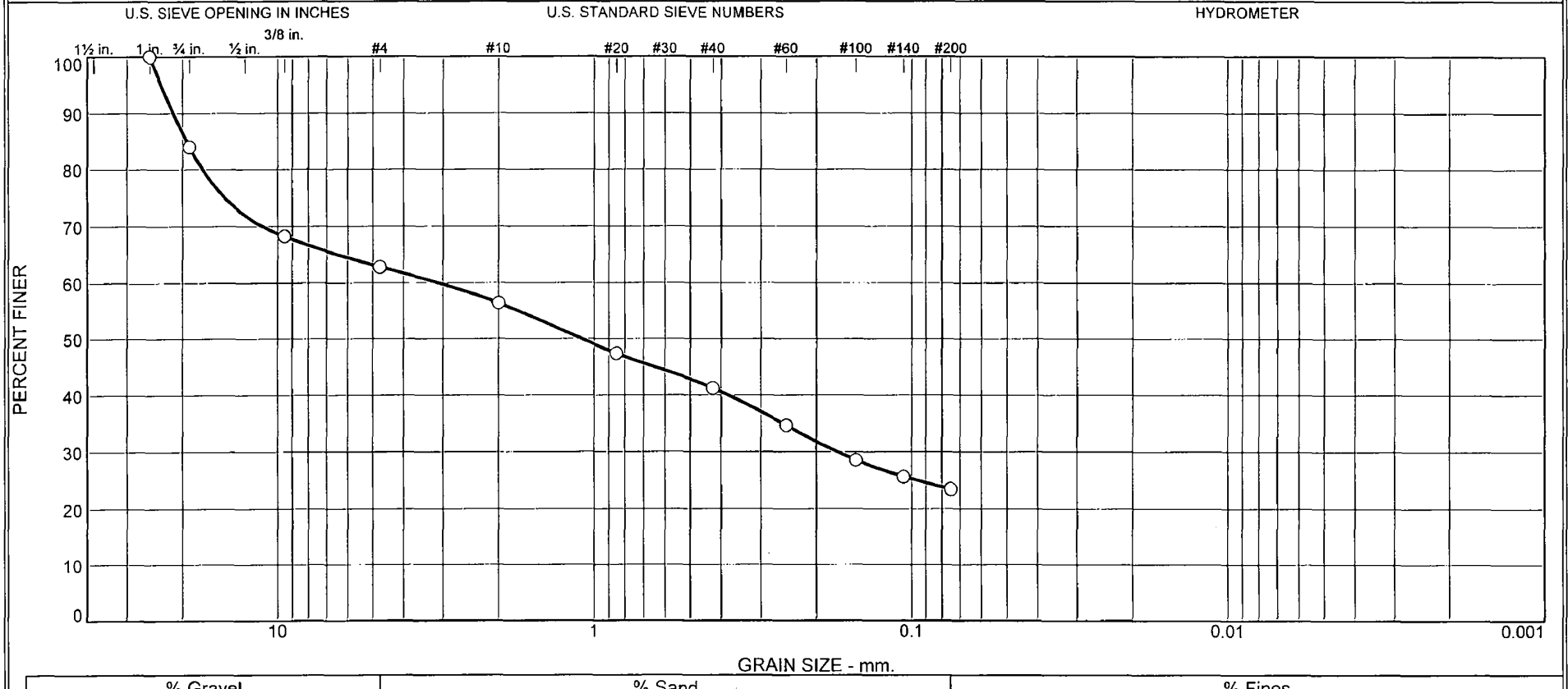
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	5.4	75.8	81.3	8.9	9.8	18.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0053	0.0226	0.0767	0.0882	0.1101	0.1229	0.1642	0.1893	0.2603	0.4625

Fineness Modulus	C_u	C_c
0.39	23.30	12.00

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	16	21	7	15	18	23	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-704(DH)	704-4	7.4-8.9	3/9/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-704(DH)
Depth: 7.4-8.9 **Sample Number:** 704-4
Material Description: White Silty SAND with gravel (Visual)
Date: 3/9/08 **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
291.47	0.00	0.00	1	0.00	100
			3/4	46.60	84
			3/8"	92.52	68
			#4	108.32	63
			#10	126.92	56
100.14	0.00	0.00	#20	16.17	47
			#40	27.05	41
			#60	38.66	35
			#100	49.52	29
			#140	54.72	26
			#200	58.57	23

Fractional Components

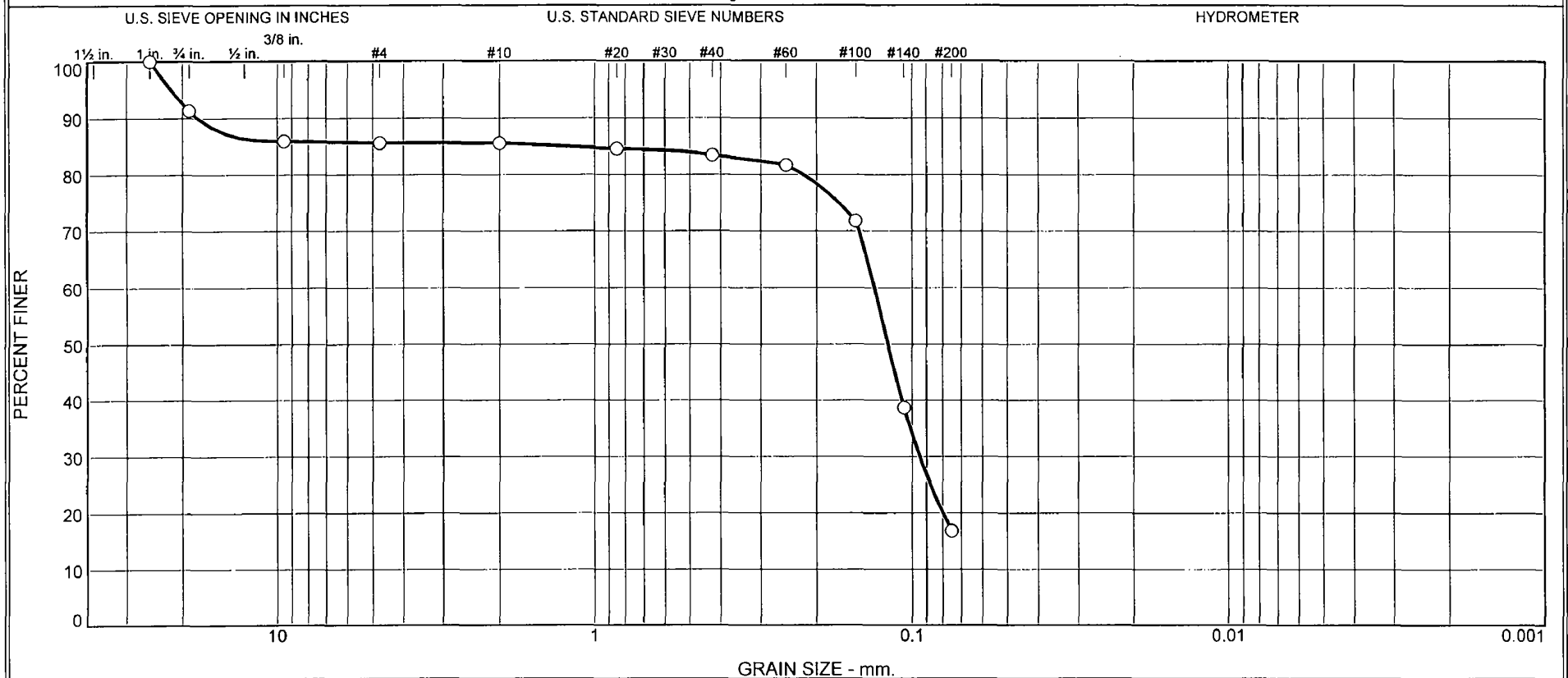
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	16	21	37	7	15	18	40			23

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1719	1.1002	3.0994	17.3022	19.4530	21.4161	23.3649

Fineness Modulus
3.66

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	9	5	0	3	66	17	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-704(DH)	704-10	28.5-30.0	2/25/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-704(DH)
Depth: 28.5-30.0 **Sample Number:** 704-10
Material Description: White Silty SAND (Visual)
Date: 2/25/08 **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
322.24	0.00	0.00	1	0.00	100
			3/4	27.77	91
			3/8"	45.37	86
			#4	46.35	86
			#10	46.54	86
102.76	0.00	0.00	#20	1.16	85
			#40	2.52	83
			#60	4.56	82
			#100	16.55	72
			#140	56.38	39
			#200	82.50	17

Fractional Components

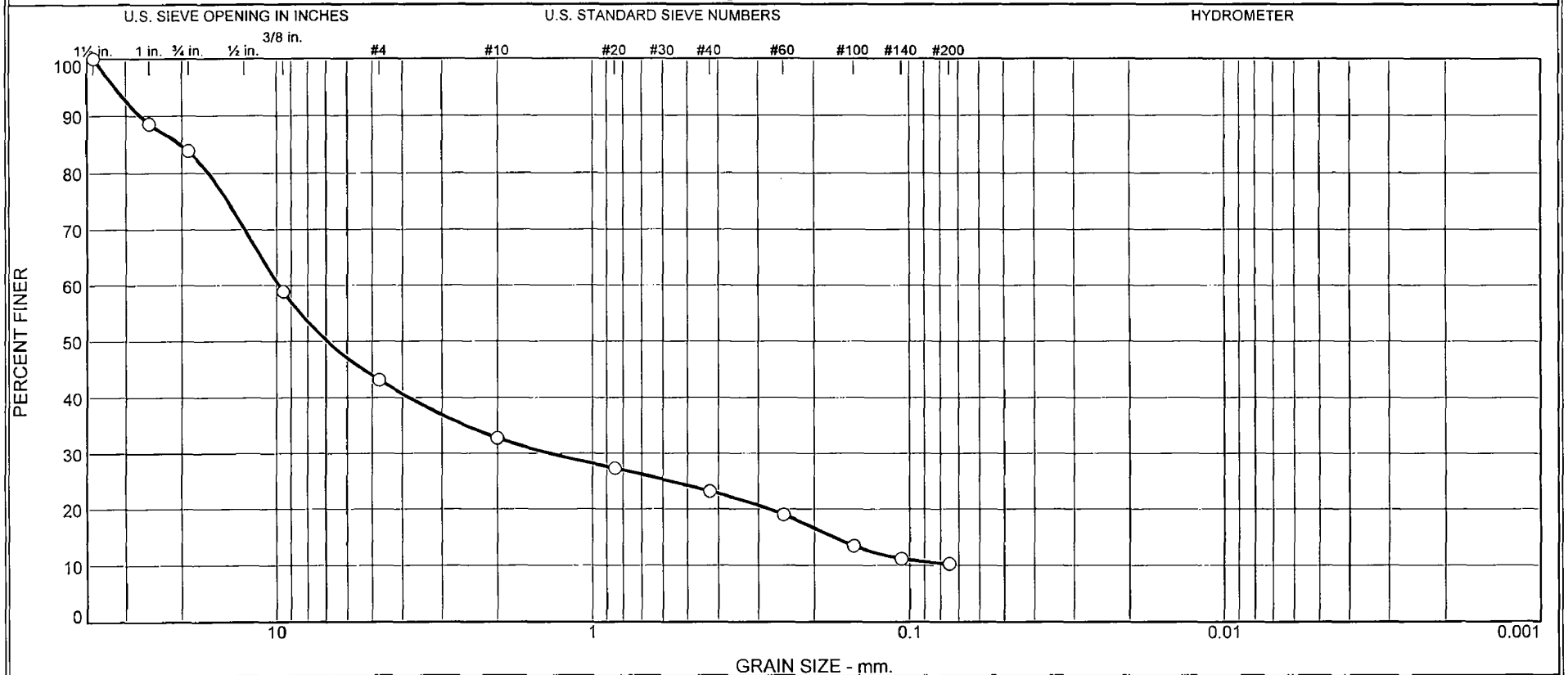
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	9	5	14	0	3	66	69			17

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0798	0.0948	0.1191	0.1312	0.2196	1.2157	17.8530	21.7543

Fineness Modulus
1.28

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	16	41	10	10	13	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-704(DH)	704-15	123.0-124.5	2/27/08	GW-GM	White Well Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 12% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-704(DH)
Depth: 123.0-124.5 **Sample Number:** 704-15
Material Description: White Well Graded GRAVEL with silt and sand (Visual)
Date: 2/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GW-GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 12% (ASTM D 4373-02)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =253.96
Tare Wt. = 0.00
Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
253.96	0.00	0.00	1.5	0.00	100
			1	28.98	89
			3/4	40.69	84
			3/8"	104.38	59
			#4	144.41	43
			#10	170.71	33
			#20	184.60	27
			#40	195.10	23
			#60	205.79	19
			#100	219.71	13
			#140	225.53	11
			#200	227.86	10

Fractional Components

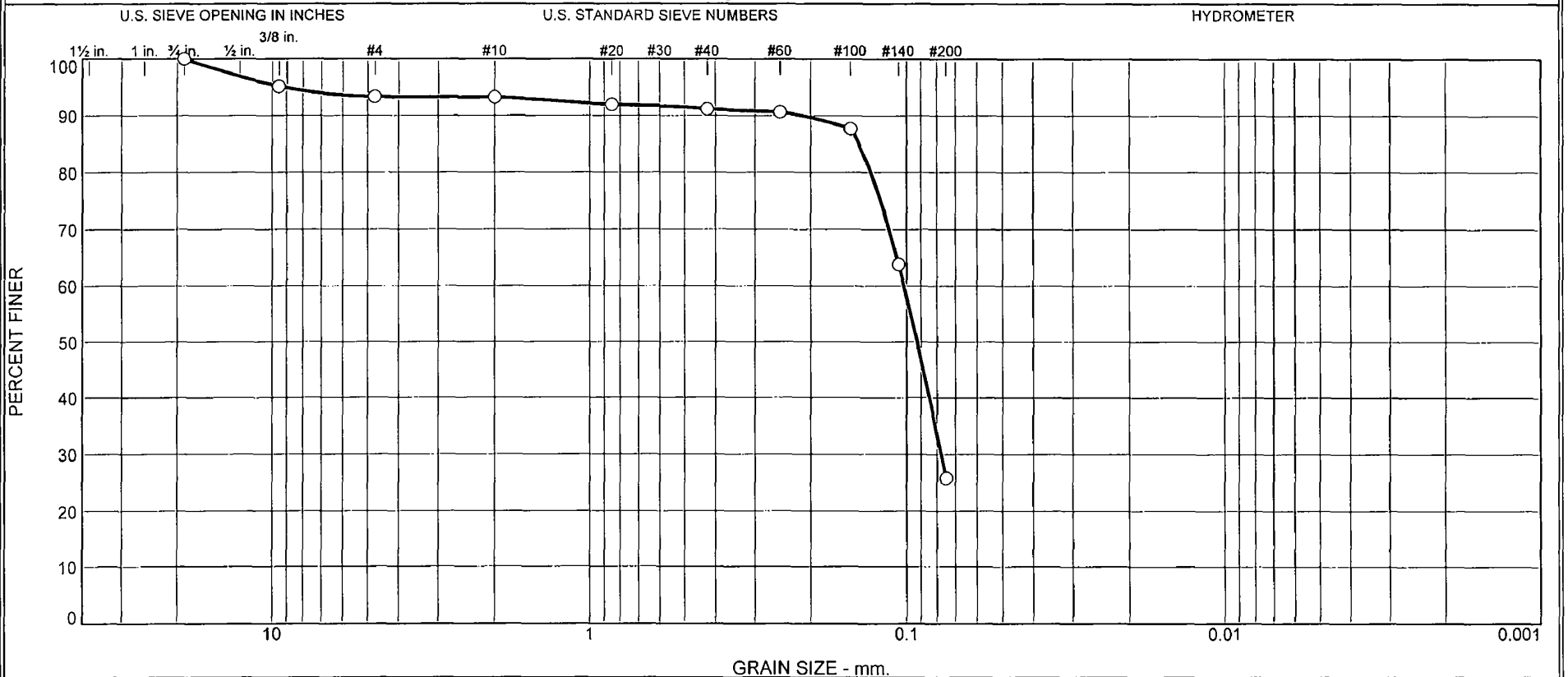
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	16	41	57	10	10	13	33			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1744	0.2786	1.3654	6.9467	9.8227	16.4476	20.0982	27.1817	32.6269

Fineness Modulus
4.91

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	7	0	2	65	26	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-704(DH)	704-16	128.0-129.5	2/27/08	SM	Pale Yellow Silty SAND(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-704(DH)
Depth: 128.0-129.5 **Sample Number:** 704-16
Material Description: Pale Yellow Silty SAND(Visual)
Date: 2/27/08 **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
281.32	0.00	0.00	3/4	0.00	100
			3/8"	13.57	95
			#4	18.78	93
			#10	19.01	93
103.81	0.00	0.00	#20	1.44	92
			#40	2.33	91
			#60	2.88	91
			#100	6.22	88
			#140	32.71	64
			#200	75.10	26

Fractional Components

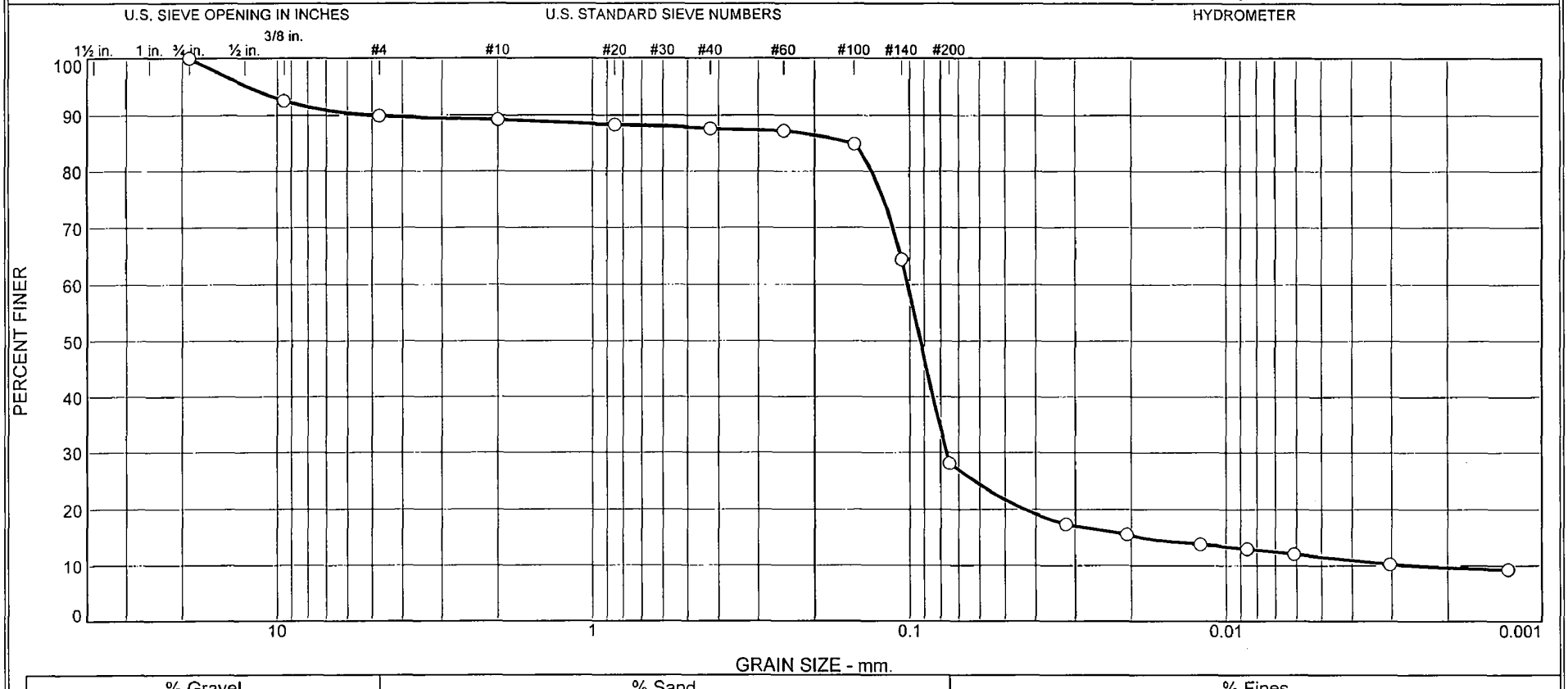
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	7	7	0	2	65	67			26

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0777	0.0926	0.1019	0.1294	0.1411	0.2138	9.1898

Fineness Modulus
0.56

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	10.1	0.7	1.6	59.5	16.5	11.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-704(DH)	704-17	133.0-134.5	2/27/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-704(DH)
Depth: 133.0-134.5 **Sample Number:** 704-17
Material Description: Pale Yellow Silty SAND (Visual)
Date: 2/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
208.81	0.00	0.00	3/4	0.00	100.0
			3/8"	15.52	92.6
			#4	21.09	89.9
			#10	22.53	89.2
102.78	0.00	0.00	#20	1.05	88.3
			#40	1.84	87.6
			#60	2.28	87.2
			#100	4.88	85.0
			#140	28.53	64.4
			#200	70.44	28.1

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =89.2
Weight of hydrometer sample =102.78
Hygroscopic moisture correction:
Moist weight and tare = 27.79
Dry weight and tare = 27.62
Tare weight = 11.13
Hygroscopic moisture =1.0%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.1	25.0	20.0	0.0131	26.0	12.0	0.0321	17.3
5.00	22.1	23.0	18.0	0.0131	24.0	12.4	0.0206	15.6
15.00	22.1	21.0	16.0	0.0131	22.0	12.7	0.0120	13.8
30.00	22.1	20.0	15.0	0.0131	21.0	12.9	0.0086	13.0
60.00	22.1	19.0	14.0	0.0131	20.0	13.0	0.0061	12.1
250.00	21.8	17.0	11.9	0.0131	18.0	13.3	0.0030	10.3
1440.00	21.2	16.0	10.7	0.0132	17.0	13.5	0.0013	9.3

MACTEC Engineering and Consulting, Inc.

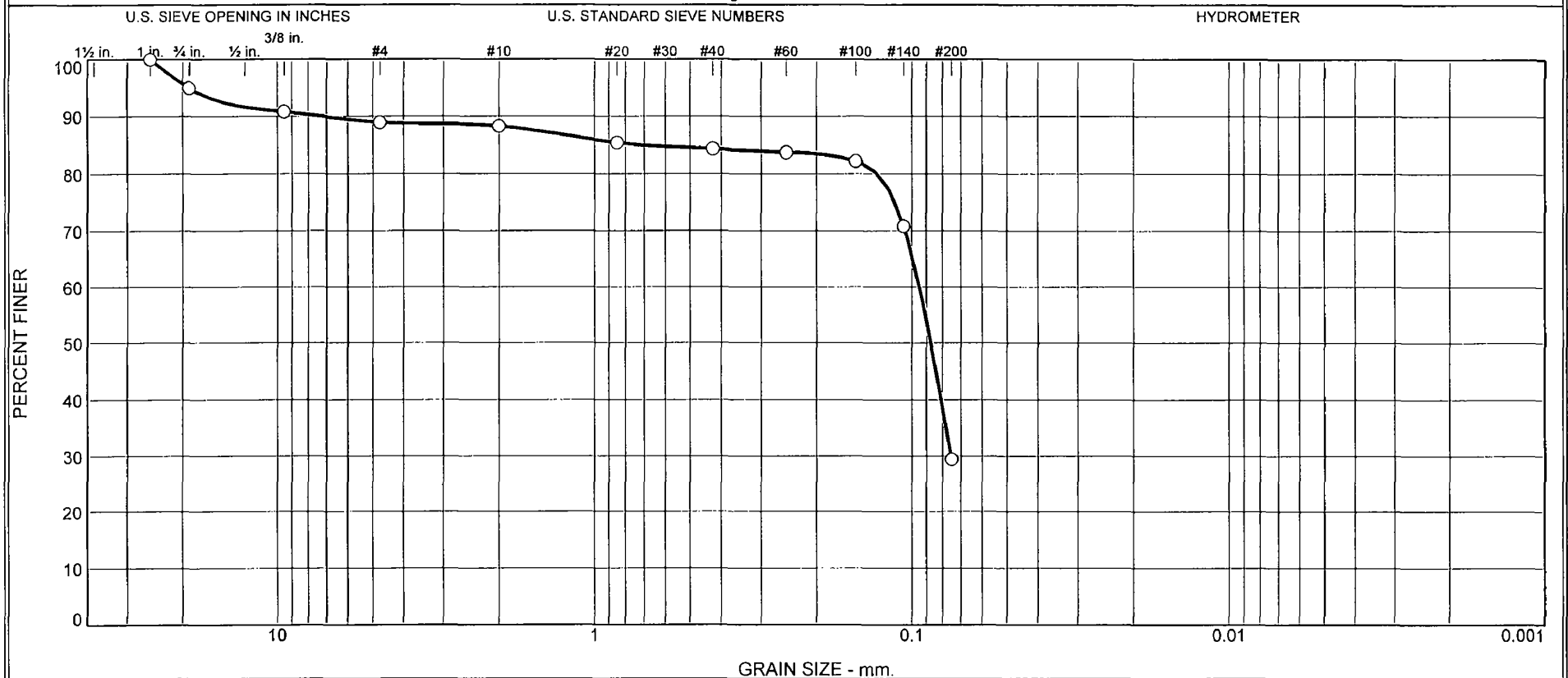
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	10.1	10.1	0.7	1.6	59.5	61.8	16.5	11.6	28.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0026	0.0186	0.0434	0.0767	0.0925	0.1014	0.1318	0.1506	5.0619	12.4410

Fineness Modulus	C_u	C_c
0.79	39.55	22.62

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	6	1	4	55	29	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-704(DH)	704-18	138.0-139.5	2/27/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-704(DH)
Depth: 138.0-139.5 **Sample Number:** 704-18
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/27/08 **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
253.80	0.00	0.00	1	0.00	100
			3/4	12.88	95
			3/8"	23.45	91
			#4	28.12	89
			#10	29.77	88
103.93	0.00	0.00	#20	3.41	85
			#40	4.62	84
			#60	5.32	84
			#100	7.11	82
			#140	20.52	71
			#200	69.25	29

Fractional Components

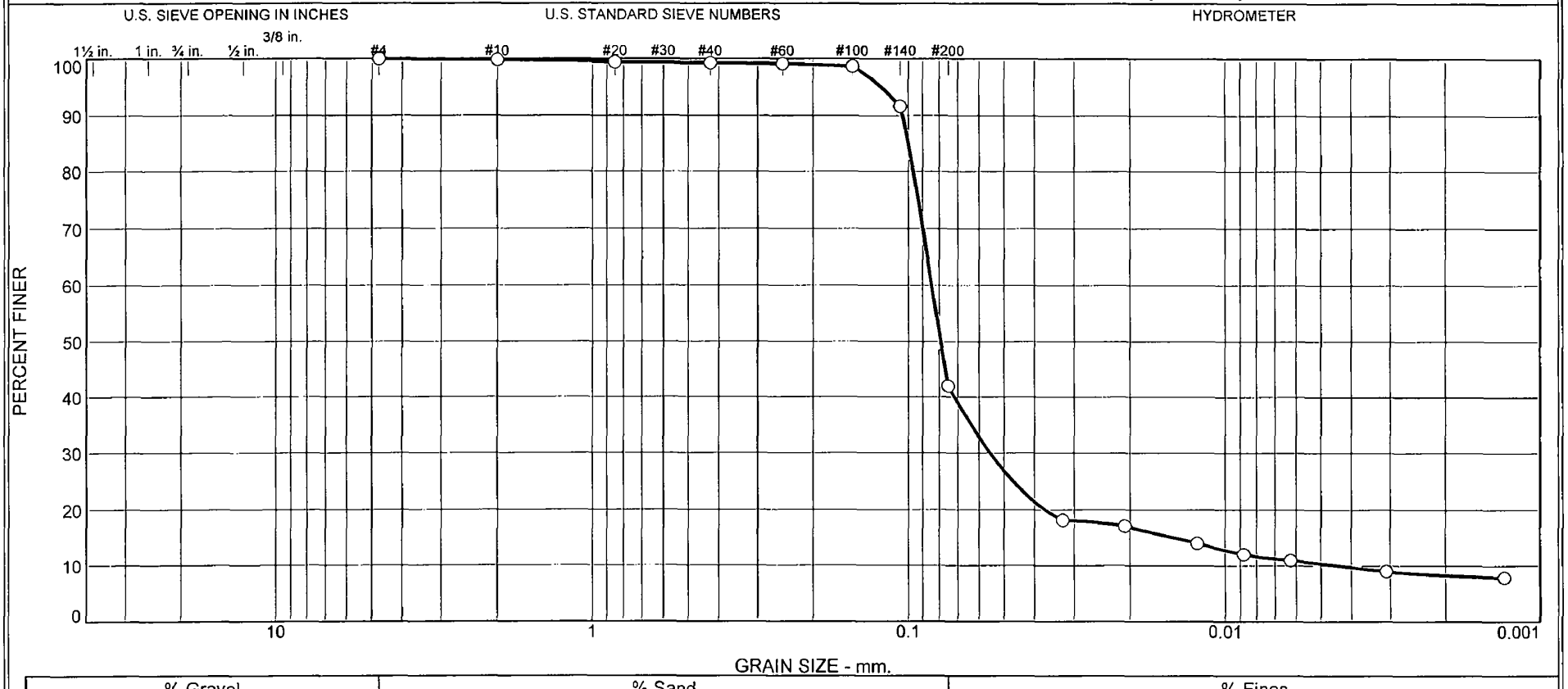
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	6	11	1	4	55	60			29

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0753	0.0871	0.0947	0.1283	0.7217	7.3156	19.1507

Fineness Modulus
0.99

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.2	0.5	57.3	31.6	10.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-704(DH)	704-21	150.0-151.5	2/27/08	SM	Greenish Gray Silty SAND(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 18% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-704(DH)
Depth: 150.0-151.5 **Sample Number:** 704-21
Material Description: Greenish Gray Silty SAND(Visual)
Date: 2/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 18% (ASTM D 4373-02)
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
246.47	0.00	0.00	#4	0.00	100.0
			#10	0.50	99.8
98.77	0.00	0.00	#20	0.37	99.4
			#40	0.53	99.3
			#60	0.65	99.1
			#100	1.15	98.6
			#140	8.09	91.6
			#200	57.21	42.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.8
Weight of hydrometer sample =98.77
Hygroscopic moisture correction:
Moist weight and tare = 27.30
Dry weight and tare = 27.15
Tare weight = 15.43
Hygroscopic moisture =1.3%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.0	23.0	17.9	0.0131	24.0	12.4	0.0326	18.2
5.00	22.0	22.0	16.9	0.0131	23.0	12.5	0.0208	17.1
15.00	21.9	19.0	13.9	0.0131	20.0	13.0	0.0122	14.1
30.00	21.9	17.0	11.9	0.0131	18.0	13.3	0.0088	12.1
60.00	21.8	16.0	10.9	0.0131	17.0	13.5	0.0062	11.0
250.00	21.9	14.0	8.9	0.0131	15.0	13.8	0.0031	9.0
1440.00	21.5	13.0	7.8	0.0132	14.0	14.0	0.0013	7.9

MACTEC Engineering and Consulting, Inc.

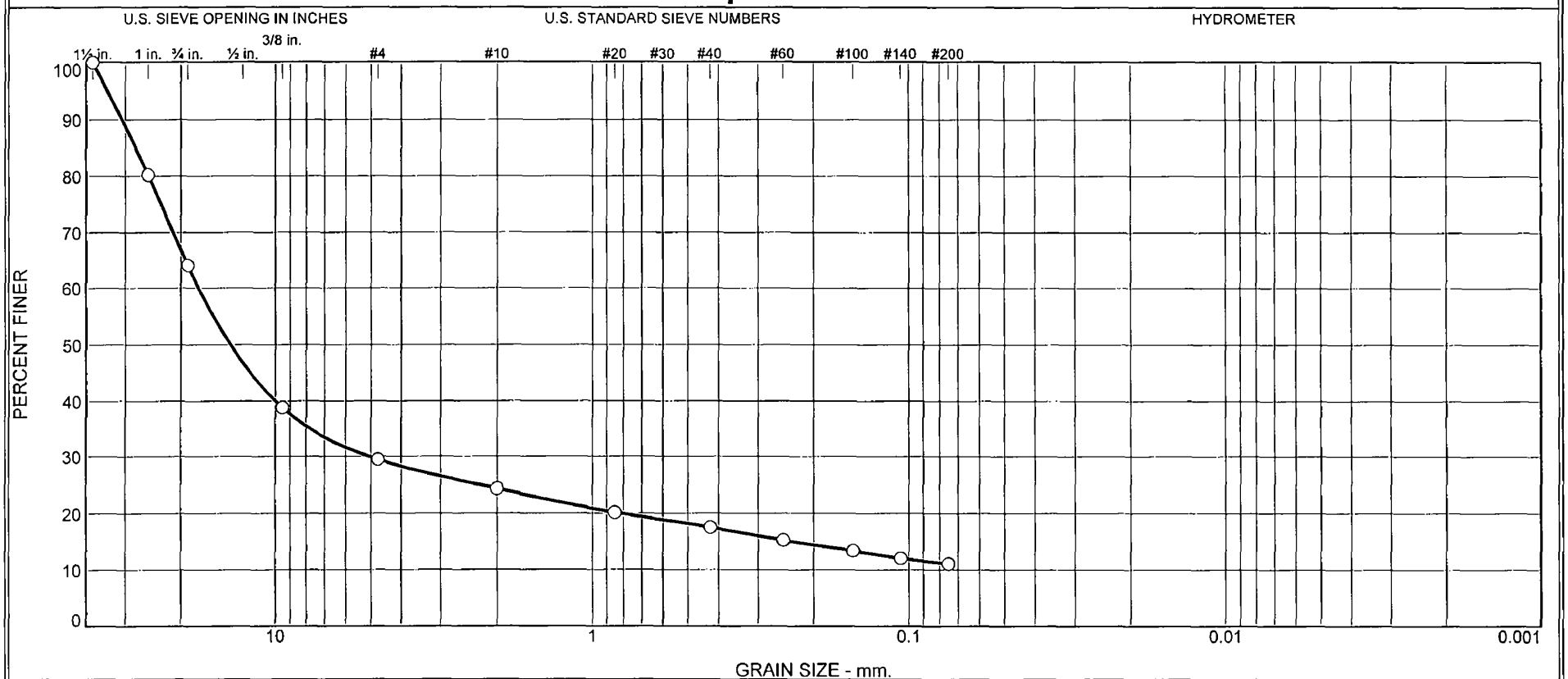
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.5	57.3	58.0	31.6	10.4	42.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0044	0.0143	0.0371	0.0554	0.0793	0.0845	0.0961	0.0998	0.1042	0.1214

Fineness Modulus	C_u	C_c
0.03	19.26	8.26

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	36	35	5	6	7	11	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-4	7.5-9.0	2/22/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 7.5-9.0 **Sample Number:** 705-4
Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)
Date: 2/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =242.96
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
242.96	0.00	0.00	1.5	0.00	100
			1	47.99	80
			3/4	87.26	64
			3/8"	148.64	39
			#4	171.41	29
			#10	183.98	24
			#20	194.00	20
			#40	200.41	18
			#60	205.88	15
			#100	210.41	13
			#140	213.63	12
			#200	216.07	11

Fractional Components

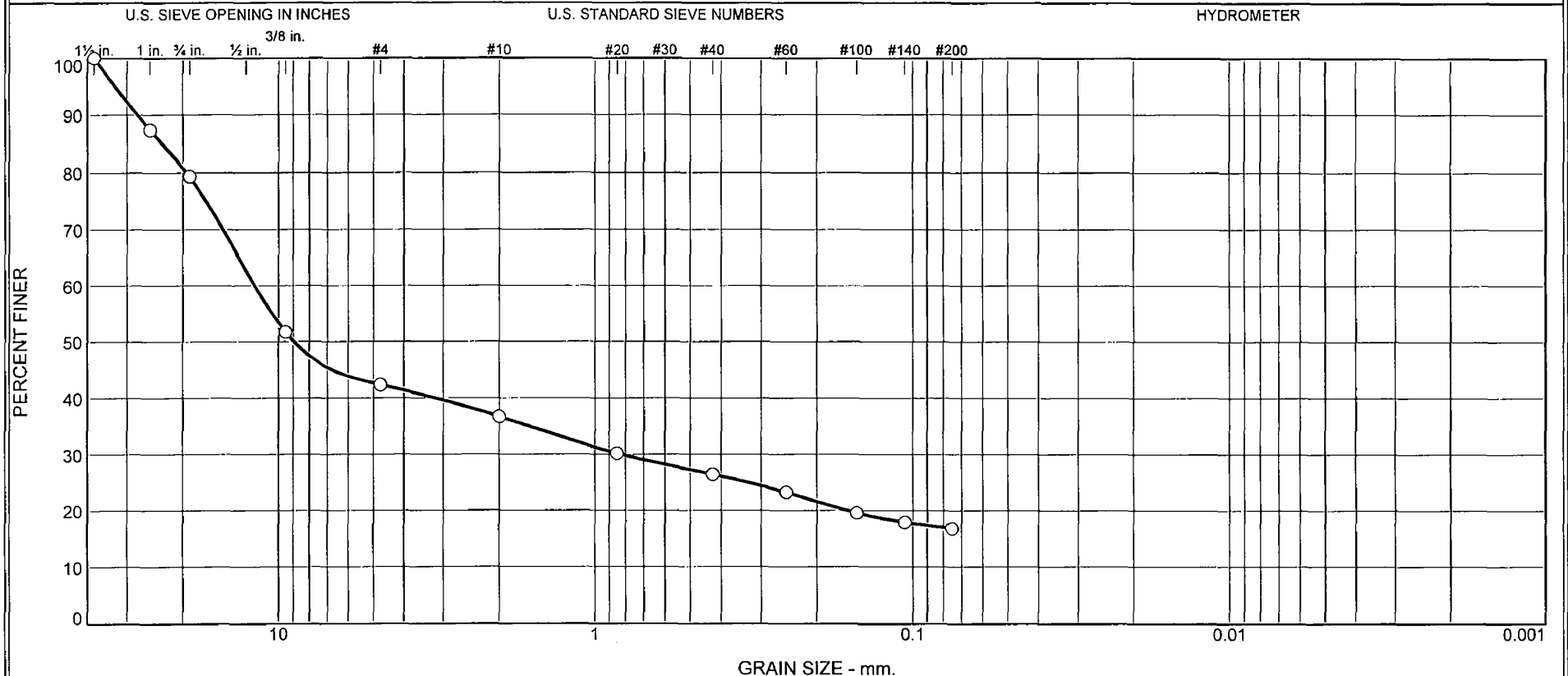
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	36	35	71	5	6	7	18			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.2336	0.8190	5.0813	13.9260	17.5803	25.2852	27.7923	30.7405	34.1739

Fineness Modulus
5.73

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	21	37	5	11	9	17	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-8	18.5-20.0	2/22/08	GM	White Silty GRAVEL with sand(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 18.5-20.0 **Sample Number:** 705-8
Material Description: White Silty GRAVEL with sand(Visual)
Date: 2/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
395.62	0.00	0.00	1.5	0.00	100
			1	49.97	87
			3/4	81.72	79
			3/8"	191.05	52
			#4	228.22	42
			#10	250.46	37
100.75	0.00	0.00	#20	17.87	30
			#40	28.06	26
			#60	36.95	23
			#100	47.12	20
			#140	51.69	18
			#200	54.72	17

Fractional Components

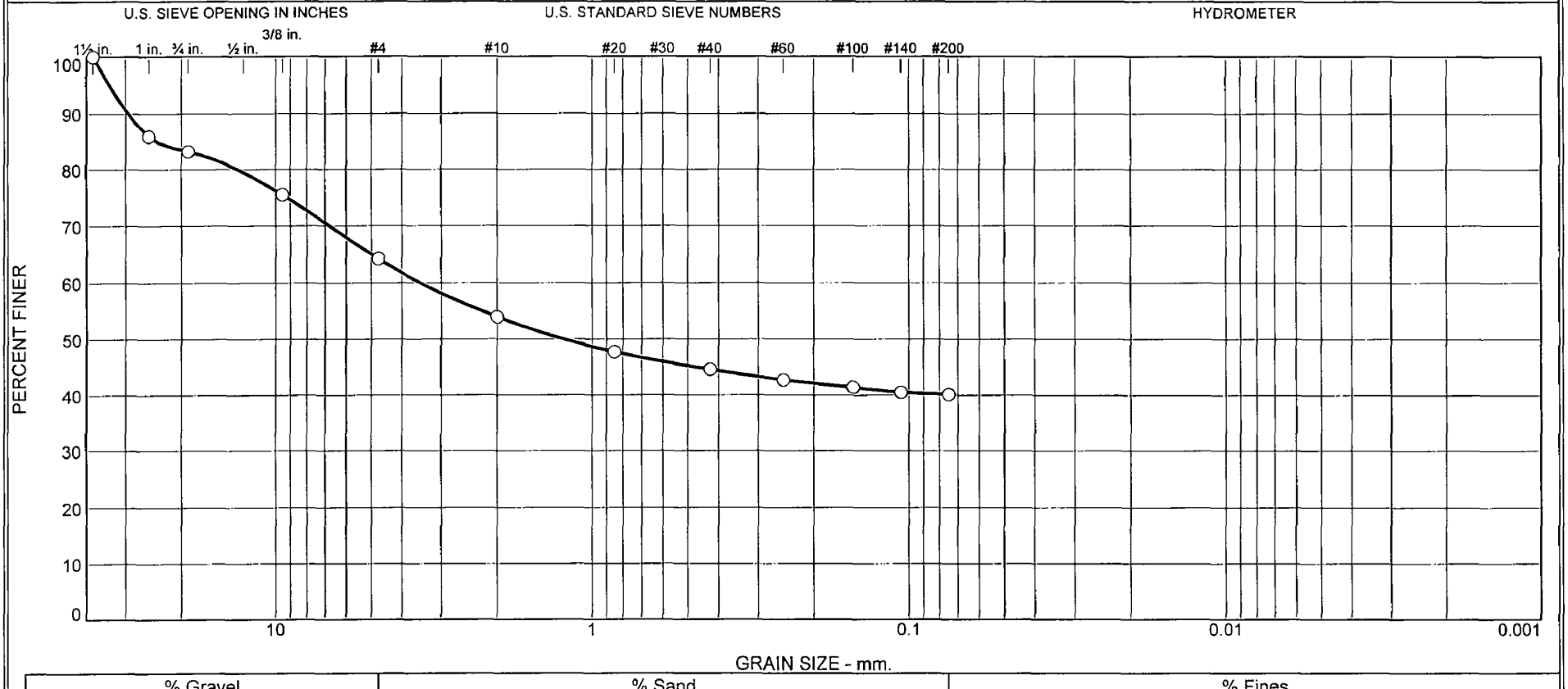
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	21	37	58	5	11	9	25			17

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1613	0.8256	8.9664	11.9134	19.4407	23.2323	27.8508	32.7092

Fineness Modulus
4.84

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	17	19	10	9	5	40	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-11	33.5-35.0	2/22/08	GM	White Silty GRAVEL with sand(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY(OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 33.5-35.0 **Sample Number:** 705-11
Material Description: White Silty GRAVEL with sand(Visual)
Date: 2/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY(OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =292.50
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
292.50	0.00	0.00	1.5	0.00	100
			1	41.03	86
			3/4	48.94	83
			3/8"	71.61	76
			#4	104.57	64
			#10	134.68	54
			#20	152.89	48
			#40	162.10	45
			#60	167.59	43
			#100	171.52	41
			#140	173.99	41
			#200	175.20	40

Fractional Components

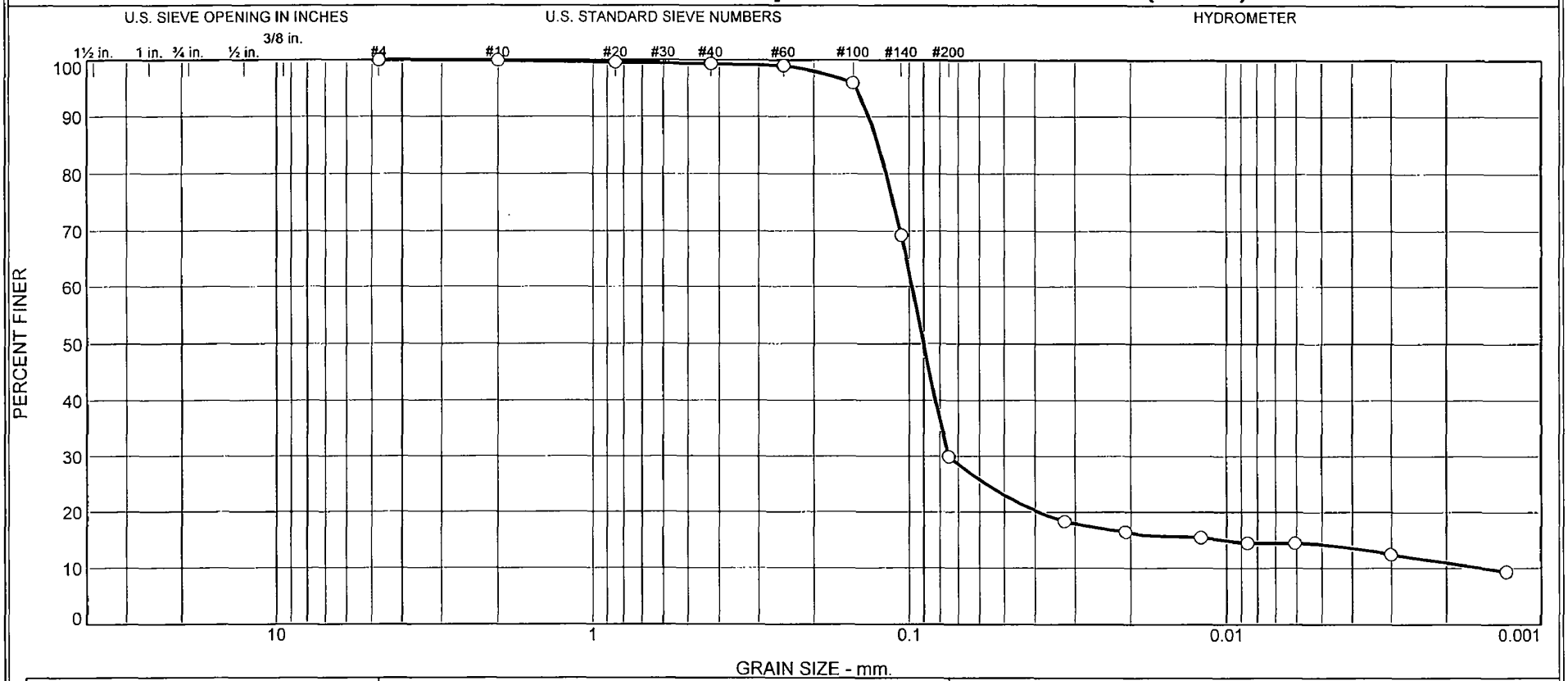
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	19	36	10	9	5	24			40

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				1.2246	3.4957	13.2239	23.9204	29.5235	33.7813

Fineness Modulus
3.41

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.7	69.3	15.8	14.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-14	128.5-130.0	2/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 20% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 128.5-130.0 **Sample Number:** 705-14
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 20% (ASTM D 4373-02)
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
277.41	0.00	0.00	#4	0.00	100.0
			#10	0.09	100.0
102.71	0.00	0.00	#20	0.36	99.6
			#40	0.65	99.3
			#60	0.98	99.0
			#100	4.11	96.0
			#140	31.55	69.3
			#200	71.93	30.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =102.71
Hygroscopic moisture correction:
Moist weight and tare = 28.04
Dry weight and tare = 27.98
Tare weight = 15.89
Hygroscopic moisture =0.5%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.9	24.0	18.9	0.0131	25.0	12.2	0.0324	18.3
5.00	22.0	22.0	16.9	0.0131	23.0	12.5	0.0208	16.4
15.00	22.0	21.0	15.9	0.0131	22.0	12.7	0.0121	15.4
30.00	21.9	20.0	14.9	0.0131	21.0	12.9	0.0086	14.4
60.00	21.9	20.0	14.9	0.0131	21.0	12.9	0.0061	14.4
250.00	21.8	18.0	12.9	0.0131	19.0	13.2	0.0030	12.5
1440.00	21.1	15.0	9.7	0.0133	16.0	13.7	0.0013	9.4

MACTEC Engineering and Consulting, Inc.

