

LOG OF BORING AA-41

SHEET 1 of 1



Rock Engineering & Testing Lab., Inc.
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Telephone: (361) 883-4555
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CLIENT: HDR Engineering, Inc.

PROJECT: Galveston Anchorage Area C Sand Source Inv.

LOCATION: Anchorage Area C, Galveston, Texas

NUMBER: G109233

DATE(S) DRILLED: 10/16/09 - 10/16/09

FIELD DATA

LABORATORY DATA

DRILLING METHOD(S):

Hollow Stem Auger

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -24.92' NAVD

DESCRIPTION OF STRATUM

SOIL SYMBOL	Elevation, Ft. [NAVD]	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT PERCENT RECOVERY/ ROCK QUALITY DESIGNATION	MOISTURE CONTENT (%)	ATTERBERG LIMITS			DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	
						LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI				
	5											
	10											
	15											
	20											
	25	SS S-1	X	N= 1							6	POORLY GRADED SAND , with clay and shell fragments, gray, very loose.
		SS S-2	X	N= 0							58	SANDY CLAY , with shell fragments, dark gray, very soft.
	30	SS S-3	X	N= 4							11	POORLY GRADED SAND , with clay and shell fragments, gray, loose.
		SS S-4	X	N= 3								Same as above, very loose.
		SS S-5	X	N= 5							8	Same as above, loose.
	35	SS S-6	X	N= 8								POORLY GRADED SAND , with clay and shell fragments, gray, loose.
		SS S-7	X	N= 6							12	Same as above.
												Boring was extended to an elevation of -38.9-feet NAVD during the drilling operations.

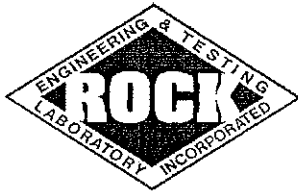
N - STANDARD PENETRATION TEST RESISTANCE
P - POCKET PENETROMETER RESISTANCE
T - POCKET TORVANE SHEAR STRENGTH

REMARKS:

Boring depth and location was determined by HDR Engineering, Inc. Boring operations were performed by RETL at GPS Coord. N. 29.35291 W. 94.77219.

3233 ANCHORAGE BASIN C.G.P.J. ROCK ETL GDT 11/30/09

LOG OF BORING



- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Galveston Anchorage Area C Sand Source Investigation

CLIENT: HDR Engineering, Inc.

