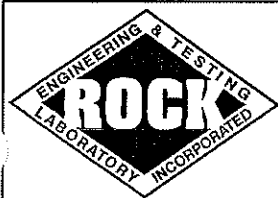


LOG OF BORING AA-37

SHEET 1 of 1



Rock Engineering & Testing Lab., Inc.
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Corpus Christi, TX 78409
Telephone: (361) 883-4555
Fax: (361) 883-4711

CLIENT: HDR Engineering, Inc.
PROJECT: Galveston Anchorage Area C Sand Source Inv.
LOCATION: Anchorage Area C, Galveston, Texas
NUMBER: G109233

DATE(S) DRILLED: 10/15/09 - 10/15/09

DRILLING METHOD(S):

Hollow Stem Auger

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -32.52' NAVD

DESCRIPTION OF STRATUM

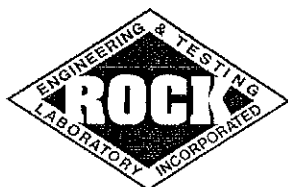
FIELD DATA		LABORATORY DATA								DRILLING METHOD(S): Hollow Stem Auger		
SOIL SYMBOL	Elevation, Ft. [NAVD]	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT PERCENT RECOVERY/ ROCK QUALITY DESIGNATION	MOISTURE CONTENT (%)	ATTERBERG LIMITS			DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ.FT)	MINUS NO. 200 SIEVE (%)	GROUNDWATER INFORMATION:
						LL	PL	PI				
SURFACE ELEVATION: -32.52' NAVD												
DESCRIPTION OF STRATUM												
	5											
	10											
	15											
	20											
	25											
	30											
	35	SS S-1	X	N= 6							3	POORLY GRADED SAND , with shell fragments, brown and gray, loose.
		SS S-2	X	N= 2							4	Same as above, very loose.
		SS S-3	X	N= 2							7	Same as above, with clay, gray.
	40	SS S-4	X	N= 9							12	POORLY GRADED SAND , with clay and shell fragments, gray, loose.
												Boring was extended to an elevation of -40.5-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. 29.35035 W. 94.77023.

LOG OF BORING: ,9233 ANCHORAGE BASIN C.G.P.J ROCK ETL.GDT 12/3/09



- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Galveston Anchorage Area C Sand Source Investigation

CLIENT: HDR Engineering, Inc.