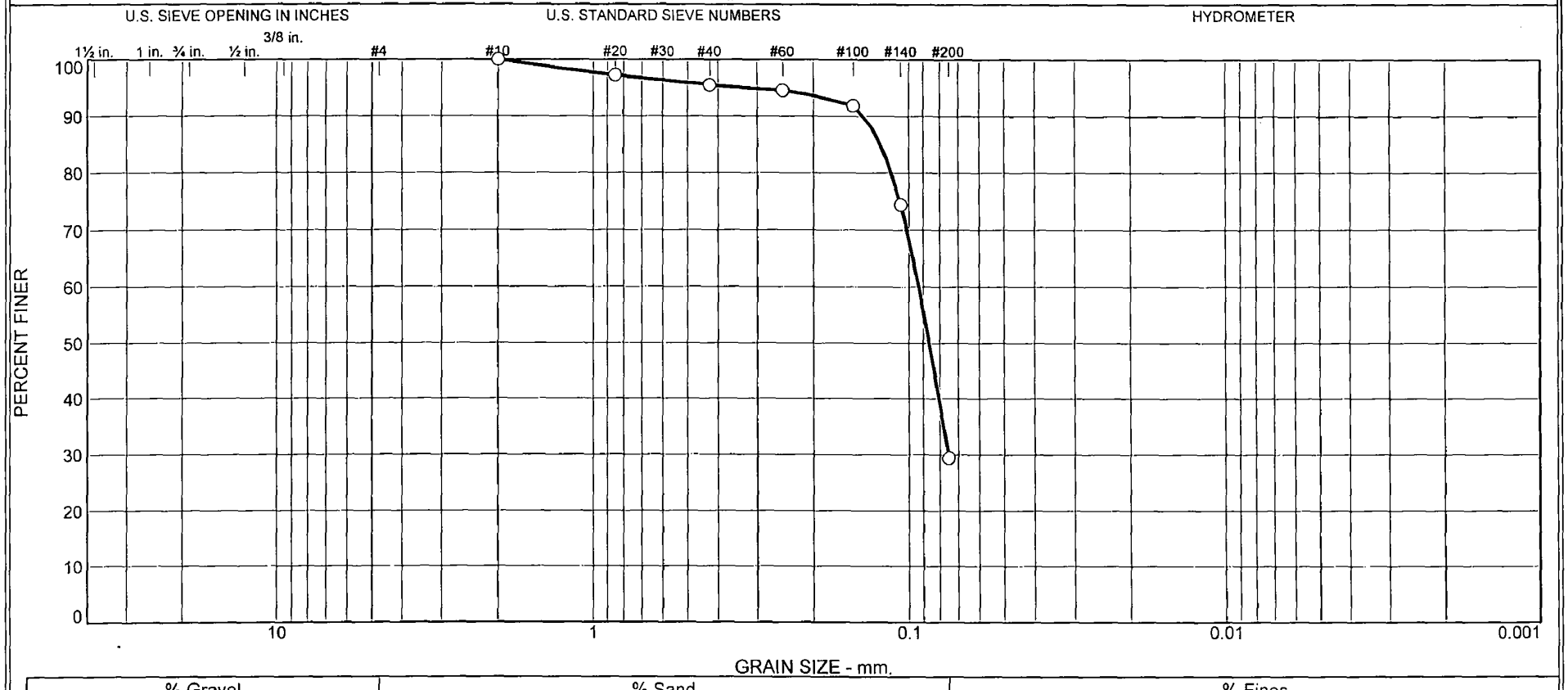
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	69.3	70.0	15.8	14.2	30.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0015	0.0105	0.0392	0.0750	0.0902	0.0979	0.1179	0.1250	0.1340	0.1467

Fineness Modulus	C_u	C_c
0.06	63.37	37.24

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	4	67	29	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-16	138.5-140.0	2/22/08	SM	Greenish Gray Silty SAND(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
Specific Gravity = 2.666 (ASTM D854-06)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 138.5-140.0 **Sample Number:** 705-16
Material Description: Greenish Gray Silty SAND(Visual)
Date: 2/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
Specific Gravity = 2.666 (ASTM D854-06)
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
316.12	0.00	0.00	#10	0.00	100
99.58	0.00	0.00	#20	2.75	97
			#40	4.46	96
			#60	5.38	95
			#100	8.06	92
			#140	25.46	74
			#200	70.29	29

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	4	67	71			29

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0753	0.0864	0.0931	0.1134	0.1228	0.1389	0.3228

Fineness Modulus
0.19

MACTEC Engineering and Consulting, 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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 4/17/08

SAMPLE IDENTIFICATION: B-705-16,(138.5-140.0)

(A) Mass of oven-dried soil, grams:		74.49
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.53
(C) Mass of pycnometer, water and soil, grams:		703.09
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.3
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.667
(F)	***Correction factor:***	0.99972
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.666

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

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

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM)- Visual

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

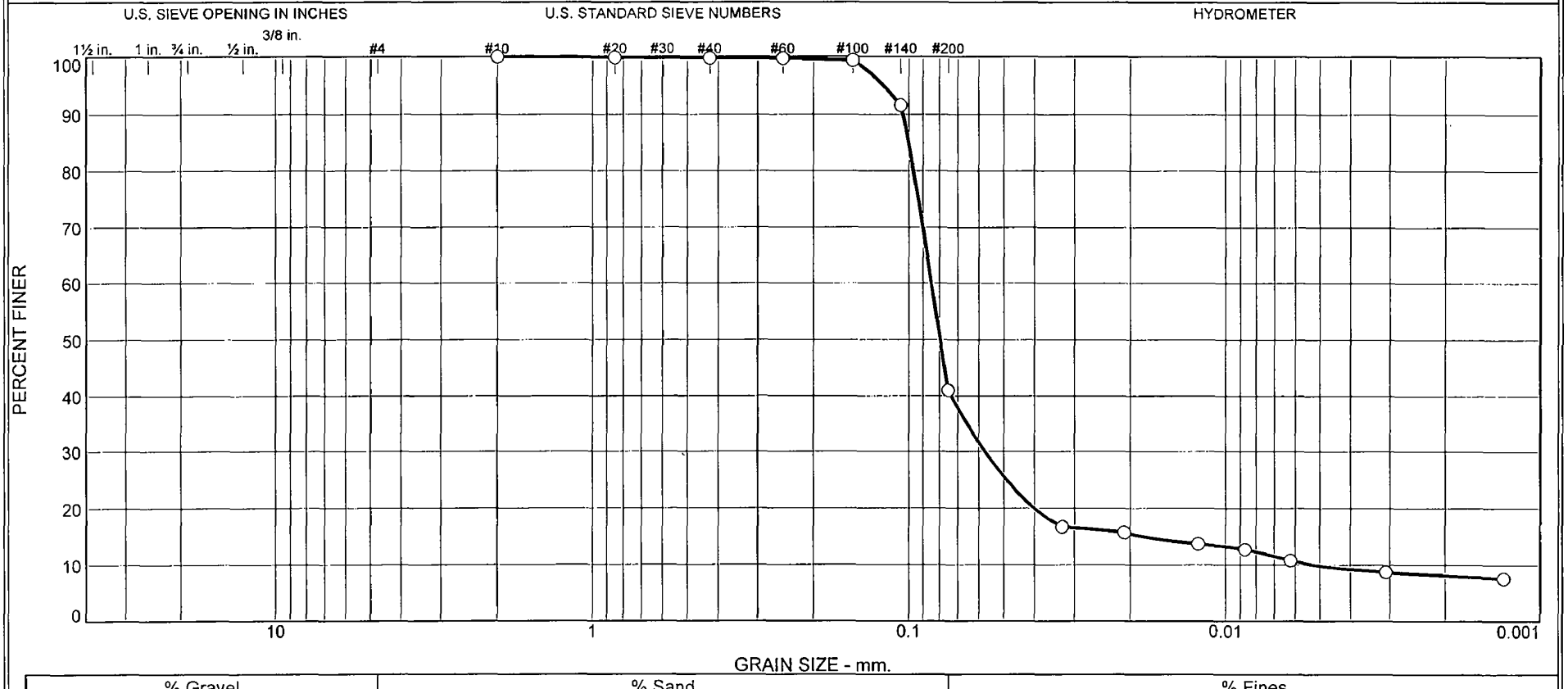
PYCNOMETER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

DSC 7-2-08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.2	58.8	31.2	9.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-18	148.5-150.0	2/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 148.5-150.0 **Sample Number:** 705-18
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
478.45	0.00	0.00	#10	0.00	100.0
101.54	0.00	0.00	#20	0.14	99.9
			#40	0.22	99.8
			#60	0.29	99.7
			#100	0.64	99.4
			#140	8.56	91.6
			#200	59.89	41.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =101.54
Hygroscopic moisture correction:
Moist weight and tare = 28.91
Dry weight and tare = 28.78
Tare weight = 15.76
Hygroscopic moisture =1.0%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	22.0	17.0	0.0131	23.0	12.5	0.0327	16.7
5.00	22.2	21.0	16.0	0.0131	22.0	12.7	0.0208	15.7
15.00	22.2	19.0	14.0	0.0131	20.0	13.0	0.0122	13.8
30.00	22.2	18.0	13.0	0.0131	19.0	13.2	0.0087	12.8
60.00	22.2	16.0	11.0	0.0131	17.0	13.5	0.0062	10.8
250.00	21.9	14.0	8.9	0.0131	15.0	13.8	0.0031	8.8
1440.00	21.2	13.0	7.7	0.0132	14.0	14.0	0.0013	7.6

MACTEC Engineering and Consulting, Inc.

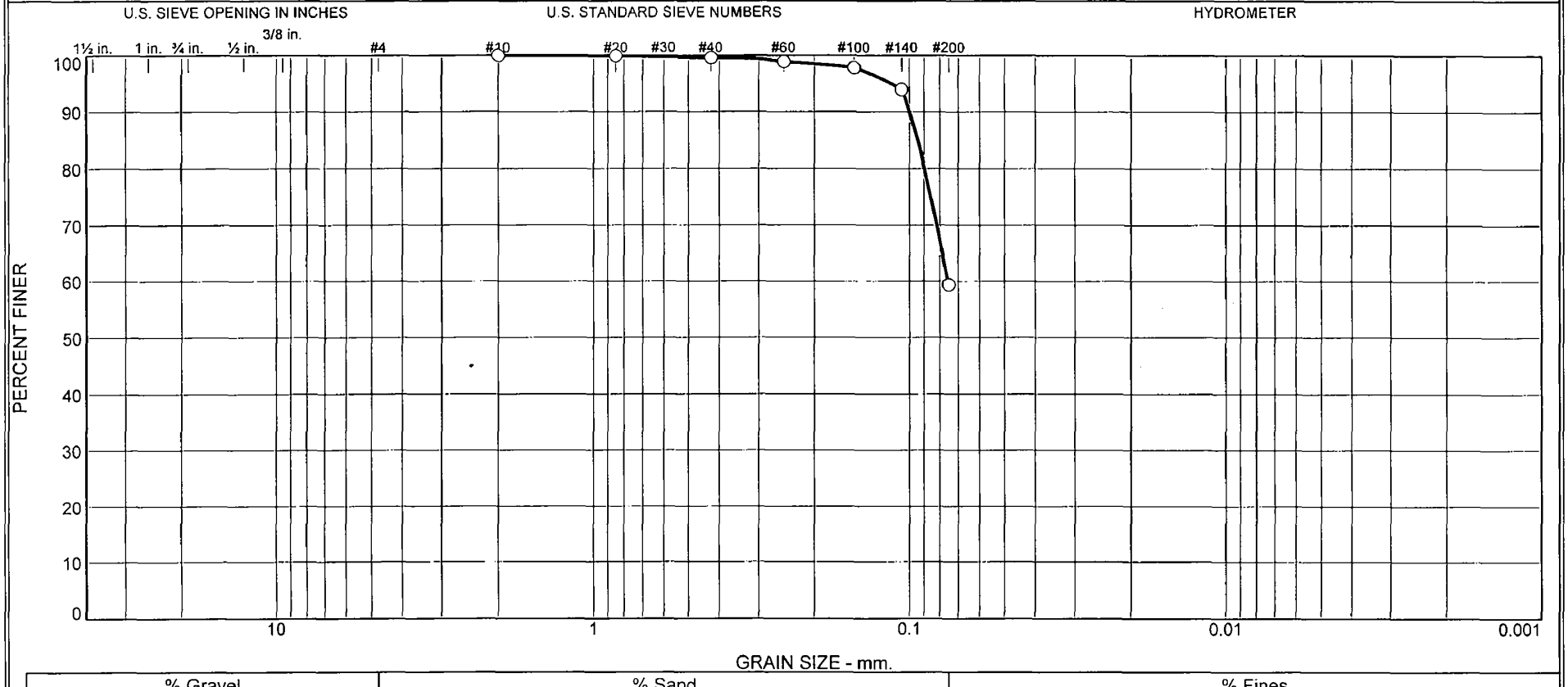
Fractional Components

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	58.8	59.0	31.2	9.8	41.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0052	0.0181	0.0402	0.0574	0.0797	0.0849	0.0964	0.1000	0.1043	0.1197

Fineness Modulus	C_u	C_c
0.01	16.26	7.44

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	41	59	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-23	173.5-175.0	2/24/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 173.5-175.0 **Sample Number:** 705-23
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 94.61
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
94.61	0.00	0.00	#10	0.00	100
			#20	0.05	100
			#40	0.40	100
			#60	1.04	99
			#100	2.06	98
			#140	5.74	94
			#200	38.42	59

Fractional Components

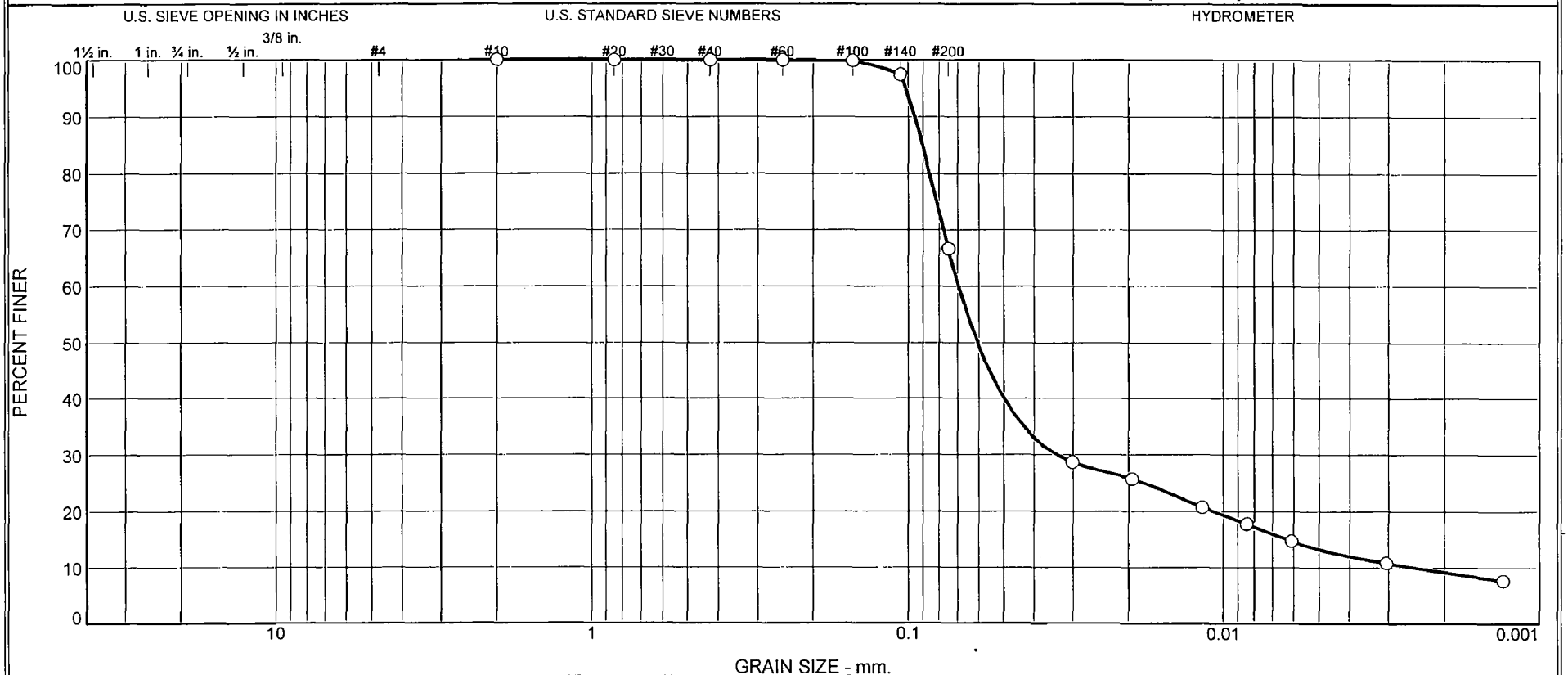
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	41	41			59

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0754	0.0895	0.0941	0.0998	0.1143

Fineness Modulus
0.03

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	33.4	53.3	13.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-24	178.5-180	2/24/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 24% (ASTM D 4373-02)

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 178.5-180 **Sample Number:** 705-24
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 24% (ASTM D 4373-02)
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
232.19	0.00	0.00	#10	0.00	100.0
100.38	0.00	0.00	#20	0.02	100.0
			#40	0.05	100.0
			#60	0.06	99.9
			#100	0.18	99.8
			#140	2.59	97.4
			#200	33.49	66.6

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =100.38
Hygroscopic moisture correction:
Moist weight and tare = 27.90
Dry weight and tare = 27.80
Tare weight = 15.64
Hygroscopic moisture =0.8%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.9	34.0	28.9	0.0131	35.0	10.6	0.0302	28.7
5.00	21.9	31.0	25.9	0.0131	32.0	11.0	0.0195	25.7
15.00	21.8	26.0	20.9	0.0131	27.0	11.9	0.0117	20.7
30.00	21.9	23.0	17.9	0.0131	24.0	12.4	0.0084	17.8
60.00	21.7	20.0	14.9	0.0132	21.0	12.9	0.0061	14.8
250.00	21.9	16.0	10.9	0.0131	17.0	13.5	0.0031	10.8
1440.00	21.3	13.0	7.7	0.0132	14.0	14.0	0.0013	7.7

MACTEC Engineering and Consulting, Inc.

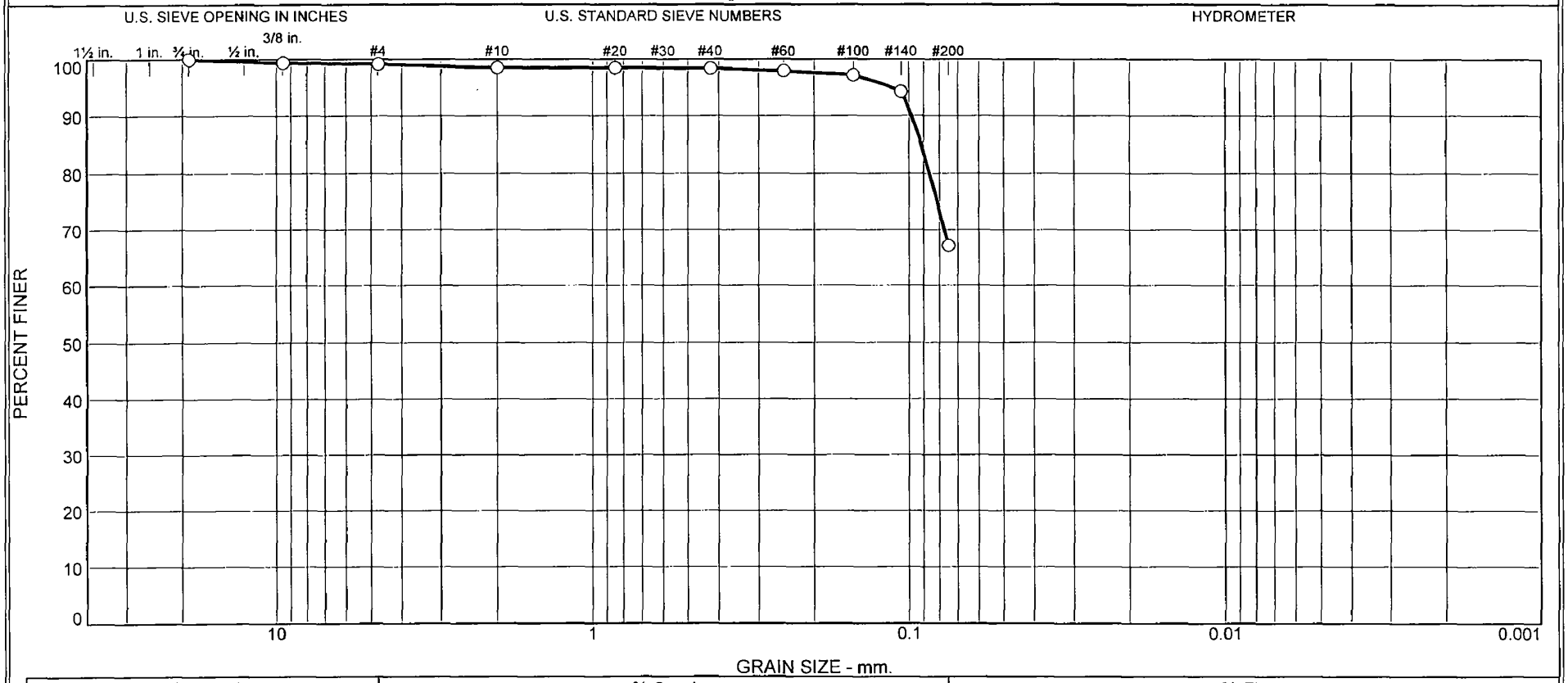
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	33.4	33.4	53.3	13.3	66.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0025	0.0063	0.0108	0.0338	0.0606	0.0696	0.0857	0.0902	0.0953	0.1017

Fineness Modulus	C_u	C_c
0.00	28.21	6.67

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	1	0	31	67	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-705	705-27	193.5-195.0	2/24/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-705
Depth: 193.5-195.0 **Sample Number:** 705-27
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
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
445.79	0.00	0.00	3/4	0.00	100
			3/8"	2.77	99
			#4	3.79	99
			#10	6.69	98
102.07	0.00	0.00	#20	0.02	98
			#40	0.14	98
			#60	0.63	98
			#100	1.40	97
			#140	4.44	94
			#200	32.49	67

Fractional Components

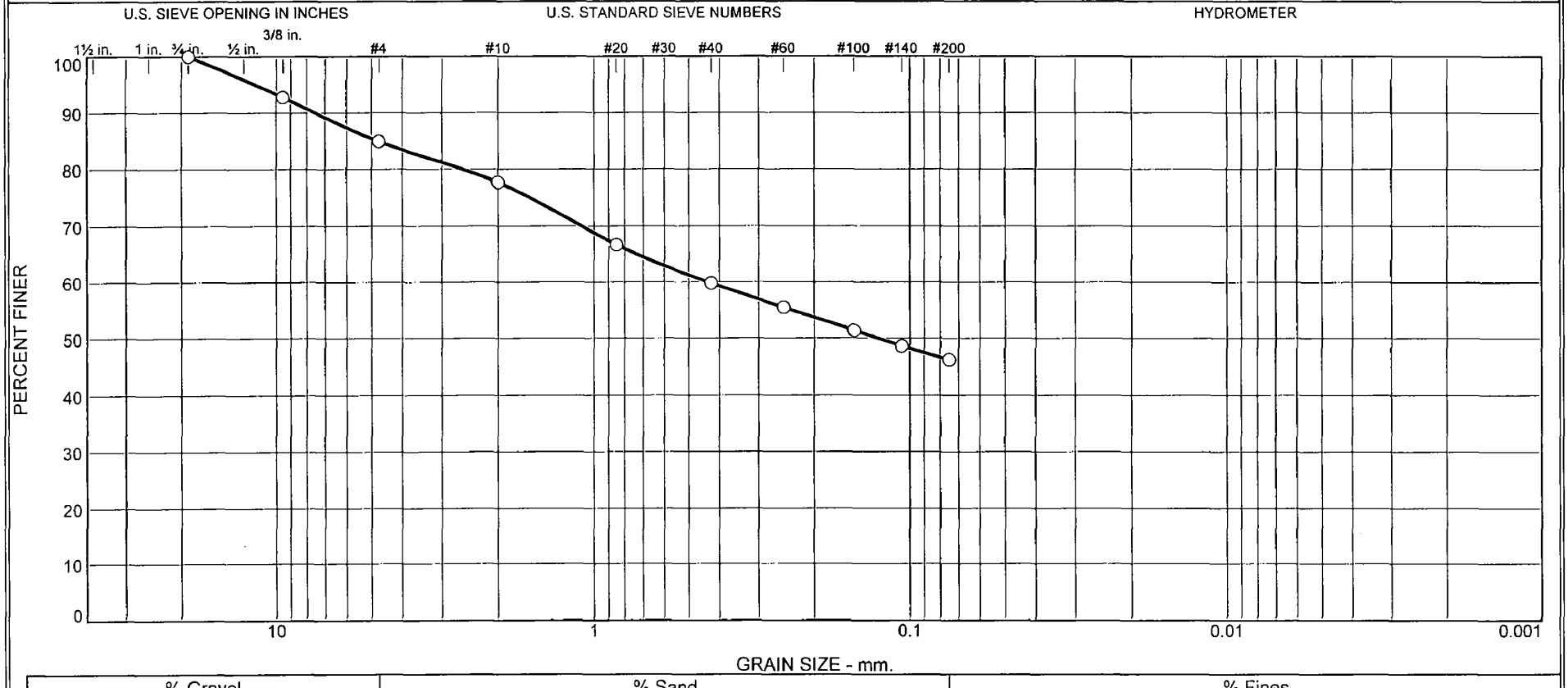
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	1	0	31	32			67

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0861	0.0914	0.0980	0.1141

Fineness Modulus
0.11

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	15	7	18	14	46	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-706	706-2	3.1-4.6	2/9/08	SM	Pale Yellow Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 86% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-706
Depth: 3.1-4.6 **Sample Number:** 706-2
Material Description: Pale Yellow Silty SAND with gravel (Visual)
Date: 2/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 86% (ASTM D 4373-02)
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
304.39	0.00	0.00	3/4	0.00	100
			3/8"	22.00	93
			#4	46.00	85
			#10	67.99	78
102.07	0.00	0.00	#20	14.42	67
			#40	23.43	60
			#60	29.20	55
			#100	34.56	51
			#140	38.17	49
			#200	41.30	46

Fractional Components

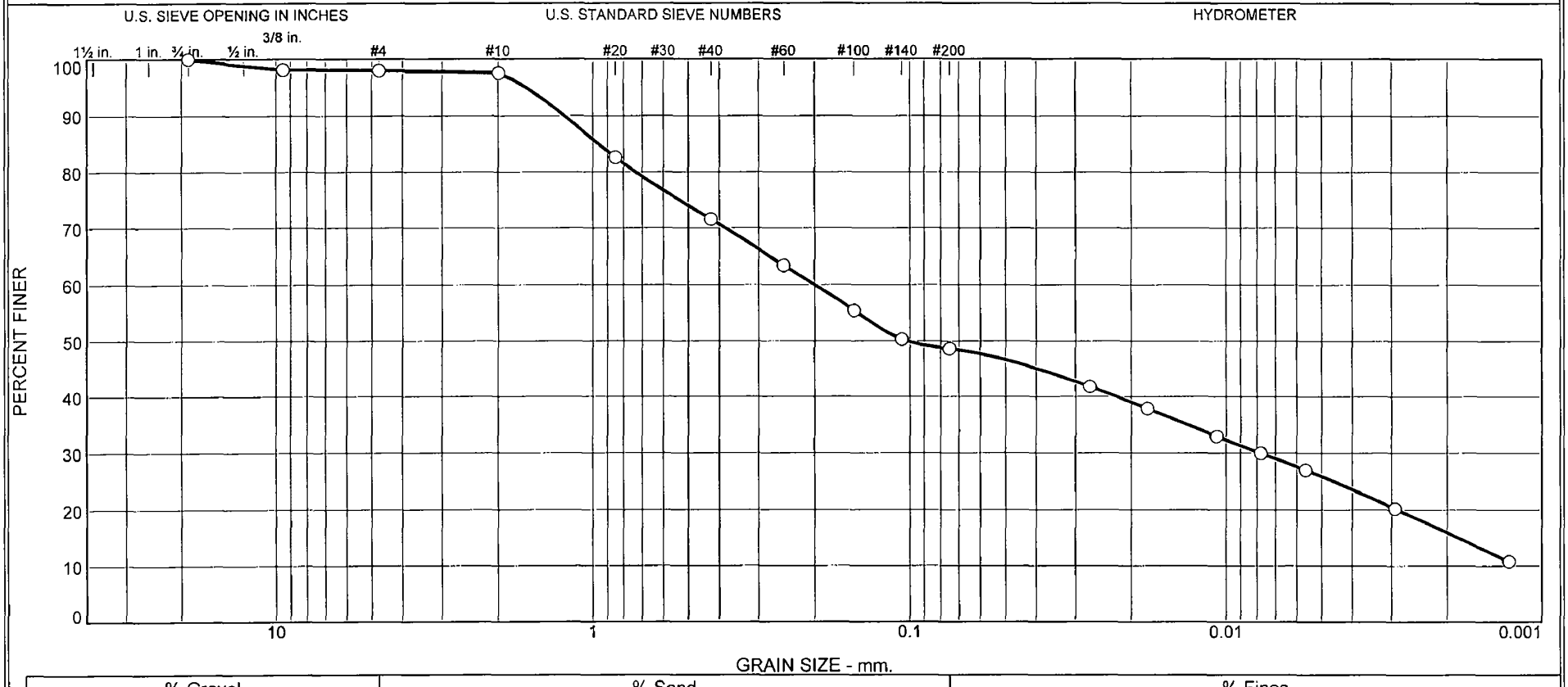
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	15	15	7	18	14	39			46

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1266	0.4332	2.5791	4.8062	7.5314	11.6504

Fineness Modulus
2.01

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	2.0	0.5	25.9	23.0	22.7	25.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-706	706-4	8-9.5	2/9/08	SC	Pale Yellow Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS

Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-706
Depth: 8-9.5 **Sample Number:** 706-4
Material Description: Pale Yellow Clayey SAND (Visual)
Date: 2/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SC
Testing Remarks: SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
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
347.11	0.00	0.00	3/4	0.00	100.0
			3/8"	6.39	98.2
			#4	6.89	98.0
			#10	8.57	97.5
97.85	0.00	0.00	#20	14.97	82.6
			#40	26.03	71.6
			#60	34.26	63.4
			#100	42.25	55.4
			#140	47.42	50.3
			#200	49.07	48.6

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =97.5
Weight of hydrometer sample =97.85
Hygroscopic moisture correction:
Moist weight and tare = 28.07
Dry weight and tare = 28.03
Tare weight = 15.52
Hygroscopic moisture =0.3%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	20.9	48.0	42.3	0.0133	49.0	8.3	0.0270	41.8
5.00	20.9	44.0	38.3	0.0133	45.0	8.9	0.0178	37.8
15.00	20.9	39.0	33.3	0.0133	40.0	9.7	0.0107	32.9
30.00	20.9	36.0	30.3	0.0133	37.0	10.2	0.0078	29.9
60.00	21.0	33.0	27.3	0.0133	34.0	10.7	0.0056	27.0
240.00	21.7	26.0	20.4	0.0132	27.0	11.9	0.0029	20.2
1440.00	21.6	16.5	10.9	0.0132	17.5	13.4	0.0013	10.8

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.0	2.0	0.5	25.9	23.0	49.4	22.7	25.9	48.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0018	0.0029	0.0078	0.1029	0.2002	0.7336	0.9621	1.2349	1.6344

Fineness Modulus
1.19

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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: B-706-7,B-706-5

(A) Mass of oven-dried soil, grams:	106.63
(B) Mass of pycnometer filled with water at test temperature (T), grams:	672.35
(C) Mass of pycnometer, water and soil, grams:	739.89
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.8
(G) Specific Gravity at observed temperature: A / [B - (C - A)]	2.728
(F) ***Correction factor:***	0.99961
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.727

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

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

Samples Combined for Testing

REMARKS: Estimated % Passing # 4 : 100

Poorly Graded Silty SAND (Visual Description by Lab Technician)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

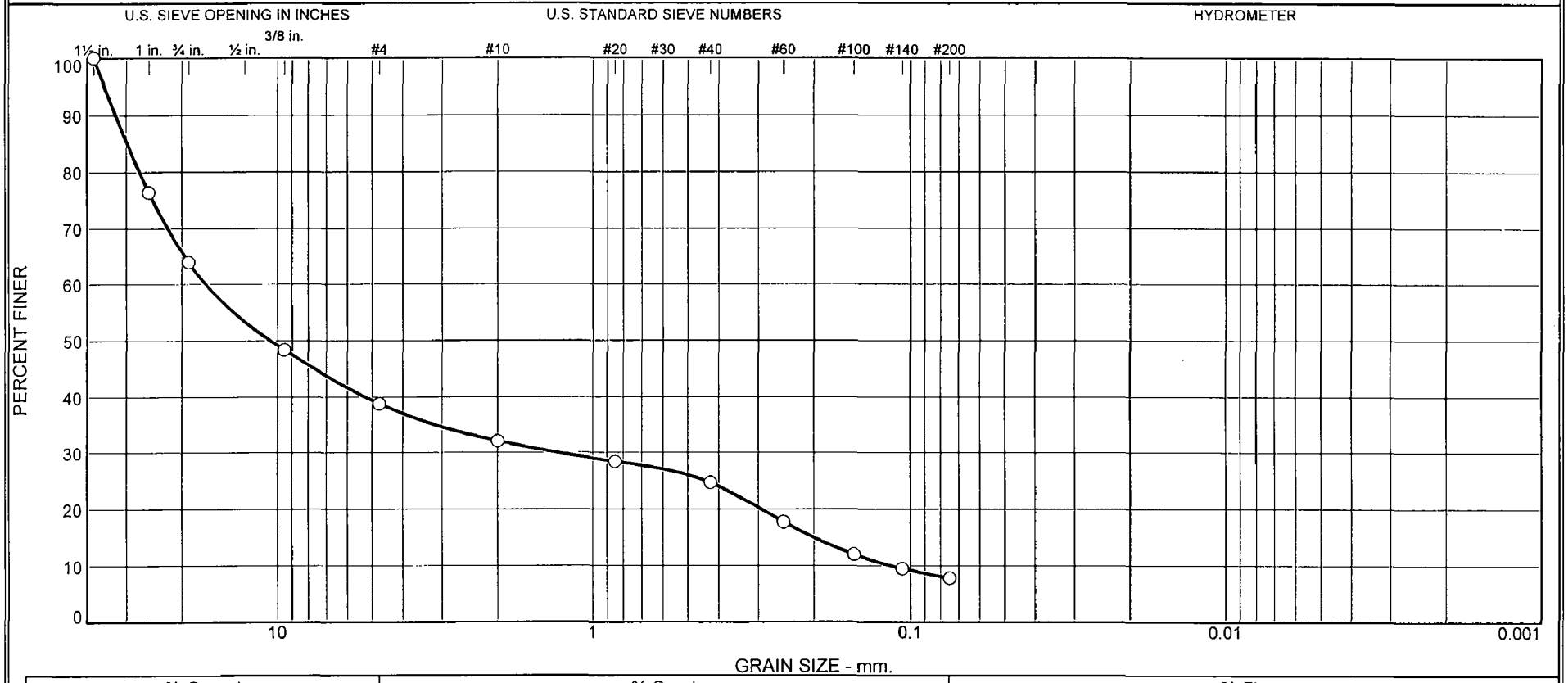
PYCNOMETER : P-8

TESTED BY: CS

REVIEWED BY: Brian Johnson

ZHU 8/19/08

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	36	25	7	7	17	8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-706	706-6	12.9-14.4	2/9/08	GP-GM	Pale Yellow Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-706
Depth: 12.9-14.4 **Sample Number:** 706-6
Material Description: Pale Yellow Poorly Graded GRAVEL with silt and sand (Visual)
Date: 2/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 238.67
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
238.67	0.00	0.00	1.5	0.00	100
			1.00	56.30	76
			3/4	86.00	64
			3/8"	123.21	48
			#4	146.12	39
			#10	162.04	32
			#20	170.96	28
			#40	180.00	25
			#60	196.36	18
			#100	210.00	12
			#140	216.00	9
			#200	220.00	8

Fractional Components

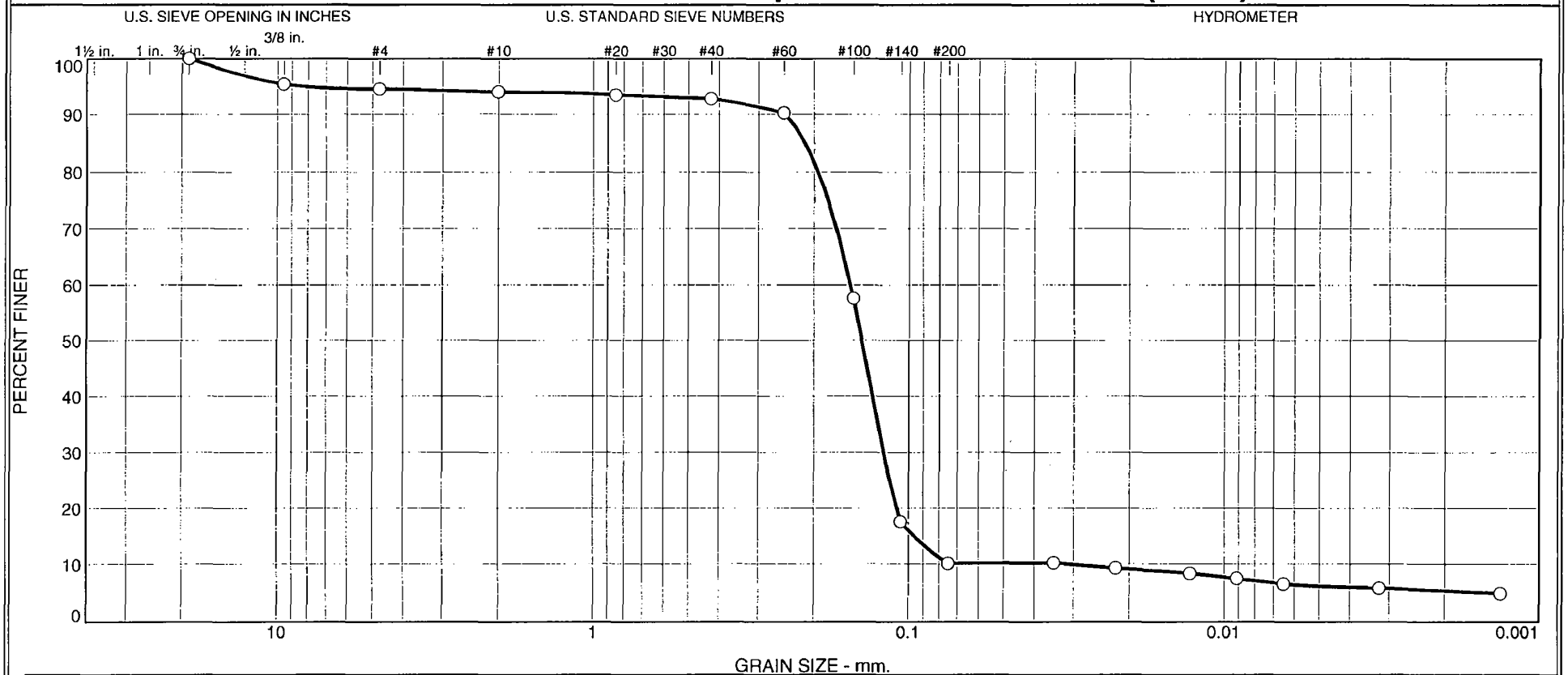
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	36	25	61	7	7	17	31			8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1151	0.2009	0.2949	1.2938	10.5531	16.8463	27.1902	29.7246	32.3556	35.1310

Fineness Modulus	C_u	C_c
5.27	146.36	0.86

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	5.5	0.5	1.2	82.7	3.9	6.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-706	706-9	115.8-117.3	3/19/08	SP-SM	White Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity = 2.656 (ASTM D854-06)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-706
Depth: 115.8-117.3 **Sample Number:** 706-9
Material Description: White Poorly Graded SAND with silt (Visual)
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity = 2.656 (ASTM D854-06)
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
409.07	0.00	0.00	3/4	0.00	100.0
			3/8"	18.73	95.4
			#4	22.35	94.5
			#10	24.47	94.0
104.27	0.00	0.00	#20	0.61	93.5
			#40	1.35	92.8
			#60	4.14	90.3
			#100	40.32	57.7
			#140	84.78	17.6
			#200	93.06	10.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 94.0
Weight of hydrometer sample =104.27
Hygroscopic moisture correction:
Moist weight and tare = 29.55
Dry weight and tare = 29.51
Tare weight = 15.40
Hygroscopic moisture = 0.3%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.656
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	21.2	17.0	11.3	0.0134	18.0	13.3	0.0347	10.2
5.00	21.1	16.0	10.3	0.0134	17.0	13.5	0.0221	9.3
15.00	21.1	15.0	9.3	0.0134	16.0	13.7	0.0128	8.4
30.00	21.1	14.0	8.3	0.0134	15.0	13.8	0.0091	7.5
60.00	21.1	13.0	7.3	0.0134	14.0	14.0	0.0065	6.6
240.00	21.9	12.0	6.5	0.0133	13.0	14.2	0.0032	5.9
1440.00	21.7	11.0	5.4	0.0133	12.0	14.3	0.0013	4.9

MACTEC Engineering and Consulting, Inc.

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.5	5.5	0.5	1.2	82.7	84.4	3.9	6.2	10.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0311	0.0962	0.1092	0.1202	0.1408	0.1532	0.1943	0.2137	0.2471	8.3078

Fineness Modulus	C_u	C_c
0.80	4.93	3.03

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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 3/28/08

SAMPLE IDENTIFICATION: B-706-9

(A) Mass of oven-dried soil, grams:	74.16
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.79
(C) Mass of pycnometer, water and soil, grams:	702.03
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	20.9
(G) Specific Gravity at observed temperature: A / [B - (C - A)]	2.656
(F) ***Correction factor:***	0.99981
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.656

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

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

REMARKS: % Passing # 4 : 94.5%

Poorly Graded SAND with silt (SP-SM) - visual

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

PYCNOMETER : P-3

TESTED BY: CS

REVIEWED BY: Brian Johnson

DSC 7-2-08

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	6	0	33	35	26	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-706	706-11	125.9-127.4	2/12/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 21% (ASTM D 4373-02)

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-706
Depth: 125.9-127.4 **Sample Number:** 706-11
Material Description: Pale Yellow Silty SAND (Visual)
Date: 2/12/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 21% (ASTM D 4373-02)
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
370.20	0.00	0.00	3/4	0.00	100
			3/8"	17.04	95
			#4	22.81	94
			#10	23.86	94
99.59	0.00	0.00	#20	21.66	73
			#40	35.10	61
			#60	49.09	47
			#100	62.84	35
			#140	69.31	28
			#200	72.12	26

Fractional Components

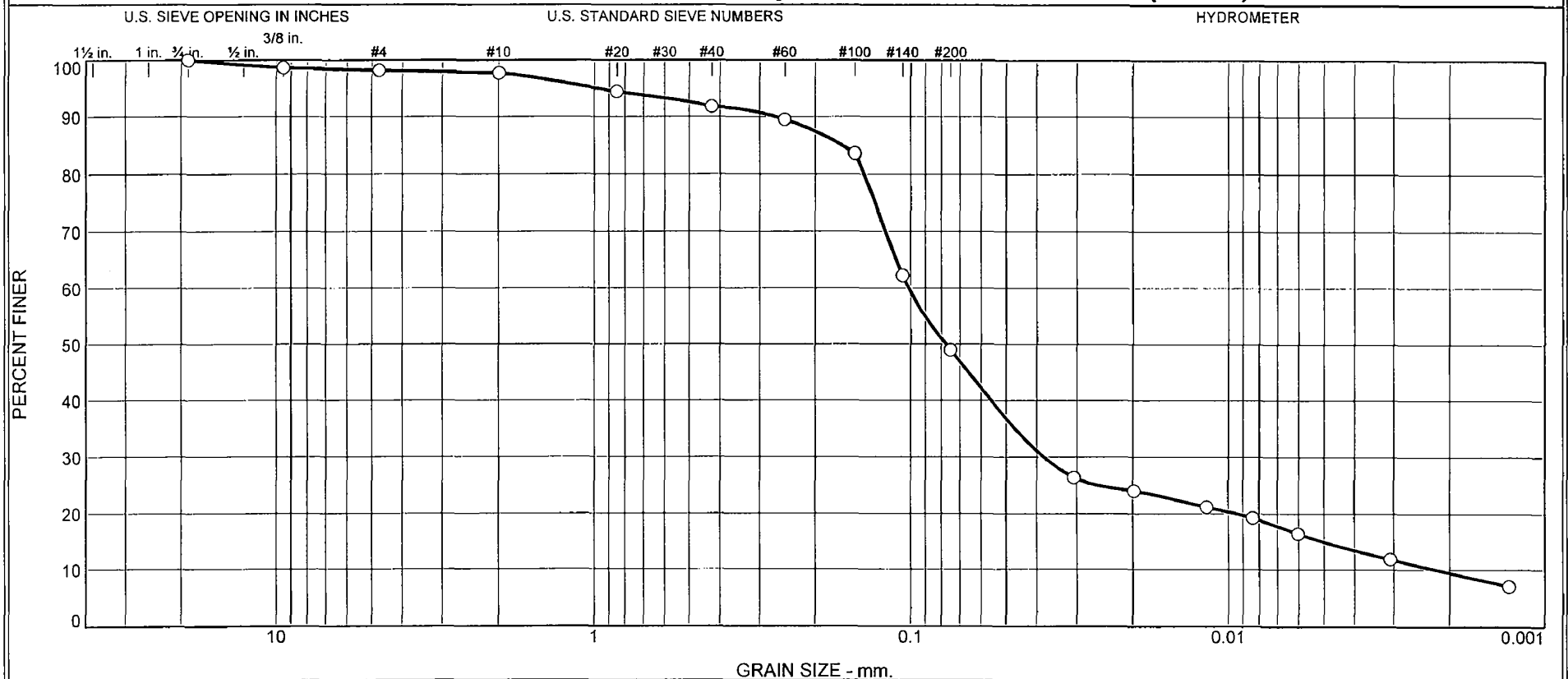
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	0	33	35	68			26

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1185	0.2750	0.4132	1.1099	1.3343	1.6370	8.3164

Fineness Modulus
1.82

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	1.8	0.4	6.0	42.8	34.0	15.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-706	706-13	135.4-136.9	2/13/08	SM	Light Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-706
Depth: 135.4-136.9 **Sample Number:** 706-13
Material Description: Light Gray Silty SAND (Visual)
Date: 2/13/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
360.27	0.00	0.00	3/4	0.00	100.0
			3/8"	4.71	98.7
			#4	6.40	98.2
			#10	8.03	97.8
101.79	0.00	0.00	#20	3.43	94.5
			#40	6.23	91.8
			#60	8.64	89.5
			#100	14.76	83.6
			#140	36.97	62.3
			#200	50.81	49.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =97.8
Weight of hydrometer sample =101.79
Hygroscopic moisture correction:
Moist weight and tare = 28.29
Dry weight and tare = 28.25
Tare weight = 15.64
Hygroscopic moisture =0.3%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	20.8	33.5	27.7	0.0133	34.5	10.6	0.0307	26.4
5.00	20.8	31.0	25.2	0.0133	32.0	11.0	0.0198	24.0
15.00	20.8	28.0	22.2	0.0133	29.0	11.5	0.0117	21.2
30.00	20.8	26.0	20.2	0.0133	27.0	11.9	0.0084	19.3
60.00	21.0	23.0	17.3	0.0133	24.0	12.4	0.0060	16.5
240.00	21.8	18.0	12.5	0.0131	19.0	13.2	0.0031	11.9
1440.00	21.7	13.0	7.4	0.0132	14.0	14.0	0.0013	7.1

MACTEC Engineering and Consulting, Inc.

