



APPENDIX 1
2021 VIBRACORE LOGS

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT 2021 Borrow Area A - Supplemental Evaluation Dare County, NC			9. SIZE AND TYPE OF BIT 3.0 In.	
			10. COORDINATE SYSTEM/DATUM North Carolina State Plane	
2. BORING DESIGNATION DCVC-21-01			HORIZONTAL NAD 1983	
LOCATION COORDINATES (ft) X = 3,020,707 Y = 851,201			VERTICAL NAVD 88	
3. DRILLING AGENCY			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
CONTRACTOR FILE NO.			12. TOTAL SAMPLES	
			DISTURBED 2	
			UNDISTURBED (UD) 0	
4. NAME OF DRILLER Athena Technologies				
13. TOTAL NUMBER CORE BOXES				
14. ELEVATION GROUND WATER				
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			15. DATE BORING	
DEG. FROM VERTICAL			STARTED 06-16-21 07:14	
BEARING			COMPLETED 06-16-21	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			16. ELEVATION TOP OF BORING -60.0 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			17. TOTAL RECOVERY FOR BORING 4.6 Ft.	
8. TOTAL DEPTH OF BORING 5.0 Ft.			18. SIGNATURE AND TITLE OF INSPECTOR Frank Marshall	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-60.0	0.0					
-64.6	4.6		SAND, fine to medium grained, trace shell fragments, trace shell hash, trace silt, (0.25"x0.5") pebble @ 1.3', 0.2' layer of medium grained sand @ 1.9' with trace silt/shell hash/shell fragments, layering of dark heavy minerals @ 1.1' to 1.3' and 3.1' to 3.4', (0.5"x1.0") shell fragment @ 3.6', olive gray (5Y-5/2), (SP).		1	Sample #1, Depth = 0.9' Mean (mm): 0.26, Phi Sorting: 0.67 Fines (230): 0.73% (SP)
-65.0	5.0		No Recovery.		2	Sample #2, Depth = 3.3' Mean (mm): 0.25, Phi Sorting: 0.51 Fines (230): 0.82% (SP)
			End of Boring			

DARE COUNTY 2021_VC.GPJ 7/2/21

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT 2021 Borrow Area A - Supplemental Evaluation Dare County, NC			9. SIZE AND TYPE OF BIT 3.0 In.	
			10. COORDINATE SYSTEM/DATUM HORIZONTAL VERTICAL North Carolina State Plane NAD 1983 NAVD 88	
2. BORING DESIGNATION DCVC-21-02		LOCATION COORDINATES (ft) X = 3,019,453 Y = 849,384		11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER
3. DRILLING AGENCY		CONTRACTOR FILE NO.		12. TOTAL SAMPLES DISTURBED UNDISTURBED (UD) 1 1 0
4. NAME OF DRILLER Athena Technologies				
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL	BEARING	13. TOTAL NUMBER CORE BOXES
6. THICKNESS OF OVERBURDEN 0.0 Ft.		14. ELEVATION GROUND WATER		15. DATE BORING STARTED COMPLETED 06-16-21 07:45 06-16-21
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		16. ELEVATION TOP OF BORING -52.0 Ft.		17. TOTAL RECOVERY FOR BORING 4.3 Ft.
8. TOTAL DEPTH OF BORING 5.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR Frank Marshall		

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-52.0	0.0					
-56.3	4.3	•••••	SAND, medium grained, trace shell fragments, trace shell hash, trace silt, 0.9' pocket of dark heavy minerals @ 1.6' (interbedded), light olive gray (5Y-6/2), (SP).		1	Sample #1, Depth = 2.7' Mean (mm): 0.32, Phi Sorting: 0.58 Fines (230): 0.98% (SP)
-57.0	5.0		No Recovery.			
			End of Boring			

DARE COUNTY 2021_VC.GPJ 7/2/21

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT 2021 Borrow Area A - Supplemental Evaluation Dare County, NC			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION DCVC-21-03			10. COORDINATE SYSTEM/DATUM North Carolina State Plane	
3. DRILLING AGENCY			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Athena Technologies			12. TOTAL SAMPLES	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			14. ELEVATION GROUND WATER	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			15. DATE BORING	
8. TOTAL DEPTH OF BORING 5.0 Ft.			16. ELEVATION TOP OF BORING -54.4 Ft.	
			17. TOTAL RECOVERY FOR BORING 4.7 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Frank Marshall	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-54.4	0.0					
-56.1	1.7	●●●	SAND, medium grained, trace shell fragments, trace shell hash, trace silt, (0.5"x1.0") shell @ 2.2', light gray (5Y-7/2), (SP).		1	Sample #1, Depth = 0.5' Mean (mm): 0.41, Phi Sorting: 0.65 Fines (230): 0.89% (SP)
-59.1	4.7	●●●	SAND, fine to medium grained, trace shell fragments, trace shell hash, trace silt, 0.2" pocket of coarser material @ 2.5', (0.75"x1.0") shell @ 2.7', (0.5"x0.75") shell @ 3.5', light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 4.0' Mean (mm): 0.32, Phi Sorting: 0.55 Fines (230): 0.92% (SP)
-59.4	5.0		No Recovery.			
			End of Boring			

DARE COUNTY 2021_VC.GPJ 7/2/21

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1
1. PROJECT 2021 Borrow Area A - Supplemental Evaluation Dare County, NC			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION DCVC-21-04			10. COORDINATE SYSTEM/DATUM North Carolina State Plane	
3. DRILLING AGENCY			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Athena Technologies			12. TOTAL SAMPLES	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			14. ELEVATION GROUND WATER	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			15. DATE BORING	
8. TOTAL DEPTH OF BORING 7.0 Ft.			16. ELEVATION TOP OF BORING -55.5 Ft.	
			17. TOTAL RECOVERY FOR BORING 6.4 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Frank Marshall	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-55.5	0.0					
-57.6	2.1		SAND, medium grained, trace shell fragments, trace shell hash, trace silt, 0.2" pocket of shell hash @ 0.8' with lighter color, (0.5"x0.75") shell fragment @ 0.5', light gray (5Y-7/2), (SW).		1	Sample #1, Depth = 1.5' Mean (mm): 0.56, Phi Sorting: 1.02 Fines (230): 0.96% (SW)
-58.5	3.0		SAND, medium grained, trace shell fragments, trace shell hash, trace silt, (0.5"x1.25") shell @ 2.2', (1.25"x1.75") shell @ 2.4', multiple shells up to (0.5"x0.75") @ 2.8', light olive gray (5Y-6/2), (SW).		2	Sample #2, Depth = 2.5' Mean (mm): 0.68, Phi Sorting: 1.08 Fines (230): 0.57% (SW)
-60.8	5.3		SAND, medium grained, trace shell fragments, trace shell hash, trace silt, (0.75"x1.0") shell @ 3.7', 1.5" shell @ 4.6', 0.5" shell @ 5.2', light olive gray (5Y-6/2), (SW).		1	
-61.9	6.4		SAND, medium grained, trace shell fragments, trace shell hash, trace silt, 0.3" pocket of shell hash @ 5.3', multiple shells @ 5.5' up to (0.5"x1.0"), pale olive (5Y-6/3), (SP).		3	Sample #3, Depth = 6.0' Mean (mm): 0.61, Phi Sorting: 0.82 Fines (230): 0.94% (SP)
-62.5	7.0		No Recovery.			
			End of Boring			

DARE COUNTY 2021_VC.GPJ 7/2/21

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1
1. PROJECT 2021 Borrow Area A - Supplemental Evaluation Dare County, NC			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION DCVC-21-05			10. COORDINATE SYSTEM/DATUM North Carolina State Plane	
3. DRILLING AGENCY			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Athena Technologies			12. TOTAL SAMPLES	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			14. ELEVATION GROUND WATER	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			15. DATE BORING	
8. TOTAL DEPTH OF BORING 8.0 Ft.			16. ELEVATION TOP OF BORING -56.0 Ft.	
			17. TOTAL RECOVERY FOR BORING 7 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR Frank Marshall	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-56.0	0.0					
-58.5	2.5		SAND, fine to medium grained, trace shell fragments, trace shell hash, trace silt, 1.0" shell @ 2.4', light olive gray (5Y-6/2), (SP).		1	Sample #1, Depth = 1.0' Mean (mm): 0.37, Phi Sorting: 0.58 Fines (230): 0.80% (SP)
-60.1	4.1		SAND, medium grained, trace shell fragments, trace shell hash, trace silt, (0.75"x2.0") shell @ 3.6', (0.5"x0.75") shell @ 4.0', light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 3.0' Mean (mm): 0.46, Phi Sorting: 0.74 Fines (230): 0.93% (SP)
-61.7	5.7		SAND, fine to medium grained, trace shell fragments, trace shell hash, trace silt, light olive gray (5Y-6/2), (SP).		1	Sample #3, Depth = 6.7' Mean (mm): 0.33, Phi Sorting: 0.81 Fines (230): 1.12% (SP)
-63.0	7.0		SAND, fine to medium grained, trace shell fragments, trace shell hash, trace silt, pocket of darker heavy minerals @ 6.1', (0.75"x1.25") shell @ 6.9', black (5Y-2.5/1), (SP).		3	
-64.0	8.0		No Recovery.			
			End of Boring			

DARE COUNTY 2021_VC.GPJ 7/2/21

APPENDIX 2
2021 VIBRACORE PHOTO MOSAICS



**Coastal Protection
Engineering
Northern Dare
County, North
Carolina**

DCVC-21-01

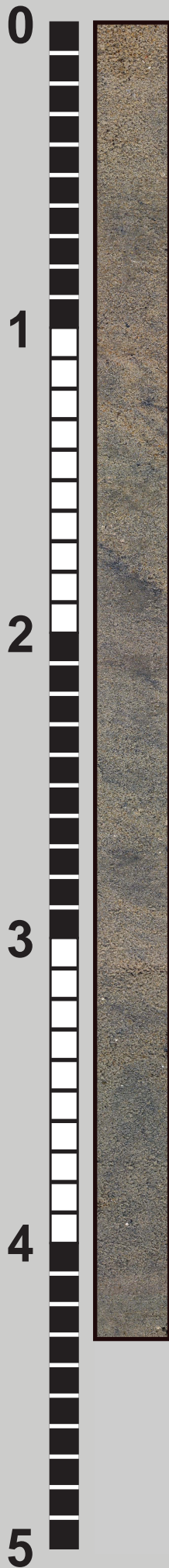
**Top Elev. (ft NAVD88): -54.7
Bottom Elev. (ft NAVD88): -59.4**

Notes:

- Photo Mosaic Image
- Photo Scale in Feet
- Scale Tick Marks Represent 0.1 feet



Athena Technologies, Inc.
1293 Graham Farm Road
McClellanville, SC 29458
www.athenatechnologies.com
(843) 887-3800



**Coastal Protection
Engineering
Northern Dare
County, North
Carolina**

DCVC-21-02

**Top Elev. (ft NAVD88): -52.7
Bottom Elev. (ft NAVD88): -57.0**

Notes:

- Photo Mosaic Image
- Photo Scale in Feet
- Scale Tick Marks Represent 0.1 feet



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DCVC-21-03

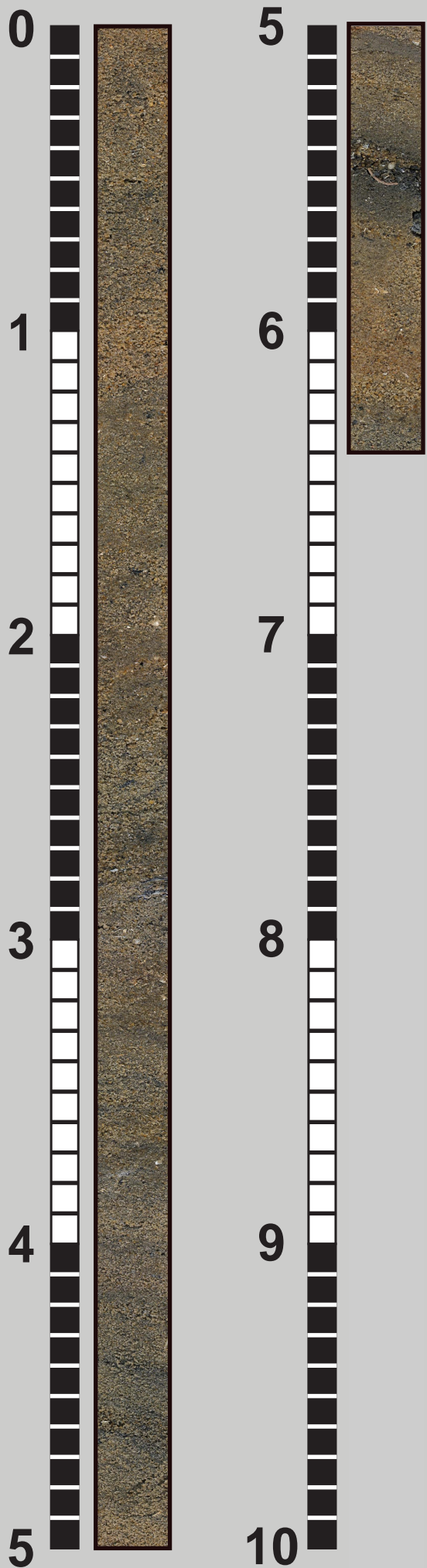
**Top Elev. (ft NAVD88): -60.9
Bottom Elev. (ft NAVD88): -65.5**

Notes:

- Photo Mosaic Image
- Photo Scale in Feet
- Scale Tick Marks Represent 0.1 feet



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DCVC-21-04

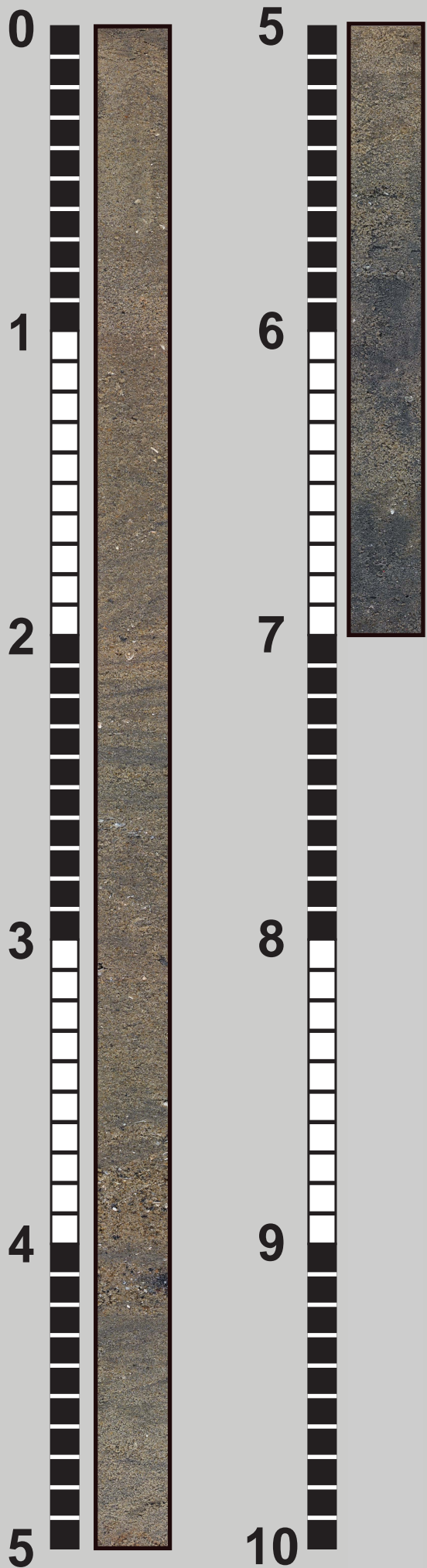
Top Elev. (ft NAVD88): -56.2
Bottom Elev. (ft NAVD88): -62.6

Notes:

- Photo Mosaic Image
- Photo Scale in Feet
- Scale Tick Marks Represent 0.1 feet



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Coastal Protection
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Carolina

DCVC-21-05

Top Elev. (ft NAVD88): -57.3
Bottom Elev. (ft NAVD88): -64.3

Notes:

- Photo Mosaic Image
- Photo Scale in Feet
- Scale Tick Marks Represent 0.1 feet



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APPENDIX 3
INFILLING BORROW AREA A COMPOSITE
SUMMARY TABLES

**COMPOSITE SUMMARY TABLE
2021 BORROW AREA A - SUPPLEMENTAL EVALUATION**

VIBRACORE I. D.	EFFECTIVE LENGTH (FT)	PHI MEDIAN	MEDIAN (mm)	MEAN (mm)	PHI MEAN	PHI SORTING	% FINES	WET MUNSELL VALUE	DRY MUNSELL VALUE	WASHED MUNSELL VALUE
DCVC-21-01 Composite	4.6	2.03	0.24	0.26	1.97	0.59	0.71	5	7	7
DCVC-21-02 Composite	4.3	1.69	0.31	0.32	1.63	0.58	0.97	6	7	7
DCVC-21-03 Composite	4.2	1.56	0.34	0.36	1.49	0.61	0.72	6	7	7
DCVC-21-04 Composite	6.4	0.92	0.53	0.58	0.78	1.00	0.60	7	7	7
DCVC-21-05 Composite	6.6	1.42	0.37	0.38	1.39	0.67	0.80	6	7	7
DARE COUNTY BORROW AREA A1	4.6	2.03	0.24	0.26	1.97	0.59	0.71	5	7	7
DARE COUNTY BORROW AREA A2	21.5	1.39	0.38	0.41	1.28	0.83	0.77	6	7	7

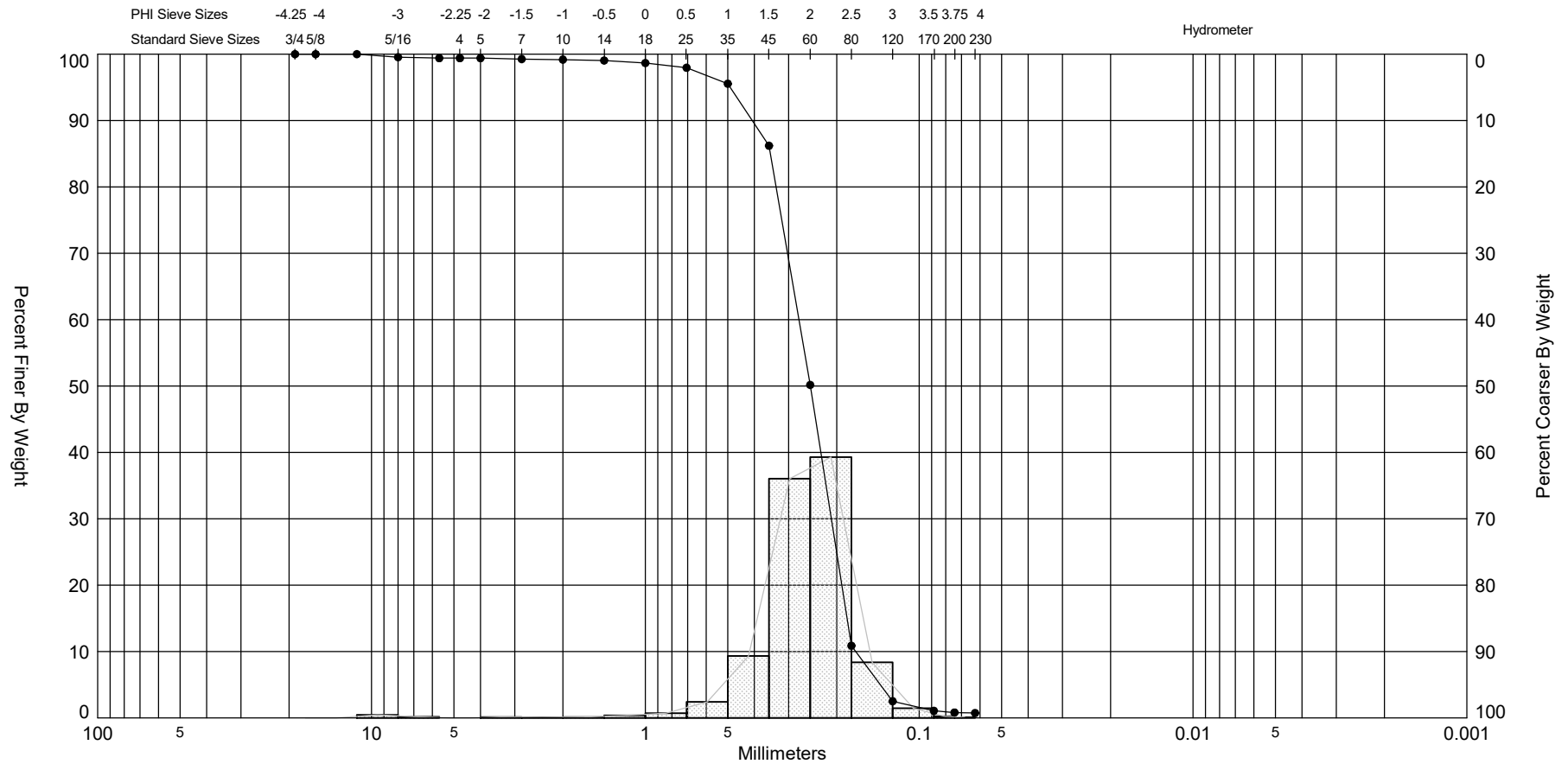
**COMPOSITE DATA TABLE
2021 BORROW AREA A - SUPPLEMENTAL EVALUATION**

VIBRACORE I. D.	EFFECTIVE LENGTH (FT)	PHI MEDIAN	MEDIAN (mm)	MEAN (mm)	PHI MEAN	PHI SORTING	% FINES	WET MUNSELL VALUE	DRY MUNSELL VALUE	WASHED MUNSELL VALUE	PHI SIZES																PAN				
											-4.25	-4.0	-3.50	-3.0	-2.50	-2.25	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	2.5		3.0	3.5	3.75	4.0
DCVC-21-01 Composite	4.60	2.03	0.24	0.26	1.97	0.59	0.71	5	7	7	0.00	0.00	0.00	0.21	0.27	0.27	0.31	0.39	0.43	0.52	0.79	1.48	3.67	12.75	47.11	89.41	97.38	98.92	99.14	99.22	99.94
DCVC-21-02 Composite	4.3	1.69	0.31	0.32	1.63	0.58	0.97	6	7	7	0.00	0.00	0.00	0.21	0.21	0.21	0.25	0.25	0.33	0.50	1.04	2.66	9.64	33.32	76.92	96.10	98.53	98.95	99.00	99.02	99.98
DCVC-21-03 Composite	4.2	1.56	0.34	0.36	1.49	0.61	0.72	6	7	7	0.00	0.00	0.00	0.00	0.00	0.05	0.12	0.23	0.29	0.79	2.14	5.47	15.37	45.24	83.27	96.52	98.75	99.05	99.09	99.09	99.81
DCVC-21-04 Composite	6.4	0.92	0.53	0.58	0.78	1.00	0.60	7	7	7	0.00	0.00	0.00	0.90	1.51	1.64	1.93	3.19	5.38	9.67	16.13	29.58	53.91	78.71	92.29	97.87	98.89	99.05	99.10	99.10	99.68
DCVC-21-05 Composite	6.6	1.42	0.37	0.38	1.39	0.67	0.80	6	7	7	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.12	0.36	1.13	3.27	8.19	23.26	54.90	83.66	96.23	98.61	99.01	99.10	99.12	99.91
DARE COUNTY BORROW AREA A1	4.6	2.03	0.24	0.26	1.97	0.59	0.71	5	7	7	0.00	0.00	0.00	0.21	0.27	0.27	0.31	0.39	0.43	0.52	0.79	1.48	3.67	12.75	47.11	89.41	97.38	98.92	99.14	99.22	99.94
DARE COUNTY BORROW AREA A2	21.5	1.39	0.38	0.41	1.28	0.83	0.77	6	7	7	0.00	0.00	0.00	0.31	0.49	0.55	0.66	1.08	1.84	3.48	6.43	12.92	28.12	55.79	84.80	96.75	98.70	99.02	99.08	99.09	99.84

