

| | | | | |
|--|--|---|--|---------------------|
| DRILLING LOG | | DIVISION: South Atlantic | INSTALLATION: Jacksonville District | SHEET 1 of 1 |
| 1. PROJECT | | DELRAY BEACH | | |
| 2. LOCATION | | (Coordinates or Station) X= 966163 Y= 767433 | | |
| 3. DRILLING AGENCY: | | ALPINE SEISMIC | | |
| 4. HOLE NO. | | (As shown on drawing title and file number) DB-99-13 | | |
| 5. NAME OF DRILLER | | ROB SUSKO | | |
| 6. DIRECTION OF HOLE | | VERTICAL | | |
| 7. THICKNESS OF BURDEN | | 0.0 FT | | |
| 8. DEPTH DRILLED INTO ROCK | | 0.0 FT | | |
| 9. TOTAL DEPTH OF HOLE | | 19.5' FT | | |
| 10. SIZE AND TYPE OF BIT | | 3" | | |
| 11. DATUM FOR ELEVATION SHOWN | | (TBM or MSL) NGVD | | |
| 12. MANUFACTURER'S DESIGNATION OF DRILL | | ALPINE PNEUMATIC | | |
| 13. TOT NO. OF OVERBURDEN SAMPLES TAKEN | | disturbed: 0.0 undisturbed: 0.0 | | |
| 14. TOTAL NO. OF CORE BOXES | | 1 | | |
| 15. ELEVATION GROUND WATER | | | | |
| 16. DATE HOLE | | Started Completed 4/20/99 4/20/99 | | |
| 17. ELEVATION TOP OF HOLE | | -46.0 ft. | | |
| 18. TOTAL CORE RECOVERY FOR BORING | | 99% | | |
| 19. SIGNATURE OF GEOLOGIST | | IBRAHIM DREMAI | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | CORE REC % | SAMPLE NUMBER | REMARKS |
|-------|-------|--------|---|------------------|------------------|---|
| -46 | 0 | | | | | SP |
| | 1 | | | | 1 | Sample #1, Depth = 2.0' 0.25 mm, 1.04 phi sorting 3.65% silt |
| | 2 | | SAND, fine-grained, trace shell hash, □1" shell fragment at -50.0' Light Gray (5Y-7/1) (SP) | | 2 | Sample #2, Depth = 4.0' 0.27 mm, 1.13 phi sorting 1.11% silt |
| -50.9 | 4 | | | | 3 | Sample #3, Depth = 6.0' 0.21 mm, 0.69 phi sorting 1.46% silt |
| | 5 | | | | 4 | Sample #4, Depth = 9.5' 0.25 mm, 0.81 phi sorting 1.76% silt |
| | 6 | | | | 5 | Sample #5, Depth = 13.0' 0.21 mm, 0.72 phi sorting 1.46% silt |
| | 7 | | | | 6 | Sample #6, Depth = 17.0' 0.20 mm, 0.77 phi sorting 1.69% silt |
| | 8 | | | | | |
| | 9 | | | | | |
| | 10 | | | | | |
| | 11 | | | | | |
| | 12 | | fine-grained, little shell hash, Light Gray (5Y-7/1) (SP) from -50.9' to -65.6' | | | |
| | 13 | | | | | |
| | 14 | | | | | |
| | 15 | | | | | |
| | 16 | | | | | |
| | 17 | | | | | |
| | 18 | | | | | |
| -65.6 | 19 | | | | | |
| | 20 | | End of Boring | | | |
| | 21 | | | | | |
| | 22 | | | | | |
| | 23 | | | | | |
| | 24 | | | | | |

Note: Soils are classified in accordance with the Unified Soils Classification System.

PROJECT: Delray Beach

HOLE NUMBER:

GRADATION ANALYSIS REPORT
DELRAY BEACH VIBRACORES 1999
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-13 S#1
SAMPLE ELEV. (FT. NGVD):
SAMPLE DEPTH (FT.): 2.0
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 249.16
SAMPLE WEIGHT AFTER WASH (GRAMS): 240.16

| SIEVE SIZE | PHI SIZE | MESH SIZE (mm) | RETAINED (GRAMS) | RETAINED (%) | PASSED (%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8 | -4.00 | 16.000 | 0.00 | 0.00 | 100.00 |
| 5/16 | -3.00 | 8.000 | 0.73 | 0.29 | 99.71 |
| 5 | -2.00 | 4.000 | 1.55 | 0.62 | 99.38 |
| 7 | -1.50 | 2.800 | 2.61 | 1.05 | 98.95 |
| 10 | -1.00 | 2.000 | 5.16 | 2.07 | 97.93 |
| 14 | -0.50 | 1.400 | 8.69 | 3.49 | 96.51 |
| 18 | 0.00 | 1.000 | 13.44 | 5.39 | 94.61 |
| 25 | 0.50 | 0.710 | 21.56 | 8.65 | 91.35 |
| 35 | 1.00 | 0.500 | 36.34 | 14.59 | 85.41 |
| 45 | 1.50 | 0.355 | 50.84 | 20.40 | 79.60 |
| 60 | 2.00 | 0.250 | 84.80 | 34.03 | 65.97 |
| 80 | 2.50 | 0.180 | 163.14 | 65.48 | 34.52 |
| 120 | 3.00 | 0.125 | 228.09 | 91.54 | 8.46 |
| 170 | 3.50 | 0.090 | 239.98 | 96.32 | 3.68 |
| 200 | 3.75 | 0.075 | 240.06 | 96.35 | 3.65 |
| 230 | 4.00 | 0.063 | 244.64 | 98.19 | 1.81 |
| PAN | | | 249.16 | 100.00 | 0.00 |

