

DRILLING LOG		DIVISION: South Atlantic	INSTALLATION: Jacksonville District	SHEET 1 of 1
1. PROJECT		CENTRAL BOCA SAND STUDY		
(Coordinates or Station)				
2. LOCATION		X=964495.85 Y=739127.92		
3. DRILLING AGENCY: Alpine Ocean Seismic Survey Inc.		10. SIZE AND TYPE OF BIT 3 5/8"		
4. HOLE NO. (As shown on drawing title and file number)		11. DATUM FOR ELEVATION SHOWN ^(TBM or MSL)		
CIVC-00-01A		MLW		
5. NAME OF DRILLER		12. MANUFACTURER'S DESIGNATION OF DRILL		
JAMES COLE		ALPINE PNEUMATIC VIBRACORE		
6. DIRECTION OF HOLE		13. TOT NO. OF OVERBURDEN SAMPLES TAKEN		
VERTICAL		Disturbed: 0 Undisturbed: 0		
7. THICKNESS OF BURDEN 0.0 FT		14. TOTAL NO. OF CORE BOXES		
8. DEPTH DRILLED INTO ROCK N/A		15. ELEVATION GROUND WATER		
9. TOTAL DEPTH OF HOLE 19.7 FT		16. DATE HOLE Started Completed		
		3/21/01 16:30		
		17. ELEVATION TOP OF HOLE -57.2 ft		
		18. TOTAL CORE RECOVERY FOR BORING 100%		
		19. SIGNATURE OF GEOLOGIST TT/MW		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS
-57.2	0					
	1					
	2					
	3					
	4		SAND, fine to medium grained, gray, (5Y-5/1), (SP). 1" coral @ 2.7', 1" coral @ 4.1', 1" coral @ 7.4', two 2.5" coral fragments @ 5.8'.		1	Sample #1, Depth = 2.5' Mean (mm): 0.19, Phi Sorting: 0.70 Silt: 2.15% (SP)
	5					
	6					
	7					
-65.3	8					
-66.4	9		SAND fine to medium grained, little shell hash, gray (5Y 6-1), (SP). 0.5" coral @ 9.0'.		2	Sample #2, Depth = 9.0' Mean (mm): 0.29, Phi Sorting: 1.25 Silt: 2.42% (SW)
	10					
	11					
	12		SAND fine to medium grained, trace shell hash, gray (5Y-5/1), (SP). 1" coral @ 10.6', 2" coral @ 10.9'.		3	Sample #3, Depth = 13.0' Mean (mm): 0.19, Phi Sorting: 0.75 Silt: 2.64% (SP)
	13					
	14					
-72.7	15					
	16		SAND medium to fine grained, some shell hash, gray (5Y-5/1), (SP).		4	Sample #4, Depth = 15.7' Mean (mm): 0.30, Phi Sorting: 1.58 Silt: 2.77% (SW)
-74.2	17		SAND fine to medium grained, trace shell hash, gray (5Y-5/1), (SP).		3	
	18					
	19		SAND medium to fine grained, some shell hash, whole shell and coral fragments ranging from coarse sand to 1/2" size, gray (5Y-5/1), (GP).			
-76.9	20		Expansion from 19.7' to 20.0'.			
-77.2	21		End of Boring			
	22					Note: 1) This column contains laboratory data. 2) Samples are taken from a 3" section of the core, centered on the sample depth.
	23		Note: 1) Soils are field visually classified in accordance with the Unified Soil Classification System.			
	24					

Gradation Analysis Report

Proj Name: Central Boca
 Sample: CBVC-01-01A#1
 Date: 4/13/01
 By: ID

COASTAL PLANNING & ENGINEERING, INC.

