



ENGINEERS FIELD BORING LOG

BORING NO. B1
 SHEET 1 OF 3
 DATE : START 12-05-06
 END 12-06-06
 ELEV. (+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 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: 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	DESCRITION	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"		9:40AM							
	① NX	(NO DRILLING FROM 10:30AM - 10:37AM) 10:55AM		5.5"	23%	1 - 45°, F, T, No, No, Ir		Initial core sample is composed of dark reddish brown lithified terra rossa cavity in-fill.	Rate of Penetration = 41.5 mpf Drilling stopped at 1'-6" due to excessive water leakage.
4'-0"		11:10AM			0%	M			
5'-0"	② NX	11:28AM 11:50AM			92%	2 - 0°, F, No, VR 3 - M			Rate of Penetration = 20.9 mpf
		12:00PM		36"		Highly Fractured Zone			
		12:15PM 12:18PM			31%	4 - 0°, F, N, No, No, Ir, R 5 - 0°, F, N, No, No, Ir, R 6 - 0°, F, MW, TR, Fi 7 - 45°, Sh, W, TR, Fi, Ir, R 8 - 30°, N, TR, Fi, Ir, R			1 No. Hydraulic Hose begins to leak at approx. 6'-0" depth.
7'-3"	③ NX	1:00PM 1:12PM 1:23PM			93%	9 - 30°, N, No, No, Ir, R 10 - 30°, J, MW, TR, Su, Ir, VR 11 - 0°, J, VN, No, No, Ir, R 12 - 45°, Sh, T, No, No		White, fine-grained, dense, vuggy, hard, porous limestone.	Rate of Penetration = 7.8 mpf
				55.5"	93%				

...\\LONGWALLSOILPROFILE.dgn 8/2/2007 10:27:42 AM

20'-0"	⑤ NX Cont'd	12:11PM		58.5"	98%	30 - M 31 - 15°, J, VN, No, No, Ir, R 32 - M	Light beige, corraline limestone, vuggy, porous, fossiliferous, weakly cemented and soft.	
		12:12PM						
		12:14PM			87%			
22'-3"		12:53PM			97%			
	⑥ NX	12:57PM		32.0"		33 - M 34 - M 35 - 0°, B, N, No, No, Ir, VR 36 - 0°, B, Fe, Su, Ir, R	Increased density and hardness from above sample, white, hard, slightly vuggy and porous, well-cemented. 1.5" thick highly weathered zone, weakly cemented and porous.	Rate of Penetration = 2.9 mpf
		12:59PM						
		1:01PM			85%			
25'-0"								



ENGINEERS FIELD BORING LOG

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

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: 4.0 Ft. WATER: DEPTH: 14.37 Ft. ELEV.: +0.97' MSL TIME: 9:55AM DATE: 12-08-06



CHECKED BY: _____ DATE: _____ DEPTH: 14.99 Ft. ELEV.: +0.35' MSL TIME: 4:51PM DATE: 01-23-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"	SPT1		7						
			14						
1'-6"			22						Reddish brown, loose, fine-grained, silty sand, having and uncorrected N-value = 36, i.e. Dense.
	SPT2		20						
			17						
3'-0"			50						Refusal met indicating Native Pedro Castle Formation bedrock encountered at approximately 2'-6" below surface level.
	① NX	3:01PM			81%			Rate of Penetration = 4.6 mpf	
5'-0"		3:04PM							
		3:08PM							Moderately weathered, densely jointed, white limestone rock, with dark terra rossa stains throughout
		3:13PM							
8'-0"		3:18PM							Limestone breccia in terra rossa fill with organic matter.
									Bedded flint rock and lithified terra rossa seams.
9'-0"		3:24PM							
	② NX	8:46AM			41%			Rate of Penetration = 7.0 mpf	Local flint rock with a highly weathered zone, as shown, and a 1.5" thick flint and lithified terra rossa bedded zone at 13" depth.
10'-0"		8:49AM							



