



- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Anchorage Basin Sand Source Investigation

CLIENT: HDR Engineering, Inc.

BORING ID.: AA-08

DESCRIPTION: Anchorage Basin Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-30' to -31' NAVD	-33' to -34' NAVD	-36' to -37' NAVD
25.33	0.46	2.16

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-30' to -31' NAVD	-33' to -34' NAVD	-36' to -37' NAVD
#10	100.00	100.00	100.00
#18	N/A	99.26	96.09
#35	N/A	99.06	94.42
#60	N/A	98.57	91.61
#70	N/A	97.45	82.85
#100	N/A	29.49	46.51
#120	N/A	3.93	33.71
#170	N/A	3.24	24.71
#200	N/A	3.04	22.35
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	N/A	0.17	0.17
MEAN GRAIN SIZE (mm)	N/A	0.17	N/A
SORTING (σ)	N/A	0.21	N/A

*AA-08; -30' to -31' NAVD was only passed through the #10 sieve.

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



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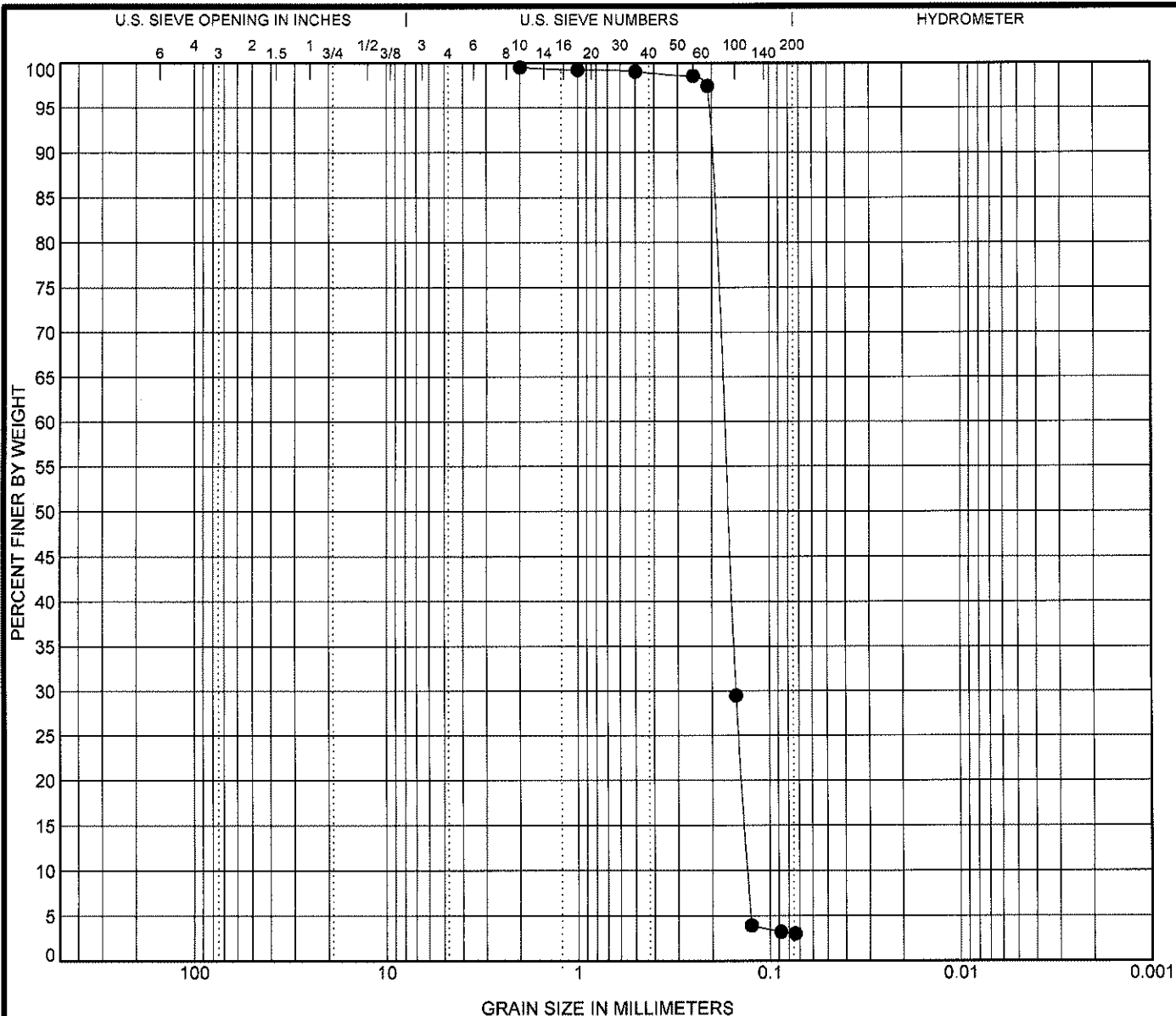
PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-39' to -40' NAVD	-41' to -42' NAVD	-42' to -43' NAVD
0.26	9.39	N/A

