APPENDIX A

ENGINEERING APPENDIX

ATTACHMENT B
Plates, Core Boring Logs, Laboratory Reports, Jetty Stability Analysis

PART 1

Jacksonville Harbor Navigation Study, Duval County, Florida

DRAFT
INTEGRATED GENERAL REEVALUATION REPORT II AND SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

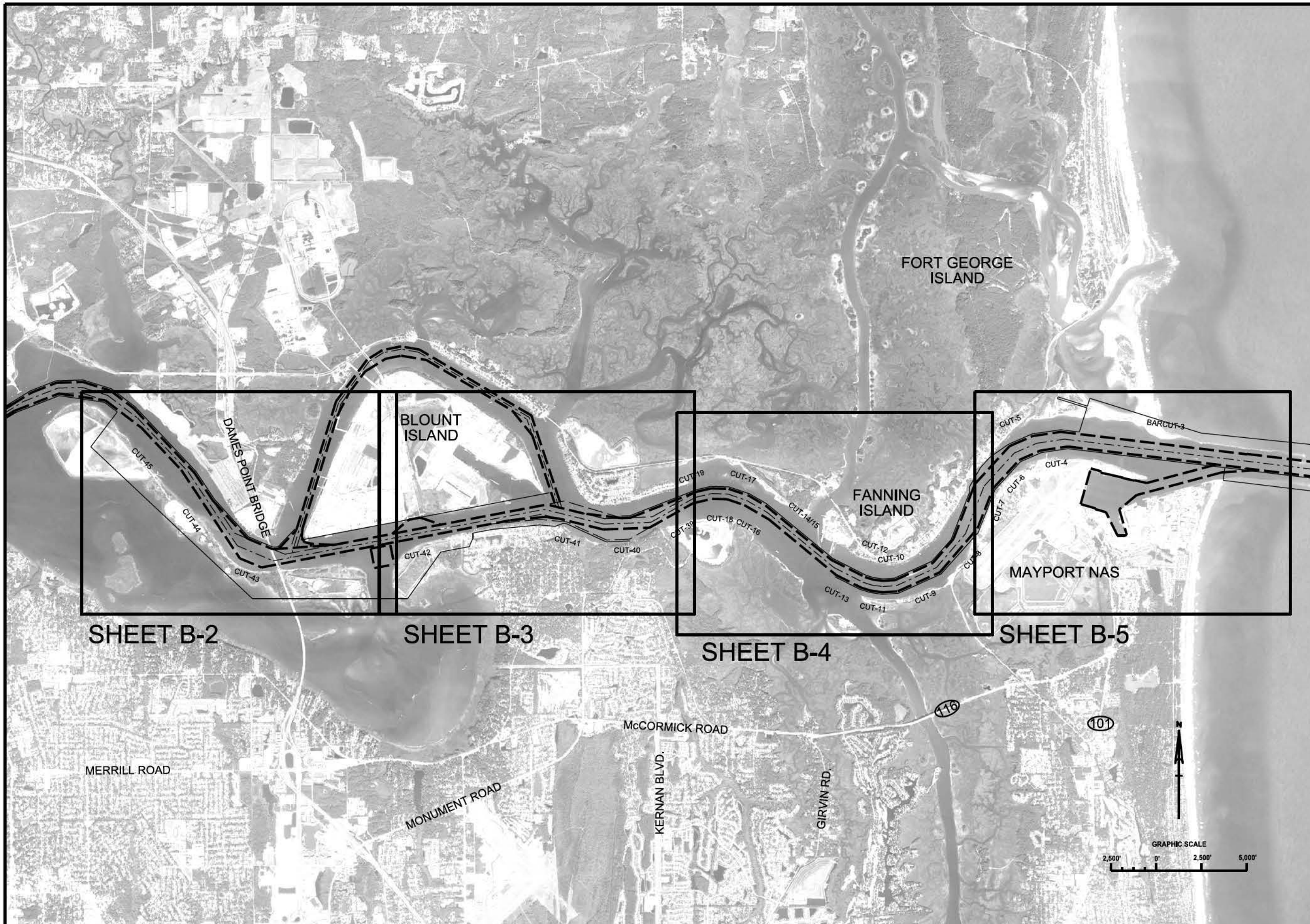


PLATE **B-1**

DUVAL COUNTY, FLORIDA

JACKSONVILLE HARBOR

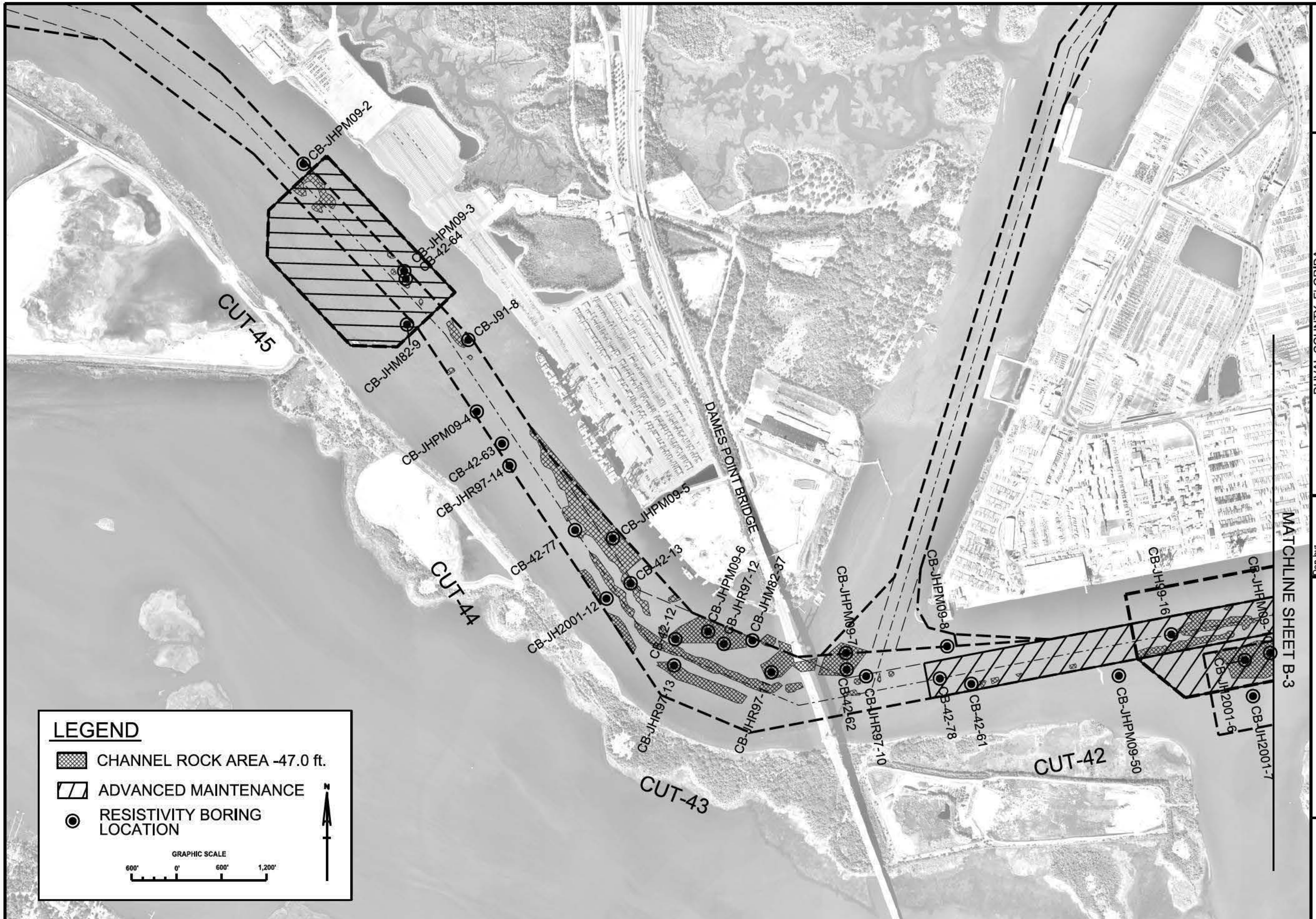
RESISTIVITY BORINGS - OVERVIEW MAP

Dsn by: S.R.M.	Dwn by: C.J.B.
Ckd by: S.R.M.	Dated: MAR. 2013

GEOTECHNICAL DRAWINGS
FOR GRR2 ENGINEERING APPENDIX

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

US Army Corps of Engineers
Jacksonville District



PLATE

B-2

DUVAL COUNTY, FLORIDA

JACKSONVILLE HARBOR

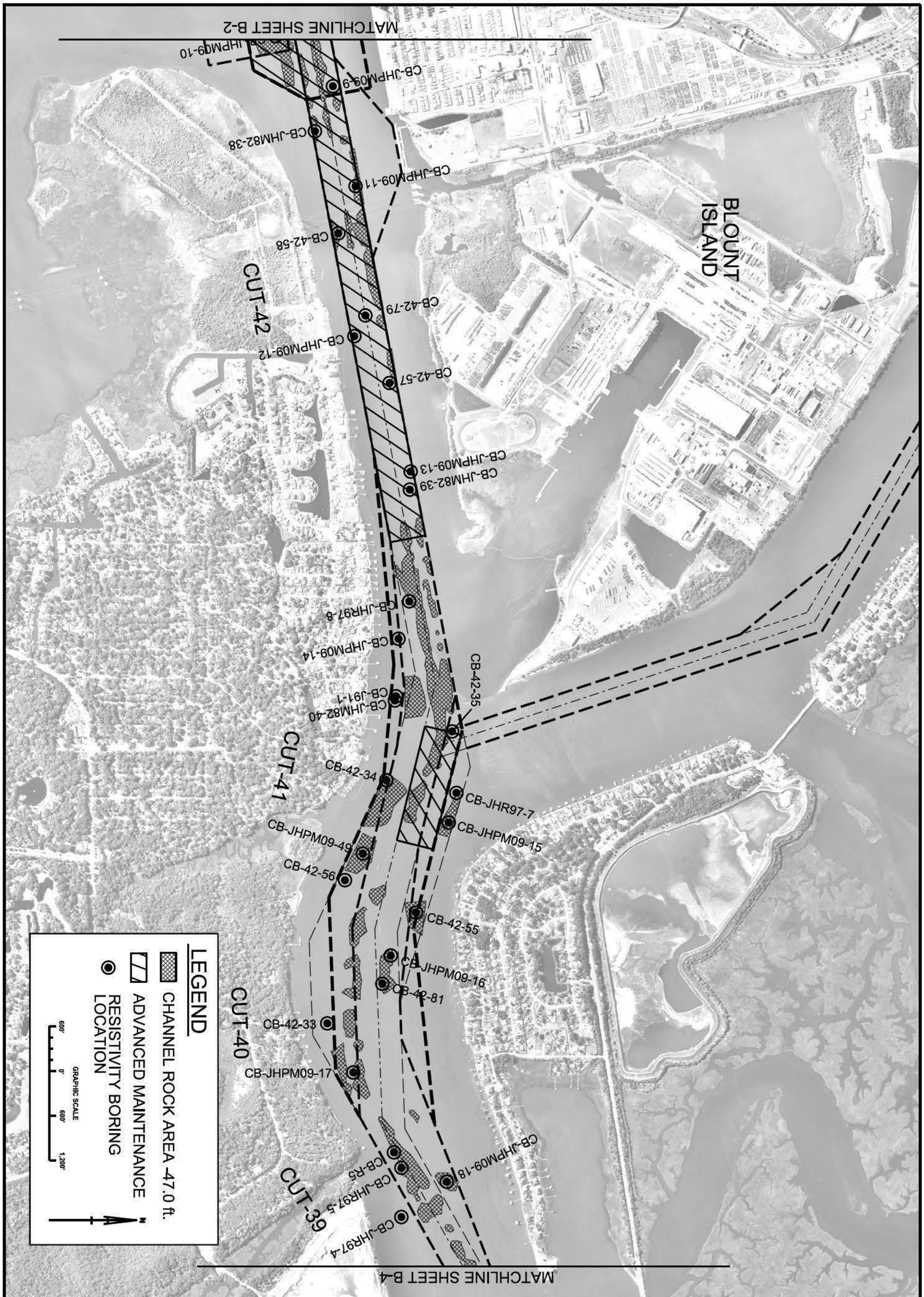
RESISTIVITY BORING LOCATION PLAN

Dsn by: S.R.M.	Dwn by: C.J.B.
Ckd by: S.R.M.	Dated: MAR. 2013

GEOTECHNICAL DRAWINGS
FOR GRR2 ENGINEERING APPENDIX

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

US Army Corps of Engineers
Jacksonville District



US Army Corps of Engineers Jacksonville District	GEOTECHNICAL DRAWINGS FOR GRR2 ENGINEERING APPENDIX	Dsn by: S.R.M.	DUVAL COUNTY, FLORIDA	PLATE
		Dwn by: C.J.B.	JACKSONVILLE HARBOR	**B-3**
	DEPARTMENT OF THE ARMY JACKSONVILLE DISTRICT, CORPS OF ENGINEERS JACKSONVILLE, FLORIDA	Ckd by: S.R.M.		
		Dated: MAR. 2013	RESISTIVITY BORING LOCATION PLAN	

