FINAL DATA REPORT
Revision 0
GEOTECHNICAL EXPLORATION AND TESTING
SUPPLEMENT 2
DOMINION POWER
NORTH ANNA NUCLEAR POWER STATION
NORTH ANNA 3 PROJECT
MINERAL, LOUISA COUNTY, VIRGINIA

December 16, 2009

VOLUME 1

APPENDIX D
Laboratory Test Data

Prepared By:

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

MACTEC PROJECT No. 6468-09-2473

Prepared For:

Bechtel Power Corporation
Subcontractor No. 25161-500-HC4-CY00-00001

GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Date 9/28/2009 Job Name North Anna S-COLA Job No. 25161 Requested By John Davie

Assignment 01, Rev. 1

SAMPLE LOCATION				PHYSICAL PROPERTIES									STRENGTH TESTS								COM-PACTION			CONSOLIDATION
								Grain Size Analysis																NOTE: Stress increments and rebound cycles, ksf.
Boring No.	Sample Type (Tube Sample Length)	Top of Sample/Core Run Depth, Ft	Sample/Run Number	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Sieve Only	Sieve + Hydrometer	Chemical Analysis (pH, chloride, sulphate)	Organic Content		Unconsolidated-Undrained Triaxial	Consolidated-Undrained Triaxial (3-stage w/pore-pressure meas.)	Unconfined Compression (Soil)	Confining Pressures (psi)	Direct Shear	TSRC	Unconfined Compression (rock)	Unconfined Compression (rock) w/stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR	
M-10(DH)	Jar	11.7	2	x			x		x															
M-10(DH)	Jar	19.2	4	x			x		x															
M-10(DH)	Jar	24.2	5	x			x		x															
M-10(DH)	Jar	29.2	6	x			x		x															
M-10(DH)	Jar	39.1	8	x			x		x															
M-10(DH)	Jar	49.1	10	x				x																
M-10(DH)	Jar	59.1	12	x				x																
M-10(DH)	Jar	74.1	15	x				x																
M-10(DH)	Jar	84.1	17	x				x																
M-10(DH)	Core	116.9	R-7		x														x					
M-10(DH)	Core	133.4	R-10		x														x					
M-10(DH)	Core	153.4	R-15		x														x					
M-10(DH)	Core	177.4	R-20		x														x					
M-10(DH)	Core	196.6	R-24		x														x					

Contact John Davie of Bechtel if there are any questions: Phone (301) 228-7647; e-mail JDAVIE@BECHTEL.COM.

(1) For rock core testing, MACTEC will select suitable (and typical) section of the core run for testing, and note actual depth tested.

GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Date 9/28/2009 Job Name North Anna S-COLA Job No. 25161 Requested By John Davie

Assignment 01, Rev. 1

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Boring No.	Sample Type (Tube Sample Length)	Top of Sample/Core Run Depth, Ft	Sample/Run Number	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Sieve Only	Sieve + Hydrometer	Chemical Analysis (pH, chloride, sulphate)	Organic Content			Unconsolidated-Undrained Triaxial	Consolidated-Undrained Triaxial (3-stage w/pore-pressure meas.)	Unconfined Compression (Soil)	Confining Pressures (psi)	Direct Shear	TSRC	Unconfined Compression (rock)	Unconfined Compression (rock) w/stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR	
M-30(DH)	Jar	8.7	1	x				x																	
M-30(DH)	Jar	13.7	3	x				x																	
M-30(DH)	Jar	25.2	5	x				x																	
M-30(DH)	Jar	35.2	7	x				x																	
M-30(DH)	Core	56.7	R-4		x															x					
M-30(DH)	Core	95.3	R-18		x															x					
M-30(DH)	Core	134.7	R-26		x															x					
M-30(DH)	Core	166.7	R-34		x															x					
M-30(DH)	Core	196.7	R-40		x															x					

Contact John Davie of Bechtel if there are any questions: Phone (301) 228-7647; e-mail JDAVIE@BECHTEL.COM.

(1) For rock core testing, MACTEC will select suitable (and typical) section of the core run for testing, and note actual depth tested.

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MINERAL, LOUISA COUNTY, VIRGINIA

December 16, 2009

VOLUME 1

APPENDIX D.1
Soil Index and Particle Size Distribution Tests

Prepared By:

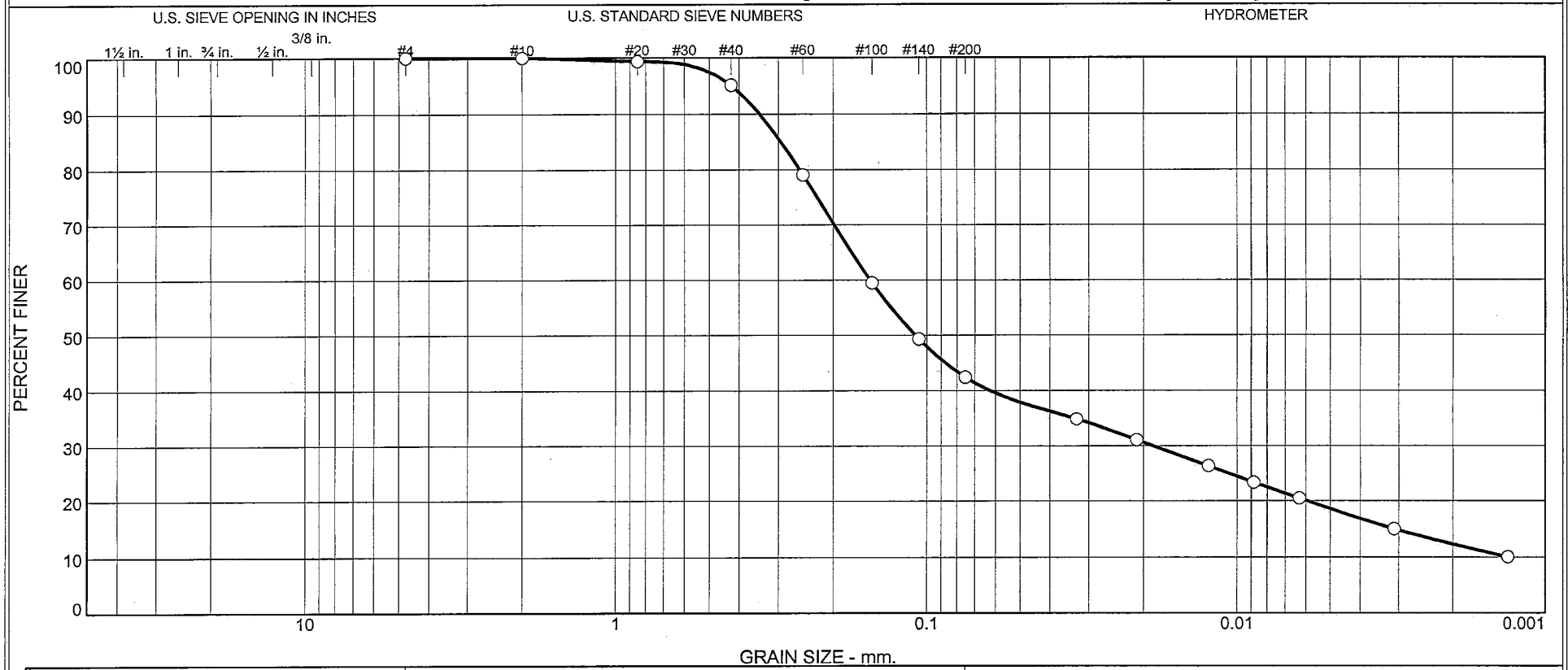
MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

MACTEC PROJECT No. 6468-09-2473

Prepared For:

Bechtel Power Corporation
Subcontractor No. 25161-500-HC4-CY00-00001

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



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	4.9	52.6	30.2	12.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-2	11.7-13.2'	9/1/09	SM	Red Silty SAND	48.5	59	50

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
NA = Not Applicable

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 11.7-13.2' **Sample Number:** SS-2
Material Description: Red Silty SAND
Date: 9/1/09 **Natural Moisture:** 48.5
Liquid Limit: 59 **Plastic Limit:** 50 **USCS Class.:** SM
Testing Remarks: Specific Gravity is assumed
NA = Not Applicable
Tested by: CS **Checked by:** MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
242.46	0.00	0.00	#4	0.00	100.0
			#10	0.00	100.0
52.63	0.00	0.00	#20	0.35	99.3
			#40	2.59	95.1
			#60	11.03	79.0
			#100	21.36	59.4
			#140	26.69	49.3
			#200	30.28	42.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.62
Hygroscopic moisture correction:
Moist weight and tare = 29.31
Dry weight and tare = 29.06
Tare weight = 15.53
Hygroscopic moisture = 1.8%
Table of composite correction values:

Temp., deg. C:	10.2	29.5
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	24.0	18.2	0.0133	25.0	12.2	0.0328	34.9
5.00	21.0	22.0	16.2	0.0133	23.0	12.5	0.0210	31.1
15.00	21.0	19.5	13.7	0.0133	20.5	12.9	0.0123	26.3
30.00	20.8	18.0	12.2	0.0133	19.0	13.2	0.0088	23.3
60.00	20.8	16.5	10.7	0.0133	17.5	13.4	0.0063	20.5
250.00	21.6	13.5	7.9	0.0132	14.5	13.9	0.0031	15.0
1440.00	21.1	11.0	5.3	0.0133	12.0	14.3	0.0013	10.1

MACTEC Engineering and Consulting, Inc.

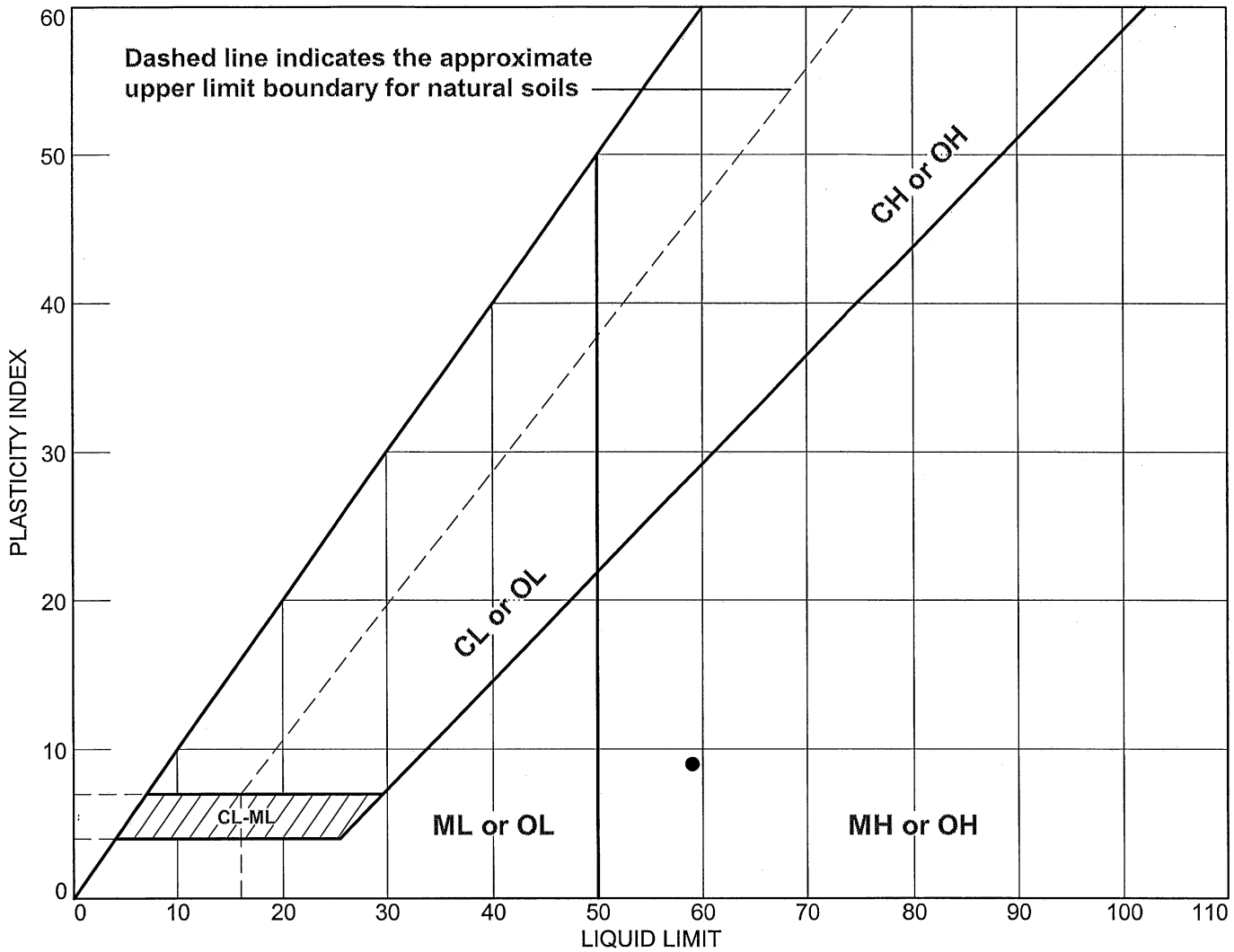
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	4.9	52.6	57.5	30.2	12.3	42.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0031	0.0059	0.0186	0.1091	0.1526	0.2564	0.2943	0.3444	0.4232

