

<b>DRILLING LOG</b>		<b>DIVISION:</b> South Atlantic	<b>INSTALLATION:</b> Jacksonville District	<b>SHEET</b> 1 of 1
<b>1. PROJECT</b> DELRAY BEACH		<b>10. SIZE AND TYPE OF BIT</b> 3"		
<b>2. LOCATION</b> (Coordinates or Station) X= 967281 Y= 773720		<b>11. DATUM FOR ELEVATION SHOWN</b> (TBM or MSL) NGVD		
<b>3. DRILLING AGENCY:</b> ALPINE SEISMIC		<b>12. MANUFACTURER'S DESIGNATION OF DRILL</b> ALPINE PNEUMATIC		
<b>4. HOLE NO.</b> (As shown on drawing title and file number) DB-99-20		<b>13. TOT NO. OF OVERBURDEN SAMPLES TAKEN</b> disturbed: 0.0 undisturbed: 0.0		
<b>5. NAME OF DRILLER</b> ROB SUSKO		<b>14. TOTAL NO. OF CORE BOXES</b> 1		
<b>6. DIRECTION OF HOLE</b> VERTICAL		<b>15. ELEVATION GROUND WATER</b>		
<b>7. THICKNESS OF BURDEN</b> 0.0 FT		<b>16. DATE HOLE</b> Started Completed 4/20/99 4/20/99		
<b>8. DEPTH DRILLED INTO ROCK</b> 0.0 FT		<b>17. ELEVATION TOP OF HOLE</b> -66.0 ft.		
<b>9. TOTAL DEPTH OF HOLE</b> 17.2' FT		<b>18. TOTAL CORE RECOVERY FOR BORING</b> 88%		
		<b>19. SIGNATURE OF GEOLOGIST</b> IBRAHIM DREMALI		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS
-66	0					SP
	1					Sample #1, Depth = 2.0' 0.14 mm, 0.41 phi sorting 2.81% silt
	2		SAND, fine grained, trace shell hash, Light Gray (5Y-7/1) (SP)		1	
	3					
	4					
-71	5		4" coral fragment			
	6					Sample #2, Depth = 6.0' 0.21 mm, 0.97 phi sorting 2.1% silt
	7		fine-grained, little shell hash, Light Gray (5Y-7/1) (SP) from -71.5' to -74.0'		2	
-74	8					Sample #3, Depth = 8.3' 0.37 mm, 1.43 phi sorting 2.26% silt
-74.5	9		fine to medium-grained, shelly sand, Light Gray (5Y-7/1) (SP) from -74.0' to -74.5'		3	
	10		fine-grained, little shell hash, Gray (5Y-6/1) (SP) from -74.5' to -76.9'		4	Sample #4, Depth = 10.0' 0.23 mm, 1.24 phi sorting 2.71% silt
-76.9	11					
	12		fine-grained, little shell hash, Light Gray (5Y-7/1) (SP) from -76.9' to -78.9'		5	Sample #5, Depth = 12.0' 0.24 mm, 1.20 phi sorting 2.45% silt
-78.9	13					
	14		medium-grained, little shell hash, and shell fragments (0.05" size) Light Gray (5Y-7/1)(SP) from -78.9' to 80.4'		6	Sample #6, Depth = 13.5' 1.09 mm, 2.4 phi sorting 2.20% silt
-80.4	15					
-81.2	16		medium-grained, shelly sand, Light Gray (5Y-7/1) (SP) from -80.4' to -81.2'			
	17		medium-grained, little shell hash, Light Gray (5Y-7/1) (SP) from -81.2 to -83.2		7	Sample #7, Depth = 16.0' 0.43 mm, 1.48 phi sorting 2.78% silt
-83.2	18		End of Boring			
	19					
	20					
	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.: DB99-20 S#1  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 2.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 177.97  
SAMPLE WEIGHT AFTER WASH (GRAMS): 174.40

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	0.07	0.04	99.96
7	-1.50	2.800	0.10	0.06	99.94
10	-1.00	2.000	0.20	0.11	99.89
14	-0.50	1.400	0.35	0.20	99.80
18	0.00	1.000	0.46	0.26	99.74
25	0.50	0.710	0.62	0.35	99.65
35	1.00	0.500	0.82	0.46	99.54
45	1.50	0.355	1.21	0.68	99.32
60	2.00	0.250	3.12	1.75	98.25
80	2.50	0.180	19.61	11.02	88.98
120	3.00	0.125	127.01	71.37	28.63
170	3.50	0.090	171.44	96.33	3.67
200	3.75	0.075	172.97	97.19	2.81
230	4.00	0.063	175.45	98.58	1.42
PAN			177.94	99.98	0.02

PHI (5): 2.18            PHI (16): 2.54            PHI (25): 2.62  
PHI (50): 2.82            PHI (75): 3.07            PHI (84): 3.25  
PHI (95): 3.47

