#### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-23-12

Coordinate System
Latitude / Longitude

Date 11/23/2012

Start Time 09:00:03

End Time 09:01:03

Total Time 00:01:00

Water Depth 55.7'

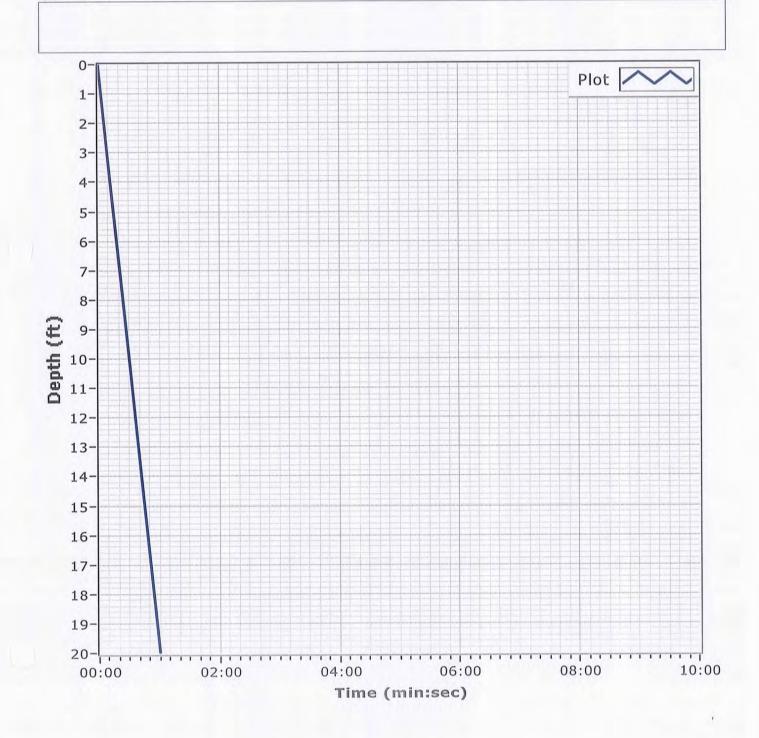
Penetration 20.0'

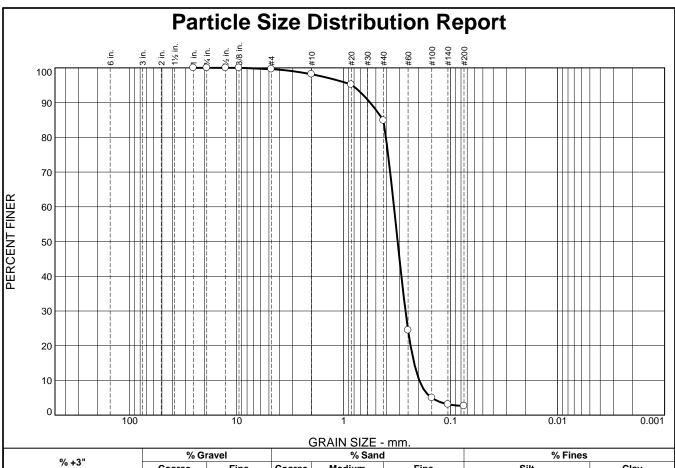
Recovery 19.7'

**Latitude** 30 08.498

Longitude 088 20.176

Comments





% +3"			% Gravel			% Sand	l	% Fines		
% +3"		'	Coarse Fine Co		Coarse	Medium	Fine	Silt	Clay	
	0.0		0.0	0.4	1.4	13.4	82.2	2.6		
	SIEVE	PERCENT	SPEC.*	PASS	3?		<u>Mater</u>	ial Description		
	SIZE	FINER	PERCEN	IT (X=N	0)	Fine to	medium grained	, SAND		
	1	100.0								
	75	100.0								

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
	SIZE  1 .75 .5 .375 #4 #10 #20 #40 #60 #100 #140	SIZE         FINER           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	SIZE         FINER         PERCENT           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

Fine to medium grained, SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.5666 D <sub>50</sub> = 0.3131 D <sub>10</sub> = 0.1963	Coefficients D <sub>85</sub> = 0.4285 D <sub>30</sub> = 0.2646 C <sub>U</sub> = 1.73	D <sub>60</sub> = 0.3387 D <sub>15</sub> = 0.2195 C <sub>c</sub> = 1.05					
USCS= SP	Classification AASHT	O=					
	<u>Remarks</u>						

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

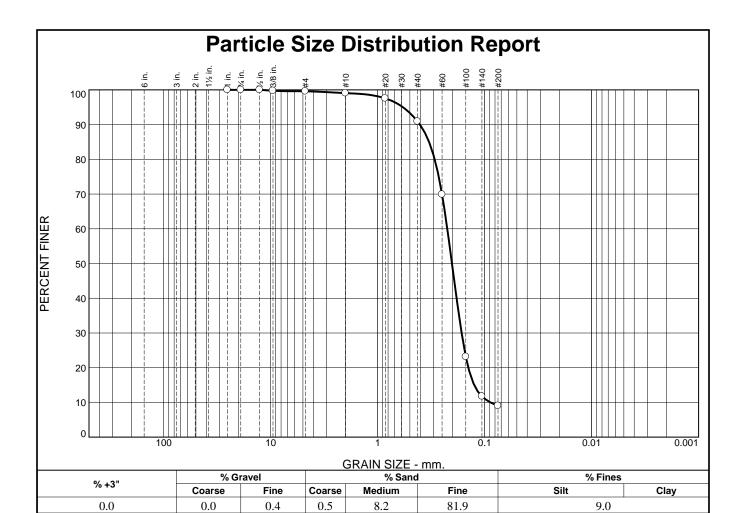
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	<b>Material Descriptio</b> GHTLY SILTY SAN	
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4032 D <sub>50</sub> = 0.2021 D <sub>10</sub> = 0.0882	D <sub>85</sub> = 0.3308 D <sub>30</sub> = 0.1642 C <sub>u</sub> = 2.53	D <sub>60</sub> = 0.2235 D <sub>15</sub> = 0.1253 C <sub>c</sub> = 1.37
USCS= SP-SM	Classification AASHT	O=
	<u>Remarks</u>	

**Location:** BI-PBS-23-12 B **Sample Number:** 6469 (20)

**Depth:** 7.9' **Date:** 11/28/12

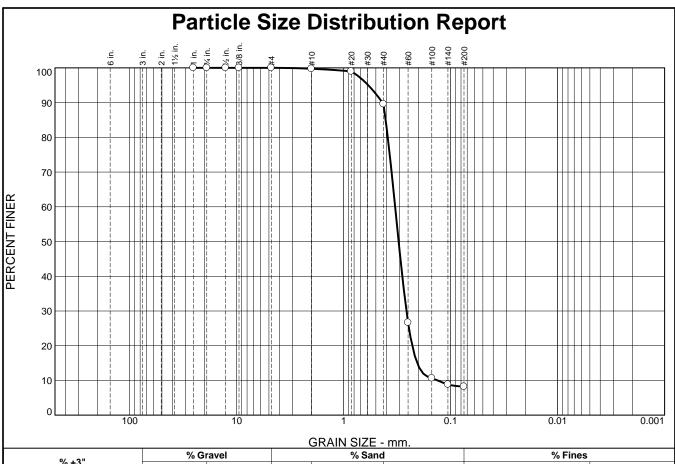
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



% +3"		% Gra	vel		% Sand		% Fines		
	% +3		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
	0.0		0.0	0.0	0.3	10.1	81.4	8.2	
	SIEVE PERCEN		SPEC.*	PASS	?		Materi	ial Description	
	SIZE	FINER	PERCEN.	Γ (X=No	2)	Fine to		. SI IGHTI Y SII TY SAN	ID

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.4344 D <sub>50</sub> = 0.3065 D <sub>10</sub> = 0.1326	Coefficients D85= 0.4050 D30= 0.2591 Cu= 2.49	D <sub>60</sub> = 0.3304 D <sub>15</sub> = 0.2056 C <sub>c</sub> = 1.53				
USCS= SP-SM	Classification AASHTO	=				
<u>Remarks</u>						

**Location:** BI-PBS-23-12 C **Sample Number:** 6469 (21)

**Date:** 11/28/12**Depth:** 18.7'

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-024-12

			DIVISIO	N			INS	STALLATIO	n Designation		<del>-</del>	SHEET	1
DR	ILLING	LOG	i	h Atlantic			1	Mobile Dis				_	SHEETS
1. PRO	DJECT						-			I/A			
	MsCIP Barri	er Islan	nd Restoration	on			10.	COORDI	NATE SYSTEM/DATUM		AL	VERTIC	CAL
	Petit Bois Pa							State	Plane, MSE (U.S. Ft	t.) . NAD83		NA\	/D88
2. BOI	RING DESIGN	NATION	1	LOCATION C	OORD	INATES	11.		ACTURER'S DESIGNAT			JTO HAI	
ı	BI-PBS-024	-12	į	E = 1,14°	1,846	N = 232,632		Vibra	core		Шм	ANUAL	HAMMER
_	LLING AGEN				CONT	RACTOR FILE NO.	12.	TOTAL S	SAMPLES	DISTURBED	UN		BED (UD)
	Corps of En		- CESAM		<u> </u>		<u> </u>			<u> </u>	_	0	
	ME OF DRILL		· Ot				13.	TOTAL I	NUMBER CORE BOXES	<b>3</b>			
	American Vi				vi	BEARING	14.	WATER	DEPTH	55.6 Ft.			
$\boxtimes$	VERTICAL INCLINED			DEG. FROI VERTICAL	-		15.	DATE BO	DRING	STARTED 11-21-1	12	COMPL 11-2	. <b>ETED</b> 21-12
6. THI	CKNESS OF	OVERB	URDEN	N/A			16.	ELEVAT	ION TOP OF BORING	-56.0 Ft.			
7. DFF	TH DRILLED	INTO	ROCK N	√/A			17.	TOTAL F	RECOVERY FOR BORIN	100%			
			·				18.	SIGNAT	URE AND TITLE OF IN	SPECTOR			
8. TO	TAL DEPTH C	OF BOR	I <b>NG</b> 18.	.8 Ft.				John	Bass, Geotechnical	Engineer			
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF	MATERIALS		SAMPLE	LÆ	ABORATORY RES	ULTS		
-56.0	0.0						一						
-59.6	2 3.6		SAND, poor sized quar It. gray (Si	tz, trace fin	mostly es, tra	y fine-grained sand ce shell fragments	d- s,	A	Classification D50: 0	n: SP Color: .2906 mm %	5Y 7/2 Fines:	-light gr 3.4	ay :
-63.5	7.5		quartz, sor	me clay, cla	y lens	grained sand-size es through interva I orange (SC)							
-64.4	8.4		CLAY, sil	ty, mostly th brown an	clay, d oran	trace sand, gra ge (CL-ML)	iy_						-
-68.5	- - - - - - - - - - - - - - - - - - -		quartz, so		ce she	grained sand-size ell fragments, trad		NS					
	E		CLAY. lear	n. mostly cla	av. little	e fine-grained sand							E
	- 13.8 		sized quar SAND, si	tz, trace wo	od deb fine-ç	ris, gray (CL) grained sand-size	-						
	Ē		NOTEO										E
			accordance System. 2. NS =	e with the U	Jnified t subm	ually classified i Soils Classification	n						
						nined from USAC ed April 2014.	E						

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13875° Long = -88.33477°

#### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

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

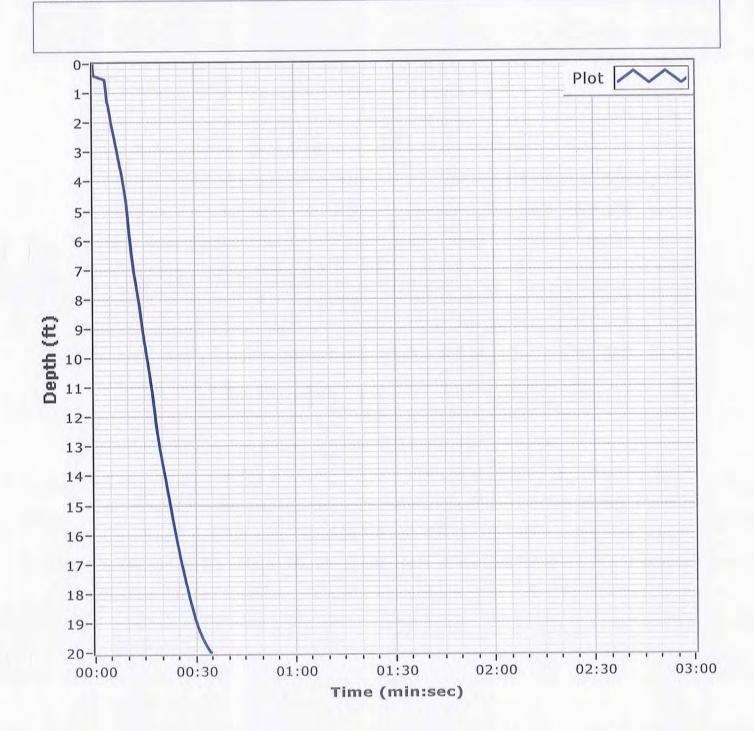
Total Time 00:00:34

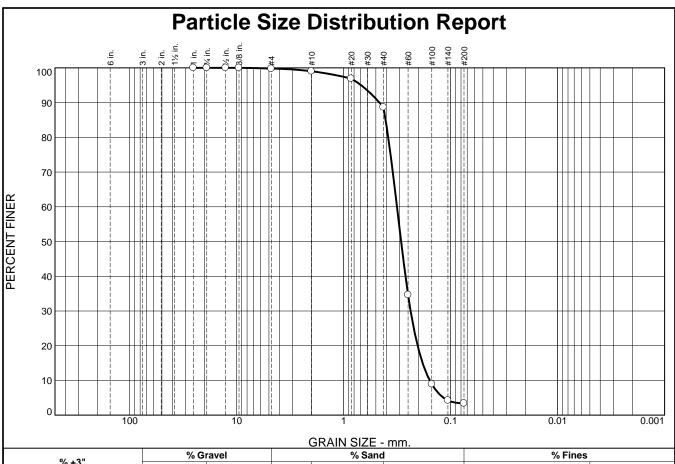
Water Depth 55.6

Penetration 20.0'

Recovery 18.8







% <b>+3</b> "			% Gra	vel		% Sand	i	% Fines	
	% +3		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
	0.0		0.0	0.2	0.8	10.4	85.2	3.4	
	_								
	SIEVE	PERCENT	SPEC.*	PASS	6?		<u>Mater</u>	ial Description	
	SIZE	FINER	PERCEN'	Γ (X=N0	O)	Fine to	medium grained	SAND	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.4637 D <sub>50</sub> = 0.2906 D <sub>10</sub> = 0.1568	Coefficients D <sub>85</sub> = 0.4054 D <sub>30</sub> = 0.2367 C <sub>u</sub> = 2.02	D <sub>60</sub> = 0.3176 D <sub>15</sub> = 0.1831 C <sub>C</sub> = 1.13					
USCS= SP	Classification AASHT	-O=					
	<u>Remarks</u>						

**Location:** BI-PBS-24-12 A **Sample Number:** 6469 (17)

**Depth:** 0.0'

**Date:** 11/28/12

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-025-12

DR	ILLING	LOG	DIVISIO					STALLATIO				SHEET	
South Atlantic  1. PROJECT				-	Mobile Di		'Δ		OF 1	SHEETS			
MsCIP Barrier Island Restoration								NATE SYSTEM/DATUM		NTAL	VERTIC	:AL	
	Petit Bois Pa			ווע			'		Plane, MSE (U.S. Ft.	-		1	/D88
	RING DESIGN			OCATION C	OORDIN	ATES	11.		ACTURER'S DESIGNATI			UTO HAI	
	BI-PBS-025-	-12		E = 1,136	6,537	N = 233,755		Vibra	acore				HAMMER
3. DR	LLING AGEN	ICY			CONTR	ACTOR FILE NO		. TOTAL S	SAMPI FS	DISTURBED	UN		BED (UD)
	Corps of Eng		- CESAM		<u> </u>		<u> </u>	· · · · · · · ·			i	0	
			Customa				13	. TOTAL I	NUMBER CORE BOXES				
	American Vi			DEG. FROM	м :	BEARING	14.	WATER	DEPTH	49.8 Ft.			
$\boxtimes$	VERTICAL INCLINED			VERTICAL			15	. DATE BO	DRING	STARTE		COMPL 11-2	. <b>ETED</b> 24-12
6. TH	CKNESS OF	OVERB	URDEN	N/A			16	. ELEVAT	ION TOP OF BORING	-49.6 Ft.			
7. DEI	TH DRILLED	INTO F	ROCK N	I/A			17.	. TOTAL I	RECOVERY FOR BORIN	<b>G</b> 100%			
							18	. SIGNAT	URE AND TITLE OF INS	PECTOR			
8. TO	TAL DEPTH C	F BORI	<b>NG</b> 18.	8 Ft.			<u> </u>	John	Bass, Geotechnical I	Engineer			
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF MA	ATERIALS		SAMPLE	LA	BORATORY R	ESULTS		
-49.6	0.0												
E4 0	5.2			tz, little she		ine-grained sar ents, trace fin		А	Classification: D50: 0.		or: 5Y 7/2 % Fines:		ay
	E	 				fine to mediu		В	Classification	: SP-SM 3415 mm	Color: 5' % Fines:	Y 6/1-gra	ay
-58.0	- 8.4 		SAND, sil quartz, wit gray and or CLAY, lear	ty, mostly h clay lens range (SM) n, mostly cla tz, gray m	fine-grases, gray )	ained sand-siz mottled with ine-grained san with It. gray a	red It.	NS					
-65.3			grained sa		uartz, littl	silt, mostly fir e silt, trace sh SP-SM)		С	Classification: SP-SM D50: 0.2		.5Y 6/2-I % Fines:		wnish gray
-66.3	- 16.7		quartz, so content inc	me silt, tra reases with	ace she depth, g		silt /	NS					
-68.4	18.8			y, mostly s nd-sized qua		e clay, little fir y (CL-ML)	ne-						
	<u>-</u>		NOTES:										<u>-</u>
	- - - -		accordance System.	e with the L	Jnified S	lly classified oils Classificat	ion						
			analysis fro	om this inter	rval.	ed for laboration							<u> </u>
	<u>-</u>					April 2014.	J_						

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.14190° Long = -88.35155°

### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

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

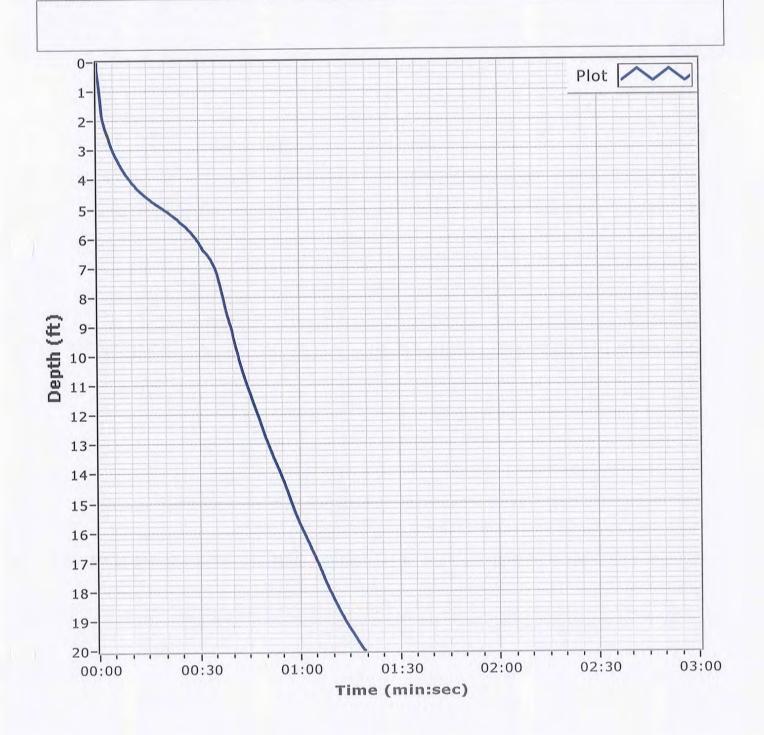
Total Time 00:01:19

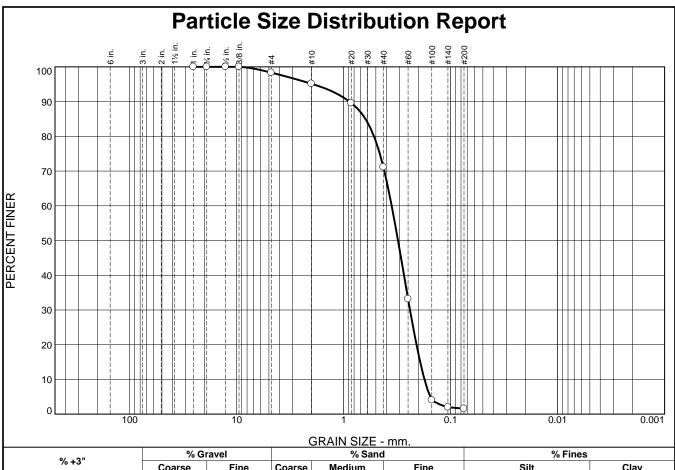
Water Depth 49.8'

Penetration 20.0'

Recovery 18.8'







	GRAIN SIZE - mm.										
9/ .3"	% Gravel			% Sand	d	% Fines					
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay				
0.0	0.0	1.7	3.2	24.0	69.5	1.6					

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND, with trace SHELL									
PL=	Atterberg Limits LL=	PI=							
D <sub>90</sub> = 0.8852 D <sub>50</sub> = 0.3107 D <sub>10</sub> = 0.1759	Coefficients D <sub>85</sub> = 0.6249 D <sub>30</sub> = 0.2398 C <sub>u</sub> = 2.02	D <sub>60</sub> = 0.3560 D <sub>15</sub> = 0.1927 C <sub>C</sub> = 0.92							
USCS= SP	Classification AASHT	O=							
	<u>Remarks</u>								

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

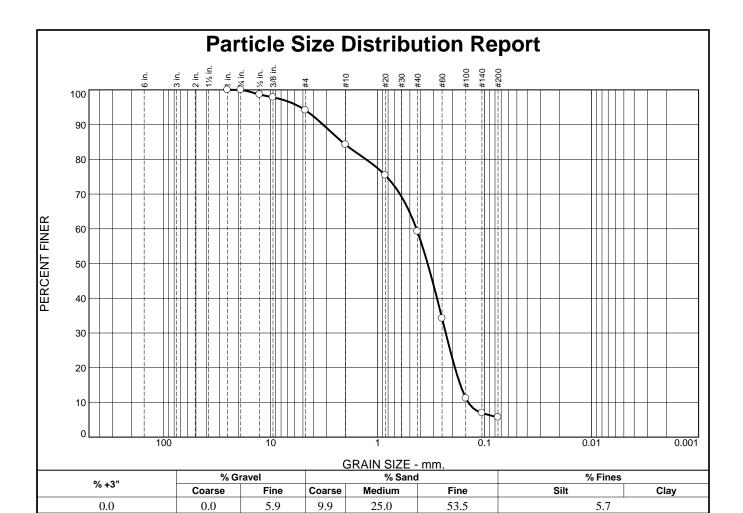
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	laterial Description ained, SLIGHTLY SII	
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 3.2439 D <sub>50</sub> = 0.3415 D <sub>10</sub> = 0.1423	Coefficients D <sub>85</sub> = 2.1444 D <sub>30</sub> = 0.2310 C <sub>u</sub> = 3.05	D <sub>60</sub> = 0.4341 D <sub>15</sub> = 0.1686 C <sub>c</sub> = 0.86
USCS= SP-SM	Classification AASHTO	=
	<u>Remarks</u>	

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

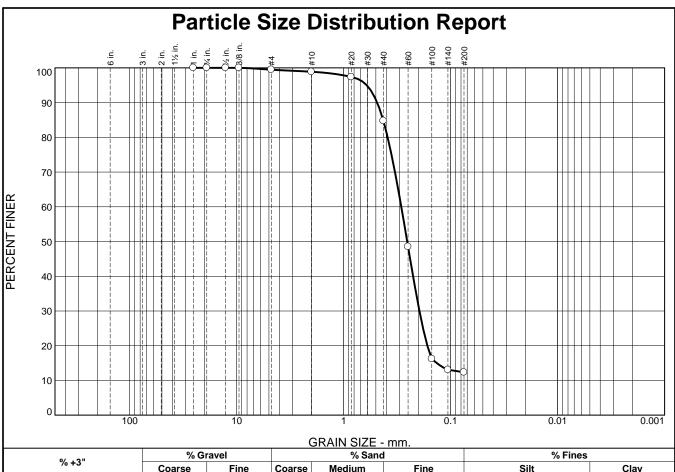
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



	OTVAIN OIZE TIIII.										
9/ .3"	% Gı	ravel	% Sand			% Fines					
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay				
0.0	0.0	0.5	0.6	14.2	72.4	12.3					

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND										
PL=	Atterberg Limits LL=	PI=								
D <sub>90</sub> = 0.4865 D <sub>50</sub> = 0.2548 D <sub>10</sub> =	Coefficients D85= 0.4275 D30= 0.1959 Cu=	D <sub>60</sub> = 0.2895 D <sub>15</sub> = 0.1349 C <sub>c</sub> =								
USCS= SP-SM	Classification AASHTC	)=								
	<u>Remarks</u>									

**Location:** BI-PBS-25-12 C **Sample Number:** 6469 (42)

**Date:** 11/28/12**Depth:** 13.4'

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-026-12

	DRILLING	100	DIVISIO	N			IN	STALLATIO	on		SHEET 1	
		LUC	Sout	th Atlantic			_	Mobile Di			OF 1 S	HEETS
1.	PROJECT									V/A		
	MsCIP Barr			on			10		NATE SYSTEM/DATU	!	ł	
2.	Petit Bois Pa			LOCATION C	COORDI	NATES	11		Plane, MSE (U.S. FACTURER'S DESIGNA		NAVD AUTO HAMM	
l	BI-PBS-026		· .			N = 231,310	'	Vibra			MANUAL HA	
3.	DRILLING AGE		•		CONT	RACTOR FILE N		. TOTAL S	SAMDI ES	DISTURBED	UNDISTURBE	D (UD)
Ļ	Corps of En		s - CESAM		1		+			<u>i</u>	0	
4.	American V		a Svetame	Inc			13	. TOTAL I	NUMBER CORE BOXE	s		
5.	DIRECTION OF			DEG. FROI	м	BEARING	14	. WATER	DEPTH	54.8 Ft.		
	VERTICAL INCLINED			VERTICAL	-		15	. DATE BO	DRING	<b>STARTED</b> 11-23-1	COMPLET 11-23-	
6.	THICKNESS OF	OVER	BURDEN	N/A			16	. ELEVAT	ION TOP OF BORING	-55.3 Ft.		
7.	DEPTH DRILLEI	D INTO	ROCK	N/A			17	. TOTAL I	RECOVERY FOR BORI	NG 100%		
┢	TOTAL DEDTIL						18		URE AND TITLE OF I			
8.	TOTAL DEPTH	_	RING 17	7.6 Ft.				John	Bass, Geotechnica	I Engineer		
EL	EV. DEPTH	LEGEND	CL	.ASSIFICATI	ON OF	MATERIALS		SAMPLE	L	ABORATORY RES	SULTS	
-5	55.3 0.0											
			grained s		quartz,	y fine to medi trace fines, to )		Α	Classification D50: (		2.5Y 7/2-light gray Fines: 2.1	Ē
	8.9 = 3.6	-[]	_						Classification: SF	P-SM Color: 5	5Y 6/2-light olive	grav
-5	9.6 -4.3	11111				fine-grained sa		В			Fines: 6.2	
-6	61.4 6.1		SAND, si	ilty, mostly	fine-g	ay to gray (SP) grained sand-s s, It. gray mo	ized					
-6	54.2 - 8.9		CLAY, lea		clay,	little sand, low nottled with ora						- - - - - - -
-6	66.8 - 11.5			ilty, mostly ace shell frag		grained sand-s , gray (SM)	ized	NS				
				, trace wo		e sand, trace s oris, low plasti						
	72.3 - 17.0											Ē
-7	7 <u>2.9                                    </u>	1111	SAND, si quartz, gra		fine-g	grained sand-s	ized					<del></del> -
	Ē		NOTES:									E
	Ė.		Soil accordance     System.	s are field be with the U	d visu Jnified	ially classified Soils Classifica	l in ation					
	<u> </u>			Sample no rom this inte		iitted for labora	atory					
						nined from US/ ed April 2014.	ACE					- - - - - -

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13513° Long = -88.33902°

### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

Core Identifier BI-PBS-26-12

Coordinate System
Latitude / Longitude

Latitude 30 08.108

Date 11/23/2012

Start Time 09:45:40

End Time 09:47:06

Total Time 00:01:25

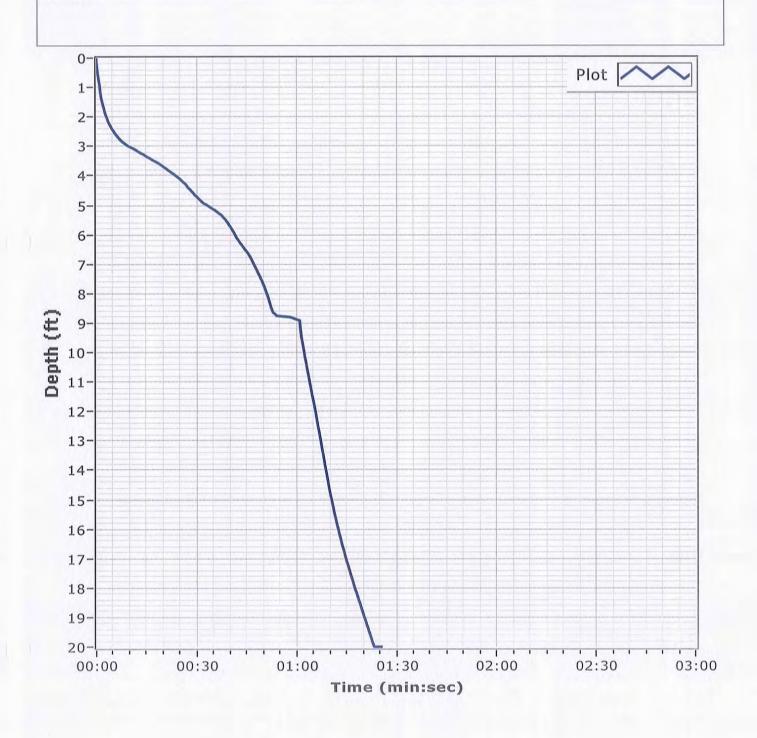
Water Depth 54.8'

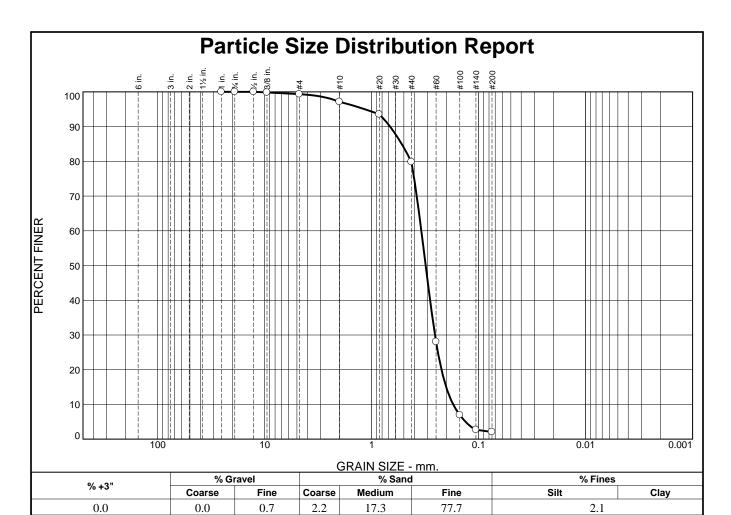
Penetration 20.0'

Recovery 17.6'

**Longitude** 088 20.341

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND								
PI =	Atterberg Limits	PI=						
PL=	LL=	PI=						
D <sub>90</sub> = 0.6733 D <sub>50</sub> = 0.3129 D <sub>10</sub> = 0.1733	Coefficients D <sub>85</sub> = 0.5244 D <sub>30</sub> = 0.2560 C <sub>u</sub> = 1.98	D <sub>60</sub> = 0.3434 D <sub>15</sub> = 0.2013 C <sub>c</sub> = 1.10						
USCS= SP	Classification AASHT	O=						
	Remarks							

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

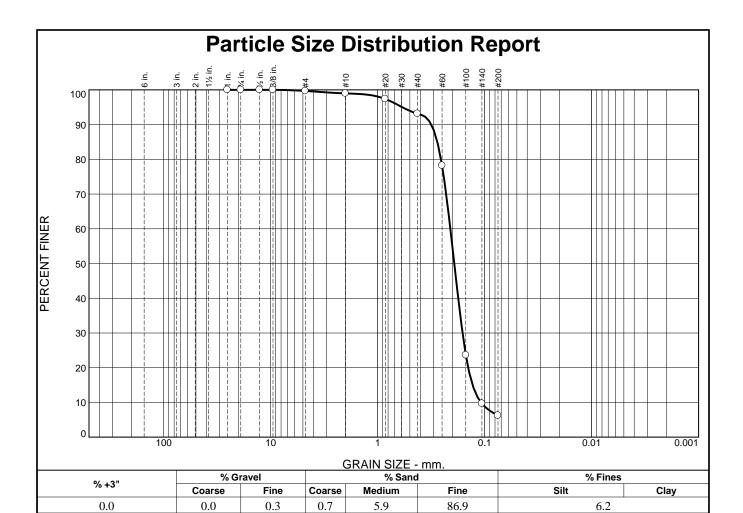
**Thompson Engineering** 

 $\begin{tabular}{ll} \textbf{Client:} & CDM/Thompson Engineering JV \\ \end{tabular}$ 

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



1	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(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		

	<b>laterial Descriptic</b> GHTLY SILTY SAN	
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3152 D <sub>50</sub> = 0.1923 D <sub>10</sub> = 0.1081	$\begin{array}{c} \textbf{Coefficients} \\ \textbf{D_{85}} = 0.2770 \\ \textbf{D_{30}} = 0.1610 \\ \textbf{C_{u}} = 1.94 \end{array}$	D <sub>60</sub> = 0.2092 D <sub>15</sub> = 0.1297 C <sub>c</sub> = 1.15
USCS= SP-SM	Classification AASHT	O=
	<u>Remarks</u>	

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-027-12

DRI	LLING	LOG	DIVISIO				1	STALLATIO				SHEET	
1. PRO			Sout	h Atlantic			_	Mobile Di		1/4		OF 1	SHEETS
	<b>JECT</b> /IsCIP Barri	or lelen	d Doctoration	on.					NATE SYSTEM/DATUR	√A • HORIZON	ΤΔΙ	VERTIC	ΔΙ.
	etit Bois Pa			JN			'0.		Plane, MSE (U.S. F	-		:	/D88
	ING DESIGN			LOCATION C	OORDINA	TES	11.		ACTURER'S DESIGNAT			UTO HAN	
E	3I-PBS-027-	-12	!	E = 1,142	2,169 N	= 231,132		Vibra			=		HAMMER
3. DRII	LING AGEN	ICY	•		CONTRAC	TOR FILE NO.		TOTAL S	AMDI ES	DISTURBED	UN	DISTUR	BED (UD)
	Corps of Eng	_	- CESAM	i	i 		12.	IOIAL	SAMPLES		į	0	
	E OF DRILL		0 , ,				13.	TOTAL I	NUMBER CORE BOXES	5			
	merican Vil		Systems, I	nc. DEG. FROM	vi . Ri	EARING	14.	WATER	DEPTH	55.1 Ft.			
$\boxtimes$	VERTICAL INCLINED	JORINO		VERTICAL		ZAMITO	15.	DATE BO	DRING	STARTED   11-21-	12	COMPL 11-2	<b>ETED</b> 21-12
6. THI	CKNESS OF	OVERBU	JRDEN	N/A	•		16.	ELEVAT	ION TOP OF BORING	-56.4 Ft.	<u></u>	. ··-	
7. DEP	TH DRILLED	INTO R	OCK N				17.	TOTAL I	RECOVERY FOR BORII	NG 100%			
8 TOT	AL DEPTH C	E ROPI		.7 Ft.			18.		URE AND TITLE OF IN				
0. 101	AL DEPTH C		19.	. <i>1</i> Г.			ㅗ	John	Bass, Geotechnical	Engineer			
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF MA	ΓERIALS		SAMPLE	L	ABORATORY RE	SULTS		
-56.4	0.0						$\Box$						
-62.4	6.0			uartz, somé		ine to mediur agments, trad		Α	Classification D50: 0	n: SP Color: ).3658 mm %	5Y 7/1 Fines:	-light gra 1.5	
-02.4	- 0.0	<b> ∷:</b>  \	- SAND nor	orly-araded	moetly fin	e-grained san	┰┞	В	Classification:	SP-SM Cold	or: 5Y 7	//2-light	gray
-63.7	7.3					nts, trace fine		ь	D50: 0		Fines:		-
-67.0	10.6		quartz, so (SM) At El64.	lty, mostly me silt, sor	me shell t ly fine-gra	ned sand-size fragments, gra ined sand-size	ау	NS					
-69.0	12.6		sized quar	tz, little fine	es, trace s	e-grained san	d- s,	С	Classification: D50: 0		or: 5Y 7 Fines:	7/2-light ( 9.2	gray =
-69.9	- 13.5 		SAND, si quartz, so ((SM)	lty, mostly me silt, littl	fine-grain tle shell f	It. gray (SP) ned sand-size ragments, gra clay, trace fin (CL-ML)	ay/	NS					
-76.1	19.7			ed sand-siz		me clay, son tz, little sh							
			accordanc			v classified Is Classification							
				Sample not om this inter		d for laborato	ry						
	-			or elevation nic survey co		ed from USAC April 2014.	E						

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.13462° Long = -88.33377°

#### Mississippi Barrier Island Restoration Project

# AVS SERVICES

Core Identifier BI-PBS-27-12

**Coordinate System** 

Date 11/21/2012

Water Depth 55.1'

Latitude / Longitude

Start Time 14:11:22

Penetration 20.0'

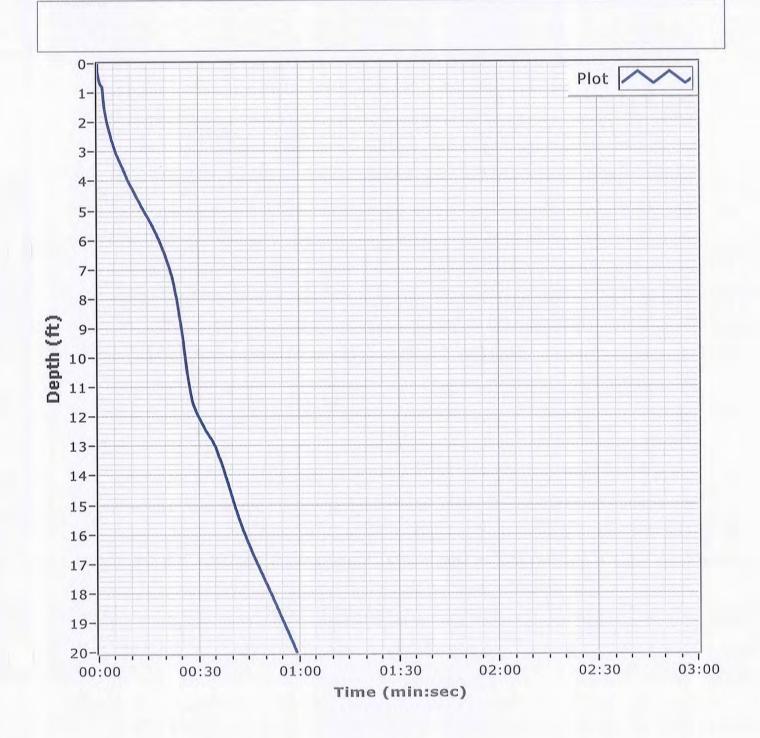
Latitude 30 08.077

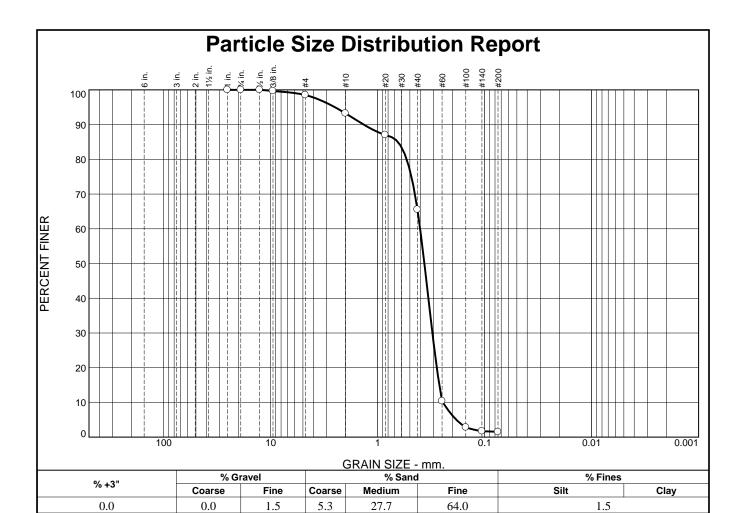
End Time 14:12:22 Total Time 00:00:59

Recovery 19.7'

Longitude 088 20.026

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	Material Description Fine to medium grained, SAND, with trace SHELL								
PL=	Atterberg Limits LL=	PI=							
D <sub>90</sub> = 1.3510 D <sub>50</sub> = 0.3658 D <sub>10</sub> = 0.2455	Coefficients D <sub>85</sub> = 0.6468 D <sub>30</sub> = 0.3080 C <sub>U</sub> = 1.63	D <sub>60</sub> = 0.4010 D <sub>15</sub> = 0.2656 C <sub>c</sub> = 0.96							
USCS= SP	Classification AASHT	0=							
	<u>Remarks</u>								

**Date:** 11/28/12

\* (no specification provided)

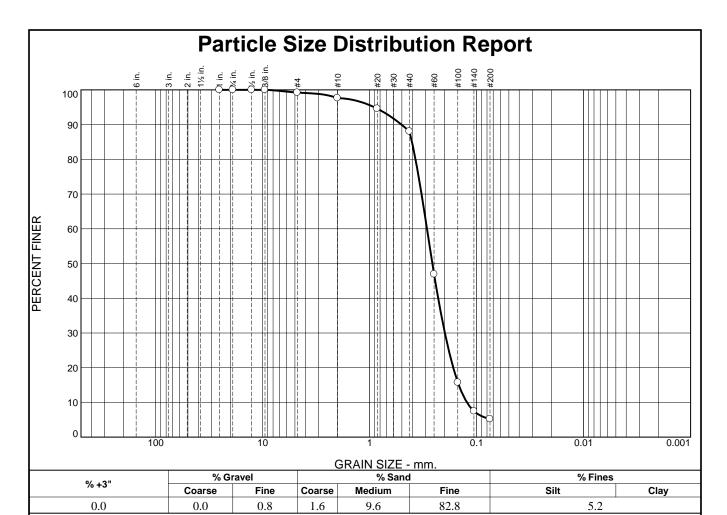
Location: BI-PBS-27-12 A
Sample Number: 6469 (14)
Depth: 0.0'

Thompson Engineering

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama Project No: 1221110095 Figure



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	laterial Descriptio GHTLY SILTY SAN	
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5050 D <sub>50</sub> = 0.2594 D <sub>10</sub> = 0.1232	Coefficients D <sub>85</sub> = 0.4022 D <sub>30</sub> = 0.1982 C <sub>u</sub> = 2.37	D <sub>60</sub> = 0.2914 D <sub>15</sub> = 0.1470 C <sub>c</sub> = 1.09
USCS= SP-SM	Classification AASHT	O=
	<u>Remarks</u>	

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

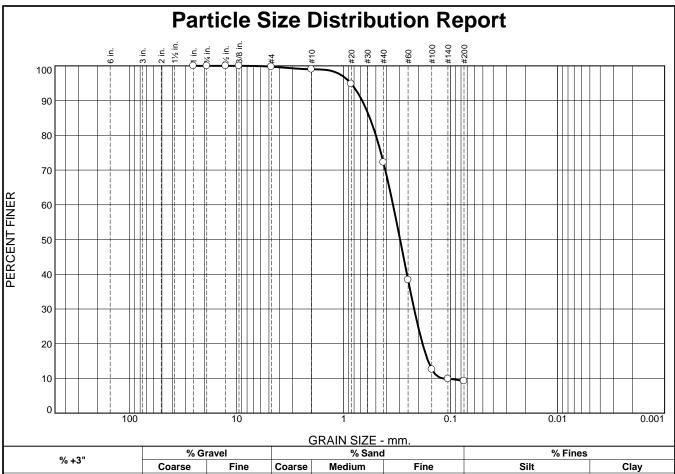
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



70 +3	'	Coarse		Fine	Coarse	Medium	Fine	Silt	Cla
0.0		0.0		0.2	0.8	26.8 63.0 9.2			
SIEVE	PERCENT	SPEC.	*	PASS	3?		Mater	ial Description	
SIZE	FINER	PERCE	NT	(X=N	0)	Fine to		, SLIGHTLY SILTY SAN	ID
1 .75	100.0 100.0								
.5 .375	100.0 100.0							erberg Limits	
#4	99.8					PL=	LL	= PI=	

D <sub>90</sub> = 0.6718 D <sub>50</sub> = 0.2972 D <sub>10</sub> = 0.1188	Coefficients D <sub>85</sub> = 0.5694 D <sub>30</sub> = 0.2195 C <sub>u</sub> = 2.91	D <sub>60</sub> = 0.3458 D <sub>15</sub> = 0.1626 C <sub>c</sub> = 1.17
HSCS- SD SM	Classification	

USCS= SP-SM AASHTO=

**Remarks** 

(no specification provided)

99.0 94.8

72.2

38.4

12.6

9.9

9.2

#10

#20 #40

#60

#100

#140

#200

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

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

#### Boring Designation BI-PBS-028-12

DRILLING	LOG	DIVISION						TALLATIO					SHEET	
		Sou	ıth Atlantic					Mobile Di					OF 1	SHEETS
1. PROJECT									TYPE OF BIT	N/A				
MsCIP Barri			tion				10.		NATE SYSTEM/DAT	- !	RIZONTA	AL	VERTIC	
Petit Bois Pa		East	LOCATION C	OOPD	INATES		11		Plane, MSE (U.S		NAD83			/D88
BI-PBS-028			1		N = 230	830	• • •	Vibra		MATION OF D	KILL	_	UTO HAI ANUAL I	MMER HAMMER
3. DRILLING AGEN					RACTOR F					DISTUR	BED			BED (UD)
Corps of En	gineers -	CESAM		!			12.	TOTAL S	SAMPLES	į		į	0	`
4. NAME OF DRILL							13.	TOTAL I	NUMBER CORE BOX	KES				
American Vi	bracore	Systems,	Inc.					WATER			<b>-</b> 4			
5. DIRECTION OF	BORING		DEG. FROI	М	BEARING	ì	14.	WAIER	DEPIH	56.4			COMPL	
			VERTICAL	-	į		15.	DATE B	DRING		RTED 1-21-12	2		
_							40	F1 F1/AT		-			11-4	21-12
6. THICKNESS OF	OVERBU	RDEN	N/A						ION TOP OF BORIN					
7. DEPTH DRILLEI	INTO R	OCK	N/A						RECOVERY FOR BO		0%			
8. TOTAL DEPTH	DE BOBIA	IG 1	2.4 Ft.				18.		URE AND TITLE OF					
O. TOTAL BEFTIN	т т	10 1/	2. <del>4</del>				_	John	Bass, Geotechnic	cal Engineer				
ELEV. DEPTH	LEGEND	С	LASSIFICATION	ON OF	MATERIAL	s		SAMPLE		LABORATO	RY RESI	ULTS		
-56.8 0.0							丁							
-63.3 F 6.5		sized qua	oorly-graded, artz, trace fin od debris, lt. ç	es, tra	ice shell fr			Α		tion: SP ): 0.2984 mr		5Y 7/2 Fines:	-light gr 2.9	ay
-65.3 - 8.5 -66.8 - 10.0		quartz, lit gray (SM CLAY, s	silty, mostly tle shell frag 1) ilty, some cleand-sized q	ments,	, trace woo	d debris	-	NS						
-00.8 = 10.0		gray (CL		aartz,	udoc woo	a acono	'∤							F
-67.8 F 11.0	<u> </u>	SVND 4	silty, mostly	fino (	arainad ea	and cizor	, T							F
-69.2 <u>12.4</u>	$  \cdot  $	quartz, s	ome silt, so oris, gray (SN	me sh	nell fragme	nts, little		В	Classificatio D50	n: SP-SM ): 0.2837 mr			7/2-light 8.5	gray
		sized quatrace wood  NOTES:  1. So accordan System.  2. NS = analysis f  3. Seaflo	corly-graded, artz, little fine od debris, lt. of d	es, tra- gray (\$ d visu Jnified t subm rval.	ce shell fra SP)  ually class Soils Class  nitted for la	agments sified ir sificatior aboratory	,         							

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13378° Long = -88.33088°

#### Mississippi Barrier Island Restoration Project

AVS

Core Identifier BI-PBS-28-12

**Coordinate System** 

Date 11/21/2012

Water Depth 56.4'

Latitude / Longitude

Start Time 13:36:59

Penetration 20.0'

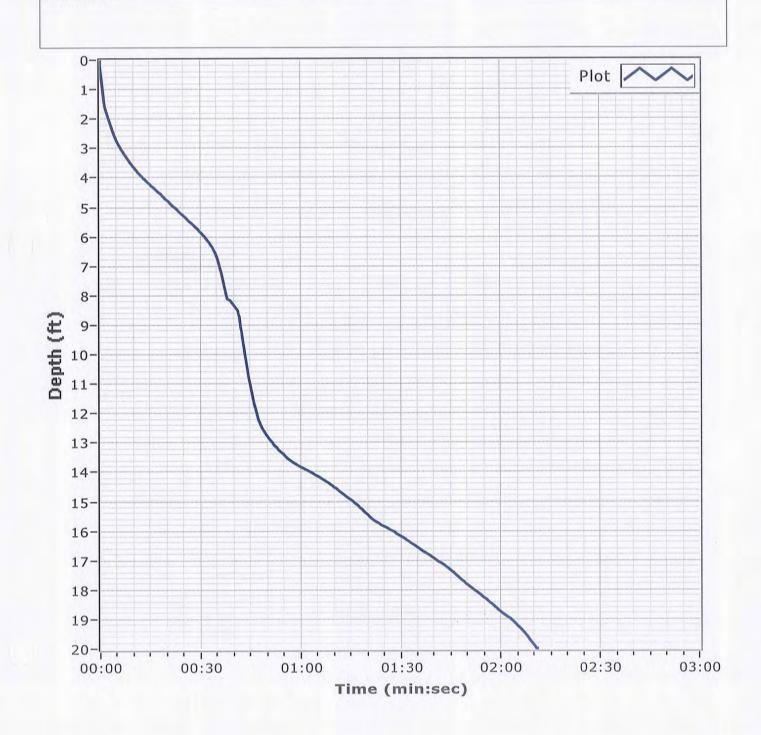
Latitude 30 08.027

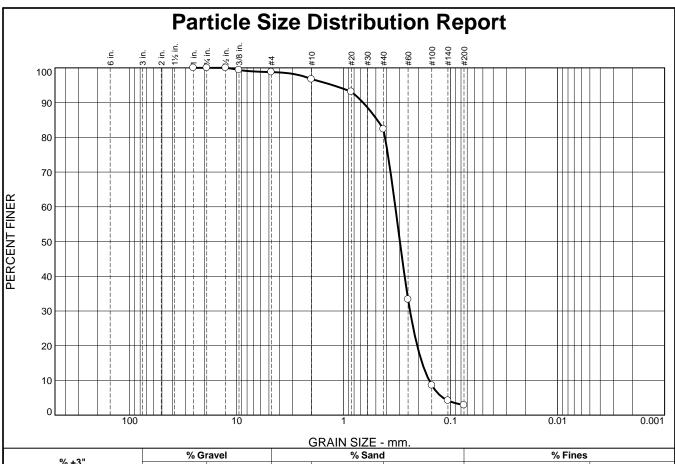
End Time 13:39:10 Total Time 00:02:11

Recovery 12.4'

Longitude 088 19.853

Comments





						, , , , , , , , , , , , , , , , , , ,	1111111		
	0/ .3		% Grave	el		% Sand	d	% Fines	
% <b>+3</b> "		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
	0.0		0.0	1.2	2.1	14.3	79.5	2.9	
ſ	SIEVE	PERCENT	SPEC.*	PASS	3?		Mater	ial Description	
	0.275	FINED	DEDOENT	(V. N.			·	a Description	

R PERCENT	(X=NO)
)	
)	
)	
1	
3	
7	
1	
3	
5	
2	
)	
	RR PERCENT  ) ) ) 4 3 7 1 4 3 6 2 9

Material Description Fine to medium grained, SAND, with trace SHELL					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.6592 D <sub>50</sub> = 0.2984 D <sub>10</sub> = 0.1588	Coefficients D <sub>85</sub> = 0.4861 D <sub>30</sub> = 0.2398 C <sub>u</sub> = 2.07	D <sub>60</sub> = 0.3292 D <sub>15</sub> = 0.1847 C <sub>c</sub> = 1.10			
USCS= SP	Classification AASHTC	)=			
	<u>Remarks</u>				

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

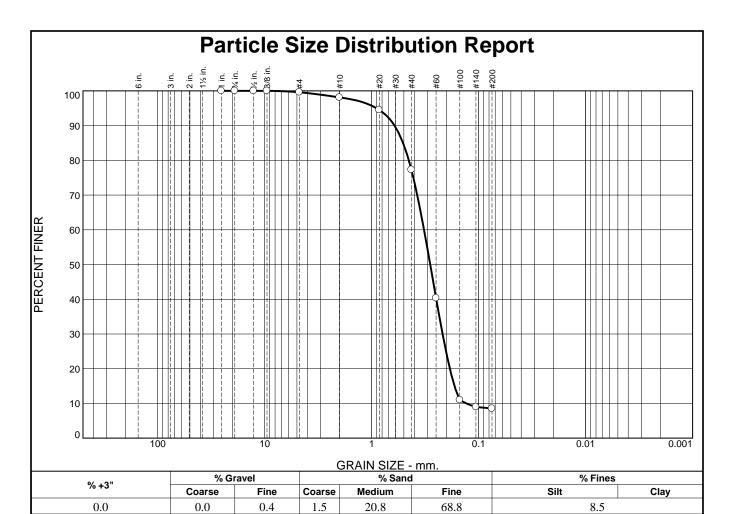
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.6111 D <sub>50</sub> = 0.2837 D <sub>10</sub> = 0.1305	Coefficients D <sub>85</sub> = 0.5091 D <sub>30</sub> = 0.2173 C <sub>u</sub> = 2.49	D <sub>60</sub> = 0.3242 D <sub>15</sub> = 0.1683 C <sub>c</sub> = 1.12				
USCS= SP-SM	Classification AASHTO	)=				
	<u>Remarks</u>					

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-029-12

DRI	LLING	LOG	DIVISIO				IN	STALLATIO				SHEET	
	South Atlantic  1. PROJECT				+	Mobile District OF 1 SHE							
MsCIP Barrier Island Restoration						NATE SYSTEM/DAT	N/A UM HORIZO	NTAI	VERTIC	:41			
	etit Bois Pa			JH			"		Plane, MSE (U.S.	!		1	/D88
	ING DESIGN			LOCATION C	OORDIN	IATES	11		ACTURER'S DESIGN			AUTO HA	
	I-PBS-029-		-	E = 1,143	3,592	N = 230,305		Vibra				MANUAL	
3. DRIL	LING AGEN	ICY	•		CONTR	ACTOR FILE N		. TOTAL	SAMDI ES	DISTURBED	ļu	INDISTUR	BED (UD)
	orps of Eng		- CESAM		<u> </u>			IOIAL	JAMPLES		<u> </u>	0	
	E OF DRILL		0				13	. TOTAL	NUMBER CORE BOX	ES			
	merican Vil				м :	BEARING	<b>—</b> 14	. WATER	DEPTH	62 Ft.			
$\boxtimes$	VERTICAL INCLINED			DEG. FROM VERTICAL		<b>D</b> LAINIO	15	. DATE B	DRING	STARTE		COMPL 11-	. <b>ETED</b> 24-12
6. THI	CKNESS OF	OVERB	URDEN	N/A	•		16	. ELEVAT	ION TOP OF BORIN	<u> </u>		1	
7. DEP	TH DRILLED	INTO F	ROCK N	V/A			17	. TOTAL	RECOVERY FOR BOI	RING 100%			
			-				18	. SIGNAT	URE AND TITLE OF	INSPECTOR			
8. ТОТ	AL DEPTH O	F BORI	NG 7.2	? Ft.			Ш,	John	Bass, Geotechnic	al Engineer			
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF M	IATERIALS		SAMPLE		LABORATORY R	ESULTS	5	
-55.2	0.0												
-61.2			grained sa	orly-graded, and-sized q nents, It. gra	uartz, i	r fine to medi trace fines, ti	um- race	Α		: 0.2483 mm	% Fine		ay
-61.8			SAND nor	orly-graded	mostly	fine-grained sa	and- d	В	D50:	<del>SP-SM Color</del> 0.1892 mm %	. 51 6/ % Fines	z-iigni oir s: 10.9	ve gray
-62.4	7.2 	<u>//4</u> \	\sized quar	tz, trace silt,	gray (	SP)	/_	NS					<del></del>
			NOTES:  1. Soils accordance System.  2. NS = analysis from 3. Seafloom	tz, gray (CL s are field e with the L Sample not om this inter	d visua Jnified S t submirval.	ally classified Soils Classifica tted for labora ined from US/ d April 2014.	in ation						

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.13233° Long = -88.32928°

#### Mississippi Barrier Island Restoration Project

AVS RVICES

Core Identifier BI-PBS-29-12

**Coordinate System** 

Date 11/24/2012

Water Depth 62.0'

Latitude / Longitude

17-

18-

19-

20-

00:00

00:30

01:00

Start Time 12:53:28

End Time 12:54:59

Total Time 00:01:31

Penetration 20.0'

Latitude 30 07.940

Recovery 7.2'

03:00

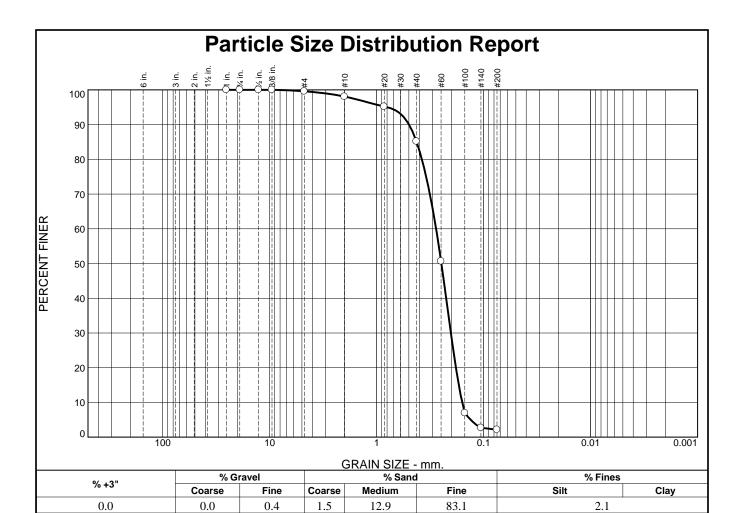
02:30



01:30

Time (min:sec)

02:00



Γ	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(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		
L	* .			