Fineness Modulus
0.57

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring M-10(DH)	SS-2	11.7-13.2'	48.5	50	59	9	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** BECHTEL POWER CORPORATION **Project:** North Anna 3 Project **Project No.:** 6468092473 **Figure** NA

Tested By: CS **Checked By:** MDC DSC 11-12-09

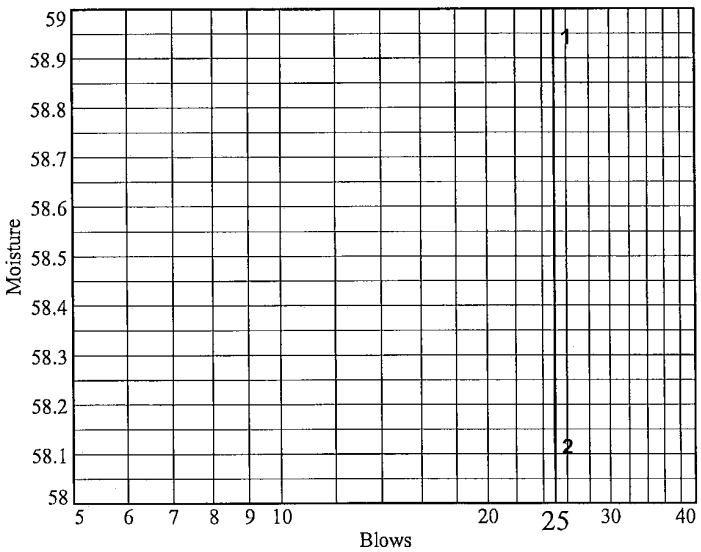
LIQUID AND PLASTIC LIMIT TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 11.7-13.2'
Sample Number: SS-2
Material Description: Red Silty SAND
USCS: SM
AASHTO: A-5(2)
Tested by: CS
Checked by: MDC

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.74	25.12				
Dry+Tare	22.72	20.00				
Tare	15.90	11.19				
# Blows	26	26				
Moisture	58.9	58.1				



Liquid Limit= 59
Plastic Limit= 50
Plasticity Index= 9
Natural Moisture= 48.5
Liquidity Index= -0.2

Plastic Limit Data

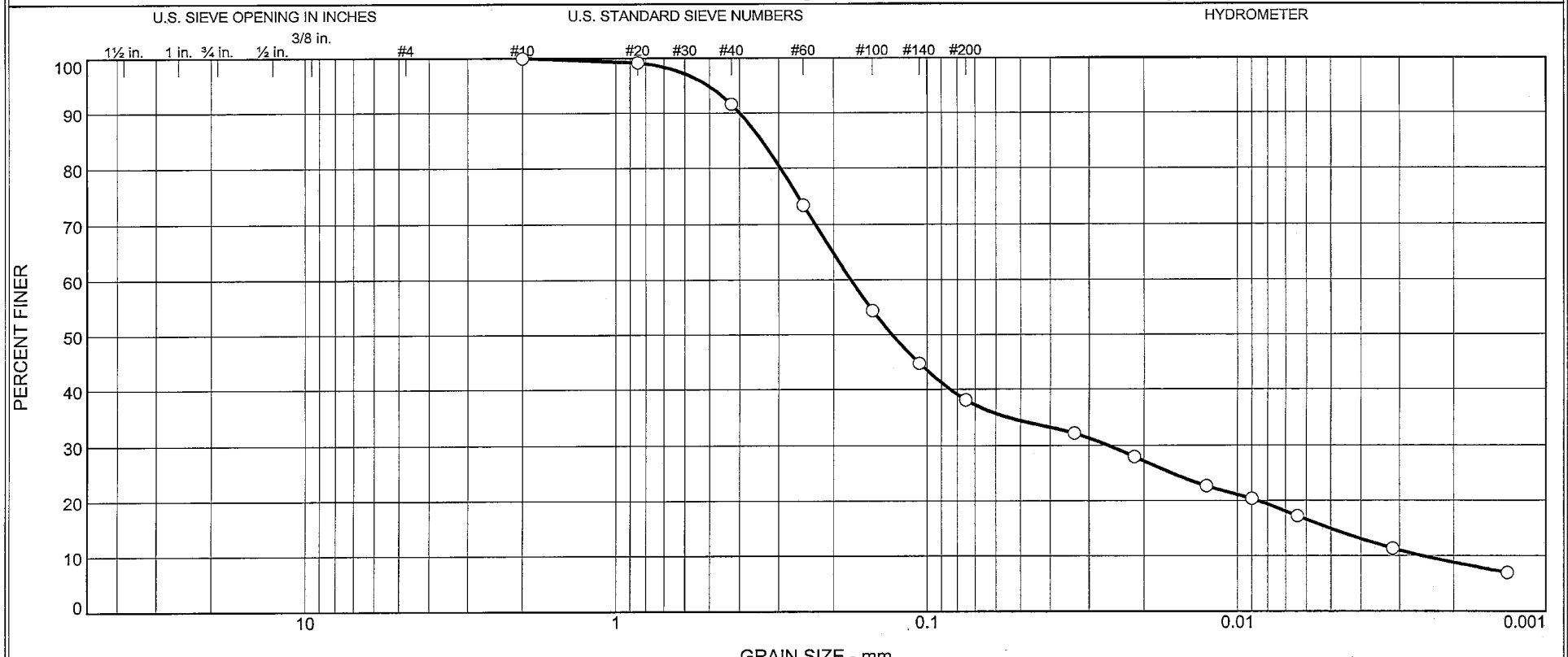
Run No.	1	2	3	4	
Wet+Tare	23.21	24.95			
Dry+Tare	20.66	21.86			
Tare	15.62	15.68			
Moisture	50.6	50.0			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
92.45	78.55	49.88	48.5

MACTEC Engineering and Consulting, Inc.

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



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	8.4	53.5	29.4	8.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-4	19.2-20.7'	9/1/09	SM	Strong Brown Silty SAND	35.9	54	48

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
NA = Not Applicable

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 19.2-20.7' **Sample Number:** SS-4
Material Description: Strong Brown Silty SAND
Date: 9/1/09 **Natural Moisture:** 35.9
Liquid Limit: 54 **Plastic Limit:** 48 **USCS Class.:** SM
Testing Remarks: Specific Gravity is assumed
NA = Not Applicable
Tested by: CS **Checked by:** MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
243.11	0.00	0.00	#10	0.00	100.0
48.46	0.00	0.00	#20	0.39	99.2
			#40	4.08	91.6
			#60	12.88	73.4
			#100	22.10	54.4
			#140	26.78	44.7
			#200	29.99	38.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.46
Hygroscopic moisture correction:
Moist weight and tare = 27.58
Dry weight and tare = 27.17
Tare weight = 15.27
Hygroscopic moisture = 3.4%
Table of composite correction values:

Temp., deg. C:	10.2	29.5
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	15.2	0.0133	22.0	12.7	0.0334	32.2
5.00	21.0	19.0	13.2	0.0133	20.0	13.0	0.0214	27.9
15.00	21.0	16.5	10.7	0.0133	17.5	13.4	0.0126	22.7
30.00	20.6	15.5	9.7	0.0133	16.5	13.6	0.0090	20.4
60.00	20.6	14.0	8.2	0.0133	15.0	13.8	0.0064	17.2
250.00	21.6	11.0	5.4	0.0132	12.0	14.3	0.0032	11.3
1440.00	21.2	9.0	3.3	0.0132	10.0	14.7	0.0013	6.9

MACTEC Engineering and Consulting, Inc.

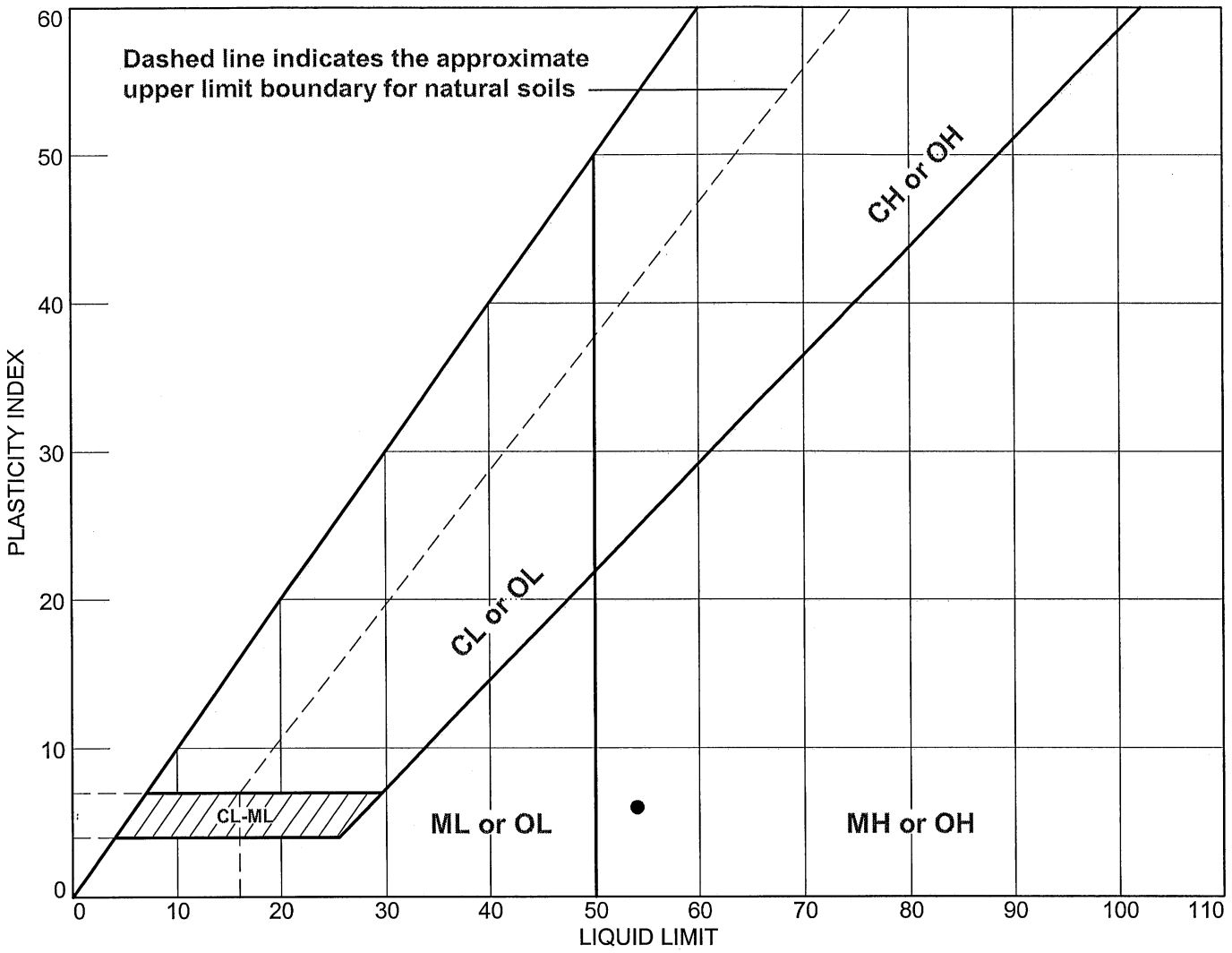
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	8.4	53.5	61.9	29.4	8.7	38.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0025	0.0051	0.0086	0.0261	0.1298	0.1764	0.2963	0.3404	0.3999	0.5038

