



- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Anchorage Basin Sand Source Investigation

CLIENT: HDR Engineering, Inc.

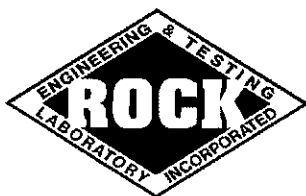
BORING ID.: AA-05

DESCRIPTION: Anchorage Basin Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)			
-26' to -27' NAVD	-29' to -30' NAVD	-31' to -32' NAVD	-33' to -34' NAVD
0.55	0.08	21.02	1.80

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL			
	-26' to -27' NAVD	-29' to -30' NAVD	-31' to -32' NAVD	-33' to -34' NAVD
#10	100.00	100.00	100.00	100.00
#18	99.20	99.08	72.95	97.61
#35	98.78	98.90	68.22	97.17
#60	97.73	98.25	59.44	95.81
#70	97.22	96.82	50.66	91.97
#100	95.31	88.63	35.28	58.85
#120	90.80	82.13	30.27	43.31
#170	80.06	72.82	24.22	35.42
#200	78.39	68.80	21.15	33.98
STATISTICS (EXCLUDING SHELL)				
MEDIAN GRAIN SIZE (mm)	N/A	N/A	0.21	0.15
MEAN GRAIN SIZE (mm)	N/A	N/A	N/A	N/A
SORTING (σ)	N/A	N/A	N/A	N/A

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



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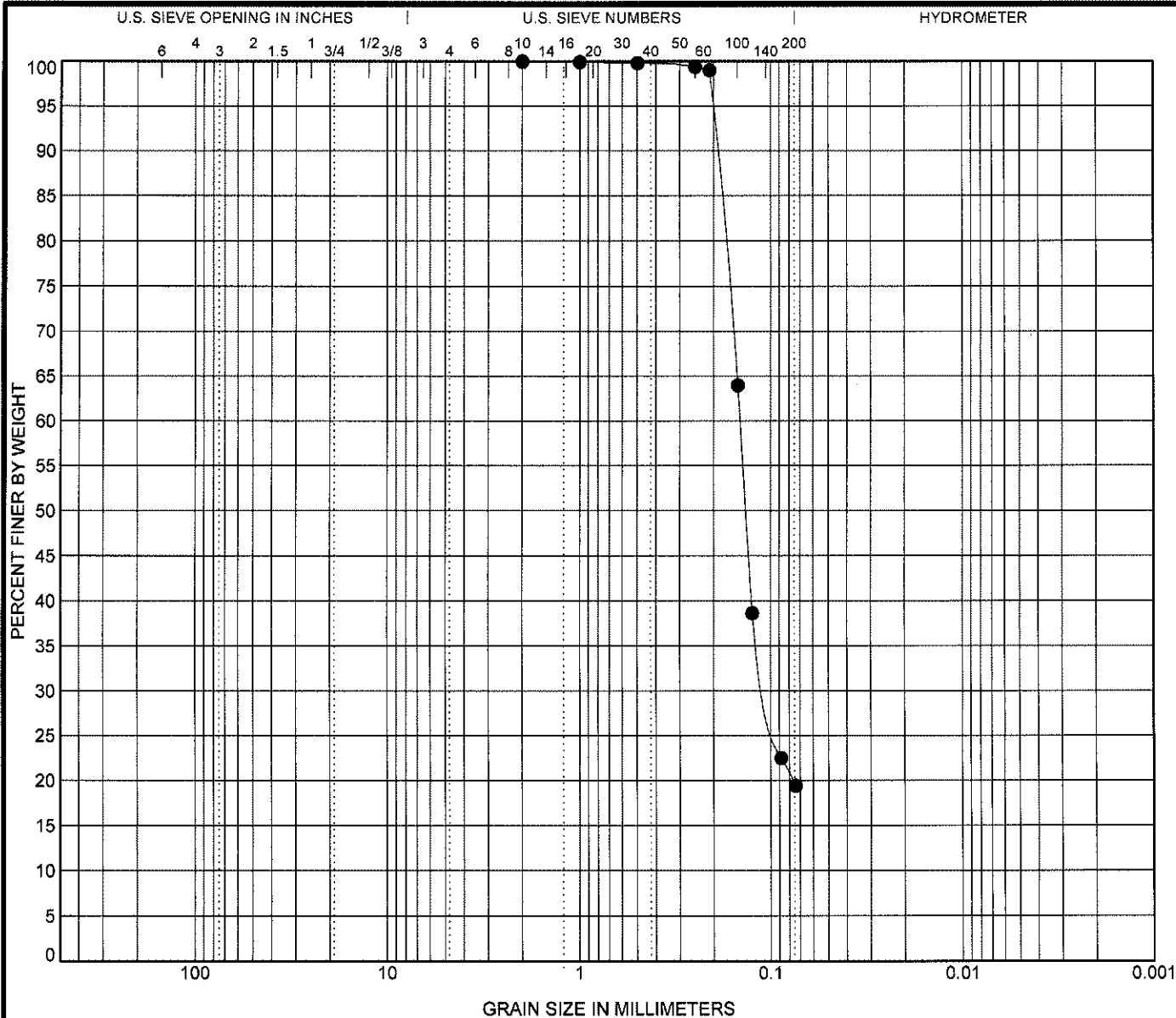
BORING ID.: AA-05

