

SHEET 1 of 1



Rock Engineering & Testing Lab., Inc.
6817 Leopard St.
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: 10/16/09 - 10/16/09

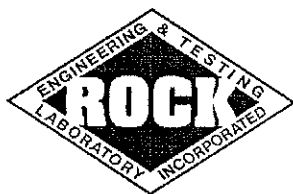
DRILLING METHOD(S):
Hollow Stem Auger

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -13.60' NAVD

DESCRIPTION OF STRATUM

SOIL SYMBOL	FIELD DATA				LABORATORY DATA							DRILLING METHOD(S): Hollow Stem Auger	
	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 LIQUID LIMIT	PL PLASTIC LIMIT	PI PLASTICITY INDEX				SURFACE ELEVATION: -13.60' NAVD	
												DESCRIPTION OF STRATUM	
	5												
	10												
	15	SS S-1	N= 0								31	CLAYEY SAND, with shell fragments, dark gray, very soft.	
		SS S-2	-									NO RECOVERY	
	20	SS S-3	N= 1								14	SILTY CLAYEY SAND, with shell fragments, gray, very loose. Same as above, bluish gray.	
		SS S-4	N= 3									Same as above.	
		SS S-5	N= 2									SILTY CLAYEY SAND, bluish gray, loose.	
	25	SS S-6	N= 5								18	Same as above.	
		SS S-7	N= 8									POORLY GRADED SAND, with shell fragments, gray, loose.	
		SS S-8	N= 6								1	Same as above.	
	30	SS S-9	N= 4									SILTY CLAYEY SAND, with shell fragments, dark gray, very loose.	
		SS S-10	N= 3								24	POORLY GRADED SAND, with clay and shell fragments, gray, loose.	
	35	SS S-11	N= 4								7	Boring was extended to an elevation of -35.6-feet NAVD during the drilling operations.	
												REMARKS: Boring depth and location was determined by HDR Engineering, Inc. Boring operations were performed by RETL at GPS Coord. N. 29.35603 W. 94.77663.	



- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Galveston Anchorage Area C Sand Source Investigation

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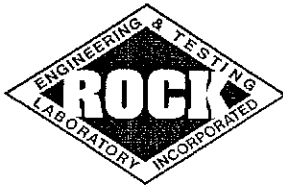
BORING ID.: AA-45

DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-13.60' to -15.60' NAVD	-19.60' to -21.60' NAVD	-23.60' to -25.60' NAVD
17.12	1.98	6.34

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-13.60' to -15.60' NAVD	-19.60' to -21.60' NAVD	-23.60' to -25.60' NAVD
#10	100.00	100.00	100.00
#18	70.92	96.75	89.45
#35	64.53	96.04	87.00
#60	62.19	95.51	85.61
#70	61.05	94.91	84.04
#100	51.35	84.05	67.90
#120	43.83	54.77	45.27
#170	36.36	24.62	26.18
#200	31.08	13.76	17.47
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	0.14	0.12	0.13
MEAN GRAIN SIZE (mm)	N/A	0.12	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.



