LOG OF BORING C-05

Rock Engineering & Testing Lab., Inc.
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Telephone: (361) 883-4555
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CLIENT: HDR, Inc.
PROJECT: Prop. Large Scale Beach Nourishment Project
LOCATION: S. Jetty Borrow Source Area; Galveston, TX
NUMBER: G108558
DATE(S) DRILLED: 08/01/08 - 08/01/08

DRILLING METHOD(S):
Hollow Stem Auger

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -7.8' NAVD

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: LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
	5											
		SS S-1		N= 4	25						5	**POORLY GRADED SAND**, with clay and shell, dark gray, moist, loose.
	10	SS S-2		N= 11								Same as above, medium.
		SS S-3		N= 12	26						5	Same as above, gray.
	15	SS S-4		N= 25								**POORLY GRADED SAND**, with clay and shell, gray, moist, medium.
		SS S-5		N= 21	25						5	Same as above.
		SS S-6		N= 19								Same as above, dark gray.
	20	SS S-7		N= 5								**POORLY GRADED SAND**, with clay and shell, dark gray, moist, loose.
		SS S-8		N= 5	32						24	**SILTY CLAYEY SAND**, with shell, dark gray, very moist, loose.
	25	SS S-9		N= WOH	59						78	**SANDY CLAY**, with shell, dark gray, very moist, very soft.
		SS S-10		N= WOH								Same as above.
		SS S-11		N= 6								Same as above, firm.
	30	SS S-12		N= 3								**CLAYEY SAND**, with shell, gray, moist, soft.
		SS S-13		N= 3	29						36	Same as above.
												Boring was extended to an elevation of -33.8-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, Inc. Boring operations were performed by RETL.
GPS Coord. N. 29.33645 W. 94.72380

· Geotechnical Engineering
· Construction Materials Testing

PROJECT NAME: West Galveston Island Large Scale Beach Nourishment Project
CLIENT: HDR, Inc.
BORING ID.: C-05
DESCRIPTION: South Jetty Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)			
-7.8' TO -9.8' NAVD	-11.8' TO -13.8' NAVD	-15.8' TO -17.8' NAVD	-21.8' TO -23.8' NAVD
1.58	**0.86**	**0.56**	**1.20**

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL			
	-7.8' TO -9.8' NAVD	-11.8' TO -13.8' NAVD	-15.8' TO -17.8' NAVD	-21.8' TO -23.8' NAVD
#10	100.00	100.00	100.00	100.00
#18	98.16	99.15	99.34	99.10
#35	96.52	98.47	98.92	98.35
#60	94.76	97.39	98.38	72.61
#70	93.55	95.51	97.34	N/A
#100	74.24	55.73	77.21	N/A
#120	18.46	14.58	18.63	27.93
#170	6.74	6.22	6.76	24.77
#200	5.42	5.24	5.16	24.19
STATISTICS (EXCLUDING SHELL)				
MEDIAN GRAIN SIZE (mm)	0.15	0.16	0.15	0.19
MEAN GRAIN SIZE (mm)	0.15	0.16	0.15	N/A
SORTING (σ)	0.37	0.35	0.30	N/A

