APPENDIX F
Laboratory Testing Results – River (Sta. 0+00 to Sta. 26+00)

GeoEngineers
Earth Science + Technology

Laboratory Test Results

Project Name: LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA
Project ID: 18274-001-00

Technical Responsibility: CLP **Date:** 1/24/2014
Title: Lab Manager

BORING NUMBER	DEPTH (FT) FROM - TO	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF) WET	UNIT WEIGHT (PCF) DRY	ATTERBERG LIMITS LL	ATTERBERG LIMITS PL	ATTERBERG LIMITS PI	SHEAR STRENGTH INFORMATION C KSF	SHEAR STRENGTH INFORMATION STRAIN %	SHEAR STRENGTH INFORMATION CONFINING PRESSURE (KSF)	SHEAR STRENGTH INFORMATION TYPE FAILURE	TEST TYPE	COMMENTS
R-1A	60.0 - 62.0	Gray sand with silt (SP)	20										MC	
R-1A	63.0 - 64.5	Medium dense gray sand with silt and shell fragments (SP)	25										MC,H	93.3% sand / 6.0% silt / 0.7% clay
R-1A	65.5 - 67.0	Medium dense gray sand with silt (SP)	28										MC,H	91.7% sand / 6.4% silt / 1.9% clay
R-1A	68.0 - 69.5	Medium dense gray sand, trace silt (SP)	27										MC,Dry Sieve	96.8% sand / 3.2% fines
R-1A	70.5 - 72.0	Medium dense gray sand (SP)	25										MC	
R-1A	73.0 - 74.5	Medium dense gray sand, trace silt (SP)	24										MC,H	95.1% sand / 4.3% silt / 0.6% clay
R-1A	75.5 - 77.0	Dense gray sand, trace silt (SP)	22										MC,Dry Sieve	96.5% sand / 3.5% fines
R-1A	78.0 - 79.5	Dense gray silty sand (SM)	22										MC,H	61.9% sand / 37.4% silt / 0.7% clay
R-1A	80.5 - 82.0	Medium dense sand with silt (SP)	23										MC,M200	92.4% sand / 7.6% fines
R-1A	83.0 - 84.5	Medium dense gray sand with silt (SP)	27										MC,H	92.7% sand / 6.7% silt / 0.6% clay
R-1A	85.5 - 87.0	Dense gray sand with silt (SP)	23										MC,M200	93.8% sand / 6.2% fines
R-1A	88.0 - 89.5	Medium dense gray sand with silt (SP)	26										MC,M200	93.8% sand / 6.2% fines
R-1A	90.5 - 92.0	Dense gray sand with silt (SP)	23										MC	
R-1A	93.0 - 95.0	Dense gray sand with silt (SP)	22										MC,M200	94.3% sand / 5.7% fines

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R-2A	53.0 - 55.0	Gray sand with silt (SP)	20										MC,H	93.4% sand / 5.3% silt / 1.3% clay
R-2A	55.5 - 57.0	Medium dense gray sand, trace silt (SP)	22										MC,H	96.1% sand / 2.9% silt / 1.0% clay
R-2A	58.0 - 59.5	Medium dense gray sand with silt (SP)	22										MC,M200	94.6% sand / 5.4% fines
R-2A	60.5 - 62.0	Medium dense gray sand, trace silt (SP)	23										MC	
R-2A	63.0 - 64.5	Medium dense gray sand, trace silt (SP)	23										MC,Dry Sieve	97.5% sand / 2.5% fines
R-2A	65.5 - 67.0	Medium dense gray silty sand with organic matter (SM)	30										MC	
R-2A	68.0 - 69.5	Medium dense gray sand, trace silt (SP)	24										MC,H	94.5% sand / 4.9% silt / 0.6% clay
R-2A	70.5 - 72.0	Medium dense gray sand with silt (SP)	27										MC	
R-2A	73.0 - 74.5	Medium dense gray sand with silt (SP)	27										MC,M200	93.6% sand / 6.4% fines
R-2A	75.5 - 77.0	Medium dense gray sand, trace silt (SP)	26										MC,Dry Sieve	97.2% sand / 2.8% fines
R-2A	78.0 - 79.5	Dense gray sand with silt (SP)	25										MC,M200	93.6% sand / 6.4% fines
R-2A	80.5 - 82.0	Medium dense gray sand, trace silt (SP)	22										MC	
R-2A	83.0 - 84.5	Dense gray sand, trace silt (SP)	23										MC,H	95.8% sand / 3.8% silt / 0.4% clay
R-2A	85.5 - 87.0	Dense gray sand, trace silt (SP)	22										MC,M200	97.5% sand / 2.5% fines
R-2A	88.0 - 89.5	Dense gray sand, trace silt (SP)	21										MC,M200	95.6% sand / 4.4% fines
R-2A	90.5 - 92.0	Dense gray sand, trace silt (SP)	25										MC	
R-2A	93.0 - 94.5	Dense gray sand, trace silt (SP)	23										MC,M200	97.0% sand / 3.0% fines
R-2A	95.5 - 97.0	Dense gray sand with silt (SP)	29										MC	
R-2A	98.0 - 99.5	Dense gray sand with silt (SP)	26										MC,H	88.4% sand / 10.2% silt / 1.4% clay

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Laboratory Test Results

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Technical Responsibility: CLP **Date:** 1/24/2014

Title: Lab Manager

BORING NUMBER	DEPTH (FT) FROM - TO	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF) WET	UNIT WEIGHT (PCF) DRY	ATTERBERG LIMITS LL	ATTERBERG LIMITS PL	ATTERBERG LIMITS PI	SHEAR STRENGTH INFORMATION C KSF	SHEAR STRENGTH INFORMATION STRAIN %	SHEAR STRENGTH INFORMATION CONFINING PRESSURE (KSF)	SHEAR STRENGTH INFORMATION TYPE FAILURE	TEST TYPE	COMMENTS
R-3A	54.0 - 55.5	Very soft gray clay with shell fragments (CL6)	57										MC	
R-3A	56.5 - 58.0	Loose gray sand with silt (SP)	21										MC,H	93.6% sand / 5.8% silt / 0.6% clay
R-3A	59.0 - 60.5	Medium dense gray sand, trace silt (SP)	22										MC,H	95.6% sand / 3.6% silt / 0.8% clay
R-3A	61.5 - 63.0	Medium dense gray sand with silt and shell fragments (SP)	25										MC	
R-3A	64.0 - 65.5	Medium dense gray sand with silt and shell fragments (SP)	28										MC	
R-3A	66.5 - 68.0	Medium dense gray sand with silt (SP)	28										MC,M200	93.4% sand / 6.6% fines
R-3A	69.0 - 70.5	Dense gray silty sand (SM)	29										MC,H	87.0% sand / 12.2% silt / 0.8% clay
R-3A	71.5 - 73.0	Medium dense gray silty sand (SM)	29										MC	
R-3A	74.0 - 75.5	Dense gray sand with silt (SP)	29										MC,M200	94.0% sand / 6.0% fines
R-3A	76.5 - 78.0	Very dense gray sand with silt (SP)	27										MC,Dry Sieve	92.8% sand / 7.2% fines
R-3A	79.0 - 80.5	Dense gray sand with silt (SP)	26										MC	
R-3A	81.5 - 83.0	Medium dense gray sand, trace silt (SP)	27										MC,M200	96.5% sand / 3.5% fines
R-3A	84.0 - 85.5	Dense gray sand with silt (SP)	26										MC,H	93.2% sand / 5.9% silt / 0.9% clay
R-3A	86.5 - 88.0	Dense gray sand with silt (SP)	26										MC	
R-3A	89.0 - 90.5	Very dense gray sand, trace silt (SP)	25										MC,M200	97.2% sand / 2.8% fines
R-3A	91.5 - 93.0	Very dense gray sand, trace silt (SP)	25										MC	
R-3A	94.0 - 95.5	Very dense gray sand, trace silt (SP)	23										MC,Dry Sieve	96.4% sand / 3.6% fines
R-3A	96.5 - 98.0	Very dense gray sand, trace silt (SP)	25										MC	
R-3A	99.0 - 100.5	Very dense gray sand, trace silt (SP)	23										MC,M200	96.3% sand / 3.7% fines
R-3A	101.5 - 103.0	Very dense gray sand, trace silt (SP)	25										MC	
R-3A	104.0 - 105.5	Very dense gray sand with silt (SP)	30										MC,H	93.7% sand / 5.5% silt / 0.8% clay
R-3A	106.5 - 108.0	Very dense gray sand with silt (SP)	26										MC	
R-3A	109.0 - 110.5	Very dense gray sand, trace silt (SP)	25										MC,M200	96.1% sand / 3.9% fines
R-3A	111.5 - 113.0	Very dense gray sand, trace silt (SP)	27										MC	
R-3A	114.0 - 115.5	Dense gray sand with silt (SP)	32										MC,Dry Sieve	90.0% sand / 10.0% fines
R-3A	116.5 - 118.0	Very dense gray sand with silt (SP)	23										MC	

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Disclaimer: The results presented relate only to those samples tested.

Soil Description: ASTM(D2487) AASHTO(M145) **Moisture Content:**

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R-3A	119.0 - 120.5	Very dense gray sand with silt (SP)	25										MC,H	92.3% sand / 7.7% silt / 0.0% clay
R-3A	121.5 - 123.0	Very dense gray sand with silt (SP)	26										MC	
R-3A	124.0 - 125.5	Dense gray sand with silt (SP)	24										MC,M200	92.0% sand / 8.0% fines
R-3A	126.5 - 128.0	Very dense gray sand with silt (SP)	24										MC	
R-3A	129.0 - 130.5	Very dense gray sand with silt (SP)	25										MC	
R-3A	131.5 - 133.0	Very dense gray sand with silt (SP)	22										MC,M200	92.8% sand / 7.2% fines
R-3A	134.0 - 135.5	Very stiff gray clay (CH2)	57										MC	
R-3A	136.0 - 137.5	Very stiff light gray clay with sand pockets (CL4)	26										MC	
R-3A	141.0 - 142.0	Very stiff light gray clay with sand streaks and sand pockets (CL4)	24	126.6	102.3	33	16	17	2.68	13	4.61	Multiple Shear	MC,UU-USACE,AL	
R-3A	143.0 - 144.0	Very stiff gray clay with sand streaks and sand pockets (CL6)	23	122.8	99.6	46	19	27	3.14	6	4.71	Multiple Shear	MC,UU-USACE,AL	
R-3A	144.0 - 144.6	Very stiff gray clay with sand streaks and sand pockets (CL6)	25										MC	
R-3A	147.0 - 148.0	Medium dense gray sandy silt with clay pockets (ML)	26	127.7	101.7	25	18	7	3.17	15	4.92	Yield	MC,UU-USACE,AL	
R-3A	148.0 - 149.0	Medium dense gray silty sand with 1" clay CL4 layer (SM)	24										MC,M200	58.5% sand / 41.5% fines
R-3A	150.0 - 150.5	Gray silty sand (SM)	25										MC	
R-3A	152.5 - 154.0	Very stiff gray clay with 6" silty sand layer (CL6)	35										MC	
R-3A	155.0 - 156.5	Very stiff gray clay (CH3)	43			60	21	39					MC,AL	
R-3A	157.7 - 158.0	Medium gray clay (CL6)	38										MC	
R-3A	158.0 - 159.0	Stiff gray clay with sand lenses and sand pockets (CL6)	37										MC	
R-3A	160.3 - 161.0	Very soft gray clay (CH2)	42	117.9	82.8				0.23	15	5.6	Yield	MC,UU	
R-3A	161.6 - 162.0	Medium gray clay with 2" sand layer (CH2)	42										MC	
R-3A	162.0 - 163.0	Stiff gray clay with sand lenses and sand pockets (CH2)	40	113.8	81.6				1.23	15	5.71	Yield	MC,UU	
R-3A	166.0 - 167.5	Very stiff gray clay with sand pockets (CL4)	36										MC	
R-3A	168.5 - 169.0	Very soft gray clay with 1 1/2" ML layer (CL4)	32										MC	
R-3A	169.0 - 170.5	Dense gray clayey silt with sand pockets (ML)	40										MC	

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R-3A	171.5 - 173.0	Very dense gray clayey silt with sand (ML)	31										MC	
R-3A	174.0 - 175.5	Very dense gray clayey silt with sand (ML)	32										MC	
R-3A	176.5 - 178.0	Very stiff gray clay with sand lenses (CH2)	47										MC	
R-3A	178.3 - 179.0	Stiff gray clay (CH3)	55										MC	
R-3A	179.0 - 180.0	Stiff gray clay (CH3)	48	108.6	73.5				1.58	5	6.6	SLS (60°)	MC,UU	
R-3A	180.3 - 181.0	Stiff gray clay (CH3)	52										MC	
R-3A	181.0 - 182.0	Stiff gray clay (CH3)	39										MC	
R-3A	183.0 - 184.0	Stiff gray clay with sand lenses and sand pockets and 1/2 silty clay layer (CH2)	36										MC	
R-3A	184.0 - 185.0	Stiff gray clay with sand lenses (CH3)	38										MC	
R-3A	186.6 - 187.0	Stiff gray clay with sand lenses (CH3)	39										MC	
R-3A	187.0 - 188.0	Stiff gray clay with sand lenses (CH3)	34										MC	
R-3A	189.0 - 190.0	Very stiff gray clay with sand lenses (CH3)	37										MC	
R-3A	190.0 - 191.0	Very stiff gray clay with sand lenses (CH3)	42										MC	
R-3A	192.7 - 193.0	Stiff gray clay (CH3)	41										MC	
R-3A	193.0 - 194.0	Stiff gray clay with sand lenses(CH3)	42										MC	
R-3A	195.0 - 196.0	Very stiff gray clay (CH3)	44	112.2	77.7	73	28	45	2.53	2	7.44	SLS (55°)	MC,UU,AL	
R-3A	196.0 - 197.0	Very stiff gray clay (CH3)	41										MC	
R-3A	198.7 - 199.0	Stiff gray clay (CH3)	40										MC	
R-3A	199.0 - 200.0	Very stiff gray clay with sand lenses and sand pockets (CH3)	35										MC	
R-3A	201.0 - 202.0	Very stiff gray clay with sand lenses and sand pockets (CH3)	33										MC	
R-3A	202.0 - 203.0	Very stiff gray clay with sand lenses and sand pockets (CH3)	34										MC	
R-3A	204.7 - 205.0	Very stiff gray clay with sand streaks and sand pockets (CH3)	40	110.4	79.1	74	28	46	2.11	10	7.92	SLS (55°)	MC,UU,AL	
R-3A	205.0 - 206.0	Stiff gray clay with sand lenses and sand pockets (CH3)	41										MC	

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R-4A	53.0 - 54.5	Loose gray sandy silt (ML)	32										MC,H	49.4% sand / 41.8% silt / 8.8% clay
R-4A	55.5 - 57.0	Medium dense gray sand with silt (SP)	25										MC,H	89.5% sand / 8.9% silt / 1.6% clay
R-4A	58.0 - 59.5	Medium dense gray sand with silt (SP)	24										MC	
R-4A	60.5 - 62.0	Medium dense gray sand, trace silt (SP)	25										MC,M200	98.4% sand / 1.6% fines
R-4A	63.0 - 64.5	Medium dense gray sand, trace silt (SP)	24										MC,H	98.0% sand / 1.6% silt / 0.4% clay
R-4A	65.5 - 67.0	Medium dense gray sand, trace silt (SP)	26										MC,M200	98.7% sand / 1.3% fines
R-4A	68.0 - 69.5	Dense gray sand with silt (SP)	25										MC,H	93.6% sand / 5.9% silt / 0.5% clay
R-4A	70.5 - 72.0	Dense gray sand with silt (SP)	26										MC	
R-4A	73.0 - 74.5	Dense gray sand with silt (SP)	21										MC,M200	94.1% sand / 5.9% fines
R-4A	75.5 - 77.0	Medium dense gray sand with silt (SP)	26										MC,H	91.4% sand / 8.4% silt / 0.2% clay
R-4A	78.0 - 79.5	Dense gray sand with silt (SP)	28										MC	
R-4A	80.5 - 82.0	Very dense gray sand with silt (SP)	25										MC,M200	94.9% sand / 5.1% fines
R-4A	83.0 - 84.5	Medium dense gray sand with silt (SP)	27										MC,Dry Sieve	95.0% sand / 5.0% fines
R-4A	85.5 - 87.0	Medium dense gray sand with silt (SP)	28										MC	
R-4A	88.0 - 89.5	Dense gray sand, trace silt (SP)	25										MC,M200	95.6% sand / 4.4% fines
R-4A	90.5 - 92.0	Medium dense gray sand, trace silt (SP)	28										MC,Dry Sieve	98.3% sand / 1.7% fines
R-4A	93.0 - 94.5	Medium dense gray sand with silt (SP)	24										MC	
R-4A	95.5 - 97.0	Dense gray sand, trace silt (SP)	29										MC,M200	95.6% sand / 4.4% fines
R-4A	98.0 - 99.5	Medium dense gray sand, trace silt (SP)	23										MC,Dry Sieve	96.1% sand / 3.9% fines

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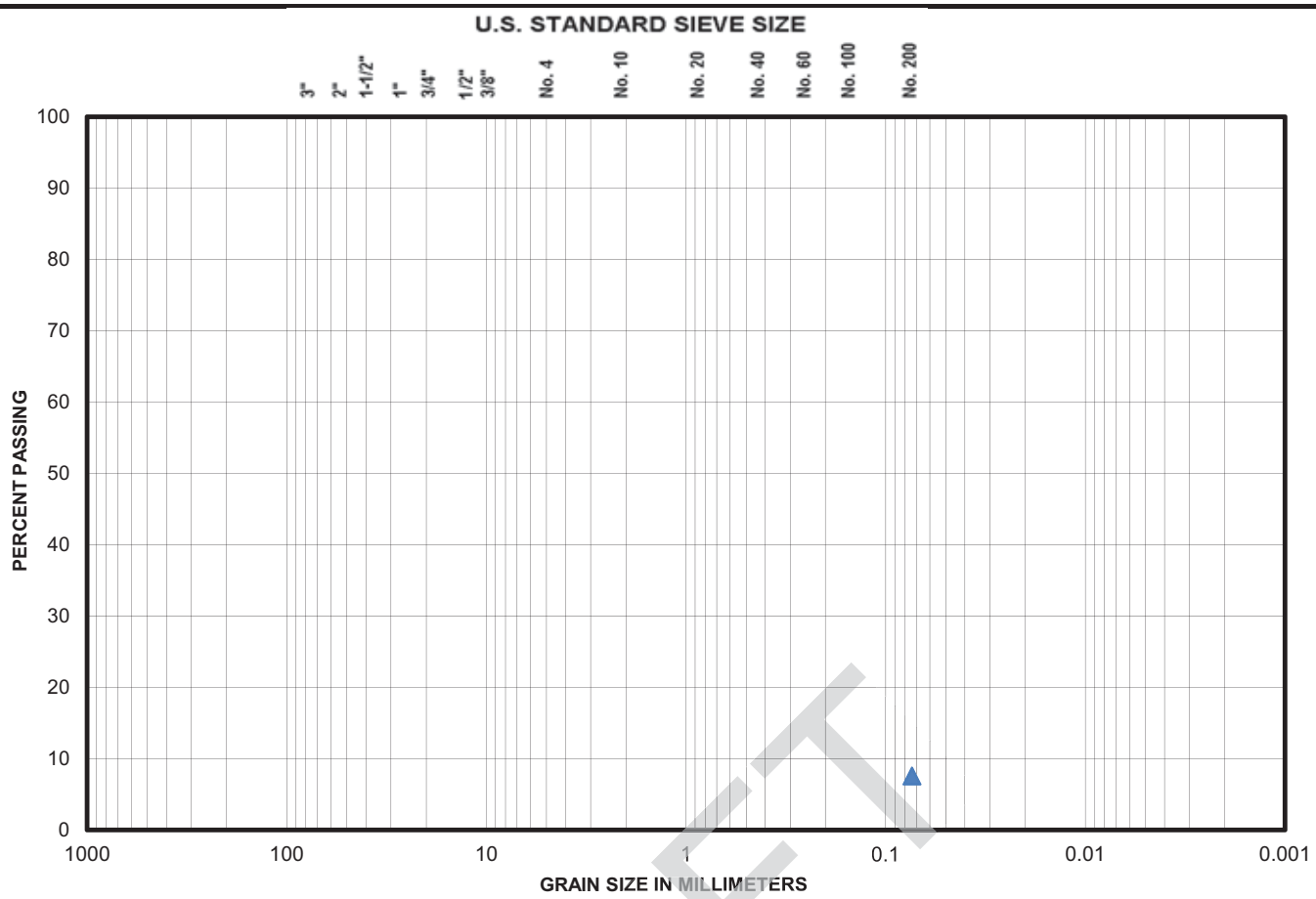
R-5A	59.0 - 60.5	Loose gray sand with silt and shell fragments (SP)	28										MC,H	89.3% sand / 9.9% silt / 0.8% clay
R-5A	61.5 - 63.0	Medium dense gray sand, trace silt (SP)	23										MC,H	97.1% sand / 2.1% silt / 0.8% clay
R-5A	64.0 - 65.5	Medium dense gray sand, trace silt (SP)	20										MC,M200	97.4% sand / 2.6% fines
R-5A	66.5 - 68.0	Medium dense gray sand, trace silt (SP)	25										MC,Dry Sieve	98.6% sand / 1.4% fines
R-5A	69.0 - 70.5	Medium dense gray sand, trace silt (SP)	25										MC	
R-5A	71.5 - 73.0	Medium dense gray sand, trace silt (SP)	23										MC	
R-5A	74.0 - 75.5	Medium dense gray sand, trace silt (SP)	21										MC	
R-5A	76.5 - 78.0	Medium dense gray sand with silt and 5" silty clay layer (SP)	24										MC,M200	94.6% sand / 5.4% fines
R-5A	79.0 - 80.5	Dense gray sand with silt (SP)	24										MC,Dry Sieve	94.3% sand / 5.7% fines
R-5A	81.5 - 83.0	Medium dense gray silty sand (SM)	32										MC	
R-5A	84.0 - 85.5	Medium dense gray silty sand (SM)	28										MC	
R-5A	86.5 - 88.0	Dense gray sand, trace silt (SP)	26										MC,M200	97.5% sand / 2.5% fines
R-5A	89.0 - 90.5	Dense gray sand, trace silt (SP)	25										MC	
R-5A	91.5 - 93.0	Dense gray sand, trace silt (SP)	22										MC	
R-5A	94.0 - 95.5	Dense gray sand, trace silt (SP)	26										MC,Dry Sieve	96.2% sand / 3.8% fines



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	92.4	**Fines (Silt & Clay) %**		7.6	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Medium dense sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	7.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-1A	**Checked By**	CLP
Source/Depth (feet)	80.5 - 82	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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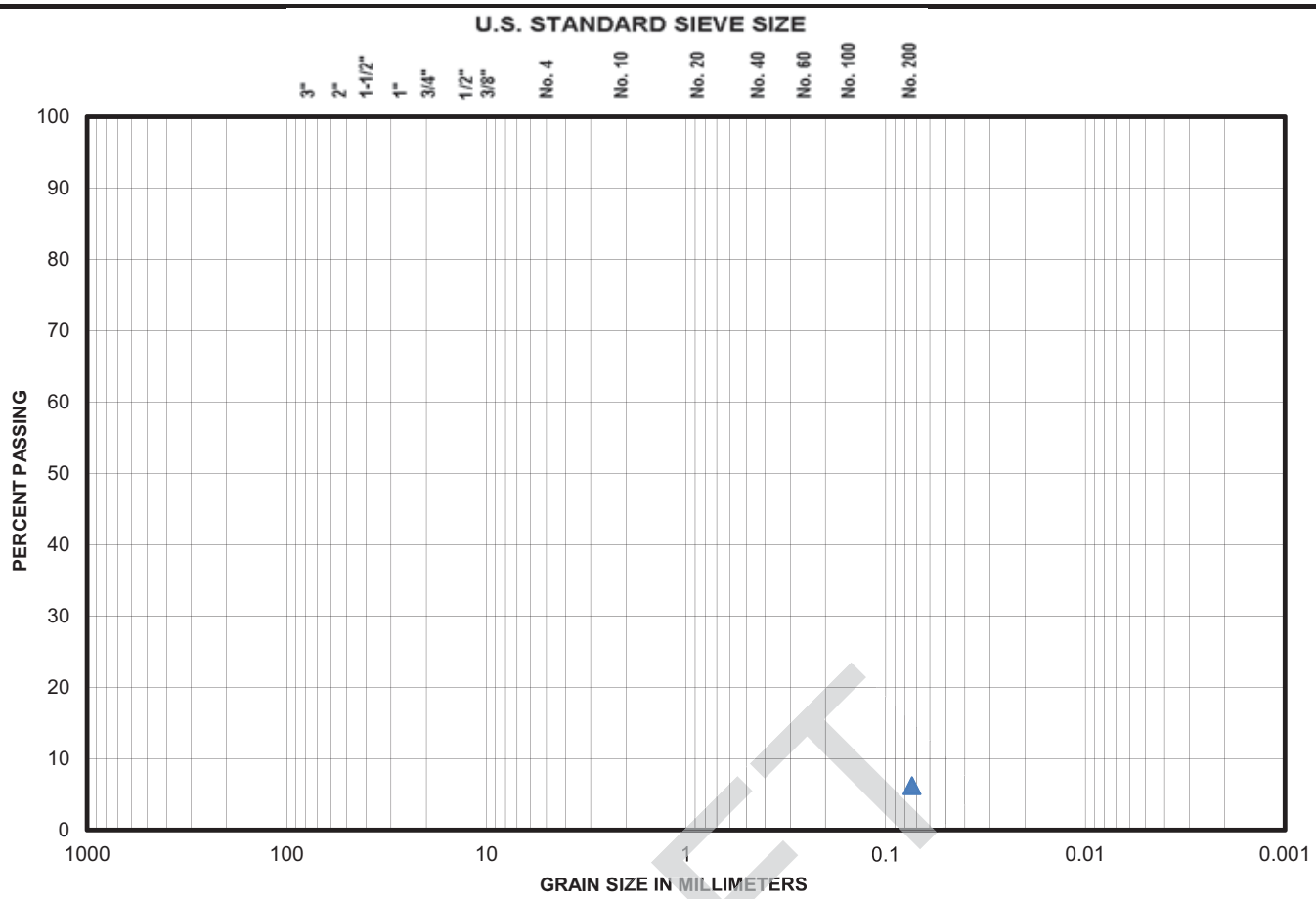
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	93.8	**Fines (Silt & Clay) %**		6.2	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	6.2

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-1A	**Checked By**	CLP
Source/Depth (feet)	85.5 - 87	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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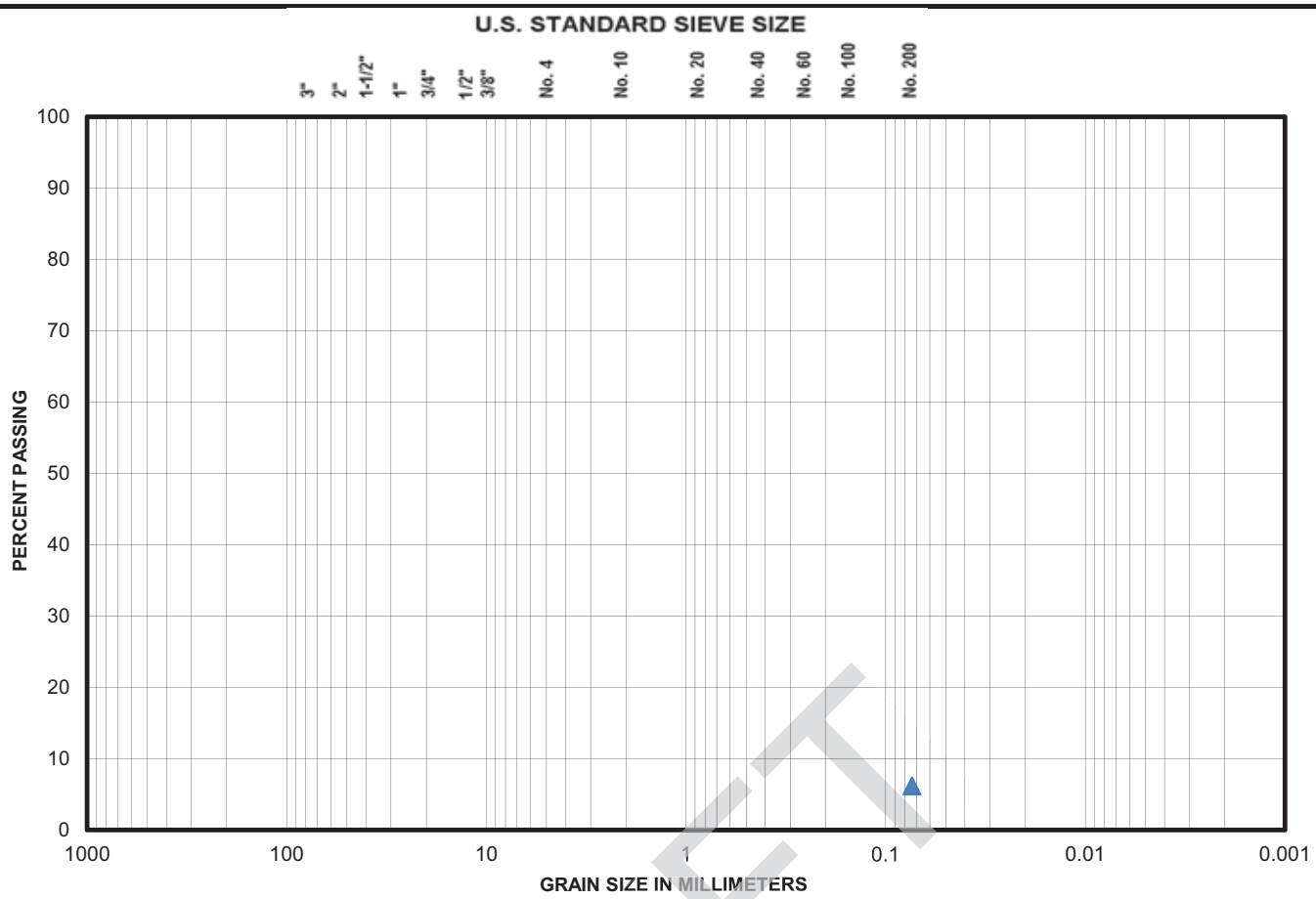
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	93.8	**Fines (Silt & Clay) %**	6.2

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Medium dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	6.2

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-1A	**Checked By**	CLP
Source/Depth (feet)	88 - 89.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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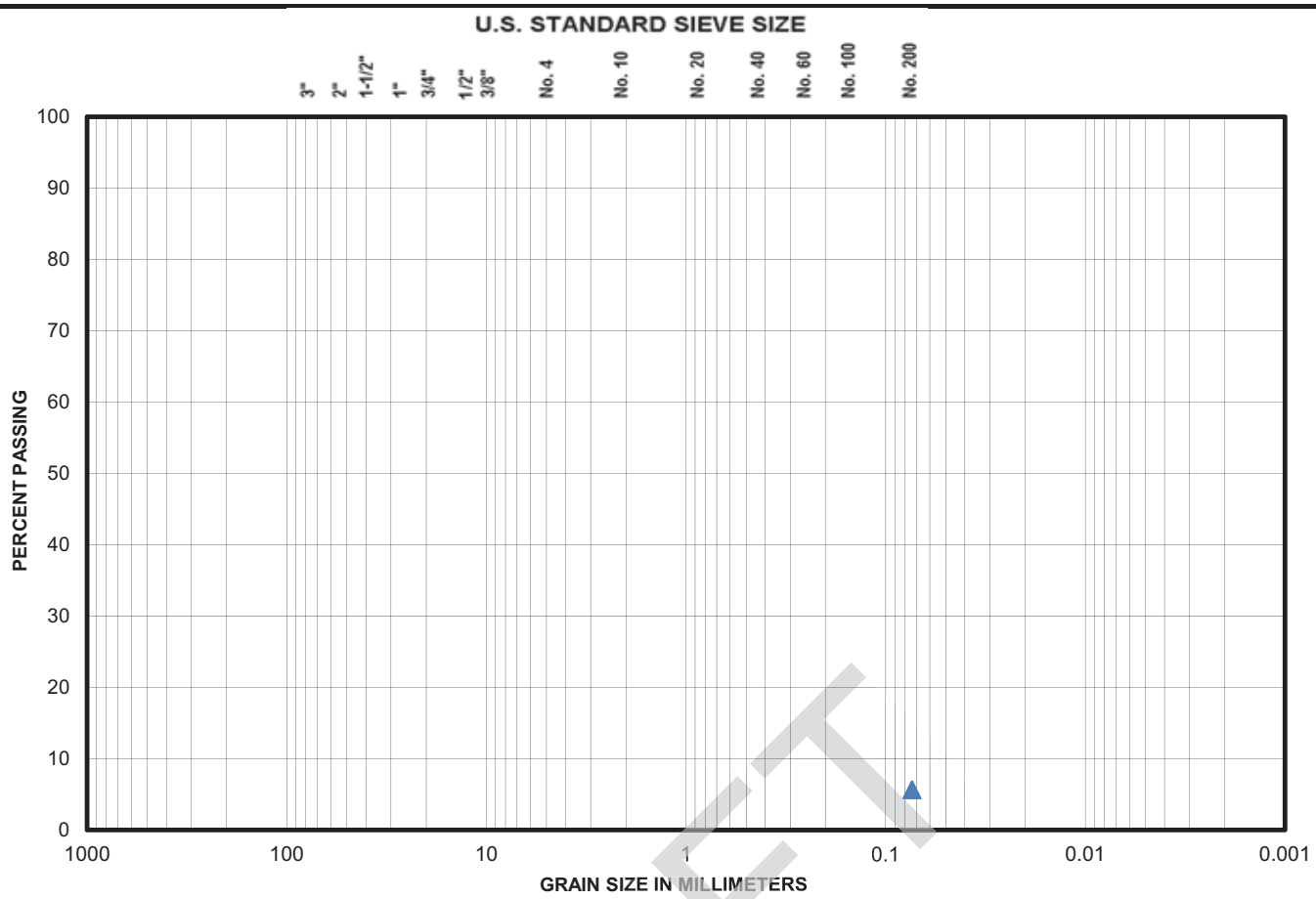
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	94.3	**Fines (Silt & Clay) %**		5.7	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	5.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-1A	**Checked By**	CLP
Source/Depth (feet)	93 - 95	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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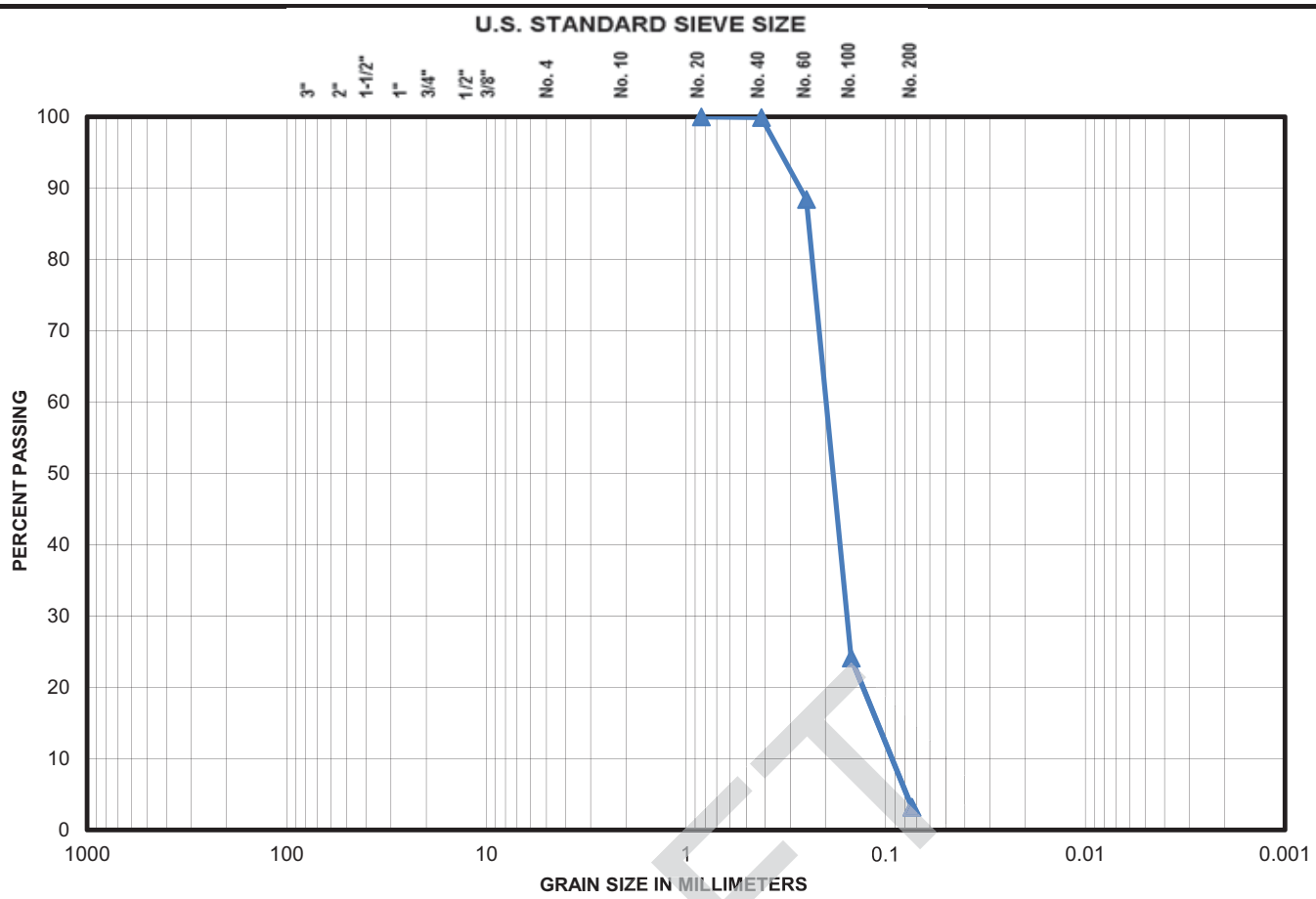
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	**Medium Sand %**		0.1	
Fine Gravel %	0.0	**Fine Sand %**		96.7	
Coarse Sand %	0.0	**Fines (Silt & Clay) %**		3.2	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	100.0
1"	#N/A	**No. 40**	99.9
3/4"	#N/A	**No. 60**	88.4
1/2"	#N/A	**No. 100**	24.1
3/8"	#N/A	**No. 200**	3.2

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/4/2013
Project No.	18274-001-00	**Tested By**	JRK/SLC
Boring No.	R-1A	**Checked By**	SLC
Source/Depth (feet)	68 - 69.5	**Sieve Type**	Dry Sieve

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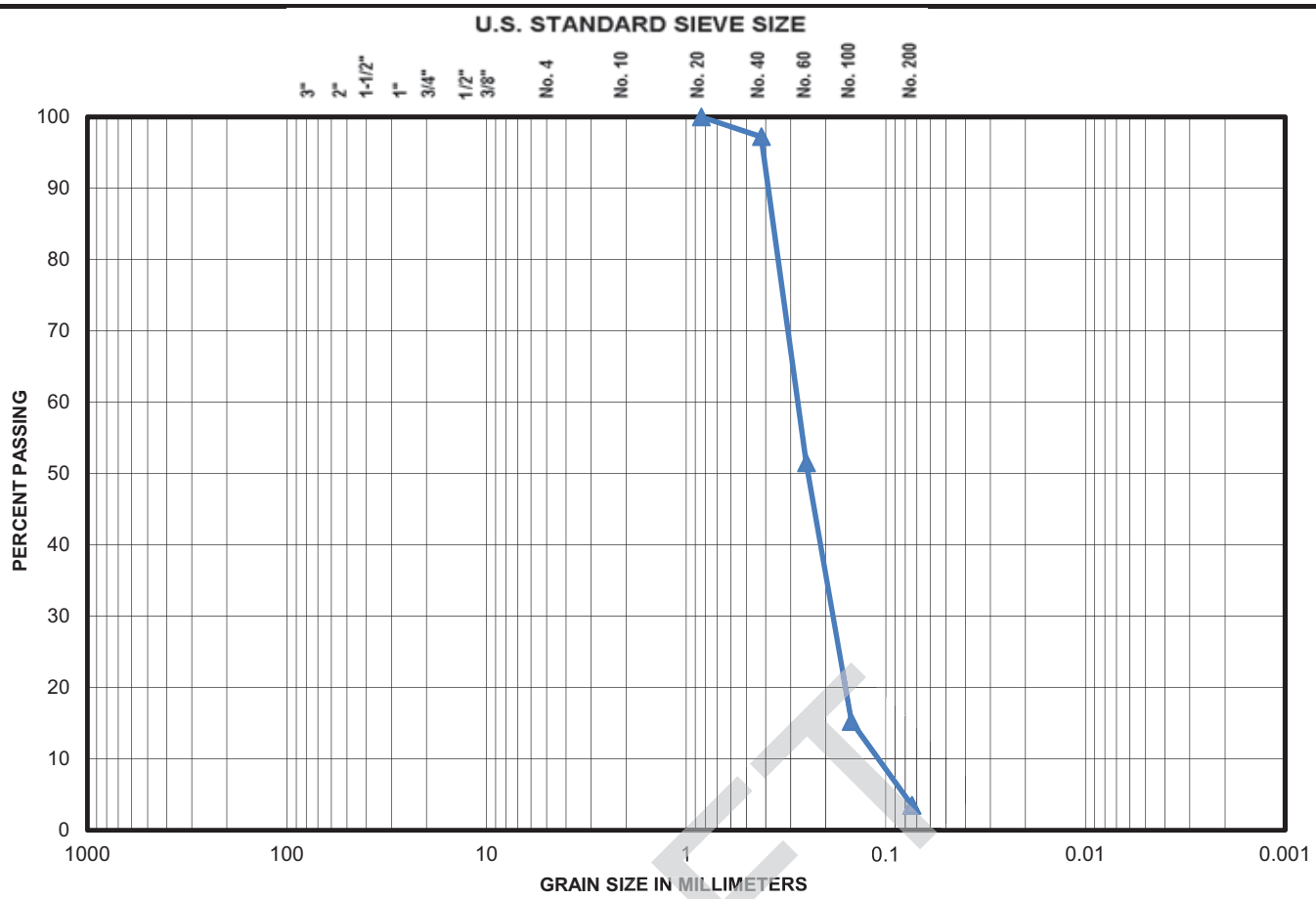
ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	93.8	**Fines (Silt & Clay) %**		3.5	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	100.0
1"	#N/A	**No. 40**	97.2
3/4"	#N/A	**No. 60**	51.5
1/2"	#N/A	**No. 100**	15.2
3/8"	#N/A	**No. 200**	3.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/4/2013
Project No.	18274-001-00	**Tested By**	JRK/SLC
Boring No.	R-1A	**Checked By**	SLC
Source/Depth (feet)	75.5 - 77	**Sieve Type**	Dry Sieve