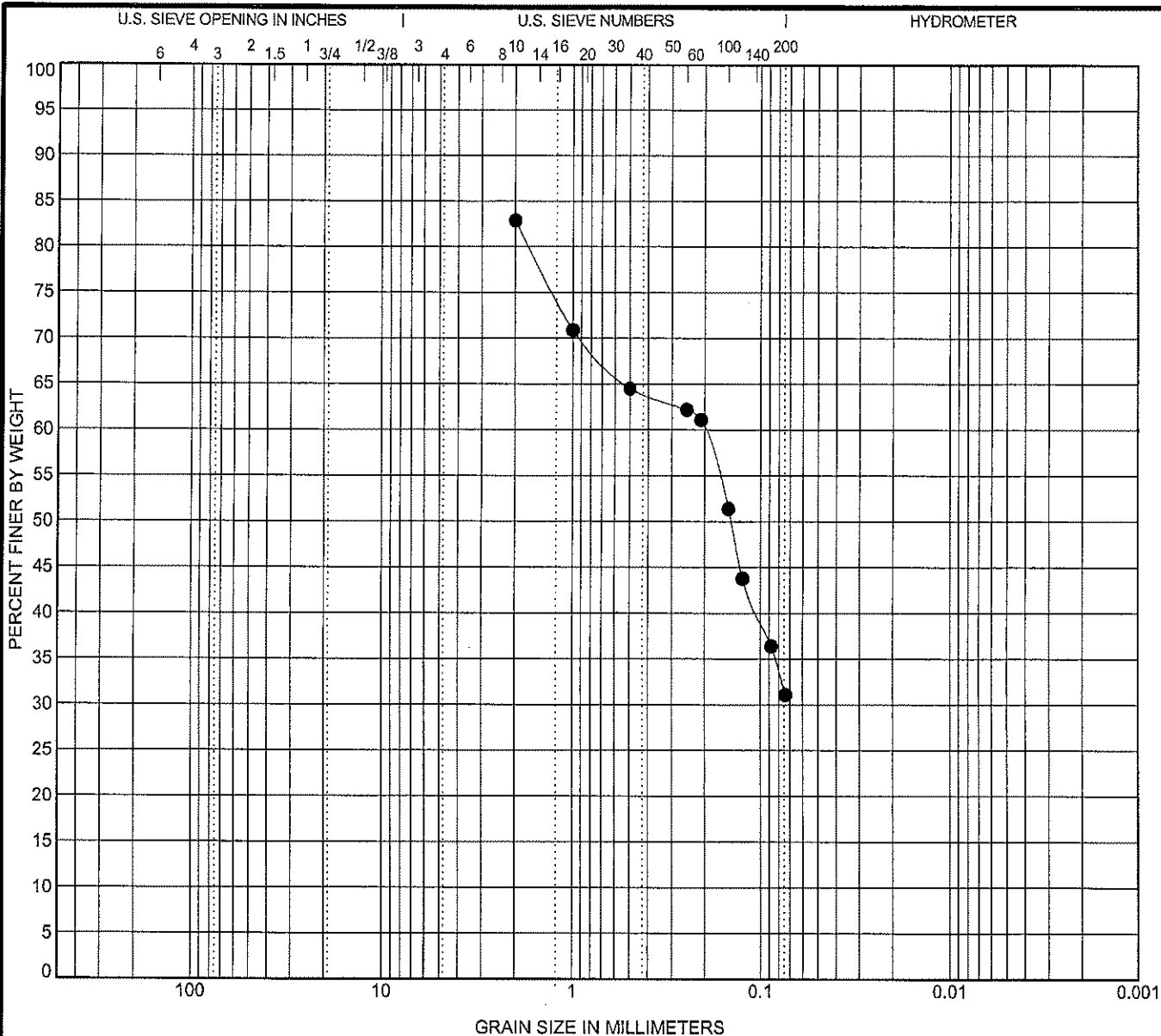
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PROJECT NAME: Galveston Anchorage Area C Sand Source Investigation
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BORING ID.: AA-45
DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-27.60' to -29.60' NAVD	-31.60' to -33.60' NAVD	-33.60' to -35.60' NAVD
0.14	14.53	14.23

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-27.60' to -29.60' NAVD	-31.60' to -33.60' NAVD	-33.60' to -35.60' NAVD
#10	100.00	100.00	100.00
#18	99.60	74.18	71.11
#35	99.30	64.54	56.43
#60	98.90	60.08	47.66
#70	98.00	58.16	45.02
#100	70.60	45.43	31.11
#120	37.50	34.31	18.95
#170	10.10	25.86	8.84
#200	0.90	23.67	6.50
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	0.14	0.18	0.30
MEAN GRAIN SIZE (mm)	0.14	N/A	0.41
SORTING (σ)	0.38	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-45	(-13.60' to -15.60' NAVD)	AA-45 (-13.60' to -15.60' NAVD)					

