

## Gradation Analysis Report

Project Name: MARCO PASS SHOAL

Sample Name: MPVC-03-05 S#1

Sample Date: 04/01/03

Analyzed By: ID



**Coastal Planning & Engineering, Inc.**

2481 N.W. Boca Raton Blvd.  
Boca Raton, FL 33431

Easting: 408749	Northing: 601859	Coordinate System: State Plane 1983 FL East Feet	Elevation: -7.8 NGVD 1929 Feet
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USCS: SW-SM	Dry Munsel: 5Y-8/1	Wet Munsel: 5Y-8/2	Comments:
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Dry Weight: 70.1	Wash Weight: 67.74	Sieve Loss: 0.06	Percent Silt: 3.72	Estimated Percent Shell Content: 1.02
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Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4	-4.25	19.02	0.00	0.00	0.00	0.00
5/8	-4.00	16.00	0.00	0.00	0.00	0.00
5/16	-3.25	9.51	0.00	0.00	0.00	0.00
4	-3.00	8.00	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.82	0.07	0.10	0.07	0.10
10	-1.00	2.00	0.06	0.09	0.13	0.19
14	-0.50	1.41	0.04	0.06	0.17	0.24
18	0.00	1.00	0.07	0.10	0.24	0.34
25	0.50	0.70	0.05	0.07	0.29	0.41
35	1.00	0.50	0.05	0.07	0.34	0.49
45	1.50	0.35	0.05	0.07	0.39	0.56
60	2.00	0.25	0.14	0.20	0.53	0.76
80	2.50	0.17	1.05	1.50	1.58	2.25
120	3.00	0.12	31.85	45.44	33.43	47.69
170	3.50	0.08	29.60	42.23	63.03	89.91
200	3.75	0.07	3.29	4.69	66.32	94.61
230	4.00	0.06	1.17	1.67	67.49	96.28
Pan	Pan	Pan	2.55	3.64	70.04	99.91

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.53	2.65	2.75	3.03	3.32	3.43	3.81

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	3.09	0.12	0.39	0.22	0.91
Moment	3.07	0.12	0.47	0.30	1.54

## Gradation Analysis Report

Project Name: MARCO PASS SHOAL

Sample Name: MPVC-03-05 S#2

Sample Date: 04/01/03

Analyzed By: ID



**Coastal Planning & Engineering, Inc.**

2481 N.W. Boca Raton Blvd.  
Boca Raton, FL 33431

Easting: 408749	Northing: 601859	Coordinate System: State Plane 1983 FL East Feet	Elevation: -6.7 NGVD 1929 Feet
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USCS: SW	Dry Munsel: 5Y-8/1	Wet Munsel: 5Y-8/2	Comments:
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Dry Weight: 75.54	Wash Weight: 74.41	Sieve Loss: 0.08	Percent Silt: 1.63	Estimated Percent Shell Content: 17.48
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Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4	-4.25	19.02	0.00	0.00	0.00	0.00
5/8	-4.00	16.00	0.00	0.00	0.00	0.00
5/16	-3.25	9.51	0.00	0.00	0.00	0.00
4	-3.00	8.00	1.07	1.42	1.07	1.42
5	-2.00	4.00	0.38	0.50	1.45	1.92
7	-1.50	2.82	1.44	1.91	2.89	3.83
10	-1.00	2.00	1.46	1.93	4.35	5.76
14	-0.50	1.41	1.73	2.29	6.08	8.05
18	0.00	1.00	1.61	2.13	7.69	10.18
25	0.50	0.70	3.19	4.22	10.88	14.40
35	1.00	0.50	2.41	3.19	13.29	17.59
45	1.50	0.35	1.59	2.10	14.88	19.70
60	2.00	0.25	3.45	4.57	18.33	24.27
80	2.50	0.17	14.03	18.57	32.36	42.84
120	3.00	0.12	31.98	42.34	64.34	85.17
170	3.50	0.08	9.28	12.28	73.62	97.46
200	3.75	0.07	0.48	0.64	74.10	98.09
230	4.00	0.06	0.21	0.28	74.31	98.37
Pan	Pan	Pan	1.15	1.52	75.46	99.89