SIEVE LOSS (g): 0.03            SILT/CLAY: 2.81%  
SKEWNESS: 0.004            KURTOSIS: 1.164

GRAPHIC METHOD

MEAN (PHI): 2.85            SORTING: 0.36  
MEAN (mm) : 0.14            MEDIAN (mm): 0.14  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.82            SORTING: 0.41  
MEAN (mm) : 0.14

DATA FILE NAME: DB99-20#1.TAB

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

SAMPLE NO.: DB99-20 S#2  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 6.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 232.02  
SAMPLE WEIGHT AFTER WASH (GRAMS): 227.85

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	2.95	1.27	98.73
7	-1.50	2.800	4.17	1.80	98.20
10	-1.00	2.000	5.73	2.47	97.53
14	-0.50	1.400	7.37	3.18	96.82
18	0.00	1.000	9.37	4.04	95.96
25	0.50	0.710	11.98	5.16	94.84
35	1.00	0.500	16.73	7.21	92.79
45	1.50	0.355	26.54	11.44	88.56
60	2.00	0.250	55.88	24.08	75.92
80	2.50	0.180	125.00	53.87	46.13
120	3.00	0.125	208.98	90.07	9.93
170	3.50	0.090	226.64	97.68	2.32
200	3.75	0.075	227.14	97.90	2.10
230	4.00	0.063	229.55	98.93	1.07
PAN			232.01	100.00	0.00

PHI(5): 0.43                      PHI(16): 1.68                      PHI(25): 2.02  
PHI(50): 2.43                      PHI(75): 2.79                      PHI(84): 2.92  
PHI(95): 3.32

SIEVE LOSS(g): 0.01                      SILT/CLAY: 2.10%  
SKEWNESS: -0.905                      KURTOSIS: 1.529

GRAPHIC METHOD

MEAN (PHI): 2.16                      SORTING: 0.62  
MEAN (mm) : 0.22                      MEDIAN (mm): 0.18  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.22                      SORTING: 0.97  
MEAN (mm) : 0.21

DATA FILE NAME: DB99-20#2.TAB

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

SAMPLE NO.: DB99-20 S#3  
 SAMPLE ELEV. (FT. NGVD):  
 SAMPLE DEPTH (FT.): 8.3  
 SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 220.14  
 SAMPLE WEIGHT AFTER WASH (GRAMS): 215.71

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	0.61	0.28	99.72
5	-2.00	4.000	4.66	2.12	97.88
7	-1.50	2.800	9.58	4.35	95.65
10	-1.00	2.000	14.94	6.79	93.21
14	-0.50	1.400	23.29	10.58	89.42
18	0.00	1.000	30.72	13.95	86.05
25	0.50	0.710	40.34	18.32	81.68
35	1.00	0.500	52.36	23.78	76.22
45	1.50	0.355	66.70	30.30	69.70
60	2.00	0.250	92.14	41.86	58.14
80	2.50	0.180	128.34	58.30	41.70
120	3.00	0.125	198.09	89.98	10.02
170	3.50	0.090	214.44	97.41	2.59
200	3.75	0.075	215.17	97.74	2.26
230	4.00	0.063	217.71	98.89	1.11
PAN			220.14	100.00	0.00

PHI(5): -1.37                      PHI(16): 0.23                      PHI(25): 1.09  
 PHI(50): 2.25                      PHI(75): 2.76                      PHI(84): 2.91  
 PHI(95): 3.34

SIEVE LOSS(g): 0.00                      SILT/CLAY: 2.26%  
 SKEWNESS: -0.945                      KURTOSIS: 1.154

GRAPHIC METHOD  
 MEAN (PHI): 1.47                      SORTING: 1.34  
 MEAN (mm) : 0.36                      MEDIAN (mm): 0.21  
 NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD  
 MEAN (PHI): 1.73                      SORTING: 1.43  
 MEAN (mm) : 0.30

DATA FILE NAME: DB99-20#3.TAB

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

SAMPLE NO.: DB99-20 S#4  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 10.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 222.72  
SAMPLE WEIGHT AFTER WASH (GRAMS): 217.99

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	3.17	1.42	98.58
5	-2.00	4.000	5.02	2.25	97.75
7	-1.50	2.800	6.95	3.12	96.88
10	-1.00	2.000	9.10	4.09	95.91
14	-0.50	1.400	11.57	5.19	94.81
18	0.00	1.000	14.38	6.46	93.54
25	0.50	0.710	18.20	8.17	91.83
35	1.00	0.500	24.93	11.19	88.81
45	1.50	0.355	35.59	15.98	84.02
60	2.00	0.250	62.11	27.89	72.11
80	2.50	0.180	111.87	50.23	49.77
120	3.00	0.125	196.75	88.34	11.66
170	3.50	0.090	215.96	96.96	3.04
200	3.75	0.075	216.69	97.29	2.71
230	4.00	0.063	219.51	98.56	1.44
PAN			222.69	99.99	0.01

PHI(5): -0.59      PHI(16): 1.50      PHI(25): 1.88  
PHI(50): 2.49      PHI(75): 2.82      PHI(84): 2.94  
PHI(95): 3.39

