Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

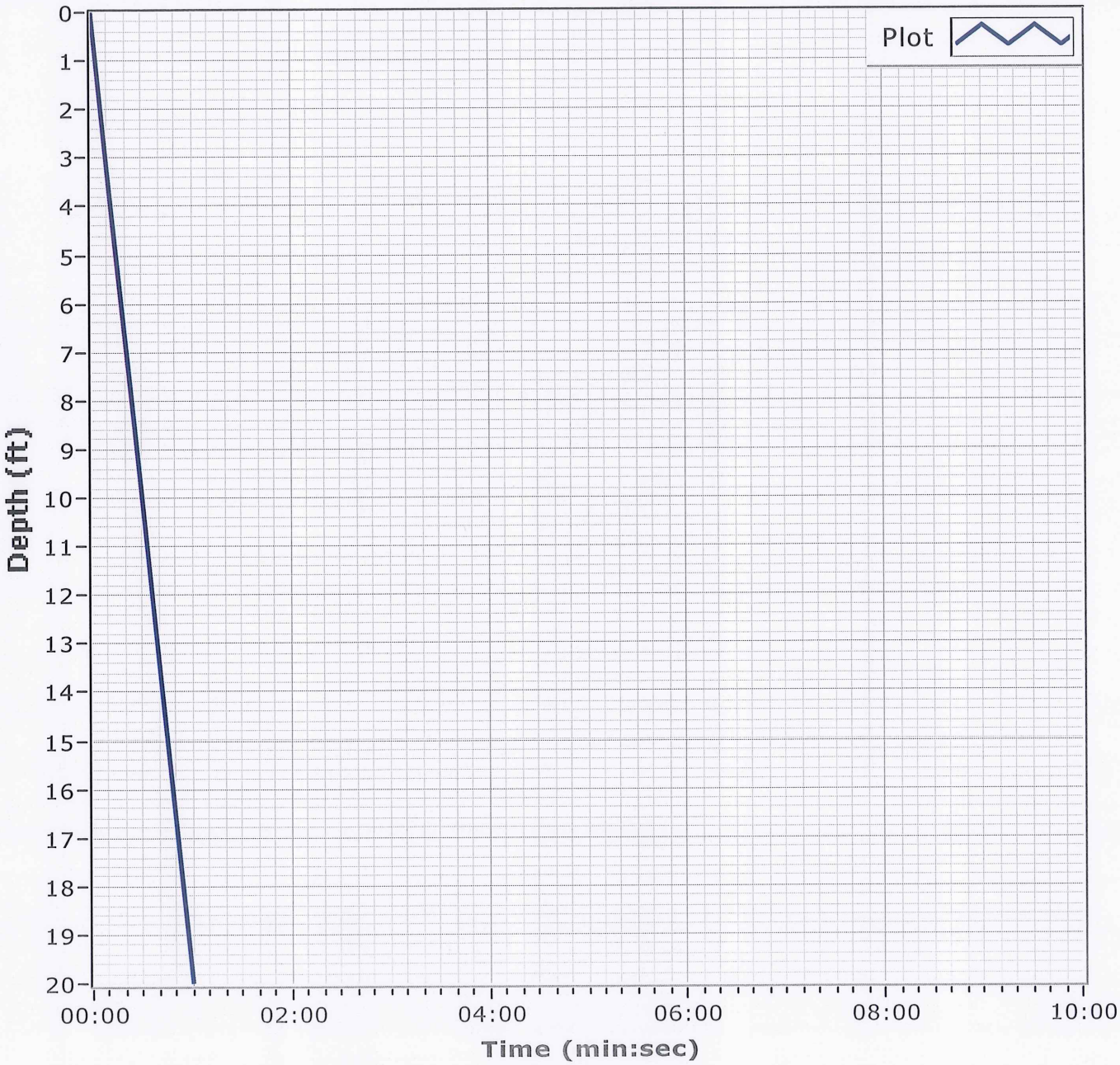
Core Identifier BI-PBS-23-12
Coordinate System
Latitude / Longitude

Latitude 30 08.498
Longitude 088 20.176

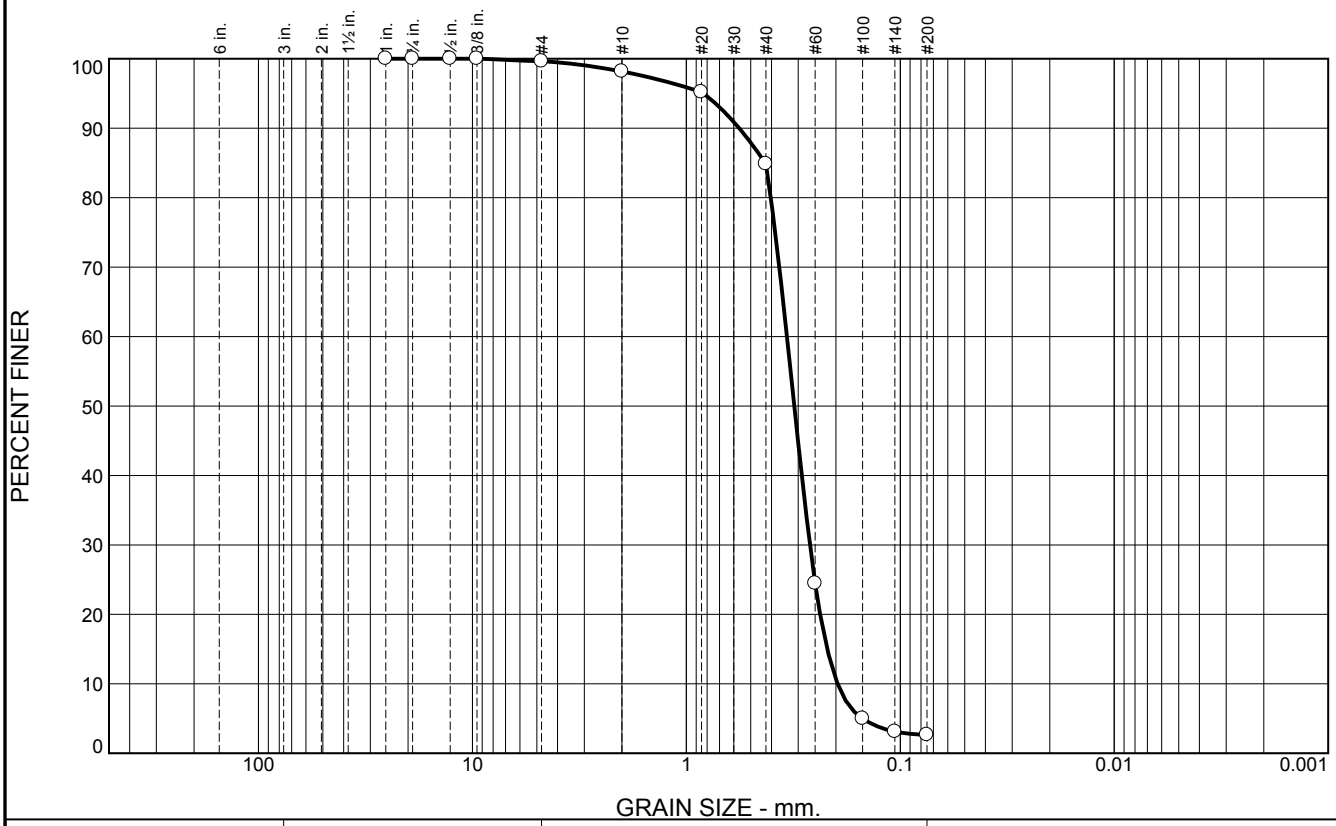
Date 11/23/2012
Start Time 09:00:03
End Time 09:01:03
Total Time 00:01:00

Water Depth 55.7'
Penetration 20.0'
Recovery 19.7'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.4	13.4	82.2	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.2		
#20	95.2		
#40	84.8		
#60	24.5		
#100	5.0		
#140	3.1		
#200	2.6		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5666 D_{85}= 0.4285 D_{60}= 0.3387
D_{50}= 0.3131 D_{30}= 0.2646 D_{15}= 0.2195
D_{10}= 0.1963 C_u= 1.73 C_c= 1.05

Classification

USCS= SP AASHTO=

Remarks

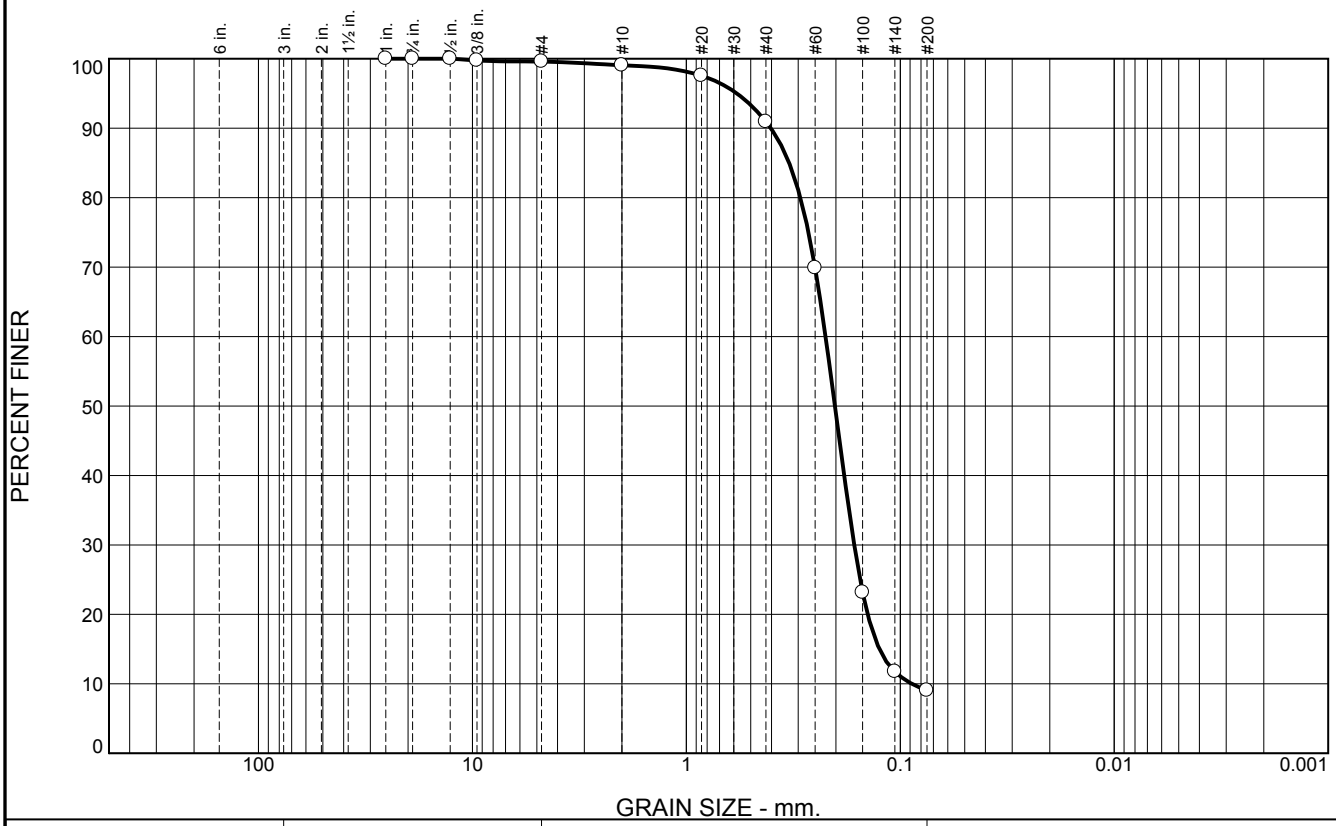
Location: BI-PBS-23-12 A
Sample Number: 6469 (19) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	8.2	81.9	9.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.6		
#10	99.1		
#20	97.5		
#40	90.9		
#60	69.9		
#100	23.1		
#140	11.8		
#200	9.0		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4032 D_{85}= 0.3308 D_{60}= 0.2235
D_{50}= 0.2021 D_{30}= 0.1642 D_{15}= 0.1253
D_{10}= 0.0882 C_u= 2.53 C_c= 1.37

Classification

USCS= SP-SM AASHTO=

Remarks

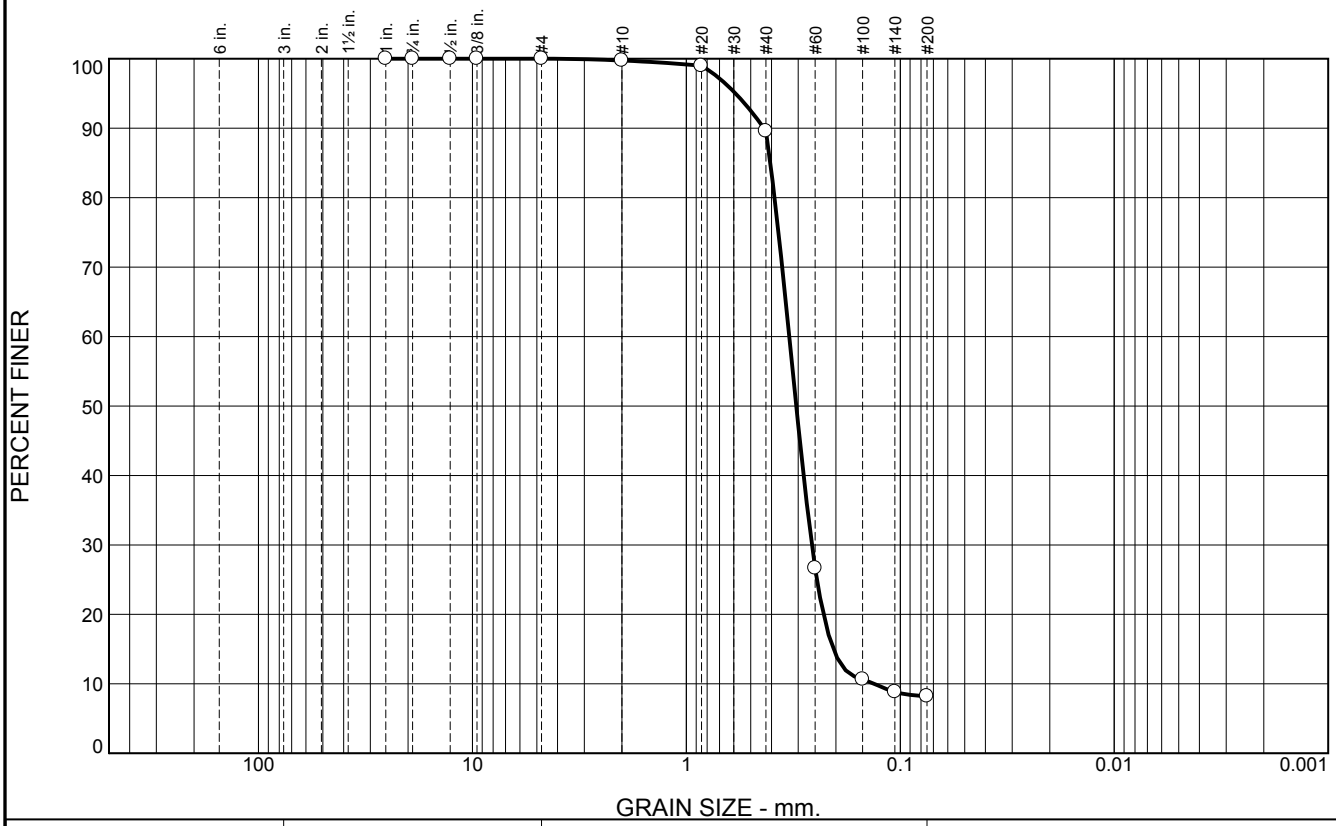
Location: BI-PBS-23-12 B
Sample Number: 6469 (20) **Depth:** 7.9' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	10.1	81.4	8.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.0		
#40	89.6		
#60	26.6		
#100	10.6		
#140	8.8		
#200	8.2		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4344 D_{85}= 0.4050 D_{60}= 0.3304
D_{50}= 0.3065 D_{30}= 0.2591 D_{15}= 0.2056
D_{10}= 0.1326 C_u= 2.49 C_c= 1.53

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-23-12 C
Sample Number: 6469 (21) **Depth:** 18.7' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-024-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-024-12 — LOCATION COORDINATES: E = 1,141,846 N = 232,632	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 55.6 Ft.
	15. DATE BORING — STARTED: 11-21-12 — COMPLETED: 11-21-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -56.0 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 18.8 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.0	0.0				
-59.6	3.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2906 mm % Fines: 3.4
-63.5	7.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, clay lenses through interval, lt. gray mottled with gray and orange (SC)	NS	
-64.4	8.4		CLAY, silty, mostly clay, trace sand, gray mottled with brown and orange (CL-ML)		
-68.5	12.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace wood debris, gray (SM)		
-69.8	13.8		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, trace wood debris, gray (CL)		
-74.8	18.8		SAND, silty, mostly fine-grained sand-sized quartz, trace wood debris, gray (SM)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13875° Long = -88.33477°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

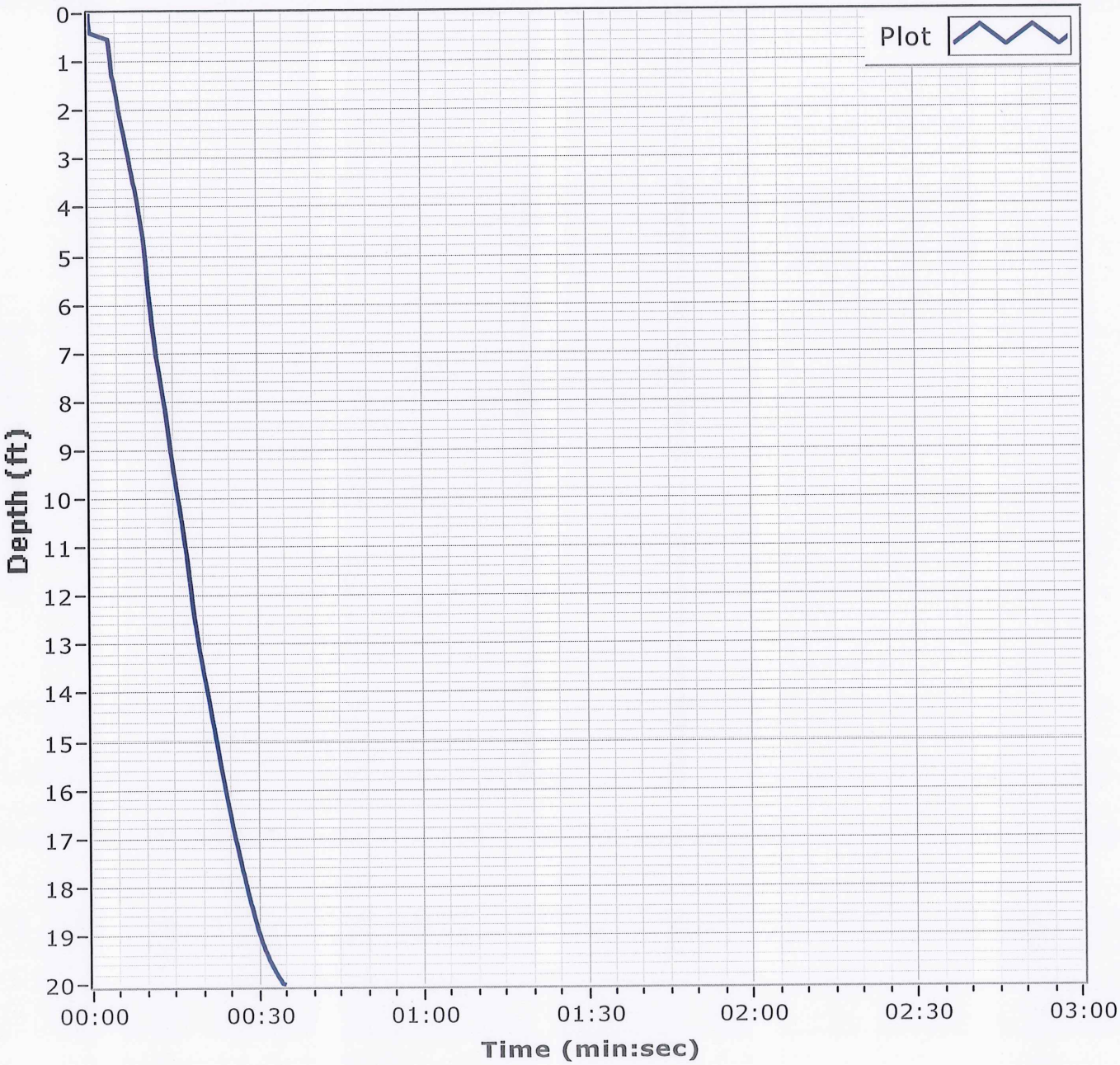
Core Identifier BI-PBS-24-12
Coordinate System
Latitude / Longitude

Latitude 30 08.325
Longitude 088 20.086

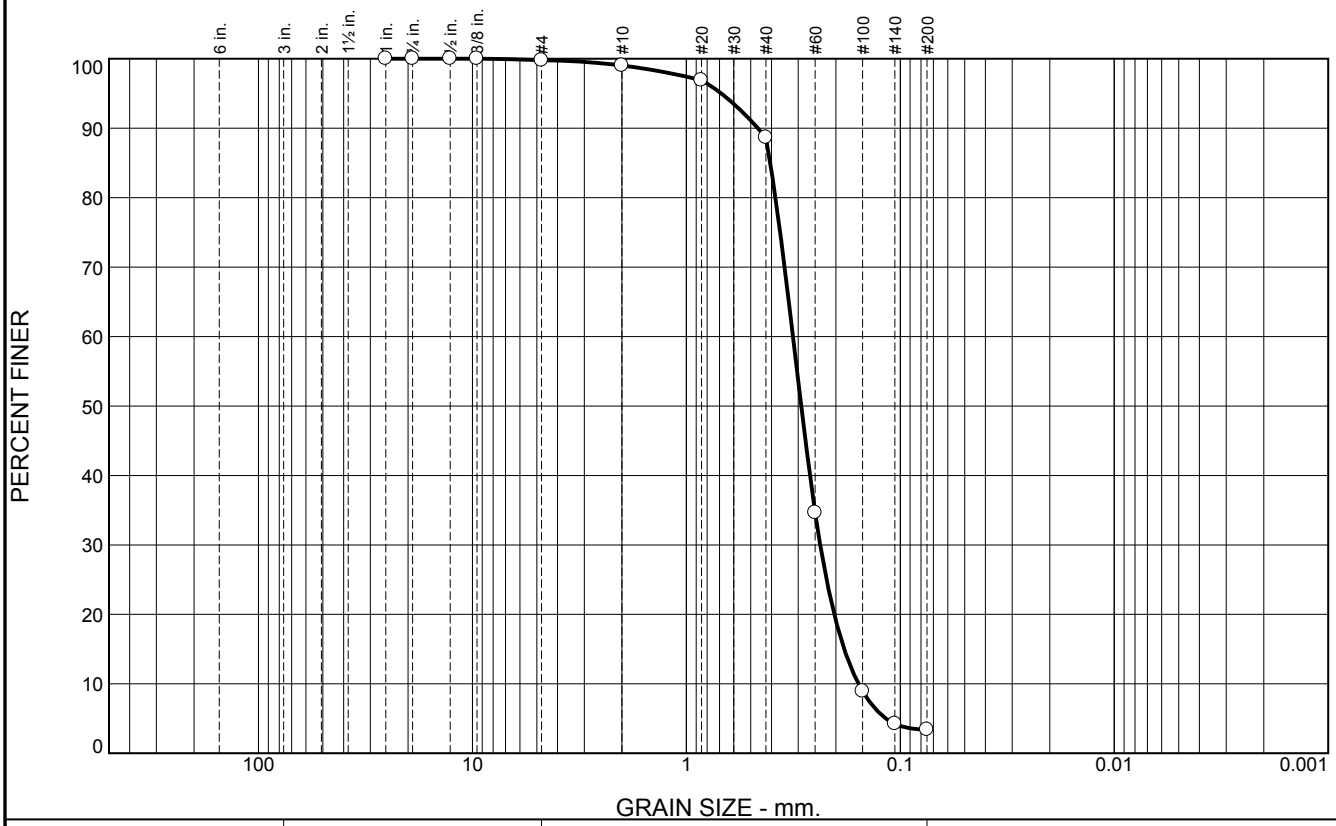
Date 11/21/2012
Start Time 14:55:23
End Time 14:55:57
Total Time 00:00:34

Water Depth 55.6
Penetration 20.0'
Recovery 18.8

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	10.4	85.2	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	96.9		
#40	88.6		
#60	34.6		
#100	8.9		
#140	4.3		
#200	3.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4637 D_{85}= 0.4054 D_{60}= 0.3176
D_{50}= 0.2906 D_{30}= 0.2367 D_{15}= 0.1831
D_{10}= 0.1568 C_u= 2.02 C_c= 1.13

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-24-12 A
Sample Number: 6469 (17) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-025-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-025-12
LOCATION COORDINATES	E = 1,136,537 N = 233,755
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	49.8 Ft.
15. DATE BORING	STARTED 11-24-12; COMPLETED 11-24-12
16. ELEVATION TOP OF BORING	-49.6 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.6	0.0				
-54.8	5.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3107 mm % Fines: 1.6
-56.2	6.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.3415 mm % Fines: 5.7
-58.0	8.4		SAND, silty, mostly fine-grained sand-sized quartz, with clay lenses, gray mottled with lt. gray and orange (SM)	NS	
-63.0	13.4		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, gray mottled with lt. gray and orange (CL)		
-65.3	15.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little silt, trace shell fragments, gray to light gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2548 mm % Fines: 12.3
-66.3	16.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, silt content increases with depth, gray (SM)	NS	
-68.4	18.8		CLAY, silty, mostly silt, some clay, little fine-grained sand-sized quartz, gray (CL-ML)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14190° Long = -88.35155°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-25-12

Coordinate System
Latitude / Longitude

Latitude 30 08.514

Longitude 088 21.093

Date 11/24/2012

Start Time 11:24:42

End Time 11:26:02

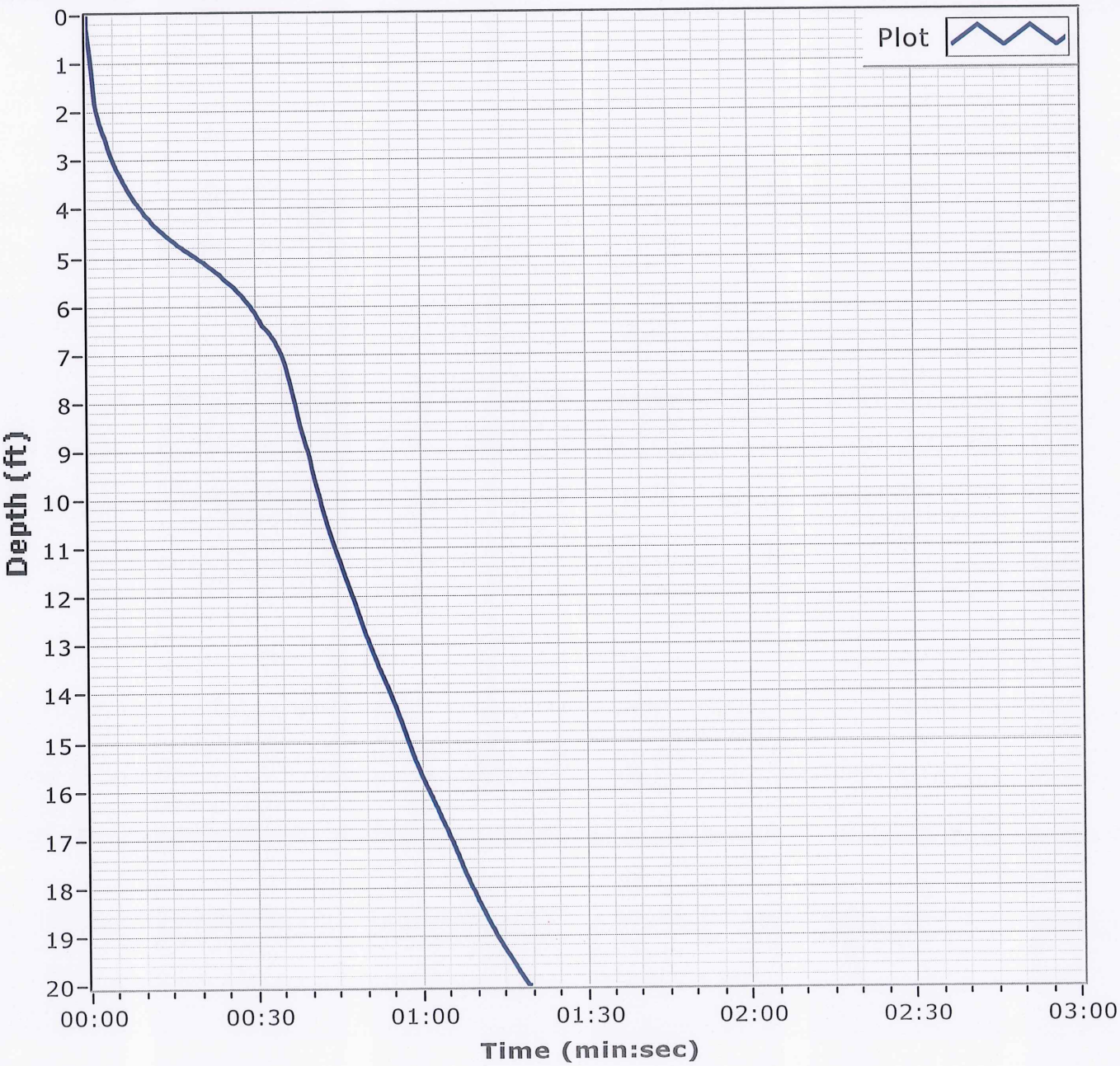
Total Time 00:01:19

Water Depth 49.8'

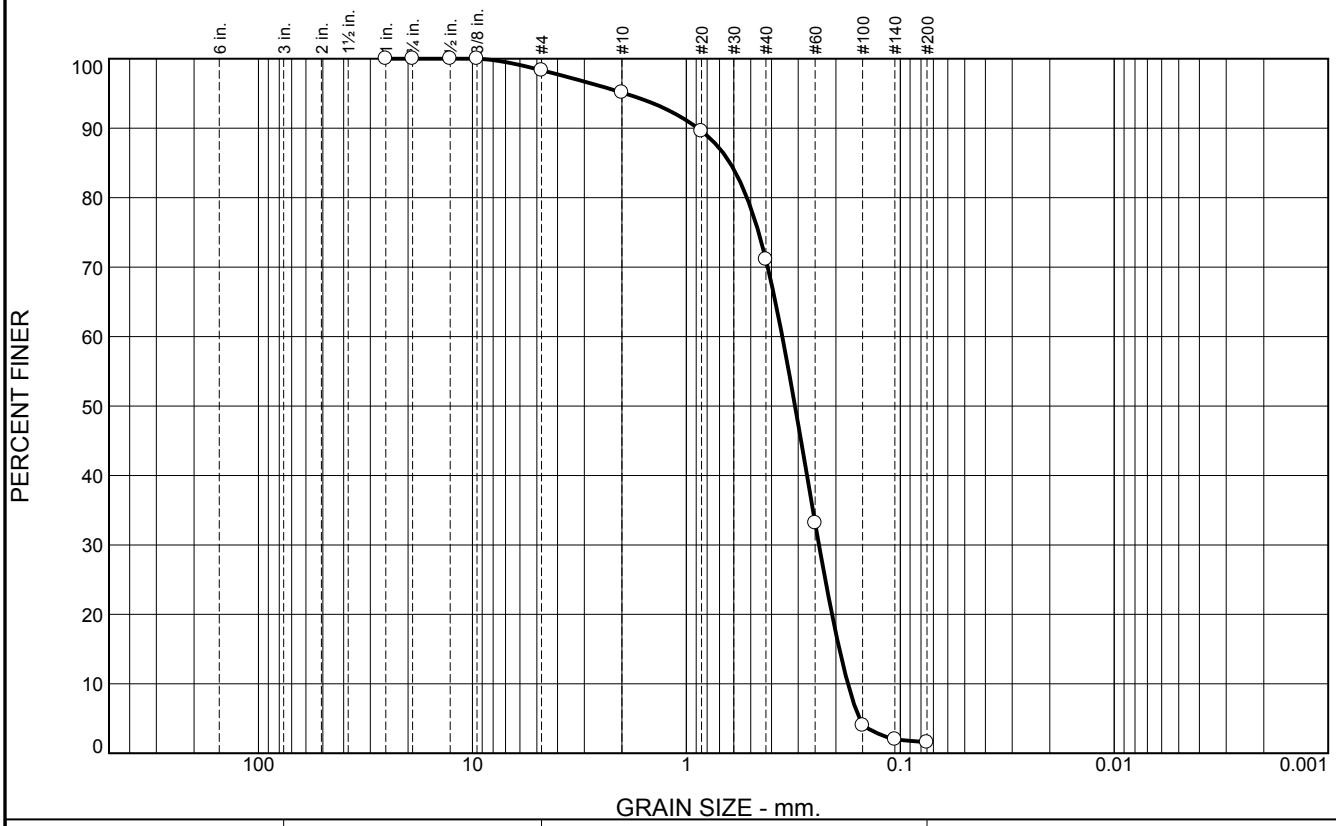
Penetration 20.0'

Recovery 18.8'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	3.2	24.0	69.5	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.3		
#10	95.1		
#20	89.6		
#40	71.1		
#60	33.2		
#100	4.0		
#140	2.0		
#200	1.6		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8852 D_{85}= 0.6249 D_{60}= 0.3560
D_{50}= 0.3107 D_{30}= 0.2398 D_{15}= 0.1927
D_{10}= 0.1759 C_u= 2.02 C_c= 0.92

Classification

USCS= SP AASHTO=

Remarks

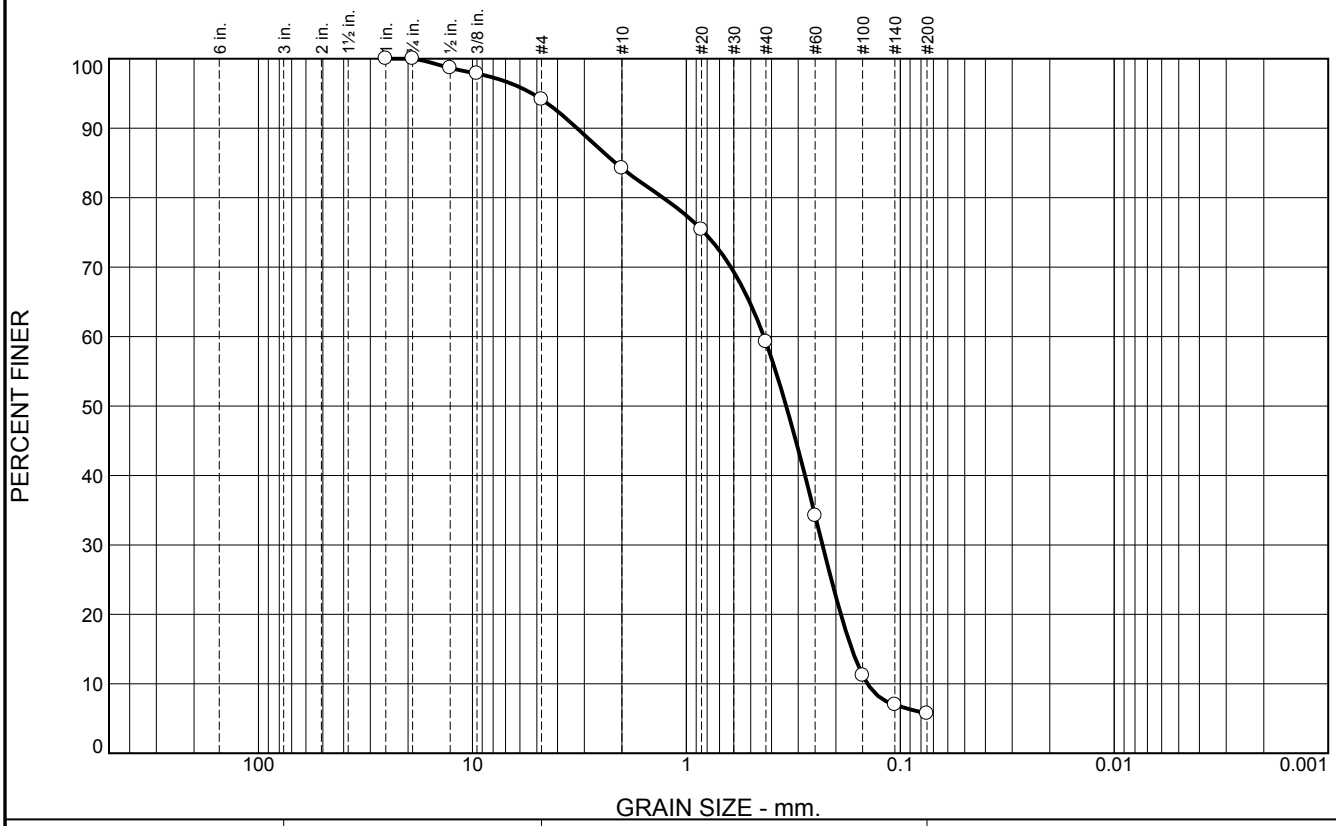
Location: BI-PBS-25-12 A
Sample Number: 6469 (40) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.9	9.9	25.0	53.5	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.7		
.375	97.9		
#4	94.1		
#10	84.2		
#20	75.4		
#40	59.2		
#60	34.2		
#100	11.2		
#140	7.0		
#200	5.7		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 3.2439 D_{85}= 2.1444 D_{60}= 0.4341
D_{50}= 0.3415 D_{30}= 0.2310 D_{15}= 0.1686
D_{10}= 0.1423 C_u= 3.05 C_c= 0.86

Classification

USCS= SP-SM AASHTO=

Remarks

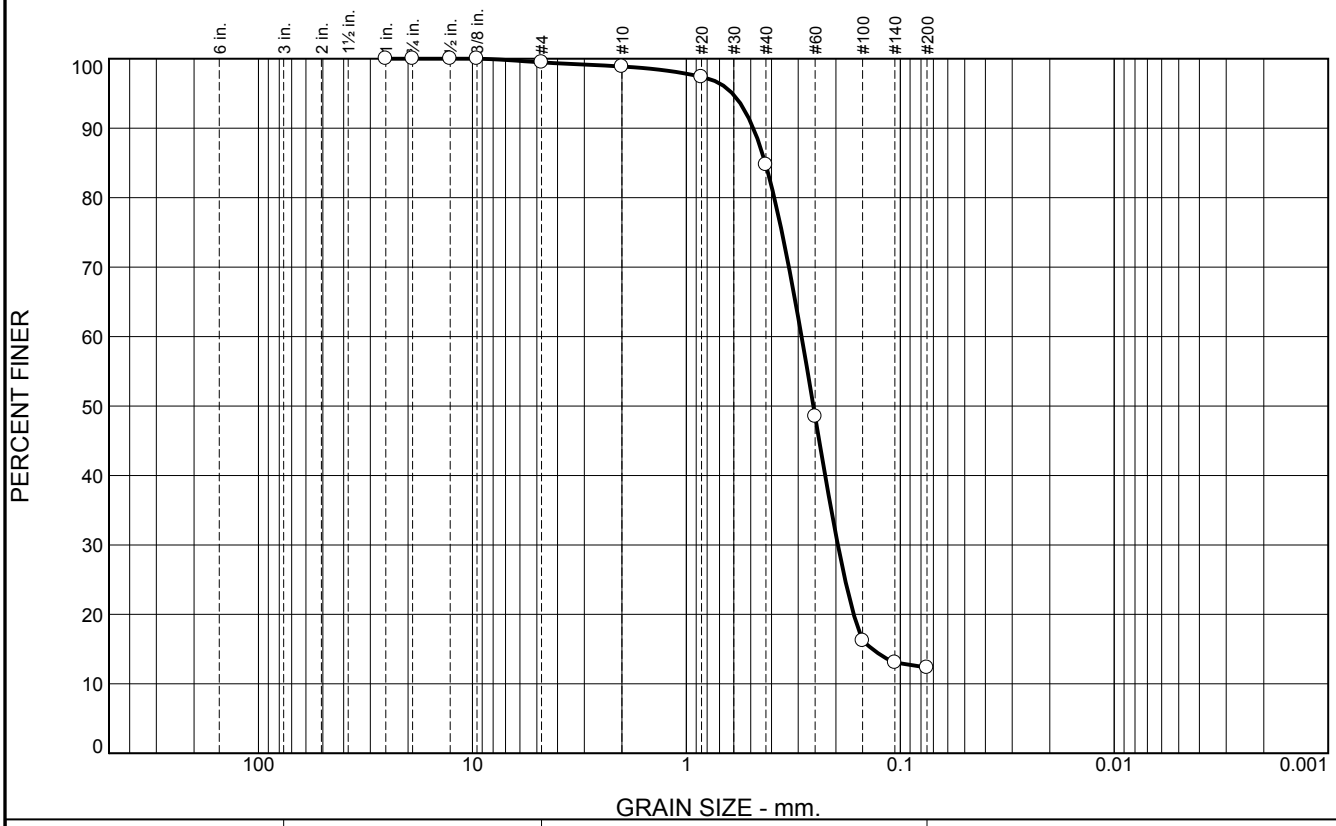
Location: BI-PBS-25-12 B
Sample Number: 6469 (41) **Depth:** 5.2' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.6	14.2	72.4	12.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.9		
#20	97.4		
#40	84.7		
#60	48.5		
#100	16.2		
#140	13.1		
#200	12.3		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4865 D_{85}= 0.4275 D_{60}= 0.2895
D_{50}= 0.2548 D_{30}= 0.1959 D_{15}= 0.1349
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-25-12 C
Sample Number: 6469 (42) **Depth:** 13.4' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-026-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-026-12 — LOCATION COORDINATES: E = 1,140,508 N = 231,310	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 54.8 Ft.
	15. DATE BORING — STARTED: 11-23-12 — COMPLETED: 11-23-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -55.3 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 17.6 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.3	0.0				
-58.9	3.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3129 mm % Fines: 2.1
-59.6	4.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, lt. gray to gray (SP)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1923 mm % Fines: 6.2
-61.4	6.1		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, lt. gray mottled with gray and orange (SM)	NS	
-64.2	8.9		CLAY, lean, mostly clay, little sand, low to medium plasticity, lt. gray mottled with orange (CL)	NS	
-66.8	11.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)	NS	
-72.3	17.0		CLAY, lean, mostly clay, little sand, trace shell fragments, trace wood debris, low plasticity, gray (CL)	NS	
-72.9	17.6		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13513° Long = -88.33902°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-26-12

Coordinate System
Latitude / Longitude

Latitude 30 08.108

Longitude 088 20.341

Date 11/23/2012

Start Time 09:45:40

End Time 09:47:06

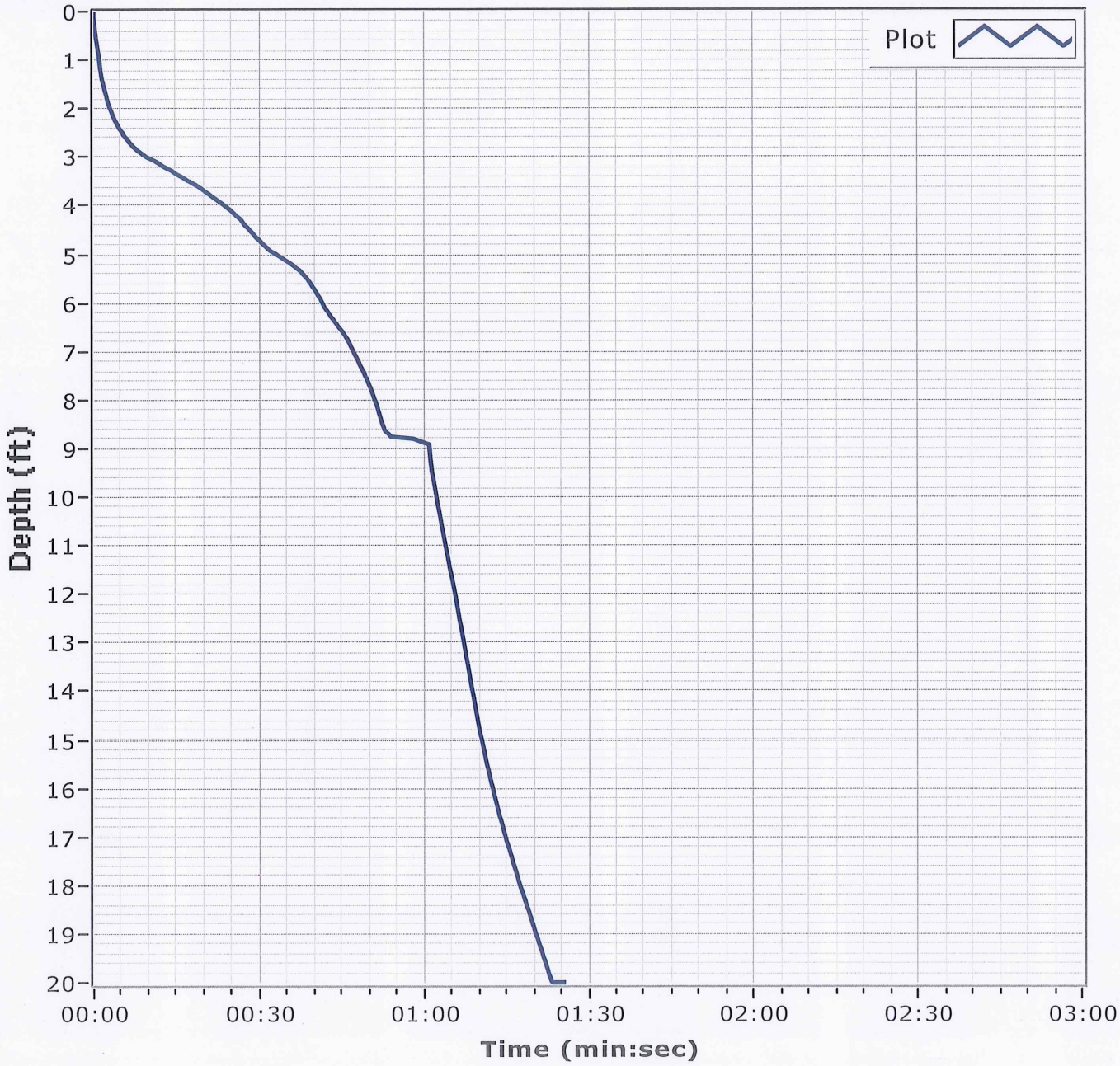
Total Time 00:01:25

Water Depth 54.8'

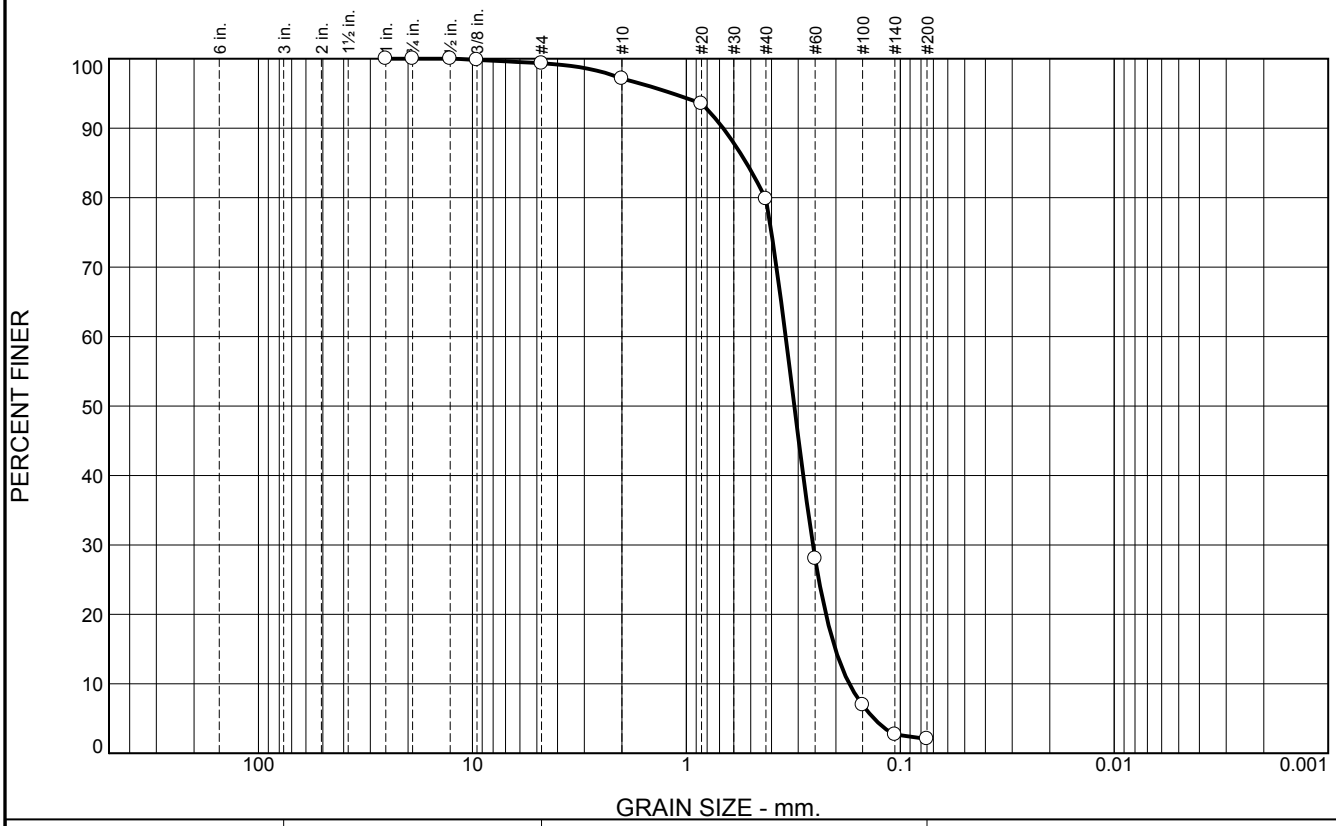
Penetration 20.0'

Recovery 17.6'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	2.2	17.3	77.7	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.3		
#10	97.1		
#20	93.5		
#40	79.8		
#60	28.0		
#100	6.9		
#140	2.7		
#200	2.1		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6733 D_{85}= 0.5244 D_{60}= 0.3434
D_{50}= 0.3129 D_{30}= 0.2560 D_{15}= 0.2013
D_{10}= 0.1733 C_u= 1.98 C_c= 1.10

Classification

USCS= SP AASHTO=

Remarks

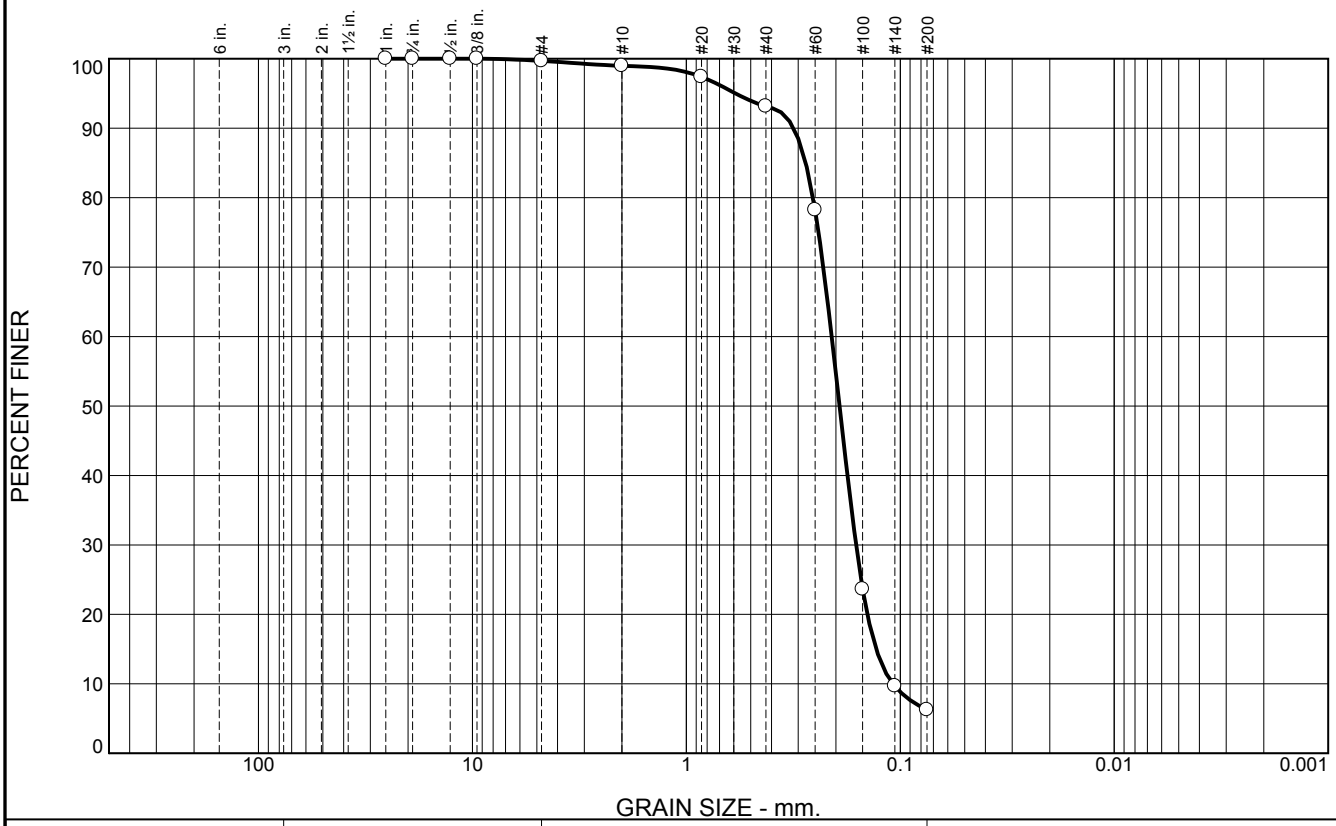
Location: BI-PBS-26-12 A
Sample Number: 6469 (22) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.7	5.9	86.9	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.0		
#20	97.4		
#40	93.1		
#60	78.2		
#100	23.6		
#140	9.7		
#200	6.2		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3152 D_{85}= 0.2770 D_{60}= 0.2092
D_{50}= 0.1923 D_{30}= 0.1610 D_{15}= 0.1297
D_{10}= 0.1081 C_u= 1.94 C_c= 1.15

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-26-12 B
Sample Number: 6469 (23) **Depth:** 3.6' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-027-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-027-12 — LOCATION COORDINATES: E = 1,142,169 N = 231,132	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 55.1 Ft.
	15. DATE BORING — STARTED: 11-21-12 — COMPLETED: 11-21-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -56.4 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 19.7 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.4	0.0				
-62.4	6.0		SAND, poorly-graded, mostly fine to medium-grained quartz, some shell fragments, trace fines, light gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.3658 mm % Fines: 1.5
-63.7	7.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, some shell fragments, trace fines, lt. gray (SP)	B	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2594 mm % Fines: 5.2
-67.0	10.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, gray (SM) At El. -64.4 Ft., mostly fine-grained sand-sized quartz, little shell fragments, gray	NS	
-69.0	12.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, trace shell fragments, clayey lenses at 11.0' and 12.0', lt. gray (SP)	C	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2972 mm % Fines: 9.2
-69.9	13.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SM)		
-76.1	19.7		CLAY, silty, some silt, some clay, trace fine-grained sand-sized quartz, gray (CL-ML) At El. -74.2 Ft., some silt, some clay, some fine-grained sand-sized quartz, little shell fragments, gray	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13462° Long = -88.33377°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

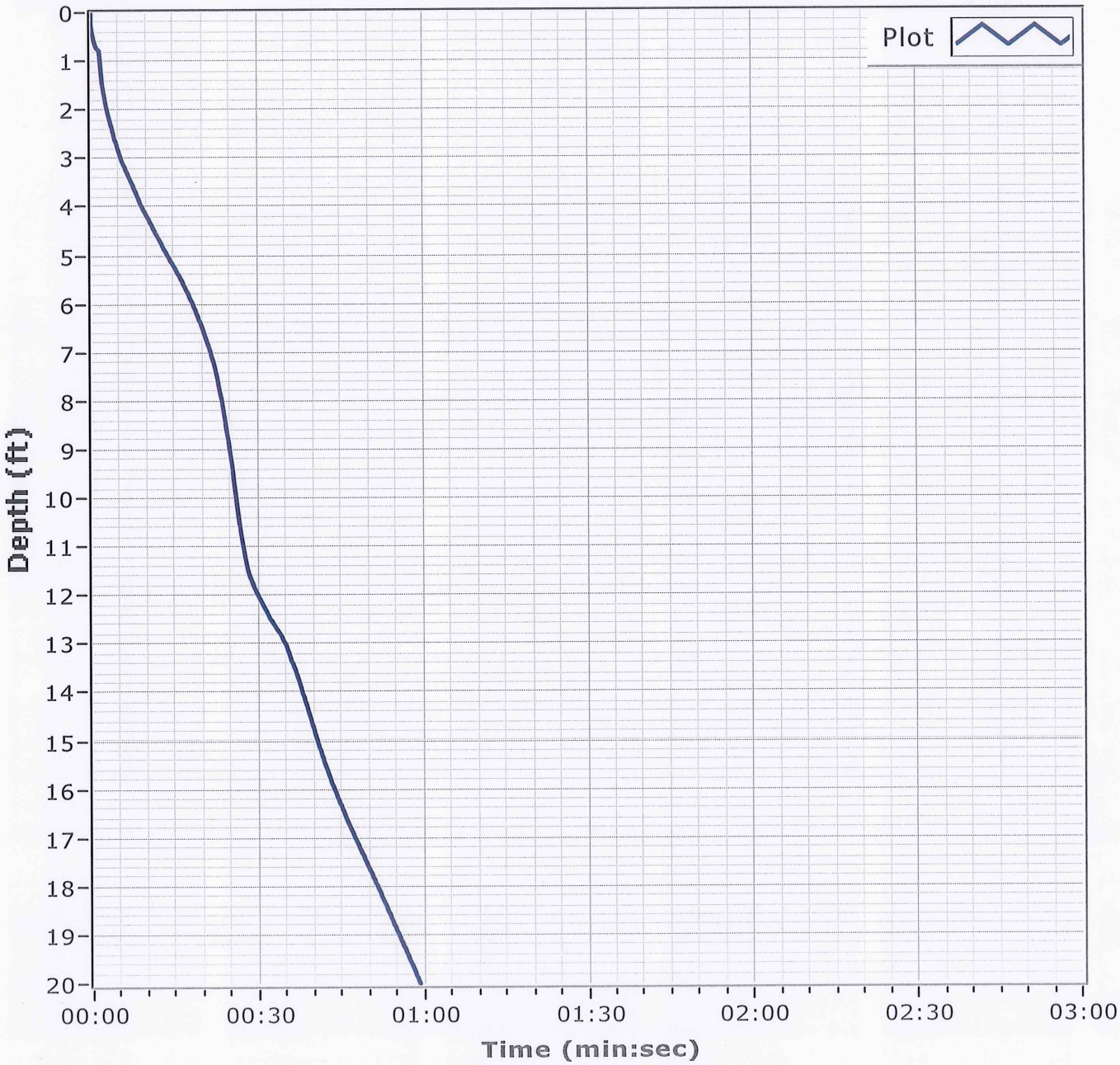
Core Identifier BI-PBS-27-12
Coordinate System
Latitude / Longitude

Latitude 30 08.077
Longitude 088 20.026

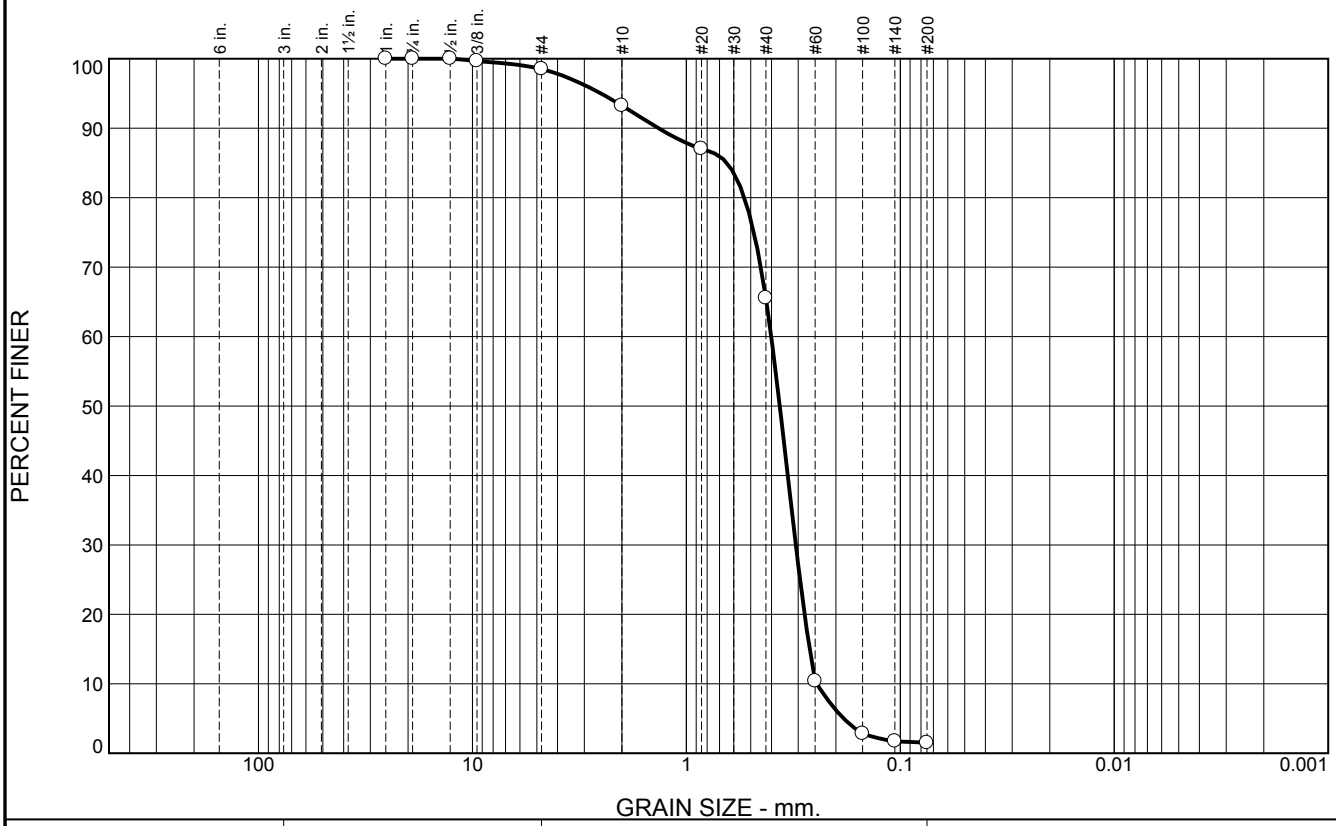
Date 11/21/2012
Start Time 14:11:22
End Time 14:12:22
Total Time 00:00:59

Water Depth 55.1'
Penetration 20.0'
Recovery 19.7'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	5.3	27.7	64.0	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	98.5		
#10	93.2		
#20	87.0		
#40	65.5		
#60	10.4		
#100	2.8		
#140	1.7		
#200	1.5		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.3510 D_{85}= 0.6468 D_{60}= 0.4010
D_{50}= 0.3658 D_{30}= 0.3080 D_{15}= 0.2656
D_{10}= 0.2455 C_u= 1.63 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

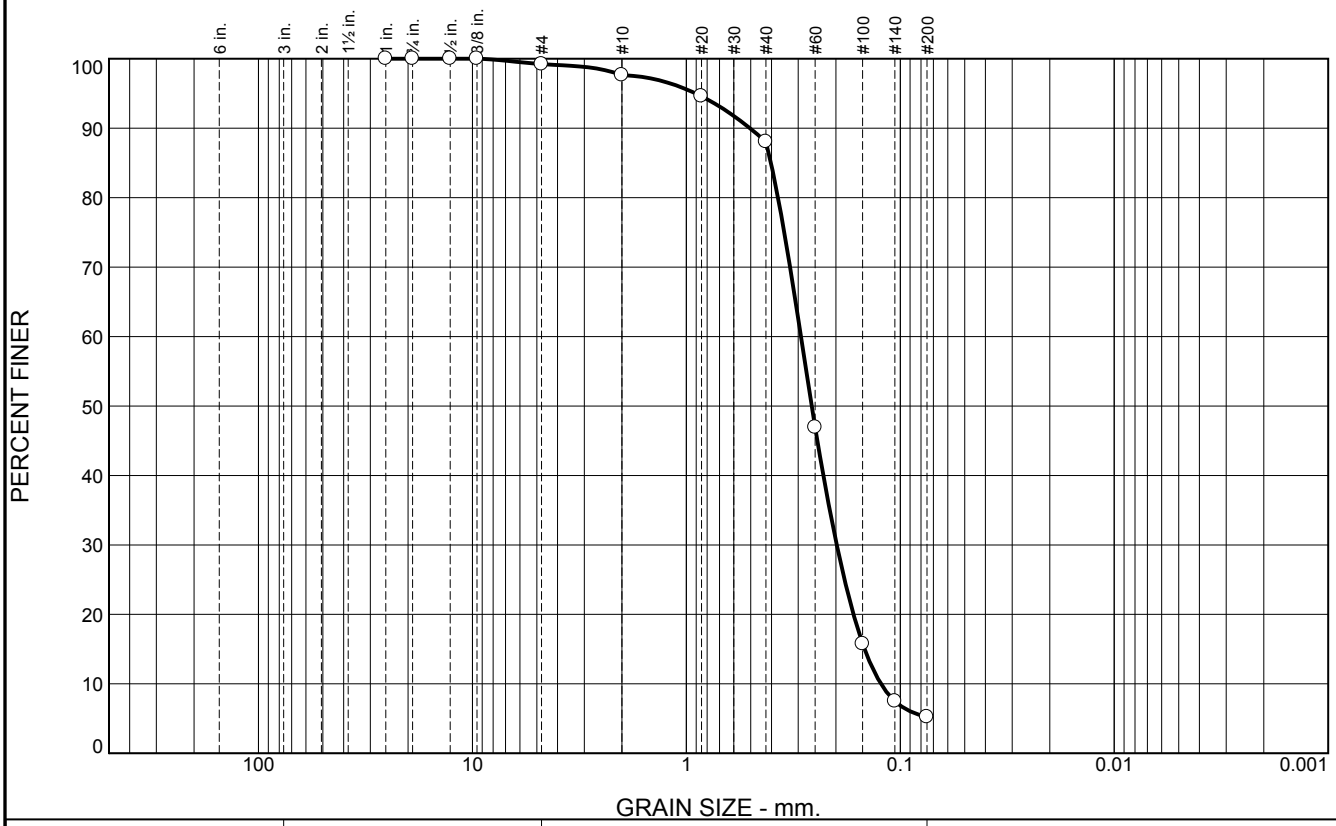
Location: BI-PBS-27-12 A
Sample Number: 6469 (14) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.6	9.6	82.8	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.6		
#20	94.6		
#40	88.0		
#60	46.9		
#100	15.8		
#140	7.5		
#200	5.2		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5050 D_{85}= 0.4022 D_{60}= 0.2914
D_{50}= 0.2594 D_{30}= 0.1982 D_{15}= 0.1470
D_{10}= 0.1232 C_u= 2.37 C_c= 1.09

Classification

USCS= SP-SM AASHTO=

Remarks

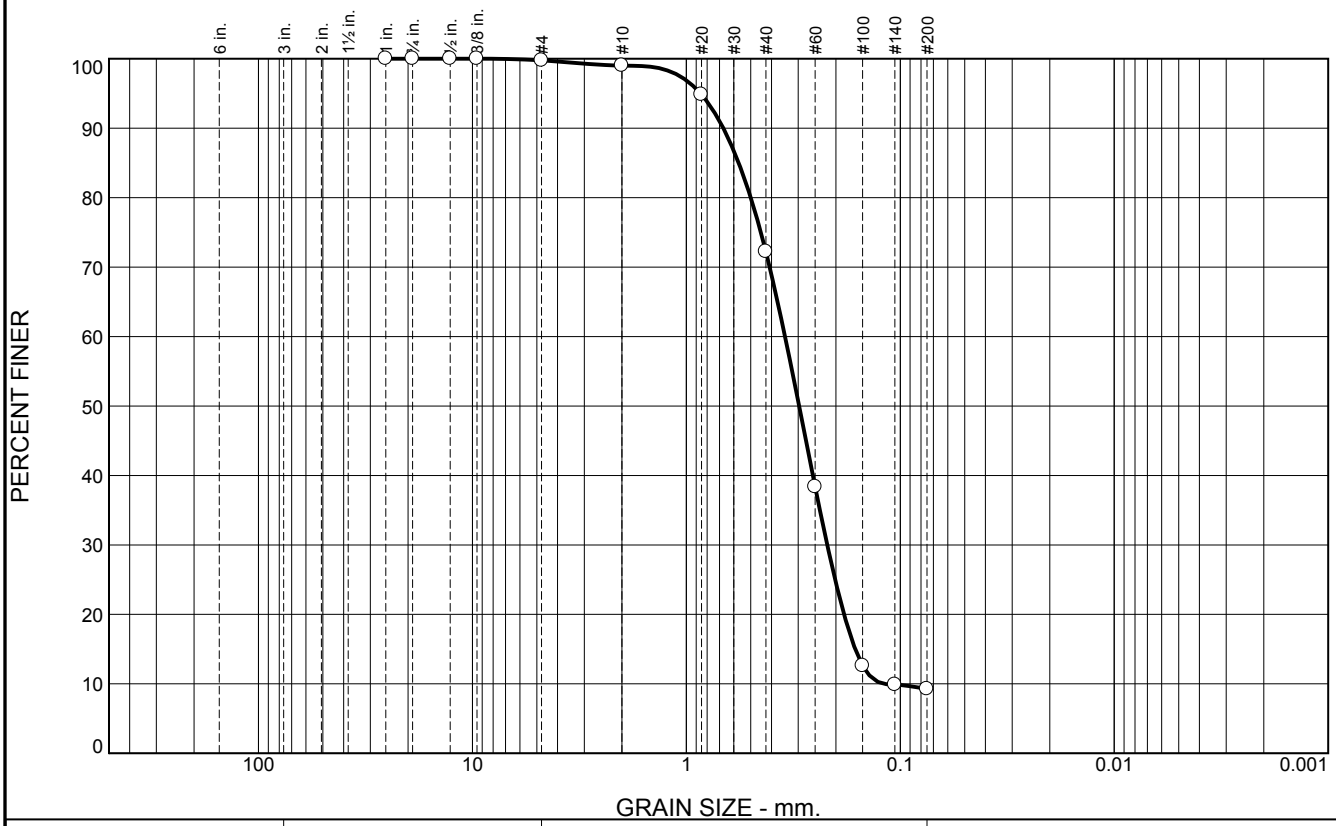
Location: BI-PBS-27-12 B
Sample Number: 6469 (15) **Depth:** 6.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	26.8	63.0	9.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	94.8		
#40	72.2		
#60	38.4		
#100	12.6		
#140	9.9		
#200	9.2		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6718 D_{85}= 0.5694 D_{60}= 0.3458
D_{50}= 0.2972 D_{30}= 0.2195 D_{15}= 0.1626
D_{10}= 0.1188 C_u= 2.91 C_c= 1.17

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-27-12 C
Sample Number: 6469 (16) **Depth:** 10.6' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-028-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-028-12 — LOCATION COORDINATES: E = 1,143,084 N = 230,830	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 56.4 Ft.
	15. DATE BORING — STARTED: 11-21-12 — COMPLETED: 11-21-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -56.8 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 12.4 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.8	0.0				
-63.3	6.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, trace wood debris, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2984 mm % Fines: 2.9
-65.3	8.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, trace wood debris, gray (SM)	NS	
-66.8	10.0		CLAY, silty, some clay, some silt, little fine-grained sand-sized quartz, trace wood debris, gray (CL-ML)		
-67.8	11.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, little wood debris, gray (SM)	B	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2837 mm % Fines: 8.5
-69.2	12.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, trace shell fragments, trace wood debris, lt. gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13378° Long = -88.33088°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-28-12

Coordinate System
Latitude / Longitude

Latitude 30 08.027

Longitude 088 19.853

Date 11/21/2012

Start Time 13:36:59

End Time 13:39:10

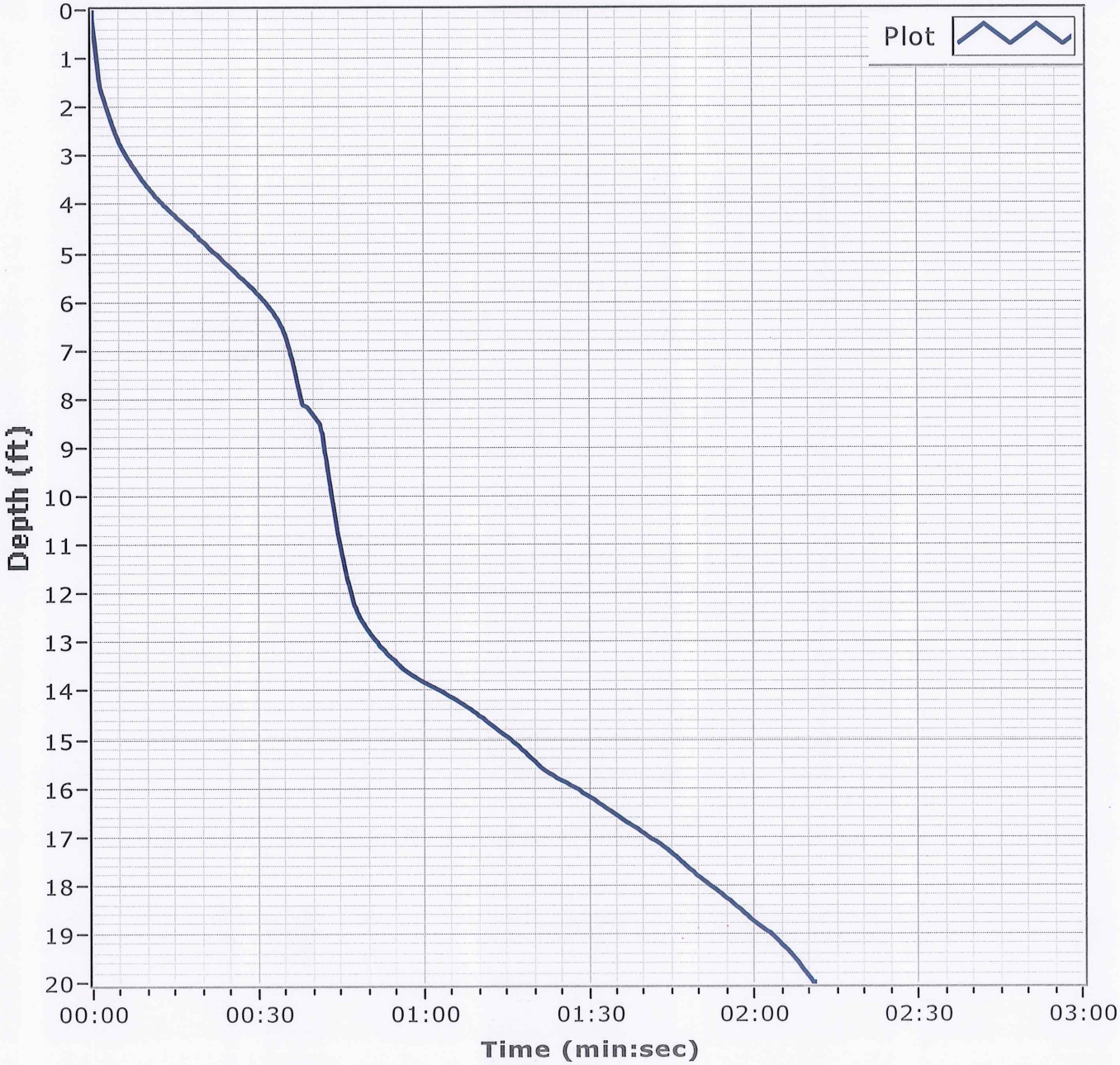
Total Time 00:02:11

Water Depth 56.4'

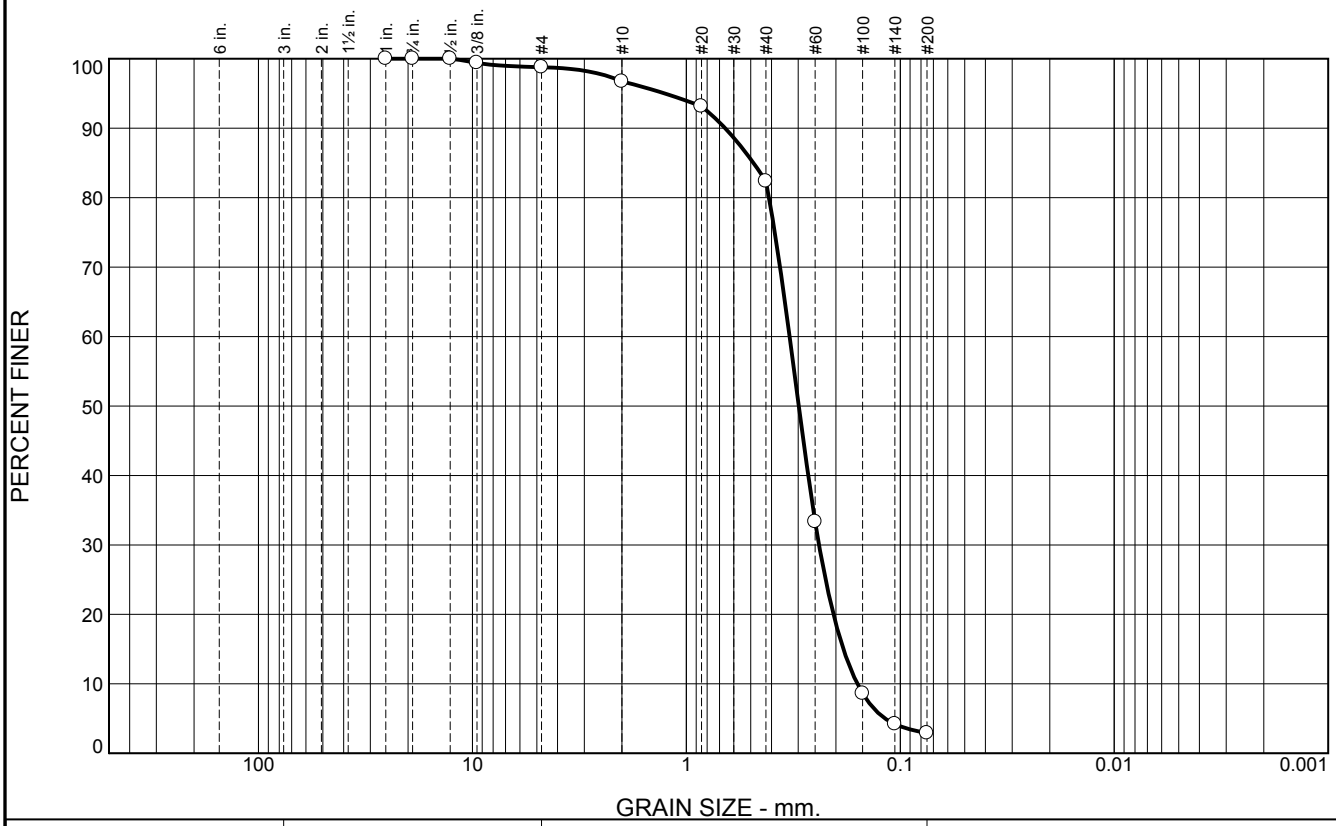
Penetration 20.0'