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-1.2	0.75	2.02	2.58	2.88	2.99	3.4

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	1.70	0.31	1.26	-1.73	2.19
Moment	1.92	0.26	1.62	-1.02	2.48

## Gradation Analysis Report

Project Name: MARCO PASS SHOAL

Sample Name: MPVC-03-05 S#3

Sample Date: 04/01/03

Analyzed By: ID



**Coastal Planning & Engineering, Inc.**

2481 N.W. Boca Raton Blvd.  
Boca Raton, FL 33431

Easting: 408749	Northing: 601859	Coordinate System: State Plane 1983 FL East Feet	Elevation: -9.8 NGVD 1929 Feet
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USCS: SW-SM	Dry Munsel: 5Y-7/1	Wet Munsel: 5Y-6/2	Comments:
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Dry Weight: 77.07	Wash Weight: 74.15	Sieve Loss: 0.05	Percent Silt: 4.05	Estimated Percent Shell Content: 1.18
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Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4	-4.25	19.02	0.00	0.00	0.00	0.00
5/8	-4.00	16.00	0.00	0.00	0.00	0.00
5/16	-3.25	9.51	0.00	0.00	0.00	0.00
4	-3.00	8.00	0.30	0.39	0.30	0.39
5	-2.00	4.00	0.00	0.00	0.30	0.39
7	-1.50	2.82	0.10	0.13	0.40	0.52
10	-1.00	2.00	0.06	0.08	0.46	0.60
14	-0.50	1.41	0.04	0.05	0.50	0.65
18	0.00	1.00	0.02	0.03	0.52	0.67
25	0.50	0.70	0.05	0.06	0.57	0.74
35	1.00	0.50	0.05	0.06	0.62	0.80
45	1.50	0.35	0.08	0.10	0.70	0.91
60	2.00	0.25	0.05	0.06	0.75	0.97
80	2.50	0.17	0.92	1.19	1.67	2.17
120	3.00	0.12	41.35	53.65	43.02	55.82
170	3.50	0.08	27.13	35.20	70.15	91.02
200	3.75	0.07	2.85	3.70	73.00	94.72
230	4.00	0.06	0.95	1.23	73.95	95.95
Pan	Pan	Pan	3.07	3.98	77.02	99.94

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.53	2.63	2.71	2.95	3.27	3.4	3.81

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	3.06	0.12	0.39	0.41	0.94
Moment	3.04	0.12	0.47	0.42	1.63