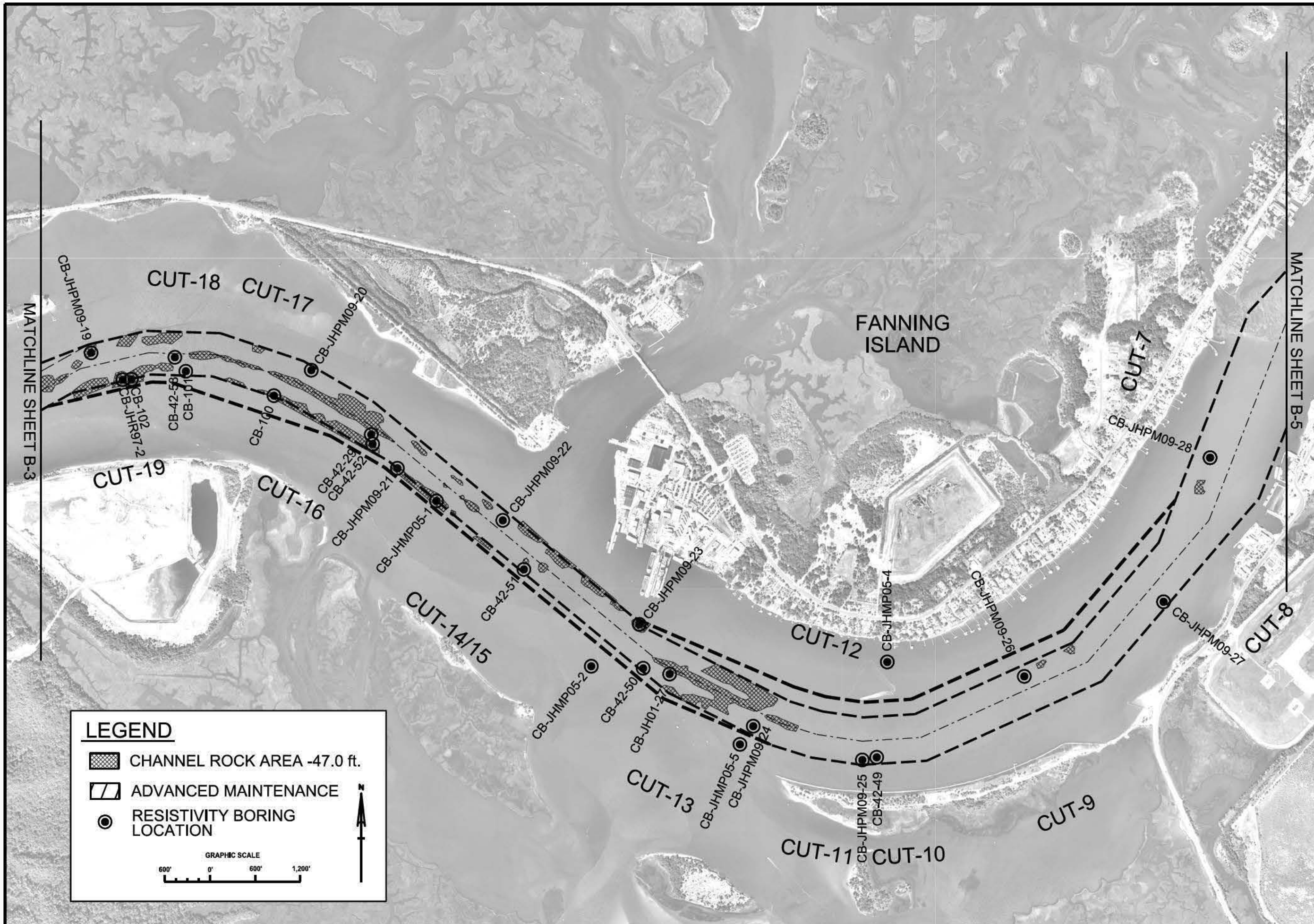


PLATE **B-4**

DUVAL COUNTY, FLORIDA

JACKSONVILLE HARBOR

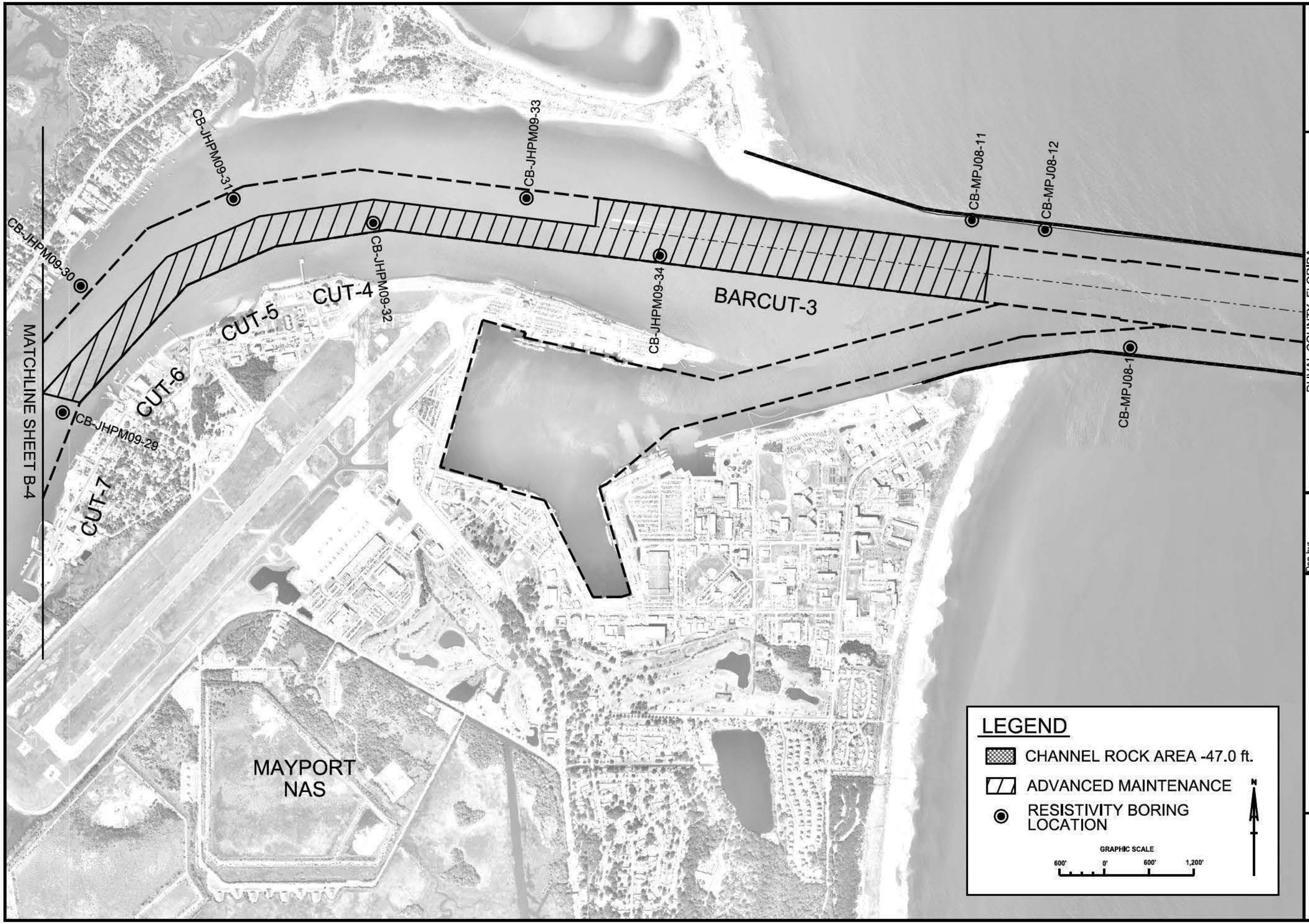
RESISTIVITY BORING LOCATION PLAN

Dsn by: S.R.M.
Dwn by: C.J.B.
Ckd by: S.R.M.
Dated: MAR. 2013

GEOTECHNICAL DRAWINGS
FOR GRR2 ENGINEERING APPENDIX

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

US Army Corps of Engineers
Jacksonville District



PLATE

B-5

DUVAL COUNTY, FLORIDA

JACKSONVILLE HARBOR

RESISTIVITY BORING LOCATION PLAN

Dsn by: S.R.M.
Dwn by: C.J.B.
Ckd by: S.R.M.
Dated: MAR. 2013

GEOTECHNICAL DRAWINGS
FOR GRR2 ENGINEERING APPENDIX

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

US Army Corps of Engineers
Jacksonville District

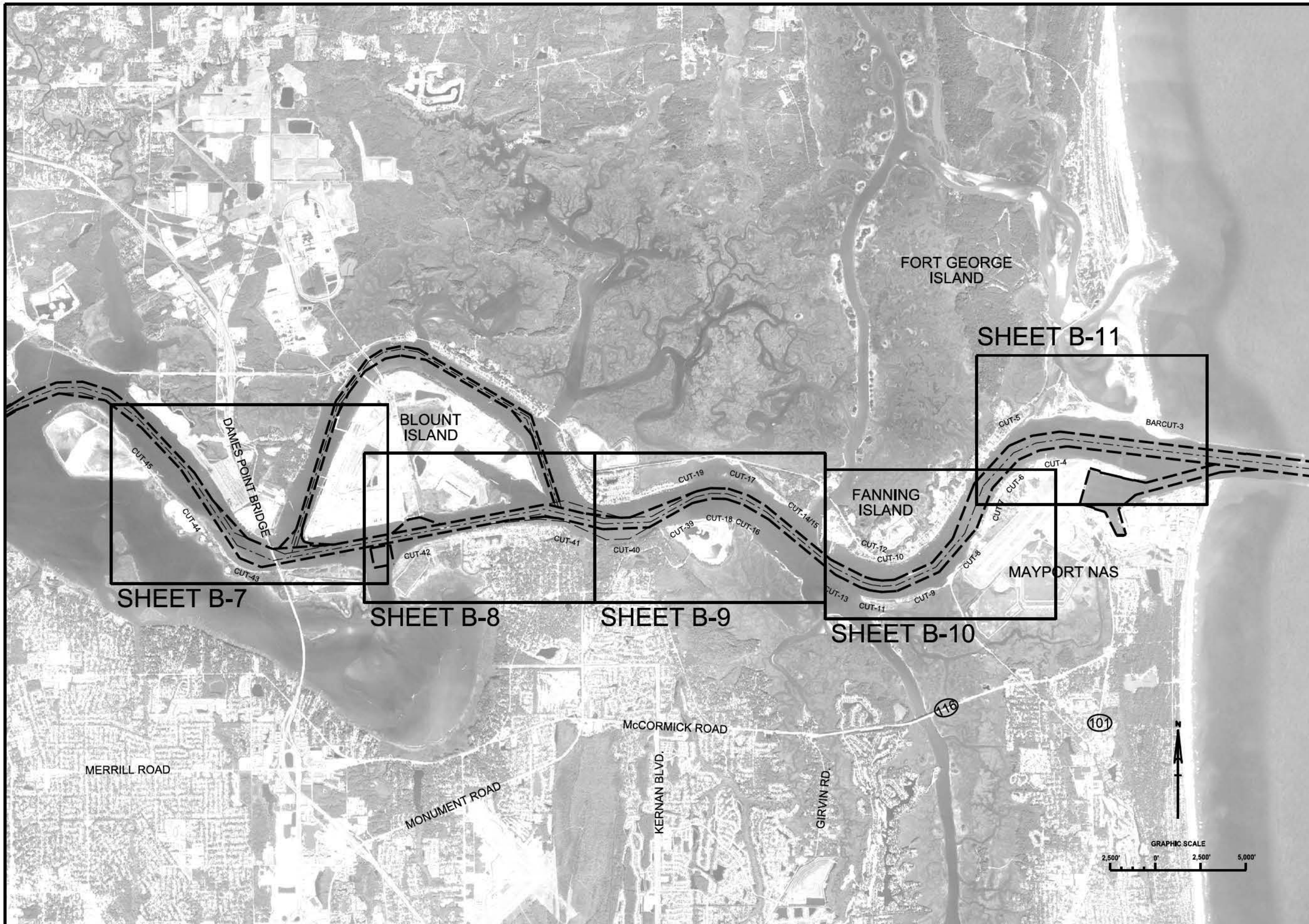


PLATE **B-6**

DUVAL COUNTY, FLORIDA

JACKSONVILLE HARBOR

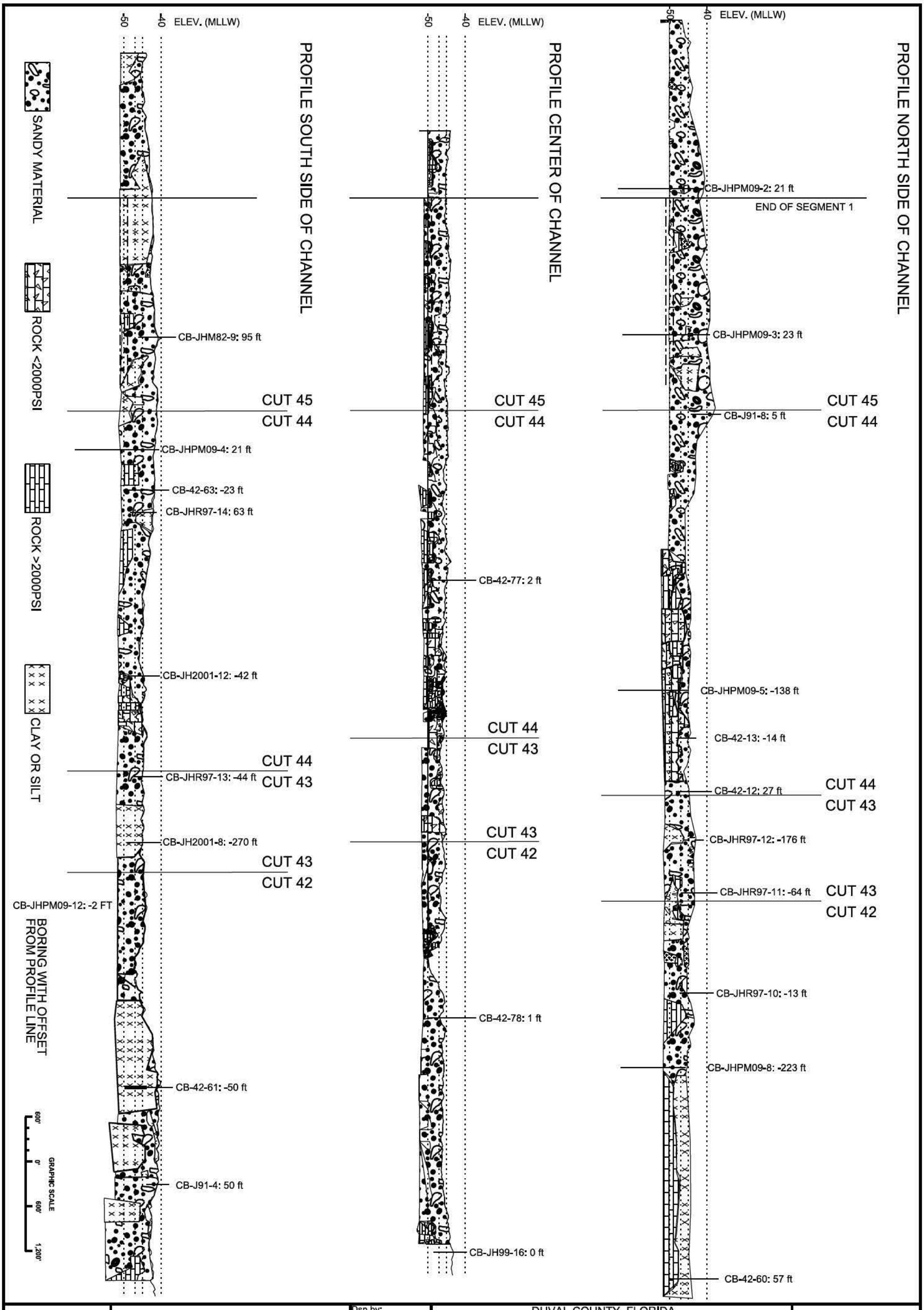
XSECTION PROFILE - OVERVIEW MAP

Dsn by: S.R.M.
Dwn by: C.J.B.
Ckd by: S.R.M.
Dated: MAR. 2013

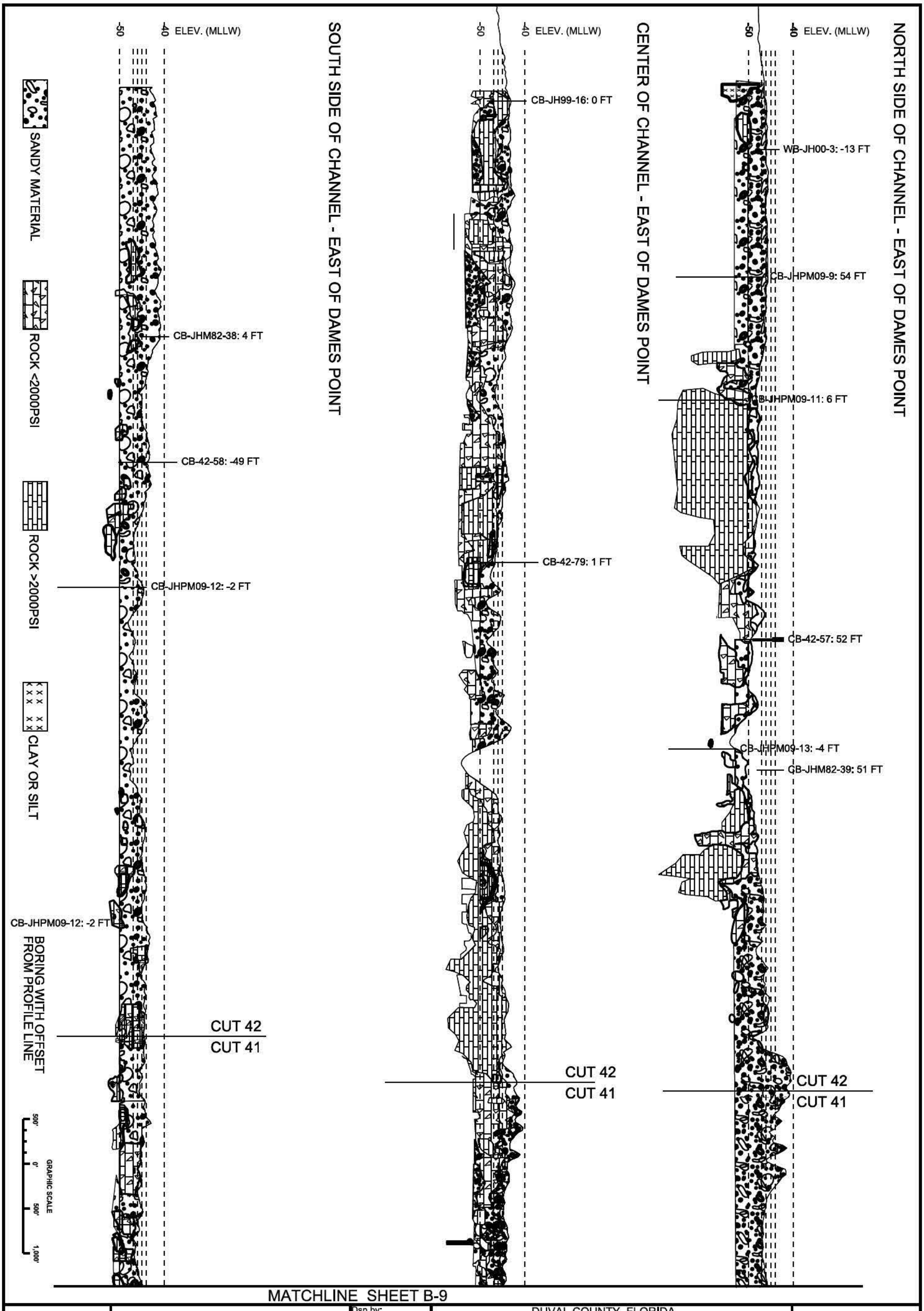
GEOTECHNICAL DRAWINGS
FOR GRR2 ENGINEERING APPENDIX

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

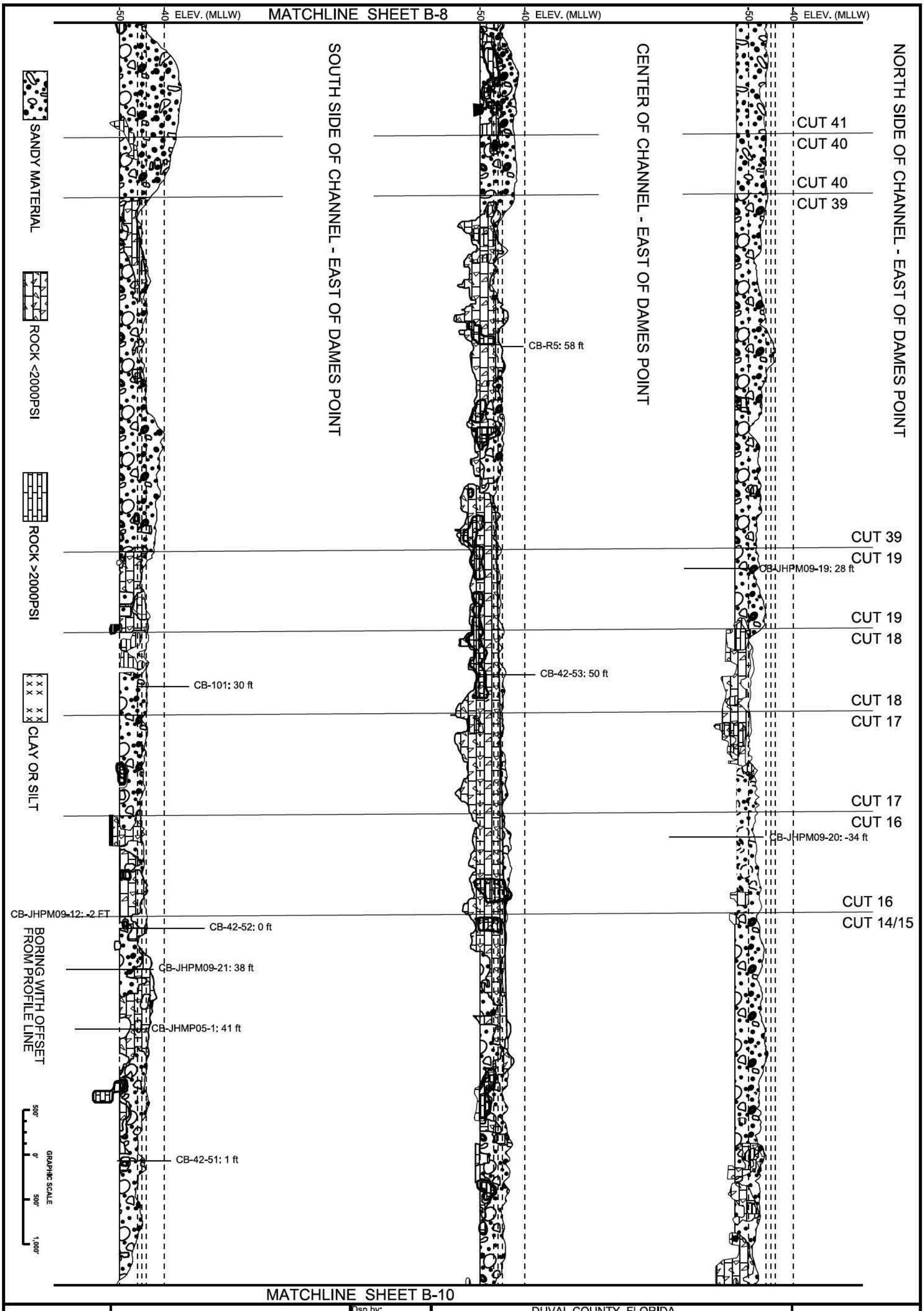
US Army Corps of Engineers
Jacksonville District



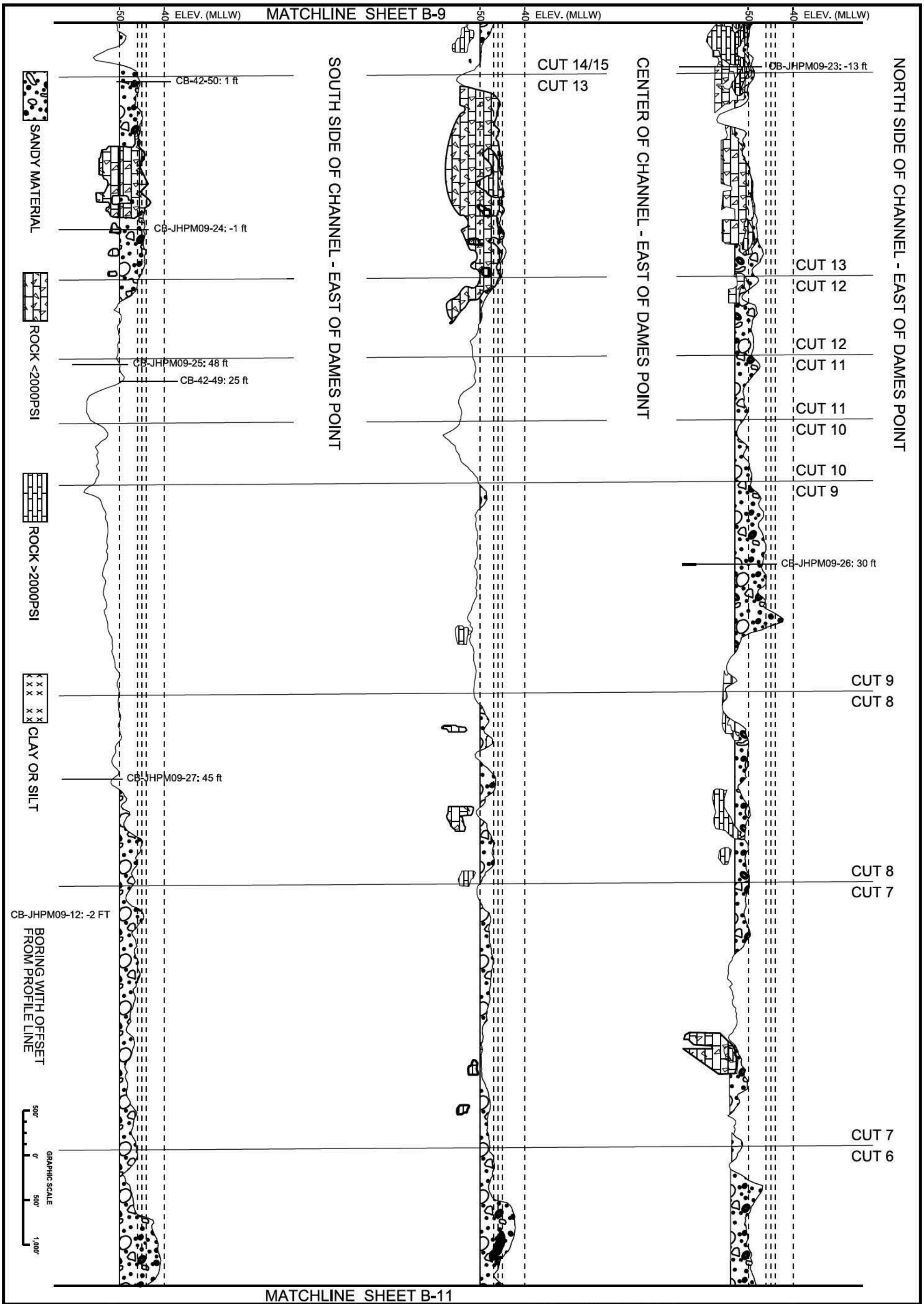
US Army Corps of Engineers Jacksonville District	GEOTECHNICAL DRAWINGS FOR GRR2 ENGINEERING APPENDIX	Dsn by: S.R.M. Dwn by: C.J.B.	DUVAL COUNTY, FLORIDA JACKSONVILLE HARBOR	PLATE
	DEPARTMENT OF THE ARMY JACKSONVILLE DISTRICT, CORPS OF ENGINEERS JACKSONVILLE, FLORIDA	Ckd by: S.R.M. Dated: MAR. 2013	XSECTION PROFILE	B-7



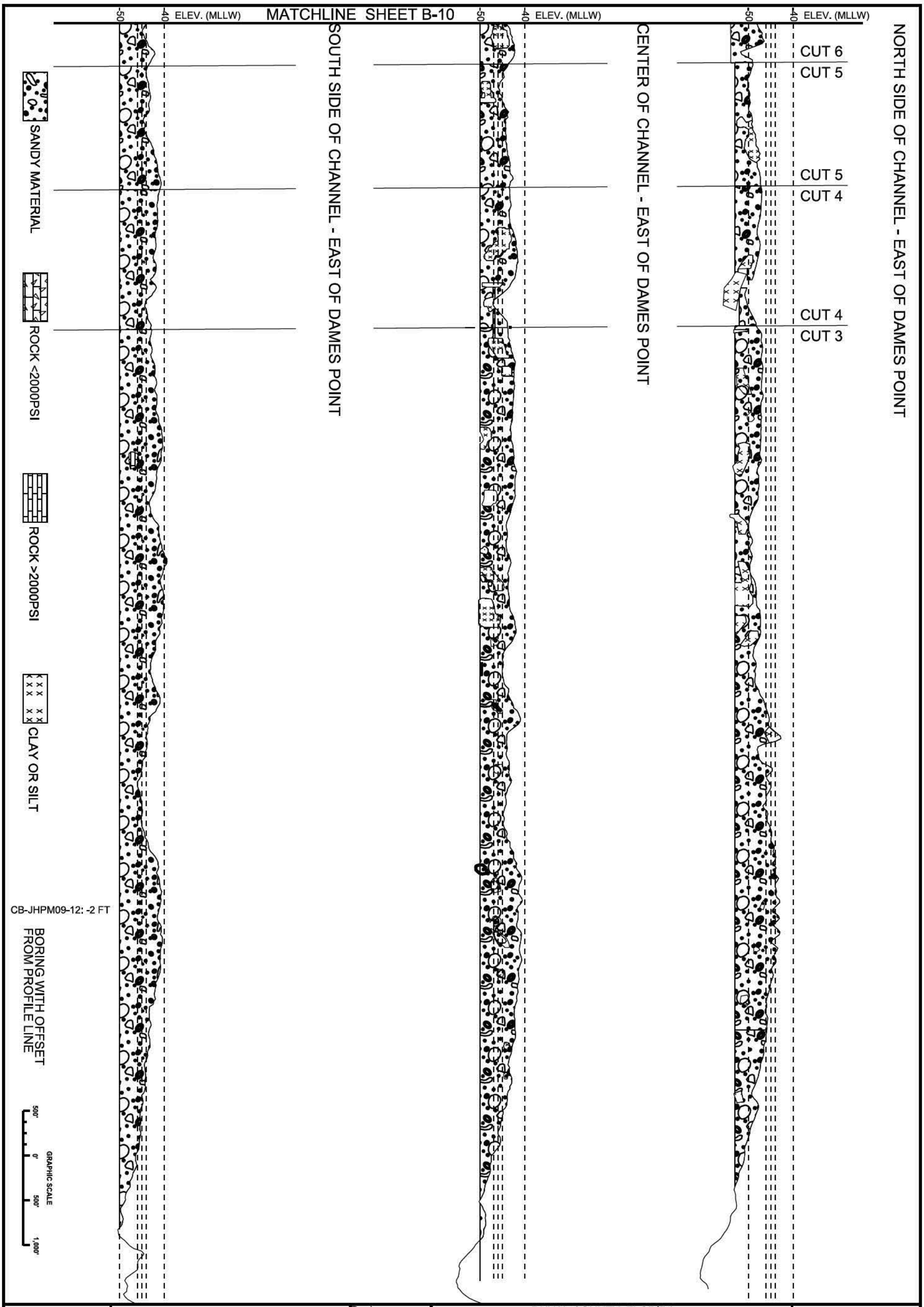
US Army Corps of Engineers Jacksonville District	GEOTECHNICAL DRAWINGS FOR GRR2 ENGINEERING APPENDIX DEPARTMENT OF THE ARMY JACKSONVILLE DISTRICT, CORPS OF ENGINEERS JACKSONVILLE, FLORIDA	Dsn by: S.R.M. Dwn by: C.J.B. Ckd by: S.R.M. Dated: MAR. 2013	DUVAL COUNTY, FLORIDA JACKSONVILLE HARBOR XSECTION PROFILE	PLATE **B-8**



US Army Corps of Engineers Jacksonville District	GEOTECHNICAL DRAWINGS FOR GRR2 ENGINEERING APPENDIX	Dsn by: S.R.M.	DUVAL COUNTY, FLORIDA	PLATE
		Dwn by: C.J.B.	JACKSONVILLE HARBOR	**B-9**
	DEPARTMENT OF THE ARMY JACKSONVILLE DISTRICT, CORPS OF ENGINEERS JACKSONVILLE, FLORIDA	Ckd by: S.R.M.		
		Dated: MAR. 2013	XSECTION PROFILE	



US Army Corps of Engineers Jacksonville District	GEOTECHNICAL DRAWINGS FOR GRR2 ENGINEERING APPENDIX	Dsn by: S.R.M. Dwn by: C.J.B.	DUVAL COUNTY, FLORIDA JACKSONVILLE HARBOR	PLATE
	DEPARTMENT OF THE ARMY JACKSONVILLE DISTRICT, CORPS OF ENGINEERS JACKSONVILLE, FLORIDA	Ckd by: S.R.M. Dated: MAR. 2013	XSECTION PROFILE	**B-10**



