APPENDIX H

USACE Sediment Compatibility Analysis
Lido Key, Sarasota County Shore Protection Project

October 2014

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Sediment Compatibility Analysis
Lido Key, Sarasota County Shore Protection Project

October 2014

1. Project Description.

The Federally authorized Sarasota County Coastal and Storm Reduction project, Lido Key segment entails the periodic nourishment of 1.56 miles of shoreline on Lido Key between R-monuments R-35 and R-44 with sand dredged from the Big Sarasota Pass ebb shoal. Sediment samples from Big Sarasota Pass ebb shoal were collected in 2012 and 2014 (Plate 1). Data representative of the native beach was taken from *Marine Sand Search Investigation, Lido Key Florida* (Finkl et al., 2008).

2. Sediment Source.

Sediment source configurations were established to minimize impacts from excavation of the ebb shoal at Big Sarasota Pass. Two alternative options are proposed for sand mining as outlined in *Study of Big Sarasota Pass Sediment Mining Alternatives for Sarasota County, Lido Key Shore Protection Project, Sarasota County, Florida* (USACE, 2014). Option 1 proposes to excavate Areas B, C, and the overlap of D2 and D3 to an elevation of -13.5 ft NAVD88 (Table 1). Option 2 proposes to excavate Area B to an elevation of -13.5 ft NAVD88 and the overlap of D2 and D3 to an elevation of -15.5 ft NAVD88 (Table 2). Both Options 1 and 2 are presented independently herein.

The characteristics of the sediment in the Big Sarasota Pass Ebb Shoal were developed from laboratory gradations on samples from core borings VB-BSP12-1 through VB-BSP12-14 and VB-LK14-1 through VB-LK14-32 (Table 1). The materials in the Big Sarasota Pass Ebb Shoal are poorly sorted, mostly fine to medium grained sand-sized quartz, with trace to some coarse sand-sized to fine gravel-sized whole and broken shell. Munsell values range from 6 to 8 and color descriptions vary from white to gray. Using weighted composites for Option 1, the mean grain size was calculated to be 0.26 mm (phi 1.94), the standard deviation 1.08, the fines content 1.42% passing the #230 sieve, and a maximum of 2% retained on the #4 sieve. Using weighted composites for Option 2, the mean grain size was calculated to be 0.22 mm (phi 2.18), the standard deviation 1.04, the fines content 1.58% passing the #230 sieve, and a maximum of 3% retained on the #4 sieve.

Table 1. Geotechnical Summary of borings in Big Sarasota Pass Ebb Shoal for Option 1: B to -13.5', C to -13.5', and D2/D3 overlap to -13.5' (NAVD88)

Sample Designation	Sample Elevation	Mean mm	Mean phi	Median phi	PHI sorting	% retained on #4	% passing #230	Visual Shell %	Carbonate Content	Munsell Color
VB-BSP-12-5	-6.3	0.17	2.56	2.72	0.85	0.19	1.38	19		2.5Y 8/1
	-11.8	0.22	2.19	2.44	1.06	0.30	1.16	16		2.5Y 8/1
VB-BSP-12-9	-12.2	0.17	2.54	2.79	1.09	0.29	0.26	10		2.5Y 8/1
VB-LK14-3	10.3	0.17	2.57	2.98	1.25	0.54	1.11	22.5		5Y 8/1

Sample Designation	Sample Elevation	Mean mm	Mean phi	Median phi	PHI sorting	% retained on #4	% passing #230	Visual Shell %	Carbonate Content	Munsell Color
VB-LK14-5	-7.5	0.17	2.52	2.74	1	0.18	0.85	3.8		5Y 8/1
	-11	0.17	2.56	2.63	0.55	0.00	0.94	3.6		5Y 8/1
VB-LK14-6	-8	0.12	3.05	3.21	0.74	0.1	5.86	4.5		5Y 8/1
VB-LK14-7	-12.5	0.21	2.24	2.34	0.72	0.07	1.71	7.3		5Y 8/1
VB-LK14-29	-11.5	0.17	2.57	2.76	0.99	0.19	1.06	11		5Y 8/1
VB-LK14-31	-12.3	0.45	1.16	2.07	1.83	0.72	1.4	45.8		5Y 8/1
VB-BSP-12-1	-5.6	0.33	1.6	2.49	1.83	0.91	0.73	32		2.5Y 7/1
	-9.3	0.2	2.32	2.68	1.29	0.24	0.92	16	14	2.5Y 8/1
VB-BSP-12-3	-5.8	0.2	2.36	2.52	0.7	0.00	1.59	14		2.5Y 8/1
	-10.9	0.23	2.14	2.67	1.52	0.25	1.6	17		2.5Y 8/1
VB-BSP-12-6	-4.5	0.17	2.54	2.68	0.62	0.00	0.39	11		2.5Y 8/1
	-8.2	0.22	2.16	2.66	1.37	0.46	0.49	15		2.5Y 8/1
	-12	0.18	2.46	2.56	0.57	0.00	0.8	8		2.5Y 8/1
VB-BSP-12-10	-7.3	0.17	2.52	2.72	0.85	0.02	0.54	8		2.5Y 8/1
	-11.4	0.31	1.7	2.38	1.57	0.21	0.65	28		2.5Y 8/1
VB-BSP-12-14	-10.6	0.15	2.72	2.81	0.74	0.03	1.55	3		2.5Y 8/1
VB-LK14-1	-	-	2.82	2.87	0.62	0.00	2.58	3.8		5Y 8/1
VB-LK14-2	-	-	2.5	2.75	0.96	0.00	4.51	9.8		5Y 8/1
VB-LK14-8	-2.5	0.17	2.57	2.67	0.587	0.00	0.93	4.3		5Y 8/1
	-8	0.54	0.9	1.27	1.78	0.42	1.07	53.8		5Y 8/1
	-13	0.45	1.16	1.61	1.59	0.83	0.96	47		5Y 8/1
VB-LK14-10	-6.4	1.02	-0.03	0	2.3	3.07	0.79	64		5Y 8/1
	-9.9	0.19	2.39	2.63	0.87	0.11	2.16	11.7		5Y 8/1
VB-LK14-11	-11	0.15	2.77	2.8	0.5	0.07	1.65	3		5Y 8/1
VB-LK14-12	-10.7	0.86	0.22	0	1.72	1.64	1.21	73.6		5Y 8/1
VB-LK14-13	-13.3	0.26	1.96	2.63	0.6	0.79	1.22	25.5		5Y 8/1
VB-LK14-14	-	-	-	0	-	0.00	0	-		-
VB-LK14-32	-10	0.33	1.59	2.17	1.43	0.70	1	35.9		5Y 8/1
VB-LK14-15	-13.2	1.39	-0.47	2.97	1.7	2.70	2.29	86.9		5Y 8/1
VB-LK14-16	-8.4	0.38	1.4	1.93	1.44	0.64	1.41	47.6		5Y 8/1
VB-LK14-17	-7.6	0.16	2.69	2.76	0.63	0.12	0.99	5.2		5Y 8/1
	-13.1	0.16	2.65	2.75	0.72	0.07	1.1	3.9		5Y 8/1
VB-LK14-18	-4.9	0.28	1.96	2.4	1.41	0.08	1.22	30.1		5Y 8/1
	-8.4	0.26	2.73	2.51	1.35	0.64	0.99	24.4		5Y 8/1
	-12.4	0.15	2.86	2.75	0.41	0.00	0.91	2.6		5Y 8/1
VB-LK14-19	-	-	2.61	2.9	1.2	0.15	3.2	11		5Y 6/1
VB-LK14-20		-	2.76	3.14	1.2	0.22	7.52	8.6		5Y 6/1
Weighted Composites		**0.26**	**2.17**	**2.45**	**1.08**	**0.36**	**1.42**	**21.2**	**14**	**5Y 8/1**

Table 2. Geotechnical Summary of borings in Big Sarasota Pass Ebb Shoal for Option 2: B to -13.5' and D2/D3 overlap to -15.5' (NAVD88)

Sample Designation	Sample Elevation	Mean mm	Mean phi	Median phi	PHI sorting	% retained on #4	% passing #230	Visual Shell %	Carbonate Content	Munsell Color
VB-BSP-12-5	-6.3	0.17	2.56	2.72	0.85	0.19	1.38	19		2.5Y 8/1
	-11.8	0.22	2.19	2.44	1.06	0.30	1.16	16		2.5Y 8/1
VB-BSP-12-9	-12.2	0.17	2.54	2.79	1.09	0.29	0.26	10		2.5Y 8/1
VB-LK14-3	10.3	0.17	2.57	2.98	1.25	0.54	1.11	22.5		5Y 8/1
VB-LK14-5	-7.5	0.17	2.52	2.74	1	0.18	0.85	3.8		5Y 8/1
	-11	0.17	2.56	2.63	0.55	0.00	0.94	3.6		5Y 8/1
VB-LK14-6	-8	0.12	3.04	3.21	0.74	0.13	5.86	4.5		5Y 8/1
	-13.5	0.22	2.18	2.66	1.42	0.30	0.9	16.4		5Y 8/1
VB-LK14-7	-12.5	0.21	2.24	2.34	0.72	0.07	1.71	7.3		5Y 8/1
VB-LK14-29	-11.5	0.17	2.57	2.76	0.99	0.19	1.06	11		5Y 8/1
	-15	0.25	2.23	2.43	1.37	0.27	1.33	24.5		5Y 8/1
VB-LK14-31	-12.3	0.45	1.16	2.07	1.83	0.72	1.4	45.8		5Y 8/1
VB-LK14-15	-13.2	1.39	-0.47	2.97	1.7	2.70	2.29	86.9		5Y 8/1
VB-LK14-16	-8.4	0.38	1.4	1.93	1.44	0.64	1.41	47.6		5Y 8/1
VB-LK14-17	-7.6	0.16	2.69	2.76	0.63	0.12	0.99	5.2		5Y 8/1
	-13.1	0.16	2.65	2.75	0.72	0.07	1.1	3.9		5Y 8/1
VB-LK14-18	-4.9	0.28	1.96	2.4	1.41	0.08	1.22	30.1		5Y 8/1
	-8.4	0.26	2.73	2.51	1.35	0.64	0.99	24.4		5Y 8/1
	-12.4	0.15	2.86	2.75	0.41	0.00	0.91	2.6		5Y 8/1
VB-LK14-19	-	-	2.61	2.9	1.2	0.15	3.2	11		5Y 6/1
VB-LK14-20	-	-	2.76	3.14	1.2	0.22	7.52	8.6		5Y 6/1
Weighted Composites		**0.22**	**2.36**	**2.64**	**1.04**	**0.31**	**1.58**	**19.3**	**NA**	**5Y 8/1**

3. Existing Lido Key Beach.

Data representative of the native beach was taken from *Marine Sand Search Investigation, Lido Key Florida* (Finkl et al., 2008). Lido Key was constructed in the 1920s by filling in the area between a series of small islands. Therefore, native samples are difficult to define. Finkl et al. (2008) composited sediment statistics and present the existing Lido Key beach to have a mean grain size of 0.22 mm, silt content of 0.55%, sorting of 0.64ϕ, visual shell estimate of 0.25% and a moist Munsell color value of 6.0 or lighter.

4. Compatibility analysis.

Overfill and Renourishment Ratios were calculated using the weighted composite Mean phi and standard deviation found from the Method of Moments (Pettijohn et al, 1987) that were input into the USACE Coastal Engineering Manual as seen in Figure 1 and Figure 2 (CEM, 2002). The overfill method used in the CEM is the Krumbein-James technique (Krumbein and James, 1965).

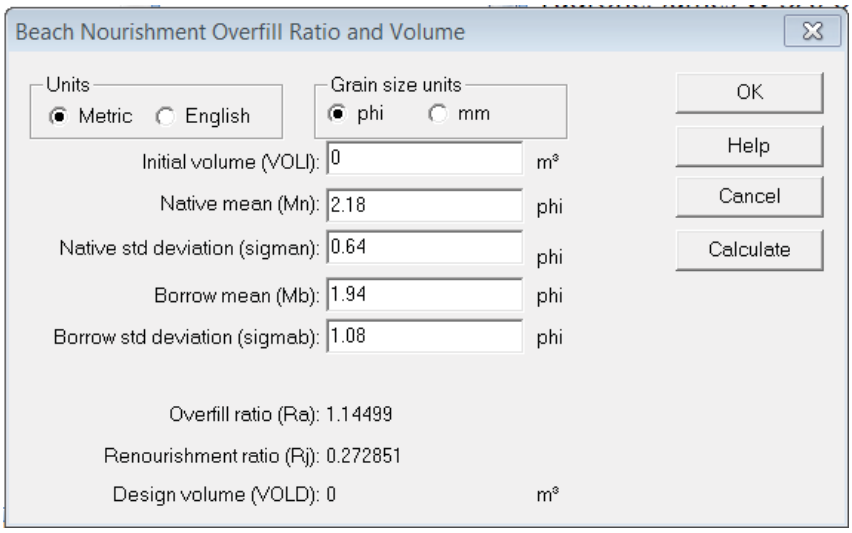

Figure 1. Option 1 screen shot of the USACE CEM overfill and renourishment ratio calculator tool.

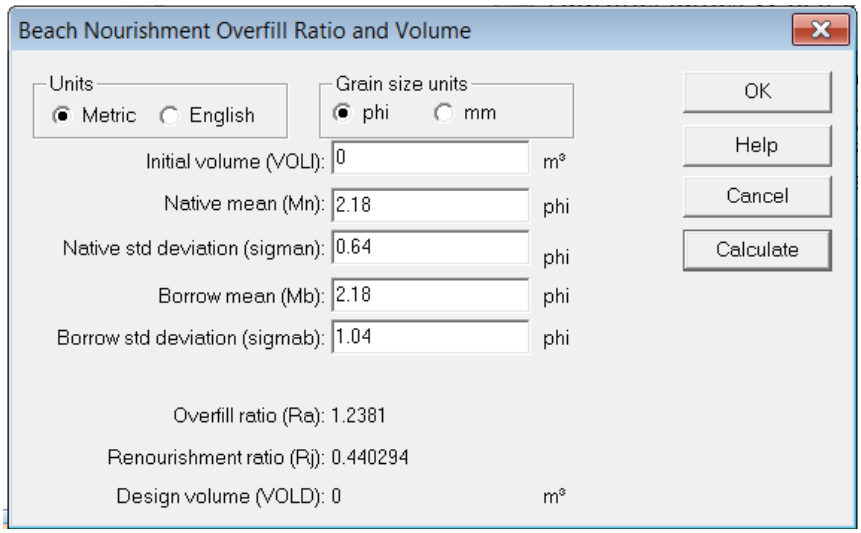

Figure 2. Option 2 screen shot of the USACE CEM overfill and renourishment ratio calculator tool.

Results for overfill and renourishment ratios are presented in Table 3. The mean composite grain size, sorting and overfill ratio for both Options from the Big Sarasota Pass ebb shoal fall within the compatible range of the existing beach. However, Option 1 is slightly more compatible.

Table 3. Overfill ratios for the existing Lido Key beach and the two Options from Big Sarasota Pass ebb shoal as the borrow source.

	Mean (phi)	Mean (mm)	Sorting (PHI)	sorting ratio	mean difference	Overfill ratio
	M_{φ}	M_{mm}	σ_{φ}	$\sigma_{\varphi b}/\sigma_{\varphi n}$	$\frac{M_{\varphi b}-M_{\varphi n}}{\sigma_{\varphi n}}$	R_A
Lido Key Existing Beach (Finkl, et al. 2008)						
	2.18	0.22	0.64	-	-	-
Big Sarasota Pass Weighted Composites						

	Mean (phi)	Mean (mm)	Sorting (PHI)	sorting ratio	mean difference	Overfill ratio
	M_{φ}	M_{mm}	σ_{φ}	$\sigma_{\varphi b}/\sigma_{\varphi n}$	$\frac{M_{\varphi b}-M_{\varphi n}}{\sigma_{\varphi n}}$	R_A
Option 1:	1.94	0.26	1.08	1.69	-0.38	1.14
Option 2:	2.18	0.22	1.04	1.63	0.00	1.24

5. Summary and Conclusions.

The results of the compatibility analysis show that the sediments in the Big Sarasota Pass ebb shoal are similar and compatible to the existing beach sediments on Lido Key, according to the requirements of the DEP "Sand Rule" guidelines (Chapter 62B-41.0072J).

6. References.

CPE (Coastal Planning & Engineering), 1992. *Lido Key Beach Restoration Project Sand Search Report*. Boca Raton, Florida: Coastal Planning & Engineering, v.p.

Finkl, C.W.; Andrews, J.L., Benedet, L., Larenas, M., Rodriguez, K. and Forrest, B., 2007. *Marine Sand Search Investigation Lido Key, Florida.* Boca Raton, Florida: Coastal Planning & Engineering, Inc. 24p. (Prepared for City of Sarasota, Florida)

Krumbein, W. C., and James, W. R. 1965. "Spacial and Temporal Variations in Geometric and Material Properties of a Natural Beach," Technical Report No. 44, Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Pettijohn, F.J., Potter, P.E., and Siever, R., 1987. Sand and Sandstone. Springer-Verlag, New York.

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U.S. Army Corps of Engineers. 2002. Coastal Engineering Manual. Engineer Manual 1110-2 1100, U.S. Army Corps of Engineers, Washington, D.C. (in 6 volumes).

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US Army Corps of Engineers
Jacksonville District

Sarasota County Shore Protection Project
Lido Key Segment
Sarasota County,Florida

Location of Field Investigations

File name: Lido.dgn

Dated: October 2014

Scale: AS SHOWN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

PLATE NO.

Plate 1

Boring Designation VB-BSP-12-50n

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticn	Jacksonville Districtn	SHEET 1n OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota Countyn		9. SIZE A TYPE OF BIT See Remarksn 10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.) / HORIZONT: NAD83 / VERTICA: NAVD88n	
2. BORING ESI NA TION VB-BSP-12-5n	LOCATION COOR INATES X = 470,695 Y = 1,n 5,969n	11. MANUFACTURER'S DESIGNA ION OF DRILL Vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Athena Technologies, Inc.n	CONTRACTOR F E NO. 6734-13-9n	12. TOTAL AMPLE	DISTURB D: 5 / UNDISTUR D (UD):
4. NAME O DRILLER Palmer McClellan		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER .1 Ft.n	
		15. DATE RING	STARTED: 1-16-13n / COMPLETED: 1-16-13n
6. THICK SS O F OV RBURD N/An		16. ELEVA ON OP OF BOR NG -5.8 Ft.n	
7. DEPTH D LLED NTO OCK N/An		17. TOTAL COV Y FO BO I NG 90 %n	
8. TOTAL D TH OF BORING 18.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR Joel Raven, Geologistn	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-5.8n	.								
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine-grained sand-sizedn shell, no reaction with HCl, moist,n 2.5Y 8/1 white (SP)		1n		-6.3n		
-1n.1n	4.3n								
-1n.3n	4.5n		SAND, well-graded, mostly fine-grainedn sand-sized quartz, some fine to coarsen gravel-sized shell, strong reaction with HCl,n moist, 2.5Y n/1 light gray (SW)						
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine to coarsen gravel-sized shell, no reaction with HCl, moist,n 2.5Y 8/1 white (SP)		2n		-11.8n		
			At El. -11.8 Ft., little fine to medium-grainedn sand-sized shell, trace silt, weak reaction withn HCln						
			At El. -15.8 Ft., trace shell, no reaction with HCln		3n		-15.8n		
-1n.6n	11.8n								
-1n.8n	12.n		SAND, silty, mostly fine-grained sand-sizedn quartz, no reaction with HCl, moist, 0n25" thickn sandy silt seams throughout, 2.5Y 5/1 grayn (SM)		4n		-1n.8n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, no reaction with HCl, moist,n 2.5Y 8/1 white (SP)						

5n 10n 15

(Continued)

Boring Designation VB-BSP-12-50n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,695 Y = 1,075,969n	-5.8 Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-23.n	17.2n				5n		-22.8n		
-23.8n	18.n		SAND, well-graded, mostly fine-grainedn sand-sized quartz, some sand to gravel-sizedn shell, strong reaction with HCl, moist,n 2.5Y 7/1 light gray (SW)				-23.8n		

Abbreviations:0n
NR = Not Recorded.0n

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n7n	SP*n
2n	6.0/6.2n	SP*n
3n	1n.0/10n2n	SP*n
4n	12.0/12.2n	SP*n
5n	1n.0/17n2n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

15n
20n
25n
30n
35

Boring Designation VB-BSP-12-90n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n
	South Atlanticn	Jacksonville Districtn	OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota Countyn		9. SIZE A TYPE OF BIT See Remarksn		
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONT NAD83	VERTICA NAVD88n
2. BORING ESI NA TION VB-BSP-12-9n	LOCATION COOR INATES X = 469,692 Y = 1,n 4,966n	11. MANUFACTURER'S DESIGNA ION OF DRILL Vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME	
3. DRILLIN ENCY Athena Technologies, Inc.n	CONTRACTOR F E NO. 6734-13-9n	12. TOTAL AMPLE	DISTURB D 5	UNDISTUR D (UD)
4. NAME O DRILLER Palmer McClellan		13. TOTAL MBER CORE BOXES		
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA BEARING	14. ELEVA ON GROUND WA ER -0r8 Ft.n		
		15. DATE RING	STARTED 1-16-13n	COMPLETED 1-16-13n
6. THICK SS O F OV RBURD N/An		16. ELEVA ON OP OF BOR NG -11.n Ft.n		
7. DEPTH D LLED NTO OCK N/An		17. TOTAL COV Y FO BO I NG 89 %n		
8. TOTAL D TH OF BORING 12.6 Ft.n		18. SIGN URE ND TI LE OF INSPECTOR Joel Raven, Geologistn		

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-11.n	.								
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine to medium-grainedn sand-sized shell, no reaction with HCl, moist,n 2.5Y 8/1 white (SP)		1n		-12.2n		
			At El. -15.7n Ft., trace shell, trace siltn		2n 2-Posn		-15.n -15.n		
			At El. -1n.2 Ft., few sand to gravel-sized shelln						
-19.8n	8.1n		At El. -19.6 Ft., little fine to medium-grainedn sand-sized shell, weak reaction with HCln		3n		-19.6n		
			SAND, well-graded, mostly fine-grainedn sand-sized quartz, some sand to gravel-sizedn shell, strong reaction with HCl, moist,n 2.5Y 7/1 light gray (SW)						
-22.n	10.3n								
-22.n	11.n		SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, trace silt, trace fine to coarsen gravel-sized shell, no reaction with HCl, moist,n 2.5Y 7/1 light gray (SP)		4n		-22.n		
-24.1n	12.4n		SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, little medium ton coarse-grained sand-sized shell, few silt, weakn reaction with HCl, moist, 2.5Y 7/1 light grayn (SP-SM)				-24.3		
-24.3n	12.6n		LIMESTONE, 2.5Y n/1 light grayn BORING TERMINATED IN REFUSALn				Abbreviations:n NR = Not Recorded.n		
			NOTES:n 1. USACE Jacksonville is the custodian forn						

5n 10n 15

(Continued)

Boring Designation VB-BSP-12-90n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,692 Y = 1,074,966n	-11.n Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n7n	SP*n
2n	4.0/4.2n	SP*n
2-Postn	4.n/4.2n	SP*0n
3n	.9/8.1n	SP*0n
4n	11.0/11.2n	SP-SM*0n

*Lab visual classification based on gradation curve. No Atterberg limits.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-290n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n OF 2n SHEETS
	South Atlanticn	Jacksonville Districtn	

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONT NAD83
			VERTICA NAVD88n
2. BORING ESI NA TION VB-LK14-29n	LOCATION COOR INATES X = 469,919 Y = 1,n 6,185n	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJn	CONTRACTOR F E NO. 6738-14-5346n	12. TOTAL AMPLE	DISTURB D 4 / UNDISTUR D (UD)
4. NAME O DRILLER Lester Gaughfn		13. TOTAL MBER CORE BOXES	
		14. ELEVA ON GROUND WA ER N/An	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	15. DATE RING	STARTED 5-10-14n / COMPLETED 5-10-14n
6. THICK SS O F OV RBURD N/An		16. ELEVA ON OP OF BOR NG -11.n Ft.n	
7. DEPTH D LLED NTO OCK N/An		17. TOTAL COV Y FO BO I NG 84 %n	
8. TOTAL D TH OF BORING 20.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-11.n	.						-11.n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine to medium-grainedn sand-sized shell, trace silt, weak reaction withn HCl, moist, 5Y 8/1 white (SP)	3340n	1n		-11.5n Vibracore		
			At El. -15.0n Ft., little fine to coarse-grainedn sand-sized shelln		2n		-15.n		
			At El. -18.8 Ft., little fine to medium-grainedn sand-sized shell, 5Y 6/1 grayn At El. -19.3 Ft., few fine to medium-grainedn sand-sized shelln At El. -19.9 Ft., little sand to gravel-sized shell,n strong reaction with HCl, 5Y 8/1 whiten		3n		-19.n		
			At El. -22.1 Ft., few gravel to cobble-sizedn limestone, weak reaction with HCln At El. -22.2 Ft., some sand to gravel-sizedn shell, some fine-grained sand-sized quartz, fewn medium-grained sand-sized limestone, strongn reaction with HCln		4n		-23.5n		
-24.1n	13.1n		SILT, inorganic-L, few sand to gravel-sizedn limestone, trace quartz, trace shell, weakn reaction with HCl, moist, dissolutionedn limestone, 5Y 6/1 gray (ML)						

5n

10n

15

(Continued)

Boring Designation VB-LK14-290n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,919 Y = 1,076,185n	-11.n Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2n.n	16.n								
-31.n	20.n	NO RECOVERY					-31.n		

BORING TERMINATED IN REFUSALn

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Vibracore refused due to presence ofn limestone.n

4. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0r8n	SP*n
2n	4.0/4.3n	SP*n
3n	8.0/8.3n	SP*n
4n	12.5/12.8n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-30n

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticn	Jacksonville Districtn	SHEET 1n OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn	
		10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)	HORIZONT: NAD83 / VERTICA: NAVD88n
2. BORING ESI NA TION: VB-LK14-3n	LOCATION COOR INATES: X = 470,n59 Y = 1,n 4,342n	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJn	CONTRACTOR F E NO.: 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 4 / UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/An	
		15. DATE RING	STARTED: 5-12-14n / COMPLETED: 5-12-14n
6. THICK SS O F OV RBURD: N/An		16. ELEVA ON OP OF BOR NG: -9.8 Ft.n	
7. DEPTH D LLED NTO OCK: N/An		17. TOTAL COV Y FO BO I NG: 81 %n	
8. TOTAL D TH OF BORING: 19.1 Ft.n		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-9.8n	.						-9.8n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, little fine to medium-grainedn sand-sized shell, trace silt, weak reaction withn HCl, moist, 5Y 8/1 white (SP)	3100n	1n		-1n.3n Vibracore		
							-15.8n		
			At El. -15.8 Ft., some fine to medium-grainedn sand-sized shell, strong reaction with HCln		2n				
			At El. -16.6 Ft., little sand to gravel-sized shell,n 5Y 7/1 light grayn						
-2n.4n	10.6n		At El. -19.7n Ft., some sand to gravel-sized shelln						
			SAND, well-graded, mostly sand to gravel-sizedn shell, little fine-grained sand-sized quartz, tracen silt, strong reaction with HCl, moist,n 5Y 8/1 white (SW)				-2n.8n		
-21.n	11.9n				3n				
			SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, little medium ton coarse-grained sand-sized shell, few silt, strongn reaction with HCl, moist, 5Y 5/1 gray (SP-SM)				-22.3n		
					4n				
			At El. -23.3 Ft., some sand to gravel-sized shelln						
-24.3n	14.5n								
			SILT, inorganic-L, little sand to gravel-sizedn						

