

LOG OF BORING

Project: Sand Search for DMPAs

Boring No.: B-3

Groundwater during drilling: ---

Groundwater after drilling: ---

Date: 2/13/2006

Northing: 13,699,038.0

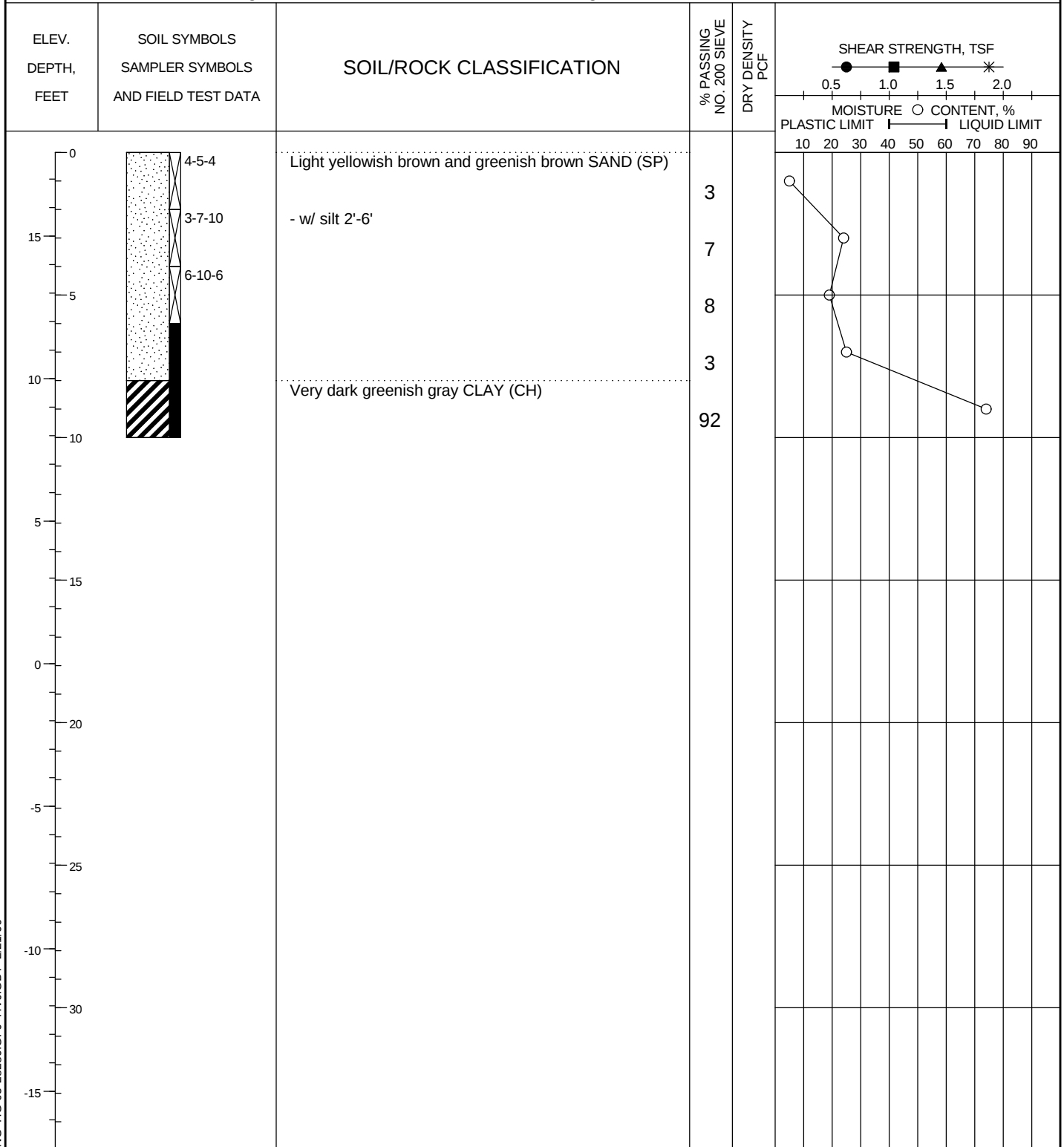
Easting: 3,303,071.0

Project No.: HG-05-28280

Elevation: 17.93 feet

Station: --

Offset: --



Shear Types:

● = Hand Penet.

