

BORING NO. ______B1
SHEET _____1 OF ___3
DATE: START 12-05-06
END 12-06-06

FLEV (+MSL) 17.36 MSL

PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation
BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158

INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watter & Hislop Plumbing Services Ltd.

EQUIPMENT USED Truck-Mounted Mobile Drilling Rig

DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter)

CASING: SIZE: 6" PVC DEPTH: 2.0 Ft. WATER: DEPTH: 15.4 Ft. ELEV.: +1.96' MSL TIME: 2:55PM DATE: 12-06-06

CHECKED BY: DATE: DEPTH: 17.2 Ft. ELEV.: +0.16' MSL TIME: 9:53AM DATE: 12-08-06

NOT ENCOUNTERED

DESCRITPION REMARKS

DEP (F)	SAMPLE NO. TYPE/CORE	DRILLING TI	BLOWS/0.5 ON SAMPLI	RECOVER (IN.)	RQD %	FRACTUR FREQUENC	DISCONTINI	DESCRITPION	REMARKS
0'-0" _					/			Native bedrock encountered at 8" BGL, upper surface of bedrock is verticall fractured with void/cavity observed at approx. 1.0' depth BGL.	- - -
2'-0"	1	9:40AM			,			Initial core sample is composed of dark	Rate of Penetration = 41.5 mpf
- -	NX	FROM 10:30AM - 10:37AM) 10:55AM		5.5"	23%/	1 - 45	5°, F, T, No, No, Ir	reddish brown lithified terra rossa cavity in-fill.	Drilling stopped at 1'-6" due to excessive water leakage.
4'- <u>0"</u>	2	11:10AM 11:28AM			0%	_M			Rate of Penetration = 20.9 mpf
5'-0"	NX	11:50AM			92% /	з - м			
		12:00PM		36"		\ \delta - 0° 5 - 0°	y Fractured Zone P, F, N, No, No, Ir, R P, F, N, No, No, Ir, R P, F, MW, TR, Fi S ⁵ , Sh, W, TR, Fi, Ir, R		1 No. Hydraulic Hose begins to leak a approx. 6'-0" depth.
7'-3"		12:15PM 12:18PM 1:00PM			31%		0°, N, TR, Fi, Ir, R 0°, N, No, No, Ir, R	White fine grained dense yuggy	Pote of Ponetration - 7.9 mnf
- - -	NX	1:12PM			93% /	10 - 3	80°, J, MW, TR, Su, Ir, VR	White, fine-grained, dense, vuggy, hard, porous limestone.	Rate of Penetration = 7.8 mpf
		1:23PM		55.5"	93%)°, J, VN, No, No, Ir, R 45°, Sh, T, No, No		

10'-0" _ 3 NX Cont'd	1:36PM 55.5" 1:39PM	93% 13 - M 14 - M 15 - M 16 - 45°, J, VN, TR, Fe, Su, Ir, VR 17 - 20°, M	The main hydraulic hose is blown and drilling is stopped for repairs.	
15'-0" - 17'-3"	11:00AM 11:08AM (NO DRILLING FOR 5 MIN. TO ADD AUGER SEC'N) 11:20AM 11:24AM 11:30AM 11:32AM	97% 18 - 45°, J, VN, No, No, Ir, R 19 - 0°, J, N, Fe, Su, Ir, VR 19 - 0°, J, N, Fe, Su, Ir, VR 20 - M 21 - M 22 - M 23 - M 24 - M 25 - M	Rate of Penetration = 6.4 mpf	
	12:06PM 12:08PM 12:09PM	26 - 45°, J, VN, No, No, Ir, R 27 - 0°, J, VN, No, No, Ir, R Light beige, corraline limestone, vuggy, porous, fossiliferous, weakly cemented and soft. 28 - 0°, J, VN, No, No, Ir, VR 29 - 30°, J, N, No, No, Ir, VR	Rate of Penetration = 1.6 mpf	-

_	1				, , , , , , ,			_
-								_
_								
20'-0"	5	12:11PM				Light beige, corraline limestone, vuggy,		
_	NX			98% /		porous, fossiliferous, weakly cemented		
_	Cont'd			/		and soft.		_
<u> </u>		12:12PM	58.5"	/				
-		12.121 101		/	30 - M			_
_				/				
				∕ 87%				
22'-3" _		12:14PM		 	32 - M			
	6	12:53PM		070/		Increased density and hardness from above sample, white, hard, slightly	Rate of Penetration = 2.9 mpf	
-	NX			97% /	─33 - M	vuggy and porous, well-cemented.		_
		12:57PM		/				
				/				
_			32.0"	/	─ 34 - M			_
<u> </u>		12:59PM		/	35 - 0°, B, N, No, No, Ir, VR	1.5" thick highly weathered zone, weakly cemented and porous.		
-		12.031 101		/		would comemou and persons.		_
				85%				
25'-0"		1:01PM		<u> </u>	36 - 0°, B, Fe, Su, Ir, R			
_								_
<u> </u>								
-								_
_								_
-								_
-								_
_								
_	-							-
]							_
_								_



BORING NO. B2
SHEET 1 OF 3
DATE: START 12-06-06
END 12-07-06
ELEV (+MSL) +15.34' MSL

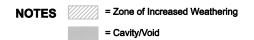
	PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 NSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd.												
INSPE	CTOF	(SIGNE	2)				DRILLERS NAME/						
EQUIF	MEN	I USED I	ruck-N	Mount	ed Mobi	le Drilli	ng Rig		. •				
DRILL	ING N	IETHODS	Air-D	riven	Rotary (Core Di	ill (NX diameter)						
									TIME: 9:55AM DATE: 12-08-06				
CHEC	KED E	3Y:		_ DAT	E:				TIME: 4:51PM DATE: 01-23-07				
							N	OT ENCOUNTERED -					
DEPTH (Ft)	VO. and RE RUN) TIME	0.5 Ft. PLER	ERY (RECOVERY	URE	INUITY						
	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD %	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION				
					<u>/ </u>								
0' -0" _	SPT1		7						_				
_			14						_				
1'-6"			22						Reddish brown, loose, fine-grained, silty sand, having and uncorrected				
' ~ _	SPT2		20						N-value = 36, i.e. Dense. —				
			17										
			<u> </u>						Refusal met indicating Native Pedro Castle				
3'- <u>0"</u>			50						Formation bedrock encountered at approximately — 2'-6" below surface level.				
_													
_									_				
_	1	3:01PM			81%			Rate of Penetration = 4.6 mpf	_				
	NX	0.04514			/								
5'-0"		3:04PM											
_						Н			Moderately weathered, densely jointed, white limestone rock, with				
		3:08PM					13 - J, MW, TR Fi		dark terra rossa stains throughout				
_				48.5"			Ir, R		_				
_		3:13PM							_				
_			1			Ħ							
									Limestone breccia in terra rossa fill with organic matter.				
8'- <u>0"</u>		3:18PM							Bedded flint rock and lithified terra rossa seams.				
									_				
9'- <u>0"</u>		3:24PM			41%				-				
_	② NX	8:46AM						Rate of Penetration = 7.0 mpf	Local flint rock with a highly weathered zone, as shown, and a 1.5" thick flint				
10'-0"	INA	8:49AM							and lithified terra rossa bedded zone at 13" depth.				
				•	•			1	1				

NOTES	= Zone of Increased Weathering	 = Core Not Recovered
	= Cavity/Void	

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DESCRIPTOR	REMARKS	DESCRIPTION	
0'-0" _ 	② NX Cont'd	8:49AM 8:55AM			89%	14 - 30 15 - 0° 15 - 16	0°, J, W, TR Su, Ir, VR °, J, T, Sd Fi, St, SR to 17 - 0°, B, N, Pl, SR	(14 - 16 is a weekly comented zone with grawd sized rounded garria) (16 is 17 consists of backled layers of terminated sendy precipitate with brown flects)	_	-
		9:04AM		53.5"					Dense, very strong, limeston with small solution cavities and vugs — throughout, iron-stained surfaces throughout, low primary porosity.	_
		9:12AM					5°, J, VN, Fe Su, Ir, VR 5°, J, VN, Fe Su, Ir, VR		unoughout, low primary porosity.	_
<u>1'-0"</u>	3	9:21AM 10:05AM			84% 98%			Rate of Penetration = 5.2 mpf		-
5' <u>-0"</u>	NX	10:10AM					5°, J, N, No, No, Ir, R 0°, J, MW, No, No, Ir, VR a dong surface of fosel plane of weekness)		— Moderately weathered, strong rock,	
		10:15AM 10:21AM		58.5"					beige and discolored (dolomitized), increased primary porosity, decreased density, vuggy throughout, less iron staining than above, fossiliferous limestone/dolostone.	
		10:26AM				— 23 - 30	0°, J, N, No, No, Ir, VR			-
) <u>'-0"</u>		10:31AM 11:12AM			98%	24 - M 25 - 0	, J, MW, ———	Rate of Penetration = 4.6 mpf	Moderately weathered, very strong, white	_
 	④ NX	11:17AM				(Joint 26 oc	o, Ir, R cours along a solution widened fossil cavity) O°, J, VN, No, No, Ir, R	то пр	limestone, dense, low primary porosity, some vugs and small cavities, some localized areas that are highly weathered, having increased porosity, decreased density and weakened rock.	_

NOTES = Zone of Increased Weathering = Cavity/Void

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN		BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0" _ 	NX Cont'd	11.22AW			98%		°, J, VN, No, No, Ir, R °, J, VN, No, No, Ir, R		
		11:26AM 11:30AM		59"			°, J, VN, No, No, Ir, R		
24 <u>'-0"</u> 	⑤ NX	11:35AM 12:48PM 12:56PM		13.5"	90%	 32 - 0	°, J, VN, No, No, Ir, R °, J, W, o, Ir, R	Rate of Penetration = 1.6 mpf	Slightly weathered, extremely strong, white limestone, high density, low porosity, small vugs and pores, no cavities, no staining or fill.
- - - -									
- - - -									
30'-0"									





DDO I	ECT N	AME Sav	vannal	h Gully	Flood	and Ste	orm Surge Mitigati	on	END <u>12-08-06</u>
BLOC	K 28	D PARC	EL 2	248, 24	9, 250.	270, 26	3, 120, 119, 111, 10	8, 53, 52, 157, 158	ELEV. (+MSL) +15.67' MSL
		R (SIGNEI))				DRILLERS NAME/	COMPANY Watler & His	lop Plumbing Services Ltd.
EQUIF	MEN.	TUSED 1	ruck-N	Mounte	ed Mobi	le Drilli	ng Rig		
DRILL	ING N	IETHODS	Air-D	riven l	Rotary (Core Di	rill (NX diameter)		
								Ft. ELEV.: +1.36' MSL 7	TIME: 3:10PM DATE: 12-11-06
CHEC	KED E	3Y:		_ DAT	E:		DEPTH: <u>14.26</u>	<u>Ft.</u> ELEV.: <u>+1.41' MSL</u> 7	TIME: 8:39AM DATE: 12-13-06
								OT ENCOUNTERED	
					<u> </u>	1			1
Ξ.		빝	یم نیر		H (≻	≧ଝ		
DEPTH (Ft)	0. E	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY % (%)	FRACTURE	DESCRIPTOR		
	N O	<u> </u>	S/S	Š Š		15 🗒		REMARKS	DESCRIPTION
	P EV	⊒	8 8	<u>ü</u>	Rap %	₹₩	ပ္သြင္သ		
	SAMPLE NO. and TYPE/CORE RUN	K	교호	 • •	/ &	╙╚			
01 011					/	_			
0'-0" _	SPT1		3						Reddish-brown, fined-grained, silty sand, medium dense.
_			5						<u>-</u>
				ł					British Marie British Out
1'-6"			55			Ш			Refusal, i.e. Native Pedro Castle - Formation bedrock encountered at
_									approximately 1'-0" below surface level.
									_
3'-0" -									-
_	1	2:19PM			96%	1 - 0°,	J, W, Fe TR Su Pa, Ir, VI	Rate of Penetration = 4.8 mpf	-
_	NX								_
		2:25PM				2 - 10	, J, VN, No, No, Ir, R		
_									-
		2:30PM							
5'-0"		2.30PIVI							Beige, fine-grained, dense, very
_									strong, vuggy/moderate primary porosity, some staining of small —
		2:35PM		57.75"					cavities, precipitate-filled veins, - damp rock.
									-
									_
		2:39PM							
_						-		Near vertical cavity, lined and partially filled with terra recognic matter, damp with a scalloped edge.	···· -
		0.42514			94%	3 - Top	of Cavity, TR Su Pa, Ir,		
8'- <u>0"</u>	2	2:43PM 3:13PM			J - 70	VR		Rate of Penetration = 3.8 mpf	Slightly to moderately weathered
_	NX								limestone, very little reaction with Hydrochloric Acid solution, strong rock,
_	. 471	3:16PM							dense with low primary porosity, having -
		J. 10F W	1			∐4 - 0°,	J, N, No, No, Ir, R		localized zones of increased weathering, as shown. Within zones of increased
_						5 - 0°,	J, N, No, No, Ir, R J, N, No, No, Ir, R		weathering rock has decreased density,increased porosity, and decreased
10'-0" -		3:20PM				M .	-, -, , , , , , , , , , , , , , , , , ,		strength to medium strong rock.
NOTES	. 777	= Zone	of Increa	sed Wea	atherina	•			
140120	• 1///								



PROJ	ECT N	IAME <u>Sav</u>	/annal	h Gully 248 24	y Flood 19-250 :	and St 270 26	orm Surge Mitigati 3, 120, 119, 111, 10	on 8 53 52 157 158	ELEV. (+MSL) +15.67' MSL	
INSPE	CTOF	R (SIGNE	וכ				DRILLERS NAME/		slop Plumbing Services Ltd.	
EQUII	PMEN	TUSED 1	ruck-l	Mount	<u>ed Mobi</u>	le Drill	ing Rig			
							rill (NX diameter)			
									TIME: 3:10PM DATE: 12-11-06	
CHEC	KED I	3Y:		_ DAT	'E:			Ft. ELEV.: +1.41 MSL TO DT ENCOUNTERED	TIME: <u>8:39AM</u> DATE: <u>12-13-06</u>	
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION	
10'-0" _	2	3:20PM			98% /					_
_	NX Confd					2 7 - 10	°, J, N, No, No, Ir, R			_
	001110	3:25PM			/	(joint occurs cavity)	s along plane of weakness due of dissolved fossil		_	_
				58.5"	/					_
		3:29PM			/				_	_
_					/	8 - 0°,	J, N, Fe Su, Ir, R			_
13'-0" -		3:32PM			88%	□9-м				
_	3	8:48AM			99%	10 - 1	5°, J, N, No, No, Ir, SR	Rate of Penetration = 1.2 mpf		
_	NX	8:51AM			/		5 , 5, 14, 140, 140, 11, 51X			_
		0.3 17(1)							Moderately weathered, very strong	_
_						11 - 0	, J, N, No, No, Ir, SR		rock, beige (dolomitized), dense, vuggy, having a low primary	-
15' <u>-0"</u>		8:55AM							porosity.	_
_]			59.25'	. /					_
_	}	9:01AM							_	
_	-									
_]	9:03AM			1/				Moderately weathered, weak rock,	-
		0.007 1171			1/				decreased density, increased porosity, vugs and solution cavities.	_
					020/	12 - N			porcond, regular contains currings.	_
18' <u>-0"</u>		9:04AM 10:03AM			92%	- 13 - N - 7	!	Rate of Penetration = 1.8 mpf		_
_	(4) NX	10.00/101				Дl		The state of the s	Moderately weathered to highly weathered in localized areas,	_
_		10:05AM				$H \lfloor_{1_{4}}$	to 19 - M		medium strong to weak rock, high primary porosity, low density, vuggy,	
_						H			fossiliferous, with slight staining to small cavities and vugs.	
20'-0"		10:07AM				\sqcup				_
	- 17777		l		1	ш		l	I	-

NOTES = Zone of Increased Weathering = Cavity/Void



BORING NO. B3

SHEET 3 OF 3

DATE: START 12-07-06

END 12-08-06

PROJ	PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 END 12-08-06 ELEV. (+MSL) +15.67' MSL												
											J		
INSPE	CTOR	R (SIGNEI T USED <u>T</u>)) Truck-l	Mount	ed Mobi	le Drill	DRILLERS NAMI ing Rig	E/COMPANY Watler & His	siop Fluitibilig	Services Ltd.			
DRILL	ING N	NETHODS	Air-D	riven	Rotary (Core D	rill (NX diameter)					
								1 Ft. ELEV.: +1.36' MSL	TIME: <u>3:10PM</u>	DATE: 12-11-06			
CHEC	KED E	3Y:		_ DAT	E:			6 Ft. ELEV.: +1.41' MSL		DATE: <u>12-13-06</u>			
								NOT ENCOUNTERED					
DEPTH (Ft)	VO. and RE RUN	TIME	0.5 Ft. PLER	ERY)	RECOVERY % (%)	URE	INUITY						
	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD %	FRACTURE	DISCONTINUITY	REMARKS		DESCRIPTION			
	L S	_			/								
20'-0" _	4	10:07AM			103%/						-		
_	NX Cont'd	10:08AM									_		
		10.007 1111			/	Ц٦				-	_		
_				61.5"	/ .			Completely weathered, poorly camemied, fragmented roccore.	k		_		
		10:10AM			/	20	to 23 - M			_			
_					/						_		
23 <u>'-0"</u> _		10:12AM			76%						_		
_	⑤	11:36AM			90% /	24 - M		Rate of Penetration = 3.0 mpf * Cavity between 2 No. mechanical breaks occuring where dissolved fosell was located, increased zone of weathering		ove, terra rossa staining upper portion of rock core.	-		
_	NX	11:39AM			/	25 - N		CIRROLYMO TORRIN WIRE ROCKING, INCIDENCE ZOTIO OF WINELINGTH	•		_		
		111007 4111		21.5"	/	26 - O	°, J, T, No, No, Ir, R			thered, very strong rock,	_		
_					/	27 - N	•		low primary	e limestone. Rock has porosity, having few	_		
25'-0"		11:42AM			80%	-	•		vugs or cavi	ues			
_											_		
										_			
_											-		
-											_		
_										_	_		
_											_		
										_			
_											_		
										_	_		
_											-		
30'-0"											_		
NOTE	7///	/// = 7one	of Inores	and Wa									



BORING NO. _ SHEET ____1 ___ OF __3

CAYMAN EN	SINEEDING &	SURVEYING							DATE : START 12-08-06	
PROJ	ECT N	IAME Sav	vannal	h Gully	/ Flood	and St	orm Surge Mitigati	on	END <u>12-11-06</u>	
BLOC	K 28	D PARC	CEL 2	248, 24	9, 250,	270, 26	3, 120, 119, 111, 10	8, 53, 52, 157, 158	ELEV. (+MSL) +16.02' MSL	
INSPE	CTOF	R (SIGNE	D)			!	DRILLERS NAME/	COMPANY Watler & His	slop Plumbing Services Ltd.	
EQUIF	PMEN.	L USED 7	ruck-l	Mount	ed Mobi	le Drilli	ng Rig			
							rill (NX diameter)	= 10 00! MO! -		
									TIME: 3:07PM DATE: 12-11-06	
CHEC	KED E	3Y:		_ DAT	E:				TIME: 8:30AM DATE: 12-13-06	
							N	OT ENCOUNTERED		
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION	
0'-0"	SPT1		2						Fine to medium grained, reddish	
			_	-					brown, clean sand. Uncorrected N-value = 10, i.e. Medium Dense.	_
			4	-					_	
1'-6" _			6							_
_	SPT2		9							-
_			13	1					_	_
3'- <u>0"</u> –			>50	-					Refusal - Native Pedro Castle Formation bedrock.	
_	1	8:36AM			47%			Rate of Penetration = 3.4 mpf	Slightly weathered, very strong, dense, white limestone rock.	-
_	NX								dense, white innestone rock.	_
		8:45AM				1 - 25	, J, N, No, No, Ir, R		Portion of core is cavity filled with	_
_						2 - 25	, J, MW, TR Fi, Ir, R		lithified terra rossa Moderately weathered, strong,	_
5'-0"		8:50AM			•			* Cavity observed by drop in drill-rod during coring process, evidence of cavity fill observed.	white limestone rock.	_
_		0.50414							Limestone breccia in lithified terra rossa cavity fill.	_
		8:53AM				3 - 25	, J, W, Fe Sd Fi, Ir, VR		10000 00000 00000	_
				33.75'	1 /				Large cavity, evidence of terra —	_
_					1 /				rossa fill observed in muddy drill return water.	-
_									Totalii Water.	_
									_	
_										_
_					1/					-
									_	
_										_
9'- <u>0"</u>		8.53AM			42%					-
_	2	9:19AM				rı	, J, W, No, No, Ir, R	Rate of Penetration = 1.6 mpf	i lighty weathered, weak rock,	_
401 00 -	NX						J, W, No, No, Ir, VR		densely fractured, vuggy and porous, low density.	_
10'-0"		9:21AM				6 - 45	', J, W, No, No, Ir, VR			_
NOTES	3 ////	= Zone	of Increa	ased We	athering		= Core Not Recover	ed		



	PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation												
PROJ BLOC	ECTN k 28	D PARC	FI 2	248. 24	9. 250. 2	270. 26	3. 120. 119. 111. 1	08, 53, 52, 157, 158	ELEV. (+MSL) <u>+16.02' MSL</u>				
									slop Plumbing Services Ltd.				
EQUIF	MEN.	Γ USED $oldsymbol{ extstyle T}$	ruck-l	Mount	ed Mobi	le Drill	ing Rig						
							rill (NX diameter)						
									TIME: 3:07PM DATE: 12-11-06				
CHEC	KED E	3Y:		_ DAT	E:				TIME: <u>8:30AM</u> DATE: <u>12-13-06</u>				
							N	IOT ENCOUNTERED					
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION				
10'-0"	2	9:21AM			79% /	7-M							
	NX				10,0				Slightly weathered, strong rock, moderate porosity, medium dense.				
	Cont'd	9:23AM			/				moderate porosity, medium dense.				
_													
_		9:25AM		l		∐ _{8 - 0°,}	J, W, No, No, Ir, VR		Highly weathered, weak rock, densely fractured, vuggy and				
		3.23/AVI		47.5"	/	⊢ 9-м			porous, low density.				
									_				
		9:26AM				10 - M							
_					1/	<u> </u>							
14'-0"		9:27AM			55%				_				
14-0	3	10:04AM			62%		, J, W, No, No, Ir, VR	Rate of Penetration = 0.6 mpf	,				
	NX				02%	12 - 0	, J, N, Fe Su, Ir, R		_				
15 <u>'-0"</u>		10:05AM			1 /								
_							to 21 - M						
_		10:06AM					10 Z1 - W		_				
		10.00AIVI							Highly weathered, weak rock, densely jointed, vuggy and				
_				37"	1 /	 	l		porous, low density.				
		10:07AM				23 - M							
_													
_		10.07484						* Cavity observed by drop in drill-rod during coring process, evidence of cavity fill observed.	, no				
		10:07AM			1/				_				
					1/				_				
19 <u>'-0"</u>		10:07AM			24%	<u> </u>							
_	4	1:36PM						Rate of Penetration = 1.4 mpf	Highly weathered, weak rock, poorly cemented, white limestone,				
20'-0"	NX	1.26014				24	to 30 - M		densely mechanically fractured by coring process.				
	· · · · · ·	1:36PM				 M			willing process.				
NOTES	3	= Zone	of Increa	ased We	athering	\equiv	= Core Not Recove	ered					



BORING NO. _____84
SHEET ____3 ___OF ___3
DATE: START ___12-08-06
END ___12-11-06

ELEV (+MSL) ___+16.02' MSL

PROJ	ECT NAME Savannah Gully Flood and Storm Surge Mitigation												
BLOC	K 28	D PARC	EL 2	48, 24	9, 250, 2	270 <mark>, 2</mark> 6	3, 120, 119, 111, 10	08, 53, 52, 157, 158 <u> </u>	ELEV. (+MSL) +16.02' MSL				
INSPE	CTOR	R (SIGNE	D)				DRILLERS NAME/	COMPANY Watler & His	slop Plumbing Services Ltd.				
EQUIF	MEN	L USED]	ruck-M	/lount	ed Mobi	le Drill	ing Rig						
							rill (NX diameter)	F4 +2 00' MSL -	2.07DM 40.44.00				
									TIME: 3:07PM DATE: 12-11-06				
CHECKED BY: DATE: DEPTH: 14.63 Ft. ELEV.: +1.39' MSL TIME: 8:30AM DATE: 12-13-06 NOT ENCOUNTERED □													
	-		,	T	Ts.	,	,	- LINCOCKTERED					
I	P N	ш —	ہ ند		RECOVERY		≥ ∞						
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	Ϫ	<u> </u>	FRACTURE FREQUENCY	DESCRIPTOR						
a •	SAMPLE NO. TYPE/CORE F	2	S/O	RECOVERY (IN.)		든필	F F	REMARKS	DESCRIPTION				
	PL E/C	∄	§ §	ŭ,	Rap %	\ <u>¥</u> ₩							
	SAN	%	교호		/ &	╵╙╺							
20'-0"		1:36PM			<u>/</u>					_			
	④ NX	1.30-101			98% /	-31	to 35 - M			_			
_	Cont'd	1:36PM			/					_			
		1.001 1.1	1						Slightly weathered, strong, dense, white limestone rock.	_			
									white ilmestone rock.	_			
		1:38PM		59"	/	36 - 2	0°, J, VN, No, No, Ir, R			-			
_									Moderately weathered, strong,	-			
		4.44014				- 37 - N			dense, porous and coarse-grained.	_			
		1:41PM				38 - N	I		_	_			
_					/	39 - N				_			
24'-0" -		1:43PM			50%	40 - N				-			
	⑤	2:26PM			125%	11		Rate of Penetration = 2.0 mpf	moderately modernotes, eacing	_			
_	NX			15"		41 - N			rock.				
25'-0"		2:28PM			/77%				Highly weathered, weak rock.				
_						43 - N	I			_			
_										-			
									_	_			
–										_			
									_	_			
_										-			
_										_			
									_	_			
_										_			
									_	_			
										_			
										_			
30'-0"										_			
NOTES		= Zone	of Increa	sed We	athering	oxdot	= Core Not Recover	red					
		= Cavit	y/Void										



BORING NO. B5 SHEET ____1 OF_ DATE : START 12-12-06 END 12-12-06

PROJ	ECT N	AME Sav	/annal	h Gully	/ Flood	and Sto	orm Surge Miti	igatio	on	ELEA (*Měi) <u>+19.94' MSL</u>
									3, 53, 52, 157, 158	•	
INSPE	CTOR	R (SIGNEI T USED <u>T</u>))	Marrat	nd Maki	 o D=::::	DRILLERS NAM	ME/C	OMPANY Watler & H	ISIOP Plumbing	Services Ltd.
EQUIF	MENT	r USED <u> </u>	Air-D	riven	Botany (ore D	rill (NX diamete	or)			
									_ ELEV.:×	TIME: 8:35AM	DATE: 12-13-06
									_ ELEV.:X		
CHEC	VED E	3Y:		_ DAI	C:		DEPTH:		_ ELEV.:^ T ENCOUNTERED □		_ DATE: <u>12-22-00</u>
							T				
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR		REMARKS		DESCRIPTION
0'-0"	SPT1		3								wn, coarse-grained, _
			_	1							d, an uncorrected 2, i.e. medium dense.
			5								
1'-6"			7								-
_	SPT2		10								wn, medium-grained, _ elly sand, poorly
_			7	1							corrected N-value =
				-						15, i.e. medi	um dense.
3'- <u>0"</u>			8								-
_	SPT3		9							slightly grav	wn, medium-grained,
-			6							graded. Un	corrected N-value =
			7	1							
4'-6" — 4'-9"	SPT4		>50							Refusal - Pe	dro Castle Formation bedrock
5'-0"	<u> </u>								Straight drilling to place casi	ng	
_								'	down to a depth of 6'-0".		-
6' 0"											
6'- <u>0"</u>	1	9:40AM			98% /.	1 - 80°	, J, W, TR Fi, Ir, R		Rate of Penetration = 19.7 m	npf Slightly wea	thered, very strong _
_	NX			 13.75		// 2 - 80°	°, J, W, TR Fi, Ir, VR	,	* 1.75°2, terra rossa-filled cavity		low porosity.
		9:44AM	·10:03		43%	∭3-0°,	J, VN, No, No, Ir, Si	R			
7'-2" _	2	11:59AM	10:03	NIVI	99% /	4 - 80	°, J, W, Sd Pa, Ir, R	-	Rate of Penetration = 3.75 m	npf Slightly wea	thered, very strong
	NX				99%/	′				rock, dense,	few vugs and cavities rock slightly more
		12:02PM			/					porous belo	
_				48.25'			J, N, No, No, Ir, SR , J, N, Fe Su Pa, Ir,		b 9# White was of laws and continues with the continues of the continues o		_
		40.005**		70.23	/ ・	ØZ VR	, J, N, TR Pa, Sd	*	* 3" thick zone of increased weathering with iron-staining surrounding solution channel		<u>-</u>
		12:06PM				Pa, C	a Li, Ir, VR curs along a terra rossa-lined nannel, 0.5'9)				
401 00					85%						
10'-0" -		<u> </u>			<u>v</u>	∐8 - 0°,	J, N, Fe Su, Ir, R				
NOTES	• ////	= Zone	of Increa	ased Wea	athering						

= Cavity/Void

x = Hole is plugged with mud, can not take a Water Level



PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation ELEV. (+MSL) +19.94' MSL BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd. **INSPECTOR (SIGNED)** EQUIPMENT USED Truck-Mounted Mobile Drilling Rig DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter) CASING: SIZE: 6" PVC DEPTH: 6.0 Ft. WATER: DEPTH: x ELEV.: x TIME: 8:35AM DATE: 12-13-06 _ DEPTH: ___X ___ ELEV.: ___X TIME: <u>8:50AM</u> DATE: <u>12-22-06</u> ___ DATE: _ CHECKED BY: _ **NOT ENCOUNTERED** □ and RUN RECOVER BLOWS/0.5 Ft. ON SAMPLER DISCONTINUITY DRILLING TIME FRACTURE FREQUENCY DESCRIPTOR RECOVERY (IN.) 8 SAMPLE NO. IYPE/CORE **REMARKS DESCRIPTION** RQD % 10'-0" 2 12:10PM NX Cont'd 9 - M 12:14PM 11'-2" 10 - 0°, J, W, Fe Su, Ir, R 1:06PM Rate of Penetration = 3.6 mpf (3) 94% Slightly weathered, very strong, NX dense rock. 2:01PM 11 - M 12 - M Moderately weathered, medium strong rock, medium dense, 2:05PM mechanical breaks occuring within zones of increased weathereing. 56.5" 2:09PM 13 - M 15'-0" Slightly weathered, very strong, 2:21PM dense rock. | 15 - M |15 - M |16 - 0°, J, W, Fe Su, Ir, R |17 - 0°, J, W, No, No, Ir, R Highly weathered, weak rock. 90% 2:24PM 16'-2" Rate of Penetration = 1.2 mpf 2:55PM **(4)** 100% NX 2:57PM Highly weathered, weak to medium strong rock, white, porous 60" 2:58PM 18 to 24 - M and vuggy, coarse grained. 2:59PM 68% 20'-0"

NOTES = Zone of Increased Weathering = Cavity/Void

x = Hole is plugged with mud, can not take a Water Level



BORING NO. ______85
SHEET ____3 ___OF ___3
DATE: START ___12-12-06
END ___12-12-06

INSPE EQUIF DRILL CASIN	CTOR PMENT ING M IG: SIZ	(SIGNEI USED <u>T</u> ETHODS ZE: <u>6" PV</u>	D) ruck-l Air-D /C DI	Mounte Priven EPTH:	ed Mobi Rotary (6.0 Ft.	DI le Drillin Core Dril WATER	RILLERS NAM g Rig I (NX diamete :: DEPTH:	TE/COMPANY Watler & History TE/COMPANY Watler & History TO THE TENT OF THE T	DATE: 8:50AM DATE: 12-22-06
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	NX Cont'd	3:00PM 3:01PM			*	25 - M 26 - M 27 - M		* Completely weethered rook.	_
23'-0"	⑤ NX	3:21PM 3:22PM 3:23PM 3:23PM 3:23PM		37.5"	78%	- 28 to	49 - M	Rate of Penetration = 1.0 mpf	Highly weathered, weak rock, poorly cemented, coarse-grained, low density. Entire core is mechanicall broken by drilling process.
25-2"		= Zone							

x = Hole is plugged with mud, can not take a Water Level

CE3S
CAYMAN ENGINEERING A BURNEYING

BORING NO. B6
SHEET 1 OF 4
DATE: START 12-13-06
END 12-14-06
ELEV (+MSI) +14 98' MSI

PROJI BLOC	ECT N k 281	28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158								
INSPE	CTOR	(SIGNED)				DRILLERS NAME/O		op Plumbing Services Ltd.	
EQUIP	MENT	USED \underline{T}	ruck-N	/lounte	ed Mobil	e Drilli	ing Rig			
							rill (NX diameter)		0.004.00	
									ME: 8:52AM DATE: 12-22-06	
CHEC	KED E	3Y:		_ DAT	E:			t_ ELEV.: <u>+0.53' MSL_</u> TI OT ENCOUNTERED □	ME: <u>9:33AM</u> DATE: <u>01-08-07</u>	
							NC	71 LINCOUNTERED	T	
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY	REMARKS	DESCRIPTION	
0'-0" _									"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface.	
									-	
									Native Pedro Castle Formation	
									approximately 1'-6" below surface of roadway.	
-									_	
3'-0"									-	
_	① NX	9:50AM			92%			Rate of Penetration = 3.8 mpf	_	
\neg	INA	9:55AM							_	
						1 - 0°	J, W, No, No, Ir, VR			
_						(Intersects s	mall solution cavity, 0.25"Ø, 1.25" long)		Slightly weathered, extremely	
5'-0"		9:58AM							strong, discolored (dolomitized) rock, very fine-grained mudstone,	
_				55"					very dense, having a low primary porosity, some small vugs and cavities throughout. Rock is	
		10:02AM				2 00	J, N, No, No, Ir, VR		damp, no staining or fill to entire	
4						[-0,	o, 14, 140, 140, II, VIX		core.	
		10:05AM							_	
		. 0.007 (17)			/					
$- $					0001	3 - 0°, 4 - M	J, T, No, No, Ir, VR (joint 3 intersects an unlined solution cavity, 0.5°2)		_	
8'- <u>0"</u>		10:09AM			86%	+		Rate of Penetration = 4.4 mpf	-	
	② NX	10:39AM						rate of Fericuation = 4.4 mpt	Slightly weathered, extremely strong, some discoloration (partially	
-		10:42AM				JE 45	P I N Eo Su Coli		dolomitized) rock, very fine-grained mudstone, very dense, having a low	
						(joing interse	P, J, N, Fe Su, Ca Li acts vertical calcite lined solution conduit, 2.5" in		primary porosity and moderate secondary porosity. Fewer vugs,	
401 0"		40-4045							more solution conduits and small cavities	
10'-0"		10:48AM				6 - 0°,	J, VN, No, No, Ir, SR			

NOTES = Zone of Increased Weathering = Core Not Recovered



PROJ	ECT N	AME Sav	ME Savannah Gully Flood and Storm Surge Mitigation PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 END 12-14-06 ELEV. (+MSL) +14.98' MSL										
INSPE	CTOR	(SIGNED))				ORILLERS NAME/	70, 00, 02, 107, 100	slop Plumbing Services Ltd.				
EQUIF	MENT	T USED T	ruck-N	Mounte	ed Mobi	le Drilli	ng Rig						
							ill (NX diameter)						
	CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 14.35Ft. ELEV.: +0.63' MSL TIME: 8:52AM DATE: 12-22-06 CHECKED BY: DATE: DEPTH: 14.45Ft. ELEV.: +0.53' MSL TIME: 9:33AM DATE: 01-08-07												
CHEC	NOT ENCOUNTERED												
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY	FRACTURE FREQUENCY	DISCONTINUITY	REMARKS	DESCRIPTION				
	SAMPLE TYPE/CO	DRILLIN	BLOWS ON SA	RECO	RQD %	FRAC FREQI	DISCON	KEWAKKO	DESCRIPTION				
10'-0" _	2	10:48AM			100%/				_				
_	NX Cont'd	10:53AM			/								
_		TO.OOAW				7 - 30°	, J, N, No, No, Ir, SR						
_		40.50414		60"	/	8 - 0°,	J, N, No, No, Ir, SR		_				
		10:59AM			/								
_					/,,,,,,				_				
13 <u>'-0"</u>	<u></u>	11:01AM 11:37AM			/ 100%	9 - м		Rate of Penetration = 4.0 mpf					
_	③ NX	11.077 (11)			99%			Trace of Forestation 1.5 mpr	_				
		11:43AM				10.00	I N No No Ir CD						
_						10-0	, J, N, No, No, Ir, SR		_				
15 <u>'-0"</u> –		11:48AM				11 - M			Slightly weathered, extremely ———				
_				59.25"					strong, very dense rock with localized zones of increased				
				00.20	1 1	12 - M			weathering, as shown, to moderately to highly weathered,				
						/ 13 - M			medium strong rock.				
_						14 - M			_				
						15 - M							
_					86%				_				
18 <u>'-0"</u>		11:57AM 12:35PM			0070	16 - M		Rate of Penetration = 3.8 mpf	-				
_	④ NX	12.001 101				(occurs along	, J, VN, No, No, Ir, SR	Trace of Ferromation – 3.6 Hipi	Slightly weathered, very strong rock, moderate primary and —				
		12:40PM				18 - 0°	, J, MW, Fe Sp, Ir, R		secondary porosity, many small iron-stained, calcite lined solution				
						19 - 0°	, J, N, No, No, Ir, SR 12"0 iron-stained, terra rossa-partially filed, tosell cavity)		cavities, white limestone with localized zones of increased				
20'-0" -		12:44PM				ccalcite-lined	, fossil cavity)		weathering. —				

NOTES = Zone of Increased Weathering



BORING NO. B6 SHEET ____3 OF __4 DATE: START 12-13-06 END 12-14-06 ELEV. (+MSL) +14.98' MSL

PROJ	ECT N	T NAME Savannah Gully Flood and Storm Surge Mitigation END 12-14-06 ELEV. (+MSL) +14.98' MSL										
INSPE	CTOR	(SIGNED))				DRILLERS NAME/O	70, 30, 32, 137, 130 -	slop Plumbing Services Ltd.			
EQUIF	MENT	USED T	ruck-N	Mount	ed Mobi	le Di	Iling Rig					
							Drill (NX diameter)					
									FIME: 8:52AM DATE: 12-22-06			
CHEC	KED E	3Y:		_ DAT	E:			T_ ELEV: <u>+0.53° MSL_</u> 1 OT ENCOUNTERED □	ΓΙΜΕ: <u>9:33ΑΜ</u> DATE: <u>01-08-07</u>			
		<u> </u>			<u> </u>		1	I I I I I I I I I I I I I I I I I I I	1			
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	IME	FF	≿	RECOVERY	₩ 6	DISCONTINUITY					
DEF (F	SAMPLE NO. TYPE/CORE I	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)		FRACTURE	ISCONTINUIT	REMARKS	DESCRIPTION			
	IPLE E/C(OWS I SA	[일 등	/ o`	RAC	CON	I VIETE II VI V	DEGGINI HON			
	SAN	DRI	BL O	2	RQD	۳i	8 a					
20'-0" _	4	12:44PM			/	Un-fil rock.	cavity, observed by drop in drill rod while coring					
	NX				96% /	(occu	0°, J, W, Fe Pa, Ir, R		-			
	Cont'd	12:46PM			/	* 21	0°, J, N, No, No, Ir, R	* Vertical fracture between joint 21 and 23.	_			
_				57.75"	/	1 22	0°, J, W, Fe Pa, Ir, SR		_			
		12:50PM		57.75	/							
							0°, J, MW, Fe Su, Ir, R along large fossil solution cavity (2.5°Ø), partially h secondary crystalized mherals)					
		40.54DM			93%				-			
23 <u>'-0"</u>	5	12:54PM 1:49PM			,	24	M	Rate of Penetration = 6.4 mpf				
_	NX				99% /	25	0°, J, W, Fe Su, Ir, R along large fossil solution cavity (0.75"Ø))		-			
		1:55PM				26	0°, J, No, No, Ir, R damaged at joint as it was drilled a second time, o determine joint width)		_			
_						Unab	o occurrence joint watery		_			
25'-0" -		2:01PM						Core is not recovered after being	ng Fresh, extremely strong, white			
-				59.5"				intially drilled and so must be re-drilled a second time. As a	limestone rock, very dense, very low primary and secondary			
_		2:08PM		39.5				result, the core is damaged and the condition of joints are diffic	ult cavities, no fill or staining observed			
		2.00FW				27	0°, J, No, No, Ir, R	to assess.	throughout core			
_							damaged at joint as it was drilled a second time, o determine joint width) 30°, J, N, Fe Su, Chalk Pa,		-			
		2:14PM				lr,			_			
_						(core unab	0°, J, No, No, Ir, R damaged at joint as it was drilled a second time, o determine joint width)		_			
28 <u>'</u> -0"		2:21PM			97%	(occu	0°, J, N, No, No, Ir, R along 0.25°Ø, calcite-Ined solution cavity)					
	6	8:30AM				31	M 30°, J, N, No, No, Ir, R along 0.75°9, calcite-ined solution cavity)	Rate of Penetration = 6.4 mpf	Very slightly weathered, extremely strong, white limestone rock, very			
_	NX	0.20 4 8 4				(0000	g o so, service free distribut daying)		dense, low primary and secondary porosity, few vugs and solution			
		8:38AM							cavities (<2"Ø) lined with calcite.			
_						┧34	0°, J, W, Fe Sp, Ir, VR 0°, J, W, Fe Sp, Ir, VR		-			
30'-0" -		8:46AM				(Joint with I	i3 & 34 occurs along solution cavity, iron-stained ck minerals, secondary crystalized minearals)					