Recovery 12.4'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	2.1	14.3	79.5	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.4		
#4	98.8		
#10	96.7		
#20	93.1		
#40	82.4		
#60	33.3		
#100	8.6		
#140	4.2		
#200	2.9		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6592 D_{85}= 0.4861 D_{60}= 0.3292
D_{50}= 0.2984 D_{30}= 0.2398 D_{15}= 0.1847
D_{10}= 0.1588 C_u= 2.07 C_c= 1.10

Classification

USCS= SP AASHTO=

Remarks

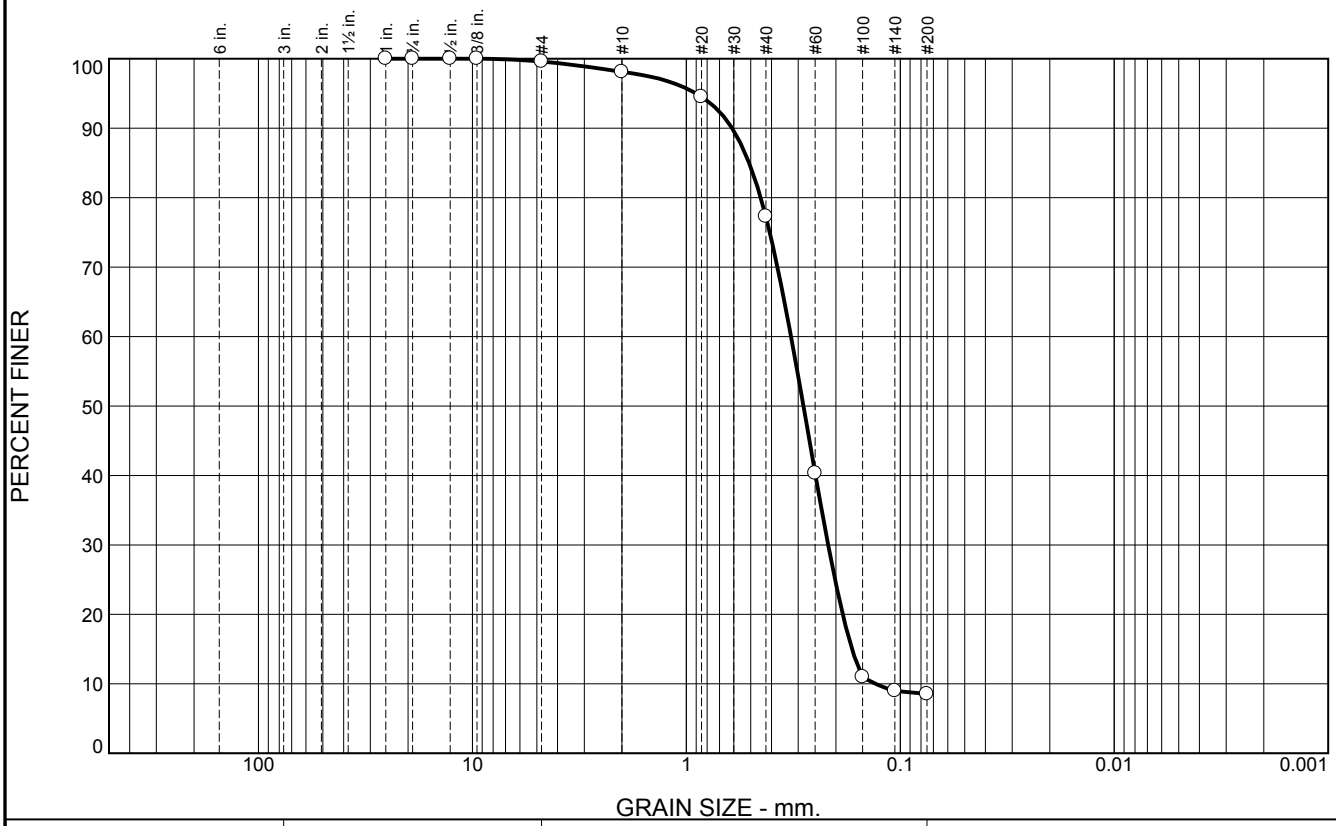
Location: BI-PBS-28-12 A
Sample Number: 6469 (12) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.5	20.8	68.8	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.1		
#20	94.5		
#40	77.3		
#60	40.3		
#100	11.0		
#140	9.0		
#200	8.5		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6111 D_{85}= 0.5091 D_{60}= 0.3242
D_{50}= 0.2837 D_{30}= 0.2173 D_{15}= 0.1683
D_{10}= 0.1305 C_u= 2.49 C_c= 1.12

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-28-12 B
Sample Number: 6469 (13) **Depth:** 11.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-029-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-029-12
LOCATION COORDINATES	E = 1,143,592 N = 230,305
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	7.2 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	62 Ft.
15. DATE BORING	STARTED 11-24-12; COMPLETED 11-24-12
16. ELEVATION TOP OF BORING	-55.2 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.2	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2483 mm % Fines: 2.1
-61.2	6.0				
-61.8	6.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, gray (SP)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1892 mm % Fines: 10.9
-62.4	7.2		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, gray (CL)	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13233° Long = -88.32928°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-29-12

Coordinate System
Latitude / Longitude

Latitude 30 07.940

Longitude 088 19.757

Date 11/24/2012

Start Time 12:53:28

End Time 12:54:59

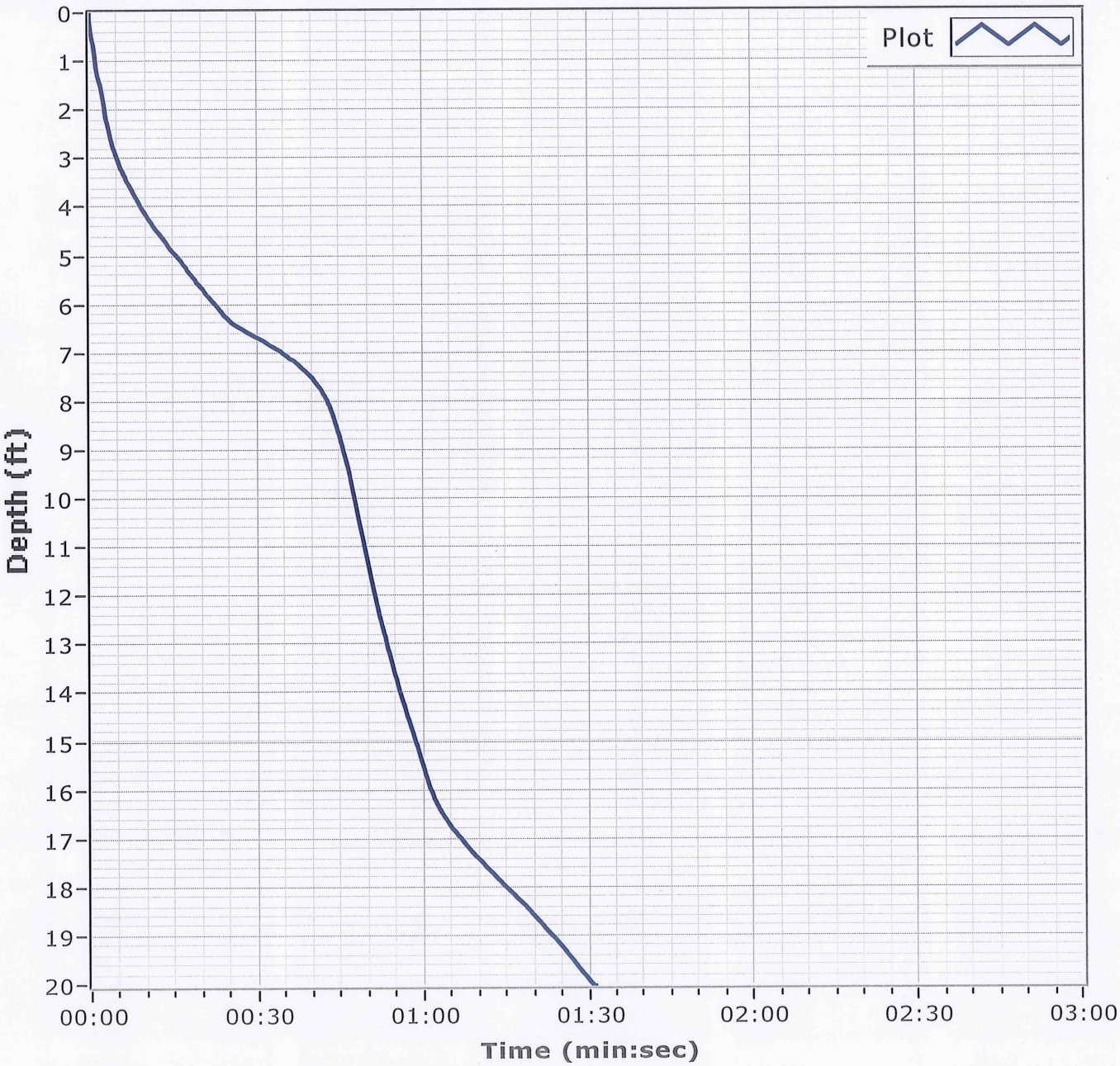
Total Time 00:01:31

Water Depth 62.0'

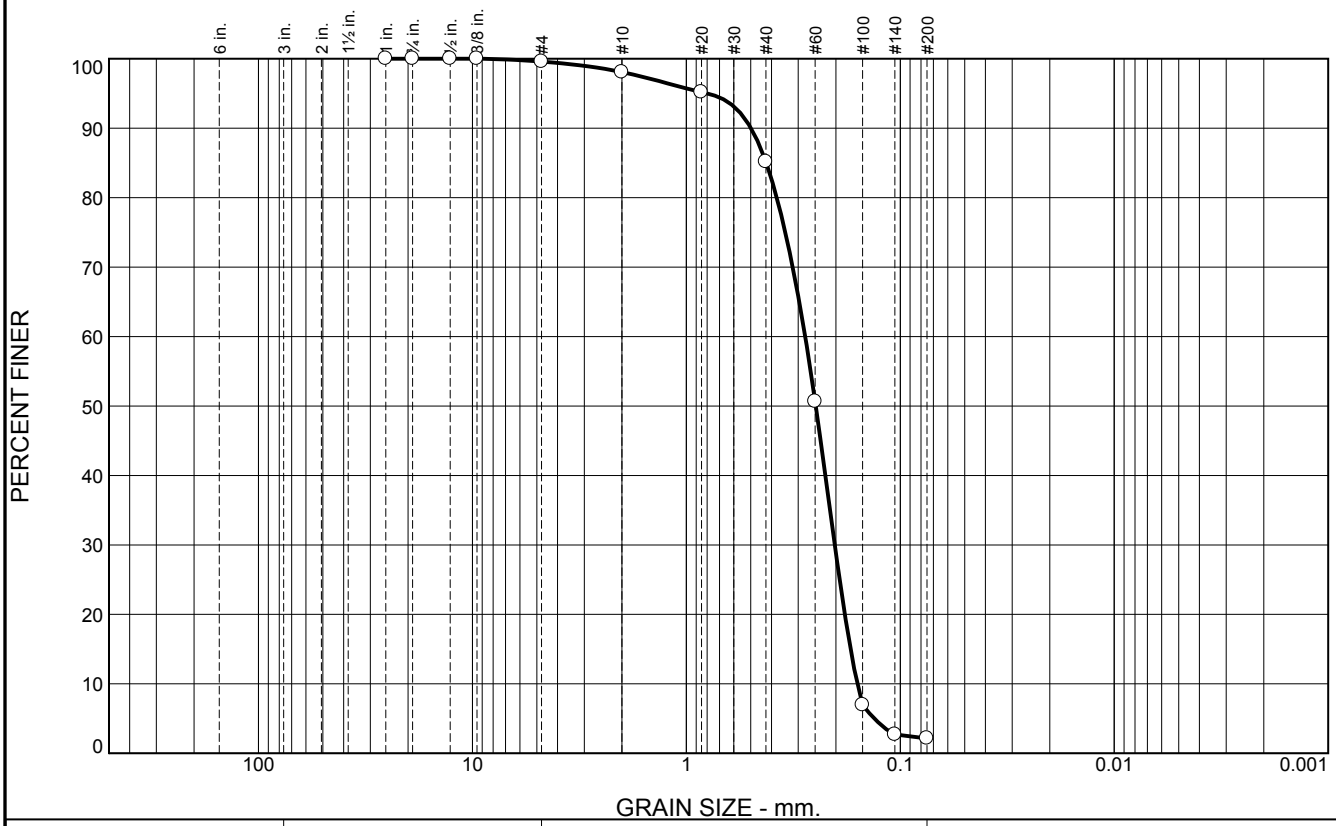
Penetration 20.0'

Recovery 7.2'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.5	12.9	83.1	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.1		
#20	95.2		
#40	85.2		
#60	50.6		
#100	7.0		
#140	2.7		
#200	2.1		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4988 D_{85}= 0.4232 D_{60}= 0.2784
D_{50}= 0.2483 D_{30}= 0.2025 D_{15}= 0.1710
D_{10}= 0.1589 C_u= 1.75 C_c= 0.93

Classification

USCS= SP AASHTO=

Remarks

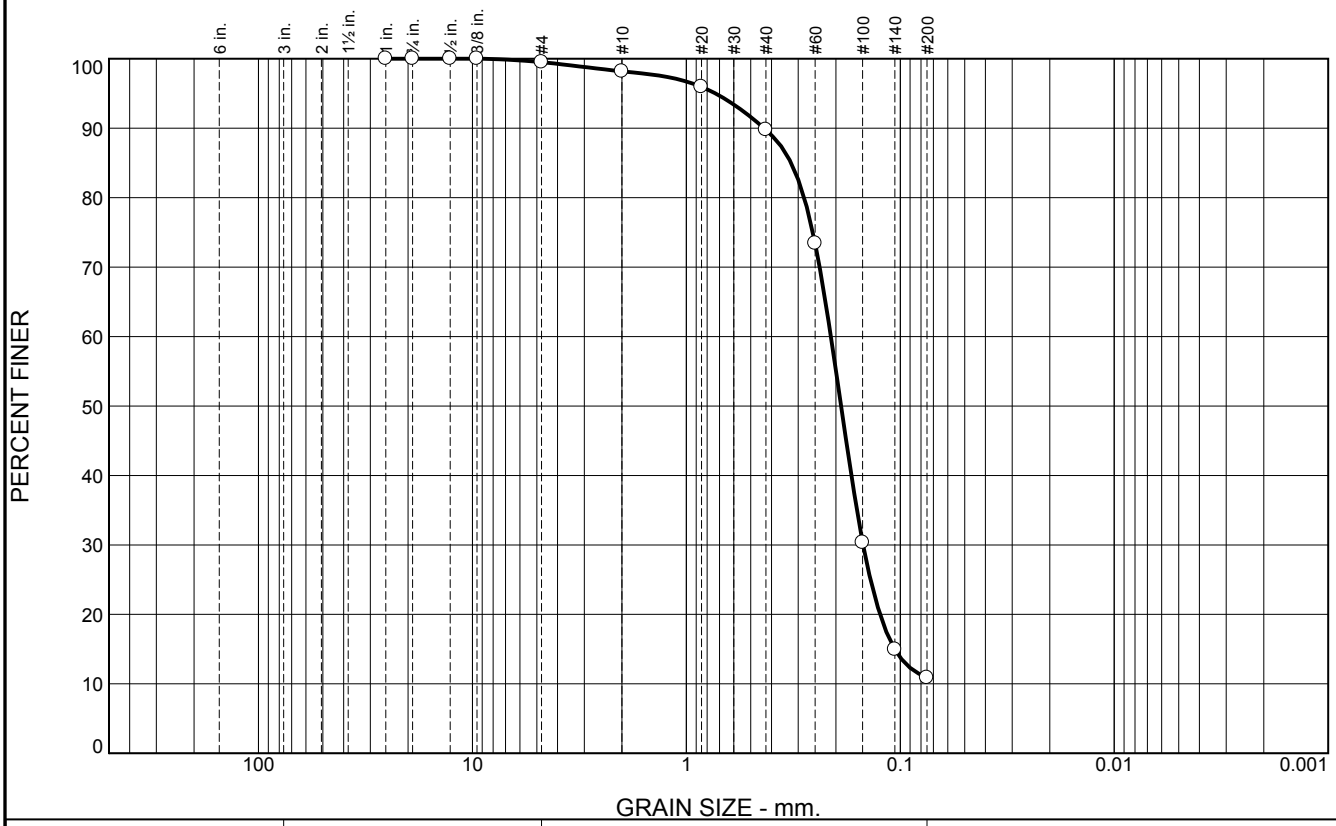
Location: BI-PBS-29-12 A
Sample Number: 6469 (45) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.3	8.5	78.8	10.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.2		
#20	95.9		
#40	89.7		
#60	73.4		
#100	30.3		
#140	15.0		
#200	10.9		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4341 D_{85}= 0.3239 D_{60}= 0.2111
D_{50}= 0.1892 D_{30}= 0.1493 D_{15}= 0.1062
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-29-12 B
Sample Number: 6469 (46) **Depth:** 6.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-030-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-030-12
LOCATION COORDINATES	E = 1,143,904 N = 229,830
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	15.6 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	62.7 Ft.
15. DATE BORING	STARTED 11-24-12; COMPLETED 11-24-12
16. ELEVATION TOP OF BORING	-60.4 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-60.4	0.0				
-63.5	3.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2933 mm % Fines: 3
-67.0	6.6		SAND, silty, mostly fine-grained sand-sized quartz, some shell fragments, gray (SM)	NS	
-68.0	7.6		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, trace shell fragments, gray (CL)		
-69.5	9.1		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, borderline CL, gray (SC)		
-74.7	14.3		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, gray (CL)		
-76.0	15.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, lt. gray to gray (SP-SM)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.3355 mm % Fines: 22.5

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13102° Long = -88.32830°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

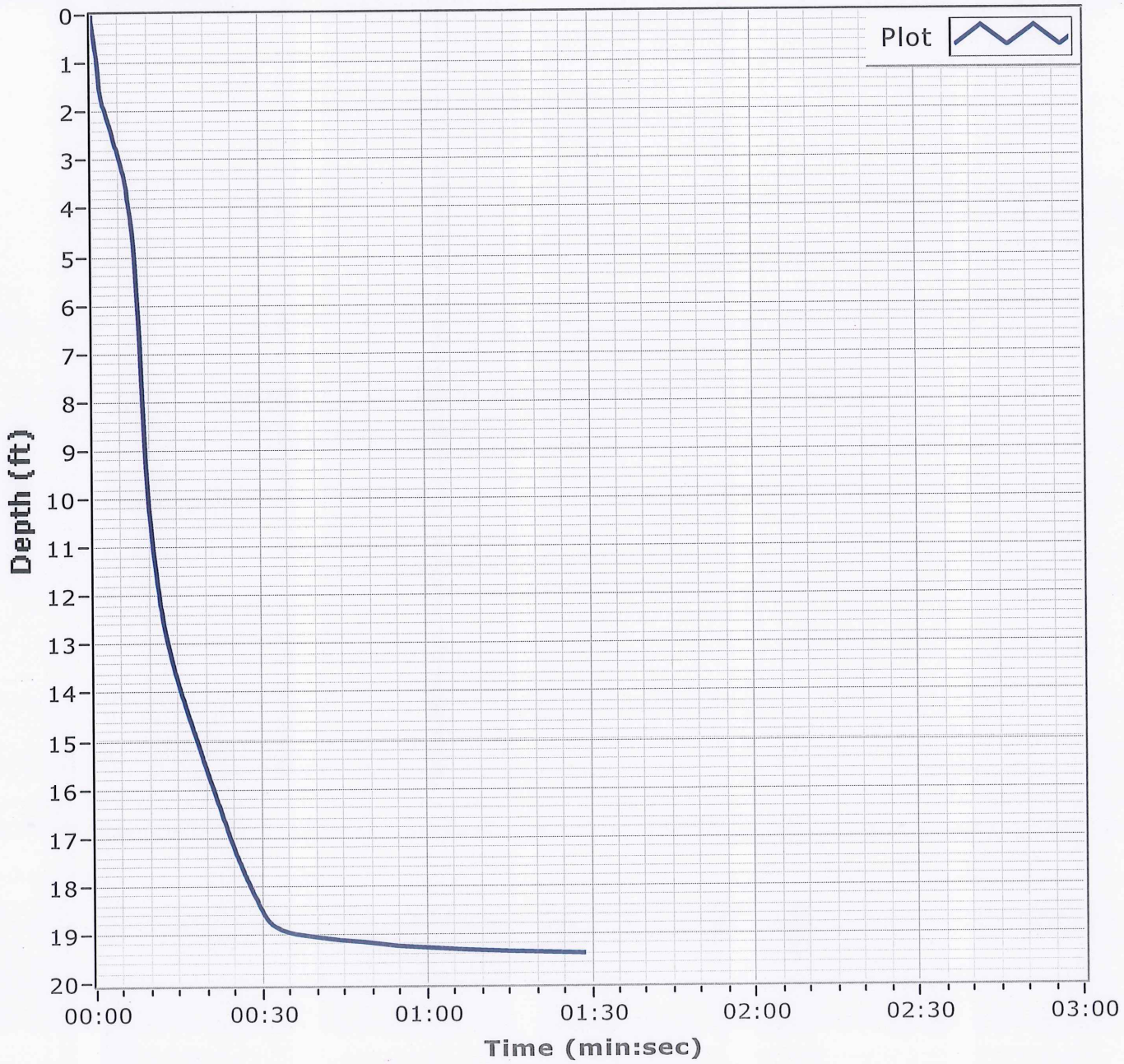
Core Identifier BI-PBS-30-12
Coordinate System
Latitude / Longitude

Latitude 30 07.861
Longitude 088 19.698

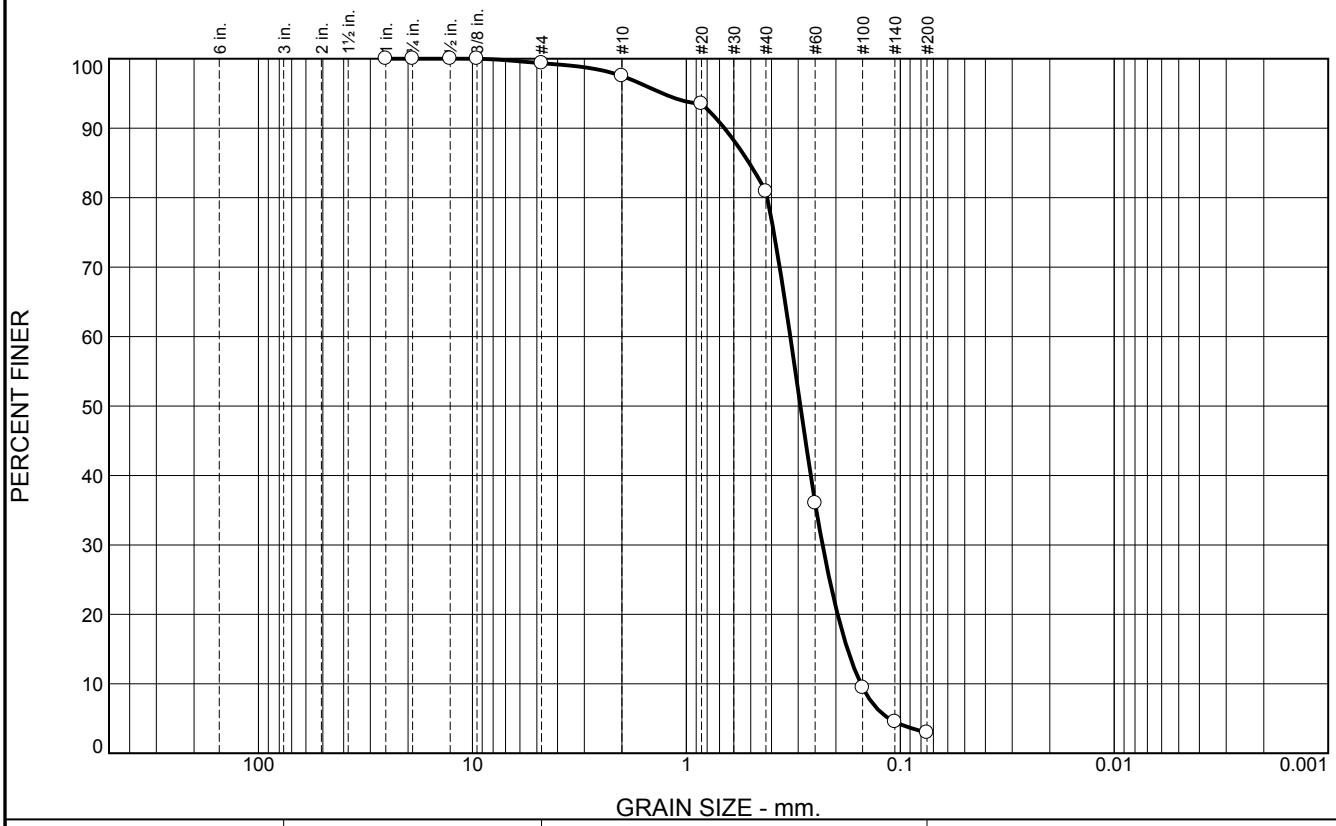
Date 11/24/2012
Start Time 12:11:23
End Time 12:12:52
Total Time 00:01:28

Water Depth 62.7'
Penetration 19.4'
Recovery 15.6'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.8	16.6	77.9	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.3		
#10	97.5		
#20	93.5		
#40	80.9		
#60	36.0		
#100	9.5		
#140	4.6		
#200	3.0		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6638 D_{85}= 0.5089 D_{60}= 0.3268
D_{50}= 0.2933 D_{30}= 0.2309 D_{15}= 0.1767
D_{10}= 0.1530 C_u= 2.14 C_c= 1.07

Classification

USCS= SP AASHTO=

Remarks

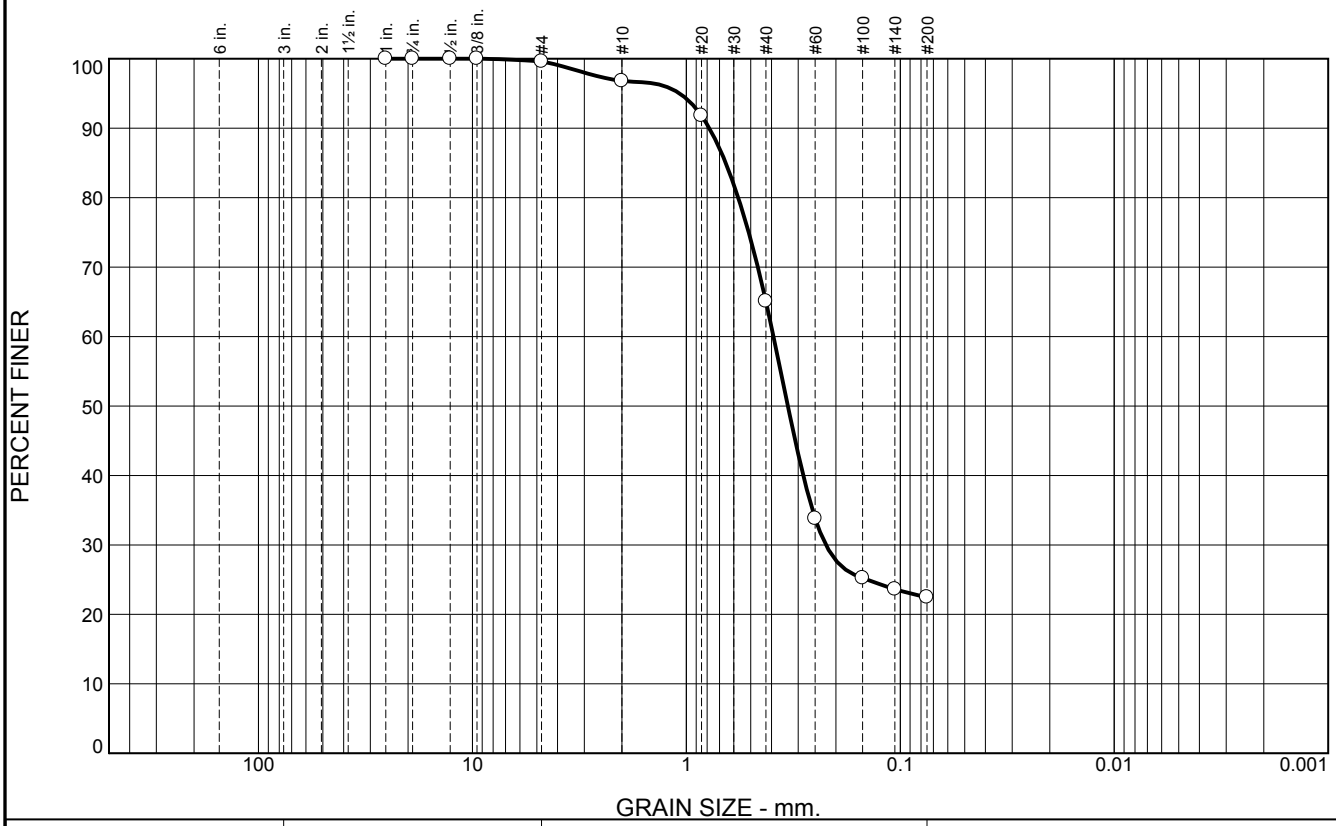
Location: BI-PBS-30-12 A
Sample Number: 6469 (43) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	2.8	31.7	42.6	22.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	96.8		
#20	91.8		
#40	65.1		
#60	33.8		
#100	25.2		
#140	23.6		
#200	22.5		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7814 D_{85}= 0.6548 D_{60}= 0.3915
D_{50}= 0.3355 D_{30}= 0.2227 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: BI-PBS-30-12 B
Sample Number: 6469 (44) **Depth:** 14.3' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-031-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-031-12 — LOCATION COORDINATES: E = 1,139,062 N = 230,856	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 55.1 Ft.
	15. DATE BORING — STARTED: 11-26-12 — COMPLETED: 11-26-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -55.5 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 19.7 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.5	0.0				
-59.2	3.7		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace clay, gray (SP-SM)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2707 mm % Fines: 2.4
-62.4	6.9		SAND, clayey, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, clay stringers, gray (SC)		
-75.2	19.7		CLAY, fat, mostly clay, trace wood debris, with silty lenses, some fine grained sand-sized quartz intermixed, medium plasticity, trace clayey sand lenses, gray with brown streaks (CH)	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13390° Long = -88.34360°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-31-12

Coordinate System
Latitude / Longitude

Latitude 30 08.034

Longitude 088 20.616

Date 11/26/2012

Start Time 09:05:03

End Time 09:06:03

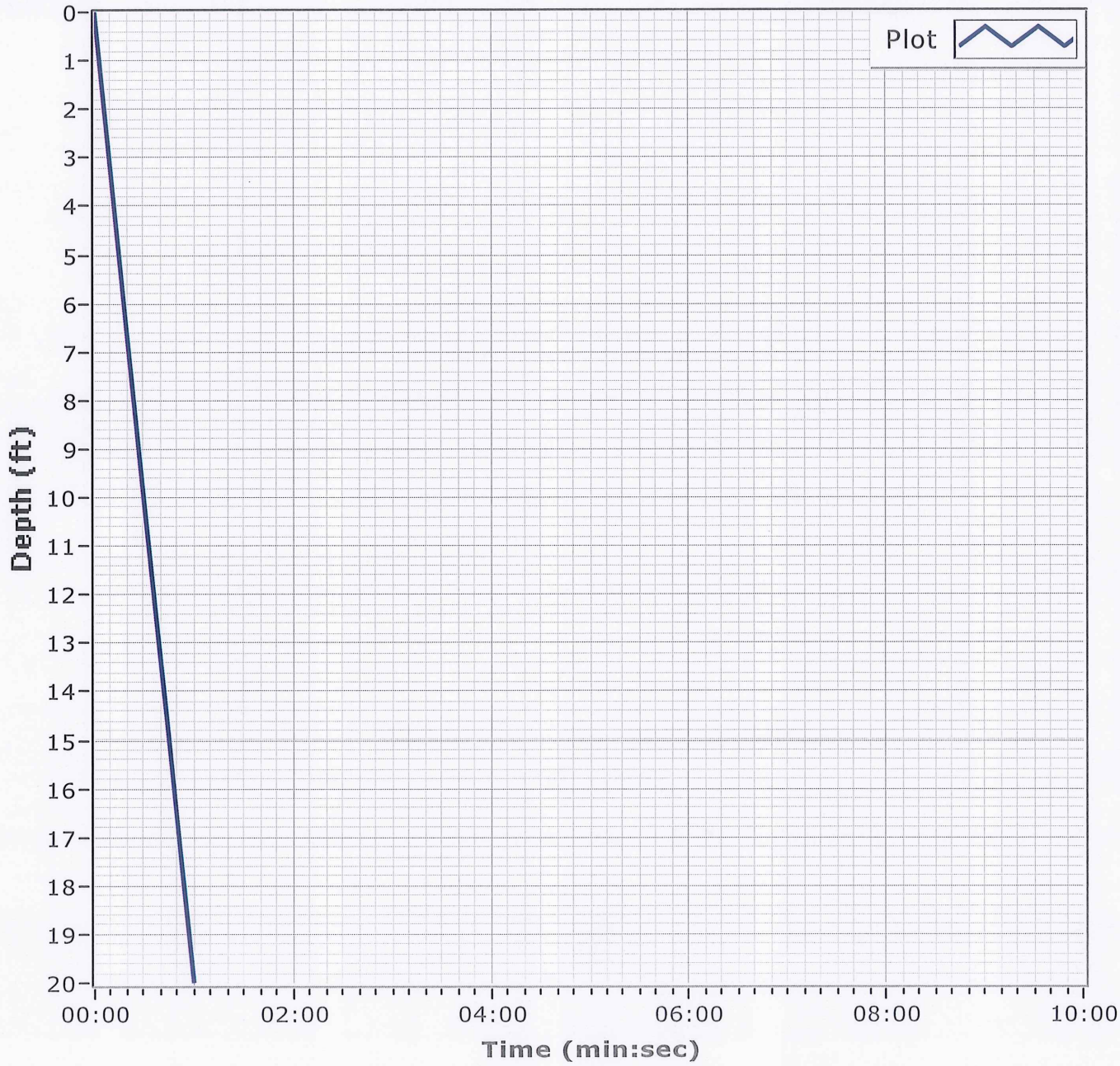
Total Time 00:01:00

Water Depth 55.1'

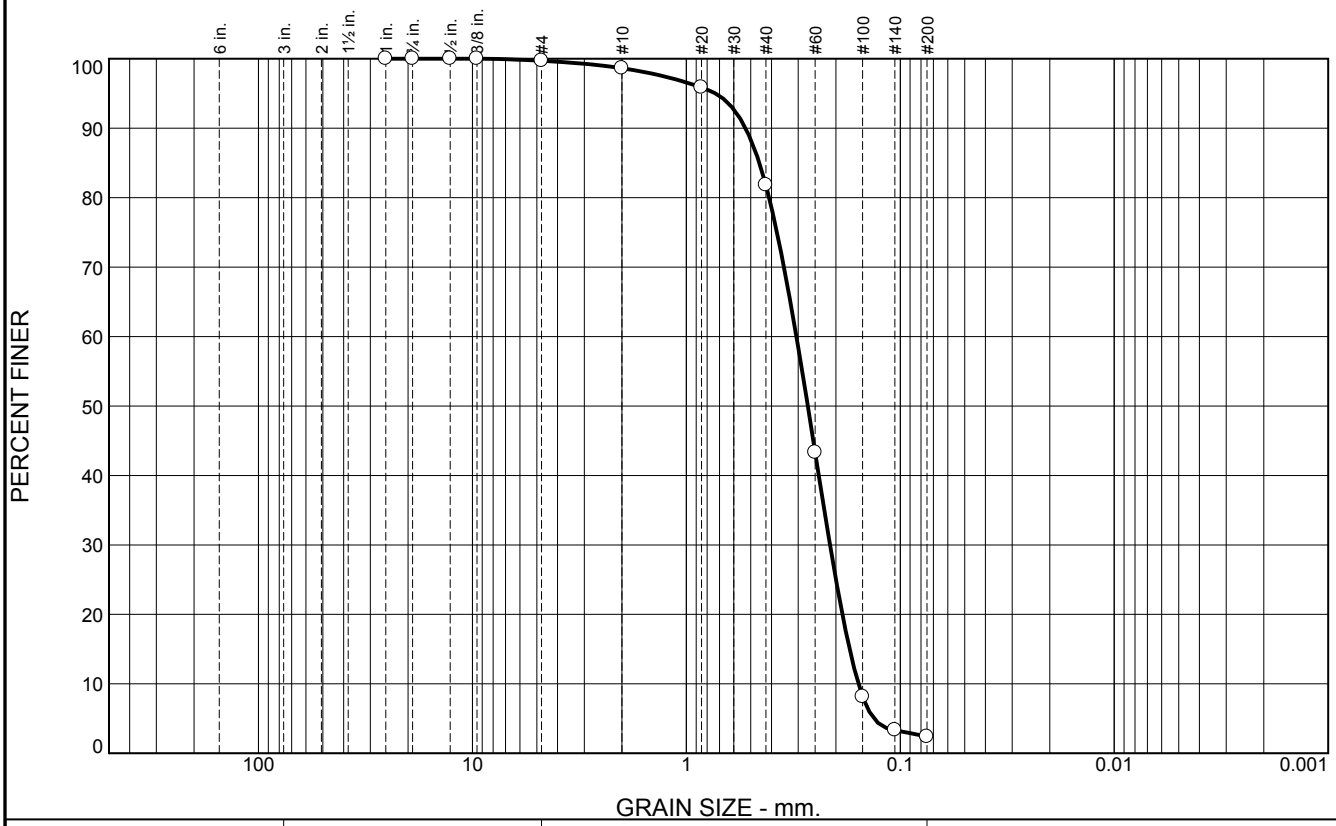
Penetration 20.0'

Recovery 19.7'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.1	16.8	79.4	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.6		
#20	95.9		
#40	81.8		
#60	43.3		
#100	8.1		
#140	3.3		
#200	2.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5289 D_{85}= 0.4558 D_{60}= 0.3060
D_{50}= 0.2707 D_{30}= 0.2131 D_{15}= 0.1727
D_{10}= 0.1570 C_u= 1.95 C_c= 0.94

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-31-12 A
Sample Number: 6469 (59) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-032-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-032-12 — LOCATION COORDINATES: E = 1,135,889 N = 224,686	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 62.8 Ft.
	15. DATE BORING — STARTED: 12-01-12 — COMPLETED: 12-01-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -62.6 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 20.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-62.6	0.0				
-62.8	0.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shells, trace silt, gray (SP)	NS	
-66.6	4.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, trace wood debris, alternating bands of clayey sand and sandy clay, gray (SC)		
-69.1	6.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2518 mm % Fines: 6.5
-75.1	12.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, trace clay stringers, gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2049 mm % Fines: 6.5
-79.2	16.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1877 mm % Fines: 9.7
-80.4	17.8		SAND, silty, mostly fine-grained sand-sized quartz, trace clay, gray (SM)	NS	
-82.6	20.0		CLAY, lean, mostly clay, some silt, trace fine-grained sand-sized quartz, trace shell fragments, gray (CL)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11697° Long = -88.35372°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,135,889 Y = 224,686	ELEVATION TOP OF BORING -62.6 Ft.		

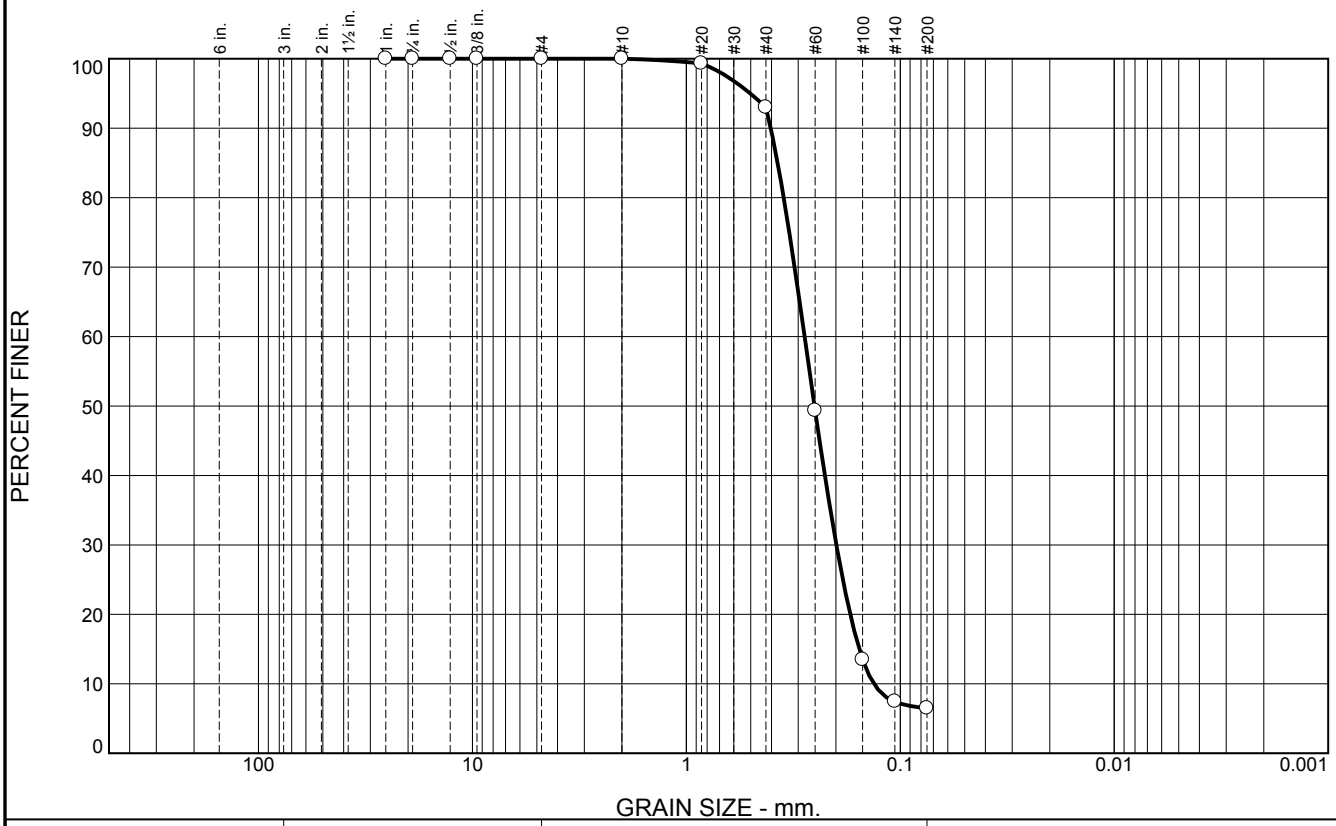
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11697° Long = -88.35372°

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.0	86.5	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	93.0		
#60	49.3		
#100	13.5		
#140	7.4		
#200	6.5		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4031 D_{85}= 0.3742 D_{60}= 0.2802
D_{50}= 0.2518 D_{30}= 0.1990 D_{15}= 0.1556
D_{10}= 0.1329 C_u= 2.11 C_c= 1.06

Classification

USCS= SP-SM AASHTO=

Remarks

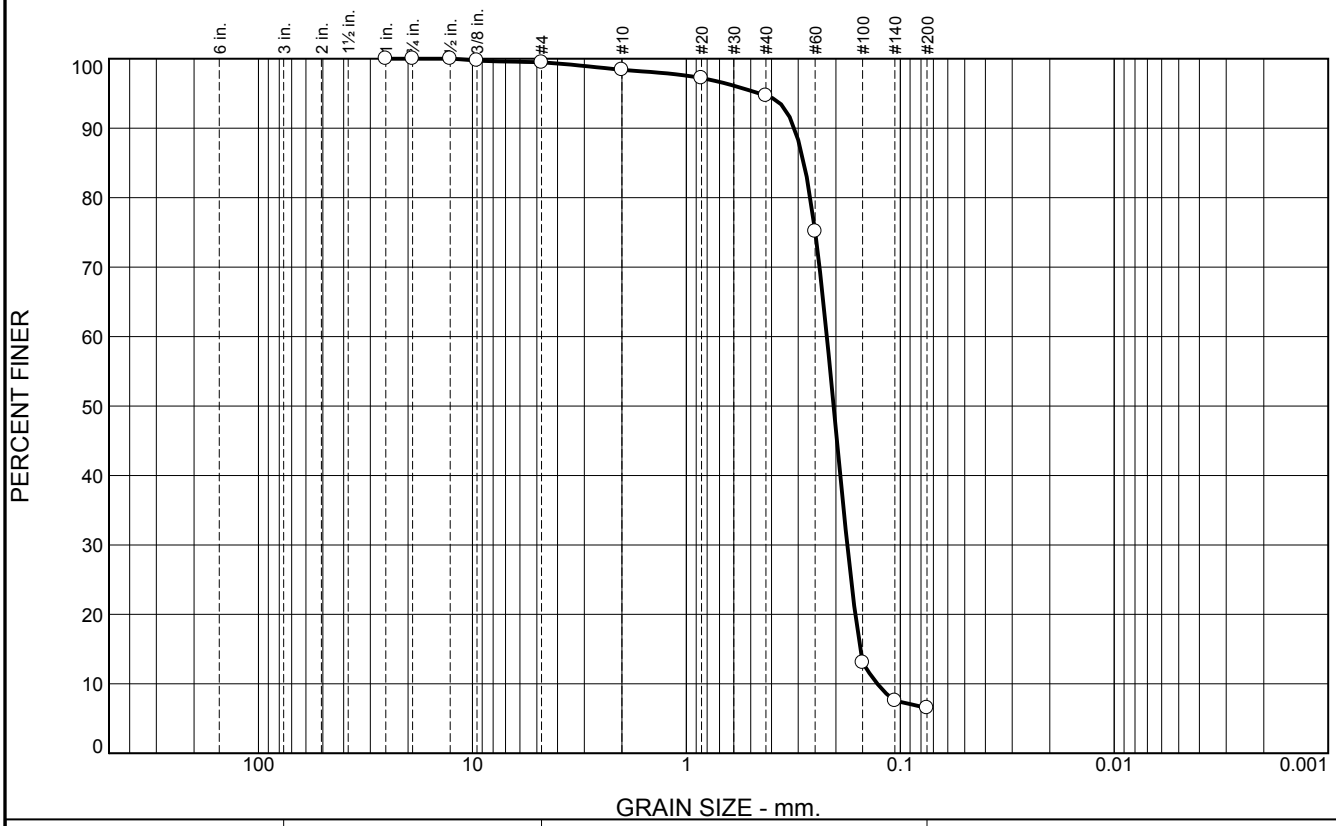
Location: BI-PBS-32-12 A
Sample Number: 6471 (7) **Depth:** 4.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.1	3.7	88.2	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.5		
#10	98.4		
#20	97.2		
#40	94.7		
#60	75.2		
#100	13.1		
#140	7.6		
#200	6.5		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3128 D_{85}= 0.2824 D_{60}= 0.2203
D_{50}= 0.2049 D_{30}= 0.1771 D_{15}= 0.1539
D_{10}= 0.1279 C_u= 1.72 C_c= 1.11

Classification

USCS= SP-SM AASHTO=

Remarks

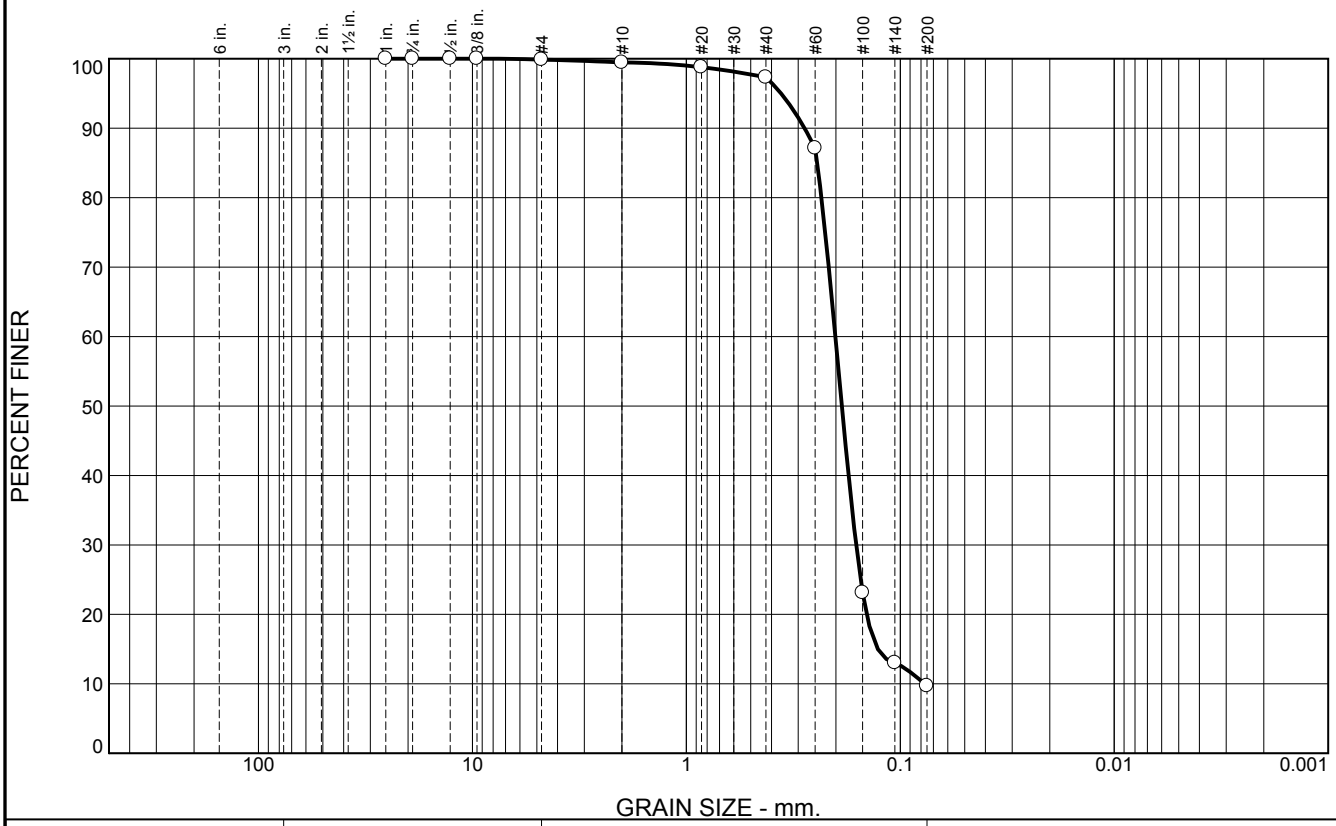
Location: BI-PBS-32-12 B
Sample Number: 6471 (8) **Depth:** 9.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	2.2	87.6	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.8		
#40	97.3		
#60	87.1		
#100	23.1		
#140	13.0		
#200	9.7		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2805 D_{85}= 0.2445 D_{60}= 0.2011
D_{50}= 0.1877 D_{30}= 0.1610 D_{15}= 0.1274
D_{10}= 0.0770 C_u= 2.61 C_c= 1.67

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-32-12 C
Sample Number: 6471 (9) **Depth:** 12.5' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-033-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-033-12
LOCATION COORDINATES	E = 1,134,464 N = 222,938
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	17.0 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	64.1 Ft.
15. DATE BORING	STARTED 12-07-12; COMPLETED 12-07-12
16. ELEVATION TOP OF BORING	-63.4 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-63.4	0.0				
-65.5	2.1		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium to high plasticity, orange, greenish gray, and gray mottle (CH)		
-67.8	4.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, clay content decreases with depth, orange, greenish gray, and gray mottle (SC)		
-72.9	9.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, lttle clay nodules, organic content between 4.4 - 4.8 ft., gray (SM)	NS	
-73.6	10.2		CLAY, fat, mostly clay, few shells, medium to high plasticity, gray (CH)		
-75.4	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)		
-76.4	13.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-80.4	17.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from 2013 USGS geophysical survey.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11218° Long = -88.35825°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-33-12

Coordinate System
Latitude / Longitude

Latitude 30 06.731

Longitude 088 21.495

Date 12/07/2012

Start Time 09:25:30

End Time 09:30:20

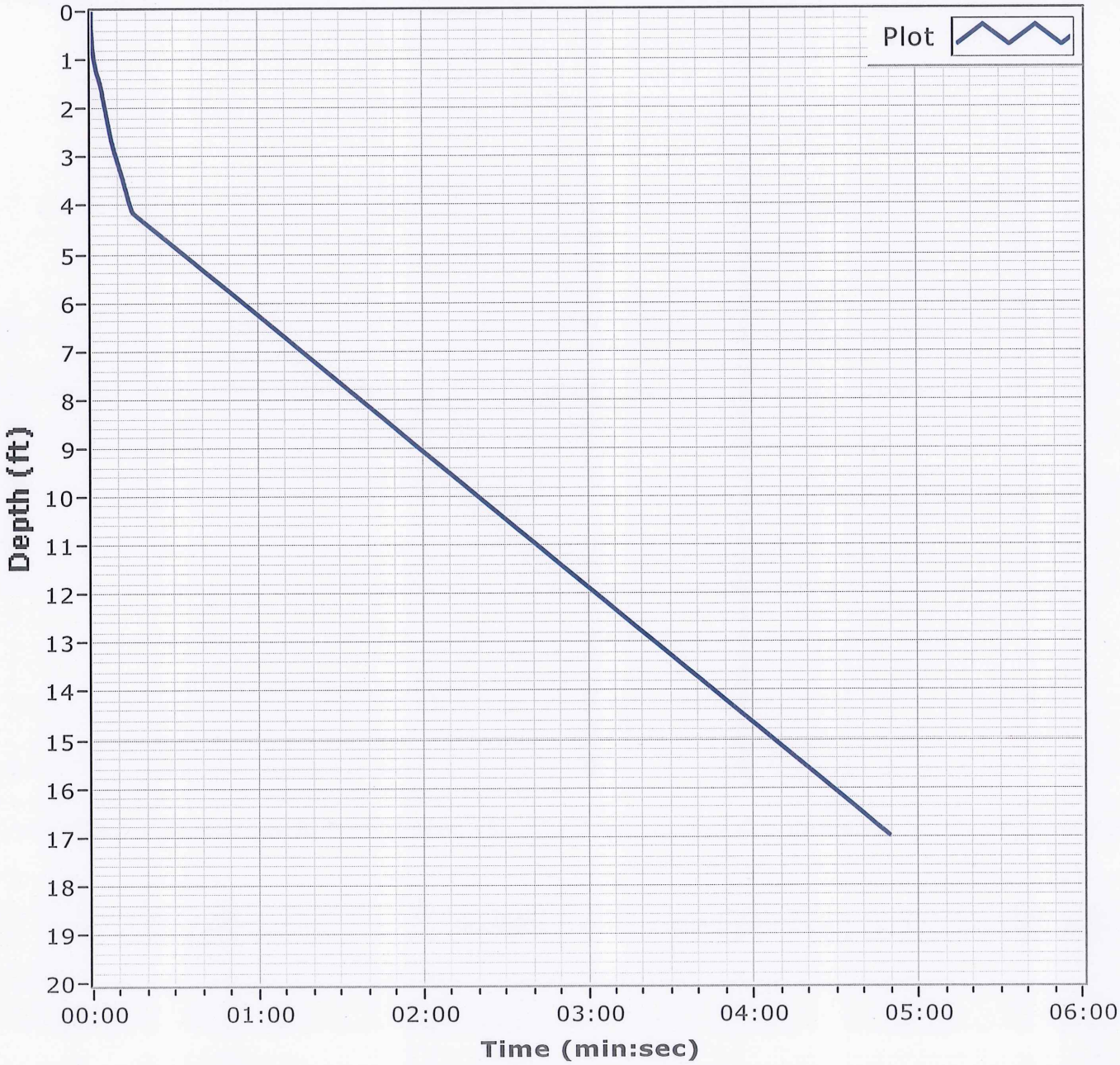
Total Time 00:04:50

Water Depth 64.1'

Penetration 17.0'

Recovery 17.0'

Comments



Boring Designation BI-PBS-034-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-034-12
LOCATION COORDINATES	E = 1,131,178 N = 224,666
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	16.4 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	51.4 Ft.
15. DATE BORING	STARTED 12-09-12; COMPLETED 12-09-12
16. ELEVATION TOP OF BORING	-51.7 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.7	0.0				
-56.7	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace fines, occasional shelly layers, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2693 mm % Fines: 1.5
-58.6	6.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2581 mm % Fines: 2.1
-63.0	11.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, shelly at 6.9 to 7.3 ft., gray (SP-SM)	C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2229 mm % Fines: 4.3
-66.7	15.0		CLAY, fat, mostly clay, some fine-grained sand-sized quartz, medium to high plasticity, very stiff, gray, greenish gray, orangy brown mottle (CH)	NS	
-68.1	16.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from 12/17/2014 USACE survey.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11697° Long = -88.36862°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-34-12

Coordinate System
Latitude / Longitude

Latitude 30 07.018

Longitude 088 22.117

Date 12/09/2012

Start Time 10:19:08

End Time 10:21:26

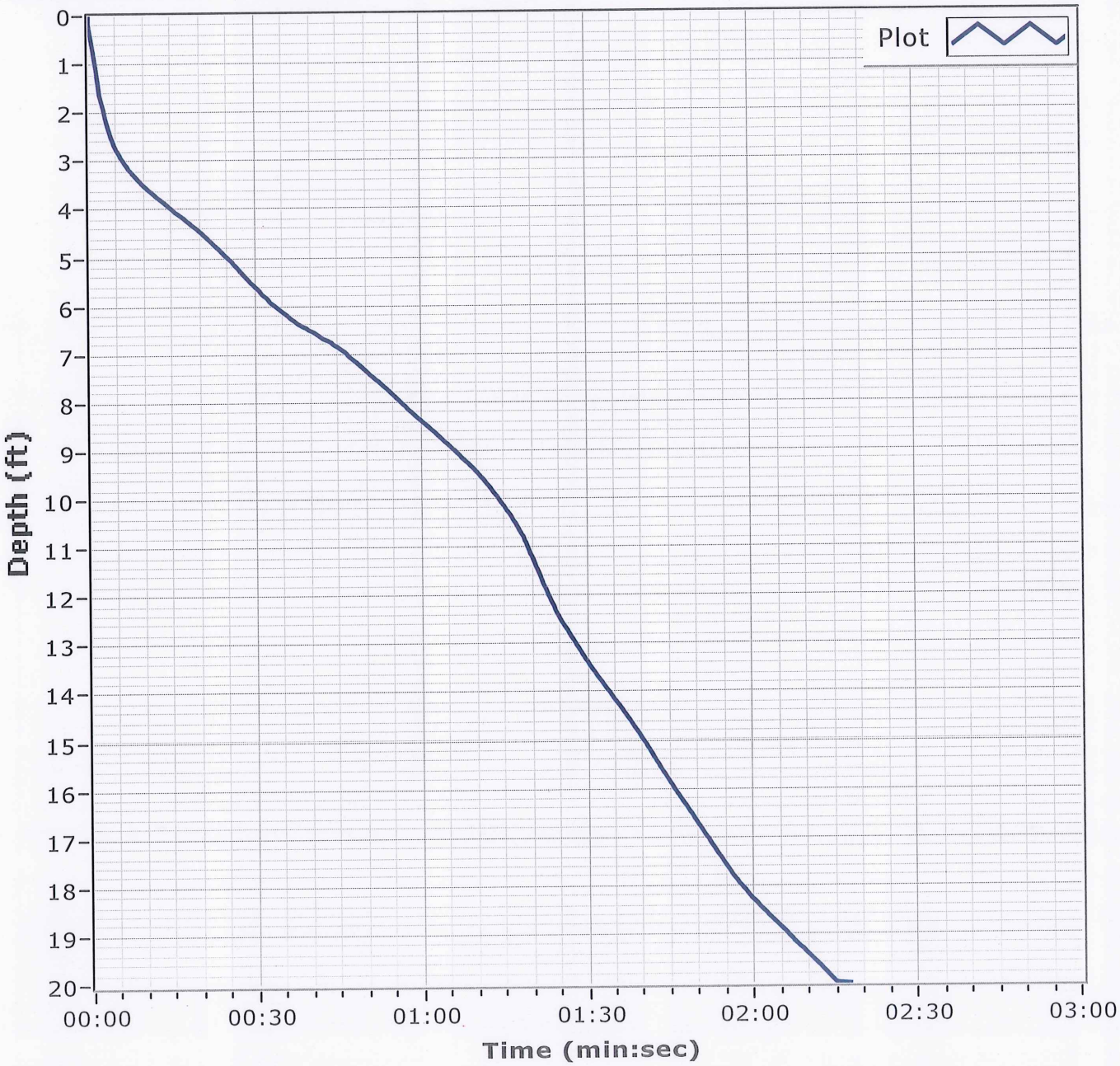
Total Time 00:02:17

Water Depth 51.4'

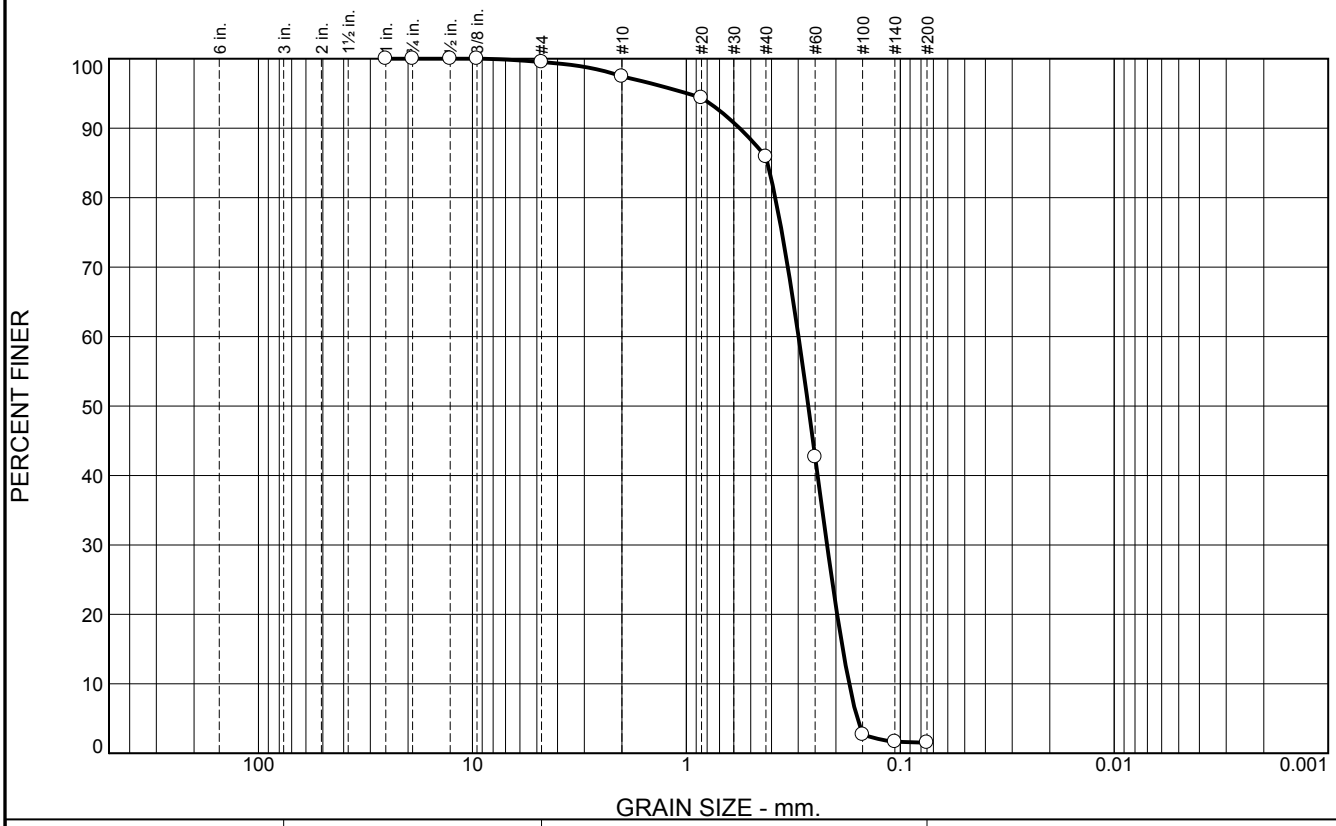
Penetration 20.0'

Recovery 16.4'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.1	11.5	84.4	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.4		
#20	94.4		
#40	85.9		
#60	42.7		
#100	2.7		
#140	1.7		
#200	1.5		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5641 D_{85}= 0.4177 D_{60}= 0.2992
D_{50}= 0.2693 D_{30}= 0.2199 D_{15}= 0.1858
D_{10}= 0.1735 C_u= 1.72 C_c= 0.93

Classification

USCS= SP AASHTO=

Remarks

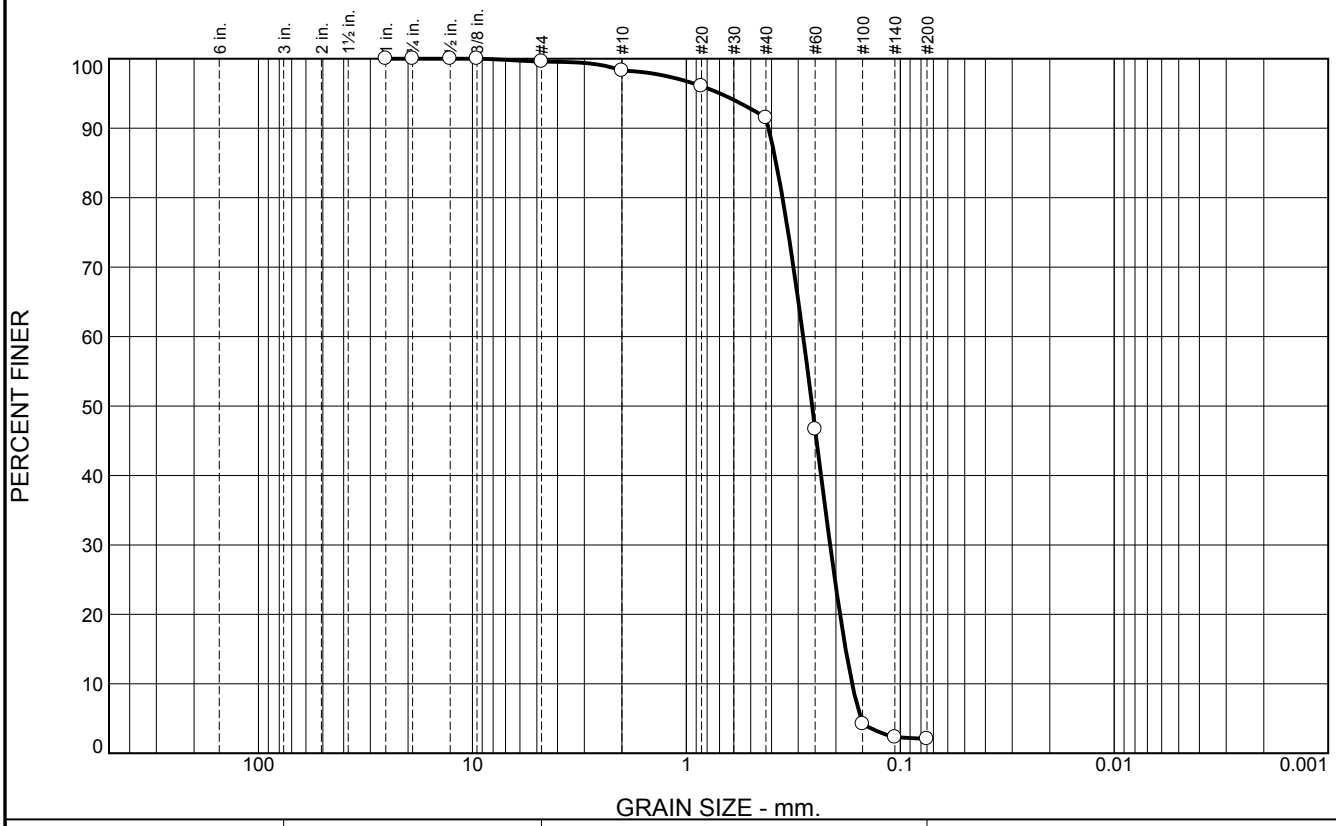
Location: BI-PBS-34-12 A
Sample Number: 6482 (41) **Depth:** 0.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.3	6.8	89.4	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.3		
#20	96.1		
#40	91.5		
#60	46.7		
#100	4.2		
#140	2.3		
#200	2.1		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4127 D_{85}= 0.3802 D_{60}= 0.2846
D_{50}= 0.2581 D_{30}= 0.2128 D_{15}= 0.1802
D_{10}= 0.1681 C_u= 1.69 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

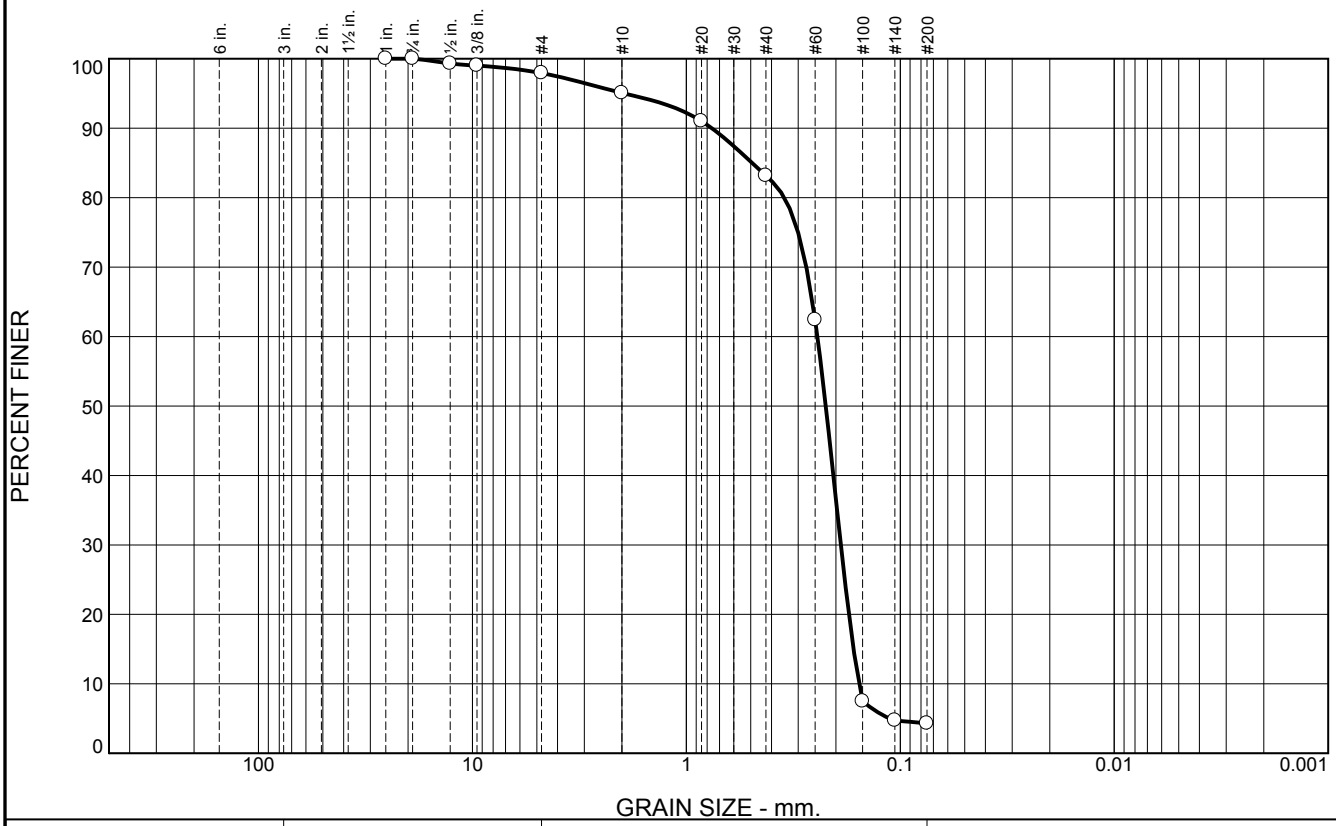
Location: BI-PBS-34-12 B
Sample Number: 6482 (42) **Depth:** 5.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	2.8	11.9	78.9	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.3		
.375	99.0		
#4	97.9		
#10	95.1		
#20	91.0		
#40	83.2		
#60	62.4		
#100	7.5		
#140	4.7		
#200	4.3		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace shell

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7613 D_{85}= 0.4931 D_{60}= 0.2440
D_{50}= 0.2229 D_{30}= 0.1897 D_{15}= 0.1655
D_{10}= 0.1559 C_u= 1.56 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-34-12 C
Sample Number: 6482 (43) **Depth:** 6.9' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-035-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-035-12 — LOCATION COORDINATES: E = 1,129,112 N = 223,570	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 62.6 Ft.
	15. DATE BORING — STARTED: 12-09-12 — COMPLETED: 12-09-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -61.4 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 20.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-61.4	0.0				
-65.8	4.4		CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, pockets of trace fine-grained, sand-sized quartz, dark gray (CH)		
-68.0	6.6		CLAY, fat, mostly clay, medium to high plasticity, pockets of trace fine-grained, sand-sized quartz, greenish gray, orangy brown, gray mottle (CH)		
-69.8	8.4		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace wood debris, brownish gray (SM)		
-74.3	12.9		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, some shell fragments, trace wood debris, low to medium plasticity, gray (CL)	NS	
-81.1	19.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)		
-81.4	20.0		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL)		

NOTES:

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

2. NS = Sample not submitted for laboratory

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11398° Long = -88.37517°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,129,112 Y = 223,570	ELEVATION TOP OF BORING -61.4 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11398° Long = -88.37517°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-35-12

Coordinate System
Latitude / Longitude

Latitude 30 06.839

Longitude 088 22.510

Date 12/09/2012

Start Time 15:09:12

End Time 15:10:01

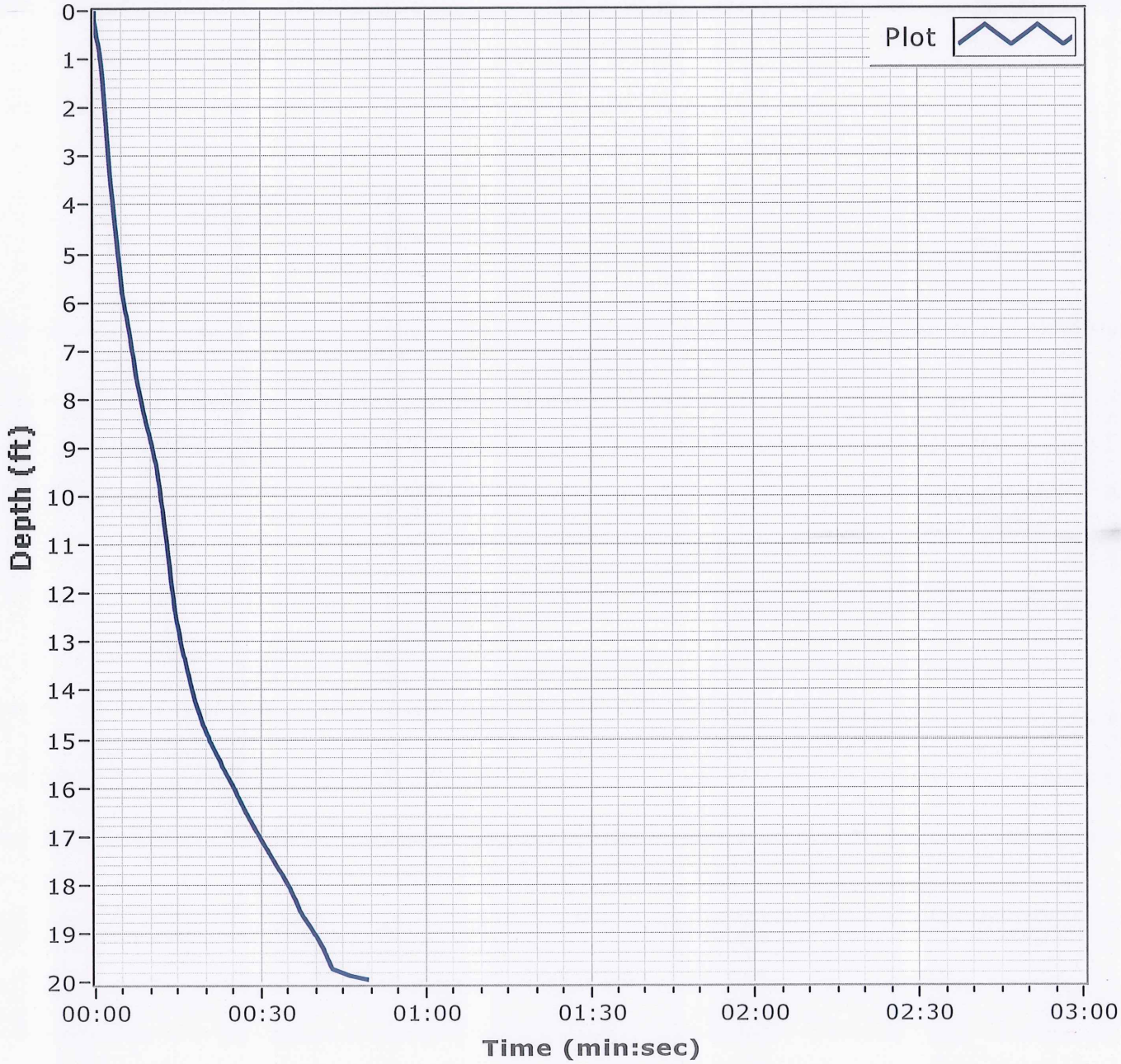
Total Time 00:00:49

Water Depth 62.6'

Penetration 20.0'

Recovery 20.0'

Comments



Boring Designation BI-PBS-036-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-036-12
LOCATION COORDINATES	E = 1,134,315 N = 226,116
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	13.7 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	63.9 Ft.
15. DATE BORING	STARTED 12-09-12; COMPLETED 12-09-12
16. ELEVATION TOP OF BORING	-62.8 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-62.8	0.0				
-65.8	3.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, shell hash at 2.6 ft., becomes siltier with depth, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.315 mm % Fines: 2.9
-66.5	3.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, dark brown (SP-SM)	NS	
-71.5	8.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)		
-73.5	10.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		
-76.5	13.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.12092° Long = -88.35868°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