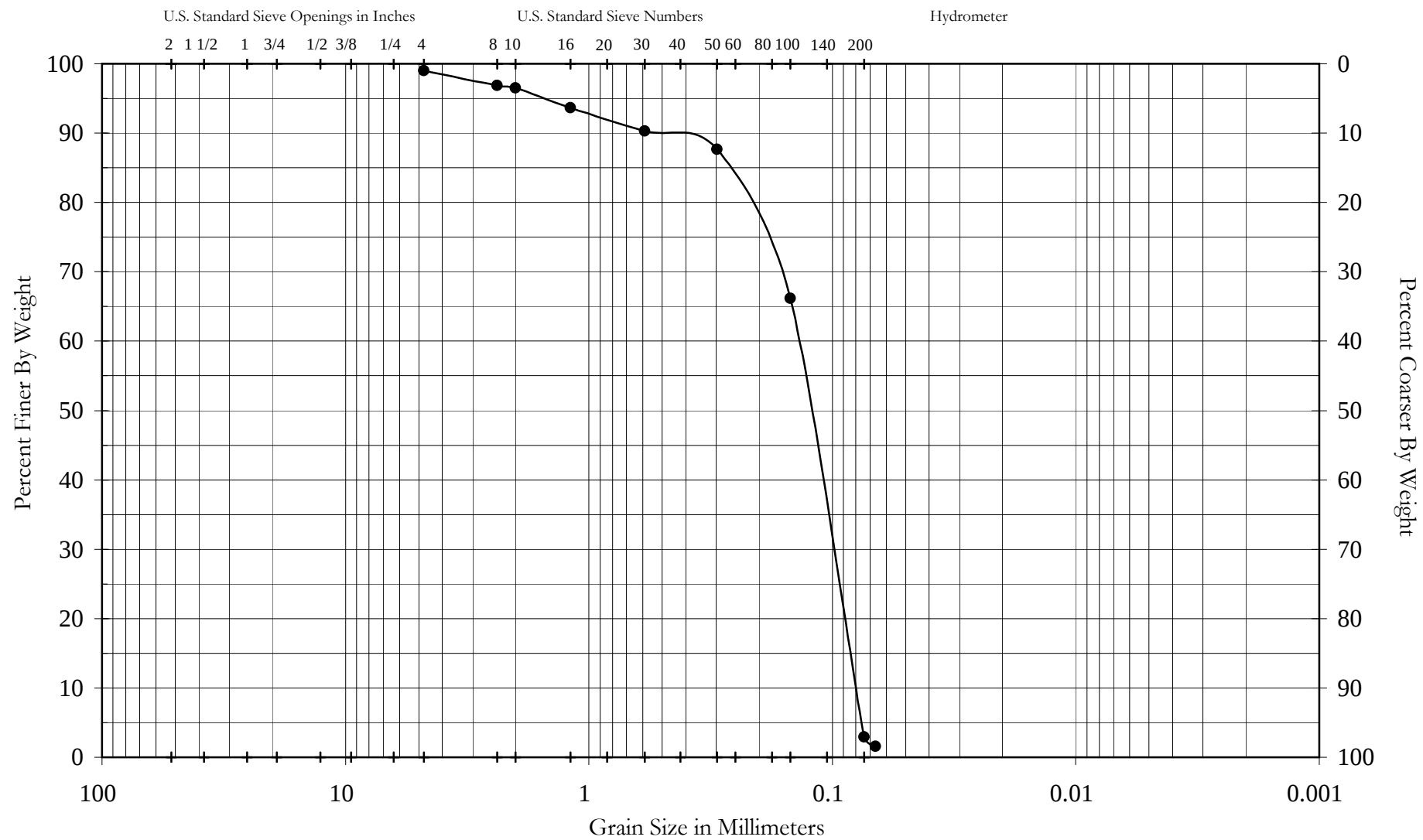
■ = Torvane

▲ = Unconf. Comp.

✱ = UU Triaxial

PLATE A-3

LOG OF SOIL BORING HG-05-28280.GPJ HVJ.GDT 2/21/06



Boring No.
B-3

Depth, Ft.
6-8'

Classification
Light yellowish brown and greenish
brown Sand

SIEVE ANALYSIS DATA

Project:	Sand Search	Job No.	HG-05-28280	Date:	02/15/06
Boring No.	3	Sample No.	2	Depth:	2-4'
Matl Desc.	Light yellowish brown and greenish brown Sand				

Tare No.	6	Init Wt. - Tare	100.54	% Ret.	92.58
Tare Wt.	6.89	Dry Wt. after test	99.97	% Pass #200	7.42
Init. Dry Wt.	107.43	Wt. Ret. on #200	93.08		

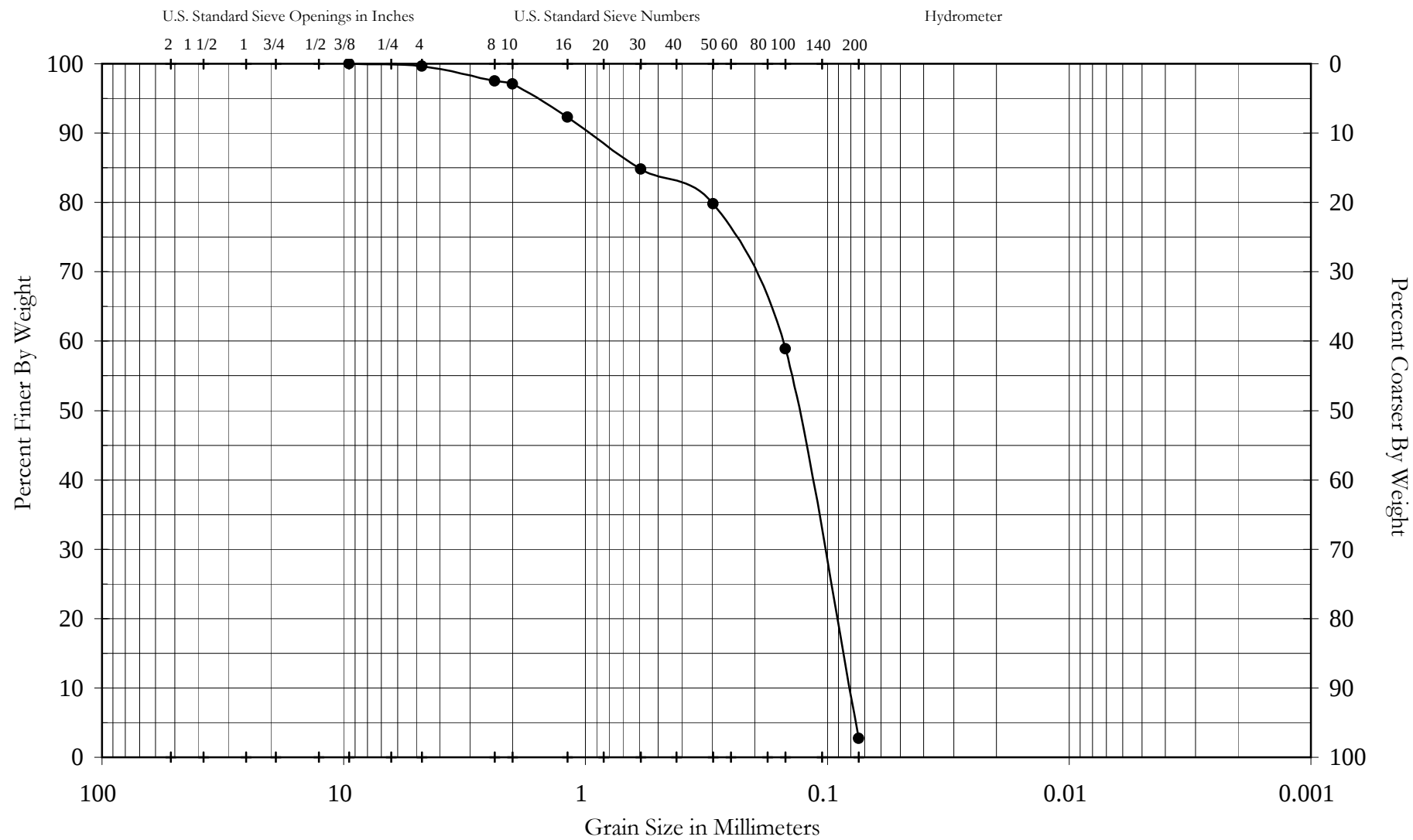
Sieve Size/No.	Sieve Size (mm)	Weight Ret.	% Retained	% Passing
3/8"	9.5	0.00	0.00	100.00
4	4.76	0.33	0.33	99.67
8	2.38	1.02	1.01	98.99
10	2	1.20	1.19	98.81
16	1.19	2.47	2.46	97.54
30	0.59	4.80	4.77	95.23
50	0.297	7.09	7.05	92.95
100	0.149	26.17	26.03	73.97
200	0.074	93.08	92.58	7.42
	0.066			1.66
	0.047			1.66
	0.033			1.66
	0.021			1.66
	0.015			1.66
	0.012			1.66
	0.009			1.66
	0.006			1.66
	0.003			1.66
	0.003			1.66
	0.001			0.00

SIEVE ANALYSIS DATA

Project: Sand Search Job No. HG-05-28280 Date: 02/15/06
 Boring No. 3 Sample No. 4 Depth: 6-8'
 Matl Desc. Light yellowish brown and greenish brown Sand