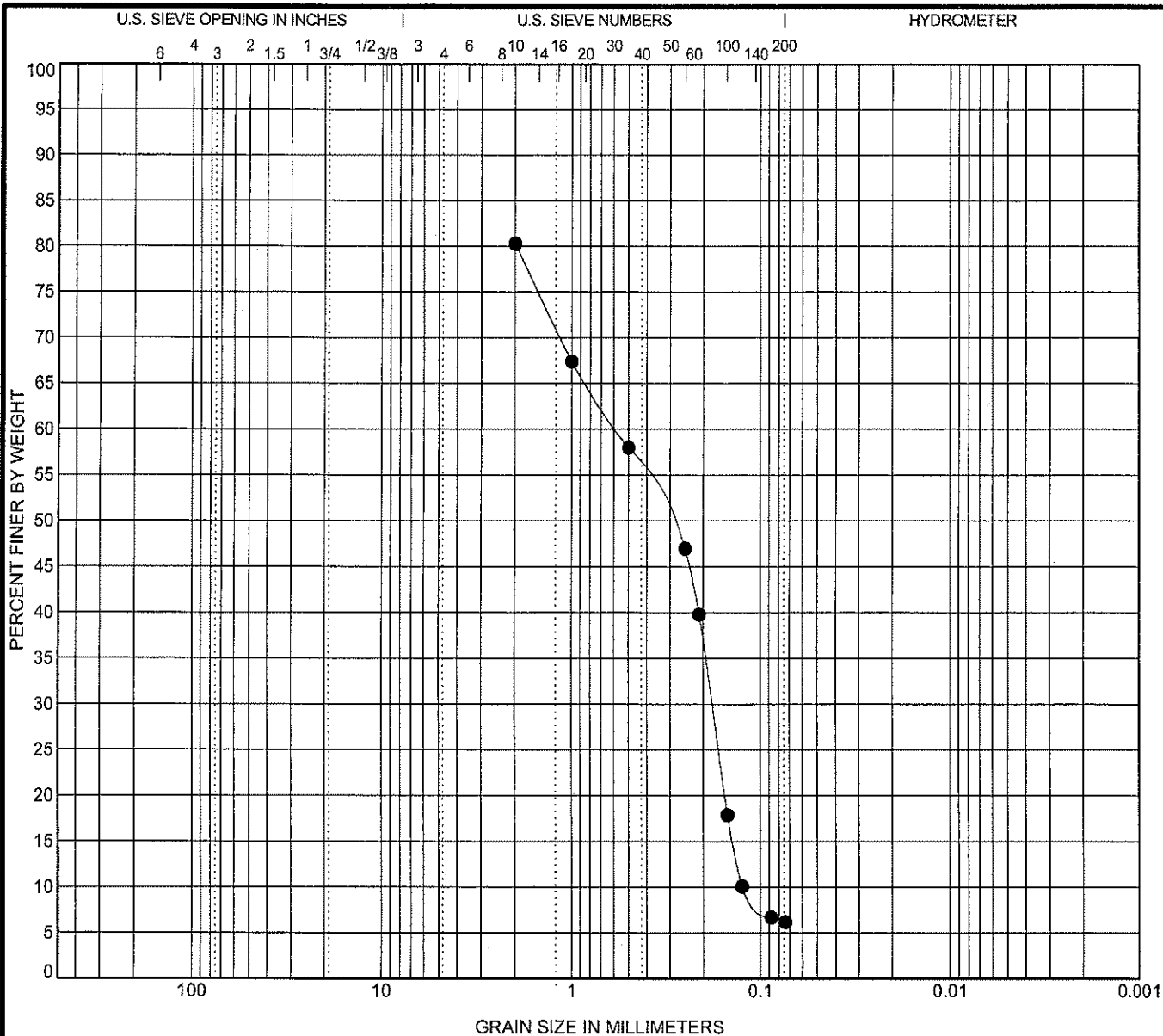
BORING ID.: AA-41

DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)				
-24.92' to -26.92' NAVD	-26.92' to -28.92' NAVD	-28.92' to -30.92' NAVD	-32.92' to -34.92' NAVD	-36.92' to -38.92' NAVD
19.68	2.53	5.26	2.32	0.16

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL				
	-24.92' to -26.92' NAVD	-26.92' to -28.92' NAVD	-28.92' to -30.92' NAVD	-32.92' to -34.92' NAVD	-36.92' to -38.92' NAVD
#10	100.00	100.00	100.00	100.00	100.00
#18	67.35	96.18	88.36	95.96	99.50
#35	57.98	95.43	82.98	94.41	99.30
#60	47.00	94.62	76.54	93.34	98.80
#70	39.79	94.16	72.31	91.56	97.80
#100	17.91	91.25	46.72	37.33	51.00
#120	10.10	83.50	26.85	20.66	25.70
#170	6.74	70.09	13.40	10.03	14.20
#200	6.22	57.71	10.45	7.99	11.90
STATISTICS (EXCLUDING SHELL)					
MEDIAN GRAIN SIZE (mm)	0.28	N/A	0.17	0.17	0.14
MEAN GRAIN SIZE (mm)	0.36	N/A	0.22	0.16	0.15
SORTING (σ)	N/A	N/A	N/A	N/A	N/A

*The -#10 material was utilized as the total sample for Grain Size Distribution Curve calculations.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification					LL	PL	PI	Cc	Cu
● AA-41	(-24.92' to -26.92' NAVD)	AA-41 (-24.92' to -26.92' NAVD)								0.45	4.68
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
● AA-41	(-24.92' to -26.92' NAVD)	2	0.579	0.18	0.124	0.0					