DESCRIPTION: Anchorage Basin Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-36' to -37' NAVD	-39' to -40' NAVD	-42' to -46' NAVD
0.18	0.02	0.00

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-36' to -37' NAVD	-39' to -40' NAVD	-42' to -46' NAVD
#10	100.00	100.00	100.00
#18	99.53	99.86	99.93
#35	99.32	99.78	99.81
#60	98.96	99.52	99.40
#70	98.08	99.11	99.01
#100	70.84	49.48	63.99
#120	55.44	28.71	38.64
#170	47.06	15.69	22.51
#200	45.45	14.24	19.41
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	0.11	0.16	0.15
MEAN GRAIN SIZE (mm)	N/A	0.14	N/A
SORTING (σ)	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-05 (-42' to -46' NAVD)		Borrow Area (-42' to -46' NAVD)					

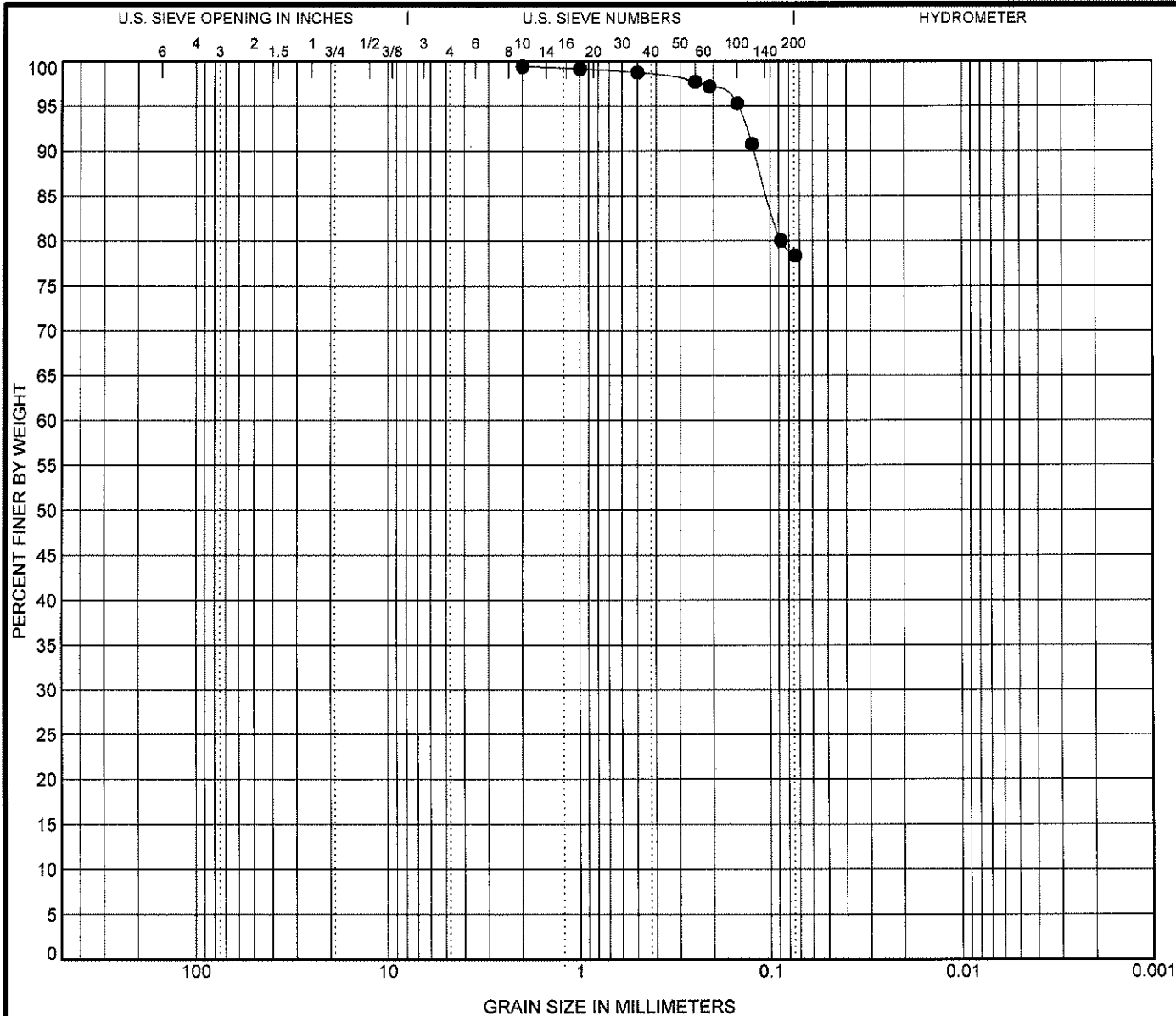
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-05 (-42' to -46' NAVD)		2	0.145	0.104		0.0			