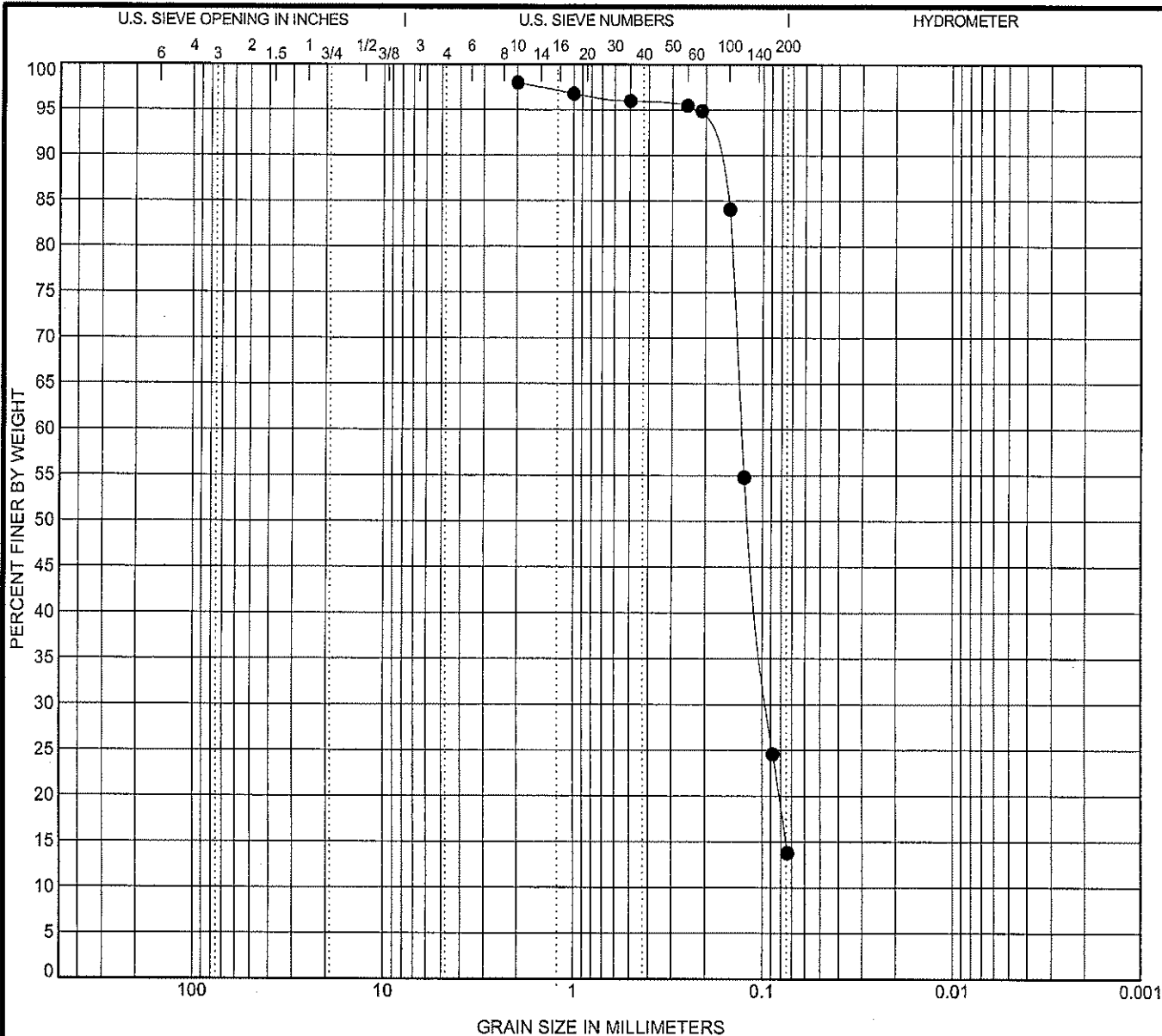
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-45	(-13.60' to -15.60' NAVD)	2	0.202			0.0			



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GRAIN SIZE DISTRIBUTION

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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-45 (-19.60' to -21.60' NAVD)		AA-45 (-19.60' to -21.60' NAVD)					