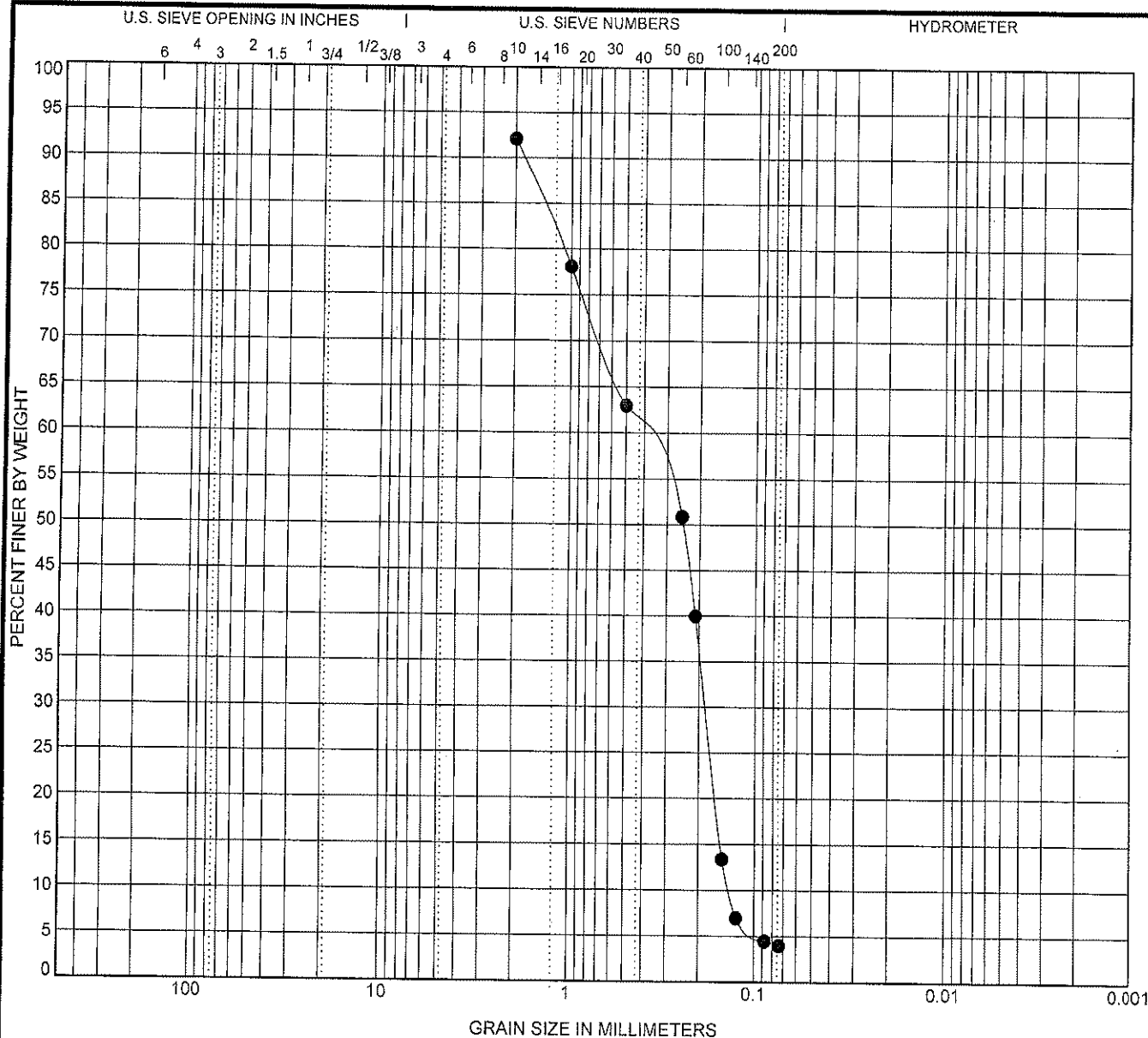
BORING ID.: AA-37

DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)			
-32.52' to -34.52' NAVD	-34.52' to -36.52' NAVD	-36.52' to -38.52' NAVD	-38.52' to -40.52' NAVD
7.90	11.10	7.07	3.50

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL			
	-32.52' to -34.52' NAVD	-34.52' to -36.52' NAVD	-36.52' to -38.52' NAVD	-38.52' to -40.52' NAVD
#10	100.00	100.00	100.00	100.00
#18	78.10	66.10	85.40	91.70
#35	63.00	40.20	77.00	86.10
#60	50.90	23.80	70.60	81.70
#70	40.00	17.20	66.40	76.10
#100	13.40	8.60	41.20	35.50
#120	7.00	6.00	19.80	21.20
#170	4.50	4.60	9.50	13.60
#200	4.00	4.30	7.40	12.00
STATISTICS (EXCLUDING SHELL)				
MEDIAN GRAIN SIZE (mm)	0.24	0.67	0.17	0.17
MEAN GRAIN SIZE (mm)	0.37	0.61	0.28	0.20
SORTING (σ)	1.22	1.24	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-37 (-32.52' to -34.52' NAVD)		AA-37 (-32.52' to -34.52' NAVD)				0.60	3.10

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-37 (-32.52' to -34.52' NAVD)	2	0.421	0.185	0.136	0.0				



