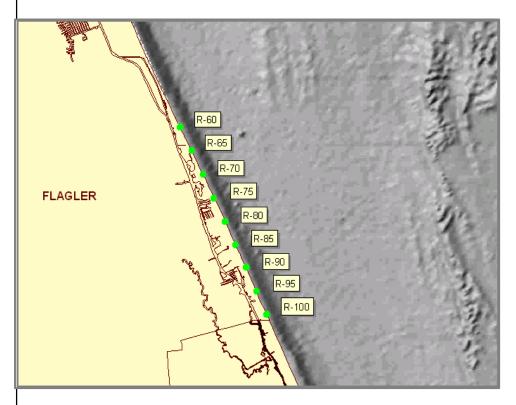
FLAGLER BEACH RECONNAISSANCE BEACH SAMPLE COLLECTION PHASE II SEDIMENT SAMPLE ANALYSIS REPORT



Prepared for Florida Department of Environmental Protection Bureau of Beaches and Coastal Systems 3900 Commonwealth Blvd. Tallahassee, FL 32399

January 12, 2009



URS Corporation 1625 Summit Lake Dr. Tallahassee, FL 32317 12804607

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SECTIONONE Introduction

Segments of Beverly Beach (R65.2-R70) and Flagler Beach (R76-R94.8) have been designated as critically eroded by the Florida Department of Environmental Protection (FDEP) and are eligible for beach erosion control funding assistance. Between 26 and 28 March 2008 the Bureau of Beaches and Coastal Systems (BBCS) collected forty-three (43) beach samples between FDEP Range Monuments R60 to R100 during Phase I of this collection effort. These samples were collected to characterize the existing beach in an effort to better understand geologic controls acting on this portion of Flagler County's beaches and the sediment distribution offshore of the critically eroded beaches. Sediment analyses were completed on a sub-set of these (18 samples) for grain size distribution, Munsell color and carbonate content. For Phase II, a second collection effort was undertaken, on August 12 and 13, 2008, by FDEP where 18 beach sand samples were collected from the same locations as the Phase I samples. This report contains the results from this second collection effort.

The study area is located in Flagler County on segments of Beverly Beach and Flagler Beach between Florida Range Monuments R60 and R100 (Figure 1). The samples are labeled with the Range Monument used as the origination of the shore perpendicular transect from which they were taken (Figure 2). Samples were collected 6-12 inches below the surface at the toe of dune, berm, foreshore, top of swash zone and surf zone. For this study, only those samples from the berm and foreshore were analyzed. Samples are designated either berm (b following Range Monument number, i.e., R60b) or foreshore (fs following Range Monument number, i.e., R60fs).

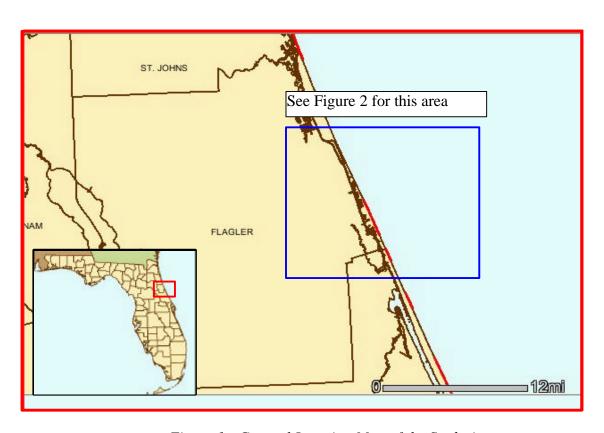


Figure 1: General Location Map of the Study Area



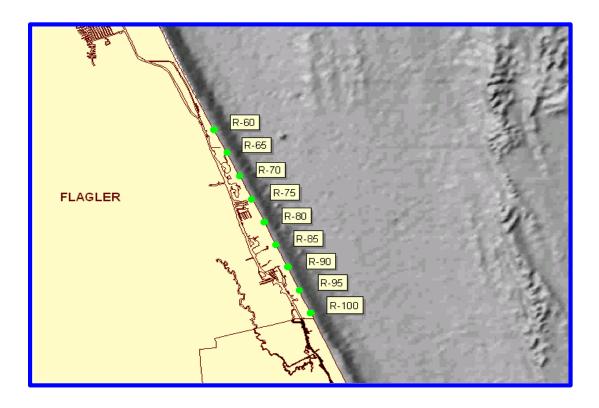


Figure 2: Sediment Sample Locations. Locations based off FDEP Range Monuments

Eighteen (18) sediment samples were analyzed to determine Munsell color and grain size distribution. Prior to sieve analysis, any obvious uncharacteristically large fragments (such as whole shell or large shell fragments) were removed and the description (weight and size) of the material was noted. The wet, dry and washed Munsell colors were noted. Sieve analysis of the sediment samples was performed in accordance with the American Society for Testing and Materials (ASTM) Standard Methods Designation D 422-63 for particle size analysis of soils. This method covers the quantitative determination of the distribution of sand size particles. For sediment finer than the No. 230 sieve (4.0 phi) the ASTM Standard Test Method, Designation D 1140-00 was followed. The sieve stack used for mechanical analysis conformed to the BBCS guidelines provided in Table 1:

Weights retained on each sieve were recorded cumulatively. During sieve analysis the visually estimated percentage of shell retained on the ³/₄" sieve through the #7 sieves was noted. Grain size results were entered into the gINT® software program, which computes the mean and median grain size, sorting, silt/clay percentages for each sample using the moment method.

Sieve No.	Size (phi)	Size (mm)
3/4	-4.25	19.00
5/8	-4.0	16.00
7/16	-3.5	11.20
5/16	-3.0	8.00
3 1/2	-2.5	5.60
4	-2.25	4.75
5 7	-2.0	4.00
7	-1.5	2.80
10	-1.0	2.00
14	-0.5	1.40
18	0.0	1.00
25	0.5	0.71
35	1.0	0.50
45	1.5	0.36
60	2.0	0.25
80	2.5	0.18
120	3.0	0.13
170	3.5	0.09
200	3.75	0.08
230	4.0	0.06

Table 1. Mesh sizes to be used for granularmetric analysis.

Fourteen (14) of the eighteen (18) samples were tested for carbonate content. The four samples not tested for carbonate content are; R65f, R75b, R85f and R95b. Carbonate content was determined by percent weight using the acid leaching methodology described in Twenhofel, W.H. and Tyler, S.A., 1941. Methods of Study of Sediments. New York: McGraw-Hill, 183p.



Following carbonate testing, each of the fourteen (14) samples were resieved following the procedure described above, to determine the control that the carbonate fraction of each sample has on the overall grain size distribution of the sample. These samples are designated by an 'AD' after the sample ID on their respective granulametric reports and grainsize distribution curves (Appendix 1). These files are also available on-line from the ROSS website (ROSS.urstally.com).



Appendix A Sample Data Analysis

Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-60 Berm Crest

Analysis Date: 10-29-08

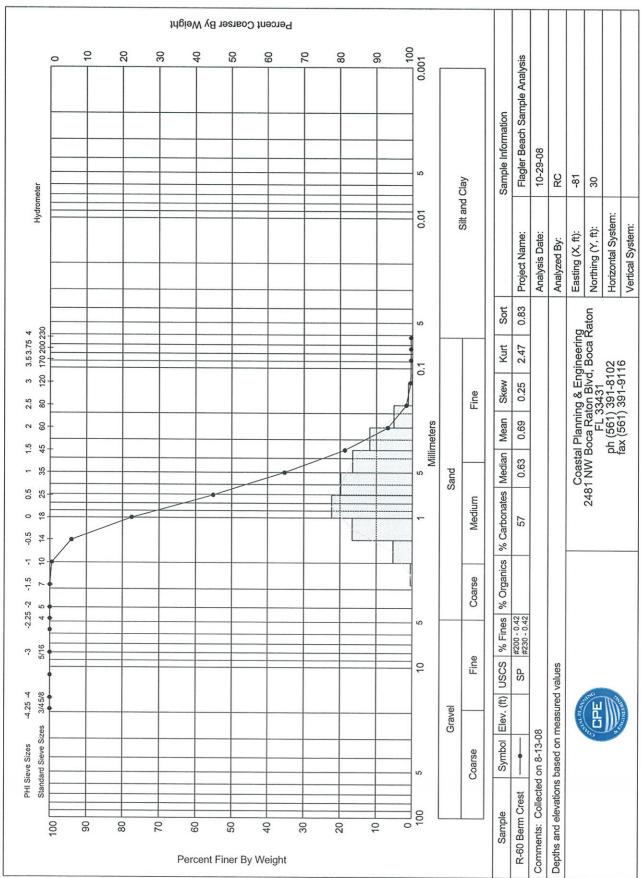
Analyzed By: RC

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Easting (ft): Northing (ft): Coordinate System: Elevation (ft): -81 30 Geographic (Latitude/Longitude) USCS: Munsell: Wet - 10YR-6/6 Comments: Dry - 10YR-6/4 Washed - 10YR-6/4 SP Collected on 8-13-08 Dry Weight (g): Wash Weight (g): Fines (%): #200 - 0.42 Pan Retained (g): Sieve Loss (%): Organics (%): Carbonates (%): Shell Hash (%): 98.81 98.43 0.00 0.04 #230 - 0.42 57 0 Sieve Size Sieve Size Grams % Weight C. % Weight Cum. Grams Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.00 0.00 0.00 0.00 7 -1.502.83 0.00 0.00 0.00 0.00 10 -1.002.00 0.50 0.51 0.50 0.51 14 -0.501.41 5.29 5.35 5.79 5.86 18 0.00 1.00 16.44 16.64 22.23 22.50 25 0.50 0.71 22.10 22.37 44.33 44.87 35 1.00 0.50 19.56 19.80 63.89 64.67 45 1.50 0.35 16.42 16.62 80.31 81.29 60 2.00 0.25 11.71 11.85 92.02 93.14 80 2.50 0.18 5.08 5.14 97.10 98.28 120 3.00 0.13 1.18 1.19 98.28 99.47 170 3.50 0.09 0.09 0.09 98.37 99.56 200 3.75 0.07 0.02 0.02 98.39 99.58 230 4.00 0.06 0.00 0.00 98.39 99.58 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.18 1.61 1.31 0.63 0.06 -0.20-0.58Mean Phi Moment Mean mm Sorting Skewness Kurtosis **Statistics** 0.69 0.62 0.83 0.25 2.47

AUGUST 2008 URS FLAGLER BEACH SAMPLES GPJ SRANULARMETRIC REPORT

JPBRAZIL GDT



Project Name: Flagler Beach Sample Analysis

Sample Name: R-60 Berm Crest AD

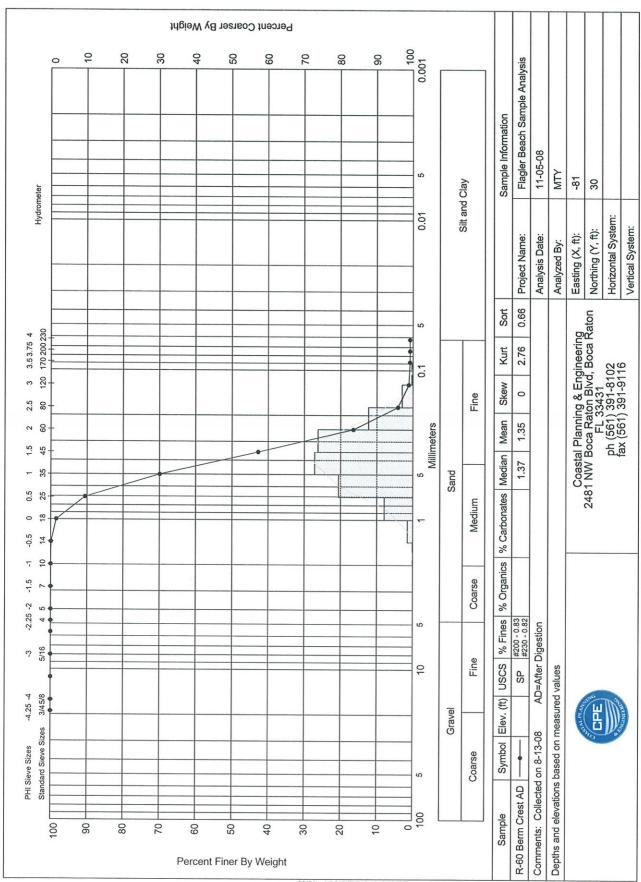
Analysis Date: 11-05-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102

Analyzed By: MTY						ph (561) 391-8102 fax (561) 391-9116									
Easting (ft):		Northing (ft):		Cod	rdinate System:				levation (ft):					
-81			30			Seographi	c (Latitude	/Longi	tude)						
USCS:	Munse	Dry -	- 2.5Y-6/6	Comments											
SP Dry Weight (g):	Wash Weight	Washed -	- 2.5Y-8/5 Pan Retained (g):	Sieve Los		on 8-13-0		AD=Aft	er Dige: Carbonate		Shell Hash (%):			
82.57	82.0		0.01			Ve Loss (%): #200 - 0.83 Organics (%): Carbonates (0.18 #230 - 0.82						0			
Sieve Number	Sieve (Ph	Size	Sieve S (Millime	Size	G	Grams % Weight Cum. Grams Retained Retained Retained						. % Weight Retained			
3/4"	-4.2	5	19.0	3		0.00 0.00 0.						0.00			
5/8"	-4.0	0	16.0	0		0.00	0.00)	0.	00		0.00			
7/16"	-3.5	0	11.3	1		0.00	0.00)	0.	00	\dagger	0.00			
5/16"	-3.0	0	8.00)		0.00	0.00)	0.	00		0.00			
3.5	-2.5	0	5.66	3		0.00	0.00)	0.	00	1	0.00			
4	-2.2	5	4.76	3	(0.00	0.00)	0.	00		0.00			
5	-2.0	0	4.00)	(0.00	0.00)	0.00			0.00			
7	-1.5	0	2.83		(0.00	0.00)	0.00			0.00			0.00
10	-1.0	0	2.00)	(0.00	0.00 0.00					0.00			
14	-0.5	0	1.41		(0.04	0.05	;	0.	04		0.05			
18	0.00	0	1.00)		1.21	1.47	•	1.:	25		1.52			
25	0.50	0	0.71		(6.56	7.94		7.	7.81		9.46			
35	1.00	0	0.50)	1	7.00	20.5	9	24	.81		30.05			
45	1.50	0	0.35	5	2	2.43	27.1	3	47.	.24		57.21			
60	2.00	0	0.25	5	2	1.69	26.2	7	68.	.93		83.48			
80	2.50	0	0.18	3	1	0.20	12.3	5	79.	.13		95.83			
14 18 25 35 45 60 80 120 170 200	3.00	0	0.13		2	2.45	2.97		81.	.58		98.80			
170	3.50	0	0.09		().27	0.33		81.	.85		99.13			
	3.75	5	0.07		(0.03	0.04		81.	.88		99.17			
230	4.00)	0.06		(0.01	0.01		81.	.89		99.18			
230 Shell Hash calculated from Phi 5 2.47 Moment Statistics	m visual estima	te of shell <4.	.75mm and >2	.8mm.											
Phi 5	Phi 1	6	Phi 2	5	Phi 50 Phi 75 Phi 84 F					Phi 95					
2.47	2.02	2	1.84		1.37 0.88 0.66				0.22						
Moment	Mea	n Phi	M	ean mn	n	Sor	ting	SI	kewness		K	urtosis			
Statistics	1.	35		0.39 0.66 0 2.76				2.76							

GRANULARMETRIC REPORT AUGUST 2008 URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 1/8/09



Project Name: Flagler Beach Sample Analysis

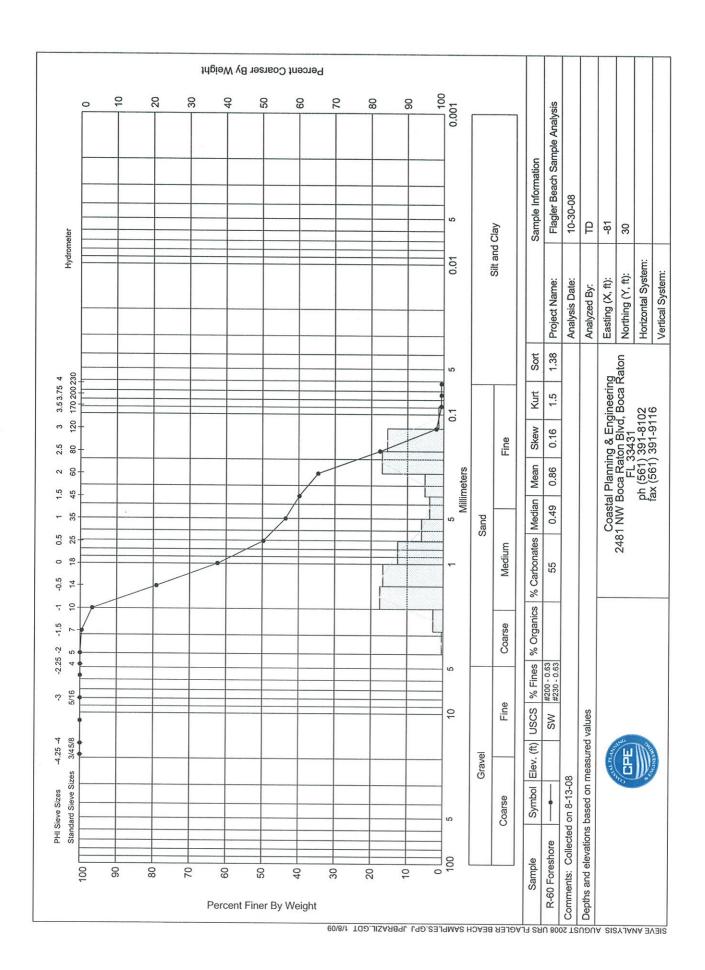
Sample Name: R-60 Foreshore



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

Analysis Date:	10-30-08			FL 33431 ph (561) 391-8102								
Analyzed By: T	D				fax (561) 391-9116							
Easting (ft):	Northin	g (ft):		Coo	rdinate System	:			Elevation (ft)	:		
-81		30		G	eographi	c (Latitude	/Longi	tude)				
uscs:	Dr	et - 10YR-6/4 y - 10YR-6/4 d - 10YR-6/4	Comments:			Collect	ed on 8	8-13-08				
Dry Weight (g):	Wash Weight (g):	Pan Retained	(g): S	ieve Los	s (%):	Fines (%): #200 - 0.		nics (%):	Carbonat	es (%):	Shell Hash (%):	
98.10	97.62	0.0	1	0.13 #230 - 0.63					5	5	0	
Sieve Number	Sieve Size (Phi)	Sieve S (Millime			rams tained	% We Retair		Cum. Gran Retained			. % Weight Retained	
3/4"	-4.25	19.0	3	(0.00	0.0	0	0.	.00		0.00	
5/8"	-4.00	16.0	0	(0.00	0.0	0	0.	.00		0.00	
7/16"	-3.50	11.3	1	(0.00	0.0	0	0.	.00		0.00	
5/16"	-3.00	8.00)	(0.00	0.0	0	0.	.00		0.00	
3.5	-2.50	5.66	3	(0.00	0.0	0	0.	.00		0.00	
4	-2.25	4.76	3	(0.00	0.0	0	0.	.00		0.00	
5	-2.00	4.00)	(0.00 0.00 0.00						0.00	
7	-1.50	2.83	2.83		0.42 0.43 0.42						0.43	
10	-1.00	2.00)	2	2.80 2.85 3.22					3.28		
14	-0.50	1.4	1	1	7.26	17.5	9 20.4		0.48		20.87	
	0.00	1.00)	1	6.45	16.7	7	36	5.93		37.64	
25	0.50	0.7	1	1	2.41	12.6	55	49	0.34		50.29	
35	1.00	0.50)	5	5.99	6.1	1	55	5.33		56.40	
45	1.50	0.35	5	3	3.73	3.80	0	59	0.06		60.20	
45 60 80 120 170	2.00	0.25	5	5	5.08	5.18	8	64	.14		65.38	
80	2.50	0.18	3	1	6.67	16.9	9	80	.81		82.37	
120	3.00	0.13	3	1	5.25	15.5	5	96	.06		97.92	
170	3.50	0.09	9	1	.39	1.42	2	97	.45		99.34	
200	3.75	0.07	7	C	0.03	0.03	3	97	.48		99.37	
230	4.00	0.06	3	C	0.00	0.00)	97	.48		99.37	
200 230 Shell Hash calculated from	m visual estimate of she	II <4.75mm and >2	.8mm.									
Phi 5	Phi 16	Phi 2	25	PI	ni 50	Phi 7	7 5	Ph	i 84		Phi 95	
2.91	2.55	2.28	3	C	.49	-0.3	8	-0	.64		-0.95	
Phi 5 2.91 Moment Statistics	Mean Phi	М	ean mm		Sor	rting	SI	kewness	6	K	urtosis	
Statistics	0.86		0.55	1.38 0.16				1.5				