PHI(5): -0.10 PHI(16): 1.12 PHI(25): 1.67
PHI(50): 2.25 PHI(75): 2.68 PHI(84): 2.86
PHI(95): 3.36

SIEVE LOSS(g): 0.00 SILT/CLAY: 3.65%
SKEWNESS: -0.720 KURTOSIS: 1.401

GRAPHIC METHOD

MEAN (PHI): 1.90 SORTING: 0.87
MEAN (mm): 0.27 MEDIAN (mm): 0.21
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.00 SORTING: 1.04
MEAN (mm): 0.25

DATA FILE NAME: DB99-13#1.TAB

GRADATION ANALYSIS REPORT
DELRAY BEACH VIBRACORES 1999
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-13 S#2
SAMPLE ELEV. (FT. NGVD):
SAMPLE DEPTH (FT.): 4.0
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 202.08
SAMPLE WEIGHT AFTER WASH (GRAMS): 199.95

| SIEVE SIZE | PHI SIZE | MESH SIZE (mm) | RETAINED (GRAMS) | RETAINED (%) | PASSED (%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8 | -4.00 | 16.000 | 0.00 | 0.00 | 100.00 |
| 5/16 | -3.00 | 8.000 | 0.00 | 0.00 | 100.00 |
| 5 | -2.00 | 4.000 | 1.09 | 0.54 | 99.46 |
| 7 | -1.50 | 2.800 | 2.23 | 1.10 | 98.90 |
| 10 | -1.00 | 2.000 | 6.57 | 3.25 | 96.75 |
| 14 | -0.50 | 1.400 | 10.91 | 5.40 | 94.60 |
| 18 | 0.00 | 1.000 | 15.92 | 7.88 | 92.12 |
| 25 | 0.50 | 0.710 | 23.94 | 11.85 | 88.15 |
| 35 | 1.00 | 0.500 | 37.07 | 18.34 | 81.66 |
| 45 | 1.50 | 0.355 | 49.95 | 24.72 | 75.28 |
| 60 | 2.00 | 0.250 | 75.04 | 37.13 | 62.87 |
| 80 | 2.50 | 0.180 | 128.80 | 63.74 | 36.26 |
| 120 | 3.00 | 0.125 | 187.08 | 92.58 | 7.42 |
| 170 | 3.50 | 0.090 | 199.67 | 98.81 | 1.19 |
| 200 | 3.75 | 0.075 | 199.83 | 98.89 | 1.11 |
| 230 | 4.00 | 0.063 | 200.96 | 99.45 | 0.55 |
| PAN | | | 202.05 | 99.99 | 0.01 |

PHI(5): -0.59 PHI(16): 0.82 PHI(25): 1.51
PHI(50): 2.24 PHI(75): 2.70 PHI(84): 2.85
PHI(95): 3.19

SIEVE LOSS(g): 0.03 SILT/CLAY: 1.11%
SKEWNESS: -0.926 KURTOSIS: 1.311

GRAPHIC METHOD

MEAN (PHI): 1.70 SORTING: 1.02
MEAN (mm): 0.31 MEDIAN (mm): 0.21
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 1.91 SORTING: 1.13
MEAN (mm): 0.27

DATA FILE NAME: DB99-13#2.TAB

GRADATION ANALYSIS REPORT
DELRAY BEACH VIBRACORES 1999
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-13 S#3
SAMPLE ELEV. (FT. NGVD):
SAMPLE DEPTH (FT.): 6.0
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 180.86
SAMPLE WEIGHT AFTER WASH (GRAMS): 178.33