2841 N. W. Boca Raton Blvd. Boca Raton FL 33428

Elevation: -59.70 Feet Easting: 964495.85 State Plane 1983
 Reference: NGVD Northing: 739127.92 FLA East Feet

USCS: SP Munsel Dry: 5Y 6/1 Munsel Wet: 5Y 5/1
 Comments: 0

Dry Wt. 65.01 Percent Silt: 2.15
 Wash Wt. 63.64

Sieve Size	PHI Size	mm Size	Grams Retained	% Weight Retained	Cum. Grams Retained	C % Weight Retained
3/4	-4.250	19.027	0.000	0.000	0.000	0.000
5/8	-4.000	16.000	0.000	0.000	0.000	0.000
5/16	-3.250	9.514	0.000	0.000	0.000	0.000
4	-3.000	8.000	0.070	0.108	0.070	0.108
5	-2.000	4.000	0.080	0.123	0.150	0.231
7	-1.500	2.828	0.050	0.077	0.200	0.308
10	-1.000	2.000	0.150	0.231	0.350	0.538
14	-0.500	1.414	0.280	0.431	0.630	0.969
18	0.000	1.000	0.320	0.492	0.950	1.461
25	0.500	0.707	0.600	0.923	1.550	2.384
35	1.000	0.500	0.930	1.431	2.480	3.815
45	1.500	0.354	1.650	2.538	4.130	6.353
60	2.000	0.250	7.040	10.829	11.170	17.182
80	2.500	0.177	20.200	31.072	31.370	48.254
120	3.000	0.125	27.790	42.747	59.160	91.001
170	3.500	0.088	4.340	6.676	63.500	97.677
200	3.750	0.074	0.100	0.154	63.600	97.831
230	4.000	0.063	0.020	0.031	63.620	97.862
Pan	Pan	0.053	1.380	2.123	65.000	99.985

PHI 5 PHI 16 PHI 25 PHI 50 PHI 75 PHI 84 PHI 95
 1.23 1.95 2.13 2.52 2.81 2.92 3.30

Median phi: 2.52 Median mm: 0.17

	Mean phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	2.38	0.19	0.56	-0.39	1.23
Moment	2.41	0.19	0.70	-0.41	1.91

Gradation Analysis Report

Proj Name: Central Boca
 Sample: CBVC-01-01A#2
 Date: 4/13/01
 By: ID

COASTAL PLANNING & ENGINEERING, INC.

2841 N. W. Boca Raton Blvd. Boca Raton FL 33428

Elevation:	-66.20	Feet	Easting:	964495.85	State Plane	1983
Reference:	NGVD		Northing:	739127.92	FLA East	Feet

USCS:	SW	Munsel Dry:	5Y 6/1	Munsel Wet:	5Y 5/1
Comments:	0				

Dry Wt.	62.86	Percent Silt:	2.42
Wash Wt.	61.36		

Sieve Size	PHI Size	mm Size	Grams Retained	% Weight Retained	Cum. Grams Retained	C % Weight Retained
3/4	-4.250	19.027	0.000	0.000	0.000	0.000
5/8	-4.000	16.000	0.000	0.000	0.000	0.000
5/16	-3.250	9.514	0.000	0.000	0.000	0.000
4	-3.000	8.000	0.400	0.636	0.400	0.636
5	-2.000	4.000	0.410	0.652	0.810	1.289
7	-1.500	2.828	0.550	0.875	1.360	2.164
10	-1.000	2.000	0.660	1.050	2.020	3.213
14	-0.500	1.414	1.020	1.623	3.040	4.836
18	0.000	1.000	1.550	2.466	4.590	7.302
25	0.500	0.707	2.330	3.707	6.920	11.009
35	1.000	0.500	3.610	5.743	10.530	16.752
45	1.500	0.354	6.150	9.784	16.680	26.535
60	2.000	0.250	12.010	19.106	28.690	45.641
80	2.500	0.177	16.440	26.153	45.130	71.794
120	3.000	0.125	14.230	22.638	59.360	94.432
170	3.500	0.088	1.840	2.927	61.200	97.359
200	3.750	0.074	0.110	0.175	61.310	97.534
230	4.000	0.063	0.020	0.032	61.330	97.566
Pan	Pan	0.053	1.500	2.386	62.830	99.952