US Army Corps of Engineers
Jacksonville District

GEOTECHNICAL DRAWINGS FOR GRR2 ENGINEERING APPENDIX

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

Dsn by: S.R.M.
Dwn by: C.J.B.
Ckd by: S.R.M.
Dated: MAR. 2013

DUVAL COUNTY, FLORIDA

JACKSONVILLE HARBOR

XSECTION PROFILE

PLATE
B-11

Hole No.CB-R5

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1

1. PROJECT Jacksonville Harbor Cut 39 Rock Removal	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=345,394 Y=2202,138	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Failings 1600
4. HOLE NO. (As shown on drawing title and file number) CB-R5	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER J. Detloff	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 7/2/75 COMPLETED 7/2/75
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -38.3 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 100 %
9. TOTAL DEPTH OF HOLE 8.0 Ft.	19. SIGNATURE OF GEOLOGIST R. Kretchman.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel
-38.3	0					-38.3
			UNCONSOLIDATED OVERBURDEN			WASHED CASING
-42.3	4.0					-42.3
			SANDSTONE, hard, tan, fossiliferous, consists of quartz sand in a calcareous matrix	100		DIAMOND 4 X 5-I
-47.3	8.0					-47.3

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor Cut 39 Rock Removal	CB-R5

01000-C74

Hole No.CB-42-12

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET 1 OF 1	
1. PROJECT	Jacksonville Harbor
2. LOCATION (Coordinates or Station)	X=322,482 Y=2200,730
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-42-12
5. NAME OF DRILLER	E.S. Hayes
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	Ft.
8. DEPTH DRILLED INTO ROCK	0 Ft.
9. TOTAL DEPTH OF HOLE	11.3 Ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL	Sprague and Henwood
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 0 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE STARTED / COMPLETED	5/6/80 5/6/80
17. ELEVATION TOP OF HOLE	-38.7 Ft.
18. TOTAL CORE RECOVERY FOR BORING	38 %
19. SIGNATURE OF GEOLOGIST	K.R. Hess

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-38.7	.0					-38.7	
-39.1	.4		SAND, very shelly, coarse quartz, green, dark gray, brown (SC)		1		SETTLED
-39.5	.8		SAND, very coarse quartz, rust brown, silty (SM)	100	2	2" I.D. Spoon	110
			LIMESTONE, hard, very sandy to -40.6, light tan, fosilliferous,			-40.9	374
				10		DIA NX	
					3	-43.7	
				15		DIA NX	
-45.7	7.0					-45.7	
-46.5	7.8		SAND, very rocky, (limestone) light blue (SC)	100		-46.5	DIA NX
			LIMESTONE, hard, very dense, light tan, permeable, broken up				
-48.1	9.4						
			SAND, soft from -48.1 to -50.0, material is probaly sand	23			DIA NX
-50.0	11.3					-50.0	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor	CB-42-12

Hole No.CB-42-13

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=321,886 Y=2201,475	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) M.L.W. (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-13	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER E.S. Hayes	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 5/5/60 COMPLETED 5/5/60
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -38.2 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 80 %
9. TOTAL DEPTH OF HOLE 10.0 Ft.	19. SIGNATURE OF GEOLOGIST K.R. Hess

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1"
-38.2	.0					-38.2	
-41.2	3.0		SAND, fine clean, light tan to -39.1, gray from -39.1 to -41.2 (SP)	70	1	2" I.D. Spoon	SETTLED 10 FELL
-42.9	4.7		SANDSTONE, moderately hard to hard, calcareous, gray to light gray		2		36 18
-43.5	5.3		SAND, sandstone fragments 5 to 10% (SP)			-43.2	
-47.3	9.1		SANDSTONE, moderately hard to hard, calcareous, light gray, very sandy (fine quartz)	90	3	2" I.D. Spoon	54 93 85 75
-48.2	10.0		SAND, rock fragments, 10 to 15%, light gray (SP)			-48.2	30

300# Hammer with 18" drop used on 2" I.D. Spoon

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor	CB-42-13

Hole No.CB-42-29

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=351,298 Y=2202,486	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-29	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER J.D. King	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/28/61 COMPLETED 3/28/61
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -37.8 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 96 %
9. TOTAL DEPTH OF HOLE 11.3 Ft.	19. SIGNATURE OF GEOLOGIST K.R. Hess

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/6"
-37.8	.0					-37.8	
-38.3	.5		SILT, organic, dark gray, shelly, slightly sandy (OL)				17
			SILTSTONE	100	1	2" I.D SPOON	63
-39.9	2.1					-40.3	213
			LIMESTONE, hard, dense, gray			DIAMOND NX	
-41.8	4.0					-41.8	
			SHELL, very large fragments, slightly sandy, silty, cream		2		9
							8
				100		2" I.D. SPOON	16
-45.2	7.4						18
			SAND, medium to fine quartz slightly shelly (small fragments), light gray (SP)		3		17
						-47.2	
				100	4	2" I.D. SPOON	13
-49.1	11.3					-49.1	49
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Jacksonville Harbor | HOLE NUMBER CB-42-29

Hole No.CB-42-33

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=343,663 Y=2201,243	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-33	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER J.D. King	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/23/61 COMPLETED 3/23/61
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -37.5 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 75 %
9. TOTAL DEPTH OF HOLE 12.0 Ft.	19. SIGNATURE OF GEOLOGIST R.R. Thompson

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.5	.0					-37.5	
			SAND, fine to medium, quartz, slightly clayey, in streaks gray (SP)				SETTLED
				68	1	2" I.D SPOON	6
							11
-42.0	4.5						8
			CLAY, very sandy, dark gray (CL)			-42.5	
							SETTLED
				72	2	2" I.D. SPOON	
						-47.5	
-48.0	10.5						
			SAND, coarse, quartz and calcite, silty, buff (SM)	100	3	2" I.D. SPOON	SETTLED
-49.5	12.0					-49.5	10
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Jacksonville Harbor | HOLE NUMBER CB-42-33

Hole No.CB-42-34

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
	SHEET 1 OF 1
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=340,401 Y=2202,036	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-34	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER J.D. King	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/23/61 COMPLETED 3/23/61
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -36.3 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 43 %
9. TOTAL DEPTH OF HOLE 14.2 Ft.	19. SIGNATURE OF GEOLOGIST R.R. Thompson

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-36.3	.0					-36.3	
-37.5	1.2		SILT, (ML), no recovery			2" I.D SPOON -37.5	PUSHED
-40.1	3.8		LIMESTONE, hard, fossiliferous	65		DIAMOND NX -41.5	
			LIMESTONE, moderatly hard, fossiliferous, shelly, clayey, grayish green, many clay filled solution holes and cavities Hard in streaks at -46.5	10		2" I.D. SPOON -46.5	SETTLED 10 10 26
-50.5	14.2			70		2" I.D. SPOON -50.5	261 71 30 76
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor	CB-42-34

Hole No.CB-42-35

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=339,746 Y=2202,919	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-35	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER J.D. King	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/22/61 COMPLETED 3/22/61
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -34.3 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 81.1 %
9. TOTAL DEPTH OF HOLE 14.8 Ft.	19. SIGNATURE OF GEOLOGIST K.R. Hess

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-34.3	.0					-34.3	
			SAND, medium quartz, clean, light gray (SP)				2
							4
				100	1	2" I.D. SPOON	10
							11
						-39.3	23
-40.1	5.8			0		-40.1 2" I.D. SPOON	16
			LIMESTONE, hard, very dense, light gray to gray				
-42.0	7.7						
			CLAY, (calcareous) very shelly (25% to 35%), large to small shell fragments, light greenish gray (CL)	50		DIAMOND NX	
						-44.1	
							7
							16
				100	2	2" I.D. SPOON	25
							27
-49.1	14.8					-49.1	36
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor	CB-42-35

Hole No.CB-42-49

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=357,988 Y=2198,214	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-49	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1/4
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/14/67 COMPLETED 3/14/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -37.0 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 62 %
9. TOTAL DEPTH OF HOLE 13.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/1'	
-37.0	.0					-37.0		0
			SAND, shelly, fine to medium, quartz, brown, gray (SP)		1		PUSHED 2	
-39.7	2.7		slightly shelly, fine to coarse, quartz, calcareous, from -39.7 to -43.5 slightly cemented	42		2" I.D. SPOON	4	2.5
					2		5 4	
						-42.0		5
					3		9	
-43.5	6.5						18	
			SAND, silty, very fine to medium, quartz, slightly calcareous, greenish gray, brown, slightly shelly (SM)	76	4	2" I.D. SPOON	44	7.5
							87	
					5		115	
						-47.0		10
			slightly clayey, grayish green from -48.4 to -50.0		6		8	
				70		2" I.D. SPOON	30	
					7		66	12.5
-50.0	13.0					-50.0		
						300# Hammer with 18" drop used on 2" I.D. Spoon		15
								17.5
								20
								22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor	CB-42-49

Hole No.CB-42-50

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=354,897 Y=2199,393	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-50	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1/4
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/13/67 COMPLETED 3/13/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -38.6 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 92 %
9. TOTAL DEPTH OF HOLE 12.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/1"
-38.6	.0					-38.6	
-40.1	1.5		SHELL, sandy, silty, gray		1		3, 3
			SAND, silty, slightly clayey, fine to medium, greenish gray, quartz, slightly shelly, (SM)	80	2	2" I.D. SPOON	2, 4, 15
			shelly, gray from -43.2 to -45.6			-43.6	
			tan below elevation -45.6		3		8, 13
				100	4	2" I.D. SPOON	9, 8, 38
-48.2	9.6					-48.6	
			SAND, fine to medium, quartz, olive brown, (SP)	100	5	2" I.D. SPOON	45, 142
-50.6	12.0					-50.6	

300# Hammer with 18" drop used on 2" I.D. Spoon

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor	CB-42-50

Hole No.CB-42-51

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=353,318 Y=2200,701	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-51	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1/4
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/10/67 COMPLETED 3/10/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -38.5 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 92 %
9. TOTAL DEPTH OF HOLE 12.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-38.5	.0					-38.5	
-40.0	1.5		SAND, silty, shelly, fine to medium, quartz, calcareous, gray (SM)		1		1, 2
-42.0	3.5		SAND, clayey, slightly shelly, slightly silty, fine, quartz, gray	80	2	2" I.D. SPOON	4, 8
-43.5	5.0		SHELL, sandy, silty, gray, white		3	-43.5	11
-46.5	8.0		SAND, silty, shelly, quartz, fine to medium, gray (SM)	100	4	2" I.D. SPOON	3, 5, 9
-48.5	10.0		CLAY, sandy, silty, slightly shelly, gray (CL)		5	-48.5	7, 10
-50.5	12.0		SAND, slightly shelly, fine to medium, quartz, calcareous, tan, green to gray (SP)	100	6	2" I.D. SPOON -50.5	21, 78

300# Hammer with 18" drop used on 2" I.D. Spoon

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Jacksonville Harbor | HOLE NUMBER CB-42-51

Hole No.CB-42-52

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 1
1. PROJECT	Jacksonville Harbor
2. LOCATION (Coordinates or Station)	X=361,316 Y=2202,360
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-42-52
5. NAME OF DRILLER	C. Mason
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	Ft.
8. DEPTH DRILLED INTO ROCK	0 Ft.
9. TOTAL DEPTH OF HOLE	19.0 Ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL	Sprague and Henwood
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 0 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1/4
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE	STARTED 3/09/67 COMPLETED 3/09/67
17. ELEVATION TOP OF HOLE	-31.0 Ft.
18. TOTAL CORE RECOVERY FOR BORING	83 %
19. SIGNATURE OF GEOLOGIST	J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-31.0	.0					-31.0	
-32.5	1.5		SHELL, sandy, silty, gray to tan (SM)	72	1	2" I.D. SPOON -33.5	4, 37, 45
			LIMESTONE, hard, porous, fossiliferous, solutioned, gray to tan	55		DIAMOND NX -35.5	
				85		DIAMOND NX -37.5	
			medium hard from -38.8 to -43.2	80		DIAMOND NX -39.0	
			siltstone layer from -41.0 to -42.3	80		2" I.D. SPOON -44.0	44, 25, 13, 40, 115
-44.5	13.5		SAND, fine to coarse, quartz, shell and limestone fragments, tan, (SP)	100	2	2" I.D. SPOON -47.0	63, 37, 34
				100	3	2" I.D. SPOON -50.0	38, 43, 45
-50.0	19.0					300# Hammer with 18" drop used on 2" I.D. Spoon	

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor	CB-42-52

Hole No.CB-42-53

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=348,698 Y=2203,508	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-53	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1/3
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/08/87 COMPLETED 3/08/87
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -37.7 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 55 %
9. TOTAL DEPTH OF HOLE 13.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NUMBER NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.7	.0					-37.7	
-39.0	1.3		SAND, silty, shelly, fine to coarse, gray, (SM)	40	1	2" I.D. SPOON	0, 5
-40.9	3.2		SILT, clayey, slightly shelly with hard limestone fragments, dark gray (MH)			-40.2	25, 12
			LIMESTONE, moderatly hard with hard layers, fossiliferous, porpous, tan, gray, soultioned hard from -43 to -44.7	80		2" I.D. SPOON	37
						-42.7	29
			hard from -43.0 to -44.7	85		DIAMOND NX	
						-44.7	
			probable silt filled cavity from -45.5 to -47.7	40		2" I.D. SPOON	3, DROPPED, 9, 20, 23
-50.7	13.0					-50.7	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Jacksonville Harbor | HOLE NUMBER CB-42-53

Hole No.CB-42-55

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonille Harbor--TERMINAL CUT	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=342,177 Y=2202,436	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-55	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/6/67 COMPLETED 3/6/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -40.5 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 94 %
9. TOTAL DEPTH OF HOLE 10.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-40.5	.0					-40.5	
-42.0	1.5		SAND, quartz, fine to medium, silty, slightly clayey, tan (SM)	80	1	2" I.D. Spoon	SETTLED 51
-45.5	5.0		LIMESTONE, hard, fossiliferous, solutioned, tan, gray	95		-42.5 2" I.D. Spoon -44.5	156 78
-47.7	7.2		moderately hard, silty zones from -45.5 to -47.7 and from -49.8 to -50.5	97		2" I.D. Spoon -47.5	195 29 29
-49.7	9.2			100		2" I.D. Spoon	92 80
-50.5	10.0					-50.5	40

300# Hammer with 18" drop used on 2" I.D. Spoon

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonille Harbor--TERMINAL CUT	CB-42-55

Hole No.CB-42-56

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonille Harbor--TERMINAL CUT	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=341,742 Y=2201,481	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-56	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/3/67 COMPLETED 3/3/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -35.0 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 47 %
9. TOTAL DEPTH OF HOLE 15.0 Ft.	19. SIGNATURE OFGEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-35.0	.0					-35.0	
-37.8	2.8		SAND, slightly silty, slightly organic, fine, dark gray (SP)	60	1	2" I.D. Spoon	2, 7, 2, 11
-39.2	4.2		LIMESTONE, moderately hard to hard, fine to medium, gray, fossiliferous, porous, sdolution holes, tan to gray			-39.0	
-40.0	5.0		hard siliceous zone from -39.2 to -40.0	28		DIAMOND NX	
						-41.5	
				0		DIAMOND NX	
						-44.0	
-46.0	11.0		dense, zones common, hard from -46.0 to -47.6	80		2" I.D. Spoon	11, 21, 103, 46, 42
-47.6	12.6					-49.0	
-50.0	15.0			0		2" I.D. Spoon -50.0	18
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Jacksonille Harbor--TERMINAL CUT

HOLE NUMBER CB-42-56

Hole No.CB-42-57

DRILLING LOG

DIVISION: South Atlantic

INSTALLATION: Jacksonville District

SHEET 1 OF 1

1. PROJECT: Jacksonville Harbor--TERMINAL CUT	10. SIZE AND TYPE OF BIT: See Remarks
2. LOCATION (Coordinates or Station): X=335,070 Y=2202,080	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MLW (FEET)
3. DRILLING AGENCY: Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number): CB-42-57	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: disturbed: 0 undisturbed: 0
5. NAME OF DRILLER: C. Mason	14. TOTAL NUMBER OF CORE BOXES: 1
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER: TIDAL
	16. DATE HOLE STARTED: 3/2/67 COMPLETED: 3/2/67
7. THICKNESS OF BURDEN: Ft.	17. ELEVATION TOP OF HOLE: -39.0 Ft.
8. DEPTH DRILLED INTO ROCK: 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING: 47 %
9. TOTAL DEPTH OF HOLE: 11.0 Ft.	19. SIGNATURE OF GEOLOGIST: J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1"
-39.0	.0					-39.0	
-41.6	2.6		SILT, organic, dark gray, (Sludge, sewage) (OL)		1		PUSHED
-46.0	7.0		SAND, very fine to medium quartz, calcareous, slightly shelly, tan to gray (SP)	50	2	2" I.D. Spoon -45.0	1 7 7 9
-48.0	9.0		SAND, clayey, silty brown, very fine to fine (SC)	80	3 4	2" I.D. Spoon	1 8 11
-50.0	11.0		SAND, silty, slightly clayey, fine quartz, light gray		5	-50.0	17 24
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Jacksonville Harbor--TERMINAL CUT

HOLE NUMBER: CB-42-57

Hole No.CB-42-58

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor--TERMINAL CUT	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=333,063 Y=2201,383	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-58	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 3/1/67 COMPLETED 3/1/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -37.2 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 48 %
9. TOTAL DEPTH OF HOLE 13.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.2	0					-37.2	
			SILT, organic, soft, black to brown (OL)	80	1	2" I.D. Spoon	PUSHED
-40.5	3.3						
			SAND, silty, slightly organic, fine quartz, tan to gray (SM)		2		3 / 5
-42.3	5.1					-42.2	
			LIMESTONE, hard, porous, fossiliferous, solution holes, tan to gray	50		2" I.D. Spoon -43.2	18
				16		DIAMOND NX -48.2	
				100		2" I.D. Spoon	97 / 26
-50.2	13.0					-50.2	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Jacksonville Harbor--TERMINAL CUT

HOLE NUMBER CB-42-58

Hole No.CB-42-60

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonille Harbor--TERMINAL CUT	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=328,930 Y=2200,913	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-60	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 2/24/67 COMPLETED 2/24/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -36.8 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 69 %
9. TOTAL DEPTH OF HOLE 13.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-36.8	.0					-36.8	
			SAND, silty, fine to medium quartz, slightly organic, brown, gray (SM)		1		PUSHED
							1
				50		2" I.D. Spoon	7
					2		14
						-41.8	6
							6
					3		6
-44.7	7.9			70		2" I.D. Spoon	6
			SILT, clayey, organic with streakes of fine sand, dark gray (ML)		4		PUSHED
						-46.8	
							PUSHED
				100	5	2" I.D. Spoon	
-49.8	13.0					-49.8	4
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonille Harbor--TERMINAL CUT	CB-42-60

Hole No.CB-42-61

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 1
1. PROJECT	Jacksonville Harbor--TERMINAL CUT
2. LOCATION (Coordinates or Station)	X=326,431 Y=2200,133
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-42-61
5. NAME OF DRILLER	C. Mason
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	Ft.
8. DEPTH DRILLED INTO ROCK	0 Ft.
9. TOTAL DEPTH OF HOLE	13.0 Ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL	Sprague and Henwood
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 0 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE STARTED / COMPLETED	2/23/67 2/23/67
17. ELEVATION TOP OF HOLE	-37.2 Ft.
18. TOTAL CORE RECOVERY FOR BORING	81 %
19. SIGNATURE OF GEOLOGIST	J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.2	0					-37.2	
-39.2	2.0		SAND, slightly, silty, organic, fine, slightly shelly, brown to tan SP)		1		PUSHED 3
-42.2	5.0		SAND, silty, slightly clayey, slightly shelly, slightly organic, gray to brown (SM)	50	2	2" I.D. Spoon -42.2	SETTLED 2
-44.2	7.0		SAND, clayey, slightly silty, fine, quartz, dark gray (SC)		3		4 5
-50.2	13.0		CLAY, sandy to slightly sandy, silty, slightly plastic with depth occasional shells, dark gray (CL)	100	4	2" I.D. Spoon -47.2	2 1 2
				100	5	2" I.D. Spoon -50.2	3 3 2

300# Hammer with 18" drop used on 2" I.D. Spoon

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Jacksonville Harbor--TERMINAL CUT

HOLE NUMBER: CB-42-61

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 1
1. PROJECT	Jacksonille Harbor--TERMINAL CUT
2. LOCATION (Coordinates or Station)	X=324,767 Y=2200,325
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-42-62
5. NAME OF DRILLER	C. Mason
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	Ft.
8. DEPTH DRILLED INTO ROCK	0 Ft.
9. TOTAL DEPTH OF HOLE	10.0 Ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL	Sprague and Henwood
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 0 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE	STARTED 2/21/67 COMPLETED 2/21/67
17. ELEVATION TOP OF HOLE	-40.0 Ft.
18. TOTAL CORE RECOVERY FOR BORING	75 %
19. SIGNATURE OF GEOLOGIST	J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-40.0	.0					-40.0	
			SILT, sandy, calcareous, limestone fragments, tan to gray (ML)	50	1	2" I.D. Spoon	1, 4, 3, 9
-44.0	4.0						
			LIMESTONE, moderately hard, solution holes, slightly fossiliferous			-45.0	23
				100		2" I.D. Spoon	17, 17, 12, 16, 46
-50.0	10.0					-50.0	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonille Harbor--TERMINAL CUT	CB-42-62

Hole No.CB-42-63

DRILLING LOG

DIVISION: South Atlantic	INSTALLATION: Jacksonville District — SHEET 1 OF 1
1. PROJECT: Jacksonille Harbor--TERMINAL CUT	10. SIZE AND TYPE OF BIT: See Remarks
2. LOCATION (Coordinates or Station): X=320,170 Y=2203,337	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MLW (FEET)
3. DRILLING AGENCY: Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number): CB-42-63	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: disturbed: 0 undisturbed: 0
5. NAME OF DRILLER: C. Mason	14. TOTAL NUMBER OF CORE BOXES: 1
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER: TIDAL
	16. DATE HOLE STARTED: 2/27/67 COMPLETED: 2/27/67
7. THICKNESS OF BURDEN: Ft.	17. ELEVATION TOP OF HOLE: -38.2 Ft.
8. DEPTH DRILLED INTO ROCK: 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING: 80 %
9. TOTAL DEPTH OF HOLE: 12.0 Ft.	19. SIGNATURE OF GEOLOGIST: J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/6"
-38.2	0					-38.2	
-40.0	1.8		SAND, slightly silty, slightly organic, quartz, very fine to medium, tan (SP)	70	1	2" I.D. Spoon	11, 28, 28
-41.2	3.0		LIMESTONE, moderately hard to hard, silty, slightly fossiliferous tan to gray			-41.2	
-42.4	4.2		slightly porous, moderately hard from -40.0 to -41.2 and from -43.0 to -44.2	55		DIAMOND NX	
-44.2	6.0		hard from -41.2 to -43.0			-43.2	
-47.2	9.0		SILTSTONE, slightly calcareous, soft to moderately hard, thin clay seams, from -44.2 to -47.2	90		2" I.D. Spoon	23, 11, 76, 22, 115
-48.2	10.0		hard from -47.2 to -48.2			-48.2	
-50.2	12.0		SAND, fine to medium quartz, calcareous, tan, very slightly indurated (SP)	95		2" I.D. Spoon	65, 60
						-50.2	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonille Harbor--TERMINAL CUT	CB-42-63

Hole No.CB-42-64

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor--TERMINAL CUT	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION *(Coordinates or Station)* X=318,887 Y=2205,535	11. DATUM FOR ELEVATION SHOWN *(TBM or MSL)* MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. *(As shown on drawing title and file number)* CB-42-64	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 2/20/67 COMPLETED 2/20/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -37.0 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 70 %
9. TOTAL DEPTH OF HOLE 13.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Knox