## Gradation Analysis Report

Project Name: MARCO PASS SHOAL

Sample Name: MPVC-03-05 S#4

Sample Date: 04/01/03

Analyzed By: ID



**Coastal Planning & Engineering, Inc.**

2481 N.W. Boca Raton Blvd.  
Boca Raton, FL 33431

Easting: 408749	Northing: 601859	Coordinate System: State Plane 1983 FL East Feet	Elevation: -13.3 NGVD 1929 Feet
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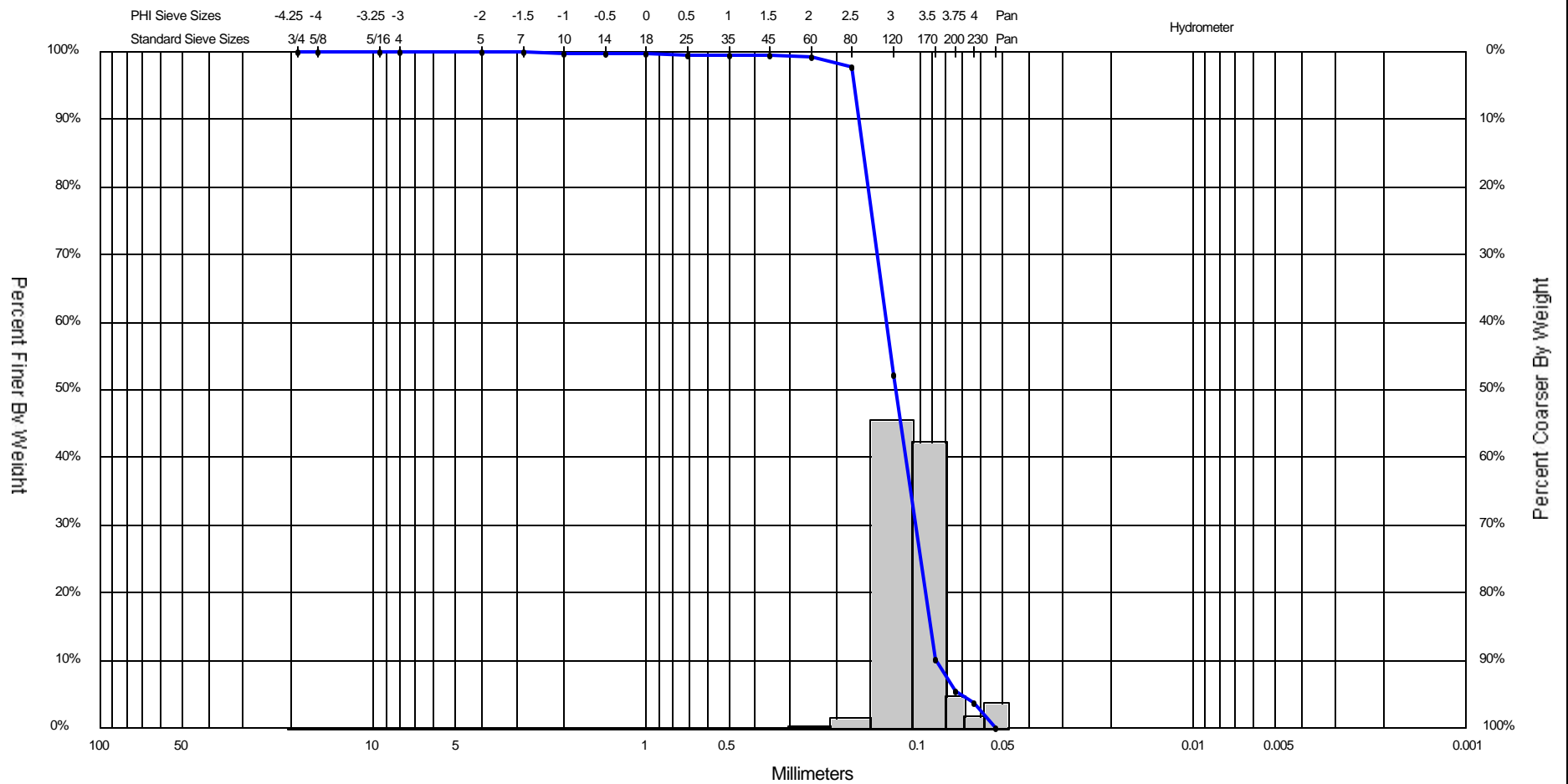
USCS: SM	Dry Munsel: 5Y-6/1	Wet Munsel: 5Y-5/2	Comments:
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Dry Weight: 48.64	Wash Weight: 41.01	Sieve Loss: 0	Percent Silt: 16.59	Estimated Percent Shell Content: 21.86
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Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4	-4.25	19.02	0.00	0.00	0.00	0.00
5/8	-4.00	16.00	0.00	0.00	0.00	0.00
5/16	-3.25	9.51	1.68	3.45	1.68	3.45
4	-3.00	8.00	2.32	4.77	4.00	8.22
5	-2.00	4.00	1.17	2.41	5.17	10.63
7	-1.50	2.82	1.15	2.36	6.32	12.99
10	-1.00	2.00	1.35	2.78	7.67	15.77
14	-0.50	1.41	1.28	2.63	8.95	18.40
18	0.00	1.00	0.91	1.87	9.86	20.27
25	0.50	0.70	0.65	1.34	10.51	21.61
35	1.00	0.50	0.63	1.30	11.14	22.90
45	1.50	0.35	0.63	1.30	11.77	24.20
60	2.00	0.25	0.53	1.09	12.30	25.29
80	2.50	0.17	0.92	1.89	13.22	27.18
120	3.00	0.12	6.09	12.52	19.31	39.70
170	3.50	0.08	13.46	27.67	32.77	67.37
200	3.75	0.07	4.72	9.70	37.49	77.08
230	4.00	0.06	3.08	6.33	40.57	83.41
Pan	Pan	Pan	8.07	16.59	48.64	100.00