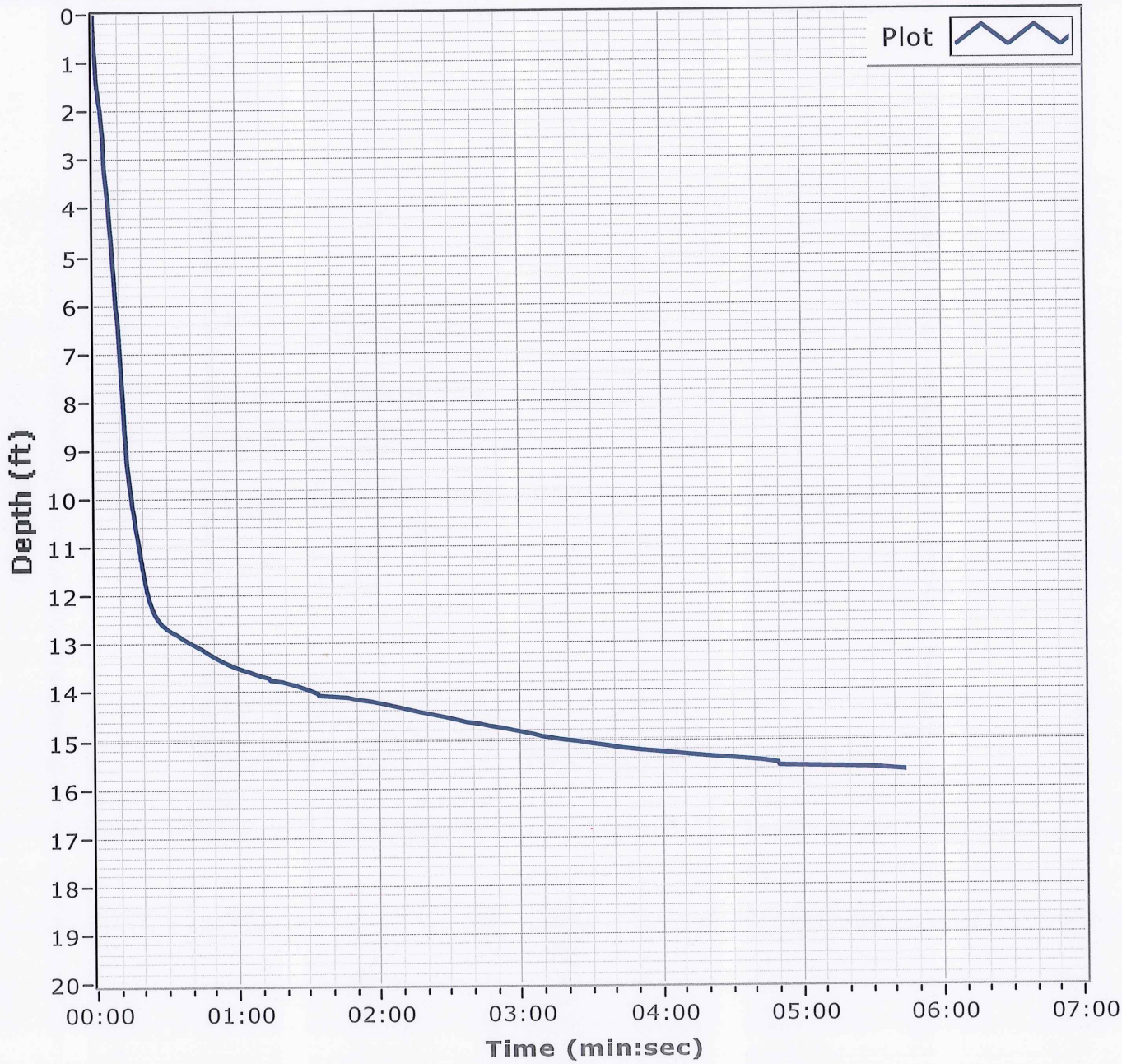
Core Identifier BI-PBS-36-12
Coordinate System
Latitude / Longitude

Latitude 30 07.255
Longitude 088 21.521

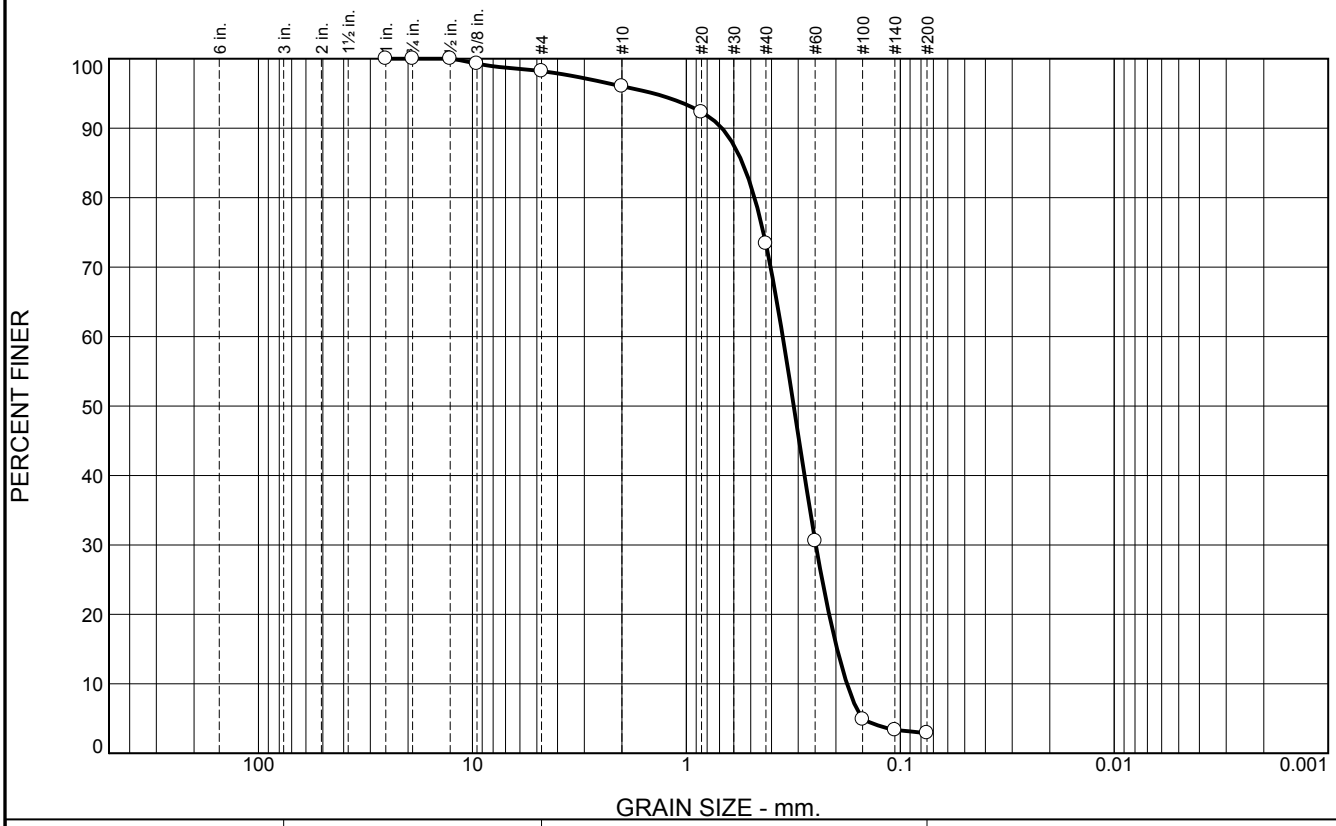
Date 12/09/2012
Start Time 14:36:25
End Time 14:42:09
Total Time 00:05:44

Water Depth 63.9'
Penetration 15.7'
Recovery 13.7'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	2.2	22.6	70.5	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.3		
#4	98.2		
#10	96.0		
#20	92.3		
#40	73.4		
#60	30.6		
#100	4.9		
#140	3.4		
#200	2.9		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6821 D_{85}= 0.5464 D_{60}= 0.3543
D_{50}= 0.3150 D_{30}= 0.2482 D_{15}= 0.1974
D_{10}= 0.1776 C_u= 1.99 C_c= 0.98

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-36-12 A
Sample Number: 6482 (44) **Depth:** 0.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-037-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-037-12 — LOCATION COORDINATES: E = 1,132,652 N = 225,247	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 61.7 Ft.
	15. DATE BORING — STARTED: 12-09-12 — COMPLETED: 12-09-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -62.3 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 20.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-62.3	0.0				
-65.3	3.0		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium to high plasticity, gray, brown, greenish gray mottle (CH)		
-67.5	5.2		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, medium to high plasticity, dark gray (CH)		
-71.8	9.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, gray (SM)		
-82.3	20.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, silt content decreases with depth, gray (SP-SM)	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11855° Long = -88.36395°

Boring Designation BI-PBS-037-12

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,132,652 Y = 225,247	ELEVATION TOP OF BORING -62.3 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			12/17/2014 USACE survey.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11855° Long = -88.36395°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

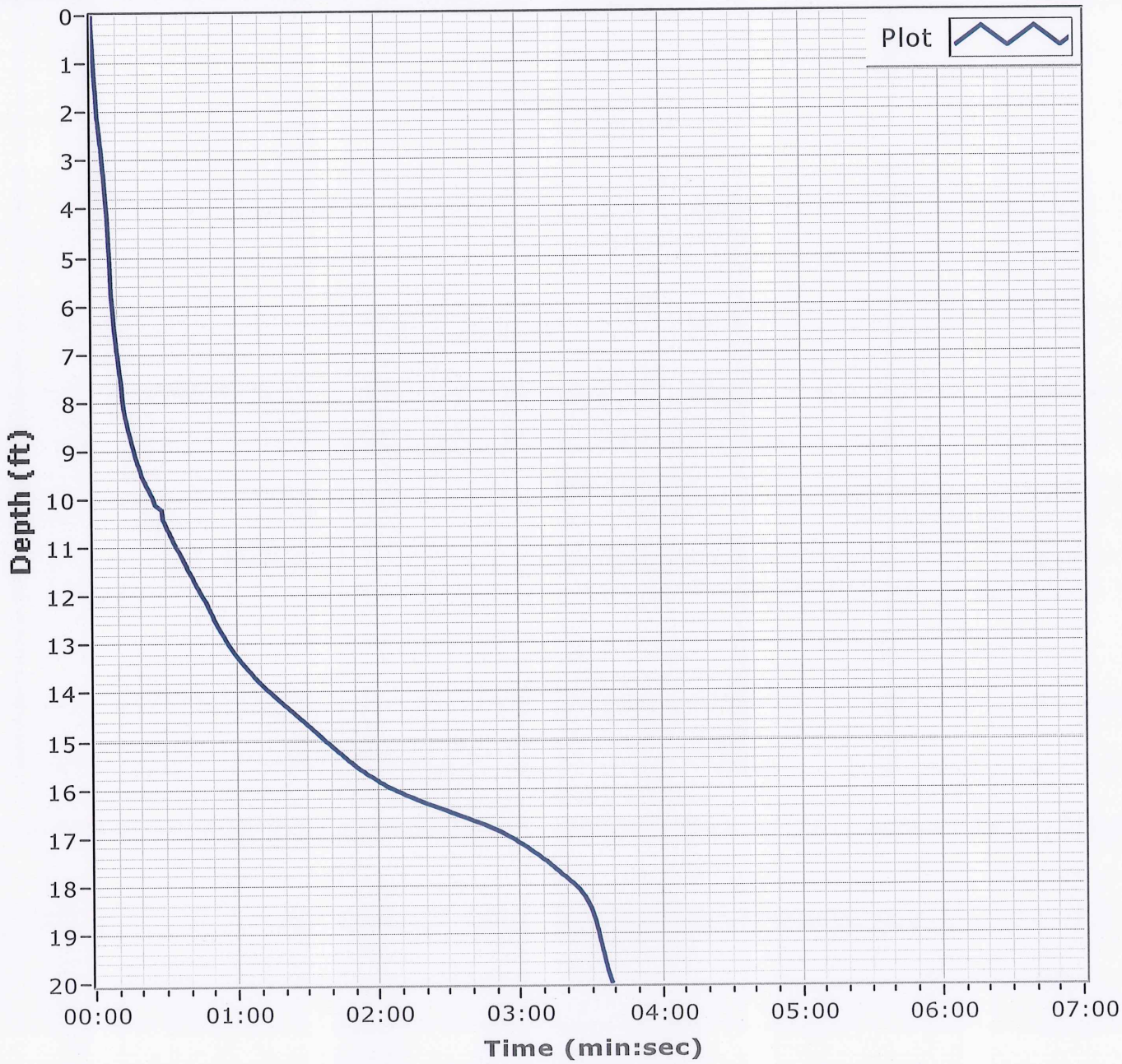
Core Identifier BI-PBS-37-12
Coordinate System
Latitude / Longitude

Latitude 30 07.113
Longitude 088 21.837

Date 12/09/2012
Start Time 09:46:28
End Time 09:50:07
Total Time 00:03:39

Water Depth 61.7'
Penetration 20.0'
Recovery 20.0'

Comments



Boring Designation BI-PBS-038-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-038-12 — LOCATION COORDINATES: E = 1,130,193 N = 225,226	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 50.6 Ft.
	15. DATE BORING — STARTED: 12-09-12 — COMPLETED: 12-09-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -50.1 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 19.1 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.1	0.0				
-55.1	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, dense, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2949 mm % Fines: 1.2
-59.2	9.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, dense, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2214 mm % Fines: 3.7
-60.1	10.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few shell fragments, gray (SM)	NS	
-63.2	13.1		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium to high plasticity, dark gray (CH)		
-69.2	19.1		SILT, inorganic-L, mostly silt, some clay, little fine-grained sand-sized quartz, few shell fragments, gray (ML)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from 12/17/2014 USACE survey.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11852° Long = -88.37173°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-38-12

Coordinate System
Latitude / Longitude

Latitude 30 07.111

Longitude 088 22.304

Date 12/09/2012

Start Time 10:55:00

End Time 10:59:46

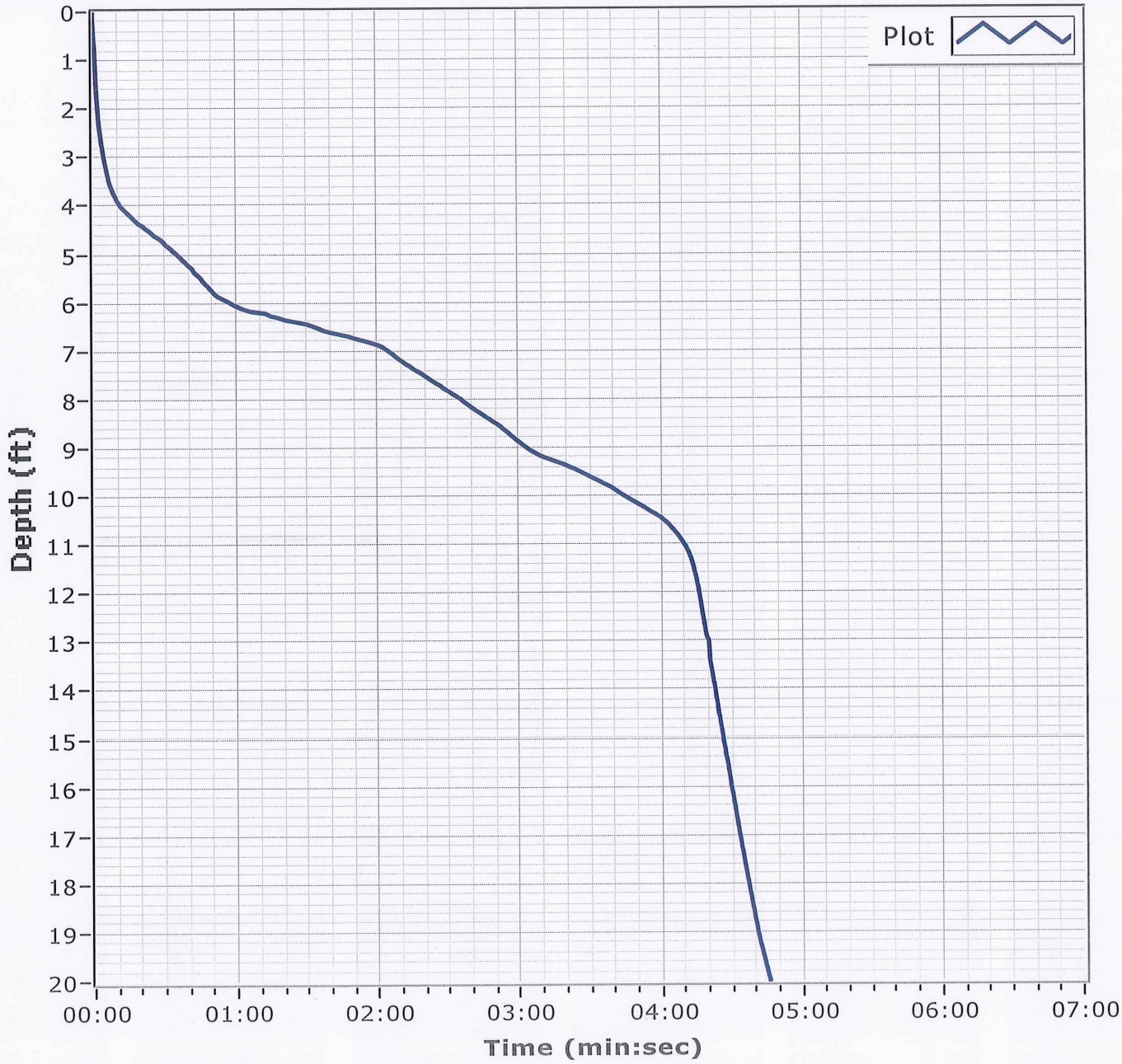
Total Time 00:04:46

Water Depth 50.6'

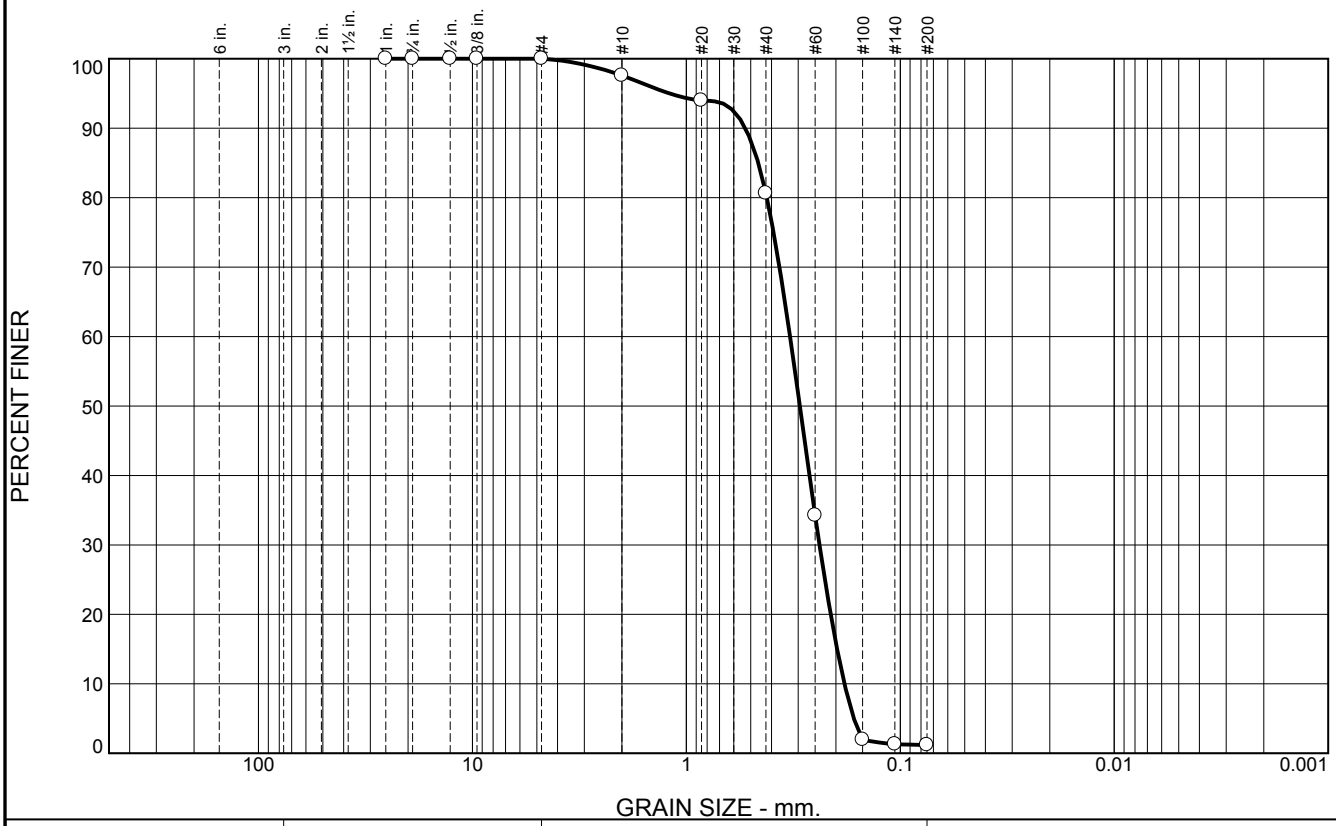
Penetration 20.0'

Recovery 19.1'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.4	17.0	79.4	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	97.6		
#20	94.0		
#40	80.6		
#60	34.2		
#100	2.0		
#140	1.3		
#200	1.2		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5300 D_{85}= 0.4613 D_{60}= 0.3277
D_{50}= 0.2949 D_{30}= 0.2385 D_{15}= 0.1974
D_{10}= 0.1824 C_u= 1.80 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

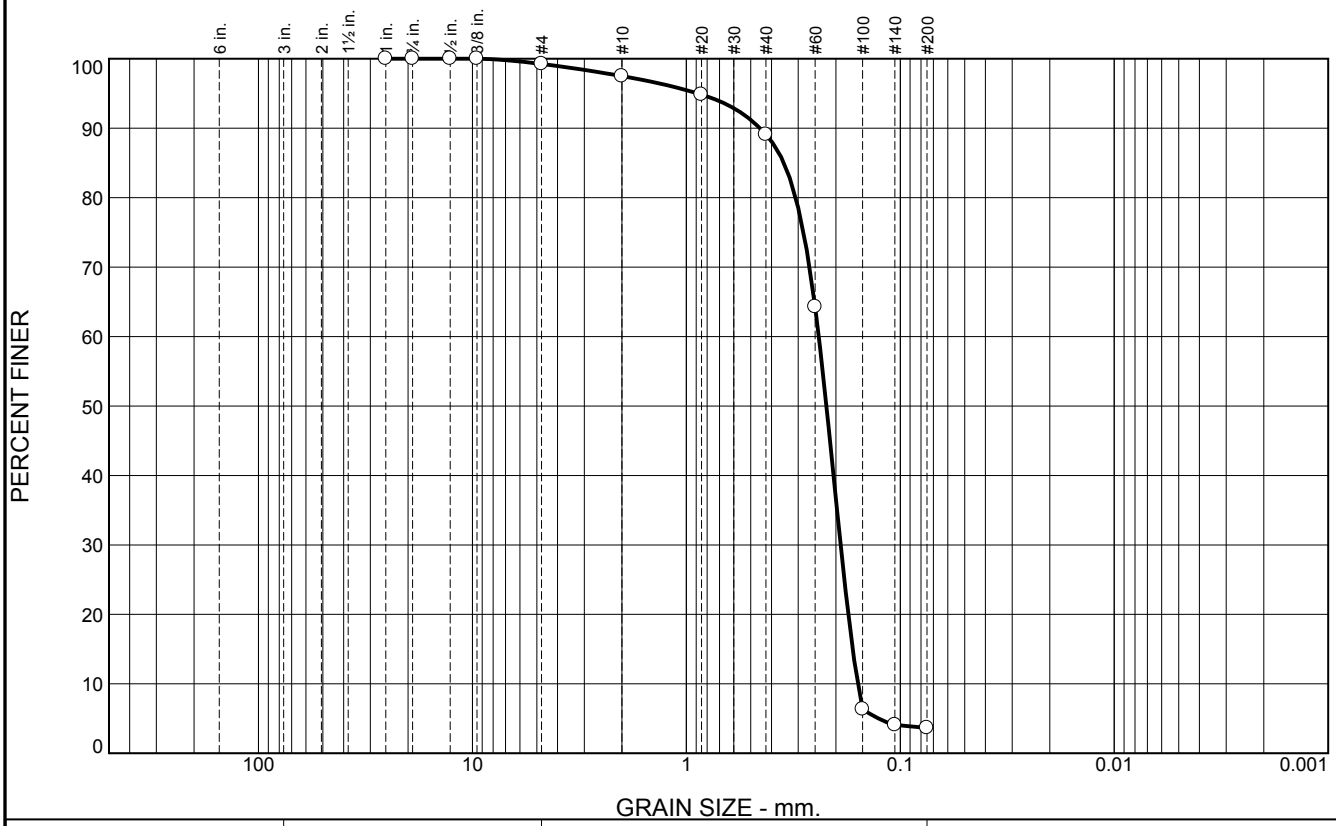
Location: BI-PBS-38-12 A
Sample Number: 6482 (45) **Depth:** 0.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.7	8.4	85.4	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.5		
#20	94.8		
#40	89.1		
#60	64.3		
#100	6.3		
#140	4.1		
#200	3.7		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4534 D_{85}= 0.3499 D_{60}= 0.2403
D_{50}= 0.2214 D_{30}= 0.1901 D_{15}= 0.1671
D_{10}= 0.1582 C_u= 1.52 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-38-12 B
Sample Number: 6482 (46) **Depth:** 5.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-039-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-039-12 — LOCATION COORDINATES: E = 1,129,313 N = 226,171	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 49.2 Ft.
	15. DATE BORING — STARTED: 12-09-12 — COMPLETED: 12-09-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -49.4 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 15.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.4	0.0				
-54.4	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3064 mm % Fines: 1.1
-57.5	8.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2592 mm % Fines: 1.6
-58.5	9.1		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little shell fragments, few clay, gray (SP-SC)	NS	
-62.1	12.7		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace pockets of fine-grained, sand-sized quartz, orangy brown, gray, greenish gray mottle (CH)		
-63.1	13.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some shell fragments, gray (SC)		
-64.0	14.6				
-64.4	15.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, gray (SM)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from 12/17/2014 USACE survey.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.12113° Long = -88.37450°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

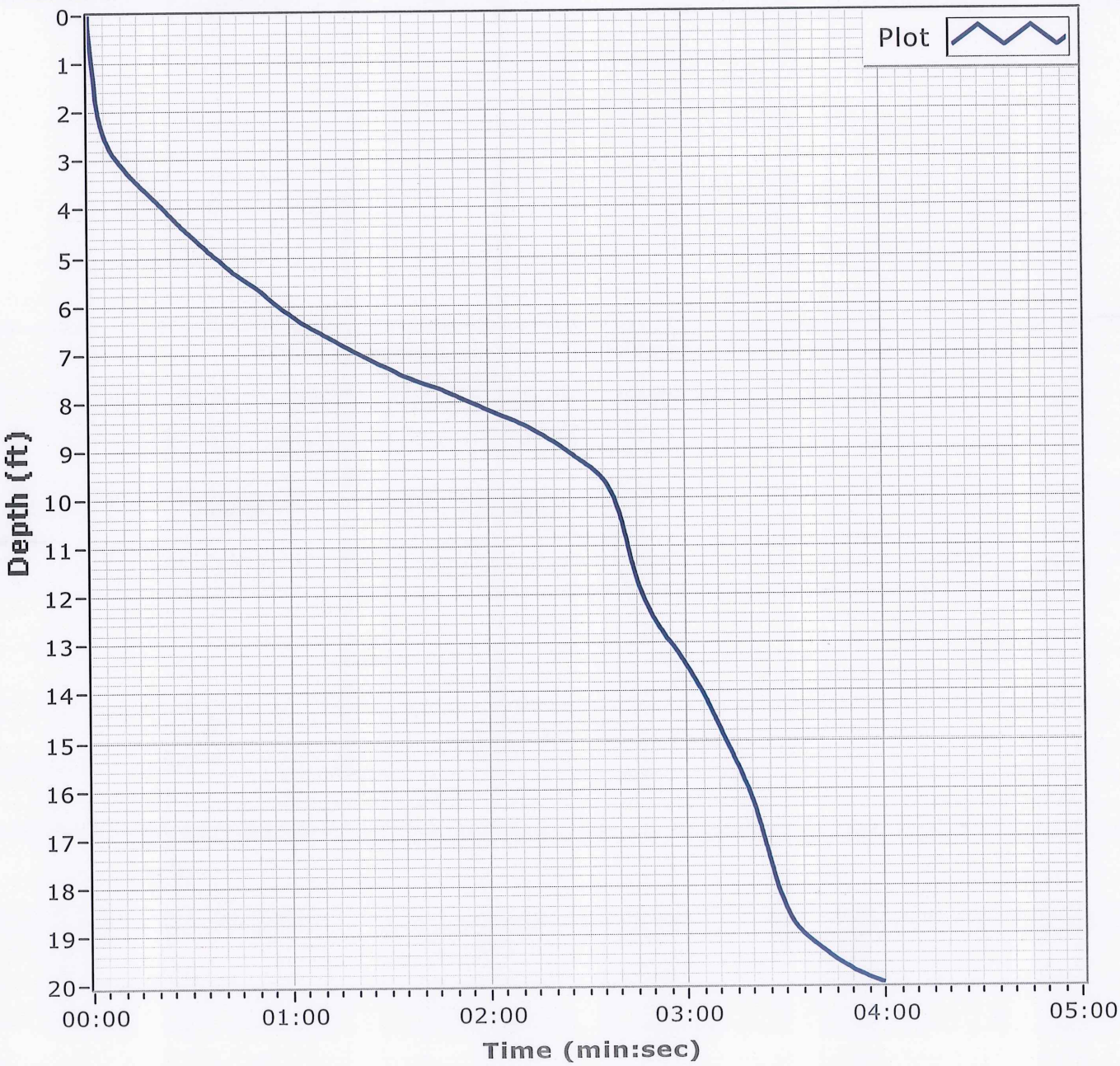
Core Identifier BI-PBS-39-12
Coordinate System
Latitude / Longitude

Latitude 30 07.268
Longitude 088 22.470

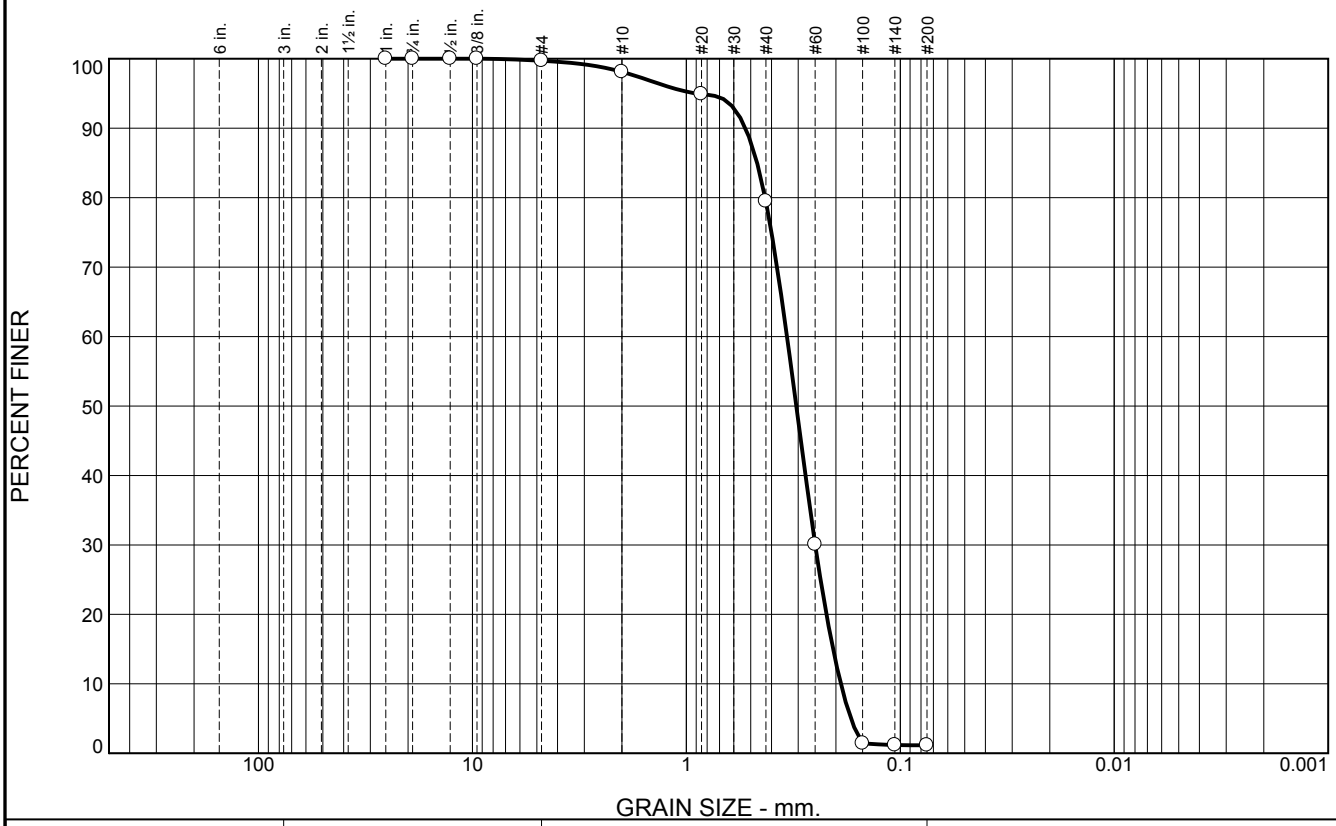
Date 12/09/2012
Start Time 11:32:37
End Time 11:36:36
Total Time 00:03:59

Water Depth 49.2'
Penetration 20.0'
Recovery 15.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.6	18.6	78.4	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.1		
#20	94.9		
#40	79.5		
#60	30.1		
#100	1.4		
#140	1.2		
#200	1.1		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5294 D_{85}= 0.4671 D_{60}= 0.3385
D_{50}= 0.3064 D_{30}= 0.2498 D_{15}= 0.2062
D_{10}= 0.1898 C_u= 1.78 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

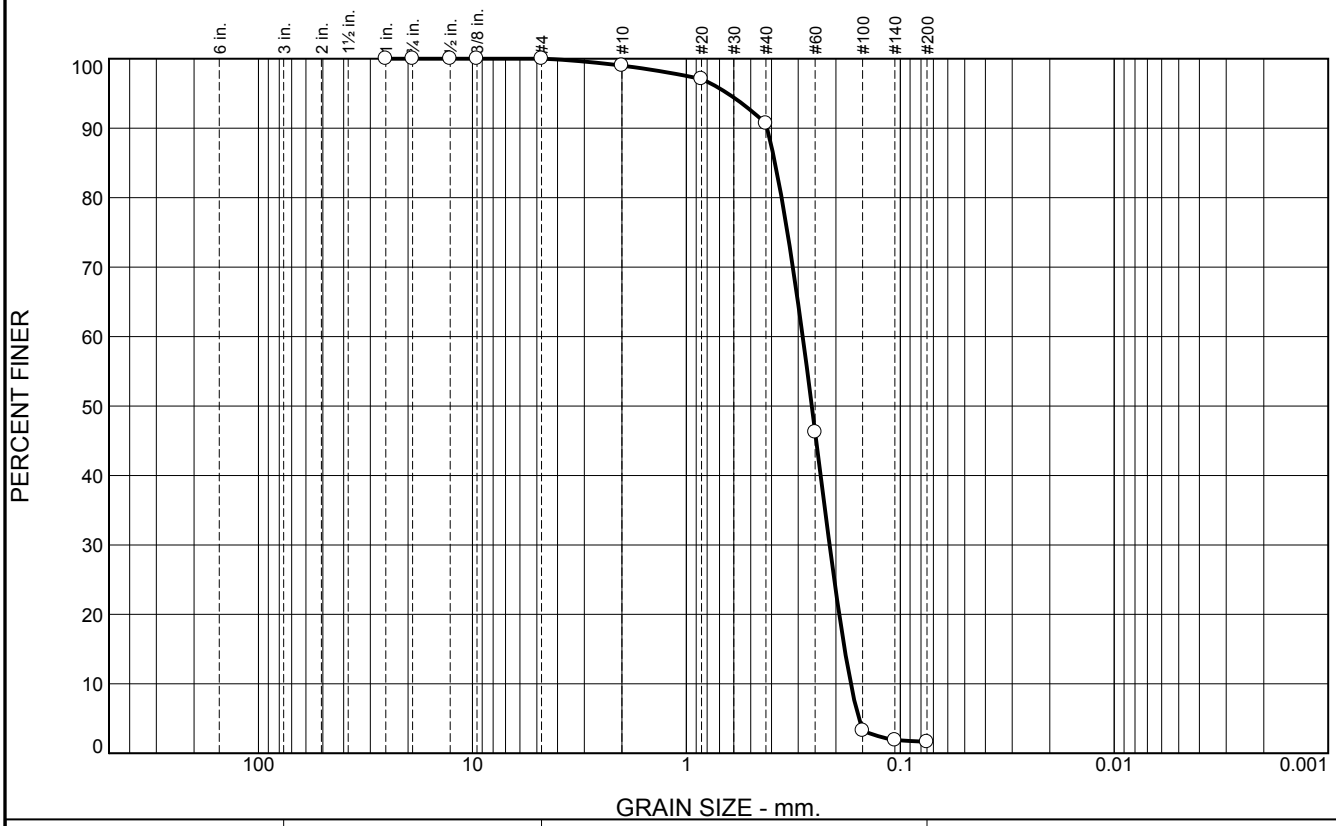
Location: BI-PBS-39-12 A
Sample Number: 6482 (47) **Depth:** 0.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	8.3	89.1	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.0		
#20	97.1		
#40	90.7		
#60	46.2		
#100	3.3		
#140	1.9		
#200	1.6		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4193 D_{85}= 0.3849 D_{60}= 0.2860
D_{50}= 0.2592 D_{30}= 0.2141 D_{15}= 0.1822
D_{10}= 0.1705 C_u= 1.68 C_c= 0.94

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-39-12 B
Sample Number: 6482 (48) **Depth:** 5.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-040-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-040-12
LOCATION COORDINATES	E = 1,135,172 N = 223,901
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	66.9 Ft.
15. DATE BORING	STARTED 12-01-12; COMPLETED 12-01-12
16. ELEVATION TOP OF BORING	-66.7 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-66.7	0.0				
-67.7	1.0		SHELL, mostly shell fragments, some medium to coarse-grained sand-sized quartz, trace silt, gray	NS	
-68.0	1.3				
-68.8	2.1				
-69.8	3.1		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, brown mottled with gray (CL)		
-72.6	5.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray mottled with brown (SC)		
-74.0	7.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, some organic matter, organic staining, dark brown (SM)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, clay nodules at 7.2 ft., gray (SP-SM)		
-79.9	13.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)		
-82.6	15.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11482° Long = -88.35600°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-40-12

Coordinate System
Latitude / Longitude

Latitude 30 06.889

Longitude 088 21.360

Date 12/01/2012

Start Time 11:57:03

End Time 12:02:03

Total Time 00:05:00

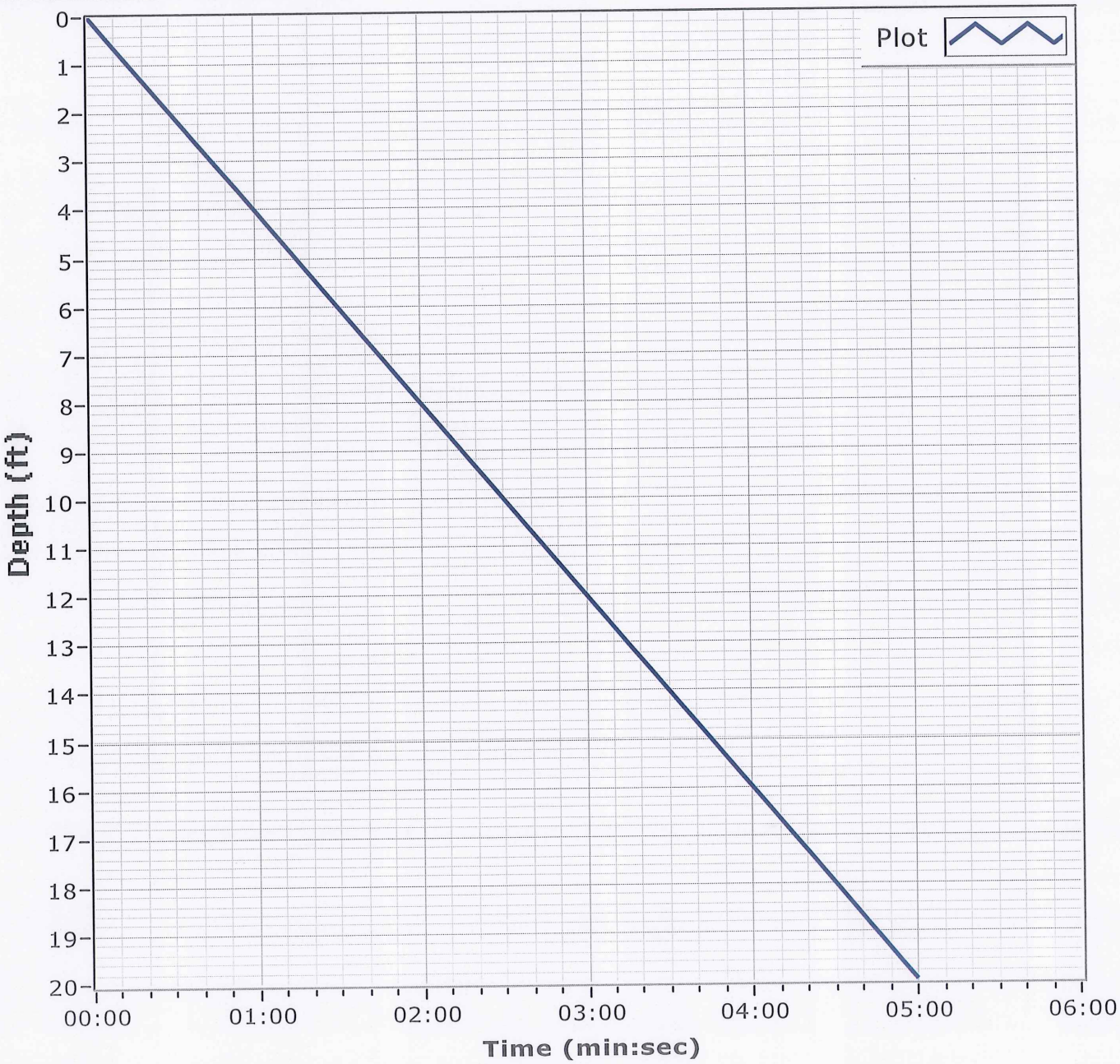
Water Depth 66.9'

Penetration 20.0'

Recovery 15.9

Comments

pentotrometer cable broke. start time was; 1157, stop; 1202. penetration; 20.0'.



Boring Designation BI-PBS-041-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-041-12 — LOCATION COORDINATES: E = 1,133,653 N = 225,724	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 62 Ft.
	15. DATE BORING — STARTED: 12-09-12 — COMPLETED: 12-09-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -61.6 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 16.3 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-61.6	0.0				
-64.8	3.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2682 mm % Fines: 2.4
-65.8	4.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace organic matter, gray grading to brown (SM)	NS	
-66.5	4.9				
-67.2	5.6				
-68.5	6.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.2692 mm % Fines: 5.7
-69.2	7.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	NS	
-71.8	10.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2304 mm % Fines: 7
-72.9	11.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	D	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2353 mm % Fines: 4.8
-77.9	16.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM) SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few shell fragments, gray (SP-SM)	E	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2128 mm % Fines: 4.6
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11985° Long = -88.36078°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-41-12

Coordinate System
Latitude / Longitude

Latitude 30 07.191

Longitude 088 21.647

Date 12/09/2012

Start Time 08:56:21

End Time 09:01:23

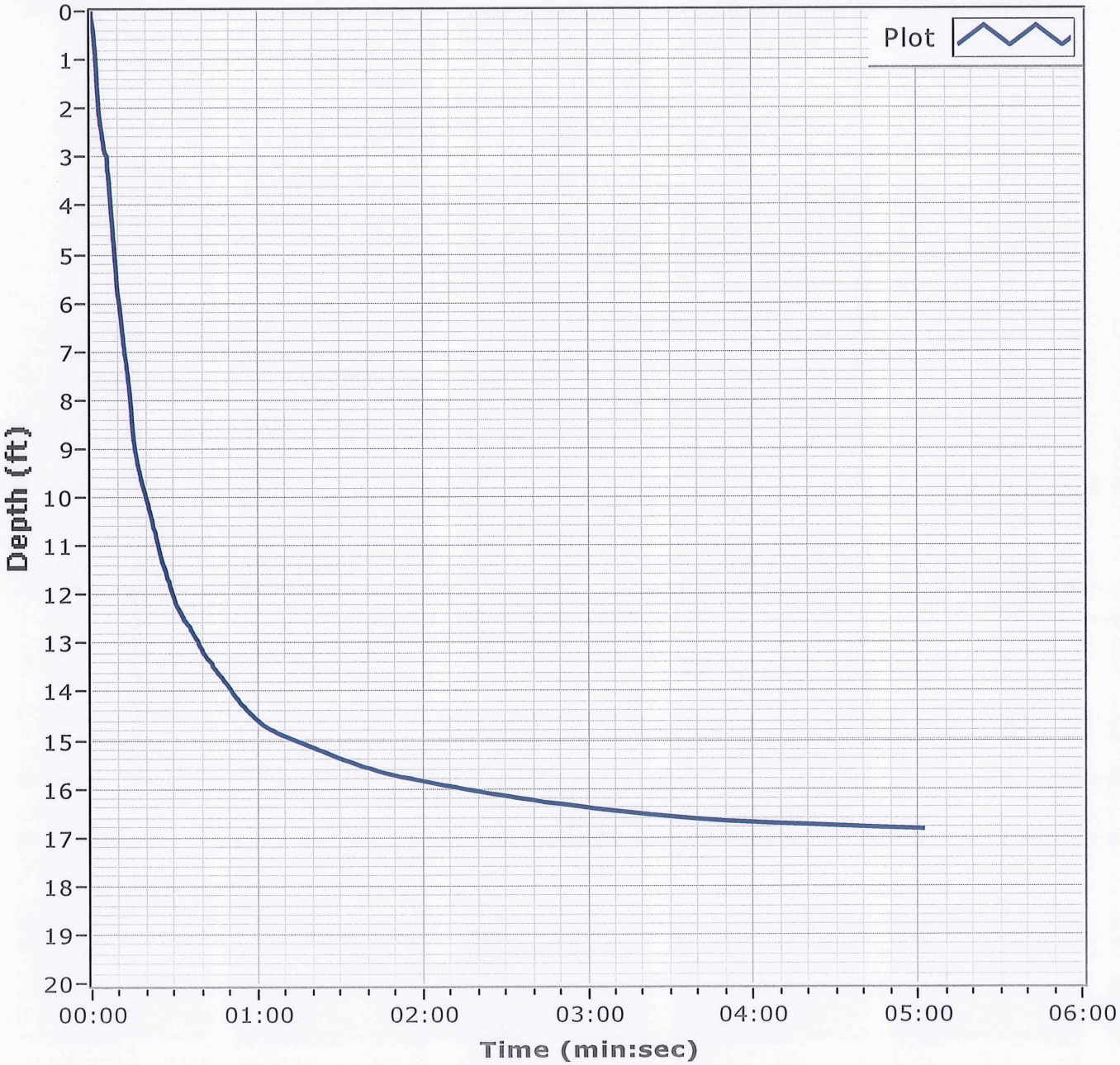
Total Time 00:05:02

Water Depth 62.0'

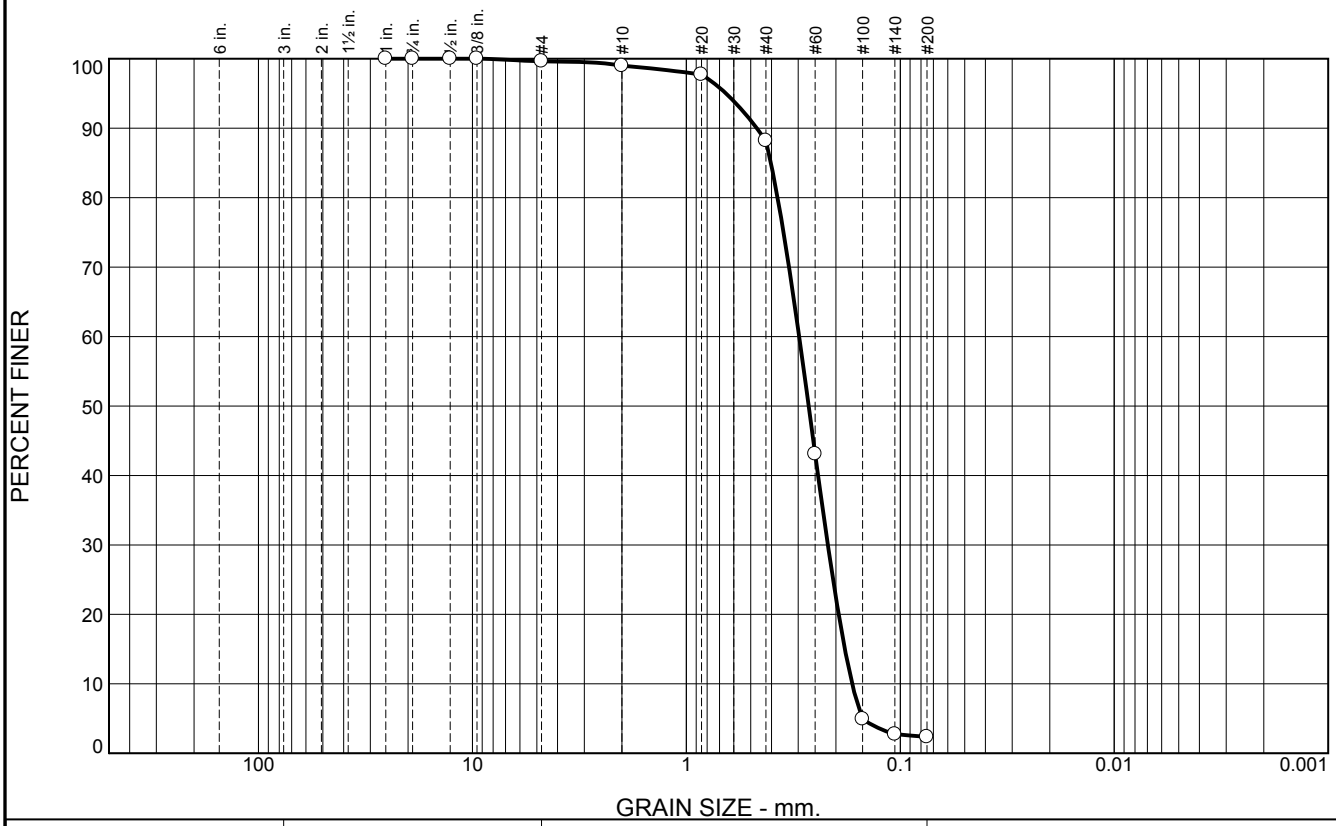
Penetration 16.8'

Recovery 16.6'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.6	10.8	85.8	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	99.0		
#20	97.7		
#40	88.2		
#60	43.1		
#100	4.9		
#140	2.8		
#200	2.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4687 D_{85}= 0.4026 D_{60}= 0.2972
D_{50}= 0.2682 D_{30}= 0.2180 D_{15}= 0.1817
D_{10}= 0.1680 C_u= 1.77 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

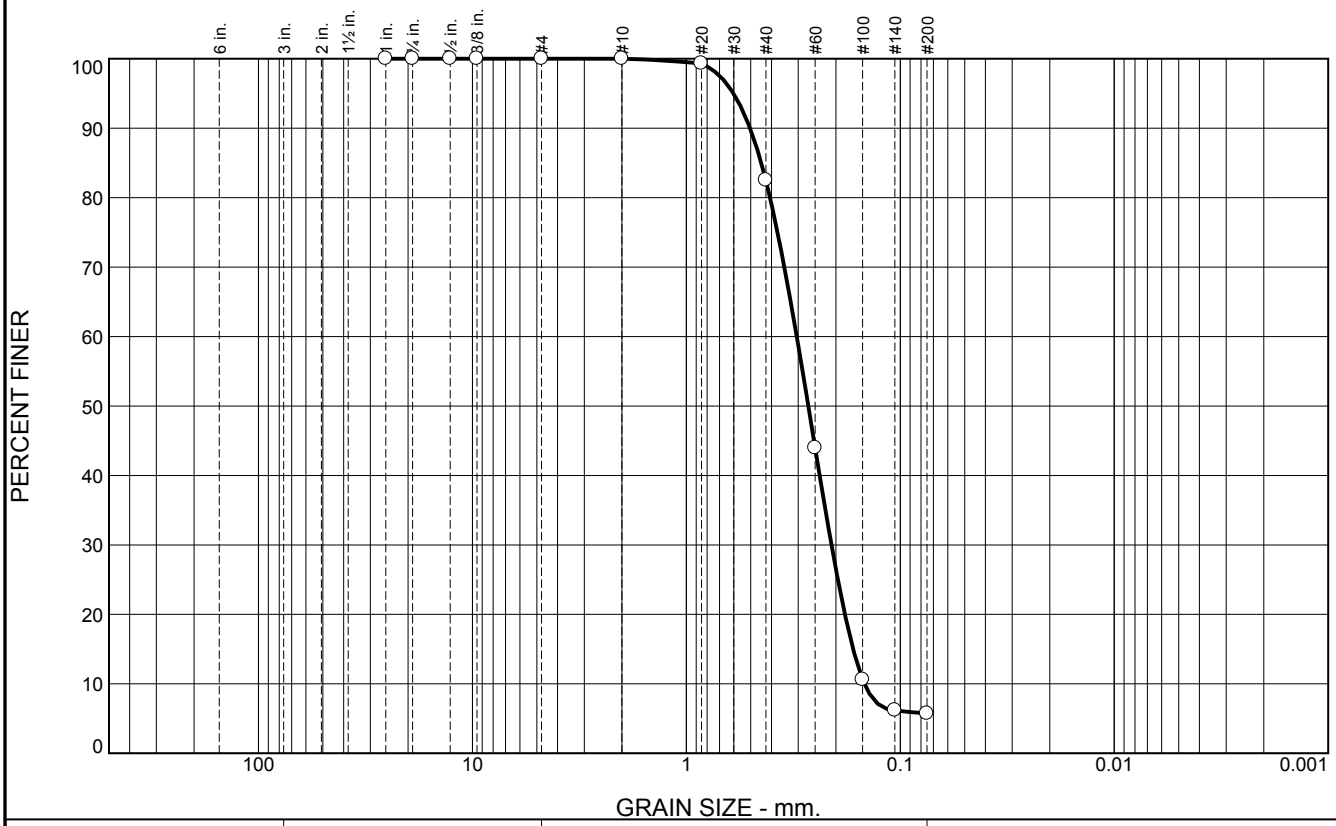
Location: BI-PBS-41-12 A
Sample Number: 6482 (49) **Depth:** 0.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.5	76.8	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	82.5		
#60	44.0		
#100	10.6		
#140	6.2		
#200	5.7		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5040 D_{85}= 0.4467 D_{60}= 0.3049
D_{50}= 0.2692 D_{30}= 0.2097 D_{15}= 0.1663
D_{10}= 0.1472 C_u= 2.07 C_c= 0.98

Classification

USCS= SP-SM AASHTO=

Remarks

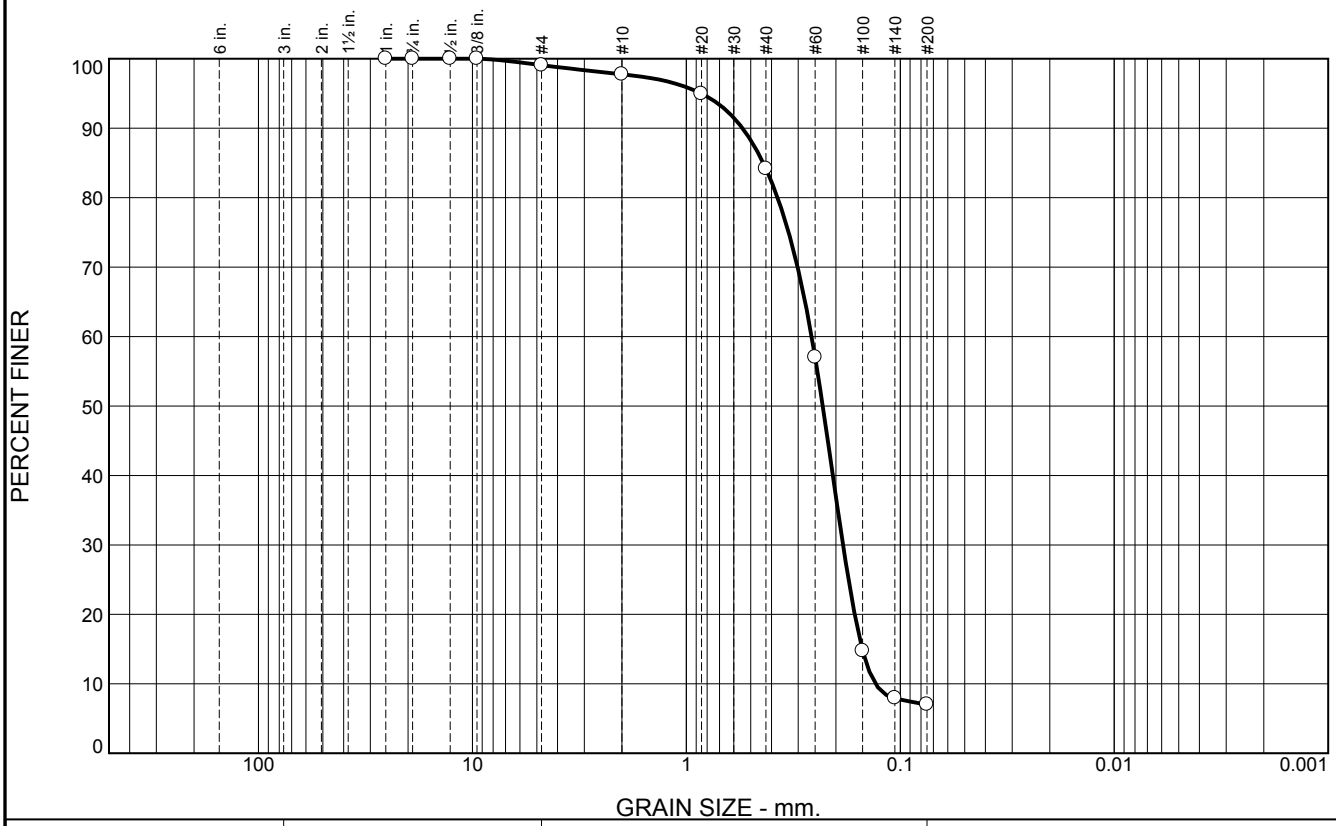
Location: BI-PBS-41-12 B
Sample Number: 6482 (50) **Depth:** 5.6' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.3	13.6	77.2	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.1		
#10	97.8		
#20	95.0		
#40	84.2		
#60	57.0		
#100	14.8		
#140	7.9		
#200	7.0		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5465 D_{85}= 0.4375 D_{60}= 0.2597
D_{50}= 0.2304 D_{30}= 0.1853 D_{15}= 0.1507
D_{10}= 0.1308 C_u= 1.99 C_c= 1.01

Classification

USCS= SP-SM AASHTO=

Remarks

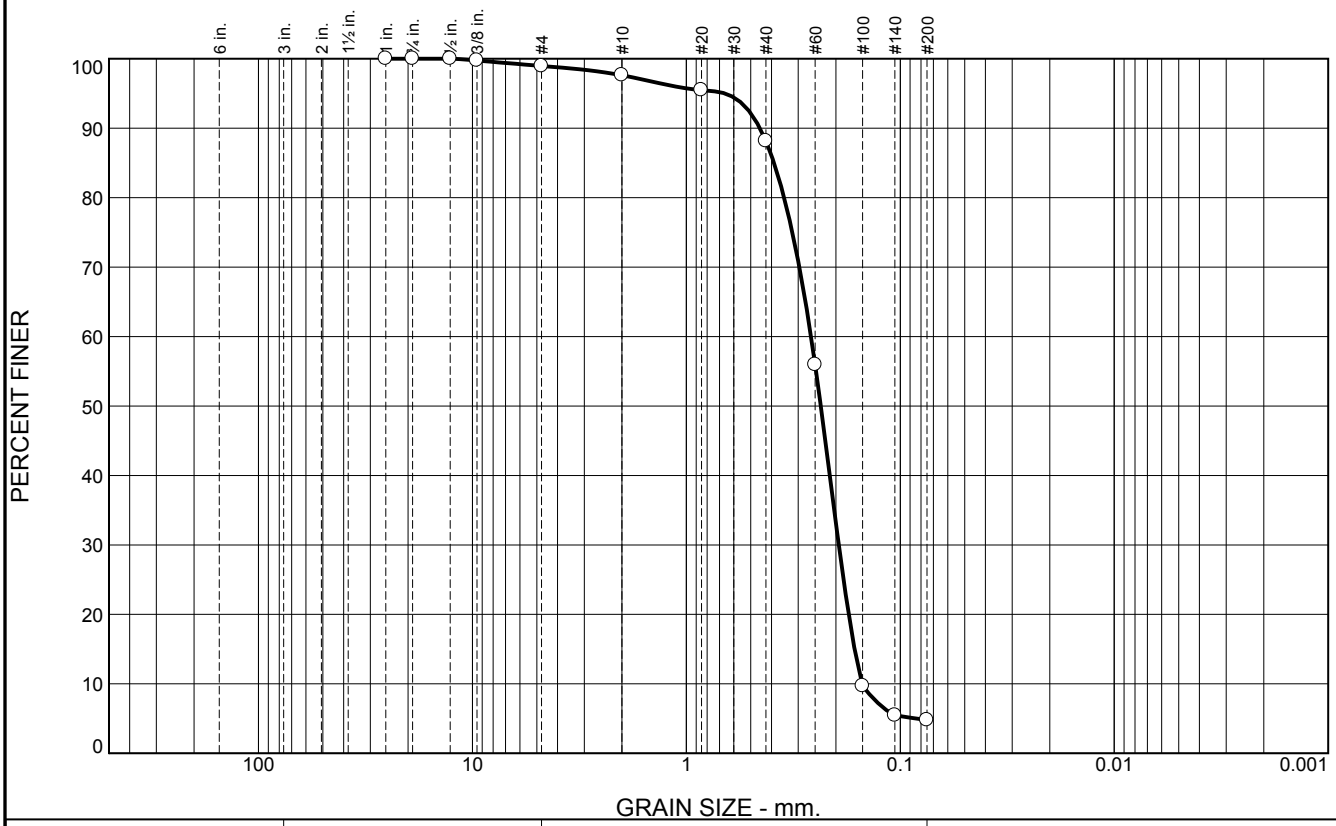
Location: BI-PBS-41-12 C
Sample Number: 6482 (51) **Depth:** 7.6' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	1.4	9.4	83.4	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.0		
#10	97.6		
#20	95.5		
#40	88.2		
#60	55.9		
#100	9.7		
#140	5.5		
#200	4.8		

* (no specification provided)

Material Description

Fine grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4534 D_{85}= 0.3892 D_{60}= 0.2614
D_{50}= 0.2353 D_{30}= 0.1939 D_{15}= 0.1637
D_{10}= 0.1509 C_u= 1.73 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

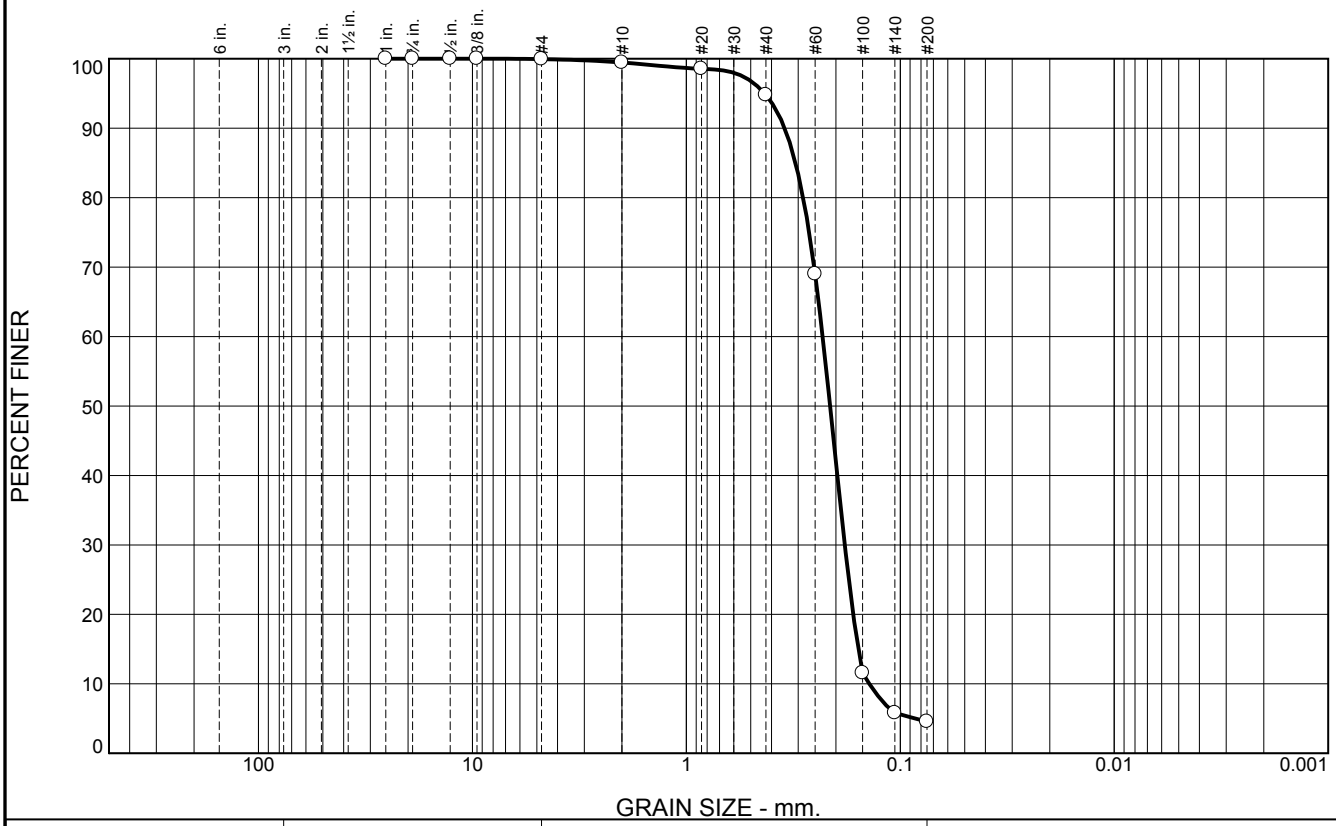
Location: BI-PBS-41-12 D
Sample Number: 6482 (52) **Depth:** 10.2' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	4.6	90.2	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.5		
#40	94.8		
#60	69.0		
#100	11.6		
#140	5.8		
#200	4.6		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3470 D_{85}= 0.3089 D_{60}= 0.2306
D_{50}= 0.2128 D_{30}= 0.1818 D_{15}= 0.1573
D_{10}= 0.1396 C_u= 1.65 C_c= 1.03

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-41-12 E
Sample Number: 6482 (53) **Depth:** 11.3' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-042-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-042-12 — LOCATION COORDINATES: E = 1,132,353 N = 227,253	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 61.7 Ft.
	15. DATE BORING — STARTED: 12-09-12 — COMPLETED: 12-09-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -60.7 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 20.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-60.7	0.0				
-62.3	1.6		SAND, poorly-graded with clay, mostly fine to medium-grained sand-sized quartz, few clay, gray mottled with orangy brown (SP-SC)	A	Classification: SP-SM Color: 5Y 6/4-pale olive D50: 0.2201 mm % Fines: 9.7
-62.6	1.9		CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)	NS	
-65.1	4.4		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace clay, dark gray (ML)		
-68.7	8.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2199 mm % Fines: 7.9
-69.1	8.4		CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)	NS	
-70.2	9.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)		
-75.2	14.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace clay, trace shell fragments, gray to lt. gray (SP)	C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2062 mm % Fines: 6.1
-80.7	20.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.12407° Long = -88.36487°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,132,353 Y = 227,253	ELEVATION TOP OF BORING -60.7 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.12407° Long = -88.36487°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-42-12

Coordinate System
Latitude / Longitude

Latitude 30 07.444

Longitude 088 21.892

Date 12/09/2012

Start Time 13:50:56

End Time 13:54:54

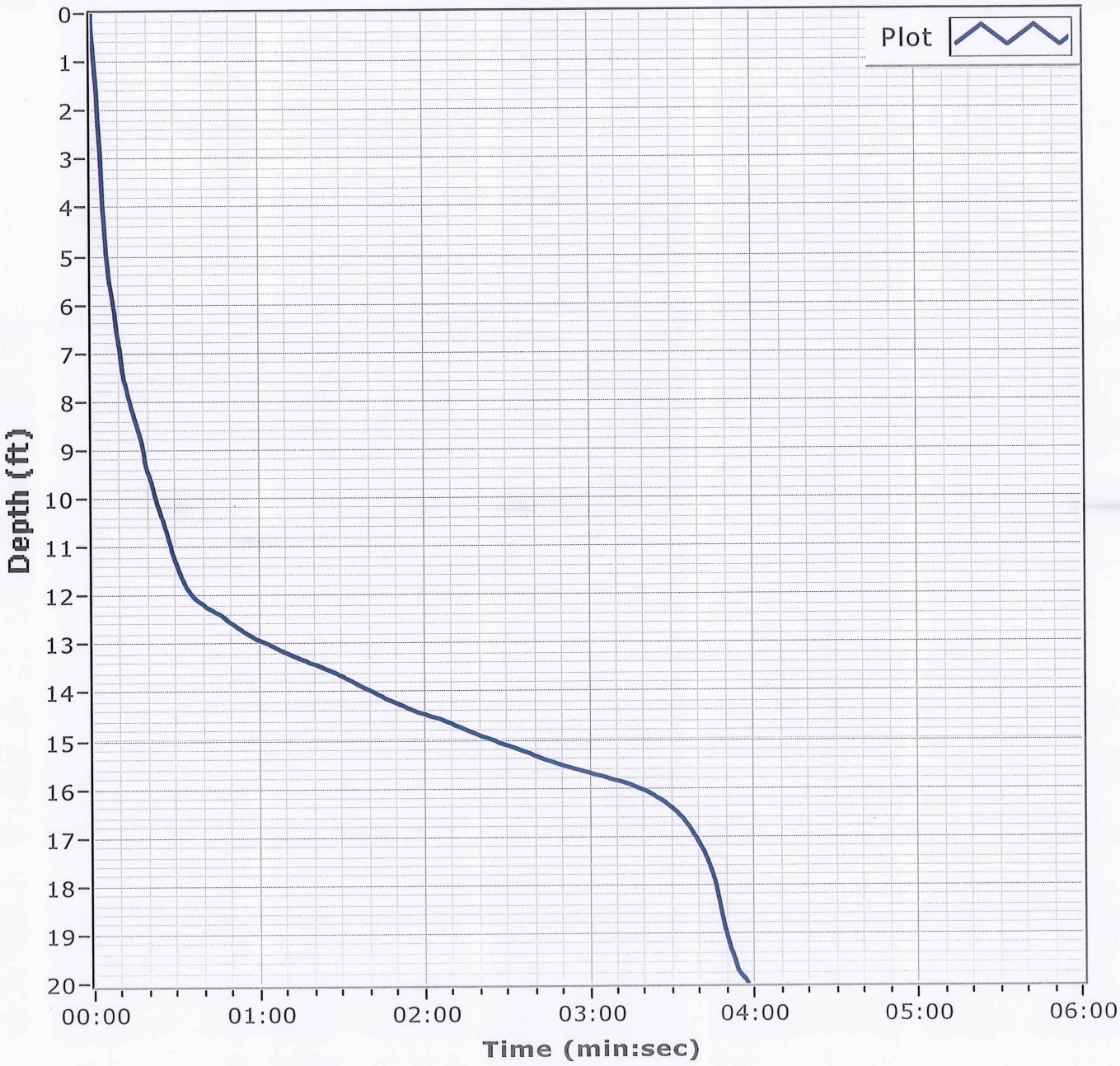
Total Time 00:03:57

Water Depth 61.7'

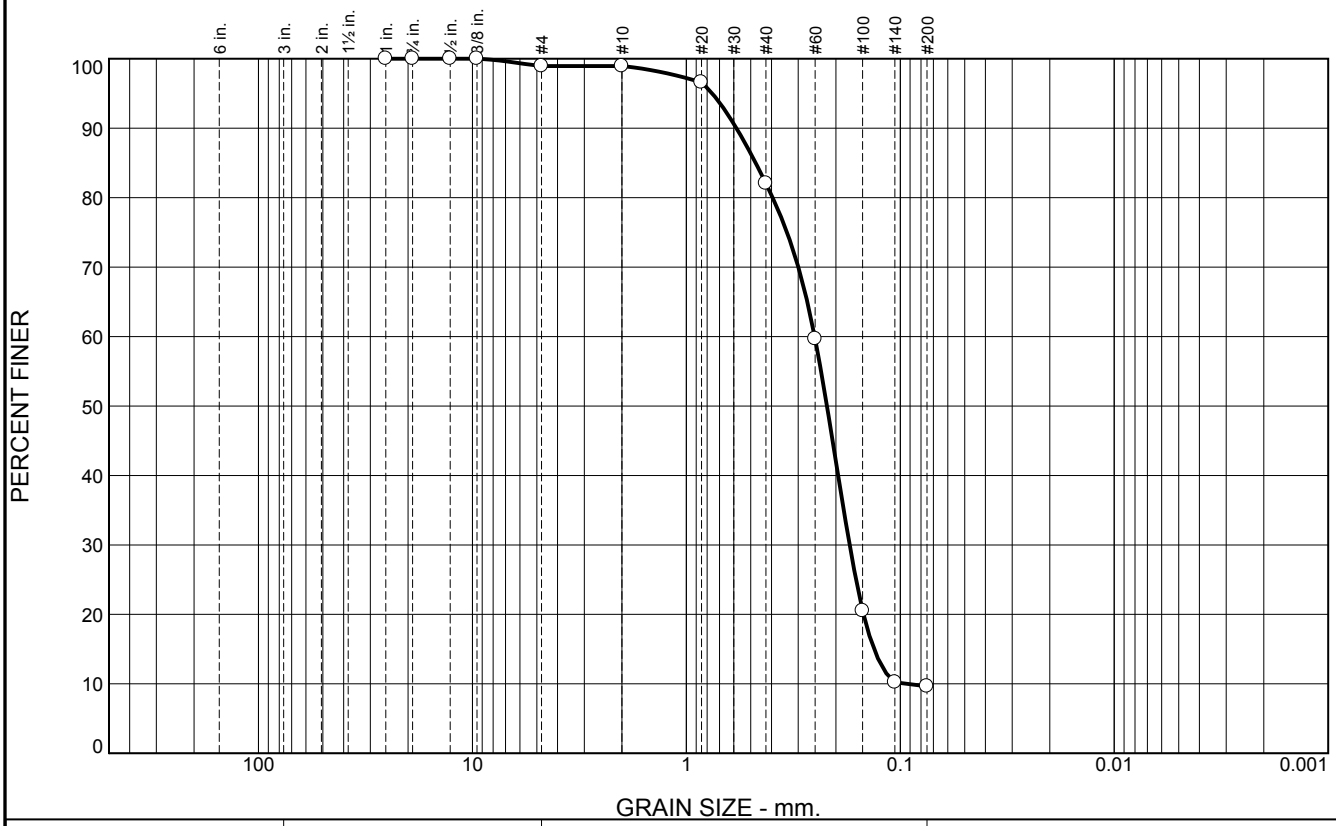
Penetration 20.0'

Recovery 20.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	0.0	16.9	72.3	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.9		
#10	98.9		
#20	96.6		
#40	82.0		
#60	59.7		
#100	20.5		
#140	10.2		
#200	9.7		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5833 D_{85}= 0.4746 D_{60}= 0.2513
D_{50}= 0.2201 D_{30}= 0.1726 D_{15}= 0.1328
D_{10}= 0.0925 C_u= 2.71 C_c= 1.28

Classification

USCS= SP-SM AASHTO=

Remarks

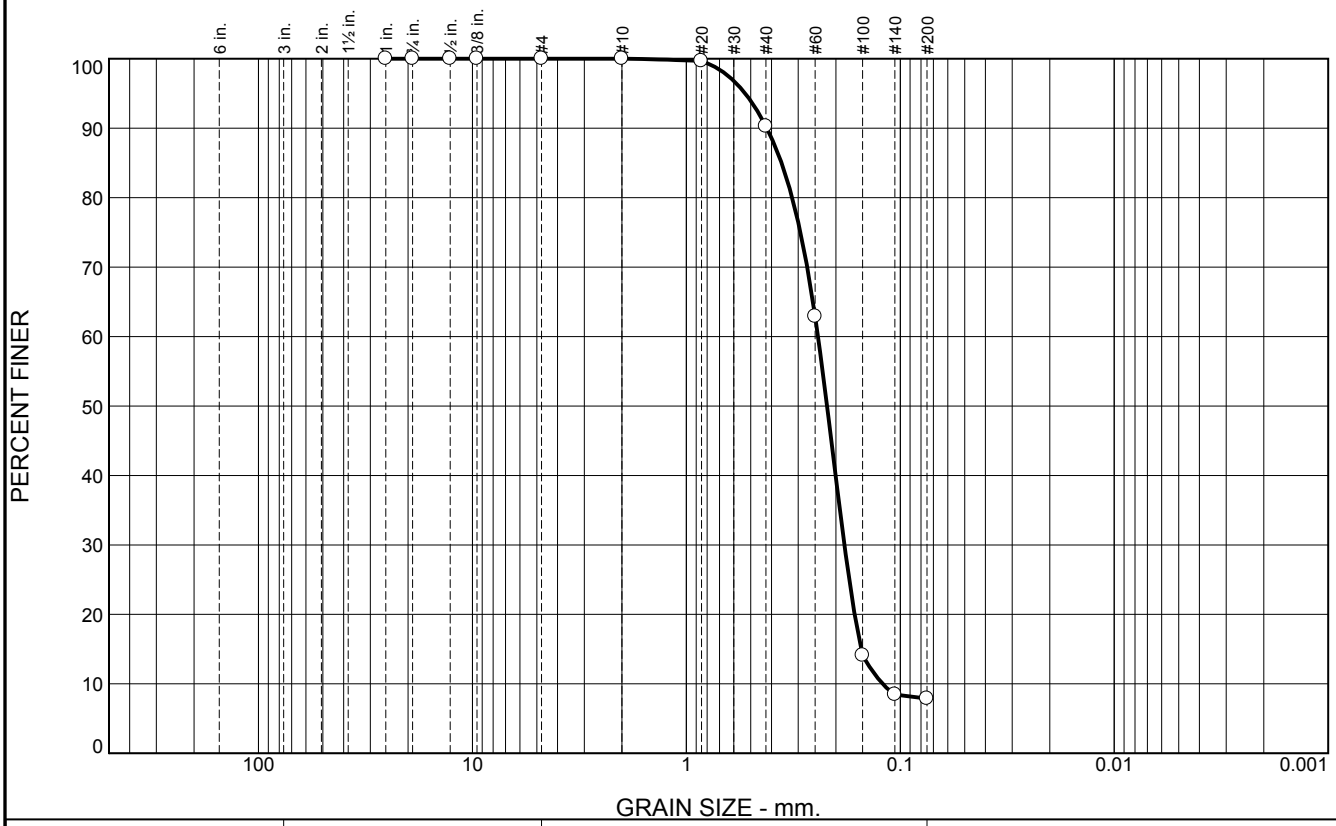
Location: BI-PBS-42-12 A
Sample Number: 6482 (54) **Depth:** 0.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.7	82.4	7.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	90.3		
#60	62.9		
#100	14.1		
#140	8.5		
#200	7.9		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4207 D_{85}= 0.3589 D_{60}= 0.2424
D_{50}= 0.2199 D_{30}= 0.1825 D_{15}= 0.1524
D_{10}= 0.1209 C_u= 2.00 C_c= 1.14