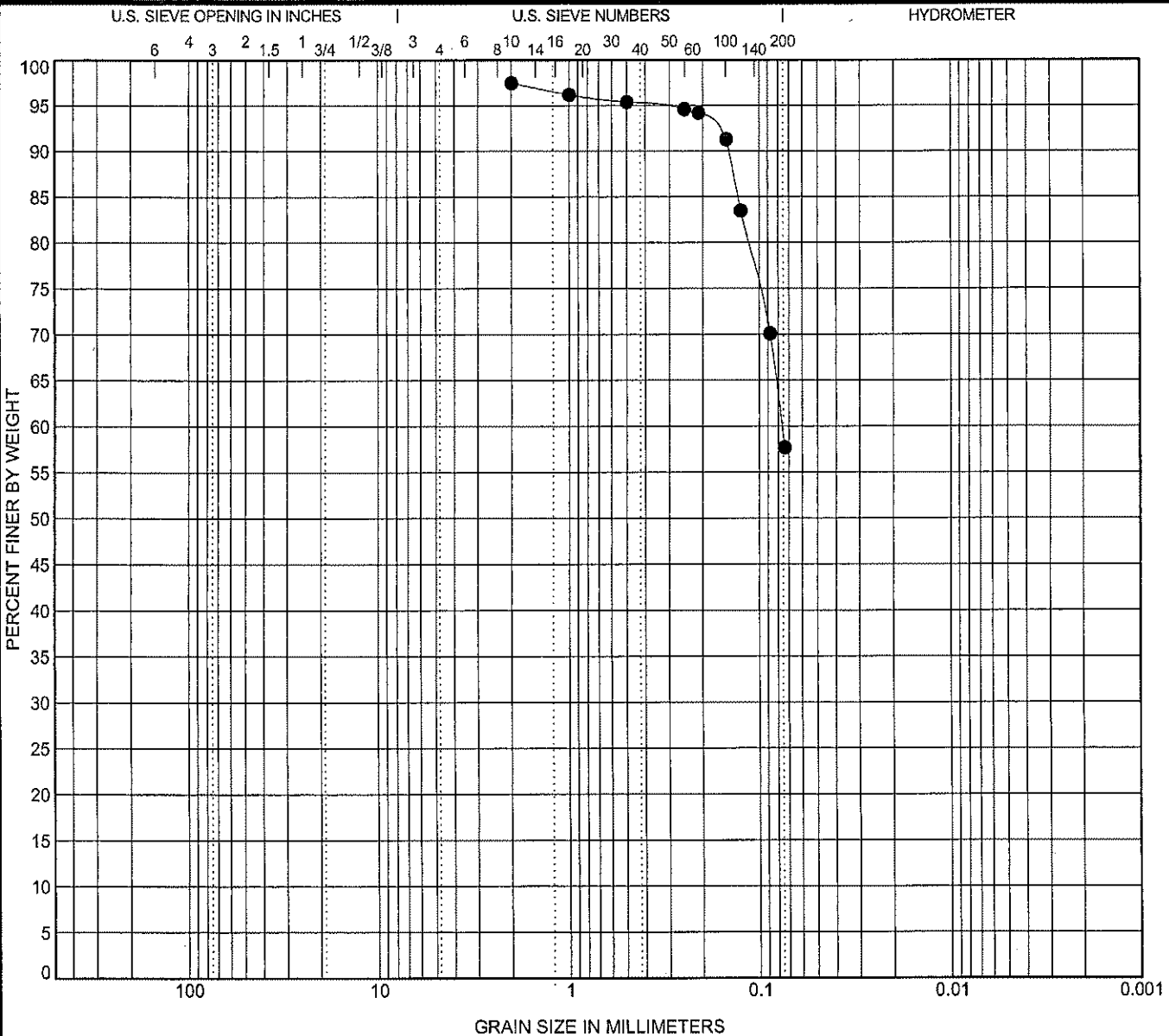


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GRAIN SIZE DISTRIBUTION

Project: Galveston Anchorage Area C Sand Source Inv.
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U.S. GRAIN SIZE G109233 ANCHORAGE BASIN C.GPJ US LAB.GDT 12/1/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-41	(-26.92' to -28.92' NAVD)	AA-41 (-26.92' to -28.92' NAVD)					