| SIEVE SIZE | PHI SIZE | MESH SIZE (mm) | RETAINED (GRAMS) | RETAINED (%) | PASSED (%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8 | -4.00 | 16.000 | 0.00 | 0.00 | 100.00 |
| 5/16 | -3.00 | 8.000 | 0.00 | 0.00 | 100.00 |
| 5 | -2.00 | 4.000 | 0.06 | 0.03 | 99.97 |
| 7 | -1.50 | 2.800 | 0.17 | 0.09 | 99.91 |
| 10 | -1.00 | 2.000 | 0.64 | 0.35 | 99.65 |
| 14 | -0.50 | 1.400 | 1.18 | 0.65 | 99.35 |
| 18 | 0.00 | 1.000 | 2.18 | 1.21 | 98.79 |
| 25 | 0.50 | 0.710 | 4.06 | 2.24 | 97.76 |
| 35 | 1.00 | 0.500 | 9.16 | 5.06 | 94.94 |
| 45 | 1.50 | 0.355 | 17.50 | 9.68 | 90.32 |
| 60 | 2.00 | 0.250 | 44.23 | 24.46 | 75.54 |
| 80 | 2.50 | 0.180 | 106.88 | 59.10 | 40.90 |
| 120 | 3.00 | 0.125 | 165.73 | 91.63 | 8.37 |
| 170 | 3.50 | 0.090 | 178.06 | 98.45 | 1.55 |
| 200 | 3.75 | 0.075 | 178.22 | 98.54 | 1.46 |
| 230 | 4.00 | 0.063 | 179.57 | 99.28 | 0.72 |
| PAN | | | 180.84 | 99.99 | 0.01 |

PHI(5): 0.99 PHI(16): 1.71 PHI(25): 2.01
PHI(50): 2.37 PHI(75): 2.74 PHI(84): 2.88
PHI(95): 3.25

SIEVE LOSS(g): 0.02 SILT/CLAY: 1.46%
SKEWNESS: -0.430 KURTOSIS: 1.257

GRAPHIC METHOD

MEAN (PHI): 2.24 SORTING: 0.58
MEAN (mm): 0.21 MEDIAN (mm): 0.19
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.28 SORTING: 0.69
MEAN (mm): 0.21

DATA FILE NAME: DB99-13#3.TAB

GRADATION ANALYSIS REPORT
DELRAY BEACH VIBRACORES 1999
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-13 S#4
SAMPLE ELEV. (FT. NGVD):
SAMPLE DEPTH (FT.): 9.5
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 209.77
SAMPLE WEIGHT AFTER WASH (GRAMS): 206.17

| SIEVE SIZE | PHI SIZE | MESH SIZE (mm) | RETAINED (GRAMS) | RETAINED (%) | PASSED (%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8 | -4.00 | 16.000 | 0.00 | 0.00 | 100.00 |
| 5/16 | -3.00 | 8.000 | 0.00 | 0.00 | 100.00 |
| 5 | -2.00 | 4.000 | 0.26 | 0.12 | 99.88 |
| 7 | -1.50 | 2.800 | 0.57 | 0.27 | 99.73 |
| 10 | -1.00 | 2.000 | 1.24 | 0.59 | 99.41 |
| 14 | -0.50 | 1.400 | 2.57 | 1.23 | 98.77 |
| 18 | 0.00 | 1.000 | 4.83 | 2.30 | 97.70 |
| 25 | 0.50 | 0.710 | 9.55 | 4.55 | 95.45 |
| 35 | 1.00 | 0.500 | 21.87 | 10.43 | 89.57 |
| 45 | 1.50 | 0.355 | 41.39 | 19.73 | 80.27 |
| 60 | 2.00 | 0.250 | 85.96 | 40.98 | 59.02 |
| 80 | 2.50 | 0.180 | 147.46 | 70.30 | 29.70 |
| 120 | 3.00 | 0.125 | 197.64 | 94.22 | 5.78 |
| 170 | 3.50 | 0.090 | 205.97 | 98.19 | 1.81 |
| 200 | 3.75 | 0.075 | 206.08 | 98.24 | 1.76 |
| 230 | 4.00 | 0.063 | 207.94 | 99.13 | 0.87 |
| PAN | | | 209.76 | 100.00 | 0.00 |

PHI(5): 0.54 PHI(16): 1.30 PHI(25): 1.62
PHI(50): 2.15 PHI(75): 2.60 PHI(84): 2.79
PHI(95): 3.10

SIEVE LOSS(g): 0.01 SILT/CLAY: 1.76%
SKEWNESS: -0.451 KURTOSIS: 1.077

GRAPHIC METHOD

MEAN (PHI): 1.98 SORTING: 0.74
MEAN (mm): 0.25 MEDIAN (mm): 0.22
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.02 SORTING: 0.81
MEAN (mm): 0.25