GRANULARMETRIC REPORT AUGUST 2008 URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 1/8/09



Project Name: Flagler Beach Sample Analysis

Sample Name: R-60 Foreshore AD

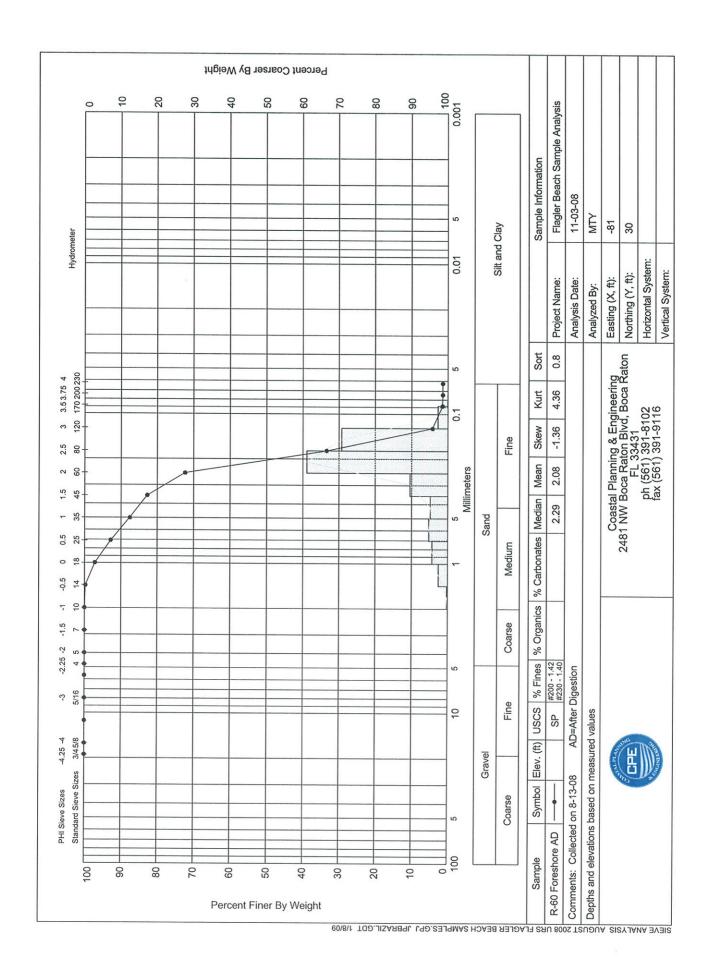
Analysis Date: 11-03-08

Analyzed By: MTY



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Analyzed By: N	1TY			fax (561) 391-9116						
Easting (ft):	North	ning (ft):		Coordinate System: Elevation (ft):						
-81		30		Geographic (Latitude/Longitude)						
uscs: SP	Was	Dry - 2.5Y-6/6 hed - 2.5Y-8/4	Comments:	Collected	on 8-13-08	AD:	=After Dige	estion		
Dry Weight (g):	Wash Weight (g):	Pan Retained		/e Loss (%):	Fines (%): #200 - 1.42	Organics (%): Carbonat	es (%):	Shell Hash (%	
84.69	83.65	0.0		0.15	#230 - 1.40				0	
Sieve Number	Sieve Size (Phi)	Sieve S (Millime		Grams Retained	% Weig Retaine		. % Weig Retained			
3/4"	-4.25	19.0	3	0.00	0.00		0.00		0.00	
5/8"	-4.00	16.0	0	0.00	0.00	0.00			0.00	
7/16"	-3.50	11.3	1	0.00	0.00		0.00		0.00	
5/16"	-3.00	8.00)	0.00	0.00		0.00		0.00	
3.5	-2.50	5.66	3	0.00	0.00		0.00		0.00	
4	-2.25	-2.25 4.76		0.00	0.00		0.00		0.00	
5	-2.00	.00 4.00		0.00	0.00		0.00		0.00	
7	-1.50	2.83	3	0.00	0.00			0.00		
10	-1.00	2.00)	0.00	0.00		0.00		0.00	
14	-0.50 1.41		1	0.23	0.27		0.23		0.27	
18	0.00	1.00)	2.17	2.56		2.40		2.83	
25	0.50	0.71		3.65	4.31		6.05		7.14	
35	1.00	0.50)	4.48	5.29		10.53		12.43	
45	1.50	0.35	5	4.08	4.82		14.61		17.25	
60	2.00	0.25	5	8.80	10.39		23.41		27.64	
80	2.50	0.18	3	32.95	38.91		56.36		66.55	
120	3.00	0.13	3	24.74	29.21		81.10		95.76	
170	3.50	0.09)	2.33	2.75		83.43		98.51	
200	3.75	0.07	,	0.06	0.07		83.49		98.58	
230	4.00	0.06	3	0.02	0.02		83.51		98.60	
Shell Hash calculated from	m visual estimate of sh	.8mm.		-						
Phi 5	Phi 16	Phi 2	5	Phi 50	Phi 75		Phi 84		Phi 95	
2.99		2.29	1.87		1.37		0.25			
Moment	Mean Ph	i M	ean mm	Sor	ting	Skewr	iess	K	urtosis	
Statistics	2.08		0.24	0.	.8	-1.36 4.36				



Project Name: Flagler Beach Sample Analysis

Sample Name: R-65 Berm Crest

Analysis Date: 10-30-08

Analyzed By: PB

Easting (ft):

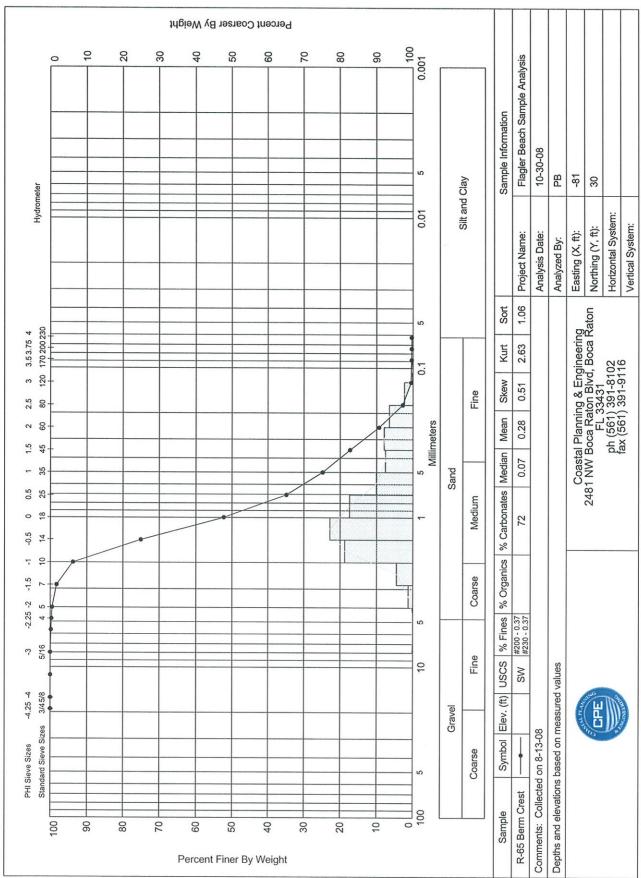
Northing (ft): Coordinate System: Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

-81

30

Geographic (Latitude/Longitude)

8130 Geographic (Latitude/Longitude)																				
USCS:	Munsell:		10YR-5/6 10YR-5/6	Comment	s:															
SW Dry Weight (g):	Wash Weight (g):	ashed -	10YR-6/6		0:				3-13-08											
100.03			Pan Retained (Sieve	Loss (%):	Fines (%): #200 - 0.:	37 Organ	nics (%):	Carbonat		Shell Hash (%):								
	99.66 Sieve Si		0.00 Sieve S			0.00 Grams	#230 - 0.3		Cum	7		0/)//=:=:=:								
Sieve Number	(Phi)	26	(Millime		F	Retained	% Wei Retair			Grams ained		. % Weight Retained								
3/4"	-4.25		19.0	3		0.00	0.00)	0.	00		0.00								
5/8"	-4.00		16.0	0		0.00	0.00)	0.	00		0.00								
7/16"	-3.50		11.3	1		0.00	0.00)	0.	00		0.00								
5/16"	-3.00		8.00)		0.00	0.00)	0.	00		0.00								
3.5	-2.50		5.66	3		0.18	0.18	3	0.	18		0.18								
4	-2.25		4.76	3		0.13	0.13	3	0.	31		0.31								
5	-2.00		4.00)		0.17	0.17	7	0.	48		0.48								
7	-1.50		2.83	3		1.21	1.2	1	1.	69		1.69								
10	-1.00		2.00		4.49	4.49	9	6.	18		6.18									
14	-0.50		1.41			18.73	18.72		24.91			24.90								
18	0.00		1.00			22.81	22.8	0	47	.72		47.70								
25	0.50		0.71			17.39	17.38		65.11			65.08								
35	1.00		0.50		0.50)		0.50		10.06	10.0	6	75	.17		75.14		
45	1.50		0.35	0.35	0.35	0.35		0.35	0.35	0.35	0.35	0.35	5		7.57	7.57	7	82	.74	
60	2.00		0.25	5		7.94	7.94	1	90	.68		90.65								
80	2.50		0.18	3		6.53	6.53	3	97	.21		97.18								
120	3.00		0.13	3		2.31	2.31	ı	99	.52		99.49								
170	3.50		0.09)		0.13	0.13	3	99	.65		99.62								
200	3.75		0.07	'		0.01	0.01	1	99	.66		99.63								
230	4.00		0.06	6		0.00	0.00)	99	.66		99.63								
Shell Hash calculated from	om visual estimate c	of shell <4	1.75mm and >2.	.8mm.																
Phi 5	Phi 16		Phi 2	5		Phi 50	Phi 7	5	Phi	i 84		Phi 95								
2.33	1.58		0.99)		0.07	-0.50	0	-0.	.74		-1.13								
Moment	Moment Mean Phi Mean n				n	Sor	ting	SI	kewness	3	K	urtosis								
Statistics	0.28	3		0.82		1.0	06		0.51			2.63								
	Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.33 1.58 0.99 0.07 -0.50 -0.74 -1.13 Moment Mean Phi Mean mm Sorting Skewness Kurtosis Statistics 0.28 0.82 1.06 0.51 2.63																			



Project Name: Flagler Beach Sample Analysis

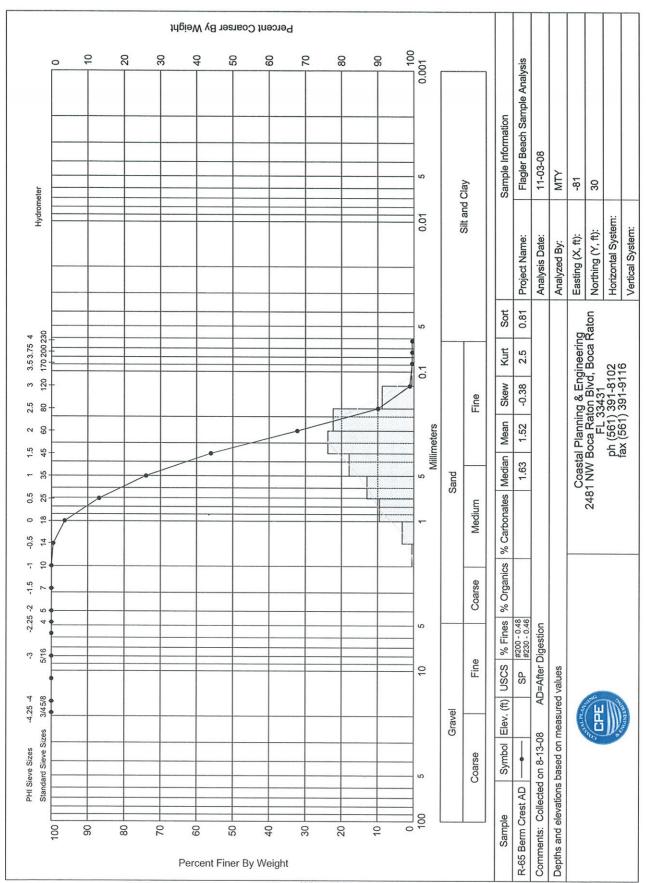
Sample Name: R-65 Berm Crest AD

Analysis Date: 11-03-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102

Analyzed By: M	1TY				fax (561) 391-9116																
Easting (ft):		Northing	(ft):		Coordinate System: Elevation (ft):																
-81			30	-	Geographi	c (Latitude	/Longitude)														
uscs: SP	Munse	Dry	/ - 2.5Y-7/6 I - 2.5Y-8/5	Comments:	Collected	on 8-13-0	8 AD=	After Dige:	stion												
Dry Weight (g):	Wash Weight	(g):	Pan Retained	(g): Sie	eve Loss (%):	Fines (%): #200 - 0.4	Organics (%)	Carbonate	s (%): Shell F	Hash (%)											
56.89	56.7		0.0		0.16	#230 - 0.4	46			0											
Sieve Number	Sieve (Ph		e Sieve Size Grams % Weight Cum. Grams (Millimeters) Retained Retained Retained							Veigh ined											
3/4"	-4.2	5	19.0	3	0.00	0.00)	0.00	0.0)0											
5/8"	-4.0	0	16.0	0	0.00	0.00		0.00	0.0)0											
7/16"	0	11.3	1	0.00	0.00	0.00 0.0		0.0)0												
5/16"	-3.0	0	8.00)	0.00	0.00)	0.00	0.0)0											
3.5	-2.5	0	5.66	6	0.00	0.00)	0.00	0.0)0											
4	-2.2	5	4.76	3	0.00	0.00)	0.00	0.0)0											
5	-2.00		4.00)	0.00	0.00)	0.00	0.0	00											
7 -1.5		-1.50				-1.50		3	0.00	0.00)	0.00	0.0	00							
10	-1.0	0	2.00)	0.00 0.00 0.00				0.00												
14	-0.50		1.4	1	0.27	0.47	7	0.27	0.4	7											
18	0.0	0	1.00		1.00		1.00		1.80	3.16	3	2.07	3.6	3							
25	0.5	C	0.7	1	5.39	9.47	7	7.46	13.	10											
35	1.00	0	0.50)	7.35	12.9	2	14.81	26.0	02											
45	1.50	50	1.50		1.50		1.50		1.50		1.50		1.50		5	10.19	17.9	1	25.00	43.9	93
60	2.00	0	0.25		13.54	23.8	0	38.54	67.	73											
80	2.50	0	0.18	3	12.71	22.3	4	51.25	90.0	07											
120	3.00)	0.13	3	5.00	8.79)	56.25	98.8	86											
170	3.50)	0.09)	0.35	0.62	2	56.60	99.4	48											
200	3.7	5	0.07	7	0.02	0.04		56.62	99.	52											
230	4.00)	0.06	3	0.01	0.02	2	56.63	99.5	 54											
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.				.8mm.																	
Phi 5	Phi 1	6	Phi 2	5	Phi 50	Phi 7	5	Phi 84	Phi	95											
2.78 2.36 2.16				3	1.63	0.96	3	0.61	0.0	7											
Phi 5					Soi	ting	Skewn	ess	Kurtos	is											
Statistics	1.	52		0.35	0.	81	-0.38	3	2.5												



Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-65 Foreshore

Analysis Date: 10-29-08

Analyzed By: RC

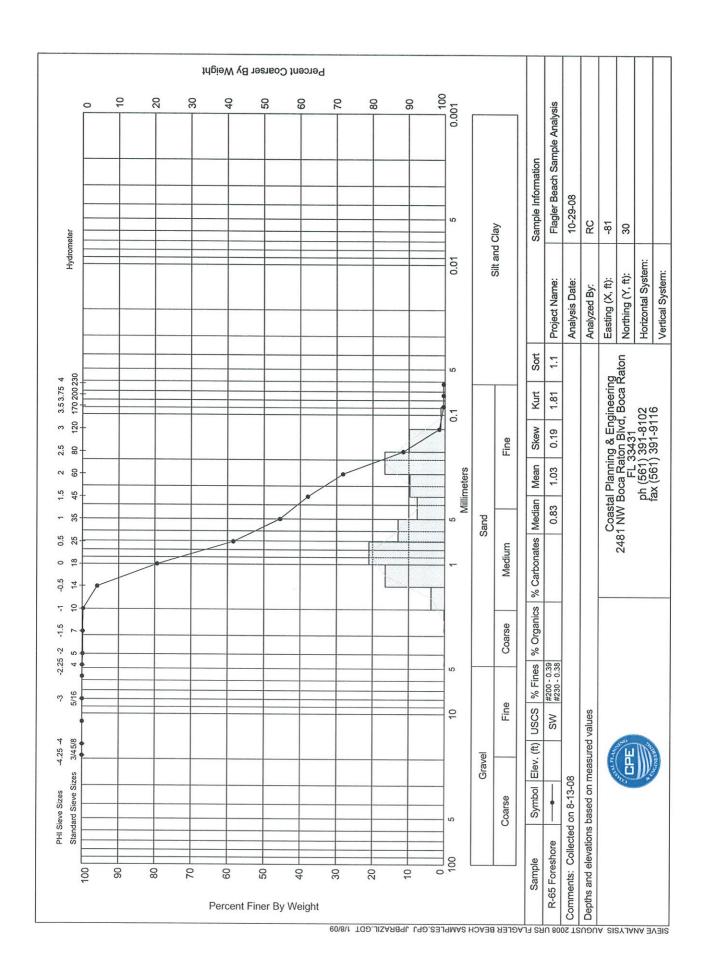
Easting (ft):

Northing (ft): Coordinate System:

Elevation (ft):

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

-81 30 Geographic (Latitude/Longitude) USCS: Wet - 10YR-6/6 Munsell: Comments: Dry - 10YR-6/4 SW Washed - 10YR-6/4 Collected on 8-13-08 Dry Weight (g): Wash Weight (g): Pan Retained (g): Sieve Loss (%): Organics (%): Carbonates (%): Shell Hash (%): Fines (%): #200 - 0.39 97.25 96.92 0.00 0.02 #230 - 0.38 0 Sieve Size Sieve Size C. % Weight Grams % Weight Cum. Grams Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 -2.503.5 5.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.14 0.14 0.14 0.14 7 -1.502.83 0.00 0.00 0.14 0.14 10 -1.002.00 0.13 0.13 0.27 0.27 14 -0.501.41 3.69 3.79 3.96 4.06 18 0.00 1.00 16.09 16.54 20.05 20.60 GDT. 25 0.50 0.71 20.38 20.96 40.43 41.56 35 1.00 0.50 12.54 12.89 52.97 54.45 URS FLAGLER BEACH SAMPLES.GPJ 45 1.50 0.35 7.43 7.64 60.40 62.09 60 2.00 0.25 9.39 9.66 69.79 71.75 80 2.50 16.24 0.18 16.70 86.03 88.45 120 3.00 0.13 9.66 9.93 95.69 98.38 170 3.50 0.09 1.17 1.20 96.86 99.58 200 3.75 0.07 0.03 0.03 96.89 99.61 2008 0.01 230 4.00 0.06 0.01 96.90 99.62 AUGUST Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. GRANULARMETRIC REPORT Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.83 2.37 2.10 0.83 0.10 -0.14-0.47Moment Mean Phi Mean mm Sorting Skewness Kurtosis Statistics 1.03 0.49 1.1 0.19 1.81



Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-70 Berm Crest

Analysis Date: 10-29-08

Analyzed By: RC Easting (ft):

Northing (ft): Coordinate System:

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

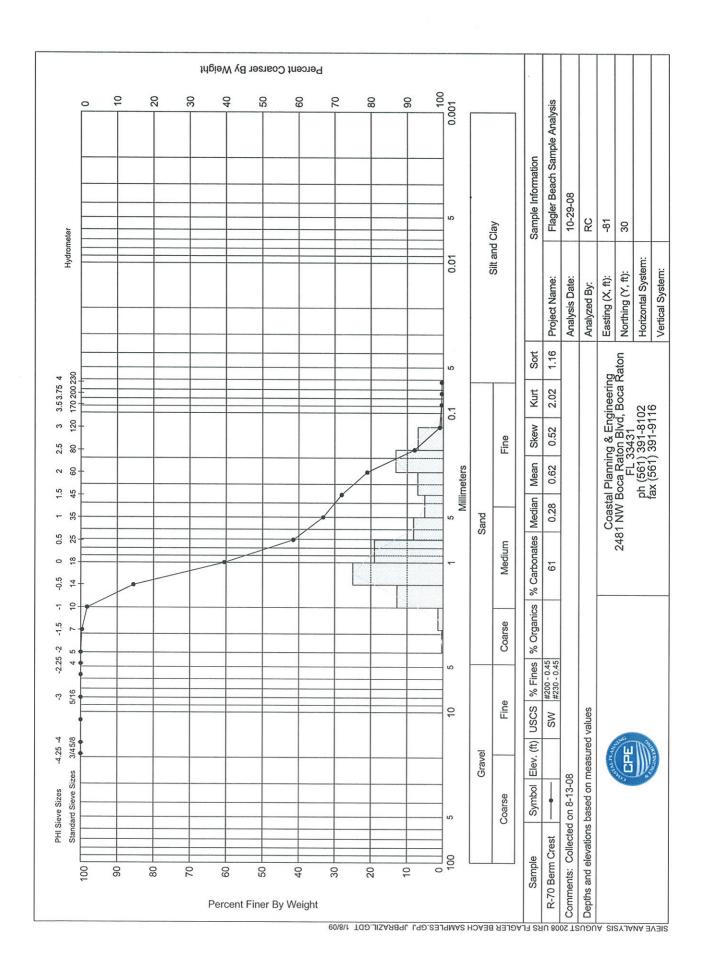
Elevation (ft):

-81 30 Geographic (Latitude/Longitude) Wet - 10YR-6/6 Dry - 10YR-6/6 USCS: Comments: SW Washed - 10YR-6/6 Collected on 8-13-08 Wash Weight (g): Dry Weight (g): Pan Retained (g): Sieve Loss (%): Fines (%): #200 - 0.45 Organics (%): Carbonates (%): Shell Hash (%): 98.33 97.94 0.00 0.07 #230 - 0.45 61 0 Sieve Size Sieve Size Grams % Weight C. % Weight Cum. Grams Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.00 0.00 0.00 0.00 7 -1.502.83 0.33 0.34 0.33 0.34 10 -1.002.00 1.36 1.38 1.69 1.72 14 -0.501.41 12.77 12.56 14.25 14.49 18 0.00 1.00 24.59 25.01 38.84 39.50 25 0.50 0.71 18.64 18.96 57.48 58.46 35 1.00 0.50 8.14 8.28 65.62 66.74 45 1.50 0.35 5.08 5.17 70.70 71.91 60 2.00 0.25 6.95 7.07 77.65 78.98 80 2.50 0.18 12.83 13.05 90.48 92.03 120 3.00 0.13 6.87 6.99 97.35 99.02 170 3.50 0.09 0.49 0.50 97.84 99.52 200 3.75 0.07 0.03 0.03 97.87 99.55 230 4.00 0.06 0.00 0.00 97.87 99.55

Shell Hash calculated from visual estimate of shell <4.75mm and >2.9r

A	Offeri Flash Calculated IIO	III visual estimate of shell <	1.75mm and 2.6mm.							
REPORT	Phi 5	Phi 16	Phi 25	Р	hi 50	Phi 7	'5	Phi 84	Phi 95	
TRIC	2.71	2.19	1.72	(0.28	-0.2	9	-0.47	-0.87	
JLARME	Moment	Mean Phi	Mean mi	m	Sor	ting	SI	kewness	Kurtosis	
GRANUL	Statistics	0.62	0.65		1.	16		0.52	2.02	

JPBRAZIL.GDT 2008 URS FLAGLER BEACH SAMPLES.GPJ NUGUST



Project Name: Flagler Beach Sample Analysis

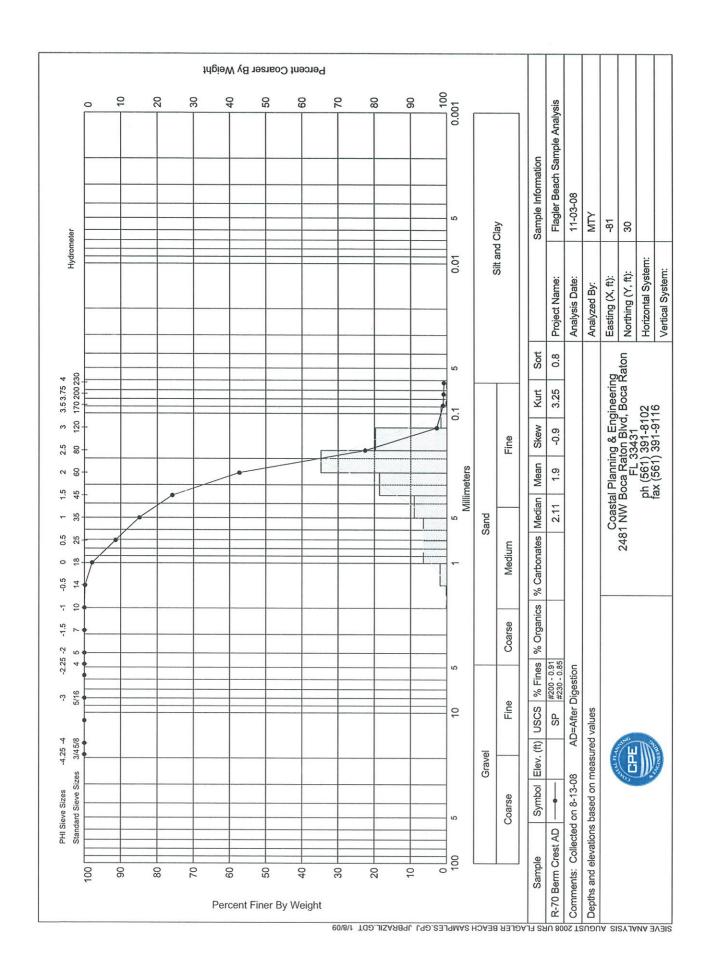
Sample Name: R-70 Berm Crest AD

Analysis Date: 11-03-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102

Analyzed By: M	1TY				ph (561) 391-8102 fax (561) 391-9116										
Easting (ft):		Northing	(ft):		Coordinate System	Coordinate System: Elevation (ft):									
-81			30			ic (Latitude	/Longitude)								
USCS:	Muns	Dry	- 2.5Y-7/4	Comments:											
SP Dry Weight (g):	Wash Weight		- 2.5Y-8/4 Pan Retained	(g): S	Collected Sieve Loss (%):	d on 8-13-0 Fines (%): #200 - 0.9		After Diges Carbonates							
63.11	62.6	64	0.02		0.08	#200 - 0.9 #230 - 0.8		0							
Sieve Number	Sieve (Ph		Sieve S (Millime		Grams Retained	% Wei Retain	ght Cun	n. Grams etained	C. % Weigl Retained						
3/4"	-4.2	25	19.03		0.00	0.00)	0.00	0.00						
5/8" -4.00			16.0	0	0.00	0.00)	0.00	0.00						
7/16" -3.50			11.3	1	0.00	0.00)	0.00	0.00						
5/16"	-3.0	00	8.00	0	0.00	0.00)	0.00							
3.5	-2.5	50	5.60	6	0.00	0.00)	0.00	0.00						
4	-2.2	25	4.70	6	0.00	0.00)	0.00	0.00						
5	-2.00		5 -2.00		4.00	0	0.00	0.00)	0.00	0.00				
7	-1.5	50	2.83	3	0.00	0.00)	0.00	0.00						
10	-1.0	00	2.00	0	0.00	0.00)	0.00	0.00						
14	-0.5	50	1.41						1.41		0.12	0.19)	0.12	0.19
18	0.0	0							1.19	1.89)	1.31	2.08		
25	0.5)	0.7	1	4.10	6.50)	5.41	8.58						
35	1.0	0	0.5	0.50	0.50	0.5	0.5	0	4.12	6.53	3	9.53	15.11		
45	1.5	0	0.3	5	5.70	9.03	3	15.23	24.14						
60	2.0	0	0.2	5	11.71	18.5	5 :	26.94	42.69						
80	2.5	0	0.18	8	21.94	34.7	6 4	18.88	77.45						
120	3.0	0	0.13	3	12.45	19.7	3	61.33	97.18						
170	70 3.50 0.09		9	1.07	1.70) (62.40	98.88							
200	3.7	5	0.0	7	0.13	0.21		62.53	99.09						
230	4.0	0	0.00	6	0.04	0.06	6 (62.57	99.15						
230 4.00 0.06 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8			2.8mm.					•							
Phi 5 Phi 16 Phi 25 2.94 2.67 2.46 Moment Mean Phi Mean Phi Statistics 1.9 0				25	Phi 50	Phi 7	5 F	Phi 84	Phi 95						
2.94 2.67 2.46		3	2.11	1.52	2	1.05	0.22								
Moment Mean Phi Mean mm			n Sc	orting	Skewne	ess	Kurtosis								
Statistics	1	.9		0.27		0.8	-0.9		3.25						



Project Name: Flagler Beach Sample Analysis

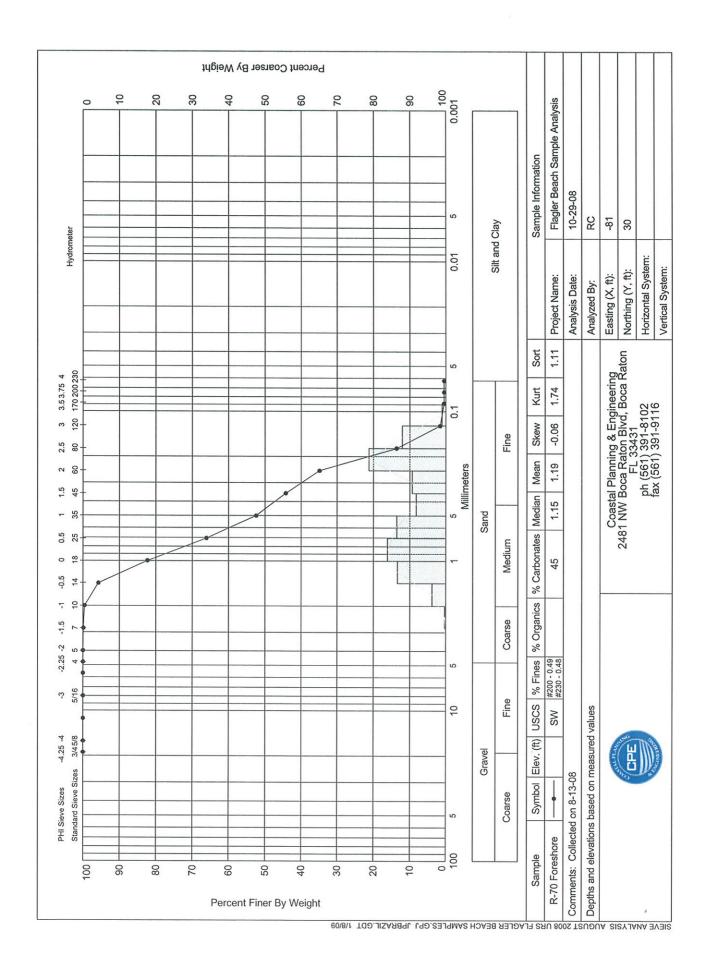
Sample Name: R-70 Foreshore

Analysis Date: 10-29-08

Analyzed By: RC

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Analyzed By: R					fax (561) 391-9116							
Easting (ft):		Northing (f	t):		Coordinate System: Elevation (ft):							
-81			30	,	Geograp	hic (Latitude	e/Longitude)					
uscs: SW	Munsell: W	Dry -	10YR-6/4 10YR-6/4 10YR-7/4	Comments:		Collect	ted on 8-13-0	8				
Dry Weight (g):	Wash Weight (g):	Pan Retained	(g): S	Sieve Loss (%):	Fines (%): #200 - 0.		Carbonates	(%):	Shell Hash (%):		
97.54	97.08	3	0.00	0	0.00	#230 - 0.		45		0		
Sieve Number	Sieve S (Phi)		Sieve S (Millime		Grams Retained	% We Retair		n. Grams etained		. % Weight Retained		
3/4"	-4.25	,	19.0	3	0.00	0.00	0	0.00		0.00		
5/8"	-4.00		16.0	0	0.00	0.00	0	0.00		0.00		
7/16"	-3.50		11.3	1	0.00	0.00	0	0.00		0.00		
5/16"	-3.00		8.00	0	0.00	0.00	0	0.00		0.00		
3.5	-2.50		5.66	3	0.00	0.00	0	0.00		0.00		
4	-2.25		4.76	6	0.00	0.00	0	0.00		0.00		
5	-2.00		4.00	0	0.00	0.00	0	0.00		0.00		
7	-1.50		2.83	3	0.12	0.12	2	0.12		0.12		0.12
10	-1.00		2.00)	0.29	0.30	0	0.41		0.42		
14	-0.50		1.4	1	3.76	3.88	5	4.17		4.27		
18	0.00		1.00)	13.11	13.4	14	17.28		17.71		
25	0.50		0.7	1	15.79	16.1	9 ;	33.07		33.90		
35	1.00	0.5)	13.28	13.61		46.35		47.51		
45	1.50		0.35	5	8.06	8.26	6 !	54.41		55.77		
60	2.00		0.25	5	9.08	9.08 9.31 20.73 21.25		63.49	65.08	65.08		
80	2.50		0.18	3	20.73			34.22		86.33		
120	3.00		0.13	3	11.75	12.0	05 9	95.97		98.38		
170	3.50		0.09	9	1.07	1.10	0 9	97.04		99.48		
200	3.75		0.07	7	0.03	0.03	3 9	97.07		99.51		
230	4.00		0.06	6	0.01	0.0	1 9	97.08		99.52		
Shell Hash calculated from visual estimate of shell <4.			I.75mm and >2	2.8mm.								
Phi 5	Phi 5 Phi 16 I				Phi 50	Phi 7	75 F	Phi 84	Phi 95			
2.86	2.86 2.45 2.23			3	1.15	0.23	3 .	-0.06		-0.47		
Moment	Moment Mean Phi Mean m				S	orting	Skewness			urtosis		
Statistics	1.1	9		0.44		1.11	-0.06			1.74		



Project Name: Flagler Beach Sample Analysis

Sample Name: R-70 Foreshore AD

Analysis Date: 11-04-08

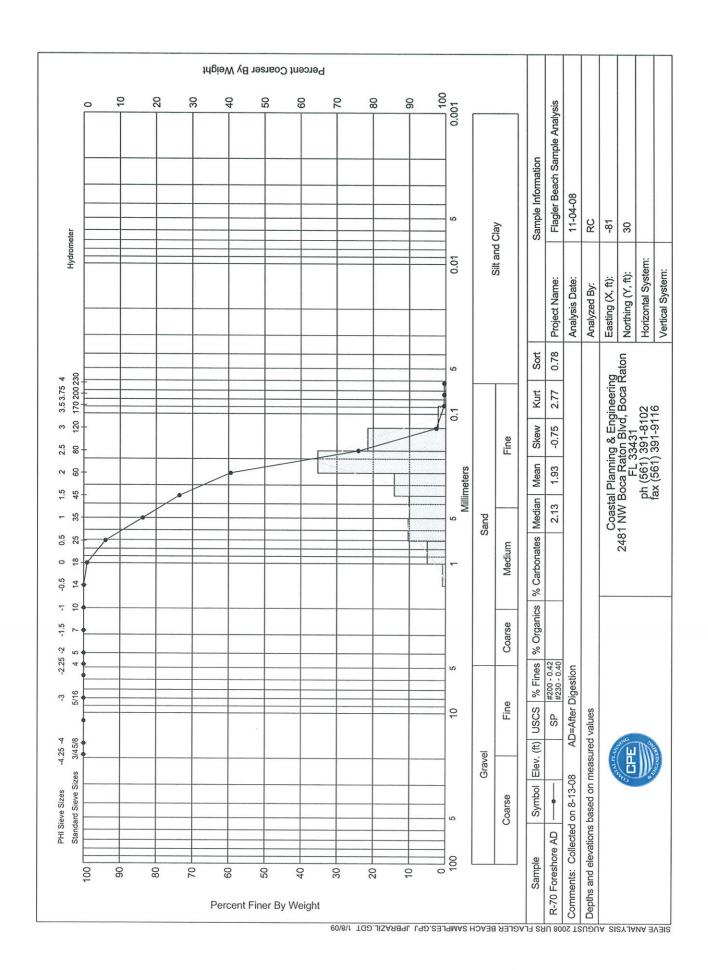
Analyzed By: RC

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Easting (ft): Northing (ft): Coordinate System: Elevation (ft): -81 30 Geographic (Latitude/Longitude)

USCS:	Munsell:	- 2.5Y-8/4	Comment	s:						
SP	Washed	- 2.5Y-8/4			on 8-13-08			er Digest		
Dry Weight (g):	Wash Weight (g):	Pan Retained (g		Sieve Loss (%):	Fines (%): #200 - 0.4		nics (%):	Carbonates	(%):	Shell Hash (%):
97.18	96.87 Sieve Size	0.01		0.06	#230 - 0.4		0	0		0
Sieve Number	(Phi)	Sieve S (Millimet		Grams Retained	% Weig Retain			Grams ained		% Weight Retained
3/4"	-4.25	19.03	3	0.00	0.00		0.	.00		0.00
5/8"	-4.00	16.00)	0.00	0.00		0.	.00		0.00
7/16"	-3.50	11.31	1	0.00	0.00		0.	.00		0.00
5/16"	-3.00	8.00		0.00	0.00		0.	.00		0.00
3.5	-2.50	5.66		0.00	0.00	1	0.	.00		0.00
4	-2.25	4.76		0.00	0.00		0.	.00		0.00
5	-2.00	4.00		0.00	0.00	١	0.	.00		0.00
7	-1.50	2.83		0.00	0.00		0.	.00		0.00
10	-1.00	2.00		0.00	0.00		0.	.00		0.00
14	-0.50	1.41		0.03	0.03		0.	.03		0.03
18	0.00	1.00		0.84	0.86		0.87			0.89
25	0.50	0.71		4.95	5.09		5.	.82		5.98
35	1.00	0.50		10.04	10.33	3	15	5.86		16.31
45	1.50	0.35		9.78	10.06	3	25	5.64		26.37
60	2.00	0.25		13.79	14.19	9	39	.43		40.56
80	2.50	0.18		34.32	35.32	2	73	3.75		75.88
120	3.00	0.13		20.90	21.5	1	94	.65		97.39
170	3.50	0.09		2.06	2.12		96	5.71		99.51
200	3.75	0.07		0.07	0.07		96	5.78		99.58
230	4.00	0.06		0.02	0.02		96	.80		99.60
Shell Hash calculated from	m visual estimate of shell <	<4.75mm and >2.	8mm.							
Phi 5	Phi 16	Phi 2	5	Phi 50	Phi 7	5	Ph	i 84		Phi 95
2.94	2.69	2.49		2.13	1.43		0.	.98		0.40
Moment Mean Phi Mean mr				m Sor	orting SI		Skewness		K	urtosis
Statistics	1.93		0.26	0.	78		-0.75			2.77