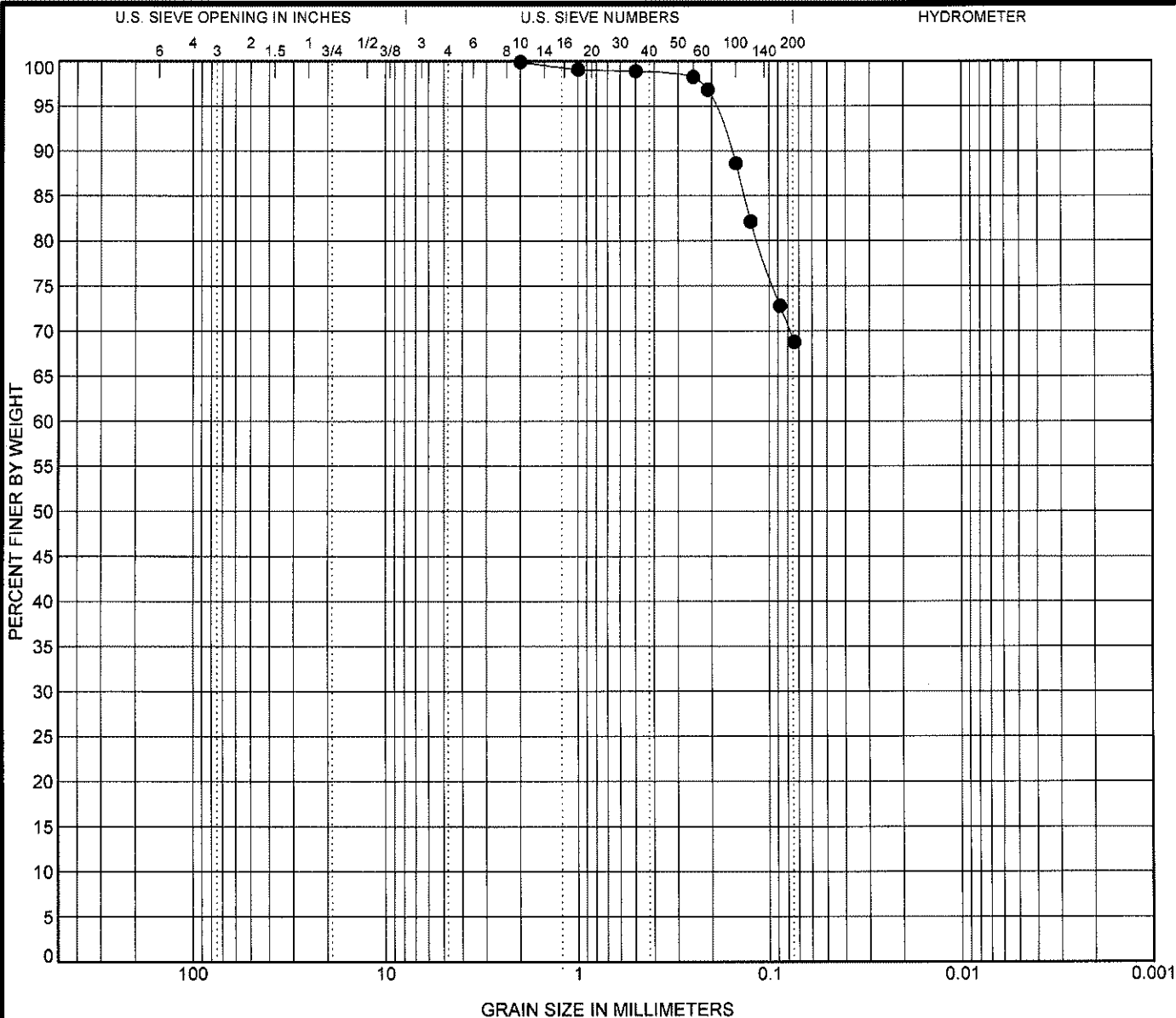


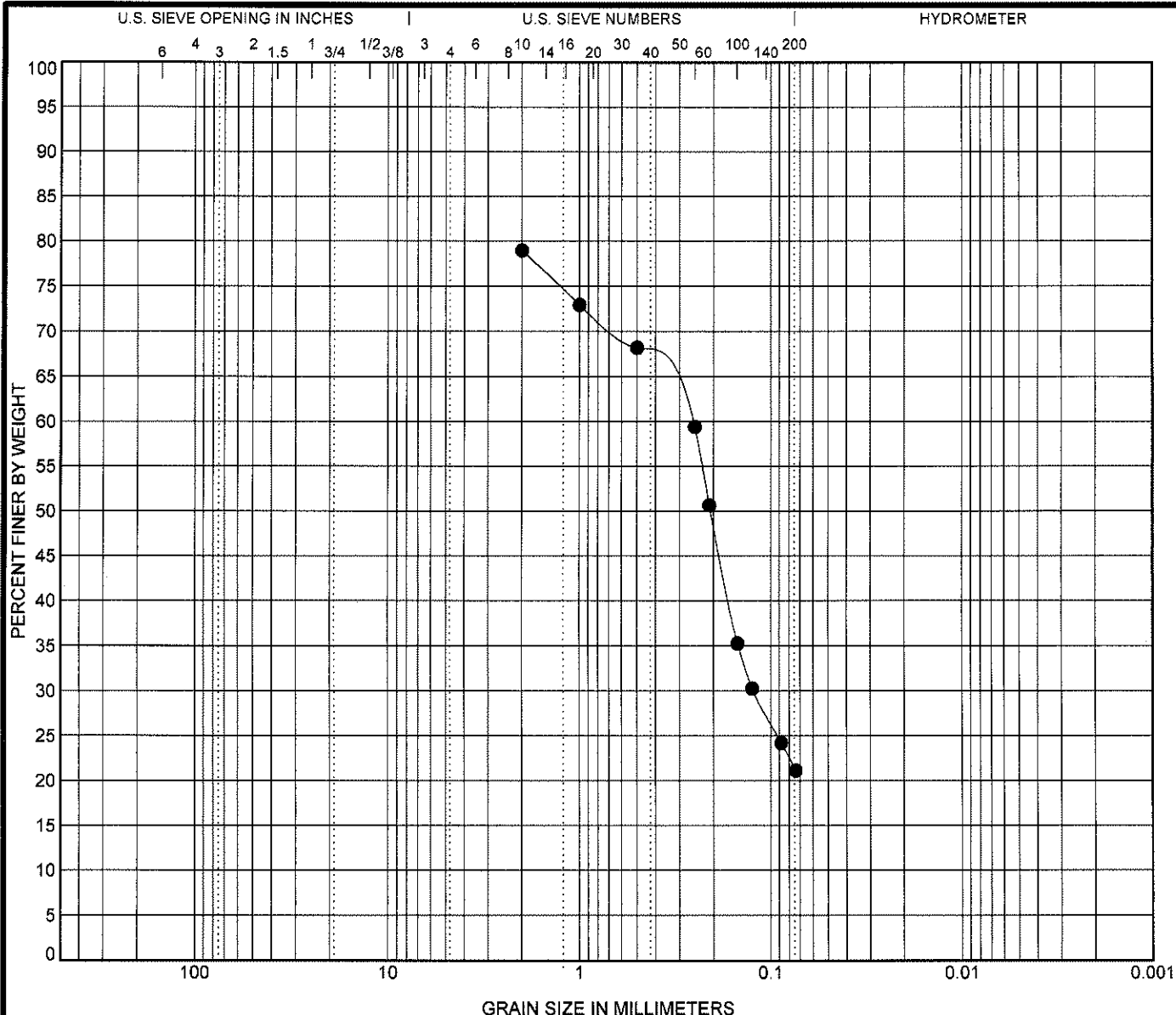
Rock Engineering & Testing Lab., Inc.
6817 Leopard St.
Corpus Christi, TX 78409
Telephone: (361) 883-4555
Fax: (361) 883-4711

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-05 (-31' to -32' NAVD)		Borrow Area (-31' to -32' NAVD)					

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-05 (-31' to -32' NAVD)		2	0.261	0.123		0.0			