Fineness Modulus	C_u	C_c
0.68	69.41	1.51

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring M-10(DH)	SS-4	19.2-20.7'	35.9	48	54	6	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** BECHTEL POWER CORPORATION **Project:** North Anna 3 Project **Project No.:** 6468092473 **Figure** NA

Tested By: CS **Checked By:** MDC DSC 11-12-09

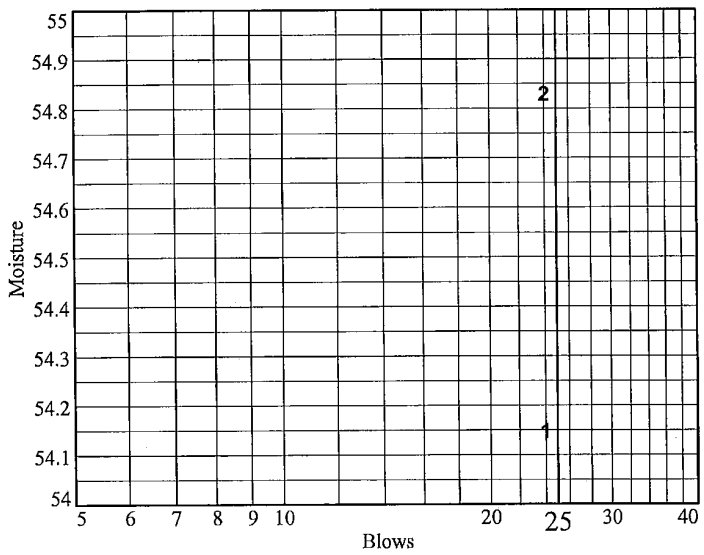
LIQUID AND PLASTIC LIMIT TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 19.2-20.7'
Sample Number: SS-4
Material Description: Strong Brown Silty SAND
USCS: SM
AASHTO: A-5(0)
Tested by: CS
Checked by: MDC

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	22.47	23.99				
Dry+Tare	18.49	19.45				
Tare	11.14	11.17				
# Blows	24	24				
Moisture	54.1	54.8				



Liquid Limit= 54
Plastic Limit= 48
Plasticity Index= 6
Natural Moisture= 35.9
Liquidity Index= -2.0

Plastic Limit Data

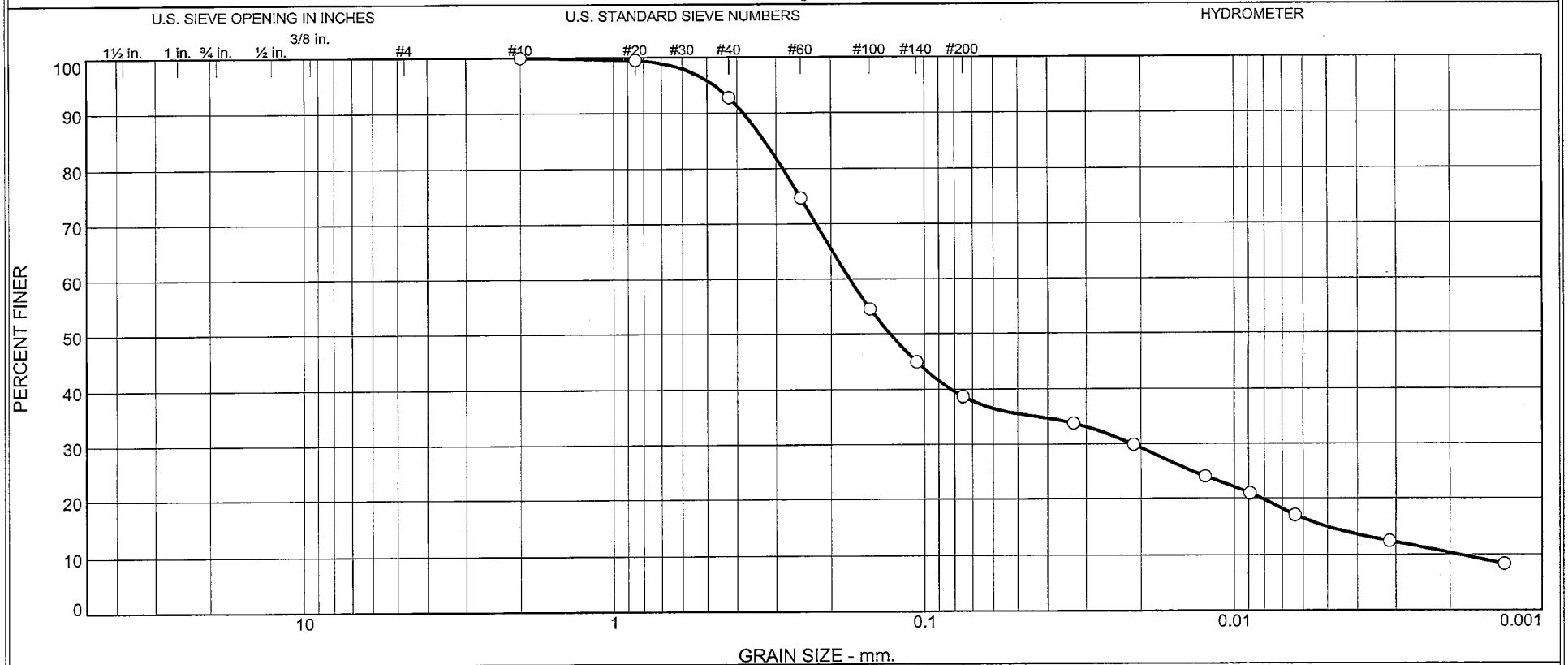
Run No.	1	2	3	4	
Wet+Tare	25.61	26.84			
Dry+Tare	22.38	23.20			
Tare	15.69	15.54			
Moisture	48.3	47.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
105.76	90.93	49.59	35.9

MACTEC Engineering and Consulting, Inc.

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



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	7.3	54.0	28.4	10.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-5	24.2-25.7'	9/1/09	SM	Strong Brown Silty SAND	53.7	59	47

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
NA = Not Applicable

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 24.2-25.7' **Sample Number:** SS-5
Material Description: Strong Brown Silty SAND
Date: 9/1/09 **Natural Moisture:** 53.7
Liquid Limit: 59 **Plastic Limit:** 47 **USCS Class.:** SM
Testing Remarks: Specific Gravity is assumed
NA = Not Applicable
Tested by: CS **Checked by:** MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
272.86	0.00	0.00	#10	0.00	100.0
50.98	0.00	0.00	#20	0.25	99.5
			#40	3.70	92.7
			#60	12.92	74.7
			#100	23.21	54.5
			#140	28.06	45.0
			#200	31.24	38.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.98
Hygroscopic moisture correction:
Moist weight and tare = 24.35
Dry weight and tare = 24.24
Tare weight = 11.24
Hygroscopic moisture = 0.8%
Table of composite correction values:

Temp., deg. C:	10.2	29.5
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	23.0	17.3	0.0132	24.0	12.4	0.0329	33.8
5.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0211	29.9
15.00	21.2	18.0	12.3	0.0132	19.0	13.2	0.0124	24.0
30.00	20.9	16.5	10.7	0.0133	17.5	13.4	0.0089	21.0
60.00	20.9	14.5	8.7	0.0133	15.5	13.8	0.0064	17.1
250.00	21.5	12.0	6.3	0.0132	13.0	14.2	0.0031	12.4
1440.00	21.2	10.0	4.3	0.0132	11.0	14.5	0.0013	8.4

MACTEC Engineering and Consulting, Inc.

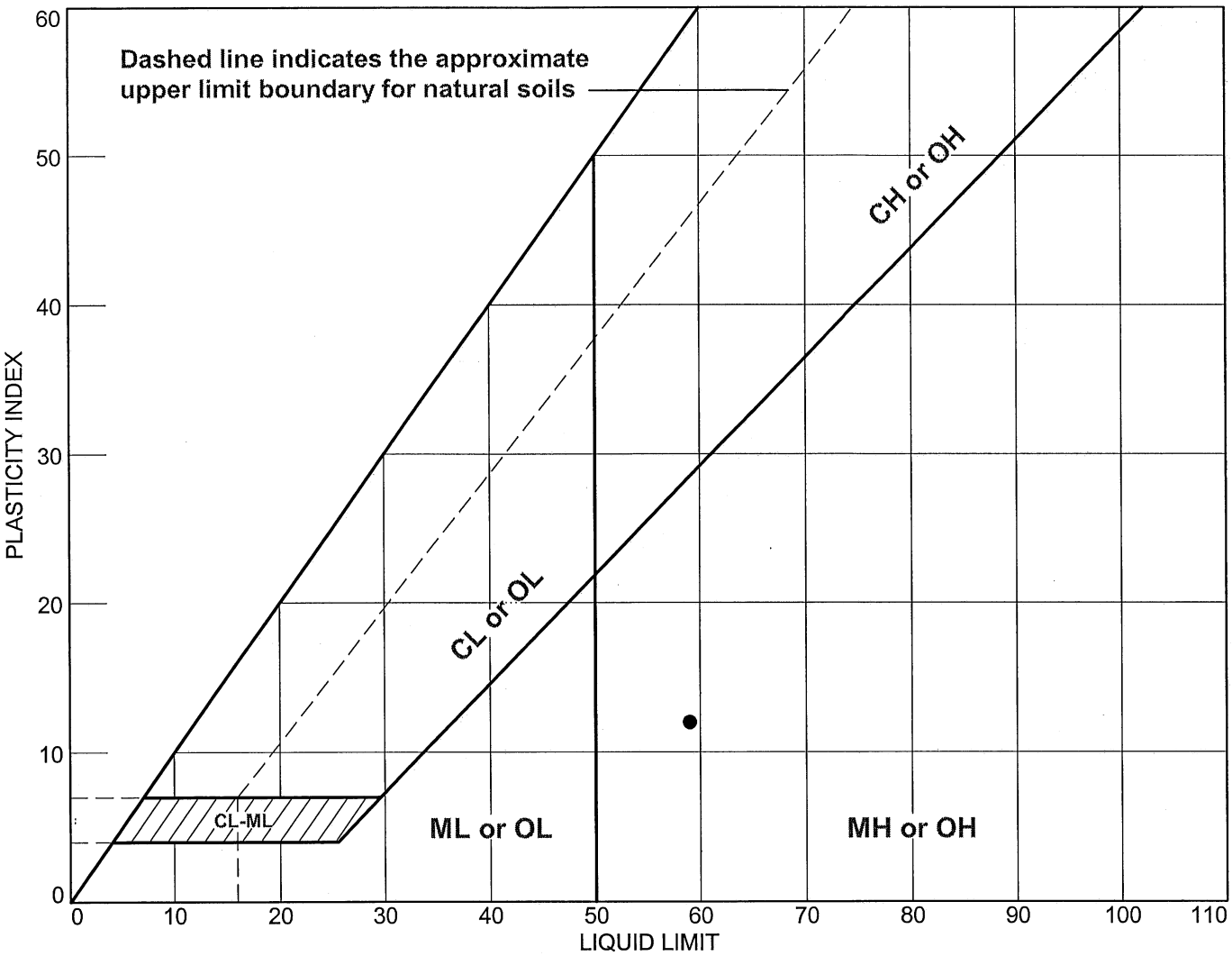
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	7.3	54.0	61.3	28.4	10.3	38.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0019	0.0051	0.0082	0.0213	0.1296	0.1747	0.2857	0.3271	0.3825	0.4750

Fineness Modulus	C_u	C_c
0.66	93.28	1.39

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring M-10(DH)	SS-5	24.2-25.7'	53.7	47	59	12	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** BECHTEL POWER CORPORATION **Project:** North Anna 3 Project **Project No.:** 6468092473 **Figure** NA

