

Gradation Analysis Report

Project Name: Collier County
 Sample Name: CCVC-03-31 S#1
 Sample Date: 8/27/03
 Analyzed By: ID/JB



Coastal Planning & Engineering, Inc.
 2481 N.W. Boca Raton Blvd.
 Boca Raton, FL 33431

Easting: 356171	Northing: 665797	Coordinate System: State Plane 1983 FL East Ft	Elevation: -30.5 NGVD 1929 Feet
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USCS: SW-SM	Dry Munsel: 5Y-7/1	Wet Munsel: 5Y-7/1	Comments:
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Dry Weight: 58.79	Wash Weight: 55.82	Sieve Loss: 0	Percent Silt: 5.19	Estimated Percent Shell Content: 3.81
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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	0.38	0.65	0.38	0.65
4	-3.00	8.00	0.83	1.41	1.21	2.06
5	-2.00	4.00	0.24	0.41	1.45	2.47
7	-1.50	2.82	0.47	0.80	1.92	3.27
10	-1.00	2.00	0.61	1.04	2.53	4.30
14	-0.50	1.41	0.55	0.94	3.08	5.24
18	0.00	1.00	0.45	0.77	3.53	6.00
25	0.50	0.70	0.47	0.80	4.00	6.80
35	1.00	0.50	0.49	0.83	4.49	7.64
45	1.50	0.35	0.37	0.63	4.86	8.27
60	2.00	0.25	0.44	0.75	5.30	9.02
80	2.50	0.17	2.62	4.46	7.92	13.47
120	3.00	0.12	32.60	55.45	40.52	68.92
170	3.50	0.08	13.49	22.95	54.01	91.87
200	3.75	0.07	1.36	2.31	55.37	94.18
230	4.00	0.06	0.37	0.63	55.74	94.81
Pan	Pan	Pan	3.05	5.19	58.79	100.00

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-0.63	2.52	2.6	2.83	3.13	3.33	4.01

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	2.41	0.19	0.90	-1.65	3.60
Moment	2.54	0.17	1.49	-1.42	3.63

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-31 S#2

Sample Date: 08/19/03

Analyzed By: ID/JB



Coastal Planning & Engineering, Inc.

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

Easting: 356171	Northing: 665797	Coordinate System: State Plane 1983 FL East Ft	Elevation: -31.5 NGVD 1929 Feet
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USCS: SW-SM	Dry Munsel: 5Y-7/1	Wet Munsel: 5Y-7/1	Comments:
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Dry Weight: 59.97	Wash Weight: 55.7	Sieve Loss: 0.04	Percent Silt: 7.34	Estimated Percent Shell Content: 20.04
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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	1.87	3.12	1.87	3.12
4	-3.00	8.00	3.18	5.30	5.05	8.42
5	-2.00	4.00	0.90	1.50	5.95	9.92
7	-1.50	2.82	1.11	1.85	7.06	11.77
10	-1.00	2.00	1.04	1.73	8.10	13.51
14	-0.50	1.41	0.69	1.15	8.79	14.66
18	0.00	1.00	0.62	1.03	9.41	15.69
25	0.50	0.70	0.54	0.90	9.95	16.59
35	1.00	0.50	0.57	0.95	10.52	17.54
45	1.50	0.35	0.41	0.68	10.93	18.23
60	2.00	0.25	0.45	0.75	11.38	18.98
80	2.50	0.17	1.95	3.25	13.33	22.23
120	3.00	0.12	29.81	49.71	43.14	71.94
170	3.50	0.08	10.53	17.56	53.67	89.49
200	3.75	0.07	1.47	2.45	55.14	91.95
230	4.00	0.06	0.43	0.72	55.57	92.66
Pan	Pan	Pan	4.36	7.27	59.93	99.93

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-3.16	0.17	2.53	2.78	3.09	3.34	4.08

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	1.44	0.37	1.89	-3.72	5.31
Moment	1.83	0.28	2.52	-1.16	2.76

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-31 S#3

Sample Date: 8/28/03

Analyzed By: ID/JB



Coastal Planning & Engineering, Inc.

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

Easting: 356171	Northing: 665797	Coordinate System: State Plane 1983 FL East Ft	Elevation: -32.5 NGVD 1929 Feet
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USCS: SW-SM	Dry Munsel: 5Y-7/1	Wet Munsel: 5Y-7/1	Comments:
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Dry Weight: 48.04	Wash Weight: 43.98	Sieve Loss: 0	Percent Silt: 8.58	Estimated Percent Shell Content: 13.79
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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	1.75	3.64	1.75	3.64
5	-2.00	4.00	0.24	0.50	1.99	4.14
7	-1.50	2.82	1.01	2.10	3.00	6.24
10	-1.00	2.00	0.65	1.35	3.65	7.60
14	-0.50	1.41	0.88	1.83	4.53	9.43
18	0.00	1.00	0.69	1.44	5.22	10.87
25	0.50	0.70	0.69	1.44	5.91	12.30
35	1.00	0.50	1.01	2.10	6.92	14.40
45	1.50	0.35	0.64	1.33	7.56	15.74
60	2.00	0.25	0.56	1.17	8.12	16.90
80	2.50	0.17	1.69	3.52	9.81	20.42
120	3.00	0.12	21.49	44.73	31.30	65.15
170	3.50	0.08	10.13	21.09	41.43	86.24
200	3.75	0.07	1.82	3.79	43.25	90.03
230	4.00	0.06	0.67	1.39	43.92	91.42
Pan	Pan	Pan	4.12	8.58	48.04	100.00

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-1.8	1.61	2.55	2.83	3.23	3.45	4.1

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	2.04	0.24	1.35	-2.18	3.54
Moment	2.28	0.21	1.96	-1.32	3.29

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-31 S#4

Sample Date: 08/19/03

Analyzed By: ID/JB



Coastal Planning & Engineering, Inc.