NOTES = Zone of Increased Weathering

CESS
CANAMAN ENGINEERING A STEMBANIO

BORING NO. B6
SHEET 4 OF 4
DATE: START 12-13-06
END 12-14-06
ELEV. (+MSL) +14.98' MSL

PROJ	ECT NAME Savannah Gully Flood and Storm Surge Mitigation K. 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 ELEV. (+MSL) +14.98' MSL										
INSPE	CTOR	(SIGNED))				DRILLERS NAME/		lop Plumbing Services Ltd.		
EQUIF	EQUIPMENT USED Truck-Mounted Mobile Drilling Rig DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter)										
								T			
	CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 14.35Ft. ELEV.: +0.63' MSL TIME: 8:52AM DATE: 12-22-06 CHECKED BY: DATE: DEPTH: 14.45Ft. ELEV.: +0.53' MSL TIME: 9:33AM DATE: 01-08-07										
NOT ENCOUNTERED NOT ENCOUNTERED											
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION		
30'-0" _	6	8:46AM			/ 98% /	$ \uparrow $			_		
_	NX Cont'd				00%				_		
	Conta	8:51AM									
_				59"	/						
		8:58AM			/				Very slightly weathered, extremely strong, white limestone rock, very		
_					/				dense, low primary and secondary porosity, few vugs and solution		
33'-0" -		9:02AM			95%	35 - 36 - 1	D°, J, N, No, No, Ir, R M		cavities (<2"Ø) lined with calcite.		
_	7	9:50AM			106%/	37 - (occurs ak	60°, J, N, No, No, Ir, R ng fossi solution cavity, calcite ined, smooth	Rate of Penetration = 3.6 mpf			
_	NX	9:59AM			100 /9	fossil patte	m)		_		
		9:59AW		25.5"		38 -	20°, J, N, No, No, Ir, R				
					95%				_		
35'-0"		10:08AM			95%	40 -	M (occurs along fossi solution cavity, calcite lined, smooth fossil pattern)				
									_		
_									-		
_											
_											
38 <u>'-0"</u>											
									_		
_									_		
40'-0" -									_		

= Core Not Recovered

NOTES = Zone of Increased Weathering

CE3S
CANALAN ENGINEERING & STEWANNIO

BORING NO. _____B7
SHEET ___1 ___OF __4 DATE: START 12-14-06 END 12-15-06

PROJI BLOC	ECT N K 28I	AME Sav	annah EL 2	1 Gully 248, 24	/ Flood 9, 250, :	an 27	d Sto 0, 26	orm Surge Mitigati 3, 120, 119, 111, 10	on 08, 53, 52, 157, 158	ELEV. (+MSL) +13.97' MSL
INSPE	CTOR	(SIGNED))				Г	ORILLERS NAME/		slop Plumbing Services Ltd.
EQUIF	MENT	USED T	ruck-N	Mounte riven l	ed Mobi	le Co	Drilli re Dr	ng Rig ill (NX diameter)		
									t. ELEV.: +0.76' MSL	TIME: 8:54AM DATE: 12-22-06
										TIME: 9:26AM DATE: 01-08-07
								NO	OT ENCOUNTERED	
DЕРТН (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FDACTIBE	FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0" _										"Cayman Rock" granular roadway fill material deposited upon
_										outcropping bedrock surface.
_										Native Pedro Castle Formation
_										bedrock encountered at – approximately 1'-6" below surface
										of roadway.
_										_
3'- <u>0"</u>						Ц	1 - M -			
_	① NX	12:15PM			63%			o of Cavity, TR Su, Ir, VR . of Cavity, 1/2" deposit	Rate of Penetration = 5.8 mpf	Highly weathered solution cavities containing terra rossa breccia, and bedded minerals composed of lithified
_	IVX	12:18PM			/		of Blac	ck Minerals (BM) B, MW, TR Fe BM Fi		terra rossa and black mineral deposits, weathered rock consists of medium
							5 - Top	of Cavity		strong, medium porosity, low density limestone.
		40.40014				П	$7 - 25^{\circ}$	of Cavity , B, W, TR Su, Ir, VR		Weakly cemented mudstone clasts, mod. weathered, med. strong.
5'-0"		12:19PM					8 - 25° 9 - 25° 10 - 25	, B, MW, TR Su, Ir, SR , B, W, TR Sd Su, Ir, SR ,°, B, MW, Sd Si Pa, Ir, S	R	Bedded layers of calcite, flint rock, and white limestone mudstone, densely
_				37.75"		H	11 - 25	s, B, MW, Sd Si Pa, Ir, R		fractured, fractures occuring along bedding planes, extremely strong,
		12:22PM			/			s°, B, W, TR Pa, Ir, SR		dense, high porosity. Mod. weathered, extremely strong, ———
_							13 - 25 14 - 25	i°, B, MW, TR Pa, Ir, SR o°, B, N, Fe TR BM Su, F op of Cavity, TR Li, R	P, R (occurs along fossil solution cavities)	white fossiliferous limestone, vuggy with terra rossa lined cavities.
_		12:36PM				+	15 - 10	op of Cavity, TR LI, R		
					/	++				
		40 4454			17%	++				-
8'- <u>0"</u>	2	12:44PM 1:12PM			11/0	+			Rate of Penetration = 3.8 mpf	f
_	NX								5.5 mpr	Slightly weathered, very strong, white limestone, dense, low primary and —
		1:18PM				И	16 - 55 (occurs alon	o°, J, N, Fe Tr BM Pa, Ir,	VR	secondary porosity, some vugs and small solution cavities.
_						H		, J, N, Fe BM Su, Ir, VR		
10'-0"		1:22PM					18 - M 19 - M			_

NOTES = Zone of Increased Weathering

= Core Not Recovered

CE8S
CANADA ENGINEERING & SUBJEMBLE

DATE: START 12-14-06 END <u>12-15-06</u>

PROJI	ECT N	AME Sav	/annar >⊏ı 2	1 Gully	9 250 3	200 S	63, 120, 119, 111, 10	on 18 53 52 157 158	LEV. (+MSL) <u>+13.97' MSL</u>
								70, 33, 32, 137, 130	pp Plumbing Services Ltd.
EQUIP	MENT	I USED I	ruck-N	Mounte	ed Mobi	e Dri	Iling Rig		
DRILL	ING M	IETHODS	Air-D	riven	Rotary (ore	Drill (NX diameter)	-	
									ME: 8:54AM DATE: 12-22-06
CHEC	KED E	3Y:		_ DAT	E:			<u>'t.</u> ELEV.: <u>+0.66' MSL</u> TI DT ENCOUNTERED □	ME: <u>9:26AM</u> DATE: <u>01-08-07</u>
					15. 7		NC	JI ENCOUNTERED	
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY	REMARKS	DESCRIPTION
10'-0"	2	1:22PM			101%/	20 -	М		_
	NX Cont'd	1:25PM			/	21 -	M 20°, J, N, Fe TR BM Pa, Ir,		Moderately weathered, medium strong rock, white limestone, medium dense,
		1.231 101			/	IVK	25°, J, N, TR Pa, Ir, VR		high primary porosity and moderate secondary porosity, containing vugs
_				60.5"	/				lined with terra rossa and iron staining, and terra rossa-lined joints.
		1:27PM			/	24 -	М		
					/	25 -	J, MW, Fe Su, Ir, VR		Fresh, strong, white limestone rock, coarse
13 <u>'-0"</u>		1:31PM			84%				grained, low primary porosity, very low secondary porosity, having no cavities or joints.
	3	2:14PM			98%	26 - 27 -	0°, J, W, No, No, Ir, R	Rate of Penetration = 1.4 mpf	_
	NX	2:16PM				_			_
		Z. 10F IVI			/	1			
-									Moderately to highly weathered, weak to medium strong rock, white limestone,
15 <u>'-0"</u>		2:18PM							medium-low density, high primary porosity and moderate secondary
				59"		4			porosity, vuggy, with zones of increased weathering where numerous mechanical
		2:19PM					28 to 37 - M		breaks have occured within weakly – cemented rock.
		2:20PM							
		2.20PIVI				_			
					74%	+			
18 <u>'-0"</u>		2:21PM			1470	1			_
	④ NX	2:45PM					10°, J, N, No, No, Ir, R	Rate of Penetration = 3.8 mpf	_
	INA	2:47PM				39 - 40 -	5°, J, N, No, No, Ir, R M		_
						41 - 42 -	M M		
						43 -	M		_
20'-0"		2:49PM		l		7-0-	IVI		1

NOTES = Zone of Increased Weathering

= Core Not Recovered

CE3S
CAN AND ENGINEERING A SUBJECTION

BORING NO. _____B7
SHEET ___3 ___ OF __4 DATE: START 12-14-06 END <u>12-15-06</u>

								Surge Mitigation	08, 53, 52, 157, 158	ELEV. (+MSL) +13.97'	MSL
									COMPANY Watler & Hisl	op Plumbing Services	Ltd.
EQUIP	MENT	$TUSED ar{T}$	ruck-N	Mounte	ed Mobi	le	rilling F	Rig		<u>-</u>	
DRILL	ING M	ETHODS	Air-D	riven	Rotary (Co	e Drill (l	NX diameter)			
									t_ ELEV.: <u>+0.76' MSL</u> T		
CHEC	KED E	3Y:		_ DAT	E:				t_ ELEV.: +0.66' MSL_T	ME: <u>9:26AM</u> DATE: <u>0</u>	<u> 1-08-07</u>
								NC	OT ENCOUNTERED		
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTI	ION
20'-0" _	4	2:49PM			86%	П	4 4E9 I	VALAIS No Is D			_
_	NX Cont'd	2:53PM			0070	1	4 - 15 , J,	VN, No, No, Ir, R			_
		2.001 W			/	Ш.	5 - 0° .L \/	/N No No Ir R			
				51.5"	/		6 - 40°, J, , VR (occurs ak	/N, No, No, Ir, R MW, Fe Su, TR Pa, ong 0.75"Ø fossil solution cavity)			_
		2:58PM			/			VN, No, No, Ir, R solution cavity, 1°Ø)			
_					/	+	8 - M				_
23 <u>'-0"</u> –		3:04PM			71%	+				Slightly weathered, very st white limestone, dense, very	
_	•	8:36AM			90%	H	9 - M		Rate of Penetration = 4.8 mpf	porosity and low secondar having few vugs and large	
_	NX	8:43AM			"	H	0 - 10°, J, tersects small (<0.5°	N, No, No, Ir, SR		solution cavities.	_
		0.43AW			/	IJ,	1 - 10° .I	MW Fe Su FP			
						11		MW, Fe Su, FP			_
25'-0"		8:46AM				11		V, No, No, Ir, R			
_				54"		Ħ	3 - 0°, J, V	V, No, No, Ir, R			_
_		8:50AM				H	4 - 15°, J,	N, No, No, Ir, SR			-
_											
							F 00 1:	W.E.O. : 5			_
		8:54AM				$\prod_{i=1}^{n}$	5 - 0°, J, V	/N, Fe Sp, Ir, R			
					//	Ц.	6 - M				_
28 <u>'-0"</u>	_	9:00AM			77%	+					
	⑥ NX	9:34AM					7-M 8 0° I N	I, Fe Sp, Ir, SR	Rate of Penetration = 5.2 mpf	Slightly weathered, very st	
	INA	9:40AM				$\prod_{i=1}^{n}$	υ-υ, J, N	1, 1 t op, 11, or		white limestone, dense, ve porosity and low secondar	y porosity,
		0.10/11/1				H	9 - 5°, J, N	I, Fe Sp, Ir, SR		containing many small vug	gs. ——
_						IJ,	0 - 15°, J,	N, Fe Sp, Ir, R			_
30'-0" -		9:45AM		1		П					_

NOTES = Zone of Increased Weathering

= Core Not Recovered

CESS
CAYMAN ENGINEERING A BUILDING

BORING NO. _____B7
SHEET ____4 ___ OF ___4 DATE: START 12-14-06 END <u>12-15-06</u>

								orm Surge พเนgaน 3. 120. 119. 111. 1	08, 53, 52, 157, 158	ELEV. (+MSL) +13.97' MSL
									00, 00, 02, 107, 100	lop Plumbing Services Ltd.
EQUIP	MENT	TUSED ${\color{red} {\sf T}}$	ruck-N	Mounte	ed Mobi	le	Drilli	ing Rig		
DRILL	ING M	ETHODS	Air-D	riven	Rotary (Co	re Dr	rill (NX diameter)		
										TIME: 8:54AM DATE: 12-22-06
CHEC	KED E	3Y:		_ DAT	E:					TIME: <u>9:26AM</u> DATE: <u>01-08-07</u>
								N	OT ENCOUNTERED	
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0" _	6	9:45AM			100%	Ħ	61 - 0°	°, J, N, Fe Su, Ir, R		
_	NX Cont'd	9:50AM			/	H	62 - 5°	°, J, MW, Fe Su, Ir, R		Moderately weathered, very strong rock,
		9.50AW			/	Ц,	63 - 5°	°, J, MW, Fe Su, Ir, R		white limestone, dense, moderate
				60"	/	1 1		°, J, N, No, No, Ir, R		staining throughout.
		9:54AM			/	Н	65 - 5°	°, J, MW, TR Pa, Ir, VR		
_					/	Į,	66 - 20	0°, J, N, Fe Su, Ir, VR		<u>_</u>
33'-0" -		10:00AM			88%	Ц,	67 - 0°	°, J, MW, Fe Su, Ir, VR		
	7	10:45AM			99%	H	68 - M 69 - 0°	1 °, J, W, Fe Sp, Ir, R	Rate of Penetration = 5.4 mpf	
_	NX				99 /6	<u>.</u>	70 - 0°	°, J, N, No, No, Ir, SR		_
		10:50AM					71 - 0°	°, J, N, Fe Sp, Ir, R		
						4		0°, J, N, Fe Su, Ca Li, Ir,		_
35'-0" -		10:55AM					VIX			
_				59.5"						Slightly weathered, very strong rock, white limestone, dense, low primary
		11:00AM		33.5						porosity, moderate secondary porosity (some vugs, solution cavities and
		I I JUUAIVI				H	73 - 5° (occurs along	°, J, T, No, No, Ir, R		conduits), with zones of increased weathering, as shown.
							7/ 20	0°, J, W, Fe Su, Ir, R		_
		11:06AM					. → - ∠C (occurs along	O , J, VV, FE SU, II, R		_
					/					
38'-0"		11:12AM			90%	Ш	BM Su	°, J, N, Fe Su, TR Pa, u, Ir, VR		
_	8	11:59AM			86%/	Ħ.	76 - 0° 77 - 0°	°, J, Fe Su, Ir, SR °, J, W, TR Pa, Ir, R	Rate of Penetration = 5.5 mpf	
	NX					H	78 - 10	0°, J, N, Fe Su, Ir, R		Moderately weathered, very strong rock,
		12:03PM		20.75"	/					dense, moderate primary and secondary porosity containing numerous
					/		79 - 20 Ir, R	0°, J, N, No, No, Ca Li,		iron-stained vugs and solution cavities. —
40'-0" -		12:10PM			79%			5°, J, W, Fe Su, Ir, VR		

NOTES = Zone of Increased Weathering

= Core Not Recovered



B8 BORING NO. _ SHEET ____1 OF. DATE: START 12-15-06 END 12-20-06

PROJ	FCT N	AMF Sav	vannal	h Gully	Flood	and S	Storm Surge Mitigation	on	END 12-20-06
BLOC	K 28	D PARC	EL 2	248, 24	9, 250,	270, 2	263, 120, 119, 111, 10	8, 53, 52, 157, 158	ELEV. (+MSL) +15.29' MSL
INSPE	CTOR	R (SIGNEI	D)				DRILLERS NAME/O		lop Plumbing Services Ltd.
EQUIF	MEN'	TUSED T	ruck-l	Mounte	ed Mobi	le Dri	illing Rig		
DRILL	.ING N	IETHODS	Air-D	riven l	Rotary (Core I	Drill (NX diameter)		
CASIN	NG: SI	ZE: <u>6" P\</u>	/C DE	EPTH:	3.0 Ft.	WAT	ΓER: DEPTH: <u>14.46</u> F	t. ELEV.: +0.83' MSL	TIME: <u>8:57AM</u> DATE: <u>12-22-06</u>
CHEC	KED E	3Y:		_ DAT	E:		DEPTH: 14.38F	t. ELEV.: +0.91' MSL	ГІМЕ: <u>1:48РМ</u> DATE: <u>01-10-07</u>
							NC	T ENCOUNTERED \Box	
					_ /	1			
E_	and S	₩	<u>ب</u> ب			 ≻	. Eg		
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY	FRACTURE	DISCONTINUITY		
	SAMPLE NO. TYPE/CORE	Z	A SK	S S	R W	달	F E	REMARKS	DESCRIPTION
	1単2		9 8	ш Ш	RQD %	퉑	ESC		
	Z ₹	8	ᄪᅙ		/ &	_ <u>.</u>			
0'-0"					<u> </u>	+			
U-U _									"Cayman Rock" granular roadway fill material deposited upon outcropping
									bedrock surface.
									_
_									Native Pedro Castle Formation
									approximately 1'-6" below surface
									of roadway.
3'-0"						 - -			
_	1	8:46AM			0004		20°, J, W, Fe Su, Ir, VR		Entire core sample is highly weathered rock, composed of
	NX				69%	1 1	10°, J, N, Fe TR Su, Ir, R		extremely strong, white limestone — bearing many large solution —
		8:57AM					of 2, No. amail solution cavities) 35°, J, MW, Fe TR Su, Ir, R		cavities.
_						P35558	Top of 4 Cavity Bottom of 4" Cavity		Terra rossa-filled solution cavity.
E' 0"		9:01AM							Highly weathered, densely fractured zone bearing many small solution cavities.
5'-0"		a.u iAivi				B888	Top of 4" Cavity Bottom of 4" Cavity		Terra rossa-filled solution cavity.
_				41.25"	1 /		South of a cavity		Solution cavities are lined or filled
_		9:05AM							with terra rossa. The rock mass has a low primary porosity and a
		3.557 1171				9 - 1	10°, J, N, TR, Pa, Ir, R		high secondary porosity.
						10 -	40°, J, W, TR Pa, Ir, VR		Highly weathered, densely fractured —
		9:10AM					40°, J, W, TR Pa, Ir, VR		zone bearing many small solution cavities
_						12 -	M		
		0.45.55			41%	+			
8'- <u>0"</u>		9:15AM			4170	1 40	45° I W TD 5' I- D		Same white limestone as above, 50% or
_	2 NX	9:18AM			28%	12-	15°, J, W, TR Fi, Ir, R		core area is terra rossa-filled cavity.
_	INA	9:20AM							Lithified terra rossa filled cavity.
		J.ZUAIVI		10"	/	[-			
_						+			
10'-0" -		9:24AM			0%	-			

NOTES = Zone of Increased Weathering = Core Not Recovered



B8 BORING NO. ____ SHEET 2 OF_ DATE: START 12-15-06 END 12-20-06

PROJ	ECT N	IAME <u>Sav</u>	annat	1 Gully	/ Flood a	and Si	torm Surge Mitigatio 63, 120, 119, 111, 10	on 8 53 52 157 158 EL	EV. (+MSL) +15.29' MSL
		S (SIGNED						COMPANY Watler & Hislop	
EQUI	PMENT	T USED T	ruck-N	Mount	ed Mobi	le Dril	ling Rig		
DRILL	.ING N	IETHODS	Air-D	riven l	Rotary (ore D	Prill (NX diameter)		
CASI	NG: SI	ZE: <u>6" PV</u>	C DE	EPTH:	3.0 Ft.	WAT	ER: DEPTH: <u>14.46</u> F	t. ELEV.: +0.83' MSL TIM	E: 8:57AM DATE: 12-22-06
CHEC	KED E	3Y:		_ DAT	E:		DEPTH: <u>14.38</u> F	t. ELEV.: <u>+0.91' MSL</u> TIM	E: 1:48PM DATE: 01-10-07
							NC	OT ENCOUNTERED	
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	2	9:24AM				:		Core barrel is blocked at	_
	NX					+		approximately 11' with terra rossa mud and breccia cavity fill.	_
11' <u>-0"</u>		9:3/AIVI			000/			•	Moderately weathered, extremely
11'-6"		10:00AM 10:13AM		3.75"	0%	13 - 0 14 - 0)°, J, W, TR Pa, Ir, VR)°, J, W, Fe Su, TR Pa, Ir, F	२	strong, white limestone rock, very
_	4	10:37AM 10:53AM			56%				dense, low in primary and secondary porosity. The bottom 2.5" of sample
	NX	IU:53AW		10"		15 - 0)°, J, N, Fe Su, Ir, R		is more weathered, medium strong, vuggy, iron-stained rock.
_				10		16 - 4	15°, J, W, Fe Su, Ir, VR		Terra rossa and limestone
13'-0"		10:56AM			40%				breccia-filled cavity.
_	⑤	11:27AM			/	47.0	40. 00. 1.181/ 5. 0		Highly weathered, fragmented
_	NX				56%		18 - 0°, J, MW, Fe Su, a, Sd Pa, Ir, R		limestone in sand matrix. Weakly cemented, highly weathered,
		11:28AM					5°, J, MW, Sd Fi, Ir, R 25°, J, MW, Sd Fi, Ir, R		weak rock, sand matrix.
_	_				/				Cavity observed while drilling, no fill Weakly cemented, highly weathered,
						21 - 1 BM S	10°, J, N, Fe Su, Sd Pa,		weak rock, sand matrix.
15'-0"	-	11:29AM				22 - (Su, Ir, R _{(occurs} across 0.579 solution cavity) 5°, J, N, Fe Su, BM Sp,		Moderately weathered, very strong,
_				33.5"	/	23 - Sp. li	R 10°, J, VN, Fe Su, BM r. R		dense, white fossiliferous limestone, — moderate primary and secondary
_		11:30AM			/	<u> </u>	Ö°, J, VN, Fe Su, Ir, VR		porosity, iron staining throughout.
	_	11.30AW				25 - 0 26 &	ື່ງ ^ເ ງິງ, ີ່ໄດ້, ເຕັອີ່ ເຮັບ , Ir, VR 27 - 0°, J, N, Fe Su, Ir, VR		
_						+			_
-		11:32AM				•			-
_					/	•			
					23%	+			_
18'-0"		11:37AM				+			_
_	6	2:18PM				28 - 0	0°, J, W, Fe Su, Ir, R		Moderately weathered, very strong,
	NX	2:22PM					0°, J, N, Fe Su, Ir, R		dense, white fossiliferous limestone, moderate primary and secondary porosity, iron staining throughout.

