

TRANSMITTAL

BLACK & VEATCH

FMPA Cane Island

Project No. 147651.0035

Date: 14 NOV 07

To: Barry Beck
P.E. LaMoreaux & Associates, Inc. (PELA)
106 Administration Road, Suite 4
Oak Ridge, TN 37830

Attention: Barry Beck

We are sending you the attached documents for your review.

- | | | |
|---|---|---|
| ☐ Shop Drawings | ☐ Prints | ☐ Plans |
| ☐ Copy of Letter | ☐ Change Order | ☐ Samples |
| ☐ Catalog Cuts | ☐ Specifications | ☒ Other |

Copies	Date	Rev. No.	Description
1	14 NOV 07	-	Phase 2 Geologic Hazard Investigation Boring Logs – performed in PELA-designated locations as directed by PELA; Logs B4-1a, B4-4a, B4-5, B4-6, B4-7, B4-8, B4-9
1	14 NOV 07	-	Geologic Hazard Investigation Location Plan
1	14 NOV 07	-	Geologic hazard Investigation Summary with Water Levels

These are transmitted as checked below:

- | | | |
|--|--|--|
| ☐ For Approval | ☐ Exceptions Noted | ☐ For Review and Comment |
| ☐ For Your Use | ☐ No Exceptions Noted | ☐ Returned for Correction |
| ☒ As Requested | ☐ _____ | |

Remarks:

--

If you have any questions, please call me at: wisecm@bv.com

Signed:
Craig Wise

FMPA Cane Island
Geologic Hazard Investigation
Investigation Location Summary and Water Levels

Location	N	E	Ground Surf Elev	offset of Standpipe	Stickup of Standpipe	elev 2nov07 water	depth 7nov07 water	elev 7nov07 water	depth 9nov07 water	elev 9nov07 water
B4-1	1,434,400	484,577	79.25							
B4-1a	1,434,400	484,547	78.82	2.5 ft west	2.3	71.6	8	73.12	7.7	73.4
B4-2	1,434,400	484,375	77.28							
B4-3	1,434,050	484,702	79.25							
B4-4	1,434,050	484,600	79							
B4-4a	1,434,048	484,548	79.2	3 ft North	1.8	73			7.3	73.7
B4-5	1,434,472	484,018	77.41	5 ft west	1	71.9	5.9	72.51	5.86	72.6
B4-6	1,434,450	484,100	77.43	4 ft north	2.4				7.56	72.3
B4-7	1,434,465	484,155	77.54	6 ft North	2.3	69.3			10.05	69.8
B4-8	1,434,500	484,225	77.76	5 ft North	1.9	71.7			6.74	72.9
B4-9	1,434,507	484,295	78.06	4 ft east	1.75		6	73.81	6.06	73.8
I-1	1,434,500	484,715	77.85							
I-2	1,434,741	483,963	79.7							
I-3	1,435,040	483,360	77.85							



BLACK & VEATCH

BORING LOG

BORING NO. B4-1a

SHEET 1 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651																																							
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434400.0' E 484547.0'										GROUND ELEVATION (DATUM) 78.8 ft (NGVD 1929)										TOTAL DEPTH 69.3 (feet)																													
SURFACE CONDITIONS Grassy, level										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/30/07										DATE FINISHED 10/30/07																													
SOIL SAMPLING										LOGGED BY W. Zheng <i>WZ</i>										CHECKED BY C. Wise <i>CW</i>										APPROVED BY B. Christensen <i>BC</i>																													
<table border="1"> <tr> <th>SAMPLE TYPE</th> <th>SAMPLE NUMBER</th> <th>SET 6 INCHES</th> <th>2ND 6 INCHES</th> <th>3RD 6 INCHES</th> <th>N VALUE</th> <th>SAMPLE RECOVERY</th> </tr> </table>										SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	<table border="1"> <tr> <th>DEPTH (FEET)</th> <th>SAMPLE TYPE</th> <th>ELEVATION (FEET)</th> </tr> </table>										DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS									
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY																																																					
DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)																																																									
<table border="1"> <tr> <th>CORE SIZE</th> <th>RUN NUMBER</th> <th>RUN LENGTH</th> <th>RUN RECOVERY</th> <th>RQD RECOVERY</th> <th>PERCENT RECOVERY</th> <th>RQD</th> </tr> </table>										CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD																																											
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD																																																					
SPT	1	WOH	1	2	3	0.5	0		78											SAND; light gray; very loose; moist; fine grained; poorly graded; w/some roots grading dark brown; loose; w/trace roots Silty SAND; brown; loose; moist; fine grained; poorly graded; w/trace roots grading medium dense; roots grade out grading light gray; w/trace clay grading loose										Boring advanced to 5.0' by SPT. SPT performed w/safety hammer and cathead w/1-3/4 wraps. Boring continued w/2-7/8" dia tricone bit using bentonite mud as drilling fluid. SPT performed w/automatic hammer @ 13.5'.																													
SPT	2	3	4	4	8	1.2	2		76																																																		
							4		74																																																		
							6		72																																																		
							8		70																																																		
SPT	3	1	2	2	4	0.8	10		68																																																		
							12		66																																																		
SPT	4	7	10	6	16	1.2	14		64																																																		
							16		62																																																		
							18		60																																																		
SPT	5	4	7	9	16	1.2	20		58																																																		
							22		56																																																		
SPT	6	3	4	4	8	1.0	24		54																																																		
							26		52																																																		
							28		50																																																		
SPT	7	4	2	2	4	1.0	30																																																				