Tested By: CS **Checked By:** MDC DSC 1-12-09

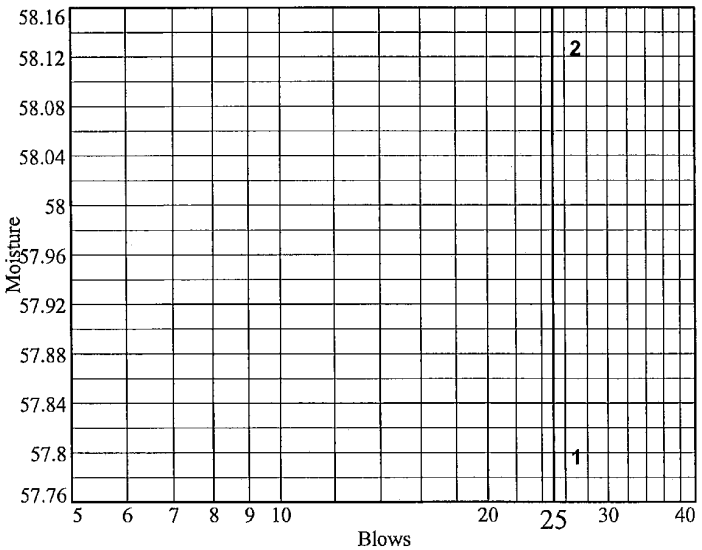
LIQUID AND PLASTIC LIMIT TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 24.2-25.7'
Sample Number: SS-5
Material Description: Strong Brown Silty SAND
USCS: SM
AASHTO: A-7-5(2)
Tested by: CS
Checked by: MDC

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.36	27.63				
Dry+Tare	23.69	23.16				
Tare	15.61	15.47				
# Blows	27	27				
Moisture	57.8	58.1				



Liquid Limit= 59
Plastic Limit= 47
Plasticity Index= 12
Natural Moisture= 53.7
Liquidity Index= 0.6

Plastic Limit Data

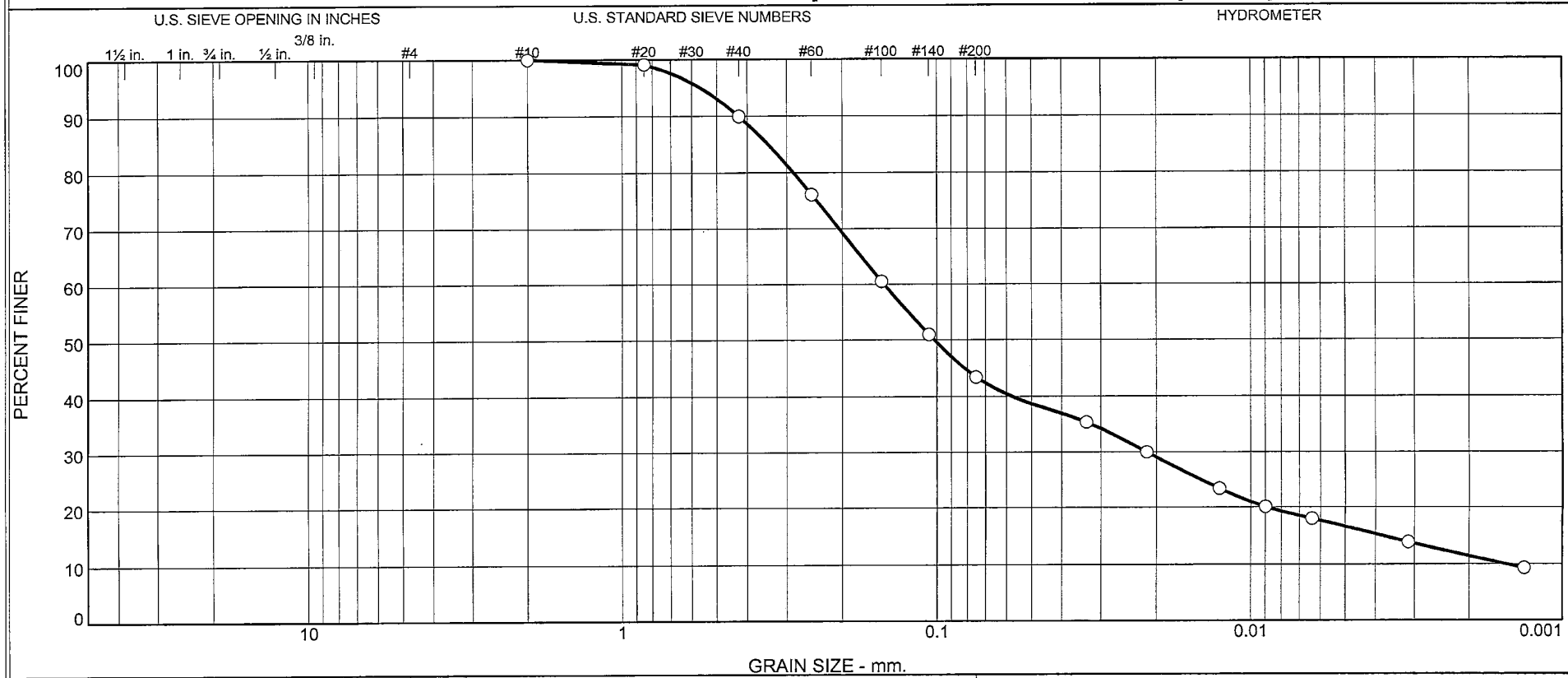
Run No.	1	2	3	4	
Wet+Tare	26.36	36.56			
Dry+Tare	22.86	29.86			
Tare	15.49	15.50			
Moisture	47.5	46.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
126.23	99.69	50.29	53.7

MACTEC Engineering and Consulting, Inc.

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



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	10.0	46.6	31.9	11.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-6	29.2-30.7'	9/1/09	SM	Yellowish Brown Silty SAND	66.7	51	44

Client BECHTEL POWER CORPORATION
Project North Anna 3 Project
Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

○ Specific Gravity is assumed
NA = Not Applicable

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 29.2-30.7' **Sample Number:** SS-6
Material Description: Yellowish Brown Silty SAND
Date: 9/1/09 **Natural Moisture:** 66.7
Liquid Limit: 51 **Plastic Limit:** 44 **USCS Class.:** SM
Testing Remarks: Specific Gravity is assumed
NA = Not Applicable
Tested by: CS **Checked by:** MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
206.01	0.00	0.00	#10	0.00	100.0
46.68	0.00	0.00	#20	0.43	99.1
			#40	4.68	90.0
			#60	11.17	76.1
			#100	18.44	60.5
			#140	22.90	50.9
			#200	26.40	43.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =46.68
Hygroscopic moisture correction:
Moist weight and tare = 28.03
Dry weight and tare = 27.65
Tare weight = 15.56
Hygroscopic moisture = 3.1%
Table of composite correction values:

Temp., deg. C:	10.2	29.5
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	22.0	16.2	0.0133	23.0	12.5	0.0333	35.4
5.00	20.8	19.5	13.7	0.0133	20.5	12.9	0.0214	29.9
15.00	20.8	16.5	10.7	0.0133	17.5	13.4	0.0126	23.4
30.00	20.8	15.0	9.2	0.0133	16.0	13.7	0.0090	20.1
60.00	21.0	14.0	8.2	0.0133	15.0	13.8	0.0064	18.0
250.00	21.6	12.0	6.4	0.0132	13.0	14.2	0.0031	13.9
1440.00	21.2	10.0	4.3	0.0132	11.0	14.5	0.0013	9.4

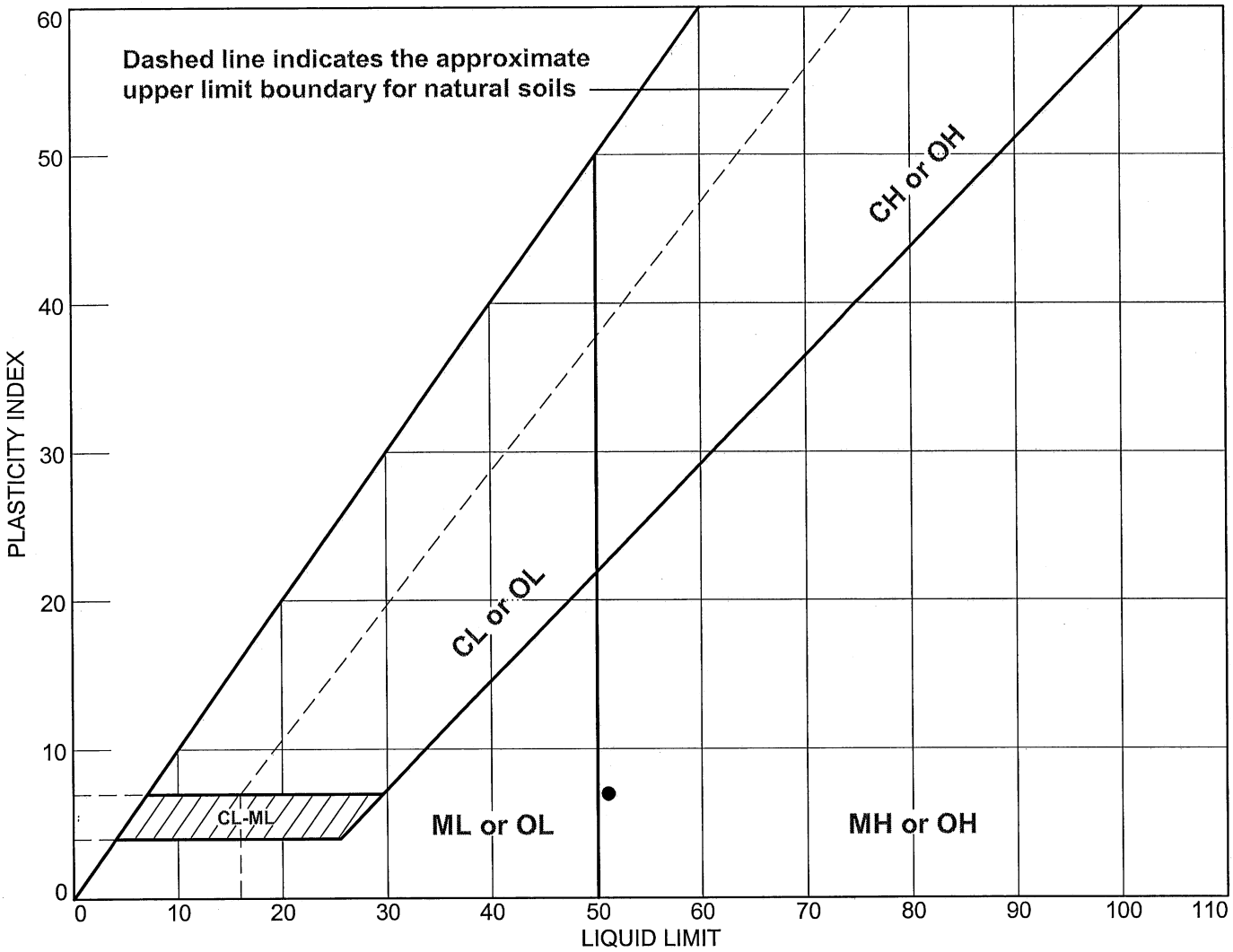
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	10.0	46.6	56.6	31.9	11.5	43.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0015	0.0038	0.0089	0.0215	0.1021	0.1475	0.2859	0.3437	0.4255	0.5660

Fineness Modulus	C_u	C_c
0.63	97.76	2.08

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring M-10(DH)	SS-6	29.2-30.7'	66.7	44	51	7	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** BECHTEL POWER CORPORATION **Project:** North Anna 3 Project **Project No.:** 6468092473 **Figure** NA

Tested By: CS **Checked By:** MDC DSC 11-12-09

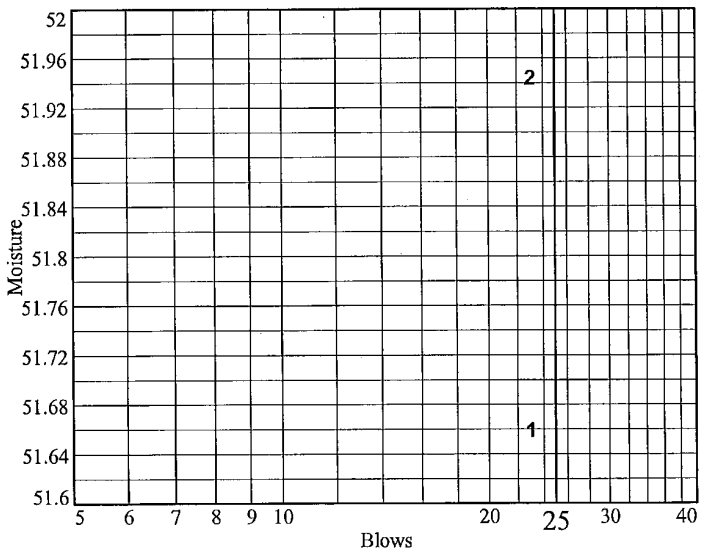
LIQUID AND PLASTIC LIMIT TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 29.2-30.7'
Sample Number: SS-6
Material Description: Yellowish Brown Silty SAND
USCS: SM
AASHTO: A-5(1)
Tested by: CS
Checked by: MDC