Tare No.	8	Init Wt. - Tare	73.65	% Ret.	97.09
Tare Wt.	6.92	Dry Wt. after test	78.43	% Pass #200	2.91
Init. Dry Wt.	80.57	Wt. Ret. on #200	71.51		

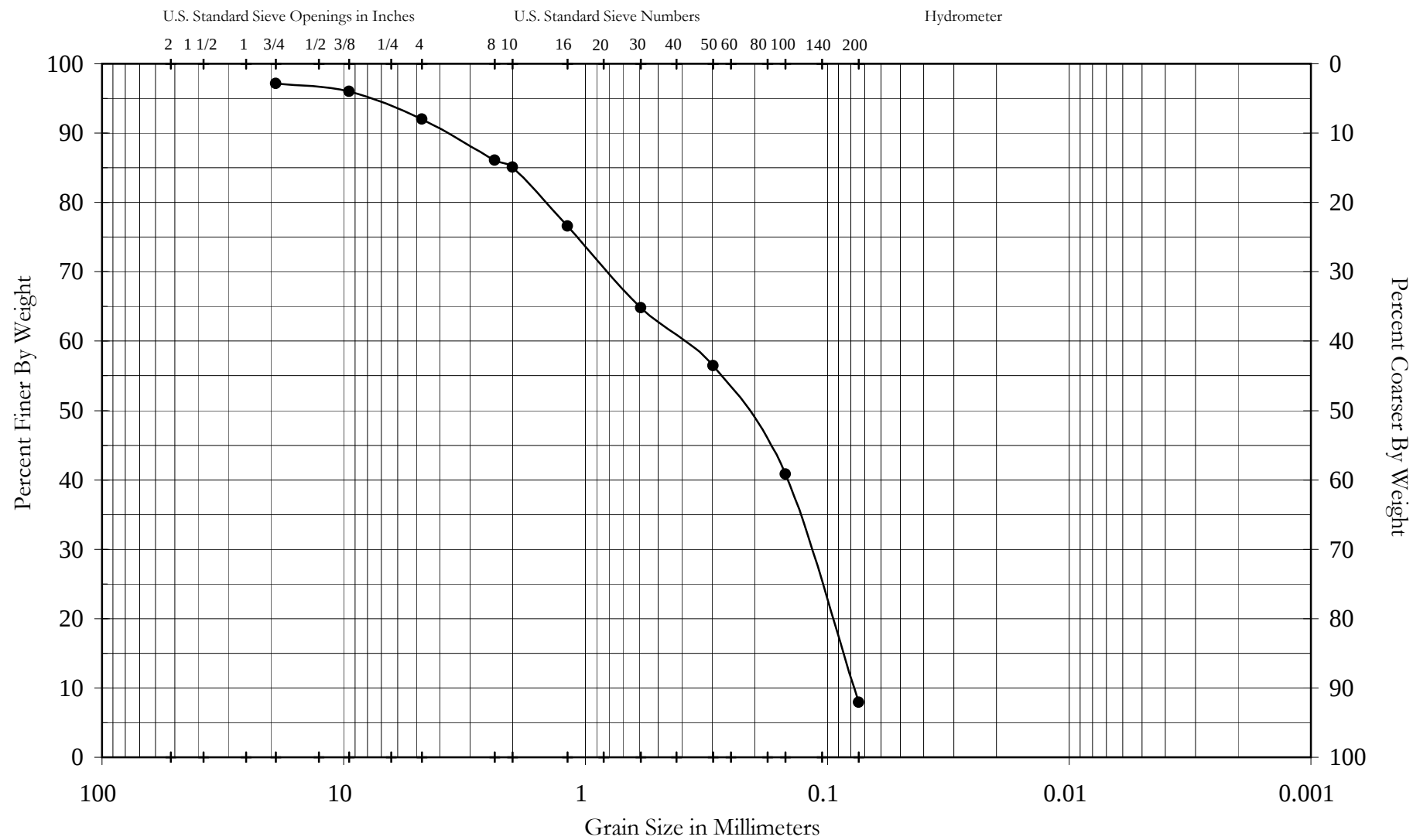
Sieve Size/No.	Sieve Size (mm)	Weight Ret.	% Retained	% Passing
4	4.76	0.72	0.98	99.02
8	2.38	2.31	3.14	96.86
10	2	2.60	3.53	96.47
16	1.19	4.70	6.38	93.62
30	0.59	7.15	9.71	90.29
50	0.297	9.11	12.37	87.63
100	0.149	24.94	33.86	66.14
200	0.074	71.51	97.09	2.91
	0.066			1.6



Boring No.
B-3

Depth, Ft.
0-2'

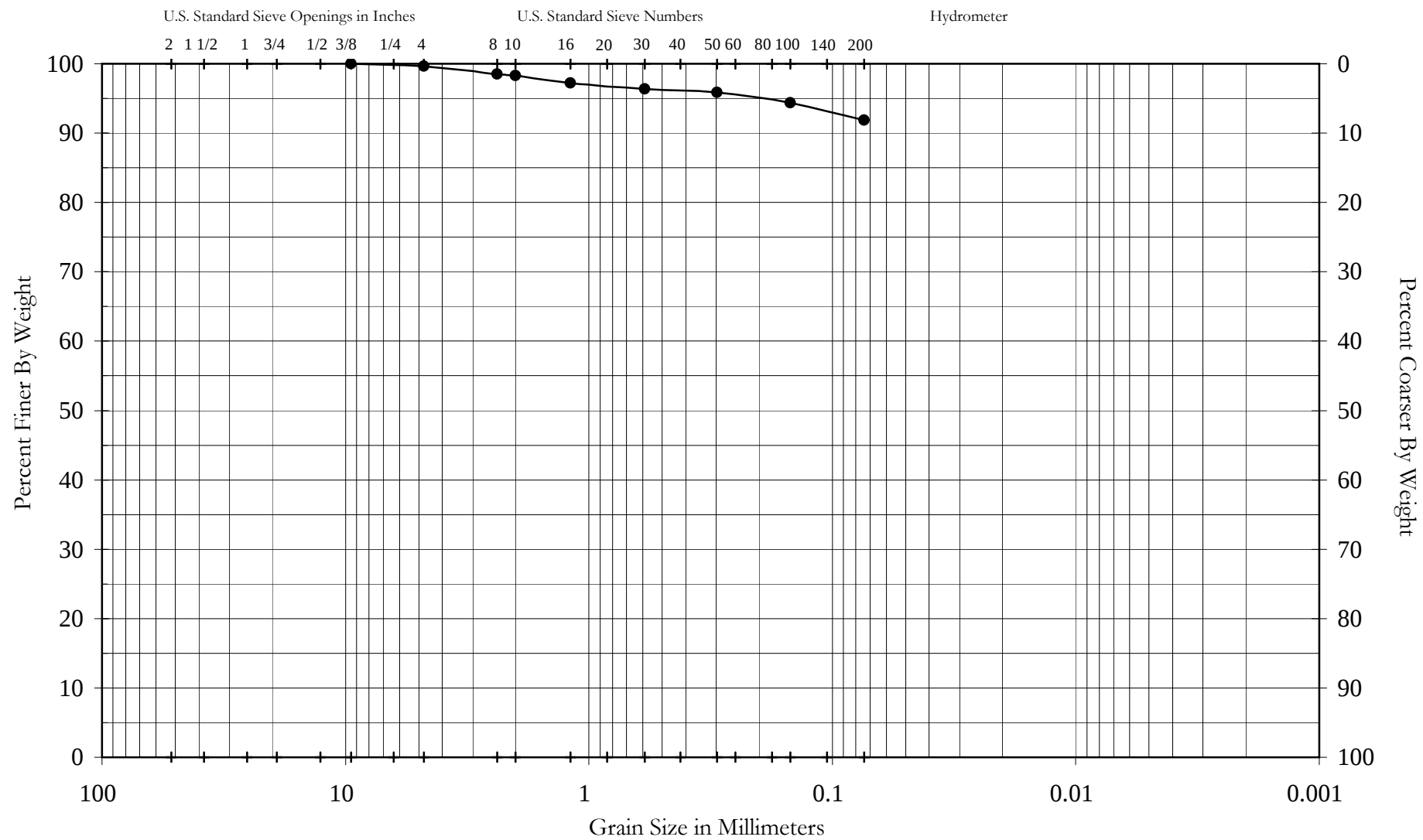
Classification
Light yellowish brown and greenish
brown Sand