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.0	.0					-37.0	
			SAND, silty, slightly organic, fine to medium, brown to black (SM)		1		2, 2
				50	2	2" I.D. Spoon	3, 4
-41.4	4.4					-42.0	15
			SAND, very fine to fine, quartz, white to tan (SP)		3		17, 24
				70	4	2" I.D. Spoon	28, 31, 34
						-47.0	
				100	5	2" I.D. Spoon	34, 27, 31
-50.0	13.0					-50.0	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor--TERMINAL CUT	CB-42-64

Hole No.CB-42-77

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET 1 OF 1	
1. PROJECT	Jacksonville Harbor
2. LOCATION (Coordinates or Station)	X=321,145 Y=2202,184
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-42-77
5. NAME OF DRILLER	R. Gordon
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	Ft.
8. DEPTH DRILLED INTO ROCK	0 Ft.
9. TOTAL DEPTH OF HOLE	12.3 Ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL	Sprague and Henwood
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 0 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE STARTED / COMPLETED	6/26/67 6/26/67
17. ELEVATION TOP OF HOLE	-37.0 Ft.
18. TOTAL CORE RECOVERY FOR BORING	67 %
19. SIGNATURE OF GEOLOGIST	R. Kretchman

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.0	.0					-37.0	
-40.3	3.3		SAND, medium to fine, quartz and calcite, silty, gray (SM)	70	1	2" I.D. Spoon	PUSHED 8 8
-42.3	5.3		LIMESTONE, hard, gray, fossiliferous, sdamdy, porous	90		DIAMOND NX	80
-43.3	6.3		SAND, medium to fine, quartz, gray (SP)	100	2	2" I.D. Spoon	50
-46.3	9.3		SAMDETONE, calcareous, hard, gray, porous, fossiliferous	40		DIAMOND NX	
-49.3	12.3		SAND, medium to fine, quartz, gray	65	3	2" I.D. Spoon	10 31 85
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Jacksonville Harbor

HOLE NUMBER: CB-42-77

Hole No.CB-42-78

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=326,011 Y=2200,205	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-42-78	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER R. Gordon	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 6/26/67 COMPLETED 6/26/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -37.0 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 100 %
9. TOTAL DEPTH OF HOLE 13.0 Ft.	19. SIGNATURE OF GEOLOGIST R. Kretchman

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.0	.0					-37.0	
			SAND, medium to fine, quartz, slightly silty, gray (SP-SM)				6
							5
				100	1	2" I.D. Spoon	4
							2
							3
						-42.0	
							20
							28
				100	2	2" I.D. Spoon	38
							57
							62
						-47.0	
							20
				100	3	2" I.D. Spoon	20
							20
-50.0	13.0					-50.0	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Jacksonville Harbor | HOLE NUMBER CB-42-78

Hole No.CB-42-79

DRILLING LOG

DIVISION: South Atlantic

INSTALLATION: Jacksonville District

SHEET 1 OF 1

1. PROJECT: Jacksonville Harbor
2. LOCATION (Coordinates or Station): X=334,165 Y=220,756
3. DRILLING AGENCY: Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number): CB-42-79
5. NAME OF DRILLER: R. Gordon
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN: Ft.
8. DEPTH DRILLED INTO ROCK: 0 Ft.
9. TOTAL DEPTH OF HOLE: 13.0 Ft.
10. SIZE AND TYPE OF BIT: See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL: Sprague and Henwood
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: disturbed: 0 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES: 1
15. ELEVATION GROUND WATER: TIDAL
16. DATE HOLE STARTED: 6/28/67 COMPLETED: 6/28/67
17. ELEVATION TOP OF HOLE: -37.0 Ft.
18. TOTAL CORE RECOVERY FOR BORING: 55 %
19. SIGNATURE OF GEOLOGIST: R. Kretchman

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1"
-37.0	.0					-37.0	
			SAND, medium to fine quartz, gray, slightly silty (SP)				PUSHED
							1
				50	1	2" I.D. Spoon	6
							9
							11
-42.0	5.0					-42.0	
			SAND, medium to fine quartz, gray, clayey (SC)				18
							17
				60	2	2" I.D. Spoon	16
							16
							17
						-47.0	
-48.0	11.0						15
			LIMESTONE, moderately hard, fossiliferous, porous	30	3	2" I.D. Spoon	35
							80
-50.0	13.0					-50.0	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Jacksonville Harbor

HOLE NUMBER: CB-42-79

Hole No.CB-42-81

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION *(Coordinates or Station)* X=343,133 Y=2201,983	11. DATUM FOR ELEVATION SHOWN *(TBM or MSL)* MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague and Henwood
4. HOLE NO. *(As shown on drawing title and file number)* CB-42-81	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER R. Gordon	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 7/6/67 COMPLETED 7/6/67
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -37.0 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 100 %
9. TOTAL DEPTH OF HOLE 12.0 Ft.	19. SIGNATURE OF GEOLOGIST R. Kretchman

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.0	.0					-37.0	
			SAND, medium to fine, quartz, gray (SP)	100	1	2" I.D. Spoon	1, 10
-39.5	2.5					-39.5	15, 21
-40.5	3.5		LIMESTONE, moderately hard				
			LIMESTONE, hard, dark gray to gray, thin, very hard layers, fossiliferous, sandy	500		2" I.D. Spoon	70, 80, 25, 70
						-44.5	
				25		2" I.D. Spoon	51, 40, 74, 91
-49.0	12.0					-49.0	
						300# Hammer with 18" drop used on 2" I.D. Spoon	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor	CB-42-81

Hole No.CB-J91-1

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 1
1. PROJECT	Jacksonville Harbor Maintenance - 91
2. LOCATION (Coordinates or Station)	X=339,274, Y=2,202,166
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-J91-1
5. NAME OF DRILLER	L.C. Gregory
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	0 ft.
8. DEPTH DRILLED INTO ROCK	0 ft.
9. TOTAL DEPTH OF HOLE	15 ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FT)
12. MANUFACTURER'R DESGNATION OF DRILL	Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 0 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1
15. ELEVATION GROUND WATER	Tidal
16. DATE HOLE STARTED / COMPLETED	1/16/92 1/16/92
17. ELEVATION TOP OF HOLE	-28.1
18. TOTAL CORE RECOVERY FOR BORING	46
19. SIGNATURE OF GEOLOGIST	G. Holcm

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1"
-28.1	.0					-28.1	
-29.6	1.5		SAND, fine to medium grained quartz, trace silt, slightly organic odor, trace shell, tan with thin black bands (SP)		1		2, 3
			SAND, fine to medium grained quartz, trace silt, slightly organic odor, trace shell, dark gray (SP-SM)	56	2	2" SAMPLER	1, 1, 5
			Organic odor strong			-33.1	
				42	3	2" SAMPLER	4, 6, 19, 29, 30
						-38.1	
				40	4	2" SAMPLER	11, 23, 43, 48, 40
-43.1	15.0					-43.1	

NOTES:
Soils are field visually classified in accordance with unified soils classification system

SAMPLE ELEVATION	LABORATORY CLASSIFICATION
-29.6/-33.1	(SP) *
-33.1/-38.1	(SP) *

300# HAMMER WITH AN 18" DROP USED ON A 5' SAMPLER

NOTE: * Visual Classification based on Gradation Curve. No Atterberg Limits.

0 2.5 5 7.5 10 12.5 15 17.5 20 22

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE. MAR 71

PROJECT: Jacksonville Harbor Maintenance - 91

HOLE NUMBER: CB-J91-1

Hole No.CB-J91-8

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1

1. PROJECT JACKSONVILLE HARBOR MAINT DREDGING	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=319722, Y=2204721	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESGNATION OF DRILL Failing 1500
4. HOLE NO. (As shown on drawing title and file number) CB-J91-8	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER M. Whitson	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE STARTED 7/24/91 COMPLETED 7/24/91
7. THICKNESS OF BURDEN 0 ft.	17. ELEVATION TOP OF HOLE -36.2
8. DEPTH DRILLED INTO ROCK 0 ft.	18. TOTAL CORE RECOVERY FOR BORING 90%
9. TOTAL DEPTH OF HOLE 8.0 ft.	19. SIGNATURE OF GEOLOGIST R. Rios

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-36.2	0					-36.2	
			SAND, fine grained, quartz, (contains lenses of (SC) fine sand up to 1/4"), clay traces, light gray (SP)				Settle
							Settle
				90	1	2" SAMPLER	2
							3
							3
						-41.2	
							Settle
				90		2" SAMPLER	2
							2
-44.2	8					-44.2	

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

SAMPLE ELEVATION	LABORATORY CLASSIFICATION
-37.2/-39.2	(SP)*

NOTE:
* VISUAL CLASSIFICATION BASED ON GRADATION CURVE. NO ATTERBERG LIMITS.

Note: 300# hammer with 18" drop used on 2" I.D. sampler

bls/ft. refers to the number of hammer blows required to advance a 2" sampler (2" I.D. x 2-1/2" O.D.) one foot. The sampler is 5' long and driven continuously 5' where possible.

Hole No.CB-JHR97-2

DRILLING LOG

DIVISION: South Atlantic	INSTALLATION: Jacksonville District
	SHEET 1 OF 1
1. PROJECT: Jacksonville Harbor Deepening	10. SIZE AND TYPE OF BIT: See Remarks
2. LOCATION (Coordinates or Station): X=348,009 Y=2203,211	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MLW (FEET)
3. DRILLING AGENCY: Savanah District, Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Failings 1300
4. HOLE NO. (As shown on drawing title and file number): CB-JHR97-2	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: disturbed: 4 undisturbed: 0
5. NAME OF DRILLER: C.Robbins	14. TOTAL NUMBER OF CORE BOXES: 1
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER: TIDAL
	16. DATE HOLE STARTED: 6/29/97 COMPLETED: 6/29/97
7. THICKNESS OF BURDEN: Ft.	17. ELEVATION TOP OF HOLE: -36.0 Ft.
8. DEPTH DRILLED INTO ROCK: 2.6 Ft.	18. TOTAL CORE RECOVERY FOR BORING: 78 %
9. TOTAL DEPTH OF HOLE: 9.6 Ft.	19. SIGNATURE OF GEOLOGIST: J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-36.0	.0					-36.0	
			SAND, medium to coarse grained quartz, a little shell, gray (SP)	100	1	3" Sampler	10, 16, 32, 69
					2	-40.6	100
				60	3	3" Sampler	33, 56
-43.0	7.0						
			LIMESTONE, moderately hard, sandy (quartz), zones of soft and hard LIMESTONE, light gray		4		44, 39, 30
-45.6	9.6					-45.6	

NOTES:

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

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

Hole No.CB-JHR97-4

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
	SHEET 1 OF 1
1. PROJECT Jacksonville Harbor Deepening	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=346,262 Y=2202,238	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Savanah District, Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Failings 1300
4. HOLE NO. (As shown on drawing title and file number) CB-JHR97-4	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 3 undisturbed: 0
5. NAME OF DRILLER C.Robbins	14. TOTAL NUMBER OF CORE BOXES 4
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 6/30/97 COMPLETED 6/30/97
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -33.8 Ft.
8. DEPTH DRILLED INTO ROCK 3.6 Ft.	18. TOTAL CORE RECOVERY FOR BORING 81 %
9. TOTAL DEPTH OF HOLE 10.7 Ft.	19. SIGNATURE OFGEOLOGIST J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-33.8	.0					-33.8	
-35.4	1.6		SAND, fine to medium quartz, a little shell, gray (SP)	75	1	3" Sampler	7, 47, 100
-38.6	4.8		SILT, semi-consolidated, some moderately hard siltstone, gray (ML)	60		-36.6 3" Sampler	16, 32, 69, 100
-39.2	5.4		LIMESTONE, moderately hard, brown			-40.1	
-42.2	8.4		SANDSTONE, hard, quartz, calcareous, fossiliferous, trace of phosphate, gray/brown		3	DIA. 4" X 5 1/2' D.T. 9 min. H.P. 150	
-43.5	9.7		Silty SAND, fine to medium grained quartz and calcite,calcareous silt, trace phosphate, some moderately hard limestone, white (SM)	100		DIA. 4" X 5 1/2' D.T. 30 sec. H.P. 0	
-44.5	10.7		Silty SAND, medium to fine quartz, a little calcareous silt, gray (SM)			-44.5	

NOTES:

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

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor Deepening	CB-JHR97-4

Hole No.CB-JHR97-7

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 1
1. PROJECT	Jacksonville Harbor Deepening
2. LOCATION (Coordinates or Station)	X=340,571 Y=2202,977
3. DRILLING AGENCY	Savanah District, Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-JHR97-7
5. NAME OF DRILLER	C.Robbins
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	Ft.
8. DEPTH DRILLED INTO ROCK	8.3 Ft.
9. TOTAL DEPTH OF HOLE	12.3 Ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL	Failings 1300
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 3 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE STARTED / COMPLETED	6/30/97 6/30/97
17. ELEVATION TOP OF HOLE	-35.7 Ft.
18. TOTAL CORE RECOVERY FOR BORING	64 %
19. SIGNATURE OF GEOLOGIST	J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-35.7	.0					-35.7	
			SAND, fine grained quartz, trace of fine grained phosphate and shell, gray (SP)	60	1	3" Sampler	7, 7, 23, 34
-39.7	4.0						
			SANDSTONE, hard, quartz, fine grained, calcareous, brown/fgray			-40.6	100
			clay layer and charcoal from -42.,45 to -43.0	50	2	3" Sampler	21, 48, 33, 100
						-44.0	
-46.5	10.8			80		Dia. 4" X 5 1/2' D.T. 10 min. H.P. 100 psi	
-48.0	12.3		LIMESTONE, moderately hard, slightly sandy, porous, fossiliferous, brown			-48.0	

NOTES:

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

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor Deepening	CB-JHR97-7

Hole No.CB-JHR97-8

DRILLING LOG

DIVISION: South Atlantic	INSTALLATION: Jacksonville District
	SHEET 1 OF 1
1. PROJECT: Jacksonville Harbor Deepening	10. SIZE AND TYPE OF BIT: See Remarks
2. LOCATION (Coordinates or Station): X=338,000 Y=2202,344	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MLW (FEET)
3. DRILLING AGENCY: Savanah District, Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Failings 1300
4. HOLE NO. (As shown on drawing title and file number): CB-JHR97-8	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: disturbed: 0 undisturbed: 0
5. NAME OF DRILLER: C.Robbins	14. TOTAL NUMBER OF CORE BOXES: 1
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER: TIDAL
	16. DATE HOLE STARTED: 7/2/97 COMPLETED: 7/2/97
7. THICKNESS OF BURDEN: Ft.	17. ELEVATION TOP OF HOLE: -40.3 Ft.
8. DEPTH DRILLED INTO ROCK: 8.4 Ft.	18. TOTAL CORE RECOVERY FOR BORING: 38 %
9. TOTAL DEPTH OF HOLE: 8.4 Ft.	19. SIGNATURE OF GEOLOGIST: J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-40.3	.0					-40.3	
			LIMESTONE, moderately hard, gray/tan	60	1	3" Sampler	7 3 66
-43.1	2.8					-43.3	
-44.4	4.1		LIMESTONE, hard, sandy (quartz), trace phosphate, gray, clay layer at -44.0			Dia. 4" X 5 1/2' D.T. 10 min. H.P. 120 psi	
-48.7	8.4		LIMESTONE, soft, sandy (quartz), shelly (large hard oyster shells), gray, layers of silty sand	25		-48.7	

NOTES:

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

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Jacksonville Harbor Deepening

HOLE NUMBER: CB-JHR97-8

Hole No.CB-JHR97-10

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 1
1. PROJECT	Jacksonville Harbor Deepening
2. LOCATION (Coordinates or Station)	X=325,028 Y=2200,236
3. DRILLING AGENCY	Savanah District, Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-JHR97-10
5. NAME OF DRILLER	C.Robbins
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	Ft.
8. DEPTH DRILLED INTO ROCK	6.0 Ft.
9. TOTAL DEPTH OF HOLE	9.0 Ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL	Failings 1300
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 2 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE STARTED / COMPLETED	6/27/97 6/27/97
17. ELEVATION TOP OF HOLE	-38.2 Ft.
18. TOTAL CORE RECOVERY FOR BORING	61 %
19. SIGNATURE OF GEOLOGIST	J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-38.2	.0					-38.2	
-40.2	2.0		loose rock, gravel size and larger				SETTLED
-42.4	4.2		LIMESTONE, modertely hard, fossiliferous, buff some hard LIMESTONE	30	1	3" Sampler	13 14
-44.2	6.0		SANDSTONE, hard, quartz, fine grained, brown		2	-43.2	50
-47.2	8.0		SANDSTONE, moderately hard, quartz, fine to medium grained, calcareous, trace fine grained phosphate, fossiliferous, porous, brown	100		Dia. 4" X 5 1/2' D.T. 7 min. H.P. 150 psi -47.2	

NOTES:

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

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor Deepening	CB-JHR97-10

Hole No.CB-JHR97-11

DRILLING LOG

DIVISION: South Atlantic	INSTALLATION: Jacksonville District
	SHEET 1 OF 1
1. PROJECT: Jacksonville Harbor Deepening	10. SIZE AND TYPE OF BIT: See Remarks
2. LOCATION (Coordinates or Station): X=323,765 Y=2200,288	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MLW (FEET)
3. DRILLING AGENCY: Savanah District, Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Failings 1300
4. HOLE NO. (As shown on drawing title and file number): CB-JHR97-11	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: disturbed: 2 undisturbed: 0
5. NAME OF DRILLER: C.Robbins	14. TOTAL NUMBER OF CORE BOXES: 1
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER: TIDAL
	16. DATE HOLE STARTED: 6/28/97 COMPLETED: 6/28/97
7. THICKNESS OF BURDEN: Ft.	17. ELEVATION TOP OF HOLE: -37.2 Ft.
8. DEPTH DRILLED INTO ROCK: 5.8 Ft.	18. TOTAL CORE RECOVERY FOR BORING: 80 %
9. TOTAL DEPTH OF HOLE: 9.6 Ft.	19. SIGNATURE OF GEOLOGIST: J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-37.2	.0					-37.2	
-37.7	.5		SANDSTONE, hard, quartz, gray		1		18
			Silty SAND, calcareous, some hard SANDSTONE, white (SM)	80	2	3" Sampler	33
							38
-41.0	3.8						52
			SANDSTONE, hard, quartz, calcareous, fossiliferous, porous, brown to gray			-41.8	100
				80		Dia. 4" X 5 1/2' D.T. 15 min. H.P. 100 psi	
-46.8	9.6					-46.8	

NOTES:

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

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor Deepening	CB-JHR97-11

Hole No.CB-JHR97-12

DRILLING LOG

DIVISION: South Atlantic	INSTALLATION: Jacksonville District — SHEET 1 OF 1
1. PROJECT: Jacksonville Harbor Deepening	10. SIZE AND TYPE OF BIT: See Remarks
2. LOCATION (Coordinates or Station): X=323,131 Y=2200,668	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MLW (FEET)
3. DRILLING AGENCY: Savanah District, Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Failings 1300
4. HOLE NO. (As shown on drawing title and file number): CB-JHR97-12	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: disturbed: 1 undisturbed: 0
5. NAME OF DRILLER: C.Robbins	14. TOTAL NUMBER OF CORE BOXES: 1
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER: TIDAL
	16. DATE HOLE STARTED: 7/2/97 COMPLETED: 7/2/97
7. THICKNESS OF BURDEN: Ft.	17. ELEVATION TOP OF HOLE: -39.1 Ft.
8. DEPTH DRILLED INTO ROCK: 5.2 Ft.	18. TOTAL CORE RECOVERY FOR BORING: 41 %
9. TOTAL DEPTH OF HOLE: 7.0 Ft.	19. SIGNATURE OF GEOLOGIST: J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-39.1	.0					-39.1	
			SAND and loose ROCK		1		SETTLED
-40.9	1.8			10		3" Sampler	8
			SANDSTONE, hard, fine grained quartz, calcaraous, slightly porous, brown				84
						-42.1	
-43.1	4.0					Dia. 4" X 5 1/2' D.T. 1 min. H.P. 100 psi	
			CAVITY			DROPED	
-44.6	5.5			65			
-45.1	6.0		Clayey SAND, fine grained quartz, gray/green (SC)				
-45.6	6.5		SANDSTONE, soft, fine grained quartz, calcareous, white			Dia. 4" X 5 1/2 D.T. 30 sec. H.P. 0	
-46.1	7.0					-46.1	
			SANDSTONE, hard, fine grained quartz, slightly calcareous, gray				

NOTES:

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

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

Hole No.CB-JHR97-13

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 1
1. PROJECT	Jacksonville Harbor Deepening
2. LOCATION (Coordinates or Station)	X=322,466 Y=2200,380
3. DRILLING AGENCY	Savanah District, Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	CB-JHR97-13
5. NAME OF DRILLER	C.Robbins
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	Ft.
8. DEPTH DRILLED INTO ROCK	2.1 Ft.
9. TOTAL DEPTH OF HOLE	7.8 Ft.
10. SIZE AND TYPE OF BIT	See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLW (FEET)
12. MANUFACTURER'S DESIGNATION OF DRILL	Failings 1300
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 2 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	1
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE STARTED / COMPLETED	6/27/97 6/27/97
17. ELEVATION TOP OF HOLE	-39.9 Ft.
18. TOTAL CORE RECOVERY FOR BORING	72 %
19. SIGNATURE OF GEOLOGIST	J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-39.9	.0					-39.9	
-42.0	2.1		SAND, fine to medium quartz, fragments of hard quartz SANDSTONE, a little silt, gray (SP-SM)	25	1	3" Sampler	SETTLED
-44.1	4.2		LIMESTONE, hard, sandy (quartz with trace phosphate), fossiliferous, gray		2	-42.6	100
-47.7	7.8		SANDSTONE, moderately hard, quartz with some calcite, trace of phosphate, soft friable zones, gray	100		Dia. 4" X 5 1/2' D.T. 9 min. H.P. 100 psi -47.7	

NOTES:

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

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Jacksonville Harbor Deepening

HOLE NUMBER: CB-JHR97-13

Hole No.CB-JHR97-14

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1

1. PROJECT Jacksonville Harbor Deepening	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=320,270 Y=2203,043	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Savanah District, Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Failings 1300
4. HOLE NO. (As shown on drawing title and file number) CB-JHR97-14	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 3 undisturbed: 0
5. NAME OF DRILLER C.Robbins	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 6/27/97 COMPLETED 6/27/97
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -38.6 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 70 %
9. TOTAL DEPTH OF HOLE 10.0 Ft.	19. SIGNATURE OF GEOLOGIST J. Hand

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-38.6	.0					-38.6	
-41.6	3.0		Silty SAND, fine grained quartz, some silt in composition and layers, gray/brown (SM)	60	1	3" Sampler	SETTLED 4
-45.6	7.0		Clayey SAND, fine grained quartz, clay in layers, light green (SC)		2	-43.6	8 14 3 9
-48.6	10.0		SAND, fine, grained quartz, trace silt, layers of clay, brown (SP)	80	3	3" Sampler	18 18 25
						-48.6	

NOTES:

Soils are field visually classified in accordance with the Unified Soil Classification System

300# Hammer with 18" drop used on 3' X 5' Sampler

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor Deepening	CB-JHR97-14

Hole No.CB-JH99-16

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 1
1. PROJECT	JACKSONVILLE HARBOR
2. LOCATION (Coordinates or Station)	X=329,098 Y=2200,793
3. DRILLING AGENCY	Wilmington District
4. HOLE NO. (As shown on drawing title and file number)	CB-JH99-16
5. NAME OF DRILLER	JERRY FULCHER (Crane Operator)
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED
7. THICKNESS OF BURDEN	0 Ft.
8. DEPTH DRILLED INTO ROCK	0 Ft.
9. TOTAL DEPTH OF HOLE	8.8 Ft.
10. SIZE AND TYPE OF BIT	4" dia. Vibracore
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MLLW
12. MANUFACTURER'S DESIGNATION OF DRILL	VIBRACORE (CESAW-SNELL)
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	disturbed: 2 undisturbed: 0
14. TOTAL NUMBER OF CORE BOXES	0
15. ELEVATION GROUND WATER	TIDAL
16. DATE HOLE STARTED / COMPLETED	08/13/99 08/13/99
17. ELEVATION TOP OF HOLE	-39.6 Ft.
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF CIVIL ENGINEER TECHNICIAN	Keith Benton

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel
-39.6	.0					-39.6
-41.1	1.5		SAND, Poorly graded, fine to medium, gray (SP)		1	
-48.4	8.8		GRAVEL, weathered limestone, moderately hard, sandy, calcareous, fossiliferous, light gray, (GP)		2	Time Began Vibracoring: 1856 hrs. Soils described by Larry Benjamin, Civil Engr Tech. Hole terminated as necessary for convience, predetermined depth, or assumed vibracore refusal. -48.4

BOTTOM OF HOLE @ 8.8'

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOILS CLASSIFICATION SYSTEM.