_									
REPORT	Phi 5	Phi 16	Phi 25	Phi	50	Phi 7	5	Phi 84	Phi 95
TRIC	2.94	2.69	2.49	2.1	13	1.43	3	0.98	0.40
LARME	Moment	Mean Phi	Mean m	m	Sor	ting	SI	kewness	Kurtosis
SRANUL	Statistics	1.93	0.26		0.	78		-0.75	2.77



Project Name: Flagler Beach Sample Analysis

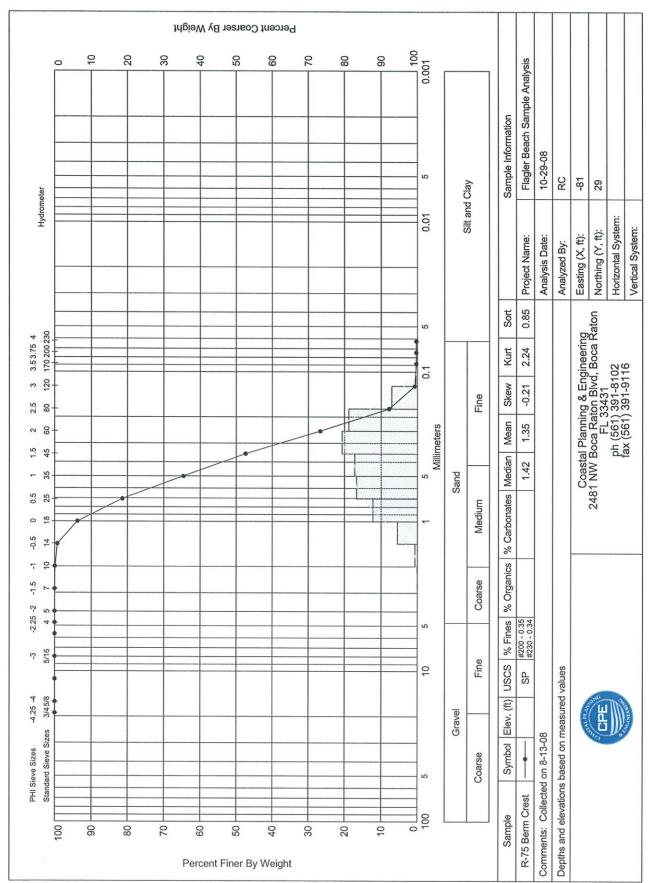
Sample Name: R-75 Berm Crest

Analysis Date: 10-29-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102

Analyzed By: RC						ph (561) 391-8102 fax (561) 391-9116							
Easting (ft): Northing (ft):					Coo	Coordinate System: Elevation (ft):							
-81 29						Geographic (Latitude/Longitude)							
USCS:	Munse	Dry -	10YR-6/4 10YR-6/4	Comments	s:		0 11 1						
SP Washed Dry Weight (g): Wash Weight (g):			- 10YR-6/4 Pan Retained (g): Siev			ss (%):		Collected on 8-13-08			Carbonates (%): Shell Hash (%):		
97.87	97.56		0.00		0.02		#200 - 0.35 #230 - 0.34					0	
Sieve Number	Sieve Size (Phi)		Sieve Size (Millimeters)		Grams Retained		% Weight Retained		Cum. Grams Retained		C. % Weight Retained		
3/4"	-4.25		19.03		0.00		0.00		0.00		0.00		
5/8"	-4.00		16.00		0.00		0.00		0.00		0.00		
7/16"	-3.50		11.31		0.00		0.00		0.00		0.00		
5/16"	-3.00		8.00		(0.00	0.00		0.00		0.00		
3.5	-2.50		5.66		0.00		0.00		0.00		0.00		
4	-2.25		4.76		0.00		0.00		0.00		0.00		
5	-2.00		4.00		0.00		0.00		0.00		0.00		
7	-1.50		2.83		0.00		0.00		0.00		0.00		
10	-1.00		2.00		0.05		0.05		0.05		0.05		
14	-0.50		1.41		0.67		0.68		0.72		0.73		
18	0.00		1.00		5.42		5.54		6.14		6.27		
14 18 25 35 45 60 80 120 170 200	0.50		0.71		12.03		12.29		18.17		18.56		
35	1.00		0.50		16.42		16.78		34.59		35.34		
45	1.50		0.35		16.89		17.26		51.48		52.60		
60	2.00		0.25		20.25		20.69		71.73		73.29		
80	2.50		0.18		18.47		18.87		90.20		92.16		
120	3.00		0.13		6.90		7.05		97.10		99.21		
170	3.50		0.09		0.41		0.42		97.51		99.63		
	3.7	3.75		0.07		0.02	0.02		97.53		99.65		
230	4.0	4.00 0.06		3	0.01		0.01		97.54			99.66	
230 Shell Hash calculated from Phi 5 2.70 Moment Statistics	m visual estima	te of shell <	4.75mm and >2	.8mm.									
Phi 5	Phi 16		Phi 2	Phi 25		hi 50	Phi 75		Phi 84		Phi 95		
2.70	2.2	2.28		2.05		1.42	0.69		0.40		-0.11		
Moment	Mean Phi		М	Mean mn		Sor	ting	SI	Skewness		Kurtosis		
Statistics	atistics 1.35			0.39		0.8	35		-0.21		2.24		



Northing (ft):

Project Name: Flagler Beach Sample Analysis

Sample Name: R-75 Foreshore

Analysis Date: 10-29-08

Analyzed By: RC

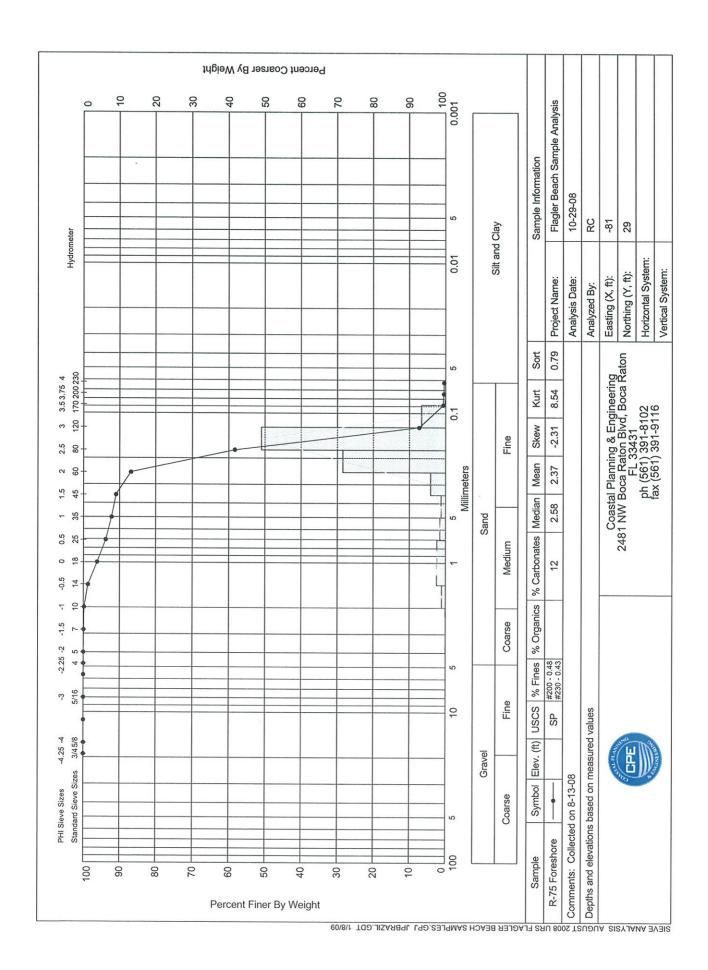
Easting (ft):

Coordinate System:

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Elevation (ft):

-81			29			Geographic (Latitude/Longitude)							
USCS: Munsell: W			- 2.5Y-7/2	s:	g. ap (Estimator Estiglians)								
SP Wash			- 10YR-8/1 Collected or						8-13-08				
Dry Weight (g):	Wash Weight (g):		Pan Retained (g):		Sieve Loss	(%):	#200 - 0.48		nics (%):	Carbona	nates (%): Shell Hash (9		
93.97	93.58		0.00		0.01		#230 - 0.43		12				
Sieve Number	Sieve Size (Phi)		Sieve Size (Millimeters)		Grams Retained		% Weight Retained		Cum. Grams Retained		S C	C. % Weight Retained	
3/4"	-4.25		19.03		0.	00	0.00		0.00			0.00	
5/8"	-4.00		16.00		0.	00	0.00		0.00			0.00	
7/16"	-3.50		11.31		0.	00	0.00		0.00			0.00	
5/16"	-3.00		8.00		0.	00	0.00		0.00			0.00	
3.5	-2.50		5.66		0.	00	0.00		0.00			0.00	
4	-2.25		4.76		0.	00	0.00		0.00			0.00	
5	-2.00		4.00		0.	00	0.00		0.00			0.00	
7	-1.50		2.83		0.07		0.07		0.07			0.07	
10	-1.00		2.00		0.	11	0.12		0.18			0.19	
14	-0.50		1.41		1.01		1.07		1.19			1.26	
18	0.00		1.00		2.35		2.50		3.54			3.76	
14 18 25 35	0.50		0.71		2.24		2.38		5.78			6.14	
35	1.00		0.50		1.50		1.60		7.28			7.74	
45	1.50		0.35		1.18		1.26		8.46			9.00	
60	2.00		0.25		3.91		4.16		12.37			13.16	
80	2.50		0.18		26.76		28.48		39.13			41.64	
120	3.00		0.13		47.94		51.02		87.07			92.66	
170	3.50		0.09		6.29		6.69		93.36			99.35	
200	3.75		0.07		0.16		0.17		93.52			99.52	
230	4.00		0.06		0.05		0.05		93.57			99.57	
Shell Hash calculated from	m visual estimat	e of shell <	4.75mm and >2	2.8mm.									
Phi 5	Phi 16		Phi 25		Phi 50		Phi 75		Phi 84			Phi 95	
3.17	2.92		2.83	2.83		58	2.21		2.05			0.26	
Moment	Mean Phi		Mean mn		n	Soi	ting S		Skewness		K	Kurtosis	
Statistics 2.37		0.19			0.	79	79		-2.31		8.54		



Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-75 Foreshore AD

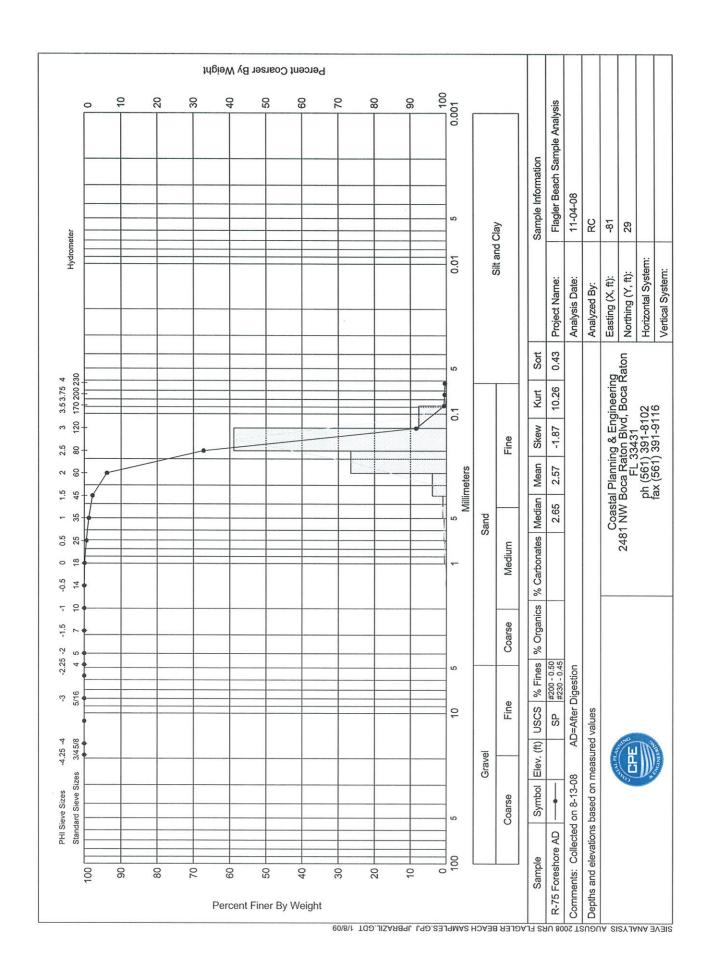
Analysis Date: 11-04-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

ph (561) 391-8102 fax (561) 391-9116

Analyzed By: RC Easting (ft): Northing (ft): Coordinate System: Elevation (ft): -81 Geographic (Latitude/Longitude) USCS: Munsell: Comments: Dry - 2.5Y-8/2 SP Washed - 2.5Y-8/2 Collected on 8-13-08 AD=After Digestion Dry Weight (g): Wash Weight (g): Pan Retained (g): Sieve Loss (%): Fines (%): #200 - 0.50 Carbonates (%): Shell Hash (%): 147.23 146.62 0.02 0.02 #230 - 0.45 0 Sieve Size Sieve Size Grams % Weight Cum. Grams C. % Weight Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 -2.503.5 5.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.00 0.00 0.00 0.00 7 -1.502.83 0.00 0.00 0.00 0.00 10 -1.002.00 0.00 0.00 0.00 0.00 14 -0.501.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.13 0.09 0.13 0.09 GDT 25 0.50 0.71 0.78 0.53 0.91 0.62 35 1.00 0.50 0.93 0.63 1.84 1.25 URS FLAGLER BEACH SAMPLES.GPJ 45 1.50 1.49 0.35 1.01 3.33 2.26 60 2.00 0.25 5.75 3.91 9.08 6.17 80 2.50 0.18 39.09 26.55 48.17 32.72 120 3.00 0.13 86.71 58.89 134.88 91.61 170 3.50 0.09 11.34 7.70 146.22 99.31 200 3.75 0.07 0.28 0.19 146.50 99.50 2008 230 4.00 0.06 0.07 0.05 146.57 99.55 AUGUST Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. SRANULARMETRIC REPORT Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 3.22 2.94 2.86 2.65 2.35 2.19 1.85 Moment Mean Phi Mean mm Sorting Skewness Kurtosis Statistics 2.57 0.17 0.43 -1.8710.26



Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

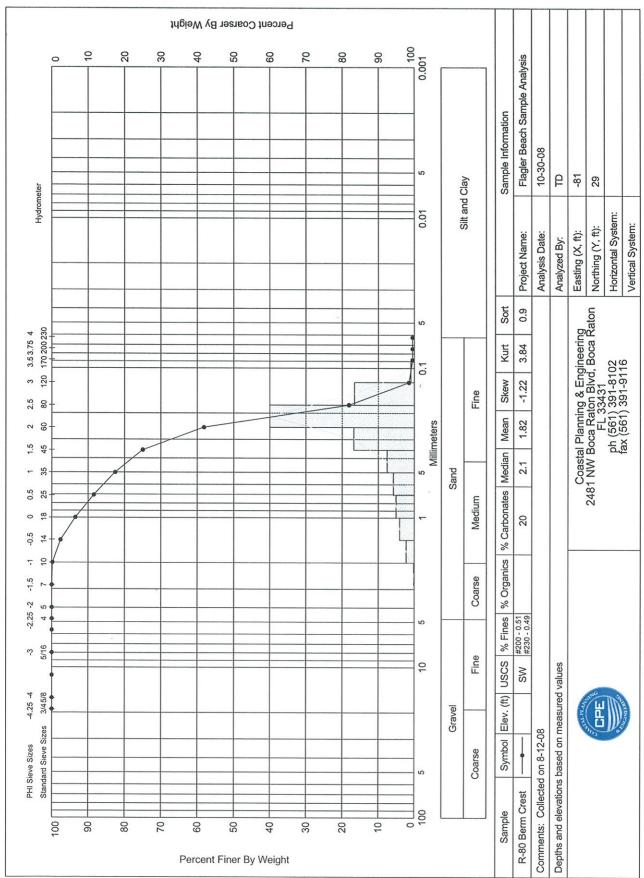
Sample Name: R-80 Berm Crest

Analysis Date: 10-30-08

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

ph (561) 391-8102 fax (561) 391-9116 Analyzed By: TD Easting (ft): Northing (ft): Coordinate System: -81 29 Geographic (Latitude/Longitude) USCS: Wet - 10YR-7/2 Comments: Munsell: Dry - 10YR-7/2 SW Washed - 10YR-7/2 Collected on 8-12-08 Dry Weight (g): Wash Weight (g): Pan Retained (g): Sieve Loss (%): Organics (%): Carbonates (%): Shell Hash (%): Fines (%): #200 - 0.51 94.65 94.35 0.01 0.15 #230 - 0.49 20 0 Sieve Size Sieve Size % Weight Grams Cum. Grams C. % Weight Sieve Number Retained (Phi) (Millimeters) Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 -2.503.5 5.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.00 0.00 0.00 0.00 7 -1.502.83 0.00 0.00 0.00 0.00 10 -1.002.00 0.18 0.19 0.18 0.19 14 -0.501.41 2.10 2.22 2.28 2.41 18 0.00 1.00 3.87 4.09 6.15 6.50 25 0.50 0.71 4.85 5.12 11.00 11.62 35 1.00 0.50 5.52 5.83 16.52 17.45 45 1.50 0.35 7.16 7.56 23.68 25.01 60 2.00 0.25 15.94 16.84 39.62 41.85 80 2.50 37.85 39.99 0.18 77.47 81.84 120 3.00 0.13 15.74 16.63 93.21 98.47 170 3.50 0.09 0.94 0.99 94.15 99.46 200 3.75 0.07 0.03 0.03 94.18 99.49 0.06 230 4.00 0.02 0.02 94.20 99.51 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.90 2.56 2.41 2.10 1.50 0.88 -0.18Moment Mean Phi Mean mm Sorting Skewness Kurtosis Statistics 1.82 0.28 0.9 -1.223.84

GDT URS FLAGLER BEACH SAMPLES.GPJ 2008 AUGUST SRANULARMETRIC REPORT



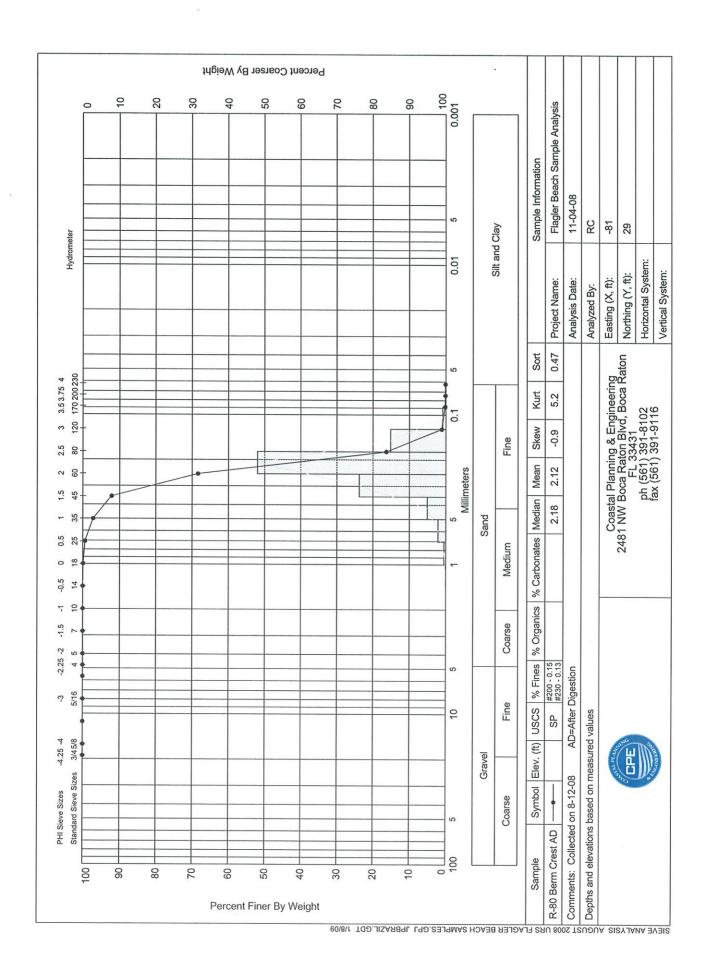
Project Name: Flagler Beach Sample Analysis