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-39' to -40' NAVD	-41' to -42' NAVD	-42' to -43' NAVD
#10	100.00	100.00	N/A
#18	99.48	84.38	N/A
#35	99.26	77.77	N/A
#60	98.58	71.31	N/A
#70	96.95	68.49	N/A
#100	63.89	57.52	N/A
#120	41.45	50.99	N/A
#170	23.82	40.44	N/A
#200	18.72	40.20	75.80
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	0.15	0.13	N/A
MEAN GRAIN SIZE (mm)	N/A	N/A	N/A
SORTING (σ)	N/A	N/A	N/A

*AA-08; -42' to -43' NAVD was only passed through the -#200 sieve.

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

U.S. GRAIN SIZE G109112 PROP. ANCHORAGE BASIN SAND SOURCE GPJ US LAB GDT 4/6/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-08	(-33' to 34' NAVD)	Borrow Area (-33' to -34' NAVD)				0.99	1.33

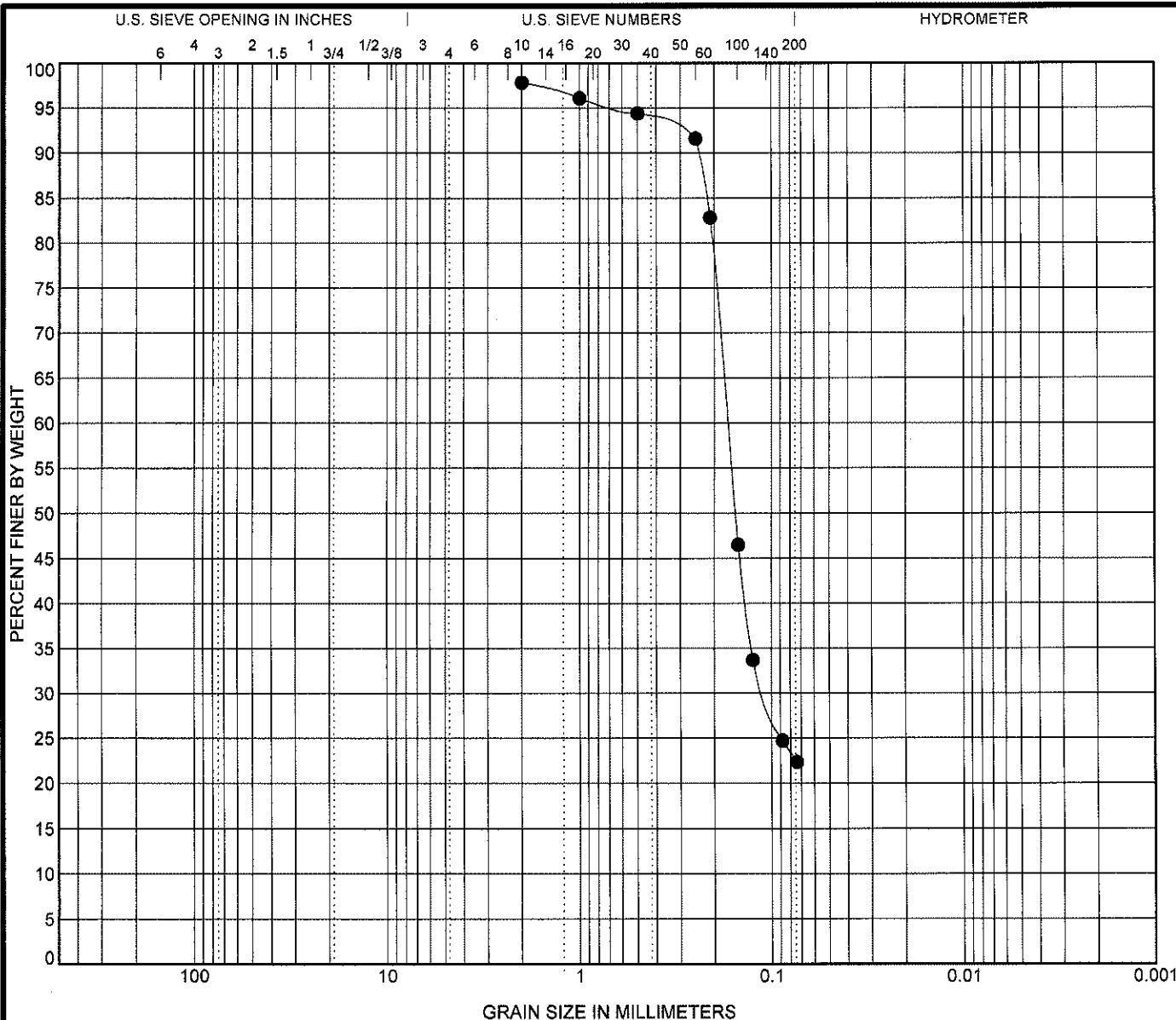
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-08	(-33' to 34' NAVD)	2	0.174	0.149	0.13	0.0			