20'-0"

NOTES = Zone of Increased Weathering = Core Not Recovered

30 - 0°, J, MW, Fe Su, Ir, R



2:27PM



B8 BORING NO. _ SHEET ____3 OF. DATE: START 12-15-06 END 12-20-06

PROJ	ECT N	IAME Sav	/annal	Gully	/ Flood	and St	orm Surge M	itigatio	n	END 12-20-06				
BLOC	PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watter & Histor Plumbing Services Ltd.													
INSPE	CTOF	R (SIGNE))				DRILLERS N	AME/C	OMPANY Watler & His	slop Plumbing Services Ltd.				
EQUIF	MEN.	T USED T	ruck-N	/lount	ed Mobi	le Drill	ing Rig	-4\						
							rill (NX diame		ELEV. 10 83' MCI	TIME: 8:57AM DATE: 12-22-06				
CHEC	KED	3Y:		_ DAT	E:		DEPTH: 1		. ELEV.: +U.91 MSL. TENCOUNTERED 🗆	TIME: <u>1:48PM</u> DATE: <u>01-10-07</u>				
					1	,			- LNOOGNILKED -					
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR		REMARKS	DESCRIPTION				
20'-0"	6	2:27PM									_			
_	NX				92% /	31 - 0	°, J, MW, Fe Su, I	r, FP		Slightly weathered, extremely	_			
	Cont'd	2:32PM			/		, . ,			strong, very dense, white				
_										fossiliferous limestone, vuggy, moderate primary and secondary	-			
_		0.27DM		55"	/					porosity, some larger fossil solution cavities throughout (<2"Ø), less iron				
		2:37PM				32 - 0	°, J, N, No, No, Ir,	R		staining than above.	-			
_					/	33 - 2 34 - N	0°, J, N, No, No, I 1	r, R			=			
23'-0" -		2:42PM			68%	- 34 - 10	1				-			
_	7	9:06AM			4000/	35 - 0	°, B, Sd Fi, Pl, S			Completely weathered limestone in sand matrix.				
_	NX				100%	36 - 0	°, J, W, TR Pa, Ir,	R		Carlo maass	_			
		9:10AM				37 - 0	°, J, W, TR Pa, Ir,	VR		_				
_											-			
25'-0"		9:14AM									_			
25 -0		9. 14AW								Slightly weathered, extremely strong, white limestone. Very dense,	_			
_				63"						very low primary porosity, low to morerate secondary porosity, some				
_		9:19AM								iron-stained and calcite-lined vugs and small cavities, some localized	-			
_										zones of increased weathering along which joints occur.	_			
_						00 0	4 I N TD D- I-	OD		which joins occur.				
		9:23AM					°, J, N, TR Pa, Ir, oss calcits-lined, 0.576, vertical sol			_	_			
_											_			
28'-3"		9:35AM			92%	39 - M	1			_				
_	8	10:21AM			103%		0°, J, MW, Fe Su,	Oil		Same rock type as above, although greasy black oil is observed on the	-			
	NX	10:30AM		15.5"		Su, Si	i Pa, Ir, SR			outer surface of the core and within				
29'-5" [—]		10:31AM			62%		0°, J, MW, Fe Su,	Sd Si		joints, no calcite is observed, however iron-staining is still present.	-			
30'-0"	9 NX	8:40AM				Pa, Ir, 43 - N 44 - 0	.R // °, J, W, Fe Su, Ir,	SR						

30'-0" NX

NOTES = Zone of Increased Weathering = Core Not Recovered



B8 BORING NO. _ SHEET 4 OF.

shown.

Terra rossa-filled cavity.

Slightly weathered, very strong, white fossiliferous limestone, same as above.

CAYMAN EN	GINEERING &	SURVEYING							DA	TE: START 12-15-06
PROJ	ECT N	AME Sav	annal	ո Gully	/ Flood	anc	1 Sto	orm Surge Mitigati	on	END 12-20-06
BLOC	K <u>28</u> 1	D PARC	EL 2	248, 24	9, 250, 2	270		<u>3, 120, 119, 111, 10</u>	0, 33, 32, 137, 130	EV. (+MSL) <u>+15.29' MSL</u>
INSPE	CTOR	(SIGNE))		ad Mak!	r	[ORILLERS NAME/O	COMPANY Watler & Hislop	Plumbing Services Ltd.
EQUIF	PMENT	USED T	FUCK-N	viven i	ea Mobi Potany (, Je r	יוווזע חוווזע	ill (NX diameter)		
									t. ELEV. +0.83' MSL TIM	E: 8:57AM DATE: 12-22-06
	KED E		<u> </u>	_ DAT		**	~! _			E: 1:48PM DATE: 01-10-07
OHLO	ILD L	···							OT ENCOUNTERED	<u> </u>
					≿ /					
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	9				<u>/</u>		_			
	NX Cont'd	8:44AM			98%	4	5 - 0°	, J, N, Fe Su, Ir, R , J, MW, No, No, Ir, R	Vertical iron-stained solution cavity, approx. 1.5"Ø	_
		8:49AM		46.5"				, J, MW, Fe Su, Ir, R		Slightly weathered, very strong, white fossiliferous limestone, dense, moderate primary porosity, very low secondary porosity, vuggy.
_		8:52AM								_
					/	∐ ₄	8 - M			
33'-6" [_]		8:55AM			83%		9 - M			_
	① NX	9:52AM			102%	_ 5	60 - 0°	, J, N, No, No, Ir, R		
_		9:56AM								_
35'-0" [_]						5	1 - 0°	, J, MW, No, No, Ir, SR		_
_		10:01AM						, , , , , , , , , , , , , , , , , , , ,		
_				61"		⁄∕ ′′	ocurs withir	, J, MW, No, No, Ir, R		Slightly weathered, very strong, white
36'-8" _		10:06AM		01"				, J, MW, No, No, Ir, R , J, MW, TR Su, Ir, R		fossiliferous limestone, low primary and secondary porosity, solution cavities lined with calcite throughout, some small vugs present (not lined or filled), minor iron-staining observed on outer surface
_		10:11AM								of core, localized zones of increased weathering to moderately weathered, as

55 - 0°, J, N, Fe Sp, Ir, R

56 - 0°, J, N, Fe Sp, TR Su, Ir,

R (course stong calcitie-lined, 0.516, schulton conduit)

57 - M

58 - Top of Cavity, TR Fi, Ir, R

59 - Bot. of Cavity, TR Fi, Ir, R

60 - 0°, J, N, No, No, Ir, R 61 - 0°, J, N, No, No, Ir, VR

62 - 0°, J, W, No, No, Ir, VR (Intersects 270 solution cavity at 60°) 63 - M

96%

88%

61%

21"

NOTES = Zone of Increased Weathering

= Cavity/Void

10:16AM

11:04AM

11:07AM

11:13AM

11

40'-0"

40'-6"



BORING NO. B9
SHEET 1 OF 4

DATE: START 12-20-06
END 12-21-06

ELEV (+MSI) +15.27' MSI

BLOC INSPE EQUIF DRILL CASIN	K <u>28</u> CTOF MEN ING N IG: SI	D PARC R (SIGNED T USED T IETHODS	EL 2 D) Truck-M ; Air-D	248, 24 Mounte Priven I EPTH:	9, 250, 2 ed Mobi Rotary (270, 26 le Drill Core D	ing Rig rill (NX diameter) ER: DEPTH: <u>14.71F</u> DEPTH: <u>14.44</u> F	8, 53, 52, 157, 158 COMPANY Watler & His t. ELEV.: +0.56' MSL	END 12-21-06 ELEV. (+MSL) +15.27' MSL slop Plumbing Services Ltd. TIME: 9:00AM DATE: 12-22-06 TIME: 1:51PM DATE: 01-10-07
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"					V				"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface. Native Pedro Castle Formation bedrock encountered at approximately 1'-6" below surface of roadway.
8'- <u>0"</u>	① NX	1:56PM 2:00PM 2:10PM 2:18PM		46"	68%	3 - 10 4 - 25	J, W, TR FI, Ir, R , J, MW, TR FI, Ir, VR	Rate of Penetration = 7.2 mp	f Core sample is approximately 80% lithified terra rossa cavity fill with completely weathered limestone breccia. Core sample is approximately 50% lithified terra rossa cavity fill with completely weathered limestone breccia. Slightly weathered, extremely strong, very dense, very low primary porosity, low secondary porosity, increasing with depth.

NOTES = Zone of Increased Weathering



BORING NO. B9
SHEET 2 OF _____

ÇAYMAN EN									DATE : START 12-20-06					
PROJ	PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 END 12-21-06 ELEV. (+MSL) +15.27' MSL													
				248, 24	l9, 250, 2	270, 26	<u>3, 120, 119, 111, 10</u>	<u>0, 00, 02, 107, 100</u>	· · · · · · · · · · · · · · · · · · ·					
INSPE	ECTOF	R (SIGNE	D)	\# - 1			DRILLERS NAME/O	COMPANY Watler & His	slop Plumbing Services Ltd.					
EQUII	PMEN	T USED 1	ruck-l	wount	ea Mobi	ne Drill	ing Kig							
							rill (NX diameter)	4 IA FOLMOL -	0.00414 40.00.00					
									TIME: 9:00AM DATE: 12-22-06					
CHEC	KEDI	BY:		_ DAT	E:				TIME: 1:51PM DATE: 01-10-07					
							NC	T ENCOUNTERED						
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION					
10'-0"	(1)	2:27PM												
_	NX								_					
-	Cont'd					6 - IO	o of Cavity, TR Fi, IR, VR	•	Terra rossa-filled cavity.					
_														
11'-8"		2:32PM							_					
	2	2:58PM			83% .		J, W, TR Su, Ir, R	Rate of Penetration = 6.8 mpf	Slightly weathered, extremely strong, white limestone rock,					
-	NX				03%	8 - 25 Ir, VR	P, J, MW, TR Pa, Fe Su, (Intersects vertical solution cavity lined with black secondary minerals)		having a low primary and					
_		3:07PM				9 - 0°,	J, W, Fe Su, BM Sp, Ir, R		secondary porosity, very dense and hard, with some localized					
	-								zones of increased weathering, porosity, containing black					
_		2:44DM						Town room filled colution	secondary minerals throughout.					
_	-	3:14PM	-					Terra rossa filled solution *cavities.	-					
	-			49.5"	/									
_		3:21PM			/									
15'-0" ⁻	1	2			*	7			-					
	1					/								
_	-	3:27PM			•		', J, MW, Sd Si TR Pa, o, Ir, R		Increased weathering,					
	1					11 - 15	5°, J, MW, Sd Si Gv TR VI Sp, Ir, R		black secondary minerals					
-	1				78%	+ · a, bi	и ор, п, к		throughout, weakly cemented with sand and					
16'-8"		3:32PM 8:55AM			1	1+			gravel cavity infill.					
	3 NX	O.JJAIVI			95%		5°, J, N, TR Pa, Fe Su, ı, Ir, R	Rate of Penetration = 5.0 mpf	Slightly weathered, extremely strong, white limestone rock, low					
_	INA	0.01 4 4					, J, N, No, No, Ir, R		primary and secondary porosity,					
-	-	9:01AM				14 5	N IN No No Ir D		some vugs, few solution conduits and cavities, well cemented and					
	1				/	4 - 50	o°, J, N, No, No, Ir, R		dense.					
_	-	9:06AM		57"	/	15 - 0	P, J, N, No, No, Ir, R		_					
-	1		1		/	(small fossi	solution cavity (0.5°9) on outer surface of joint)		-					
_						16 - 10	0°, J, N, No, No, Ir, R							
	+	9:11AM			00%				_					

20'-0"

NOTES = Zone of Increased Weathering + + + + = Core Not Recovered



90% | 17 - 0°, J, N, Ca Li, Ir, R





BORING NO. B9 SHEET ____3 ___ OF __4 DATE: START 12-20-06 END 12-21-06

PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation ELEV. (+MSL) +15.27' MSL BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 DRILLERS NAME/COMPANY Watter & Histop Plumbing Services Ltd. INSPECTOR (SIGNED) _ **EQUIPMENT USED Truck-Mounted Mobile Drilling Rig** DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter)

CASING: SIZE: 6" PVC DEPTH: 6.0 Ft. WATER: DEPTH: 14.71Ft. ELEV.: +0.56' MSL TIME: 9:00AM DATE: 12-22-06 CHECKED BY: _____ DATE: _____ DEPTH: <u>14.44Ft.</u> ELEV.: <u>+0.83' MSL</u> TIME: <u>1:51PM</u> DATE: <u>01-10-07</u>

NOT ENCOUNTERED □

ОЕРТН (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0" _ 	③ NX Cont'd	9:16AM				18 - M			Slightly weathered, extremely strong, white limestone rock, low primary and secondary porosity, some vugs, few solution conduits and cavities, well cemented and dense.
21'-8" _ 	(4) NX	9:20AM 9:59AM 10:05AM			85%	19 - 0° 20 - 0°	, J, N, No, No, Ir, R ', Top of Cavity, TR Su,	Rate of Penetration = 5.8 mpf	Terra Rossa-filled cavity
- - - -		10:09AM		51"	•	Ir, R 22 - 20 SR 23 - 0° Li, Ir, S	, Bot. of Cavity, TR Fi,)°, J, N, Siltstone Fi, Ir, , J, MW, TR BM Pa, Ca R (intersects solution cavity) , J, MW, Fe Su, Ir, R	Vertical term roses filled colution cavity, experior, 0.5°0	Bedded layers of lithified cavity fill Extremely strong, fresh,
25'-0" 		10:17AM 10:23AM				(occurs aton)	, J, N, No, No, Ir, R idde-lined small edulion cavity)		fossiliferous white limestone, very low primary porosity, low secondary porosity, some terra rossa-filled cavities and solution conduits observed throughout.
26'-8"	5	10:28AM 11:03AM			75%	27 - M	, J, N, No, No, Ir, R	Rate of Penetration = 5.4 mpf	
	NX	11:07AM		46"	77%		r, J, W, No, No, Ir, FP toset solution cavity) J, J, N, No, No, Ir, R		Slightly weathered, very strong, fossiliferous white limestone, moderate primary porosity, low secondary porosity, vuggy, some zones of increased weathering
		11:11AM 11:15AM		40	7004	31 - 0° 32 - 0°	, J, N, No, No, Ir, R , J, N, No, No, Ir, R		along which most joints occur, very little staining or cavity fill throughout core sample.
30'-0" [—]					73%	33 - 0°	, J, N, No, No, Ir, R		-

NOTES = Zone of Increased Weathering + + + + = Core Not Recovered





PROJECT NAME Savan	nah Gully Flood a	and Storm Surge I	END 12-21-06									
BLOCK 28D PARCEL		ELEV. (+MSL) +15.27' MSL										
INSPECTOR (SIGNED)_	NSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd.											
EQUIPMENT USED Truck-Mounted Mobile Drilling Rig												
DRILLING METHODS A	ir-Driven Rotary C	ore Drill (NX diam	eter)									
CASING: SIZE: 6" PVC	DEPTH: 6.0 Ft.	WATER: DEPTH:	14.71Ft.	ELEV.: +0.56' MSL	TIME: <u>9:00AM</u>	DATE: <u>12-22-06</u>						
CHECKED BY:	DATE:	DEPTH:	14.44Ft.	ELEV.: +0.83' MSL	TIME: <u>1:51PM</u>	DATE: <u>01-10-07</u>						
			NOT I	ENCOUNTERED]							

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DESCRIPTOR	REMARKS	DESCRIPTION	
30'-0"	⑤ NX Cont'd	11:21AM				34 - N	1		-	- - -
31'-8"	6 NX	11:30AM 12:04PM			84%	Fe Su 36 - 1	°, J, W, TR ı, Ir, SR 0°, J, N, No, No, Ir, R	Rate of Penetration = 8.4 mpf		_
		12:14PM 12:23PM				cavity)	°, J, MW, No, No, Ir, SR		Slightly weathered, very strong to extremely strong, fossiliferous white limestone, very low primary and secondary porosity, some vugs, few small cavities.	
35'-0"		12:30PM		50.25"	*	39 - 0	8 - 5°, J, N, No, No, Ir, SR 9 - 0°, J, N, No, No, Ir, SR 0 - 10°, J, N, No, No, Ir, SR	Vertical iron-stained solution cavity, approx.		
		12:38PM				- 42 - N	y°, J, N, No, No, Ir, SR // a vertical 1.5°9 tron-statinad solution		Slightly increased weathering and porosity, very strong rock, small iron-stained solution cavities throughout.	
36'-8"	7	12:46PM 1:40PM			84%	. +		Rate of Penetration = 8.25 mpf	-	_
_ 	NX	1:47PM		45"	94%		o°, J, N, No, No, Ir, S O°, J, N, Fe Su, Ir, VR		Slightly weathered, extremely strong, dense, white limestone. Mudstone, having very low primary and secondary porosity, slight iron staining to areas of increased	
_ _ _		1:59PM				46 - 0	9°, J, MW, No, No, Ir, SR 1°, J, MW, No, No, Ir, SR		porosity and solution cavities.	
40 <u>'-0"</u>		2:07PM				Ir, SR	°, J, MW, Fe Su (minor), °, J, MW, No, No, Ir, R			
40'-8"		2:13PM			100%	49 - N	1		-	_

NOTES = Zone of Increased Weathering = Core Not Recovered = Cavity/Vold



BORING NO. _____B10 SHEET ___1 ___OF __4 DATE: START 12-22-06 END 12-27-06

PROJECT NAME Sava	END 12-21-00										
BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158											
INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd.											
EQUIPMENT USED Truck-Mounted Mobile Drilling Rig											
DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter)											
CASING: SIZE: 6" PVC	DEPTH: 3.0 Ft.	WATER: DEPTH: 15.33F	t. ELEV.: +0.77' MSL	TIME: 9:46AM DATE: 01-08-07							
CHECKED BY: DATE: DEPTH: 15.16Ft. ELEV.; +0.94' MSL TIME; 1:53PM DATE: 01-1											
NOT ENCOUNTERED											
		/ I									

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"									"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface.
3'-0"									Native Pedro Castle Formation bedrock encountered at approximately 1'-6" below surface of roadway.
- - - - -	① NX	9:22AM 9:29AM			103%	Sp, Rt	, J, MW, Fe Su, Rts., Ir, I , Sh, MW, Fe Su, Rts., Ir, , Sh, MW, Fe Su, BM s., Ir, R J, T, No, No, Ir, R	R Rate of Penetration = 5.6 mpf ; R Terms roses-stailed solution cavity to approx. 60% of core e sectional area.	Moderately weathered, very strong, low primary porosity, moderate to high secondary porosity with localized weathered zones throughout, small iron and terra rossa-stained cavities and vugs throughout.
5'-0"		9:36AM 9:44AM		61.5"		Ir, VR	Cav., W, Fe Su, TR Pa, J, MW, No, No, Ir, R J, MW, Fe Su, Ir, R		Slightly weathered, extremely strong, white limestone rock, very low primary porosity, low secondary porosity, very dense. Moderately weathered, strong
8'- <u>0"</u>		9:47AM 9:50AM			87%	(intersects 2 10 - 0° (intersects so	J, MW, Fe Su, Ir, R No. terra rosse-filled 0.5"9 exhibiton cavity) , J, MW, Fe Su, Ir, VR shiften cavity)		rock, medium dense, low primary porosity, moderate secondary porosity, numerous terra rossa-filled and stained small vugs and cavities.
	2 NX	10:08AM 10:09AM					2 to 16 - J, MW, Fe Su, ; R mall fron-stained solution certiles found roughout) by weathered, densely insoluted zone of week to fronce, poorly comented rook.	Rate of Penetration = 2.0 mpf	Highly weathered, poorly cemented, densely fractured, weak rock to medium strong rock, contains numerous iron-stained vugs and small solution cavities (<1"Ø), high primary porosity, low density.
10'-0" -		10:12AM					•		-

NOTES = Zone of Increased Weathering





BORING NO. B10 SHEET ____ OF __4 DATE : START 12-22-06

PROJECT NAME Savan		END <u>12-27-06</u> ELEV. (+MSL) <u>+16.10' MSL</u>									
BLOCK 28D PARCEL											
INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd. EQUIPMENT USED Truck-Mounted Mobile Drilling Rig											
	DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter)										
CASING: SIZE: 6" PVC	DEPTH: 3.0 Ft.	WATER: DEPTH: 15.33F	t. ELEV.: +0.77' MSL	TIME: 9:46AM DATE: 01-08-07							
CHECKED BY: DATE: DEPTH: 15.16Ft. ELEV.: +0.94' MSL TIME: 1:53PM DATE: 01-10-07											
		NO	T ENCOUNTERED								
	 										

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN		BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY	FRACTURE	DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	10:12AM 10:13AM 10:15AM 10:18AM		60 "	100%/	18 - M	0°, J, W, Fe Su, Ir, VR		Moderately weathered, medium strong rock, contains numerous vugs, little staining or fill, moderately cemented, medium dense, moderate primary porosity, low secondary porosity.
15' <u>-0"</u>	3 NX	10:41AM 10:43AM 10:46AM		59"	98%	[D°, J, W, TR Su, Ir, R along solution passaga)	Rate of Penetration = 2.2 mpf	Moderately weathered, strong rock with numerous terra rossa-lined vugs and small cavities (<0.5'Ø), medium primary porosity, low secondary porosity, dense, black secondary minerals observed within solution cavities.
18'-0"		10:48AM 10:51AM 10:52AM			91%	25 - 0°	°, J, N, TR Pa, BM Sp, Ir, °, J, MW, TR Su, BM Sp, rt Intersects solution cavity <1'09)	R	Slightly increased weathering, medium strong rock with numerous terra rossa-lined vugs and small cavities (<0.5"Ø), high primary porosity, moderate secondary porosity.
20'-0"	4 NX	11:15AM 11:18AM 11:22AM				27 - 0° 28 - 0° 29 - 0°	P., J, MW, No, No, Ir, R P. J, MW, Fe Su, Ir, VR P. J, W, No, No, Ir, VR P. J, W, No, No, Ir, VR P. J, MW, No, No, Ir, VR	Rate of Penetration = 3.2 mpf	Moderately weathered, medium strong rock, white limestone, vuggy, having a high primary porosity and moderate secondary porosity, numerous vugs and small solution cavities (<1"Ø).