SIEVE LOSS(g): 0.03      SILT/CLAY: 2.71%  
SKEWNESS: -1.520      KURTOSIS: 1.721

GRAPHIC METHOD

MEAN (PHI): 1.95      SORTING: 0.72  
MEAN (mm): 0.26      MEDIAN (mm): 0.18

NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.11      SORTING: 1.24  
MEAN (mm): 0.23

DATA FILE NAME: DB99-20#4.TAB

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

SAMPLE NO.: DB99-20 S#5  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 12.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 176.51  
SAMPLE WEIGHT AFTER WASH (GRAMS): 173.12

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	0.62	0.35	99.65
5	-2.00	4.000	2.57	1.46	98.54
7	-1.50	2.800	4.51	2.56	97.44
10	-1.00	2.000	7.00	3.97	96.03
14	-0.50	1.400	9.72	5.51	94.49
18	0.00	1.000	12.82	7.26	92.74
25	0.50	0.710	17.39	9.85	90.15
35	1.00	0.500	25.12	14.23	85.77
45	1.50	0.355	35.87	20.32	79.68
60	2.00	0.250	58.96	33.40	66.60
80	2.50	0.180	88.90	50.37	49.63
120	3.00	0.125	158.80	89.97	10.03
170	3.50	0.090	171.69	97.27	2.73
200	3.75	0.075	172.19	97.55	2.45
230	4.00	0.063	174.17	98.68	1.32
PAN			176.49	99.99	0.01

PHI(5): -0.66            PHI(16): 1.15            PHI(25): 1.68  
PHI(50): 2.49            PHI(75): 2.81            PHI(84): 2.92  
PHI(95): 3.34

SIEVE LOSS(g): 0.02            SILT/CLAY: 2.45%  
SKEWNESS: -1.292            KURTOSIS: 1.451

GRAPHIC METHOD

MEAN (PHI): 1.85            SORTING: 0.89  
MEAN (mm) : 0.28            MEDIAN (mm): 0.18  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.04            SORTING: 1.20  
MEAN (mm) : 0.24

DATA FILE NAME: DB99-20#5.TAB

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

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SAMPLE NO.: DB99-20 S#6  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 13.5  
SAMPLE TYPE: CORE SAMPLE  
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USCS DESCRIPTION: SP  
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DRY SAMPLE WEIGHT (GRAMS): 229.14  
SAMPLE WEIGHT AFTER WASH (GRAMS): 224.83  
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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	49.70	21.69	78.31
5	-2.00	4.000	68.80	30.03	69.97
7	-1.50	2.800	77.02	33.61	66.39
10	-1.00	2.000	84.53	36.89	63.11
14	-0.50	1.400	93.33	40.73	59.27
18	0.00	1.000	103.28	45.07	54.93
25	0.50	0.710	116.87	51.00	49.00
35	1.00	0.500	135.67	59.21	40.79
45	1.50	0.355	152.81	66.69	33.31
60	2.00	0.250	170.87	74.57	25.43
80	2.50	0.180	180.00	78.55	21.45
120	3.00	0.125	215.39	94.00	6.00
170	3.50	0.090	223.48	97.53	2.47
200	3.75	0.075	224.11	97.80	2.20
230	4.00	0.063	226.65	98.91	1.09
PAN			229.09	99.98	0.02

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PHI (5): -3.77            PHI (16): -3.26            PHI (25): -2.60  
PHI (50): 0.42            PHI (75): 2.05            PHI (84): 2.68  
PHI (95): 3.14  
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SIEVE LOSS (g): 0.05            SILT/CLAY: 2.20%  
SKEWNESS: -0.246            KURTOSIS: 0.608  
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GRAPHIC METHOD

MEAN (PHI): -0.16            SORTING: 2.97  
MEAN (mm): 1.12            MEDIAN (mm): 0.75  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD  
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MOMENT METHOD

MEAN (PHI): -0.12            SORTING: 2.40  
MEAN (mm): 1.09  
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DATA FILE NAME: DB99-20#6.TAB

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

SAMPLE NO.: DB99-20 S#7  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 16.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 208.29  
SAMPLE WEIGHT AFTER WASH (GRAMS): 203.00

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	3.17	1.52	98.48
5	-2.00	4.000	7.53	3.62	96.38
7	-1.50	2.800	10.35	4.97	95.03
10	-1.00	2.000	16.20	7.78	92.22
14	-0.50	1.400	28.87	13.86	86.14
18	0.00	1.000	38.33	18.40	81.60
25	0.50	0.710	53.83	25.84	74.16
35	1.00	0.500	77.77	37.34	62.66
45	1.50	0.355	103.88	49.87	50.13
60	2.00	0.250	136.29	65.43	34.57
80	2.50	0.180	162.22	77.88	22.12
120	3.00	0.125	194.18	93.23	6.77
170	3.50	0.090	201.98	96.97	3.03
200	3.75	0.075	202.49	97.22	2.78
230	4.00	0.063	205.42	98.62	1.38
PAN			208.29	100.00	0.00