5n 10n 15

SAJ RM 1836
JUN 02

(Continued)

Boring Designation VB-LK14-30n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,059 Y = 1,074,342n	-9.8 Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-25.3n	15.5n		shell, few silt, strong reaction with HCl, moist,n 5Y 5/1 gray (ML)						
		NO RECOVERY							
-28.9n	19.1n						-28.9n		

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID n	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n8n	SP*n
2n	6.0/6.3n	SP*n
3n	11.0/11.3n	SW*n
4n	12.5/12.8n	SP-SM*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

SAJ RM 1836-A
JUN 02

Boring Designation VB-LK14-310n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n
	South Atlanticn	Jacksonville Districtn	OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn	
		10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)	HORIZONT: NAD83n
			VERTICA: NAVD88n
2. BORING ESI NA TION: VB-LK14-31n	LOCATION COOR INATES: X = 469,213 Y = 1,n 3,852n	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJn	CONTRACTOR F E NO.: 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 3 / UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/An	
		15. DATE RING	STARTED: 5-10-14n / COMPLETED: 5-10-14n
6. THICK SS O F OV RBURD: N/An		16. ELEVA ON OP OF BOR NG: -11.8 Ft.n	
7. DEPTH D LLED NTO OCK: N/An		17. TOTAL COV Y FO BO I NG: 65 %n	
8. TOTAL D TH OF BORING: 20.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-11.8n	.						-11.8n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, some medium ton coarse-grained sand-sized shell, trace silt,n strong reaction with HCl, moist, 5Y 8/1 whiten (SP)	2600n	1n		-12.3n Vibracore		
-16.3n	4.5n						-16.3n		
-16.8n	5.n		SAND, poorly-graded, mostly sand ton gravel-sized shell, little fine-grained sand-sizedn quartz (SP)		2n				
			SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, some sand ton gravel-sized shell, few silt, strong reaction withn HCl, moist, 5Y 6/1 gray (SP-SM)				-1n.8n		
-21.n	9.2n		At El. -1n.5 Ft., trace shell, weak reaction withn HCln		3n				
			SAND, silty, mostly fine-grained sand-sizedn quartz, some silt, few medium ton coarse-grained sand-sized shell, weak reaction with HCl, moist, 5Y 6/1 gray (SM)						
			At El. -21.9 Ft., little silt, 5Y 8/1 whiten						
			At El. -23.3 Ft., little medium to coarse-grainedn sand-sized shell, strong reaction with HCl,n moist, 5Y n/1 light grayn						
-24.1n	12.3n								
-24.8n	13.n		SILT, inorganic-L, few medium ton coarse-grained sand-sized shell, trace quartz,n weak reaction with HCl, moist, 5Y 6/1 grayn (ML)						
		NO RECOVERY							

5n

10n

15n

(Continued)

Boring Designation VB-LK14-310n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,213 Y = 1,073,852n	-11.8 Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-31.8n	20.n	NO RECOVERY					-31.8n		

BORING TERMINATED IN REFUSALn

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn IDn	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n8n	SP*n
2n	4.5/4.8n	SP*n
3n	6.0/6.3n	SP-SM*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-50n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n OF 2n SHEETS
	South Atlanticn	Jacksonville Districtn	

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONT NAD83 / VERTICA NAVD88n
2. BORING ESI NA TION VB-LK14-5n	LOCATION COOR INATES X = 470,n12 Y = 1,n 6,822n	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJn	CONTRACTOR F E NO. 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 4 / UNDISTUR D (UD)
4. NAME O DRILLER Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER N/An	
		15. DATE RING	STARTED 5-12-14n / COMPLETED 5-12-14n
6. THICK SS O F OV RBURD N/An		16. ELEVA ON OP OF BOR NG -7r0rFt.n	
7. DEPTH D LLED NTO OCK N/An		17. TOTAL COV Y FO BO I NG 80 %n	
8. TOTAL D TH OF BORING 20.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-7r0n	.						-7r0n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, little fine to medium-grainedn sand-sized shell, weak reaction with HCl, moist,n 5Y 8/1 white (SP)	3200n			-7r5n Vibracore		
					1n				
			At El. -8.5 Ft., trace shelln				-11.n		
					2n				
									5n
							-16.n		
			At El. -16.0rFt., trace siltn		3n				
									10n
			At El. -2n.4 Ft., some sand to gravel-sizedn shell, strong reaction with HCl, 5Y n/1 light grayn				-22.n		15

(Continued)

Boring Designation VB-LK14-50n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,7n12 Y = 1,0n76,822n	-7n0nFt.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			At El. -22.0nFt., trace shell, 5Y 8/1 whiten		4				
-22.8	15.8n								
-23.n	16.n		SAND, silty, mostly fine-grained sand-sizedn quartz, little silt, few medium to coarse-grainedn sand-sized shell, trace limestone, strongn reaction with HCl, moist, 5Y 8/1 white (SM)						
		NO RECOVERY							
-2n.n	20.n						-2n.n		

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n8n	SP*n
2n	4.0n/4.3n	SP*n
3n	9.0n/9.3n	SP*n
4n	15.0n/15.3n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-60n

DRILLING LOG

DIVISION: South Atlanticn	INSTALLATION: Jacksonville Districtn	SHEET 1n OF 2n SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn	9. SIZE A TYPE OF BIT: See Remarksn		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)	HORIZONT: NAD83	VERTICA: NAVD88n
2. BORING ESI NA TION: VB-LK14-6n	LOCATION COOR INATES: X = 470,344 Y = 1,n 5,238n	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJn	CONTRACTOR F E NO.: 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 5 / UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/An	
		15. DATE RING	STARTED: 5-11-14n / COMPLETED: 5-11-14n
6. THICK SS O F OV RBURD: N/An		16. ELEVA ON OP OF BOR NG: -7r5 Ft.n	
7. DEPTH D LLED NTO OCK: N/An		17. TOTAL COV Y FO BO I NG: 81 %n	
8. TOTAL D TH OF BORING: 20.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-7r5n	.						-7r5n		
			SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, few silt, tracen shell, weak reaction with HCl, moist,n 5Y 8/1 white (SP-SM)	3220n	1n		-8.0n Vibracore		
			At El. -8.3 Ft., few sand to gravel-sized shelln						
			At El. -9.3 Ft., discontinue shelln						
			At El. -12.5 Ft., few medium to coarse-grainedn sand-sized shelln						5n
-13.5n	6.n		At El. -13.2 Ft., trace shelln				-13.5n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, little medium ton coarse-grained sand-sized shell, strong reaction with HCl, moist, 5Y 8/1 white (SP)		2n				
			At El. -16.6 Ft., some sand to gravel-sized shelln						
-1n.5n	10.n		SAND, poorly-graded, mostly sand ton gravel-sized shell, some fine-grainedn sand-sized quartz (SP)						10n
							-19.n		
					3n		-19.8n		
			At El. -19.8 Ft., trace silt, 5Y 5/1 grayn		4n				
-2n.4n	12.9n		SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, little sand to gravel-sizedn shell, weak reaction with HCl, 5Y 8/1 whiten (SP)		5n		-2n.6n		15

(Continued)

Boring Designation VB-LK14-60n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,344 Y = 1,075,238n	-7r5 Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-23.6n	16.1n		At El. -22.5 Ft., some sand to gravel-sizedn shell, strong reaction with HCl, 5Y n/1 light grayn						
-2n.5n	20.n	NO RECOVERY					-2n.5n		

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0r8n	SP-SM*n
2n	6.0/6.3n	SP*n
3n	11.5/11.8n	SP*n
4n	12.3/12.6n	SP*n
5n	13.1/13.4n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-0n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n
	South Atlanticn	Jacksonville Districtn	OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn 10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)	HORIZONT: NAD83 / VERTICA: NAVD88n
2. BORING ESI NA TION: VB-LK14-n	LOCATION COOR INATES: X = 470,215 Y = 1,n ,n41n	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJn	CONTRACTOR F E NO.: 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 4 / UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/An	
		15. DATE RING	STARTED: 5-11-14n / COMPLETED: 5-11-14n
6. THICK SS O F OV RBURD: N/An		16. ELEVA ON OP OF BOR NG: -12.n Ft.n	
7. DEPTH D LLED NTO OCK: N/An		17. TOTAL COV Y FO BO I NG: 9 %n	
8. TOTAL D TH OF BORING: 14.4 Ft.n		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-12.n	.						-12.n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few medium-grainedn sand-sized shell, trace silt, weak reaction withn HCl, moist, 5Y 8/1 white (SP)	2280n	1n		-12.5n Vibracore		
			At El. -13.4 Ft., trace shelln				-16.n		
			At El. -16.0nFt., little sand to gravel-sized shell,n strong reaction with HCln At El. -16.3 Ft., trace shell, weak reaction withn HCln		2n		-18.n		5n
-18.n	6.n				3n				
			SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, some sand ton gravel-sized shell, few silt, strong reaction withn HCl, moist, 5Y 5/1 gray (SP-SM)						
-2n.n	8.n								
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine-grained sand-sizedn shell, trace silt, weak reaction with HCl, moist,n 5Y 7/1 light gray (SP)				-21.5n		
					4n				10n
-23.4n	11.4n		At El. -23.1 Ft., few sand to gravel-sized shell,n strong reaction with HCln						
-24.1n	12.1n	NO RECOVERY							
			SAND, silty, mostly fine-grained sand-sizedn quartz, little silt, few medium to coarse-grainedn sand-sized shell, few sand to cobble-sizedn limestone, strong reaction with HCl, moist,n 5Y 7/1 light gray (SM)						
-26.4n	14.4n						-26.4		
			NOTES:n				Abbreviations:n		15

(Continued)

Boring Designation VB-LK14-0n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,215 Y = 1,n ,n41n	-12.n Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTH	LABORATORYn CLASSIFICATIONn
1n	.5/0n8n	SP*n
2n	4.0/4.3n	SP*n
3n	6.0/6.3n	SP*n
4n	9.5/9.8n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designationf VB-BSP-12-14f

DRILLING LOG

DIVISION: South Atlanticf
INSTALLATION: Jacksonville Districtf
SHEET 1f OF 2f SHEETS

1. PROJE: Big Sarasota Pass Ebb Shoalf, Sarasota Countyf
9. SIZE A TYPE OF BIT: See Remarksf
10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f | HORIZONT: NAD8 | VERTICA: NAVD88f
2. BORING ESI NA TION: VB-BSP-12-1f | LOCATION COOR INATES: X = f73, 153 Y = 1,077,510f
11. MANUFACTURER'S DESIGNA ION OF DRILL: Vibracoref | ☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Athena Technologies, Inc.f | CONTRACTOR F E NO.: 6734-13-9700f
12. TOTAL AMPLE | DISTURB D: 7 | UNDISTUR D (UD): 0f
4. NAME O DRILLER: Palmer McClellanf
13. TOTAL MBER CORE BOXES: 0f
14. ELEVA ON GROUND WA ER: -0.4fFt.f
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED | DEG. FRO VERTICA | BEARING
15. DATE RING | STARTED: 01-17-13f | COMPLETED: 01-17-13f
6. THICK SS O F OV RBURD: N/Af
16. ELEVA ON OP OF BOR NG: -5.1 Ft.f
7. DEPTH D LLED NTO OCK: N/Af
17. TOTAL COV Y FO BO I NG: 87 %f
8. TOTAL D TH OF BORING: 14.7 Ft.f
18. SIGN URE ND TI LE OF INSPECTOR: Joel Raven, Geologistf

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-5.1f	0.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, some sand to gravel-sizedf shell, strong reaction with HCl, moist,f 2.5Y 7/1 light gray (SP)f				-5.6f		
					1f				
			At El. -6.f Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HCl,f 2.5Y 8/1 whitef						
			At El. -7.2 Ft., little sand to gravel-sized shell,f weak reaction with HClf						
							-9.3f		
			At El. -9.1 Ft., little fine to medium-grainedf sand-sized shell, no reaction with HClf		2f		-9.3f		
					2-Postf				
			From El. -10.3fto -11.1 Ft., 1.25" thick seamsf of organic sand, 2.5Y 6/1 grayf						
			At El. -11.1 Ft., few sand to gravel-sized shell,f 2.5Y 8/1 whitef						
			From El. -1f .0 to -1f .2 Ft., 0.5" thick seams of organic sandf				-1f .6f		
			At El. -1f .6 Ft., few medium-grained sand-sizedf shellf						
							-16.1f		
			At El. -16.1 Ft., few fine-grained sand-sizedf shell, trace silt, 2.5Y 6/1 grayf						
-17.1f	12.0f		At El. -16.4fFt., 1.5" thick seams of sandy siltf				-17.1f		
			At El. -16.9 Ft., 1.25" thick seams of sandy siltf		5f				
-18.f	13.2f		SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, few silt, few finef to medium-grained sand-sized shell, no reactionf with HCl, moist, 2.5Y 6/1 gray (SP-SM)f				-18.9f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few medium-grainedf sand-sized shell, no reaction with HCl, moist,f 2.5Y 6/1 gray (SP)f		6f				
-19.8f	14.7f						-19.8		
			BORING TERMINATED IN REFUSALf						

0f, 5f, 10f, 15

(Continued)

Boring Designationf VB-BSP-12-14f

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 473,153 Y = 1,077,510f	-5.1 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	.2/4f4f	SP*f
2-Postf	4.2/ .f	SP*4f
	9.5/9.7f	SP*4f
	11.0/11.2f	SP*f
5f	12.0/12.2f	SP-SM*f
6f	1f .8/14f0f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-BSP-12-104f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 2f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota Countyf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8 / VERTICA NAVD88f
2. BORING ESI NA TION VB-BSP-12-10f	LOCATION COOR INATES X = f70, 692 Y = 1,073,971f	11. MANUFACTURER'S DESIGNA ION OF DRILL Vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Athena Technologies, Inc.f	CONTRACTOR F E NO. 6734-13-9700f	12. TOTAL AMPLE	DISTURB D: 5 / UNDISTUR D (UD): 0f
4. NAME O DRILLER Palmer McClellanf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER 0.1 Ft.f	
		15. DATE RING	STARTED 01-16-13f / COMPLETED 01-16-13f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -6.8 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 88 %f	
8. TOTAL D TH OF BORING 17.5 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Joel Raven, Geologistf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-6.8f	0.0f								
			SAND, poorly-graded, mostly medium-grainedf sand-sized quartz, few sand to gravel-sizedf shell, no reaction with HCl, moist,f 2.5Y 8/1 white (SP)f		1f		-7.3f		
			At El. -9.8 Ft., little sand to gravel-sized shell,f weak reaction with HClf				-11.f		
			At El. -11.4fFt., little medium to coarse-grainedf sand-sized shellf At El. -11.6 Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HClf At El. -12.1 Ft., little sand to gravel-sized shell,f weak reaction with HClf		2f				
			At El. -15.1 Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HClf				-15.f		
			At El. -16.3fFt., few fine to coarse gravel-sizedf shellf						
-20.f	13.5f						-20.f		
-20.6f	13.8f		SAND, poorly-graded, mostly sand tof gravel-sized shell, some fine-grainedf sand-sized quartz, strong reaction with HClf (SP)f						
			SAND, well-graded, mostly fine-grainedf						

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,692 Y = 1,073,971f	-6.8 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-22.9f	16.1f		sand-sized quartz, some sand to gravel-sizedf shell, moist, 2.5Y 7/1 light gray (SW)f						
-2f .f	17.5f		SAND, silty, mostly fine-grained sand-sizedf quartz, little silt, few medium-grainedf sand-sized shell, no reaction with HCl, moist,f 10Y 3f1 very dark greenish gray (SM)f		5f		-2f .f -2f .f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf ID f	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	.6/4f8f	SP*f
	8.5/8.7f	SP*f
	1f .5/13f7f	SP*f
5f	16.5/16.7f	SM*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-BSP-12-14f

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticf	Jacksonville Districtf	SHEET 1f OF 2f SHEETS

1. PROJE	Big Sarasota Pass Ebb Shoalf Sarasota Countyf	9. SIZE A TYPE OF BIT	See Remarksf
		10. COORDI ATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)f / HORIZONT: NAD8 / VERTICA: NAVD88f
2. BORING ESI NA TION	VB-BSP-12-1f	LOCATION COOR INATES	X = f69, 687 Y = 1,072,971f
11. MANUFACTURER'S DESIGNA ION OF DRILL	Vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME	
3. DRILLIN ENCY	Athena Technologies, Inc.f	CONTRACTOR F E NO.	6734-13-9700f
12. TOTAL AMPLE	DISTURB D: 6	UNDISTUR D (UD): 0f	
4. NAME O DRILLER	Palmer McClellanf	13. TOTAL MBER CORE BOXES	0f
14. ELEVA ON GROUND WA ER	-0.7 Ft.f		
5. DIREC I N F B R ING	☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	
15. DATE RING	STARTED: 01-15-13f	COMPLETED: 01-15-13f	
6. THICK SS O F OV RBURD	N/Af	16. ELEVA ON OP OF BOR NG	-10.1 Ft.f
7. DEPTH D LLED NTO OCK	N/Af	17. TOTAL COV Y FO BO I NG	93 %f
8. TOTAL D TH OF BORING	18.9 Ft.f	18. SIGN URE ND TI LE OF INSPECTOR	Joel Raven, Geologistf

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-10.1f	0.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace fine to medium-grainedf sand-sized shell, trace silt, no reaction withf HCl, moist, 2.5Y 8/1 white (SP)f		1f		-10.6f		
-11.f	1.f								
-11.6f	1.5f		SAND, well-graded, mostly fine-grainedf sand-sized quartz, some fine to coarsef gravel-sized shell, strong reaction with HCl,f moist, 2.5Y 7/1 light gray (SW)f						
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace fine to medium-grainedf sand-sized shell, no reaction with HCl, moist,f 2.5Y 8/1 white (SP)f				-1f .1f		
			At El. -1f .1 Ft., some fine to coarse-grainedf sand-sized shell, strong reaction with HCl,f 2.5Y 7/1 light grayf		2f 2-Postf		-1f .1f		
			At El. -15.0 Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HCl,f 2.5Y 8/1 whitef						
			At El. -17.3fFt., little fine gravel-sized shell,f 2.5Y 7/1 light grayf						
			At El. -18.1 Ft., trace fine to medium-grainedf sand-sized shell, trace silt, 2.5Y 8/1 whitef				-19.6f		
			At El. -19.9 Ft., few sand to gravel-sized shell,f 2.5Y 6/1 grayf						
							-22.6f		
-2f .0f	12.9f		At El. -22.6 Ft., little medium to coarse-grainedf sand-sized shell, weak reaction with HClf				-2f .1f		
			SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, some sand tof gravel-sized shell, few silt, strong reaction withf HCl, moist, 2.5Y 6/1 gray (SP-SM)f		5f				

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,687 Y = 1,072,971f	-10.1 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-27.6f	17.5f								
-29.0f	18.9f		SAND, silty, mostly fine-grained sand-sizedf quartz, some silt, strong reaction with HCl,f moist, 10Y 5/1 greenish gray (SM)f				-29.0f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	.0/4f2f	SP*f
2-Postf	4.0/ .2f	SP*f
	9.5/9.7f	SP*f
	12.5/12.7f	SP*f
5f	1f .0/13f2f	SP-SM*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-BSP-12-4f

DRILLING LOG

DIVISION: South Atlanticf	INSTALLATION: Jacksonville Districtf	SHEET 1f OF 2f SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoalf Sarasota Countyf	9. SIZE A TYPE OF BIT: See Remarksf		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8	VERTICA: NAVD88f
2. BORING ESI NA TION: VB-BSP-12-f	LOCATION COOR INATES: X = f72, 693 Y = 1,075,967f	11. MANUFACTURER'S DESIGNA ION OF DRILL: Vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Athena Technologies, Inc.f	CONTRACTOR F E NO.: 6734-13-9700f	12. TOTAL AMPLE	DISTURB D: 6 / UNDISTUR D (UD): 0f
4. NAME O DRILLER: Palmer McClellanf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA: / BEARING:	14. ELEVA ON GROUND WA ER: -0.1 Ft.f	
		15. DATE RING	STARTED: 01-15-13f / COMPLETED: 01-15-13f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -5.3fFt.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: 70 %f	
8. TOTAL D TH OF BORING: 14.1 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Joel Raven, Geologistf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-5.3f	0.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, little fine to medium-grainedf sand-sized shell, trace silt, weak reaction withf HCl, moist, 2.5Y 8/1 white (SP)f		1f		-5.8f		
			At El. -7.2 Ft., some sand to gravel-sized shell,f strong reaction with HCl, 2.5Y 7/1 light grayf						
			At El. -8.f Ft., some fine to coarse-grainedf sand-sized shell, strong reaction with HCl,f 2.5Y 8/1 whitef				-10.9f		
			At El. -10.9 Ft., little medium to coarse-grainedf sand-sized shell, weak reaction with HClf		2f				
			At El. -11.1 Ft., few fine to coarse gravel-sizedf shell, no reaction with HClf						
			At El. -12.6 Ft., some fine to coarsef gravel-sized shell, strong reaction with HCl,f 2.5Y 7/1 light grayf				-1f .8f		
			At El. -1f .0 Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HCl,f 2.5Y 8/1 whitef						
			At El. -1f .6 Ft., little sand to gravel-sized shell,f weak reaction with HClf						
			At El. -1f .8 Ft., little fine to medium-grainedf sand-sized shell, no reaction with HClf						
			At El. -1f .3fFt., some fine to coarsef gravel-sized shell, strong reaction with HCl,f 2.5Y 7/1 light grayf				-16.8f		
-17.1f	11.8f		At El. -16.8 Ft., some sand to gravel-sized shellf				-16.8f		
			SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, little sand tof gravel-sized shell, little medium tof coarse-grained sand-sized limestone, few silt,f strong reaction with HCl, moist, 2.5Y 5/1 grayf (SP-SM)f		Postf 5f		-17.6f		
-18.f	13.0f								
-19.f	14.0f		At El. -17.5 Ft., some silt, trace sand tof gravel-sized shell, no reaction with HClf				-19.		
-19.	14.1f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace fine to coarsef				Abbreviations:f NR = Not Recorded.f		

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)

INSTALLATION: Jacksonville Districtf

SHEET 2f OF 2f SHEETS

PROJECT: Big Sarasota Pass Ebb Shoalf

COORDINATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f | HORIZONT: NAD8f | VERTICA: NAVD88f

LOCATION COOR INATES: X = 472,693 Y = 1,075,967f

ELEVATIO TOP OF BORI G: -5.3fFt.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

gravel-sized shell, no reaction with HCl, moist,f 2.5Y 7/1 light gray (SP)f

LIMESTONE, trace of fine-grained sand-sizedf quartz, 2.5Y 5/1 grayf

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf ID	SAMPLEf DEPTH	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	5.6/5.8f	SP*f
	8.5/8.7f	SP*f
	11.5/11.7f	SP*f
4-Postf	11.5/11.7f	SP*f
5f	12.5/12.5f	SP-SM*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

15f
20f
25f
0f
5f

Boring Designationf VB-BSP-12-64f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 2f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota Countyf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8
			VERTICA NAVD88f
2. BORING ESI NA TION VB-BSP-12-6f	LOCATION COOR INATES X = f71, 692 Y = 1,074,968f	11. MANUFACTURER'S DESIGNA ION OF DRILL Vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Athena Technologies, Inc.f	CONTRACTOR F E NO. 6734-13-9700f	12. TOTAL AMPLE	DISTURB D: 5 UNDISTUR D (UD): 0f
4. NAME O DRILLER Palmer McClellanf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA BEARING	14. ELEVA ON GROUND WA ER 0.1 Ft.f	
		15. DATE RING	STARTED: 01-16-13f COMPLETED: 01-16-13f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -4f0 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 71 %f	
8. TOTAL D TH OF BORING 14.2 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Joel Raven, Geologistf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-4f0f	0.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few fine-grained sand-sizedf shell, no reaction with HCl, moist,f 2.5Y 8/1 white (SP)f		1f		-4f5f		
							-8.2f		
-8.8f	. 8f		At El. -8.2 Ft., little medium to coarse-grainedf sand-sized shell, weak reaction with HClf		2f				
-9.3f	5.f		SAND, well-graded, mostly fine-grainedf sand-sized quartz, some fine to coarsef gravel-sized shell, strong reaction with HCl,f moist, 2.5Y 7/1 light gray (SW)f						
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few fine to coarsef gravel-sized shell, no reaction with HCl, moist,f 2.5Y 8/1 white (SP)f				-12.0f		
			At El. -12.0 Ft., few fine-grained sand-sizedf shellf		+ Postf		-12.0f		
			At El. -12.9 Ft., little fine to coarse gravel-sizedf shell, weak reaction with HCl, 2.5Y 7/1 lightf grayf						
			At El. -15.0 Ft., few fine to coarse gravel-sizedf shell, no reaction with HClf				-17.0f		
			At El. -17.0 Ft., little fine to coarse-grainedf sand-sized shell, trace silt, weak reaction withf HClf						
-18.2f	14.2f						-18.2		
			NOTES:f				Abbreviations:f NR = Not Recorded.f		

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)

INSTALLATION	SHEET 2f OF 2f SHEETS
Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 471,692 Y = 1,074,968f	-4f0 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	.2/4f4f	SP*f
	8.0/8.2f	SP*f
3-Postf	8.0/8.2f	SP*f
	1f .0/13f2f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

15f
20f
25f
0f
5f

Boring Designationf VB-LK1f -14f

DRILLING LOG

DIVISION: South Atlanticf	INSTALLATION: Jacksonville Districtf	SHEET 1f OF 2f SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf	9. SIZE A TYPE OF BIT: See Remarksf		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8	VERTICA: NAVD88f
2. BORING ESI NA TION: VB-LK1f -1f	LOCATION COOR INATES: X = f68, 065 Y = 1,072,266f	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJf	CONTRACTOR F E NO.: 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: UNDISTUR D (UD): 0f
4. NAME O DRILLER: Lester Gaughf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA: BEARING:	14. ELEVA ON GROUND WA ER: N/Af	
		15. DATE RING	STARTED: 05-12-14f COMPLETED: 05-12-14f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -1f .6 Ft.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: 80 %f	
8. TOTAL D TH OF BORING: 18.2 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-1f .6f	0.0f						-1f .6f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace shell, trace silt, nof reaction with HCl, moist, 5Y 8/1 white (SP)f	2900f	1f		-15.1f Vibracore		
					2f		-18.6f		
							-22.1f		
-2f .6f	9.0f		At El. -22.6 Ft., few sand to gravel-sized shell,f strong reaction with HCl, 5Y 7/1 light grayf				-2f .9f		
-2f .5f	9.9f		SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, few silt, fewf medium-grained sand-sized shell, strongf reaction with HCl, moist, 5Y 6/1 gray (SP-SM)f						
			SAND, silty, mostly fine-grained sand-sizedf quartz, little silt, little sand to gravel-sized shell,f strong reaction with HCl, moist, 5Y 7/1 lightf gray (SM)f						
			At El. -26.9 Ft., few sand to gravel-sizedf limestone, possible dissolutioned limestone,f 5Y 8/1 whitef						
-29.1f	14.5f		NO RECOVERY						