Material Description Fine to medium grained, SAND						
PL=	Atterberg Limits	PI=				
D <sub>90</sub> = 0.4988 D <sub>50</sub> = 0.2483 D <sub>10</sub> = 0.1589	Coefficients D <sub>85</sub> = 0.4232 D <sub>30</sub> = 0.2025 C <sub>u</sub> = 1.75	D <sub>60</sub> = 0.2784 D <sub>15</sub> = 0.1710 C <sub>c</sub> = 0.93				
USCS= SP	Classification AASHT	O=				
	<u>Remarks</u>					

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

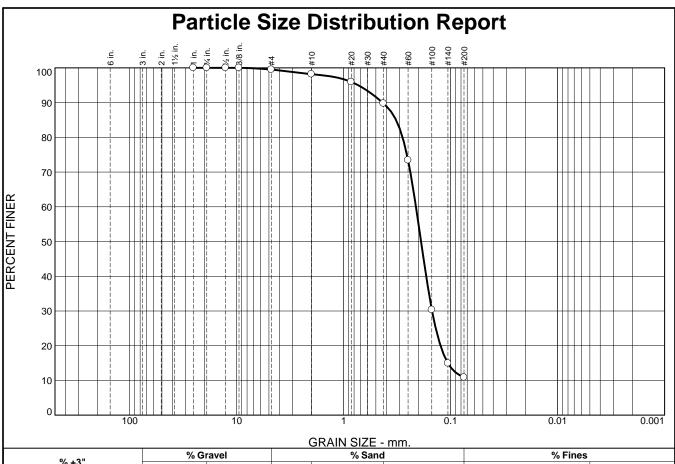
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



0/ .3"	% Gravel			% Sand	% Sand % Fines		
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.3	8.5	78.8	10.9	
SIEVE PERCENT	SPEC.	* PASS	3?	Material Description		ial Description	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
	SIZE  1 .75 .5 .375 #4 #10 #20 #40 #60 #100 #140	SIZE         FINER           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	SIZE         FINER         PERCENT           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

Material Description Fine grained, SLIGHTLY SILTY SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.4341 D <sub>50</sub> = 0.1892 D <sub>10</sub> =	Coefficients D85= 0.3239 D30= 0.1493 Cu=	D <sub>60</sub> = 0.2111 D <sub>15</sub> = 0.1062 C <sub>c</sub> =				
USCS= SP-SM	Classification AASHTO=	=				
	<u>Remarks</u>					

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-030-12

DDII I INC	1.00	DIVISIO	N			INS	STALLATIO	on			SHEET	1
	DRILLING LOG South Atlantic						Mobile Dis	strict			<b>OF</b> 1	SHEETS
1. PROJECT						$\overline{}$			I/A			
	MsCIP Barrier Island Restoration							NATE SYSTEM/DATUN		AL ¦\	/ERTIC	
Petit Bois Pa			LOCATION	20000	INATES	144		Plane, MSE (U.S. Ft			NAV	
BI-PBS-030		'	LOCATION C $F = 1.14^{\circ}$		N = 229,830	111.	. <b>MANUF</b> Vibra		ION OF DRILL	=	ГО НАМ Н ІДЦІИ	IMER IAMMER
3. DRILLING AGEN		<u> </u>	L - 1,140		RACTOR FILE NO.	+			DISTURBED			BED (UD)
Corps of En	gineers	- CESAM		! !		12.	TOTALS	SAMPLES	1	0		
4. NAME OF DRILL	.ER					13.	TOTAL	NUMBER CORE BOXES	;			
American Vi					T	14.	WATER	DEPTH	62.7 Ft.			
5. DIRECTION OF  VERTICAL  INCLINED	BORING		DEG. FROI VERTICAL		BEARING	15.	DATE BO	DRING	STARTED 11-24-1		11-2	<b>ETED</b> 24-12
6. THICKNESS OF	OVERB	URDEN	N/A		<u>'</u>	16.	ELEVAT	ION TOP OF BORING	-60.4 Ft.			
7. DEPTH DRILLE	INTO R	OCK V	V/A			17.	TOTAL F	RECOVERY FOR BORIN	100%			
		·				18.	SIGNAT	URE AND TITLE OF IN	SPECTOR			
8. TOTAL DEPTH	OF BORI	<b>NG</b> 15.	.6 Ft.			Ц,	John	Bass, Geotechnical	Engineer			
ELEV. DEPTH	LEGEND	CL	ASSIFICATION	ON OF	MATERIALS		SAMPLE	LA	ABORATORY RES	ULTS		
-60.4 0.0						$\Box$						
-63.5 = 3.1			rtz, little she		y fine-grained sand Iments, trace fine		Α	Classification: SP D50: (	Color: 2.5Y 6 0.2933 mm %	6/2-light Fines:	browni 3	E
-67.0 = 6.6 -68.0 = 7.6 -69.5 = 9.1		CLAY, lear sized quart SAND, cla quartz, tra gray (SC)	, silty, mostly fine-grained sand-sized, some shell fragments, gray (SM)  lean, mostly clay, little fine-grained sand-quartz, trace shell fragments, gray (CL) , clayey, mostly fine-grained sand-sized, trace shell fragments, borderline CL SC)  lean, mostly clay, trace fine-grained sized quartz, trace shell fragments, gray				NS					
-74.7 = 14.3 -76.0 = 15.6		SAND, po	oorly-graded	d with	silt, mostly fin-	e-	В	Classification: SM D50: 0.	Color: 2.5Y 6 3355 mm % F	6/2-light ines: 2	browni 2.5	ish gray
		NOTES:  1. Soils accordance System.  2. NS = analysis from 3. Seafloom	Sample not om this interior elevation	d visu Jnified t subm rval.	ually classified Soils Classification nitted for laborator mined from USAC ted April 2014.	on fy						

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13102° Long = -88.32830°

### Mississippi Barrier Island Restoration Project

## AVS SERVICES

Core Identifier BI-PBS-30-12

**Coordinate System** 

Date 11/24/2012

Water Depth 62.7'

Latitude / Longitude

Start Time 12:11:23

Penetration 19.4'

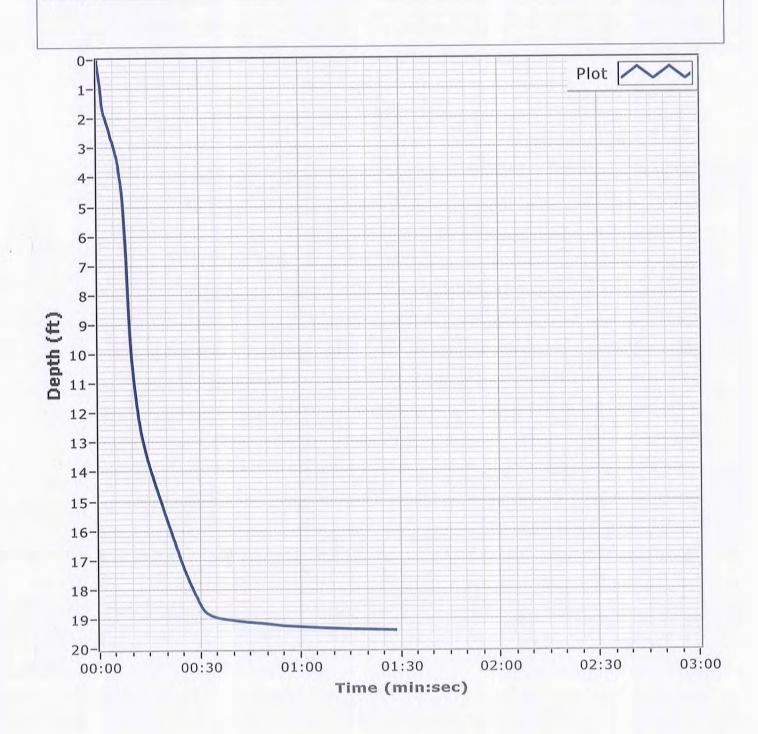
Latitude 30 07.861

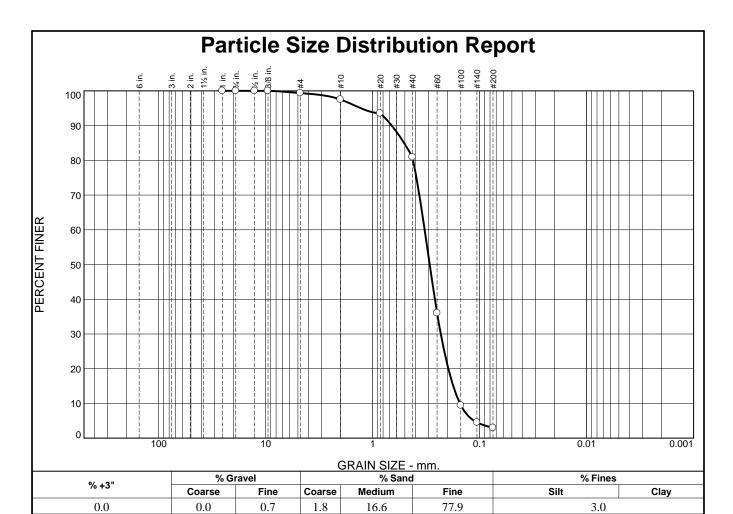
End Time 12:12:52 Total Time 00:01:28

Recovery 15.6'

Longitude 088 19.698

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.6638 D <sub>50</sub> = 0.2933 D <sub>10</sub> = 0.1530	Coefficients D <sub>85</sub> = 0.5089 D <sub>30</sub> = 0.2309 C <sub>u</sub> = 2.14	D <sub>60</sub> = 0.3268 D <sub>15</sub> = 0.1767 C <sub>C</sub> = 1.07				
USCS= SP	Classification AASHT	·O=				
	<u>Remarks</u>					

**Location:** BI-PBS-30-12 A **Sample Number:** 6469 (43)

**Depth:** 0.0' **Date:** 11/28/12

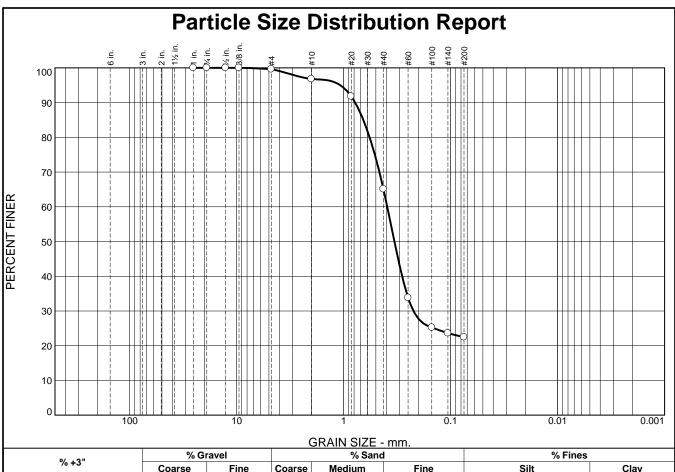
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



ONAIN OIZE - IIIII.								
% +3"	% G	ravel	% Sand			% Fines		
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
0.0	0.0	0.4	2.8	31.7	42.6	22.5		
0.0	0.0	0.4		31.7	42.6	22.5		

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SILTY SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.7814 D <sub>50</sub> = 0.3355 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.6548 D <sub>30</sub> = 0.2227 C <sub>u</sub> =	D <sub>60</sub> = 0.3915 D <sub>15</sub> = C <sub>c</sub> =				
USCS= SM	Classification AASHT	O=				
	<u>Remarks</u>					

**Location:** BI-PBS-30-12 B **Sample Number:** 6469 (44)

**Depth:** 14.3'

**Project:** MsCIP Barrier Island Restoration GT

Client: CDM/Thompson Engineering JV

Mobile, Alabama

**Thompson Engineering** 

**Project No:** 1221110095

Figure

**Date:** 11/28/12

Boring Designation BI-PBS-031-12

DR	ILLING	LOG	DIVISIO				1	STALLATIO				SHEET	
	South Atlantic				+-	Mobile Di				OF 1	SHEETS		
1. PROJECT				_			N/A						
	MsCIP Barrier Island Restoration				10		NATE SYSTEM/DATU	!		VERTIC			
Petit Bois Pass-OCS East  2. BORING DESIGNATION LOCATION COORDINATES				٠.		Plane, MSE (U.S.	,			/D88			
	BI-PBS-031-					N = 230,856	11	. MANUFA Vibra		ATION OF DRILL		UTO HAI	MMER HAMMER
	LLING AGEN			□ - 1,13		RACTOR FILE NO.	+	VIDIC	icore	DISTURBED			BED (UD)
_	Corps of Eng		CESAM			TRACTOR TILL NO	12	. TOTAL	SAMPLES	BIOTORDED	0.	0	DLD (0D)
	IE OF DRILL		020/ 11/1				12	TOTAL	NUMBER CORE BOXE	==			
1	American Vil	bracore S	Systems.	Inc.			$\vdash$						
	ECTION OF E		<i>,</i>	DEG. FRO	М	BEARING	14	. WATER	DEPTH	55.1 Ft.			
	VERTICAL INCLINED			VERTICAL	•		15	. DATE BO	DRING	<b>STARTED</b> 11-26-	12	<b>COMPL</b> 11-2	<b>ETED</b> 26-12
6. THI	CKNESS OF	OVERBU	RDEN	N/A			16	. ELEVAT	ION TOP OF BORING	-55.5 Ft.			
7. DEP	TH DRILLED	INTO RO	CK	N/A					RECOVERY FOR BOR				
8 TOT	AL DEPTH O	E ROPIN	<b>G</b> 10	9.7 Ft.			18		URE AND TITLE OF I				
0. 101	I DEFINO		9 13	9. <i>1</i> T L.			ㅗ	Mike	FitzHarris, Geologi	ıst			
ELEV.	DEPTH	LEGEND	С	LASSIFICATION	ON OF	MATERIALS		SAMPLE	,	LABORATORY RE	SULTS		
-55.5	0.0	•											
-59.2	- - - - - - - - - - - - - - - - - - -		nedium-g	oorly-graded grained sand s, trace clay,	d-sized	silt, mostly fine quartz, trace sh (SP-SM)	to ell	Α	Classification: D50:		Y 6/2-li 5 Fines	ght olive : 2.4	Ē
-62.4	6.9	f	cand-size ragments CLAY, fa cilty lens quartz ii	ed quartz, s, clay stringe tt, mostly classes, some ntermixed, r	little ers, gr y, trac fine ( mediur	to medium-graine silt, trace shay (SC)  e wood debris, wigrained sand-size plasticity, trawith brown strea	ell ith ed ce						
								NS					
-75.2	19.7	,	NOTES:	ils are fiel ce with the L	d vis	ually classified Soils Classificati	in on						
		2	System.  NS = analysis f  Seaflo	Sample no rom this inte	t subn rval. deterr	nitted for laborato mined from USAC ted April 2014.	ory						

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13390° Long = -88.34360°

#### Mississippi Barrier Island Restoration Project



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

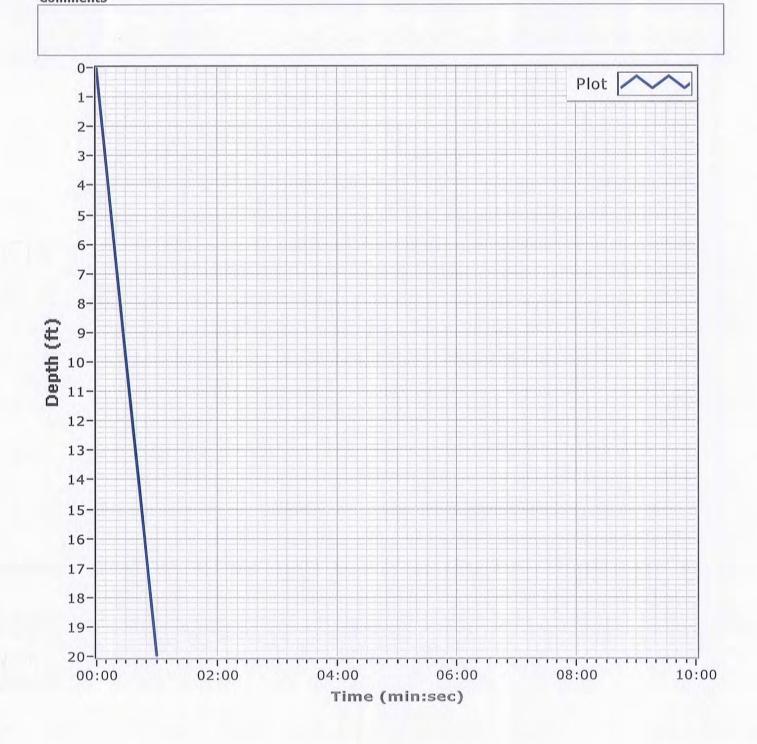
Total Time 00:01:00

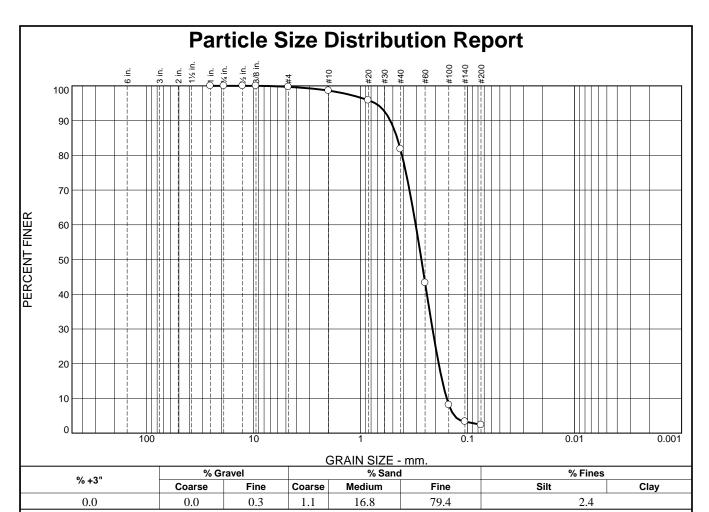
Water Depth 55.1'

Penetration 20.0'

Recovery 19.7'

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.5289 D <sub>50</sub> = 0.2707 D <sub>10</sub> = 0.1570	Coefficients D <sub>85</sub> = 0.4558 D <sub>30</sub> = 0.2131 C <sub>u</sub> = 1.95	D <sub>60</sub> = 0.3060 D <sub>15</sub> = 0.1727 C <sub>c</sub> = 0.94			
USCS= SP	Classification AASHT	O=			
	<u>Remarks</u>				

Location: BI-PBS-31-12 A Sample Number: 6469 (59)

Sample Number: 6469 (59) Depth: 0.0'

**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

**Figure** 

**Date:** 11/28/12

Boring Designation BI-PBS-032-12

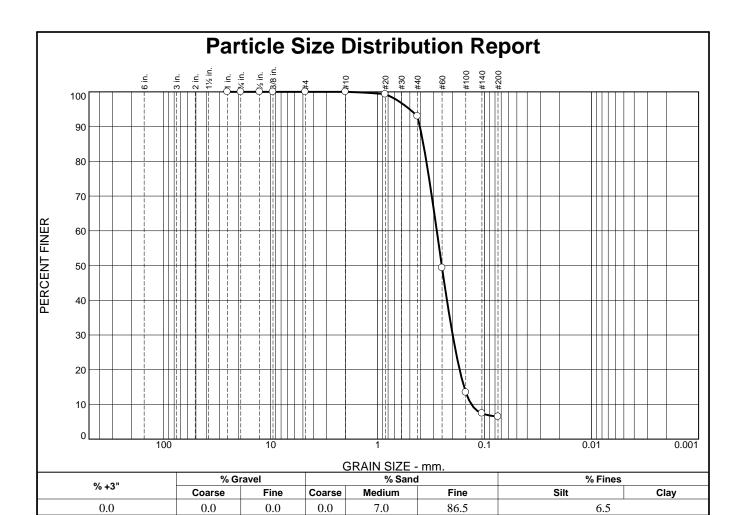
f			DIVISI	ION		l in:	STALLATIO	on		SHEET 1	7
DRI	LLING	LOG	1	uth Atlantic			Mobile Dis			OF 2 SHEETS	ا د
1. PRO	JECT					9.	SIZE AND	TYPE OF BIT N	/A	<u> </u>	1
N	IsCIP Barri	er Isla	nd Restora	ation		10	. COORDI	NATE SYSTEM/DATUM	HORIZONT	AL VERTICAL	1
Р	etit Bois Pa	ass-O0	CS East				State	Plane, MSE (U.S. Ft	) NAD83	NAVD88	
2. BOR	ING DESIGN	IOITAN	1	LOCATION COORD		11	. MANUFA	CTURER'S DESIGNAT	ION OF DRILL	AUTO HAMMER	1
	I-PBS-032			E = 1,135,889		L	Vibra	core		MANUAL HAMMER	
_	LING AGEN			1	RACTOR FILE NO.	12	. TOTAL S	SAMPLES	DISTURBED	UNDISTURBED (UD)	
	orps of Eng		s - CESAM	1 ;		⊢			!	<u> </u>	4
	merican Vi		o Svetome	Inc		13	. TOTAL	NUMBER CORE BOXES			4
	CTION OF			•	BEARING	14	. WATER	DEPTH	62.8 Ft.		
	VERTICAL INCLINED			DEG. FROM VERTICAL		15	. DATE BO	DRING	STARTED 12-01-1	<b>COMPLETED</b> 12 12-01-12	
6. THIC	KNESS OF	OVER	BURDEN	N/A	•	16	. ELEVAT	ION TOP OF BORING	-62.6 Ft.	•	]
7. DEP	TH DRILLED	INTO	ROCK	N/A		17	. TOTAL F	RECOVERY FOR BORIN	<b>G</b> 100%		1
						18	. SIGNAT	URE AND TITLE OF IN	SPECTOR		7
8. TOT	AL DEPTH C	OF BOF	ing 2	20.0 Ft.		L,	Mike	FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	c	CLASSIFICATION OF	MATERIALS		SAMPLE	LA	BORATORY RES	SULTS	
-62.6	0.0										┨。
-62.8	0.2	1///	SAND	poorly-graded, most	ly fine to medium	, /					E
	F		grained s	sand-sized quartz, fo							F
			gray (SF	P)		]	NS				E
	Ē			clayey, mostly fine-			140				Ė
			quartz, s	ome clay, some silt	, trace wood debris	s,					F
-66.6	4.0			ng bands of claye	y sand and sand	УД					£
	-	1:.//	∖clay, gray	y (SC)		-/					Ē
	-	1:-111		poorly-graded with							E-5
CO 4			grained s SM)	sand-sized quartz,	few silt, gray (SP	<u>'</u> -		01:6:4: 01	2 OM	0.57/.7/0.15-1-4	E
-69.1	- 0.5 -	1				$\dashv$	Α	Classification: SI D50: 0		: 2.5Y 7/2-light gray Fines: 6.5	F
				oorly-graded, mostly				500. 0.	2010111111 70	1 11100. 0.0	E
				ıartz, trace silt, trad y stringers, gray (Sl		<sup>3,</sup>					E
	_			,	,						Ŀ
	-										F
								Q. 15. 11. Q.		0 => / = / / !!	-1
	_	-:···					В	Classification: SI		: 2.5Y 7/1-light gray Fines: 6.5	Ē
	- - -							500. 0.	2040 111111 70	1 11100. 0.0	Ė
-75.1	12.5										F
		$[\cdot]$	SAND	poorly-graded with	silt mostly fine	٦_,					E
	Ē	<b> </b> :.	grained s	sand-sized quartz,							F
	=	[: ]	SM)				С	Classification: Sl		: 2.5Y 7/1-light gray	F
	-	<b> </b> :						D50: 0.	1877 mm %	Fines: 9.7	<u>-</u> 1
		<b> </b>									E
-79.2	16.6					_					丰
90.4	 17.8	]]		silty, mostly fine-		d					F
-00.4			quartz, tr	race clay, gray (SM	)	᠕	NO				F
	=			ean, mostly clay, so		-	NS				F
00.0	-		grained	sand-sized qua							F
-82.6	20.0	1///	Tragment	ts, gray (CL)		-					<u>+</u> 2
	<u>-</u>										Ė
	<u> </u>		NOTES:								F
	<u> </u>		1. So	oils are field visu	ually classified in	<sub>n</sub>					F
			accordan	nce with the Unified	Soils Classification	n					E
	<u> </u>		System.								Ė
	-		2. NS =	= Sample not subn	nitted for laborator	νĺ					F
	<u> </u>			from this interval.		´					<u>-</u> 2
	<u> </u>		3. Seaflo	oor elevation calcula	ated using sampling	,					E
	느	1 1			5	- 1					

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11697° Long = -88.35372°

Boring Designation BI-PBS-032-12

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.11697° Long = -88.35372°



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SLIGHTLY SILTY SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.4031 D <sub>50</sub> = 0.2518 D <sub>10</sub> = 0.1329	Coefficients D <sub>85</sub> = 0.3742 D <sub>30</sub> = 0.1990 C <sub>u</sub> = 2.11	D <sub>60</sub> = 0.2802 D <sub>15</sub> = 0.1556 C <sub>c</sub> = 1.06					
USCS= SP-SM	Classification AASHTC	)=					
	<u>Remarks</u>						

**Date:** 12/03/12

(no specification provided)

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

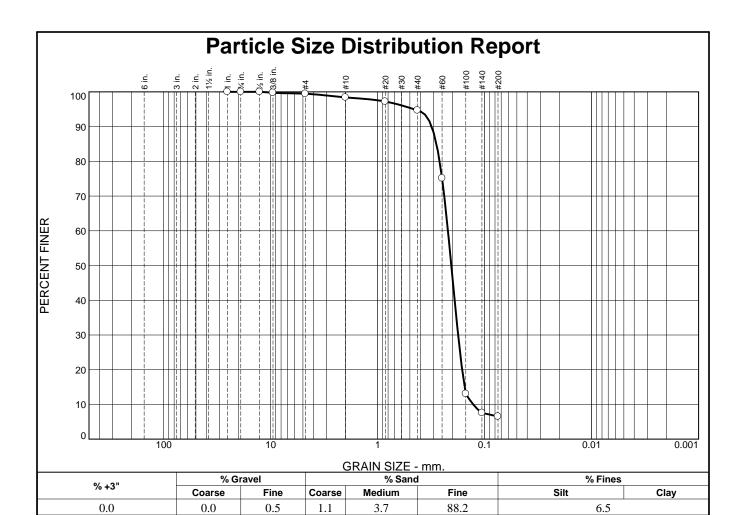
Thompson Engineering

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT

Mobile, Alabama

Project No: 1221110095

Figure



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SLIGHTLY SILTY SAND						
PL=	Atterberg Limits	PI=				
D <sub>90</sub> = 0.3128 D <sub>50</sub> = 0.2049 D <sub>10</sub> = 0.1279	Coefficients D <sub>85</sub> = 0.2824 D <sub>30</sub> = 0.1771 C <sub>u</sub> = 1.72	D <sub>60</sub> = 0.2203 D <sub>15</sub> = 0.1539 C <sub>c</sub> = 1.11				
USCS= SP-SM	Classification AASHT	-O=				
	<u>Remarks</u>					

Location: BI-PBS-32-12 B Sample Number: 6471 (8)

**Depth:** 9.0' **Date:** 12/03/12

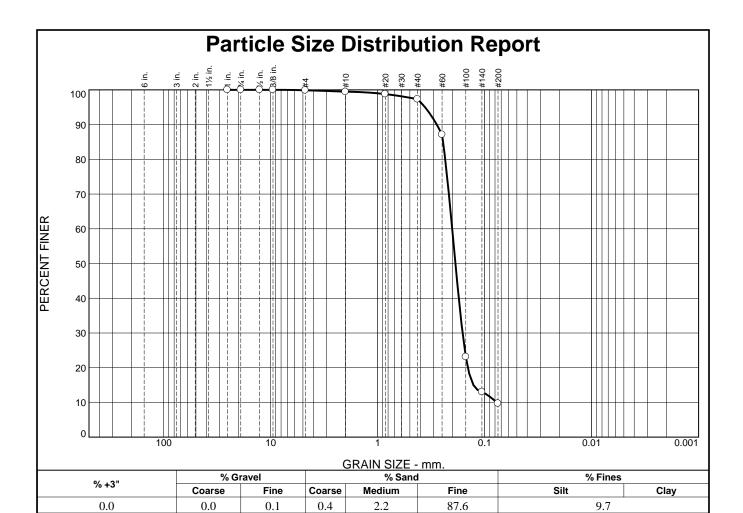
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SLIGHTLY SILTY SAND								
PL=	Atterberg Limits LL=	PI=						
D <sub>90</sub> = 0.2805 D <sub>50</sub> = 0.1877 D <sub>10</sub> = 0.0770	Coefficients D <sub>85</sub> = 0.2445 D <sub>30</sub> = 0.1610 C <sub>u</sub> = 2.61	D <sub>60</sub> = 0.2011 D <sub>15</sub> = 0.1274 C <sub>c</sub> = 1.67						
USCS= SP-SM	Classification AASHTO	D=						
	<u>Remarks</u>							

Location: BI-PBS-32-12 C Sample Number: 6471 (9)

Sample Number: 6471 (9) Depth: 12.5' Date: 12/03/12

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-033-12

DR	ILLING	LOG	DIVISIO				IN	ISTALLA					SHEET	
	South Atlantic  1. PROJECT						Mobile District  OF 1 SHEETS  9. SIZE AND TYPE OF BIT N/A						SHEETS	
		ior Islan	d Restoration	nn.						IATE SYSTEM/DATUM	HORIZON	TAL	VERTIC	CAL
	Petit Bois Pa			JII			"			Plane, MSE (U.S. Ft.)	-		1	√D88
	RING DESIG			LOCATION C	OORDI	INATES	11			CTURER'S DESIGNATIO			UTO HA	
6	BI-PBS-033	-12	-	E = 1,134	1,464	N = 222,9	38	Vil	orac	core		=		HAMMER
3. DRI	LLING AGEN	ICY			CONT	RACTOR FIL		2. TOTA	ı sı		DISTURBED	U	NDISTUR	BED (UD)
	Corps of En		- CESAM		! !					1		<u>i</u>	0	
	ME OF DRILL		Customa	20			1:	в. тота	LN	UMBER CORE BOXES				
	ECTION OF		Systems, I	DEG. FROM	и	BEARING	14	1. WATE	R D	EPTH	64.1 Ft.			
$\boxtimes$	VERTICAL INCLINED			VERTICAL			1!	5. DATE	во	RING	<b>STARTED</b> 12-07-	12	<b>COMPL</b> 12-	. <b>ETED</b> 07-12
6. THI	CKNESS OF	OVERB	URDEN	N/A			10	6. ELEV	ATIC	ON TOP OF BORING	-63.4 Ft.			
7. DEP	TH DRILLEI	INTO F	SUCK V				17	7. ТОТА	L RI	ECOVERY FOR BORING	100%			
			•				11	3. SIGN	ATU	RE AND TITLE OF INSP	ECTOR			
8. TOT	AL DEPTH	OF BORI	NG 17.	.0 Ft.				Mi	ke F	FitzHarris, Geologist				
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF	MATERIALS		SAMPL	E	LABO	DRATORY RE	SULTS		
-63.4	0.0								$\Box$					
-65.5			sized quar		to high	e fine-grained h plasticity, d le (CH)								- ' - - -
-67.8	- - - - - 4.4		quartz, soi	me clay, cla	y cont	grained sand ent decreasory, and gray	es with							
-72.9			quartz, so	me silt, so es, organic	me sh	grained sand lell fragmen t between 4.	ts, Ittle	NS						
-73.6	_10.2 _			, mostly cla city, gray (C		shells, med	dium to							E
	12.0					grained sand								
70.4	- 10.0 - - - - - - -		SAND, si			grained sand ell fragment								
-80.4	17.0		SAND, poo sized quar	orly-graded, tz, trace she	mostly ell fragr	/ fine-grained ments, gray	d sand- (SP)							-
	E		NOTES:											<u> </u>
						ually classif Soils Classi								
				Sample not om this inter		nitted for lab	oratory							 
	E. E. F.			oor elevation ophysical sun		rmined from	n 2013							1 1 1 1
					_									- 1 - 1 - 1 - 1

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.11218° Long = -88.35825°

#### 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

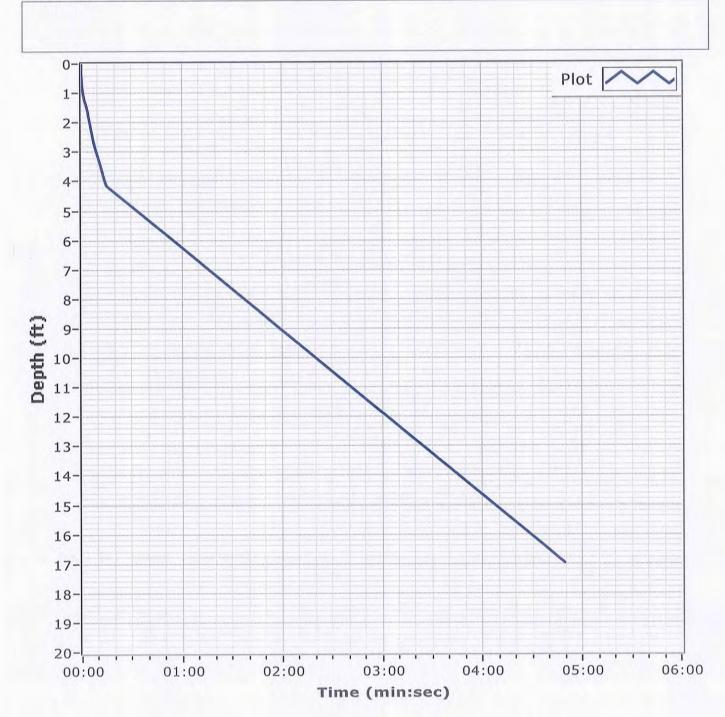
Total Time 00:04:50

Water Depth 64.1'

Penetration 17.0'

Recovery 17.0'





#### Boring Designation BI-PBS-034-12

DRILLING	LOG	DIVISIO				ı		TALLATIO						SHEET	
1. PROJECT		Sou	th Atlantic					Nobile Dis						OF 1	SHEETS
	on lele '	Doctr ···· '	tion						TYPE OF BIT			ZONTA		VERTIC	· A1
MsCIP Barrie			lion				U.								
Petit Bois Pa  2. BORING DESIGN			LOCATION C	COORD	INATES		1.		Plane, MSE			AD83	7	NA\ I <b>TO HA</b>	/D88
BI-PBS-034-		į			N = 224,6		••	Vibra		LOIONAII	OR OF DR	L			HAMMER
3. DRILLING AGEN			,.0		RACTOR FIL	E NO.					DISTURB	ED			BED (UD)
Corps of Eng	jineers -	CESAM		:		1	2.	TOTAL S	SAMPLES				(	)	
4. NAME OF DRILL	ER					1	3.	TOTAL I	IUMBER COR	E BOXES			•		
American Vit		Systems,	Inc.				4	WATER	DEDTH		51.4 F				
5. DIRECTION OF E	ORING		DEG. FRO	M	BEARING	F		WAILK	JEF III		STAR	-	,	COMPL	ETEN
INCLINED						1	5.	DATE BO	RING			-09-12	- :		09-12
6. THICKNESS OF	OVERBUI	RDFN	N/A		-	- 1	6.	ELEVAT	ION TOP OF E	BORING	-51.7 F				
									RECOVERY FO						
7. DEPTH DRILLED	INTO RO	CK	N/A						URE AND TIT			,,			
8. TOTAL DEPTH O	F BORIN	G 16	6.4 Ft.					Mike	FitzHarris, (	Geologist					
ELEV. DEPTH	LEGEND	C	LASSIFICATIO	ON OF	MATERIALS	·	,	SAMPLE		LAI	BORATORY	resu	LTS		
-51.7 0.0							İ								
-56.7 - 5.0	g t	rained s	oorly-graded and-sized qu es, occasion	iartz, fe	ew shell frag	gments,		Α	Classifi	ication: SI D50: 0.:	P Colc 2693 mm	or: 5Y 6 % F	3/2-lig ines:	ht olive 1.5	gray
-58.6 = 6.9	· ·   s	SAND, po ized qua gray (S	oorly-graded, artz, trace fin SP)	mostly ies, tra	y fine-graine ice shell frag	d sand- gments,		В	Classifi	ication: Sl D50: 0.:	P Colo 2581 mm		6/2-lig ines:	ht olive 2.1	gray
-63.0 -11.3		rained s	poorly-gradec sand-sized qu s, shelly at u	uartz, 1	few silt, trac	e shell		С	Classifi	ication: Sl D50: 0.:	P Colc 2229 mm	or: 5Y 6 % F	6/2-lig ïnes:	ht olive 4.3	gray
-66.7 - 15.0	S	ized qua	t, mostly clay artz, mediun /, greenish g	n to h	nigh plasticit	y, very		NS							
-68.1 = 16.4	1 1 2 2 2 2 3 3	NOTES: Soincecordance System. NS = Inalysis f	layey, mostly ome clay, lift sare field ce with the Use Sample not from this interest afloor elever 14 USACE safe safe of the	d visuu Jnified t submarval.	ell fragment Jally classit Soils Classi	s, gray fied in fication									

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11697° Long = -88.36862°

#### Mississippi Barrier Island Restoration Project

### **AVS** SERVICES

Core Identifier BI-PBS-34-12

**Coordinate System** 

Date 12/09/2012

Water Depth 51.4'

Latitude / Longitude

Start Time 10:19:08

Penetration 20.0'

End Time 10:21:26

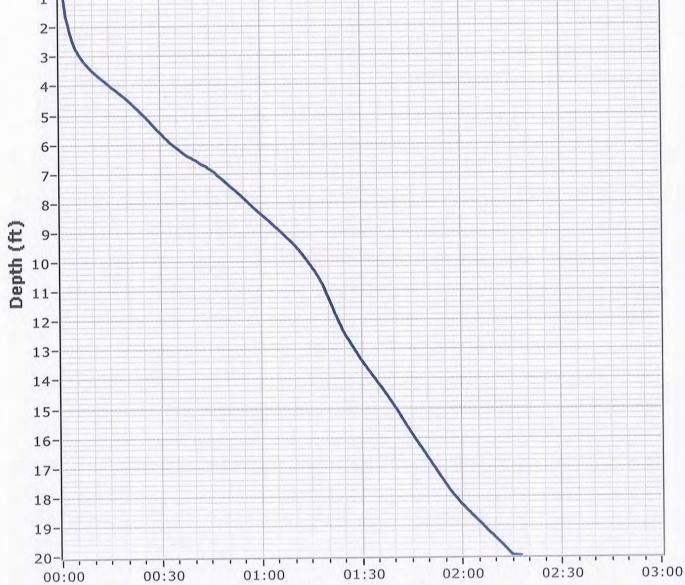
Latitude 30 07.018

Total Time 00:02:17

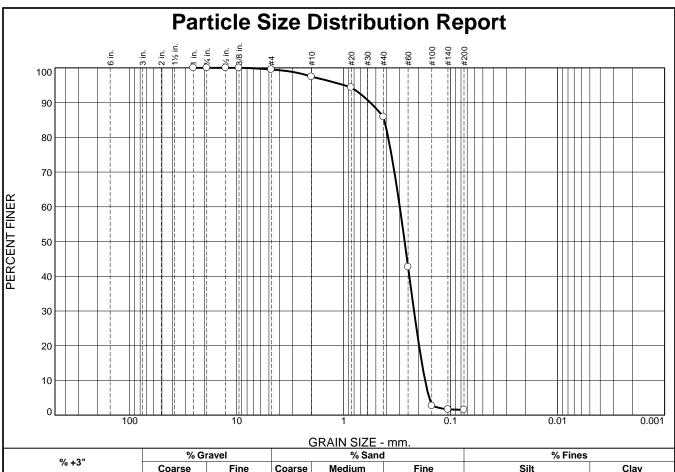
Recovery 16.4'

Longitude 088 22.117





Time (min:sec)



				SINAIIN SIZE	1111111			
0/ .3"	% Gı	ravel		% Sand	t	% Fines		
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt Clay		
0.0	0.0	0.5	2.1	11.5	84.4	1.5		
0.0	0.0	0.5	2.1	11.5	84.4	1.5		

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.5641 D <sub>50</sub> = 0.2693 D <sub>10</sub> = 0.1735	$\begin{array}{c} \underline{\text{Coefficients}} \\ D_{85} = \ 0.4177 \\ D_{30} = \ 0.2199 \\ C_{u} = \ 1.72 \end{array}$	D <sub>60</sub> = 0.2992 D <sub>15</sub> = 0.1858 C <sub>c</sub> = 0.93					
USCS= SP	Classification AASHT	0=					
	<u>Remarks</u>						

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

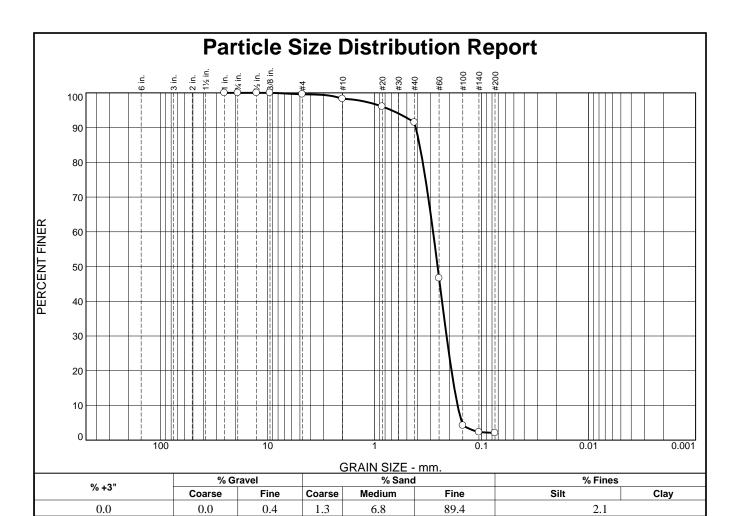
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.4127 D <sub>50</sub> = 0.2581 D <sub>10</sub> = 0.1681	Coefficients D <sub>85</sub> = 0.3802 D <sub>30</sub> = 0.2128 C <sub>u</sub> = 1.69	D <sub>60</sub> = 0.2846 D <sub>15</sub> = 0.1802 C <sub>c</sub> = 0.95					
USCS= SP	Classification AASHT	O=					
	<u>Remarks</u>						

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

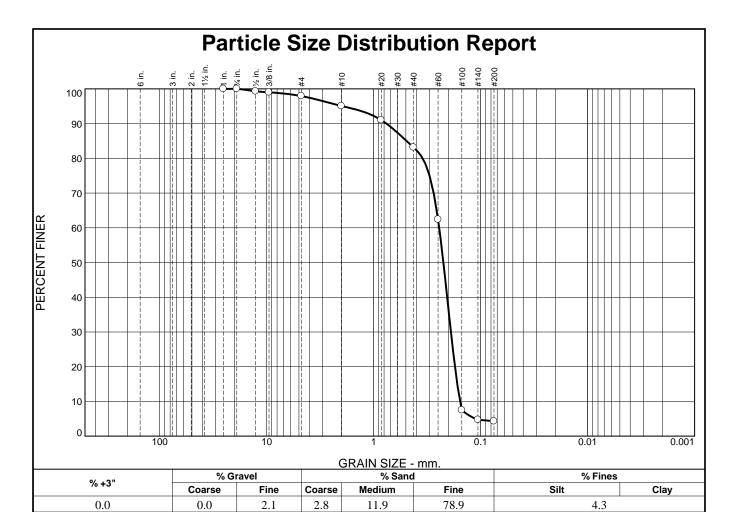
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	Material Description Fine to medium grained, SAND, with trace shell							
PL=	Atterberg Limits LL=	PI=						
D <sub>90</sub> = 0.7613 D <sub>50</sub> = 0.2229 D <sub>10</sub> = 0.1559	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{85} = \ 0.4931 \\ \text{D}_{30} = \ 0.1897 \\ \text{C}_{\text{U}} = \ 1.56 \end{array}$	D <sub>60</sub> = 0.2440 D <sub>15</sub> = 0.1655 C <sub>c</sub> = 0.95						
USCS= SP	Classification AASHTO	D=						
	<u>Remarks</u>							

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-035-12

			DIVISIO	N			INS	TALLATIO	on		SHEET 1
DRI	LLING	LOG	i	h Atlantic			1	Mobile Dis			OF 2 SHEETS
1. PRO	JECT						-			I/A	
N	/IsCIP Barr	ier Islar	nd Restoration	on			10.	COORDI	NATE SYSTEM/DATUN		TAL VERTICAL
F	Petit Bois Pa	ass-OC	S East					State	Plane, MSE (U.S. Ft	t.) NAD83	NAVD88
2. BOR	ING DESIG	NATION	ı jı	LOCATION C	OORDII	NATES	11.		ACTURER'S DESIGNAT		AUTO HAMMER
	3I-PBS-035		<u> </u>	E = 1,129		N = 223,570		Vibra	icore		MANUAL HAMMER
	LLING AGEN				CONT	RACTOR FILE NO.	12.	TOTAL S	SAMPLES	DISTURBED	UNDISTURBED (UD)
	Corps of En		s - CESAM		<u> </u>		⊢			!	j 0
			o Svotomo I	lno			13.	TOTAL I	NUMBER CORE BOXES	3	
	ECTION OF		e Systems, I	DEG. FROI	М	BEARING	14.	WATER	DEPTH	62.6 Ft.	
$\boxtimes$	VERTICAL INCLINED			VERTICAL	•		15.	DATE BO	DRING	STARTED 12-09-1	12 COMPLETED 12-09-12
6. THI	CKNESS OF	OVERE	URDEN	N/A			16.	ELEVAT	ION TOP OF BORING	-61.4 Ft.	
7. DEP	TH DRILLEI	D INTO	ROCK N	V/A			17.	TOTAL F	RECOVERY FOR BORIN	IG 100%	
			•				18.	SIGNAT	URE AND TITLE OF IN	SPECTOR	
8. ТОТ	AL DEPTH	OF BOR	ING 20	.0 Ft.			ᄂ	Mike	FitzHarris, Geologist	t	
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF I	MATERIALS		SAMPLE	LA	ABORATORY RES	SULTS
-61.4	0.0						$\Box$				
	Ė		CLAY. fat	t, mostly cla	av, trac	e shell fragments	<sub>s.</sub>				
	Ė		medium to	o high plastic	city, poo	ckets of trace fine					
	F		grained, sa	and-sized qu	uartz, da	ark gray (CH)					
	F										
	Ē										
-65.8	L <sub>4.4</sub>										
	F		CIAV 5		-1		.				
	F		olasticity	nockets of	trace f	medium to hig ine-grained, sand	n 1-				
-68.0	- 66		sized quar	rtz, greenish		orangy brown, gra					
-00.0	- 0.0		mottle (CI	H)			ᆀ				
	Ė	$\downarrow \uparrow \uparrow \downarrow \uparrow \downarrow$	SAND, si	ilty, mostly	fine-g	rained sand-size	d				
-69.8	8.4	<u> </u>	quartz, so	me silt, trad	ce woo	d debris, brownis	h ]				
	E		gray (SM)	)			-/				
	F					some fine-graine		NO			
	F					Il fragments, trac m plasticity, gra		NS			
	<u>F</u>		(CL)	nis, iow to	media	in plasticity, gra	,				
	Ē										
-74.3	12.9										
	E	TITIT	CAND -:	ilty mostly	fine -	rained cand ai					
	E		guartz s	ome silt	trace	rained sand-size clay, trace she	u				ļ
	F	[[]]	fragments	, gray (SM)							
	E										
	<u>F</u>	[ <u> </u>									
	Ė	<b> </b>									
	F	<u> </u>									
	F	[									
	E										
- <u>81:4</u>	<u> </u>										
J1.4	<u> </u>	<del>[//</del>	CLAY. lea	an, mostly	clay.	some fine-graine	⋴∄				
	F		\sand-sized	d quartz, lo	ow to	medium plasticity	y, /				
	Ę		gray (CL)				<i>_</i>   <i>_</i>				
	E										
	<u>F</u>		NOTES:								
	E		1. Soils	s are field	d vieu	ally classified i	<sub>n</sub>				
	F		accordanc	e with the L	Jnified (	Soils Classificatio	n				
	F		System.								
	Ė		2 NS = S	Sample not s	ubmitte	ed for laboratory					
	<u>F</u>	1	2. 110 - 3	ample not s	ubillitte	a ioi iaboratory					

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11398° Long = -88.37517°

Boring Designation BI-PBS-035-12

DKIL	LLING LO	G (Cont. Sheet)	INSTALLA			SHEET 2				
OJECT		, 7	_	District ATE SYSTEM/DATUM	HORIZONTAL	OF 2 SHEETS				
	r P Barrier Island	Restoration		lane, MSE (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL NAVD88				
	N COORDINATE			N TOP OF BORING		: 1011200				
		223,570	1	-61.4 Ft.						
LEV.	DEPTH DEPTH	CLASSIFICATION OF MATE	ERIALS	SAMPLE	LABORATORY RESULTS					
LEV.	DEPTH   Page   P	analysis from this interval.  3. Seafloor elevation calculated uvessel's fathometer water depth applying NOAA tidal gauge dafactor.	using sampling	SAMPLE	LABORATORY RI	ESULTS				

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.11398° Long = -88.37517°

#### Mississippi Barrier Island Restoration Project

## AVS

Core Identifier BI-PBS-35-12

**Coordinate System** 

Date 12/09/2012

Water Depth 62.6'

Latitude / Longitude

Start Time 15:09:12

Penetration 20.0'

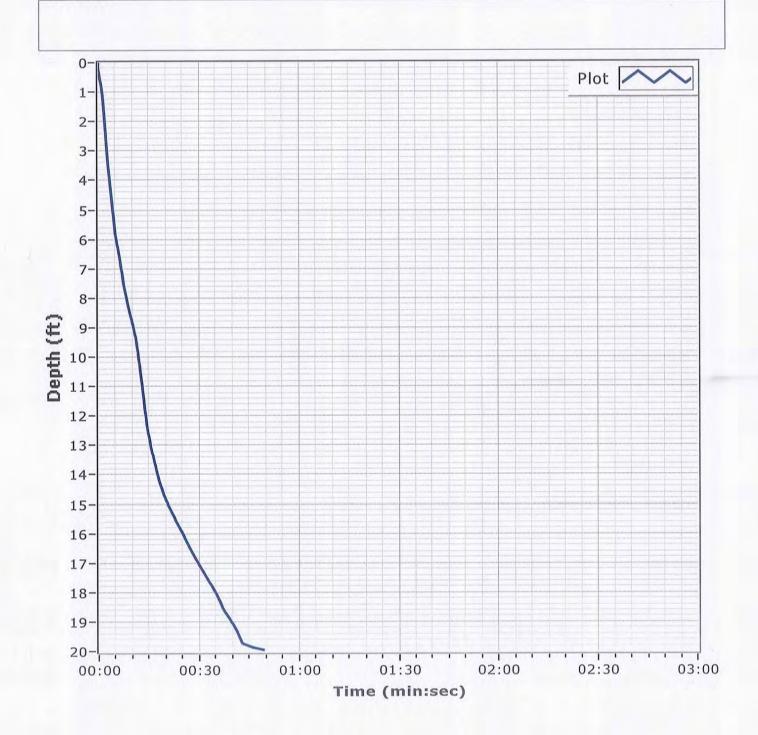
Latitude 30 06.839

End Time 15:10:01 Total Time 00:00:49

Recovery 20.0'

Longitude 088 22.510

**Comments** 



#### Boring Designation BI-PBS-036-12

DR	ILLING	LOG	DIVISI				[1		TALLATIO					SHEET	
1. PRO			Sou	uth Atlantic					Nobile Dis					<b>OF</b> 1	SHEETS
		I-I-	- d D 4	4:			_ ∟			TYPE OF BIT	N/A	HORIZON	- A I	VERTIC	201
	MsCIP Barri			ition				10.				-		1	
	Petit Bois Pa			LOCATION	OOPD	INATES		11		Plane, MSE (I					/D88
	BI-PBS-036-		•	i		N = 226,1		• • •	Vibra		SIGNATIO	N OF DRILL		IAH OTU	MMER HAMMER
	LLING AGEN			1 - 1,10		RACTOR FIL	E NO.				; c	ISTURBED			BED (UD)
(	Corps of Eng	gineers	- CESAM	1	!		- 1	12.	TOTAL S	SAMPLES	į		ij	0	`
	ME OF DRILL	_						13.	TOTAL N	IUMBER CORE	BOXES				
,	American Vil	bracore	e Systems,	, Inc.			-		WATER			00.0.54			
	ECTION OF I	BORING	3	DEG. FRO	М	BEARING		14.	WAIEK	DEPIH		63.9 Ft.		1	
	VERTICAL INCLINED			VERTIOAL		!	-	15.	DATE BO	RING		12-09-	12	12-0	09-12
6. THI	CKNESS OF	OVERB	URDEN	N/A				16.	ELEVAT	ION TOP OF BO	RING	-62.8 Ft.			
7. DEP	TH DRILLED	INTO	ROCK	N/A				17.	TOTAL F	RECOVERY FOR	BORING	100%			
							——ſ	18.	SIGNAT	URE AND TITLE	OF INSP	ECTOR			
8. TO	AL DEPTH C	F BOR	ing 1	3.7 Ft.					Mike	FitzHarris, Ge	eologist				
ELEV.	DEPTH	LEGEND	c	CLASSIFICATI	ON OF	MATERIALS		;	SAMPLE		LABO	PRATORY RES	BULTS		
-62.8	0.0							I							
-65.8	3.0		grained	poorly-graded sand-sized ( 2.6 ft., beco	quartz,	trace fines	s, shell		Α		ation: SP D50: 0.3	Color: 5\ 15 mm %	′ 6/2-li Fines:		E
	= 3.7	- 111	CAND			-:14	l et	$\dagger$							E
-71.5			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, dark brown (SP-SM)  SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)												
-73.5	10.7		grained s	poorly-graded sand-sized qu ts, gray (SP-	uartz,			<u>-</u>							
-76.5	13.7			oorly-graded, artz, trace fin SP)											
	Ē		NOTES:												
			accordan System.  2. NS = analysis  3. Seaflovessel's	oils are fiel nce with the U = Sample no from this inte oor elevation fathometer v NOAA tidal	Jnified t subn rval. calcula water	Soils Class nitted for lab ated using sa depth readi	ooratory ampling								
	<u> </u>														

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.12092° Long = -88.35868°

#### 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

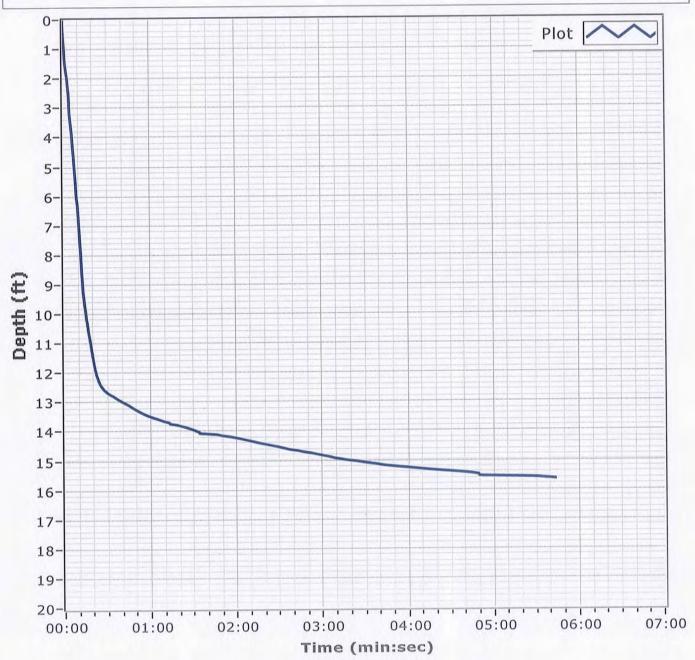
Water Depth 63.9'

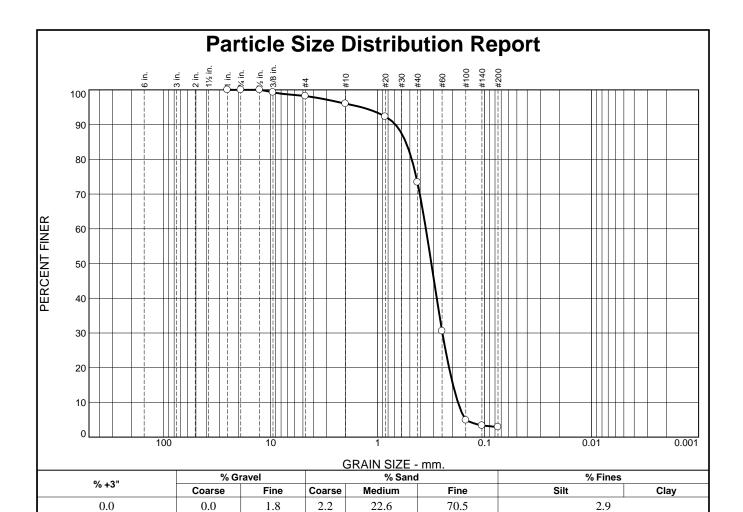
Penetration 15.7'

Recovery 13.7'

Comments







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Fir	Material Description Fine to medium grained, SAND, with trace SHELL							
PL	.=	Atterberg Limits	PI=					
Dg Dg D <sub>1</sub>	90= 0.6821 50= 0.3150 10= 0.1776	$\begin{array}{c} \underline{\text{Coefficients}} \\ D_{85} = 0.5464 \\ D_{30} = 0.2482 \\ C_{\text{U}} = 1.99 \end{array}$	D <sub>60</sub> = 0.3543 D <sub>15</sub> = 0.1974 C <sub>c</sub> = 0.98					
US	SCS= SP	Classification AASHT	-O=					
	<u>Remarks</u>							

**Location:** BI-PBS-36-12 A **Sample Number:** 6482 (44)

**Thompson Engineering** 

 $\begin{tabular}{ll} \textbf{Client:} & CDM/Thompson Engineering JV \\ \end{tabular}$ 

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-037-12

f			DIVISI	ON	Т	INS	STALLATIO	on	220	SHEET 1
DRI	LLING	LOG	i I -	uth Atlantic			Mobile Dis			OF 2 SHEETS
1. PRO	JECT							TYPE OF BIT N/	'A	
N	/IsCIP Barr	ier Islar	nd Restora	tion		10.	COORDI	NATE SYSTEM/DATUM	HORIZONT	AL VERTICAL
F	Petit Bois Pa	ass-OC	S East				State	Plane, MSE (U.S. Ft.	) NAD83	NAVD88
2. BOR	ING DESIG	NATION	ı	LOCATION COORE	INATES	11.	MANUFA	ACTURER'S DESIGNATI	ON OF DRILL	AUTO HAMMER
	3I-PBS-037				N = 225,247		Vibra	core		MANUAL HAMMER
	LING AGE			1	TRACTOR FILE NO.	12.	TOTALS	SAMPLES	DISTURBED	UNDISTURBED (UD)
	Corps of En		s - CESAM	}						0
	merican V		Systoms	Inc		13.	TOTAL N	NUMBER CORE BOXES		
	ECTION OF			DEG. FROM	BEARING	14.	WATER	DEPTH	61.7 Ft.	
	VERTICAL INCLINED			VERTICAL		15.	DATE BO	DRING	STARTED 12-09-1	12-09-12
6. THI	CKNESS OF	OVERE	URDEN	N/A		16.	. ELEVAT	ION TOP OF BORING	-62.3 Ft.	
7. DEP	TH DRILLEI	D INTO	ROCK	N/A		17.	TOTAL F	RECOVERY FOR BORIN	G 100%	
						18.	SIGNAT	URE AND TITLE OF INS	PECTOR	
8. ТОТ	AL DEPTH (	OF BOR	ING 2	0.0 Ft.			Mike	FitzHarris, Geologist		
ELEV.	DEPTH	LEGEND	c	CLASSIFICATION OF	MATERIALS		SAMPLE	LAI	BORATORY RES	BULTS
-62.3	0.0					╛				
	Ē ¯		CLAY, fa	at, mostly clay, trac	e fine-grained sand-	. [				Ī
	F		sized qu	artz, medium to h	nigh plasticity, gray	,				F
	E		brown, g	reenish gray mottle	(CH)					E
-65.3	E 3.0									E
50.0	<del> </del>			at managht of	a fina accional					E
	<u> </u>		CLAY, fa	at, mostly clay, trace	e fine-grained sand- bris, medium to high	-				E
67.5	F			, dark gray (CH)	ons, mediam to myr	·				E
-67.5	<u></u> 5.∠					$\dashv$				<u> </u>
	-				grained sand-sized					Ė
	<b>-</b>		quartz, s (SM)	some siit, some sr	nell fragments, gray	۱ ۱				ŧ
	F	-  -  -  -  -  -  -  -  -  -  -  -  -	(0)							F
	F	11+1+1								-
	Ē									Ē
-71.8	- 9.5 -	1111				$\dashv$				ŧ
	Ė	[:]]			silt, mostly fine		NS			E
	E	$\ \cdot\ \ $	grained s	sand-sized quartz,	few silt, trace shell creases with depth	1				E
	Ę	1.111	gray (SF		леавев міні церні	,				Ę
	Ē	1:-	5 7 (	,						Ē
	<u>F</u>	:								<u> </u>
	E	.:   <u> </u>								F
	F	1:.								F
	-	1:-111								-
	Ē									E
	Ė	-:    <b> </b>								F
	F	1:.								F
	Ē	:-								E
	Ė	$\ \cdot\ \ $								Ę
	E	1.111								F
-82.3	20.0	1:114				$\downarrow$				<u>F</u>
	F									ŧ
	Ē		NOTES:							Ē
	<u>F</u>		1. So	ils are field vis	ually classified in	,				E
	F		accordan	nce with the Unified	Soils Classification					F
	F		System.							Į.
	F		2 NS =	= Sample not sub-	mitted for laboratory	,				<u>E</u>
	Ė			from this interval.	into ioi laboratory	'				<u> </u>
	Ė		-		almad for					F
	F		3. Seaflo	oor elevation detern	nined from					<u>F</u>

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11855° Long = -88.36395°

Boring Designation BI-PBS-037-12

DRI	LLING	LOC	G (Cont. Sheet)	INSTALLATION Mobile District SHEET 2 OF 2 SHE							
ROJEC				_	COORDINATE SYSTEM/DATUM HORIZONTAL VER						
		sland I	Restoration	1	lane, MSE		NAD83	NAVD88			
	ON COORDI				N TOP OF B						
	,132,652			-62.3 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERI		SAMPLE LABORATORY RESULTS			SULTS			
			12/17/2014 USACE survey.								