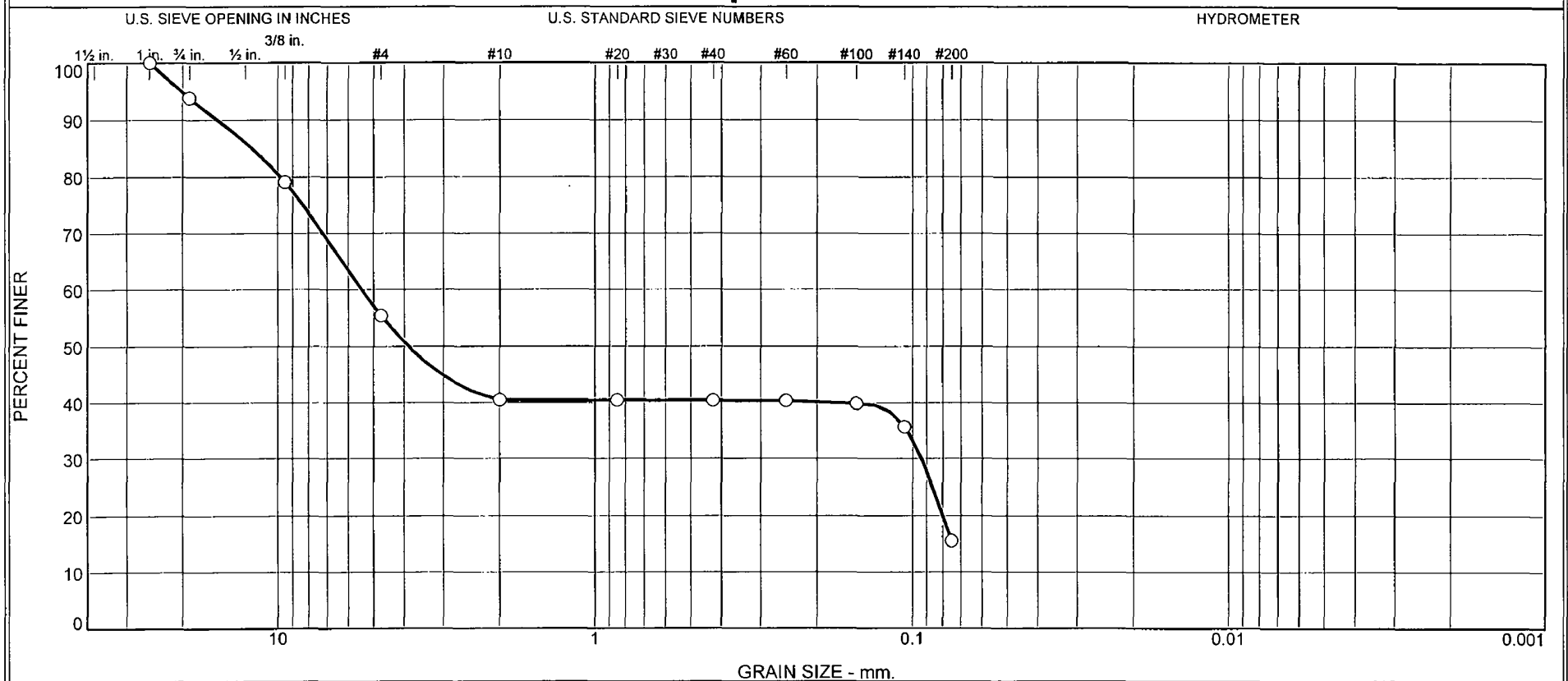
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.8	1.8	0.4	6.0	42.8	49.2	34.0	15.0	49.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0022	0.0050	0.0094	0.0381	0.0776	0.1016	0.1400	0.1655	0.2682	0.9709

Fineness Modulus	C_u	C_c
0.42	45.91	6.47

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	6	39	15	0	24	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-706	706-15	145.4-146.9	2/13/08	GM	Light Olive Gray Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 17% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-706
Depth: 145.4-146.9 **Sample Number:** 706-15
Material Description: Light Olive Gray Silty GRAVEL with sand (Visual)
Date: 2/13/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 17% (ASTM D 4373-02)
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
319.39	0.00	0.00	1	0.00	100
			3/4	19.65	94
			3/8"	66.60	79
			#4	142.24	55
			#10	190.08	40
98.87	0.00	0.00	#20	0.13	40
			#40	0.22	40
			#60	0.36	40
			#100	1.61	40
			#140	11.82	36
			#200	60.82	16

Fractional Components

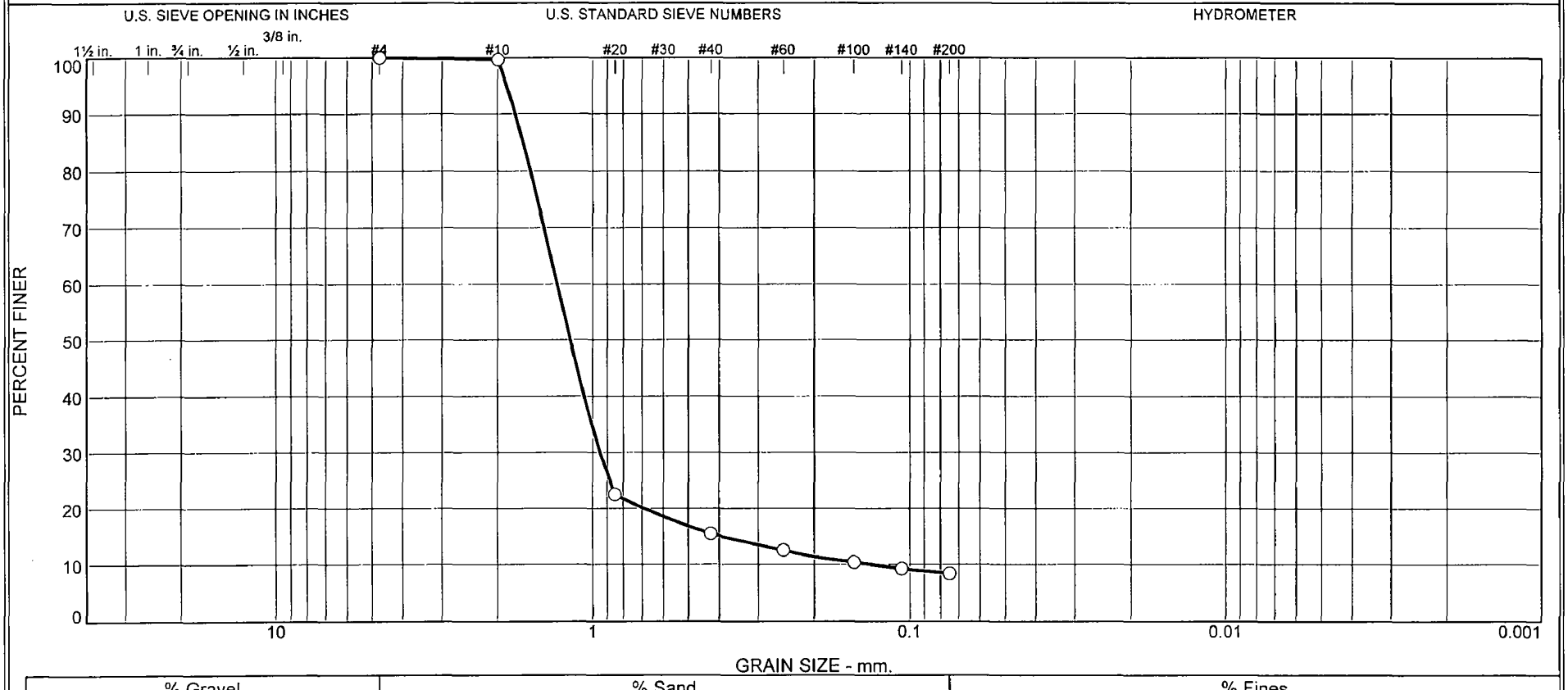
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	39	45	15	0	24	39			16

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0800	0.0937	3.8870	5.4565	9.8175	12.0637	15.5624	20.1590

Fineness Modulus
3.69

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	85	7	8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-707	707-6	12.5-14.0	2/19/08	SP-SM	White Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-707
Depth: 12.5-14.0 **Sample Number:** 707-6
Material Description: White Poorly Graded SAND with silt (Visual)
Date: 2/19/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)
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
213.96	0.00	0.00	#4	0.00	100
			#10	0.73	100
51.74	0.00	0.00	#20	40.05	23
			#40	43.71	15
			#60	45.23	13
			#100	46.34	10
			#140	46.93	9
			#200	47.37	8

Fractional Components

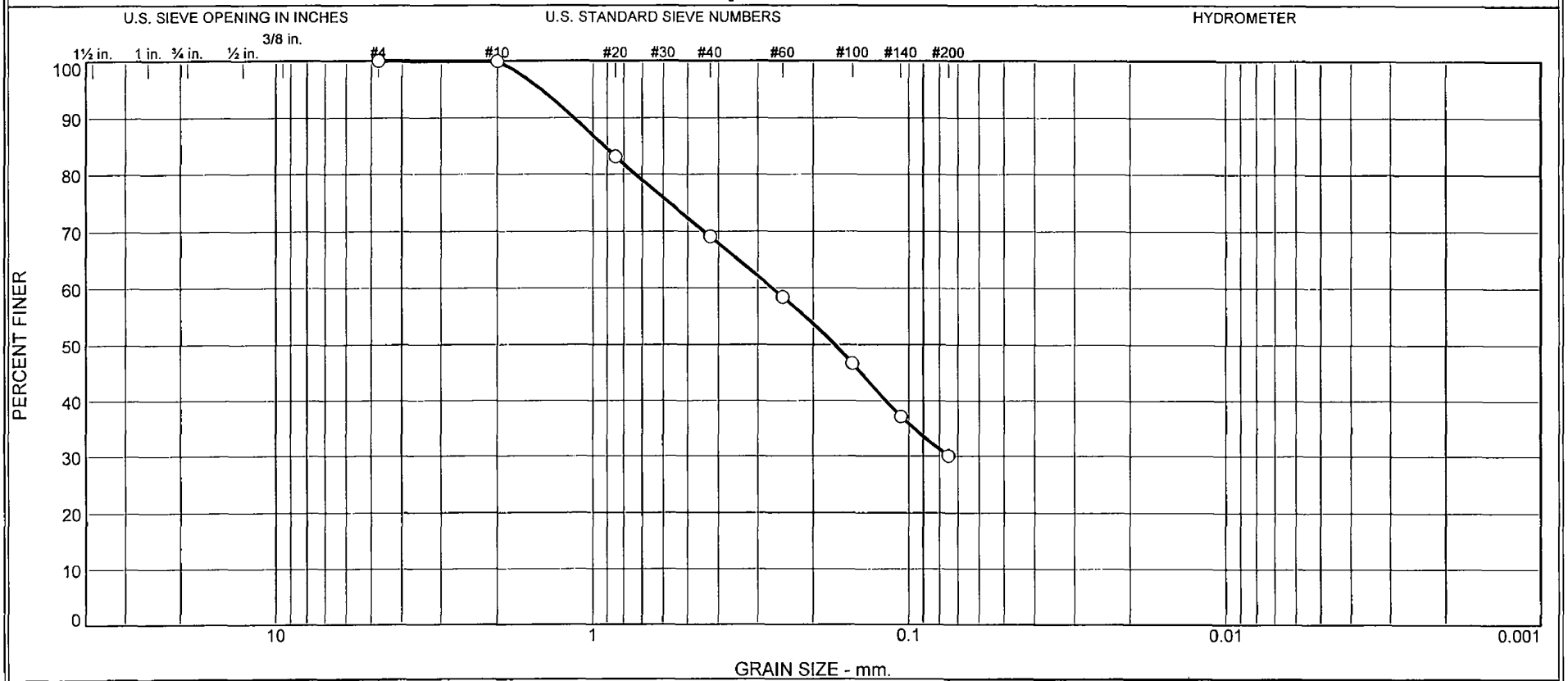
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	85	7	92			8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1328	0.3937	0.6893	0.9498	1.1797	1.2981	1.5750	1.6598	1.7558	1.8687

Fineness Modulus	C_u	C_c
3.08	9.78	5.23

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	31	39	30	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-707	707-10	108.8-110.3	1/19/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-707
Depth: 108.8-110.3 **Sample Number:** 707-10
Material Description: White Silty SAND (Visual)
Date: 1/19/08 **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
379.98	0.00	0.00	#4	0.00	100
			#10	0.40	100
99.71	0.00	0.00	#20	16.68	83
			#40	30.75	69
			#60	41.36	58
			#100	53.11	47
			#140	62.63	37
			#200	69.66	30

Fractional Components

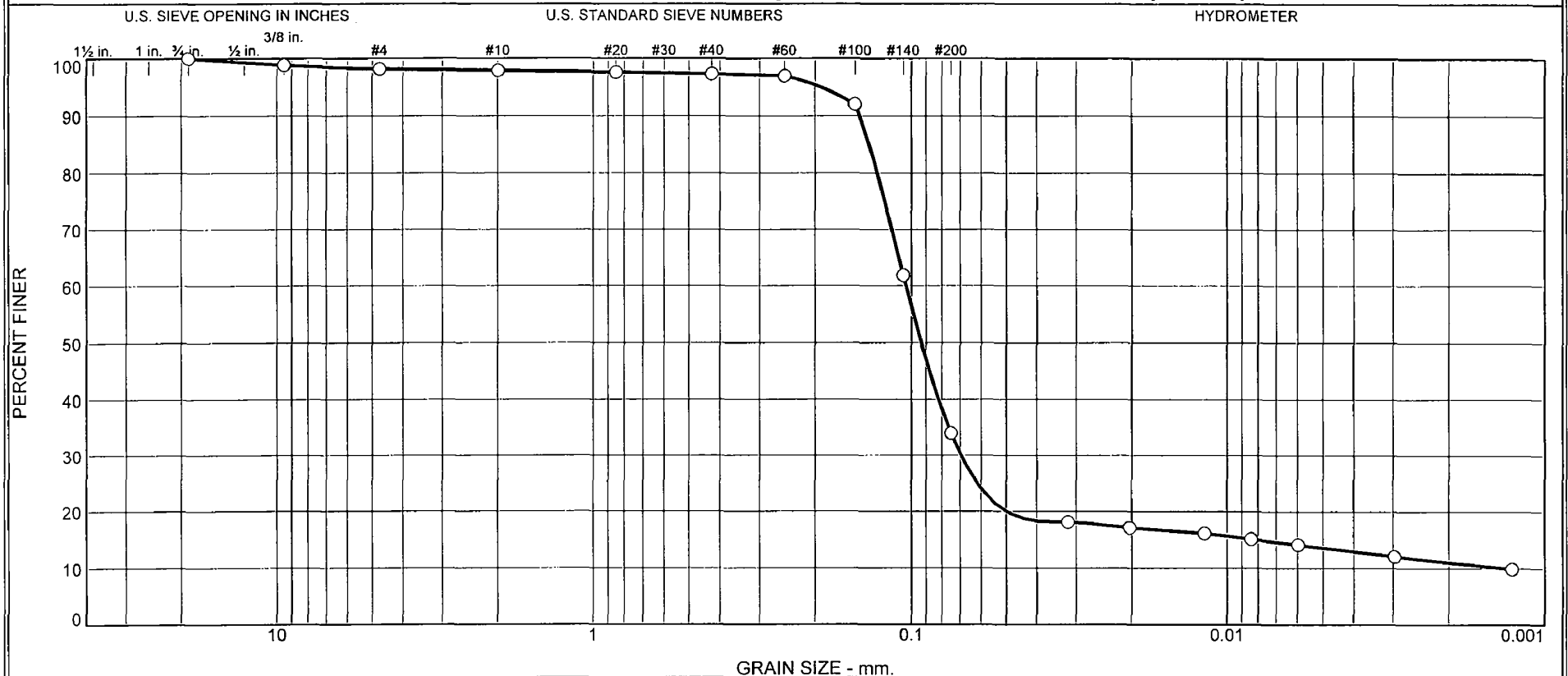
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	31	39	70			30

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1706	0.2695	0.7336	0.9215	1.1475	1.4539

Fineness Modulus
1.25

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	1.9	0.2	0.6	63.3	20.4	13.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-707	707-14	125.3-126.8	2/20/08	SM	Light Brownish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 20% (ASTM D 4373-02)

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-707
Depth: 125.3-126.8 **Sample Number:** 707-14
Material Description: Light Brownish Gray Silty SAND (Visual)
Date: 2/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 20% (ASTM D 4373-02)
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
378.77	0.00	0.00	3/4	0.00	100.0
			3/8"	4.42	98.8
			#4	7.05	98.1
			#10	8.09	97.9
99.55	0.00	0.00	#20	0.33	97.5
			#40	0.61	97.3
			#60	0.96	96.9
			#100	5.99	92.0
			#140	36.64	61.8
			#200	65.00	34.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =97.9
Weight of hydrometer sample =99.55
Hygroscopic moisture correction:
Moist weight and tare = 27.93
Dry weight and tare = 27.85
Tare weight = 15.66
Hygroscopic moisture =0.7%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	23.9	23.0	18.5	0.0128	24.0	12.4	0.0319	18.1
5.00	23.9	22.0	17.5	0.0128	23.0	12.5	0.0203	17.1
15.00	23.9	21.0	16.5	0.0128	22.0	12.7	0.0118	16.1
30.00	23.9	20.0	15.5	0.0128	21.0	12.9	0.0084	15.1
60.00	23.9	19.0	14.5	0.0128	20.0	13.0	0.0060	14.2
250.00	23.6	17.0	12.4	0.0129	18.0	13.3	0.0030	12.1
1440.00	22.6	15.0	10.1	0.0130	16.0	13.7	0.0013	9.9

MACTEC Engineering and Consulting, Inc.

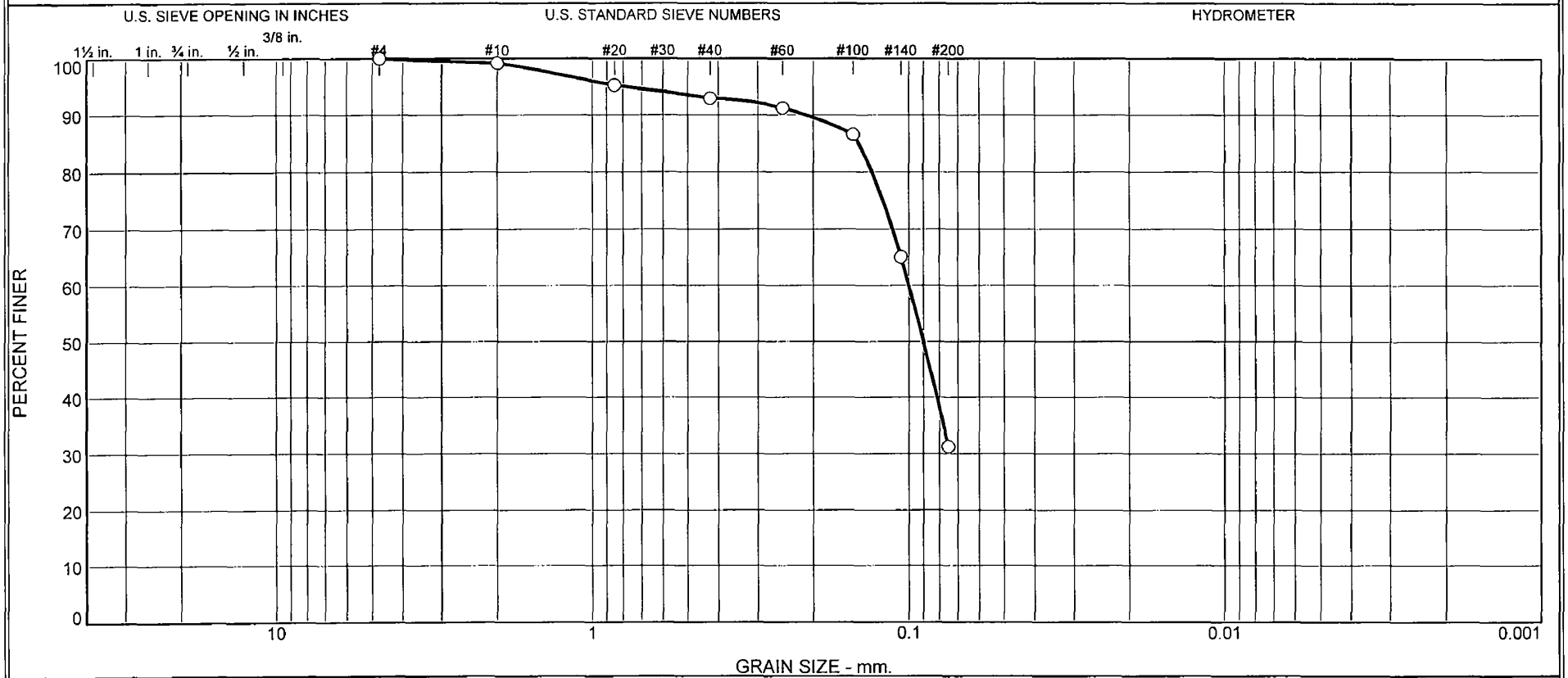
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.9	1.9	0.2	0.6	63.3	64.1	20.4	13.6	34.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0013	0.0080	0.0499	0.0697	0.0932	0.1040	0.1280	0.1356	0.1452	0.1934

Fineness Modulus	C_u	C_c
0.21	78.36	35.23

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	1	6	62	31	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-707	707-16	135.5-137	2/21/08	SM	Light Brownish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-707
Depth: 135.5-137 **Sample Number:** 707-16
Material Description: Light Brownish Gray Silty SAND (Visual)
Date: 2/21/08 **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
442.75	0.00	0.00	#4	0.00	100
			#10	3.70	99
99.79	0.00	0.00	#20	3.87	95
			#40	6.25	93
			#60	7.98	91
			#100	12.74	87
			#140	34.27	65
			#200	68.34	31

Fractional Components

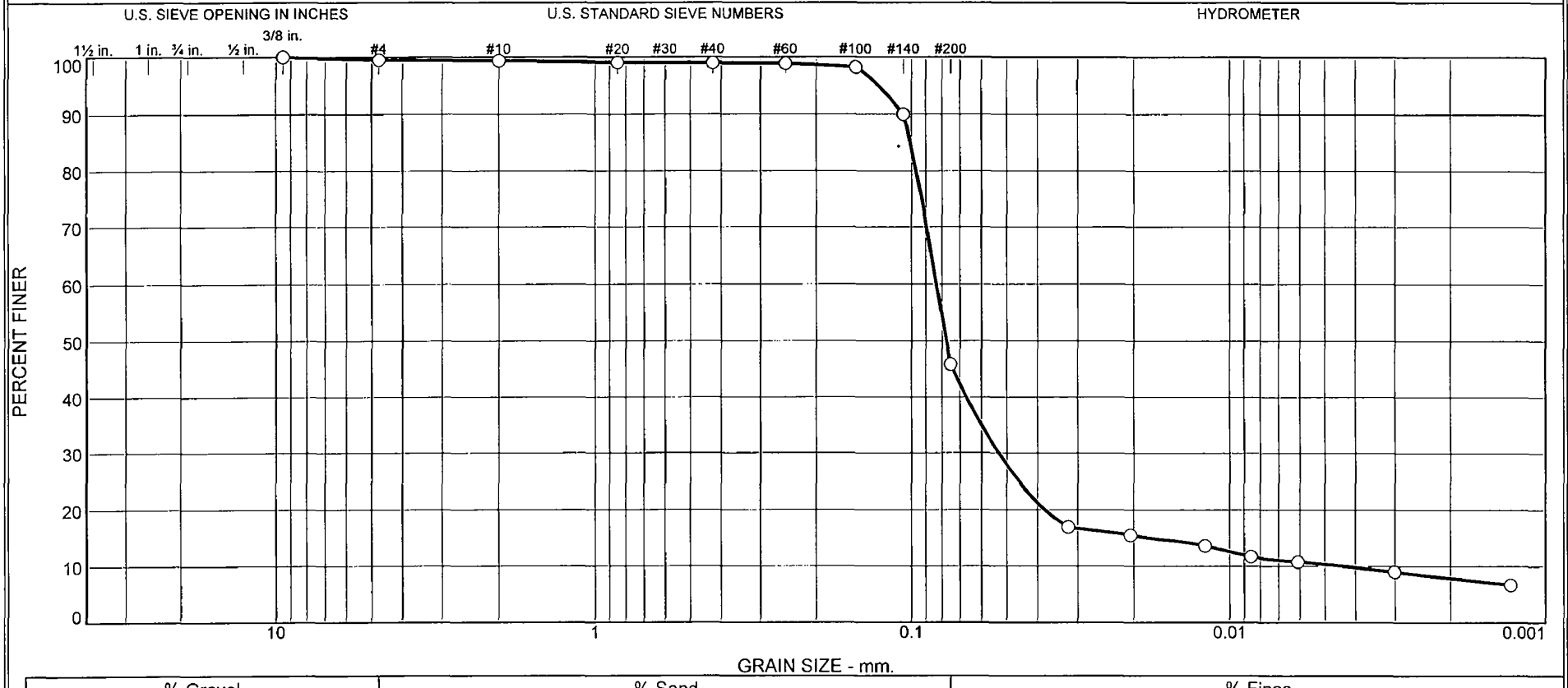
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	6	62	69			31

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0900	0.1000	0.1305	0.1443	0.2110	0.7804

Fineness Modulus
0.31

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.5	0.1	0.5	53.0	35.5	10.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-707	707-18	145.5-147.0	2/21/08	SM	Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 18% (ASTM D 4373-02)

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-707
Depth: 145.5-147.0 **Sample Number:** 707-18
Material Description: Gray Silty SAND (Visual)
Date: 2/21/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 18% (ASTM D 4373-02)
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
307.92	0.00	0.00	3/8"	0.00	100.0
			#4	1.53	99.5
			#10	2.00	99.4
104.36	0.00	0.00	#20	0.36	99.0
			#40	0.43	98.9
			#60	0.54	98.8
			#100	1.20	98.2
			#140	9.82	90.0
			#200	56.19	45.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.4
Weight of hydrometer sample =104.36
Hygroscopic moisture correction:
Moist weight and tare = 29.42
Dry weight and tare = 29.37
Tare weight = 15.62
Hygroscopic moisture =0.4%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	23.8	22.5	17.9	0.0128	23.5	12.4	0.0320	16.9
5.00	23.8	21.0	16.4	0.0128	22.0	12.7	0.0204	15.5
15.00	23.8	19.0	14.4	0.0128	20.0	13.0	0.0120	13.6
30.00	23.8	17.0	12.4	0.0128	18.0	13.3	0.0086	11.7
60.00	23.9	16.0	11.5	0.0128	17.0	13.5	0.0061	10.8
250.00	24.2	14.0	9.5	0.0128	15.0	13.8	0.0030	9.0
1440.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0013	6.7

MACTEC Engineering and Consulting, Inc.

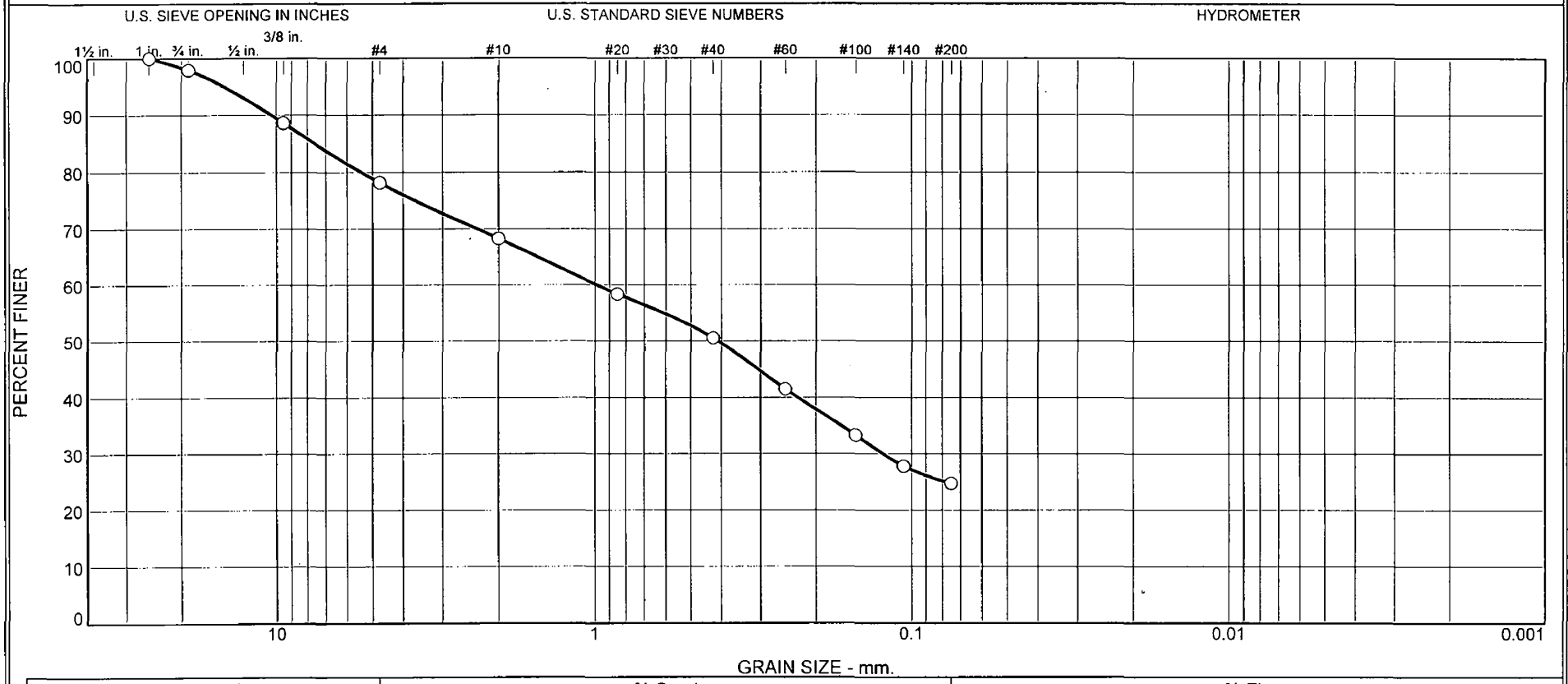
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	0.1	0.5	53.0	53.6	35.5	10.4	45.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0043	0.0177	0.0380	0.0531	0.0775	0.0834	0.0964	0.1007	0.1060	0.1267

Fineness Modulus	C_u	C_c
0.06	19.46	7.90

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	2	20	10	17	26	25	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-708(DH)	708-3	5.0-6.5	3/7/08	SM	Very Pale Brown Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-708(DH)
Depth: 5.0-6.5 **Sample Number:** 708-3
Material Description: Very Pale Brown Silty SAND (Visual)
Date: 3/7/08 **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
441.00	0.00	0.00	1	0.00	100
			3/4	9.16	98
			3/8"	50.16	89
			#4	96.21	78
			#10	139.92	68
102.00	0.00	0.00	#20	14.74	58
			#40	26.52	51
			#60	39.99	42
			#100	52.22	33
			#140	60.48	28
			#200	65.13	25

Fractional Components

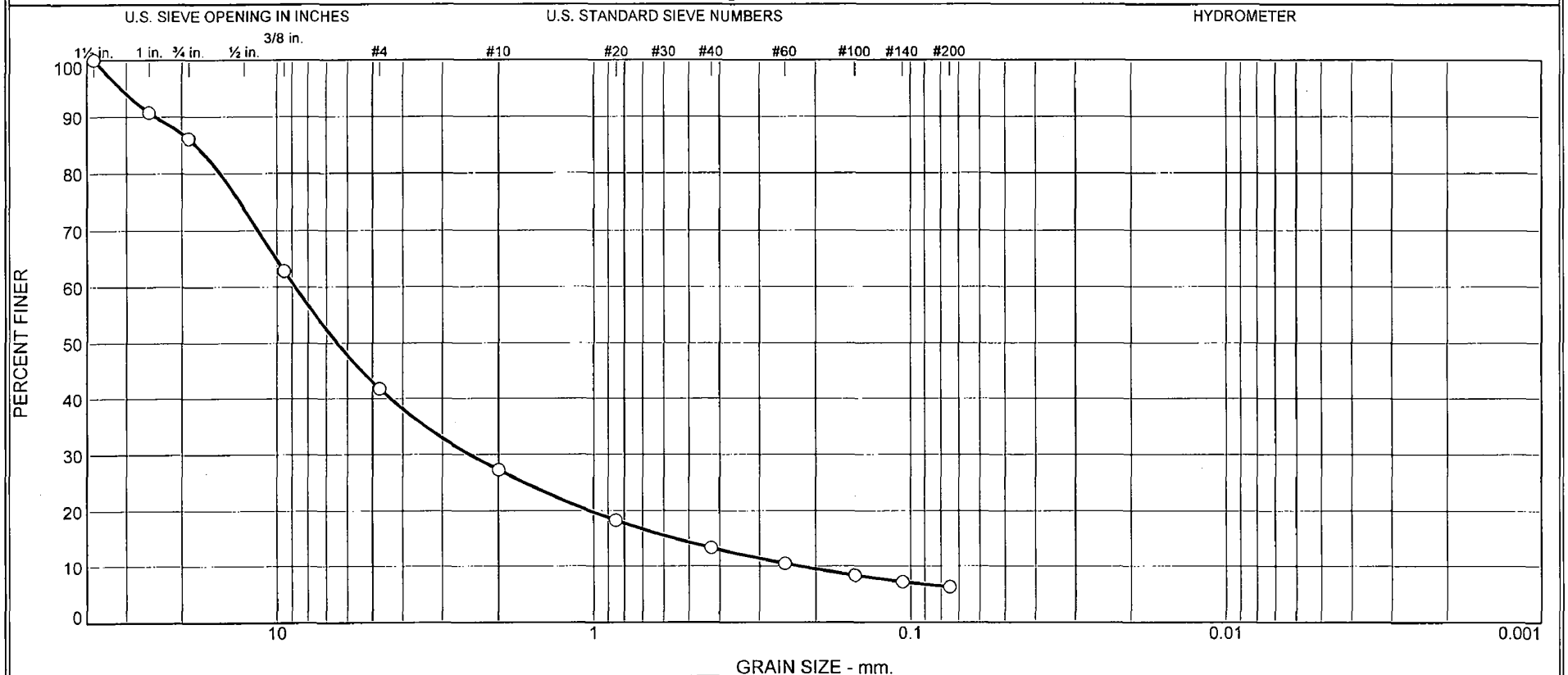
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	20	22	10	17	26	53			25

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1232	0.4105	0.9839	5.4210	7.5637	10.3973	14.6604

Fineness Modulus
2.70

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	14	44	15	14	7	6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-708(DH)	708-6	13.0-14.5	3/7/08	GP-GM	Light Gray Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-708(DH)
Depth: 13.0-14.5 **Sample Number:** 708-6
Material Description: Light Gray Poorly Graded GRAVEL with silt and sand (Visual)
Date: 3/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
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
413.99	0.00	0.00	1.5	0.00	100
			1	38.41	91
			3/4	57.44	86
			3/8"	153.71	63
			#4	241.10	42
			#10	301.20	27
94.74	0.00	0.00	#20	31.25	18
			#40	48.47	13
			#60	58.30	10
			#100	65.78	8
			#140	69.78	7
			#200	72.98	6

Fractional Components

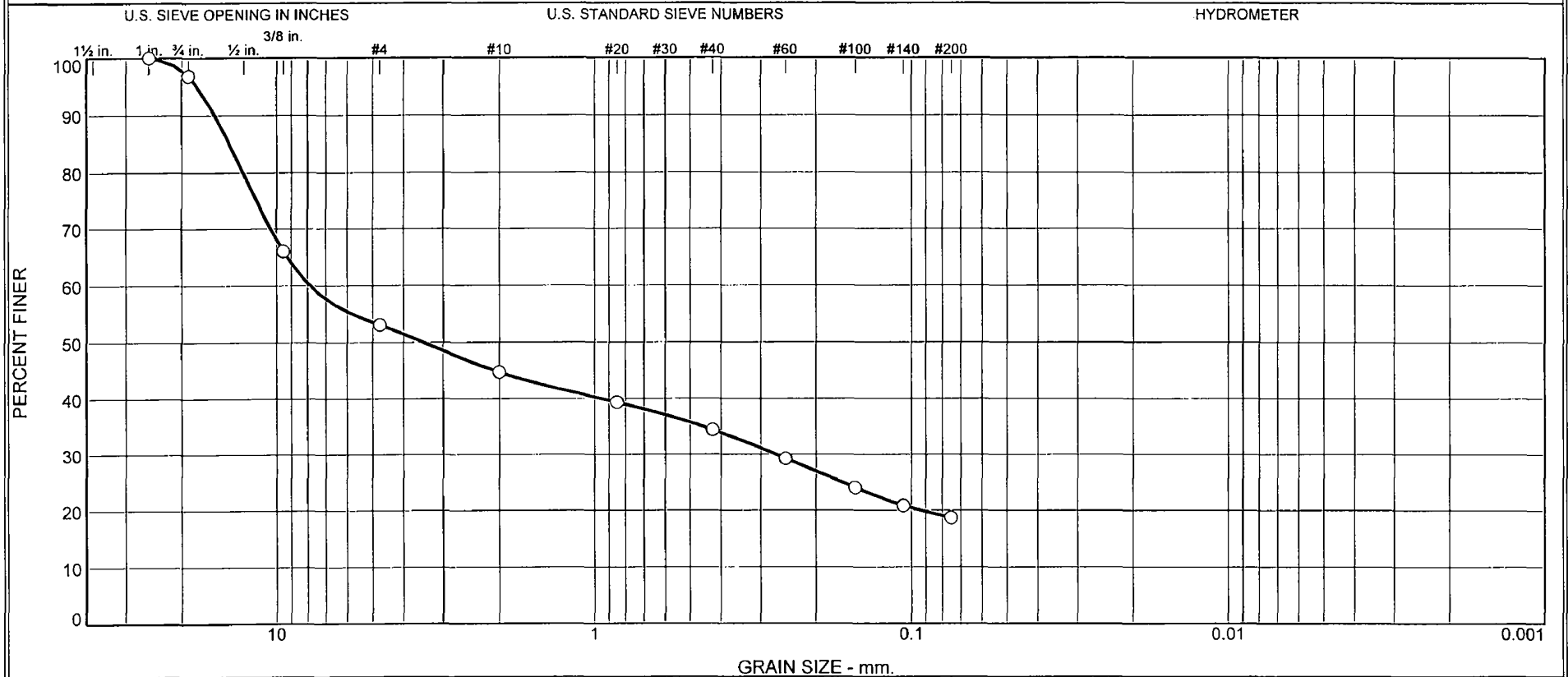
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	14	44	58	15	14	7	36			6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2254	0.5543	1.0321	2.4683	6.4770	8.8001	15.1601	18.0972	24.2877	31.2246

Fineness Modulus	C_u	C_c
5.23	39.04	3.07

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	3	44	8	11	15	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-711	711-3	5.0-6.5	3/4/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 95% (ASTM D 4373-02)

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-711
Depth: 5.0-6.5 **Sample Number:** 711-3
Material Description: White Silty GRAVEL with sand (Visual)
Date: 3/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 95% (ASTM D 4373-02)
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
392.20	0.00	0.00	1.0	0.00	100
			3/4	12.62	97
			3/8"	133.20	66
			#4	183.87	53
			#10	216.83	45
97.54	0.00	0.00	#20	11.77	39
			#40	22.52	34
			#60	33.66	29
			#100	45.08	24
			#140	52.06	21
			#200	56.79	19

Fractional Components

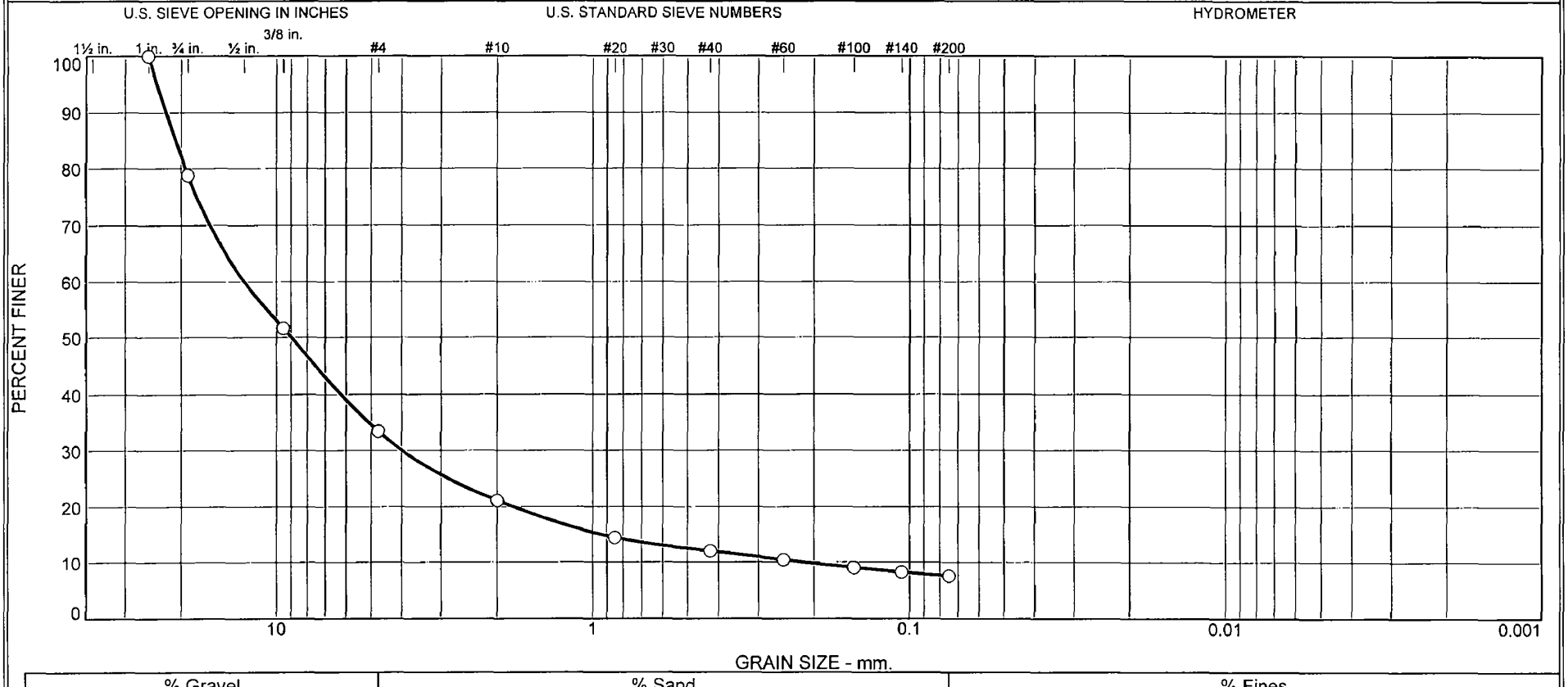
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	3	44	47	8	11	15	34			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0940	0.2682	3.4676	7.8375	12.7781	14.1009	15.6855	17.8752

Fineness Modulus
4.04

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	21	46	12	9	4	8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-711	711-5	9.9-11.4	3/4/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-711
Depth: 9.9-11.4 **Sample Number:** 711-5
Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)
Date: 3/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
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
239.77	0.00	0.00	1	0.00	100
			3/4	50.78	79
			3/8"	115.94	52
			#4	159.69	33
			#10	189.13	21
			#20	205.11	14
			#40	210.90	12
			#60	214.74	10
			#100	218.04	9
			#140	219.98	8
			#200	221.64	8

Fractional Components

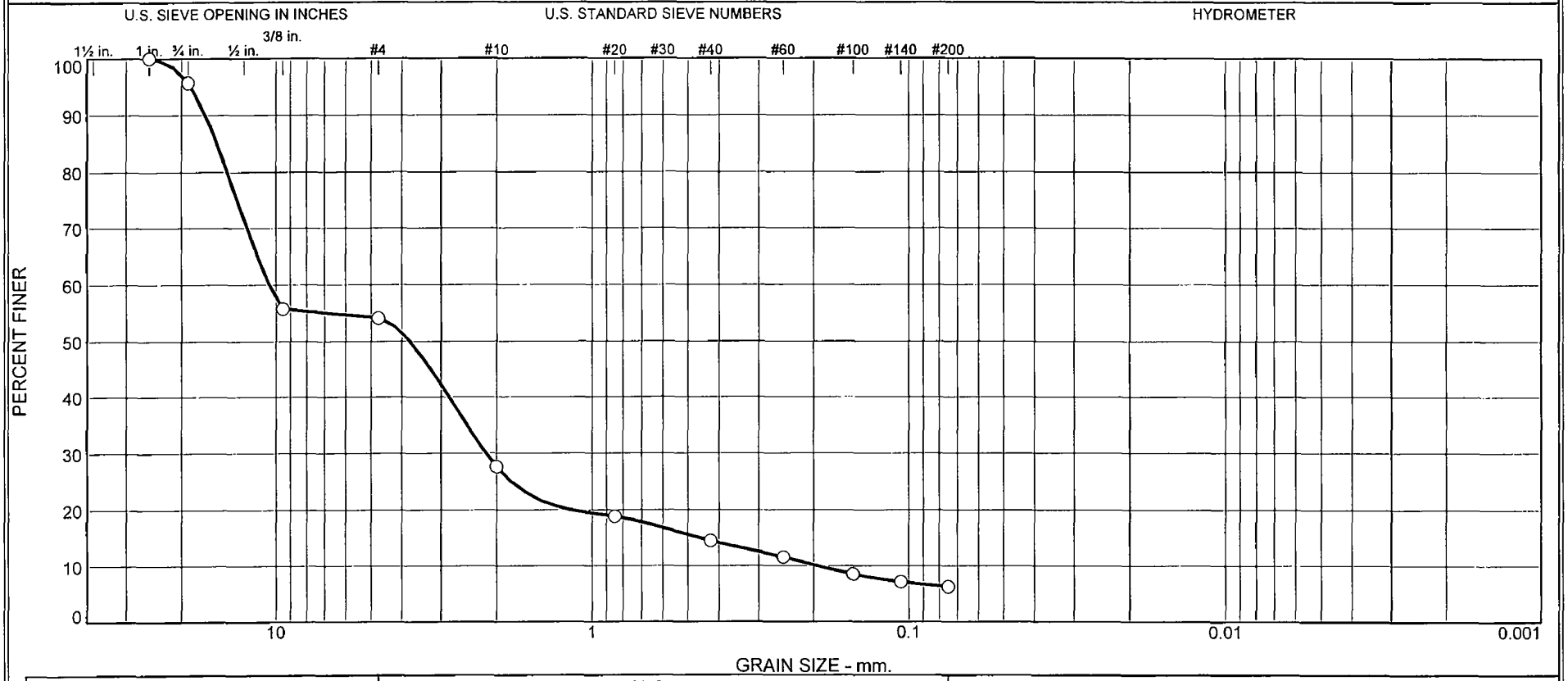
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	21	46	67	12	9	4	25			8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2144	0.9387	1.7809	3.9888	8.9813	12.6534	19.4022	20.8695	22.3332	23.8324