Sample Name: R-80 Berm Crest AD

Analysis Date: 11-04-08



Analyzed By: R	Northing (ft):				_			ph (56	31) 391 31) 391	-8102 -9116		
Easting (ft):	Northing (ft):				Coordina	ite System:		iax (30		Elevation (ft):		
-81		29 Munsell: Cor			Geo	graphic	c (Latitude/L	ongitud	de)			
USCS:	Munse		- 2 5Y-8/2	Comments:			,					
SP		Washed	- 2.5Y-8/2				on 8-12-08			er Digest		
Dry Weight (g):	Wash Weight		Pan Retained		Sieve Loss (%		Fines (%): #200 - 0.15		s (%):	Carbonates ((%):	Shell Hash (%
113.18	113.0 Sieve S		0.0° Sieve S		0.0		#230 - 0.13		0	0		0 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Sieve Number	(Phi		(Millime	The state of the s	Gran Retair		% Weig Retaine			Grams ained		% Weigl Retained
3/4"	-4.2	5	19.0	19.03		0	0.00		0.	00		0.00
5/8"	-4.0	0	16.00		0.0	0	0.00		0.	00		0.00
7/16"	-3.5	0	11.31		0.0	0	0.00		0.	00		0.00
5/16"	-3.0	0	8.00		0.0	0.00		0.00		00		0.00
3.5	-2.5			3	0.0	0	0.00		0.00		0.0	
4	-2.2	5	4.76	3	0.0	0	0.00		0.00			0.00
5	-2.0	-2.00)	0.0	0	0.00		0.00			0.00
7	-1.5	-1.50		3	0.0	0	0.00		0.	00		0.00
10	-1.0	-1.00)	0.00		0.00		0.	00		0.00
14	-0.5	0	1.41		0.0	0	0.00		0.	00		0.00
18	0.00)	1.00		0.10	0	0.09		0.	10		0.09
25	0.50)	0.71		0.59	9	0.52		0.	69		0.61
35	1.00)	0.50)	2.4	1	2.13		3.	10		2.74
45	1.50)	0.3	5	5.7	1	5.05		8.	81		7.79
60	2.00)	0.25	5	26.9	95	23.81		35	.76		31.60
80	2.50)	0.18	3	58.8	19	52.03		94	.65		83.63
120	3.00)	0.13	3	17.2	20	15.20		111	1.85		98.83
170	3.50)	0.09	9	1.08	8	0.95		112	2.93		99.78
200	3.75	5	0.07	7	0.0	8	0.07		113	3.01		99.85
230	4.00)	0.06	3	0.02	2	0.02		113	3.03		99.87
Shell Hash calculated fro	m visual estimal	n visual estimate of shell <4.75mm and >2.8mm		8mm						1		
Phi 5	Phi 1		Phi 2		Phi 5	50	Phi 75		Phi	i 84		Phi 95
2.87	2.51	1	2.42	2	2.18	8	1.86		1.	67		1.22
Moment	Mea	n Phi	М	lean mm	1	Sor	ting	Ske	wness	5	Kı	urtosis
Statistics	2.	12		0.23		0.4	47		0.9			5.2



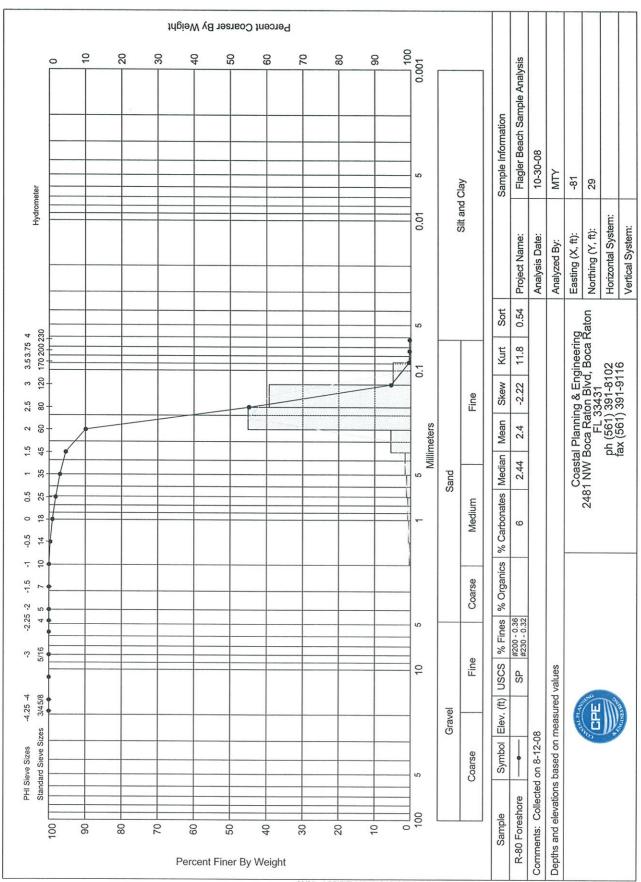
Project Name: Flagler Beach Sample Analysis

Sample Name: R-80 Foreshore



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton Fl 33431

Analysis Date:	10-30-08						240111		FL 3343 561) 391	1	Ja Mai	OII	
Analyzed By: M	1TY							fax (561) 391 561) 391	-8102 -9116			
Easting (ft):		Northing (f	(t):		Coo	rdinate System:			E	Elevation (ft)	:		
-81			29			Seographic	(Latitude	/Longit	ude)				
uscs:	Muns	Dry	- 2.5Y-7/2 - 2.5Y-8/1 - 2.5Y-8/1	Comments	s:		Collect	ed on 8	3-12-08				
Dry Weight (g):	Wash Weight		Pan Retained (g):	Sieve Los	ss (%):	Fines (%): #200 - 0.3		nics (%):	Carbonate	es (%):	Shell Hash (%):	
93.52	93.2	23	0.01		(0.00	#230 - 0.3	32		6		0	
Sieve Number	Sieve (Ph		Sieve S (Millime	500000000000000000000000000000000000000		rams tained	% Wei Retair			Grams ained			
3/4"	-4.2	25	19.0	3	(0.00 0.00 0.00				0.00			
5/8"	-4.0	00	16.0	0	(0.00	0.00)	0.	.00		0.00	
7/16"	-3.5	50	11.3	1	(0.00	0.00)	0.	.00		0.00	
5/16"	-3.0	00	8.00)		0.00	0.00)	0.	.00		0.00	
3.5	-2.5	50	5.66	6	(0.00	0.00)	0.	.00		0.00	
4	-2.2	25	4.76	3	(0.00	0.00)	0.	.00		0.00	
5	-2.0	00	4.00)	(0.00	0.00)	0.	.00		0.00	
7	-1.5	50	2.83	3	(0.00	0.00)	0.	.00		0.00	
10	-1.0	00	2.00)		0.02	0.02	2	0.	.02		0.02	
14	-0.5	50	1.41	l	(0.33	0.3	5	0.	.35		0.37	
18	0.0	0	1.00)	(0.54	0.58	3	0.	.89		0.95	
25	0.5	0	0.71	1	(0.81	0.87	7	1.	.70		1.82	
35	1.0	0	0.50)	34	1.09	1.17	7	2.	.79		2.99	
45	1.5	0	0.35	5	5	1.50	1.60		4.29		9 4.59		
60	2.0	0	0.25	5	:	5.16	5.52	2	9.	.45		10.11	
80	2.5	0	0.18	3	4	2.14	45.0	6	51	.59		55.17	
120	3.0	0	0.13	3	3	6.80	39.3	5	88	3.39		94.52	
170	3.5	0	0.09	9	4	4.63	4.95	5	93	3.02		99.47	
200	3.7	5	0.07	7	(0.16	0.17	7	93	3.18		99.64	
230	4.0	0	0.06	6	(0.04	0.04	1	93	3.22		99.68	
14 18 25 35 45 60 80 120 170 200 230 Shell Hash calculated from Phi 5 3.05 Moment Statistics	ash calculated from visual estimate of shell <4.75mm and >2.8mm.												
Phi 5	Phi	16	Phi 2	:5	Р	hi 50	Phi 7	5	Ph	i 84		Phi 95	
3.05 2.87 2.75					2	2.44	2.17	7	2.	.07	1.54		
Moment Mean Phi Mean mm					n	Sor	ting	SI	kewnes	S	K	Curtosis	
Statistics	Statistics 2.4 0.19						54		-2.22		6 0 rams C. % Weight Retained 0.00 0		



Project Name: Flagler Beach Sample Analysis

Sample Name: R-80 Foreshore AD

Analysis Date: 11-05-08

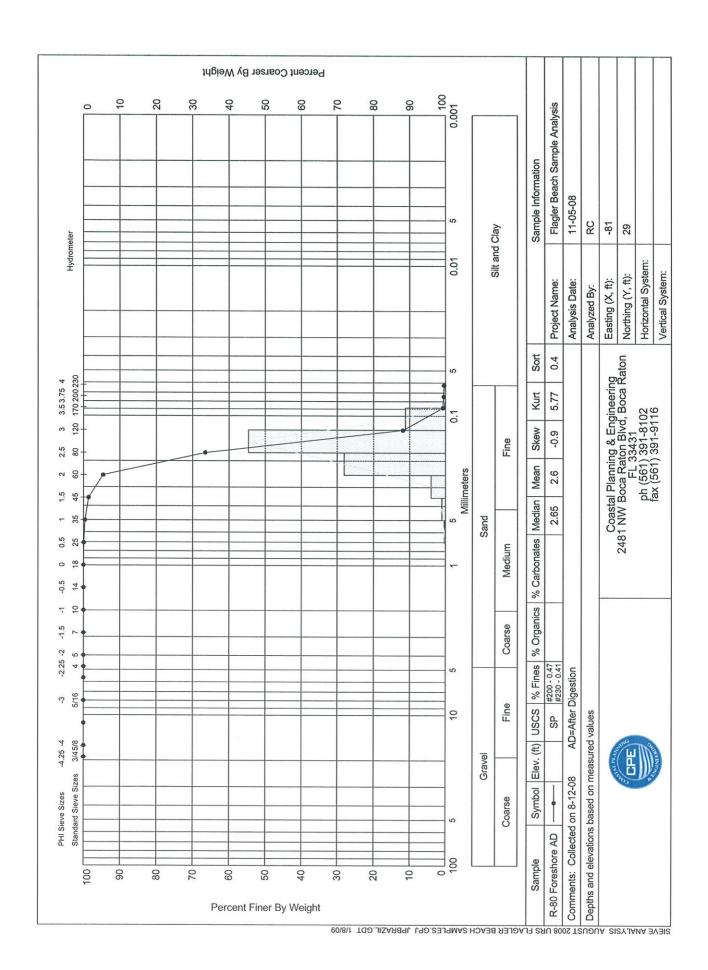
Analyzed By: RC

Easting (ft):

Northing (ft): Coordinate System:

Elevation (ft):

Easting (ft):		Northing (f	t):		Coordinate System	:		Elevation ((ft):	
-81			29		Geographi	c (Latitude/Lo	ngitude)			
uscs: SP	Munse	Dry	- 2.5Y-8/2 - 2.5Y-8/2	Comments:	Collected	on 8-12-08	AD=A	fter Dig	estion	
Dry Weight (g):	Wash Weight (g):	Pan Retained (g): Sie	ve Loss (%):	Fines (%): #200 - 0.47	Organics (%):		ates (%):	Shell Hash (%):
123.19	122.7	71	0.02	2	0.01	#230 - 0.41				0
Sieve Number	Sieve S (Phi		Sieve S (Millime		Grams Retained	% Weight Retained		i. Gram tained		. % Weight Retained
3/4"	-4.2	5	19.0	3	0.00	0.00		0.00		0.00
5/8"	-4.0	0	16.0	0	0.00	0.00		0.00		0.00
7/16"	-3.5	0	11.3	1	0.00	0.00		0.00		0.00
5/16"	-3.0	0	8.00)	0.00	0.00		0.00		0.00
3.5	-2.5	0	5.66	3	0.00	0.00		0.00		0.00
4	-2.2	5	4.76	3	0.00	0.00		0.00		0.00
5	-2.0	0	4.00)	0.00	0.00		0.00		0.00
7	-1.5	0	2.83	3	0.00	0.00		0.00		0.00
10	-1.0	0	2.00)	0.00	0.00		0.00		0.00
14	-0.5	0	1.41		0.00	0.00		0.00		0.00
18	0.00)	1.00)	0.02	0.02		0.02		0.02
25	0.50)	0.71		0.07	0.06		0.09		0.08
35	1.00)	0.50)	0.37	0.30		0.46		0.38
45	1.50)	0.35	5	1.25	1.01		1.71		1.39
60	2.00)	0.25	5	4.96	4.03		6.67		5.42
80	2.50)	0.18	3	34.55	28.05	4	1.22		33.47
120	3.00)	0.13	3	67.35	54.67	1	08.57		88.14
170	3.50)	0.09)	13.74	11.15	1:	22.31		99.29
200	3.75	5	0.07	7	0.30	0.24	1:	22.61		99.53
230	4.00)	0.06	3	0.07	0.06	1:	22.68		99.59
Shell Hash calculated fro	m visual estimat	isual estimate of shell <4.75mm and >		.8mm.			•			
Phi 5	Phi 1	6	Phi 2	:5	Phi 50	Phi 75	Р	hi 84		Phi 95
3.31	2.96	3	2.88	3	2.65	2.35		2.19		1.95
Moment	t Mean Phi Mear		ean mm	So	rting	Skewne	ss	K	Curtosis	
Statistics	2.6 0.		0.16	C	0.4	-0.9	-0.9		5.77	

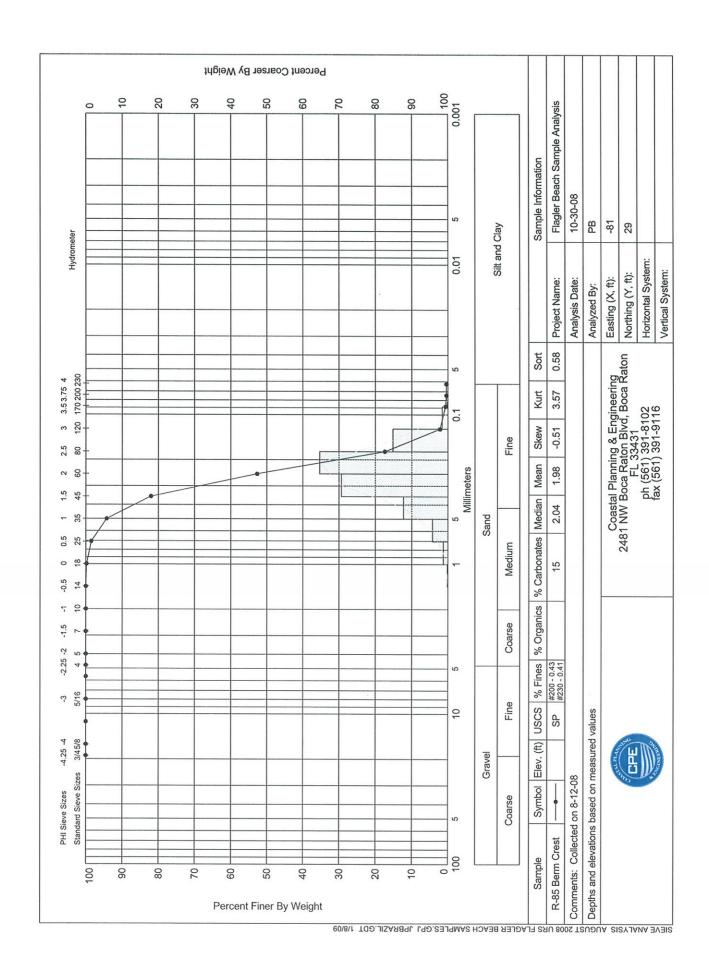


Project Name: Flagler Beach Sample Analysis

Sample Name: R-85 Berm Crest

Analysis Date: 10-30-08

Analyzed By: P		Northing (ft):			-			ph (5	61) 391 561) 391	-8102 -9116					
Easting (ft):		29			Coo	rdinate Systen	n:	Tax (c		Elevation (ft):					
-81		ell: Wet - 10YR-7/2 Comments			G	Seograph	ic (Latitude/	Longitu	ıde)						
uscs: SP	Munse	Dry -	10YR-7/2 10YR-7/2 10YR-7/2	Comments			Collecte			19					
Dry Weight (g):	Wash Weight		Pan Retained	(g):	Sieve Los	s (%):	Fines (%): #200 - 0.4		cs (%):	Carbonates (%): Shell Hash				
96.58	96.1	8	0.0	0	(0.00	#230 - 0.4			15	0				
Sieve Number	Sieve S (Phi	The state of the s	Sieve : (Millime			rams tained	% Weight C Retained			Grams ained	C. % Weig Retaine				
3/4"	-4.2	5	19.0	3	(0.00	0.00		0.00		0.00				
5/8"	-4.0	0	16.0	0	(0.00	0.00		0.	.00	0.00				
7/16"	-3.5	0	11.3	1	(0.00	0.00		0.	.00	0.00				
5/16"	-3.0	0	8.00		(0.00	0.00		0.	.00	0.00				
3.5	-2.5	0	5.66		(0.00	0.00	0.00		.00	0.00				
4	-2.2	5	4.70	3	(0.00	0.00		0.	.00	0.00				
5	-2.0	0	4.00	4.00		4.00		4.00		0.00	0.00		0.00		0.00
7	-1.5	0	2.83	2.83		2.83		0.00	0.00		0.00		0.00		
10	-1.0	0	2.00	2.00		0.00	0.00		0.	.00	0.00				
14	-0.5	0	1.41		(0.02	0.02		0.	02	0.02				
18	0.00)	1.00		(0.17	0.18		0.	19	0.20				
25	0.50)	0.71			1.22	1.26		1.	41	1.46				
35	1.00)	0.50	0.50		1.10	4.25		5.	51	5.71				
45	1.50)	0.3	5	11.81		12.23	3	17.3		17.94				
60	2.00)	0.2	5	2	8.34	29.34	1	45	.66	47.28				
80	2.50)	0.18	3	3	4.13	35.34	1	79	.79	82.62				
120	3.00)	0.13	3	1	4.67	15.19)	94	.46	97.81				
170	3.50)	0.09	9		1.50	1.55		95	.96	99.36				
200	3.75	5	0.0	7	(0.20	0.21		96	.16	99.57				
230	4.00)	0.0	3	(0.02	0.02		96	.18	99.59				
Shell Hash calculated fro	m visual estimat	e of shell <													
Phi 5	Phi 1	6	Phi 2	25	Р	hi 50	Phi 75	5	Ph	i 84	Phi 95				
2.91	2.55	5	2.39	9	2	2.04	1.62		1.	42	0.92				
Moment	Mea	n Phi	M	lean mr	n	Sc	orting	Sk	ewness	S	Kurtosis				
Statistics	1.9	98		0.25		0	.58		-0.51		3.57				