Boring No.
B-3

Depth, Ft.
4-6'

Classification
Light yellowish brown and greenish
brown Sand with silt



Boring No.
B-3

Depth, Ft.
8-10'

Classification
Very dark greenish gray Clay

SIEVE ANALYSIS DATA

Project:	<u>Sand Search</u>	Job No.	<u>HG-05-28280</u>	Date:	<u>02/15/06</u>
Boring No.	<u>3</u>	Sample No.	<u>1</u>	Depth:	<u>0-2 ft</u>
Matl Desc.	<u>Light yellowish brown and greenish brown Sand</u>				

Tare No.	4	Init Wt. - Tare	92.31	% Ret.	97.29
Tare Wt.	6.72	Dry Wt. after test	96.53	% Pass #200	2.71
Init. Dry Wt.	99.03	Wt. Ret. on #200	89.81		

[illegible]

SIEVE ANALYSIS DATA

Project: Sand Search Job No. HG-05-28280 Date: 02/15/06
 Boring No. 3 Sample No. 3 Depth: 4-6'
 Matl Desc. Light yellowish brown and greenish brown Sand with silt

Tare No.	7	Init Wt. - Tare	98.92	% Ret.	92.10
Tare Wt.	6.91	Dry Wt. after test	98.02	% Pass #200	7.90
Init. Dry Wt.	105.83	Wt. Ret. on #200	91.11		

Sieve Size/No.	Sieve Size (mm)	Weight Ret.	% Retained	% Passing
3/4"	19.1	2.79	2.82	97.18
3/8"	9.5	3.96	4.00	96.00
4	4.76	7.93	8.02	91.98
8	2.38	13.75	13.90	86.10
10	2	14.79	14.95	85.05
16	1.19	23.17	23.42	76.58
30	0.59	34.83	35.21	64.79
50	0.297	43.04	43.51	56.49
100	0.149	58.50	59.14	40.86
200	0.074	91.11	92.10	7.90

SIEVE ANALYSIS DATA

Project:	<u>Sand Search</u>	Job No.	<u>HG-05-28280</u>	Date:	<u>02/15/06</u>
Boring No.	<u>3</u>	Sample No.	<u>5</u>	Depth:	<u>8-10'</u>
Matl Desc.	<u>Very dark greenish gray Clay</u>				

Tare No.	20	Init Wt. - Tare	66.58	% Ret.	8.11
Tare Wt.	6.68	Dry Wt. after test	12.08	% Pass #200	91.89
Init. Dry Wt.	73.26	Wt. Ret. on #200	5.40		

[illegible]

Median Sand Size:		Diameter formulas must be adjusted for accurate percentage, formulas are interpolation equations			
	$D_{50} =$	0.13	$D_{16} =$	0.27	$D_{84} =$ 0.07
	$\phi_{50} =$	3.0	$\phi_{16} =$	1.9	$\phi_{84} =$ 3.8
			$D_5 =$	1.99	$D_{95} =$ 0.03
			$\phi_5 =$	-1.0	$\phi_{95} =$ 4.9

Mean:		
	PHI	mm
$M_{d\phi} = (\phi_{16} + \phi_{84})/2 =$	2.9	0.1

Standard Deviation:		
$\sigma_{\phi} = (\phi_{84} - \phi_{16})/4 + (\phi_{95} - \phi_5)/6 =$	1.5	Poorly Sorted
		$\sigma_{\phi} \leq 0.5$: Sample is well sorted. $\sigma_{\phi} \geq 1.0$: Sample is poorly sorted.

Skewness:		
$\alpha_{\phi} = (\phi_{16} + \phi_{84} - (2 * \phi_{50})) / (2(\phi_{84} - \phi_{16})) + (\phi_5 + \phi_{95} - (2 * \phi_{50})) / (2(\phi_{95} - \phi_5)) =$	0.2	Fine-Skewed
		$\alpha_{\phi} < -0.1$: Sample is Coarse-Skewed $\alpha_{\phi} -0.1$ to $+0.1$: Sample is Near-Symmetrical $\alpha_{\phi} > +0.1$: Sample is Fine-Skewed

Work Order No. 1306-06-001
Dredged Material Placement Area (DMPA)
Pelican Island Geotechnical investigation
GLO Contract No. 06-090C
Requisition No. 317-6-0482

February 13, 2006

Sample Analysis Performed by: TAMUG
 Grain Size Analysis Performed by: GBA, Associates

Hole No: 3	Sample No: 3C	Depth: 2-3 ft
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Note: Enter data in to the green cells

Sieve Size, (No.)	Sieve Size, (mm)	Cumulative Weight Retained on Sieve, (grams)	Weight Retained on Sieve, (grams)	Phi, f	% Coarser by Weight	% Finer than by Weight
10	2	17.11	17.11	-1.0	14.13%	85.87%
14	1.41	29.27	12.16	-0.5	24.17%	75.83%
18	1	42.38	13.11	0.0	34.99%	65.01%
25	0.71	54.85	12.47	0.5	45.29%	54.71%
35	0.5	63.27	8.42	1.0	52.24%	47.76%
45	0.354	67.42	4.15	1.5	55.66%	44.34%
60	0.25	70.43	3.01	2.0	58.15%	41.85%
80	0.177	74.98	4.55	2.5	61.91%	38.09%
125	0.125	100.56	25.58	3.0	83.03%	16.97%
170	0.088	113.61	13.05	3.5	93.80%	6.20%
200	0.074	118.67	5.06	3.8	97.98%	2.02%
230	0.0625	120.66	1.99	4.0	99.62%	0.38%
Pan	0.0039	121.12	0.46	8.0	100.00%	0.00%