Classification

USCS= SP-SM AASHTO=

Remarks

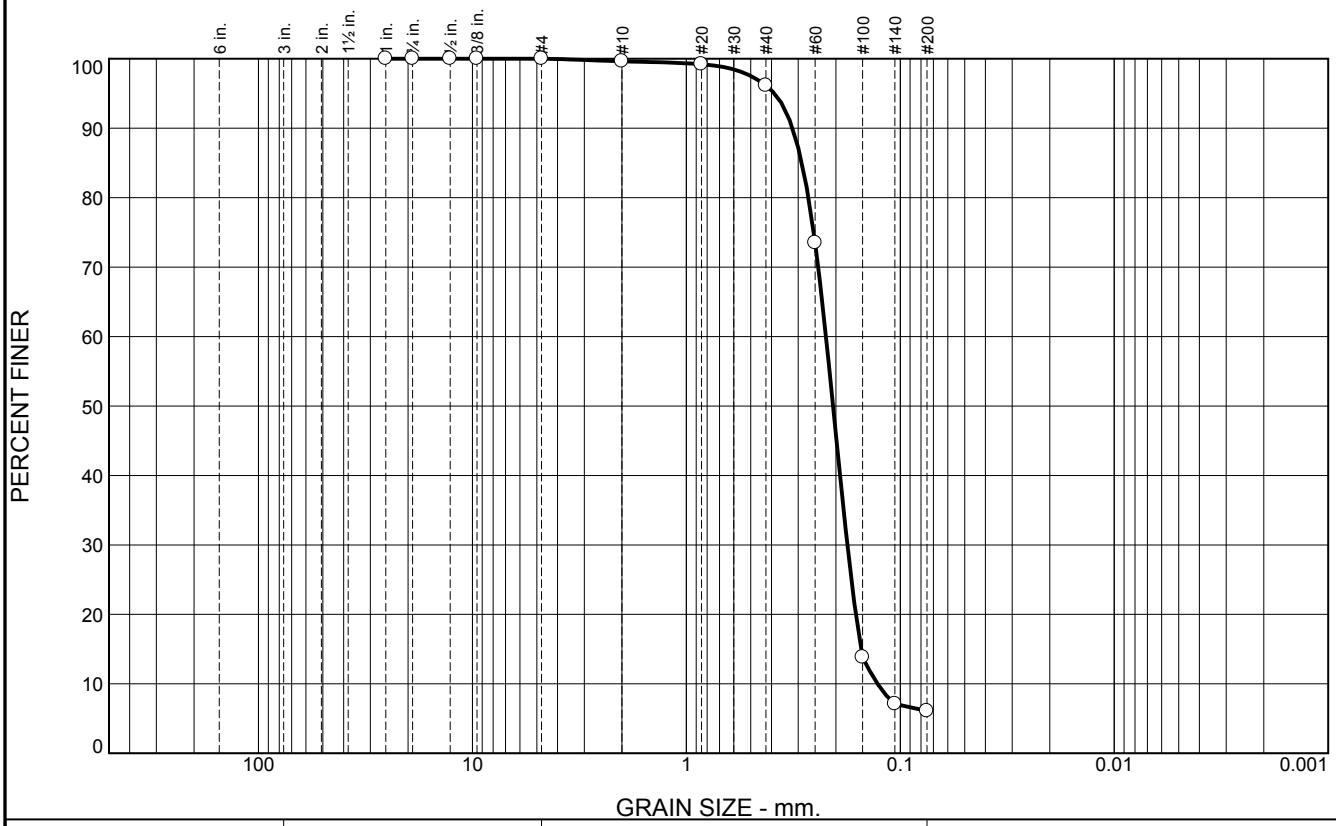
Location: BI-PBS-42-12 B
Sample Number: 6482 (55) **Depth:** 4.4' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	3.5	90.0	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.2		
#40	96.1		
#60	73.5		
#100	13.8		
#140	7.1		
#200	6.1		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3191 D_{85}= 0.2887 D_{60}= 0.2225
D_{50}= 0.2062 D_{30}= 0.1769 D_{15}= 0.1525
D_{10}= 0.1277 C_u= 1.74 C_c= 1.10

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-42-12 C
Sample Number: 6482 (56) **Depth:** 9.5' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-043-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-043-12
LOCATION COORDINATES	E = 1,129,431 N = 228,209
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	9.8 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	59.3 Ft.
15. DATE BORING	STARTED 12-09-12; COMPLETED 12-09-12
16. ELEVATION TOP OF BORING	-58.1 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-58.1	0.0				
-59.6	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.318 mm % Fines: 1.4
-64.9	6.8		CLAY, fat, mostly clay, medium to high plasticity, little fine-grained, sand-sized quartz and shells between 1.5 to 2.4 ft., gray, greenish gray, and orangy brown mottle (CH)	NS	
-67.9	9.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few fines, dense, gray (SP-SM)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from 12/17/2014 USACE survey.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.12673° Long = -88.37410°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-43-12

Coordinate System
Latitude / Longitude

Latitude 30 07.604

Longitude 088 22.446

Date 12/09/2012

Start Time 13:15:18

End Time 13:21:19

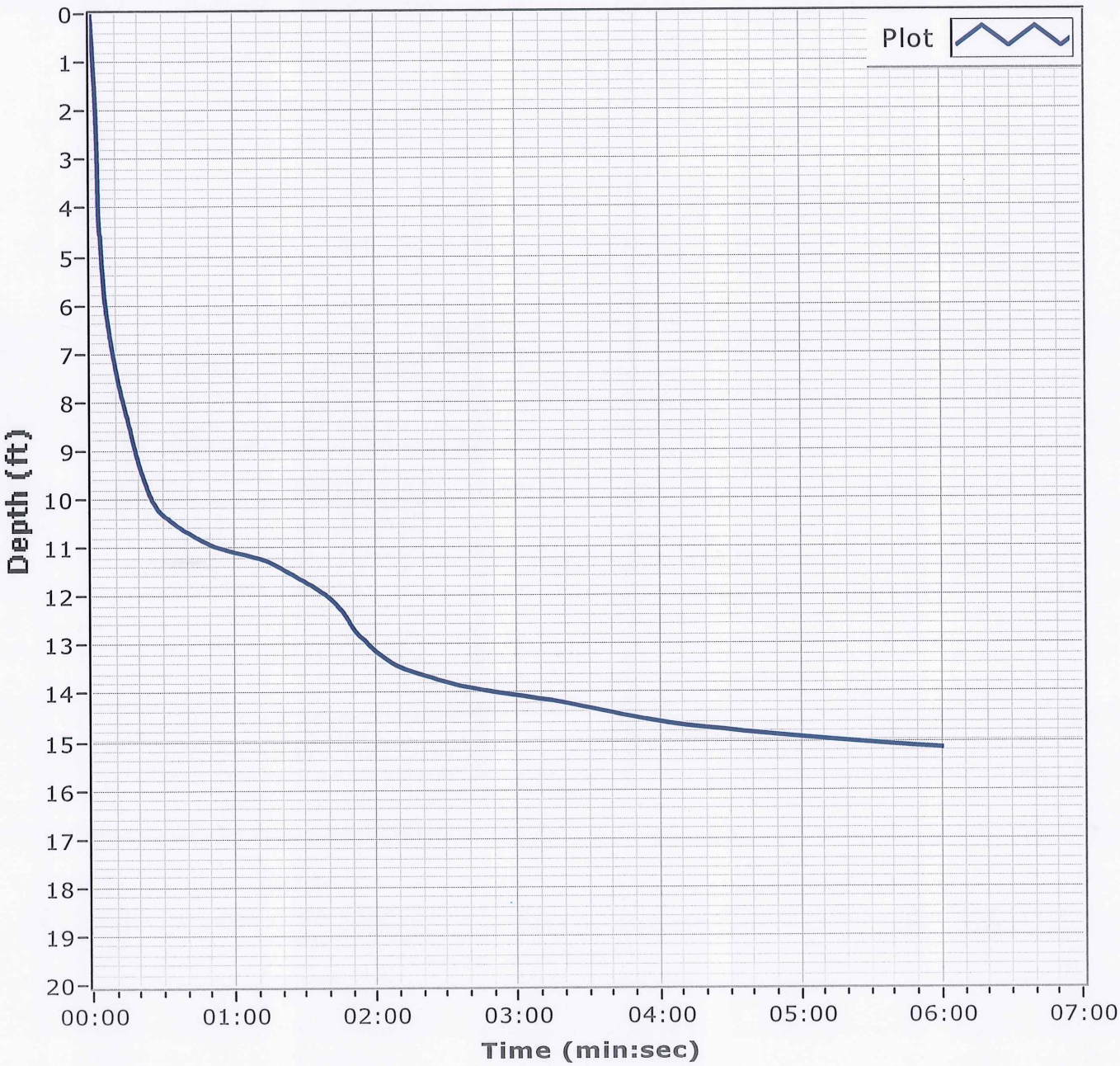
Total Time 00:06:00

Water Depth 59.3'

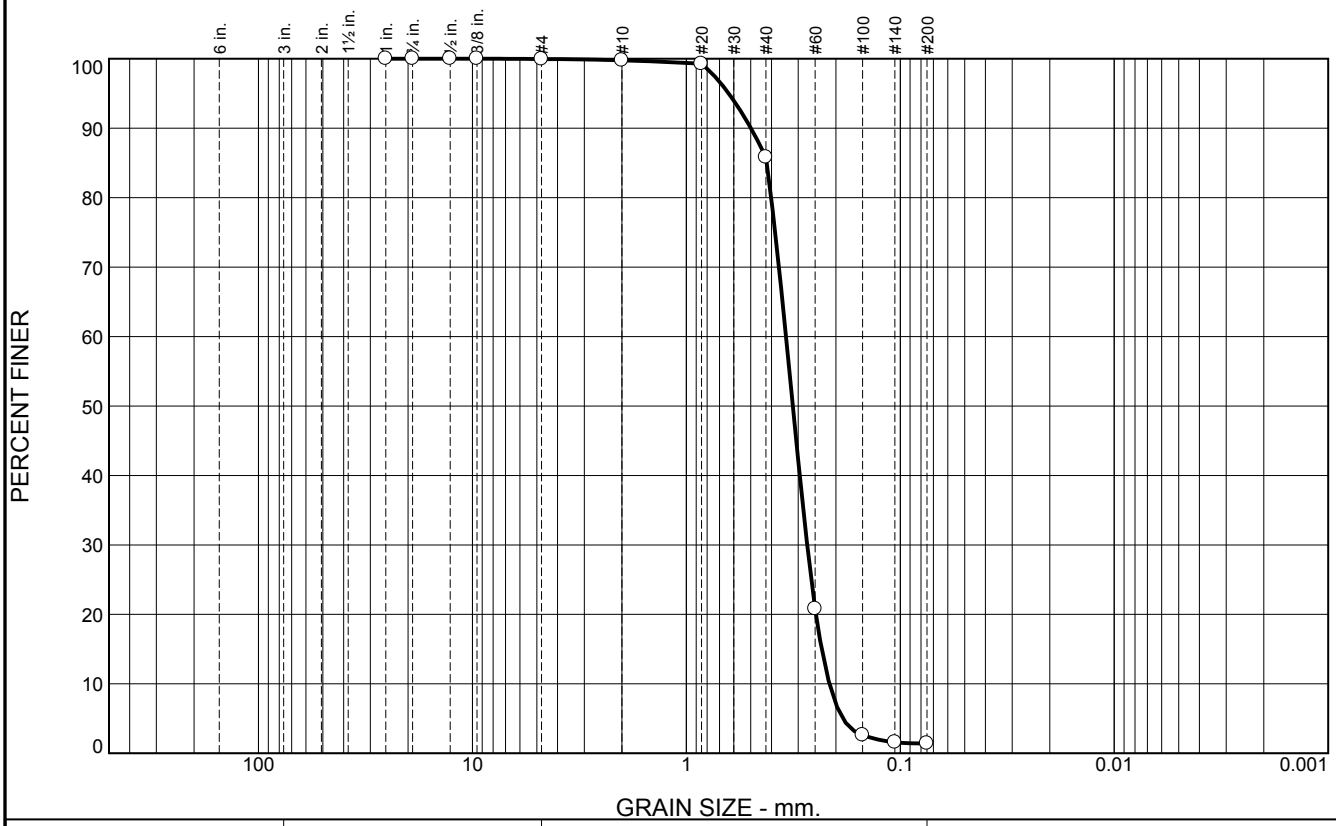
Penetration 15.2'

Recovery 9.8'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	14.0	84.4	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.3		
#40	85.8		
#60	20.8		
#100	2.6		
#140	1.6		
#200	1.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4996 D_{85}= 0.4213 D_{60}= 0.3421
D_{50}= 0.3180 D_{30}= 0.2726 D_{15}= 0.2330
D_{10}= 0.2144 C_u= 1.60 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-43-12 A
Sample Number: 6482 (57) **Depth:** 0.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-044-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-044-12 — LOCATION COORDINATES: E = 1,131,736 N = 226,760	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 60.1 Ft.
	15. DATE BORING — STARTED: 12-09-12 — COMPLETED: 12-09-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -59.9 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 18.7 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-59.9	0.0				
-61.1	1.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2779 mm % Fines: 2.5
-63.4	3.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, orangy brown, greenish gray, gray mottle (SC)	NS	
-64.1	4.2		CLAY, fat, mostly clay, some fine-grained sand-sized quartz, medium to high plasticity, dark gray (CH)		
-66.2	6.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM)		
-67.6	7.7		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, alternating bands of clay and clayey sand, gray (CL)		
-69.8	9.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)		
-74.8	14.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, gray (SP)		
-78.6	18.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, silt content increases with depth, gray (SP-SM)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from 12/17/2014 USACE survey.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.12272° Long = -88.36683°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

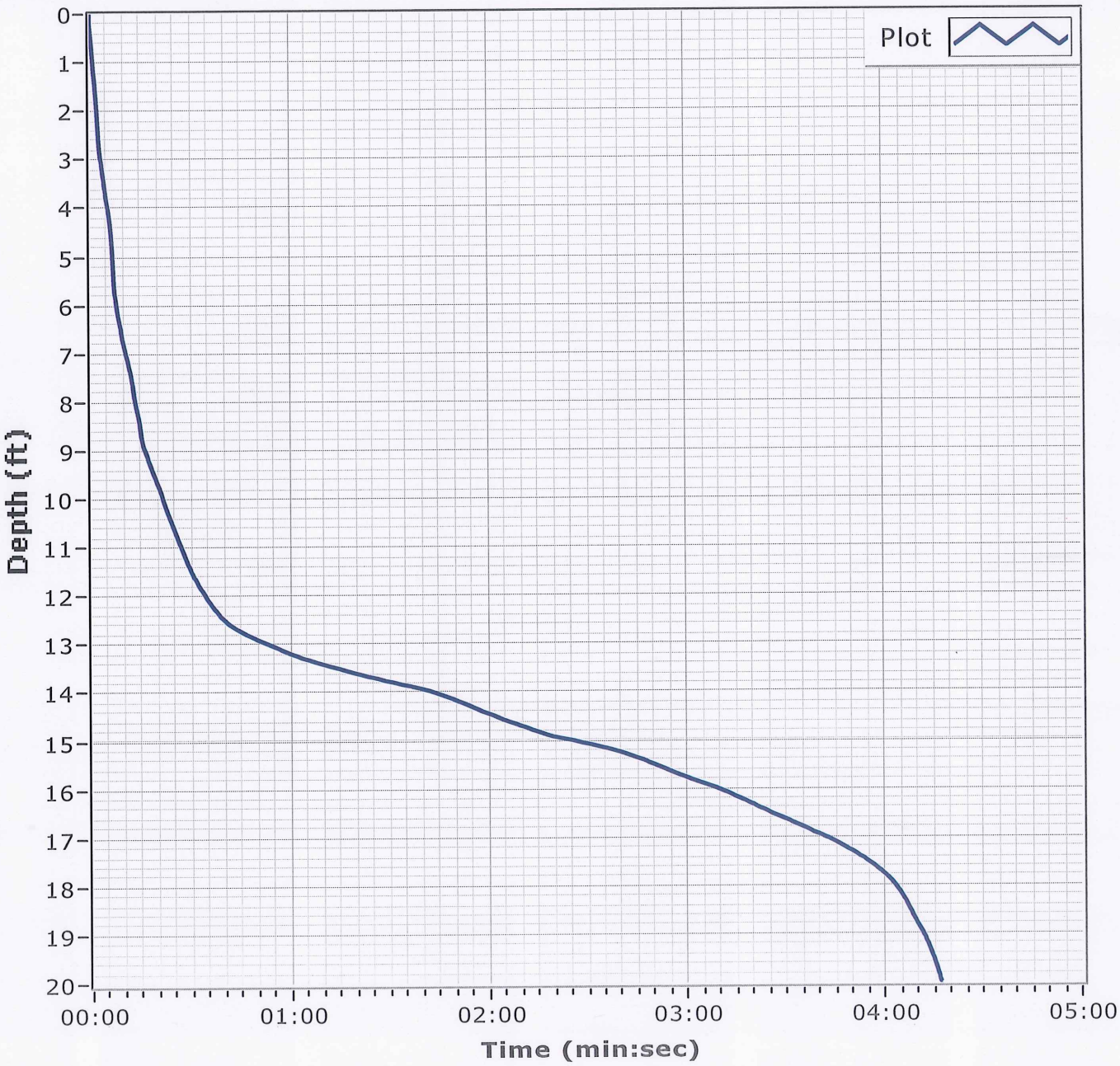
Core Identifier BI-PBS-44-12
Coordinate System
Latitude / Longitude

Latitude 30 07.363
Longitude 088 22.010

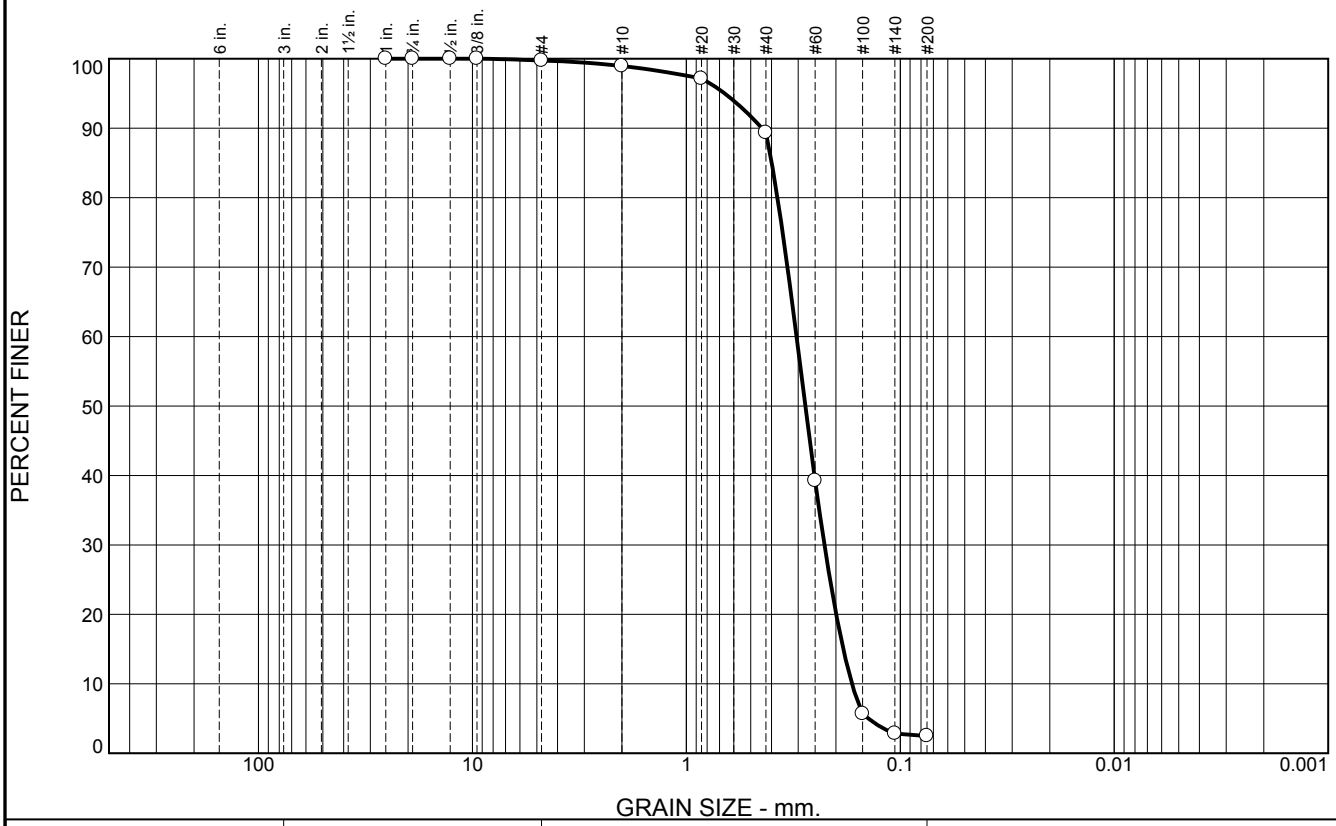
Date 12/09/2012
Start Time 12:08:39
End Time 12:12:57
Total Time 00:04:17

Water Depth 60.1'
Penetration 20.0'
Recovery 18.7'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.8	9.5	86.9	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.9		
#20	97.1		
#40	89.4		
#60	39.2		
#100	5.7		
#140	2.9		
#200	2.5		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4435 D_{85}= 0.3988 D_{60}= 0.3056
D_{50}= 0.2779 D_{30}= 0.2262 D_{15}= 0.1848
D_{10}= 0.1684 C_u= 1.81 C_c= 0.99

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-44-12 A
Sample Number: 6482 (58) **Depth:** 0.0' **Date:** 12/12/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-045-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-045-12
LOCATION COORDINATES	E = 1,135,509 N = 224,211
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	17.2 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	60.5 Ft.
15. DATE BORING	STARTED 12-01-12; COMPLETED 12-01-12
16. ELEVATION TOP OF BORING	-60.3 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-60.3	0.0				
-63.1	2.8		SAND, poorly-graded, mostly medium-grained sand-sized quartz, little shell fragments, trace silt, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.4972 mm % Fines: 1.4
-65.3	5.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2152 mm % Fines: 3.4
-68.9	8.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some organic matter, organic staining, brown (SM)	NS	
-69.4	9.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, dense, gray (SP)		
-74.3	14.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, 2-3 inch bands of lean clay and clayey sand, gray (SC) At El. -70.3 Ft., mostly fine-grained sand-sized quartz, some clay, some shells throughout, shelly layer between 13.1 and 13.5 ft., gray		
-77.5	17.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, shell layer at 16.0 ft., gray (SP)	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2463 mm % Fines: 4.9
				NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11567° Long = -88.35493°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-45-12

Coordinate System
Latitude / Longitude

Latitude 30 06.940

Longitude 088 21.296

Date 12/01/2012

Start Time 10:25:47

End Time 10:29:18

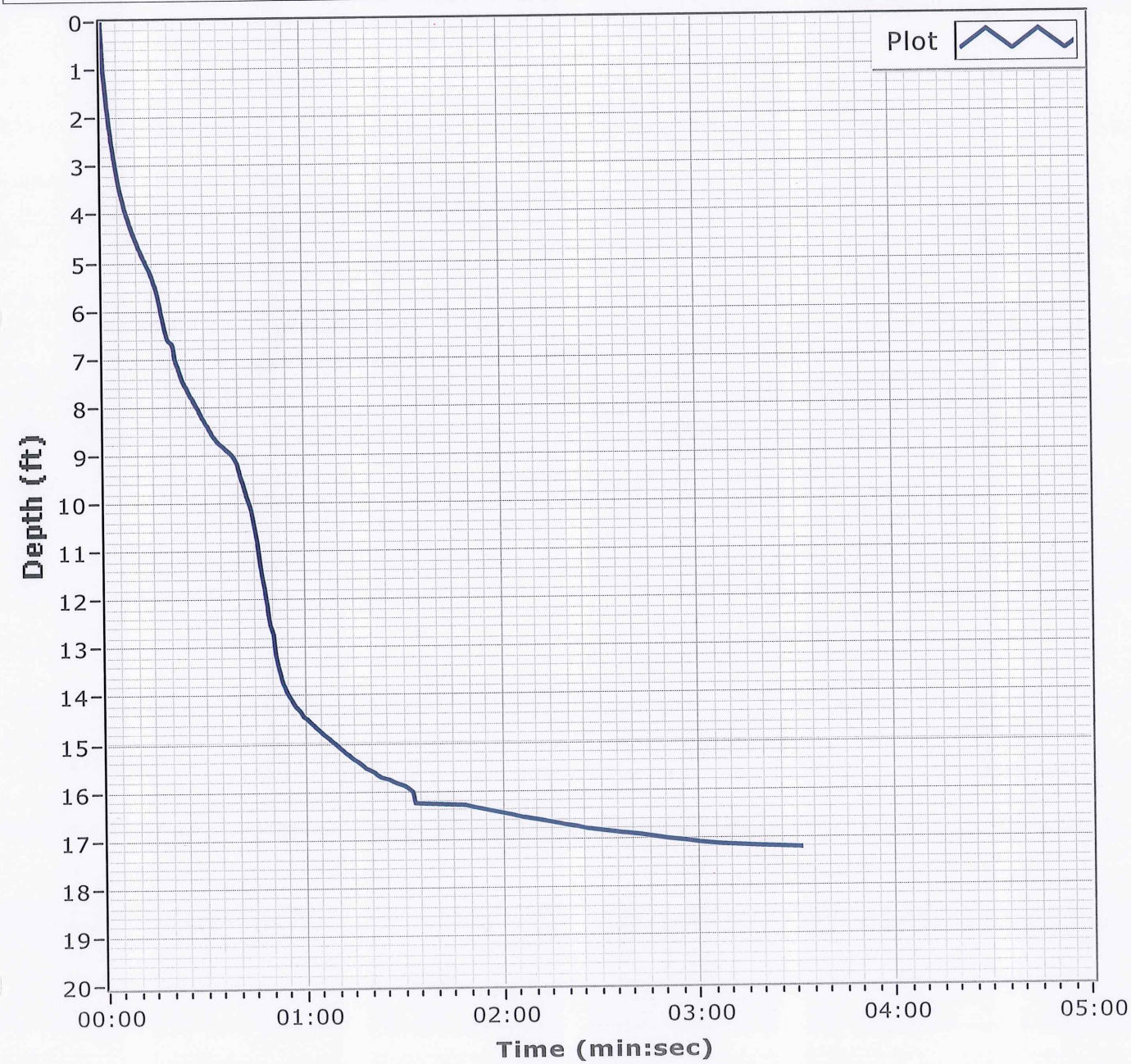
Total Time 00:03:31

Water Depth 60.5'

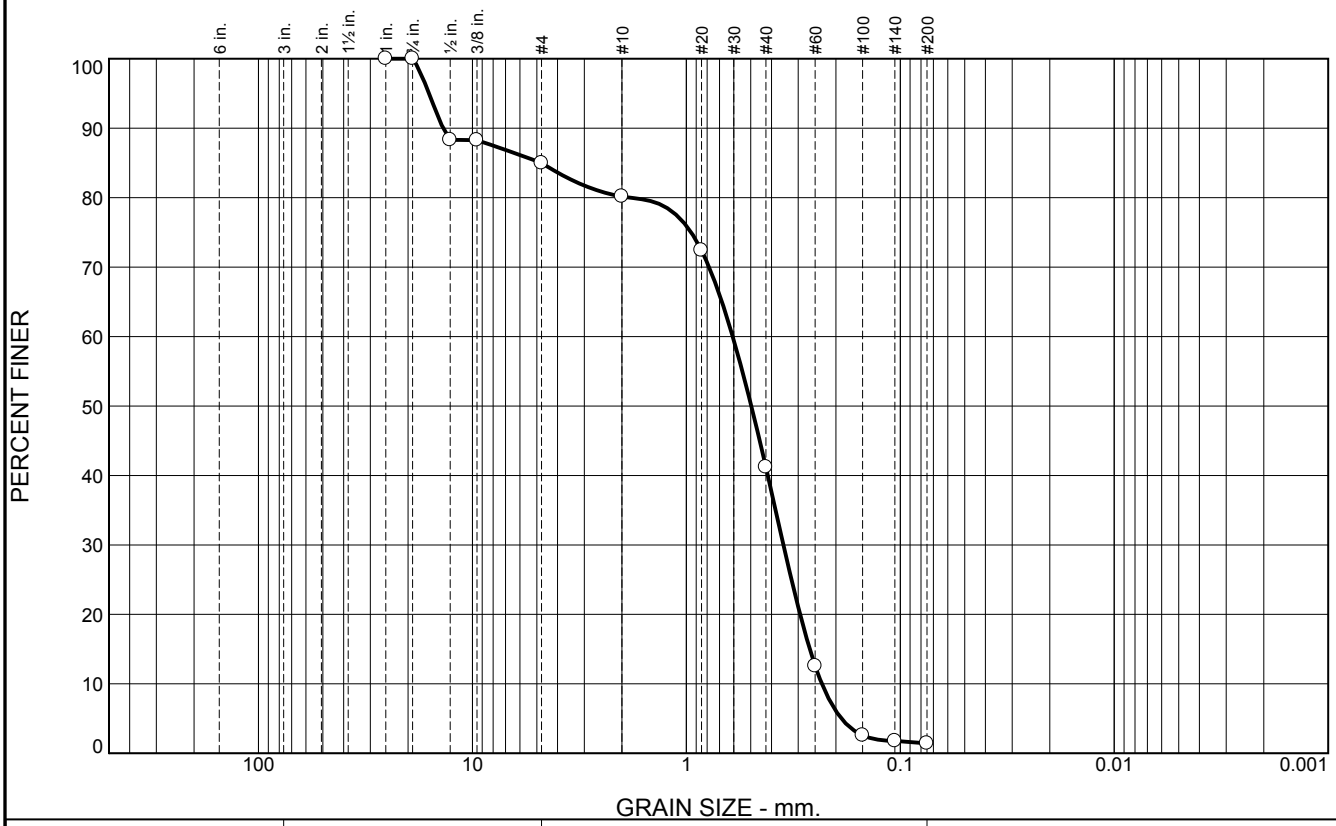
Penetration 17.2'

Recovery 17.2'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	15.0	4.8	39.0	39.8	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	88.3		
.375	88.3		
#4	85.0		
#10	80.2		
#20	72.4		
#40	41.2		
#60	12.6		
#100	2.6		
#140	1.8		
#200	1.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with some SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 13.7089 D_{85}= 4.7741 D_{60}= 0.6072
D_{50}= 0.4972 D_{30}= 0.3518 D_{15}= 0.2651
D_{10}= 0.2325 C_u= 2.61 C_c= 0.88

Classification

USCS= SP AASHTO=

Remarks

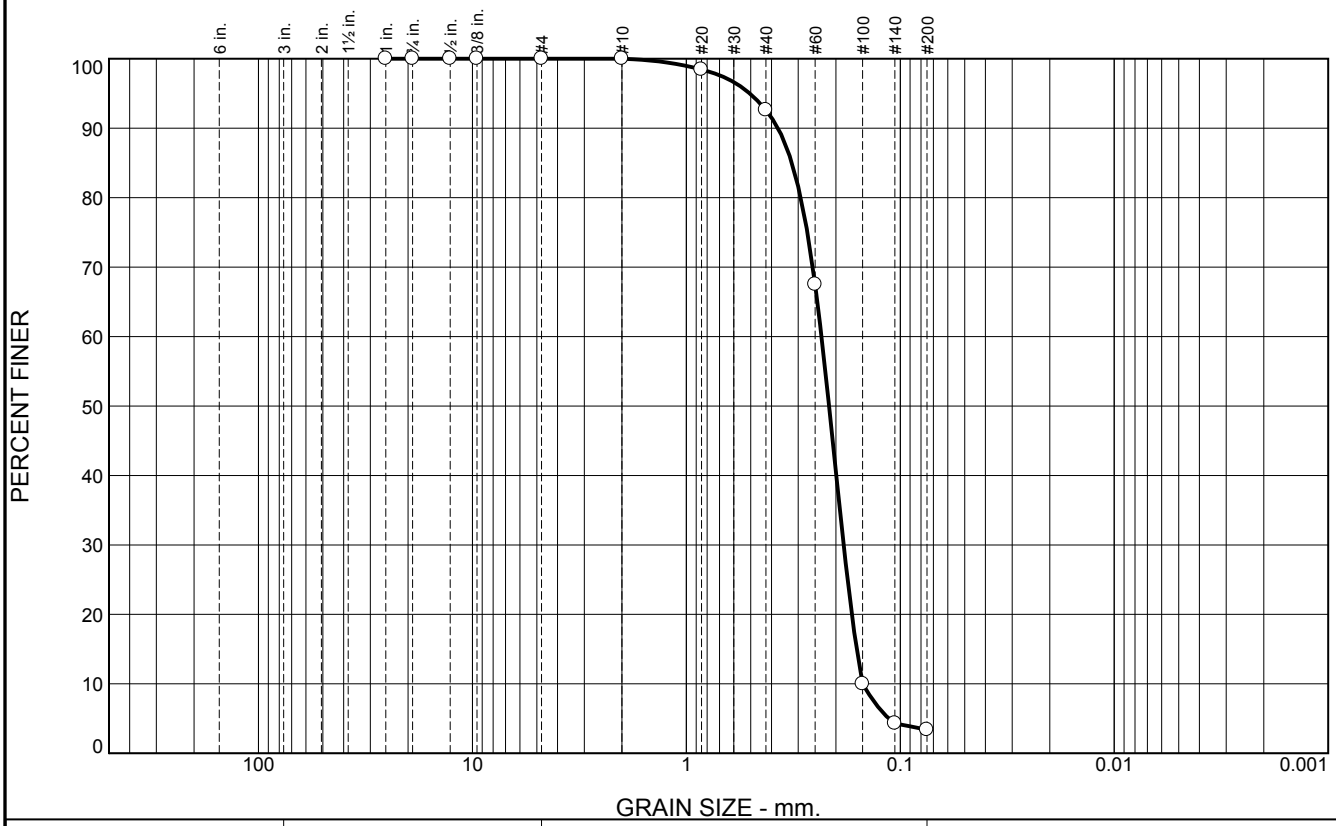
Location: BI-PBS-45-12 A
Sample Number: 6471 (10) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.4	89.2	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.4		
#40	92.6		
#60	67.5		
#100	10.0		
#140	4.3		
#200	3.4		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3731 D_{85}= 0.3213 D_{60}= 0.2335
D_{50}= 0.2152 D_{30}= 0.1841 D_{15}= 0.1601
D_{10}= 0.1500 C_u= 1.56 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

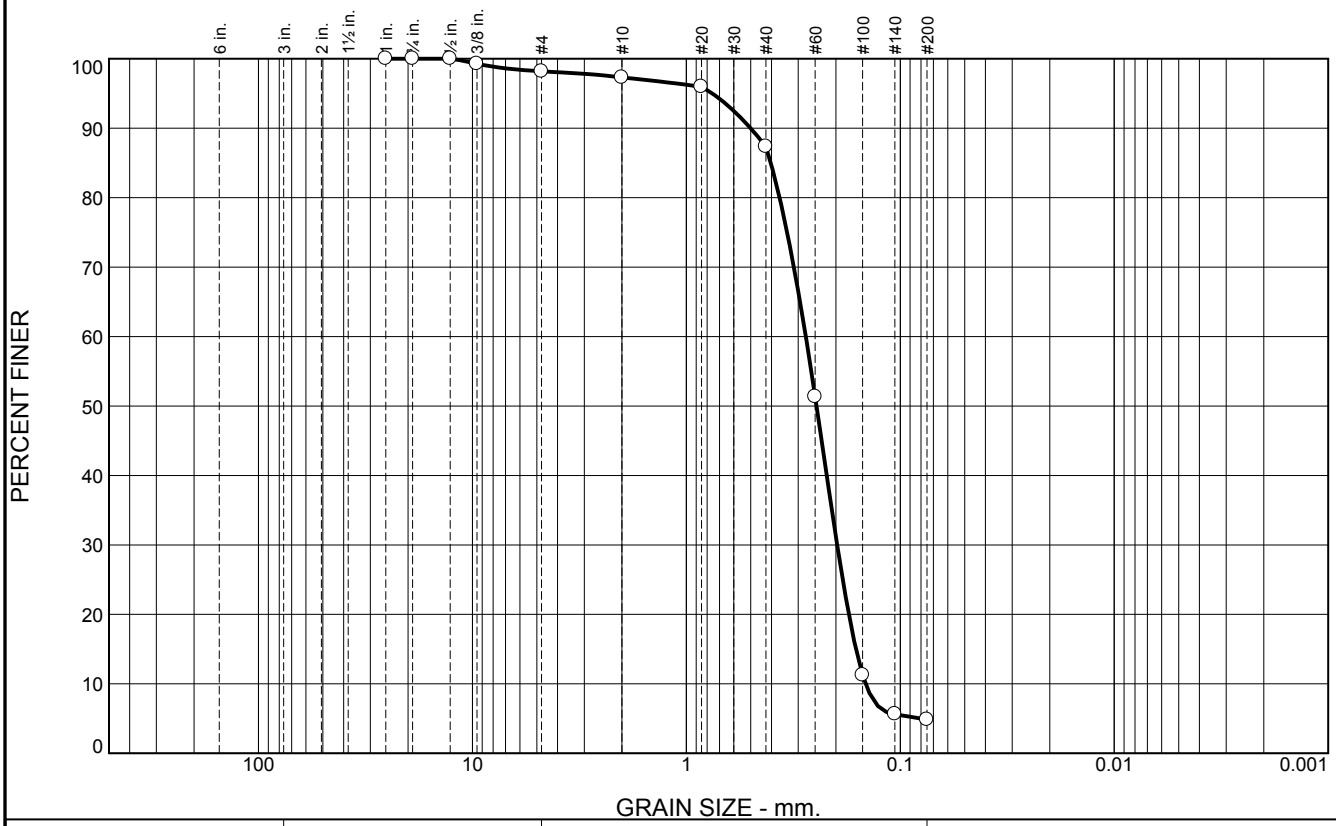
Location: BI-PBS-45-12 B
Sample Number: 6471 (11) **Depth:** 2.8' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	0.9	10.0	82.4	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.3		
#4	98.2		
#10	97.3		
#20	96.0		
#40	87.3		
#60	51.3		
#100	11.3		
#140	5.6		
#200	4.9		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5012 D_{85}= 0.4030 D_{60}= 0.2766
D_{50}= 0.2463 D_{30}= 0.1973 D_{15}= 0.1613
D_{10}= 0.1453 C_u= 1.90 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-45-12 C
Sample Number: 6471 (12) **Depth:** 14.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-046-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-046-12 — LOCATION COORDINATES: E = 1,134,958 N = 223,463	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 60.9 Ft.
	15. DATE BORING — STARTED: 12-01-12 — COMPLETED: 12-01-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -60.6 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 20.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-60.6	0.0				
-65.1	4.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.261 mm % Fines: 2.3
-66.1	5.5		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, medium plasticity, gray mottled with orange (CL)	NS	
-67.0	6.4				
-69.3	8.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray mottled with orange (SC)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2571 mm % Fines: 7.8
-70.6	10.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2363 mm % Fines: 6.4
-72.0	11.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace wood debris, gray (SP-SM)	D	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2177 mm % Fines: 7
-74.9	14.3		SAND, silty, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, dark gray (SM)	E	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1909 mm % Fines: 6.3
-75.3	14.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)	NS	
-75.9	15.3				
-77.3	16.7		SHELL, mostly shell fragments, trace clay, dark gray		
-80.6	20.0		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, medium plasticity, dark gray (CL) SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, dark gray (SC)	F	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2466 mm % Fines: 6.7
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		

NOTES:

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

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11362° Long = -88.35668°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,134,958 Y = 223,463	ELEVATION TOP OF BORING -60.6 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.11362° Long = -88.35668°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

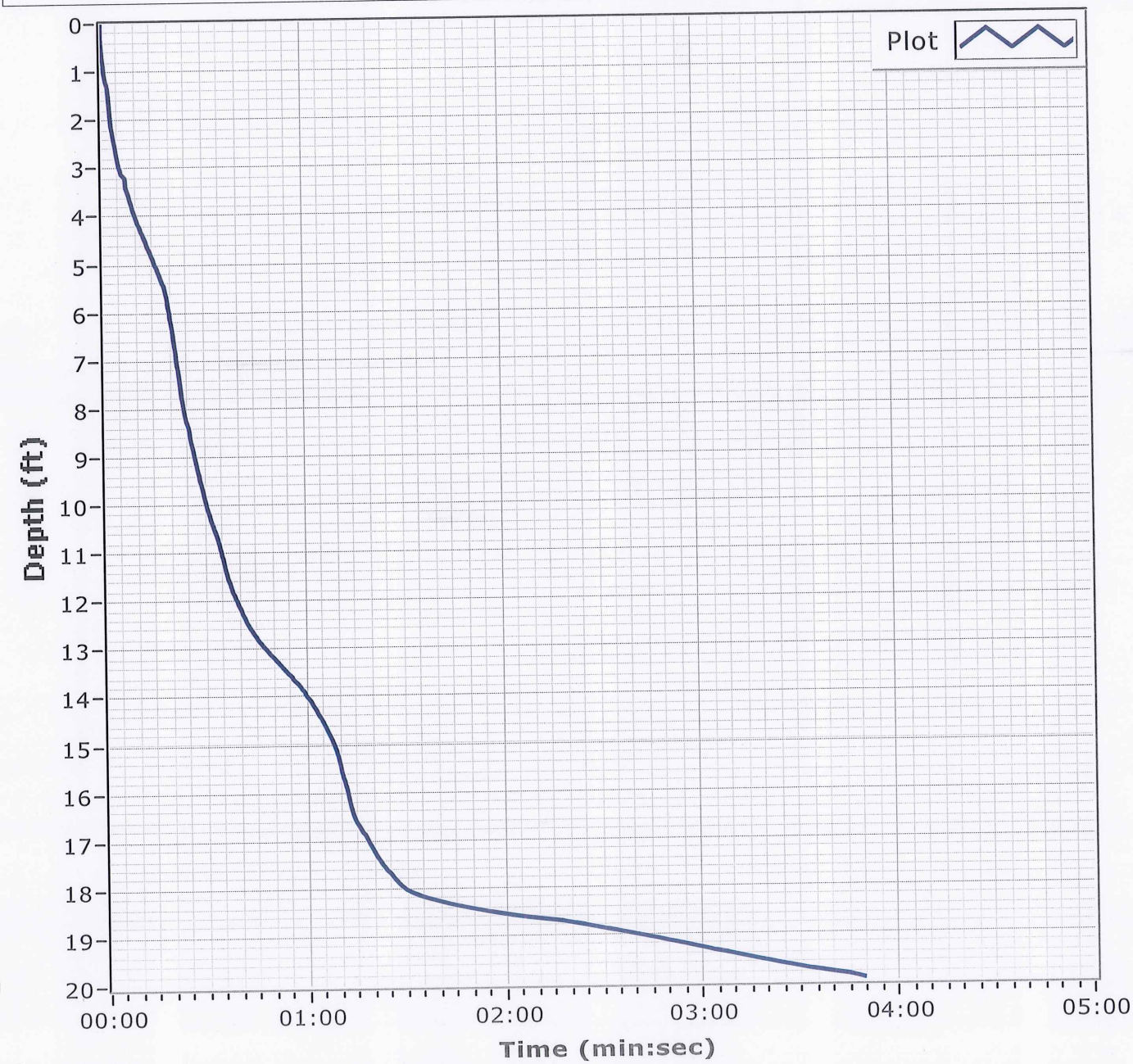
Core Identifier BI-PBS-46-12
Coordinate System
Latitude / Longitude

Latitude 30 06.817
Longitude 088 21.401

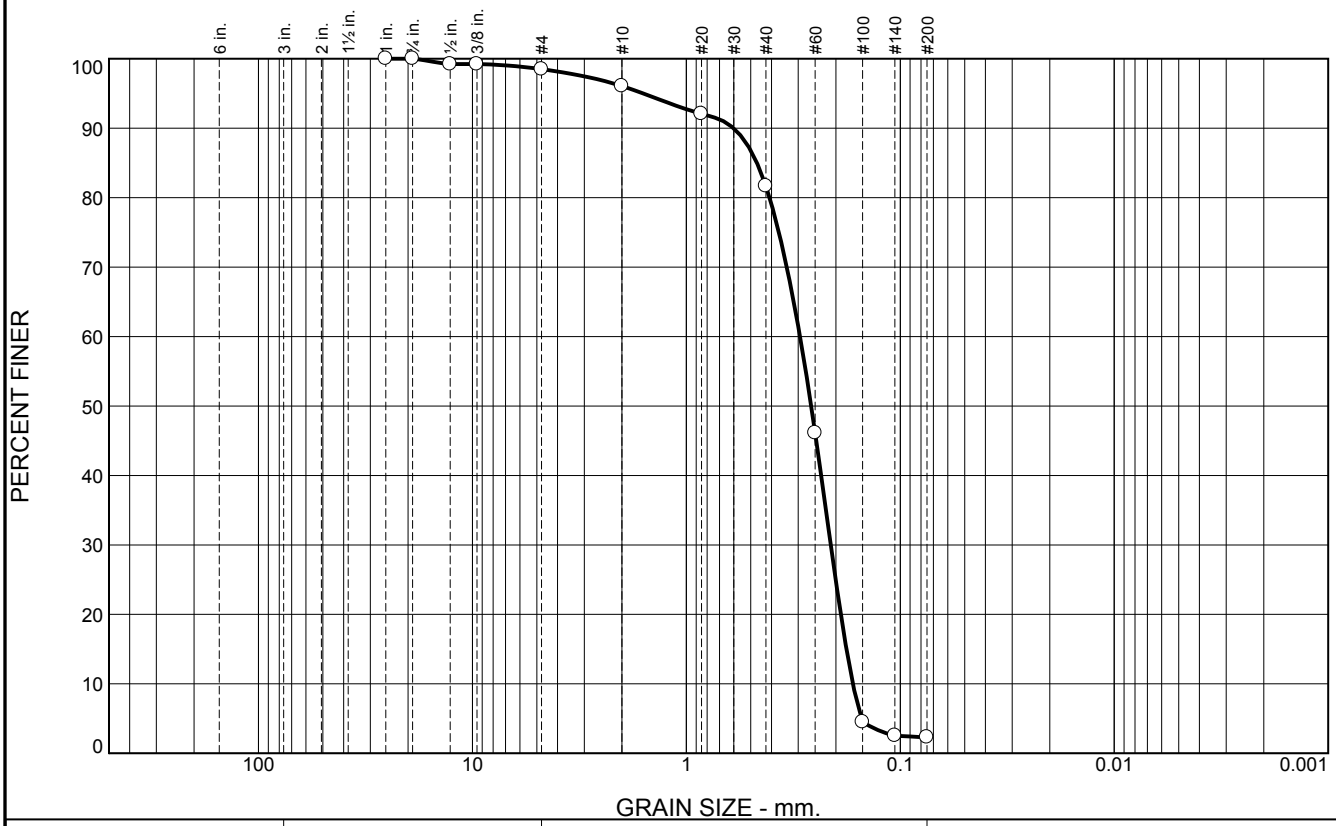
Date 12/01/2012
Start Time 13:40:35
End Time 13:44:24
Total Time 00:03:49

Water Depth 60.9'
Penetration 20.0'
Recovery 20.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	2.4	14.4	79.4	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.2		
.375	99.2		
#4	98.5		
#10	96.1		
#20	92.1		
#40	81.7		
#60	46.1		
#100	4.5		
#140	2.5		
#200	2.3		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6016 D_{85}= 0.4680 D_{60}= 0.2944
D_{50}= 0.2610 D_{30}= 0.2114 D_{15}= 0.1787
D_{10}= 0.1667 C_u= 1.77 C_c= 0.91

Classification

USCS= SP AASHTO=

Remarks

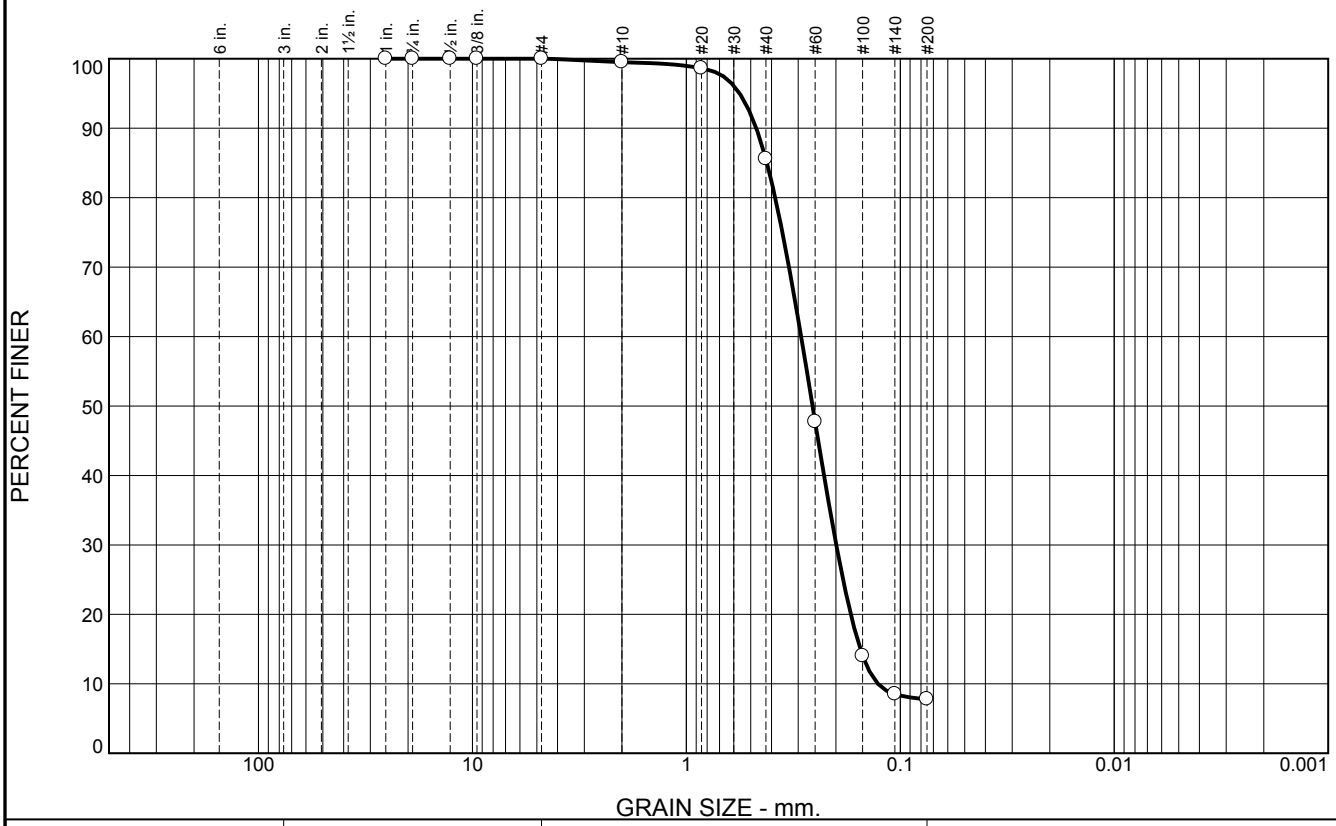
Location: BI-PBS-46-12 A
Sample Number: 6471 (13) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	13.9	77.8	7.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.6		
#40	85.6		
#60	47.7		
#100	14.0		
#140	8.5		
#200	7.8		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4713 D_{85}= 0.4202 D_{60}= 0.2909
D_{50}= 0.2571 D_{30}= 0.1992 D_{15}= 0.1538
D_{10}= 0.1272 C_u= 2.29 C_c= 1.07

Classification

USCS= SP-SM AASHTO=

Remarks

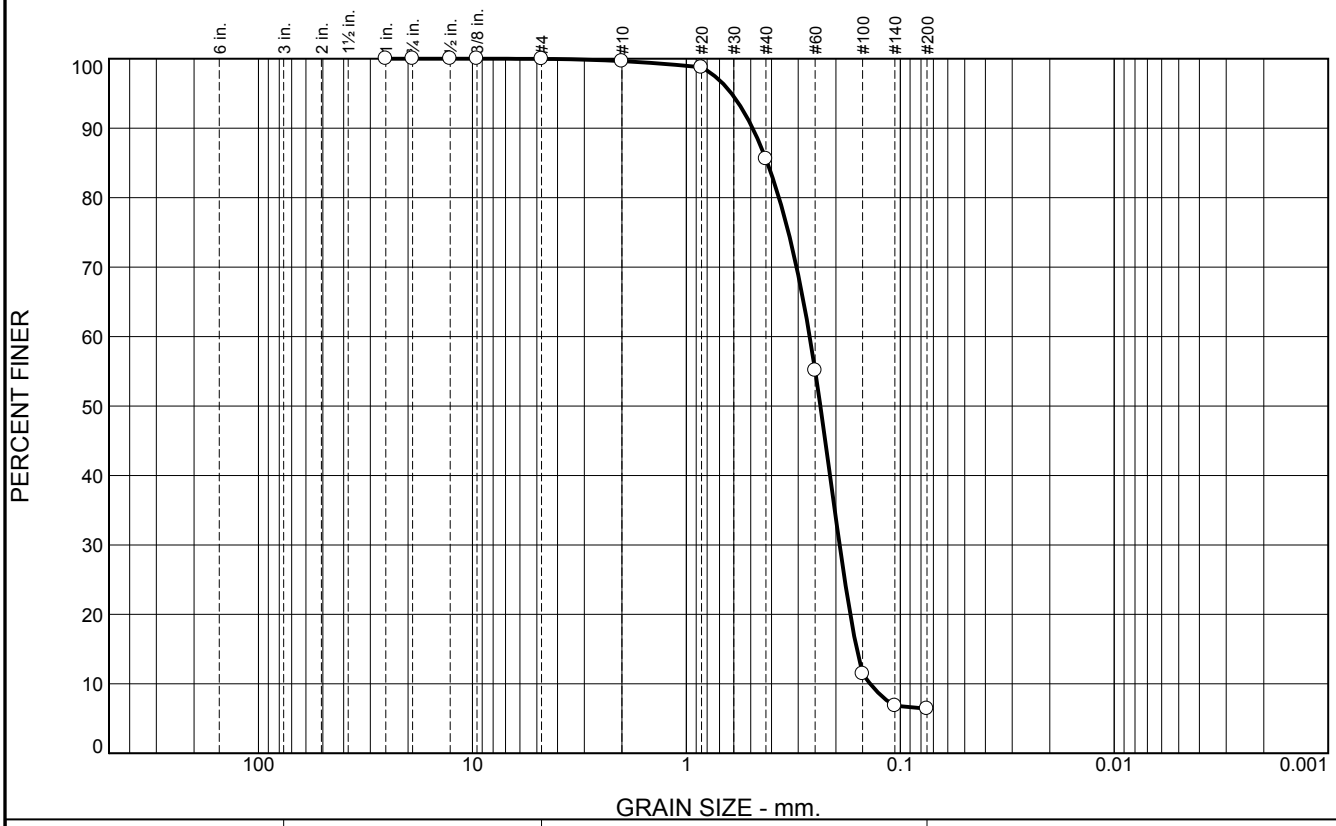
Location: BI-PBS-46-12 B
Sample Number: 6471 (14) **Depth:** 6.4' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	14.0	79.2	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.8		
#40	85.6		
#60	55.1		
#100	11.4		
#140	6.9		
#200	6.4		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4901 D_{85}= 0.4182 D_{60}= 0.2651
D_{50}= 0.2363 D_{30}= 0.1922 D_{15}= 0.1599
D_{10}= 0.1383 C_u= 1.92 C_c= 1.01

Classification

USCS= SP-SM AASHTO=

Remarks

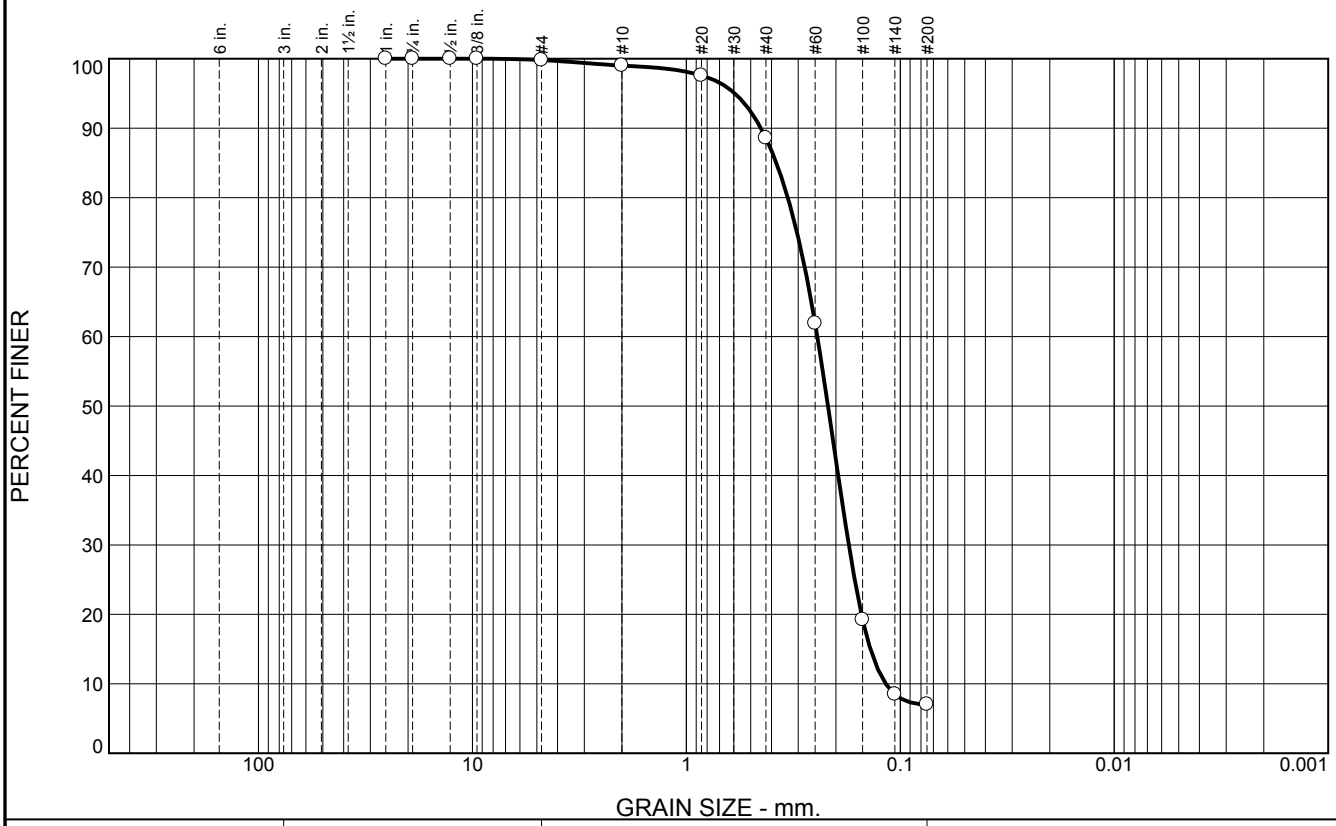
Location: BI-PBS-46-12 C
Sample Number: 6471 (15) **Depth:** 8.7' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	10.4	81.6	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	97.6		
#40	88.6		
#60	61.9		
#100	19.2		
#140	8.5		
#200	7.0		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4485 D_{85}= 0.3795 D_{60}= 0.2442
D_{50}= 0.2177 D_{30}= 0.1742 D_{15}= 0.1380
D_{10}= 0.1169 C_u= 2.09 C_c= 1.06

Classification

USCS= SP-SM AASHTO=

Remarks

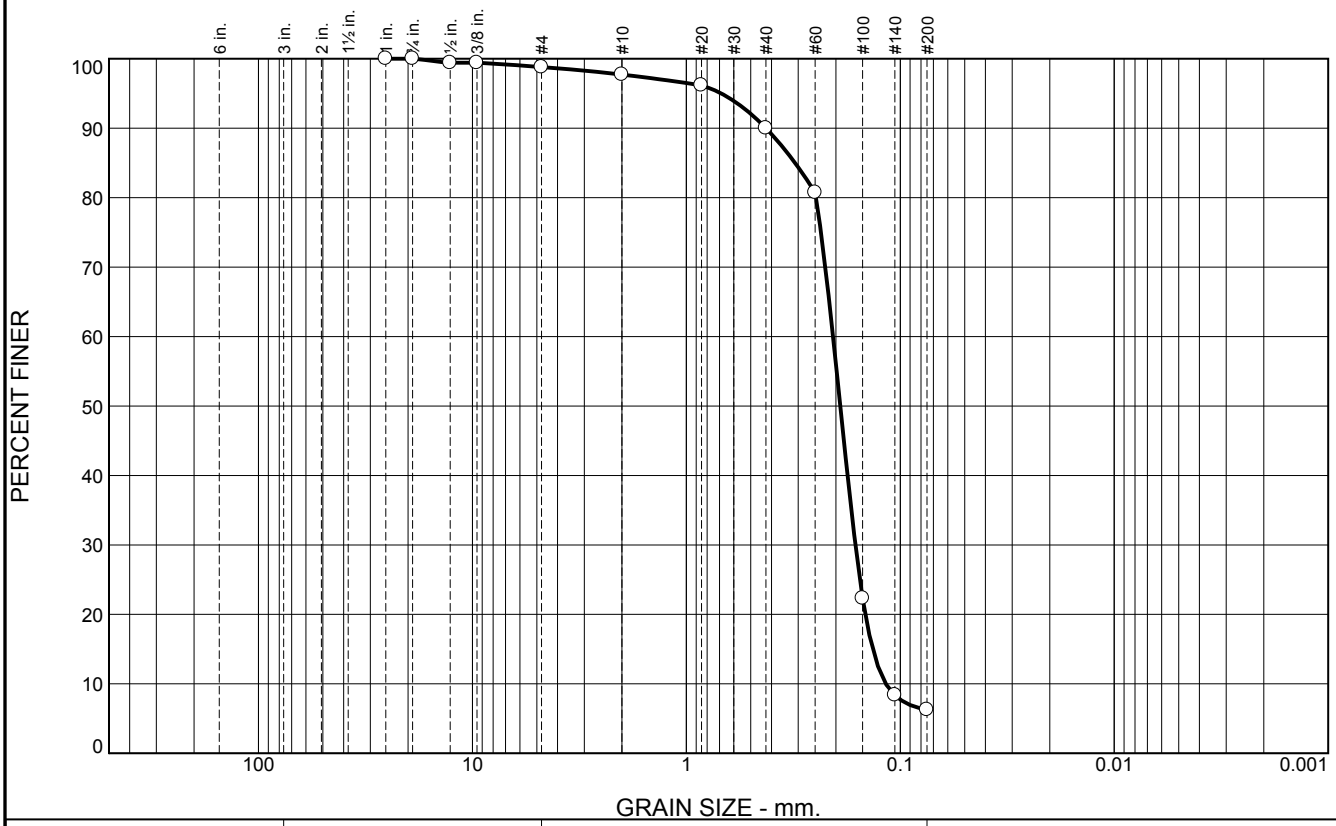
Location: BI-PBS-46-12 D
Sample Number: 6471 (16) **Depth:** 10.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.1	7.7	83.7	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.4		
.375	99.4		
#4	98.8		
#10	97.7		
#20	96.2		
#40	90.0		
#60	80.7		
#100	22.3		
#140	8.4		
#200	6.3		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4248 D_{85}= 0.3106 D_{60}= 0.2062
D_{50}= 0.1909 D_{30}= 0.1622 D_{15}= 0.1346
D_{10}= 0.1168 C_u= 1.77 C_c= 1.09

Classification

USCS= SP-SM AASHTO=

Remarks

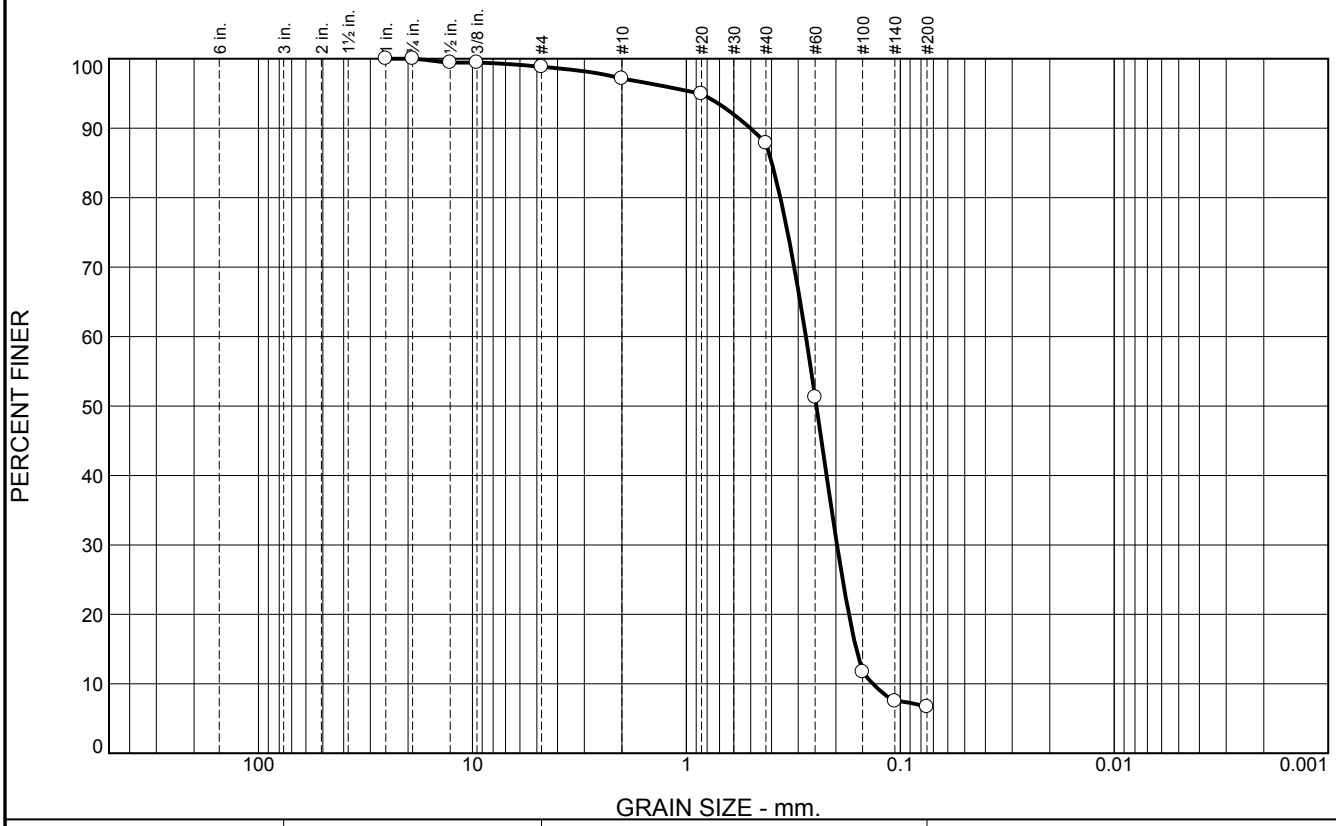
Location: BI-PBS-46-12 E
Sample Number: 6471 (17) **Depth:** 11.4' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.7	9.2	81.2	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.4		
.375	99.4		
#4	98.8		
#10	97.1		
#20	94.9		
#40	87.9		
#60	51.3		
#100	11.7		
#140	7.5		
#200	6.7		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5026 D_{85}= 0.3986 D_{60}= 0.2764
D_{50}= 0.2466 D_{30}= 0.1977 D_{15}= 0.1607
D_{10}= 0.1343 C_u= 2.06 C_c= 1.05

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-46-12 F
Sample Number: 6471 (18) **Depth:** 16.7' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-047-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-047-12 — LOCATION COORDINATES: E = 1,133,067 N = 234,413	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 48.4 Ft.
	15. DATE BORING — STARTED: 11-28-12 — COMPLETED: 11-28-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -49.2 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 16.9 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.2	0.0				
-52.9	3.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2838 mm % Fines: 1.7
-54.8	5.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, trace shell fragments, gray (SP-SM)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2135 mm % Fines: 0.2
-57.7	8.5		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace silt, trace shell fragments, gray (SP-SC)	NS	
-62.7	13.5		CLAY, fat, mostly clay, trace shell fragments, trace wood debris, trace fine grain sand lenses, soft to moderately hard, med. to high plasticity, gray mottled with brown and greenish gray (CH)		
-64.7	15.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, sandy lense at 15.0', gray (SC)		
-66.1	16.9		CLAY, fat, mostly clay, trace wood debris, trace shell fragments, medium to high plasticity, gray (CH)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14375° Long = -88.36252°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-47-12

Coordinate System
Latitude / Longitude

Latitude 30 08.635

Longitude 088 21.751

Date 11/28/2012

Start Time 14:21:09

End Time 14:22:41

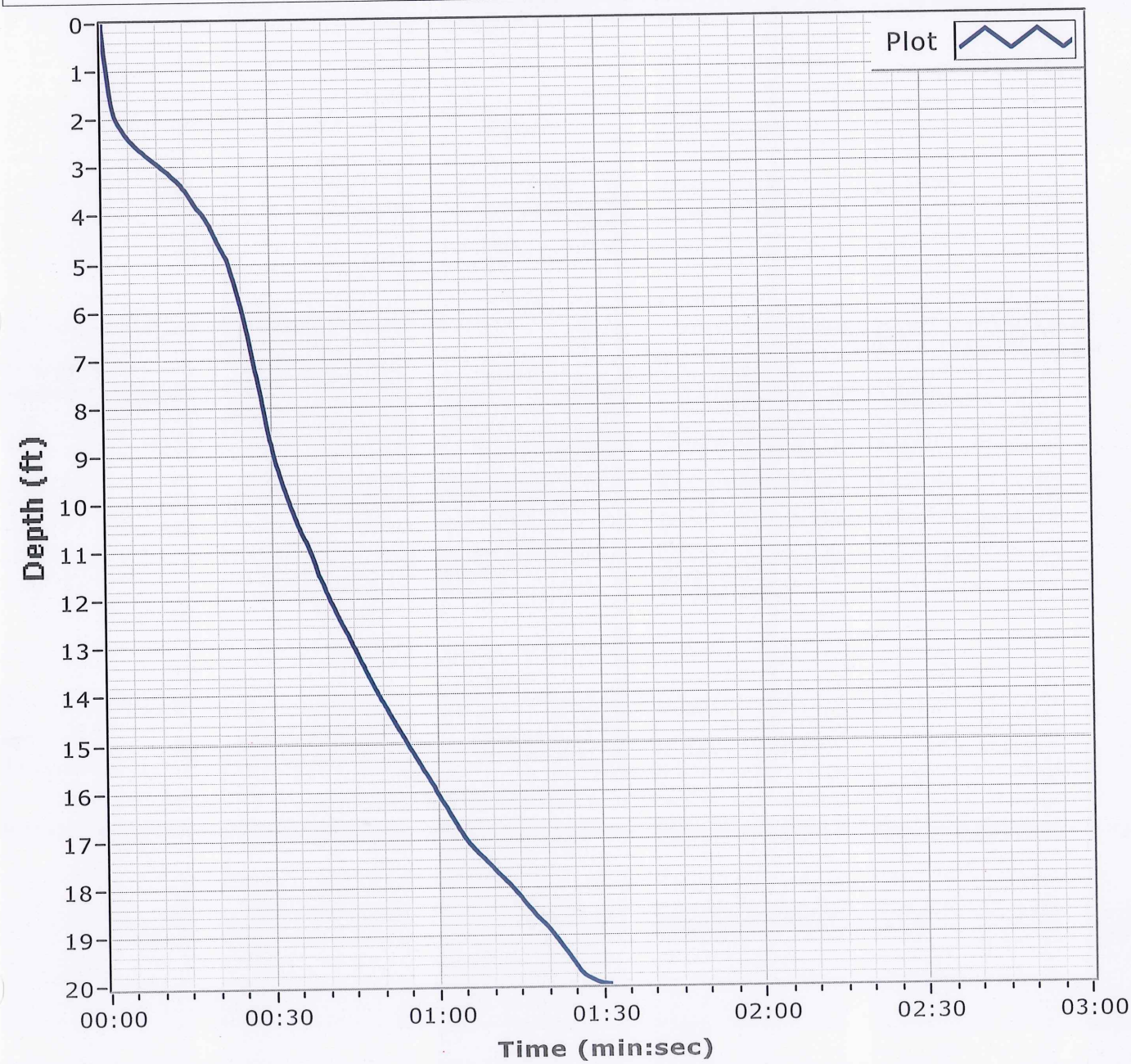
Total Time 00:01:31

Water Depth 48.4'

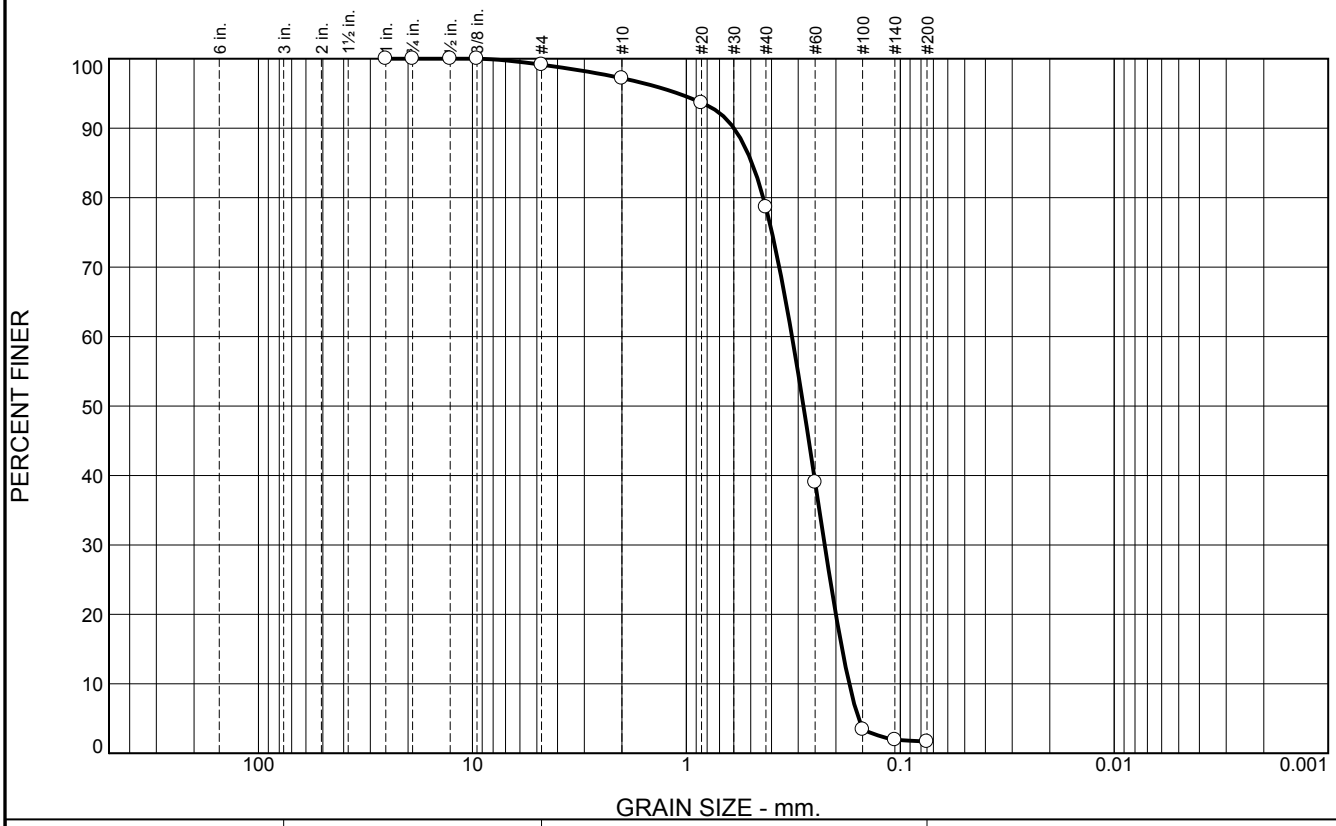
Penetration 20.0'

Recovery 16.9'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.9	18.6	76.9	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.1		
#10	97.2		
#20	93.7		
#40	78.6		
#60	39.0		
#100	3.4		
#140	1.9		
#200	1.7		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5990 D_{85}= 0.4938 D_{60}= 0.3207
D_{50}= 0.2838 D_{30}= 0.2256 D_{15}= 0.1871
D_{10}= 0.1734 C_u= 1.85 C_c= 0.92

Classification

USCS= SP AASHTO=

Remarks

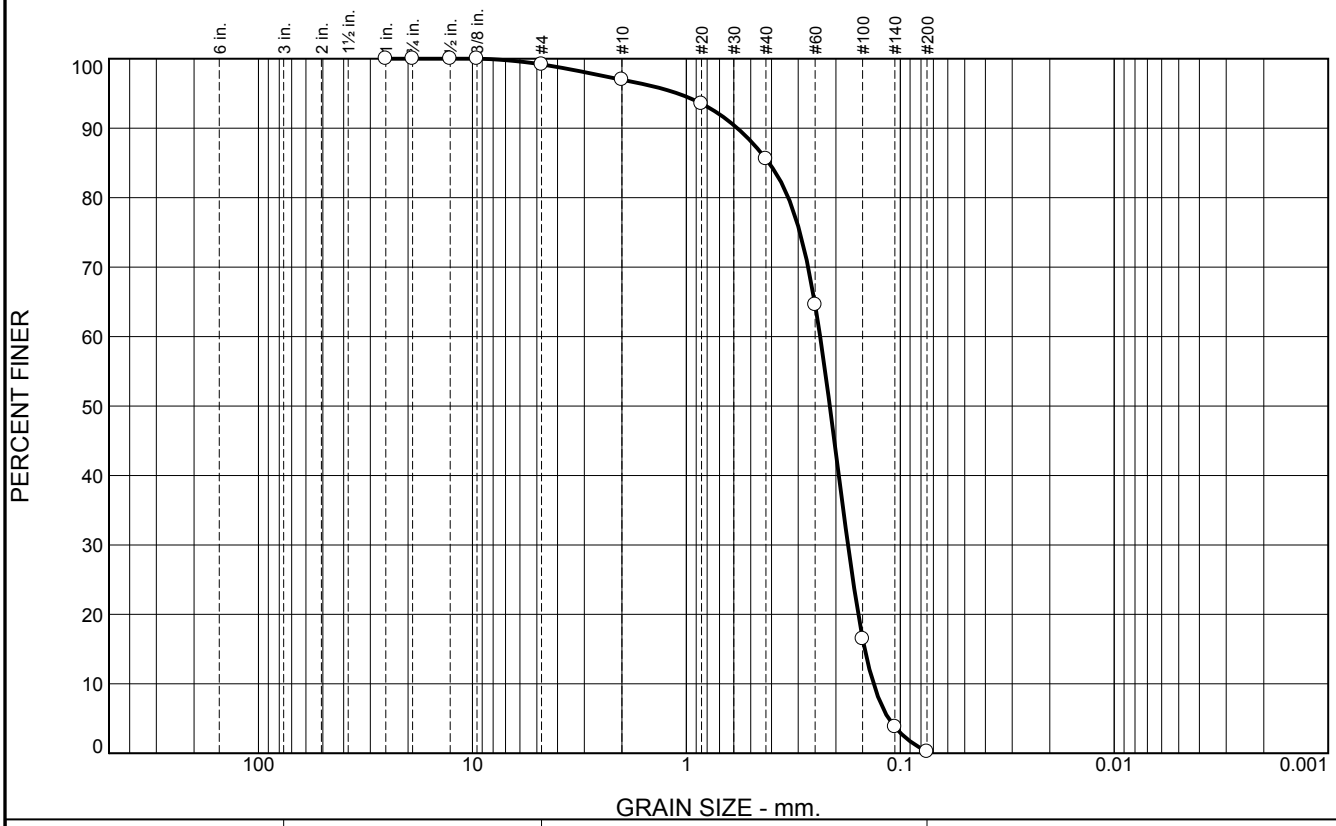
Location: BI-PBS-47-12 A
Sample Number: 6471 (19) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.2	11.4	85.4	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.0		
#20	93.5		
#40	85.6		
#60	64.6		
#100	16.5		
#140	3.8		
#200	0.2		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5779 D_{85}= 0.4111 D_{60}= 0.2368
D_{50}= 0.2135 D_{30}= 0.1757 D_{15}= 0.1467
D_{10}= 0.1334 C_u= 1.77 C_c= 0.98