NOTES = Zone of Increased Weathering





BORING NO. B10
SHEET 3 OF 4
DATE: START 12-22-06
END 12-27-06

PROJ	PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 END 12-27-06 +16.10' MSL											
INSPE	INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd.											
EQUIF	EQUIPMENT USED Truck-Mounted Mobile Drilling Rig											
DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter) CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 15.33Ft. ELEV.: +0.77' MSL TIME: 9:46AM DATE: 01-08-07												
CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 15.33Ft. ELEV.: +0.77 MSL TIME: 9:46AM DATE: 01-08-07 CHECKED BY: DATE: DEPTH: 15.16Ft. ELEV.: +0.94' MSL TIME: 1:53PM DATE: 01-10-07												
NOT ENCOUNTERED DATE: DEPTH: 13:101 & ELEV.: 10:37 MBE: 11:357 M												
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY	REMARKS	DESCRIPTION			
20'-0"	•	11:22AM			103%	32 -	0°, J, N, No, No, Ir, R		_			
	NX Cont'd	11:25AM							Slightly less weathered (moderately),			
_ _ 		11:28AM		62 "			0°, J, MW, No, No, Ir, R		strong rock, vuggy, having a moderate primary porosity and a low secondary porosity, no staining or fill observed throughout.			
23 <u>'-0"</u>		11:31AM			91%		0°, J, MW, No, No, Ir, R					
_	9	9:00AM			100%		0°, J, MW, SD Pa, Ir, VR M	Rate of Penetration = 2.6 mpf	_			
	NX	9:03AM			/	`⊿38 -	20°, J, MW, Fe Su, Ir, R 20°, J, MW, No, No, Ir, VR 25°, J, W, No, No, Ir, VR					
25'-0"		9:05AM		60"	*	40 - 41 - 42 - 43 -	20°, J, MW, No, No, Ir, VR 40°, J, N, No, No, Ir, VR 15°, J, MW, No, No, Ir, VR 0°, J, MW, No, No, Ir, VR 0°, J, MW, No, No, Ir, VR	Rock core is poorly consented and completely weathered a down to rock fragments	Highly weathered, weak rock. Weakly cemented, densely fractured, white rock, medium-low			
		9:08AM							density, moderate primary and secondary porosity.			
		9:10AM			18%		46 to 58 - M					
28 <u>'-0"</u>		9:13AM			1076	\dashv			-			
_	⑥ NX	10:09AM 10:13AM				//	0°, J, MW, No, No, Ir, R	Rate of Penetration = 3.4 mpf	Moderately weathered, strong rock, white limestone, with localized areas of increase weathering, as shown.			
		TO. TOAIVI				60 - 61 -	ncoloration (doloritization) to face of Joint) 0°, J, MW, No, No, Ir, R M		Rock is dense, having a moderate primary and secondary porosity.			

NOTES = Zone of Increased Weathering

62 - M

= Cavity/Void

10:16AM

30'-0"



BORING NO. B10
SHEET 4 OF 4
DATE: START 12-22-06
END 12-27-06

PROJECT NAME Savan											
	-	70, 263, 120, 119, 111, 108, 53, 52, 157, 158	ELEV. (+MSL) +16.10' MSL								
INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd.											
EQUIPMENT USED Truck-Mounted Mobile Drilling Rig											
DRILLING METHODS A	ir-Driven Rotary C	ore Drill (NX diameter)									
CASING: SIZE: 6" PVC	DEPTH: 3.0 Ft.	WATER: DEPTH: <u>15.33Ft.</u> ELEV.: <u>+0.77' MSL</u>	TIME: 9:46AM DATE: 01-08-07								
CHECKED BY:	DATE:	DEPTH: 15.16Ft. ELEV.: +0.94' MSL	TIME: 1:53PM DATE: 01-10-07								
		NOT ENCOUNTERED									

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY	REMARKS	DESCRIPTION
30'-0"	6	10:16AM			100%	63 - N	1		-
	NX Cont'd	10:19AM				64 - M			
_ 		10.21 414		60.25"	/		°, J, MW, No, No, Ir, R		
		10:21AM			/	67 - N			
33'-0"		10:26AM			88%	68 - 0	°, J, N, No, No, Ir, SR		-
	7	11:02AM			93%	69 - N	1	Rate of Penetration = 6.4 mpf	-
_	NX	11:05AM					°, J, MW, No, No, Ir, SR °, J, N, No, No, Ir, SR		Slightly weathered, very strong, white rock. Very dense, having a low primary and secondary porosity,
35'-0" —		11:11AM					°, J, N, No, No, Ir, SR °, J, N, No, No, Ir, SR		with few vugs and cavities. — ———————————————————————————————————
_		11.117 (141		55.75"			ects email (0.5*9) terns rosse-filled solution cavity) °, J, MW, No, No, Ir, SR		
		11:18AM					°, J, MW, No, No, Ir, R		Moderately weathered, very strong,
_		11:25AM				76 - 0 (occurs alor	°, J, MW, No, No, Ir, SR ng fossil lined with calcite)		white rock. Very dense, having a low primary porosity and moderate secondary porosity.
38'-0"		11:34AM			93%	78 - N			_ _ -
	8 NX	12:13PM			99%	//	°, J, W, Fe Su, Ir, SR °, J, W, TR Pa, Chalk Su, °, J, TR Pa, Ir, VR		Moderately weathered, very strong, white rock. Very dense, having a
		12:24PM		23.75'			°, J, N, No, No, Ir, R °, J, N, No, No, Ir, R	Rate of Penetration = 3.8 mpf	low primary and secondary porosity, zones of highly weathered, iron-stained rock, as shown.
40'-0"		12:32PM			52%	84 - 0 85 - 0	°, J, N, No, No, Ir, R °, J, N, No, No, Ir, R		

NOTES = Zone of Increased Weathering



ENGINEEDS EIEI D RODING I OG

B11 **BORING NO.**

zones of increased weathering

Extremely strong, moderately weathered, stained white rock.

Bedded, platy, densely fractured, white

Extremely strong, dense, white mudstone,

very low primary and secondary porosity, with bedded layers of flint rock, some localized zones of increased weathering and

bedded rock, strong mudstone.

terra rossa filled joints.

3.5" Ø cavity, unknown fill. Rock core not recovered.

and terra rossa filled joints.

PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd. EQUIPMENT USED Truck-Mounted Mobile Drilling Rig DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter) CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 14.86Ft. ELEV.: +0.86' MSL TIME: 9:48AM DATE: 01-08-07 CHECKED BY: DATE: DEPTH: 14.70Ft. ELEV.: +1.02' MSL TIME: 1:54PM DATE: 01-10-07 NOT ENCOUNTERED										
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION	
0'-0"									"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface. Native Pedro Castle Formation bedrock encountered at approximately 1'-6" below surface of roadway.	
5'-0"	① NX	9:03AM 9:05AM 9:11AM			68%	2 - 70°, 3 - 0°, 4 - 0°, 5 - 35	Top of Cavity, Fe Su, Ir, F	Rate of Penetration = 7.0 mpf	Cavity fill composed of limestone rock fragments within lithified terra rossa. Slightly weathered, strong white limestone rock. Extremely strong, dense, white mudstone, very low primary and secondary porosity, with bedded layers of flint rock, some localized	

= Zone of Increased Weathering NOTES

42.75

56%

= Core Not Recovered

6 - 35°, J, N, No, No, Ir, R

11 - 50°, J, W, TR Su, Ir, R

12 - 0°, Top of Cavity, TR Su, Ir, R

_____14 to 17 - 0°, B, No, No,

Rate of Penetration = 3.2 mpf

13 - 0°, B, FR, PI, S

PI, S

Pa, Ir, SR

7 to 10 - 35°, J, N, Sd Si

= Cavity/Void

9:21AM

9:31AM

9:38AM 10:12AM

10:21AM

(2)

NX

8'-3"

10'-0"



BORING NO. B11 SHEET 2 OF DATE: START 12-28-06 END 01-02-07

PRO.J	ECT N	IAME Sav	annal	n Gully	/ Flood	and 9	Storm Surge Mitigation	on	END <u>01-02-07</u>				
BLOC	BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158												
INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd.													
EQUIF	EQUIPMENT USED Truck-Mounted Mobile Drilling Rig DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter)												
CASIN	NG: SI	ZE: <u>6" PV</u>	C DE	EPTH:	3.0 Ft.	WA	TER: DEPTH: <u>14.86</u> F	t. ELEV.: +0.86' MSL TII	ME: 9:48AM DATE: 01-08-07				
CHEC	KED E	3Y:		_ DAT	E:				ME: 1:54PM DATE: 01-10-07				
							NC	OT ENCOUNTERED					
	υz				& /	1							
ĔĐ	필	<u> </u>	도띪	≿	S S	<u>ير</u> ک	F P S						
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY	FRACTURE	DESCRIPTOR	DEM DVO					
_	빌용	Ž	WS	8 € €	₹/%	\(\frac{1}{2} \)	S S S	REMARKS	DESCRIPTION				
	PE J	뒽	N N	Æ	Rado %	胀	ISC DES						
	જે ≧		шО		/ E		/ o-						
10'-0"	2	10:35AM			94% /	21	- 0°, J, MW, TR Pa, Ir, SR						
_	NX								_				
	Cont'd				/	₂₂	! - 0°, J, MW, No, No, Ir, R						
_		10:48AM		46.25'	1 /				Extremely strong, moderately weathered,				
					/	<u> </u>	- 0°, J, MW, No, No, Ir, R		vuggy, iron stained white rock, low primary porosity, moderate secondary porosity.				
					78%	24	- M		porosity, moderate secondary porosity.				
12'-4" -		11:28AM 11:48AM			/	: 	•••	Rate of Penetration = 7.3 mpf	Van alama and and burnet and				
_	3	11.70/11/1		11"	100%			ivale of renoration - 1.3 mpl	Very strong, moderately weathered, medium dense, moderate primary				
13'-3"	NX	12:00PM			82%	25	i - J, W, No, No, Ir, R i - M		and secondary porosity, white rock.				
	4	1:37PM			070/	1		Rate of Penetration = 4.0 mpf	_				
_	NX				97%	27	' - 0°, J, MW, No, No, Ir, R		-				
_		1:45PM			/	<u> </u> 28	s - 0°, J, MW, No, No, Ir, R		Moderately altered, very strong rock,				
					/	Н	0 - 0°, J, MW, No, No, Ir, R		discolored to beige (dolomitized),				
15'-0"		4.57014		43.75'	/	30	- 0°, J, MW, No, No, Ir, R		very dense, low primary porosity, moderate secondary porosity, some				
_		1:57PM		+3.73	/	24	- 0°, J, MW, No, No, Ir, R		small solution cavities throughout lined with calcite or iron-stained.				
_					/	31	- 0 , 0, 1917T, 190, 190, 11, R						
		2:21PM			/		- 0°, J, MW, Fe Su, Ir, R						
_					/	1 1	5 - 0°, J, W, No, No, Ir, VR №-0°, 55, 1000, 100, 110, 110, 110, 110, 110						
17'-0" [—]		2:41PM			67%	<u> </u>	- 0°, J, W, Si Pa, Ir, R - M		-				
.ı <u>.</u>	5	9:34AM			98% /			Rate of Penetration = 7.2 mpf	_				
	NX	9:36AM		14.75"	/	37 38	7 - 50°, J, W, BM Sp, Ir, R 1 - 40°, J, MW, BM Sp, Ir, R 2 - 0°, J, MW, Fe Su, Ir, R tton widened flow concluit present between Joints 37 and		_				
				17.73	/				Moderately altered, very strong rock,				
18'-3"		9:43AM 10:06AM			/77%	40) - M	Rate of Penetration = 5.2 mpf	white, low primary and secondary porosity, small iron-stained vugs and				
_	6	IU.UOAIVI						nate of renetiation = 5.2 mpt	cavities throughout (<0.5"Ø), very dense				
	NX	10:13AM				41	- 15°, J, N, No, No, Ir, R						
_		10.13AW							_				

20'-0"

NOTES = Zone of Increased Weathering = Core Not Recovered

42 - 10°, J, N, No, No, Ir, R





BORING NO. B11 SHEET 3 OF DATE: START 12-28-06 END 01-02-07

PROJ	PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation END 01-02-07 ELEV. (+MSL) +15.72' MSL												
	BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watter & Histor Plumbing Services Ltd.												
INSPE	CTOF	(SIGNED Flisen T)) 'ruck-N	Mount	ed Mobi	le D	_ DRILLERS NAME/0 rilling Rig	COMPANY <u>vvaluer & nis</u>	iop Fiditibiliy Services Etd.				
DRILL	ING N	IETHODS	Air-D	riven	Rotary (Core	Drill (NX diameter)						
								t. ELEV.: +0.86' MSL T	IME: 9:48AM DATE: 01-08-07				
CHEC	KED E	3Y:		_ DAT	E:				IME: <u>1:54PM</u> DATE: <u>01-10-07</u>				
							NC	OT ENCOUNTERED					
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY	FRACTURE	PREQUENCY DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION				
20'-0"	9	10:18AM					3 - 10°, J, N, No, No, Ir, R		_				
_	NX Cont'd				98% /	(0.7	5"27 fossil solution cavity to edge of joint)		Solution cavities throughout up to 2"				
		10:24AM				44	I - 0°, J, W, No, No, Ir, R		in Ø, no staining or fill observed.				
_				59"		(000	surs along fossil solution caylty 2" in \mathcal{O})		_				
					/	∭ (ma	5 - 0°, J, N, Fe Su, Ir, R Su solution cavity to outer edge of core - 0.5°9)		Highly weathered, medium strong				
_		10:27AM				46 47	6 - 0°, J, W, No, No, Ir, R 7 - 0°, J, W, TR Su, Ir, R	Completely weathered, terms rossa-stained, rock fragments.	rock, dense, terra rossa-stained, densely fractured. Moderate primary				
_					75%	1 1	3 - 0°, J, MW, No, No, Ir, R		and secondary porosity with numerous solution widened terra				
23'-3"		10:32AM			1370	1 1	9 - 0°, J, W, Fe Su, Ir, R) - M		rossa-stained cavities and vugs.				
_	7	11:05AM			98%	H -		Rate of Penetration = 1.2 mpf					
	NX	44.06 4 14				Н							
_		11:06AM				Н							
25'-0" [—]						Н			_				
		11:07AM				Н							
				59"		Н	– 51 to 78 - M						
		11:09AM							Highly weathered, weakly cemented, weak rock, densely fractured (all				
						Ħ			assumed to be mechanical), white, no staining or fill observed, low				
									density, high primary porosity, moderate secondary porosity, vuggy,				
_		11:10AM							with some small solution cavities.				
_					004								
28'-3"		11:11AM			0%	<u>H_</u>							
	8	11:43AM						Rate of Penetration = 2.6 mpf	_				
	NX	44.40434					− 79 to 89 - M						
_		11:46AM					- 19 10 69 - W		_				
001.01						Н			_				

NOTES = Zone of Increased Weathering = Core Not Recovered



B11 BORING NO. ___ SHEET ____4 OF_ DATE: START 12-28-06

BLOC INSPE EQUIF DRILL CASIN	K <u>28</u> CTOF MEN ING N IG: SI	D PARO R (SIGNED T USED T IETHODS	EL 2) ruck-N Air-D C DE	Mount Priven EPTH:	9, 250, 2 ed Mobi Rotary (3.0 Ft.	le Dril Core D	ling Rig Prill (NX diameter) ER: DEPTH: <u>14.86F</u> DEPTH: <u>14.70</u> F	8, 53, 52, 157, 158 COMPANY Watler & His Ct. ELEV.: +0.86' MSL 1	END 01-02-07 ELEV. (+MSL) +15.72' MSL slop Plumbing Services Ltd. TIME: 9:48AM DATE: 01-08-07 TIME: 1:54PM DATE: 01-10-07 DESCRIPTION
	SAMI	DRII	BLC	2	RQD %		DISC		
30'-0"	8 NX Cont'd	11:48AM 11:50AM 11:51AM		62"	103%/		90 to 96 - M D°, J, MW, No, No, Ir, R		Moderately weathered, very strong rock, white, low primary and secondary porosity, dense, some
		44.50			360/		0°, J, N, No, No, Ir, R 0°, J, N, No, No, Ir, R		small vugs and solutions cavties throughout (<0.5"Ø), no staining or cavity fill observed to entire core.
33'-3"	9 NX	11:56AM 8:48AM 8:53AM 8:56AM 9:01AM		60.5"	101%	102 - 103 - 104 -	M 0°, J, N, No, No, Ir, R 5°, J, MW, No, No, Ir, R 10°, J, MW, No, No, Ir, R 20°, J, N, No, No, Ir, R	Rate of Penetration = 5.0 mpf	Moderately weathered, strong rock, white, moderate primary porosity and low secondary porosity, dense, some small vugs and solutions cavties throughout (<1"Ø), no staining or cavity fill observed.
38'-3"		9:06AM 9:13AM			88%	— 107 - (cocurs s	0°, J, N, No, No, Ir, R 0°, J, N, No, No, Ir, SR iong fosel solution cavity, no staining or fit)		Very strong rock, slightly less weathered than above, white, low primary and secondary porosity, dense, some small vugs and solutions cavties throughout (<1*Ø),
40'-0" 40'-3"	10 NX	10:27AM 10:35AM 10:41AM		23"	96%	(emel ca 110 - (smal ca area of o 111 - 112 - 113 -	M 5°, J, MW, No, No, Ir, R lidible limed vivge to isurfaces) 10°, J, MW, No, No, Ir, R cital-limed toxel cavity 0.5°0 to 50% of sectional 0°, J, MW, No, No, Ir, R 0°, J, MW, No, No, Ir, R 0°, J, MW, No, No, Ir, R	Rate of Penetration = 7.0 mpf	some iron-staining observed in areas, localized zones of increased weathering present.