Total Weight of Sediment = 121.12 grams

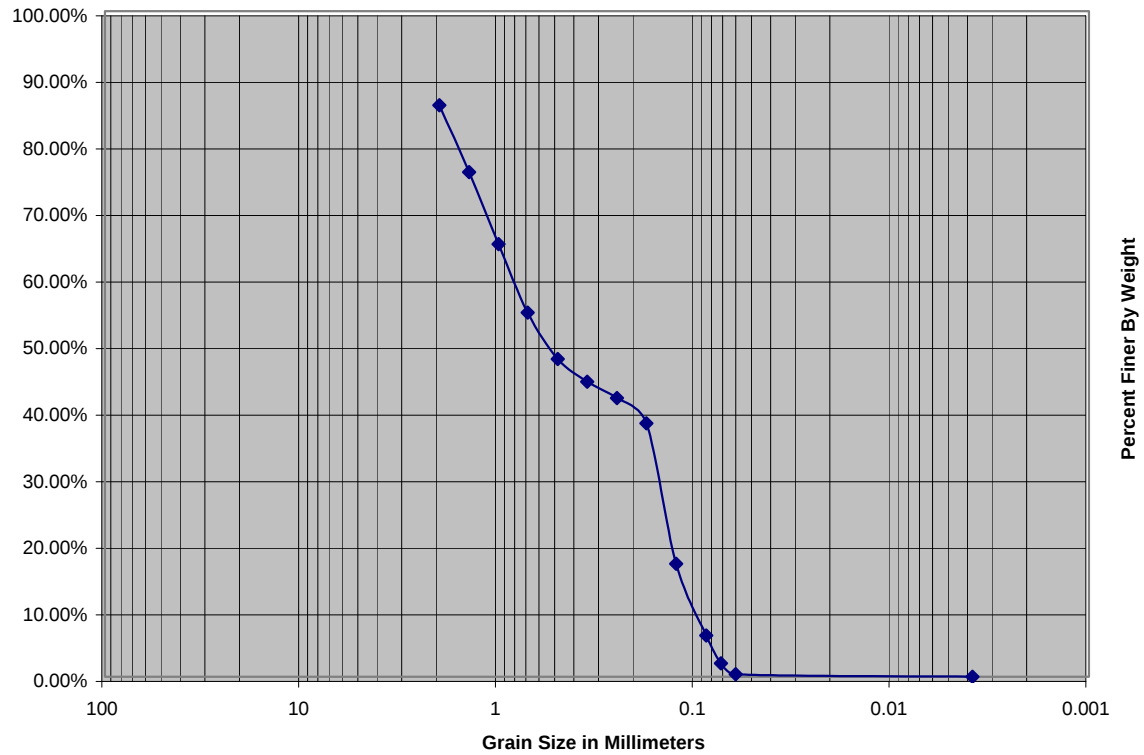
Median Sand Size:		Diameter formulas must be adjusted for accurate percentage, formulas are interpolation equations			
	$D_{50} =$	0.57	$D_{16} =$	1.89	$D_{84} =$ 0.12
	$\phi_{50} =$	0.8	$\phi_{16} =$	-0.9	$\phi_{84} =$ 3.0
			$D_5 =$	2.54	$D_{95} =$ 0.08
			$\phi_5 =$	-1.3	$\phi_{95} =$ 3.6

Mean:		
	PHI	mm
$M_{d\phi} = (\phi_{16} + \phi_{84})/2 =$	1.1	0.5

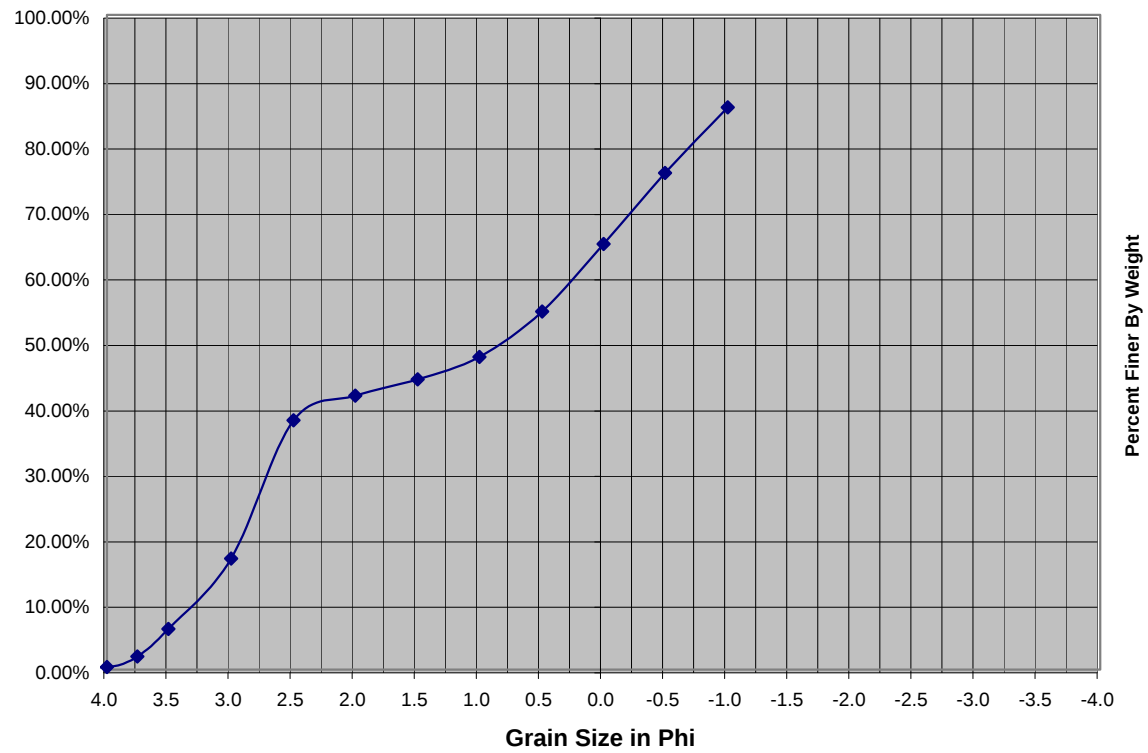
Standard Deviation:			
$\sigma_{\phi} = (\phi_{84} - \phi_{16})/4 + (\phi_{95} - \phi_5)/6 =$	1.8	Poorly Sorted	$\sigma_{\phi} \leq 0.5$: Sample is well sorted. $\sigma_{\phi} \geq 1.0$: Sample is poorly sorted.