Fineness Modulus	C_u	C_c
5.64	59.02	5.87

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	4	42	26	13	9	6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-711	711-9	24.0-25.5	3/4/08	SW-SM	White Well Graded SAND with silt and gravel(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-711
Depth: 24.0-25.5 **Sample Number:** 711-9
Material Description: White Well Graded SAND with silt and gravel(Visual)
Date: 3/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SW-SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
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
222.59	0.00	0.00	1	0.00	100
			3/4	9.52	96
			3/8"	98.39	56
			#4	102.02	54
			#10	161.03	28
			#20	180.73	19
			#40	190.31	15
			#60	196.87	12
			#100	203.65	9
			#140	206.61	7
			#200	208.62	6

Fractional Components

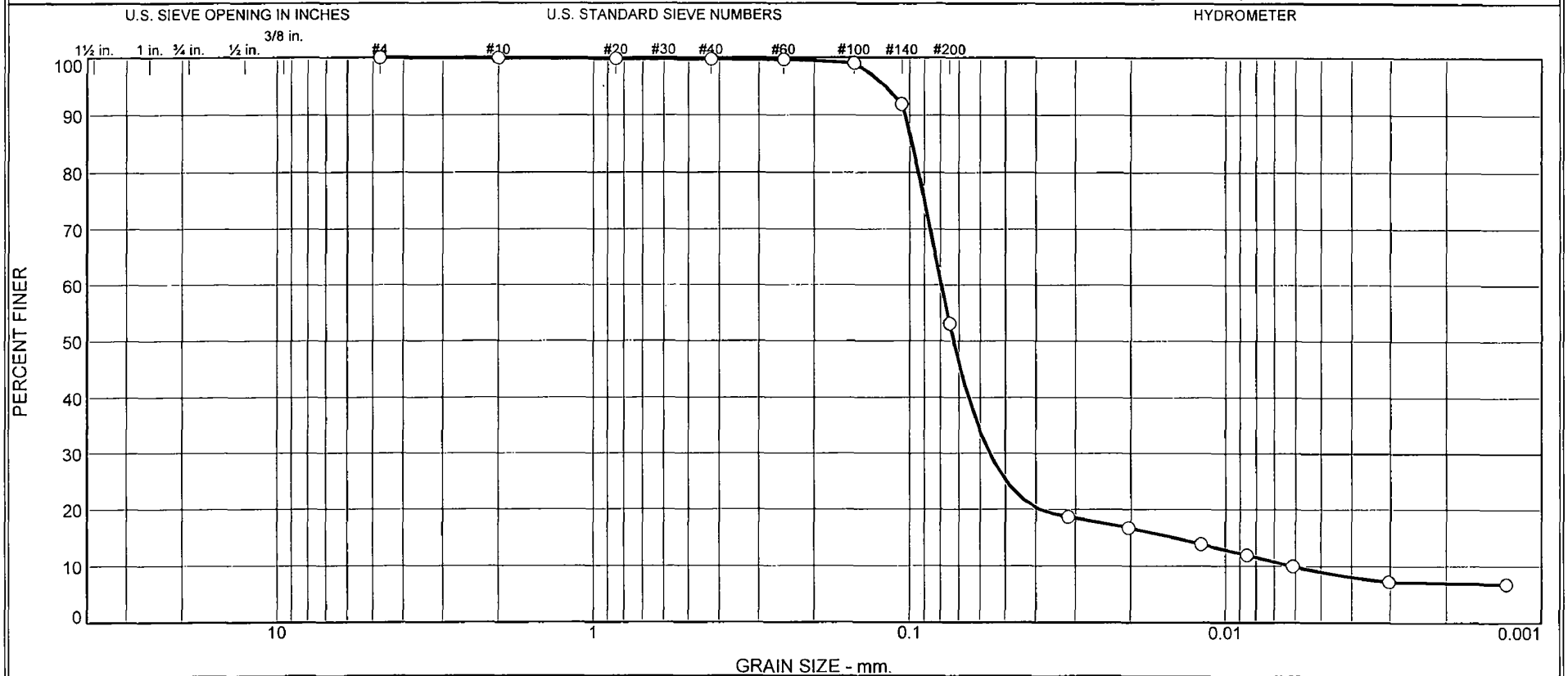
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	4	42	46	26	13	9	48			6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1944	0.4593	1.1680	2.1602	3.7758	10.4898	14.3142	15.4388	16.7893	18.6724

Fineness Modulus	C_u	C_c
5.03	53.95	2.29

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.2	46.6	44.1	9.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-711	711-11	120.5-122.0	3/6/08	ML	White Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 11% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-711
Depth: 120.5-122.0 **Sample Number:** 711-11
Material Description: White Sandy SILT (Visual)
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 11% (ASTM D 4373-02)
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
335.96	0.00	0.00	#4	0.00	100.0
			#10	0.26	99.9
103.63	0.00	0.00	#20	0.13	99.8
			#40	0.21	99.7
			#60	0.28	99.7
			#100	0.92	99.0
			#140	8.31	91.9
			#200	48.60	53.1

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.9
Weight of hydrometer sample =103.63
Hygroscopic moisture correction:
Moist weight and tare = 28.18
Dry weight and tare = 28.10
Tare weight = 15.45
Hygroscopic moisture =0.6%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	23.8	24.0	19.4	0.0128	25.0	12.2	0.0317	18.6
5.00	23.8	22.0	17.4	0.0128	23.0	12.5	0.0203	16.7
15.00	23.9	19.0	14.5	0.0128	20.0	13.0	0.0119	13.9
30.00	23.9	17.0	12.5	0.0128	18.0	13.3	0.0085	12.0
60.00	23.9	15.0	10.5	0.0128	16.0	13.7	0.0061	10.0
250.00	24.4	12.0	7.6	0.0127	13.0	14.2	0.0030	7.3
1440.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

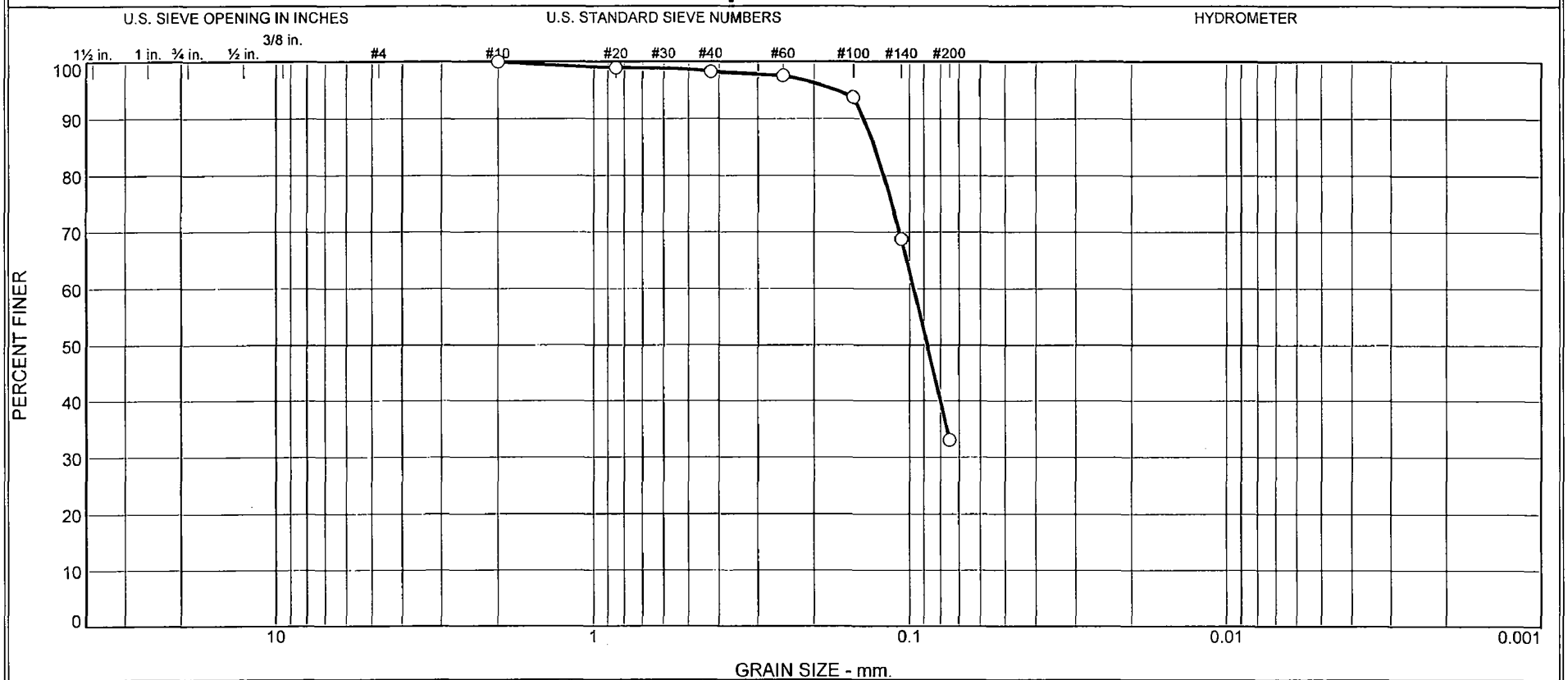
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	46.6	46.9	44.1	9.0	53.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0061	0.0146	0.0391	0.0560	0.0729	0.0796	0.0937	0.0981	0.1034	0.1196

Fineness Modulus	C_u	C_c
0.02	13.10	6.48

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	2	65	33	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-711	711-12	130.2-131.7	3/6/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBj DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-711
Depth: 130.2-131.7 **Sample Number:** 711-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/6/08 **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
275.99	0.00	0.00	#10	0.00	100
97.89	0.00	0.00	#20	1.03	99
			#40	1.73	98
			#60	2.40	98
			#100	6.09	94
			#140	30.61	69
			#200	65.55	33

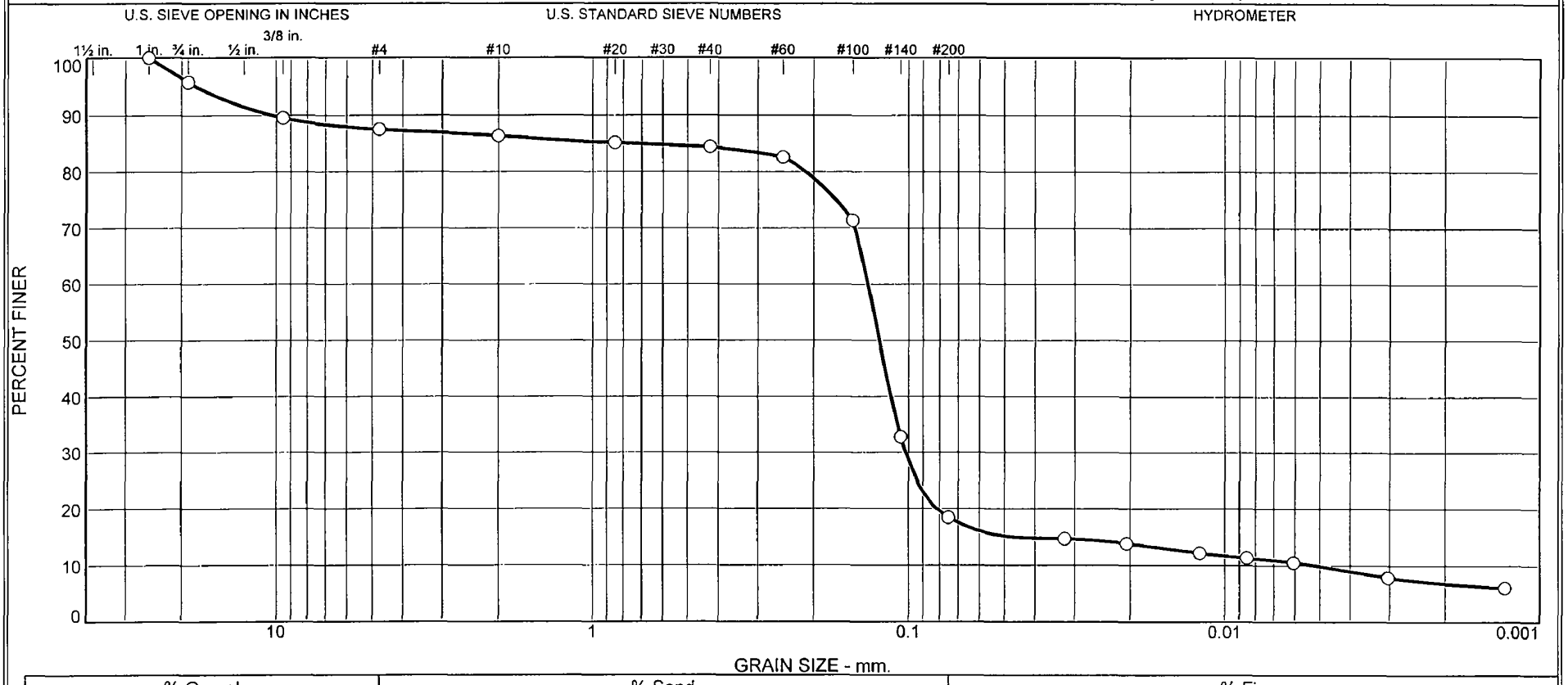
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	2	65	67			33

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0879	0.0969	0.1205	0.1287	0.1391	0.1703

Fineness Modulus
0.10

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	4.2	8.3	1.1	2.0	66.0	8.5	9.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-711	711-14	150.2-151.7	3/6/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-711
Depth: 150.2-151.7 **Sample Number:** 711-14
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
313.83	0.00	0.00	1	0.00	100.0
			3/4	13.29	95.8
			3/8"	32.92	89.5
			#4	39.21	87.5
			#10	42.78	86.4
100.79	0.00	0.00	#20	1.45	85.1
			#40	2.31	84.4
			#60	4.40	82.6
			#100	17.48	71.4
			#140	62.49	32.8
			#200	79.26	18.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =86.4
Weight of hydrometer sample =100.79
Hygroscopic moisture correction:
Moist weight and tare = 28.00
Dry weight and tare = 27.97
Tare weight = 15.59
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	23.5	22.0	17.4	0.0129	23.0	12.5	0.0322	14.7
~~5.00~~	~~23.5~~	~~21.0~~	~~16.4~~	~~0.0129~~	~~22.0~~	~~12.7~~	~~0.0205~~	~~13.9~~
15.00	23.5	19.0	14.4	0.0129	20.0	13.0	0.0120	12.2
30.00	23.6	18.0	13.4	0.0129	19.0	13.2	0.0085	11.4
60.00	23.7	17.0	12.4	0.0129	18.0	13.3	0.0061	10.5
250.00	23.3	14.0	9.3	0.0129	15.0	13.8	0.0030	7.9
1440.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0013	6.0

MACTEC Engineering and Consulting, Inc.

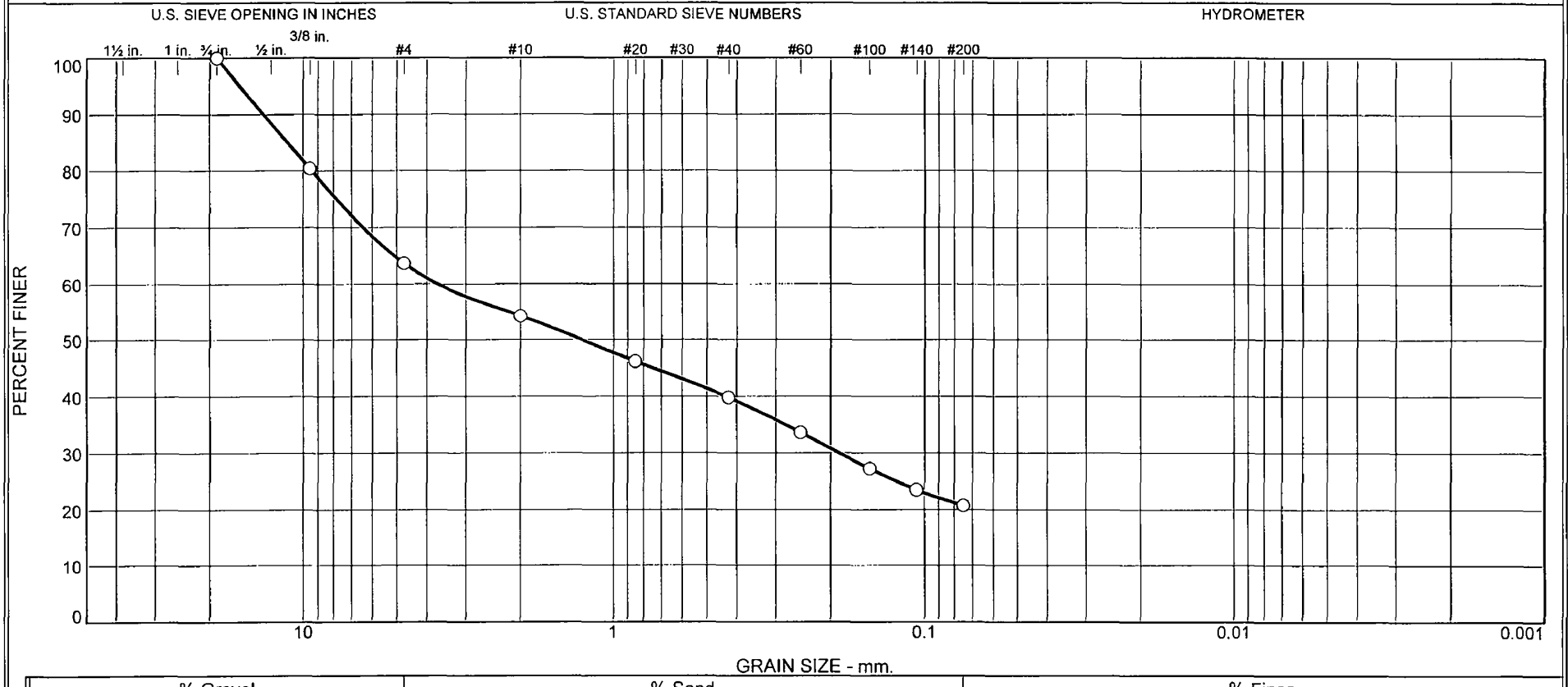
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	4.2	8.3	12.5	1.1	2.0	66.0	69.1	8.5	9.9	18.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0052	0.0462	0.0820	0.1024	0.1238	0.1345	0.2120	0.7661	10.3888	17.9573

Fineness Modulus	C_u	C_c
1.16	25.98	15.07

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	36	10	14	19	21	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-715	715-3	5.0-6.5	4/8/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-715
Depth: 5.0-6.5 **Sample Number:** 715-3
Material Description: White Silty SAND with gravel (Visual)
Date: 4/8/08 **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
332.64	0.00	0.00	3/4	0.00	100
			3/8"	65.28	80
			#4	120.81	64
			#10	152.13	54
99.81	0.00	0.00	#20	14.96	46
			#40	26.61	40
			#60	38.02	34
			#100	49.75	27
			#140	56.63	23
			#200	61.63	21

Fractional Components

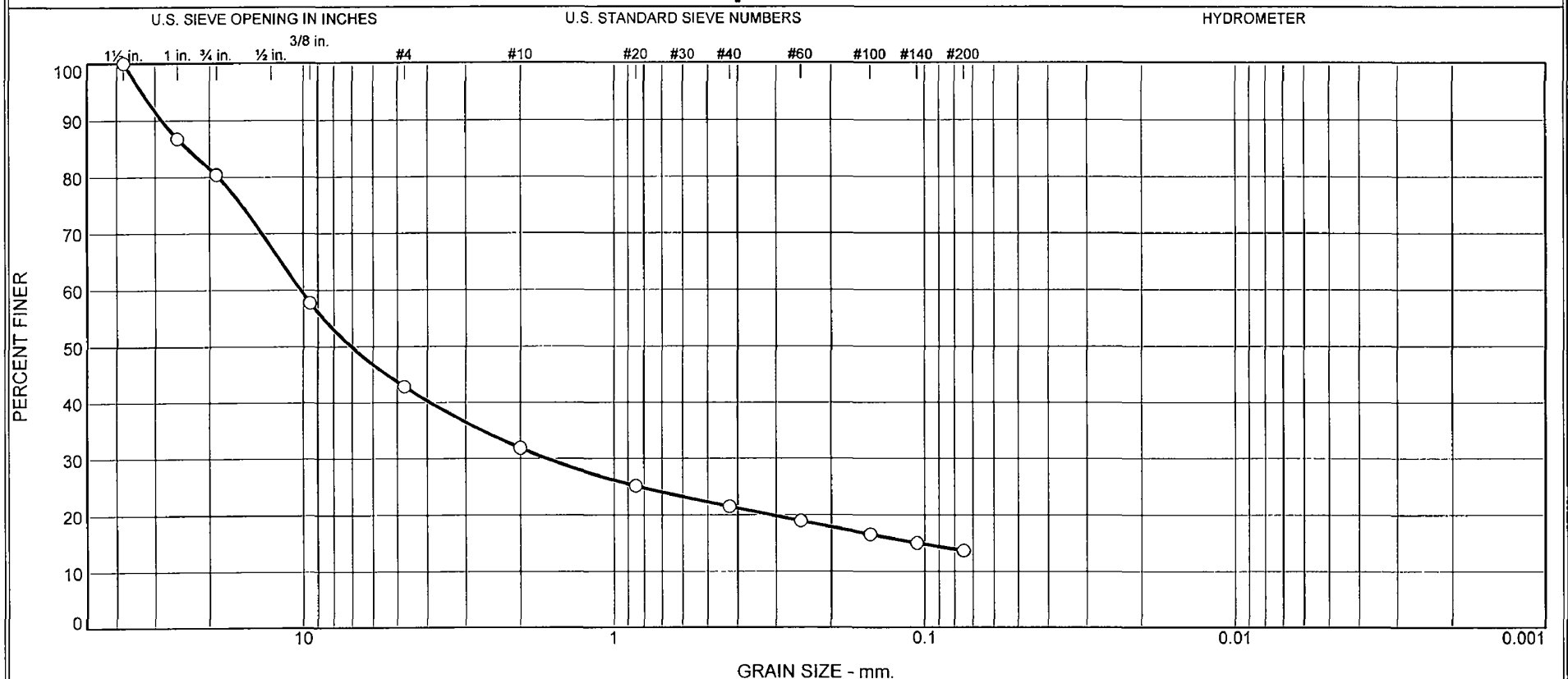
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	36	36	10	14	19	43			21

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1881	1.2696	3.7029	9.3966	11.2440	13.4218	15.9963

Fineness Modulus
3.45

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	20	37	11	10	8	14	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-715	715-5	10.0-11.5	4/8/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-715
Depth: 10.0-11.5 **Sample Number:** 715-5
Material Description: White Silty GRAVEL with sand (Visual)
Date: 4/8/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =344.17
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
344.17	0.00	0.00	1.5	0.00	100
			1	45.62	87
			3/4	67.23	80
			3/8"	145.23	58
			#4	196.61	43
			#10	234.70	32
			#20	257.60	25
			#40	270.10	22
			#60	278.90	19
			#100	287.10	17
			#140	292.30	15
			#200	297.00	14

Fractional Components

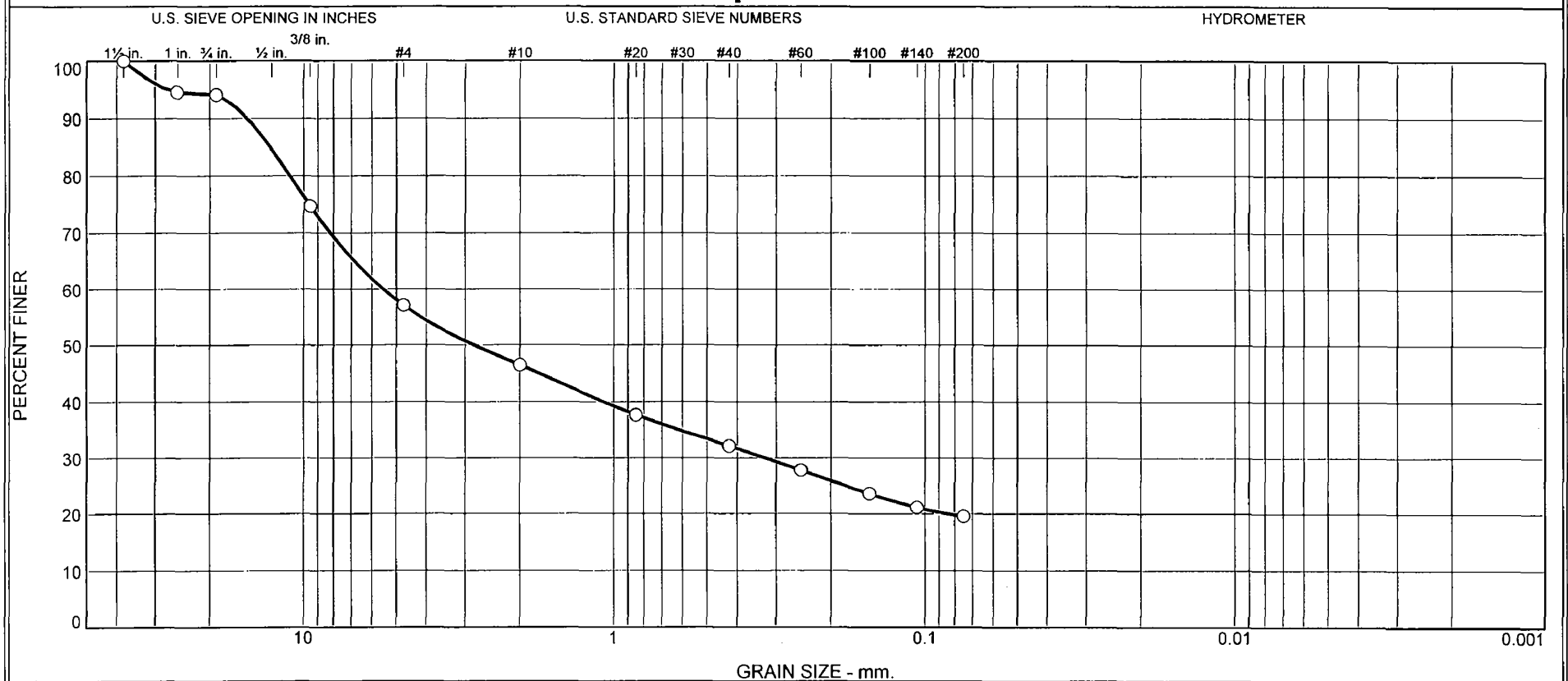
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	20	37	57	11	10	8	29			14

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1042	0.3103	1.6513	7.0405	10.2066	18.6949	23.5416	28.5452	33.1818

Fineness Modulus
4.98

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	6	37	11	14	12	20	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-715	715-8	21.7-23.2	4/8/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-715
Depth: 21.7-23.2 **Sample Number:** 715-8
Material Description: White Silty GRAVEL with sand (Visual)
Date: 4/8/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
444.79	0.00	0.00	1.5	0.00	100
			1	24.41	95
			3/4	26.48	94
			3/8"	112.24	75
			#4	190.68	57
			#10	238.00	46
101.09	0.00	0.00	#20	19.19	38
			#40	31.19	32
			#60	40.62	28
			#100	49.86	24
			#140	55.21	21
			#200	58.68	20

Fractional Components

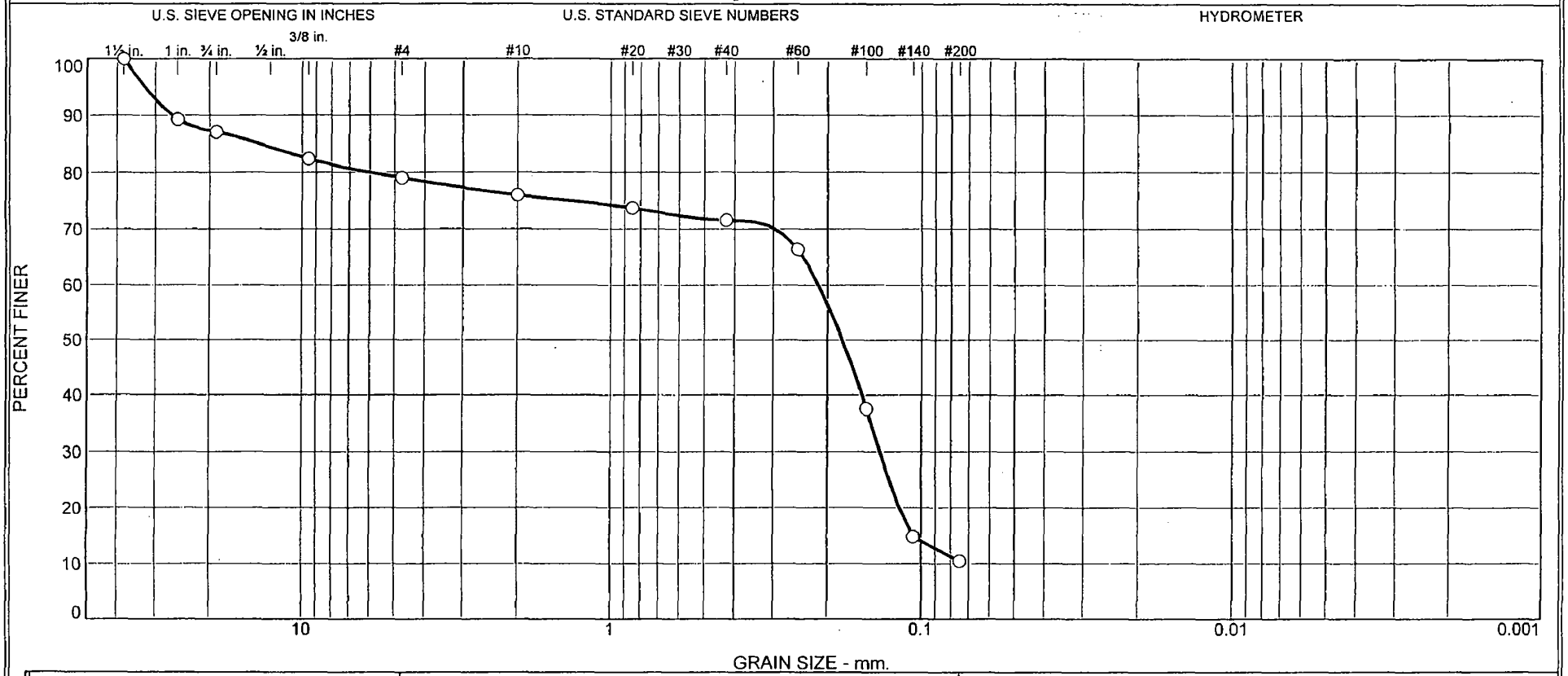
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	37	43	11	14	12	37			20

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0846	0.3250	2.8154	5.5132	11.0742	12.8019	15.1328	27.4238

Fineness Modulus
3.97

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	13	8	3	5	61	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-715	715-10	118.4-119.9	4/9/08	SP-SM	Light Gray Poorly Graded SAND with silt and gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

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

GRAIN SIZE DISTRIBUTION TEST DATA

5/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-715
Depth: 118.4-119.9 **Sample Number:** 715-10
Material Description: Light Gray Poorly Graded SAND with silt and gravel (Visual)
Date: 4/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-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
434.69	0.00	0.00	1.5	0.00	100
			1	46.75	89
			3/4	56.25	87
			3/8"	76.56	82
			#4	91.10	79
			#10	104.37	76
99.79	0.00	0.00	#20	3.04	74
			#40	5.94	71
			#60	12.62	66
			#100	50.38	38
			#140	80.36	15
			#200	86.11	10

Fractional Components

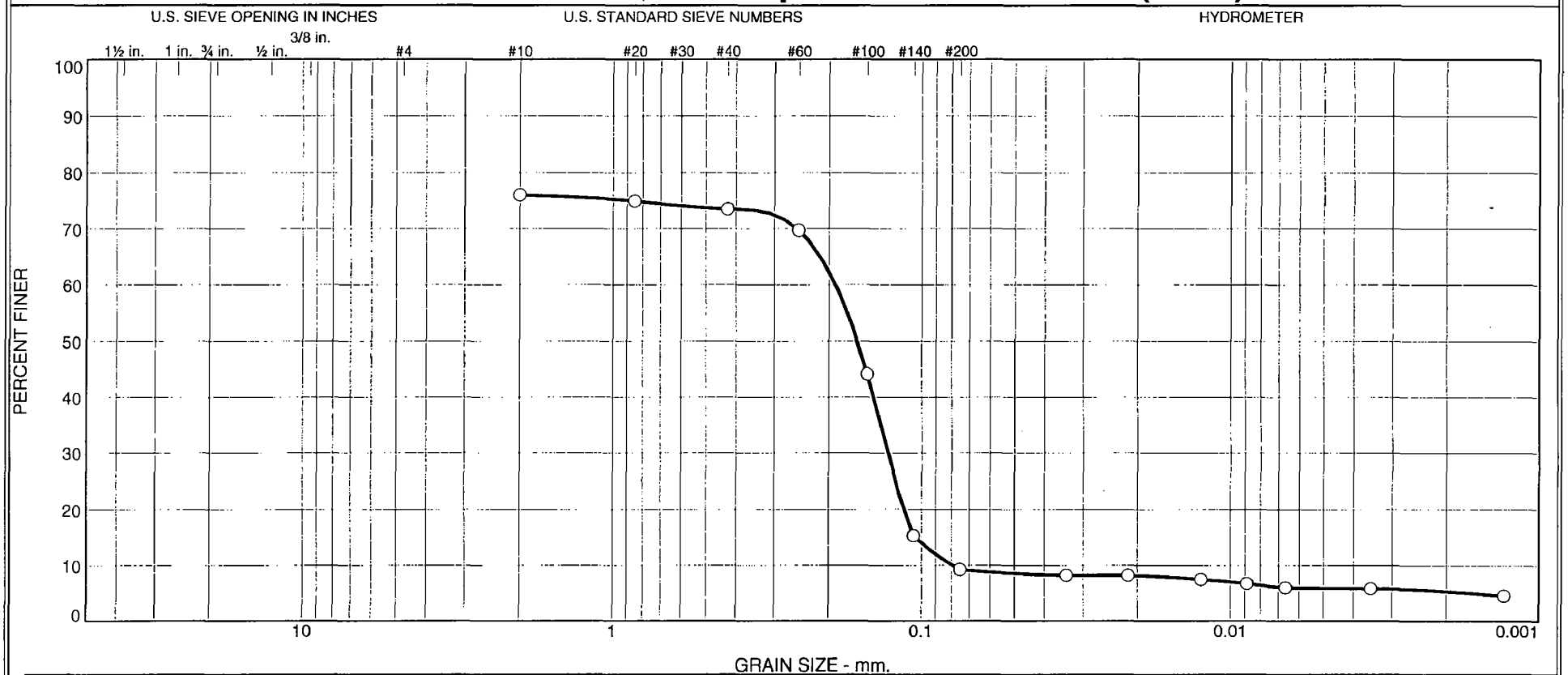
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	13	8	21	3	5	61	69			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1065	0.1173	0.1356	0.1791	0.2134	6.0171	13.7000	26.5586	32.4833

Fineness Modulus
2.20

MACTEC, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				2.5	64.2	3.4	5.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-715	715-10	118.4-119.9	4/9/08	SP-SM	Light Gray Poorly Graded SAND with silt and gravel	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed
Test conducted on material passing #10 sieve which was 76% of total sample from previous sieve test.

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-715
Depth: 118.4-119.9 **Sample Number:** 715-10
Material Description: Light Gray Poorly Graded SAND with silt and gravel
Date: 4/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed
Test conducted on material passing #10 sieve which was 76% of total sample from previous sieve test.
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
200.42	0.00	0.00	#10	48.10	76.0
100.41	0.00	0.00	#20	1.45	74.9
			#40	3.35	73.5
			#60	8.29	69.7
			#100	42.00	44.2
			#140	80.15	15.3
			#200	88.16	9.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 76.0
Weight of hydrometer sample =100.71
Hygroscopic moisture correction:
Moist weight and tare = 28.08
Dry weight and tare = 28.04
Tare weight = 15.55
Hygroscopic moisture = 0.3%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
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	22.4	16.0	11.0	0.0131	17.0	13.5	0.0339	8.3
5.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0215	8.3
15.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0125	7.5
30.00	22.4	14.0	9.0	0.0131	15.0	13.8	0.0089	6.8
54.00	22.4	13.0	8.0	0.0131	14.0	14.0	0.0066	6.0
196.00	21.7	13.0	7.8	0.0132	14.0	14.0	0.0035	5.9
1440.00	22.5	11.0	6.1	0.0130	12.0	14.3	0.0013	4.5

MACTEC Engineering and Consulting, Inc.

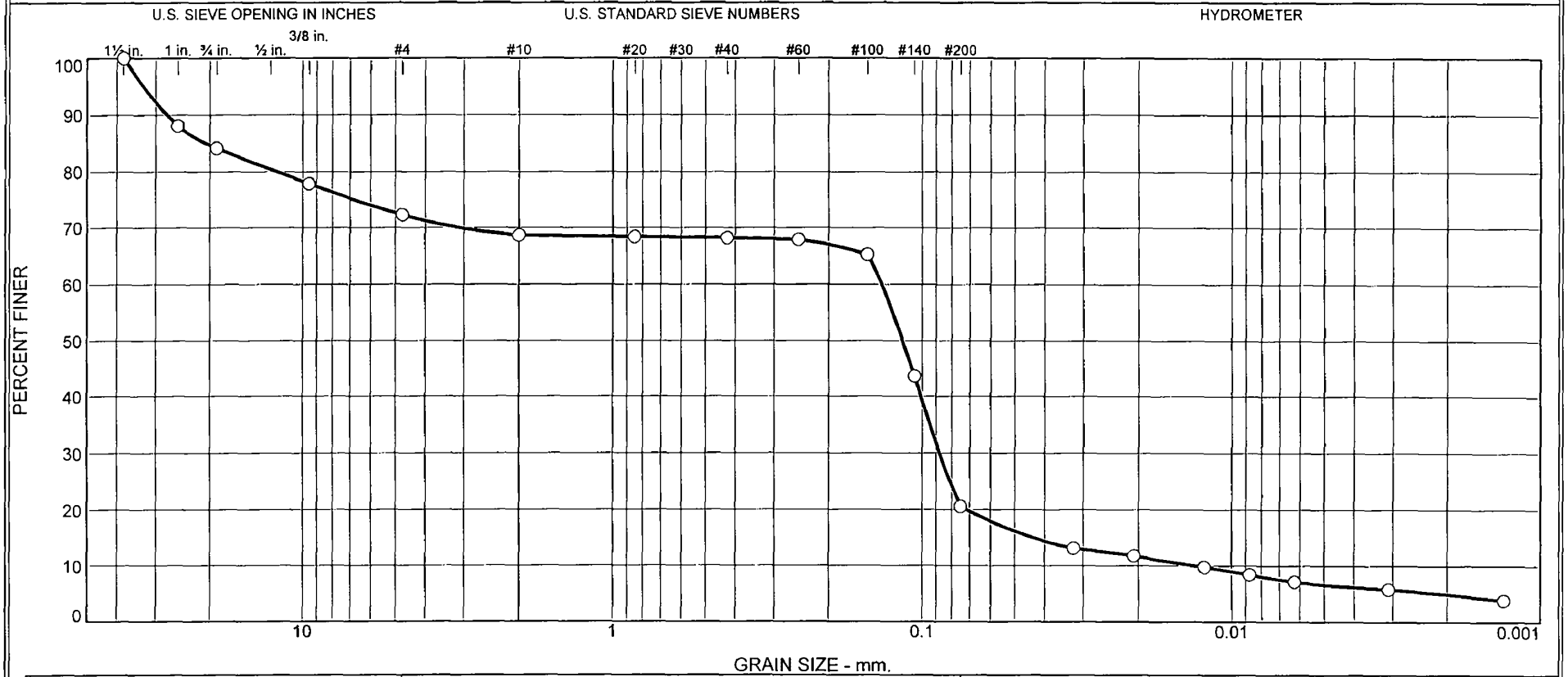
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
					2.5	64.2		3.4	5.9	9.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0792	0.1044	0.1139	0.1282	0.1615	0.1900				

Fineness Modulus	C_u	C_c
1.34	2.40	1.09

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	15.8	11.9	3.7	0.4	47.6	14.0	6.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-715	715-11	128.1-129.6	4/10/08	SM	Greenish Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-715
Depth: 128.1-129.6 **Sample Number:** 715-11
Material Description: Greenish Gray Silty SAND with gravel (Visual)
Date: 4/10/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
339.45	0.00	0.00	1.5	0.00	100.0
			1	40.47	88.1
			3/4	53.53	84.2
			3/8"	75.10	77.9
			#4	94.16	72.3
			#10	106.51	68.6
102.89	0.00	0.00	#20	0.40	68.4
			#40	0.67	68.2
			#60	1.12	67.9
			#100	5.00	65.3
			#140	37.40	43.7
			#200	72.05	20.6

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =68.6
Weight of hydrometer sample =102.89
Hygroscopic moisture correction:
Moist weight and tare = 23.74
Dry weight and tare = 23.69
Tare weight = 11.23
Hygroscopic moisture =0.4%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
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	21.6	25.0	19.8	0.0132	26.0	12.0	0.0323	13.1
5.00	21.7	23.0	17.8	0.0132	24.0	12.4	0.0207	11.8
15.00	21.5	20.0	14.8	0.0132	21.0	12.9	0.0122	9.8
30.00	21.5	18.0	12.8	0.0132	19.0	13.2	0.0087	8.5
60.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0063	7.2
250.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0031	5.8
1440.00	21.6	11.0	5.8	0.0132	12.0	14.3	0.0013	3.8

MACTEC Engineering and Consulting, Inc.