DATA FILE NAME: DB99-13#4.TAB

GRADATION ANALYSIS REPORT
DELRAY BEACH VIBRACORES 1999
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-13 S#5
SAMPLE ELEV. (FT. NGVD):
SAMPLE DEPTH (FT.): 13.0
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 224.06
SAMPLE WEIGHT AFTER WASH (GRAMS): 220.97

| SIEVE SIZE | PHI SIZE | MESH SIZE (mm) | RETAINED (GRAMS) | RETAINED (%) | PASSED (%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8 | -4.00 | 16.000 | 0.00 | 0.00 | 100.00 |
| 5/16 | -3.00 | 8.000 | 0.00 | 0.00 | 100.00 |
| 5 | -2.00 | 4.000 | 0.12 | 0.05 | 99.95 |
| 7 | -1.50 | 2.800 | 0.34 | 0.15 | 99.85 |
| 10 | -1.00 | 2.000 | 0.70 | 0.31 | 99.69 |
| 14 | -0.50 | 1.400 | 1.62 | 0.72 | 99.28 |
| 18 | 0.00 | 1.000 | 3.07 | 1.37 | 98.63 |
| 25 | 0.50 | 0.710 | 6.07 | 2.71 | 97.29 |
| 35 | 1.00 | 0.500 | 13.87 | 6.19 | 93.81 |
| 45 | 1.50 | 0.355 | 26.11 | 11.65 | 88.35 |
| 60 | 2.00 | 0.250 | 61.80 | 27.58 | 72.42 |
| 80 | 2.50 | 0.180 | 133.20 | 59.45 | 40.55 |
| 120 | 3.00 | 0.125 | 207.67 | 92.68 | 7.32 |
| 170 | 3.50 | 0.090 | 220.60 | 98.46 | 1.54 |
| 200 | 3.75 | 0.075 | 220.78 | 98.54 | 1.46 |
| 230 | 4.00 | 0.063 | 222.43 | 99.27 | 0.73 |
| PAN | | | 224.06 | 100.00 | 0.00 |

PHI(5): 0.83 PHI(16): 1.64 PHI(25): 1.92
PHI(50): 2.35 PHI(75): 2.73 PHI(84): 2.87
PHI(95): 3.20

SIEVE LOSS(g): 0.00 SILT/CLAY: 1.46%
SKEWNESS: -0.547 KURTOSIS: 1.193

GRAPHIC METHOD

MEAN (PHI): 2.18 SORTING: 0.62
MEAN (mm): 0.22 MEDIAN (mm): 0.20
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.23 SORTING: 0.72
MEAN (mm): 0.21

DATA FILE NAME: DB99-13#5.TAB

GRADATION ANALYSIS REPORT
DELRAY BEACH VIBRACORES 1999
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-13 S#6
SAMPLE ELEV. (FT. NGVD):
SAMPLE DEPTH (FT.): 17.0
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 178.76
SAMPLE WEIGHT AFTER WASH (GRAMS): 175.94

| SIEVE SIZE | PHI SIZE | MESH SIZE (mm) | RETAINED (GRAMS) | RETAINED (%) | PASSED (%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8 | -4.00 | 16.000 | 0.00 | 0.00 | 100.00 |
| 5/16 | -3.00 | 8.000 | 0.00 | 0.00 | 100.00 |
| 5 | -2.00 | 4.000 | 0.38 | 0.21 | 99.79 |
| 7 | -1.50 | 2.800 | 1.04 | 0.58 | 99.42 |
| 10 | -1.00 | 2.000 | 2.04 | 1.14 | 98.86 |
| 14 | -0.50 | 1.400 | 3.29 | 1.84 | 98.16 |
| 18 | 0.00 | 1.000 | 4.38 | 2.45 | 97.55 |
| 25 | 0.50 | 0.710 | 5.65 | 3.16 | 96.84 |
| 35 | 1.00 | 0.500 | 8.78 | 4.91 | 95.09 |
| 45 | 1.50 | 0.355 | 15.56 | 8.70 | 91.30 |
| 60 | 2.00 | 0.250 | 36.73 | 20.55 | 79.45 |
| 80 | 2.50 | 0.180 | 94.40 | 52.81 | 47.19 |
| 120 | 3.00 | 0.125 | 165.28 | 92.46 | 7.54 |
| 170 | 3.50 | 0.090 | 175.57 | 98.22 | 1.78 |
| 200 | 3.75 | 0.075 | 175.74 | 98.31 | 1.69 |
| 230 | 4.00 | 0.063 | 177.24 | 99.15 | 0.85 |
| PAN | | | 178.75 | 99.99 | 0.01 |