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.11855° Long = -88.36395°

#### 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

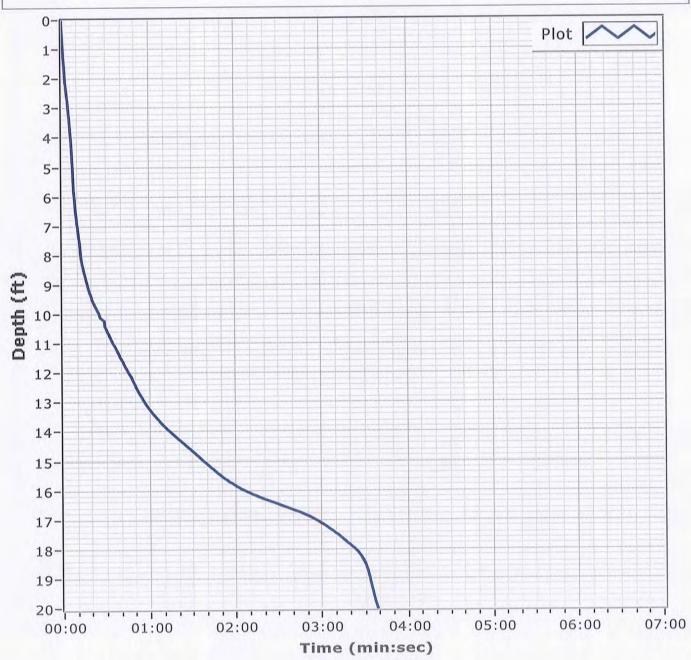
Water Depth 61.7'

Penetration 20.0'

Recovery 20.0'

Comments





Boring Designation BI-PBS-038-12

			DIVISIO	N			IN	STALLATIO	on			SHEET	1
DR	ILLING	LOG	South	n Atlantic				Mobile Dis	strict			OF 1	SHEETS
1. PRO	DJECT		-				9.	SIZE AND	TYPE OF BIT	I/A		_	
ı	MsCIP Barri	er Islan	d Restoration	on			10	. COORDI	NATE SYSTEM/DATUR	HORIZONT	AL	VERTIC	CAL
	Petit Bois Pa		S East						Plane, MSE (U.S. F			NAV	/D88
	RING DESIGN		įı	OCATION C			11		ACTURER'S DESIGNAT	TION OF DRILL	=	JTO HAI	
	BI-PBS-038- LLING AGEN		<u> </u>	E = 1,130		N = 225,226	+	Vibra	acore	DIGTURDED			HAMMER
_	Corps of Eng		- CESAM		CONTR	RACTOR FILE NO		. TOTAL	SAMPLES	DISTURBED	i	0 0	BED (UD)
	ME OF DRILL		OLO/ WI		<del>'</del>		13	TOTAL	NUMBER CORE BOXES	_i \	i		
,	American Vi	bracore	Systems, I	nc.			$\vdash$						
	ECTION OF I	BORING	-	DEG. FROI	М	BEARING	714	. WATER	DEPTH	50.6 Ft.			
	VERTICAL INCLINED			VERTICAL	i j		15	. DATE BO	DRING	12-09-	12	COMPL 12-0	09-12
	CKNESS OF	OVERRI	UBDEN	: N/A	·		16	ELEVAT	ION TOP OF BORING	-50.1 Ft.	12	12-1	55-1 <u>Z</u>
				IN/A			╧		RECOVERY FOR BORIS				
7. DEF	TH DRILLED	INTO R	OCK N	I/A					URE AND TITLE OF IN				
8. TO	TAL DEPTH C	F BORI	<b>NG</b> 19.	1 Ft.			٦.,		FitzHarris, Geologis				
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF N	MATERIALS		SAMPLE		ABORATORY RES	SULTS		
-50.1	0.0	+-+											
-55.1	5.0		grained sa shell fragm	and-sized d nents, dense	quartz, <sup>*</sup> e, It. gra		ace	Α	Classificatior D50: 0		5Y 7/2 Fines:	-light gr 1.2	ay -
-59.2	- - - - - - - - - - - - - - - - - - -			tz, trace fin		fine-grained sa te shell fragmer		В	Classification: \$ D50: 0	SP Color: 5Y .2214 mm %			gray
-60.1	E		quartz, so \(SM) CLAY, fat, sized quar gray (CH) SILT, inorg	me silt, fe mostly clay tz, mediun ganic-L, mo	y, trace n to high	rained sand-siz I fragments, g fine-grained sa gh plasticity, d	nd- ark ttle	NS					
-69 2	- - - - - - - - - - - - - - - - - - -			d sand-si: gray (ML)		uartz, few sl	neli	. NO					
09.2	E												<u> </u>
	- - - - - - - - - - - - - - - - - - -		accordance System.	e with the L	Jnified S	ally classified Soils Classificat	ion						
			analysis from 3. Sea	om this intensificant of the second of the s	rval. ration	determined fr							

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11852° Long = -88.37173°

#### Mississippi Barrier Island Restoration Project

AVS

AMERICAN VIBRACORE

S E R V I C E S

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

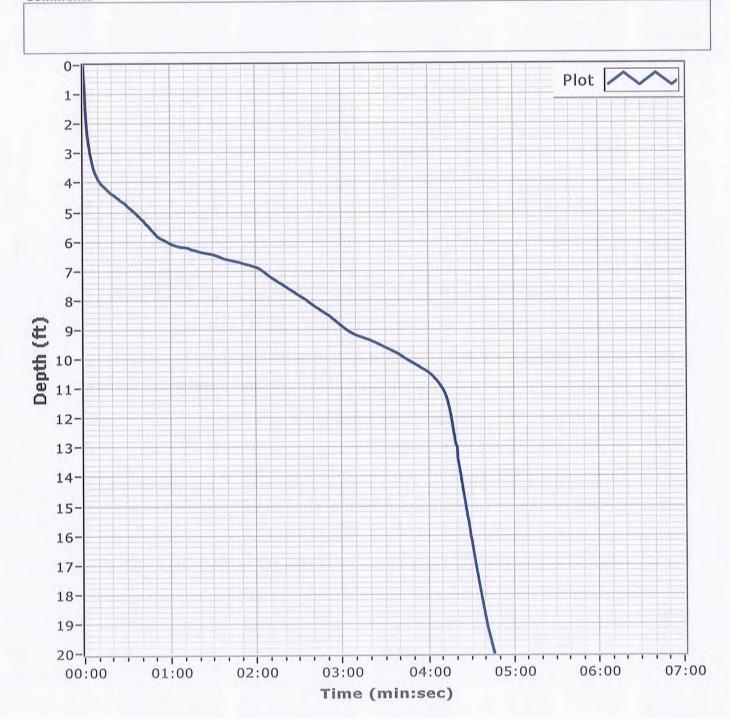
Total Time 00:04:46

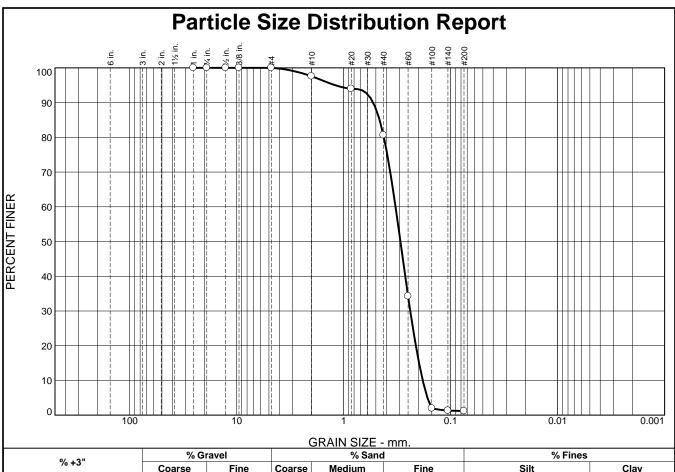
Water Depth 50.6'

Penetration 20.0'

Recovery 19.1'

Comments





	GIVAIN SIZE - IIIII.									
9/ .3"	% G	ravel	% Sand			% Fines				
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0.0	0.0	0.0	2.4	17.0	79.4	1.2				

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND								
PL=	Atterberg Limits LL=	PI=						
D <sub>90</sub> = 0.5300 D <sub>50</sub> = 0.2949 D <sub>10</sub> = 0.1824	Coefficients D <sub>85</sub> = 0.4613 D <sub>30</sub> = 0.2385 C <sub>u</sub> = 1.80	D <sub>60</sub> = 0.3277 D <sub>15</sub> = 0.1974 C <sub>c</sub> = 0.95						
USCS= SP	Classification AASHT	O=						
	<u>Remarks</u>							

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

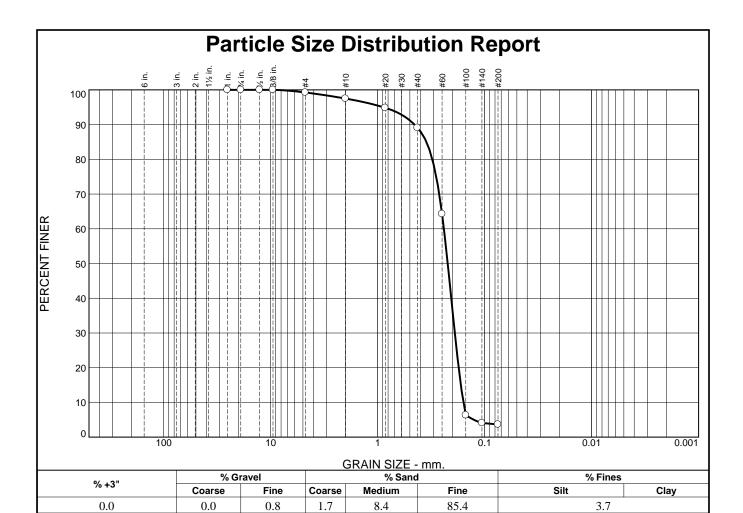
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(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		
- 1	*		1	

Material Description Fine grained, SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.4534 D <sub>50</sub> = 0.2214 D <sub>10</sub> = 0.1582	Coefficients D <sub>85</sub> = 0.3499 D <sub>30</sub> = 0.1901 C <sub>U</sub> = 1.52	D <sub>60</sub> = 0.2403 D <sub>15</sub> = 0.1671 C <sub>c</sub> = 0.95					
USCS= SP	Classification AASHT	O=					
	<u>Remarks</u>						

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-039-12

			DIVISIO	N			IN	STALLATIO	on		1	SHEET	1
DRI	LLING	LOG	Sout	h Atlantic				Mobile Di	strict			OF 1	SHEETS
1. PRO	JECT									l/A			
N	/IsCIP Barri	er Isla	nd Restorati	on			10		NATE SYSTEM/DATUM	!	AL	VERTIC	AL
	Petit Bois Pa								Plane, MSE (U.S. Ft		<u> </u>	NAV	/D88
	ING DESIGN		<b>1</b>	LOCATION C			11		ACTURER'S DESIGNAT	ION OF DRILL	=	TO HAN	
	BI-PBS-039- LLING AGEN		i	E = 1,128		N = 226,171 RACTOR FILE N	10.	Vibra	icore	DISTURBED			HAMMER BED (UD)
-	Corps of Eng		s - CESAM		John	RAGIOR FILL R		. TOTAL	SAMPLES	BIOTORBED			DED (OD)
	E OF DRILL				<u> </u>		13	. TOTAL I	NUMBER CORE BOXES	<u> </u>			
P	American Vil	bracor	e Systems, I				-	. WATER		49.2 Ft.			
-	ECTION OF I	BORIN	G	DEG. FROM	VI	BEARING	<u> </u> "	. WAIER	DEPIN	STARTED	- 1	COMPL	ETED
	INCLINED						15	. DATE BO	ORING	12-09-1	i		9-12
6. THI	CKNESS OF	OVER	RURDEN	N/A		•	16	S. ELEVAT	ION TOP OF BORING	-49.4 Ft.	<del></del>		-
							_		RECOVERY FOR BORIN				
7. DEP	TH DRILLED	INTO	ROCK	V/A					URE AND TITLE OF IN				
8. тот	AL DEPTH C	F BOR	RING 15	.0 Ft.			"		FitzHarris, Geologist				
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF	MATERIALS		SAMPLE	LA	ABORATORY RES	ULTS		
-49.4	0.0												
-54.4	5.0		grained sa		artz, lit	y fine to med tle shell fragme		А	Classification: \$ D50: 0		6/2-ligh Fines:	nt olive 1.1	gray :
-57.5	- - - - - - - - - - - - - - - - - - -			rtz, little she		rfine-grained s ments, trace fi		В	Classification: S D50: 0		6/2-ligh Fines:		Ē
-58.5	-		grained sa few clay, g CLAY, fat, sized qua sand-sized	and-sized qu gray (SP-SC , mostly clay artz, trace	artz, lit ) /, trace pocket orang	clay, mostly tle shell fragme fine-grained s s of fine-grai gy brown, g	ents, f and- ned,	NS					
-63.1	- 12.7 - 13.7 - 14.6 - 15.0		SAND, cla	ayey, mostly	y fine-	grained sand-s ell fragments,	sized gray						
	-		quartz, so (SM)	ome silt, sor	me she	grained sand-s ell fragments,	gray						
	<u>-</u>		grained sa		uartz, f	silt, mostly ew silt, trace s							
	<u> </u>		NOTES:	s are field	d visu	ıally classified	d in						- - - - -
	E E E		accordanc System.	e with the U	Jnified	Soils Classifica	ation						
			analysis fr 3. Sea	om this inter afloor elev 4 USACE si	rval. ation	determined 1							-
	_												

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.12113° Long = -88.37450°

#### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-39-12

**Coordinate System** 

Latitude / Longitude

Latitude 30 07.268

Date 12/09/2012

Start Time 11:32:37

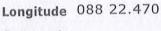
End Time 11:36:36

Total Time 00:03:59

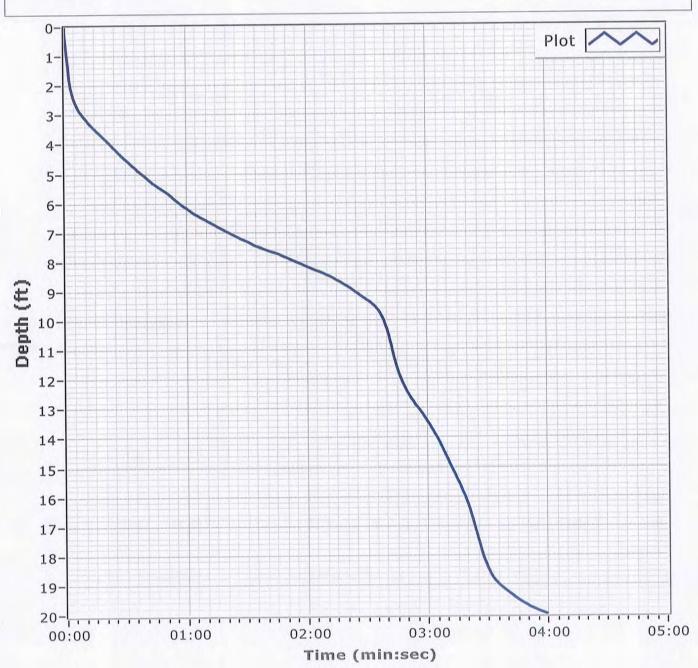
Water Depth 49.2'

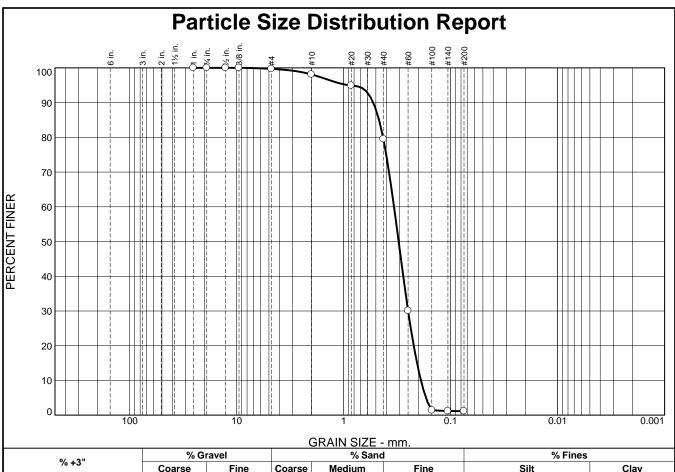
Penetration 20.0'

Recovery 15.0'



Comments





	GRAIN SIZE - IIIII.									
9/ .3"	% G	ravel	% Sand			% Fines				
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0.0	0.0	0.3	1.6	18.6	78.4	1.1				

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND								
PL=	Atterberg Limits LL=	PI=						
D <sub>90</sub> = 0.5294 D <sub>50</sub> = 0.3064 D <sub>10</sub> = 0.1898	Coefficients D <sub>85</sub> = 0.4671 D <sub>30</sub> = 0.2498 C <sub>u</sub> = 1.78	D <sub>60</sub> = 0.3385 D <sub>15</sub> = 0.2062 C <sub>C</sub> = 0.97						
USCS= SP	Classification AASHT	-O=						
	<u>Remarks</u>							

**Location:** BI-PBS-39-12 A **Sample Number:** 6482 (47)

**Depth:** 0.0' **Date:** 12/12/12

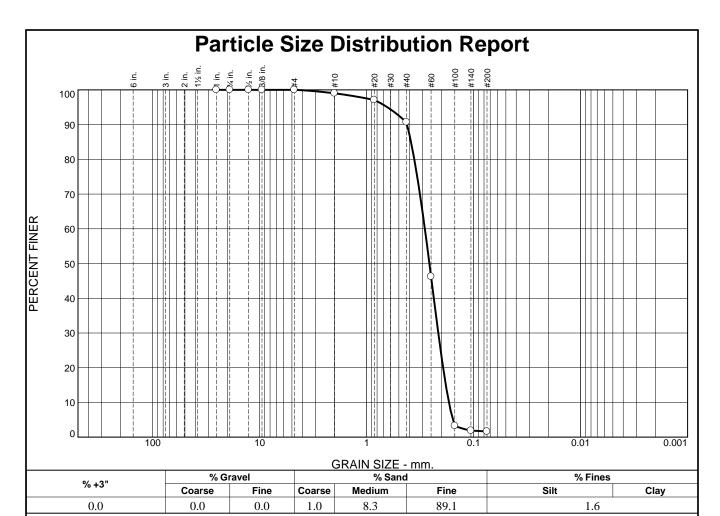
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
100.0		
100.0		
100.0		
100.0		
100.0		
99.0		
97.1		
90.7		
46.2		
3.3		
1.9		
1.6		
	FINER  100.0 100.0 100.0 100.0 100.0 100.0 99.0 97.1 90.7 46.2 3.3 1.9	FINER PERCENT  100.0 100.0 100.0 100.0 100.0 100.0 99.0 97.1 90.7 46.2 3.3 1.9

Material Description Fine grained, SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.4193 D <sub>50</sub> = 0.2592 D <sub>10</sub> = 0.1705	Coefficients D <sub>85</sub> = 0.3849 D <sub>30</sub> = 0.2141 C <sub>u</sub> = 1.68	D <sub>60</sub> = 0.2860 D <sub>15</sub> = 0.1822 C <sub>c</sub> = 0.94					
USCS= SP	Classification AASHT	O=					
	<u>Remarks</u>						

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-040-12

DRI	LLING	100	DIVIS				IN		ALLATIO				SHEET	r 1
1. PRO			So	uth Atlantic			+		lobile Dis				OF 1	SHEETS
											N/A			
	AsCIP Barri			ation			"	υ.		NATE SYSTEM/DATU	<u> </u>		VERTIC	
	Petit Bois Pa			LOCATION	OOPD	INATES	1	1		e Plane, MSE (U.S. F ACTURER'S DESIGNA				√D88
	3I-PBS-040-		•	i		N = 223,901	-   '	••	Vibra		THON OF DRILL	_	AUTO HA MANUAL	MMER HAMMER
	LLING AGEN			1,		RACTOR FILE N					DISTURBED			BED (UD)
C	Corps of Engineers - CESAM						12	2.	TOTAL S	SAMPLES	!		0	
	4. NAME OF DRILLER						1:	3.	TOTAL I	NUMBER CORE BOXE	s			
	American Vi					T	1	4.	WATER	DEPTH	66.9 Ft.			
	ECTION OF I VERTICAL	BORIN	G	DEG. FROI VERTICAL		BEARING	<u> </u>				STARTED		COMPL	.ETED
	INCLINED			-		!	19	5.	DATE BO	DRING	12-01-	-12	12-	01-12
6. THI	CKNESS OF	OVER	BURDEN	N/A			10	6.	ELEVAT	ION TOP OF BORING	-66.7 Ft.			
7. DEP	TH DRILLED	INTO	BUCK	N/A			17	7.	TOTAL F	RECOVERY FOR BORI	ING 100%			
							<b>—</b> 18	8.	SIGNAT	URE AND TITLE OF II	NSPECTOR			
8. TOT	AL DEPTH C	OF BOR	ING 1	15.9 Ft.					Mike	FitzHarris, Geologis	st			
ELEV.	DEPTH	LEGEND	•	CLASSIFICATION	ON OF	MATERIALS		s	AMPLE	L	ABORATORY RE	SULTS	1	
-66.7	0.0							İ						
-67.7	E 10	0 00 0	SHFLL	mostly shell	fragme	ents, some med	lium							E
	- 1.0 - 1.3	7//	to coars			ed quartz, trace		þ						F
-68.8	-		∖gray				/							E
-69.8	F 3 1		CLAY,	lean, mostly	clay,	trace fine-gra	ined							Ę
-00.0	<u> </u>	11111				ell fragments, br	own/	ď						F
	<u>F</u>	<u> </u>	Inottied	with gray (CL	)		—/							F
	<u>E</u>					grained sand-s								<u>E</u>
-72.6	E 5.9	11+1+1		some clay, tra with brown (S		nell fragments,	gray							E
	E	1:111	//	`		u fino		ſ						F
-74.0	- <sub>7.3</sub>	<b> </b> -: }				y fine-grained s ce shell fragme								E
	Ē		It. gray		,,			[	NS					F
	F		SAND	silty mostly	fine-	grained sand-s	ized		INO					F
	F		quartz, s	some silt, som	ne orga	anic matter, org	anic							F
	<u>E</u>		staining,	, dark brown (	(SM)		—							E
	Ē					silt, mostly								Ē
	E					few silt, trace s								E
	F		SM)	no, ciay 11000	ico al	7.2 ft., gray	,SF-							<u>F</u>
-79.9	E _13.2			clavov masti	, fine	arained cand -	izod							E
. 0.0	<u> </u>	1				grained sand-s ell fragments,		1						E
	E	$ \cdots $	(SC)											F
	F	$ \cdots $	SAND, r	oorly-graded.	mostl	y fine-grained s	and-							Ę.
-82.6	15.9		sized qu	uartz, trace s		ce shell fragme		$oldsymbol{\perp}$						F
	E		∖gray (SI	r)			/							F
	E		NOTEC											F
	F		NOTES:											E
	E					ually classified								F
	F		accordar System.		Jnified	Soils Classifica	ation							F
	F		•											F
	E		2. NS	= Sample no	t subn	nitted for labora	itory							E
	E		ananysis	from this inte	ı val.									Ę
	Ē					ated using samp								E
	<u>F</u>					depth reading								E
	Ł		factor.	NOAA IIUAI	yaug	je data conver	31UI I							F
	F													F
	F													F
	E													E
	L-	1 1						1		I				F

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11482° Long = -88.35600°

### Mississippi Barrier Island Restoration Project

# AVS

Core Identifier BI-PBS-40-12

**Coordinate System** 

Date 12/01/2012

Water Depth 66.9'

Latitude / Longitude

Start Time 11:57:03

End Time 12:02:03

Penetration 20.0'

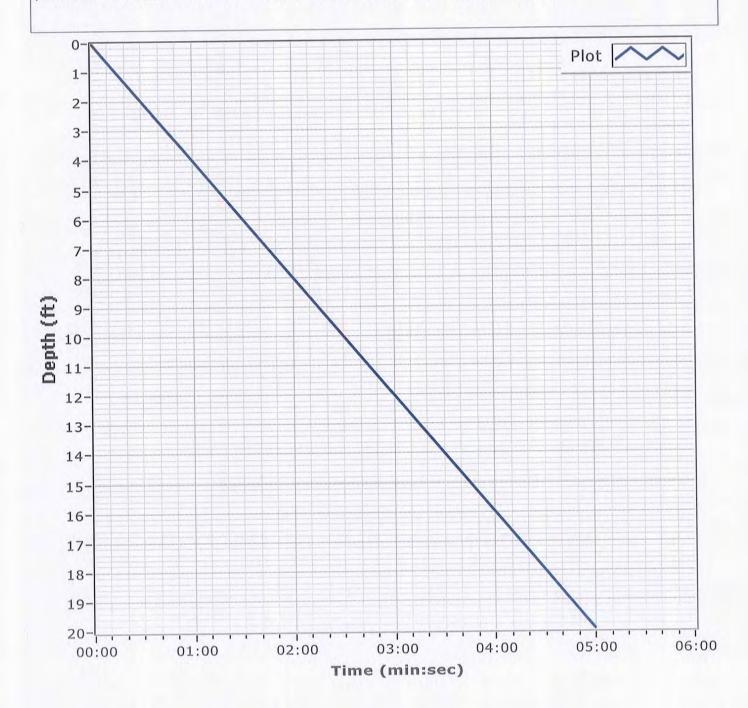
Latitude 30 06.889

Recovery 15.9 Total Time 00:05:00

Longitude 088 21.360

Comments

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



Boring Designation BI-PBS-041-12

DR	ILLING	LOG	DIVISI						TALLATIO						HEET	
1. PR			Sou	uth Atlantic				_	Mobile Dis			•		0	F 1	SHEETS
		I-I-		4:			-			TYPE OF BI		A HORIZ	ONTAL	: >/-	RTIC	A1
	MsCIP Barrie			ition				10.						VE		
2 BO	Petit Bois Pa			LOCATION	COOPD	INATES		11		Plane, MSE	,	,		AUTO	NAV	
	BI-PBS-041-		•	1		N = 225,	724	• • •	Vibra		LOIGNAII	ON OF DAIL	<u> </u>			IAMMER
	ILLING AGEN			1 L 1,10	_	RACTOR FI						DISTURBE	D :			BED (UD)
	Corps of Engineers - CESAM						12.	TOTAL S	SAMPLES			į	0		, ,	
4. NA	4. NAME OF DRILLER							13.	TOTAL I	UMBER CO	RE BOXES					
	American Vil	bracore	e Systems,	, Inc.				44	WATER	DEDTU		62 Ft.				
	ECTION OF E	BORING	3	DEG. FROI	М	BEARING		14.	WAIER	DEFIN		START	ED.	100	MPLI	ETED
_	VERTICAL   INCLINED							15.	DATE BO	ORING		i -	09-12			9-12
	ICKNESS OF	OVERE	BURDEN	 N/A		·		16.	ELEVAT	ION TOP OF	BORING	-61.6 Ft		-	12 0	.0 12
7. DE	PTH DRILLED	INTO	ROCK	N/A				17.	TOTAL F	RECOVERY F	OR BORIN	<b>s</b> 100%	Ď			
								18.	SIGNAT	URE AND TIT	TLE OF INS	PECTOR				
8. TO	TAL DEPTH O	F BOR	ING 1	6.3 Ft.					Mike	FitzHarris,	Geologist					
ELEV.	DEPTH	LEGEND	c	CLASSIFICATION	ON OF	MATERIALS	5		SAMPLE		LAI	BORATORY	RESULT	rs		
-61.6	0.0							I								
64.6			grained	poorly-graded sand-sized o gments, gray	quartz,				Α	Classi	fication: SI D50: 0.2	P Color 2682 mm	: 5Y 6/2 % Find			gray
-65.8 -66.5	-3.2 -4.2 -4.9 -5.6		quartz, s grading t	silty, mostly some silt, tra o brown (SM clayey, mostl	ace or	ganic matt	ter, gray	//	NS							
-68.5	6.9		quartz, s	ome clay, gra	ý (SC	)		//_	В	Clas	sification: D50: 0.2	SP-SM 2692 mm	Color: 2 % Fine			ay
-69.2	7.6			silty, mostly ome silt, gray			ınd-sized	╠	NS							
-71.8	10.2			poorly-graded sand-sized qu					С	Classific	ation: SP- D50: 0	SM Col .2304 mm	or: 5Y 6 % Fir	6/2-ligh nes: 7		e gray
70.0	F		SAND, d	clayey, mostl	y fine-	grained sa	nd-sized	ιШ	D	Classi	fication: SI		: 5Y 6/2	2-light	olive	gray
-72.9	<u>- 11.3</u>	1	quartz, s (SC)	some clay, tra	áce sh	iell fragmer	nts, gray				D50: 0.2	2353 mm	% Find	es: 4.8	3	
			SAND, quartz, s (SM)	silty, mostly some silt, tra	fine-( ace sh	grained sa ell fragmer	nd-sized nts, gray		E	Clas	sification: 5 D50: 0.2	SP Colo 2128 mm	or: 2.5Y % Find			ray
-77.9	_ _ 16.3		grained	poorly-graded sand-sized q ts, gray (SP-	juartz,	silt, mos few silt, fe	stly fine ew shel									
				oorly-graded, artz, trace fin SP)												
	E E		NOTES:													
	-			oils are field noce with the U												
	<u> </u>			= Sample no from this inte		nitted for la	aboratory	,   								
			vessel's	oor elevation fathometer NOAA tidal	water	depth read	ding and	ĺ								

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11985° Long = -88.36078°

#### Mississippi Barrier Island Restoration Project

# AVS

Core Identifier BI-PBS-41-12

**Coordinate System** 

Date 12/09/2012

Water Depth 62.0'

Latitude / Longitude

Start Time 08:56:21

Penetration 16.8'

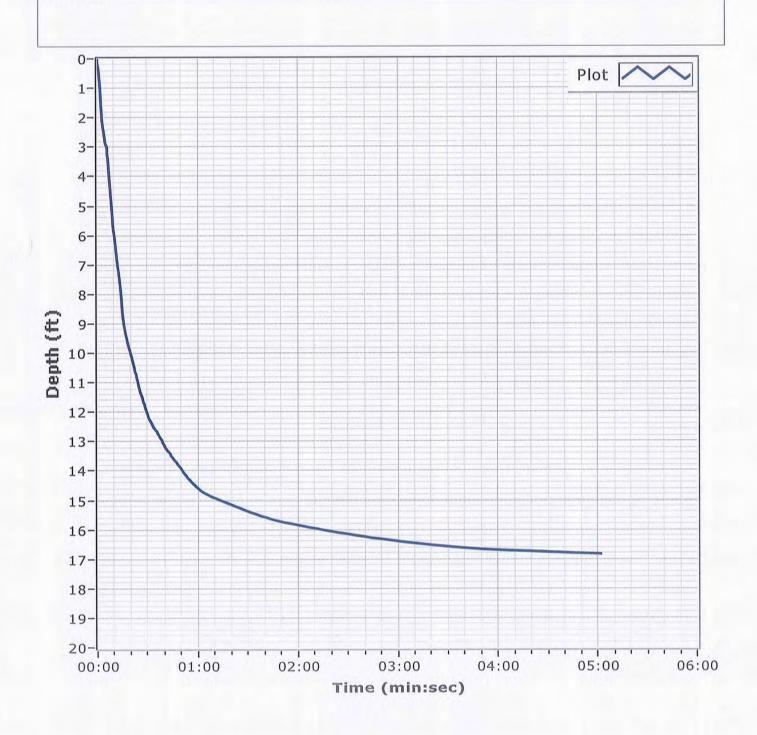
Latitude 30 07.191

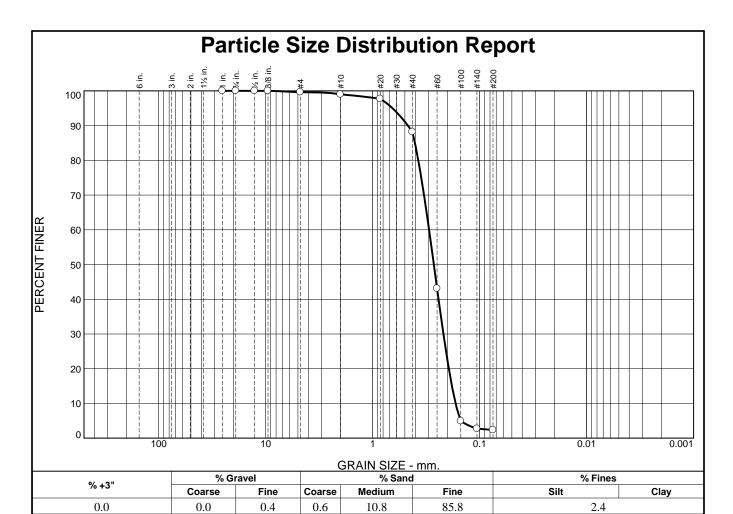
End Time 09:01:23 Total Time 00:05:02

Recovery 16.6'

Longitude 088 21.647

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.4687 D <sub>50</sub> = 0.2682 D <sub>10</sub> = 0.1680	Coefficients D <sub>85</sub> = 0.4026 D <sub>30</sub> = 0.2180 C <sub>u</sub> = 1.77	D <sub>60</sub> = 0.2972 D <sub>15</sub> = 0.1817 C <sub>c</sub> = 0.95					
USCS= SP	Classification AASHT	·O=					
	<u>Remarks</u>						

**Location:** BI-PBS-41-12 A **Sample Number:** 6482 (49)

Sample Number: 6482 (49) Depth: 0.0' Date: 12/12/12

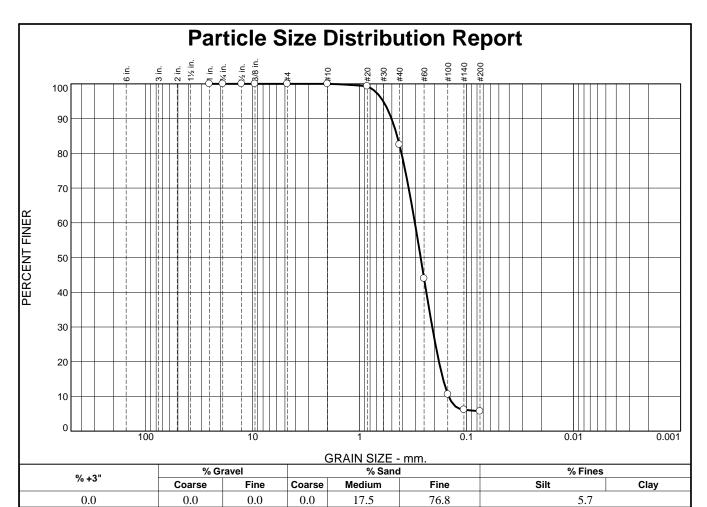
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



0.0		0.0	0.0	0.0	17.5	76.8		5.7
SIEVE	PERCENT	SPEC.	* PAS	S?		<u>Mater</u>	ial Description	<u>l</u>
SIZE	FINER	PERCE	N=X) TV	10)	Fine to	medium grained	, SLIGHTLY SI	LTY SAND
1	100.0							
.75	100.0							
.5	100.0					A 44		
.375	100.0						erberg Limits	DI
#4	100.0				PL=	LL	=	PI=
#10	100.0					С	oefficients	
#20	99.3				Don=	0.5040 Dg	0.4467	$D_{60} = 0.3049$
#40	82.5				D <sub>50</sub> =	0.2692 Da	80 = 0.2097	$D_{15} = 0.1663$
#60	44.0				D <sub>90</sub> = 0 D <sub>50</sub> = 0 D <sub>10</sub> = 0	0.1472 Cັ	35= 0.4467 30= 0.2097 1= 2.07	D <sub>60</sub> = 0.3049 D <sub>15</sub> = 0.1663 C <sub>c</sub> = 0.98
#100	10.6				1	•	-	-

USCS= SP-SM Classification
AASHTO=
Remarks

(no specification provided)

10.6

6.2

5.7

#100

#140

#200

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

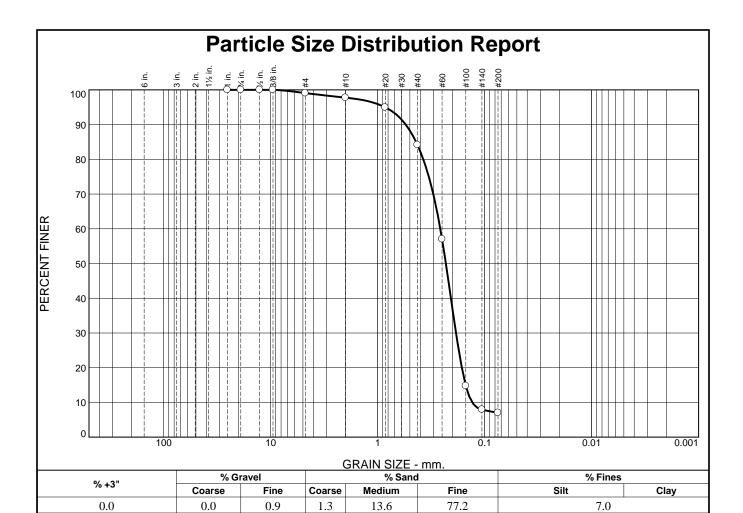
Thompson Engineering

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT

Mobile, Alabama

Project No: 1221110095

Figure



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND							
PL=	Atterberg Limits	PI=					
D <sub>90</sub> = 0.5465 D <sub>50</sub> = 0.2304 D <sub>10</sub> = 0.1308	$\begin{array}{c} \underline{\text{Coefficients}} \\ D_{85} = \ 0.4375 \\ D_{30} = \ 0.1853 \\ C_{\text{U}} = \ 1.99 \end{array}$	D <sub>60</sub> = 0.2597 D <sub>15</sub> = 0.1507 C <sub>c</sub> = 1.01					
USCS= SP-SM	Classification AASHT	-O=					
	<u>Remarks</u>						

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

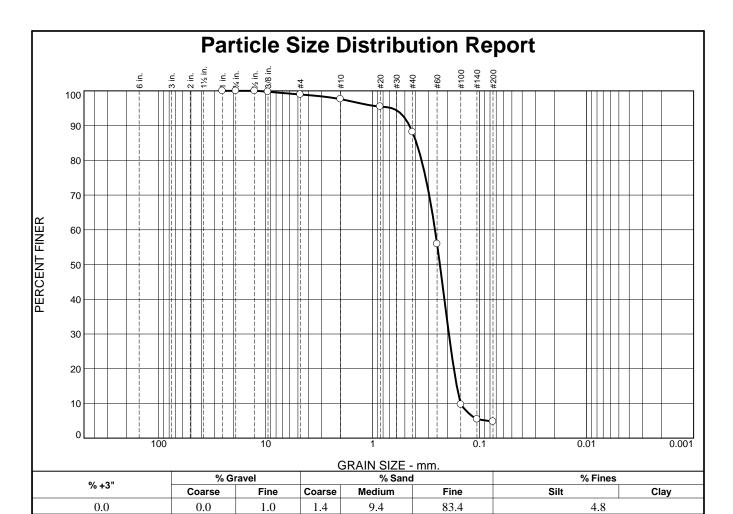
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SAND, with trace SHELL					
PL=	Atterberg Limits	PI=			
D <sub>90</sub> = 0.4534 D <sub>50</sub> = 0.2353 D <sub>10</sub> = 0.1509	Coefficients D <sub>85</sub> = 0.3892 D <sub>30</sub> = 0.1939 C <sub>u</sub> = 1.73	D <sub>60</sub> = 0.2614 D <sub>15</sub> = 0.1637 C <sub>C</sub> = 0.95			
USCS= SP	Classification AASHT	-O=			
	<u>Remarks</u>				

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

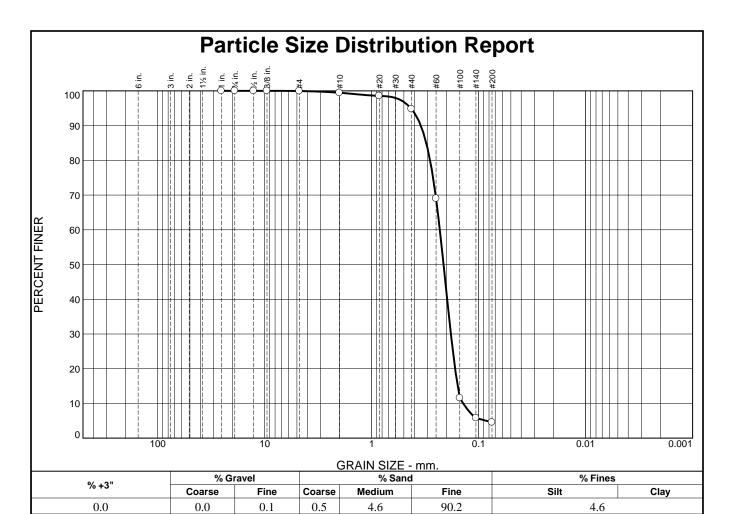
**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

**Figure** 

**Date:** 12/12/12



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SAND				
PL=	Atterberg Limits LL=	PI=		
D <sub>90</sub> = 0.3470 D <sub>50</sub> = 0.2128 D <sub>10</sub> = 0.1396	Coefficients D <sub>85</sub> = 0.3089 D <sub>30</sub> = 0.1818 C <sub>u</sub> = 1.65	D <sub>60</sub> = 0.2306 D <sub>15</sub> = 0.1573 C <sub>c</sub> = 1.03		
USCS= SP	Classification AASHT	O=		
	<u>Remarks</u>			

**Date:** 12/12/12

(no specification provided)

**Location:** BI-PBS-41-12 E **Sample Number:** 6482 (53)

**Thompson Engineering** 

**Depth:** 11.3'

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama **Project No:** 1221110095 **Figure** 

Boring Designation BI-PBS-042-12

DR	LLING	LOG	DIVISI				IN	STALLATIO				SHEET	
1. PRO			Sou	uth Atlantic			+	Mobile Di				OF 2	SHEETS
									TYPE OF BIT	N/A			
	AsCIP Barri			ition			10		NATE SYSTEM/DAT	:		VERTIC	
	Petit Bois Pa		s East	LOCATION	OOPD	INATES	11		Plane, MSE (U.S.	,			/D88
	3I-PBS-042			1		N = 227,253	1	Vibra		ATION OF BRILE		UTO HAI	NIMER HAMMER
	LLING AGEN			1 L 1,102		TRACTOR FILE NO				DISTURBED			BED (UD)
(	Corps of Eng	gineers	- CESAM	1	!		12	. TOTAL S	SAMPLES	į	į	0	`
4. NAN	. NAME OF DRILLER				13	. TOTAL I	NUMBER CORE BOX	ŒS					
A	American Vi	bracore	Systems	, Inc.			144	. WATER	DEDTU	61.7 Ft.			
	ECTION OF	BORING		DEG. FROI	М	BEARING	<u> </u>	. WAIER	DEFIN	STARTED		COMPL	ETED
_	VERTICAL INCLINED						15	. DATE BO	ORING	12-09		1	09-12
6. THI	CKNESS OF	OVERB	JRDEN	N/A		•	16	. ELEVAT	ION TOP OF BORIN	IG -60.7 Ft.			
7. DEP	TH DRILLED	INTO R	оск	N/A			17	. TOTAL I	RECOVERY FOR BO	RING 100%			
							18		URE AND TITLE OF				
8. ТОТ	AL DEPTH C	F BORI	NG 2	.0.0 Ft.			Ш,	Mike	FitzHarris, Geolog	gist			
ELEV.	DEPTH	LEGEND	c	CLASSIFICATION	ON OF	MATERIALS		SAMPLE		LABORATORY RE	SULTS		
-60.7	0.0												
-62.3	1.6		medium-	grained sand	d-sized	clay, mostly fine d quartz, few cla		Α	Classification D50		or: 5Y ( % Fines	6/4-pale : 9.7	-
-65.1	= 1.9 - - - - - - - -		CLAY, plasticity	, dark gray (Corganic-L, mo	clay, CH) stly sil	medium to hi t, some fine-grain y, dark gray (ML)	ed e	NS					
-68.7	- - - - - - - - - - - - - - - - - - -		SAND,	poorly-graded	d with	n silt, mostly fir few silt, gray (S	ne-	В	Classification: S D50		2.5Y 5/ 6 Fines	'2-grayisl : 7.9	h brown
-69.1 -70.2	- 8.4 - - 9.5			fat, mostly , dark gray (0		medium to hi	gh/	NS					
75.0			grained s SM) SAND, p sized qu	sand-sized quoonly-graded,	mostl	n silt, mostly fir few silt, gray (S y fine-grained sar ce clay, trace sh SP)	SP-/   nd-	С	Classification: D50		. 5Y 6/2 % Fines	²-light oli <sup>,</sup> : 6.1	ve gray
-80.7						grained sand-siz ell fragments, gr		NS					
			accordar System. 2. NS =	oils are field noce with the U	Jnified t subn	ually classified I Soils Classificati nitted for laborato	on						
	<u> </u>		analysis	from this inte	rval.	ated using sampli	Ť						

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.12407° Long = -88.36487°

Boring Designation BI-PBS-042-12

UKI	ILLING LO	G (Cont. Sheet)	N # - I-!!	District		a= a a	
ROJEC		,	Mobile		HORIZONTAL	OF 2 SHEETS	
	IP Barrier Island	Restoration	COORDINATE SYSTEM/DATUM         HORIZONTAL         VERTICAL           State Plane, MSE (U.S. Ft.)         NAD83         NAVD88				
	ON COORDINATE			N TOP OF BORING	. 10.000		
		227,253	-60.7 F				
	DEPTH DEPTH	CLASSIFICATION OF MATE	•	SAMPLE	LABORATORY RI	ESULTS	
LEV.	DEPTH LEGE	vessel's fathometer water depth applying NOAA tidal gauge data factor.		SAMPLE	LABORATORY RI	ESULTS	

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.12407° Long = -88.36487°

#### **Project**

#### Mississippi Barrier Island Restoration Project

### AVS AMERICAN VIBRACORE S E R V I C E S

Core Identifier BI-PBS-42-12

Coordinate System Latitude / Longitude Date 12/09/2012

Start Time 13:50:56

End Time 13:54:54

Total Time 00:03:57

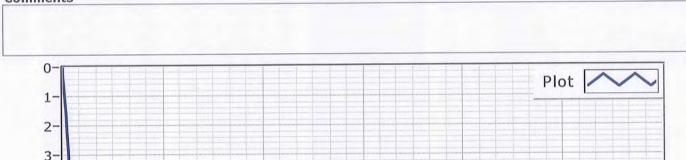
Water Depth 61.7'

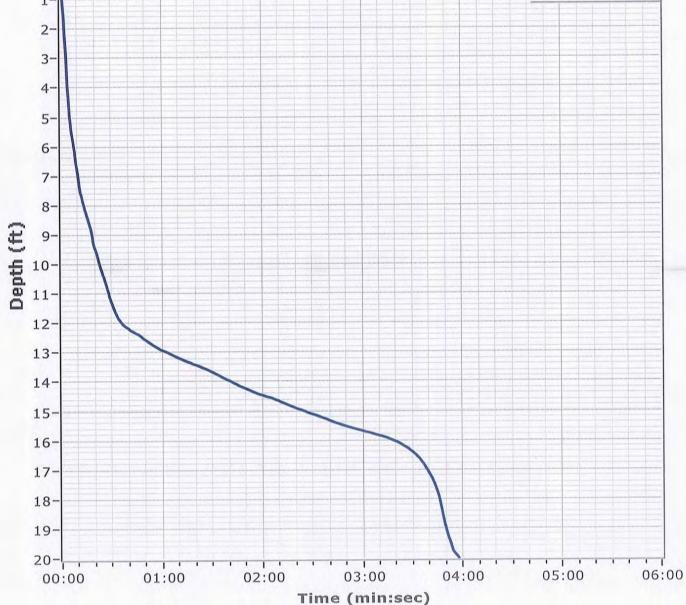
Penetration 20.0'

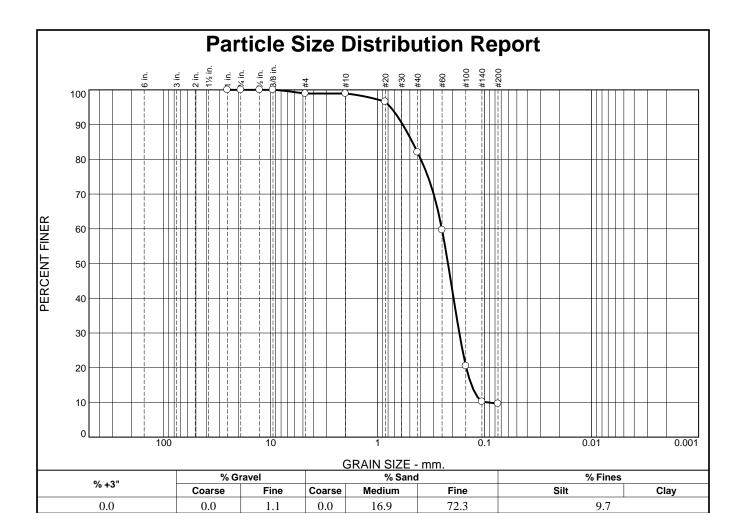
Recovery 20.0'

Latitude 30 07.444 Longitude 088 21.892

Comments







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.5833 D <sub>50</sub> = 0.2201 D <sub>10</sub> = 0.0925	$\begin{array}{c} \textbf{Coefficients} \\ \textbf{D_{85}} = 0.4746 \\ \textbf{D_{30}} = 0.1726 \\ \textbf{C_{u}} = 2.71 \end{array}$	D <sub>60</sub> = 0.2513 D <sub>15</sub> = 0.1328 C <sub>c</sub> = 1.28			
USCS= SP-SM	Classification AASHTO	=			
	<u>Remarks</u>				

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

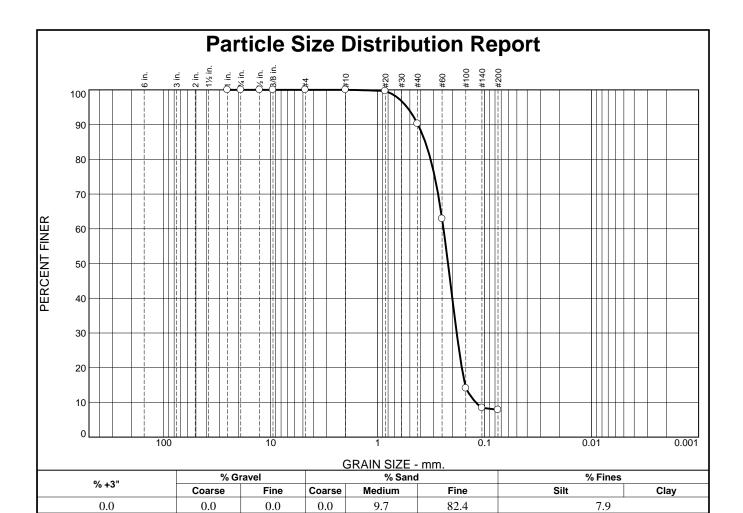
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



ſ	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(X=NO)
ſ	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		
L	* ,			

Material Description Fine grained, SLIGHTLY SILTY SAND					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.4207 D <sub>50</sub> = 0.2199 D <sub>10</sub> = 0.1209	Coefficients D <sub>85</sub> = 0.3589 D <sub>30</sub> = 0.1825 C <sub>U</sub> = 2.00	D <sub>60</sub> = 0.2424 D <sub>15</sub> = 0.1524 C <sub>c</sub> = 1.14			
USCS= SP-SM	Classification AASHTO	)=			
	<u>Remarks</u>				

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

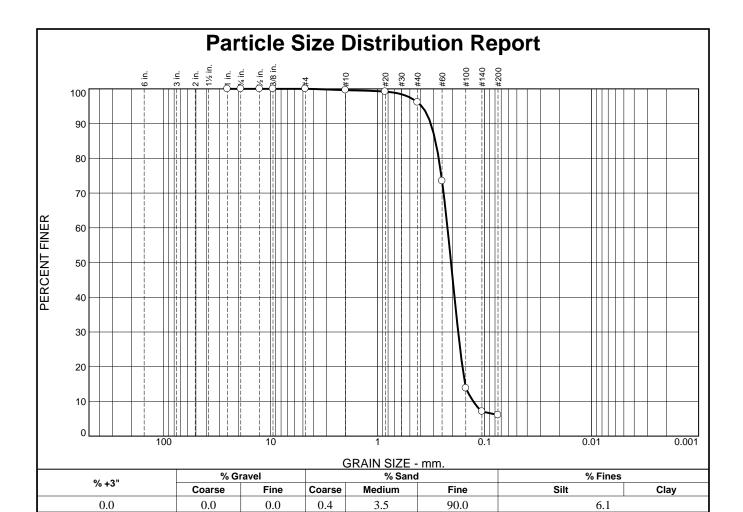
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

<u>Material Description</u> Fine grained, SLIGHTLY SILTY SAND				
PL=	Atterberg Limits LL=	PI=		
D <sub>90</sub> = 0.3191 D <sub>50</sub> = 0.2062 D <sub>10</sub> = 0.1277	Coefficients D <sub>85</sub> = 0.2887 D <sub>30</sub> = 0.1769 C <sub>U</sub> = 1.74	D <sub>60</sub> = 0.2225 D <sub>15</sub> = 0.1525 C <sub>c</sub> = 1.10		
USCS= SP-SM	Classification AASHT	O=		
	<u>Remarks</u>			

**Location:** BI-PBS-42-12 C **Sample Number:** 6482 (56)

**Thompson Engineering** 

 $\begin{tabular}{ll} \textbf{Client:} & CDM/Thompson Engineering JV \\ \end{tabular}$ 

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-043-12

DRI	LLING	LOG	DIVISIO				IN	STALLATIO				SHEET	
1. PRO			South	n Atlantic				Mobile Di				OF 1	SHEETS
	∕IsCIP Barri	er lelan	d Restoration	nn .					N/A  NATE SYSTEM/DATUM	HORIZON	TAL	VERTIC	CAL
	Petit Bois Pa			ווע			'		Plane, MSE (U.S. Ft.)	!		1	/D88
	ING DESIGN			LOCATION C	OORDI	NATES	11		ACTURER'S DESIGNATION			UTO HAI	
E	3I-PBS-043	-12	1	E = 1,129	9,431	N = 228,20	9	Vibra	acore				HAMMER
_	LING AGEN				CONT	RACTOR FILE		. TOTAL S		ISTURBED	UN		BED (UD)
	Corps of Eng		- CESAM		! !							0	
	American Vi		Sveteme I	nc			13	. TOTAL I	NUMBER CORE BOXES				
	ECTION OF I			DEG. FROM	VI	BEARING	14	. WATER	DEPTH	59.3 Ft.			
_	VERTICAL INCLINED			VERTICAL		!	15	. DATE BO	DRING	<b>STARTED</b> 12-09-		<b>COMPL</b> 12-0	. <b>ETED</b> 09-12
6. THI	CKNESS OF	OVERBU	JRDEN	N/A			16	. ELEVAT	ION TOP OF BORING	-58.1 Ft.			
7. DEP	TH DRILLED	INTO R	OCK N	J/A			17	. TOTAL I	RECOVERY FOR BORING	100%			
							18	. SIGNAT	URE AND TITLE OF INSP	ECTOR			
8. TOT	AL DEPTH C	OF BORI	NG 9.8	Ft.				Mike	FitzHarris, Geologist				
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF	MATERIALS		SAMPLE	LABO	RATORY RE	SULTS		
-58.1	0.0	$\Box$											
	Ē		SAND, po	orly-graded,	most	ly fine to me	edium-	Α	Classification: SP	Color: 5			gray
-59.6	- 1.5		grained sa	and-sized q nents, gray	uartz,	trace fines,	trace		D50: 0.3	18 mm %	Fines:	1.4	
-64.9	6.8		plasticity, and shells	little fine-gr	ained, 5 to 2.	medium to sand-sized 4 ft., gray, gra le (CH)	guartz	NS					
-67.9	- - - - - - - - - - - - - - - - - - -		SAND, pograined sagray (SP-9	and-sized q	l with uartz,	silt, mostly few fines, o	fine- dense,						
			accordance System.  2. NS = analysis from 3. Sea	e with the L	Jnified t subm rval. ation	ually classifice Soils Classifice for laborated for laborated determined	ication oratory						
	_												

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

Date 12/09/2012

**Start Time** 13:15:18

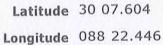
End Time 13:21:19

Total Time 00:06:00

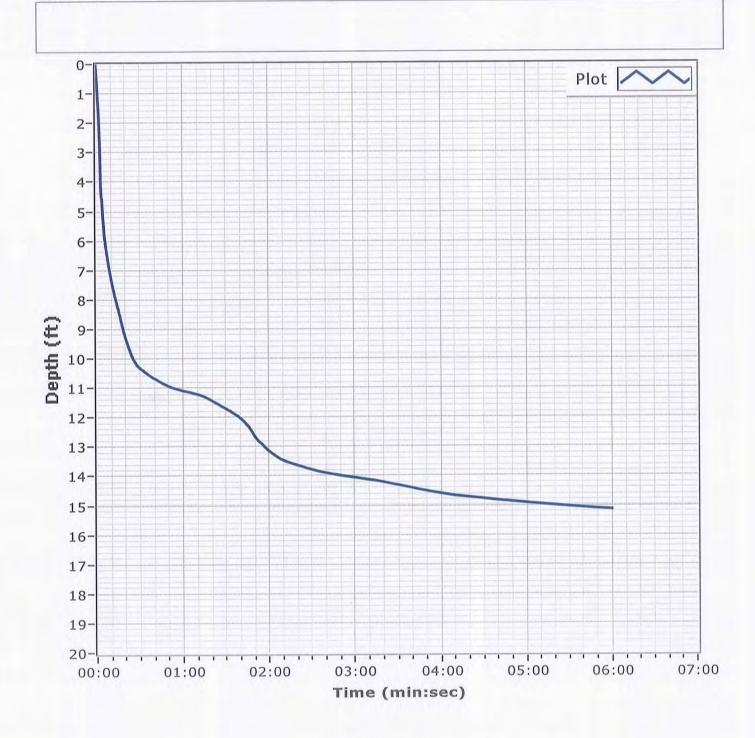
Water Depth 59.3'

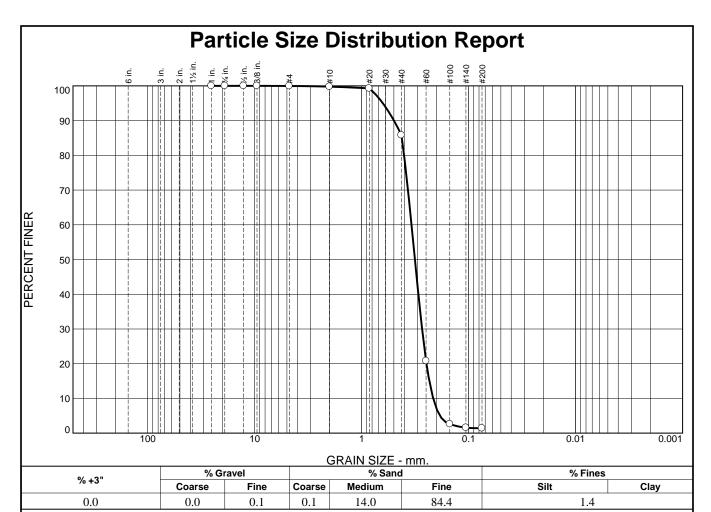
Penetration 15.2'