CLIENT										PROJECT										PROJECT NO.																																																																																									
FMPA										Cane Island Karst Investigation										147651																																																																																									
PROJECT LOCATION										COORDINATES										GROUND ELEVATION (DATUM)										TOTAL DEPTH																																																																															
Intercession City, FL										N 1434400.0'										E 484547.0'										78.8 ft (NGVD 1929)										69.3 (feet)																																																																					
SURFACE CONDITIONS										COORDINATE SYSTEM										DATE START										DATE FINISHED																																																																															
Grassy, level										FL St. Plane ENAD83/90										10/30/07										10/30/07																																																																															
SOIL SAMPLING										LOGGED BY										CHECKED BY										APPROVED BY																																																																															
										W. Zheng WZ										C. Wise CW										B. Christensen BC																																																																															
SAMPLE TYPE										DEPTH (FEET)										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
SAMPLE NUMBER										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
SET 6 INCHES										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
2ND 6 INCHES										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
3RD 6 INCHES										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
N										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
VALUE										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
SAMPLE RECOVERY										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
CORE SIZE										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
RUN NUMBER										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
RUN LENGTH										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
RUN RECOVERY										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
RQD										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
PERCENT RECOVERY										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
RQD										SAMPLE TYPE										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																	
SPT										8										2										1										1										2										1.5										30										48																													
SPT										9										WOH										WOH										WOH										WOH										1.5										32										46																													
SPT										10										WOH										WOH										WOH										WOH										1.5										34										44																													
SPT										11										WOH										WOH										2										2										1.5										36										42																													
SPT										12										WOH										WOH										WOH										WOH										1.3										38										40																													
SPT										13										WOH										WOH										WOH										WOH										1.1										42										44																													
SPT										14										WOH										WOH										WOH										WOH										1.1										44										46																													
SPT										15										WOH										WOH										WOH										WOH										1.1										46										48																													
SPT										16										WOH										WOH										WOH										WOH										1.1										48										50																													
SPT										17										WOH										WOH										WOH										WOH										1.1										50										52																													
SPT										18										WOH										WOH										WOH										WOH										1.1										52										54																													
SPT										19										WOH										WOH										WOH										WOH										1.1										54										56																													
SPT										20										WOH										WOH										WOH										WOH										1.1										56										58																													
SPT										21										WOH										WOH										WOH										WOH										1.1										58										60																													
SPT										22										WOH										WOH										WOH										WOH										1.1										60																																							
SPT										23										WOH										WOH										WOH										WOH										1.1																																																	
SPT										24										WOH										WOH										WOH										WOH										1.1																																																	
SPT										25										WOH										WOH										WOH										WOH										1.1																																																	
SPT										26										WOH										WOH										WOH										WOH										1.1																																																	
SPT										27										WOH										WOH										WOH										WOH										1.1																																																	
SPT										28										WOH										WOH										WOH										WOH										1.1																																																	
SPT										29										WOH										WOH										WOH										WOH										1.1																																																	
SPT										30										WOH										WOH										WOH										WOH										1.1																																																	
SPT										31										WOH										WOH										WOH										WOH										1.1																																																	
SPT										32										WOH										WOH										WOH										WOH										1.1																																																	
SPT										33										WOH										WOH										WOH										WOH										1.1																																																	
SPT										34										WOH										WOH										WOH										WOH										1.1																																																	
SPT										35										WOH										WOH										WOH										WOH										1.1																																																	
SPT										36										WOH										WOH										WOH										WOH										1.1																																																	
SPT										37										WOH										WOH										WOH										WOH										1.1																																																	
SPT										38										WOH										WOH										WOH										WOH										1.1																																																	
SPT										39										WOH										WOH										WOH										WOH										1.1																																																	
SPT										40										WOH										WOH										WOH										WOH										1.1																																																	
SPT										41										WOH										WOH										WOH										WOH										1.1																																																	
SPT										42										WOH										WOH										WOH										WOH										1.1																																																	
SPT										43										WOH										WOH										WOH										WOH										1.1																																																	
SPT										44										WOH										WOH										WOH										WOH										1.1																																																	
SPT										45										WOH										WOH										WOH										WOH										1.1																																																	
SPT										46										WOH										WOH										WOH										WOH										1.1																																																	
SPT										47										WOH										WOH										WOH										WOH										1.1																																																	
SPT										48										WOH										WOH										WOH										WOH										1.1																																																	
SPT										49										WOH										WOH										WOH										WOH										1.1																																																	
SPT										50										WOH										WOH										WOH										WOH										1.1																																																	
SPT										51										WOH										WOH										WOH										WOH										1.1																																																	
SPT										52										WOH										WOH										WOH										WOH										1.1																																																	
SPT										53										WOH										WOH										WOH										WOH										1.1																																																	
SPT										54										WOH										WOH										WOH										WOH										1.1																																																	
SPT										55										WOH										WOH										WOH										WOH										1.1																																																	
SPT										56										WOH										WOH										WOH										WOH										1.1																																																	
SPT										57										WOH										WOH										WOH										WOH										1.1																																																	
SPT										58										WOH										WOH										WOH										WOH										1.1																																																	
SPT										59										WOH										WOH										WOH										WOH										1.1																																																	
SPT										60										WOH										WOH										WOH										WOH										1.1																																																	
SPT										61										WOH										WOH										WOH										WOH										1.1																																																	
SPT										62										WOH										WOH										WOH										WOH										1.1																																																	
SPT										63										WOH										WOH										WOH										WOH										1.1																																																	
SPT										64										WOH										WOH										WOH										WOH										1.1																																																	
SPT										65										WOH										WOH										WOH										WOH										1.1																																																	
SPT										66										WOH										WOH										WOH										WOH										1.1																																																	
SPT										67										WOH										WOH										WOH										WOH										1.1																																																	
SPT										68										WOH										WOH										WOH										WOH										1.1																																																	
SPT										69										WOH										WOH										WOH										WOH										1.1																																																	
SPT										70										WOH										WOH										WOH										WOH										1.1																																																	
SPT										71										WOH										WOH										WOH										WOH										1.1																																																	
SPT										72										WOH										WOH										WOH										WOH										1.1																																																	
SPT										73										WOH										WOH										WOH										WOH										1.1																																																	
SPT										74										WOH										WOH										WOH										WOH										1.1																																																	
SPT										75										WOH										WOH										WOH										WOH										1.1																																																	
SPT										76										WOH										WOH										WOH										WOH										1.1																																																	
SPT										77										WOH										WOH										WOH										WOH										1.1																																																	
SPT										78										WOH										WOH										WOH										WOH										1.1																																																	
SPT										79										WOH										WOH										WOH										WOH										1.1																																																	
SPT										80										WOH										WOH										WOH										WOH										1.1																																																	
SPT										81										WOH										WOH										WOH										WOH										1.1																																																	
SPT										82										WOH										WOH										WOH										WOH										1.1																																																	
SPT										83										WOH										WOH										WOH										WOH										1.1																																																	
SPT										84										WOH										WOH										WOH										WOH										1.1																																																	
SPT										85										WOH										WOH										WOH										WOH										1.1																																																	
SPT										86										WOH										WOH										WOH										WOH										1.1																																																	
SPT										87										WOH										WOH										WOH										WOH										1.1																																																	
SPT										88										WOH										WOH										WOH										WOH										1.1																																																	
SPT										89										WOH										WOH										WOH										WOH										1.1																																																	
SPT										90										WOH										WOH										WOH										WOH										1.1																																																	
SPT										91										WOH										WOH										WOH										WOH										1.1																																																	
SPT										92										WOH										WOH										WOH										WOH										1.1																																																	
SPT										93										WOH										WOH										WOH										WOH										1.1																																																	
SPT										94										WOH										WOH										WOH										WOH										1.1																																																	
SPT										95										WOH										WOH										WOH										WOH										1.1																																																	
SPT										96										WOH										WOH										WOH										WOH										1.1																																																	
SPT										97										WOH										WOH										WOH										WOH										1.1																																																	
SPT										98										WOH										WOH										WOH										WOH										1.1																																																	
SPT										99										WOH										WOH										WOH										WOH										1.1																																																	