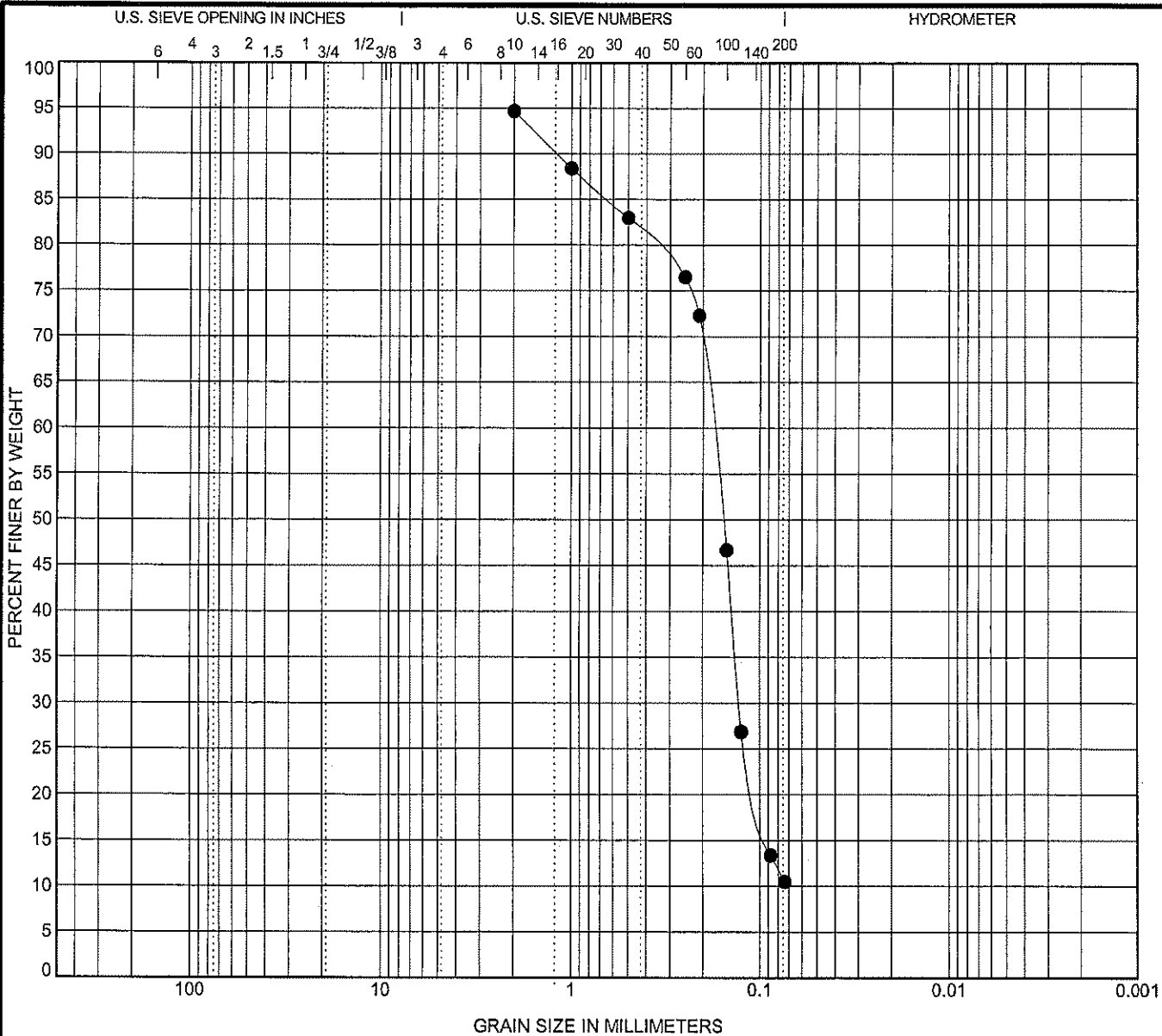
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-41	(-26.92' to -28.92' NAVD)	2	0.076			0.0			



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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-41	(-28.92' to -30.92' NAVD)	AA-41 (-28.92' to -30.92' NAVD)				1.29	2.48