Recovery 9.8'



Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND											
Time to medium	The to heatain graned, 571115										
PL=	Atterberg Limits LL=	PI=									
D <sub>90</sub> = 0.4996 D <sub>50</sub> = 0.3180 D <sub>10</sub> = 0.2144	Coefficients D85= 0.4213 D30= 0.2726 Cu= 1.60	D <sub>60</sub> = 0.3421 D <sub>15</sub> = 0.2330 C <sub>c</sub> = 1.01									
USCS= SP	Classification AASHT	O=									
	<u>Remarks</u>										

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-044-12

			DIVISIO	N			IN	STALLATIO	on		SHEET 1	$\neg$
DR	ILLING	LOG	Sout	th Atlantic				Mobile Dis	strict		OF 1 SHE	ETS
1. PRO	JECT						9.	SIZE AND	TYPE OF BIT	I/A		
N	MsCIP Barri	er Isla	nd Restorat	ion			10	. COORDI	NATE SYSTEM/DATUN	HORIZON	TAL VERTICAL	
	Petit Bois Pa						┸		Plane, MSE (U.S. F		NAVD88	
	RING DESIGN		١ .	LOCATION (			11		ACTURER'S DESIGNAT	ION OF DRILL	AUTO HAMMER	
	BI-PBS-044- LLING AGEN		<u> </u>	E = 1,13		N = 226,760  RACTOR FILE NO.	+	Vibra	acore	DISTURBED	UNDISTURBED (	
_	Corps of Eng		s - CESAM		CONT	RACTOR FILE NO.		. TOTAL S	SAMPLES	HOISTORBED	0	"
	ME OF DRILL		020/111		<u> </u>		13	. TOTAL P	NUMBER CORE BOXES	<u>'</u>	<u> </u>	
A	American Vi	bracor	e Systems,	Inc.			$\vdash$					_
	ECTION OF I	BORIN	G	DEG. FRO	М	BEARING	<u> </u> "	. WATER	DEPIN	60.1 Ft.	COMPLETED	
	VERTICAL INCLINED				_		15	. DATE BO	DRING	12-09-		
	CKNESS OF	OVER	RURDEN	N/A		<u>.</u>	16	. ELEVAT	ION TOP OF BORING	-59.9 Ft.	12 00 12	$\neg$
							┵		RECOVERY FOR BORIN			$\dashv$
7. DEP	TH DRILLED	OTNI C	ROCK	N/A			_		URE AND TITLE OF IN			-
8. ТОТ	AL DEPTH C	OF BOR	ING 18	3.7 Ft.					FitzHarris, Geologis			
ELEV.	DEPTH	LEGEND	CI	LASSIFICATI	ON OF	MATERIALS	•	SAMPLE	LA	ABORATORY RES	SULTS	
-59.9	0.0	+					$\dashv$					$\dashv$
	F	-:::	SAND n	oorly-graded	moet	ly fine to mediur	<sub>n-</sub>	Α	Classification		5Y 7/2-light gray	F
-61.1	_1.2	111111	grained s	sand-sized o	quartz,	trace fines, tra			D50: 0	.2779 mm %	Fines: 2.5	ֈ՟
	E		\shell fragr	ments, It. gra	ay (SP	")	_/					E
	Ę					grained sand-size						E
-63.4	3.5					shell fragment						E
-64.1	_4.2		\orangy bro	own, greens	sii gray	, gray mottle (SC	<u>'</u> ]					F
	Ē					e fine-grained san						E
	Ė		gray (CH		n to r	nigh plasticity, da	<sup>ITK</sup> /					E
-66.2	6.3			•	£:							E
	E			me silt, trac		grained sand-size grav (SM)	<sup>∌a</sup> /					E
-67.6	- 7.7 -		,			some fine-grain	~ \ _ \					Ė
	Ė					g bands of clay a						E
00.0	E	-  -	clayey sar	nd, gray (CL	_)		_/					E
-69.8	<u> </u>	<del>                                     </del>				silt, mostly fin		NS				Ŀ
	Ė			and-sized q	uartz, 1	few silt, gray (S	P-/					E
	Ė	$ \cdot : \cdot \cdot $	\SM)				-/					E
	Ē			orly-graded, rtz, trace fin		y fine-grained san	d-					E
	Ė		Sizeu qua	ILZ, II ace III I	es, yra	y (SP)						E
	Ė	$ \cdots $										E
-74.8	E 14.9	$ \cdots $										E
	E	1:111	SAND ~	oorly-grades	d with	silt, mostly fin						E
	<u>F</u>	<b>[:</b> ]∰	grained s	and-sized qu	uartz, 1	few silt, silt conte	nt					E
	E	:-	increases	with depth,	gray (	SP-SM)						E
	Ē	$\ \cdot\ \ $										F
_72 G	 = 18.7	$\ \cdot\ \ $										F
7 0.0	- 13.7	1 11										干
	Ė		NOTES:									E
	Ė			,			.					E
	E					ually classified Soils Classification						E
	<u> </u>		System.		00	23 2						E
	E		2 NC -	Sample no	t cuba	nitted for laborato	<u>"</u> ,					F
	E			rom this inte		inten ioi iaborato	' y					F
	F		•			alakamentera 1 C	_					F
	E			eafloor elev 14 USACE s		determined fro	m					E
	E				· • · · ·							E
	<u> </u>											

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.12272° Long = -88.36683°

#### **Project**

#### Mississippi Barrier Island Restoration Project

### AVS AMERICAN VIBRACORE S E R V I C E S

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

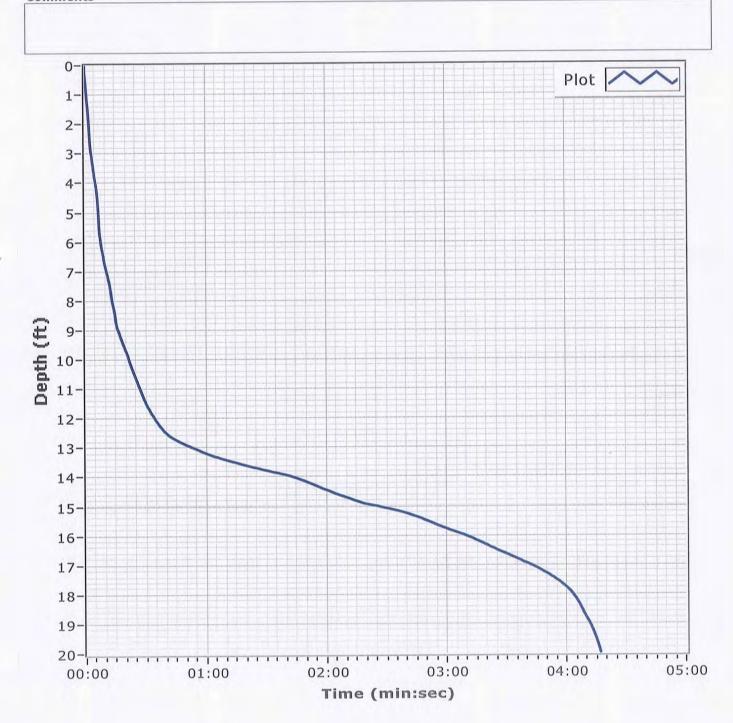
Total Time 00:04:17

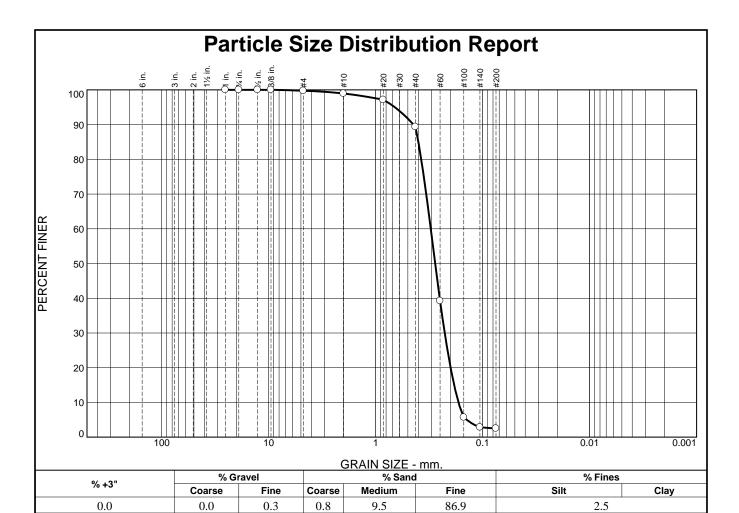
Water Depth 60.1'

Penetration 20.0'

Recovery 18.7'







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Fine grained, SA	<b>Material Descriptio</b> ND	<u>on</u>
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4435 D <sub>50</sub> = 0.2779 D <sub>10</sub> = 0.1684	Coefficients D <sub>85</sub> = 0.3988 D <sub>30</sub> = 0.2262 C <sub>u</sub> = 1.81	D <sub>60</sub> = 0.3056 D <sub>15</sub> = 0.1848 C <sub>c</sub> = 0.99
USCS= SP	Classification AASHT	O=
	<u>Remarks</u>	

**Location:** BI-PBS-44-12 A **Sample Number:** 6482 (58)

**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-045-12

DRILLING	LOG	DIVISI				IN	STALLA							SHEE	
1. PROJECT		Sou	uth Atlantic				Mobile							OF 1	SHEETS
									YPE OF BIT	N/A	:	ONTA		VEDT	
MsCIP Barr			tion			"			ATE SYSTEM/DA		HORIZ		' i	VERTI	
Petit Bois P  2. BORING DESIG		East	LOCATION	20000	INATES				Plane, MSE (U.S			D83			VD88
BI-PBS-045			1		N = 224,211			oraco		NATIO	N OF DRI	בי <u>ו</u>		JTO HA	MMER HAMMER
3. DRILLING AGE					RACTOR FILE		VII	Jiaci	oi e	! D	ISTURBE	ED L			BED (UD)
Corps of Er		- CESAM					. тота	L SA	MPLES				i	0	(0_)
4. NAME OF DRIL			<u> </u>			13	TOTA	I NI	JMBER CORE BO	XES					
American V	ibracore	Systems,	, Inc.			-									
5. DIRECTION OF	BORING		DEG. FRO	М	BEARING	14	. WATE	R DE	EPTH		60.5 F	••			
			VERTICAL			15	. DATE	BOR	RING		<b>STAR</b> 1	<b>FED</b> -01-12	:	<b>COMPI</b> 12-	<b>.ETED</b> 01-12
6. THICKNESS OF	OVERBU	IRDEN	N/A			16	. ELEV	ATIO	N TOP OF BORII	NG	-60.3 F	t.			
7. DEPTH DRILLE	D INTO R	оск	N/A			17	. тота	L RE	COVERY FOR BO	DRING	100%	%			
						18	. SIGN	ATU	RE AND TITLE O	F INSPI	ECTOR				
8. TOTAL DEPTH	OF BORIN	NG 1	7.2 Ft.				Mi	ke F	itzHarris, Geolo	ogist					
ELEV. DEPTH	LEGEND	c	CLASSIFICATION	ON OF	MATERIALS		SAMPL	E		LABO	RATORY	' RESU	LTS		
-60.3 0.0															
-63.1 - 2.8		SAND, p sand-size silt, lt. gra	ed quartz, litt	, mos tle she	tly medium-gra ell fragments, t	ained trace	А		Classificat D5		P Col 172 mm	lor: 2.5 % F	5Y 7/ <i>*</i> ines:	1-light o	gray =
-65.3 F 5.0		SAND, po sized quo gray (SP	artz, trace si	mostly ilt, trad	y fine-grained s ce shell fragm	and- ents,	В		Classification: S		Color: 2 52 mm		2-ligh ines:		nish gray
-68.9 L 8.6	11111	quartz, s			grained sand-s anic matter, orç										
-69.4 <u>9.1</u>		SAND, posized qua	oorly-graded, artz, trace silt	mostly	y fine-grained s e, gray (SP)	sand-	NS								<u> </u>
-74.3 - 14.0		quartz, s and claye At El70 quartz, s	ome clay, 2- ey sand, gray 0.3 Ft., most some clay,	3 inch (SC) ly fine some	grained sand-s bands of lean -grained sand-s shells through d 13.5 ft., gray	clay sized hout,									
			artz, trace si		y fine-grained s ell layer at 16.0		С		Classificat D5		P Col 63 mm		5Y 7/2 ines:	2-light ( 4.9	gray
-77.5 <b>–</b> 17.2		•					NS								E
		accordan System.  2. NS = analysis = 3. Seaflovessel's	= Sample no from this inte oor elevation fathometer	Jnified t subn rval. calcula water	ually classified Soils Classific nitted for labora ated using sam depth reading je data conve	ation atory pling and									

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11567° Long = -88.35493°

#### Project

#### Mississippi Barrier Island Restoration Project

## AVS AMERICAN VIBRACORE S E R V I C E S

Core Identifier BI-PBS-45-12

Coordinate System

Latitude / Longitude

Latitude 30 06.940

Date 12/01/2012

Start Time 10:25:47

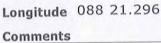
End Time 10:29:18

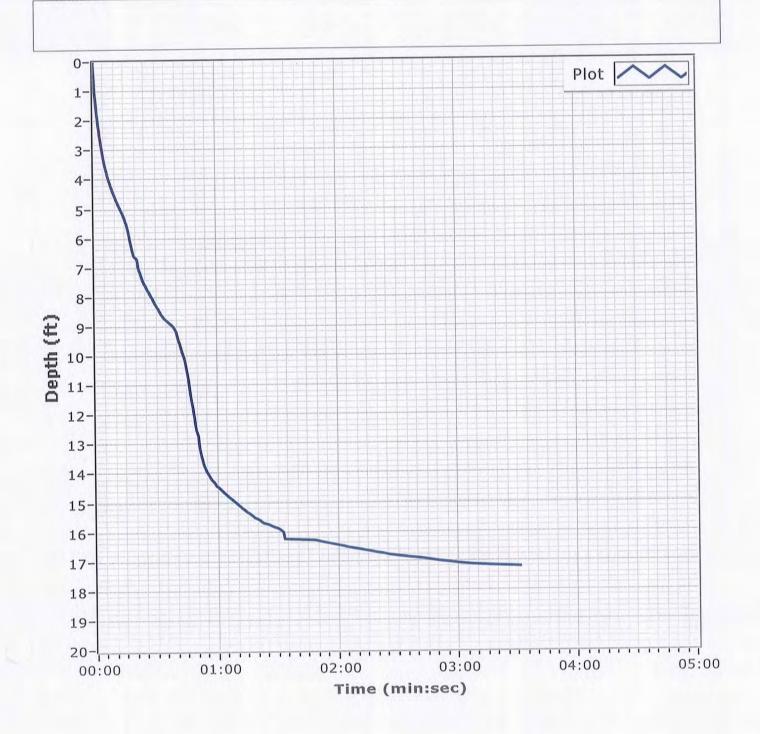
Total Time 00:03:31

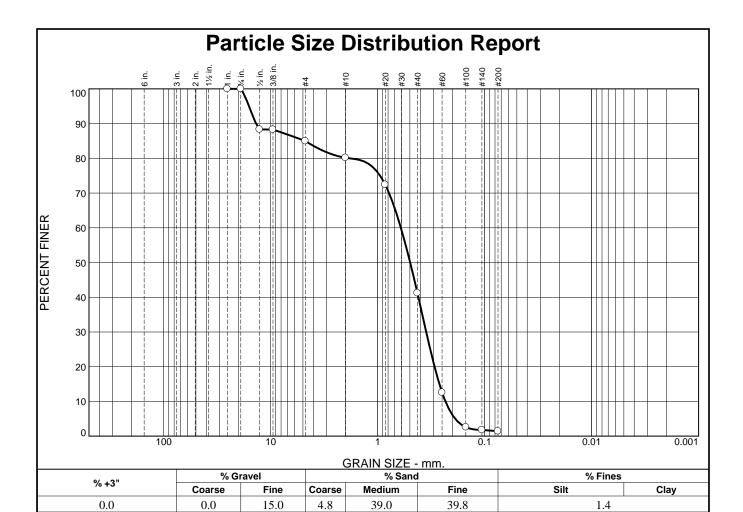
Water Depth 60.5'

Penetration 17.2'

Recovery 17.2'







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	Material Description Fine to medium grained, SAND, with some SHELL									
PL=	Atterberg Limits LL=	PI=								
D <sub>90</sub> = 13.7089 D <sub>50</sub> = 0.4972 D <sub>10</sub> = 0.2325	Coefficients D <sub>85</sub> = 4.7741 D <sub>30</sub> = 0.3518 C <sub>U</sub> = 2.61	D <sub>60</sub> = 0.6072 D <sub>15</sub> = 0.2651 C <sub>c</sub> = 0.88								
USCS= SP	Classification AASHT	O=								
	<u>Remarks</u>									

**Location:** BI-PBS-45-12 A **Sample Number:** 6471 (10)

**Date:** 12/03/12 **Depth:** 0.0'

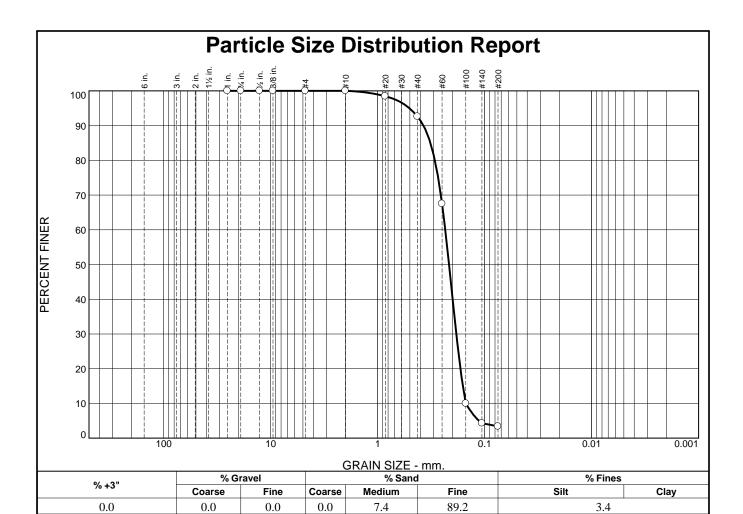
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
100.0		
100.0		
100.0		
100.0		
100.0		
100.0		
98.4		
92.6		
67.5		
10.0		
4.3		
3.4		
	FINER  100.0 100.0 100.0 100.0 100.0 100.0 100.0 98.4 92.6 67.5 10.0 4.3	FINER PERCENT  100.0 100.0 100.0 100.0 100.0 100.0 100.0 98.4 92.6 67.5 10.0 4.3

	Material Description Fine grained, SAND									
PL=	Atterberg Limits LL=	PI=								
D <sub>90</sub> = 0.3731 D <sub>50</sub> = 0.2152 D <sub>10</sub> = 0.1500	Coefficients D <sub>85</sub> = 0.3213 D <sub>30</sub> = 0.1841 C <sub>u</sub> = 1.56	D <sub>60</sub> = 0.2335 D <sub>15</sub> = 0.1601 C <sub>c</sub> = 0.97								
USCS= SP	Classification AASHT	O=								
	<u>Remarks</u>									

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

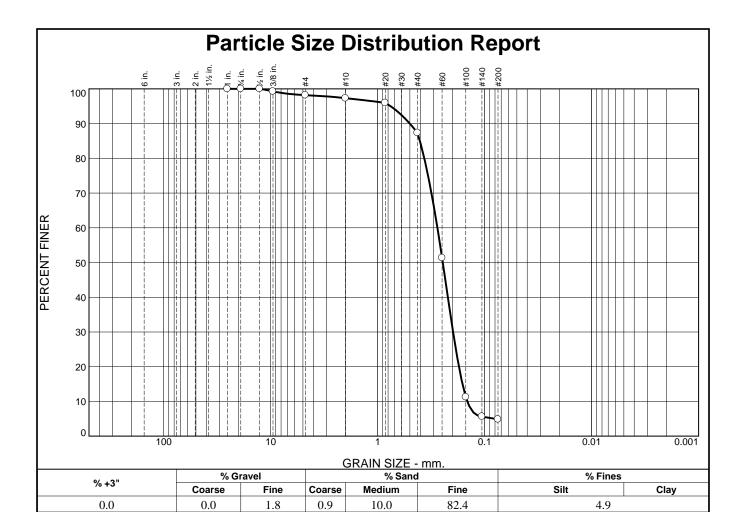
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND, with trace SHELL						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.5012 D <sub>50</sub> = 0.2463 D <sub>10</sub> = 0.1453	Coefficients D <sub>85</sub> = 0.4030 D <sub>30</sub> = 0.1973 C <sub>u</sub> = 1.90	D <sub>60</sub> = 0.2766 D <sub>15</sub> = 0.1613 C <sub>c</sub> = 0.97				
USCS= SP	Classification AASHTC	)=				
	<u>Remarks</u>					

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-046-12

DR	ILLING	LOG	DIVISI	ON			IN	STALLATI	ON C				SHEET	<b>r</b> 1
			Sou	uth Atlantic			+	Mobile Di					OF 2	SHEETS
1. PRO			- d D - :						TYPE OF BIT	N/A	HODIES	TA:		CAL
	MsCIP Barri			ation			10		NATE SYSTEM/DA		HORIZON		VERTI	
	Petit Bois Pa			LOCATION	OOPD	INATES	11		e Plane, MSE (U.S ACTURER'S DESIG					VD88
_	BI-PBS-046		•	1		N = 223,463	Ι		acore	MAIION	OF DRILL	_	UTO HA	MMER HAMMER
	LLING AGEN			1 - 1,10		TRACTOR FILE NO				DI	STURBED			RBED (UD)
(	Corps of Eng	gineers	s - CESAM	1	!		12	. TOTAL	SAMPLES	1			0	
4. NAI	ME OF DRILL	.ER					13	. TOTAL	NUMBER CORE BO	XES				
	American Vi						14	. WATER	DEPTH		60.9 Ft.			
	ECTION OF I	BORIN	G	DEG. FRO	M ·	BEARING	H				STARTED		COMPI	FTFD
	INCLINED						15	. DATE B	ORING		12-01-	12	i	01-12
6. THI	CKNESS OF	OVER	BURDEN	N/A		•	16	. ELEVAT	ION TOP OF BORI	NG	-60.6 Ft.		1	
7 DEE	TH DRILLED	INTO	BUCK	N/A			17	. TOTAL	RECOVERY FOR B	ORING	100%			
							18	. SIGNAT	URE AND TITLE O	F INSPE	CTOR			
8. TO	TAL DEPTH C	F BOR	ing 2	20.0 Ft.				Mike	FitzHarris, Geol	ogist				
ELEV.	DEPTH	LEGEND	c	CLASSIFICATI	ON OF	MATERIALS		SAMPLE		LABOF	RATORY RE	SULTS		
-60.6	0.0													
-65.1	- 4.5		grained	poorly-graded sand-sized ts, gray (SP)		tly fine to mediu artz, trace sl	ım- nell	A	Classifica D:	tion: SP 50: 0.26		2.5Y 7. Fines:	/2-light ç 2.3	gray -
	- - 5.5 -		\ sized qu	ıartz, mediun		e fine-grained sa ticity, gray mott		NS						<u> </u>
-67.0	6.4	7////	with orar	nge (CL)			/,							
-69.3	E - - - - - 8.7		quartz, s	clayey, mostl some clay, tra with orange (	ace sh	-grained sand-siz nell fragments, g	zed ray	В	Classificatio D5	on: SP-S 50: 0.257		r: 2.5Y 5 Fines	7/2-ligh : 7.8	t gray
	10.0			oorly-graded, artz, It. gray (		y fine-grained sa	nd-/	С	Classification: SF D5	P-SM 50: 0.236	Color: 2.5 33 mm %	Y 6/2-		wnish gray
-72.0	11.4		grained	sand-sized qu	uartz, 1	silt, mostly fi few silt, trace wo		D	Classification:	SP-SM 50: 0.21		2.5Y 5/ % Fine		h brown
74 Q	- - - - - - - - - - - - - - - - - - -		SAND,	some clay, tra	fine-	grained sand-siz nell fragments, d	zed ark	E	Classification: SF D5	P-SM 50: 0.190	Color: 2.5 99 mm %	SY 6/2- 5 Fines		wnish gray
-75.3 -75.9	14.7		grained	sand-sized quests, gray (SP-	uartz, SM)	silt, mostly fi few silt, trace sl	nell	NS						
-11.3	- 10.7 		gray CLAY, le	ean, mostly cla	ay, little	ents, trace clay, d e fine-grained sa city, dark gray (C	nd-	F	Classificatio D5	on: SP-SI		r: 2.5Y 5 Fines	7/2-ligh : 6.7	t gray
-80.6	20.0			some clay, lit		-grained sand-siz ell fragments, d								
			medium-		d-size	silt, mostly fine d quartz, few s (SP-SM)								
	E		NOTES:											
	<u>-</u>					ually classified Soils Classificat								

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.11362° Long = -88.35668°

Boring Designation BI-PBS-046-12

DRI	LLING	LOC	G (Cont. Sheet)	INSTALLA				SHEET 2
			Mobile			1	OF 2 SHEETS	
OJEC			Destaution		TE SYSTEM		HORIZONTAL	VERTICAL
			Restoration		lane, MSE (		NAD83	NAVD88
	ON COORDI ,134,958		<b>s</b> 223,463	-60.6 F	N TOP OF BO	JKING		
Λ-	, 10-1,000			1 00.01				
LEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERI	ALS	SAMPLE		LABORATORY RE	ESULTS
			NS = Sample not submitted for analysis from this interval.					
			<ol> <li>Seafloor elevation calculated using vessel's fathometer water depth rapplying NOAA tidal gauge data factor.</li> </ol>	eading and				

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

Date 12/01/2012

Start Time 13:40:35

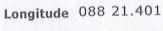
End Time 13:44:24

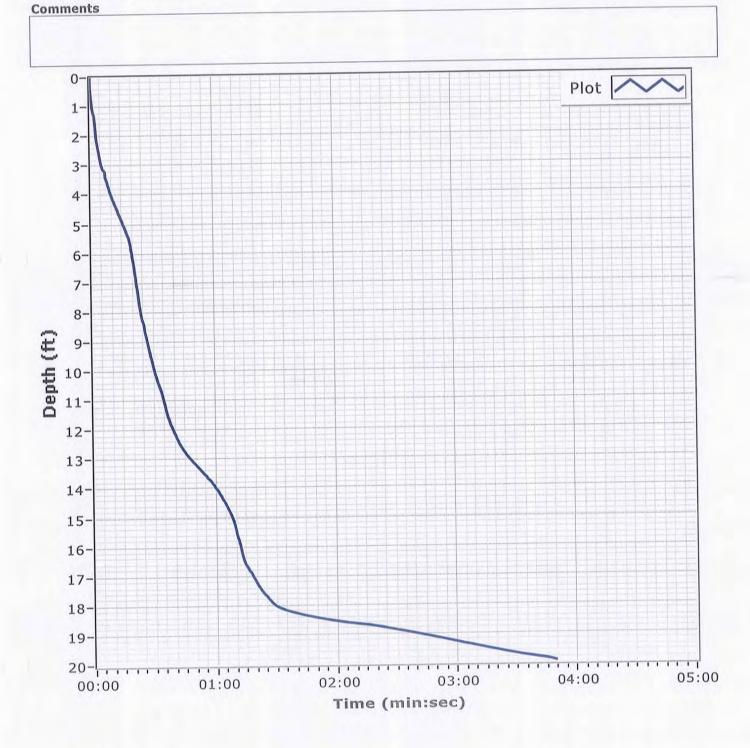
Total Time 00:03:49

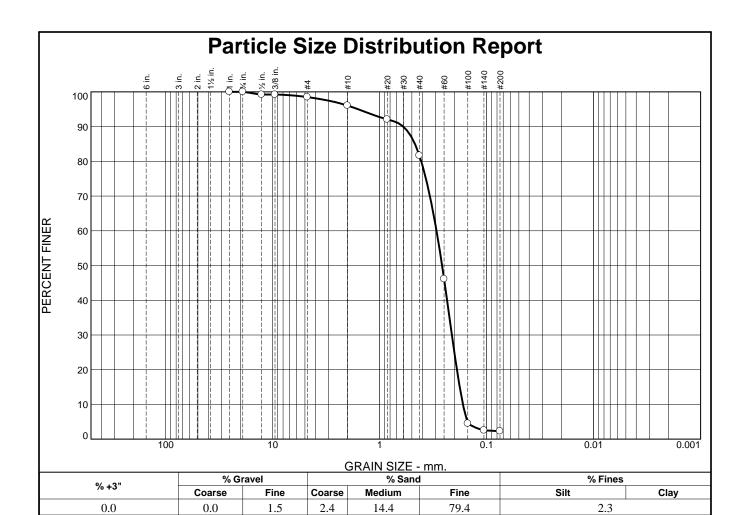
Water Depth 60.9'

Penetration 20.0'

Recovery 20.0'







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND, with trace SHELL						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.6016 D <sub>50</sub> = 0.2610 D <sub>10</sub> = 0.1667	Coefficients D <sub>85</sub> = 0.4680 D <sub>30</sub> = 0.2114 C <sub>u</sub> = 1.77	D <sub>60</sub> = 0.2944 D <sub>15</sub> = 0.1787 C <sub>c</sub> = 0.91				
USCS= SP	Classification AASHT	D=				
	<u>Remarks</u>					

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

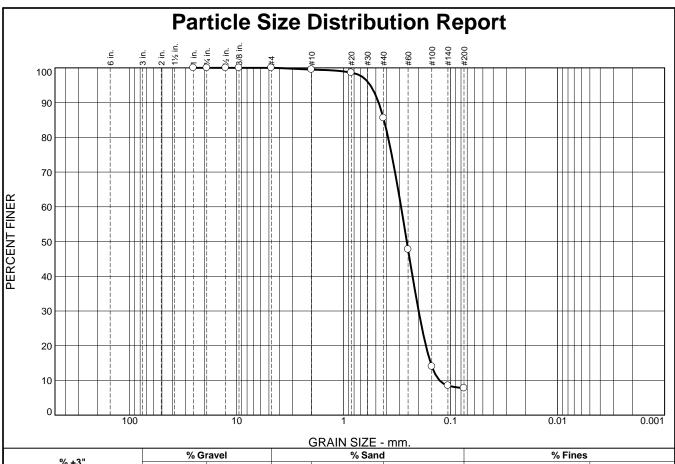
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



% +3"		% Gra	avel		% Sand	1	% Fines				
		'	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
	0.0	0.0 0.0		0.0 0.0 0.0		0.0	0.5	13.9	77.8	7.8	
	SIEVE	PERCENT	SPEC.	* PASS	3?	Material Description					
	SIZE	FINER	PERCEN	NT (X=N	0)	Fine to medium grained, SLIGHTLY SILTY SAND					
	1	100.0				g a say, a say					

OILVE	I LIKOLINI	OI EO.	1 700:
SIZE	FINER	PERCENT	(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		
I			1

PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4713 D <sub>50</sub> = 0.2571 D <sub>10</sub> = 0.1272	Coefficients D <sub>85</sub> = 0.4202 D <sub>30</sub> = 0.1992 C <sub>u</sub> = 2.29	D <sub>60</sub> = 0.2909 D <sub>15</sub> = 0.1538 C <sub>c</sub> = 1.07
USCS= SP-SM	Classification AASHTO=	=
	Remarks	

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

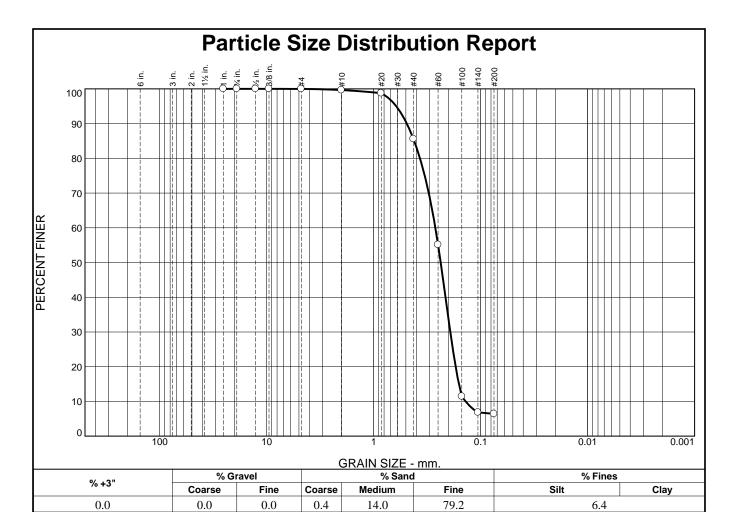
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.4901 D <sub>50</sub> = 0.2363 D <sub>10</sub> = 0.1383	Coefficients D <sub>85</sub> = 0.4182 D <sub>30</sub> = 0.1922 C <sub>u</sub> = 1.92	D <sub>60</sub> = 0.2651 D <sub>15</sub> = 0.1599 C <sub>c</sub> = 1.01				
USCS= SP-SM	Classification AASHTO	)=				
	<u>Remarks</u>					

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

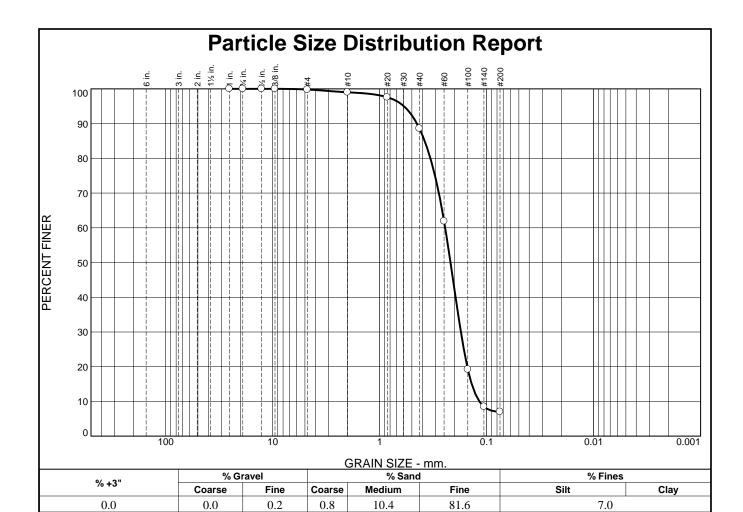
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.4485 D <sub>50</sub> = 0.2177 D <sub>10</sub> = 0.1169	Coefficients D <sub>85</sub> = 0.3795 D <sub>30</sub> = 0.1742 C <sub>u</sub> = 2.09	D <sub>60</sub> = 0.2442 D <sub>15</sub> = 0.1380 C <sub>c</sub> = 1.06				
USCS= SP-SM	Classification AASHTC	)=				
	<u>Remarks</u>					

**Location:** BI-PBS-46-12 D **Sample Number:** 6471 (16)

Sample Number: 6471 (16) Depth: 10.0' Date: 12/03/12

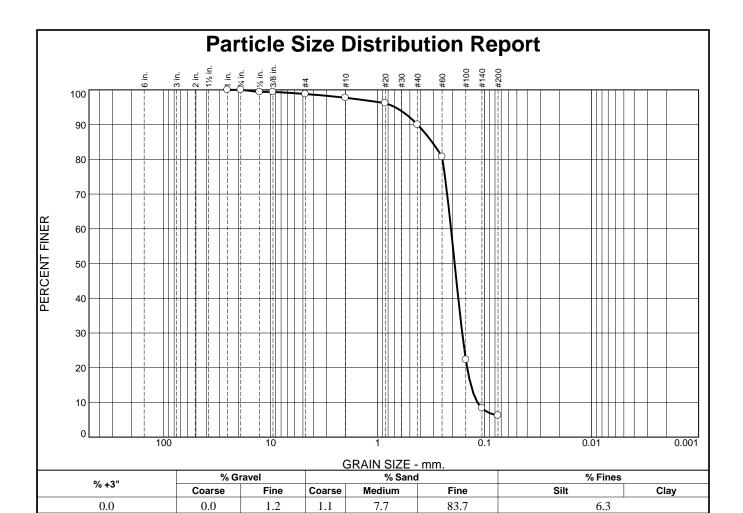
**Thompson Engineering** 

 $\begin{tabular}{ll} \textbf{Client:} & CDM/Thompson Engineering JV \\ \end{tabular}$ 

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

· ·	<b>Material Descriptio</b> GHTLY SILTY SAN	_
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4248 D <sub>50</sub> = 0.1909 D <sub>10</sub> = 0.1168	Coefficients D <sub>85</sub> = 0.3106 D <sub>30</sub> = 0.1622 C <sub>u</sub> = 1.77	D <sub>60</sub> = 0.2062 D <sub>15</sub> = 0.1346 C <sub>c</sub> = 1.09
USCS= SP-SM	Classification AASHT	O=
	<u>Remarks</u>	

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

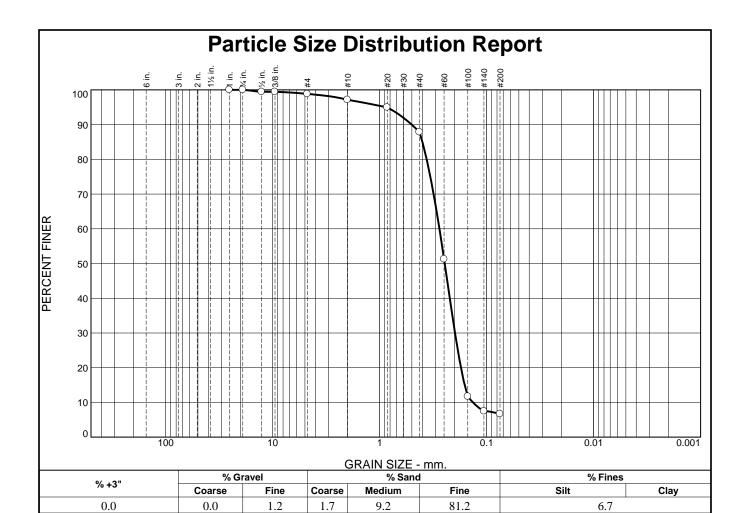
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Fir	ne grain		laterial Descri SHTLY SILTY S	iption SAND, with trace SHELL
PL	.=		Atterberg Lin	nits Pl=
D <sub>9</sub> D <sub>5</sub> D <sub>1</sub>	00= 0.5 00= 0.5 00= 0.5	5026 2466 1343	Coefficient D <sub>85</sub> = 0.3986 D <sub>30</sub> = 0.1977 C <sub>u</sub> = 2.06	D <sub>60</sub> = 0.2764
US	SCS=	SP-SM	Classification AAS	<u>on</u> SHTO=
			<u>Remarks</u>	

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-047-12

DR	ILLING	LOG	DIVISI				- 1"		TALLATIO		-			SHEET	
1. PRO			Sou	uth Atlantic					Nobile Dis					OF 1	SHEETS
										TYPE OF BIT	N/A				
	MsCIP Barrie			tion			1	0.		NATE SYSTEM		HORIZON	ITAL	VERTI	
	Petit Bois Pa			T				_		Plane, MSE (					VD88
	RING DESIGN		ı	LOCATION C				1.		CTURER'S DES	SIGNATIO	N OF DRILL		AUTO HA	
	3I-PBS-047-			¦ E = 1,13		N = 234,41			Vibra	core		DICTURRER			HAMMER
_	LLING AGEN		CECAM	ı	CONT	RACTOR FILE		2.	TOTAL S	AMPLES	- ['	DISTURBED	ľ	NDISTUR O	RBED (UD)
	Corps of Eng		S - CESAIVI	<u> </u>	<u>i                                      </u>		_				<u> </u>			U	
			Customo	Inc			1	3.	TOTAL I	IUMBER CORE	BOXES				
	American Vil			DEG. FRO	M	BEARING	1	4.	WATER	DEPTH		48.4 Ft.			
$\boxtimes$	VERTICAL INCLINED	JORING	•	VERTICAL		LAMINO	1	5.	DATE BO	RING		STARTER		COMPI	28-12
	CKNESS OF	OVERE	URDEN	N/A		<b>:</b>	1	6.	ELEVAT	ION TOP OF BO	DRING	-49.2 Ft.	- 12	<u>; 11-</u>	20-12
7 DED	TH DRILLED	INTO	BOCK	N/A			1	7.	TOTAL F	RECOVERY FOR	R BORING	100%			
7. DEF	TH DRILLED	11410	NOUN .	IN/A			1	8.	SIGNAT	URE AND TITLE	E OF INSP	ECTOR			
8. ТОТ	AL DEPTH O	F BOR	ING 1	6.9 Ft.					Mike	FitzHarris, Ge	eologist				
ELEV.	DEPTH	LEGEND	C	CLASSIFICATI	ON OF	MATERIALS	•		SAMPLE		LAB	ORATORY RI	ESULTS		
-49.2	0.0	$\vdash$						Ť							
-52.9	-		grained	poorly-graded sand-sized ss, gray (SP)	qua				А		fication: \$ D50: 0.2		r: 5Y 7/ % Fines	2-light gr s: 1.7	ray :
0	-		SVND	poorly-graded	1 with	eilt moetly	, fino	T		Classific	otion: CD	Color: F	V 6/2 I	ight olive	arov
-54.8	<u> </u>		grained	sand-sized quell ell fragments,	uartz, 1	few silt, trace			В				% Fines	ight olive s: 0.2	gray E
-57.7 -62.7	- 8.5 8.5 		grained strace she  CLAY, fatrace woo soft to m	poorly-graded sand-sized quell fragments, at, mostly clauded debris, transported with buttled with buttled	gray ( ay, trace fine rd, mee	few clay, trace (SP-SC)  ce shell frage grain sand led to high pla	ments, enses, asticity,		NS						
-64.7	- - - 15.5		quartz, s lense at	clayey, mostl ome clay, tra 15.0', gray (S	ice she SC) y, trace	e wood debris	sandy s, trace								- - - - - - - - - - - - - - - - - - -
-66.1	16.9 - -		shell fraç (CH)	gments, medi	um to	high plasticit	y, gray /	+							
	<u> </u>		NOTES:												Į.
	<u>-</u>			oils are fiel nce with the U											
	<u> </u>			= Sample no from this inte		nitted for labo	oratory								<u> </u>
	- - - - - - - - - - - - - - - - - - -			oor elevation phic survey c											-

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14375° Long = -88.36252°

### Project

#### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

Core Identifier BI-PBS-47-12

**Coordinate System** 

Latitude / Longitude

Latitude 30 08.635

Date 11/28/2012

Start Time 14:21:09

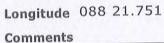
End Time 14:22:41

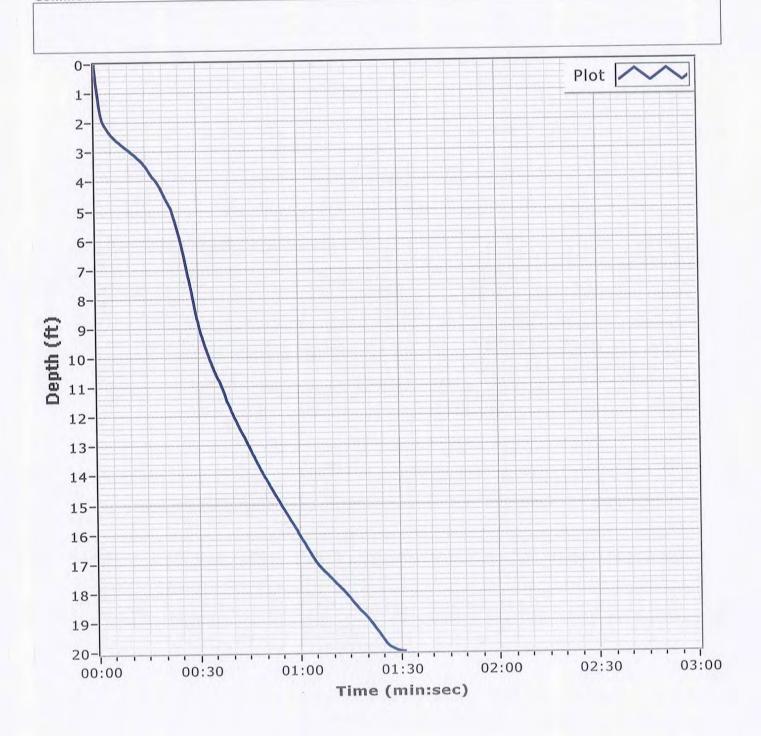
Total Time 00:01:31

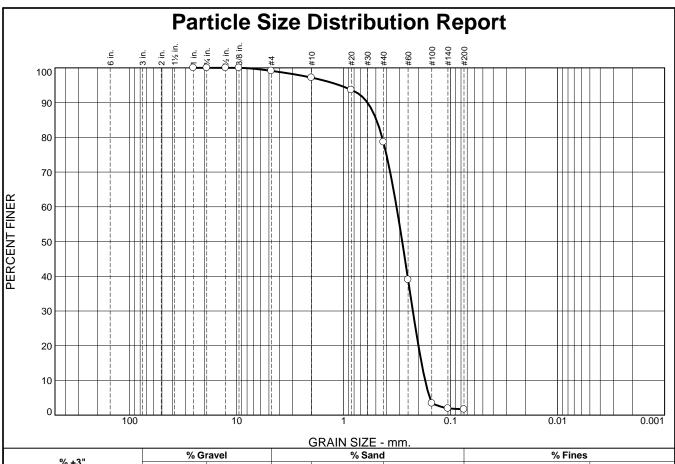
Water Depth 48.4'

Penetration 20.0'

Recovery 16.9'







% +3		% Grav	el		% Sand	d	% Fines	
% +3		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=NC		Fine to	Mater medium grained	ial Description , SAND	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Fine to medium g	Material Description grained, SAND	<del></del>
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5990 D <sub>50</sub> = 0.2838 D <sub>10</sub> = 0.1734	Coefficients D <sub>85</sub> = 0.4938 D <sub>30</sub> = 0.2256 C <sub>U</sub> = 1.85	D <sub>60</sub> = 0.3207 D <sub>15</sub> = 0.1871 C <sub>c</sub> = 0.92
USCS= SP	Classification AASHT	0=
	<u>Remarks</u>	

**Location:** BI-PBS-47-12 A **Sample Number:** 6471 (19)

**nber:** 6471 (19) **Depth:** 0.0'

**Date:** 12/03/12

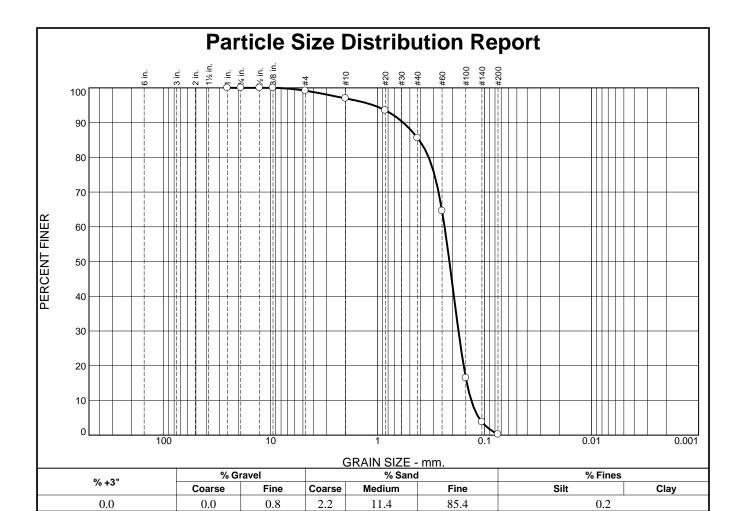
**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
* .	a sifi sation massida		

Fine to medium §	Material Description grained, SAND	<u>on</u>
PL=	Atterberg Limits	PI=
D <sub>90</sub> = 0.5779 D <sub>50</sub> = 0.2135 D <sub>10</sub> = 0.1334	Coefficients D <sub>85</sub> = 0.4111 D <sub>30</sub> = 0.1757 C <sub>u</sub> = 1.77	D <sub>60</sub> = 0.2368 D <sub>15</sub> = 0.1467 C <sub>c</sub> = 0.98
USCS= SP	Classification AASHT	-O=
	<u>Remarks</u>	

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

Thompson Engineering

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-048-12

DRI	LLING	LOG	DIVISI				IN		LLATIC					SHEE	
1. PRO			Sou	uth Atlantic					bile Dis					OF	SHEETS
			-l Dt	<i>.</i>						TYPE OF BIT	N/A	HORIZO	NTAL	VERT	ICAL
	AsCIP Barrie			ition			1	U. C				1		1	
	Petit Bois Pa		S East	LOCATION	OORD	INATES	1.	1. M		Plane, MSE (L				N/AUTO H/	VD88
	3I-PBS-048-			i		N = 233,99	- 1		Vibra		IONAIIO	N OI DIGIEL			HAMMER
	LING AGEN					RACTOR FILE	NO.				} 0	DISTURBED			RBED (UD)
C	Corps of Eng	gineers	- CESAM		:		12	2. T	OTAL S	AMPLES	!		:	0	
4. NAN	IE OF DRILL	ER					1:	3. T	OTAL N	IUMBER CORE E	BOXES				
	American Vil			, Inc.			1	4 W	/ATER I	)EDTH		48.1 Ft.			
	ECTION OF E VERTICAL	BORING		DEG. FROI	M	BEARING	<u> </u>	· · · ·	- AILN	)		STARTE	n	COMP	LETED
	INCLINED					 	15	5. D	ATE BO	RING		11-28	_		-28-12
6. THI	CKNESS OF	OVERB	JRDEN	N/A		1	10	6. E	LEVAT	ON TOP OF BOI	RING	-50.7 Ft.			-
7. DEP	TH DRILLED	INTO R	OCK	N/A			1	7. T	OTAL R	ECOVERY FOR	BORING	100%			
							1	8. S	IGNATI	JRE AND TITLE	OF INSP	ECTOR			
8. ТОТ	AL DEPTH O	F BORI	<b>NG</b> 1	8.4 Ft.					Mike	FitzHarris, Geo	ologist				
ELEV.	DEPTH	LEGEND	c	CLASSIFICATION	ON OF	MATERIALS		SA	MPLE		LAB	DRATORY R	ESULTS	<b>;</b>	
-50.7	0.0														
	<b>E</b>	:::	SAND, p	oorly-graded	, most	ly fine to me	dium-		Α		cation: S		or: 5Y 7	/2-light g	
-52.0	<u></u> 1.3	.∵: ∖		sand-sized qu , gray (SP)	artz, lit	ttle shell fragn	nents,			L	JJU. U.5	146 mm	/0 FILE	o. 1./	<del></del> F
-54.6	- - - - - - - - - - - - - - - - - - -	-:-:-  `  -:-:-	SAND, pgrained			ly fine to me ırtz, trace			В	Classifica E			5Y 6/2- % Fine	light olives: 0.4	e gray
-57.0	-		quartz,		trace `	grained sand- clay, trace			С		cation: S 50: 0.18		or: 5Y 5 % Fines	/2-olive ( :: 14.9	gray -
			quartz, s sand and	ome clay, ald sandy clay, good sandy clay, good sandy clay, good some clay, for clay,	ternatii greenis	grained sand- ng bands of c sh gray (SC) -grained sand- shells, trace	clayey	1	NS						
	15.3 		sand-size	ean, mostly ed quartz, ely stiff, gray	trace	trace fine-gr e wood d		-							
33.1	10.7 		accordar System. 2. NS = analysis 3. Seafl	oils are field note with the U = Sample note from this intection	Jnified t subm rval. detern	ually classific Soils Classific nitted for labo	ratory SACE								
	<u>-</u>		hydrogra	phic survey c	omplet	ed April 2014	-								

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14258° Long = -88.35732°

### Project

#### Mississippi Barrier Island Restoration Project



Core Identifier BI-PBS-48-12

Coordinate System

Latitude / Longitude

Latitude 30 08.555

Date 11/28/2012

Start Time 11:20:50

End Time 11:21:52

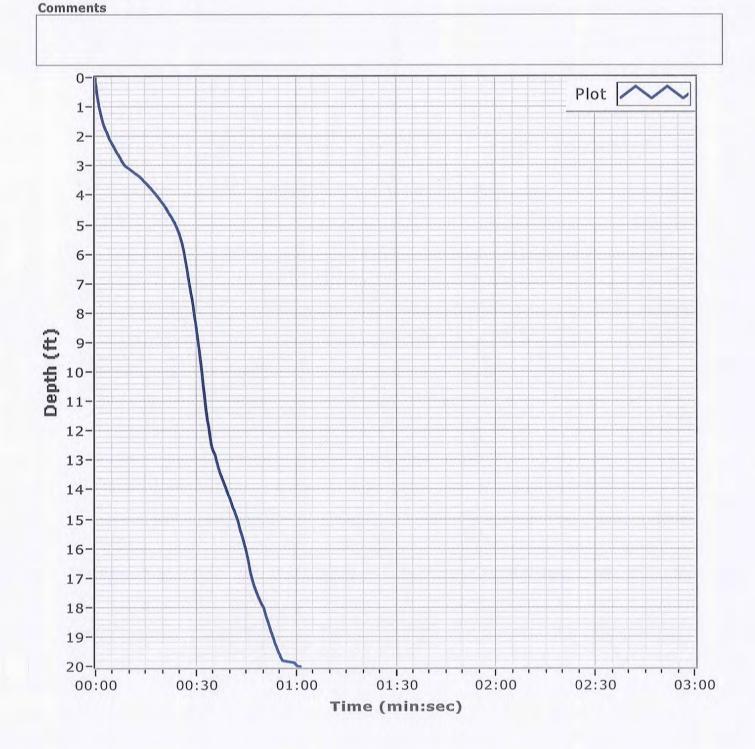
Total Time 00:01:01

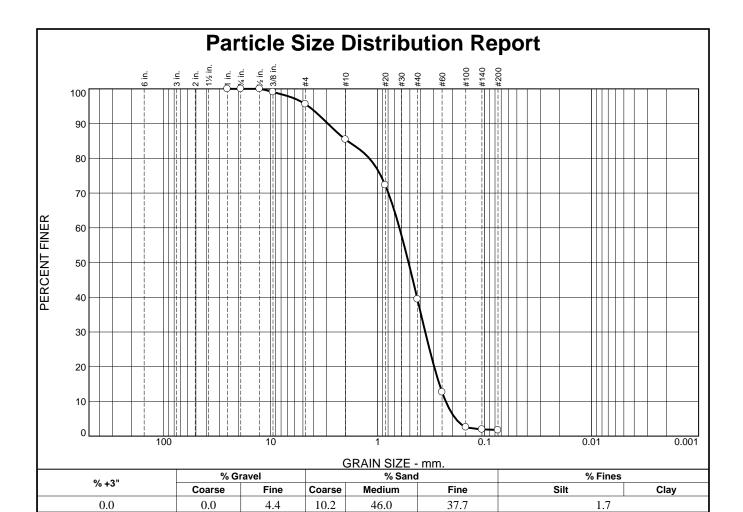
Water Depth 48.1'

Penetration 20.0'

Recovery 18.4'

**Longitude** 088 21.439





PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
100.0		
100.0		
100.0		
99.1		
95.6		
85.4		
72.3		
39.4		
12.7		
2.6		
1.9		
1.7		
	100.0 100.0 100.0 99.1 95.6 85.4 72.3 39.4 12.7 2.6 1.9	100.0 100.0 100.0 99.1 95.6 85.4 72.3 39.4 12.7 2.6 1.9

Material Description Fine to coarse grained, SAND, with trace SHELL				
PL=	Atterberg Limits LL=	PI=		
D <sub>90</sub> = 2.9235 D <sub>50</sub> = 0.5146 D <sub>10</sub> = 0.2309	<u>Coefficients</u> D <sub>85</sub> = 1.9142 D <sub>30</sub> = 0.3592 C <sub>u</sub> = 2.71	D <sub>60</sub> = 0.6265 D <sub>15</sub> = 0.2653 C <sub>c</sub> = 0.89		
USCS= SP	Classification AASHTO	)=		
<u>Remarks</u>				

Location: BI-PBS-48-12 A Sample Number: 6471 (21)

Sample Number: 6471 (21) Depth: 0.0' Date: 12/03/12

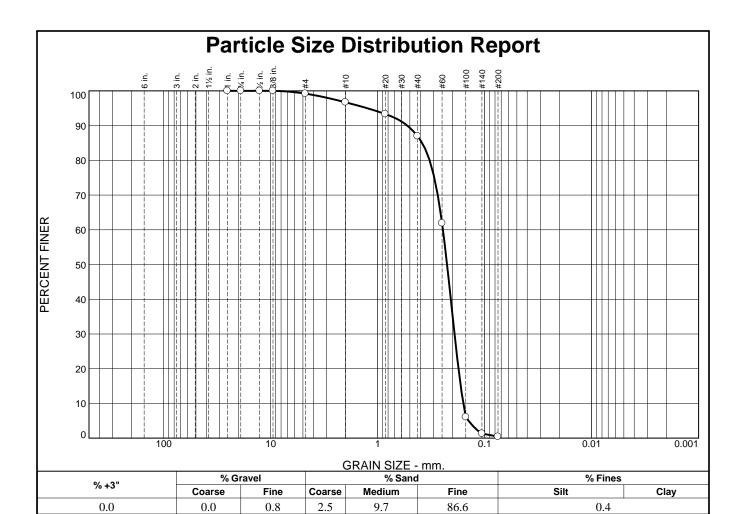
**Thompson Engineering** 

 $\begin{tabular}{ll} \textbf{Client:} & CDM/Thompson Engineering JV \\ \end{tabular}$ 

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



100.0 100.0 100.0 100.0 100.0 99.2	PERCENT	(X=NO)
100.0 100.0 100.0 99.2		
100.0 100.0 99.2		
100.0 99.2		
99.2		
96.7		
93.3		
87.0		
61.9		
6.1		
1.3		
0.4		
	93.3 87.0 61.9 6.1 1.3 0.4	93.3 87.0 61.9 6.1 1.3

Material Description Fine grained, SAND				
PL=	Atterberg Limits LL=	PI=		
D <sub>90</sub> = 0.5290 D <sub>50</sub> = 0.2246 D <sub>10</sub> = 0.1585	Coefficients D <sub>85</sub> = 0.3840 D <sub>30</sub> = 0.1913 C <sub>u</sub> = 1.55	D <sub>60</sub> = 0.2453 D <sub>15</sub> = 0.1675 C <sub>c</sub> = 0.94		
USCS= SP Classification AASHTO=				
<u>Remarks</u>				

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

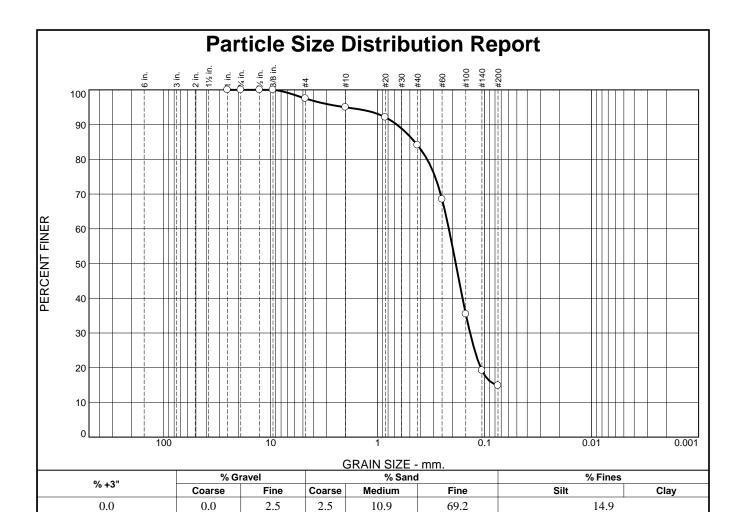
Thompson Engineering

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SILTY SAND, with trace SHELL						
PL=	Atterberg Limits	PI=				
D <sub>90</sub> = 0.6631 D <sub>50</sub> = 0.1863 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.4502 D <sub>30</sub> = 0.1368 C <sub>u</sub> =	D <sub>60</sub> = 0.2161 D <sub>15</sub> = 0.0769 C <sub>c</sub> =				
USCS= SM	Classification AASHT	O=				
	<u>Remarks</u>					