PHI 5	PHI 16	PHI 25	PHI 50	PHI 75	PHI 84	PHI 95
-0.47	0.93	1.42	2.08	2.57	2.77	3.09

Median phi:	2.08	Median mm:	0.24
-------------	------	------------	------

	Mean phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	1.68	0.31	1.00	-0.68	1.27
Moment	1.77	0.29	1.25	-0.69	2.08

Gradation Analysis Report

Proj Name: Central Boca
 Sample: CBVC-01-01A#3
 Date: 4/13/01
 By: ID

COASTAL PLANNING & ENGINEERING, INC.

2841 N. W. Boca Raton Blvd. Boca Raton FL 33428

Elevation:	-70.20	Feet	Easting:	964495.85	State Plane	1983
Reference:	NGVD		Northing:	739127.92	FLA East	Feet

USCS:	SP	Munsel Dry:	5Y 6/1	Munsel Wet:	5Y 5/1
Comments:	0				

Dry Wt.	67.44	Percent Silt:	2.64
Wash Wt.	65.69		

Sieve Size	PHI Size	mm Size	Grams Retained	% Weight Retained	Cum. Grams Retained	C % Weight Retained
3/4	-4.250	19.027	0.000	0.000	0.000	0.000
5/8	-4.000	16.000	0.000	0.000	0.000	0.000
5/16	-3.250	9.514	0.000	0.000	0.000	0.000
4	-3.000	8.000	0.000	0.000	0.000	0.000
5	-2.000	4.000	0.000	0.000	0.000	0.000
7	-1.500	2.828	0.050	0.074	0.050	0.074
10	-1.000	2.000	0.150	0.222	0.200	0.297
14	-0.500	1.414	0.220	0.326	0.420	0.623
18	0.000	1.000	0.360	0.534	0.780	1.157
25	0.500	0.707	0.710	1.053	1.490	2.209
35	1.000	0.500	1.240	1.839	2.730	4.048
45	1.500	0.354	2.150	3.188	4.880	7.236
60	2.000	0.250	8.020	11.892	12.900	19.128
80	2.500	0.177	17.860	26.483	30.760	45.611
120	3.000	0.125	28.960	42.942	59.720	88.553
170	3.500	0.088	5.640	8.363	65.360	96.916
200	3.750	0.074	0.280	0.415	65.640	97.331
230	4.000	0.063	0.020	0.030	65.660	97.361
Pan	Pan	0.053	1.760	2.610	67.420	99.970

PHI 5	PHI 16	PHI 25	PHI 50	PHI 75	PHI 84	PHI 95
1.15	1.87	2.11	2.55	2.84	2.95	3.38

Median phi:	2.55	Median mm:	0.17
-------------	------	------------	------

	Mean phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	2.38	0.19	0.61	-0.45	1.25
Moment	2.41	0.19	0.75	-0.39	1.87

Gradation Analysis Report

Proj Name: Central Boca
 Sample: CBVC-01-01A#4
 Date: 4/13/01
 By: ID

COASTAL PLANNING & ENGINEERING, INC.

2841 N. W. Boca Raton Blvd. Boca Raton FL 33428

Elevation:	-72.90	Feet	Easting:	964495.85	State Plane	1983
Reference:	NGVD		Northing:	739127.92	FLA East	Feet