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

Easting:	356171	Northing:	665797	Coordinate System:	State Plane 1983 FL East Ft	Elevation:	-34 NGVD 1929 Feet
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USCS:	Dry Munsel:	Wet Munsel:	Comments:
SM	5Y-7/1	5Y-6/1	

Dry Weight:	Wash Weight:	Sieve Loss:	Percent Silt:	Estimated Percent Shell Content:
82.59	70.89	0	14.21	58.61

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	3.60	4.36	3.60	4.36
4	-3.00	8.00	12.21	14.78	15.81	19.14
5	-2.00	4.00	2.82	3.41	18.63	22.56
7	-1.50	2.82	5.09	6.16	23.72	28.72
10	-1.00	2.00	3.31	4.01	27.03	32.73
14	-0.50	1.41	3.49	4.23	30.52	36.95
18	0.00	1.00	3.76	4.55	34.28	41.51
25	0.50	0.70	4.17	5.05	38.45	46.56
35	1.00	0.50	4.38	5.30	42.83	51.86
45	1.50	0.35	3.02	3.66	45.85	55.52
60	2.00	0.25	2.10	2.54	47.95	58.06
80	2.50	0.17	2.35	2.85	50.30	60.90
120	3.00	0.12	13.09	15.85	63.39	76.75
170	3.50	0.08	5.65	6.84	69.04	83.59
200	3.75	0.07	1.28	1.55	70.32	85.14
230	4.00	0.06	0.53	0.64	70.85	85.79
Pan	Pan	Pan	11.74	14.21	82.59	100.00

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-3.24	-3.05	-1.8	0.82	2.94	3.57	4.16

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	0.45	0.73	2.78	-0.15	0.64
Moment	0.49	0.71	3.18	-0.07	1.11

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-31 S#5

Sample Date: 8/28/03

Analyzed By: ID/JB



Coastal Planning & Engineering, Inc.

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

Easting: 356171	Northing: 665797	Coordinate System: State Plane 1983 FL East Ft	Elevation: -35.5 NGVD 1929 Feet
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USCS: SW-SM	Dry Munsel: 5Y-6/1	Wet Munsel: 5Y-6/1	Comments:
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Dry Weight: 39.13	Wash Weight: 35.3	Sieve Loss: 0.02	Percent Silt: 9.97	Estimated Percent Shell Content: 36.5
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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	0.75	1.92	0.75	1.92
4	-3.00	8.00	3.17	8.10	3.92	10.02
5	-2.00	4.00	1.69	4.32	5.61	14.34
7	-1.50	2.82	1.77	4.52	7.38	18.86
10	-1.00	2.00	2.17	5.55	9.55	24.41
14	-0.50	1.41	1.71	4.37	11.26	28.78
18	0.00	1.00	1.62	4.14	12.88	32.92
25	0.50	0.70	1.90	4.86	14.78	37.77
35	1.00	0.50	1.75	4.47	16.53	42.24
45	1.50	0.35	1.17	2.99	17.70	45.23
60	2.00	0.25	0.90	2.30	18.60	47.53
80	2.50	0.17	1.47	3.76	20.07	51.29
120	3.00	0.12	9.44	24.12	29.51	75.42
170	3.50	0.08	4.41	11.27	33.92	86.69
200	3.75	0.07	0.94	2.40	34.86	89.09
230	4.00	0.06	0.37	0.95	35.23	90.03
Pan	Pan	Pan	3.88	9.92	39.11	99.95

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-3.15	-1.82	-0.93	2.33	2.99	3.38	4.13

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	0.97	0.51	2.40	-0.68	0.76
Moment	0.99	0.50	2.89	-0.31	1.24

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-31 S#6

Sample Date: 08/19/03

Analyzed By: ID/JB



Coastal Planning & Engineering, Inc.

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

Easting: 356171	Northing: 665797	Coordinate System: State Plane 1983 FL East Ft	Elevation: -36.5 NGVD 1929 Feet
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USCS: SW-SM	Dry Munsel: 5Y-7/1	Wet Munsel: 5Y-6/1	Comments:
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Dry Weight: 65.83	Wash Weight: 59.19	Sieve Loss: 0.01	Percent Silt: 10.38	Estimated Percent Shell Content: 43.94
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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	1.46	2.22	1.46	2.22
4	-3.00	8.00	4.45	6.76	5.91	8.98
5	-2.00	4.00	2.03	3.08	7.94	12.06
7	-1.50	2.82	3.39	5.15	11.33	17.21
10	-1.00	2.00	3.09	4.69	14.42	21.90
14	-0.50	1.41	3.13	4.75	17.55	26.66
18	0.00	1.00	2.79	4.24	20.34	30.90
25	0.50	0.70	2.49	3.78	22.83	34.68
35	1.00	0.50	2.75	4.18	25.58	38.86
45	1.50	0.35	1.70	2.58	27.28	41.44
60	2.00	0.25	1.24	1.88	28.52	43.32
80	2.50	0.17	2.61	3.96	31.13	47.29
120	3.00	0.12	18.00	27.34	49.13	74.63
170	3.50	0.08	8.06	12.24	57.19	86.88
200	3.75	0.07	1.19	1.81	58.38	88.68
230	4.00	0.06	0.62	0.94	59.00	89.62
Pan	Pan	Pan	6.82	10.36	65.82	99.98

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-3.15	-1.62	-0.67	2.55	3.02	3.38	4.13

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	1.06	0.48	2.35	-0.79	0.81
Moment	1.09	0.47	2.85	-0.37	1.31

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-31 S#7

Sample Date: 8/28/03

Analyzed By: ID/J



Coastal Planning & Engineering, Inc.