JAR NO.	SAMPLE ELEVATION	LAB CLASSIF.*
1	-39.6/-40.1	SP
2	-41.1/-41.6	SM

*Lab Visual Classification based on Gradation Curve. No Atterberg Limits.

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: JACKSONVILLE HARBOR

HOLE NUMBER: CB-JH99-16

Hole No.CB-JH01-27

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT Jacksonville Harbor	10. SIZE AND TYPE OF BIT 4-inch Vibracore Tube
2. LOCATION (Coordinates or Station) X=611,477 Y=2199,492	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW; Horizontal Datum: FLE NAD 83
3. DRILLING AGENCY USAED Wilmington	12. MANUFACTURER'S DESIGNATION OF DRILL Vibracore
4. HOLE NO. (As shown on drawing title and file number) CB-JH01-27	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 2 undisturbed: 0
5. NAME OF DRILLER Snell	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER 4.0
	16. DATE HOLE STARTED 7/1/01 COMPLETED 7/1/01
7. THICKNESS OF BURDEN 0 Ft.	17. ELEVATION TOP OF HOLE -39.6 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 54 %
9. TOTAL DEPTH OF HOLE 2.6 Ft.	19. SIGNATURE OF Civil Engineer Steve Kiser (LAW)

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Vibracore
-39.6	.0					-39.6
-41.3	1.7		LIMESTONE, sandy, fine quartz sand, trace silt, dark gray	54	1	
-42.2	2.6		SAND, fine quartz, some sand to gravel sized limestone fragments, trace clay, gray (SP-SC)		2	-42.2

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOILS CLASSIFICATION SYSTEM.

NOTE: Elevation is based on furnished tide and water depth information.

SAMPLE NO.	SAMPLE DEPTH	LAB CLASSIF.*
1	0.0 - 1.7	GP
2	1.7 - 2.6	SC

*Lab classification based on gradation curve with no Atterberg Limits.

Vibracore tubes split and logged by Law Engineering and Environmental Services, Inc., Jacksonville, Florida.

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Jacksonville Harbor

HOLE NUMBER CB-JH01-27

Hole No.CB-JH2001-6

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 2	
1. PROJECT Jacksonville Harbor Sand Trap	10. SIZE AND TYPE OF BIT 1-3/8" Splitspoon; 6" Fishtail
2. LOCATION (Coordinates or Station) X=330,079 Y=2,200,452	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLLW
3. DRILLING AGENCY Savannah District	12. MANUFACTURER'S DESIGNATION OF DRILL Failings 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JH2001-6	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 24 undisturbed:
5. NAME OF DRILLER Pickett	14. TOTAL NUMBER OF CORE BOXES 2
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE STARTED 8/00/01 COMPLETED 8/00/01
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -14.9 Ft.
8. DEPTH DRILLED INTO ROCK Ft.	18. TOTAL CORE RECOVERY FOR BORING 42 %
9. TOTAL DEPTH OF HOLE 36.0 Ft.	19. SIGNATURE OF GEOLOGIST James Arthur, Professional Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/.5'	
-14.9	0.0					-14.9		0
			SAND, fine sand, gray. (SP)	20	1	Splitspoon -16.4	0 1 2	
				33	2	Splitspoon -17.9	2 4 4	2.5
				33	3	Splitspoon -19.4	9 13 18	
-20.9	6.0			20	4	Splitspoon -20.9	0 0 2	5
			SAND, fine sand, dark gray. (SM)	33	5	Splitspoon -22.4	5 5 10	7.5
				0		Splitspoon -23.9	4 2 3	
-25.4	10.5			40	6	Splitspoon -25.4	3 10 12	10
			SAND, fine sand, light gray. (SP)	27	7	Splitspoon -26.9	3 5 16	
				67	8	Splitspoon -28.4	32 42 23	12.5
				53	9	Splitspoon -29.9	9 13 25	15
				47	10	Splitspoon -31.4	11 21 18	
				40	11	Splitspoon -32.9	8 10 12	17.5
				40	12	Splitspoon -34.4	9 16 16	
-35.9	21.0			20	13	Splitspoon -35.9	10 11 16	20
			SAND, fine to medium sand, gray. (SC)	40	14	Splitspoon -37.4	6 7 10	22.5
						(continued)		

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
Jacksonville Harbor Sand Trap	CB-JH2001-6

Hole No.CB-JH2001-6

DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE -14.9 Ft.

SHEET 2 OF 2

PROJECT: Jacksonville Harbor Sand Trap

INSTALLATION: Jacksonville District

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/.5'
-37.4	22.5					-37.4	
				20	15	Splitspoon	2, 1, 1
						-38.9	
				27	16	Splitspoon	4, 6, 9
-40.4	25.5		At 25.5', 6 inch seam of grayish brown (CH) clay.			-40.4	
-40.8	25.9			90	17	-40.8	3
			Below 25.9', medium to coarse calcareous sand, partially indurated, yellowish brown.	100	18	Splitspoon	9, 9
						-41.9	
				87	19	Splitspoon	6, 18, 22
-43.4	28.5		Below 28.5', some fine to coarse limestone gravel.			-43.4	
				53	20	Splitspoon	24, 14, 26
						-44.9	
				67	21	Splitspoon	12, 17, 17
						-46.4	
				73	22	Splitspoon	10, 2, 6
						-47.9	
				73	23	Splitspoon	14, 22, 26
						-49.4	
				73	24	Splitspoon	18, 23, 35
-50.9	38.0					-50.9	

Core Log Edited by Bob Ross.

Laboratory Analysis

Core Boring locations and elevations determined using a differential GPS using monument STJO-213 as the base station.

140# hammer with 30" drop used on a 2.0' splitspoon (1-3/8" I.D. x 2" O.D.).

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

22.5 25 27.5 30 32.5 35 37.5 40 42.5 45 47.5 50

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Jacksonville Harbor Sand Trap

HOLE NUMBER: CB-JH2001-6

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
	SHEET 1 OF 2
1. PROJECT Jacksonville Harbor Sand Trap	10. SIZE AND TYPE OF BIT 1-3/8" Splitspoon; 6" Fishtail
2. LOCATION (Coordinates or Station) X=331,718 Y=2,199,963	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLLW
3. DRILLING AGENCY Savannah District	12. MANUFACTURER'S DESIGNATION OF DRILL Failings 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JH2001-7	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 24 undisturbed:
5. NAME OF DRILLER Pickett	14. TOTAL NUMBER OF CORE BOXES 2
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE STARTED 9/00/01 COMPLETED 9/00/01
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -12.6 Ft.
8. DEPTH DRILLED INTO ROCK Ft.	18. TOTAL CORE RECOVERY FOR BORING 49 %
9. TOTAL DEPTH OF HOLE 39.0 Ft.	19. SIGNATURE OF GEOLOGIST James Arthur, Professional Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/.5'
-12.6	0.0					-12.6	
			SAND, fine sand, gray. (SP)	33	1	Splitspoon -14.1	3, 2, 8
				33	2	Splitspoon -15.6	11, 10, 11
-15.6	3.0		SAND, fine sand, gray. (SM)	33	3	Splitspoon -17.1	5, 2, 2
-17.1	4.5		CLAY, dark gray. (CH)	100	4	Splitspoon -18.6	7, 6, 4
-18.6	6.0		SAND, fine sand, some clay, dark gray. (SM)	67	5	Splitspoon -20.1	0, 3, 10
-20.6	8.0		SAND, fine sand, dark gray. (SC)	0		Splitspoon -21.6	5, 4, 3
				7	6	Splitspoon -23.1	1, 4, 7
-23.1	10.5		Below 10.5', trace of large shell fragments.	13	7	Splitspoon -24.6	1, 1, 2
-24.6	12.0		SAND, fine sand, gray. (SM)	60	8	Splitspoon -26.1	2, 5, 11
-26.1	13.5		SAND, fine sand, gray. (SP)	47	9	Splitspoon -27.6	6, 16, 23
-27.6	15.0		Below 15.0', light gray to white.	47	10	Splitspoon -29.1	10, 13, 14
				40	11	Splitspoon -30.6	13, 12, 13
				47	12	Splitspoon -32.1	6, 16, 21
				20	13	Splitspoon -33.6	6, 17, 18
-33.6	21.0		Below 21.0', gray.	7	14	Splitspoon -35.1	7, 18, 22
-35.1	22.5					(continued)	

Hole No.CB-JH2001-7

DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE -12.6 Ft.

SHEET 2 OF 2

PROJECT: Jacksonville Harbor Sand Trap

INSTALLATION: Jacksonville District

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/.5'
-35.1	22.5					-35.1	
			Below 22.5', gray and white.	67	15	Splitspoon	14, 20, 21
-36.6	24.0		Below 24.0', gray.	33	16	Splitspoon	13, 19, 18
-39.6	27.0			47	17	Splitspoon	11, 19, 20
-41.1	28.5		SAND, fine sand, gray. (SM)	67	18	Splitspoon	13, 27, 22
-42.6	30.0		SAND, fine to medium sand, brown with thick gray layers. Some fine rounded river gravel at 30'.	67	19	Splitspoon	7, 10, 10
-44.1	31.5		Below 31.5', brown and gray.	87	20	Splitspoon	5, 6, 7
-45.6	33.0		Below 33.0', yellowish brown.	100	21	Splitspoon	11, 11, 8
				100	22	Splitspoon	4, 6, 8
				100	23	Splitspoon	6, 4, 7
-49.1	36.5		Below 36.5', indurated, calcareous, yellowish brown with gray and white streaks.	0		Washed	wash, wash, wash
-51.6	39.0			60	24	Splitspoon	5, 2, 2

Core Log Edited by Bob Ross.

Laboratory Analysis

Core Boring locations and elevations determined using a differential GPS using monument STJO-213 as the base station.

140# hammer with 30" drop used on a 2.0' splitspoon (1-3/8" I.D. x 2" O.D.).

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

22.5 25 27.5 30 32.5 35 37.5 40 42.5 45 47.5 50

Hole No.CB-JH2001-8

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1

1. PROJECT Jacksonville Harbor Turning Basin	10. SIZE AND TYPE OF BIT 1-3/8" Splitspoon; 5.5" Fishtail
2. LOCATION (Coordinates or Station) X=323,174 Y=2,199,618	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLLW
3. DRILLING AGENCY Savannah District	12. MANUFACTURER'S DESIGNATION OF DRILL Failings 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JH2001-8	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 7 undisturbed:
5. NAME OF DRILLER J. Pickett	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE STARTED 9/10/01 COMPLETED 9/10/01
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -40.4 Ft.
8. DEPTH DRILLED INTO ROCK Ft.	18. TOTAL CORE RECOVERY FOR BORING 51 %
9. TOTAL DEPTH OF HOLE 10.5 Ft.	19. SIGNATURE OF GEOLOGIST Jim Arthur, Professional Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/.5'
-40.4	0.0					-40.4	
-41.9	1.5		SAND, fine to medium quartz, some sand sized shell, gray. (SP)	40	1	Splitspoon -41.9	0, 5, 9
-43.4	3.0		GRAVEL, fine to course gravel sized limestone, gray & light gray. (GM)	33	2	Splitspoon -43.4	11, 9, 10
-44.9	4.5		SAND, coarse calcareous sand, some fine limestone gravel and sand sized shell, light gray. (SM)	40	3	Splitspoon -44.9	6, 8, 10
-46.4	6.0		GRAVEL, fine to coarse limestone gravel, light gray. (GM)	33	4	Splitspoon -46.4	7, 7, 6
-47.9			SAND,medium to coarse calcareous sand, clayey, some fine limestone gravel, light gray. (SC)	47	5	Splitspoon -47.9	2, 8, 53
-49.4	9.0			80	6	Splitspoon -49.4	19, 32, 21
-50.9	10.5		Below 9.0', trace fine limestone gravel.	80	7	Splitspoon -50.9	8, 9, 15

Core Log Edited by Bob Ross.

Laboratory Analysis

Core Boring locations and elevations determined using a differential GPS using monument STJO-213 as the base station.

140# hammer with 30" drop used on a 2.0' splitspoon (1-3/8" I.D. x 2" O.D.).

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

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

Hole No.CB-JH2001-12

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1

1. PROJECT Jacksonville Harbor Turning Basin	10. SIZE AND TYPE OF BIT 1-3/8" Splitspoon; 5.5" Fishtail
2. LOCATION (Coordinates or Station) X=321,504 Y=2,201,184	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLLW
3. DRILLING AGENCY Savannah District	12. MANUFACTURER'S DESIGNATION OF DRILL Failings 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JH2001-12	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 4 undisturbed:
5. NAME OF DRILLER J. Pickett	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE STARTED 9/11/01 COMPLETED 9/11/01
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -40.7 Ft.
8. DEPTH DRILLED INTO ROCK Ft.	18. TOTAL CORE RECOVERY FOR BORING 70 %
9. TOTAL DEPTH OF HOLE 10.0 Ft.	19. SIGNATURE OF GEOLOGIST Jim Arthur, Professional Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/.5'
-40.7	0.0					-40.7	
-41.2	.5		GRAVEL, fine to coarse limestone gravel, dark gray and light gray. (GM)	100	1	-41.2 Splitspoon	27
-42.7	2.0		LIMESTONE, very hard, highly weathered, pitted and vuggy with small vugs, broken to several fractures per foot, light gray.	40 RQD 16		4" Diamond HP = 300psi WR = 0% DT = 5 min.	
-44.7	4.0		LIMESTONE, moderately hard,broken to several fractures per foot, light gray.				
			SAND, fine to medium grained, calcareous, light gray. (SM)			-46.2	
-47.7	7.0		Below 7.0', trace of fine limestone gravel.	100	2	Splitspoon no water return -47.7	20 38 46
-49.1	8.4		Below 8.4', trace of fine to coarse limestone gravel.	100	3	Splitspoon -49.2	18 65 50+
-50.7	10.0			100	4	Splitspoon -50.7	24 35 62

Core Log Edited by Bob Ross.

Laboratory Analysis

Core Boring locations and elevations determined using a differential GPS using monument STJO-213 as the base station.

At depth 0.7 feet, limestone is stained black and has worm holes.

140# hammer with 30" drop used on a 2.0' splitspoon (1-3/8" I.D. x 2" O.D.).

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

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

Hole No.CB-100

DRILLING LOG

DIVISION: South Atlantic	INSTALLATION: Jacksonville District
SHEET 1 OF 1	
1. PROJECT: JACKSONVILLE HARBOR, 38 ft. PROJECT	10. SIZE AND TYPE OF BIT: See Remarks
2. LOCATION (Coordinates or Station): X=350,010 Y=2203,000	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MLW (FEET)
3. DRILLING AGENCY: Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Sprague & Henwood
4. HOLE NO. (As shown on drawing title and file number): CB-100	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: disturbed: 0 undisturbed: 0
5. NAME OF DRILLER: C. Mason	14. TOTAL NUMBER OF CORE BOXES: 1
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER: TIDAL
7. THICKNESS OF BURDEN: Ft.	16. DATE HOLE STARTED: 10/11/72 COMPLETED: 10/11/72
8. DEPTH DRILLED INTO ROCK: 0 Ft.	17. ELEVATION TOP OF HOLE: -28.5 Ft.
9. TOTAL DEPTH OF HOLE: 16.5 Ft.	18. TOTAL CORE RECOVERY FOR BORING: 54 %
	19. SIGNATURE OF GEOLOGIST: T. Novak

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-28.5	.0					-28.5	
-29.5	1.0		SAND, fine to coarse quartz, shelly, silty, light gray to gray. (SM)		1		4
-31.5	3.0		Sandstone lenses -29.5 to -31.5 feet.	60	2	2" I.D. Spoon	21, 17
-32.5	4.0		SAND, clayey. (SC)				10
-36.0	7.5		SAND, fine to coarse quartz, shelly, chalky, white. (SP) Lenses of sandstone and limestone below -34.0 feet.	80	3	-33.5	8
					4	2" I.D. Spoon	13, 3
					5	-36.0	56
-36.7	8.2		LIMERSTONE, medium hard to hard, fossiliferous, porous, buff to light brown.	40		-36.7 NX Diamond, 15 min.	
-38.0	9.5			90		2" I.D. Spoon -38.0	69, 60
			Below -38.0, massive, sandy, some solution holes, light gray to tan.	45		NX Diamond D.T. 30 min. H.P. 50 psi. -41.0	
-45.0	16.5			10		NX Diamond D.T. 30 min. H.P. 50 psi. -45.0	

NOTES:
1. Set NX casing to -36.0
2. No measurable water loss

300# Hammer with 18" drop used on 2" I.D. Spoon

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: JACKSONVILLE HARBOR, 38 ft. PROJECT | HOLE NUMBER: CB-100

Hole No.CB-101

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 1	
1. PROJECT JACKSONVILLE HARBOR, 38 ft. PROJECT	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=348,843 Y=2203,323	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague & Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-101	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
7. THICKNESS OF BURDEN Ft.	16. DATE HOLE STARTED 10/17/72 COMPLETED 10/17/72
8. DEPTH DRILLED INTO ROCK 0 Ft.	17. ELEVATION TOP OF HOLE -30.5 Ft.
9. TOTAL DEPTH OF HOLE 19.5 Ft.	18. TOTAL CORE RECOVERY FOR BORING 25 %
	19. SIGNATURE OF GEOLOGIST T. Novak

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-30.5	.0					-30.5	
			NO RECOVERY	0		2" I.D. Spoon	SETTLE
-34.5	4.0					-34.5	2
-35.5	5.0		LIMESTONE, massive, fossiliferous, hard, light brown to gray	30		DIAMOND NX D.T. 30 min. H.P. 50 psi.	
			NO RECOVERY				
-37.5	7.0					-37.5	
-39.0	8.5		CLAY, medium stiff, medium to high plasticity, silty, sandy (very fine), calcareous, gray (CL)	55	1	2"I.D. Spoon	60
-39.7	9.2		SAND, fine to medium quartz and shellsand with limestone lenses, clayey, gray (SC)		2		88
			NO RECOVWRY				120
-41.5	11.0					-41.5	93
			LIMESTONE, moderately hard, fossiliferous, sandy in compositition, porous, (can be broken by hand), gray	10		DIAMOND NX D.T. 25 min. H.P. 50 PSI.	65
-43.0						2"I.D. Spoon	
				18		DIAMOND NX D.T. 15 min. H.P. 100 psi.	70
-45.0	14.5		hard from -45.0 to -46.5			-45.0 DIAMOND NX D.T. 30 min. D.T. 50 psi.	
-46.5	16.0			40			
			SAND, fine to medium quartz and shell, silty, gray (SM)			-47.0	
				20	3	2"I.D. Spoon	11 15 19
-50.0	19.5					-50.0	
			NOTES: 1. Set NX casing to -35.0 2. No measurable water loss			300# Hammer with 18" drop used on 2" I.D. Spoon	

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT JACKSONVILLE HARBOR, 38 ft. PROJECT

HOLE NUMBER CB-101

Hole No.CB-102

DRILLING LOG

DIVISION South Atlantic	INSTALLATION Jacksonville District
SHEET 1 OF 2	
1. PROJECT JACKSONVILLE HARBOR, 38 ft. PROJECT	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=348,123 Y=2203,217	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW (FEET)
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Sprague & Henwood
4. HOLE NO. (As shown on drawing title and file number) CB-102	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0
5. NAME OF DRILLER C. Mason	14. TOTAL NUMBER OF CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED	15. ELEVATION GROUND WATER TIDAL
	16. DATE HOLE STARTED 10/19/72 COMPLETED 10/19/72
7. THICKNESS OF BURDEN Ft.	17. ELEVATION TOP OF HOLE -24.0 Ft.
8. DEPTH DRILLED INTO ROCK 0 Ft.	18. TOTAL CORE RECOVERY FOR BORING 15 %
9. TOTAL DEPTH OF HOLE 24.5 Ft.	19. SIGNATURE OF GEOLOGIST T. Novak

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1'
-24.0	.0					-24.0	
			NO RECOVEY	0		2" I.D. Spoon	SETTLED
-27.0	3.0					-27.0	
			SAND, fine to medium quartz, slightly silty, shelly, gray (SP)	20	1	2" I.D. Spoon	14, 20
-29.0	5.0					-29.0	
			NO RECOVERY	0		2" I.D. Spoon	10, 25, 29, 37, 35
-34.0	10.0					-34.0	
-34.9	10.9		CLAY, fat, high plasticity, sticky, dark gray (CH)				8
			NO RECOVERY	18	2	2" I.D. Spoon	39, 60, 67, 38
						-39.0	
-39.5	15.5					-39.5 2" I.D. Spoon	58
			LIMESTONE, massive, fossiliferous, gray (see note 3)	20		DIAMOND NX D.T. 30 min. H.P. 20 PSI.	
-44.0	20.0					-44.5	
			CLAY, fat, high plasticity, sticky, dark gray (CH)				2
-45.5	21.5			50	3	2" I.D. Spoon	42
			SAND, with moderately hard limestone lenses (SP)				
						(continued)	

0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 22.5

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT	HOLE NUMBER
JACKSONVILLE HARBOR, 38 ft. PROJECT	CB-102

Hole No.CB-102

DRILLING LOG (Cont. Sheet)

ELEVATION TOP OF HOLE -24.0 Ft.

SHEET 2 OF 2

PROJECT: JACKSONVILLE HARBOR, 38 ft. PROJECT

INSTALLATION: Jacksonville District

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS Bit or Barrel	BLOWS/1"
-46.5	22.5						
-48.0	24.0			50	3	2" I.D. Spoon	6 / 165
-48.5	24.5		LIMESTONE, massive, moderately hard to hard, buff			-48.5	

NOTES:
1. Set casing to -39.5
2. No measurable water loss
3. Contains soft layers not recovered

300# Hammer with 18" drop used on 2" I.D. Spoon

22.5 25 27.5 30 32.5 35 37.5 40 42.5 45 47.5 50

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: JACKSONVILLE HARBOR, 38 ft. PROJECT

HOLE NUMBER: CB-102

Hole No. CB-JHM82-9

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1 SHEETS

1. PROJECT Jacksonville Harbor Maint. Dredging	10. SIZE AND TYPE OF BIT See Remarks
2. LOCATION (Coordinates or Station) X=318,903 Y=2,204,926	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) M.L.W.
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JHM82-9	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED
5. NAME OF DRILLER Charles Mason	14. TOTAL NUMBER CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE: STARTED 6 Dec 82 / COMPLETED 6 Dec 82
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE -36.5
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING 80 %
9. TOTAL DEPTH OF HOLE 10'	19. SIGNATURE OF INSPECTOR GEOLOGIST R. Kretchman

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	~~BOX OR~~ SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-36.5	0.0					Bit or Barrel -36.5 Bls/Ft.
			SAND, medium to fine, quartz, gray, slightly silty (SP)	100	1	2" Sampler Pushed 7 10 -41.5
				60	2	2" Sampler 11 11 16 11 17
-46.5	10.0					-46.5
						300 lb. hammer with 18" drop used on 2" Sampler.