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f OF 2f SHEETS
	Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 468,065 Y = 1,072,266f	-1f .6 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-32.8f	18.2f	NO RECOVERY					-32.8f		

BORING TERMINATED IN REFUSALf

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Vibracore refused due to presence of limestone.f

. Laboratory Testing Resultsf

SAMPLEf ID	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	.0/4f3f	SP*f
	7.5/7.8f	SP*f
	9.3f9.6f	SP-SM*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5

Boring Designationf VB-LK1f -104f

DRILLING LOG

DIVISION: South Atlanticf	INSTALLATION: Jacksonville Districtf	SHEET 1f OF 2f SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf	9. SIZE A TYPE OF BIT: See Remarksf		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8	VERTICA: NAVD88f
2. BORING ESI NA TION: VB-LK1f -10f	LOCATION COOR INATES: X = f72, 849 Y = 1,077,f10f	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJf	CONTRACTOR F E NO.: 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: UNDISTUR D (UD): 0f
4. NAME O DRILLER: Jared Johnsonf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA: BEARING:	14. ELEVA ON GROUND WA ER: N/Af	
		15. DATE RING	STARTED: 05-11-14f COMPLETED: 05-11-14f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -5.9 Ft.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: 68 %f	
8. TOTAL D TH OF BORING: 18.5 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-5.9f	0.0f						-5.9f		
			SAND, poorly-graded, mostly sand tof gravel-sized shell, some fine-grainedf sand-sized quartz, strong reaction with HCl,f moist, 5Y 8/1 white (SP)f	2500f	1f		-6.4f Vibracore		
-8.2f	2.f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, little medium-grainedf sand-sized shell (SP)f						
			At El. -9.6 Ft., few medium-grained sand-sizedf shell, trace silt, weak reaction with HClf		2f		-9.9f		
			At El. -1f .7 Ft., little fine to medium-grainedf sand-sized shell, 5Y 7/1 light grayf				-1f .f		
			At El. -1f .9 Ft., few fine-grained sand-sizedf shellf						
-18.f	12.5f						-17.9f		
		NO RECOVERY							

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 472,849 Y = 1,077,f10f	-5.9 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2f .f	18.5f	NO RECOVERY					-2f .f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	.0/4f3f	SP*f
	8.5/8.8f	SP*f
	12.0/12.f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5

Boring Designationf VB-LK1f -114f

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticf	Jacksonville Districtf	SHEET 1f OF 2f SHEETS

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8 / VERTICA NAVD88f
2. BORING ESI NA TION VB-LK1f -11f	LOCATION COOR INATES X = f73, 213 Y = 1,078,521f	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJf	CONTRACTOR F E NO. 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D UNDISTUR D (UD) 0f
4. NAME O DRILLER Jared Johnsonf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA BEARING	14. ELEVA ON GROUND WA ER N/Af	
		15. DATE RING	STARTED 05-11-14f / COMPLETED 05-11-14f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -10.5 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 90 %f	
8. TOTAL D TH OF BORING 18.8 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-10.5f	0.0f						-10.5f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace shell, trace silt, weakf reaction with HCl, moist, 5Y 8/1 white (SP)f	00f	1f		-11.0f Vibracore		
			At El. -1f .5 Ft., few fine-grained sand-sizedf shellf		2f		-1f .5f		
			At El. -18.5 Ft., some medium tof coarse-grained sand-sized shell, strong reactionf with HCl, 5Y 7/1 light grayf				-18.5f		
			At El. -20.0 Ft., few fine-grained sand-sizedf shellf				-21.f		
-21.8f	11.f		SILT, inorganic-L, few fine-grained sand-sizedf quartz, few medium to coarse-grainedf sand-sized shell, few fine to coarse-grainedf sand-sized limestone, strong reaction with HCl,f moist, dissolutioned limestone, 5Y 8/1 whitef (ML)f						

0f 5f 10f 15

(Continued)

Boring Designationf VB-LK1f -114f

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 473,213 Y = 1,078,521f	-10.5 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-27.5f	17.0f								
-29.f	18.8f	NR					-29.f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	.0/4f3f	SP*f
	8.0/8.3f	SP*f
	10.8/11.1f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-LK1f -124f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 2f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8 / VERTICA NAVD88f
2. BORING ESI NA TION VB-LK1f -12f	LOCATION COOR INATES X = f73,f 53 Y = 1,079,f82f	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJf	CONTRACTOR F E NO. 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: 2 / UNDISTUR D (UD): 0f
4. NAME O DRILLER Jared Johnsonf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER N/Af	
		15. DATE RING	STARTED 05-11-14f / COMPLETED 05-11-14f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -10.2 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 61 %f	
8. TOTAL D TH OF BORING 11.6 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-10.2f	0.0f						-10.2f		
			SAND, well-graded, mostly sand to gravel-sizedf shell, little fine-grained sand-sized quartz, tracef silt, strong reaction with HCl, moist,f 5Y 8/1 white (SW)f	1420f	1f		-10.7f Vibracore		
-12.8f	2.6f								
			SAND, poorly-graded, mostly sand tof gravel-sized shell, little fine-grained sand-sizedf quartz, strong reaction with HCl, moist,f 5Y 8/1 white (SP)f				-15.7f		
-16.5f	6.f				2f				
-17.f	7.1f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few medium tof coarse-grained sand-sized shell, trace silt (SP)f						
		NO RECOVERY							
-21.8f	11.6f						-21.8		
			BORING TERMINATED IN REFUSALf NOTES:f 1. USACE Jacksonville is the custodian forf these original files.f 2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f				Abbreviations:f NR = Not Recorded.f		

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)

INSTALLATION	SHEET 2f OF 2f SHEETS
Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = f73,f453 Y = 1,079,f82f	-10.2 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

. Vibracore refused due to presence of shell.f

. Laboratory Testing Resultsf

SAMPLEf ID	SAMPLEf DEPTH	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SW*f
2f	5.5/5.8f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

15f
20f
25f
0f
5f

DRILLING LOG

DIVISION	South Atlanticf
INSTALLATION	Jacksonville District4f
SHEET	14f OF 2f SHEETS
1. PROJE	Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf
9. SIZE A TYPE OF BIT	See Remarksf
10. COORDI ATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)f
HORIZONT	NAD8f
VERTICA	NAVD88f
2. BORING ESI NA TION	VB-LK1f -1f
LOCATION COOR INATES	X = f73, 803 Y = 1,080,f25f
11. MANUFACTURER'S DESIGNA ION OF DRILL	vibracoref
☐ AUTO HAMME ☐ MANUAL HAMME	
3. DRILLIN ENCY	Corps of Engineers - CESAJf
CONTRACTOR F E NO.	6738-14-5f 6
12. TOTAL AMPLE	
DISTURB D	2f
UNDISTUR D (UD)	0f
4. NAME O DRILLER	Jared Johnsonf
13. TOTAL MBER CORE BOXES	0f
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	
DEG. FRO VERTICA	
BEARING	
14. ELEVA ON GROUND WA ER	N/Af
15. DATE RING	
STARTED	05-11-14f
COMPLETED	05-11-14f
6. THICK SS O F OV RBURD	N/Af
16. ELEVA ON OP OF BOR NG	-12.8 Ft.f
7. DEPTH D LLED NTO OCK	N/Af
17. TOTAL COV Y FO BO I NG	74 %f
8. TOTAL D TH OF BORING	8.0 Ft.f
18. SIGN URE ND TI LE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineerf

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-12.8f	0.0f						-12.8f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, little fine to coarse-grainedf sand-sized shell, trace silt, strong reaction withf HCl, moist, 5Y 8/1 white (SP)f	1180f			-1f .4f Vibracore		
					14f				
			At El. -1f .7 Ft., few fine-grained sand-sized4f shell, weak reaction with HCl4f				-17.54f		
					24f				
-18.5	5.7								
-18.7f	5.9f		SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, few silt, tracef shell, trace limestone, weak reaction with HCl,f moist, 5Y 6/1 gray (SP-SM)f						
		NR							
-20.8f	8.0f						-20.8f		
			BORING TERMINATED IN REFUSALf				Abbreviations:f NR = Not Recorded.f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Vibracore refused due to presence of limestone.f

. Laboratory Testing Resultsf

SAMPLE IDf	SAMPLE DEPTHf	LABORATORY CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	.7/5.0f	SP*f

*Lab visual classification based on gradationf

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville Districtf	SHEET 2f OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 473,803 Y = 1,080,f25f	-12.8 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			curve. No Atterberg limits.f						

15f
20f
25f
0f
5f

Boring Designationf VB-LK1f -14f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 1f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8f
			VERTICA NAVD88f
2. BORING ESI NA TION VB-LK1f -1f	LOCATION COOR INATES X = f74, 529 Y = 1,081,094f	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJf	CONTRACTOR F E NO. 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D 0f
			UNDISTUR D (UD) 0f
4. NAME O DRILLER Jared Johnsonf		13. TOTAL MBER CORE BOXES 0f	
		14. ELEVA ON GROUND WA ER N/Af	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA BEARING	15. DATE RING	STARTED 05-11-14f
			COMPLETED 05-11-14f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -16.8 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 64 %f	
8. TOTAL D TH OF BORING . 2 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-16.8f	0.0f						-16.8f		
-17.f	0.5f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace shell, weak reactionf with HCl, moist, 5Y 8/1 white (SP)f						
			SAND, silty, mostly fine-grained sand-sizedf quartz, little silt, few sand to gravel-sized shell,f strong reaction with HCl, moist, 5Y 5/1 grayf (SM)f	64f			Vibracoref		
-19.5f	2.7f		At El. -18.0 Ft., few fine to coarse-grainedf sand-sized limestone, trace shell, possiblef dissolutioned limestone, 5Y 7/1 light grayf						
-21.0f	. 2f	NR					-21.0f		
			BORING TERMINATED IN REFUSALf						

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Vibracore refused due to presence of limestone.f

0f 5f 10f 15f

SAJ RM 1836
JUN 02

Boring Designationf VB-LK1f -24f

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticf	Jacksonville Districtf	SHEET 1f OF 2f SHEETS

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8 / VERTICA: NAVD88f
2. BORING ESI NA TION: VB-LK1f -2f	LOCATION COOR INATES: X = f68, 857 Y = 1,072,891f	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJf	CONTRACTOR F E NO.: 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: 2 / UNDISTUR D (UD): 0f
4. NAME O DRILLER: Lester Gaughf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/Af	
		15. DATE RING	STARTED: 05-12-14f / COMPLETED: 05-12-14f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -17.2 Ft.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: %f	
8. TOTAL D TH OF BORING: 18.5 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-17.2f	0.0f						-17.2f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few medium-grainedf sand-sized shell, trace silt, weak reaction withf HCl, moist, 5Y 8/1 white (SP)f	1640f	1f		-17.7f Vibracore		
							-21.7f		
-22.6f	5.f				2f				
-2f .2f	6.0f		SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, few medium tof coarse-grained sand-sized shell, few silt, strongf reaction with HCl, moist, 5Y 5/1 gray (SP-SM)f						
-25.2	8.0f		SAND, silty, mostly fine-grained sand-sizedf quartz, little silt, strong reaction with HCl, moist,f 5Y 6/1 gray (SM)f At El. -2f .3fFt., few sand to gravel-sizedf limestonef						
-25.f	8.2f	NO RECOVERY	SILT, inorganic-L, few sand to cobble-sizedf limestone, trace shell, trace quartz, strongf reaction with HCl, dissolutioned limestone,f 5Y 8/1 white (ML)f						

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f OF 2f SHEETS
	Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 468,857 Y = 1,072,891f	-17.2 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-35.7f	18.5f	NO RECOVERY					-35.7f		
			BORING TERMINATED IN REFUSALf NOTES:f 1. USACE Jacksonville is the custodian forf these original files.f 2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f . Vibracore refused due to presence of limestone.f . Laboratory Testing Resultsf SAMPLEf IDf — SAMPLEf DEPTHf — LABORATORYf CLASSIFICATIONf 1f — 0.5/0.8f — SP*f 2f — .5/4f8f — SP*f *Lab visual classification based on gradationf curve. No Atterberg limits.f				Abbreviations:f NR = Not Recorded.f		

15f
20f
25f
0f
5

Boring Designationf VB-LK1f -f 24f

DRILLING LOG

DIVISION: South Atlanticf	INSTALLATION: Jacksonville Districtf	SHEET 1f OF 2f SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf	9. SIZE A TYPE OF BIT: See Remarksf		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8	VERTICA: NAVD88f
2. BORING ESI NA TION: VB-LK1f -f 2f	LOCATION COOR INATES: X = f70, 100 Y = 1,073,506f	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJf	CONTRACTOR F E NO.: 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: UNDISTUR D (UD): 0f
4. NAME O DRILLER: Lester Gaughf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA: BEARING:	14. ELEVA ON GROUND WA ER: N/Af	
		15. DATE RING	STARTED: 05-10-14f COMPLETED: 05-10-14f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -9.5 Ft.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: 84 %f	
8. TOTAL D TH OF BORING: 20.0 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-9.5f	0.0f						-9.5f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, some fine to coarse-grainedf sand-sized shell, trace silt, strong reaction withf HCl, moist, 5Y 8/1 white (SP)f	60f	1f		-10.0f Vibracore		
			At El. -12.5 Ft., few medium to coarse-grainedf sand-sized shellf						
			At El. -1f .0 Ft., trace shell, weak reaction withf HClf						
							-15.5f		
			At El. -15.5 Ft., little medium to coarse-grainedf sand-sized shellf		2f				
			At El. -16.0 Ft., trace shellf						
			At El. -19.6 Ft., little medium to coarse-grainedf sand-sized shellf						
-20.6f	11.1f								
			SAND, well-graded, mostly sand to gravel-sizedf shell, little fine-grained sand-sized quartz, tracef silt, strong reaction with HCl, 5Y 8/1 whitef (SW)f				-21.5f		
-22.5f	13.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, little sand to gravel-sizedf shell, trace silt, strong reaction with HCl, moist,f 5Y 8/1 white (SP)f				-2f .0f		
			At El. -2f .0 Ft., trace shell, 5Y 6/1 grayf						
-2f .f	14.8f								

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)

INSTALLATION	SHEET 2f OF 2f SHEETS
Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,100 Y = 1,073,506f	-9.5 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-26.f	16.8f		SAND, silty, mostly fine-grained sand-sizedf quartz, some silt, little sand to gravel-sizedf shell, strong reaction with HCl, moist,f 5Y 6/1 gray (SM)f						
-29.5f	20.0f	NO RECOVERY					-29.5f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	6.0/6.3f	SP*f
	12.0/12.f	SW*f
	1f .5/13f8f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-LK1f -84f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 2f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8 / VERTICA NAVD88f
2. BORING ESI NA TION VB-LK1f -8f	LOCATION COOR INATES X = f71, 150 Y = 1,074,258f	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJf	CONTRACTOR F E NO. 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D UNDISTUR D (UD) 0f
4. NAME O DRILLER Lester Gaughf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER N/Af	
		15. DATE RING	STARTED 05-11-14f / COMPLETED 05-11-14f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -2.0 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 88 %f	
8. TOTAL D TH OF BORING 13.0 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2.0f	0.0f						-2.0f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace shell, weak reactionf with HCl, moist, 5Y 8/1 white (SP)f	2300f	1f		-2.5f Vibracore		
-7.2f	5.2f		SAND, poorly-graded, mostly fine tof coarse-grained sand-sized shell, somef ine-grained sand-sized quartz, trace silt, strongf reaction with HCl (SP)f		2f		-8.0f		
-11.2f	9.2f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few fine to coarse-grainedf sand-sized shell (SP)f At El. -12.2 Ft., some medium tof coarse-grained sand-sized shellf				-1f .0f		
-1f. 5f	11.5f								
-15.0f	13.0f	NR					-15.0		
			BORING TERMINATED IN REFUSALf NOTES:f 1. USACE Jacksonville is the custodian forf these original files.f				Abbreviations:f NR = Not Recorded.f		

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f OF 2f SHEETS
	Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 471,150 Y = 1,074,258f	-2.0 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Vibracore refused due to presence of shell.f

. Laboratory Testing Resultsf

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1f	0.5/0.8f	SP*f
2f	6.0/6.3f	SP*f
	11.0/11.f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

15f
20f
25f
0f
5f

DRILLING LOG

DIVISION South Atlantics	**INSTALLATION** Jacksonville Districts	**SHEET** 1s **OF** 2s **SHEETS**	
1. PROJE Big Sarasota Pa s Ebb Shoals; Sarasota County SPP, FLs	**9. SIZE A TYPE OF BIT** See Remarks		
	10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)s	**HORIZONT** NAD83s	**VERTICA** NAVD88s
2. BORING ESI NA TION VB-LK14-1s	**LOCATION COOR INATES** X = 470,486 Y = 1,s70,749s	**11. MANUFACTURER'S DESIGNA ION OF DRILL** vibracores	☐ **AUTO HAMME** ☐ **MANUAL HAMME**
3. DRILLIN ENCY Corps of Engineers - CESAJs	**CONTRACTOR F E NO.** 6738-14-s346s	**12. TOTAL AMPLE**	**DISTURB D** 3 / **UNDISTUR D (UD)**
4. NAME O DRILLER Lester Gaughfs		**13. TOTAL MBER CORE BOXES**	
5. DIREC I N F B R ING ☒ **VERTICA** ☐ **INCLINED**	**DEG. FRO VERTICA** / **BEARING**	**14. ELEVA ON GROUND WA ER** N/As	
		15. DATE RING	**STARTED** -11-14s / **COMPLETED** -11-14s
6. THICK SS O F OV RBURD N/As		**16. ELEVA ON OP OF BOR NG** -12.7 Ft.s	
7. DEPTH D LLED NTO OCK N/As		**17. TOTAL COV Y FO BO I NG** 83 %s	
8. TOTAL D TH OF BORING 16.2 Ft.s		**18. SIGN URE ND TI LE OF INSPECTOR** Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-12.7s	.						-12.7s		
			SAND, poorly-graded, mostly sand tos gravel-sized shell, few fine-grained sand-sizeds quartz, trace silt, strong reaction with HCl,s moist, 5Y 8/1 white (SP)s	2680s	1s		-13.2s Vibracore		
-16.2s	3.s		SAND, poorly-graded with silt, mostlys fine-grained sand-sized quartz, few silt, fews fine-grained sand-sized shell, weak reactions with HCl, moist, 5Y 8/1 white (SP-SM)s At El. -17.8 Ft., sY 6/1 grays				-18.7s		
-2s.2s	7.s		SAND, silty, mostly fine-grained sand-sizeds quartz, little silt, few sand to gravel-sized shell,s weak reaction with HCl, moist, 5Y 6/1 grays (SM)s At El. -2s.6 Ft., some sand to gravel-sized shells At El. -21.1 Ft., few sand to gravel-sized shells		2s		-2s.7s		
-26.1s	13.4s		At El. -23.7 Ft., occasional gravel tos cobble-sized cemented silty fine sand nodules		3s				
		RECOVERY							

10s

15s

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,486 Y = 1,870,749s	-12.7 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-28.9s	16.2s	NO RECOVE					-28.9s		
		NO	BORING TERMINATED IN REFUSALs				Abbreviations:s NR = Not Recorded.s		

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Vibracore refused due to presence ofs cemened silty fine sand nodules.s

4. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5s0.8s	SP*s
2s	6.0s6.3s	SP-SM*s
3s	8.0s8.3s	SM*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

15s
20s
25s
30s
35

DRILLING LOG

DIVISION South Atlantics	**INSTALLATION** Jacksonville Districts	**SHEET** 1s **OF** 2s **SHEETS**	
1. PROJE Big Sarasota Pa s Ebb Shoals; Sarasota County SPP, FLs	**9. SIZE A TYPE OF BIT** See Remarks		
	10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)s	**HORIZONT** NAD83s	**VERTICA** NAVD88s
2. BORING ESI NA TION VB-LK14-16s	**LOCATION COOR INATES** X = 469,804 Y = 1,s70,s40s	**11. MANUFACTURER'S DESIGNA ION OF DRILL** vibracores	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJs	**CONTRACTOR F E NO.** 6738-14-s346s	**12. TOTAL AMPLE**	**DISTURB D** 4 / **UNDISTUR D (UD)**
4. NAME O DRILLER Lester Gaughfs		**13. TOTAL MBER CORE BOXES**	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	**DEG. FRO VERTICA** / **BEARING**	**14. ELEVA ON GROUND WA ER** N/As	
		15. DATE RING	**STARTED** -11-14s / **COMPLETED** -11-14s
6. THICK SS O F OV RBURD N/As		**16. ELEVA ON OP OF BOR NG** -7.9 Ft.s	
7. DEPTH D LLED NTO OCK N/As		**17. TOTAL COV Y FO BO I NG** 80 %s	
8. TOTAL D TH OF BORING 17.9 Ft.s		**18. SIGN URE ND TI LE OF INSPECTOR** Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-7.9s	.						-7.9s		
			SAND, poorly-graded, mostly fine-graineds and-sized quartz, some fine to coarse-grained sand-sized shell, trace silt, strong reaction withs HCl, moist, sY 8/1 white (SP)s	2860s	1s		-8.4s Vibracore		
			At El. -13.4 Ft., trace shell, discontinue silt,s weak reaction with HCls		2s		-13.9s		
-18.9s	11.s						-18.9s		
			SAND, poorly-graded with silt, mostlys fine-grained sand-sized quartz, few silt, fews medium-grained sand-sized shell, weaks reaction with HCl, moist, sY 8/1 white (SP-SM)s		3s		-19.9s		
-21.4s	13.s		At El. -19.9 Ft., few fine-grained sand-sized shell, sY 6/1 grays		4s				
-22.2s	14.3s	NO RECOVERY	SAND, silty, mostly fine-grained sand-sizeds quartz, little silt, trace shell, weak reaction withs HCl, moist, sY 6/1 gray (SM)s						

10s

15s

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,804 Y = 1,s70,s40s	-7.9 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2s.8s	17.9s	NO RECOVERY					-2s.8s		
			BORING TERMINATED IN REFUSALs NOTES:s 1. USACE Jacksonville is the custodian fors these original files.s 2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s 3. Vibracore refused due to presence ofs limestone.s 4. Laboratory Testing Results SAMPLEs IDs / SAMPLEs DEPTHs / LABORATORYs CLASSIFICATIONs 1s .5 to 0.8s SP*s 2s 6.0 to 6.3s SP*s 3s 11.8/11.3s SP-SM*s 4s 12.8/12.3s SP-SM*s *Lab visual clas ification based on gradations curve. No Atterberg limits.s				Abbreviations:s NR = Not Recorded.s		

15s
20s
25s
30s
35

DRILLING LOG

DIVISION South Atlantics		**INSTALLATION** Jacksonville Districts	**SHEET** 1s **OF** 2s **SHEETS**
1. PROJE Big Sarasota Pa s Ebb Shoals, Sarasota County SPP, FLs		**9. SIZE A TYPE OF BIT** See Remarks	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)s	**HORIZONT** NAD83s / **VERTICA** NAVD88s
2. BORING ESI NA TION VB-LK14-17s	**LOCATION COOR INATES** X = 469,806 Y = 1,s67,947s	**11. MANUFACTURER'S DESIGNA ION OF DRILL** vibracores	☐ **AUTO HAMME** ☐ **MANUAL HAMME**
3. DRILLIN ENCY Corps of Engineers - CESAJs	**CONTRACTOR F E NO.** 6738-14-s346s	**12. TOTAL AMPLE**	**DISTURB D** 4 / **UNDISTUR D (UD)**
4. NAME O DRILLER Lester Gaughfs		**13. TOTAL MBER CORE BOXES**	
5. DIREC I N F B R ING ☒ **VERTICA** ☐ **INCLINED**	**DEG. FRO VERTICA** / **BEARING**	**14. ELEVA ON GROUND WA ER** N/As	
		15. DATE RING	**STARTED** -11-14s / **COMPLETED** -11-14s
6. THICK SS O F OV RBURD N/As		**16. ELEVA ON OP OF BOR NG** -7.1 Ft.s	
7. DEPTH D LLED NTO OCK N/As		**17. TOTAL COV Y FO BO I NG** 77 %s	
8. TOTAL D TH OF BORING 18.4 Ft.s		**18. SIGN URE ND TI LE OF INSPECTOR** Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-7.1s	.						-7.1s		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sizeds hell, trace silt, weak reaction with HCl, moist,s Y 8/1 white (SP)s	2820s			-7.6s Vibracore		
			At El. -7.6 Ft., trace shells		1s				
							-13.1s		
					2s				
			At El. -18.4 Ft., sY 6/1 grays						
							-19.6s		
-2s.1s	13.s		At El. -19.6 Ft., trace shells		3s				
			SAND, poorly-graded with silt, mostlys fine-grained sand-sized quartz, few silt, traces hell, weak reaction with HCl, moist,s Y 6/1 gray (SP-SM)s				-2s.6s		
-21.2s	14.1s	NO RECOVERY			4s				

10s

15s

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,806 Y = 1,867,947s	-7.1 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2s.s	18.4s	NO RECOVERY					-2s.s		

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5/0.8s	SP*s
2s	6.0/6.3s	SP*s
3s	12.5/12.8s	SP*s
4s	13.5/13.8s	SP-SM*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

Abbreviations:s
NR = Not Recorded.s

15s
20s
25s
30s
35

DRILLING LOG

DIVISION: South Atlantics	INSTALLATION: Jacksonville Districts	SHEET 1s OF 2s SHEETS	
1. PROJE: Big Sarasota Pa s Ebb Shoals; Sarasota County SPP, FLs	9. SIZE A TYPE OF BIT: See Remarks		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)s	HORIZONT: NAD83s	VERTICA: NAVD88s
2. BORING ESI NA TION: VB-LK14-18s	LOCATION COOR INATES: X = 469,899 Y = 1,s68,946s	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracores	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJs	CONTRACTOR F E NO.: 6738-14-s346s	12. TOTAL AMPLE	DISTURB D: 4; UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfs		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA; BEARING	14. ELEVA ON GROUND WA ER: N/As	
		15. DATE RING	STARTED: -11-14s; COMPLETED: -11-14s
6. THICK SS O F OV RBURD: N/As		16. ELEVA ON OP OF BOR NG: -4.4 Ft.s	
7. DEPTH D LLED NTO OCK: N/As		17. TOTAL COV Y FO BO I NG: 79 %s	
8. TOTAL D TH OF BORING: 17.s Ft.s		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-4.4s	.						-4.4s		
			SAND, poorly-graded, mostly fine-graineds and-sized quartz, some fine tos medium-grained sand-sized shell, trace silt,s trong reaction with HCl, moist, 5Y 8/1 whites (SP)s	2680s	1s		-4.9s Vibracore		
			At El. -6.1 Ft., trace shell, weak reaction withs HCls				-8.4s		
			At El. -8.4 Ft., little fine to medium-graineds and-sized shell, strong reaction with HCls		2s		-12.4s		
			At El. -1s.3 Ft., trace shell, weak reaction withs HCls		3s		-17.4s		
			At El. -1s.9 Ft., sY 7/1 light grays						
-17.8s	13.4s				4s				
		NO RECOVERY							

10s

15s

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,899 Y = 1,868,946s	-4.4 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-21.4s	17.s	NO RECOVERY					-21.4s		