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

Easting: 356171	Northing: 665797	Coordinate System: State Plane 1983 FL East Ft	Elevation: -38 NGVD 1929 Feet
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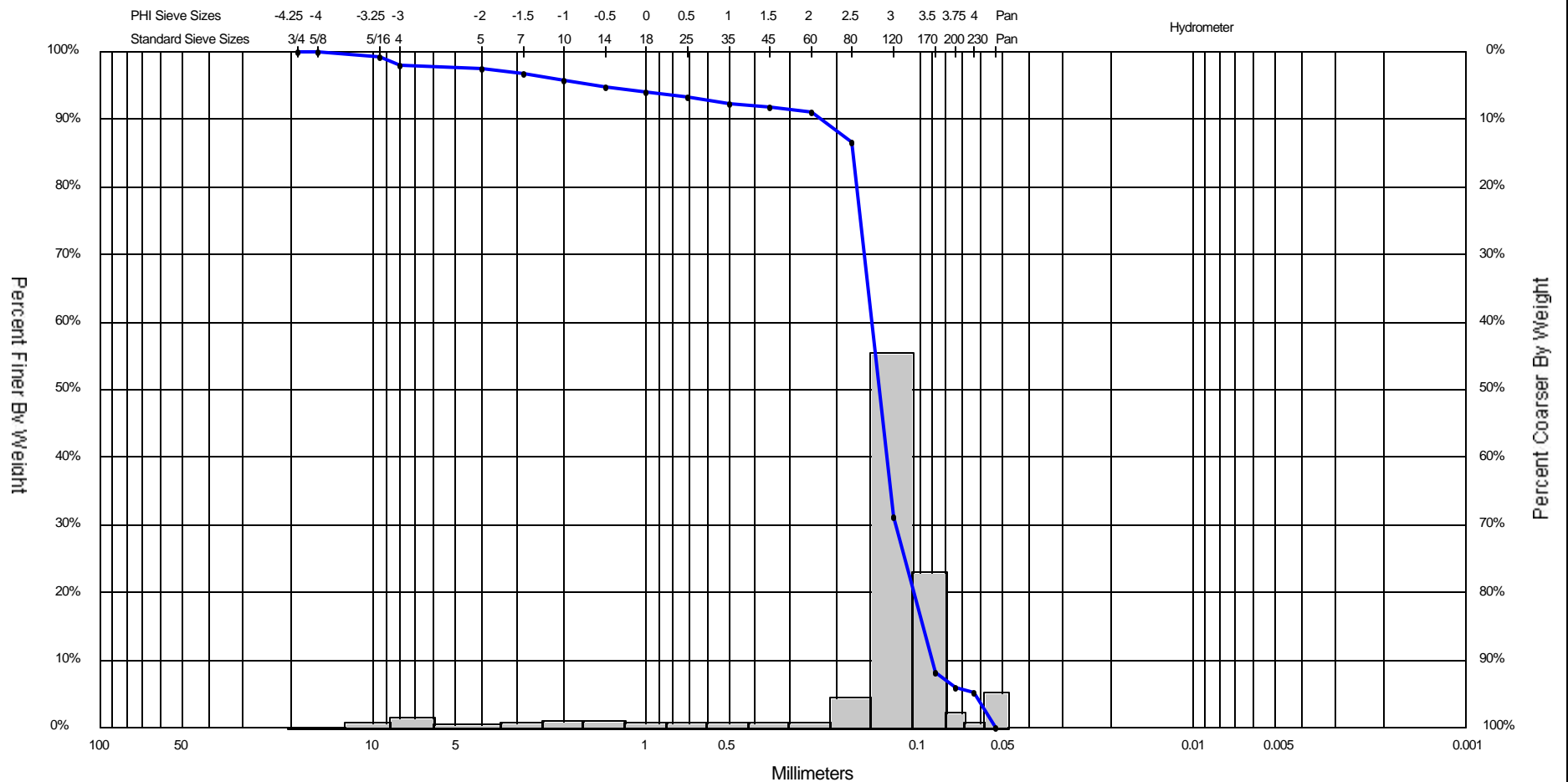
USCS: SM	Dry Munsel: 5Y-6/3	Wet Munsel: 5Y-6/3	Comments:
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Dry Weight: 41.91	Wash Weight: 36.84	Sieve Loss: 0.02	Percent Silt: 12.43	Estimated Percent Shell Content: 9.31
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Sieve Number	Sieve Size (Phi)	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	0.41	0.98	0.41	0.98
5	-2.00	4.00	0.47	1.12	0.88	2.10
7	-1.50	2.82	0.72	1.72	1.60	3.82
10	-1.00	2.00	0.59	1.41	2.19	5.23
14	-0.50	1.41	0.61	1.46	2.80	6.68
18	0.00	1.00	0.63	1.50	3.43	8.18
25	0.50	0.70	0.57	1.36	4.00	9.54
35	1.00	0.50	0.69	1.65	4.69	11.19
45	1.50	0.35	0.42	1.00	5.11	12.19
60	2.00	0.25	0.47	1.12	5.58	13.31
80	2.50	0.17	2.31	5.51	7.89	18.83
120	3.00	0.12	19.59	46.74	27.48	65.57
170	3.50	0.08	7.02	16.75	34.50	82.32
200	3.75	0.07	1.52	3.63	36.02	85.95
230	4.00	0.06	0.68	1.62	36.70	87.57
Pan	Pan	Pan	5.19	12.38	41.89	99.95