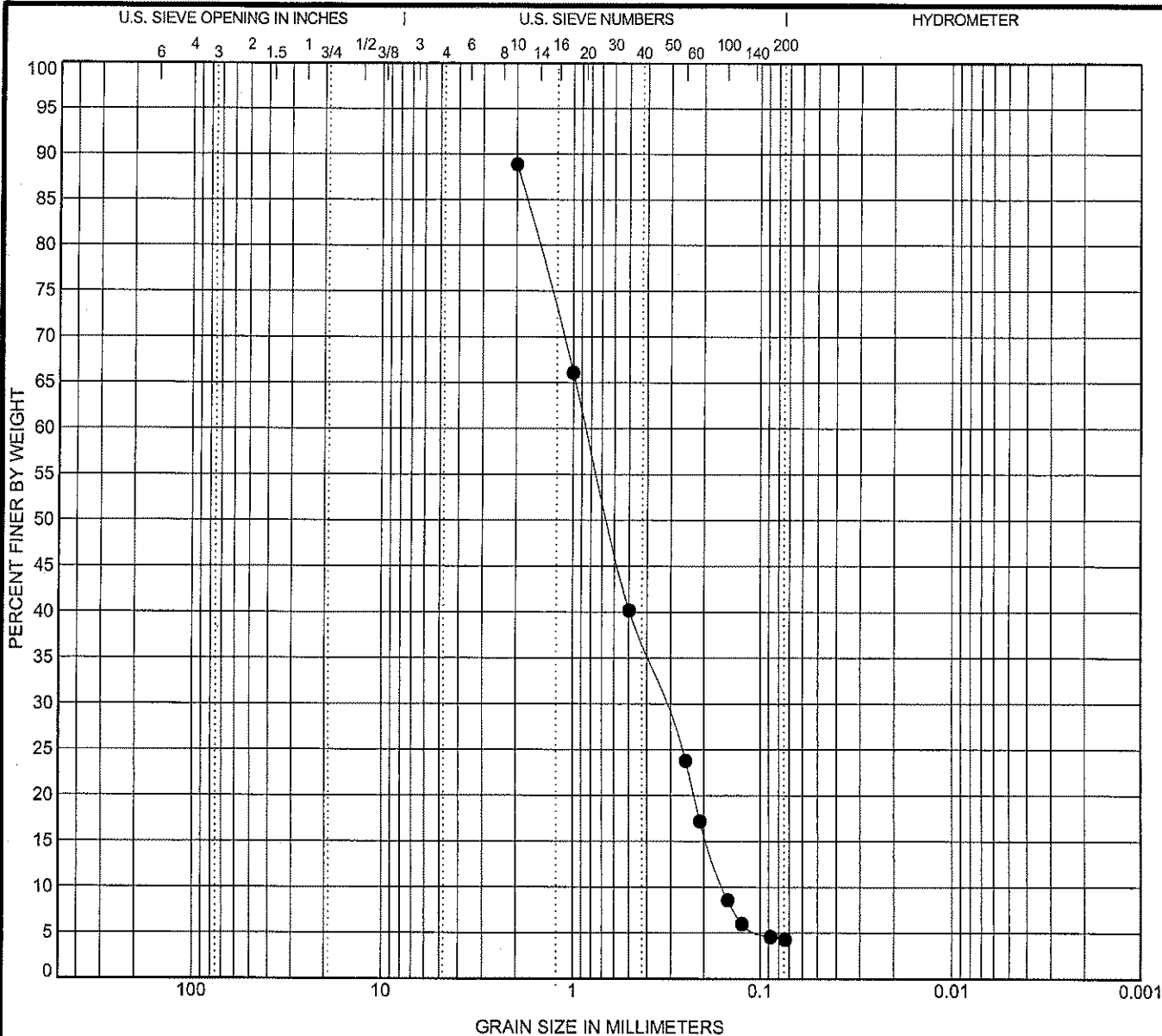
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 Corpus Christi, TX 78409
 Telephone: (361) 883-4555
 Fax: (361) 883-4711

GRAIN SIZE DISTRIBUTION

Project: Galveston Anchorage Area C Sand Source Inv.