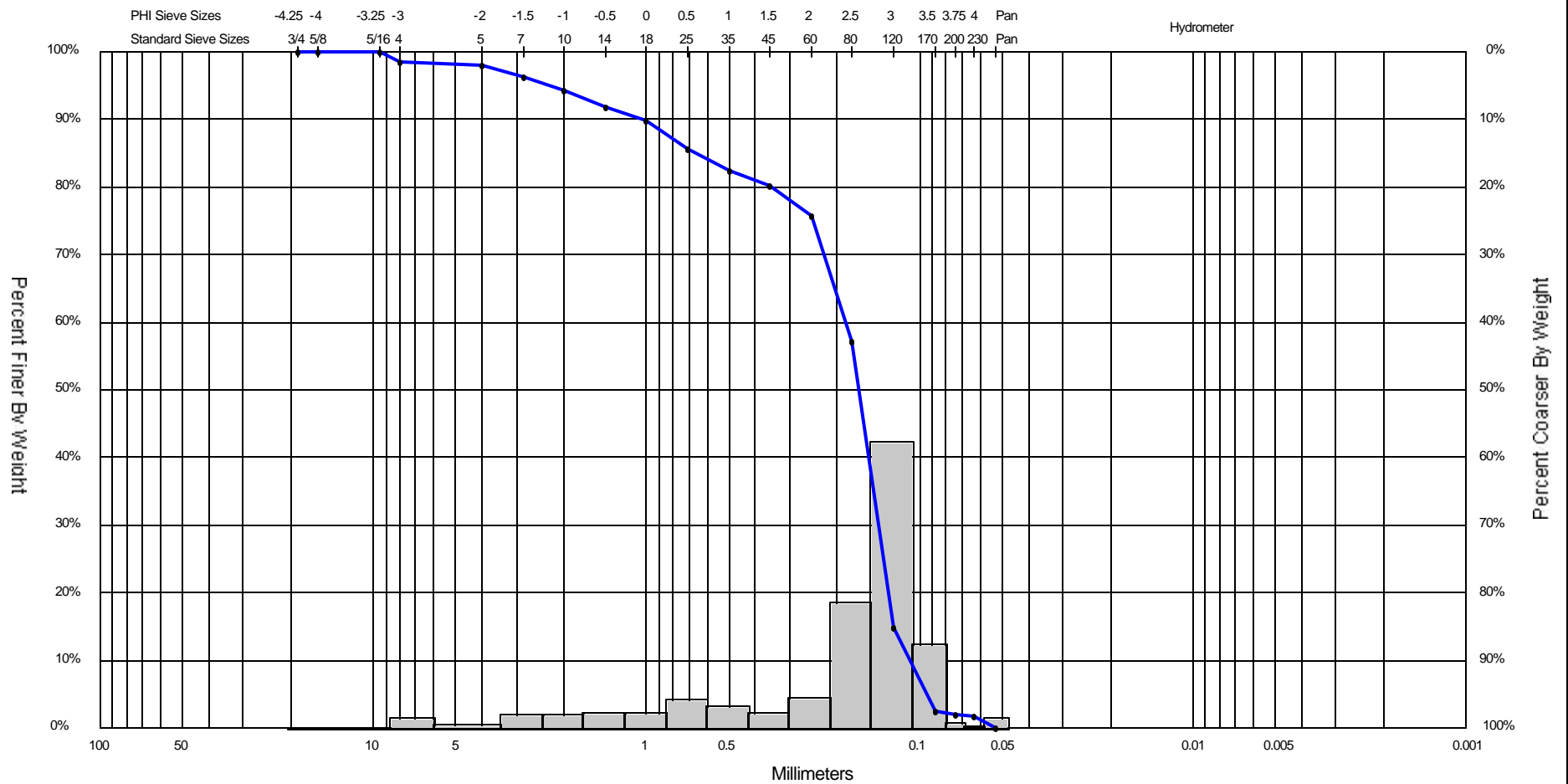
Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-3.17	-0.96	1.87	3.19	3.7	4.01	4.17