**CUMULATIVE PERCENTS AND COMPUTED DISTRIBUTIONS
2021 BORROW AREA A - SUPPLEMENTAL EVALUATION**

SAMPLE I. D.	ELEVATION (NAVD88 FT)	EFFECTIVE LENGTH (FT)	PHI MEDIAN	MEDIAN (mm)	MEAN (mm)	PHI MEAN	PHI SORTING	% FINES	WET MUNSELL VALUE	DRY MUNSELL VALUE	WASHED MUNSELL VALUE	PHI SIZES																PAN				
												-4.25	-4.0	-3.50	-3.0	-2.50	-2.25	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	2.5		3.0	3.5	3.75	4.00
DCVC-21-01#1	-60.9	2.1	2	0.25	0.26	1.93	0.67	0.73	5	7	7	0	0	0	0.45	0.6	0.6	0.6	0.74	0.82	0.96	1.33	2.05	4.45	13.8	49.83	89.13	97.49	98.93	99.19	99.27	99.88
DCVC-21-01#2	-63.3	2.5	2.06	0.24	0.25	2	0.51	0.82	5	7	7	0	0	0	0	0	0	0.07	0.1	0.1	0.15	0.34	1	3.02	11.86	44.83	89.64	97.28	98.92	99.1	99.18	99.99
DCVC-21-01 Composite		4.6	2.03	0.24	0.26	1.97	0.59	0.71	5	7	7	0.00	0.00	0.00	0.21	0.27	0.27	0.31	0.39	0.43	0.52	0.79	1.48	3.67	12.75	47.11	89.41	97.38	98.92	99.14	99.22	99.94
DCVC-21-02#1	-54.7	4.3	1.69	0.31	0.32	1.63	0.58	0.98	6	7	7	0.00	0.00	0.00	0.21	0.21	0.21	0.25	0.25	0.33	0.50	1.04	2.66	9.64	33.32	76.92	96.10	98.53	98.95	99.00	99.02	99.98
DCVC-21-02 Composite		4.3	1.69	0.31	0.32	1.63	0.58	0.97	6	7	7	0.00	0.00	0.00	0.21	0.21	0.21	0.25	0.25	0.33	0.50	1.04	2.66	9.64	33.32	76.92	96.10	98.53	98.95	99.00	99.02	99.98
DCVC-21-03#1	-54.9	1.7	1.36	0.39	0.41	1.3	0.65	0.89	7	7	7	0.00	0.00	0.00	0.00	0.00	0.12	0.23	0.25	0.36	1.22	3.70	10.06	25.31	59.34	90.21	97.62	98.90	99.07	99.11	99.11	99.71
DCVC-21-03#2	-58.4	2.5	1.67	0.31	0.32	1.63	0.55	0.92	6	7	7	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.21	0.25	0.50	1.08	2.35	8.61	35.66	78.55	95.78	98.64	99.03	99.08	99.08	99.88
DCVC-21-03 Composite		4.2	1.56	0.34	0.36	1.49	0.61	0.72	6	7	7	0.00	0.00	0.00	0.00	0.00	0.05	0.12	0.23	0.29	0.79	2.14	5.47	15.37	45.24	83.27	96.52	98.75	99.05	99.09	99.09	99.81
DCVC-21-04#1	-57	4.4	0.99	0.5	0.56	0.84	1.02	0.96	7	7	7	0.00	0.00	0.00	1.13	1.73	1.73	2.07	3.27	5.28	8.91	14.48	27.00	50.25	75.77	91.10	97.56	98.80	98.99	99.04	99.04	99.63
DCVC-21-04#2	-58	0.9	0.73	0.6	0.68	0.55	1.08	0.57	6	7	7	0.00	0.00	0.00	0.00	1.15	2.08	2.40	4.60	9.05	16.85	26.91	39.30	62.74	82.68	93.67	98.49	99.25	99.38	99.43	99.43	99.95
DCVC-21-04#3	-61.5	1.1	0.81	0.57	0.61	0.72	0.82	0.94	6	7	7	0.00	0.00	0.00	0.72	0.90	0.90	0.98	1.72	2.79	6.85	13.93	31.96	61.30	87.21	95.94	98.62	98.96	99.04	99.06	99.06	99.63
DCVC-21-04 Composite		6.4	0.92	0.53	0.58	0.78	1	0.6	7	7	7	0.00	0.00	0.00	0.90	1.51	1.64	1.93	3.19	5.38	9.67	16.13	29.58	53.91	78.71	92.29	97.87	98.89	99.05	99.10	99.10	99.68
DCVC-21-05#1	-57	4.1	1.47	0.36	0.37	1.44	0.58	0.8	6	7	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.36	1.81	5.06	18.35	51.97	85.98	97.07	98.87	99.14	99.20	99.20	99.98
DCVC-21-05#2	-59	1.6	1.18	0.44	0.46	1.12	0.74	0.93	6	7	7	0.00	0.00	0.00	0.00	0.04	0.08	0.10	0.38	1.11	2.77	6.51	16.22	38.22	70.98	88.35	97.97	98.95	99.05	99.07	99.07	99.74
DCVC-21-05#3	-62.7	0.9	1.71	0.31	0.33	1.61	0.81	1.12	3	7	7	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.22	0.52	1.74	4.17	8.16	19.06	39.68	64.73	89.32	96.80	98.32	98.70	98.88	99.90
DCVC-21-05 Composite		6.6	1.42	0.37	0.38	1.39	0.67	0.8	6	7	7	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.12	0.36	1.13	3.27	8.19	23.26	54.90	83.66	96.23	98.61	99.01	99.10	99.12	99.91


APPENDIX 4
2021 VIBRACORE GRAIN SIZE DISTRIBUTION CURVES AND
HISTOGRAMS
(DIGITAL COPY ONLY)



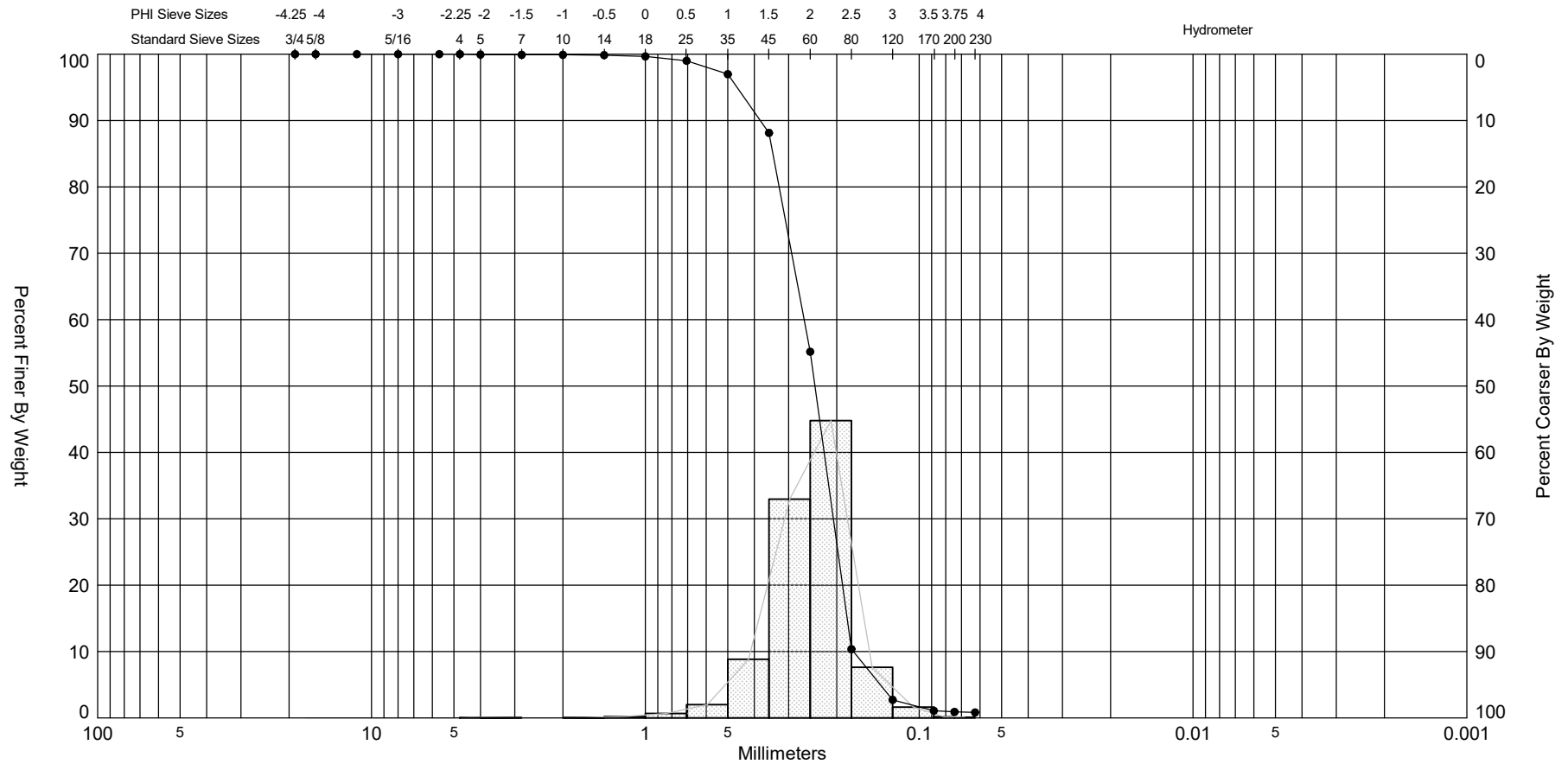
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-01 #1	—●—	-60.9	SP	#200 - 0.81 #230 - 0.73			2	1.93	-3.09	23.1	0.67	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering	
	4038 Masonboro Loop Road	
	Wilmington, NC 28409	
	Horizontal Datum:	NAD 1983
	Vertical Datum:	NAVD 88

DARE COUNTY 2021_VC.GPJ 7/2/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

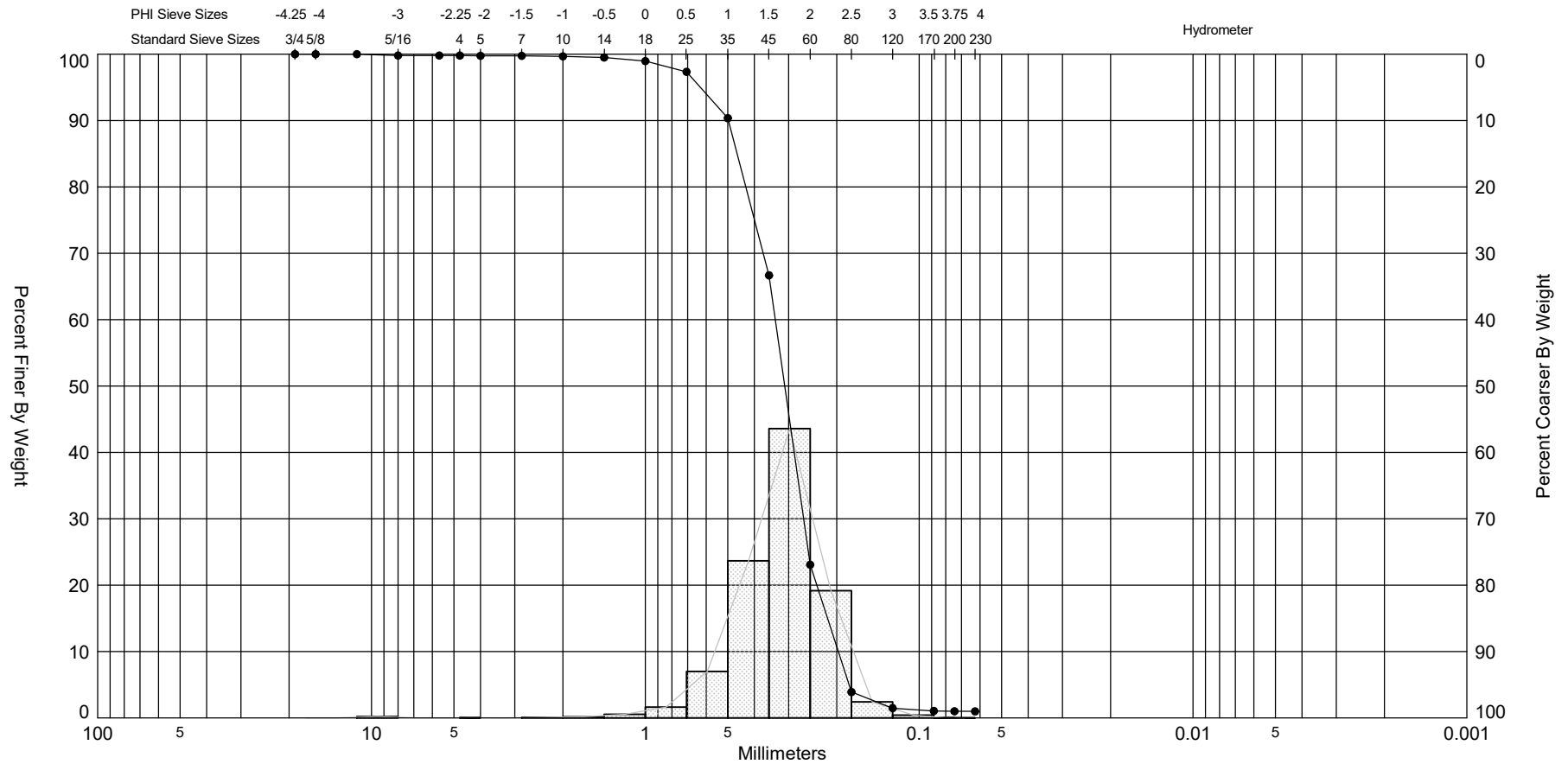
Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-01 #2	—●—	-63.3	SP	#200 - 0.90 #230 - 0.82			2.06	2	-1	8.64	0.51	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409


Easting (X, ft):	3,020,707
Northing (Y, ft):	851,201
Horizontal Datum:	NAD 1983
Vertical Datum:	NAVD 88



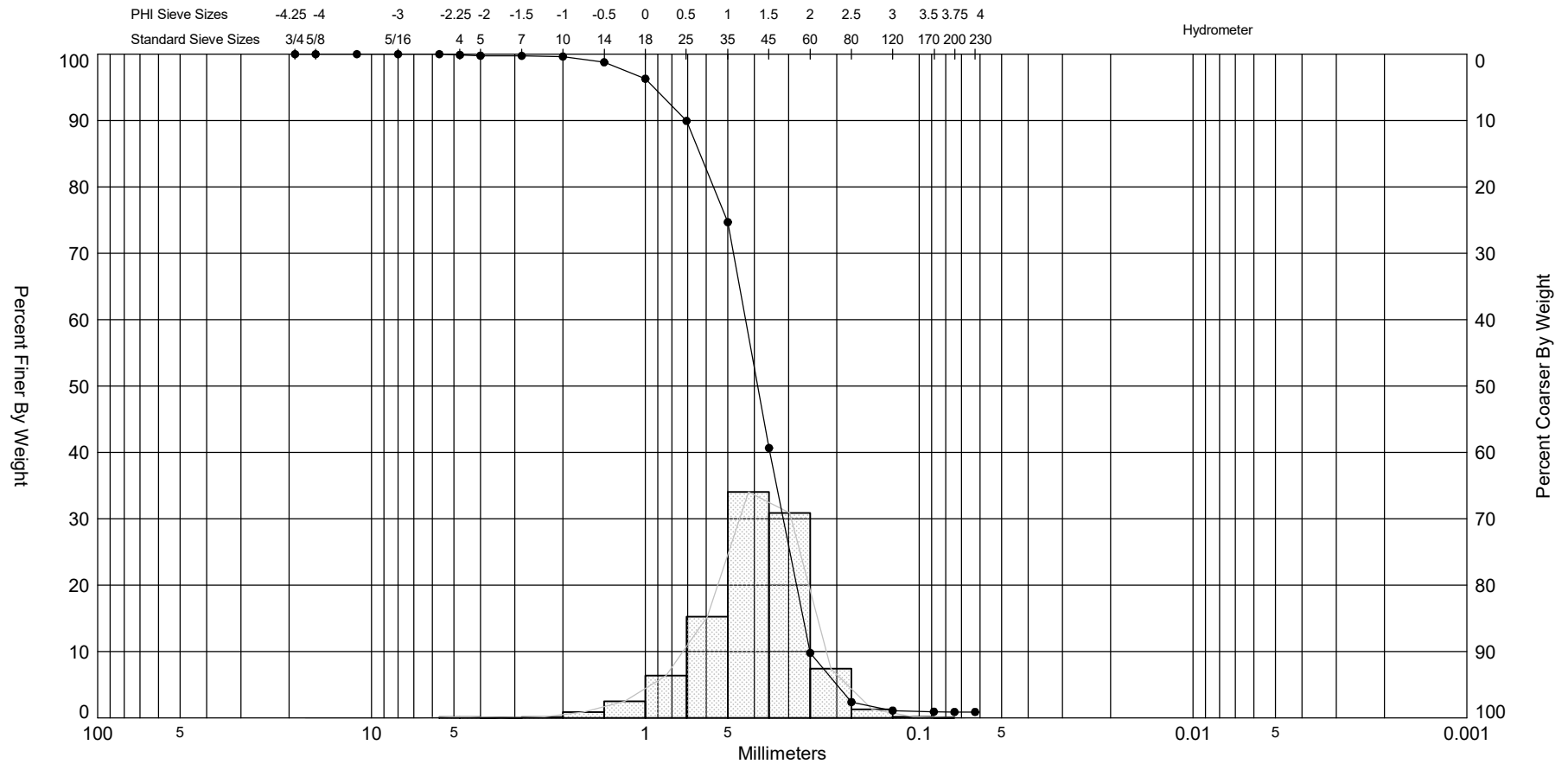
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-02 #1	—●—	-54.7	SP	#200 - 1.00 #230 - 0.98			1.69	1.63	-1.8	14.85	0.58	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering	
	4038 Masonboro Loop Road	
	Wilmington, NC 28409	
	Horizontal Datum:	NAD 1983
	Vertical Datum:	NAVD 88


DARE COUNTY 2021_VC.GPJ 7/2/21



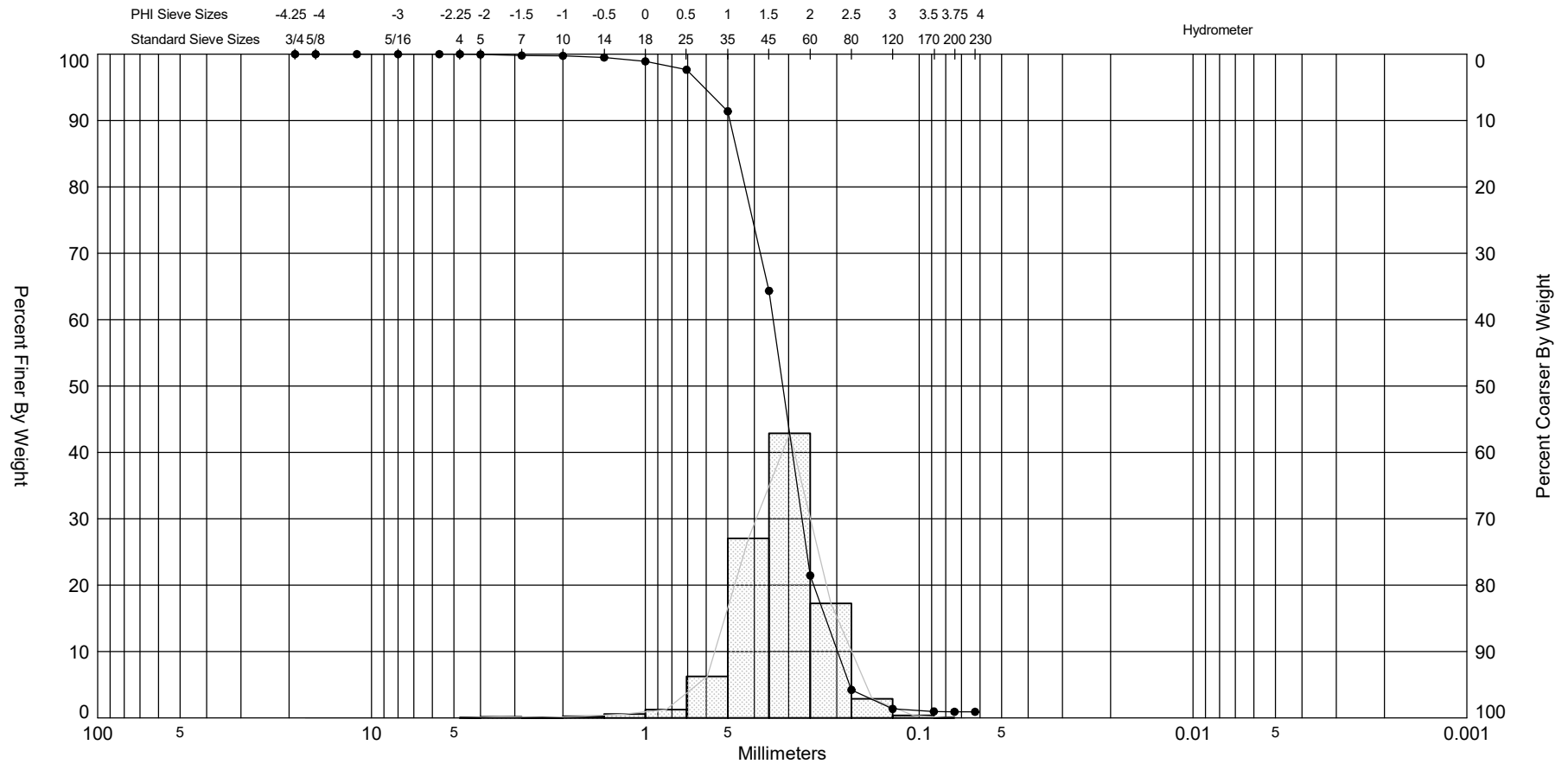
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-03 #1	—●—	-54.9	SP	#200 - 0.89 #230 - 0.89			1.36	1.3	-0.9	5.63	0.65	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409	Easting (X, ft):	3,020,238
		Northing (Y, ft):	846,347
		Horizontal Datum:	NAD 1983
		Vertical Datum:	NAVD 88