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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	8:49AM			89%		14 - 30°, J, W, TR Su, Ir, VR 15 - 0°, J, T, Sd Fl, St, SR 16 to 17 - 0°, B, N, Pl, SR	(14 - 16 is a weakly cemented zone with gravel sized rounded grains) (16 to 17 consists of bedded layers of laminated sandy precipitate with brown flecks)	
		8:55AM							
		9:04AM		53.5"					
		9:12AM					18 - 45°, J, VN, Fe Su, Ir, VR 19 - 45°, J, VN, Fe Su, Ir, VR		Dense, very strong, limestone with small solution cavities and vugs throughout, iron-stained surfaces throughout, low primary porosity.
14'-0"		9:21AM			84%		20 - M		
15'-0"	③ NX	10:05AM			98%		21 - 15°, J, N, No, No, Ir, R	Rate of Penetration = 5.2 mpf	
		10:10AM					22 - 30°, J, MW, No, No, Ir, VR (Joint occurs along surface of fossil plane of weakness)		
		10:15AM		58.5"					Moderately weathered, strong rock, beige and discolored (dolomitized), increased primary porosity, decreased density, vuggy throughout, less iron staining than above, fossiliferous limestone/dolostone.
		10:21AM							
		10:26AM					23 - 30°, J, N, No, No, Ir, VR		
19'-0"	④ NX	10:31AM			98%		24 - M 25 - 0°, J, MW, No, No, Ir, R (Joint 26 occurs along a solution widened fossil cavity)		
20'-0"		11:12AM					26 - 10°, J, VN, No, No, Ir, R	Rate of Penetration = 4.6 mpf	Moderately weathered, very strong, white 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.
		11:17AM							

NOTES  = Zone of Increased Weathering
 = Cavity/Void

[illegible]

NOTES

-  = Zone of Increased Weathering
-  = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B3
 SHEET 1 OF 3
 DATE : START 12-07-06
 END 12-08-06
 ELEV. (+MSL) +15.67' 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 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: 14.31 Ft. ELEV.: +1.36' MSL TIME: 3:10PM DATE: 12-11-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.26 Ft. ELEV.: +1.41' MSL TIME: 8:39AM DATE: 12-13-06

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"	SPT1		3						Reddish-brown, fined-grained, silty sand, medium dense.
			5						
1'-6"			55						Refusal, i.e. Native Pedro Castle Formation bedrock encountered at approximately 1'-0" below surface level.
3'-0"									
	① NX	2:19PM			96%	1 - 0°, J, W, Fe TR Su Pa, Ir, VR		Rate of Penetration = 4.8 mpf	
		2:25PM				2 - 10°, J, VN, No, No, Ir, R			
5'-0"		2:30PM							
		2:35PM		57.75"					Beige, fine-grained, dense, very strong, vuggy/moderate primary porosity, some staining of small cavities, precipitate-filled veins, damp rock.
		2:39PM							
8'-0"		2:43PM			94%	3 - Top of Cavity, TR Su Pa, Ir, VR		* Near vertical cavity, lined and partially filled with terra rossa, organic matter, damp with a scalloped edge.	
	② NX	3:13PM						Rate of Penetration = 3.8 mpf	
		3:16PM				4 - 0°, J, N, No, No, Ir, R			Slightly to moderately weathered limestone, very little reaction with Hydrochloric Acid solution, strong rock, dense with low primary porosity, having localized zones of increased weathering, as shown. Within zones of increased weathering rock has decreased density, increased porosity, and decreased strength to medium strong rock.
10'-0"		3:20PM				5 - 0°, J, N, No, No, Ir, R			
						6 - 0°, J, N, No, No, Ir, R			

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B3
SHEET 2 OF 3
DATE : START 12-07-06
END 12-08-06
ELEV. (+MSL) +15.67' 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 Watler & Hislop Plumbing Services Ltd.

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CASING: SIZE: 6" PVC DEPTH: 3.0 Ft. WATER: DEPTH: 14.31 Ft. ELEV.: +1.36' MSL TIME: 3:10PM DATE: 12-11-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.26 Ft. ELEV.: +1.41' MSL TIME: 8:39AM DATE: 12-13-06

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	3:20PM			98%				
		3:25PM					7 - 10°, J, N, No, No, Ir, R (joint occurs along plane of weakness due of dissolved fossil cavity)		
		3:29PM		58.5"			8 - 0°, J, N, Fe Su, Ir, R		
13'-0"	③ NX	3:32PM			88%		9 - M		
		8:48AM			99%		10 - 15°, J, N, No, No, Ir, SR	Rate of Penetration = 1.2 mpf	
		8:51AM					11 - 0°, J, N, No, No, Ir, SR		Moderately weathered, very strong rock, beige (dolomitized), dense, vuggy, having a low primary porosity.
15'-0"		8:55AM		59.25"					
		9:01AM							
		9:03AM							Moderately weathered, weak rock, decreased density, increased porosity, vugs and solution cavities.
18'-0"	④ NX	9:04AM			92%		12 - M 13 - M		
		10:03AM						Rate of Penetration = 1.8 mpf	
		10:05AM							Moderately weathered to highly weathered in localized areas, medium strong to weak rock, high primary porosity, low density, vuggy, fossiliferous, with slight staining to small cavities and vugs.
20'-0"		10:07AM					14 to 19 - M		