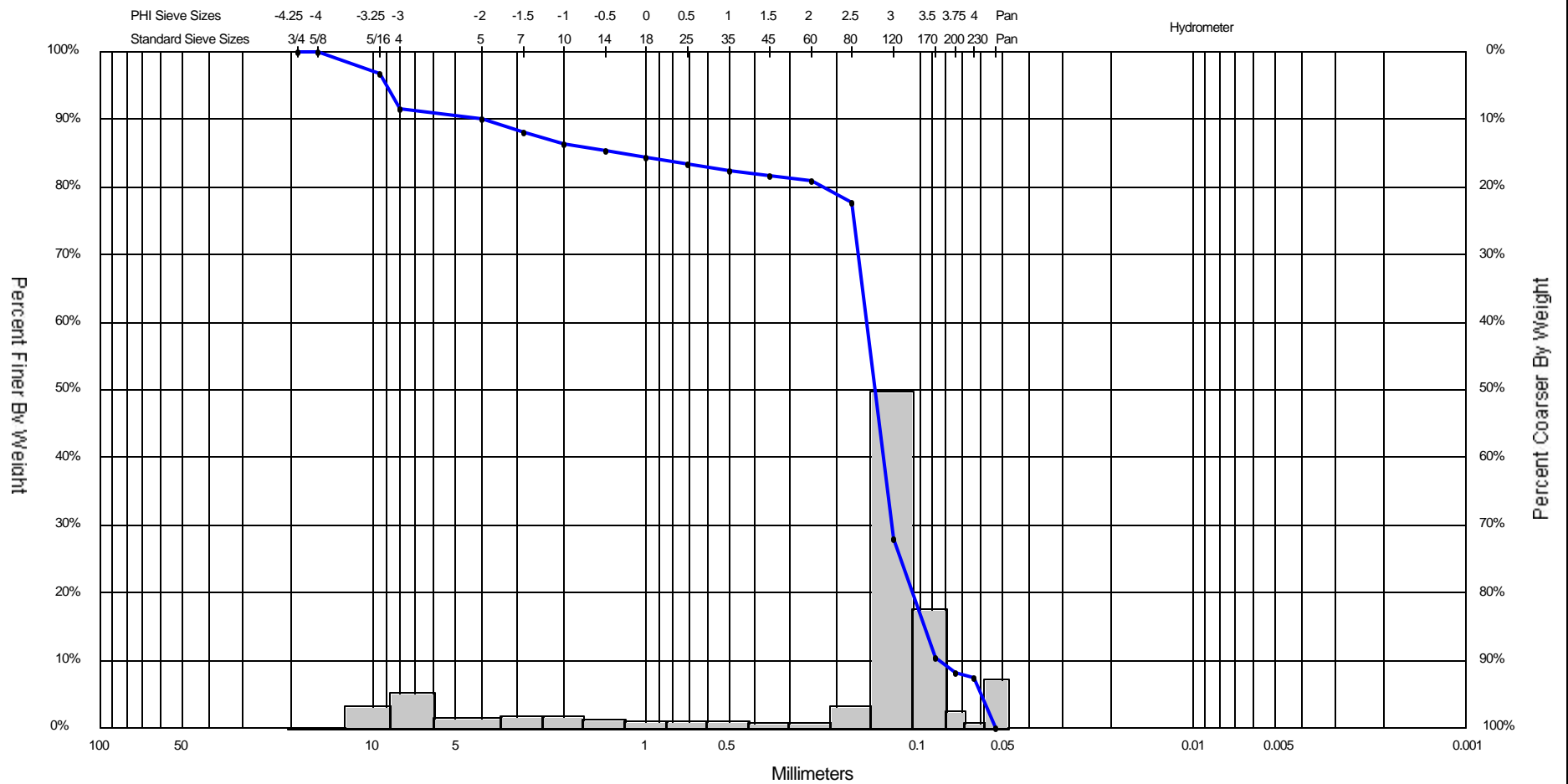
Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
-1.08	2.24	2.57	2.83	3.28	3.62	4.15

Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	2.35	0.20	1.14	-1.42	3.00
Moment	2.52	0.17	1.71	-1.34	3.42