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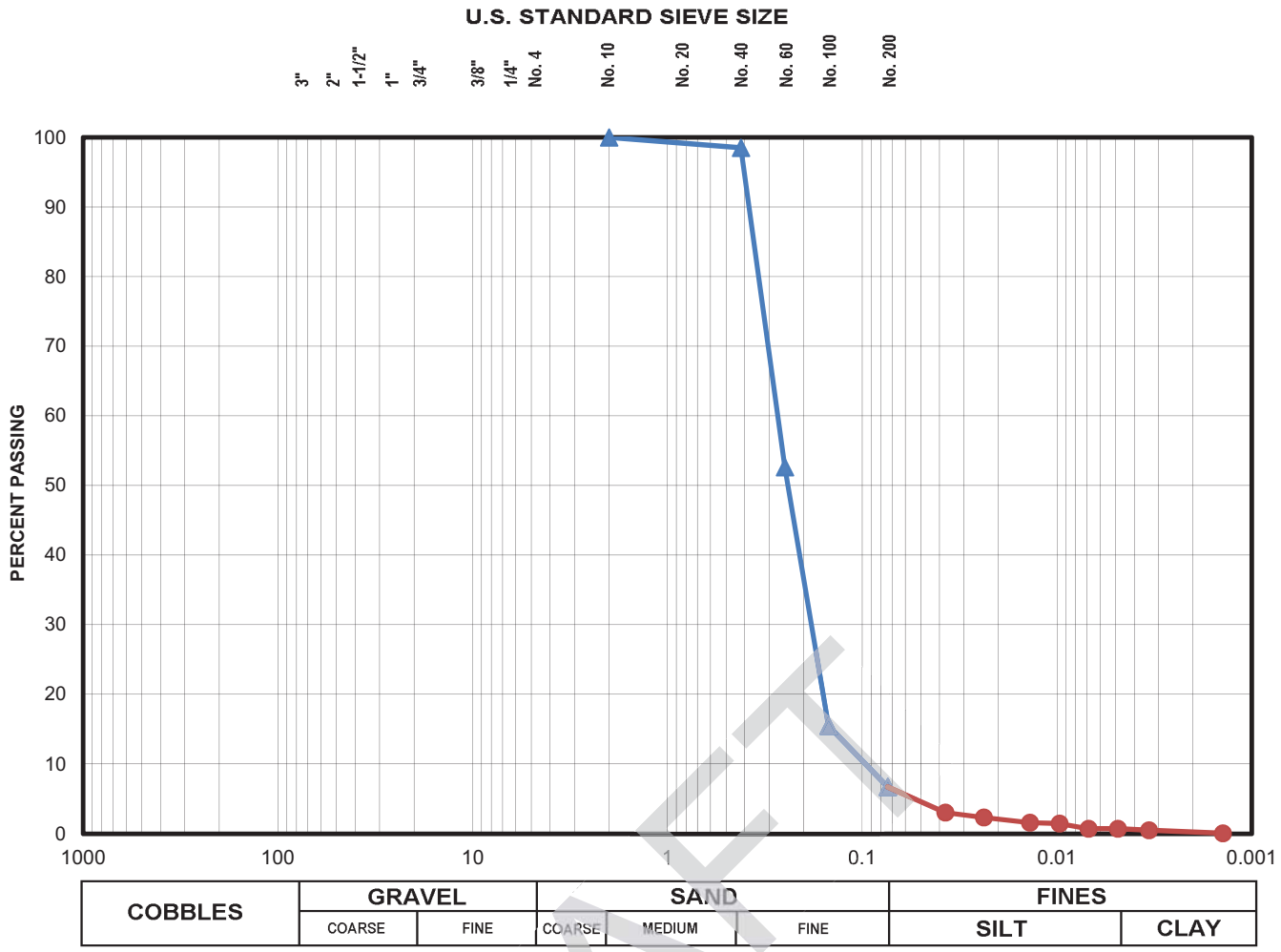
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Medium dense gray sand with silt and shell fragments (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	98.5
3/4"	100.0	No. 60	52.6
3/8"	100.0	No. 100	15.5
1/4"	100.0	No. 200	6.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/11/2013
Project No.	18274-001-00	Tested By	KKB
Sample ID.	R-1A	Checked By	SEF
Source/Depth (feet)	63 - 64.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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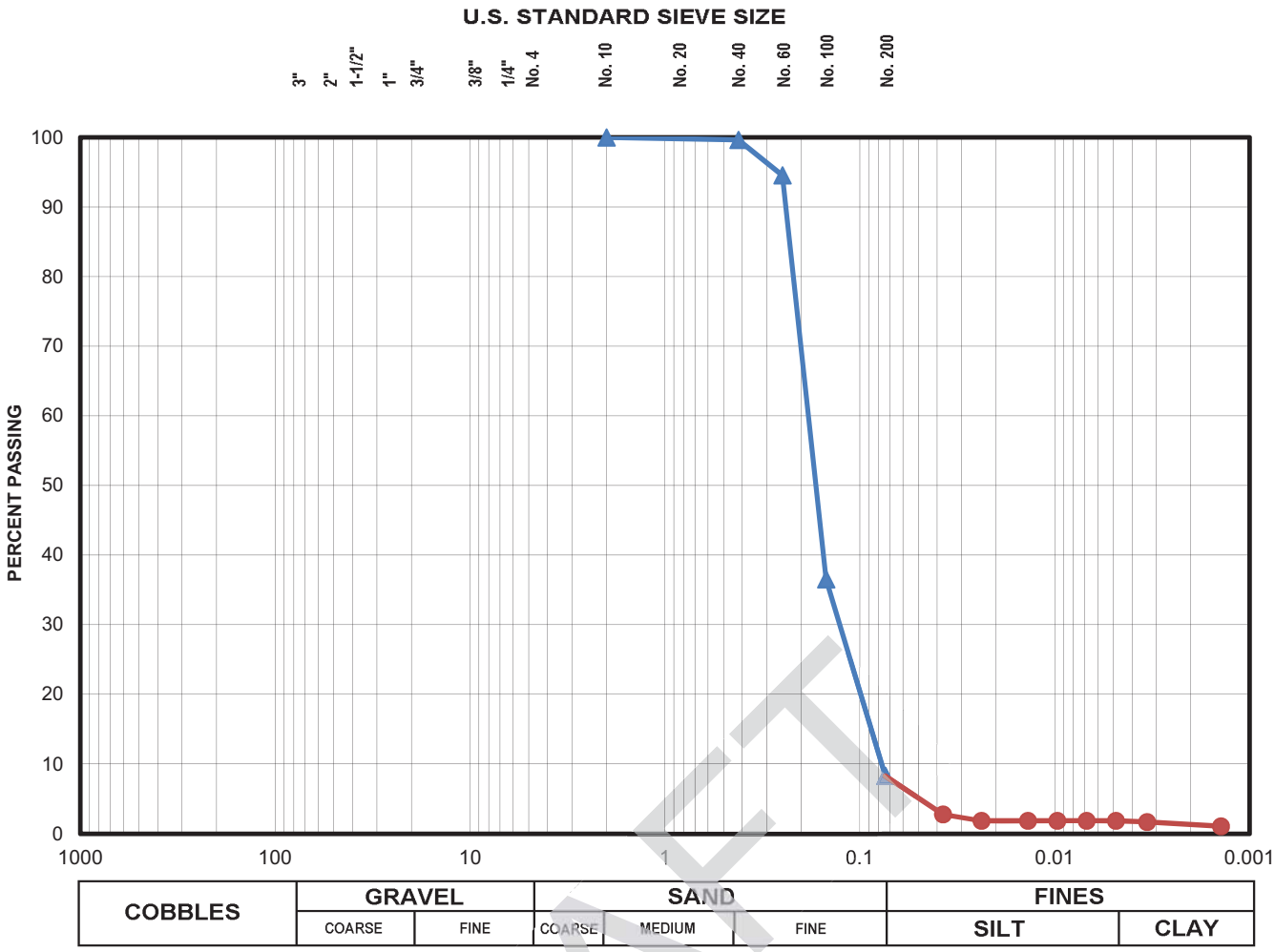
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,

18274-001-00



Description (D 2488)	Medium dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.6
3/4"	100.0	No. 60	94.5
3/8"	100.0	No. 100	36.5
1/4"	100.0	No. 200	8.3

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/11/2013
Project No.	18274-001-00	Tested By	KKB
Sample ID.	R-1A	Checked By	SEF
Source/Depth (feet)	65.5 - 67		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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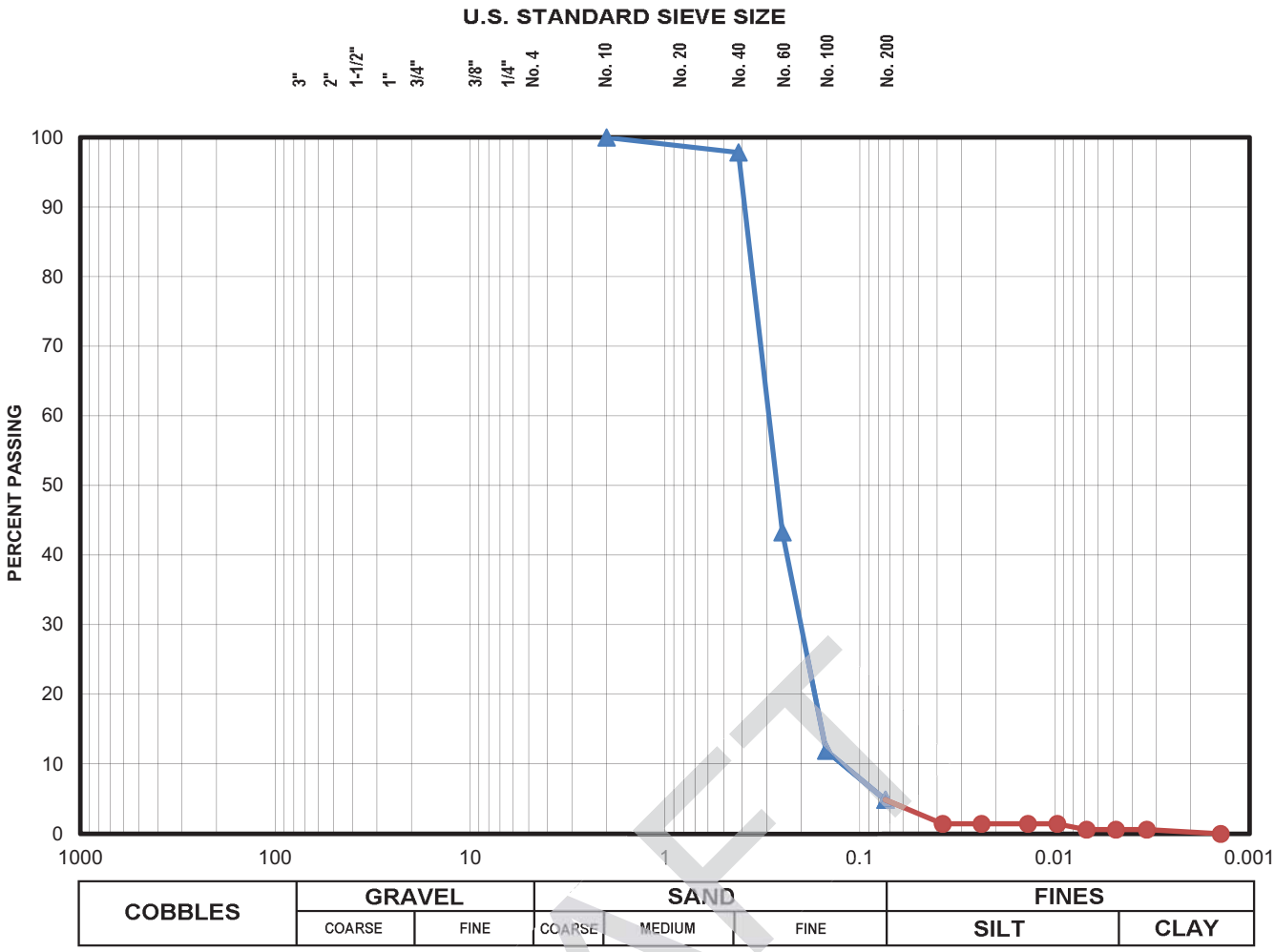
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,

18274-001-00



Description (D 2488)	Medium dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	97.8
3/4"	100.0	No. 60	43.3
3/8"	100.0	No. 100	11.9
1/4"	100.0	No. 200	4.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/10/2013
Project No.	18274-001-00	Tested By	KKB/SEF
Sample ID.	R-1A	Checked By	SEF
Source/Depth (feet)	73 - 74.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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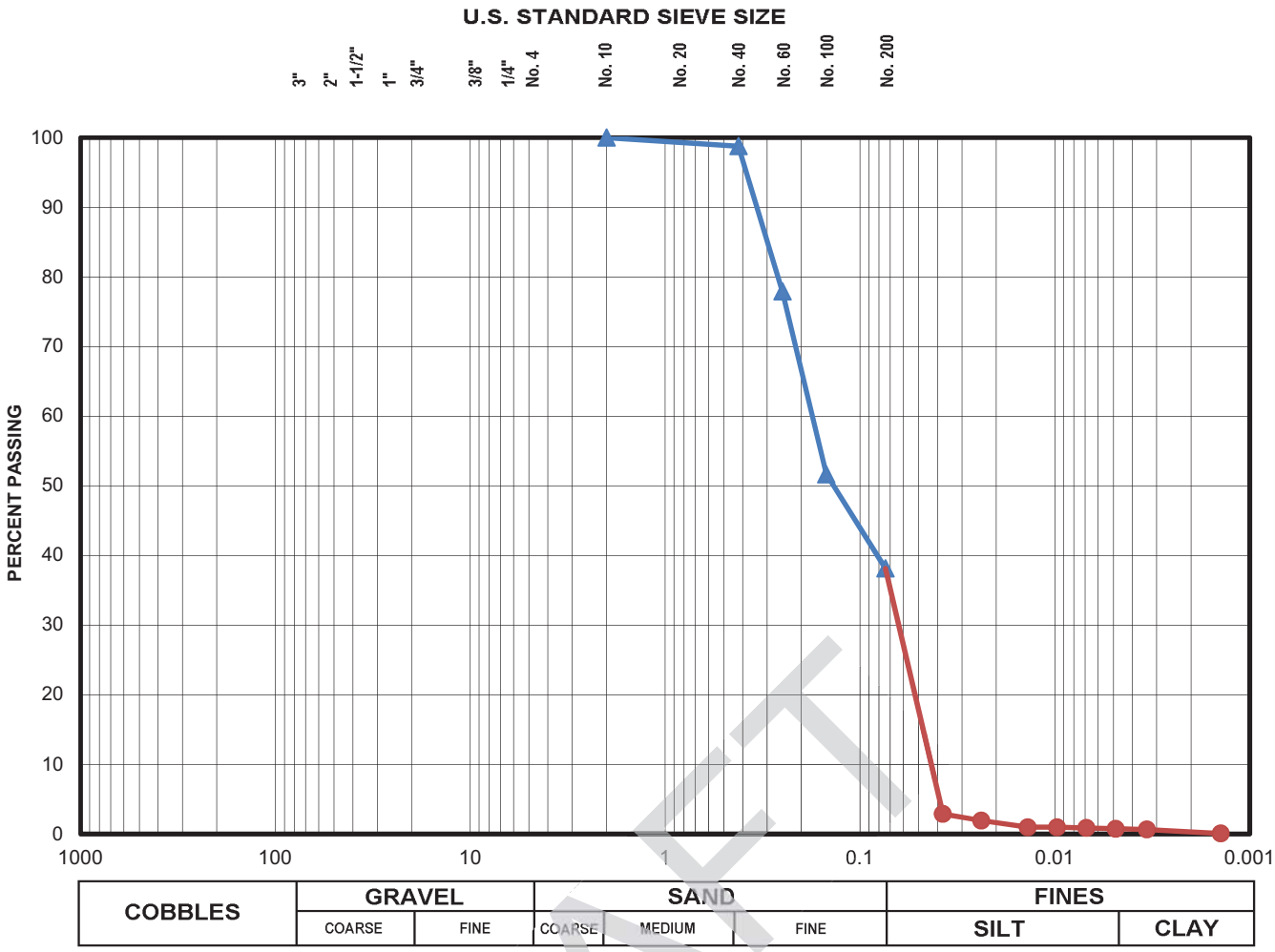
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,

18274-001-00



Description (D 2488)	Dense gray sand with silt (SM)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	98.8
3/4"	100.0	No. 60	77.9
3/8"	100.0	No. 100	51.6
1/4"	100.0	No. 200	38.1

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/11/2013
Project No.	18274-001-00	Tested By	KKB
Sample ID.	R-1A	Checked By	SEF
Source/Depth (feet)	78 - 79.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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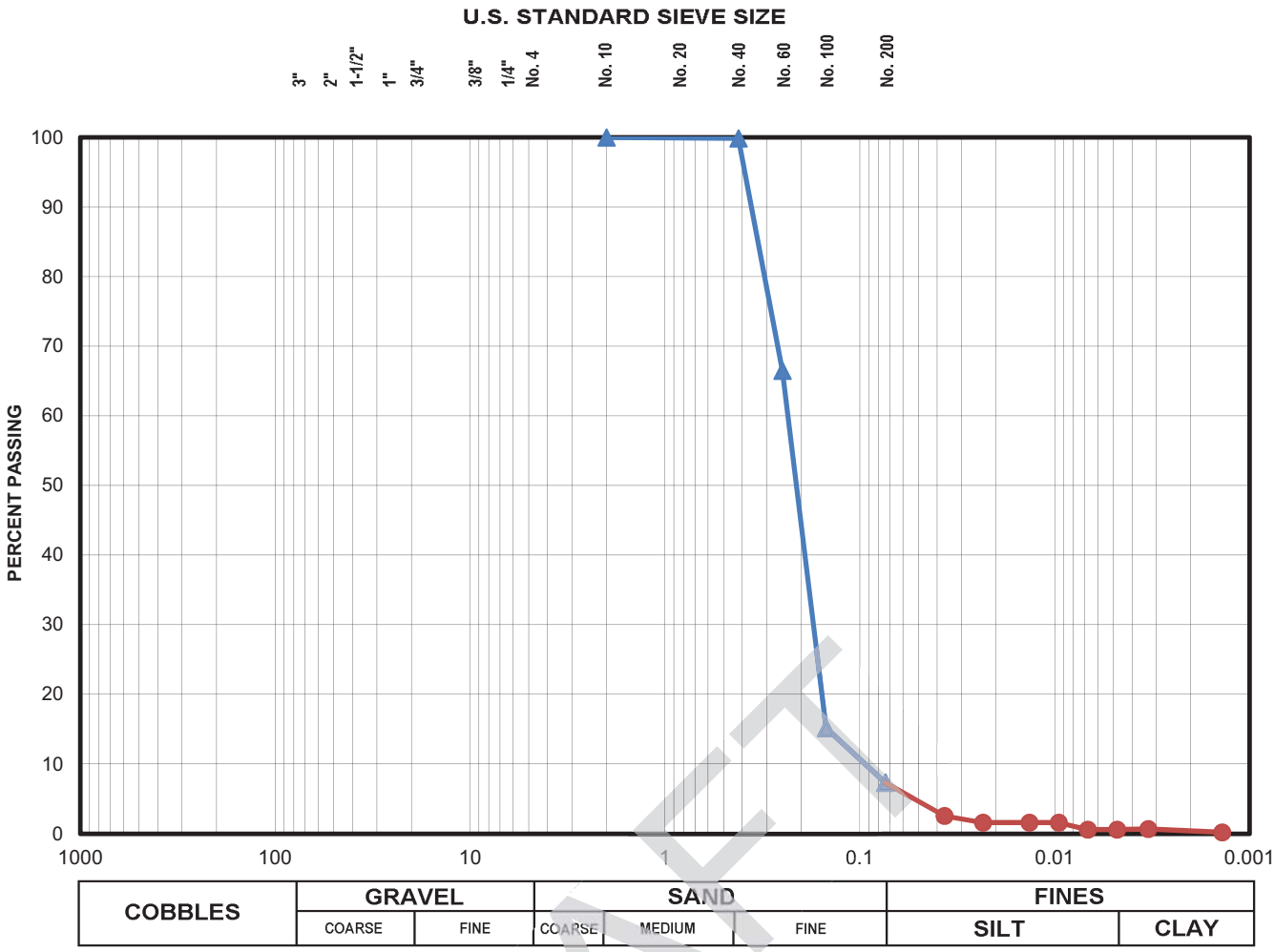
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,

18274-001-00



Description (D 2488)	Medium dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.9
3/4"	100.0	No. 60	66.5
3/8"	100.0	No. 100	15.2
1/4"	100.0	No. 200	7.3

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/10/2013
Project No.	18274-001-00	Tested By	KKB/SEF
Sample ID.	R-1A	Checked By	SEF
Source/Depth (feet)	83 - 84.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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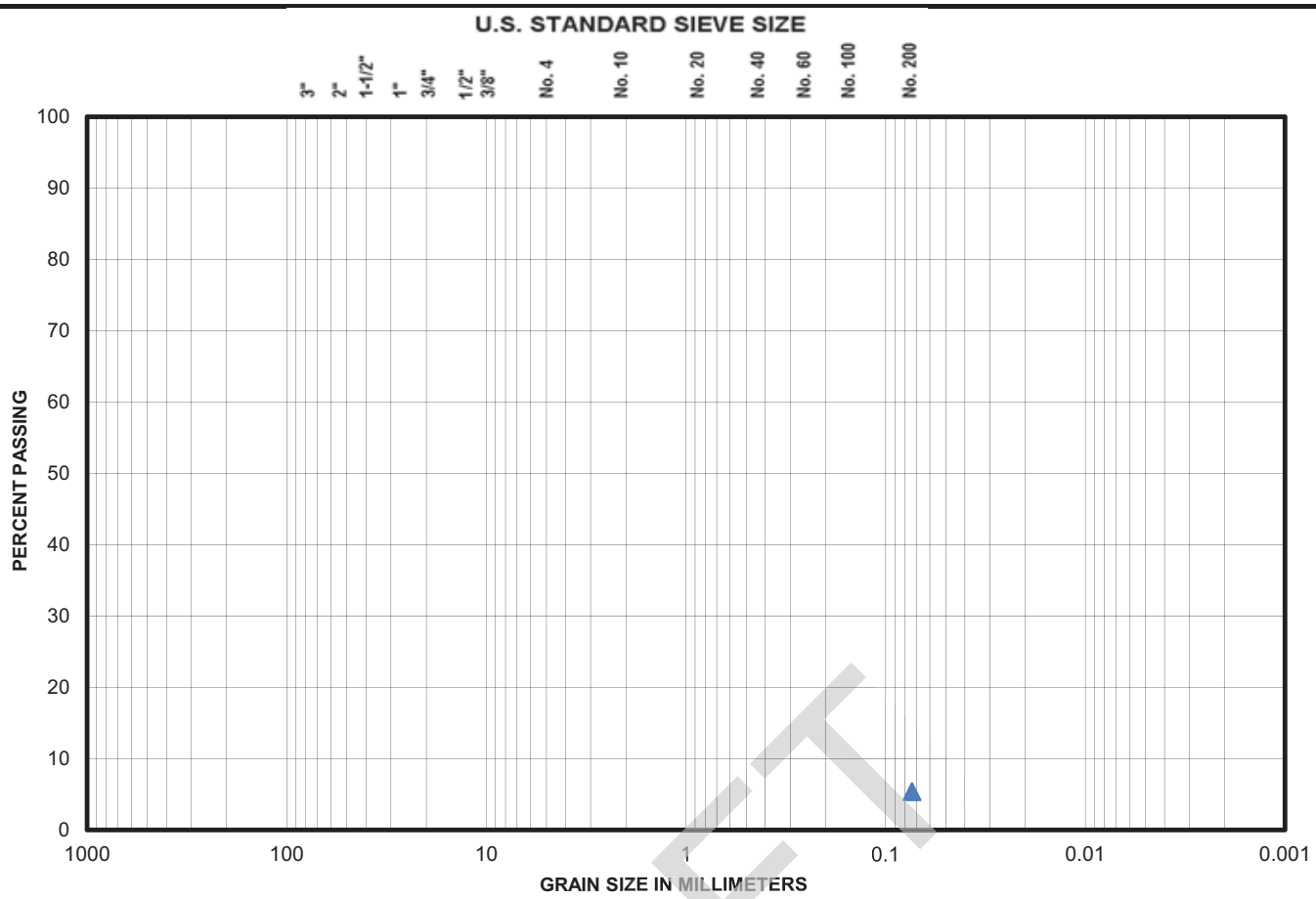
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	94.6	**Fines (Silt & Clay) %**		5.4	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Medium dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	5.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-2A	**Checked By**	CLP
Source/Depth (feet)	58 - 59.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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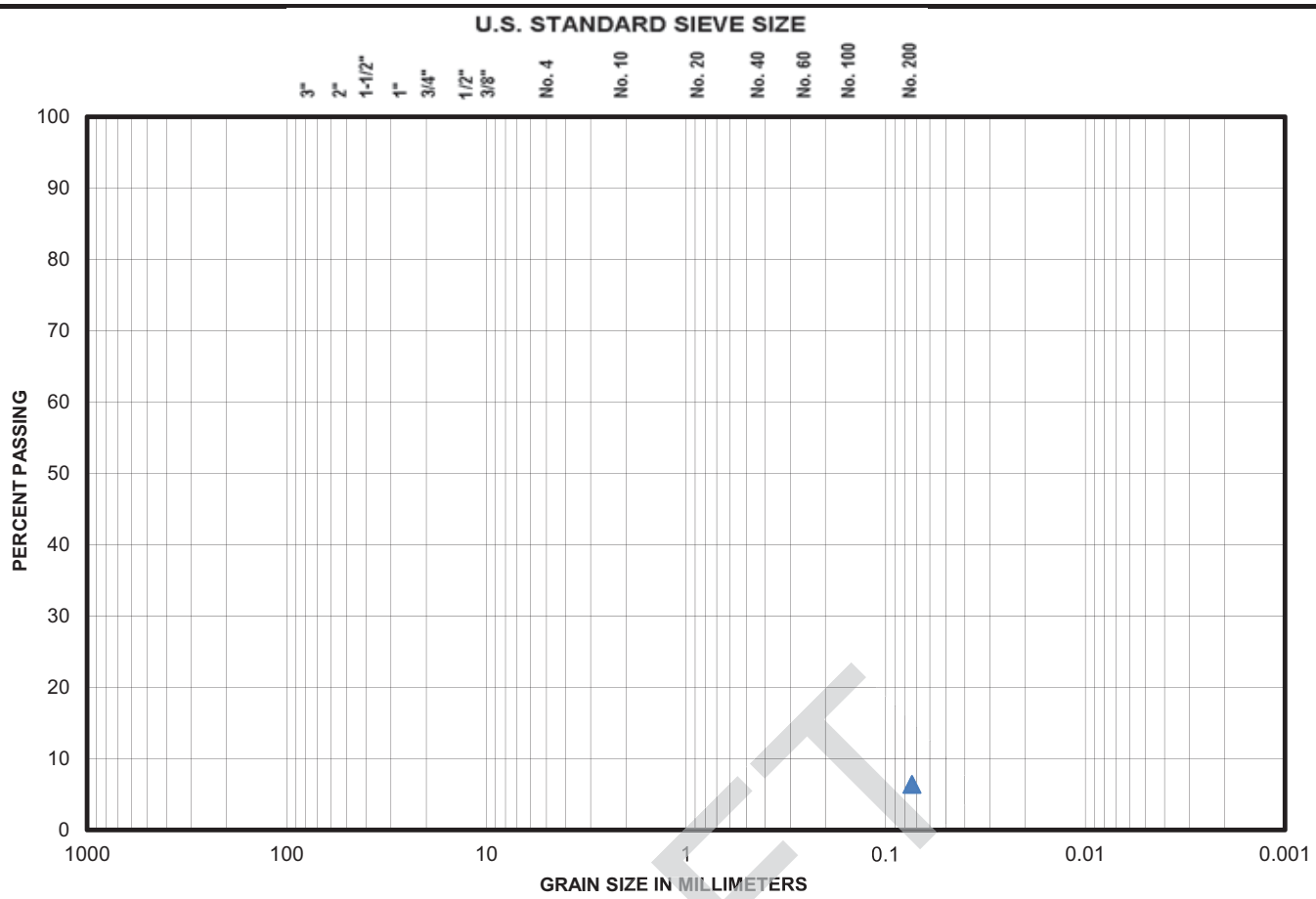
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	93.6	**Fines (Silt & Clay) %**	6.4

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Medium dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	6.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-2A	**Checked By**	CLP
Source/Depth (feet)	73 - 74.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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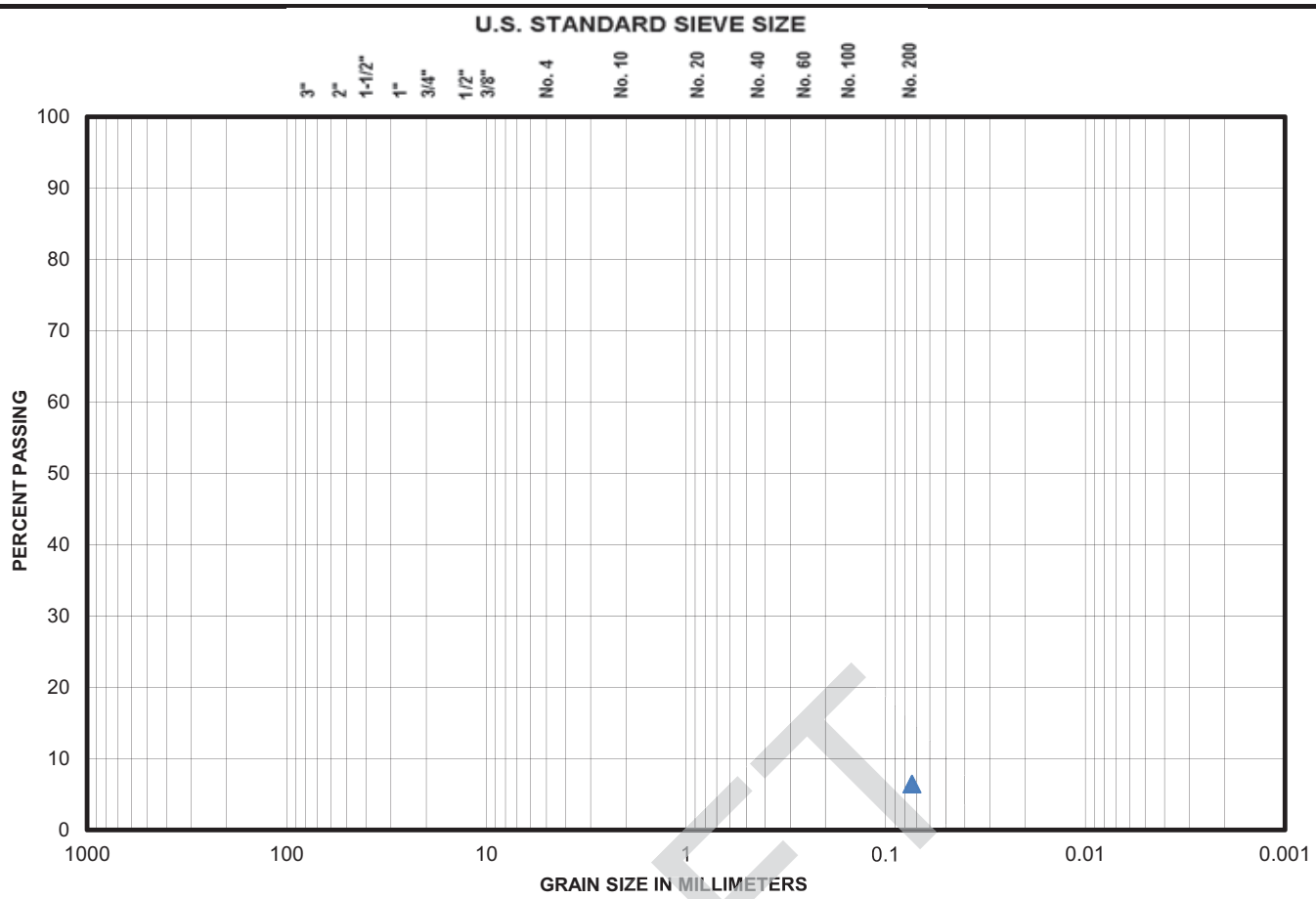
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	93.6	**Fines (Silt & Clay) %**	6.4

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	6.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	BH
Boring No.	R-2A	**Checked By**	CLP
Source/Depth (feet)	78 - 79.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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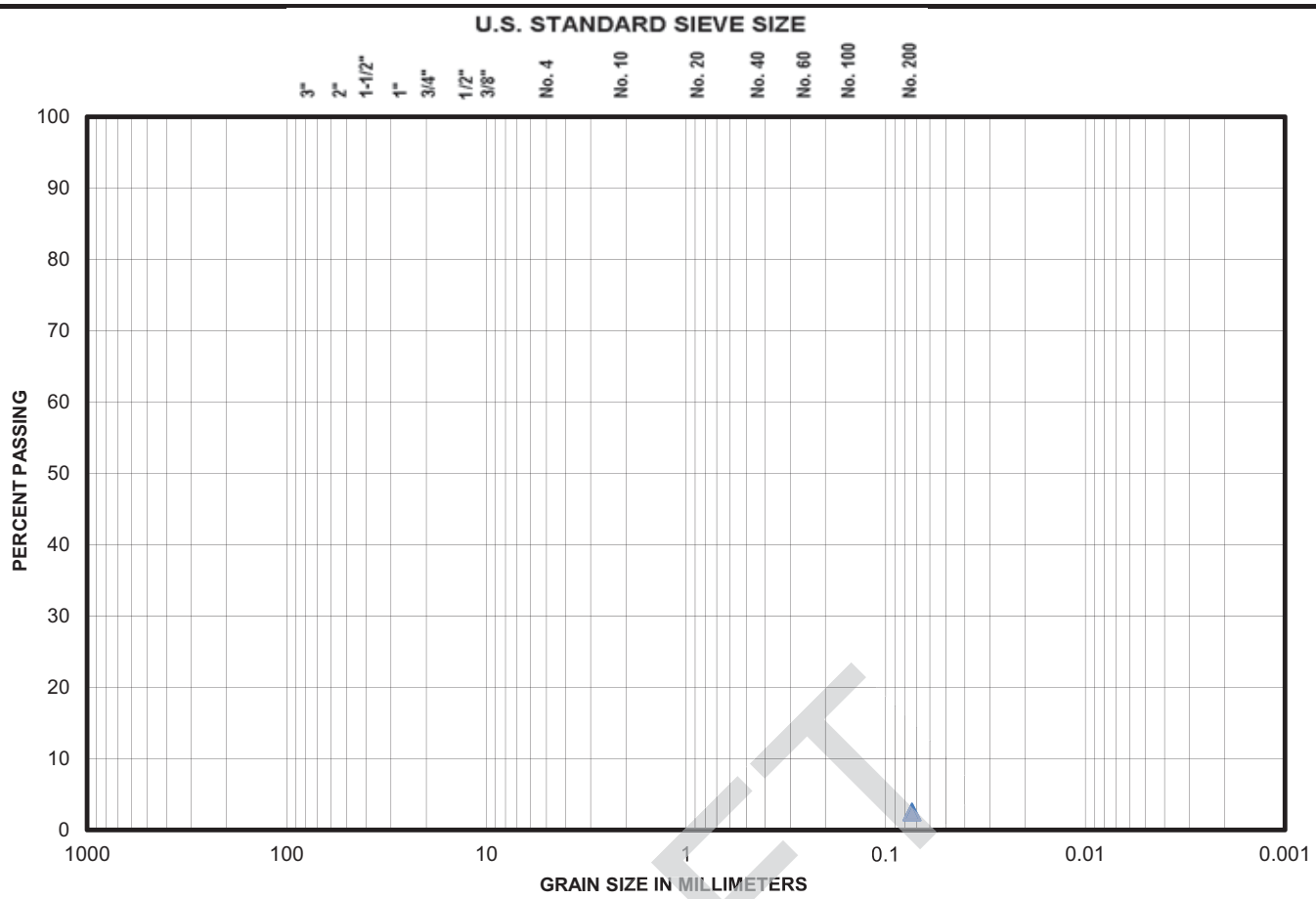
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	97.5	**Fines (Silt & Clay) %**	2.5		
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	2.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-2A	**Checked By**	CLP
Source/Depth (feet)	85.5 - 87	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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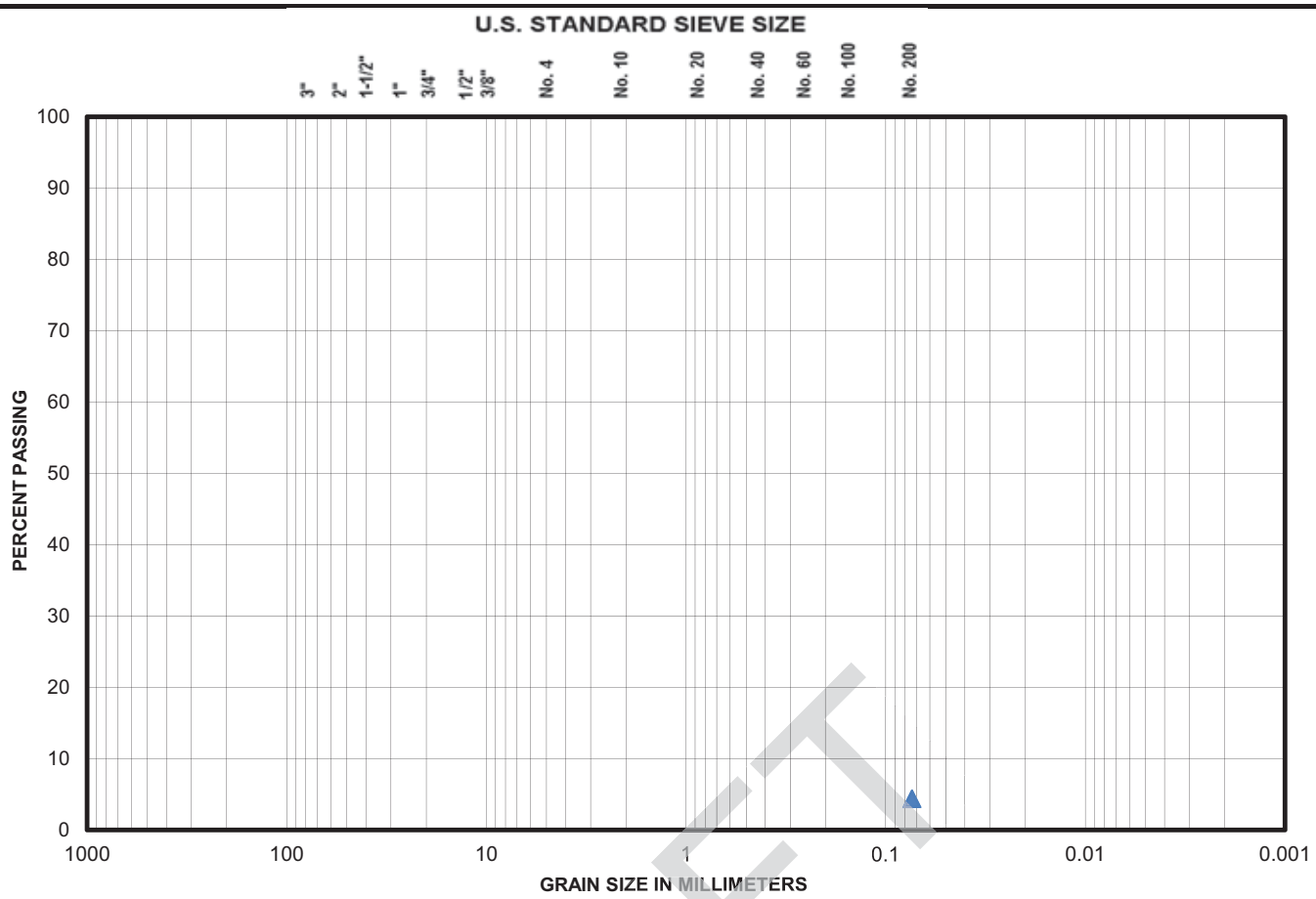
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	95.6	**Fines (Silt & Clay) %**		4.4	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	4.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-2A	**Checked By**	CLP
Source/Depth (feet)	88 - 89.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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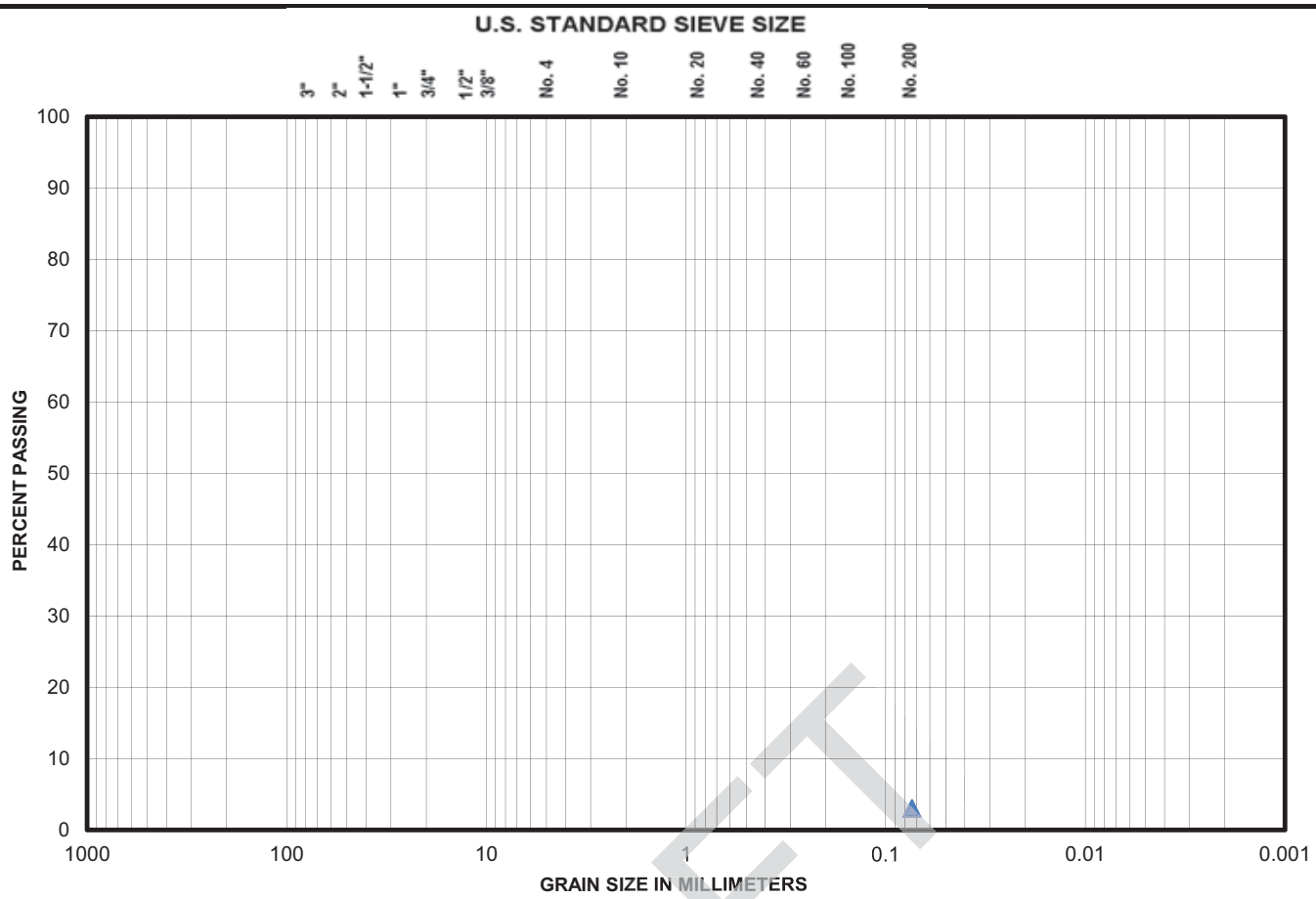
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	97.0	**Fines (Silt & Clay) %**	3.0		
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	3.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-2A	**Checked By**	CLP
Source/Depth (feet)	93 - 94.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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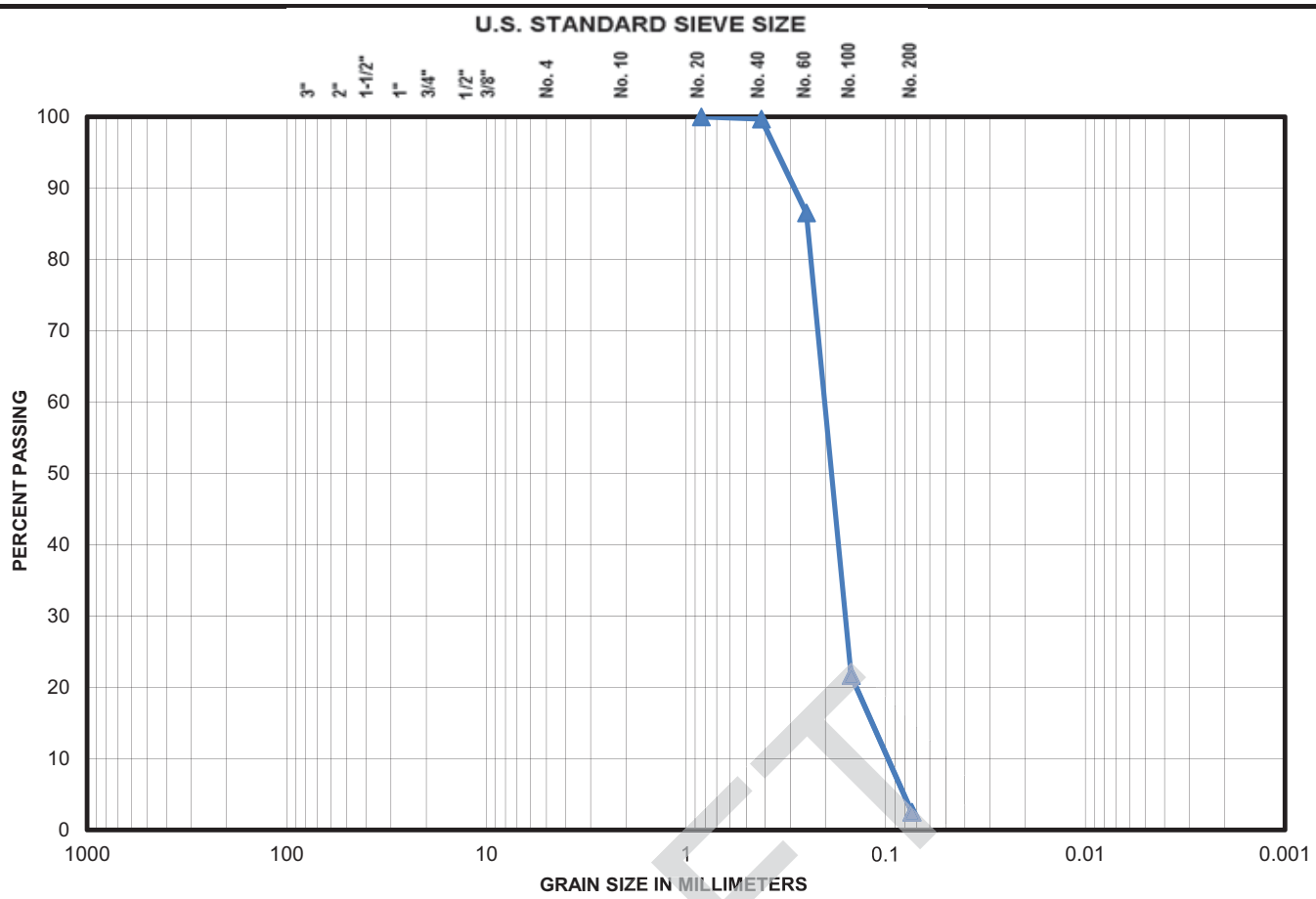
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	Medium Sand %		0.3	
Fine Gravel %	0.0	Fine Sand %		97.2	
Coarse Sand %	0.0	Fines (Silt & Clay) %		2.5	
USC Classification	SP	C_U	na	C_C	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	99.7
3/4"	#N/A	No. 60	86.5
1/2"	#N/A	No. 100	21.6
3/8"	#N/A	No. 200	2.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	Date Tested	12/4/2013
Project No.	18274-001-00	Tested By	JRK/SLC
Boring No.	R-2A	Checked By	SLC
Source/Depth (feet)	63 - 64.5	Sieve Type	Dry Sieve