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.08	27.59				
Dry+Tare	25.10	23.45				
Tare	15.46	15.48				
# Blows	23	23				
Moisture	51.7	51.9				



Liquid Limit= 51
Plastic Limit= 44
Plasticity Index= 7
Natural Moisture= 66.7
Liquidity Index= 3.2

Plastic Limit Data

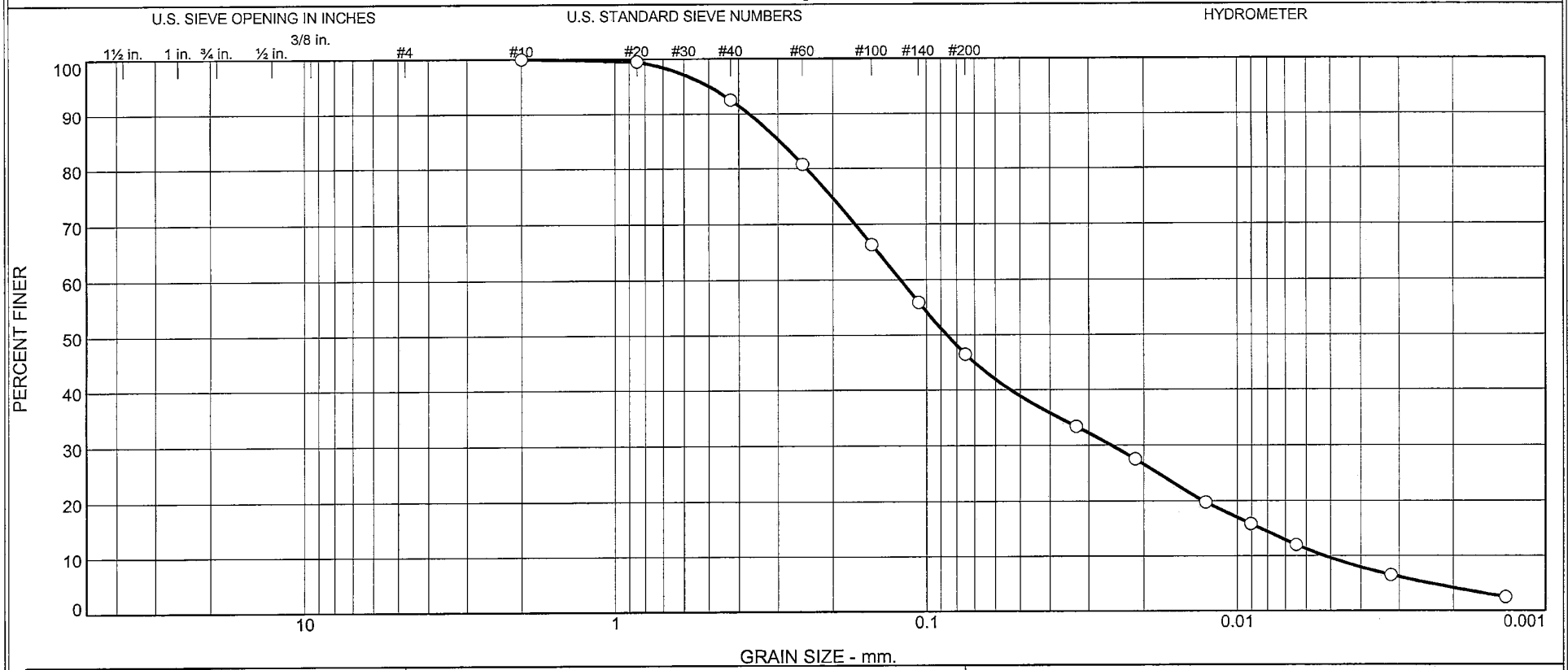
Run No.	1	2	3	4	
Wet+Tare	27.30	26.68			
Dry+Tare	23.70	23.25			
Tare	15.47	15.55			
Moisture	43.7	44.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
185.01	131.20	50.54	66.7

MACTEC Engineering and Consulting, Inc.

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



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	7.4	46.1	42.4	4.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-8	39.1-40.6'	9/1/09	SM	Yellowish Brown Silty SAND	30.6	42	36

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
NA = Not Applicable

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 39.1-40.6' **Sample Number:** SS-8
Material Description: Yellowish Brown Silty SAND
Date: 9/1/09 **Natural Moisture:** 30.6
Liquid Limit: 42 **Plastic Limit:** 36 **USCS Class.:** SM
Testing Remarks: Specific Gravity is assumed
NA = Not Applicable
Tested by: CS **Checked by:** MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
252.78	0.00	0.00	#10	0.00	100.0
53.06	0.00	0.00	#20	0.26	99.5
			#40	3.93	92.6
			#60	10.23	80.7
			#100	17.86	66.3
			#140	23.39	55.9
			#200	28.38	46.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =53.06
Hygroscopic moisture correction:
Moist weight and tare = 25.26
Dry weight and tare = 24.76
Tare weight = 11.27
Hygroscopic moisture = 3.7%
Table of composite correction values:

Temp., deg. C:	10.2	29.5
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	23.0	17.3	0.0133	24.0	12.4	0.0330	33.4
5.00	21.1	20.0	14.3	0.0133	21.0	12.9	0.0213	27.6
15.00	21.0	16.0	10.2	0.0133	17.0	13.5	0.0126	19.8
30.00	20.9	14.0	8.2	0.0133	15.0	13.8	0.0090	15.9
60.00	20.9	12.0	6.2	0.0133	13.0	14.2	0.0065	12.0
250.00	21.6	9.0	3.4	0.0132	10.0	14.7	0.0032	6.5
1440.00	21.2	7.0	1.3	0.0132	8.0	15.0	0.0014	2.5

MACTEC Engineering and Consulting, Inc.

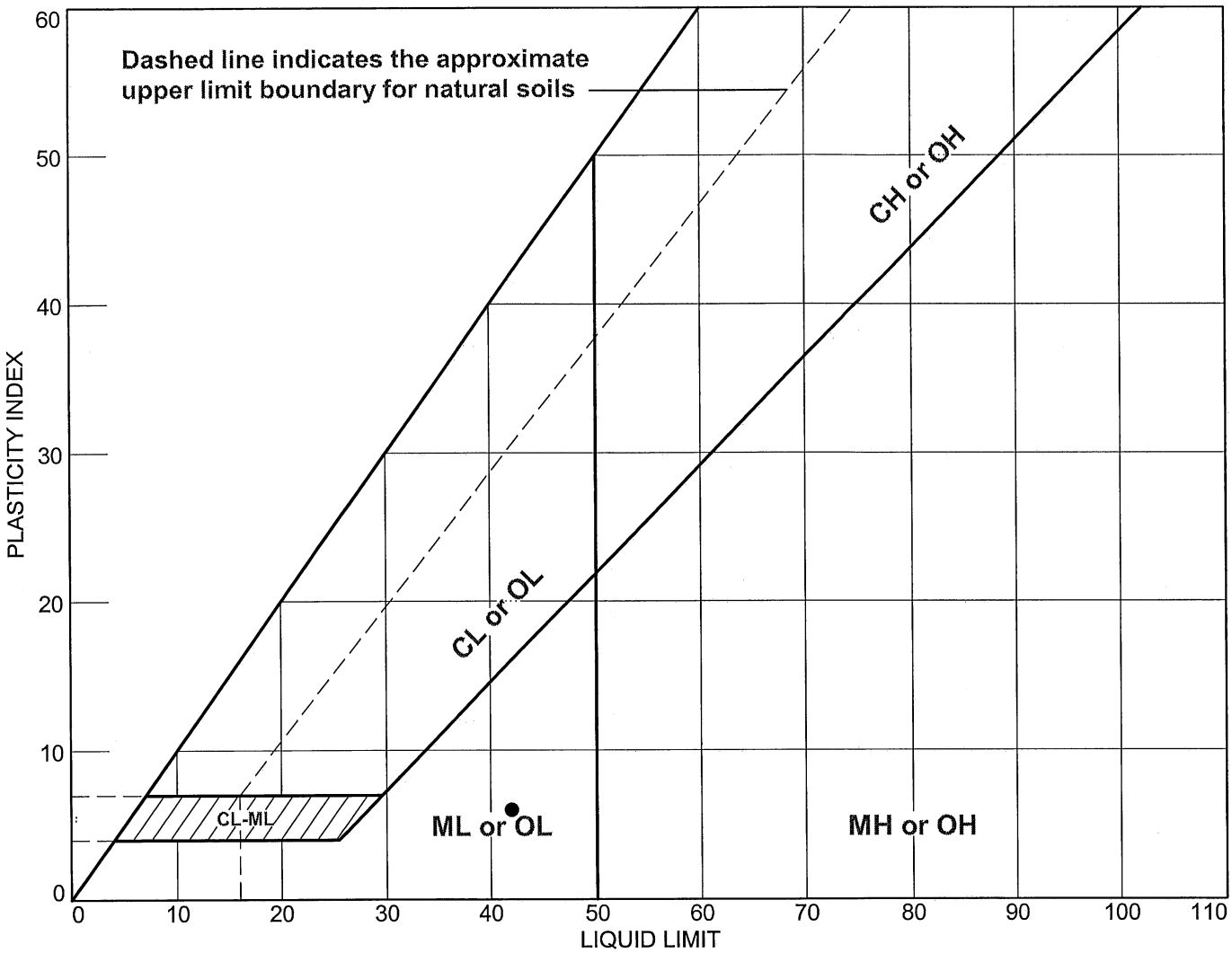
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	7.4	46.1	53.5	42.4	4.1	46.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0052	0.0084	0.0128	0.0253	0.0861	0.1215	0.2432	0.2962	0.3702	0.4974

Fineness Modulus	C_u	C_c
0.51	23.17	1.01

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring M-10(DH)	SS-8	39.1-40.6'	30.6	36	42	6	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** BECHTEL POWER CORPORATION **Project:** North Anna 3 Project **Project No.:** 6468092473 **Figure** NA

Tested By: CS **Checked By:** MDC DSC 11-12-09

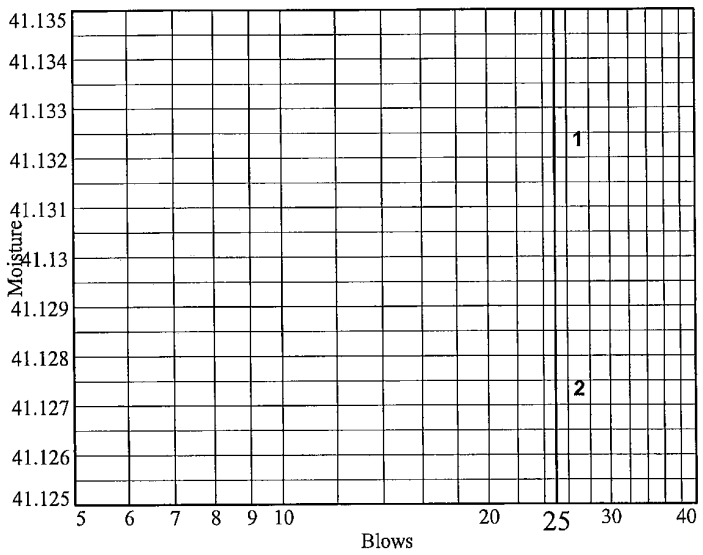
LIQUID AND PLASTIC LIMIT TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 39.1-40.6'
Sample Number: SS-8
Material Description: Yellowish Brown Silty SAND
USCS: SM
AASHTO: A-5(1)
Tested by: CS
Checked by: MDC

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.18	24.64				
Dry+Tare	23.24	20.70				
Tare	11.23	11.12				
# Blows	27	27				
Moisture	41.1	41.1				



Liquid Limit= 42
Plastic Limit= 36
Plasticity Index= 6
Natural Moisture= 30.6
Liquidity Index= -0.9