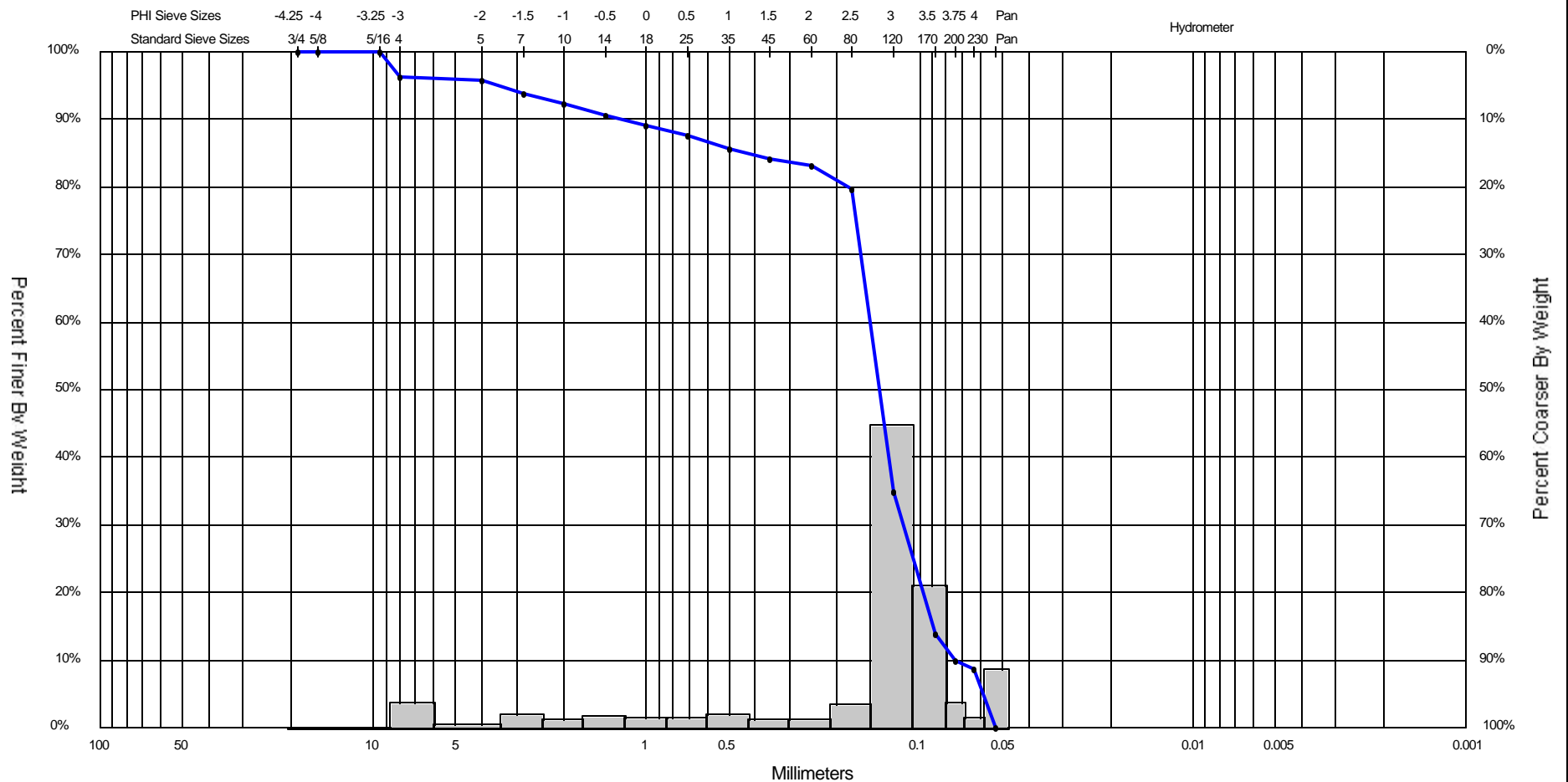
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information	
CCVC-03-31 S#1	—●—	-30.5		SW-SM	5.19	0.14	0.17	-1.42	3.63	1.49	Project Name:	Collier County
Incremental % Weight	■	N/A	Use Left Hand Scale								Collection Date:	8/27/03
											Analyzed By:	ID/JB
 <div> Coastal Planning & Engineering, Inc. 2481 N.W. Boca Raton Blvd. Boca Raton, FL 33431 ph 561 391-8102 fax 561 391-9116 </div>											Easting (X):	356171
											Northing (Y):	665797
											Horizontal System:	State Plane 1983 FL East Ft
											Vertical System:	NGVD 1929 Feet



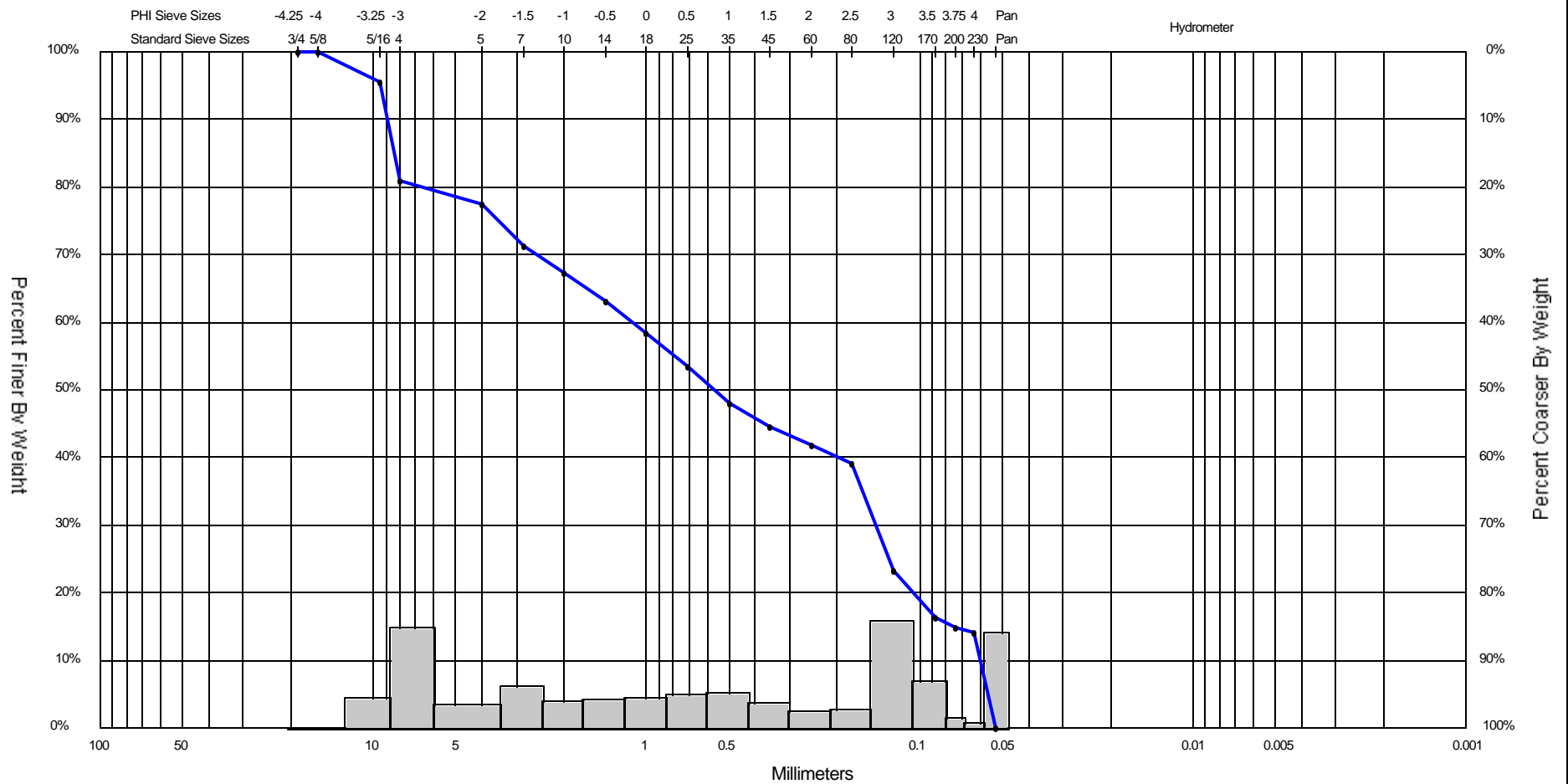
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information	
CCVC-03-31 S#2		-31.5		SW-SM	7.34	0.15	0.28	-1.16	2.76	2.52	Project Name:	Collier County
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	08/19/03
											Analyzed By:	ID/JB
 <div> Coastal Planning & Engineering, Inc. 2481 N.W. Boca Raton Blvd. Boca Raton, FL 33431 ph 561 391-8102 fax 561 391-9116 </div>											Easting (X):	356171
											Northing (Y):	665797
											Horizontal System:	State Plane 1983 FL East Ft
											Vertical System:	NGVD 1929 Feet




