

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#1

Sample Date: 8/18/03

Analyzed By: ID



Coastal Planning & Engineering, Inc.

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

| | | | |
|--------------------|---------------------|---|------------------------------------|
| Easting: 207108 | Northing: 750353 | Coordinate System: State Plane 1983 FL East Ft | Elevation: -42.8 NGVD 1929 Feet |
|--------------------|---------------------|---|------------------------------------|

| | | | |
|-------------|-----------------------|-----------------------|-----------|
| USCS: SW | Dry Munsel: 5Y-7/1 | Wet Munsel: 5Y-7/1 | Comments: |
|-------------|-----------------------|-----------------------|-----------|

| | | | | |
|----------------------|-----------------------|---------------------|----------------------|---|
| Dry Weight: 48.99 | Wash Weight: 48.62 | Sieve Loss: 0.01 | Percent Silt: 0.8 | Estimated Percent Shell Content: 13.31 |
|----------------------|-----------------------|---------------------|----------------------|---|

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.44 | 0.90 | 0.44 | 0.90 |
| 5 | -2.00 | 4.00 | 0.53 | 1.08 | 0.97 | 1.98 |
| 7 | -1.50 | 2.82 | 0.79 | 1.61 | 1.76 | 3.59 |
| 10 | -1.00 | 2.00 | 0.91 | 1.86 | 2.67 | 5.45 |
| 14 | -0.50 | 1.41 | 1.27 | 2.59 | 3.94 | 8.04 |
| 18 | 0.00 | 1.00 | 2.26 | 4.61 | 6.20 | 12.66 |
| 25 | 0.50 | 0.70 | 4.07 | 8.31 | 10.27 | 20.96 |
| 35 | 1.00 | 0.50 | 7.29 | 14.88 | 17.56 | 35.84 |
| 45 | 1.50 | 0.35 | 8.73 | 17.82 | 26.29 | 53.66 |
| 60 | 2.00 | 0.25 | 12.67 | 25.86 | 38.96 | 79.53 |
| 80 | 2.50 | 0.17 | 8.35 | 17.04 | 47.31 | 96.57 |
| 120 | 3.00 | 0.12 | 1.20 | 2.45 | 48.51 | 99.02 |
| 170 | 3.50 | 0.08 | 0.06 | 0.12 | 48.57 | 99.14 |
| 200 | 3.75 | 0.07 | 0.02 | 0.04 | 48.59 | 99.18 |
| 230 | 4.00 | 0.06 | 0.01 | 0.02 | 48.60 | 99.20 |
| Pan | Pan | Pan | 0.38 | 0.78 | 48.98 | 99.98 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| -1.12 | 0.2 | 0.64 | 1.4 | 1.91 | 2.13 | 2.45 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.01 | 0.50 | 1.02 | -0.59 | 1.15 |
| Moment | 1.09 | 0.47 | 1.26 | -0.60 | 1.93 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#2

Sample Date: 8/18/03

Analyzed By: ID



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | |
|--------------------|---------------------|---|------------------------------------|
| Easting: 207108 | Northing: 750353 | Coordinate System: State Plane 1983 FL East Ft | Elevation: -44.3 NGVD 1929 Feet |
|--------------------|---------------------|---|------------------------------------|

| | | | |
|-------------|-----------------------|-----------------------|-----------|
| USCS: SW | Dry Munsel: 5Y-7/1 | Wet Munsel: 5Y-7/1 | Comments: |
|-------------|-----------------------|-----------------------|-----------|

| | | | | |
|----------------------|-----------------------|---------------------|-----------------------|--|
| Dry Weight: 51.62 | Wash Weight: 51.11 | Sieve Loss: 0.03 | Percent Silt: 1.07 | Estimated Percent Shell Content: 7.42 |
|----------------------|-----------------------|---------------------|-----------------------|--|