NOTES  = Zone of Increased Weathering

 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B3
 SHEET 3 OF 3
 DATE : START 12-07-06
 END 12-08-06
 ELEV. (+MSL) +15.67' 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 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: 14.31 Ft. ELEV.: +1.36' MSL TIME: 3:10PM DATE: 12-11-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.26 Ft. ELEV.: +1.41' MSL TIME: 8:39AM DATE: 12-13-06

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	10:07AM 10:08AM 10:10AM		61.5"	103%				
23'-0"	⑤ NX	10:12AM 11:36AM 11:39AM		21.5"	76% 90%	20 to 23 - M 24 - M 25 - M		* Completely weathered, poorly cemented, fragmented rock core. Rate of Penetration = 3.0 mpf * Cavity between 2 No. mechanical breaks occurring where dissolved fossil was located, increased zone of weathering.	Same as above, terra rossa staining throughout upper portion of rock core.
25'-0"		11:42AM			80%	26 - 0", J, T, No, No, Ir, R 27 - M			Slightly weathered, very strong rock, dense, white limestone. Rock has low primary porosity, having few vugs or cavities
30'-0"									

NOTES = Zone of Increased Weathering
 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B4
SHEET 1 OF 3
DATE : START 12-08-06
END 12-11-06
ELEV. (+MSL) +16.02' 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 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: 13.93 Ft. ELEV.: +2.09' MSL 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	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						
3'-0"			>50						Refusal - Native Pedro Castle Formation bedrock.
	① NX	8:36AM			47%			Rate of Penetration = 3.4 mpf	Slightly weathered, very strong, dense, white limestone rock.
		8:45AM				1 - 25°, J, N, No, No, Ir, R			Portion of core is cavity filled with lithified terra rossa
						2 - 25°, J, MW, TR Fi, Ir, R		* Cavity observed by drop in drill-rod during coring process, no evidence of cavity observed.	Moderately weathered, strong, white limestone rock.
5'-0"		8:50AM							Limestone breccia in lithified terra rossa cavity fill.
		8:53AM				3 - 25°, J, W, Fe Sd Fi, Ir, VR			Large cavity, evidence of terra rossa fill observed in muddy drill return water.
				33.75"					
9'-0"		8:53AM			42%				
	② NX	9:19AM				4 - 30°, J, W, No, No, Ir, R		Rate of Penetration = 1.6 mpf	Highly weathered, weak rock, densely fractured, vuggy and porous, low density.
						5 - 0°, J, W, No, No, Ir, VR			
10'-0"		9:21AM				6 - 45°, J, W, No, No, Ir, VR			

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



ENGINEERS FIELD BORING LOG

BORING NO. B4
 SHEET 2 OF 3
 DATE : START 12-08-06
 END 12-11-06
 ELEV. (+MSL) +16.02' 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 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: 13.93 Ft. ELEV.: +2.09' MSL 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	9:21AM			79%	7 - M			Slightly weathered, strong rock, moderate porosity, medium dense.
		9:23AM							
		9:25AM		47.5"		8 - 0°, J, W, No, No, Ir, VR			Highly weathered, weak rock, densely fractured, vuggy and porous, low density.
		9:26AM				9 - M			
		9:27AM			55%	10 - M			
14'-0"	③ NX	10:04AM			62%	11 - 0°, J, W, No, No, Ir, VR		Rate of Penetration = 0.6 mpf	
15'-0"		10:05AM				12 - 0°, J, N, Fe Su, Ir, R			
		10:06AM				13 to 21 - M			
		10:07AM		37"		22 - M			Highly weathered, weak rock, densely jointed, vuggy and porous, low density.
		10:07AM				23 - M			
19'-0"		10:07AM			24%			* Cavity observed by drop in drill-rod during coring process, no evidence of cavity observed.	
20'-0"	④ NX	1:36PM				24 to 30 - M		Rate of Penetration = 1.4 mpf	Highly weathered, weak rock, poorly cemented, white limestone, densely mechanically fractured by coring process.