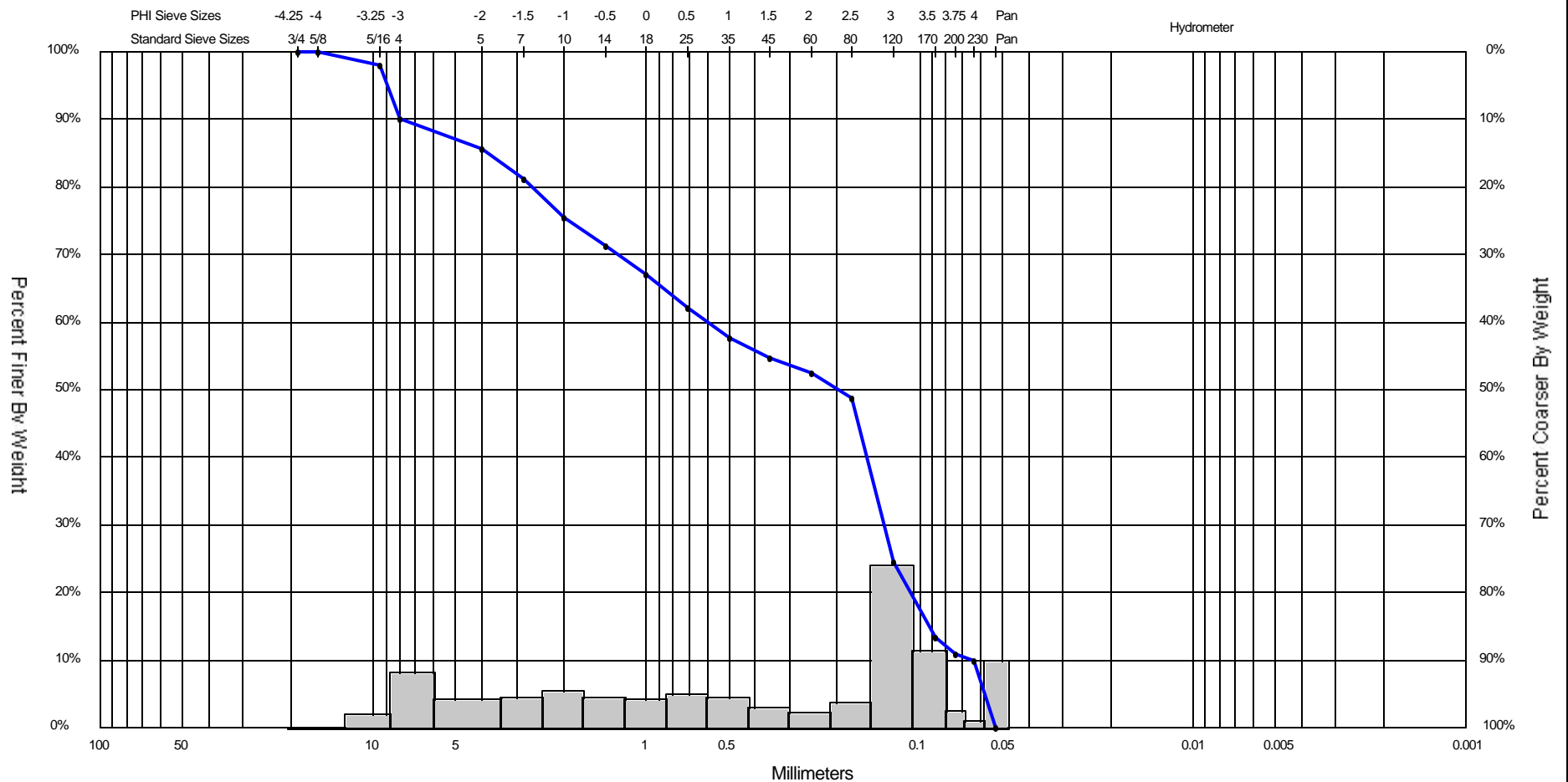
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information	
CCVC-03-31 S#3		-32.5		SW-SM	8.58	0.14	0.21	-1.32	3.29	1.96	Project Name:	Collier County
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	8/28/03
											Analyzed By:	ID/JB
<div> Coastal Planning & Engineering, Inc. 2481 N.W. Boca Raton Blvd. Boca Raton, FL 33431 ph 561 391-8102 fax 561 391-9116 </div>											Easting (X):	356171
											Northing (Y):	665797
											Horizontal System:	State Plane 1983 FL East Ft
											Vertical System:	NGVD 1929 Feet