NOTES = Zone of Increased Weathering

= Cavity/Void



BORING NO. B12
SHEET 1 OF 4

DATE: START 01-03-07
END 01-04-07

BLOO INSPE EQUII DRILL CASII	ECTOF PMEN' LING N NG: SI	D PARC R (SIGNED T USED T METHODS	EL 2) ruck-l Air-D /C Di	Mount Priven EPTH:	9, 250, 2 ed Mobi Rotary (3.0 Ft.	270, 26 le Drill Core D	DRILLERS NAME/0 ing Rig rill (NX diameter) :R: DEPTH: 13.74F DEPTH: 13.59F	8, 53, 52, 157, 158 COMPANY Watler & His t. ELEV.: +0.82' MSL	END 01-04-07 ELEV. (+MSL) 14.56' MSL slop Plumbing Services Ltd. TIME: 9:50AM DATE: 01-08-07 TIME: 1:56PM DATE: 01-10-07
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DESCRIPTOR	REMARKS	DESCRIPTION
0'-0" _ - - - - - -					V				"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface. Native Pedro Castle Formation bedrock encountered at approximately 1'-6" below surface of roadway.
3'- <u>0"</u> - - - - 5'-0" -	① NX	10:34AM 10:36AM 10:37AM 10:42AM		59"	98%		to 4 - 0°, J, MW, Fe Su, Ir, VR	Rate of Penetration = 3.8 mpt	Highly weathered, weak rock, vuggy, high primary and secondary porosity, low density, white limestone. Moderately weathered, medium strong rock, vuggy, moderate primary and secondary porosity, medium dense, white limestone.
8'- <u>0"</u> - - - - 10'-0"	② NX	10:45AM 10:53AM 11:15AM 11:18AM 11:23AM			80%	10 - 2 11 - 0 12 - 0 13 - 0 14 - 0 15 - 0 VR	0°, B, N, Fe Su, PI, SR °, J, MW, No, No, Ir, R °, J, W, Fe Su, Ir, VR	Sid Li solution county to 50% of core sectional area, name to 50% of core is TR Su. Rate of Penetration = 4.6 mpt	Bedded mudstone, ext. strong, fresh, v.

NOTES = Zone of Increased Weathering



BORING NO. B12
SHEET 2 OF 4

DATE: START 01-03-07
END 01-04-07

PROJECT NAME

Savannah Gully Flood and Storm Surge Mitigation

BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158

INSPECTOR (SIGNED) DRILLERS NAME/COMPANY

EQUIPMENT USED Truck-Mounted Mobile Drilling Rig

DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter)

CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 13.74Ft. ELEV.: +0.82' MSL TIME: 9:50AM DATE: 01-08-07

CHECKED BY: DATE: DEPTH: 13.59Ft. ELEV.: +0.97' MSL TIME: 1:56PM DATE: 01-10-07

NOT ENCOUNTERED

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DESCRIPTOR	REMARKS	DESCRIPTION
10'-0" _ - - - - - - -	② NX Cont'd	11:23AM 11:27AM 11:32AM		61"	102%	18 - 5	0°, Sh, Fe Su, Ir, R		
13' <u>-0"</u>	③ NX	11:38AM 12:01PM 12:07PM 12:11PM 12:14PM 12:17PM		62"	103%	21 - 4 22 - 0 23 - 2 24 - 6 8M S 25 - 0 26 - 3 1r, R 28 - 0 28 - 0 27 - 0 28 - 0 29 - 0	25°, J, MW, Fe Su, Ca Li, p, Ir, R, 10°, J, MW, Ca Li, Ir, VR, 10°, J, MW, Fe Su, Ir, VR, 10°, J, MW, Fe Su, Si Pa, u, Ir, VR, W, Fe Su, Si Pa, u, Ir, VR, Fe Su, Si Pa, u, Ir, VR, Fe Su, Si Pa, u, Ir, VR, Fe Su, J, WW, Fe Su, Ir, VR, 10°, J, MW, Fe Su, Ir, VR	Rate of Penetration = 3.8 mpf Vertical solution conduit to outer surface of core (approx. 25 a % of core sectional area)	Moderately weathered, strong rock, dense, low primary porosity, high secondary porosity, discolored to beige (dolomitized) with zones of increased weathering, as shown. Zones of increased weathering are highly weathered rock. Entire core is light brown/beige colored (dolomitized), vuggy and iron stained. Medium strong, moderately weathered, moderate primary porosity, low secondary porosity, medium density.
18'-0"	④ NX	12:20PM 12:38PM 12:40PM 12:42PM			1	33 - 3 34 - 3 35 - 1 36 - 0	// 10°, J, MW, No, No, Ir, R 10°, J, MW, No, No, Ir, R 10°, J, W, No, No, Ir, R 15°, J, W, No, No, Ir, R 1°, J, W, No, No, Ir, R 38 - M	Rate of Penetration = 1.8 mpf	Medium strong, moderately weathered, well-cemented, light brown, vuggy and porous (moderate primary and secondary porosity), medium dense rock.

NOTES = Zone of Increased Weathering

V/////



BORING NO. ____ B12 SHEET ____3 ___ OF __ DATE: START 01-03-07 FND 01-04-07

PROJ	ECT N	IAME Sav	annal	n Gully	/ Flood a	ind St	orm Surge Mitigation	on 9 52 52 457 450 E	LEV. (+MSL) 14.56' MSL					
	BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watter & Histor Plumbing Services Ltd. EQUIPMENT USED Truck-Mounted Mobile Drilling Rig													
EQUIF	MEN.	TUSED T	ruck-N	Mounte	ed Mobil	e Drill	ling Rig	OMPANI						
DRILL	ING N	METHODS	Air-D	riven	Rotary C	ore D	rill (NX diameter)							
									IE: 9:50AM DATE: 01-08-07					
CHEC	KED I	3Y:		_ DAT	E:				IE: 1:56PM DATE: 01-10-07					
							NC	T ENCOUNTERED						
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DESCRIPTOR	REMARKS	DESCRIPTION					
20'-0"	4	12:42PM			97%	f								
_	NX Cont'd				/									
	Conta	12:43PM			/	+			_					
_				58"	/	1	39 to 51 - M							
		12:45PM			/	7			_	_				
_					/					-				
_					7%	+								
23 <u>'-0"</u>	5	12:47PM 1:20PM			/ 	}		Rate of Penetration = 0.8 mpf	_					
_	NX				96%	=		·		\exists				
_		1:20PM							_					
_									Highly weathered, weakly cemented, weak rock, white limestone, low	-				
OF! O!! -		4 04 014							density, moderate primary porosity, densely fractured.					
25'-0"		1:21PM				3								
_				57.5"		∄	52 to 78 - M			-				
		1:22PM			/	+			_					
_										-				
_		1:23PM								\exists				
		1.23FIVI							_	\dashv				
					0%	+				\dashv				
28'-0"		1:24PM			0,0	‡‡			_					
_	6 NX	2:01PM						Rate of Penetration = 3.4 mpf						
_	13/	2:02PM				,	79 to 89 - M			_				
		2.021 IVI				∃	1.9 IO 98 - M		_					
										\dashv				
30'-0" [—]		2:03PM				+								

NOTES = Zone of Increased Weathering = Cavity/Void

30'-0" ⁻



BORING NO. B12

SHEET 4 OF 4

DATE: START 01-03-07

END 01-04-07

ELEV (+MSI) 14 56' MSI

limestone.

Moderately weathered, very strong,

very dense, low primary porosity, moderate secondary porosity, vuggy with many small solution cavities, no

staining or fill observed throughout.

							orm Surge Mitigati		END <u>U1-04-07</u>
BLOC	K <u>281</u>	PARC	EL 2	48, 24			53, 120, 119, 111, 10	0,00,02,101,100	EV. (+MSL) <u>14.56' MSL</u>
INSPE	CTOR	(SIGNED))				DRILLERS NAME/	COMPANY Watler & Hislop	Plumbing Services Ltd.
EQUIF	MENT	USED T	ruck-N	lount	ed Mobi	e Dril	ling Rig		
							rill (NX diameter)		
CASIN	IG: SIZ	ZE: <u>6" PV</u>	C DE	EPTH:	3.0 Ft.	WAT	ER: DEPTH: <u>13.74</u> F	t. ELEV.: <u>+0.82' MSL</u> TIMI	E: 9:50AM DATE: 01-08-07
CHEC	KED E	BY:		_ DAT	E:		DEPTH: <u>13.59</u> F	t. ELEV.: <u>+0.97' MSL</u> TIMI	E: 1:56PM DATE: 01-10-07
							NO	OT ENCOUNTERED	
	7 Z				≽ /				
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	ᅚᇷ	>	RECOVERY ((%)	ш≿	DISCONTINUITY		
ğ.Ε.	Š H	F (5	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	္ပင္သ ဆို	FRACTURE FREQUENCY	ISCONTINUIT		
	필팅	Ž	NS/	Š Ž	I— / 🏊 I	걸ᅙ	N S S	REMARKS	DESCRIPTION
	M P	딅	O N	Ä	Rab	동품	SCC		
	S₹		m O	_	/ ~				
30'-0"	6	2:03PM			/ /	90 - 1	и		
	NX				102%		o, J, MW, No, No, Ir, SR		
_	Cont'd	2:07PM			/)°, J, MW, No, No, Ir, R		
		2.07 F W			/	93 -	10°, J, N, No, No, Ir, R		Moderately weathered, very strong, very dense, low primary and
				61.25'	1 /	- 1	15°, J, N, No, No, Ir, R		secondary porosity, white limestone, with some small yugs and cavities
-		2:13PM			/	1)°, J, N, No, No, Ir, R ng fossil solution cavity)		(<0.5"Ø), no staining or cavity fill
					/	- 1	10°, J, VN, No, No, Ir, R 10°, J, VN, No, No, Ir, R		observed.
-					/				_
33'-0"		2:18PM			33%	98 - 1 99 - 1	l0°, J, N, No, No, Ir, SR M		_
\exists	•	2:47PM			95%	100 -	0°, J, N, No, No, Ir, SR	Rate of Penetration = 3.2 mpf	_
-	NX					- 101 -	0°, J, N, No, No, Ir, R		_
		2:54PM			/	102 -	0°, J, N, No, No, Ir, R		
\dashv									_
						103 -	0°, J, N, No, No, Ir, R		_
35'-0"		2:59PM							
_				57"		104 -	0°, J, N, No, No, Ir, FP		Slightly weathered, very strong, very dense, very low primary porosity and

105 - 15°, J, N, No, No, Ir, R

106 - 20°, J, N, No, No, Ir, R

107 - 20°, J, N, No, No, Ir, R

109 - 0°, J, MW, No, No, Ir, R $^-$

110 - 0°, J, N, No, No, Ir, R 111 - 15°, J, MW, No, No, Ir, R 112 - 0°, J, MW, No, No, Ir, R

113 - 0°, J, MW, No, No, Ir, R

114 - M

Rate of Penetration = 6.5 mpf

82%

98%

79%

23.5"

NOTES = Zone of Increased Weathering = Cavity/Void

3:03PM

3:08PM

3:13PM

9:05AM

9:12AM

9:18AM

8

NX

38'-0"

<u>40'-</u>0"



B13 BORING NO. _ SHEET ____1 OF_ DATE: START 01-04-07 FND 01-05-07

Medium strong rock, moderately weathered, medium density, beige (slightly discolored) rock, vuggy, moderate primary and secondary porosity.

Minor iron staining and terra rossa cavity fill observed throughout entire core.

entire core.

	ROJECT NAME Savannah Gully Flood and Storm Surge Mitigation ROCK 28D PARCEL 248 249 250 270 263 120 119 111 108 53 52 157 158 ELEV. (+MSL) 19.47' MSL												
	BLOCK <u>28D</u> PARCEL <u>248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158</u> INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watter & Hislop Plumbing Services Ltd.												
INSPE	CTOR	R (SIGNE))				DRILLERS NAME/	COMPANY Watler & Hislor	Plumbing Services Ltd.				
EQUIF	PMENT	USED T	ruck-N	лount	ea Mobi	ie Dr	IIIING KIG						
							Drill (NX diameter)		- 0.52AM 04.00.07				
									E: 9:53AM DATE: 01-08-07				
CHEC	KED E	3Y:		_ DAT	E:				E: <u>5:09PM</u> DATE: <u>01-12-07</u>				
							N	OT ENCOUNTERED					
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RGD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION				
0'-0"					V				"Cayman Rock" granular roadway fill material deposited upon outcropping				
_									bedrock surface.				
									Native Pedro Castle Formation				
									bedrock encountered at approximately 1'-6" below surface				
_									of roadway.				
3'-0"		10:30AM							_				
_	1					1-0	0°, J, MW, No, No, Ir, VR 40°, J, MW, No, No, Ir, VR	Rate of Penetration = 2.4 mpf	_				
_	NX				101%	12	0°, J, MW, No, No, Ir, VR						
		10:32AM					o , o,,,,,						
_							0°, J, W, No, No, Ir, VR 0°, J, W, Fe Su, Ir, VR						
5'-0"		10:34AM					0°, J, MW, No, No, Ir, VR		Medium strong to weak rock, — moderately to highly weathered, —				
_						1 1	10°, J, MW, No, No, Ir, VR		densely fractured, medium-low				
_				60.5"					density, white rick, moderate to high primary and secondary				
		10:37AM				8	45°, Sh, MW, Roots, Si Pa,		porosity, with zones of increased weathering, as shown.				
_						lr, √							
		10:40AM				9 - 10 -	0°, J, MW, No, No, Ir, VR 0°, J, MW, No, No, Ir, VR						
_						11 -	30°. J. W. Si Pa. Ir. VR						

12 - 0°, J, MW, Si Pa, Ir, VR

14 - 0°, J, MW, No, No, Ir, R

15 - 35°, J, W, Si Pa, Ir, R

Rate of Penetration = 3.2 mpf

13 - M

NOTES = Zone of Increased Weathering

= Cavity/Void

10:42AM 11:17AM

11:20AM

11:22AM

2 NX

10'-0"



BORING NO. ____ B13 SHEET 2 OF_ DATE: START 01-04-07 FND 01-05-07

PROJ	ECT N	AME Sav	/annai	h Gully 248, 24	/ Flood	ar 27	nd Sto	orm Surge Mitigatio	on 8,53,52,157,158	ELEV. (+MSL) 19.47' MSL				
	BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd. EQUIPMENT USED Truck-Mounted Mobile Drilling Rig													
EQUIF	MENT	TUSED T	ruck-l	Mount	ed Mobi	le	Drilli	ing Rig						
								rill (NX diameter)	u					
										IME: 9:53AM DATE: 01-08-07				
CHEC	KED E	BY:		_ DAT	E:				t. ELEV.: <u>+0.95' MSL</u> T OT ENCOUNTERED □	IME: <u>5:09PM</u> DATE: <u>01-12-07</u>				
					1	/		NC	JI ENCOUNTERED					
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)		FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION				
10'-0"	2	11:22AM			101% /	\prod				_				
_	NX Cont'd				/		16 - 30	0°, J, N, No, No, Ir, VR						
		11:25AM		60.5"				0°, J, N, No, No, Ir, VR		Strong rock, less weathered than above, increased density, lower porosity.				
		11:29AM					18 - 0°	°, J, N, Fe Su, Si Pa, Ir, R						
_					/	H	19 - 65	5°, J, N, Fe Su, Si Pa, Ir, F	₹					
13'-0"		11:33AM			78%	И	20 - 30 Ir, R —	0°, J, MW, Fe Su, Si Pa,		Medium strong rock, moderately weathered, medium density, beige				
	③ NX	1:16PM 1:19PM			100%		21 - M 22 - 0° 23 - 40	/ °, J, MW, No, No, Ir, R 0°, J, N, Fe Su, Si Pa, , Ir, VR /	Rate of Penetration = 4.4 mpf	(slightly discolored) rock, vuggy, moderate primary and secondary porosity, some minor iron staining and terra rossa cavity fill observed.				
 15'-0"		1:24PM					25 - 0°)°, J, N, No, No, Ir, R						
		1.47F IVI		60"						Very strong rock, moderately weathered, vuggy with several				
		1:28PM					27 - 0° 28 - 0°	1°, J, MW, Ca Li, FP, R 1°, J, W, No, No, FP, R 1°, J, W, No, No, FP, R	Foseil solution cavilies (approx. 1.5*09)	larger (<2"Ø) solution cavities. Cavities have no fill, some are iron stained. Entire core is discolored and assumed to be dolomitized.				
		1:33PM			•	200	29 - 0°)°, J, W, Fe Su, FP, R		Rock is dense, well cemented and has a low primary porosity and a moderate secondary porosity.				
_					/									
18'-0" [—]		1:38PM			66%									
10 <u>-0</u>	4	2:30PM					30 - 0° 31 - M	n°, <u>J, MW, Fe Su, FP, R</u> n	Rate of Penetration = 4.0 mpf	Localized zones of increased				
_	NX	2:34PM					33 - 60	1°, J, MW, No, No, R ing fossil solution cavity) 10°, J, MW, Dark Grey ials Su, Sp, Ir, VR		weathering observed, as shown. Rock is becoming stonger with depth.				
_							34 - M							
20'-0" -		2:37PM												

NOTES = Zone of Increased Weathering

= Cavity/Void



BORING NO. B13
SHEET 3 OF 4
DATE: START 01-04-07
END 01-05-07

DPO I	ECT N	AME Sav	/annah	n Gully	/ Flood a	and S	Storm Surge Mitigation	on	END <u>01-05-07</u>
BLOC	K 28	D PARC	EL 2	48, 24	9, 250, 2	270, 2	263, 120, 119, 111, 10	B, 53, 52, 157, 158	EV. (+MSL) <u>19.47' MSL</u>
INSPE	CTOR	(SIGNED)				DRILLERS NAME/C	OMPANY Watler & Hislop	Plumbing Services Ltd.
EQUIF	PMENT	TUSED T	ruck-N	Mounte	ed Mobi	le Dri	illing Rig		
							Drill (NX diameter)		
CASIN	NG: SIZ	ZE: <u>6" PV</u>	C DE						E: 9:53AM DATE: 01-08-07
CHEC	KED E	3Y:		_ DAT	E:				E: 5:09PM DATE: 01-12-07
							NO	T ENCOUNTERED	
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	4	2:37PM			104%	35 ·	- M stong fossil solution cavity)		
	NX Cont'd	2:41PM		62.25"		36 -			Rock is dense, moderately weathered, vuggy, having a moderate primary porosity and a low secondary porosity, some iron staining throughout.
		2:45PM				38 -	- М		Extremely strong rock at base of
_					93%				core.
23 <u>'-0"</u>	<u></u>	2:50PM 8:46AM			γ ,	39 -	- М —	Rate of Penetration = 1.8 mpf	
	NX	8:48AM			107%			Nate of Peneration - 1.5 mp	Moderately to highly weathered, medium strong to weak, medium-low density, moderately cemented white limestone rock.
25'-0"		8:50AM		64"					Entire core is densely fractured, white, vuggy and porous (high primary porosity, moderate secondary porosity).
		8:52AM					- 40 to 59 - M		Highly weathered, weak, low density, poorly cemented rock.
_	1	8:53AM							density, poorly demonted rook.

Rate of Penetration = 2.8 mpf

NOTES = Zone of Increased Weathering

31%

60 to 69 - M

= Cavity/Void

8:55AM 9:22AM

9:23AM

9:24AM

⑥ NX

28'-0"

30'-0"



PROJECT NAME

Savannah Gully Flood and Storm Surge Mitigation

BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158

INSPECTOR (SIGNED)

DRILLERS NAME/COMPANY

Watler & Hislop Plumbing Services Ltd.

EQUIPMENT USED

Truck-Mounted Mobile Drilling Rig

DRILLING METHODS

Air-Driven Rotary Core Drill (NX diameter)

CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 15.81Ft. ELEV.: +3.86' MSL TIME: 9:53AM DATE: 01-08-07

CHECKED BY: ______ DATE: _____ DEPTH: <u>18.52Ft.</u> ELEV.: <u>+0.95' MSL</u> TIME: <u>5:09PM</u> DATE: <u>01-12-07</u>

NOT ENCOUNTERED

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DESCRIPTOR	REMARKS	DESCRIPTION	
30'-0" _	NX	9:24AM 9:26AM 9:29AM 9:36AM		58"	97%		70 to 81 - M		Highly weathered, weak, low density, poorly cemented rock. Rock is partially discolored (dolomitized) to approximately 1/2 of core sectional area, and is slightly strengthened. Rock is slightly less weathered than top portion but still considered highly weathered, weak to medium strong rock.	
35'-0"	⑦ NX	1:02PM 1:01PM 1:11PM		61.5"	103%	83 - 0° 84 - 0° 85 - 0° (occurs atom 86 - 0° (occurs atom 87 - 36	°, J, N, No, No, Ir, R °, J, N, No, No, Ir, R °, J, MW, No, No, Ir, R °, J, MW, No, No, Ir, R g a 1.5°9 fosel solution cavity) °, J, MW, Fe Su, Ir, R g n 0.5°9 fosel solution cavity T, J, MW, Fe Su, Ir, R	Calcite lined fosail eclution cavify (approx. 1*9) Rate of Penetration = 4.6 mpf	Entire core is very strong, slightly weathered, white rock, dense, low primary and secondary porosity, some larger (<2"Ø) solution cavities throughout, zones of increased weathering observed, as shown. Some iron staining observed to the bottom 12" of core, otherwise no staining or cavity fill observed on outer surface of core.	
40'-0"	8 NX	1:46PM 1:53PM 1:59PM		25.5"	106%	90 - 0	°, J, N, Fe Su, Ir, R °, J, N, Fe Su, Ir, R	Fosail solution cavity (reprose, 1°29), no ill or staining "Rate of Penetration = 6.5 mpf	Entire core is very strong, very dense, moderately weathered, vuggy, moderate primary and secondary porosity, vugs and solution cavities stained with iron and lined with calcite.	