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT JACKSONVILLE HBR. MAINT. DREDG | HOLE NO. CB-JHM82-9

Hole No. CB-JHM-82-37

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1 SHEETS

1. PROJECT Jacksonville/Maint. Harbor Dredging	10. SIZE AND TYPE OF BIT see remarks
2. LOCATION (Coordinates or Station) X=323511 Y=2200713	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JHM-82-37	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN — DISTURBED: ; UNDISTURBED:
5. NAME OF DRILLER J. Detloff	14. TOTAL NUMBER CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE — STARTED 1/12/83 — COMPLETED 1/12/83
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE -27.0
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING 73 %
9. TOTAL DEPTH OF HOLE 17.0'	19. SIGNATURE OF INSPECTOR GEOLOGIST J. Gentile

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-27.0	0.0					Bit or Barrel -27.0 BLS/FT.
-28.0	1.0		SAND, fine to medium, quartz, clean, tan (SP)		1	2" Sampler Settled
			SAND, fine to medium, quartz, slightly silty to silty, dark gray (SM)	80	2	1 3 -32.0 3
				80	3	" " 1 1 2 3 -37.0 5
				58	4	" " 2 5 7 9 -42.0 11
-43.0	16.0		LIMESTONE, medium hard, weathered, tan, fossiliferous thin bedded, seams of loose sand	75	5	" " 4
-44.0	17.0					-44.0 91

300 lb. hammer used with 18" drop on 2" Sampler.

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT JACKSONVILLE HBR MAINT DREDG HOLE NO. CB-JHM-82-37

Hole No. CB-JHM-82-38

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1 SHEETS

1. PROJECT Jacksonville Harbor Maintenance Dredging	10. SIZE AND TYPE OF BIT see remarks
2. LOCATION (Coordinates or Station) X=331693 Y=2203079	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JHM-82-38	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED ; UNDISTURBED
5. NAME OF DRILLER R. Randall	14. TOTAL NUMBER CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE: STARTED 1/13/83; COMPLETED 1/13/83
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE -39.0
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING 33 %
9. TOTAL DEPTH OF HOLE 6.0'	19. ~~SIGNATURE OF INSPECTOR~~ GEOLOGIST J. Gentile

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
						Bit or Barrel
-39.0	0.0					-39.0 BLS/FT
			SAND, fine to medium, quartz slightly silty gray (SP)	33	1	2" Sampler Settled
-41.5	2.5					
			LIMESTONE, medium hard, weathered, thin bedded, seams of calcareous silt, seams of loose silty sand, tan, slightly fossiliferous			5
						15
						15
-45.0	6.0					-45.0 48
						300 lbs. hammer used with 18" drop on 2" Sampler.
			CORE BOX AND SAMPLES DISCARDED 12/88.			

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT Jacksonville Hbr. Maint. DRED HOLE NO. CB-JHM-82-38

CB-JHM-82-39

Hole No. CB-JHM-82-39

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1 SHEETS

1. PROJECT Jacksonville Harbor Maintenance Dredging	10. SIZE AND TYPE OF BIT See remarks
2. LOCATION (Coordinates or Station) X=336501 Y=2202352	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JHM-82-39	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED ; UNDISTURBED
5. NAME OF DRILLER J. Detloff	14. TOTAL NUMBER CORE BOXES 1
6. DIRECTION OF HOLE [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE: STARTED 1/13/83; COMPLETED 1/13/83
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE -39.0
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING 90 %
9. TOTAL DEPTH OF HOLE 6.0'	19. SIGNATURE OF INSPECTOR GEOLOGIST J. Gentile

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-39.0	0.0					Bit or Barrel -39.0 BLS/FT.
			SAND, fine to coarse, quartz, shelly, clean, poorly graded, light gray (SP)	90	1 2	2" SAMPLER Settled 4 6 7
-44.0	5.0		SAND, fine to medium, quartz, silty, calcareous, compact, shelly, tan, limestone lenses (SM)			9
-45.0	6.0					-45.0 20
						300 lb. hammer used with 18" drop on 2" Sampler.

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT: JACKSONVILLE HBR. MAINTENACE DREDGING

HOLE NO. CB-JHM-82-39

CB-JHM-82-40

Hole No. CB-JHM-82-40

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1 SHEETS

1. PROJECT Jacksonville Harbor Maintenance Dredging	10. SIZE AND TYPE OF BIT See remarks
2. LOCATION (Coordinates or Station) X=339,331 Y=2,202,151	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW
3. DRILLING AGENCY Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500
4. HOLE NO. (As shown on drawing title and file number) CB-JHM-82-40	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN — DISTURBED: — UNDISTURBED:
5. NAME OF DRILLER J. Detloff	14. TOTAL NUMBER CORE BOXES 1
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER Tidal
	16. DATE HOLE — STARTED 1/11/83 — COMPLETED 1/11/83
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE -36.0
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING 75 %
9. TOTAL DEPTH OF HOLE 10.0'	19. SIGNATURE OF INSPECTOR GEOLOGIST J. GENTILE

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-36.0	0.0					Bit or Barrel -36.0 BLS/FT.
-41.0	5.0		SAND, fine to medium, quartz, clean, light gray (SP)			2" Sampler 2, 5, 9, 10, 16
-43.0	7.0		SAND, fine to medium, quartz, slightly silty to silty, gray, slightly shelly (SM)			" " 4, 6
-46.0	10.0		Very silty, slightly clayey compact, calcareous, shelly, tan, (SM) from -43.0 to -46.0	70	2, 3	22, 34, 41
						300 lb. hammer used with 18" drop on 2" Sampler.

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT: JACKSONVILLE HBR MAINTENANCE DREDGING — HOLE NO. CB-JHM-82-40

Boring Designation CB-JHMP-05-1

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
	South Atlantic	Jacksonville District	

1. PROJECT	Jacksonville Harbor Mile Point
2. BORING DESIGNATION	CB-JHMP-05-1
LOCATION COORDINATES	X = 508,390 Y = 2,201,784
3. DRILLING AGENCY	Corps of Engineers - CESAS
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	Danny Hewett
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	16.2 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 13 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	1
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 08-27-06 / COMPLETED 08-27-06
16. ELEVATION TOP OF BORING	-43.8 Ft.
17. TOTAL RECOVERY FOR BORING	68 %
18. SIGNATURE AND TITLE OF INSPECTOR	Greg Taylor, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-43.8	0.0						-43.8		
-44.8	1.0		SAND, silty, mostly fine-grained sand-sized quartz, little silt, few shell up to 1/2", wet, dark brown (SM)	52	1		SPT Sampler	11, 26, 22	48
-47.5	3.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell up to 1/2", trace fines, wet, tan/gray (SP)		2		-45.3 Overwashed -47.5		
-51.2	7.4		CLAY, lean, low plasticity, very hard, few fine-grained sand-sized quartz, dry, tan (CL)	100	3		SPT Sampler -48.4	0, 50/0.4'	
							-48.5 Advanced Boring		
				100	4		SPT Sampler -50.0	38, 56, 67	123
				45	5		SPT Sampler -51.5	19, 28, 38	66
-53.5	9.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, some dark minerals, moist, gray (SP)	80	6 7		SPT Sampler -53.0	18, 36, 54	90
			At El. -53.0 Ft.	80	8		-53.5 SPT Sampler	60	
			CLAY, lean, low plasticity, hard, trace fine-grained sand-sized quartz, dry, gray/green (CL)	67	9		-53.8 SPT Sampler -54.0	50/0.0'	
							-54.0 Advanced Boring		
			At El. -55.0 Ft., trace fine gravel-sized carbonate up to 1/4", moderate cementation	100	10		SPT Sampler -55.5	16, 21, 26	47
			At El. -56.5 Ft., no cementation	73	11		SPT Sampler -57.0	30, 39, 40	79
				87	12		SPT Sampler -58.5	18, 26, 31	57
				87	13		SPT Sampler	40	

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(Continued)

Boring Designation CB-JHMP-05-1

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Jacksonville Harbor Mile Point	COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 508,390 Y = 2,201,784	ELEVATION TOP OF BORING -43.8 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-60.0	16.2			87	13		SPT Sampler -60.0	40 / 33	73

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. From El. -43.8 ft.to El. -44.8 ft. and El. -55.5 ft. to El. -57.0 ft.,.

4. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.0/1.0	SP-SC*
2	1.0/1.5	SC*
4	4.7/6.2	SC*
7	7.7/9.2	SC*
10	10.2/11.7	SC*

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

5. Additional Laboratory Testing

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

15 20 - 25 - 30 35

Boring Designation CB-JHMP-05-2

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Jacksonville Harbor Mile Point
2. BORING DESIGNATION	CB-JHMP-05-2
LOCATION COORDINATES	X = 510,440 Y = 2,199,595
3. DRILLING AGENCY	Corps of Engineers - CESAS
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	Danny Hewett
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	23.3 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 16 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	1
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 08-28-06 / COMPLETED 08-28-06
16. ELEVATION TOP OF BORING	-36.7 Ft.
17. TOTAL RECOVERY FOR BORING	75 %
18. SIGNATURE AND TITLE OF INSPECTOR	Greg Taylor, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-36.7	0.0						-36.7		
			CLAY, fat, high plasticity, soft, few shell up to 1/4", trace fine-grained sand-sized quartz, wet, green gray (CH)	87	1		SPT Sampler	0 1 3	4
							-38.2		
			At El. -38.6 Ft., discontinue shell	87	2		SPT Sampler	5 7 8	15
							-39.7		
				100	3		SPT Sampler	3 9 9	18
							-41.2		
				100	4		SPT Sampler	5 9 11	20
							-42.7		
			At El. -43.7 Ft., few fine-grained sand-sized quartz	100	5		SPT Sampler	8 8 8	16
							-44.2		
			At El. -44.8 Ft., little fine-grained sand-sized quartz	100	6		SPT Sampler	5 6 8	14
							-45.7		
				80	7		SPT Sampler	5 10 12	22
							-47.2		
			At El. -47.6 Ft., stratified with poorly-graded sand up to 1/2", every 2 inches	93	8		SPT Sampler	5 8 11	19
							-48.7		
			At El. -49.3 Ft., few shell up to 1/4"	73	9		SPT Sampler	9 16 23	39
							-50.2		
-50.3	13.6		At El. -50.0 Ft., some shell, trace fine-grained sand-sized quartz		10				
			SAND, silty, mostly fine-grained sand-sized quartz, some fines, moist, gray/green (SM)	78	11		SPT Sampler	28 60/0.4'	
							-51.1		
							-51.2 Advanced Boring		
				100	12		SPT Sampler	64	

(Continued)

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Boring Designation CB-JHMP-05-2

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Jacksonville Harbor Mile Point	COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 510,440 Y = 2,199,595	ELEVATION TOP OF BORING -36.7 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
							-51.9	50/0.2'	
							Advanced Boring -52.7		
				85	13		SPT Sampler -54.0	30 62 50/0.3'	112+
							-54.2 Advanced Boring		
			At El. -54.5 Ft., lenses of clay up to 1/4 in. thick	62	14		SPT Sampler -55.0	40 50/0.3'	
							Advanced Boring -55.7		
				33	15		SPT Sampler -57.2	50 45 37	82
				100	16		-57.4 SPT Sampler	50/0.2'	
-57.7	21.0						-57.7 Advanced Boring		
			SILT, inorganic-L, low plasticity, very soft, little fine-grained sand-sized sand, dry, gray (ML)	0			SPT Sampler -59.2	77 50 52	102
-60.0	23.3			0			SPT Sampler -60.0	30 50/0.3'	

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Mud loss at El. 38.2 ft.

4. From El. -57.7 ft. to El. -60.0 ft., 4 x 5.5 " core barrel used to retrieve material after SPT had no recovery.

5. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
3	3.0/4.5	CH*
11	13.6/14.4	SC*

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

6. Additional Laboratory Testing

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Boring Designation CB-JHMP-05-4

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Jacksonville Harbor Mile Point
2. BORING DESIGNATION	CB-JHMP-05-4
LOCATION COORDINATES	X = 514,358 Y = 2,199,652
3. DRILLING AGENCY	Corps of Engineers - CESAS
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	Danny Hewett
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 17 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	1
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 08-28-06 / COMPLETED 08-28-06
16. ELEVATION TOP OF BORING	-41.5 Ft.
17. TOTAL RECOVERY FOR BORING	71 %
18. SIGNATURE AND TITLE OF INSPECTOR	Greg Taylor, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-41.5	0.0						-41.5		
-43.0	1.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace dark minerals, wet, tan (SP)	60	1		SPT Sampler -43.0	18 29 29	58
-44.0	2.5		GRAVEL, clayey, mostly fine to coarse gravel-sized limestone up to 1/2", some clay, few fine-grained sand-sized quartz, wet, weak cementation, tan/white (GC)	40	2		SPT Sampler -44.5	14 7 14	21
			SAND, poorly-graded, mostly quartz, trace fines, trace fine-grained sand-sized shell, wet, tan/gray (SP)		3				
			At El. -45.1 Ft., few fines, few shell up to 1/2"	27	4		SPT Sampler -46.0	6 9 4	13
				27	5		SPT Sampler -47.5	0 2 7	9
			At El. -47.5 Ft., trace dark minerals	40	6		SPT Sampler -49.0	5 21 24	45
-50.5	9.0			60	7		SPT Sampler -50.5	12 25 20	45
-52.6	11.1		CLAY, lean, low plasticity, soft, few fine-grained sand-sized quartz, moist, green (CL)	87	8		SPT Sampler -52.0	4 5 8	13
					9			6	
			SAND, clayey, mostly fine-grained sand-sized quartz, little clay, trace fine-grained sand-sized phosphate, moist, green (SC)	93	10		SPT Sampler -53.5	18 22	40
				100	11		SPT Sampler -55.0	12 7 9	16
				100	12		SPT Sampler -56.5	4 7 9	16

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(Continued)

Boring Designation CB-JHMP-05-4

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

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Jacksonville Harbor Mile Point	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 514,358 Y = 2,199,652	-41.5 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
				100	13		SPT Sampler	5 / 8 / 9	17
							-58.0		
-58.7	17.2			100	14 / 15		SPT Sampler	7 / 14 / 50/0.3'	64+
			SAND, silty, mostly fine-grained sand-sized quartz, little silt, moist, tan (SM)				-59.3		
							-59.5 Advanced Boring		
				100	16		-59.8 SPT Sampler	50/0.3'	
							-60.0 Advanced Boring		
				87	17		SPT Sampler	17 / 25 / 46	71
-61.5	20.0						-61.5		

BORING TERMINATED IN REFUSAL

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.0/1.5	SC*
8	9.0/10.5	SC*
10	11.1/12.0	SP-SC*
15	17.2/17.8	SC*

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

4. Additional Laboratory Testing

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

15 20 25 30 35

Boring Designation CB-JHMP-05-5

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Jacksonville Harbor Mile Point
2. BORING DESIGNATION	CB-JHMP-05-5
LOCATION COORDINATES	X = 512,408 Y = 2,198,561
3. DRILLING AGENCY	Corps of Engineers - CESAS
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	Danny Hewett
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	15.9 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 6 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	2
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 08-30-06 / COMPLETED 09-13-06
16. ELEVATION TOP OF BORING	-38.2 Ft.
17. TOTAL RECOVERY FOR BORING	57 %
18. SIGNATURE AND TITLE OF INSPECTOR	Greg Taylor, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-38.2	0.0						-38.2		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell up to 1", wet, dark brown/black (SP)	80	1		SPT Sampler	8 / 23 / 14	37
							-39.7		
				27	2		SPT Sampler	3 / 1 / 0	1
-41.2	3.0						-41.2		
-42.0	3.8		CLAY, fat, high plasticity, few fine-grained sand-sized quartz, dry, gray (CH)	100	3		SPT Sampler	8 / 50/0.3'	
		Mod. Weathered	LIMESTONE, moderately hard, moderately weathered, pitted, gray	53	BOX 1		4 x 5-1/2" Diamond Set Bit		
							-43.5		
-44.0	5.8			100			-44.0 4 x 5-1/2" Diamond Set Bit		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell up to 1/4", moist, gray (SP)	53	4		SPT Sampler	4 / 5 / 10	15
-45.6	7.4						-45.5		
			At El. -45.5 Ft., 6 to 8 pieces of limestone shards up to 1 in.	NR	5		-45.6 SPT Sampler		
		Moderately Weathered	LIMESTONE, moderately hard, moderately weathered, pitted, gray	100			4 x 5-1/2" Diamond Set Bit		
							-47.6		
				30	BOX 2		4 x 5-1/2" Diamond Set Bit		
-52.6	14.4						-52.6		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, moist, gray (SP)	67	6		SPT Sampler	79	

(Continued)

Boring Designation CB-JHMP-05-5

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Jacksonville Harbor Mile Point	COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 512,408 Y = 2,198,561	ELEVATION TOP OF BORING -38.2 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-54.1	15.9			67	6		SPT Sampler -54.1	90 / 44	134

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Below El. -45.6 ft., new location 51 ft. WNW of original location at coordinates X = 512408, Y=2198502. Sample 5 on the original hole penetrated to El. -46.7, however blow counts were not recorded.

4. Geologist also Tracey Tapley.

5. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.0/1.5	SP-SC*
3	3.0/3.8	SC*
4	5.8/7.3	SP*

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

6. Additional Laboratory Testing

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations: -
NR = Not Recorded. -

Boring Designation CB-MPJ08-1

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 4 SHEETS

1. PROJECT	NAVSTA Mayport CVN Turning Basin & Entrance Channel
2. BORING DESIGNATION	CB-MPJ08-1
LOCATION COORDINATES	X = 534,227 Y = 2,204,765
3. DRILLING AGENCY	Marion & Moultrie
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	Mark Brown
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	58.4 Ft.
9. SIZE AND TYPE OF BIT	N/a
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Dietrich D50
	☐ AUTO HAMMER ☒ MANUAL HAMMER
12. TOTAL SAMPLES	DISTURBED 38 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 03-15-09 / COMPLETED 03-17-09
16. ELEVATION TOP OF BORING	-43.9 Ft.
17. TOTAL RECOVERY FOR BORING	66 %
18. SIGNATURE AND TITLE OF INSPECTOR	J. Matthew Jones, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-43.9	0.0						-43.9		
-45.9	2.0						Overwashed -45.9		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, 5Y 7/2 light gray (SC) At El. -46.1 Ft., mostly medium-grained sand-sized quartz, 10GY 5/1 greenish gray	64	1		SPT Sampler -47.4	1 8 15	23
-48.9	5.0		At El. -47.5 Ft., mostly coarse-grained sand-sized quartz, little clay, 10Y 6/1 greenish gray	93	2		SPT Sampler -48.9	7 8 10	18
-50.4	6.5		SAND, poorly-graded with clay, mostly medium-grained sand-sized quartz, few clay, with layer of shell at El. -49.1, 10GY 5/1 greenish gray (SP-SC)	95	3		SPT Sampler -50.4	5 8 9	17
-51.9	8.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell, 5GY 3/1 very dark greenish gray (SP-SM)	60	4		SPT Sampler -51.9	WOR WOR 2	2
-53.7	9.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, 10Y 7/1 light greenish gray (SP)	45	5		SPT Sampler -53.4	1 2 3	5
			From El. -53.4 to -53.7 Ft., mostly coarse-grained sand-sized quartz, some fine to coarse gravel-sized shell, 10Y 8/1 light greenish gray	84	6		SPT Sampler -54.9	2 6 9	15
-55.5	11.6		SAND, poorly-graded with silt, mostly medium-grained sand-sized quartz, few silt, 10Y 6/1 greenish gray (SP-SM)	51	7		SPT Sampler -56.4	4 7 12	19
-56.4	12.5		SAND, poorly-graded, mostly medium-grained sand-sized quartz, little fine to coarse gravel-sized shell, 10Y 6/1 greenish gray (SP)	90	8		SPT Sampler -57.9	2 4 6	10
			SAND, silty, mostly fine-grained sand-sized quartz, little silt, 5GY 4/1 dark greenish gray (SM) From El. -57.9 to -59.4 Ft., some silt	100	9		SPT Sampler	3 1	

0 5 10 15

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(Continued)

Boring Designation CB-MPJ08-1

DRILLING LOG (Cont. Sheet)	INSTALLATION: Jacksonville District	SHEET 2 OF 4 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 534,227 Y = 2,204,765	-43.9 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS		BLOWS/ 0.5 FT.	N-VALUE
				100	9		-59.4	SPT Sampler	7	8
				90	10		-60.9	SPT Sampler	3 5 8	13
			From El. -60.9 to -66.9 Ft., mostly medium-grained sand-sized quartz, organic odor	100	11		-62.4	SPT Sampler	2 2 4	6
				65	12		-63.9	SPT Sampler	WOH 2 4	6
				40	13		-65.4	SPT Sampler	WOR WOR WOR	0
				85	14		-66.9	SPT Sampler	3 6 6	12
			From El. -66.9 to -68.4 Ft., Contractor overwashed sample	0	15		-68.4	Overwashed		
			From El. -68.4 to -69.9 Ft., few fine to coarse gravel-sized phosphate	70	16		-69.9	SPT Sampler	3 4 8	12
-69.9	26.0		SAND, clayey, mostly medium-grained sand-sized quartz, some clay, 5GY 6/1 greenish gray (SC)	90	17		-71.4	SPT Sampler	6 9 11	20
				40	18		-72.9	SPT Sampler	4 6 8	14
				65	19		-74.4	SPT Sampler	6 10 11	21
				35	20		-75.9	SPT Sampler	2 2 6	8
			From El. -75.9 to -77.4 Ft., few fine to coarse gravel-sized phosphate, weak cementation	45	21		-77.4	SPT Sampler	13 14 21	35
				100	22		-78.9	SPT Sampler	18 28 30	58

15 20 - 25 - 30 - 35

Boring Designation CB-MPJ08-1

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 3 OF 4 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 534,227 Y = 2,204,765	-43.9 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
				100	23		SPT Sampler -80.4	9 13 16	29
				95	24		SPT Sampler -81.9	14 20 24	44
			From El. -81.9 to -83.4 Ft., Contractor overwashed sample	0	25		Overwashed -83.4		
-83.4	39.5		SAND, silty, mostly medium-grained sand-sized quartz, some silt, 5GY 5/1 greenish gray (SM)	100	26		SPT Sampler -84.9	7 14 23	37
				50	27		SPT Sampler -86.4	7 17 24	41
			From El. -86.4 to -87.9 Ft., few fine to coarse gravel-sized phosphate, 5GY 6/1 greenish gray	85	28		SPT Sampler -87.9	21 50/4"	
			From El. -87.9 to -89.4 Ft., few coarse-grained sand-sized quartz	25	29		SPT Sampler -89.4	4 50/4.75"	
			From El. -89.4 to -90.9 Ft., mostly coarse-grained sand-sized quartz, few fine to coarse gravel-sized phosphate, few fine to coarse gravel-sized shell	35	30		SPT Sampler -90.9	50/5"	
			From El. -90.9 to -93.9 Ft., 10GY 7/1 light greenish gray	45	31		SPT Sampler -92.4	17 28 45	73
				100	32		SPT Sampler -93.9	26 50/5.5"	
			From El. -93.9 to -95.4 Ft., Contractor overwashed sample	50	33		Overwashed -95.4		
-95.4	51.5		SAND, poorly-graded with silt, mostly coarse-grained sand-sized quartz, little silt, trace fine to coarse gravel-sized phosphate, 10GY 6/1 greenish gray (SP-SM)	100	34		SPT Sampler -96.9	17 40 42	82
				75	35		SPT Sampler -98.4	13 28 42	70
				85	36		SPT Sampler	50/5"	

35 40 45 50 55

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Boring Designation CB-MPJ08-1

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 4 OF 4 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 534,227 Y = 2,204,765	-43.9 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-99.9	56.0			85	36		-99.9 SPT Sampler		
			SAND, silty, mostly coarse-grained sand-sized quartz, some silt, few fine to coarse gravel-sized phosphate, 5GY 7/1 light greenish gray (SM)	50	37		-101.4 SPT Sampler	48 / 50/2"	
-102.4	58.4		From El. -101.4 to -102.3 Ft., weak cementation	82	38		-102.4 SPT Sampler	15 / 50/5"/0.4'	

At El. -102.3 Ft., Boring terminated due to mechanical problems. USACE approved termination at this depth.