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | -2.00 | 4.00 | 0.31 | 0.60 | 0.31 | 0.60 |
| 7 | -1.50 | 2.82 | 0.26 | 0.50 | 0.57 | 1.10 |
| 10 | -1.00 | 2.00 | 0.71 | 1.38 | 1.28 | 2.48 |
| 14 | -0.50 | 1.41 | 0.91 | 1.76 | 2.19 | 4.24 |
| 18 | 0.00 | 1.00 | 1.52 | 2.94 | 3.71 | 7.19 |
| 25 | 0.50 | 0.70 | 3.16 | 6.12 | 6.87 | 13.31 |
| 35 | 1.00 | 0.50 | 7.02 | 13.60 | 13.89 | 26.91 |
| 45 | 1.50 | 0.35 | 11.22 | 21.74 | 25.11 | 48.64 |
| 60 | 2.00 | 0.25 | 14.31 | 27.72 | 39.42 | 76.37 |
| 80 | 2.50 | 0.17 | 9.79 | 18.97 | 49.21 | 95.33 |
| 120 | 3.00 | 0.12 | 1.72 | 3.33 | 50.93 | 98.66 |
| 170 | 3.50 | 0.08 | 0.10 | 0.19 | 51.03 | 98.86 |
| 200 | 3.75 | 0.07 | 0.02 | 0.04 | 51.05 | 98.90 |
| 230 | 4.00 | 0.06 | 0.02 | 0.04 | 51.07 | 98.93 |
| Pan | Pan | Pan | 0.52 | 1.01 | 51.59 | 99.94 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| -0.37 | 0.6 | 0.93 | 1.52 | 1.98 | 2.2 | 2.49 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.29 | 0.41 | 0.83 | -0.44 | 1.12 |
| Moment | 1.34 | 0.40 | 1.01 | -0.48 | 1.80 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#3

Sample Date: 8/22/03

Analyzed By: ID



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | |
|--------------------|---------------------|---|------------------------------------|
| Easting: 207108 | Northing: 750353 | Coordinate System: State Plane 1983 FL East Ft | Elevation: -46.6 NGVD 1929 Feet |
|--------------------|---------------------|---|------------------------------------|

| | | | |
|-------------|-----------------------|-----------------------|-----------|
| USCS: SW | Dry Munsel: 5Y-7/1 | Wet Munsel: 5Y-7/1 | Comments: |
|-------------|-----------------------|-----------------------|-----------|

| | | | | |
|----------------------|-----------------------|---------------------|-----------------------|--|
| Dry Weight: 62.68 | Wash Weight: 61.52 | Sieve Loss: 0.04 | Percent Silt: 1.96 | Estimated Percent Shell Content: 6.63 |
|----------------------|-----------------------|---------------------|-----------------------|--|

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | -2.00 | 4.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | -1.50 | 2.82 | 0.19 | 0.30 | 0.19 | 0.30 |
| 10 | -1.00 | 2.00 | 0.44 | 0.70 | 0.63 | 1.01 |
| 14 | -0.50 | 1.41 | 0.93 | 1.48 | 1.56 | 2.49 |
| 18 | 0.00 | 1.00 | 1.18 | 1.88 | 2.74 | 4.37 |
| 25 | 0.50 | 0.70 | 1.58 | 2.52 | 4.32 | 6.89 |
| 35 | 1.00 | 0.50 | 3.67 | 5.86 | 7.99 | 12.75 |
| 45 | 1.50 | 0.35 | 8.92 | 14.23 | 16.91 | 26.98 |
| 60 | 2.00 | 0.25 | 19.57 | 31.22 | 36.48 | 58.20 |
| 80 | 2.50 | 0.17 | 20.82 | 33.22 | 57.30 | 91.42 |
| 120 | 3.00 | 0.12 | 3.78 | 6.03 | 61.08 | 97.45 |
| 170 | 3.50 | 0.08 | 0.28 | 0.45 | 61.36 | 97.89 |
| 200 | 3.75 | 0.07 | 0.05 | 0.08 | 61.41 | 97.97 |
| 230 | 4.00 | 0.06 | 0.04 | 0.06 | 61.45 | 98.04 |
| Pan | Pan | Pan | 1.19 | 1.90 | 62.64 | 99.94 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| 0.12 | 1.11 | 1.43 | 1.87 | 2.25 | 2.39 | 2.8 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.66 | 0.32 | 0.72 | -0.50 | 1.33 |
| Moment | 1.71 | 0.31 | 0.90 | -0.56 | 2.03 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#4