DARE COUNTY 2021_VC.GPJ 7/2/21



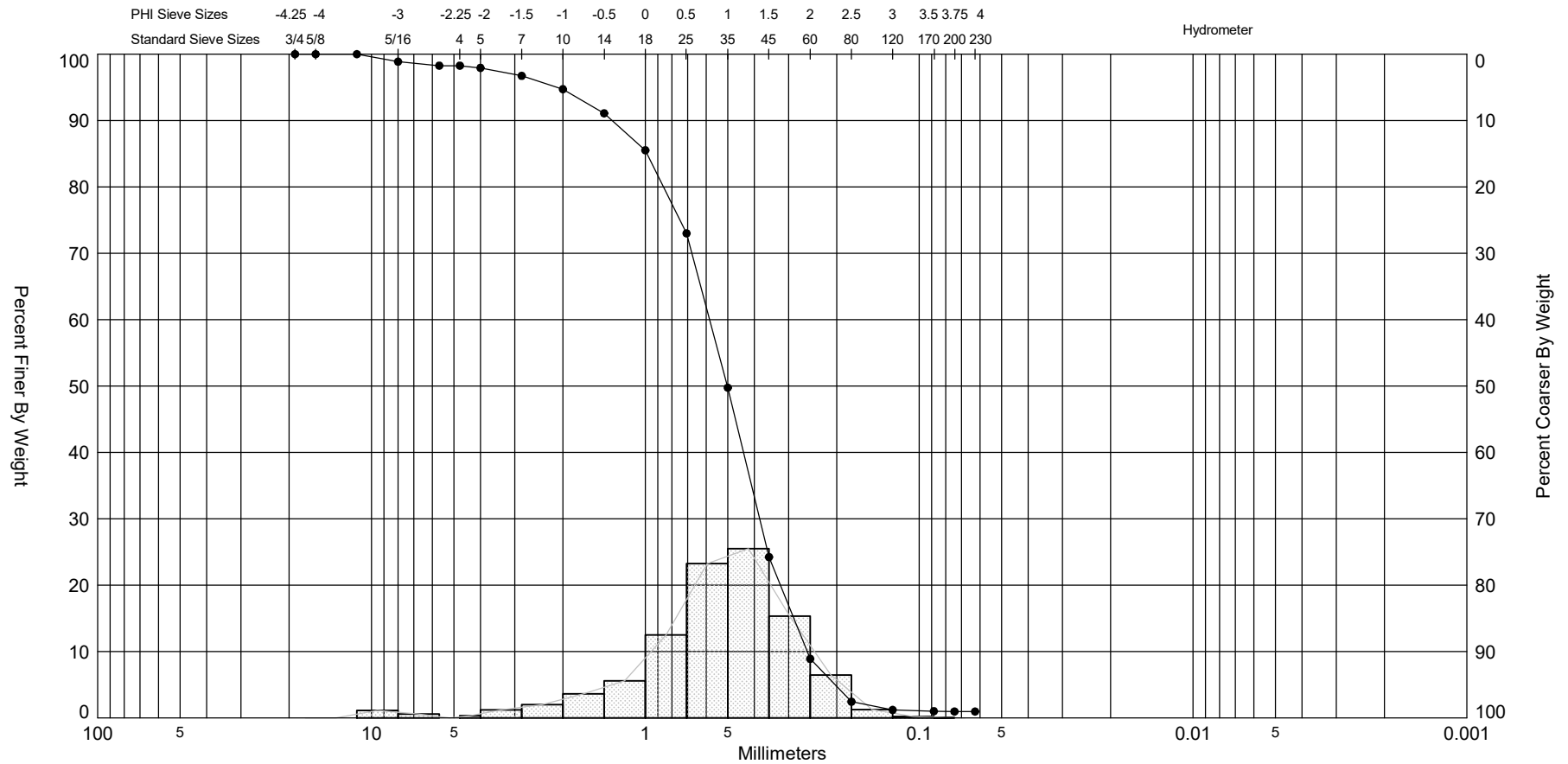
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-03 #2	—●—	-58.4	SP	#200 - 0.92 #230 - 0.92			1.67	1.63	-0.97	7.75	0.55	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering	
	4038 Masonboro Loop Road	
	Wilmington, NC 28409	
	Horizontal Datum:	NAD 1983
Vertical Datum:	NAVD 88	


DARE COUNTY 2021_VC.GPJ 7/2/21



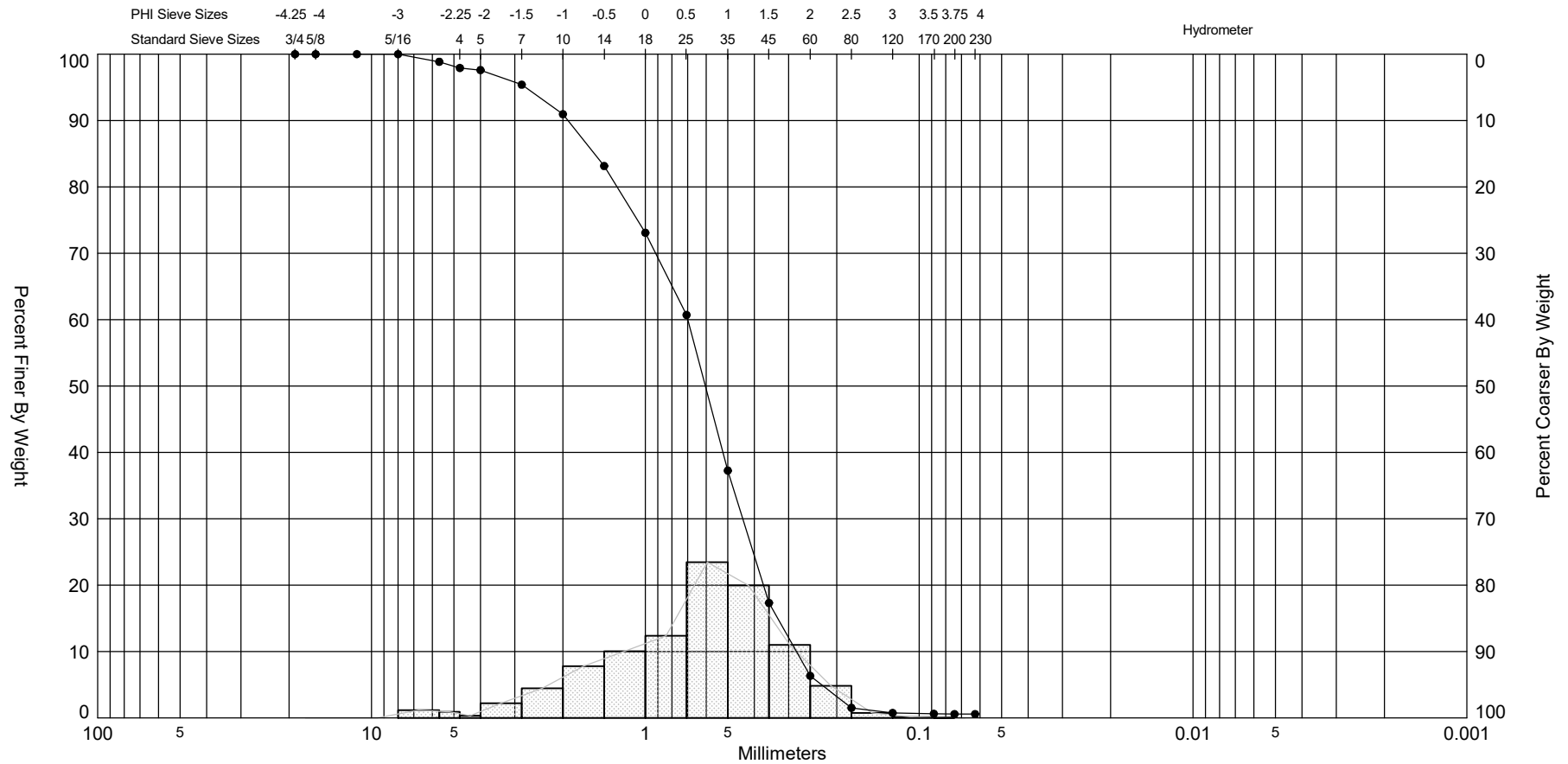
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-04 #1	—●—	-57.0	SW	#200 - 0.96 #230 - 0.96			0.99	0.84	-1.28	5.92	1.02	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering	
	4038 Masonboro Loop Road	
	Wilmington, NC 28409	
	Horizontal Datum:	NAD 1983
Vertical Datum:	NAVD 88	


DARE COUNTY 2021_VC.GPJ 7/2/21



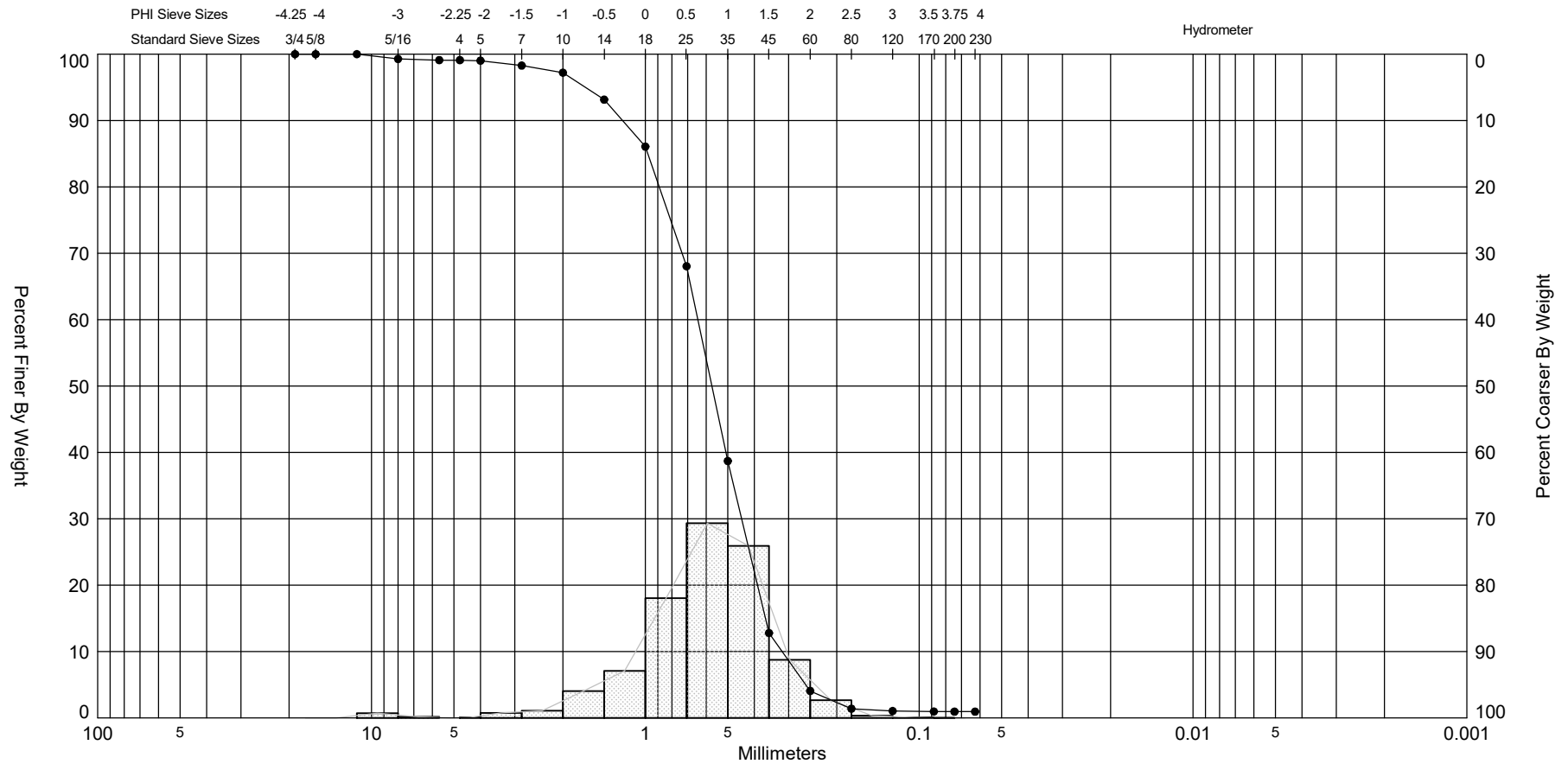
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-04 #2	—●—	-58.0	SW	#200 - 0.57 #230 - 0.57			0.73	0.55	-0.68	3.39	1.08	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering	
	4038 Masonboro Loop Road	
	Wilmington, NC 28409	
	Vertical Datum:	NAVD 88


DARE COUNTY 2021_VC.GPJ 7/2/21



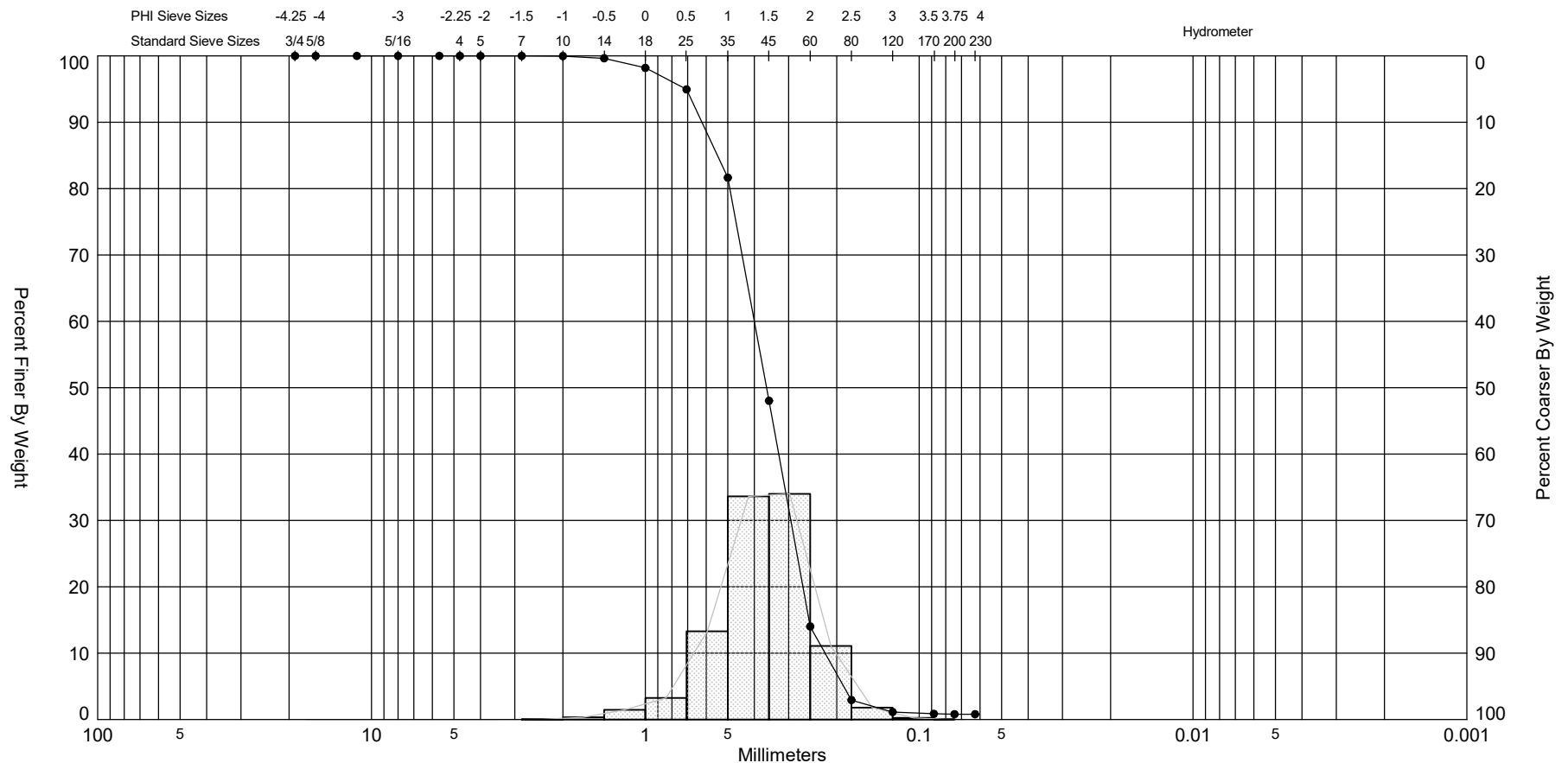
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-04 #3	—●—	-61.5	SP	#200 - 0.94 #230 - 0.94			0.81	0.72	-1.21	6.94	0.82	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering
	4038 Masonboro Loop Road
	Wilmington, NC 28409
Easting (X, ft):	3,018,286
Northing (Y, ft):	845,288
Horizontal Datum:	NAD 1983
Vertical Datum:	NAVD 88

DARE COUNTY 2021_VC.GPJ 7/2/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-05 #1	—●—	-57.0	SP	#200 - 0.80 #230 - 0.80			1.47	1.44	-0.41	4.14	0.58	Project Name:	2021 Borrow Area A - Supplemental Evaluation

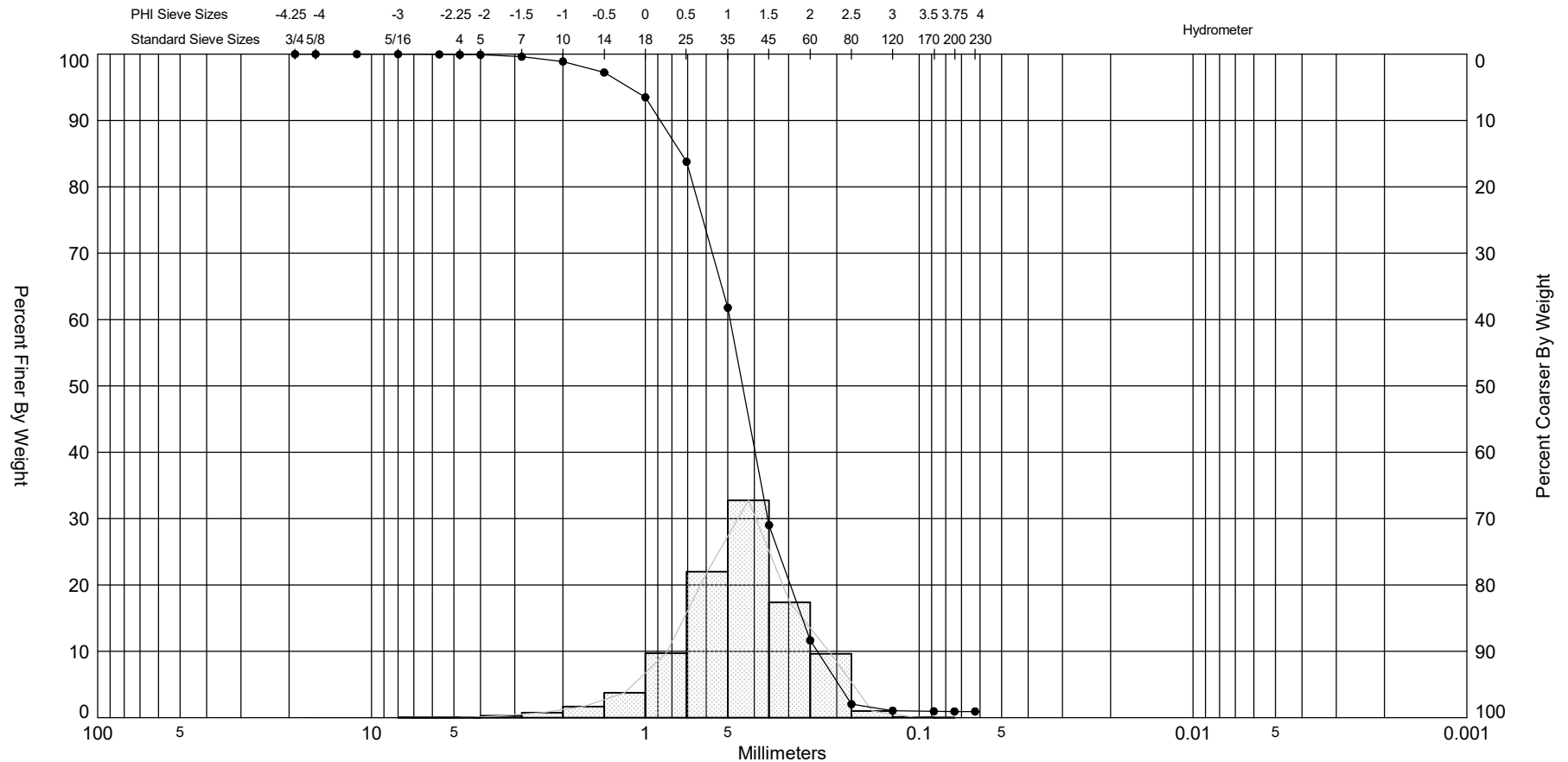
Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM




Coastal Protection Engineering
 4038 Masonboro Loop Road
 Wilmington, NC 28409

Easting (X, ft):	3,019,402
Northing (Y, ft):	843,833
Horizontal Datum:	NAD 1983
Vertical Datum:	NAVD 88

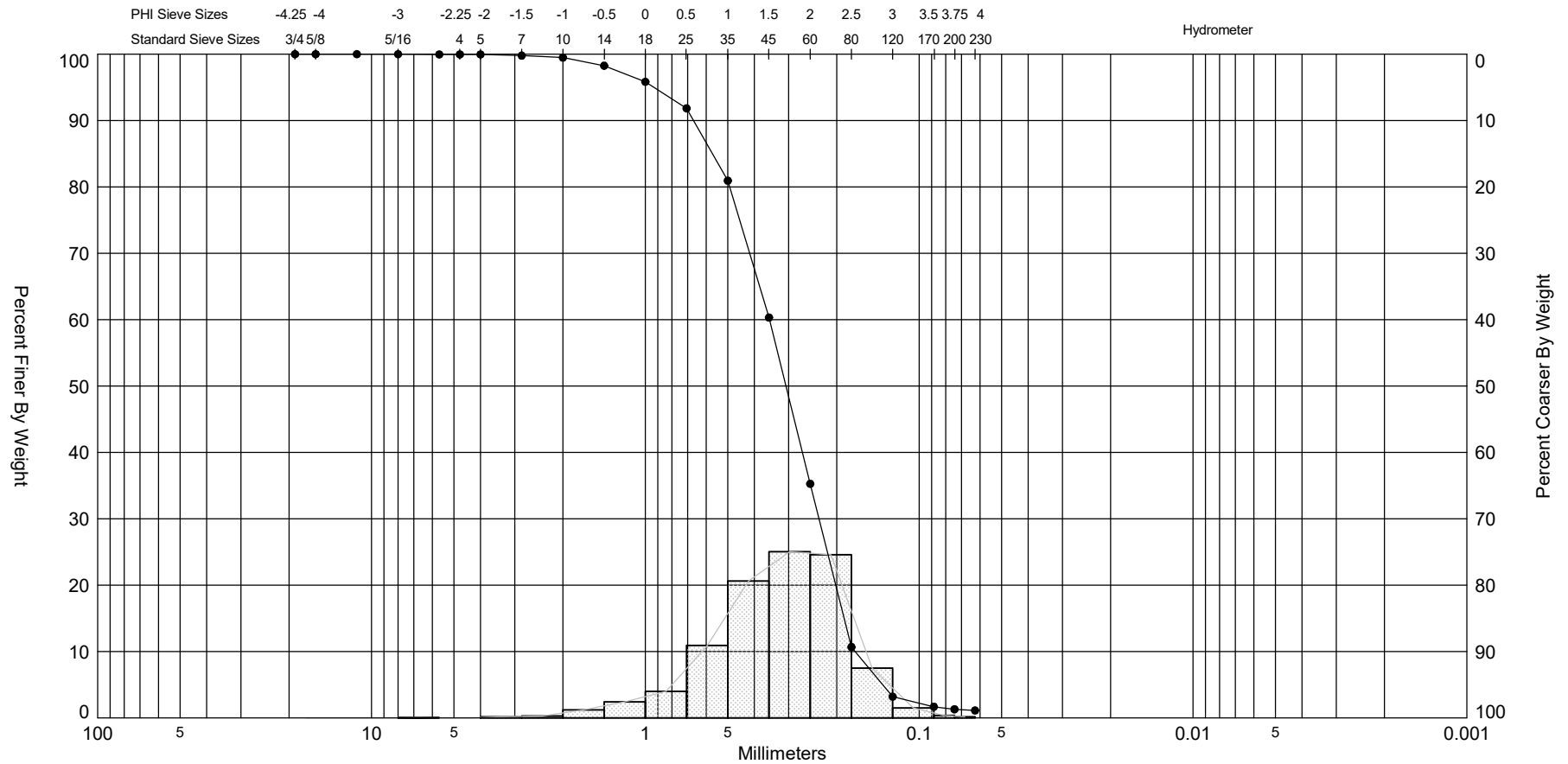
DARE COUNTY 2021_VC.GPJ 7/2/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-05 #2	—●—	-59.0	SP	#200 - 0.93 #230 - 0.93			1.18	1.12	-0.65	4.36	0.74	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments:												Analysis Date:	07-01-21
Depths and elevations based on measured values												Analyzed By:	FM
												Easting (X, ft):	3,019,402
												Northing (Y, ft):	843,833
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88
Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409													