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	1.45	0.37	2.35	-1.54	1.65
Moment	1.83	0.28	2.84	-0.83	1.93






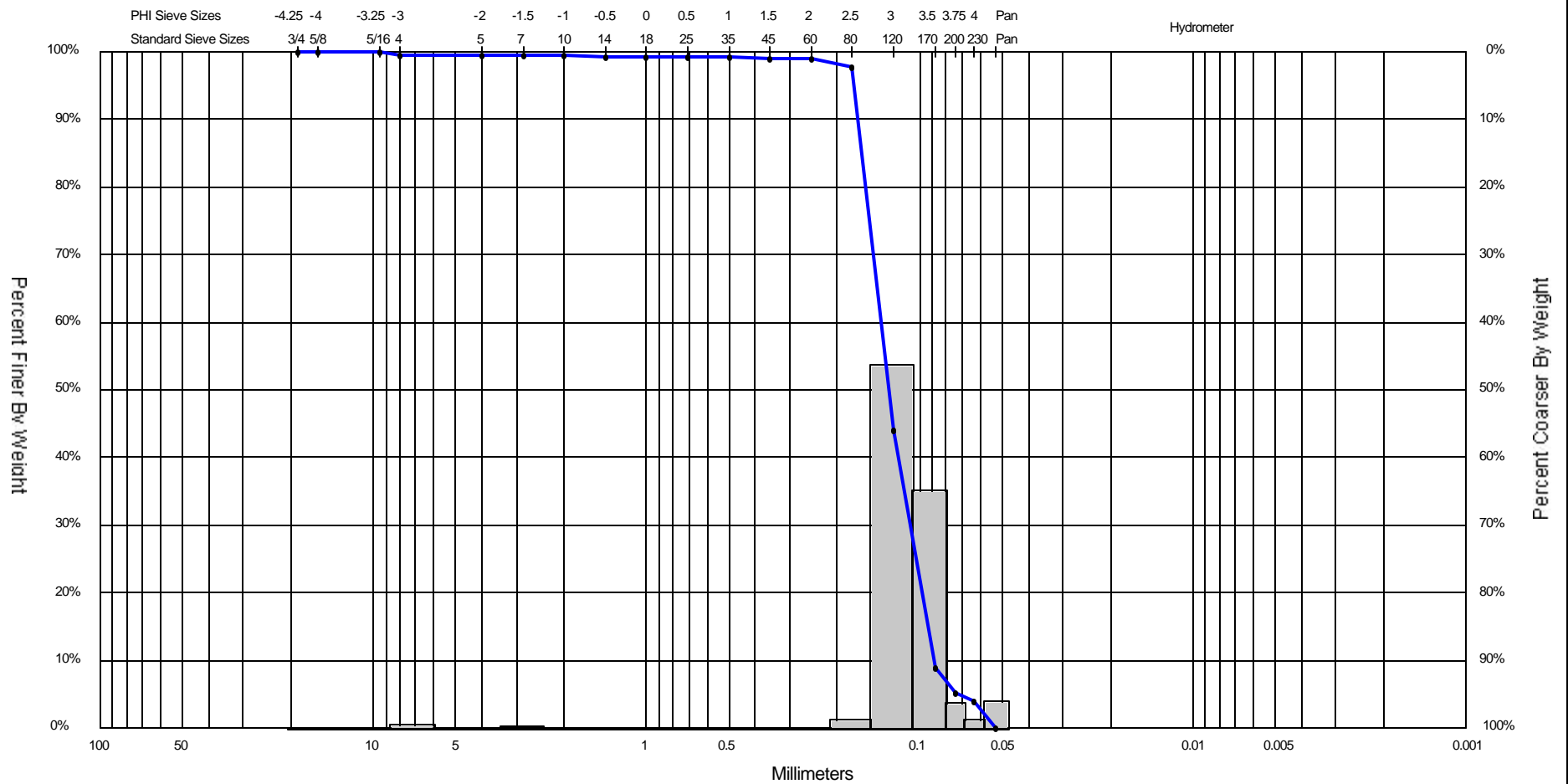
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information	
MPVC-03-05 S#1		-7.8		SW-SM	3.72	0.12	0.12	0.30	1.54	0.47	Project Name:	MARCO PASS SHOAL
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	04/01/03
											Analyzed By:	ID
 <div> <b>Coastal Planning &amp; Engineering, Inc.</b>  2481 N.W. Boca Raton Blvd.  Boca Raton, FL 33431  ph 561 391-8102      fax 561 391-9116 </div>											Easting (X):	408749
											Northing (Y):	601859
											Horizontal System:	State Plane 1983 FL East Feet
											Vertical System:	NGVD 1929 Feet