Location: Anchorage Area C, Galveston, Texas

Number: G109233



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-37 (-34.52' to -36.52' NAVD)		AA-37 (-34.52' to -36.52' NAVD)				0.79	5.39

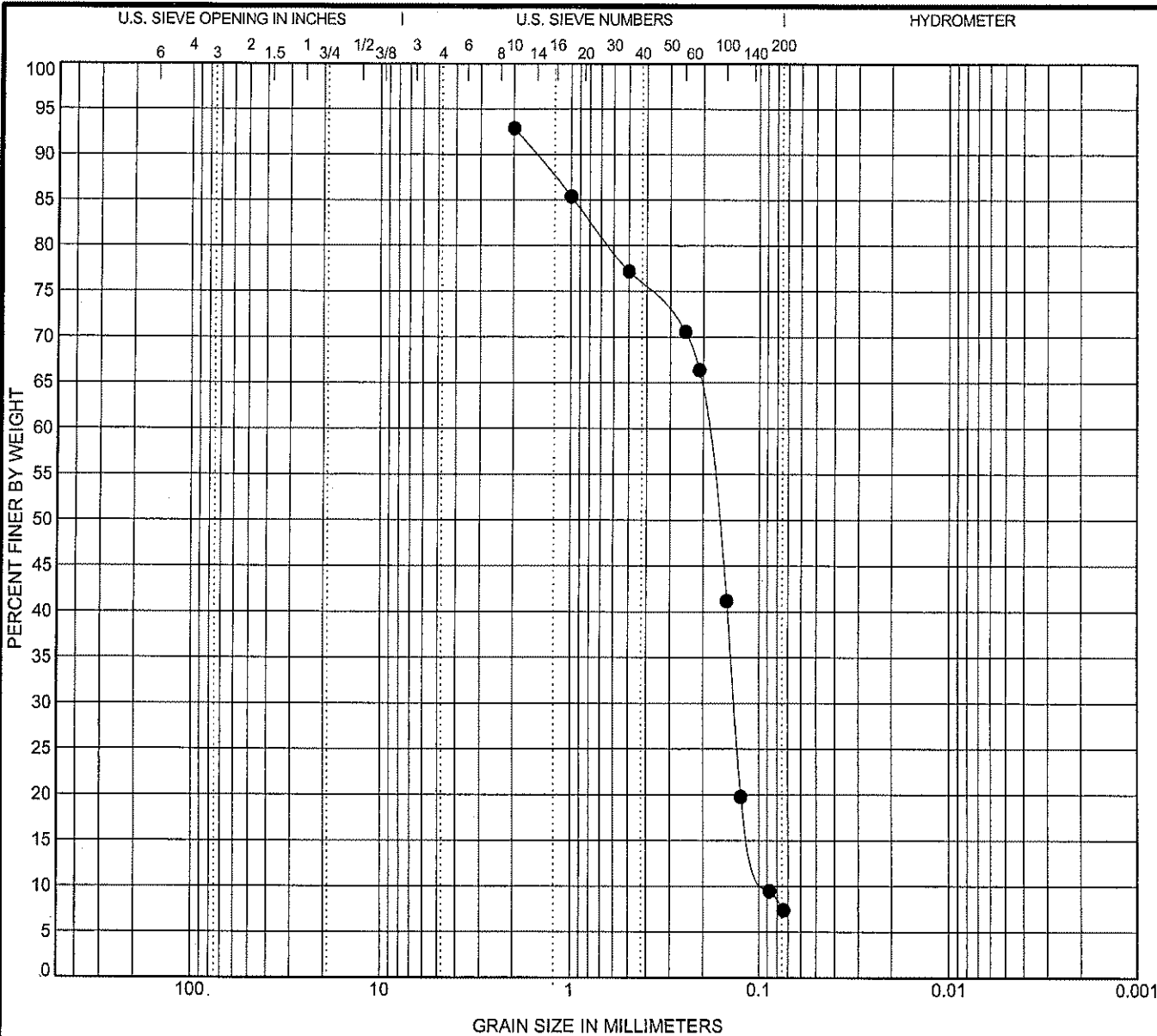
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-37 (-34.52' to -36.52' NAVD)		2	0.849	0.325	0.158	0.0			