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-47-12 B
Sample Number: 6471 (20) **Depth:** 3.7' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-048-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-048-12 — LOCATION COORDINATES: E = 1,134,712 N = 233,995	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 48.1 Ft.
	15. DATE BORING — STARTED: 11-28-12 — COMPLETED: 11-28-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -50.7 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 18.4 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.7	0.0				
-52.0	1.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace silt, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.5146 mm % Fines: 1.7
-54.6	3.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2246 mm % Fines: 0.4
-57.0	6.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)	C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1863 mm % Fines: 14.9
-66.0	15.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, alternating bands of clayey sand and sandy clay, greenish gray (SC) At El. -61.1 Ft., mostly fine-grained sand-sized quartz, some clay, trace shells, trace wood debris, gray	NS	
-69.1	18.4		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, moderately stiff, gray (CL)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14258° Long = -88.35732°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-48-12

Coordinate System
Latitude / Longitude

Latitude 30 08.555

Longitude 088 21.439

Date 11/28/2012

Start Time 11:20:50

End Time 11:21:52

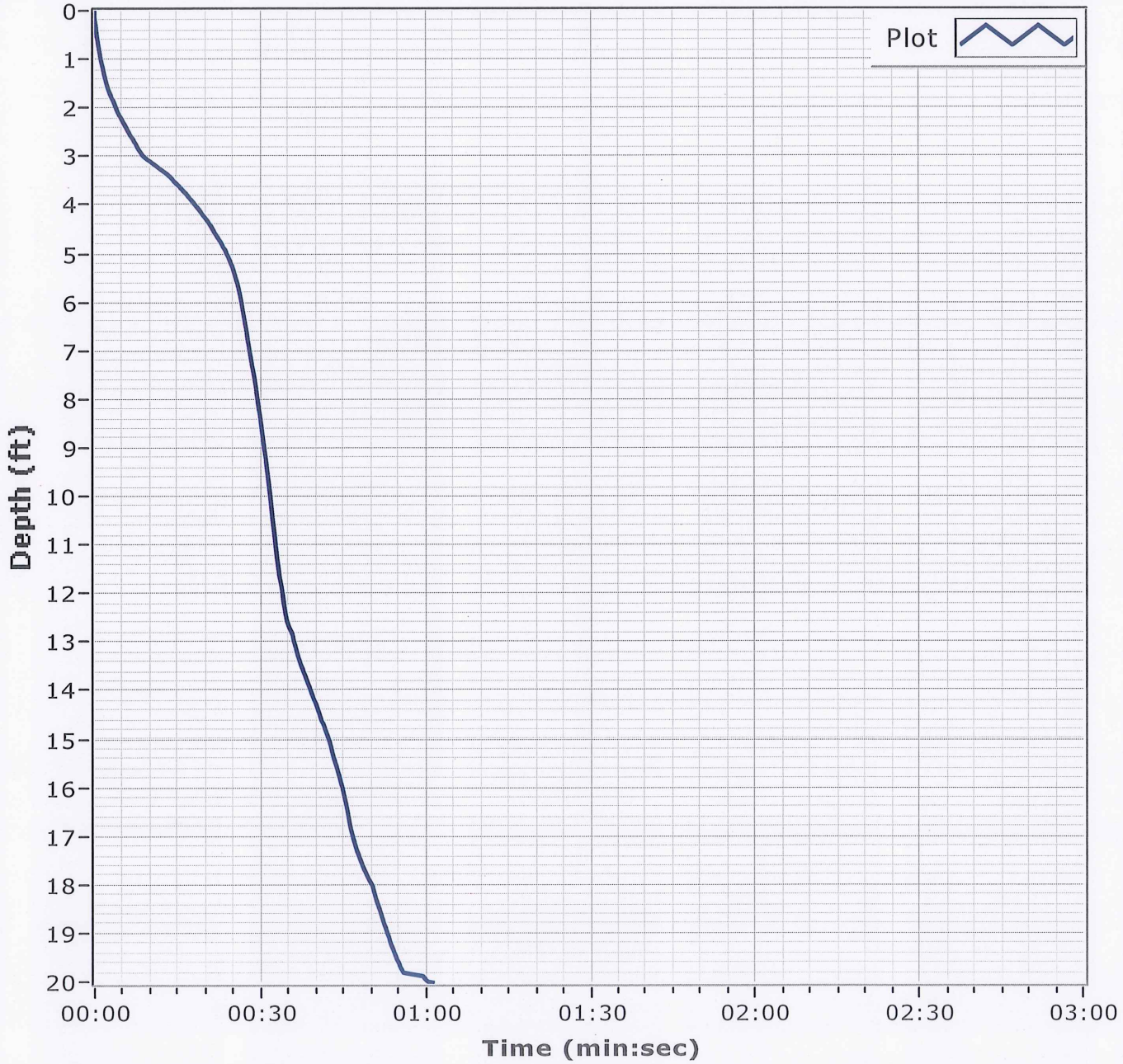
Total Time 00:01:01

Water Depth 48.1'

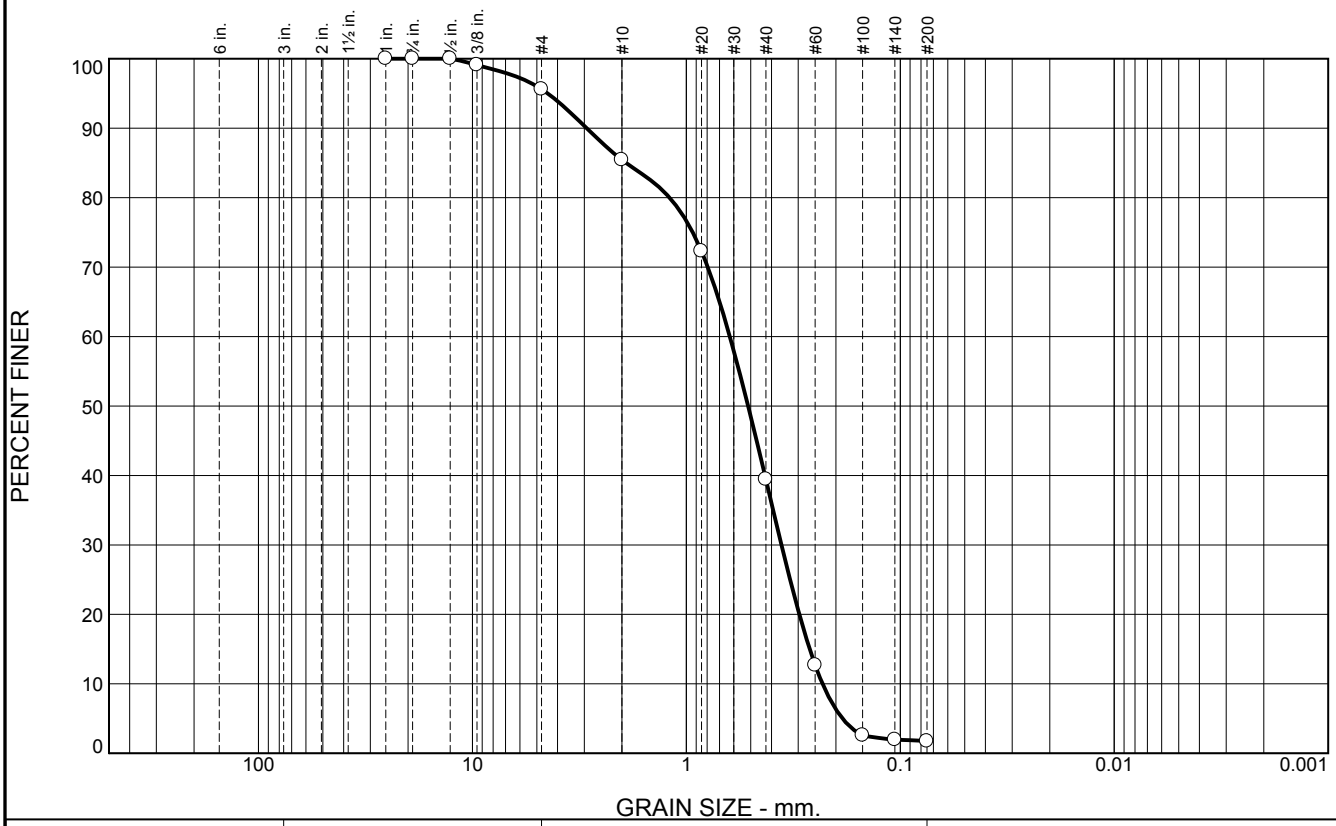
Penetration 20.0'

Recovery 18.4'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.4	10.2	46.0	37.7	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.1		
#4	95.6		
#10	85.4		
#20	72.3		
#40	39.4		
#60	12.7		
#100	2.6		
#140	1.9		
#200	1.7		

* (no specification provided)

Material Description

Fine to coarse grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.9235 D_{85}= 1.9142 D_{60}= 0.6265
D_{50}= 0.5146 D_{30}= 0.3592 D_{15}= 0.2653
D_{10}= 0.2309 C_u= 2.71 C_c= 0.89

Classification

USCS= SP AASHTO=

Remarks

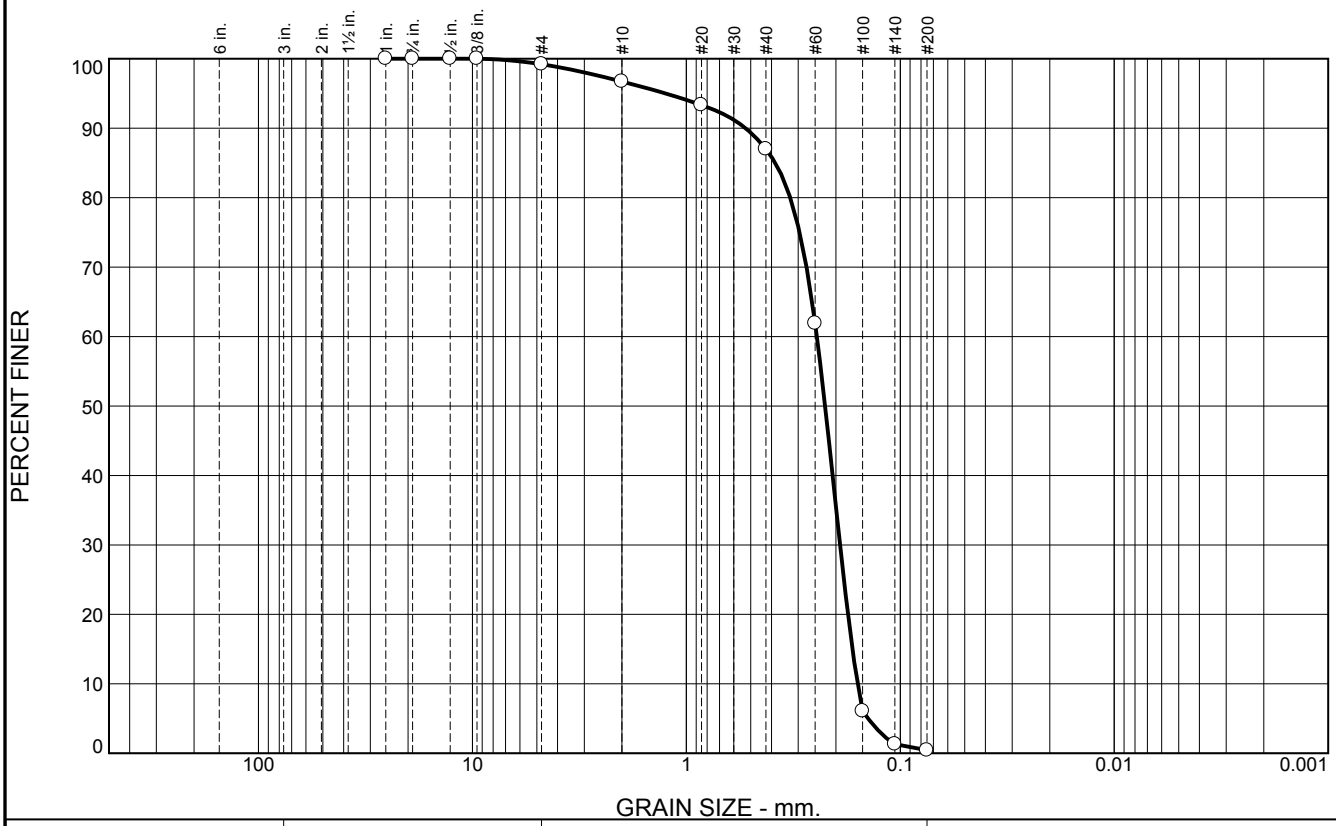
Location: BI-PBS-48-12 A
Sample Number: 6471 (21) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.5	9.7	86.6	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	96.7		
#20	93.3		
#40	87.0		
#60	61.9		
#100	6.1		
#140	1.3		
#200	0.4		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5290 D_{85}= 0.3840 D_{60}= 0.2453
D_{50}= 0.2246 D_{30}= 0.1913 D_{15}= 0.1675
D_{10}= 0.1585 C_u= 1.55 C_c= 0.94

Classification

USCS= SP AASHTO=

Remarks

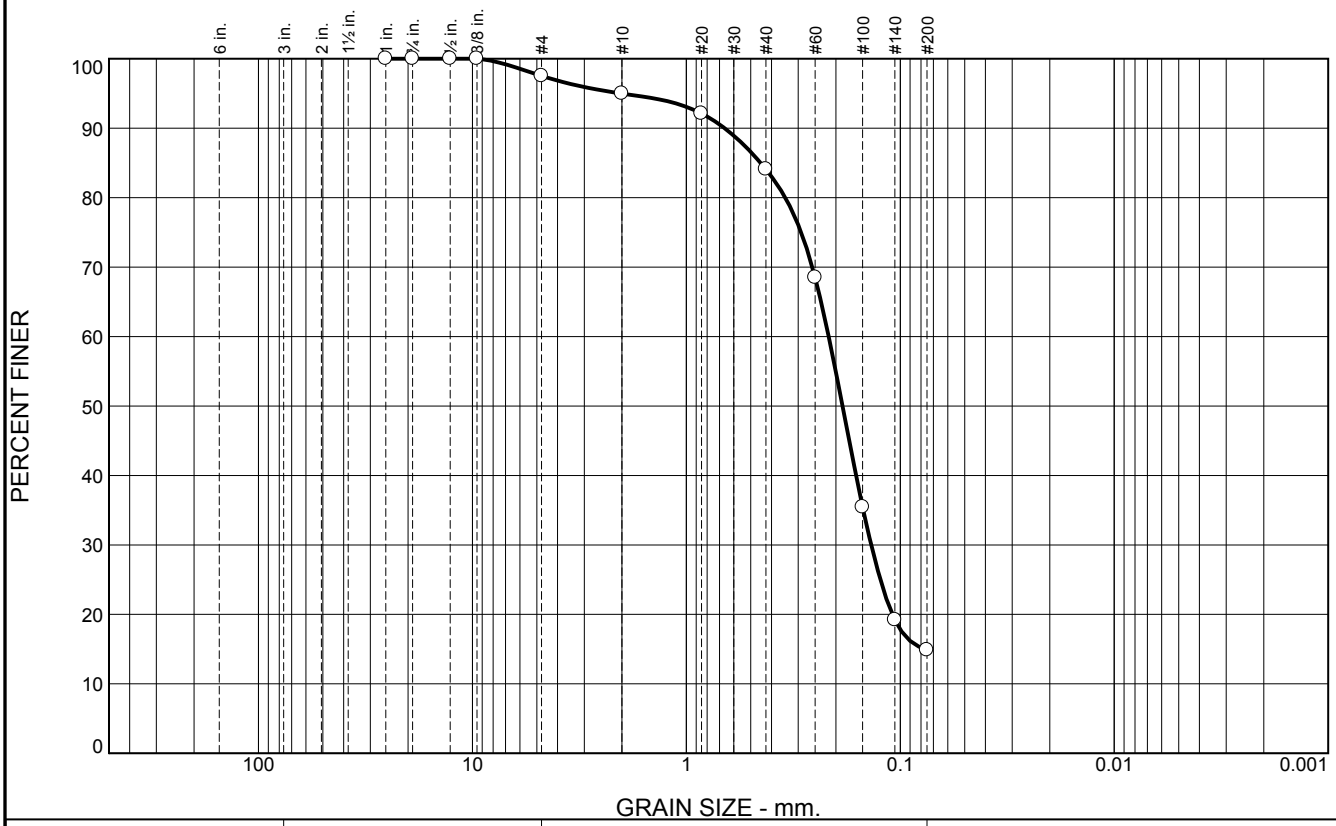
Location: BI-PBS-48-12 B
Sample Number: 6471 (22) **Depth:** 1.3' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.5	2.5	10.9	69.2	14.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	97.5		
#10	95.0		
#20	92.1		
#40	84.1		
#60	68.5		
#100	35.4		
#140	19.2		
#200	14.9		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6631 D_{85}= 0.4502 D_{60}= 0.2161
D_{50}= 0.1863 D_{30}= 0.1368 D_{15}= 0.0769
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: BI-PBS-48-12 C
Sample Number: 6471 (23) **Depth:** 3.9' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-049-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-049-12 — LOCATION COORDINATES: E = 1,131,364 N = 236,432	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 50.6 Ft.
	15. DATE BORING — STARTED: 11-28-12 — COMPLETED: 11-28-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -50.6 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 19.2 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.6	0.0				
-54.8	4.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2387 mm % Fines: 3.6
-56.5	5.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, wood fragments at 4.3', gray (SM)	NS	
-59.3	8.7		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace wood debris, gray (CL)		
-61.3	10.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)		
-65.8	15.2		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, gray (CH)		
-69.8	19.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace wood debris, gray (SC)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14932° Long = -88.36788°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-49-12

Coordinate System
Latitude / Longitude

Latitude 30 08.959

Longitude 088 22.073

Date 11/28/2012

Start Time 15:43:56

End Time 15:44:29

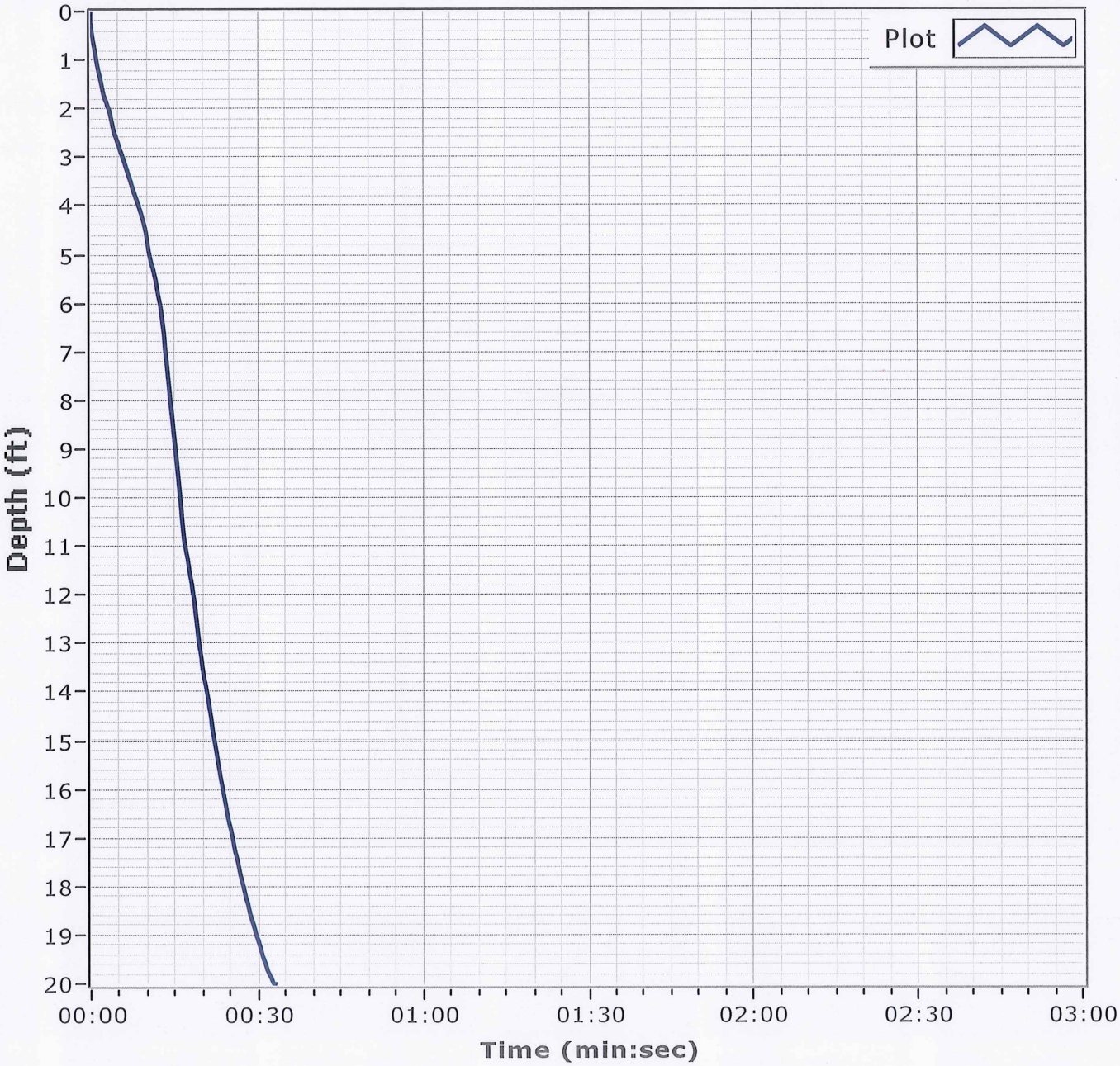
Total Time 00:00:33

Water Depth 50.6'

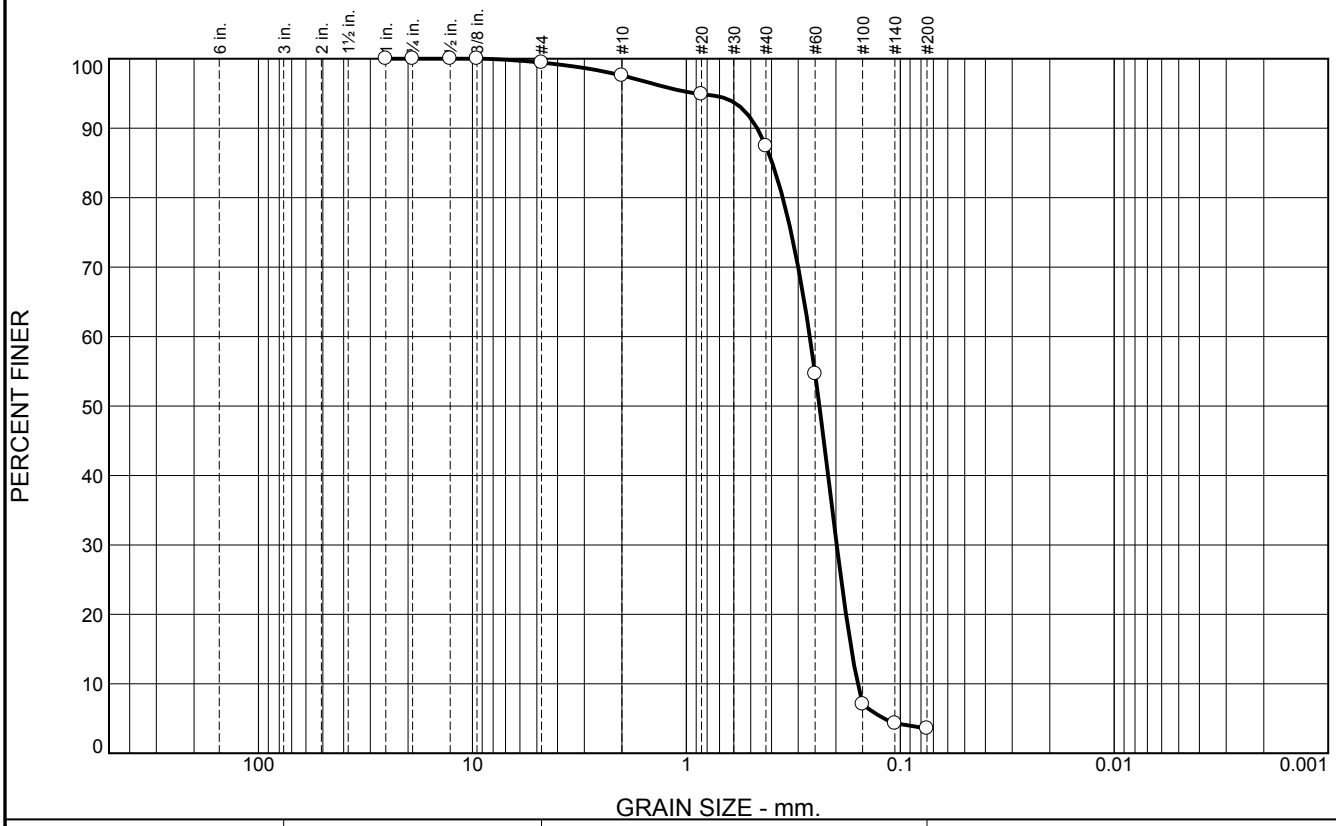
Penetration 20.0'

Recovery 19.2'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	1.8	10.2	83.8	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	97.6		
#20	94.9		
#40	87.4		
#60	54.6		
#100	7.1		
#140	4.3		
#200	3.6		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4671 D_{85}= 0.3966 D_{60}= 0.2649
D_{50}= 0.2387 D_{30}= 0.1982 D_{15}= 0.1695
D_{10}= 0.1583 C_u= 1.67 C_c= 0.94

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-49-12 A
Sample Number: 6471 (24) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-050-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-050-12 — LOCATION COORDINATES: E = 1,132,205 N = 235,628	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 48.7 Ft.
	15. DATE BORING — STARTED: 11-28-12 — COMPLETED: 11-28-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -48.4 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 18.9 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.4	0.0				
-53.4	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2669 mm % Fines: 3.3
-54.7	6.3		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace shell fragments, gray (SP-SC)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2078 mm % Fines: 11.4
-56.4	8.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
-67.3	18.9		CLAY, fat, mostly clay, trace shell fragments, trace wood debris, intermittent lenses of sandy clay, gray (CH)	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14710° Long = -88.36523°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

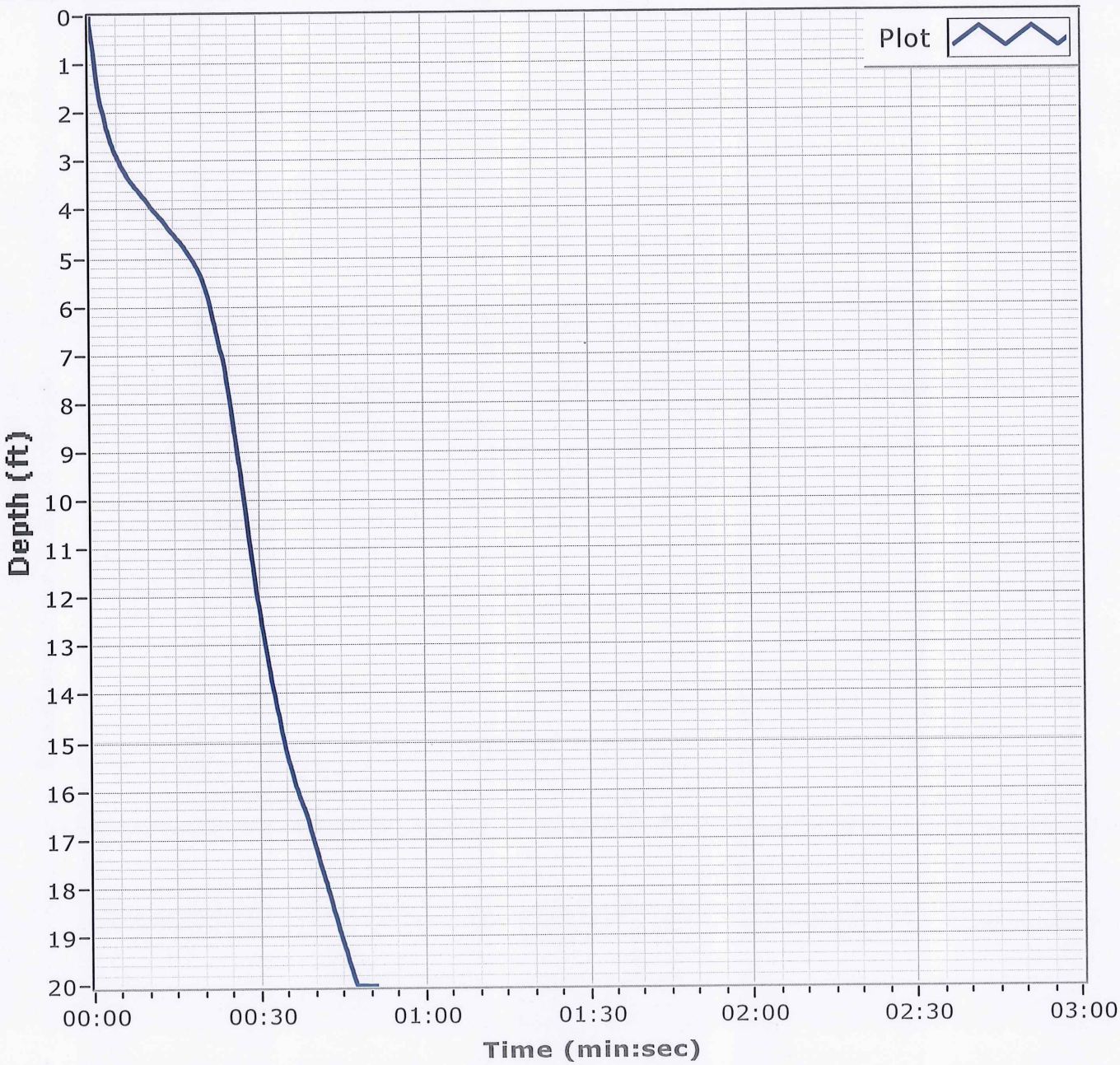
Core Identifier BI-PBS-50-12
Coordinate System
Latitude / Longitude

Latitude 30 08.826
Longitude 088 21.914

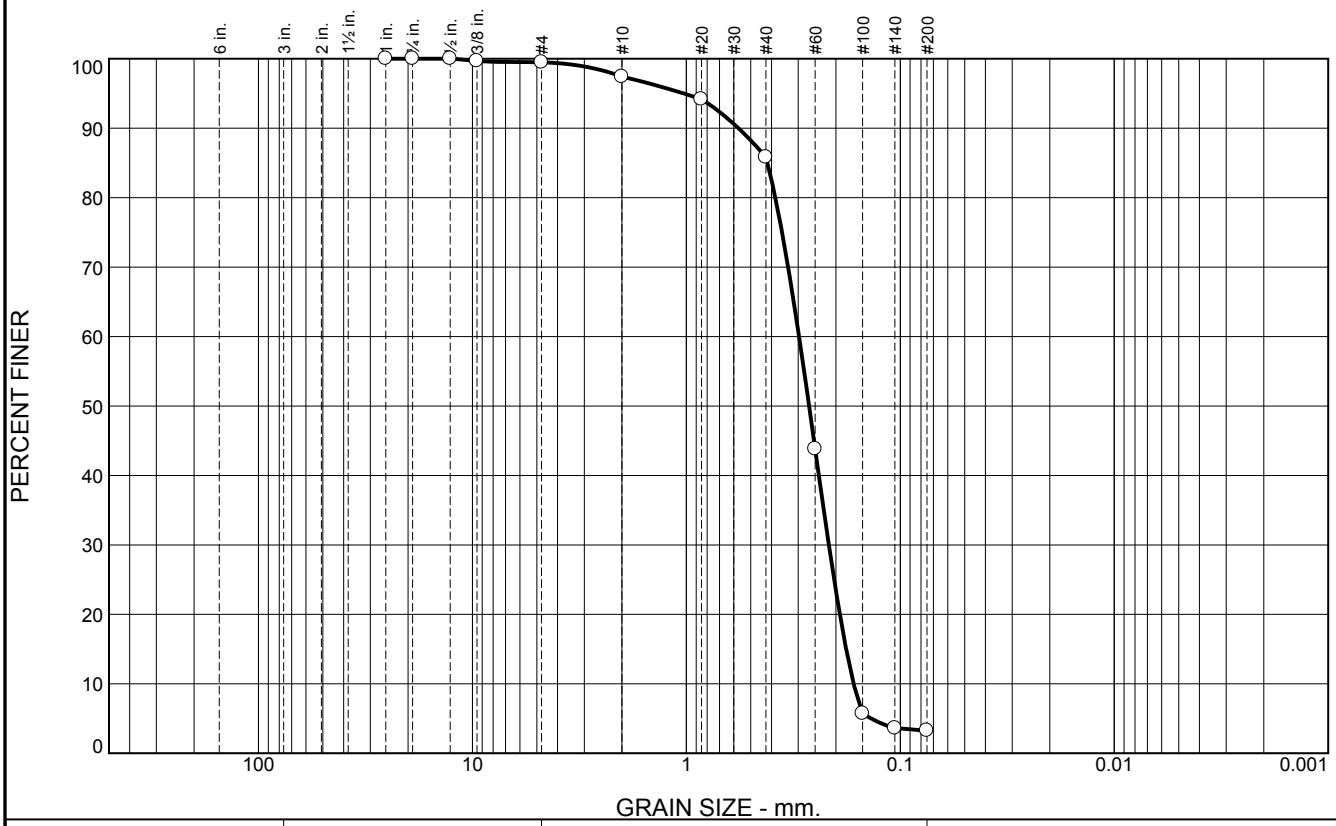
Date 11/28/2012
Start Time 15:02:32
End Time 15:03:23
Total Time 00:00:51

Water Depth 48.7'
Penetration 20.0'
Recovery 18.9'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.1	11.6	82.5	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.5		
#10	97.4		
#20	94.2		
#40	85.8		
#60	43.8		
#100	5.7		
#140	3.6		
#200	3.3		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5711 D_{85}= 0.4181 D_{60}= 0.2975
D_{50}= 0.2669 D_{30}= 0.2157 D_{15}= 0.1792
D_{10}= 0.1653 C_u= 1.80 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

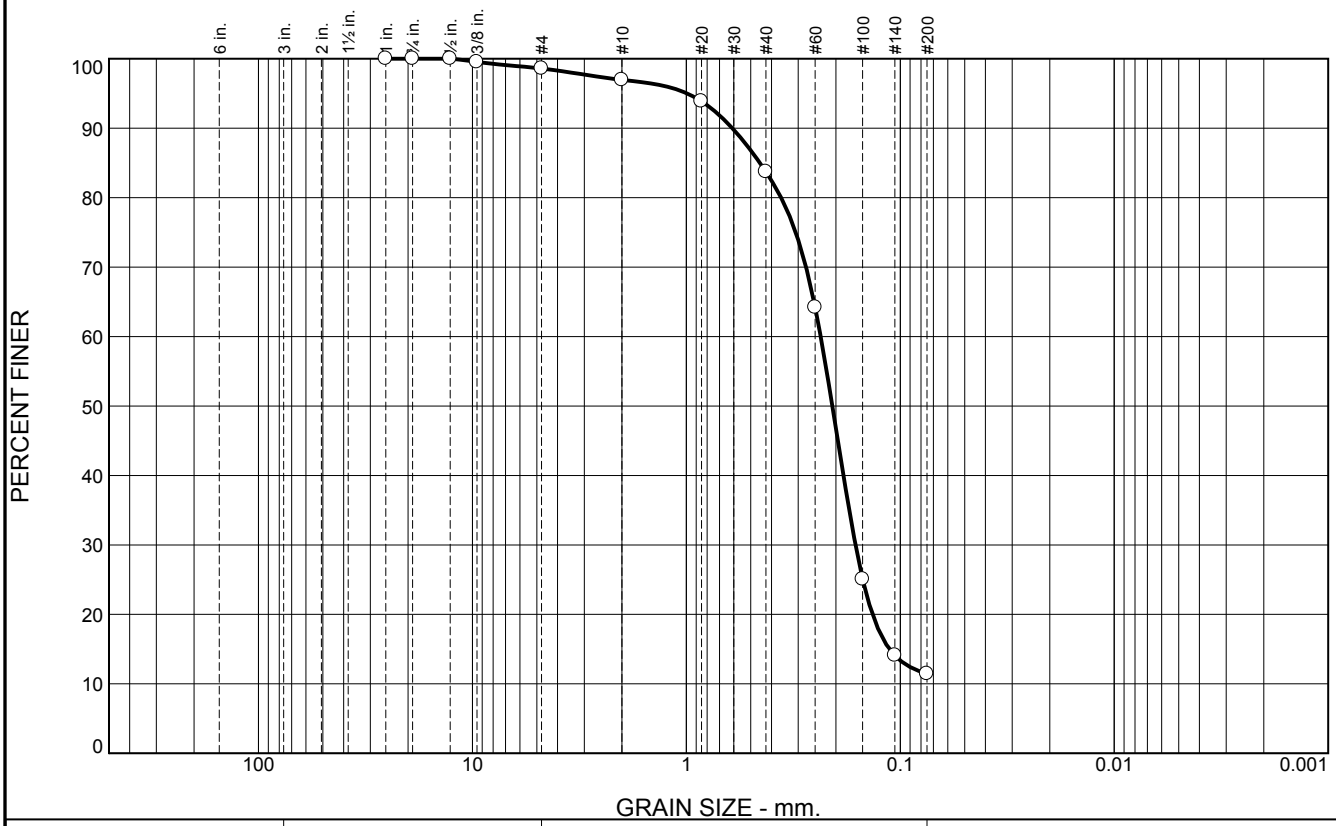
Location: BI-PBS-50-12 A
Sample Number: 6471 (25) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	1.7	13.2	72.3	11.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	98.6		
#10	96.9		
#20	93.9		
#40	83.7		
#60	64.2		
#100	25.1		
#140	14.1		
#200	11.4		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6098 D_{85}= 0.4536 D_{60}= 0.2355
D_{50}= 0.2078 D_{30}= 0.1620 D_{15}= 0.1123
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-50-12 B
Sample Number: 6471 (26) **Depth:** 5.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-051-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-051-12
LOCATION COORDINATES	E = 1,132,401 N = 232,439
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	19.8 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	56.4 Ft.
15. DATE BORING	STARTED 11-28-12; COMPLETED 11-28-12
16. ELEVATION TOP OF BORING	-56.4 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.4	0.0				
-58.4	2.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-62.8	6.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, with trace clayey nodules, gray mottled with brown (SC)		
-76.2	19.8		CLAY, fat, mostly clay, little silt, trace shell fragments, trace wood debris, with occasional silty pockets and sandy clay lenses, gray (CH)	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13833° Long = -88.36465°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,132,401 Y = 232,439	ELEVATION TOP OF BORING -56.4 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			applying NOAA tidal gauge data conversion factor.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13833° Long = -88.36465°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

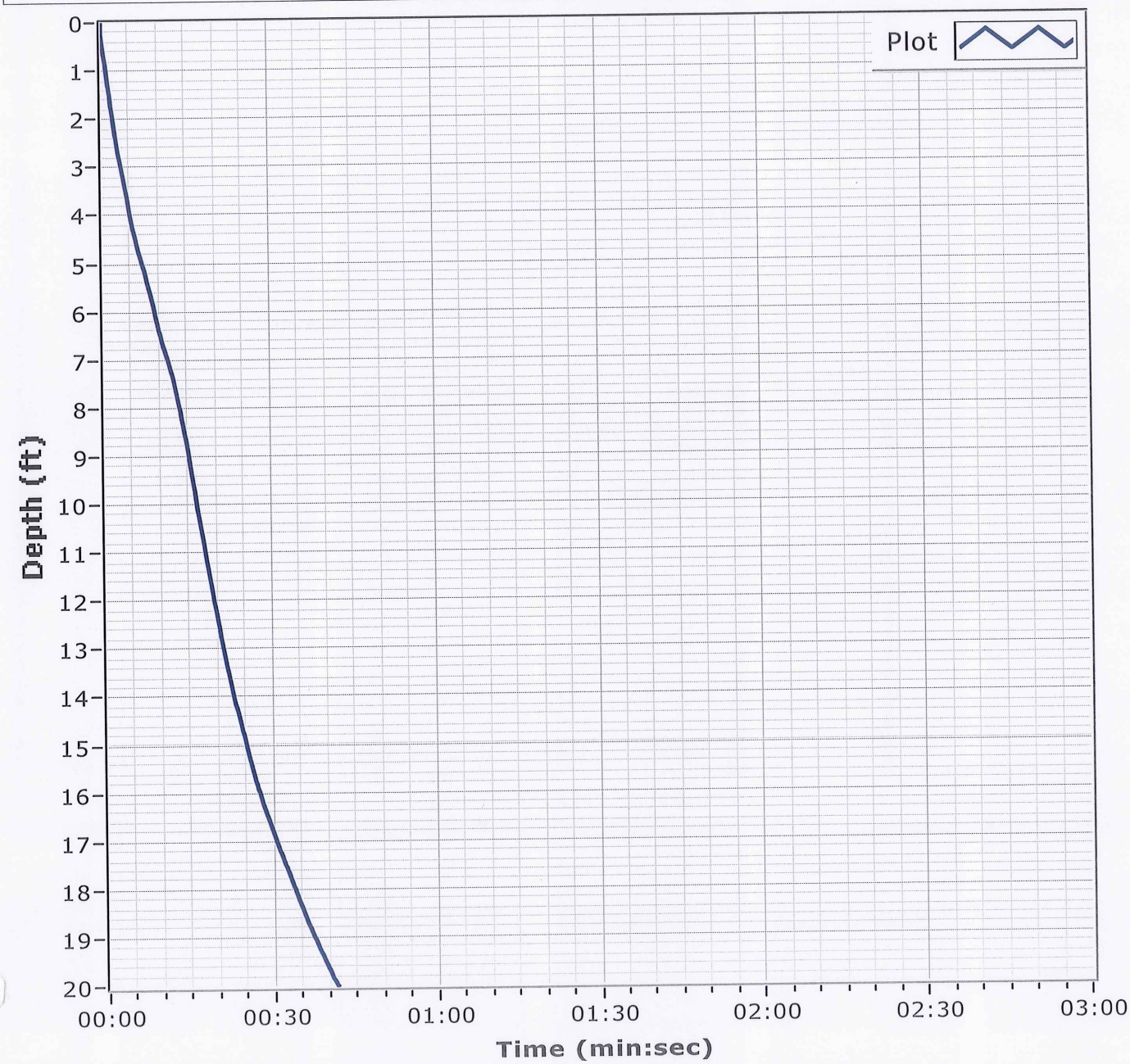
Core Identifier BI-PBS-51-12
Coordinate System
Latitude / Longitude

Latitude 30 08.300
Longitude 088 21.879

Date 11/28/2012
Start Time 12:11:35
End Time 12:12:16
Total Time 00:00:41

Water Depth 56.4'
Penetration 20.0'
Recovery 19.8'

Comments



Boring Designation BI-PBS-052-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-052-12 — LOCATION COORDINATES: E = 1,130,058 N = 241,304	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 46.6 Ft.
	15. DATE BORING — STARTED: 11-30-12 — COMPLETED: 11-30-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -46.5 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 20.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.5	0.0				
-47.5	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)		
-50.3	3.8		SAND, clayey, mostly fine-grained sand-sized quartz, little silt, Wood debris at 3 ft., gray (SC)		
-51.2	4.7		CLAY, lean, mostly clay, some silt, trace wood debris, silty clay, brownish gray (CL)		
-53.8	7.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, lt. gray (SP)		
-62.2	15.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)	NS	
-63.0	16.5		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)		
-65.1	18.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)		
-66.5	20.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.16273° Long = -88.37195°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,130,058 Y = 241,304	ELEVATION TOP OF BORING -46.5 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			hydrographic survey completed April 2014.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.16273° Long = -88.37195°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-52-12

Coordinate System
Latitude / Longitude

Latitude 30 09.764

Longitude 088 22.317

Date 11/30/2012

Start Time 11:36:31

End Time 11:37:43

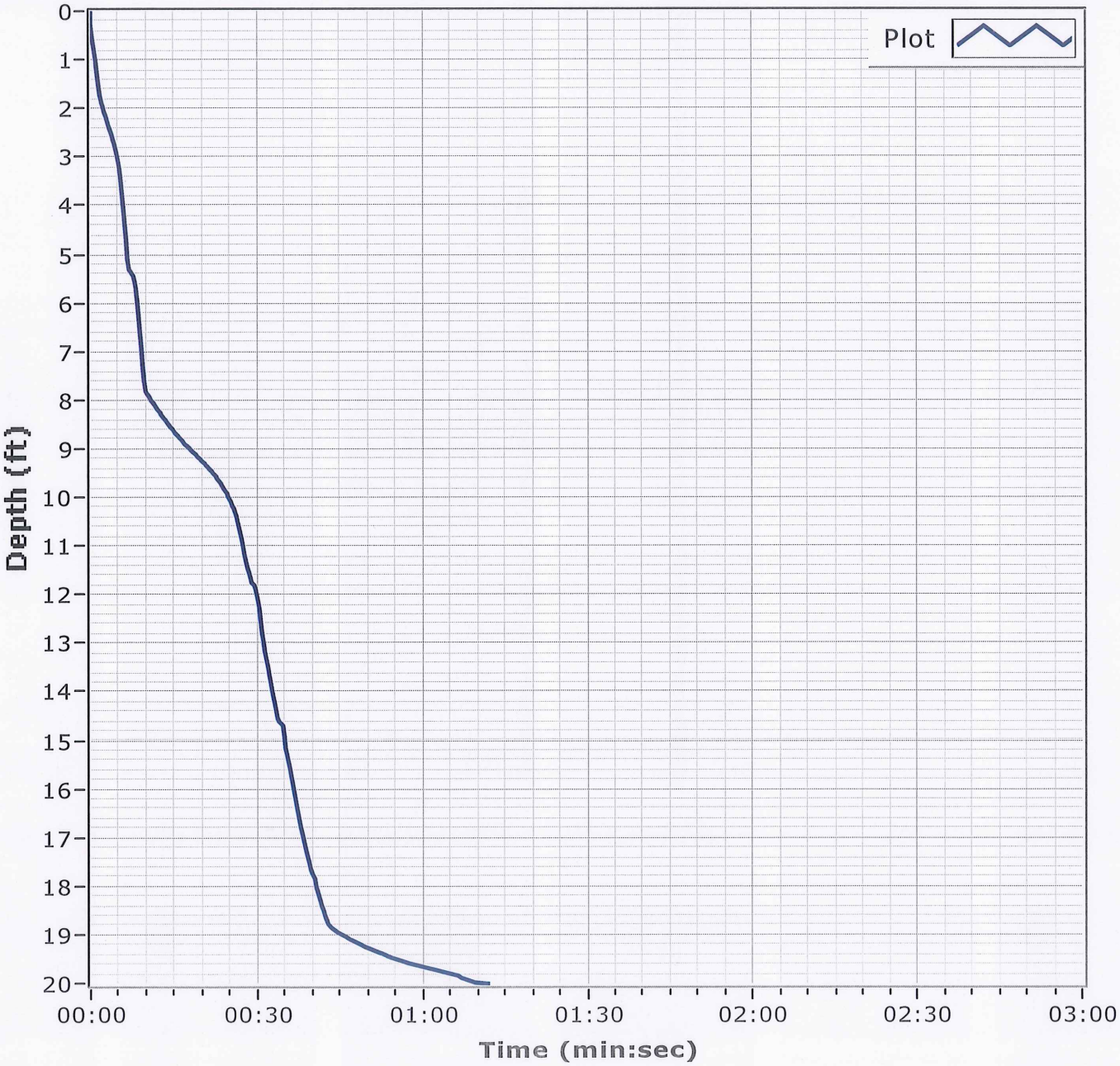
Total Time 00:01:12

Water Depth 46.6'

Penetration 20.0'

Recovery 20.0'

Comments



Boring Designation BI-PBS-053-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-053-12 — LOCATION COORDINATES: E = 1,131,214 N = 240,705	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 44.5 Ft.
	15. DATE BORING — STARTED: 11-30-12 — COMPLETED: 11-30-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -45.9 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 20.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-45.9	0.0				
-51.4	5.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3315 mm % Fines: 2.4
-53.3	7.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-54.3	8.4		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace clay, gray (SP-SM)		
-59.5	13.6		SAND, clayey, mostly fine to medium-grained sand-sized quartz, some clay, little shell fragments, gray (SC)		
-60.9	15.0		SHELL, mostly shell fragments, some fine-grained sand-sized quartz, some clay, gray		
-65.9	20.0		SAND, silty, mostly fine-grained sand-sized quartz, little clay, little shell fragments, gray (SM)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.16107° Long = -88.36830°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,131,214 Y = 240,705	ELEVATION TOP OF BORING -45.9 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			hydrographic survey completed April 2014.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.16107° Long = -88.36830°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-53-12 A

Coordinate System
Latitude / Longitude

Latitude 30 09.664

Longitude 088 22.098

Date 11/30/2012

Start Time 10:51:05

End Time 10:52:13

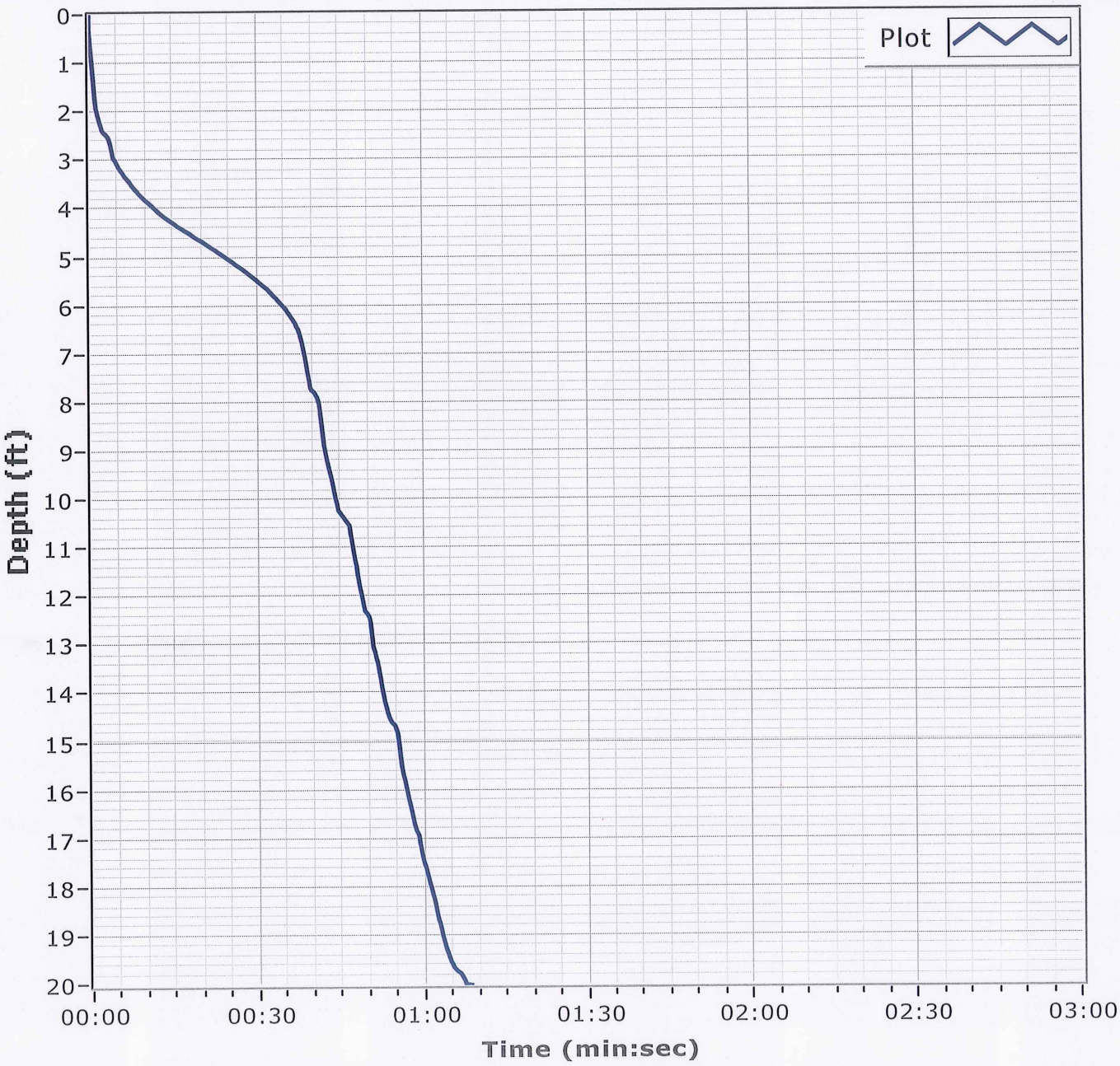
Total Time 00:01:08

Water Depth 44.5'

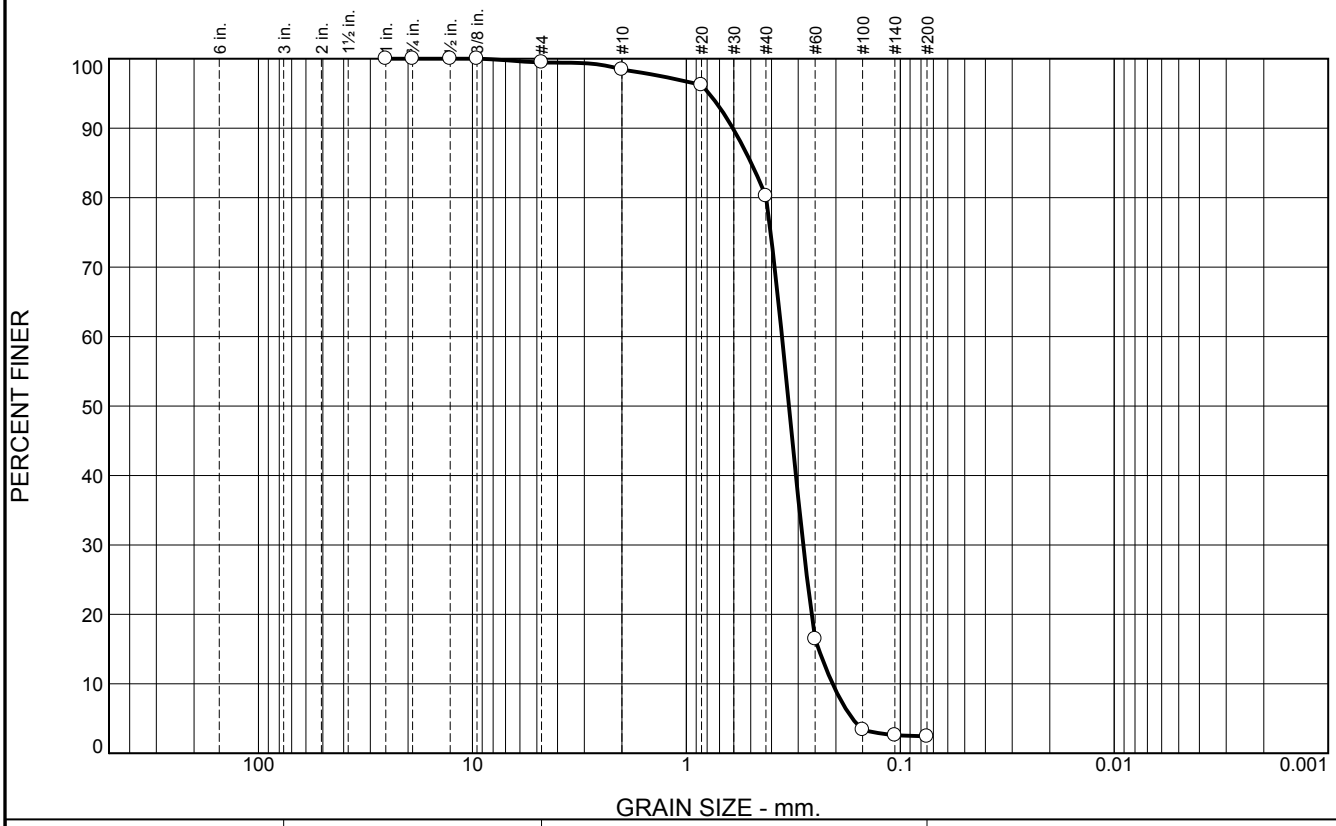
Penetration 20.0'

Recovery 20.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.1	18.2	77.8	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.4		
#20	96.2		
#40	80.2		
#60	16.5		
#100	3.4		
#140	2.6		
#200	2.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6063 D_{85}= 0.4980 D_{60}= 0.3571
D_{50}= 0.3315 D_{30}= 0.2845 D_{15}= 0.2407
D_{10}= 0.2072 C_u= 1.72 C_c= 1.09

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-53-12 A
Sample Number: 6471 (27) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-054-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-054-12 — LOCATION COORDINATES: E = 1,132,425 N = 239,892	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 45.7 Ft.
	15. DATE BORING — STARTED: 11-30-12 — COMPLETED: 11-30-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -46.5 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 20.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.5	0.0				
-51.5	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3037 mm % Fines: 1.7
-52.1	5.6			NS	
-53.3	6.8		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	B	Classification: SP Color: 5Y 7/2-light gray D50: 0.3861 mm % Fines: 3.2
-54.0	7.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, little shell fragments, few silt, gray (SP-SM)	NS	
-56.0	9.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	C	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.3507 mm % Fines: 6.7
-65.0	18.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, trace clay, gray (SM) SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-66.5	20.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.15882° Long = -88.36448°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,132,425 Y = 239,892	ELEVATION TOP OF BORING -46.5 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.15882° Long = -88.36448°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

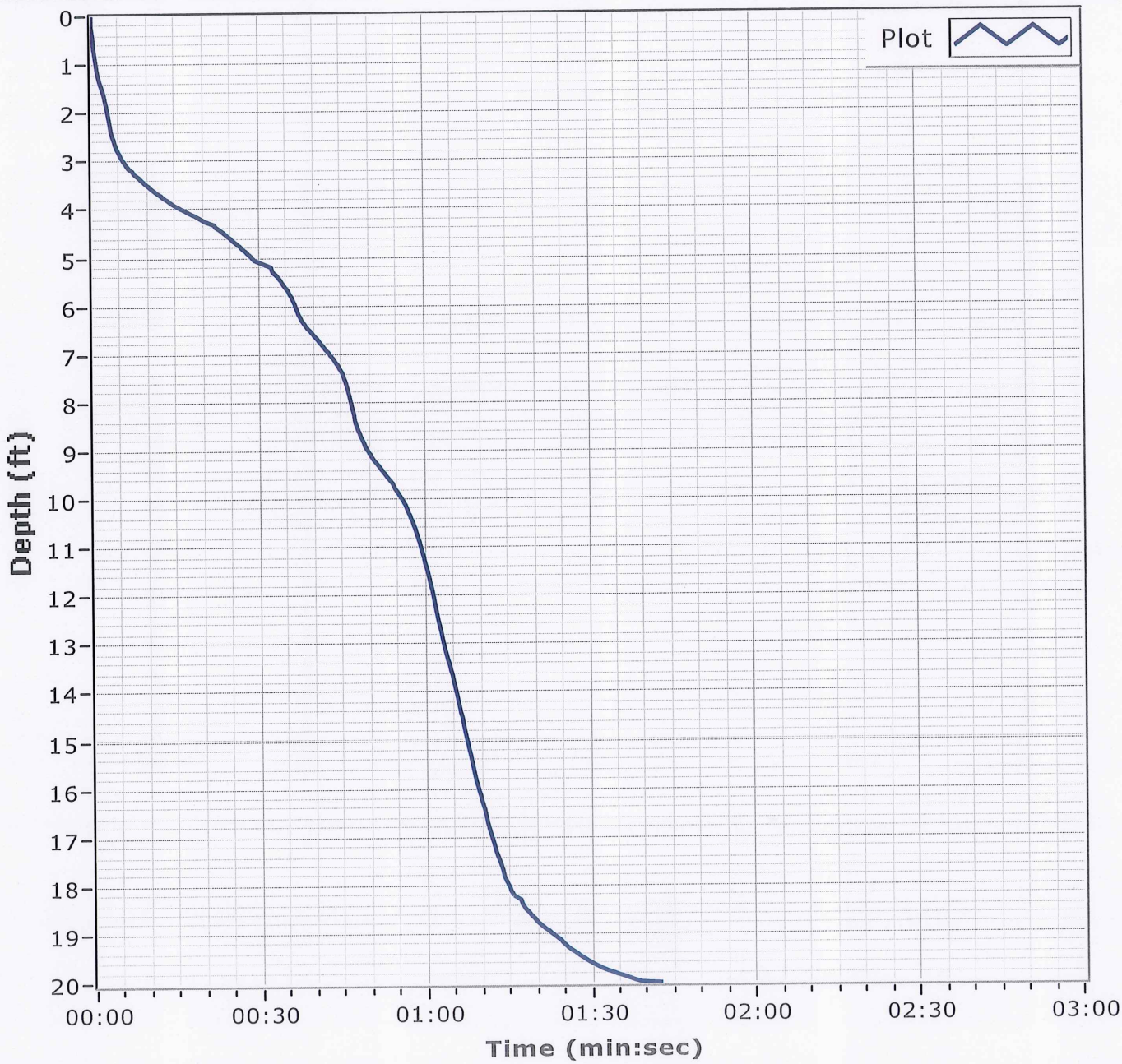
Core Identifier BI-PBS-54-12
Coordinate System
Latitude / Longitude

Latitude 30 09.529
Longitude 088 21.869

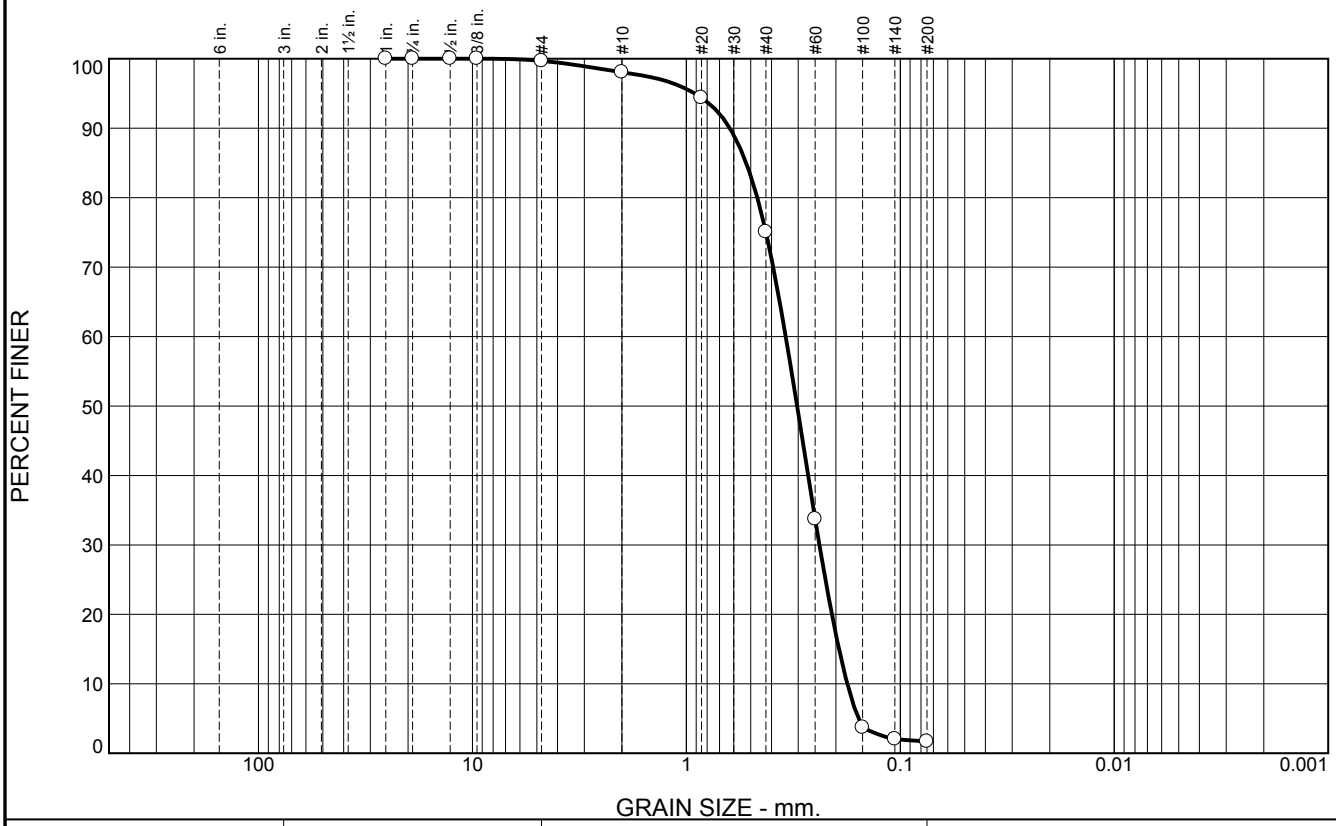
Date 11/30/2012
Start Time 09:17:07
End Time 09:18:50
Total Time 00:01:42

Water Depth 45.7'
Penetration 20.0'
Recovery 20.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.6	23.0	73.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.1		
#20	94.4		
#40	75.1		
#60	33.7		
#100	3.7		
#140	2.0		
#200	1.7		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6261 D_{85}= 0.5252 D_{60}= 0.3432
D_{50}= 0.3037 D_{30}= 0.2387 D_{15}= 0.1935
D_{10}= 0.1770 C_u= 1.94 C_c= 0.94

Classification

USCS= SP AASHTO=

Remarks

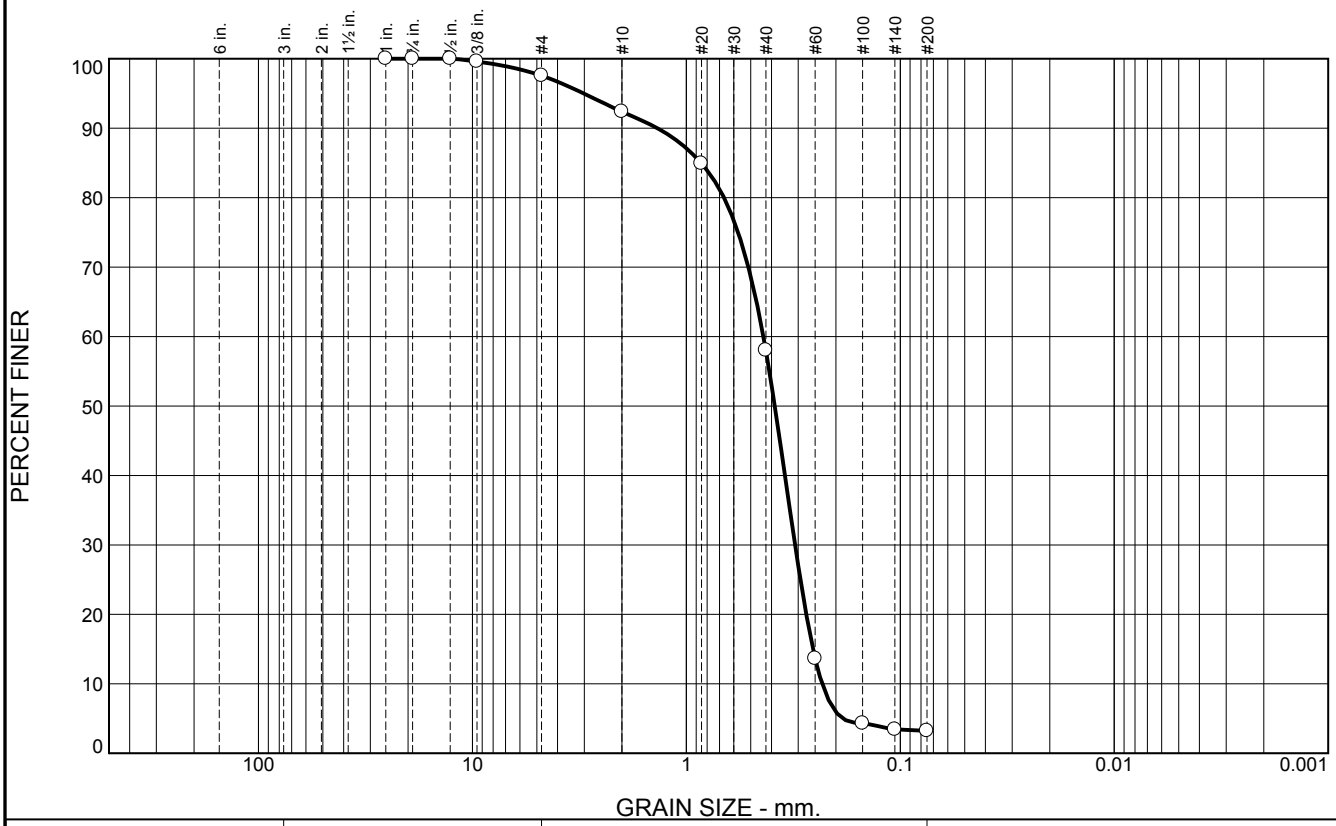
Location: BI-PBS-54-12 A
Sample Number: 6471 (28) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.4	5.2	34.4	54.8	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	97.6		
#10	92.4		
#20	84.9		
#40	58.0		
#60	13.6		
#100	4.3		
#140	3.4		
#200	3.2		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.3683 D_{85}= 0.8553 D_{60}= 0.4365
D_{50}= 0.3861 D_{30}= 0.3104 D_{15}= 0.2559
D_{10}= 0.2318 C_u= 1.88 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

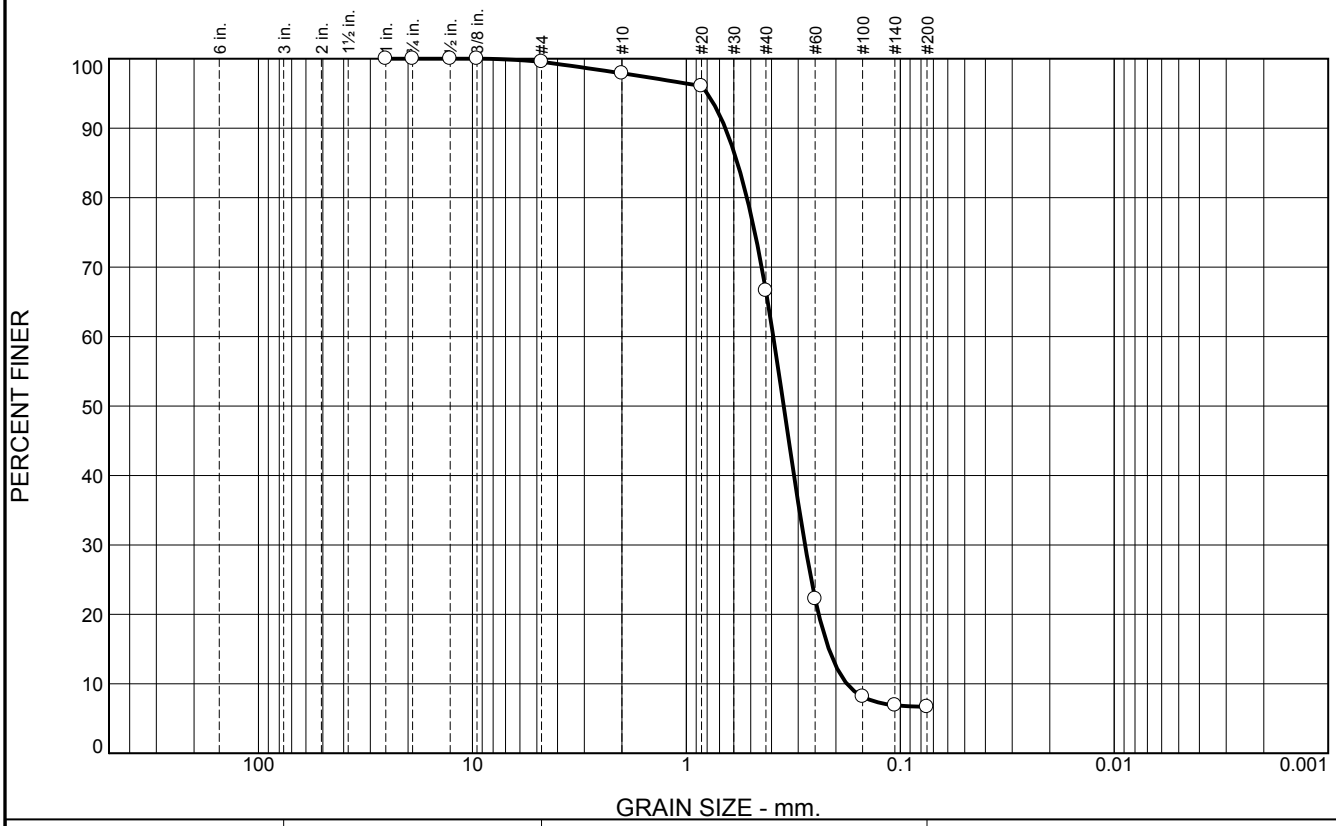
Location: BI-PBS-54-12 B
Sample Number: 6471 (29) **Depth:** 5.6' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.6	31.3	59.9	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.9		
#20	96.1		
#40	66.6		
#60	22.2		
#100	8.2		
#140	6.9		
#200	6.7		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6572 D_{85}= 0.5769 D_{60}= 0.3922
D_{50}= 0.3507 D_{30}= 0.2790 D_{15}= 0.2157
D_{10}= 0.1777 C_u= 2.21 C_c= 1.12

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-54-12 C
Sample Number: 6471 (30) **Depth:** 7.5' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-055-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-055-12
LOCATION COORDINATES	E = 1,132,872 N = 242,421
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	15.0 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	47.2 Ft.
15. DATE BORING	STARTED 11-30-12; COMPLETED 11-30-12
16. ELEVATION TOP OF BORING	-46.6 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.6	0.0				
-49.8	3.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray to gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3311 mm % Fines: 1.7
-50.6	4.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-51.5	4.9				
-53.0	6.4		CLAY, lean, mostly clay, with alternating bands of clayey sand, gray (CL)		
			SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little clay, few clay stringers, gray (SP-SC)		
-56.1	9.5		CLAY, lean, mostly clay, trace shell fragments, gray (CL)		
-58.6	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some shell fragments, gray (SC)		
-60.9	14.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		
-61.6	15.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.16577° Long = -88.36303°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

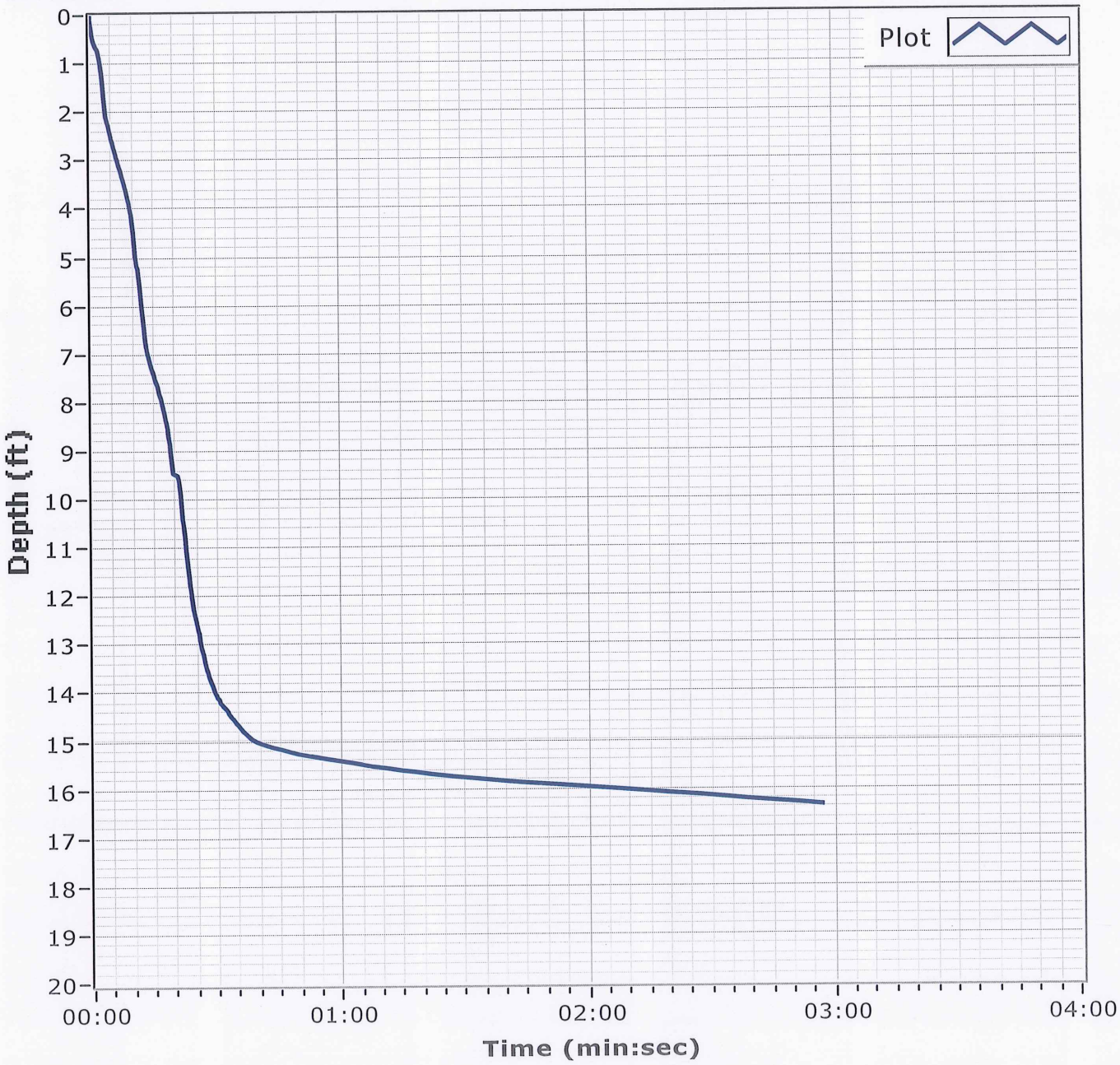
Core Identifier BI-PBS-55-12
Coordinate System
Latitude / Longitude