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-1a

SHEET 3 OF 3

CLIENT FMPA				PROJECT Cane Island Karst Investigation				PROJECT NO. 147651				
PROJECT LOCATION Intercession City, FL				COORDINATES N 1434400.0'		GROUND ELEVATION (DATUM) E 484547.0' 78.8 ft (NGVD 1929)		TOTAL DEPTH 69.3 (feet)				
SURFACE CONDITIONS Grassy, level				COORDINATE SYSTEM FL St. Plane ENAD83/90		DATE START 10/30/07		DATE FINISHED 10/30/07				
SOIL SAMPLING				LOGGED BY W. Zheng WZ				CHECKED BY C. Wise CW		APPROVED BY B. Christensen BLC		
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY						
ROCK CORING												
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
SPT	14	WOH	WOH	WOH	WOH	1.5	60		18			
							62		16			
							64		14			
							66		12			
							68		10			
SPT	15	45	50/3"	-	>50	0.8	70		8			
							72		6			
							74		4			
							76		2			
							78		0			
							80		-2			
							82		-4			
							84		-6			
							86		-8			
							88		-10			
							90					

Silty SAND; light gray; very loose; wet; fine grained; poorly graded; w/trace clay

LIMESTONE; white; highly weathered; medium grained; strong

Lost circulation @ 67.0'.

Bottom of boring @ 69.3'. A 12' open-end 2" PVC pipe was installed at completion. Boring redrilled to 69.3' and backfilled with cement-bentonite grout by tremie on 11/2/07. On 11/2/07, a 9.7' deep offset boring was drilled 2.5' to the west with 5" HSA; 12' pipe installed with 2.3' stickup. Water level recorded at 5.7' BGS on 11/7/07. Offset boring backfilled with cuttings.

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-4a

SHEET 1 OF 4

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651																																																																																						
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434048.0' E 484548.0'										GROUND ELEVATION (DATUM) 79.2 ft (NGVD 1929)										TOTAL DEPTH 78.9 (feet)																																																																												
SURFACE CONDITIONS Grassy, level										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/30/07										DATE FINISHED 10/30/07																																																																												
SOIL SAMPLING										LOGGED BY W. Zheng <i>WZ</i>										CHECKED BY C. Wise <i>CW</i>										APPROVED BY B. Christensen <i>BC</i>																																																																												
<table border="1"> <tr> <th>SAMPLE TYPE</th> <th>SAMPLE NUMBER</th> <th>SET 6 INCHES</th> <th>2ND 6 INCHES</th> <th>3RD 6 INCHES</th> <th>N VALUE</th> <th>SAMPLE RECOVERY</th> </tr> <tr> <td colspan="7">ROCK CORING</td> </tr> <tr> <th>CORE SIZE</th> <th>RUN NUMBER</th> <th>RUN LENGTH</th> <th>RUN RECOVERY</th> <th>RQD RECOVERY</th> <th>PERCENT RECOVERY</th> <th>RQD</th> </tr> </table>										SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	ROCK CORING							CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD	DEPTH (FEET)										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																									
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY																																																																																																				
ROCK CORING																																																																																																										
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD																																																																																																				
SPT							1										1										4										6										10										1.0										0										78										SAND; light brown; moist; loose; fine grained; poorly graded; w/trace roots										Boring advanced to 5.0' by SPT. SPT performed w/safety hammer and cathead w/1-3/4 wraps.									
SPT							2										14										15										11										26										1.4										2										76																													
SPT							3										4										7										7										14										1.0										4										74										grading light gray; medium dense; roots grade out										Boring continued w/2-7/8" dia tricone bit using bentonite mud as drilling fluid.									
SPT							4										6										10										11										21										1.0										6										72																													
SPT							5										10										11										10										21										1.3										8										70										grading wet										SPT continued w/automatic hammer @ 13.5'.									
SPT							6										6										8										7										15										1.4										10										68																													
SPT							7										4										6										7										13										1.0										12										66										grading dark brown; w/some silt																			
SPT							8										6										8										7										13										1.0										14										64																													
SPT							9										6										8										7										13										1.0										16										62										Clayey SAND; light gray; medium dense; wet; fine grained; poorly graded																			
SPT							10										6										8										7										13										1.0										18										60																													
SPT							11										6										8										7										13										1.0										20										58										SAND; light gray; medium dense; wet; fine grained; poorly graded																			
SPT							12										6										8										7										13										1.0										22										56																													
SPT							13										6										8										7										13										1.0										24										54																													
SPT							14										6										8										7										13										1.0										26										52																													
SPT							15										6										8										7										13										1.0										28										50																													
SPT							16										6										8										7										13										1.0										30										27.0																													



BLACK & VEATCH

BORING LOG

BORING NO. B4-4a

SHEET 2 OF 4

CLIENT FMPA				PROJECT Cane Island Karst Investigation				PROJECT NO. 147651			
PROJECT LOCATION Intercession City, FL				COORDINATES N 1434048.0'				GROUND ELEVATION (DATUM) 79.2 ft (NGVD 1929)			
SURFACE CONDITIONS Grassy, level				COORDINATE SYSTEM FL St. Plane ENAD83/90				DATE START 10/30/07			
DATE FINISHED 10/30/07				LOGGED BY W. Zheng <i>WZ</i>				CHECKED BY C. Wise <i>CW</i>			
APPROVED BY B. Christensen <i>BC</i>											

SOIL SAMPLING								DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N	VALUE	SAMPLE RECOVERY						
ROCK CORING													
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD							
SPT	8	6	4	2	6	1.3		30					
SPT	9	2	2	2	4	1.5		32					
SPT	10	WOH	WOH	1	1	1.5		34					
SPT	11	WOH	1	2	3	1.5		36					
SPT	12	1	3	2	5	1.5		38					
SPT	13	3	4	3	7	1.4		40					

DEPTH (FEET)	CLASSIFICATION OF MATERIALS	REMARKS
32.0	Silty SAND; light gray; loose; wet; fine grained; poorly graded	
37.0	Clayey SAND; light gray; loose; wet; fine grained; poorly graded; w/trace silt	
47.0	Silty CLAY; dark green; soft; wet; low plasticity; w/some sand	
57.0	Silty SAND; light gray; loose; wet; fine grained; poorly graded; w/some clay	