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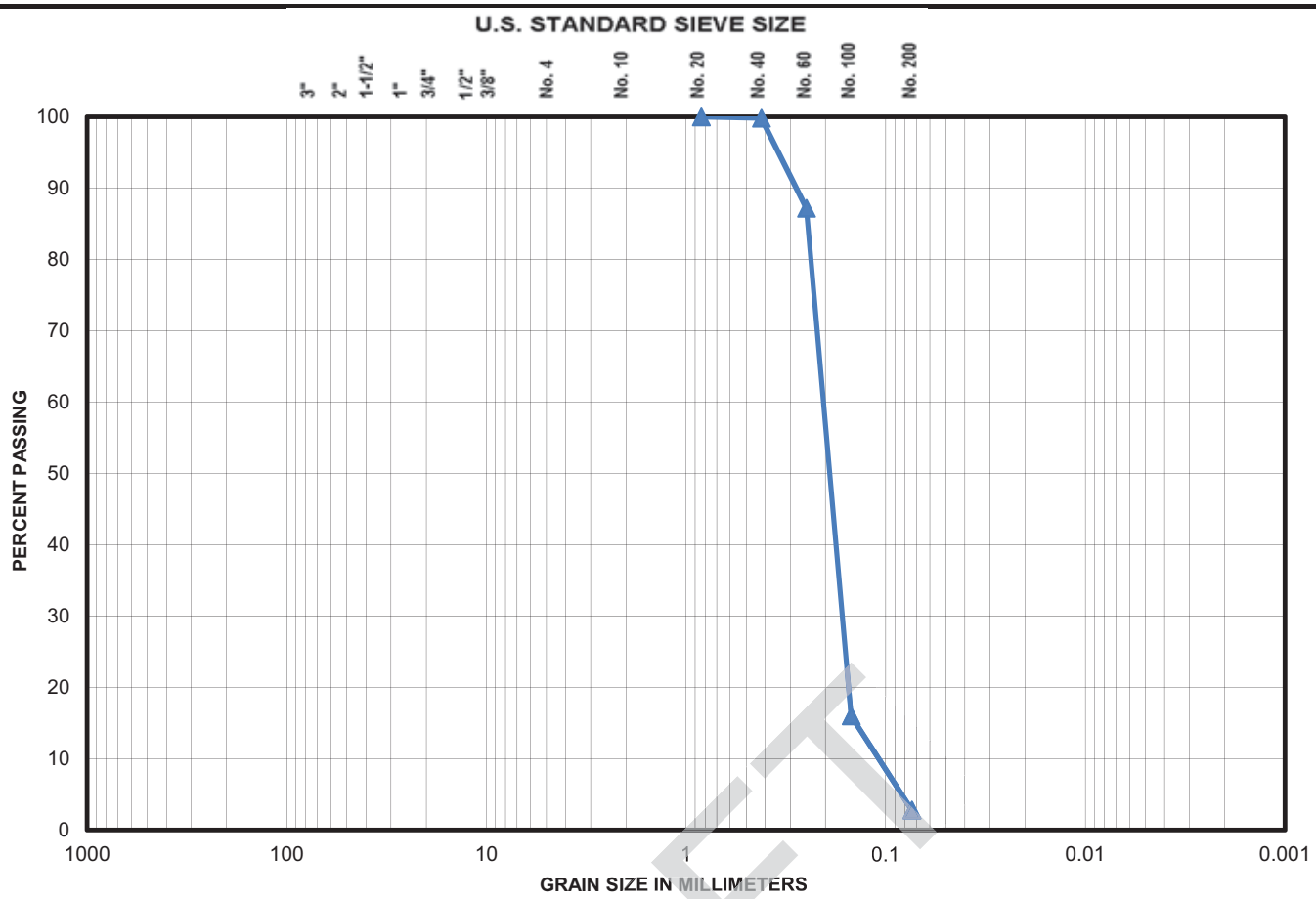
ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Coarse Gravel %	0.0	**Medium Sand %**		0.2	
Fine Gravel %	0.0	**Fine Sand %**		97.0	
Coarse Sand %	0.0	**Fines (Silt & Clay) %**		2.8	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	100.0
1"	#N/A	**No. 40**	99.8
3/4"	#N/A	**No. 60**	87.2
1/2"	#N/A	**No. 100**	16.0
3/8"	#N/A	**No. 200**	2.8

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/4/2013
Project No.	18274-001-00	**Tested By**	JRK/SLC
Boring No.	R-2A	**Checked By**	SLC
Source/Depth (feet)	75.5 - 77	**Sieve Type**	Dry Sieve

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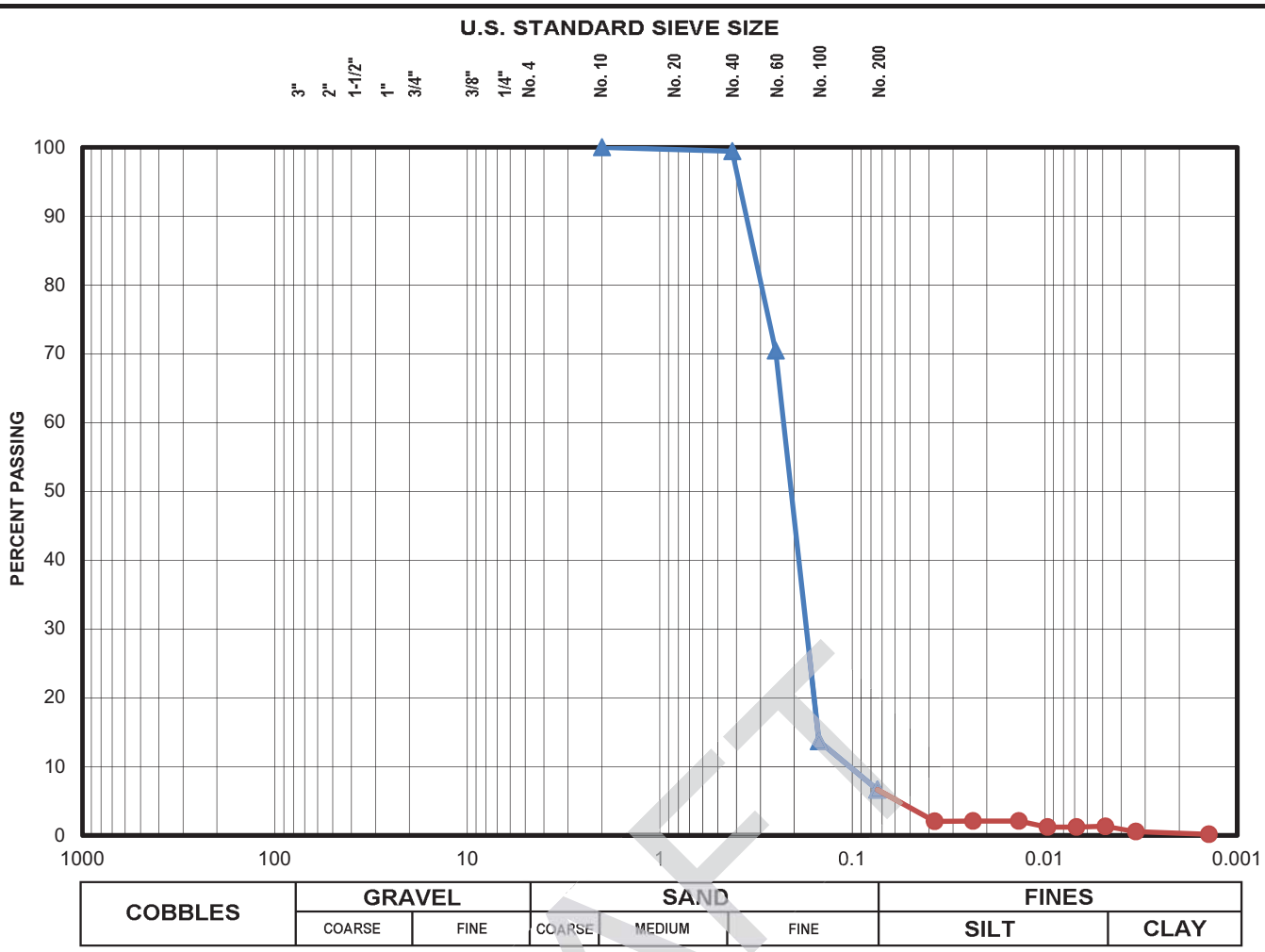
ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.4
3/4"	100.0	No. 60	70.4
3/8"	100.0	No. 100	13.7
1/4"	100.0	No. 200	6.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/10/2013
Project No.	18274-001-00	Tested By	KKB/SEF
Sample ID.	R-2A	Checked By	SEF
Source/Depth (feet)	53 - 55		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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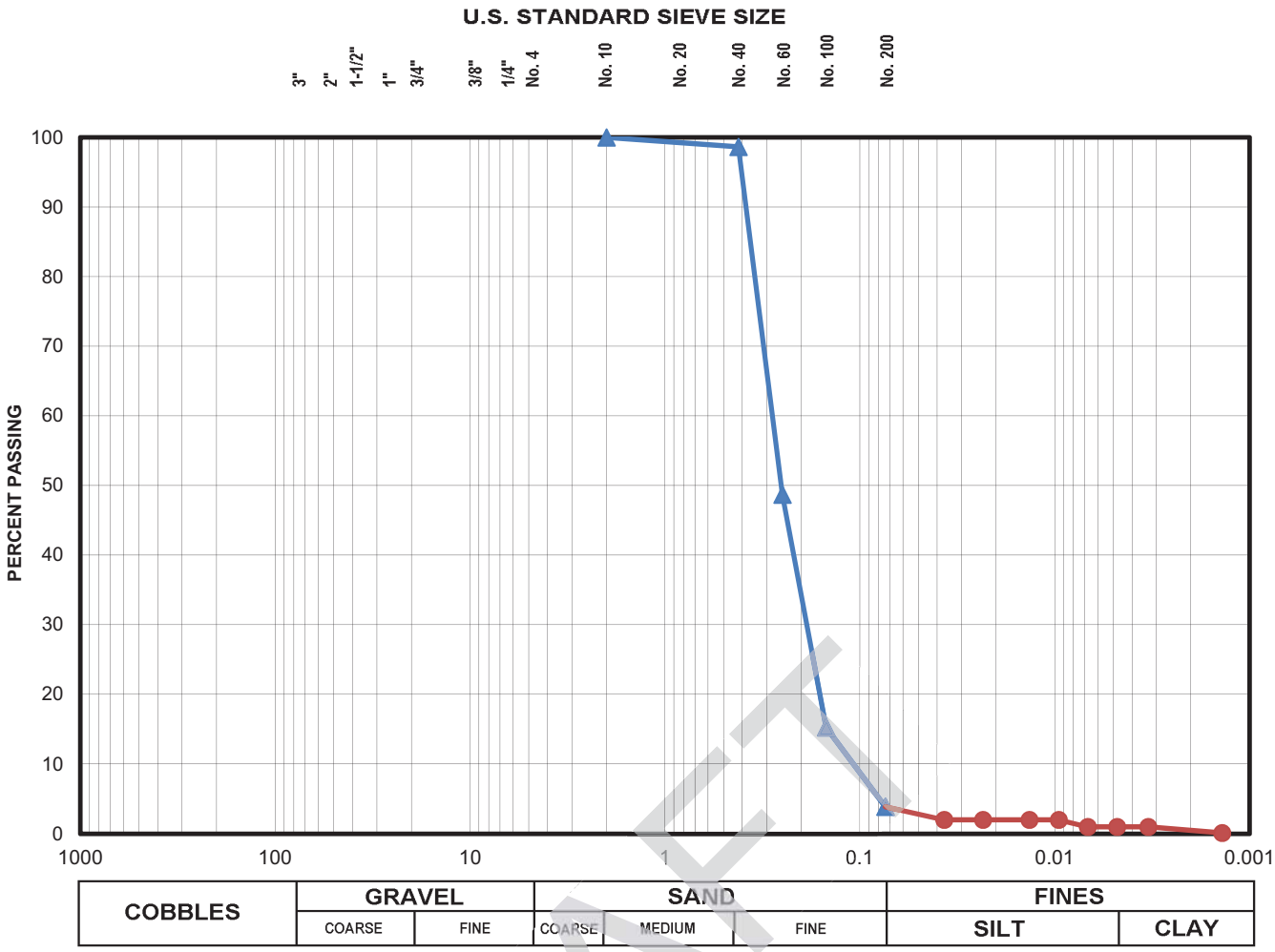
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Medium dense gray sand (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	98.6
3/4"	100.0	No. 60	48.7
3/8"	100.0	No. 100	15.3
1/4"	100.0	No. 200	3.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/11/2013
Project No.	18274-001-00	Tested By	KKB/SEF/ZST
Sample ID.	R-2A	Checked By	SEF/ZST
Source/Depth (feet)	55.5 - 57		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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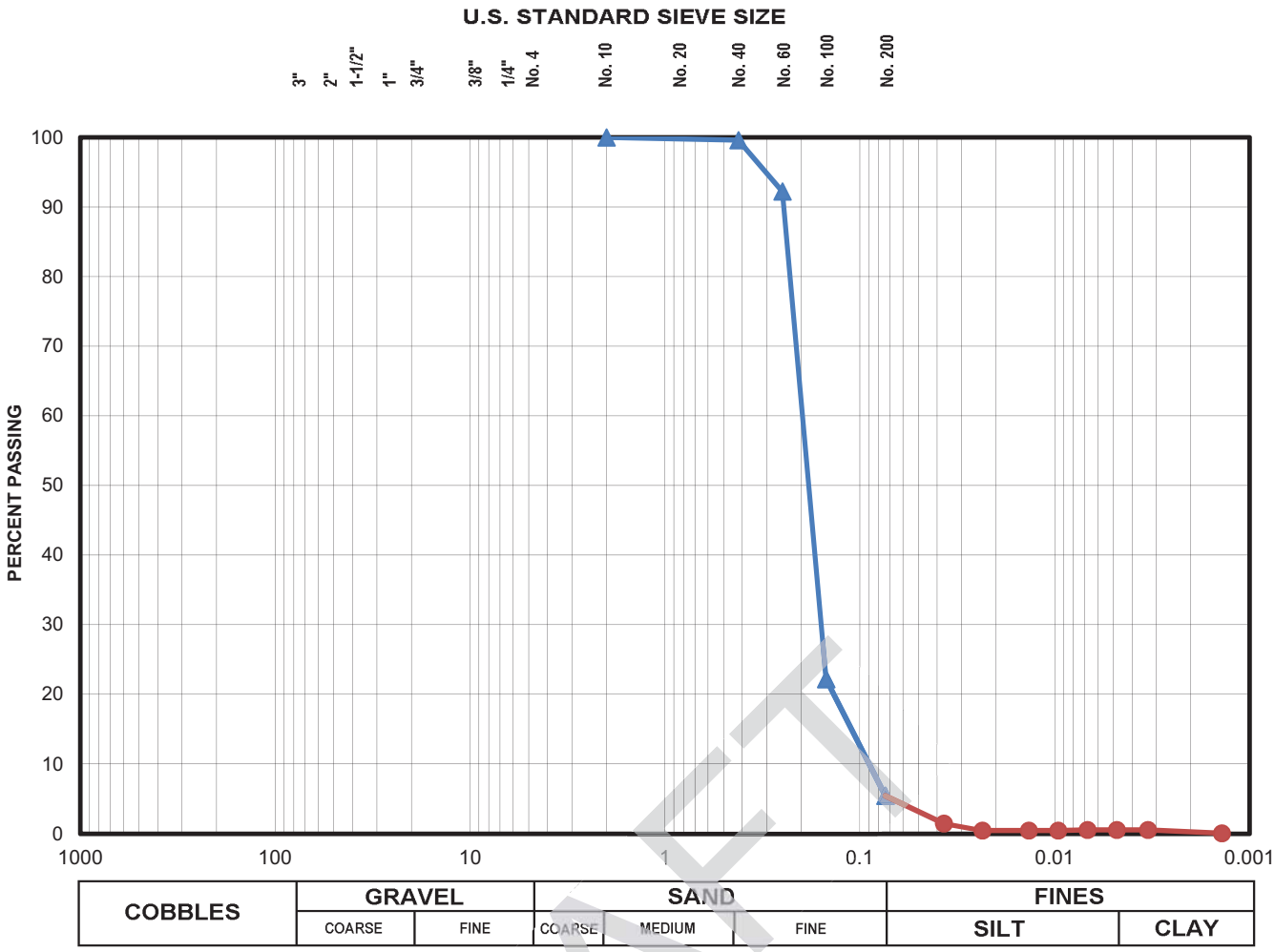
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Medium dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.6
3/4"	100.0	No. 60	92.2
3/8"	100.0	No. 100	22.2
1/4"	100.0	No. 200	5.5

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/10/2013
Project No.	18274-001-00	Tested By	KKB/SEF
Sample ID.	R-2A	Checked By	SEF
Source/Depth (feet)	68 - 69.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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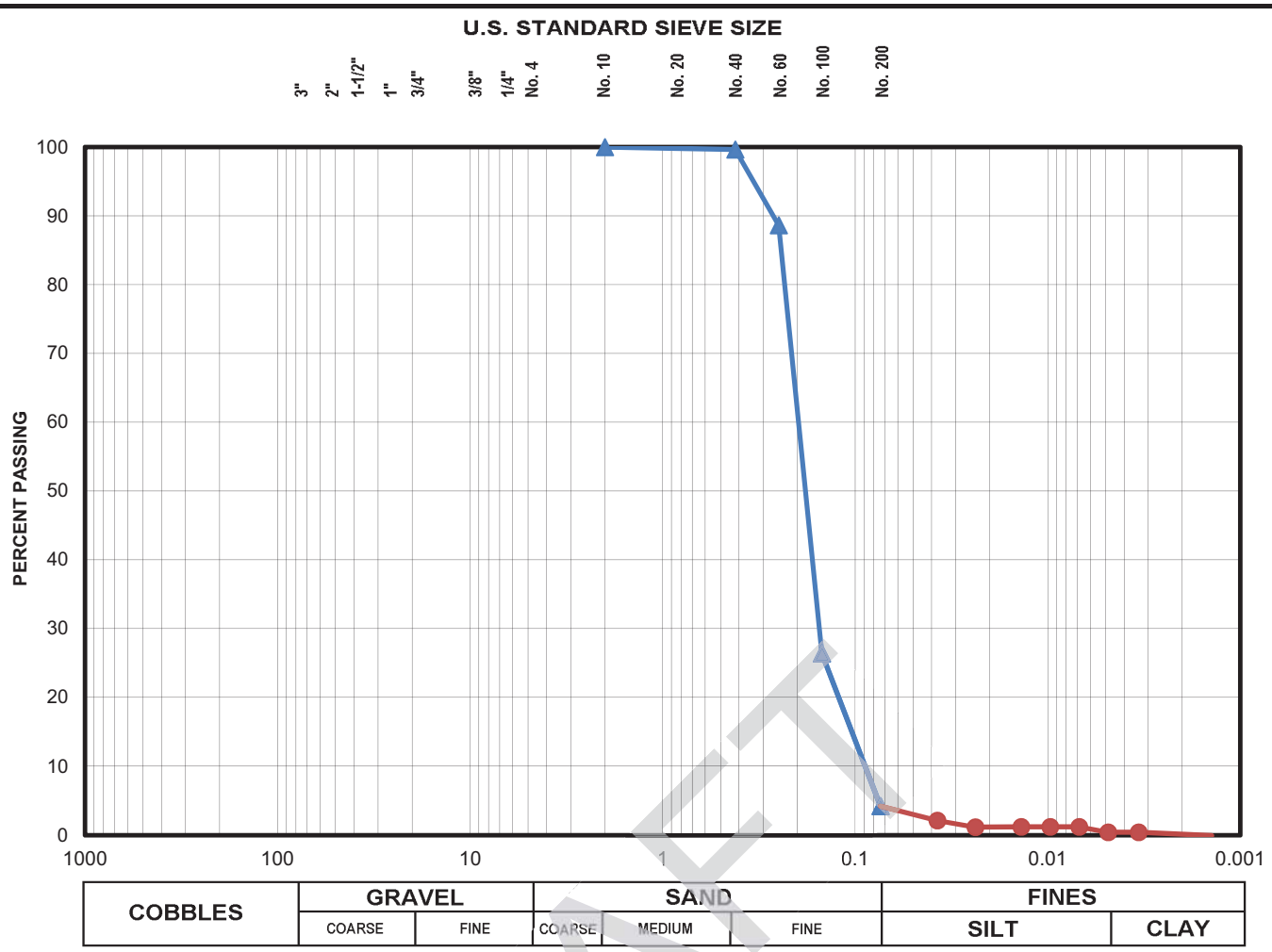
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Dense gray sand (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.6
3/4"	100.0	No. 60	88.6
3/8"	100.0	No. 100	26.4
1/4"	100.0	No. 200	4.2

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1146
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/10/2013
Project No.	18274-001-00	Tested By	KKB/SEF
Sample ID.	R-2A	Checked By	SEF
Source/Depth (feet)	83 - 84.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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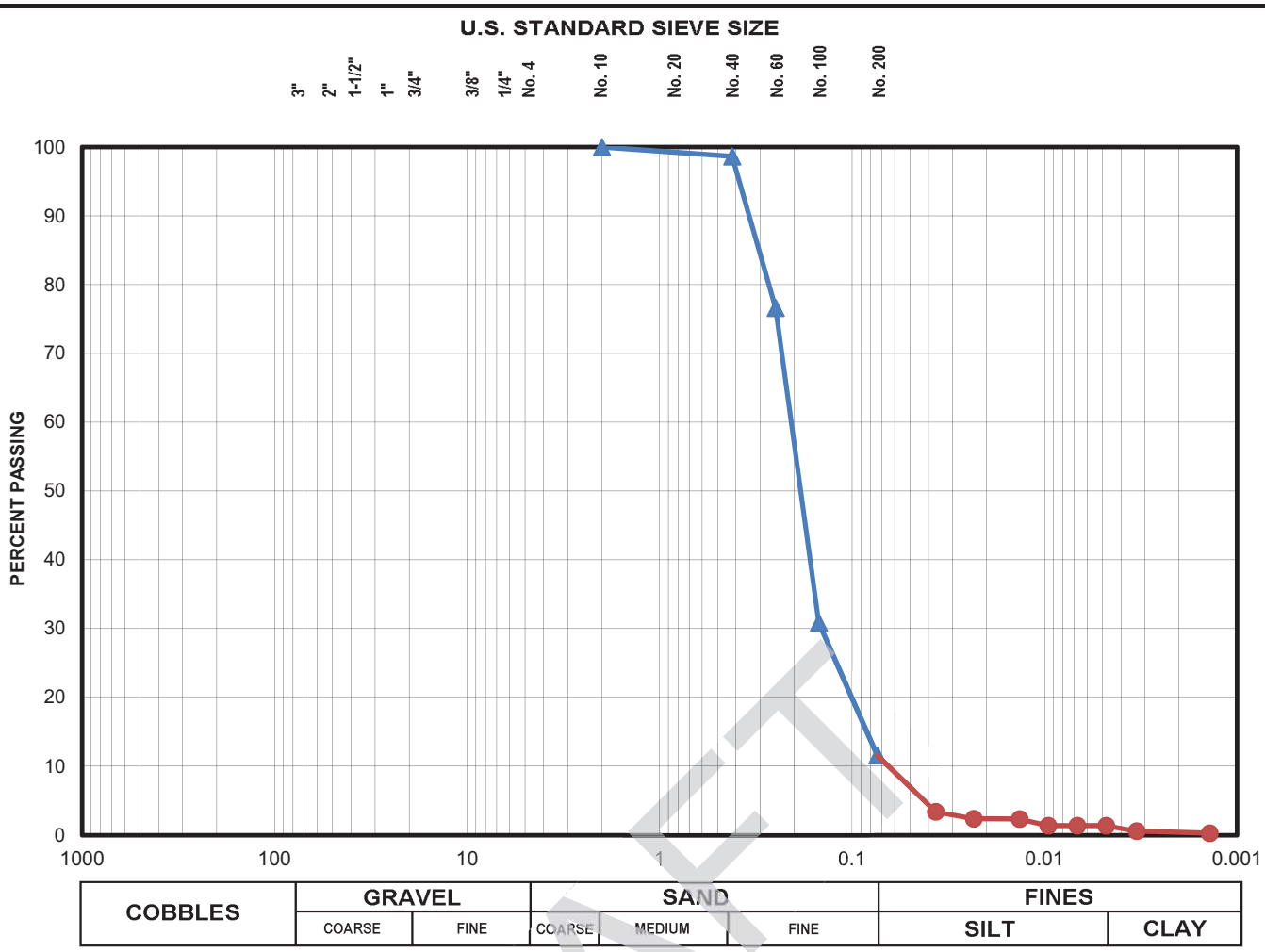
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	98.6
3/4"	100.0	No. 60	76.6
3/8"	100.0	No. 100	30.9
1/4"	100.0	No. 200	11.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/10/2013
Project No.	18274-001-00	Tested By	KKB/SEF
Sample ID.	R-2A	Checked By	SEF
Source/Depth (feet)	98 - 99.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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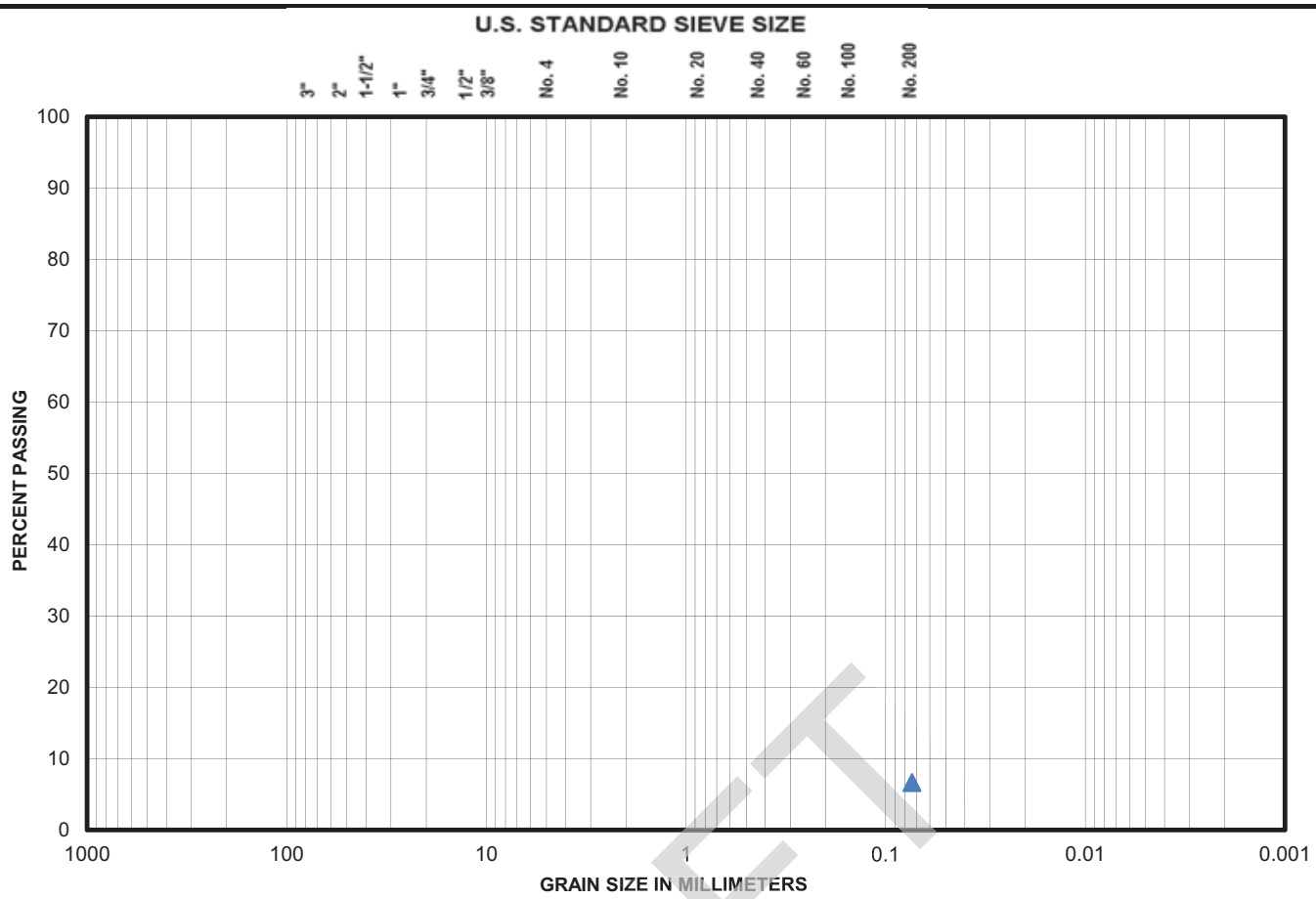
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	93.4	**Fines (Silt & Clay) %**		6.6	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Medium dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	6.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-3A	**Checked By**	CLP
Source/Depth (feet)	66.5 - 68	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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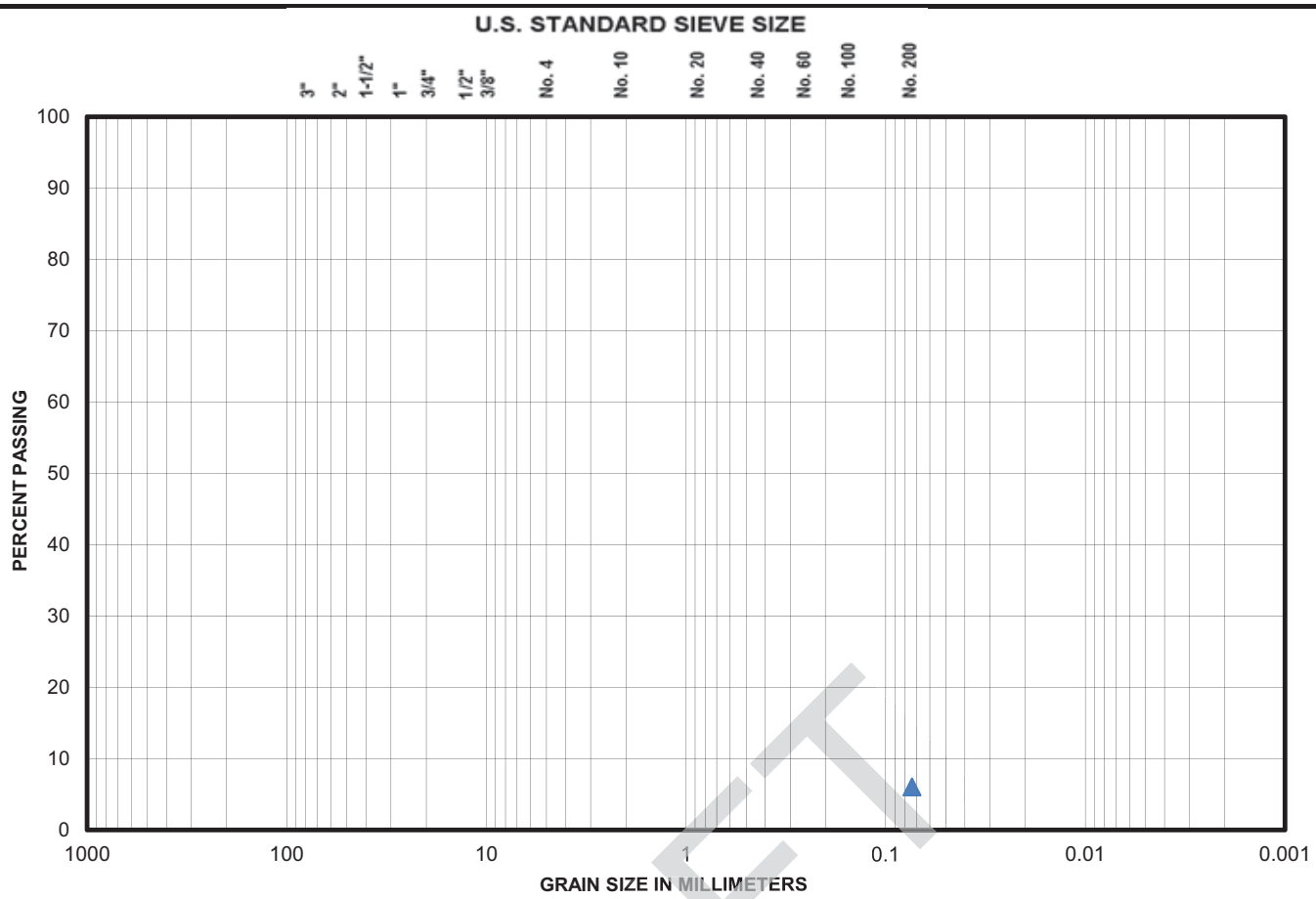
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	94.0	**Fines (Silt & Clay) %**	6.0

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	6.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-3A	**Checked By**	CLP
Source/Depth (feet)	74 - 75.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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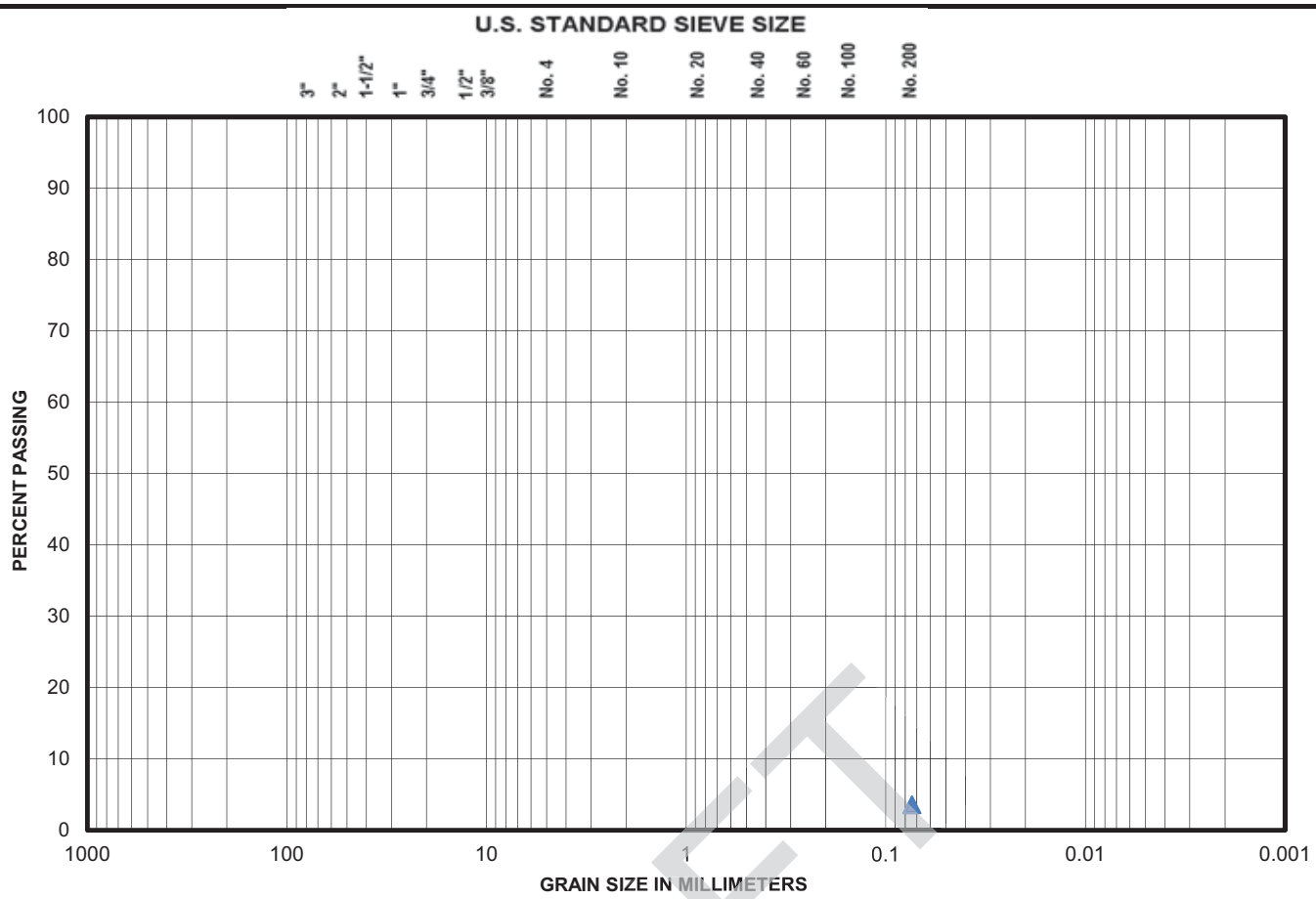
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	96.5	**Fines (Silt & Clay) %**		3.5	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	3.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-3A	**Checked By**	CLP
Source/Depth (feet)	81.5 - 83	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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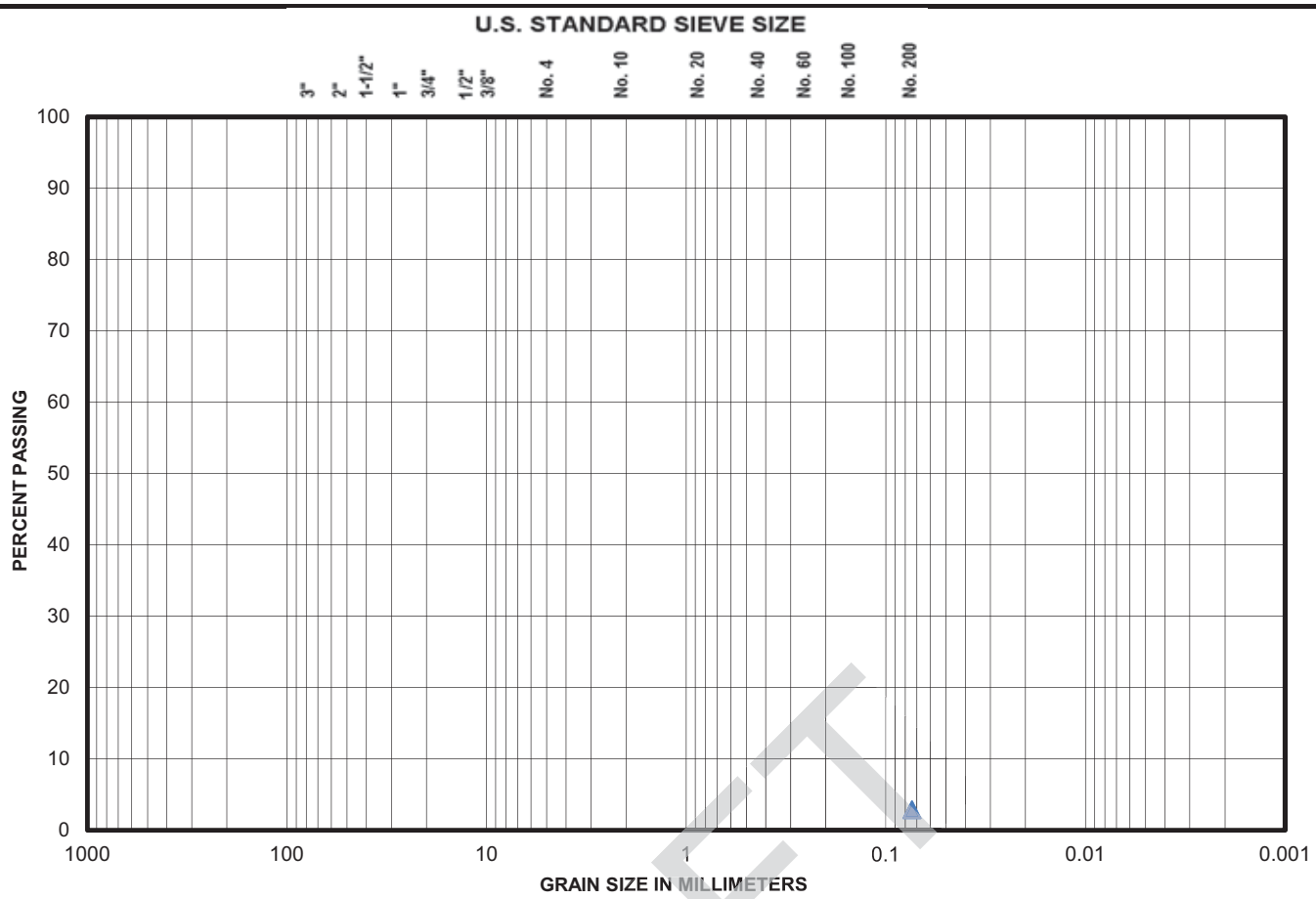
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	97.2	**Fines (Silt & Clay) %**		2.8	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	2.8