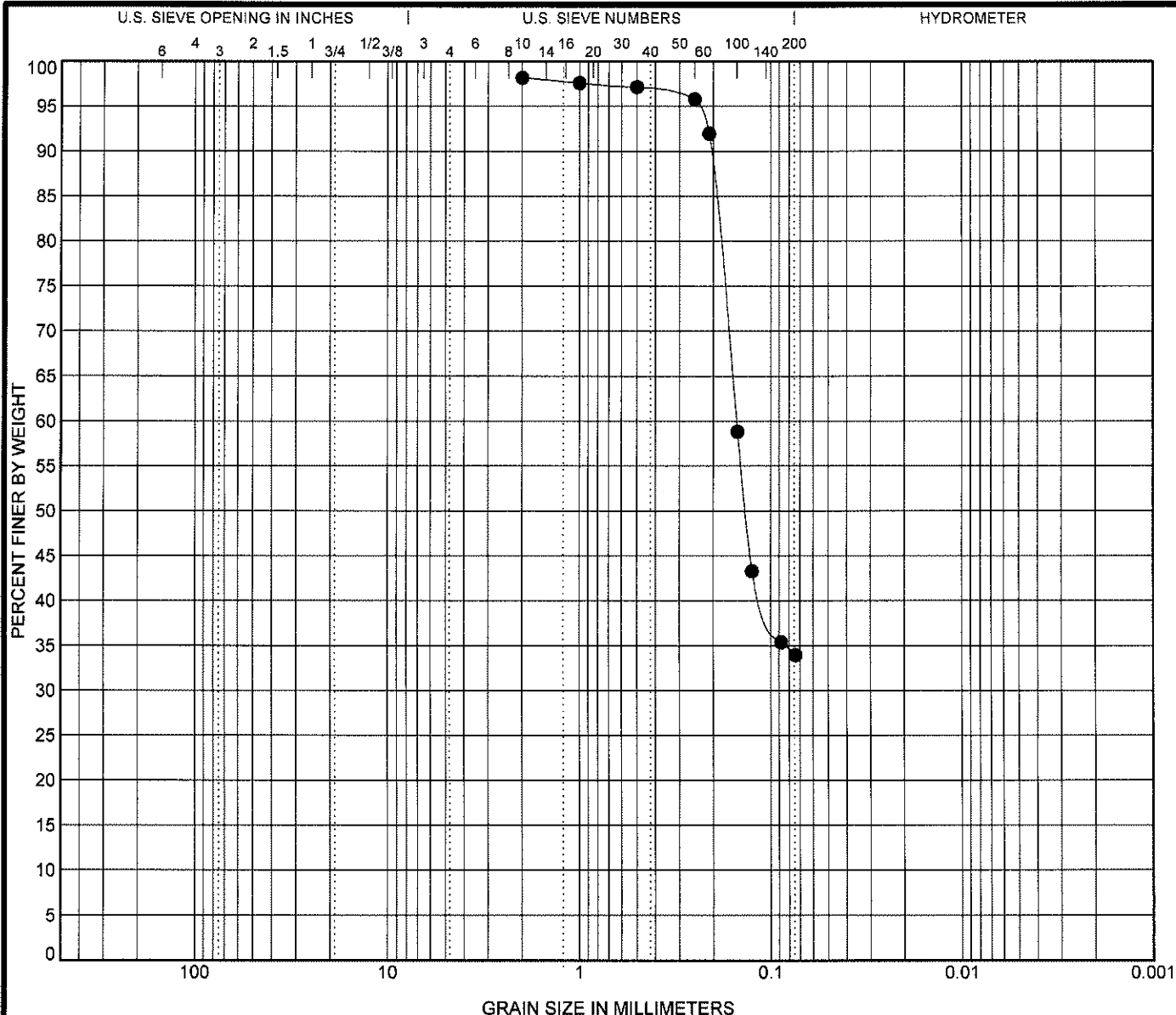


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GRAIN SIZE DISTRIBUTION

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

US 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-05	(-33' to -34' NAVD)	Borrow Area (-33' to -34' NAVD)					