Skewness:		
$\alpha_{\phi} = (\phi_{16} + \phi_{84} - (2 * \phi_{50})) / (2(\phi_{84} - \phi_{16})) + (\phi_5 + \phi_{95} - (2 * \phi_{50})) / (2(\phi_{95} - \phi_5)) =$	-0.1	Coarse-Skewed
$\alpha_{\phi} < -0.1$: Sample is Coarse-Skewed $\alpha_{\phi} -0.1$ to $+0.1$: Sample is Near-Symmetrical $\alpha_{\phi} > +0.1$: Sample is Fine-Skewed		

Auger 3 Sample 3C Depth 2 to 3 ft, Sieve Analysis



Auger 3 Sample 3C Depth 2 to 3 ft, Sieve Analysis



Work Order No. 1306-06-001
Dredged Material Placement Area (DMPA)
Pelican Island Geotechnical investigation
GLO Contract No. 06-090C
Requisition No. 317-6-0482

February 13, 2006

Sample Analysis Performed by: TAMUG
 Grain Size Analysis Performed by: GBA, Associates

Hole No: 3	Sample No: 3B	Depth: 1-2 ft
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Note: Enter data in to the green cells

Sieve Size, (No.)	Sieve Size, (mm)	Cumulative Weight Retained on Sieve, (grams)	Weight Retained on Sieve, (grams)	Phi, f	% Coarser by Weight	% Finer than by Weight
10	2	26.44	26.44	-1.0	21.74%	78.26%
14	1.41	30.94	4.5	-0.5	25.44%	74.56%
18	1	35.01	4.07	0.0	28.79%	71.21%
25	0.71	38.3	3.29	0.5	31.49%	68.51%
35	0.5	41.12	2.82	1.0	33.81%	66.19%
45	0.354	42.85	1.73	1.5	35.23%	64.77%
60	0.25	46.4	3.55	2.0	38.15%	61.85%
80	0.177	57.02	10.62	2.5	46.88%	53.12%
125	0.125	98.41	41.39	3.0	80.92%	19.08%
170	0.088	112.58	14.17	3.5	92.57%	7.43%
200	0.074	118.29	5.71	3.8	97.26%	2.74%
230	0.0625	120.75	2.46	4.0	99.28%	0.72%
Pan	0.0039	121.62	0.87	8.0	100.00%	0.00%

Total Weight of Sediment = 121.62 grams

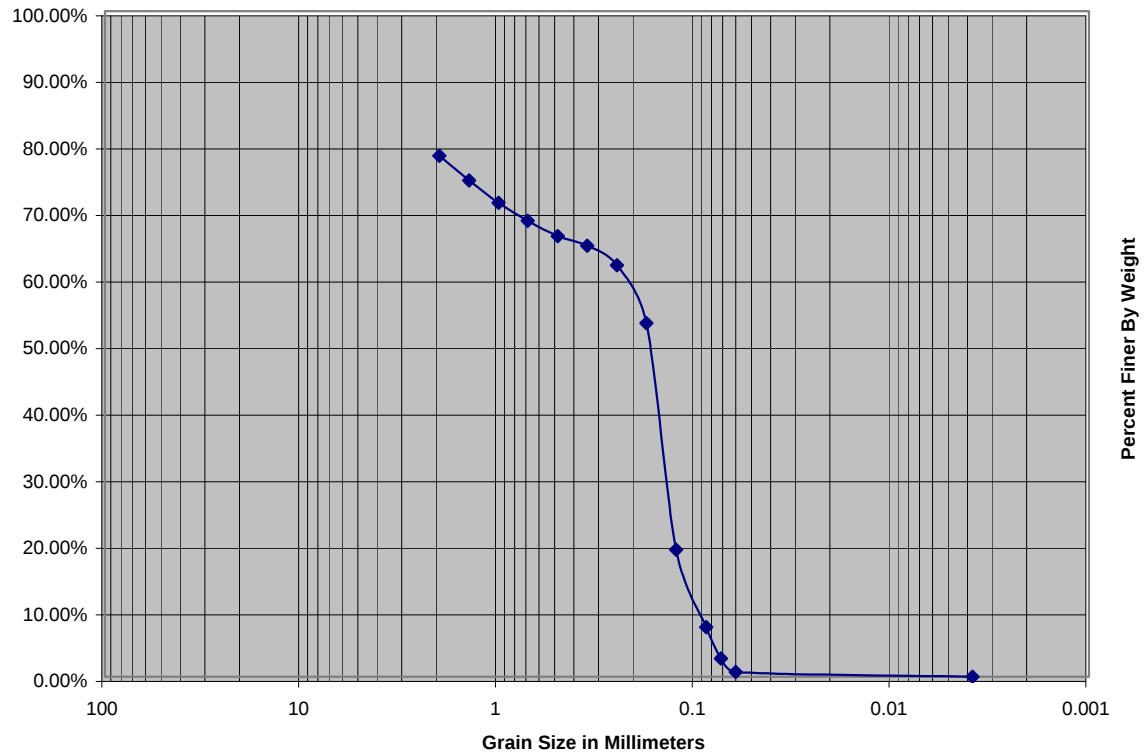
Median Sand Size:		Diameter formulas must be adjusted for accurate percentage, formulas are interpolation equations			
	$D_{50} =$	0.17	$D_{16} =$	0.54	$D_{84} =$ 0.06
	$\phi_{50} =$	2.5	$\phi_{16} =$	0.9	$\phi_{84} =$ 4.2
			$D_5 =$	0.53	$D_{95} =$ 0.02
			$\phi_5 =$	0.9	$\phi_{95} =$ 5.6