Plastic Limit Data

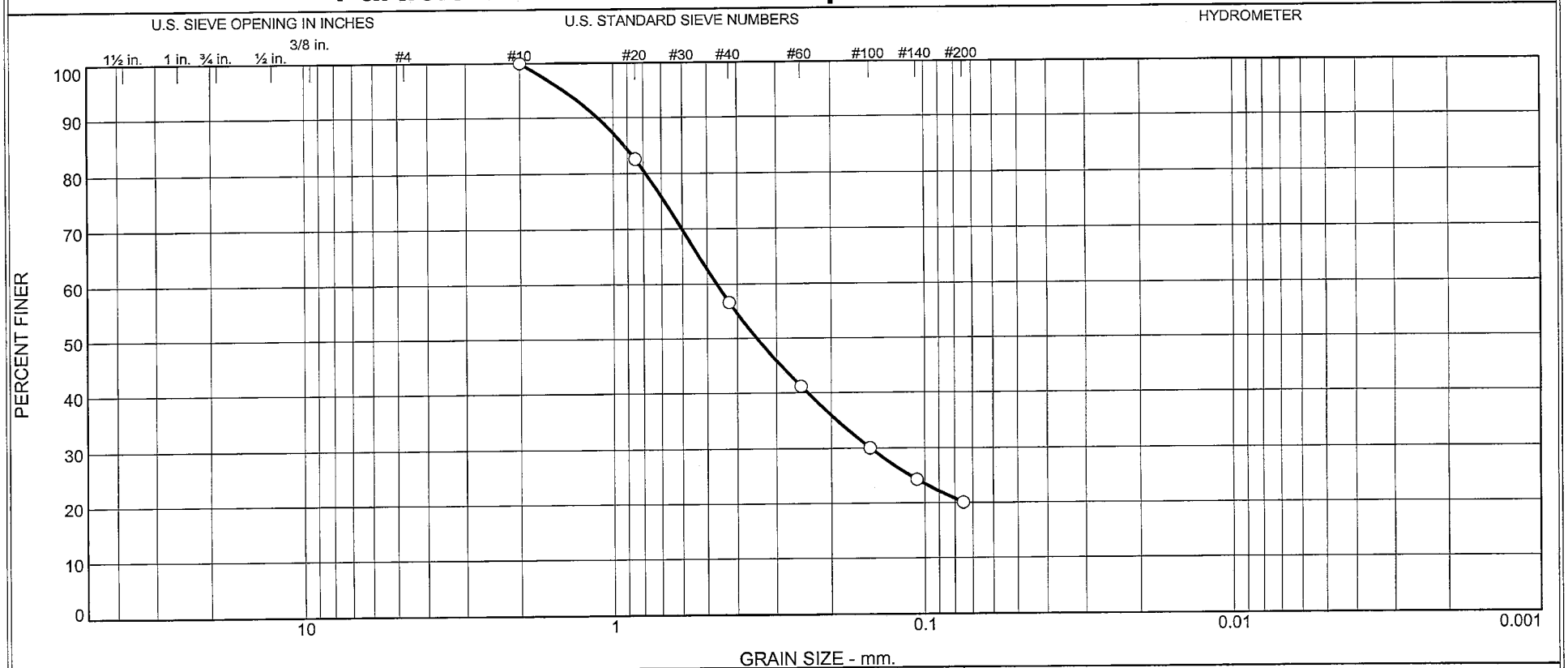
Run No.	1	2	3	4	
Wet+Tare	19.71	26.14			
Dry+Tare	17.42	23.37			
Tare	11.08	15.60			
Moisture	36.1	35.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
166.38	139.20	50.39	30.6

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report ASTM D 6913-04e2



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	43.4	36.5	20.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-10	49.1-50.6'	9/1/09	SM (visual)	Pale Brown Silty SAND (visual)	16.4	ND	ND

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 49.1-50.6'
Sample Number: SS-10
Material Description: Pale Brown Silty SAND (visual)
Date: 9/1/09
Natural Moisture: 16.4
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SM (visual)
Testing Remarks: ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B
Tested by: CS
Checked by: MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
294.04	0.00	0.00	#10	0.00	100.0
54.09	0.00	0.00	#20	9.44	82.5
			#40	23.50	56.6
			#60	31.81	41.2
			#100	37.84	30.0
			#140	40.93	24.3
			#200	43.23	20.1

Fractional Components

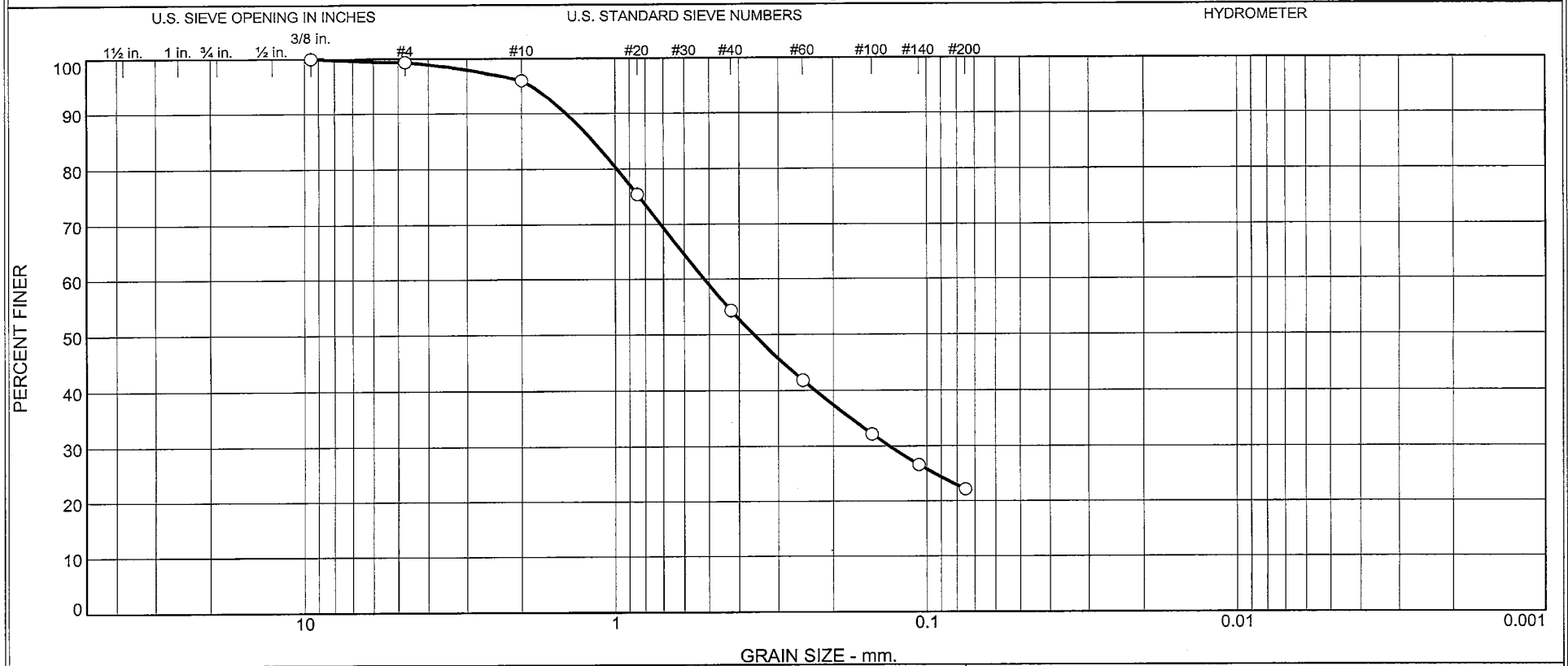
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	43.4	36.5	79.9			20.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1497	0.3471	0.4672	0.7872	0.9219	1.1221	1.4490

Fineness Modulus
1.63

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report ASTM D 6913-04e2



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.7	3.3	41.8	32.1	22.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-12	59.1-60.6	9/2/09	SM (visual)	Very Pale Brown Silty SAND (visual)	15.1	ND	ND

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 59.1-60.6 **Sample Number:** SS-12
Material Description: Very Pale Brown Silty SAND (visual)
Date: 9/2/09 **Natural Moisture:** 15.1
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM (visual)
Testing Remarks: ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B
Tested by: CS **Checked by:** MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
365.85	0.00	0.00	3/8"	0.00	100.0
			#4	2.42	99.3
			#10	14.64	96.0
103.77	0.00	0.00	#20	22.26	75.4
			#40	45.15	54.2
			#60	58.54	41.8
			#100	69.02	32.1
			#140	75.01	26.6
			#200	79.83	22.1

Fractional Components

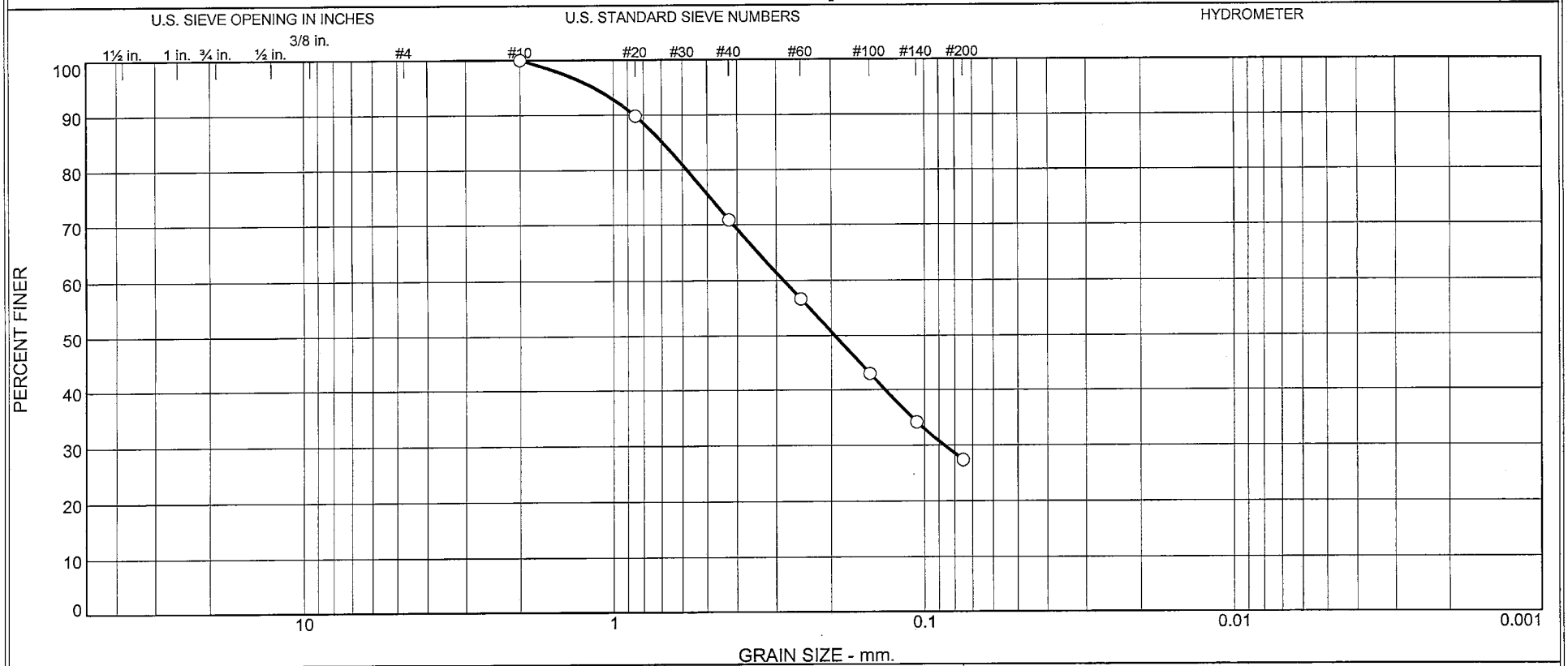
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.7	0.7	3.3	41.8	32.1	77.2			22.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1321	0.3606	0.5195	0.9889	1.1797	1.4410	1.8660

Fineness Modulus
1.76

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report ASTM D 6913-04e2



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	29.2	43.4	27.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-15	74.1-75.6	9/2/09	SM (visual)	Very Dark Bluish Gray Silty SAND (visual)	29.9	ND	ND

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 74.1-75.6 **Sample Number:** SS-15
Material Description: Very Dark Bluish Gray Silty SAND (visual)
Date: 9/2/09 **Natural Moisture:** 29.9
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM (visual)
Testing Remarks: ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B
Tested by: CS **Checked by:** MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
346.65	0.00	0.00	#10	0.00	100.0
102.83	0.00	0.00	#20	10.45	89.8
			#40	30.00	70.8
			#60	44.61	56.6
			#100	58.62	43.0
			#140	67.70	34.2
			#200	74.67	27.4