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

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BORING ID.: C-05
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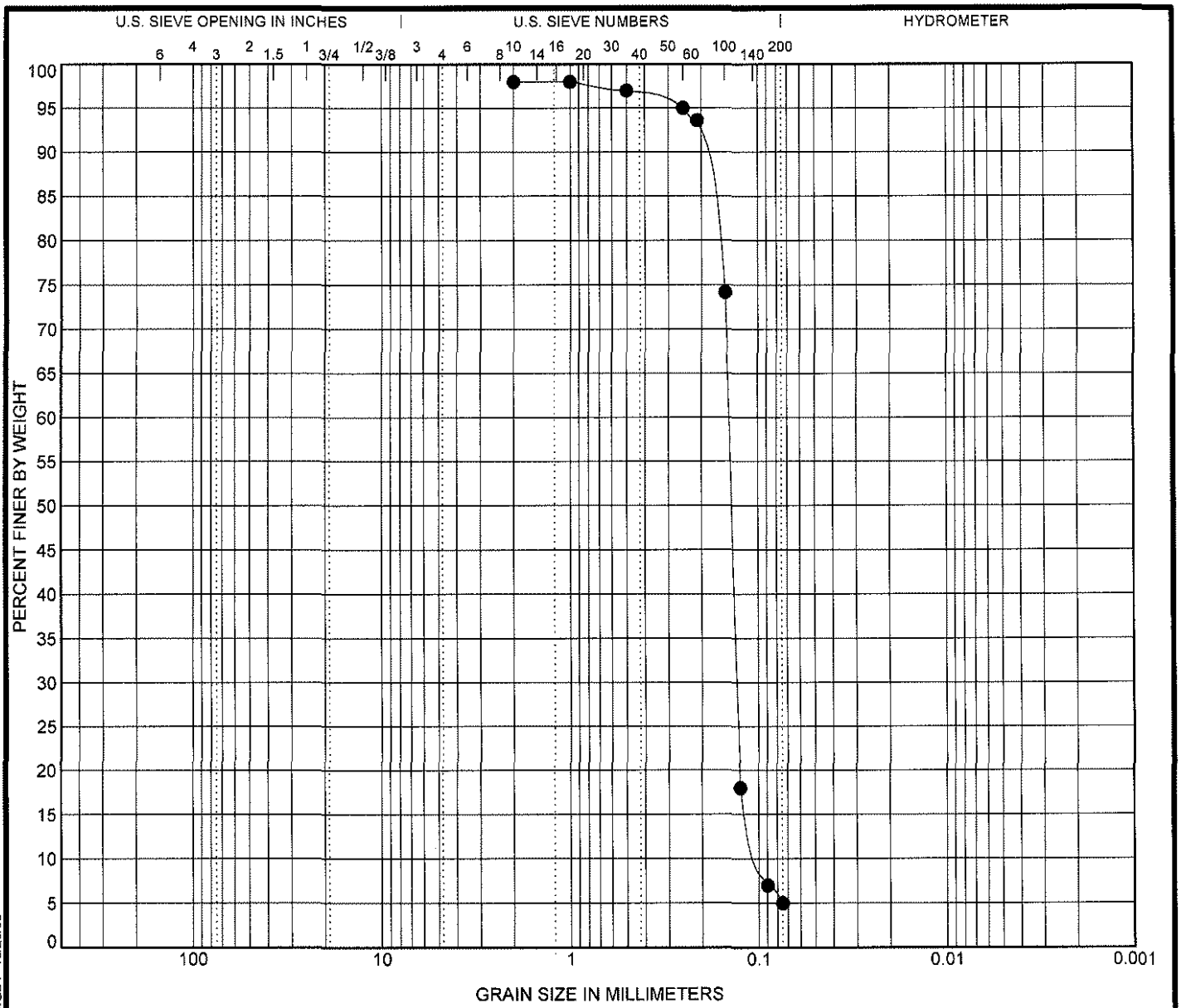
PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)	
-23.8' TO -25.8' NAVD	-31.8' TO -33.8' NAVD
N/A	N/A

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL	
	-23.8' TO -25.8' NAVD	-31.8' TO -33.8' NAVD
#10	N/A	N/A
#18	N/A	N/A
#35	N/A	N/A
#60	N/A	N/A
#120	N/A	N/A
#170	N/A	N/A
#200	78.00	36.40
STATISTICS (EXCLUDING SHELL)		
MEDIAN GRAIN SIZE (mm)	N/A	N/A
MEAN GRAIN SIZE (mm)	N/A	N/A
SORTING (σ)	N/A	N/A

*C-05; -23.8' to -25.8' NAVD and C-05; -31.8' to -33.8' NAVD were only passed through the -#200 sieve.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
●	**C-05**	(-7.8' to -9.8 NAVD)	**Borrow Area (-7.8' to -9.8' NAVD)**				**1.20**	**1.46**

	Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-05**	(-7.8' to -9.8 NAVD)	**2**	**0.143**	**0.13**	**0.098**	**0.0**	**93.0**	**5.0**	