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



ENGINEERS FIELD BORING LOG

BORING NO. B4
 SHEET 3 OF 3
 DATE : START 12-08-06
 END 12-11-06
 ELEV. (+MSL) +16.02' 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 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: 13.93 Ft. ELEV.: +2.09' MSL 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	1:36PM			98%				
		1:36PM					31 to 35 - M		
		1:38PM		59"			36 - 20°, J, VN, No, No, Ir, R		Slightly weathered, strong, dense, white limestone rock.
		1:41PM					37 - M		
							38 - M		Moderately weathered, strong, dense, porous and coarse-grained.
							39 - M		
24'-0"		1:43PM			50%		40 - M		
	⑤ NX	2:26PM		15"	125%		41 - M	Rate of Penetration = 2.0 mpf	Moderately weathered, strong rock.
25'-0"		2:28PM			77%		42 - M		Highly weathered, weak rock.
							43 - M		
30'-0"									

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



ENGINEERS FIELD BORING LOG

BORING NO. B5
 SHEET 1 OF 3
 DATE : START 12-12-06
 END 12-12-06
 ELEV. (+MSL) +19.94' 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 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: 6.0 Ft. WATER: DEPTH: x ELEV.: x TIME: 8:35AM DATE: 12-13-06

CHECKED BY: _____ DATE: _____ DEPTH: x ELEV.: x TIME: 8:50AM DATE: 12-22-06

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"	SPT1		3						Reddish brown, coarse-grained, gravelly sand, an uncorrected N-value = 12, i.e. medium dense.
			5						
1'-6"			7						
	SPT2		10						Reddish brown, medium-grained, slightly gravelly sand, poorly graded. Uncorrected N-value = 15, i.e. medium dense.
			7						
3'-0"			8						
	SPT3		9						Reddish brown, medium-grained, slightly gravelly sand, poorly graded. Uncorrected N-value = 13, i.e. medium dense.
			6						
4'-6"			7						
4'-9"	SPT4		>50						Refusal - Pedro Castle Formation bedrock
5'-0"								Straight drilling to place casing down to a depth of 6'-0".	
6'-0"									
	① NX	9:40AM			98%		1 - 80°, J, W, TR Fi, Ir, R	Rate of Penetration = 19.7 mpf * 1.75"Ø, terra rose-filled cavity	Slightly weathered, very strong rock, dense, low porosity.
		9:44AM					2 - 80°, J, W, TR Fi, Ir, VR		
7'-2"					43%		3 - 0°, J, VN, No, No, Ir, SR		
	② NX	11:59AM			99%		4 - 80°, J, W, Sd Pa, Ir, R	Rate of Penetration = 3.75 mpf	Slightly weathered, very strong rock, dense, few vugs and cavities in upper 17", rock slightly more porous below.
		12:02PM					5 - 0°, J, N, No, No, Ir, SR		
							6 - 0°, J, N, Fe Su Pa, Ir, VR	* 3" thick zone of increased weathering with iron-staining surrounding solution channel	
		12:06PM					7 - 0°, J, N, TR Pa, Sd Pa, Ca Li, Ir, VR (joint 7 occurs along a terra rose-lined solution channel, 0.5"Ø)		
10'-0"					85%		8 - 0°, J, N, Fe Su, Ir, R		

NOTES = Zone of Increased Weathering

= Cavity/Void

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



ENGINEERS FIELD BORING LOG

BORING NO. B5
 SHEET 2 OF 3
 DATE : START 12-12-06
 END 12-12-06
 ELEV. (+MSL) +19.94' 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 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: 6.0 Ft. WATER: DEPTH: x ELEV.: x TIME: 8:35AM DATE: 12-13-06

CHECKED BY: _____ DATE: _____ DEPTH: x ELEV.: x TIME: 8:50AM DATE: 12-22-06

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	12:10PM							
11'-2"	③ NX	12:14PM 1:06PM 2:01PM 2:05PM 2:09PM 2:21PM 2:24PM			94%	9 - M 10 - 0°, J, W, Fe Su, Ir, R 11 - M 12 - M 13 - M 14 - M 15 - M 16 - 0°, J, W, Fe Su, Ir, R 17 - 0°, J, W, No, No, Ir, R		Rate of Penetration = 3.6 mpf	Slightly weathered, very strong, dense rock. Moderately weathered, medium strong rock, medium dense, mechanical breaks occurring within zones of increased weathering. Slightly weathered, very strong, dense rock. Highly weathered, weak rock.
15'-0"									
16'-2"	④ NX	2:55PM 2:57PM 2:58PM 2:59PM			100%			Rate of Penetration = 1.2 mpf	Highly weathered, weak to medium strong rock, white, porous and vuggy, coarse grained.
20'-0"					68%				

