

APPENDIX 5
BEACH COMPOSITE GRANULARMETRIC REPORTS

Granularmetric Report

Depths and elevations based on measured values



CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: OIB000 COMPOSITE

Analysis Date: 02-05-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 7.

Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.17	Sieve Loss (%): 0.03	Fines (%): #200 - 1.34 #230 - 1.20	Organics (%):	Carbonates (%): 5	Shell Hash (%):
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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	19.03	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	0.14	0.14	0.14	0.14
5/16"	-3.00	8.00	0.03	0.03	0.17	0.17
3.5	-2.50	5.66	0.08	0.08	0.25	0.25
4	-2.25	4.76	0.02	0.02	0.27	0.27
5	-2.00	4.00	0.05	0.05	0.32	0.32
7	-1.50	2.83	0.12	0.12	0.44	0.44
10	-1.00	2.00	0.13	0.13	0.57	0.57
14	-0.50	1.41	0.23	0.23	0.80	0.80
18	0.00	1.00	0.51	0.51	1.31	1.31
25	0.50	0.71	1.81	1.81	3.12	3.12
35	1.00	0.50	7.10	7.10	10.22	10.22
45	1.50	0.35	12.14	12.14	22.36	22.36
60	2.00	0.25	19.53	19.53	41.89	41.89
80	2.50	0.18	23.02	23.02	64.91	64.91
120	3.00	0.13	24.30	24.30	89.21	89.21
170	3.50	0.09	8.68	8.68	97.89	97.89
200	3.75	0.07	0.77	0.77	98.66	98.66
230	4.00	0.06	0.14	0.14	98.80	98.80

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
3.33	2.89	2.71	2.18	1.57	1.24	0.63
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	2.06	0.24	0.85	-1.26	7.64	

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 6/26/14

Granularmetric Report

Depths and elevations based on measured values



CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: OIB010 COMPOSITE

Analysis Date: 02-05-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 7.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

1.60

Sieve Loss (%):

0.04

Fines (%):

#200 - 1.90
#230 - 1.64

Organics (%):

5

Carbonates (%):

5

Shell Hash (%):

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

0.02

0.02

0.02

0.02

5/16"

-3.00

8.00

0.01

0.01

0.03

0.03

3.5

-2.50

5.66

0.01

0.01

0.04

0.04

4

-2.25

4.76

0.02

0.02

0.06

0.06

5

-2.00

4.00

0.04

0.04

0.10

0.10

7

-1.50

2.83

0.05

0.05

0.15

0.15

10

-1.00

2.00

0.05

0.05

0.20

0.20

14

-0.50

1.41

0.11

0.11

0.31

0.31

18

0.00

1.00

0.27

0.27

0.58

0.58

25

0.50

0.71

1.18

1.18

1.76

1.76

35

1.00

0.50

5.60

5.60

7.36

7.36

45

1.50

0.35

13.36

13.36

20.72

20.72

60

2.00

0.25

23.99

23.99

44.71

44.71

80

2.50

0.18

21.35

21.35

66.06

66.06

120

3.00

0.13

20.37

20.37

86.43

86.43

170

3.50

0.09

10.35

10.35

96.78

96.78

200

3.75

0.07

1.32

1.32

98.10

98.10

230

4.00

0.06

0.26

0.26

98.36

98.36

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

3.41

2.94

2.72

2.12

1.59

1.32

0.79

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

2.1

0.23

0.78

-0.53

4.48

GRANULARMETRIC REPORT OIB_NATIVES APRIL 2013 NAVD.GPJ_JPBRAZIL.GDT 6/26/14

Granularmetric Report

Depths and elevations based on measured values



CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: OIB025 COMPOSITE

Analysis Date: 02-05-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SW

Munsell:

Comments:

Munsell Values not available.

Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.85	Sieve Loss (%): 0.06	Fines (%): #200 - 2.31 #230 - 1.91	Organics (%):	Carbonates (%): 7	Shell Hash (%):
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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	19.03	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	0.27	0.27	0.27	0.27
5/16"	-3.00	8.00	0.22	0.22	0.49	0.49
3.5	-2.50	5.66	0.13	0.13	0.62	0.62
4	-2.25	4.76	0.10	0.10	0.72	0.72
5	-2.00	4.00	0.15	0.15	0.87	0.87
7	-1.50	2.83	0.33	0.33	1.20	1.20
10	-1.00	2.00	0.38	0.38	1.58	1.58
14	-0.50	1.41	0.64	0.64	2.22	2.22
18	0.00	1.00	1.07	1.07	3.29	3.29
25	0.50	0.71	2.04	2.04	5.33	5.33
35	1.00	0.50	6.18	6.18	11.51	11.51
45	1.50	0.35	13.76	13.76	25.27	25.27
60	2.00	0.25	22.19	22.19	47.46	47.46
80	2.50	0.18	20.06	20.06	67.52	67.52
120	3.00	0.13	18.30	18.30	85.82	85.82
170	3.50	0.09	10.33	10.33	96.15	96.15
200	3.75	0.07	1.54	1.54	97.69	97.69
230	4.00	0.06	0.40	0.40	98.09	98.09

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
3.44	2.95	2.70	2.06	1.49	1.16	0.42
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.97	0.26	1.01	-1.54	8.39	

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 6/26/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: OIB040 COMPOSITE

Analysis Date: 03-18-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-0.5 NAVD 88

USCS:

SW

Munsell:

Comments:

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.84

Sieve Loss (%):

0.00

Fines (%):

#200 - 1.67
#230 - 0.84

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.45

0.45

0.45

0.45

5/16"

-3.00

8.00

0.00

0.00

0.45

0.45

3.5

-2.50

5.66

0.08

0.08

0.53

0.53

4

-2.25

4.76

0.08

0.08

0.61

0.61

5

-2.00

4.00

0.00

0.00

0.61

0.61

7

-1.50

2.83

0.03

0.03

0.64

0.64

10

-1.00

2.00

0.04

0.04

0.68

0.68

14

-0.50

1.41

0.05

0.05

0.73

0.73

18

0.00

1.00

0.08

0.08

0.81

0.81

25

0.50

0.71

0.19

0.19

1.00

1.00

35

1.00

0.50

2.56

2.56

3.56

3.56

45

1.50

0.35

2.56

2.56

6.12

6.12

60

2.00

0.25

17.72

17.72

23.84

23.84

80

2.50

0.18

22.42

22.42

46.26

46.26

120

3.00

0.13

22.41

22.41

68.67

68.67

170

3.50

0.09

14.83

14.83

83.50

83.50

200

3.75

0.07

14.83

14.83

98.33

98.33

230

4.00

0.06

0.83

0.83

99.16

99.16

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

3.69

3.51

3.21

2.58

2.03

1.78

1.28

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

2.53

0.17

0.89

-2.09

14.83

GRANULARMETRIC REPORT OIB_NATIVES APRIL 2013 NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: OIB060 COMPOSITE

Analysis Date: 03-18-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SW

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 7.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

1.08

Sieve Loss (%):

0.04

Fines (%):

#200 - 1.28
#230 - 1.12

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.09

0.09

0.09

0.09

5/16"

-3.00

8.00

0.05

0.05

0.14

0.14

3.5

-2.50

5.66

0.13

0.13

0.27

0.27

4

-2.25

4.76

0.06

0.06

0.33

0.33

5

-2.00

4.00

0.15

0.15

0.48

0.48

7

-1.50

2.83

0.25

0.25

0.73

0.73

10

-1.00

2.00

0.40

0.40

1.13

1.13

14

-0.50

1.41

0.63

0.63

1.76

1.76

18

0.00

1.00

1.04

1.04

2.80

2.80

25

0.50

0.71

2.70

2.70

5.50

5.50

35

1.00

0.50

7.87

7.87

13.37

13.37

45

1.50

0.35

12.67

12.67

26.04

26.04

60

2.00

0.25

21.96

21.96

48.00

48.00

80

2.50

0.18

24.31

24.31

72.31

72.31

120

3.00

0.13

19.50

19.50

91.81

91.81

170

3.50

0.09

6.26

6.26

98.07

98.07

200

3.75

0.07

0.65

0.65

98.72

98.72

230

4.00

0.06

0.16

0.16

98.88

98.88

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

3.25

2.80

2.57

2.04

1.46

1.10

0.41

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.92

0.26

0.91

-1.29

6.9

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: TOTAL BEACH COMP

Analysis Date: 03-19-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SW

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 7.

Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.31	Sieve Loss (%): 0.03	Fines (%): #200 - 1.70 #230 - 1.34	Organics (%):	Carbonates (%): 6	Shell Hash (%):
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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	19.03	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	0.19	0.19	0.19	0.19
5/16"	-3.00	8.00	0.06	0.06	0.25	0.25
3.5	-2.50	5.66	0.09	0.09	0.34	0.34
4	-2.25	4.76	0.06	0.06	0.40	0.40
5	-2.00	4.00	0.08	0.08	0.48	0.48
7	-1.50	2.83	0.16	0.16	0.64	0.64
10	-1.00	2.00	0.19	0.19	0.83	0.83
14	-0.50	1.41	0.34	0.34	1.17	1.17
18	0.00	1.00	0.59	0.59	1.76	1.76
25	0.50	0.71	1.58	1.58	3.34	3.34
35	1.00	0.50	5.87	5.87	9.21	9.21
45	1.50	0.35	10.89	10.89	20.10	20.10
60	2.00	0.25	21.08	21.08	41.18	41.18
80	2.50	0.18	22.23	22.23	63.41	63.41
120	3.00	0.13	20.98	20.98	84.39	84.39
170	3.50	0.09	10.09	10.09	94.48	94.48
200	3.75	0.07	3.82	3.82	98.30	98.30
230	4.00	0.06	0.36	0.36	98.66	98.66

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
3.53	2.99	2.78	2.20	1.62	1.31	0.64
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	2.11	0.23	0.92	-1.32	8.16	

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 6/26/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: DUNE COMPOSITE

Analysis Date: 03-19-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 6. Average dry Munsell Value is 8.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.65

Sieve Loss (%):

0.04

Fines (%):

#200 - 0.72
#230 - 0.69

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.00

0.00

0.00

0.00

14

-0.50

1.41

0.00

0.00

0.00

0.00

18

0.00

1.00

0.01

0.01

0.01

0.01

25

0.50

0.71

0.03

0.03

0.04

0.04

35

1.00

0.50

0.58

0.58

0.62

0.62

45

1.50

0.35

6.94

6.94

7.56

7.56

60

2.00

0.25

30.62

30.62

38.18

38.18

80

2.50

0.18

41.53

41.53

79.71

79.71

120

3.00

0.13

17.24

17.24

96.95

96.95

170

3.50

0.09

2.18

2.18

99.13

99.13

200

3.75

0.07

0.15

0.15

99.28

99.28

230

4.00

0.06

0.03

0.03

99.31

99.31

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

2.94

2.62

2.44

2.14

1.78

1.64

1.32

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

2.13

0.23

0.46

-0.02

3.15

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
 A CB&I Company
 2481 NW Boca Raton Blvd.
 Boca Raton, FL 33431
 ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: TOE OF DUNE COMP

Analysis Date: 07-12-13

Analyzed By: ATP

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 7. Average dry Munsell Value is 7.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.31

Sieve Loss (%):

0.02

Fines (%):

#200 - 0.54
 #230 - 0.33

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.01

0.01

0.01

0.01

5

-2.00

4.00

0.01

0.01

0.02

0.02

7

-1.50

2.83

0.01

0.01

0.03

0.03

10

-1.00

2.00

0.01

0.01

0.04

0.04

14

-0.50

1.41

0.01

0.01

0.05

0.05

18

0.00

1.00

0.07

0.07

0.12

0.12

25

0.50

0.71

0.22

0.22

0.34

0.34

35

1.00

0.50

2.92

2.92

3.26

3.26

45

1.50

0.35

15.76

15.76

19.02

19.02

60

2.00

0.25

29.58

29.58

48.60

48.60

80

2.50

0.18

24.20

24.20

72.80

72.80

120

3.00

0.13

14.03

14.03

86.83

86.83

170

3.50

0.09

6.46

6.46

93.29

93.29

200

3.75

0.07

6.17

6.17

99.46

99.46

230

4.00

0.06

0.21

0.21

99.67

99.67

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

3.57

2.90

2.58

2.03

1.60

1.40

1.06

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

2.12

0.23

0.72

0.3

3.03

GRANULARMETRIC REPORT OIB_NATIVES APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
 A CB&I Company
 2481 NW Boca Raton Blvd.
 Boca Raton, FL 33431
 ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: MID BERM COMP

Analysis Date: 07-12-13

Analyzed By: ATP

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SP

Munsell:

Comments:

Composite

Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.22	Sieve Loss (%): 0.01	Fines (%): #200 - 0.33 #230 - 0.23	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	19.03	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	0.05	0.05	0.05	0.05
10	-1.00	2.00	0.05	0.05	0.10	0.10
14	-0.50	1.41	0.09	0.09	0.19	0.19
18	0.00	1.00	0.28	0.28	0.47	0.47
25	0.50	0.71	2.07	2.07	2.54	2.54
35	1.00	0.50	8.78	8.78	11.32	11.32
45	1.50	0.35	16.49	16.49	27.81	27.81
60	2.00	0.25	24.71	24.71	52.52	52.52
80	2.50	0.18	22.81	22.81	75.33	75.33
120	3.00	0.13	15.62	15.62	90.95	90.95
170	3.50	0.09	4.51	4.51	95.46	95.46
200	3.75	0.07	4.21	4.21	99.67	99.67
230	4.00	0.06	0.10	0.10	99.77	99.77

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
3.45	2.78	2.49	1.95	1.41	1.14	0.64
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.96	0.26	0.79	-0.05	3.03	

GRANULARMETRIC REPORT OIB_NATIVESSESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: BERM CREST COMP

Analysis Date: 07-12-13

Analyzed By: ATP

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

0.0 NAVD 88

USCS:

SP

Munsell:

Comments:

Composite

Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.17	Sieve Loss (%): 0.05	Fines (%): #200 - 0.29 #230 - 0.22	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	19.03	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	0.01	0.01	0.01	0.01
7	-1.50	2.83	0.02	0.02	0.03	0.03
10	-1.00	2.00	0.02	0.02	0.05	0.05
14	-0.50	1.41	0.04	0.04	0.09	0.09
18	0.00	1.00	0.11	0.11	0.20	0.20
25	0.50	0.71	0.57	0.57	0.77	0.77
35	1.00	0.50	5.81	5.81	6.58	6.58
45	1.50	0.35	17.30	17.30	23.88	23.88
60	2.00	0.25	25.38	25.38	49.26	49.26
80	2.50	0.18	25.56	25.56	74.82	74.82
120	3.00	0.13	16.87	16.87	91.69	91.69
170	3.50	0.09	4.11	4.11	95.80	95.80
200	3.75	0.07	3.91	3.91	99.71	99.71
230	4.00	0.06	0.07	0.07	99.78	99.78

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
3.40	2.77	2.51	2.01	1.52	1.27	0.86
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	2.03	0.24	0.72	0.06	3.08	

GRANULARMETRIC REPORT OIB_NATIVESSE_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: MHW COMPOSITE

Analysis Date: 02-05-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

1.8 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 7.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.59

Sieve Loss (%):

0.11

Fines (%):

#200 - 0.81
#230 - 0.70

Organics (%):

Carbonates (%):

Shell Hash (%):

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	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.01	0.01	0.01	0.01
18	0.00	1.00	0.04	0.04	0.05	0.05
25	0.50	0.71	0.17	0.17	0.22	0.22
35	1.00	0.50	1.62	1.62	1.84	1.84
45	1.50	0.35	7.26	7.26	9.10	9.10
60	2.00	0.25	31.32	31.32	40.42	40.42
80	2.50	0.18	34.79	34.79	75.21	75.21
120	3.00	0.13	18.83	18.83	94.04	94.04
170	3.50	0.09	2.79	2.79	96.83	96.83
200	3.75	0.07	2.36	2.36	99.19	99.19
230	4.00	0.06	0.11	0.11	99.30	99.30

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
3.17	2.73	2.50	2.14	1.75	1.61	1.22
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	2.15	0.23	0.56	0.14	3.6	

GRANULARMETRIC REPORT OIB_NATIVESSE_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: MTL COMPOSITE

Analysis Date: 02-05-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-0.6 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 7.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.78

Sieve Loss (%):

0.00

Fines (%):

#200 - 0.99
#230 - 0.78

Organics (%):

Carbonates (%):

Shell Hash (%):