Rock Engineering & Testing Lab., Inc.
6817 Leopard St.
Corpus Christi, TX 78409
Telephone: (361) 883-4555
Fax: (361) 883-4711

GRAIN SIZE DISTRIBUTION

Project: Anchorage Basin Sand Source Investigation
Location: Anchorage Basin; Galveston, Texas
Number: G109112



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-08 (-36' to -37' NAVD)		Borrow Area (-36' to -37' NAVD)					

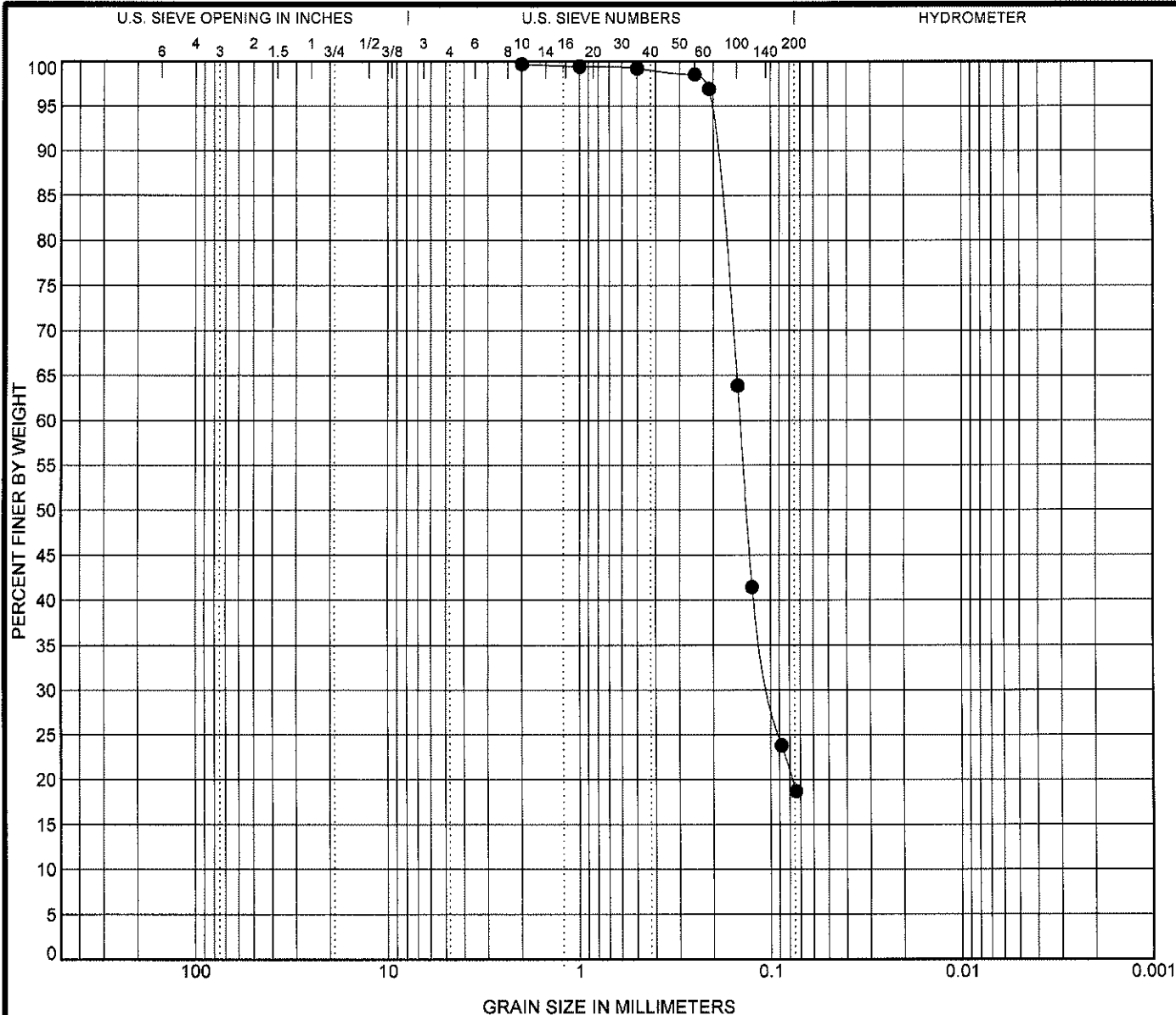
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-08 (-36' to -37' NAVD)		2	0.169	0.108		0.0			



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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-08 (-39' to -40' NAVD)		Borrow Area (-39' to -40' NAVD)					