CLIENT		PROJECT		PROJECT NO.	
FMPA		Cane Island Karst Investigation		147651	
PROJECT LOCATION		COORDINATES		GROUND ELEVATION (DATUM)	
Intercession City, FL		N 1434048.0' E 484548.0'		79.2 ft (NGVD 1929)	
SURFACE CONDITIONS		COORDINATE SYSTEM		DATE START	
Grassy, level		FL St. Plane ENAD83/90		10/30/07	
SOIL SAMPLING		LOGGED BY		CHECKED BY	
		W. Zheng		C. Wise	
				APPROVED BY	
				B. Christensen	
SAMPLE TYPE		SAMPLE NUMBER		SET 6 INCHES	
2ND 6 INCHES		3RD 6 INCHES		N VALUE	
SAMPLE RECOVERY					
CORE SIZE		RUN NUMBER		RUN LENGTH	
RUN RECOVERY		RQD RECOVERY		PERCENT RECOVERY	
RQD					
DEPTH (FEET)		SAMPLE TYPE		ELEVATION (FEET)	
GRAPHIC LOG		CLASSIFICATION OF MATERIALS		REMARKS	
SPT		14		3	
4		3		7	
1.2					
SPT		15		WOH	
WOH		WOH		WOH	
1.5					
SPT		16		WOH	
WOH		WOH		WOH	
1.5					
SPT		17		50/5"	
-		-		>50	
0.5					
60		18		62.0	
62		16		SAND; light gray; loose; wet; fine grained; poorly graded; w/trace silt	
64		14			
66		12		67.0	
68		10		Silty CLAY; light green; very soft; wet; low plasticity; trace sand	
70		8		72.0	
72		6		Silty SAND; light green; very loose; wet; fine grained; poorly graded; w/some clay	
74		4		78.5	
76		2		LIMESTONE; yellow; highly weathered; strong	
78		0		Lost circulation @ 77.0'.	
80		-2		Auger refusal @ 78.5'.	
82		-4		Bottom of boring @ 78.9'. A 12' open-end 2" PVC pipe was installed at completion. Boring redrilled to 69.3' and backfilled with cement-bentonite grout by tremie on 11/2/07. On 11/2/07, a 10.2' deep offset boring was drilled 3.0' to the north with 5" HSA; 12'	
84		-6			
86		-8			
88		-10			
90					

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-4a

SHEET 4 OF 4

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651																														
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434048.0' E 484548.0'										GROUND ELEVATION (DATUM) 79.2 ft (NGVD 1929)										TOTAL DEPTH 78.9 (feet)																				
SURFACE CONDITIONS Grassy, level										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/30/07										DATE FINISHED 10/30/07																				
SOIL SAMPLING										LOGGED BY W. Zheng										CHECKED BY C. Wise CW										APPROVED BY B. Christensen BC																				
<table border="1"> <tr> <td>SAMPLE TYPE</td> <td>SAMPLE NUMBER</td> <td>SET 6 INCHES</td> <td>2ND 6 INCHES</td> <td>3RD 6 INCHES</td> <td>N VALUE</td> <td>SAMPLE RECOVERY</td> </tr> </table>										SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	<table border="1"> <tr> <td>DEPTH (FEET)</td> <td>SAMPLE TYPE</td> <td>ELEVATION (FEET)</td> <td>GRAPHIC LOG</td> </tr> </table>										DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS										REMARKS									
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY																																												
DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG																																															
<table border="1"> <tr> <td>CORE SIZE</td> <td>RUN NUMBER</td> <td>RUN LENGTH</td> <td>RUN RECOVERY</td> <td>RQD</td> <td>PERCENT RECOVERY</td> <td>RQD</td> </tr> </table>										CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD																																		
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD																																												

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-5

SHEET 1 OF 3

CLIENT FMPA				PROJECT Cane Island Karst Investigation				PROJECT NO. 147651				
PROJECT LOCATION Intercession City, FL				COORDINATES N 1434472.0' E 484018.0'				GROUND ELEVATION (DATUM) 77.4 ft (NGVD 1929)				
SURFACE CONDITIONS Grass and sand, level; offset 25' southeast				COORDINATE SYSTEM FL St. Plane ENAD83/90				DATE START 10/31/07		DATE FINISHED 10/31/07		
SOIL SAMPLING				LOGGED BY W. Zheng <i>WZ</i>				CHECKED BY C. Wise <i>CW</i>		APPROVED BY B. Christensen <i>BC</i>		
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD						
ROCK CORING												
SPT	1	1	1	3	4	0.8	0		76		SAND; dark gray; loose; dry; fine grained; poorly graded; w/trace roots	Boring advanced to 5.0' by SPT. SPT performed w/safety hammer and cathead w/1-3/4 wraps. Boring continued w/2-7/8" dia tricone bit using bentonite mud as drilling fluid.
SPT	2	5	5	4	9	1.2	4		74		grading light gray	
SPT	3	1	2	2	4	1.0	10		68		grading brown; wet; roots grade out	
SPT	4	3	4	4	8	1.1	14		64		Clayey SAND; light gray; loose; wet; fine grained; poorly graded; w/some silt	SPT continued w/automatic hammer @ 13.5'.
SPT	5	4	5	4	9	1.2	20		58		Silty SAND; light gray; loose; wet; fine grained; poorly graded	
SPT	6	4	6	5	11	1.0	24		54		grading medium dense	
SPT	7	4	3	3	6	1.2	28		50		grading loose	

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-5

SHEET 2 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651																																									
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434472.0' E 484018.0'										GROUND ELEVATION (DATUM) 77.4 ft (NGVD 1929)										TOTAL DEPTH 70.0 (feet)																															
SURFACE CONDITIONS Grass and sand, level; offset 25' southeast										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/31/07										DATE FINISHED 10/31/07																															
SOIL SAMPLING										LOGGED BY W. Zheng										CHECKED BY C. Wise										APPROVED BY B. Christensen																															
SAMPLE TYPE		SAMPLE NUMBER		SET 6 INCHES		2ND 6 INCHES		3RD 6 INCHES		N VALUE		SAMPLE RECOVERY		DEPTH (FEET)		SAMPLE TYPE		ELEVATION (FEET)		GRAPHIC LOG		CLASSIFICATION OF MATERIALS																				REMARKS																			
CORE SIZE		RUN NUMBER		RUN LENGTH		RUN RECOVERY		RQD RECOVERY		PERCENT RECOVERY		RQD																																																	
SPT		8		1		2		2		4		1.5		30																																															
SPT		9		WOH		WOH		WOH		WOH		1.5		32																																															
SPT		10		WOH		WOH		WOH		WOH		1.5		34																																															
SPT		11		2		2		2		4		1.4		36																																															
SPT		12		WOH		WOH		2		2		1.5		38																																															
SPT		13		2		2		3		5		1.5		40																																															