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GRAIN SIZE DISTRIBUTION

Project: Galveston Anchorage Area C Sand Source Inv.
Location: Anchorage Area C, Galveston, Texas
Number: G109233



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-37 (-36.52' to -38.52' NAVD)		AA-37 (-36.52' to -38.52' NAVD)				1.07	2.15

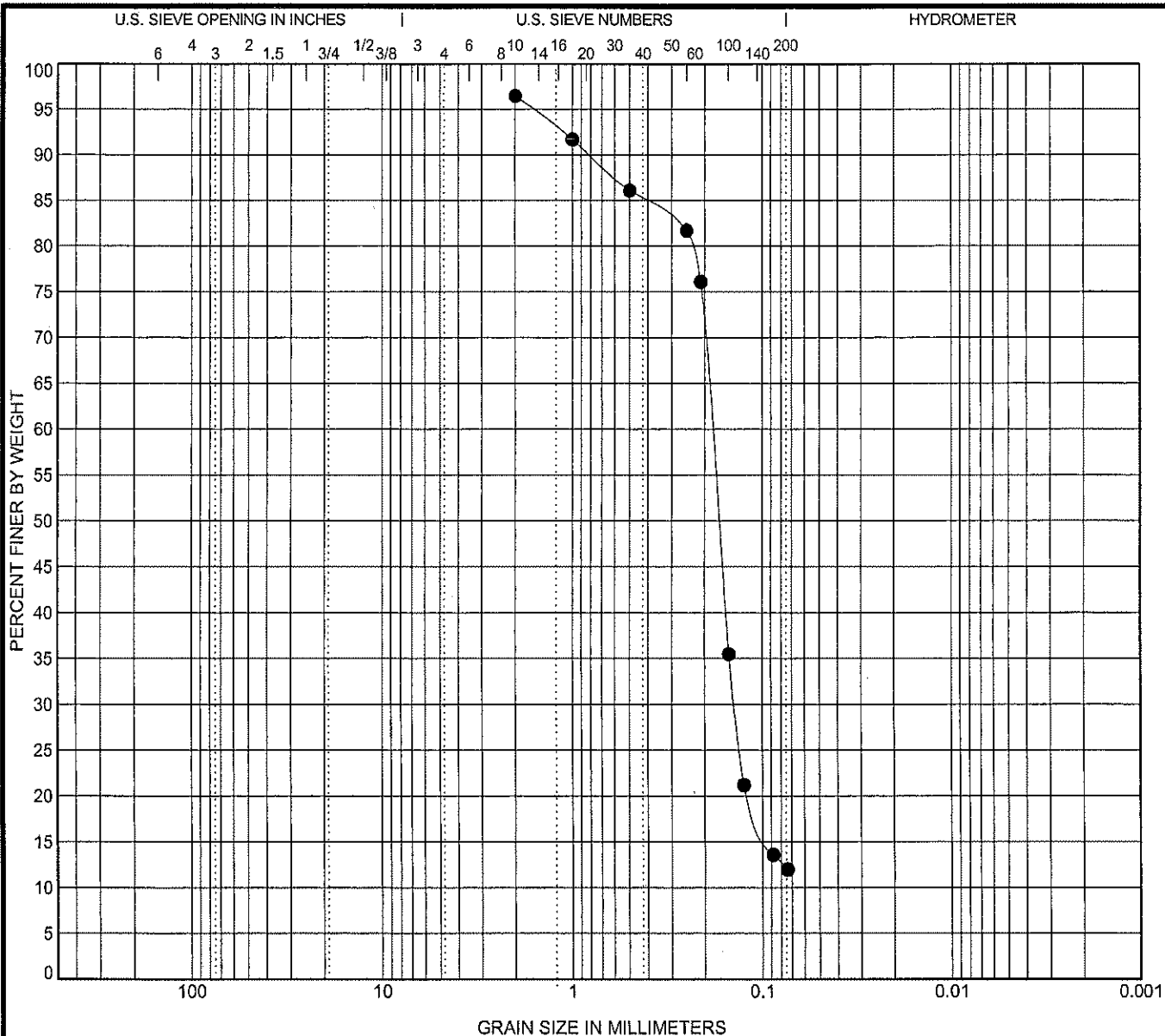
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-37 (-36.52' to -38.52' NAVD)	2	0.192	0.136	0.09	0.0				