Latitude 30 09.946
Longitude 088 21.782

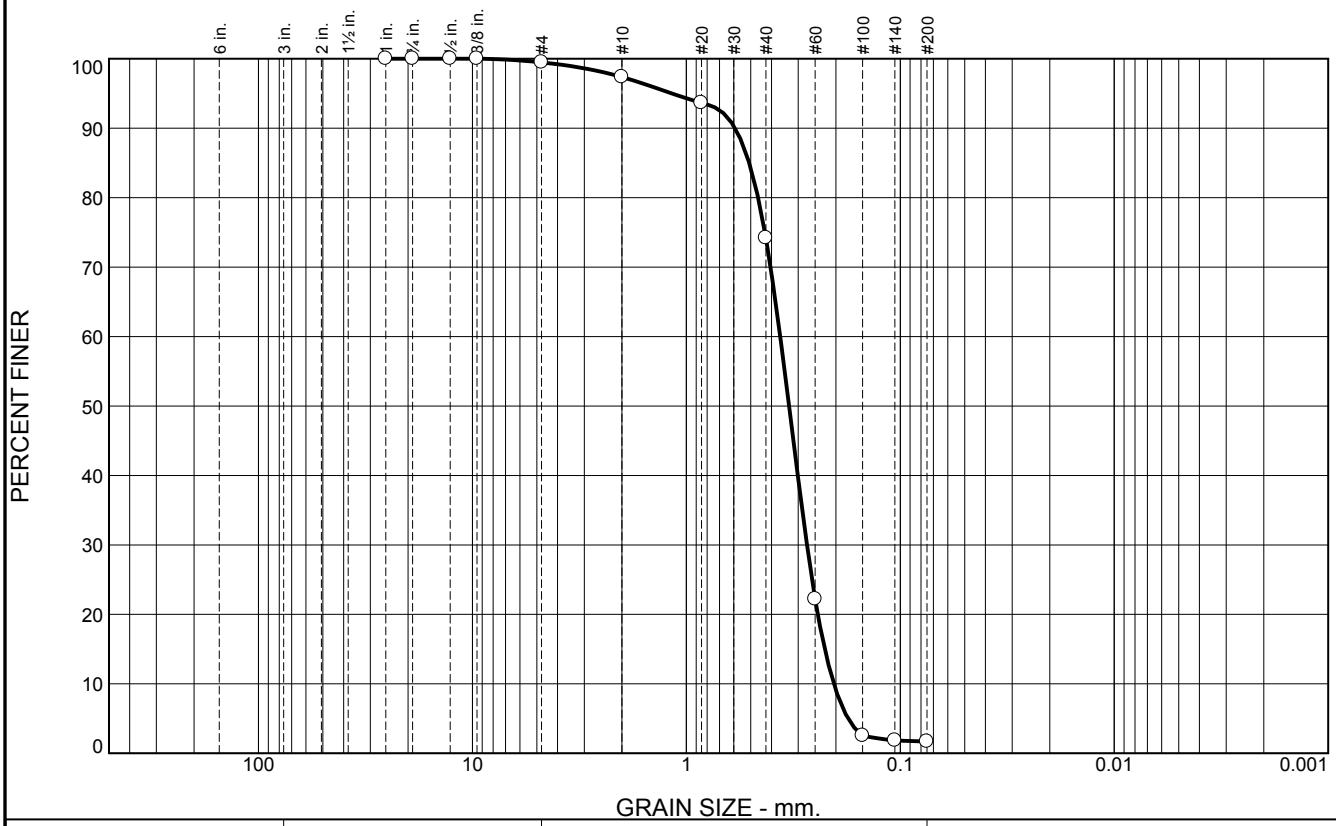
Date 11/30/2012
Start Time 12:49:34
End Time 12:52:32
Total Time 00:02:57

Water Depth 47.2'
Penetration 16.4'
Recovery 15.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.1	23.2	72.5	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.4		
#20	93.6		
#40	74.2		
#60	22.2		
#100	2.6		
#140	1.8		
#200	1.7		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5917 D_{85}= 0.5087 D_{60}= 0.3640
D_{50}= 0.3311 D_{30}= 0.2731 D_{15}= 0.2254
D_{10}= 0.2045 C_u= 1.78 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-55-12 A
Sample Number: 6471 (31) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-056-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-056-12 — LOCATION COORDINATES: E = 1,131,782 N = 243,108	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 48.3 Ft.
	15. DATE BORING — STARTED: 11-30-12 — COMPLETED: 11-30-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -46.0 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 14.8 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.0	0.0				
-48.6	2.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3431 mm % Fines: 1.4
-50.7	4.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, trace shell fragments, trace wood debris, gray (SC)	B NS	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2458 mm % Fines: 13.8
-53.4	7.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, clayey band between 6.3 to 6.5 ft., gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2416 mm % Fines: 7.2
-57.9	11.9		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, low to medium plasticity, gray (CL)	NS	
-60.8	14.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, clayey nodules throughout, lt. gray with dk gray spots (SP-SM)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.16767° Long = -88.36647°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-56-12

Coordinate System
Latitude / Longitude

Latitude 30 10.060

Longitude 088 21.988

Date 11/30/2012

Start Time 13:48:11

End Time 13:51:43

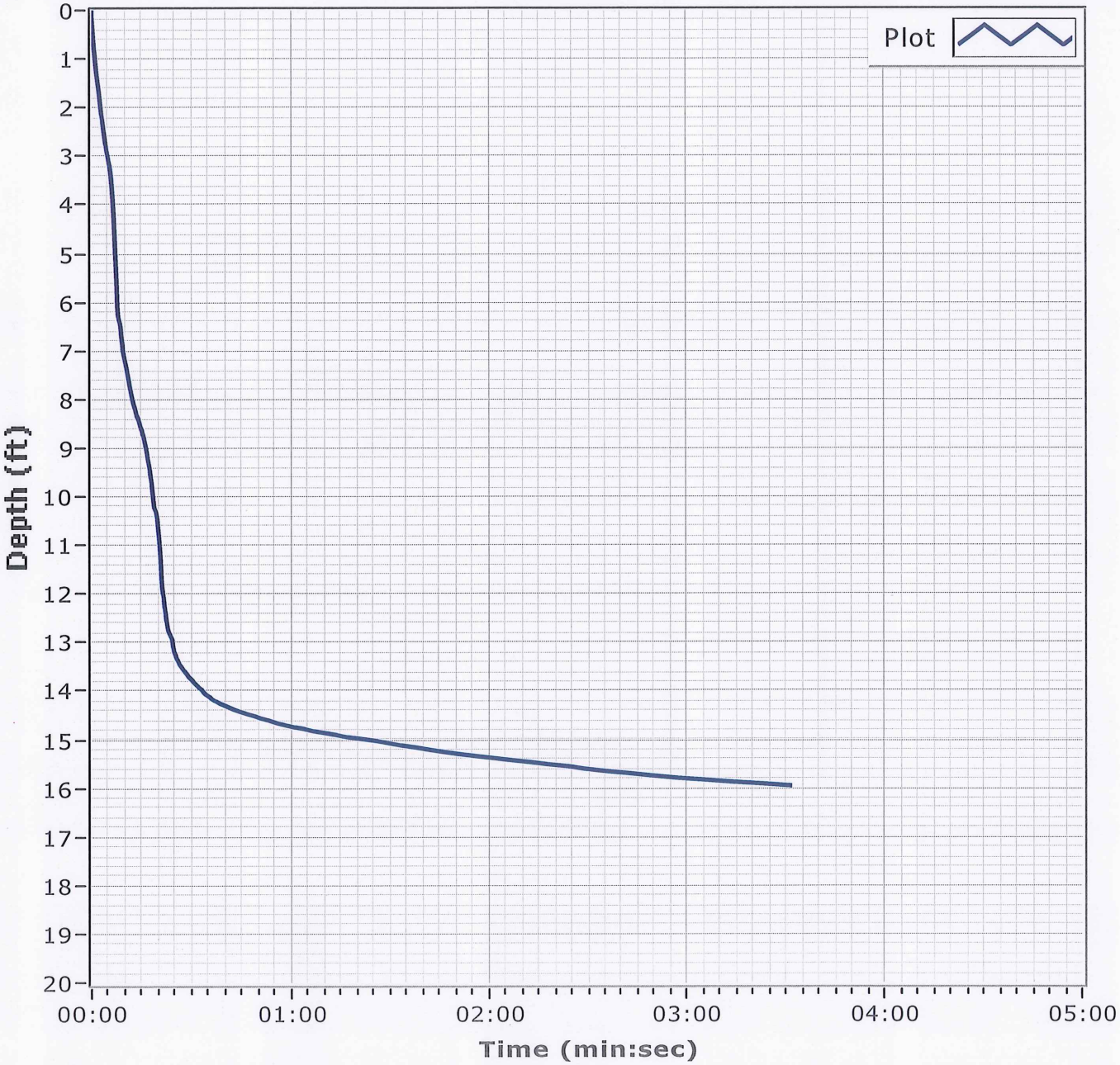
Total Time 00:03:31

Water Depth 48.3'

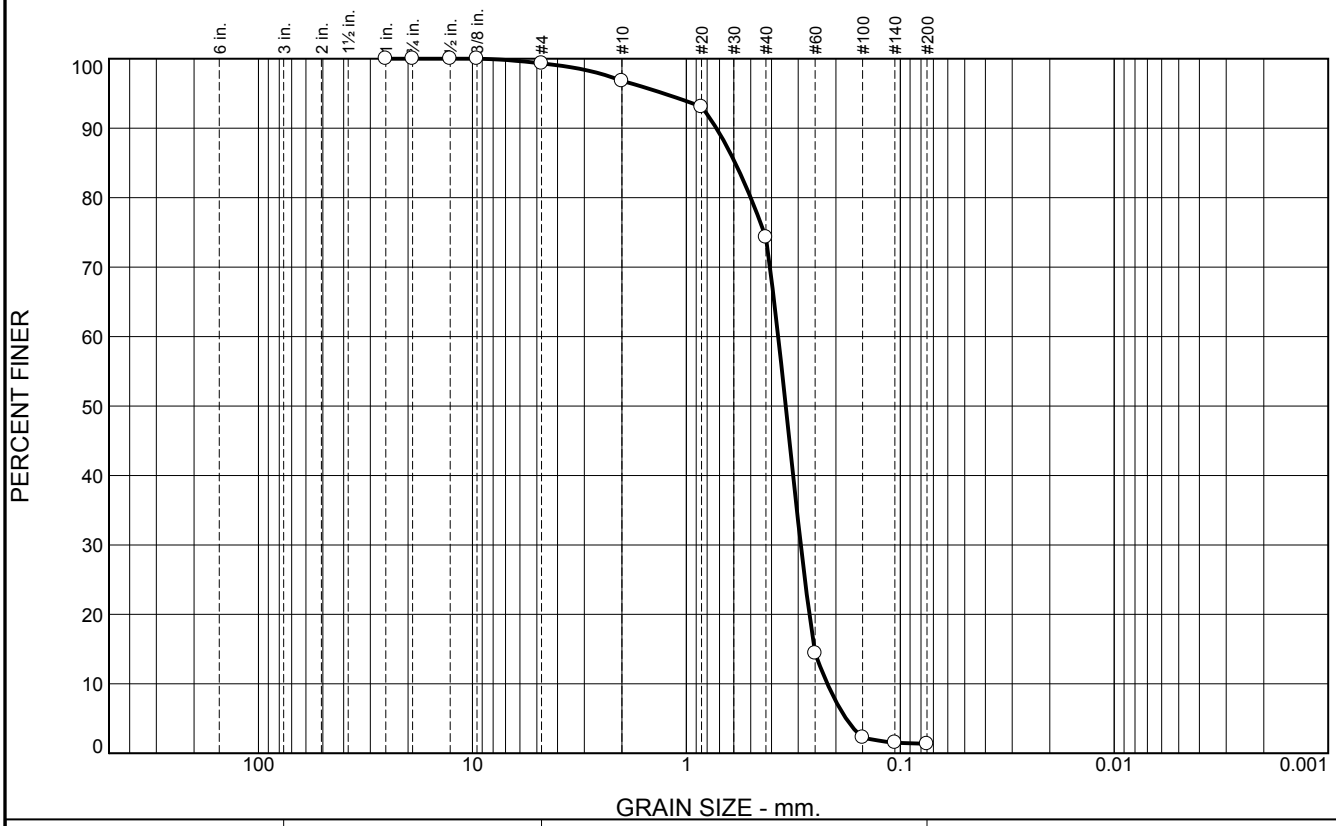
Penetration 16.0'

Recovery 14.8'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	2.5	22.5	72.9	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.3		
#10	96.8		
#20	93.1		
#40	74.3		
#60	14.4		
#100	2.3		
#140	1.5		
#200	1.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7245 D_{85}= 0.5913 D_{60}= 0.3720
D_{50}= 0.3431 D_{30}= 0.2921 D_{15}= 0.2519
D_{10}= 0.2191 C_u= 1.70 C_c= 1.05

Classification

USCS= SP AASHTO=

Remarks

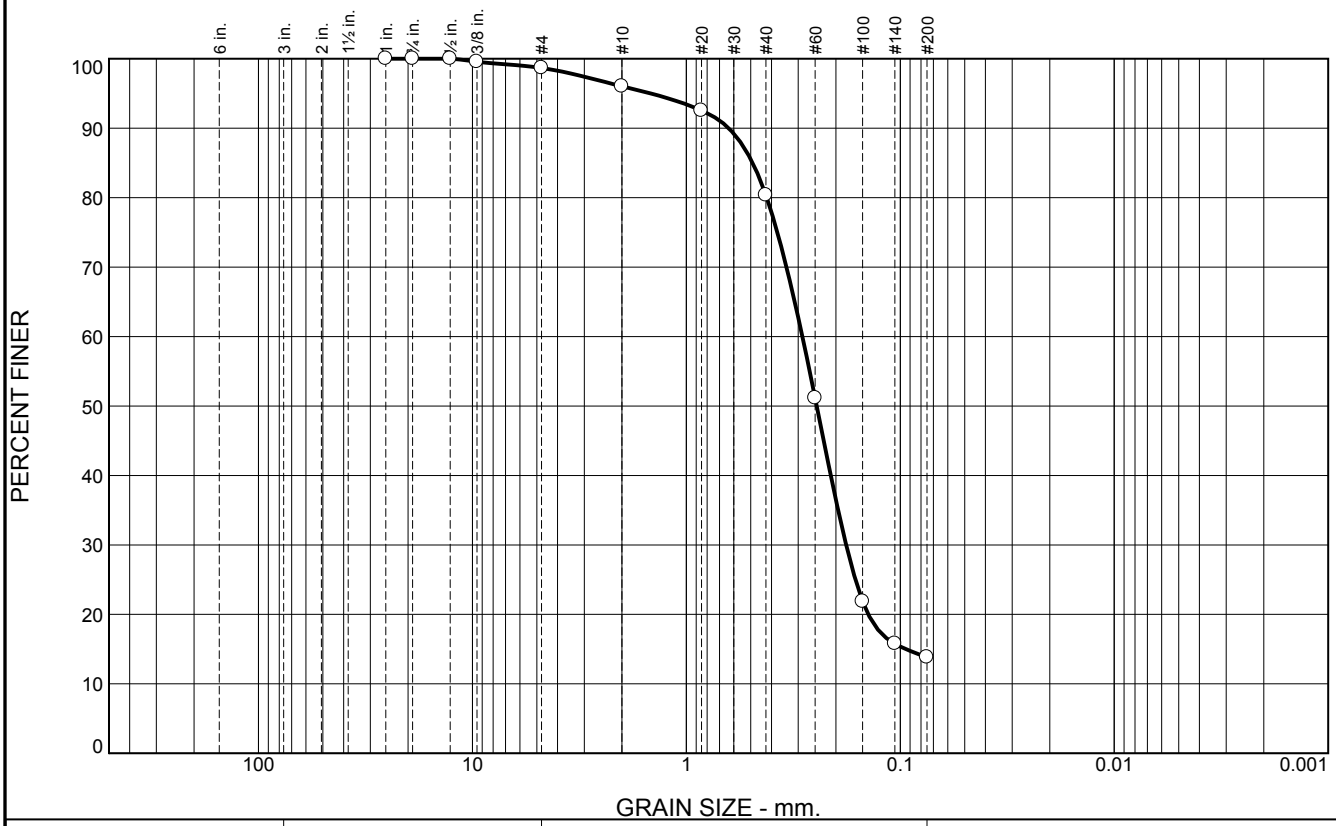
Location: BI-PBS-56-12 A
Sample Number: 6471 (32) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.7	15.6	66.6	13.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	98.7		
#10	96.0		
#20	92.5		
#40	80.4		
#60	51.1		
#100	21.9		
#140	15.8		
#200	13.8		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6343 D_{85}= 0.4902 D_{60}= 0.2869
D_{50}= 0.2458 D_{30}= 0.1792 D_{15}= 0.0941
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

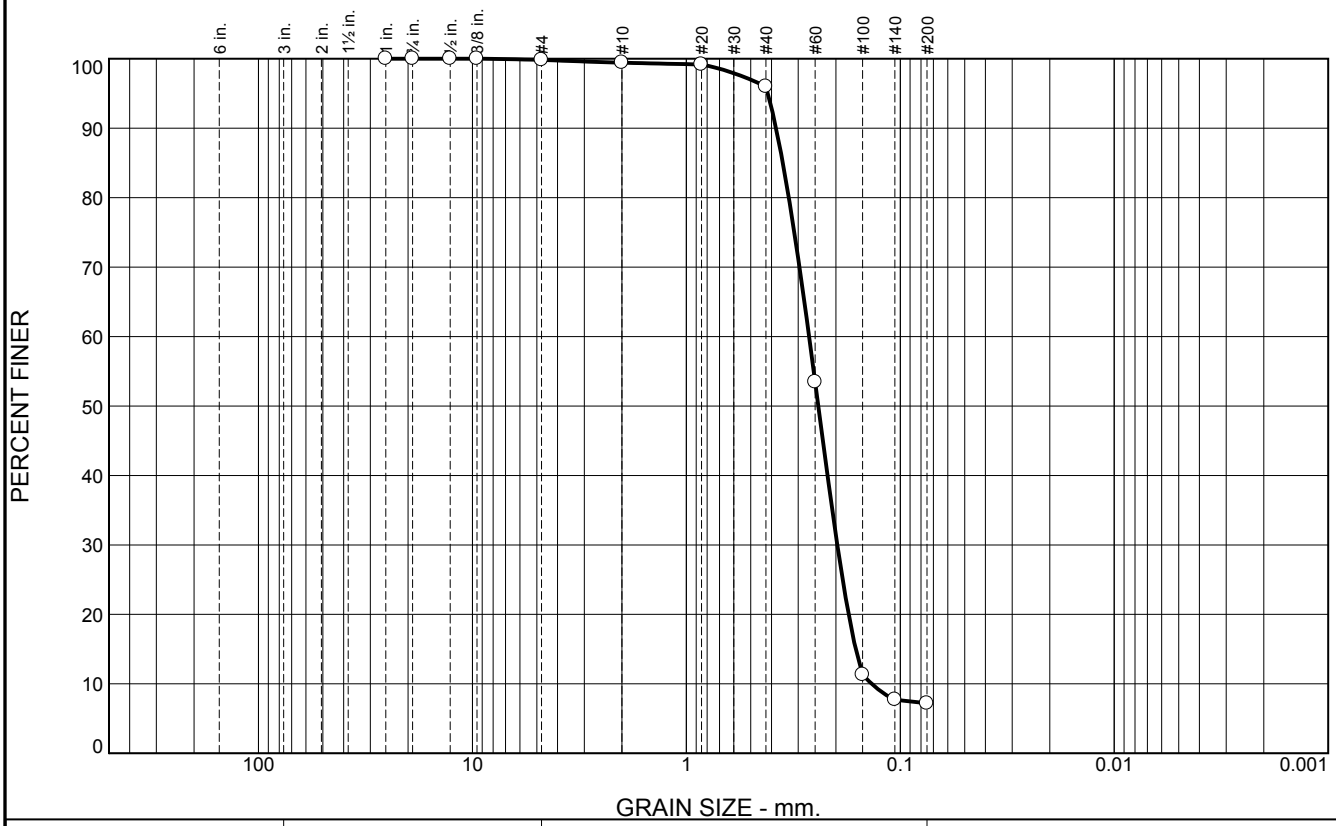
Location: BI-PBS-56-12 B
Sample Number: 6471 (33) **Depth:** 2.6' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	3.4	88.8	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.4		
#20	99.2		
#40	96.0		
#60	53.5		
#100	11.3		
#140	7.7		
#200	7.2		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3806 D_{85}= 0.3539 D_{60}= 0.2669
D_{50}= 0.2416 D_{30}= 0.1970 D_{15}= 0.1618
D_{10}= 0.1361 C_u= 1.96 C_c= 1.07

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-56-12 C
Sample Number: 6471 (34) **Depth:** 4.7' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-057-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-057-12
LOCATION COORDINATES	E = 1,130,570 N = 243,685
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	14.0 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	47.4 Ft.
15. DATE BORING	STARTED 11-30-12; COMPLETED 11-30-12
16. ELEVATION TOP OF BORING	-45.1 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-45.1	0.0				
-48.9	3.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray to gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3414 mm % Fines: 2.3
-49.7	4.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-50.5	5.4			B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2327 mm % Fines: 8.5
-54.1	9.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, trace wood debris, gray (SP) CLAY, lean, mostly clay, some silt, trace fine-grained sand-sized quartz, gray (CL)	NS	
-56.4	11.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shells, trace wood debris, gray (SC)		
-59.1	14.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, trace wood debris, trace clay nodules, gray to light gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.16927° Long = -88.37030°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-57-12

Coordinate System
Latitude / Longitude

Latitude 30 10.156

Longitude 088 22.218

Date 11/30/2012

Start Time 14:51:00

End Time 14:53:28

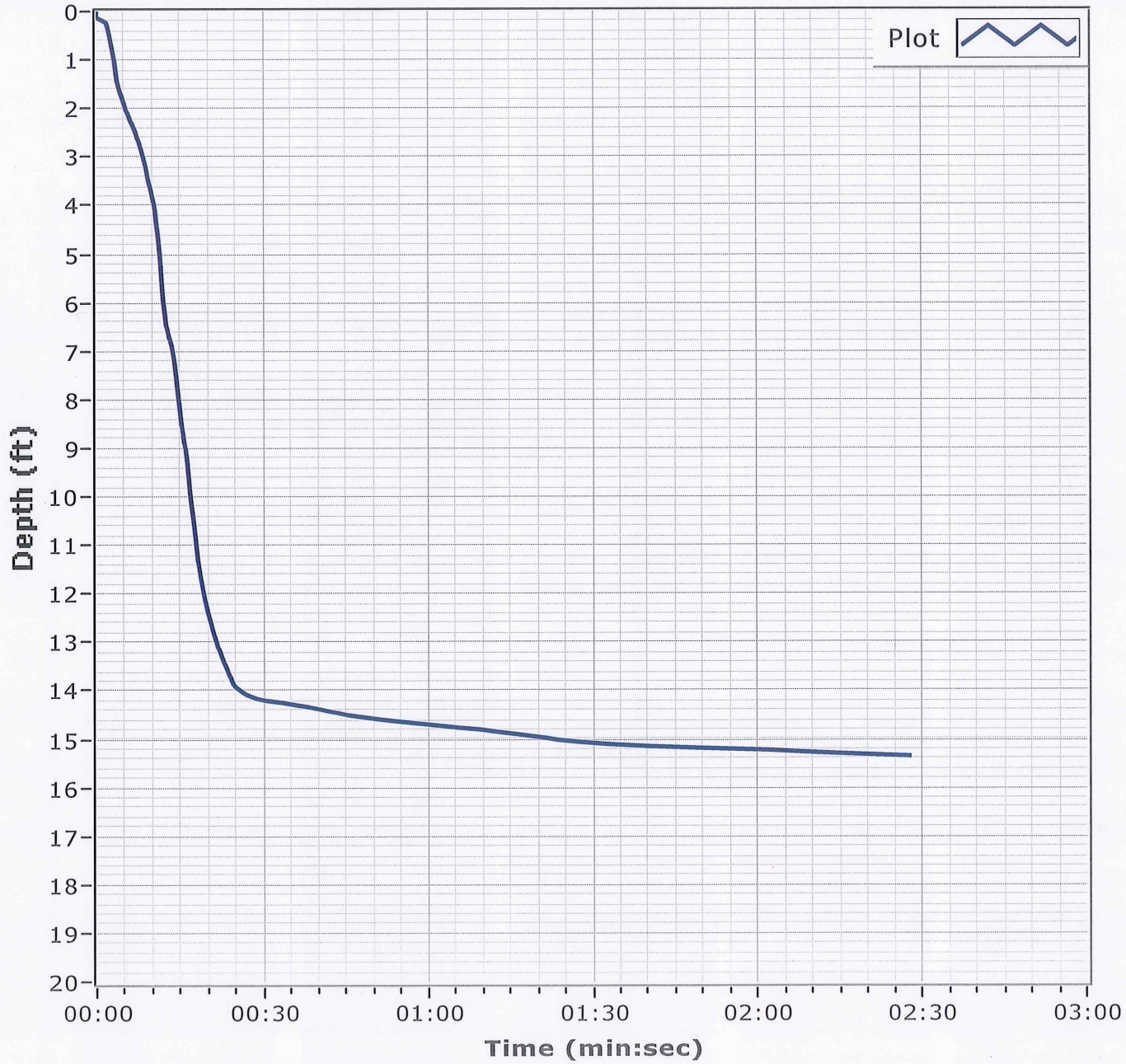
Total Time 00:02:28

Water Depth 47.4

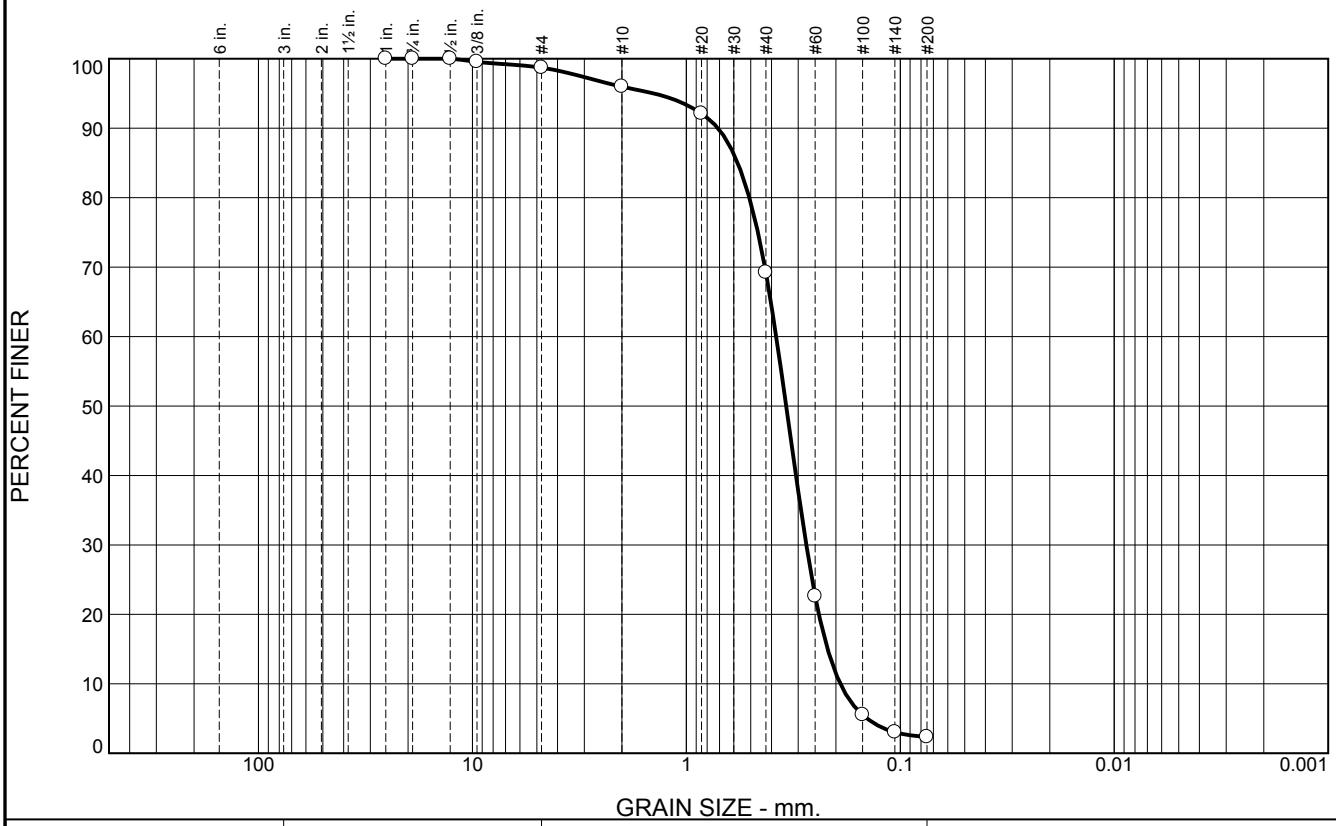
Penetration 15.4'

Recovery 14.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.7	26.8	66.9	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	98.7		
#10	96.0		
#20	92.1		
#40	69.2		
#60	22.6		
#100	5.5		
#140	3.0		
#200	2.3		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7121 D_{85}= 0.5755 D_{60}= 0.3801
D_{50}= 0.3414 D_{30}= 0.2751 D_{15}= 0.2187
D_{10}= 0.1908 C_u= 1.99 C_c= 1.04

Classification

USCS= SP AASHTO=

Remarks

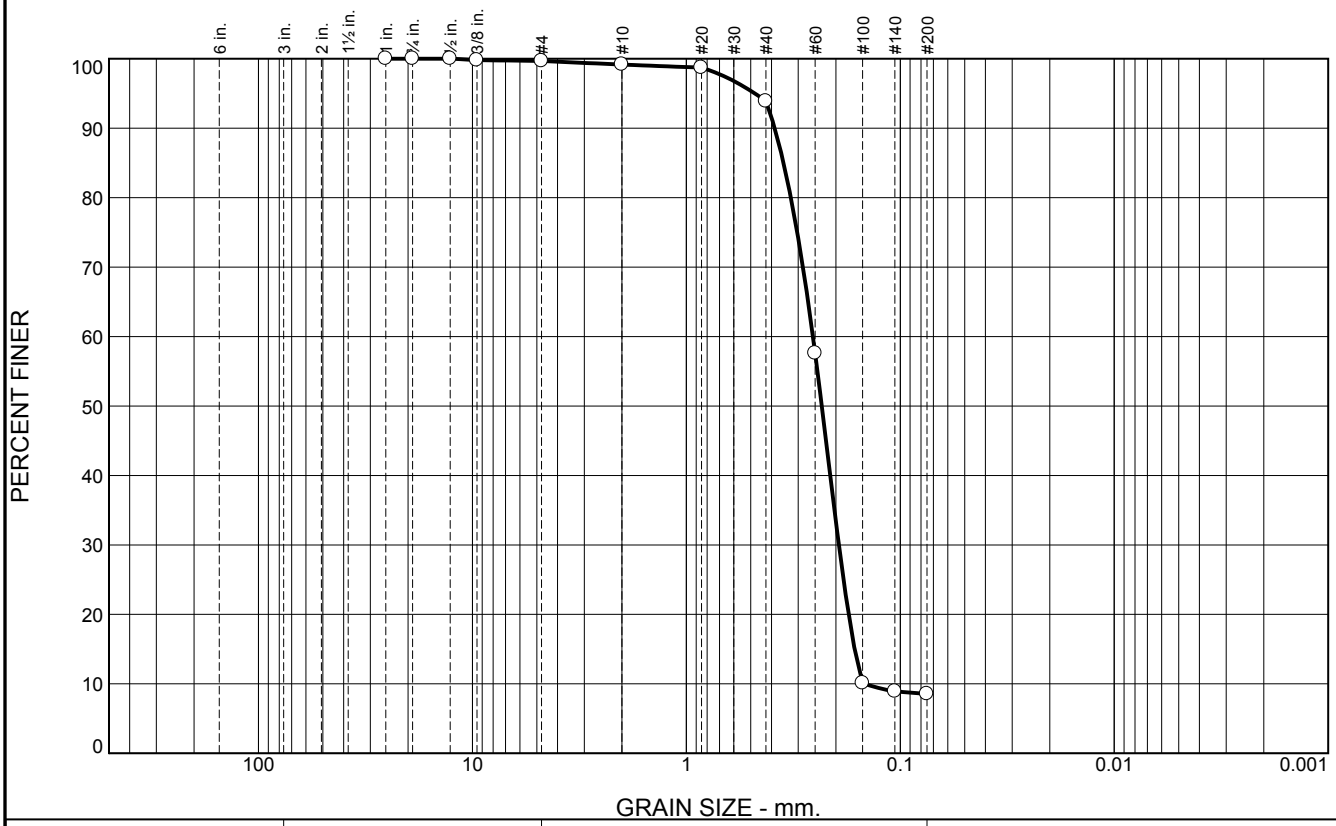
Location: BI-PBS-57-12 A
Sample Number: 6471 (35) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.5	5.3	85.4	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.7		
#10	99.2		
#20	98.7		
#40	93.9		
#60	57.6		
#100	10.1		
#140	8.9		
#200	8.5		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3862 D_{85}= 0.3513 D_{60}= 0.2560
D_{50}= 0.2327 D_{30}= 0.1938 D_{15}= 0.1637
D_{10}= 0.1466 C_u= 1.75 C_c= 1.00

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-57-12 B
Sample Number: 6471 (36) **Depth:** 4.6' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-058-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-058-12
LOCATION COORDINATES	E = 1,129,310 N = 244,207
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	19.9 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	47.2 Ft.
15. DATE BORING	STARTED 11-30-12; COMPLETED 11-30-12
16. ELEVATION TOP OF BORING	-44.3 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-44.3	0.0				
-47.5	3.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3436 mm % Fines: 1.6
-48.9	4.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, trace shell fragments, trace wood debris, gray (SC)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2437 mm % Fines: 16.5
-54.4	10.1		CLAY, fat, mostly clay, trace shell fragments, trace wood debris, few sandy pockets, medium to high plasticity, brownish gray to gray (CH)	NS	
-58.2	13.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, large shells intermixed between 11.7 and 13.1 ft., gray (SC)		
-64.2	19.9		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, some clay, alternating bands of poorly graded, fine-grained sand and clay with some silt and fine grain sand, lt. gray to gray (SP-SC)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.17072° Long = -88.37428°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,129,310 Y = 244,207	ELEVATION TOP OF BORING -44.3 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			hydrographic survey completed April 2014.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.17072° Long = -88.37428°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

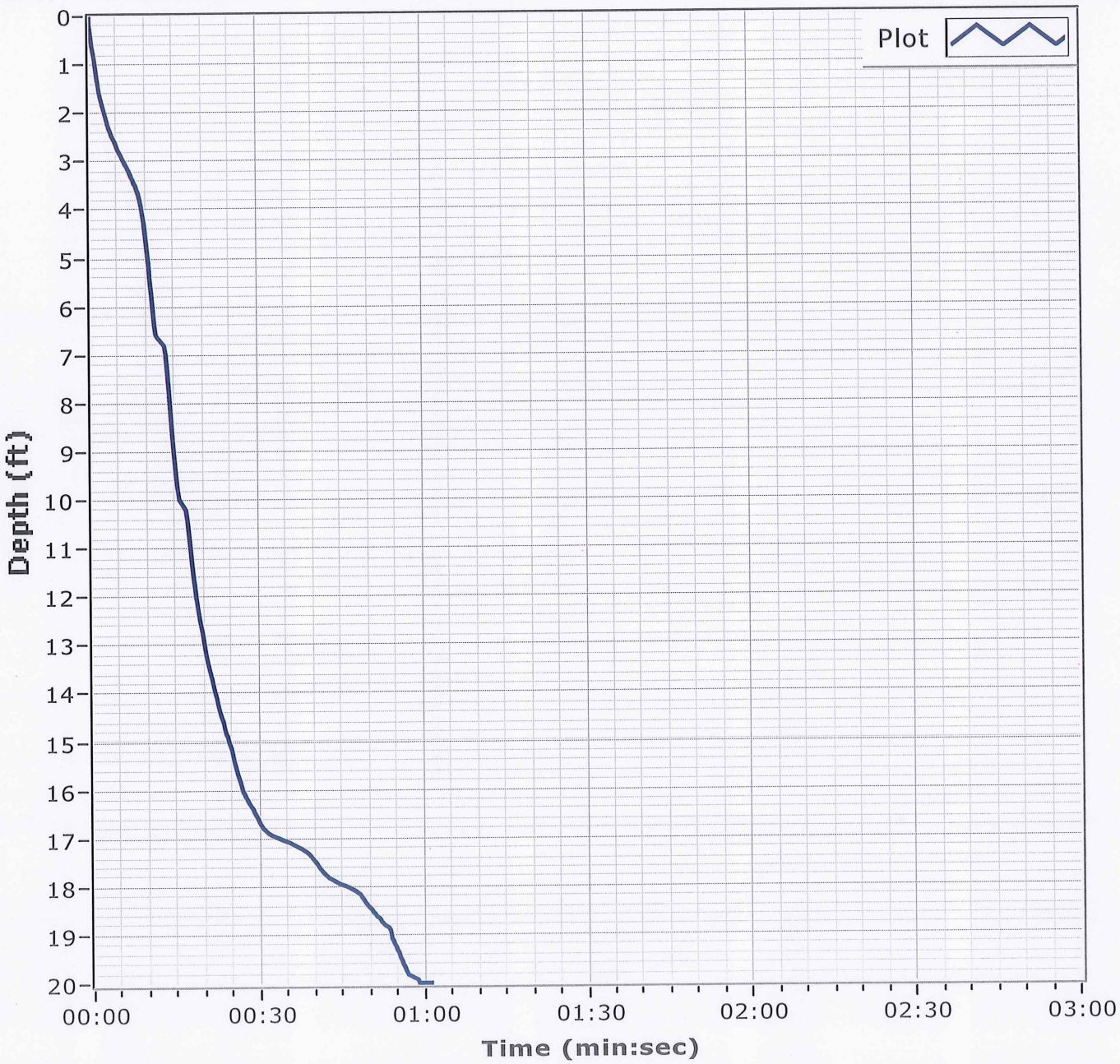
Core Identifier BI-PBS-58-12
Coordinate System
Latitude / Longitude

Latitude 30 10.243
Longitude 088 22.457

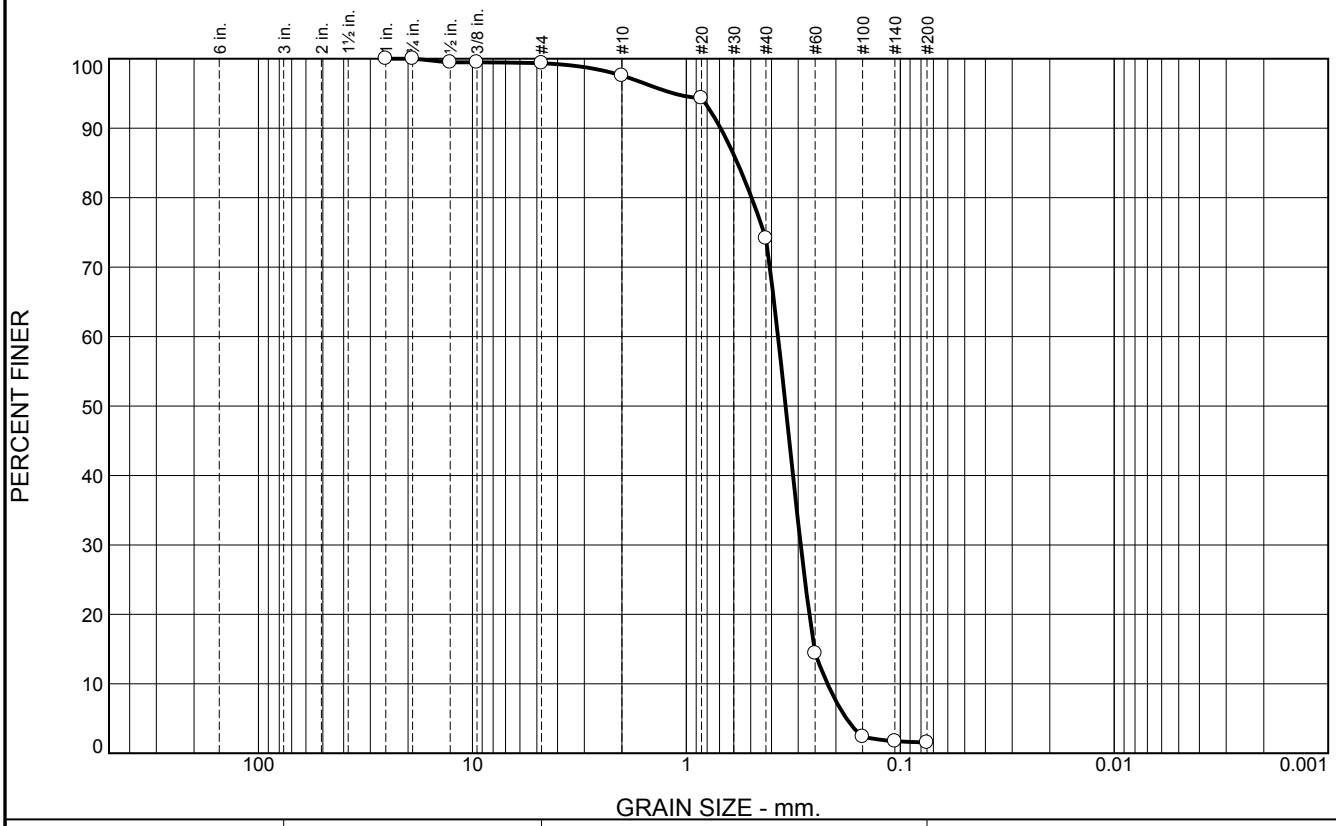
Date 11/30/2012
Start Time 15:41:36
End Time 15:42:37
Total Time 00:01:01

Water Depth 47.2'
Penetration 20.0'
Recovery 19.9'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	1.8	23.5	72.5	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.5		
.375	99.5		
#4	99.4		
#10	97.6		
#20	94.3		
#40	74.1		
#60	14.4		
#100	2.4		
#140	1.7		
#200	1.6		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6921 D_{85}= 0.5770 D_{60}= 0.3726
D_{50}= 0.3436 D_{30}= 0.2923 D_{15}= 0.2519
D_{10}= 0.2189 C_u= 1.70 C_c= 1.05

Classification

USCS= SP AASHTO=

Remarks

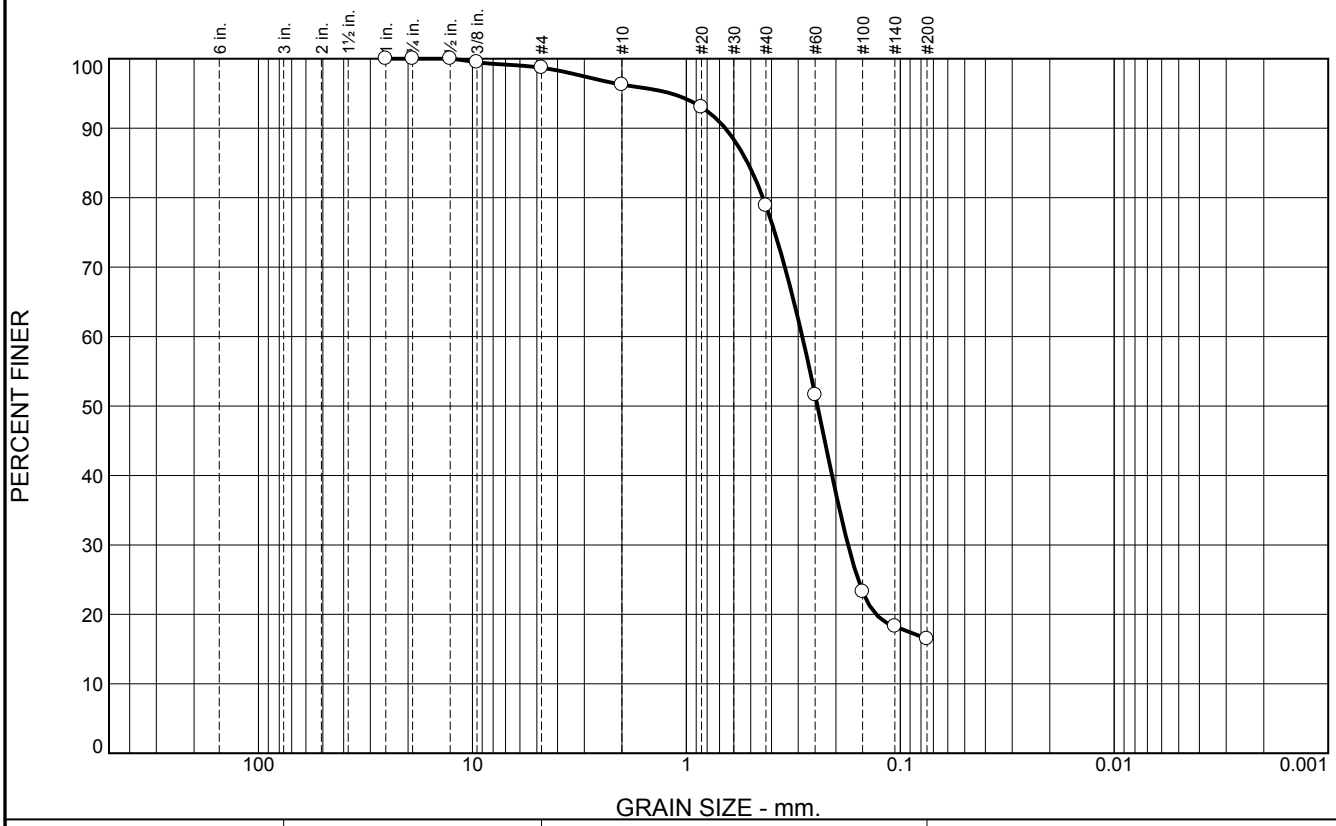
Location: BI-PBS-58.12A
Sample Number: 6471 (37) **Depth:** 0.0' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.4	17.4	62.4	16.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	98.7		
#10	96.3		
#20	93.0		
#40	78.9		
#60	51.6		
#100	23.3		
#140	18.3		
#200	16.5		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND, with trace organics and trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6582 D_{85}= 0.5164 D_{60}= 0.2873
D_{50}= 0.2437 D_{30}= 0.1756 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: BI-PBS-58-12 B
Sample Number: 6471 (38) **Depth:** 3.2' **Date:** 12/03/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-059-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-059-12 — LOCATION COORDINATES: E = 1,138,239 N = 233,424	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.:	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES:
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 53.4 Ft.
	15. DATE BORING — STARTED: 11-26-12 — COMPLETED: 11-26-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -53.1 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 19.5 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-53.1	0.0				
-54.9	1.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.3203 mm % Fines: 1.1
-55.7	2.6		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.206 mm % Fines: 11.4
-61.2	8.1		CLAY, silty, mostly silt, some sand, trace shells, sandy silt with alternating clayey bands, greenish gray mottled with brown (CL-ML)	NS	
-66.4	13.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few clay, trace shell fragments, gray (SM)	NS	
-72.6	19.5		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, medium stiffness, gray (CH)	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14097° Long = -88.34617°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

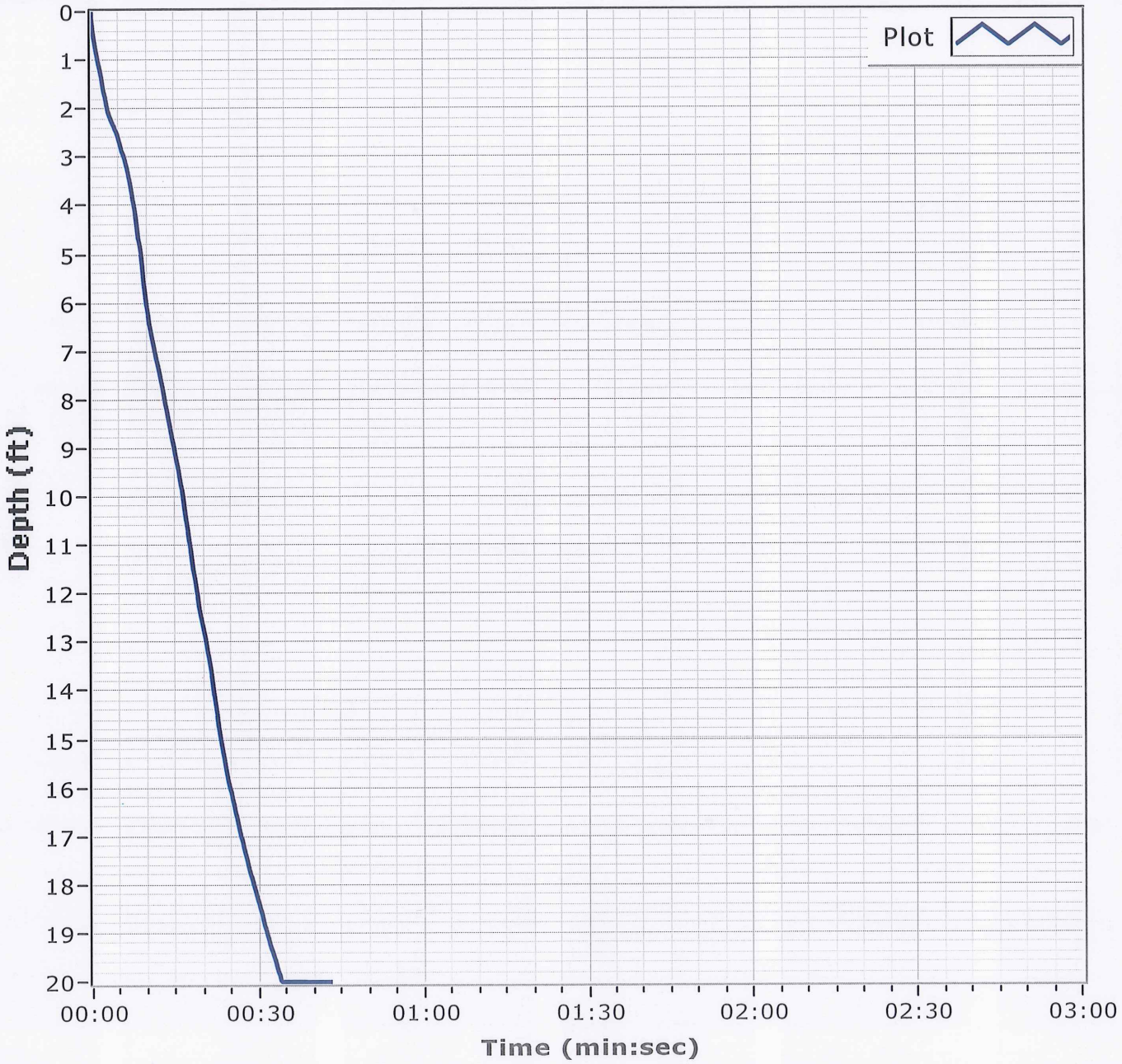
Core Identifier BI-PBS-59-12
Coordinate System
Latitude / Longitude

Latitude 30 08.458
Longitude 088 20.770

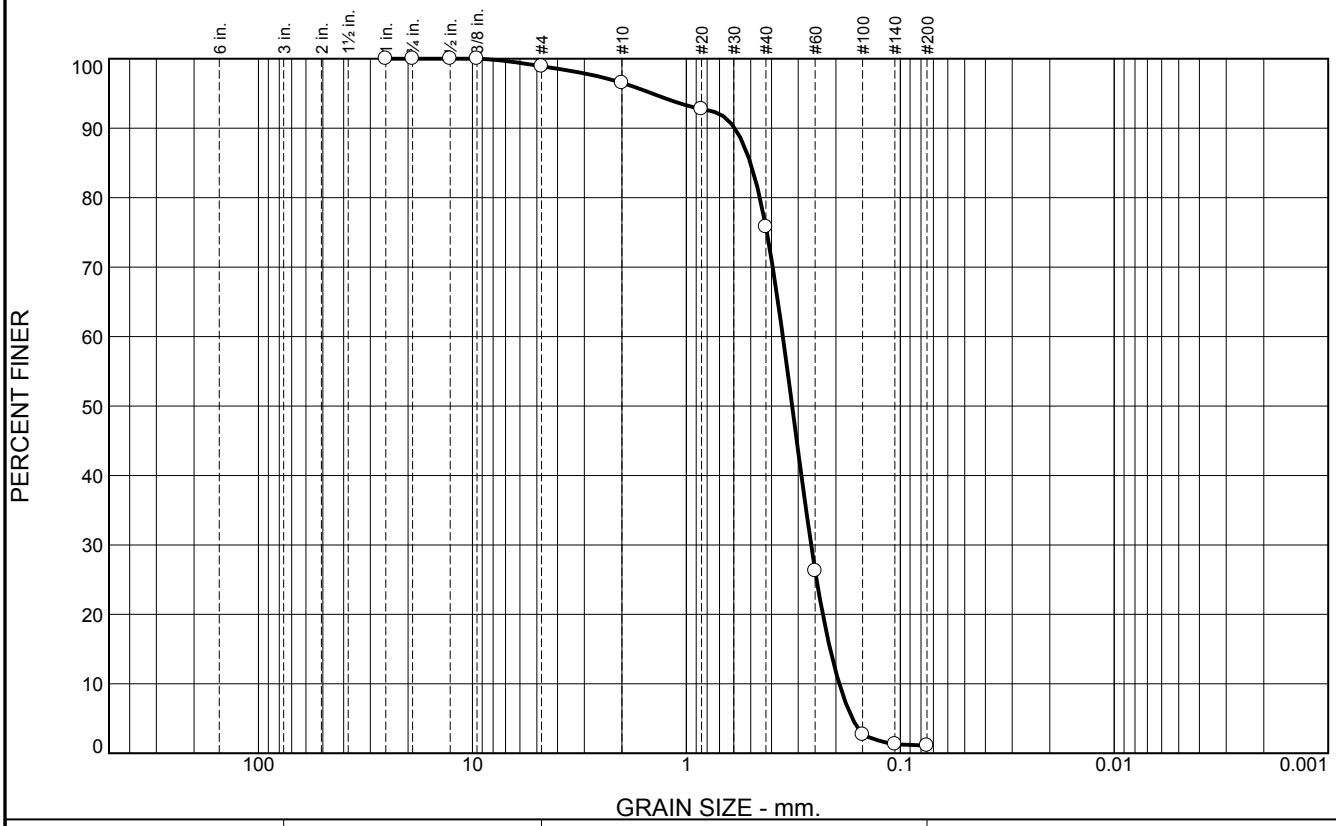
Date 11/26/2012
Start Time 11:20:29
End Time 11:21:12
Total Time 00:00:43

Water Depth 53.4'
Penetration 20.0'
Recovery 19.5'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	2.4	20.7	74.7	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.9		
#10	96.5		
#20	92.8		
#40	75.8		
#60	26.3		
#100	2.7		
#140	1.3		
#200	1.1		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5938 D_{85}= 0.5015 D_{60}= 0.3539
D_{50}= 0.3203 D_{30}= 0.2611 D_{15}= 0.2128
D_{10}= 0.1930 C_u= 1.83 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

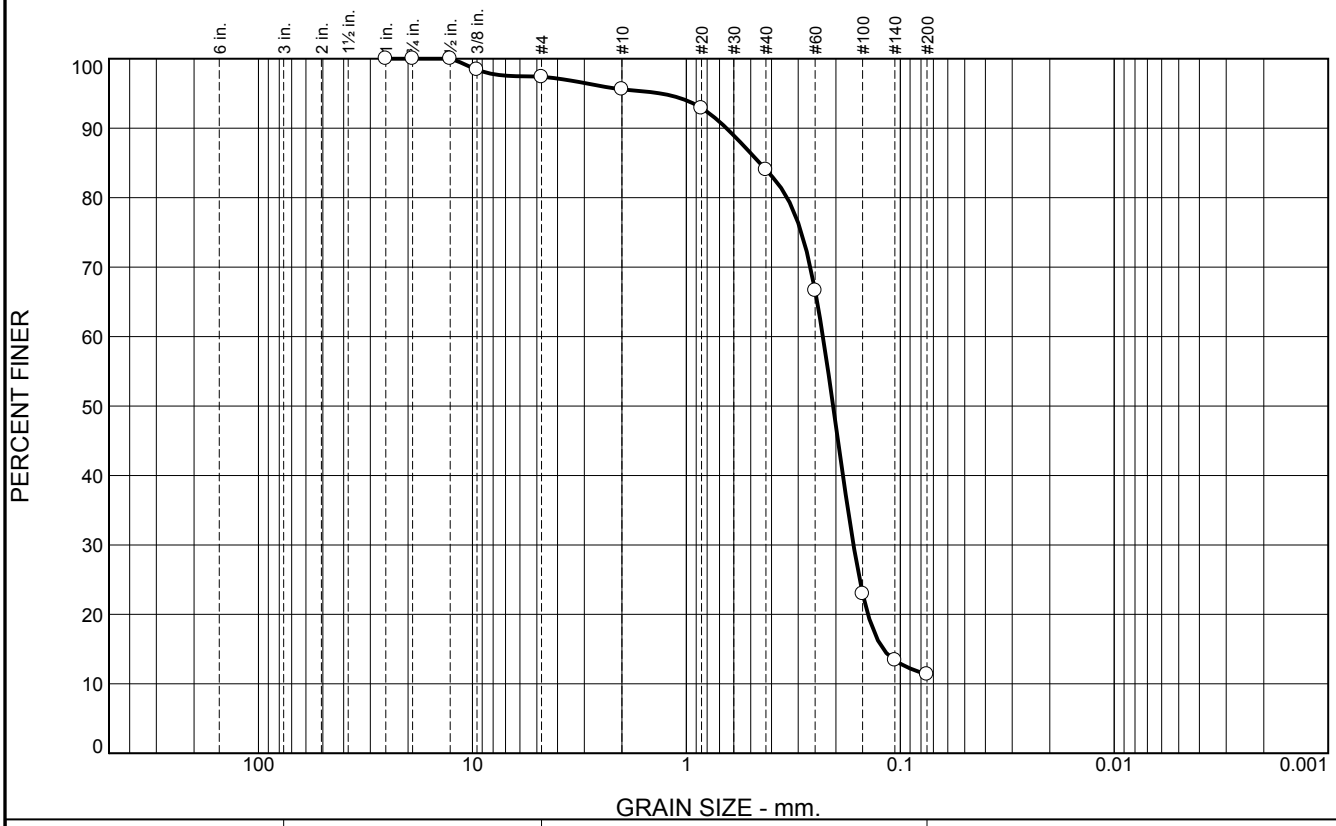
Location: BI-PBS-59-12 A
Sample Number: 6469 (60) **Depth:** 0.0' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	1.8	11.6	72.6	11.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	98.4		
#4	97.4		
#10	95.6		
#20	92.9		
#40	84.0		
#60	66.6		
#100	23.0		
#140	13.4		
#200	11.4		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6502 D_{85}= 0.4550 D_{60}= 0.2299
D_{50}= 0.2060 D_{30}= 0.1656 D_{15}= 0.1202
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-59-12 B
Sample Number: 6469 (61) **Depth:** 1.8' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-060-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-060-12
LOCATION COORDINATES	E = 1,142,000 N = 234,950
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	16.8 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	61.3 Ft.
15. DATE BORING	STARTED 11-24-12; COMPLETED 11-24-12
16. ELEVATION TOP OF BORING	-60.5 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-60.5	0.0				
-62.3	1.8		SILT, inorganic-L, mostly silt, little fine-grained sand-sized quartz, dark gray (ML)	NS	
-63.3	2.8		SAND, silty, mostly fine-grained sand-sized quartz, with clay lenses, dark gray (SM)		
-68.4	7.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, trace wood debris, dark gray (SP-SM)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1996 mm % Fines: 17.9
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, gray (SP)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.2138 mm % Fines: 13.5
			At El. -69.9 Ft., mostly fine-grained sand-sized quartz, trace fines, lt. gray	C	Classification: SP Color: 2.5Y 7/3-pale yellow D50: 0.2462 mm % Fines: 4.3
-77.3	16.8		At El. -72.3 Ft., mostly fine-grained sand-sized quartz, tan mottled with light gray	D	Classification: SP Color: 2.5Y 7.5/1.5- D50: 0.2621 mm % Fines: 1.4

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14512° Long = -88.33425°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

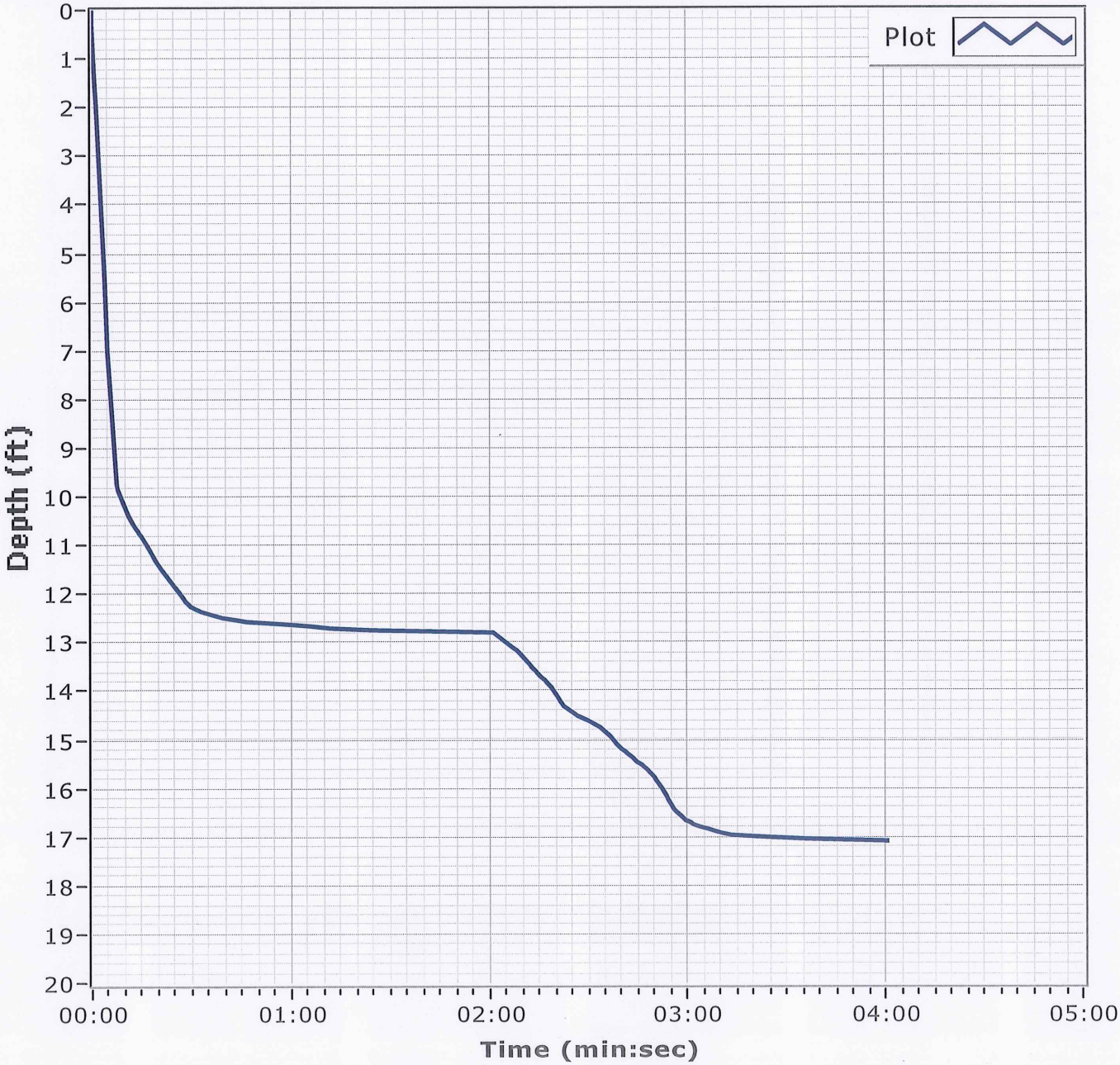
Core Identifier BI-PBS-60-12
Coordinate System
Latitude / Longitude

Date 11/24/2012
Start Time 15:08:12
End Time 15:12:13
Total Time 00:04:01

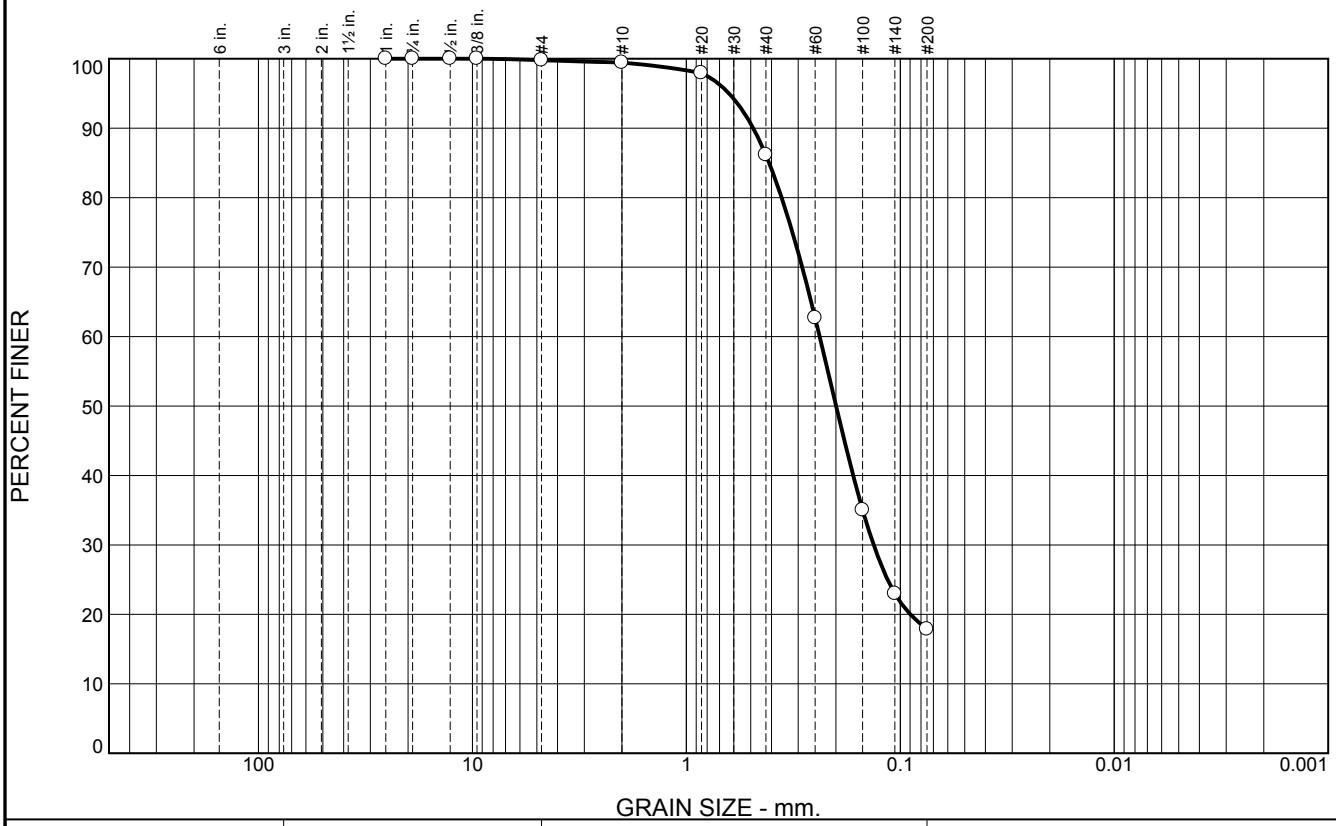
Water Depth 61.3'
Penetration 17.1'
Recovery 16.8'

Latitude 30 08.707
Longitude 088 20.055

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	13.2	68.3	17.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.4		
#20	97.9		
#40	86.2		
#60	62.7		
#100	35.0		
#140	23.0		
#200	17.9		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4869 D_{85}= 0.4102 D_{60}= 0.2381
D_{50}= 0.1996 D_{30}= 0.1332 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

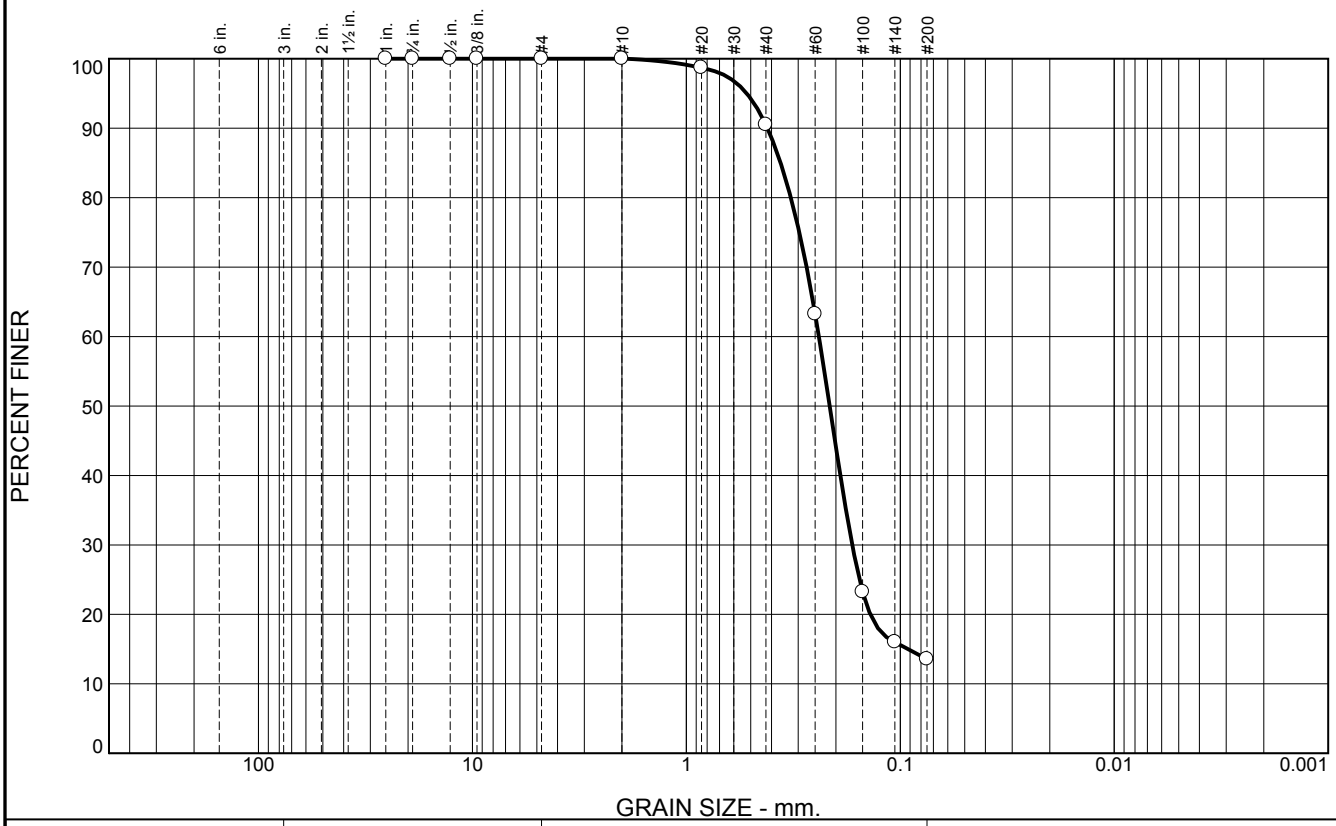
Location: BI-PBS-60-12 A
Sample Number: 6469 (50) **Depth:** 2.8' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.5	77.0	13.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.7		
#40	90.5		
#60	63.2		
#100	23.2		
#140	16.0		
#200	13.5		

* (no specification provided)

Material Description

Fine grained, SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4181 D_{85}= 0.3626 D_{60}= 0.2401
D_{50}= 0.2138 D_{30}= 0.1679 D_{15}= 0.0920
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

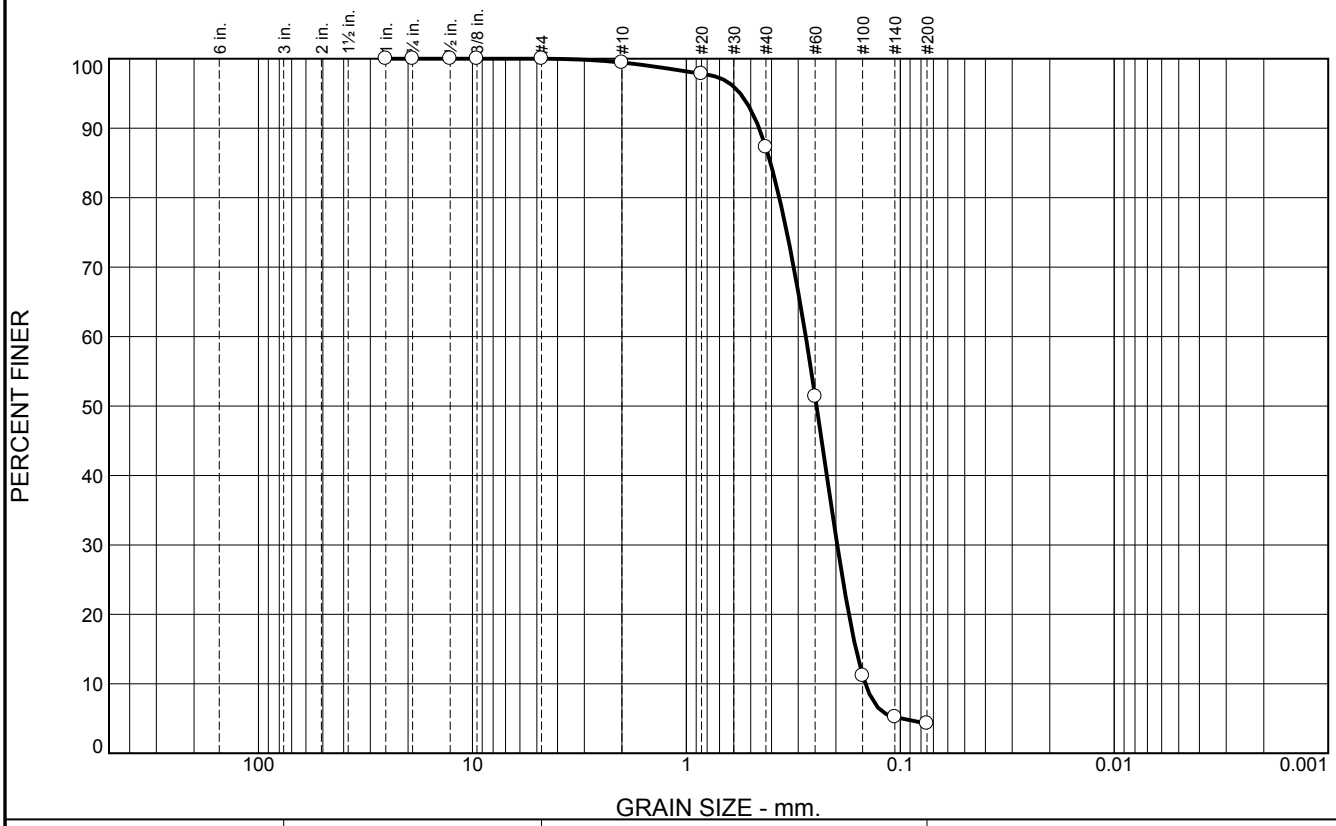
Location: BI-PBS-60-12 B
Sample Number: 6469 (51) **Depth:** 7.9' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	12.1	83.0	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.4		
#20	97.8		
#40	87.3		
#60	51.4		
#100	11.2		
#140	5.2		
#200	4.3		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4570 D_{85}= 0.4042 D_{60}= 0.2767
D_{50}= 0.2462 D_{30}= 0.1972 D_{15}= 0.1614
D_{10}= 0.1457 C_u= 1.90 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

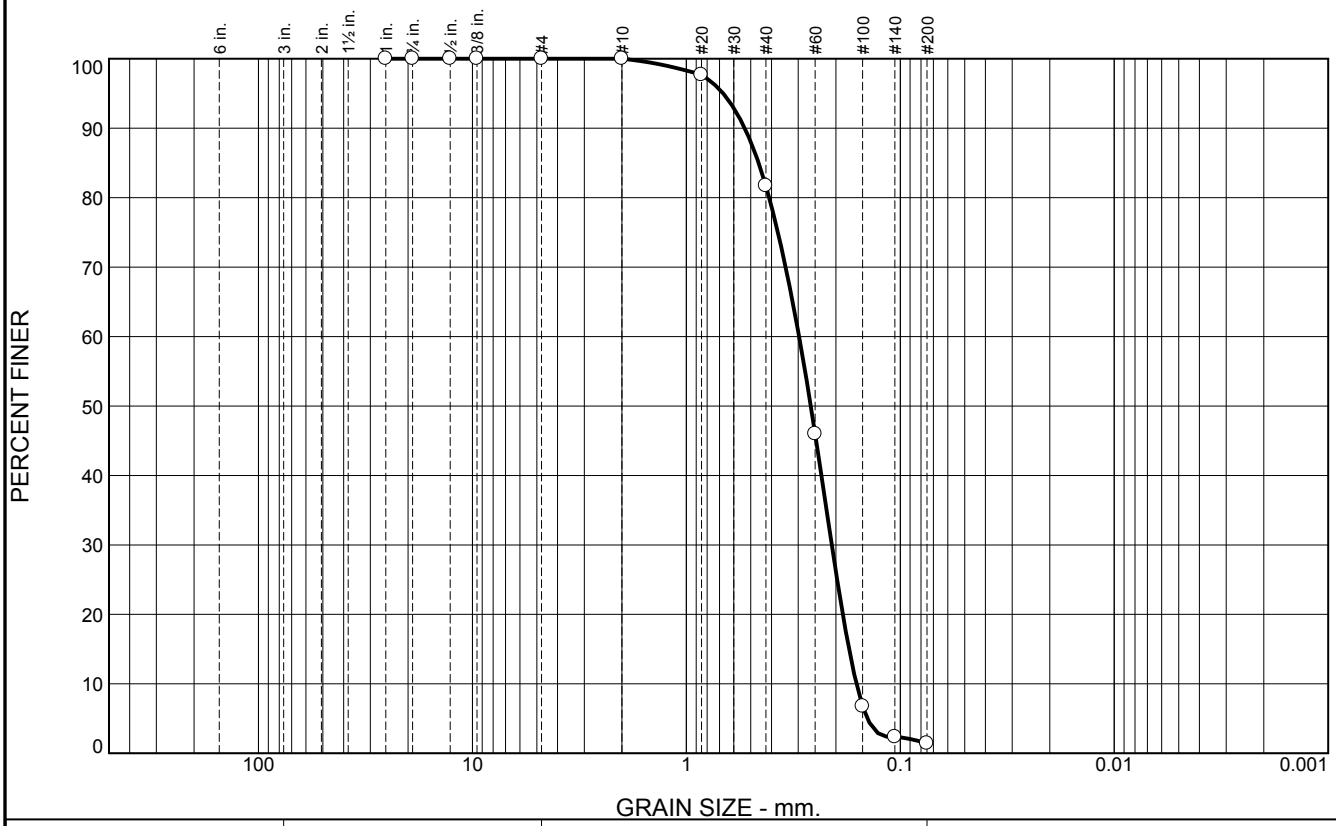
Location: BI-PBS-60-12 C
Sample Number: 6469 (52) **Depth:** 9.4' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.3	80.3	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	97.7		
#40	81.7		
#60	46.0		
#100	6.7		
#140	2.3		
#200	1.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5334 D_{85}= 0.4595 D_{60}= 0.2974
D_{50}= 0.2621 D_{30}= 0.2090 D_{15}= 0.1737
D_{10}= 0.1605 C_u= 1.85 C_c= 0.92