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-5

SHEET 3 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651																																																																																														
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434472.0' E 484018.0'										GROUND ELEVATION (DATUM) 77.4 ft (NGVD 1929)										TOTAL DEPTH 70.0 (feet)																																																																																				
SURFACE CONDITIONS Grass and sand, level; offset 25' southeast										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/31/07										DATE FINISHED 10/31/07																																																																																				
SOIL SAMPLING										LOGGED BY W. Zheng <i>WZ</i>										CHECKED BY C. Wise <i>CW</i>										APPROVED BY B. Christensen <i>BC</i>																																																																																				
<table border="1"> <tr> <th>SAMPLE TYPE</th> <th>SAMPLE NUMBER</th> <th>SET 6 INCHES</th> <th>2ND 6 INCHES</th> <th>3RD 6 INCHES</th> <th>N VALUE</th> <th>SAMPLE RECOVERY</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>										SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY								<table border="1"> <tr> <th>DEPTH (FEET)</th> <th>SAMPLE TYPE</th> <th>ELEVATION (FEET)</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>										DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)				GRAPHIC LOG										CLASSIFICATION OF MATERIALS																				REMARKS																																												
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY																																																																																																												
DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)																																																																																																																
<table border="1"> <tr> <th>CORE SIZE</th> <th>RUN NUMBER</th> <th>RUN LENGTH</th> <th>RUN RECOVERY</th> <th>RQD</th> <th>PERCENT RECOVERY</th> <th>RQD</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>										CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD								<table border="1"> <tr> <th>DEPTH (FEET)</th> <th>SAMPLE TYPE</th> <th>ELEVATION (FEET)</th> </tr> <tr> <td>60</td> <td> </td> <td>16</td> </tr> <tr> <td>62</td> <td> </td> <td>14</td> </tr> <tr> <td>64</td> <td> </td> <td>12</td> </tr> <tr> <td>66</td> <td> </td> <td>10</td> </tr> <tr> <td>68</td> <td> </td> <td>8</td> </tr> <tr> <td>70</td> <td> </td> <td>6</td> </tr> <tr> <td>72</td> <td> </td> <td>4</td> </tr> <tr> <td>74</td> <td> </td> <td>2</td> </tr> <tr> <td>76</td> <td> </td> <td>0</td> </tr> <tr> <td>78</td> <td> </td> <td>-2</td> </tr> <tr> <td>80</td> <td> </td> <td>-4</td> </tr> <tr> <td>82</td> <td> </td> <td>-6</td> </tr> <tr> <td>84</td> <td> </td> <td>-8</td> </tr> <tr> <td>86</td> <td> </td> <td>-10</td> </tr> <tr> <td>88</td> <td> </td> <td>-12</td> </tr> <tr> <td>90</td> <td> </td> <td> </td> </tr> </table>										DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	60		16	62		14	64		12	66		10	68		8	70		6	72		4	74		2	76		0	78		-2	80		-4	82		-6	84		-8	86		-10	88		-12	90													Sandy <u>SILT</u>; light green; soft; wet; low plasticity; w/trace clay 62.0 68.5 <u>LIMESTONE</u>; white; medium grained; highly weathered Lost circulation @ 68.5'. Bottom of boring @ 70.0'. A 12' open-end 2" PVC pipe was installed at completion. Boring redrilled to 70.0' and backfilled with cement-bentonite grout by tremie on 11/2/07. On 11/2/07, an 11.0' deep offset boring was drilled 5.0' to the west with 5" HSA; 12' pipe installed with 1.0' stickup. Water level recorded at 4.9' BGS on 11/7/07. Offset boring backfilled with cuttings.																			
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD																																																																																																												
DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)																																																																																																																
60		16																																																																																																																
62		14																																																																																																																
64		12																																																																																																																
66		10																																																																																																																
68		8																																																																																																																
70		6																																																																																																																
72		4																																																																																																																
74		2																																																																																																																
76		0																																																																																																																
78		-2																																																																																																																
80		-4																																																																																																																
82		-6																																																																																																																
84		-8																																																																																																																
86		-10																																																																																																																
88		-12																																																																																																																
90																																																																																																																		

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-6

SHEET 1 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651	
PROJECT LOCATION Intercession City, FL						COORDINATES N 1434450.0' E 484100.0'						GROUND ELEVATION (DATUM) 77.4 ft (NGVD 1929)						TOTAL DEPTH 65.0 (feet)			
SURFACE CONDITIONS Grass and sand, level										COORDINATE SYSTEM FL St. Plane ENAD83/90						DATE START 11/02/07		DATE FINISHED 11/02/07			
SOIL SAMPLING										LOGGED BY W. Zheng						CHECKED BY C. Wise CW				APPROVED BY B. Christensen BC	
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS					REMARKS					
ROCK CORING																					
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD															
SPT	1	1	1	1	2	0.7	0		76		SAND; gray; very loose; moist; fine grained; poorly graded; w/trace root					Boring advanced to 5.0' by SPT. SPT performed w/safety hammer and cathead w/1-3/4 wraps. Boring continued w/2-7/8" dia tricone bit using bentonite mud as drilling fluid.					
SPT	2	5	4	5	9	1.2	2		74		grading light gray; loose; root grades out										
							4		72												
							6		70												
SPT	3	6	7	7	14	1.0	8		68		grading brown; medium dense; wet										
							10		66												
							12		64		Clayey SAND; light gray; loose; wet; fine grained; poorly graded; w/some silt					SPT continued w/ automatic hammer @ 13.5'.					
SPT	4	2	3	4	7	1.1	14		62												
							16		60												
							18		58		SAND; light gray; loose; wet; fine grained; poorly graded; w/some silt										
SPT	5	4	3	3	6	1.0	20		56												
							22		54												
SPT	6	2	3	3	6	1.3	24		52												
							26		50												
							28		48	Silty SAND; light gray; very loose; wet; fine grained; poorly graded											
SPT	7	1	1	1	2	1.2	30														