PHI(5): -1.49            PHI(16): -0.26            PHI(25): 0.44  
PHI(50): 1.50            PHI(75): 2.38            PHI(84): 2.70  
PHI(95): 3.24

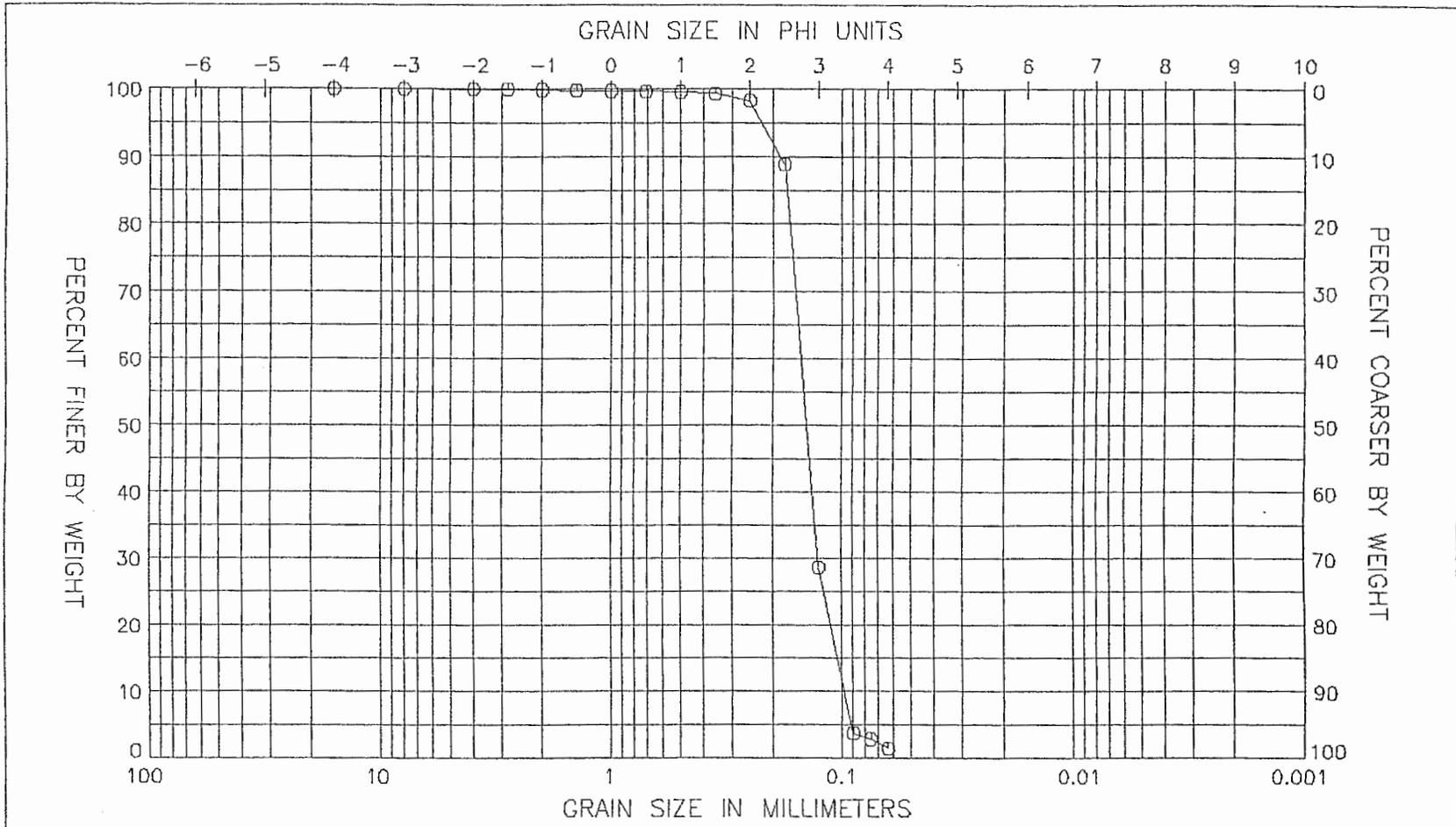
SIEVE LOSS(g): 0.00            SILT/CLAY: 2.78%  
SKEWNESS: -0.427            KURTOSIS: 0.999

GRAPHIC METHOD  
MEAN (PHI): 1.14            SORTING: 1.48  
MEAN (mm) : 0.45            MEDIAN (mm): 0.35  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD  
MEAN (PHI): 1.22            SORTING: 1.48  
MEAN (mm) : 0.43