PHI(5): 1.01 PHI(16): 1.81 PHI(25): 2.07
PHI(50): 2.46 PHI(75): 2.78 PHI(84): 2.89
PHI(95): 3.22

SIEVE LOSS(g): 0.01 SILT/CLAY: 1.69%
SKEWNESS: -0.627 KURTOSIS: 1.274

GRAPHIC METHOD

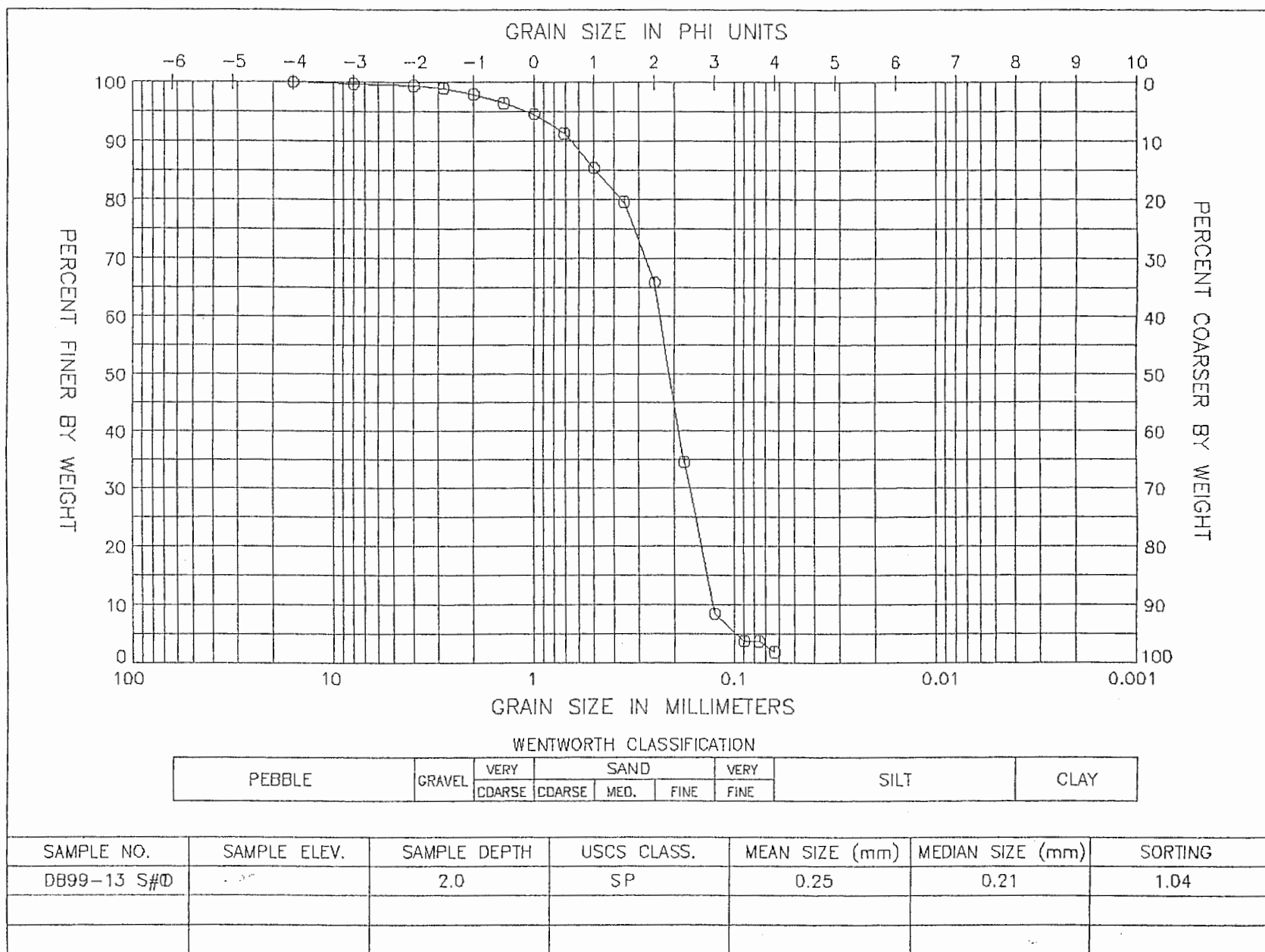
MEAN (PHI): 2.28 SORTING: 0.54
MEAN (mm): 0.21 MEDIAN (mm): 0.18
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