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	0.03	0.03	0.03	0.03
5	-2.00	4.00	0.02	0.02	0.05	0.05
7	-1.50	2.83	0.01	0.01	0.06	0.06
10	-1.00	2.00	0.01	0.01	0.07	0.07
14	-0.50	1.41	0.02	0.02	0.09	0.09
18	0.00	1.00	0.11	0.11	0.20	0.20
25	0.50	0.71	0.56	0.56	0.76	0.76
35	1.00	0.50	7.49	7.49	8.25	8.25
45	1.50	0.35	14.38	14.38	22.63	22.63
60	2.00	0.25	31.93	31.93	54.56	54.56
80	2.50	0.18	23.86	23.86	78.42	78.42
120	3.00	0.13	16.51	16.51	94.93	94.93
170	3.50	0.09	2.48	2.48	97.41	97.41
200	3.75	0.07	1.60	1.60	99.01	99.01
230	4.00	0.06	0.21	0.21	99.22	99.22

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
3.01	2.67	2.43	1.93	1.54	1.27	0.78
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.95	0.26	0.67	-0.1	3.76	

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: MLW COMPOSITE

Analysis Date: 02-05-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-2.9 NAVD 88

USCS:

SW

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 7.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.75

Sieve Loss (%):

0.05

Fines (%):

#200 - 0.99
#230 - 0.80

Organics (%):

Carbonates (%):

Shell Hash (%):

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	0.51	0.51	0.51	0.51
5/16"	-3.00	8.00	0.53	0.53	1.04	1.04
3.5	-2.50	5.66	0.32	0.32	1.36	1.36
4	-2.25	4.76	0.19	0.19	1.55	1.55
5	-2.00	4.00	0.21	0.21	1.76	1.76
7	-1.50	2.83	0.39	0.39	2.15	2.15
10	-1.00	2.00	0.50	0.50	2.65	2.65
14	-0.50	1.41	1.21	1.21	3.86	3.86
18	0.00	1.00	2.59	2.59	6.45	6.45
25	0.50	0.71	6.93	6.93	13.38	13.38
35	1.00	0.50	19.51	19.51	32.89	32.89
45	1.50	0.35	13.90	13.90	46.79	46.79
60	2.00	0.25	21.02	21.02	67.81	67.81
80	2.50	0.18	15.24	15.24	83.05	83.05
120	3.00	0.13	11.46	11.46	94.51	94.51
170	3.50	0.09	2.36	2.36	96.87	96.87
200	3.75	0.07	2.14	2.14	99.01	99.01
230	4.00	0.06	0.19	0.19	99.20	99.20

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
3.10	2.54	2.24	1.58	0.80	0.57	-0.28
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.45	0.37	1.13	-1.15	6.48	

GRANULARMETRIC REPORT OIB_NATIVES APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
 A CB&I Company
 2481 NW Boca Raton Blvd.
 Boca Raton, FL 33431
 ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: TROUGH COMP

Analysis Date: 02-05-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-5.0 NAVD 88

USCS:

SW

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 7.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.86

Sieve Loss (%):

0.02

Fines (%):

#200 - 1.08
 #230 - 0.88

Organics (%):

Carbonates (%):

Shell Hash (%):

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	1.09	1.09	1.09	1.09
5/16"	-3.00	8.00	0.09	0.09	1.18	1.18
3.5	-2.50	5.66	0.23	0.23	1.41	1.41
4	-2.25	4.76	0.16	0.16	1.57	1.57
5	-2.00	4.00	0.16	0.16	1.73	1.73
7	-1.50	2.83	0.28	0.28	2.01	2.01
10	-1.00	2.00	0.25	0.25	2.26	2.26
14	-0.50	1.41	0.46	0.46	2.72	2.72
18	0.00	1.00	0.73	0.73	3.45	3.45
25	0.50	0.71	0.97	0.97	4.42	4.42
35	1.00	0.50	4.78	4.78	9.20	9.20
45	1.50	0.35	6.63	6.63	15.83	15.83
60	2.00	0.25	23.46	23.46	39.29	39.29
80	2.50	0.18	27.62	27.62	66.91	66.91
120	3.00	0.13	26.87	26.87	93.78	93.78
170	3.50	0.09	4.08	4.08	97.86	97.86
200	3.75	0.07	1.06	1.06	98.92	98.92
230	4.00	0.06	0.20	0.20	99.12	99.12

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
3.15	2.82	2.65	2.19	1.70	1.50	0.56
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	2.02	0.25	1.03	-2.83	14.97	

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
 A CB&I Company
 2481 NW Boca Raton Blvd.
 Boca Raton, FL 33431
 ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: BAR CRST COMP