DATA FILE NAME: DB99-20#7.TAB

GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999

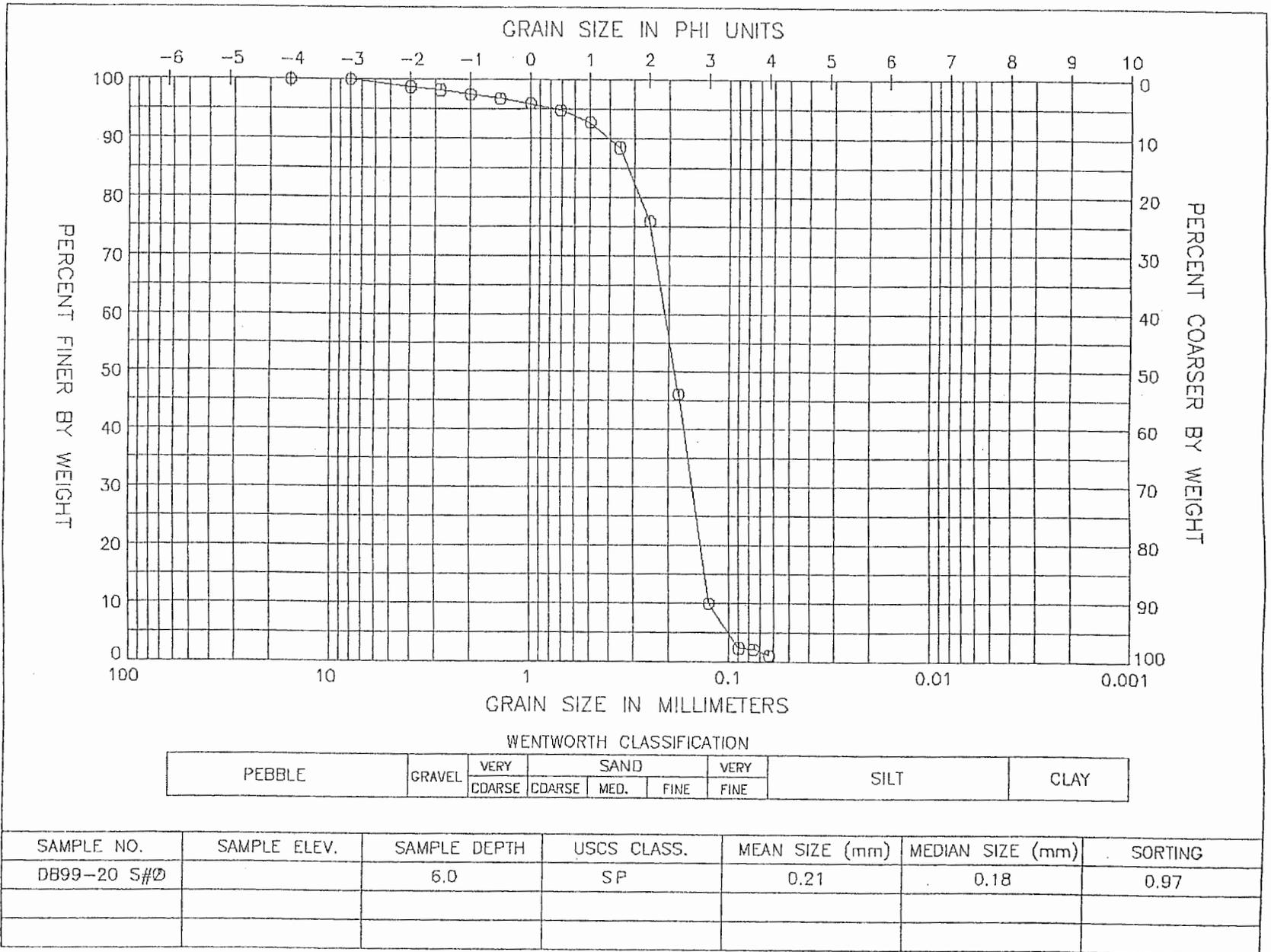


WENTWORTH CLASSIFICATION

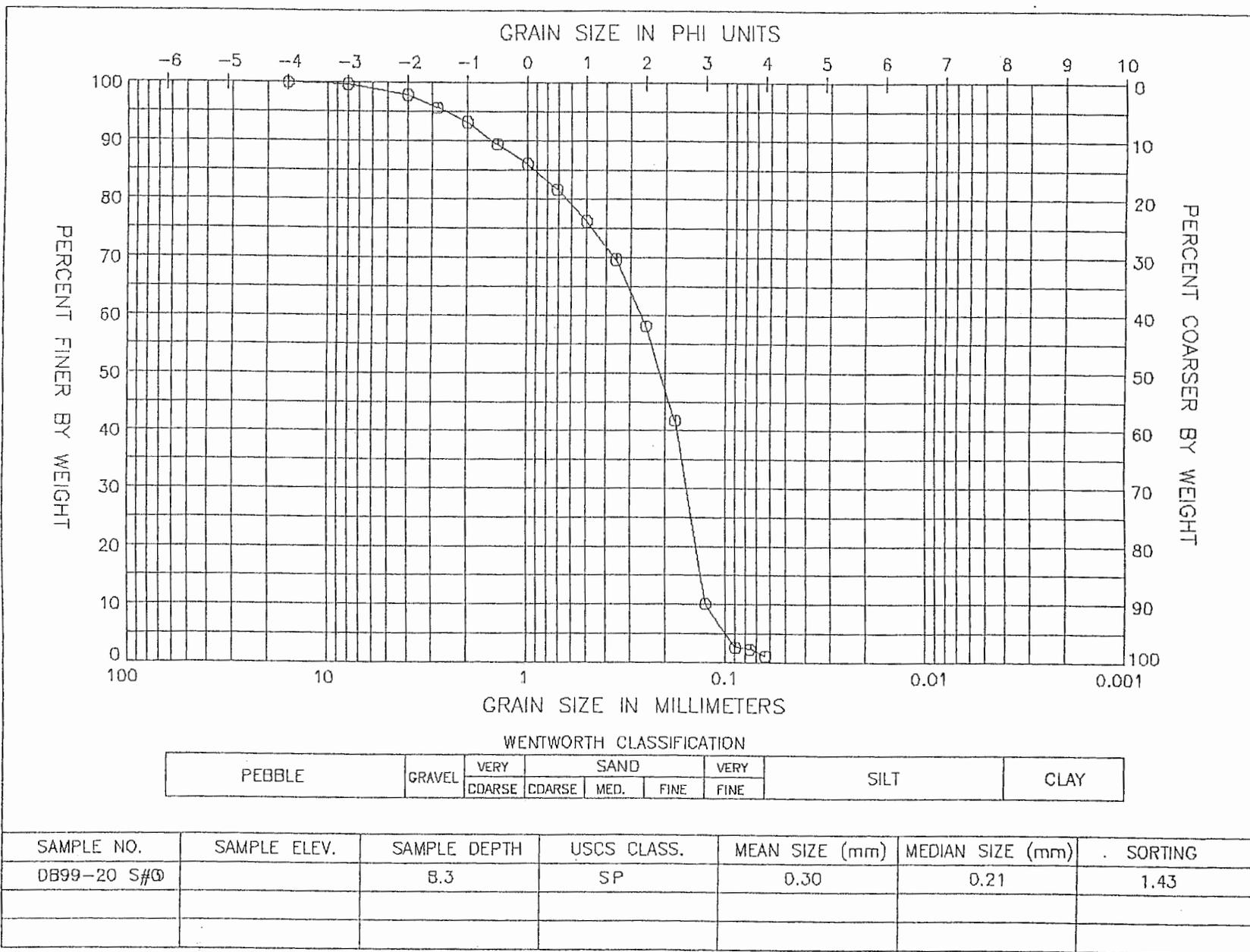
PEBBLE	GRAVEL	SAND				VERY FINE	SILT	CLAY