NOTES = Zone of Increased Weathering



BORING NO. _____B14 SHEET ___1 ___OF __4 DATE: START 01-08-07

PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation BLOCK 28D PARCEL 248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158 INSPECTOR (SIGNED) DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd. EQUIPMENT USED Truck-Mounted Mobile Drilling Rig													
DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter) CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 19.57Ft. ELEV.: +0.83' MSL TIME: 2:19PM DATE: 01-10-07													
CHECKED BY: DATE: DEPTH: 19.60Ft. ELEV.: +0.80' MSL NOT ENCOUNTERED													
and ME RUN ME Y: Y TIL. SO OR													

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"		9:25AM							"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface. Native Pedro Castle Formation bedrock encountered at approximately 1'-0" below surface of roadway.
5'-0"	① NX	9:27AM 9:28AM 9:29AM 9:30AM		55.5"	93%	10 - M 11 - 0°	, J, MW, Fe Su, Ir, VR 9°, J, MW, Fe Su, Ir, VR	Rate of Penetration = 1.4 mpf	Highly weathered, vuggy & porous, weak rock, with iron staining to cavities, high primary & secondary porosity, low density, moderately cemented. Highly weathered weak rock, slightly less weathered than above and no iron staining or cavity fill is observed.
10'-0"	② NX	9:50AM 9:51AM 9:54AM				17 - M 18 - M 19 - M		Rate of Penetration = 2.4 mpf	Medium strong, well cemented rock. Moderately to highly weathered, vuggy, white rock, moderate primary and secondary porosity, partially discolored (dolomitized) in areas.

NOTES = Zone of Increased Weathering = Core Not Recovered





BORING NO. B14

SHEET 2 OF 4

DATE: START 01-08-07

END 01-09-07

PROJECT NAME Savan	nah Gully Flood a	and Storm Surge Mitigation	
		270, 263, 120, 119, 111, 108, 53, 52, 157, 158	ELEV. (+MSL) +20.4' MSL
INSPECTOR (SIGNED)_		DRILLERS NAME/COMPANY Watler & Hi	slop Plumbing Services Ltd.
EQUIPMENT USED Truc	ck-Mounted Mobil	e Drilling Rig	
DRILLING METHODS A	ir-Driven Rotary C	Core Drill (NX diameter)	
CASING: SIZE: 6" PVC	DEPTH: 3.0 Ft.	WATER: DEPTH: 19.57Ft. ELEV.: +0.83' MSL	TIME: 2:19PM DATE: 01-10-07
CHECKED BY:	DATE:	DEPTH: 19.60Ft. ELEV.: +0.80' MSL	TIME: 8:15AM DATE: 01-11-07
		NOT ENCOUNTERED]

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	NX	9:59AM		59"	98%	20 - M 21 - M 22 - M 23 - M 24 - M	1 1 1		Medium strong, well cemented rock. Moderately to highly weathered, vuggy, white rock, moderate primary and secondary porosity, partially discolored (dolomitized) in areas.
13'-0"	③ NX	10:02AM 10:23AM 10:28AM 10:33AM		61.25"	102%	27 - 0° 28 - 0° (Intersects w	", J, MW, No, No, Ir, R g 0.79'9' fosell solution cavity) ", J, MW, No, No, Ir, R ", J, N, No, No, Ir, R with 1'99 fosell solution cavity) ", J, N, No, No, Ir, R	Rate of Penetration = 3.8 mpf	Very strong, moderately weathered, very well cemented, dense, white rock. Low primary and secondary porosity, no staining or fill, with some vugs and small cavities (<1"Ø).
18'-0"		10:40AM 10:42AM			82%	30 - 0° 31 - 0° 32 - 0° 33 - 0° 34 - 0°	with 0.7799 found southon control, , J, W, Fe Su, Ir, FP , J, MW, Fe Su, Ir, VR , J, MW, Fe Su, Ir, VR , J, MW, Fe Su, Ir, R , J, MW, Fe Su, Ir, R	intersecting icon-stated solution conduit to approximately 50 g. % of the core sectional area. set intersecting icon-stated solution conduit to approximately 25 % of the core sectional area.	Medium strong to strong, moderately to highly weathered rock with numerous iron stained solution cavities (<2"Ø), low primary porosity, high secondary porosity, medium dense. Highly weathered, moderate
20'-0"	4 NX	11:01AM 11:03AM 11:06AM			*		, J, MW, Fe Su, II, R J, MW, No, No, Ir, R No, No, Ir, R F, J, MW, No, No, Ir, R	Rate of Penetration = 2.4 mpf	rimary and secondary porosity, medium strong rock. Very strong rock, moderate weathered, discolored (dolomitized), dense, medium low primary and secondary porosity.

NOTES = Zone of Increased Weathering



BORING NO. _ B14 SHEET ____3 OF_ DATE: START 01-08-07 FND 01-09-07

PROJ	ECT N	AME Sav	<u>rannal</u>	ո Gully	/ Flood	and Sto	orm Surge Mitigati	on		·
BLOC	K 281	PARC	EL 2	48, 24	9, 250, 2	270, 26	3, 120, 119, 111, 10	8, 53, 52, 157, 158 El	LEV. (+MSL) <u>+20.4' MSL</u>	
INSPE	CTOR	(SIGNED))				DRILLERS NAME/	COMPANY Watler & Hislo	p Plumbing Services Ltd.	_
EQUIF	MENT	USED T	ruck-N	/lount	ed Mobi	le Drilli	ing Rig			-
							rill (NX diameter)			-
CASIN	IG: SI	ZE: <u>6" PV</u>	C DE	EPTH:	3.0 Ft.	WATE	R: DEPTH: <u>19.57</u> F	<u>t.</u> elev.: <u>+0.83' MSL</u> TIN	IE: <u>2:19PM</u> DATE: <u>01-10-07</u>	-
CHEC	KED E	3Y:		_ DAT	E:		DEPTH: 19.60F	<u>'t.</u>	IE: <u>8:15AM</u> DATE: <u>01-11-07</u>	-
							NO	OT ENCOUNTERED		
	T 7				≿ /	1				
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY	FRACTURE	DISCONTINUITY	REMARKS	DESCRIPTION	
20'-0"	(4)	11:06AM			100%	41 - M	I .			
	NX				100%	42 - M	ı			_
_		11:10AM		60"		43 - M			Strong rock, moderately weathered, vuggy, moderate primary and secondary porosity, white rock (no discoloration).	
					88%	45 - M	ı			
23 <u>'-0"</u>		11:13AM			/	46 - M 47 - M				
	⑤ NX	11:35AM 11:37AM			108%	-4	7 to 56 - M	Rate of Penetration = 2.2 mpf	Highly weathered, weak rock, poorly cemented, high primary porosity, low density.	
25'-0"		11:39AM					°, J, N, No, No, Ir, R g 1'8' fossil solution cavity with slight Fe Su)			
		11:41AM		64.5"					Moderately weathered, strong rock, with localized zones of	
		11:44AM				- - 5	8 to 66 - M		increased weathering to highly weathered, white, vuggy and porous, moderate primary and secondary porosity, medium dense, white rock, no	
		11·46AM			64%				dense, white rock, no discoloration, staining or cavity fill to entire core.	_

Rate of Penetration = 4.6 mpf

NOTES = Zone of Increased Weathering = Cavity/Void

11:46AM

1:27PM

1:29PM

1:32PM

6

NX

28<u>'-0"</u>

30'-0"

- 67 to 78 - M



B14 BORING NO. ___

ÇAYMAN EN	SINEEHING &	SUHVETING							END 01-09-07	
							Storm Surge Mitigati		.EV. (+MSL) +20.4' MSL	
							<u>263, 120, 119, 111, 10</u>			I
INSPE	CTOF	R (SIGNEI T USED _ ^T	D)	dount.	nd Mahi	la Di	DRILLERS NAME/	COMPANY Watler & Hislor	Plumbing Services Lta.	
EQUIF	MEN	T USED <u>'</u>	Air-D	riven	Rotary (core:	Drill (NX diameter)			
								Ft. ELEV: +0.83' MSL TIM	E: 2:19PM DATE: 01-10-07	
		3Y:							E: 8:15AM DATE: 01-11-07	
CHEC	KED I	ər		_ DAI	E			OT ENCOUNTERED	E. O. TOAM DATE: OT-TI-OT	
		I						T	T	
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DESCRIPTOR	REMARKS	DESCRIPTION	
İ	SAM		필요	<u>~</u>	7	<u>ш</u> г	DIS D			
30'-0"	6	1:32PM			100%	79	. М			
	NX				100 /6					_
	Cont'd	1:35PM							_	
_				00.051] /		0°, J, VN, Fe Su, Ir, Sr		Extremely strong rock, very dense, slightly weathered, white rock.	_
_				63.25'] /	81"	ations feed polytion cayth lined with calcille) 55°, J, MW, Fe Su, FP along focal surface)		Very low primary porosity,	
		1:40PM	-		/	82	·M		moderate secondary porosity, few vugs, some larger (<2"Ø) iron	
_					/		0°, J, MW, Fe Su, TR Pa,		stained solution cavities and flow conduits.	-
_					/		(Intersects vertical solution cavity 1°9)		conduits.	
33'-3"		1:50PM			66%		. М ————		_	
_	7	2:22PM			98%		0°, J, MW, No, No, Ir, R	Rate of Penetration = 9.2 mpf		
_	NX				30,0					_
		0.00014			/				_	
		2:33PM							Extremely strong rock, slightly	
35'-0"		0.44514				87	· 0°, J, N, Fe Su, Ca Li		weathered, white and beige	
_		2:41PM	-				icts amail solution cavity <0.5°(9)		rock(mottled discoloration, partially dolomitized), some vugs,	-
_				58.5"					very low primary and secondary porosity, very dense.	
		2:48PM							-	
_			1							
_										_
		2:59PM				88	0°, J, N, No, No, Ir, R		_	
_					/	89	· 0°, J, N, No, No, Ir, R			_
					92%	(intere	cts fossil solution cavity to approx. 80% of core al area)		_	_
38'-3"		3:08PM 8:40AM			,	90 91	M O°, J, MW, No, No, Ir, SR	Date of Denotedies - 7.5 mm²		
_	8 NX	U.TUAIVI			100%/			Rate of Penetration = 7.5 mpf	Very strong rock, slightly to	
	13/	Q-AQARA		04"	/		· 0°, J, MW, No, No, Ir, SR		moderately weathered, white rock, some vugs, very low primary and	
_		8:48AM	-	24"	/	93	· 15°, J, MW, No, No, Ir, R		secondary porosity, very dense,	_
40'-0" [—]					/	94	0°, J, N, No, No, Ir, R		no staining, discoloration or cavity fill observed.	

95 - M

79%

= Zone of Increased Weathering NOTES



8:55AM

40'-0" 40'-3"



BORING NO. B15
SHEET 1 OF 4
DATE: START 01-09-07
END 01-10-07

PROJ	ECT N	AME Sav	vannal	Gully	Flood	and	d Storm Surge Mitigatio	on	END <u>01-10-07</u> ELEV. (+MSL) +19.09' MSL			
	BLOCK ZOD PARCEL Z46, Z49, Z50, Z70, Z63, 120, 119, 111, 106, 53, 52, 137, 136											
EQUIF	EQUIPMENT USED Truck-Mounted Mobile Drilling Rig											
DRILL	DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter) CASING: SIZE: 6" PVC DEPTH: 3.5 Ft. WATER: DEPTH: 18.42 Ft. ELEV.: +0.67" MSL TIME: 8:18AM DATE: 01-11-07											
CHEC	KED E	3Y:		_ DAT	E:				IME: 8:42AM DATE: 01-02-07			
	NOT ENCOUNTERED											
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	FREQUENCY DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION			
0'-0" _ 					V				"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface.			
_									Native Pedro Castle Formation			
									bedrock encountered at approximately 1'-6" below surface			
_									of roadway.			
-									_			
3'-6"		10:22AM										
- -	① NX	TO.ZZAWI			99%		- 0°, J, MW, Fe Su, TR Pa, Ir, /R	Rate of Penetration = 4.2 mpf	Very strong, white limestone, moderately weathered with many iron stained small solution cavities			
5'-0"		10:25AM							throughout (<2" in diameter), low primary porosity, moderate secondary porosity, dense, with			
_		10:29AM				2	2 - 10°, M		localized zones of increased weathering, as shown.			
		10:33AM		59.5"								
_		101001 411					3 - 0°, J, MW, Fe Su, Ir, R occurs along fossil surface)					
_		10:37AM					4 - 0°, J, N, No, No, Ir, R					
8'-6"		10:43AM			94%	(ii	intersects horizontal fossil solution cavity, approx. 1" Ø)					
	2 NX	11:02AM			98%			Rate of Penetration = 4.6 mpf	-			
	INA	11:07AM		59"	0001	6	3 - 5°, M					
10'-0" -	1				93%				_			

NOTES = Zone of Increased Weathering



DATE: START 01-09-07 END 01-10-07 V. (+MSL) +19.09' MSL

PROJECT NAME Savann	ah Gully Flood and Storm Surge Mitigation	
	248, 249, 250, 270, 263, 120, 119, 111, 108, 53, 52, 157, 158	ELE

DRILLERS NAME/COMPANY Watler & Hislop Plumbing Services Ltd. INSPECTOR (SIGNED) _ **EQUIPMENT USED Truck-Mounted Mobile Drilling Rig**

DRILLING METHODS Air-Driven Rotary Core Drill (NX diameter)

CASING: SIZE: 6" PVC DEPTH: 3.5 Ft. WATER: DEPTH: 18.42 Ft. ELEV.: +0.67' MSL TIME: 8:18AM DATE: 01-11-07

CHECKED BY: _____ DATE: _____ DEPTH: 18.32 Ft. ELEV.: +0.77' MSL TIME: 8:42AM DATE: 01-12-07

NOT ENCOUNTERED □

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION	
10'-0" _ 	2 NX Cont'd	11:10AM			98%	7 - 0°, (approx.10% Su fossil solu	J, N, Fe Su, Ir, R of core area, remaining 90% of core area is Fe filton cavily)		Core is partially discolored with black minerals from 9'-9" to 10'-1" and 11'-4" to 11'-8".	
		11:14AM		59"		8 - 0°,	J, N, Fe Su, BM Su, Ir, R		Iron Stained solution passage visible on outer surface of core from 11'-7" to 12'-3".	
- - -		11:18AM				core sections	J, MW, Fe Su, Ir, R 1e 1.25'9 fosell cavity to approx. 60% of the of area) J, N, No, No, Ir, R 1'9 solution cavity lined with calcite)		-	
13'-6"		11:25AM 11:57AM			93%	11 - 25 12 - M	°, J, MW, Fe Su, Ir, R	Rate of Penetration = 5.4 mpf	Extremely strong, white limestone,	_
	③ NX	12:02PM			104%		, J, N, No, No, Ir, FP pattern)	Trace of Ferrenauori – 5.4 mpr	slightly to moderately weathered, dense with localized zones of increased weathering, as shown. Some small (<2" diameter) fossil	
15'-0"		12:08PM		62.5"		(Intersects wi	S°, J, N, No, No, Ir, R th 0.579 doublen cavily containing many small		solution cavitles observed throughout, some are iron stained and others no staining is observed. Very little staining or fill is observed throughout the entire lenght of core.	
_		12:13PM								
		12:17PM					c°, J, W, Fe Su, TR Pa th 1'99 eclusion cavity)		-	
18'-6"		12:24PM 8:33AM			104%	17 - M		Date of Department as E. 4	-	_
20'-0"	4 NX	8:39AM		61.5"	103%/ /85%	(occurs along sectional are	, J, N, No, No, Ir, R a 279 feed certly to approx. 87% of the core Rate of Penetration = 5.4 mpf	Extremely strong, white limestone, slightly weathered, very dense, low primary and secondary porosity, very little staining or fill throughout the core, some small vugs observed.		

NOTES = Zone of Increased Weathering



PROJECT NAME Savannah Gully Flood and Storm Surge Mitigation

B15 BORING NO. _ SHEET ____3 OF_ DATE: START 01-09-07 END 01-10-07 ELEV. (+MSL) +19.09' MSL

BLOC	K <u>28</u> 1	PARC	EL 2	48, 24	9, 250, 2	70, 2	<u>63, 120, 119, 111, 108</u>		EV. (+M3L) : 10.00 MOL
INSPE	CTOR	(SIGNED)) <u> </u>				DRILLERS NAME/C	OMPANY Watler & Hislop	Plumbing Services Ltd.
EQUIF	MENT	USED T	ruck-n	/lounte	ed Mobile	e Dri	IIIng Rig		
							Drill (NX diameter)	4 10 67! MCI	- 0.49AM 04 44 07
									E: 8:18AM DATE: 01-11-07
CHEC	KED E	BY:		_ DAT	E:				E: 8:42AM DATE: 01-12-07
							NC	T ENCOUNTERED	
DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
		_					_		
20'-0"	4	8:44AM			103%				
	NX Cont'd	O.7-7-1VI							_
	Jones					20 -	0°, J, N, No, No, Ir, R		
		8:48AM			/	04	09 1 10 5 0 0 0 1 1		_
-				61.5"	/	lin (lin	- 0°, J, MW, Fe Su, Ca Li ed), Ir, R		
				00	/		- 40°, J, MW, BM Sp, Fe , Ir, VR		
		8:52AM				 ∟23	- 35°, J, MW, Fe Su, Ir, VR - 0°, J, N, Fe Su (minor),		_
-							Sp, Ir, R		
					85%		- 0°, J, MW, Sd Pa, BM		
23'-6"		9:00AM 9:29AM			/	26 -	, Ir, R M	Rate of Penetration = 4.0 mpf	
	⑤ NX	J.ZJ/AIVI			104%	27 -	0°, J, MW, BM Sp, Ir, R	Rate of Perieuation - 4.0 mpi	Slightly increased in degree of weathering to moderately
_		9:32AM					10°, J, MW, BM Sp, Sd		weathered, very strong rock, partially discolored with dark grey
_		9.3ZAW				Pa, I	0°, J, MW, BM Sp, Ir, R		minerals, dense, with slightly
25'-0"							15°, J, N, BM Sp, Ir, R		increased porosity.
-		9:35AM				31 -	0°, J, N, No, No, Ir, R		
_		0.00,				32 -	50°, Sh, N, Fe Su, No, Ir,		_
				62.5"		R			
_		9:39AM				33 -	10°, J, N, BM Sp, Ir, R		_
7									
							55°, Sh, MW, Fe Su, TR Sd Pa		Extremely strong, slightly
\Box		9:43AM			<i> </i>		15°, J, MW, BM Sp, Ir, VR		weathered, white limestone, very
-					/				low primary and secondary porosity, partially discolored
					85%	36 -	0°, J, N, No, No, Ir, R		(dolomitized) and very dense.
28'-6"		9:49AM 10:12AM				37 -	M	Rate of Penetration = 5.75 mpf	—
	6 NX	10.12/11/1						nate of reflectation = 5.75 mpr	Some localized zones of increased weathering to
		10.22414				38 -	0°, J, W, TR Pa, BM Sp,		moderately weathered, very strong rock.
-		10:22AM				Si P	a, Ir, R		
30'-0" [—]						39 -	0°, J, MW, BM Sp, Ir, R		

NOTES = Zone of Increased Weathering

= Cavity/Void



BORING NO. B15
SHEET 4 OF 4
DATE: START 01-09-07
END 01-10-07

PROJECT NAME Savan	nan Gully Flood a	and Storm Surge Mitigation	
	-	70, 263, 120, 119, 111, 108, 53, 52, 157, 158	ELEV. (+MSL) +19.09' MSL
INSPECTOR (SIGNED)		DRILLERS NAME/COMPANY Watler & H	islop Plumbing Services Ltd.
EQUIPMENT USED True			
DRILLING METHODS A	ir-Driven Rotary C	ore Drill (NX diameter)	
CASING: SIZE: 6" PVC	DEPTH: 3.5 Ft.	WATER: DEPTH: 18.42 Ft. ELEV.: +0.67' MSL	TIME: 8:18AM DATE: 01-11-07
CHECKED BY:	DATE:	DEPTH: 18.32 Ft. ELEV.: +0.77' MSL	TIME: 8:42AM DATE: 01-12-07
		NOT ENCOUNTERED	