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
WOR = Weight of Rods.
WOH = Weight of Hammer.

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
2	3.5/5.0	SC*
4	6.5/8.0	SP-SM*

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

55 60 65 70 75

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JUN 02

Boring Designation CB-MPJ08-11

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 6 SHEETS

1. PROJECT	NAVSTA Mayport CVN Turning Basin & Entrance Channel
2. BORING DESIGNATION	CB-MPJ08-11
LOCATION COORDINATES	X = 532,104 Y = 2,206,475
3. DRILLING AGENCY	Marion & Moultrie
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	Mark Brown
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	100.2 Ft.
9. SIZE AND TYPE OF BIT	N/a
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Dietrich D50
	☐ AUTO HAMMER ☒ MANUAL HAMMER
12. TOTAL SAMPLES	DISTURBED 67 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 03-05-09 / COMPLETED 03-07-09
16. ELEVATION TOP OF BORING	-11.3 Ft.
17. TOTAL RECOVERY FOR BORING	69 %
18. SIGNATURE AND TITLE OF INSPECTOR	J. Matthew Jones, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-11.3	0.0						-11.3		
-12.8	1.5		SAND, poorly-graded, mostly medium-grained sand-sized quartz, some fine to coarse gravel-sized shell, trace fine-grained sand-sized dark minerals, 5GY 6/1 greenish gray (SP)	20	1		SPT Sampler -12.8	5 1 5	6
-14.7	3.4		SHELL, mostly fine to coarse gravel-sized shell, little medium-grained sand-sized quartz, (SH), 5GY 6/1 greenish gray	20	2		SPT Sampler -14.3	5 9 12	21
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, little fine to coarse gravel-sized shell, N 7/ light gray (SP)	50	3		SPT Sampler -15.8	5 13 17	30
				45	4		SPT Sampler -17.3	10 20 30	50
				30	5		SPT Sampler -18.8	4 14 25	39
-20.3	9.0		From El. -19.1 to -20.3 Ft., some fine to coarse gravel-sized shell, 10Y 5/1 greenish gray	45	6		SPT Sampler -20.3	2 5 6	11
			SHELL, mostly fine to coarse gravel-sized shell, some medium-grained sand-sized quartz, (SH), 10Y 5/1 greenish gray	50	7		SPT Sampler -21.8	5 9 14	23
				50	8		SPT Sampler -23.3	16 21 15	36
				50	9		SPT Sampler -24.8	9 14 12	26
-25.4	14.1								
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, few fine to coarse gravel-sized shell, 5GY 7/1 light	65	10		SPT Sampler -26.3	12 29 49	78

0 5 10 15

(Continued)

Boring Designation CB-MPJ08-11

DRILLING LOG (Cont. Sheet)	INSTALLATION: Jacksonville District	SHEET 2 OF 6 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 532,104 Y = 2,206,475	-11.3 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			greenish gray (SP) From El. -26.3 to -27.8 Ft., little fine to coarse gravel-sized shell	55	11		SPT Sampler -27.8	16 28 28	56
-28.0	16.7		From El. -27.8 to -28.0 Ft., trace fine gravel-sized shell SHELL, mostly fine to coarse gravel-sized shell, little medium-grained sand-sized quartz, (SH), 10Y 5/1 greenish gray	65	12		SPT Sampler -29.3	15 12 12	24
				50	13		SPT Sampler -30.8	6 5 10	15
-32.3	21.0			55	14		SPT Sampler -32.3	6 5 6	11
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace fine gravel-sized shell (SP)	55	15		SPT Sampler -33.8	3 4 7	11
				75	16		SPT Sampler -35.3	5 8 6	14
-36.5	25.2		From El. -35.3 to -36.5 Ft., few fine to coarse gravel-sized shell	100	17		SPT Sampler -36.8	3 3 7	10
-37.8	26.5		SAND, silty, mostly medium-grained sand-sized quartz, some silt, few fine to coarse gravel-sized shell, N 6/ gray (SM) From El. -36.8 to -37.8 Ft., 10GY 4/1 dark greenish gray	80	18		SPT Sampler -38.3	WOR WOR 5	5
-39.8	28.5		SHELL, mostly fine to coarse gravel-sized shell, little medium-grained sand-sized quartz, (SH), 10Y 5/1 greenish gray From El. -38.3 to -39.8 Ft., little silt	90	19		SPT Sampler -39.8	7 8 9	17
-41.6	30.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, 5GY 7/1 light greenish gray (SP)	65	20		SPT Sampler -41.3	25 49 50	99
			SAND, silty, mostly medium-grained sand-sized quartz, some silt, little fine to coarse gravel-sized shell, 5GY 7/1 light greenish gray (SM)	90	21		SPT Sampler -42.8	12 8 6	14
-44.3	33.0			50	22		SPT Sampler -44.3	31 50/4.5"	
-45.8	34.5		SAND, poorly-graded, mostly medium-grained sand-sized quartz, 5GY 7/1 light greenish gray (SP)	35	23		SPT Sampler -45.8	47 45 25	70
			SAND, silty, mostly medium-grained	100	24		SPT Sampler	3	

Boring Designation CB-MPJ08-11

DRILLING LOG (Cont. Sheet)	INSTALLATION: Jacksonville District	SHEET 3 OF 6 SHEETS
PROJECT: NAVSTA Mayport CVN Turning Basin & Entrance Channel	COORDINATE SYSTEM/DATUM: State Plane, FLE (U.S. Ft.)	HORIZONTAL: NAD83 / VERTICAL: MLLW
LOCATION COORDINATES: X = 532,104 Y = 2,206,475	ELEVATION TOP OF BORING: -11.3 Ft.	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			sand-sized quartz, some silt, few fine to coarse gravel-sized shell, 5GY 5/1 greenish gray (SM)	100	24		SPT Sampler -47.3	4 7	11
-47.8	36.5								
-48.8	37.5		SAND, poorly-graded with silt, mostly medium-grained sand-sized quartz, little fine to coarse gravel-sized shell, few silt, 5GY 5/1 greenish gray (SP-SM)	100	25		SPT Sampler -48.8	10 15 24	39
			SAND, silty, mostly medium-grained sand-sized quartz, some silt, few fine gravel-sized shell, 5GY 6/1 greenish gray (SM)	55	26		SPT Sampler -50.3	14 11 11	22
				100	27		SPT Sampler -51.8	4 5 7	12
				85	28		SPT Sampler -53.3	9 18 21	39
				100	29		SPT Sampler -54.8	6 9 13	22
-54.8	43.5								
-55.8	44.5		SHELL, mostly fine to coarse gravel-sized shell, some medium-grained sand-sized quartz, (SH), 5GY 6/1 greenish gray	100	30		SPT Sampler -56.3	2 2 5	7
			SAND, silty, mostly medium-grained sand-sized quartz, some silt, few fine to coarse gravel-sized shell, 5GY 4/1 dark greenish gray (SM) From El. -56.3 to -59.0 Ft., discontinue shell	80	31		SPT Sampler -57.8	1 2 2	4
			From El. -59.0 to -62.3 Ft., 5GY 4/1 dark greenish gray	100	32		SPT Sampler -59.3	1 6 12	18
			From El. -60.3 to -61.8 Ft., little fine to coarse gravel-sized shell	55	33		SPT Sampler -60.8	1 3 4	7
				100	34		SPT Sampler -62.3	3 7 9	16
			From El. -62.3 to -65.3 Ft., mostly coarse-grained sand-sized quartz, few shell, 10GY 3/1 very dark greenish gray	100	35		SPT Sampler -63.8	3 3 3	6
				85	36		SPT Sampler -65.3	5 7 14	21
-65.3	54.0								
-65.9	54.6		SAND, poorly-graded, mostly coarse-grained sand-sized quartz, little fine to coarse gravel-sized shell, 5GY 6/1 greenish gray	100	37		SPT Sampler	10 25	
-66.2	54.9								

Boring Designation CB-MPJ08-11

DRILLING LOG (Cont. Sheet)	INSTALLATION: Jacksonville District	SHEET 4 OF 6 SHEETS
PROJECT: NAVSTA Mayport CVN Turning Basin & Entrance Channel	COORDINATE SYSTEM/DATUM: State Plane, FLE (U.S. Ft.)	HORIZONTAL: NAD83 / VERTICAL: MLLW
LOCATION COORDINATES: X = 532,104 Y = 2,206,475	ELEVATION TOP OF BORING: -11.3 Ft.	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			(SP) SAND, silty, mostly coarse-grained sand-sized quartz, some silt, few fine to coarse gravel-sized shell, 10GY 3/1 very dark greenish gray (SM)	100	37		-66.8 SPT Sampler	36	61
				55	38		-68.3 SPT Sampler	19, 21, 25	46
-68.7	57.4		SAND, poorly-graded with clay, mostly coarse-grained sand-sized quartz, few clay, few fine to coarse gravel-sized phosphate, weak cementation, 10Y 8/1 light greenish gray (SP-SC)	100	39		-69.8 SPT Sampler	6, 7, 22	29
			SAND, silty, mostly medium-grained sand-sized quartz, some silt, 10GY 4/1 dark greenish gray (SM) From El. -69.8 to -78.1 Ft., 5GY 7/1 light greenish gray	95	40		-71.3 SPT Sampler	23, 27, 25	52
			From El. -71.4 to -78.1 Ft., 5GY 5/1 greenish gray	55	41		-72.8 SPT Sampler	5, 7, 9	16
				100	42		-74.3 SPT Sampler	7, 8, 17	25
				100	43		-75.8 SPT Sampler	8, 9, 13	22
				45	44		-77.3 SPT Sampler	3, 5, 7	12
-78.1	66.8			100	45		-78.8 SPT Sampler	11, 13, 15	28
			SAND, poorly-graded with clay, mostly medium-grained sand-sized quartz, few clay, weak cementation, 10Y 8/1 light greenish gray (SP-SC)	100	46		-80.3 SPT Sampler	19, 25, 50/5"	25
			From El. -80.3 to -81.8 Ft., No Recovery	0	47		-81.8 SPT Sampler	50/5"	
				20	48		-83.3 SPT Sampler	8, 12, 16	28
-83.3	72.0		SAND, silty, mostly medium-grained sand-sized quartz, some silt, 10Y 6/1 greenish gray (SM)	100	49		-84.8 SPT Sampler	15, 18, 21	39
			From El. -84.8 to -86.3 Ft., No Recovery	0	50		-86.3 SPT Sampler	2, 2, 10	12
-86.3	75.0								

55 60 65 70 75

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Boring Designation CB-MPJ08-11

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 5 OF 6 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 532,104 Y = 2,206,475	-11.3 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			SAND, poorly-graded with silt, mostly medium-grained sand-sized quartz, few silt, 10Y 6/1 greenish gray (SP-SM)	100	51		SPT Sampler -87.8	7 9 27	36
			From El. -87.8 to -89.3 Ft., No Recovery	0	52		SPT Sampler -89.3	9 14 21	35
-89.3	78.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few clay, 10Y 6/1 greenish gray (SM)	100	53		SPT Sampler -90.8	15 27 44	71
				100	54		SPT Sampler -92.3	WOH WOH 20	20
			From El. -92.3 to -93.8 Ft., trace coarse-grained sand-sized phosphate	100	55		SPT Sampler -93.8	WOR 10 27	37
-93.8	82.5		SILT, inorganic-L, low plasticity, firm to hard, mostly silt, some fine-grained sand-sized quartz, little clay, few coarse-grained sand-sized phosphate, 10YR 5/1 gray (ML)	100	56		SPT Sampler -95.3	7 12 13	25
				100	57		SPT Sampler -96.8	9 13 13	26
				22	58		SPT Sampler -98.3	3 5 7	12
				100	59		SPT Sampler -99.8	WOR 23 27	50
			From El. -99.8 to -101.3 Ft., few fine to coarse gravel-sized quartz	100	60		SPT Sampler -101.3	10 11 21	32
				100	61		SPT Sampler -102.8	10 15 21	36
			From El. -102.8 to -104.3 Ft., No Recovery	0	62		SPT Sampler -104.3	5 8 11	19
-104.3	93.0		CLAY, fat, medium plasticity, firm to hard, mostly clay, some silt, little fine-grained sand-sized quartz, 10Y 6/1 greenish gray (CH)	100	63		SPT Sampler -105.8	11 31 30	61
				100	64		SPT Sampler	WOR	

75 80 85 90 95

SAJ FORM 1836-A
JUN 02

Boring Designation CB-MPJ08-11

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 6 OF 6 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 532,104 Y = 2,206,475	-11.3 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
				100	64		SPT Sampler -107.3	WOR WOR	0
			From El. -107.3 to -108.8 Ft., No Recovery	0	65		SPT Sampler -108.8	3 6 8	14
				11	66		SPT Sampler -110.3	24 44 40	84
-111.5	100.2			99	67		SPT Sampler -111.5	14 20 50/2.5"/0.2'	20+

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
WOR = Weight of Rods.
WOH = Weight of Hammer.

95
100 -
105 -
110 -
115

Boring Designation CB-MPJ08-12

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 4 SHEETS

1. PROJECT	NAVSTA Mayport CVN Turning Basin & Entrance Channel
2. BORING DESIGNATION	CB-MPJ08-12
LOCATION COORDINATES	X = 533,085 Y = 2,206,346
3. DRILLING AGENCY	Marion & Moultrie
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	Mark Brown
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	66.0 Ft.
9. SIZE AND TYPE OF BIT	N/a
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Dietrich D50
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 44 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 03-04-09 / COMPLETED 03-05-09
16. ELEVATION TOP OF BORING	-20.4 Ft.
17. TOTAL RECOVERY FOR BORING	79 %
18. SIGNATURE AND TITLE OF INSPECTOR	Jason Mckinnon, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS		BLOWS/ 0.5 FT.	N-VALUE
-20.4	0.0						-20.4			
			SHELL, mostly fine gravel-sized shell, some coarse-grained sand-sized quartz, (SH), 10YR 5/1 gray	27	1		-21.9	SPT Sampler	6 3 10	13
				55	2		-23.4	SPT Sampler	2 6 13	19
				61	3		-24.9	SPT Sampler	10 11 13	24
				67	4		-26.4	SPT Sampler	5 18 22	40
				45	5		-27.9	SPT Sampler	6 5 5	10
-29.4	9.0			55	6		-29.4	SPT Sampler	3 6 11	17
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, 10YR 5/1 gray (SP)	67	7		-30.9	SPT Sampler	9 13 13	26
			From El. -30.9 to -32.4 Ft., some fine to coarse gravel-sized shell, lensed	95	8		-32.4	SPT Sampler	5 6 6	12
-33.9	13.5			61	9		-33.9	SPT Sampler	5 6 7	13
			SAND, clayey, mostly fine-grained sand-sized quartz, little clay, little silt, 10YR 5/1 gray (SC)	100	10		-35.4	SPT Sampler	2 7 12	19
-35.4	15.0									

0 5 10 15

(Continued)

Boring Designation CB-MPJ08-12

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 4 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 533,085 Y = 2,206,346	-20.4 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			CLAY, fat, medium plasticity, firm, mostly clay, little fine-grained sand-sized quartz, 10Y 4/1 dark greenish gray (CH)	61	11		SPT Sampler -36.9	4 3 8	11
			From El. -36.9 to -38.4 Ft., little fine to coarse gravel-sized shell, lensed	100	12		SPT Sampler -38.4	6 4 4	8
-39.4	19.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse gravel-sized shell, 10YR 4/1 dark gray (SP)	78	13		SPT Sampler -39.9	2 3 3	6
-39.9	19.5		CLAY, fat, medium plasticity, firm, mostly clay, 10YR 4/1 dark gray (CH)						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse gravel-sized shell, 10YR 5/1 gray (SP)	100	14		SPT Sampler -41.4	2 22 40	62
				100	15		SPT Sampler -42.9	19 50/1"	
			From El. -42.9 to -44.4 Ft., few fine to coarse gravel-sized shell	55	16		SPT Sampler -44.4	12 14 15	29
-45.9	25.5		CLAY, fat, medium plasticity, firm, mostly clay, little fine-grained sand-sized quartz, 10Y 4/1 dark greenish gray (CH)	100	17		SPT Sampler -45.9	11 7 4	11
-47.4	27.0		SAND, poorly-graded with silt, mostly coarse-grained sand-sized quartz, little fine gravel-sized shell, few silt, 10YR 5/1 gray (SP-SM)	100	18		SPT Sampler -47.4	5 4 9	13
			SHELL, mostly fine to coarse gravel-sized shell, little medium-grained sand-sized quartz, (SH), 10YR 5/1 gray	39	19		SPT Sampler -48.9	3 3 8	11
-50.4	30.0			83	20		SPT Sampler -50.4	8 8 4	12
-51.9	31.5		SILT, inorganic-L, low plasticity, very soft, mostly silt, little clay, few fine gravel-sized shell, 10YR 5/2 grayish brown (ML)	100	21		SPT Sampler -51.9	1/12" WOR WOR	0
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, few fine gravel-sized shell, 10YR 5/2 grayish brown (SM)	100	22		SPT Sampler -53.4	12 25 27	52
-54.9	34.5			100	23		SPT Sampler -54.9	12 19 28	47
			SHELL, mostly fine gravel-sized shell, some	72	24		SPT Sampler	3	

Boring Designation CB-MPJ08-12

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 3 OF 4 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 533,085 Y = 2,206,346	-20.4 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-56.4	36.0		medium-grained sand-sized quartz, (SH)	72	24		-56.4 SPT Sampler	4 / 4	8
			SAND, poorly-graded, mostly coarse-grained sand-sized quartz, few fine gravel-sized shell, 10YR 5/2 grayish brown (SP)	100	25		-57.9 SPT Sampler	1 / 9 / 20	29
				100	26		-59.4 SPT Sampler	8 / 12 / 14	26
-60.9	40.5			100	27		-60.9 SPT Sampler	14 / 18 / 35	53
			SAND, poorly-graded with silt, mostly medium-grained sand-sized quartz, few silt, few fine gravel-sized shell, 10YR 4/2 dark grayish brown (SP-SM)	100	28		-62.4 SPT Sampler	4 / 4 / 5	9
-63.9	43.5			100	29		-63.9 SPT Sampler	6 / 10 / 12	22
			SILT, inorganic-L, low plasticity, very soft to firm, mostly silt, some fine-grained sand-sized quartz, little clay, trace fine gravel-sized shell, 10YR 4/2 dark grayish brown (ML)	100	30		-65.4 SPT Sampler	1 / WOR / WOR	0
-66.9	46.5			100	31		-66.9 SPT Sampler	3 / 4 / 6	10
-68.4	48.0		SAND, silty, mostly coarse-grained sand-sized quartz, little silt, little fine to coarse gravel-sized phosphate, few clay, few fine gravel-sized shell, 10YR 4/2 dark grayish brown (SM)	100	32		-68.4 SPT Sampler	13 / 15 / 27	42
-69.9	49.5		SILT, inorganic-L, low plasticity, firm to hard, mostly silt, little fine gravel-sized quartz, few clay, 10YR 7/1 light gray (ML)	61	33		-69.9 SPT Sampler	4 / 9 / 50/2"	9
-71.4	51.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine gravel-sized shell, 10YR 4/1 dark gray (SP)	83	34		-71.4 SPT Sampler	50/2"	
-72.9	52.5		SILT, inorganic-L, low plasticity, firm, mostly silt, little fine gravel-sized quartz, little clay, 10YR 6/1 gray (ML)	22	35		-72.9 SPT Sampler	10 / 12 / 13	25
			CLAY, fat, medium plasticity, hard, mostly clay, little fine gravel-sized quartz, few fine gravel-sized shell, 10YR 6/1 gray (CH)	100	36		-74.4 SPT Sampler	2 / 12 / 15	27
				55	37		SPT Sampler	7 / 12	

35 40 45 50 55

Boring Designation CB-MPJ08-12

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 4 OF 4 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
NAVSTA Mayport CVN Turning Basin & Entrance Channel	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 533,085 Y = 2,206,346	-20.4 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-75.9	55.5			55	37		-75.9 SPT Sampler	12	24
-77.4	57.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, 5GY 5/1 greenish gray (SP)	40	38		-77.4 SPT Sampler	5 / 6 / 9	15
-80.6	60.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, 5GY 5/1 greenish gray (SM)	100	39		-78.9 SPT Sampler	7 / 11 / 11	22
				100	40		-80.4 SPT Sampler	6 / 10 / 18	28
-81.9	61.5		SAND, poorly-graded with silt, mostly coarse-grained sand-sized quartz, little fine gravel-sized phosphate, few silt, trace fine-grained sand-sized dark minerals, weak cementation, 5GY 8/1 light greenish gray (SP-SM)	100	41		-81.9 SPT Sampler	13 / 27 / 50/5.5"	27
			SAND, silty, mostly coarse-grained sand-sized quartz, some silt, little fine gravel-sized phosphate, trace fine-grained sand-sized dark minerals, 5GY 8/1 light greenish gray (SM)	40	42		-83.4 SPT Sampler	20 / 50/4.5"	
			From El. -83.4 to -84.9 Ft., weak cementation	35	43		-84.9 SPT Sampler	28 / 19 / 50	69
-86.4	66.0			100	44		-86.4 SPT Sampler	27 / 38 / 50	88

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
WOR = Weight of Rods.