DARE COUNTY 2021_VC.GPJ 7/2/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-05 #3	—●—	-62.7	SP	#200 - 1.30 #230 - 1.12			1.71	1.61	-0.71	4.26	0.81	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-01-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering	
	4038 Masonboro Loop Road	
	Wilmington, NC 28409	
	Vertical Datum:	NAVD 88

DARE COUNTY 2021_VC.GPJ 7/2/21

APPENDIX 5
2021 VIBRACORE GRANULARMETRIC REPORTS
(DIGITAL COPY ONLY)

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-01 #1

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,020,707	Northing (ft): 851,201	Coordinate System: North Carolina State Plane	Elevation (ft): -60.9 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-5/2 Dry - 5Y-7/1 Washed - 5Y-7/1	Comments:
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Dry Weight (g): 117.70	Wash Weight (g): 117.02	Pan Retained (g): 0.00	Sieve Loss (%): 0.12	Fines (%): #200 - 0.81 #230 - 0.73	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	0.53	0.45	0.53	0.45
3.5	-2.50	5.66	0.18	0.15	0.71	0.60
4	-2.25	4.76	0.00	0.00	0.71	0.60
5	-2.00	4.00	0.00	0.00	0.71	0.60
7	-1.50	2.83	0.16	0.14	0.87	0.74
10	-1.00	2.00	0.10	0.08	0.97	0.82
14	-0.50	1.41	0.17	0.14	1.14	0.96
18	0.00	1.00	0.43	0.37	1.57	1.33
25	0.50	0.71	0.85	0.72	2.42	2.05
35	1.00	0.50	2.83	2.40	5.25	4.45
45	1.50	0.35	11.01	9.35	16.26	13.80
60	2.00	0.25	42.41	36.03	58.67	49.83
80	2.50	0.18	46.26	39.30	104.93	89.13
120	3.00	0.13	9.84	8.36	114.77	97.49
170	3.50	0.09	1.70	1.44	116.47	98.93
200	3.75	0.07	0.31	0.26	116.78	99.19
230	4.00	0.06	0.10	0.08	116.88	99.27

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.43	2.32	2.00	1.66	1.53	1.03
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.93	0.26	0.67	-3.09	23.1	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-01 #2

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,020,707	Northing (ft): 851,201	Coordinate System: North Carolina State Plane	Elevation (ft): -63.3 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-5/2 Dry - 5Y-7/1 Washed - 5Y-7/1	Comments:
--------------------	---	-----------

Dry Weight (g): 109.45	Wash Weight (g): 108.56	Pan Retained (g): 0.00	Sieve Loss (%): 0.01	Fines (%): #200 - 0.90 #230 - 0.82	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	0.08	0.07	0.08	0.07
7	-1.50	2.83	0.03	0.03	0.11	0.10
10	-1.00	2.00	0.00	0.00	0.11	0.10
14	-0.50	1.41	0.05	0.05	0.16	0.15
18	0.00	1.00	0.21	0.19	0.37	0.34
25	0.50	0.71	0.72	0.66	1.09	1.00
35	1.00	0.50	2.21	2.02	3.30	3.02
45	1.50	0.35	9.67	8.84	12.97	11.86
60	2.00	0.25	36.09	32.97	49.06	44.83
80	2.50	0.18	49.05	44.81	98.11	89.64
120	3.00	0.13	8.36	7.64	106.47	97.28
170	3.50	0.09	1.79	1.64	108.26	98.92
200	3.75	0.07	0.20	0.18	108.46	99.10
230	4.00	0.06	0.09	0.08	108.55	99.18

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.44	2.34	2.06	1.70	1.56	1.11
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	2	0.25	0.51	-1	8.64	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-02 #1

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,019,453	Northing (ft): 849,384	Coordinate System: North Carolina State Plane	Elevation (ft): -54.7 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 121.40	Wash Weight (g): 120.25	Pan Retained (g): 0.00	Sieve Loss (%): 0.02	Fines (%): #200 - 1.00 #230 - 0.98	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	0.26	0.21	0.26	0.21
3.5	-2.50	5.66	0.00	0.00	0.26	0.21
4	-2.25	4.76	0.00	0.00	0.26	0.21
5	-2.00	4.00	0.05	0.04	0.31	0.25
7	-1.50	2.83	0.00	0.00	0.31	0.25
10	-1.00	2.00	0.10	0.08	0.41	0.33
14	-0.50	1.41	0.21	0.17	0.62	0.50
18	0.00	1.00	0.66	0.54	1.28	1.04
25	0.50	0.71	1.97	1.62	3.25	2.66
35	1.00	0.50	8.47	6.98	11.72	9.64
45	1.50	0.35	28.75	23.68	40.47	33.32
60	2.00	0.25	52.93	43.60	93.40	76.92
80	2.50	0.18	23.28	19.18	116.68	96.10
120	3.00	0.13	2.95	2.43	119.63	98.53
170	3.50	0.09	0.51	0.42	120.14	98.95
200	3.75	0.07	0.06	0.05	120.20	99.00
230	4.00	0.06	0.03	0.02	120.23	99.02

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	2.18	1.98	1.69	1.32	1.13	0.67
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.63	0.32	0.58	-1.8	14.85	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-03 #1

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,020,238	Northing (ft): 846,347	Coordinate System: North Carolina State Plane	Elevation (ft): -54.9 NAVD 88
-----------------------------------	----------------------------------	---	---

USCS: SP	Munsell: Wet - 5Y-7/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
--------------------	---	-----------

Dry Weight (g): 108.73	Wash Weight (g): 108.07	Pan Retained (g): 0.00	Sieve Loss (%): 0.29	Fines (%): #200 - 0.89 #230 - 0.89	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	0.13	0.12	0.13	0.12
5	-2.00	4.00	0.12	0.11	0.25	0.23
7	-1.50	2.83	0.02	0.02	0.27	0.25
10	-1.00	2.00	0.12	0.11	0.39	0.36
14	-0.50	1.41	0.94	0.86	1.33	1.22
18	0.00	1.00	2.70	2.48	4.03	3.70
25	0.50	0.71	6.91	6.36	10.94	10.06
35	1.00	0.50	16.58	15.25	27.52	25.31
45	1.50	0.35	37.00	34.03	64.52	59.34
60	2.00	0.25	33.57	30.87	98.09	90.21
80	2.50	0.18	8.06	7.41	106.15	97.62
120	3.00	0.13	1.39	1.28	107.54	98.90
170	3.50	0.09	0.18	0.17	107.72	99.07
200	3.75	0.07	0.04	0.04	107.76	99.11
230	4.00	0.06	0.00	0.00	107.76	99.11

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.32	1.90	1.75	1.36	0.99	0.69	0.10
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.3	0.41	0.65	-0.9	5.63	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-03 #2

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,020,238	Northing (ft): 846,347	Coordinate System: North Carolina State Plane	Elevation (ft): -58.4 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 109.26	Wash Weight (g): 108.38	Pan Retained (g): 0.00	Sieve Loss (%): 0.12	Fines (%): #200 - 0.92 #230 - 0.92	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	0.06	0.05	0.06	0.05
7	-1.50	2.83	0.17	0.16	0.23	0.21
10	-1.00	2.00	0.04	0.04	0.27	0.25
14	-0.50	1.41	0.27	0.25	0.54	0.50
18	0.00	1.00	0.63	0.58	1.17	1.08
25	0.50	0.71	1.39	1.27	2.56	2.35
35	1.00	0.50	6.84	6.26	9.40	8.61
45	1.50	0.35	29.55	27.05	38.95	35.66
60	2.00	0.25	46.86	42.89	85.81	78.55
80	2.50	0.18	18.83	17.23	104.64	95.78
120	3.00	0.13	3.13	2.86	107.77	98.64
170	3.50	0.09	0.43	0.39	108.20	99.03
200	3.75	0.07	0.05	0.05	108.25	99.08
230	4.00	0.06	0.00	0.00	108.25	99.08

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.48	2.16	1.96	1.67	1.30	1.14	0.71
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.63	0.32	0.55	-0.97	7.75	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-04 #1

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,018,286	Northing (ft): 845,288	Coordinate System: North Carolina State Plane	Elevation (ft): -57.0 NAVD 88
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USCS: SW	Munsell: Wet - 5Y-7/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 117.65	Wash Weight (g): 116.95	Pan Retained (g): 0.00	Sieve Loss (%): 0.37	Fines (%): #200 - 0.96 #230 - 0.96	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	1.33	1.13	1.33	1.13
3.5	-2.50	5.66	0.71	0.60	2.04	1.73
4	-2.25	4.76	0.00	0.00	2.04	1.73
5	-2.00	4.00	0.40	0.34	2.44	2.07
7	-1.50	2.83	1.41	1.20	3.85	3.27
10	-1.00	2.00	2.37	2.01	6.22	5.28
14	-0.50	1.41	4.27	3.63	10.49	8.91
18	0.00	1.00	6.55	5.57	17.04	14.48
25	0.50	0.71	14.73	12.52	31.77	27.00
35	1.00	0.50	27.35	23.25	59.12	50.25
45	1.50	0.35	30.03	25.52	89.15	75.77
60	2.00	0.25	18.03	15.33	107.18	91.10
80	2.50	0.18	7.60	6.46	114.78	97.56
120	3.00	0.13	1.46	1.24	116.24	98.80
170	3.50	0.09	0.22	0.19	116.46	98.99
200	3.75	0.07	0.06	0.05	116.52	99.04
230	4.00	0.06	0.00	0.00	116.52	99.04

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.30	1.77	1.48	0.99	0.42	0.06	-1.07
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	0.84	0.56	1.02	-1.28	5.92	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-04 #2

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,018,286	Northing (ft): 845,288	Coordinate System: North Carolina State Plane	Elevation (ft): -58.0 NAVD 88
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USCS: SW	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 116.66	Wash Weight (g): 116.05	Pan Retained (g): 0.00	Sieve Loss (%): 0.05	Fines (%): #200 - 0.57 #230 - 0.57	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	1.34	1.15	1.34	1.15
4	-2.25	4.76	1.08	0.93	2.42	2.08
5	-2.00	4.00	0.37	0.32	2.79	2.40
7	-1.50	2.83	2.57	2.20	5.36	4.60
10	-1.00	2.00	5.19	4.45	10.55	9.05
14	-0.50	1.41	9.10	7.80	19.65	16.85
18	0.00	1.00	11.74	10.06	31.39	26.91
25	0.50	0.71	14.46	12.39	45.85	39.30
35	1.00	0.50	27.34	23.44	73.19	62.74
45	1.50	0.35	23.26	19.94	96.45	82.68
60	2.00	0.25	12.82	10.99	109.27	93.67
80	2.50	0.18	5.62	4.82	114.89	98.49
120	3.00	0.13	0.89	0.76	115.78	99.25
170	3.50	0.09	0.15	0.13	115.93	99.38
200	3.75	0.07	0.06	0.05	115.99	99.43
230	4.00	0.06	0.00	0.00	115.99	99.43

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.14	1.56	1.31	0.73	-0.09	-0.55	-1.46
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	0.55	0.68	1.08	-0.68	3.39	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-04 #3

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,018,286	Northing (ft): 845,288	Coordinate System: North Carolina State Plane	Elevation (ft): -61.5 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/3 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 118.16	Wash Weight (g): 117.47	Pan Retained (g): 0.00	Sieve Loss (%): 0.37	Fines (%): #200 - 0.94 #230 - 0.94	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	0.85	0.72	0.85	0.72
3.5	-2.50	5.66	0.21	0.18	1.06	0.90
4	-2.25	4.76	0.00	0.00	1.06	0.90
5	-2.00	4.00	0.09	0.08	1.15	0.98
7	-1.50	2.83	0.88	0.74	2.03	1.72
10	-1.00	2.00	1.26	1.07	3.29	2.79
14	-0.50	1.41	4.80	4.06	8.09	6.85
18	0.00	1.00	8.36	7.08	16.45	13.93
25	0.50	0.71	21.30	18.03	37.75	31.96
35	1.00	0.50	34.67	29.34	72.42	61.30
45	1.50	0.35	30.61	25.91	103.03	87.21
60	2.00	0.25	10.31	8.73	113.34	95.94
80	2.50	0.18	3.17	2.68	116.51	98.62
120	3.00	0.13	0.40	0.34	116.91	98.96
170	3.50	0.09	0.10	0.08	117.01	99.04
200	3.75	0.07	0.02	0.02	117.03	99.06
230	4.00	0.06	0.00	0.00	117.03	99.06

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
1.95	1.44	1.26	0.81	0.31	0.06	-0.73
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	0.72	0.61	0.82	-1.21	6.94	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-05 #1

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,019,402	Northing (ft): 843,833	Coordinate System: North Carolina State Plane	Elevation (ft): -57.0 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 102.41	Wash Weight (g): 101.61	Pan Retained (g): 0.00	Sieve Loss (%): 0.02	Fines (%): #200 - 0.80 #230 - 0.80	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	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.03	0.03	0.03	0.03
14	-0.50	1.41	0.34	0.33	0.37	0.36
18	0.00	1.00	1.48	1.45	1.85	1.81
25	0.50	0.71	3.33	3.25	5.18	5.06
35	1.00	0.50	13.61	13.29	18.79	18.35
45	1.50	0.35	34.43	33.62	53.22	51.97
60	2.00	0.25	34.83	34.01	88.05	85.98
80	2.50	0.18	11.36	11.09	99.41	97.07
120	3.00	0.13	1.84	1.80	101.25	98.87
170	3.50	0.09	0.28	0.27	101.53	99.14
200	3.75	0.07	0.06	0.06	101.59	99.20
230	4.00	0.06	0.00	0.00	101.59	99.20

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.41	1.97	1.84	1.47	1.10	0.91	0.49
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.44	0.37	0.58	-0.41	4.14	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-05 #2

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,019,402	Northing (ft): 843,833	Coordinate System: North Carolina State Plane	Elevation (ft): -59.0 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 123.94	Wash Weight (g): 123.14	Pan Retained (g): 0.00	Sieve Loss (%): 0.26	Fines (%): #200 - 0.93 #230 - 0.93	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	0.05	0.04	0.05	0.04
4	-2.25	4.76	0.05	0.04	0.10	0.08
5	-2.00	4.00	0.03	0.02	0.13	0.10
7	-1.50	2.83	0.35	0.28	0.48	0.38
10	-1.00	2.00	0.91	0.73	1.39	1.11
14	-0.50	1.41	2.06	1.66	3.45	2.77
18	0.00	1.00	4.64	3.74	8.09	6.51
25	0.50	0.71	12.04	9.71	20.13	16.22
35	1.00	0.50	27.27	22.00	47.40	38.22
45	1.50	0.35	40.60	32.76	88.00	70.98
60	2.00	0.25	21.53	17.37	109.53	88.35
80	2.50	0.18	11.92	9.62	121.45	97.97
120	3.00	0.13	1.22	0.98	122.67	98.95
170	3.50	0.09	0.12	0.10	122.79	99.05
200	3.75	0.07	0.03	0.02	122.82	99.07
230	4.00	0.06	0.00	0.00	122.82	99.07

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.35	1.87	1.62	1.18	0.70	0.49	-0.20
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.12	0.46	0.74	-0.65	4.36	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-05 #3

Analysis Date: 07-01-21

Analyzed By: FM

Easting (ft): 3,019,402	Northing (ft): 843,833	Coordinate System: North Carolina State Plane	Elevation (ft): -62.7 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-2.5/1 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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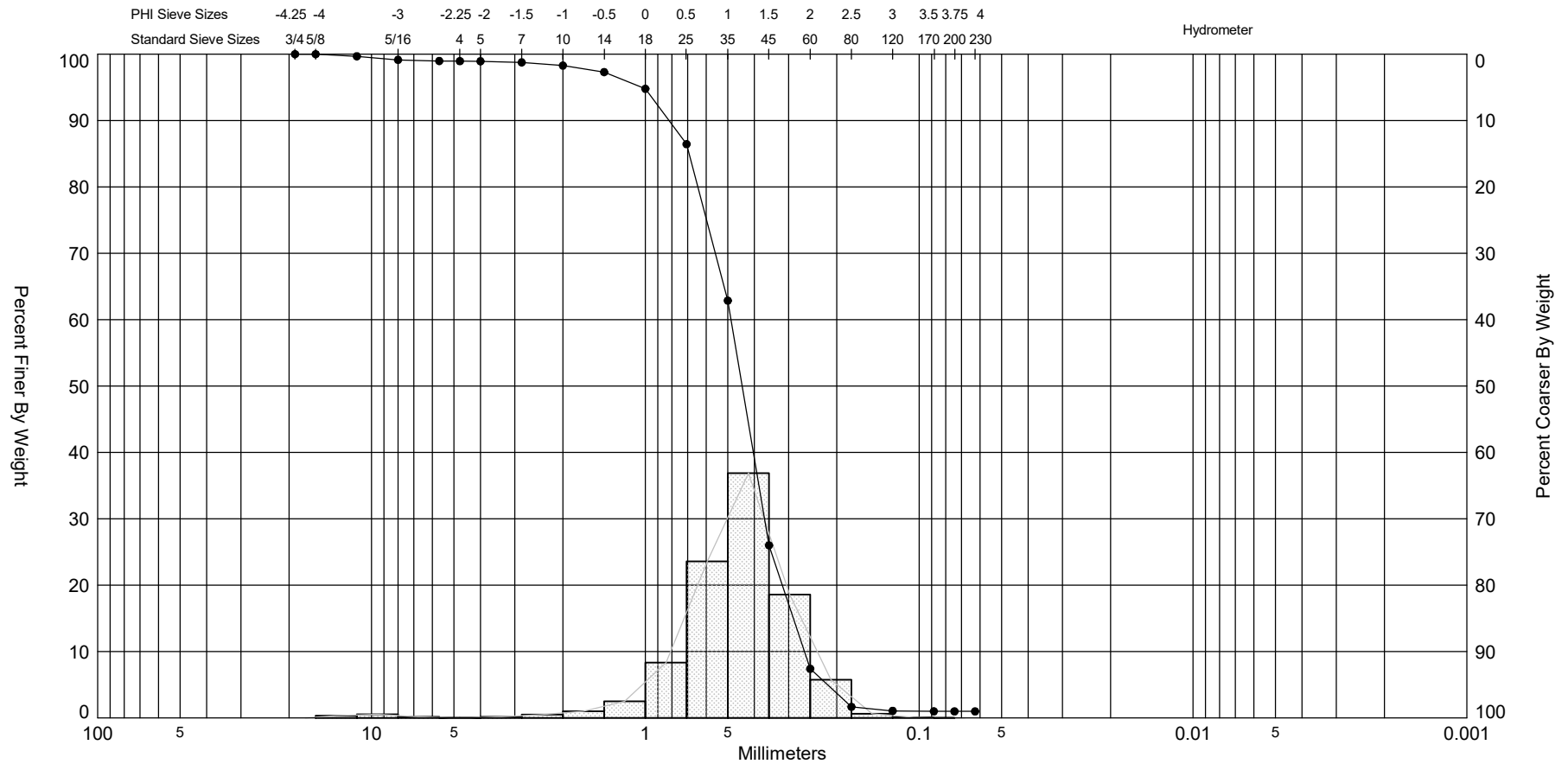
Dry Weight (g): 115.58	Wash Weight (g): 114.41	Pan Retained (g): 0.00	Sieve Loss (%): 0.10	Fines (%): #200 - 1.30 #230 - 1.12	Organics (%):	Carbonates (%):	Shell Hash (%):
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Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight 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	0.05	0.04	0.05	0.04
4	-2.25	4.76	0.00	0.00	0.05	0.04
5	-2.00	4.00	0.00	0.00	0.05	0.04
7	-1.50	2.83	0.21	0.18	0.26	0.22
10	-1.00	2.00	0.35	0.30	0.61	0.52
14	-0.50	1.41	1.41	1.22	2.02	1.74
18	0.00	1.00	2.81	2.43	4.83	4.17
25	0.50	0.71	4.61	3.99	9.44	8.16
35	1.00	0.50	12.60	10.90	22.04	19.06
45	1.50	0.35	23.83	20.62	45.87	39.68
60	2.00	0.25	28.95	25.05	74.82	64.73
80	2.50	0.18	28.42	24.59	103.24	89.32
120	3.00	0.13	8.64	7.48	111.88	96.80
170	3.50	0.09	1.76	1.52	113.64	98.32
200	3.75	0.07	0.44	0.38	114.08	98.70
230	4.00	0.06	0.21	0.18	114.29	98.88


Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.39	2.21	1.71	1.14	0.86	0.10
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.61	0.33	0.81	-0.71	4.26	