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RQD % (%)	FRACTURE	DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	6 NX	10:27AM			99% /	40 - 0°	, J, N, No, No, Ir, SR		
_	Cont'd					41 - 10	0°, J, MW, No, No, Ir, R		
_		10:31AM		56.5"		42 - 10 (fossil pattern	0°, J, N, No, No, FP		
							D°, J, N, No, No, Ir, R th 0.5'9 solution cavity) 7, J, VN, No, No, Ir, R		
_		10:35AM				(Intersects 2	*, J, VN, NO, NO, II', K ************************************		_
33'-3" _		11:00AM			92%		, J, MW, No, No, Ir, R		
_	⑦ NX	11:40AM			100% - 46 - N 47 - C 0.579 ca 48 - C		, J, N, No, No, Ir, SR	Penetration = 9.25 mpf modera discolo degree depth, i	Extremely strong, slightly to moderately weathered, dense,
	NX.	11:47AM				48 - 0	the lined solution cavity present of joint surface) 2, J, MW, No, No, Ir, SR the lined solution cavity present of joint surface)		discolored (dolomitized), the degree of which is increasing with depth, low primary porosity and moderate secondary porosity, iron
35'-0"		11:55AM		56.75'		49 - 0°, J, N, No, No, Ir, SR (-0.9°) cabita lined autition carity present of joint surface) 50 - 0°, J, MW, No, No, Ir, R (-0.9°) cabita lined autition carity present of joint surface)		stained and calcite lined vugs and small cavities.	
		12:06PM				(>0.5°Ø cald	P, J, MW, No, No, Ir, R the lined solution cavity present of joint surface) P, J, MW, No, No, Ir, R the lined solution cavity present of joint surface)		
		12:17PM				53 - 0° 54 - 0° 55 - 0° Pa, Bla	P, J, N, No, No, Ir, R P, J, N, No, No, Ir, R P, J, MW, Fe Su, TR ack Precipitated		Very strong, white (no dolomitization) limestone, low primary and secondary porosity, dense and slightly weathered.
38 <u>'-0"</u>		12:29PM			82%	56 - M	als, Ir, VR 		Tollion Line on group, modulioned.
_	8 NX	1:10PM			81%		°, J, MW, Fe Su, Ir, R 59 - 40°, Sh, N, Fe Su,	Rate of Penetration = 15.5 mpf	Extremely strong, moderately altered, white limestone, low
		1:27PM		19.5"		Black TR Pa 60 - 0	Precipitated Minerals, a, Ir, R °, J, N, No, No, Ir, R sects small fossil cavity)		primary porosity, moderate secondary porosity, very dense.
40'-0"		1:41PM			77%	61 - M			

NOTES = Zone of Increased Weathering



635 Circle Drive
Iron Mountain, Michigan 49801
Telephone: (906) 774-3440 Fax: (906) 774-7776

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS

ASTM D2938

Project:	Cayman Engineering & Surveying	Job No.:	GL-07012
Client:	Cayman Engineering & Surveying	Date Rec'd:	2/23/2007
A -1 -1	D.O. David 2000 Oraca d. Carragara 10/4 4007		

Address: P.O. Box 10962, Grand Cayman, KY1-1007

Source: NX-Size Rock Core

Lithologic Description: Soft to Sound, fossiliferous limestone

Formation Name: Pedro Castle Formation, Grand Cayman Islands

Sample Identification	Straightness (in.)	End Flatness (in.)	Perpendicularity		Sectional ons (in.)	Moisture Condition	Area (sq. in.)	Load Rate (psi)	Load (lbs.)	Unit Strength (psi)
identification	(111.)	(111.)		Diameter	Length	Condition	(34. 111.)	(psi)	(103.)	(μσι)
B6 - S4 (6' 3" - 6' 7")	< 0.02	Both Ends < 0.0015	0.0097	2.07	4.03	As Received (Dry)	3.37	90 (Range 66 to 165)	25,550	7,592
B7 - S5 (11' 2" - 11' 6")	< 0.02	Both Ends < 0.0015	0.0028	2.06	4.07	As Received (Dry)	3.33	60 (Range 66 to 165)	7,480	2,244
B8 - S6 (19' 3" - 19' 7")	< 0.02	Both Ends < 0.0015	0.1920	2.06	4.09	As Received (Dry)	3.33	90 (Range 66 to 165)	6,610	1,983
B9 - S7 (13' 8" - 14' 0")	< 0.02	Both Ends < 0.0015	0.0058	2.06	3.99	As Received (Dry)	3.33	70 (Range 66 to 165)	22,520	6,756
B10 - S8 (10' 7" - 10' 11")	< 0.02	Both Ends < 0.0015	0.0074	2.06	3.99	As Received (Dry)	3.33	60 (Range 66 to 165)	5,510	1,653

Remarks: All specimens tested in vertical direction. Ends were ground to required flatness. The composition of the limestone material was quite variable and occassional internal joints and or soft crumbly zones were observed within the specimen matrix.

Tested By:	John Edlebeck	Date:	2/26/2007	Submitted By:	Date:	2/28/2007



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Iron Mountain, Michigan 49801
Telephone: (906) 774-3440 Fax: (906) 774-7776

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS

ASTM D2938

Project:	Cayman Engineering & Surveying	Job No.:	GL-07012
Client:	Cayman Engineering & Surveying	Date Rec'd:	2/23/2007
Address:	P.O. Box 10962, Grand Cayman, KY1-1007		
Source:	NX-Size Rock Core		

Lithologic Description: Soft to Sound, fossiliferous limestone

Formation Name: Pedro Castle Formation, Grand Cayman Islands

Sample Identification	Straightness (in.)	End Flatness	Flatness in.) Cross Sectional Dimensions (in.) Moisture Condition		Area (sq. in.)	Load Rate (psi)	Load (lbs.)	Unit Strength (psi)		
identification	(111.)	(111.)		Diameter	Length	Condition	(34. 111.)	(631)	(103.)	(psi)
B-10; S-9 (15' 1" to 15' 5")	< 0.02	Both Ends < 0.0015	0.0051	2.06	4.01	As Received (Dry)	3.333	80 (Range 66 to 165)	8,850	2,655
B-11; S-10 (9' 5" to 9' 9")	< 0.02	Both Ends < 0.0015	0.0107	2.06	4.01	As Received (Dry)	3.333	60 (Range 66 to 165)	22,000	6,600
B-12; S-11 (5' 2" to 5" 6")	< 0.02	Both Ends < 0.0015	0.0123	2.06	3.97	As Received (Dry)	3.333	60 (Range 66 to 165)	6,190	1,857
B-12; S-12 (10' 7" to 10' 11")	< 0.02	Both Ends < 0.0015	0.0051	2.06	3.99	As Received (Dry)	3.333	110 (Range 66 to 165)	4,960	1,488
B-13; S-13 (8' 2" to 8' 6")	< 0.02	Required Capping	0.0098	2.05	4.00	As Received (Dry)	3.333	110 (Range 66 to 165)	*2650	795

*Soft and pitted, crumbled upon failure

Remarks: All	I specimens tested in vertical direct	ion. Ends were (ground to required	d flatness. The composition of the limestone material v	was quite variable	and
occassional in	nternal joints and or soft crumbly zo	ones were obser	ved within the spe	ecimen matrix.		
Tested By:	John Edlebeck	Date:	2/26/2007	_ Submitted By:	Date: _	2/28/2007



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Iron Mountain, Michigan 49801
Telephone: (906) 774-3440 Fax: (906) 774-7776

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS

ASTM D2938

Project:	Cayman Engir	neering & Surveying	Job No.:	GL-07012
Client:	Cayman Engir	neering & Surveying	Date Rec'd:	2/23/2007
Address:	P.O. Box 1096	2, Grand Cayman, KY1-1007		
Source:	NX-Size Rock	Core		
Lithologic	Description:	Soft to Sound, fossiliferous limestone		
Formation	Name:	Pedro Castle Formation, Grand Cayman Islands		

Sample Identification	Straightness (in.)	End Flatness (in.)	Perpendicularity	y Cross Sectional Dimensions (in.) Moisture Condition				Load (lbs.)	Unit Strength (psi)	
Identification	(111.)	(111.)		Diameter	Length	Condition	(34. 111.)	(psi)	(103.)	(psi)
B-14; S-14 (5' 1" to 5' 5")	< 0.02	Required Capping	0.0123	2.03	4.02	As Received (Dry)	3.24	60 (Range 66 to 165)	*2880	889
B-15; S-15 (9' 5" to 9' 9")	< 0.02	Both Ends < 0.015	0.0081	2.04	3.95	As Received (Dry)	3.27	60 (Range 67 to 167)	6,670	2,040
B-15; S-16 (19' 0" to 19' 4")	< 0.02	Both Ends < 0.015	0.0044	2.06	3.95	As Received (Dry)	3.37	60 (Range 67 to 169)	20,610	6,124

*Soft and pitted, crumbled upon failure

	specimens tested in vertical direction. Enternal joints and or soft crumbly zones w			flatness. The composition of the limestone material was quite	e variable a	and
Tested By:	John Edlebeck	Date:	2/26/2007	Submitted By:	Date: _	2/28/2007



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Iron Mountain, Michigan 49801
Telephone: (906) 774-3440 Fax: (906) 774-7776

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS

ASTM D2938

Project:	Cayman Engineering & Surveying	Job No.:	GL-07012
Client:	Cayman Engineering & Surveying	Date Rec'd:	1/18/2007
Address:	P.O. Box 10962, Grand Cayman, KY1-1007		
Source:	NX-Size Rock Core		
Lithologic	Description: Limestone, light tan/gray soft, fossiliferous		
Formation	Name: Pedro Castle Formation		

Sample Identification	Straightness (in.)	End Flatness (in.)	Perpendicularity	Cross S Dimensi	sectional ons (in.)	Moisture Condition	Moisture Area Condition (sq. in.)		Load (lbs.)	Unit Strength (psi)
Identification	(111.)	("".)		Diameter	Length	Condition	(34. 111.)	(psi)	(100.)	(p3i)
B1 - S1 (24' 6" - 24' 10")	0.022	Both Ends < 0.0015	0.007	2.05	3.96	As Received (Dry)	3.30	110 (Range 66 to 165)	12,060	3,655
B3 - S2 (15' 0" - 15' 4")	0.004	Both Ends < 0.0015	0.006	2.06	3.98	As Received (Dry)	3.33	110 (Range 67 to 167)	28,510	8,562
B4 - S3 (21' 3" - 21' 7")	< 0.035	Both Ends < 0.0015	> 0.008	2.07	3.94	As Received (Dry)	3.37	110 (Range 67 to 169)	21,840	6,481

Remarks:	Rock Cores B1 and B4 were wavy (sid	des irregular	·). All samples tes	sted vertical direction.		
Tested By:	W. Rice	Date: _	1/24/2007	_ Submitted By:	Date: _	1/26/2007

PROJECT NAME **GTS PROJECT NUMBER DATE OF TEST**

Savannah Gully 07001-56 7/23/2007

Boring	Sample		Sample Diam.	Sample Height	Load	Comp. Strength		
No.	Depth	Rock Type	(in)	(in)	(lb)	(tsf)	Failure Type	Sample Notes / Remarks
B-6	3.5-3.9	dolostone	2.06	4.21	26,030	565.1	columnar	
B-9	6.3-6.7	dolostone	2.06	4.17	6,570	142.6	columnar	broke through coral pieces
B-12	3.2-3.6	dolostone	2.06	4.22	2,280	49.5	columnar	less consolidated than B-6 sample
-								
							+	
+								
Does not	meet sample s	tandards for minimum heig	ht/diamete	er >= 2.0	Avg.	252.4		

* Does not meet sample standards for minimum height/diameter >= 2.0 Avg.

Air-dry

Temperature at Testing Rate of Loading **Direction of Load Application**

Moisture Condition of Samples

68 deg. 150 lbs/ sec Vertical to core



UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE ASTM D7012

7/23/2007

By: HHS Ckd: **HCW**

441 Friendship Road . Harrisburg, PA 17111 . Ph: 717/236-3006 . Fax: 717/233-0994 . www.gtstech.com



Water Authority-Cayman LABORATORY ANALYSIS REPORT

PO Box 1104 GT, 13G Red Gate Lane, George Town, Cayman Islands Tel 949-6352, Fax 949-0094



ivame:	IVIT. MIKE BONG			-		Li	Lab Number:			: 69876			
Address:	c/o Stuart Peto	h		_		Sar	: Well (LV-9-2004)						
	Water Authorit		Sample Point;					Direct from well through Watera					
				•••		Sampl	or: S.Petch						
				_		Date & Time	: 11-Jui-07 @ 11:05 AM						
Re:	Well (LV-9-2004)			_		Date & Time	Received:	d: 11-Jul-07 @ 11:40 AM					
Telephone:	814-2131			•	Date & Time of Analysis:				: 11-Jul-07 @ 12:00 PM				
Fax:				Paid;	N/A	Date	Date of Report:			: 30-Jul-07			
					•				-				
						RESULTS							
General Al	opearanne of Sy	mple				Micropiological Analysis							
	Visual observ	ations	Analyst			Parameter	Result	units	Method	Analyst			
Colour	None		TE			Total coliform bacteria*:	n/d	cfu/100ml	SM 9223 B				
Odour:	N/D					E. coli bacteria*:	n/d	cfu/100ml	\$M 9223 B				
Clarity:	Clarity: Clear TE				Thermotolerant coliform bacteria:	n/d	cfu/100ml	SM 9222 D					
						Heterotrophic bacteria:	n/d	cfu/ml	SM 9215 D				
<u></u>]		TNTC: Too Numerous To Count;	CGwColi.Con	fluent Growth	vith coliforms, n/d: not do	ne			
					Dhyele	o-chenyical Analysis							
		Result	units	Method	Analyst		Result	units	Method	Analyst			
	Alkalinity*:	n/d	mg/l	SM 2320 B	١ -	Iron, Totai*:	n/d	mg/l	Hach 8008	•			
	Aluminium*:	n/d	mg/l	Hach 8012		Iron, Soluble*:	n/d	mg/l	Hach 8008				
	Ammonia*:	n/d	mg/l	Hach 8038		Magnesium*:	79	mg/l	Hach 8338	MM			
	Bicarbonate*;	n/d	mg/l	SM 2320 B		Nitrate*:	n/d	mg/l	Hach 10020				
	BOD _{5-day} :	n/d	mg/l	SM 5210 B		pH:	n/d	units	SM 4500-H * B				
	Calcium*:	330.0	mg/l	Hach 8222	MM	Orthophosphate*:	n/d	mg/l	USEPA 365.5				
	Chloride*:	1489.6	mg/l	SM 4500-Cl ⁻ B	ММ	Sodium*:	n/d	mg/l	ASTM D2791				
Chlorine R	esidual, Free*:	n/d	mg/l	SM 4500-Cl ⁻ G		Sulphate*:	n/d	mg/l	USEPA 375.4				
Chlorine R	esidual, Totai*:	n/d	mg/l	SM 4500-Cl ⁻ G		Suspended Solids, Total:	n/d	mg/l	SM 2540 D				
	COD*:	n/d	mg/l	ŞM 5220 B		Suspended Solids, Fixed*:	n/d	mg/l	SM 2540 E				
Electrica	al Conductivity:	n/d	μS/cm	SM 2510 B		Suspended Solids, Volatile*:	n/d	mg/l	SM 2540 E				
	Copper*:	n/d	mg/l	Hach 8506		Total Dissolved Solids:	n/d	mg/l	SM 3540 C, 2510 B				
	DO*:	n/d	mg/l	SM 5210 B		Turbidity*:	n/d	NTU	SM 2120 A, B				
	Hardness*:	n/d	mg/l	Hach 8226		Zinc*:	n/d	mg/l	SM 3500-Zn B				
Hydro	gen Sulphide*:	0.010	mg/l	SM 4500-S ²⁻ D	TE								
1					1	Note: n/d indicates analysis not done							

Tests with an asterisk * are not covered by our current A2LA accreditation

The results in this report are private and confidential and relate only to the items tested

Reviewed by Laboratory Manager:

Date: 30-Jul-07

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Sample No.	Client Sample ID	Date Sampled	Test_Group	Test	Result_Text	Flag	Units	Test_Date	Method	DL	RL
24785-001	B7;55	2/27/2007 0:00	Chloride (s)	Chloride (s)	190		mg/kg	27-Feb-07	325.1	40	200
24785-001	B7;55	2/27/2007 0:00	pH (s)	pH (s)	10.20		pH Units	27-Feb-07	4500H+	0.01	0.01
24785-002	B8;56	2/27/2007 0:00	Chloride (s)	Chloride (s)	70		mg/kg	27-Feb-07	325.1	40	200
24785-002	B8;56	2/27/2007 0:00	pH (s)	pH (s)	10.25		pH Units	27-Feb-07	4500H+	0.01	0.01
24785-003	B9;57	2/27/2007 0:00	Chloride (s)	Chloride (s)	60		mg/kg	27-Feb-07	325.1	40	200
24785-003	B9;57	2/27/2007 0:00		pH (s)	10.06		pH Units	27-Feb-07	4500H+	0.01	0.01
24785-004	B10;59	2/27/2007 0:00	Chloride (s)	Chloride (s)	50		mg/kg	27-Feb-07	325.1	40	200
24785-004	B10;59	2/27/2007 0:00	pH (s)	pH (s)	10.30		pH Units	27-Feb-07	4500H+	0.01	0.01
24785-005	B12;512	2/27/2007 0:00	Chloride (s)	Chloride (s)	50		mg/kg	27-Feb-07	325.1	40	200
24785-005	B12;512	2/27/2007 0:00	pH (s)	pH (s)	10.28		pH Units	27-Feb-07	4500H+	0.01	0.01
24785-006	B15;516	2/27/2007 0:00	Chloride (s)	Chloride (s)	110		mg/kg	27-Feb-07	325.1	40	200
24785-006	B15;516	2/27/2007 0:00	pH (s)	pH (s)	10.05		pH Units	27-Feb-07	4500H+	0.01	0.01

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34 Dogwood Lane - Middletown, PA 17057 Phone: 717-944-5541 Fax: 717-944-1430

Certificate of Analysis

July 20, 2007

Mr. Mike Bond Orth-Rodgers & Associates 4999 Louise Drive Mechanicsburg, PA 17055

Page: 1 Of 2

Lab ID#: 9693190

PO#:

Project Name: Grand Cayman - Savannah Gully

Workorder ID: Grand Cayman - Savannah Gully

This report relates only to the sample(s) as received by the laboratory. Laboratory reports may not be reproduced, except in full, without the written approval of the Laboratory.

ALSI is a NELAC accredited laboratory. ALSI certifies that all applicable test results meet the requirements of NELAC. All drinking water and wastewater analyses comply with the methodology requirements of 40 CFR Parts 141 and 136 respectively. For an inventory of our NELAC accreditations and Scope of Work, please visit our website at www.analyticallab.com or contact your ALSI project coordinator for a complete listing. If you have any questions in reference to this laboratory report, please contact your ALSI project coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis. Samples collected by ALSI personnel are done so in accordance with the procedures set forth in the ALSI Field Sampling Plan.

A result of ND indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL). The RDL, by default, is equivalent to the Practical Quantitation Limit (PQL) or may be equivalent to the Method Detection Limit (MDL), if specifically requested by the customer.

Qualifier Flags - These flags may follow individual results for a specific analyte

- U Indicates that the analyte was not detected
- J Indicates an estimated value between the MDL and PQL

Note: This cover letter and the attached Chain-of-Custody document is included as part of the Analytical Report and must be retained as a permanent record thereof.

Raymond J. Martrano Laboratory Manager



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34 Dogwood Lane - Middletown, PA 17057 Phone: 717-944-5541 Fax: 717-944-1430

Certificate of Analysis

July 20, 2007

Mr. Mike Bond

Orth-Rodgers & Associates

Sample ID: LV-9-2004-1

Date Collected: 07/11/07 11:00

4999 Louise Drive

Mechanicsburg, PA 17055

Project Name: Grand Cayman - Savannah Gully

Workorder ID: Grand Cayman - Savannah Gully

Lab ID #: **9693190001**Received: 07/12/07 10:57

Discard: 08/03/07

Page: 2 Of 2

PO#:

Matrix: Ground Water

COC Number:

Collected by: Collected by Customer

Analysis Parameter	Result	Units	RDL	Method	Completed	Prep Date	Ву	Cntr
WET CHEMISTRY								
Chloride	1800	mg/L	20.0	EPA 300	07/14/07 03:08	07/14/07	MBW	A
Hydrogen Sulfide	ND	mg/L	1.0	SM20-4500S2H	07/16/07 08:00	07/16/07	LNM	С
Sulfide, Total	ND	mg/L	1.0	376.1/4500F	07/16/07 08:00	07/16/07	LNM	С
METALS								
Calcium, Total	331	mg/L	0.11	SW846 6010B	07/19/07 13:34	07/18/07	JWK	В1
Magnesium, Total	106	mg/L	0.11	SW846 6010B	07/19/07 13:34	07/18/07	JWK	В1

This report relates only to the sample as received by the laboratory, and may only be reproduced in full. \bigcirc

Raymond J. Martrano Laboratory Manager