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

### Boring Designation BI-PBS-049-12

DR	ILLING	LOG	DIVISI				IN	STALLAT		2			SHEET	
1. PRO			Sou	uth Atlantic				Mobile D		<b>N</b> 1/A			OF 1	SHEETS
		ا دداما مد	Dester	4:			_		D TYPE OF BIT	N/A	HORIZON	- A I	VERTIC	201
	MsCIP Barri			tion			1"				-		1	
	Petit Bois Pa		East	LOCATION	COORD	INATES	11		e Plane, MSE ( ACTURER'S DES				NAN IAH OTU	/D88
	3I-PBS-049-			1		N = 236,43			acore	JIONAI IOI	TOI DILLE			HAMMER
	LLING AGEN			,		RACTOR FILE	NO.			¦ D	ISTURBED			BED (UD)
(	Corps of Eng	gineers -	CESAM		-		12	. TOTAL	SAMPLES	!			0	
4. NAN	NE OF DRILL	ER					13	. TOTAL	NUMBER CORE	BOXES				
	American Vil		Systems,	, Inc.				. WATER	DEDTH		50.6 Ft.			
	ECTION OF I	BORING		DEG. FRO	M	BEARING	<u>                                   </u>	. WAIL			STARTED		COMPL	ETED
_	INCLINED					}	15	. DATE I	ORING		11-28-	12		28-12
	CKNESS OF	OVERBU	RDEN	N/A		i	16	6. ELEVA	TION TOP OF BO	DRING	-50.6 Ft.			
7. DEP	TH DRILLED	INTO R	ОСК	N/A			17	. TOTAL	RECOVERY FOR	R BORING	100%			
							18	. SIGNA	TURE AND TITLI	E OF INSPI	ECTOR			
8. TOT	AL DEPTH C	F BORIN	IG 1	9.2 Ft.				Mik	e FitzHarris, Ge	eologist				
ELEV.	DEPTH	LEGEND	C	LASSIFICATI	ON OF	MATERIALS		SAMPLE		LABO	RATORY RES	BULTS		
-50.6	0.0				_		_							
<b>540</b>		$ \cdot\cdot\cdot $	grained	ooorly-graded sand-sized s, gray (SP)	qua	tly fine to me artz, trace	dium- shell	A		ification: S D50: 0.23		5Y 7/2 Fines:	2-light gr: : 3.6	<u> </u>
-54.8	<u>-4.2</u>								+					<del></del> E
-56.5	5.9	114141 (	quartz, s		ce she	grained sand- ell fragments, )								<u>-</u> ;
-59.3	- - - - - - - - - - - - - - - - - - -		CLAY, le sand-size	ean, mostly ed quartz, trad	clay, ce woo	some fine-gr od debris, gray	ained (CL)							-
	10.7					grained sand- wood debris,								- - - - - - -
-65 Q			CLAY, fa sized qua	at, mostly clay artz, trace she	y, trace ell frag	e fine-grained ments, gray (	sand- CH)	NS						
			guartz, s		ace sh	grained sand- ell fragments,								-   -   -   -   -   -   -   -   -   -
-09.8	<u> 19.2</u>	V/////							1					<del></del> [
	E		NOTES:											<u>-</u> -
	- - - - - - - -		1. So	oils are fiel nce with the U	d visi Jnified	ually classific Soils Classific	ed in cation							
	<u> </u>		2. NS = analysis t	= Sample no from this inte	t subn rval.	nitted for labo	ratory							
	<u>-</u> - - -					mined from US ted April 2014								<u> </u>

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14932° Long = -88.36788°

### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

Core Identifier BI-PBS-49-12

Coordinate System
Latitude / Longitude

Date 11/28/2012

Start Time 15:43:56

End Time 15:44:29

Total Time 00:00:33

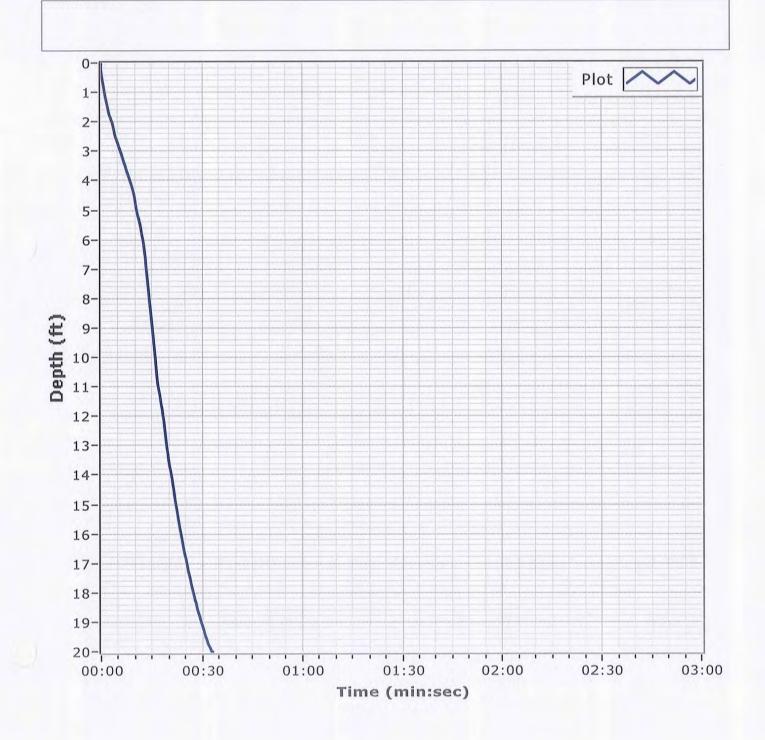
Water Depth 50.6'

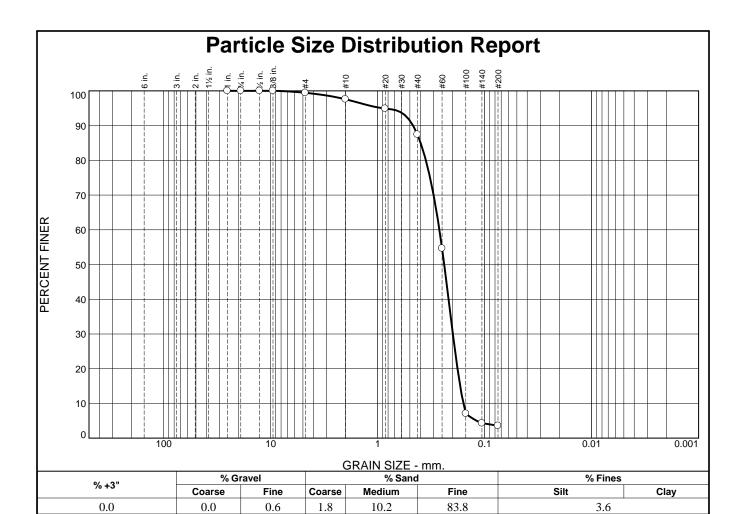
Penetration 20.0'

Recovery 19.2'

**Latitude** 30 08.959 **Longitude** 088 22.073

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.4671 D <sub>50</sub> = 0.2387 D <sub>10</sub> = 0.1583	Coefficients D <sub>85</sub> = 0.3966 D <sub>30</sub> = 0.1982 C <sub>u</sub> = 1.67	D <sub>60</sub> = 0.2649 D <sub>15</sub> = 0.1695 C <sub>c</sub> = 0.94				
USCS= SP	Classification AASHT	-O=				
	<u>Remarks</u>					

**Location:** BI-PBS-49-12 A **Sample Number:** 6471 (24)

Sample Number: 6471 (24) Depth: 0.0' Date: 12/03/12

**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

### Boring Designation BI-PBS-050-12

DRI	LLING	LOG	DIVISIO				IN	STALLATIO				SHEET	
	South Atlantic  1. PROJECT			+	Mobile Di				OF 1	SHEETS			
	/IsCIP Barrie	ar Island	Restoration	nn .					NATE SYSTEM/DATUM	HORIZON	ΓAL	VERTIC	CAL
	Petit Bois Pa			J11			."		Plane, MSE (U.S. Ft.)	- !		1	VD88
	ING DESIGN			LOCATION C	OORDI	NATES	11		ACTURER'S DESIGNATIO			UTO HA	
Е	3I-PBS-050-	12	-	E = 1,132	2,205	N = 235,628		Vibra	acore				HAMMER
3. DRII	LLING AGEN	CY	•		CONT	RACTOR FILE N		. TOTAL S		DISTURBED	UI		BED (UD)
	Corps of Eng		CESAM		<u> </u>			. IOIAL	PAMIFLES		i_	0	
	IE OF DRILL		D 1				13	. TOTAL I	NUMBER CORE BOXES				
	American Vil		Systems, I	nc. DEG. FROM	M	BEARING	<b>—</b>   14	. WATER	DEPTH	48.7 Ft.			
$\boxtimes$	VERTICAL INCLINED			VERTICAL	•		15	. DATE BO	DRING	STARTED	12	COMPL 11-	. <b>ETED</b> 28-12
6. THI	CKNESS OF	OVERBU	RDEN	N/A			16	. ELEVAT	ION TOP OF BORING	-48.4 Ft.			_
7. DEP	TH DRILLED	INTO R	OCK N				17	. TOTAL I	RECOVERY FOR BORING	100%			
							18	. SIGNAT	URE AND TITLE OF INSP	ECTOR			
8. ТОТ	AL DEPTH O	F BORIN	I <b>G</b> 18.	.9 Ft.				Mike	FitzHarris, Geologist				
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF I	MATERIALS		SAMPLE	LAB	ORATORY RE	SULTS		
-48.4	0.0												
-53.4	5.0	,	grained .	orly-graded, sand-sized , gray (SP)		y fine to medi tz, trace s	ium- shell	A				2-light gr : 3.3	
-54.7	E -63					clay, mostly few clay, trace s		В	Classification: SP-S D50: 0.20		5Y 6/2 Fines:	-light oli 11.4	ve gray
-56.4	-		ragments, SAND, cla quartz, soi (SC) CLAY, fat	gray (SP-Sayey, mostly me clay, transfer of the clay, transfer of the clay into the cl	SC) y fine-çace she	grained sand-s ell fragments, g e shell fragme nt lenses of sa	ized gray / ents,	NS					
			accordance System.  2. NS = analysis from the second secon	e with the U Sample not om this inter or elevation	Jnified t subm rval. determ	ally classified Soils Classifica itted for labora nined from US/ ed April 2014.	ation						

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.14710° Long = -88.36523°

### Mississippi Barrier Island Restoration Project



Core Identifier BI-PBS-50-12

Coordinate System

Latitude / Longitude

Date 11/28/2012

Water Depth 48.7'

Start Time 15:02:32

End Time 15:03:23

Total Time 00:00:51

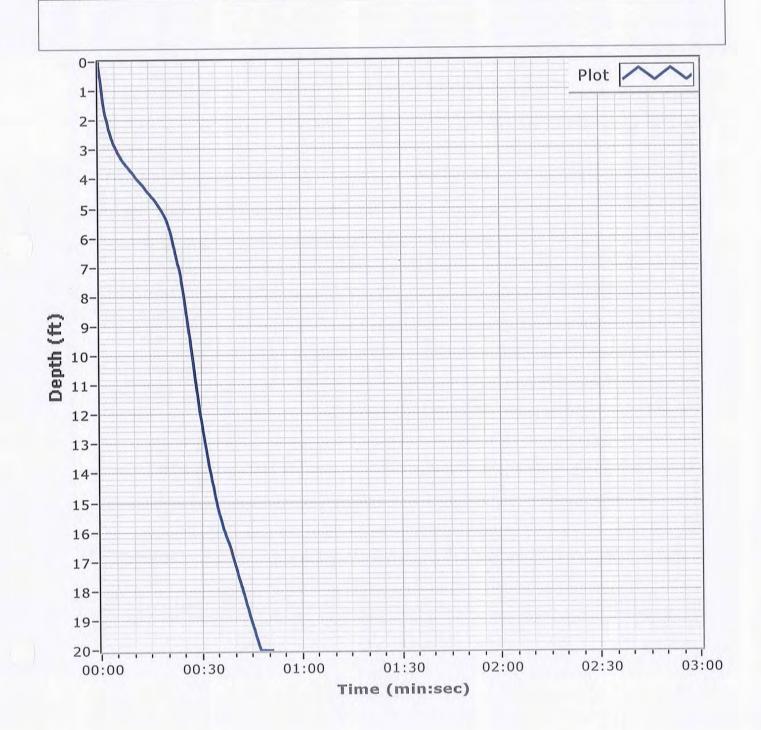
Penetration 20.0'

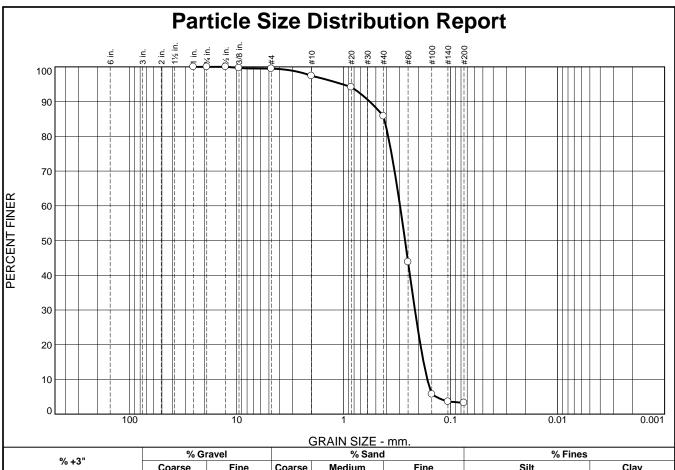
Recovery 18.9'

**Latitude** 30 08.826

Longitude 088 21.914

Comments





	GRAIN SIZE - mm.									
0/ .3"	% Gravel			% Sand	d	% Fines				
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0.0	0.0	0.5	2.1	11.6	82.5	3.3				

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.5711 D <sub>50</sub> = 0.2669 D <sub>10</sub> = 0.1653	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{85} = \ 0.4181 \\ \text{D}_{30} = \ 0.2157 \\ \text{C}_{\text{U}} = \ 1.80 \end{array}$	D <sub>60</sub> = 0.2975 D <sub>15</sub> = 0.1792 C <sub>C</sub> = 0.95				
USCS= SP	Classification AASHT	-O=				
	<u>Remarks</u>					

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

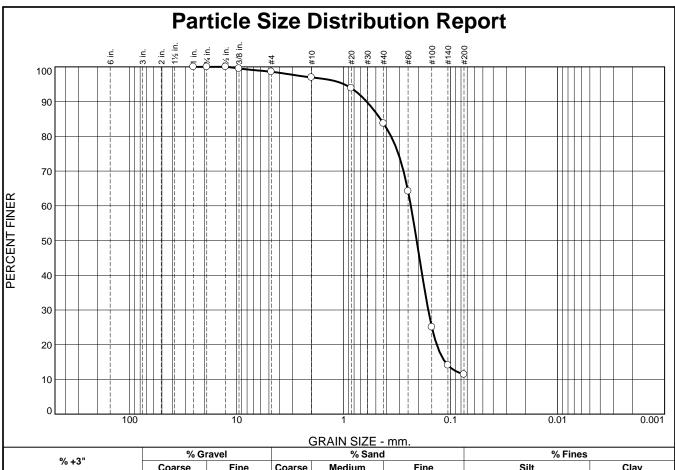
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



	GRAIN SIZE - mm.							
9/ .3"	% G	ravel		% Sand	i	% Fines		
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
0.0	0.0	1.4	1.7	13.2	72.3	11.4		

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.6098 D <sub>50</sub> = 0.2078 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.4536 D <sub>30</sub> = 0.1620 C <sub>u</sub> =	D <sub>60</sub> = 0.2355 D <sub>15</sub> = 0.1123 C <sub>c</sub> =					
USCS= SP-SM	Classification AASHT	O=					
	<u>Remarks</u>						

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-051-12

DR	ILLING	LOG	DIVISION			1	STALLATIO			SHEET 1
1. PRO			South Atl	lantic		+-	Mobile Dis			OF 2 SHEETS
		ar Island	I Restoration					NATE SYSTEM/DATUM	HORIZONT	TAL VERTICAL
	Petit Bois Pa					'''		Plane, MSE (U.S. Ft.)	1	
	RING DESIGN			ATION COOR	DINATES	11.		ACTURER'S DESIGNATION		AUTO HAMMER
	BI-PBS-051-		E	= 1,132,401	N = 232,439		Vibra			MANUAL HAMMER
3. DRII	LLING AGEN	ICY	•	CON	ITRACTOR FILE NO.		TOTALS		ISTURBED	UNDISTURBED (UD)
	Corps of Eng		CESAM	<u> </u>		12.	IOIAL	PAMPLES		0
	ME OF DRILL		0			13.	TOTAL I	NUMBER CORE BOXES		
	American VII		Systems, Inc.	EG. FROM	BEARING	14.	WATER	DEPTH	56.4 Ft.	
$\boxtimes$	VERTICAL INCLINED		VE	ERTICAL		15.	DATE BO	DRING	<b>STARTED</b>   11-28-1	COMPLETED 12 11-28-12
6. THI	CKNESS OF	OVERBU	IRDEN N/A	Α	<u>'</u>	16.	ELEVAT	ION TOP OF BORING	-56.4 Ft.	1 -
7. DEP	TH DRILLED	INTO R	OCK N/A			17.	TOTAL F	RECOVERY FOR BORING	100%	
						18.		URE AND TITLE OF INSPI	ECTOR	
8. ТОТ	AL DEPTH C	OF BORIN	IG 19.8 Ft	t.		<u>Ц</u>	Mike	FitzHarris, Geologist		
ELEV.	DEPTH	LEGEND	CLASS	IFICATION O	F MATERIALS		SAMPLE	LABO	RATORY RES	SULTS
-56.4	0.0								•	
	Ē	]	SAND, silty,	mostly fine	e-grained sand-size	ed				
<b>50</b> /	E.	11111	quartz, some	silt, trace s	hell fragments, gra	ay				ļ
-58.4	<u>- 2.0</u>	1////	(SM)			$\dashv$				
	F				e-grained sand-size					
	E		quartz, some	clay, trace s	shell fragments, wi	th				
	<u>F</u>		(SC)	lodules, gray	mottled with brow	//				
	F		(00)							
	Ē									
-62.8	E <sub>64</sub>									
02.0	F *:-									
	E		CLAY, fat, m	nostly clay,	little silt, trace she bris, with occasion					
	ļ.		silty pockets ar	nd sandv cla	y lenses, gray (CH)	a				
	E				,, 9, (2)					
	Ē									
	<u> </u>						NS			
	E									
	E									
	ļ.									
	E									
	F									
	E									
	Ē									
	-									
	E									•
	E									
	E									
	E									
	E									
76.0	E 10.0									
-76.2	- 19.8 					$\dashv$				
	E		NOTES:							į
	E		INOTEO.							F
	F		1. Soils a	are field vi	sually classified	in				
	<u> </u>		accordance wi System.	ith the Unifie	d Soils Classification	on				
	<u> </u>		2. NS = San analysis from t		omitted for laborato	ry				
	E				ılated using samplir depth reading and	ng				

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.13833° Long = -88.36465°

Boring Designation BI-PBS-051-12

DRILLING LOG (Cont. Sheet)    Moldio District
MSCIP Barrier Island Restoration  State Plane, MSE (U.S. Ft.)  NAD83  NAVD88  ELEVATION TOP OF BORING  -56.4 Ft.  EV. DEPTH  Applying NOAA tidal gauge data conversion
CATION COORDINATES  X = 1,132,401 Y = 232,439  CLASSIFICATION OF MATERIALS  SAMPLE  LABORATORY RESULTS  applying NOAA tidal gauge data conversion
X = 1,132,401 Y = 232,439 -56.4 Ft.  LEV. DEPTH  CLASSIFICATION OF MATERIALS SAMPLE LABORATORY RESULTS  Applying NOAA tidal gauge data conversion
LEV. DEPTH CLASSIFICATION OF MATERIALS SAMPLE LABORATORY RESULTS  applying NOAA tidal gauge data conversion
applying NOAA tidal gauge data conversion

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13833° Long = -88.36465°

### 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

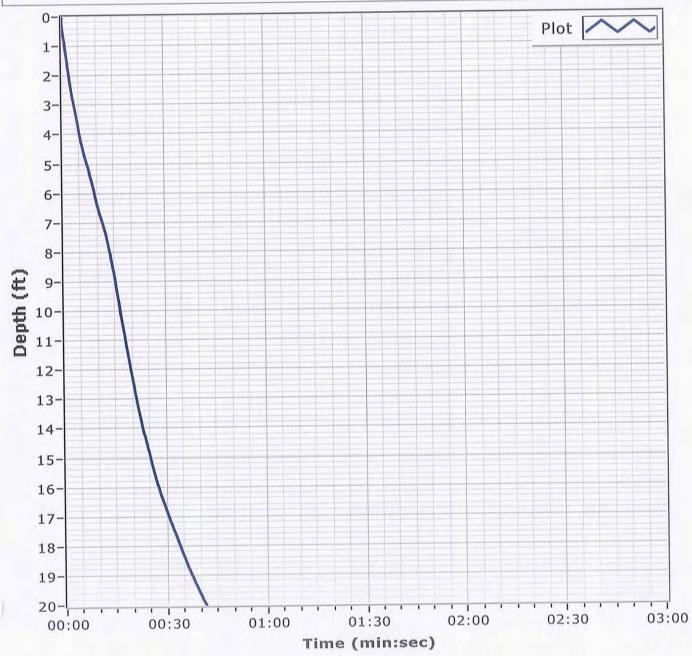
Water Depth 56.4'

Penetration 20.0'

Recovery 19.8'







### Boring Designation BI-PBS-052-12

-47.5 1.0 SAND, poorly-graded, mostly fine to medium- grained sand-sized quartz, trace silt, trace shell / [ragments, gray (SP)]  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)  SAND, poorly-graded, mostly fine to medium- grained sand-sized quartz, trace silt, trace clay, it. gray (SP)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little shell fragments, gray (SC)  AND, clayey, mostly fine-grained sand-sized quartz, tow plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, trace silt, trace clay, it. gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory	npi	ILING	LOG	DIVISI	ION			INS	STALLATIO	ON O			SHEE	Г 1
MSCIP Barrier Island Restoration  MSCIP Barrier Island Restoration  In CORRINATE STIPSEMBATUM HONZOHTAL VERTICAL  State Plane, MSC (U.S. F.) NADS3  NAUDOB  STATES SS2-12  E = 1,130,083 N = 241,304  ONTITION ADMINISTRATION PRESIDENTIALS  ONTITION ADMINISTRATION PRESIDENTIALS  ONTITION ADMINISTRATION PROBLEM  ONTITION OF PORTINO  ONTITION ON ONTITION OF MATERIALS  TOTAL DEPTH OF BORING  ON SAND, Doorly-graded, mostly fine to medium- grained sone-board quartz, trace with, trace wood  debris, silly clay, provincing gray (C.)  SAND, Collyey, mostly fine-grained sand-sized quartz. liftle sill, Wood debris as if, trace wood  debris, silly clay, provincing gray (S.)  SAND, Doorly-graded, mostly fine to medium- grained sone-board quartz, trace sill, trace wood  debris, silly clay, provincing gray (S.)  SAND, Doorly-graded, mostly fine-grained sand-sized quartz. liftle sill, Wood debris as if, trace wood  debris, silly clay, provincing gray (S.)  SAND, Doorly-graded, mostly fine-grained sand-sized quartz. liftle sill, wood debris as if, trace wood  debris, silly clay, provincing gray (S.)  SAND, poorly-graded, mostly fine to medium- grained sone-board quartz, trace sill, trace wood  debris, silly clay, provincing gray (S.)  SAND, poorly-graded, mostly fine propried sand-sized quartz. liftle sill, wood debris as in trace wood  debris, silly clay, provincing gray (S.)  SAND, poorly-graded, mostly fine-grained sand-sized quartz. liftle sill, wood debris as in trace wood  sand quartz, trace sill, gray (SP)  NOTES:  1. Solis are field visually classified in accordance with the United Solis Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.			LUG	Soi	uth Atlantic			_	Mobile Di	strict			<b>OF</b> 2	SHEETS
Description   Description	1. PRO	JECT						_						
2. BORNE DESIGNATION   LOCATION COORDINATES   11. MANUFACTURETS DESIGNATION OF DRILL   AUTO HAMMER BI-PSS 521   E = 1,130,04   12. TOTAL SAMPLES   DISTURBED   UNDISTURBED (UD)					ation			10.			!		1	
BIPES-062-12				S East	1.00471011.0			144			,			
3. DeTILINE AGENCY Corps of Engineers - CESAM 4. NAME OF DRILLER American Vibrocore Systems. Inc. 5. DIRECTION OF BORING WERTON. WERTO					1			111.			IION OF DRILL			
4. NAME OF DEFINE CLESAM  American Vibracore Systems, Inc.  DIRECTION OF DERING  VENTICAL  13. TOTAL NUMBER CORE BOXES  14. WATER DEPTH 46.6 Ft.  VENTICAL  15. DATE BORNNO 11:30-12 11											DISTURBED			
American Vibracore Systems, Inc.  Direction or Service    Collection of Service   Collection of Servi	C	Corps of Eng	gineers	- CESAM	1	!		12.	. TOTAL S	SAMPLES	į	į		`
S. DIRECTION OF BORING   DEC. ROM   DEC. R	4. NAN	IE OF DRILL	ER.			-		13.	. TOTAL I	NUMBER CORE BOXES	5	•		
SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, trace wood details, some clay, little shell fragments, gray (SP)								14	WATER	DEPTH	46.6 Ft			
MCLINES   11-30-12			BORING		DEG. FROI VERTICAL	M	BEARING	H					COMPI	ETED
15. ELEVATION TOP OF BORING   46.5 FL							1	15.	. DATE BO	ORING	i -	12	i	
7. DEPTH DRILLED INTO ROCK  8. TOTAL DEPTH OF BORING  9. CLASSIFICATION OF MATERIALS  CLASSIFICATION OF MATERIALS  CLASSIFICATION OF MATERIALS  SAMPLE  LABORATORY RESULTS  SAMPLE  LABORATORY RESULTS  LABORATORY RESULTS  LABORATORY RESULTS  SAMPLE  LABORATORY RESULTS  NICE SITE OF IMPRICE SHELL ASSOCIATION MIKE PIZZHER SHELL ASSOCIA	6. THI	CKNESS OF	OVERB	URDEN	N/A		•	16.	. ELEVAT	ION TOP OF BORING	-46.5 Ft.			
8. TOTAL DEPTH OF BORING  8. TOTAL DEPTH OF BORING  CLASSIFICATION OF MATERIALS  CLASSIFICATION OF MATERIALS  AMPLE  LABORATORY RESULTS  SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell (fragments, gray (SP))  SAND, clayey, mostly fine-grained sand-sized quartz, little silt, Wood debtris at 3 ft., gray (SC)  CLAY, lean, mostly clay, some silt, trace wood debtis, silly clay, brownish gray (CL)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, some clay, troes elit, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, troes elit, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, troes elit, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, troes elit, gray (SC)  SAND, clayey mostly fine-grained sand-sized quartz, some clay, troes elit, gray (SC)  SAND, clayey mostly fine-grained sand-sized quartz, trace silt, it. 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.								17.	TOTALI	RECOVERY FOR BORI				
CLASSIFICATION OF MATERIALS  AMPLE  LABORATORY RESULTS  AND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, little silt, Wood debris at 3 ft., gray (SC)  CLAY, lean, mostly clay, some silt, trace wood debris, silty clay, brownish gray (CL)  SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace day, it gray (SP)  SAND, poorly-graded, mostly fine or medium-grained sand-sized quartz, trace silt, trace clay, it gray (SP)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some day, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, some day, little shell fragments, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, trace (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, trace (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, trace (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt,	7. DEP	TH DRILLED	INTO	ROCK	N/A			$\vdash$						
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SAND, poorly-graded, mostly fine to medium- grained sand-sized quartz, trace sitit, trace shell [figments, gray (SP)]  SAND, clayey, mostly fine-grained sand-sized quartz, little siti, Wood debris at 3 ft., gray (SC)  CLAY, lean, mostly clay, some siti, trace wood debris, sitly clay, brownish gray (CL)  SAND, poorly-graded, mostly fine to medium- grained sand-sized quartz, trace sitit, trace clay, it. gray (SP)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray  SAND, clayey, mostly fine-grained sand-sized quartz, tow plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray  SAND, clayey, mostly fine-grained sand-sized quartz, trace siti, it. gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace siti, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, trace siti, it. gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace siti, it. 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.	ELEV.	DEPTH	LEGEND	ď	CLASSIFICATIO	ON OF	MATERIALS		SAMPLE	L	ABORATORY RES	SULTS		
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grained sand-sized quartz, trace sitl, trace shell (fragments, gray (SP)  SAND, clayey, mostly fine-grained sand-sized quartz, little sitl, Wood debris at 3 ft., gray (SC)  CLAY, lean, mostly clay, some sitl, trace wood (debris, sitly day, brownish gray (CL)  SAND, porty-graded, mostly fine to medium-grained sand-sized quartz, trace sitl, trace clay, it. gray (SP)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little fire-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  SAND, clayey, mostly fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, two plasticity, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, two plasticity, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, two plasticity, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, trace sitl, it. 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.		-		CVVID -	noorly graded	mact	ly fine to madicin	,						=
SAND, clayey, mostly fine-grained sand-sized quartz, little slitt, Wood debris at 3 ft., gray (SC)	-47.5	<u>- 1.0</u>	11111	grained s	sand-sized au	, most iartz, t	race silt, trace she	ell /						F
-50.3 3.8 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-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, some clay, little shell fragments gray (SC)  NS  NS  NS  NS  NS  NS  NS  NS  NS  N		E				, -	, <del></del>	_/						E
-50.3 3.8 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-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, some clay, little shell fragments gray (SC)  NS  NS  NS  NS  NS  NS  NS  NS  NS  N		Ė		SAND.	clavev. mostly	v fine-	grained sand-size	<sub>ed</sub>						F
-51.2 4.7 CLAY, lean, mostly clay, some silt, trace wood debris, silty clay brownish gray (CL) SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, some clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-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.	<b>500</b>	F,,												F
debris, silty clay, brownish gray (CL)  SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, it. gray (SP)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, it. 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.	-50.3	<u>- 3.8</u>												E
SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, it. gray (SP)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, race silt, it. 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.	-51.2	4.7	<u> </u>					od						E
-53.8   -7.3    it. gray (SP)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace		Ē	· : `	debris, s	ilty clay, brow	nısn gı	ray (CL)	-/						E
-62.2 15.7  -63.0 16.5  -65.1 18.6  -66.5 20.0  NOTES:  NOTES:  NOTES:  NS AND, clayey, mostly fine-grained sand-sized quartz, some clay, little fine-grained sand-sized quartz, largely (SC)  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, it. 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.		_	<u> </u> :∴:											E
SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, it. 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.		F				ıartz, t	race silt, trace cla	y,						E
quartz, some clay, little shell fragments, gray (SC)  NS  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  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.	-53.8	7.3 	7////	it. gray (	(3F)									F
(SC)  NS  NS  NS  CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, it. 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.		-												F
-62.2   15.7  -63.0   16.5   CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  SAND, poorly-graded, mostly fine-grained sand-sized quartz, some clay, 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.		Ė			some clay, lit	tie sn	eli tragments, gra	ay						E
-62.2		Ė		(00)										Ė
CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  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.		F							NS					F
CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  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.		E												E
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CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  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.		Ė												Ė
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sized quartz, low plasticity, gray (CL)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  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.				01.434.7		1944	- Financia - 1	$\exists$						E
SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)  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.	-03.0	- 10.5 -		CLAY, le	ean, mostly cla artz low plact	ay, little icity o	e tine-grained san rav (CL)	a- Y						E
-65.1 18.6 quartz, some clay, trace silt, gray (SC)  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.		E			· · · · · · · · · · · · · · · · · · ·		,	-/						E
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.	-65.1	L - 18 6						ed						F
-66.5 - 20.0 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.	-00.1	- 10.0	(///				<del>,</del> ,	ᅴ						E
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.	-66 5	E 20 0	-:-					d-						Ė
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.	00.0	<u> </u>	╁┼┼	SIZEU QU	arız, trace SIII.	, it. yia	iy (OF)	-1						<del></del>
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.		<u> </u>		NOTES:										Æ
accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.		ŧ		NOTES:										F
System.  2. NS = Sample not submitted for laboratory analysis from this interval.		F		1. Sc	oils are field	d visi	ually classified	in						F
2. NS = Sample not submitted for laboratory analysis from this interval.		F				Jnified	Soils Classification	on						F
analysis from this interval.		E		System.										E
		Ė					nitted for laborato	ry						F
E 3. Seafloor elevation determined from USACE		F		analysis	from this inte	rval.								F
		E		3. Seafle	oor elevation	determ	nined from USACE	:						E

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.16273° Long = -88.37195°

Boring Designation BI-PBS-052-12

DRIL	LLING	LOC	G (Cont. Sheet)	INSTALL			SHEET 2 OF 2 SHEETS				
ROJECT			,,		<u> </u>						
		land F	Restoration	l l	COORDINATE SYSTEM/DATUM         HORIZONTAL         VERTICAL           State Plane, MSE (U.S. Ft.)         NAD83         NAVD88						
	N COORDII				ELEVATION TOP OF BORING						
	130,058		241,304	-46.5							
LEV.	DEPTH	LEGEND	CLASSIFICATION OF MAT		SAMPLE	LABORATORY R	ESULTS				
LEV.	DEPTH	LEGI	hydrographic survey completed A		SAMPLE	LABORATORY R	ESULTS				

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.16273° Long = -88.37195°

### Mississippi Barrier Island Restoration Project

# AVS SERVICES

Core Identifier BI-PBS-52-12

**Coordinate System** 

Date 11/30/2012

Water Depth 46.6'

Latitude / Longitude

Start Time 11:36:31

Penetration 20.0'

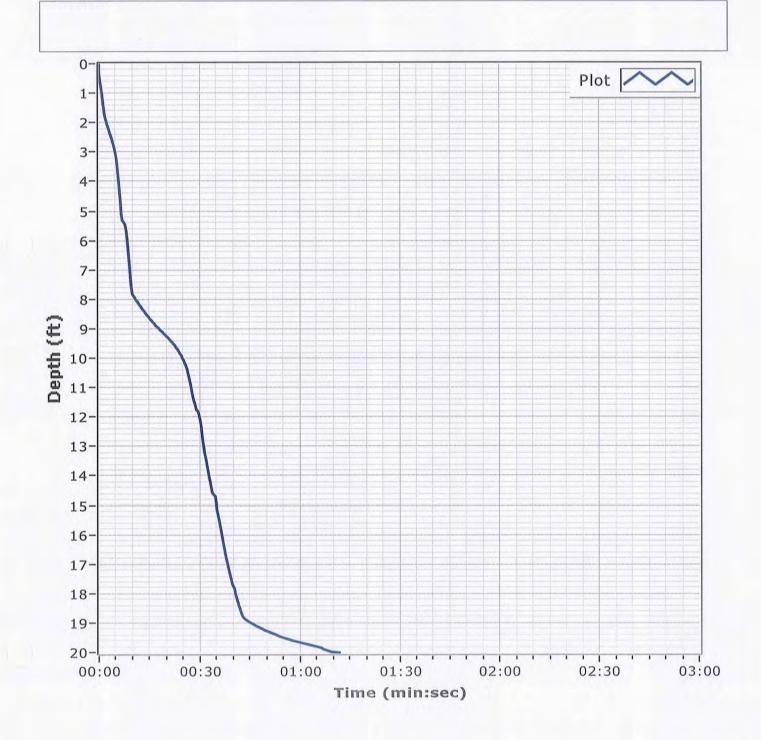
Latitude 30 09.764

End Time 11:37:43 Total Time 00:01:12

Recovery 20.0'

Longitude 088 22.317

Comments



Boring Designation BI-PBS-053-12

			1			I		oring Designation		1	
DRI	LLING	LOG	DIVISION	o <b>n</b> ith Atlantic		1	STALLATION Mobile Dis			SHEE	T 1 2 SHEETS
1. PRO	JECT		1 000	a , aa i aa		-			/A	19.	
<b>.</b>	/IsCIP Barri	ier Isla	nd Restorat	tion		$\overline{}$		NATE SYSTEM/DATUM		AL VERT	CAL
	Petit Bois Pa						State	Plane, MSE (U.S. Ft	.) ! NAD83	N/	VD88
	ING DESIG			LOCATION COOR	DINATES	11		ACTURER'S DESIGNAT		☐ AUTO HA	
Е	3I-PBS-053	-12		E = 1,131,214	N = 240,705		Vibra	acore		MANUAL	HAMMER
-	LLING AGEN			1	TRACTOR FILE NO.	12	. TOTAL S	SAMPLES	DISTURBED	i	RBED (UD)
	Corps of English		s - CESAM	i		⊢			!	0	
	American Vi		e Sveteme	Inc		13	. TOTAL	NUMBER CORE BOXES			
	ECTION OF			DEG. FROM	BEARING	14	. WATER	DEPTH	44.5 Ft.		
	VERTICAL INCLINED			VERTICAL		15	. DATE BO	DRING	<b>STARTED</b> 11-30-1	1 -	-30-12
6. THI	CKNESS OF	OVERI	BURDEN	N/A		16	. ELEVAT	ION TOP OF BORING	-45.9 Ft.		
7. DEP	TH DRILLED	) INTO	ROCK	N/A		17	. TOTAL F	RECOVERY FOR BORIN	<b>G</b> 100%		
						18	. SIGNAT	URE AND TITLE OF IN	SPECTOR		
8. ТОТ	AL DEPTH (	OF BOR	ing 2	0.0 Ft.		<u>L</u>	Mike	FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	С	LASSIFICATION O	F MATERIALS		SAMPLE	LA	BORATORY RES	SULTS	
-45.9	0.0					$\dashv$					
	F		SAND n	oorly-graded mos	stly fine to medium	,_					
	F	$ \cdots $	grained s	and-sized quartz,	trace silt, trace she	ell					F
	E	<u> </u> ∷:		s, gray (SP)				Q	OD 0 :	E) / 7/0 " · ·	E
	Ę	$ \cdot \cdot \cdot $					Α	Classification		5Y 7/2-light g Fines: 2.4	ray
	Ē							D30. 0.	55 15 mm 70	1 11103. 2.4	E
	<u>F</u>										Ŀ
	Ė	-::-									<u>F</u> ,
-51.4	- 5.5 L	1////				$\dashv$					F
-53.3	- - - 7.4				e-grained sand-size shell fragments, gra						-
	=			oorly graded with	ailt moethy fine t	$\overline{}$					Ē
-54.3	- 8.4		SAND, p ∫ medium	grained sand-size	silt, mostly fine to ed quartz, few sill	t, /					Ė
	Ē			, gray (SP-SM)		]					E
	Ė		SAND, c	layey, mostly fine	to medium-graine	d					F
	Ė		sand-size	ed quartz, some	e clay, little she						E
	Ė		rragment	s, gray (SC)							E
	Ė						NS				F
50.5	<b>L</b>						CNI				E
-59.5	13.6	0 00 0				$\dashv$					ŧ
60.0	E 15.0	0 00 0			gments, some fine	-					F
-00.9	F 15.0 F	Tiiil		and-sized quartz,	7: 0 7	ᅱ					E
	E	$\ \cdot\ _{1}$	SAND, S	silty, mostly fine	-grained sand-size	d					E
	E	$\parallel \parallel $	quartz, ii (SM)	ille clay, little sr	nell fragments, gra	у					ŧ
	F	[[:::::::	()								F
	F										F
	E	$\parallel \parallel $									E
-65 a	20.0	];};}									Ę
55.5	<u> </u>	1'''				$\dashv$					<del></del> -
	<u> </u>		NOTES:								E
	Ė										F
	F		1. So	ils are field vis	sually classified in d Soils Classification	n					F
	F		System.	ce with the Online	u Juis Ciassilicatioi	''					F
	E		•	0							E
	E			<ul> <li>Sample not sub from this interval.</li> </ul>	mitted for laborator	У					Ē
	F		-								F-1
i	<u>F</u>		<ol><li>Seaflo</li></ol>	oor elevation deter	mined from USACE						Ë

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.16107° Long = -88.36830°

Boring Designation BI-PBS-053-12

DRI	LLING	LOC	G (Cont. Sheet)	INSTAL			SHEET 2				
		,			ile District	'	OF 2 SHEETS				
OJEC McCl		land I	Restoration	I	INATE SYSTEM/DATU	I .	VERTICAL NAVD88				
	ON COORDI				State Plane, MSE (U.S. Ft.) NAD83 NAVD88  ELEVATION TOP OF BORING						
	,131,214		240,705	ı	9 Ft.	•					
	, - <b>,</b> —		,	, , , ,							
.EV.	DEPTH	LEGEND	CLASSIFICATION OF MA	TERIALS	SAMPLE	LABORATORY R	ESULTS				
			hydrographic survey completed	Арпі 2014.							

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.16107° Long = -88.36830°

### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

Core Identifier BI-PBS-53-12 A

Coordinate System

Latitude / Longitude

Date 11/30/2012

Water Depth 44.5'

Start Time 10:51:05

End Time 10:52:13

Total Time 00:01:08

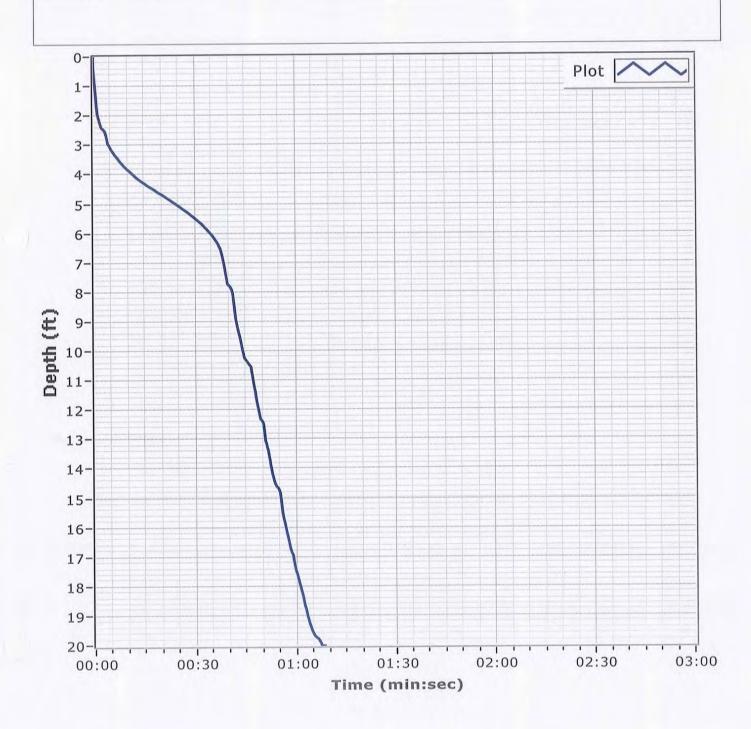
Penetration 20.0'

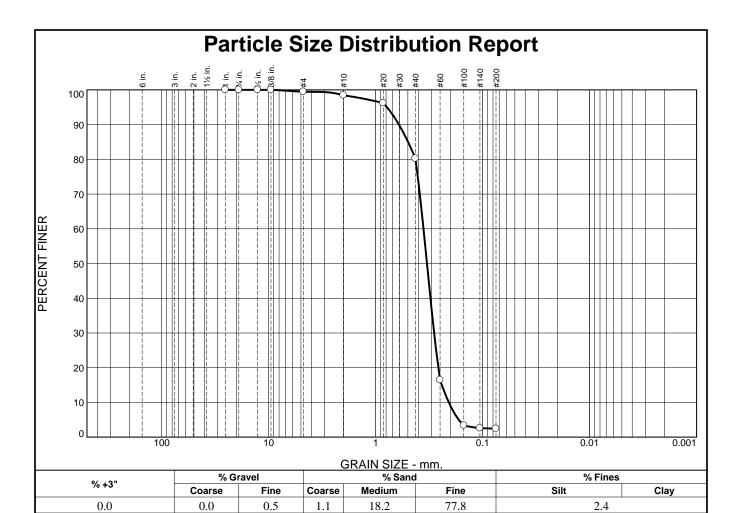
Recovery 20.0'

Latitude 30 09.664

Longitude 088 22.098

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Fine to medium §	Material Description Fine to medium grained, SAND								
PL=	Atterberg Limits LL=	PI=							
D <sub>90</sub> = 0.6063 D <sub>50</sub> = 0.3315 D <sub>10</sub> = 0.2072	Coefficients D <sub>85</sub> = 0.4980 D <sub>30</sub> = 0.2845 C <sub>u</sub> = 1.72	D <sub>60</sub> = 0.3571 D <sub>15</sub> = 0.2407 C <sub>C</sub> = 1.09							
USCS= SP	<u>Classification</u> AASHT	O=							
	<u>Remarks</u>								

**Location:** BI-PBS-53-12 A **Sample Number:** 6471 (27)

Sample Number: 6471 (27) Depth: 0.0' Date: 12/03/12

**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

### Boring Designation BI-PBS-054-12

			DIVISIO	N.			LINI	STALLATIO	N		Т.	SHEET 1
DR	ILLING	LOG		th Atlantic			1	Mobile Dis			I '	OF 2 SHEETS
1. PR	DJECT			Maritio			9. SIZE AND TYPE OF BIT N/A					
	MsCIP Barri	er Isla	nd Restorat	ion			$\overline{}$		NATE SYSTEM/DATUN		AL \	/ERTICAL
	Petit Bois Pa								Plane, MSE (U.S. Ft			NAVD88
	RING DESIGN			LOCATION C	OORDII	NATES	11.		ACTURER'S DESIGNAT		ПАШТ	O HAMMER
	BI-PBS-054-	-12				N = 239,892	1	Vibra			=	NUAL HAMMER
3. DR	LLING AGEN	ICY	'	,		RACTOR FILE NO.	١			DISTURBED	UND	ISTURBED (UD)
	Corps of Eng	gineers	s - CESAM				12	. TOTAL S	SAMPLES	-	0	
4. NA	ME OF DRILL	ER					13	. TOTAL I	NUMBER CORE BOXES	;	•	
	American Vil	bracor	e Systems,				144	. WATER	DERTH	45.7 Ft.		
	ECTION OF	BORIN	G	DEG. FROM	N	BEARING	<u> </u>	. WAIER	DEPIN	STARTED	- 1	OMPLETED
	VERTICAL INCLINED			, TERRITORE			15	. DATE BO	DRING	11-30-1		11-30-12
	<u>'</u>						╁				2	11-30-12
6. TH	CKNESS OF	OVER	BURDEN	N/A			16	. ELEVAT	ION TOP OF BORING	-46.5 Ft.		
7. DE	TH DRILLED	INTO	ROCK	N/A			_		RECOVERY FOR BORIN			
				2.0.51			18	. SIGNAT	URE AND TITLE OF IN	SPECTOR		
8. TO	TAL DEPTH C	)F BOR	RING 20	0.0 Ft.			Ц,	Mike	FitzHarris, Geologist	t		
ELEV.	DEPTH	LEGEND	C	LASSIFICATIO	ON OF I	MATERIALS		SAMPLE	LÆ	ABORATORY RES	ULTS	
-46.5	0.0	$\vdash$					_					
-51.5	5.0		grained s			y fine to medium ace silt, trace she		A	Classificatior D50: 0		5Y 7/2-li Fines: 1	ght gray
-52.1	5.6	/////	SAND, c	lavey, mostly	v fine-c	rained sand-size	d H	NS	<u> </u>			
E2 2	E.	[:-]		ome clay, gra			_/	В	Classification		5Y 7/2-li Fines: 3	ght gray
-53.3			J SAND n	oorly-graded	with s	silt, mostly fine t	~ \	NS	D50. 0	.3001111111 %	Filles. 3	<del></del> -E
-54.0	F 7.5	1////	\ medium-d	grained sand	d-sized	quartz, little she	ĭi /⊦	INS				
	F	<u> </u>  +]+	fragments	s, few silt, gra	ay (SP	-ŚM)	]	С	Classification: \$	SP-SM Colo	r: 5Y 7/2	?-light gray
EG 0	- - 9.5		SAND C	lavev mostly	v fine-c	rained sand-size		C	D50: 0	.3507 mm %	Fines: 6	.7
-50.0	- 9.5		ן  quartz, so			ell fragments, gra						<del></del>
			sand-size fragments SAND, c	ed quartz, s, trace clay, layey, mostly	some gray (S y fine-g	o medium-graine silt, trace she SM) grained sand-size ell fragments, gra	ed	NS				
-65.0	- 18.5											F
-00.0	<u> </u>		041:5		<i>c.</i>		$\exists$					F
66 5	F 20.0	[+]				rained sand-size Il fragments, gra						F
-00.5	- 20.0	11111	\quantz, si \(SM)	onio oni, lia	JC 311C	nagmonts, gra	"/					<del></del>
	E		· · ·				_					E
	<b>‡</b>		NOTES:				- [					F
	F		NOTES:									F
			Soi accordand System.	ils are field ce with the U	d visu Jnified	ally classified i Soils Classificatio	in on					
	- - - - -			Sample not from this inter		itted for laborator	ту					

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.15882° Long = -88.36448°

Boring Designation BI-PBS-054-12

DRI	LLING	LO	G (Cont. Sheet)	INSTALLA				SHEET 2 OF 2 SHEETS			
ROJEC					Mobile District OF 2  COORDINATE SYSTEM/DATUM HORIZONTAL VERTICAL						
		sland l	Restoration				NAD83	NAVD88			
OCATION COORDINATES					State Plane, MSE (U.S. Ft.) NAD83 NAVD88  ELEVATION TOP OF BORING						
	1,132,425		239,892	-46.5 F							
LEV.	DEPTH		CLASSIFICATION OF MAT	•	SAMPLE		LABORATORY RE	SULTS			
		LEGEND		rerials ed from USACE			LABORATORY RE	ESULTS			

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.15882° Long = -88.36448°

### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE SERVICES

Core Identifier BI-PBS-54-12

**Coordinate System** 

Latitude / Longitude

Date 11/30/2012

Start Time 09:17:07

End Time 09:18:50

Total Time 00:01:42

Water Depth 45.7'

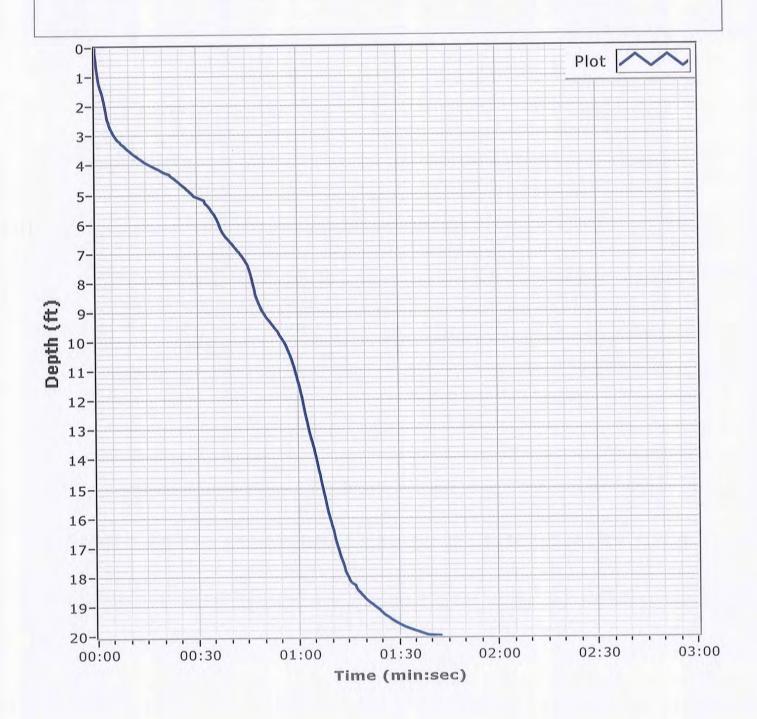
Penetration 20.0'

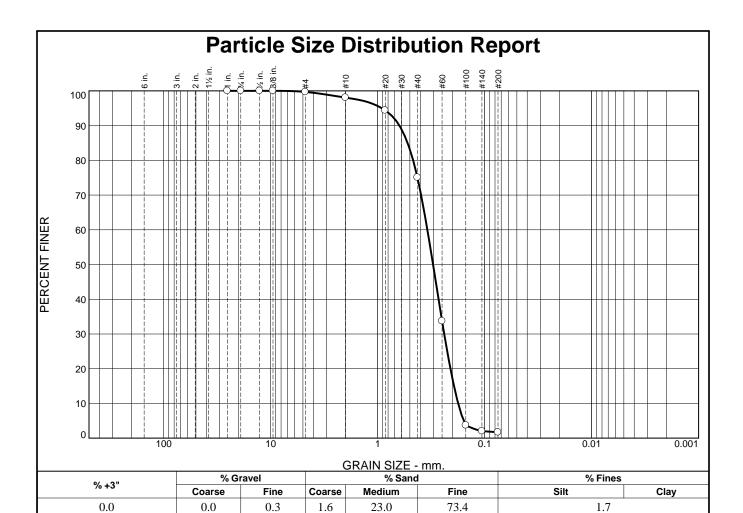
Recovery 20.0'

**Latitude** 30 09.529

Longitude 088 21.869

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	Material Description Fine to medium grained, SAND								
PL=	Atterberg Limits LL=	PI=							
D <sub>90</sub> = 0.6261 D <sub>50</sub> = 0.3037 D <sub>10</sub> = 0.1770	Coefficients D <sub>85</sub> = 0.5252 D <sub>30</sub> = 0.2387 C <sub>u</sub> = 1.94	D <sub>60</sub> = 0.3432 D <sub>15</sub> = 0.1935 C <sub>c</sub> = 0.94							
USCS= SP	Classification AASHT	-O=							
	<u>Remarks</u>								

Location: BI-PBS-54-12 A Sample Number: 6471 (28) Depth

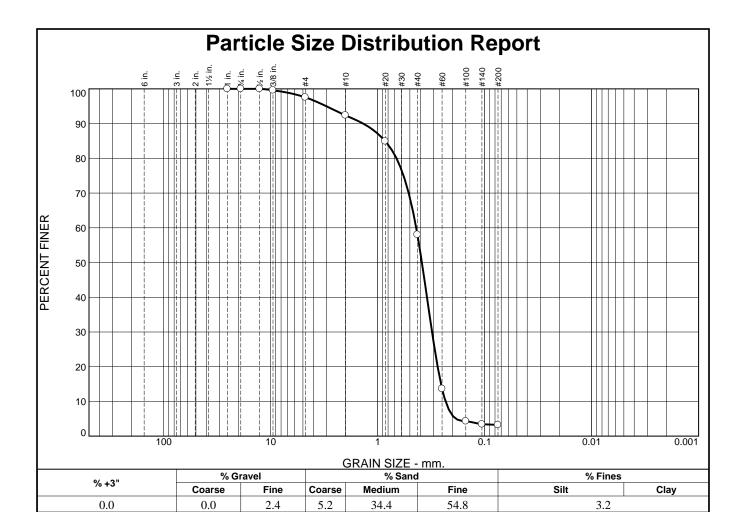
Sample Number: 6471 (28) Depth: 0.0' Date: 12/03/12

**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama Project No: 1221110095 Figure



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
* ,			

	Material Description Fine to medium grained, SAND, with trace SHELL										
PL=	Atterberg Limits LL=	PI=									
D <sub>90</sub> = 1.3683 D <sub>50</sub> = 0.3861 D <sub>10</sub> = 0.2318	Coefficients D <sub>85</sub> = 0.8553 D <sub>30</sub> = 0.3104 C <sub>u</sub> = 1.88	D <sub>60</sub> = 0.4365 D <sub>15</sub> = 0.2559 C <sub>c</sub> = 0.95									
USCS= SP	Classification										
<u>Remarks</u>											

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

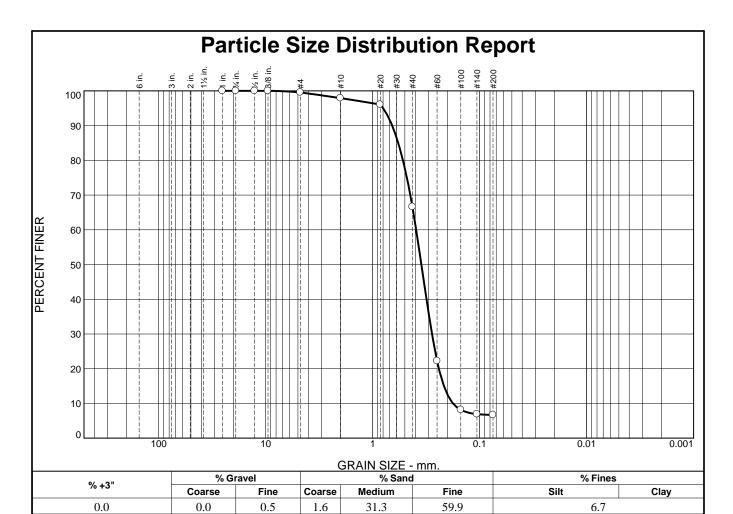
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	Material Description Fine to medium grained, SLIGHTLY SILTY SAND										
PL=	Atterberg Limits LL=	PI=									
D <sub>90</sub> = 0.6572 D <sub>50</sub> = 0.3507 D <sub>10</sub> = 0.1777	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$										
USCS= SP-SM	Classification AASHTC	)=									
<u>Remarks</u>											

**Location:** BI-PBS-54-12 C **Sample Number:** 6471 (30)

Sample Number: 6471 (30) Depth: 7.5' Date: 12/03/12

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-055-12

DR	ILLING	LOG	DIVISI					1 1	STALLATIO					SHEET	
1. PRO			Sou	uth Atlantic				_	Mobile Di					<b>OF</b> 1	SHEETS
								_		TYPE OF BIT	N/A				
	MsCIP Barrie			ition				10.		NATE SYSTEM/D		HORIZON		VERTIC	
	Petit Bois Pa			LOCATION	COOPD	INATES		11		Plane, MSE (L ACTURER'S DES					√D88
	81-PBS-055-		•	1		N = 24	2 421	l '''	Vibra		IGNATIO	N OF DRILL	_	AH OTUA	MMER HAMMER
	LLING AGEN					TRACTOR		$\vdash$	VIDIC	10010	; 0	ISTURBED			BED (UD)
(	Corps of Eng	gineers	s - CESAM		!			12.	TOTAL S	SAMPLES	j		ij	0	`
	/IE OF DRILL							13.	TOTAL I	NUMBER CORE E	BOXES				
,	American Vil	oracore	e Systems,	, Inc.				⊢				47.0.54			
	ECTION OF E	BORING	3	DEG. FRO	М	BEARIN	IG	<u> </u>	WATER	DEPIN		47.2 Ft.		COMPL	
	VERTICAL INCLINED				-	1		15.	DATE B	DRING		11-30-	12		30-12
6. THI	CKNESS OF	OVERE	BURDEN	N/A		•		16.	ELEVAT	ION TOP OF BO	RING	-46.6 Ft.		1	
7. DEF	TH DRILLED	INTO	ROCK	N/A				17.	TOTAL I	RECOVERY FOR	BORING	100%			
								18.	SIGNAT	URE AND TITLE	OF INSP	ECTOR			
8. TO	AL DEPTH O	F BOR	ing 1	5.0 Ft.				L,	Mike	FitzHarris, Ge	ologist				
ELEV.	DEPTH	LEGEND	c	CLASSIFICATI	ON OF	MATERIA	LS		SAMPLE		LABO	PRATORY RE	SULTS		
-46.6	0.0														
40.0			grained s	ooorly-graded sand-sized qu ts, It. gray to q	iartz, t	race silt,			Α		ication: S 050: 0.33		5Y 7/2 Fines	2-light gr :: 1.7	Ē
	-3.2	1////						$\dashv$							<u>_</u>
-50.6	<del>-</del> 4.0			clayey, mostl											E
-51.5	4.9		∖quartz, s ∖(SC)	some clay, tra	ace si	ieii iragini	ierits, gra	у/Д							E
	F	·	/					7/							F
-53.0	6.4			ean, mostly cl sand, gray (		th alterna	ting band	s/]							F
	-		SAND, p	poorly-graded sand-sized q , gray (SP-S	d with uartz,										
-56.1	9.5		CLAY, le	ean, mostly cl	lay, tra	ace shell t	fragments	s, /	NS						Ē
-58.6	12.0		SAND, o	clayey, mostl some clay, so											- - - - -
-60.9	- - - -14.3		grained	poorly-graded sand-sized qu ts, gray (SP-	uartz,	silt, mo	ostly fine trace she	}- !							- - - - -
-61.6	- 15.0 -			oorly-graded,			ined sand	╌┟							
	E		\sizea qua	artz, trace silt	, ιι. gra	ay (SP)		ا_							Ę
	E		NOTES:												Ę
			So accordant System.	oils are fiel nce with the l	d visı Jnified	ually cla Soils Cla	ssified i assificatio	n n							<u> </u>
	-  -  -  -		2. NS =	= Sample no from this inte		nitted for	laborator	у							
	<u>-</u> - - -		3. Seafl	oor elevation phic survey c	deterr			E							-  -  -  -
			-	-											