CLIENT		PROJECT		PROJECT NO.	
FMPA		Cane Island Karst Investigation		147651	
PROJECT LOCATION		COORDINATES		GROUND ELEVATION (DATUM)	
Intercession City, FL		N 1434450.0' E 484100.0'		77.4 ft (NGVD 1929)	
SURFACE CONDITIONS		COORDINATE SYSTEM		DATE START	
Grass and sand, level		FL St. Plane ENAD83/90		11/02/07	
SOIL SAMPLING		LOGGED BY		CHECKED BY	
		W. Zheng		C. Wise	
APPROVED BY					
B. Christensen					
SAMPLE TYPE		SAMPLE NUMBER		SET 6 INCHES	
2ND 6 INCHES		3RD 6 INCHES		N	
VALUE		SAMPLE RECOVERY			
ROCK CORING					
CORE SIZE		RUN NUMBER		RUN LENGTH	
RUN RECOVERY		RQD		PERCENT RECOVERY	
RQD					
DEPTH (FEET)		SAMPLE TYPE		ELEVATION (FEET)	
GRAPHIC LOG					
CLASSIFICATION OF MATERIALS				REMARKS	
SPT		8		WOHWOH	
2		2		1.2	
30		46		32.0	
32		44		Sandy <u>SILT</u> ; brown; very soft; wet; low plasticity	
34		42			
36		40			
38		38		grading to yellow; w/some clay	
40		36			
42		34		Clayey <u>SILT</u> ; light green; firm; wet; low plasticity; w/some sand	
44		32			
46		30		Silty <u>CLAY</u> ; dark green; soft; wet; low plasticity; w/trace sand	
48		28			
50		26			
52		24		Clayey <u>SILT</u> ; light green; firm; wet; low plasticity; w/some sand	
54		22			
56		20			
58		18		Sandy <u>SILT</u> ; light green; soft; wet; low plasticity	
60					
SPT		13		WOH	
2		2		1.5	

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-6

SHEET 3 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651			
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434450.0' E 484100.0'										GROUND ELEVATION (DATUM) 77.4 ft (NGVD 1929)		TOTAL DEPTH 65.0 (feet)	
SURFACE CONDITIONS Grass and sand, level										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 11/02/07		DATE FINISHED 11/02/07	
SOIL SAMPLING										LOGGED BY W. Zheng <i>WZ</i>										CHECKED BY C. Wise <i>CW</i>		APPROVED BY B. Christensen <i>BC</i>	
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS					REMARKS							
ROCK CORING																							
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD																	
SPT	14	42	17	5	22	0.9	60																
							62																
							64				LIMESTONE; white; medium grained; highly weathered; some silt					63.0' Drilling hard at 63.0'. Lost circulation during SPT.							
							66									Bottom of boring @ 65.0'. Boring backfilled with cement-bentonite grout by tremie. On 11/2/07, a 9.6' deep offset boring was drilled 4.0' to the north with 5" HSA; 12' pipe installed with 2.4' stickup. Water level recorded @ 5.2' BGS on 11/9/07. Offset boring backfilled with cuttings.							
							68																
							70																
							72																
							74																
							76																
							78																
							80																
							82																
							84																
							86																
							88																
							90																

CLIENT										PROJECT										SHEET NO.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
FMPA										Cane Island Karst Investigation										147651																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
PROJECT LOCATION										COORDINATES										GROUND ELEVATION (DATUM)										TOTAL DEPTH																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Intercession City, FL										N 1434465.0' E 484155.0'										77.5 ft (NGVD 1929)										73.8 (feet)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
SURFACE CONDITIONS										COORDINATE SYSTEM										DATE START										DATE FINISHED																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Grass and sand, level										FL St. Plane ENAD83/90										10/31/07										10/31/07																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
SOIL SAMPLING										LOGGED BY										CHECKED BY										APPROVED BY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
										W. Zheng										C. Wise										B. Christensen																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
SAMPLE TYPE										SAMPLE NUMBER										SET 6 INCHES										2ND 6 INCHES										3RD 6 INCHES										N VALUE										SAMPLE RECOVERY										DEPTH (FEET)										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
CORE SIZE										RUN										RUN LENGTH										RUN RECOVERY										RQD RECOVERY										PERCENT RECOVERY										RQD																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-7

SHEET 2 OF 3

CLIENT FMPA				PROJECT Cane Island Karst Investigation				PROJECT NO. 147651	
PROJECT LOCATION Intercession City, FL				COORDINATES N 1434465.0' E 484155.0'		GROUND ELEVATION (DATUM) 77.5 ft (NGVD 1929)		TOTAL DEPTH 73.8 (feet)	
SURFACE CONDITIONS Grass and sand, level				COORDINATE SYSTEM FL St. Plane ENAD83/90		DATE START 10/31/07		DATE FINISHED 10/31/07	
SOIL SAMPLING				LOGGED BY W. Zheng		CHECKED BY C. Wise <i>ECW</i>		APPROVED BY B. Christensen <i>BC</i>	
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY			
ROCK CORING									
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)
							GRAPHIC LOG	CLASSIFICATION OF MATERIALS	
									REMARKS
SPT	8	1	2	2	4	1.4	34		grading very loose
SPT	9	1	1	1	2	1.5	38		grading yellow
SPT	10	WOH	WOH	1	1	1.5	44		Sandy <u>SILT</u> ; yellow; very soft; wet; low plasticity
SPT	11	WOH	1	2	3	1.5	48		grading soft; w/some clay
SPT	12	WOH	WOH	WOH	WOH	1.5	54		Silty <u>CLAY</u> ; dark green; very soft; wet; high plasticity; w/trace sand
SPT	13	1	1	2	3	1.5	58		Silty <u>SAND</u> ; light brown; very loose; wet; fine grained; poorly graded

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-7

SHEET 3 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651																																																																						
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434465.0'										GROUND ELEVATION (DATUM) E 484155.0' 77.5 ft (NGVD 1929)										TOTAL DEPTH 73.8 (feet)																																																												
SURFACE CONDITIONS Grass and sand, level										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/31/07										DATE FINISHED 10/31/07																																																												
SOIL SAMPLING										LOGGED BY W. Zheng <i>WZ</i>										CHECKED BY C. Wise <i>CW</i>										APPROVED BY B. Christensen <i>BC</i>																																																												
<table border="1"> <tr> <th>SAMPLE TYPE</th> <th>SAMPLE NUMBER</th> <th>SET 6 INCHES</th> <th>2ND 6 INCHES</th> <th>3RD 6 INCHES</th> <th>N VALUE</th> <th>SAMPLE RECOVERY</th> </tr> <tr> <td colspan="7">ROCK CORING</td> </tr> <tr> <th>CORE SIZE</th> <th>RUN NUMBER</th> <th>RUN LENGTH</th> <th>RUN RECOVERY</th> <th>RQD</th> <th>PERCENT RECOVERY</th> <th>RQD</th> </tr> </table>										SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	ROCK CORING							CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD	DEPTH (FEET)										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS									
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY																																																																																				
ROCK CORING																																																																																										
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD																																																																																				
SPT 14 2 1 2 3 1.5										60																																																																																
SPT 15 WOHWOHWOHWOH 1.5										62																																																																																
SPT 16 50/4" - - >50 0.3										64																																																																																
										66																																																																																
										68																																																																																
										70																																																																																
										72																																																																																
										74																																																																																
										76																																																																																
										78																																																																																
										80																																																																																
										82																																																																																
										84																																																																																
										86																																																																																
										88																																																																																
										90																																																																																