Sample Date: 8/18/03

Analyzed By: JB



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | |
|--------------------|---------------------|---|----------------------------------|
| Easting: 207108 | Northing: 750353 | Coordinate System: State Plane 1983 FL East Ft | Elevation: -49 NGVD 1929 Feet |
|--------------------|---------------------|---|----------------------------------|

| | | | |
|-------------|-----------------------|-----------------------|-----------|
| USCS: SW | Dry Munsel: 5Y-7/1 | Wet Munsel: 5Y-7/1 | Comments: |
|-------------|-----------------------|-----------------------|-----------|

| | | | | |
|----------------------|-----------------------|---------------------|-----------------------|---|
| Dry Weight: 47.17 | Wash Weight: 46.28 | Sieve Loss: 0.04 | Percent Silt: 2.01 | Estimated Percent Shell Content: 11.41 |
|----------------------|-----------------------|---------------------|-----------------------|---|

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.09 | 0.19 | 0.09 | 0.19 |
| 5 | -2.00 | 4.00 | 0.17 | 0.36 | 0.26 | 0.55 |
| 7 | -1.50 | 2.82 | 0.54 | 1.14 | 0.80 | 1.70 |
| 10 | -1.00 | 2.00 | 0.58 | 1.23 | 1.38 | 2.93 |
| 14 | -0.50 | 1.41 | 1.33 | 2.82 | 2.71 | 5.75 |
| 18 | 0.00 | 1.00 | 1.52 | 3.22 | 4.23 | 8.97 |
| 25 | 0.50 | 0.70 | 1.90 | 4.03 | 6.13 | 13.00 |
| 35 | 1.00 | 0.50 | 2.99 | 6.34 | 9.12 | 19.33 |
| 45 | 1.50 | 0.35 | 5.79 | 12.27 | 14.91 | 31.61 |
| 60 | 2.00 | 0.25 | 13.28 | 28.15 | 28.19 | 59.76 |
| 80 | 2.50 | 0.17 | 14.69 | 31.14 | 42.88 | 90.91 |
| 120 | 3.00 | 0.12 | 2.97 | 6.30 | 45.85 | 97.20 |
| 170 | 3.50 | 0.08 | 0.27 | 0.57 | 46.12 | 97.77 |
| 200 | 3.75 | 0.07 | 0.07 | 0.15 | 46.19 | 97.92 |
| 230 | 4.00 | 0.06 | 0.03 | 0.06 | 46.22 | 97.99 |
| Pan | Pan | Pan | 0.91 | 1.93 | 47.13 | 99.92 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| -0.63 | 0.74 | 1.23 | 1.83 | 2.24 | 2.39 | 2.83 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.43 | 0.37 | 0.94 | -0.75 | 1.40 |
| Moment | 1.52 | 0.35 | 1.18 | -0.72 | 2.17 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#5

Sample Date: 8/22/03

Analyzed By: ID



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | | | | | |
|----------|--------|-----------|--------|--------------------|-----------------------------|------------|----------------------|
| Easting: | 207108 | Northing: | 750353 | Coordinate System: | State Plane 1983 FL East Ft | Elevation: | -51.3 NGVD 1929 Feet |
|----------|--------|-----------|--------|--------------------|-----------------------------|------------|----------------------|

| | | | |
|-------|-------------|-------------|-----------|
| USCS: | Dry Munsel: | Wet Munsel: | Comments: |
| SW | 5Y-7/1 | 5Y-7/1 | |