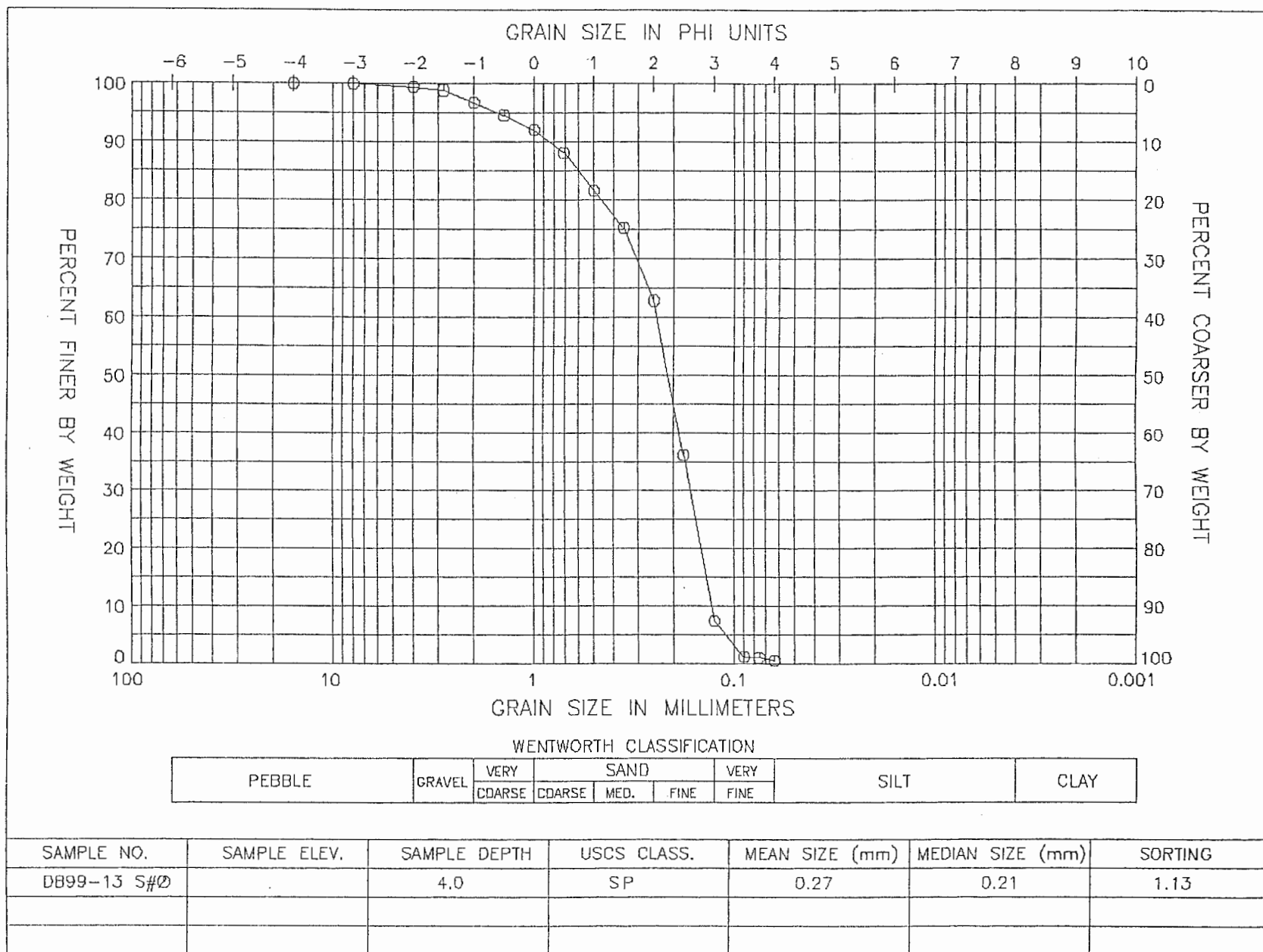
MEAN (PHI): 2.30 SORTING: 0.77
MEAN (mm): 0.20