NOTES = Zone of Increased Weathering
 = Cavity/Void
 x = Hole is plugged with mud, can not take a Water Level



ENGINEERS FIELD BORING LOG

BORING NO. B6
 SHEET 1 OF 4
 DATE : START 12-13-06
 END 12-14-06
 ELEV. (+MSL) +14.98' 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 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: 14.35Ft. 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	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.
5'-0"	① NX	9:50AM 9:55AM 9:58AM 10:02AM 10:05AM 10:09AM			92% 86%		1 - 0°, J, W, No, No, Ir, VR (Intersects small solution cavity, 0.25"Ø, 1.25" long) 2 - 0°, J, N, No, No, Ir, VR 3 - 0°, J, T, No, No, Ir, VR 4 - M (Joint 3 intersects an unfilled solution cavity, 0.5"Ø)	Rate of Penetration = 3.8 mpf	Slightly weathered, extremely strong, discolored (dolomitized) rock, very fine-grained mudstone, very dense, having a low primary porosity, some small vugs and cavities throughout. Rock is damp, no staining or fill to entire core.
8'-0"	② NX	10:39AM 10:42AM 10:48AM					5 - 45°, J, N, Fe Su, Ca Li (Joint intersects vertical calcite lined solution conduit, 2.5" in length) 6 - 0°, J, VN, No, No, Ir, SR	Rate of Penetration = 4.4 mpf	Slightly weathered, extremely strong, some discoloration (partially dolomitized) rock, very fine-grained mudstone, very dense, having a low primary porosity and moderate secondary porosity. Fewer vugs, more solution conduits and small cavities.

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



ENGINEERS FIELD BORING LOG

BORING NO. B6
 SHEET 2 OF 4
 DATE : START 12-13-06
 END 12-14-06
 ELEV. (+MSL) +14.98' 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 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: 14.35Ft. 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	10:48AM			100%				
		10:53AM				7 - 30°, J, N, No, No, Ir, SR			
				60"		8 - 0°, J, N, No, No, Ir, SR			
		10:59AM							
13'-0"		11:01AM			100%				
	③ NX	11:37AM			99%	9 - M		Rate of Penetration = 4.0 mpf	
		11:43AM				10 - 0°, J, N, No, No, Ir, SR			
15'-0"		11:48AM		59.25"		11 - M			Slightly weathered, extremely strong, very dense rock with localized zones of increased weathering, as shown, to moderately to highly weathered, medium strong rock.
						12 - M			
						13 - M			
						14 - M			
						15 - M			
18'-0"		11:57AM			86%	16 - M			
	④ NX	12:35PM				17 - 0°, J, VN, No, No, Ir, SR (occurs along 1"Ø iron-stained fossil cavity)		Rate of Penetration = 3.8 mpf	Slightly weathered, very strong rock, moderate primary and secondary porosity, many small iron-stained, calcite lined solution cavities, white limestone with localized zones of increased weathering.
		12:40PM				18 - 0°, J, MW, Fe Sp, Ir, R			
						19 - 0°, J, N, No, No, Ir, SR (occurs along 2"Ø iron-stained, terra rossa-partially filled, calcite-lined, fossil cavity)			
20'-0"		12:44PM							