Fractional Components

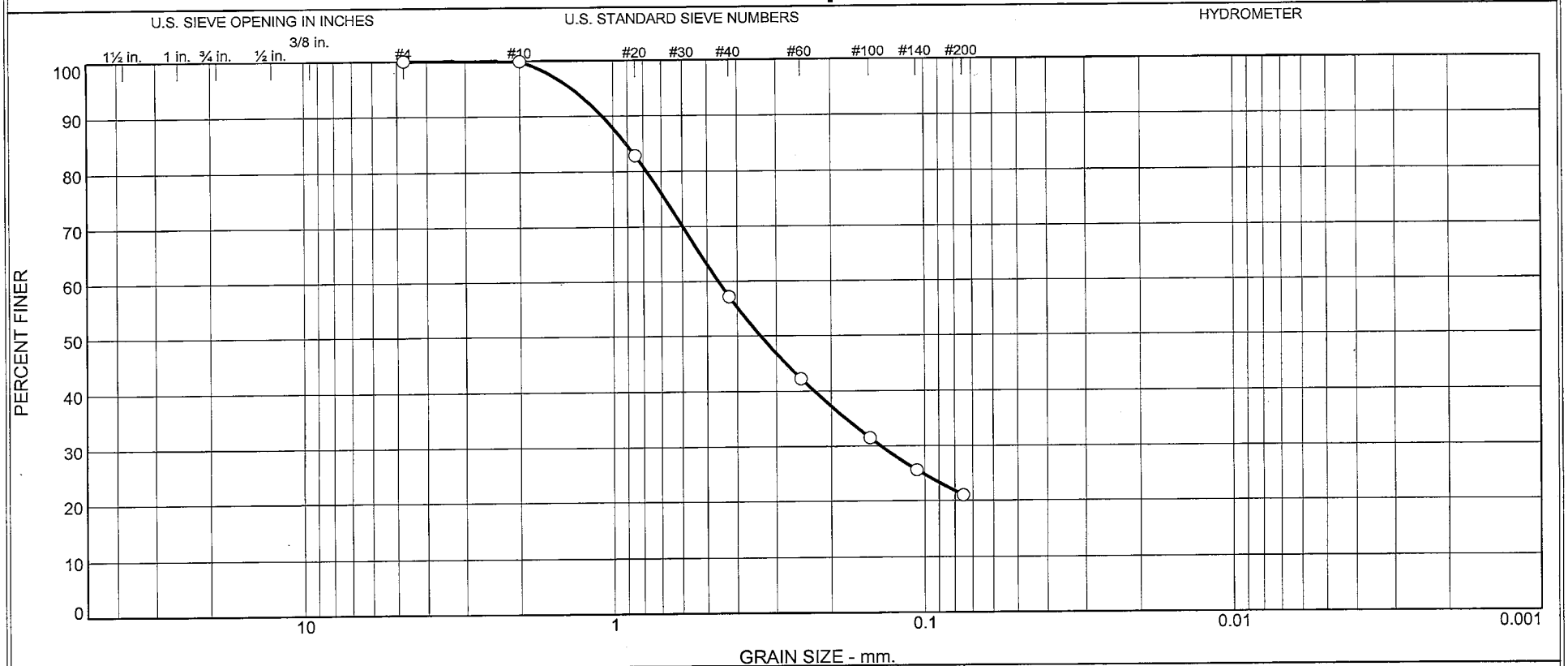
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	29.2	43.4	72.6			27.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0865	0.1948	0.2845	0.5812	0.6951	0.8566	1.1564

Fineness Modulus
1.19

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report ASTM D 6913-04e2



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	42.8	36.1	21.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-10(DH)	SS-17	84.1-85.6'	9/2/09	SM (visual)	Very Pale Brown Silty SAND (visual)	15.1	ND	ND

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B

Tested By: CS **Checked By:** MDC DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-10(DH)
Depth: 84.1-85.6'
Sample Number: SS-17
Material Description: Very Pale Brown Silty SAND (visual)
Date: 9/2/09
Natural Moisture: 15.1
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SM (visual)
Testing Remarks: ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B
Tested by: CS
Checked by: MDC

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
369.27	0.00	0.00	#4	0.00	100.0
			#10	0.37	99.9
49.68	0.00	0.00	#20	8.46	82.9
			#40	21.26	57.1
			#60	28.66	42.3
			#100	34.03	31.5
			#140	36.95	25.6
			#200	39.24	21.0

Fractional Components

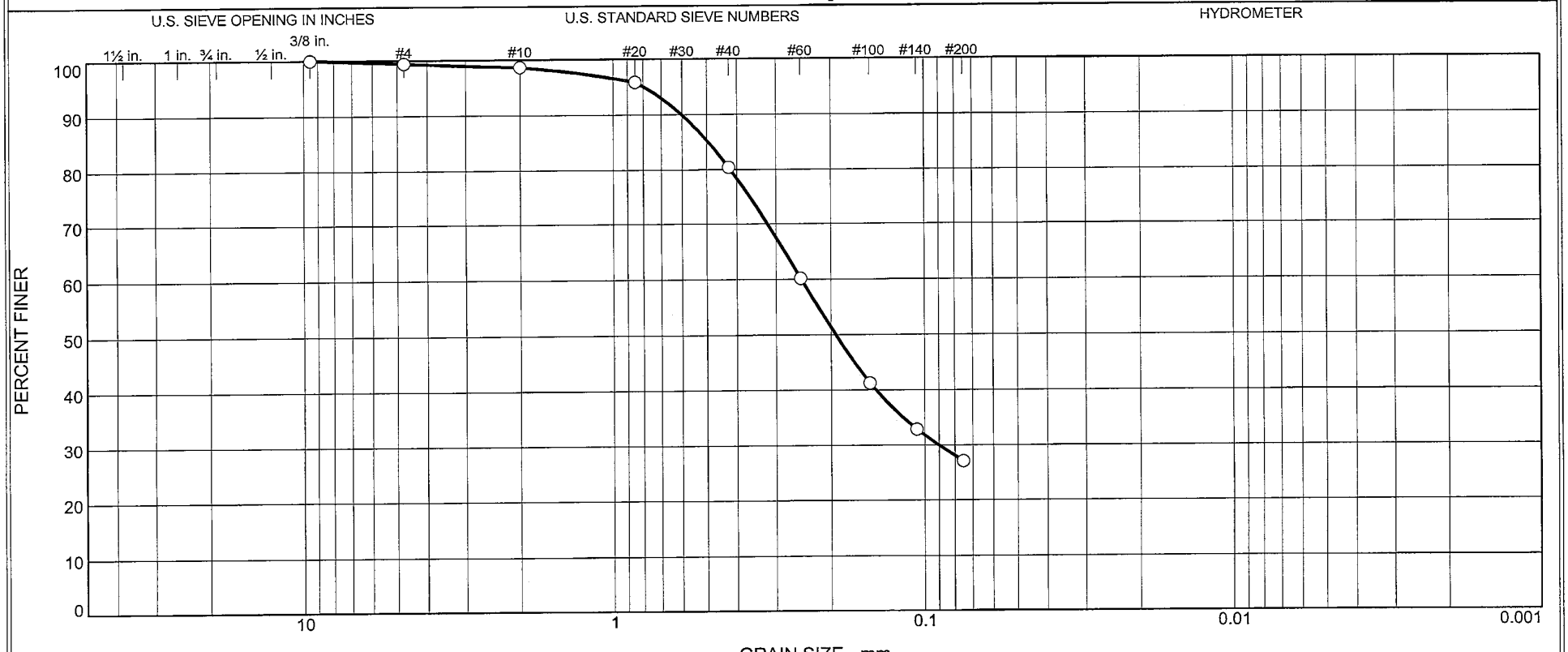
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	42.8	36.1	79.0			21.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1385	0.3377	0.4608	0.7812	0.9082	1.0859	1.3676

Fineness Modulus
1.60

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report ASTM D 6913-04e2



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.6	0.8	18.2	53.3	27.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-30(DH)	SS-1	8.7-10.2'	9/1/09	SM (visual)	Yellow Silty SAND (visual)	17.0	ND	ND

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B

Tested By: CS **Checked By:** BS DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-30(DH)
Depth: 8.7-10.2'
Sample Number: SS-1
Material Description: Yellow Silty SAND (visual)
Date: 9/1/09
Natural Moisture: 17.0
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SM (visual)
Testing Remarks: ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B
Tested by: CS
Checked by: BS

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
233.76	0.00	0.00	3/8"	0.00	100.0
			#4	1.50	99.4
			#10	3.25	98.6
100.91	0.00	0.00	#20	2.84	95.8
			#40	18.65	80.4
			#60	39.39	60.1
			#100	58.65	41.3
			#140	67.26	32.9
			#200	73.21	27.1

Fractional Components

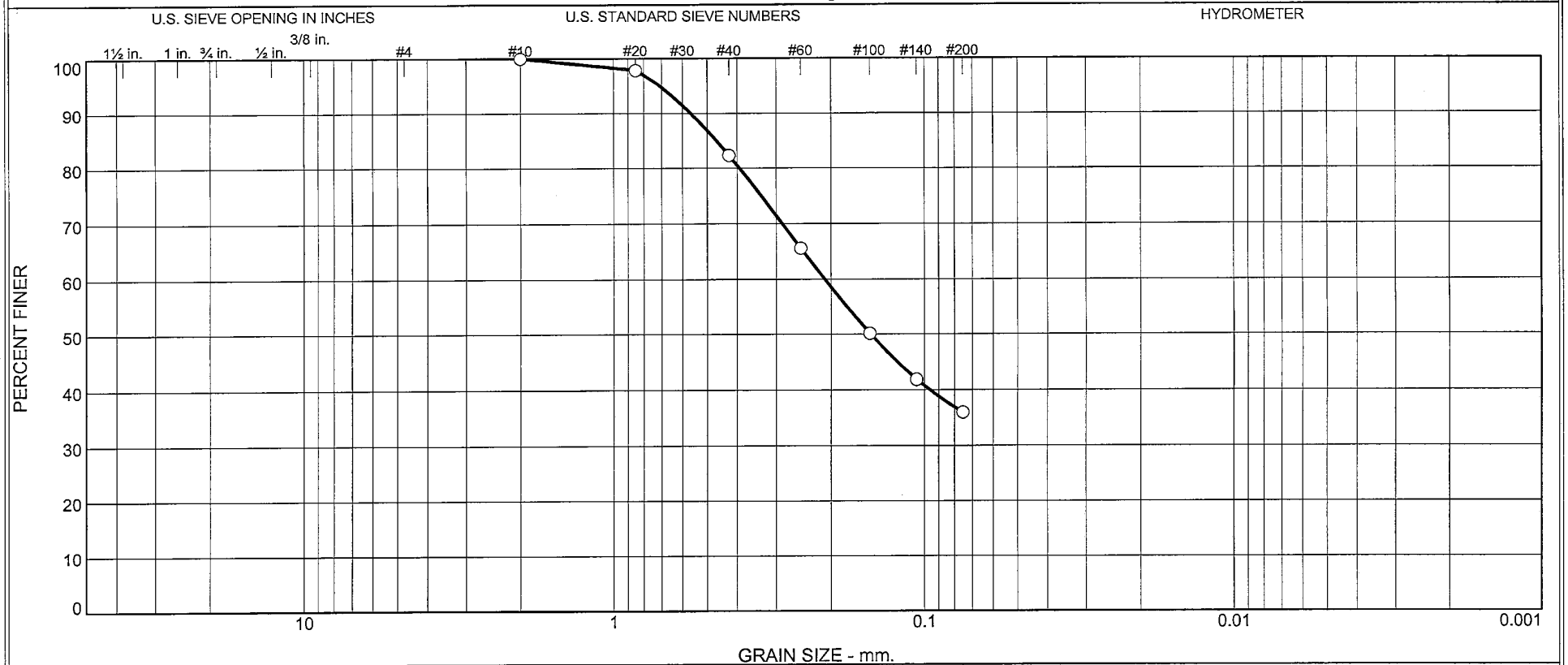
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	0.8	18.2	53.3	72.3			27.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0902	0.1935	0.2493	0.4201	0.4941	0.6020	0.7955

Fineness Modulus
1.06

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report ASTM D 6913-04e2



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	17.7	46.3	36.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-30(DH)	SS-3	13.7-15.2	9/1/09	SM (visual)	Yellow Silty SAND (visual)	19.8	ND	ND