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5s/3.3s	SP*s
2s	4.0s/4.3s	SP*s
3s	8.0s/8.3s	SP*s
4s	13.0s/13.3s	SP*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

Abbreviations:s
NR = Not Recorded.s

15s
20s
25s
30s
35

DRILLING LOG

DIVISION: South Atlantics	INSTALLATION: Jacksonville Districts	SHEET 1s OF 2s SHEETS	
1. PROJE: Big Sarasota Pa s Ebb Shoals; Sarasota County SPP, FLs	9. SIZE A TYPE OF BIT: See Remarks		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)s	HORIZONT: NAD83	VERTICA: NAVD88s
2. BORING ESI NA TION: VB-LK14-19s	LOCATION COOR INATES: X = 470,135 Y = 1,s66,s 2s	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracores	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJs	CONTRACTOR F E NO.: 6738-14-s346s	12. TOTAL AMPLE	DISTURB D: 4; UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfs		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA:	BEARING:	14. ELEVA ON GROUND WA ER: N/As
		15. DATE RING	STARTED: -11-14s; COMPLETED: -11-14s
6. THICK SS O F OV RBURD: N/As		16. ELEVA ON OP OF BOR NG: -17.6 Ft.s	
7. DEPTH D LLED NTO OCK: N/As		17. TOTAL COV Y FO BO I NG: 96 %s	
8. TOTAL D TH OF BORING: 14.s Ft.s		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-17.6s	.						-17.6s		
			SAND, poorly-graded, mostly fine-graineds and-sized quartz, few medium-graineds and-sized shell, trace silt, weak reaction withs HCl, moist, sY 6/1 gray (SP)s At El. -18.4 Ft., trace shells	2780s	1s		-18.1s Vibracore		
							-21.6s		
					2s		-22.1s		
					3s				
			At El. -23.4 Ft., few fine-grained sand-sized shells						
-2s.6s	8.s						-2s.7s		
			SAND, silty, mostly fine to medium-graineds and-sized quartz, some sand to gravel-sizeds hell, little silt, strong reaction with HCl, moist,s Y 5s1 gray (SM)s		4s				
			At El. -27.1 Ft., little sand to cobble-sized shells						
-28.8s	11.2s								
			SILT, inorganic-L, some fine-graineds and-sized quartz, little medium tos coarse-grained sand-sized shell, fews cobble-sized limestone, strong reaction withs HCl, moist, dis olutioned limestone,s Y 6/1 gray (ML)s At El. -3s.4 Ft., discontinue shell, discontinues limestone, no reaction with HCls						
-31.s	13.9s								
-32.1s	14.s	NR					-32.1		
			BORING TERMINATED IN REFUSALs				Abbreviations:s		

10s

15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,135 Y = 1,s66,s 2s	-17.6 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Vibracore refused due to presence ofs limestone.s

4. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5/0.8s	SP*s
2s	4.0/4.3s	SP*s
3s	4.5/4.8s	SP*s
4s	8.1/8.4s	SM*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

NR = Not Recorded.s

15s
20s
25s
30s
35s

DRILLING LOG

DIVISION South Atlantics		**INSTALLATION** Jacksonville Districts	**SHEET** 1s **OF** 2s **SHEETS**
1. PROJE Big Sarasota Pa s Ebb Shoals Sarasota County SPP, FLs		**9. SIZE A TYPE OF BIT** See Remarks	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)s	**HORIZONT** NAD83 / **VERTICA** NAVD88s
2. BORING ESI NA TION VB-LK14-2s	**LOCATION COOR INATES** X = 470,296 Y = 1,s65,121s	**11. MANUFACTURER'S DESIGNA ION OF DRILL** vibracores	☐ **AUTO HAMME** ☐ **MANUAL HAMME**
3. DRILLIN ENCY Corps of Engineers - CESAJs	**CONTRACTOR F E NO.** 6738-14-s346s	**12. TOTAL AMPLE**	**DISTURB D** 1 / **UNDISTUR D (UD)**
4. NAME O DRILLER Lester Gaughfs		**13. TOTAL MBER CORE BOXES**	
5. DIREC I N F B R ING ☒ **VERTICA** ☐ **INCLINED**	**DEG. FRO VERTICA** / **BEARING**	**14. ELEVA ON GROUND WA ER** N/As	
		15. DATE RING	**STARTED** -10-14s / **COMPLETED** -10-14s
6. THICK SS O F OV RBURD N/As		**16. ELEVA ON OP OF BOR NG** -2s.s Ft.s	
7. DEPTH D LLED NTO OCK N/As		**17. TOTAL COV Y FO BO I NG** 98 %s	
8. TOTAL D TH OF BORING 20.s Ft.s		**18. SIGN URE ND TI LE OF INSPECTOR** Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2s.s	.						-2s.s		
			SAND, poorly-graded with silt, mostly s fine-grained sand-sized quartz, few silt, few s medium-grained sand-sized shell, weak s reaction with HCl, moist, sY 6/1 gray (SP-SM)s	3900s	1s		-2s.s Vibracore		
			At El. -28.5s Ft., little sand to gravel-sized shell, s trong reaction with HCl, sY 8/1 whites						
			At El. -3s.0s Ft., trace shell, weak reaction with s HCls						
			At El. -32.7 Ft., 2" diameter limestone fragments						
-33.s	8.s		SILT, inorganic-L, few sand to gravel-sized s limestone, trace quartz, no reaction with HCl, s moist, dis olutioned limestone, sY 7/4 pale s yellow (ML)s						
			At El. -36.5s Ft., trace limestone, sY 7/6 yellows						
			At El. -37.5s Ft., sY 5/6 olives						
			At El. -38.5s Ft., sY 4/3 olives						

10s

15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,296 Y = 1,865,121s	-2s.s Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			At El. -42.5s Ft., trace shell, sY 6/4 pale olives						
			At El. -43.5s Ft., sY 6/3 pale olives						
-44.s	19.s								
-4s.s	20.s	NR					-4s.s		

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5s0s8s	SP-SM*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

Abbreviations:s
NR = Not Recorded.s

15s
20s
25s
30s
35s

Boring Designation VB-BSP-12-50n

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticn	Jacksonville Districtn	SHEET 1n OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota Countyn		9. SIZE A TYPE OF BIT See Remarksn 10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.) / HORIZONT: NAD83 / VERTICA: NAVD88n	
2. BORING ESI NA TION VB-BSP-12-5n	LOCATION COOR INATES X = 470,695 Y = 1,n 5,969n	11. MANUFACTURER'S DESIGNA ION OF DRILL Vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Athena Technologies, Inc.n	CONTRACTOR F E NO. 6734-13-9n	12. TOTAL AMPLE	DISTURB D: 5 / UNDISTUR D (UD):
4. NAME O DRILLER Palmer McClellan		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER .1 Ft.n	
		15. DATE RING	STARTED: 1-16-13n / COMPLETED: 1-16-13n
6. THICK SS O F OV RBURD N/An		16. ELEVA ON OP OF BOR NG -5.8 Ft.n	
7. DEPTH D LLED NTO OCK N/An		17. TOTAL COV Y FO BO I NG 90 %n	
8. TOTAL D TH OF BORING 18.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR Joel Raven, Geologistn	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-5.8n	.								
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine-grained sand-sizedn shell, no reaction with HCl, moist,n 2.5Y 8/1 white (SP)		1n		-6.3n		
-1n.1n	4.3n								
-1n.3n	4.5n		SAND, well-graded, mostly fine-grainedn sand-sized quartz, some fine to coarsen gravel-sized shell, strong reaction with HCl,n moist, 2.5Y n/1 light gray (SW)						
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine to coarsen gravel-sized shell, no reaction with HCl, moist,n 2.5Y 8/1 white (SP)		2n		-11.8n		
			At El. -11.8 Ft., little fine to medium-grainedn sand-sized shell, trace silt, weak reaction withn HCln						
			At El. -15.8 Ft., trace shell, no reaction with HCln		3n		-15.8n		
-1n.6n	11.8n								
-1n.8n	12.n		SAND, silty, mostly fine-grained sand-sizedn quartz, no reaction with HCl, moist, 0n25" thickn sandy silt seams throughout, 2.5Y 5/1 grayn (SM)		4n		-1n.8n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, no reaction with HCl, moist,n 2.5Y 8/1 white (SP)						

5n 10n 15

(Continued)

Boring Designation VB-BSP-12-50n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,695 Y = 1,075,969n	-5.8 Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-23.n	17.2n				5n		-22.8n		
-23.8n	18.n		SAND, well-graded, mostly fine-grainedn sand-sized quartz, some sand to gravel-sizedn shell, strong reaction with HCl, moist,n 2.5Y 7/1 light gray (SW)				-23.8n		

Abbreviations:0n
NR = Not Recorded.0n

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n7n	SP*n
2n	6.0/6.2n	SP*n
3n	1n.0/10n2n	SP*n
4n	12.0/12.2n	SP*n
5n	1n.0/17n2n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

15n
20n
25n
30n
35

Boring Designation VB-BSP-12-90n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n
	South Atlanticn	Jacksonville Districtn	OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota Countyn		9. SIZE A TYPE OF BIT See Remarksn		
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONT NAD83	VERTICA NAVD88n
2. BORING ESI NA TION VB-BSP-12-9n	LOCATION COOR INATES X = 469,692 Y = 1,n 4,966n	11. MANUFACTURER'S DESIGNA ION OF DRILL Vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME	
3. DRILLIN ENCY Athena Technologies, Inc.n	CONTRACTOR F E NO. 6734-13-9n	12. TOTAL AMPLE	DISTURB D 5	UNDISTUR D (UD)
4. NAME O DRILLER Palmer McClellan		13. TOTAL MBER CORE BOXES		
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA BEARING	14. ELEVA ON GROUND WA ER -0r8 Ft.n		
		15. DATE RING	STARTED 1-16-13n	COMPLETED 1-16-13n
6. THICK SS O F OV RBURD N/An		16. ELEVA ON OP OF BOR NG -11.n Ft.n		
7. DEPTH D LLED NTO OCK N/An		17. TOTAL COV Y FO BO I NG 89 %n		
8. TOTAL D TH OF BORING 12.6 Ft.n		18. SIGN URE ND TI LE OF INSPECTOR Joel Raven, Geologistn		

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-11.n	.								
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine to medium-grainedn sand-sized shell, no reaction with HCl, moist,n 2.5Y 8/1 white (SP)		1n		-12.2n		
			At El. -15.7n Ft., trace shell, trace siltn		2n 2-Posn		-15.n -15.n		
			At El. -1n.2 Ft., few sand to gravel-sized shelln						
-19.8n	8.1n		At El. -19.6 Ft., little fine to medium-grainedn sand-sized shell, weak reaction with HCln		3n		-19.6n		
			SAND, well-graded, mostly fine-grainedn sand-sized quartz, some sand to gravel-sizedn shell, strong reaction with HCl, moist,n 2.5Y 7/1 light gray (SW)						
-22.n	10.3n								
-22.n	11.n		SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, trace silt, trace fine to coarsen gravel-sized shell, no reaction with HCl, moist,n 2.5Y 7/1 light gray (SP)		4n		-22.n		
-24.1n	12.4n		SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, little medium ton coarse-grained sand-sized shell, few silt, weakn reaction with HCl, moist, 2.5Y 7/1 light grayn (SP-SM)				-24.3		
-24.3n	12.6n		LIMESTONE, 2.5Y n/1 light grayn BORING TERMINATED IN REFUSALn				Abbreviations:n NR = Not Recorded.n		
			NOTES:n 1. USACE Jacksonville is the custodian forn						

5n 10n 15

(Continued)

Boring Designation VB-BSP-12-90n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,692 Y = 1,074,966n	-11.n Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n7n	SP*n
2n	4.0/4.2n	SP*n
2-Postn	4.n/4.2n	SP*0n
3n	.9/8.1n	SP*0n
4n	11.0/11.2n	SP-SM*0n

*Lab visual classification based on gradation curve. No Atterberg limits.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-290n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n OF 2n SHEETS
	South Atlanticn	Jacksonville Districtn	

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONT NAD83
			VERTICA NAVD88n
2. BORING ESI NA TION VB-LK14-29n	LOCATION COOR INATES X = 469,919 Y = 1,n 6,185n	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJn	CONTRACTOR F E NO. 6738-14-5346n	12. TOTAL AMPLE	DISTURB D 4 / UNDISTUR D (UD)
4. NAME O DRILLER Lester Gaughfn		13. TOTAL MBER CORE BOXES	
		14. ELEVA ON GROUND WA ER N/An	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	15. DATE RING	STARTED 5-10-14n / COMPLETED 5-10-14n
6. THICK SS O F OV RBURD N/An		16. ELEVA ON OP OF BOR NG -11.n Ft.n	
7. DEPTH D LLED NTO OCK N/An		17. TOTAL COV Y FO BO I NG 84 %n	
8. TOTAL D TH OF BORING 20.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-11.n	.						-11.n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine to medium-grainedn sand-sized shell, trace silt, weak reaction withn HCl, moist, 5Y 8/1 white (SP)	3340n	1n		-11.5n Vibracore		
			At El. -15.0n Ft., little fine to coarse-grainedn sand-sized shelln		2n		-15.n		
			At El. -18.8 Ft., little fine to medium-grainedn sand-sized shell, 5Y 6/1 grayn At El. -19.3 Ft., few fine to medium-grainedn sand-sized shelln At El. -19.9 Ft., little sand to gravel-sized shell,n strong reaction with HCl, 5Y 8/1 whiten		3n		-19.n		
			At El. -22.1 Ft., few gravel to cobble-sizedn limestone, weak reaction with HCln At El. -22.2 Ft., some sand to gravel-sizedn shell, some fine-grained sand-sized quartz, fewn medium-grained sand-sized limestone, strongn reaction with HCln		4n		-23.5n		
-24.1n	13.1n		SILT, inorganic-L, few sand to gravel-sizedn limestone, trace quartz, trace shell, weakn reaction with HCl, moist, dissolutionedn limestone, 5Y 6/1 gray (ML)						

5n

10n

15

(Continued)

Boring Designation VB-LK14-290n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,919 Y = 1,076,185n	-11.n Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2n.n	16.n								
-31.n	20.n	NO RECOVERY					-31.n		

BORING TERMINATED IN REFUSALn

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Vibracore refused due to presence ofn limestone.n

4. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0r8n	SP*n
2n	4.0/4.3n	SP*n
3n	8.0/8.3n	SP*n
4n	12.5/12.8n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-30n

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticn	Jacksonville Districtn	SHEET 1n OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn	
		10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)	HORIZONT: NAD83 / VERTICA: NAVD88n
2. BORING ESI NA TION: VB-LK14-3n	LOCATION COOR INATES: X = 470,n59 Y = 1,n 4,342n	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJn	CONTRACTOR F E NO.: 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 4 / UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/An	
		15. DATE RING	STARTED: 5-12-14n / COMPLETED: 5-12-14n
6. THICK SS O F OV RBURD: N/An		16. ELEVA ON OP OF BOR NG: -9.8 Ft.n	
7. DEPTH D LLED NTO OCK: N/An		17. TOTAL COV Y FO BO I NG: 81 %n	
8. TOTAL D TH OF BORING: 19.1 Ft.n		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-9.8n	.						-9.8n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, little fine to medium-grainedn sand-sized shell, trace silt, weak reaction withn HCl, moist, 5Y 8/1 white (SP)	3100n	1n		-1n.3n Vibracore		
							-15.8n		
			At El. -15.8 Ft., some fine to medium-grainedn sand-sized shell, strong reaction with HCln		2n				
			At El. -16.6 Ft., little sand to gravel-sized shell,n 5Y 7/1 light grayn						
-2n.4n	10.6n		At El. -19.7n Ft., some sand to gravel-sized shelln						
			SAND, well-graded, mostly sand to gravel-sizedn shell, little fine-grained sand-sized quartz, tracen silt, strong reaction with HCl, moist,n 5Y 8/1 white (SW)				-2n.8n		
-21.n	11.9n				3n				
			SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, little medium ton coarse-grained sand-sized shell, few silt, strongn reaction with HCl, moist, 5Y 5/1 gray (SP-SM)				-22.3n		
					4n				
			At El. -23.3 Ft., some sand to gravel-sized shelln						
-24.3n	14.5n								
			SILT, inorganic-L, little sand to gravel-sizedn						

5n 10n 15

SAJ RM 1836
JUN 02

(Continued)

Boring Designation VB-LK14-30n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,059 Y = 1,074,342n	-9.8 Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-25.3n	15.5n		shell, few silt, strong reaction with HCl, moist,n 5Y 5/1 gray (ML)						
		NO RECOVERY							
-28.9n	19.1n						-28.9n		

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID n	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n8n	SP*n
2n	6.0/6.3n	SP*n
3n	11.0/11.3n	SW*n
4n	12.5/12.8n	SP-SM*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

SAJ RM 1836-A
JUN 02

Boring Designation VB-LK14-310n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n
	South Atlanticn	Jacksonville Districtn	OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn	
		10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)	HORIZONT: NAD83n
			VERTICA: NAVD88n
2. BORING ESI NA TION: VB-LK14-31n	LOCATION COOR INATES: X = 469,213 Y = 1,n 3,852n	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJn	CONTRACTOR F E NO.: 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 3 / UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/An	
		15. DATE RING	STARTED: 5-10-14n / COMPLETED: 5-10-14n
6. THICK SS O F OV RBURD: N/An		16. ELEVA ON OP OF BOR NG: -11.8 Ft.n	
7. DEPTH D LLED NTO OCK: N/An		17. TOTAL COV Y FO BO I NG: 65 %n	
8. TOTAL D TH OF BORING: 20.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-11.8n	.						-11.8n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, some medium ton coarse-grained sand-sized shell, trace silt,n strong reaction with HCl, moist, 5Y 8/1 whiten (SP)	2600n	1n		-12.3n Vibracore		
-16.3n	4.5n						-16.3n		
-16.8n	5.n		SAND, poorly-graded, mostly sand ton gravel-sized shell, little fine-grained sand-sizedn quartz (SP)		2n				
			SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, some sand ton gravel-sized shell, few silt, strong reaction withn HCl, moist, 5Y 6/1 gray (SP-SM)				-1n.8n		
-21.n	9.2n		At El. -1n.5 Ft., trace shell, weak reaction withn HCln		3n				
			SAND, silty, mostly fine-grained sand-sizedn quartz, some silt, few medium ton coarse-grained sand-sized shell, weak reaction with HCl, moist, 5Y 6/1 gray (SM)						
			At El. -21.9 Ft., little silt, 5Y 8/1 whiten						
			At El. -23.3 Ft., little medium to coarse-grainedn sand-sized shell, strong reaction with HCl,n moist, 5Y n/1 light grayn						
-24.1n	12.3n								
-24.8n	13.n		SILT, inorganic-L, few medium ton coarse-grained sand-sized shell, trace quartz,n weak reaction with HCl, moist, 5Y 6/1 grayn (ML)						
		NO RECOVERY							

5n

10n

15n

(Continued)

Boring Designation VB-LK14-310n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,213 Y = 1,073,852n	-11.8 Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-31.8n	20.n	NO RECOVERY					-31.8n		

BORING TERMINATED IN REFUSALn

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn IDn	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n8n	SP*n
2n	4.5/4.8n	SP*n
3n	6.0/6.3n	SP-SM*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-50n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n OF 2n SHEETS
	South Atlanticn	Jacksonville Districtn	

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONT NAD83 / VERTICA NAVD88n
2. BORING ESI NA TION VB-LK14-5n	LOCATION COOR INATES X = 470,n12 Y = 1,n 6,822n	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJn	CONTRACTOR F E NO. 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 4 / UNDISTUR D (UD)
4. NAME O DRILLER Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER N/An	
		15. DATE RING	STARTED 5-12-14n / COMPLETED 5-12-14n
6. THICK SS O F OV RBURD N/An		16. ELEVA ON OP OF BOR NG -7r0rFt.n	
7. DEPTH D LLED NTO OCK N/An		17. TOTAL COV Y FO BO I NG 80 %n	
8. TOTAL D TH OF BORING 20.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-7r0n	.						-7r0n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, little fine to medium-grainedn sand-sized shell, weak reaction with HCl, moist,n 5Y 8/1 white (SP)	3200n			-7r5n Vibracore		
					1n				
			At El. -8.5 Ft., trace shelln				-11.n		
					2n				
									5n
							-16.n		
			At El. -16.0rFt., trace siltn		3n				
									10n
			At El. -2n.4 Ft., some sand to gravel-sizedn shell, strong reaction with HCl, 5Y n/1 light grayn				-22.n		15

(Continued)

Boring Designation VB-LK14-50n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,7n12 Y = 1,0n76,822n	-7n0nFt.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			At El. -22.0nFt., trace shell, 5Y 8/1 whiten		4				
-22.8	15.8n								
-23.n	16.n		SAND, silty, mostly fine-grained sand-sizedn quartz, little silt, few medium to coarse-grainedn sand-sized shell, trace limestone, strongn reaction with HCl, moist, 5Y 8/1 white (SM)						
		NO RECOVERY							
-2n.n	20.n						-2n.n		

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0n8n	SP*n
2n	4.0n/4.3n	SP*n
3n	9.0n/9.3n	SP*n
4n	15.0n/15.3n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-60n

DRILLING LOG

DIVISION: South Atlanticn	INSTALLATION: Jacksonville Districtn	SHEET 1n OF 2n SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn	9. SIZE A TYPE OF BIT: See Remarksn		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)	HORIZONT: NAD83	VERTICA: NAVD88n
2. BORING ESI NA TION: VB-LK14-6n	LOCATION COOR INATES: X = 470,344 Y = 1,n 5,238n	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJn	CONTRACTOR F E NO.: 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 5 / UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/An	
		15. DATE RING	STARTED: 5-11-14n / COMPLETED: 5-11-14n
6. THICK SS O F OV RBURD: N/An		16. ELEVA ON OP OF BOR NG: -7r5 Ft.n	
7. DEPTH D LLED NTO OCK: N/An		17. TOTAL COV Y FO BO I NG: 81 %n	
8. TOTAL D TH OF BORING: 20.n Ft.n		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-7r5n	.						-7r5n		
			SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, few silt, tracen shell, weak reaction with HCl, moist,n 5Y 8/1 white (SP-SM)	3220n	1n		-8.0n Vibracore		
			At El. -8.3 Ft., few sand to gravel-sized shelln						
			At El. -9.3 Ft., discontinue shelln						
			At El. -12.5 Ft., few medium to coarse-grainedn sand-sized shelln						5n
-13.5n	6.n		At El. -13.2 Ft., trace shelln				-13.5n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, little medium ton coarse-grained sand-sized shell, strong reaction with HCl, moist, 5Y 8/1 white (SP)		2n				
			At El. -16.6 Ft., some sand to gravel-sized shelln						
-1n.5n	10.n		SAND, poorly-graded, mostly sand ton gravel-sized shell, some fine-grainedn sand-sized quartz (SP)						10n
							-19.n		
					3n		-19.8n		
			At El. -19.8 Ft., trace silt, 5Y 5/1 grayn		4n				
-2n.4n	12.9n		SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, little sand to gravel-sizedn shell, weak reaction with HCl, 5Y 8/1 whiten (SP)		5n		-2n.6n		15

(Continued)

Boring Designation VB-LK14-60n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,344 Y = 1,075,238n	-7r5 Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-23.6n	16.1n		At El. -22.5 Ft., some sand to gravel-sizedn shell, strong reaction with HCl, 5Y n/1 light grayn						
-2n.5n	20.n	NO RECOVERY					-2n.5n		

NOTES:n

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTHn	LABORATORYn CLASSIFICATIONn
1n	.5/0r8n	SP-SM*n
2n	6.0/6.3n	SP*n
3n	11.5/11.8n	SP*n
4n	12.3/12.6n	SP*n
5n	13.1/13.4n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

Abbreviations:n
NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designation VB-LK14-0n

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1n
	South Atlanticn	Jacksonville Districtn	OF 2n SHEETS

1. PROJE Big Sarasota Pass Ebb Shoaln Sarasota County SPP, FLn		9. SIZE A TYPE OF BIT See Remarksn 10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)	HORIZONT: NAD83 / VERTICA: NAVD88n
2. BORING ESI NA TION: VB-LK14-n	LOCATION COOR INATES: X = 470,215 Y = 1,n ,n41n	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoren	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJn	CONTRACTOR F E NO.: 6738-14-5346n	12. TOTAL AMPLE	DISTURB D: 4 / UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfn		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/An	
		15. DATE RING	STARTED: 5-11-14n / COMPLETED: 5-11-14n
6. THICK SS O F OV RBURD: N/An		16. ELEVA ON OP OF BOR NG: -12.n Ft.n	
7. DEPTH D LLED NTO OCK: N/An		17. TOTAL COV Y FO BO I NG: 9 %n	
8. TOTAL D TH OF BORING: 14.4 Ft.n		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineern	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-12.n	.						-12.n		
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few medium-grainedn sand-sized shell, trace silt, weak reaction withn HCl, moist, 5Y 8/1 white (SP)	2280n	1n		-12.5n Vibracore		
			At El. -13.4 Ft., trace shelln				-16.n		
			At El. -16.0nFt., little sand to gravel-sized shell,n strong reaction with HCln At El. -16.3 Ft., trace shell, weak reaction withn HCln		2n		-18.n		5n
-18.n	6.n				3n				
			SAND, poorly-graded with silt, mostlyn fine-grained sand-sized quartz, some sand ton gravel-sized shell, few silt, strong reaction withn HCl, moist, 5Y 5/1 gray (SP-SM)						
-2n.n	8.n								
			SAND, poorly-graded, mostly fine-grainedn sand-sized quartz, few fine-grained sand-sizedn shell, trace silt, weak reaction with HCl, moist,n 5Y 7/1 light gray (SP)				-21.5n		
					4n				10n
-23.4n	11.4n		At El. -23.1 Ft., few sand to gravel-sized shell,n strong reaction with HCln						
-24.1n	12.1n	NO RECOVERY							
			SAND, silty, mostly fine-grained sand-sizedn quartz, little silt, few medium to coarse-grainedn sand-sized shell, few sand to cobble-sizedn limestone, strong reaction with HCl, moist,n 5Y 7/1 light gray (SM)						
-26.4n	14.4n						-26.4		
			NOTES:n				Abbreviations:n		15

(Continued)

Boring Designation VB-LK14-0n

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2n OF 2n SHEETS
	Jacksonville Districtn	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoaln	State Plane, FLW (U.S. Ft.)	NAD83n	NAVD88n

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,215 Y = 1,n ,n41n	-12.n Ft.n

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

1. USACE Jacksonville is the custodian forn these original files.n

2. Soils are field visually classified in accordance with the Unified Soils Classification System.n

3. Laboratory Testing Resultsn

SAMPLEn ID	SAMPLEn DEPTH	LABORATORYn CLASSIFICATIONn
1n	.5/0n8n	SP*n
2n	4.0/4.3n	SP*n
3n	6.0/6.3n	SP*n
4n	9.5/9.8n	SP*n

*Lab visual classification based on gradation curve. No Atterberg limits.n

NR = Not Recorded.n

15n
20n
25n
30n
35n

Boring Designationf VB-BSP-12-14f

DRILLING LOG

DIVISION: South Atlanticf
INSTALLATION: Jacksonville Districtf
SHEET 1f OF 2f SHEETS