NOTES = Zone of Increased Weathering
 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B6
 SHEET 3 OF 4
 DATE : START 12-13-06
 END 12-14-06
 ELEV. (+MSL) +14.98' 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 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: 14.35Ft. 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	12:44PM			96%		Un-filled cavity, observed by drop in drill rod while coring rock. 20 - 0°, J, W, Fe Pa, Ir, R (occurs along 0.5"Ø fossil cavity)		
		12:46PM					21 - 0°, J, N, No, No, Ir, R	* Vertical fracture between joint 21 and 23.	
				57.75"			22 - 0°, J, W, Fe Pa, Ir, SR		
		12:50PM					23 - 0°, J, MW, Fe Su, Ir, R (occurs along large fossil solution cavity (2.5"Ø), partially filled with secondary crystallized minerals)		
23'-0"		12:54PM			93%		24 - M		
	⑤ NX	1:49PM			99%		25 - 0°, J, W, Fe Su, Ir, R (occurs along large fossil solution cavity (0.75"Ø))	Rate of Penetration = 6.4 mpf	
		1:55PM					26 - 0°, J, No, No, Ir, R (core is damaged at joint as it was drilled a second time, unable to determine joint width)		
25'-0"		2:01PM						Core is not recovered after being initially drilled and so must be re-drilled a second time. As a result, the core is damaged and the condition of joints are difficult to assess.	Fresh, extremely strong, white limestone rock, very dense, very low primary and secondary porosity, few vugs and solution cavities, no fill or staining observed throughout core.
		2:08PM		59.5"			27 - 0°, J, No, No, Ir, R (core is damaged at joint as it was drilled a second time, unable to determine joint width)		
		2:14PM					28 - 30°, J, N, Fe Su, Chalk Pa, Ir, R		
							29 - 0°, J, No, No, Ir, R (core is damaged at joint as it was drilled a second time, unable to determine joint width)		
28'-0"		2:21PM			97%		30 - 0°, J, N, No, No, Ir, R (occurs along 0.25"Ø, calcite-lined solution cavity)		
	⑥ NX	8:30AM					31 - M	Rate of Penetration = 6.4 mpf	Very slightly weathered, extremely strong, white limestone rock, very dense, low primary and secondary porosity, few vugs and solution cavities (<2"Ø) lined with calcite.
		8:38AM					32 - 30°, J, N, No, No, Ir, R (occurs along 0.75"Ø, calcite-lined solution cavity)		
30'-0"		8:46AM					33 - 0°, J, W, Fe Sp, Ir, VR 34 - 0°, J, W, Fe Sp, Ir, VR (joints 33 & 34 occurs along solution cavity, iron-stained with black minerals, secondary crystallized minerals)		

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B6
 SHEET 4 OF 4
 DATE : START 12-13-06
 END 12-14-06
 ELEV. (+MSL) +14.98' 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 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: 14.35Ft. 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑥ NX Cont'd	8:46AM 8:51AM 8:58AM		59"	98%				
33'-0"	⑦ NX	9:02AM 9:50AM 9:59AM		25.5"	95% 106%		35 - 0°, J, N, No, No, Ir, R 36 - M 37 - 60°, J, N, No, No, Ir, R (occurs along fossil solution cavity, calcite lined, smooth fossil pattern) 38 - 20°, J, N, No, No, Ir, R 39 - 30°, J, T, No, No, Wa, S 40 - M (occurs along fossil solution cavity, calcite lined, smooth fossil pattern)	Rate of Penetration = 3.6 mpf	Very slightly weathered, extremely strong, white limestone rock, very dense, low primary and secondary porosity, few vugs and solution cavities (<2"Ø) lined with calcite.
35'-0"		10:08AM			95%				
38'-0"									
40'-0"									

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



ENGINEERS FIELD BORING LOG

BORING NO. B7
 SHEET 1 OF 4
 DATE : START 12-14-06
 END 12-15-06
 ELEV. (+MSL) +13.97' 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 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: 13.21Ft. ELEV.: +0.76' MSL TIME: 8:54AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 13.31Ft. ELEV.: +0.66' MSL TIME: 9:26AM DATE: 01-08-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	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.
5'-0"	① NX	12:15PM 12:18PM 12:19PM 12:22PM 12:36PM 12:44PM			63% 37.75" 17%		1 - M 2 - Top of Cavity, TR Su, Ir, VR 3 - Bot. of Cavity, 1/2" deposit of Black Minerals (BM) 4 - 0°, B, MW, TR Fe BM Fi 5 - Top of Cavity 6 - Bot. of Cavity 7 - 25°, B, W, TR Su, Ir, VR 8 - 25°, B, MW, TR Su, Ir, SR 9 - 25°, B, W, TR Sd Su, Ir, SR 10 - 25°, B, MW, Sd Si Pa, Ir, SR 11 - 25°, B, MW, Sd Si Pa, Ir, R 12 - 25°, B, W, TR Pa, Ir, SR (occurs along solution cavity) 13 - 25°, B, MW, TR Pa, Ir, SR 14 - 25°, B, N, Fe TR BM Su, FP, R (occurs along fossil solution cavities) 15 - Top of Cavity, TR Li, R	Rate of Penetration = 5.8 mpf	Highly weathered solution cavities containing terra rossa breccia, and bedded minerals composed of lithified terra rossa and black mineral deposits, weathered rock consists of medium strong, medium porosity, low density limestone. Weakly cemented mudstone clasts, mod. weathered, med. strong. Bedded layers of calcite, flint rock, and white limestone mudstone, densely fractured, fractures occurring along bedding planes, extremely strong, dense, high porosity. Mod. weathered, extremely strong, white fossiliferous limestone, vuggy with terra rossa lined cavities.
8'-0"	② NX	1:12PM 1:18PM						Rate of Penetration = 3.8 mpf	Slightly weathered, very strong, white limestone, dense, low primary and secondary porosity, some vugs and small solution cavities.
10'-0"		1:22PM							