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	SLC
Boring No.	R-3A	**Checked By**	CLP
Source/Depth (feet)	89 - 90.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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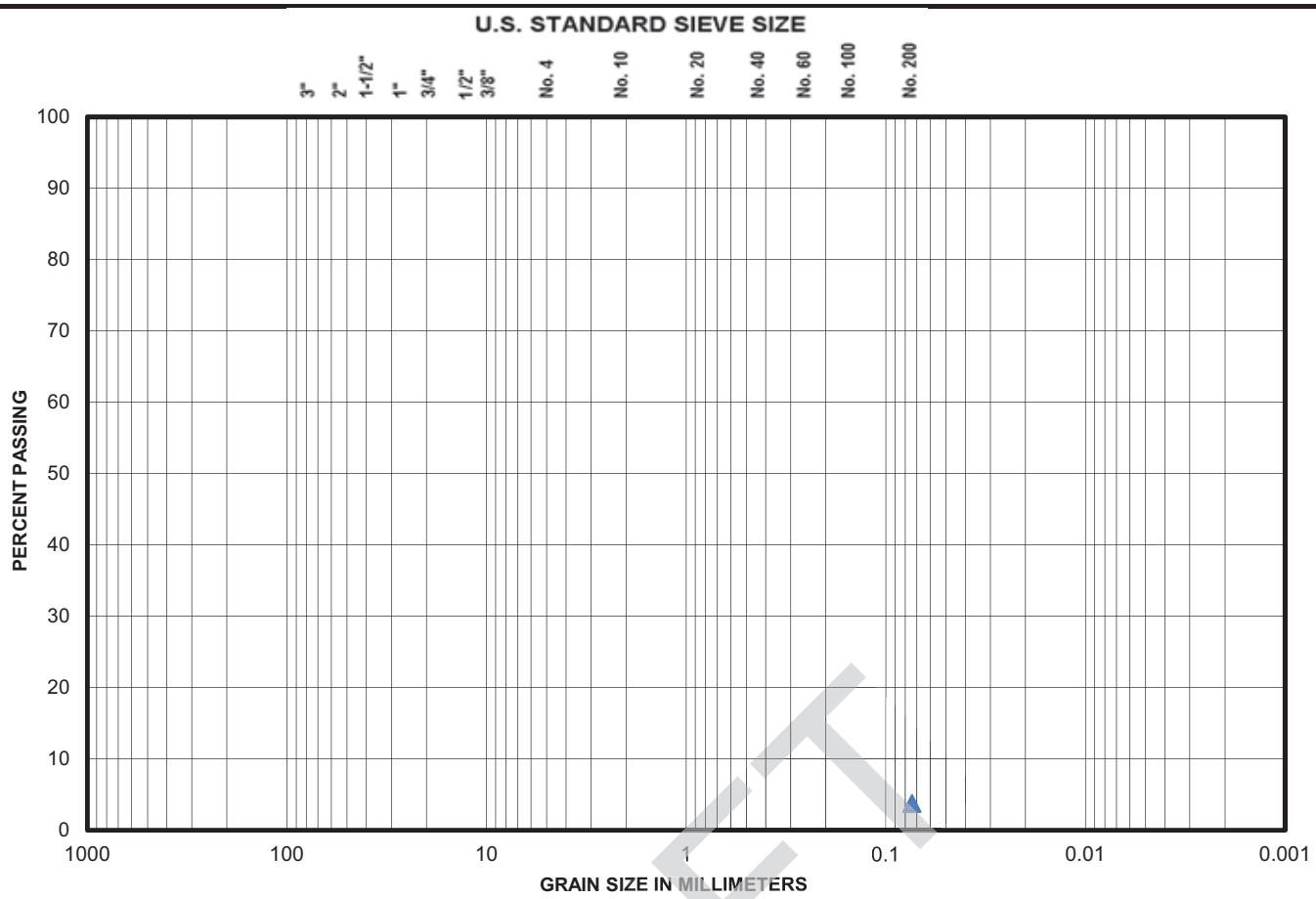
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	96.3	**Fines (Silt & Clay) %**		3.7	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	3.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-3A	**Checked By**	SLC
Source/Depth (feet)	99 - 100.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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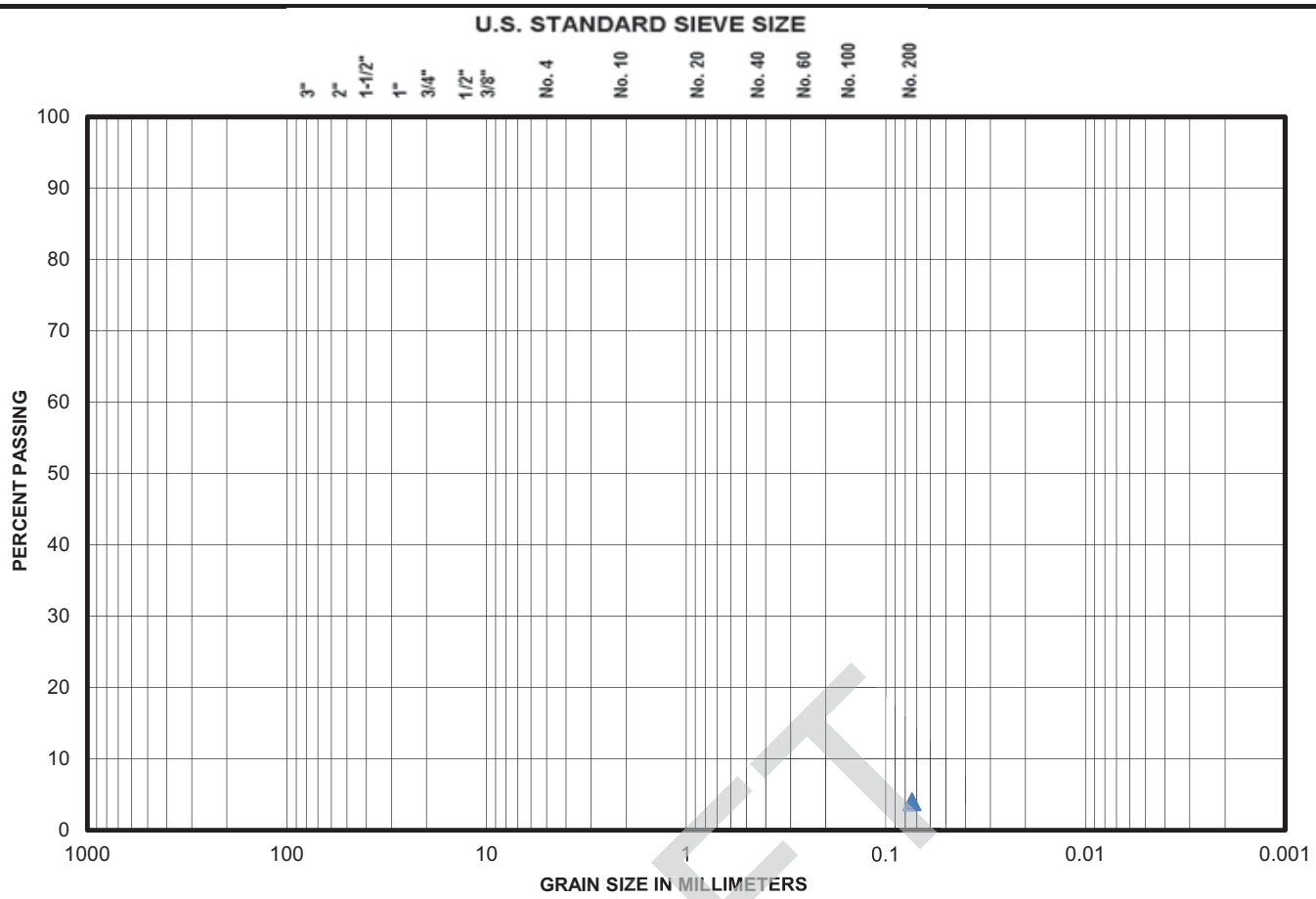
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	96.1	**Fines (Silt & Clay) %**		3.9	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	3.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-3A	**Checked By**	SLC
Source/Depth (feet)	109 - 110.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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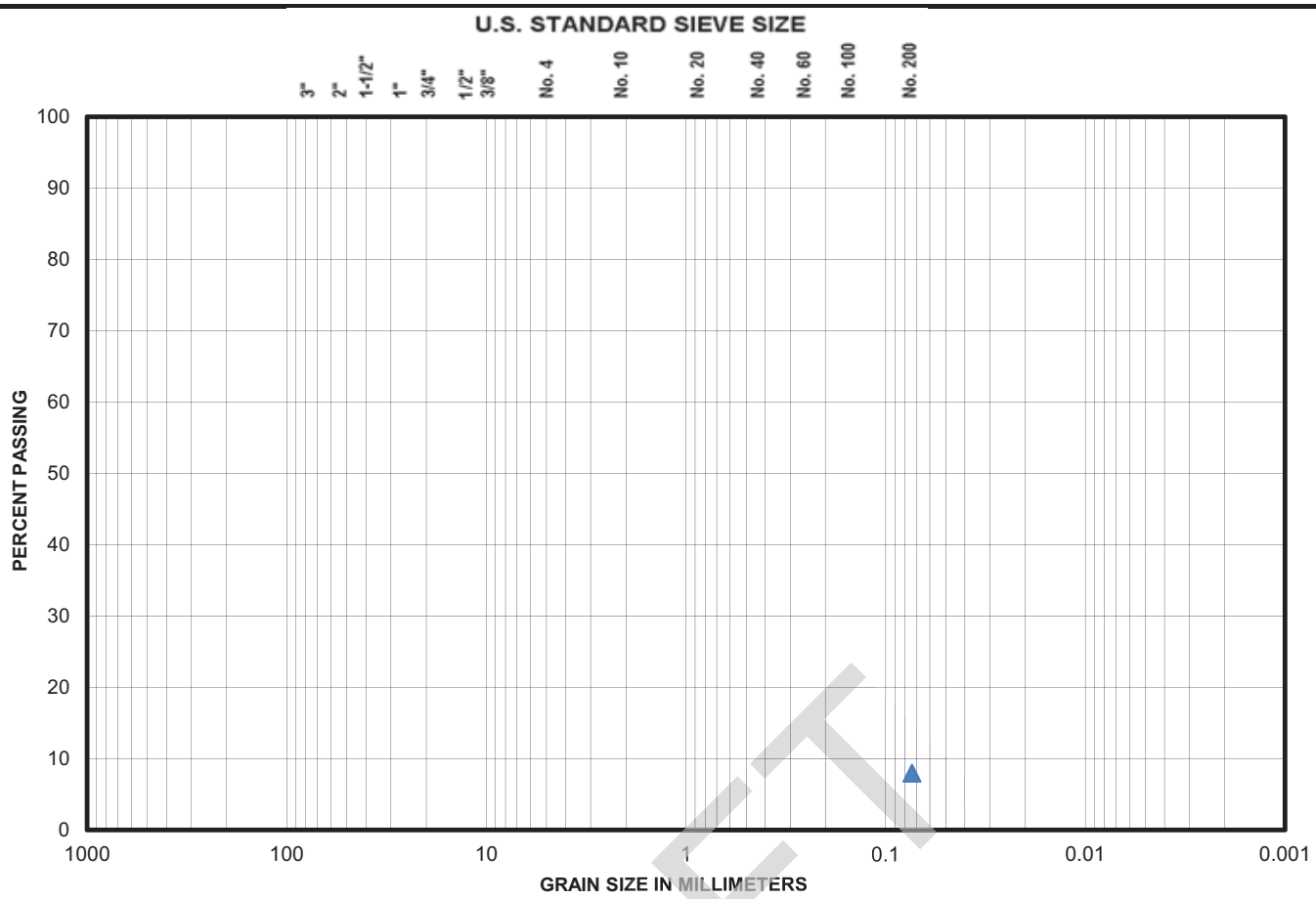
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	92.0	**Fines (Silt & Clay) %**		8.0	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	8.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-3A	**Checked By**	SLC
Source/Depth (feet)	124 - 125.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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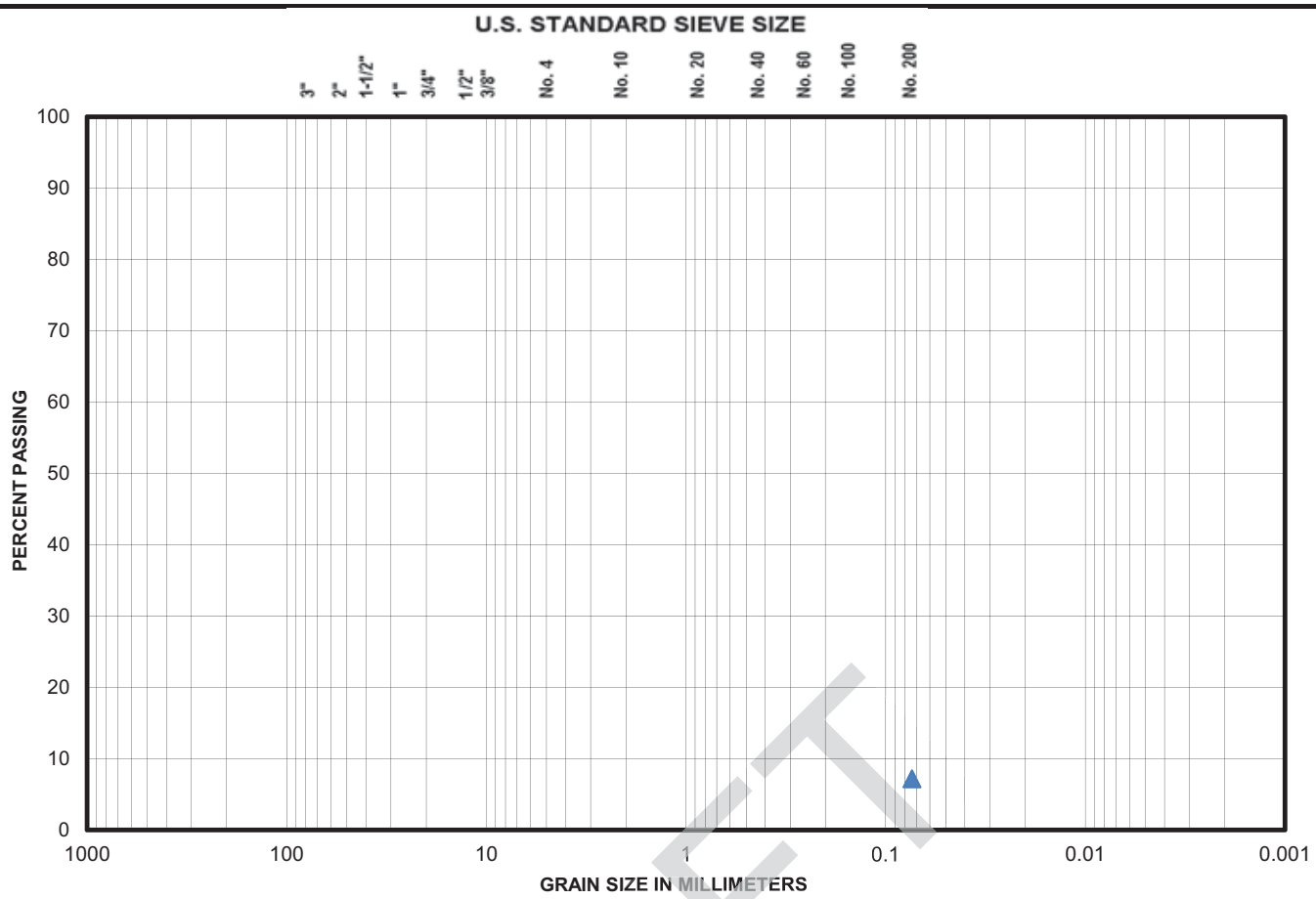
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	92.8	**Fines (Silt & Clay) %**	7.2		
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Very dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	7.2

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JKR/BH
Boring No.	R-3A	**Checked By**	SLC
Source/Depth (feet)	131.5 - 133	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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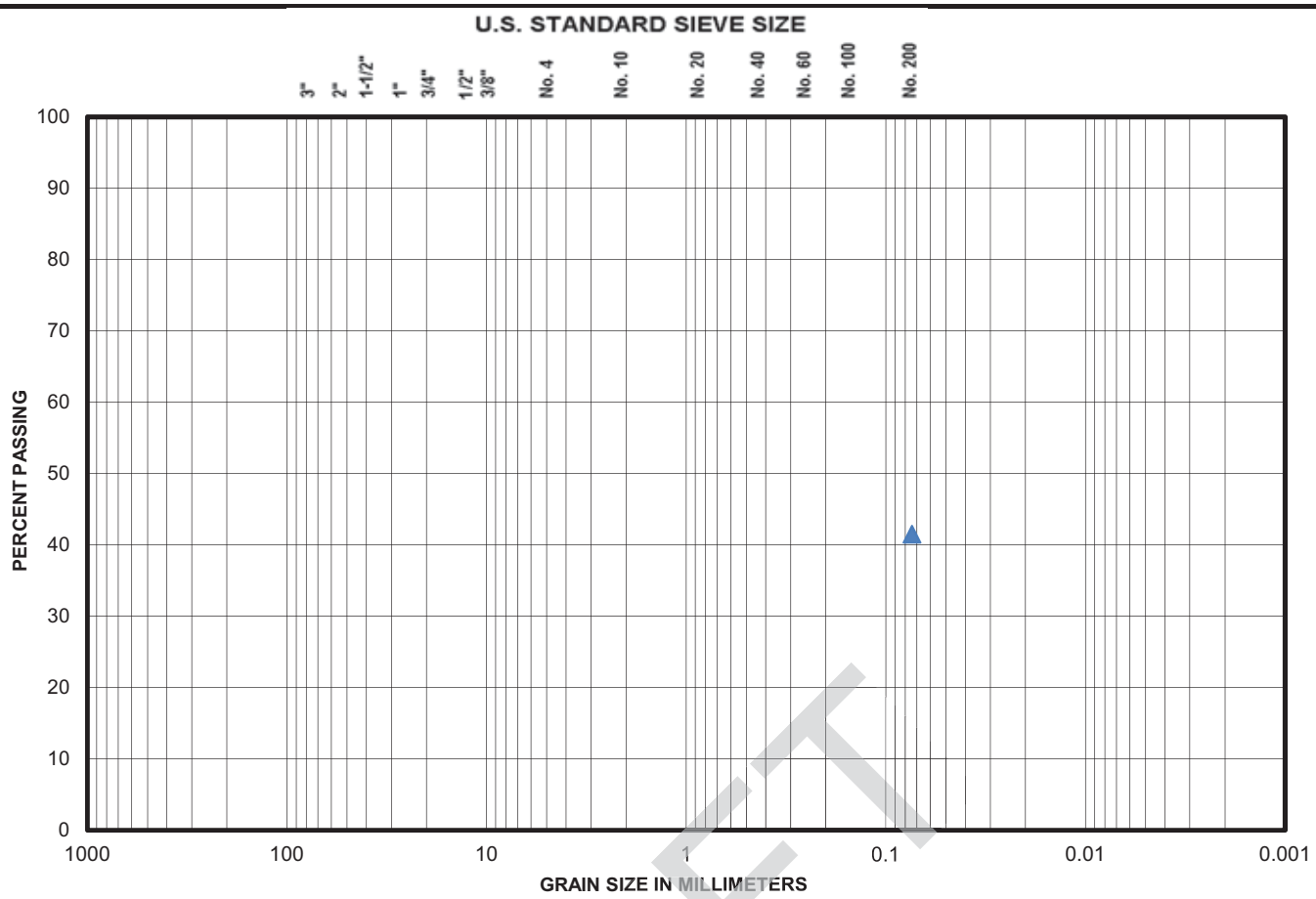
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	58.5	**Fines (Silt & Clay) %**	41.5

USC Classification	SM	**C_U**	na	**C_C**	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	41.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-3A	**Checked By**	SLC
Source/Depth (feet)	148 - 149	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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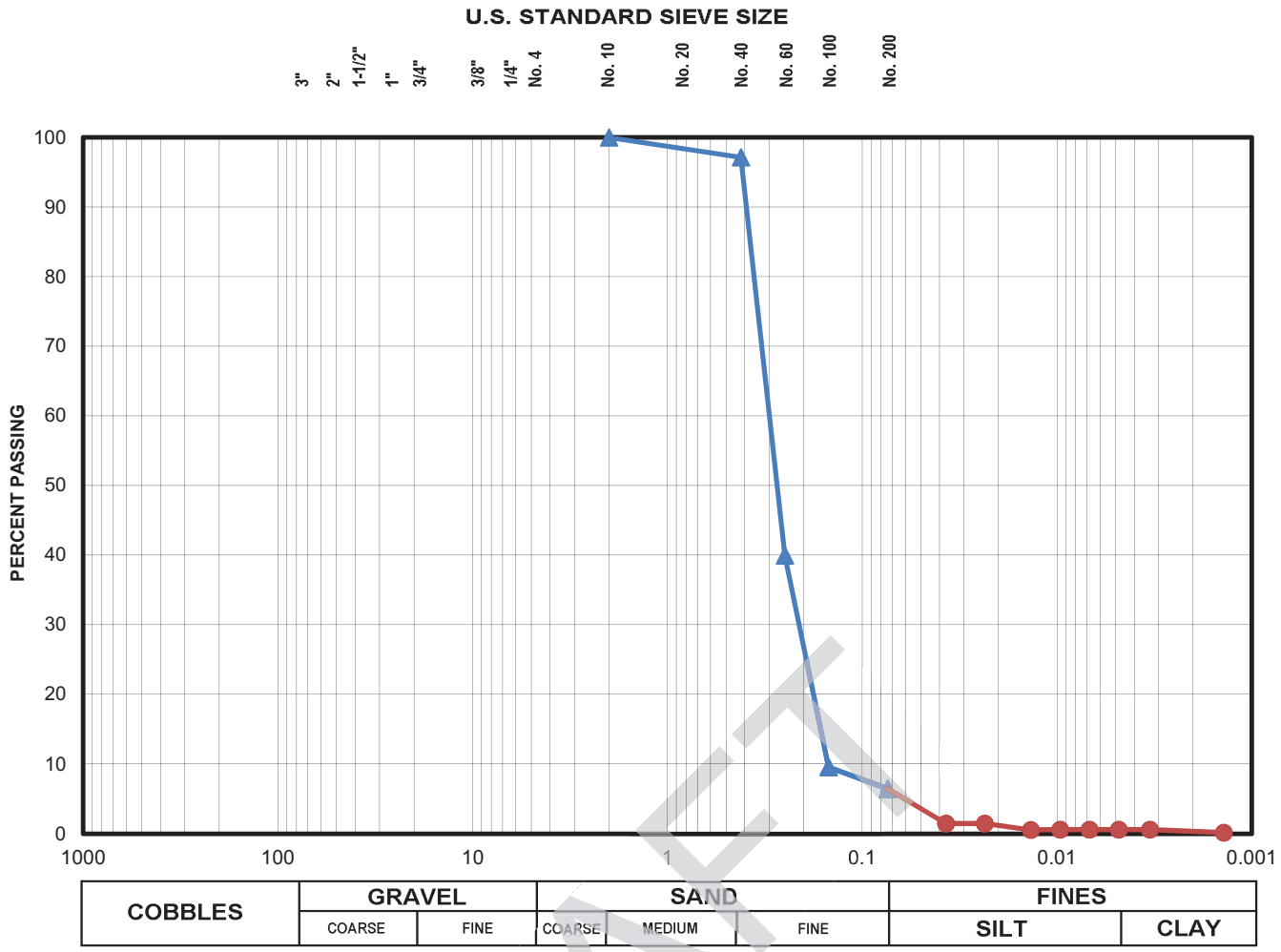
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Loose gray sand with trace gravel (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	97.1
3/4"	100.0	No. 60	39.9
3/8"	100.0	No. 100	9.6
1/4"	100.0	No. 200	6.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/10/2013
Project No.	18274-001-00	Tested By	KKB/SEF
Sample ID.	R-3A	Checked By	SEF
Source/Depth (feet)	56.5 - 58		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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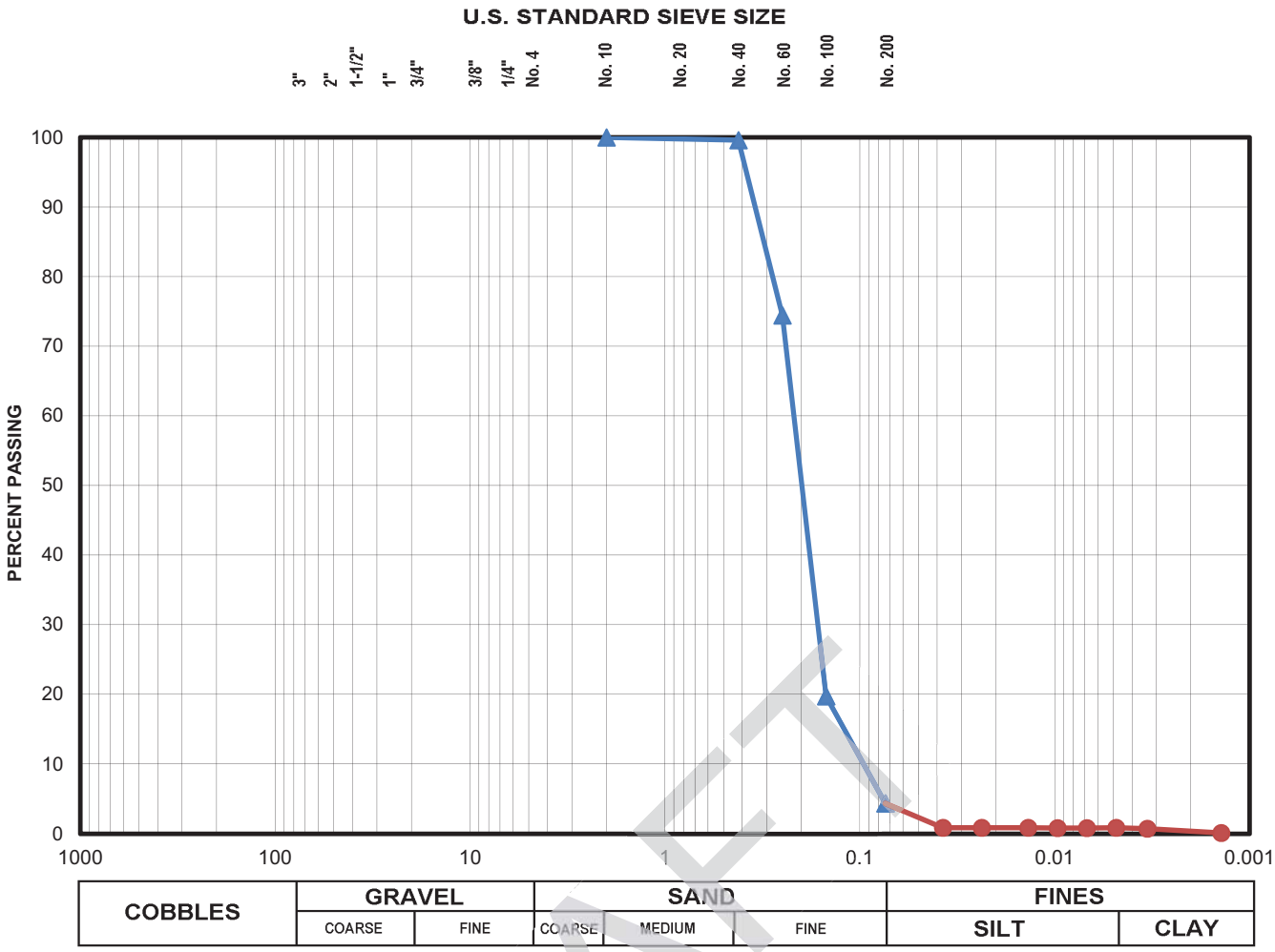
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Medium dense gray sand with trace gravel (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.6
3/4"	100.0	No. 60	74.4
3/8"	100.0	No. 100	19.7
1/4"	100.0	No. 200	4.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1148
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/11/2013
Project No.	18274-001-00	Tested By	KKB/SEF/ZST
Sample ID.	R-3A	Checked By	SEF/ZST
Source/Depth (feet)	59 - 60.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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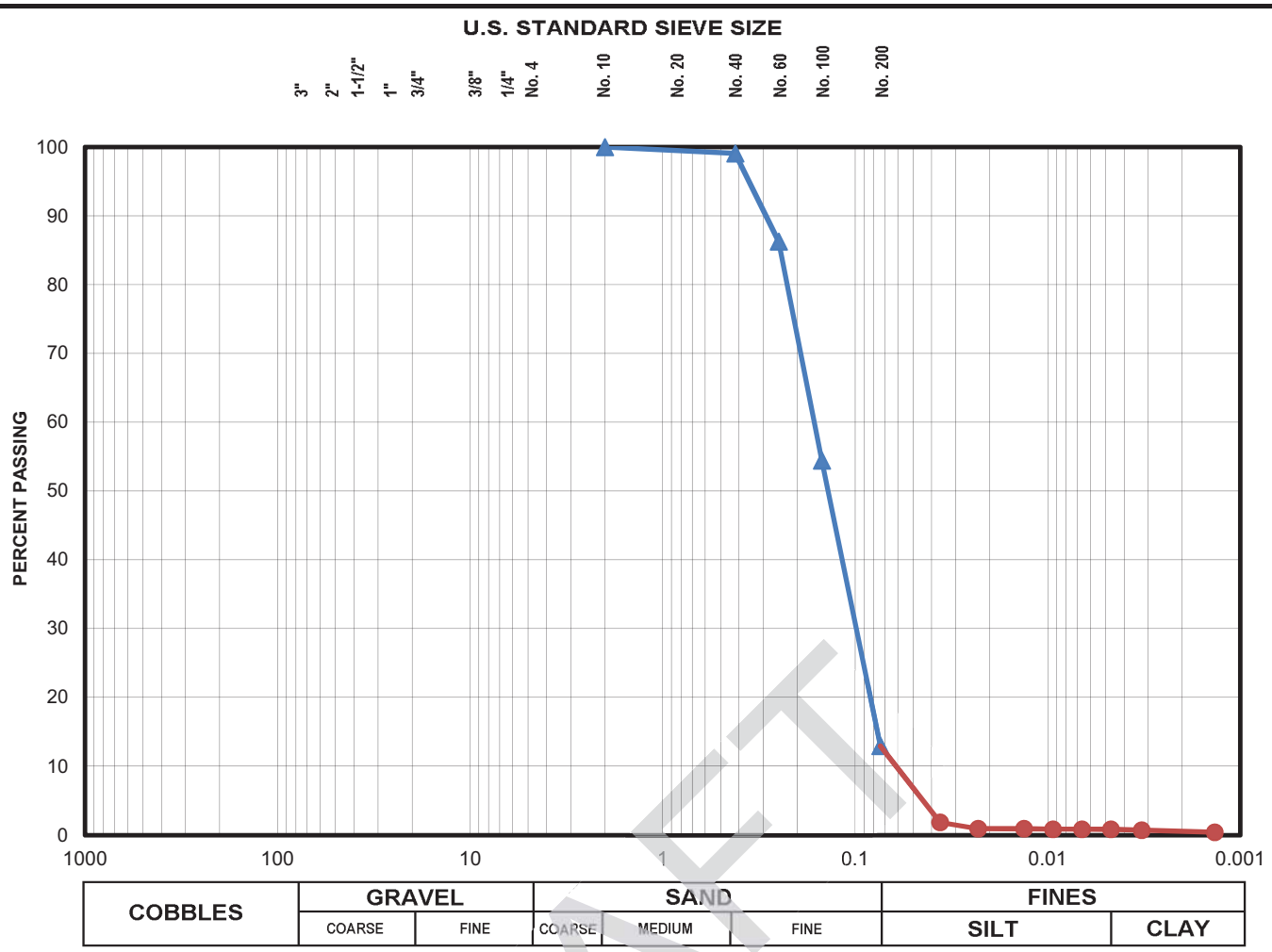
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Dense gray silty sand (SM)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.1
3/4"	100.0	No. 60	86.3
3/8"	100.0	No. 100	54.4
1/4"	100.0	No. 200	13.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/11/2013
Project No.	18274-001-00	Tested By	KKB
Sample ID.	R-3A	Checked By	SEF
Source/Depth (feet)	69 - 70.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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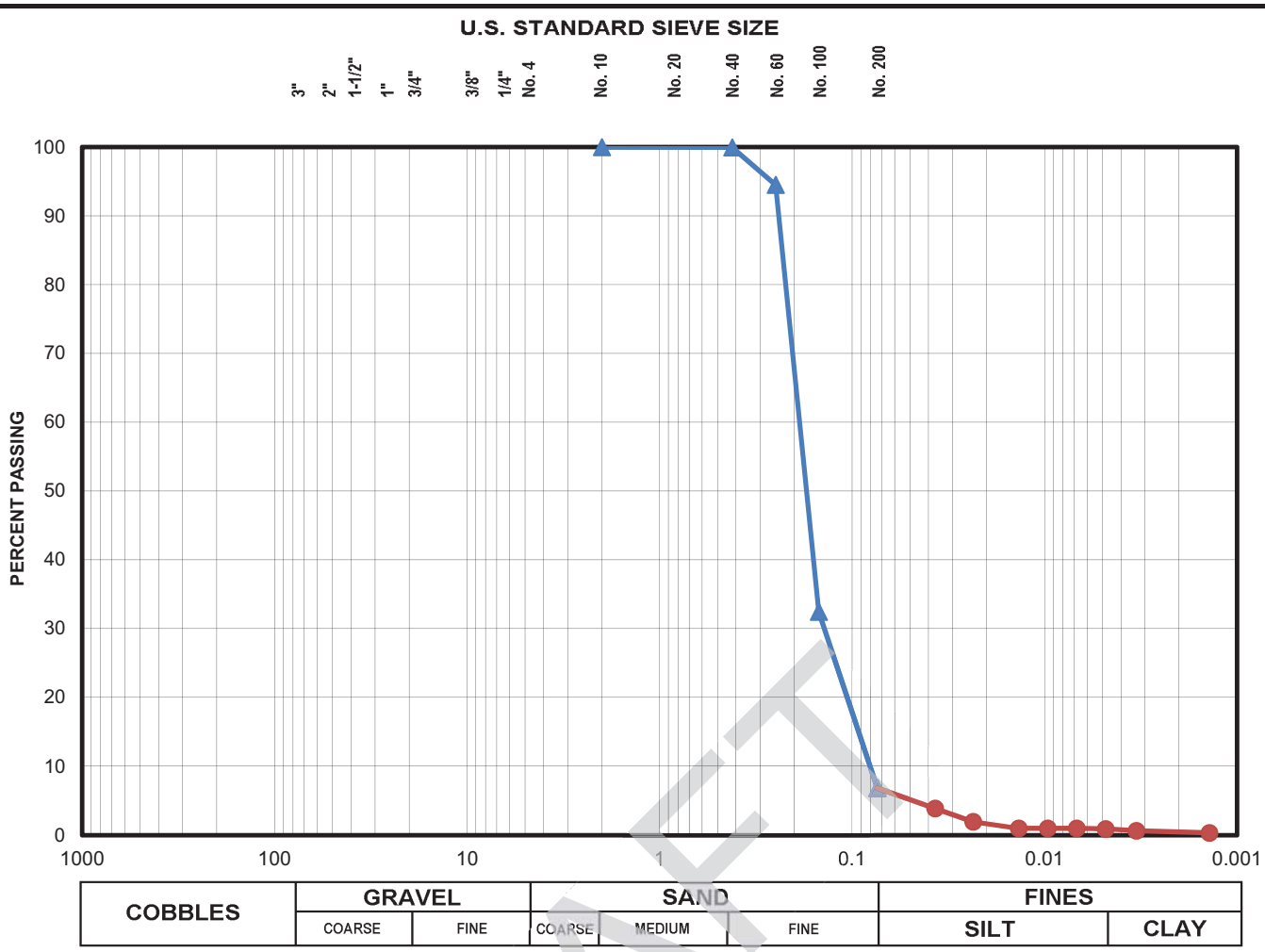
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	**No. 4**	100.0
2"	100.0	**No. 10**	100.0
1 1/2"	100.0	**No. 20**	100.0
1"	100.0	**No. 40**	99.9
3/4"	100.0	**No. 60**	94.5
3/8"	100.0	**No. 100**	32.5
1/4"	100.0	**No. 200**	6.8

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	0

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	**Date Tested**	12/11/2013
Project No.	18274-001-00	**Tested By**	KKB/SEF/ZST
Sample ID.	R-3A	**Checked By**	SEF/ZST
Source/Depth (feet)	84 - 85.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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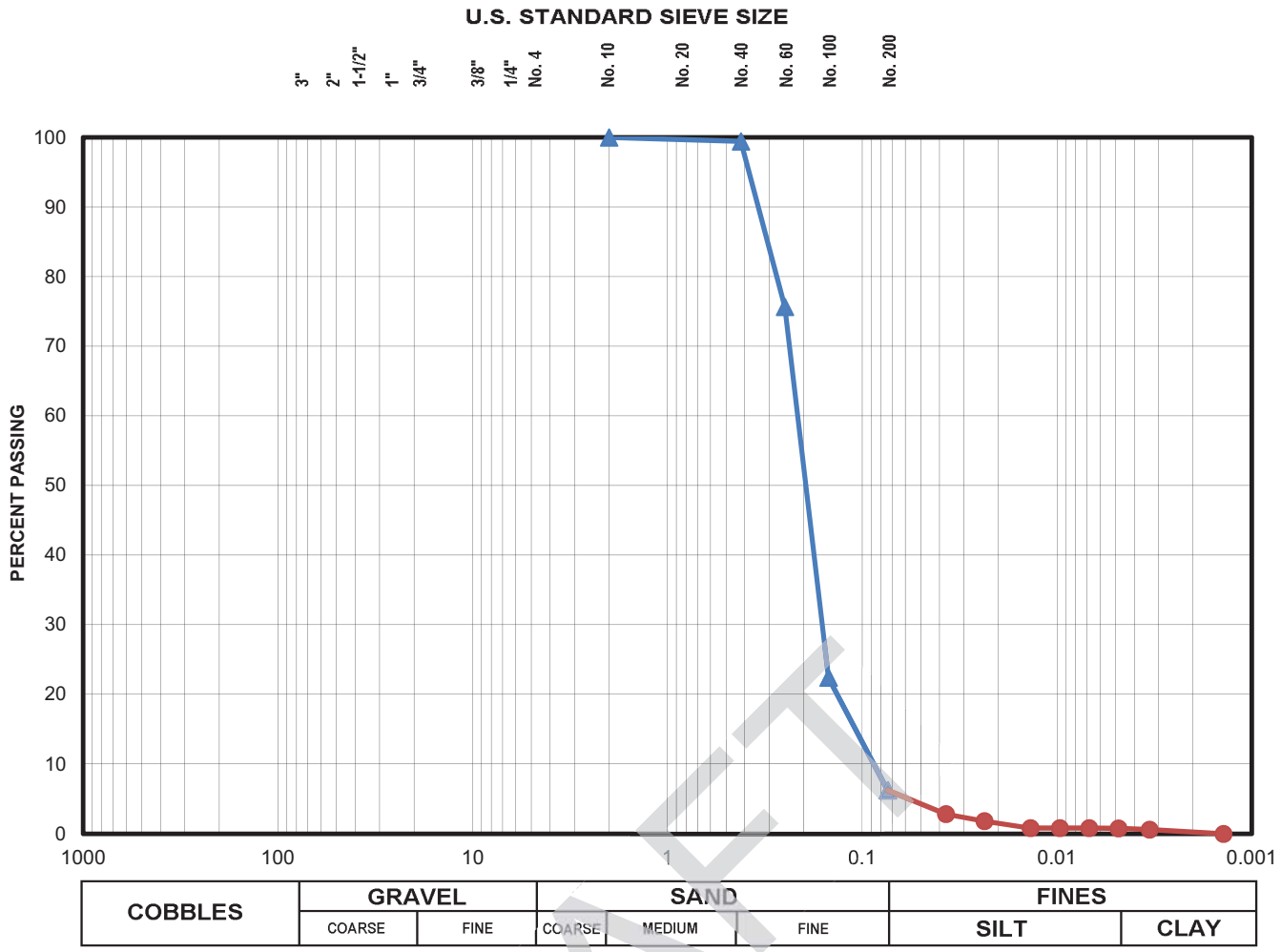
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Very dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.4
3/4"	100.0	No. 60	75.7
3/8"	100.0	No. 100	22.4
1/4"	100.0	No. 200	6.3