DARE COUNTY 2021_VC.GPJ 7/2/21

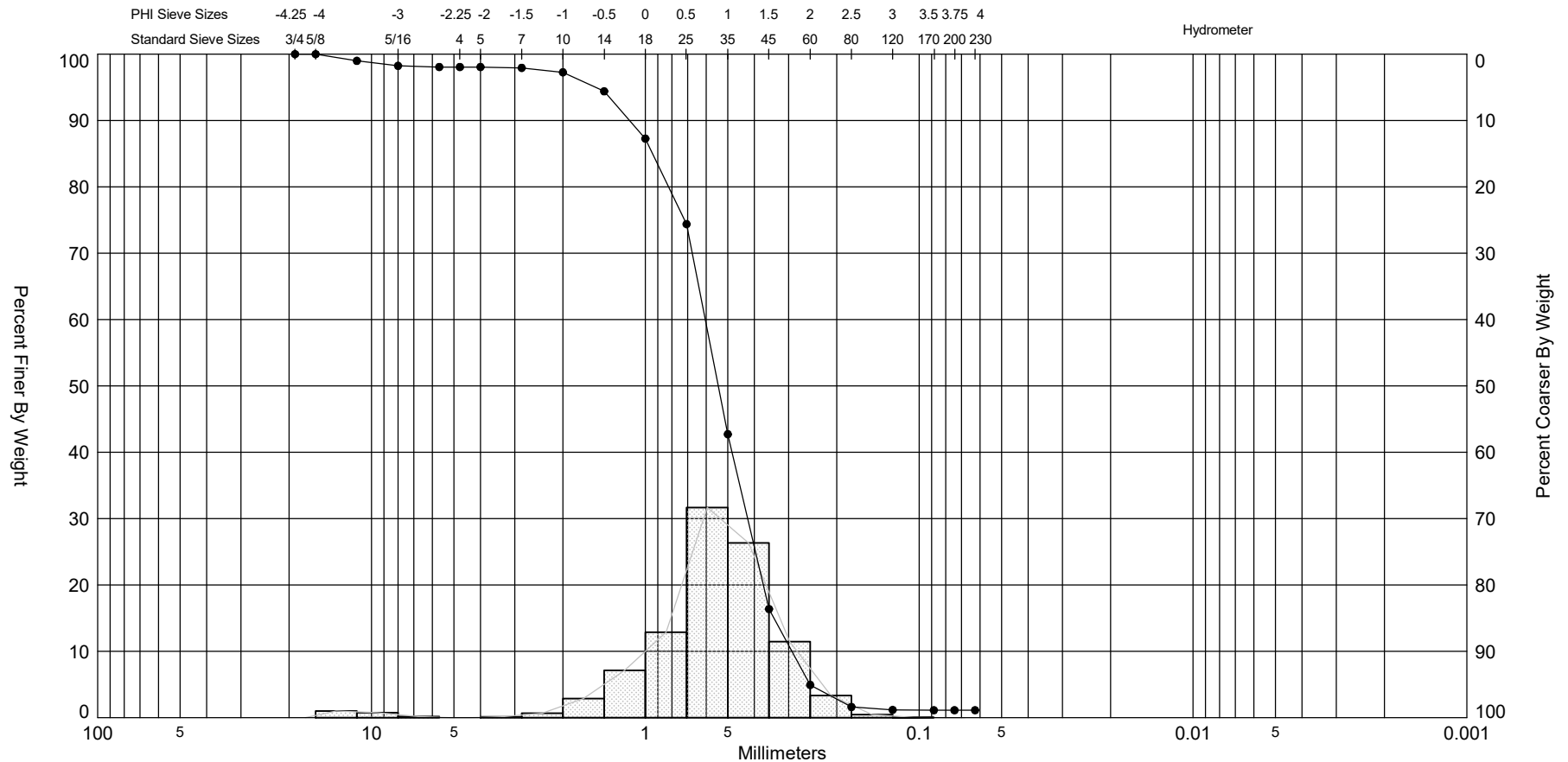
APPENDIX 6
2021 GRAB SAMPLE GRAIN SIZE DISTRIBUTION CURVES
AND HISTOGRAMS
(DIGITAL COPY ONLY)



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-02	—●—	-56.1	SP	#200 - 0.98 #230 - 0.98			1.17	1.09	-2.16	13.17	0.78	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments:												Analysis Date:	07-02-21
Depths and elevations based on measured values												Analyzed By:	FM
												Easting (X, ft):	3,019,885
												Northing (Y, ft):	841,618
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88
Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409													

DARE COUNTY 2021_VC.GPJ 7/2/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

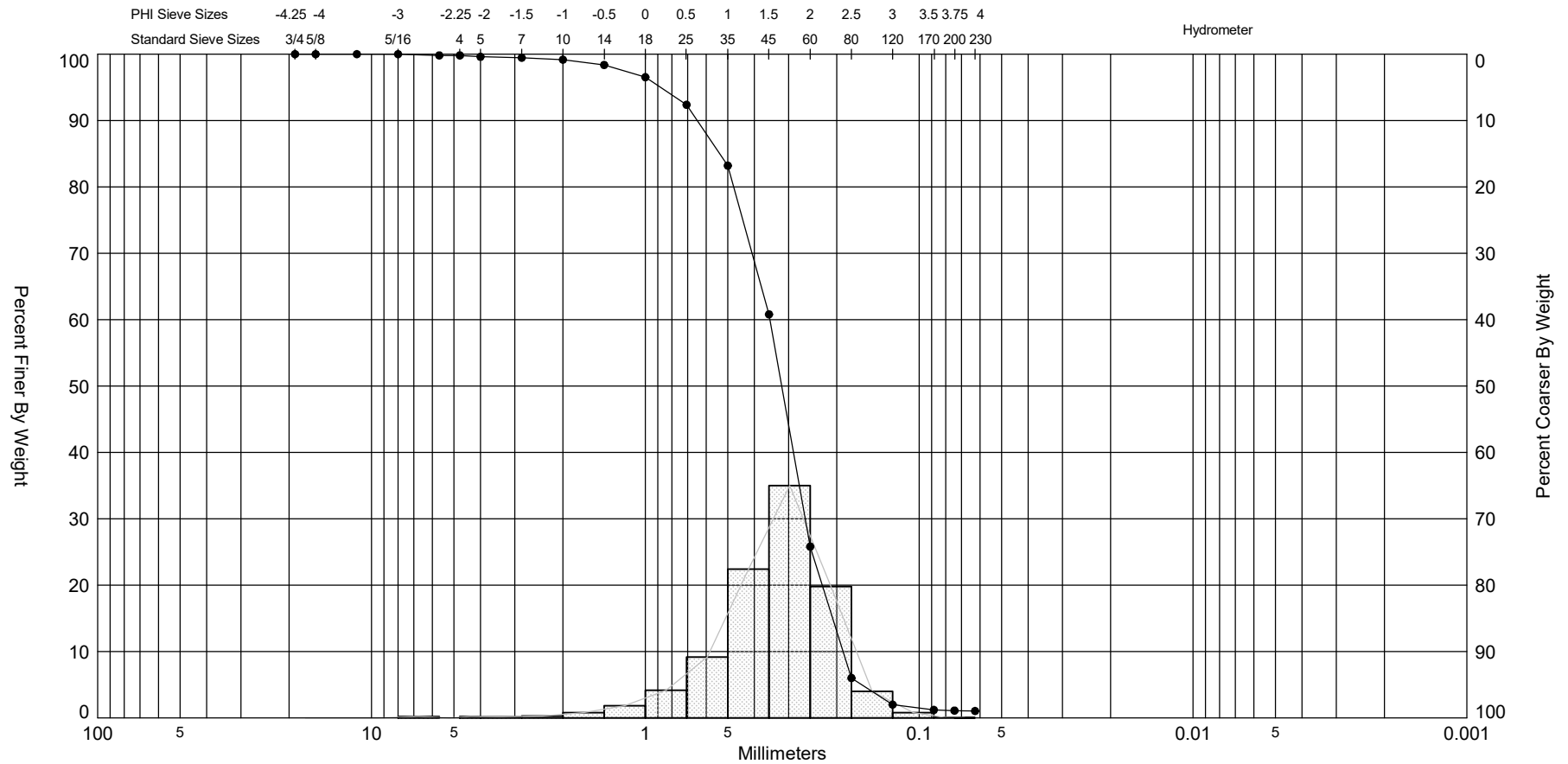
Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-06	—●—	-55.9	SW	#200 - 1.12 #230 - 1.12			0.89	0.78	-2	10.58	0.91	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-02-21
Depths and elevations based on measured values	Analyzed By:	FM



Coastal Protection Engineering
 4038 Masonboro Loop Road
 Wilmington, NC 28409


Easting (X, ft):	3,019,425
Northing (Y, ft):	849,130
Horizontal Datum:	NAD 1983
Vertical Datum:	NAVD 88



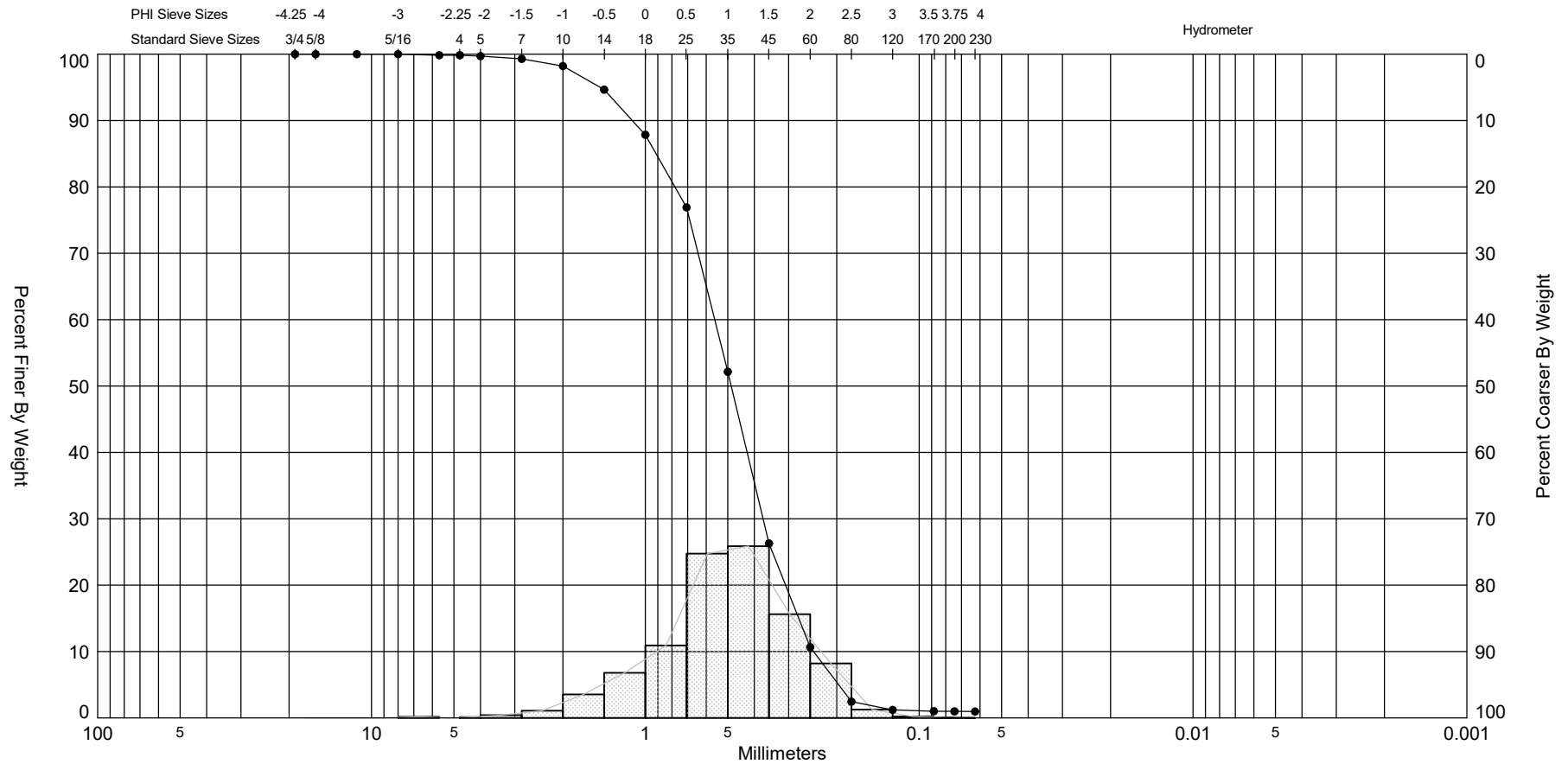
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-11	—●—	-59.5	SP	#200 - 1.10 #230 - 1.04			1.65	1.55	-1.26	7.06	0.75	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-02-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409		Easting (X, ft):	3,018,264
			Northing (Y, ft):	852,081
			Horizontal Datum:	NAD 1983
			Vertical Datum:	NAVD 88


DARE COUNTY 2021_VC.GPJ 7/2/21



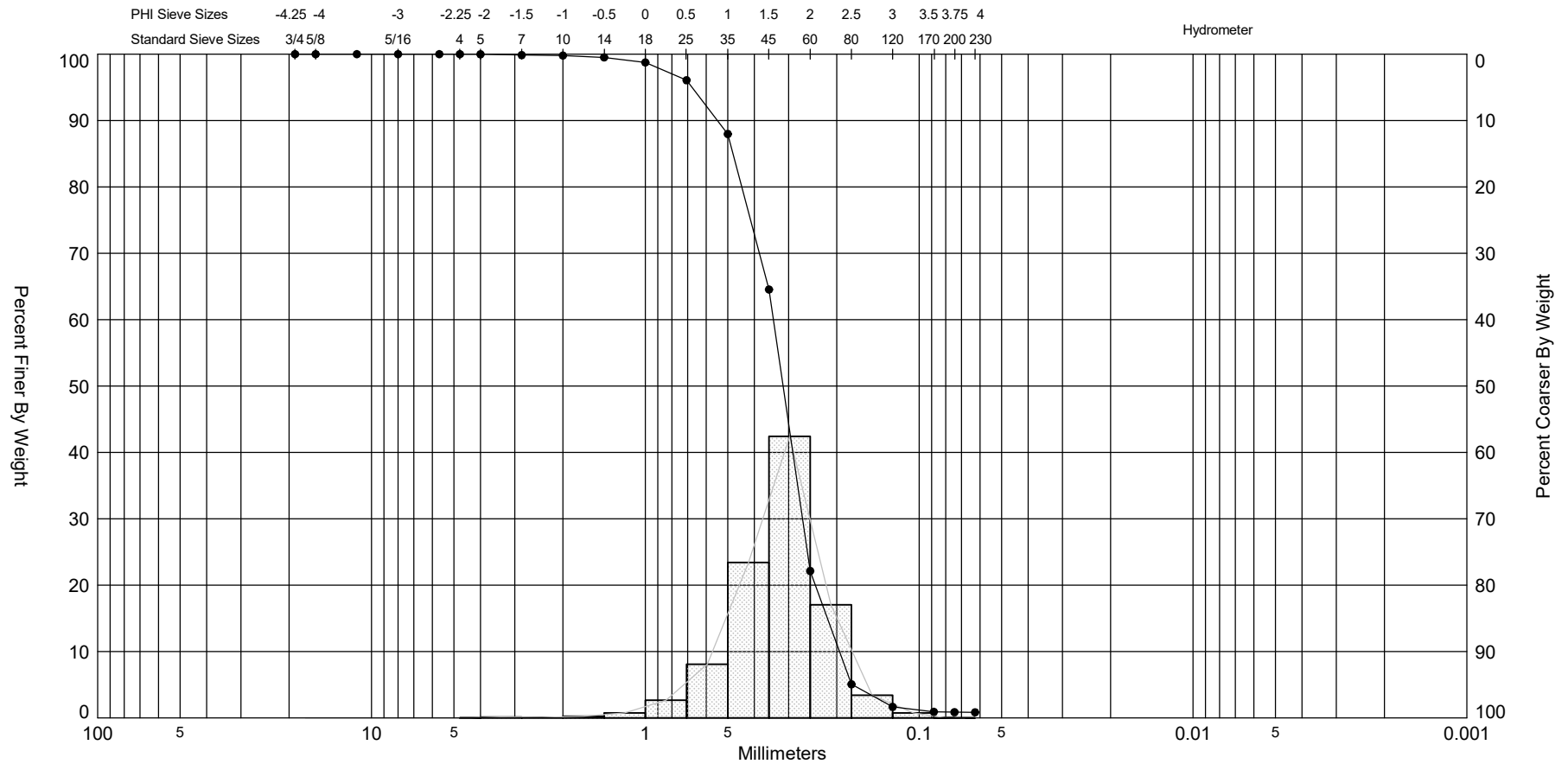
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-37	—●—	-58.5	SP	#200 - 0.98 #230 - 0.96			1.04	0.97	-0.56	3.88	0.84	Project Name:	2021 Borrow Area A - Supplemental Evaluation


Comments:	Analysis Date:	07-02-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering	
	4038 Masonboro Loop Road	
	Wilmington, NC 28409	
	Horizontal Datum:	NAD 1983
	Vertical Datum:	NAVD 88

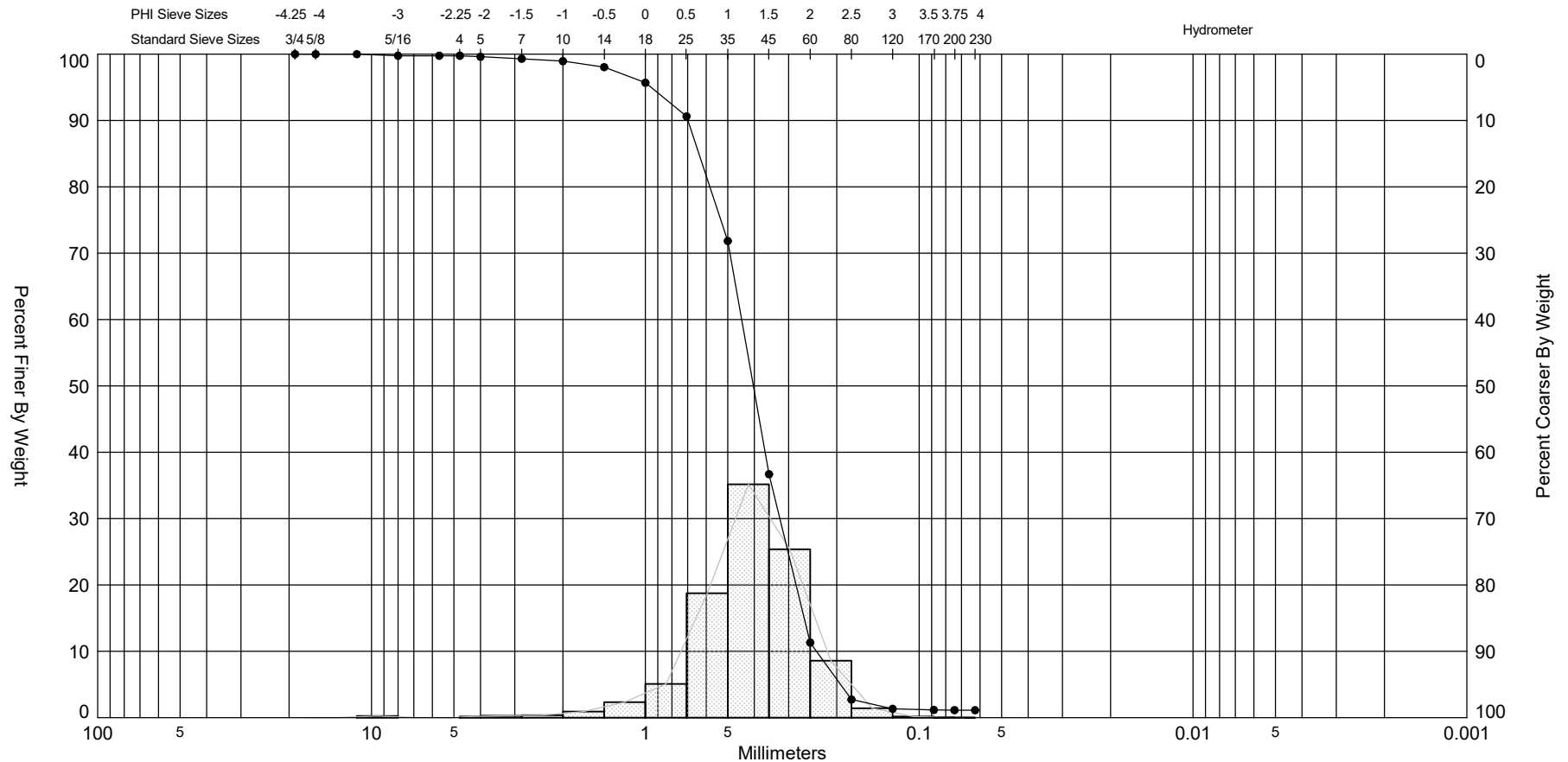
DARE COUNTY 2021_VC.GPJ 7/2/21




Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-39	—●—	-51.5	SP	#200 - 0.86 #230 - 0.84			1.67	1.61	-0.75	5.81	0.59	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments:												Analysis Date:	07-02-21
Depths and elevations based on measured values												Analyzed By:	FM
							Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409					Easting (X, ft):	3,021,518
												Northing (Y, ft):	848,317
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88

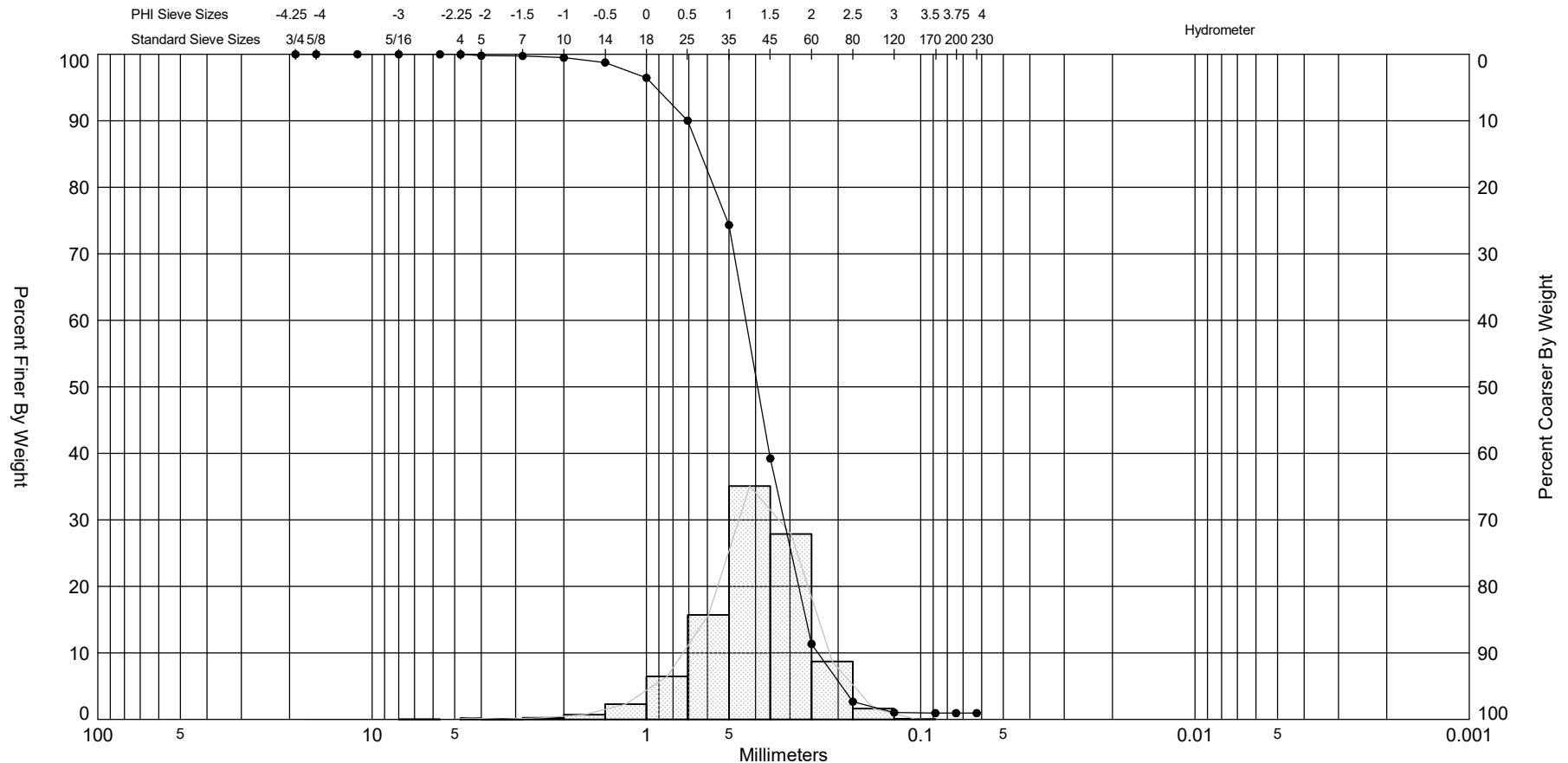
DARE COUNTY 2021_VC.GPJ 7/2/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-49	—●—	-58.6	SP	#200 - 1.13 #230 - 1.12			1.31	1.26	-1.34	8.64	0.71	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments:												Analysis Date:	07-02-21
Depths and elevations based on measured values												Analyzed By:	FM
												Easting (X, ft):	3,018,564
												Northing (Y, ft):	848,421
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88
Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409													