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



ENGINEERS FIELD BORING LOG

BORING NO. B7
 SHEET 2 OF 4
 DATE : START 12-14-06
 END 12-15-06
 ELEV. (+MSL) +13.97' 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 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: 13.21Ft. ELEV.: +0.76' MSL TIME: 8:54AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 13.31Ft. ELEV.: +0.66' MSL TIME: 9:26AM DATE: 01-08-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY RQD % (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	1:22PM			101%	20 - M			
		1:25PM		60.5"		21 - M			Moderately weathered, medium strong rock, white limestone, medium dense, high primary porosity and moderate secondary porosity, containing vugs lined with terra rossa and iron staining, and terra rossa-lined joints.
		1:27PM				22 - 20°, J, N, Fe TR BM Pa, Ir, VR			
						23 - 25°, J, N, TR Pa, Ir, VR			
						24 - M			
						25 - J, MW, Fe Su, Ir, VR			Fresh, strong, white limestone rock, coarse grained, low primary porosity, very low secondary porosity, having no cavities or joints.
13'-0"		1:31PM			84%				
	③ NX	2:14PM			98%	26 - M		Rate of Penetration = 1.4 mpf	
		2:16PM				27 - 0°, J, W, No, No, Ir, R			
15'-0"		2:18PM		59"					Moderately to highly weathered, weak to medium strong rock, white limestone, medium-low density, high primary porosity and moderate secondary porosity, vuggy, with zones of increased weathering where numerous mechanical breaks have occurred within weakly cemented rock.
		2:19PM							
		2:20PM				28 to 37 - M			
18'-0"		2:21PM			74%				
	④ NX	2:45PM				38 - 10°, J, N, No, No, Ir, R		Rate of Penetration = 3.8 mpf	
		2:47PM				39 - 5°, J, N, No, No, Ir, R			
						40 - M			
						41 - M			
						42 - M			
20'-0"		2:49PM				43 - M			

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



ENGINEERS FIELD BORING LOG

BORING NO. B7
 SHEET 3 OF 4
 DATE : START 12-14-06
 END 12-15-06
 ELEV. (+MSL) +13.97' 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 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: 13.21Ft. ELEV.: +0.76' MSL TIME: 8:54AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 13.31Ft. ELEV.: +0.66' MSL TIME: 9:26AM DATE: 01-08-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	2:49PM			86%	44 - 15°, J, VN, No, No, Ir, R			
		2:53PM		51.5"		45 - 0°, J, VN, No, No, Ir, R 46 - 40°, J, MW, Fe Su, TR Pa, Ir, VR (occurs along 0.75"Ø fossil solution cavity)			
		2:58PM				47 - 15°, J, VN, No, No, Ir, R (occurs across vertical solution cavity, 1"Ø) 48 - M			
23'-0"		3:04PM			71%				Slightly weathered, very strong rock, white limestone, dense, very low primary porosity and low secondary porosity, having few vugs and larger (<1"Ø) solution cavities.
	⑤ NX	8:36AM			90%	49 - M		Rate of Penetration = 4.8 mpf	
		8:43AM				50 - 10°, J, N, No, No, Ir, SR (intersects small (<0.5"Ø) Fe Su Tr Pa fossil solution cavities)			
						51 - 10°, J, MW, Fe Su, FP (occurs along fossil solution cavity)			
25'-0"		8:46AM		54"		52 - 5°, J, W, No, No, Ir, R (intersects small (<0.5"Ø) Fe Su fossil solution cavity to periphery of core)			
						53 - 0°, J, W, No, No, Ir, R			
		8:50AM				54 - 15°, J, N, No, No, Ir, SR			
		8:54AM				55 - 0°, J, VN, Fe Sp, Ir, R			
28'-0"		9:00AM			77%	56 - M			
	⑥ NX	9:34AM				57 - M		Rate of Penetration = 5.2 mpf	Slightly weathered, very strong rock, white limestone, dense, very low primary porosity and low secondary porosity, containing many small vugs.
		9:40AM				58 - 0°, J, N, Fe Sp, Ir, SR			
						59 - 5°, J, N, Fe Sp, Ir, SR			
30'-0"		9:45AM				60 - 15°, J, N, Fe Sp, Ir, R			