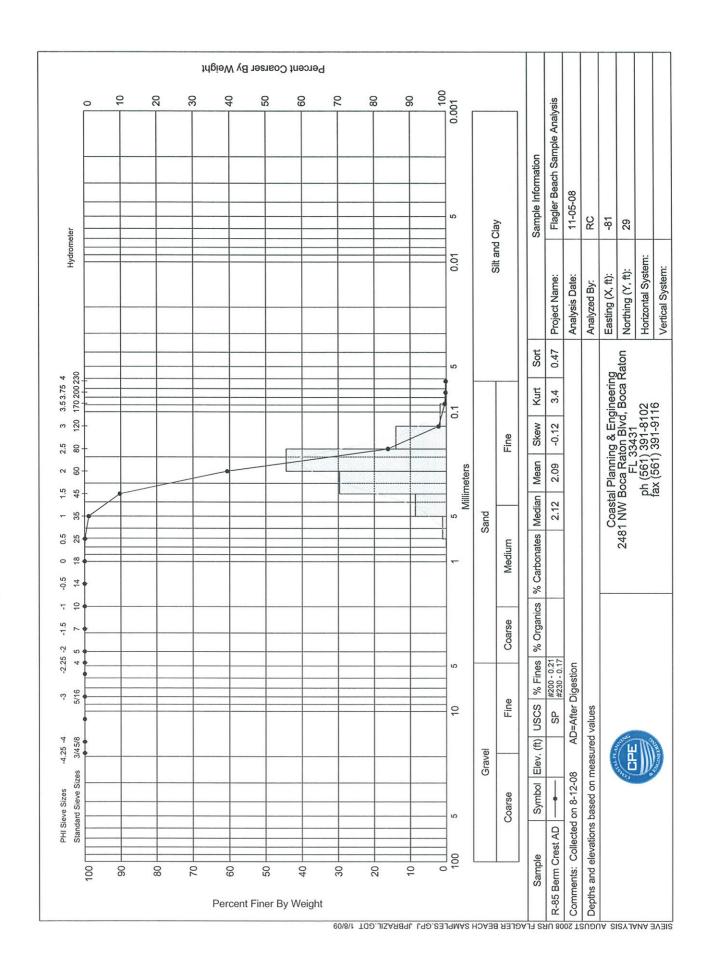
Project Name: Flagler Beach Sample Analysis

Sample Name: R-85 Berm Crest AD

Analysis Date: 11-05-08



Analyzed By: R	ting (ft): Northing (ft):						fax (561) 39	91-9116			
Easting (ft):		Northing	(ft):		Coordinate System	:		Elevation (ft):			
-81			29		Geograph	ic (Latitude	/Longitude)				
uscs: SP	Muns	Dry	/ - 2.5Y-8/3 I - 2.5Y-8/3	Comments:	Collected	l on 8-12-0	8 AD=A	fter Diges	tion		
Dry Weight (g):	Wash Weight	(g):	Pan Retained	(g): Sie	eve Loss (%):	Fines (%): #200 - 0.2	Organics (%):	Carbonates	(%): Shell Hash (%		
130.07	129.		0.0		0.00	#230 - 0.1	17		0		
Sieve Number	Sieve (Ph		Sieve : (Millime		Grams Retained	% Wei Retain		i. Grams etained	C. % Weig Retained		
3/4"	-4.2	25	19.0	3	0.00	0.00)	0.00	0.00		
5/8"	-4.0	00	16.00		0.00	0.00)	0.00	0.00		
7/16"	-3.5	50	11.3	1	0.00	0.00)	0.00	0.00		
5/16"	-3.0	00	8.00		0.00	0.00)	0.00	0.00		
3.5	-2.5	50	5.66	6	0.00	0.00)	0.00	0.00		
4	-2.2	25	4.70	3	0.00	0.00)	0.00	0.00		
5	-2.00 -1.50				4.00)	0.00	0.00)	0.00	0.00
7					2.83	3	0.00	0.00)	0.00	0.00
10	-1.0	-1.00)	0.00	0.00)	0.00	0.00		
14	-0.5	50	1.41		0.00	0.00)	0.00	0.00		
18	0.0	0	1.00		0.00	0.00)	0.00	0.00		
25	0.5	0	0.7	1	0.08	0.06	3	0.08	0.06		
35	1.0	0	0.50)	1.41	1.08	3	1.49	1.14		
45	1.5	0	0.3	5	11.15	8.57	1	2.64	9.71		
60	2.0	0	0.2	5	38.58	29.6	6 5	51.22	39.37		
80	2.5	0	0.18	3	57.78	44.4	2 1	09.00	83.79		
120	3.0	0	0.13	3	18.23	14.0	2 1:	27.23	97.81		
170	3.5	0	0.09	9	2.31	1.78	3 1:	29.54	99.59		
200	3.7	5	0.0	7	0.26	0.20	1:	29.80	99.79		
230	4.0	0	0.06	3	0.05	0.04	1:	29.85	99.83		
Shell Hash calculated fro	m visual estima	ite of shell	<4.75mm and >2	2.8mm.							
Phi 5	5 Phi 16 Phi 25		25	Phi 50	Phi 7	5 P	hi 84	Phi 95			
2.90	2.5	1	2.40)	2.12	1.76		1.61	1.23		
Moment	ent Mean Phi Mean n		lean mm	So	rting	Skewne	ss	Kurtosis			
Statistics	2.	.09		0.23	0	.47	-0.12		3.4		



Project Name: Flagler Beach Sample Analysis

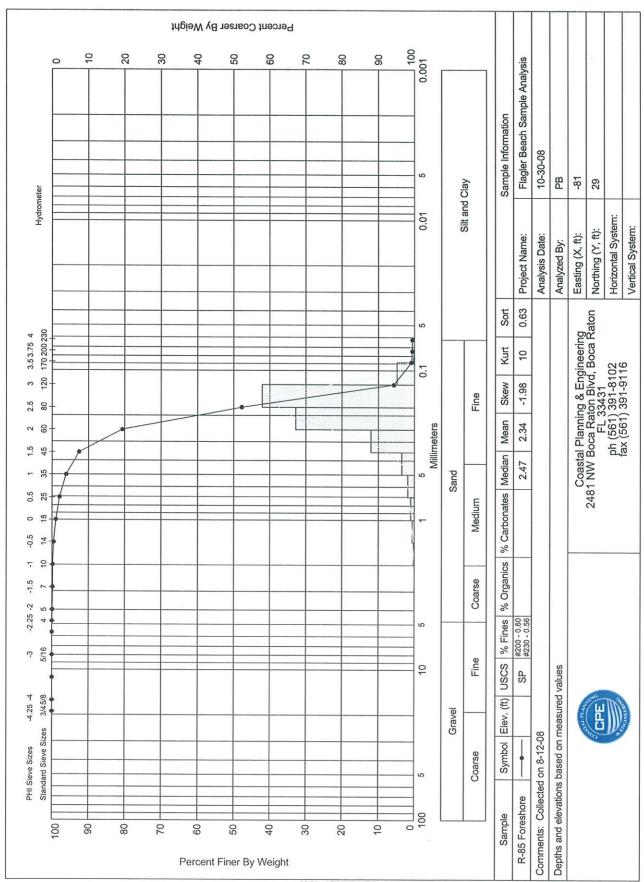
Sample Name: R-85 Foreshore

Analysis Date: 10-30-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

Analysis Date:							FL 334 ph (561) 39	431 91-8102			
Analyzed By: Pl	В						fax (561) 3	91-9116			
Easting (ft):		Northing (ft): 29			Coordinate System	n:		Elevation (ft):			
-81	100				Geograph	ic (Latitude	/Longitude)				
SP		Dry Washed	- 2.5Y-8/1 - 2.5Y-8/1	Comments:			ed on 8-12-0	8			
Dry Weight (g): 95.22	Wash Weight (Pan Retained		eve Loss (%): 0.01	Fines (%): #200 - 0.6 #230 - 0.5		Carbonates	(%): Shell Hash (%		
Sieve Number	Sieve S (Phi	39,600,000,000,000	Sieve S (Millime		Grams Retained	% Wei		n. Grams etained	C. % Weig Retained		
3/4"	-4.25	5	19.03		0.00	0.00	0.00		0.00		
5/8"	-4.00)	16.00		0.00	0.00	0 0.00		0.00		
7/16"	-3.50)	11.3	1	0.00	0.00)	0.00	0.00		
5/16"	-3.00	3.00		-3.00)	0.00	0.00)	0.00	0.00
3.5	-2.50	-2.50		3	0.00	0.00)	0.00	0.00		
4	-2.25			3	0.00	0.00)	0.00	0.00		
5	-2.00)	4.00)	0.08	0.08	3	0.08	0.08		
7	-1.50)	2.83	3	0.07	0.07	,	0.15	0.15		
10	-1.00)	2.00		0.04	0.04		0.19	0.19		
14	-0.50)	1.4	1	0.24	0.25	;	0.43	0.44		
18	0.00)	1.00)	0.52	0.55	;	0.95	0.99		
25	0.50)	0.7	1	0.99	1.04		1.94	2.03		
35	1.00)	0.50)	1.72	1.81		3.66	3.84		
45	1.50)	0.3	5	3.37	3.54		7.03	7.38		
60	2.00)	0.25	5	11.42	11.99	9 ,	18.45	19.37		
80	2.50)	0.18	3	31.27	32.84	4 4	19.72	52.21		
120	3.00)	0.13	3	40.07	42.08	8 8	39.79	94.29		
170	3.50)	0.09	9	4.63	4.86	5	94.42	99.15		
200	3.75	5	0.07	7	0.24	0.25		94.66	99.40		
230	4.00)	0.06	6	0.04	0.04	. 9	94.70	99.44		
Shell Hash calculated from	n visual estimate	estimate of shell <4.75mm and >2.8r		2.8mm.							
Phi 5	Phi 1			25	Phi 50	Phi 7	5 F	Phi 84	Phi 95		
3.07	2.88		2.77	7	2.47	2.09		1.86	1.16		
Moment	Mear	n Phi	М	ean mm	Sc	orting	Skewne	ss	Kurtosis		
Statistics	2.3	34		0.20	0	.63	-1.98		10		



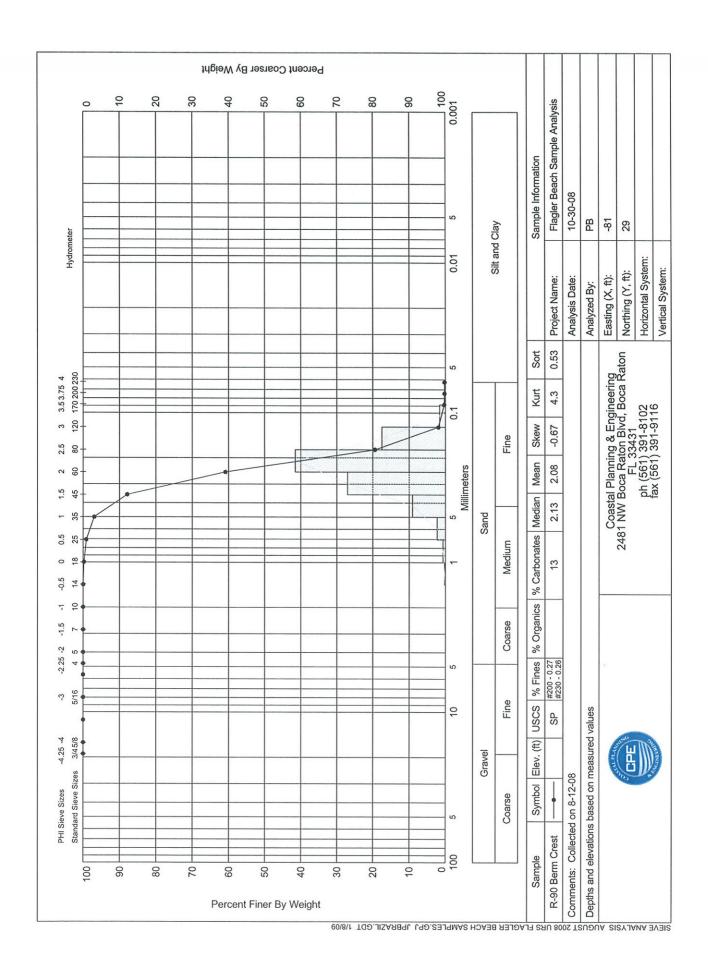
Project Name: Flagler Beach Sample Analysis

Sample Name: R-90 Berm Crest

Analysis Date: 10-30-08



Analyzed By: P						ph (5	61) 391-8 61) 391-9	3102		
Easting (ft):		lorthing (ft):		Coordinate Syste	m:	iax (c		vation (ft):		
-81		29		Geograph	nic (Latitude	/Longitu	ıde)			
uscs:	Munsell:	Wet - 10YR-7/2 Dry - 10YR-7/2 ashed - 10YR-8/2	Comment	ds:	Collect	ed on 8	-12-08			
Dry Weight (g):	Wash Weight (g)	: Pan Retaine	d (g):	Sieve Loss (%):	Fines (%): #200 - 0.2	Organic	cs (%):	Carbonates (%): Shell Hash (%):	
100.22	99.98	0.0)1	0.02	#230 - 0.2	26		13	0	
Sieve Number	Sieve Si (Phi)	ze Sieve (Millim		Grams Retained	% Wei Retair		Cum. G Retair		C. % Weight Retained	
3/4"	-4.25	19.	03	0.00	0.00	00		0	0.00	
5/8"	-4.00	16.	00	0.00	0.00)	0.00	0	0.00	
7/16"	-3.50	11.	31	0.00	0.00)	0.00	0	0.00	
5/16"	-3.00	8.0	00	0.00	0.00)	0.00	0	0.00	
3.5	-2.50	5.6	36	0.00	0.00)	0.00	0	0.00	
4	-2.25	4.7	76	0.00	0.00)	0.00	0	0.00	
5	-2.00	4.0	00	0.00	0.00		0.00		0.00	
7	-1.50	2.8	33	0.00	0.00)	0.00		0.00	
10	-1.00	2.0	00	0.00	0.00)	0.00	0	0.00	
14	-0.50	1.4	11	0.03	0.03	3	0.03	3	0.03	
18	0.00	1.0	00	0.22	0.22	2	0.25	5	0.25	
14 18 25 35	0.50	0.7	71	0.63	0.63	3	0.88	8	0.88	
35	1.00	0.5	50	2.21	2.21		3.09	9	3.09	
45	1.50	0.3	35	9.08	9.06	3	12.17		12.15	
60	2.00	0.2	25	27.04	26.9	8	39.2	11	39.13	
80	2.50	0.1	8	41.55	41.4	6	80.7	6	80.59	
45 60 80 120 170	3.00	0.1	3	17.52	17.4	8	98.2	8	98.07	
170	3.50	0.0	9	1.58	1.58	3	99.8	6	99.65	
200	3.75	0.0)7	0.08	0.08	3	99.9	4	99.73	
230	4.00	0.0)6	0.01	0.01		99.9	5	99.74	
230 Shell Hash calculated from	m visual estimate d	of shell <4.75mm and	>2.8mm.							
	Phi 16	Phi	Phi 25		Phi 7	5	Phi 8	34	Phi 95	
Phi 5 2.91 Moment Statistics	2.60	2.4	2.43		1.74		1.57	7	1.11	
Moment	Mean	Phi	∕lean mr	m So	orting	Ske	kewness Kurtosis			
Statistics	2.08	3	0.24	().53		-0.67		4.3	



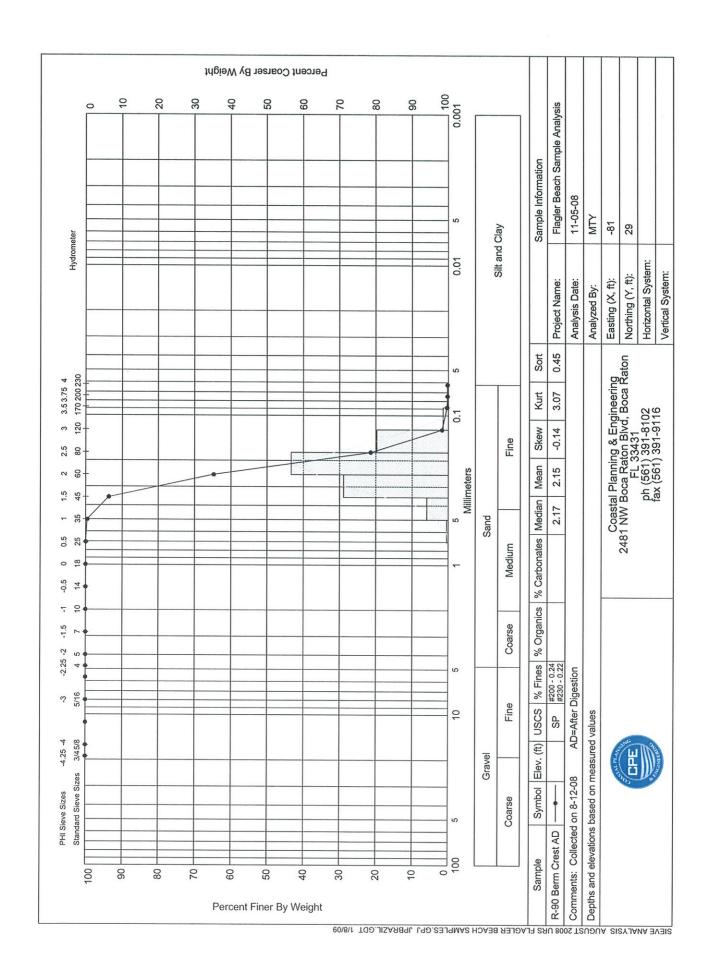
Project Name: Flagler Beach Sample Analysis

Sample Name: R-90 Berm Crest AD

Analysis Date: 11-05-08



Analyzed By: N	MTY						ph (561) 39 fax (561) 39	1-8102 1-9116	
Easting (ft):		Northing	(ft):		Coordinate System	n:		Elevation (ft):	
-81	l.M.		29	Ι		ic (Latitude/L	ongitude)		
SP	Munse	Dry	- 2.5Y-8/2	Comments		l 0 40 00	A D - A	4 D:	· · · · ·
Dry Weight (g):	Wash Weight		- 2.5Y-8/2 Pan Retained	(g): \$	Sieve Loss (%):	fines (%): #200 - 0.24		fter Diges Carbonates	
124.19	124.0	04	0.0	1	0.09	#200 - 0.24 #230 - 0.22			0
Sieve Number	Sieve S		Sieve S (Millime		Grams Retained	% Weigh		. Grams tained	C. % Weigh Retained
3/4"	-4.2	5	19.0	3	0.00	0.00	(0.00	0.00
5/8"	-4.0	0	16.00		0.00	0.00	(0.00	0.00
7/16"	-3.5	0	11.3	1	0.00	0.00	(0.00	0.00
5/16"	-3.0	0	8.00	0	0.00	0.00	(0.00	0.00
3.5	-2.5	0	5.60	6	0.00	0.00	(0.00	0.00
4	-2.25 -2.00		4.76		0.00	0.00	(0.00	0.00
5							0.00	0.00	(
7	-1.5	0	2.83		0.00	0.00	(0.00	0.00
10	-1.0	0	2.00	0	0.00	0.00	(0.00	0.00
14	-0.5	0	1.41		0.00	0.00	(0.00	0.00
18	0.00	0	1.00	0	0.01	0.01	(0.01	0.01
25	0.50	0	0.7	1	0.04	0.03	(0.05	0.04
35	1.00	0	0.50	0	0.51	0.41	().56	0.45
45	1.50	0	0.3	5	7.30	5.88	7	7.86	6.33
60	2.00	0	0.2	5	35.91	28.92	4	3.77	35.25
80	2.50	0	0.18	3	53.78	43.30	9	7.55	78.55
120	3.00	0	0.13	3	24.48	19.71	12	22.03	98.26
170	3.50	0	0.09	9	1.75	1.41	12	23.78	99.67
200	3.75	5	0.0	7	0.11	0.09	12	23.89	99.76
230	4.00	0	0.06	3	0.03	0.02	12	23.92	99.78
Shell Hash calculated fro	om visual estima	te of shell <	<4.75mm and >2	2.8mm.					
Phi 5			25	Phi 50	Phi 75	Р	hi 84	Phi 95	
2.92	2.64	4	2.46	6	2.17	1.82		1.67	1.39
Moment	Mea	n Phi	M	lean mm	n Sc	orting	Skewnes	SS	Kurtosis
Statistics	2.15 0.23		0.23	C	.45	-0.14		3.07	