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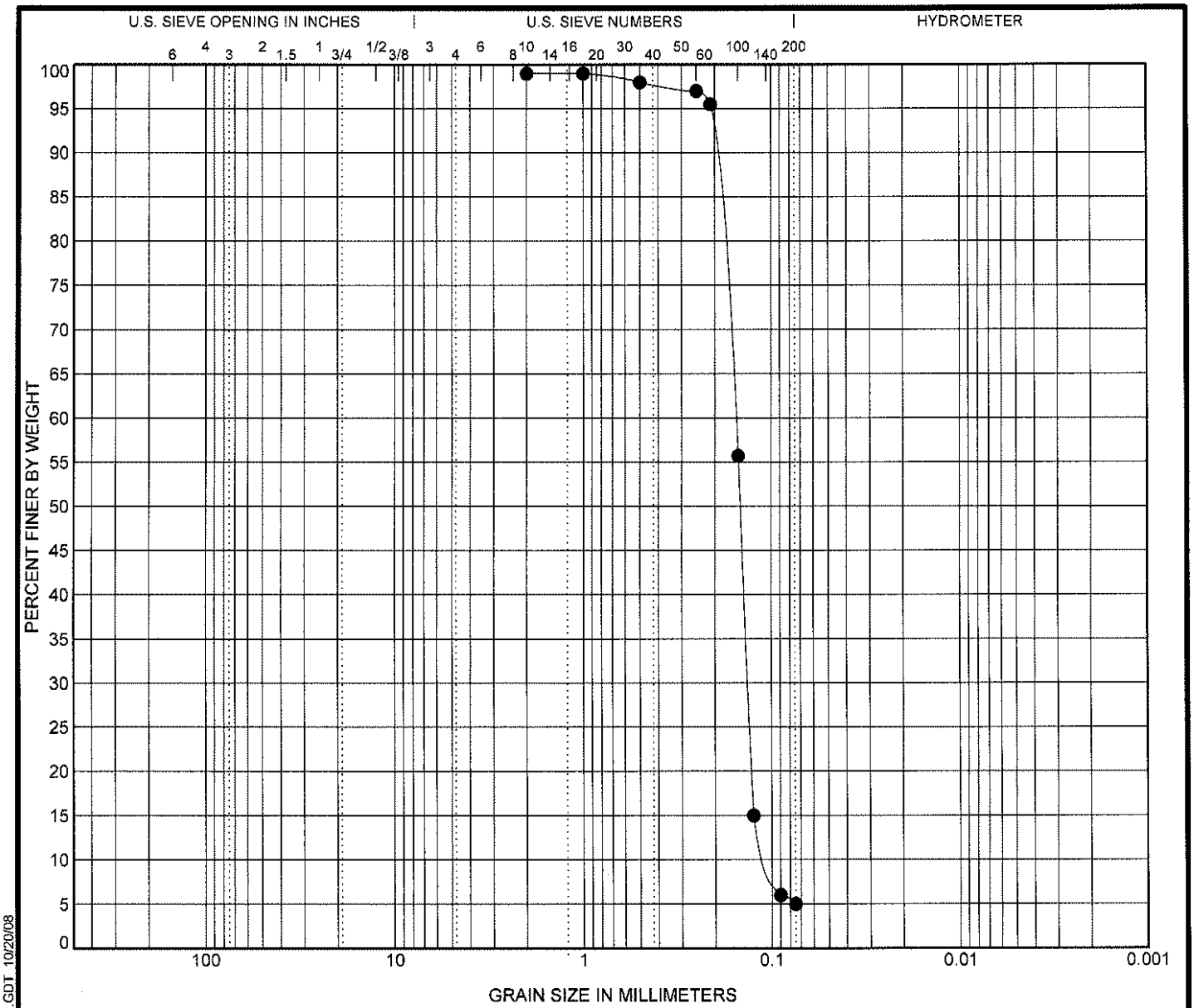
GRAIN SIZE DISTRIBUTION

Project: Prop. Large Scale Beach Nourishment Project

Location: South Jetty Borrow Source Area; Galveston, Texas

Number: G108558



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
●	**C-05**	(-11.8' to -13.8' NAVD)	**Borrow Area (-11.8' to -13.8' NAVD)**				**1.10**	**1.49**

	Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-05**	(-11.8' to -13.8' NAVD)	**2**	**0.156**	**0.134**	**0.104**	**0.0**	**94.0**	**5.0**	