DARE COUNTY 2021_VC.GPJ 7/2/21



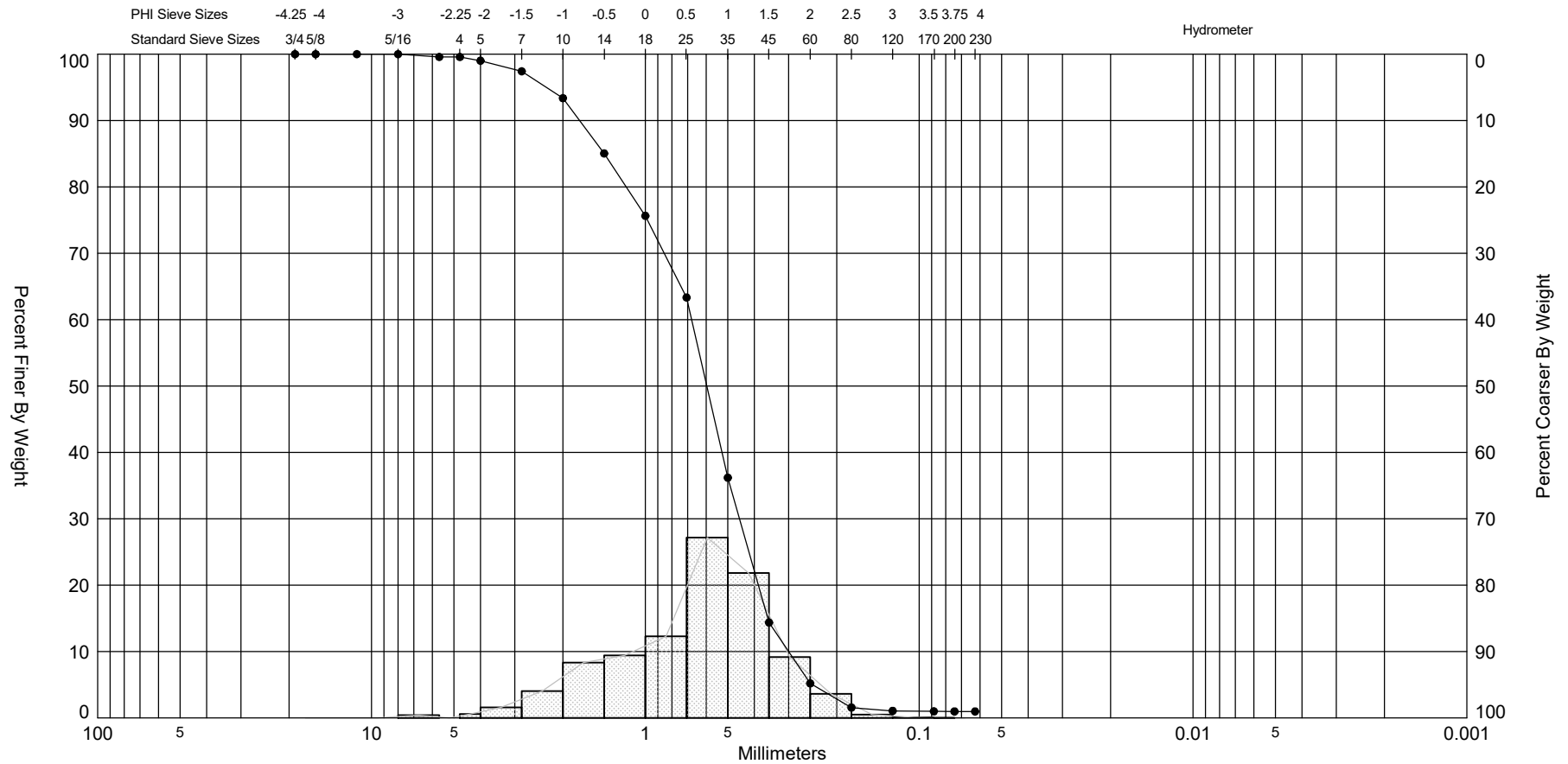
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-57	—●—	-50.1	SP	#200 - 0.94 #230 - 0.94			1.35	1.3	-0.84	5.38	0.65	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-02-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering
	4038 Masonboro Loop Road
	Wilmington, NC 28409
Easting (X, ft):	3,020,264
Northing (Y, ft):	844,636
Horizontal Datum:	NAD 1983
Vertical Datum:	NAVD 88


DARE COUNTY 2021_VC.GPJ 7/2/21



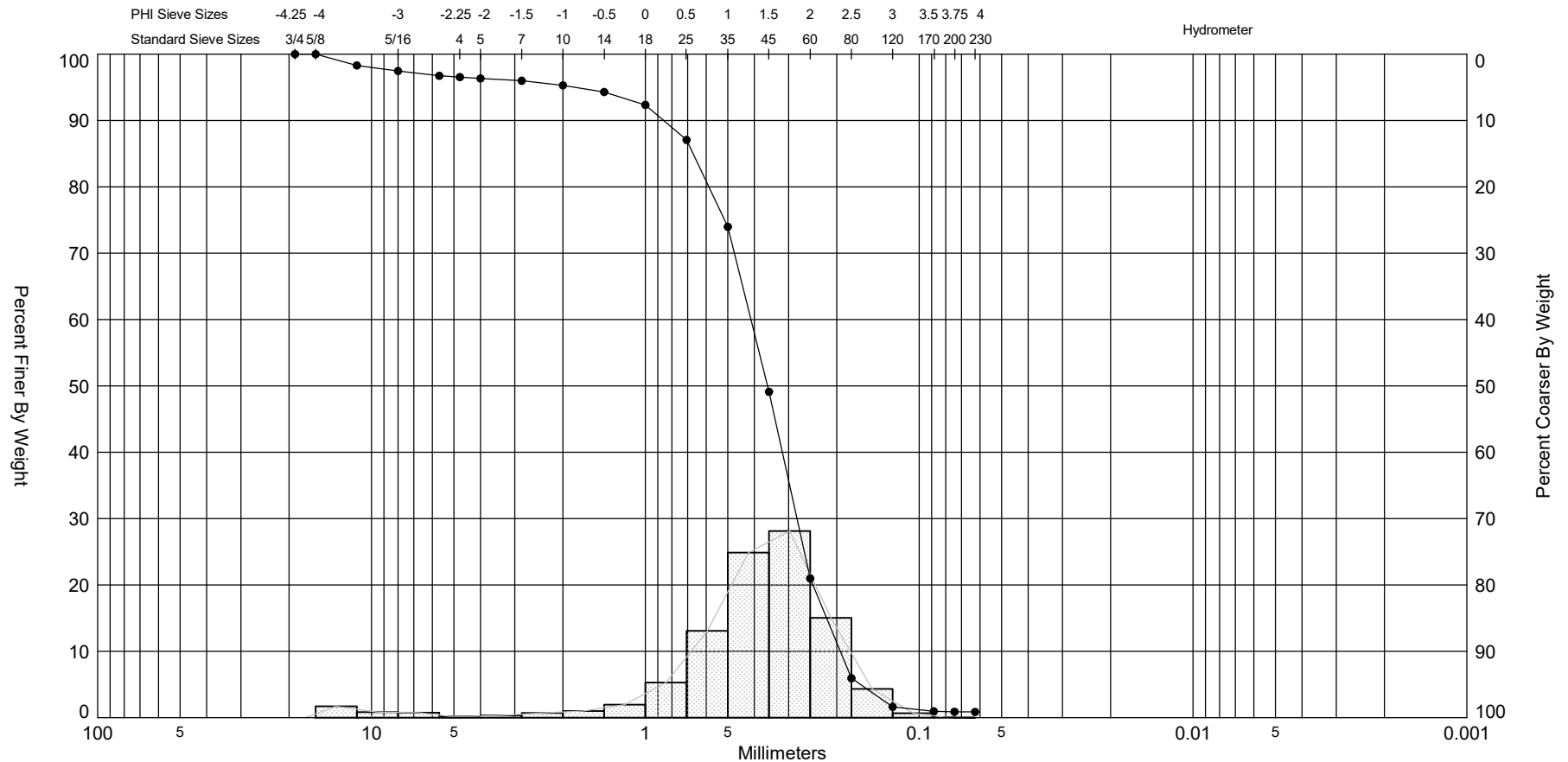
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-58	—●—	-55.1	SW	#200 - 0.97 #230 - 0.97			0.75	0.58	-0.62	3.34	0.95	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-02-21
Depths and elevations based on measured values	Analyzed By:	FM

	Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409	
	Easting (X, ft):	3,018,637
	Northing (Y, ft):	843,165
	Horizontal Datum:	NAD 1983
	Vertical Datum:	NAVD 88

DARE COUNTY 2021_VC.GPJ 7/2/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

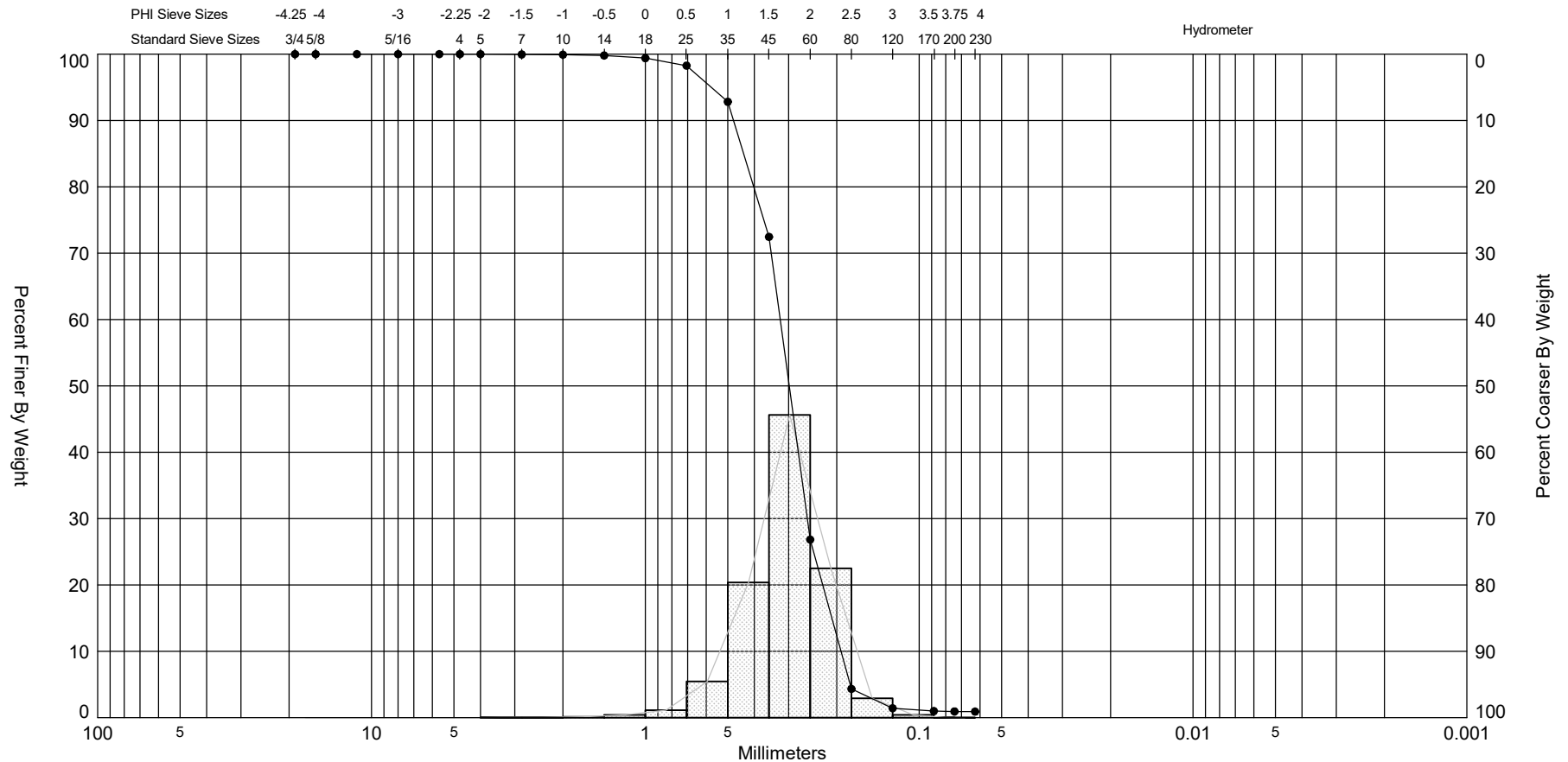
Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-96	—●—	-57.4	SW	#200 - 0.88 #230 - 0.86			1.48	1.26	-2.27	9.78	1.17	Project Name:	2021 Borrow Area A - Supplemental Evaluation

Comments:	Analysis Date:	07-02-21
Depths and elevations based on measured values	Analyzed By:	FM




Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Easting (X, ft):	3,017,679
Northing (Y, ft):	852,815
Horizontal Datum:	NAD 1983
Vertical Datum:	NAVD 88



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCGS-21-99	—●—	-55.3	SP	#200 - 0.93 #230 - 0.91			1.75	1.71	-0.7	5.87	0.51	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments:												Analysis Date:	07-02-21
Depths and elevations based on measured values												Analyzed By:	FM
												Easting (X, ft):	3,019,559
												Northing (Y, ft):	850,580
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88
Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409													

DARE COUNTY 2021_VC.GPJ 7/2/21

APPENDIX 7
2021 GRAB SAMPLE GRANULARMETRIC REPORTS
(DIGITAL COPY ONLY)

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-02

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,019,885	Northing (ft): 841,618	Coordinate System: North Carolina State Plane	Elevation (ft): -56.1 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/3 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 163.59	Wash Weight (g): 162.04	Pan Retained (g): 0.00	Sieve Loss (%): 0.04	Fines (%): #200 - 0.98 #230 - 0.98	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	0.52	0.32	0.52	0.32
5/16"	-3.00	8.00	0.89	0.54	1.41	0.86
3.5	-2.50	5.66	0.27	0.17	1.68	1.03
4	-2.25	4.76	0.04	0.02	1.72	1.05
5	-2.00	4.00	0.03	0.02	1.75	1.07
7	-1.50	2.83	0.28	0.17	2.03	1.24
10	-1.00	2.00	0.78	0.48	2.81	1.72
14	-0.50	1.41	1.60	0.98	4.41	2.70
18	0.00	1.00	4.13	2.52	8.54	5.22
25	0.50	0.71	13.65	8.34	22.19	13.56
35	1.00	0.50	38.56	23.57	60.75	37.13
45	1.50	0.35	60.31	36.87	121.06	74.00
60	2.00	0.25	30.42	18.60	151.48	92.60
80	2.50	0.18	9.38	5.73	160.86	98.33
120	3.00	0.13	1.00	0.61	161.86	98.94
170	3.50	0.09	0.11	0.07	161.97	99.01
200	3.75	0.07	0.01	0.01	161.98	99.02
230	4.00	0.06	0.00	0.00	161.98	99.02

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.21	1.77	1.53	1.17	0.74	0.55	-0.04
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.09	0.47	0.78	-2.16	13.17	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-06

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,019,425	Northing (ft): 849,130	Coordinate System: North Carolina State Plane	Elevation (ft): -55.9 NAVD 88
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USCS: SW	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 169.17	Wash Weight (g): 167.70	Pan Retained (g): 0.00	Sieve Loss (%): 0.24	Fines (%): #200 - 1.12 #230 - 1.12	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	1.71	1.01	1.71	1.01
5/16"	-3.00	8.00	1.27	0.75	2.98	1.76
3.5	-2.50	5.66	0.31	0.18	3.29	1.94
4	-2.25	4.76	0.00	0.00	3.29	1.94
5	-2.00	4.00	0.00	0.00	3.29	1.94
7	-1.50	2.83	0.22	0.13	3.51	2.07
10	-1.00	2.00	1.13	0.67	4.64	2.74
14	-0.50	1.41	4.84	2.86	9.48	5.60
18	0.00	1.00	12.06	7.13	21.54	12.73
25	0.50	0.71	21.81	12.89	43.35	25.62
35	1.00	0.50	53.56	31.66	96.91	57.28
45	1.50	0.35	44.58	26.35	141.49	83.63
60	2.00	0.25	19.35	11.44	160.84	95.07
80	2.50	0.18	5.62	3.32	166.46	98.39
120	3.00	0.13	0.75	0.44	167.21	98.83
170	3.50	0.09	0.09	0.05	167.30	98.88
200	3.75	0.07	0.00	0.00	167.30	98.88
230	4.00	0.06	0.00	0.00	167.30	98.88

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.00	1.52	1.34	0.89	0.48	0.13	-0.60
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	0.78	0.58	0.91	-2	10.58	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-11

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,018,264	Northing (ft): 852,081	Coordinate System: North Carolina State Plane	Elevation (ft): -59.5 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-5/2 Dry - 5Y-7/1 Washed - 5Y-7/1	Comments:
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Dry Weight (g): 118.26	Wash Weight (g): 117.20	Pan Retained (g): 0.00	Sieve Loss (%): 0.14	Fines (%): #200 - 1.10 #230 - 1.04	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	0.22	0.19	0.22	0.19
4	-2.25	4.76	0.00	0.00	0.22	0.19
5	-2.00	4.00	0.24	0.20	0.46	0.39
7	-1.50	2.83	0.18	0.15	0.64	0.54
10	-1.00	2.00	0.34	0.29	0.98	0.83
14	-0.50	1.41	0.95	0.80	1.93	1.63
18	0.00	1.00	2.18	1.84	4.11	3.47
25	0.50	0.71	4.92	4.16	9.03	7.63
35	1.00	0.50	10.84	9.17	19.87	16.80
45	1.50	0.35	26.49	22.40	46.36	39.20
60	2.00	0.25	41.38	34.99	87.74	74.19
80	2.50	0.18	23.42	19.80	111.16	93.99
120	3.00	0.13	4.74	4.01	115.90	98.00
170	3.50	0.09	0.95	0.80	116.85	98.80
200	3.75	0.07	0.12	0.10	116.97	98.90
230	4.00	0.06	0.07	0.06	117.04	98.96

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.63	2.25	2.02	1.65	1.18	0.96	0.18
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.55	0.34	0.75	-1.26	7.06	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-37

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,018,972	Northing (ft): 846,184	Coordinate System: North Carolina State Plane	Elevation (ft): -58.5 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 169.15	Wash Weight (g): 167.88	Pan Retained (g): 0.00	Sieve Loss (%): 0.20	Fines (%): #200 - 0.98 #230 - 0.96	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	0.27	0.16	0.27	0.16
4	-2.25	4.76	0.00	0.00	0.27	0.16
5	-2.00	4.00	0.24	0.14	0.51	0.30
7	-1.50	2.83	0.68	0.40	1.19	0.70
10	-1.00	2.00	1.85	1.09	3.04	1.79
14	-0.50	1.41	6.02	3.56	9.06	5.35
18	0.00	1.00	11.51	6.80	20.57	12.15
25	0.50	0.71	18.49	10.93	39.06	23.08
35	1.00	0.50	41.90	24.77	80.96	47.85
45	1.50	0.35	43.75	25.86	124.71	73.71
60	2.00	0.25	26.46	15.64	151.17	89.35
80	2.50	0.18	13.87	8.20	165.04	97.55
120	3.00	0.13	2.09	1.24	167.13	98.79
170	3.50	0.09	0.32	0.19	167.45	98.98
200	3.75	0.07	0.06	0.04	167.51	99.02
230	4.00	0.06	0.03	0.02	167.54	99.04

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.34	1.83	1.54	1.04	0.54	0.18	-0.55
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	0.97	0.51	0.84	-0.56	3.88	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-39

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,021,518	Northing (ft): 848,317	Coordinate System: North Carolina State Plane	Elevation (ft): -51.5 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 164.68	Wash Weight (g): 163.32	Pan Retained (g): 0.00	Sieve Loss (%): 0.01	Fines (%): #200 - 0.86 #230 - 0.84	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	0.04	0.02	0.04	0.02
7	-1.50	2.83	0.19	0.12	0.23	0.14
10	-1.00	2.00	0.12	0.07	0.35	0.21
14	-0.50	1.41	0.45	0.27	0.80	0.48
18	0.00	1.00	1.27	0.77	2.07	1.25
25	0.50	0.71	4.41	2.68	6.48	3.93
35	1.00	0.50	13.34	8.10	19.82	12.03
45	1.50	0.35	38.58	23.43	58.40	35.46
60	2.00	0.25	69.84	42.41	128.24	77.87
80	2.50	0.18	28.09	17.06	156.33	94.93
120	3.00	0.13	5.61	3.41	161.94	98.34
170	3.50	0.09	1.24	0.75	163.18	99.09
200	3.75	0.07	0.09	0.05	163.27	99.14
230	4.00	0.06	0.04	0.02	163.31	99.16

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.51	2.18	1.97	1.67	1.28	1.08	0.57
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.61	0.33	0.59	-0.75	5.81	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-49

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,018,564	Northing (ft): 848,421	Coordinate System: North Carolina State Plane	Elevation (ft): -58.6 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 161.77	Wash Weight (g): 160.49	Pan Retained (g): 0.00	Sieve Loss (%): 0.32	Fines (%): #200 - 1.13 #230 - 1.12	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	0.39	0.24	0.39	0.24
3.5	-2.50	5.66	0.00	0.00	0.39	0.24
4	-2.25	4.76	0.00	0.00	0.39	0.24
5	-2.00	4.00	0.24	0.15	0.63	0.39
7	-1.50	2.83	0.49	0.30	1.12	0.69
10	-1.00	2.00	0.60	0.37	1.72	1.06
14	-0.50	1.41	1.46	0.90	3.18	1.96
18	0.00	1.00	3.80	2.35	6.98	4.31
25	0.50	0.71	8.21	5.08	15.19	9.39
35	1.00	0.50	30.37	18.77	45.56	28.16
45	1.50	0.35	56.86	35.15	102.42	63.31
60	2.00	0.25	41.06	25.38	143.48	88.69
80	2.50	0.18	13.88	8.58	157.36	97.27
120	3.00	0.13	2.27	1.40	159.63	98.67
170	3.50	0.09	0.27	0.17	159.90	98.84
200	3.75	0.07	0.05	0.03	159.95	98.87
230	4.00	0.06	0.02	0.01	159.97	98.88

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.37	1.91	1.73	1.31	0.92	0.68	0.07
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.26	0.42	0.71	-1.34	8.64	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-57

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,020,264	Northing (ft): 844,636	Coordinate System: North Carolina State Plane	Elevation (ft): -50.1 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-5/3 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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Dry Weight (g): 166.18	Wash Weight (g): 164.68	Pan Retained (g): 0.00	Sieve Loss (%): 0.02	Fines (%): #200 - 0.94 #230 - 0.94	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	0.02	0.01	0.02	0.01
4	-2.25	4.76	0.00	0.00	0.02	0.01
5	-2.00	4.00	0.35	0.21	0.37	0.22
7	-1.50	2.83	0.05	0.03	0.42	0.25
10	-1.00	2.00	0.45	0.27	0.87	0.52
14	-0.50	1.41	1.19	0.72	2.06	1.24
18	0.00	1.00	3.83	2.30	5.89	3.54
25	0.50	0.71	10.71	6.44	16.60	9.98
35	1.00	0.50	26.07	15.69	42.67	25.67
45	1.50	0.35	58.32	35.09	100.99	60.76
60	2.00	0.25	46.35	27.89	147.34	88.65
80	2.50	0.18	14.44	8.69	161.78	97.34
120	3.00	0.13	2.69	1.62	164.47	98.96
170	3.50	0.09	0.17	0.10	164.64	99.06
200	3.75	0.07	0.00	0.00	164.64	99.06
230	4.00	0.06	0.00	0.00	164.64	99.06