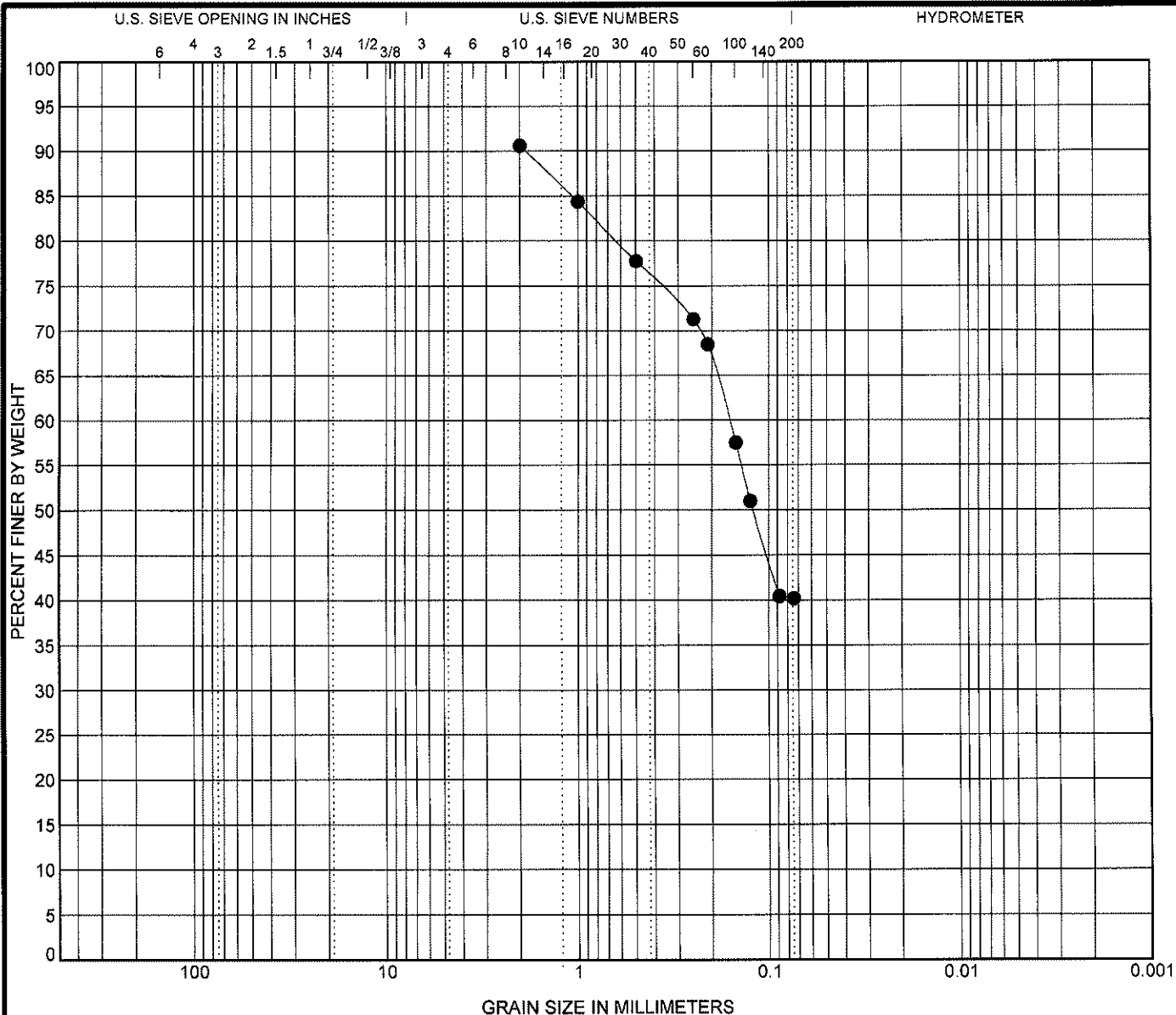
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-08 (-39' to -40' NAVD)		2	0.145	0.1		0.0			



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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-08 (-41' to -42' NAVD)		Borrow Area (-41' to -42' NAVD)					

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-08 (-41' to -42' NAVD)		2	0.161			0.0			



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LOG OF BORING AA-08

SHEET 1 OF 2



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CLIENT: HDR Engineering, Inc.
 PROJECT: Anchorage Basin Sand Source Investigation
 LOCATION: Anchorage Basin; Galveston, Texas
 NUMBER: G109112

DATE(S) DRILLED: 03/13/09 - 03/13/09

DRILLING METHOD(S):

Vibracore

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -30' NAVD

DESCRIPTION OF STRATUM

SOIL SYMBOL	FIELD DATA				LABORATORY DATA						
	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	COMPRESSION STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)
						LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI			
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										
	31	S-1									
	32	S-2									
	33	S-3									
	34	S-4									3
	35	S-5									
	36	S-6									
	37	S-7									22
	38	S-8									
	39	S-9									
	40	S-10									19

POORLY GRADED SAND, with shell fragments, gray.

Same as above.

Same as above.

POORLY GRADED SAND, gray.

SILTY CLAYEY SAND, gray.

Same as above.

Same as above.

SILTY CLAYEY SAND, gray.

Same as above.

Same as above.

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 Ocean Surveys, Inc.
 GPS Coord. N. 13,698,396' E. 3,317,267'

LOG OF BORING G109112 PROP. ANCHORAGE BASIN SAND SOURCE.GPJ ROCK ETL GDT 4/28/09

LOG OF BORING AA-08

SHEET 2 OF 2



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DRILLING METHOD(S):

Vibracore

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -30' NAVD

DESCRIPTION OF STRATUM

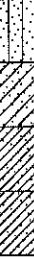
SILTY CLAYEY SAND, gray.CLAYEY SAND, gray.SANDY CLAY, gray.

Same as above.

Boring was extended to an elevation of -44-feet NAVD during the drilling operations.

FIELD DATA

LABORATORY DATA

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 (%)
							LL	PL	PI			
	41	S-11										
	42	S-12										40
	43	S-13										76
	44	S-14										

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

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