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-8

SHEET 1 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651			
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434500.0' E 484225.0'										GROUND ELEVATION (DATUM) 77.8 ft (NGVD 1929)		TOTAL DEPTH 62.3 (feet)	
SURFACE CONDITIONS Grass and sand, level										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/31/07		DATE FINISHED 10/31/07	
SOIL SAMPLING										LOGGED BY W. Zheng <i>WZ</i>										CHECKED BY C. Wise <i>CW</i>		APPROVED BY B. Christensen <i>BC</i>	
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS				REMARKS								
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD																	
SPT	1	1	1	4	5	0.8	0		76		SAND; light gray; loose; dry; fine grained; poorly graded; w/trace grass				Boring advanced by SPT to 5.0'. SPT performed w/safety hammer and cathead w/1-3/4 wraps. Boring continued w/2-7/8" dia tricone bit using bentonite mud as drilling fluid.								
SPT	2	5	5	6	11	1.2	2		74		grading medium dense; grass grades out												
SPT	3	2	7	11	18	1.3	4		72		Silty SAND; brown; medium dense; moist; fine grained; poorly graded				SPT continued w/ automatic hammer @ 13.5'.								
SPT	4	2	4	5	9	1.1	6		70		grading light gray; loose; wet												
SPT	5	3	3	4	7	1.3	8		68		grading very loose												
SPT	6	1	1	2	3	1.2	10		66														
SPT	7	1	1	1	2	1.5	12		64														
							14		62														
							16		60														
							18		58														
							20		56														
							22		54														
							24		52														
							26		50														
							28		48														
							30																

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-8

SHEET 2 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651																																																																																						
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434500.0' E 484225.0'										GROUND ELEVATION (DATUM) 77.8 ft (NGVD 1929)										TOTAL DEPTH 62.3 (feet)																																																																												
SURFACE CONDITIONS Grass and sand, level										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/31/07										DATE FINISHED 10/31/07																																																																												
SOIL SAMPLING										LOGGED BY W. Zheng <i>wz</i>										CHECKED BY C. Wise <i>CW</i>										APPROVED BY B. Christensen <i>BC</i>																																																																												
<table border="1"> <tr> <th>SAMPLE TYPE</th> <th>SAMPLE NUMBER</th> <th>SET 6 INCHES</th> <th>2ND 6 INCHES</th> <th>3RD 6 INCHES</th> <th>N VALUE</th> <th>SAMPLE RECOVERY</th> </tr> <tr> <td colspan="7">ROCK CORING</td> </tr> <tr> <th>CORE SIZE</th> <th>RUN NUMBER</th> <th>RUN LENGTH</th> <th>RUN RECOVERY</th> <th>RQD RECOVERY</th> <th>PERCENT RECOVERY</th> <th>RQD</th> </tr> </table>										SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	ROCK CORING							CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD	DEPTH (FEET)										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																									
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY																																																																																																				
ROCK CORING																																																																																																										
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD																																																																																																				
SPT							8										WOH										1										1										2										1.5										30										46										grading brown; w/some clay																			
SPT							9										2										3										4										7										1.5										32										44										Clayey <u>SILT</u> ; light green; firm; wet; low plasticity; w/some sand																			
SPT							10										2										4										4										8										1.5										34										42										Silty <u>CLAY</u> ; dark green; firm; wet; high plasticity; w/trace sand																			
SPT							11										4										5										7										12										1.3										36										40										Sandy <u>SILT</u> ; dark green; stiff; wet; low plasticity; w/some clay																			
SPT							12										4										7										12										19										1.5										38										38										Silty <u>SAND</u> ; dark green; medium dense; fine grained; poorly graded; w/some shell fragments; trace clay																			
SPT							13										4										7										11										18										1.5										40										36										grading w/trace shell fragments																			

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-8

SHEET 3 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651																																																																													
PROJECT LOCATION Intercession City, FL										COORDINATES N 1434500.0' E 484225.0'										GROUND ELEVATION (DATUM) 77.8 ft (NGVD 1929)										TOTAL DEPTH 62.3 (feet)																																																																			
SURFACE CONDITIONS Grass and sand, level										COORDINATE SYSTEM FL St. Plane ENAD83/90										DATE START 10/31/07										DATE FINISHED 10/31/07																																																																			
SOIL SAMPLING										LOGGED BY W. Zheng WZ										CHECKED BY C. Wise CW										APPROVED BY B. Christensen BC																																																																			
<table border="1"> <tr> <th>SAMPLE TYPE</th> <th>SAMPLE NUMBER</th> <th>SET 6 INCHES</th> <th>2ND 6 INCHES</th> <th>3RD 6 INCHES</th> <th>N VALUE</th> <th>SAMPLE RECOVERY</th> </tr> <tr> <td colspan="7">ROCK CORING</td> </tr> <tr> <th>CORE SIZE</th> <th>RUN NUMBER</th> <th>RUN LENGTH</th> <th>RUN RECOVERY</th> <th>RQD RECOVERY</th> <th>PERCENT RECOVERY</th> <th>RQD</th> </tr> <tr> <td>SPT</td> <td>14</td> <td>50/1"</td> <td>-</td> <td>-</td> <td>>50</td> <td>0.1</td> </tr> </table>										SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	ROCK CORING							CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD	SPT	14	50/1"	-	-	>50	0.1	DEPTH (FEET)										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS									
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY																																																																																											
ROCK CORING																																																																																																	
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD RECOVERY	PERCENT RECOVERY	RQD																																																																																											
SPT	14	50/1"	-	-	>50	0.1																																																																																											
										60																																																																																							
										62										16																				LIMESTONE; white; medium grained; highly weathered; strong										Auger refusal @ 62'2".																																															
										64										14																																																																													
										66										12																																																																													
										68										10																																																																													
										70										8																																																																													
										72										6																																																																													
										74										4																																																																													
										76										2																																																																													
										78										0																																																																													
										80										-2																																																																													
										82										-4																																																																													
										84										-6																																																																													
										86										-8																																																																													
										88										-10																																																																													
										90										-12																																																																													