| | | | | |
|-------------|--------------|-------------|---------------|----------------------------------|
| Dry Weight: | Wash Weight: | Sieve Loss: | Percent Silt: | Estimated Percent Shell Content: |
| 67.45 | 64.98 | 0.02 | 3.84 | 14.25 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.06 | 0.09 | 0.06 | 0.09 |
| 5 | -2.00 | 4.00 | 0.18 | 0.27 | 0.24 | 0.36 |
| 7 | -1.50 | 2.82 | 0.60 | 0.89 | 0.84 | 1.25 |
| 10 | -1.00 | 2.00 | 0.92 | 1.36 | 1.76 | 2.61 |
| 14 | -0.50 | 1.41 | 1.20 | 1.78 | 2.96 | 4.39 |
| 18 | 0.00 | 1.00 | 1.33 | 1.97 | 4.29 | 6.36 |
| 25 | 0.50 | 0.70 | 1.60 | 2.37 | 5.89 | 8.73 |
| 35 | 1.00 | 0.50 | 2.59 | 3.84 | 8.48 | 12.57 |
| 45 | 1.50 | 0.35 | 3.89 | 5.77 | 12.37 | 18.34 |
| 60 | 2.00 | 0.25 | 10.88 | 16.13 | 23.25 | 34.47 |
| 80 | 2.50 | 0.17 | 28.69 | 42.54 | 51.94 | 77.01 |
| 120 | 3.00 | 0.12 | 11.24 | 16.66 | 63.18 | 93.67 |
| 170 | 3.50 | 0.08 | 1.31 | 1.94 | 64.49 | 95.61 |
| 200 | 3.75 | 0.07 | 0.21 | 0.31 | 64.70 | 95.92 |
| 230 | 4.00 | 0.06 | 0.16 | 0.24 | 64.86 | 96.16 |
| Pan | Pan | Pan | 2.57 | 3.81 | 67.43 | 99.97 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| -0.34 | 1.3 | 1.71 | 2.18 | 2.48 | 2.71 | 3.34 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.84 | 0.28 | 0.91 | -0.85 | 1.96 |
| Moment | 1.91 | 0.27 | 1.20 | -0.78 | 2.50 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#1

Sample Date: 8/18/03

Analyzed By: ID



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | |
|--------------------|---------------------|---|------------------------------------|
| Easting: 207108 | Northing: 750353 | Coordinate System: State Plane 1983 FL East Ft | Elevation: -42.8 NGVD 1929 Feet |
|--------------------|---------------------|---|------------------------------------|

| | | | |
|-------------|-----------------------|-----------------------|-----------|
| USCS: SW | Dry Munsel: 5Y-7/1 | Wet Munsel: 5Y-7/1 | Comments: |
|-------------|-----------------------|-----------------------|-----------|

| | | | | |
|----------------------|-----------------------|---------------------|----------------------|---|
| Dry Weight: 48.99 | Wash Weight: 48.62 | Sieve Loss: 0.01 | Percent Silt: 0.8 | Estimated Percent Shell Content: 13.31 |
|----------------------|-----------------------|---------------------|----------------------|---|

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.44 | 0.90 | 0.44 | 0.90 |
| 5 | -2.00 | 4.00 | 0.53 | 1.08 | 0.97 | 1.98 |
| 7 | -1.50 | 2.82 | 0.79 | 1.61 | 1.76 | 3.59 |
| 10 | -1.00 | 2.00 | 0.91 | 1.86 | 2.67 | 5.45 |
| 14 | -0.50 | 1.41 | 1.27 | 2.59 | 3.94 | 8.04 |
| 18 | 0.00 | 1.00 | 2.26 | 4.61 | 6.20 | 12.66 |
| 25 | 0.50 | 0.70 | 4.07 | 8.31 | 10.27 | 20.96 |
| 35 | 1.00 | 0.50 | 7.29 | 14.88 | 17.56 | 35.84 |
| 45 | 1.50 | 0.35 | 8.73 | 17.82 | 26.29 | 53.66 |
| 60 | 2.00 | 0.25 | 12.67 | 25.86 | 38.96 | 79.53 |
| 80 | 2.50 | 0.17 | 8.35 | 17.04 | 47.31 | 96.57 |
| 120 | 3.00 | 0.12 | 1.20 | 2.45 | 48.51 | 99.02 |
| 170 | 3.50 | 0.08 | 0.06 | 0.12 | 48.57 | 99.14 |
| 200 | 3.75 | 0.07 | 0.02 | 0.04 | 48.59 | 99.18 |
| 230 | 4.00 | 0.06 | 0.01 | 0.02 | 48.60 | 99.20 |
| Pan | Pan | Pan | 0.38 | 0.78 | 48.98 | 99.98 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| -1.12 | 0.2 | 0.64 | 1.4 | 1.91 | 2.13 | 2.45 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.01 | 0.50 | 1.02 | -0.59 | 1.15 |
| Moment | 1.09 | 0.47 | 1.26 | -0.60 | 1.93 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#2