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1154

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/13/2013
Project No.	18274-001-00	Tested By	ZST
Sample ID.	R-3A	Checked By	ZST
Source/Depth (feet)	104 - 105.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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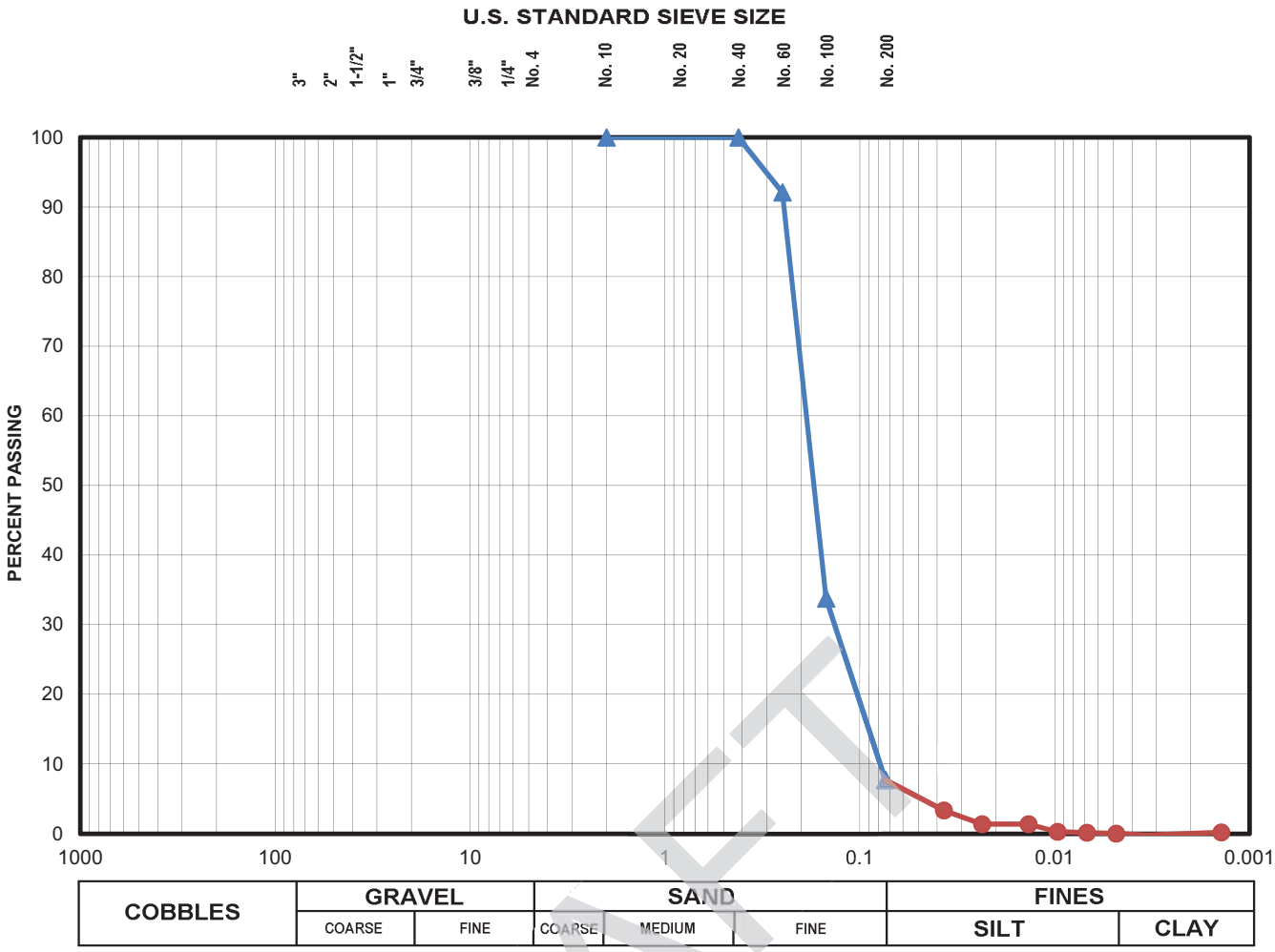
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Very dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	**No. 4**	100.0
2"	100.0	**No. 10**	100.0
1 1/2"	100.0	**No. 20**	100.0
1"	100.0	**No. 40**	100.0
3/4"	100.0	**No. 60**	92.1
3/8"	100.0	**No. 100**	33.8
1/4"	100.0	**No. 200**	7.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1137
Hydro jar ID:	1163

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	**Date Tested**	12/12/2013
Project No.	18274-001-00	**Tested By**	SEF/ZST
Sample ID.	R-3A	**Checked By**	SEF
Source/Depth (feet)	119 - 120.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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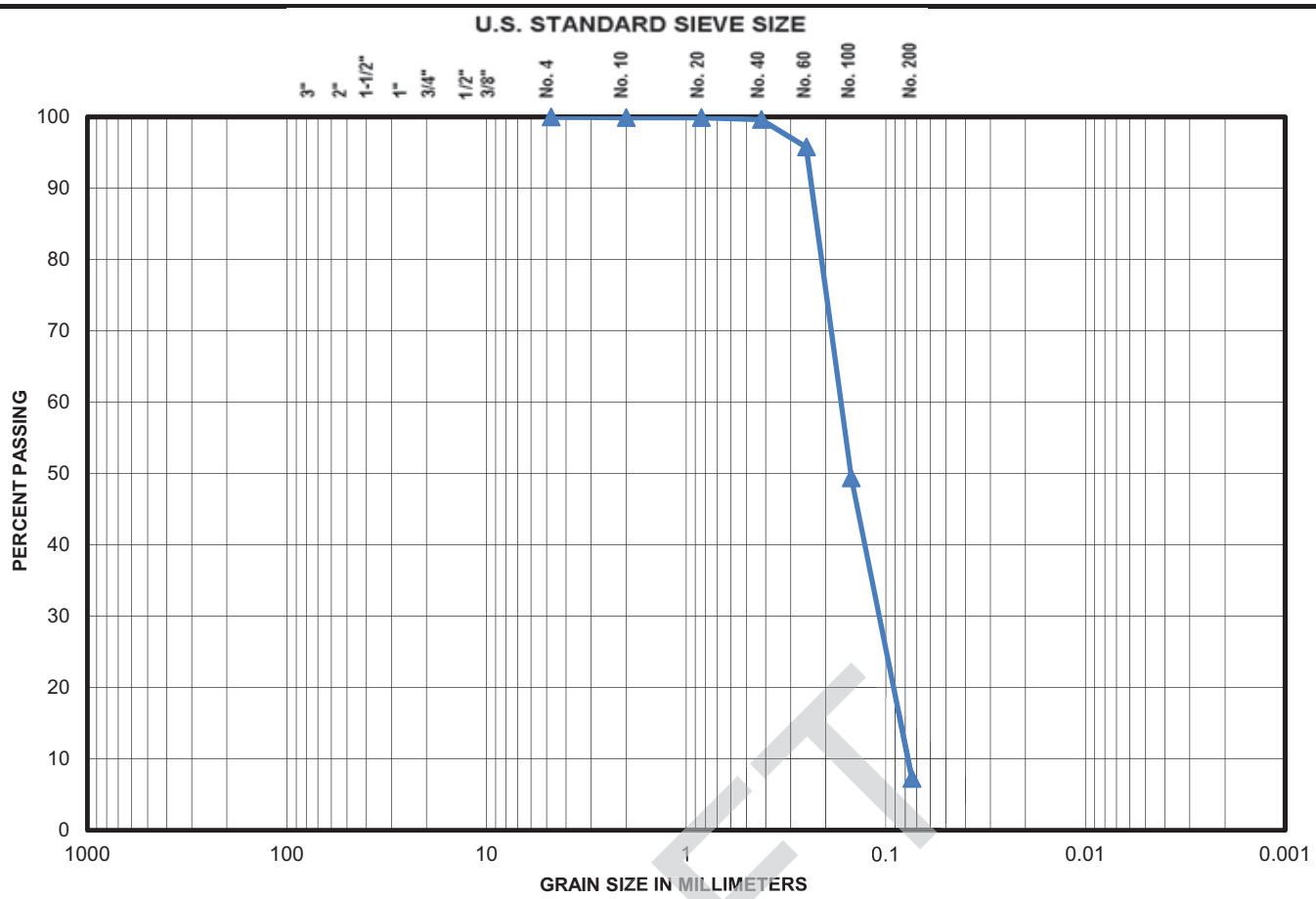
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish,

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	92.4	**Fines (Silt & Clay) %**		7.2	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Very dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	100.0
2"	#N/A	**No. 10**	99.9
1 1/2"	#N/A	**No. 20**	99.9
1"	#N/A	**No. 40**	99.6
3/4"	#N/A	**No. 60**	95.8
1/2"	#N/A	**No. 100**	49.4
3/8"	#N/A	**No. 200**	7.2

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/4/2013
Project No.	18274-001-00	**Tested By**	JRK/SLC
Boring No.	R-3A	**Checked By**	SLC
Source/Depth (feet)	76.5 - 78	**Sieve Type**	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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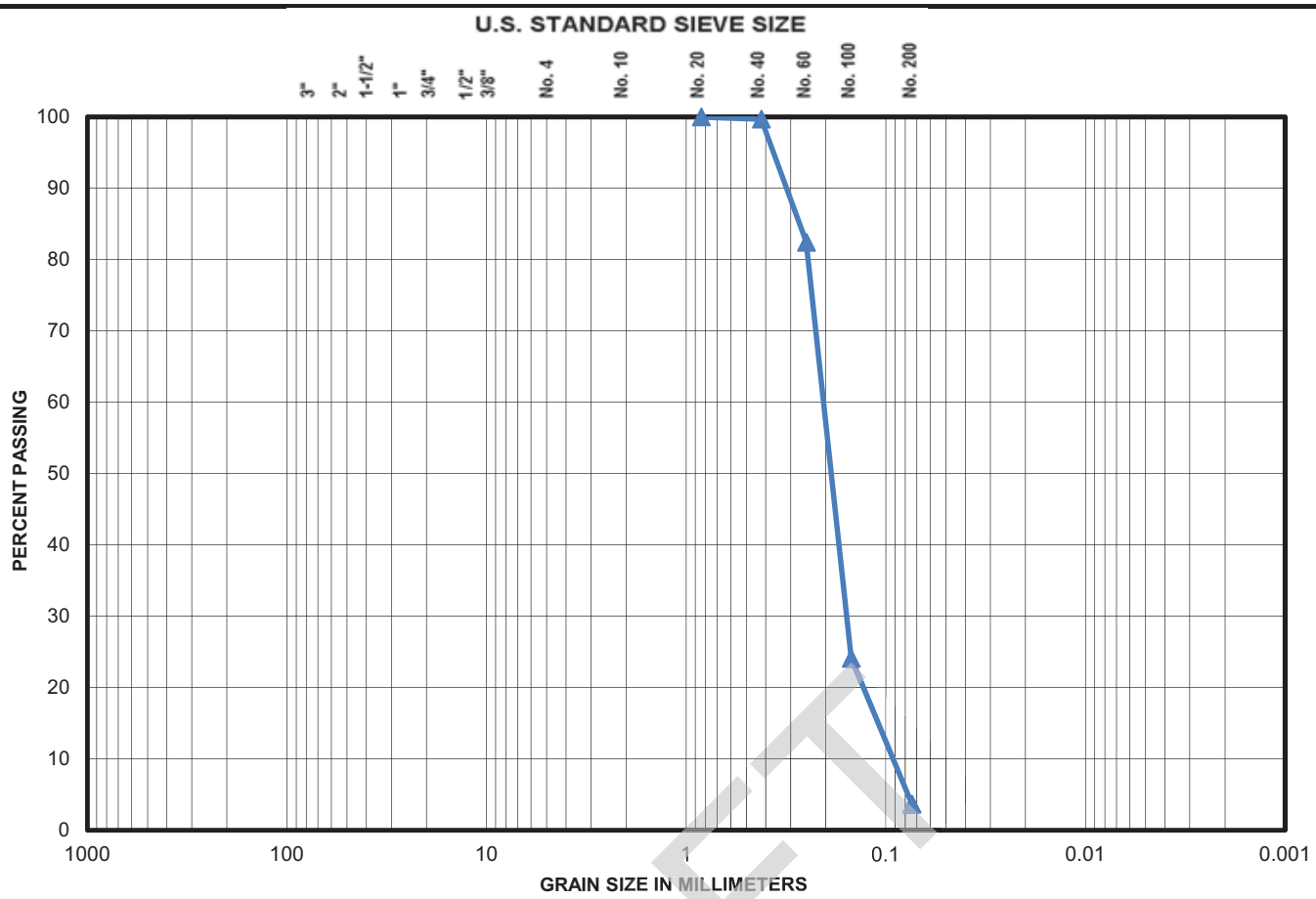
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	96.1	**Fines (Silt & Clay) %**	3.6		
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	100.0
1"	#N/A	**No. 40**	99.7
3/4"	#N/A	**No. 60**	82.4
1/2"	#N/A	**No. 100**	24.1
3/8"	#N/A	**No. 200**	3.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/4/2013
Project No.	18274-001-00	**Tested By**	JRK/SLC
Boring No.	R-3A	**Checked By**	SLC
Source/Depth (feet)	94 - 95.5	**Sieve Type**	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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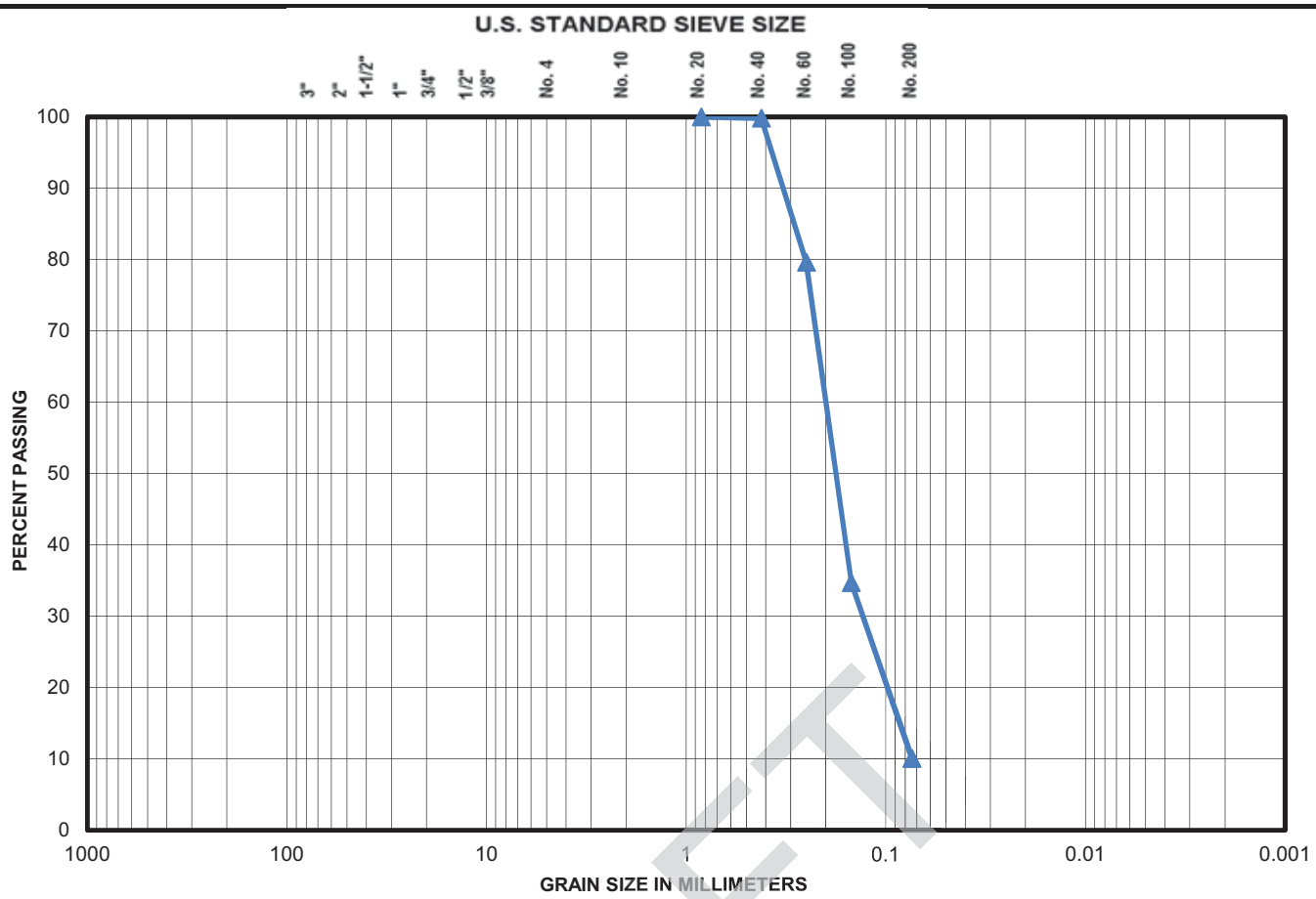
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	89.8	**Fines (Silt & Clay) %**	10.0

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	100.0
1"	#N/A	**No. 40**	99.8
3/4"	#N/A	**No. 60**	79.6
1/2"	#N/A	**No. 100**	34.7
3/8"	#N/A	**No. 200**	10.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	JRK/SEF
Boring No.	R-3A	**Checked By**	SEF
Source/Depth (feet)	114 - 115.5	**Sieve Type**	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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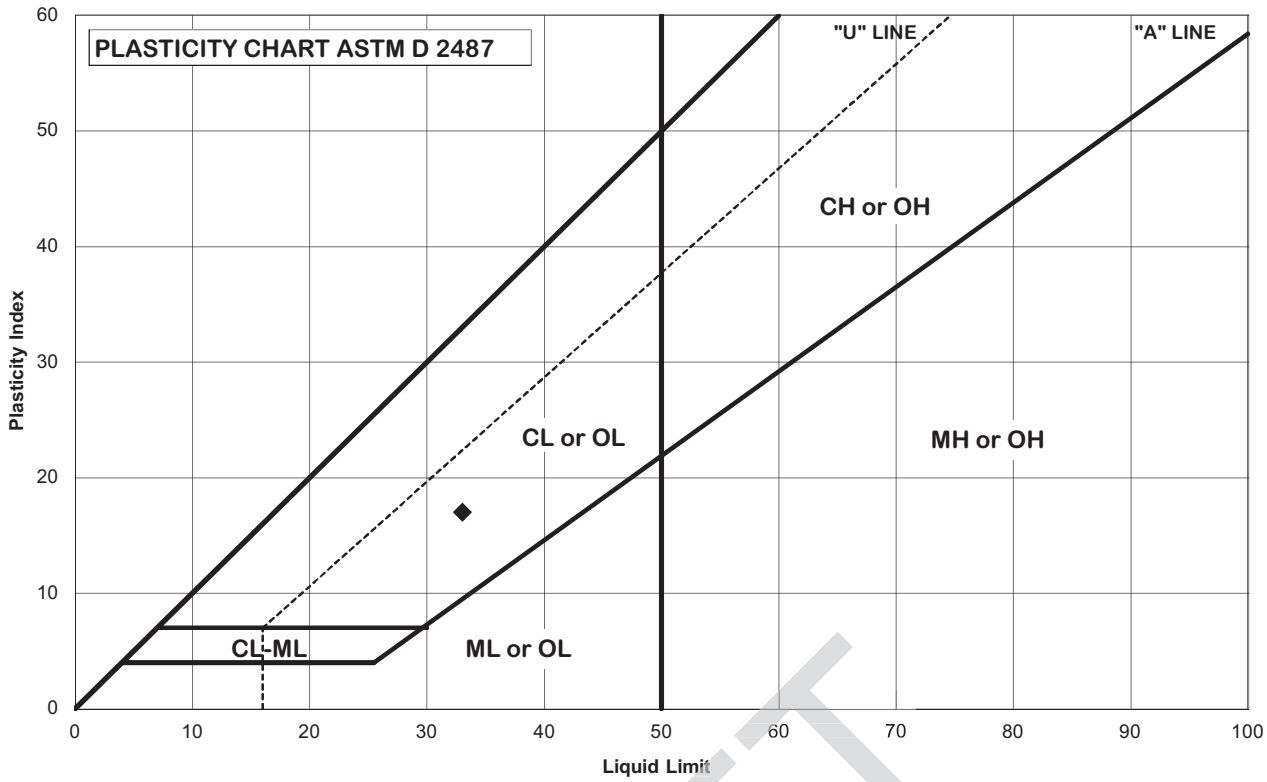
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	R-3A	**Natural WC:**	#DIV/0!
Depth, ft.	141 - 142	**Preparation:**	Air Dried
Cup No.	1355	**No. Points:**	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very stiff gray clay with sand streaks and sand pockets (CL4)		

Classification (fraction passing No. 40 sieve)			
CL	**Liquid Limit =**	**33**	**Date:** 12/6/2013
	Plastic Limit =	**16**	**Tested By:** BH
	Plasticity Index =	**17**	**Checked By:** OS

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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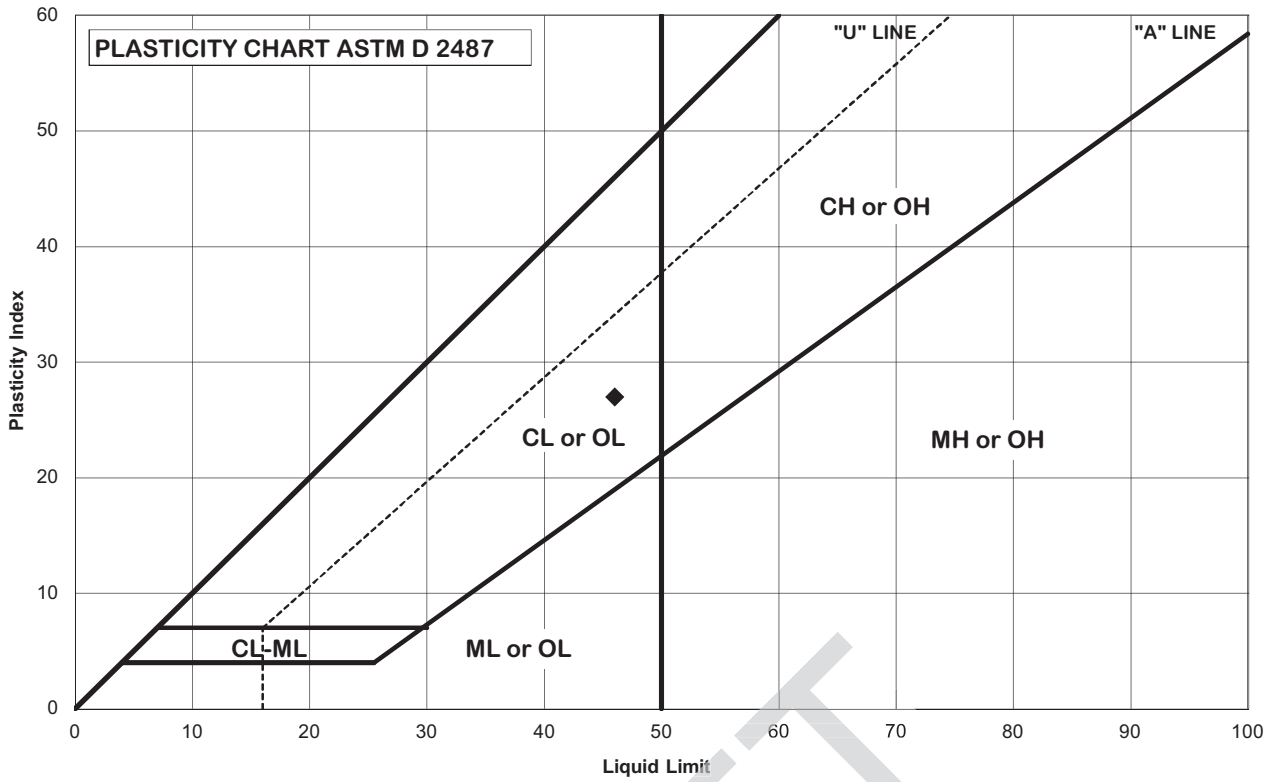
ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.	18274-001-00			
Boring No.	R-3A		**Natural WC:**	#DIV/0!
Depth, ft.	143 - 144		**Preparation:**	Wet (as-received)
Cup No.	1355		**No. Points:**	
Percent Retained on No. 40	0	Estimated or Tested		0.0
Original sample description:	Very stiff gray clay with sand streaks and sand pockets (CL6)			

Classification (fraction passing No. 40 sieve)				
CL	**Liquid Limit =**	**46**	**Date:**	12/6/2013
	Plastic Limit =	**19**	**Tested By:**	BH
	Plasticity Index =	**27**	**Checked By:**	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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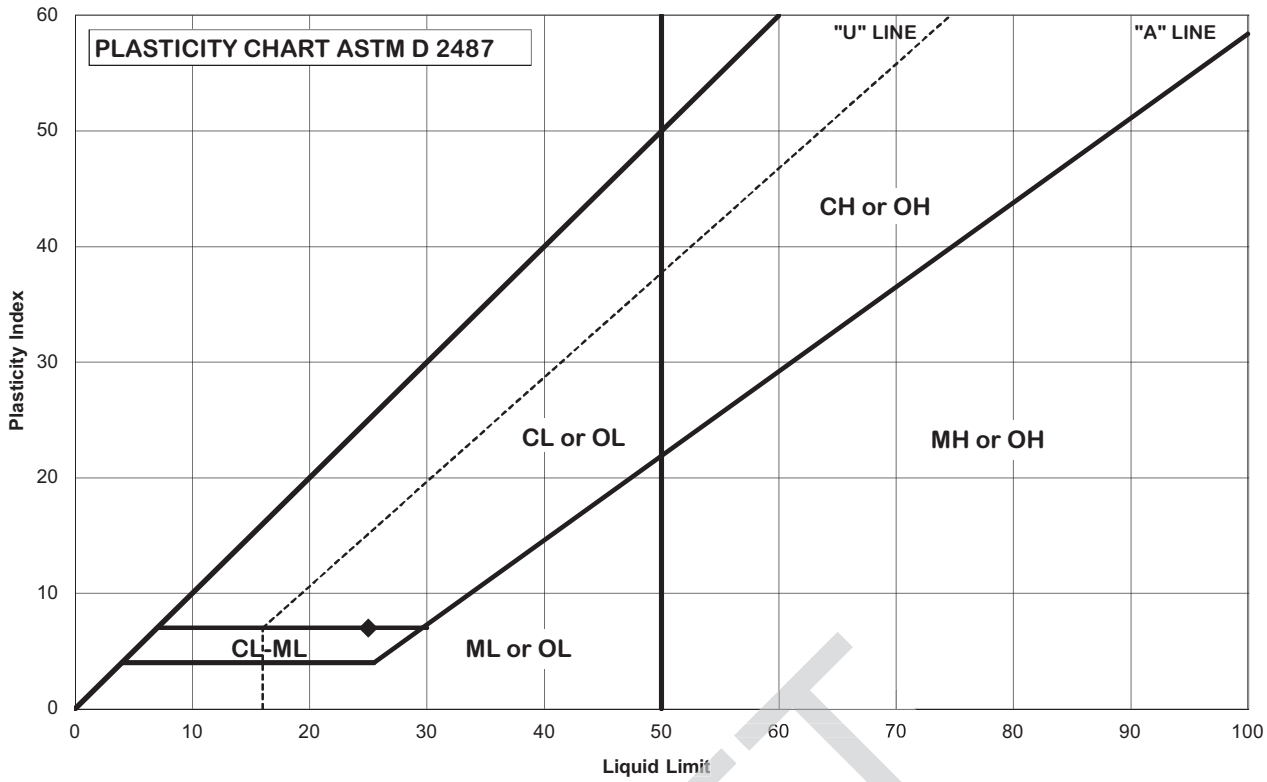
ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.	18274-001-00			
Boring No.	R-3A		**Natural WC:**	#DIV/0!
Depth, ft.	147 - 148		**Preparation:**	Wet (as-received)
Cup No.	1355		**No. Points:**	
Percent Retained on No. 40	0	Estimated or Tested		0.0
Original sample description:	Medium dense gray sandy silt with clay pockets (ML)			

Classification (fraction passing No. 40 sieve)				
CL-ML	**Liquid Limit =**	**25**	**Date:**	12/9/2013
	Plastic Limit =	**18**	**Tested By:**	BH
	Plasticity Index =	**7**	**Checked By:**	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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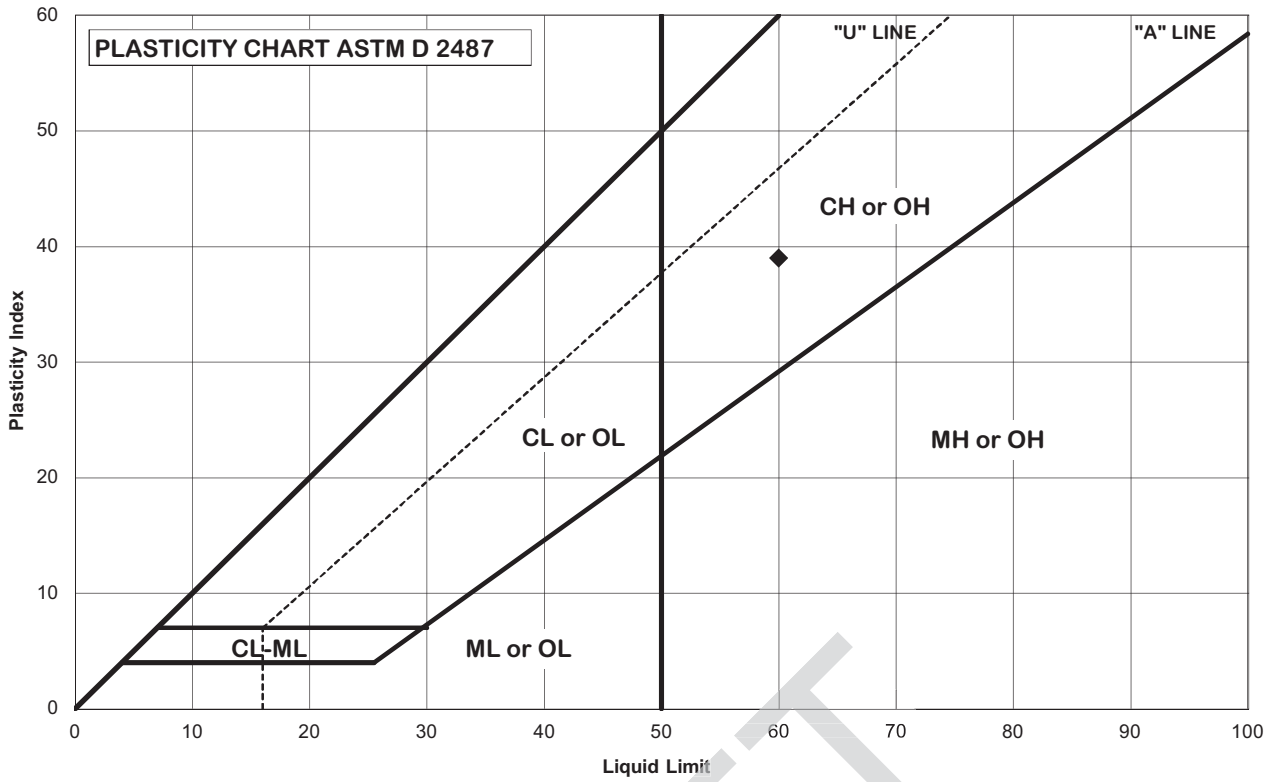
ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.	18274-001-00			
Boring No.	R-3A		**Natural WC:**	#DIV/0!
Depth, ft.	155 - 156.5		**Preparation:**	Air Dried
Cup No.	1355		**No. Points:**	
Percent Retained on No. 40	0	Estimated or Tested		0.0
Original sample description:	Very stiff gray clay (CH3)			

Classification (fraction passing No. 40 sieve)				
CH	**Liquid Limit =**	**60**	**Date:**	12/6/2013
	Plastic Limit =	**21**	**Tested By:**	BH
	Plasticity Index =	**39**	**Checked By:**	OS

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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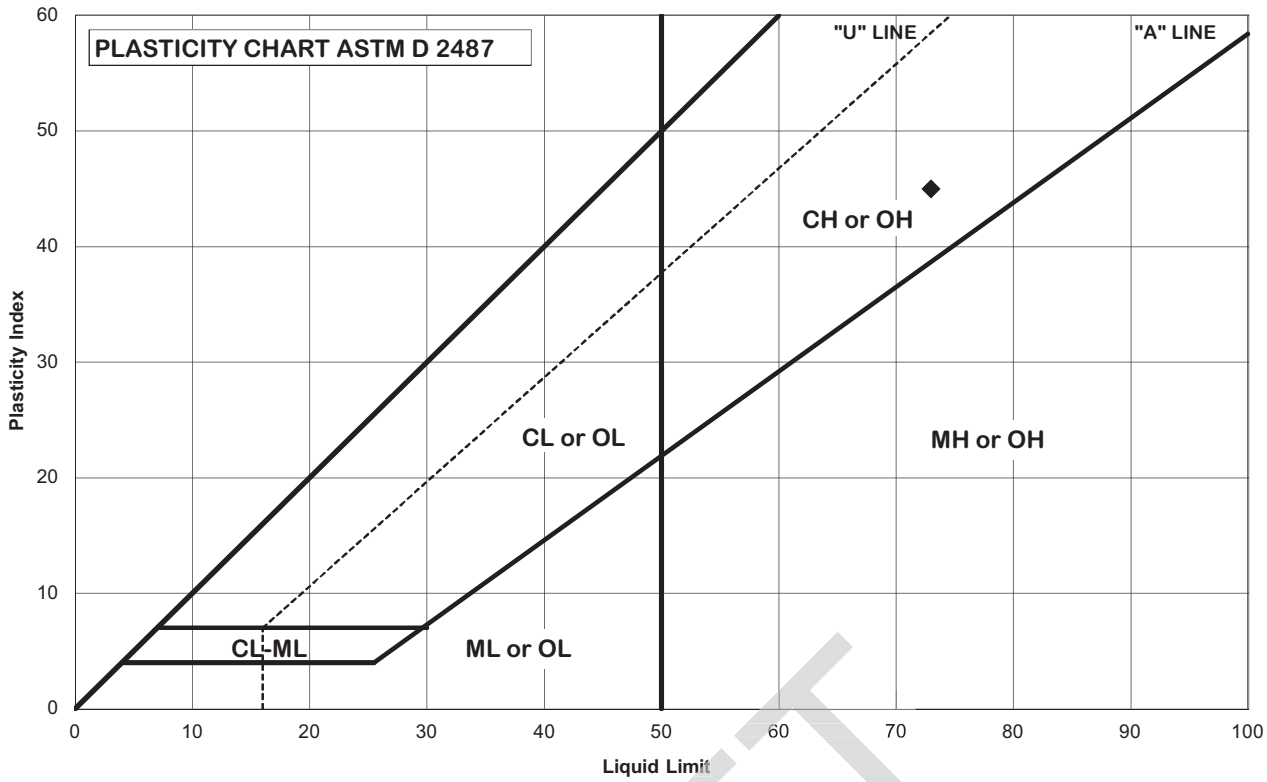
ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		
Project No.	18274-001-00		
Boring No.	R-3A	**Natural WC:**	#DIV/0!
Depth, ft.	195 - 196	**Preparation:**	Wet (as-received)
Cup No.	1355	**No. Points:**	
Percent Retained on No. 40	0	Estimated or Tested	0.0
Original sample description:	Very stiff gray clay (CH3)		

Classification (fraction passing No. 40 sieve)				
CH	**Liquid Limit =**	**73**	**Date:**	12/10/2013
	Plastic Limit =	**28**	**Tested By:**	BH
	Plasticity Index =	**45**	**Checked By:**	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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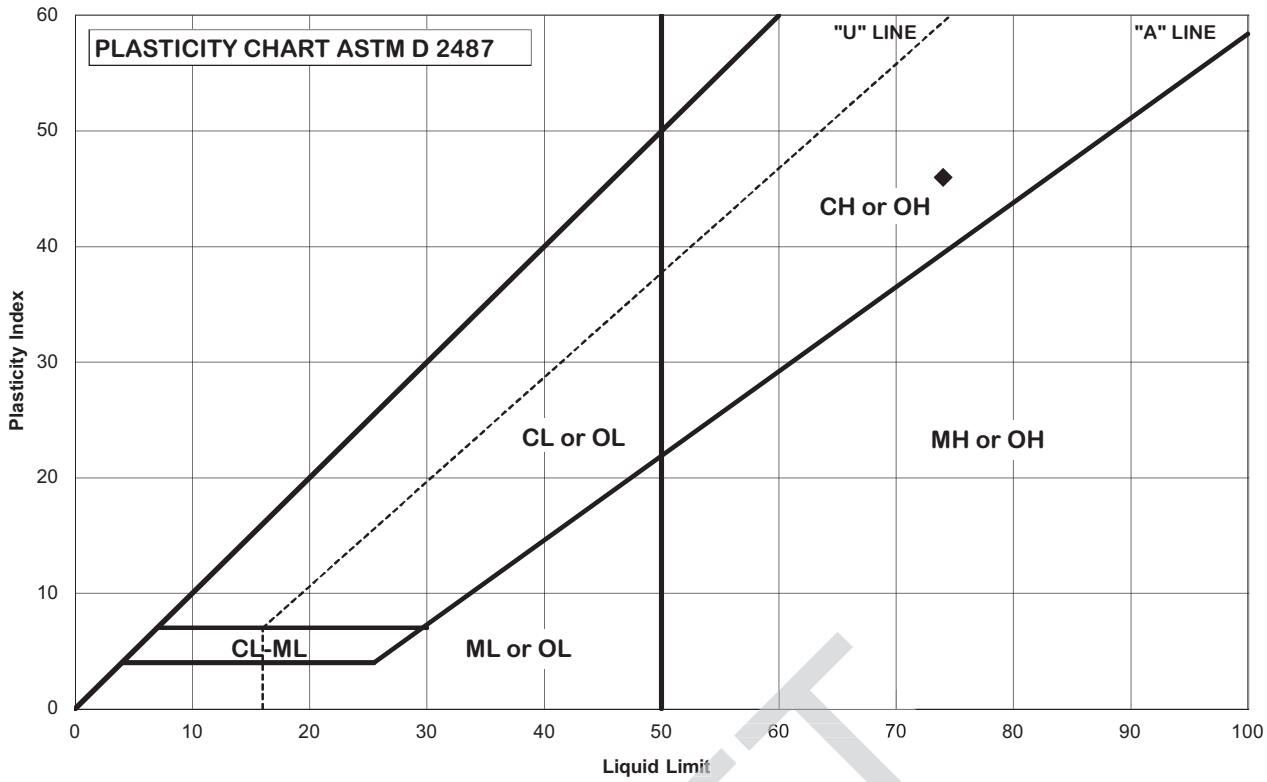
ATTERBERG LIMITS - ASTM D4318

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



ATTERBERG LIMITS DETERMINATION - ASTM D4318/AASHTO T-89, T-90

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA			
Project No.	18274-001-00			
Boring No.	R-3A		**Natural WC:**	#DIV/0!
Depth, ft.	204.7 - 205		**Preparation:**	Wet (as-received)
Cup No.	1355		**No. Points:**	
Percent Retained on No. 40	0	Estimated or Tested		0.0
Original sample description:	Very stiff gray clay with sand streaks and sand pockets (CH3)			

Classification (fraction passing No. 40 sieve)				
CH	**Liquid Limit =**	**74**	**Date:**	12/10/2013
	Plastic Limit =	**28**	**Tested By:**	BH
	Plasticity Index =	**46**	**Checked By:**	SLC

NOTES:

NOTE: This test is performed only on that portion of the soil that passes the No. 40 sieve. Therefore, the relative contribution of this portion of the soil to the properties of the sample as a whole must be considered when using these tests to evaluate properties of a soil.