55 60 65 70 75

Boring Designation CB-JHPM09-3

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Jacksonville Harbor GRR ST. JOHN'S RIVER CHANNEL
2. BORING DESIGNATION	CB-JHPM09-3
LOCATION COORDINATES	X = 475,095 Y = 2,205,811
3. DRILLING AGENCY	Challenge Engineering & Testing, Inc.
CONTRACTOR FILE NO.	2009D08
4. NAME OF DRILLER	Tim Clarkson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	23.5 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Diedrich D-50 Truckrig
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 12 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	TIDAL
15. DATE BORING	STARTED 01-28-10 / COMPLETED 01-28-10
16. ELEVATION TOP OF BORING	-39.1 Ft.
17. TOTAL RECOVERY FOR BORING	68 %
18. SIGNATURE AND TITLE OF INSPECTOR	V. J. Thompson I I I, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-39.1	0.0						-39.1		
			SAND, silty, mostly angular to subangular fine-grained sand-sized quartz, some silt, trace angular to subangular shell up to 1/4", wet, 5Y 2.5/1 black (SM)	40	1		SPT Sampler -40.6	0 0 0	0
			At El. -40.6 Ft., little silt	47	2		SPT Sampler -42.1	0 0 0	0
			At El. -42.1 Ft., discontinue shell	67	3		SPT Sampler -43.6	0 0 0	0
-43.6	4.5								
			SAND, clayey, low plasticity, soft, mostly angular to subangular fine-grained sand-sized quartz, little clay, wet, 10Y 3/1 very dark greenish gray (SC)	80	4		SPT Sampler -45.1	2 3 4	7
-45.1	6.0								
			SAND, silty, mostly angular to subangular fine-grained sand-sized quartz, little silt, wet, organic odor, 5Y 3/2 dark olive gray (SM)	80	5		SPT Sampler -46.6	3 1 1	2
-46.6	7.5								
			SAND, poorly-graded, mostly angular to subangular fine-grained sand-sized quartz, wet, 5Y 5/2 olive gray (SP)	67	6		SPT Sampler -48.1	2 2 1	3
			At El. -48.1 Ft., trace rounded fine gravel-sized quartz up to 1/4", 5Y 6/1 gray	67	7		SPT Sampler -49.6	3 3 4	7
-49.6	10.5								
			SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, trace rounded fine gravel-sized quartz up to 1/4", moist, 10BG 3/1 very dark greenish gray (SP-SM)	53	8		SPT Sampler -51.1	3 2 2	4
-51.1	12.0								
-51.6	12.5		SILT, inorganic-L, nonplastic, firm, trace angular to subangular fine-grained sand-sized quartz, moist, 10BG 3/1 very dark greenish gray (ML)	67	9		SPT Sampler -52.6	2 2 3	5
-52.6	13.5	MW							
			LIMESTONE, sandy, non-fossiliferous, soft, moderately weathered, fine grained, medium bedding, bedding orientation, solid, 5Y 8/1 white	0	10		-52.6 SPT Sampler	50/0.0'	
				66	Run # 1	RQD 0	4 x 5-1/2" Diamond Impregnated Bit DT = 7 mins HP = 300 psi DFR = 0 %		
			LIMESTONE, very hard, slightly weathered						

0 5 10 15

(Continued)

SAJ FORM 1836
JUN 02

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

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Jacksonville Harbor GRR	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 475,095 Y = 2,205,811	-39.1 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-54.6	15.5		solid LIMESTONE, soft, pitted, clay filled pits	66	Run # 1	RQD 0	4 x 5-1/2" Diamond Impregnated Bit DT = 7 mins HP = 300 psi DFR = 0 %		
		Slightly Weathered	At El. -57.6 Ft., fossiliferous, moderately hard, fine grained, pitted	82	Run # 2	RQD 12	4 x 5-1/2" Diamond Impregnated Bit DT = 7 mins HP = 300 psi DFR = 0 %		
-61.6	22.5		LIMESTONE, hard, solid						
-62.6	23.5								

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Set 50.5 ft. of 6" flush joint steel casing.

4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Dames Point Bridge.

5. Water depth of -40.0 ft. recorded at 11:25 AM on 1/28/2010. Tide gage reading of +0.9 ft. mllw

6. Additional lab test results were added February 2011

7. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
2	1.5/3.0	SP-SM*
4	4.5/6.0	SM*
5	6.0/7.5	SP-SM*
8	10.5/12.0	SP-SM*

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

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
DT = Drill Time.
HP = Hydraulic Pressure.
DFR = Drill Fluid Return.

Boring Designation CB-JHPM09-4

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Jacksonville Harbor GRR ST. JOHN'S RIVER CHANNEL
2. BORING DESIGNATION	CB-JHPM09-4
LOCATION COORDINATES	X = 476,063 Y = 2,203,939
3. DRILLING AGENCY	Challenge Engineering & Testing, Inc.
CONTRACTOR FILE NO.	2009D08
4. NAME OF DRILLER	Tim Clarkson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	22.5 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Diedrich D-50 Truckrig
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 15 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	TIDAL
15. DATE BORING	STARTED 01-28-10 / COMPLETED 01-28-10
16. ELEVATION TOP OF BORING	-41.0 Ft.
17. TOTAL RECOVERY FOR BORING	82 %
18. SIGNATURE AND TITLE OF INSPECTOR	V. J. Thompson I I I, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-41.0	0.0						-41.0		
-42.5	1.5		SILT, organic-L, nonplastic, very soft, wet, 5Y 2.5/1 black (OL)	40	1		SPT Sampler -42.5	0 0 0	0
-47.0	6.0		SAND, silty, mostly angular to subangular fine to medium-grained sand-sized quartz, little silt, wet, 5Y 2.5/1 black (SM)	60	2		SPT Sampler -44.0	0 0 0	0
				60	3		SPT Sampler -45.5	0 0 0	0
			At El. -46.0 Ft., 5Y 4/2 olive gray	80	4		SPT Sampler -47.0	0 0 3	3
-54.5	13.5		SILT, inorganic-L, nonplastic, hard, few angular to subangular fine-grained sand-sized quartz, moist, 10G 2.5/1 greenish black (ML)	100	5		SPT Sampler -48.5	3 4 5	9
				100	6		SPT Sampler -50.0	3 3 4	7
			At El. -50.0 Ft., some angular to subangular fine-grained sand-sized quartz, 10Y 4/1 dark greenish gray	93	7		SPT Sampler -51.5	5 5 6	11
				100	8		SPT Sampler -53.0	4 6 5	11
				93	9		SPT Sampler -54.5	4 5 6	11
			SAND, silty, mostly angular to subangular fine-grained sand-sized quartz, some silt, moist, 10Y 3/1 very dark greenish gray (SM)	100	10		SPT Sampler -56.0	3 3 6	9

0 5 10 15

(Continued)

Boring Designation CB-JHPM09-4

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

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Jacksonville Harbor GRR	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 476,063 Y = 2,203,939	-41.0 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			At El. -56.0 Ft., 10Y 4/1 dark greenish gray	67	11		SPT Sampler -57.5	7 13 15	28
-57.5	16.5		SAND, poorly-graded with silt, mostly angular to subangular fine to medium-grained sand-sized quartz, trace silt, trace angular to subangular shell up to 1-1/2", moist, 5Y 5/2 olive gray (SP-SM) At El. -59.0 Ft., discontinue shell, 5Y 4/2 olive gray	73	12		SPT Sampler -59.0	11 18 14	32
				93	13		SPT Sampler -60.5	13 16 19	35
				80	14		SPT Sampler -62.0	4 15 17	32
-63.5	22.5			87	15		SPT Sampler -63.5	17 28 30	58

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Set 55.5 ft. of 6" flush joint steel casing

4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Dames Point Bridge.

5. Water depth of -44.3 ft. recorded at 08:00 AM on 1/28/2010. Tide gage reading of +3.3 ft. mllw

6. Additional lab test results were added February 2011

7. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.0/1.5	SM*
3	3.0/4.5	SM*
7	9.0/10.5	SM*

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

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Boring Designation CB-JHPM09-5

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Jacksonville Harbor GRR ST. JOHN'S RIVER CHANNEL
2. BORING DESIGNATION	CB-JHPM09-5
LOCATION COORDINATES	X = 477,878 Y = 2,202,250
3. DRILLING AGENCY	Challenge Engineering & Testing, Inc.
CONTRACTOR FILE NO.	2009D08
4. NAME OF DRILLER	Tim Clarkson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.3 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Diedrich D-50 Truckrig
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 12 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	TIDAL
15. DATE BORING	STARTED 01-27-10 / COMPLETED 01-27-10
16. ELEVATION TOP OF BORING	-43.4 Ft.
17. TOTAL RECOVERY FOR BORING	86 %
18. SIGNATURE AND TITLE OF INSPECTOR	V. J. Thompson I I I, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-43.4	0.0						-43.4		
-44.9	1.5		SILT, organic-L, nonplastic, very soft, few angular to subangular fine-grained sand-sized quartz, trace angular to subangular shell up to 1/4", wet, 5Y 2.5/1 black (OL)	60	1		SPT Sampler -44.9	0 0 0	0
		Highly Weathered	LIMESTONE, sandy, sparsely fossiliferous, very soft, highly weathered, fine grained, wet, 5Y 8/2 pale yellow	53	2		SPT Sampler -46.4	8 6 4	10
				87	3		SPT Sampler -47.9	4 12 15	27
				80	4		SPT Sampler -49.4	12 15 15	30
				93	5		SPT Sampler -50.9	7 9 14	23
				100	6		SPT Sampler -52.4	18 21 21	42
				100	7		SPT Sampler -53.9	8 12 15	27
			At El. -55.4 Ft., 5Y 8/2 pale yellow	100	8		SPT Sampler -55.4	21 7 12	19
				100	9		SPT Sampler -56.9	5 9 14	23
			At El. -58.2 Ft., 5Y 7/3 pale yellow	100	10		SPT Sampler -58.4	15 5 50	55

0 5 10 15

(Continued)

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

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Jacksonville Harbor GRR	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 477,878 Y = 2,202,250	-43.4 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-58.7	15.3		LIMESTONE, sandy, sparsely fossiliferous, moderately hard, slightly weathered, fine grained, massive bedding, bedding orientation, pitted, 5Y 6/2 light olive gray	100	11		-58.7 SPT Sampler	50/0.3'	
		Slightly Weathered		80	Run # 1	RQD 61	4 x 5-1/2" Diamond Impregnated Bit - DT = 3 mins - HP = 300 psi DFR = 25 %		
-63.7	20.3						-63.7		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Set 52.5 ft. of 6" flush joint steel casing

4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Dames Point Bridge.

5. Water depth of -43.7 ft. recorded at 11:47 AM on 1/27/2010. Tide gage reading of +0.3 ft. mllw.

6. Compressive Strength Test of Rock Core At Elevation -59.2' to -59.9' = 306 PSI.

7. Additional lab test results were added February 2011

8. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.0/1.5	SP*

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

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
DT = Drill Time.
HP = Hydraulic Pressure.
DFR = Drill Fluid Return.

Boring Designation CB-JHPM09-6

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
	South Atlantic	Jacksonville District	

1. PROJECT	Jacksonville Harbor GRR ST. JOHN'S RIVER CHANNEL
2. BORING DESIGNATION	CB-JHPM09-6
LOCATION COORDINATES	X = 479,149 Y = 2,201,007
3. DRILLING AGENCY	Challenge Engineering & Testing, Inc.
CONTRACTOR FILE NO.	2009D08
4. NAME OF DRILLER	Tim Clarkson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	18.8 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Diedrich D-50 Truckrig
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 5 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	TIDAL
15. DATE BORING	STARTED 01-27-10 / COMPLETED 01-27-10
16. ELEVATION TOP OF BORING	-45.0 Ft.
17. TOTAL RECOVERY FOR BORING	79 %
18. SIGNATURE AND TITLE OF INSPECTOR	V. J. Thompson I I I, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-45.0	0.0						-45.0		
-45.3	0.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, little subangular shell up to 1/2", wet, 5Y 3/2 dark olive gray (SM)	40	1		SPT Sampler	0 1 1	2
		Highly Weath.	LIMESTONE, sandy, non-fossiliferous, very soft, highly weathered, fine grained, wet, 5Y 8/1 white				-46.5		
			At El. -47.0 Ft., sparsely fossiliferous, moderately hard, slightly weathered, fine grained, massive bedding, bedding orientation, pitted, shelly sand filled pits, 5Y 6/2 light olive gray	94	2		SPT Sampler	0 50/0.3'	
		Sl. Wea.	At El. -48.0 Ft., very soft, highly weathered, moist				-47.3		
		Highly Weathered	At El. -50.3 Ft., non-fossiliferous, moderately hard, slightly weathered, fine grained, solid	54	Run # 1	RQD 25	4 x 5-1/2" Diamond Impregnated Bit DT = 2 mins HP = 300 psi DFR = 25 %		
		Slightly Weathered					-52.8		
		Mod. Weathered	At El. -52.8 Ft., fossiliferous, soft, moderately weathered, fine grained, pitted, shelly sand filled pits						
		Slightly Weathered	At El. -54.6 Ft., moderately hard, slightly weathered	100	Run # 2	RQD 41	4 x 5-1/2" Diamond Impregnated Bit DT = 1 mins HP = 300 psi DFR = 25 %		
							-58.3		
				91	Run # 3	RQD 27	4 x 5-1/2" Diamond Impregnated Bit DT = 2 mins HP = 300 psi DFR = 25 %		

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Jacksonville Harbor GRR	COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 479,149 Y = 2,201,007	ELEVATION TOP OF BORING -45.0 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
		Slightly Weathered	At El. -60.0 Ft., porous, sand filled pores	91	Run # 3	RQD 27	4 x 5-1/2" Diamond Impregnated Bit - DT = 2 mins - HP = 300 psi DFR = 25 %		
-63.8	18.8		At El. -63.0 Ft., porous, clay filled pores				-63.8		
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Set 54.5 ft. of 6" flush joint steel casing 4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Dames Point Bridge. 5. Water depth of -47.7 ft. recorded at 08:10 AM on 1/27/2010. Tide gage reading of +2.7 ft. mllw 6. Compressive Strength Test of Rock Core At Elevation -49.0' to -49.5' = 398 PSI.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: DT = Drill Time. HP = Hydraulic Pressure. DFR = Drill Fluid Return.		

15 20 25 30 35

Boring Designation CB-JHPM09-7

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
	South Atlantic	Jacksonville District	

1. PROJECT	Jacksonville Harbor GRR SW BLOUNT WIDENER
2. BORING DESIGNATION	CB-JHPM09-7
LOCATION COORDINATES	X = 480,987 Y = 2,200,720
3. DRILLING AGENCY	Challenge Engineering & Testing, Inc.
CONTRACTOR FILE NO.	2009D08
4. NAME OF DRILLER	Marvin Strickland
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	18.6 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Diedrich D-50 Truckrig
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 7 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	TIDAL
15. DATE BORING	STARTED 01-25-10 / COMPLETED 01-25-10
16. ELEVATION TOP OF BORING	-44.8 Ft.
17. TOTAL RECOVERY FOR BORING	82 %
18. SIGNATURE AND TITLE OF INSPECTOR	V. J. Thompson I I I, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-44.8	0.0						-44.8		
-45.3	0.5		SILT, organic-L, nonplastic, soft, wet, 5Y 2.5/1 black (OL)					0	
			LIMESTONE, sandy, sparsely fossiliferous, hard, slightly weathered, fine grained, porous, wet, 2.5Y 7/2 light gray	53	1		SPT Sampler	4 / 19	23
							-46.3		
				80	2		-46.8 SPT Sampler	50	
			At El. -47.3 Ft., fossiliferous, moist				Advanced Boring -47.8		
			At El. -47.9 Ft., massive bedding, bedding orientation	0	3		-47.9 SPT Sampler	50/0.1'	
			At El. -49.6 Ft., hard, slightly weathered	100	Run # 1	RQD 38	4 x 5-1/2" Diamond Impregnated Bit DT = 3 mins HP = 300 psi DFR = 50 %		
			At El. -50.8 Ft., pitted						
-52.9	8.1						-52.9		
			LIMESTONE, soft, moderately weathered, massive bedding, bedding orientation	444	Run # 2	RQD 6	4 x 5-1/2" Diamond Impregnated Bit 2 mins, 300 psi, 50 % -53.8		
			At El. -53.8 Ft., porous, sand filled pores		7				
							-57.9		
				78	Run # 3	RQD 35	4 x 5-1/2" Diamond Impregnated Bit DT = 2 mins HP = 300 psi DFR = 50 %		

Slightly Weathered

Moderately Weathered

0 5 10 15

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(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION: Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Jacksonville Harbor GRR	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 480,987 Y = 2,200,720	-44.8 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-60.3	15.5								
		Slightly Weathered	LIMESTONE, sparsely fossiliferous, hard, slightly weathered, porous, sand filled pores	78	Run # 3	RQD 35	4 x 5-1/2" Diamond Impregnated Bit DT = 2 mins HP = 300 psi DFR = 50 %		
-62.3	17.5								
		Mod. Wea.	LIMESTONE, soft, moderately weathered, pitted, sand filled pits						
-63.4	18.6						-63.4		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Set 54.5 ft. of 6" flush joint steel casing

4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Dames Point Bridge.

5. Water depth of -46.2 ft. recorded at 08:15 AM on 1/25/2010. Tide gage reading of +1.4 ft. mllw

6. Compressive Strength Test of Rock Core At Elevation -47.8' to -48.6' = 2435 PSI. Compressive Strength Test of Rock Core At Elevation -50.1' to -50.8' = 935 PSI.

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
NR = Not Recorded.
DT = Drill Time.
HP = Hydraulic Pressure.
DFR = Drill Fluid Return.

15
20 -
25 -
30 -
35

Boring Designation CB-JHPM09-8

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Jacksonville Harbor GRR ST. JOHN'S RIVER CHANNEL
2. BORING DESIGNATION	CB-JHPM09-8
LOCATION COORDINATES	X = 482,338 Y = 2,200,810
3. DRILLING AGENCY	Challenge Engineering & Testing, Inc.
CONTRACTOR FILE NO.	2009D08
4. NAME OF DRILLER	Marvin Strickland
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	17.3 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Diedrich D-50 Truckrig
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 10 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	TIDAL
15. DATE BORING	STARTED 01-23-10 / COMPLETED 01-23-10
16. ELEVATION TOP OF BORING	-45.6 Ft.
17. TOTAL RECOVERY FOR BORING	73 %
18. SIGNATURE AND TITLE OF INSPECTOR	V. J. Thompson I I I, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-45.6	0.0						-45.6		
			SAND, silty, mostly subrounded fine-grained sand-sized quartz, trace subangular shell up to 1/8", wet, 5Y 6/2 light olive gray (SM) At El. -46.4 Ft., 5Y 4/1 dark gray	80	1		SPT Sampler -47.1	4 4 6	10
				87	2		SPT Sampler -48.6	1 1 1	2
				47	3		SPT Sampler -50.1	1 1 1	2
-50.1	4.5	Highly Weathered	LIMESTONE, sandy, sparsely fossiliferous, very soft, highly weathered, fine grained, moist, 5Y 7/2 light gray	20	4		SPT Sampler -51.6	1 1 0	1
				60	5		SPT Sampler -53.1	2 2 1	3
				100	6		SPT Sampler -54.6	5 6 6	12
-55.2	9.6	S	At El. -54.9 Ft., fossiliferous, moderately hard, slightly weathered	0	7		-54.9 SPT Sampler	50/0.3'	
		Highly Weathered	LIMESTONE, sandy, sparsely fossiliferous, very soft, highly weathered, porous At El. -56.6 Ft., 5Y 6/1 gray At El. -57.9 Ft., soft, thick bedding, bedding orientation, solid	85	Run # 1	RQD 28	4 x 5-1/2" Diamond Impregnated Bit DT = 3 mins HP = 300 psi DFR = 25 % -60.4		

0 5 10 15

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(Continued)

Boring Designation CB-JHPM09-8

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

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Jacksonville Harbor GRR	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 482,338 Y = 2,200,810	-45.6 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
		Highly Weathered	At El. -60.8 Ft., porous	80 80	8 8		-60.9 SPT Sampler SPT Sampler	50 50	
							Advanced Boring -61.9		
-62.9	17.3			90	9		SPT Sampler -62.9	8 50	

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Set 57.5 ft. of 6" flush joint steel casing

4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Dames Point Bridge.

5. Water depth of -47.7 ft. recorded at 12:30 PM on 1/23/2010. Tide gage reading of +2.1 ft. mllw

6. Additional lab test results were added February 2011

7. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
2	1.5/3.0	SP-SM*

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

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
DT = Drill Time.
HP = Hydraulic Pressure.
DFR = Drill Fluid Return.

Boring Designation CB-JHPM09-9

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 2 SHEETS
1. PROJECT	Jacksonville Harbor GRR ST. JOHN'S RIVER CHANNEL
2. BORING DESIGNATION	CB-JHPM09-9
LOCATION COORDINATES	X = 487,318 Y = 2,201,495
3. DRILLING AGENCY	Challenge Engineering & Testing, Inc.
CONTRACTOR FILE NO.	2009D08
4. NAME OF DRILLER	Marvin Strickland
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Diedrich D-50 Truckrig
☐ AUTO HAMMER ☒ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 10 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	TIDAL
15. DATE BORING	STARTED 01-24-10 / COMPLETED 01-24-10
16. ELEVATION TOP OF BORING	-43.0 Ft.
17. TOTAL RECOVERY FOR BORING	71 %
18. SIGNATURE AND TITLE OF INSPECTOR	V. J. Thompson I I I, Civil Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-43.0	0.0						-43.0		
-45.0	2.0		SAND, poorly-graded, mostly angular to subangular fine to medium-grained sand-sized quartz, few angular to subangular shell up to 1/8", wet, 2.5Y 7/2 light gray (SP)	67	1		SPT Sampler -44.5	3 1 2	3
-49.5	6.5		SAND, poorly-graded with silt, mostly angular to subangular fine to medium-grained sand-sized quartz, few silt, wet, 2.5Y 6/1 gray (SP-SM)	80	2		SPT Sampler -46.0	3 4 4	8
				87	3		SPT Sampler -47.5	3 5 4	9
				73	4		SPT Sampler -49.0	4 3 4	7
-50.0	7.0		SAND, clayey, low plasticity, soft, some angular to subangular fine to medium-grained sand-sized quartz, little clay, wet, 5G 5/1 greenish gray (SC)	67	5		SPT Sampler -50.5	2 2 3	5
-52.0	9.0	Highly Weathered	LIMESTONE, sandy, sparsely fossiliferous, soft, highly weathered, fine grained, wet, 2.5Y 7/2 light gray	67	6		SPT Sampler -52.0	4 7 6	13
-55.0	12.0		SAND, poorly-graded with silt, mostly angular to subangular fine to medium-grained sand-sized quartz, few silt, wet, 5G 5/1 greenish gray (SP-SM)	67	7		SPT Sampler -53.5	2 2 2	4
				0			Free Fall of Sampler -55.5		
-57.5	14.5		SAND, silty, mostly angular to subangular fine to medium-grained sand-sized quartz, little silt, wet, 5B 5/1 bluish gray (SM)	87	8		SPT Sampler -57.0	1 1 1	2
			LIMESTONE, sandy, sparsely fossiliferous,	70	9		SPT Sampler -58.0	2 50	

0 5 10 15

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(Continued)

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

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Jacksonville Harbor GRR	State Plane, FLE (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 487,318 Y = 2,201,495	-43.0 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-63.0	20.0	Slightly Weathered	moderately hard, slightly weathered, fine grained, pitted, sand filled pits, moist, 5Y 7/2 light gray At El. -61.0 Ft., solid	90	RUN # 1	RQD 65	4 x 5-1/2" Diamond Impregnated Bit DT = 3 mins HP = 300 psi DFR = 25 % -63.0		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

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

3. Set 50.5 ft. of 6" flush joint steel casing

4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Dames Point Bridge.

5. Water depth of -43.8 ft. recorded at 08:15 AM on 1/24/2010. Tide gage reading of +0.8 ft. mllw

6. Compressive Strength Test of Rock Core At Elevation -58.8' to -59.5" = 340 PSI.

7. Additional lab test results were added February 2011

8. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.0/1.5	SP* -
3	3.0/4.5	MH* -

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

140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).

Abbreviations:
DT = Drill Time.
HP = Hydraulic Pressure.
DFR = Drill Fluid Return.

15 20 25 30 35