Sample Date: 8/18/03

Analyzed By: ID



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | | | | | |
|----------|--------|-----------|--------|--------------------|-----------------------------|------------|----------------------|
| Easting: | 207108 | Northing: | 750353 | Coordinate System: | State Plane 1983 FL East Ft | Elevation: | -44.3 NGVD 1929 Feet |
|----------|--------|-----------|--------|--------------------|-----------------------------|------------|----------------------|

| | | | |
|-------|-------------|-------------|-----------|
| USCS: | Dry Munsel: | Wet Munsel: | Comments: |
| SW | 5Y-7/1 | 5Y-7/1 | |

| | | | | |
|-------------|--------------|-------------|---------------|----------------------------------|
| Dry Weight: | Wash Weight: | Sieve Loss: | Percent Silt: | Estimated Percent Shell Content: |
| 51.62 | 51.11 | 0.03 | 1.07 | 7.42 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | -2.00 | 4.00 | 0.31 | 0.60 | 0.31 | 0.60 |
| 7 | -1.50 | 2.82 | 0.26 | 0.50 | 0.57 | 1.10 |
| 10 | -1.00 | 2.00 | 0.71 | 1.38 | 1.28 | 2.48 |
| 14 | -0.50 | 1.41 | 0.91 | 1.76 | 2.19 | 4.24 |
| 18 | 0.00 | 1.00 | 1.52 | 2.94 | 3.71 | 7.19 |
| 25 | 0.50 | 0.70 | 3.16 | 6.12 | 6.87 | 13.31 |
| 35 | 1.00 | 0.50 | 7.02 | 13.60 | 13.89 | 26.91 |
| 45 | 1.50 | 0.35 | 11.22 | 21.74 | 25.11 | 48.64 |
| 60 | 2.00 | 0.25 | 14.31 | 27.72 | 39.42 | 76.37 |
| 80 | 2.50 | 0.17 | 9.79 | 18.97 | 49.21 | 95.33 |
| 120 | 3.00 | 0.12 | 1.72 | 3.33 | 50.93 | 98.66 |
| 170 | 3.50 | 0.08 | 0.10 | 0.19 | 51.03 | 98.86 |
| 200 | 3.75 | 0.07 | 0.02 | 0.04 | 51.05 | 98.90 |
| 230 | 4.00 | 0.06 | 0.02 | 0.04 | 51.07 | 98.93 |
| Pan | Pan | Pan | 0.52 | 1.01 | 51.59 | 99.94 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| -0.37 | 0.6 | 0.93 | 1.52 | 1.98 | 2.2 | 2.49 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.29 | 0.41 | 0.83 | -0.44 | 1.12 |
| Moment | 1.34 | 0.40 | 1.01 | -0.48 | 1.80 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#3

Sample Date: 8/22/03

Analyzed By: ID



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | |
|--------------------|---------------------|---|------------------------------------|
| Easting: 207108 | Northing: 750353 | Coordinate System: State Plane 1983 FL East Ft | Elevation: -46.6 NGVD 1929 Feet |
|--------------------|---------------------|---|------------------------------------|

| | | | |
|-------------|-----------------------|-----------------------|-----------|
| USCS: SW | Dry Munsel: 5Y-7/1 | Wet Munsel: 5Y-7/1 | Comments: |
|-------------|-----------------------|-----------------------|-----------|

| | | | | |
|----------------------|-----------------------|---------------------|-----------------------|--|
| Dry Weight: 62.68 | Wash Weight: 61.52 | Sieve Loss: 0.04 | Percent Silt: 1.96 | Estimated Percent Shell Content: 6.63 |
|----------------------|-----------------------|---------------------|-----------------------|--|