1. PROJE: Big Sarasota Pass Ebb Shoalf, Sarasota Countyf
9. SIZE A TYPE OF BIT: See Remarksf
10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f | HORIZONT: NAD8 | VERTICA: NAVD88f
2. BORING ESI NA TION: VB-BSP-12-1f | LOCATION COOR INATES: X = f73, 153 Y = 1,077,510f
11. MANUFACTURER'S DESIGNA ION OF DRILL: Vibracoref | ☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Athena Technologies, Inc.f | CONTRACTOR F E NO.: 6734-13-9700f
12. TOTAL AMPLE | DISTURB D: 7 | UNDISTUR D (UD): 0f
4. NAME O DRILLER: Palmer McClellanf
13. TOTAL MBER CORE BOXES: 0f
14. ELEVA ON GROUND WA ER: -0.4fFt.f
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED | DEG. FRO VERTICA | BEARING
15. DATE RING | STARTED: 01-17-13f | COMPLETED: 01-17-13f
6. THICK SS O F OV RBURD: N/Af
16. ELEVA ON OP OF BOR NG: -5.1 Ft.f
7. DEPTH D LLED NTO OCK: N/Af
17. TOTAL COV Y FO BO I NG: 87 %f
8. TOTAL D TH OF BORING: 14.7 Ft.f
18. SIGN URE ND TI LE OF INSPECTOR: Joel Raven, Geologistf

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-5.1f	0.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, some sand to gravel-sizedf shell, strong reaction with HCl, moist,f 2.5Y 7/1 light gray (SP)f				-5.6f		
					1f				
			At El. -6.f Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HCl,f 2.5Y 8/1 whitef						
			At El. -7.2 Ft., little sand to gravel-sized shell,f weak reaction with HClf						
							-9.3f		
			At El. -9.1 Ft., little fine to medium-grainedf sand-sized shell, no reaction with HClf		2f		-9.3f		
					2-Postf				
			From El. -10.3fto -11.1 Ft., 1.25" thick seamsf of organic sand, 2.5Y 6/1 grayf						
			At El. -11.1 Ft., few sand to gravel-sized shell,f 2.5Y 8/1 whitef						
			From El. -1f .0 to -1f .2 Ft., 0.5" thick seams of organic sandf				-1f .6f		
			At El. -1f .6 Ft., few medium-grained sand-sizedf shellf						
							-16.1f		
			At El. -16.1 Ft., few fine-grained sand-sizedf shell, trace silt, 2.5Y 6/1 grayf						
-17.1f	12.0f		At El. -16.4fFt., 1.5" thick seams of sandy siltf				-17.1f		
			At El. -16.9 Ft., 1.25" thick seams of sandy siltf		5f				
-18.f	13.2f		SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, few silt, few finef to medium-grained sand-sized shell, no reactionf with HCl, moist, 2.5Y 6/1 gray (SP-SM)f				-18.9f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few medium-grainedf sand-sized shell, no reaction with HCl, moist,f 2.5Y 6/1 gray (SP)f		6f				
-19.8f	14.7f						-19.8		
			BORING TERMINATED IN REFUSALf						

0f, 5f, 10f, 15

(Continued)

Boring Designationf VB-BSP-12-14f

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 473,153 Y = 1,077,510f	-5.1 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	.2/4f4f	SP*f
2-Postf	4.2/ .f	SP*4f
	9.5/9.7f	SP*4f
	11.0/11.2f	SP*f
5f	12.0/12.2f	SP-SM*f
6f	1f .8/14f0f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-BSP-12-104f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 2f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota Countyf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8 / VERTICA NAVD88f
2. BORING ESI NA TION VB-BSP-12-10f	LOCATION COOR INATES X = f70, 692 Y = 1,073,971f	11. MANUFACTURER'S DESIGNA ION OF DRILL Vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Athena Technologies, Inc.f	CONTRACTOR F E NO. 6734-13-9700f	12. TOTAL AMPLE	DISTURB D: 5 / UNDISTUR D (UD): 0f
4. NAME O DRILLER Palmer McClellanf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER 0.1 Ft.f	
		15. DATE RING	STARTED 01-16-13f / COMPLETED 01-16-13f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -6.8 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 88 %f	
8. TOTAL D TH OF BORING 17.5 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Joel Raven, Geologistf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-6.8f	0.0f								
			SAND, poorly-graded, mostly medium-grainedf sand-sized quartz, few sand to gravel-sizedf shell, no reaction with HCl, moist,f 2.5Y 8/1 white (SP)f		1f		-7.3f		
			At El. -9.8 Ft., little sand to gravel-sized shell,f weak reaction with HClf				-11.f		
			At El. -11.4fFt., little medium to coarse-grainedf sand-sized shellf At El. -11.6 Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HClf At El. -12.1 Ft., little sand to gravel-sized shell,f weak reaction with HClf		2f				
			At El. -15.1 Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HClf				-15.f		
			At El. -16.3fFt., few fine to coarse gravel-sizedf shellf						
-20.f	13.5f						-20.f		
-20.6f	13.8f		SAND, poorly-graded, mostly sand tof gravel-sized shell, some fine-grainedf sand-sized quartz, strong reaction with HClf (SP)f						
			SAND, well-graded, mostly fine-grainedf						

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,692 Y = 1,073,971f	-6.8 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-22.9f	16.1f		sand-sized quartz, some sand to gravel-sizedf shell, moist, 2.5Y 7/1 light gray (SW)f						
-2f .f	17.5f		SAND, silty, mostly fine-grained sand-sizedf quartz, little silt, few medium-grainedf sand-sized shell, no reaction with HCl, moist,f 10Y 3f1 very dark greenish gray (SM)f		5f		-2f .f -2f .f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf ID f	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	.6/4f8f	SP*f
	8.5/8.7f	SP*f
	1f .5/13f7f	SP*f
5f	16.5/16.7f	SM*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-BSP-12-14f

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticf	Jacksonville Districtf	SHEET 1f OF 2f SHEETS

1. PROJE	Big Sarasota Pass Ebb Shoalf Sarasota Countyf	9. SIZE A TYPE OF BIT	See Remarksf
		10. COORDI ATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)f / HORIZONT: NAD8 / VERTICA: NAVD88f
2. BORING ESI NA TION	VB-BSP-12-1f	LOCATION COOR INATES	X = f69, 687 Y = 1,072,971f
11. MANUFACTURER'S DESIGNA ION OF DRILL	Vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME	
3. DRILLIN ENCY	Athena Technologies, Inc.f	CONTRACTOR F E NO.	6734-13-9700f
12. TOTAL AMPLE	DISTURB D: 6	UNDISTUR D (UD): 0f	
4. NAME O DRILLER	Palmer McClellanf	13. TOTAL MBER CORE BOXES	0f
14. ELEVA ON GROUND WA ER	-0.7 Ft.f		
5. DIREC I N F B R ING	☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	
15. DATE RING	STARTED: 01-15-13f	COMPLETED: 01-15-13f	
6. THICK SS O F OV RBURD	N/Af	16. ELEVA ON OP OF BOR NG	-10.1 Ft.f
7. DEPTH D LLED NTO OCK	N/Af	17. TOTAL COV Y FO BO I NG	93 %f
8. TOTAL D TH OF BORING	18.9 Ft.f	18. SIGN URE ND TI LE OF INSPECTOR	Joel Raven, Geologistf

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-10.1f	0.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace fine to medium-grainedf sand-sized shell, trace silt, no reaction withf HCl, moist, 2.5Y 8/1 white (SP)f		1f		-10.6f		
-11.f	1.f								
-11.6f	1.5f		SAND, well-graded, mostly fine-grainedf sand-sized quartz, some fine to coarsef gravel-sized shell, strong reaction with HCl,f moist, 2.5Y 7/1 light gray (SW)f						
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace fine to medium-grainedf sand-sized shell, no reaction with HCl, moist,f 2.5Y 8/1 white (SP)f				-1f .1f		
			At El. -1f .1 Ft., some fine to coarse-grainedf sand-sized shell, strong reaction with HCl,f 2.5Y 7/1 light grayf		2f 2-Postf		-1f .1f		
			At El. -15.0 Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HCl,f 2.5Y 8/1 whitef						
			At El. -17.3fFt., little fine gravel-sized shell,f 2.5Y 7/1 light grayf						
			At El. -18.1 Ft., trace fine to medium-grainedf sand-sized shell, trace silt, 2.5Y 8/1 whitef				-19.6f		
			At El. -19.9 Ft., few sand to gravel-sized shell,f 2.5Y 6/1 grayf						
							-22.6f		
-2f .0f	12.9f		At El. -22.6 Ft., little medium to coarse-grainedf sand-sized shell, weak reaction with HClf				-2f .1f		
			SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, some sand tof gravel-sized shell, few silt, strong reaction withf HCl, moist, 2.5Y 6/1 gray (SP-SM)f		5f				

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,687 Y = 1,072,971f	-10.1 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-27.6f	17.5f								
-29.0f	18.9f		SAND, silty, mostly fine-grained sand-sizedf quartz, some silt, strong reaction with HCl,f moist, 10Y 5/1 greenish gray (SM)f				-29.0f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	.0/4f2f	SP*f
2-Postf	4.0/ .2f	SP*f
	9.5/9.7f	SP*f
	12.5/12.7f	SP*f
5f	1f .0/13f2f	SP-SM*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-BSP-12-4f

DRILLING LOG

DIVISION: South Atlanticf	INSTALLATION: Jacksonville Districtf	SHEET 1f OF 2f SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoalf Sarasota Countyf	9. SIZE A TYPE OF BIT: See Remarksf		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8	VERTICA: NAVD88f
2. BORING ESI NA TION: VB-BSP-12-f	LOCATION COOR INATES: X = f72, 693 Y = 1,075,967f	11. MANUFACTURER'S DESIGNA ION OF DRILL: Vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Athena Technologies, Inc.f	CONTRACTOR F E NO.: 6734-13-9700f	12. TOTAL AMPLE	DISTURB D: 6 / UNDISTUR D (UD): 0f
4. NAME O DRILLER: Palmer McClellanf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA: / BEARING:	14. ELEVA ON GROUND WA ER: -0.1 Ft.f	
		15. DATE RING	STARTED: 01-15-13f / COMPLETED: 01-15-13f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -5.3fFt.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: 70 %f	
8. TOTAL D TH OF BORING: 14.1 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Joel Raven, Geologistf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-5.3f	0.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, little fine to medium-grainedf sand-sized shell, trace silt, weak reaction withf HCl, moist, 2.5Y 8/1 white (SP)f		1f		-5.8f		
			At El. -7.2 Ft., some sand to gravel-sized shell,f strong reaction with HCl, 2.5Y 7/1 light grayf						
			At El. -8.f Ft., some fine to coarse-grainedf sand-sized shell, strong reaction with HCl,f 2.5Y 8/1 whitef				-10.9f		
			At El. -10.9 Ft., little medium to coarse-grainedf sand-sized shell, weak reaction with HClf		2f				
			At El. -11.1 Ft., few fine to coarse gravel-sizedf shell, no reaction with HClf						
			At El. -12.6 Ft., some fine to coarsef gravel-sized shell, strong reaction with HCl,f 2.5Y 7/1 light grayf				-1f .8f		
			At El. -1f .0 Ft., trace fine to medium-grainedf sand-sized shell, no reaction with HCl,f 2.5Y 8/1 whitef						
			At El. -1f .6 Ft., little sand to gravel-sized shell,f weak reaction with HClf						
			At El. -1f .8 Ft., little fine to medium-grainedf sand-sized shell, no reaction with HClf						
			At El. -1f .3fFt., some fine to coarsef gravel-sized shell, strong reaction with HCl,f 2.5Y 7/1 light grayf				-16.8f		
-17.1f	11.8f		At El. -16.8 Ft., some sand to gravel-sized shellf				-16.8f		
			SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, little sand tof gravel-sized shell, little medium tof coarse-grained sand-sized limestone, few silt,f strong reaction with HCl, moist, 2.5Y 5/1 grayf (SP-SM)f		Postf 5f		-17.6f		
-18.f	13.0f								
-19.f	14.0f		At El. -17.5 Ft., some silt, trace sand tof gravel-sized shell, no reaction with HClf				-19.		
-19.	14.1f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace fine to coarsef				Abbreviations:f NR = Not Recorded.f		

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)

INSTALLATION: Jacksonville Districtf

SHEET 2f OF 2f SHEETS

PROJECT: Big Sarasota Pass Ebb Shoalf

COORDINATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f | HORIZONT: NAD8f | VERTICA: NAVD88f

LOCATION COOR INATES: X = 472,693 Y = 1,075,967f

ELEVATIO TOP OF BORI G: -5.3fFt.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

gravel-sized shell, no reaction with HCl, moist,f 2.5Y 7/1 light gray (SP)f

LIMESTONE, trace of fine-grained sand-sizedf quartz, 2.5Y 5/1 grayf

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf ID	SAMPLEf DEPTH	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	5.6/5.8f	SP*f
	8.5/8.7f	SP*f
	11.5/11.7f	SP*f
4-Postf	11.5/11.7f	SP*f
5f	12.5/12.5f	SP-SM*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

15f
20f
25f
0f
5f

Boring Designationf VB-BSP-12-64f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 2f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota Countyf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8
			VERTICA NAVD88f
2. BORING ESI NA TION VB-BSP-12-6f	LOCATION COOR INATES X = f71, 692 Y = 1,074,968f	11. MANUFACTURER'S DESIGNA ION OF DRILL Vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Athena Technologies, Inc.f	CONTRACTOR F E NO. 6734-13-9700f	12. TOTAL AMPLE	DISTURB D: 5 UNDISTUR D (UD): 0f
4. NAME O DRILLER Palmer McClellanf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA BEARING	14. ELEVA ON GROUND WA ER 0.1 Ft.f	
		15. DATE RING	STARTED: 01-16-13f COMPLETED: 01-16-13f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -4f0 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 71 %f	
8. TOTAL D TH OF BORING 14.2 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Joel Raven, Geologistf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-4f0f	0.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few fine-grained sand-sizedf shell, no reaction with HCl, moist,f 2.5Y 8/1 white (SP)f		1f		-4f5f		
							-8.2f		
-8.8f	. 8f		At El. -8.2 Ft., little medium to coarse-grainedf sand-sized shell, weak reaction with HClf		2f				
-9.3f	5.f		SAND, well-graded, mostly fine-grainedf sand-sized quartz, some fine to coarsef gravel-sized shell, strong reaction with HCl,f moist, 2.5Y 7/1 light gray (SW)f						
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few fine to coarsef gravel-sized shell, no reaction with HCl, moist,f 2.5Y 8/1 white (SP)f				-12.0f		
			At El. -12.0 Ft., few fine-grained sand-sizedf shellf		+ Postf		-12.0f		
			At El. -12.9 Ft., little fine to coarse gravel-sizedf shell, weak reaction with HCl, 2.5Y 7/1 lightf grayf						
			At El. -15.0 Ft., few fine to coarse gravel-sizedf shell, no reaction with HClf				-17.0f		
			At El. -17.0 Ft., little fine to coarse-grainedf sand-sized shell, trace silt, weak reaction withf HClf						
-18.2f	14.2f						-18.2		
			NOTES:f				Abbreviations:f NR = Not Recorded.f		

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)

INSTALLATION	SHEET 2f OF 2f SHEETS
Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 471,692 Y = 1,074,968f	-4f0 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.7f	SP*f
2f	.2/4f4f	SP*f
	8.0/8.2f	SP*f
3-Postf	8.0/8.2f	SP*f
	1f .0/13f2f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

15f
20f
25f
0f
5f

Boring Designationf VB-LK1f -14f

DRILLING LOG

DIVISION: South Atlanticf	INSTALLATION: Jacksonville Districtf	SHEET 1f OF 2f SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf	9. SIZE A TYPE OF BIT: See Remarksf		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8	VERTICA: NAVD88f
2. BORING ESI NA TION: VB-LK1f -1f	LOCATION COOR INATES: X = f68, 065 Y = 1,072,266f	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJf	CONTRACTOR F E NO.: 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: UNDISTUR D (UD): 0f
4. NAME O DRILLER: Lester Gaughf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA: BEARING:	14. ELEVA ON GROUND WA ER: N/Af	
		15. DATE RING	STARTED: 05-12-14f COMPLETED: 05-12-14f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -1f .6 Ft.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: 80 %f	
8. TOTAL D TH OF BORING: 18.2 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-1f .6f	0.0f						-1f .6f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace shell, trace silt, nof reaction with HCl, moist, 5Y 8/1 white (SP)f	2900f	1f		-15.1f Vibracore		
					2f		-18.6f		
							-22.1f		
-2f .6f	9.0f		At El. -22.6 Ft., few sand to gravel-sized shell,f strong reaction with HCl, 5Y 7/1 light grayf				-2f .9f		
-2f .5f	9.9f		SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, few silt, fewf medium-grained sand-sized shell, strongf reaction with HCl, moist, 5Y 6/1 gray (SP-SM)f						
			SAND, silty, mostly fine-grained sand-sizedf quartz, little silt, little sand to gravel-sized shell,f strong reaction with HCl, moist, 5Y 7/1 lightf gray (SM)f						
			At El. -26.9 Ft., few sand to gravel-sizedf limestone, possible dissolutioned limestone,f 5Y 8/1 whitef						
-29.1f	14.5f		NO RECOVERY						

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f OF 2f SHEETS
	Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 468,065 Y = 1,072,266f	-1f .6 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-32.8f	18.2f	NO RECOVERY					-32.8f		

BORING TERMINATED IN REFUSALf

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Vibracore refused due to presence of limestone.f

. Laboratory Testing Resultsf

SAMPLEf ID	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	.0/4f3f	SP*f
	7.5/7.8f	SP*f
	9.3f9.6f	SP-SM*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5

Boring Designationf VB-LK1f -104f

DRILLING LOG

DIVISION: South Atlanticf	INSTALLATION: Jacksonville Districtf	SHEET 1f OF 2f SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf	9. SIZE A TYPE OF BIT: See Remarksf		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8	VERTICA: NAVD88f
2. BORING ESI NA TION: VB-LK1f -10f	LOCATION COOR INATES: X = f72, 849 Y = 1,077,f10f	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJf	CONTRACTOR F E NO.: 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: UNDISTUR D (UD): 0f
4. NAME O DRILLER: Jared Johnsonf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA: BEARING:	14. ELEVA ON GROUND WA ER: N/Af	
		15. DATE RING	STARTED: 05-11-14f COMPLETED: 05-11-14f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -5.9 Ft.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: 68 %f	
8. TOTAL D TH OF BORING: 18.5 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-5.9f	0.0f						-5.9f		
			SAND, poorly-graded, mostly sand tof gravel-sized shell, some fine-grainedf sand-sized quartz, strong reaction with HCl,f moist, 5Y 8/1 white (SP)f	2500f	1f		-6.4f Vibracore		
-8.2f	2.f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, little medium-grainedf sand-sized shell (SP)f						
			At El. -9.6 Ft., few medium-grained sand-sizedf shell, trace silt, weak reaction with HClf		2f		-9.9f		
			At El. -1f .7 Ft., little fine to medium-grainedf sand-sized shell, 5Y 7/1 light grayf				-1f .f		
			At El. -1f .9 Ft., few fine-grained sand-sizedf shellf						
-18.f	12.5f						-17.9f		
		NO RECOVERY							

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 472,849 Y = 1,077,f10f	-5.9 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2f .f	18.5f	NO RECOVERY					-2f .f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	.0/4f3f	SP*f
	8.5/8.8f	SP*f
	12.0/12.f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5

Boring Designationf VB-LK1f -114f

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticf	Jacksonville Districtf	SHEET 1f OF 2f SHEETS

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8 / VERTICA NAVD88f
2. BORING ESI NA TION VB-LK1f -11f	LOCATION COOR INATES X = f73, 213 Y = 1,078,521f	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJf	CONTRACTOR F E NO. 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D UNDISTUR D (UD) 0f
4. NAME O DRILLER Jared Johnsonf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA BEARING	14. ELEVA ON GROUND WA ER N/Af	
		15. DATE RING	STARTED 05-11-14f / COMPLETED 05-11-14f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -10.5 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 90 %f	
8. TOTAL D TH OF BORING 18.8 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-10.5f	0.0f						-10.5f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace shell, trace silt, weakf reaction with HCl, moist, 5Y 8/1 white (SP)f	00f	1f		-11.0f Vibracore		
			At El. -1f .5 Ft., few fine-grained sand-sizedf shellf		2f		-1f .5f		
			At El. -18.5 Ft., some medium tof coarse-grained sand-sized shell, strong reactionf with HCl, 5Y 7/1 light grayf				-18.5f		
			At El. -20.0 Ft., few fine-grained sand-sizedf shellf				-21.f		
-21.8f	11.f		SILT, inorganic-L, few fine-grained sand-sizedf quartz, few medium to coarse-grainedf sand-sized shell, few fine to coarse-grainedf sand-sized limestone, strong reaction with HCl,f moist, dissolutioned limestone, 5Y 8/1 whitef (ML)f						

0f 5f 10f 15

(Continued)

Boring Designationf VB-LK1f -114f

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f
	Jacksonville Districtf	OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 473,213 Y = 1,078,521f	-10.5 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-27.5f	17.0f								
-29.f	18.8f	NR					-29.f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	.0/4f3f	SP*f
	8.0/8.3f	SP*f
	10.8/11.1f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-LK1f -124f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 2f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8 / VERTICA NAVD88f
2. BORING ESI NA TION VB-LK1f -12f	LOCATION COOR INATES X = f73,f 53 Y = 1,079,f82f	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJf	CONTRACTOR F E NO. 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: 2 / UNDISTUR D (UD): 0f
4. NAME O DRILLER Jared Johnsonf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER N/Af	
		15. DATE RING	STARTED 05-11-14f / COMPLETED 05-11-14f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -10.2 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 61 %f	
8. TOTAL D TH OF BORING 11.6 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-10.2f	0.0f						-10.2f		
			SAND, well-graded, mostly sand to gravel-sizedf shell, little fine-grained sand-sized quartz, tracef silt, strong reaction with HCl, moist,f 5Y 8/1 white (SW)f	1420f	1f		-10.7f Vibracore		
-12.8f	2.6f								
			SAND, poorly-graded, mostly sand tof gravel-sized shell, little fine-grained sand-sizedf quartz, strong reaction with HCl, moist,f 5Y 8/1 white (SP)f				-15.7f		
-16.5f	6.f				2f				
-17.f	7.1f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few medium tof coarse-grained sand-sized shell, trace silt (SP)f						
		NO RECOVERY							
-21.8f	11.6f						-21.8		
			BORING TERMINATED IN REFUSALf NOTES:f 1. USACE Jacksonville is the custodian forf these original files.f 2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f				Abbreviations:f NR = Not Recorded.f		

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)

INSTALLATION	SHEET 2f OF 2f SHEETS
Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = f73,f453 Y = 1,079,f82f	-10.2 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

. Vibracore refused due to presence of shell.f

. Laboratory Testing Resultsf

SAMPLEf ID	SAMPLEf DEPTH	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SW*f
2f	5.5/5.8f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

15f
20f
25f
0f
5f

DRILLING LOG

DIVISION	South Atlanticf
INSTALLATION	Jacksonville District4f
SHEET	14f OF 2f SHEETS
1. PROJE	Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf
9. SIZE A TYPE OF BIT	See Remarksf
10. COORDI ATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)f
HORIZONT	NAD8f
VERTICA	NAVD88f
2. BORING ESI NA TION	VB-LK1f -1f
LOCATION COOR INATES	X = f73, 803 Y = 1,080,f25f
11. MANUFACTURER'S DESIGNA ION OF DRILL	vibracoref
☐ AUTO HAMME ☐ MANUAL HAMME	
3. DRILLIN ENCY	Corps of Engineers - CESAJf
CONTRACTOR F E NO.	6738-14-5f 6
12. TOTAL AMPLE	
DISTURB D	2f
UNDISTUR D (UD)	0f
4. NAME O DRILLER	Jared Johnsonf
13. TOTAL MBER CORE BOXES	0f
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	
DEG. FRO VERTICA	
BEARING	
14. ELEVA ON GROUND WA ER	N/Af
15. DATE RING	
STARTED	05-11-14f
COMPLETED	05-11-14f
6. THICK SS O F OV RBURD	N/Af
16. ELEVA ON OP OF BOR NG	-12.8 Ft.f
7. DEPTH D LLED NTO OCK	N/Af
17. TOTAL COV Y FO BO I NG	74 %f
8. TOTAL D TH OF BORING	8.0 Ft.f
18. SIGN URE ND TI LE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineerf

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-12.8f	0.0f						-12.8f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, little fine to coarse-grainedf sand-sized shell, trace silt, strong reaction withf HCl, moist, 5Y 8/1 white (SP)f	1180f			-1f .4f Vibracore		
					14f				
			At El. -1f .7 Ft., few fine-grained sand-sized4f shell, weak reaction with HCl4f				-17.54f		
					24f				
-18.5	5.7								
-18.7f	5.9f		SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, few silt, tracef shell, trace limestone, weak reaction with HCl,f moist, 5Y 6/1 gray (SP-SM)f						
		NR							
-20.8f	8.0f						-20.8f		
			BORING TERMINATED IN REFUSALf				Abbreviations:f NR = Not Recorded.f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Vibracore refused due to presence of limestone.f

. Laboratory Testing Resultsf

SAMPLE IDf	SAMPLE DEPTHf	LABORATORY CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	.7/5.0f	SP*f

*Lab visual classification based on gradationf

(Continued)

Boring Designationf VB-LK1f -14f

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville Districtf	SHEET 2f OF 2f SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 473,803 Y = 1,080,f25f	-12.8 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			curve. No Atterberg limits.f						

15
20f
25f
0f
5

Boring Designationf VB-LK1f -14f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 1f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8f
			VERTICA NAVD88f
2. BORING ESI NA TION VB-LK1f -1f	LOCATION COOR INATES X = f74, 529 Y = 1,081,094f	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJf	CONTRACTOR F E NO. 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D 0f
			UNDISTUR D (UD) 0f
4. NAME O DRILLER Jared Johnsonf		13. TOTAL MBER CORE BOXES 0f	
		14. ELEVA ON GROUND WA ER N/Af	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA BEARING	15. DATE RING	STARTED 05-11-14f
			COMPLETED 05-11-14f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -16.8 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 64 %f	
8. TOTAL D TH OF BORING . 2 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-16.8f	0.0f						-16.8f		
-17.f	0.5f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace shell, weak reactionf with HCl, moist, 5Y 8/1 white (SP)f						
			SAND, silty, mostly fine-grained sand-sizedf quartz, little silt, few sand to gravel-sized shell,f strong reaction with HCl, moist, 5Y 5/1 grayf (SM)f	64f			Vibracoref		
-19.5f	2.7f		At El. -18.0 Ft., few fine to coarse-grainedf sand-sized limestone, trace shell, possiblef dissolutioned limestone, 5Y 7/1 light grayf						
-21.0f	. 2f	NR					-21.0f		
			BORING TERMINATED IN REFUSALf						

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Vibracore refused due to presence of limestone.f

0f 5f 10f 15f

SAJ RM 1836
JUN 02

Boring Designationf VB-LK1f -24f

DRILLING LOG	DIVISION	INSTALLATION	SHEET / OF
	South Atlanticf	Jacksonville Districtf	SHEET 1f OF 2f SHEETS