Mean:		
	PHI	mm
$M_{d\phi} = (\phi_{16} + \phi_{84})/2 =$	2.5	0.2

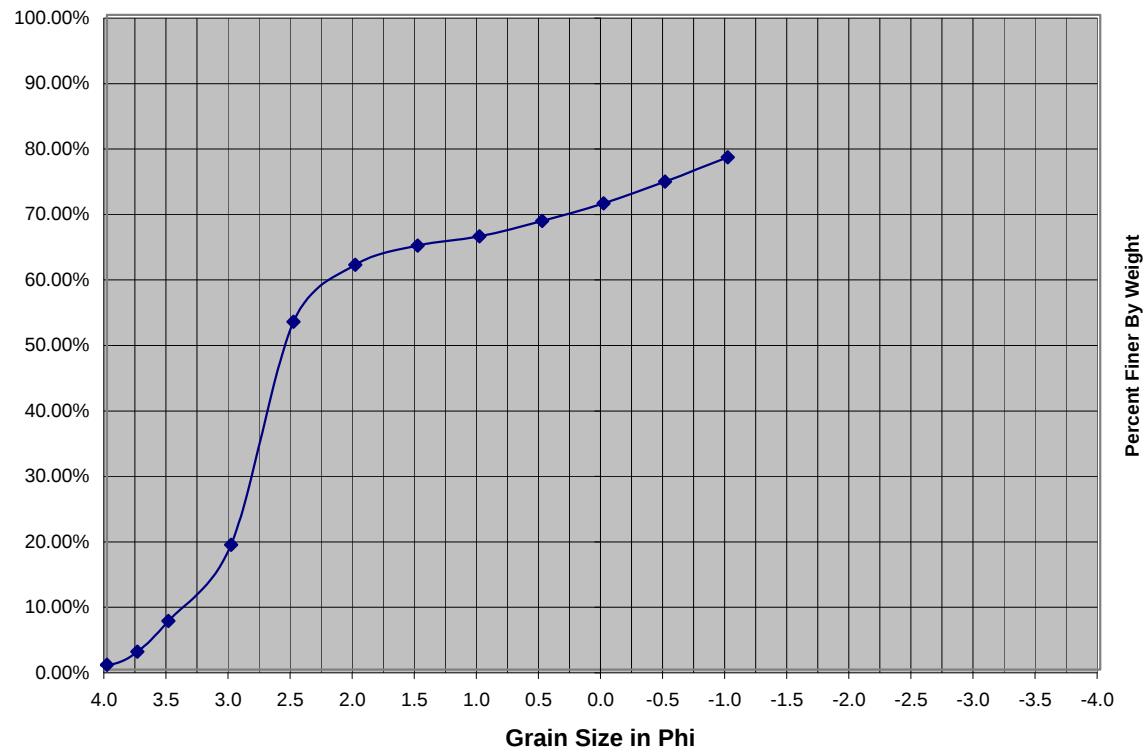
Standard Deviation:		
$\sigma_{\phi} = (\phi_{84} - \phi_{16})/4 + (\phi_{95} - \phi_5)/6 =$	1.6	Poorly Sorted
		$\sigma_{\phi} \leq 0.5$: Sample is well sorted. $\sigma_{\phi} \geq 1.0$: Sample is poorly sorted.

Skewness:		
$\alpha_{\phi} = (\phi_{16} + \phi_{84} - (2 * \phi_{50})) / (2(\phi_{84} - \phi_{16})) + (\phi_5 + \phi_{95} - (2 * \phi_{50})) / (2(\phi_{95} - \phi_5)) =$	-0.2	Coarse-Skewed
		$\alpha_{\phi} < -0.1$: Sample is Coarse-Skewed $\alpha_{\phi} -0.1$ to $+0.1$: Sample is Near-Symmetrical $\alpha_{\phi} > +0.1$: Sample is Fine-Skewed

Auger 3 Sample 3B Depth 1 to 2 ft, Sieve Analysis



Auger 3 Sample 3B Depth 1 to 2 ft, Sieve Analysis



Work Order No. 1306-06-001
Dredged Material Placement Area (DMPA)
Pelican Island Geotechnical investigation
GLO Contract No. 06-090C
Requisition No. 317-6-0482

February 13, 2006

Sample Analysis Performed by: TAMUG
 Grain Size Analysis Performed by: GBA, Associates

Hole No: 3	Sample No: 3A	Depth: 0-1 ft
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Note: Enter data in to the green cells

Sieve Size, (No.)	Sieve Size, (mm)	Cumulative Weight Retained on Sieve, (grams)	Weight Retained on Sieve, (grams)	Phi, f	% Coarser by Weight	% Finer than by Weight
10	2	4.97	4.97	-1.0	4.95%	95.05%
14	1.41	6.83	1.86	-0.5	6.80%	93.20%
18	1	8.43	1.60	0.0	8.39%	91.61%
25	0.71	9.75	1.32	0.5	9.70%	90.30%
35	0.5	10.72	0.97	1.0	10.67%	89.33%
45	0.354	11.5	0.78	1.5	11.44%	88.56%
60	0.25	12.87	1.37	2.0	12.81%	87.19%
80	0.177	21.54	8.67	2.5	21.43%	78.57%
125	0.125	79.65	58.11	3.0	79.25%	20.75%
170	0.088	95.98	16.33	3.5	95.50%	4.50%
200	0.074	99.09	3.11	3.8	98.60%	1.40%
230	0.0625	100.15	1.06	4.0	99.65%	0.35%
Pan	0.0039	100.5	0.35	8.0	100.00%	0.00%

Total Weight of Sediment = 100.5 grams

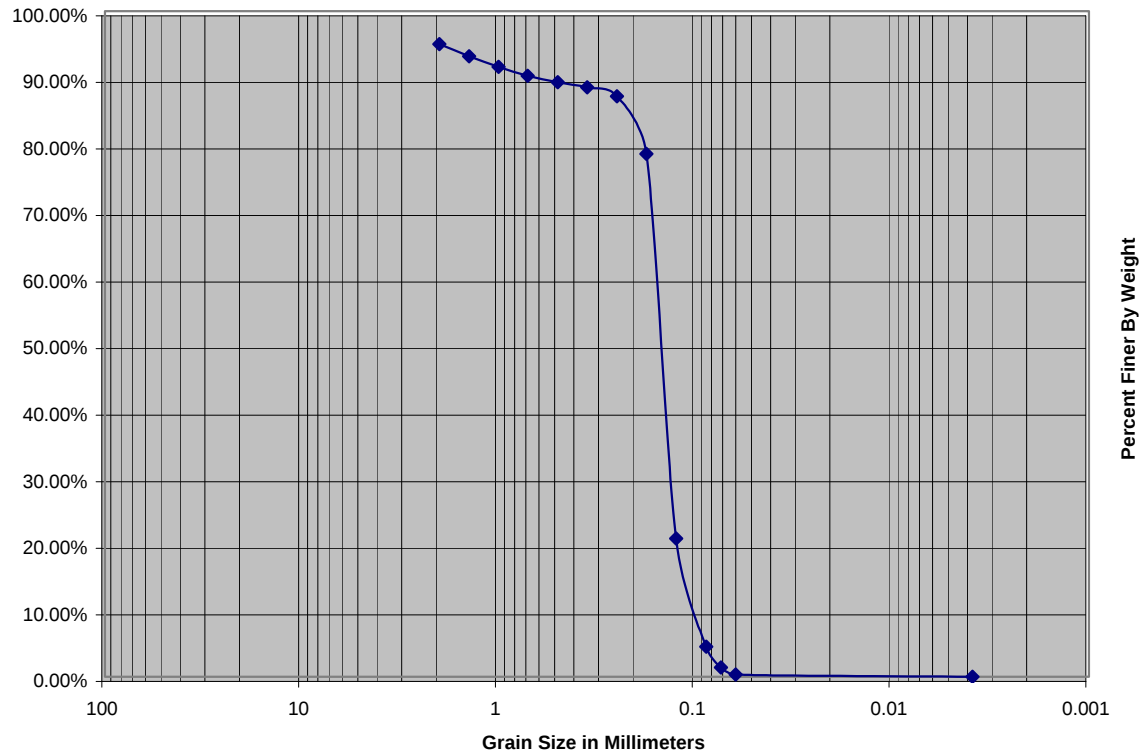
Median Sand Size:		Diameter formulas must be adjusted for accurate percentage, formulas are interpolation equations			
	$D_{50} =$	0.15	$D_{16} =$	0.33	$D_{84} =$ 0.04
	$\phi_{50} =$	2.7	$\phi_{16} =$	1.6	$\phi_{84} =$ 4.7
			$D_5 =$	0.32	$D_{95} =$ 0.01
			$\phi_5 =$	1.7	$\phi_{95} =$ 6.1