USCS:	SW	Munsel Dry:	5Y 6/1	Munsel Wet:	5Y 5/1
Comments:	0				

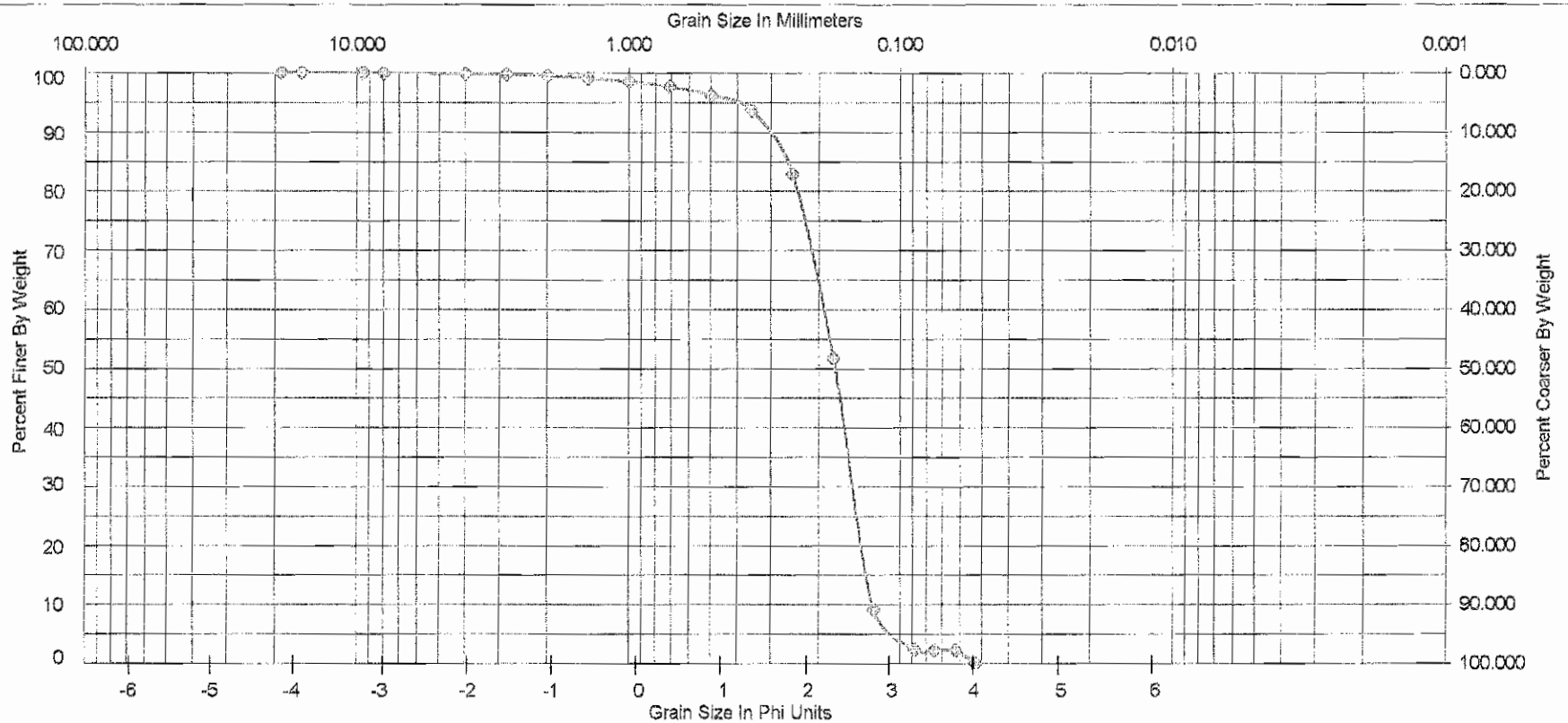
Dry Wt.	50.62	Percent Silt:	2.77
Wash Wt.	49.23		