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B

Tested By: CS **Checked By:** BS DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-30(DH)
Depth: 13.7-15.2 **Sample Number:** SS-3
Material Description: Yellow Silty SAND (visual)
Date: 9/1/09 **Natural Moisture:** 19.8
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM (visual)
Testing Remarks: ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B
Tested by: CS **Checked by:** BS

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
218.25	0.00	0.00	#10	0.00	100.0
51.75	0.00	0.00	#20	1.12	97.8
			#40	9.18	82.3
			#60	17.81	65.6
			#100	25.82	50.1
			#140	30.09	41.9
			#200	33.12	36.0

Fractional Components

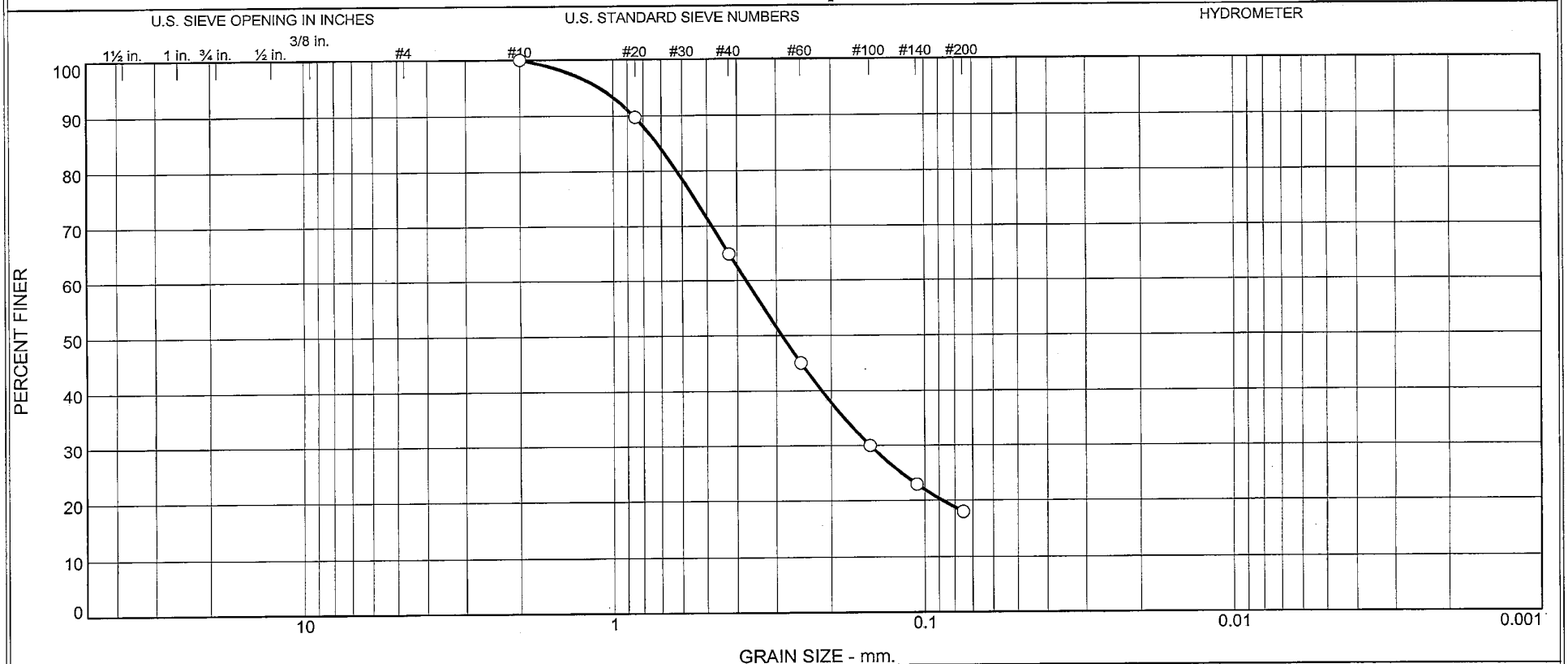
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	17.7	46.3	64.0			36.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1494	0.2097	0.3940	0.4674	0.5646	0.7103

Fineness Modulus
0.88

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report ASTM D 6913-04e2



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	35.1	46.9	18.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-30(DH)	SS-5	23.7-25.2'	9/1/09	SM (visual)	Pale Yellow Silty SAND (visual)	18.5	ND	ND

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B

Tested By: CS **Checked By:** BS DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-30(DH)
Depth: 23.7-25.2' **Sample Number:** SS-5
Material Description: Pale Yellow Silty SAND (visual)
Date: 9/1/09 **Natural Moisture:** 18.5
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM (visual)
Testing Remarks: ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B
Tested by: CS **Checked by:** BS

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
346.85	0.00	0.00	#10	0.00	100.0
102.89	0.00	0.00	#20	10.59	89.7
			#40	36.14	64.9
			#60	56.55	45.0
			#100	72.09	29.9
			#140	79.39	22.8
			#200	84.41	18.0

Fractional Components

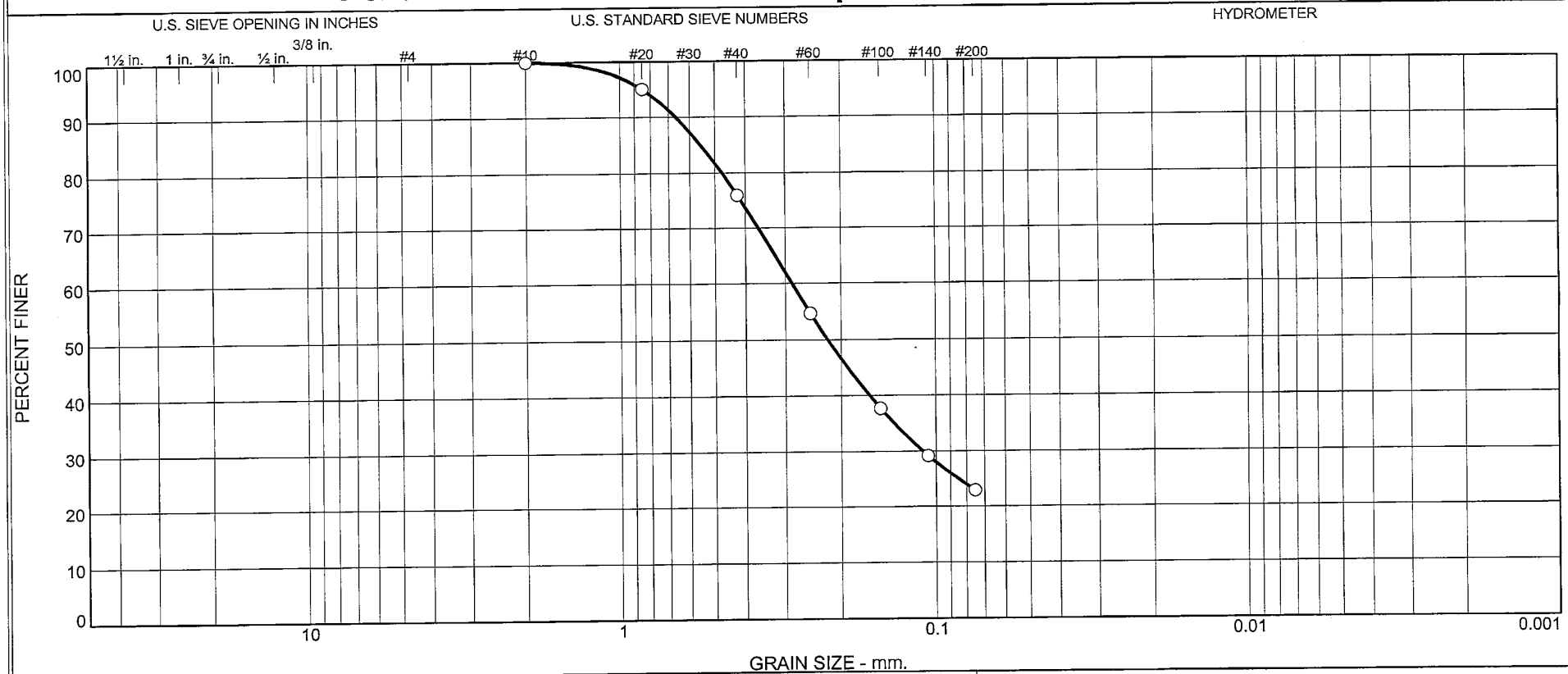
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	35.1	46.9	82.0			18.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0876	0.1504	0.2879	0.3756	0.6255	0.7230	0.8599	1.1087

Fineness Modulus
1.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report ASTM D 6913-04e2



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	24.0	53.1	22.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring M-30(DH)	SS-7	33.7-35.2	9/1/09	SM (visual)	Yellow Silty SAND (visual)	14.8	ND	ND

Client BECHTEL POWER CORPORATION

Project North Anna 3 Project

Project No. 6468092473 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B

Tested By: CS **Checked By:** BS DSC 11-12-09

GRAIN SIZE DISTRIBUTION TEST DATA

11/4/2009

Client: BECHTEL POWER CORPORATION
Project: North Anna 3 Project
Project Number: 6468092473
Location: Boring M-30(DH)
Depth: 33.7-35.2 **Sample Number:** SS-7
Material Description: Yellow Silty SAND (visual)
Date: 9/1/09 **Natural Moisture:** 14.8
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM (visual)
Testing Remarks: ND = Not Determined
NA = Not Applicable
ASTM D 6913-04e2 Method B
Tested by: CS **Checked by:** BS

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
384.34	0.00	0.00	#10	0.00	100.0
51.82	0.00	0.00	#20	2.58	95.0
			#40	12.45	76.0
			#60	23.52	54.6
			#100	32.29	37.7
			#140	36.72	29.1
			#200	39.95	22.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	24.0	53.1	77.1			22.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1104	0.2208	0.2862	0.4750	0.5540	0.6647	0.8489

Fineness Modulus
1.14

MACTEC Engineering and Consulting, Inc.

FINAL DATA REPORT
Revision 0
GEOTECHNICAL EXPLORATION AND TESTING
SUPPLEMENT 2
DOMINION POWER
NORTH ANNA NUCLEAR POWER STATION
NORTH ANNA 3 PROJECT
MINERAL, LOUISA COUNTY, VIRGINIA

December 16, 2009

VOLUME 1

APPENDIX D.2
Rock Core Unconfined Strength Tests

Prepared By:

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

MACTEC PROJECT No. 6468-09-2473

Prepared For:

Bechtel Power Corporation
Subcontractor No. 25161-500-HC4-CY00-00001

North Anna 3 Project

MACTEC Project: 6468-09-2473

Summary Report for Rock Core Testing

NAP301 1/2

MACTEC

Summary of Laboratory Testing
Standard Test Method for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures
ASTM D7012-07e1

Project Name: North Anna 3
MACTEC Project No.: 6468-09-2473

Boring Number	Run Number	Sample Depth (ft)	Diameter (in)	Length (in)	Time to Failure	Unconfined Compressive Strength (psi)	As Received Unit Weight (pcf)
M-10 (DH)	RS-1	117.45-117.9	2.41	5.15	5 min 6 sec	7960	160.1
M-10 (DH)	RS-2	133.75-134.2	2.41	5.09	15 min 13 sec	19640	161.9
M-10 (DH)	RS-3	153.7-154.15	2.41	5.08	16 min 0 sec	33830	163.5
M-10 (DH)	RS-4	177.6-178.05	2.39	5.14	26 min 44 sec	20880	163.3
M-10 (DH)	RS-5	196.7-197.15	2.39	5.18	12 min 59 sec	30780	163.7
M-30 (DH)	RS-6	57.0-57.45	2.40	5.18	14 min 8 sec	28650	162.8
M-30 (DH)	RS-7	95.4-95.85	2.39	5.06	9 min 39 sec	23700	162.7
M-30 (DH)	RS-8	134.9-135.35	2.39	5.26	9 min 47 sec	26200	163.7
M-30 (DH)	RS-9	166.9-167.35	2.40	5.06	7 min 5 sec	24820	164.6
M-30 (DH)	RS-10	197.05-197.5	2.40	5.16	10 min 29 sec	33040	162.6

Created By: DAK 12-1-09
Checked By: JHA 12-1-09
Reviewed By: MA 12-1-09