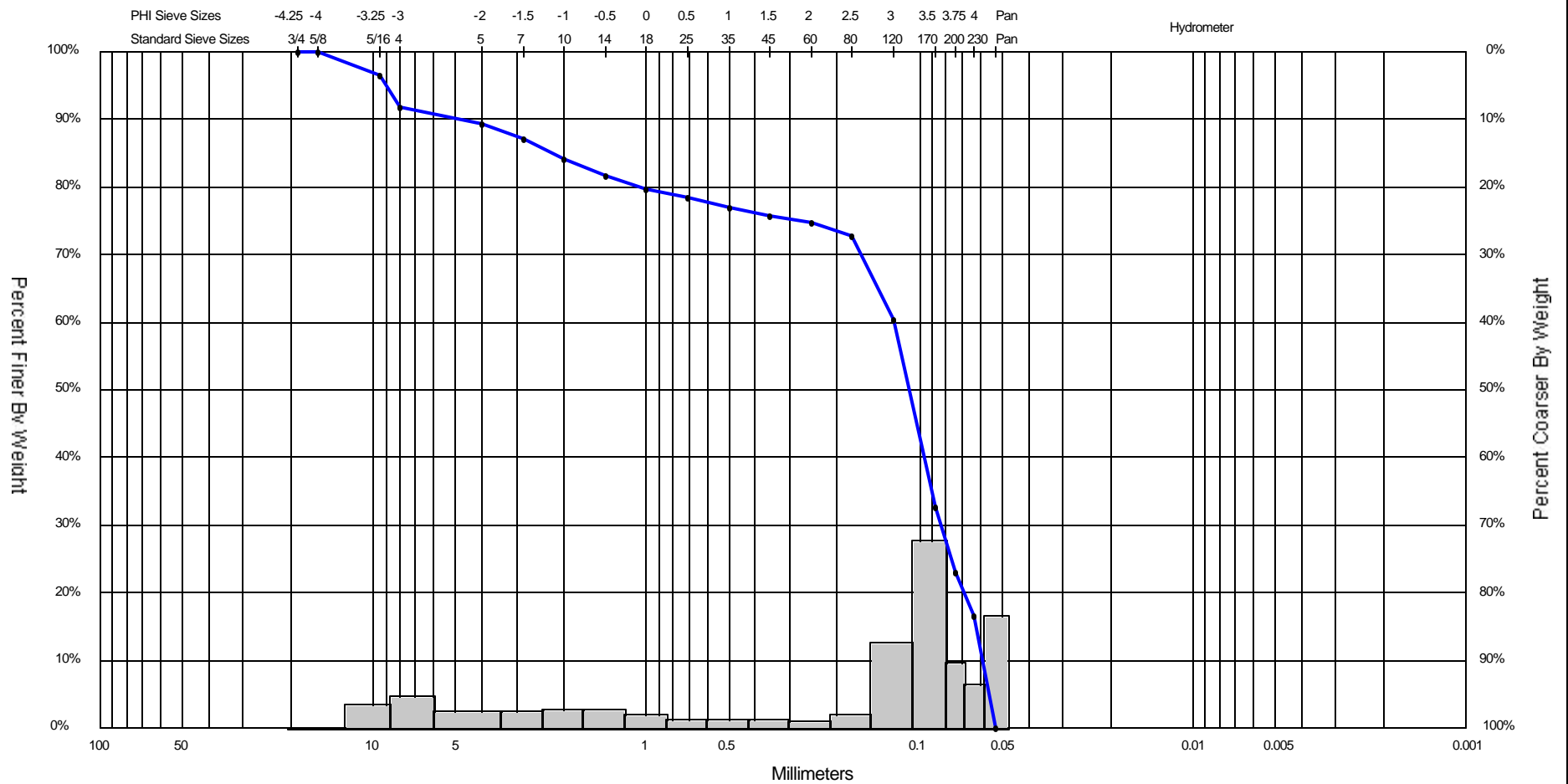
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information		
MPVC-03-05 S#2		-6.7		SW	1.63	0.17	0.26	-1.02	2.48	1.62	Project Name:	MARCO PASS SHOAL	
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	04/01/03	
											Analyzed By:	ID	
				<b>Coastal Planning &amp; Engineering, Inc.</b> 2481 N.W. Boca Raton Blvd. Boca Raton, FL 33431  ph 561 391-8102                      fax 561 391-9116							Easting (X):		408749
											Northing (Y):		601859
											Horizontal System:		State Plane 1983 FL East Feet
											Vertical System:		NGVD 1929 Feet




Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information	
MPVC-03-05 S#3		-9.8		SW-SM	4.05	0.13	0.12	0.42	1.63	0.47	Project Name:	MARCO PASS SHOAL
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	04/01/03
											Analyzed By:	ID
 <div> <b>Coastal Planning &amp; Engineering, Inc.</b>  2481 N.W. Boca Raton Blvd.  Boca Raton, FL 33431  ph 561 391-8102 fax 561 391-9116 </div>											Easting (X):	408749
											Northing (Y):	601859
											Horizontal System:	State Plane 1983 FL East Feet
											Vertical System:	NGVD 1929 Feet



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information	
MPVC-03-05 S#4		-13.3		SM	16.59	0.11	0.28	-0.83	1.93	2.84	Project Name:	MARCO PASS SHOAL
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	04/01/03
											Analyzed By:	ID
 <div> <b>Coastal Planning &amp; Engineering, Inc.</b>  2481 N.W. Boca Raton Blvd.  Boca Raton, FL 33431  ph 561 391-8102      fax 561 391-9116 </div>											Easting (X):	408749
											Northing (Y):	601859
											Horizontal System:	State Plane 1983 FL East Feet
											Vertical System:	NGVD 1929 Feet