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8 / VERTICA: NAVD88f
2. BORING ESI NA TION: VB-LK1f -2f	LOCATION COOR INATES: X = f68, 857 Y = 1,072,891f	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJf	CONTRACTOR F E NO.: 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: 2 / UNDISTUR D (UD): 0f
4. NAME O DRILLER: Lester Gaughf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER: N/Af	
		15. DATE RING	STARTED: 05-12-14f / COMPLETED: 05-12-14f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -17.2 Ft.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: %f	
8. TOTAL D TH OF BORING: 18.5 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-17.2f	0.0f						-17.2f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few medium-grainedf sand-sized shell, trace silt, weak reaction withf HCl, moist, 5Y 8/1 white (SP)f	1640f	1f		-17.7f Vibracore		
							-21.7f		
-22.6f	5.f				2f				
-2f .2f	6.0f		SAND, poorly-graded with silt, mostlyf ine-grained sand-sized quartz, few medium tof coarse-grained sand-sized shell, few silt, strongf reaction with HCl, moist, 5Y 5/1 gray (SP-SM)f						
-25.2	8.0f		SAND, silty, mostly fine-grained sand-sizedf quartz, little silt, strong reaction with HCl, moist,f 5Y 6/1 gray (SM)f At El. -2f .3fFt., few sand to gravel-sizedf limestonef						
-25.f	8.2f	NO RECOVERY	SILT, inorganic-L, few sand to cobble-sizedf limestone, trace shell, trace quartz, strongf reaction with HCl, dissolutioned limestone,f 5Y 8/1 white (ML)f						

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f OF 2f SHEETS
	Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 468,857 Y = 1,072,891f	-17.2 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-35.7f	18.5f	NO RECOVERY					-35.7f		
			BORING TERMINATED IN REFUSALf NOTES:f 1. USACE Jacksonville is the custodian forf these original files.f 2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f . Vibracore refused due to presence of limestone.f . Laboratory Testing Resultsf SAMPLEf IDf — SAMPLEf DEPTHf — LABORATORYf CLASSIFICATIONf 1f — 0.5/0.8f — SP*f 2f — .5/4f8f — SP*f *Lab visual classification based on gradationf curve. No Atterberg limits.f				Abbreviations:f NR = Not Recorded.f		

15f
20f
25f
0f
5

Boring Designationf VB-LK1f -f 24f

DRILLING LOG

DIVISION: South Atlanticf	INSTALLATION: Jacksonville Districtf	SHEET 1f OF 2f SHEETS	
1. PROJE: Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf	9. SIZE A TYPE OF BIT: See Remarksf		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)f	HORIZONT: NAD8	VERTICA: NAVD88f
2. BORING ESI NA TION: VB-LK1f -f 2f	LOCATION COOR INATES: X = f70, 100 Y = 1,073,506f	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJf	CONTRACTOR F E NO.: 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D: UNDISTUR D (UD): 0f
4. NAME O DRILLER: Lester Gaughf		13. TOTAL MBER CORE BOXES: 0f	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA: BEARING:	14. ELEVA ON GROUND WA ER: N/Af	
		15. DATE RING	STARTED: 05-10-14f COMPLETED: 05-10-14f
6. THICK SS O F OV RBURD: N/Af		16. ELEVA ON OP OF BOR NG: -9.5 Ft.f	
7. DEPTH D LLED NTO OCK: N/Af		17. TOTAL COV Y FO BO I NG: 84 %f	
8. TOTAL D TH OF BORING: 20.0 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-9.5f	0.0f						-9.5f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, some fine to coarse-grainedf sand-sized shell, trace silt, strong reaction withf HCl, moist, 5Y 8/1 white (SP)f	60f	1f		-10.0f Vibracore		
			At El. -12.5 Ft., few medium to coarse-grainedf sand-sized shellf						
			At El. -1f .0 Ft., trace shell, weak reaction withf HClf						
							-15.5f		
			At El. -15.5 Ft., little medium to coarse-grainedf sand-sized shellf		2f				
			At El. -16.0 Ft., trace shellf						
			At El. -19.6 Ft., little medium to coarse-grainedf sand-sized shellf						
-20.6f	11.1f								
			SAND, well-graded, mostly sand to gravel-sizedf shell, little fine-grained sand-sized quartz, tracef silt, strong reaction with HCl, 5Y 8/1 whitef (SW)f				-21.5f		
-22.5f	13.0f								
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, little sand to gravel-sizedf shell, trace silt, strong reaction with HCl, moist,f 5Y 8/1 white (SP)f				-2f .0f		
			At El. -2f .0 Ft., trace shell, 5Y 6/1 grayf						
-2f .f	14.8f								

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)

INSTALLATION	SHEET 2f OF 2f SHEETS
Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,100 Y = 1,073,506f	-9.5 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-26.f	16.8f		SAND, silty, mostly fine-grained sand-sizedf quartz, some silt, little sand to gravel-sizedf shell, strong reaction with HCl, moist,f 5Y 6/1 gray (SM)f						
-29.5f	20.0f	NO RECOVERY					-29.5f		

NOTES:f

1. USACE Jacksonville is the custodian forf these original files.f

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Laboratory Testing Resultsf

SAMPLEf IDf	SAMPLEf DEPTHf	LABORATORYf CLASSIFICATIONf
1f	0.5/0.8f	SP*f
2f	6.0/6.3f	SP*f
	12.0/12.f	SW*f
	1f .5/13f8f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

Abbreviations:f
NR = Not Recorded.f

15f
20f
25f
0f
5f

Boring Designationf VB-LK1f -84f

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1f OF 2f SHEETS
	South Atlanticf	Jacksonville Districtf	

1. PROJE Big Sarasota Pass Ebb Shoalf Sarasota County SPP, FLf		9. SIZE A TYPE OF BIT See Remarksf	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)f	HORIZONT NAD8 / VERTICA NAVD88f
2. BORING ESI NA TION VB-LK1f -8f	LOCATION COOR INATES X = f71, 150 Y = 1,074,258f	11. MANUFACTURER'S DESIGNA ION OF DRILL vibracoref	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJf	CONTRACTOR F E NO. 6738-14-5f 6f	12. TOTAL AMPLE	DISTURB D UNDISTUR D (UD) 0f
4. NAME O DRILLER Lester Gaughf		13. TOTAL MBER CORE BOXES 0f	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA / BEARING	14. ELEVA ON GROUND WA ER N/Af	
		15. DATE RING	STARTED 05-11-14f / COMPLETED 05-11-14f
6. THICK SS O F OV RBURD N/Af		16. ELEVA ON OP OF BOR NG -2.0 Ft.f	
7. DEPTH D LLED NTO OCK N/Af		17. TOTAL COV Y FO BO I NG 88 %f	
8. TOTAL D TH OF BORING 13.0 Ft.f		18. SIGN URE ND TI LE OF INSPECTOR Stephanie Setser, P.E., Geotechnical Engineerf	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2.0f	0.0f						-2.0f		
			SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, trace shell, weak reactionf with HCl, moist, 5Y 8/1 white (SP)f	2300f	1f		-2.5f Vibracore		
-7.2f	5.2f		SAND, poorly-graded, mostly fine tof coarse-grained sand-sized shell, somef ine-grained sand-sized quartz, trace silt, strongf reaction with HCl (SP)f		2f		-8.0f		
-11.2f	9.2f		SAND, poorly-graded, mostly fine-grainedf sand-sized quartz, few fine to coarse-grainedf sand-sized shell (SP)f At El. -12.2 Ft., some medium tof coarse-grained sand-sized shellf				-1f .0f		
-1f. 5f	11.5f								
-15.0f	13.0f	NR					-15.0		
			BORING TERMINATED IN REFUSALf NOTES:f 1. USACE Jacksonville is the custodian forf these original files.f				Abbreviations:f NR = Not Recorded.f		

0f 5f 10f 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2f OF 2f SHEETS
	Jacksonville Districtf	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoalf	State Plane, FLW (U.S. Ft.)f	NAD8f	NAVD88f

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 471,150 Y = 1,074,258f	-2.0 Ft.f

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

2. Soils are field visually classified inf accordance with the Unified Soils Classificationf System.f

. Vibracore refused due to presence of shell.f

. Laboratory Testing Resultsf

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1f	0.5/0.8f	SP*f
2f	6.0/6.3f	SP*f
	11.0/11.f	SP*f

*Lab visual classification based on gradationf curve. No Atterberg limits.f

15f
20f
25f
0f
5f

DRILLING LOG

DIVISION South Atlantics	**INSTALLATION** Jacksonville Districts	**SHEET** 1s **OF** 2s **SHEETS**	
1. PROJE Big Sarasota Pa s Ebb Shoals; Sarasota County SPP, FLs	**9. SIZE A TYPE OF BIT** See Remarks		
	10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)s	**HORIZONT** NAD83s	**VERTICA** NAVD88s
2. BORING ESI NA TION VB-LK14-1s	**LOCATION COOR INATES** X = 470,486 Y = 1,s70,749s	**11. MANUFACTURER'S DESIGNA ION OF DRILL** vibracores	☐ **AUTO HAMME** ☐ **MANUAL HAMME**
3. DRILLIN ENCY Corps of Engineers - CESAJs	**CONTRACTOR F E NO.** 6738-14-s346s	**12. TOTAL AMPLE**	**DISTURB D** 3 / **UNDISTUR D (UD)**
4. NAME O DRILLER Lester Gaughfs		**13. TOTAL MBER CORE BOXES**	
5. DIREC I N F B R ING ☒ **VERTICA** ☐ **INCLINED**	**DEG. FRO VERTICA** / **BEARING**	**14. ELEVA ON GROUND WA ER** N/As	
		15. DATE RING	**STARTED** -11-14s / **COMPLETED** -11-14s
6. THICK SS O F OV RBURD N/As		**16. ELEVA ON OP OF BOR NG** -12.7 Ft.s	
7. DEPTH D LLED NTO OCK N/As		**17. TOTAL COV Y FO BO I NG** 83 %s	
8. TOTAL D TH OF BORING 16.2 Ft.s		**18. SIGN URE ND TI LE OF INSPECTOR** Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-12.7s	.						-12.7s		
			SAND, poorly-graded, mostly sand tos gravel-sized shell, few fine-grained sand-sizeds quartz, trace silt, strong reaction with HCl,s moist, 5Y 8/1 white (SP)s	2680s	1s		-13.2s Vibracore		
-16.2s	3.s		SAND, poorly-graded with silt, mostlys fine-grained sand-sized quartz, few silt, fews fine-grained sand-sized shell, weak reactions with HCl, moist, 5Y 8/1 white (SP-SM)s At El. -17.8 Ft., sY 6/1 grays				-18.7s		
-2s.2s	7.s		SAND, silty, mostly fine-grained sand-sizeds quartz, little silt, few sand to gravel-sized shell,s weak reaction with HCl, moist, 5Y 6/1 grays (SM)s At El. -2s.6 Ft., some sand to gravel-sized shells At El. -21.1 Ft., few sand to gravel-sized shells		2s		-2s.7s		
-26.1s	13.4s		At El. -23.7 Ft., occasional gravel tos cobble-sized cemented silty fine sand nodules		3s				
		RECOVERY							

10s

15s

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,486 Y = 1,870,749s	-12.7 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-28.9s	16.2s	NO RECOVE					-28.9s		
		NO	BORING TERMINATED IN REFUSALs				Abbreviations:s NR = Not Recorded.s		

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Vibracore refused due to presence ofs cemened silty fine sand nodules.s

4. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5s0.8s	SP*s
2s	6.0s6.3s	SP-SM*s
3s	8.0s8.3s	SM*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

15s
20s
25s
30s
35

DRILLING LOG

DIVISION South Atlantics	**INSTALLATION** Jacksonville Districts	**SHEET** 1s **OF** 2s **SHEETS**	
1. PROJE Big Sarasota Pa s Ebb Shoals; Sarasota County SPP, FLs	**9. SIZE A TYPE OF BIT** See Remarks		
	10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)s	**HORIZONT** NAD83s	**VERTICA** NAVD88s
2. BORING ESI NA TION VB-LK14-16s	**LOCATION COOR INATES** X = 469,804 Y = 1,s70,s40s	**11. MANUFACTURER'S DESIGNA ION OF DRILL** vibracores	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY Corps of Engineers - CESAJs	**CONTRACTOR F E NO.** 6738-14-s346s	**12. TOTAL AMPLE**	**DISTURB D** 4 / **UNDISTUR D (UD)**
4. NAME O DRILLER Lester Gaughfs		**13. TOTAL MBER CORE BOXES**	
5. DIREC I N F B R ING ☒ VERTICA ☐ INCLINED	**DEG. FRO VERTICA** / **BEARING**	**14. ELEVA ON GROUND WA ER** N/As	
		15. DATE RING	**STARTED** -11-14s / **COMPLETED** -11-14s
6. THICK SS O F OV RBURD N/As		**16. ELEVA ON OP OF BOR NG** -7.9 Ft.s	
7. DEPTH D LLED NTO OCK N/As		**17. TOTAL COV Y FO BO I NG** 80 %s	
8. TOTAL D TH OF BORING 17.9 Ft.s		**18. SIGN URE ND TI LE OF INSPECTOR** Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-7.9s	.						-7.9s		
			SAND, poorly-graded, mostly fine-graineds and-sized quartz, some fine to coarse-grained sand-sized shell, trace silt, strong reaction withs HCl, moist, sY 8/1 white (SP)s	2860s	1s		-8.4s Vibracore		
			At El. -13.4 Ft., trace shell, discontinue silt,s weak reaction with HCls		2s		-13.9s		
-18.9s	11.s						-18.9s		
			SAND, poorly-graded with silt, mostlys fine-grained sand-sized quartz, few silt, fews medium-grained sand-sized shell, weaks reaction with HCl, moist, sY 8/1 white (SP-SM)s		3s		-19.9s		
-21.4s	13.s		At El. -19.9 Ft., few fine-grained sand-sized shell, sY 6/1 grays		4s				
-22.2s	14.3s	NO RECOVERY	SAND, silty, mostly fine-grained sand-sizeds quartz, little silt, trace shell, weak reaction withs HCl, moist, sY 6/1 gray (SM)s						

10s

15s

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,804 Y = 1,s70,s40s	-7.9 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2s.8s	17.9s	NO RECOVERY					-2s.8s		
			BORING TERMINATED IN REFUSALs NOTES:s 1. USACE Jacksonville is the custodian fors these original files.s 2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s 3. Vibracore refused due to presence ofs limestone.s 4. Laboratory Testing Results SAMPLEs IDs / SAMPLEs DEPTHs / LABORATORYs CLASSIFICATIONs 1s .5 to 0.8s SP*s 2s 6.0 to 6.3s SP*s 3s 11.8/11.3s SP-SM*s 4s 12.8/12.3s SP-SM*s *Lab visual clas ification based on gradations curve. No Atterberg limits.s				Abbreviations:s NR = Not Recorded.s		

15s
20s
25s
30s
35

DRILLING LOG

DIVISION South Atlantics		**INSTALLATION** Jacksonville Districts	**SHEET** 1s **OF** 2s **SHEETS**
1. PROJE Big Sarasota Pa s Ebb Shoals, Sarasota County SPP, FLs		**9. SIZE A TYPE OF BIT** See Remarks	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)s	**HORIZONT** NAD83s / **VERTICA** NAVD88s
2. BORING ESI NA TION VB-LK14-17s	**LOCATION COOR INATES** X = 469,806 Y = 1,s67,947s	**11. MANUFACTURER'S DESIGNA ION OF DRILL** vibracores	☐ **AUTO HAMME** ☐ **MANUAL HAMME**
3. DRILLIN ENCY Corps of Engineers - CESAJs	**CONTRACTOR F E NO.** 6738-14-s346s	**12. TOTAL AMPLE**	**DISTURB D** 4 / **UNDISTUR D (UD)**
4. NAME O DRILLER Lester Gaughfs		**13. TOTAL MBER CORE BOXES**	
5. DIREC I N F B R ING ☒ **VERTICA** ☐ **INCLINED**	**DEG. FRO VERTICA** / **BEARING**	**14. ELEVA ON GROUND WA ER** N/As	
		15. DATE RING	**STARTED** -11-14s / **COMPLETED** -11-14s
6. THICK SS O F OV RBURD N/As		**16. ELEVA ON OP OF BOR NG** -7.1 Ft.s	
7. DEPTH D LLED NTO OCK N/As		**17. TOTAL COV Y FO BO I NG** 77 %s	
8. TOTAL D TH OF BORING 18.4 Ft.s		**18. SIGN URE ND TI LE OF INSPECTOR** Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-7.1s	.						-7.1s		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sizeds hell, trace silt, weak reaction with HCl, moist,s Y 8/1 white (SP)s	2820s			-7.6s Vibracore		
			At El. -7.6 Ft., trace shells		1s				
							-13.1s		
					2s				
			At El. -18.4 Ft., sY 6/1 grays						
							-19.6s		
-2s.1s	13.s		At El. -19.6 Ft., trace shells		3s				
			SAND, poorly-graded with silt, mostlys fine-grained sand-sized quartz, few silt, traces hell, weak reaction with HCl, moist,s Y 6/1 gray (SP-SM)s				-2s.6s		
-21.2s	14.1s	NO RECOVERY			4s				

10s

15s

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,806 Y = 1,867,947s	-7.1 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2s.s	18.4s	NO RECOVERY					-2s.s		

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5/0.8s	SP*s
2s	6.0/6.3s	SP*s
3s	12.5/12.8s	SP*s
4s	13.5/13.8s	SP-SM*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

Abbreviations:s
NR = Not Recorded.s

15s
20s
25s
30s
35

DRILLING LOG

DIVISION: South Atlantics	INSTALLATION: Jacksonville Districts	SHEET 1s OF 2s SHEETS	
1. PROJE: Big Sarasota Pa s Ebb Shoals; Sarasota County SPP, FLs	9. SIZE A TYPE OF BIT: See Remarks		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)s	HORIZONT: NAD83s	VERTICA: NAVD88s
2. BORING ESI NA TION: VB-LK14-18s	LOCATION COOR INATES: X = 469,899 Y = 1,s68,946s	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracores	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJs	CONTRACTOR F E NO.: 6738-14-s346s	12. TOTAL AMPLE	DISTURB D: 4; UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfs		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA; BEARING	14. ELEVA ON GROUND WA ER: N/As	
		15. DATE RING	STARTED: -11-14s; COMPLETED: -11-14s
6. THICK SS O F OV RBURD: N/As		16. ELEVA ON OP OF BOR NG: -4.4 Ft.s	
7. DEPTH D LLED NTO OCK: N/As		17. TOTAL COV Y FO BO I NG: 79 %s	
8. TOTAL D TH OF BORING: 17.s Ft.s		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-4.4s	.						-4.4s		
			SAND, poorly-graded, mostly fine-graineds and-sized quartz, some fine tos medium-grained sand-sized shell, trace silt,s trong reaction with HCl, moist, 5Y 8/1 whites (SP)s	2680s	1s		-4.9s Vibracore		
			At El. -6.1 Ft., trace shell, weak reaction withs HCls				-8.4s		
			At El. -8.4 Ft., little fine to medium-graineds and-sized shell, strong reaction with HCls		2s		-12.4s		
			At El. -1s.3 Ft., trace shell, weak reaction withs HCls		3s		-17.4s		
			At El. -1s.9 Ft., sY 7/1 light grays						
-17.8s	13.4s				4s				
		NO RECOVERY							

10s

15s

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 469,899 Y = 1,868,946s	-4.4 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-21.4s	17.s	NO RECOVERY					-21.4s		

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5s/3.3s	SP*s
2s	4.0s/4.3s	SP*s
3s	8.0s/8.3s	SP*s
4s	13.0s/13.3s	SP*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

Abbreviations:s
NR = Not Recorded.s

15s
20s
25s
30s
35

DRILLING LOG

DIVISION: South Atlantics	INSTALLATION: Jacksonville Districts	SHEET 1s OF 2s SHEETS	
1. PROJE: Big Sarasota Pa s Ebb Shoals; Sarasota County SPP, FLs	9. SIZE A TYPE OF BIT: See Remarks		
	10. COORDI ATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.)s	HORIZONT: NAD83	VERTICA: NAVD88s
2. BORING ESI NA TION: VB-LK14-19s	LOCATION COOR INATES: X = 470,135 Y = 1,s66,s 2s	11. MANUFACTURER'S DESIGNA ION OF DRILL: vibracores	☐ AUTO HAMME ☐ MANUAL HAMME
3. DRILLIN ENCY: Corps of Engineers - CESAJs	CONTRACTOR F E NO.: 6738-14-s346s	12. TOTAL AMPLE	DISTURB D: 4; UNDISTUR D (UD):
4. NAME O DRILLER: Lester Gaughfs		13. TOTAL MBER CORE BOXES	
5. DIREC I N F B R ING: ☒ VERTICA ☐ INCLINED	DEG. FRO VERTICA:	BEARING:	14. ELEVA ON GROUND WA ER: N/As
		15. DATE RING	STARTED: -11-14s; COMPLETED: -11-14s
6. THICK SS O F OV RBURD: N/As		16. ELEVA ON OP OF BOR NG: -17.6 Ft.s	
7. DEPTH D LLED NTO OCK: N/As		17. TOTAL COV Y FO BO I NG: 96 %s	
8. TOTAL D TH OF BORING: 14.s Ft.s		18. SIGN URE ND TI LE OF INSPECTOR: Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/1 FT.	N-VALUE
-17.6s	.						-17.6s		
			SAND, poorly-graded, mostly fine-graineds and-sized quartz, few medium-graineds and-sized shell, trace silt, weak reaction withs HCl, moist, sY 6/1 gray (SP)s At El. -18.4 Ft., trace shells	2780s	1s		-18.1s Vibracore		
							-21.6s		
					2s		-22.1s		
					3s				
			At El. -23.4 Ft., few fine-grained sand-sized shells						
-2s.6s	8.s						-2s.7s		
			SAND, silty, mostly fine to medium-graineds and-sized quartz, some sand to gravel-sizeds hell, little silt, strong reaction with HCl, moist,s Y 5s1 gray (SM)s		4s				
			At El. -27.1 Ft., little sand to cobble-sized shells						
-28.8s	11.2s								
			SILT, inorganic-L, some fine-graineds and-sized quartz, little medium tos coarse-grained sand-sized shell, fews cobble-sized limestone, strong reaction withs HCl, moist, dis olutioned limestone,s Y 6/1 gray (ML)s At El. -3s.4 Ft., discontinue shell, discontinues limestone, no reaction with HCls						
-31.s	13.9s								
-32.1s	14.s	NR					-32.1		
			BORING TERMINATED IN REFUSALs				Abbreviations:s		

10s

15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,135 Y = 1,s66,s 2s	-17.6 Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Vibracore refused due to presence ofs limestone.s

4. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5/0.8s	SP*s
2s	4.0/4.3s	SP*s
3s	4.5/4.8s	SP*s
4s	8.1/8.4s	SM*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

NR = Not Recorded.s

15s
20s
25s
30s
35s

DRILLING LOG

DIVISION South Atlantics		**INSTALLATION** Jacksonville Districts	**SHEET** 1s **OF** 2s **SHEETS**
1. PROJE Big Sarasota Pa s Ebb Shoals Sarasota County SPP, FLs		**9. SIZE A TYPE OF BIT** See Remarks	
		10. COORDI ATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)s	**HORIZONT** NAD83 / **VERTICA** NAVD88s
2. BORING ESI NA TION VB-LK14-2s	**LOCATION COOR INATES** X = 470,296 Y = 1,s65,121s	**11. MANUFACTURER'S DESIGNA ION OF DRILL** vibracores	☐ **AUTO HAMME** ☐ **MANUAL HAMME**
3. DRILLIN ENCY Corps of Engineers - CESAJs	**CONTRACTOR F E NO.** 6738-14-s346s	**12. TOTAL AMPLE**	**DISTURB D** 1 / **UNDISTUR D (UD)**
4. NAME O DRILLER Lester Gaughfs		**13. TOTAL MBER CORE BOXES**	
5. DIREC I N F B R ING ☒ **VERTICA** ☐ **INCLINED**	**DEG. FRO VERTICA** / **BEARING**	**14. ELEVA ON GROUND WA ER** N/As	
		15. DATE RING	**STARTED** -10-14s / **COMPLETED** -10-14s
6. THICK SS O F OV RBURD N/As		**16. ELEVA ON OP OF BOR NG** -2s.s Ft.s	
7. DEPTH D LLED NTO OCK N/As		**17. TOTAL COV Y FO BO I NG** 98 %s	
8. TOTAL D TH OF BORING 20.s Ft.s		**18. SIGN URE ND TI LE OF INSPECTOR** Stephanie Setser, P.E., Geotechnical Engineers	

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2s.s	.						-2s.s		
			SAND, poorly-graded with silt, mostly s fine-grained sand-sized quartz, few silt, few s medium-grained sand-sized shell, weak s reaction with HCl, moist, sY 6/1 gray (SP-SM)s	3900s	1s		-2s.s Vibracore		
			At El. -28.5s Ft., little sand to gravel-sized shell, s trong reaction with HCl, sY 8/1 whites						
			At El. -3s.0s Ft., trace shell, weak reaction with s HCls						
			At El. -32.7 Ft., 2" diameter limestone fragments						
-33.s	8.s		SILT, inorganic-L, few sand to gravel-sized s limestone, trace quartz, no reaction with HCl, s moist, dis olutioned limestone, sY 7/4 pale s yellow (ML)s						
			At El. -36.5s Ft., trace limestone, sY 7/6 yellows						
			At El. -37.5s Ft., sY 5/6 olives						
			At El. -38.5s Ft., sY 4/3 olives						

10s

15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2s
	Jacksonville Districts	OF 2s SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONT	VERTICA
Big Sarasota Pass Ebb Shoals	State Plane, FLW (U.S. Ft.)s	NAD83s	NAVD88s

LOCATION COOR INATES	ELEVATIO TOP OF BORI G
X = 470,296 Y = 1,865,121s	-2s.s Ft.s

ELEV.	DEPTH	LEGEND	CLASSIFICATI F MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			At El. -42.5s Ft., trace shell, sY 6/4 pale olives						
			At El. -43.5s Ft., sY 6/3 pale olives						
-44.s	19.s								
-4s.s	20.s	NR					-4s.s		