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GRAIN SIZE DISTRIBUTION

Project: Galveston Anchorage Area C Sand Source Inv.
Location: Anchorage Area C, Galveston, Texas
Number: G109233



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-37 (-38.52' to -40.52' NAVD)		AA-37 (-38.52' to -40.52' NAVD)				1.78	3.08

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-37 (-38.52' to -40.52' NAVD)		2	0.183	0.139		0.0			



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GRAIN SIZE DISTRIBUTION

Project: Galveston Anchorage Area C Sand Source Inv.
 Location: Anchorage Area C, Galveston, Texas
 Number: G109233



Figure 39: AA-37; Sample 1



Figure 40: AA-37; Sample 2

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

PROP. GALVESTON ANCHORAGE AREA C SAND SOURCE INVESTIGATION
Anchorage Area C, Galveston, Texas

ROCK ENGINEERING AND TESTING LABORATORY, INC.
6817 LEOPARD STREET
CORPUS CHRISTI, TX 78409
(361) 883-4555



Figure 41: AA-37; Sample 3

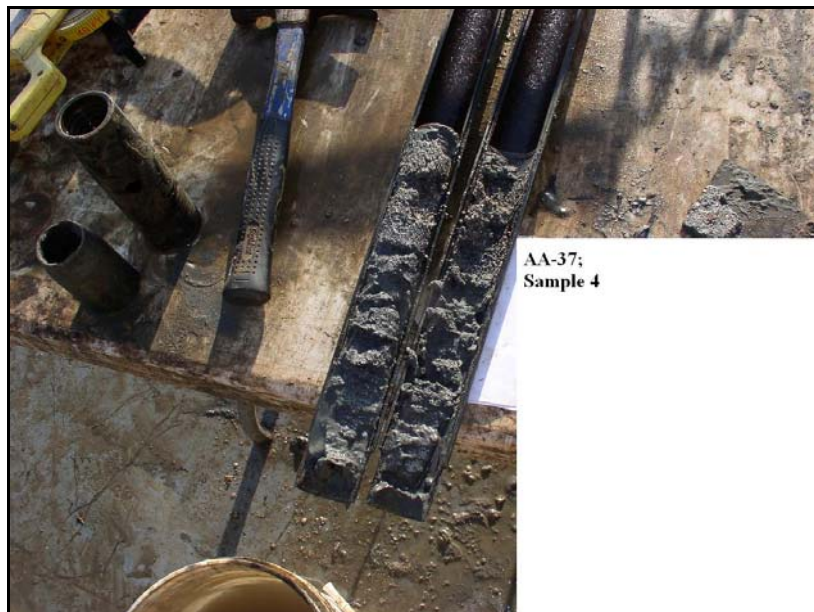


Figure 42: AA-37; Sample 4

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

PROP. GALVESTON ANCHORAGE AREA C SAND SOURCE INVESTIGATION
Anchorage Area C, Galveston, Texas

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