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.16577° Long = -88.36303°

### 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

Comments

Date 11/30/2012

Start Time 12:49:34

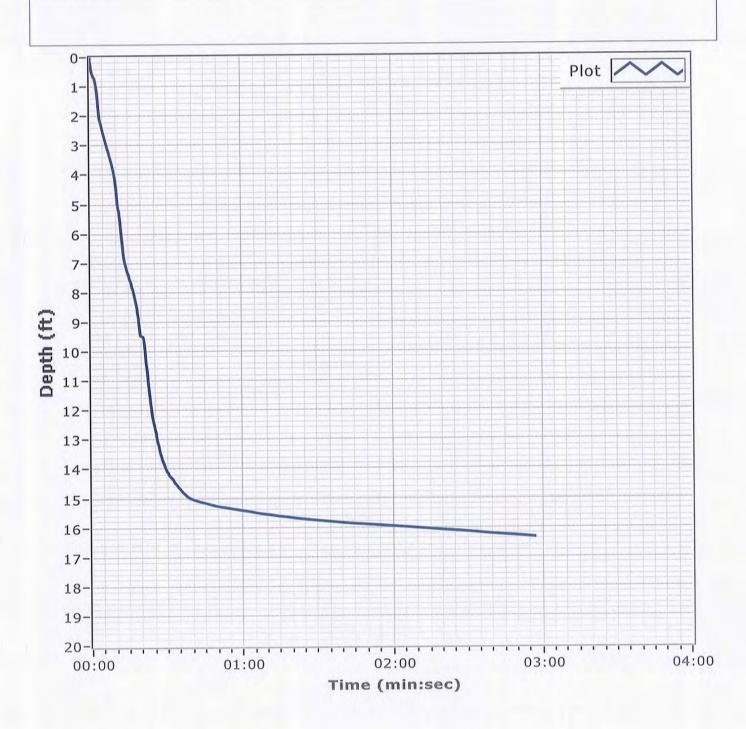
End Time 12:52:32

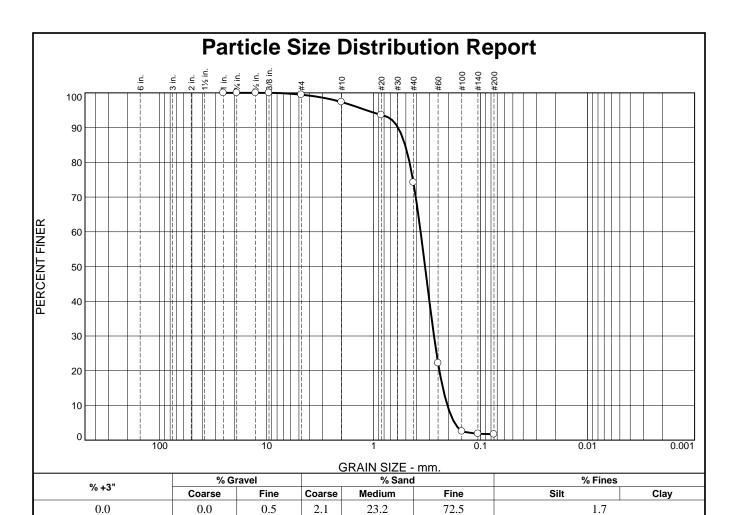
Total Time 00:02:57

Water Depth 47.2'

Penetration 16.4'

Recovery 15.0'





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND										
PL=	Atterberg Limits	PI=								
D <sub>90</sub> = 0.5917 D <sub>50</sub> = 0.3311 D <sub>10</sub> = 0.2045	Coefficients D <sub>85</sub> = 0.5087 D <sub>30</sub> = 0.2731 C <sub>u</sub> = 1.78	D <sub>60</sub> = 0.3640 D <sub>15</sub> = 0.2254 C <sub>C</sub> = 1.00								
USCS= SP	Classification AASHT	-O=								
	<u>Remarks</u>									

**Figure** 

(no specification provided)

**Location:** BI-PBS-55-12 A **Sample Number:** 6471 (31)

Sample Number: 6471 (31) Depth: 0.0' Date: 12/03/12

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama Project No: 1221110095

#### Boring Designation BI-PBS-056-12

DR	LLING	LOG	DIVISI						TALLATIO					SHEET	
1. PRO			Sou	uth Atlantic					Mobile Di					OF 1	SHEETS
			-l D4							TYPE OF BIT	N/A	HORIZON	ITAI	VERTI	241
	AsCIP Barrie			ition				10.		Plane, MSE (l		-		1	
	Petit Bois Pa		East	LOCATION	COORD	INATES		11.		ACTURER'S DES				NA AUTO HA	√D88
_	3I-PBS-056-			i		N = 243,	108		Vibra			0. 522			HAMMER
	LLING AGEN			1,		TRACTOR FI					¦ r	DISTURBED			BED (UD)
(	Corps of Eng	gineers	- CESAM	1				12.	TOTAL S	SAMPLES				0	
4. NAN	IE OF DRILLI	ER						13.	TOTAL I	NUMBER CORE	BOXES				
	American Vit			, Inc.				14	WATER	DEDTH		48.3 Ft.			
	ECTION OF E VERTICAL	BORING		DEG. FROI	M	BEARING			WAILK			STARTED	`	COMPL	ETED
_	INCLINED							15.	DATE B	DRING		11-30		1	30-12
6. THI	CKNESS OF	OVERB	JRDEN	N/A		•		16.	ELEVAT	ION TOP OF BO	RING	-46.0 Ft.			
7. DEP	TH DRILLED	INTO F	оск	N/A				17.	TOTAL I	RECOVERY FOR	BORING	100%			
								18.	SIGNAT	URE AND TITLE	OF INSP	ECTOR			
8. ТОТ	AL DEPTH O	F BORI	NG 1	4.8 Ft.					Mike	FitzHarris, Ge	ologist				
ELEV.	DEPTH	LEGEND	d	CLASSIFICATION	ON OF	MATERIALS	S		SAMPLE		LAB	DRATORY RE	SULTS		
-46.0	0.0							ゴ							
-48.6	2.6		grained s	ooorly-graded sand-sized qu ts, It. gray (S	iartz, t				Α		ication: 9 050: 0.34		:: 5Y 7/ % Fines	2-light gr s: 1.4	E
-50.7	- - - - - - - - -		quartz,	clayey, mostly some clay, ts, trace wood	trace	e silt, trad	ce shel		B		ication: S 050: 0.24		:: 5Y 5/ 5 Fines	2-olive g : 13.8	ray
-53.4	7.4		grained :	poorly-graded sand-sized quand between	uartz,	few silt, tra	ace clay	',	С	Classification: [		Color: 2.9 416 mm - 9			wnish gray
-57.9	11.9		sand-size	ean, mostly ed quartz, tra plasticity, gra	ce she	ell fragment			NS						
-60.8	-		grained : fragment	poorly-graded sand-sized qu ts, clayey noo gray spots (SI	uartz, dules	few silt, tra throughout,	ace shel	1							-
			accordar System.  2. NS = analysis  3. Seafl	oils are field not with the U = Sample not from this inte loor elevation phic survey c	Jnified t subn rval. deterr	I Soils Class mitted for la	sification aboratory USACE	ר י							

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.16767° Long = -88.36647°

### Mississippi Barrier Island Restoration Project

# AVS **AMERIC** SERVICES

Core Identifier BI-PBS-56-12

**Coordinate System** 

Date 11/30/2012

Water Depth 48.3'

Latitude / Longitude

Start Time 13:48:11

Penetration 16.0'

Latitude 30 10.060

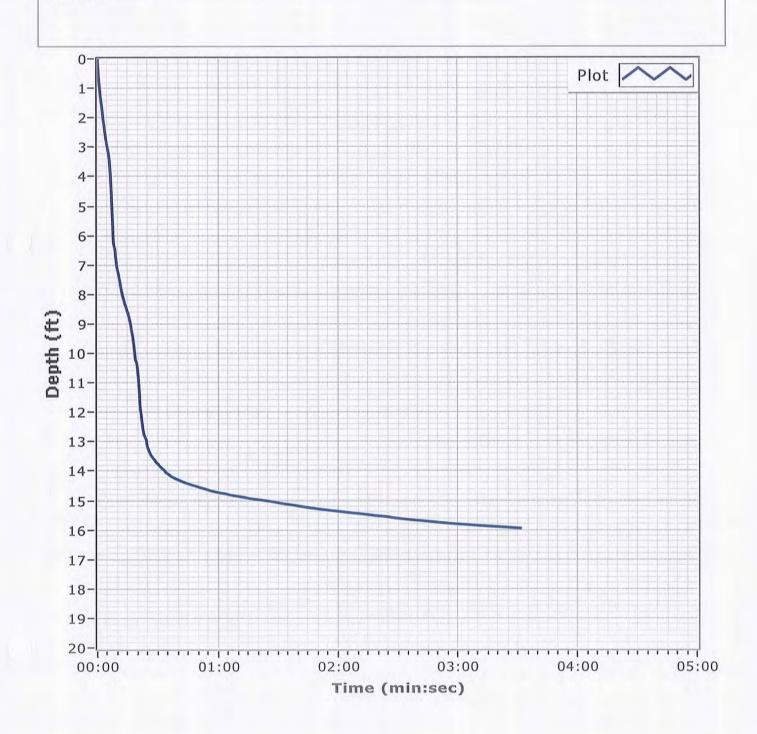
Total Time 00:03:31

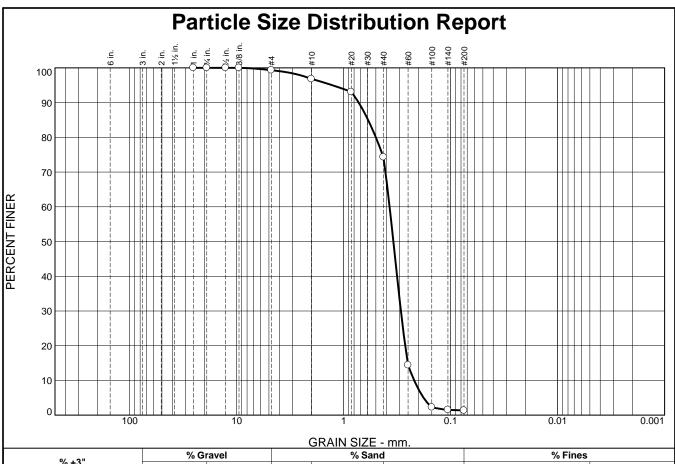
End Time 13:51:43

Recovery 14.8'

Longitude 088 21.988

Comments





% <b>+</b> 3"	% Gra	ıvel		% Sand		% Fines					
% +3	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay				
0.0	0.0	0.7	2.5	22.5	72.9	1.4					
SIEVE PERCENT	SPEC.*	PASS	3?	Material Description							

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
	SIZE  1 .75 .5 .375 #4 #10 #20 #40 #60 #100 #140	SIZE         FINER           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	SIZE         FINER         PERCENT           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

Material Description Fine to medium grained, SAND										
PL=	Atterberg Limits LL=	PI=								
D <sub>90</sub> = 0.7245 D <sub>50</sub> = 0.3431 D <sub>10</sub> = 0.2191	Coefficients D <sub>85</sub> = 0.5913 D <sub>30</sub> = 0.2921 C <sub>u</sub> = 1.70	D <sub>60</sub> = 0.3720 D <sub>15</sub> = 0.2519 C <sub>C</sub> = 1.05								
USCS= SP	Classification AASHT	O=								
<u>Remarks</u>										

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

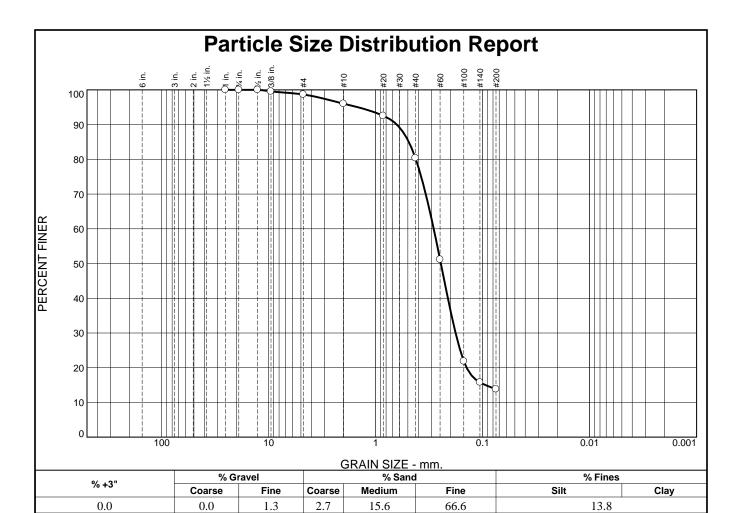
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SILTY SAND, with trace SHELL					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.6343 D <sub>50</sub> = 0.2458 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.4902 D <sub>30</sub> = 0.1792 C <sub>U</sub> =	D <sub>60</sub> = 0.2869 D <sub>15</sub> = 0.0941 C <sub>c</sub> =			
USCS= SM	Classification AASHT	O=			
	<u>Remarks</u>				

**Location:** BI-PBS-56-12 B **Sample Number:** 6471 (33)

**Depth: 2.6' Date:** 12/03/12

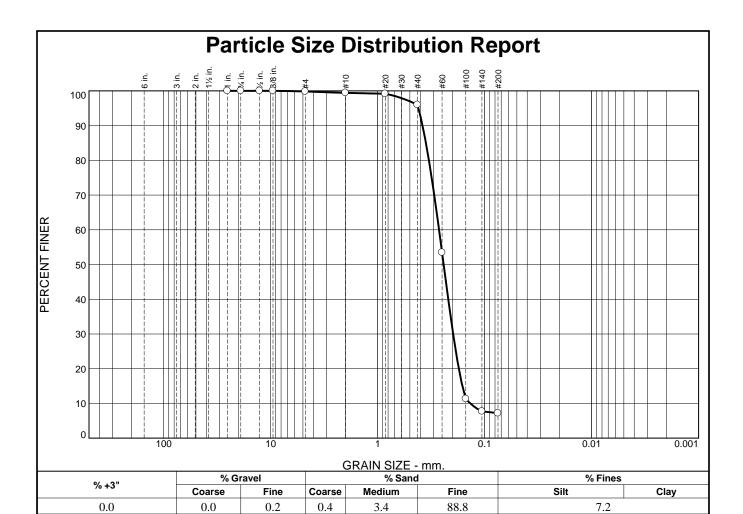
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SLIGHTLY SILTY SAND					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.3806 D <sub>50</sub> = 0.2416 D <sub>10</sub> = 0.1361	Coefficients D <sub>85</sub> = 0.3539 D <sub>30</sub> = 0.1970 C <sub>u</sub> = 1.96	D <sub>60</sub> = 0.2669 D <sub>15</sub> = 0.1618 C <sub>c</sub> = 1.07			
USCS= SP-SM	Classification AASHTO	)=			
	<u>Remarks</u>				

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-057-12

DR	ILLING	LOG	DIVIS				IN	STALLATI					SHEET	
	South Atlantic  1. PROJECT			+	Mobile Di					<b>OF</b> 1	SHEETS			
					TYPE OF BIT	N/A								
MsCIP Barrier Island Restoration				10		INATE SYSTEM/DA		HORIZON		VERTIC				
	Petit Bois Pass-OCS East  2. BORING DESIGNATION LOCATION COORDINATES					-		e Plane, MSE (U.S ACTURER'S DESIG					√D88	
	BI-PBS-057-12   E = 1,130,570 N = 243,685				-   ''		acore	MAIIO	OF DRILL		NUTO HA	MMER HAMMER		
	LLING AGEN			1 _ 1,10		RACTOR FILE N				D	ISTURBED			BED (UD)
(	Corps of Eng	gineers	s - CESAM	1	:		12	. TOTAL	SAMPLES	}			0	
	NE OF DRILL						13	. TOTAL	NUMBER CORE BO	XES				
	American Vil					_		. WATER	DEPTH		47.4 Ft.			
	ECTION OF I	BORIN	G	DEG. FROI VERTICAL	MI.	BEARING	-				STARTED	1	COMPL	ETED
_	INCLINED					i	15	. DATE B	ORING		11-30	-12	11-	30-12
6. THI	CKNESS OF	OVER	BURDEN	N/A		•	16	. ELEVA	TION TOP OF BORI	NG	-45.1 Ft.			
7. DEP	TH DRILLED	INTO	ROCK	N/A			17	. TOTAL	RECOVERY FOR BO	DRING	100%			
							18	. SIGNAT	URE AND TITLE O	FINSPE	CTOR			
8. TO1	AL DEPTH O	)F BOR	RING 1	4.0 Ft.				Mike	FitzHarris, Geolo	ogist				
ELEV.	DEPTH	LEGEND	(	CLASSIFICATION	ON OF	MATERIALS		SAMPLE		LABO	RATORY RE	SULTS		
-45.1	0.0													
-48.9	SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shelfragments, lt. gray to gray (SP)						Α	Classifica D5		P Color 14 mm %	: 5Y 7/2 % Fines	2-light gr :: 2.3	Ē	
-49.7	E 4.6		SAND	rlavev mostl	v fine-	grained sand-si	zed	NS						E
	5.4					iell fragments, g		В	Classification:			5Y 6/2 % Fines	2-light oli	ve gray
	-		sized qu (SP)	artz, trace cla	y, trac	y fine-grained sa e wood debris, g ome silt, trace fi	ray			0. 0.23	27 mm 🦠	0111103	. 0.0	
	- 9.0 - - - - - - - - - - - - - - - - - - -		SAND, quartz,	sand-sized qu clayey, mostl <sup>,</sup>	artz, g y fine-	ray (CL) grained sand-si shells, trace w	zed	NS						
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)														
	<u>-</u> - - -		NOTES:											- - - -
						ually classified Soils Classifica								-
	- - - -		analysis	from this inte	rval.	nitted for laborat	j							-  -  -  -
						mined from USA ted April 2014.	CE							
	<u> </u>													

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.16927° Long = -88.37030°

### Mississippi Barrier Island Restoration Project

# AVS SERVICES

Core Identifier BI-PBS-57-12

**Coordinate System** Latitude / Longitude Date 11/30/2012

Water Depth 47.4

Start Time 14:51:00

Penetration 15.4'

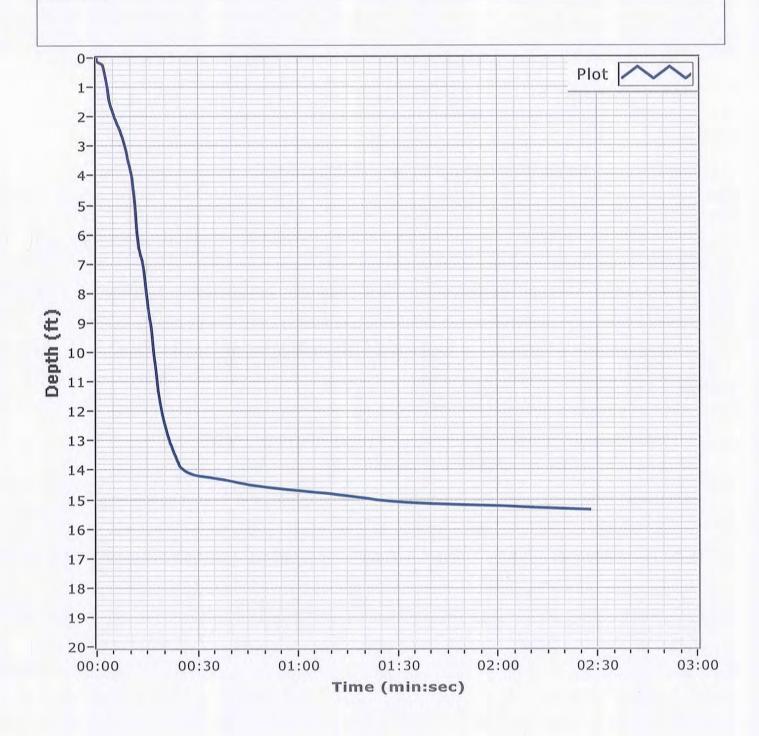
Latitude 30 10.156

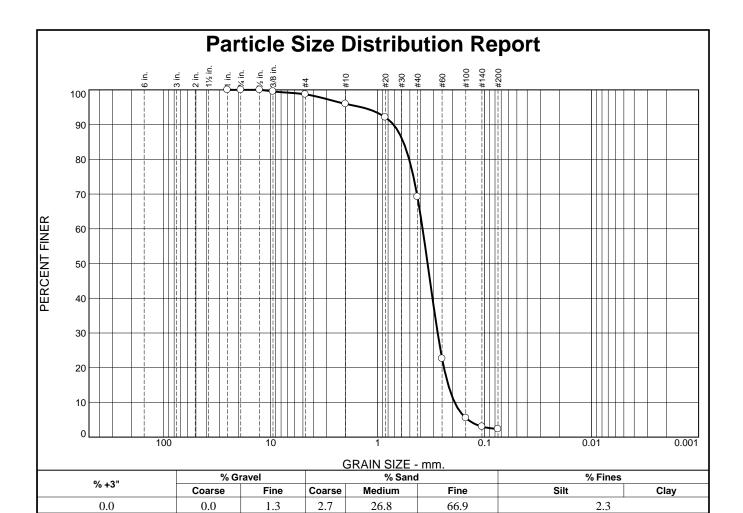
End Time 14:53:28 Total Time 00:02:28

Recovery 14.0'

Longitude 088 22.218

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND, with trace SHELL					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.7121 D <sub>50</sub> = 0.3414 D <sub>10</sub> = 0.1908	Coefficients D <sub>85</sub> = 0.5755 D <sub>30</sub> = 0.2751 C <sub>u</sub> = 1.99	D <sub>60</sub> = 0.3801 D <sub>15</sub> = 0.2187 C <sub>c</sub> = 1.04			
USCS= SP	Classification AASHTO	)=			
	<u>Remarks</u>				

Location: BI-PBS-57-12 A Sample Number: 6471 (35)

Sample Number: 6471 (35) Depth: 0.0' Date: 12/03/12

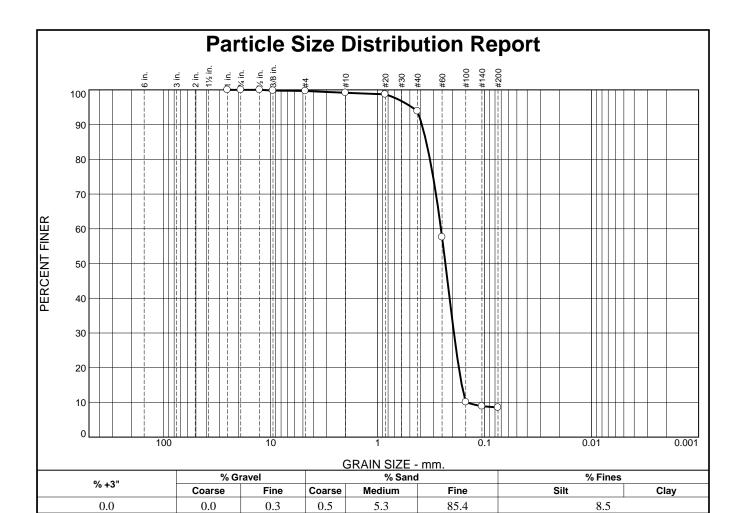
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SLIGHTLY SILTY SAND					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.3862 D <sub>50</sub> = 0.2327 D <sub>10</sub> = 0.1466	Coefficients D <sub>85</sub> = 0.3513 D <sub>30</sub> = 0.1938 C <sub>u</sub> = 1.75	D <sub>60</sub> = 0.2560 D <sub>15</sub> = 0.1637 C <sub>c</sub> = 1.00			
USCS= SP-SM	Classification AASHTC	)=			
	<u>Remarks</u>				

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama **Project No:** 1221110095

#### Boring Designation BI-PBS-058-12

DRI	LLING	LOG	DIVISI				1	STALLATIO				SHEE	
1. PRO			Sou	uth Atlantic			-	Mobile Dis		1/4		OF 2	SHEETS
	/IsCIP Barrie	or Island	1 Doctors	tion					NATE SYSTEM/DATUR	√A • HORIZON	ΓΔΙ	VERTI	CAL
	Petit Bois Pa			ILION			'''		Plane, MSE (U.S. F			!	
	ING DESIGN		Easi	LOCATION	OORD	INATES	11.		CTURER'S DESIGNAT	/		UTO HA	VD88
	3I-PBS-058-			1		N = 244,207		Vibra					HAMMER
3. DRII	LING AGEN	CY				RACTOR FILE NO.	1	TOTAL	AMDI EC	DISTURBED	U	IDISTUE	RBED (UD)
	Corps of Eng		- CESAM		<u>i</u>		12.	TOTAL	AIVIPLES			0	
	IE OF DRILL						13.	TOTAL I	NUMBER CORE BOXES	5			
	American Vil		Systems,	, Inc. DEG. FROI		BEARING	14.	WATER	DEPTH	47.2 Ft.			
$\boxtimes$	VERTICAL INCLINED	SOKING		VERTICAL		BEARING	15.	DATE BO	DRING	STARTED 11-30-	12	COMPI	30-12
6. THI	CKNESS OF	OVERBL	JRDEN	N/A		_	16.	ELEVAT	ION TOP OF BORING	-44.3 Ft.			
7. DEP	TH DRILLED	INTO R	оск	N/A			17.	TOTAL F	RECOVERY FOR BORI	NG 100%			
							18.	SIGNAT	URE AND TITLE OF IN	ISPECTOR			
8. ТОТ	AL DEPTH O	F BORII	NG 1	9.9 Ft.			<u>L</u>	Mike	FitzHarris, Geologis	t			
ELEV. DEPTH CLASSIFICATION OF MATERIALS						MATERIALS		SAMPLE	L	ABORATORY RE	SULTS		
-44.3	0.0												
-47.5	-3.2	:::	grained s		iartz, t	lly fine to mediun race silt, trace she		A	Classification D50: 0	n: SP Color: ).3436 mm %	5Y 7/2 Fines	?-light gi : 1.6	ray :
-48.9						grained sand-size silt, trace she		В	Classification D50: 0	n: SM Color: .2437 mm %	5Y 5/2 Fines:	2-olive g 16.5	ray
			CLAY, fa	od debris, fev	ay, trad w sand	s, gray (SC) ce shell fragment ty pockets, mediu ray to gray (CH)	s, m						
-54.4 -58.2	10.1		quartz, s	ome clay, lit termixed bet	tle she	grained sand-size ell fragments, larg 11.7 and 13.1 f	ae I	NS					
			grained alternatin sand and	sand-sized ng bands of p	qua oorly ( some	graded, fine-graine silt and fine gra	y, ed						
-64.2	19.9	. 1//					$\dashv$						<u>F</u> .
			accordan System. 2. NS =	nce with the U	Jnified t subn	ually classified Soils Classification	on						
			•			nined from USACE							<u> </u>

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.17072° Long = -88.37428°

Boring Designation BI-PBS-058-12

DR	ILLING	LOC	G (Cont. Sheet)	I	INSTALLATION SHEET 2  Mobile District OF 2 SHEETS						
ROJEC			1		NATE SYSTEM/DAT	TIIM	HORIZONTAL	OF 2 SHEETS			
		sland I	Restoration		· Plane, MSE (U.S.		NAD83	NAVD88			
	ON COORDI				ELEVATION TOP OF BORING						
	1,129,310		244,207	-44.3							
ELEV. DEPTH U CLASSIFICATION OF MATE				SAMPLE		LABORATORY RI	ESULTS				
		TEG	hydrographic survey completed A	April 2014.							

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.17072° Long = -88.37428°

#### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

Core Identifier BI-PBS-58-12

Coordinate System

Latitude / Longitude

Date 11/30/2012

Water Depth 47.2'

Start Time 15:41:36

End Time 15:42:37

Total Time 00:01:01

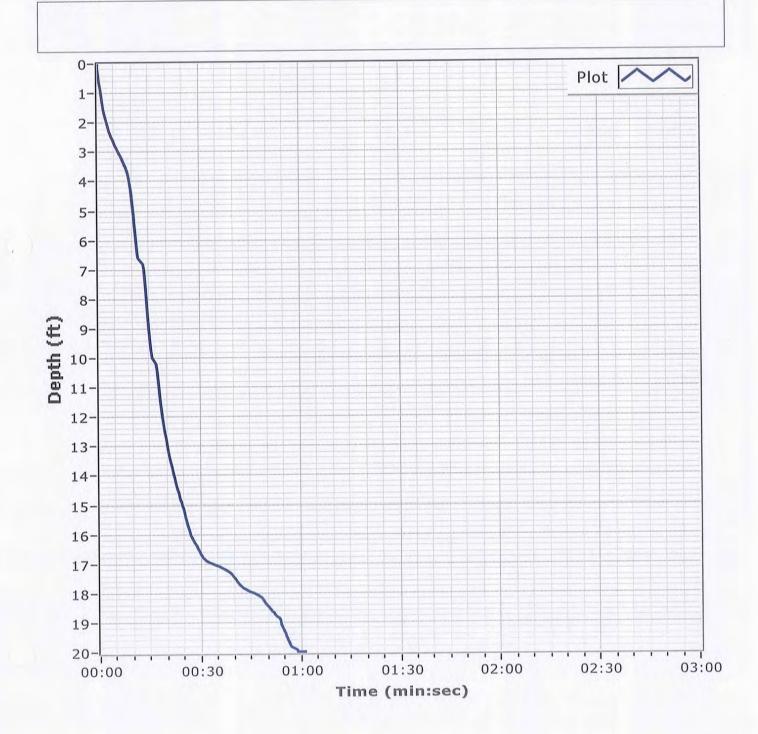
Penetration 20.0'

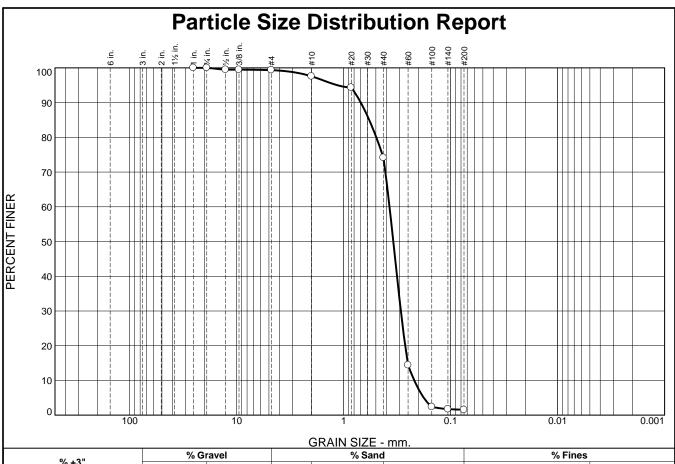
Recovery 19.9'

Latitude 30 10.243

Longitude 088 22.457

Comments





% +3"		% Grav	el		% Sand	t	% Fines		
			Coarse Fine Coarse Medium Fine		Fine	Silt Clay			
0.0			0.0	0.6	1.8	23.5	72.5	1.6	
	SIEVE PERC		SPEC.*	PASS			Mater	al Description	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
	SIZE  1 .75 .5 .375 #4 #10 #20 #40 #60 #100 #140	SIZE         FINER           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	SIZE         FINER         PERCENT           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

Material Description Fine to medium grained, SAND									
PL=	Atterberg Limits LL=	PI=							
D <sub>90</sub> = 0.6921 D <sub>50</sub> = 0.3436 D <sub>10</sub> = 0.2189	Coefficients D <sub>85</sub> = 0.5770 D <sub>30</sub> = 0.2923 C <sub>u</sub> = 1.70	D <sub>60</sub> = 0.3726 D <sub>15</sub> = 0.2519 C <sub>C</sub> = 1.05							
USCS= SP	Classification AASHT	-O=							
	<u>Remarks</u>								

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

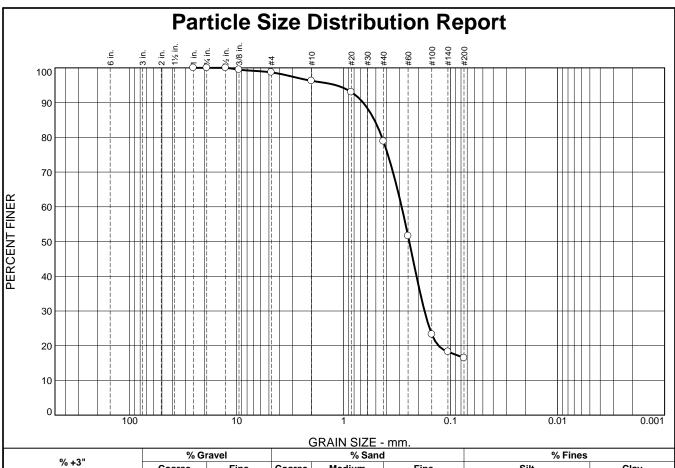
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



% <b>+</b> 3"	% Gr	avel		% Sand	t	% Fines				
70 +3		Coarse Fine Coarse		Coarse	Medium	Fine	Silt	Clay		
0.0	0.0 0.0 1.3 2.4 17.4 62.4 16		16.5							
SIEVE	PERCENT	SPEC.	* PAS	S?	Material Description					
SIZE	FINER	PERCE	NT (X=N	IO)	Fine to medium grained, SILTY SAND, with trace organics and					
1	100.0				trace Sl	HELL				
.75	100.0									

0.272	. LittoLitt	O. LO.	1 700.
SIZE	FINER	PERCENT	(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		
I	1	1	ı

PL=	Atterberg Limits LL=	PI=							
D <sub>90</sub> = 0.6582 D <sub>50</sub> = 0.2437 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.5164 D <sub>30</sub> = 0.1756 C <sub>u</sub> =	D <sub>60</sub> = 0.2873 D <sub>15</sub> = C <sub>c</sub> =							
USCS= SM	USCS= SM Classification AASHTO								
	<u>Remarks</u>								

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-059-12

DE	RILLING	100	DIVISIO	N		Ti	NS.	TALLATIO	on		SHEET	1
			Sout	h Atlantic				Mobile Dis			<b>OF</b> 1	SHEETS
1. PR	OJECT									I/A		
	MsCIP Barri			on		1	10.		NATE SYSTEM/DATUN		1	
2 80	Petit Bois Pa			LOCATION C	OORDINATES	<del></del>	1.1		Plane, MSE (U.S. Fi			/D88
2. BU	BI-PBS-059		' '		,239 N = 233,4	- 1	11.	Vibra		ION OF DRILL	MANUAL H	
3. DR	RILLING AGEN				CONTRACTOR FIL			VIDIA	COLE	DISTURBED	UNDISTUR	
	Corps of En		- CESAM				12.	TOTAL S	SAMPLES		0	(
4. NA	ME OF DRILL						13.	TOTAL N	NUMBER CORE BOXES	·		
	American Vi	bracore	e Systems, I	Inc.		-						
-	RECTION OF	BORING	3	DEG. FROM	BEARING		14.	WATER	DEPIH	53.4 Ft.	Lacren	
_	✓ VERTICAL VERTICAL INCLINED						15.	DATE BO	DRING	11-26-	COMPL 11-2	26-12
6. TH	THICKNESS OF OVERBURDEN N/A							ELEVAT	ION TOP OF BORING	-53.1 Ft.		
7. DE	PTH DRILLED	INTO	ROCK N	V/A			17.	TOTAL F	RECOVERY FOR BORIN	NG 100%		
			•				18.		URE AND TITLE OF IN			
8. 10	TAL DEPTH C		ING 19	.5 Ft.			_	Mike	FitzHarris, Geologis	t		
ELEV	. DEPTH	LEGEND	CL	ASSIFICATIO	N OF MATERIALS		:	SAMPLE	L	ABORATORY RES	SULTS	
-53.1	1 0.0						1					
	E	-:[	SAND no	orly-graded	mostly fine to n	nedium-			Classification	n SP Color:	5Y 7/1-light gra	av E
	Ē,	:::	grained	sand-sized	quartz, trace			Α			Fines: 1.1	~ F
	9 <u>-</u> 1.8	<del>                                     </del>	fragments	, gray (SP)			+		Classification: S		r: 5Y 5/2-olive	grav
-55.7	7 = 2.6		SAND. si	iltv. mostly	fine-grained sar	nd-sized	$\perp$	В			ines: 11.4	<u> </u>
	F				ments, gray (SM)		/					F
	E		CLAV eilt	v moetly eilt	some sand, trace	s challe						E
	E				ernating clayey							E
	F				vith brown (ĆĽ-N							F
	E											E
	ļ.											ļ.
	F											F
-61.2	2 <b>E</b> .8.1											E
	F	Hill	SAND ci	ilty moetly	fine-grained sar	nd cizod	1					F
	F	<del>     </del>	guartz, s	some silt,	few clay, trace	e shell						-
	E	11111		, gray (SM)	•							E
	Ė											E
	F							NS				
	E	<del> </del>										E
	F	]†;†;[										F
-66.4	4 <del>-</del> 13.3						4					F
	E		CLAY, fat.	, mostly clav.	trace fine-graine	ed sand-						E
	F		sized qua	artz, trace	wood debris, i	medium						F
	F		stiffness, g	gray (CH)								F
	E											F
	F											F
	F											F
	E											E
	ŧ											F
-72.6	E 6 F 19.5											F
	E	<del>                                     </del>					T					
	E		NOTES:									E
	E					_						F
	E				visually classi							E
	E		accordanc System.	e with the U	nified Soils Class	irication						E
	F		Cystoni.									F
	E				submitted for lat	ooratory						E
	E		analysis fr	om this inter	val.							F
	F	1	3 Seaflo	or elevation	determined from	USACE						F
	L											

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14097° Long = -88.34617°

#### Mississippi Barrier Island Restoration Project



Core Identifier BI-PBS-59-12

**Coordinate System** 

Date 11/26/2012

Water Depth 53.4'

Latitude / Longitude

Start Time 11:20:29

Penetration 20.0'

Latitude 30 08.458

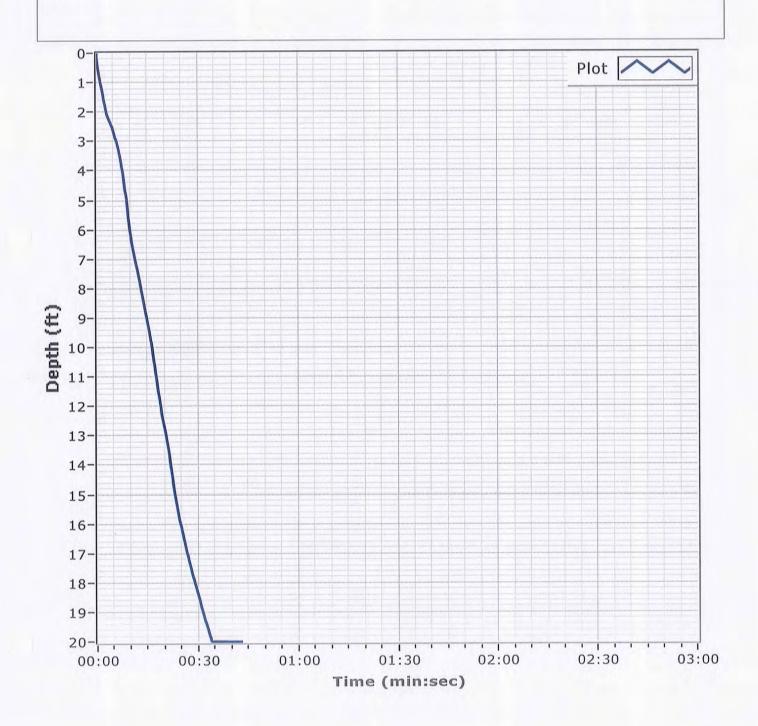
Total Time 00:00:43

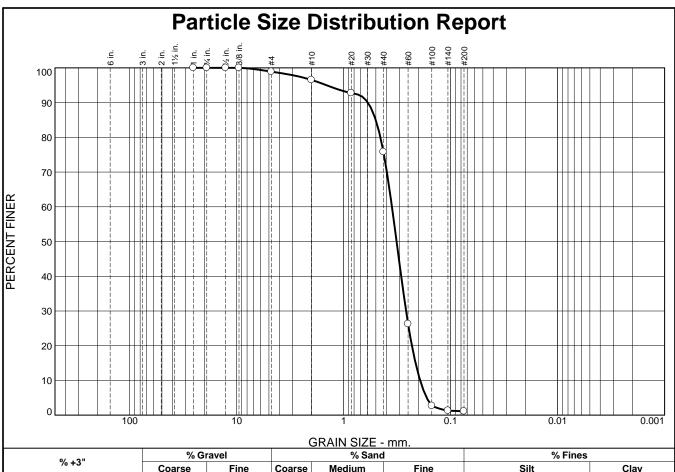
End Time 11:21:12

Recovery 19.5'

Longitude 088 20.770

Comments





	OTO III OIZE IIIII.									
9/ .3"	% Gı	ravel		% Sand	l	% Fines				
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0.0	0.0	1.1	2.4	20.7	74.7	1.1				

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND, with trace SHELL								
PL=	Atterberg Limits LL=	PI=						
D <sub>90</sub> = 0.5938 D <sub>50</sub> = 0.3203 D <sub>10</sub> = 0.1930	Coefficients D <sub>85</sub> = 0.5015 D <sub>30</sub> = 0.2611 C <sub>u</sub> = 1.83	D <sub>60</sub> = 0.3539 D <sub>15</sub> = 0.2128 C <sub>c</sub> = 1.00						
USCS= SP	Classification AASHTO	)=						
	<u>Remarks</u>							

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

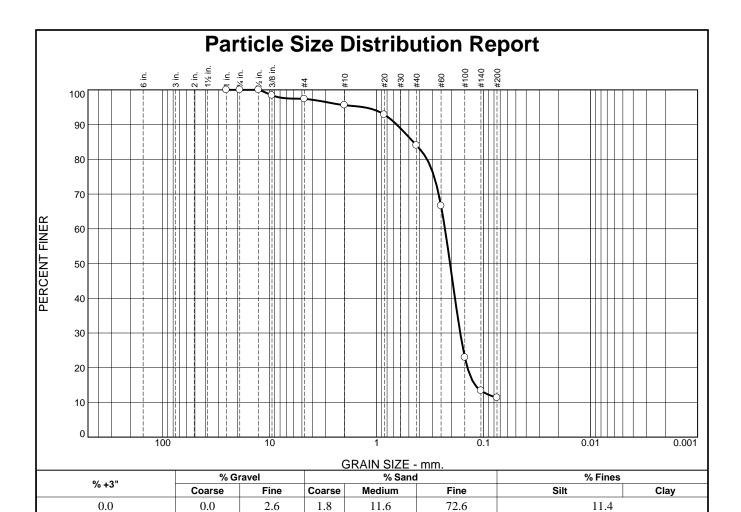
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL				
PL	.=	Atterberg Limits LL=	PI=	
D <sub>9</sub> D <sub>5</sub> D <sub>1</sub>	00= 0.6502 00= 0.2060 0=	Coefficients D <sub>85</sub> = 0.4550 D <sub>30</sub> = 0.1656 C <sub>U</sub> =	D <sub>60</sub> = 0.2299 D <sub>15</sub> = 0.1202 C <sub>c</sub> =	
US	SCS= SP-SM	Classification AASHTC	)=	
		<u>Remarks</u>		

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-060-12

DRIL	LING	LOG	DIVISION						TALLATIO					SHEE	
1. PROJE			Sou	ıth Atlantic					Mobile Dis		N1/A			OF 1	SHEETS
	CIP Barrie	ar leland	Pactors	tion			-			TYPE OF BIT	N/A	HORIZON	ΓΔΙ	VERTI	CAL
	tit Bois Pa			uon						Plane, MSE		!		<u> </u>	VD88
	IG DESIGN		Lasi	LOCATION C	OORD	INATES		11.		ACTURER'S DE	, ,			UTO HA	
BI-	PBS-060-	12		E = 1,142	2,000	N = 234	,950		Vibra	core			=		HAMMER
3. DRILL	ING AGEN	CY			CONT	RACTOR F	ILE NO.	42	TOTAL S	AMDLES	1	DISTURBED	UI	NDISTU	RBED (UD)
	rps of Eng		CESAM		<u> </u>			12.	TOTAL	AMPLES	i		<u>    i                                </u>	0	
	NAME OF DRILLER     American Vibracore Systems, Inc.			L	13.	TOTAL P	NUMBER CORE	BOXES							
	TION OF B		systems,	DEG. FROM	м	BEARING		14.	WATER	DEPTH		61.3 Ft.			
⊠ VE	ERTICAL ICLINED	Ottillo		VERTICAL		 		15.	DATE BO	RING		STARTED	12	COMPI	LETED -24-12
6. THICK	(NESS OF	OVERBU	RDEN	N/A		•		16.	ELEVAT	ION TOP OF B	ORING	-60.5 Ft.			
7. DEPTH	H DRILLED	INTO RO	СК	N/A				17.	TOTAL F	RECOVERY FO	R BORING	100%			
								18.	SIGNAT	URE AND TITL	E OF INSP	ECTOR			
8. TOTAL	L DEPTH O	F BORIN	<b>G</b> 10	6.8 Ft.					John	Bass, Geote	chnical Er	ngineer			
ELEV.	DEPTH	LEGEND	С	LASSIFICATION	ON OF	MATERIAL	s		SAMPLE		LAB	DRATORY RES	SULTS		
-60.5	0.0							Ī							
-62.3	1.8			organic-L, mo ed quartz, dar			e-grained		NS						
-63.3	2.8			silty, mostly ith clay lense											<u></u> <u>_</u>
-68.4	7.9	, , , , , , , , , , , , , , , , , , ,	SAND, prained s	poorly-graded sand-sized qu s, trace woo	d with uartz,	silt, mos	stly fine- ace shell		Α	Classificatio		Color: 2.5Y 96 mm %	6/2-lig Fines:	ht browi 17.9	nish gray
	-		SAND, po sized qua	oorly-graded, artz, trace fine	mostly es, gra	y fine-grain y (SP)	ed sand-		В	Classification	on: SM D50: 0.21	Color: 2.5Y 38 mm %	6/2-lig Fines:		nish gray
			At El69 quartz, tr	9.9 Ft., most ace fines, It.	ly fine gray	-grained sa	and-sized		С	Classifi	cation: SF D50: 0.24		.5Y 7/3 Fines		ellow
-77.3	16.8		At El72 quartz, ta	2.3 Ft., most an mottled wit	ly fine th light	-grained sa gray	and-sized		D	Clas	ssification: D50: 0.20		r: 2.5Y Fines	′ 7.5/1.5 : 1.4	5-
			accordan System. 2. NS = analysis t 3. Seaflo vessel's	ils are field ce with the Use Sample no from this intector elevation fathometer value	Jnified t subn rval. calcula water	Soils Clas	sification aboratory sampling	, , 							

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14512° Long = -88.33425°

### Mississippi Barrier Island Restoration Project

# AVS SERVICES

Core Identifier BI-PBS-60-12

**Coordinate System** 

Date 11/24/2012

Water Depth 61.3'

Start Time 15:08:12 Latitude / Longitude

End Time 15:12:13

Penetration 17.1'

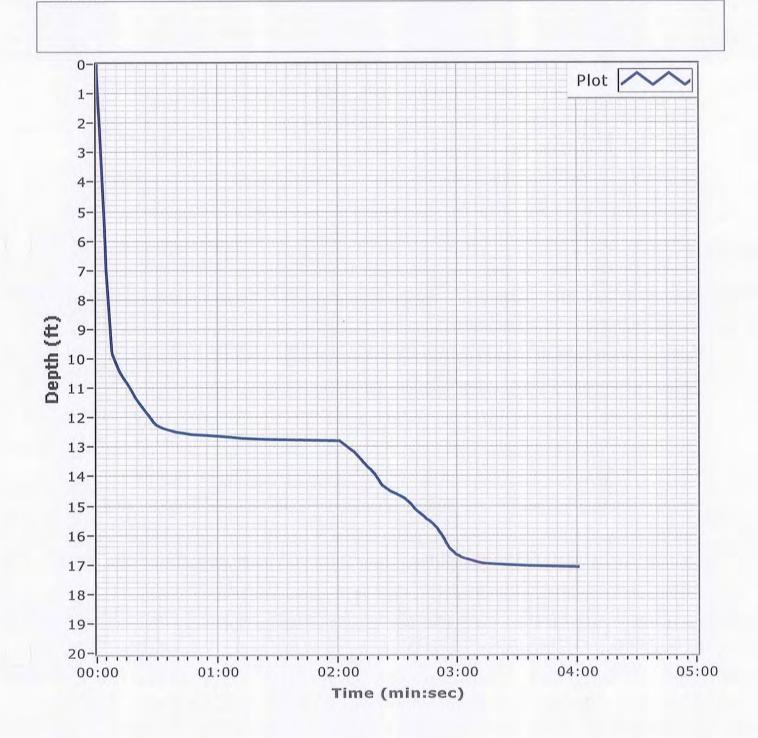
Total Time 00:04:01

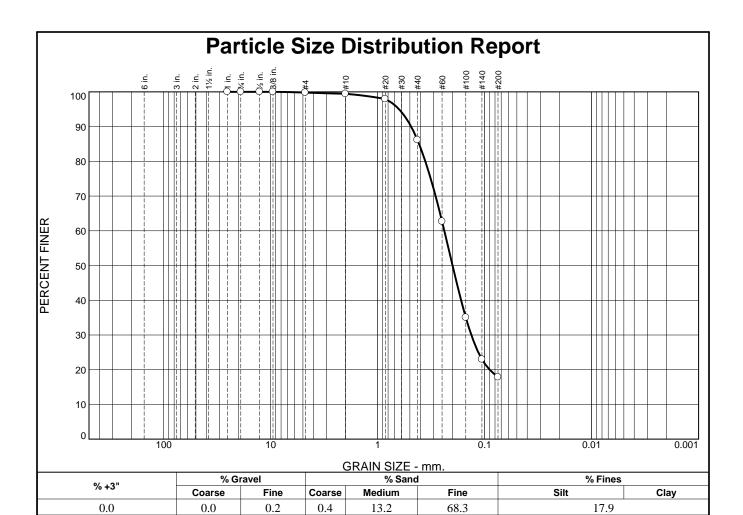
Recovery 16.8'

Longitude 088 20.055

Latitude 30 08.707

Comments





PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
100.0		
100.0		
100.0		
100.0		
99.8		
99.4		
97.9		
86.2		
62.7		
35.0		
23.0		
17.9		
	FINER  100.0 100.0 100.0 100.0 99.8 99.4 97.9 86.2 62.7 35.0 23.0	FINER PERCENT  100.0 100.0 100.0 100.0 99.8 99.4 97.9 86.2 62.7 35.0 23.0

Material Description Fine to medium grained, SILTY SAND				
PL=	Atterberg Limits	PI=		
D <sub>90</sub> = 0.4869 D <sub>50</sub> = 0.1996 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.4102 D <sub>30</sub> = 0.1332 C <sub>u</sub> =	D <sub>60</sub> = 0.2381 D <sub>15</sub> = C <sub>c</sub> =		
USCS= SM	Classification AASHT	-O=		
	<u>Remarks</u>			

**Location:** BI-PBS-60-12 A **Sample Number:** 6469 (50)

Sample Number: 6469 (50) Depth: 2.8' Date: 11/28/12

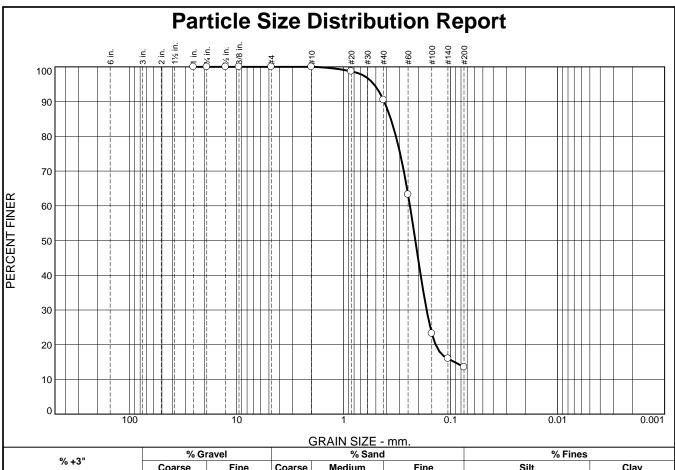
**Thompson Engineering** 

 $\begin{tabular}{ll} \textbf{Client:} & CDM/Thompson Engineering JV \\ \end{tabular}$ 

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



GRAIN SIZE - mm.							
0/ .3"	% Gravel			% Sand	i	% Fines	
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.5	77.0	13.5	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
*		1	

Material Description Fine grained, SILTY SAND				
PL=	Atterberg Limits LL=	PI=		
D <sub>90</sub> = 0.4181 D <sub>50</sub> = 0.2138 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.3626 D <sub>30</sub> = 0.1679 C <sub>u</sub> =	D <sub>60</sub> = 0.2401 D <sub>15</sub> = 0.0920 C <sub>c</sub> =		
USCS= SM	Classification AASHT	·O=		
	<u>Remarks</u>			

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

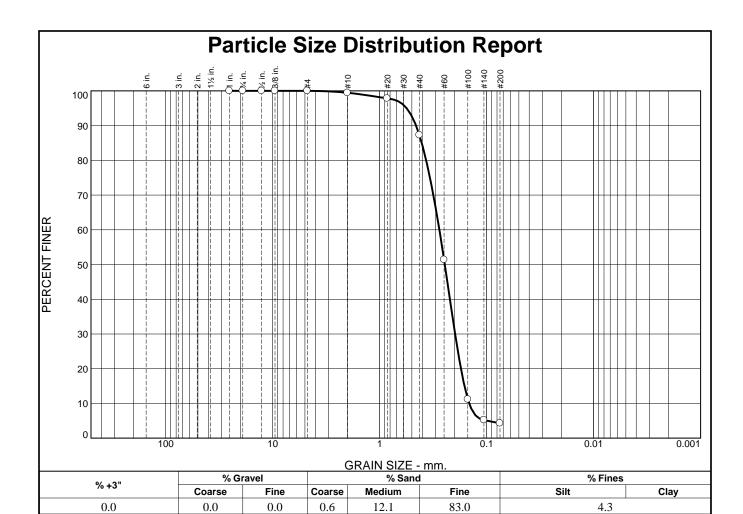
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND			
PL=	Atterberg Limits LL=	PI=	
D <sub>90</sub> = 0.4570 D <sub>50</sub> = 0.2462 D <sub>10</sub> = 0.1457	Coefficients D <sub>85</sub> = 0.4042 D <sub>30</sub> = 0.1972 C <sub>u</sub> = 1.90	D <sub>60</sub> = 0.2767 D <sub>15</sub> = 0.1614 C <sub>c</sub> = 0.96	
USCS= SP	USCS= SP Classification  AASHTO=		
<u>Remarks</u>			

**Location:** BI-PBS-60-12 C **Sample Number:** 6469 (52)

**Depth:** 9.4'

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

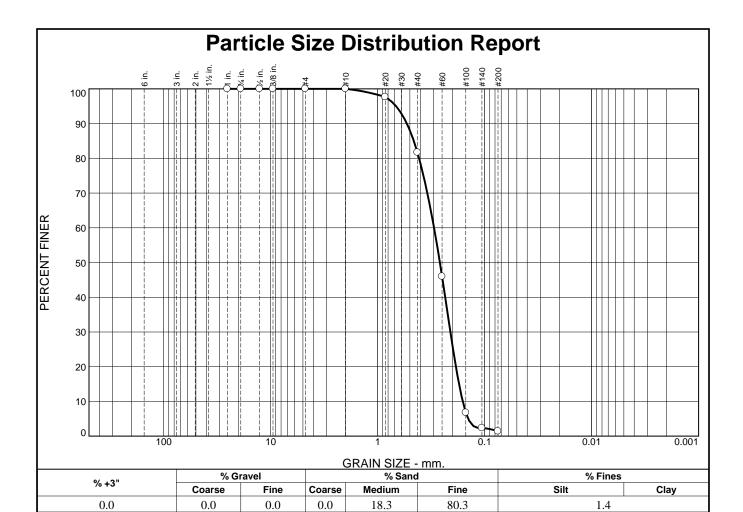
**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

**Figure** 

**Date:** 11/28/12



	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(X=NO)
ſ	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		
L	* ,			

Material Description Fine to medium grained, SAND			
PL=	Atterberg Limits LL=	PI=	
D <sub>90</sub> = 0.5334 D <sub>50</sub> = 0.2621 D <sub>10</sub> = 0.1605	Coefficients D <sub>85</sub> = 0.4595 D <sub>30</sub> = 0.2090 C <sub>u</sub> = 1.85	D <sub>60</sub> = 0.2974 D <sub>15</sub> = 0.1737 C <sub>c</sub> = 0.92	
USCS= SP	Classification AASHT	O=	
	<u>Remarks</u>		

**Location:** BI-PBS-60-12 D **Sample Number:** 6469 (53)

Sample Number: 6469 (53) Depth: 11.8' Date: 11/28/12

**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-061-12

DRI	LLING	LOG	DIVISI						TALLATIO						SHEET	1
1. PRO			Sou	uth Atlantic					Mobile Dis						OF 1	SHEETS
										TYPE OF BIT	N/A					
	AsCIP Barri			ition				10.		NATE SYSTEM/I		HORIZ		-	VERTIC	
	etit Bois Pa			LOCATION	OOPD	INATES		11		Plane, MSE (LACTURER'S DES			D83	<del></del>		/D88
	31-PBS-061-			1		N = 236,9	916	• • • •	Vibra		IGNATIO	N OF DRI			TO HAI NUAL I	NIMER HAMMER
	LING AGEN					RACTOR FI					¦ D	ISTURBE	ĒD			BED (UD)
	Corps of Eng		- CESAM		! ! !			12.	TOTAL	SAMPLES					)	
	IE OF DRILL							13.	TOTAL P	NUMBER CORE	BOXES					
	merican Vil					T		14.	WATER	DEPTH		55 Ft.				
$\boxtimes$	ECTION OF I VERTICAL INCLINED	BORING	į	DEG. FROI VERTICAL	VI	BEARING	ļ	15.	DATE BO	DRING		STAR		i	COMPL	
	CKNESS OF	OVERB	URDEN	! N/A		!		16.	ELEVAT	ION TOP OF BO	RING	-54.9 F	-16-12 t.		11-1	16-12
										RECOVERY FOR		1009				
7. DEP	TH DRILLED	INIO	ROCK	N/A				18.	SIGNAT	URE AND TITLE	OF INSP	ECTOR				
8. ТОТ	AL DEPTH C	F BORI	NG 1	1.2 Ft.					Mike	FitzHarris, Ge	ologist					
ELEV.	DEPTH	LEGEND	c	CLASSIFICATION	ON OF	MATERIALS	•		SAMPLE		LABO	PRATORY	' RESUI	LTS		
-54.9	0.0							寸								
-57.1	-2.2			oorly-graded, artz, trace she				-	Α		cation: SI D50: 0.23		Color % Fi	: 5Y 6	6.5/1-gr 5.2	ray
-60.7	5.8		quartz,	silty, mostly some silt, ts, gray (SM)	trace	grained sai clay, trac	nd-sized ce shel	1								
-63.1	- - - -8.2		CLAY, fa sized qua	at, mostly cla artz, medium	y, little plastic	e fine-graine ity, gray (C	ed sand- :H)	-	NS							
-64.6	- - - 9.7			silty, mostly ome silt, brov			nd-sized	1								
-66.1	  11.2		SAND, p	oorly-graded, artz, trace silt	mostly	y fine-graine brown (SP)	ed sand-	-								
	-		NOTES:	oils are fiel	d visi	ually class	ified in	1								
			System.  2. NS =	= Sample no	t subn											
			vessel's	oor elevation fathometer NOAA tidal	water	depth read	ling and	1								
	<u> </u>															