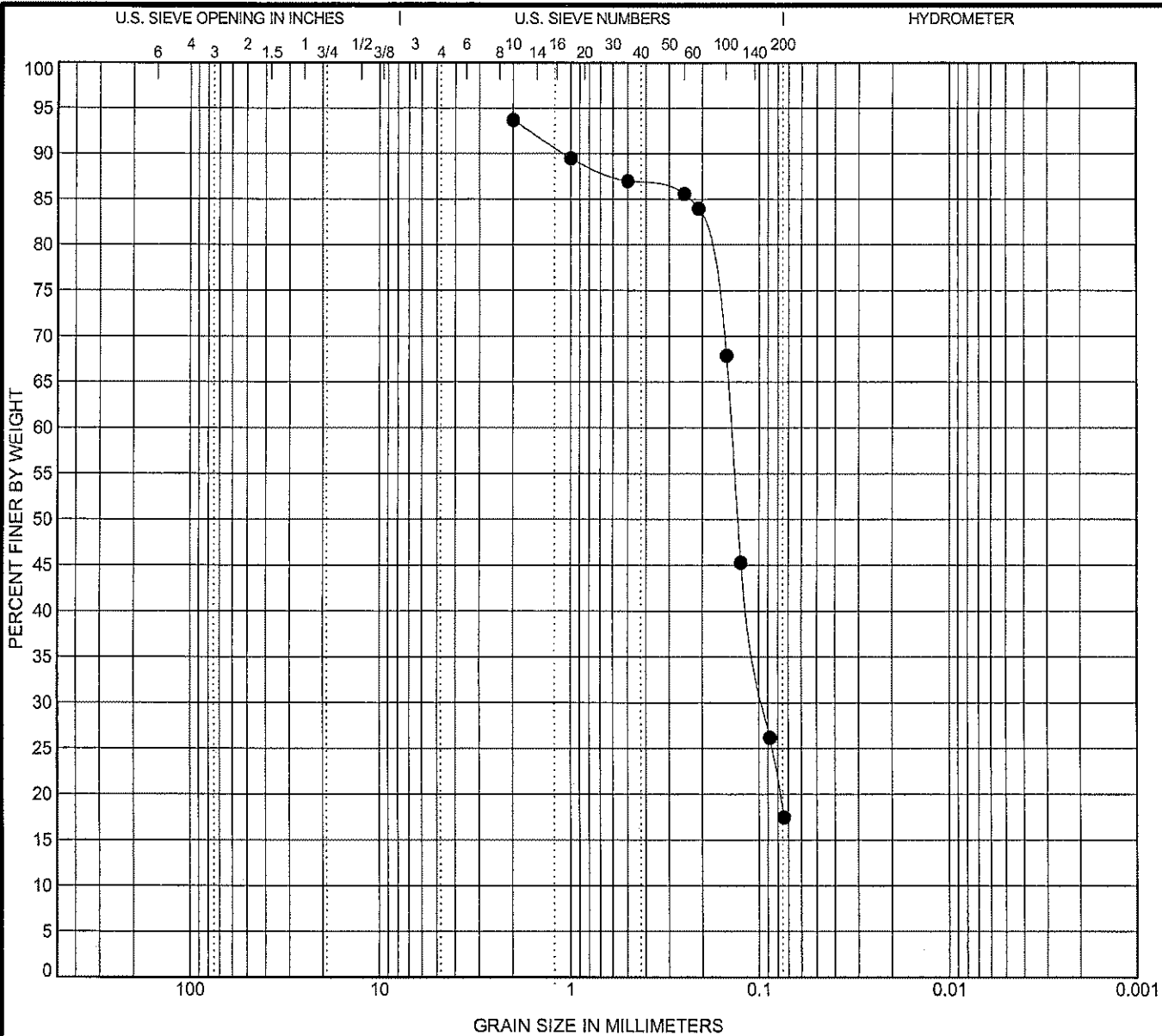
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-45 (-19.60' to -21.60' NAVD)		2	0.129	0.094		0.0			



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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-45 (-23.60' to -25.60' NAVD)		AA-45 (-23.60' to -25.60' NAVD)					