NOTES:s

1. USACE Jacksonville is the custodian fors these original files.s

2. Soils are field visually clas ified ins accordance with the Unified Soils Clas ifications System.s

3. Laboratory Testing Results

SAMPLEs IDs	SAMPLEs DEPTHs	LABORATORYs CLASSIFICATIONs
1s	.5s0s8s	SP-SM*s

*Lab visual clas ification based on gradations curve. No Atterberg limits.s

Abbreviations:s
NR = Not Recorded.s

15s
20s
25s
30s
35s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-1s@ 0.s fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
473,s 3s	,077,s 0s	State Plane, FLW (U.S. Ft.)s	-s.6 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 7/1s	#200 - 0.74s #230 - 0.73s			32s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5ms	.74s	.74s
#3.s	-2.s0s	.60s	3.48s	.22s
#4s	-2.2s	4.7s	0.9s	6.1ms
#s	-2.00s	4.00s	.42s	7.5s
#7s	-s.s0s	2.80s	3.1ds	0.69s
#1ms	-s.00s	2.00s	3.03s	13.72s
#1ds	-0.s0s	1.40s	2.74s	16.46s
#s8s	0.00s	.00s	2.78s	9.24s
#2s	0.5ms	0.7s	3.3s	22.s9s
#3s	.00s	0.5ms	3.27s	2s.86s
#4s	.5ms	0.36s	3.64s	29.s0s
#60s	2.00s	0.2s	4.60s	34.s0s
#80s	2.5ms	0.1ms	6.33s	0.43s
#s20s	3.00s	0.s3s	38.3s	88.78s
#s70s	3.s0s	0.09s	0.s8s	98.96s
#200s	3.75s	0.08s	0.30s	99.26s
#230s	4.00s	0.06s	0.01s	99.27s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.3s	2.94s	2.82s	2.49s	0.87s	-0.s8s	-2.s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.60s	0.33s	2.49s	0.s8s	1.83s	-1s38s	3.73s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/30/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-1s@ 4.2 fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
473,s 3s	,077,s 0s	State Plane, FLW (U.S. Ft.)s	-9.3 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 0.94s #230 - 0.92s		4.00s	6s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5[illegible]s	.2s	.2s
#3.s	-2.s0s	.60s	.6s	2.90s
#4s	-2.2s	4.7s	0.24s	3.1[illegible]s
#s	-2.00s	4.00s	0.44s	3.5[illegible]s
#7s	-s.s0s	2.80s	0.5s	4.09s
#1[illegible]s	-s.00s	2.00s	0.37s	4.46s
#1[illegible]s	-0.s0s	1.40s	1.02s	5.48s
#s8s	0.00s	.00s	0.93s	6.4s
#2s	0.5[illegible]s	0.7s	0.7s	7.1[illegible]s
#3s	.00s	0.5[illegible]s	.5[illegible]s	8.74s
#4s	.5[illegible]s	0.36s	.1[illegible]s	9.87s
#60s	2.00s	0.2s	2.1[illegible]s	2.0s
#80s	2.5[illegible]s	0.1[illegible]s	8.07s	30.08s
#s20s	3.00s	0.s3s	6.29s	86.37s
#s70s	3.s0s	0.09s	2.40s	98.77s
#200s	3.75s	0.08s	0.29s	99.06s
#230s	4.00s	0.06s	0.02s	99.08s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.3s	2.98s	2.90s	2.68s	2.36s	2.s	-0.74s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.32s	0.20s	2.68s	0.s6s	1.29s	-3.s7s	13.07s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-1[illegible] @ 0.s fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,692s	,073,97s	State Plane, FLW (U.S. Ft.)s	-7.3 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 0.5[illegible]s #230 - 0.5[illegible]s			8s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
#3.s	-2.s0s	.60s	0.00s	0.00s
#4s	-2.2s	4.7s	0.02s	0.02s
#s	-2.00s	4.00s	0.1[illegible]s	0.1[illegible]s
#7s	-s.s0s	2.80s	0.2s	0.39s
#1[illegible]s	-s.00s	2.00s	0.s4s	0.93s
#1[illegible]s	-0.s0s	1.40s	1.30s	2.23s
#s8s	0.00s	.00s	.5[illegible]s	3.7s
#2s	0.5[illegible]s	0.7s	.73s	.48s
#3s	.00s	0.5[illegible]s	.3s	6.83s
#4s	.5[illegible]s	0.36s	.34s	8.1[illegible]s
#60s	2.00s	0.2s	2.37s	0.s4s
#80s	2.5[illegible]s	0.1[illegible]s	3.92s	24.46s
#s20s	3.00s	0.s3s	7.96s	82.42s
#s70s	3.s0s	0.09s	6.62s	99.04s
#200s	3.75s	0.08s	0.40s	99.44s
#230s	4.00s	0.06s	0.02s	99.46s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.38s	3.0s	2.94s	2.72s	2.s0s	2.20s	0.36s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s2s	0.s7s	2.72s	0.s	0.8s	-2.7s	.s9s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/30/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-1 @ 4.6 fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,692s	,073,97s	State Plane, FLW (U.S. Ft.)s	-1.4 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 0.66s #230 - 0.6s			28s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5 0s	.64s	.64s
#3.s	-2.s0s	.60s	0.1 3s	.8s
#4s	-2.2s	4.7s	0.2s	2.02s
#s	-2.00s	4.00s	0.5s	2.5 3s
#7s	-s.s0s	2.80s	.82s	4.39s
#1 0s	-s.00s	2.00s	3.8s	8.20s
#1 4s	-0.s0s	1.40s	5.74s	13.94s
#s8s	0.00s	.00s	.06s	9.00s
#2s	0.5 0s	0.7s	3.7s	22.7s
#3s	.00s	0.5 0s	2.22s	24.97s
#4s	.5 0s	0.36s	2.07s	27.04s
#60s	2.00s	0.2s	3.47s	30.s
#80s	2.5 0s	0.1 8s	2s.4s	.96s
#s20s	3.00s	0.s3s	38.26s	94.22s
#s70s	3.s0s	0.09s	.05s	99.27s
#200s	3.75s	0.08s	0.07s	99.34s
#230s	4.00s	0.06s	0.01s	99.3s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.08s	2.87s	2.7s	2.38s	1.0s	-0.30s	-1.42s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.70s	0.3s	2.38s	0.s9s	1.s7s	-1.47s	4.33s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-1[illegible] @ 0.s fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,687s	,072,97s	State Plane, FLW (U.S. Ft.)s	-[illegible]0.6 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 1s[illegible]8s #230 - 1s[illegible]5s			3s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5[illegible]s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.60s	0.60s
#4s	-2.2s	4.7s	0.03s	0.63s
#s	-2.00s	4.00s	0.1s	0.74s
#7s	-s.s0s	2.80s	0.40s	.1[illegible]s
#1[illegible]s	-s.00s	2.00s	0.34s	1.48s
#1[illegible]s	-0.s0s	1.40s	0.4s	1.89s
#s[illegible]s	0.00s	.00s	0.27s	2.1[illegible]s
#2s	0.5[illegible]s	0.7s	0.27s	2.43s
#3s	.00s	0.5[illegible]s	0.1[illegible]s	2.62s
#4s	.5[illegible]s	0.36s	0.24s	2.86s
#60s	2.00s	0.2s	0.5s	3.4s
#80s	2.5[illegible]s	0.1[illegible]s	.06s	8.47s
#s20s	3.00s	0.s3s	67.87s	76.34s
#s70s	3.s0s	0.09s	2s.36s	97.70s
#200s	3.75s	0.08s	0.72s	98.42s
#230s	4.00s	0.06s	0.03s	98.4s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silts

Phi s	Phi s[illegible]6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.44s	3.s[illegible]8s	2.99s	2.8s	2.62s	2.s6s	2.s6s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.72s	0.s	2.8s	0.s4s	0.74s	-5s.s7s	34.s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/[illegible]0/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-3 @ 0.s fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
472,693s	,075,967s	State Plane, FLW (U.S. Ft.)s	-s.8 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 1s.60s #230 - 1s.59s			4s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
#s	-2.00s	4.00s	0.00s	0.00s
#7s	-s.s0s	2.80s	0.13s	0.13s
#10s	-s.00s	2.00s	0.s8s	0.3s
#14s	-0.s0s	1.40s	0.20s	0.s
#s8s	0.00s	.00s	0.48s	.03s
#2s	0.50s	0.7s	.82s	2.8s
#3s	.00s	0.50s	2.90s	.7s
#4s	.50s	0.36s	4.90s	0.6s
#60s	2.00s	0.2s	.1s	.76s
#80s	2.50s	0.18s	32.79s	48.s
#s20s	3.00s	0.s3s	4s.s	89.66s
#s70s	3.s0s	0.09s	8.s	98.s7s
#200s	3.75s	0.08s	0.23s	98.40s
#230s	4.00s	0.06s	0.01s	98.4s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.3s	2.93s	2.82s	2.s2s	2.s4s	2.00s	0.87s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.36s	0.s9s	2.s2s	0.s7s	0.7s	-1s89s	8.23s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-3 @ s.6 fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
472,693s	,075,967s	State Plane, FLW (U.S. Ft.)s	-10.9 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 1s60s #230 - 1s60s			7s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.50s	.8s	.8s
#3.s	-2.s0s	.60s	0.27s	2.12s
#4s	-2.2s	4.7s	0.2s	2.37s
#s	-2.00s	4.00s	0.58s	2.9s
#7s	-s.s0s	2.80s	2.58s	.58s
#10s	-s.00s	2.00s	1.84s	7.37s
#14s	-0.s0s	1.40s	1.96s	9.33s
#s8s	0.00s	.00s	.73s	.06s
#2s	0.50s	0.7s	.79s	2.8s
#3s	.00s	0.50s	.56s	4.4s
#4s	.50s	0.36s	.94s	6.3s
#60s	2.00s	0.2s	3.57s	9.92s
#80s	2.50s	0.18s	.s3s	3s.4s
#s20s	3.00s	0.s3s	42.82s	78.27s
#s70s	3.s0s	0.09s	9.43s	97.70s
#200s	3.75s	0.08s	0.70s	98.40s
#230s	4.00s	0.06s	0.00s	98.40s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.43s	3.s	2.96s	2.67s	2.s6s	1.4s	-1s60s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s4s	0.23s	2.67s	0.s6s	1.s2s	-2.2s	7.28s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/30/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-5s@ 0.s fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,695s	,075,969s	State Plane, FLW (U.S. Ft.)s	-6.3 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 1s.40s #230 - 1s.38s			9s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.62s	0.62s
#4s	-2.2s	4.7s	0.1s	0.8s
#s	-2.00s	4.00s	0.3s	.1s
#7s	-s.s0s	2.80s	0.29s	.4s
#1s	-s.00s	2.00s	0.49s	1.90s
#14s	-0.s0s	1.40s	0.s0s	2.40s
#s8s	0.00s	.00s	0.47s	2.87s
#2s	0.5s	0.7s	0.60s	3.47s
#3s	.00s	0.5s	0.69s	4.1s
#4s	.5s	0.36s	.02s	.1s
#60s	2.00s	0.2s	.78s	6.96s
#80s	2.5s	0.1s	6.93s	23.89s
#s20s	3.00s	0.s3s	8.94s	82.83s
#s70s	3.s0s	0.09s	.27s	98.s0s
#200s	3.75s	0.08s	0.s0s	98.60s
#230s	4.00s	0.06s	0.02s	98.62s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.40s	3.04s	2.93s	2.72s	2.s	2.27s	1.4s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s6s	0.s7s	2.72s	0.s	0.8s	-3.98s	21.76s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/30/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-5s@ 6 fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,695s	,075,969s	State Plane, FLW (U.S. Ft.)s	-31.8 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 1s13s #230 - 1s16s			6s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.50s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.44s	0.44s
#4s	-2.2s	4.7s	0.30s	0.74s
#s	-2.00s	4.00s	0.52s	.26s
#7s	-s.s0s	2.80s	0.9s	2.2s
#10s	-s.00s	2.00s	1.34s	3.s
#14s	-0.s0s	1.40s	1.s7s	5.s2s
#s8s	0.00s	.00s	.50s	6.62s
#2s	0.50s	0.7s	.50s	8.12s
#3s	.00s	0.50s	.39s	9.5s
#4s	.50s	0.36s	.76s	.27s
#60s	2.00s	0.2s	3.98s	.2s
#80s	2.50s	0.18s	39.s3s	4.78s
#s20s	3.00s	0.s3s	37.s6s	92.34s
#s70s	3.s0s	0.09s	6.35s	98.69s
#200s	3.75s	0.08s	0.s4s	98.83s
#230s	4.00s	0.06s	0.01s	98.84s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.2s	2.89s	2.77s	2.44s	2.s2s	2.0s	-0.s4s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s9s	0.22s	2.44s	0.s8s	1.06s	-2.s9s	9.89s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/30/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-6 @ 0.s fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
47s,692s	,074,968s	State Plane, FLW (U.S. Ft.)s	-4.5sNAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 0.39s #230 - 0.39s			

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
#4s	-2.2s	4.7s	0.00s	0.00s
#s	-2.00s	4.00s	0.02s	0.02s
#7s	-s.s0s	2.80s	0.07s	0.09s
#10s	-s.00s	2.00s	0.s8s	0.27s
#14s	-0.s0s	1.40s	0.28s	0.s
#s8s	0.00s	.00s	0.56s	.1s
#2s	0.50s	0.7s	.04s	2.1s
#3s	.00s	0.50s	.48s	3.63s
#4s	.50s	0.36s	2.33s	.96s
#60s	2.00s	0.2s	3.52s	9.48s
#80s	2.50s	0.18s	9.27s	28.7s
#s20s	3.00s	0.s3s	60.s0s	88.85s
#s70s	3.s0s	0.09s	0.s3s	99.38s
#200s	3.75s	0.08s	0.23s	99.6s
#230s	4.00s	0.06s	0.00s	99.6s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.29s	2.96s	2.88s	2.68s	2.40s	2.s7s	1.29s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s4s	0.s7s	2.68s	0.s6s	0.62s	-2.72s	13.43s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-6 @ 4.2 fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
471,692s	,074,968s	State Plane, FLW (U.S. Ft.)s	-8.2 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 0.5s #230 - 0.49s			

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.50s	0.08s	0.08s
#3.s	-2.s0s	.60s	0.87s	0.9s
#4s	-2.2s	4.7s	0.46s	.4s
#s	-2.00s	4.00s	0.48s	.89s
#7s	-s.s0s	2.80s	2.1s	4.00s
#10s	-s.00s	2.00s	2.67s	6.67s
#14s	-0.s0s	1.40s	2.8s	9.48s
#s8s	0.00s	.00s	2.0s	.49s
#2s	0.50s	0.7s	.7s	3.20s
#3s	.00s	0.50s	.39s	4.s9s
#4s	.50s	0.36s	.60s	6.s9s
#60s	2.00s	0.2s	2.47s	8.66s
#80s	2.50s	0.18s	3.70s	32.36s
#s20s	3.00s	0.s3s	4.s0s	86.86s
#s70s	3.s0s	0.09s	2.40s	99.26s
#200s	3.75s	0.08s	0.23s	99.49s
#230s	4.00s	0.06s	0.02s	99.s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.33s	2.97s	2.89s	2.66s	2.23s	1.44s	-1s3s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s6s	0.22s	2.66s	0.s6s	1.37s	-2.06s	6.2s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/30/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-6 @ 8 fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
471,692s	,074,968s	State Plane, FLW (U.S. Ft.)s	-12.0 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 0.83s #230 - 0.80s		8.00s	8s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.1s	0.1s
#4s	-2.2s	4.7s	0.00s	0.1s
#s	-2.00s	4.00s	0.03s	0.1s
#7s	-s.s0s	2.80s	0.06s	0.20s
#1s	-s.00s	2.00s	0.s8s	0.38s
#1s	-0.s0s	1.40s	0.27s	0.6s
#ss	0.00s	.00s	0.33s	0.98s
#2s	0.5s	0.7s	0.60s	.5s
#3s	.00s	0.5s	0.94s	2.52s
#4s	.5s	0.36s	.70s	4.22s
#60s	2.00s	0.2s	4.5s	8.72s
#80s	2.5s	0.1s	3s.3s	44.07s
#s20s	3.00s	0.s3s	48.66s	92.73s
#s70s	3.s0s	0.09s	6.37s	99.s0s
#200s	3.75s	0.08s	0.07s	99.s7s
#230s	4.00s	0.06s	0.03s	99.20s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.s8s	2.9s	2.82s	2.s6s	2.23s	2.s0s	1.s9s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.46s	0.s8s	2.s6s	0.s7s	0.s7s	-3.22s	21s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-s2-9 @ 0.s fts

Analysis Date: 4/26/2013s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,692s	,074,966s	State Plane, FLW (U.S. Ft.)s	-12.2 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	2.sY 8/1s	#200 - 0.34s #230 - 0.26s			0s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5[illegible]s	0.1[illegible]s	0.1[illegible]s
#3.s	-2.s0s	.60s	0.5[illegible]s	0.67s
#4s	-2.2s	4.7s	0.29s	0.96s
#s	-2.00s	4.00s	0.29s	.2s
#7s	-s.s0s	2.80s	0.80s	2.0s
#1[illegible]s	-s.00s	2.00s	1.27s	3.32s
#1[illegible]s	-0.s0s	1.40s	1.3s	4.63s
#s8s	0.00s	.00s	.22s	.8s
#2s	0.5[illegible]s	0.7s	.0s	6.86s
#3s	.00s	0.5[illegible]s	0.86s	7.72s
#4s	.5[illegible]s	0.36s	0.8s	8.5[illegible]s
#60s	2.00s	0.2s	.29s	9.82s
#80s	2.5[illegible]s	0.1[illegible]s	8.8s	8.63s
#s20s	3.00s	0.s3s	4.80s	73.43s
#s70s	3.s0s	0.09s	2s.0s	98.44s
#200s	3.75s	0.08s	.22s	99.66s
#230s	4.00s	0.06s	0.08s	99.74s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.43s	3.2s	3.03s	2.79s	2.s6s	2.3s	-0.3s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s4s	0.s7s	2.79s	0.s4s	1.09s	-3.0s	12.s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/30/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s @ 0.s fts

Analysis Date: 6/12/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
468,065s	,072,266s	State Plane, FLW (U.S. Ft.)s	-15.s NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	Y 8/1s	#200 - 2.66s #230 - 2.58s			3.8s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.50s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.14s	0.14s
#4s	-2.2s	4.7s	0.00s	0.14s
#s	-2.00s	4.00s	0.00s	0.14s
#7s	-s.s0s	2.80s	0.24s	0.38s
#10s	-s.00s	2.00s	0.s6s	0.s4s
#14s	-0.s0s	1.40s	0.60s	1.s4s
#s8s	0.00s	.00s	0.43s	.53s
#2s	0.50s	0.7s	0.27s	.84s
#3s	.00s	0.50s	0.28s	2.12s
#4s	.50s	0.36s	0.2s	2.37s
#60s	2.00s	0.2s	0.43s	2.80s
#80s	2.50s	0.18s	6.10s	8.90s
#s20s	3.00s	0.s3s	.0s	63.95s
#s70s	3.s0s	0.09s	3s.4s	9s.36s
#200s	3.75s	0.08s	.98s	97.34s
#230s	4.00s	0.06s	0.08s	97.42s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.49s	3.32s	3.s8s	2.87s	2.6s	2.s6s	2.s8s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.82s	0.s4s	2.87s	0.s4s	0.62s	-4.s3s	31s43s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s0 @ 0.s fts

Analysis Date: 6/19/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
472,849s	,077,4s0s	State Plane, FLW (U.S. Ft.)s	-6.4 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 0.89s #230 - 0.79s			64s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5ms	8.24s	8.24s
#3.s	-2.s0s	.60s	9.39s	7.63s
#4s	-2.2s	4.7s	3.07s	20.70s
#s	-2.00s	4.00s	3.70s	24.40s
#7s	-s.s0s	2.80s	7.1s	3s.s
#10s	-s.00s	2.00s	8.68s	40.s9s
#14s	-0.s0s	1.40s	7.74s	47.93s
#s8s	0.00s	.00s	.52s	3.4s
#2s	0.5ms	0.7s	4.28s	7.73s
#3s	.00s	0.5ms	2.8s	60.s4s
#4s	.5ms	0.36s	2.42s	62.96s
#60s	2.00s	0.2s	2.67s	6s.63s
#80s	2.5ms	0.18s	9.80s	7s.43s
#s20s	3.00s	0.s3s	9.04s	94.47s
#s70s	3.s0s	0.09s	4.s6s	99.03s
#200s	3.75s	0.08s	0.08s	99.s
#230s	4.00s	0.06s	0.s0s	99.2s

SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartzs

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.06s	2.73s	2.48s	-0.3s	-1s96s	-2.63s	-3.64s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	-0.03s	1.02s			2.3s	-0.0s	1.6s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s0 @ 4 fts

Analysis Date: 6/19/2014s

US Army Corps of Engineer
Jacksonville Districts

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
472,849s	,077,4s0s	State Plane, FLW (U.S. Ft.)s	-9.9 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 2.16s #230 - 2.16s			.7s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
#3.s	-2.s0s	.60s	0.00s	0.00s
#4s	-2.2s	4.7s	0.1s	0.1s
#s	-2.00s	4.00s	0.03s	0.14s
#7s	-s.s0s	2.80s	0.44s	0.58s
#10s	-s.00s	2.00s	0.77s	1.3s
#14s	-0.s0s	1.40s	1.28s	2.63s
#s8s	0.00s	.00s	.58s	4.2s
#2s	0.50s	0.7s	.72s	.93s
#3s	.00s	0.50s	.58s	7.5s
#4s	.50s	0.36s	.76s	9.27s
#60s	2.00s	0.2s	3.53s	2.84s
#80s	2.50s	0.18s	23.44s	36.28s
#s20s	3.00s	0.s3s	.96s	88.24s
#s70s	3.s0s	0.09s	9.43s	97.67s
#200s	3.75s	0.08s	0.s7s	97.84s
#230s	4.00s	0.06s	0.00s	97.84s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.36s	2.96s	2.87s	2.63s	2.26s	2.07s	0.23s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.39s	0.s9s	2.63s	0.s6s	0.87s	-2.6s	10.33s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s @ 0.s fts

Analysis Date: 6/19/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
473,213s	,078,s2s	State Plane, FLW (U.S. Ft.)s	-11.0 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	Y 8/1s	#200 - 1s66s #230 - 1s6s			3s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
#3.s	-2.s0s	.60s	0.00s	0.00s
#4s	-2.2s	4.7s	0.07s	0.07s
#s	-2.00s	4.00s	0.00s	0.07s
#7s	-s.s0s	2.80s	0.03s	0.1s
#10s	-s.00s	2.00s	0.32s	0.42s
#14s	-0.s0s	1.40s	0.26s	0.68s
#s8s	0.00s	.00s	0.23s	0.9s
#2s	0.5s	0.7s	0.22s	.1s
#3s	.00s	0.5s	0.1s	.3s
#4s	.5s	0.36s	0.27s	.5s
#60s	2.00s	0.2s	0.5s	2.1s
#80s	2.5s	0.1s	8.8s	.02s
#s20s	3.00s	0.s3s	64.33s	7s.35s
#s70s	3.s0s	0.09s	22.s6s	97.s
#200s	3.75s	0.08s	0.83s	98.34s
#230s	4.00s	0.06s	0.01s	98.3s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.44s	3.20s	3.00s	2.80s	2.6s	2.s4s	2.s6s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.77s	0.s	2.80s	0.s4s	0.s	-4.s7s	36.26s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s2 @ 0.s fts

Analysis Date: 6/17/2014s

US Army Corps of Engineer
Jacksonville Districts

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
473,453s	,079,482s	State Plane, FLW (U.S. Ft.)s	-10.7 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s27s #230 - 1s2s			73.6s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	4.12s	4.12s
#4s	-2.2s	4.7s	.64s	.76s
#s	-2.00s	4.00s	2.83s	8.59s
#7s	-s.s0s	2.80s	7.46s	6.0s
#s0s	-1.00s	2.00s	.30s	27.35s
#s4s	-0.s0s	.40s	2.76s	40.s
#s8s	0.00s	.00s	0.s2s	0.63s
#2s	0.5s	0.7s	9.47s	60.s0s
#3s	.00s	0.5s	6.1s	66.2s
#4s	.5s	0.36s	4.5s	70.84s
#60s	2.00s	0.2s	4.02s	74.86s
#80s	2.5s	0.1s	9.38s	84.24s
#s20s	3.00s	0.s3s	.43s	9s.67s
#s70s	3.s0s	0.09s	3.00s	98.67s
#200s	3.75s	0.08s	0.06s	98.73s
#230s	4.00s	0.06s	0.06s	98.79s

SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
2.97s	2.49s	2.0s	-0.03s	-1s0s	-1s0s	-2.37s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	0.22s	0.86s			1.72s	0.s7s	1.92s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s3 @ 0.s fts

Analysis Date: 6/17/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
473,803s	,080,42s	State Plane, FLW (U.S. Ft.)s	-13.3 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s24s #230 - 1s22s			25ss

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5ms	0.00s	0.00s
#3.s	-2.s0s	.60s	.29s	.29s
#4s	-2.2s	4.7s	0.79s	2.08s
#s	-2.00s	4.00s	.30s	3.38s
#7s	-s.s0s	2.80s	3.1s	6.49s
#10s	-s.00s	2.00s	3.77s	10.26s
#14s	-0.s0s	1.40s	3.24s	13.s0s
#s8s	0.00s	.00s	2.22s	.72s
#2s	0.50s	0.7s	.79s	7.s
#3s	.00s	0.50s	.48s	8.99s
#4s	.50s	0.36s	.60s	20.s9s
#60s	2.00s	0.2s	2.32s	22.9s
#80s	2.50s	0.18s	4.24s	37.s
#s20s	3.00s	0.s3s	0.s3s	87.28s
#s70s	3.s0s	0.09s	.3s	98.s9s
#200s	3.75s	0.08s	0.s7s	98.76s
#230s	4.00s	0.06s	0.02s	98.78s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.34s	2.97s	2.88s	2.63s	2.07s	0.08s	-1s74s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.96s	0.26s	2.63s	0.s6s	1.s7s	-1s66s	4.4s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s @ 0.s fts

Analysis Date: 6/17/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,486s	,070,749s	State Plane, FLW (U.S. Ft.)s	-13.2 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 2.30s #230 - 2.29s			86.9s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5[illegible]s	4.5[illegible]s	4.5[illegible]s
#3.s	-2.s0s	.60s	6.64s	.23s
#4s	-2.2s	4.7s	2.70s	3.93s
#s	-2.00s	4.00s	4.36s	8.29s
#7s	-s.s0s	2.80s	7.9s	26.20s
#s0s	-[illegible].00s	2.00s	2.9s	39.s
#s4s	-0.s0s	.40s	2.08s	.23s
#s8s	0.00s	.00s	9.79s	6s.02s
#2s	0.5[illegible]s	0.7s	9.96s	70.98s
#3s	.00s	0.5[illegible]s	8.0s	79.03s
#4s	.5[illegible]s	0.36s	.63s	84.66s
#60s	2.00s	0.2s	2.64s	87.30s
#80s	2.5[illegible]s	0.1[illegible]s	3.5s	90.8s
#s20s	3.00s	0.s3s	.49s	96.30s
#s70s	3.s0s	0.09s	.30s	97.60s
#200s	3.75s	0.08s	0.s0s	97.70s
#230s	4.00s	0.06s	0.01s	97.7s

SAND, poorly-graded, mostly sand to gravel-sized shell, few fine-grained sand-sized quartz, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
2.88s	1.44s	0.7s	-0.s	-1.s8s	-2.s3s	-3.20s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	-0.47s	1.39s			1.7s	0.s8s	2.s2s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s6 @ 0.s fts

Analysis Date: 6/17/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,804s	,070,040s	State Plane, FLW (U.S. Ft.)s	-8.4 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s.44s #230 - 1s.4s			47.6s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.6s	0.6s
#4s	-2.2s	4.7s	0.64s	.2s
#s	-2.00s	4.00s	.02s	2.27s
#7s	-s.s0s	2.80s	2.8s	.08s
#1s	-s.00s	2.00s	3.38s	8.46s
#14s	-0.s0s	1.40s	5.03s	13.49s
#s8s	0.00s	.00s	.64s	9.s3s
#2s	0.5s	0.7s	3.1s	22.3s
#3s	.00s	0.5s	0.66s	32.97s
#4s	.5s	0.36s	9.1s	42.07s
#60s	2.00s	0.2s	9.23s	.30s
#80s	2.5s	0.1s	2s.s9s	72.89s
#s20s	3.00s	0.s3s	20.94s	93.83s
#s70s	3.s0s	0.09s	4.s9s	98.42s
#200s	3.75s	0.08s	0.s4s	98.s6s
#230s	4.00s	0.06s	0.03s	98.s9s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.s3s	2.77s	2.s	1.93s	0.63s	-0.28s	-1s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.40s	0.38s	1.93s	0.26s	1.44s	-0.9s	2.93s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s7 @ 0.s fts