Sieve Size	PHI Size	mm Size	Grams Retained	% Weight Retained	Cum. Grams Retained	C % Weight Retained
3/4	-4.250	19.027	0.000	0.000	0.000	0.000
5/8	-4.000	16.000	0.000	0.000	0.000	0.000
5/16	-3.250	9.514	0.940	1.857	0.940	1.857
4	-3.000	8.000	0.060	0.119	1.000	1.976
5	-2.000	4.000	0.130	0.257	1.130	2.232
7	-1.500	2.828	0.710	1.403	1.840	3.635
10	-1.000	2.000	1.020	2.015	2.860	5.650
14	-0.500	1.414	1.440	2.845	4.300	8.495
18	0.000	1.000	1.460	2.884	5.760	11.379
25	0.500	0.707	1.880	3.714	7.640	15.093
35	1.000	0.500	2.340	4.623	9.980	19.716
45	1.500	0.354	3.090	6.104	13.070	25.820
60	2.000	0.250	6.090	12.031	19.160	37.851
80	2.500	0.177	11.230	22.185	30.390	60.036
120	3.000	0.125	15.460	30.541	45.850	90.577
170	3.500	0.088	3.160	6.243	49.010	96.819
200	3.750	0.074	0.190	0.375	49.200	97.195
230	4.000	0.063	0.010	0.020	49.210	97.215
Pan	Pan	0.053	1.390	2.746	50.600	99.960

PHI 5	PHI 16	PHI 25	PHI 50	PHI 75	PHI 84	PHI 95
-1.16	0.60	1.43	2.27	2.74	2.89	3.35

Median phi:	2.27	Median mm:	0.21
-------------	------	------------	------

	Mean phi	Mean mm	Sorting	Skewness	Kurtosis
Graphic	1.59	0.33	1.26	-0.97	1.41
Moment	1.73	0.30	1.58	-0.79	2.17