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-60-12 D
Sample Number: 6469 (53) **Depth:** 11.8' **Date:** 11/28/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-061-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-061-12 — LOCATION COORDINATES: E = 1,150,557 N = 236,916	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 55 Ft.
	15. DATE BORING — STARTED: 11-16-12 — COMPLETED: 11-16-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -54.9 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 11.2 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.9	0.0				
-57.1	2.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 5Y 6.5/1-gray D50: 0.2349 mm % Fines: 5.2
-60.7	5.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)	NS	
-63.1	8.2		CLAY, fat, mostly clay, little fine-grained sand-sized quartz, medium plasticity, gray (CH)		
-64.6	9.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, brown (SM)		
-66.1	11.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, light brown (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.15042° Long = -88.30715°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

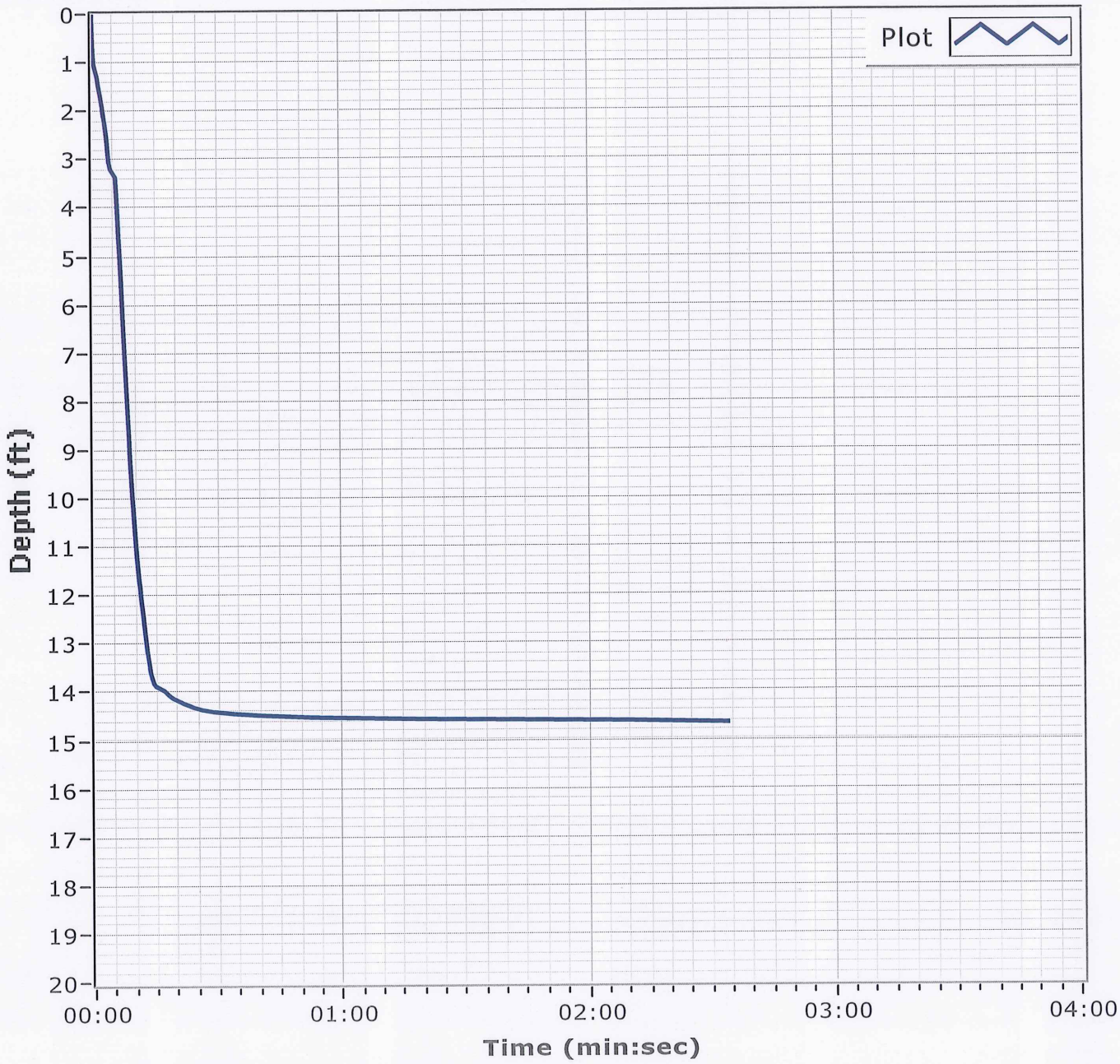
Core Identifier BI-PBS-61-12
Coordinate System
Latitude / Longitude

Latitude 30 09.025
Longitude 88 18.429

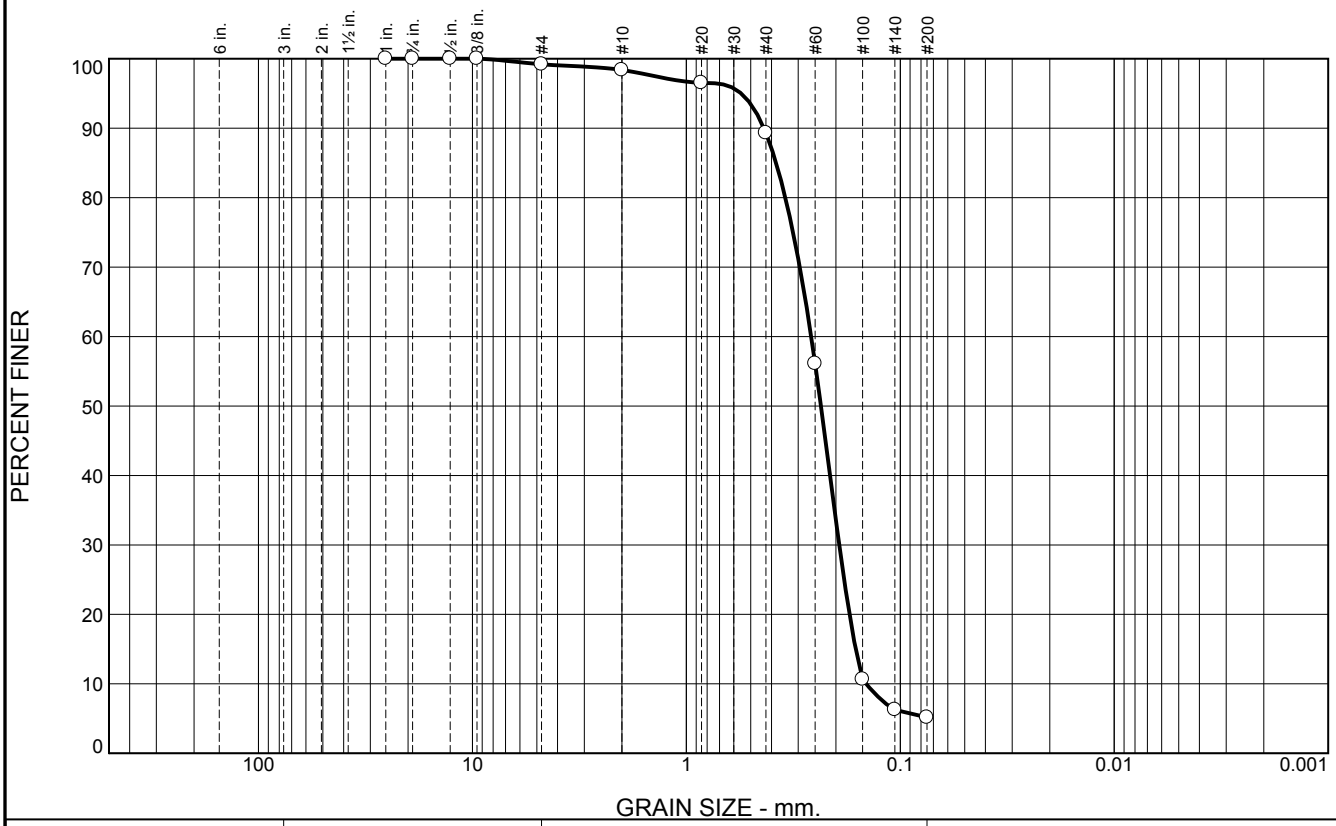
Date 11/16/2012
Start Time 16:27:41
End Time 16:30:15
Total Time 00:02:34

Water Depth 55.0'
Penetration 14.7'
Recovery 12.3'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	0.8	9.1	84.1	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	98.4		
#20	96.5		
#40	89.3		
#60	56.1		
#100	10.6		
#140	6.3		
#200	5.2		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4342 D_{85}= 0.3805 D_{60}= 0.2609
D_{50}= 0.2349 D_{30}= 0.1930 D_{15}= 0.1618
D_{10}= 0.1444 C_u= 1.81 C_c= 0.99

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-61-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-062-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-062-12 — LOCATION COORDINATES: E = 1,150,505 N = 237,945	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 56 Ft.
	15. DATE BORING — STARTED: 11-16-12 — COMPLETED: 11-16-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -56.4 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 16.1 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.4	0.0				
-57.2	0.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2417 mm % Fines: 3
-59.5	3.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, with clay lenses, gray (SM)	NS	
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few silt, gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1758 mm % Fines: 11.6
			At El. -62.3 Ft., mostly fine-grained sand-sized quartz, trace silt, light gray	C	Classification: SP Color: 2.5Y 8/1-white D50: 0.205 mm % Fines: 2.5
-72.5	16.1			D	Classification: SP Color: 2.5Y 8/1-white D50: 0.2836 mm % Fines: 2.3

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.15325° Long = -88.30730°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

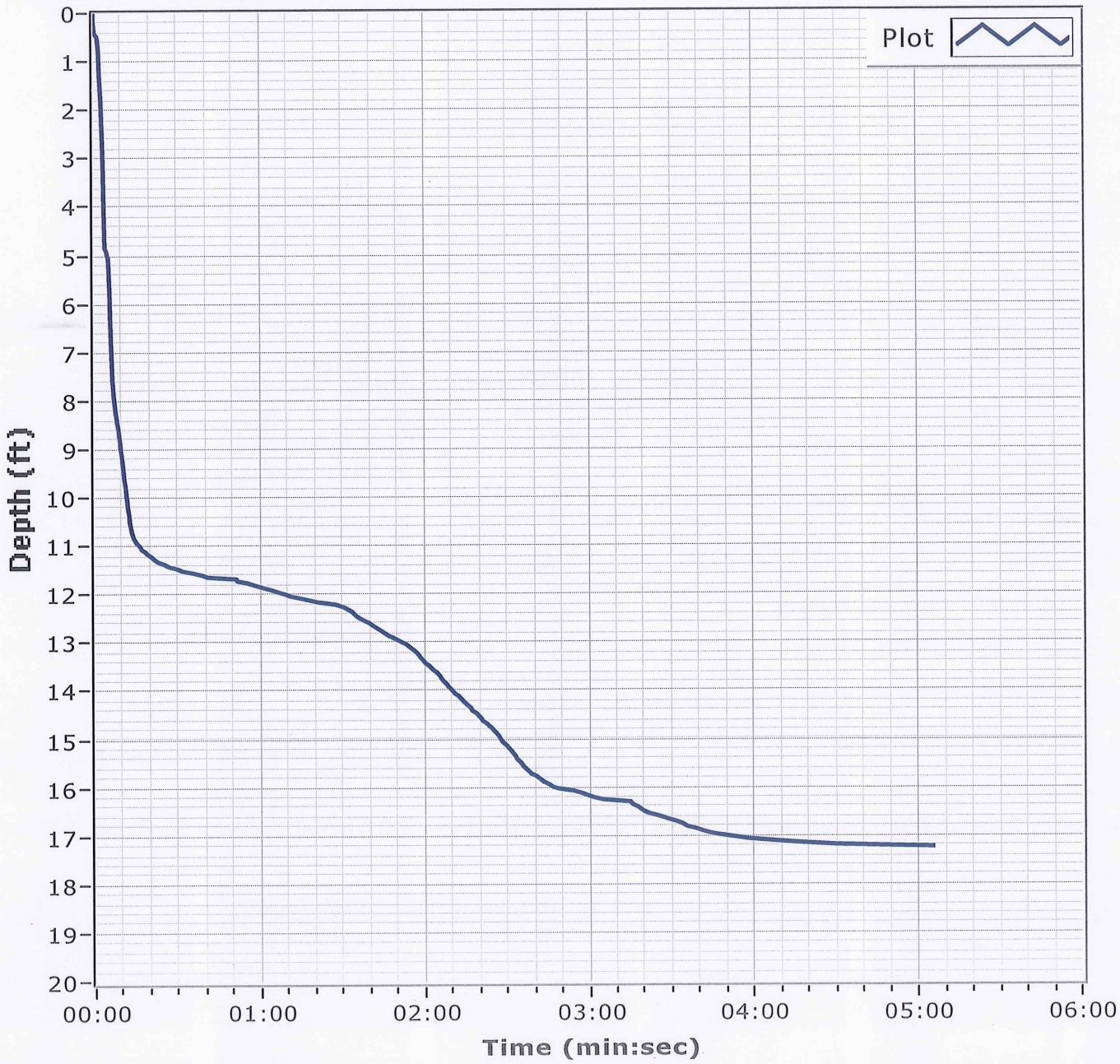
Core Identifier BI-PBS-62-12
Coordinate System
Latitude / Longitude

Latitude 30 09.195
Longitude 88 18.438

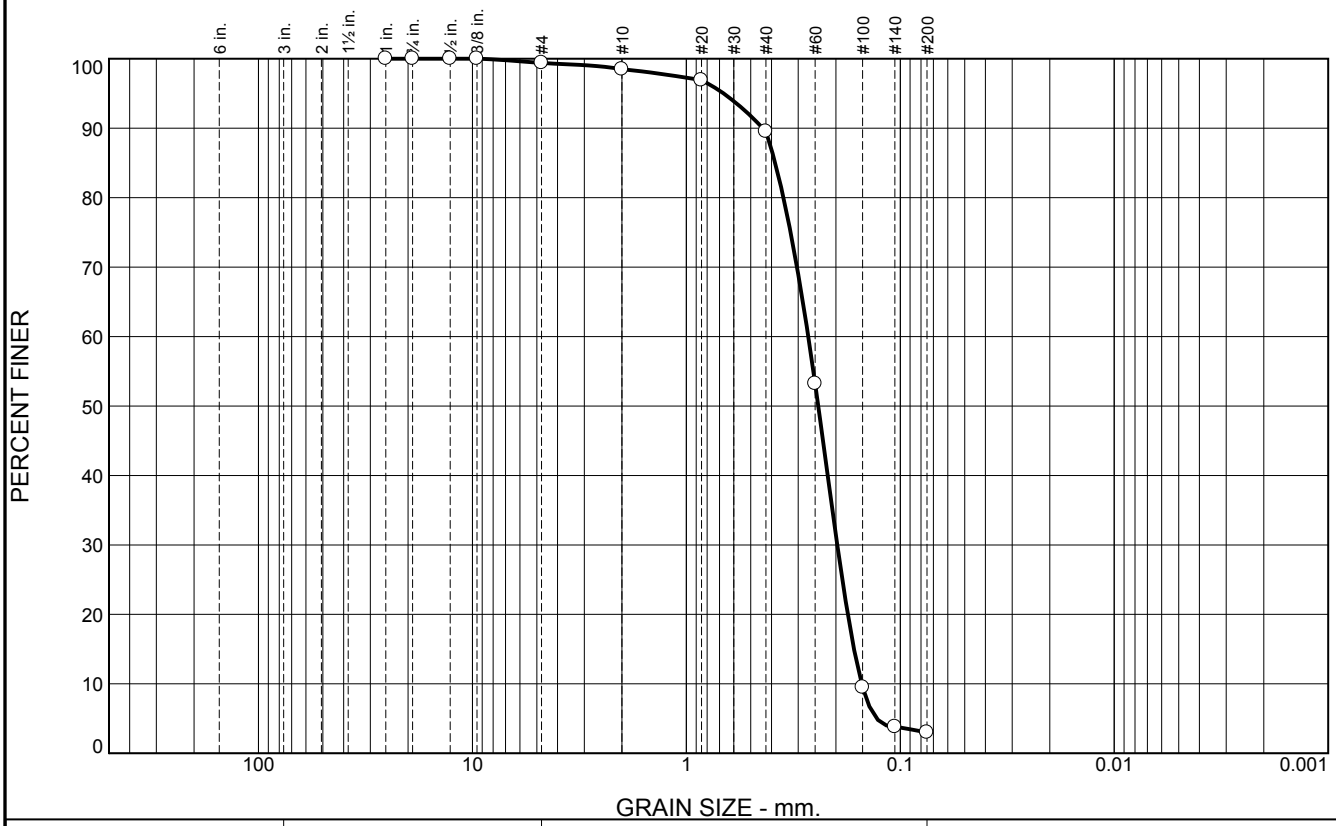
Date 11/16/2012
Start Time 13:13:00
End Time 13:18:06
Total Time 00:05:06

Water Depth 56.0'
Penetration 17.2'
Recovery 16.5'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.9	9.0	86.5	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	98.5		
#20	96.9		
#40	89.5		
#60	53.2		
#100	9.5		
#140	3.8		
#200	3.0		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4395 D_{85}= 0.3843 D_{60}= 0.2693
D_{50}= 0.2417 D_{30}= 0.1971 D_{15}= 0.1648
D_{10}= 0.1515 C_u= 1.78 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

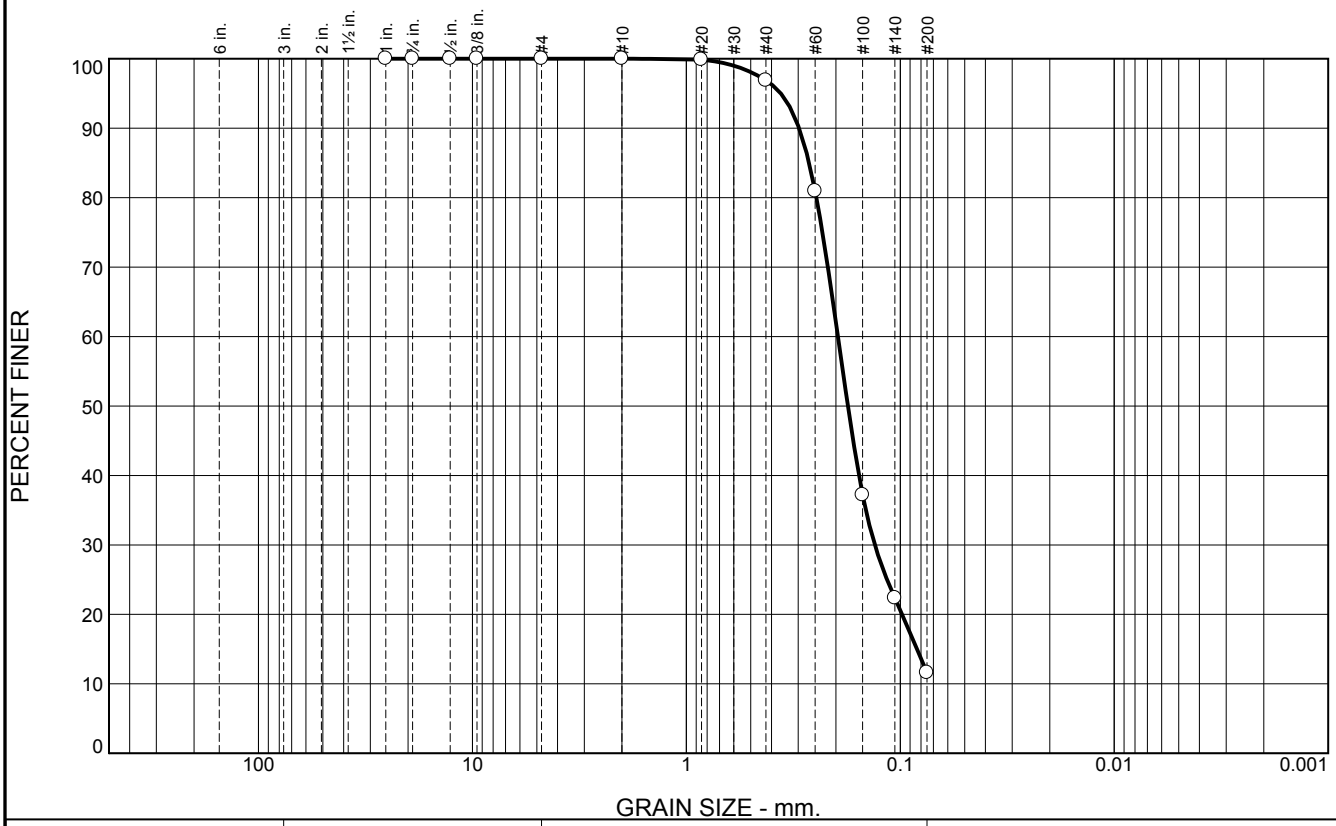
Location: BI-PBS-62-12 A
Sample Number: 6462 **Depth:** 0.0 **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.1	85.3	11.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	96.9		
#60	80.9		
#100	37.2		
#140	22.4		
#200	11.6		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2975 D_{85}= 0.2670 D_{60}= 0.1957
D_{50}= 0.1758 D_{30}= 0.1316 D_{15}= 0.0836
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

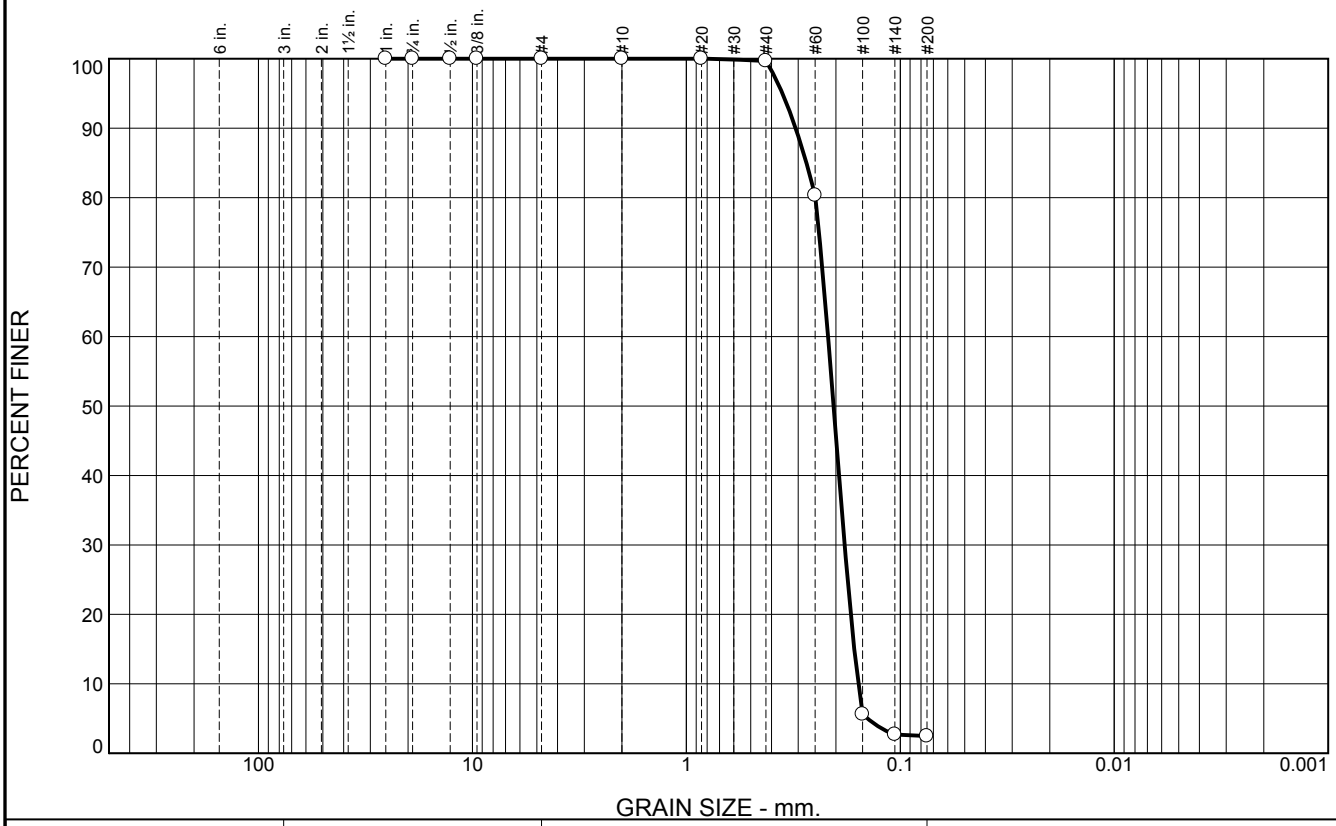
Location: BI-PBS-62-12 B
Sample Number: 6462 **Depth:** 3.1' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	97.2	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.7		
#60	80.3		
#100	5.6		
#140	2.7		
#200	2.5		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3087 D_{85}= 0.2748 D_{60}= 0.2175
D_{50}= 0.2050 D_{30}= 0.1821 D_{15}= 0.1643
D_{10}= 0.1574 C_u= 1.38 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

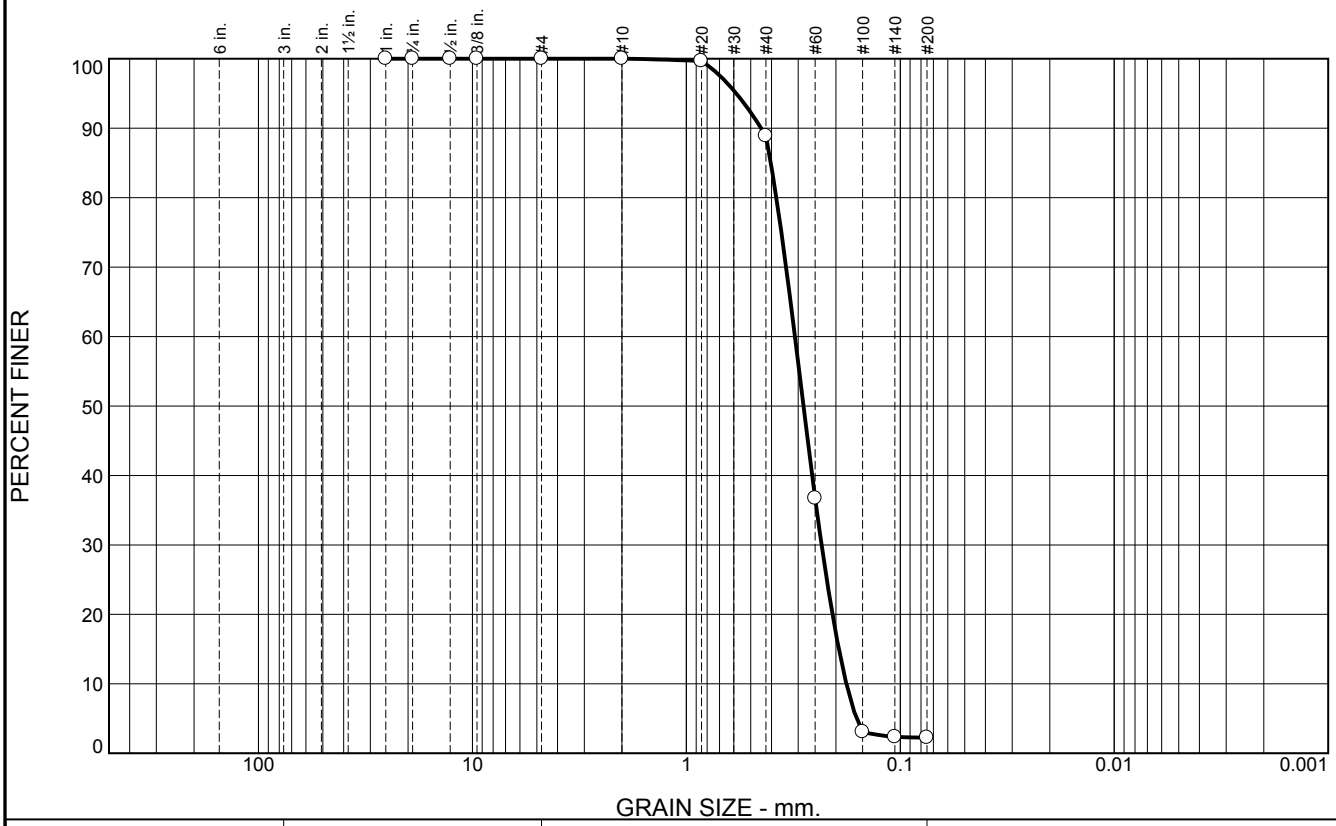
Location: BI-PBS-62-12 C
Sample Number: 6462 **Depth:** 5.9' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.1	86.6	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	88.9		
#60	36.7		
#100	3.1		
#140	2.3		
#200	2.3		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4475 D_{85}= 0.4028 D_{60}= 0.3109
D_{50}= 0.2836 D_{30}= 0.2333 D_{15}= 0.1938
D_{10}= 0.1788 C_u= 1.74 C_c= 0.98

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-62-12 D
Sample Number: 6462 **Depth:** 11.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-063-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-063-12 — LOCATION COORDINATES: E = 1,149,074 N = 238,385	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 56 Ft.
	15. DATE BORING — STARTED: 11-16-12 — COMPLETED: 11-16-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -56.3 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 14.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.3	0.0				
-57.8	1.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2768 mm % Fines: 2.3
-61.3	5.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace medium to coarse-grained shell fragments, with clay lenses, gray (SC)	NS	
-61.8	5.5				
-62.6	6.3		CLAY, fat, mostly clay, medium to high plasticity, gray (CH)		
			SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little clay, trace wood debris, gray (SP-SC)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2104 mm % Fines: 3
-70.3	14.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, dense, lt. gray (SP)	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2398 mm % Fines: 2

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.15448° Long = -88.31182°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

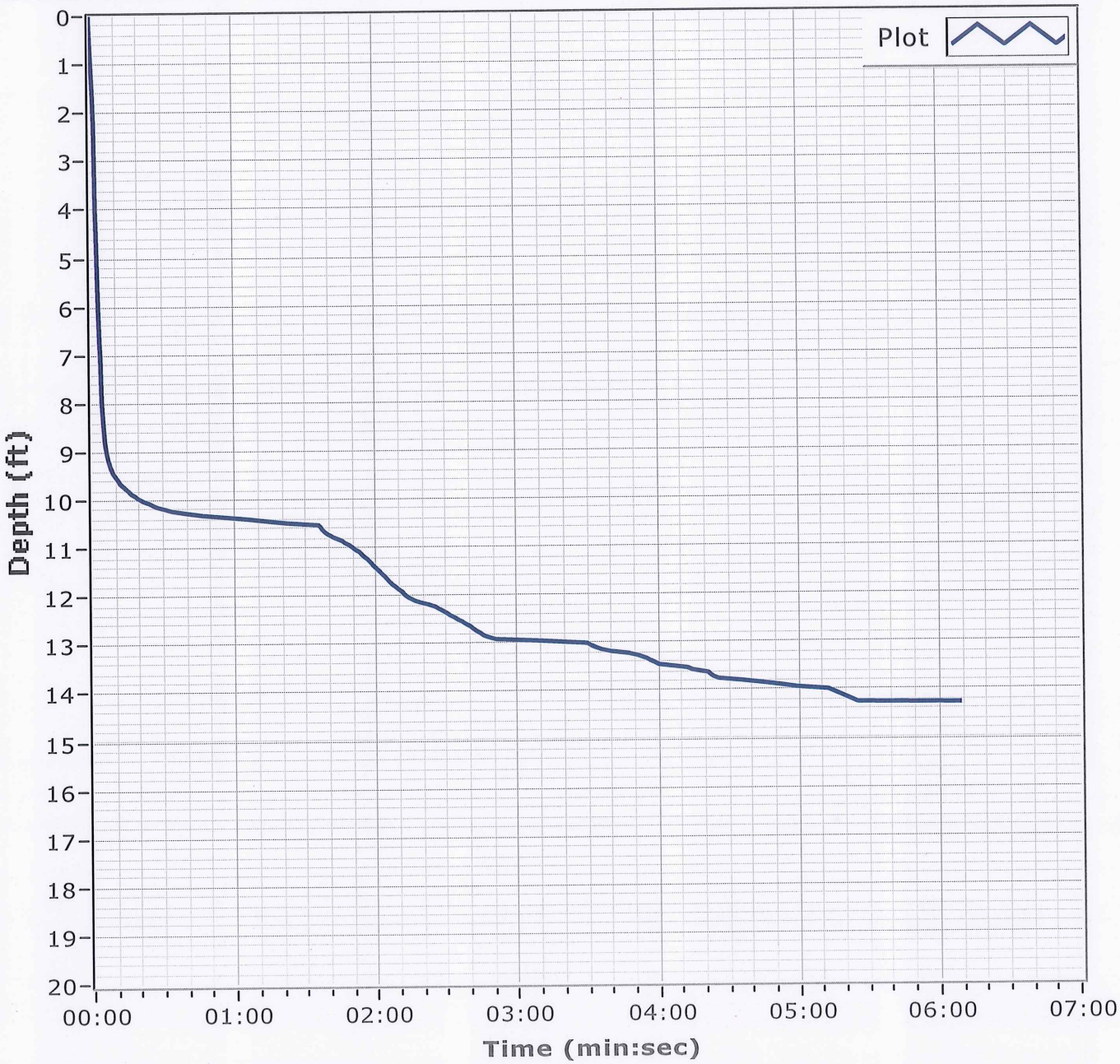
Core Identifier BI-PBS-63-12
Coordinate System
Latitude / Longitude

Latitude 30 09.269
Longitude 88 18.709

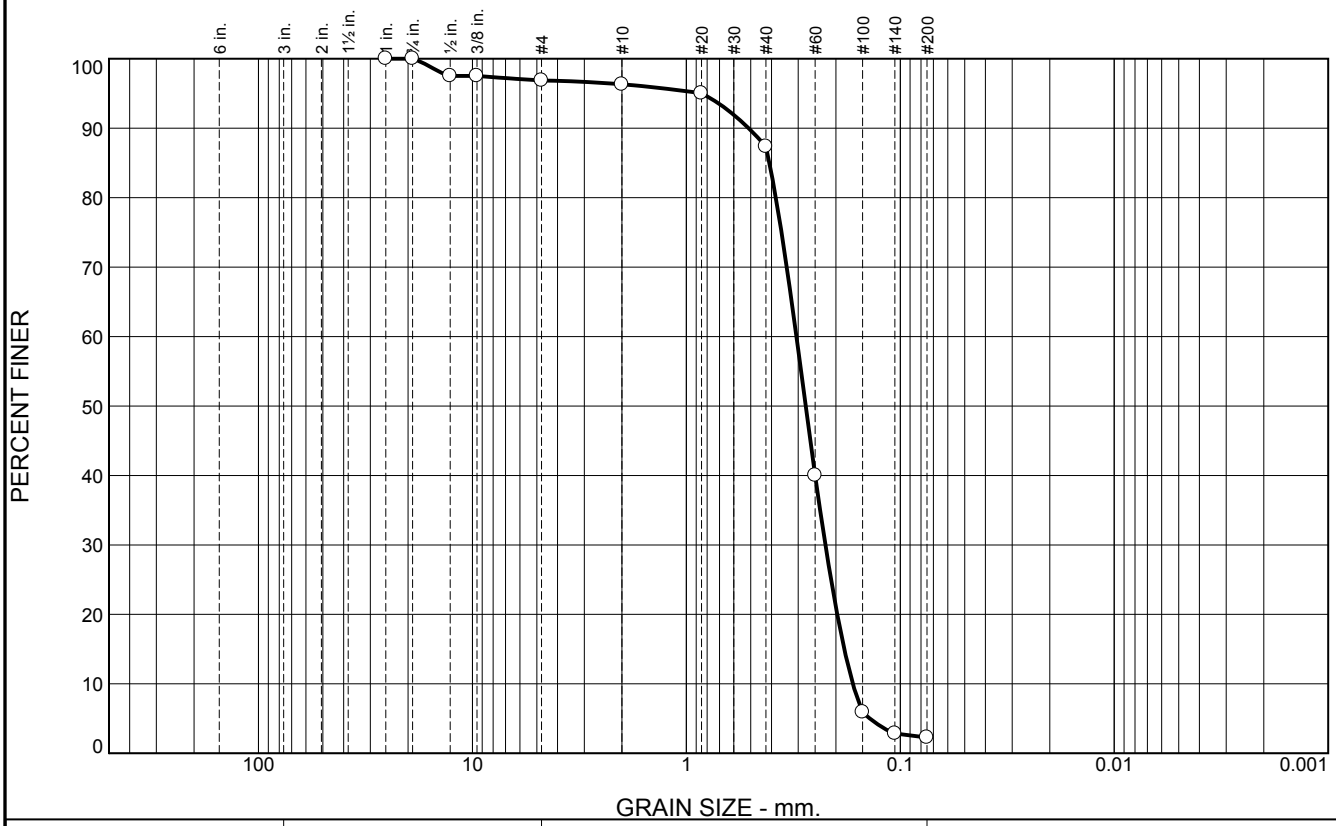
Date 11/16/2012
Start Time 14:13:22
End Time 14:19:31
Total Time 00:06:09

Water Depth 56.0'
Penetration 14.3'
Recovery 14.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.1	0.6	8.9	85.1	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	97.5		
.375	97.5		
#4	96.9		
#10	96.3		
#20	95.0		
#40	87.4		
#60	40.0		
#100	5.9		
#140	2.8		
#200	2.3		

* (no specification provided)

Material Description

Fine grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5122 D_{85}= 0.4090 D_{60}= 0.3060
D_{50}= 0.2768 D_{30}= 0.2239 D_{15}= 0.1829
D_{10}= 0.1668 C_u= 1.83 C_c= 0.98

Classification

USCS= SP AASHTO=

Remarks

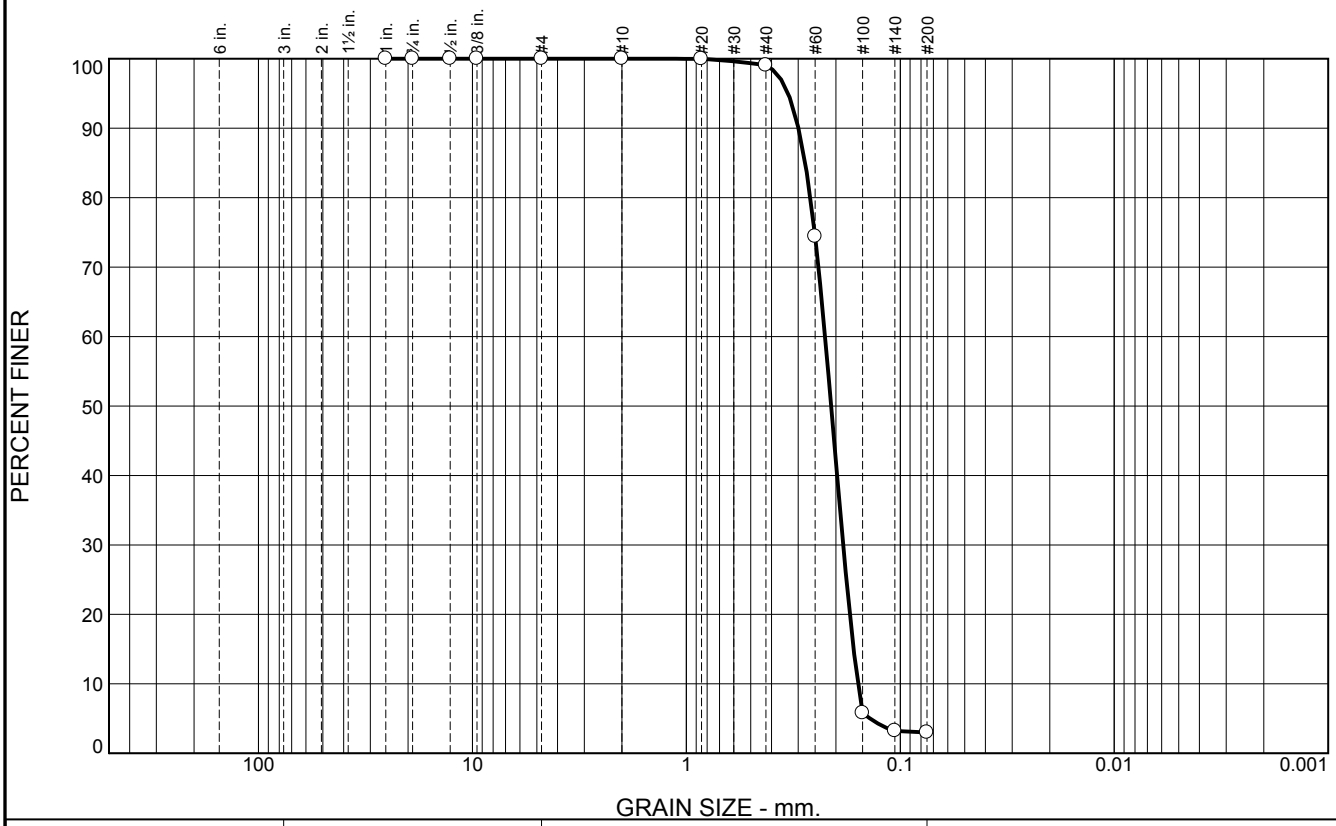
Location: BI-PBS-63-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	96.1	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.1		
#60	74.4		
#100	5.8		
#140	3.2		
#200	3.0		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2995 D_{85}= 0.2785 D_{60}= 0.2246
D_{50}= 0.2104 D_{30}= 0.1850 D_{15}= 0.1655
D_{10}= 0.1578 C_u= 1.42 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

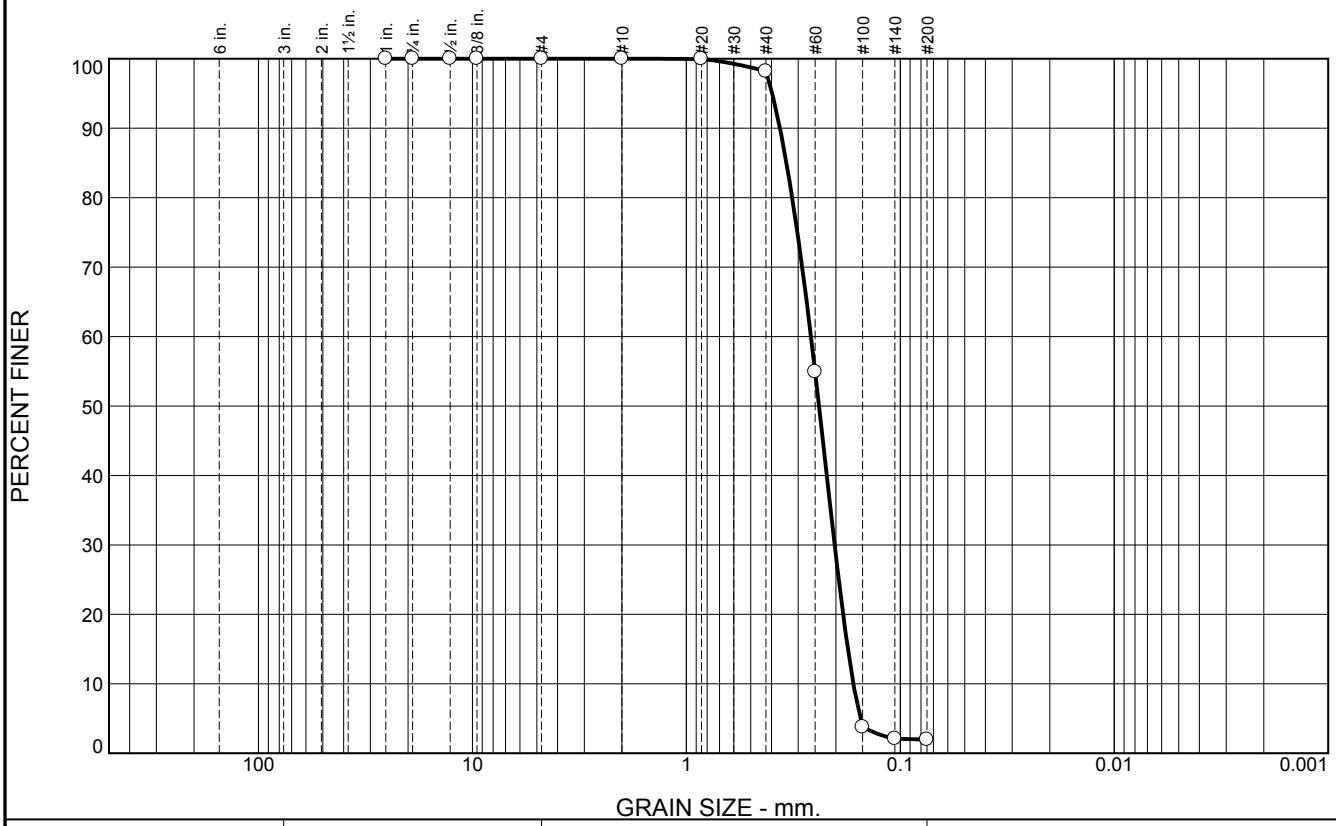
Location: BI-PBS-63-12 B
Sample Number: 6462 **Depth:** 6.4' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.8	96.2	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.2		
#60	54.9		
#100	3.8		
#140	2.1		
#200	2.0		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3649 D_{85}= 0.3404 D_{60}= 0.2615
D_{50}= 0.2398 D_{30}= 0.2028 D_{15}= 0.1759
D_{10}= 0.1659 C_u= 1.58 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-63-12 C
Sample Number: 6462 **Depth:** 9.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-064-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-064-12 — LOCATION COORDINATES: E = 1,151,592 N = 237,331	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Services, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 56 Ft.
	15. DATE BORING — STARTED: 11-16-12 — COMPLETED: 11-16-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -56.5 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 16.2 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.5	0.0				
-57.5	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace medium to coarse-grained shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2991 mm % Fines: 1.6
-59.5	3.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-62.0	5.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
-62.5	6.0		CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)		
-65.8	9.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, dark gray (SM)	NS	
-66.1	9.6		SILT, inorganic-L, mostly silt, little fine-grained sand, trace organic matter, brown (ML)		
-68.1	11.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace organic matter, dark brown (SM)		
-68.5	12.0				
-68.8	12.3				
-69.8	13.3		WOOD, mostly wood debris, brown		
			CLAY, lean, mostly clay, some silt, trace sand, dark brown (CL)		
-72.7	16.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	B	Classification: SP Color: 10YR 7/1-light gray D50: 0.2304 mm % Fines: 3.9
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.15155° Long = -88.30387°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-64- 12

Coordinate System
Latitude / Longitude

Latitude 30 09.093

Longitude 88 18.232

Date 11/16/2012

Start Time 11:50:46

End Time 11:51:46

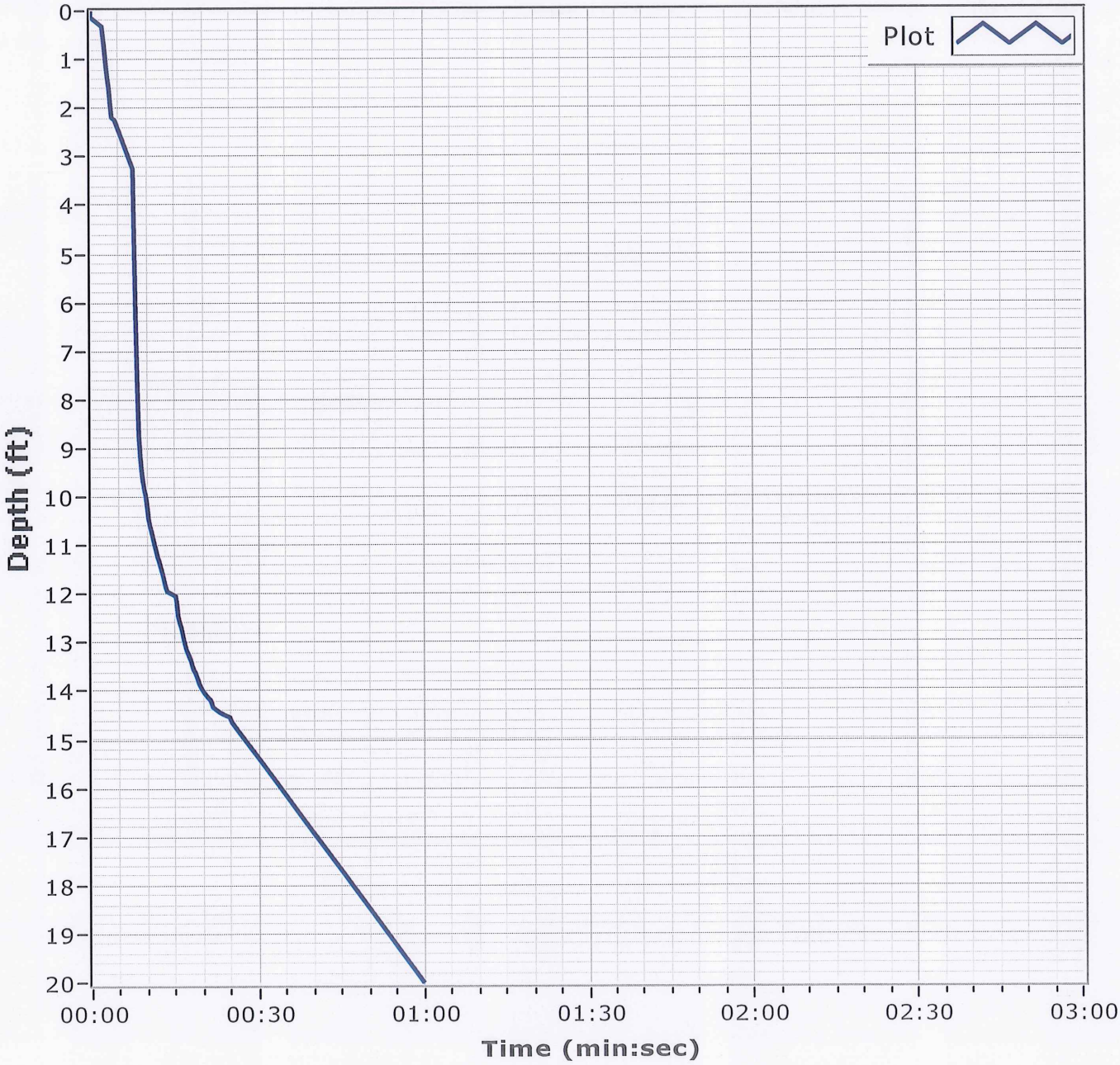
Total Time 00:01:00

Water Depth 56.0'

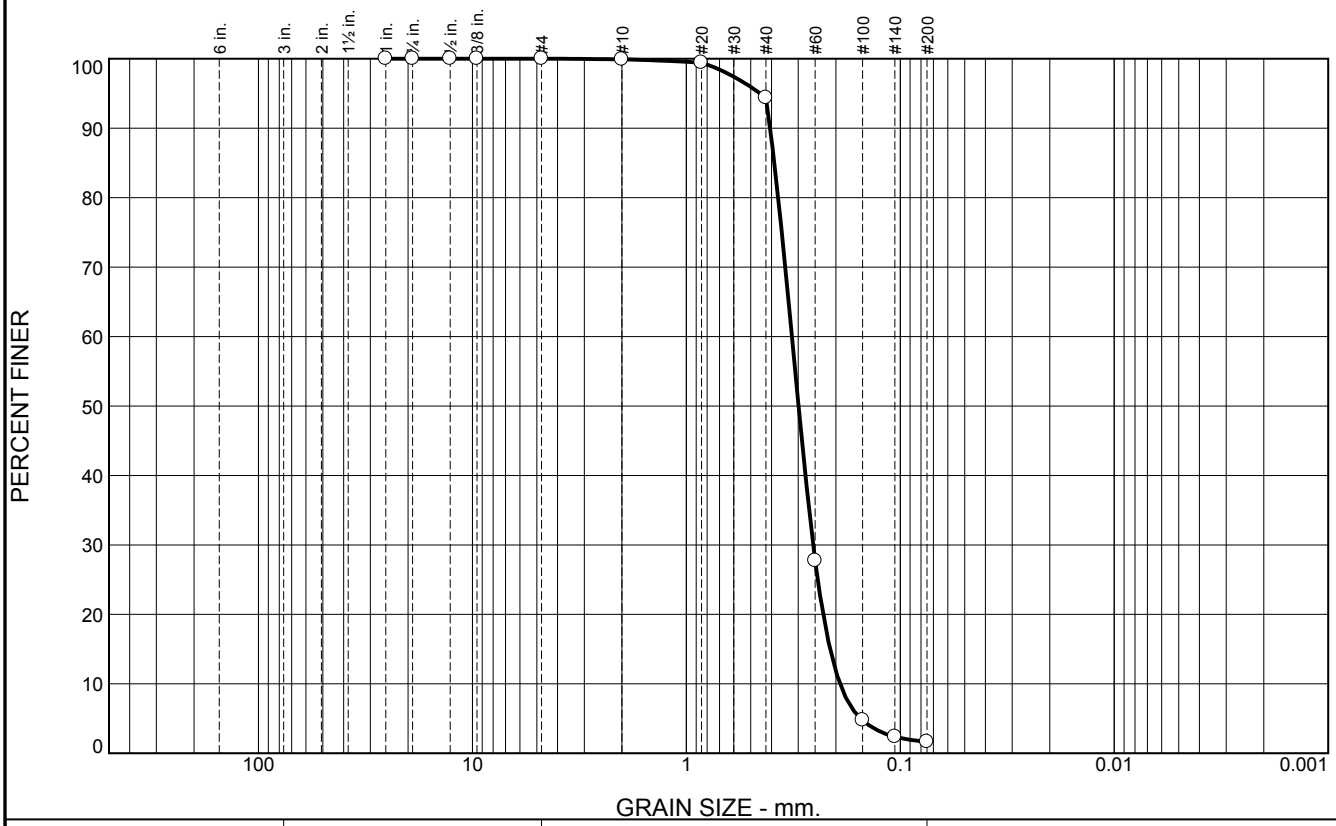
Penetration 20.0'

Recovery 17.0'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.5	92.8	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.4		
#40	94.4		
#60	27.7		
#100	4.8		
#140	2.4		
#200	1.6		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4059 D_{85}= 0.3878 D_{60}= 0.3211
D_{50}= 0.2991 D_{30}= 0.2554 D_{15}= 0.2129
D_{10}= 0.1915 C_u= 1.68 C_c= 1.06

Classification

USCS= SP AASHTO=

Remarks

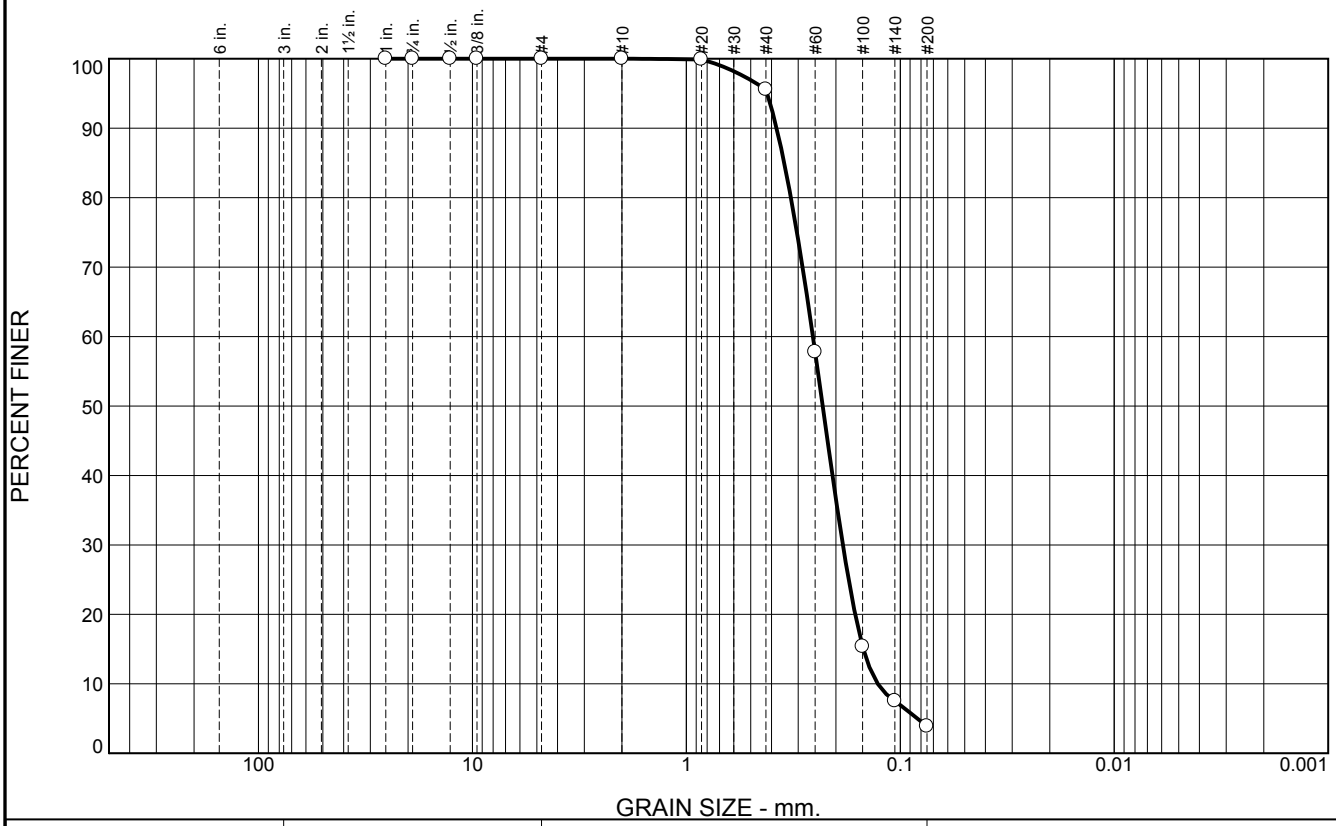
Location: BI-PBS-64-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.4	91.7	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	95.6		
#60	57.8		
#100	15.4		
#140	7.5		
#200	3.9		

* (no specification provided)

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3784 D_{85}= 0.3487 D_{60}= 0.2561
D_{50}= 0.2304 D_{30}= 0.1856 D_{15}= 0.1488
D_{10}= 0.1275 C_u= 2.01 C_c= 1.06

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-64-12 B
Sample Number: 6462 **Depth:** 15.2' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-065-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-065-12 — LOCATION COORDINATES: E = 1,149,511 N = 237,566	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 54 Ft.
	15. DATE BORING — STARTED: 11-16-12 — COMPLETED: 11-16-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -54.1 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 13.4 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.1	0.0				
-56.6	2.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.3177 mm % Fines: 5.8
-59.3	5.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	NS	
-63.0	8.9		CLAY, lean, mostly clay, some sandy clay lenses, gray (CL)		
-64.4	10.3		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little clay, trace shell fragments, gray (SP-SC)		
-67.5	13.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.15222° Long = -88.31045°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-65-12

Coordinate System
Latitude / Longitude

Latitude 30 09.133

Longitude 88 18.627

Date 11/16/2012

Start Time 15:46:59

End Time 15:54:01

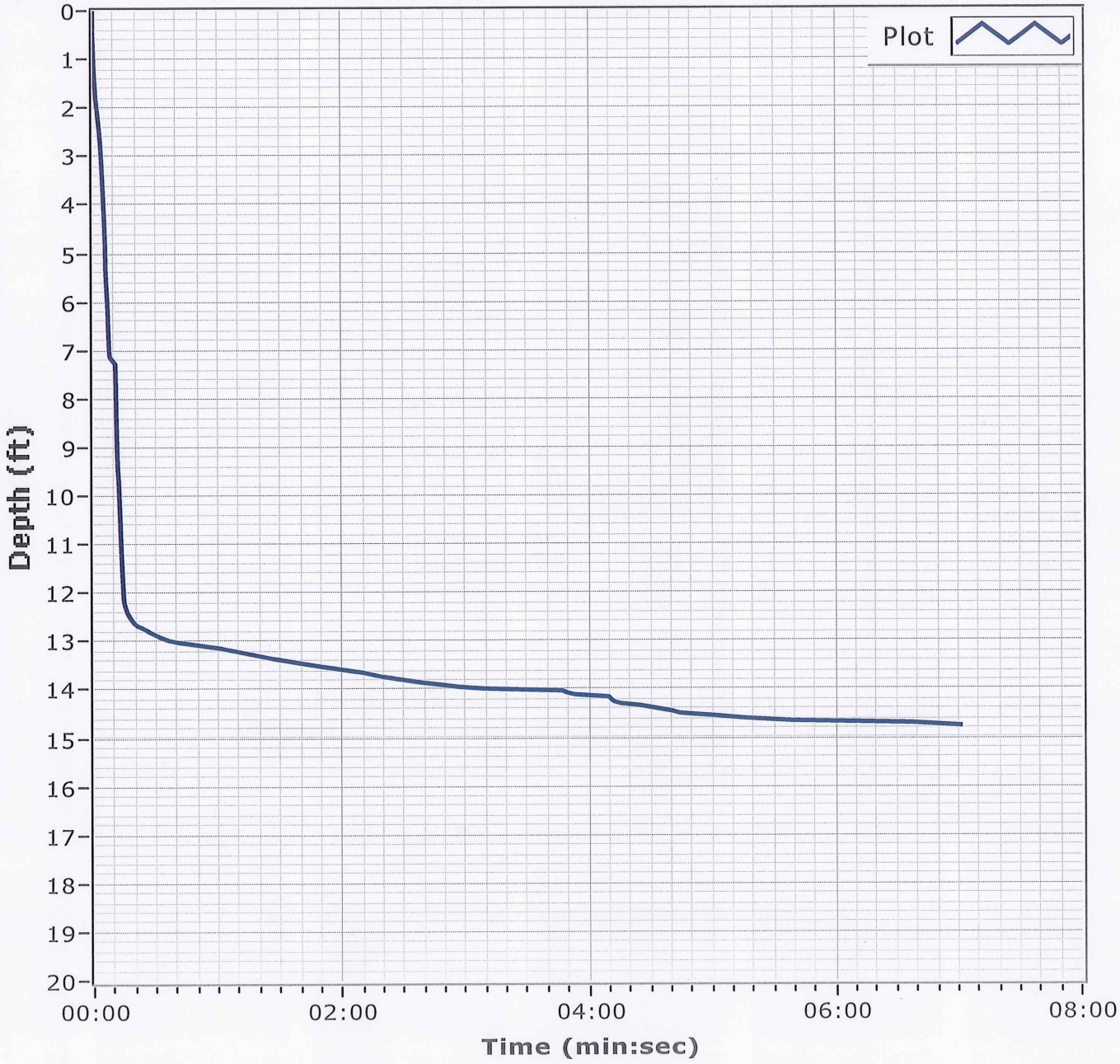
Total Time 00:07:01

Water Depth 54.0'

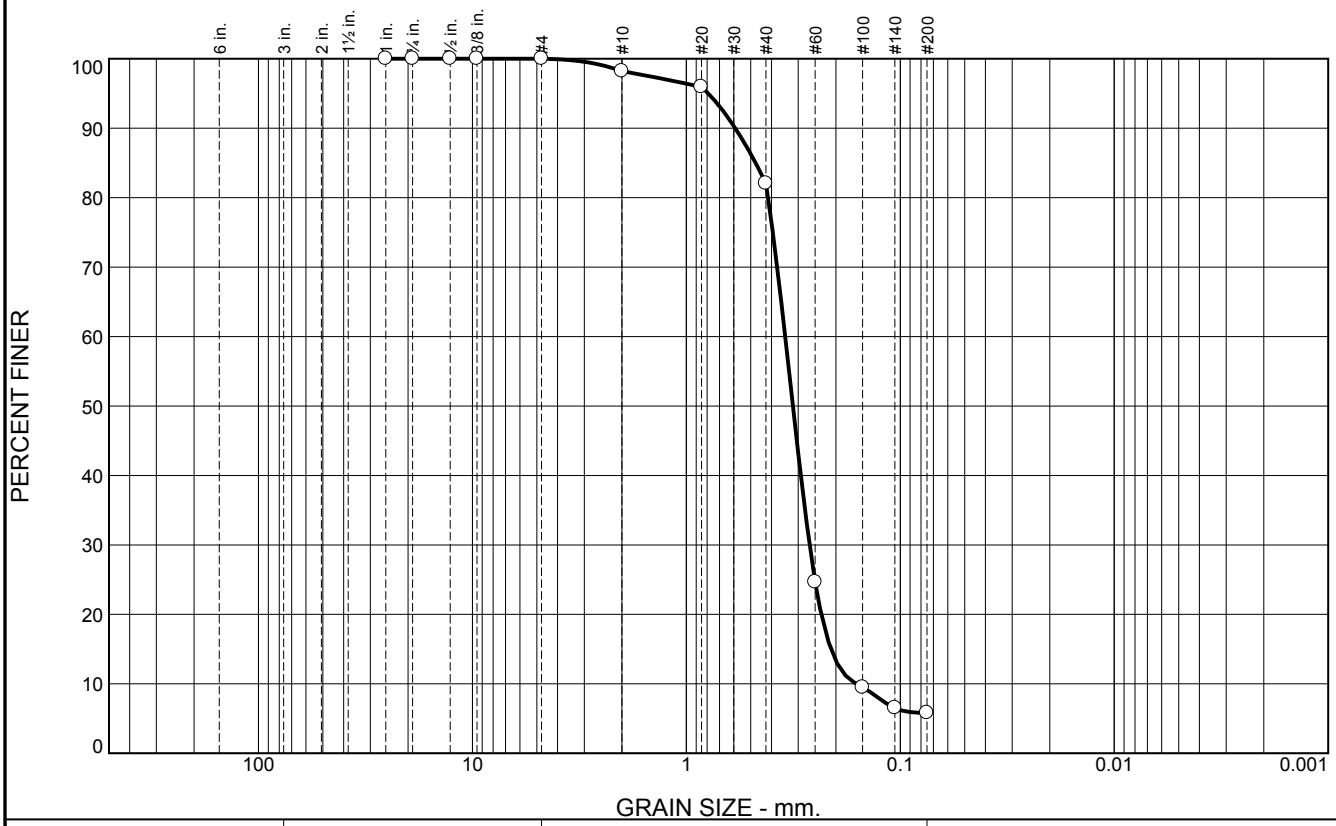
Penetration 14.8'

Recovery 13.5'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.8	16.2	76.2	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	98.2		
#20	95.9		
#40	82.0		
#60	24.7		
#100	9.5		
#140	6.5		
#200	5.8		

* (no specification provided)

Material Description

Fine to medium, SLIGHTLY SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5910 D_{85}= 0.4750 D_{60}= 0.3451
D_{50}= 0.3177 D_{30}= 0.2656 D_{15}= 0.2110
D_{10}= 0.1604 C_u= 2.15 C_c= 1.27

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-65-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-066-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-066-12 — LOCATION COORDINATES: E = 1,148,519 N = 238,154	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 54 Ft.
	15. DATE BORING — STARTED: 11-16-12 — COMPLETED: 11-16-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -54.3 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 12.6 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.3	0.0				
-56.7	2.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3188 mm % Fines: 1.7
-58.3	4.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	NS	
-61.1	6.8		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
-62.1	7.8		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, gray (CL)		
-63.1	8.8				
-63.7	9.4		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium plasticity, gray (CH)		
-64.4	10.1		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark gray (SC)		
-66.9	12.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, dark gray (SM)		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.15385° Long = -88.31358°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

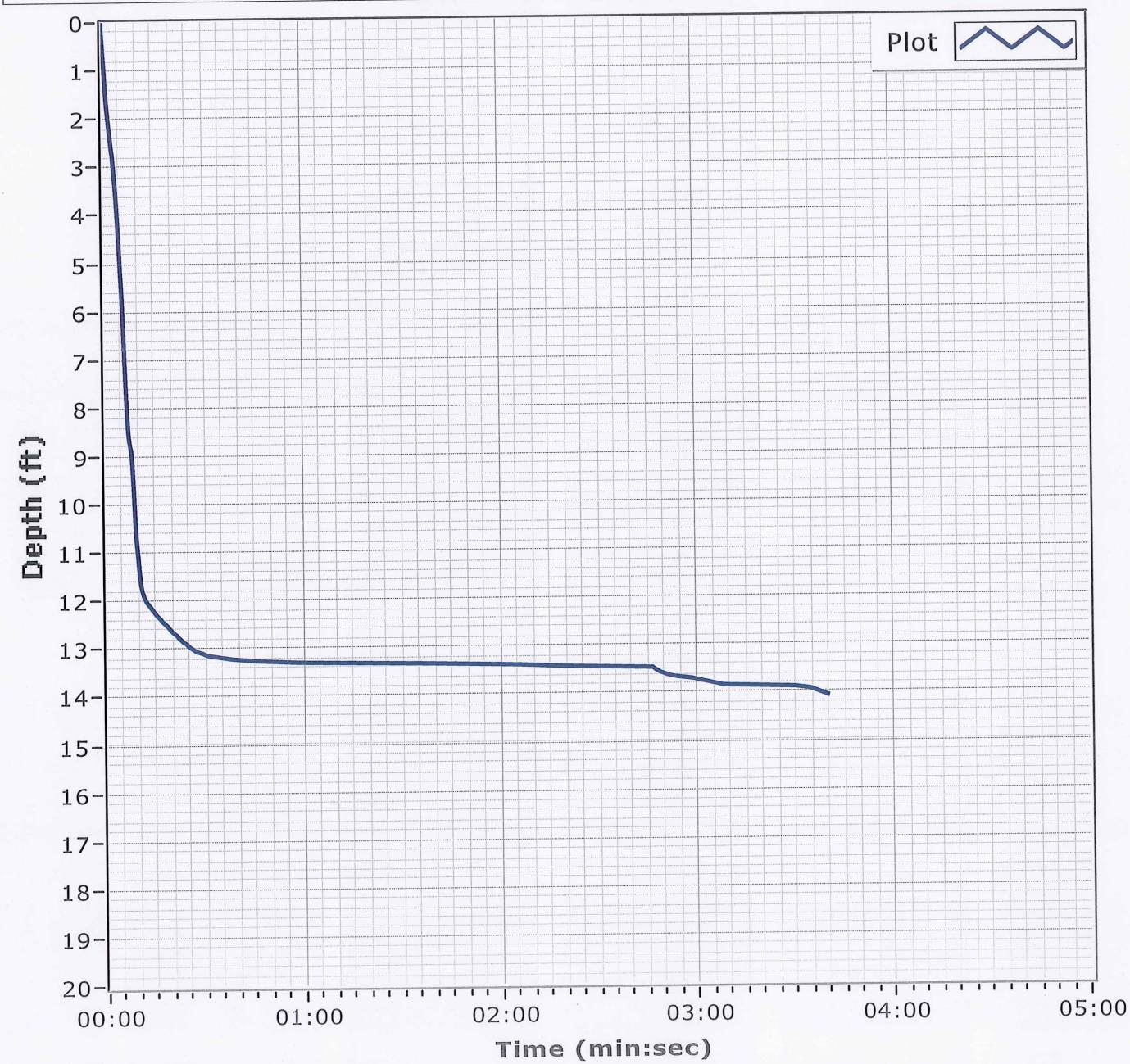
Core Identifier BI-PBS-66-12
Coordinate System
Latitude / Longitude

Latitude 30 09.231
Longitude 88 18.851

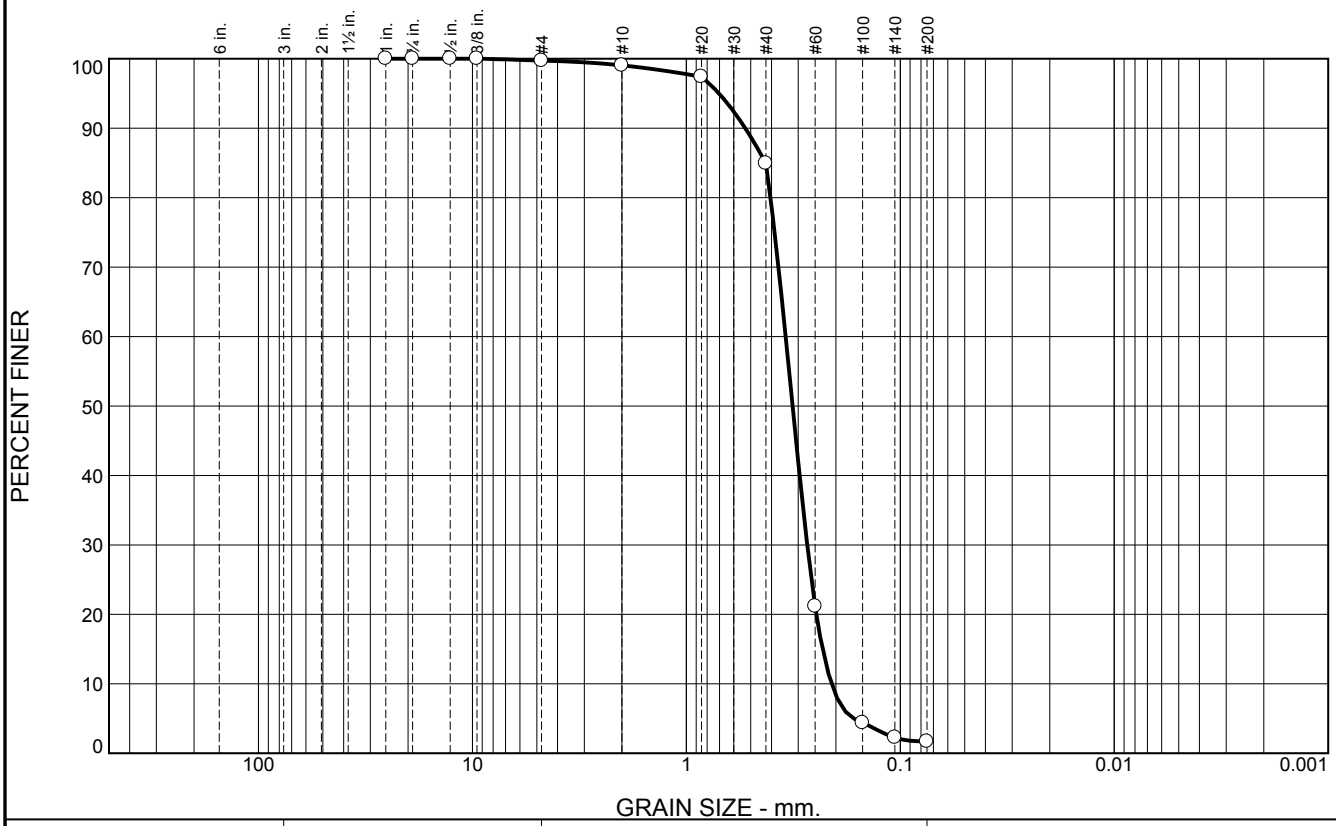
Date 11/16/2012
Start Time 14:59:57
End Time 15:03:37
Total Time 00:03:40

Water Depth 54.0'
Penetration 14.1'
Recovery 12.8'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.7	14.1	83.2	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.0		
#20	97.4		
#40	84.9		
#60	21.1		
#100	4.4		
#140	2.3		
#200	1.7		

* (no specification provided)

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5306 D_{85}= 0.4263 D_{60}= 0.3434
D_{50}= 0.3188 D_{30}= 0.2725 D_{15}= 0.2308
D_{10}= 0.2096 C_u= 1.64 C_c= 1.03

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-66-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-067-12

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

1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East		9. SIZE AND TYPE OF BIT N/A	
		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83 / VERTICAL NAVD88
2. BORING DESIGNATION BI-PBS-067-12	LOCATION COORDINATES E = 1,146,753 N = 233,891	11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY Corps of Engineers - CESAM	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD) 0
4. NAME OF DRILLER American Vibracore Systems, Inc.		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. WATER DEPTH 58.3 Ft.	
		15. DATE BORING	STARTED 11-19-12 / COMPLETED 11-19-12
6. THICKNESS OF OVERBURDEN N/A		16. ELEVATION TOP OF BORING -58.3 Ft.	
7. DEPTH DRILLED INTO ROCK N/A		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.8 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-58.3	0.0				
-62.5	4.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, gray (SP)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1928 mm % Fines: 8.3
-65.5	7.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)	NS	
-77.1	18.8		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, little sandy lenses, gray (CH) At El. -72.1 Ft., mostly clay, few shell fragments, lt. gray mottled with orange		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14215° Long = -88.31923°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

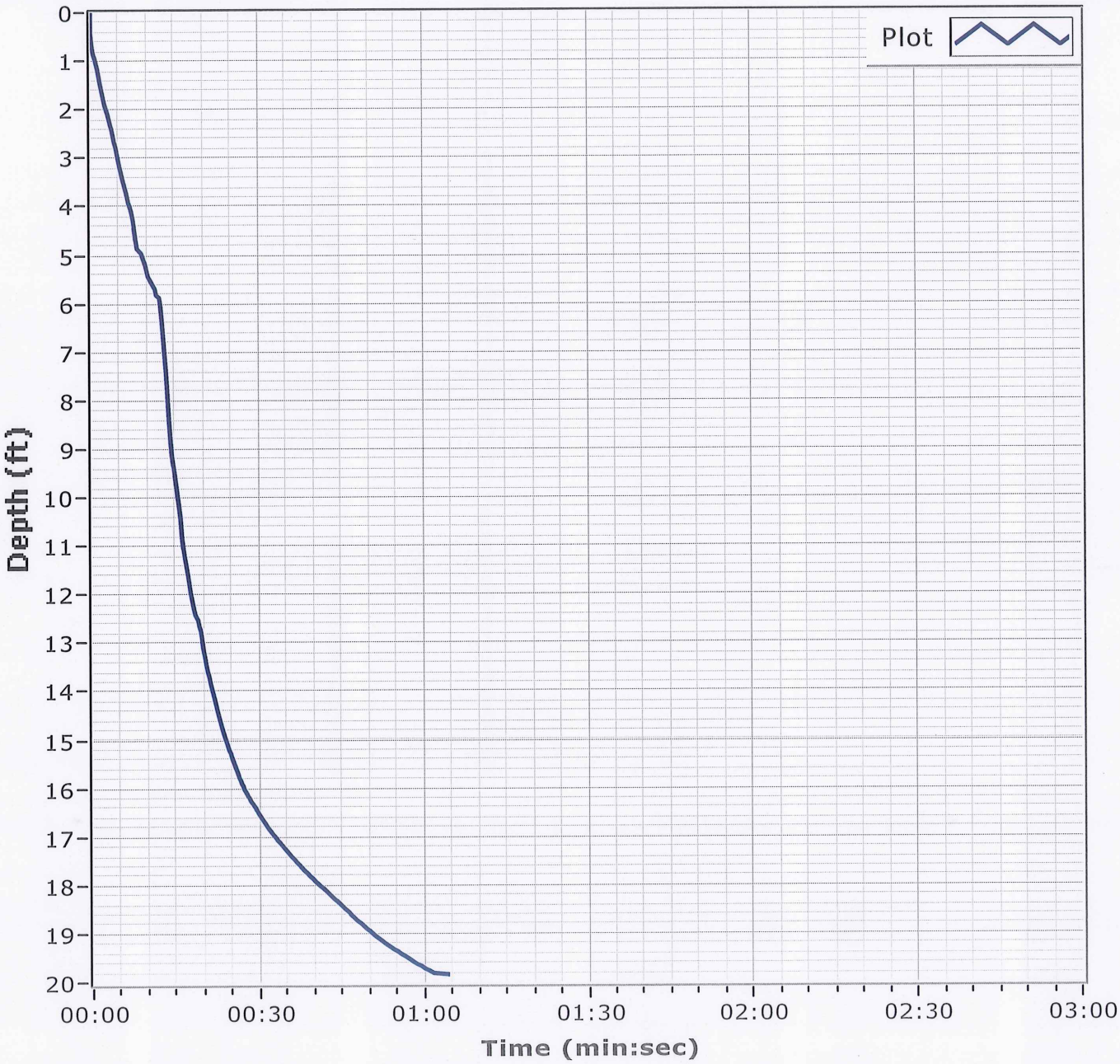
Core Identifier BI-PBS-67-12
Coordinate System
Latitude / Longitude