Analysis Date: 6/17/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,806s	,067,947s	State Plane, FLW (U.S. Ft.)s	-7.6 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	Y 8/1s	#200 - 1s.00s #230 - 0.99s			5.2s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.20s	0.20s
#4s	-2.2s	4.7s	0.12s	0.32s
#s	-2.00s	4.00s	0.19s	0.5s
#7s	-s.s0s	2.80s	0.17s	0.68s
#10s	-s.00s	2.00s	0.2s	0.93s
#14s	-0.s0s	1.40s	0.39s	1.32s
#s8s	0.00s	.00s	0.30s	.62s
#2s	0.50s	0.7s	0.3s	.93s
#3s	.00s	0.50s	0.28s	2.2s
#4s	.50s	0.36s	0.34s	2.5s
#60s	2.00s	0.2s	0.79s	3.34s
#80s	2.50s	0.18s	9.10s	2.44s
#s20s	3.00s	0.s3s	7s.40s	83.84s
#s70s	3.s0s	0.09s	4.88s	98.72s
#200s	3.75s	0.08s	0.28s	99.00s
#230s	4.00s	0.06s	0.01s	99.0s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.37s	3.0s	2.94s	2.76s	2.s9s	2.s2s	2.09s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.69s	0.s	2.76s	0.s	0.63s	-5s.27s	37.96s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s7 @ 6 fts

Analysis Date: 6/17/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,806s	,067,947s	State Plane, FLW (U.S. Ft.)s	-13.s NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	Y 8/1s	#200 - 1s1s #230 - 1s1s			3.9s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5s	0.34s	0.34s
#3.s	-2.s0s	.60s	0.1s	0.4s
#4s	-2.2s	4.7s	0.07s	0.52s
#s	-2.00s	4.00s	0.16s	0.68s
#7s	-s.s0s	2.80s	0.33s	.0s
#10s	-s.00s	2.00s	0.29s	1.30s
#14s	-0.s0s	1.40s	0.33s	1.63s
#s8s	0.00s	.00s	0.29s	.92s
#2s	0.5s	0.7s	0.23s	2.1s
#3s	.00s	0.5s	0.2s	2.40s
#4s	.5s	0.36s	0.37s	2.77s
#60s	2.00s	0.2s	0.9s	3.68s
#80s	2.5s	0.18s	.37s	.0s
#s20s	3.00s	0.s3s	70.s0s	8s.s
#s70s	3.s0s	0.09s	3.s4s	98.69s
#200s	3.75s	0.08s	0.s6s	98.8s
#230s	4.00s	0.06s	0.05s	98.90s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.36s	2.99s	2.93s	2.7s	2.s7s	2.s	2.06s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.6s	0.s6s	2.7s	0.s	0.72s	-5s.s6s	40.79s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s8 @ 0.s fts

Analysis Date: 6/17/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,899s	,068,946s	State Plane, FLW (U.S. Ft.)s	-4.9 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s28s #230 - 1s22s			30.s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.50s	0.99s	0.99s
#3.s	-2.s0s	.60s	0.76s	.7s
#4s	-2.2s	4.7s	0.08s	.83s
#s	-2.00s	4.00s	0.07s	.90s
#7s	-s.s0s	2.80s	.12s	3.02s
#10s	-s.00s	2.00s	2.s7s	5.s9s
#14s	-0.s0s	1.40s	3.77s	9.36s
#s8s	0.00s	.00s	3.93s	3.29s
#2s	0.50s	0.7s	4.04s	7.33s
#3s	.00s	0.50s	3.27s	20.60s
#4s	.50s	0.36s	3.50s	24.s0s
#60s	2.00s	0.2s	.40s	29.s0s
#80s	2.50s	0.18s	2s.49s	4.99s
#s20s	3.00s	0.s3s	38.03s	93.02s
#s70s	3.s0s	0.09s	4.32s	97.34s
#200s	3.75s	0.08s	.38s	98.72s
#230s	4.00s	0.06s	0.06s	98.78s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.23s	2.88s	2.76s	2.40s	1.s8s	0.34s	-1ss

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.86s	0.28s	2.40s	0.s9s	1.4s	-1s7s	5.s7s

Granularm tric Repor

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s8 @ 4 fts

Analysis Date: 6/17/2014s

US Army Corps of Engineer
Jacksonville Districts

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,899s	,068,946s	State Plane, FLW (U.S. Ft.)s	-8.4 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s0s #230 - 0.99s			24.4s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.73s	0.73s
#4s	-2.2s	4.7s	0.64s	.37s
#s	-2.00s	4.00s	0.99s	2.36s
#7s	-s.s0s	2.80s	.59s	3.9s
#10s	-s.00s	2.00s	2.40s	6.3s
#14s	-0.s0s	1.40s	2.9s	9.30s
#s8s	0.00s	.00s	2.86s	2.s6s
#2s	0.5s	0.7s	2.89s	.0s
#3s	.00s	0.5s	2.3s	7.36s
#4s	.5s	0.36s	3.04s	20.40s
#60s	2.00s	0.2s	.09s	2s.49s
#80s	2.5s	0.1s	23.78s	49.27s
#s20s	3.00s	0.s3s	43.24s	92.s
#s70s	3.s0s	0.09s	6.34s	98.8s
#200s	3.75s	0.08s	0.s4s	98.99s
#230s	4.00s	0.06s	0.02s	99.0s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.20s	2.90s	2.80s	2.s	1.9s	0.7s	-1s28s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.96s	0.26s	2.s	0.s8s	1.3s	-1s78s	5.28s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s8 @ 8 fts

Analysis Date: 6/17/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,899s	,068,946s	State Plane, FLW (U.S. Ft.)s	-12.4 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	Y 8/1s	#200 - 0.98s #230 - 0.9s			3s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
#4s	-2.2s	4.7s	0.00s	0.00s
#s	-2.00s	4.00s	0.07s	0.07s
#7s	-s.s0s	2.80s	0.04s	0.1s
#10s	-s.00s	2.00s	0.s7s	0.28s
#14s	-0.s0s	1.40s	0.s	0.43s
#s8s	0.00s	.00s	0.10s	0.58s
#2s	0.50s	0.7s	0.1s	0.64s
#3s	.00s	0.50s	0.12s	0.76s
#4s	.50s	0.36s	0.17s	0.93s
#60s	2.00s	0.2s	0.59s	.52s
#80s	2.50s	0.18s	2.3s	3.87s
#s20s	3.00s	0.s3s	7s.s8s	8s.05s
#s70s	3.s0s	0.09s	3.32s	98.37s
#200s	3.75s	0.08s	0.65s	99.02s
#230s	4.00s	0.06s	0.07s	99.09s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.37s	2.99s	2.93s	2.7s	2.s8s	2.s	2.s4s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.73s	0.s	2.7s	0.s	0.4s	-4.79s	46.74s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-2 @ 0.s fts

Analysis Date: 6/12/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
468,857s	,072,89s	State Plane, FLW (U.S. Ft.)s	-17.7 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 4.52s #230 - 4.5s			9.8s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.50s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.32s	0.32s
#4s	-2.2s	4.7s	0.00s	0.32s
#s	-2.00s	4.00s	0.02s	0.34s
#7s	-s.s0s	2.80s	0.0s	0.3s
#10s	-s.00s	2.00s	1.s2s	1.87s
#14s	-0.s0s	1.40s	1.79s	3.66s
#s8s	0.00s	.00s	.29s	4.9s
#2s	0.50s	0.7s	.2s	6.20s
#3s	.00s	0.50s	0.96s	7.16s
#4s	.50s	0.36s	.10s	8.26s
#60s	2.00s	0.2s	2.0s	0.27s
#80s	2.50s	0.18s	4.76s	2s.03s
#s20s	3.00s	0.s3s	0.2s	7s.28s
#s70s	3.s0s	0.09s	9.s8s	94.86s
#200s	3.75s	0.08s	0.62s	9s.48s
#230s	4.00s	0.06s	0.01s	9s.49s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.s6s	3.22s	3.00s	2.7s	2.s0s	2.s9s	0.02s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s0s	0.s8s	2.7s	0.s	0.96s	-2.77s	.s9s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-29 @ 0.s fts

Analysis Date: 6/19/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,919s	,076,s8s	State Plane, FLW (U.S. Ft.)s	-1.s NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s.09s #230 - 1s.06s			

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.77s	0.77s
#4s	-2.2s	4.7s	0.19s	0.96s
#s	-2.00s	4.00s	0.32s	.28s
#7s	-s.s0s	2.80s	0.7s	.99s
#10s	-s.00s	2.00s	0.90s	2.89s
#14s	-0.s0s	1.40s	0.79s	3.68s
#s8s	0.00s	.00s	0.68s	4.36s
#2s	0.5s	0.7s	0.54s	4.90s
#3s	.00s	0.5s	0.44s	.34s
#4s	.5s	0.36s	0.49s	.83s
#60s	2.00s	0.2s	.1s	7.0s
#80s	2.5s	0.1s	.90s	22.9s
#s20s	3.00s	0.s3s	.27s	74.s8s
#s70s	3.s0s	0.09s	23.44s	97.62s
#200s	3.75s	0.08s	.29s	98.9s
#230s	4.00s	0.06s	0.03s	98.94s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine to medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.44s	3.2s	3.02s	2.76s	2.s2s	2.28s	0.6s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s7s	0.s7s	2.76s	0.s	0.99s	-3.s	16.47s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-29 @ 4 fts

Analysis Date: 6/19/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,919s	,076,s8s	State Plane, FLW (U.S. Ft.)s	-15.0 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s22s #230 - 1s18s			24.s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.50s	.9s	.9s
#3.s	-2.s0s	.60s	0.40s	2.3s
#4s	-2.2s	4.7s	0.27s	2.62s
#s	-2.00s	4.00s	0.36s	2.98s
#7s	-s.s0s	2.80s	.03s	4.0s
#10s	-s.00s	2.00s	1.8s	5.82s
#14s	-0.s0s	1.40s	1.82s	7.64s
#s8s	0.00s	.00s	.67s	9.3s
#2s	0.50s	0.7s	.92s	.23s
#3s	.00s	0.50s	.62s	2.8s
#4s	.50s	0.36s	2.2s	.s0s
#60s	2.00s	0.2s	.4s	20.s
#80s	2.50s	0.18s	34.s0s	4.6s
#s20s	3.00s	0.s3s	36.60s	9s.21s
#s70s	3.s0s	0.09s	7.36s	98.s7s
#200s	3.75s	0.08s	0.21s	98.78s
#230s	4.00s	0.06s	0.04s	98.82s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.26s	2.90s	2.78s	2.43s	2.07s	1.s8s	-1s23s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.03s	0.24s	2.43s	0.s9s	1.37s	-2.s	9.26s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-3 @ 0.s fts

Analysis Date: 6/12/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,059s	,074,342s	State Plane, FLW (U.S. Ft.)s	-10.3 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s2s #230 - 1s1s			22.s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	.46s	.46s
#4s	-2.2s	4.7s	0.5s	2.00s
#s	-2.00s	4.00s	0.2s	2.2s
#7s	-s.s0s	2.80s	0.24s	2.4s
#10s	-s.00s	2.00s	0.s7s	3.02s
#14s	-0.s0s	1.40s	1.3s	4.37s
#s8s	0.00s	.00s	.90s	6.27s
#2s	0.5s	0.7s	2.00s	8.27s
#3s	.00s	0.5s	2.37s	0.64s
#4s	.5s	0.36s	2.1s	2.74s
#60s	2.00s	0.2s	2.63s	.37s
#80s	2.5s	0.1s	4.84s	20.2s
#s20s	3.00s	0.s3s	30.98s	.s9s
#s70s	3.s0s	0.09s	42.02s	93.21s
#200s	3.75s	0.08s	.s4s	98.7s
#230s	4.00s	0.06s	0.s4s	98.89s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.s8s	3.39s	3.28s	2.98s	2.s8s	2.07s	-0.33s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s7s	0.s7s	2.98s	0.s3s	1.2s	-2.s3s	9.46s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-3s @ 0.s fts

Analysis Date: 6/19/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
469,213s	,073,8s2s	State Plane, FLW (U.S. Ft.)s	-12.3 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s47s #230 - 1s40s			45s8s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.50s	.5s	.5s
#3.s	-2.s0s	.60s	.96s	3.5s
#4s	-2.2s	4.7s	0.72s	4.23s
#s	-2.00s	4.00s	.0s	.28s
#7s	-s.s0s	2.80s	3.48s	8.76s
#10s	-s.00s	2.00s	6.02s	14.78s
#14s	-0.s0s	1.40s	7.86s	22.64s
#s8s	0.00s	.00s	7.32s	29.96s
#2s	0.50s	0.7s	6.92s	36.88s
#3s	.00s	0.50s	4.6s	4s.s3s
#4s	.50s	0.36s	3.47s	4s.00s
#60s	2.00s	0.2s	2.99s	47.99s
#80s	2.50s	0.18s	4.49s	62.48s
#s20s	3.00s	0.s3s	27.20s	89.68s
#s70s	3.s0s	0.09s	8.s8s	98.26s
#200s	3.75s	0.08s	0.27s	98.s3s
#230s	4.00s	0.06s	0.07s	98.60s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to coarse-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.3s	2.90s	2.73s	2.07s	-0.34s	-0.92s	-2.07s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.s6s	0.4s	2.07s	0.24s	1.83s	-0.7s	2.37s

Granularm tric Repor

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-32 @ 0.s fts

Analysis Date: 6/19/2014s

US Army Corps of Engineer
Jacksonville Districts

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,s00s	,073,s06s	State Plane, FLW (U.S. Ft.)s	-10.0 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s.04s #230 - 1s.00s			35s.9s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.50s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.98s	0.98s
#4s	-2.2s	4.7s	0.70s	.68s
#s	-2.00s	4.00s	0.96s	2.64s
#7s	-s.s0s	2.80s	.92s	4.56s
#10s	-s.00s	2.00s	3.23s	7.79s
#14s	-0.s0s	1.40s	4.38s	12.s7s
#s8s	0.00s	.00s	4.63s	6.80s
#2s	0.50s	0.7s	.10s	2s.90s
#3s	.00s	0.50s	4.46s	26.36s
#4s	.50s	0.36s	.17s	3s.s3s
#60s	2.00s	0.2s	8.58s	40.06s
#80s	2.50s	0.18s	28.48s	68.s4s
#s20s	3.00s	0.s3s	27.43s	9s.97s
#s70s	3.s0s	0.09s	2.90s	98.87s
#200s	3.75s	0.08s	0.09s	98.96s
#230s	4.00s	0.06s	0.04s	99.00s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
2.98s	2.78s	2.62s	2.s7s	0.8s	-0.09s	-1s.43s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.s9s	0.33s	2.s7s	0.22s	1.43s	-1s.24s	3.s7s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s @ 0.s fts

Analysis Date: 6/18/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,712s	,076,822s	State Plane, FLW (U.S. Ft.)s	-7.5sNAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 0.86s #230 - 0.8s			13.s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5ms	0.86s	0.86s
#3.s	-2.s0s	.60s	0.1ms	0.99s
#4s	-2.2s	4.7s	0.1ms	.13s
#s	-2.00s	4.00s	0.1ms	.30s
#7s	-s.s0s	2.80s	0.28s	.5ms
#1ms	-s.00s	2.00s	0.s2s	2.s0s
#14s	-0.s0s	1.40s	0.9s	3.0s
#s8s	0.00s	.00s	0.74s	3.79s
#2s	0.5ms	0.7s	0.98s	4.77s
#3s	.00s	0.5ms	.2s	6.02s
#4s	.5ms	0.36s	.5s	7.5ms
#60s	2.00s	0.2s	2.27s	9.80s
#80s	2.5ms	0.1ms	2.7s	22.s
#s20s	3.00s	0.s3s	8.22s	80.73s
#s70s	3.s0s	0.09s	7.86s	98.s9s
#200s	3.75s	0.08s	0.s	99.s4s
#230s	4.00s	0.06s	0.01s	99.s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.40s	3.09s	2.9s	2.74s	2.s2s	2.24s	0.s9s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s2s	0.s7s	2.74s	0.s		-3.77s	19.8s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-s @ 4 fts

Analysis Date: 6/18/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,712s	,076,822s	State Plane, FLW (U.S. Ft.)s	-11.0 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	Y 8/1s	#200 - 0.98s #230 - 0.94s			3.8s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.50s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.23s	0.23s
#4s	-2.2s	4.7s	0.00s	0.23s
#s	-2.00s	4.00s	0.0s	0.28s
#7s	-s.s0s	2.80s	0.02s	0.30s
#10s	-s.00s	2.00s	0.s	0.4s
#14s	-0.s0s	1.40s	0.s6s	0.s7s
#s8s	0.00s	.00s	0.32s	0.89s
#2s	0.50s	0.7s	0.26s	.1s
#3s	.00s	0.50s	0.30s	.4s
#4s	.50s	0.36s	0.90s	2.3s
#60s	2.00s	0.2s	2.83s	.18s
#80s	2.50s	0.18s	30.76s	3s.94s
#s20s	3.00s	0.s3s	2.87s	88.81s
#s70s	3.s0s	0.09s	9.69s	98.s0s
#200s	3.75s	0.08s	0.s2s	99.02s
#230s	4.00s	0.06s	0.04s	99.06s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.32s	2.9s	2.87s	2.63s	2.32s	2.s8s	1.97s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s6s	0.s7s	2.63s	0.s6s	0.s	-4.09s	34.s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-6 @ 0.s fts

Analysis Date: 6/18/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,344s	,075,238s	State Plane, FLW (U.S. Ft.)s	-8.0 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
	Y 8/1s	#200 - 6.20s #230 - 5s.86s			4.s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
#3.s	-2.s0s	.60s	0.00s	0.00s
#4s	-2.2s	4.7s	0.1s	0.1s
#s	-2.00s	4.00s	0.1s	0.28s
#7s	-s.s0s	2.80s	0.5s	0.78s
#10s	-s.00s	2.00s	0.47s	1.2s
#14s	-0.s0s	1.40s	0.4s	1.66s
#s8s	0.00s	.00s	0.37s	2.03s
#2s	0.5s	0.7s	0.30s	2.33s
#3s	.00s	0.5s	0.36s	2.69s
#4s	.5s	0.36s	0.34s	3.03s
#60s	2.00s	0.2s	0.44s	3.47s
#80s	2.5s	0.1s	.37s	4.84s
#s20s	3.00s	0.s3s	7.0s	2s.85s
#s70s	3.s0s	0.09s	6s.6s	87.46s
#200s	3.75s	0.08s	6.34s	93.80s
#230s	4.00s	0.06s	0.34s	94.s4s

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
	3.47s	3.4s	3.2s	3.02s	2.83s	2.s0s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	3.04s	0.s2s	3.2s	0.s	0.74s	-4.78s	28.63s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/s0/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-6 @ 6 fts

Analysis Date: 6/18/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,344s	,075,238s	State Plane, FLW (U.S. Ft.)s	-13.s NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 0.97s #230 - 0.90s			16.4s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.50s	0.53s	0.53s
#3.s	-2.s0s	.60s	.48s	2.0s
#4s	-2.2s	4.7s	0.30s	2.3s
#s	-2.00s	4.00s	0.80s	3.1s
#7s	-s.s0s	2.80s	.58s	4.73s
#10s	-s.00s	2.00s	1.74s	6.47s
#14s	-0.s0s	1.40s	2.20s	8.67s
#s8s	0.00s	.00s	.79s	0.46s
#2s	0.50s	0.7s	.7s	2.s7s
#3s	.00s	0.50s	.43s	3.60s
#4s	.50s	0.36s	.37s	4.97s
#60s	2.00s	0.2s	2.1s	7.s2s
#80s	2.50s	0.18s	6.27s	33.39s
#s20s	3.00s	0.s3s	0.s9s	83.s8s
#s70s	3.s0s	0.09s	4.98s	98.s6s
#200s	3.75s	0.08s	0.47s	99.03s
#230s	4.00s	0.06s	0.07s	99.s0s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.38s	3.0s	2.9s	2.67s	2.24s	1.74s	-1s42s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s8s	0.22s	2.67s	0.s6s	1.42s	-2.27s	7.48s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-7 @ 0.s fts

Analysis Date: 6/17/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
470,215s	,077,74s	State Plane, FLW (U.S. Ft.)s	-12.s NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	Y 8/1s	#200 - 1s79s #230 - 1s7s			7.3s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.30s	0.30s
#4s	-2.2s	4.7s	0.07s	0.37s
#s	-2.00s	4.00s	0.06s	0.43s
#7s	-s.s0s	2.80s	0.26s	0.69s
#10s	-s.00s	2.00s	0.40s	1.09s
#14s	-0.s0s	1.40s	0.s9s	1.68s
#s8s	0.00s	.00s	0.8s	2.49s
#2s	0.5s	0.7s	.56s	4.0s
#3s	.00s	0.5s	0.6s	4.70s
#4s	.5s	0.36s	.29s	.99s
#60s	2.00s	0.2s	8.5s	4.s4s
#80s	2.5s	0.1s	.34s	6s.88s
#s20s	3.00s	0.s3s	30.s7s	96.05s
#s70s	3.s0s	0.09s	2.s2s	98.s7s
#200s	3.75s	0.08s	0.04s	98.2s
#230s	4.00s	0.06s	0.08s	98.29s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
2.98s	2.80s	2.6s	2.3s	2.s0s	2.0s	1.s2s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.24s	0.2s	2.3s	0.20s	0.72s	-3.38s	18.82s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s

Granularm tric Repor

US Army Corps of Engineer
Jacksonville Districts

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-8 @ 0.s fts

Analysis Date: 6/19/2014s

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
47s,s 0s	,074,2s8s	State Plane, FLW (U.S. Ft.)s	-2.5sNAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SPs	Y 8/1s	#200 - 0.93s #230 - 0.93s			4.3s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
#s	-2.00s	4.00s	0.00s	0.00s
#7s	-s.s0s	2.80s	0.13s	0.13s
#10s	-s.00s	2.00s	0.42s	0.s9s
#14s	-0.s0s	1.40s	0.44s	1.03s
#s8s	0.00s	.00s	0.58s	.58s
#2s	0.58s	0.7s	0.42s	.9s
#3s	.00s	0.58s	0.42s	2.37s
#4s	.58s	0.36s	0.52s	2.89s
#60s	2.00s	0.2s	.63s	4.52s
#80s	2.58s	0.18s	24.s4s	29.06s
#s20s	3.00s	0.s3s	6s.03s	90.09s
#s70s	3.s0s	0.09s	8.89s	98.98s
#200s	3.75s	0.08s	0.09s	99.07s
#230s	4.00s	0.06s	0.00s	99.07s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.28s	2.9s	2.88s	2.67s	2.42s	2.23s	2.0s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	2.s7s	0.s7s	2.67s	0.s6s	0.s7s	-3.88s	24.04s

Granularm tric Repor

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-8 @ 6 fts

Analysis Date: 6/19/2014s

US Army Corps of Engineer
Jacksonville Districts

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
47s,s 0s	,074,2s8s	State Plane, FLW (U.S. Ft.)s	-8.0 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 1s.09s #230 - 1s.07s			53.8s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/4"s	-4.2s	9.00s	0.00s	0.00s
3/8"s	-3.2s	9.5.0s	.46s	.46s
#3.s	-2.s0s	.60s	2.04s	3.5.0s
#4s	-2.2s	4.7s	0.42s	3.92s
#s	-2.00s	4.00s	.1.9s	.1s
#7s	-s.s0s	2.80s	4.22s	9.33s
#1.0s	-s.00s	2.00s	7.38s	16.7s
#1.4s	-0.s0s	1.40s	9.s8s	26.29s
#s8s	0.00s	.00s	8.68s	34.97s
#2s	0.5.0s	0.7s	8.09s	43.06s
#3s	.00s	0.5.0s	4.88s	47.94s
#4s	.5.0s	0.36s	3.7s	.69s
#60s	2.00s	0.2s	4.34s	6.03s
#80s	2.5.0s	0.1.8s	6.37s	72.40s
#s20s	3.00s	0.s3s	22.s0s	94.90s
#s70s	3.s0s	0.09s	3.90s	98.80s
#200s	3.75s	0.08s	0.s	98.9s
#230s	4.00s	0.06s	0.02s	98.93s

SAND, poorly-graded, mostly fine to coarse-grained sand-sized shell, some fine-grained sand-sized shell, trace silts

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.0s	2.76s	2.s6s	1.27s	-0.s7s	-1s.0s	-2.02s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	0.90s	0.s4s	1.27s	0.4s	1.78s	-0.49s	2.s

Granularm tric Repor

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LKs4-8 @ s fts

Analysis Date: 6/19/2014s

US Army Corps of Engineer
Jacksonville Districts

Easting (ft):s	Northing (ft):s	Coordinate System:s	Elevation (ft):s
47s,s 0s	,074,2s8s	State Plane, FLW (U.S. Ft.)s	-13.0 NAVD88s

USCS:s	Munsell:s	Fines (%):s	Organics (%):s	Carbonates (%):s	Shells (%):s
SW	Y 8/1s	#200 - 0.98s #230 - 0.96s			47s

Sieve Numbers	Sieve Sizes (Phi)s	Sieve Sizes (Millimeters)s	% Weights Retaineds	C. % Weights Retaineds
3/8"s	-3.2s	9.5s	0.00s	0.00s
#3.s	-2.s0s	.60s	0.92s	0.92s
#4s	-2.2s	4.7s	0.83s	.7s
#s	-2.00s	4.00s	0.88s	2.63s
#7s	-s.s0s	2.80s	3.56s	6.19s
#10s	-s.00s	2.00s	4.8s	.00s
#14s	-0.s0s	1.40s	8.0s	19.0s
#s8s	0.00s	.00s	8.58s	27.63s
#2s	0.50s	0.7s	8.90s	36.s3s
#3s	.00s	0.50s	6.40s	42.93s
#4s	.50s	0.36s	.8s	48.78s
#60s	2.00s	0.2s	.36s	4.s4s
#80s	2.50s	0.18s	6.23s	70.37s
#s20s	3.00s	0.s3s	23.80s	94.s7s
#s70s	3.s0s	0.09s	4.69s	98.86s
#200s	3.75s	0.08s	0.s6s	99.02s
#230s	4.00s	0.06s	0.02s	99.04s

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to caorse-grained sand-sized shells

Phi s	Phi s6s	Phi 2s	Phi s0s	Phi 7s	Phi 84s	Phi 9s
3.09s	2.79s	2.60s	1.6s	-0.s	-0.69s	-1s67s

Moments	Mean Phis	Mean mms	Median Phis	Median mms	Sortings	Skewnes	Kurtosis
Statistics	1.s6s	0.4s	1.6s	0.33s	1.s9s	-0.s2s	2.07s

GRANULARMETRIC REPORT % BIG SARASOTA PASS.GPJ CESAJ3.GDT s0/10/s4s