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | -2.00 | 4.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | -1.50 | 2.82 | 0.19 | 0.30 | 0.19 | 0.30 |
| 10 | -1.00 | 2.00 | 0.44 | 0.70 | 0.63 | 1.01 |
| 14 | -0.50 | 1.41 | 0.93 | 1.48 | 1.56 | 2.49 |
| 18 | 0.00 | 1.00 | 1.18 | 1.88 | 2.74 | 4.37 |
| 25 | 0.50 | 0.70 | 1.58 | 2.52 | 4.32 | 6.89 |
| 35 | 1.00 | 0.50 | 3.67 | 5.86 | 7.99 | 12.75 |
| 45 | 1.50 | 0.35 | 8.92 | 14.23 | 16.91 | 26.98 |
| 60 | 2.00 | 0.25 | 19.57 | 31.22 | 36.48 | 58.20 |
| 80 | 2.50 | 0.17 | 20.82 | 33.22 | 57.30 | 91.42 |
| 120 | 3.00 | 0.12 | 3.78 | 6.03 | 61.08 | 97.45 |
| 170 | 3.50 | 0.08 | 0.28 | 0.45 | 61.36 | 97.89 |
| 200 | 3.75 | 0.07 | 0.05 | 0.08 | 61.41 | 97.97 |
| 230 | 4.00 | 0.06 | 0.04 | 0.06 | 61.45 | 98.04 |
| Pan | Pan | Pan | 1.19 | 1.90 | 62.64 | 99.94 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| 0.12 | 1.11 | 1.43 | 1.87 | 2.25 | 2.39 | 2.8 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.66 | 0.32 | 0.72 | -0.50 | 1.33 |
| Moment | 1.71 | 0.31 | 0.90 | -0.56 | 2.03 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#4

Sample Date: 8/18/03

Analyzed By: JB



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | |
|--------------------|---------------------|---|----------------------------------|
| Easting: 207108 | Northing: 750353 | Coordinate System: State Plane 1983 FL East Ft | Elevation: -49 NGVD 1929 Feet |
|--------------------|---------------------|---|----------------------------------|

| | | | |
|-------------|-----------------------|-----------------------|-----------|
| USCS: SW | Dry Munsel: 5Y-7/1 | Wet Munsel: 5Y-7/1 | Comments: |
|-------------|-----------------------|-----------------------|-----------|

| | | | | |
|----------------------|-----------------------|---------------------|-----------------------|---|
| Dry Weight: 47.17 | Wash Weight: 46.28 | Sieve Loss: 0.04 | Percent Silt: 2.01 | Estimated Percent Shell Content: 11.41 |
|----------------------|-----------------------|---------------------|-----------------------|---|

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.09 | 0.19 | 0.09 | 0.19 |
| 5 | -2.00 | 4.00 | 0.17 | 0.36 | 0.26 | 0.55 |
| 7 | -1.50 | 2.82 | 0.54 | 1.14 | 0.80 | 1.70 |
| 10 | -1.00 | 2.00 | 0.58 | 1.23 | 1.38 | 2.93 |
| 14 | -0.50 | 1.41 | 1.33 | 2.82 | 2.71 | 5.75 |
| 18 | 0.00 | 1.00 | 1.52 | 3.22 | 4.23 | 8.97 |
| 25 | 0.50 | 0.70 | 1.90 | 4.03 | 6.13 | 13.00 |
| 35 | 1.00 | 0.50 | 2.99 | 6.34 | 9.12 | 19.33 |
| 45 | 1.50 | 0.35 | 5.79 | 12.27 | 14.91 | 31.61 |
| 60 | 2.00 | 0.25 | 13.28 | 28.15 | 28.19 | 59.76 |
| 80 | 2.50 | 0.17 | 14.69 | 31.14 | 42.88 | 90.91 |
| 120 | 3.00 | 0.12 | 2.97 | 6.30 | 45.85 | 97.20 |
| 170 | 3.50 | 0.08 | 0.27 | 0.57 | 46.12 | 97.77 |
| 200 | 3.75 | 0.07 | 0.07 | 0.15 | 46.19 | 97.92 |
| 230 | 4.00 | 0.06 | 0.03 | 0.06 | 46.22 | 97.99 |
| Pan | Pan | Pan | 0.91 | 1.93 | 47.13 | 99.92 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| -0.63 | 0.74 | 1.23 | 1.83 | 2.24 | 2.39 | 2.83 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.43 | 0.37 | 0.94 | -0.75 | 1.40 |
| Moment | 1.52 | 0.35 | 1.18 | -0.72 | 2.17 |