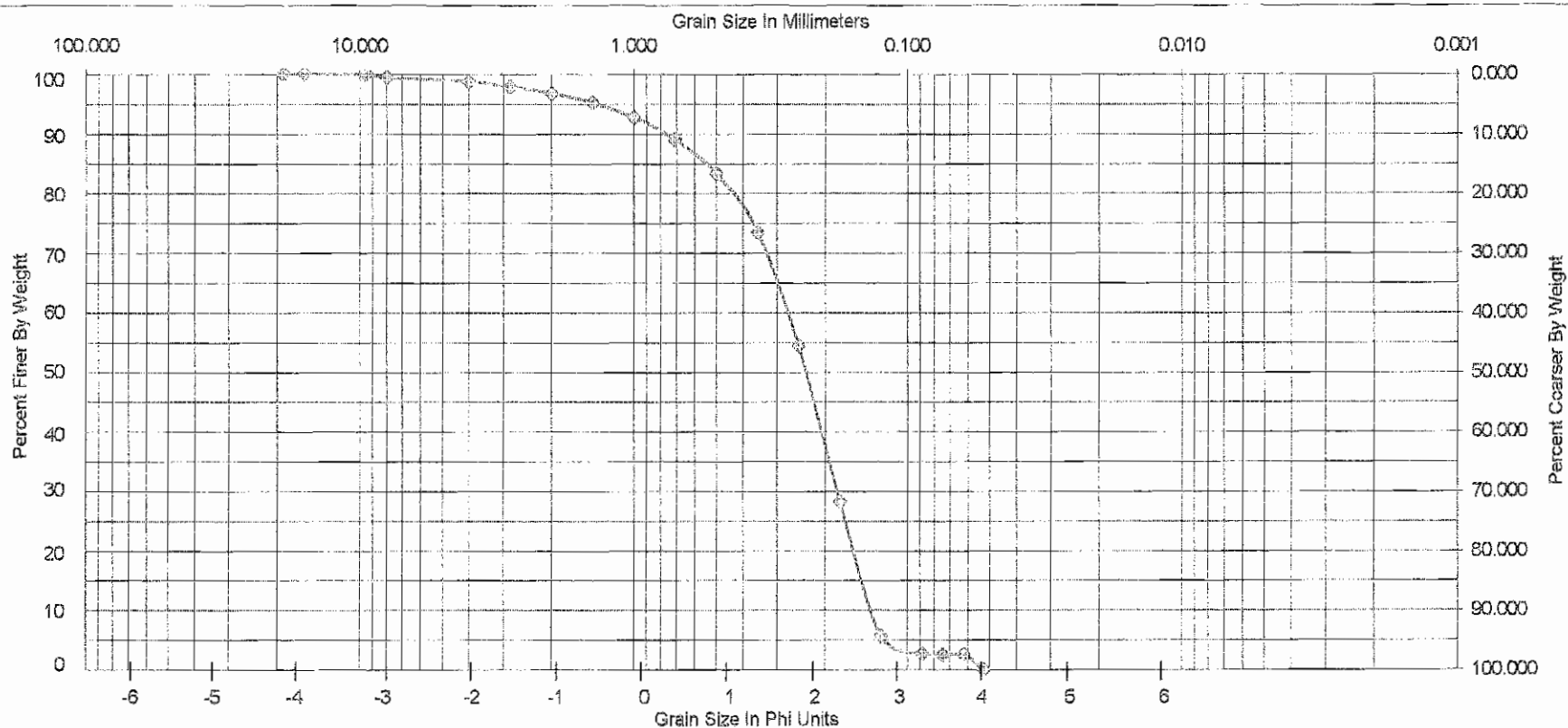


Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample No.	Depth	Description	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	PL	LL	PI	Sample Information	
CBVC-01-01A#1	2.5		SP	2.15	0.17	0.19	-0.41	1.91	0.7	NA	NA	NA	Project Name:	Central Boca
													Sample Type:	VibraCores
													Collection Date:	4/13/01
													Analysis By:	ID
													Easting (X):	964495.85 Feet
													Northing (Y):	739127.92 Feet
													Sample Elevation:	-59.7 NGVD
													Coord. System:	State Plane 1983 FLA East

COASTAL PLANNING & ENGINEERING, INC.