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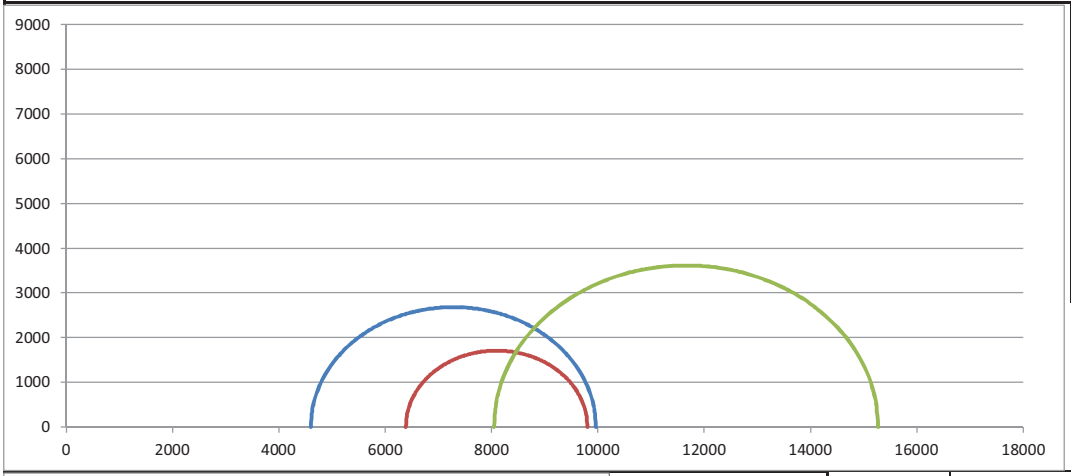
ATTERBERG LIMITS - ASTM D4318

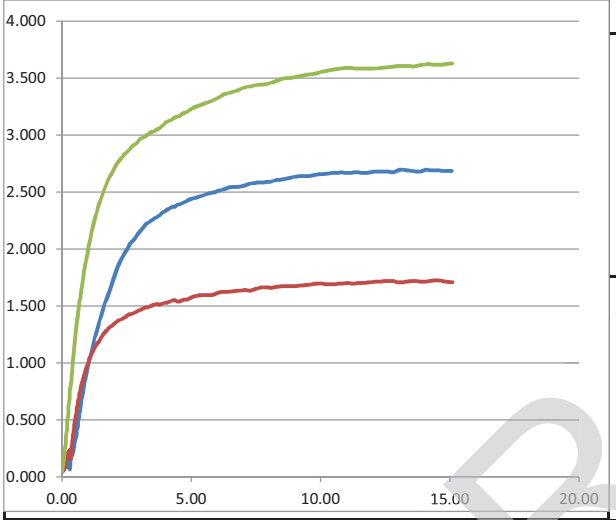
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00

Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	2682
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Yield
Sample 4 Failure	#N/A



	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	23.74	23.89	23.89
	DRY DENSITY, PCF	102.32	100.63	102.98
	WET DENSITY, PCF	126.61	124.66	127.59
	SATURATION %	100.75	97.16	103.13
	VOID RATIO	0.63	0.66	0.62
AT TEST	WATER CONTENT %	22.94	25.15	21.67
	DRY DENSITY, PCF	126.61	124.66	127.59
	WET DENSITY, PCF	155.65	156.02	155.23
	SATURATION %	99.02	99.73	98.14
	VOID RATIO	0.62	0.67	0.59
	INITIAL HEIGHT, IN	3.06	2.78	3.09
	INITIAL DIAMETER, IN	1.39	1.39	1.39
	CELL PRESSURE, PSI	32.00	44.40	56.00
	FAILURE STRESS, PSF	5364.00	3418.00	7228.00
	STRAIN, %	13.07	12.59	15.09
	ULTIMATE STRESS, %	0.01	0.01	0.02
	σ_1 FAILURE, PSF	9963.36	9804.40	15273.28
	σ_3 FAILURE, PSF	4599.36	6386.40	8045.28

TEST TYPE:	UU-USACE				
ATTERBERG LIMIT	LL	PL	PI		
ASSUMED SPECIFIC GRAVITY	2.65				
REMARKS					
0					
SAMPLE DESCRIPTION	Very stiff gray clay with sand streaks and sand pockets (CL4)				
BORING NO.	R-3A	SAMPLE NO.	0	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	10/25/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	141 - 142		
TESTED BY	JRK/JRK/JRK	CHECKED BY	OS/OS/OS/		

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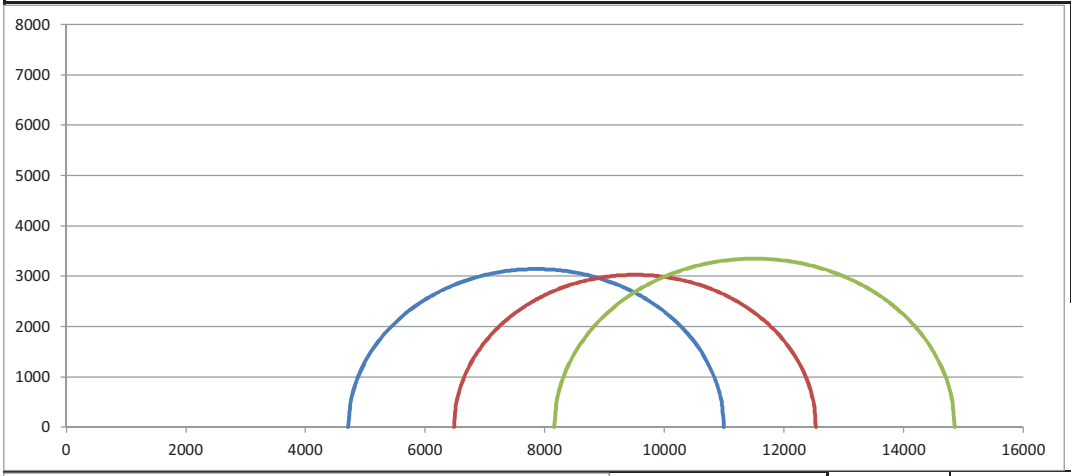
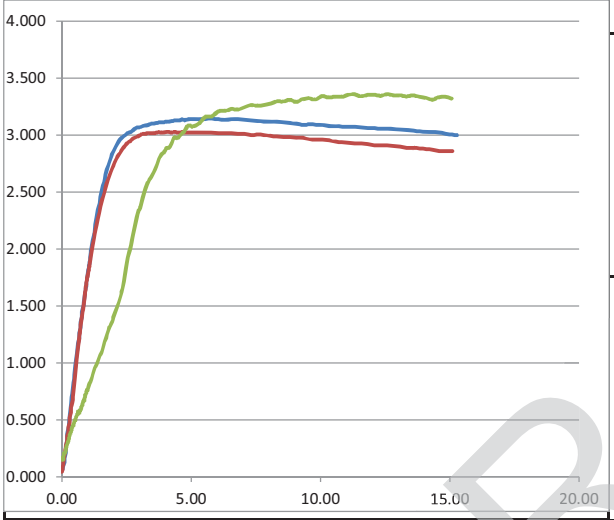
Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	3140
Sample 1 Failure	Multiple Shear
Sample 2 Failure	Multiple Shear
Sample 3 Failure	Multiple Shear
Sample 4 Failure	#N/A



	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	23.35	23.44	24.36
	DRY DENSITY, PCF	99.56	99.60	101.84
	WET DENSITY, PCF	122.81	122.95	126.65
	SATURATION %	92.48	92.93	102.17
	VOID RATIO	0.67	0.67	0.64
AT TEST	WATER CONTENT %	23.20	22.70	21.87
	DRY DENSITY, PCF	122.81	122.95	126.65
	WET DENSITY, PCF	151.30	150.87	154.35
	SATURATION %	92.16	91.37	96.69
	VOID RATIO	0.67	0.66	0.60

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.31	3.16	3.25
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.41	1.40	1.39
				CELL PRESSURE, PSI	32.70	45.10	56.70
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	6280.00	6050.00	6694.00
REMARKS				STRAIN, %	5.80	4.34	11.32
0				ULTIMATE STRESS, %	0.01	0.00	0.01
				σ_1 FAILURE, PSF	10996.00	12534.32	14854.48
				σ_3 FAILURE, PSF	4716.00	6484.32	8160.48

SAMPLE DESCRIPTION	Very stiff gray clay with sand streaks and sand pockets (CL6)				
BORING NO.	R-3A	SAMPLE NO.	0	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	10/25/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	143 - 144		
TESTED BY	JRK/JRK/JRK	CHECKED BY	SLC/SLC/SLC/		

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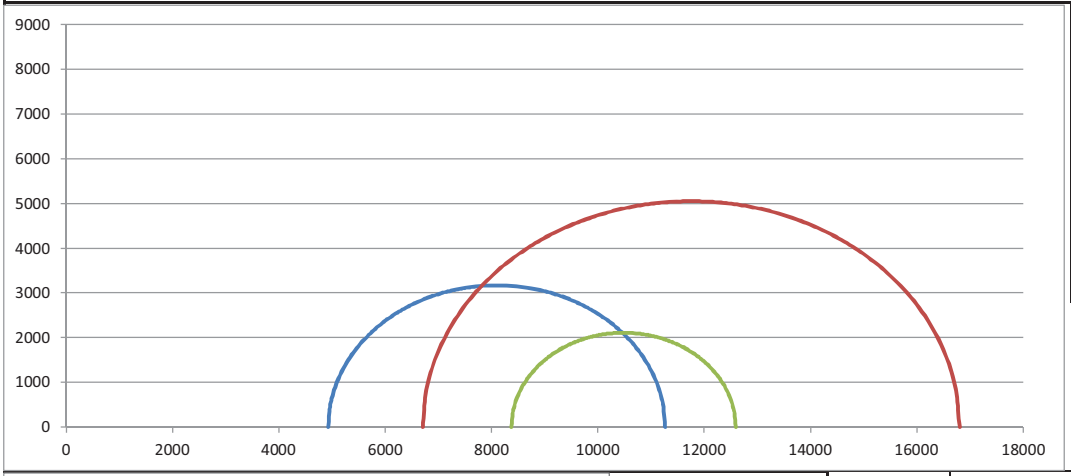
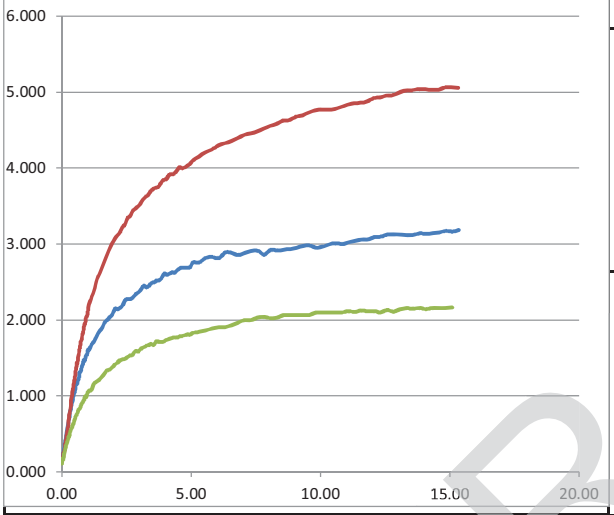
Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	3168
Sample 1 Failure	Yield
Sample 2 Failure	Yield
Sample 3 Failure	Yield
Sample 4 Failure	Bulge



	Specimen No.	1	2	3
INITIAL	WATER CONTENT %	25.53	25.85	24.30
	DRY DENSITY, PCF	101.69	99.55	98.99
	WET DENSITY, PCF	127.65	125.28	123.05
	SATURATION %	106.66	102.32	94.89
	VOID RATIO	0.64	0.67	0.68
AT TEST	WATER CONTENT %	24.84	22.41	26.12
	DRY DENSITY, PCF	127.65	125.28	123.05
	WET DENSITY, PCF	159.36	153.35	155.18
	SATURATION %	105.25	95.18	98.44
	VOID RATIO	0.63	0.63	0.71

TEST TYPE:	UU-USACE			INITIAL HEIGHT, IN	3.37	3.19	3.09
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.37	1.39	1.39
				CELL PRESSURE, PSI	34.20	46.60	58.20
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	6336.00	10098.00	4217.02
REMARKS				STRAIN, %	15.35	15.06	15.33
0				ULTIMATE STRESS, %	0.02	0.02	0.06
				σ_1 FAILURE, PSF	11265.12	16804.08	12591.92
				σ_3 FAILURE, PSF	4929.12	6706.08	8374.90

SAMPLE DESCRIPTION	Medium dense gray sandy silt with clay pockets (ML)				
BORING NO.	R-3A	SAMPLE NO.	0	TEST TYPE	UU-USACE
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	10/25/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	147 - 148		
TESTED BY	JRK/ZST/JRK/ZST/JRK/ZST	CHECKED BY	SLC/SLC/SLC/SLC		

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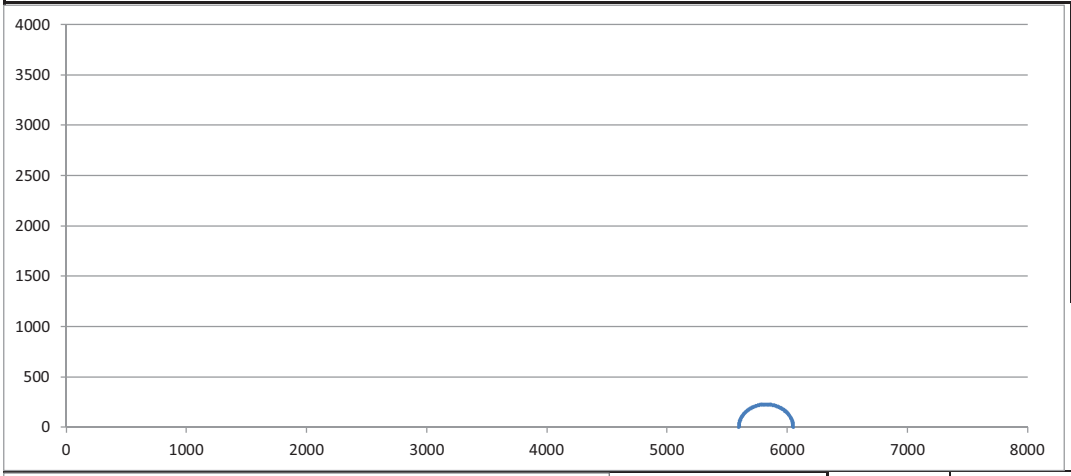
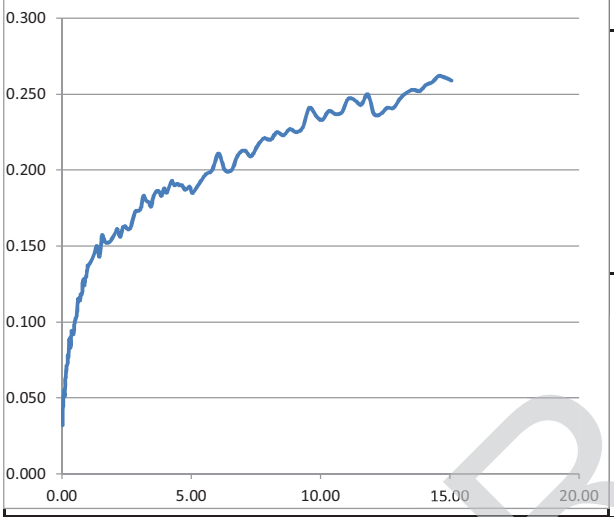


RESULTS	
C, PSF	226
Sample 1 Failure	Yield
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



	Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	42.44			
	DRY DENSITY, PCF	82.79			
	WET DENSITY, PCF	117.93			
	SATURATION %	111.83			
	VOID RATIO	1.01			
AT TEST	WATER CONTENT %				
	DRY DENSITY, PCF				
	WET DENSITY, PCF				
	SATURATION %				
	VOID RATIO				

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.93
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.80
				CELL PRESSURE, PSI	38.90
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	452.00
REMARKS				STRAIN, %	14.57
0				ULTIMATE STRESS, %	0.04
				σ_1 FAILURE, PSF	6049.28
				σ_3 FAILURE, PSF	5597.28

SAMPLE DESCRIPTION	Very soft gray clay (CH2)				
BORING NO.	R-3A	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	10/29/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	160.3 - 161		
TESTED BY	JRK//	CHECKED BY	SLC///		

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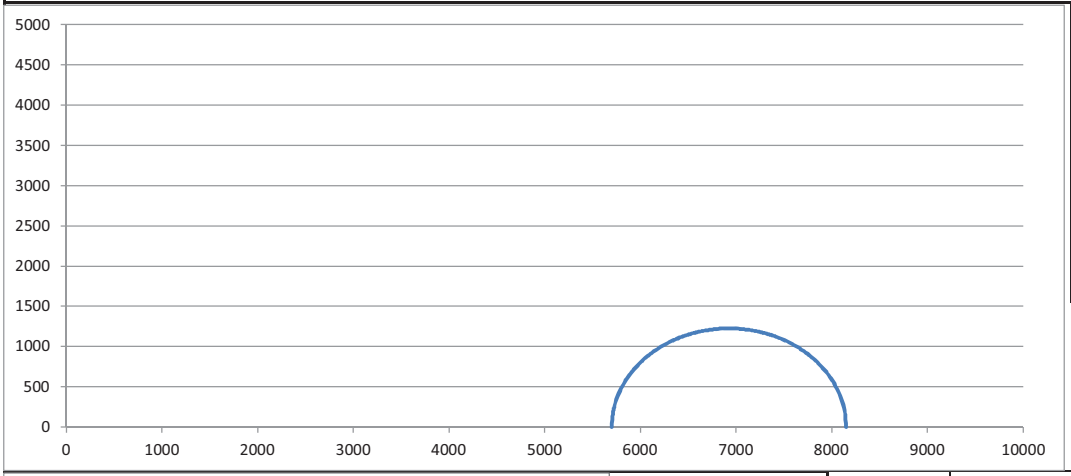
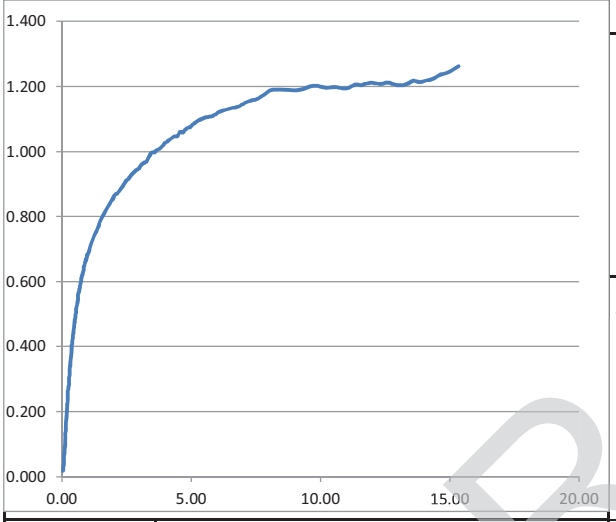


RESULTS	
C, PSF	1225
Sample 1 Failure	Yield
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



	Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	39.50			
	DRY DENSITY, PCF	81.58			
	WET DENSITY, PCF	113.80			
	SATURATION %	101.11			
	VOID RATIO	1.04			
AT TEST	WATER CONTENT %				
	DRY DENSITY, PCF				
	WET DENSITY, PCF				
	SATURATION %				
	VOID RATIO				

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.72
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.86
				CELL PRESSURE, PSI	39.63
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	2450.31
REMARKS				STRAIN, %	15.34
0				ULTIMATE STRESS, %	0.04
				σ_1 FAILURE, PSF	8150.66
				σ_3 FAILURE, PSF	5700.35

SAMPLE DESCRIPTION	Stiff gray clay with sand lenses and sand pockets (CH2)				
BORING NO.	R-3A	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	10/29/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	162 - 163		
TESTED BY	JRK//	CHECKED BY	SLC///		

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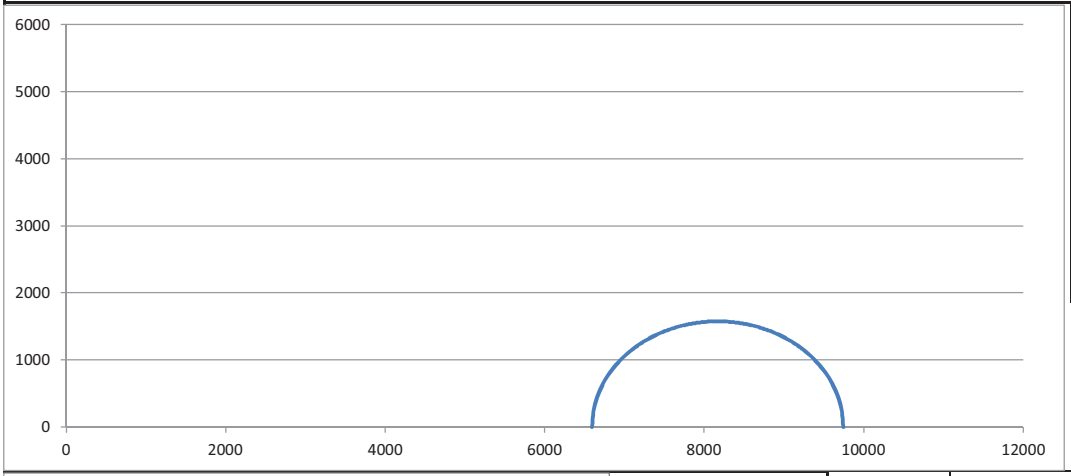
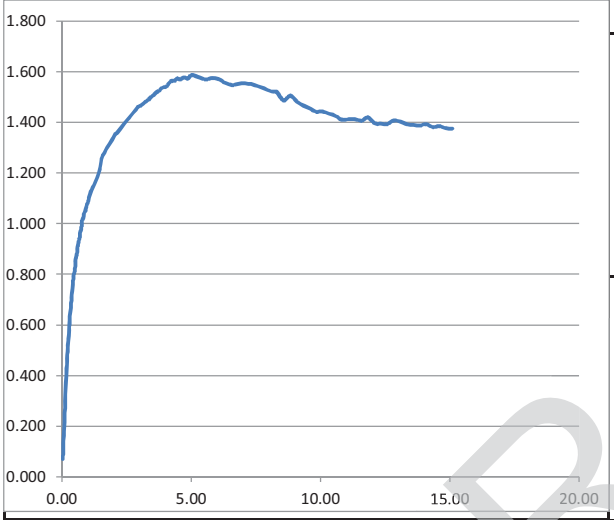


RESULTS	
C, PSF	1576
Sample 1 Failure	SLS 60°
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



	Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	47.75			
	DRY DENSITY, PCF	73.52			
	WET DENSITY, PCF	108.62			
	SATURATION %	100.59			
	VOID RATIO	1.27			
AT TEST	WATER CONTENT %				
	DRY DENSITY, PCF				
	WET DENSITY, PCF				
	SATURATION %				
	VOID RATIO				

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.94		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.88		
				CELL PRESSURE, PSI	45.84		
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	3151.47		
REMARKS				STRAIN, %	5.07		
0				ULTIMATE STRESS, %	0.01		
				σ_1 FAILURE, PSF	9744.11		
				σ_3 FAILURE, PSF	6592.64		

SAMPLE DESCRIPTION	Stiff gray clay (CH3)				
BORING NO.	R-3A	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	10/29/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	179 - 180		
TESTED BY	JRK/ZST//	CHECKED BY	SLC///		

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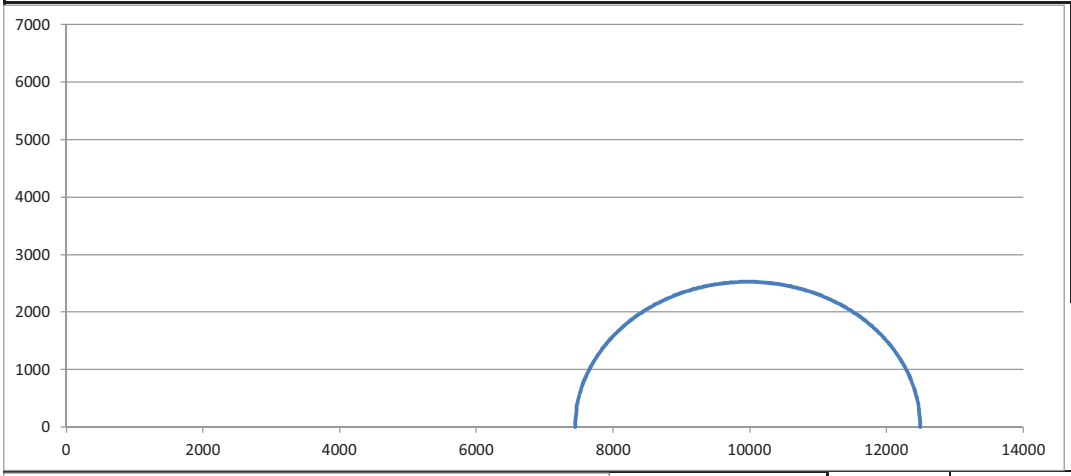
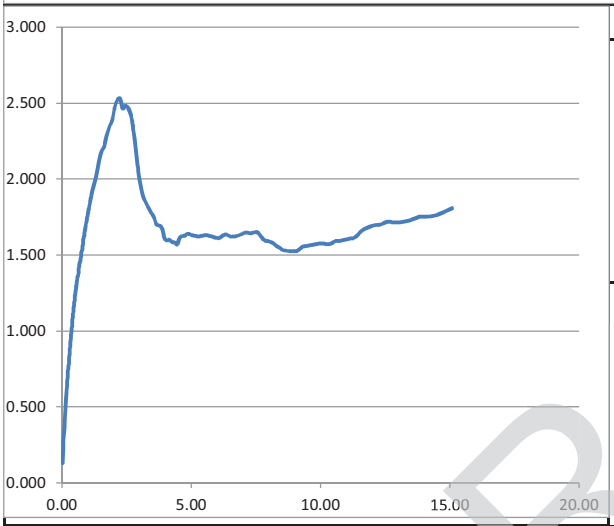


RESULTS	
C, PSF	2526
Sample 1 Failure	SLS 55°
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



	Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	44.41			
	DRY DENSITY, PCF	77.71			
	WET DENSITY, PCF	112.22			
	SATURATION %	103.56			
	VOID RATIO	1.15			
AT TEST	WATER CONTENT %				
	DRY DENSITY, PCF				
	WET DENSITY, PCF				
	SATURATION %				
	VOID RATIO				

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.95
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.86
				CELL PRESSURE, PSI	51.69
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	5051.11
REMARKS				STRAIN, %	2.25
0				ULTIMATE STRESS, %	0.01
				σ_1 FAILURE, PSF	12495.59
				σ_3 FAILURE, PSF	7444.47

SAMPLE DESCRIPTION	Very stiff gray clay (CH3)				
BORING NO.	R-3A	SAMPLE NO.	S-56	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	10/29/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	195 - 196		
TESTED BY	JRK/ZST//	CHECKED BY	SLC///		

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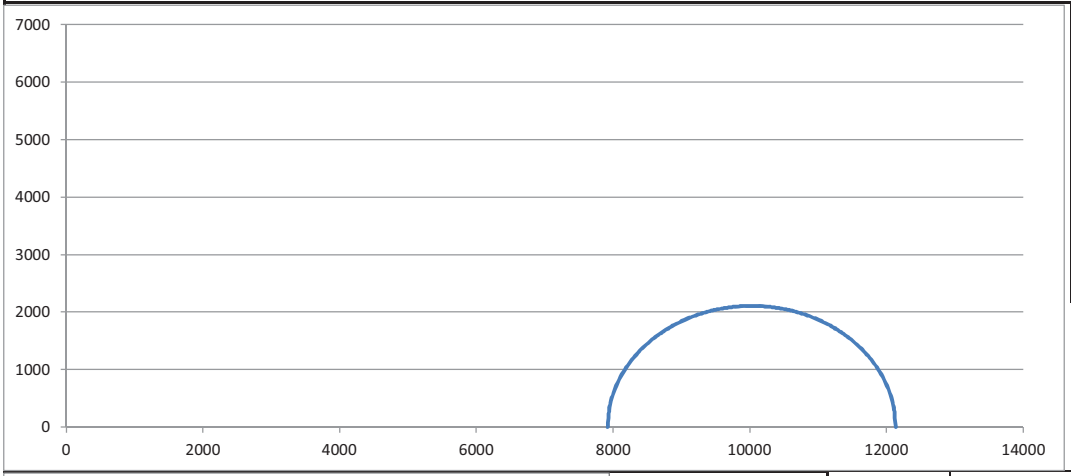
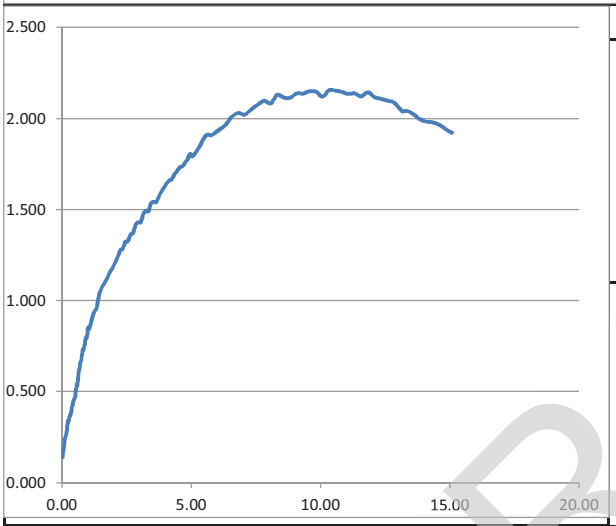


RESULTS	
C, PSF	2106
Sample 1 Failure	SLS 55°
Sample 2 Failure	#N/A
Sample 3 Failure	#N/A
Sample 4 Failure	#N/A



	Specimen No.	1	2	3	
INITIAL	WATER CONTENT %	39.49			
	DRY DENSITY, PCF	79.13			
	WET DENSITY, PCF	110.38			
	SATURATION %	95.31			
	VOID RATIO	1.11			
AT TEST	WATER CONTENT %				
	DRY DENSITY, PCF				
	WET DENSITY, PCF				
	SATURATION %				
	VOID RATIO				

TEST TYPE:	UU			INITIAL HEIGHT, IN	3.23
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	1.44
				CELL PRESSURE, PSI	54.97
ASSUMED SPECIFIC GRAVITY	2.65			FAILURE STRESS, PSF	4212.42
REMARKS				STRAIN, %	10.33
0				ULTIMATE STRESS, %	0.05
				σ_1 FAILURE, PSF	12133.38
				σ_3 FAILURE, PSF	7920.96

SAMPLE DESCRIPTION	Very stiff gray clay with sand streaks and sand pockets (CH3)				
BORING NO.	R-3A	SAMPLE NO.	S-59	TEST TYPE	UU
PROJECT NAME	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA		DATED SAMPLED	10/29/2013	
PROJECT NUMBER	18274-001-00	DEPTH FT.	204.7 - 205		
TESTED BY	JRK/ZST//	CHECKED BY	SLC///		

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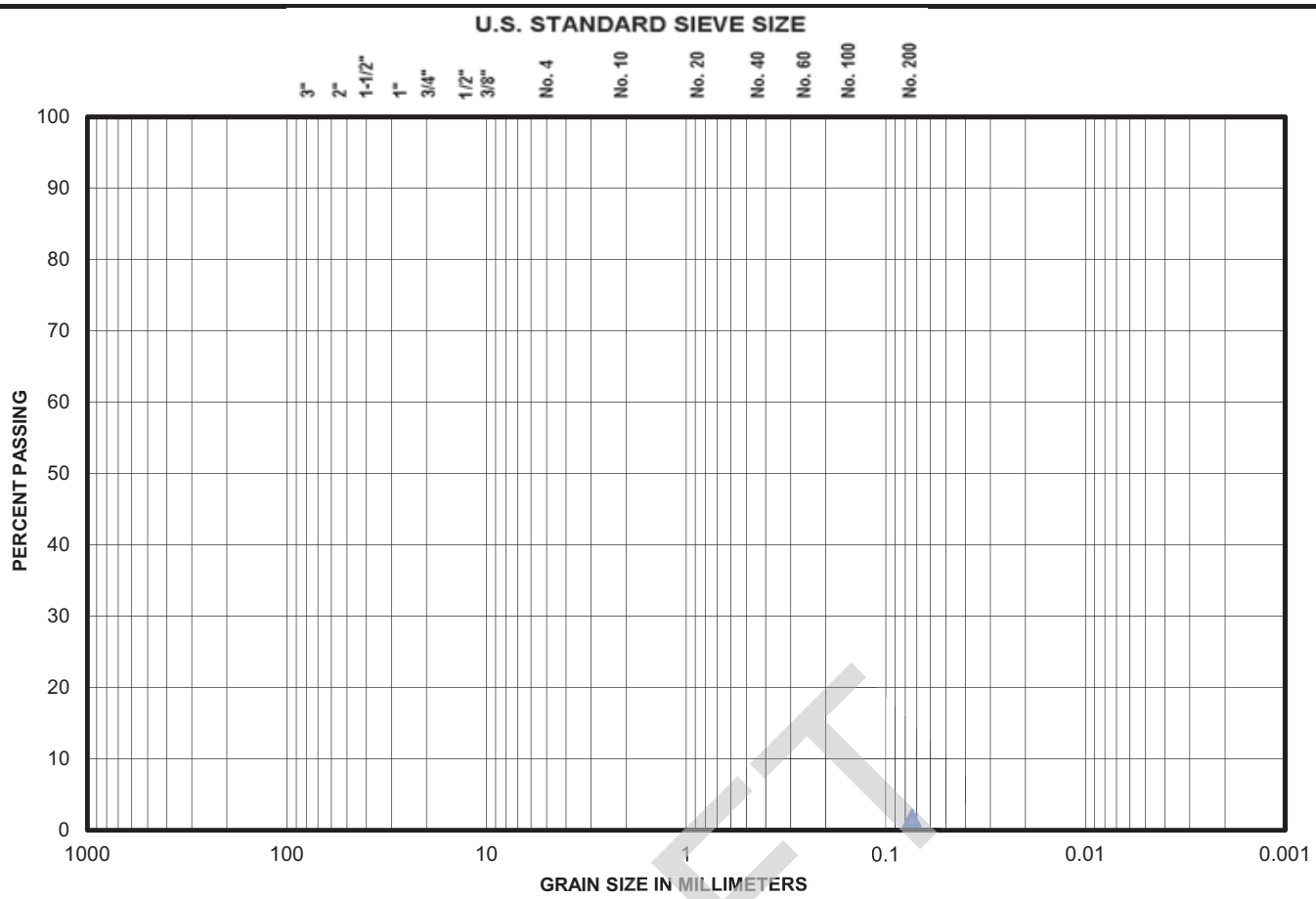

COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	98.4	**Fines (Silt & Clay) %**	1.6

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	1.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-4A	**Checked By**	SLC
Source/Depth (feet)	60.5 - 62	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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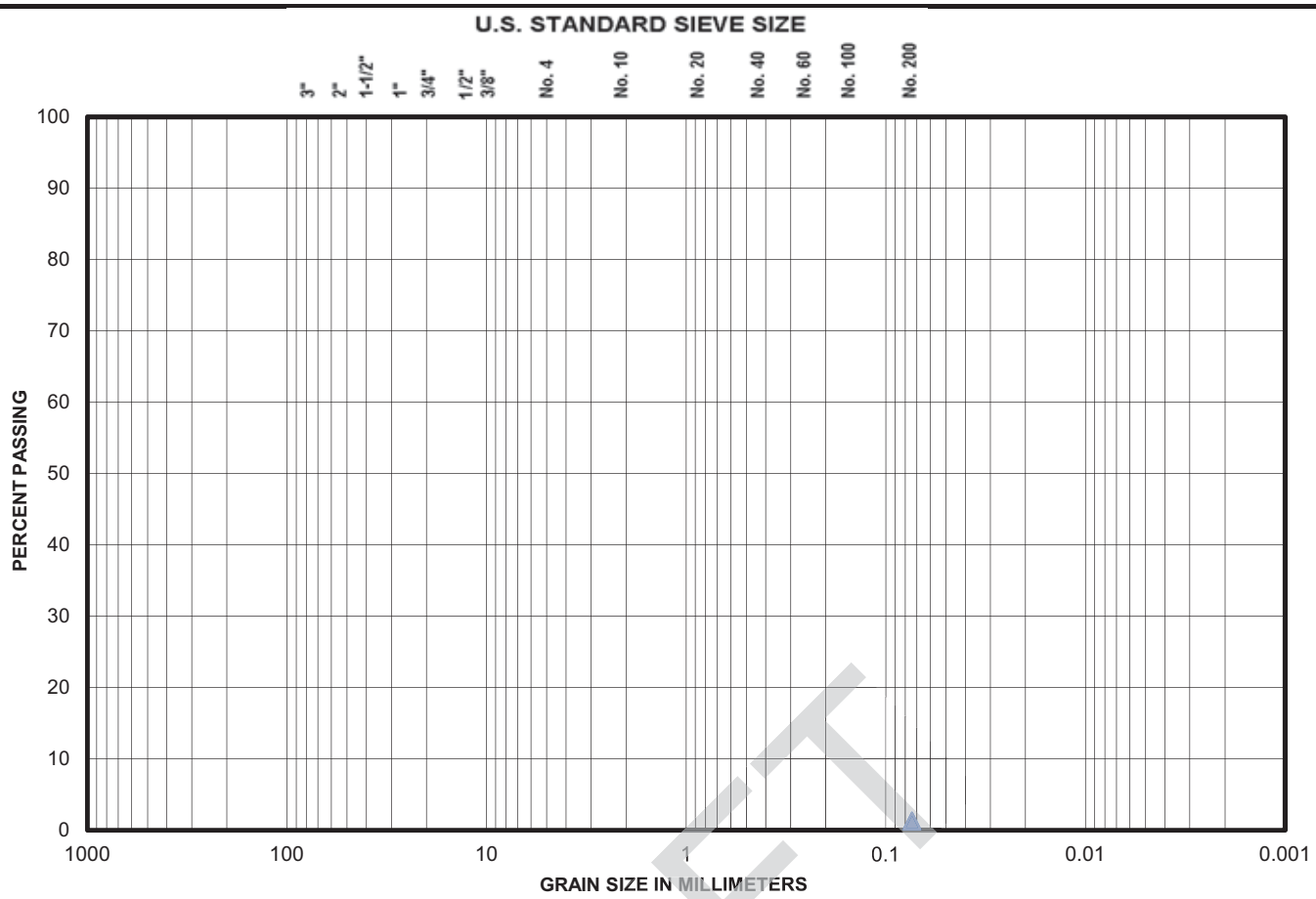
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	98.7	**Fines (Silt & Clay) %**		1.3	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	1.3

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-4A	**Checked By**	SLC
Source/Depth (feet)	65.5 - 67	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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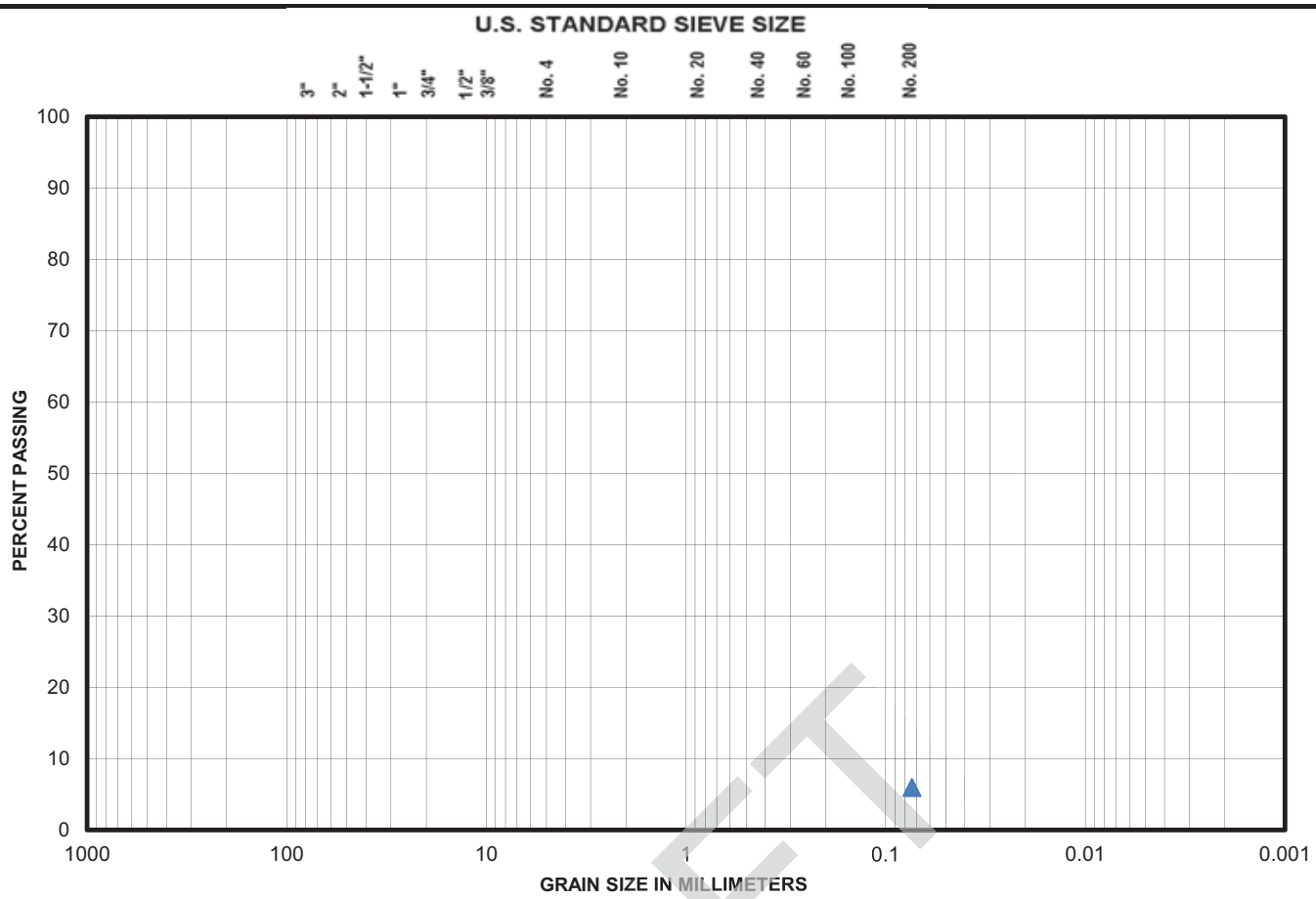
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	94.1	**Fines (Silt & Clay) %**		5.9	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	5.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-4A	**Checked By**	SLC
Source/Depth (feet)	73 - 74.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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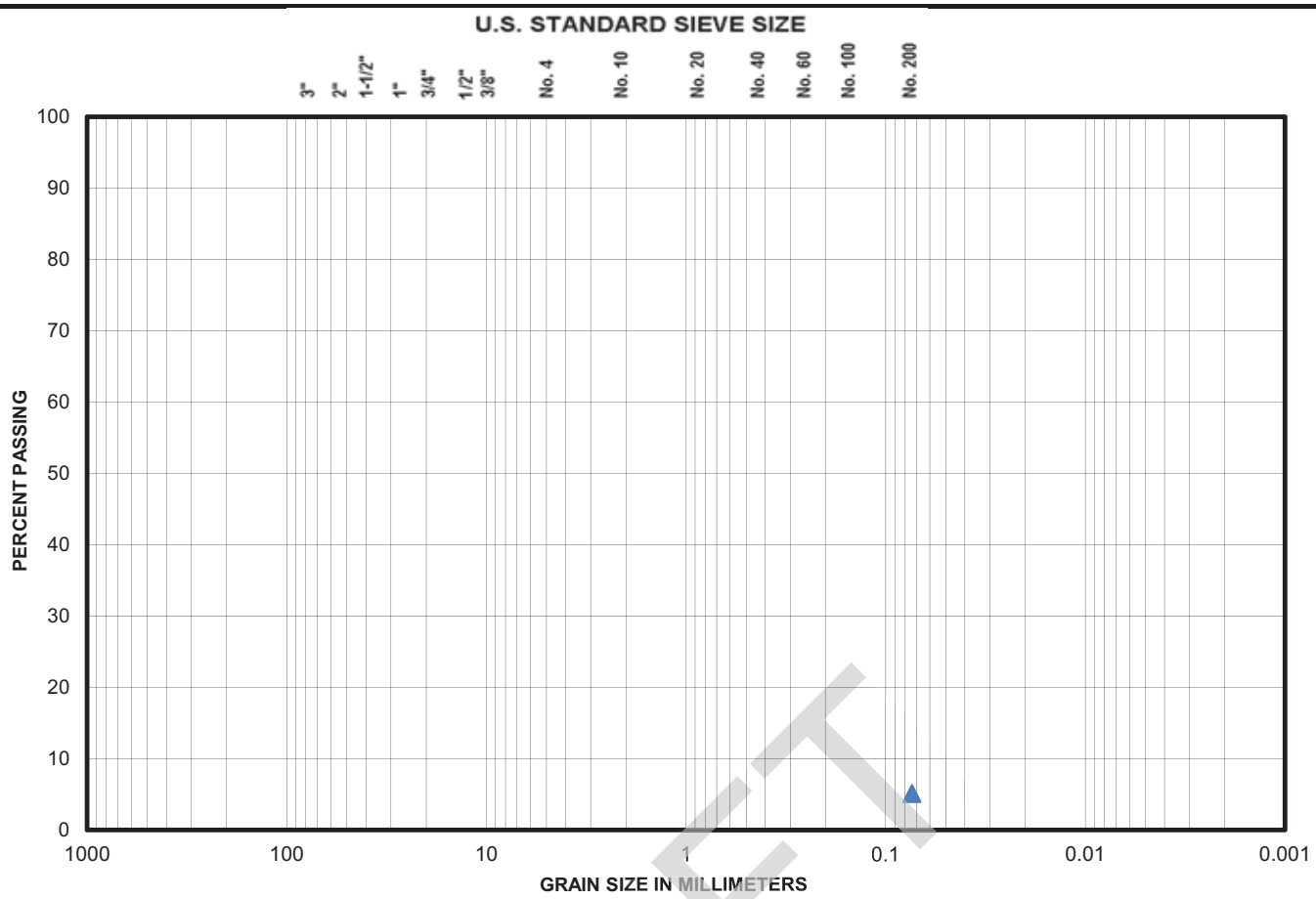
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	94.9	**Fines (Silt & Clay) %**		5.1	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Very dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	5.1