DATA FILE NAME: DB99-13#6.TAB

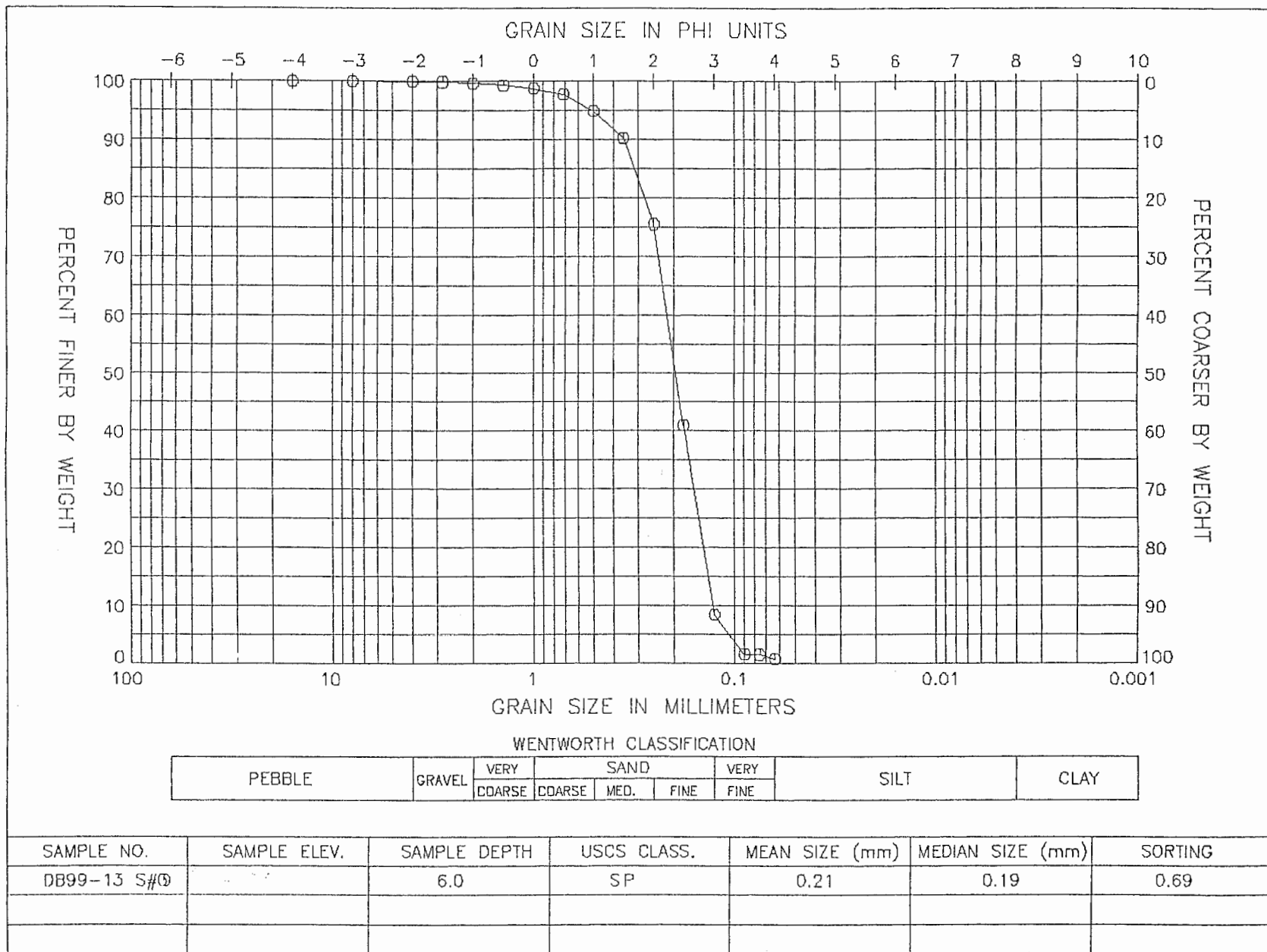
GRAIN SIZE DISTRIBUTION CURVE
 DELRAY BEACH VIBRACORES 1999



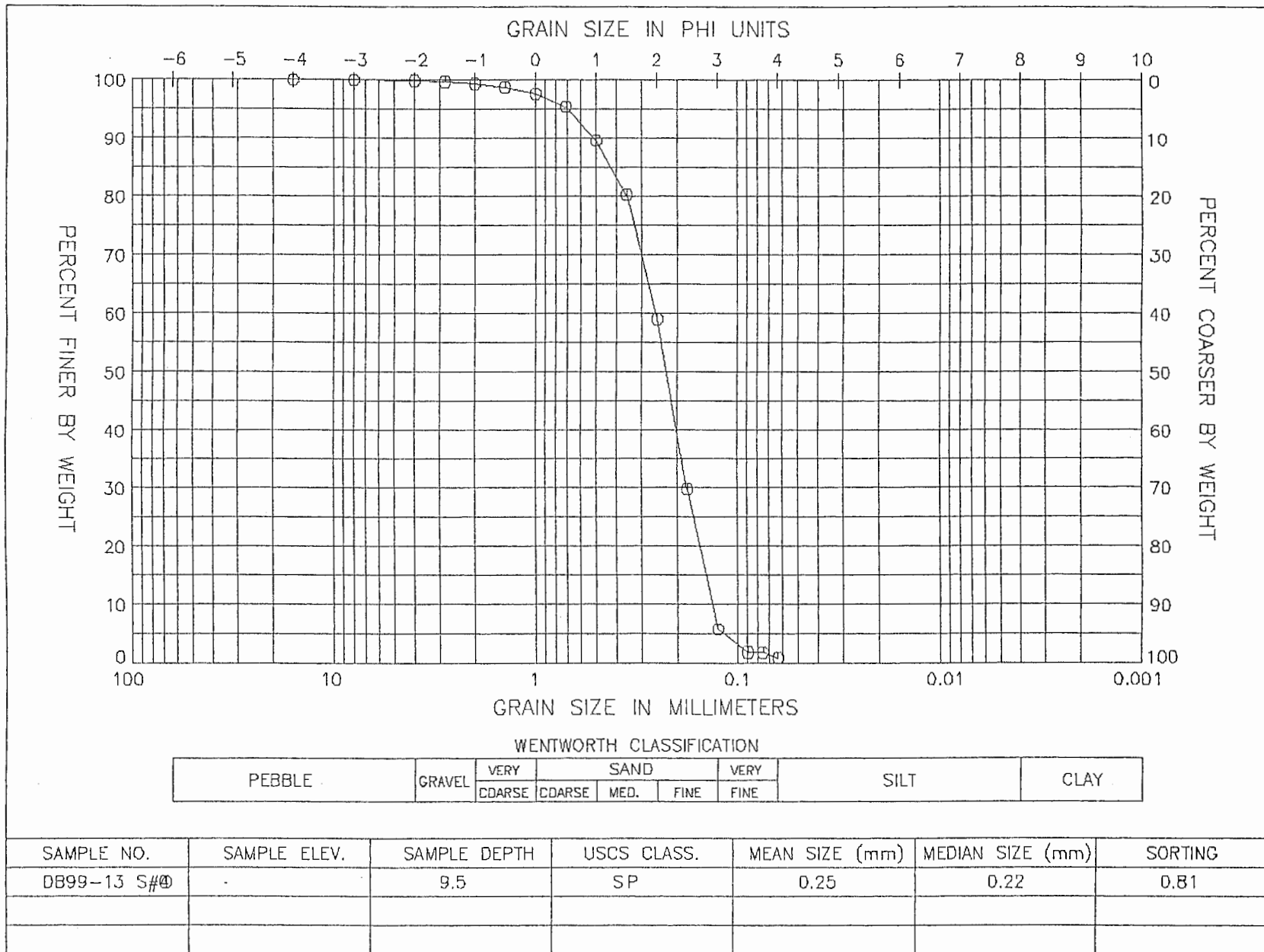
GRAIN SIZE DISTRIBUTION CURVE