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-9

SHEET 1 OF 3

CLIENT FMPA										PROJECT Cane Island Karst Investigation										PROJECT NO. 147651	
PROJECT LOCATION Intercession City, FL						COORDINATES N 1434507.0'						GROUND ELEVATION (DATUM) E 484295.0' 78.1 ft (NGVD 1929)						TOTAL DEPTH 68.8 (feet)			
SURFACE CONDITIONS Grass, level										COORDINATE SYSTEM FL St. Plane ENAD83/90						DATE START 10/30/07		DATE FINISHED 10/30/07			
SOIL SAMPLING										LOGGED BY Wei Zheng <i>WZ</i>						CHECKED BY C. Wise <i>CW</i>				APPROVED BY B. Christensen <i>Ble</i>	
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS				REMARKS						
ROCK CORING																					
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD															
SPT	1	1	1	2	3	0.8	0		78		SAND; light gray; loose; moist; fine grained; poorly graded; w/trace grass				Boring advanced to 5.0' by SPT. SPT performed w/safety hammer and cathead w/1-3/4 wraps.						
SPT	2	4	4	5	9	1.2	2		76		grass grades out						Boring continued w/2-7/8" dia tricone bit using bentonite mud as drilling fluid.				
SPT	3	4	5	6	11	0.7	4		74		grading medium dense; wet				SPT continued w/automatic hammer @ 13.5'.						
							6		72												
							8		70												
SPT	4	4	7	8	15	0.9	10		68		Silty SAND; brown; medium dense; wet; fine grained										
							12		66												
							14		64												
							16		62												
SPT	5	2	2	3	5	1.5	18		60		Clayey SAND; light gray; loose; wet; fine grained; poorly graded; w/some silt										
							20		58												
							22		56												
							24		54		SAND; light gray; medium dense; wet; fine grained; poorly graded; w/trace silt										
							26		52												
							28		50												
SPT	7	7	8	9	17	1.1	30														

CLIENT										PROJECT										PROJECT NO.																																																																																																			
FMPA										Cane Island Karst Investigation										147651																																																																																																			
PROJECT LOCATION										COORDINATES										GROUND ELEVATION (DATUM)										TOTAL DEPTH																																																																																									
Intercession City, FL										N 1434507.0'										E 484295.0'										78.1 ft (NGVD 1929)										68.8 (feet)																																																																															
SURFACE CONDITIONS										COORDINATE SYSTEM										DATE START										DATE FINISHED																																																																																									
Grass, level										FL St. Plane ENAD83/90										10/30/07										10/30/07																																																																																									
SOIL SAMPLING										LOGGED BY										CHECKED BY										APPROVED BY																																																																																									
										Wei Zheng WZ										C. Wise CW										B. Christensen BC																																																																																									
SAMPLE TYPE										DEPTH (FEET)										SAMPLE TYPE										ELEVATION (FEET)										GRAPHIC LOG										CLASSIFICATION OF MATERIALS										REMARKS																																																											
SAMPLE NUMBER										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
SET 6 INCHES										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
2ND 6 INCHES										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
3RD 6 INCHES										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
N										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
VALUE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
SAMPLE RECOVERY										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
CORE SIZE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
RUN NUMBER										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
RUN LENGTH										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
RUN RECOVERY										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
RQD										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
PERCENT RECOVERY										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
RQD										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE										SAMPLE TYPE																																																	
SPT										8										2										2										2										4										1.5										30										48																																							
SPT										9										3										1										2										3										1.5										32										46																																							
SPT										10										1										1										1										2										1.5										34										44										grading loose; w/some clay																													
SPT										11										1										3										3										6										1.5										36										42																																							
SPT										12										WOH										WOH										1										1										1.5										38										40										Clayey SAND; light gray; loose; wet; fine grained; poorly graded										-37.0																			
SPT										13										WOH										1										2										3										1.5										40										38																																							
SPT										14										WOH										1										2										3										1.5										42										36																																							
SPT										15										WOH										1										2										3										1.5										44										34										grading brown																													
SPT										16										WOH										1										2										3										1.5										46										32																																							
SPT										17										WOH										1										2										3										1.5										48										30										Sandy CLAY; light green; firm; wet; low plasticity; w/some silt										-47.0																			
SPT										18										WOH										1										2										3										1.5										50										28																																							
SPT										19										WOH										1										2										3										1.5										52										26										CLAY; dark green; very soft; wet; high plasticity; w/trace sand & silt										-52.0																			
SPT										20										WOH										1										2										3										1.5										54										24																																							
SPT										21										WOH										1										2										3										1.5										56										22																																							
SPT										22										WOH										1										2										3										1.5										58										20										Sandy CLAY; light green; soft; wet; low plasticity; w/some silt										-57.0																			
SPT										23										WOH										1										2										3										1.5										60																														Lost circulation @ 55.0'.																			

**BLACK & VEATCH****BORING LOG**

BORING NO. B4-9

SHEET 3 OF 3

CLIENT FMPA				PROJECT Cane Island Karst Investigation				PROJECT NO. 147651				
PROJECT LOCATION Intercession City, FL				COORDINATES N 1434507.0'				GROUND ELEVATION (DATUM) E 484295.0' 78.1 ft (NGVD 1929)				
SURFACE CONDITIONS Grass, level				COORDINATE SYSTEM FL St. Plane ENAD83/90				DATE START 10/30/07		DATE FINISHED 10/30/07		
SOIL SAMPLING				LOGGED BY Wei Zheng <i>WZ</i>				CHECKED BY C. Wise <i>CW</i>		APPROVED BY B. Christensen <i>BC</i>		
SAMPLE TYPE	SAMPLE NUMBER	SET 6 INCHES	2ND 6 INCHES	3RD 6 INCHES	N VALUE	SAMPLE RECOVERY	DEPTH (FEET)	SAMPLE TYPE	ELEVATION (FEET)	GRAPHIC LOG	CLASSIFICATION OF MATERIALS	REMARKS
ROCK CORING												
CORE SIZE	RUN NUMBER	RUN LENGTH	RUN RECOVERY	RQD	PERCENT RECOVERY	RQD						
SPT	14	WOR	WOR	WOR	WOH	1.5	60	18				
							62	16				
							64	14			grading very soft	Lost circulation @ 64.0'.
							66	12				
							68	10			LIMESTONE; yellow; medium grained; highly weathered; strong	
SPT	15	50/3"		-	>50	0.2	70	8				
							72	6				
							74	4				
							76	2				
							78	0				
							80	-2				
							82	-4				
							84	-6				
							86	-8				
							88	-10				
							90					

Bottom of boring @ 68.8'. A 12' open-end 2" PVC pipe was installed at completion. Boring redrilled to 68.8' and backfilled with cement-bentonite grout by tremie on 11/2/07. On 11/2/07, a 10.3' deep offset boring was drilled 4.0' to the east with 5" HSA; 12' pipe installed with 1.8' stickup. Water level recorded @ 4.3' BGS on 11/7/07. Offset boring backfilled with cuttings.