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.15042° Long = -88.30715°

### Mississippi Barrier Island Restoration Project



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

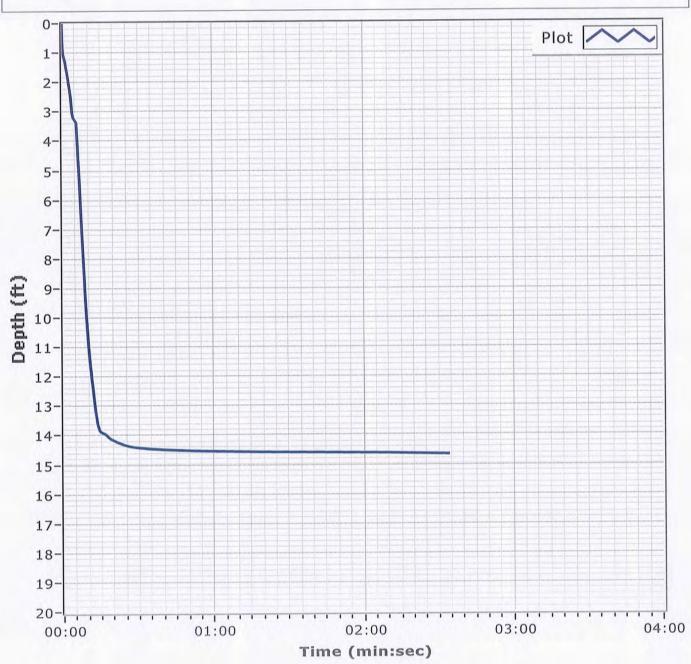
Water Depth 55.0'

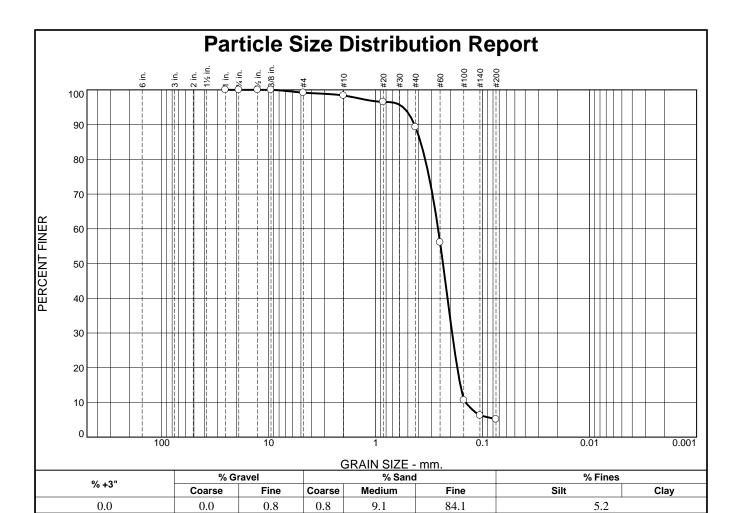
Penetration 14.7'

Recovery 12.3'









SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
* (			

Material Description Fine grained, SLIGHTLY SILTY SAND							
Time grained, SEIGITET SIETT STAND							
	A44 . 1 1 t t .						
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.4342 D <sub>50</sub> = 0.2349 D <sub>10</sub> = 0.1444	Coefficients D <sub>85</sub> = 0.3805 D <sub>30</sub> = 0.1930 C <sub>U</sub> = 1.81	D <sub>60</sub> = 0.2609 D <sub>15</sub> = 0.1618 C <sub>c</sub> = 0.99					
D <sub>10</sub> = 0.1444	$C_{u} = 1.81$	$C_{C}^{13} = 0.99$					
USCS= SP-SM	Classification AASHTO=	=					
	<b>Remarks</b>						

**Location:** BI-PBS-61-12 A **Sample Number:** 6462

**Depth:** 0.0'

**Date:** 11/23/12

**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-062-12

DBI	LLING	LOG	DIVISION	IP	NSTALLATIO	ON	SHEET 1	7
		LUG	South Atlantic		Mobile Dis	strict	OF 1 SHEETS	5
1. PRO						TYPE OF BIT N/A	·	
			nd Restoration	1		NATE SYSTEM/DATUM HORIZOI	1	
	etit Bois Pa			1		Plane, MSE (U.S. Ft.) NADE		-
	I-PBS-062-		E = 1,150,505 N = 237,945	- 1	Vibra		MANUAL HAMMER	
	DRILLING AGENCY CONTRACTOR FILE NO					DISTURBED	UNDISTURBED (UD)	1
	Corps of Engineers - CESAM			1	2. TOTAL S	SAMPLES	0	
			e Systems, Inc.	1:	3. TOTAL	NUMBER CORE BOXES		
	CTION OF E			1	4. WATER	DEPTH 56 Ft.		
×ا	/ERTICAL NCLINED		G DEG. FROM BEARING VERTICAL	1	5. DATE BO	DRING STARTE	1	
6. THIC	KNESS OF	OVERB	BURDEN N/A	1	6. ELEVAT	ION TOP OF BORING -56.4 Ft.		
7. DEP1	TH DRILLED	INTO	ROCK N/A	1	7. TOTAL F	RECOVERY FOR BORING 100%		
9 TOT	N DEDTH O	F BOD		<b>—</b> [1		URE AND TITLE OF INSPECTOR		1
8. 1017	AL DEPTH O	F BOR	16.1 Ft.		Mike	FitzHarris, Geologist		4
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS		SAMPLE	LABORATORY R	ESULTS	
-56.4	0.0					0. 16		10
-57.2	0.8		SAND, poorly-graded, mostly fine to med	dium-	Α	Classification: SP Colo D50: 0.2417 mm	or: 5Y 7/2-light gray % Fines: 3	≢ັ
	<del>-</del>		grained sand-sized quartz, trace silt, gray (	SP)_/	[	B60. 0.2417 Hilli	70 T IIICO. 0	F
-59.5	<u>-</u> - - 3.1		SAND, silty, mostly fine-grained sand-squartz, some silt, with clay lenses, gray (SI		NS			Ė
30.0	-		SAND, poorly-graded, mostly fine-grained s sized quartz, few silt, gray (SP)	sand-	В		or: 2.5Y 7/2-light gray % Fines: 11.6	5
			At El62.3 Ft., mostly fine-grained sand-squartz, trace silt, light gray	sized	С		or: 2.5Y 8/1-white % Fines: 2.5	
-72.5					D		or: 2.5Y 8/1-white % Fines: 2.3	11
			NOTES:  1. Soils are field visually classified accordance with the Unified Soils Classific System.  2. NS = Sample not submitted for laborallysis from this interval.  3. Seafloor elevation calculated using sam vessel's fathometer water depth reading applying NOAA tidal gauge data conversation.	ation atory pling and				-20

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.15325° Long = -88.30730°

### Mississippi Barrier Island Restoration Project



Core Identifier BI-PBS-62-12

Coordinate System

Latitude / Longitude

Date 11/16/2012

Start Time 13:13:00

End Time 13:18:06

Total Time 00:05:06

Water Depth 56.0'

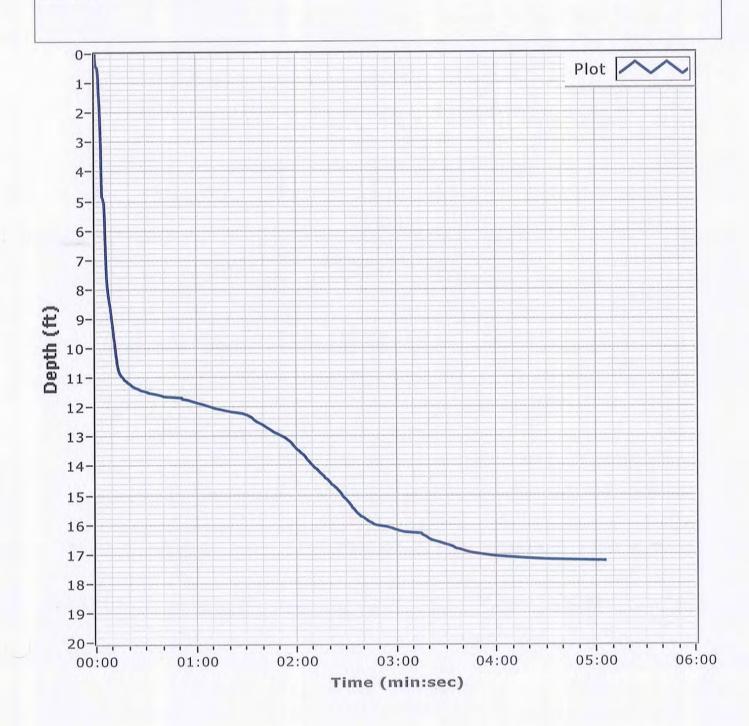
Penetration 17.2'

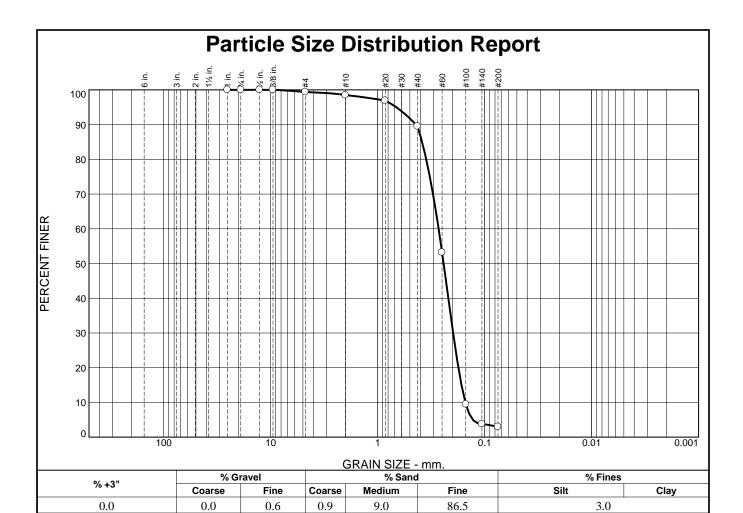
Recovery 16.5'

**Latitude** 30 09.195

**Longitude** 88 18.438

**Comments** 





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
*	- ::C: :: 1 -	•	

Material Description Fine grained, SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.4395 D <sub>50</sub> = 0.2417 D <sub>10</sub> = 0.1515	Coefficients D <sub>85</sub> = 0.3843 D <sub>30</sub> = 0.1971 C <sub>u</sub> = 1.78	D <sub>60</sub> = 0.2693 D <sub>15</sub> = 0.1648 C <sub>C</sub> = 0.95				
USCS= SP	Classification AASHT	O=				
	<u>Remarks</u>					

**Location:** BI-PBS-62-12 A **Sample Number:** 6462

**Depth:** 0.0

**Date:** 11/23/12

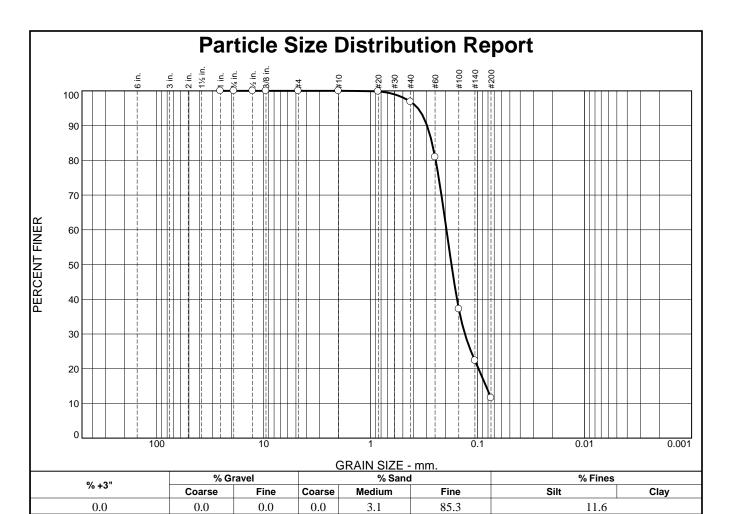
**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SLIGHTLY SILTY SAND						
PL=	Atterberg Limits	PI=				
D <sub>90</sub> = 0.2975 D <sub>50</sub> = 0.1758 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.2670 D <sub>30</sub> = 0.1316 C <sub>u</sub> =	D <sub>60</sub> = 0.1957 D <sub>15</sub> = 0.0836 C <sub>C</sub> =				
USCS= SP-SM	Classification AASHT	O=				
	<u>Remarks</u>					

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

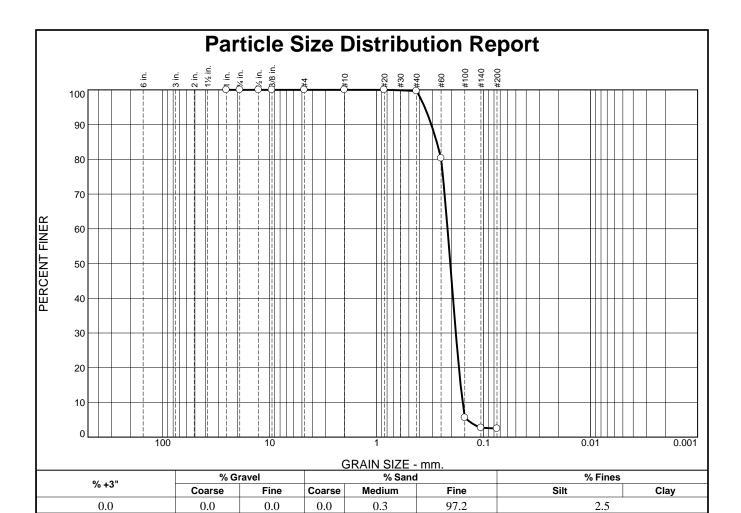
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SAND							
PL=	Atterberg Limits LL=	PI=					
D <sub>90</sub> = 0.3087 D <sub>50</sub> = 0.2050 D <sub>10</sub> = 0.1574	Coefficients D <sub>85</sub> = 0.2748 D <sub>30</sub> = 0.1821 C <sub>u</sub> = 1.38	D <sub>60</sub> = 0.2175 D <sub>15</sub> = 0.1643 C <sub>c</sub> = 0.97					
USCS= SP	Classification AASHT	O=					
	<u>Remarks</u>						

**Location:** BI-PBS-62-12 C **Sample Number:** 6462

Sample Number: 6462 Depth: 5.9' Date: 11/23/12

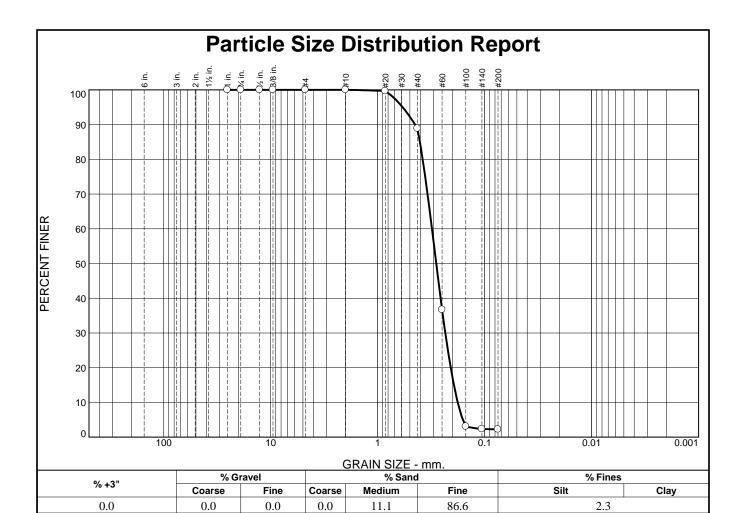
**Thompson Engineering** 

 $\begin{tabular}{ll} \textbf{Client:} & CDM/Thompson Engineering JV \\ \end{tabular}$ 

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
100.0		
100.0		
100.0		
100.0		
100.0		
100.0		
99.7		
88.9		
36.7		
3.1		
2.3		
2.3		
	FINER  100.0 100.0 100.0 100.0 100.0 100.0 100.0 99.7 88.9 36.7 3.1 2.3	FINER PERCENT  100.0 100.0 100.0 100.0 100.0 100.0 100.0 99.7 88.9 36.7 3.1 2.3

Material Description Fine to medium grained, SAND						
PL=	Atterberg Limits	PI=				
D <sub>90</sub> = 0.4475 D <sub>50</sub> = 0.2836 D <sub>10</sub> = 0.1788	Coefficients D <sub>85</sub> = 0.4028 D <sub>30</sub> = 0.2333 C <sub>u</sub> = 1.74	D <sub>60</sub> = 0.3109 D <sub>15</sub> = 0.1938 C <sub>c</sub> = 0.98				
USCS= SP	Classification AASHT	O=				
	<u>Remarks</u>					

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-063-12

			DIVISIO	ON			IN	STALLATIO	on			SHEET	1
	LLING	LUG	Sou	th Atlantic			$\perp$	Mobile Dis	strict			<b>OF</b> 1	SHEETS
1. PRO										/A			
	AsCIP Barri			tion			10		NATE SYSTEM/DATUM		AL	VERTIC	
	Petit Bois Pa			LOCATION C	COORD	INATES	11		Plane, MSE (U.S. Ft			NA\ TO HAI	/D88
	3I-PBS-063-		•			N = 238,385	''	Vibra		ION OF DRILL	=		HAMMER
	LLING AGEN					RACTOR FILE NO				DISTURBED			BED (UD)
	Corps of Eng		s - CESAM		<u> </u>		12	. TOTAL S	SAMPLES	<u> </u>		)	
	IE OF DRILL						13	. TOTAL	NUMBER CORE BOXES	i			
	American Vil					BEARING	14	. WATER	DEPTH	56 Ft.			
$\boxtimes$	VERTICAL INCLINED	BURIN	G	DEG. FROI VERTICAL	-	BEARING	15	. DATE BO	DRING	STARTED   11-16-1	i	<b>COMPL</b>	<b>ETED</b> 16-12
6. THI	CKNESS OF	OVERI	BURDEN	N/A			16	. ELEVAT	ION TOP OF BORING	-56.3 Ft.			
7. DEP	TH DRILLED	INTO	BUCK	N/A			17	. TOTAL F	RECOVERY FOR BORIN	IG 100%			
							18	. SIGNAT	URE AND TITLE OF IN	SPECTOR			
8. TOT	AL DEPTH C	F BOR	RING 14	4.0 Ft.			Щ,	Mike	FitzHarris, Geologist	<u>t</u>			
ELEV.	DEPTH	LEGEND	C	LASSIFICATIO	ON OF	MATERIALS		SAMPLE	LA	BORATORY RES	ULTS		
-56.3	0.0												
-57.8	E 1.5		SAND, po	oorly-graded, irtz, gray (SF	mostly P)	y fine-grained sar	nd-	Α	Classification D50: 0		5Y 7/2- Fines: 2	light gra 2.3	
07.0	- 1.0					grained sand-siz	04						
	Ē					nedium to coars							E
	Ē			hell fragmen	nts, wit	h clay lenses, gr	ay						E
	Ė		(SC)					NS					F
-61.3													E _ 5
-61.8	L		۱ CLAY. f	at. mostly	clav.	medium to hi	ah /						Ę
-62.6	<del>-</del> 6.3	1.1/2	plasticity,	gray (CH)	,								
	<u>-</u>	l:∵:	SAND.	oorly-graded	d with	clay, mostly fir	<sub>1e-</sub> //						E-
	E		grained s	and-sized qu		tle clay, trace wo		В	Classification:		2.5Y 7/2 5 Fines:		ray -
	Ė	····	debris, gr	ay (SP-SC)			-/		D30. V	J.2104 IIIII /	) i iiics.	5	E
	E	$ \cdot \cdot $				y fine-grained sar e, It. gray (SP)	nd-						<u>_</u>
	<u>F</u>	ŀ∷ŀ	sizeu qua	irtz, trace siit	, dense	e, it. gray (SP)							<u>-</u> 1
	E	<u> </u> :∵:											E
	E	<b> ∷∴</b>						С	Classification:		2.5Y 7/2 5 Fines:		ray
	E	· · ·							D50. (	J.2396 HIIII 7	o FIIIES.	2	E
	E	::::											F
- <del>7</del> 0.3	F 14.0	<u> </u>											F
	<u> </u>												E
	E		NOTES:										F-1
	<u> </u>		1. Soi	ls are field	d viei	ually classified	<sub>in</sub>						E
	E		accordan	ce with the U	Jnified	Soils Classificati	on						E
	Ė		System.										F
	E					nitted for laborate	ory						F
	<u> </u>			rom this inte									E
	Ė		3. Seaflo	or elevation	calcula	ated using sampli	ng I						-2
	Ė		vessel's	fathometer v	water	depth reading a	nď						E
	E		applying factor.	NUAA tidal	gaug	e data conversi	on						F
	E												E
	F												ŧ
	F												F
	F												F
	E												E_2
	E												Ę ~
	<u> </u>												

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.15448° Long = -88.31182°

#### Mississippi Barrier Island Restoration Project

# AVS **AMERICAN VIBRACORE** CES

Core Identifier BI-PBS-63-12

**Coordinate System** 

Latitude / Longitude

Date 11/16/2012

Start Time 14:13:22 End Time 14:19:31

Total Time 00:06:09

Water Depth 56.0'

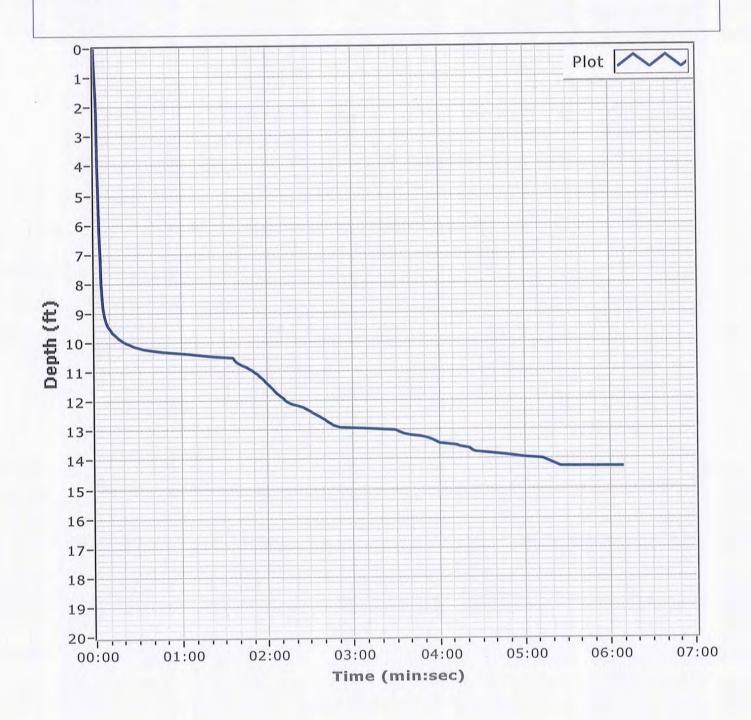
Penetration 14.3'

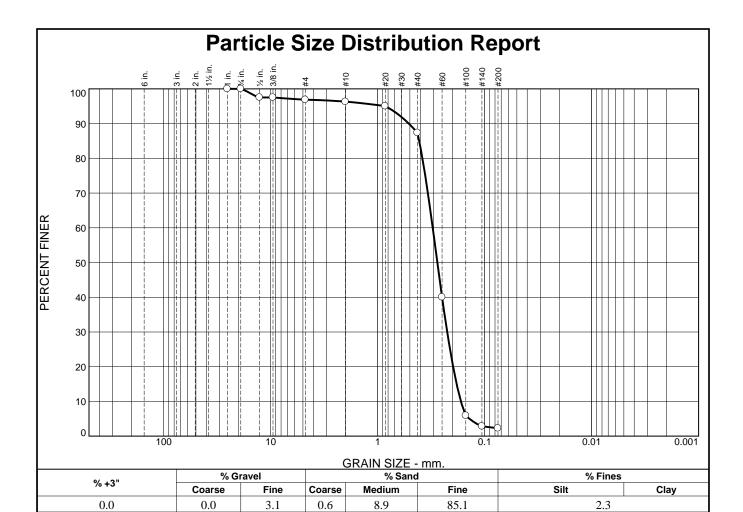
Recovery 14.0'

Latitude 30 09.269

Longitude 88 18.709

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SAND, with trace SHELL						
PL=	Atterberg Limits	PI=				
D <sub>90</sub> = 0.5122 D <sub>50</sub> = 0.2768 D <sub>10</sub> = 0.1668	Coefficients D <sub>85</sub> = 0.4090 D <sub>30</sub> = 0.2239 C <sub>u</sub> = 1.83	D <sub>60</sub> = 0.3060 D <sub>15</sub> = 0.1829 C <sub>c</sub> = 0.98				
USCS= SP	Classification AASHT	O=				
	<u>Remarks</u>					

**Location:** BI-PBS-63-12 A **Sample Number:** 6462

**Depth:** 0.0' **Date:** 11/23/12

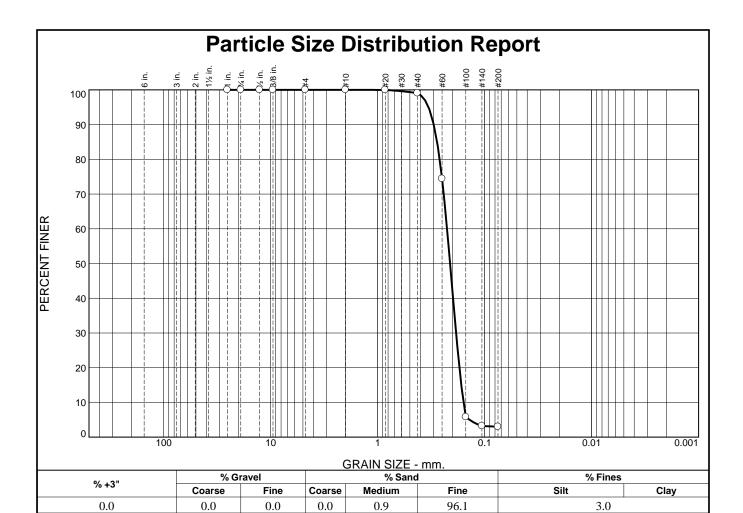
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
*	ecification provide	1)	

Material Description Fine grained, SAND					
PL=	Atterberg Limits LL=	PI=			
D <sub>90</sub> = 0.2995 D <sub>50</sub> = 0.2104 D <sub>10</sub> = 0.1578	Coefficients D <sub>85</sub> = 0.2785 D <sub>30</sub> = 0.1850 C <sub>u</sub> = 1.42	D <sub>60</sub> = 0.2246 D <sub>15</sub> = 0.1655 C <sub>c</sub> = 0.97			
USCS= SP	Classification AASHT	-O=			
	<u>Remarks</u>				

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

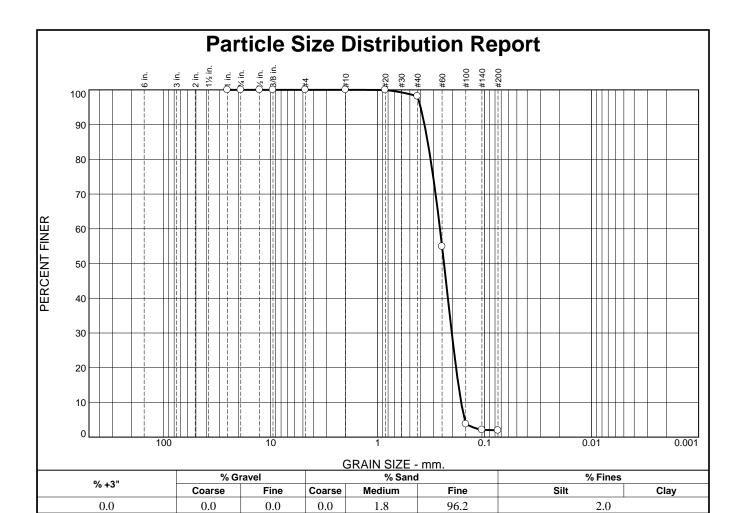
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



100.0 100.0 100.0 100.0 100.0 100.0 100.0	PERCENT	(X=NO)
100.0 100.0 100.0 100.0		
100.0 100.0 100.0		
100.0 100.0		
100.0		
100.0		
100.0		
100.0		
98.2		
54.9		
3.8		
2.1		
2.0		
	3.8 2.1	3.8 2.1

Fine grained, SA	<b>Material Descriptio</b> ND	<u>on</u>
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3649 D <sub>50</sub> = 0.2398 D <sub>10</sub> = 0.1659	Coefficients D <sub>85</sub> = 0.3404 D <sub>30</sub> = 0.2028 C <sub>u</sub> = 1.58	D <sub>60</sub> = 0.2615 D <sub>15</sub> = 0.1759 C <sub>c</sub> = 0.95
USCS= SP	Classification AASHT	O=
	<u>Remarks</u>	

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

Thompson Engineering

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-064-12

DRILLII	NG I	OG	DIVISI				IP		TALLATIC					SHEET	
1. PROJECT			Sou	uth Atlantic					lobile Dis					OF 1	SHEETS
										TYPE OF BIT					
			d Restora	ition			1	υ.		NATE SYSTEM		HORIZON		VERTIC	
Petit Bo			East	LOCATION	OOPD	INATES		1		Plane, MSE	, ,				√D88
BI-PBS				1		N = 237,3		••	Vibra		LSIGNATIO	ON OF DRILL	=	UTO HA	MMER HAMMER
3. DRILLING				1 L 1,10		RACTOR FILE	E NO.				- 1	DISTURBED			BED (UD)
Corps	of Engir	neers -	- CESAM	1	:		11	2.	TOTAL S	AMPLES			į	0	` '
4. NAME OF	DRILLER	R					1:	3.	TOTAL N	IUMBER COR	E BOXES				
Americ	an Vibr	acore	Services	, Inc.				_	WATER I	SERTU		56 Ft.			
5. DIRECTION		RING		DEG. FROI	VI	BEARING	<u>_</u>	<b>4.</b>	WAIERI	7EP1N		STARTED		COMPL	ETED
⊠ VERTI ☐ INCLII							11	5.	DATE BO	RING		11-16		1	16-12
6. THICKNES		VERBL	JRDEN	N/A		_i	1	6.	ELEVAT	ON TOP OF E	BORING	-56.5 Ft.	12	<u> </u>	10 12
										ECOVERY FO					
7. DEPTH DR	ILLED II	NIOK	OCK	N/A			1	8.	SIGNATI	JRE AND TITI	LE OF INSI	PECTOR			
8. TOTAL DE	ртн оғ	BORII	NG 1	6.2 Ft.					Mike	FitzHarris, C	Geologist				
ELEV. DEF	тн	LEGEND	c	CLASSIFICATIO	ON OF	MATERIALS		s	SAMPLE		LAB	ORATORY RE	SULTS		
-56.5 0.0	$\dashv$	$\dashv$						T							
-57.5 - 1.0	-		SAND. r	ooorly-graded.	most	ly fine to m	edium-	Ī	Α	Class	sification:		: 5Y 7/: % Fines	2-light gr	ay
-51.5 - 1.0	1:	<del>111</del> 1	grained	sand-sized d	uartz,	trace medi	ium to /	十			⊔ა∪. ∪.2	ל ווווו ופכ	o rines	. 1.0	<del></del>
-62.0 - 5.5 -62.5 - 6.0 -62.5 - 6.0 -68.1 - 11.6 -68.5 - 12.6 -68.8 - 12.6 -69.8 - 13.3	6		SAND, quartz, s (SM)  SAND, c quartz, s (SC)  CLAY, plasticity  SAND, quartz, s  SILT, inc sand, tra  SAND, quartz, s  WOOD,	mostly wood	fine-(ace ships) clay, CH) fine-(ace clay, costly signatter, but cace or debris,	grained sandell fragments grained sandell fragments medium to grained sand dark gray (S  It, little fine-corown (ML) grained sandell grained s	d-sized s, gray d-sized s, gray b high d-sized sM)		NS						
	.	. :·I\				71. (1		H	D	Classi	fication: S	P Color:	10YR 7	7/1-light	gray
-72.7 = 16.2	<u>·</u>			poorly-graded sand-sized qu				$\perp$	В				6 Fines	: 3.9	
			NOTES:  1. So accordar System.  2. NS = analysis  3. Seafly vessel's	oils are field new with the L = Sample not from this inter oor elevation fathometer v	d visuud	ually classif Soils Classif nitted for lab	ied in fication oratory impling ing and								

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.15155° Long = -88.30387°

### Mississippi Barrier Island Restoration Project

AVS

Core Identifier BI-PBS-64-12

**Coordinate System** 

Date 11/16/2012

Water Depth 56.0'

Latitude / Longitude

Start Time 11:50:46

Penetration 20.0'

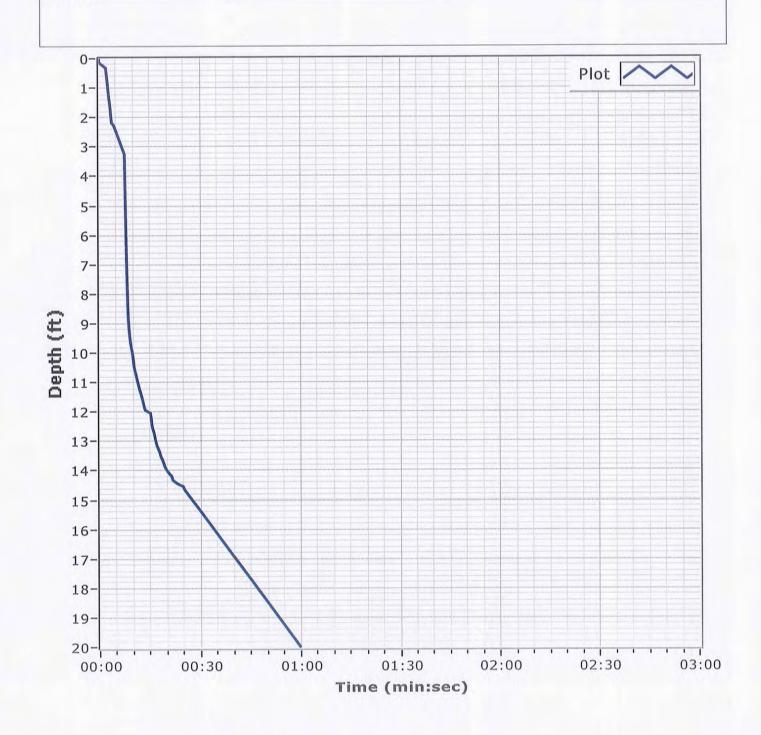
Latitude 30 09.093

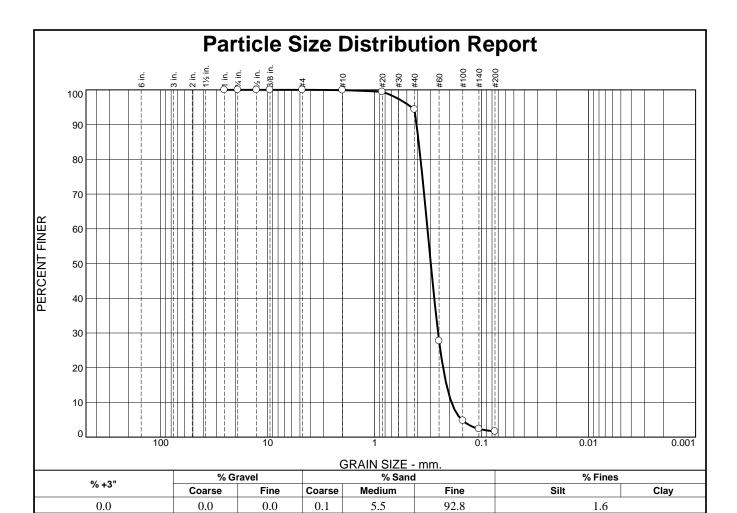
End Time 11:51:46 Total Time 00:01:00

Recovery 17.0'

Longitude 88 18.232

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Fine grained, SA	Material Description	<u>on</u>
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4059 D <sub>50</sub> = 0.2991 D <sub>10</sub> = 0.1915	Coefficients D85= 0.3878 D30= 0.2554 Cu= 1.68	D <sub>60</sub> = 0.3211 D <sub>15</sub> = 0.2129 C <sub>C</sub> = 1.06
USCS= SP	Classification AASHT	O=
	<u>Remarks</u>	

**Location:** BI-PBS-64-12 A **Sample Number:** 6462

**Depth:** 0.0'

**Date:** 11/23/12

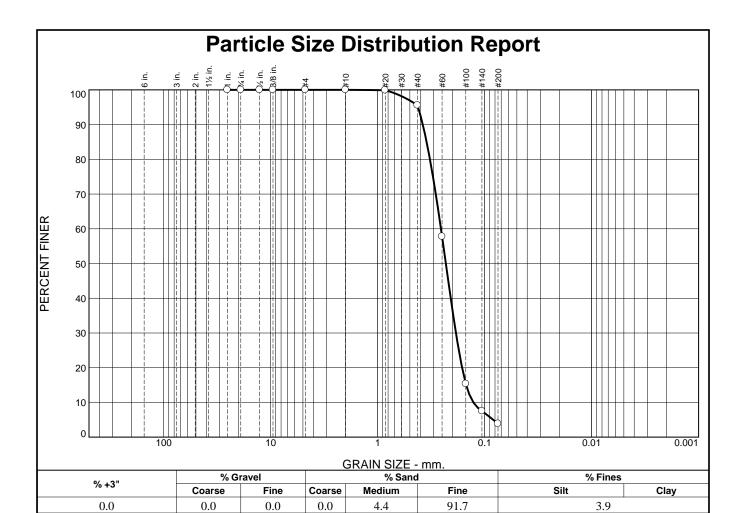
**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SAND						
PL=	Atterberg Limits LL=	PI=				
D <sub>90</sub> = 0.3784 D <sub>50</sub> = 0.2304 D <sub>10</sub> = 0.1275	Coefficients D <sub>85</sub> = 0.3487 D <sub>30</sub> = 0.1856 C <sub>u</sub> = 2.01	D <sub>60</sub> = 0.2561 D <sub>15</sub> = 0.1488 C <sub>c</sub> = 1.06				
USCS= SP	<u>Classification</u> AASHT	O=				
	<u>Remarks</u>					

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-065-12

DRI	LLING	LOG	DIVISIO				IN	ISTALLAT					SHEET	
South Atlantic						Mobile District  OF 1 SHEE  9. SIZE AND TYPE OF BIT N/A						SHEETS		
MsCIP Barrier Island Restoration						9. SIZE AND TYPE OF BIT N/A  10. COORDINATE SYSTEM/DATUM HORIZONTAL VERTICAL								
Petit Bois Pass-OCS East					"			SE (U.S. Ft.)	!		1	/D88		
2. BORING DESIGNATION LOCATION COORDINATES					1	11. MANUFACTURER'S DESIGNATION OF DRILL AUTO HAMMER								
BI-PBS-065-12 E = 1,149,511 N = 237,566					66	Vibracore MANUAL HAMMER								
3. DRILLING AGENCY CONTRACTOR FILE NO.						2. TOTAI	SAMPLES	D	ISTURBED	UI		BED (UD)		
	Corps of Eng	_	CESAM		! !									
			Svetome I	Inc			1:	3. TOTAI	NUMBER CO	ORE BOXES				
American Vibracore Systems, Inc.  5. DIRECTION OF BORING DEG. FROM BEARING						1	4. WATE	R DEPTH		54 Ft.				
					1	5. DATE	BORING		<b>STARTED</b> 11-16-	12	COMPL 11-	. <b>ETED</b> 16-12		
6. THIC	CKNESS OF	OVERBU	RDEN	N/A			1	6. ELEVA	TION TOP O	F BORING	-54.1 Ft.			
7. DEP	TH DRILLED	INTO R	ock	V/A			1	17. TOTAL RECOVERY FOR BORING 100%						
8. TOT	AL DEPTH C	F BORIN	IG 13	.4 Ft.			11	18. SIGNATURE AND TITLE OF INSPECTOR						
ELEV.	DEPTH	EGEND			ON OF N	/ATERIALS		Mike FitzHarris, Geologist						
	CLASSIFICATION OF MATERIALS				SAMPLE LABORATORY RESULTS									
-54.1	0.0													
-56.6	25	SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)  Classification: SP-SM Color: 5Y 7/1-light D50: 0.3177 mm % Fines: 5.8							gray					
-59.3				ilty, mostly me silt, gray		rained san	d-sized							
-63.0	- - - - - - - - - - - - - - - - - - -		CLAY, lea lenses, gra	an, mostly ay (CL)	clay,	some sand	dy clay	NS						
	10.3		grained sa	oorly-graded and-sized qu , gray (SP-S	artz, litt	clay, mostl tle clay, trad	y fine- ce shell							
-67.5	13.4		SAND, poo sized quar	orly-graded, tz, trace silt,	mostly , It. gray	fine-graine (SP)	d sand-							
			NOTES: 1. Soil: accordanc System.	s are field be with the L	d visua Jnified (	ally classit Soils Classi	fied in fication							
			analysis fr 3. Seafloo vessel's fa	Sample not om this interpretation of elevation of athometer violent NOAA tidal	rval. calculat water d	ed using sa lepth readi	ampling ng and							
			factor.											

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.15222° Long = -88.31045°

#### Mississippi Barrier Island Restoration Project

# AVS

Core Identifier BI-PBS-65-12

**Coordinate System** 

Date 11/16/2012

Water Depth 54.0'

Latitude / Longitude

Start Time 15:46:59

Penetration 14.8'

Latitude 30 09.133

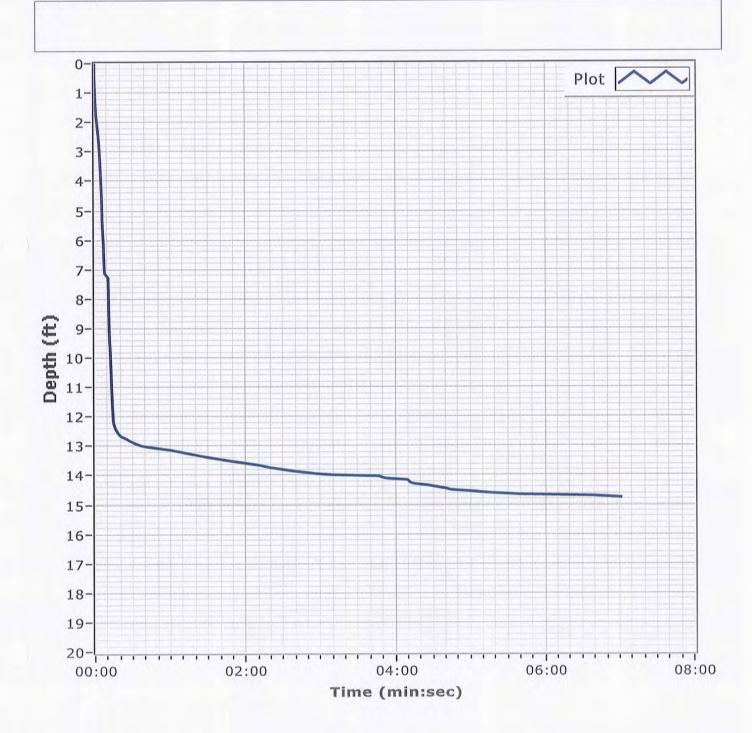
Total Time 00:07:01

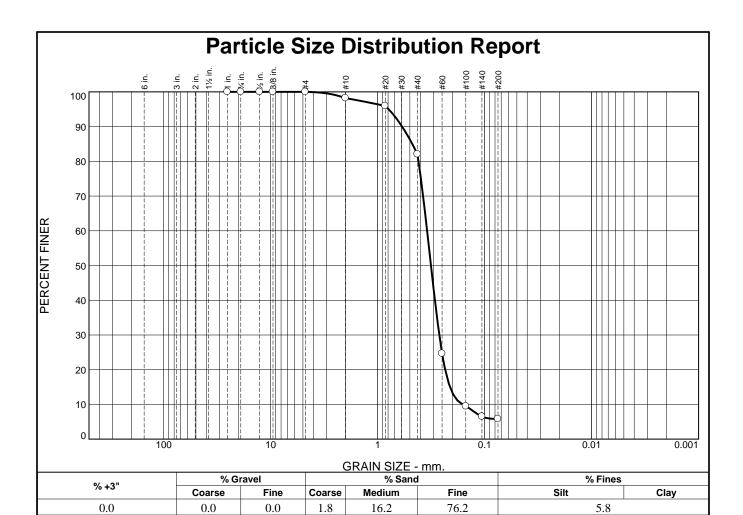
End Time 15:54:01

Recovery 13.5'

Longitude 88 18.627

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
1			

Material Description Fine to medium, SLIGHTLY SILTY SAND, with trace SHELL								
PL=	Atterberg Limits LL=	PI=						
D <sub>90</sub> = 0.5910 D <sub>50</sub> = 0.3177 D <sub>10</sub> = 0.1604	Coefficients D85= 0.4750 D30= 0.2656 Cu= 2.15	D <sub>60</sub> = 0.3451 D <sub>15</sub> = 0.2110 C <sub>c</sub> = 1.27						
USCS= SP-SM	Classification AASHT	O=						
	<u>Remarks</u>							

**Location:** BI-PBS-65-12 A **Sample Number:** 6462

**Depth:** 0.0'

**Date:** 11/23/12

**Thompson Engineering** 

 $\begin{tabular}{ll} \textbf{Client:} & CDM/Thompson Engineering JV \\ \end{tabular}$ 

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-066-12

DR	ILLING	ı ng	DIVISI				ı		TALLATIO					SHEET	Г 1
			Sou	uth Atlantic					Nobile Dis					<b>OF</b> 1	SHEETS
1. PRO										TYPE OF BIT	N/A				
	AsCIP Barrie			ation				U.		NATE SYSTEM/I		HORIZON		VERTIC	
	Petit Bois Pa			LOCATION	OOPD	INATES		1		Plane, MSE (LACTURER'S DES					VD88
	31-PBS-066-		•	i		N = 238,1		••	Vibra		IGNATIO	N OF DRILL	_	UTO HAI	MMER HAMMER
	LLING AGEN			,		RACTOR FIL	E NO.	_			; c	ISTURBED			BED (UD)
	Corps of Eng		s - CESAM	1			1	2.	TOTAL	SAMPLES				0	
	E OF DRILL						1	3.	TOTAL N	NUMBER CORE I	BOXES				
	American Vil					T		4.	WATER	DEPTH		54 Ft.			
$\boxtimes$	ECTION OF E VERTICAL INCLINED	BORING	G	DEG. FRO	M	BEARING	1	5.	DATE BO	ORING		STARTED	10	COMPL	
	CKNESS OF	OVERE	BURDEN	N/A		!	1	6.	ELEVAT	ION TOP OF BO	RING	11-16- -54.3 Ft.	12	11-	16-12
7 NEB	TH DRILLED	INTO	BUCK	N/A			1	7.	TOTAL F	RECOVERY FOR	BORING	100%			
7. DEF	TIT DRILLED		- Itook	IW/A			1	8.	SIGNAT	URE AND TITLE	OF INSP	ECTOR			
8. ТОТ	AL DEPTH O	F BOR	ing 1	2.6 Ft.					Mike	FitzHarris, Ge	ologist				
ELEV.	DEPTH	LEGEND	c	CLASSIFICATI	ON OF	MATERIALS		,	SAMPLE		LABO	DRATORY RE	SULTS		
-54.3	0.0							十							
-56.7	2.4		grained	ooorly-graded sand-sized ts, gray (SP)	qua	,			Α		cation: SI D50: 0.3		2.5Y 7/ Fines	/2-light g : 1.7	gray -
-58.3	4.0		quartz, s (SM) SAND, o	silty, mostly some silt, tra clayey, mostle come clay, gra	y fine-	ell fragment grained san	ts, gray								
-61.1 -62.1	- 6.8 - - 7.8 -			ean, mostly cla artz, gray (Cl		e fine-graine	ed sand-		NS						-
-63.1 -63.7 -64.4	9.4			at, mostly clay artz, medium											<u> </u>
			quartz, s	clayey, mostly come clay, dar silty, mostly	k gray	(SC)									<u> </u>
-66.9	12.6			ome silt, dark			ia sizea	$\not \perp$							<u>-</u> -
	<u> </u>		SAND, p	ooorly-graded sand-sized qu	, most artz, tr	tly fine to mace silt, gray	nedium- y (SP)								
	<u>-</u> -		NOTES:												<u> </u>
	<u> </u>			oils are fiel nce with the U											
	<u>-</u> - - -			= Sample no from this inte		nitted for lab	ooratory								
			vessel's	oor elevation fathometer NOAA tidal	water	depth readi	ng and								

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.15385° Long = -88.31358°

#### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

Core Identifier BI-PBS-66-12

**Coordinate System** 

Latitude / Longitude

Date 11/16/2012

Start Time 14:59:57

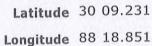
End Time 15:03:37

Total Time 00:03:40

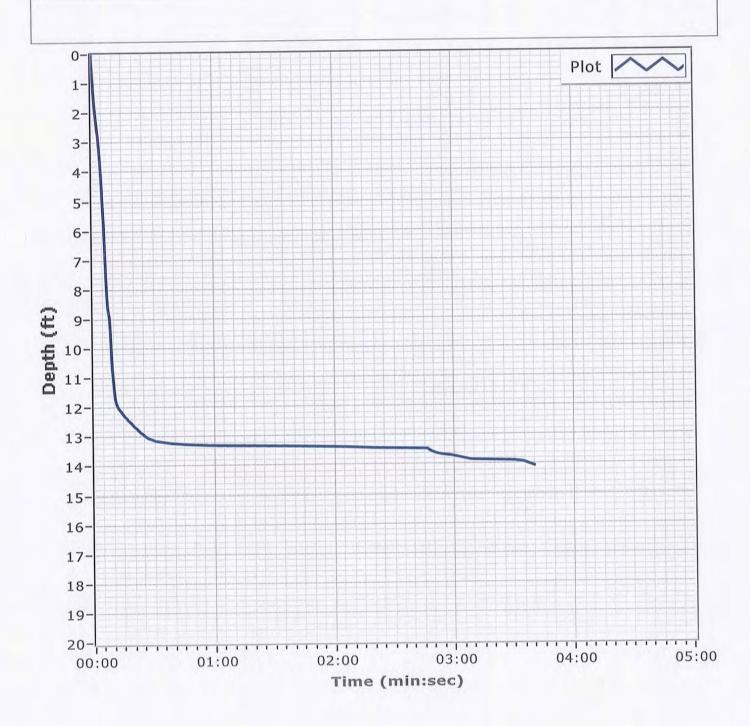
Water Depth 54.0'

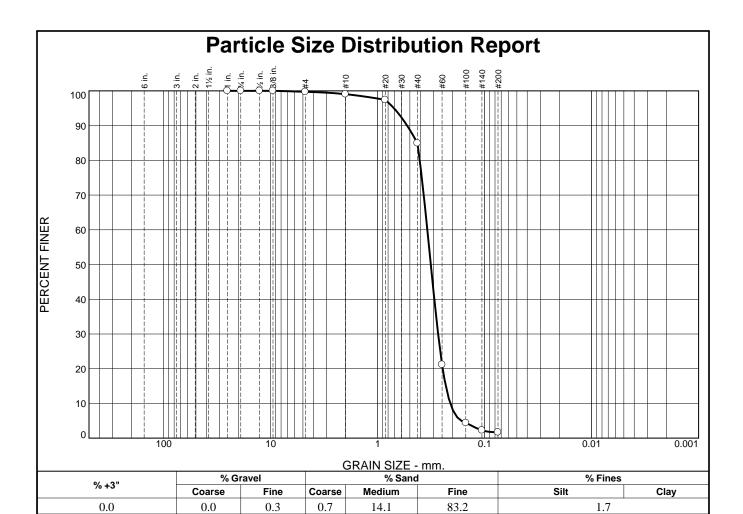
Penetration 14.1'

Recovery 12.8'



Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		
*	a sification masside		

Fine to medium	Material Description Fine to medium grained, SAND										
Atterberg Limits											
PL=	LL=	PI=									
D <sub>90</sub> = 0.5306 D <sub>50</sub> = 0.3188 D <sub>10</sub> = 0.2096	Coefficients D85= 0.4263 D30= 0.2725 Cu= 1.64	D <sub>60</sub> = 0.3434 D <sub>15</sub> = 0.2308 C <sub>c</sub> = 1.03									
USCS= SP	Classification AASHT	-O=									
	<u>Remarks</u>										

**Date:** 11/23/12

(no specification provided)

**Location:** BI-PBS-66-12 A **Sample Number:** 6462

**Depth:** 0.0'

**Thompson Engineering** Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama **Project No:** 1221110095 **Figure** 

Boring Designation BI-PBS-067-12

DRILL	ING	LOG	DIVISI				IN	STALLATIO					SHEET	
1. PROJEC			Sou	uth Atlantic			+	Mobile Dis					OF 1	SHEETS
							_		TYPE OF BIT	N/A				
			Restora	tion			10		NATE SYSTEM/DAT		RIZONT	AL	VERTIC	
2. BORING	Bois Pa		East	LOCATION	20000	INATES	144		Plane, MSE (U.S.		NAD83			/D88
	BS-067-			E = 1,14			"	. WANGFA Vibra		ATION OF L	KILL	=	UTO HAI	MMER HAMMER
3. DRILLIN						TRACTOR FILE NO.	+	VIDIC	COLE	DISTUR	RBED			BED (UD)
-			CESAM				12	. TOTAL S	SAMPLES				0	(02)
4. NAME O					<u>'</u>		13	. TOTAL P	IUMBER CORE BOX	ES			-	
Amer	rican Vib	racore	Systems,	Inc.			$\vdash$							
5. DIRECTI	ON OF B			DEG. FRO	М	BEARING	14	. WATER	DEPTH		3 Ft.			
⊠ VER □ INCI	TICAL LINED			VERTICAL	•		15	. DATE BO	RING	i	<b>ARTED</b> 11-19-1	2	<b>COMPL</b> 11-	. <b>ETED</b> 19-12
6. THICKN	ESS OF (	OVERBU	RDEN	N/A			16	. ELEVAT	ION TOP OF BORIN	G -58.	3 Ft.		•	
7. DEPTH D	DRILLED	INTO R	оск	N/A			17	. TOTAL F	RECOVERY FOR BO	RING 10	00%			
							18	. SIGNAT	URE AND TITLE OF	INSPECTOR	2			
8. TOTAL D	DEPTH O	F BORIN	IG 1	8.8 Ft.				John	Bass, Geotechnic	al Enginee	r			
ELEV. D	ЕРТН	LEGEND	c	LASSIFICATI	ON OF	MATERIALS		SAMPLE		LABORATO	RY RES	ULTS		
-58.3 0.	.0													
-62.5 -4.	.2	<sub>.</sub>	SAND, pgrained (SP)	oorly-graded sand-sized	, mosi quartz	tly fine to mediur , trace clay, gra	n- ay	Α	Classification: 9 D50	SP-SM : 0.1928 m		Y 6/2 Fines:	-light oliv	ve gray
-65.5 -7.	.2					-grained sand-size ell fragments, gra								
-77.1 18	8.8		sized qua	artz, little sand	mostly	e fine-grained san ses, gray (CH) y clay, few sho ith orange		NS						
			accordan System.  2. NS = analysis = 3. Seaflovessel's	= Sample no from this inte por elevation fathometer	Jnified t subn rval. calcula water	ually classified Soils Classification nitted for laborato ated using samplir depth reading ar ye data conversion	ry ng nd							

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14215° Long = -88.31923°

### Mississippi Barrier Island Restoration Project



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

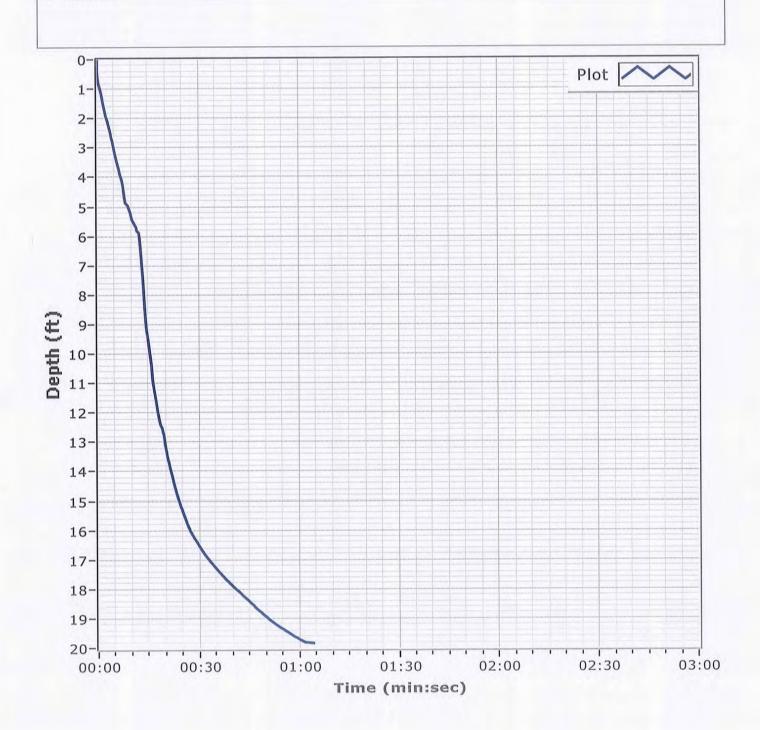
Total Time 00:01:04

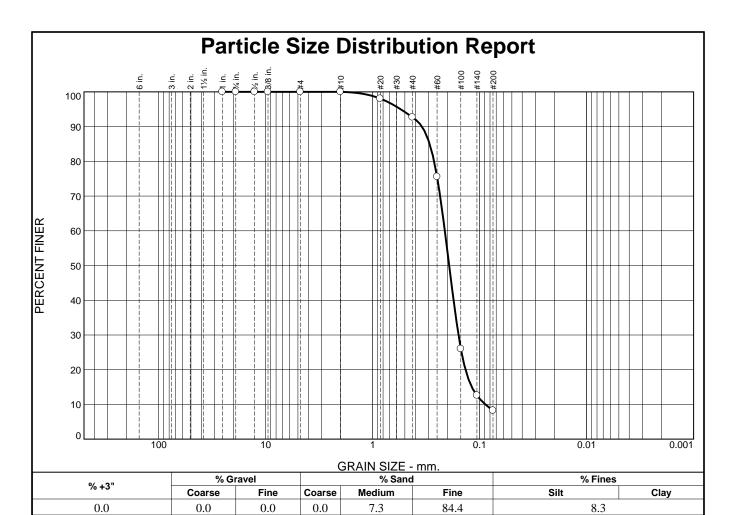
Water Depth 58.3'

Penetration 19.8'

Recovery 18.8'







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	Material Description Fine grained, SLIGHTLY SILTY SAND									
PL=	Atterberg Limits LL=	PI=								
D <sub>90</sub> = 0.3461 D <sub>50</sub> = 0.1928 D <sub>10</sub> = 0.0885	Coefficients D85= 0.2935 D30= 0.1578 Cu= 2.39	D <sub>60</sub> = 0.2116 D <sub>15</sub> = 0.1185 C <sub>c</sub> = 1.33								
USCS= SP-SM	Classification AASHTO	=								
	<u>Remarks</u>									

**Location:** BI-PBS-67-12 A **Sample Number:** 6462

Thompson Engineering

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

#### Boring Designation BI-PBS-068-12

-		100	DIVISIO	N			INS	STALLATIO	on		SHEET 1
	ILLING	LUG	Sout	h Atlantic			$\perp$	Mobile Dis	strict		OF 2 SHEETS
1. PRO	DJECT									I/A	
	MsCIP Barri			on			10.		NATE SYSTEM/DATUN	<u> </u>	ł
	Petit Bois Pa			LOCATION C	20000	INATES	44		Plane, MSE (U.S. F ACTURER'S DESIGNAT		
	BI-PBS-068					N = 232,732	111.	. <b>MANUF</b> Vibra		ION OF DRILL	☐ AUTO HAMMER ☐ MANUAL HAMMER
	LLING AGEN		<u> </u>	L - 1,14		RACTOR FILE NO.	╁			DISTURBED	UNDISTURBED (UD)
(	Corps of En	gineers	- CESAM		!		12.	TOTALS	SAMPLES	1	0
4. NAI	ME OF DRILL	.ER			-		13.	TOTAL	NUMBER CORE BOXES	;	
	American Vi					•	14.	WATER	DEPTH	57.8 Ft.	
_	ECTION OF I	BORING	•	DEG. FROI VERTICAL	M	BEARING				STARTED	COMPLETED
	INCLINED			į			15.	DATE BO	DRING	11-19-1	12 11-19-12
6. THI	CKNESS OF	OVERB	URDEN	N/A			16.	ELEVAT	ION TOP OF BORING	-57.9 Ft.	
7 DED	TH DRILLED	INTO	BOCK I	V/A			17.	TOTAL F	RECOVERY FOR BORII	IG 100%	
7. DEF	TH DRILLEL	INIO	NOCK	WA			18.	SIGNAT	URE AND TITLE OF IN	SPECTOR	
8. TO1	TAL DEPTH (	OF BOR	I <b>NG</b> 19	.3 Ft.				John	Bass, Geotechnical	Engineer	
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF	MATERIALS		SAMPLE	L	ABORATORY RES	BULTS
-57.9	0.0	<del>   </del>					$\dashv$				
			grained sa		iartz, fe	ly fine to mediun ew shell fragment:		A	Classification: D50: 0		2.5Y 7/1-light gray Fines: 2.7
-61.8	3.9	1////					_				
-68.6						grained sand-size ell fragments, gra					
			sized quar	tz, medium	plastici	e fine-grained sand ity, gray (CH)		NS			
	F		\gray and b	rown mottle	ed	•					<u> </u>
-77 2	19.3		At El75. stiff, dark		y clay,	high plasticity, ver	у				E
			NOTES:  1. Soil accordance System.	s are fielde with the U	Jnified	ually classified i Soils Classification	n				
	F			om this inte		intod for laborator	,				E
			3. Seafloovessel's fa	or elevation athometer wa	calcula ater de	ated using sampling the reading and	g				<u> </u>