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.37	1.92	1.76	1.35	0.98	0.69	0.11
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.3	0.41	0.65	-0.84	5.38	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-58

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,018,637	Northing (ft): 843,165	Coordinate System: North Carolina State Plane	Elevation (ft): -55.1 NAVD 88
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USCS: SW	Munsell: Wet - 5Y-6/3 Dry - 5Y-7/3 Washed - 5Y-7/3	Comments:
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Dry Weight (g): 179.00	Wash Weight (g): 177.38	Pan Retained (g): 0.00	Sieve Loss (%): 0.05	Fines (%): #200 - 0.97 #230 - 0.97	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	0.76	0.42	0.76	0.42
4	-2.25	4.76	0.00	0.00	0.76	0.42
5	-2.00	4.00	1.02	0.57	1.78	0.99
7	-1.50	2.83	2.85	1.59	4.63	2.58
10	-1.00	2.00	7.25	4.05	11.88	6.63
14	-0.50	1.41	14.90	8.32	26.78	14.95
18	0.00	1.00	16.84	9.41	43.62	24.36
25	0.50	0.71	22.02	12.30	65.64	36.66
35	1.00	0.50	48.60	27.15	114.24	63.81
45	1.50	0.35	39.06	21.82	153.30	85.63
60	2.00	0.25	16.41	9.17	169.71	94.80
80	2.50	0.18	6.52	3.64	176.23	98.44
120	3.00	0.13	0.90	0.50	177.13	98.94
170	3.50	0.09	0.12	0.07	177.25	99.01
200	3.75	0.07	0.04	0.02	177.29	99.03
230	4.00	0.06	0.00	0.00	177.29	99.03

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.03	1.46	1.26	0.75	0.03	-0.44	-1.20
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	0.58	0.67	0.95	-0.62	3.34	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-96

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,017,679	Northing (ft): 852,815	Coordinate System: North Carolina State Plane	Elevation (ft): -57.4 NAVD 88
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USCS: SW	Munsell: Wet - 5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	Comments:
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Dry Weight (g): 166.21	Wash Weight (g): 164.83	Pan Retained (g): 0.00	Sieve Loss (%): 0.04	Fines (%): #200 - 0.88 #230 - 0.86	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	2.82	1.70	2.82	1.70
5/16"	-3.00	8.00	1.39	0.84	4.21	2.54
3.5	-2.50	5.66	1.21	0.73	5.42	3.27
4	-2.25	4.76	0.31	0.19	5.73	3.46
5	-2.00	4.00	0.35	0.21	6.08	3.67
7	-1.50	2.83	0.57	0.34	6.65	4.01
10	-1.00	2.00	1.16	0.70	7.81	4.71
14	-0.50	1.41	1.67	1.00	9.48	5.71
18	0.00	1.00	3.22	1.94	12.70	7.65
25	0.50	0.71	8.78	5.28	21.48	12.93
35	1.00	0.50	21.76	13.09	43.24	26.02
45	1.50	0.35	41.34	24.87	84.58	50.89
60	2.00	0.25	46.75	28.13	131.33	79.02
80	2.50	0.18	24.99	15.04	156.32	94.06
120	3.00	0.13	7.18	4.32	163.50	98.38
170	3.50	0.09	1.11	0.67	164.61	99.05
200	3.75	0.07	0.11	0.07	164.72	99.12
230	4.00	0.06	0.04	0.02	164.76	99.14

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.61	2.17	1.93	1.48	0.96	0.62	-0.85
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.26	0.42	1.17	-2.27	9.78	

DARE COUNTY 2021_VC.GPJ 7/2/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCGS-21-99

Analysis Date: 07-02-21

Analyzed By: FM

Easting (ft): 3,019,559	Northing (ft): 850,580	Coordinate System: North Carolina State Plane	Elevation (ft): -55.3 NAVD 88
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USCS: SP	Munsell: Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	Comments:
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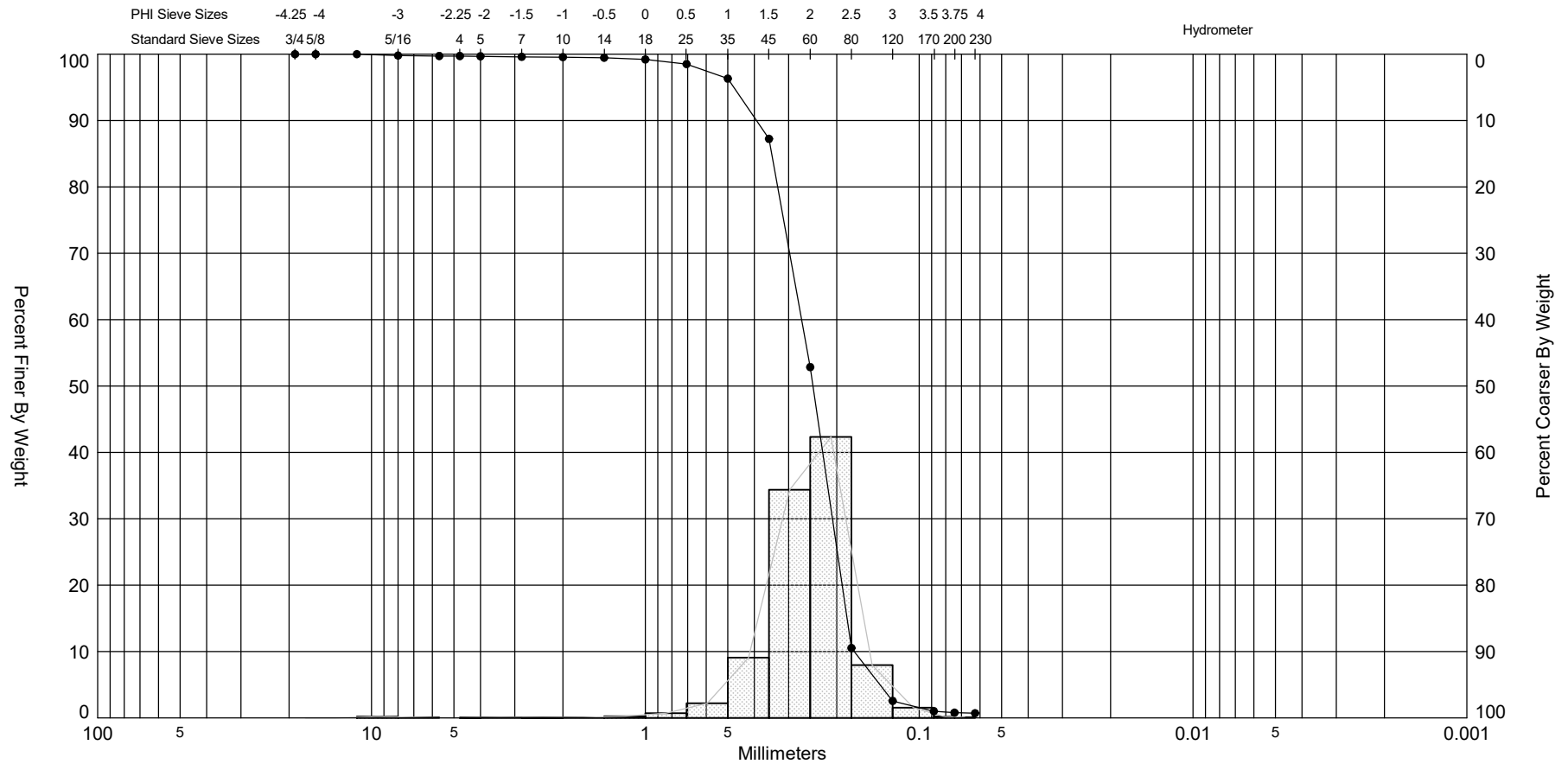
Dry Weight (g): 168.95	Wash Weight (g): 167.47	Pan Retained (g): 0.00	Sieve Loss (%): 0.03	Fines (%): #200 - 0.93 #230 - 0.91	Organics (%):	Carbonates (%):	Shell Hash (%):
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Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight 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	0.09	0.05	0.09	0.05
10	-1.00	2.00	0.05	0.03	0.14	0.08
14	-0.50	1.41	0.21	0.12	0.35	0.20
18	0.00	1.00	0.67	0.40	1.02	0.60
25	0.50	0.71	1.91	1.13	2.93	1.73
35	1.00	0.50	9.20	5.45	12.13	7.18
45	1.50	0.35	34.40	20.36	46.53	27.54
60	2.00	0.25	77.10	45.63	123.63	73.17
80	2.50	0.18	38.02	22.50	161.65	95.67
120	3.00	0.13	4.91	2.91	166.56	98.58
170	3.50	0.09	0.72	0.43	167.28	99.01
200	3.75	0.07	0.10	0.06	167.38	99.07
230	4.00	0.06	0.04	0.02	167.42	99.09


Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.49	2.24	2.04	1.75	1.44	1.22	0.80
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.71	0.31	0.51	-0.7	5.87	

DARE COUNTY 2021_VC.GPJ 7/2/21

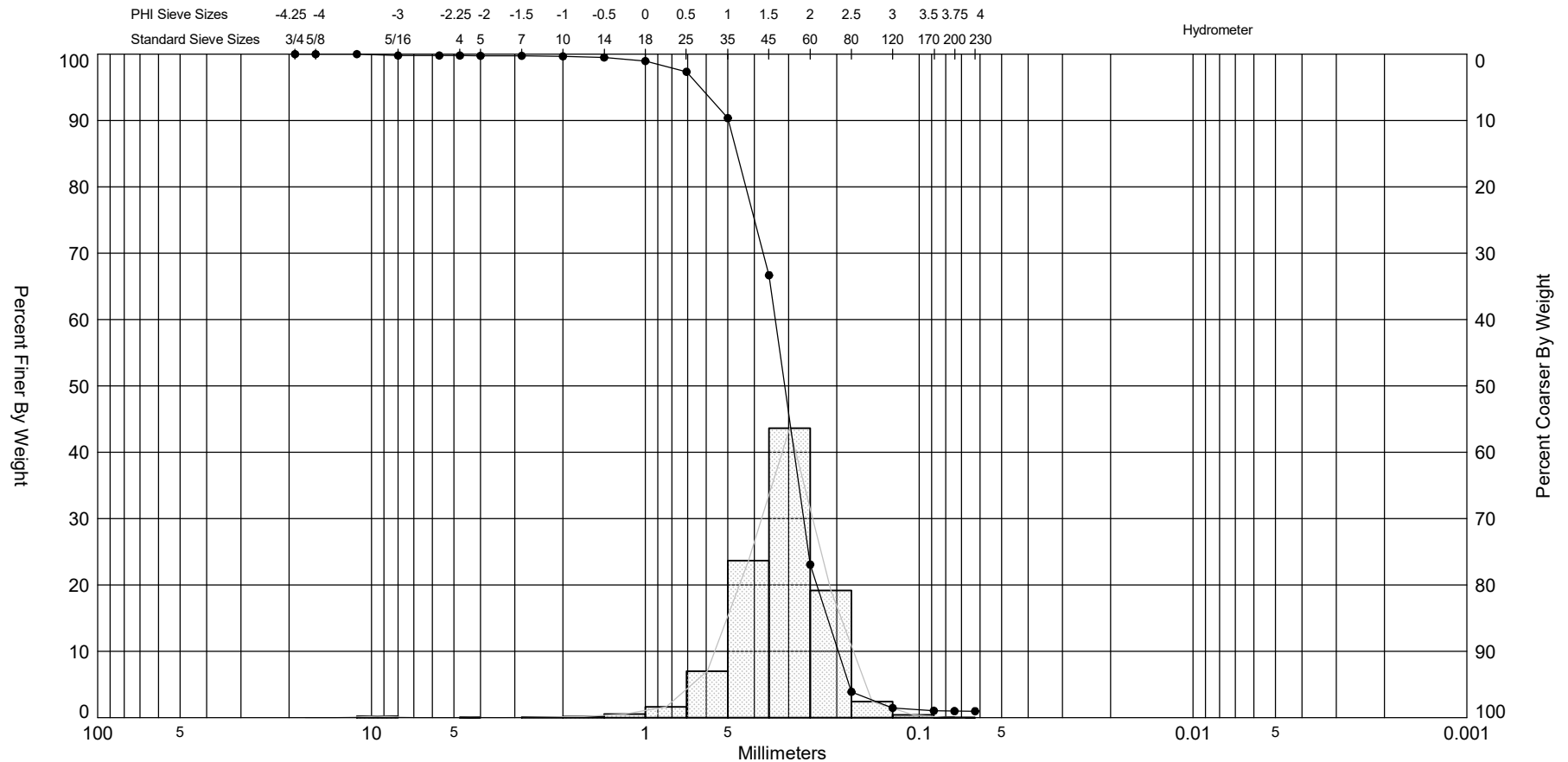
APPENDIX 8
INFILLING COMPOSITE GRAIN SIZE DISTRIBUTION
CURVES AND HISTOGRAMS
(DIGITAL COPY ONLY)




Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-01 COMP	—●—		SP	#200 - 0.75 #230 - 0.71			2.03	1.97	-2.49	20.91	0.59	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments: Composite											Analysis Date:	07-08-21	
Depths and elevations based on measured values											Analyzed By:	SF	
							Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409					Easting (X, ft):	
												Northing (Y, ft):	
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88

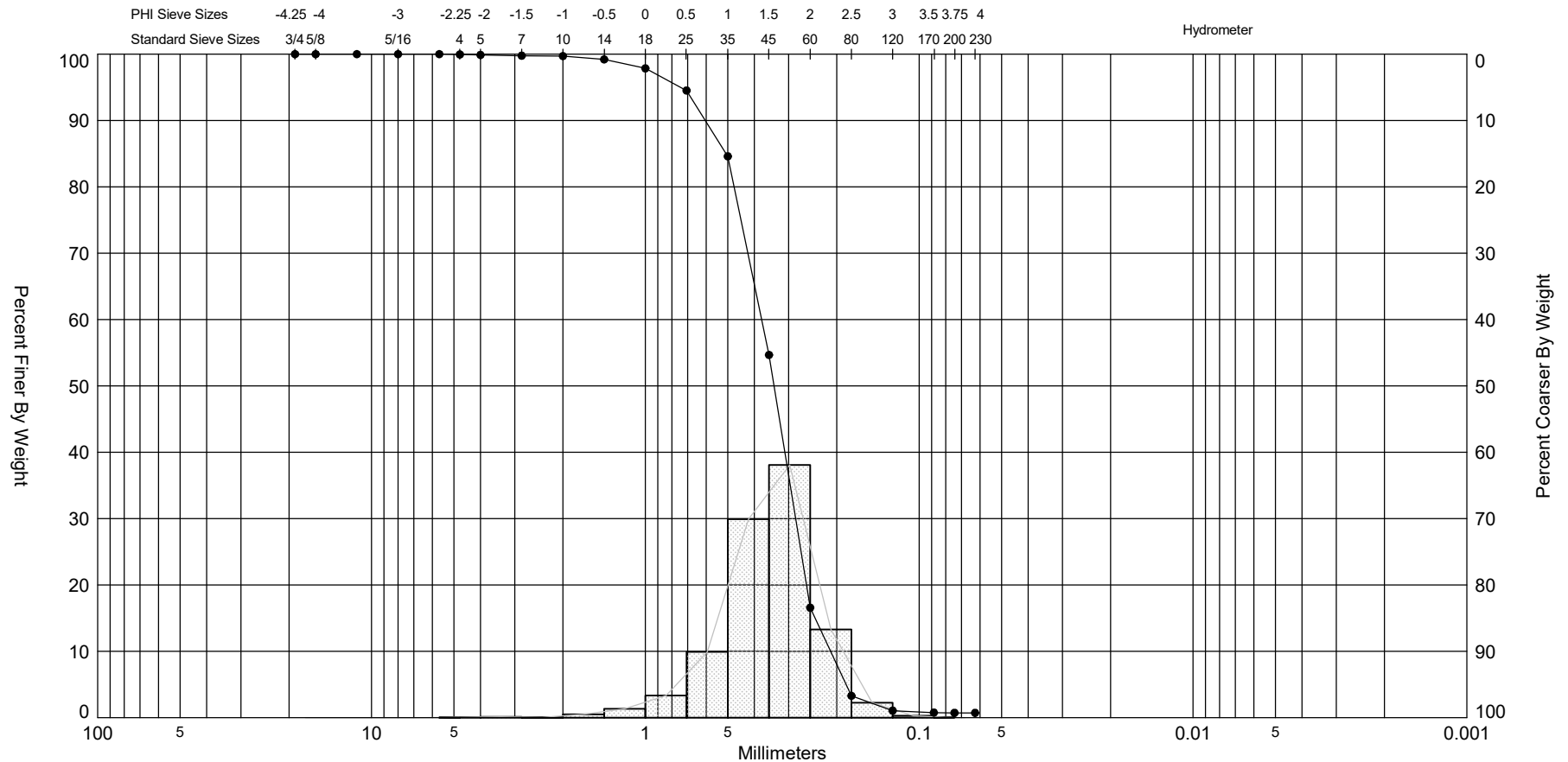
DARE COUNTY 2021.GPJ 7/8/21




Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

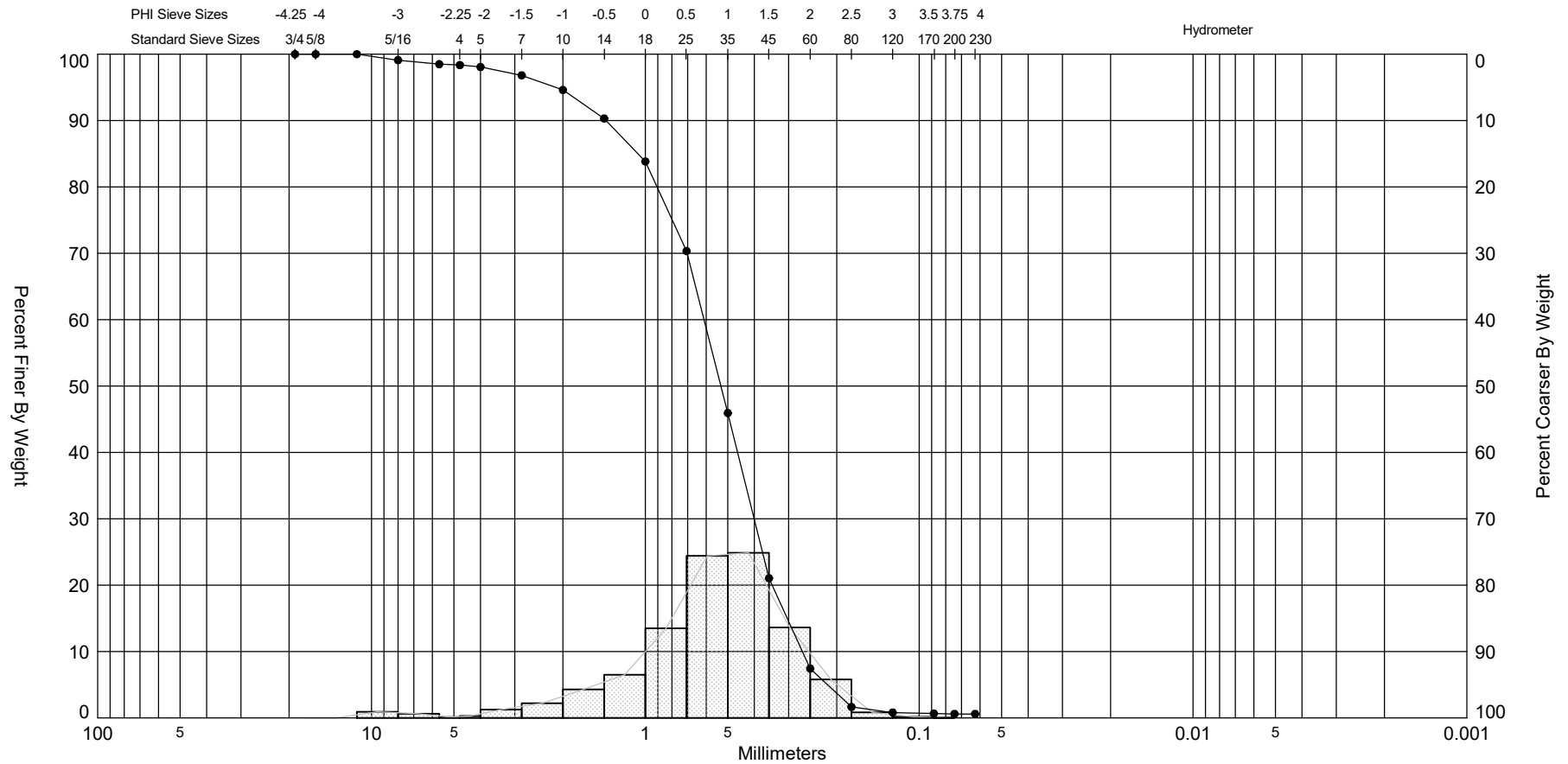
Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-02 COMP	—●—		SP	#200 - 0.99 #230 - 0.97			1.69	1.63	-1.78	14.76	0.58	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments: Composite												Analysis Date:	07-06-21
Depths and elevations based on measured values												Analyzed By:	SF
							Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409					Easting (X, ft):	
												Northing (Y, ft):	
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88