Mean:		
	PHI	mm
$M_{d\phi} = (\phi_{16} + \phi_{84})/2 =$	3.1	0.1

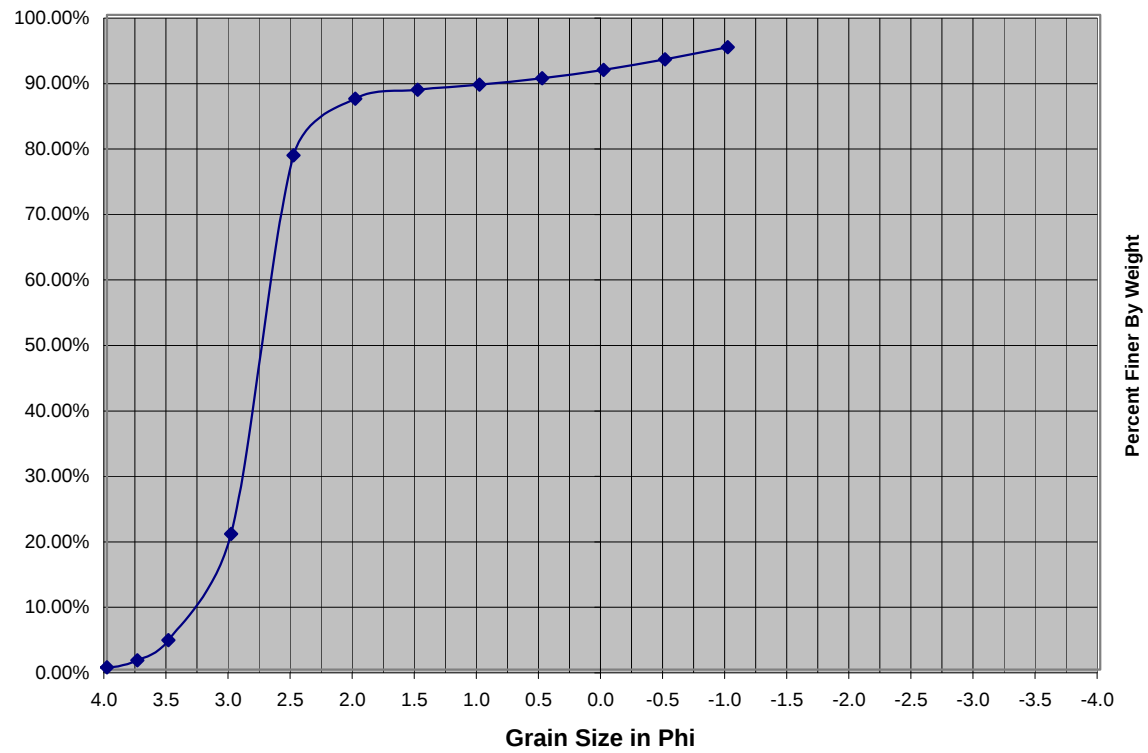
Standard Deviation:		
$\sigma_{\phi} = (\phi_{84} - \phi_{16})/4 + (\phi_{95} - \phi_5)/6 =$	1.5	Poorly Sorted
		$\sigma_{\phi} \leq 0.5$: Sample is well sorted. $\sigma_{\phi} \geq 1.0$: Sample is poorly sorted.

Skewness:		
$\alpha_{\phi} = (\phi_{16} + \phi_{84} - (2 * \phi_{50})) / (2(\phi_{84} - \phi_{16})) + (\phi_5 + \phi_{95} - (2 * \phi_{50})) / (2(\phi_{95} - \phi_5)) =$	-0.4	Coarse-Skewed
		$\alpha_{\phi} < -0.1$: Sample is Coarse-Skewed $\alpha_{\phi} -0.1$ to $+0.1$: Sample is Near-Symmetrical $\alpha_{\phi} > +0.1$: Sample is Fine-Skewed

Auger 3 Sample 3A Depth 0 to 1 ft, Sieve Analysis



Auger 3 Sample 3A Depth 0 to 1 ft, Sieve Analysis



Work Order No. 1306-06-001
Dredged Material Placement Area (DMPA)
Pelican Island Geotechnical investigation
GLO Contract No. 06-090C
Requisition No. 317-6-0482

Samples taken from the beach and dune system at Galveston County Beach Pocket No. 1 - 7-1/2 Mile Road.

Sample Analysis Performed by: HVJ, Associates

Grain Size Analysis Performed by: GBA, Associates

Sample No: PPS3A						
Sieve Size, (No.)	Sieve Size, (mm)	Cumulative Weight Retained on Sieve, (grams)	Weight Retained on Sieve, (grams)	Phi, f	% Coarser by Weight	% Finer than by Weight
1/2"	12.5	0	0	-3.6	0.00%	100.00%
3/8"	9.5	0.99	0.99	-3.2	0.57%	99.43%
4	4.75	1.3	0.31	-2.2	0.75%	99.25%
8	2.36	1.63	0.33	-1.2	0.94%	99.06%
16	1.18	2.19	0.56	-0.2	1.26%	98.74%
30	0.59	3.54	1.35	0.8	2.04%	97.96%
50	0.297	4.85	1.31	1.8	2.80%	97.20%
100	0.149	23.62	18.77	2.7	13.62%	86.38%
200	0.074	168.08	144.46	3.76	96.95%	3.05%
Pan	0.062	173.36	5.28	4.0	100.00%	0.00%

Total Weight of Sediment = 173.36 grams

Median Sand Size:

$D_{50} = \frac{0.15}{\phi_{50} = 2.7}$	$D_{16} = \frac{0.109}{\phi_{16} = 3.2}$	$D_{84} = \frac{0.08}{\phi_{84} = 3.6}$
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Mean:

$M_{d\phi} = (\phi_{84} + \phi_{16})/2 = 3.4$

Sorting:

$\sigma_{\phi} = (\phi_{84} - \phi_{16})/2 = 0.2$	Well Sorted	$\sigma_{\phi} \leq 0.5$ Sample is well sorted. $\sigma_{\phi} \geq 1.0$ Sample is poorly sorted.
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Skewness:

$\alpha_{\phi} = (M_{d\phi} - \phi_{50})/\sigma_{\phi} = 3.1$

Boring No. PPS3A, Sieve Analysis