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GRAIN SIZE DISTRIBUTION

Project: Prop. Large Scale Beach Nourishment Project

Location: South Jetty Borrow Source Area; Galveston, Texas

Number: G108558

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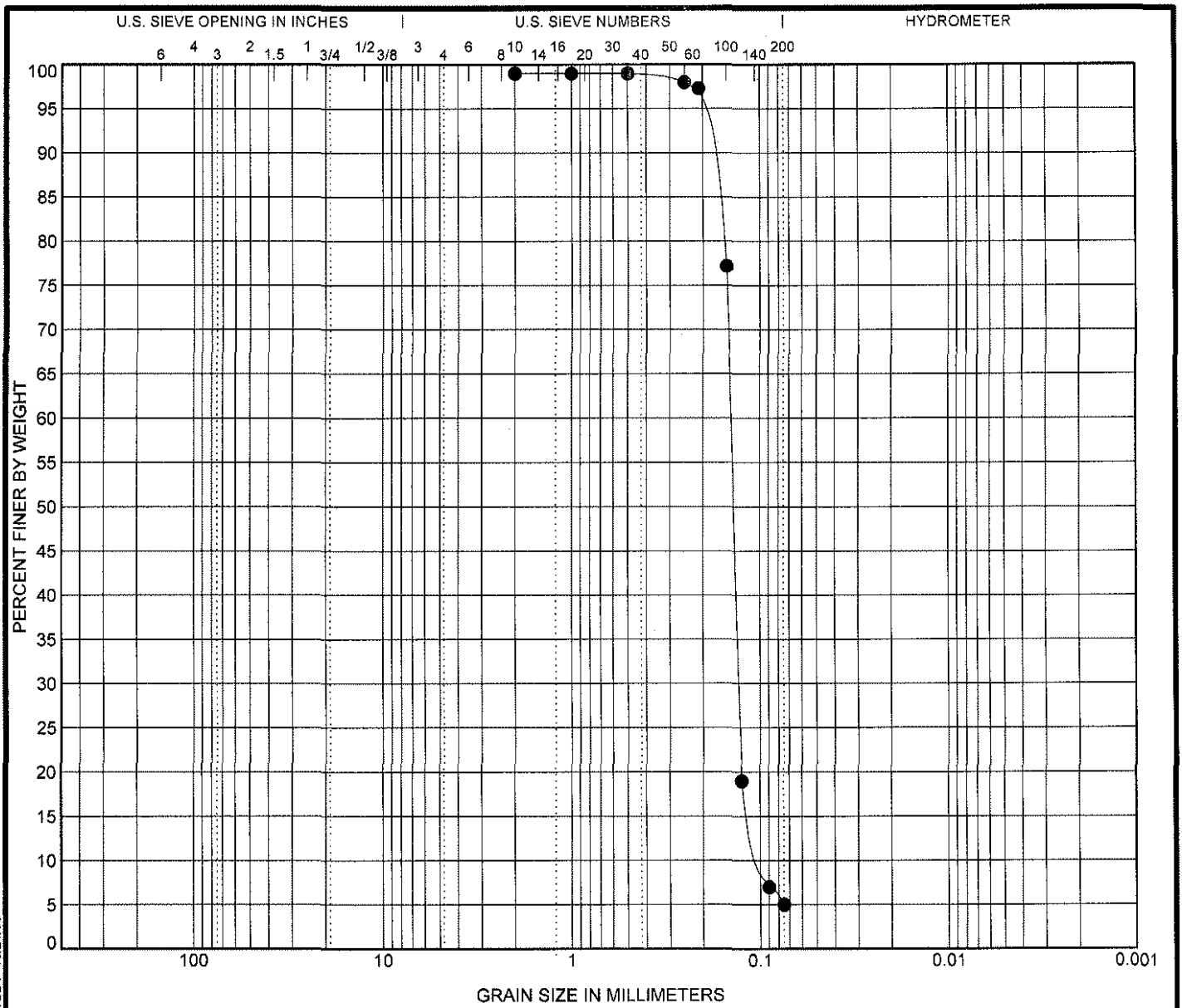

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
●	**C-05**	(-15.8' to -17.8' NAVD)	**Borrow Area (-15.8' to -17.8' NAVD)**				**1.21**	**1.45**

	Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-05**	(-15.8' to -17.8' NAVD)	**2**	**0.142**	**0.129**	**0.098**	**0.0**	**94.0**	**5.0**	