		VERY COARSE	COARSE	MED.	FINE			

SAMPLE NO.	SAMPLE ELEV.	SAMPLE DEPTH	USCS CLASS.	MEAN SIZE (mm)	MEDIAN SIZE (mm)	SORTING
DB99-20 S#0		2.0	SP	0.14	0.14	0.41

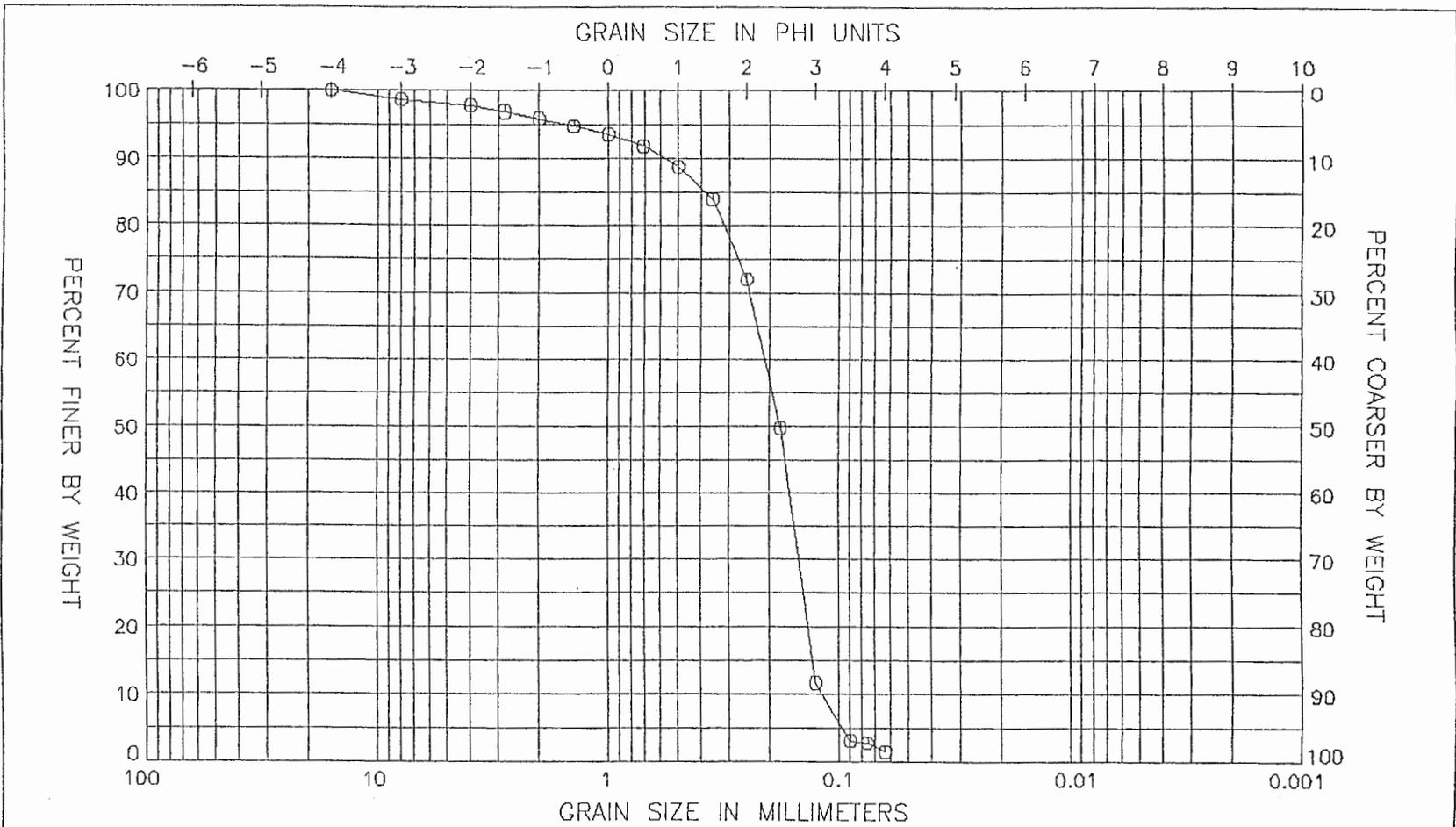
GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999