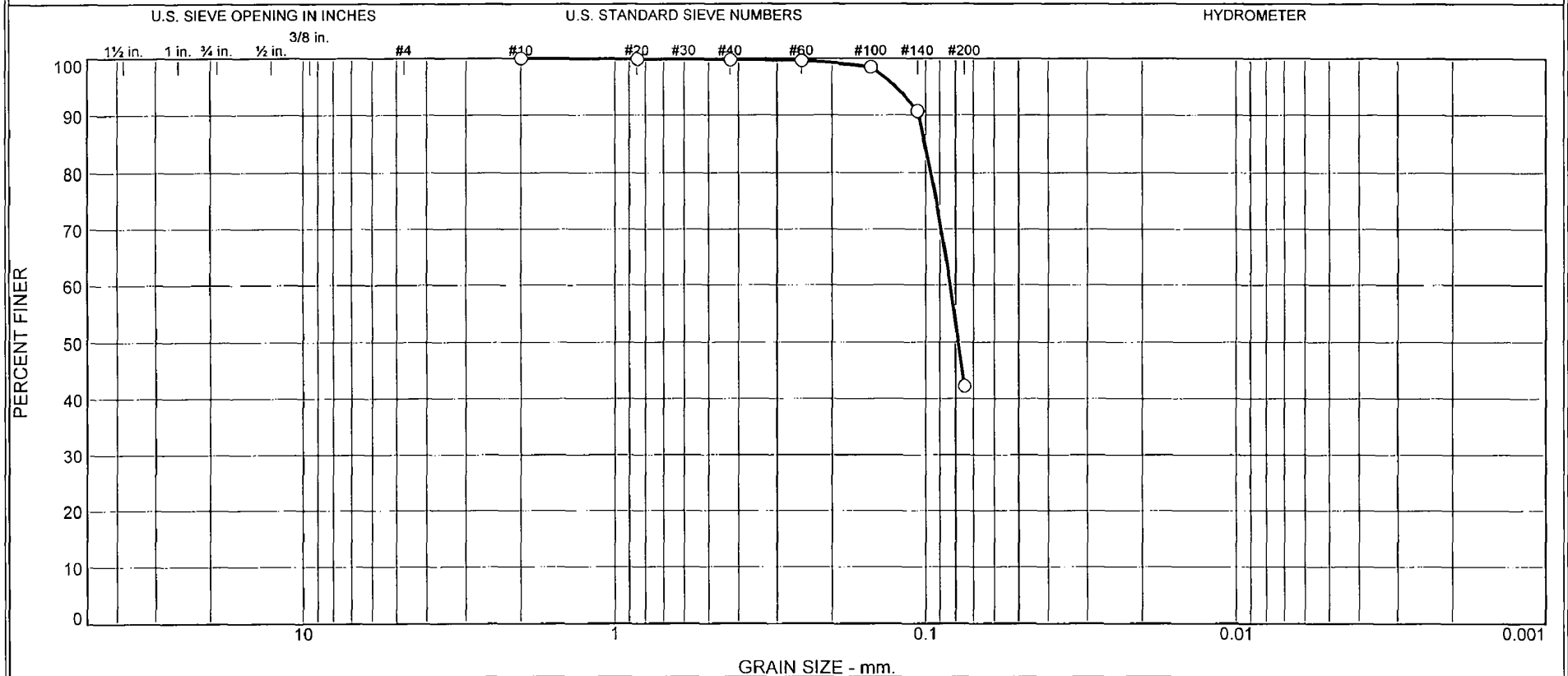
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	15.8	11.9	27.7	3.7	0.4	47.6	51.7	14.0	6.6	20.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0130	0.0435	0.0717	0.0879	0.1154	0.1343	12.1029	20.5525	27.6341	32.8059

Fineness Modulus	C_u	C_c
2.27	10.36	4.44

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	58	42	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-715	715-13	148.6-150.1	4/10/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-715
Depth: 148.6-150.1 **Sample Number:** 715-13
Material Description: Greenish Gray Silty SAND (Visual)
Date: 4/10/08 **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
347.21	0.00	0.00	#10	0.00	100
102.01	0.00	0.00	#20	0.12	100
			#40	0.22	100
			#60	0.39	100
			#100	1.57	98
			#140	9.48	91
			#200	58.96	42

Fractional Components

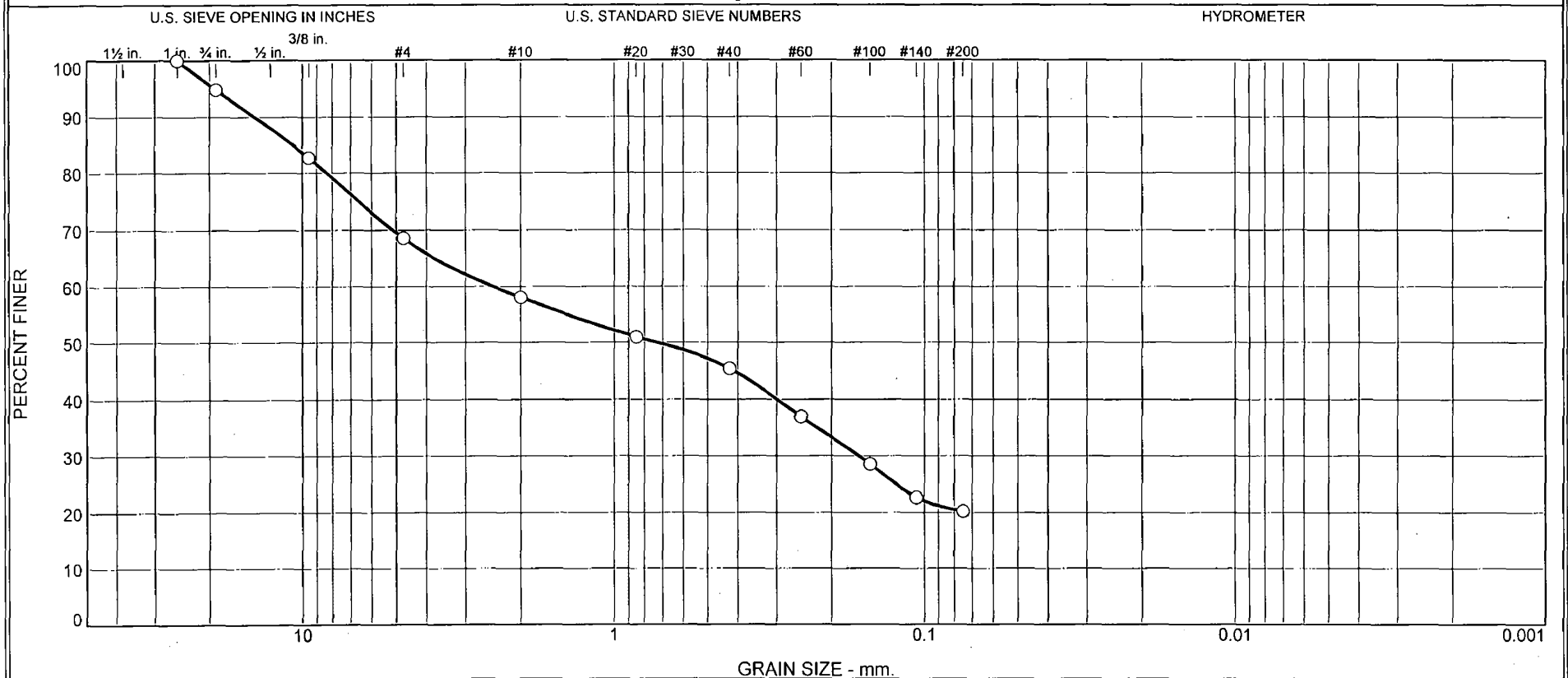
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	58	58			42

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0785	0.0834	0.0957	0.0998	0.1051	0.1245

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	26	11	13	25	20	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-720 (DH)	720-3	5.0-7.5	5/4/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-720 (DH)
Depth: 5.0-7.5 **Sample Number:** 720-3
Material Description: White Silty SAND with gravel (Visual)
Date: 5/4/08 **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
351.28	0.00	0.00	1	0.00	100
			3/4	18.01	95
			3/8"	60.73	83
			#4	110.39	69
			#10	147.25	58
98.77	0.00	0.00	#20	12.13	51
			#40	21.57	45
			#60	35.94	37
			#100	50.28	29
			#140	60.23	23
			#200	64.38	20

Fractional Components

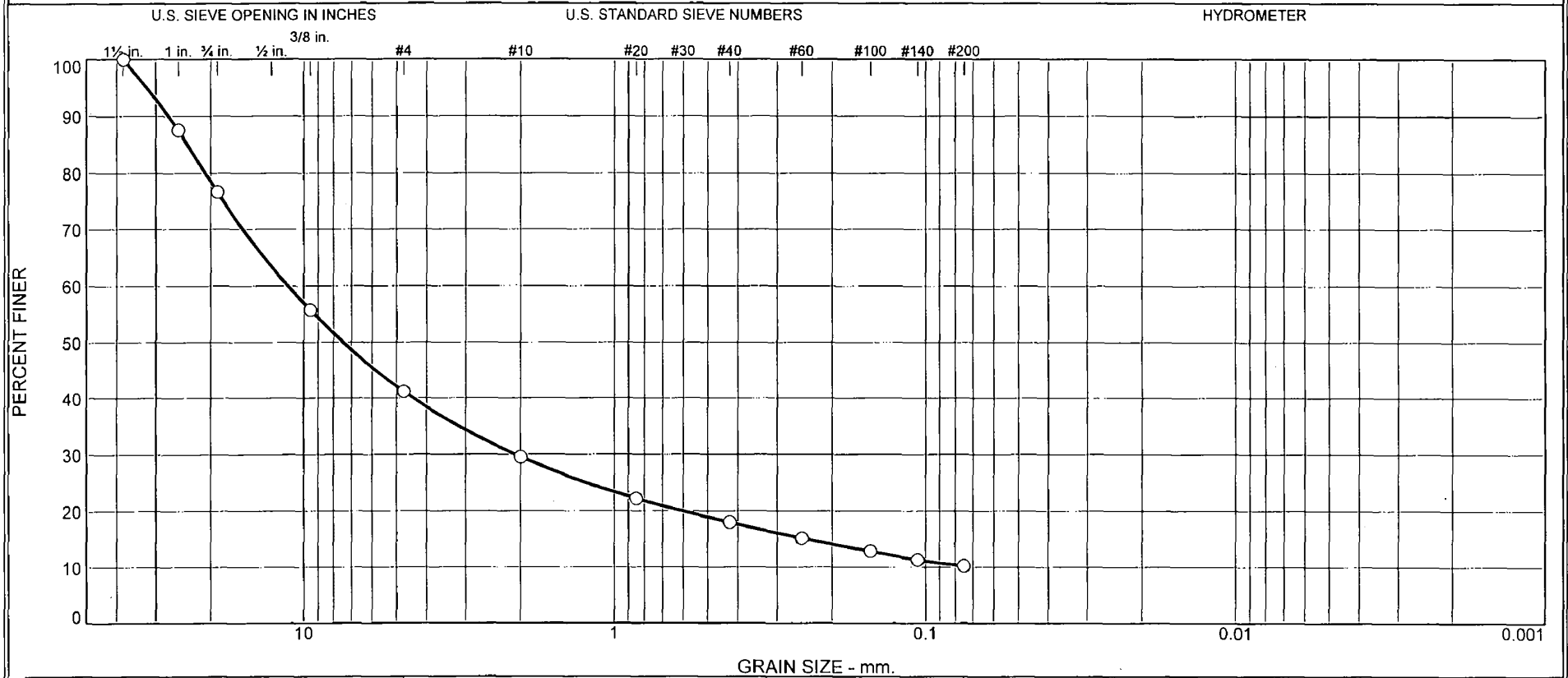
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	26	31	11	13	25	49			20

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1632	0.7332	2.4465	8.3366	10.7413	14.2912	19.1898

Fineness Modulus
3.24

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	23	36	11	12	8	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-720 (DH)	720-6	13.5-15.0	5/4/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-720 (DH)
Depth: 13.5-15.0 **Sample Number:** 720-6
Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)
Date: 5/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
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
390.43	0.00	0.00	1.5	0.00	100
			1	48.59	88
			3/4	91.16	77
			3/8"	172.77	56
			#4	229.75	41
			#10	275.00	30
97.01	0.00	0.00	#20	24.17	22
			#40	38.04	18
			#60	47.28	15
			#100	54.85	13
			#140	59.92	11
			#200	63.43	10

Fractional Components

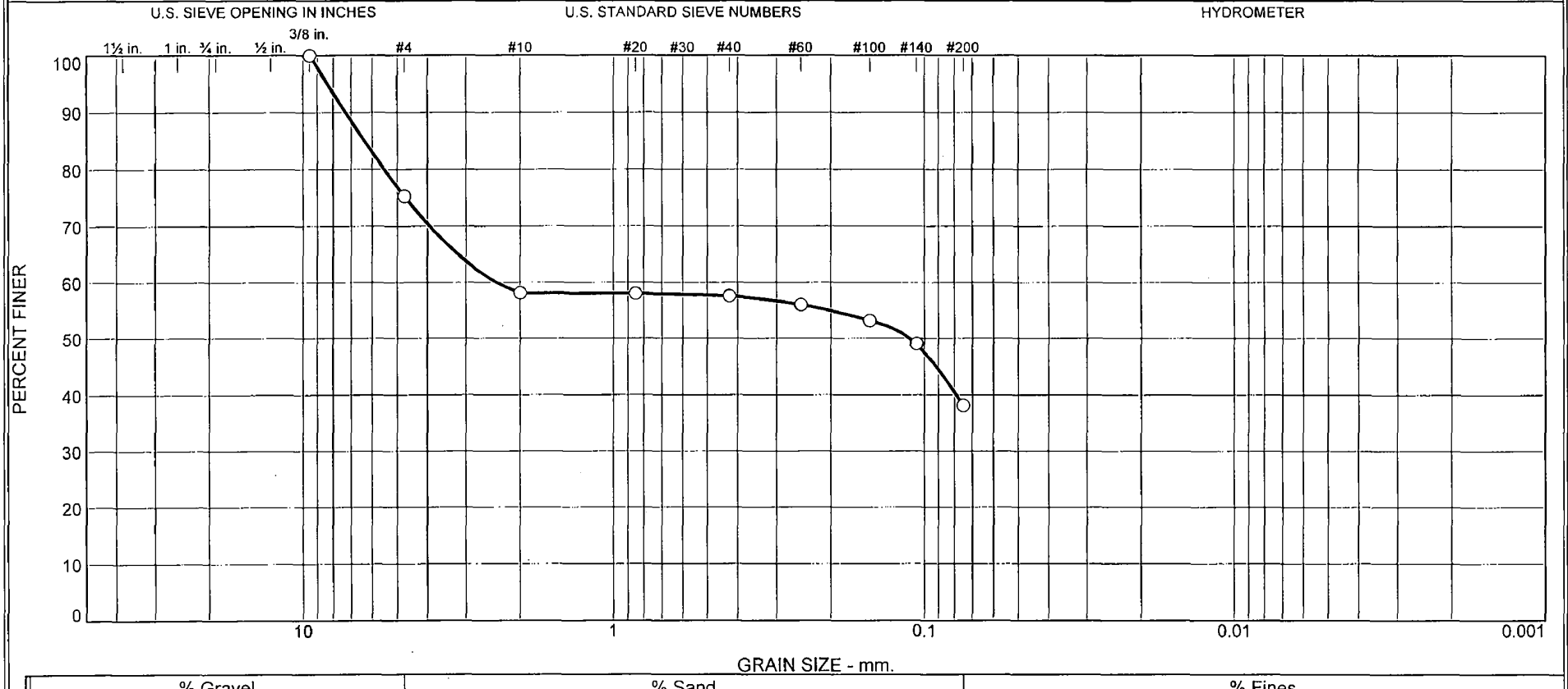
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	23	36	59	11	12	8	31			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.2420	0.6041	2.0841	7.4513	11.2361	20.8019	23.6925	27.2714	32.0059

Fineness Modulus
5.22

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	25	17	0	20	38	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-720 (DH)	720-8	23.5-25.0	5/4/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-720 (DH)
Depth: 23.5-25.0 **Sample Number:** 720-8
Material Description: White Silty SAND with gravel (Visual)
Date: 5/4/08 **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
245.20	0.00	0.00	3/8"	0.00	100
			#4	60.51	75
			#10	102.66	58
95.55	0.00	0.00	#20	0.17	58
			#40	0.84	58
			#60	3.49	56
			#100	8.12	53
			#140	14.99	49
			#200	32.91	38

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	25	25	17	0	20	37			38

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1114	2.3896	5.4982	6.3576	7.2994	8.3463

Fineness Modulus
2.39

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	5.2	86.7	1.6	6.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-720 (DH)	720-10	118.4-119.9	4/7/08	SP-SM	Light Gray Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-720 (DH)
Depth: 118.4-119.9 **Sample Number:** 720-10
Material Description: Light Gray Poorly Graded SAND with silt (Visual)
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
359.26	0.00	0.00	#4	0.00	100.0
			#10	0.20	99.9
97.18	0.00	0.00	#20	0.26	99.7
			#40	5.13	94.7
			#60	16.53	82.9
			#100	63.06	35.1
			#140	86.23	11.3
			#200	89.36	8.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.9
Weight of hydrometer sample =97.17
Hygroscopic moisture correction:
Moist weight and tare = 28.63
Dry weight and tare = 28.51
Tare weight = 15.51
Hygroscopic moisture =0.9%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.9	14.0	8.9	0.0131	15.0	13.8	0.0345	9.1
5.00	21.9	14.0	8.9	0.0131	15.0	13.8	0.0218	9.1
15.00	21.7	13.0	7.9	0.0132	14.0	14.0	0.0127	8.1
30.00	21.7	13.0	7.9	0.0132	14.0	14.0	0.0090	8.1
60.00	21.6	12.0	6.8	0.0132	13.0	14.2	0.0064	7.0
250.00	21.1	11.0	5.7	0.0133	12.0	14.3	0.0032	5.8
1440.00	21.1	11.0	5.7	0.0133	12.0	14.3	0.0013	5.8

MACTEC Engineering and Consulting, Inc.

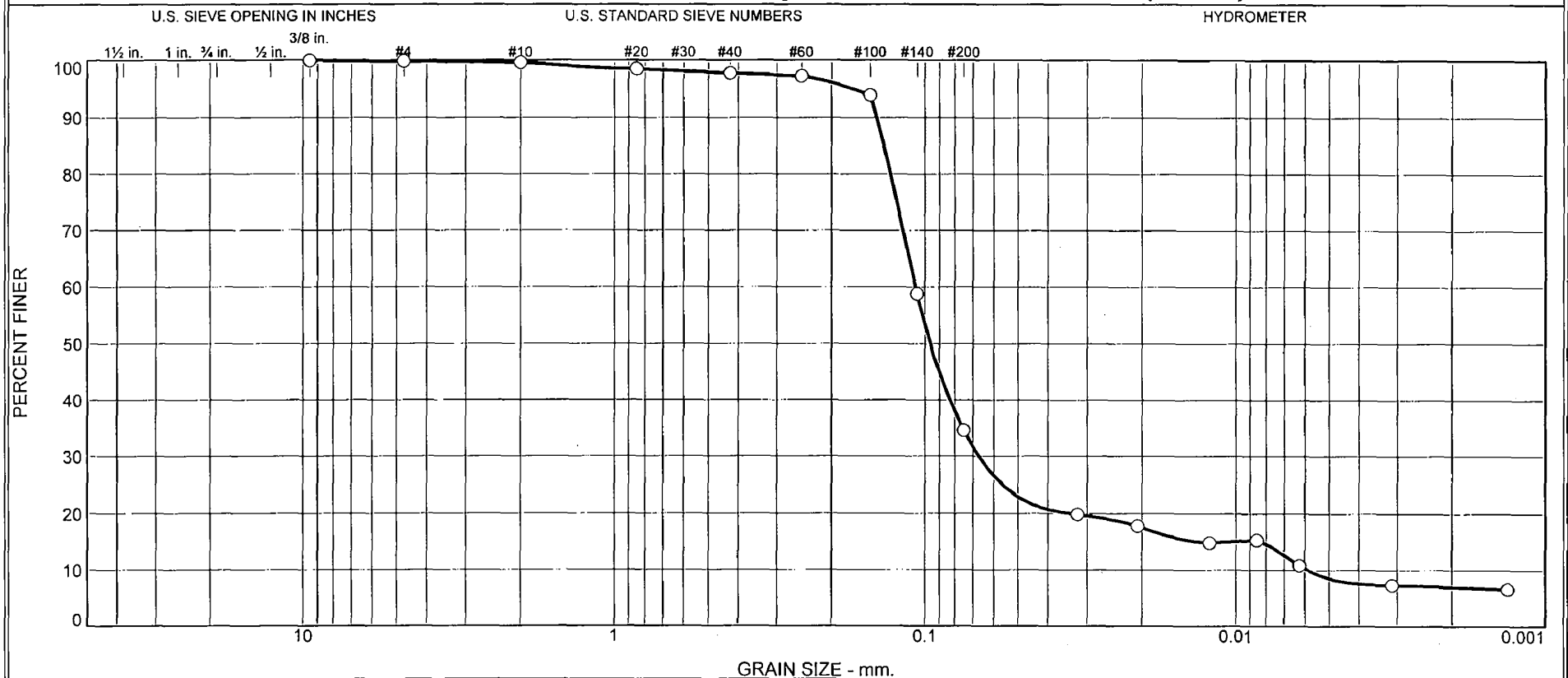
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	5.2	86.7	92.0	1.6	6.4	8.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0951	0.1152	0.1250	0.1419	0.1739	0.1916	0.2393	0.2590	0.2913	0.4527

Fineness Modulus	C_u	C_c
0.77	2.02	1.11

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.1	0.3	1.8	63.3	26.0	8.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-720 (DH)	720-12	138.4-139.9	4/7/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-720 (DH)
Depth: 138.4-139.9 **Sample Number:** 720-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
283.17	0.00	0.00	3/8"	0.00	100.0
			#4	0.39	99.9
			#10	1.08	99.6
99.35	0.00	0.00	#20	1.12	98.5
			#40	1.84	97.8
			#60	2.36	97.3
			#100	5.70	93.9
			#140	40.71	58.8
			#200	64.91	34.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.6
Weight of hydrometer sample =99.21
Hygroscopic moisture correction:
Moist weight and tare = 28.64
Dry weight and tare = 28.60
Tare weight = 15.29
Hygroscopic moisture =0.3%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.9	25.0	19.9	0.0131	26.0	12.0	0.0322	19.8
5.00	21.8	23.0	17.9	0.0131	24.0	12.4	0.0207	17.8
15.00	21.8	20.0	14.9	0.0131	21.0	12.9	0.0122	14.8
30.00	21.8	20.5	15.4	0.0131	21.5	12.8	0.0086	15.3
60.00	21.8	16.0	10.9	0.0131	17.0	13.5	0.0062	10.8
250.00	21.8	12.5	7.4	0.0131	13.5	14.1	0.0031	7.4
1440.00	20.9	12.0	6.6	0.0133	13.0	14.2	0.0013	6.6

MACTEC Engineering and Consulting, Inc.

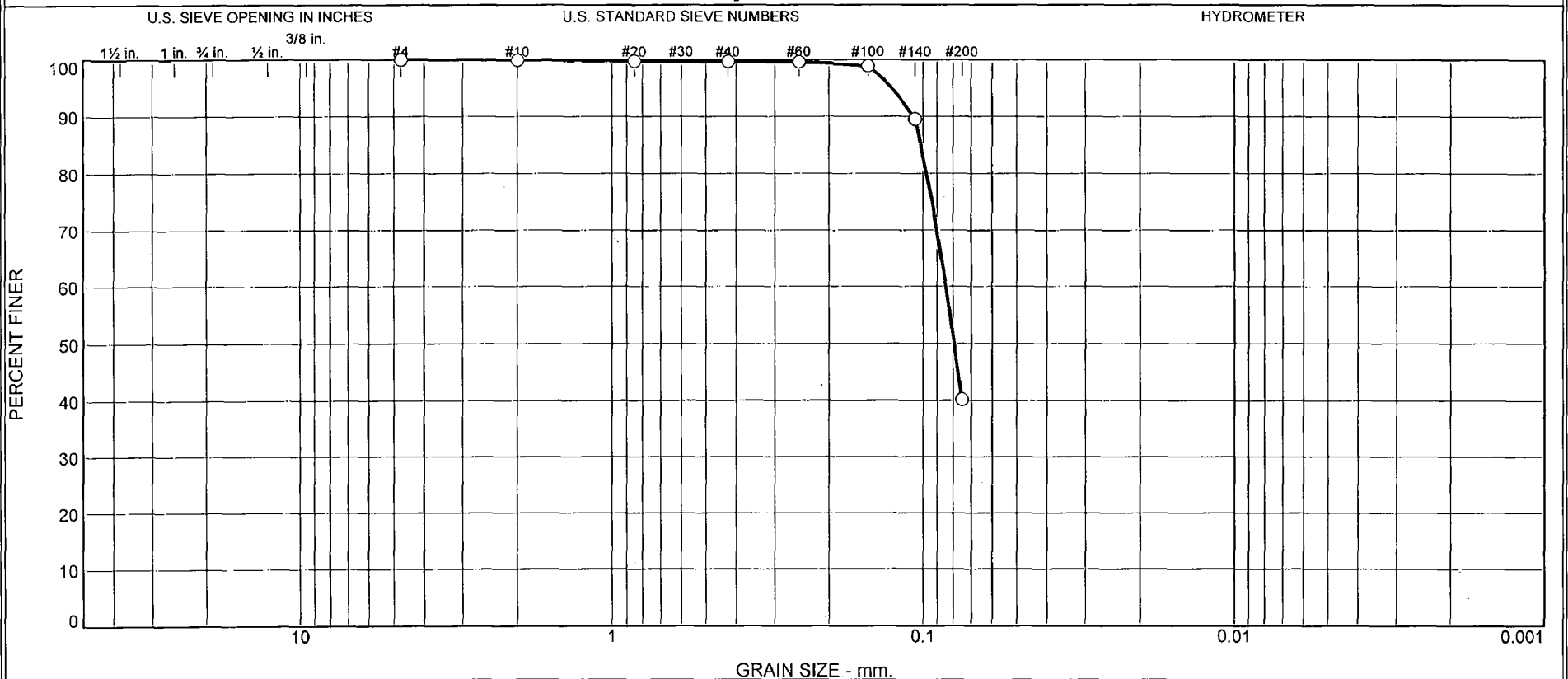
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.1	0.1	0.3	1.8	63.3	65.4	26.0	8.5	34.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0059	0.0082	0.0339	0.0671	0.0962	0.1073	0.1287	0.1350	0.1425	0.1704

Fineness Modulus	C_u	C_c
0.12	18.32	7.17

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	60	40	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-720 (DH)	720-13	148.4-149.9	4/7/08	SM	Greenish Gray Silty SAND (Visual)	ND	NV	

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-720 (DH)
Depth: 148.4-149.9 **Sample Number:** 720-13
Material Description: Greenish Gray Silty SAND (Visual)
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: NV **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
367.28	0.00	0.00	#4	0.00	100
			#10	0.09	100
95.48	0.00	0.00	#20	0.18	100
			#40	0.26	100
			#60	0.34	100
			#100	1.04	99
			#140	10.03	89
			#200	57.11	40

Fractional Components

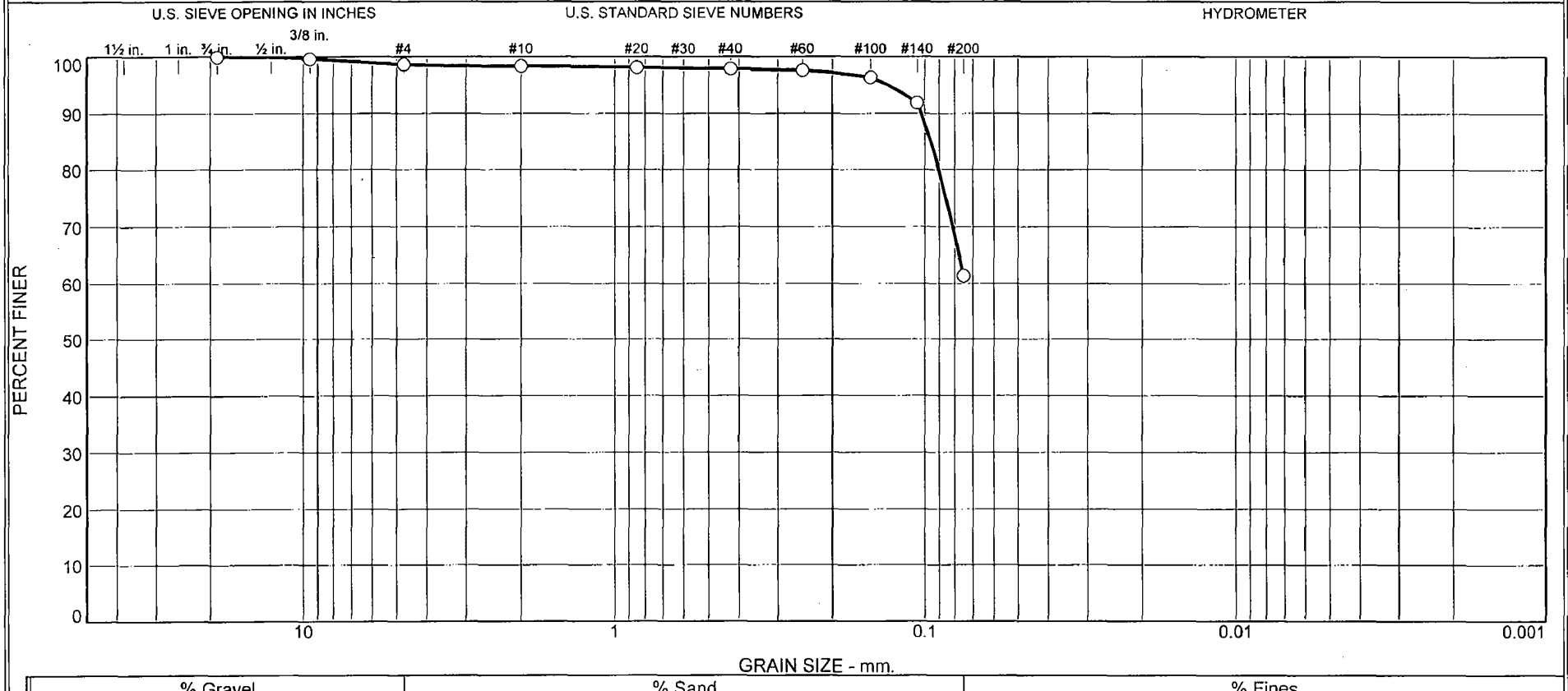
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	60	60			40

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0794	0.0844	0.0969	0.1012	0.1075	0.1257

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	1	0	37	61	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-720 (DH)	720-14	158.4-159.9	4/7/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-720 (DH)
Depth: 158.4-159.9 **Sample Number:** 720-14
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
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
325.84	0.00	0.00	3/4	0.00	100
			3/8"	1.17	100
			#4	4.36	99
			#10	5.30	98
97.32	0.00	0.00	#20	0.25	98
			#40	0.48	98
			#60	0.74	98
			#100	1.97	96
			#140	6.42	92
			#200	36.62	61

Fractional Components

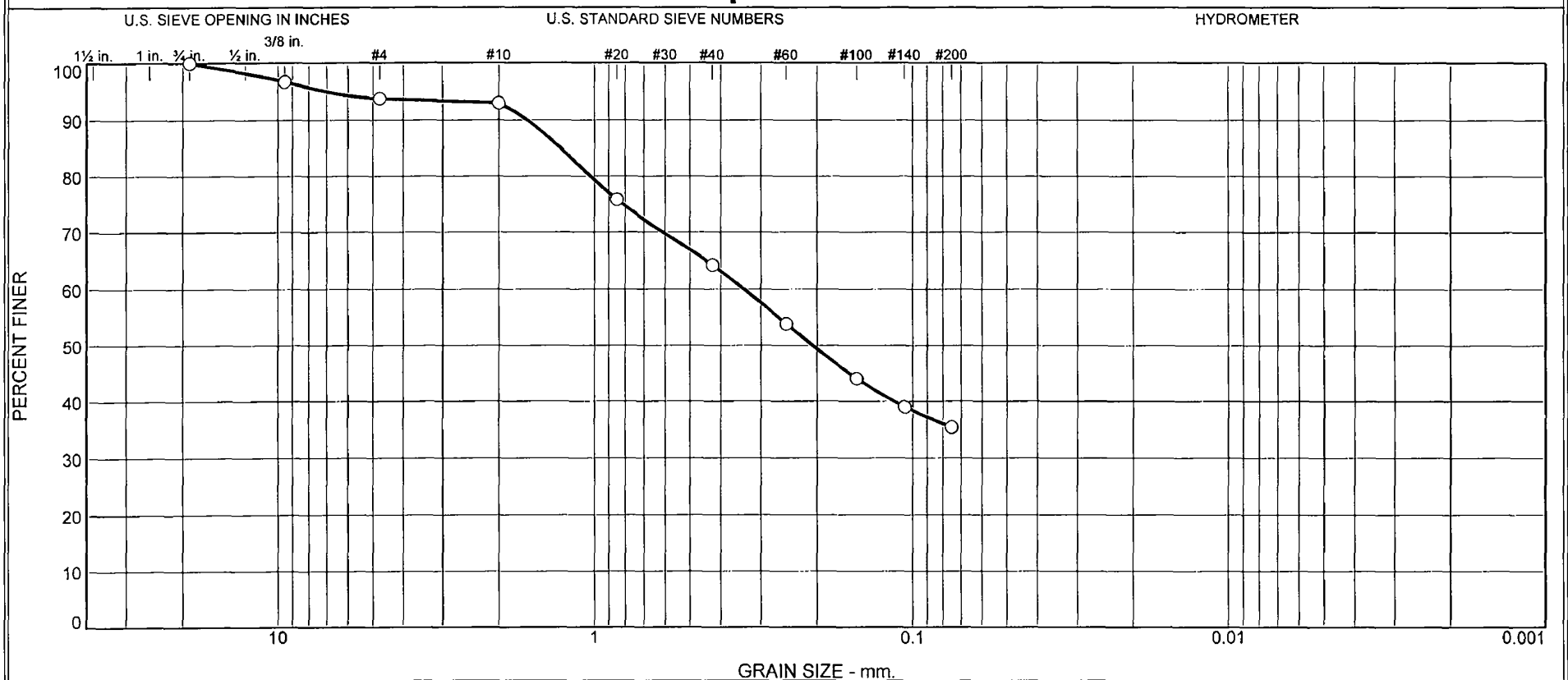
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	1	0	37	38			61

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0900	0.0954	0.1024	0.1312

Fineness Modulus
0.13

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	6	1	29	29	35	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-730	730-3	3.9-5.4	2/9/08	SM	Black Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 91% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-730
Depth: 3.9-5.4 **Sample Number:** 730-3
Material Description: Black Silty SAND (Visual)
Date: 2/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 91% (ASTM D 4373-02)
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
321.83	0.00	0.00	3/4	0.00	100
			3/8"	10.44	97
			#4	20.05	94
			#10	22.66	93
103.72	0.00	0.00	#20	19.08	76
			#40	32.05	64
			#60	43.60	54
			#100	54.56	44
			#140	60.23	39
			#200	64.26	35

Fractional Components

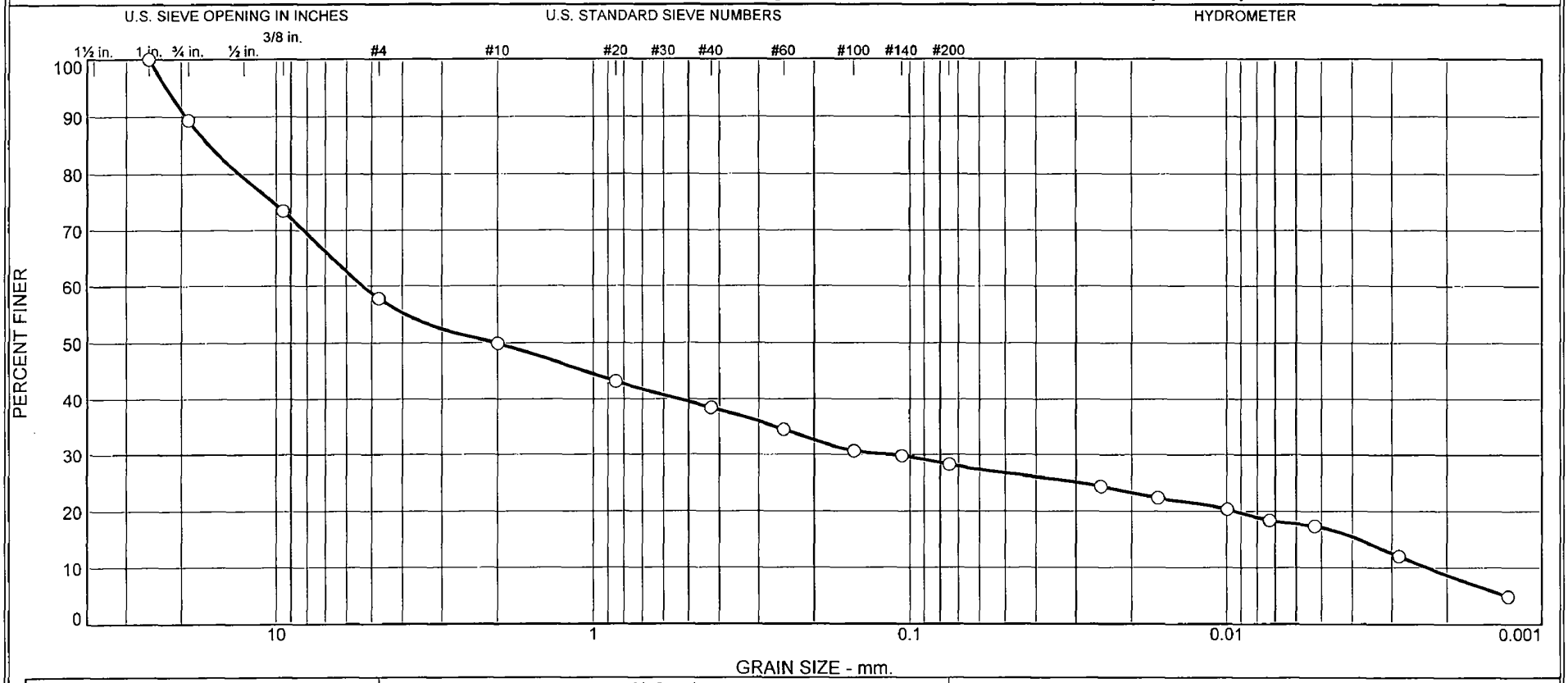
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	1	29	29	59			35

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.2064	0.3383	1.0287	1.2792	1.6314	6.9961

Fineness Modulus
1.62

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	10.6	31.6	7.9	11.4	10.3	11.0	17.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-730	730-5	8.6-10.1	2/9/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-730
Depth: 8.6-10.1 **Sample Number:** 730-5
Material Description: White Silty GRAVEL with sand (Visual)
Date: 2/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
424.24	0.00	0.00	1	0.00	100.0
			3/4	45.09	89.4
			3/8"	112.52	73.5
			#4	179.06	57.8
			#10	212.75	49.9
100.27	0.00	0.00	#20	13.49	43.1
			#40	22.91	38.5
			#60	30.78	34.5
			#100	38.57	30.7
			#140	40.35	29.8
			#200	43.46	28.2

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =49.9
Weight of hydrometer sample =100.27
Hygroscopic moisture correction:
Moist weight and tare = 23.18
Dry weight and tare = 23.16
Tare weight = 11.05
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

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	21.2	55.0	49.3	0.0132	56.0	7.1	0.0250	24.3
5.00	21.1	51.0	45.3	0.0133	52.0	7.8	0.0165	22.3
15.00	21.1	47.0	41.3	0.0133	48.0	8.4	0.0099	20.3
30.00	21.1	43.0	37.3	0.0133	44.0	9.1	0.0073	18.4
60.00	21.1	41.0	35.3	0.0133	42.0	9.4	0.0053	17.4
240.00	21.8	30.0	24.5	0.0131	31.0	11.2	0.0028	12.0
1440.00	21.6	15.5	9.9	0.0132	16.5	13.6	0.0013	4.9

MACTEC Engineering and Consulting, Inc.

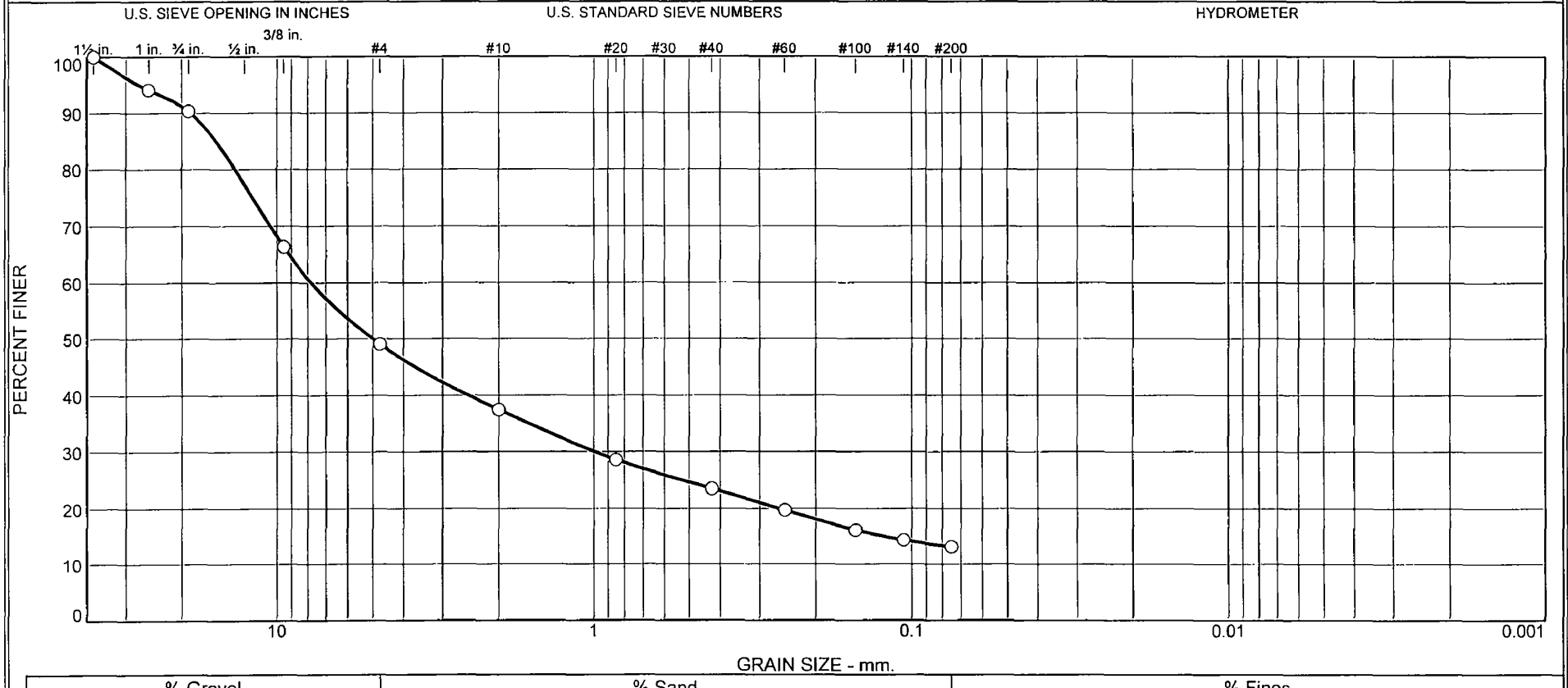
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	10.6	31.6	42.2	7.9	11.4	10.3	29.6	11.0	17.2	28.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0023	0.0038	0.0094	0.1152	2.0466	5.3322	13.1386	16.3649	19.4203	22.3330

Fineness Modulus	C_u	C_c
3.75	2313.73	1.08

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	10	41	12	14	10	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-730	730-8	19.6-21.1	2/10/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-730
Depth: 19.6-21.1 **Sample Number:** 730-8
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 2/10/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)
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
447.80	0.00	0.00	1.5	0.00	100
			1	26.07	94
			3/4	42.89	90
			3/8"	150.50	66
			#4	228.20	49
			#10	279.94	37
99.94	0.00	0.00	#20	23.74	29
			#40	37.32	23
			#60	47.42	20
			#100	56.92	16
			#140	61.64	14
			#200	64.93	13

Fractional Components

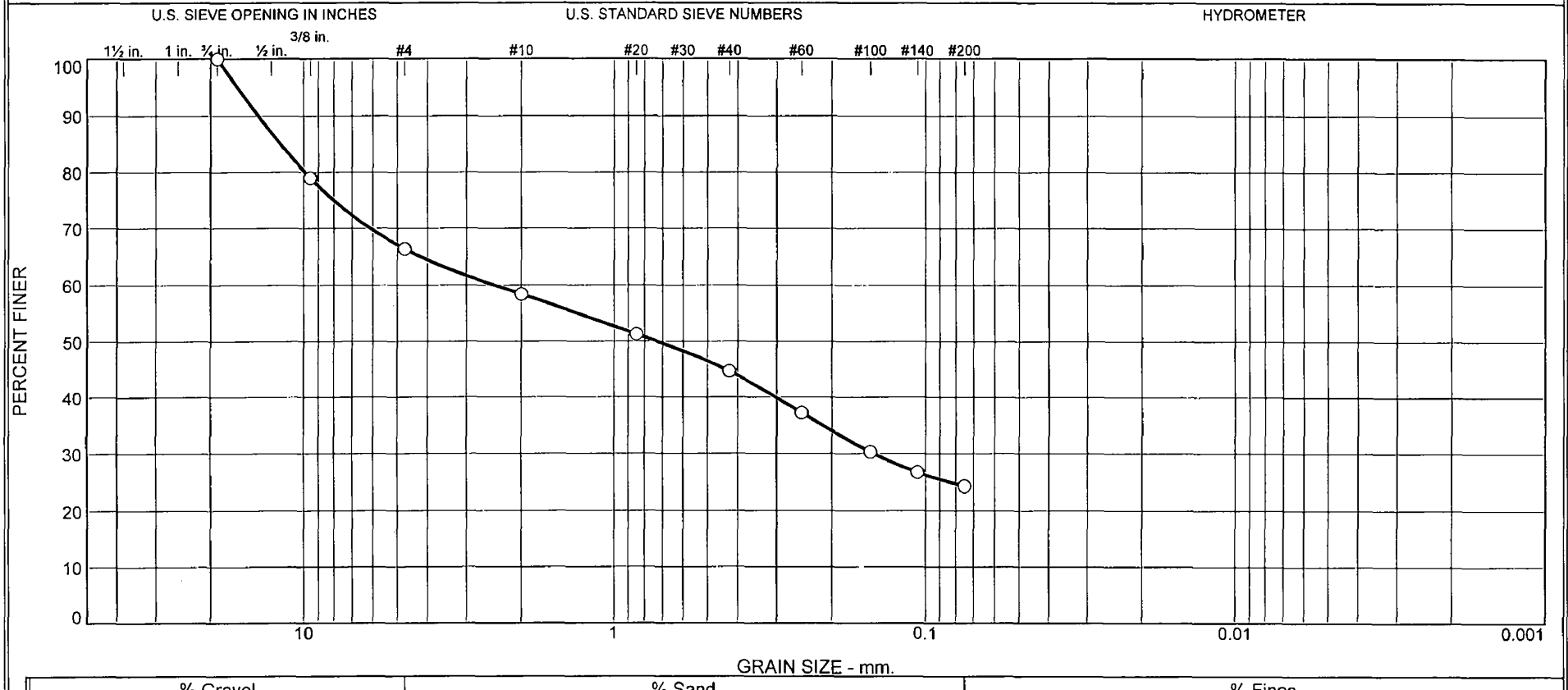
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	41	51	12	14	10	36			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1219	0.2605	0.9937	5.0146	7.7905	13.5596	15.5913	18.6664	27.1993

Fineness Modulus
4.60

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	34	8	13	21	24	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-737	737-3	5.0-6.5	4/3/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-737
Depth: 5.0-6.5 **Sample Number:** 737-3
Material Description: White Silty SAND with gravel (Visual)
Date: 4/3/08 **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
464.85	0.00	0.00	3/4	0.00	100
			3/8"	97.76	79
			#4	156.38	66
			#10	193.33	58
102.83	0.00	0.00	#20	12.51	51
			#40	24.17	45
			#60	37.37	37
			#100	49.52	30
			#140	55.85	27
			#200	60.06	24

Fractional Components

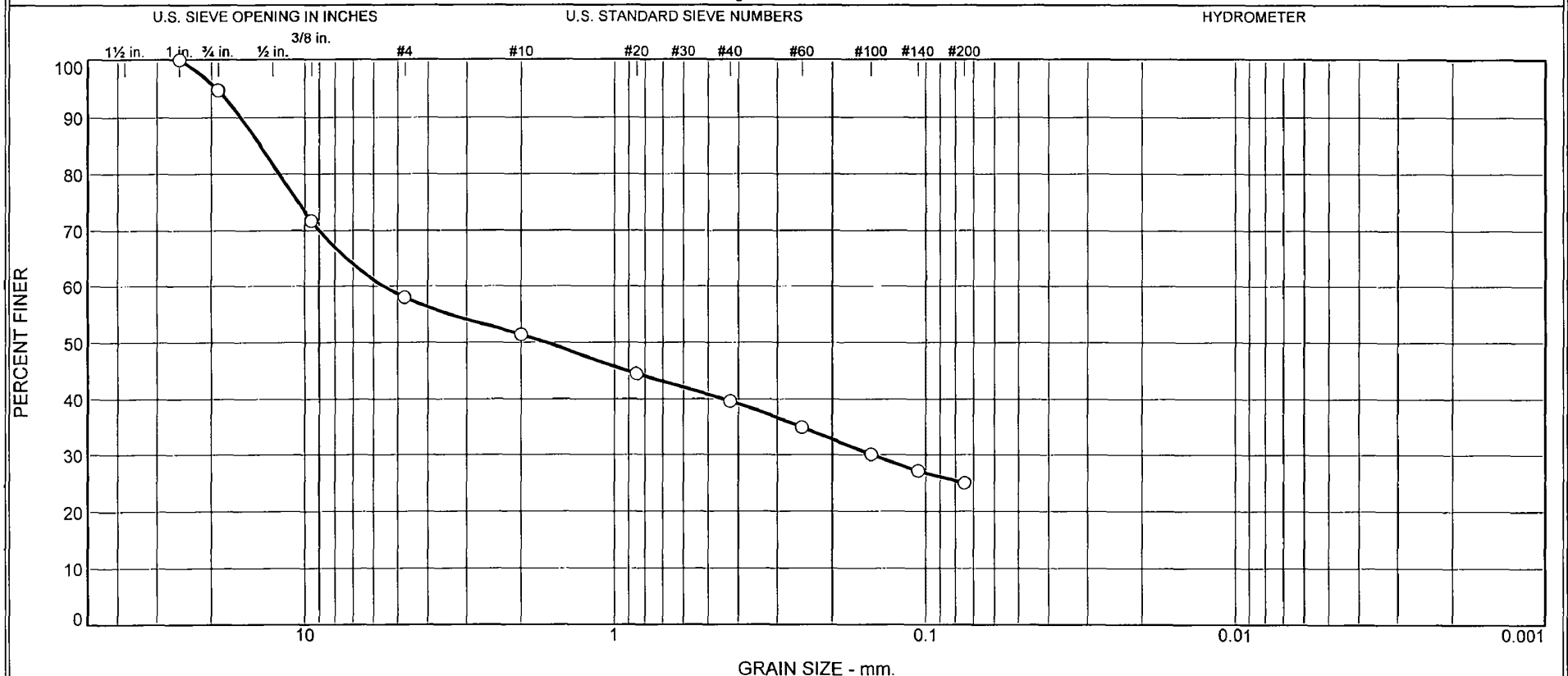
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	34	34	8	13	21	42			24

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1465	0.7271	2.4498	9.9189	11.8829	14.0042	16.3640

Fineness Modulus
3.22

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	37	7	11	15	25	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-737	737-5	10.0-11.5	4/3/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-737
Depth: 10.0-11.5 **Sample Number:** 737-5
Material Description: White Silty GRAVEL with sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
278.97	0.00	0.00	1	0.00	100
			3/4	14.67	95
			3/8"	78.89	72
			#4	117.20	58
			#10	135.63	51
95.47	0.00	0.00	#20	12.87	44
			#40	21.94	40
			#60	30.56	35
			#100	39.62	30
			#140	45.06	27
			#200	49.18	25