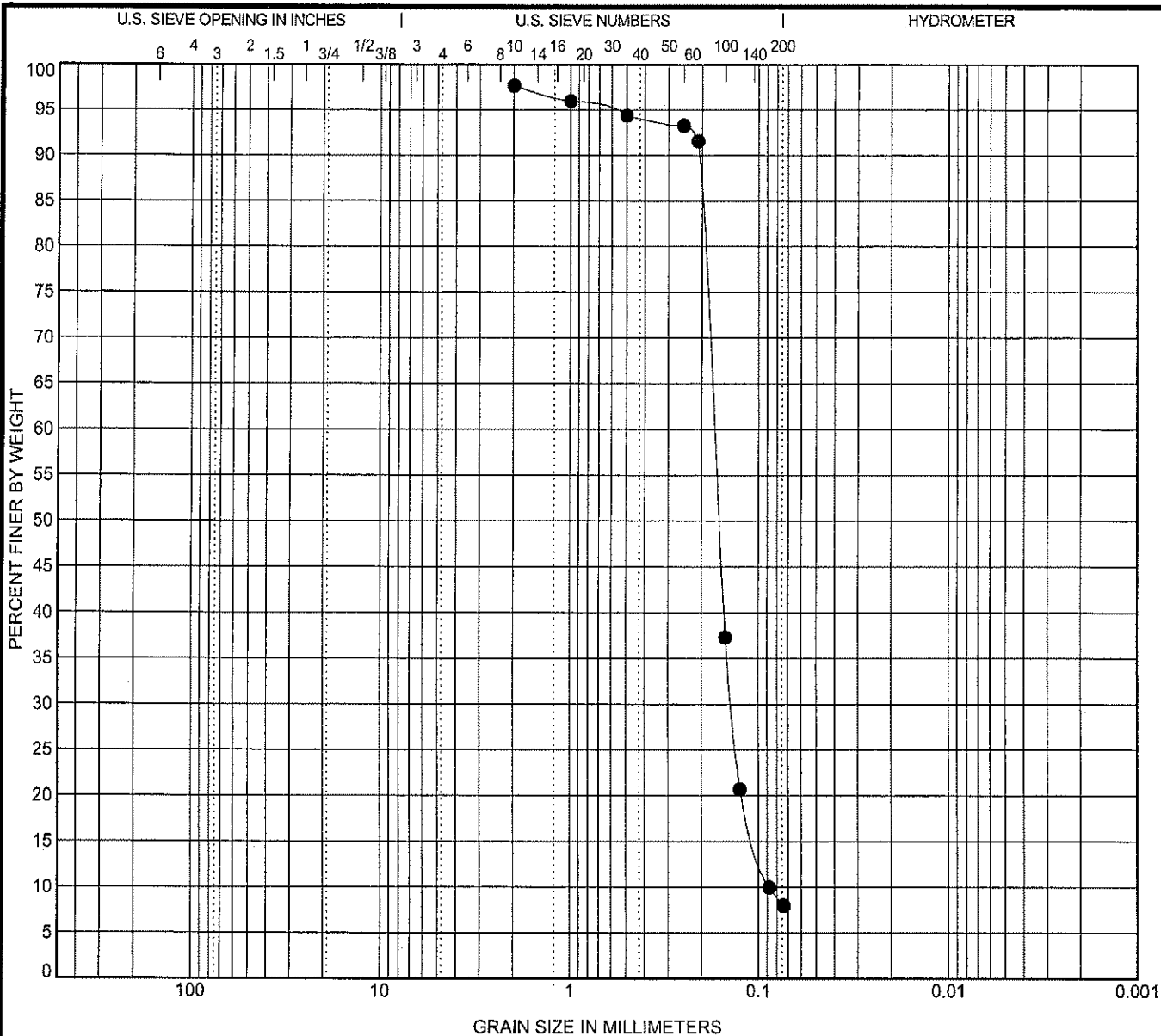
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-41	(-28.92' to -30.92' NAVD)	2	0.178	0.128		0.0			



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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-41	(-32.92' to -34.92' NAVD)	AA-41 (-32.92' to -34.92' NAVD)				1.26	1.95