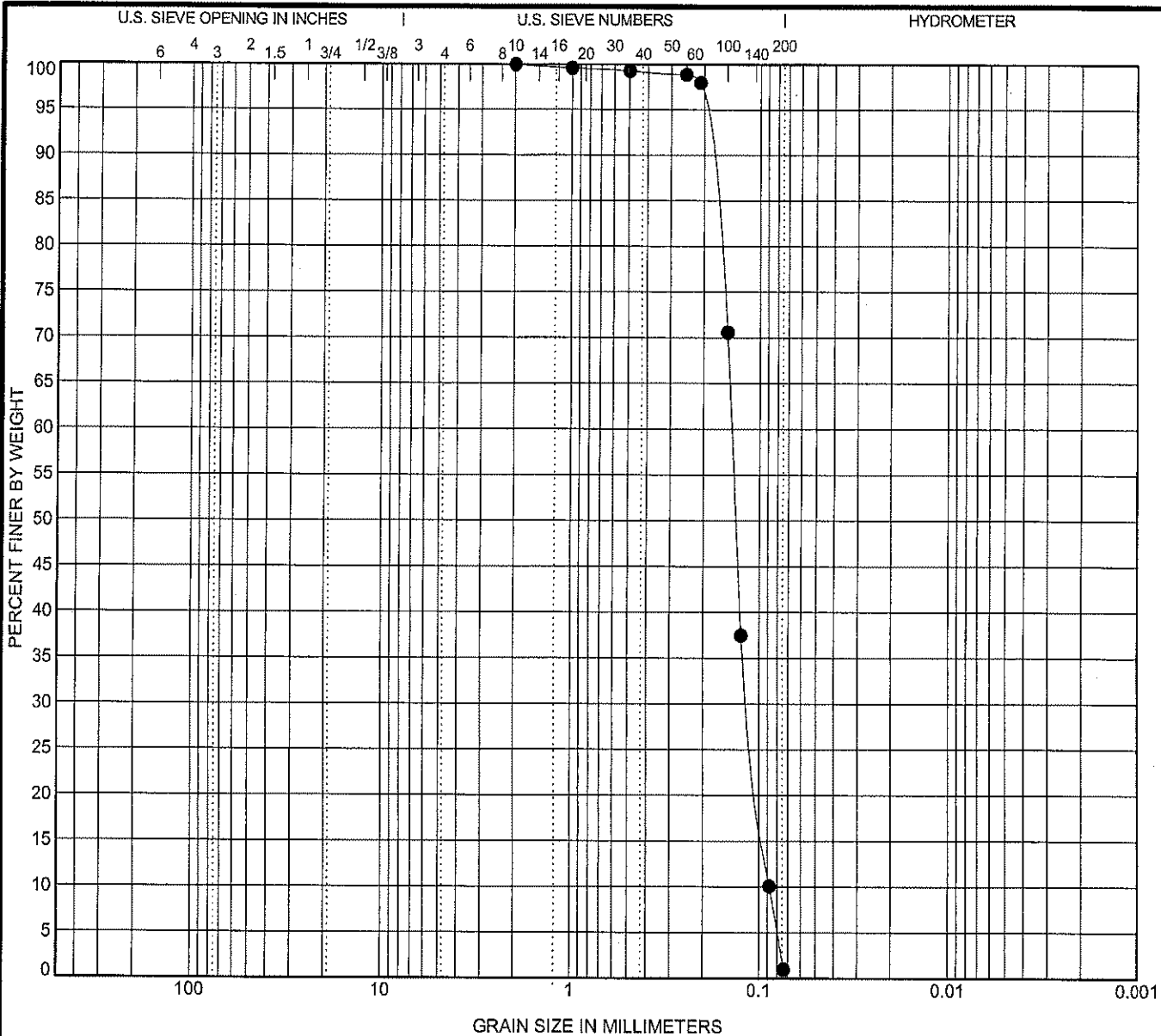
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-45 (-23.60' to -25.60' NAVD)		2	0.14	0.094		0.0			



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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-45	(-27.60' to -29.60' NAVD)	AA-45 (-27.60' to -29.60' NAVD)				1.04	1.60