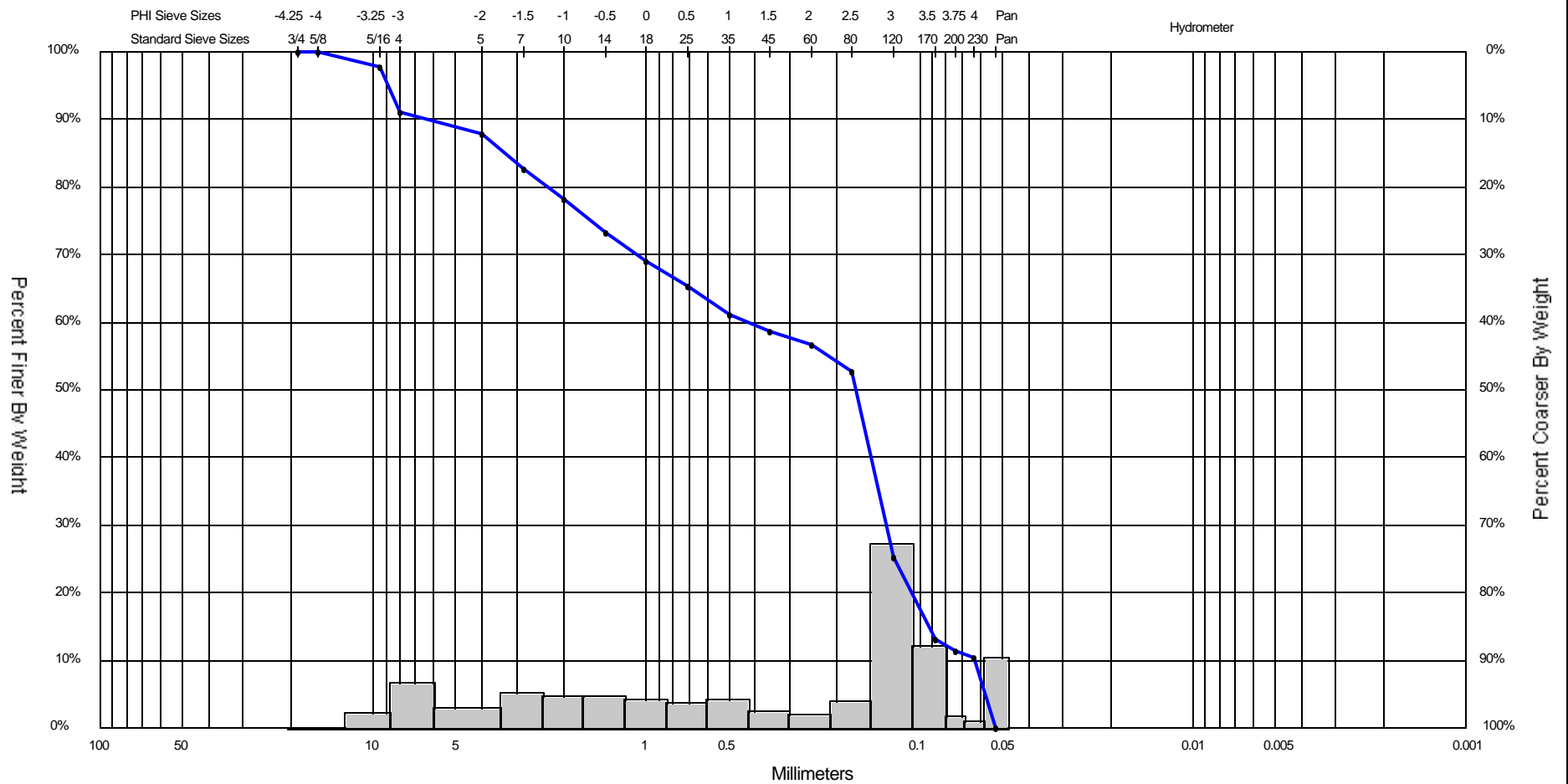
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information	
CCVC-03-31 S#4		-34		SM	14.21	0.57	0.71	-0.07	1.11	3.18	Project Name:	Collier County
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	08/19/03
											Analyzed By:	ID/JB
 <div> Coastal Planning & Engineering, Inc. 2481 N.W. Boca Raton Blvd. Boca Raton, FL 33431 ph 561 391-8102 fax 561 391-9116 </div>											Easting (X):	356171
											Northing (Y):	665797
											Horizontal System:	State Plane 1983 FL East Ft
											Vertical System:	NGVD 1929 Feet