Fractional Components

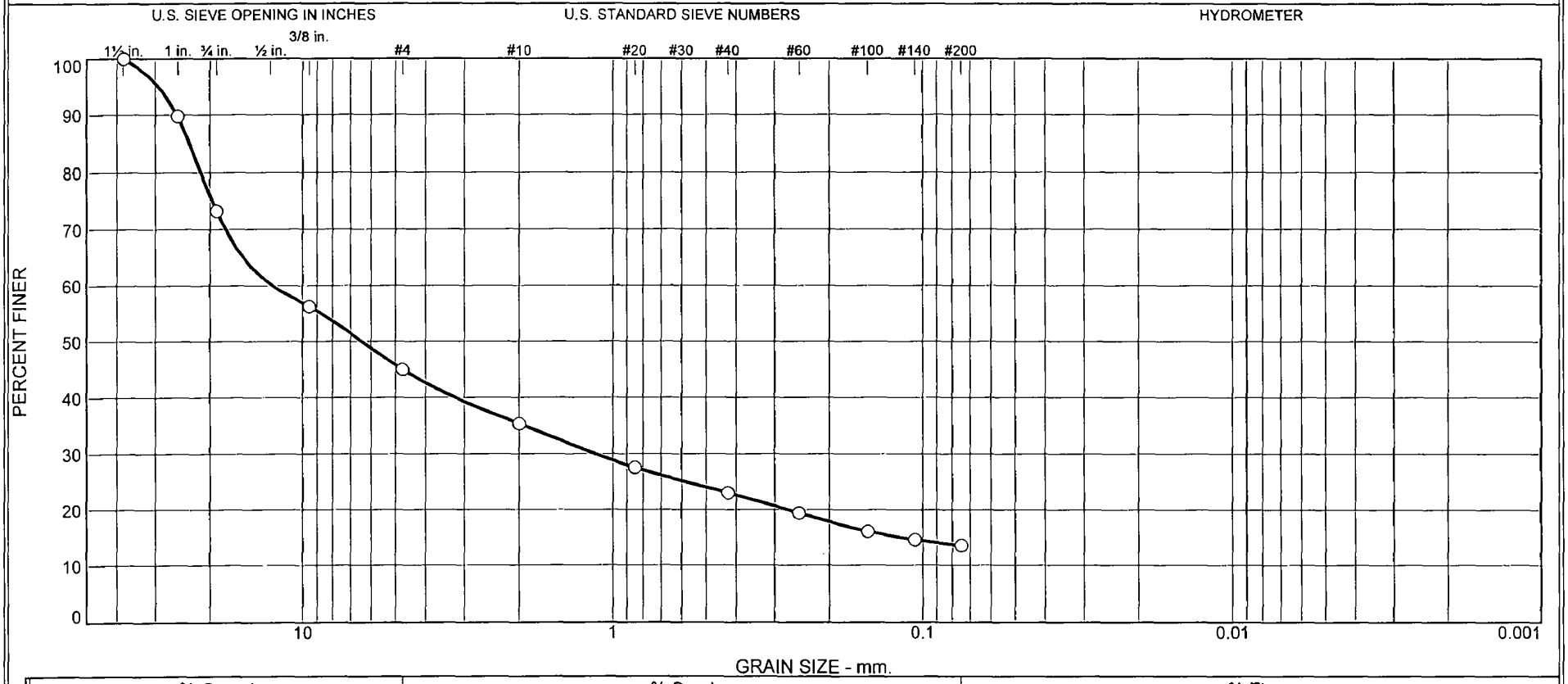
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	37	42	7	11	15	33			25

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1491	1.6655	5.5594	12.1248	13.9183	16.1158	19.2591

Fineness Modulus
3.67

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	27	28	10	12	9	14	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-737	737-8	18.6-20.1	5/9/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-737
Depth: 18.6-20.1 **Sample Number:** 737-8
Material Description: White Silty GRAVEL with sand (Visual)
Date: 5/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
549.92	0.00	0.00	1.5	0.00	100
			1	56.44	90
			3/4	147.33	73
			3/8"	240.50	56
			#4	302.80	45
			#10	355.70	35
98.23	0.00	0.00	#20	21.64	28
			#40	34.16	23
			#60	44.29	19
			#100	53.49	16
			#140	57.61	15
			#200	60.58	14

Fractional Components

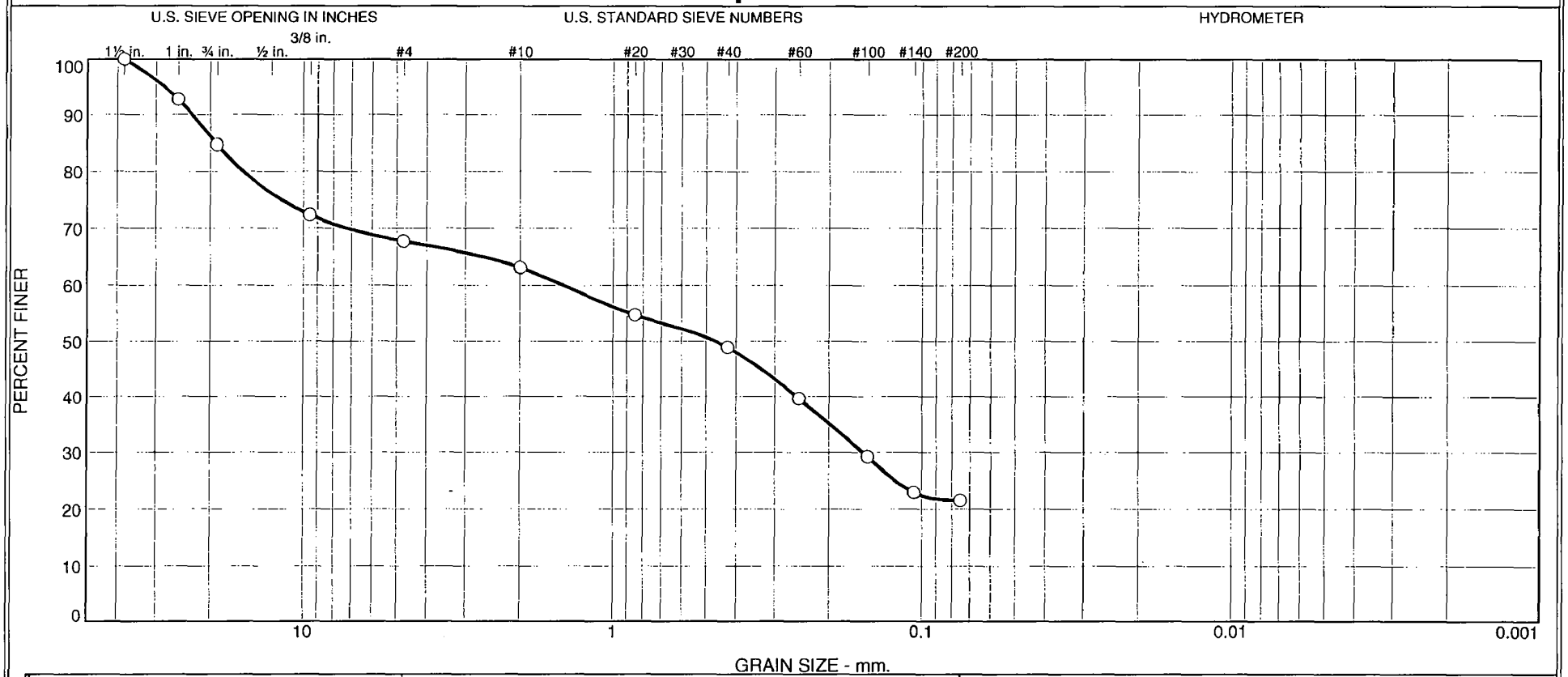
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	27	28	55	10	12	9	31			14

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1180	0.2723	1.1412	6.4466	12.5128	21.4110	23.2596	25.5416	29.2301

Fineness Modulus
4.96

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	15	17	5	14	27	22	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-737	737-14B	112.7-113.3	5/9/08	SM	Light Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-737
Depth: 112.7-113.3 **Sample Number:** 737-14B
Material Description: Light Gray Silty SAND with gravel (Visual)
Date: 5/9/08 **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
301.78	0.00	0.00	1.5	0.00	100
			1	21.75	93
			3/4	46.13	85
			3/8"	83.54	72
			#4	97.27	68
			#10	111.23	63
99.29	0.00	0.00	#20	13.23	55
			#40	22.36	49
			#60	36.89	40
			#100	53.28	29
			#140	63.23	23
			#200	65.39	22

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	15	17	32	5	14	27	46			22

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1553	0.4657	1.4439	15.6922	19.2489	22.8935	28.0299

Fineness Modulus
3.28

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	2.8	0.8	2.1	71.1	14.4	8.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-737	737-15	121.8-123.3	4/5/08	SM	Pale Brown Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-737
Depth: 121.8-123.3 **Sample Number:** 737-15
Material Description: Pale Brown Silty SAND (Visual)
Date: 4/5/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
261.01	0.00	0.00	3/4	0.00	100.0
			3/8"	1.89	99.3
			#4	7.29	97.2
			#10	9.46	96.4
99.27	0.00	0.00	#20	1.28	95.1
			#40	2.13	94.3
			#60	4.56	91.9
			#100	14.56	82.2
			#140	56.69	41.3
			#200	75.36	23.2

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =96.4
Weight of hydrometer sample =99.27
Hygroscopic moisture correction:
Moist weight and tare = 28.59
Dry weight and tare = 28.48
Tare weight = 15.67
Hygroscopic moisture =0.9%
Table of composite correction values:

Temp., deg. C:	11.3	29.5
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	21.6	22.0	16.8	0.0132	23.0	12.5	0.0330	16.3
5.00	21.6	21.0	15.8	0.0132	22.0	12.7	0.0210	15.3
15.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0124	12.4
30.00	21.7	17.0	11.9	0.0132	18.0	13.3	0.0088	11.5
60.00	21.7	15.0	9.9	0.0132	16.0	13.7	0.0063	9.5
250.00	21.8	14.0	8.9	0.0131	15.0	13.8	0.0031	8.6
1440.00	20.7	12.0	6.6	0.0133	13.0	14.2	0.0013	6.4

MACTEC Engineering and Consulting, Inc.

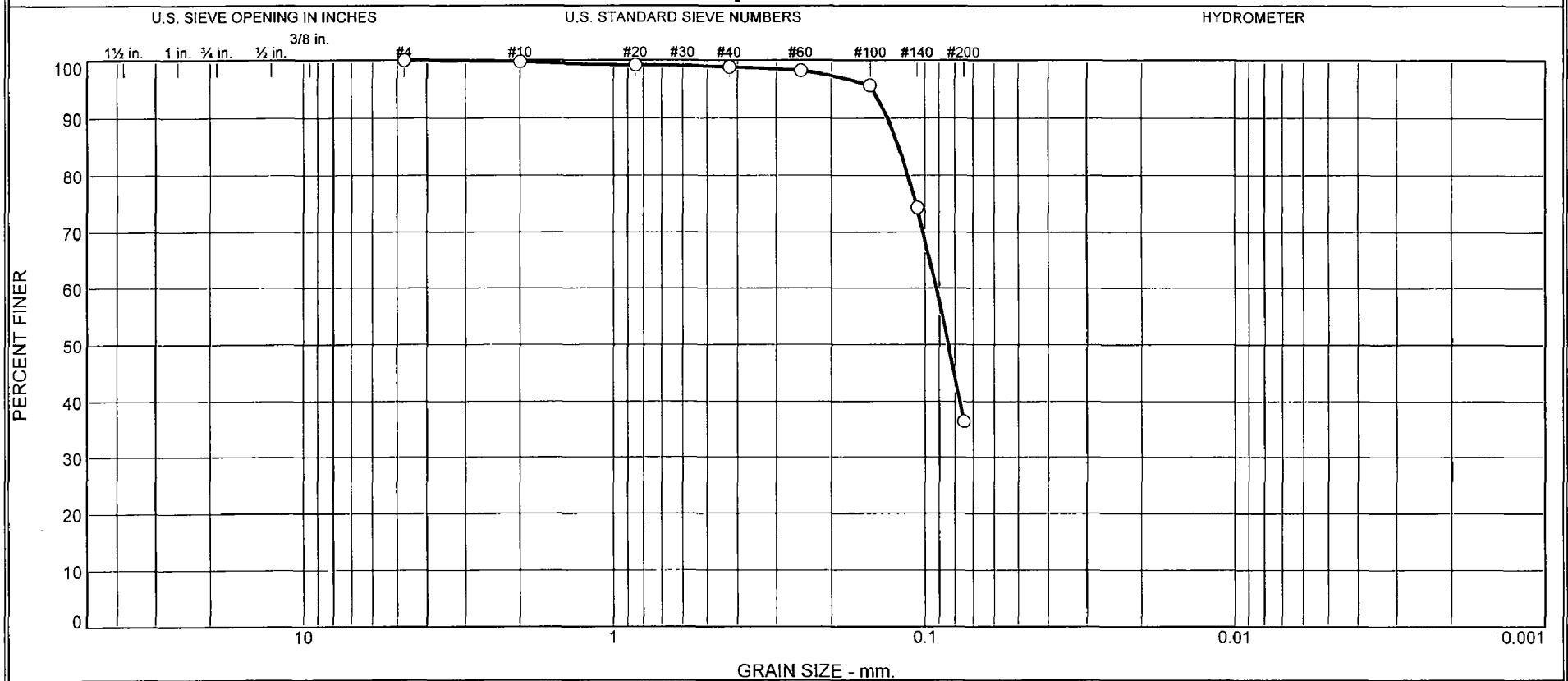
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.8	2.8	0.8	2.1	71.1	74.0	14.4	8.8	23.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0068	0.0196	0.0636	0.0910	0.1145	0.1239	0.1464	0.1678	0.2172	0.7668

Fineness Modulus	C_u	C_c
0.42	18.18	9.79

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	63	36	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-737	737-17	141.8-143.3	4/5/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-737
Depth: 141.8-143.3 **Sample Number:** 737-17
Material Description: Greenish Gray Silty SAND (Visual)
Date: 4/5/08 **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
329.12	0.00	0.00	#4	0.00	100
			#10	0.75	100
102.52	0.00	0.00	#20	0.62	99
			#40	0.95	99
			#60	1.60	98
			#100	4.26	96
			#140	26.11	74
			#200	65.08	36

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	63	64			36

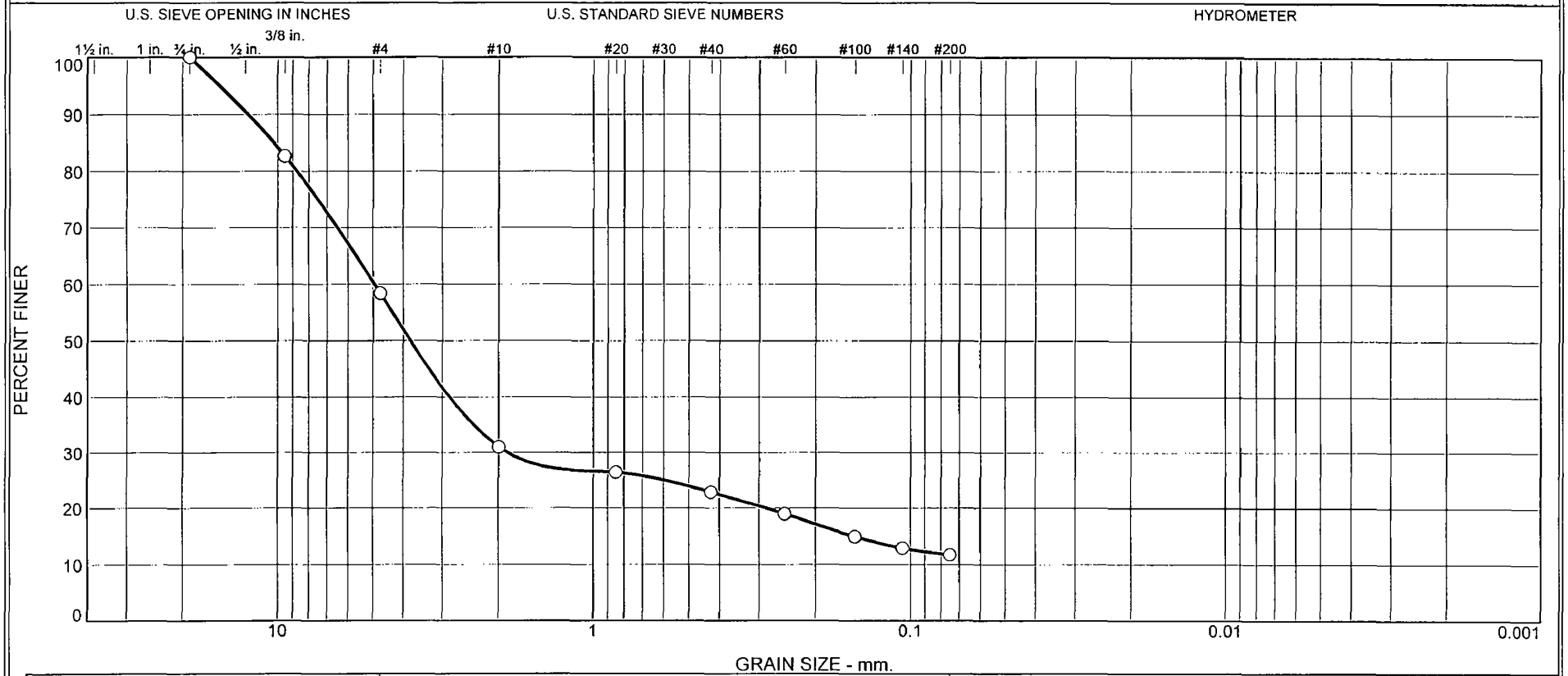
D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0841	0.0919	0.1133	0.1212	0.1316	0.1472

Fineness Modulus
0.08

MACTEC Engineering and Consulting, Inc.

Soil Laboratory Test-
Test Pits

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	42	27	8	11	12	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Test Pit TP-601	601-1	3.2-5.0	5/1/08	SP-SM	Pale Brown Poorly graded SAND with Silt and Gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Test performed on material as obtained from the field.

ZHU 7/22/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Test Pit TP-601
Depth: 3.2-5.0 **Sample Number:** 601-1
Material Description: Pale Brown Poorly graded SAND with Silt and Gravel (Visual)
Date: 5/1/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Test performed on material as obtained from the field.
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
375.84	0.00	0.00	3/4	0.00	100
			3/8"	64.99	83
			#4	156.27	58
			#10	259.30	31
102.33	0.00	0.00	#20	15.20	26
			#40	27.02	23
			#60	39.75	19
			#100	52.87	15
			#140	59.59	13
			#200	63.62	12

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	42	42	27	8	11	46			12

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1503	0.2863	1.8796	3.8024	4.9518	8.7189	10.3097	12.4378	15.2972

Fineness Modulus
4.37

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	46	14	9	15	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Test Pit TP-601	601-1-BC	NA	5/15/08	SP-SM	Processed Material- Before Compaction	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Test performed on material as prepared according to ASTM D 1557-07 before compaction(BC)

ZHU 7/22/08

Tested By: AWH Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Test Pit TP-601
Depth: NA **Sample Number:** 601-1-BC
Material Description: Processed Material- Before Compaction
Date: 5/15/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: Test performed on material as prepared according to ASTM D 1557-07 before compaction(BC)
Tested by: AWH **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
6308.30	0.00	0.00	3/4	0.00	100
			1/2	1028.80	84
			3/8	1692.50	73
			#4	2925.50	54
			#10	3780.40	40
434.30	0.00	0.00	#20	55.50	35
			#40	103.60	31
			#60	159.10	25
			#100	215.50	20
			#140	244.60	18
			#200	261.00	16

Fractional Components

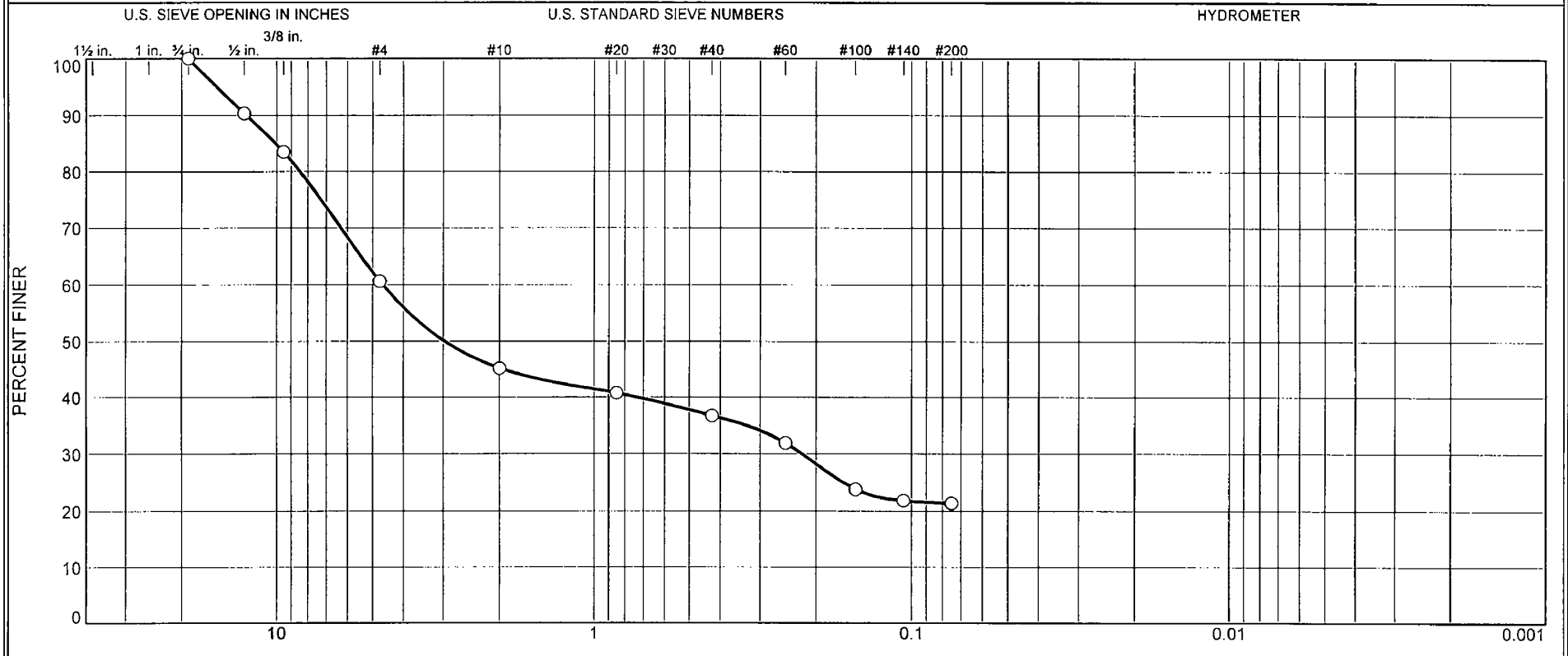
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	46	46	14	9	15	38			16

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1469	0.4002	3.9926	6.1701	11.5240	13.1357	14.9032	16.8608

Fineness Modulus
4.14

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	39	16	8	16	21	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Test Pit TP-601	601-1-AC	NA	5/20/08	SP-SM	Processed Material-After Compaction	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Test performed on material used for ASTM D-1557-07 after compaction(AC)

ZHU 7/22/08

Tested By: AWH Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Test Pit TP-601
Depth: NA **Sample Number:** 601-1-AC
Material Description: Processed Material-After Compaction
Date: 5/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM.
Testing Remarks: Test performed on material used for ASTM D-1557-07 after compaction(AC)
Tested by: AWH **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
12647.90	0.00	0.00	3/4	0.00	100
			1/2	1219.10	90
			3/8	2079.20	84
			#4	4978.90	61
			#10	6933.90	45
523.70	0.00	0.00	#20	51.78	41
			#40	98.57	37
			#60	153.78	32
			#100	247.80	24
			#140	270.60	22
			#200	275.70	21

Fractional Components

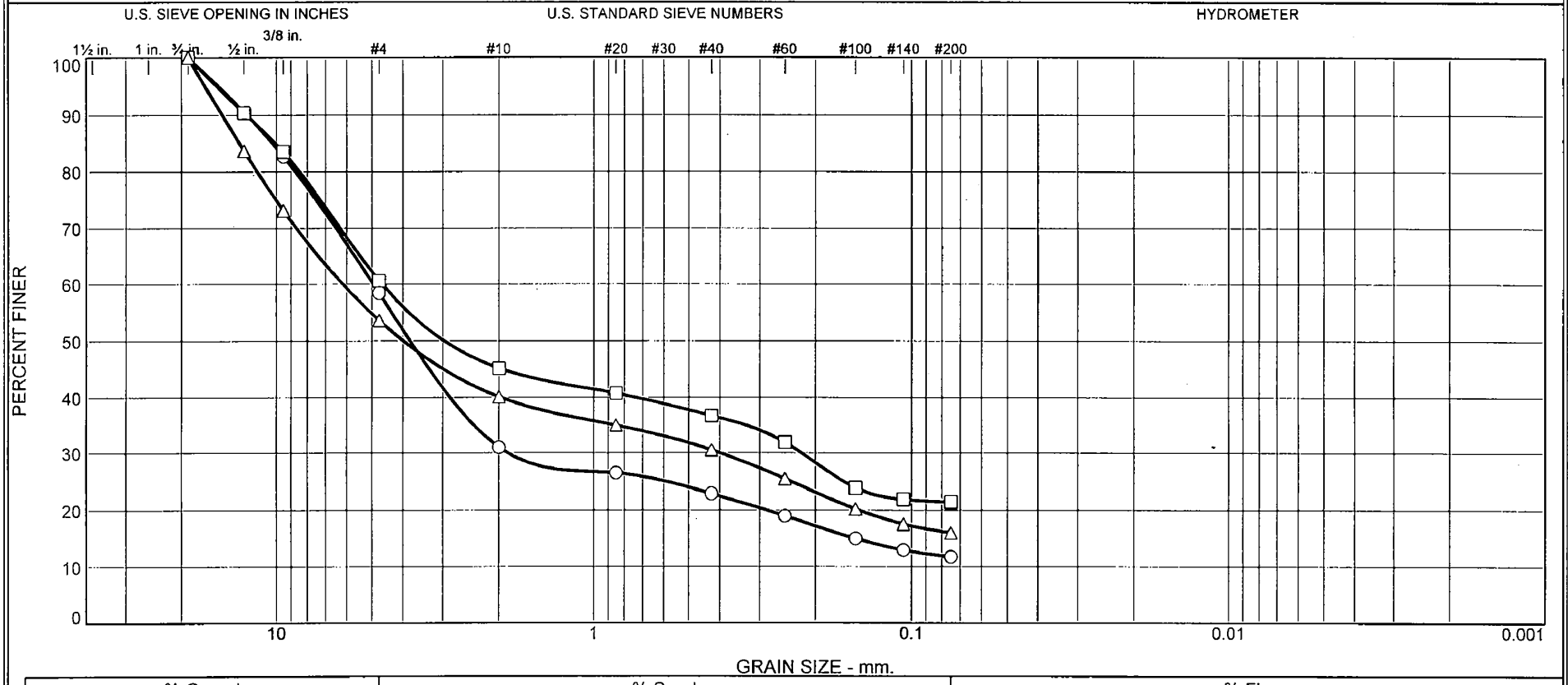
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	39	39	16	8	16	40			21

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.2216	2.9710	4.6489	8.4410	10.0639	12.4973	15.4988

Fineness Modulus
3.70

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	42	27	8	11	12	
□	0	39	16	8	16	21	
△	0	46	14	9	15	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Test Pit TP-601	601-1	3.2-5.0	5/1/08	SP-SM	Pale Brown Poorly graded SAND with Silt and Gravel (Visual)	ND	ND	ND
□	Test Pit TP-601	601-1-AC	NA	5/20/08	SP-SM	Processed Material-After Compaction	ND	ND	ND
△	Test Pit TP-601	601-1-BC	NA	5/15/08	SP-SM	Processed Material- Before Compaction	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

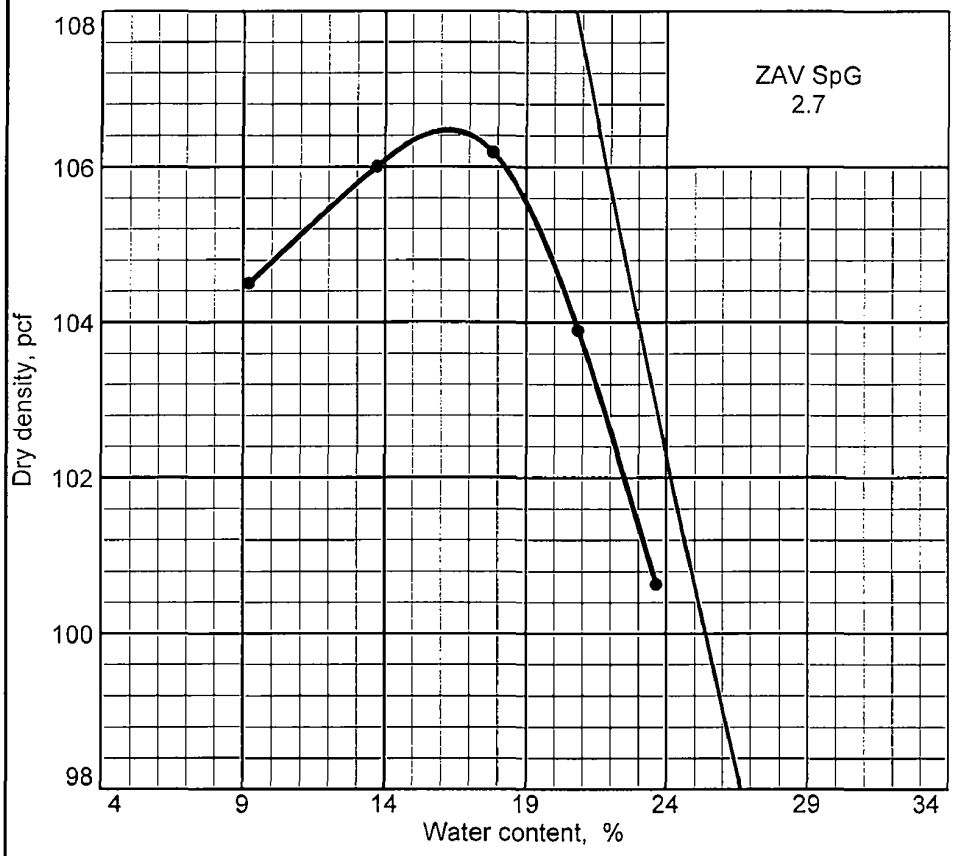
Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Test performed on material as obtained from the field.
□ Test performed on material used for ASTM D-1557-07 after compaction(AC)
△ Test performed on processed material before compaction

ZHU 7/23/08

Tested By: ○ CS □ AWH △ AWH Checked By: LBJ

COMPACTION TEST REPORT



Curve No.
TP-601

Test Specification:
ASTM D 1557-07 Method C Modified

Preparation Method	DRY
Hammer Wt.	10.0
Hammer Drop	18 mechanical
Number of Layers	5
Blows per Layer	56
Mold Size	.07501 cu.ft.

Test Performed on Material Passing 3/4 in. **Sieve**

NM	ND	**LL**	ND	**PI**	ND
Sp.G. (ASTM D 854)			ND		
%>3/4 in.	0.0	**%<No.200**			12
USCS	SP-SM	**AASHTO**			ND
Date Sampled			5/1/08		
Date Tested			5/16/08		
Tested By	AWH				

TESTING DATA

	1	2	3	4	5	6
WM + WS	9830.1	9985.7	10001.0	9962.5	9611.3	
WM	5729.3	5729.3	5729.3	5729.3	5729.3	
WW + T #1	574.00	588.60	615.80	615.00	522.20	
WD + T #1	505.60	500.60	510.70	498.70	478.80	
TARE #1	6.80	6.90	6.70	7.00	6.80	
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	13.7	17.8	20.9	23.7	9.2	
DRY DENSITY	106.0	106.2	103.9	100.6	104.5	

TEST RESULTS

Maximum dry density = 106.5 pcf

Optimum moisture = 16.3 %

Material Description

Pale Brown Poorly graded SAND with Silt and Gravel (Visual)

Remarks:

Project No. 6468071950 **Client:** Bechtel
Project: Turkey Point COL

● **Source:** Test Pit TP-601 **Sample No.:** 601-1 **Elev./Depth:** 3.2-5.0

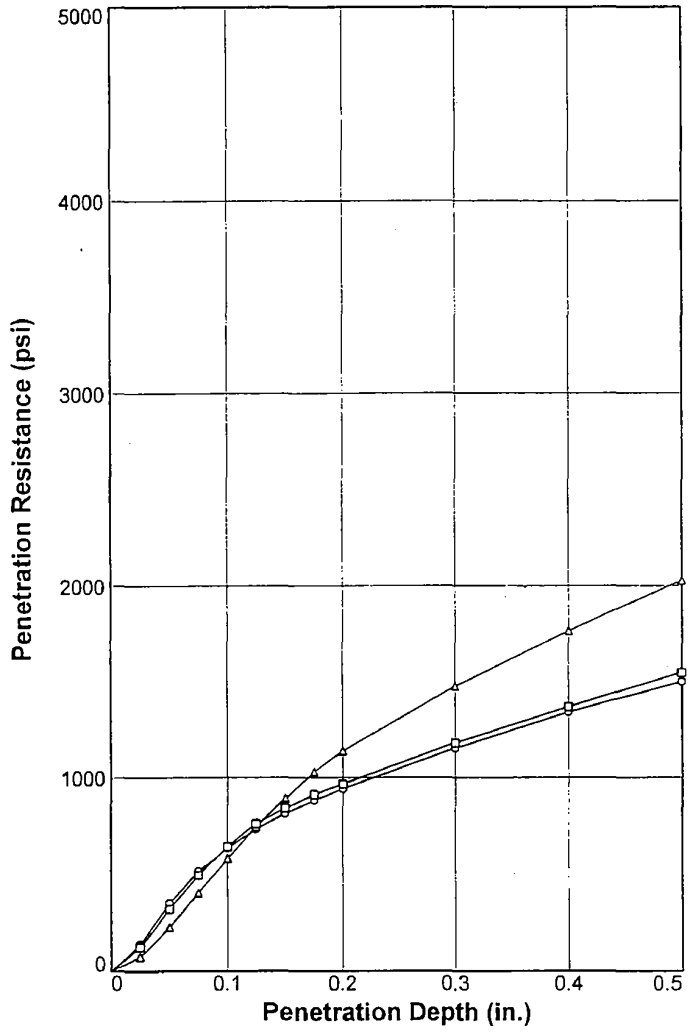
MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

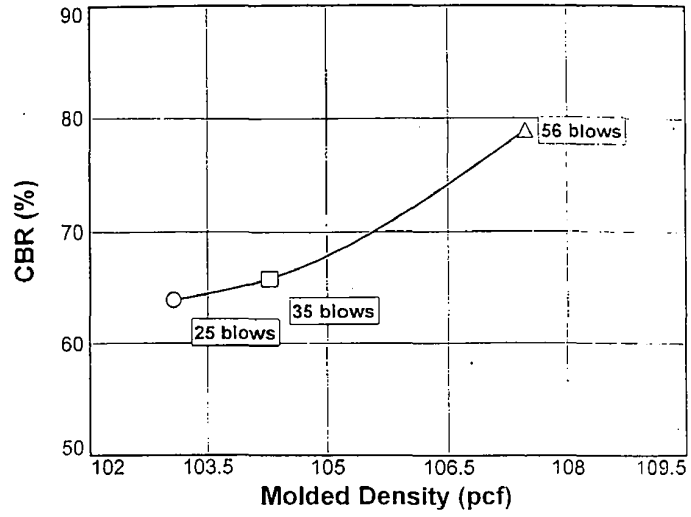
Checked by: LBJ
Title: LAB MANAGER

Figure N/A

ZHU 7/22/08

BEARING RATIO TEST REPORT
ASTM D 1883 -07





Points for 0.2" Penetrations are Plotted

	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	103.0	96.7	15.9	103.0	96.8	19.6	66.5	63.9	0.008	10.0	0
2 △	107.5	100.9	16.9	107.5	100.9	17.4	67.3	78.9	0.014	10.0	0
3 □	104.5	98.1	16.5	104.5	97.9	18.2	69.1	65.8	0.010	10.0	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Pale Brown Poorly graded SAND with Silt and Gravel (Visual)	SP-SM	106.5	16.3	ND	ND

Project No: 6468071950

Project: Turkey Point COL

Source of Sample: Test Pit TP-601 **Depth:** 3.2-5.0

Sample Number: 601-1

Date: 5/1/08

Test Description/Remarks:

ASTM D 1883-07

Sample was prepared in accordance with ASTM D- 1557-07

BEARING RATIO TEST REPORT

MACTEC Engineering and Consulting, Inc.

Figure 4/4

ZHU 7/22/08

BEARING RATIO TESTING RESULTS
(ASTM D 1883-99)

Date:	5/1/08		
Project No.:	6468071950		
Project:	Turkey Point COL		
Location:	Test Pit TP-601		
Depth:	3.2-5.0	**Sample Number:**	601-1
Material Description:	Pale Brown Poorly graded SAND with Silt and Gravel (Visual)		
USCS Classification:	SP-SM		
Liquid Limit:	ND	**Plasticity Index:**	ND
Test Description:	ASTM D 1883-07		
Maximum Dry Density:	106.5	**Optimum Moisture Content:**	16.3
Testing Remarks:	Sample was prepared in accordance with ASTM D- 1557-07		

Sample 1 (25 Blows; Surcharge: 10.0 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 281.9 | Wt. Soil+Tare, gms. 244.2 | Wt. Tare, gms. 6.9 | Moisture, % 15.9

Unit Weight

Wt. Mold+Soil, gms. 12318 | Wt. Mold, gms. 8251 | Ht. Soil, in. 4.588 | Density, pcf 103.0

Swell Data

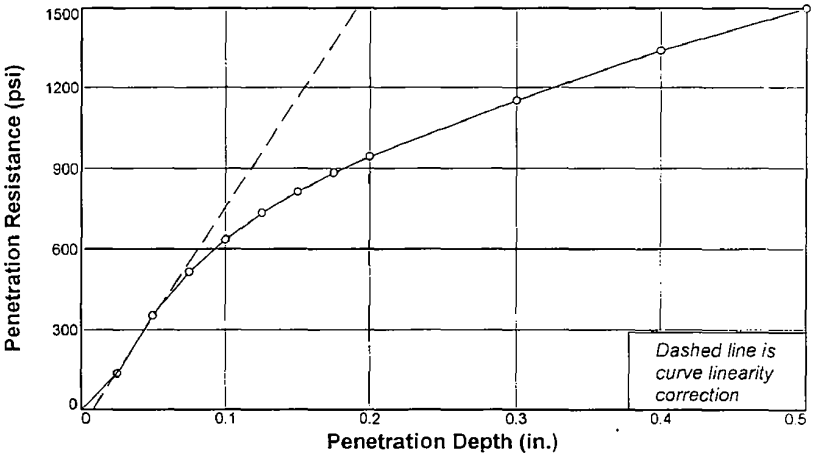
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	10	0.0
96	10	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	455.1	380.7	6.8	19.9
Middle	485.4	407.3	6.8	19.5
Bottom	485.4	407.3	6.8	19.5

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	140	138.9	
0.05	355	352.3	
0.075	520	516.1	
0.1	640	635.2	66.5
0.125	740	734.4	
0.15	820	813.8	
0.175	890	883.3	
0.2	950	942.8	63.9
0.3	1160	1151.3	61.3
0.4	1350	1339.8	58.8
0.5	1510	1498.6	57.6



MACTEC Engineering and Consulting, Inc.

Sample 2 (56 Blows, Surcharge: 10.0 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 332 | Wt. Soil+Tare, gms. 284.9 | Wt. Tare, gms. 6.9 | Moisture, % 16.9

Unit Weight

Wt. Mold+Soil, gms. 12492 | Wt. Mold, gms. 8217 | Ht. Soil, in. 4.583 | Density, pcf 107.5

Swell Data

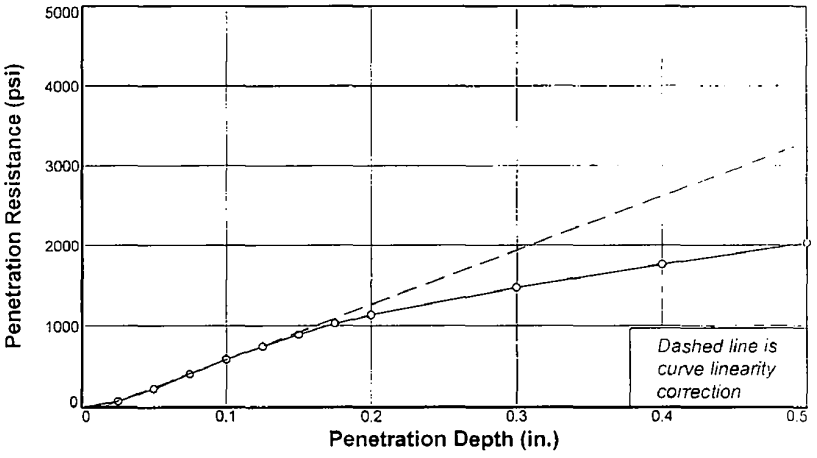
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	-.006	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	415.2	353.0	6.7	18.0
Middle	494.2	422.8	6.8	17.2
Bottom	494.2	422.8	6.8	17.2

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	75	74.2	
0.05	230	227.4	
0.075	410	405.4	
0.1	590	583.5	67.3
0.125	755	746.6	
0.15	905	895.0	
0.175	1040	1028.5	
0.2	1150	1137.2	78.9
0.3	1490	1473.5	79.7
0.4	1785	1765.2	78.3
0.5	2050	2027.2	78.0



Sample 3 (35 Blows, Surcharge: 10.0 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 317.7 | Wt. Soil+Tare, gms. 273.8 | Wt. Tare, gms. 7.1 | Moisture, % 16.5

Unit Weight

Wt. Mold+Soil, gms. 12338.0 | Wt. Mold, gms. 8206.0 | Ht. Soil, in. 4.584 | Density, pcf 104.5

Swell Data

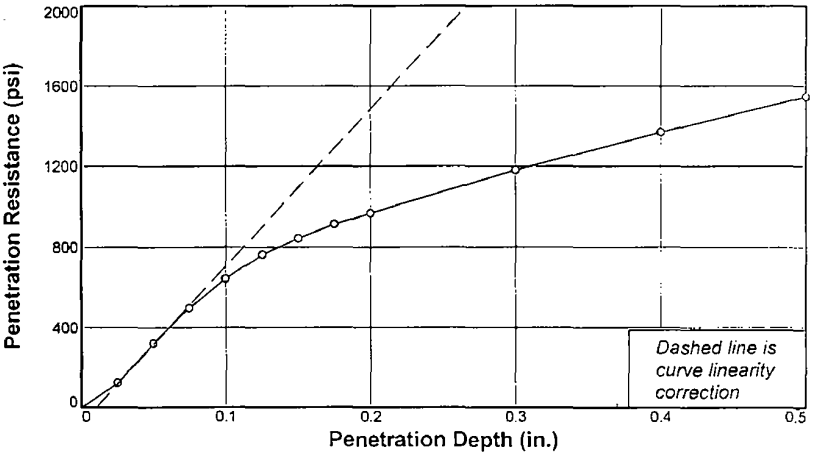
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	-.003	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	409.7	344.0	6.9	19.5
Middle	471.1	401.7	6.8	17.6
Bottom	471.1	401.7	6.8	17.6

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	125	123.9	
0.05	325	322.2	
0.075	500	495.8	
0.1	650	644.5	69.1
0.125	770	763.5	
0.15	850	842.8	
0.175	920	912.2	
0.2	975	966.7	65.8
0.3	1190	1179.9	63.1
0.4	1380	1368.3	60.2
0.5	1560	1546.7	59.5



MACTEC

MACTEC ENGINEERING & CONSULTING, INC.
RALEIGH, NORTH CAROLINA

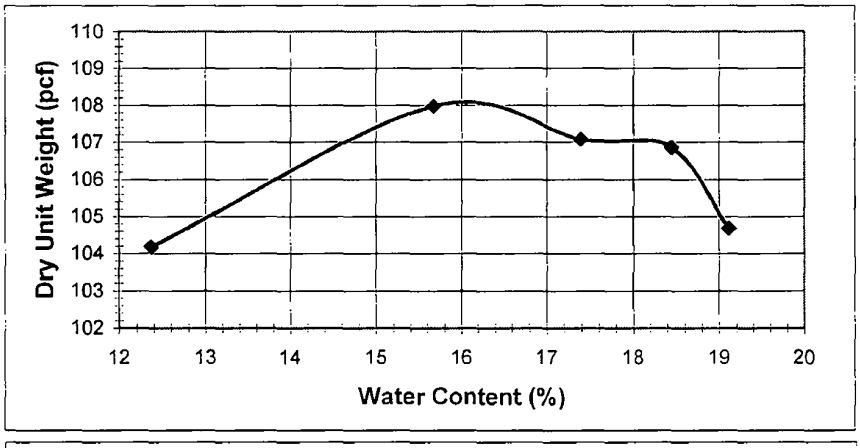
Limerock Bearing Ratio (FM 5-515)

Sample: TP-601
Number of Layers: 5
Blows / layer: 56
Volume of Mold, ft^3: 0.075200

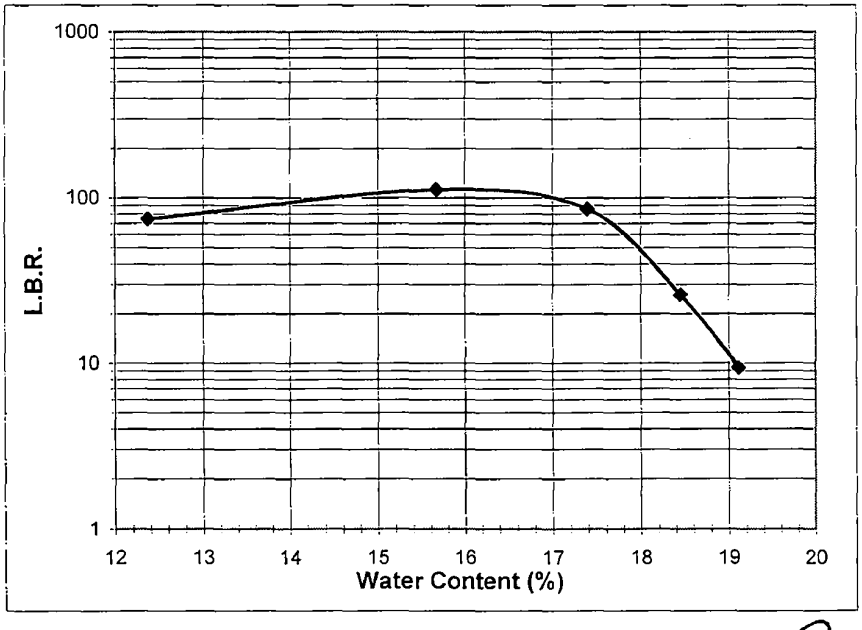
Project Name: Turkey Point COL
Project No: 6468-07-1950
Date: 6/7/2008

w_{opt} (%) = 16.3
γ_{max} (pcf) = 108.0

Sample No.	1	2	3	4	5
Weight of Dish, g	6.9	14.6	14.5	13.7	17.1
Weight of sample + Dish, g	560.1	689.3	589.6	618.5	687
Weight of Dry sample + Dish, g	499.2	597.9	504.4	524.3	579.5
w%	12.4	15.7	17.4	18.4	19.1
Weight of Mold + Soil, g	12229.7	11247.3	12535.7	12540.9	12498.7
Weight of Mold, g	8236.3	6986.9	8248.1	8223.1	8245.8
Wet unit weight, pcf	117.1	124.9	125.7	126.6	124.7
Dry unit weight, pcf	104.2	108.0	107.1	106.9	104.7
Corrected Stress Corresponding to 0.1 inch penetration, psi	596.4	896.80	683.60	208.70	75.20
L.B.R at 0.1 inch penetration (stress/800x100)	74.6	112.1	85.5	26.1	9.4