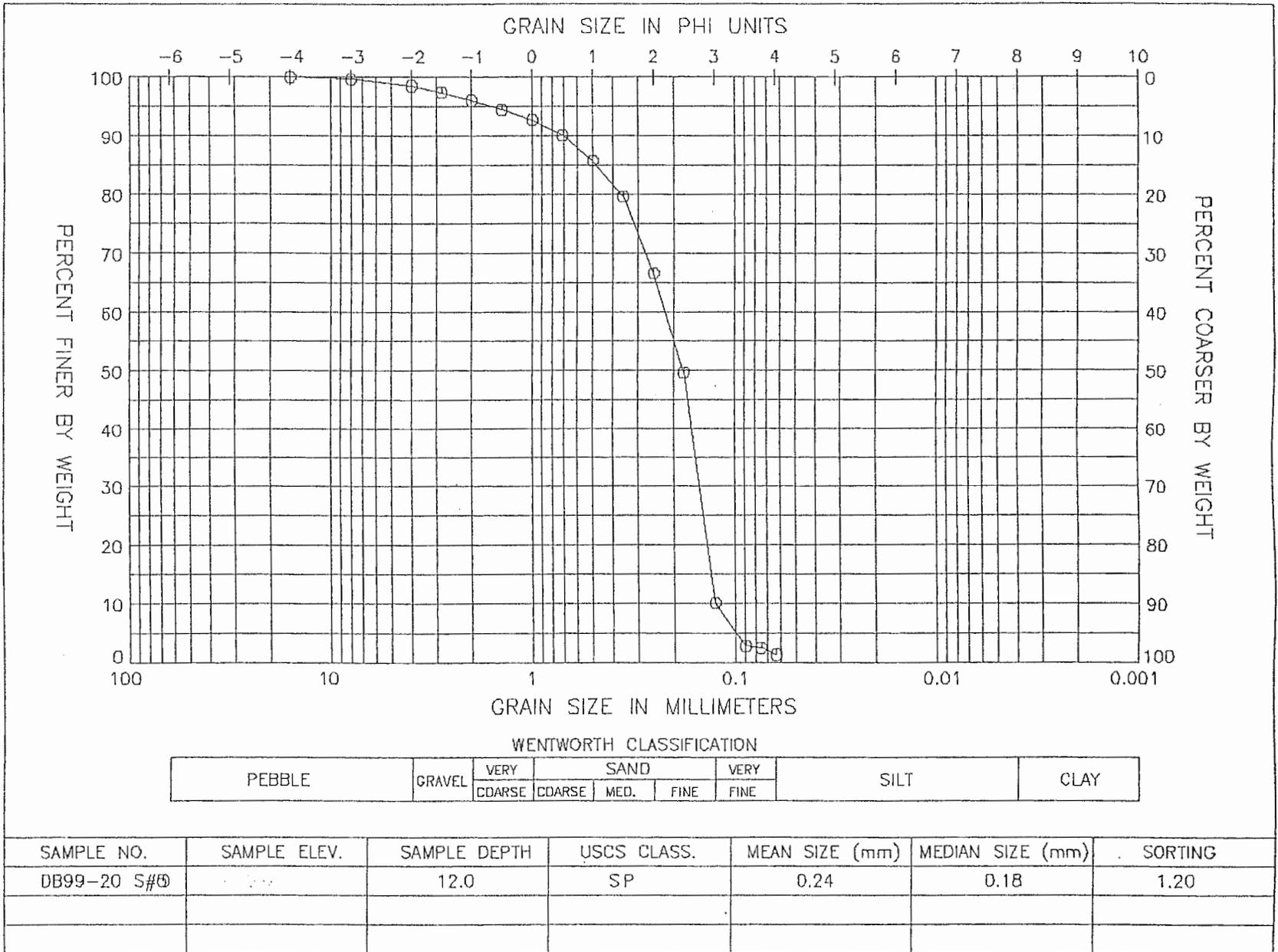


WENTWORTH CLASSIFICATION

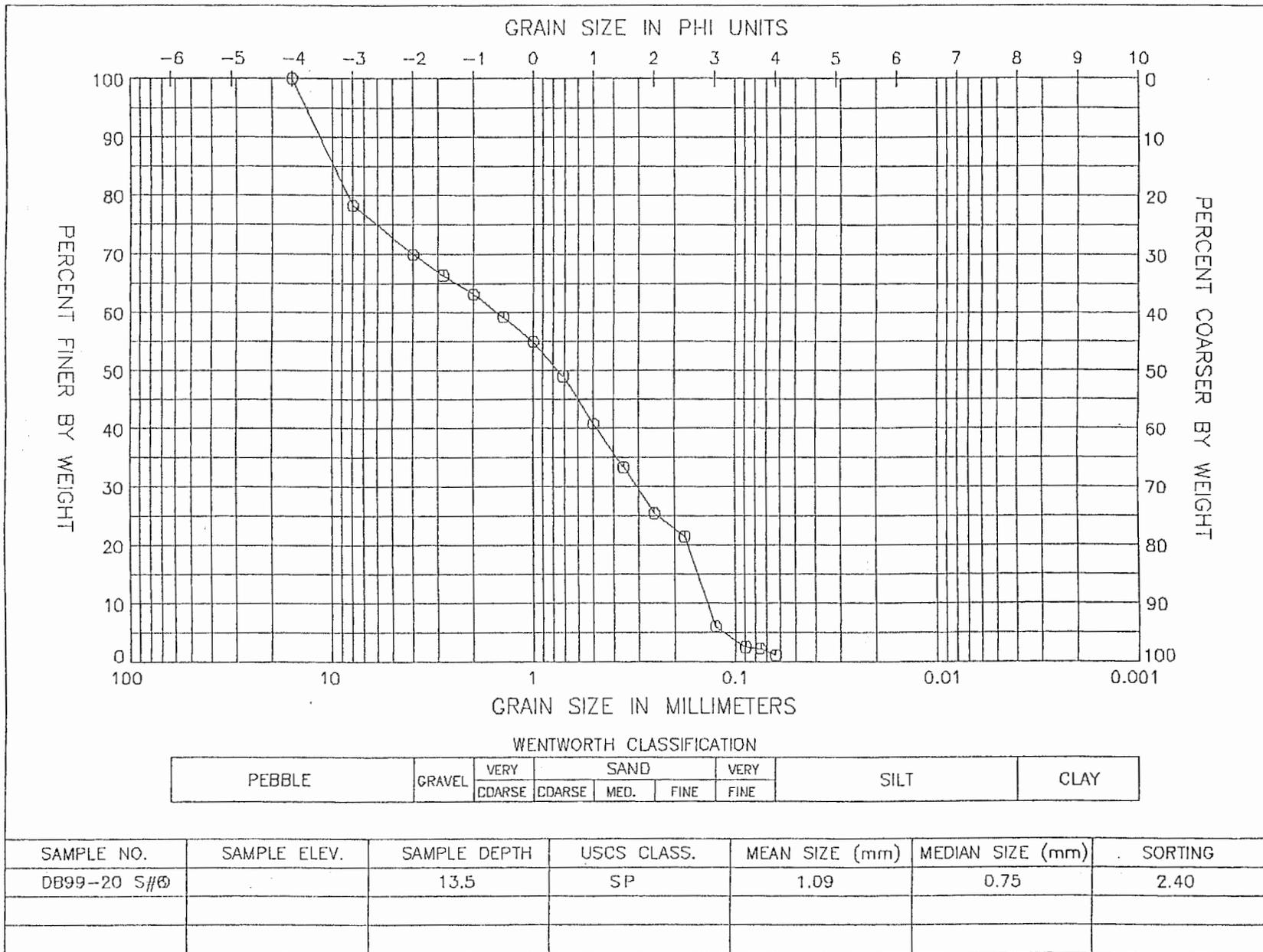
PEBBLE	GRAVEL	VERY	SAND		VERY	SILT	CLAY
		CDARSE	CDARSE	MED.	FINE		

SAMPLE NO.	SAMPLE ELEV.	SAMPLE DEPTH	USCS CLASS.	MEAN SIZE (mm)	MEDIAN SIZE (mm)	SORTING
DB99-20 S#0		10.0	SP	0.23	0.18	1.24

GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999