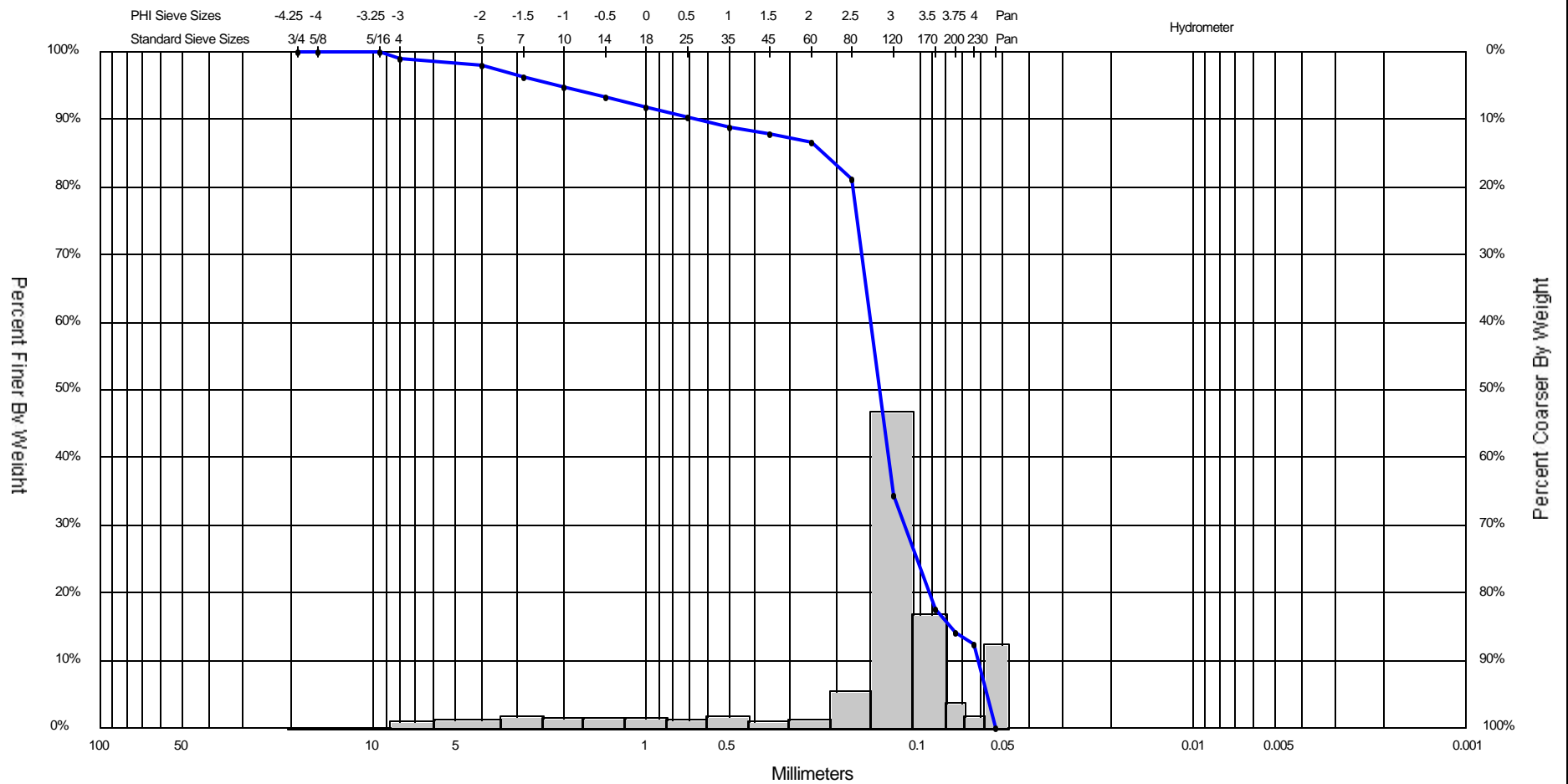
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev.	Comments	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	Sample Information	
CCVC-03-31 S#5		-35.5		SW-SM	9.97	0.20	0.50	-0.31	1.24	2.89	Project Name:	Collier County
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	8/28/03
											Analyzed By:	ID/JB
<div> Coastal Planning & Engineering, Inc. 2481 N.W. Boca Raton Blvd. Boca Raton, FL 33431 ph 561 391-8102 fax 561 391-9116 </div>											Easting (X):	356171
											Northing (Y):	665797
											Horizontal System:	State Plane 1983 FL East Ft
											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	
CCVC-03-31 S#6		-36.5		SW-SM	10.38	0.17	0.47	-0.37	1.31	2.85	Project Name:	Collier County
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	08/19/03
											Analyzed By:	ID/JB
 <div> Coastal Planning & Engineering, Inc. 2481 N.W. Boca Raton Blvd. Boca Raton, FL 33431 ph 561 391-8102 fax 561 391-9116 </div>											Easting (X):	356171
											Northing (Y):	665797
											Horizontal System:	State Plane 1983 FL East Ft
											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	
CCVC-03-31 S#7		-38		SM	12.43	0.14	0.17	-1.34	3.42	1.71	Project Name:	Collier County
Incremental % Weight		N/A	Use Left Hand Scale								Collection Date:	8/28/03
											Analyzed By:	ID/J
 <div> Coastal Planning & Engineering, Inc. 2481 N.W. Boca Raton Blvd. Boca Raton, FL 33431 ph 561 391-8102 fax 561 391-9116 </div>											Easting (X):	356171
											Northing (Y):	665797
											Horizontal System:	State Plane 1983 FL East Ft
											Vertical System:	NGVD 1929 Feet