Analysis Date: 02-05-14

Analyzed By: TM

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-7.0 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 6.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.95

Sieve Loss (%):

0.08

Fines (%):

#200 - 1.14
 #230 - 1.03

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.12

0.12

0.12

0.12

4

-2.25

4.76

0.11

0.11

0.23

0.23

5

-2.00

4.00

0.08

0.08

0.31

0.31

7

-1.50

2.83

0.33

0.33

0.64

0.64

10

-1.00

2.00

0.34

0.34

0.98

0.98

14

-0.50

1.41

0.45

0.45

1.43

1.43

18

0.00

1.00

0.85

0.85

2.28

2.28

25

0.50

0.71

2.12

2.12

4.40

4.40

35

1.00

0.50

8.75

8.75

13.15

13.15

45

1.50

0.35

14.42

14.42

27.57

27.57

60

2.00

0.25

23.38

23.38

50.95

50.95

80

2.50

0.18

25.06

25.06

76.01

76.01

120

3.00

0.13

18.83

18.83

94.84

94.84

170

3.50

0.09

2.78

2.78

97.62

97.62

200

3.75

0.07

1.24

1.24

98.86

98.86

230

4.00

0.06

0.11

0.11

98.97

98.97

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

3.03

2.71

2.48

1.98

1.41

1.10

0.53

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.88

0.27

0.84

-1.09

6.09

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: -8.75 COMPOSITE

Analysis Date: 07-12-13

Analyzed By: ATP

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-8.8 NAVD 88

USCS:

SW

Munsell:

Comments:

Average wet Munsell Value is 5. Average dry Munsell Value is 6.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

1.13

Sieve Loss (%):

0.00

Fines (%):

#200 - 1.47
#230 - 1.13

Organics (%):

Carbonates (%):

Shell Hash (%):

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	0.09	0.09	0.09	0.09
5/16"	-3.00	8.00	0.00	0.00	0.09	0.09
3.5	-2.50	5.66	0.17	0.17	0.26	0.26
4	-2.25	4.76	0.14	0.14	0.40	0.40
5	-2.00	4.00	0.03	0.03	0.43	0.43
7	-1.50	2.83	0.17	0.17	0.60	0.60
10	-1.00	2.00	0.19	0.19	0.79	0.79
14	-0.50	1.41	0.28	0.28	1.07	1.07
18	0.00	1.00	0.45	0.45	1.52	1.52
25	0.50	0.71	0.96	0.96	2.48	2.48
35	1.00	0.50	4.47	4.47	6.95	6.95
45	1.50	0.35	5.59	5.59	12.54	12.54
60	2.00	0.25	14.59	14.59	27.13	27.13
80	2.50	0.18	20.97	20.97	48.10	48.10
120	3.00	0.13	34.21	34.21	82.31	82.31
170	3.50	0.09	12.15	12.15	94.46	94.46
200	3.75	0.07	4.07	4.07	98.53	98.53
230	4.00	0.06	0.34	0.34	98.87	98.87

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
3.53	3.07	2.89	2.53	1.93	1.62	0.78
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	2.34	0.20	0.86	-1.77	9.62	

GRANULARMETRIC REPORT OIB_NATIVES APRIL 2013 NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: -12.5 COMPOSITE

Analysis Date: 07-14-13

Analyzed By: ATP

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-12.5 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 4. Average dry Munsell Value is 6.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

1.75

Sieve Loss (%):

0.00

Fines (%):

#200 - 2.64
#230 - 1.75

Organics (%):

Carbonates (%):

Shell Hash (%):

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	0.02	0.02	0.02	0.02
5	-2.00	4.00	0.00	0.00	0.02	0.02
7	-1.50	2.83	0.05	0.05	0.07	0.07
10	-1.00	2.00	0.04	0.04	0.11	0.11
14	-0.50	1.41	0.07	0.07	0.18	0.18
18	0.00	1.00	0.10	0.10	0.28	0.28
25	0.50	0.71	0.17	0.17	0.45	0.45
35	1.00	0.50	0.95	0.95	1.40	1.40
45	1.50	0.35	1.15	1.15	2.55	2.55
60	2.00	0.25	4.05	4.05	6.60	6.60
80	2.50	0.18	12.42	12.42	19.02	19.02
120	3.00	0.13	36.90	36.90	55.92	55.92
170	3.50	0.09	29.96	29.96	85.88	85.88
200	3.75	0.07	11.48	11.48	97.36	97.36
230	4.00	0.06	0.89	0.89	98.25	98.25