COASTAL PLANNING & ENGINEERING, INC.
2481 N. W. BOCA RATON BLVD.
BOCA RATON, FLORIDA 33431

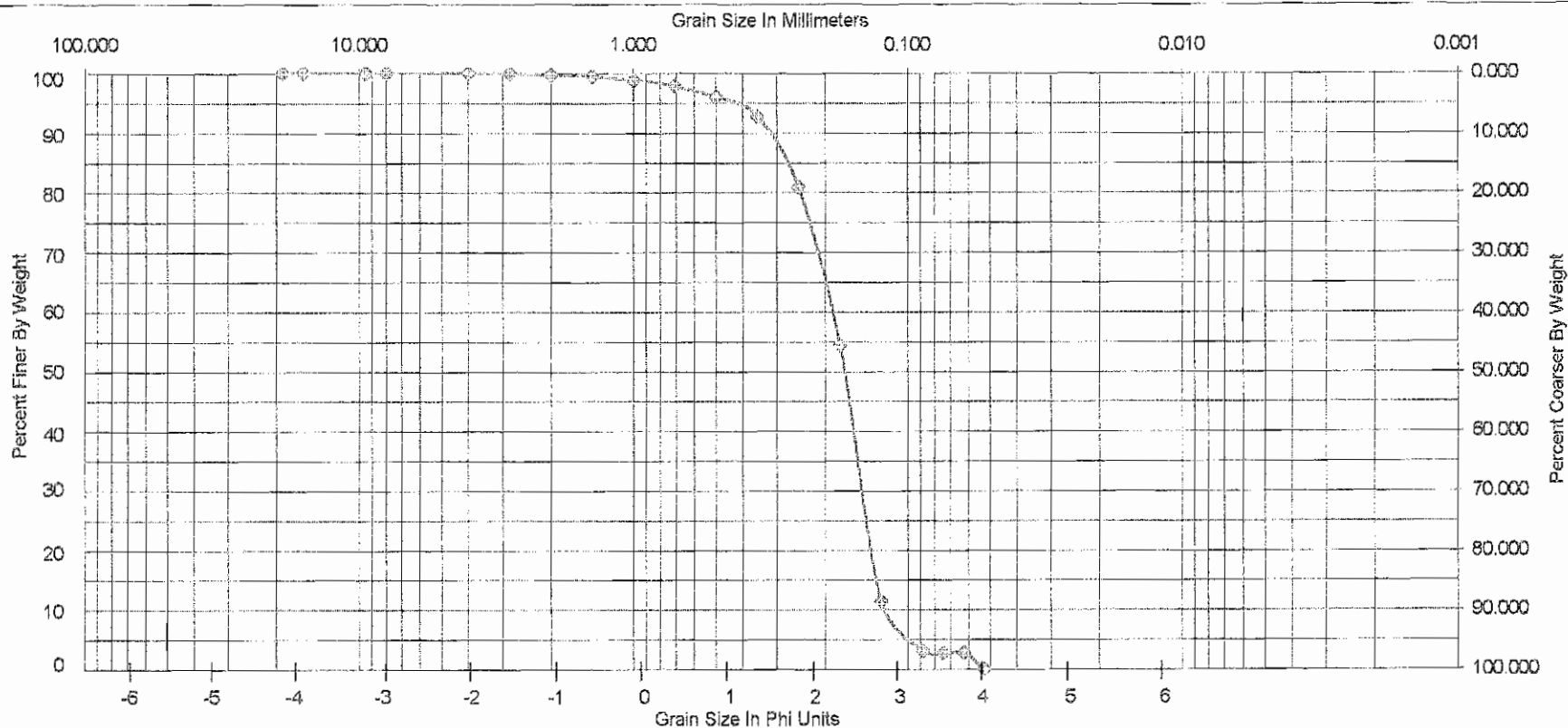


Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample No.	Depth	Description	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	PL	LL	PI	Sample Information	
CBVC-01-01A#2	9.0		SW	2.42	0.24	0.29	-0.69	2.08	1.25	NA	NA	NA	Project Name:	Central Boca
													Sample Type:	VibraCores
													Collection Date:	4/13/01
													Analysis By:	ID
													Easting (X):	964495.85 Feet
													Northing (Y):	739127.92 Feet
													Sample Elevation:	-66.2 NGVD
													Coord. System:	State Plane 1983 FLA East

COASTAL PLANNING & ENGINEERING, INC.