Gradation Analysis Report

Project Name: Collier County

Sample Name: CCVC-03-42 S#5

Sample Date: 8/22/03

Analyzed By: ID



Coastal Planning & Engineering, Inc.

2481 N.W. Boca Raton Blvd.

Boca Raton, FL 33431

| | | | | | | | |
|----------|--------|-----------|--------|--------------------|-----------------------------|------------|----------------------|
| Easting: | 207108 | Northing: | 750353 | Coordinate System: | State Plane 1983 FL East Ft | Elevation: | -51.3 NGVD 1929 Feet |
|----------|--------|-----------|--------|--------------------|-----------------------------|------------|----------------------|

| | | | |
|-------|-------------|-------------|-----------|
| USCS: | Dry Munsel: | Wet Munsel: | Comments: |
| SW | 5Y-7/1 | 5Y-7/1 | |

| | | | | |
|-------------|--------------|-------------|---------------|----------------------------------|
| Dry Weight: | Wash Weight: | Sieve Loss: | Percent Silt: | Estimated Percent Shell Content: |
| 67.45 | 64.98 | 0.02 | 3.84 | 14.25 |

| Sieve Number | Sieve Size (Phi) | Sieve Size (Millimeters) | Grams Retained | % Weight Retained | Cum. Grams Retained | C. % Weight Retained |
|--------------|------------------|--------------------------|----------------|-------------------|---------------------|----------------------|
| 3/4 | -4.25 | 19.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/8 | -4.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5/16 | -3.25 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | -3.00 | 8.00 | 0.06 | 0.09 | 0.06 | 0.09 |
| 5 | -2.00 | 4.00 | 0.18 | 0.27 | 0.24 | 0.36 |
| 7 | -1.50 | 2.82 | 0.60 | 0.89 | 0.84 | 1.25 |
| 10 | -1.00 | 2.00 | 0.92 | 1.36 | 1.76 | 2.61 |
| 14 | -0.50 | 1.41 | 1.20 | 1.78 | 2.96 | 4.39 |
| 18 | 0.00 | 1.00 | 1.33 | 1.97 | 4.29 | 6.36 |
| 25 | 0.50 | 0.70 | 1.60 | 2.37 | 5.89 | 8.73 |
| 35 | 1.00 | 0.50 | 2.59 | 3.84 | 8.48 | 12.57 |
| 45 | 1.50 | 0.35 | 3.89 | 5.77 | 12.37 | 18.34 |
| 60 | 2.00 | 0.25 | 10.88 | 16.13 | 23.25 | 34.47 |
| 80 | 2.50 | 0.17 | 28.69 | 42.54 | 51.94 | 77.01 |
| 120 | 3.00 | 0.12 | 11.24 | 16.66 | 63.18 | 93.67 |
| 170 | 3.50 | 0.08 | 1.31 | 1.94 | 64.49 | 95.61 |
| 200 | 3.75 | 0.07 | 0.21 | 0.31 | 64.70 | 95.92 |
| 230 | 4.00 | 0.06 | 0.16 | 0.24 | 64.86 | 96.16 |
| Pan | Pan | Pan | 2.57 | 3.81 | 67.43 | 99.97 |
| Phi 5 | Phi 16 | Phi 25 | Phi 50 | Phi 75 | Phi 84 | Phi 95 |
| -0.34 | 1.3 | 1.71 | 2.18 | 2.48 | 2.71 | 3.34 |

| | | | | | |
|------------|----------|---------|---------|----------|----------|
| Statistics | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis |
| Graphic | 1.84 | 0.28 | 0.91 | -0.85 | 1.96 |
| Moment | 1.91 | 0.27 | 1.20 | -0.78 | 2.50 |