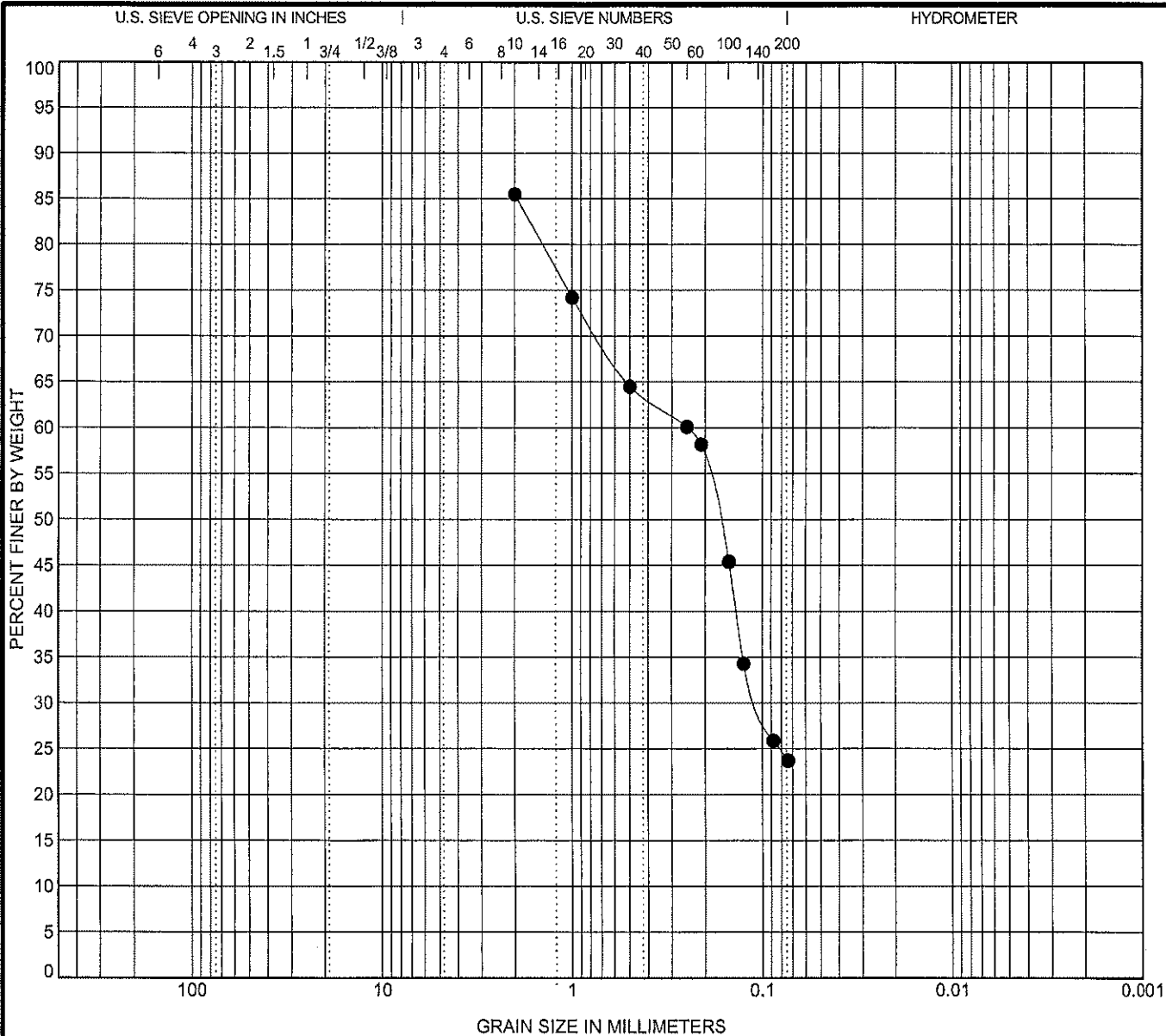
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-45	(-27.60' to -29.60' NAVD)	2	0.141	0.114	0.088	0.0			



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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-45 (-31.60' to -33.60' NAVD)		AA-45 (-31.60' to -33.60' NAVD)					