COASTAL PLANNING & ENGINEERING, INC.
2481 N. W. BOCA RATON BLVD.
BOCA RATON, FLORIDA 33431

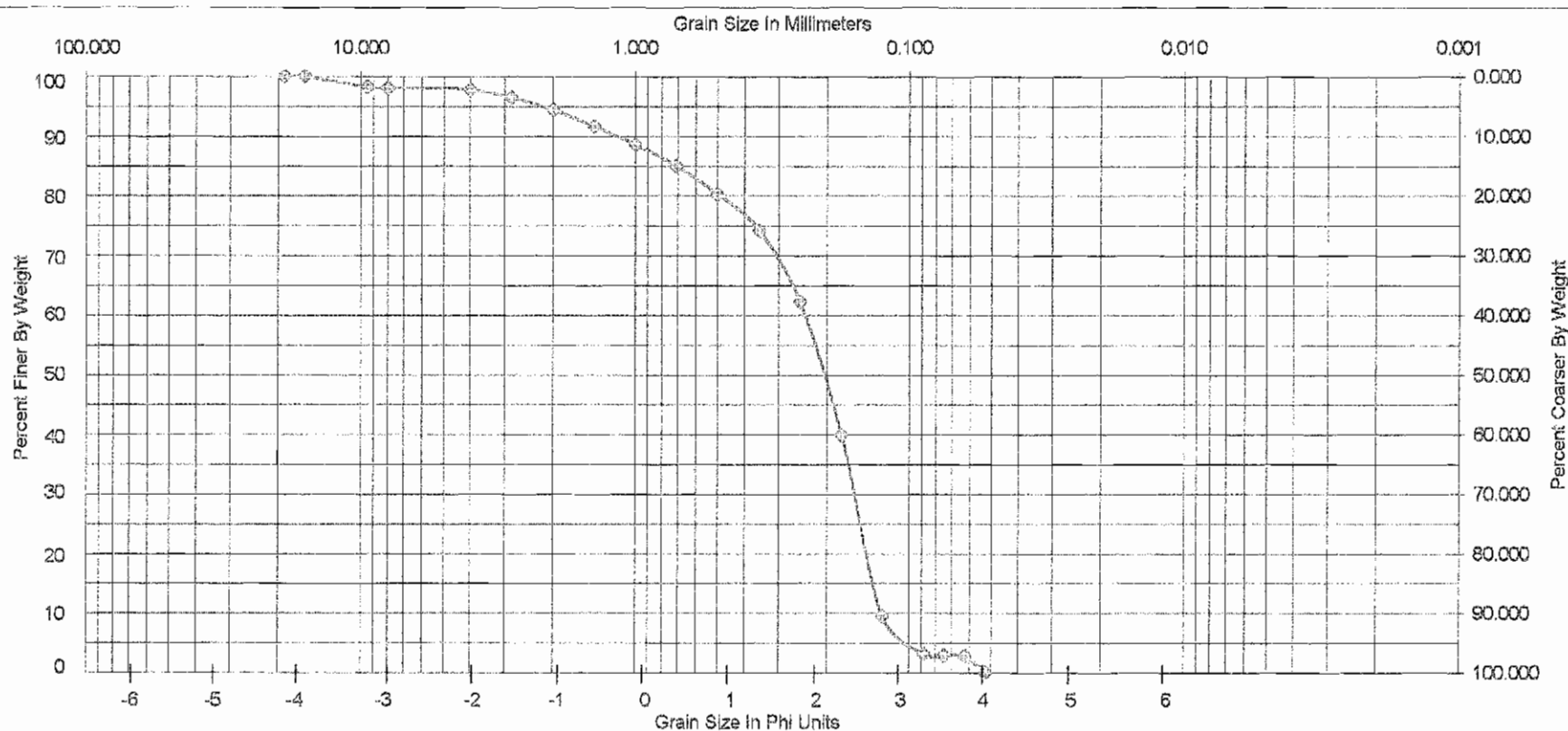


Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample No.	Depth	Description	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	PL	LL	PI	Sample Information	
CBVC-01-01A#3	13.0		SP	2.64	0.17	0.19	-0.39	1.87	0.75	NA	NA	NA	Project Name:	Central Boca
													Sample Type:	VibraCores
													Collection Date:	4/13/01
													Analysis By:	ID
													Easting (X):	964495.85 Feet
													Northing (Y):	739127.92 Feet
													Sample Elevation:	-70.2 NGVD
													Coord. System:	State Plane 1983 FLA East

COASTAL PLANNING & ENGINEERING, INC.

COASTAL PLANNING & ENGINEERING, INC.
2481 N. W. BOCA RATON BLVD.
BOCA RATON, FLORIDA 33431



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample No.	Depth	Description	USCS	% Silt	Median	Mean	Skew	Kurt	Sort	PL	LL	PI	Sample Information
CBVC-01-01A#4	15.7		SW	2.77	0.21	0.3	-0.79	2.17	1.58	NA	NA	NA	Project Name: Central Boca
													Sample Type: VibraCores
													Collection Date: 4/13/01
													Analysis By: ID

COASTAL PLANNING & ENGINEERING, INC.

COASTAL PLANNING & ENGINEERING, INC.
2481 N. W. BOCA RATON BLVD.
BOCA RATON, FLORIDA 33431

Easting (X): 984495.85 Feet
Northing (Y): 739127.92 Feet
Sample Elevation: -72.9 NGVD
Coord. System: State Plane 1983 FLA East