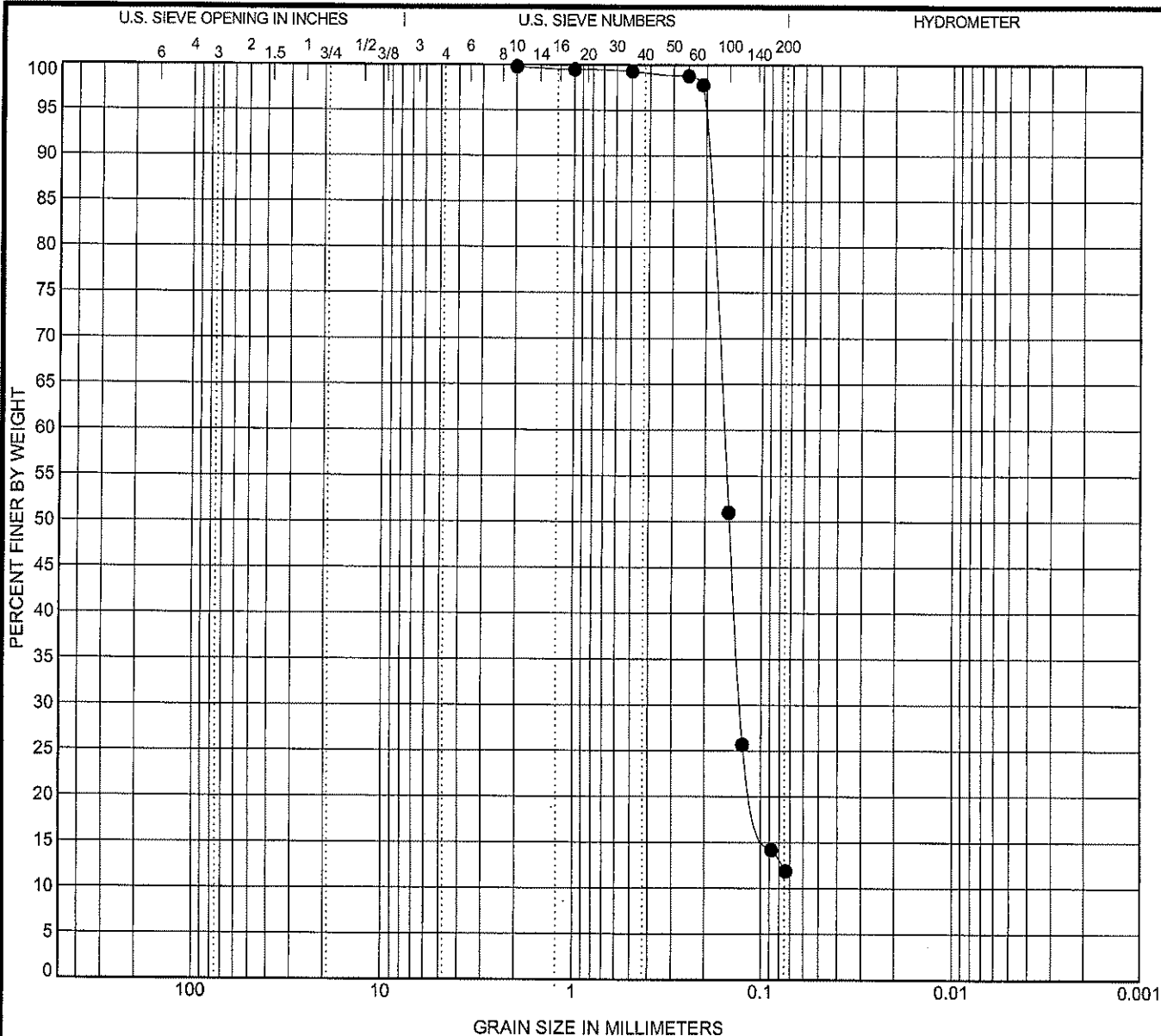
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-41	(-32.92' to -34.92' NAVD)	2	0.172	0.138	0.088	0.0			



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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-41 (-36.92' to -38.92' NAVD)		AA-41 (-36.92' to -38.92' NAVD)				1.62	2.48

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-41 (-36.92' to -38.92' NAVD)		2	0.159	0.129		0.0			



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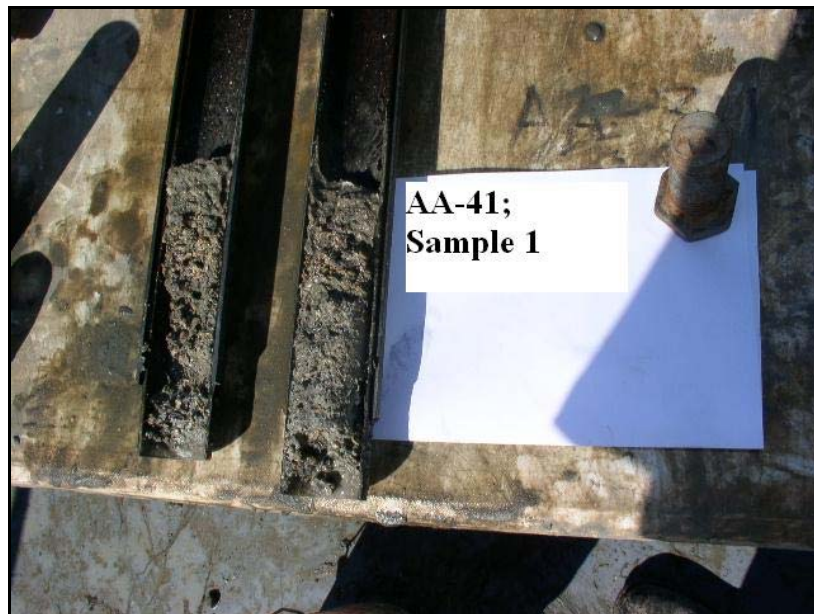


Figure 63: AA-41; Sample 1



Figure 64: AA-41; Sample 2

December 8, 2009
Attn.: Ms. Lauren Augustin
RETL Job No.: G109233

PROP. GALVESTON ANCHORAGE AREA C SAND SOURCE INVESTIGATION
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Figure 65: AA-41; Sample 3



Figure 66: AA-41; Sample 4

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Figure 67: AA-41; Sample 5



Figure 68: AA-41; Sample 6

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