DARE COUNTY 2021.GPJ 7/7/21




Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

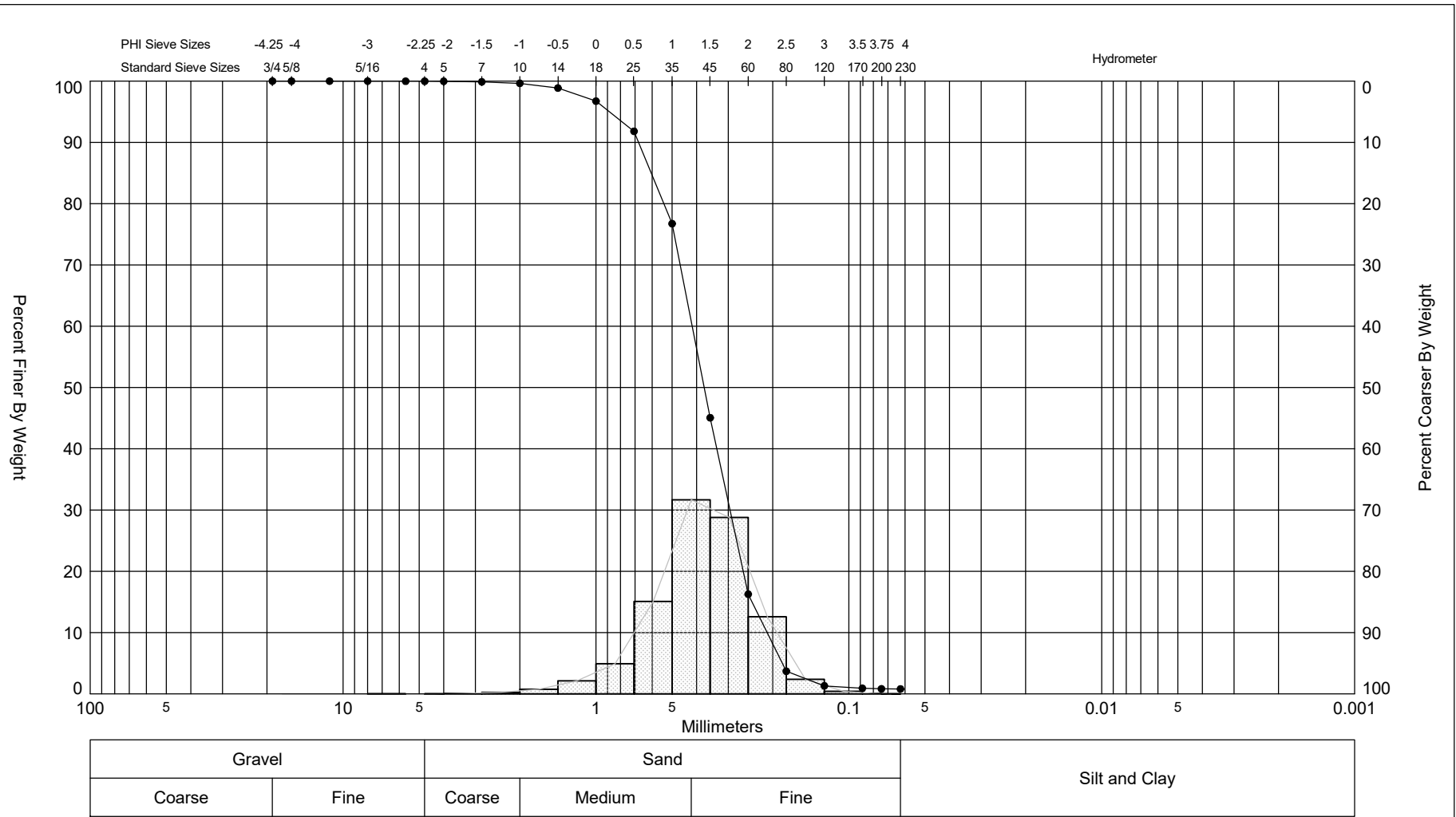
Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-03 COMP	—●—		SP	#200 - 0.72 #230 - 0.72			1.56	1.49	-0.98	6.42	0.61	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments: Composite												Analysis Date:	07-06-21
Depths and elevations based on measured values												Analyzed By:	SF
							Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409					Easting (X, ft):	
												Northing (Y, ft):	
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88




Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

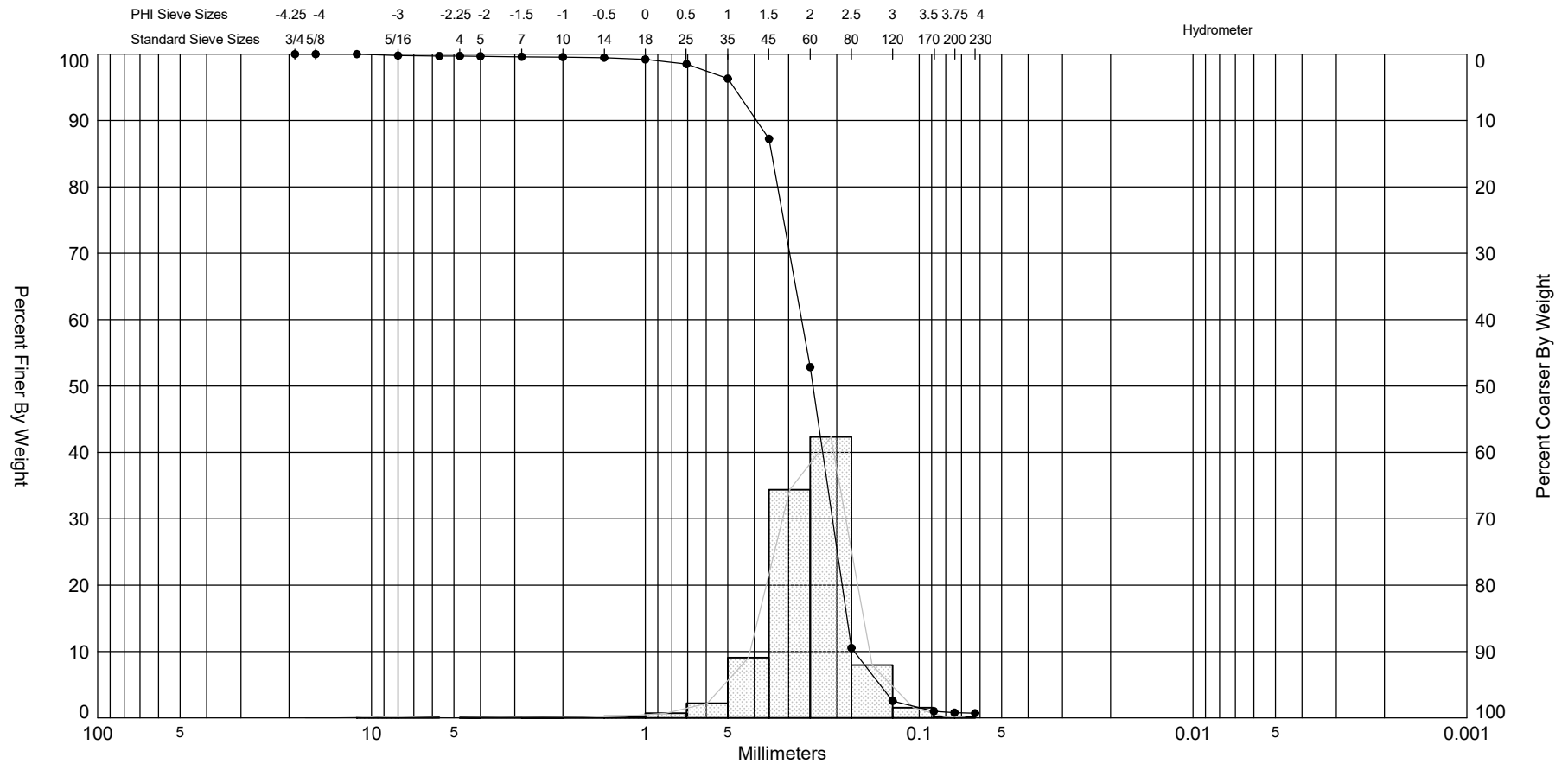
Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-04 COMP	—●—		SW	#200 - 0.60 #230 - 0.60			0.92	0.78	-1.17	5.52	1	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments: Composite												Analysis Date:	07-06-21
Depths and elevations based on measured values												Analyzed By:	SF
												Easting (X, ft):	
												Northing (Y, ft):	
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88
Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409													

DARE COUNTY 2021.GPJ 7/7/21




Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
DCVC-21-05 COMP	—●—		SP	#200 - 0.82 #230 - 0.80			1.42	1.39	-0.58	4.59	0.67	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments: Composite												Analysis Date:	07-06-21
Depths and elevations based on measured values												Analyzed By:	SF
						Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409						Easting (X, ft):	
												Northing (Y, ft):	
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88

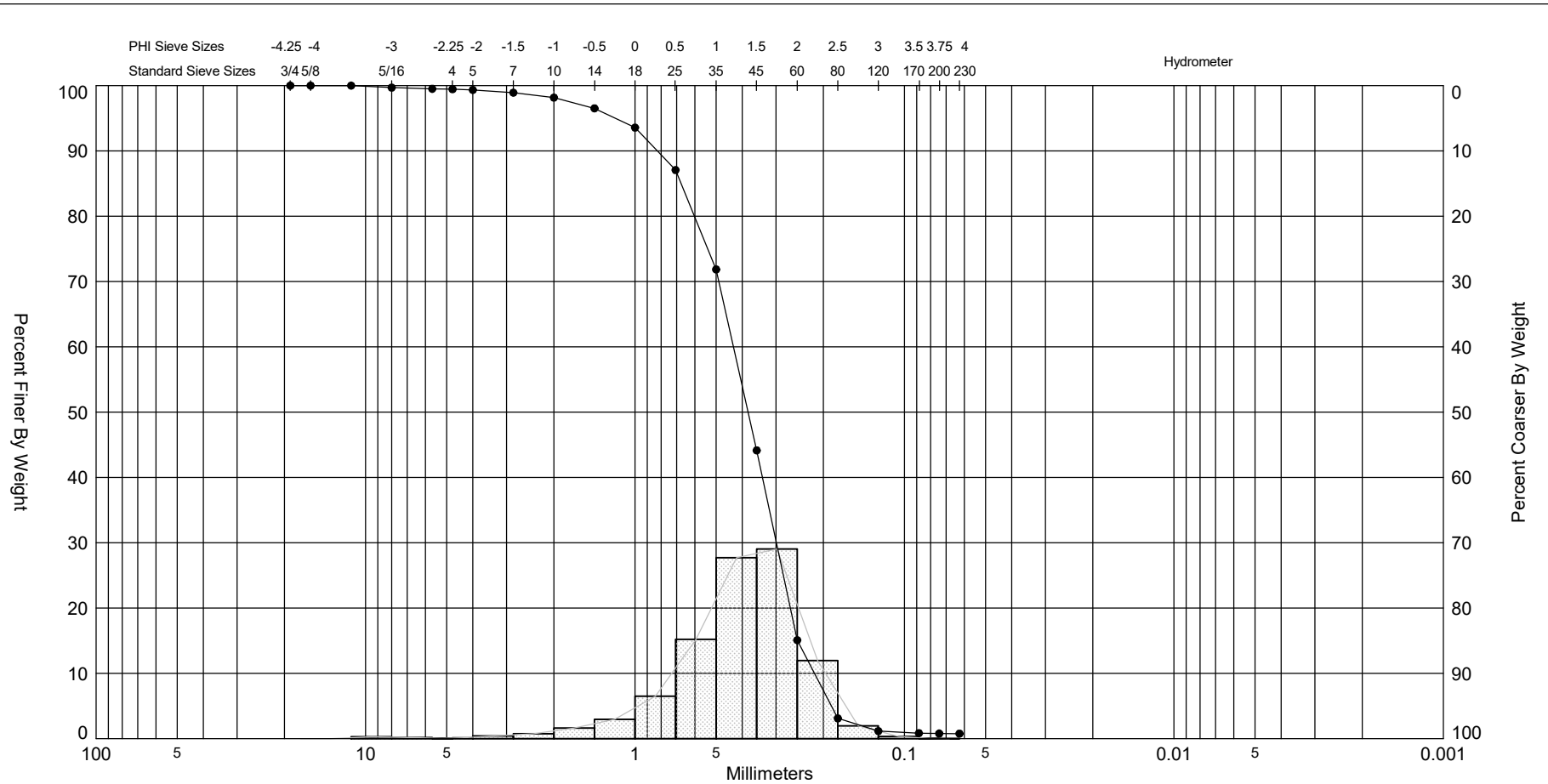
DARE COUNTY 2021.GPJ 7/7/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
BORROW AREA A1	—●—		SP	#200 - 0.79 #230 - 0.71			2.03	1.97	-2.49	20.91	0.59	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments: Composite												Analysis Date:	07-08-21
Depths and elevations based on measured values												Analyzed By:	SF
												Easting (X, ft):	
												Northing (Y, ft):	
												Horizontal Datum:	NAD 1983
												Vertical Datum:	NAVD 88
Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409													

DARE COUNTY 2021.GPJ 7/8/21



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
BORROW AREA A2	—●—		SP	#200 - 0.78 #230 - 0.77			1.39	1.28	-1.43	7.39	0.83	Project Name:	2021 Borrow Area A - Supplemental Evaluation
Comments: Composite											Analysis Date:	07-06-21	
Depths and elevations based on measured values											Analyzed By:	SF	
 Coastal Protection Engineering 4038 Masonboro Loop Road Wilmington, NC 28409							Easting (X, ft):						
							Northing (Y, ft):						
							Horizontal Datum:	NAD 1983					
							Vertical Datum:	NAVD 88					

DARE COUNTY 2021.GPJ 7/7/21

APPENDIX 9
INFILLING COMPOSITE
GRANULARMETRIC REPORTS
(DIGITAL COPY ONLY)

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-01 COMP

Analysis Date: 07-08-21

Analyzed By: SF

Easting (ft):	Northing (ft):	Coordinate System: North Carolina State Plane	Elevation (ft):
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USCS: SP	Munsell:	Comments: Composite
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Dry Weight (g): 99.94	Wash Weight (g): 99.94	Pan Retained (g): 0.72	Sieve Loss (%): 0.00	Fines (%): #200 - 0.79 #230 - 0.71	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	0.21	0.21	0.21	0.21
3.5	-2.50	5.66	0.07	0.07	0.27	0.28
4	-2.25	4.76	0.00	0.00	0.27	0.28
5	-2.00	4.00	0.04	0.04	0.31	0.32
7	-1.50	2.83	0.08	0.08	0.39	0.40
10	-1.00	2.00	0.04	0.04	0.43	0.44
14	-0.50	1.41	0.09	0.09	0.52	0.53
18	0.00	1.00	0.27	0.27	0.79	0.80
25	0.50	0.71	0.69	0.69	1.48	1.49
35	1.00	0.50	2.19	2.19	3.67	3.68
45	1.50	0.35	9.07	9.08	12.75	12.76
60	2.00	0.25	34.37	34.39	47.11	47.15
80	2.50	0.18	42.29	42.32	89.41	89.47
120	3.00	0.13	7.97	7.97	97.38	97.44
170	3.50	0.09	1.55	1.55	98.92	98.99
200	3.75	0.07	0.22	0.22	99.14	99.21
230	4.00	0.06	0.08	0.08	99.22	99.29

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.44	2.33	2.03	1.68	1.55	1.07
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.97	0.26	0.59	-2.49	20.91	

DARE COUNTY 2021.GPJ 7/8/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-02 COMP

Analysis Date: 07-06-21

Analyzed By: SF

Easting (ft):	Northing (ft):	Coordinate System: North Carolina State Plane	Elevation (ft):
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USCS: SP	Munsell:	Comments: Composite
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Dry Weight (g): 99.98	Wash Weight (g): 99.98	Pan Retained (g): 0.96	Sieve Loss (%): 0.00	Fines (%): #200 - 0.99 #230 - 0.97	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	0.21	0.21	0.21	0.21
3.5	-2.50	5.66	0.00	0.00	0.21	0.21
4	-2.25	4.76	0.00	0.00	0.21	0.21
5	-2.00	4.00	0.04	0.04	0.25	0.25
7	-1.50	2.83	0.00	0.00	0.25	0.25
10	-1.00	2.00	0.08	0.08	0.33	0.33
14	-0.50	1.41	0.17	0.17	0.50	0.50
18	0.00	1.00	0.54	0.54	1.04	1.04
25	0.50	0.71	1.62	1.62	2.66	2.66
35	1.00	0.50	6.98	6.98	9.64	9.64
45	1.50	0.35	23.68	23.68	33.32	33.32
60	2.00	0.25	43.60	43.61	76.92	76.93
80	2.50	0.18	19.18	19.18	96.10	96.11
120	3.00	0.13	2.43	2.43	98.53	98.54
170	3.50	0.09	0.42	0.42	98.95	98.96
200	3.75	0.07	0.05	0.05	99.00	99.01
230	4.00	0.06	0.02	0.02	99.02	99.03

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	2.18	1.98	1.69	1.32	1.13	0.67
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.63	0.32	0.58	-1.78	14.76	

DARE COUNTY 2021.GPJ 7/7/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-03 COMP

Analysis Date: 07-06-21

Analyzed By: SF

Easting (ft):	Northing (ft):	Coordinate System: North Carolina State Plane	Elevation (ft):
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USCS: SP	Munsell:	Comments: Composite
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Dry Weight (g): 99.81	Wash Weight (g): 99.81	Pan Retained (g): 0.72	Sieve Loss (%): 0.00	Fines (%): #200 - 0.72 #230 - 0.72	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	0.05	0.05	0.05	0.05
5	-2.00	4.00	0.07	0.07	0.12	0.12
7	-1.50	2.83	0.11	0.11	0.23	0.23
10	-1.00	2.00	0.06	0.06	0.29	0.29
14	-0.50	1.41	0.50	0.50	0.79	0.79
18	0.00	1.00	1.35	1.35	2.14	2.14
25	0.50	0.71	3.33	3.34	5.47	5.48
35	1.00	0.50	9.90	9.92	15.37	15.40
45	1.50	0.35	29.87	29.93	45.24	45.33
60	2.00	0.25	38.03	38.10	83.27	83.43
80	2.50	0.18	13.25	13.28	96.52	96.71
120	3.00	0.13	2.23	2.23	98.75	98.94
170	3.50	0.09	0.30	0.30	99.05	99.24
200	3.75	0.07	0.04	0.04	99.09	99.28
230	4.00	0.06	0.00	0.00	99.09	99.28

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.44	2.02	1.89	1.56	1.16	1.01	0.43
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.49	0.36	0.61	-0.98	6.42	

DARE COUNTY 2021.GPJ 7/7/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-04 COMP

Analysis Date: 07-06-21

Analyzed By: SF

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

USCS:

SW

Munsell:

Comments:

Composite

Dry Weight (g): 99.68	Wash Weight (g): 99.68	Pan Retained (g): 0.58	Sieve Loss (%): 0.00	Fines (%): #200 - 0.60 #230 - 0.60	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	0.90	0.90	0.90	0.90
3.5	-2.50	5.66	0.61	0.61	1.51	1.51
4	-2.25	4.76	0.13	0.13	1.64	1.64
5	-2.00	4.00	0.29	0.29	1.93	1.93
7	-1.50	2.83	1.26	1.26	3.19	3.19
10	-1.00	2.00	2.19	2.20	5.38	5.39
14	-0.50	1.41	4.29	4.30	9.67	9.69
18	0.00	1.00	6.46	6.48	16.13	16.17
25	0.50	0.71	13.45	13.49	29.58	29.66
35	1.00	0.50	24.33	24.41	53.91	54.07
45	1.50	0.35	24.80	24.88	78.71	78.95
60	2.00	0.25	13.58	13.62	92.29	92.57
80	2.50	0.18	5.76	5.78	98.05	98.35
120	3.00	0.13	0.84	0.84	98.89	99.19
170	3.50	0.09	0.16	0.16	99.05	99.35
200	3.75	0.07	0.05	0.05	99.10	99.40
230	4.00	0.06	0.00	0.00	99.10	99.40

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.21	1.69	1.42	0.92	0.33	-0.01	-1.09
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	0.78	0.58	1	-1.17	5.52	

DARE COUNTY 2021.GPJ 7/7/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: DCVC-21-05 COMP

Analysis Date: 07-06-21

Analyzed By: SF

Easting (ft):	Northing (ft):	Coordinate System: North Carolina State Plane	Elevation (ft):
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USCS: SP	Munsell:	Comments: Composite
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Dry Weight (g): 99.91	Wash Weight (g): 99.91	Pan Retained (g): 0.79	Sieve Loss (%): 0.00	Fines (%): #200 - 0.82 #230 - 0.80	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	0.02	0.02	0.02	0.02
4	-2.25	4.76	0.00	0.00	0.02	0.02
5	-2.00	4.00	0.01	0.01	0.03	0.03
7	-1.50	2.83	0.09	0.09	0.12	0.12
10	-1.00	2.00	0.24	0.24	0.36	0.36
14	-0.50	1.41	0.77	0.77	1.13	1.13
18	0.00	1.00	2.14	2.14	3.27	3.27
25	0.50	0.71	4.92	4.92	8.19	8.19
35	1.00	0.50	15.07	15.08	23.26	23.27
45	1.50	0.35	31.64	31.67	54.90	54.94
60	2.00	0.25	28.76	28.79	83.66	83.73
80	2.50	0.18	12.57	12.58	96.23	96.31
120	3.00	0.13	2.38	2.38	98.61	98.69
170	3.50	0.09	0.40	0.40	99.01	99.09
200	3.75	0.07	0.09	0.09	99.10	99.18
230	4.00	0.06	0.02	0.02	99.12	99.20

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.45	2.01	1.85	1.42	1.03	0.76	0.18
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.39	0.38	0.67	-0.58	4.59	

DARE COUNTY 2021.GPJ 7/7/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: BORROW AREA A1

Analysis Date: 07-08-21

Analyzed By: SF

Easting (ft):	Northing (ft):	Coordinate System: North Carolina State Plane	Elevation (ft):
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USCS: SP	Munsell:	Comments: Composite
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Dry Weight (g): 99.94	Wash Weight (g): 99.94	Pan Retained (g): 0.72	Sieve Loss (%): 0.00	Fines (%): #200 - 0.79 #230 - 0.71	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	0.21	0.21	0.21	0.21
3.5	-2.50	5.66	0.07	0.07	0.27	0.28
4	-2.25	4.76	0.00	0.00	0.27	0.28
5	-2.00	4.00	0.04	0.04	0.31	0.32
7	-1.50	2.83	0.08	0.08	0.39	0.40
10	-1.00	2.00	0.04	0.04	0.43	0.44
14	-0.50	1.41	0.09	0.09	0.52	0.53
18	0.00	1.00	0.27	0.27	0.79	0.80
25	0.50	0.71	0.69	0.69	1.48	1.49
35	1.00	0.50	2.19	2.19	3.67	3.68
45	1.50	0.35	9.07	9.08	12.75	12.76
60	2.00	0.25	34.37	34.39	47.11	47.15
80	2.50	0.18	42.29	42.32	89.41	89.47
120	3.00	0.13	7.97	7.97	97.38	97.44
170	3.50	0.09	1.55	1.55	98.92	98.99
200	3.75	0.07	0.22	0.22	99.14	99.21
230	4.00	0.06	0.08	0.08	99.22	99.29

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.44	2.33	2.03	1.68	1.55	1.07
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.97	0.26	0.59	-2.49	20.91	

DARE COUNTY 2021.GPJ 7/8/21

Granularmetric Report

Depths and elevations based on measured values



Coastal Protection Engineering
4038 Masonboro Loop Road
Wilmington, NC 28409

Project Name: 2021 Borrow Area A - Supplemental Evaluation

Sample Name: BORROW AREA A2

Analysis Date: 07-06-21

Analyzed By: SF

Easting (ft):	Northing (ft):	Coordinate System: North Carolina State Plane	Elevation (ft):
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USCS: SP	Munsell:	Comments: Composite
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Dry Weight (g): 99.84	Wash Weight (g): 99.84	Pan Retained (g): 0.75	Sieve Loss (%): 0.00	Fines (%): #200 - 0.78 #230 - 0.77	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	0.31	0.31	0.31	0.31
3.5	-2.50	5.66	0.18	0.18	0.49	0.49
4	-2.25	4.76	0.06	0.06	0.55	0.55
5	-2.00	4.00	0.11	0.11	0.66	0.66
7	-1.50	2.83	0.42	0.42	1.08	1.08
10	-1.00	2.00	0.76	0.76	1.84	1.84
14	-0.50	1.41	1.64	1.64	3.48	3.48
18	0.00	1.00	2.95	2.95	6.43	6.43
25	0.50	0.71	6.49	6.50	12.92	12.93
35	1.00	0.50	15.20	15.22	28.12	28.15
45	1.50	0.35	27.67	27.71	55.79	55.86
60	2.00	0.25	29.01	29.06	84.80	84.92
80	2.50	0.18	11.95	11.97	96.75	96.89
120	3.00	0.13	1.95	1.95	98.70	98.84
170	3.50	0.09	0.32	0.32	99.02	99.16
200	3.75	0.07	0.06	0.06	99.08	99.22
230	4.00	0.06	0.01	0.01	99.09	99.23

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.42	1.98	1.83	1.39	0.90	0.60	-0.24
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.28	0.41	0.83	-1.43	7.39	

DARE COUNTY 2021.GPJ 7/7/21