L.B.R. = 112
Modified Proctor = 108 PCF
Optimum Moisture = 16%



SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

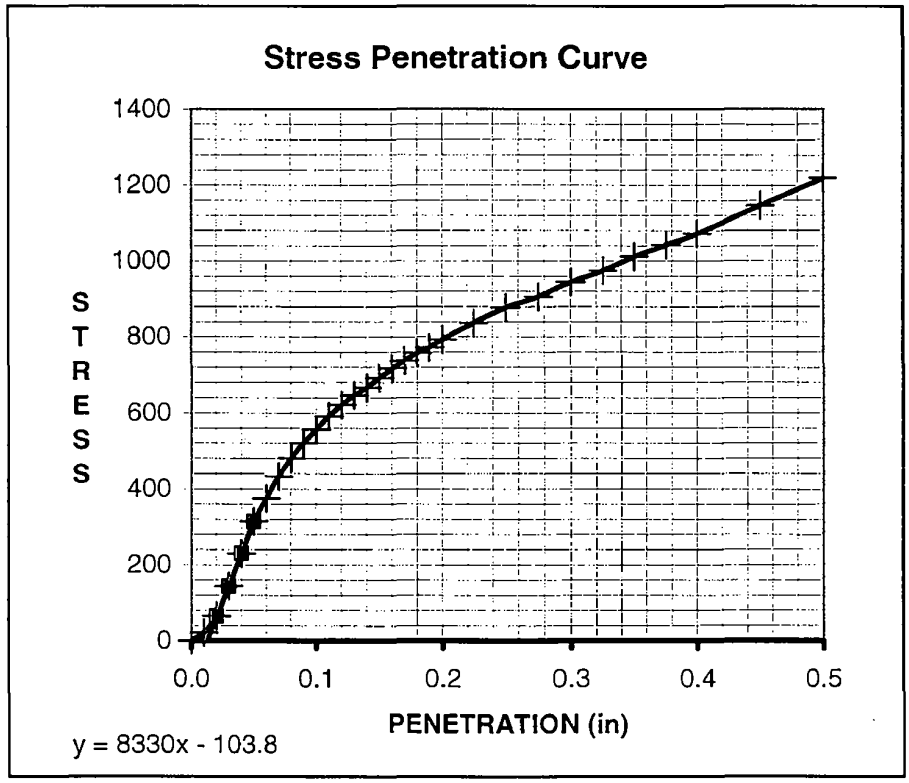
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (1-Mold 2.1.52)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	21
0.020	65
0.030	143
0.040	229
0.050	314
0.060	374
0.070	432
0.080	480
0.090	520
0.100	556
0.110	591
0.120	621
0.130	646
0.140	667
0.150	692
0.160	717
0.170	737
0.180	757
0.190	773
0.200	793
0.225	837
0.250	877
0.275	906
0.300	944
0.325	975
0.350	1011
0.375	1042
0.400	1072
0.450	1146
0.500	1219

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	117.1
DRY UNIT WEIGHT (pcf):	104.2
INITIAL MOISTURE (%):	12.4
PERCENT MDD:	96.5



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	555.6	596.4
LBR (%)	69.4	74.6

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

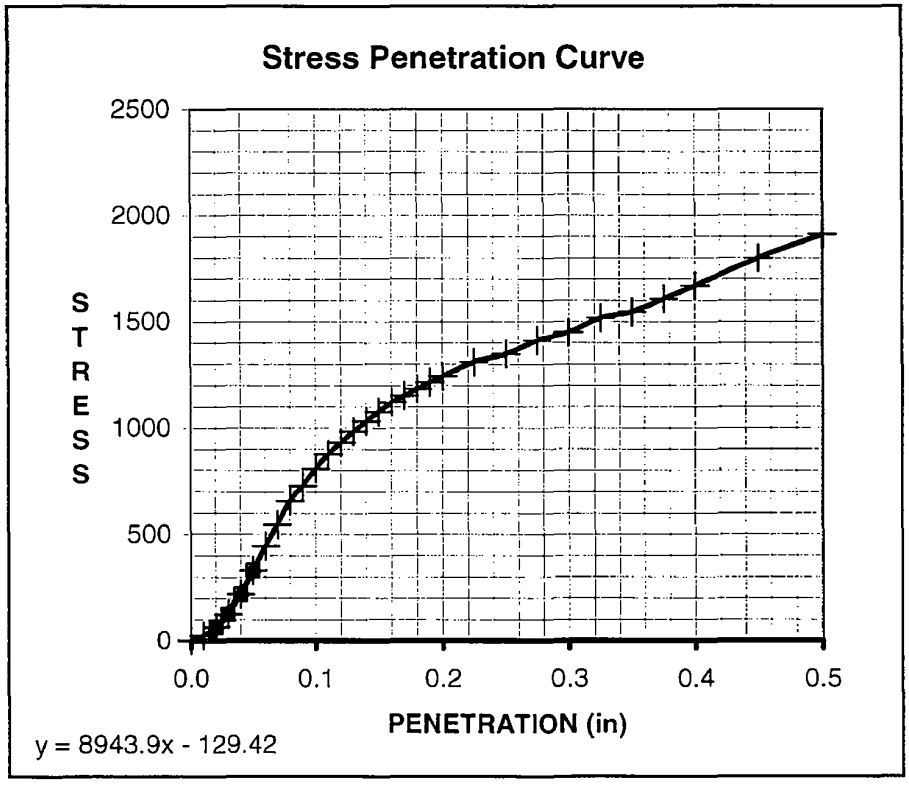
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (2-Mold 2.1.45)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	24
0.020	63
0.030	124
0.040	219
0.050	329
0.060	445
0.070	545
0.080	656
0.090	727
0.100	808
0.110	877
0.120	931
0.130	983
0.140	1032
0.150	1076
0.160	1121
0.170	1150
0.180	1184
0.190	1214
0.200	1242
0.225	1310
0.250	1348
0.275	1411
0.300	1449
0.325	1517
0.350	1545
0.375	1606
0.400	1669
0.450	1798
0.500	1911

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	124.9
DRY UNIT WEIGHT (pcf):	108.0
INITIAL MOISTURE (%):	15.7
PERCENT MDD:	100.0



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	807.9	896.8
LBR (%)	101.0	112.1

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

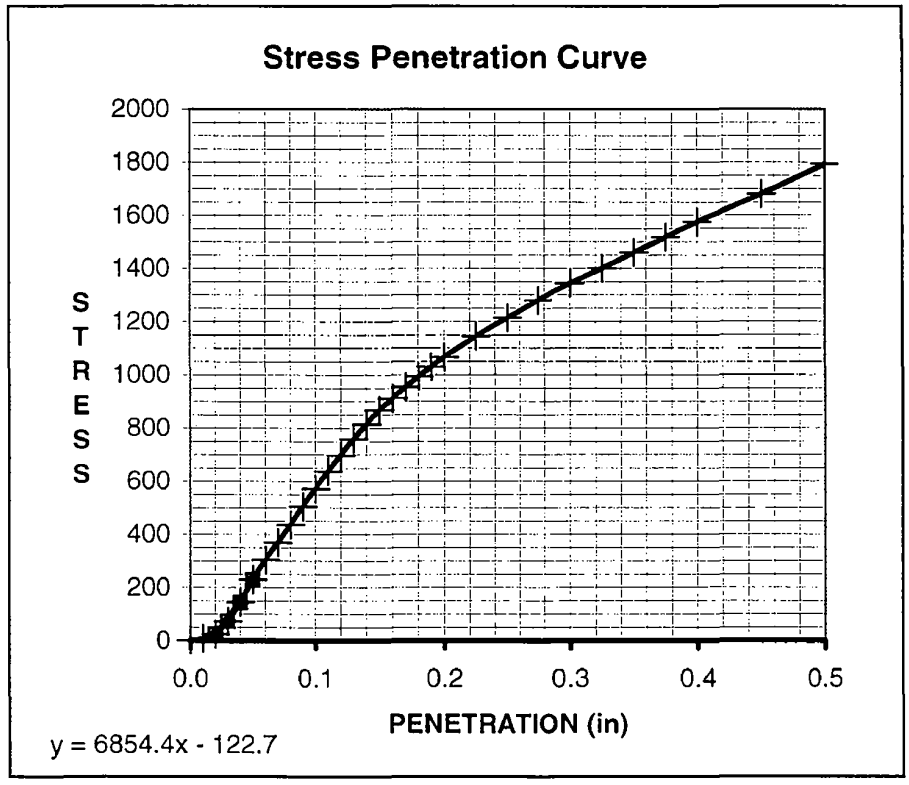
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (3-Mold 2.1.48)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	9
0.020	24
0.030	73
0.040	143
0.050	229
0.060	304
0.070	369
0.080	434
0.090	505
0.100	571
0.110	636
0.120	697
0.130	757
0.140	813
0.150	867
0.160	911
0.170	954
0.180	993
0.190	1028
0.200	1065
0.225	1143
0.250	1214
0.275	1280
0.300	1343
0.325	1400
0.350	1459
0.375	1517
0.400	1575
0.450	1679
0.500	1793

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	125.7
DRY UNIT WEIGHT (pcf):	107.1
INITIAL MOISTURE (%):	17.4
PERCENT MDD:	99.2



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	570.7	683.6
LBR (%)	71.3	85.5

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

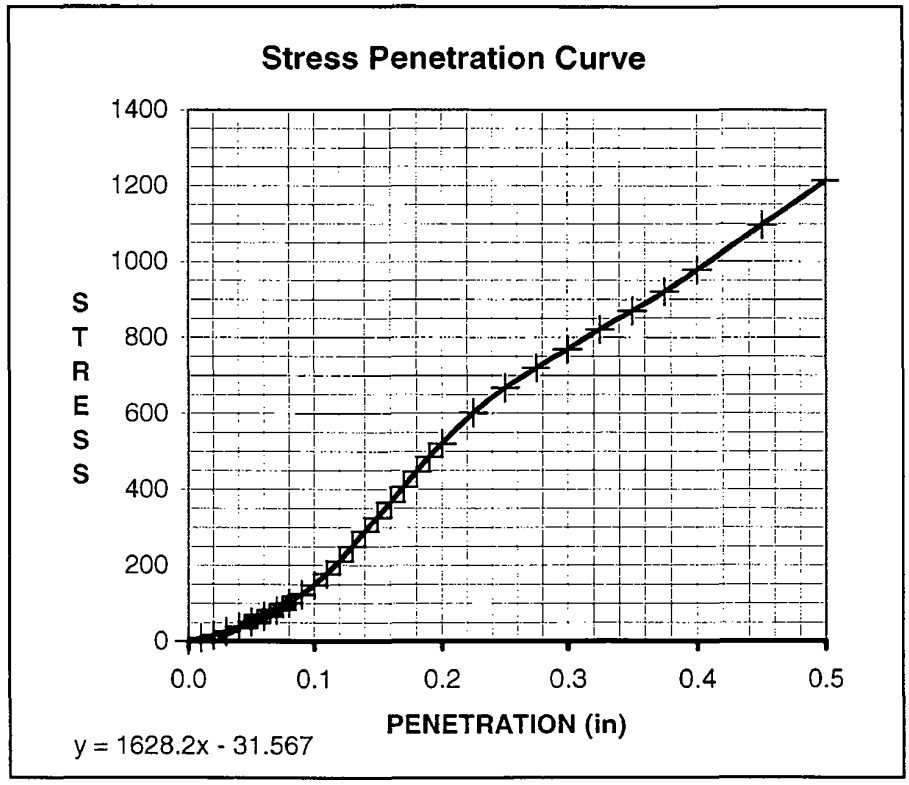
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (4-Mold 2.1.52, @ 7.5%)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0.0
0.010	8.5
0.020	15.7
0.030	25.1
0.040	37.6
0.050	51.2
0.060	64.8
0.070	80.9
0.080	100.2
0.090	122.9
0.100	147.3
0.110	176.9
0.120	210.7
0.130	249.3
0.140	289.0
0.150	326.1
0.160	365.6
0.170	406.2
0.180	446.6
0.190	485.0
0.200	520.2
0.225	601.1
0.250	666.6
0.275	719.1
0.300	767.6
0.325	821.0
0.350	869.5
0.375	920.7
0.400	977.2
0.450	1096.0
0.500	1212.7

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	126.6
DRY UNIT WEIGHT (pcf):	106.9
INITIAL MOISTURE (%):	18.4
PERCENT MDD:	99.0



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	147.3	208.7
LBR (%)	18.4	26.1

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs

SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

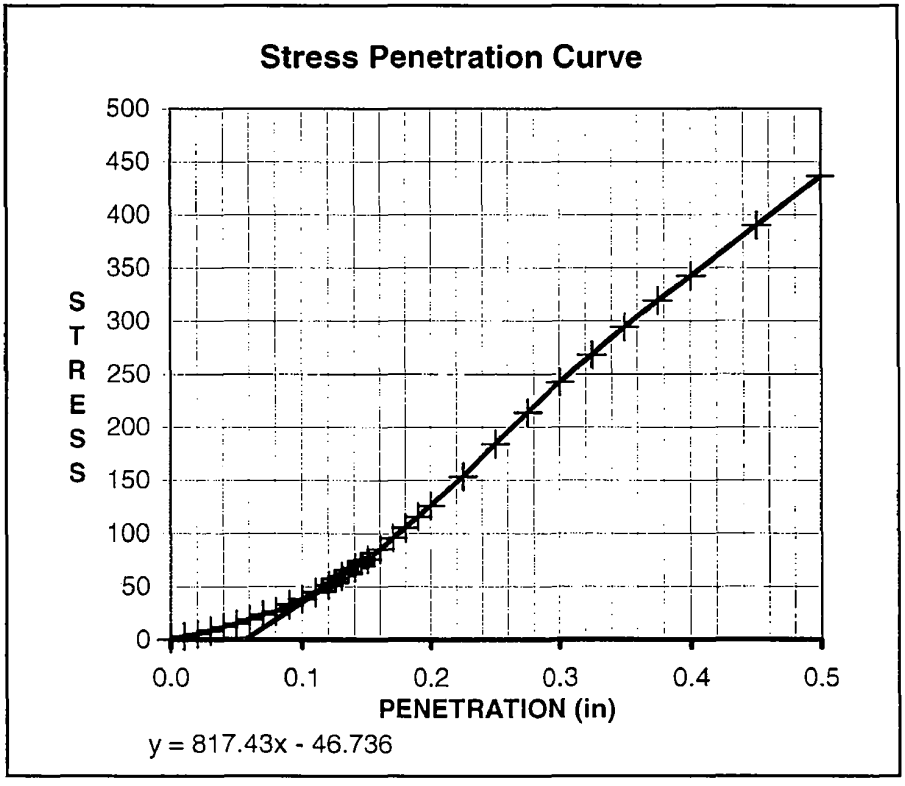
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-515

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-601 (5-Mold 2.1.53, @ 8.5% added water)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0.0
0.010	3.2
0.020	5.3
0.030	8.5
0.040	11.7
0.050	14.9
0.060	19.2
0.070	23.4
0.080	26.6
0.090	33.0
0.100	38.3
0.110	44.7
0.120	51.2
0.130	59.6
0.140	68.0
0.150	75.7
0.160	85.0
0.170	95.4
0.180	105.3
0.190	115.6
0.200	126.0
0.225	153.4
0.250	184.1
0.275	213.7
0.300	242.2
0.325	267.9
0.350	294.3
0.375	319.0
0.400	342.3
0.450	389.9
0.500	436.5

MAXIMUM DRY DENSITY (pcf): 108.0
OPTIMUM MOISTURE (%): 16.3

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	124.7
DRY UNIT WEIGHT (pcf):	104.7
INITIAL MOISTURE (%):	19.1
PERCENT MDD:	96.9



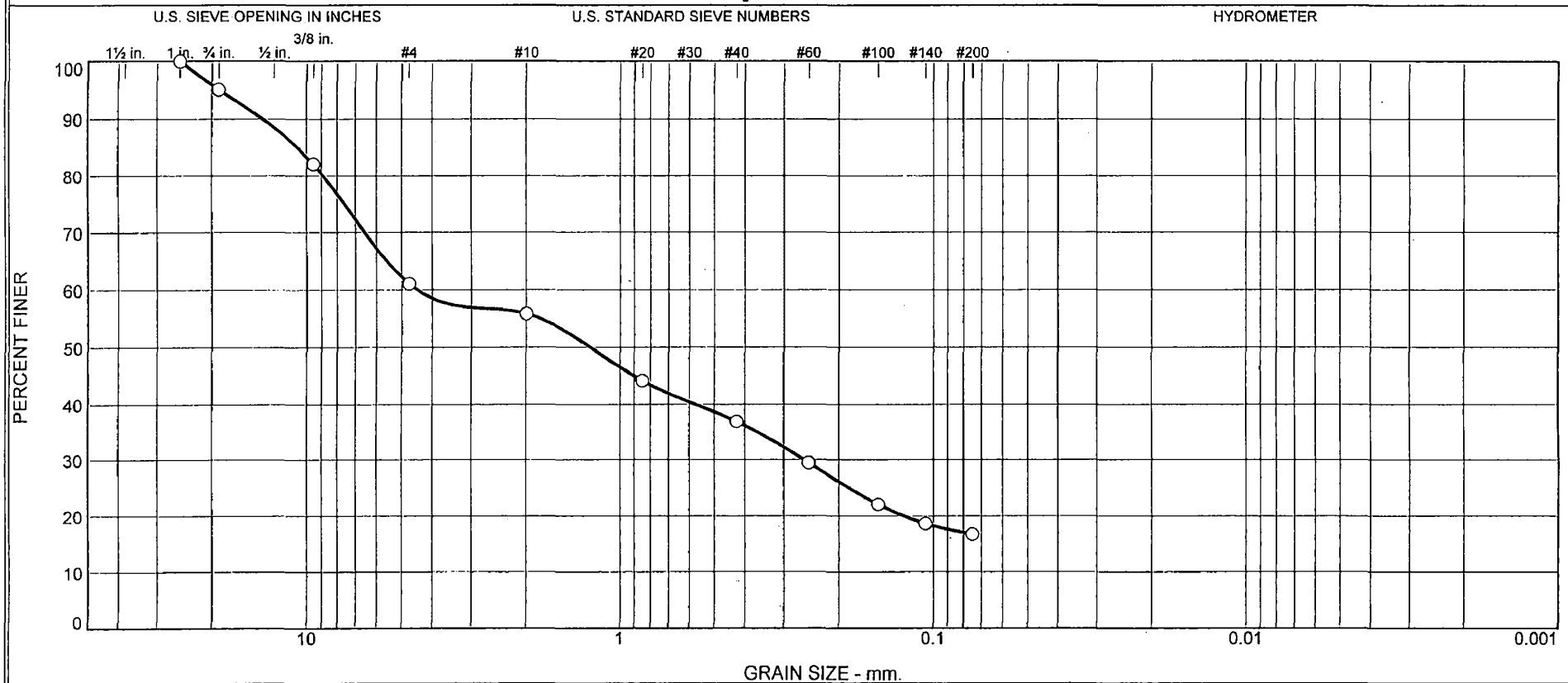
At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	38.3	75.2
LBR (%)	4.8	9.4

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs

SUBMITTED BY:

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	34	5	19	20	17	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Test Pit TP-701	701-1	3.0-4.5	5/1/08	SM	Pale Brown Silty SAND with Gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Test performed on material as obtained from the field.

ZHU 7/22/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Test Pit TP-701
Depth: 3.0-4.5 **Sample Number:** 701-1
Material Description: Pale Brown Silty SAND with Gravel (Visual)
Date: 5/1/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Test performed on material as obtained from the field.
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
393.55	0.00	0.00	1	0.00	100
			3/4	19.39	95
			3/8"	70.38	82
			#4	153.17	61
			#10	173.92	56
102.54	0.00	0.00	#20	21.36	44
			#40	34.72	37
			#60	48.40	29
			#100	61.92	22
			#140	68.30	19
			#200	71.81	17

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	34	39	5	19	20	44		.	17

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1241	0.2589	1.2458	4.4768	8.8567	10.6753	13.7971	18.9636

Fineness Modulus
3.61

MACTEC Engineering and Consulting, 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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: TP-701,(3.0-4.5)

(A) Mass of oven-dried soil, grams:	103.87
(B) Mass of pycnometer filled with water at test temperature (T), grams:	675.74
(C) Mass of pycnometer, water and soil, grams:	741.63
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.7
(G) Specific Gravity at observed temperature: A / [B - (C - A)]	2.735
(F) ***Correction factor:***	0.99963
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.734

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

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

REMARKS: Estimated % Passing # 4 : 100

Poorly Graded Silty SAND (SP-SM) (Visual)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

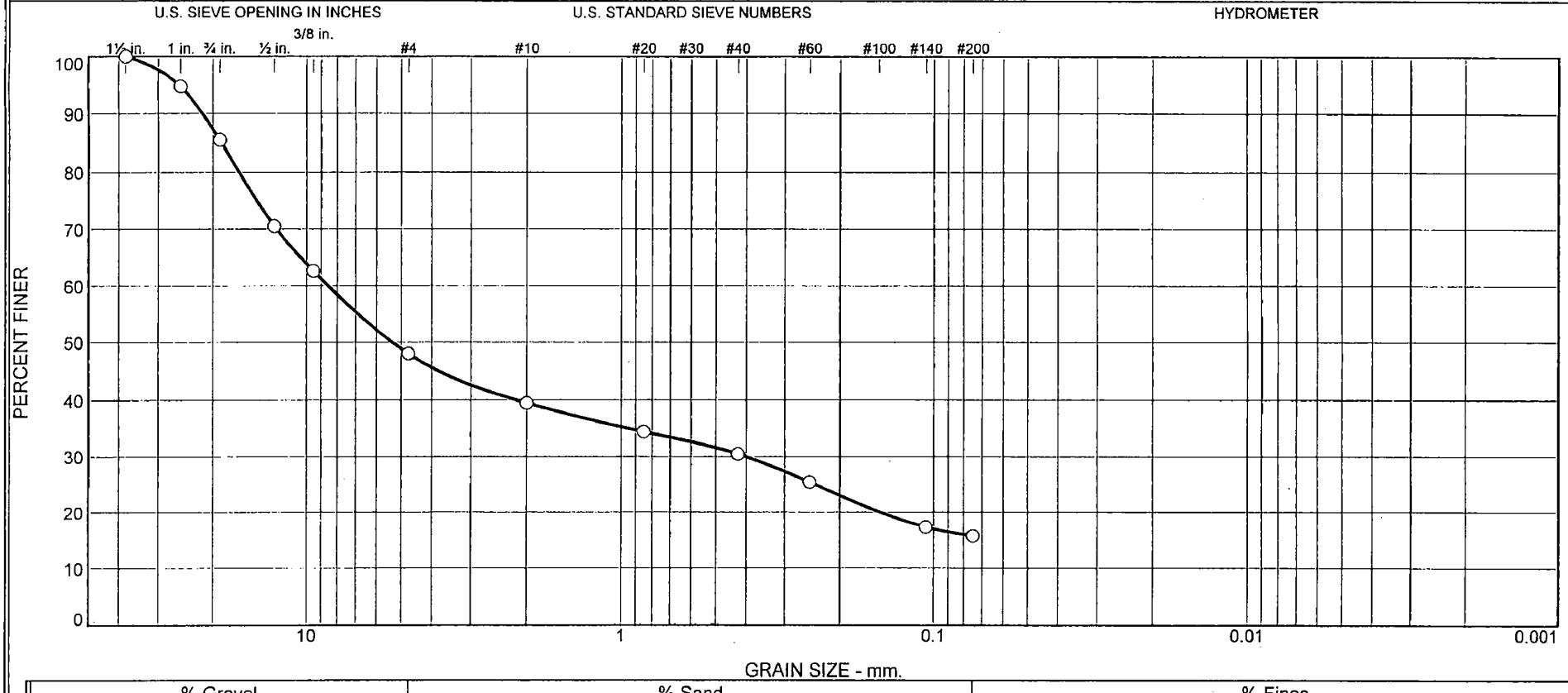
THERMOMETER :5.1.01

PYCNOMETER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	14	38	9	9	14	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Test Pit TP-701	701-1-BC	NA	5/28/08	SM	Processed Material Before Compaction	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Grainsize test performed on material as prepared according to ASTM D 1557-07 before compaction.

ZHU 7/22/08

Tested By: AWH Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Test Pit TP-701
Depth: NA
Sample Number: 701-1-BC
Material Description: Processed Material Before Compaction
Date: 5/28/08
Natural Moisture: ND
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SM
Testing Remarks: Grainsize test performed on material as prepared according to ASTM D 1557-07 before compaction.
Tested by: AWH
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
10470.00	0.00	0.00	1.5	0.00	100
			1"	552.00	95
			3/4"	1518.00	86
			1/2"	3090.00	70
			3/8"	3914.00	63
			#4	5446.00	48
767.30	0.00	0.00	#10	135.90	39
			#20	217.70	34
			#40	280.70	30
			#60	361.00	25
			#140	490.20	17
			#200	515.40	16

Fractional Components

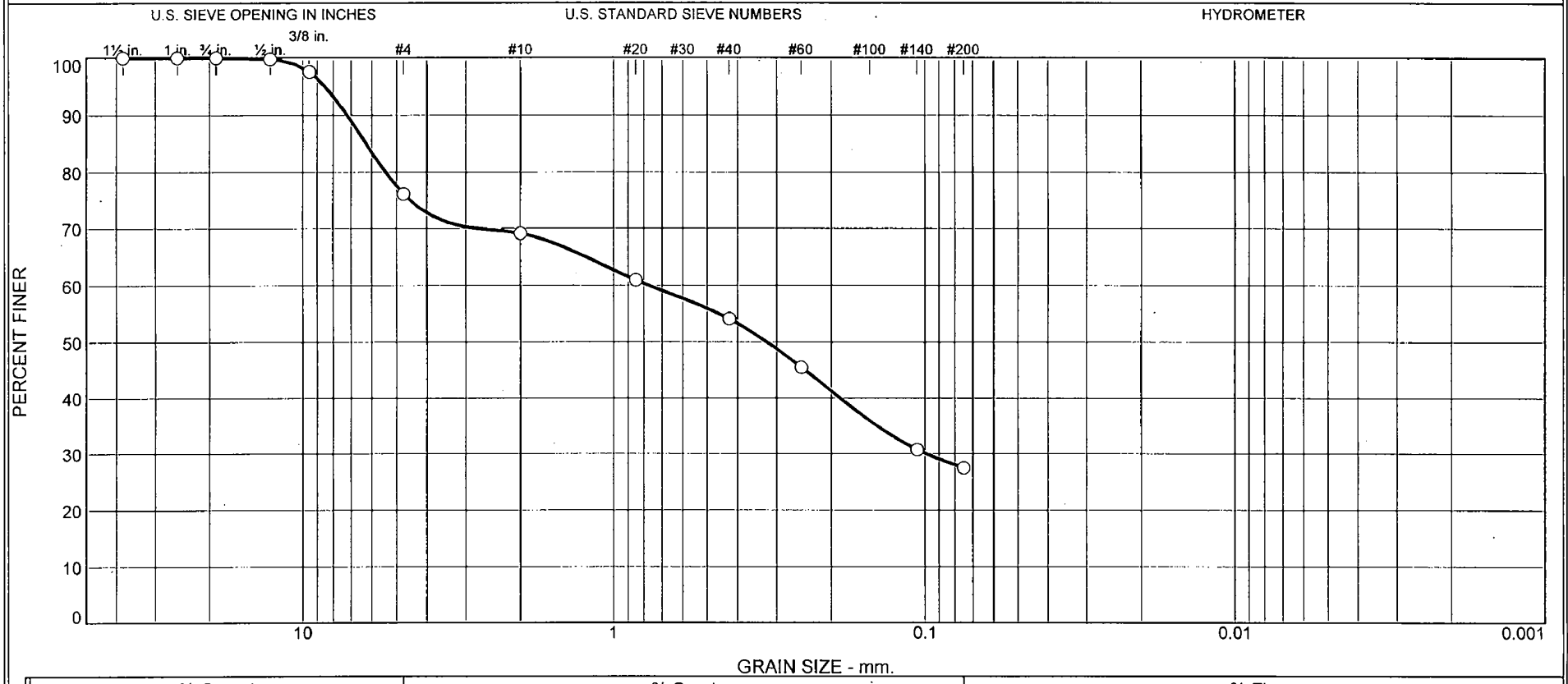
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	14	38	52	9	9	14	32			16

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1488	0.4023	5.3517	8.5519	16.5085	18.7986	21.5918	25.7001

Fineness Modulus
4.47

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	24	7	15	27	27	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Test Pit TP-701	701-1-AC	NA	5/30/08	SM	Processed Material After Compaction	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Grainsize test performed on material used for ASTM D 1557-07 after compaction.

ZHU 7/23/08

Tested By: AWH Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Test Pit TP-701
Depth: NA **Sample Number:** 701-1-AC
Material Description: Processed Material After Compaction
Date: 5/30/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: Grainsize test performed on material used for ASTM D 1557-07 after compaction.
Tested by: AWH **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
4391.90	0.00	0.00	1.5"	0.00	100
			1"	0.00	100
			3/4"	0.00	100
			1/2"	9.80	100
			3/8"	106.70	98
			#4	1048.00	76
879.00	0.00	0.00	#10	81.11	69
			#20	175.54	61
			#40	254.50	54
			#60	353.70	46
			#140	524.30	31
			#200	561.90	27

Fractional Components

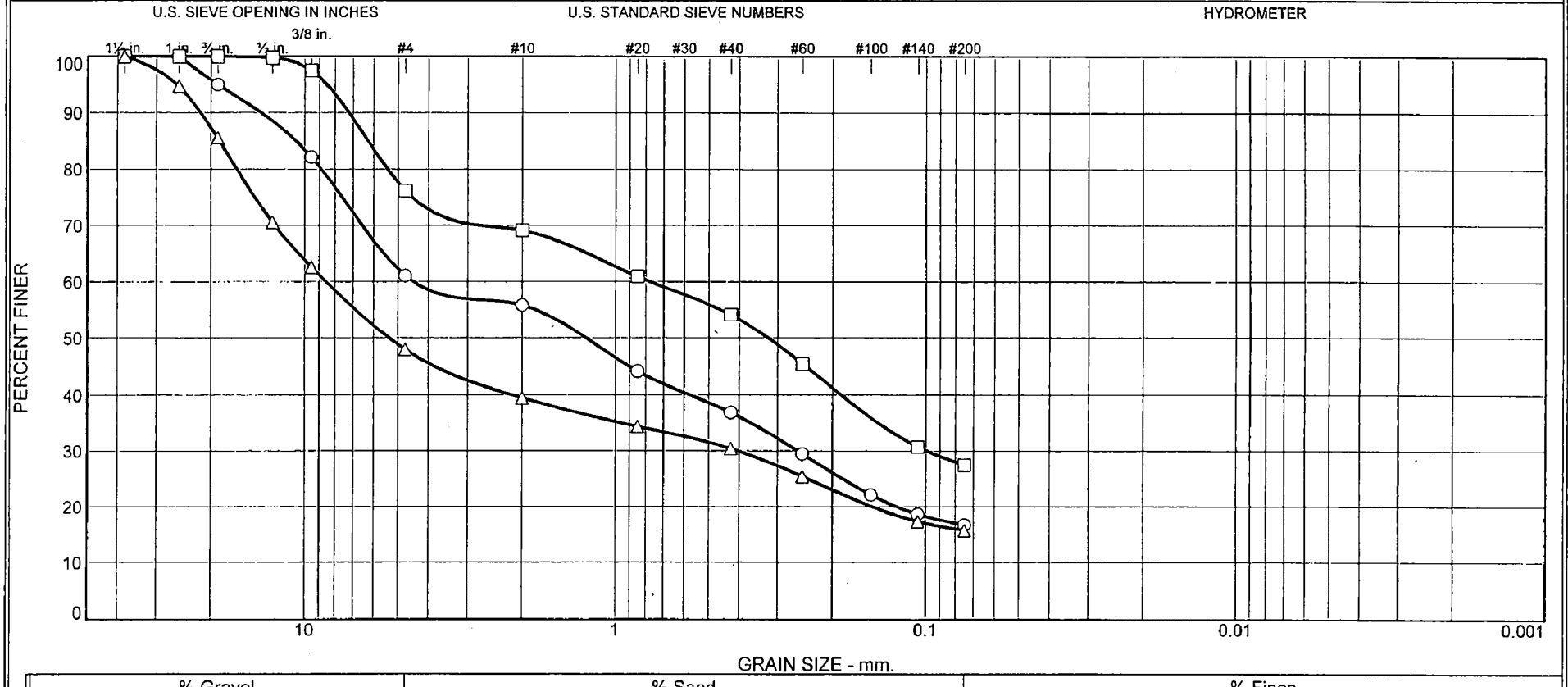
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	24	24	7	15	27	49			27

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0994	0.3221	0.7720	5.4203	6.2632	7.2136	8.4814

Fineness Modulus
2.50

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	34	5	19	20	17	
□	0	24	7	15	27	27	
△	14	38	9	9	14	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Test Pit TP-701	701-1	3.0-4.5	5/1/08	SM	Pale Brown Silty SAND with Gravel (Visual)	ND	ND	ND
□	Test Pit TP-701	701-1-AC	NA	5/30/08	SM	Processed Material After Compaction	ND	ND	ND
△	Test Pit TP-701	701-1-BC	NA	5/28/08	GM	Processed Material Before Compaction	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

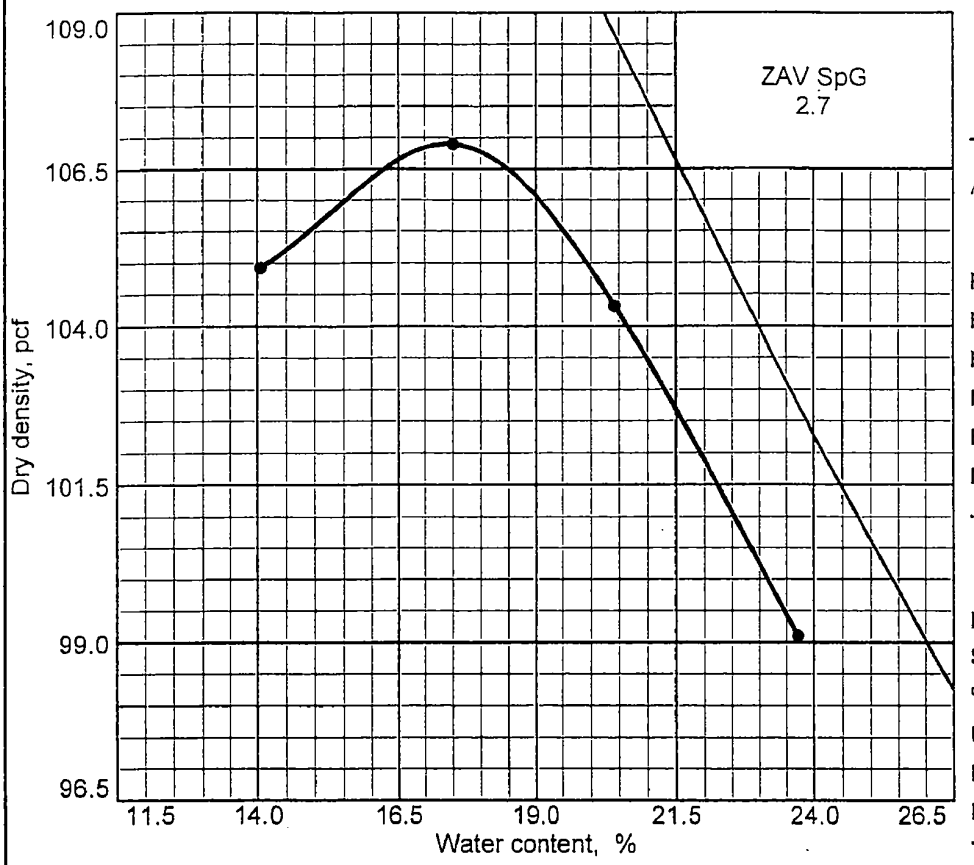
○ SIEVE ANALYSIS ONLY
ND = Not Determined
Test performed on material as obtained from the field.
□ Grainsize test performed on material used for ASTM D 1557-07 after compaction.
△ Grainsize test performed on material before compaction.

ZHU 7/22/08

Tested By: ○ CS △ AWH

Checked By: LBJ

COMPACTION TEST REPORT



Curve No.
TP 701

Test Specification:
ASTM D 1557-07 Method B Modified

Preparation Method	Dry
Hammer Wt.	10.0
Hammer Drop	18 mechanical
Number of Layers	5
Blows per Layer	25
Mold Size	.03334 cu.ft.

Test Performed on Material Passing 3/8 in. **Sieve**

NM ND **LL** ND **PI**
Sp.G. (ASTM D 854) ND
%>3/8 in. 18.0 **%<No.200** 17
USCS SM **AASHTO** ND
Date Sampled 5/1/08
Date Tested 5/29/08
Tested By AWH

TESTING DATA

	1	2	3	4	5	6
WM + WS	6020.3	6110.1	6110.2	6064.4		
WM	4210.4	4210.4	4210.4	4210.4		
WW + T #1	482.70	516.80	502.70	625.60		
WD + T #1	424.20	440.80	418.60	507.10		
TARE #1	8.10	6.80	6.80	7.30		
WW + T #2	N/A	N/A	N/A	N/A		
WD + T #2	N/A	N/A	N/A	N/A		
TARE #2	N/A	N/A	N/A	N/A		
MOISTURE	14.1	17.5	20.4	23.7		
DRY DENSITY	104.9	106.9	104.3	99.1		

TEST RESULTS

Maximum dry density = 106.9 pcf

Optimum moisture = 17.4 %

Material Description

Pale Brown Silty SAND with gravel (Visual)

Remarks:

Project No. 6468071950 **Client:** Bechtel
Project: Turkey Point COL

• **Source:** Test Pit TP-701 **Sample No.:** 701-1 **Elev./Depth:** 3.0-4.5

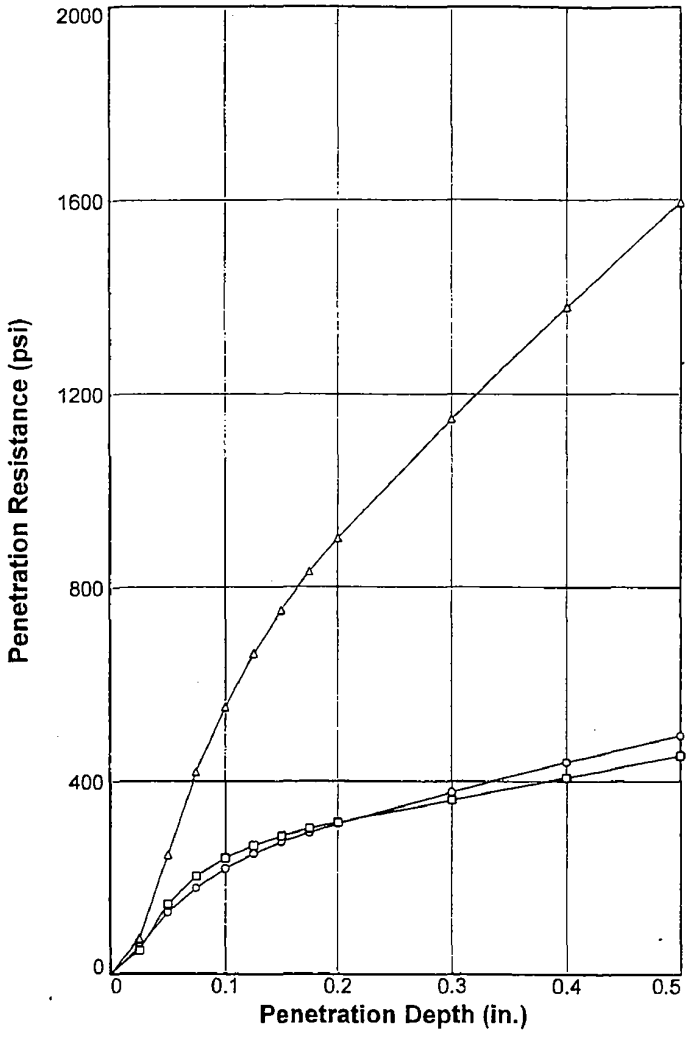
MACTEC, Inc.
Raleigh, North Carolina

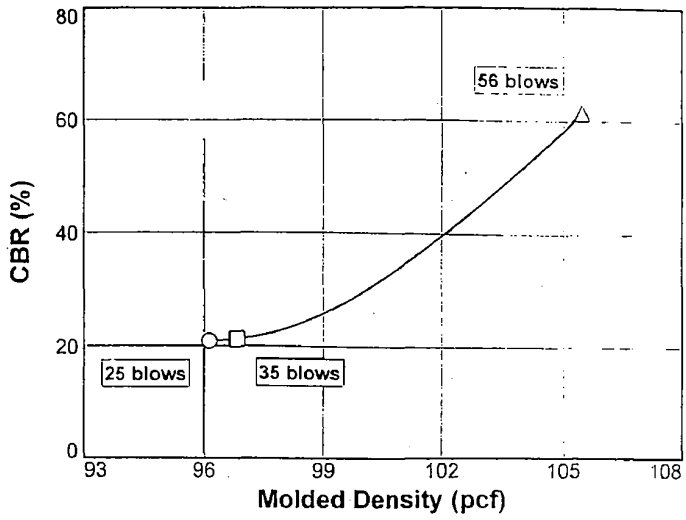
Checked by: LBJ
Title: Lab Manager

Figure N/A

ZHU 7/22/08

BEARING RATIO TEST REPORT
ASTM D 1883 -07





Points for 0.2" Penetrations are Plotted

	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	96.1	89.9	16.2	96.1	89.9	23.1	22.2	20.9	0.003	10.0	0
2 △	105.5	98.7	16.4	105.5	98.7	20.0	58.9	61.4	0.008	10.02	0
3 □	96.8	90.6	16.5	96.8	90.6	22.9	24.9	21.2	0.008	10.02	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Pale Brown Silty SAND with Gravel (Visual)	SM	106.9	17.4	ND	ND

Project No: 6468071950

Project: Turkey Point COL

Source of Sample: Test Pit TP-701 **Depth:** 3.0-4.5

Sample Number: 701-1

Date: 5/1/08

Test Description/Remarks:

Prepared in accordance with ASTM D 1557-07

BEARING RATIO TEST REPORT

MACTEC Engineering and Consulting, Inc.

Figure N/A

ZHU 7/22/08

BEARING RATIO TESTING RESULTS

(ASTM D 1883-~~99~~07 7/22/08

Date:	5/1/08		
Project No.:	6468071950		
Project:	Turkey Point COL		
Location:	Test Pit TP-701		
Depth:	3.0-4.5	**Sample Number:**	701-1
Material Description:	Pale Brown Silty SAND with Gravel (Visual)		
USCS Classification:	SM		
Liquid Limit:	ND	**Plasticity Index:**	ND
Test Description:	Prepared in accordance with ASTM D 1557-07		
Maximum Dry Density:	106.9	**Optimum Moisture Content:**	17.4
Testing Remarks:			

Sample 1 (25 Blows; Surcharge: 10.0 lbs.)