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-4A	**Checked By**	SLC
Source/Depth (feet)	80.5 - 82	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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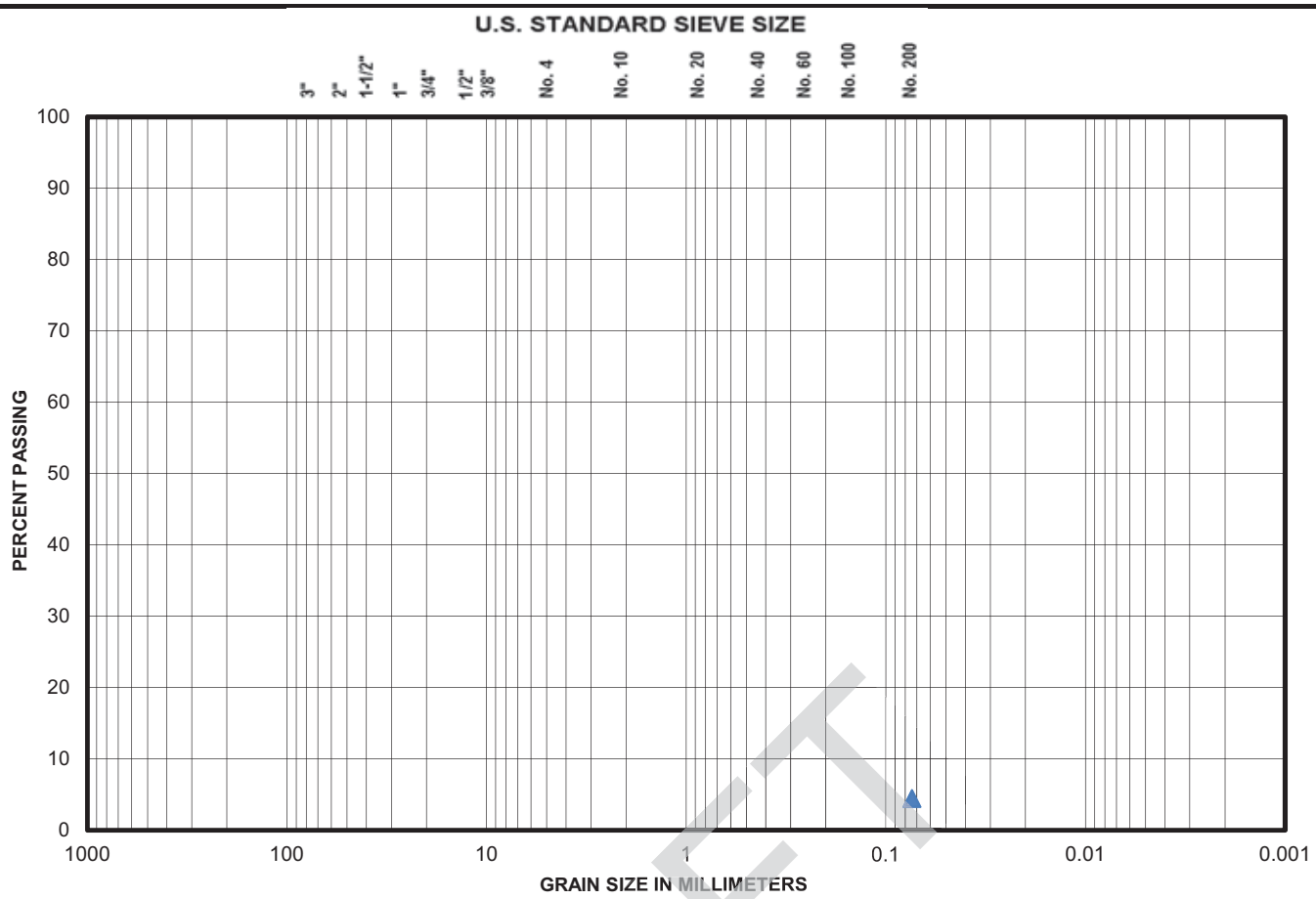
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	95.6	**Fines (Silt & Clay) %**	4.4		
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	4.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-4A	**Checked By**	SLC
Source/Depth (feet)	88 - 89.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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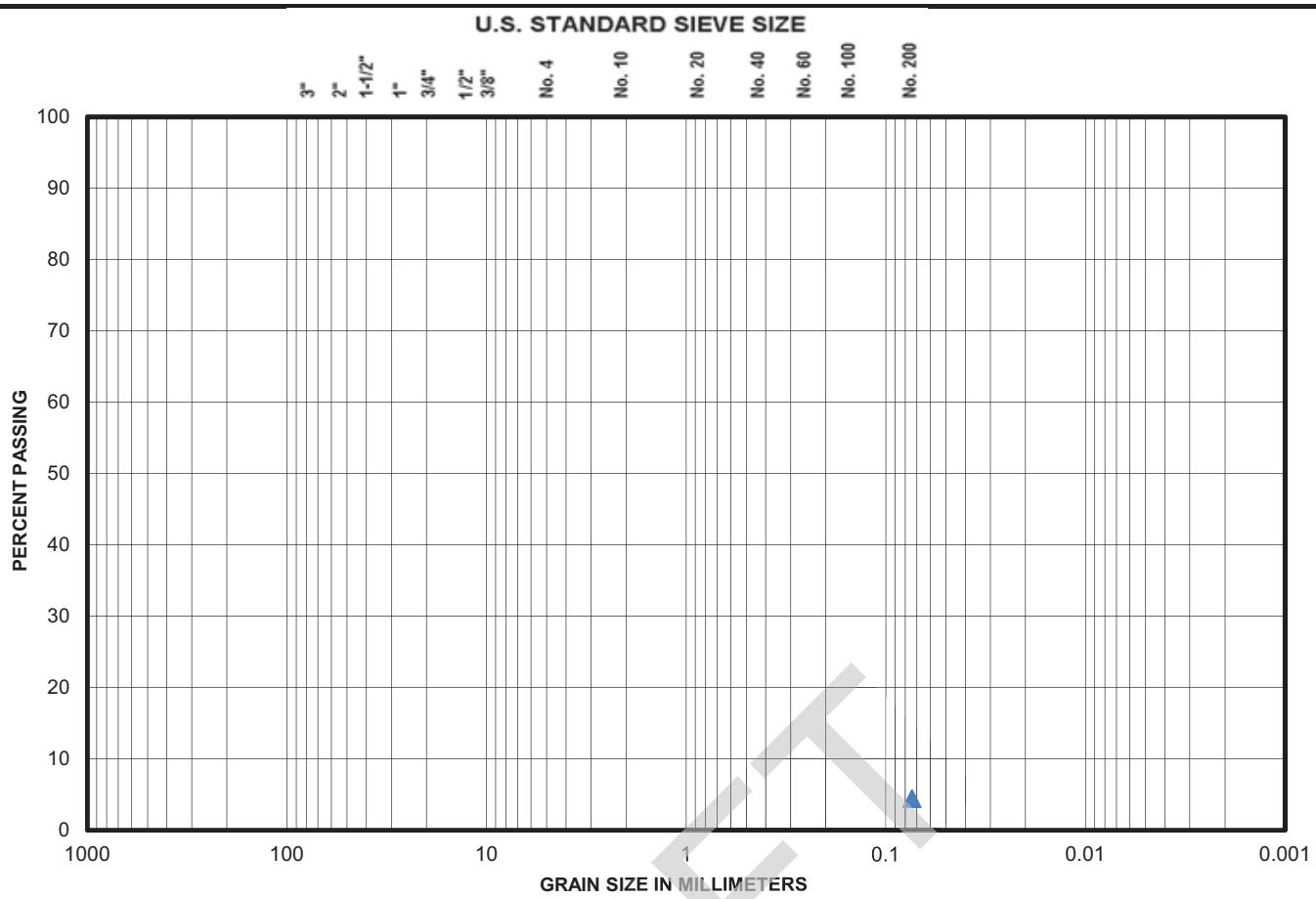
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	95.6	**Fines (Silt & Clay) %**	4.4

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	4.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-4A	**Checked By**	SLC
Source/Depth (feet)	95.5 - 97	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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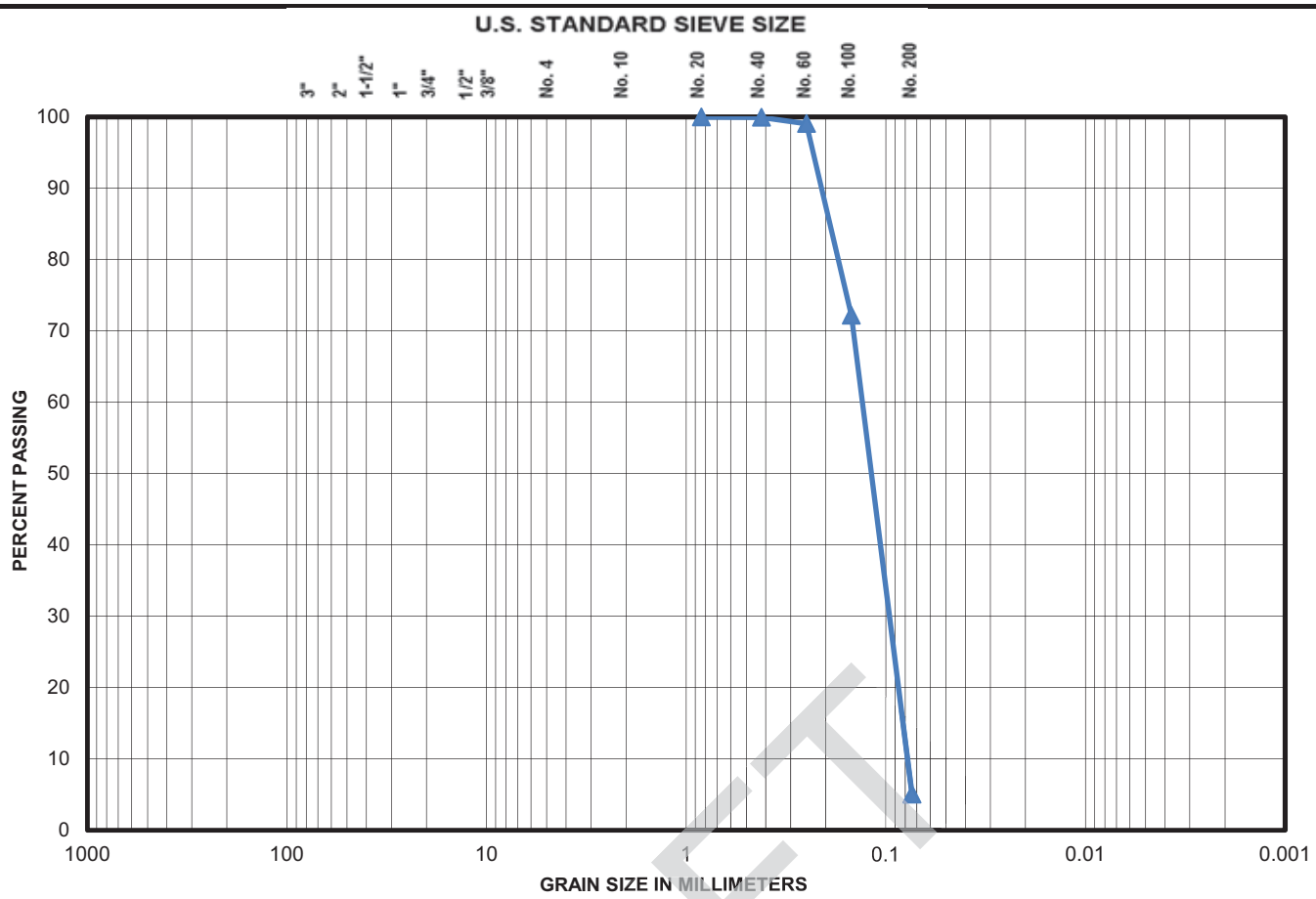
LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	94.9	**Fines (Silt & Clay) %**	5.0

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Medium dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	100.0
1"	#N/A	**No. 40**	99.9
3/4"	#N/A	**No. 60**	99.0
1/2"	#N/A	**No. 100**	72.2
3/8"	#N/A	**No. 200**	5.0

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	JRK/SEF
Boring No.	R-4A	**Checked By**	SEF
Source/Depth (feet)	83 - 84.5	**Sieve Type**	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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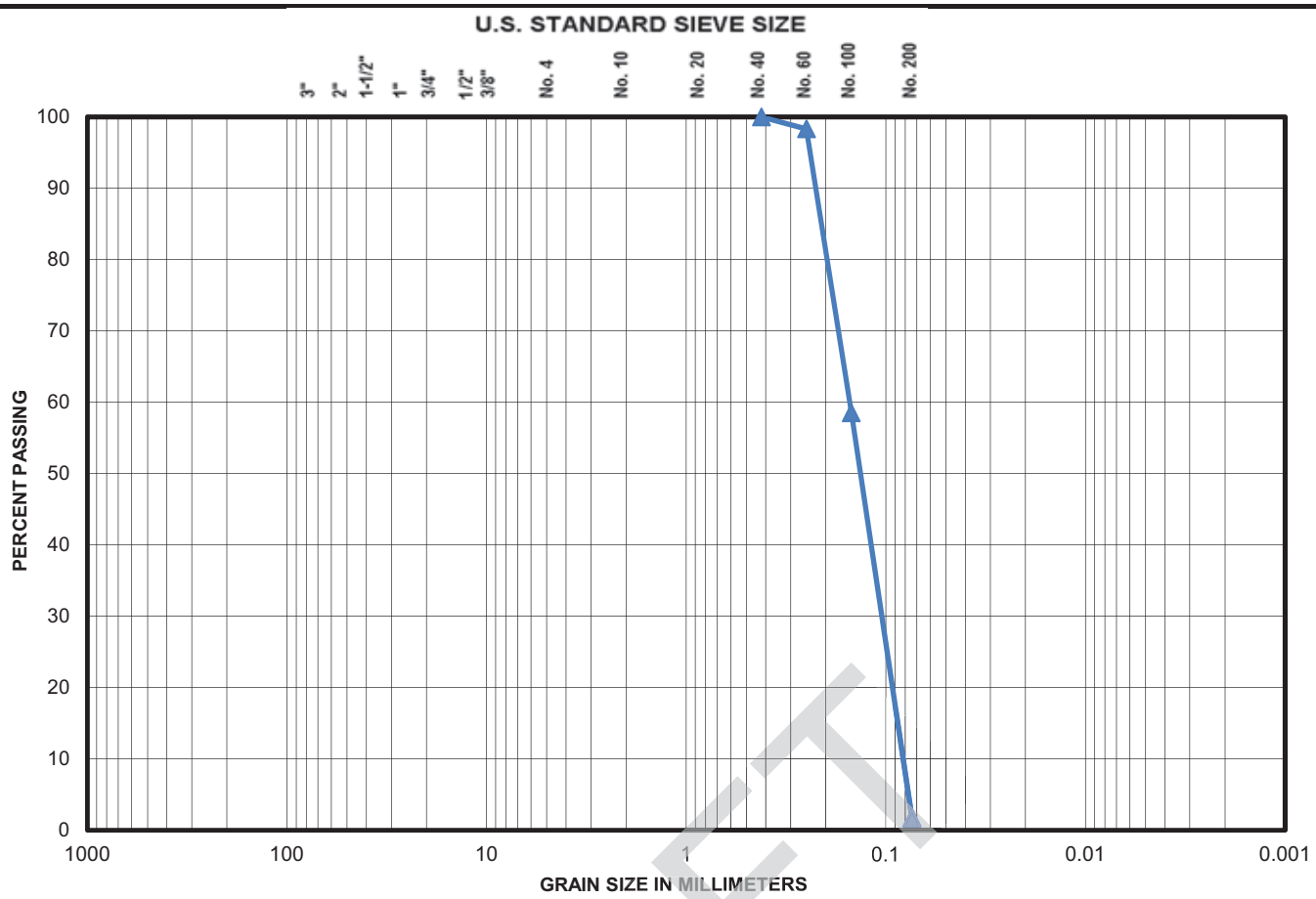
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	98.3	**Fines (Silt & Clay) %**	1.7

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	100.0
3/4"	#N/A	**No. 60**	98.3
1/2"	#N/A	**No. 100**	58.5
3/8"	#N/A	**No. 200**	1.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	JRK/SEF
Boring No.	R-4A	**Checked By**	SEF
Source/Depth (feet)	90.5 - 92	**Sieve Type**	Dry Sieve

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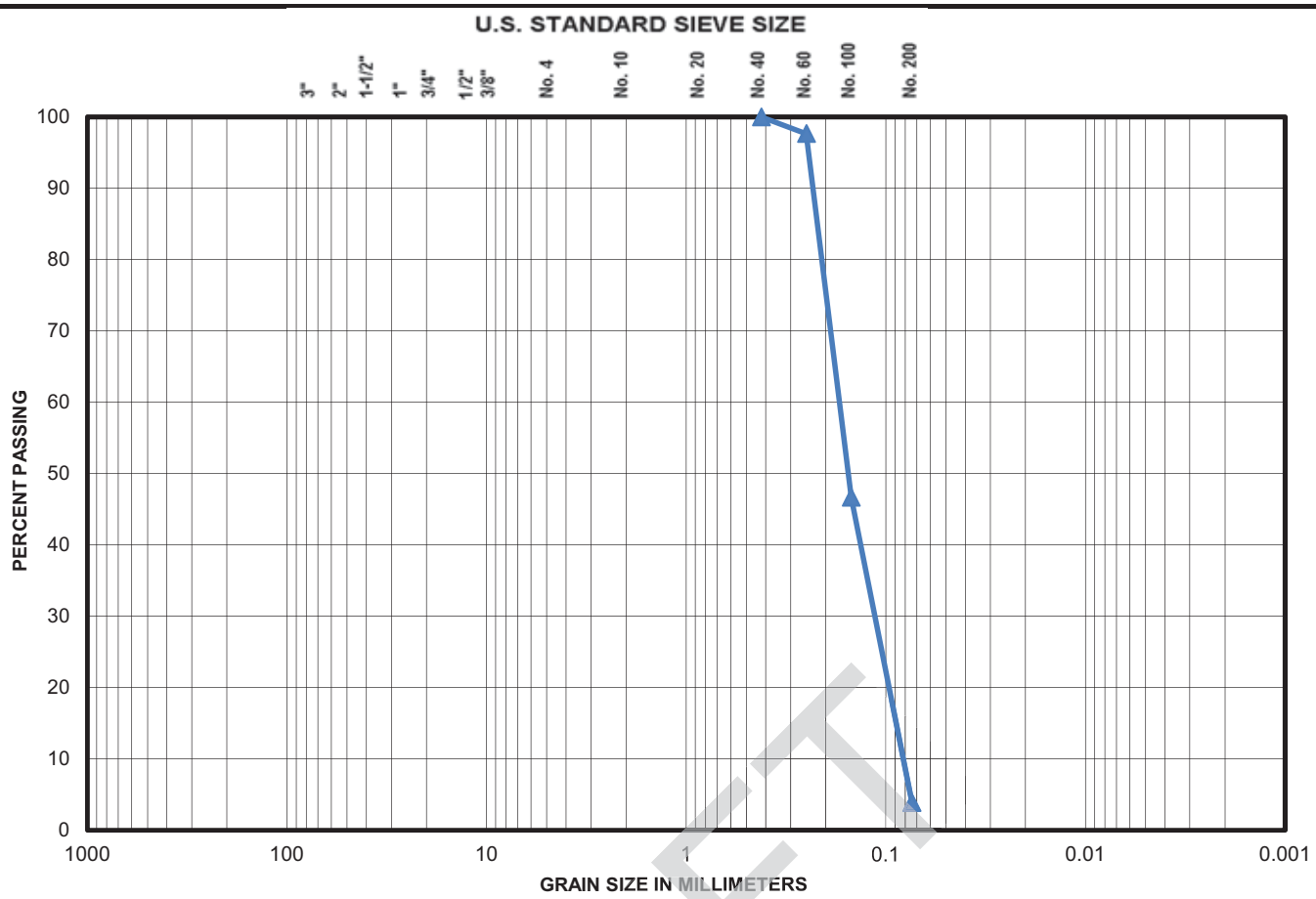
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	96.1	**Fines (Silt & Clay) %**	3.9		
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	100.0
3/4"	#N/A	**No. 60**	97.6
1/2"	#N/A	**No. 100**	46.7
3/8"	#N/A	**No. 200**	3.9

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	JRK/SEF
Boring No.	R-4A	**Checked By**	SEF
Source/Depth (feet)	98 - 99.5	**Sieve Type**	Dry Sieve

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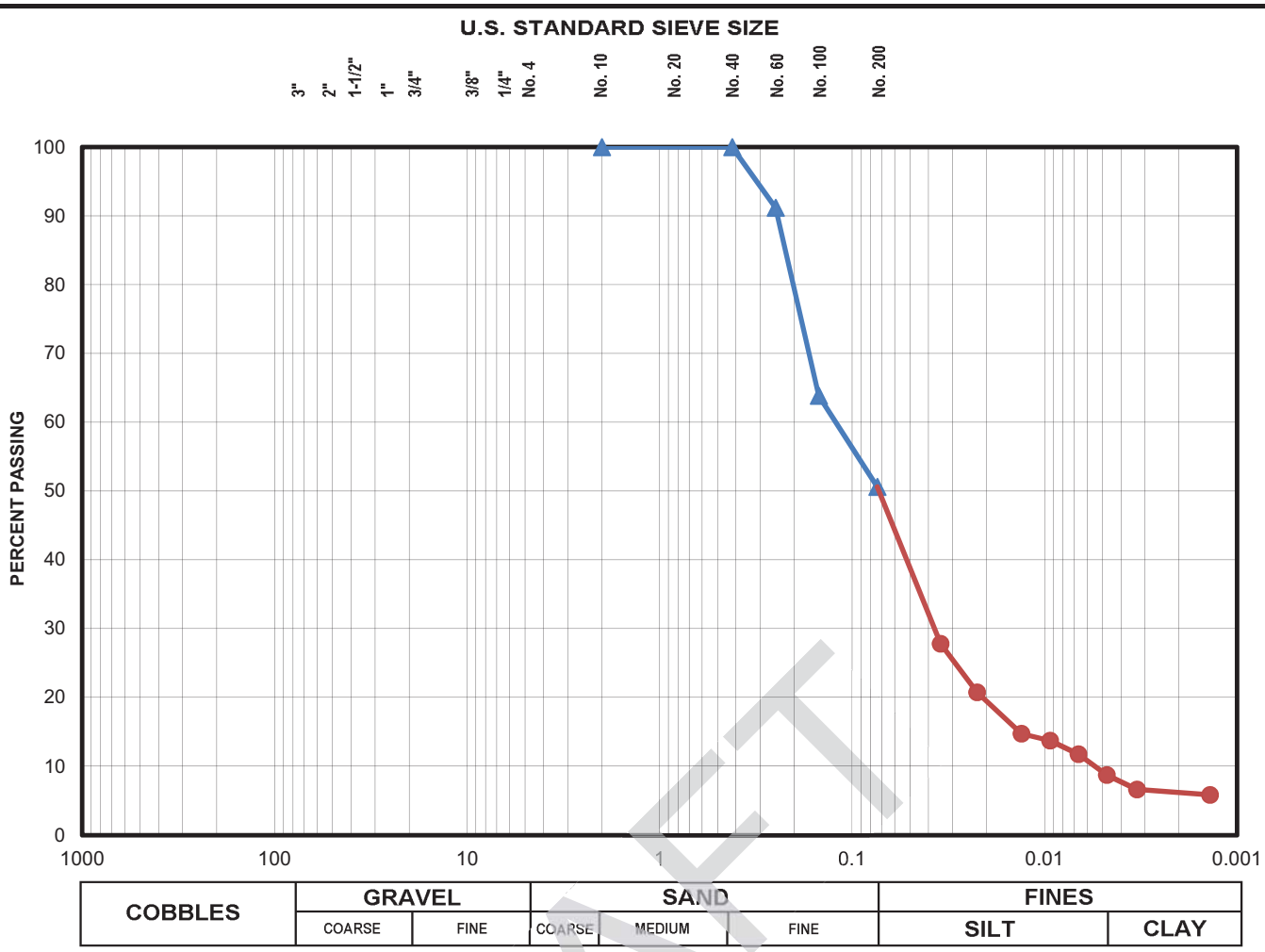
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Loose gray silty sand (SM)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	91.2
3/8"	100.0	No. 100	63.9
1/4"	100.0	No. 200	50.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	1164

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/13/2013
Project No.	18274-001-00	Tested By	ZST
Sample ID.	R-4A	Checked By	ZST
Source/Depth (feet)	53 - 54.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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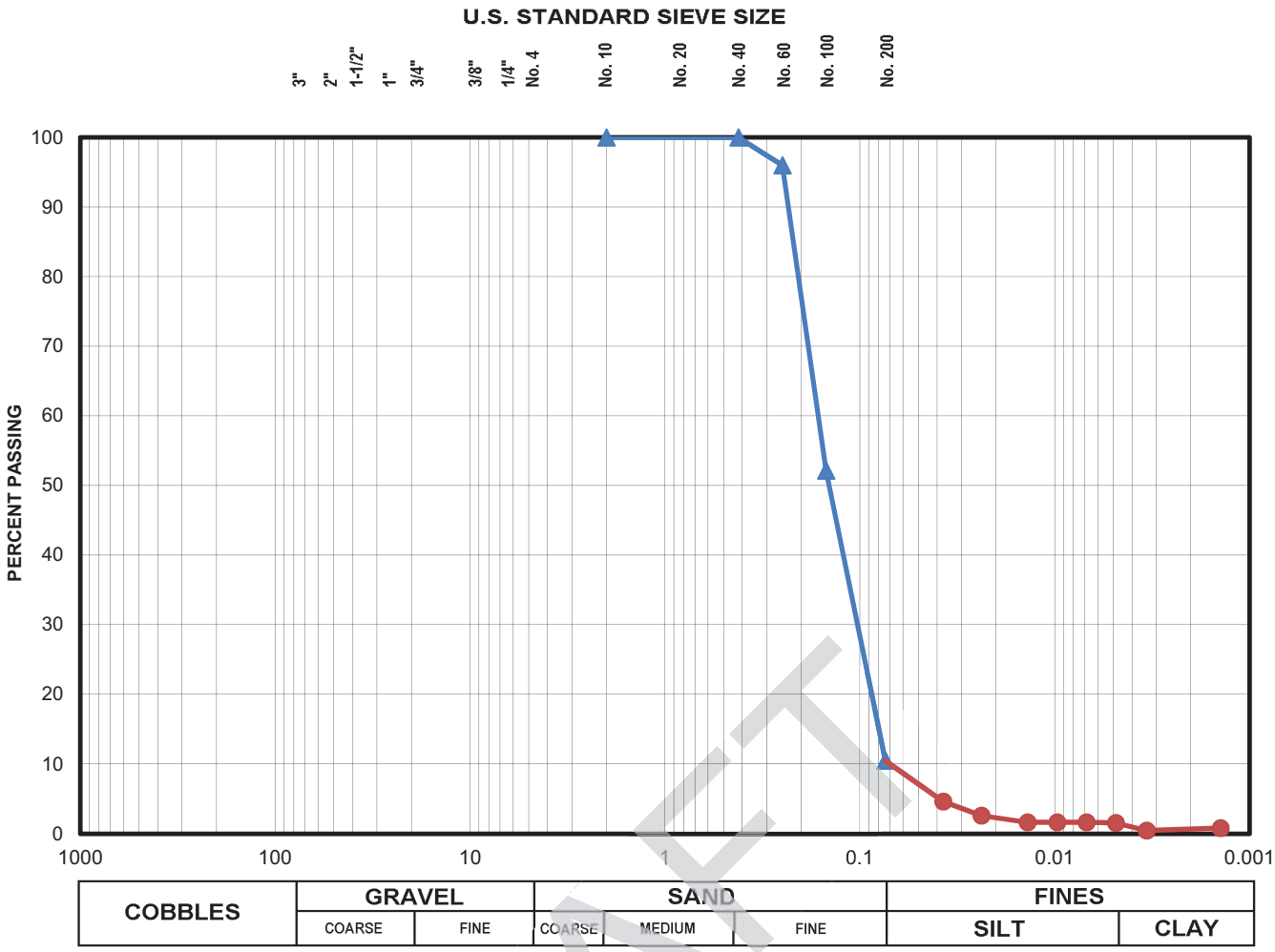
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Medium dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	96.0
3/8"	100.0	No. 100	52.2
1/4"	100.0	No. 200	10.5

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1156

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/13/2013
Project No.	18274-001-00	Tested By	ZST
Sample ID.	R-4A	Checked By	ZST
Source/Depth (feet)	55.5 - 57		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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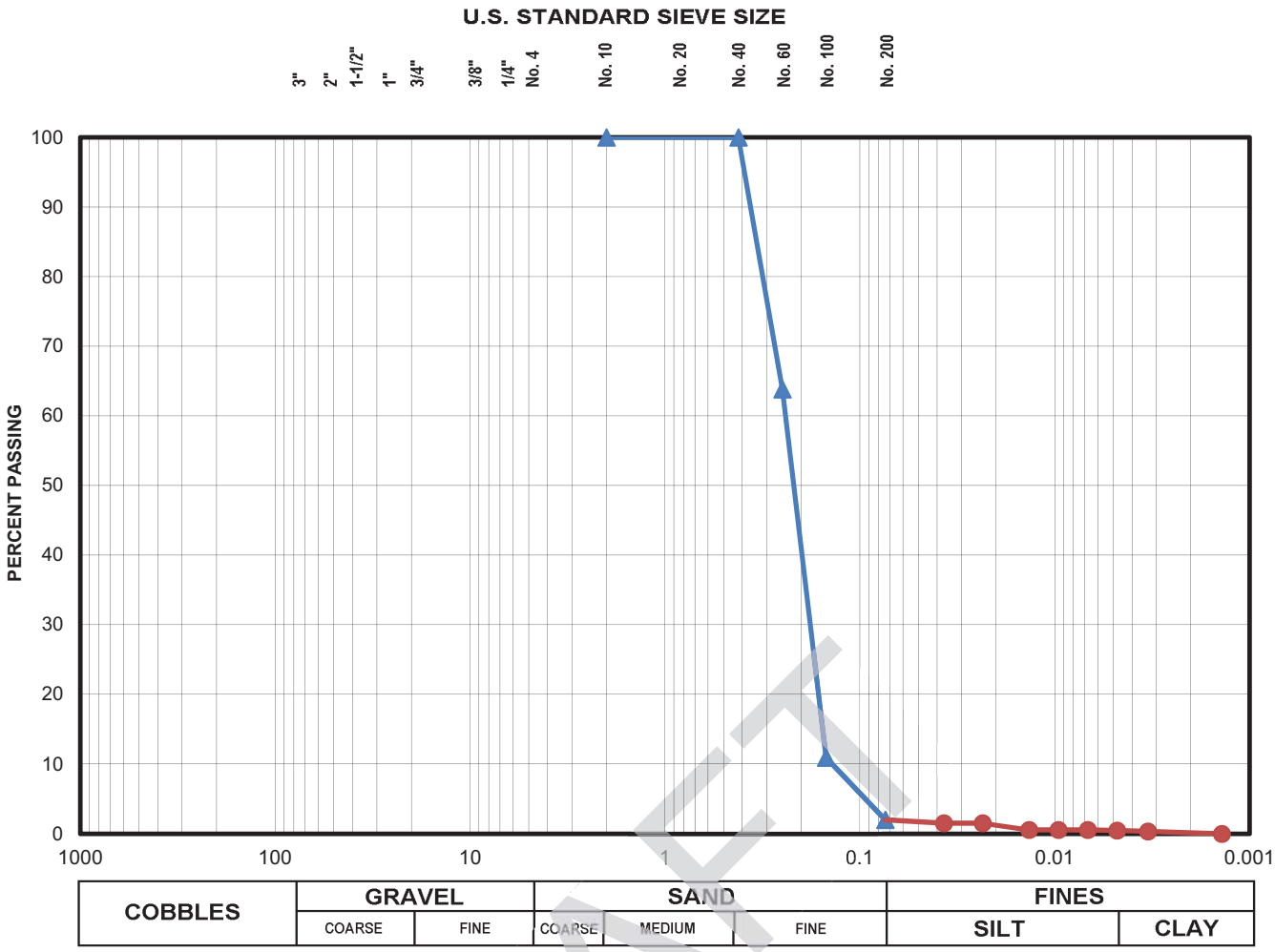
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Medium dense gray sand (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	63.8
3/8"	100.0	No. 100	11.0
1/4"	100.0	No. 200	2.0

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1158

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/12/2013
Project No.	18274-001-00	Tested By	SEF/ZST
Sample ID.	R-4A	Checked By	ZST
Source/Depth (feet)	63 - 64.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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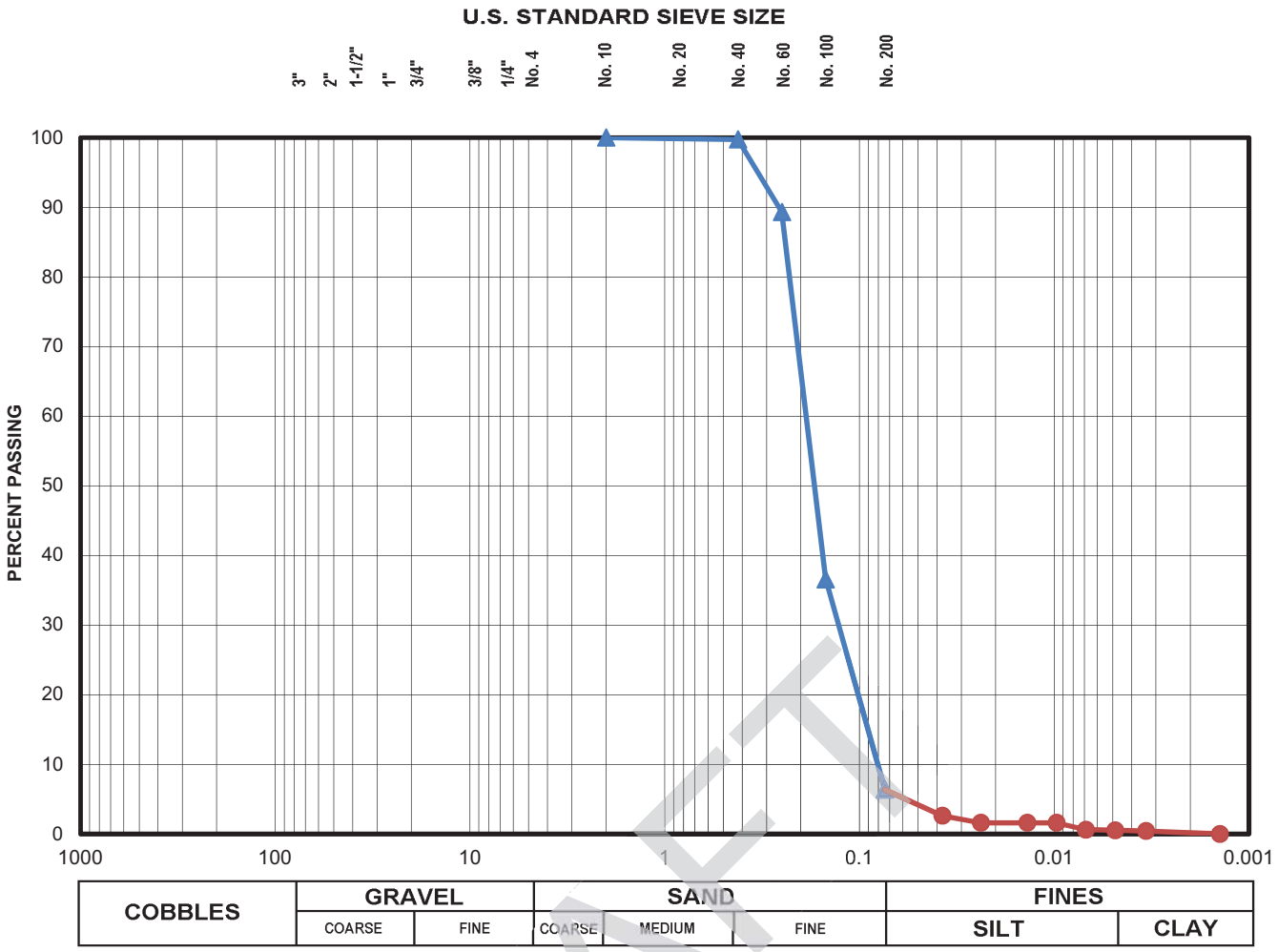
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.7
3/4"	100.0	No. 60	89.3
3/8"	100.0	No. 100	36.5
1/4"	100.0	No. 200	6.4

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1352
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/12/2013
Project No.	18274-001-00	Tested By	SEF/ZST
Sample ID.	R-4A	Checked By	SEF/ZST
Source/Depth (feet)	68 - 69.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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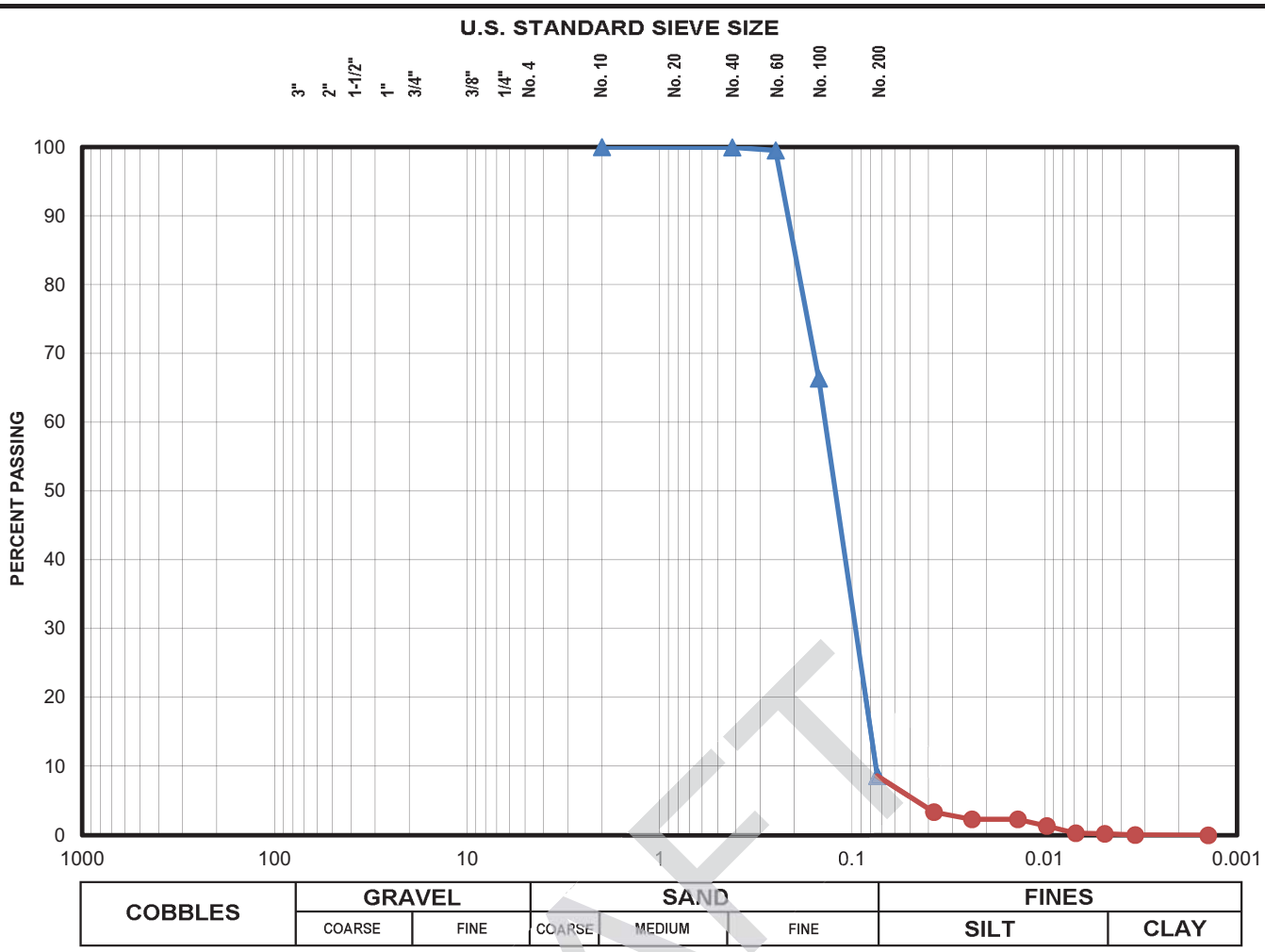
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Medium dense gray sand with silt (SP)

Individual Sieve Data - % Passing			
3"	100.0	**No. 4**	100.0
2"	100.0	**No. 10**	100.0
1 1/2"	100.0	**No. 20**	100.0
1"	100.0	**No. 40**	100.0
3/4"	100.0	**No. 60**	99.5
3/8"	100.0	**No. 100**	66.4
1/4"	100.0	**No. 200**	8.6

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1135
Hydro jar ID:	1354

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	**Date Tested**	12/12/2013
Project No.	18274-001-00	**Tested By**	SEF/ZST
Sample ID.	R-4A	**Checked By**	SEF
Source/Depth (feet)	75.5 - 77		

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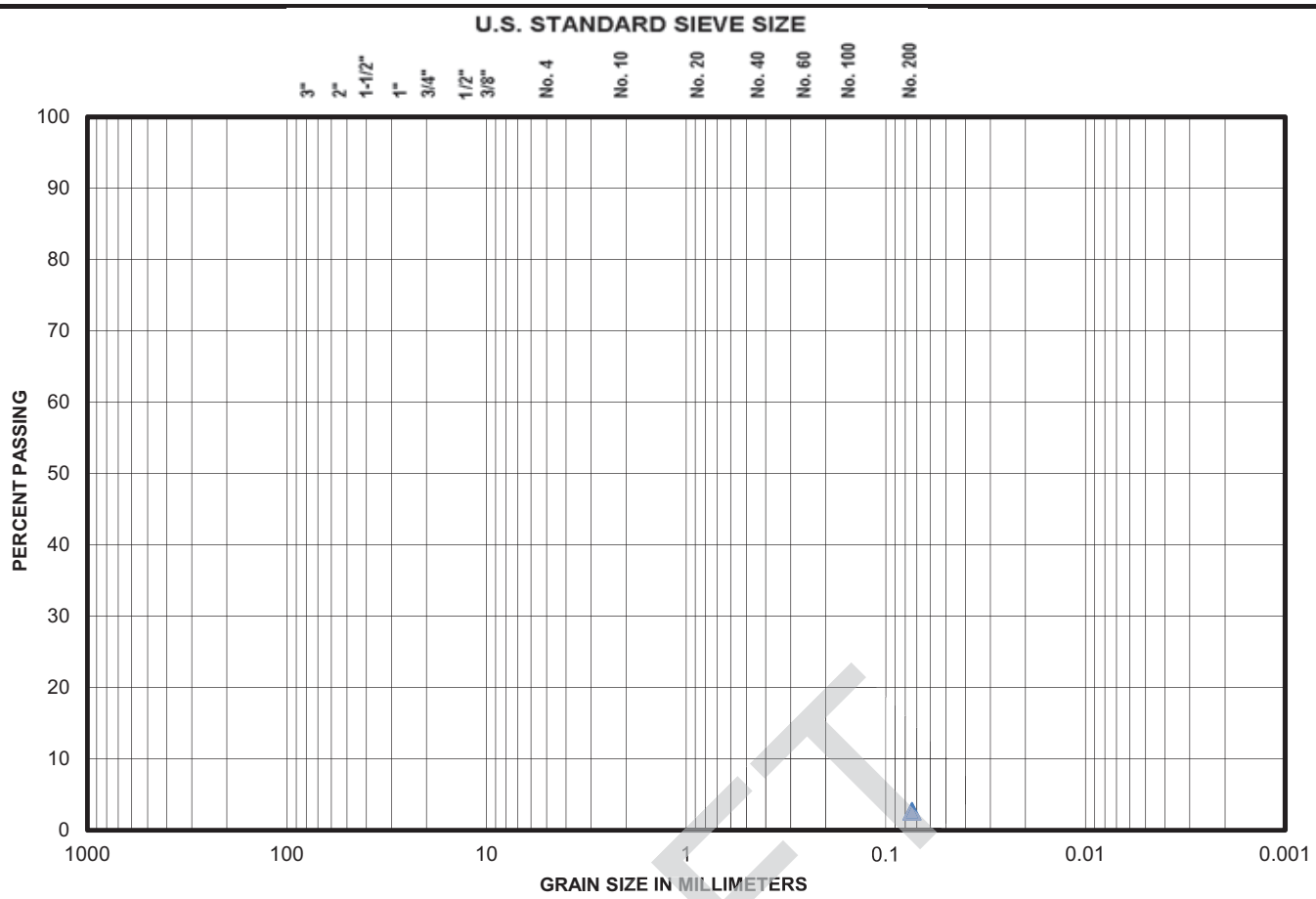
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	97.4	**Fines (Silt & Clay) %**	2.6