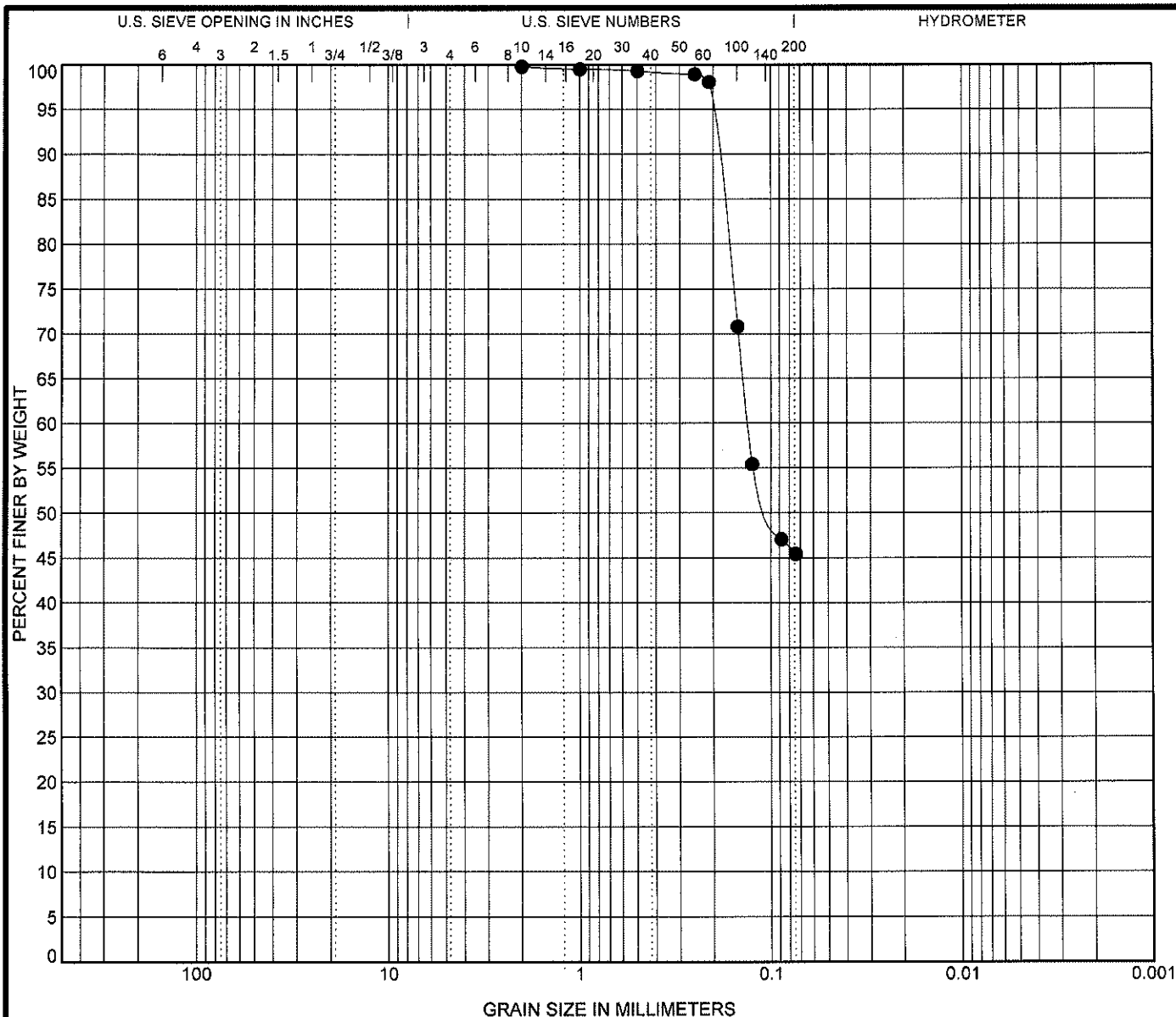
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-05	(-33' to -34' NAVD)	2	0.151			0.0			