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13895° Long = -88.31593°

Boring Designation BI-PBS-068-12

UKI	LLING	LOC	3 (Cont. Sheet)	INSTALLA				SHEET 2				
ROJEC			,	Mobile		DATINA	HODIZONES	OF 2 SHEETS				
		sland I	Restoration		<b>ITE SYSTEM/</b> I lane, MSE (U		HORIZONTAL NAD83	VERTICAL NAVD88				
	ON COORDI				N TOP OF BO		10.000	1010500				
	1,147,801		232,732	I	-57.9 Ft.							
LEV.	DEPTH	EGEND	CLASSIFICATION OF MAT									
		LEGEND	applying NOAA tidal gauge of factor.	TERIALS			LABORATORY RE	SULTS				
		1			1							

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13895° Long = -88.31593°

#### Mississippi Barrier Island Restoration Project

# AVS SERVICES

Core Identifier BI-PBS-68-12

**Coordinate System** 

Date 11/19/2012

Water Depth 57.8'

Latitude / Longitude

Start Time 13:13:12

Penetration 20.0'

Latitude 30 08.337

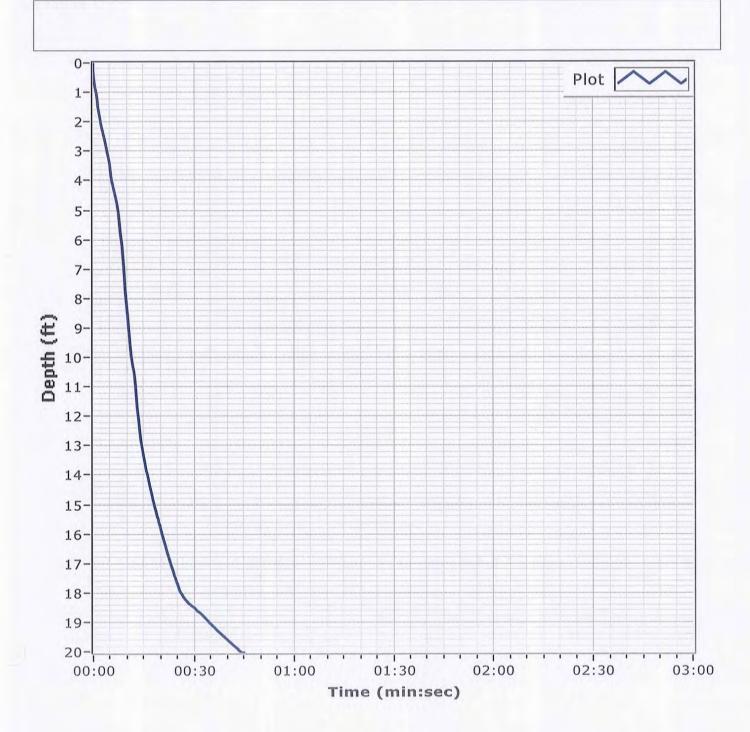
Total Time 00:00:45

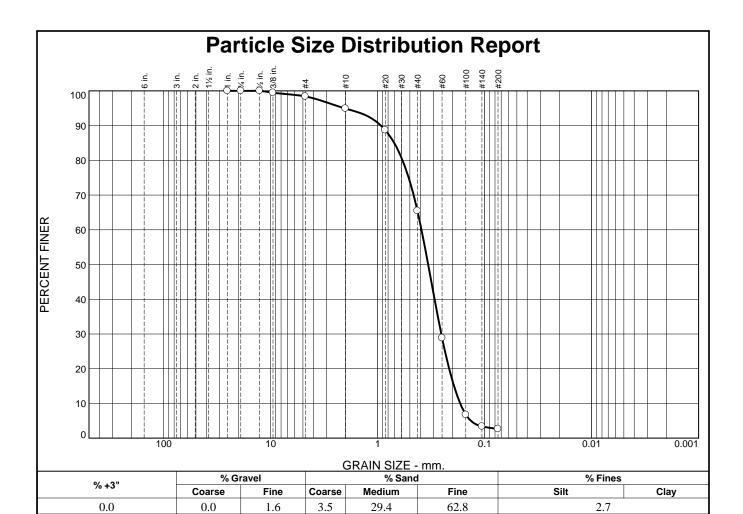
End Time 13:13:57

Recovery 19.3'

Longitude 88 18.956







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

	Material Description grained, SAND, with transfer.	
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.9331 D <sub>50</sub> = 0.3374 D <sub>10</sub> = 0.1695	Coefficients D <sub>85</sub> = 0.7002 D <sub>30</sub> = 0.2545 C <sub>U</sub> = 2.30	D <sub>60</sub> = 0.3894 D <sub>15</sub> = 0.1934 C <sub>c</sub> = 0.98
USCS= SP	Classification AASHT	O=
	<u>Remarks</u>	

**Location:** BI-PBS-68-12 A **Sample Number:** 6462

**Depth:** 0.0'

**Date:** 11/23/12

**Thompson Engineering** 

**Client:** CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-069-12

DRILLIN	G LOG	DIVISION			TALLATIO				SHEET	
1. PROJECT		South Atlantic			Nobile Dis				OF 1	SHEETS
	arrior Jelan	d Restoration				NATE SYSTEM/DATUM	HORIZON	ΤΔΙ Ι	VERTIC	ΔΙ
	s Pass-OC					Plane, MSE (U.S. Ft.)	!	:	NAV	
2. BORING DE			OORDINATES	11.		ACTURER'S DESIGNATION			TO HAN	
BI-PBS-	069-12	E = 1,150	,215 N = 233,725		Vibra	core				IAMMER
3. DRILLING A	GENCY	i	CONTRACTOR FILE NO.	12	TOTAL S		ISTURBED	UN	DISTUR	BED (UD)
	Engineers	- CESAM		12.	TOTAL	PAMPLES			)	
4. NAME OF DI		Overtones Inc		13.	TOTAL N	NUMBER CORE BOXES				
5. DIRECTION		Systems, Inc.	I BEARING	14.	WATER	DEPTH	61.8 Ft.			
VERTIC	AL	VERTICAL	BEARING	15.	DATE BO	DRING	<b>STARTED</b> 11-19-	i	COMPLI 11-1	<b>ETED</b> 9-12
6. THICKNESS		URDEN N/A		16.	ELEVAT	ION TOP OF BORING	-61.9 Ft.	<u> </u>		<u> </u>
7. DEPTH DRIL	LED INTO I	ROCK N/A		17.	TOTAL F	RECOVERY FOR BORING	100%			
				18.	SIGNAT	URE AND TITLE OF INSPE	ECTOR			
8. TOTAL DEP	TH OF BORI	NG 16.3 Ft.			John	Bass, Geotechnical Eng	gineer			
ELEV. DEPT	LEGEND	CLASSIFICATIO	ON OF MATERIALS	:	SAMPLE	LABO	RATORY RE	SULTS		
-61.9 0.0				1	NO					
-62.3 <u>-</u> 0.4 -63.0 <u>-</u> 1.1	<b></b>	CLAY, fat, mostly clay,	trace sand, gray (CH)	∕├	NS A	Classification: SP- D50: 0.28	SM Col	or: 5Y 7/ 6 Fines:		-
-77.1 <u>-15.2</u>		grained sand-sized of (SP)  SAND, clayey, mostly	mostly fine to medium puartz, trace clay, gray fine-grained sand-sized debris, trace shell	// d	NS	Classification: SM	Color: 10YF	2 6/2-linh	nt brown	
-78.2 <del>-</del> 16.3		SAND, poorly-graded, sized quartz, trace fine	mostly fine-grained sand	-	В	D50: 0.142		Fines: 2		lish gray
		accordance with the U System.  2. NS = Sample not analysis from this inter 3. Seafloor elevation of vessel's fathometer w	I visually classified in nified Soils Classification submitted for laboratory val. calculated using sampling vater depth reading and gauge data conversion	n   /						

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.14165° Long = -88.30828°

#### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

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

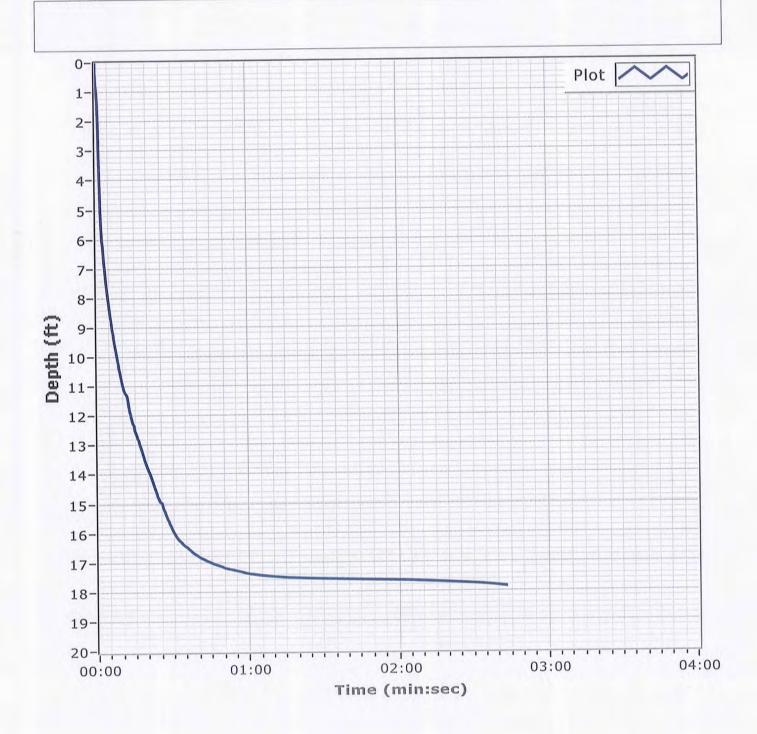
Total Time 00:02:43

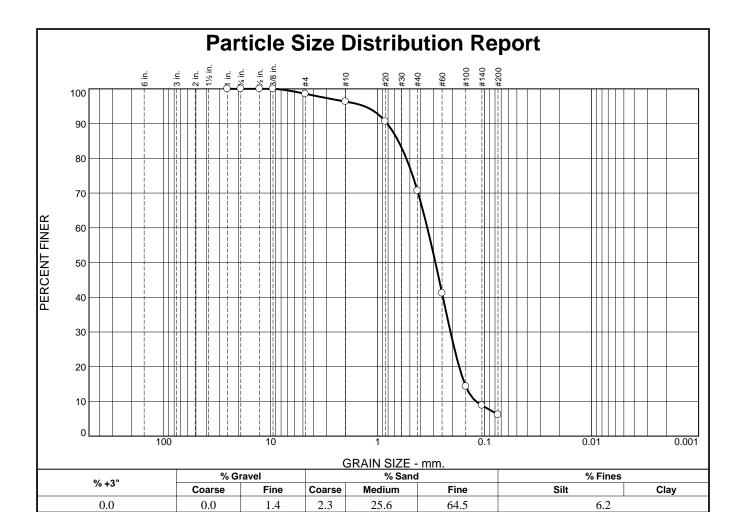
Water Depth 61.8'

Penetration 17.9'

Recovery 16.3'







PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
100.0		
100.0		
100.0		
100.0		
98.6		
96.3		
90.6		
70.7		
41.2		
14.3		
8.9		
6.2		
	100.0 100.0 100.0 100.0 98.6 96.3 90.6 70.7 41.2 14.3 8.9	100.0 100.0 100.0 100.0 98.6 96.3 90.6 70.7 41.2 14.3 8.9

Material Description Fine to medium grained, SLIGHTLY SILTY SAND				
PL=	Atterberg Limits LL=	PI=		
D <sub>90</sub> = 0.8163 D <sub>50</sub> = 0.2889 D <sub>10</sub> = 0.1201	Coefficients D <sub>85</sub> = 0.6420 D <sub>30</sub> = 0.2085 C <sub>u</sub> = 2.86	D <sub>60</sub> = 0.3437 D <sub>15</sub> = 0.1532 C <sub>c</sub> = 1.05		
USCS= SP-SM	Classification AASHTC	)=		
	<u>Remarks</u>			

**Location:** BI-PBS-69-12 A **Sample Number:** 6462

**Depth:** 0.4' **Date:** 11/23/12

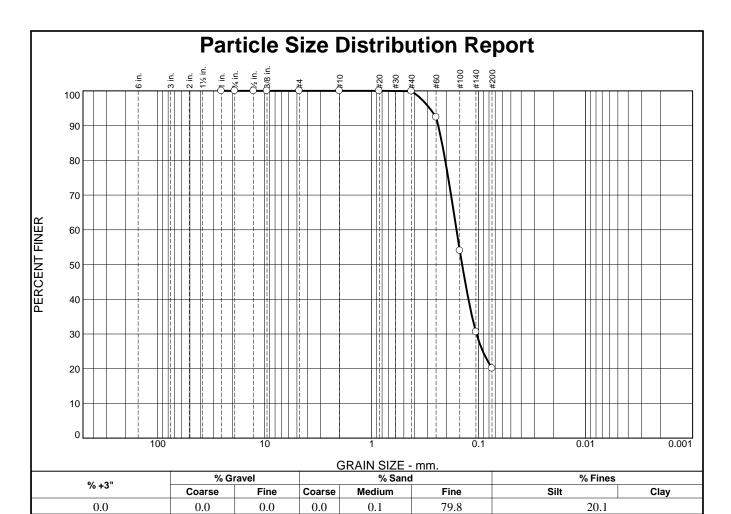
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



<b>FINER</b> 100.0	PERCENT	(X=NO)
100.0		
100.0		
100.0		
100.0		
100.0		
100.0		
100.0		
99.9		
92.4		
54.0		
30.6		
20.1		
	100.0 100.0 100.0 100.0 99.9 92.4 54.0 30.6 20.1	100.0 100.0 100.0 100.0 99.9 92.4 54.0 30.6

Material Description Fine grained, SILTY SAND				
PL=	Atterberg Limits	PI=		
D <sub>90</sub> = 0.2386 D <sub>50</sub> = 0.1428 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.2201 D <sub>30</sub> = 0.1047 C <sub>u</sub> =	D <sub>60</sub> = 0.1612 D <sub>15</sub> = C <sub>C</sub> =		
USCS= SM	Classification AASHT	-O=		
	<u>Remarks</u>			

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

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-070-12

DR	LLING	LOG	DIVISIO				IN	STALLATIO				SHEET	
1. PRO			Sout	h Atlantic			<del>-</del>	Mobile Di		٨		OF 2	SHEETS
	/IsCIP Barri	er lelan	d Restorati	on					NATE SYSTEM/DATUM		TAL	VERTIC	AL
	Petit Bois Pa			OH			'		Plane, MSE (U.S. Ft.	!			/D88
	RING DESIGN			LOCATION C	OORDI	NATES	11		ACTURER'S DESIGNATI			UTO HAI	
E	3I-PBS-070	-12		E = 1,148	3,982	N = 235,828		Vibra	acore		=		HAMMER
3. DRII	LLING AGEN	ICY			CONT	RACTOR FILE		. TOTAL	SAMPLES	DISTURBED	UN	DISTUR	BED (UD)
	Corps of En		- CESAM					. IOIAL	JAINIF LLO		i	0	
	ME OF DRILL		0				13	. TOTAL	NUMBER CORE BOXES				
	American Vi				л	BEARING	<del> </del> 14	. WATER	DEPTH	60 Ft.			
$\boxtimes$	VERTICAL INCLINED			DEG. FROM VERTICAL			15	. DATE B	DRING	<b>STARTED</b>	12	<b>COMPL</b> 11-1	<b>ETED</b> 19-12
6. THI	CKNESS OF	OVERB	URDEN	N/A		•	16	. ELEVAT	ION TOP OF BORING	-59.9 Ft.			
7. DEP	TH DRILLED	INTO F	SUCK	 V/A			17	. TOTAL	RECOVERY FOR BORING	<b>G</b> 100%			
							18	. SIGNAT	URE AND TITLE OF INS	PECTOR			
8. TOT	AL DEPTH (	OF BORI	<b>NG</b> 18	.3 Ft.				John	Bass, Geotechnical E	ngineer			
ELEV.	DEPTH	LEGEND	CL	ASSIFICATIO	ON OF	MATERIALS		SAMPLE	LAI	BORATORY RES	SULTS		
-59.9	0.0												
-62.0	- - - - - - 2.1					grained sand-s ell fragments,							
			CLAY, fat with some	t, mostly cla sandy clay l	ay, trao Jenses,	ce organic ma , gray (CH)	atter,						
-67.6 -73.2	7.7	SAND, clayey, mostly fine-grained sand-size quartz, some clay, gray (SC)			sized	NS							
			SAND, po	orly-graded, tz, few fines	mostly , It. gra	fine-grained s ay (SP)	and-						
-77.5			At El75. quartz, tra	.1 Ft., mostl ce fines, lt. ç	y fine- gray	grained sand-s	sized	A	Classification: SF D50: 0.2		r: 2.5Y Fines:	7/2-light 7.3	gray
-78.2	- 18.3 - -	<i>[][]</i>	SAND, cla quartz, so (SC)	ayey, mostly ome clay, t	/ fine-(	grained sand-s wood debris,	sized gray	_					- - - - - -
	<u> </u>		NOTES:										
	<u>-</u> - - - - -		accordance System.	e with the U	Inified	ially classified Soils Classific	ation						
	<u> </u>			Sample not om this inter		itted for labora	atory						[- -
	- - - -		<ol><li>Seafloovessel's fa</li></ol>	or elevation of athometer wa	calcula ater de	ited using sam pth reading and	pling d						

SAM FORM 1836 - MsCIP MAY 2010

Lat = 30.14745° Long = -88.31215°

Boring Designation BI-PBS-070-12

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14745° Long = -88.31215°

### 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

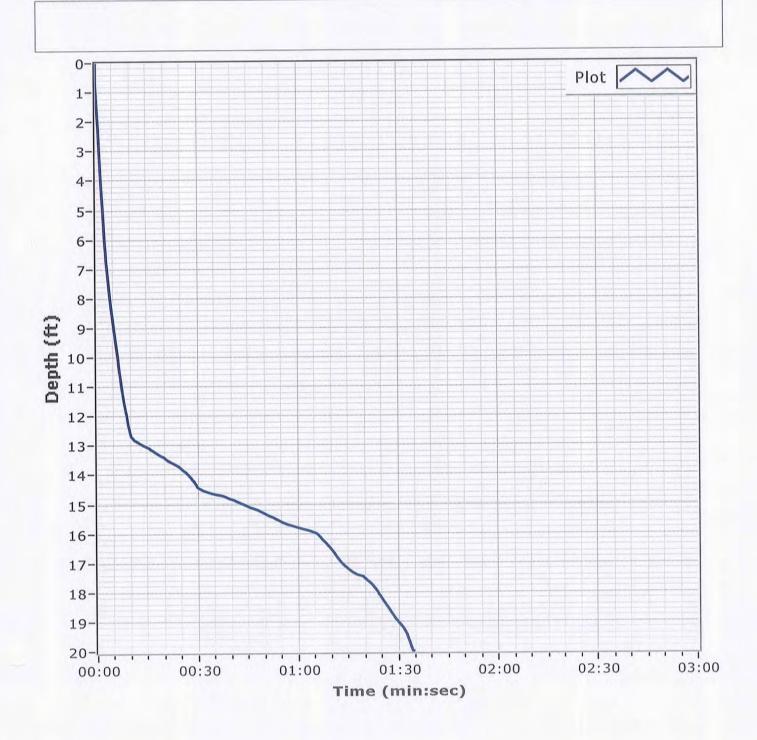
Total Time 00:01:34

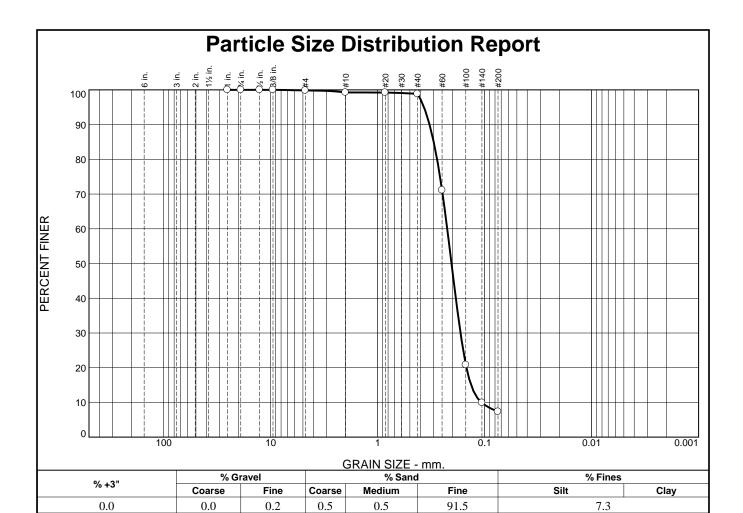
Water Depth 60.0'

Penetration 20.0'

Recovery 18.3'







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine grained, SLIGHTLY SILTY SAND				
PL=	Atterberg Limits LL=	PI=		
D <sub>90</sub> = 0.3276 D <sub>50</sub> = 0.2041 D <sub>10</sub> = 0.1068	Coefficients D85= 0.2996 D30= 0.1682 Cu= 2.09	D <sub>60</sub> = 0.2238 D <sub>15</sub> = 0.1339 C <sub>c</sub> = 1.18		
USCS= SP-SM	Classification AASHTO	=		
	<u>Remarks</u>			

**Location:** BI-PBS-70-12 A **Sample Number:** 6462

**Depth:** 15.2' **Date:** 11/23/12

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095 **Figure** 

Boring Designation BI-PBS-071-12

DB		1.06	DIVISIO	ON			IN	STALLATIO	on			SHEET	Г 1
	South Atlantic				+	Mobile Dis				<b>OF</b> 1	SHEETS		
1. PRC										I/A			
	MsCIP Barri			ion			10		NATE SYSTEM/DATUR	<u> </u>	AL	VERTIC	
	Petit Bois Pa			LOGATION			14		Plane, MSE (U.S. F ACTURER'S DESIGNAT				VD88
	BI-PBS-071		•	E = 1 148		N = 232,181	111	. MANUFA Vibra		ION OF DRILL	=	JTO HAI	MMER HAMMER
	LLING AGEN			L - 1,140		RACTOR FILE NO.	+			DISTURBED			BED (UD)
(	Corps of Eng	gineers	- CESAM		!		12	. TOTAL S	SAMPLES	-	i	0	` ′
4. NAI	NE OF DRILL	ER.			•		13	. TOTAL I	NUMBER CORE BOXES	3	-		
	American Vi						14	. WATER	DEDTH	57.6 Ft.			
	ECTION OF I	BORING	3	DEG. FROM	M	BEARING	<u>                                     </u>	. WAIEK	DEFIN	STARTED	-	COMPL	ETED
_	INCLINED					1	15	. DATE BO	DRING	11-19-1	2		19-12
6 TUI	CKNESS OF	OVERE	HIDDEN	N/A		1	16	FLEVAT	ION TOP OF BORING	-57.7 Ft.			
							ᅪ		RECOVERY FOR BORIS				
7. DEP	TH DRILLED	INTO	ROCK	N/A					URE AND TITLE OF IN				
8. TO1	AL DEPTH C	F BOR	ING 18	3.4 Ft.			] <b>'</b> ''		Bass, Geotechnical				
ELEV.	DEPTH	EGEND	CI	LASSIFICATIO	ON OF	MATERIALS		SAMPLE	,	ABORATORY RES	ULTS		
-57.7	0.0	+-+					$\dashv$						
57.7	E	<del>  </del>	04:15				$\dashv$						<del></del>
			grained s	oorly-graded, and-sized qu s, light gray (	ıartz, f	ly fine to mediun ew fines, few she	n- ell	Α	Classificatior D50: 0		5Y 7/2 Fines:	-light gr 3.4	ray [- - - - - -
-61.1	3.4						_						
-62 Q			quartz, so			grained sand-size ell fragments, gra		В	Classification D50: 0		5Y 5/2 ines: 1		ray
	5.9		(SC)				-1	NS					
00.0	<del>- 0.0</del>		CLAY, fat	t, mostly clay	, trace	fine-grained san	d, /	_					F
-68.2	- - - - - - - - - - - - - - - - - - -		SAND, cl	olasticity, grag layey, mostly ome clay, fe	y fine-	grained sand-size ell fragments, gra	ed ay	С	Classification: S D50: 0.		′ 6/2-lig Fines:	ght olive 15.3	gray
-76.1			CLAY, fat mottled w	t, mostly clay ith grayish bi	, high rown (	plasticity, dark gra CH)	ау	NS					
7 0.1	-		NOTES:										
			<ol> <li>Soi accordance System.</li> <li>NS =</li> </ol>	ce with the U	Jnified t subm	ually classified Soils Classification	on						
			vessel's 1	fathometer v	water	ated using samplir depth reading ar e data conversio	nd						

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13743° Long = -88.31410°

#### Mississippi Barrier Island Restoration Project

# AVS

Core Identifier BI-PBS-71-12

**Coordinate System** 

Date 11/19/2012

Water Depth 57.6'

Latitude / Longitude

Start Time 14:05:31

Penetration 20.0'

Latitude 30 08.246

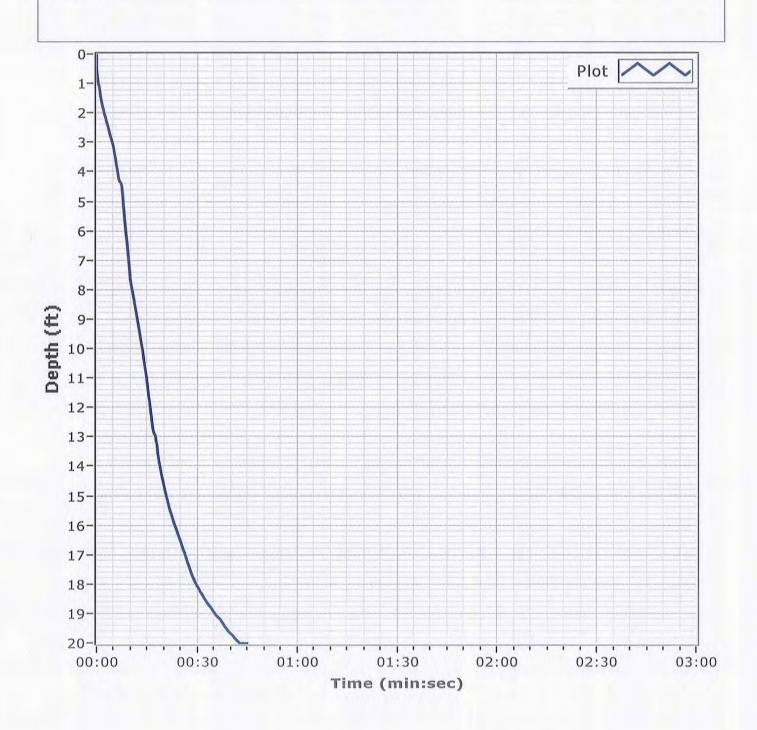
Total Time 00:00:45

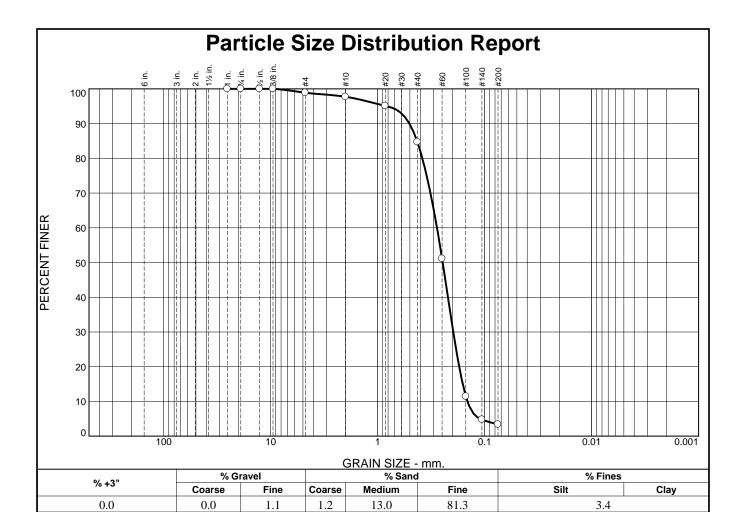
End Time 14:06:16

Recovery 18.4'

Longitude 88 18.846

Comments





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND, with trace SHELL				
PL=	Atterberg Limits  LL=	PI=		
D <sub>90</sub> = 0.5054 D <sub>50</sub> = 0.2468 D <sub>10</sub> = 0.1449	Coefficients D85= 0.4284 D30= 0.1965 Cu= 1.93	D <sub>60</sub> = 0.2791 D <sub>15</sub> = 0.1605 C <sub>c</sub> = 0.95		
USCS= SP	Classification AASHT	O=		
	<u>Remarks</u>			

**Location:** BI-PBS-71-12 A **Sample Number:** 6462

**Depth:** 0.0'

Client: CDM/Thompson Engineering JV

**Thompson Engineering** 

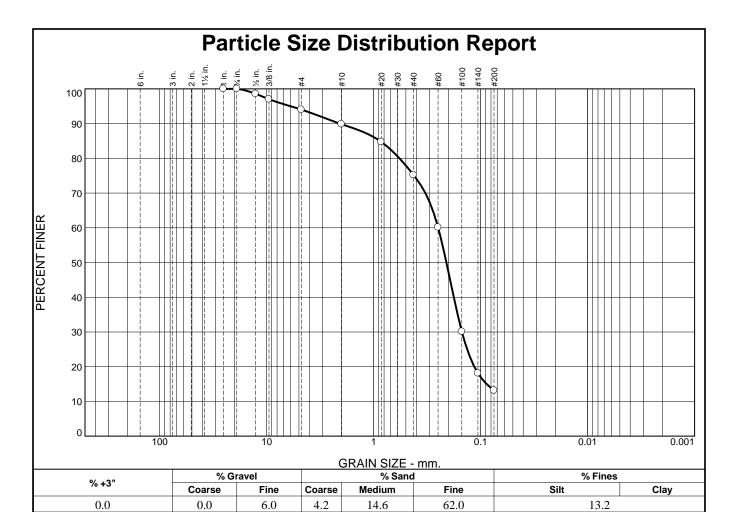
**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

**Figure** 

**Date:** 11/23/12



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SILTY SAND, with clay nodules and trace SHELL				
PL=	Atterberg Limits LL=	Pl=		
D <sub>90</sub> = 2.0738 D <sub>50</sub> = 0.2090 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.8750 D <sub>30</sub> = 0.1497 C <sub>u</sub> =	D <sub>60</sub> = 0.2494 D <sub>15</sub> = 0.0879 C <sub>c</sub> =		
USCS= SM	Classification AASHT	O=		
	<u>Remarks</u>			

**Location:** BI-PBS-71-12 B **Sample Number:** 6462 **Depth:** 3.4' **Date:** 11/23/12

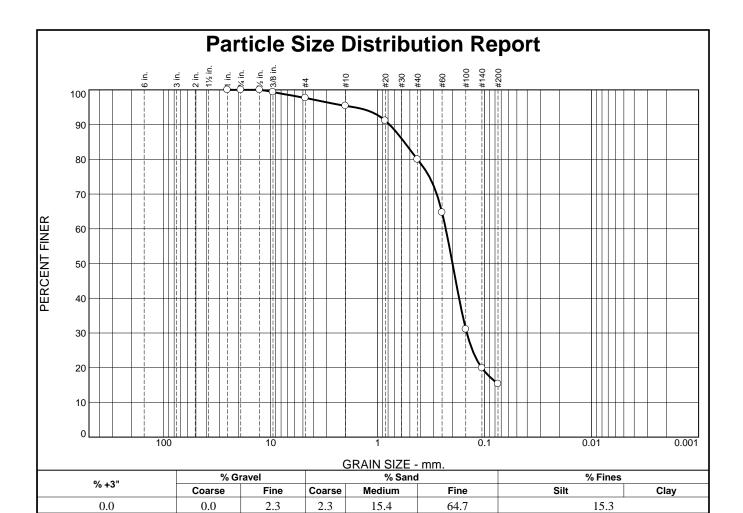
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.7755 D <sub>50</sub> = 0.1997 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.5652 D <sub>30</sub> = 0.1469 C <sub>u</sub> =	D <sub>60</sub> = 0.2309 D <sub>15</sub> = C <sub>c</sub> =
USCS= SM	Classification AASHTO	)=
	<b>Remarks</b>	

**Material Description** 

\* (no specification provided)

**Location:** BI-PBS-71-12 C **Sample Number:** 6462 **Depth:** 5.9' **Date:** 11/23/12

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-072-12

			DIVISIO	N			IN	STALLATIO	on		SH	EET 1
DRI	LLING	LOG	South	h Atlantic				Mobile Dis	strict		OF	1 SHEETS
1. PRO	JECT						9.	SIZE AND	TYPE OF BIT	V/A		
N	/IsCIP Barri	er Islan	d Restoration	on			10	. COORDI	NATE SYSTEM/DATU	M HORIZONT	AL VE	RTICAL
_	Petit Bois Pa						$\perp$		Plane, MSE (U.S. F			NAVD88
	ING DESIGN		i i	LOCATION C			11		ACTURER'S DESIGNA	TION OF DRILL	=	HAMMER
	BI-PBS-072-		<u> </u>	E = 1,146		N = 232,914 RACTOR FILE NO	+	Vibra	core	DISTURBED		AL HAMMER TURBED (UD)
	Corps of Eng		- CESAM		CONT	RACIOR FILE NO		. TOTAL S	SAMPLES	DISTORBED	000131	OKBED (OD)
	E OF DRILL	_	020/11/1		<u> </u>		13	. TOTAL P	NUMBER CORE BOXE	<u> </u>		
P	American Vi	bracore	Systems, I	nc.			$\vdash$					
	ECTION OF I	BORING	;	DEG. FROI	M	BEARING	74	. WATER	DEPIH	58.7 Ft.	1.00	MPLETED
	VERTICAL INCLINED					! !	15	. DATE BO	DRING	11-19-1	1	11-19-12
	CKNESS OF	OVEDB	IIDDEN	N/A		i	16	FIEVAT	ION TOP OF BORING		· <u>~</u> .	
6. IHI	CKNE33 OF	OVERB	OKDEN	IV/A			$\rightarrow$		RECOVERY FOR BORI			
7. DEP	TH DRILLED	INTO	ROCK N	V/A					URE AND TITLE OF I			
8. ТОТ	AL DEPTH C	F BOR	I <b>NG</b> 16.	.8 Ft.			٦'		Bass, Geotechnica			
ELEV.	DEPTH	EGEND	CL	ASSIFICATIO	ON OF I	MATERIALS		SAMPLE	·	ABORATORY RES	SULTS	
-58.8	0.0	-										
-61.1	-		grained		ace fir	y fine to mediunes, trace sl		А	Classificatio D50: (		5Y 7/2-ligh Fines: 1.8	t gray
-68.3	- - - - - - - - - - - - - - - - - - -			ayey, mostl		grained sand-siz	red	В	Classification: 0 D50: 0	SM Color: 5Y .1997 mm %	' 6/2-light o Fines: 13.6	live gray
-75.6			grained sa At El7	nd-sized qu	artz, gr	ne silt, trace fi ay (CH) clay, trace sa nottled with orar	nd,	NS				
			accordance System.  2. NS = analysis from the state of th	Sample not om this interpretation athometer v	Jnified t subm rval. calcula water (	ally classified Soils Classificat itted for laborat ted using sampl depth reading a e data convers	ory ing ind					

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.13947° Long = -88.32075°

### Mississippi Barrier Island Restoration Project

# AVS AMERICAN VIBRACORE S E R V I C E S

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

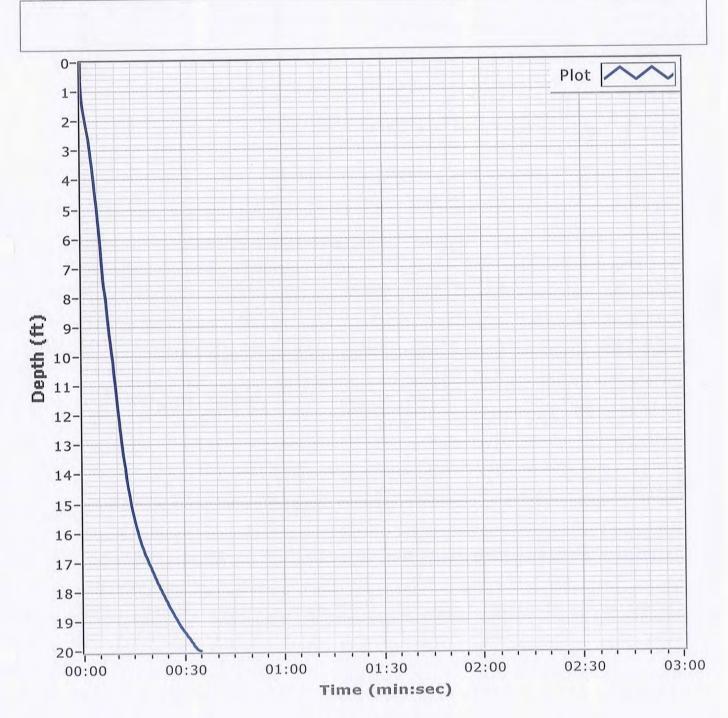
Total Time 00:00:35

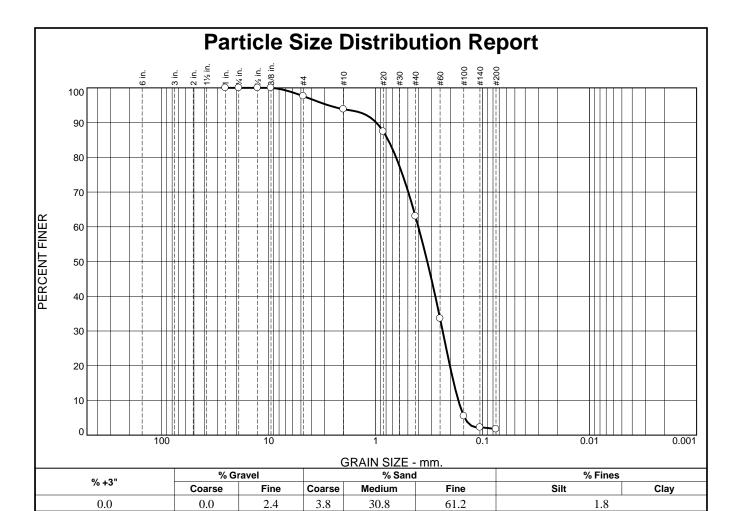
Water Depth 58.7'

Penetration 20.0'

Recovery 16.8'







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SILTY SAND, with trace SHELL									
PL=	Atterberg Limits LL=	PI=							
D <sub>90</sub> = 0.9878 D <sub>50</sub> = 0.3295 D <sub>10</sub> = 0.1689	Coefficients D <sub>85</sub> = 0.7649 D <sub>30</sub> = 0.2365 C <sub>U</sub> = 2.36	D <sub>60</sub> = 0.3992 D <sub>15</sub> = 0.1861 C <sub>c</sub> = 0.83							
USCS= SP	Classification AASHTO	)=							
	<u>Remarks</u>								

**Location:** BI-PBS-72-12-A **Sample Number:** 6462

**Depth:** 0.0' **Date:** 11/23/12

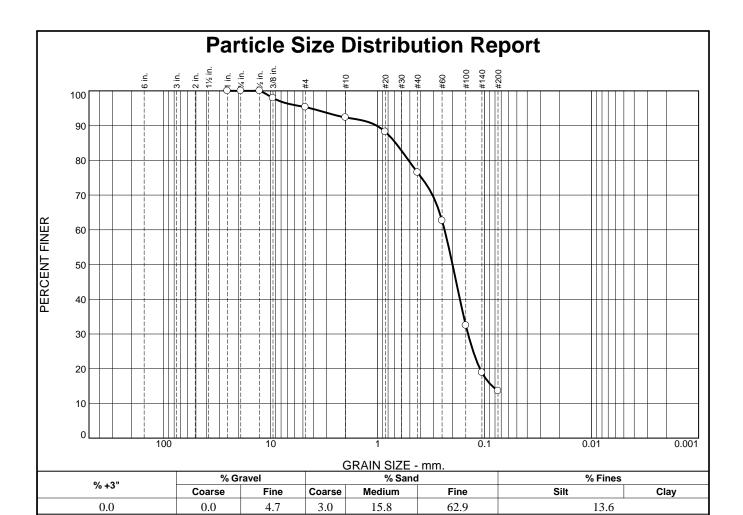
**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SILTY SAND, with trace SHELL								
PL=	Atterberg Limits LL=	PI=						
D <sub>90</sub> = 1.0254 D <sub>50</sub> = 0.1997 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.6801 D <sub>30</sub> = 0.1430 C <sub>U</sub> =	D <sub>60</sub> = 0.2370 D <sub>15</sub> = 0.0850 C <sub>c</sub> =						
USCS= SM	Classification AASHT	O=						
<u>Remarks</u>								

**Location:** BI-PBS-72-12 B **Sample Number:** 6462

Thompson Engineering

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT

Mobile, Alabama

Project No: 1221110095

Figure

Boring Designation BI-PBS-073-12

DR	ILLING	LOG	DIVISI				1	STALLATIO					SHEE	
1. PRO			Sou	uth Atlantic			_	Mobile Di					OF 2	SHEETS
							_		TYPE OF BIT	N/A				
	MsCIP Barri			tion			10.		NATE SYSTEM/D		HORIZON		VERTI	
	Petit Bois Pa		East	LOCATION	COOPD	INATES	11		Plane, MSE (U					VD88
	31-PBS-073-			ı		N = 234,176	'''	Vibra		GNATIO	N OF DRILL		UTO HA	HAMMER
	LLING AGEN				_	RACTOR FILE NO.	+			i D	ISTURBED			RBED (UD)
(	Corps of Eng	gineers -	CESAM		!		12.	. TOTAL S	SAMPLES	į		ij	0	`
4. NAI	NE OF DRILL	ER					13.	TOTAL I	NUMBER CORE B	OXES				
A	American Vil	bracore :	Systems,	Inc.				WATER	DEDTU		55.4 Ft.			
	ECTION OF I	BORING		DEG. FRO	М	BEARING	<u> </u>	WAIER	DEPIN		STARTED		COMP	LETED
_	VERTICAL INCLINED				-	!	15.	. DATE BO	ORING		11-20-	12		20-12
6. THI	CKNESS OF	OVERBU	RDEN	N/A			16.	. ELEVAT	ION TOP OF BOF	RING	-55.1 Ft.			
7. DEP	TH DRILLED	INTO R	оск	N/A			17.	. TOTAL I	RECOVERY FOR I	BORING	100%			
							18.	SIGNAT	URE AND TITLE	OF INSP	ECTOR			
8. TOT	AL DEPTH C	F BORIN	IG 1	9.4 Ft.			<u>L</u>	John	Bass, Geotech	nical En	gineer			
ELEV.	DEPTH	LEGEND	С	LASSIFICATI	ON OF	MATERIALS		SAMPLE		LABC	RATORY RES	SULTS		
-55.1	0.0													$\Box$
-58.0	- - - - - - - - - - - - - - - - - - -	$ \cdot\cdot\cdot $	grained		ace f	tly fine to mediun ines, trace she		Α	Classificat D		Color: 5\ 322 mm %			gray -
	- 2.9             		grained s		uartz,	silt, mostly fine few silt, few she		В	Classific D	cation: S 50: 0.19		5Y 5/2 Fines:	2-olive g 13.4	ray
		114141 -	quartz, s		ce she	grained sand-size ell fragments, trac								
	9.0 - - - - 11.0			clayey, mostlome clay, gra		-grained sand-size	ed							
	12.0		CLAY, fa	at, mostly cla gray (CH)	ay, sti	ff, medium to hig	jh /	NO						
			CLAY, le	ean, mostly	clay,	some fine-graine dium plasticity, gra		NS						
			At El70 plasticity,	).1 Ft., mostly , lt. gray mott	y clay, led wit	stiff, low to medium h brown	m							
-74.5	19.4													
	<u>L</u> E E		NOTES:	11 C'	. ·	wallow also 1811 to								<u>-</u> 2
	<u>-</u> - - -	;	1. So accordan System.	ice with the l	u visi Jnified	ually classified Soils Classification	on							
			analysis 1	from this inte	rval.	nitted for laborator								<u>E</u> E
	<u> </u>					ated using samplinepth reading and	ıg							<u></u>

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14295° Long = -88.32313°

Boring Designation BI-PBS-073-12

DRILLING	LOC	G (Cont. Sheet)		INSTALLATION SHEET 2  Mobile District OF 2 SHEETS								
OJECT		·		Mobile District         OF 2 SHEE           COORDINATE SYSTEM/DATUM         HORIZONTAL         VERTICAL           State Plane, MSE (U.S. Ft.)         NAD83         NAVD88								
MsCIP Barrier	Island I	Restoration	l l									
CATION COOR						: 10.000	10.0000					
X = 1,145,519			ı	ELEVATION TOP OF BORING -55.1 Ft.								
LEV. DEPTH	$\overline{}$	CLASSIFICATION OF MAT										
LEV. DEPTH	LEGEND	applying NOAA tidal gauge da factor.		SAMPLE		LABORATORY RE	ESULTS					

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14295° Long = -88.32313°

### Mississippi Barrier Island Restoration Project

# AVS **AMERICAN VIBRACORE** SERVICES

Core Identifier BI-PBS-73-12

**Coordinate System** 

Date 11/20/2012

Water Depth 55.4'

Latitude / Longitude

Start Time 09:50:03

Penetration 20.0'

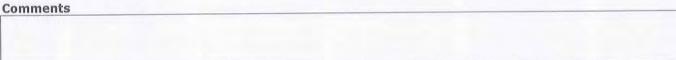
Latitude 30 08.577

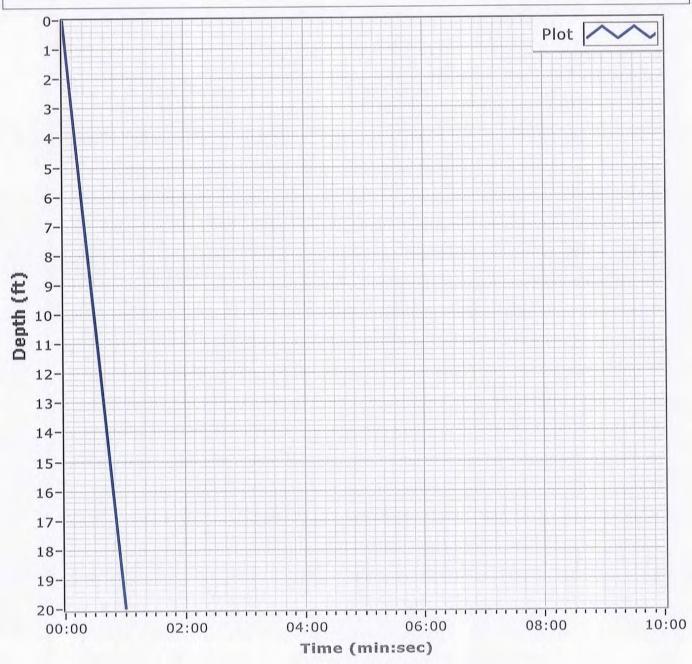
Total Time 00:01:00

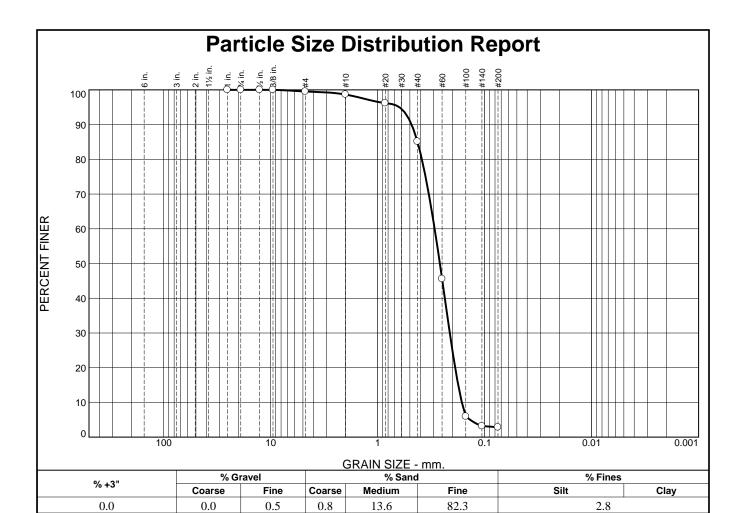
End Time 09:51:03

Recovery 19.4'

Longitude 088 19.388







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

Material Description Fine to medium grained, SAND, with trace SHELL									
PL=	Atterberg Limits LL=	PI=							
D <sub>90</sub> = 0.4819 D <sub>50</sub> = 0.2622 D <sub>10</sub> = 0.1635	Coefficients D <sub>85</sub> = 0.4239 D <sub>30</sub> = 0.2117 C <sub>u</sub> = 1.80	D <sub>60</sub> = 0.2937 D <sub>15</sub> = 0.1768 C <sub>c</sub> = 0.93							
USCS= SP	Classification AASHT	O=							
	<u>Remarks</u>								

**Date:** 11/23/12

(no specification provided)

**Location:** BI-PBS-73-12 A **Sample Number:** 6462

Sample Number: 6462 Depth: 0.0'

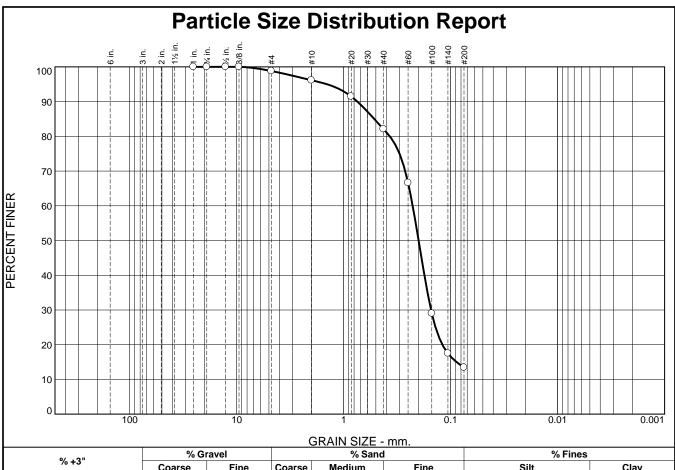
Thompson Engineering

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT

Mobile, Alabama

Project No: 1221110095

Figure



GRAIN SIZE - mm.										
% +3"	% G	ravel		% Sand	i	% Fines				
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0.0	0.0	1.2	2.6	14.1	68.7	13.4				

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(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		

PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.7452 D <sub>50</sub> = 0.1993 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 0.5186 D <sub>30</sub> = 0.1526 C <sub>u</sub> =	D <sub>60</sub> = 0.2265 D <sub>15</sub> = 0.0881 C <sub>c</sub> =
USCS= SM	Classification AASHTO	D=
	<u>Remarks</u>	

**Material Description** 

(no specification provided)

**Location:** BI-PBS-73-12 B **Sample Number:** 6462 **Date:** 11/23/12**Depth:** 2.9'

**Thompson Engineering** 

Client: CDM/Thompson Engineering JV

**Project:** MsCIP Barrier Island Restoration GT

Mobile, Alabama

**Project No:** 1221110095

Boring Designation BI-PBS-074-12

PROJECT   MoCIP Barrier Island Restoration   Petit Bois Pass-OCS East   NA   10. COORDINATE SYSTEMDATUM   NORIZONTAL VERTIC PROPERTY   NA   NA   NA   NA   NA   NA   NA   N	1	SHEET		on	STALLATIO	IN			DIVISION	OG	LLINGI	DB
MSCIP Barrier Island Restoration	SHEETS	<b>OF</b> 1 5				_		Atlantic	South	.00		
Petit Bois Pass=OCS East   State Plane, MSE (U.S. Pt.)   NAD83   NAV.						_						
2. BORING DESIGNATION   COCATION CORDINATES   E = 1,143,560 N = 255,957   3. DRILLING AGENCY   CONTRACTOR FILE NO   CORPS of Engineers - CESAM   CONTRACTOR FILE NO   CORPS of Engineers - CESAM   CONTRACTOR FILE NO   4. MANE OF BRILLER   American Vibracore Systems, Inc.   5. DIRECTION OF BORING   DEC. FROM VIRTUCAL   Inc. MINCHED   UNDISTURE   COMPLETION OF BORING   DEC. FROM VIRTUCAL   Inc. MINCHED   C. THICKNESS OF OVERBURDEN   N/A   Inc. ELEVATION TOP OF BORING   11-21-12   Inc. MINCHED   C. THICKNESS OF OVERBURDEN   N/A   Inc. ELEVATION TOP OF BORING   1-25,5 Ft.   TOTAL DEPTH OF BORING   17.6 Ft.   SAND, poorly-graded, mostly fine-grained sand-sized quartz, sime slit, tittle shell fragments, trace fines, It. gray (SP)   SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, solly, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, solly, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, it. gray motitled with orange (SC)   SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, it. gray motitled with orange (SC)   SAND, clayey, dense, it. gray motitled with orange (SC)   SAND, clayey, dense, it. gray motitled with orange (SC)   SAND, clayer, some sit, titre shell fragments, trace wood debris, gray (CH)   SAND, clayer, mostly fine-grained sand-sized quartz, some clay, dense, it. gray motitled with orange (SC)   SAND, clayer, mostly fine-grained sand-sized quartz, some clay, dense, it. gray motitled with orange (SC)   SAND, clayer, mostly fine-grained sand-sized quartz, some sit. gray (SC)   SAND, clayer, mostly fine		ł	!			10						
B.   PRS-074-12		NAVE				44	DINATES	CATION COORDII				
Depth   Dep		=	N OF DRILL			١			-			
A NAME OF PRILLER  A NAME OF PRILLER  A NAME OF PRILLER  A MARE CARP VERTICAL  SOURCE TO NO F BORING  DIRECTION OF BORING  VERTICAL  SOURCE TO NO F BORING  TOTAL DEPTH OF BORING  TOTAL DEPTH OF BORING  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  A CLASSIFICATION OF MATERIALS  A CLASSIFICATION OF MATERIALS  DECLAR OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MATERIALS  SAMPLE  CLASSIFICATION OF MAT		UNDISTURB	DISTURBED			١	•					
American Vibracore Systems, Inc.  5. DIRECTION OF BORING STATED S		0		SAMPLES	. TOTAL S	12			ESAM			
S. DIECTION OF BORNE   DEC. FROM   SEARING   STARTED   COMPL.     MICLINED   NIA   15. DATE BORING   11.21-12   11.2   S. THICKNESS OF OVERBURDEN   N/A   16. ELEVATION TOP OF BORING   10.0%     T. DEPTH DRILLED INTO ROCK   N/A   17. TOTAL RECOVERY FOR BORING   10.0%     S. TOTAL DEPTH OF BORING   17.6 Ft.   17. TOTAL RECOVERY FOR BORING   10.0%     S. AND, DOORLY-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, it. gray (SP)   SAND, Doorly-graded with silt, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   CLAY, fat, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   CLAY, fat, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   CLAY, fat, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)   SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, it. gray mottled with orange (SC)   NOTES:				NUMBER CORE BOXES	. TOTAL N	13						
15. DATE BORING   11-21-12   11-2			55.9 Ft.	DEPTH	. WATER	14	PEARING					
8. THICKNESS OF OVERBURDEN N/A  7. DEPTH DRILLED INTO ROCK N/A  8. TOTAL DEPTH OF BORING  9. CLASSIFICATION OF MATERIALS  CLASSIFICATION OF MATERIALS  SAMPLE  LABORATORY RESULTS  LABORATORY RESULTS  LABORATORY RESULTS  SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, it. gray (SP)  SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)  CLAY, fat, mostly clay, trace shell fragments, trace fines, trace wood debris, gray (SC)  SAND, silty, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace wood debris, gray (SC)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, it. gray mottled with orange (SC)  NS  NS  NS  NS  NS  NS  NOTES:		15. DATE RORING		15	BEARING	VERTICAL		JRING	VERTICAL	$\boxtimes$		
8. TOTAL DEPTH OF BORING 17.6 Ft. 18. SIGNATURE AND TITLE OF INSPECTOR John Bass. Geotechnical Engineer  CLASSIFICATION OF MATERIALS SAMPLE LABORATORY RESULTS  SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)  SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, gray (SP-SM)  SAND, clayey, mostly fine-grained sand-sized quartz, some silt, gray (SP-SM)  CLAY, fat, mostly clay, trace shell fragments, trace wood debris, gray (SC)  CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)  SAND, silty, mostly fine-grained sand-sized quartz, some clay, dense, it. gray mottled with orange (SC)  NS  NS  NS  NS  NOTES:			-55.5 Ft.	ION TOP OF BORING	6. ELEVAT	16			DEN	VERBUR	KNESS OF C	6. THI
B. TOTAL DEPTH OF BORING  17.6 Ft.  CLASSIFICATION OF MATERIALS  SAMPLE  LABORATORY RESULTS  LABORATORY RESULTS  SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, it. gray (SP)  SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SP-SM)  SAND, calvey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)  CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)  SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)  SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)  SAND, silty, mostly fine-grained sand-sized quartz, some clay, dense, it. gray mottled with orange (SC)  NS  NS  NS  NOTES:			100%	RECOVERY FOR BORING	. TOTAL F	17		Δ	K N/A	NTO RO	TH DRILLED	7. DEP
ELEV. DEPTH CLASSIFICATION OF MATERIALS SAMPLE LABORATORY RESULTS  SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, it. gray (SP)  SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SP-SM)  SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SP-SM)  CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)  SAND, solly, mostly fine-grained sand-sized quartz, some clay, trace wood debris, medium plasticity, gray (CH)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, it. gray mottled with orange (SC)  NS  NS  NS  NS  NOTES:						18						
ELEV. DEPTH			ngineer	Bass, Geotechnical E	John	ᅩ		rı.	17.0		AL DEPTH OF	8. 101
SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)  SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SP-SM)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)  CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)  SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)  NS  NS  NS  NOTES:		ULTS	DRATORY RES	LAE	SAMPLE		F MATERIALS	SIFICATION OF N	CLAS	LEGEND	DEPTH	ELEV.
sized quartz, little shell fragments, trace fines, lt. gray (SP)  SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SP-SM)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)  CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)  SAND, silty, mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)  NS  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)  NS  NS  NS  NOTES:						$\Box$					0.0	-55.5
SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SP-SM)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)  CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)  SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)  SAND, clayey, mostly fine-grained sand-sized quartz, some silt, gray (SM)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)  NS  NS  NS  NOTES:	F T	5Y 7/2-light gray Fines: 2.5			Α			, little shell fragr	zed quartz	∴ si		-57.7
quartz, some clay, trace wood debris, gray (SC)  CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)  SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)  NS  NS  NOTES:	gray				В			d-sized quartz, so	ained sand	.		
trace wood debris, medium plasticity, gray (CH)  SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)  SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)  NS  NS  NS  NS  NOTES:	5								ıartz, som	<b>∕</b> qı		-61.0
-66.5 - 11.0						s, I)	ace shell fragments plasticity, gray (CH	mostly clay, trace debris, medium pl	LAY, fat, i ace wood o	C tr	- - - - 8.5	-64.0
SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)  -73.1 = 17.6  NOTES:	<u>-</u> - - - - - -					d						-66.5
NOTES:					NS			e clay, dense, It.	ıartz, som	//// qı		
F									OTES:	<i>[][]</i>	17.6	-73.1
1. Soils are field visually classified in accordance with the Unified Soils Classification System.	-2 -2					n n	sually classified in and Soils Classification	are field visual with the Unified s	Soils ccordance	1. ac	-	
2. NS = Sample not submitted for laboratory analysis from this interval.								n this interval.	nalysis fron	aı		
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.	-2 -2					d	depth reading an	hometer water d	essel's fath oplying NO	ve a <sub>l</sub>		

SAM FORM 1836 - MsCIP MAY 2010 Lat = 30.14787° Long = -88.32930°