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	2.6

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-5A	**Checked By**	SLC
Source/Depth (feet)	64 - 65.5	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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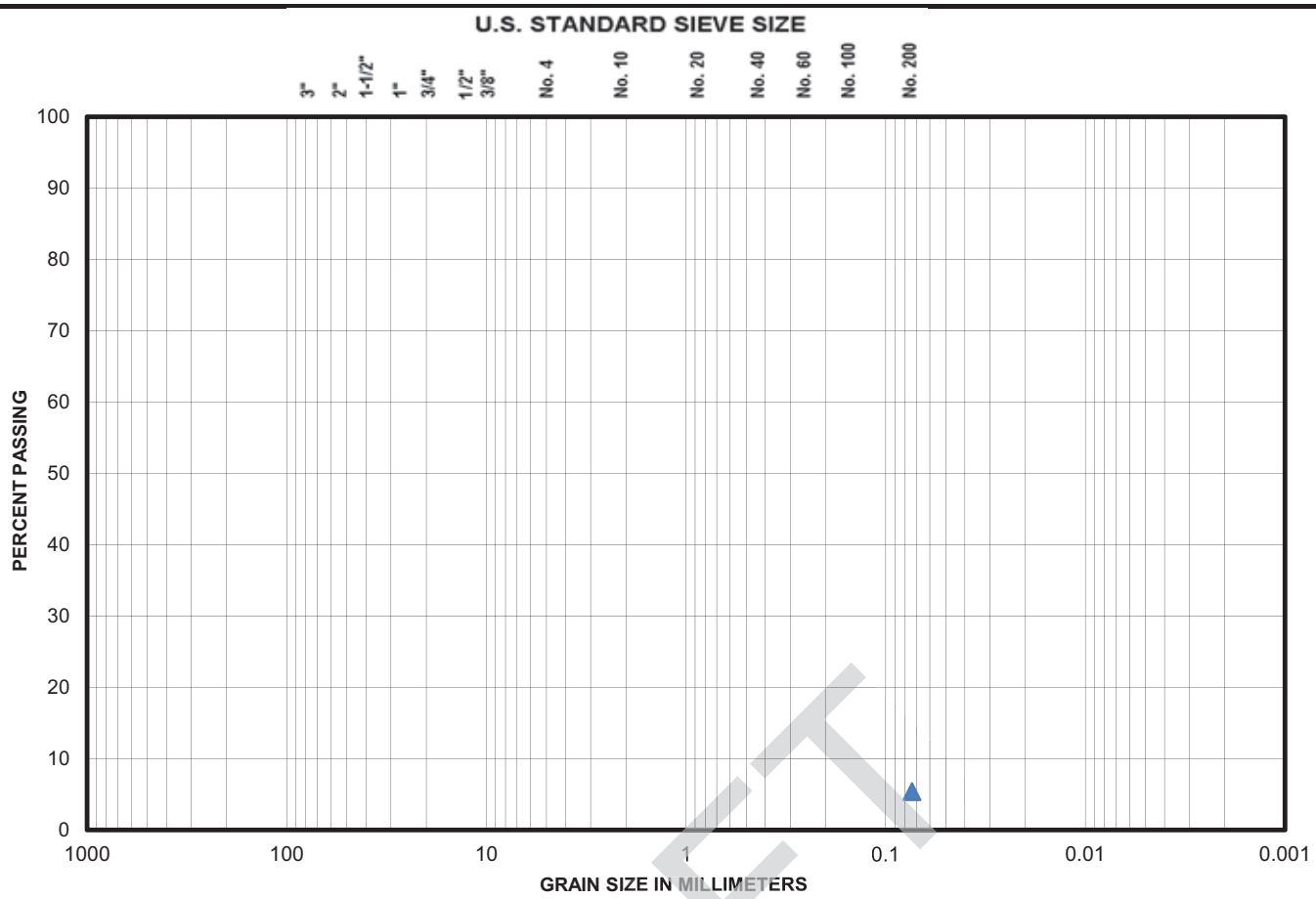
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	94.6	**Fines (Silt & Clay) %**		5.4	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Medium dense gray sand with silt and 5" silty clay layer (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	5.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-5A	**Checked By**	SLC
Source/Depth (feet)	76.5 - 78	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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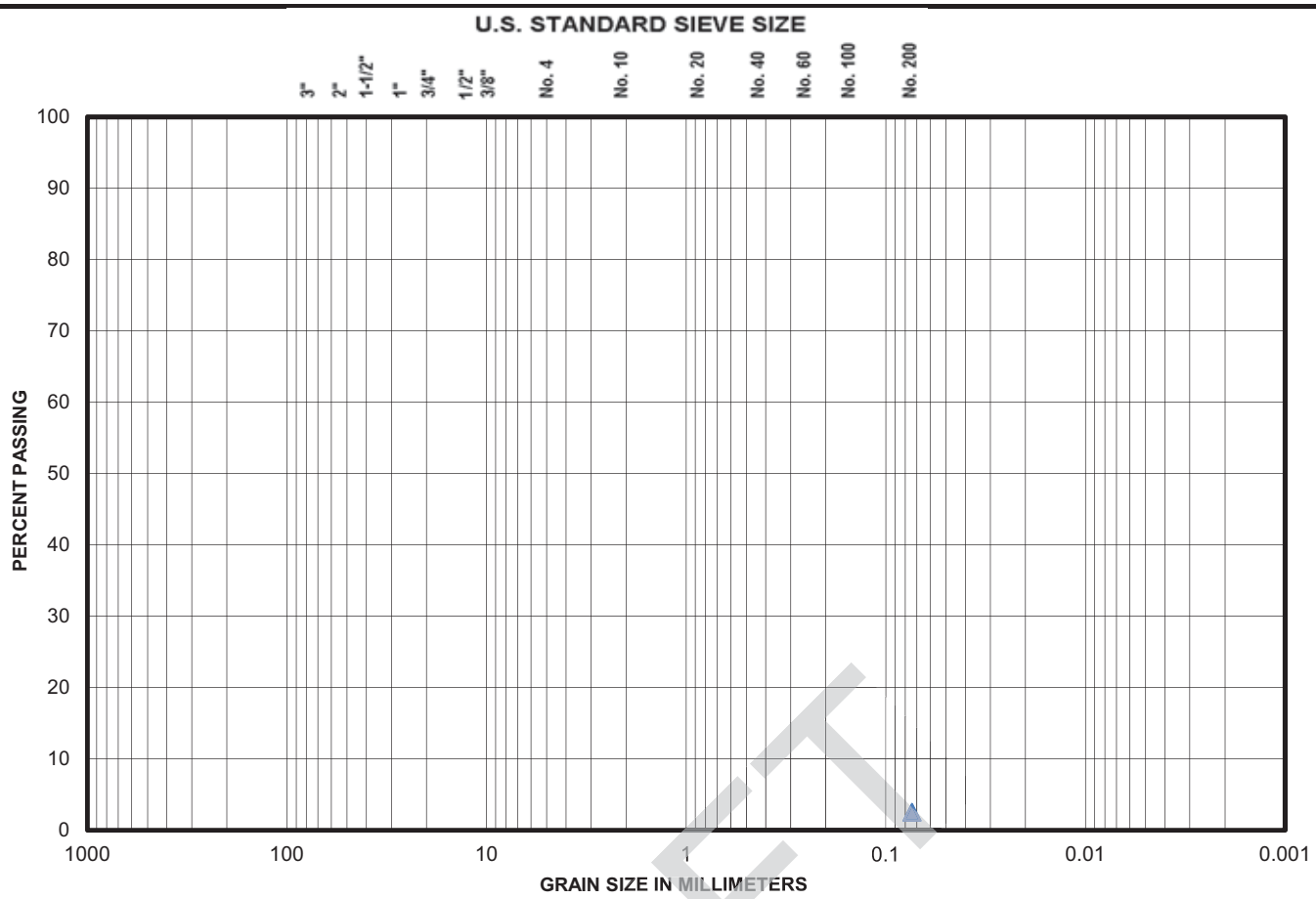
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	97.5	**Fines (Silt & Clay) %**		2.5	
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	#N/A
1"	#N/A	**No. 40**	#N/A
3/4"	#N/A	**No. 60**	#N/A
1/2"	#N/A	**No. 100**	#N/A
3/8"	#N/A	**No. 200**	2.5

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/5/2013
Project No.	18274-001-00	**Tested By**	JRK/BH
Boring No.	R-5A	**Checked By**	SLC
Source/Depth (feet)	86.5 - 88	**Sieve Type**	200 Wash

Method A was used for the 200 Wash

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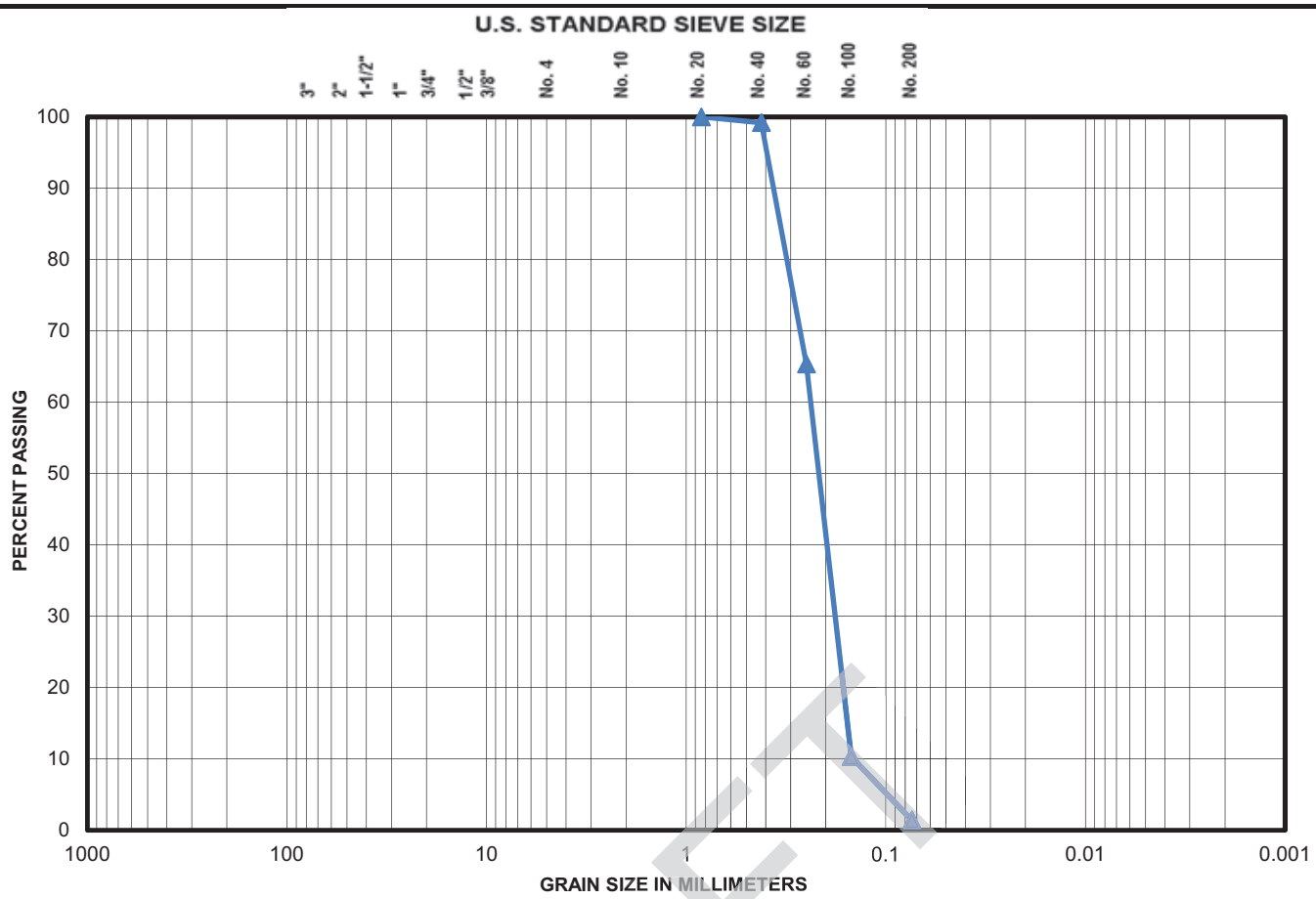
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	97.8	**Fines (Silt & Clay) %**	1.4		
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	100.0
1"	#N/A	**No. 40**	99.2
3/4"	#N/A	**No. 60**	65.3
1/2"	#N/A	**No. 100**	10.3
3/8"	#N/A	**No. 200**	1.4

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	JRK/SEF
Boring No.	R-5A	**Checked By**	SEF
Source/Depth (feet)	66.5 - 68	**Sieve Type**	Dry Sieve

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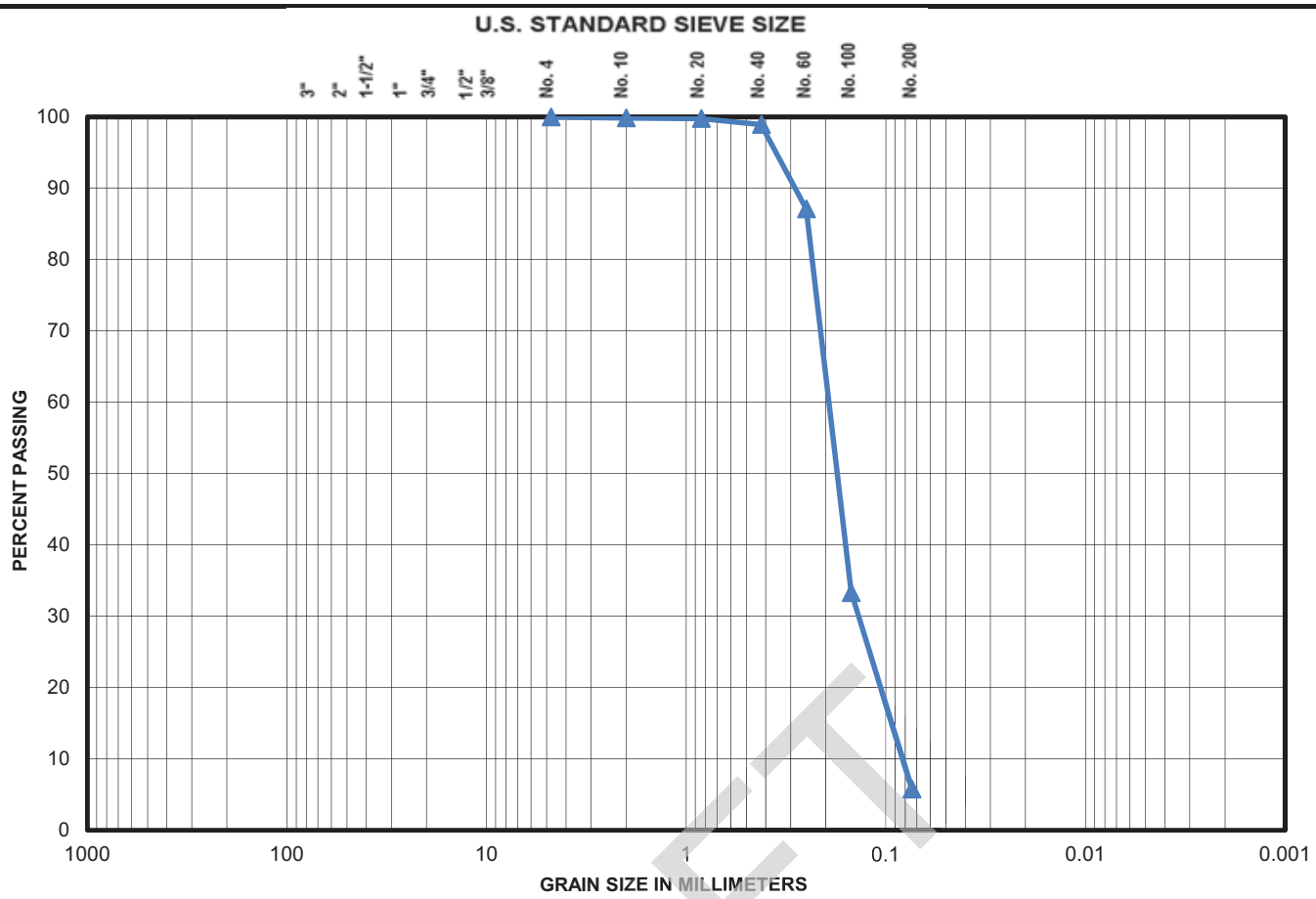
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	93.2	**Fines (Silt & Clay) %**	5.7

USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Dense gray sand with silt (SP)				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	100.0
2"	#N/A	**No. 10**	99.8
1 1/2"	#N/A	**No. 20**	99.8
1"	#N/A	**No. 40**	98.9
3/4"	#N/A	**No. 60**	87.1
1/2"	#N/A	**No. 100**	33.3
3/8"	#N/A	**No. 200**	5.7

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	JRK/SEF
Boring No.	R-5A	**Checked By**	SEF
Source/Depth (feet)	79 - 80.5	**Sieve Type**	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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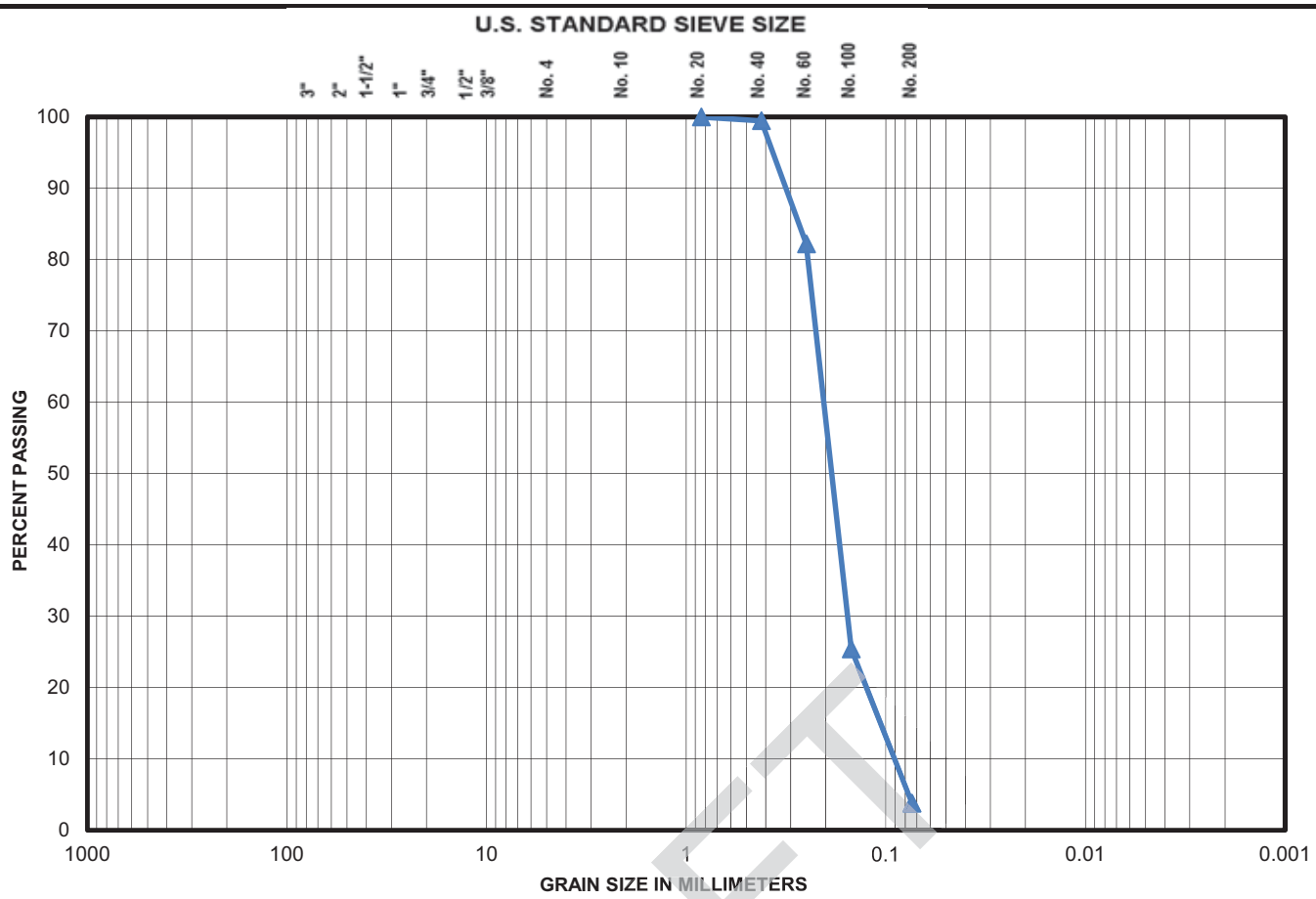
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	95.7	**Fines (Silt & Clay) %**	3.8		
USC Classification	SP	**C_U**	na	**C_C**	na
Description (D 2488)	Sand				

Individual Sieve Data - % Passing			
3"	#N/A	**No. 4**	#N/A
2"	#N/A	**No. 10**	#N/A
1 1/2"	#N/A	**No. 20**	100.0
1"	#N/A	**No. 40**	99.5
3/4"	#N/A	**No. 60**	82.2
1/2"	#N/A	**No. 100**	25.4
3/8"	#N/A	**No. 200**	3.8

Project	LA CPRA - Mid-Barataria Diversion (BA-153), Plaquem	**Date Tested**	12/6/2013
Project No.	18274-001-00	**Tested By**	JRK/SEF
Boring No.	R-5A	**Checked By**	SEF
Source/Depth (feet)	94 - 95.5	**Sieve Type**	Dry Sieve

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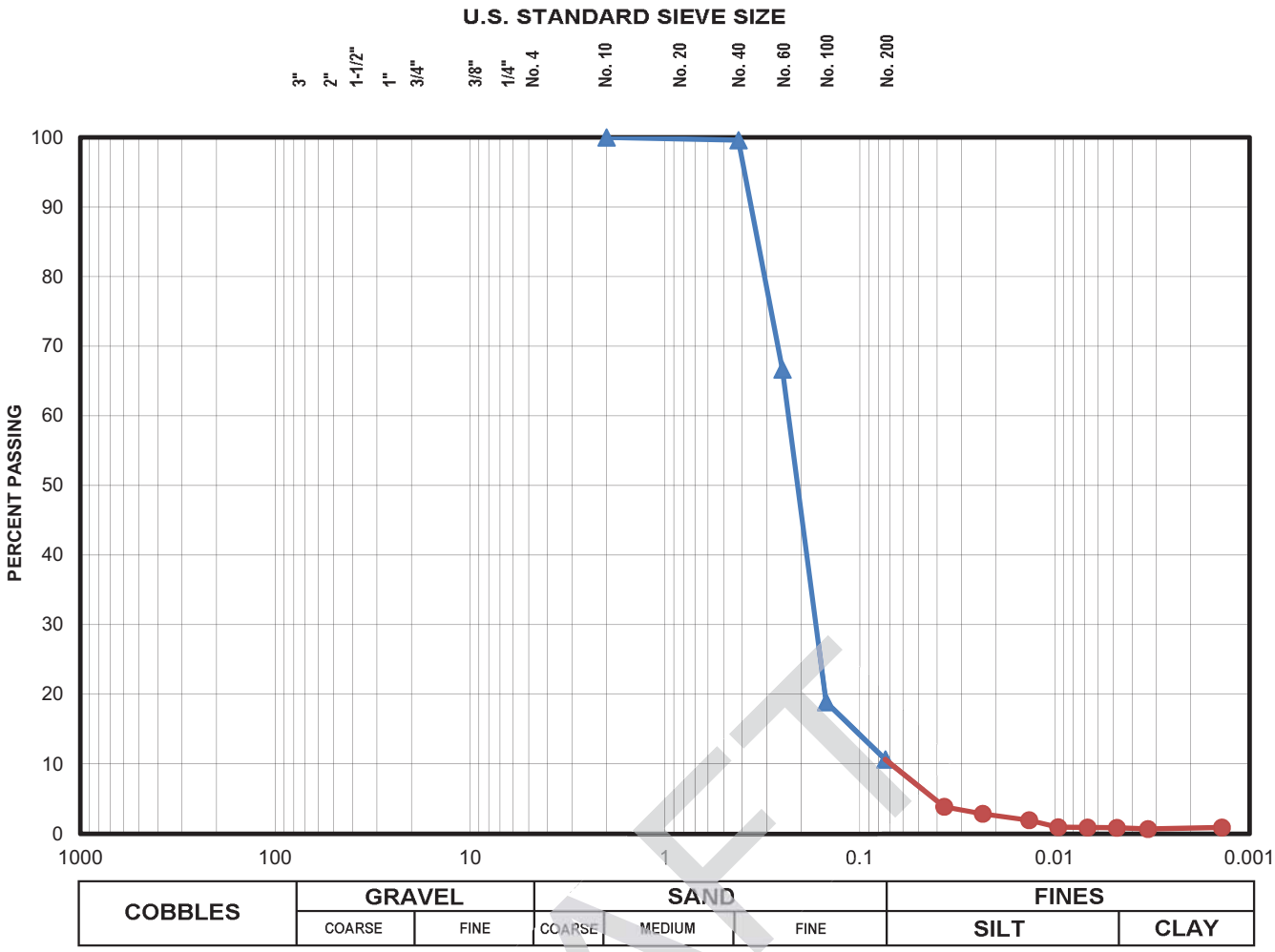
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Loose gray sand with silt and trace clay and shell fragments (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	99.6
3/4"	100.0	No. 60	66.7
3/8"	100.0	No. 100	18.9
1/4"	100.0	No. 200	10.7

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1145
Hydro jar ID:	1150

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/13/2013
Project No.	18274-001-00	Tested By	SEF/ZST
Sample ID.	R-5A	Checked By	SEF
Source/Depth (feet)	59 - 60.5		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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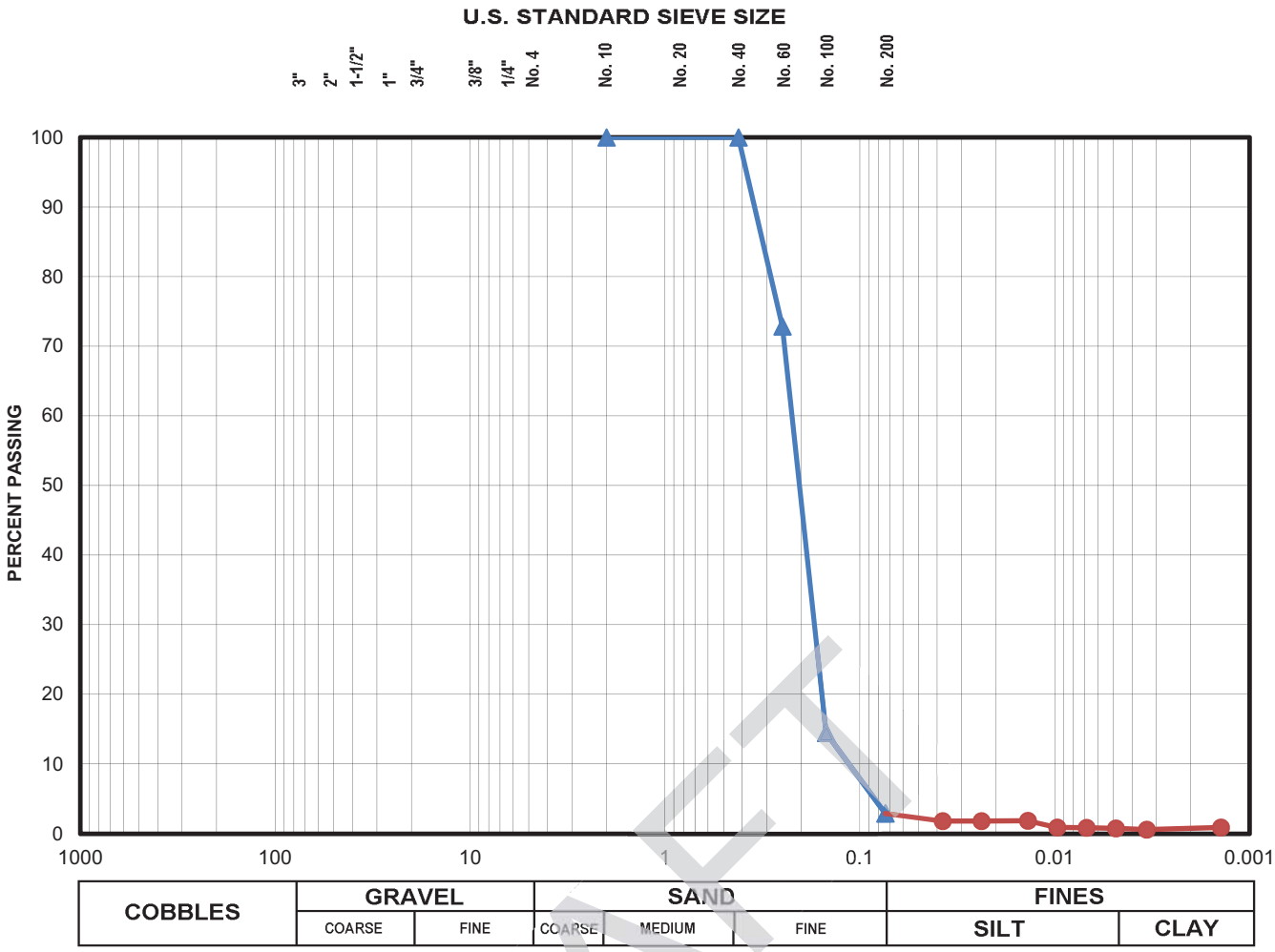
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Description (D 2488)	Medium dense gray sand (SP)

Individual Sieve Data - % Passing			
3"	100.0	No. 4	100.0
2"	100.0	No. 10	100.0
1 1/2"	100.0	No. 20	100.0
1"	100.0	No. 40	100.0
3/4"	100.0	No. 60	72.8
3/8"	100.0	No. 100	14.5
1/4"	100.0	No. 200	2.9

Specific Gravity*	2.65
Dispersion Device	Type A
Dispersion Time	1 min.
Dispersing Agent	$(NaPO_3)_6$
Hydrometer Type	ASTM 152 H
Hydrometer ID:	1351
Hydro jar ID:	1353

*assumed unless noted

Project	LA CPRA - Mid-Barataria Diversion (BA-15	Date Tested	12/13/2013
Project No.	18274-001-00	Tested By	SEF/ZST
Sample ID.	R-5A	Checked By	SEF
Source/Depth (feet)	61.5 - 63		

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

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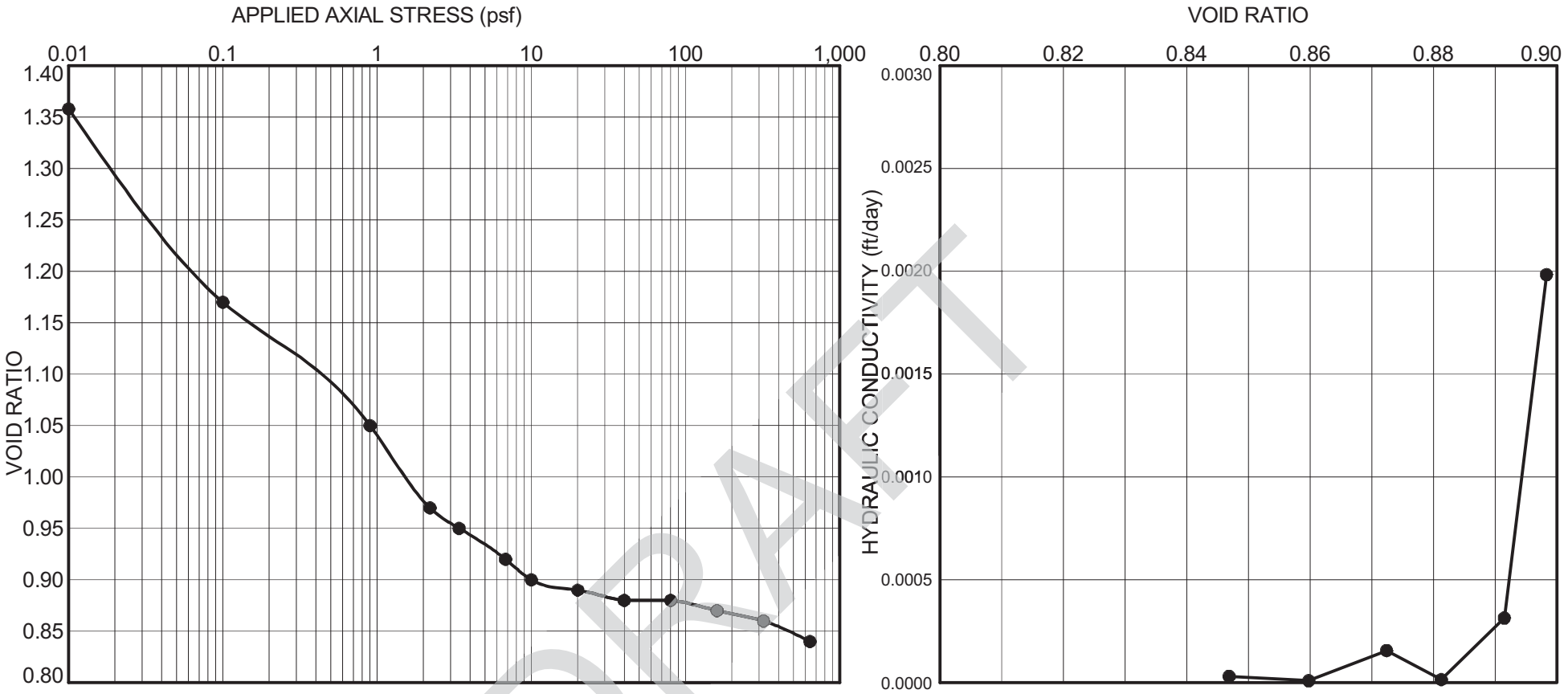
ASTM D 422 SOIL PARTICLE SIZE ANALYSIS

LA CPRA - Mid-Barataria Diversion (BA-153), Plaquemines Parish, LA

18274-001-00



Depth (ft.): **63.5-75**			
Material: **POORLY GRADED SAND WITH CLAY (SP-SC), gray**			
Source: **Composite**			
Specific Gravity: **2.659 (Calculated)**			
Saturation (%): **85.7**			
Initial Void Ratio (Eo): **1.358**			
Initial Moisture Content (%): **43.8**			
Initial Dry Density (lbs./cu. ft.): **70.4**			
Atterberg Limits (LL, PL, PI)	**NP**	**NP**	**NP**

Fugro Consultants, Inc

Mid Barataria Diversion Project **Plaquemines Parish, Louisiana**

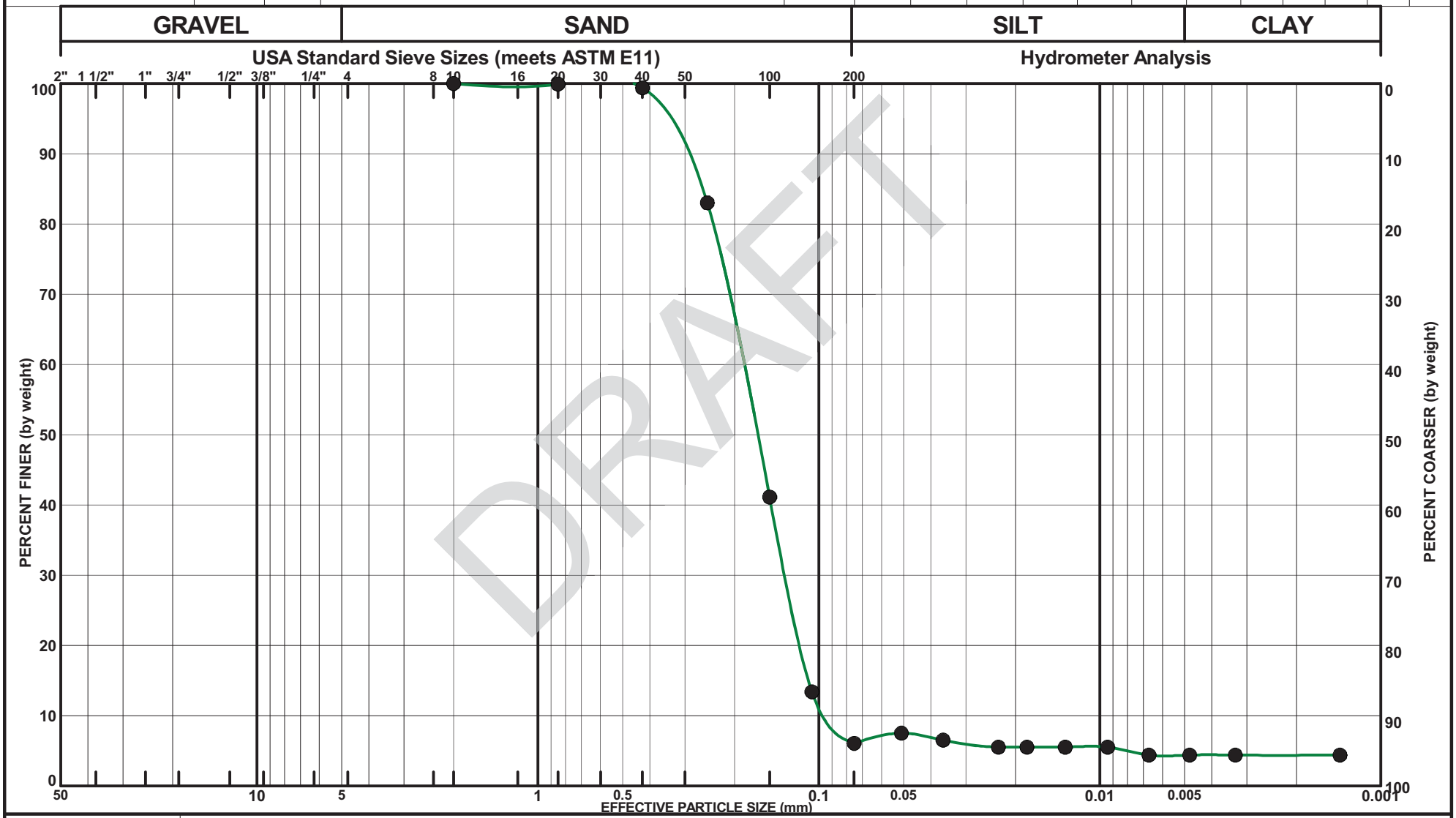
GeoEngineers

INCREMENTAL CONSOLIDATION TEST

Sample ID: R-6A

Tested By:	Date Tested:	Reviewed By:	Date Reviewed:	Project No.
Karen Allen	**11/11/2013**	**Sanjay Shanji**	**12/19/2013**	**04-55124092**

Boring Number	Sample Number	Depth (m)	Material Description	%Gravel	%Sand	%Silt	%Clay	D100	D60	D30	D10	Cc	Cu	LL	PL	PI
● R-6A	Composite	63.5-75	POORLY GRADED SAND WITH CLAY (SP-SC), gray	0.0	93.9	1.7	4.4	2	0.189	0.13	0.069	1.30	2.72	NP	NP	NP
■																
▲																



FCBR GSA LANDSCAPE 04.5512-4092.GPJ FUGRO DATA TEMPLATE 042610.GDT 01/13/14

Fugro Consultants, Inc

Mid Barataria Diversion Project

Plaquemines Parish , Louisiana

PARTICLE-SIZE ANALYSIS

ASTM D422/D6913/C136

Tested By:	Date Tested:	Reviewed By:	Date Reviewed:	Project No.
Eddie Lobell	11/21/2013	Karen Allen	12/9/2013	04-55124092

Loading Step	Load Interval	Subtotal Deformation, ΔH	Cumulative Deformation, $\Sigma\Delta H$	ε_v	Height, H	$e = (H-H_s)/H_s$	e_{50}	a_v	C_v	k
	psf	inch	inch	%	inch			ft^2/lb	ft^2/day	ft/sec
1	0.1	0.000	0.000	0.00	1.000	1.174				
2	0.9	0.056	0.056	5.57	0.944	1.053	1.109	0.10338	1.60499	5.681E-05
3	2.2	0.037	0.093	9.26	0.907	0.972	0.987	0.01235	0.00034	1.505E-09
4	3.4	0.010	0.103	10.28	0.897	0.950	0.957	0.00358	0.00160	2.109E-09
5	6.8	0.013	0.115	11.54	0.885	0.923	0.928	0.00157	0.00124	7.254E-10
6	10	0.010	0.125	12.51	0.875	0.902	0.906	0.00070	0.04235	1.116E-08
7	20	0.003	0.128	12.85	0.872	0.895	0.898	0.00053	0.11379	2.296E-08
8	40	0.005	0.133	13.33	0.867	0.884	0.891	0.00018	0.05315	3.639E-09
9	80	0.004	0.137	13.70	0.863	0.876	0.881	0.00009	0.00511	1.716E-10
10	160	0.004	0.141	14.14	0.859	0.866	0.872	0.00009	0.05140	1.805E-09
11	320	0.005	0.147	14.66	0.853	0.855	0.860	0.00005	0.00571	1.084E-10
12	640	0.006	0.153	15.27	0.847	0.842	0.847	0.00003	0.03515	3.549E-10

Fugro Consultants, Inc

Mid Barataria Diversion Project Plaquemines Parish, Louisiana **RESULTS OF SELF-WEIGHT CONSOLIDATION**

GeoEngineers **Sample ID: R-6A**

Tested By:	Date Tested:	Reviewed By:	Date Reviewed:	Project No.
Karen Allen	11/11/2013	Jennifer Aguettant	01/14/2014	04-55124092