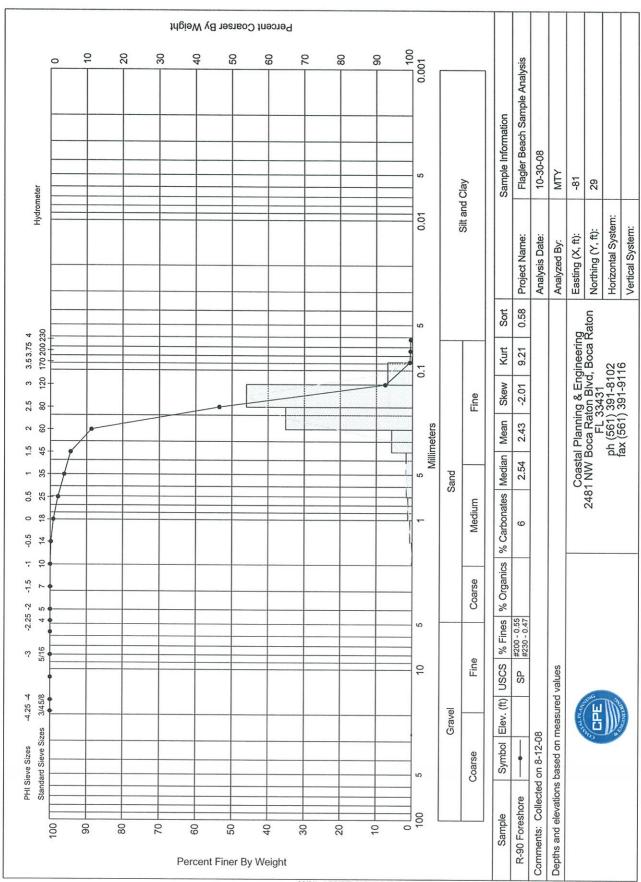
Project Name: Flagler Beach Sample Analysis

Sample Name: R-90 Foreshore



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

Analysis Date:	10-30-08						ph /5	FL 3343	9102		
Analyzed By: N	MTY						fax (5	61) 391 61) 391	-9116		
Easting (ft):	Nort	hing (ft):		Coordinate	System:			E	levation (ft):		
-81		29			raphic	c (Latitude/	Longitu	ıde)			
uscs:		Wet - 2.5Y-7/2 Dry - 2.5Y-8/1 shed - 2.5Y-8/1	Comment	s:		Collecte	ed on 8	-12-08			
Dry Weight (g):	Wash Weight (g):	Pan Retaine	d (g):	Sieve Loss (%):		Fines (%): #200 - 0.5	Organie	cs (%):	Carbonates	(%):	Shell Hash (%):
95.95	95.55	0.0	01	0.04		#230 - 0.4	7		6		0
Sieve Number	Sieve Size (Phi)	Sieve (Millim		Grams Retains		% Weig Retain			Grams ained		% Weight Retained
3/4"	-4.25	19.	03	0.00		0.00		0.00			0.00
5/8"	-4.00	16.	00	0.00		0.00		0.	00		0.00
7/16"	-3.50	11.	31	0.00	1	0.00		0.	00		0.00
5/16"	-3.00	8.0	00	0.00		0.00	0.0		00		0.00
3.5	-2.50	5.0	36	0.00		0.00		0.	00		0.00
4	-2.25	4.	76	0.00		0.00		0.	00		0.00
5	-2.00	4.0	00	0.00		0.00		0.00			0.00
7	-1.50	2.83		0.00		0.00		0.	0.00		0.00
10	-1.00	2.0	2.00			0.00		0.	00		0.00
14	-0.50	0 1.41		0.15		0.16		0.	15		0.16
18 18 25 35	0.00	1.0	00	0.62		0.65		0.	77		0.81
25	0.50	0.71		1.24		1.29		2.	01		2.10
35	1.00	0.9	50	1.63		1.70		3.	64		3.80
45	1.50	0.3	35	1.72		1.79		5.36			5.59
45 60 80 120 170	2.00	0.2	25	5.49		5.72		10	.85		11.31
80	2.50	0.	18	33.72		35.14	1	44	.57		46.45
120	3.00	0.	13	44.15		46.01		88	.72		92.46
170	3.50	0.0)9	6.53		6.81		95	.25		99.27
	3.75	0.0)7	0.17		0.18		95	.42		99.45
230	4.00	0.0)6	0.08		0.08		95	.50		99.53
200 230 Shell Hash calculated fro	m visual estimate of s	l estimate of shell <4.75mm and >2.8mm.									
Phi 5 3.19 Moment Statistics	i 5 Phi 16 Phi 25)	Phi 7	5	Phi	84	Phi 95	
3.19	3.19 2.91 2.81			2.54		2.19		2.	07		1.34
Moment	Moment Mean Phi Mean mm			m	Sor	ting	Ske	ewness		Kı	urtosis
Statistics					0.	58		-2.01			9.21



Granularmetric Report

Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-90 Foreshore AD

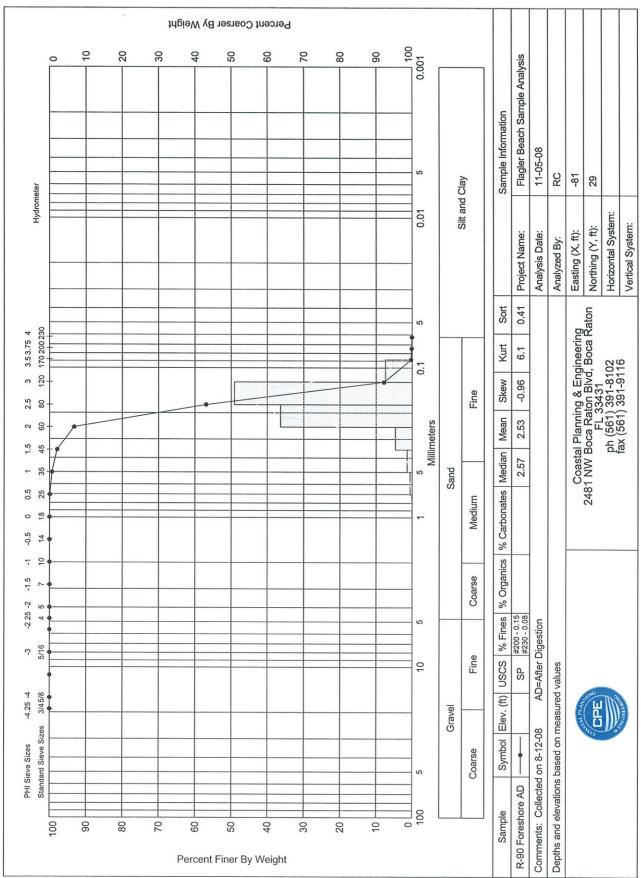
Analysis Date: 11-05-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Analyzed By: RC Easting (ft): Northing (ft): Coordinate System: -81 29 Geographic (Latitude/Longitude) USCS: Munsell: Comments: Dry - 2.5Y-8/1 Washed - 2.5Y-8/1 SP Collected on 8-12-08 AD=After Digestion Dry Weight (g): Wash Weight (g): Pan Retained (g): Sieve Loss (%): Carbonates (%): Fines (%): #200 - 0.15 Organics (%): Shell Hash (%): 126.78 126.71 0.01 0.02 #230 - 0.08 0 Sieve Size Sieve Size Grams % Weight Cum. Grams C. % Weight Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.50 11.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.00 0.00 0.00 0.00 7 -1.502.83 0.00 0.00 0.00 0.00 10 -1.002.00 0.00 0.00 0.00 0.00 14 -0.501.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.03 0.02 0.03 0.02 GDT 25 0.50 0.71 0.11 0.09 0.14 0.11 35 1.00 0.50 0.72 0.57 0.86 0.68 45 1.50 0.35 1.80 1.42 2.66 2.10 60 2.00 0.25 5.89 4.65 8.55 6.75 80 2.50 0.18 46.07 36.34 54.62 43.09 120 3.00 0.13 62.25 49.10 116.87 92.19 170 3.50 0.09 9.45 7.45 126.32 99.64 200 3.75 0.07 0.26 0.21 126.58 99.85 230 4.00 0.06 0.09 0.07 126.67 99.92 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 3.19 2.92 2.82 2.57 2.25 2.13 1.81 Moment Mean Phi Mean mm Sorting Skewness Kurtosis **Statistics** 2.53 0.17 0.41 -0.966.1

JPBRAZIL 2008 URS FLAGLER BEACH SAMPLES.GPJ AUGUST GRANULARMETRIC REPORT



Project Name: Flagler Beach Sample Analysis

Sample Name: R-95 Berm Crest

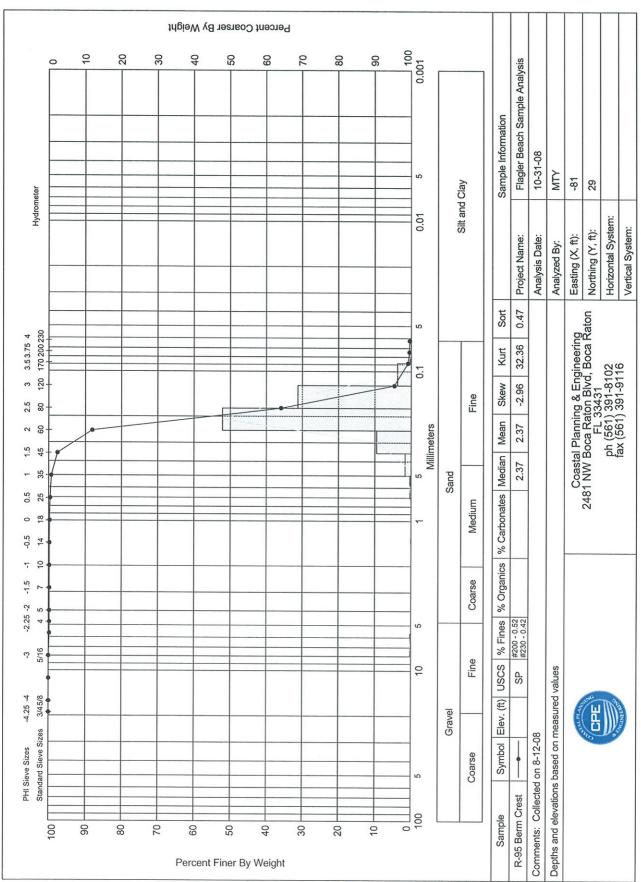
Analysis Date: 10-31-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102

7 trialyolo Bato.								ph	(561)391	-8102				
Analyzed By: M	1TY							fax	(561) 391	1-9116				
Easting (ft):		Northing (-	rdinate Syster				Elevation (ft):			
-81	Munse	III: Mot	29 - 2.5Y-7/2	Commen		Seograph	ic (Latitude	/Long	itude)					
SP	Willise	Dry	- 2.5Y-8/1	Commen	its.		Callage		0.40.00					
Dry Weight (g):	Wash Weight		- 2.5Y-8/1 Pan Retained	[(g):	Sieve Los	s (%):	Fines (%): #200 - 0.		8-12-08 anics (%):	Carbonat	es (%):	Shell Hash (%):		
97.50	97.1	5	0.0	1	(0.04	#200 - 0. #230 - 0.	52 42				0		
Sieve Number	Sieve : (Ph		Sieve S (Millime			rams tained	% We Retair	ight ned		Grams ained		. % Weight Retained		
3/4"	-4.2	5	19.0	3	(0.00	0.0)	0	0.00		0.00		
5/8"	-4.0	0	16.0	0	(0.00	0.0)	0.00			0.00		
7/16"	-3.5	0	11.3	1	(0.00	0.0)	0	0.00		0.00		
5/16"	-3.0	0	8.00)	(0.00	0.0)	0	0.00		0.00		
3.5	-2.5	0	5.66			0.20 0.21		1	0.20			0.21		
4	-2.2	5	4.76	3	(0.00	0.0	0.00		0.20		0.21		
5	-2.0	0	4.00	4.00		0.00	0.00		0.20			0.21		
7	-1.5	0	2.83		(0.00	0.00		0.20		0.21			
10	-1.0	0	2.00)	(0.00	0.00		0	.20		0.21		
14	-0.5	0	1.4	1	(0.02	0.0	2	0	.22		0.23		
18	0.00	0	1.00		1.00		(0.05	0.0	5	0	.27		0.28
25	0.50	0	0.7	1	(0.11	0.1	1	0	.38		0.39		
35	1.00	0	0.50)	(0.31	0.3	2	0	.69		0.71		
45	1.50	0	0.35	5		1.66	1.70		2.35			2.41		
60	2.00)	0.25	5	(9.25	9.49		11	.60		11.90		
80	2.50)	0.18	3	5	0.88	52.1	8	62	2.48		64.08		
120	3.00)	0.13	3	3	0.49	31.2	7	92	2.97		95.35		
170	3.50)	0.09)	:	3.67	3.70	3	96	6.64		99.11		
200	3.75	5	0.07	7	(0.36	0.3	7	97	7.00		99.48		
230	4.00)	0.06	3	(0.10	0.10)	97	7.10		99.58		
Shell Hash calculated fro	m visual estima	te of shell <	of shell <4.75mm and >2.8mm.											
Phi 5	Phi 1		Phi 2		Р	hi 50	Phi 7	' 5	Ph	i 84		Phi 95		
2.99	2.99 2.82 2.67			2	2.37	2.13	3	2.	.04		1.64			
Moment	Moment Mean Phi Mean mm			m	Sc	orting	S	Skewnes	S	K	urtosis			
Statistics						C	.47		-2.96			32.36		

GRANULARMETRIC REPORT AUGUST 2008 URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 1/8/09



Granularmetric Report

Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-95 Foreshore

Analysis Date: 10-31-08

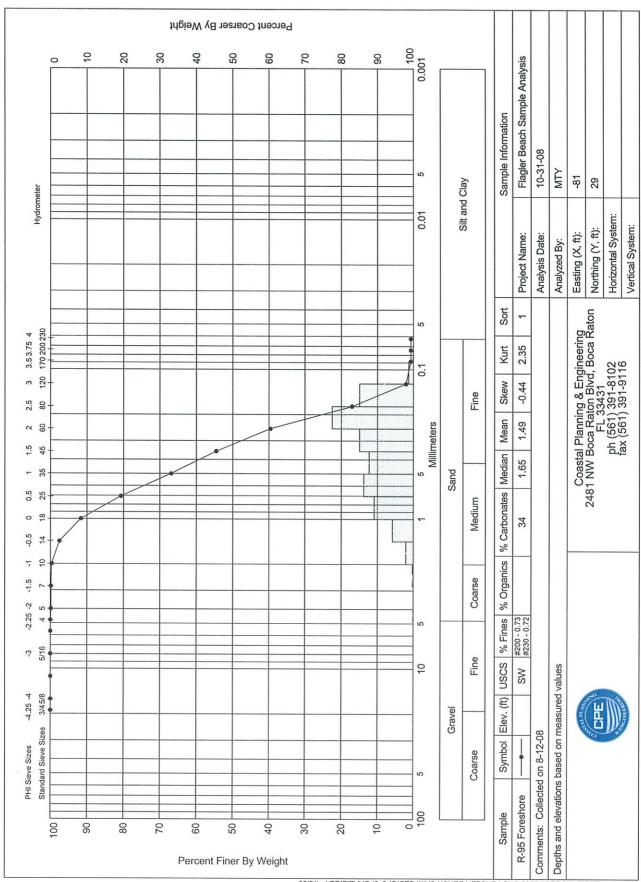


Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton

FL 33431 ph (561) 391-8102 fax (561) 391-9116

Analyzed By: MTY Easting (ft): Northing (ft): Coordinate System: -81 29 Geographic (Latitude/Longitude) USCS: Wet - 10YR-6/3 Comments: Dry - 10YR-7/3 SW Washed - 10YR-7/3 Collected on 8-12-08 Dry Weight (g): Fines (%): 4200 - 0.73 Organics (%): Wash Weight (g): Pan Retained (g): Sieve Loss (%): Carbonates (%): Shell Hash (%): 97.64 97.05 0.00 #230 - 0.72 0.11 34 0 Sieve Size Sieve Size C. % Weight Grams % Weight Cum. Grams Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.14 0.14 0.14 0.14 7 -1.502.83 0.00 0.00 0.14 0.14 10 -1.002.00 0.22 0.23 0.36 0.37 14 -0.501.41 2.07 2.12 2.43 2.49 18 0.00 1.00 5.71 5.85 8.14 8.34 JPBRAZIL.GDT 25 0.50 0.71 10.67 10.93 18.81 19.27 35 1.00 0.50 13.50 13.83 32.31 33.10 45 1.50 0.35 12.03 12.32 44.34 45.42 60 2.00 0.25 14.63 14.98 58.97 60.40 80 2.50 0.18 21.99 22.52 80.96 82.92 120 3.00 0.13 14.65 15.00 95.61 97.92 170 3.50 0.09 1.27 1.30 96.88 99.22 200 3.75 0.07 0.05 0.05 96.93 99.27 230 4.00 0.06 0.01 0.01 96.94 99.28 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.90 2.54 2.32 1.65 0.71 0.35 -0.29Mean Phi Moment Mean mm Sorting Skewness Kurtosis **Statistics** 1.49 0.36 1 -0.44 2.35

AUGUST 2008 URS FLAGLER BEACH SAMPLES.GPJ SRANULARMETRIC REPORT



Project Name: Flagler Beach Sample Analysis

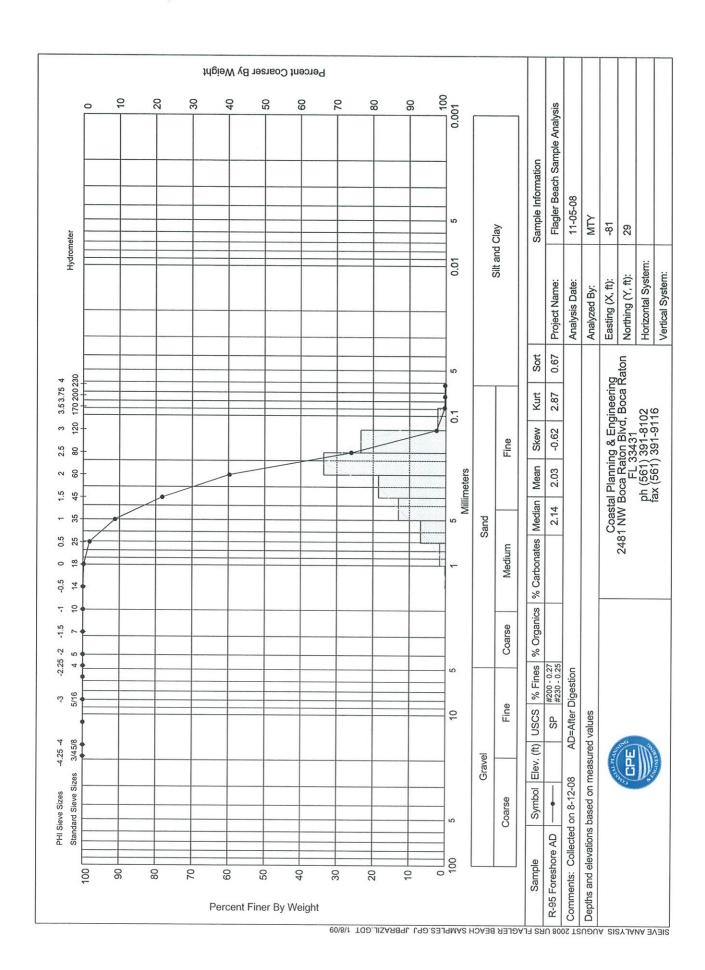
Sample Name: R-95 Foreshore AD

Analysis Date: 11-05-08

Analyzed By: MTY



Analyzed By: M	1TY				fa	ix (561) 39	1-9116		
Easting (ft):	Northi	ng (ft):		Coordinate System:			Elevation (ft):		
-81		29		Geographic	c (Latitude/Lor	gitude)			
uscs: SP	Munsell: [Wash	Ory - 2.5Y-8/4 ed - 2.5Y-8/4	Comments:	Collected	on 8-12-08	AD=Af	ter Digest	ion	
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	: Sie	ve Loss (%):	Fines (%): #200 - 0.27	rganics (%):	Carbonates (%): Shell Hash (%	
102.15	102.03	0.03		0.11	#230 - 0.25			0	
Sieve Number	Sieve Size (Phi)	Sieve Si: (Millimete		Grams Retained	% Weight Retained		Grams ained	C. % Weight Retained	
3/4"	-4.25	19.03		0.00	0.00		.00	0.00	
5/8"	-4.00	16.00		0.00	0.00	0	.00	0.00	
7/16"	-3.50	11.31		0.00	0.00	0	.00	0.00	
5/16"	-3.00	8.00		0.00	0.00	0	.00	0.00	
3.5	-2.50	5.66		0.00	0.00	0	.00	0.00	
4	-2.25	4.76		0.00	0.00	0	.00	0.00	
5	-2.00	4.00		0.00	0.00	0	.00	0.00	
7	-1.50	2.83		0.00	0.00	0	.00	0.00	
10	-1.00	2.00		0.00	0.00	0	.00	0.00	
14	-0.50	1.41		0.00	0.00	0	.00	0.00	
18	0.00	1.00		0.15	0.15	0	.15	0.15	
25	0.50	50 0.71		1.68	1.64	1	.83	1.79	
35	1.00	0.50		7.10	6.95	8	.93	8.74	
45	1.50	0.35		13.30	13.02	22	2.23	21.76	
60	2.00	0.25		18.92	18.52	41	1.15	40.28	
80	2.50	0.18		34.41	33.69	75	5.56	73.97	
120	3.00	0.13		23.93	23.43	99	9.49	97.40	
170	3.50	0.09		2.29	2.24	10	1.78	99.64	
200	3.75	0.07		0.09	0.09	10	1.87	99.73	
230	4.00	0.06		0.02	0.02	10	1.89	99.75	
Shell Hash calculated fro	m visual estimate of she	ell <4.75mm and >2.8i	mm.						
Phi 5	i 5 Phi 16 Phi 25			Phi 50	Phi 75	Ph	ni 84	Phi 95	
2.95	2.71	2.52		2.14	1.59	1.	.28	0.73	
Moment	oment Mean Phi Mean r		an mm	Sor	ting	Skewnes	s	Kurtosis	
Statistics				0.	67	-0.62	Grams ained C. % Weigh Retained 00 0.00 0.00 0.00 0.00 0.00 0.00 0.00		