 DELRAY BEACH VIBRACORES 1999



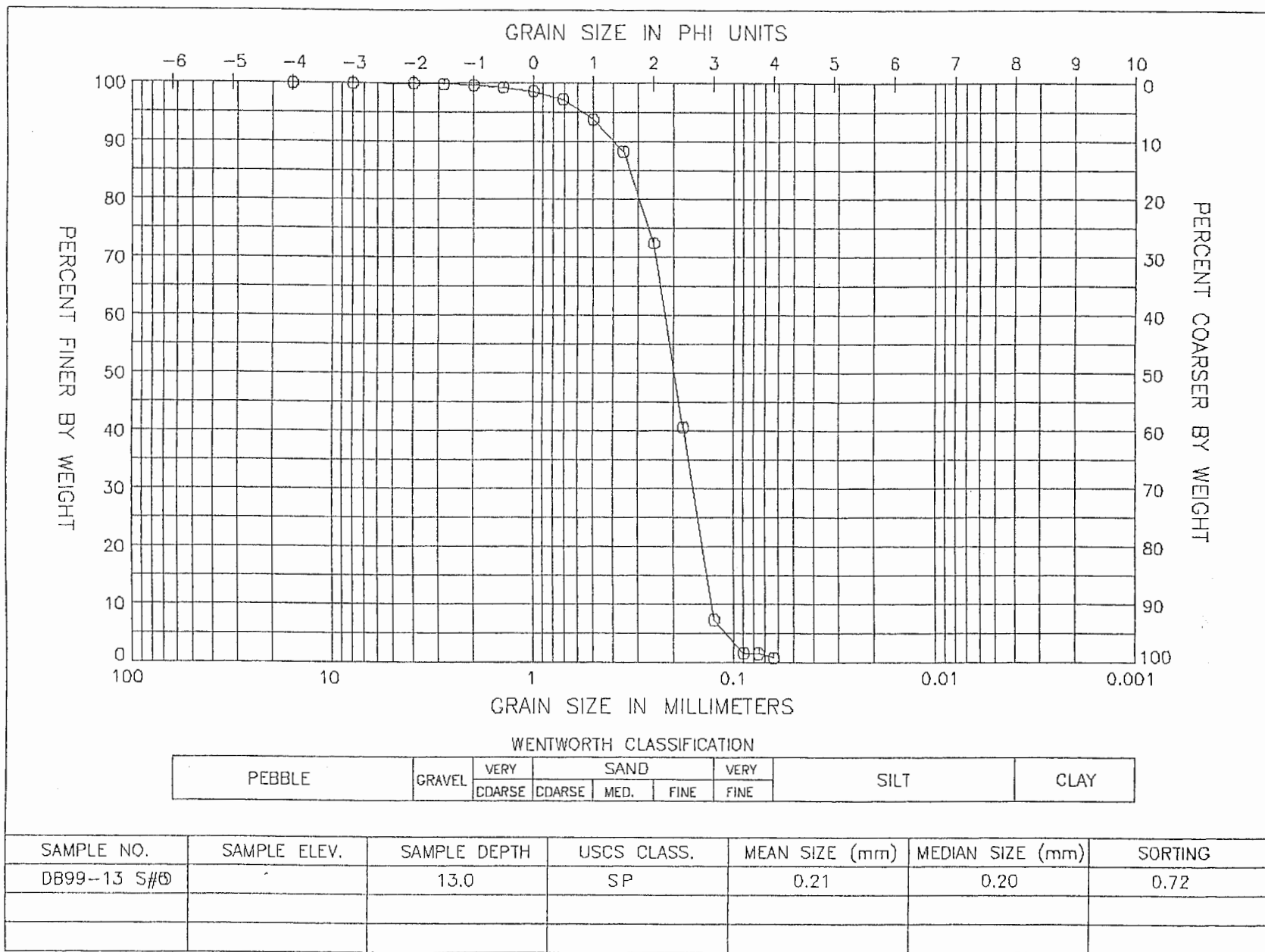
GRAIN SIZE DISTRIBUTION CURVE
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE
 DELRAY BEACH VIBRACORES 1999