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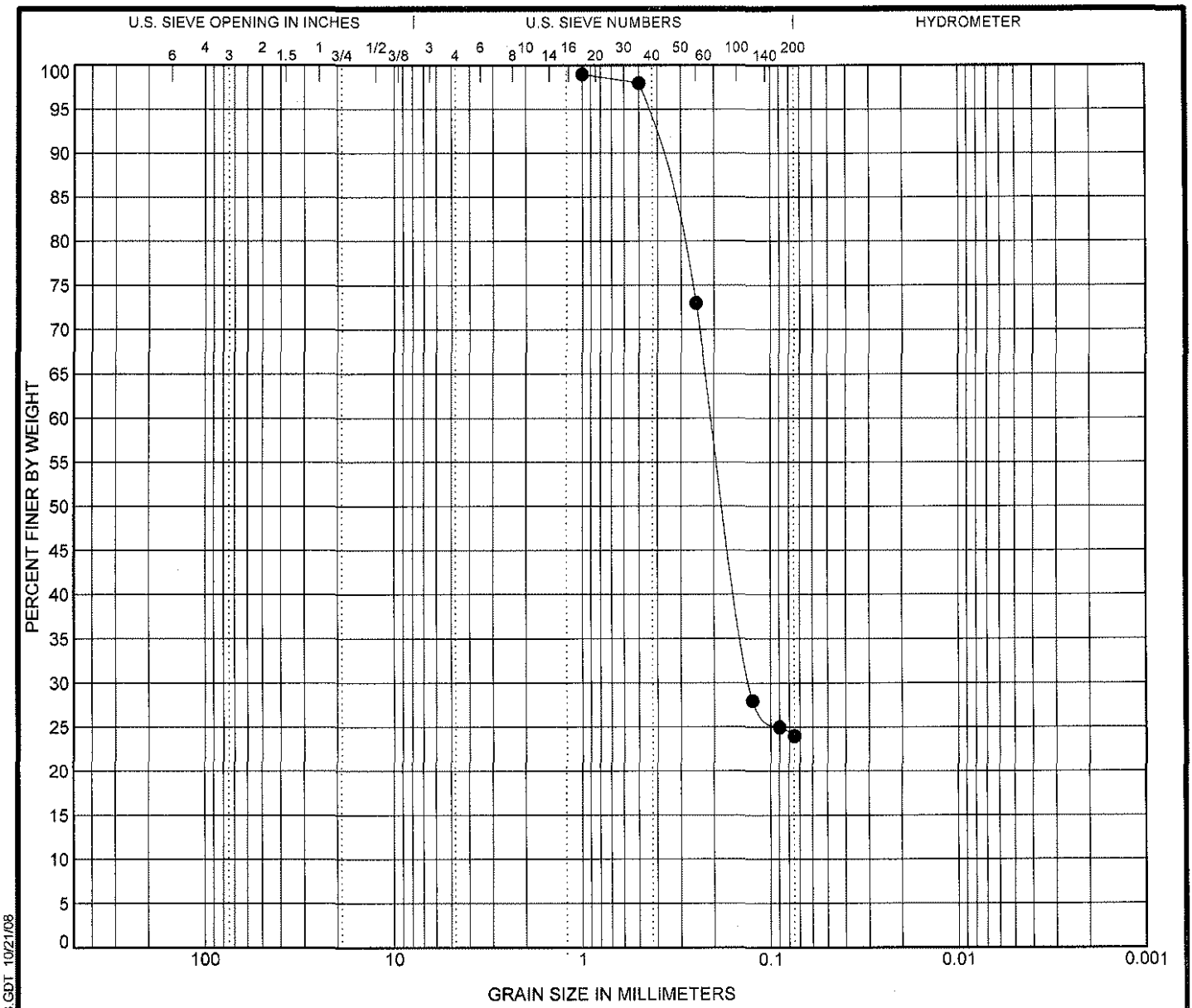

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
●	**C-05**	(-21.8' to -23.8' NAVD)	**Borrow Area (-21.8' to -23.8' NAVD)**					

	Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-05**	(-21.8' to -23.8' NAVD)	**1**	**0.205**	**0.129**		**0.0**	**75.0**	**24.0**	

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