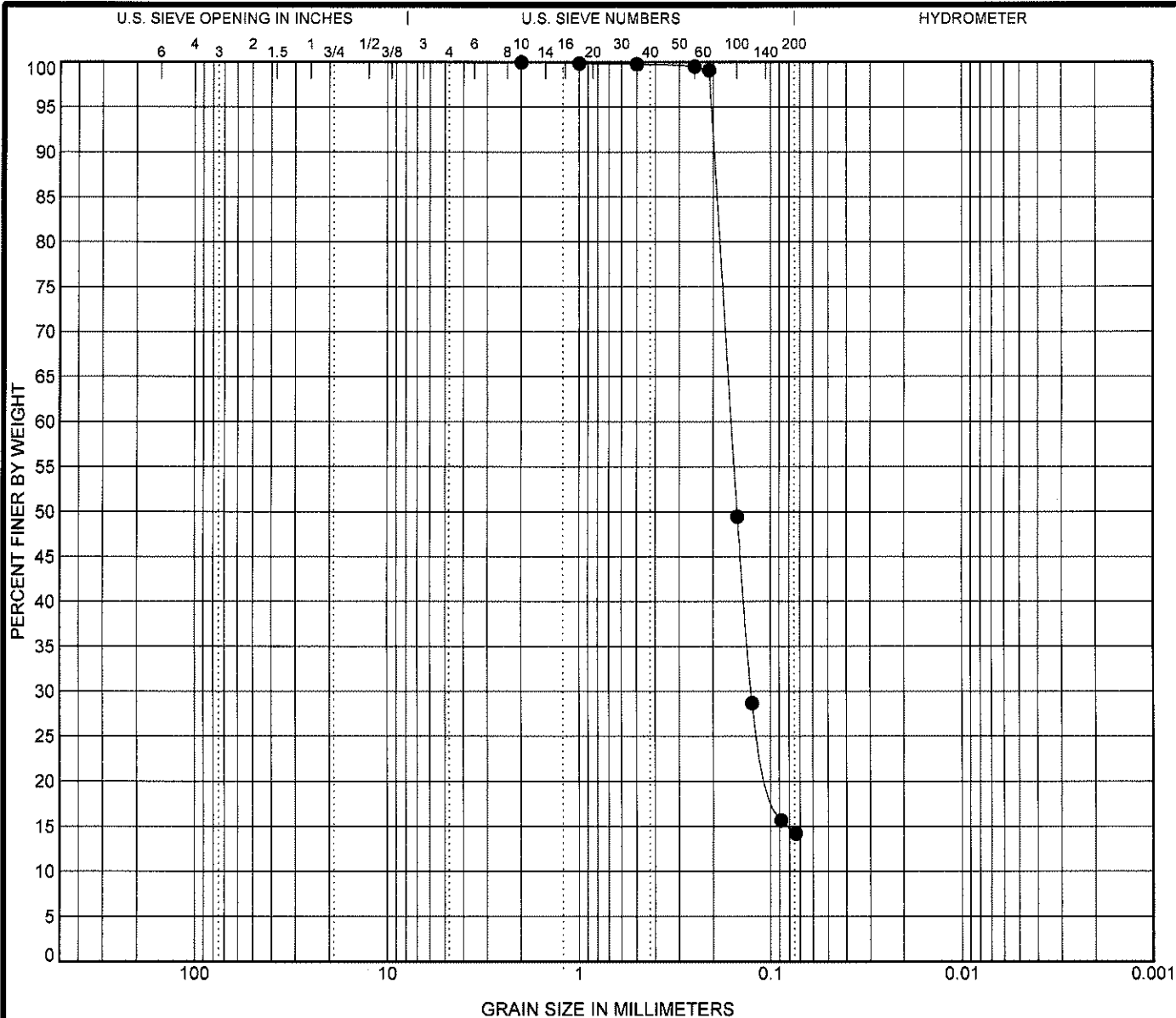


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GRAIN SIZE DISTRIBUTION

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





LOG OF BORING AA-05

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: 03/12/09 - 03/12/09

DRILLING METHOD(S):

Vibracore

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -26' 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	S-1									78
	28	S-2									
	29	S-3									
	30	S-4									69
	31	S-5									
	32	S-6									21
	33	S-7									
	34	S-8									34
	35	S-9									
	36	S-10									
	37	S-11									46
	38	S-12									
	39	S-13									
	40	S-14									14

SANDY CLAY, gray.

Same as above.

Same as above.

SANDY CLAY, gray.

Same as above.

SILTY CLAYEY SAND, with shell fragments, gray.

CLAYEY SAND, gray.

Same as above.

Same as above.

CLAYEY SAND, gray.

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. 13,700,293' E. 3,317,717'

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

LOG OF BORING AA-05

SHEET 2 OF 2



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PROJECT: Anchorage Basin Sand Source Investigation

LOCATION: Anchorage Basin; Galveston, Texas

NUMBER: G109112

DATE(S) DRILLED: 03/12/09 - 03/12/09

DRILLING METHOD(S):

Vibracore

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -26' NAVD

DESCRIPTION OF STRATUM

SILTY CLAYEY SAND, gray.

Same as above.

Same as above.

Boring was extended to an elevation of -46-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 Ocean Surveys, Inc.
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