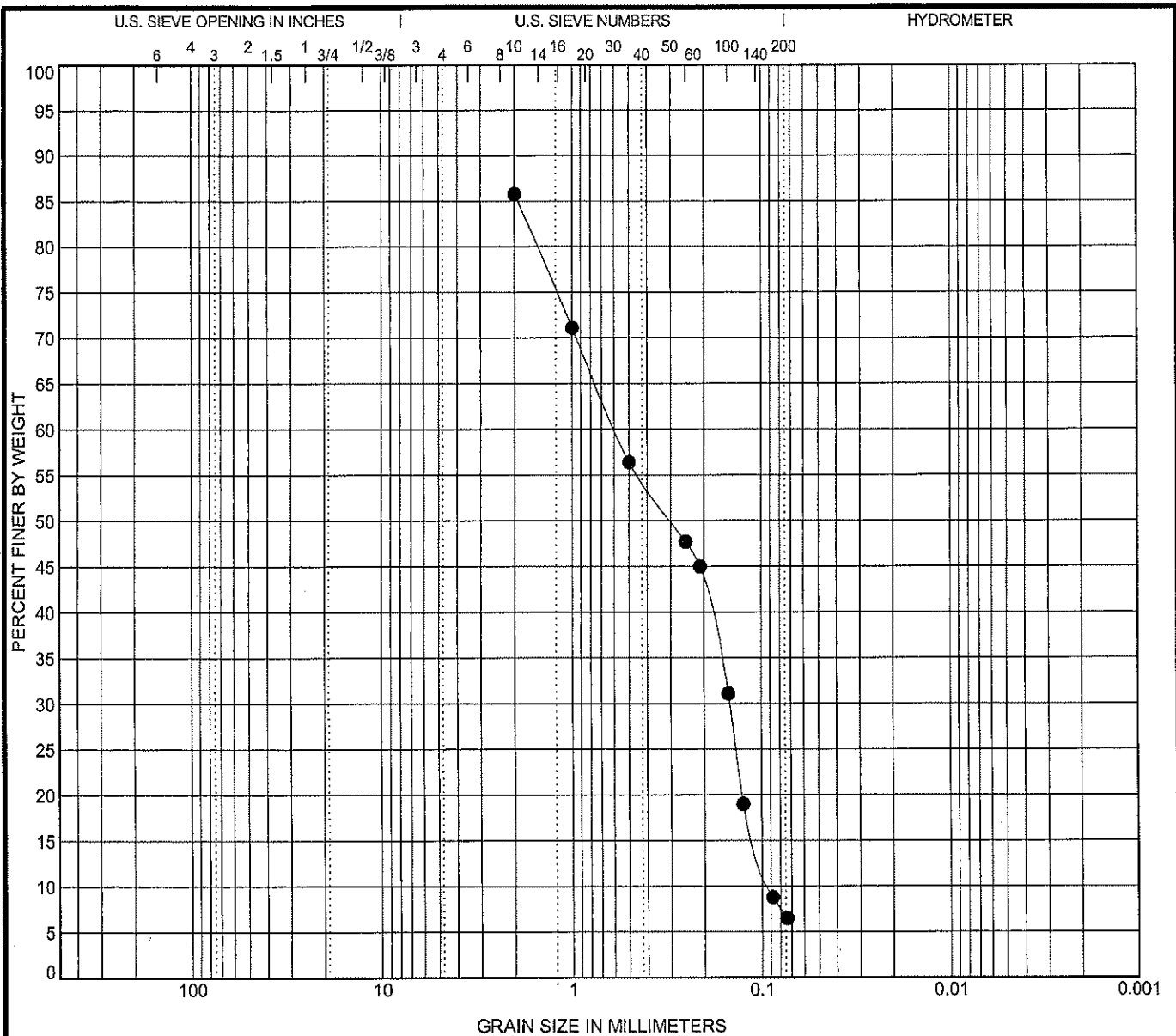
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-45 (-31.60' to -33.60' NAVD)		2	0.248	0.104		0.0			



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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-45 (-33.60' to -35.60' NAVD)		AA-45 (-33.60' to -35.60' NAVD)				0.40	6.46

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-45 (-33.60' to -35.60' NAVD)		2	0.593	0.147	0.092	0.0			



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US GRAIN SIZE G109233 ANCHORAGE BASIN C.GPJ US LAB.GDT 12/1/09