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
3.70	3.47	3.32	2.92	2.58	2.38	1.80
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	2.86	0.14	0.6	-1.64	9.58	

GRANULARMETRIC REPORT OIB_NATIVESS_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
 A CB&I Company
 2481 NW Boca Raton Blvd.
 Boca Raton, FL 33431
 ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: -16.25 COMPOSITE

Analysis Date: 07-14-13

Analyzed By: ATP

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-16.3 NAVD 88

USCS:

SP

Munsell:

Comments:

Average wet Munsell Value is 4. Average dry Munsell Value is 6.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

2.92

Sieve Loss (%):

0.05

Fines (%):

#200 - 3.76
 #230 - 2.97

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.02

0.02

0.02

0.02

3.5

-2.50

5.66

0.01

0.01

0.03

0.03

4

-2.25

4.76

0.04

0.04

0.07

0.07

5

-2.00

4.00

0.04

0.04

0.11

0.11

7

-1.50

2.83

0.09

0.09

0.20

0.20

10

-1.00

2.00

0.08

0.08

0.28

0.28

14

-0.50

1.41

0.12

0.12

0.40

0.40

18

0.00

1.00

0.11

0.11

0.51

0.51

25

0.50

0.71

0.24

0.24

0.75

0.75

35

1.00

0.50

0.83

0.83

1.58

1.58

45

1.50

0.35

1.19

1.19

2.77

2.77

60

2.00

0.25

2.88

2.88

5.65

5.65

80

2.50

0.18

10.96

10.96

16.61

16.61

120

3.00

0.13

29.04

29.04

45.65

45.65

170

3.50

0.09

34.56

34.56

80.21

80.21

200

3.75

0.07

16.03

16.03

96.24

96.24

230

4.00

0.06

0.79

0.79

97.03

97.03

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

3.73

3.56

3.42

3.06

2.64

2.47

1.89

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

2.93

0.13

0.65

-2.41

15.02

GRANULARMETRIC REPORT OIB_NATIVES APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14

Granularmetric Report

Depths and elevations based on measured values



Coastal Planning & Engineering
A CB&I Company
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391-8102

Project Name: Ocean Isle Beach Terminal Groin

Sample Name: -20.0 COMPOSITE

Analysis Date: 07-14-13

Analyzed By: ATP

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

-20.0 NAVD 88

USCS:

SW-SM

Munsell:

Comments:

Average wet Munsell Value is 4. Average dry Munsell Value is 6.

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

4.30

Sieve Loss (%):

0.00

Fines (%):

#200 - 6.21
#230 - 4.30

Organics (%):

Carbonates (%):

Shell Hash (%):

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	0.51	0.51	0.51	0.51
5/16"	-3.00	8.00	0.02	0.02	0.53	0.53
3.5	-2.50	5.66	0.17	0.17	0.70	0.70
4	-2.25	4.76	0.04	0.04	0.74	0.74
5	-2.00	4.00	0.09	0.09	0.83	0.83
7	-1.50	2.83	0.22	0.22	1.05	1.05
10	-1.00	2.00	0.24	0.24	1.29	1.29
14	-0.50	1.41	0.27	0.27	1.56	1.56
18	0.00	1.00	0.21	0.21	1.77	1.77
25	0.50	0.71	0.36	0.36	2.13	2.13
35	1.00	0.50	1.16	1.16	3.29	3.29
45	1.50	0.35	1.42	1.42	4.71	4.71
60	2.00	0.25	2.86	2.86	7.57	7.57
80	2.50	0.18	13.32	13.32	20.89	20.89
120	3.00	0.13	27.14	27.14	48.03	48.03
170	3.50	0.09	29.94	29.94	77.97	77.97
200	3.75	0.07	15.82	15.82	93.79	93.79
230	4.00	0.06	1.91	1.91	95.70	95.70

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
3.91	3.60	3.45	3.03	2.58	2.32	1.55
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	2.83	0.14	0.92	-3.54	21.73	

GRANULARMETRIC REPORT OIB_NATIVESSE_APRIL2013_NAVD.GPJ_JPBRAZIL.GDT 3/19/14