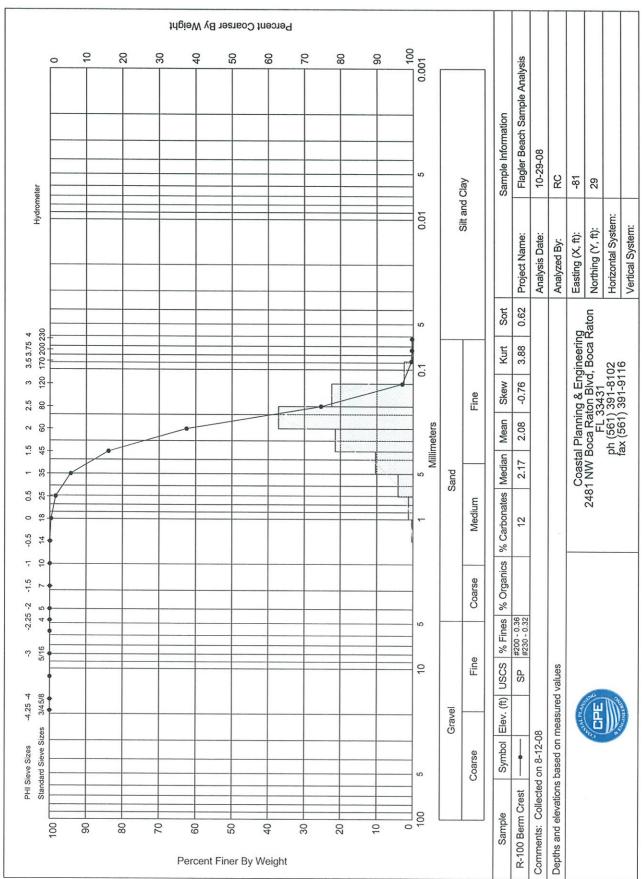
Project Name: Flagler Beach Sample Analysis

Sample Name: R-100 Berm Crest

Analysis Date: 10-29-08



Analyzed By: F	Northing (ft):				-			ph ((561) 391 (561) 391	-8102												
Easting (ft):		Northing	(ft):		Cod	ordinate System	:	iax		Elevation (ft):												
-81			29			Geographi	c (Latitude	e/Longi	tude)													
uscs:		Munsell: Wet - 10YR-7/2 Dry - 10YR-7/2 Washed - 10YR-7/2 eight (g): Pan Retained (g): 0.00 Ve Size (Phi) Sieve Size (Millimete							8-12-08													
Dry Weight (g):	Wash Weight ((g):	Sieve Lo	ss (%):	Fines (%): #200 - 0.		nics (%):	Carbonates	(%):	Shell Hash (%)										
100.12	99.7	9	0.00)		0.00	#230 - 0.			12		0										
Sieve Number						Grams etained	5			Grams ained		% Weigh Retained										
3/4"	-4.2	5	19.0	3		0.00	0.00		0.	0.00		0.00										
5/8"	-4.00	0	16.00			0.00	0.0	0	0.	.00		0.00										
7/16"	-3.50	0	11.3	1		0.00	0.00	0	0.	.00		0.00										
5/16"	-3.00	0	8.00)		0.00	0.00		0.	.00		0.00										
3.5	-2.50	0	5.66	6		0.00	0.00	0	0.	00	0.00											
4	-2.2	5	4.76	6		0.00	0.00		0.	00		0.00										
5	-2.00)	4.00	4.00		4.00		4.00		4.00		4.00		.00		0.00	0.00		0.	00	0.0	
7	-1.50)	2.83		0.01		0.01		0.01			0.01										
10	-1.00)	2.00			0.01	0.0	1	0.	02		0.02										
14	-0.50)	1.41			0.02	0.02	2	0.	04		0.04										
18	0.00)	1.00)		0.31	0.3	1	0.	35		0.35										
25	0.50)	0.7	1		1.21	1.2	1	1.	56		1.56										
35	1.00)	0.50)		4.17	4.17	7	5.	73		5.73										
45	1.50)	0.35	5	10.36		10.35		16.09			16.08										
60	2.00)	0.25	5	21.41		21.38		37.50			37.46										
80	2.50)	0.18	3	3	7.19	37.1	5	74	.69		74.61										
120	3.00)	0.13	3	2	2.43	22.4	0	97	.12		97.01										
170	3.50)	0.09)	:	2.49	2.49	9	99	.61		99.50										
200	3.75	i	0.07	7	(0.14	0.14	4	99	.75		99.64										
230	4.00		0.06	6	(0.04	0.04	4	99	.79		99.68										
Shell Hash calculated fro	m visual estimate	e of shell <																				
Phi 5	Phi 1	6	Phi 25			hi 50	Phi 7	75	Phi	i 84		Phi 95										
2.96	2.71		2.51		2	2.17	1.71	1	1.	50		0.91										
Moment	Mear	Mean Phi Mean mm			n	Sor	ting	SI	kewness	;	Kı	urtosis										
Statistics	2.08 0.24				0.	62		-0.76			3.88											



Project Name: Flagler Beach Sample Analysis

Sample Name: R-100 Berm Crest AD

Analysis Date: 11-04-08

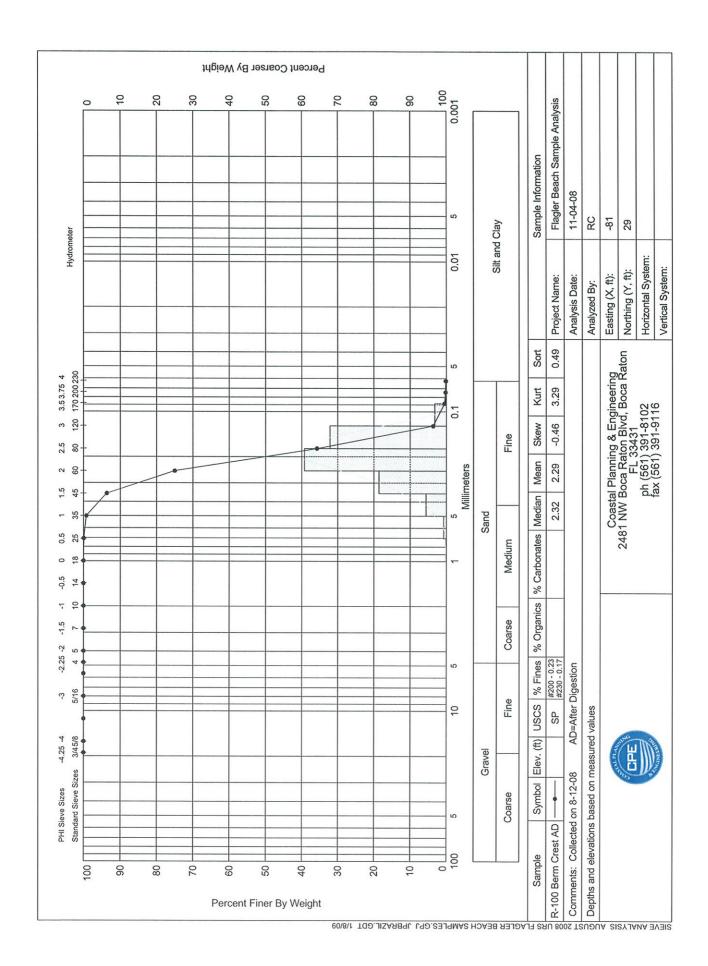
Analyzed By: RC



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Analyzed By: R		fax (561) 391-9116									
Easting (ft):	(Coordinate System: Elevation (ft):									
-81		29		Geographic (Latitude/Longitude)							
uscs:		y - 2.5Y-8/2 d - 2.5Y-8/2	nments:	Collected	on 8-12-0	8	AD=Aft	er Diges	tion		
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve	Loss (%):	Fines (%): #200 - 0.2	Organ	ics (%):	Carbonates	(%):	Shell Hash (%):	
138.69	138.49	0.01		0.02	#230 - 0.1					0	
Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters		Grams Retained	% Wei Retair			Grams ained		% Weight Retained	
3/4"	-4.25	19.03		0.00	0.00)	0.	00		0.00	
5/8"	-4.00	16.00		0.00	0.00 0.00		0.00			0.00	
7/16"	-3.50	11.31		0.00	0.00)	0.	00		0.00	
5/16"	-3.00	8.00		0.00	0.00		0.00		0.00		
3.5	-2.50	5.66		0.00	0.00)	0.	00		0.00	
4	-2.25	4.76		0.00	0.00)	0.	00		0.00	
5	-2.00	4.00		0.00	0.00)	0.	00		0.00	
7	-1.50	2.83		0.00	0.00)	0.	00		0.00	
10	-1.00	2.00		0.00	0.00)	0.	00		0.00	
14	-0.50	1.41		0.00	0.00)	0.	00		0.00	
14 18 25 35	0.00	1.00		0.01	0.01		0.01			0.01	
25	0.50	0.71		0.08	0.06	6	0.	09		0.07	
35	1.00	0.50		1.00	0.72	2	1.	09		0.79	
45	1.50	0.35		7.74	5.58	3	8.	83		6.37	
60	2.00	0.25		25.80	18.6	0	34	.63		24.97	
80	2.50	0.18		54.43	39.25		89.06			64.22	
120	3.00	0.13		44.56	32.13		133.62			96.35	
170	3.50	0.09		4.37	3.15	5	137	7.99		99.50	
45 60 80 120 170 200	3.75	0.07		0.37	0.27	7	138.36			99.77	
230	4.00	0.06		0.09	0.06	6	138	3.45		99.83	
	m visual estimate of shell	<4.75mm and >2.8mm	ı.								
Phi 5	Phi 16	sual estimate of shell <4.75mm and >2.8mm. Phi 16 Phi 25		Phi 50	Phi 7	5	Phi 84			Phi 95	
2.98	2.81	2.67		2.32	2.00)	1.	76		1.38	
Phi 5 2.98 Moment Statistics	Mean Phi	Mean	n mm	Sor	ting	ing Ske		ewness		Kurtosis	
Statistics	2.29 0.20			0.	0.49 -0.46			3.29			

GRANULARMETRIC REPORT AUGUST 2008 URS FLAGLER BEACH SAMPLES, GPJ JPBRAZIL, GDT 1/8/09

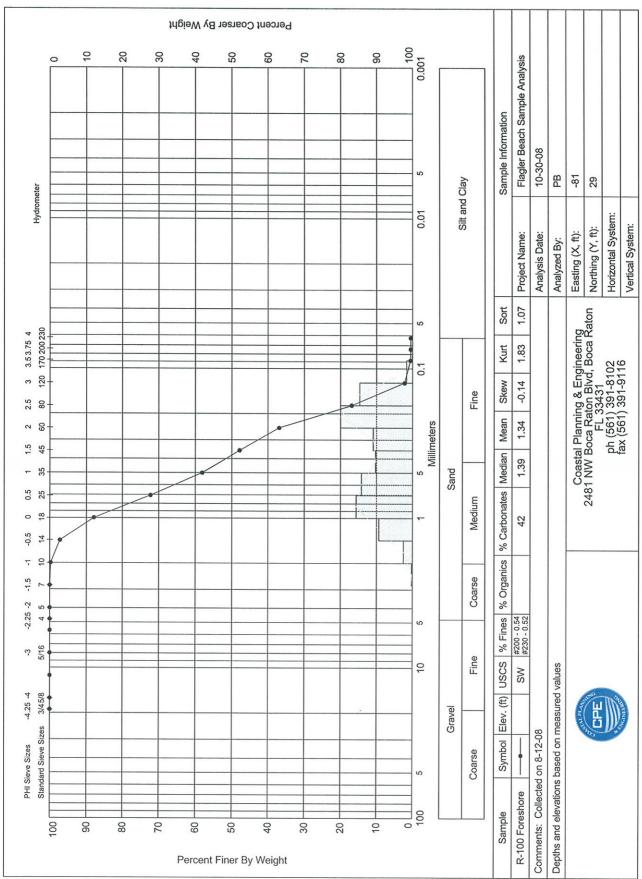


Project Name: Flagler Beach Sample Analysis

Sample Name: R-100 Foreshore

Analysis Date: 10-30-08

Arialysis Date.								ph (561) 391	-8102			
Analyzed By: P	В	Modhina	(6).		0	ulinata Conta		fax	(561) 391				
	Northing (ft): -81 29			Coordinate System: Geographic (Latitude/Longitude)				Elevation (ft)	:				
-81 USCS:	Muns	ell: Wet	- 10YR-7/4	Commer		ieograph	ic (Latitude	/Longi	tude)				
SW		Dry Washed	- 10YR-7/3 - 10YR-7/3						8-12-08				
Dry Weight (g):	Wash Weight	(g):	Pan Retained	(g):	Sieve Los	s (%):	Fines (%): #200 - 0.5	54 Orga	nics (%):	Carbonat	es (%):	Shell Hash (%):	
96.82	96.3	31	0.0	1	(0.00	#230 - 0.	52		4.	2	0	
Sieve Number	Sieve (Ph		Sieve : (Millime			rams tained	% Wei Retair			Grams ained	С	. % Weight Retained	
3/4"	-4.2	25	19.0)3	(0.00	0.00)	0.	.00		0.00	
5/8"	-4.0	0	16.00		(0.00	0.00		0.00			0.00	
7/16"	-3.5	50	11.3	11.31		0.00	0.00	0.00		0.00		0.00	
5/16"	-3.0	00	8.0	0	(0.00	0.00)	0.	.00		0.00	
3.5	-2.5	50	5.6	6	(0.00	0.00)	0	.00		0.00	
4	-2.2	25	4.7	6	(0.00	0.00)	0	.00		0.00	
5	-2.0	00	4.0	0	(0.00	0.00)	0	.00		0.00	
7	-1.5	50	2.8	3	(0.00	0.00)	0	.00		0.00	
10	-1.0	00	2.0	0	(0.22	0.23	3	0	.22		0.23	
14	-0.5	50	1.4	1	2	2.45	2.53	3	2	.67		2.76	
18	0.0	0	1.0	0	(9.01	9.3	1	11	.68		12.07	
25	0.5	0	0.7	1	1	5.19	15.6	9	26	6.87		27.76	
35	1.0	0	0.5	0	1	3.68	14.1	3	40).55		41.89	
45	1.5	0	0.3	5	(9.94	10.2	7	50).49		52.16	
60	2.0	0	0.2	0.25		0.56	10.9	10.91		61.05		63.07	
80	2.5	0	0.1	8	1	9.38	20.02		80.43			83.09	
120	3.0	0	0.1	3	1	4.22	14.6	9	94	1.65		97.78	
170	3.5	0	0.0	9		1.58	1.63	3	96	5.23		99.41	
200	3.7	5	0.0	7	(0.05	0.08	5	96	5.28		99.46	
230	4.0	0	0.0	6	(0.02	0.02	2	96	5.30		99.48	
14 18 25 35 45 60 80 120 170 200 230 Shell Hash calculated from Phi 5 2.91 Moment Statistics	m visual estima	ate of shell	<4.75mm and >	2.8mm.									
Phi 5	Phi	16	Phi 2	25	Р	hi 50	Phi 7	' 5	Ph	ni 84		Phi 95	
2.91	2.5	3	2.3	0		1.39	0.4	1	0	.13		-0.38	
Moment	Mea	ın Phi	N	lean n	nm	So	orting	rting S		Skewness		Kurtosis	
Statistics	1	1.34		0.40			1.07	07		-0.14		1.83	



Project Name: Flagler Beach Sample Analysis

Sample Name: R-100 Foreshore AD

Analysis Date: 11-05-08

Analyzed By: R Easting (ft): -81 USCS: SP Dry Weight (g): 97.48 Sieve Number	Munse Wash Weight (Dry Washed	29 - 2.5Y-8/2	Comment		ic (Latitude/L	fax (561) 3	Elevation (ft):			
SP Dry Weight (g): 97.48	Wash Weight (Dry Washed	- 2.5Y-8/2	Comment		ic (Latitude/I	ongitudo)	1			
SP Dry Weight (g): 97.48	Wash Weight (Dry Washed		Comment		\	origitude)				
Dry Weight (g): 97.48	Wash Weight (- 2.5Y-8/2								
97.48	97.4	.9).	Washed - 2.5Y-8/2 Wash Weight (g): Pan Retained		Collected Sieve Loss (%):	d on 8-12-08			fter Digestion		
		1	0.01		0.08	Fines (%): #200 - 0.19 #230 - 0.14		Carbonates			
	Sieve Size (Phi)		Sieve Size (Millimeters)		Grams Retained	% Weigl	nt Cur	l n. Grams etained	C. % Weig		
3/4"	-4.25		19.03		0.00	0.00		0.00	0.00		
5/8"	-4.00		16.00		0.00	0.00		0.00	0.00		
7/16"	-3.50	0	11.31		0.00	0.00		0.00	0.00		
5/16"	-3.00	0	8.00		0.00	0.00		0.00	0.00		
3.5	-2.50	0	5.66		0.00	0.00		0.00	0.00		
4	-2.25		4.76		0.00	0.00		0.00	0.00		
5	-2.00		4.00		0.00	0.00		0.00	0.00		
7	-1.50		2.83		0.00	0.00		0.00	0.00		
10	-1.00		2.00		0.00	0.00		0.00	0.00		
14	-0.50		1.41		0.00	0.00		0.00	0.00		
18	0.00		1.00		0.33	0.34		0.33	0.34		
25	0.50		0.71		3.14	3.22		3.47	3.56		
35	1.00		0.50		8.96	9.19		12.43	12.75		
45	1.50		0.35		10.90	11.18		23.33	23.93		
60	2.00		0.25		15.74	16.15		39.07	40.08		
80	2.50)	0.18		32.68	33.52		71.75	73.60		
120	3.00)	0.13		23.25	23.85		95.00	97.45		
170	3.50		0.09		2.22	2.28		97.22	99.73		
200	3.75		0.07		0.08	0.08		97.30	99.81		
230	4.00		0.06		0.05	0.05		97.35	99.86		
Shell Hash calculated fro	m visual estimat	e of shell <	4.75mm and >2	2.8mm.							
Phi 5	Phi 1	Phi 16		25	Phi 50	Phi 75	ı	Phi 84	Phi 95		
2.95	2.72	2.72 2.53		3	2.15	1.53		1.15	0.58		
Moment	Mear	n Phi	M	lean mr	n Sc	orting	Skewne	ess	Kurtosis		
Statistics	1.99			0.25		.73	3 -0.7		2.82		