Latitude 30 08.529
Longitude 88 19.154

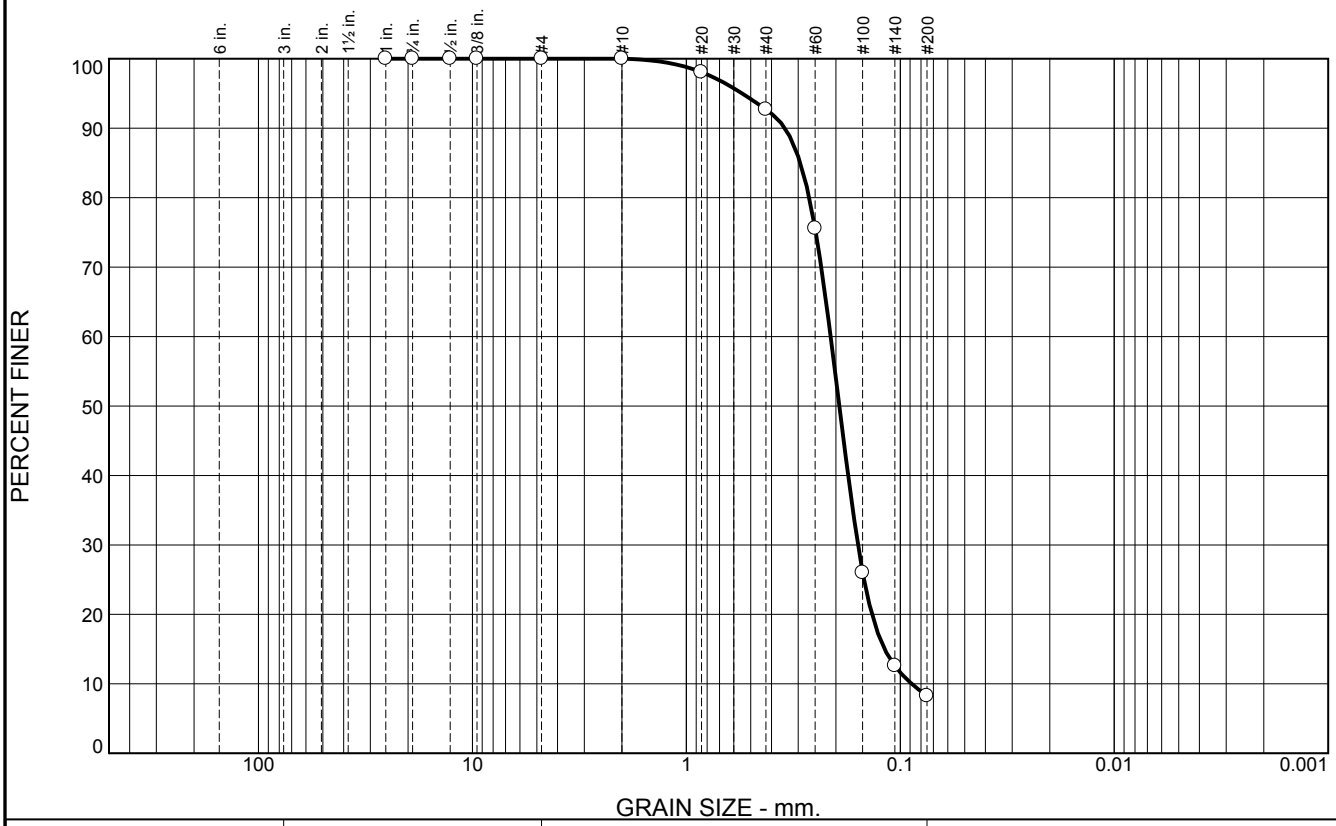
Date 11/19/2012
Start Time 10:57:17
End Time 10:58:22
Total Time 00:01:04

Water Depth 58.3'
Penetration 19.8'
Recovery 18.8'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.3	84.4	8.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.1		
#40	92.7		
#60	75.6		
#100	26.0		
#140	12.6		
#200	8.3		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3461 D_{85}= 0.2935 D_{60}= 0.2116
D_{50}= 0.1928 D_{30}= 0.1578 D_{15}= 0.1185
D_{10}= 0.0885 C_u= 2.39 C_c= 1.33

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-67-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-068-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-068-12 — LOCATION COORDINATES: E = 1,147,801 N = 232,732	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 57.8 Ft.
	15. DATE BORING — STARTED: 11-19-12 — COMPLETED: 11-19-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -57.9 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 19.3 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-57.9	0.0				
-61.8	3.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace fines, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3374 mm % Fines: 2.7
-68.6	10.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-77.2	19.3		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium plasticity, gray (CH) At El. -74.9 Ft., mostly clay, few organic matter, gray and brown mottled At El. -75.4 Ft., mostly clay, high plasticity, very stiff, dark gray		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13895° Long = -88.31593°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,147,801 Y = 232,732	ELEVATION TOP OF BORING -57.9 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			applying NOAA tidal gauge data conversion factor.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13895° Long = -88.31593°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-68-12

Coordinate System
Latitude / Longitude

Latitude 30 08.337

Longitude 88 18.956

Date 11/19/2012

Start Time 13:13:12

End Time 13:13:57

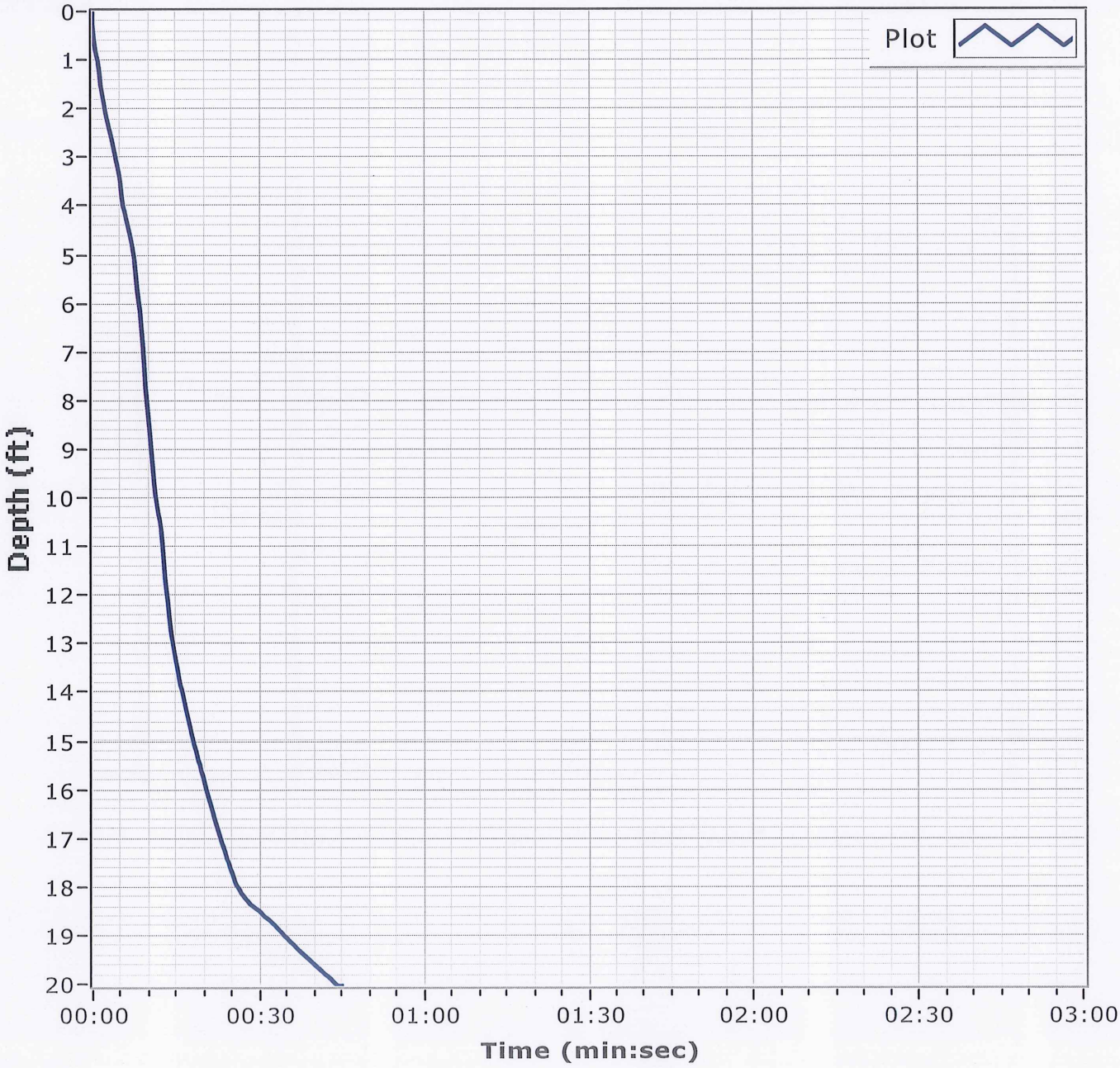
Total Time 00:00:45

Water Depth 57.8'

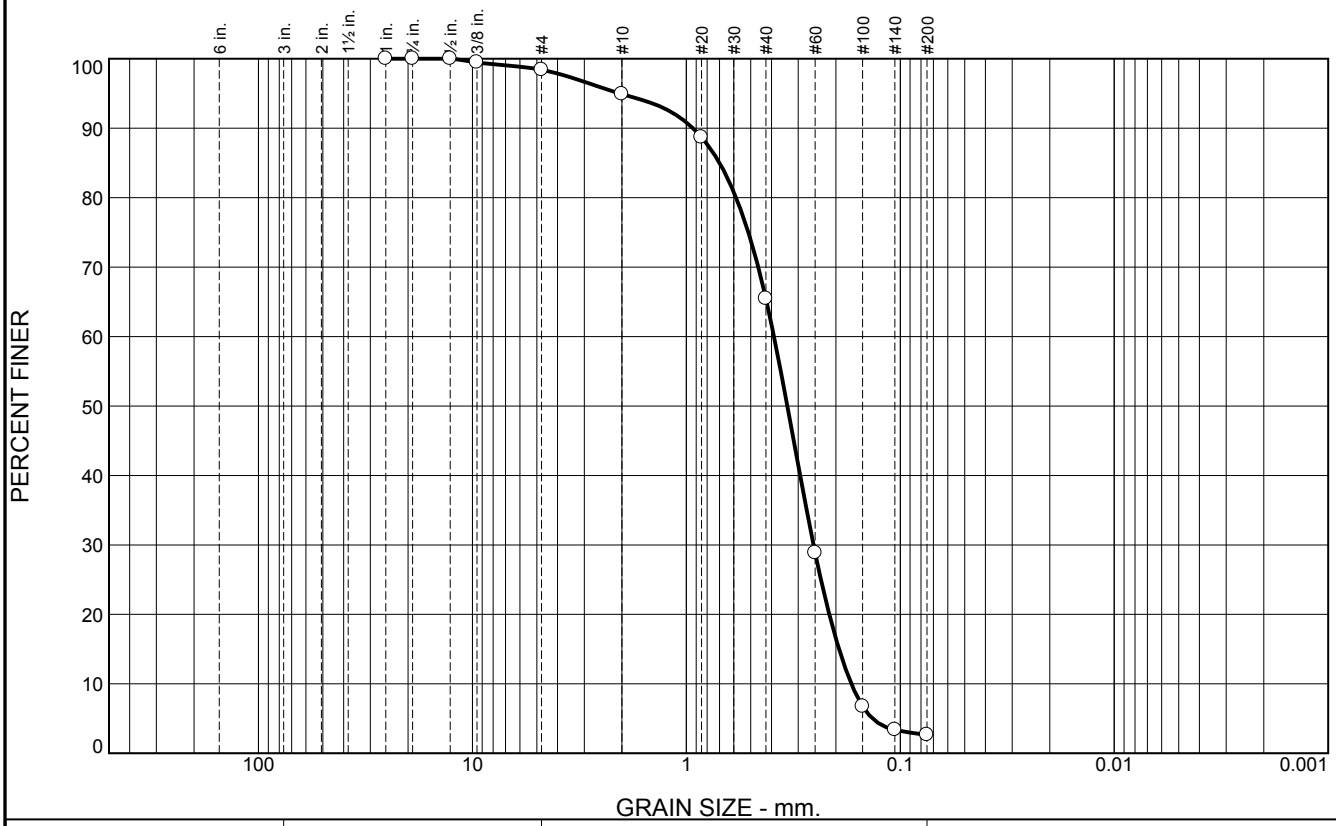
Penetration 20.0'

Recovery 19.3'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	3.5	29.4	62.8	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	98.4		
#10	94.9		
#20	88.7		
#40	65.5		
#60	28.9		
#100	6.7		
#140	3.4		
#200	2.7		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.9331 D_{85}= 0.7002 D_{60}= 0.3894
D_{50}= 0.3374 D_{30}= 0.2545 D_{15}= 0.1934
D_{10}= 0.1695 C_u= 2.30 C_c= 0.98

Classification

USCS= SP AASHTO=

Remarks

Location: BI-PBS-68-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-069-12

DRILLING LOG	DIVISION: South Atlantic	INSTALLATION: Mobile District	SHEET 1 OF 1 SHEETS

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-069-12 — LOCATION COORDINATES: E = 1,150,215 N = 233,725	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 61.8 Ft.
	15. DATE BORING — STARTED: 11-19-12 — COMPLETED: 11-19-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -61.9 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 16.3 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-61.9	0.0				
-62.3	0.4		CLAY, fat, mostly clay, trace sand, gray (CH)	NS	
-63.0	1.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, gray (SP)	A	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2889 mm % Fines: 6.2
			SAND, clayey, mostly fine-grained sand-sized quartz, trace wood debris, trace shell fragments, gray (SC)	NS	
-77.1	15.2				
-78.2	16.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, dense, lt. gray (SP)	B	Classification: SM Color: 10YR 6/2-light brownish gray D50: 0.1428 mm % Fines: 20.1

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14165° Long = -88.30828°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-69-12

Coordinate System
Latitude / Longitude

Latitude 30 08.499

Longitude 88 18.497

Date 11/19/2012

Start Time 11:47:54

End Time 11:50:37

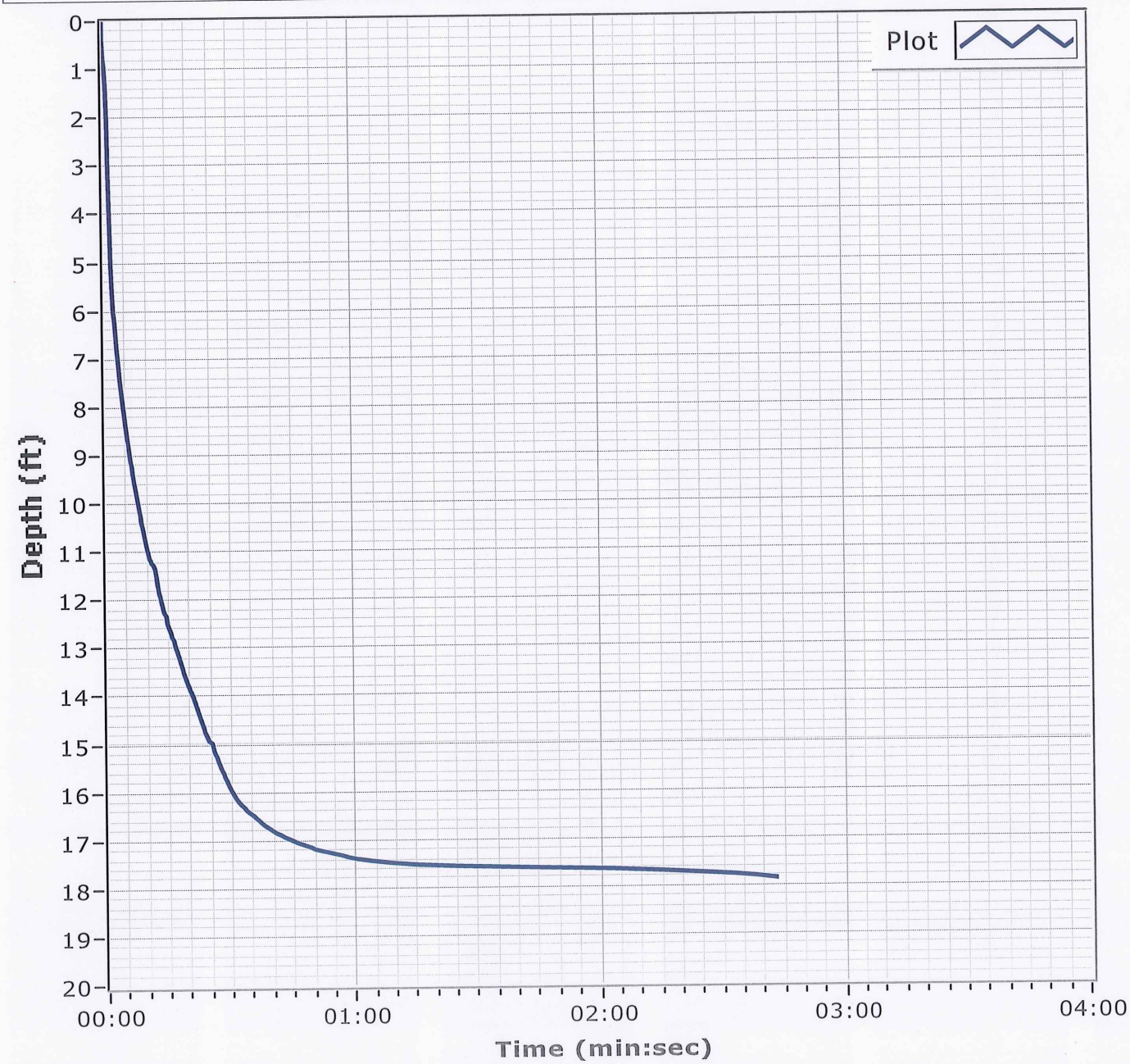
Total Time 00:02:43

Water Depth 61.8'

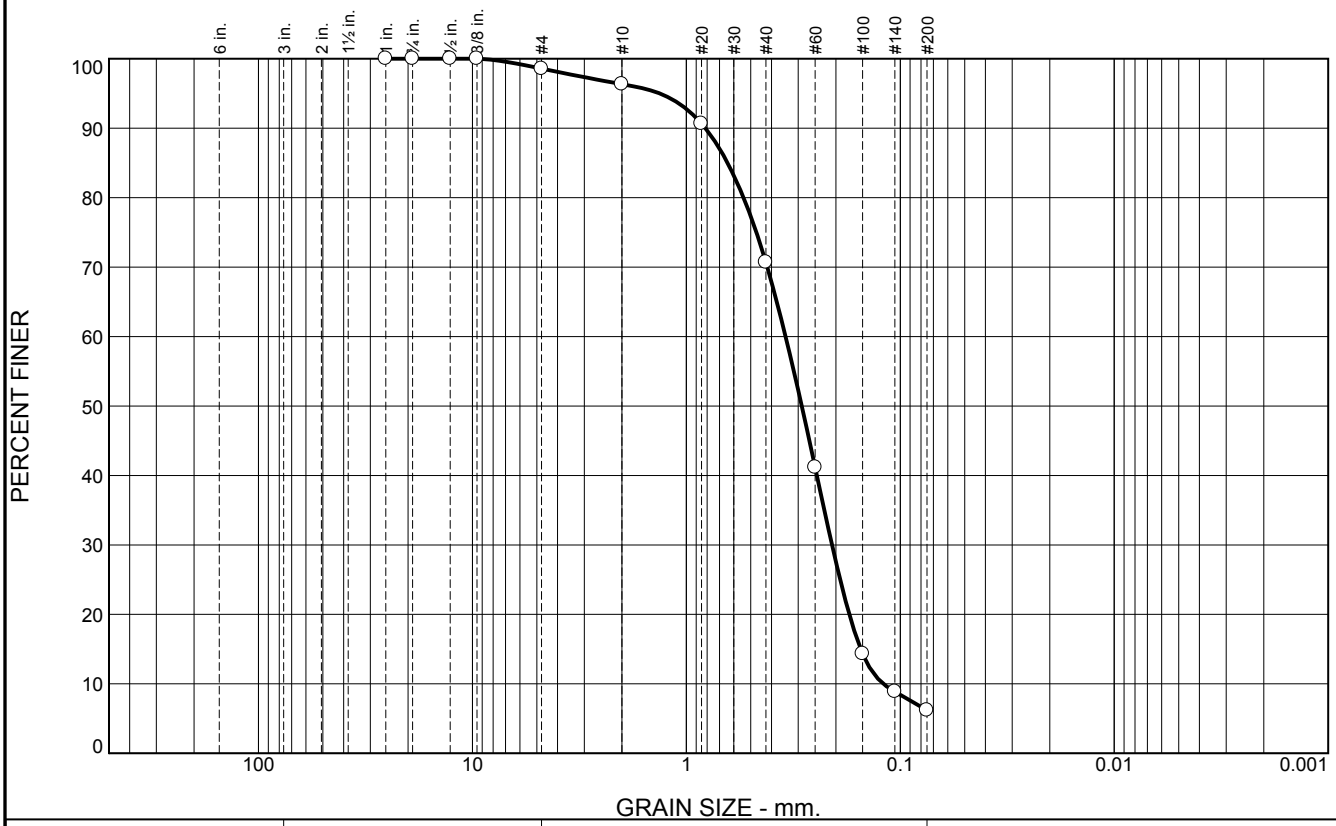
Penetration 17.9'

Recovery 16.3'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.3	25.6	64.5	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.6		
#10	96.3		
#20	90.6		
#40	70.7		
#60	41.2		
#100	14.3		
#140	8.9		
#200	6.2		

* (no specification provided)

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8163 D_{85}= 0.6420 D_{60}= 0.3437
D_{50}= 0.2889 D_{30}= 0.2085 D_{15}= 0.1532
D_{10}= 0.1201 C_u= 2.86 C_c= 1.05

Classification

USCS= SP-SM AASHTO=

Remarks

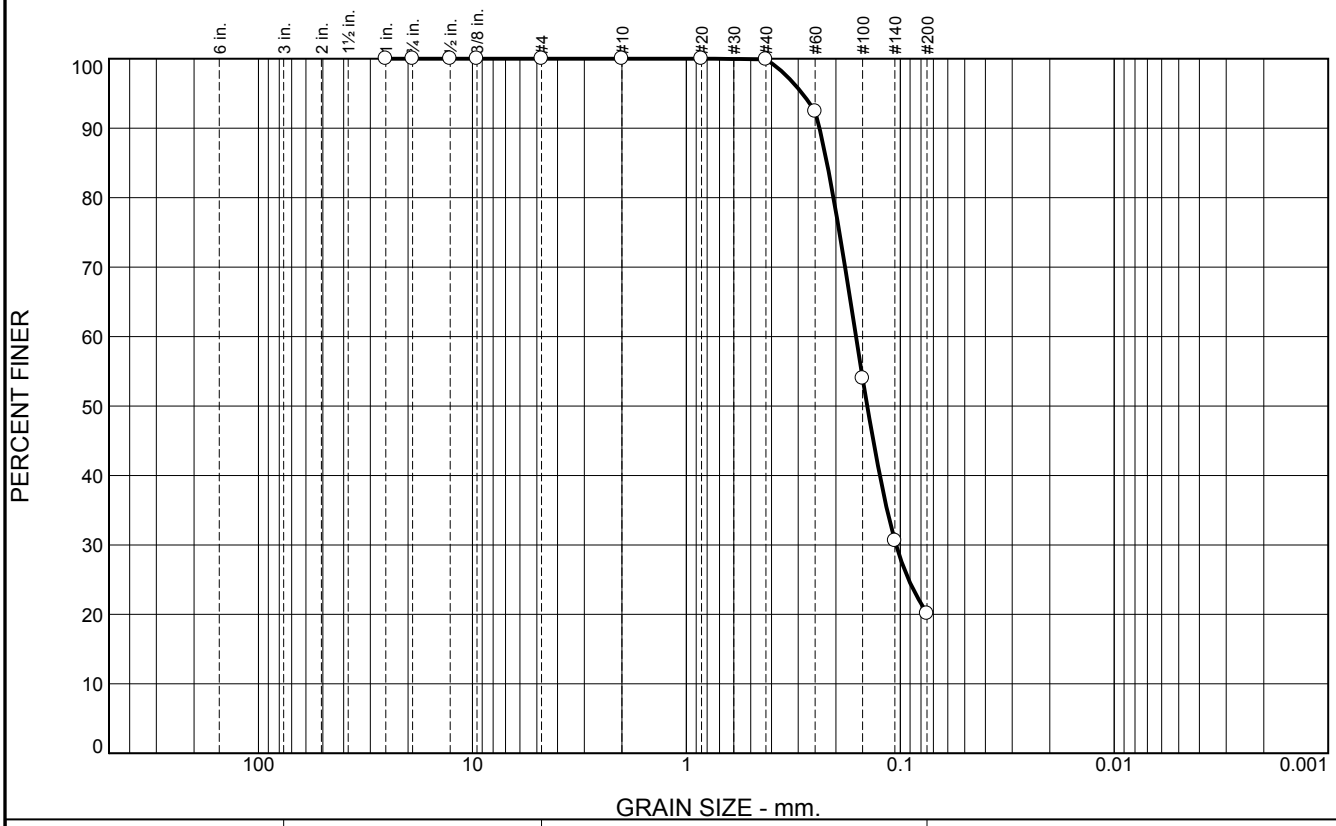
Location: BI-PBS-69-12 A
Sample Number: 6462 **Depth:** 0.4' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	79.8	20.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	92.4		
#100	54.0		
#140	30.6		
#200	20.1		

* (no specification provided)

Material Description

Fine grained, SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2386 D_{85}= 0.2201 D_{60}= 0.1612
D_{50}= 0.1428 D_{30}= 0.1047 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: BI-PBS-69-12 B
Sample Number: 6462 **Depth:** 15.2' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-070-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-070-12 — LOCATION COORDINATES: E = 1,148,982 N = 235,828	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 60 Ft.
	15. DATE BORING — STARTED: 11-19-12 — COMPLETED: 11-19-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -59.9 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 18.3 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-59.9	0.0				
-62.0	2.1		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
-67.6	7.7		CLAY, fat, mostly clay, trace organic matter, with some sandy clay lenses, gray (CH)	NS	
-73.2	13.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
-77.5	17.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fines, lt. gray (SP)		
			At El. -75.1 Ft., mostly fine-grained sand-sized quartz, trace fines, lt. gray	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2041 mm % Fines: 7.3
-78.2	18.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)	——	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14745° Long = -88.31215°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,148,982 Y = 235,828	ELEVATION TOP OF BORING -59.9 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			applying NOAA tidal gauge data conversion factor.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14745° Long = -88.31215°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-70-12

Coordinate System
Latitude / Longitude

Latitude 30 08.847

Longitude 88 18.729

Date 11/19/2012

Start Time 09:19:38

End Time 09:21:13

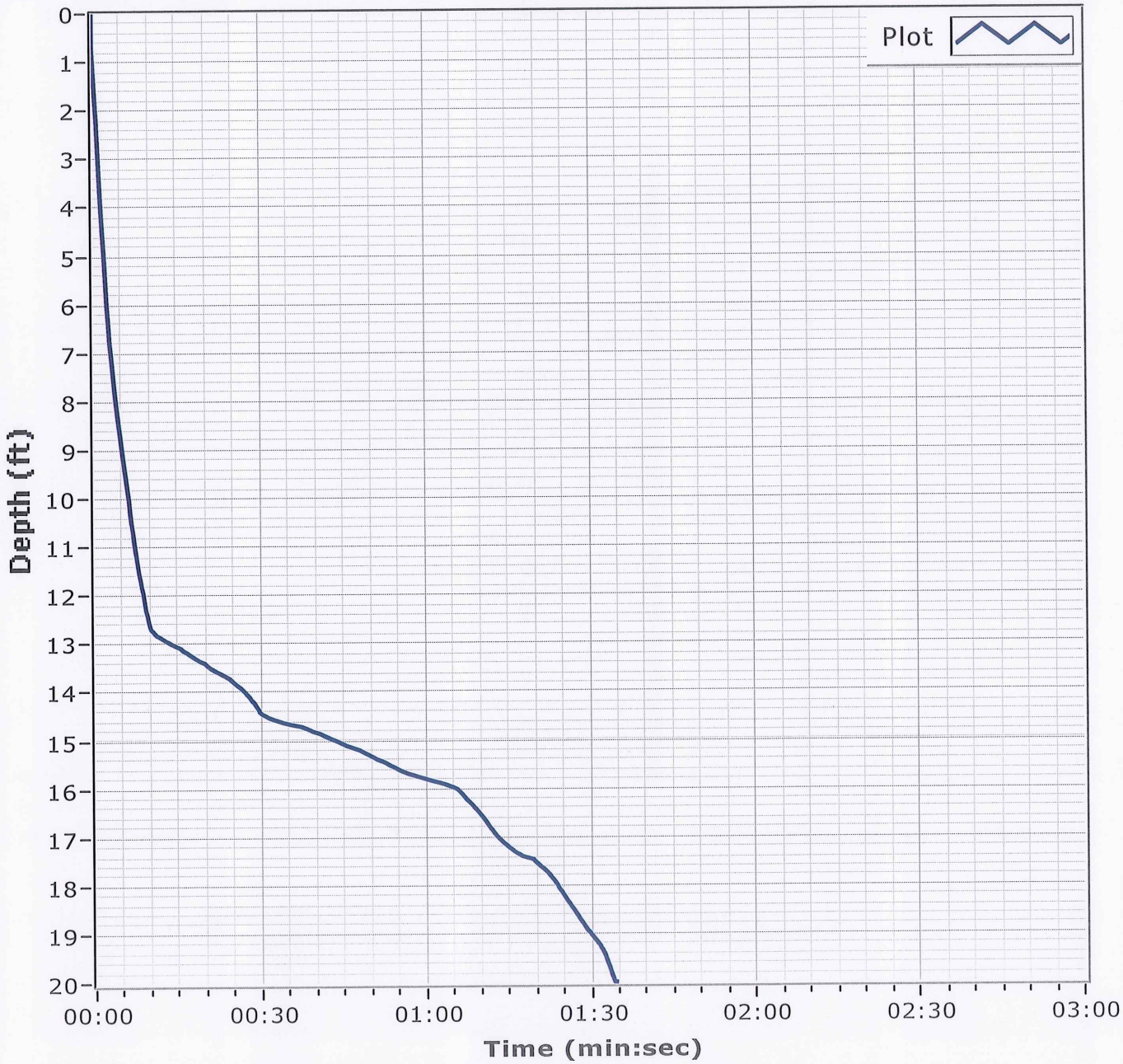
Total Time 00:01:34

Water Depth 60.0'

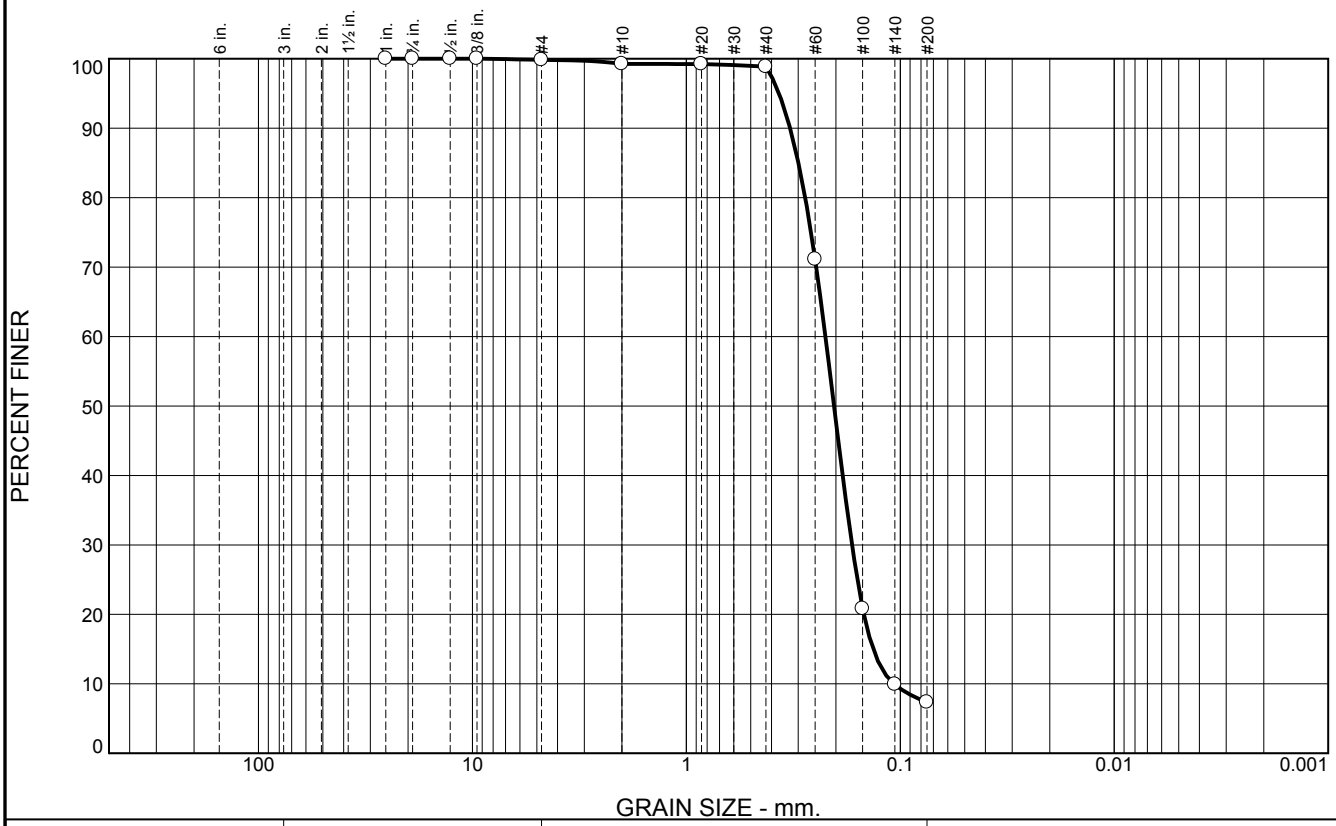
Penetration 20.0'

Recovery 18.3'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	0.5	91.5	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.3		
#20	99.2		
#40	98.8		
#60	71.1		
#100	20.8		
#140	9.9		
#200	7.3		

* (no specification provided)

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3276 D_{85}= 0.2996 D_{60}= 0.2238
D_{50}= 0.2041 D_{30}= 0.1682 D_{15}= 0.1339
D_{10}= 0.1068 C_u= 2.09 C_c= 1.18

Classification

USCS= SP-SM AASHTO=

Remarks

Location: BI-PBS-70-12 A
Sample Number: 6462 **Depth:** 15.2' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-071-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-071-12
LOCATION COORDINATES	E = 1,148,382 N = 232,181
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	18.4 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	57.6 Ft.
15. DATE BORING	STARTED 11-19-12; COMPLETED 11-19-12
16. ELEVATION TOP OF BORING	-57.7 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-57.7	0.0				
-61.1	3.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few fines, few shell fragments, light gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2468 mm % Fines: 3.4
-62.9	5.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.209 mm % Fines: 13.2
-63.6	5.9		CLAY, fat, mostly clay, trace fine-grained sand, medium plasticity, gray (CH)	NS	
-68.2	10.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)	C	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1997 mm % Fines: 15.3
-76.1	18.4		CLAY, fat, mostly clay, high plasticity, dark gray mottled with grayish brown (CH)	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13743° Long = -88.31410°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-71-12

Coordinate System
Latitude / Longitude

Latitude 30 08.246

Longitude 88 18.846

Date 11/19/2012

Start Time 14:05:31

End Time 14:06:16

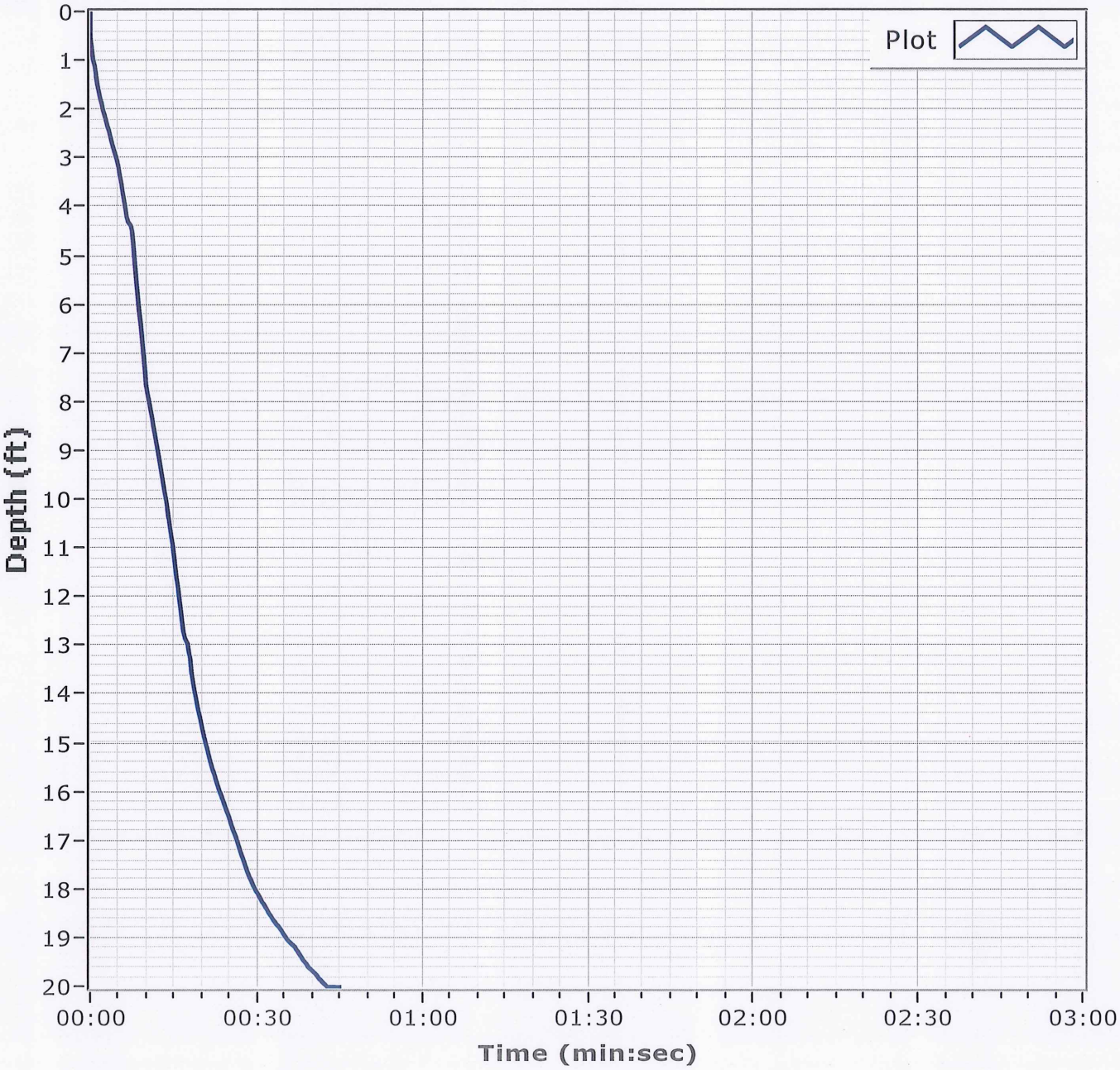
Total Time 00:00:45

Water Depth 57.6'

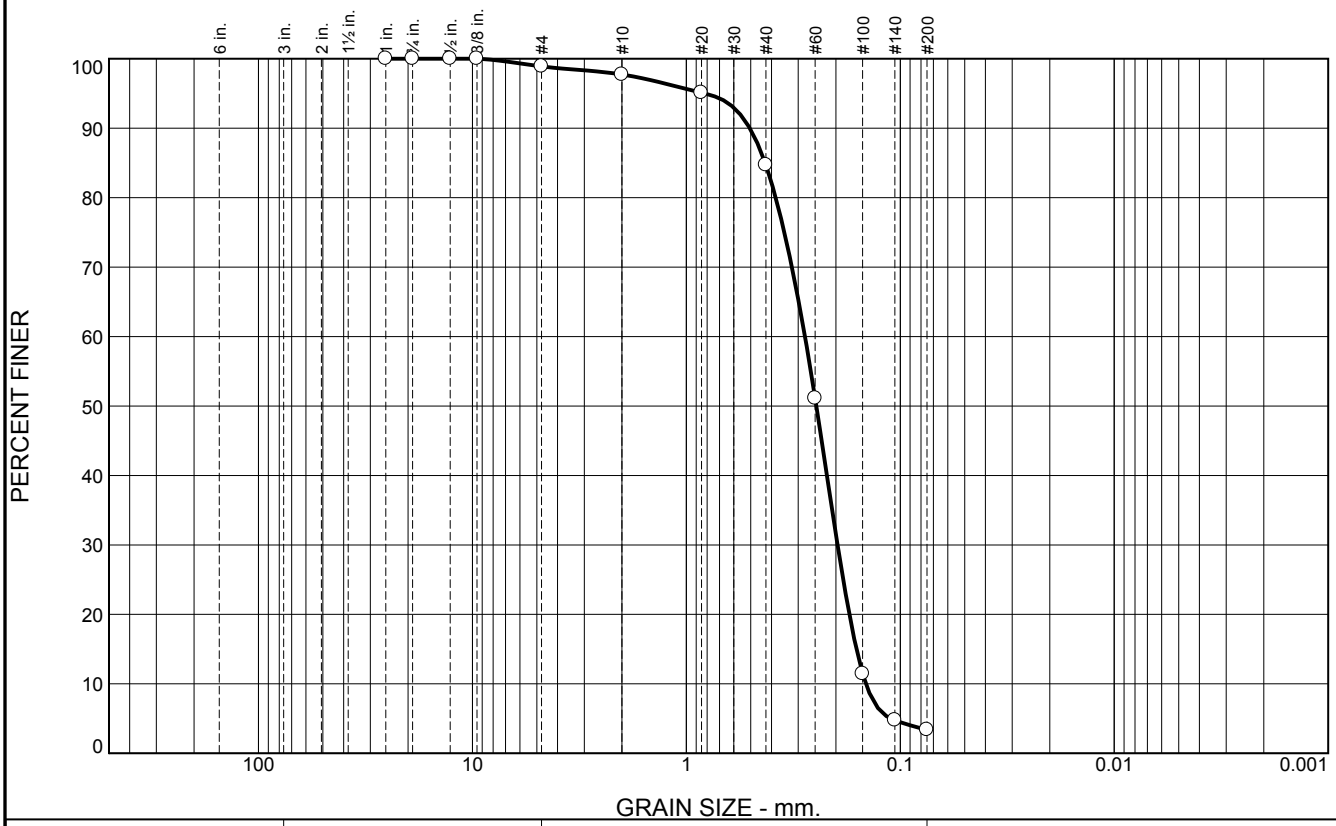
Penetration 20.0'

Recovery 18.4'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	1.2	13.0	81.3	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.9		
#10	97.7		
#20	95.1		
#40	84.7		
#60	51.1		
#100	11.4		
#140	4.8		
#200	3.4		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5054 D_{85}= 0.4284 D_{60}= 0.2791
D_{50}= 0.2468 D_{30}= 0.1965 D_{15}= 0.1605
D_{10}= 0.1449 C_u= 1.93 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

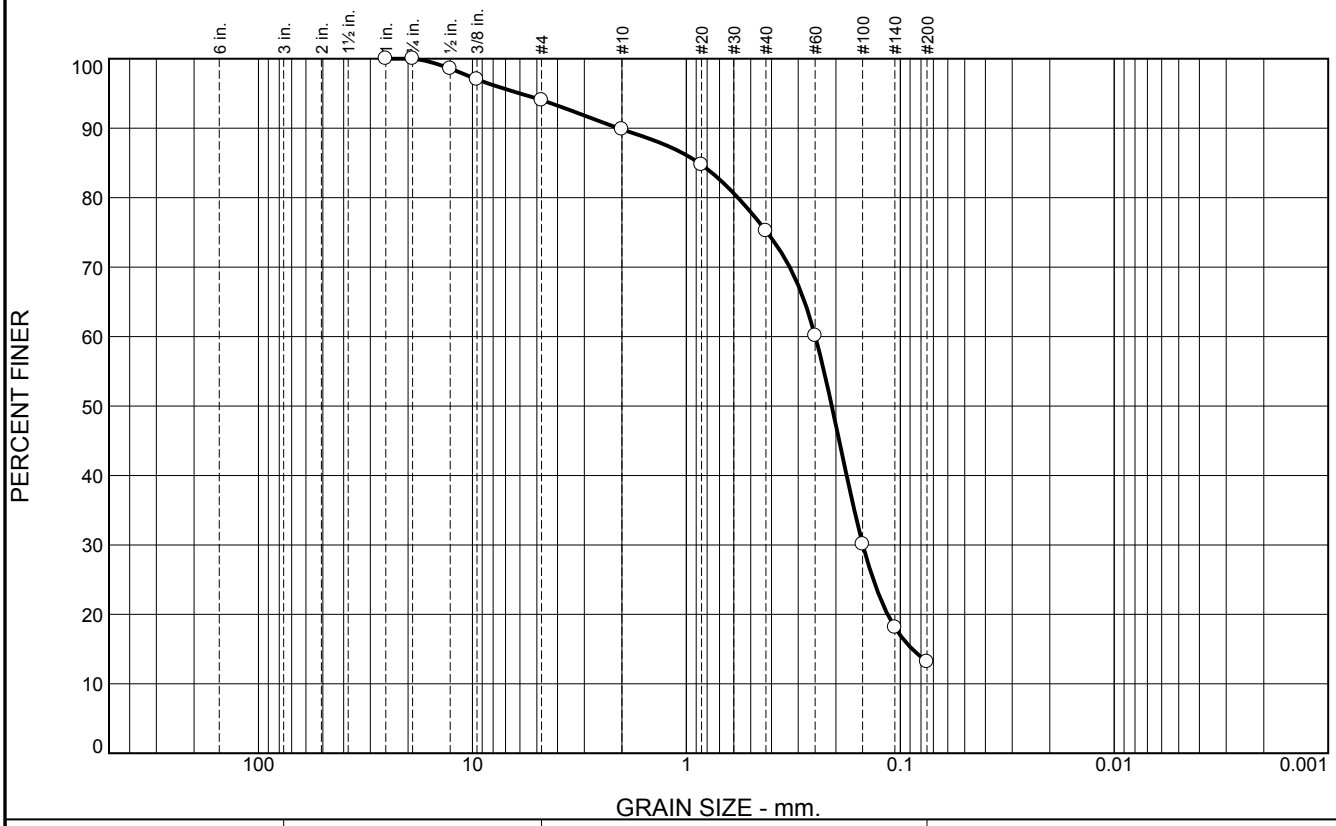
Location: BI-PBS-71-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.0	4.2	14.6	62.0	13.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.6		
.375	97.0		
#4	94.0		
#10	89.8		
#20	84.7		
#40	75.2		
#60	60.1		
#100	30.1		
#140	18.1		
#200	13.2		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND, with clay nodules and trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.0738 D_{85}= 0.8750 D_{60}= 0.2494
D_{50}= 0.2090 D_{30}= 0.1497 D_{15}= 0.0879
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

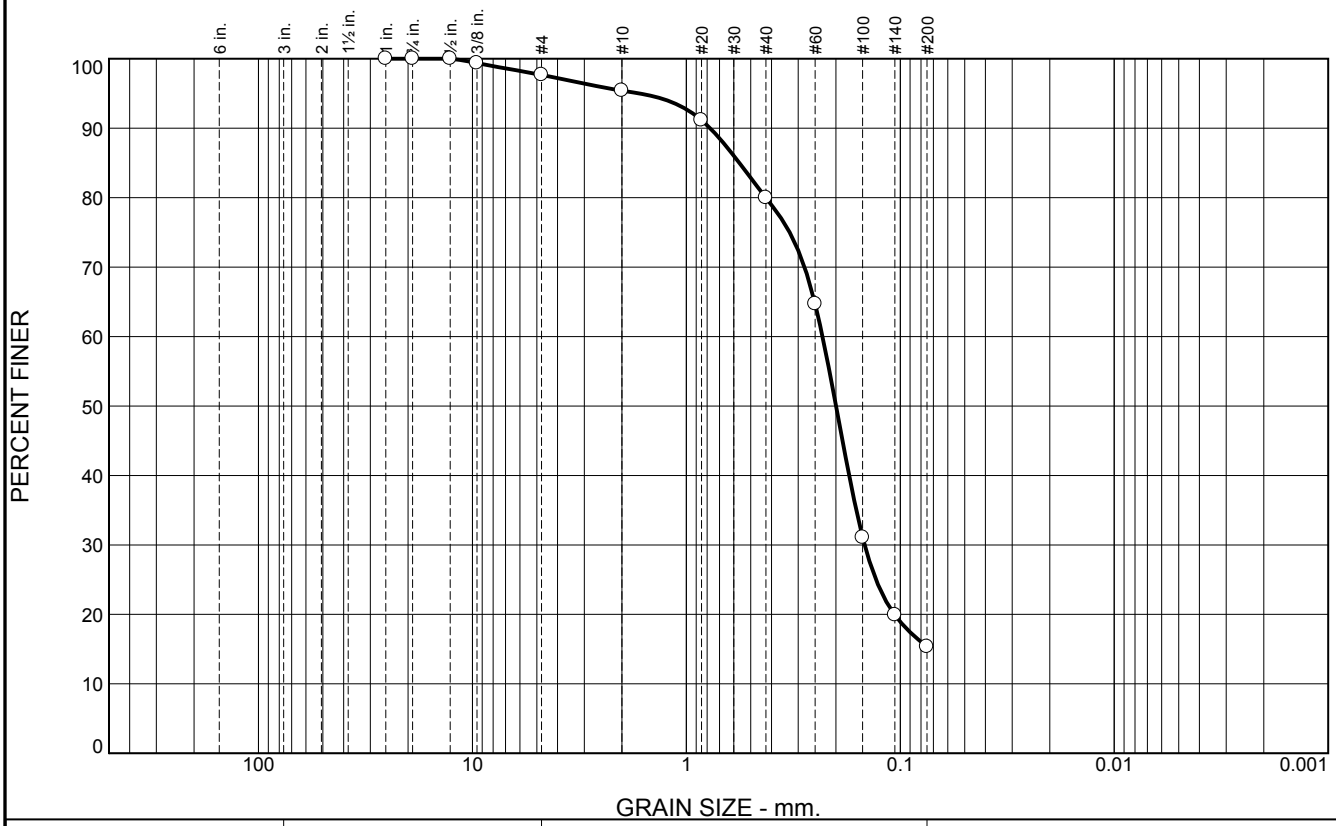
Location: BI-PBS-71-12 B
Sample Number: 6462 **Depth:** 3.4' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.3	2.3	15.4	64.7	15.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.4		
#4	97.7		
#10	95.4		
#20	91.1		
#40	80.0		
#60	64.7		
#100	31.1		
#140	19.9		
#200	15.3		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND, with clay nodules and trace GRAVEL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7755 D_{85}= 0.5652 D_{60}= 0.2309
D_{50}= 0.1997 D_{30}= 0.1469 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: BI-PBS-71-12 C
Sample Number: 6462 **Depth:** 5.9' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-072-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-072-12
LOCATION COORDINATES	E = 1,146,277 N = 232,914
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	16.8 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	58.7 Ft.
15. DATE BORING	STARTED 11-19-12; COMPLETED 11-19-12
16. ELEVATION TOP OF BORING	-58.8 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-58.8	0.0				
-61.1	2.3		SAND, poorly-graded, mostly fine to medium-grained quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3295 mm % Fines: 1.8
-68.3	9.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	B	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1997 mm % Fines: 13.6
-75.6	16.8		CLAY, fat, mostly clay, some silt, trace fine-grained sand-sized quartz, gray (CH) At El. -70.3 Ft., mostly clay, trace sand, medium plasticity, light gray mottled with orange	NS	

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.13947° Long = -88.32075°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

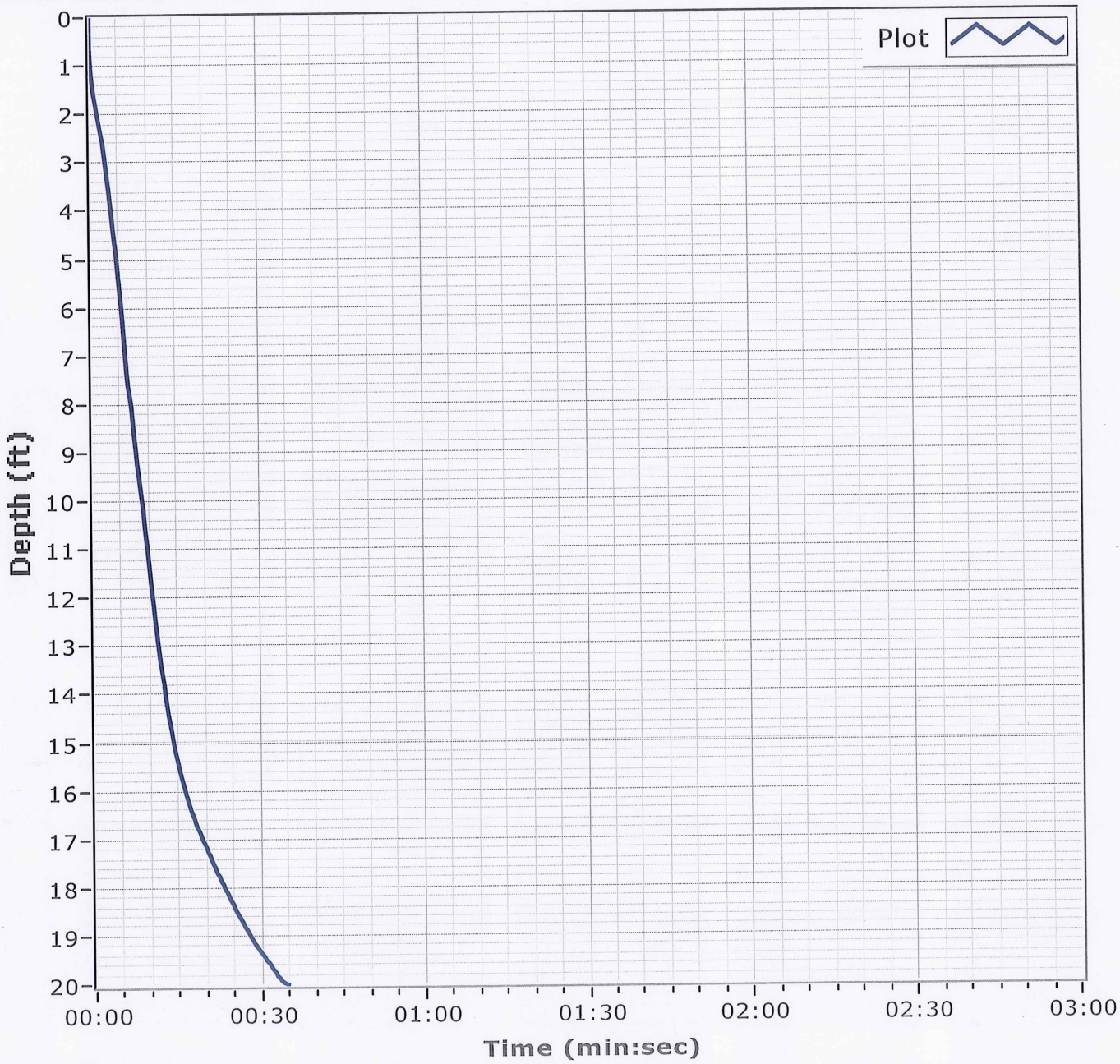
Core Identifier BI-PBS-72-12
Coordinate System
Latitude / Longitude

Latitude 30 08.368
Longitude 88 19.245

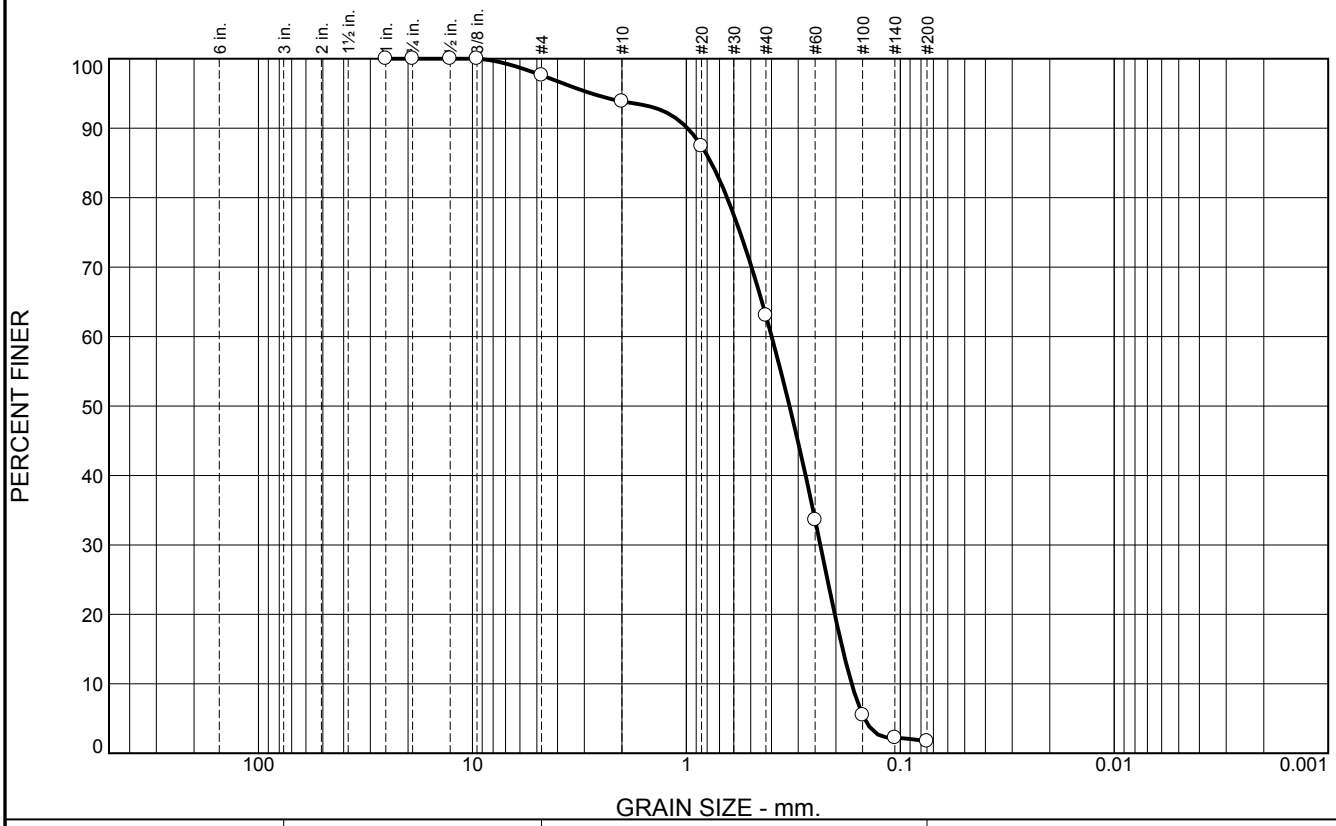
Date 11/19/2012
Start Time 14:44:14
End Time 14:44:49
Total Time 00:00:35

Water Depth 58.7'
Penetration 20.0'
Recovery 16.8'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.4	3.8	30.8	61.2	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	97.6		
#10	93.8		
#20	87.4		
#40	63.0		
#60	33.6		
#100	5.5		
#140	2.2		
#200	1.8		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.9878 D_{85}= 0.7649 D_{60}= 0.3992
D_{50}= 0.3295 D_{30}= 0.2365 D_{15}= 0.1861
D_{10}= 0.1689 C_u= 2.36 C_c= 0.83

Classification

USCS= SP AASHTO=

Remarks

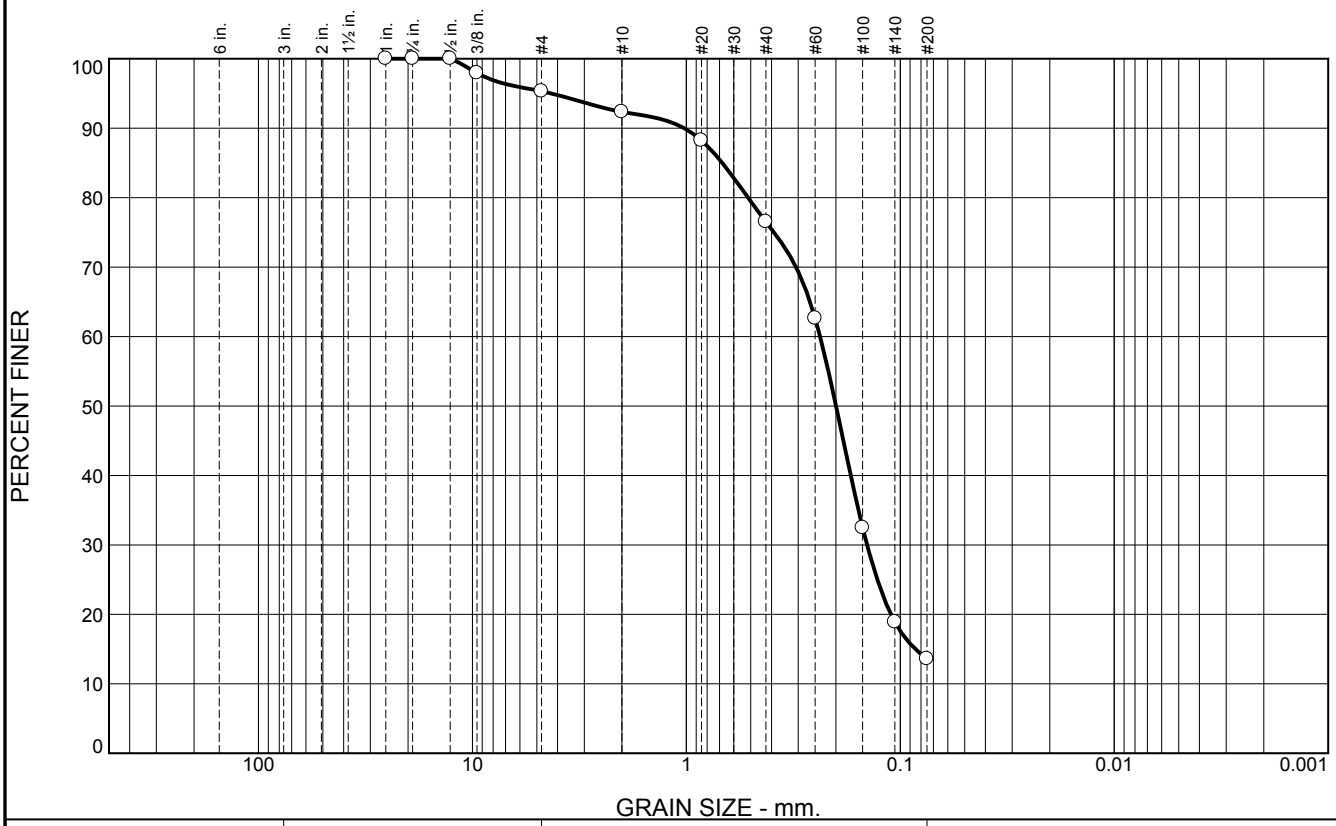
Location: BI-PBS-72-12-A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.7	3.0	15.8	62.9	13.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	97.9		
#4	95.3		
#10	92.3		
#20	88.2		
#40	76.5		
#60	62.6		
#100	32.5		
#140	18.9		
#200	13.6		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.0254 D_{85}= 0.6801 D_{60}= 0.2370
D_{50}= 0.1997 D_{30}= 0.1430 D_{15}= 0.0850
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: BI-PBS-72-12 B
Sample Number: 6462 **Depth:** 2.3' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-073-12

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

1. PROJECT: MsCIP Barrier Island Restoration, Petit Bois Pass-OCS East	9. SIZE AND TYPE OF BIT: N/A
	10. COORDINATE SYSTEM/DATUM: State Plane, MSE (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: NAVD88
2. BORING DESIGNATION: BI-PBS-073-12 — LOCATION COORDINATES: E = 1,145,519 N = 234,176	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Corps of Engineers - CESAM — CONTRACTOR FILE NO.	12. TOTAL SAMPLES — DISTURBED: — UNDISTURBED (UD): 0
4. NAME OF DRILLER: American Vibracore Systems, Inc.	13. TOTAL NUMBER CORE BOXES
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. WATER DEPTH: 55.4 Ft.
	15. DATE BORING — STARTED: 11-20-12 — COMPLETED: 11-20-12
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -55.1 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 100%
8. TOTAL DEPTH OF BORING: 19.4 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.1	0.0				
-58.0	2.9		SAND, poorly-graded, mostly fine to medium-grained quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2622 mm % Fines: 2.8
-60.5	5.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few shell fragments, lt. gray (SP-SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1993 mm % Fines: 13.4
-64.1	9.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace wood debris, gray (SM)	NS	
-66.1	11.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
-67.1	12.0		CLAY, fat, mostly clay, stiff, medium to high plasticity, gray (CH)		
-74.5	19.4		CLAY, lean, mostly clay, some fine-grained sand-sized sand, low to medium plasticity, gray to dark gray (CL) At El. -70.1 Ft., mostly clay, stiff, low to medium plasticity, lt. gray mottled with brown		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14295° Long = -88.32313°

DRILLING LOG (Cont. Sheet)	INSTALLATION Mobile District		SHEET 2 OF 2 SHEETS
PROJECT MsCIP Barrier Island Restoration	COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88
LOCATION COORDINATES X = 1,145,519 Y = 234,176	ELEVATION TOP OF BORING -55.1 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			applying NOAA tidal gauge data conversion factor.		

30
35
40
45
50
55
60

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14295° Long = -88.32313°

Project Mississippi Barrier Island Restoration Project

AVS
AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-73-12

Coordinate System
Latitude / Longitude

Latitude 30 08.577

Longitude 088 19.388

Date 11/20/2012

Start Time 09:50:03

End Time 09:51:03

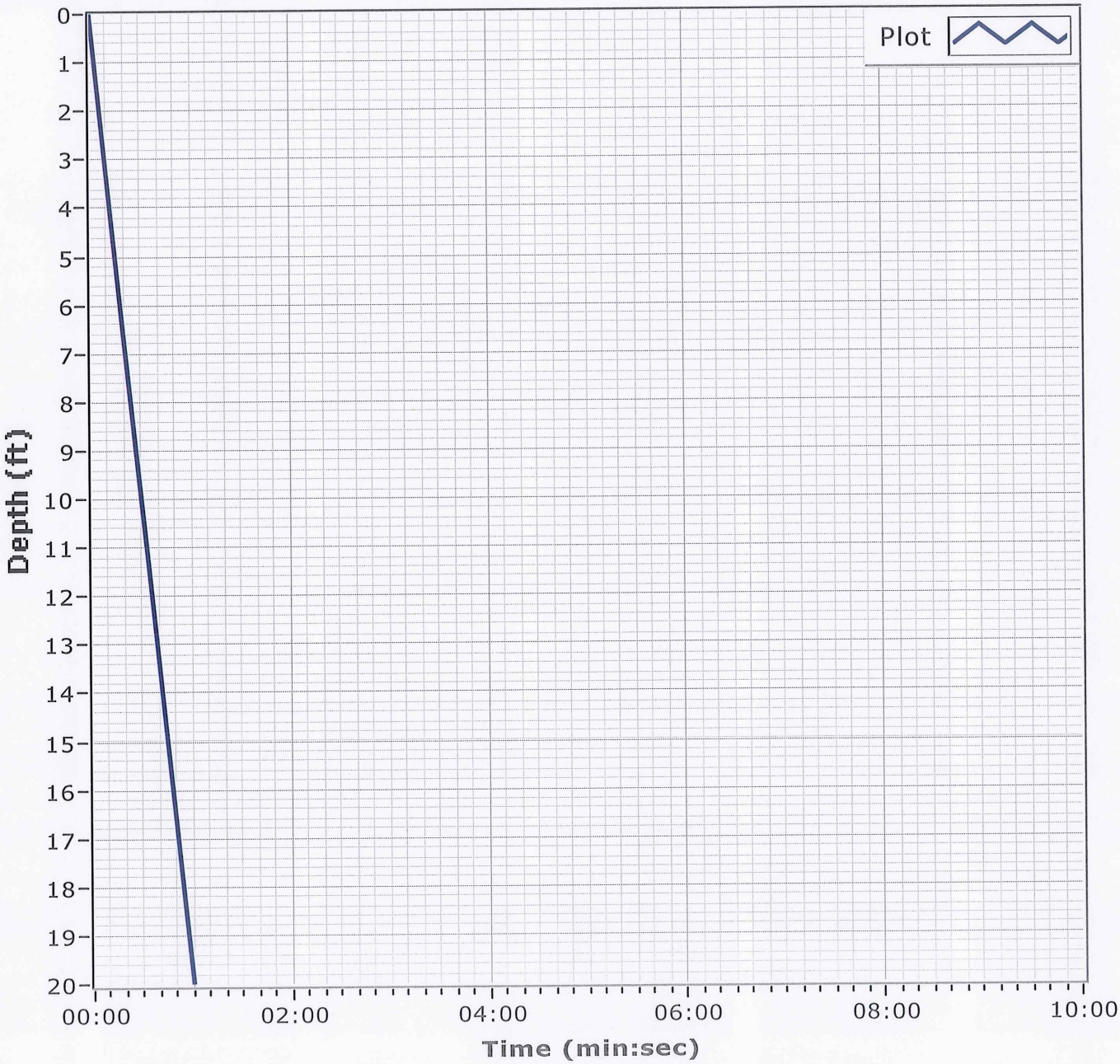
Total Time 00:01:00

Water Depth 55.4'

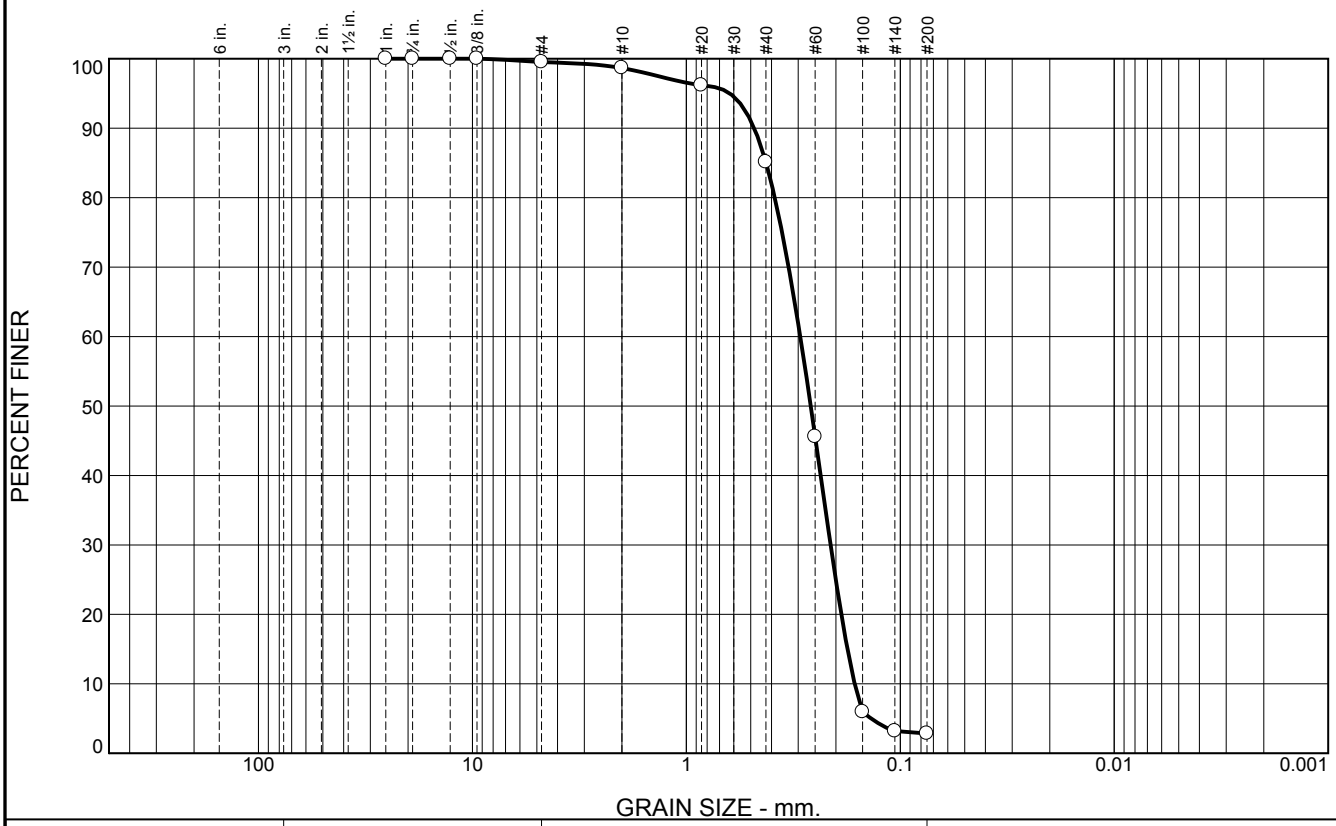
Penetration 20.0'

Recovery 19.4'

Comments



Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.8	13.6	82.3	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.7		
#20	96.2		
#40	85.1		
#60	45.6		
#100	6.0		
#140	3.2		
#200	2.8		

* (no specification provided)

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4819 D_{85}= 0.4239 D_{60}= 0.2937
D_{50}= 0.2622 D_{30}= 0.2117 D_{15}= 0.1768
D_{10}= 0.1635 C_u= 1.80 C_c= 0.93

Classification

USCS= SP AASHTO=

Remarks

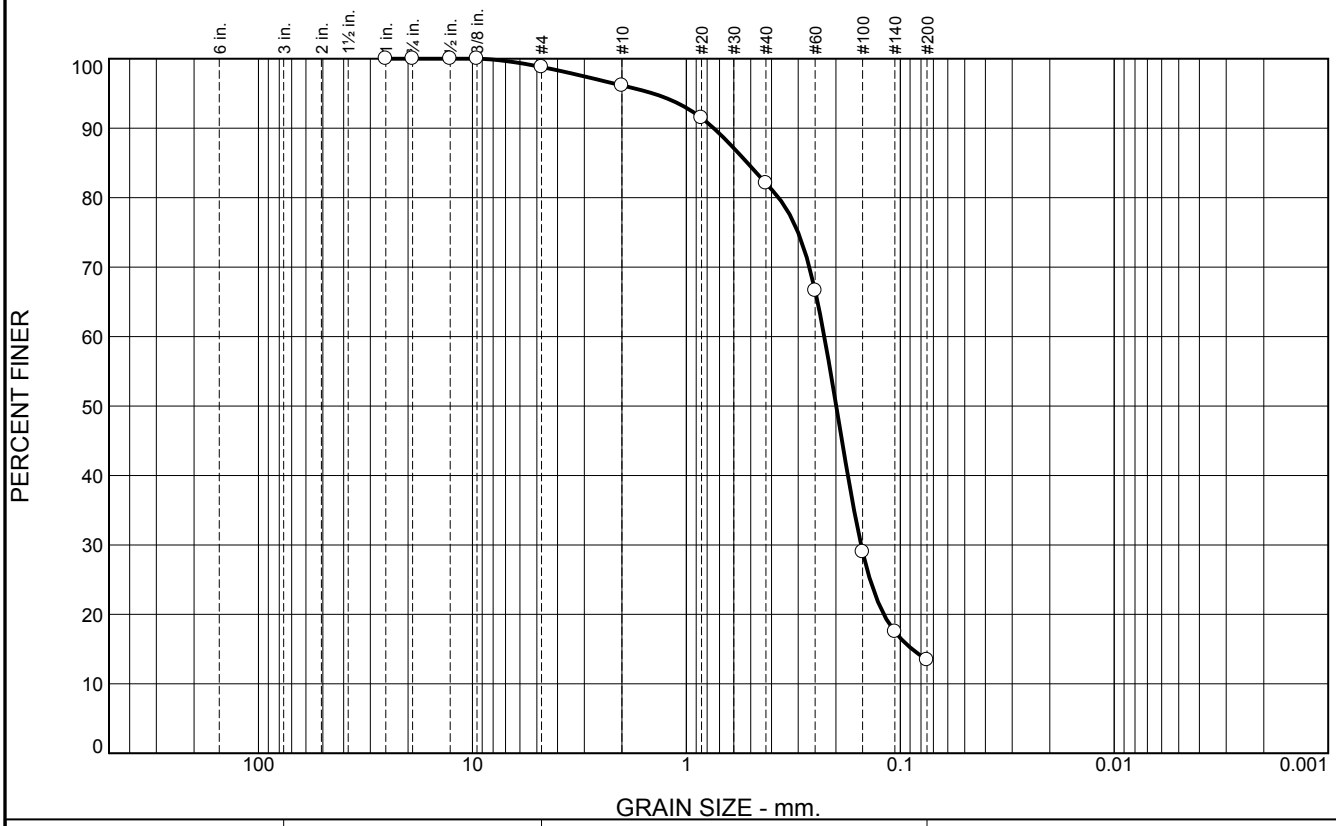
Location: BI-PBS-73-12 A
Sample Number: 6462 **Depth:** 0.0' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	2.6	14.1	68.7	13.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.8		
#10	96.2		
#20	91.5		
#40	82.1		
#60	66.6		
#100	29.0		
#140	17.5		
#200	13.4		

* (no specification provided)

Material Description

Fine to medium grained, SILTY SAND, with clay pockets and trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.7452 D_{85}= 0.5186 D_{60}= 0.2265
D_{50}= 0.1993 D_{30}= 0.1526 D_{15}= 0.0881
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Location: BI-PBS-73-12 B
Sample Number: 6462 **Depth:** 2.9' **Date:** 11/23/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Boring Designation BI-PBS-074-12

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

1. PROJECT	MsCIP Barrier Island Restoration Petit Bois Pass-OCS East
2. BORING DESIGNATION	BI-PBS-074-12
LOCATION COORDINATES	E = 1,143,560 N = 235,957
3. DRILLING AGENCY	Corps of Engineers - CESAM
CONTRACTOR FILE NO.	
4. NAME OF DRILLER	American Vibracore Systems, Inc.
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	17.6 Ft.
9. SIZE AND TYPE OF BIT	N/A
10. COORDINATE SYSTEM/DATUM	State Plane, MSE (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	NAVD88
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED: ; UNDISTURBED (UD): 0
13. TOTAL NUMBER CORE BOXES	
14. WATER DEPTH	55.9 Ft.
15. DATE BORING	STARTED 11-21-12; COMPLETED 11-21-12
16. ELEVATION TOP OF BORING	-55.5 Ft.
17. TOTAL RECOVERY FOR BORING	100%
18. SIGNATURE AND TITLE OF INSPECTOR	John Bass, Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.5	0.0				
-57.7	2.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2787 mm % Fines: 2.5
-59.9	4.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SP-SM)	B	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1838 mm % Fines: 19.6
-61.0	5.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)	NS	
-64.0	8.5		CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)		
-66.5	11.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)		
-73.1	17.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)		

NOTES:

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

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

0 5 10 15 20 25

SAM FORM 1836 - MsCIP
MAY 2010

Lat = 30.14787° Long = -88.32930°