Water Content

Wt. Wet Soil+Tare, gms. 265.0 | Wt. Soil+Tare, gms. 228.9 | Wt. Tare, gms. 6.7 | Moisture, % 16.2

Unit Weight

Wt. Mold+Soil, gms. 10815.8 | Wt. Mold, gms. 7006.2 | Ht. Soil, in. 4.593 | Density, pcf 96.1

Swell Data

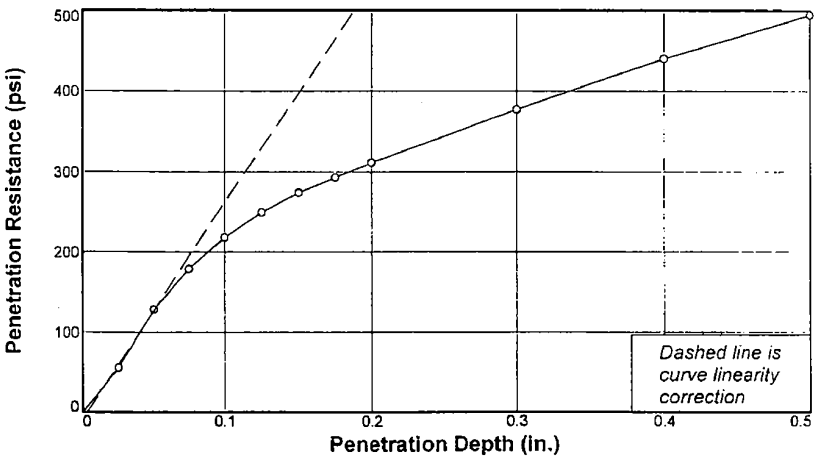
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	.1	0.0
96	.22	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	482.1	386.7	6.9	25.1
Middle	428.8	352.3	6.9	22.1
Bottom	428.8	352.3	6.9	22.1

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	55	55.6	
0.05	127	128.4	
0.075	177	179.0	
0.1	216	218.4	22.2
0.125	247	249.8	
0.15	271	274.1	
0.175	290	293.3	
0.2	308	311.5	20.9
0.3	373	377.2	19.9
0.4	435	439.9	19.2
0.5	489	494.5	19.0



Sample 2 (56 Blows, Surcharge 10.02 lbs)

Water Content

Wt. Wet Soil+Tare, gms. 289.3 | Wt. Soil+Tare, gms. 249.5 | Wt. Tare, gms. 6.9 | Moisture, % 16.4

Unit Weight

Wt. Mold+Soil, gms. 12434 | Wt. Mold, gms. 8253.8 | Ht. Soil, in. 4.587 | Density, pcf 105.5

Swell Data

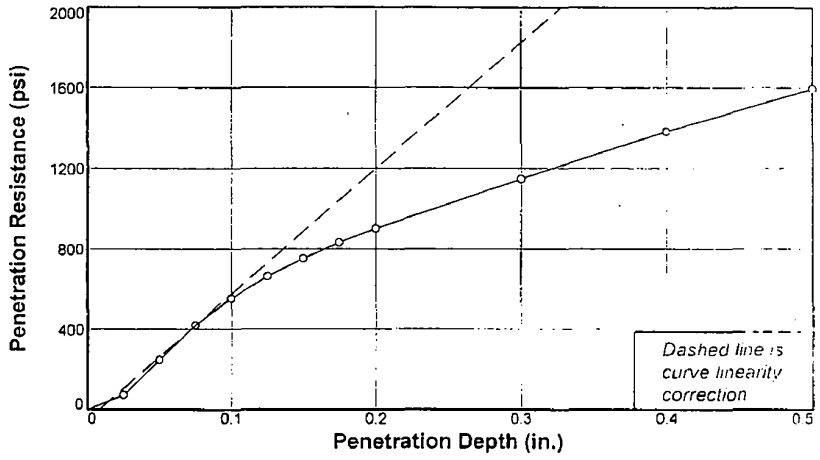
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	.1	0.0
96	.22	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	522.0	429.5	9.4	22.0
Middle	484.4	408.1	6.9	19.0
Bottom	484.4	408.1	6.9	19.0

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	75	74.3	
0.05	250	247.6	
0.075	424	420.0	
0.1	560	554.7	58.9
0.125	670	663.7	
0.15	760	752.8	
0.175	840	832.1	
0.2	910	901.4	61.4
0.3	1160	1149.1	61.4
0.4	1395	1381.8	60.8
0.5	1610	1594.8	61.3



Sample 3 (35 Blows, Surcharge 10.02 lbs)

Water Content

Wt. Wet Soil+Tare, gms. 365.9 | Wt. Soil+Tare, gms. 315.1 | Wt. Tare, gms. 7.0 | Moisture, % 16.5

Unit Weight

Wt. Mold+Soil, gms. 10837.8 | Wt. Mold, gms. 6990.9 | Ht. Soil, in. 4.595 | Density, pcf 96.8

Swell Data

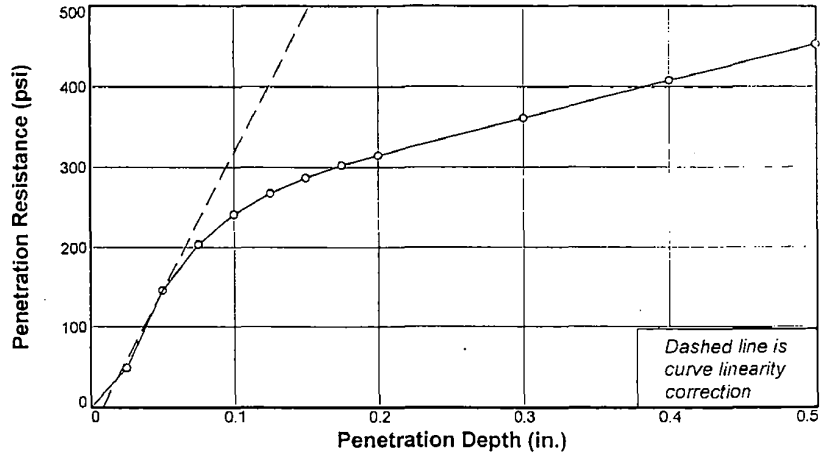
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	.1	0.0
96	.30	0.0

Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	584.7	467	6.9	25.6
Middle	467.4	385.7	6.7	21.6
Bottom	467.4	385.7	6.7	21.6

Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	48	48.5	
0.05	144	145.6	
0.075	201	203.3	
0.1	238	240.7	24.9
0.125	264	267.0	
0.15	283	286.2	
0.175	299	302.4	
0.2	311	314.5	21.2
0.3	357	361.1	19.2
0.4	403	407.6	17.9
0.5	448	453.1	17.4



MACTEC

MACTEC ENGINEERING & CONSULTING, INC.
RALEIGH, NORTH CAROLINA

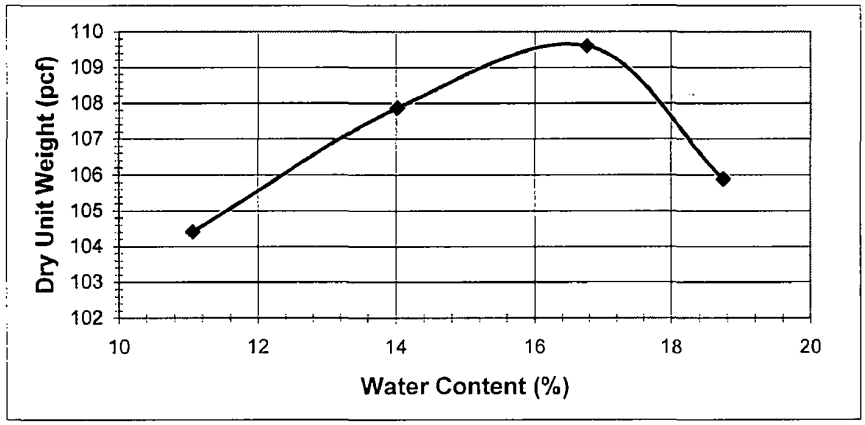
Limerock Bearing Ratio (FM 5-515)

Sample: TP-701
Number of Layers: 5
Blows / layer: 56
Volume of Mold, ft^3: 0.075200

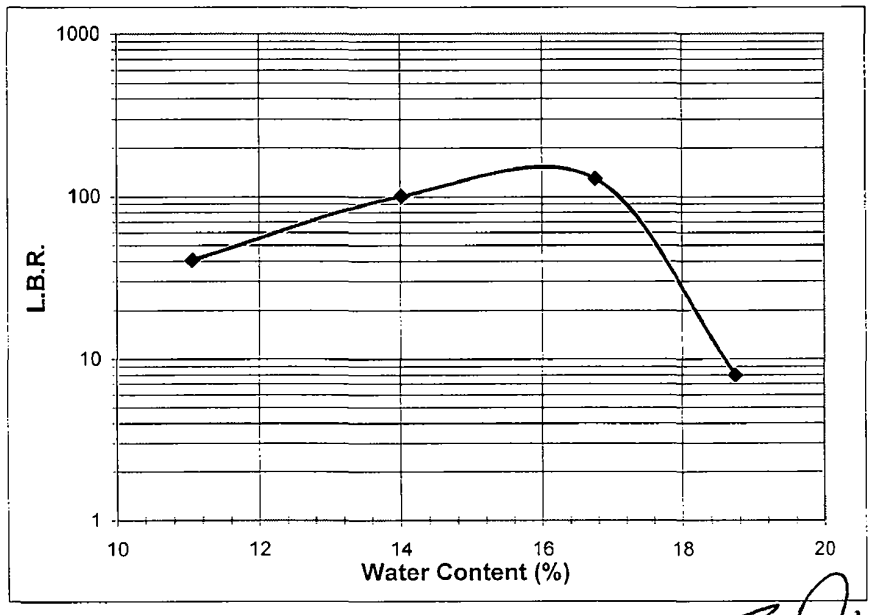
Project Name: Turkey Point COL
Project No: 6468-07-1950
Date: 6/24/2008

w_{opt} (%) = 17.4
γ_{max} (pcf) = 106.9

Sample No.	1	2	3	4	5
Weight of Dish, g	6.7	6.8	6.6	7.1	
Weight of sample + Dish, g	268.8	541.2	507.4	510	
Weight of Dry sample + Dish, g	242.7	475.5	435.5	430.6	
w%	11.1	14.0	16.8	18.7	
Weight of Mold + Soil, g	10948.2	11217.9	12626.3	12543.9	
Weight of Mold, g	6992.6	7023	8260.9	8254.5	
Wet unit weight, pcf	116.0	123.0	128.0	125.7	
Dry unit weight, pcf	104.4	107.9	109.6	105.9	
Corrected Stress Corresponding to 0.1 inch penetration, psi	323.6	807.0	1033.1	63.7	
L.B.R at 0.1 inch penetration (stress/800x100)	40.5	100.9	129.1	8.0	



L.B.R. =	129
Modified Proctor =	107
Optimum Moisture =	17%



SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

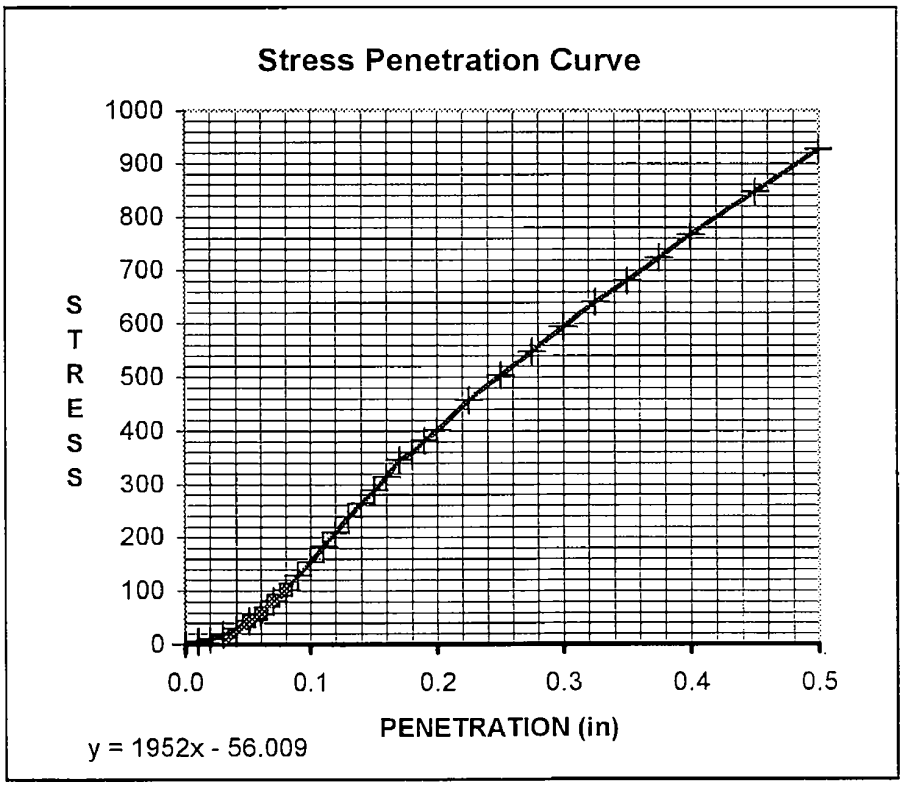
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-15

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-701 (Sample 1- Mold 2.1.42)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	6
0.020	11
0.030	19
0.040	30
0.050	44
0.060	58
0.070	81
0.080	101
0.090	129
0.100	153
0.110	183
0.120	209
0.130	239
0.140	264
0.150	289
0.160	314
0.170	346
0.180	359
0.190	381
0.200	401
0.225	457
0.250	503
0.275	547
0.300	594
0.325	640
0.350	682
0.375	724
0.400	768
0.450	847
0.500	928

MAXIMUM DRY DENSITY (pcf): 106.9
OPTIMUM MOISTURE (%): 17.4

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	116.0
DRY UNIT WEIGHT (pcf):	104.4
INITIAL MOISTURE (%):	11.1
PERCENT MDD:	97.7



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	153.4	232.6
LBR (%)	19.2	29.1

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

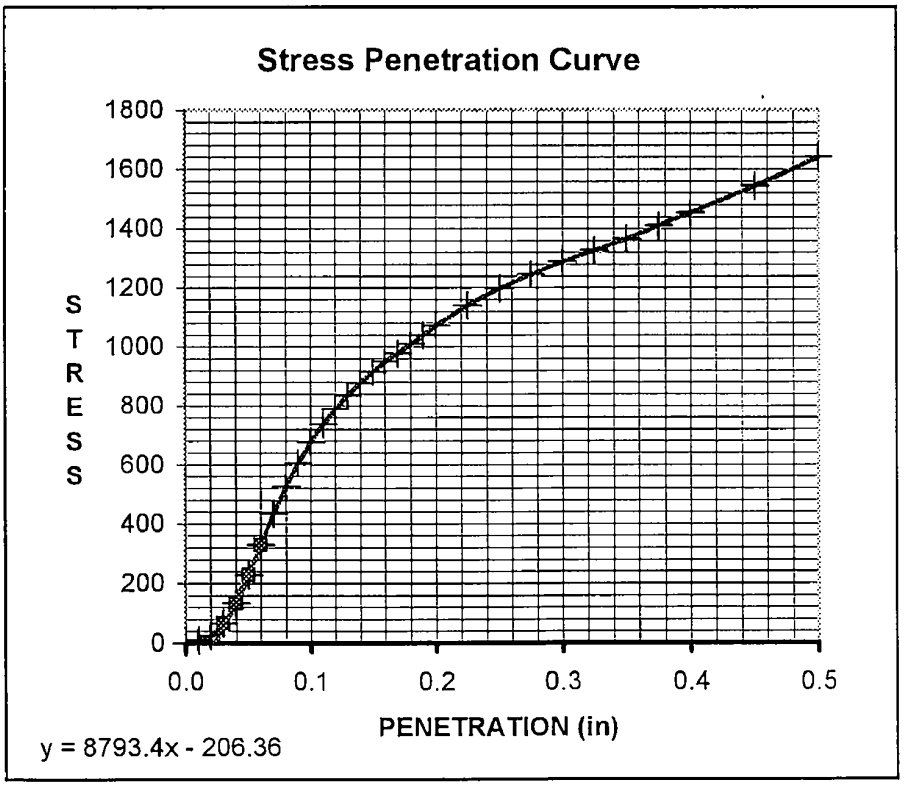
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-15

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-701 (Sample 2-Mold 2.1.43)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	11
0.020	27
0.030	67
0.040	133
0.050	228
0.060	329
0.070	434
0.080	525
0.090	606
0.100	677
0.110	737
0.120	788
0.130	833
0.140	877
0.150	916
0.160	949
0.170	978
0.180	1009
0.190	1039
0.200	1072
0.225	1140
0.250	1199
0.275	1247
0.300	1290
0.325	1328
0.350	1366
0.375	1411
0.400	1454
0.450	1545
0.500	1641

MAXIMUM DRY DENSITY (pcf): 106.9
OPTIMUM MOISTURE (%): 17.4

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	123.0
DRY UNIT WEIGHT (pcf):	107.9
INITIAL MOISTURE (%):	14.0
PERCENT MDD:	100.9



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	676.7	807.0
LBR (%)	84.6	100.9

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

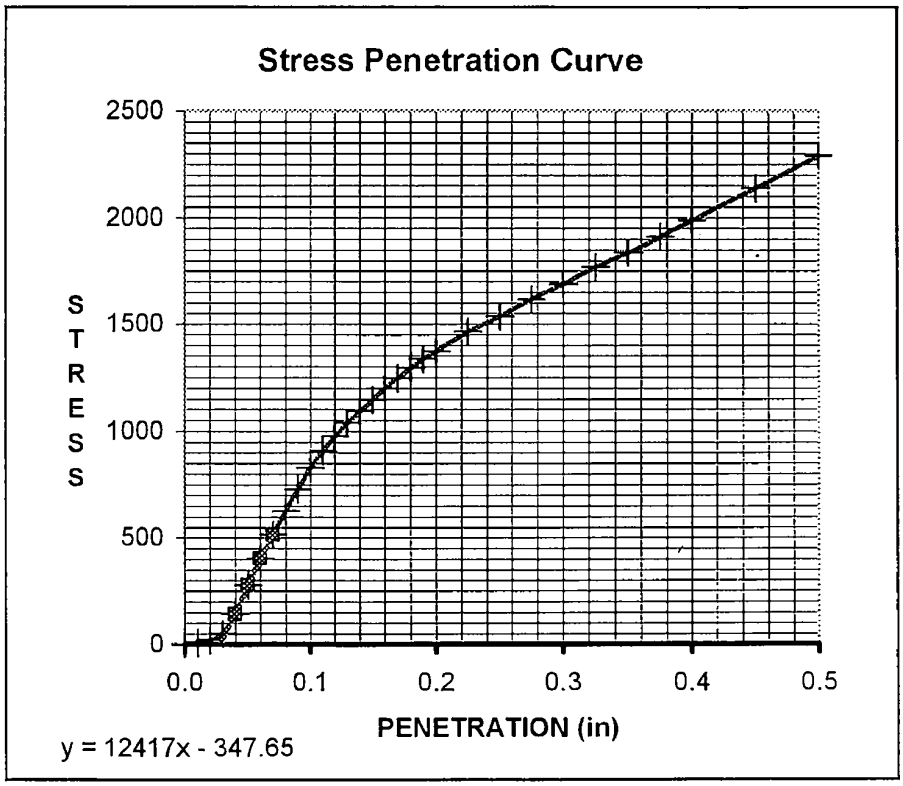
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-15

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-701 (3-Mold 2.1.48)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0
0.010	9
0.020	21
0.030	50
0.040	143
0.050	279
0.060	404
0.070	515
0.080	626
0.090	727
0.100	828
0.110	906
0.120	975
0.130	1038
0.140	1091
0.150	1145
0.160	1199
0.170	1247
0.180	1295
0.190	1338
0.200	1371
0.225	1464
0.250	1535
0.275	1616
0.300	1689
0.325	1768
0.350	1837
0.375	1911
0.400	1985
0.450	2139
0.500	2292

MAXIMUM DRY DENSITY (pcf): 106.9
OPTIMUM MOISTURE (%): 17.4

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	128.0
DRY UNIT WEIGHT (pcf):	109.6
INITIAL MOISTURE (%):	16.8
PERCENT MDD:	102.5



At 0.10 inches of Penetration:

	UNCORRECTED	CORRECTED
STRESS (psi)	828.1	1033.1
LBR (%)	103.5	129.1

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs.

SUBMITTED BY:

MACTEC

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

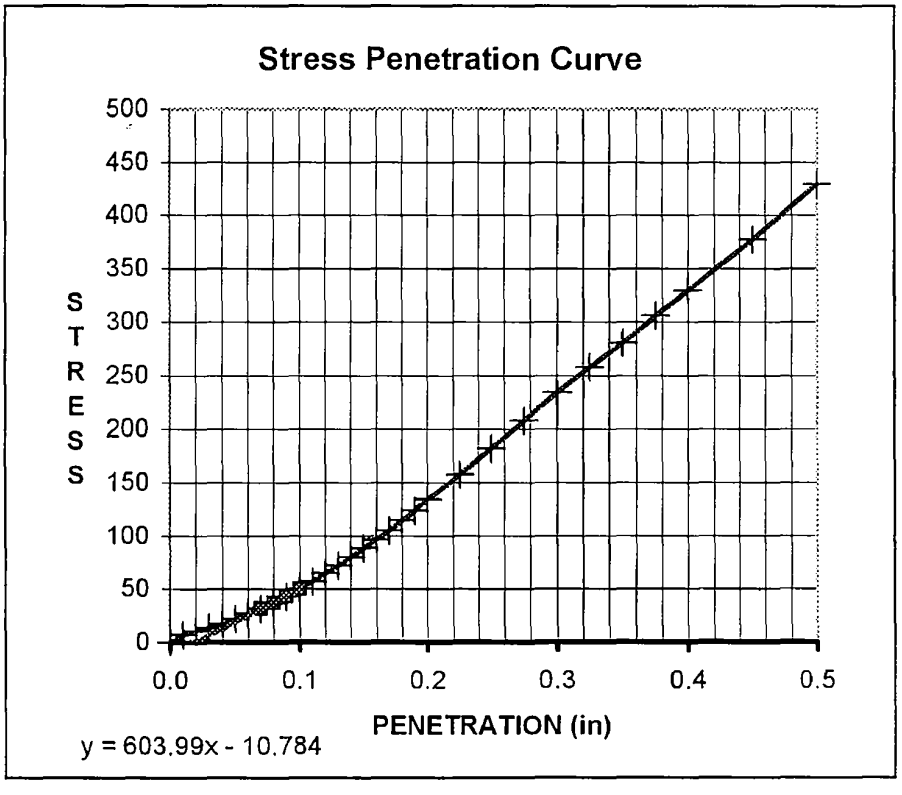
REPORT OF LIMEROCK BEARING RATIO OF LABORATORY COMPACTED SOILS
Performed in General Accordance with FM 5-15

PROJECT NAME: TURKEY POINT COL
MACTEC PROJECT NUMBER: 6468-07-1950
SAMPLE IDENTIFICATION: TP-701 (Sample 4-Mold 2.1.51)
DATE: 6/24/08

Penetration (inches)	Stress (psi)
0.000	0.0
0.010	7.4
0.020	10.6
0.030	13.8
0.040	17.0
0.050	22.3
0.060	26.6
0.070	31.9
0.080	37.2
0.090	42.9
0.100	50.2
0.110	57.5
0.120	65.3
0.130	72.6
0.140	79.8
0.150	88.1
0.160	97.1
0.170	105.3
0.180	114.6
0.190	123.9
0.200	134.2
0.225	157.5
0.250	182.0
0.275	207.6
0.300	234.1
0.325	257.8
0.350	280.1
0.375	305.9
0.400	329.2
0.450	377.3
0.500	429.4

MAXIMUM DRY DENSITY (pcf): 106.9
OPTIMUM MOISTURE (%): 17.4

COMPACTED VALUES	
WET UNIT WEIGHT (pcf):	125.8
DRY UNIT WEIGHT (pcf):	105.9
INITIAL MOISTURE (%):	18.7
PERCENT MDD:	99.1



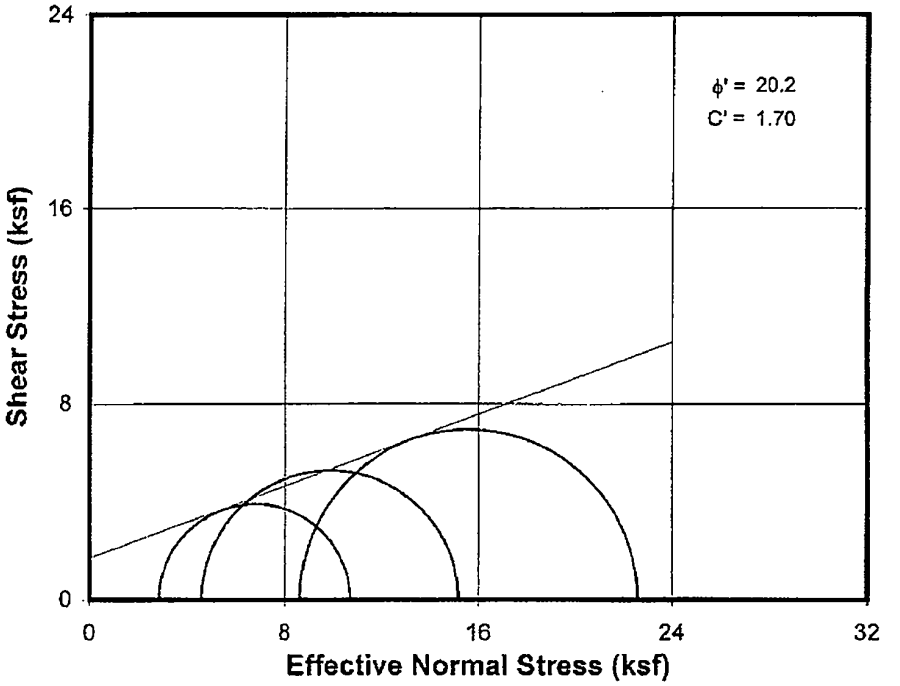
At 0.10 inches of Penetration:

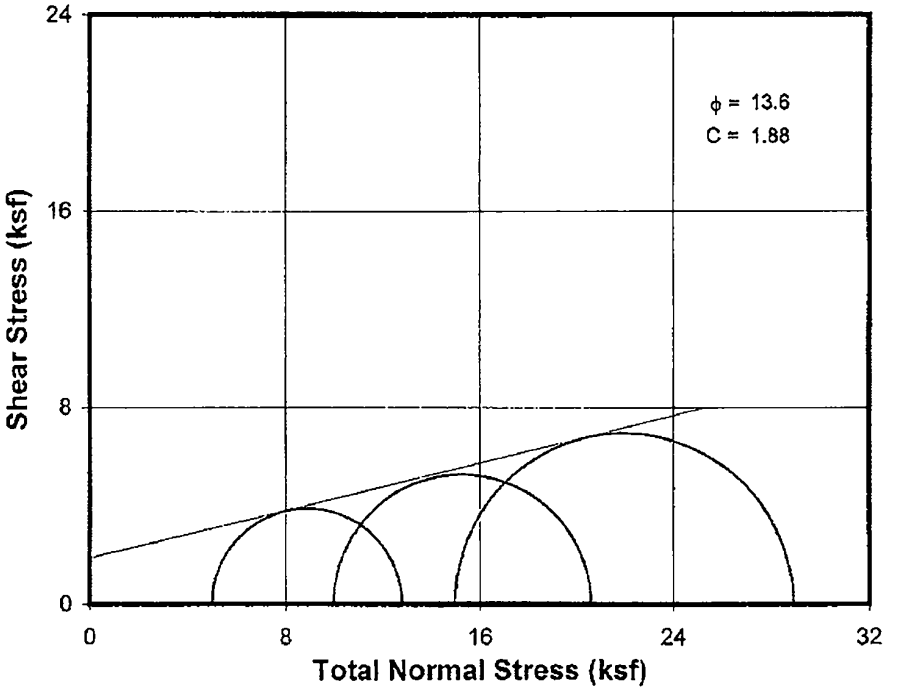
	UNCORRECTED	CORRECTED
STRESS (psi)	50.2	63.7
LBR (%)	6.3	8.0

REMARKS: SOAKED SPECIMEN
SURCHARGE WEIGHT = 20 lbs

SUBMITTED BY:

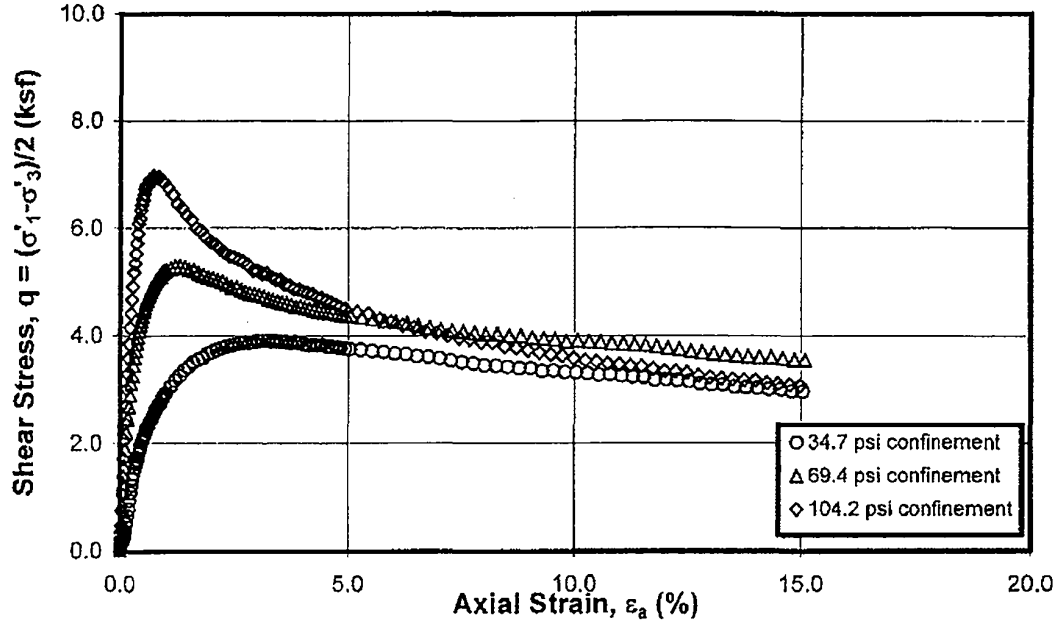
Soil Strength Test

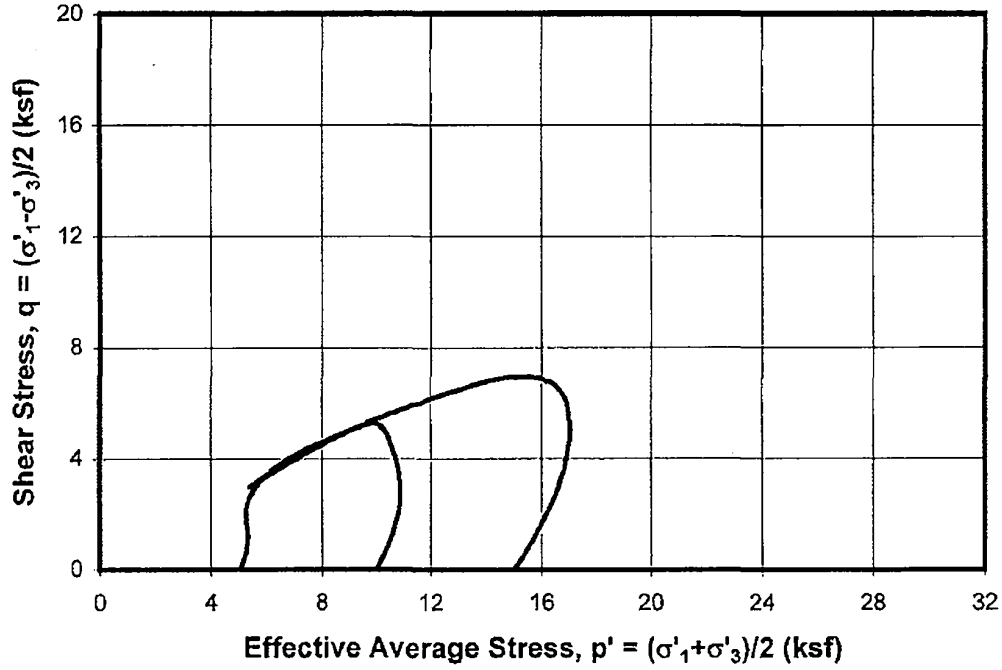




UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD12 - Depth: 178.9 - 179.70 ft
Boring B630

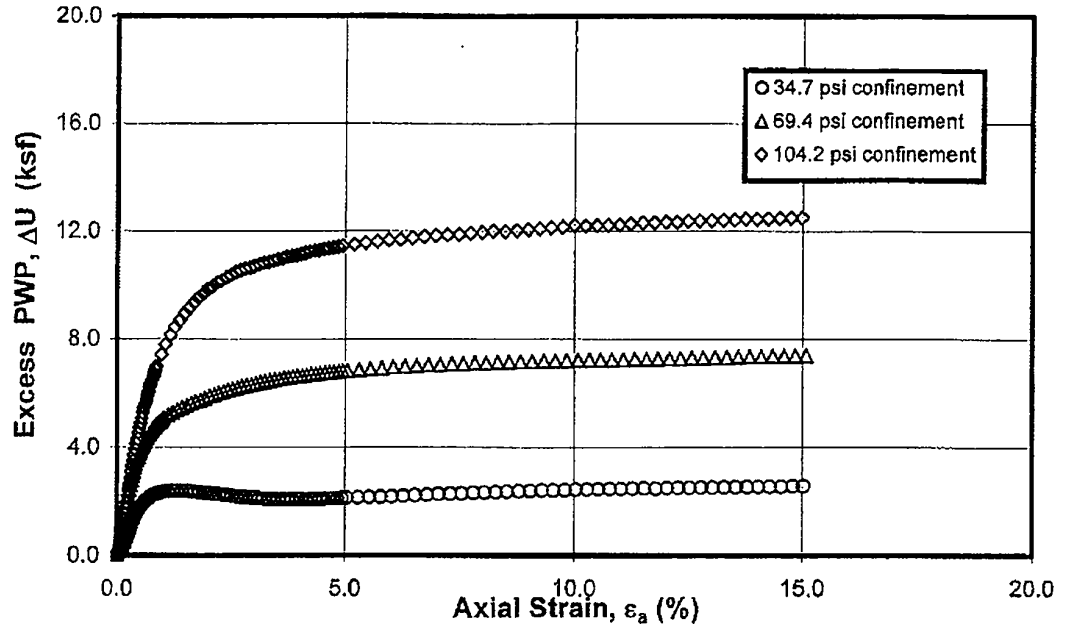
Reviewed By: J.M.

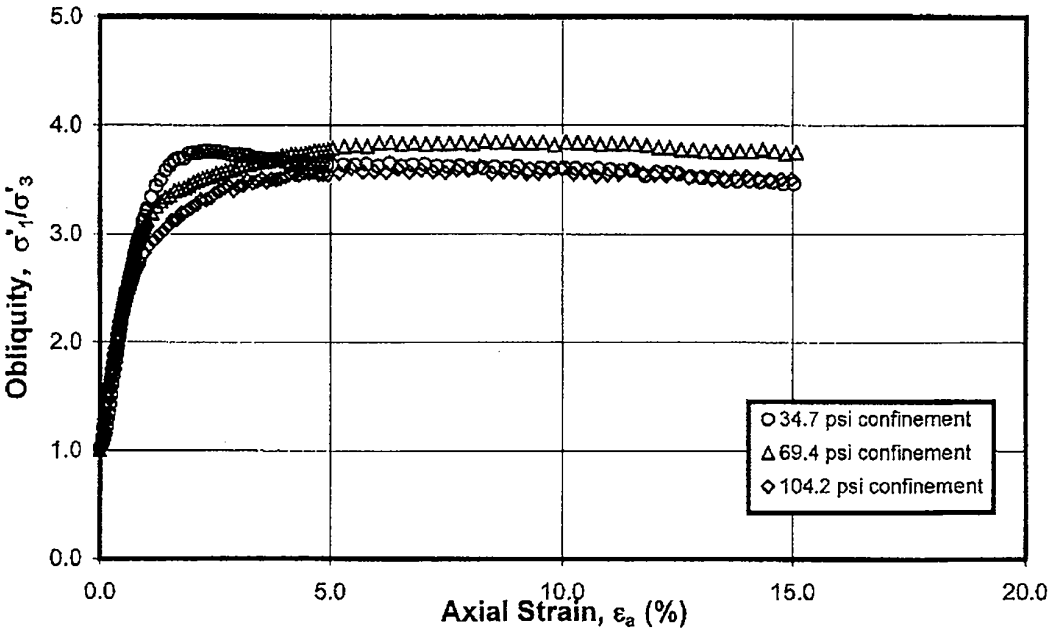




UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD12 - Depth: 178.9 - 179.70 ft
Boring B630

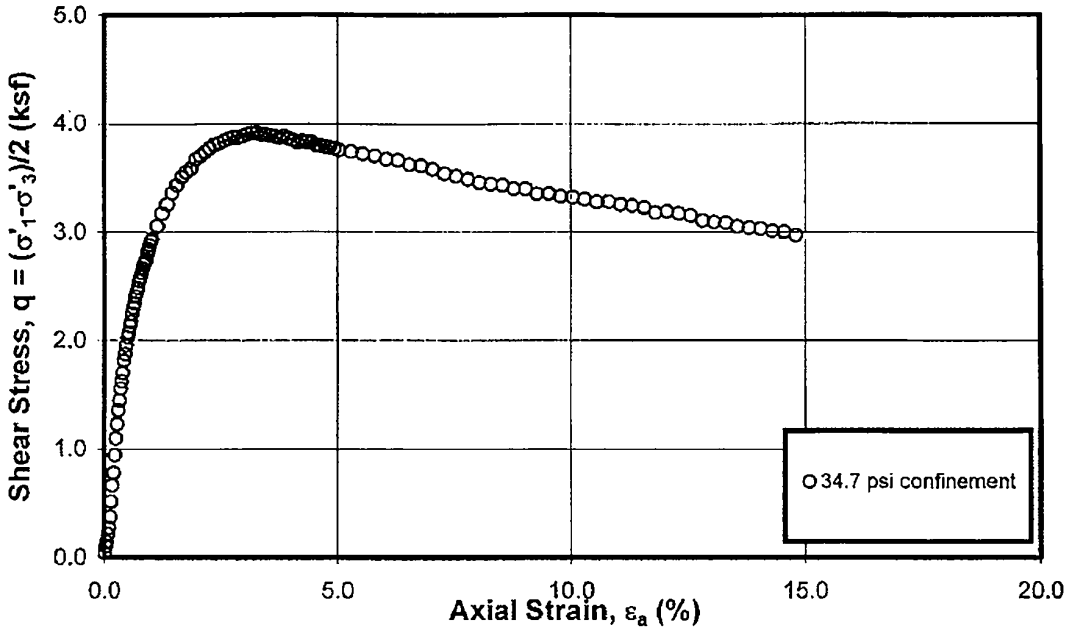
Reviewed By: J.M.

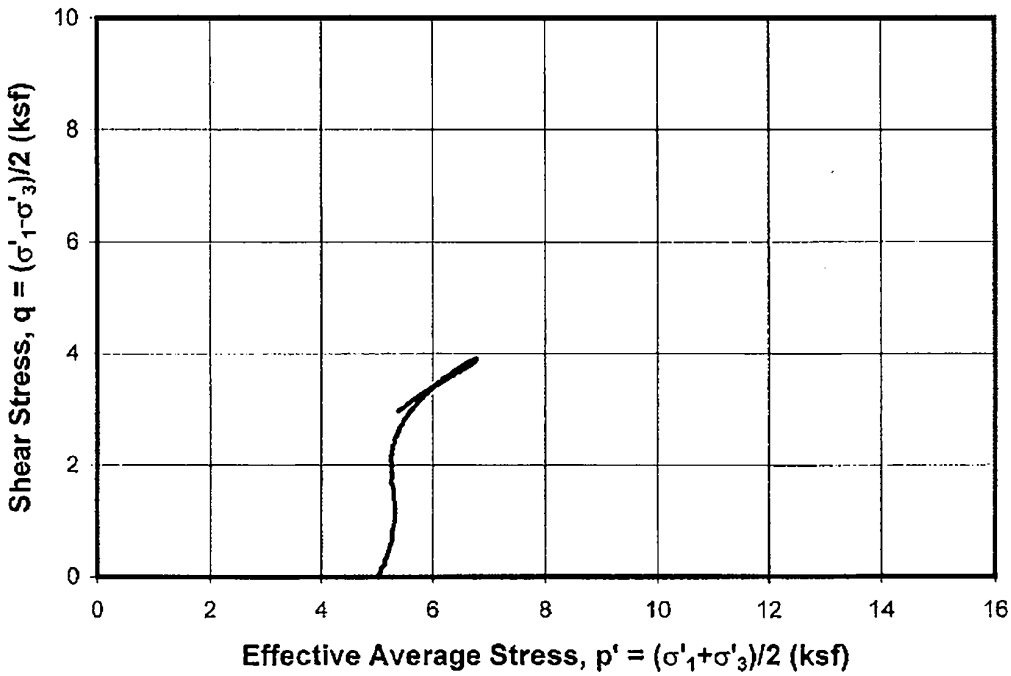




UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD12 - Depth: 178.9 - 179.70 ft
Boring B630

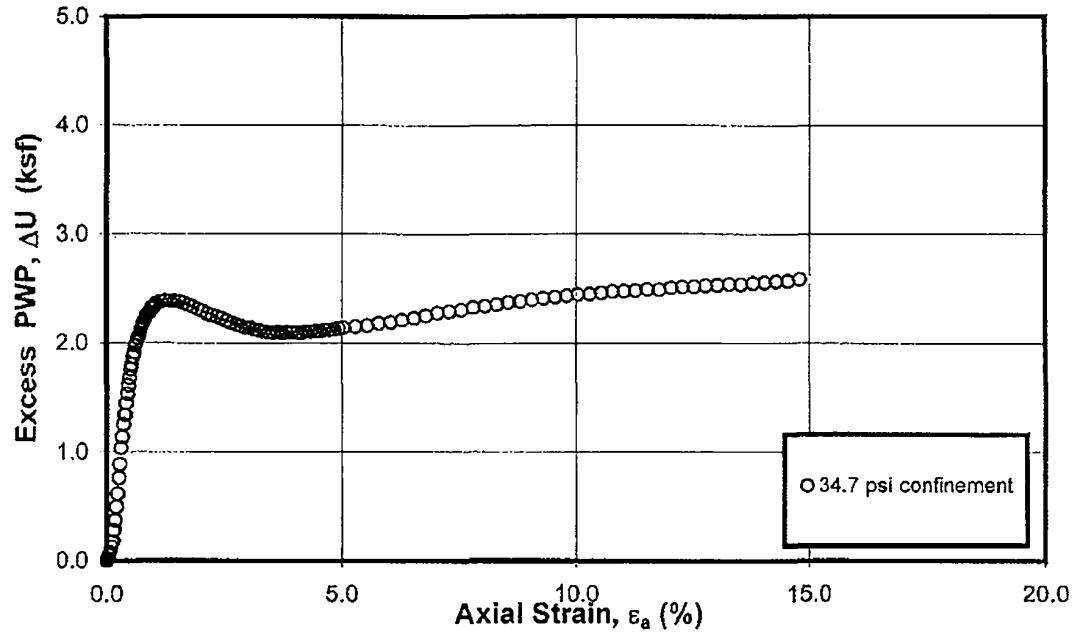
Reviewed By: J. M.

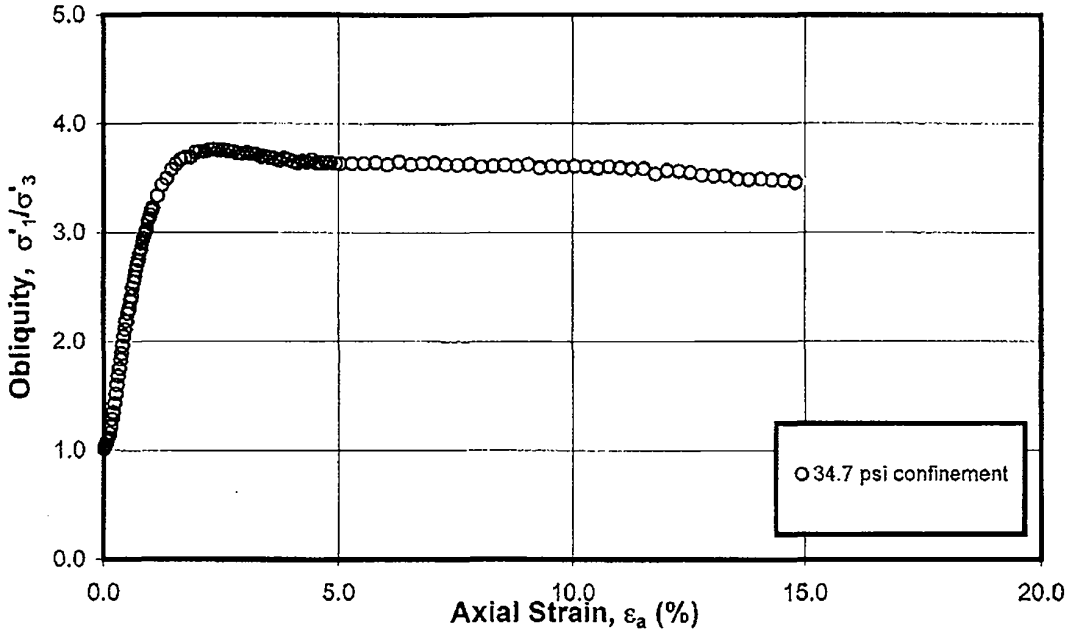




UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD12a - Depth: 178.90 ft
Boring B630

Reviewed By: JM





UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD12a - Depth: 178.90 ft
Boring B630

Reviewed By: JM

TRIAXIAL TEST (ASTM D 4767): Specimen Setup / Take Down

Project Number: 0411-08-1701 | Test Type: CIU Triaxial | Cell No.: TRX 4 | File Name: B630_UD12a
Task No.: NA | Test Stress(es), σ'_c or $\sigma'_{v,c}$ = 5.00 , NA , NA & NA ksf
Project Name: Turkey Point COL | k ($\sigma'_{h,c}$ / $\sigma'_{v,c}$) = 1.00 | Induced OCR = 1.00 | K_{ua} ($\sigma_{d,ua}/2\sigma'_{v,c}$) = NA

Assig. Remarks: | Specific Gravity: 2.700 [ ] Meas.; [X] Assumed

[X] Tube [ ] Field Extruded	[ ] Liner [ ] Remolded	[ ] Tamping	[ ] Constant Effort:	Blows/Tamps per Layer =	
Boring No.: B630	[ ] Reconstituted	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers =	
Sample No.: UD12	Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) =	
Depth (ft): 178.90	Specimen No.: a	[ ] Kneading	[ ] Undercompaction: U_{ni} (%) =	Dia. (in.) =	
[ ] Spec. Selection by X-ray;	[ ] Geomarine Sample		Ref. Effort =	% Comp. =	± Opt. =

Type Consolidation :	[X] Isotropic [ ] Anistropic	[ ] K_o stress path [ ] 45° stress path	[X] Used automated system: Drained Axial Strain Rate, $\varepsilon_{a,rate}$ (%/h) = ?Value Remarks:															
Loading Conditions :	[X] Static [ ] Post Cyclic	[X] Undrained [ ] Drained	[X] Comp. [ ] Ext.	[X] Strain [ ] Stress Path	[ ] Stress	[X] Constant Cell Pressure [ ] Variable Cell Pressure	[ ] Cyclic (Hz) Rate:	[ ] 0.1;	[ ] Stress	[ ] Strain 1; Other:								

Water Content (WC);	Initial - Trimming Location			Final, W_{at}
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)	(see below)
Container No	4084	5025	1102	5010
Mass Moist Soil + Cont. (g)	46.02	45.08	92.40	97.73
Mass Dry Soil + Container (g)	42.35	41.69	78.75	81.39
Mass Container (g)	30.26	30.79	31.55	30.82
Water Content, $W_{o,n}$ (%)	30.36	31.10	28.92	32.31
Avg. Initial WC, $W_{o,avg}$ (%)	30.13	Final (W_{at}): [X] Slice ; [ ]		Whole Spec.

[ ] See attached data sheet(s) for additional water contents

SOIL MASSES:	Initial	Final
Moist + Tare (etc.)(g)	438.50	442.86
Tare (etc.) (g)	0.00	0.00
Mass Moist Spec., M_{tn} (g)	438.50	442.86
Excess Dry Soil (soil not included in final mass measurement)		
Container No		NA
Mass Dry Soil + Cont. (g)		NA
Mass Container (g)		NA
Mass Excess Dry Soil, $M_{d,es}$ (g)		0.00

Specimen Dimensions, (mm)

	Height			Dia., X indicates with membrane		
	Initial (H_o)	Final (H_{at})		Initial (D_o)	Final (D_{at})	
GB	100.000	74.000	1 T	51.00	53.00	For
1	15.46	17.65	2 M	51.50	60.00	Wedge
2	15.16	17.66	3 B	51.00	70.00	Failure
3	15.47	17.70	1'T			= d_{max}
4	15.13	17.67	2'M			= d_{min}
5	15.56	17.60	3'B			= Δd
Avg	115.36	91.66	Avg.	51.17	61.00	xxxxx

Measuring Devices:
Pi Tape: [X] Dia
Calipers: [ ] Ht.; [ ] Dia
Dial Comparator: [X] Ht.; [ ] Dia
Remarks:

$A_o = \pi D^2/400$ (cm^2)	20.56
V_o (cm^3)	237.19
$A_{atb,m}=\pi (D^*_{at})^2/400$ (cm^2)	28.99
$A_{atw,m}=(d_{min}-2\Delta d)d_{max}\pi/400$ (cm^2)	NA
$D^*_{at}=(D_T+2D_{bt}+D_B)/4$ (mm)	60.75

Estimated Initial Unit Weight

Total, $\gamma_{t,o}$ (lb/ft³) = 115.41 | Dry, $\gamma_{d,o}$ (lb/ft³) = 88.69

Membrane / Filter Paper / Apparatus

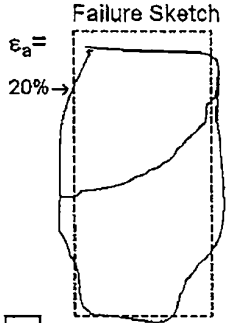
Membrane (mm):	Top	Bottom
Number: = 1 Thickness: [ ] Single; [X] Double	0.72	0.50
	0.72	0.51
Circumference ($C_{rm,o}$)	148.0	149.0
	Total Thickness	Dia.($C_{rm,o}/\pi$)
Average:	0.31	47.27

Filter Paper: Top + Bottom: [ ] Yes ; [X] No
Filter Strips: [X] Yes ; [ ] No Number = 8
Type of Filter Strips [ ] Vertical: ¼ in. & Whatman #54
[X] Spiral: ¼ in. & Whatman #1

Apparatus: Mass Top Cap, M_{tc} = 53.4 g, 0.12 lbf
Mass Displ. System, M_{ds} (cap, dial, piston, etc.) = NA g, NA lbf

[ ] Photo Taken.

Failure Sketch



Failure Mode:
[X] Bulge
[X] Wedge
[ ] Parabolic
Wedge/Bulge Ht.= NA (mm)

NA - Not Applicable
GB - Gage Block
Other Remarks:

Top Cap Attached: [ ] Yes; [X] No;
Piston Dia.(in.): [X] ½; [ ] ¾; [ ]
Load Cell: [ ] External [X] Internal
Top Cap - Rotation: [ ] Fixed,<1°; [X] Limited,<5°; [ ] Unlimited, >5°
With: [ ] Frictionless End Caps; [ ] Lat. Movement Top Cap
[ ] Internal LVDT Jacket

Final Visual Classification: Sandy Silt (ML), greenish gray

Trimmed / Reconstituted By: VR | Date: 7/25/2008
Set Up By: TP | Date: 7/25/2008
Taken Down By: TP | Date: 7/31/2008
Prelim. Calc. By: TP
Final Calc. By: TP
Reviewed By: JM.

[ ] See more detailed sketch on attached sheet.
Remarks: NA = Not Applicable