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



ENGINEERS FIELD BORING LOG

BORING NO. B7
 SHEET 4 OF 4
 DATE : START 12-14-06
 END 12-15-06
 ELEV. (+MSL) +13.97' 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 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: 13.21Ft. ELEV.: +0.76' MSL TIME: 8:54AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 13.31Ft. ELEV.: +0.66' MSL TIME: 9:26AM DATE: 01-08-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑥ NX Cont'd	9:45AM 9:50AM 9:54AM		60"	100% 88%	61 - 0°, J, N, Fe Su, Ir, R 62 - 5°, J, MW, Fe Su, Ir, R (occurs along fossil solution cavity) 63 - 5°, J, MW, Fe Su, Ir, R 64 - 5°, J, N, No, No, Ir, R 65 - 5°, J, MW, TR Pa, Ir, VR 66 - 20°, J, N, Fe Su, Ir, VR (occurs across vertical solution cavity, 1' D)			Moderately weathered, very strong rock, white limestone, dense, moderate primary and secondary porosity, iron staining throughout.
33'-0"	⑦ NX	10:00AM 10:45AM 10:50AM		59.5"	99%	67 - 0°, J, MW, Fe Su, Ir, VR 68 - M 69 - 0°, J, W, Fe Sp, Ir, R 70 - 0°, J, N, No, No, Ir, SR 71 - 0°, J, N, Fe Sp, Ir, R 72 - 10°, J, N, Fe Su, Ca Li, Ir, VR		Rate of Penetration = 5.4 mpf	
35'-0"		10:55AM 11:00AM 11:06AM				73 - 5°, J, T, No, No, Ir, R (occurs along 0.5' D TR Pa horizontal solution conduit) 74 - 20°, J, W, Fe Su, Ir, R (occurs along fossil solution cavity)			Slightly weathered, very strong rock, white limestone, dense, low primary porosity, moderate secondary porosity (some vugs, solution cavities and conduits), with zones of increased weathering, as shown.
38'-0"	⑧ NX	11:12AM 11:59AM 12:03PM		20.75"	90% 86%	75 - 0°, J, N, Fe Su, TR Pa, BM Su, Ir, VR 76 - 0°, J, Fe Su, Ir, SR 77 - 0°, J, W, TR Pa, Ir, R 78 - 10°, J, N, Fe Su, Ir, R		Rate of Penetration = 5.5 mpf	
40'-0"		12:10PM			79%	79 - 20°, J, N, No, No, Ca Li, Ir, R 80 - 15°, J, W, Fe Su, Ir, VR (occurs along solution cavity)			Moderately weathered, very strong rock, dense, moderate primary and secondary porosity containing numerous iron-stained vugs and solution cavities.

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



ENGINEERS FIELD BORING LOG

BORING NO. B8
 SHEET 1 OF 4
 DATE : START 12-15-06
 END 12-20-06
 ELEV. (+MSL) +15.29' 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 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: 14.46Ft. ELEV.: +0.83' MSL TIME: 8:57AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.38Ft. ELEV.: +0.91' MSL TIME: 1:48PM DATE: 01-10-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	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.
5'-0"	① NX	8:46AM 8:57AM 9:01AM 9:05AM 9:10AM 9:15AM			69% 41.25" 41%	1 - M 2 - 20°, J, W, Fe Su, Ir, VR 3 - 10°, J, N, Fe TR Su, Ir, R 4 - 35°, J, MW, Fe TR Su, Ir, R 5 - top of 4" Cavity 6 - Bottom of 4" Cavity 7 - Top of 4" Cavity 8 - Bottom of 4" Cavity 9 - 10°, J, N, TR, Pa, Ir, R 10 - 40°, J, W, TR Pa, Ir, VR 11 - 40°, J, W, TR Pa, Ir, VR 12 - M			Entire core sample is highly weathered rock, composed of extremely strong, white limestone bearing many large solution cavities. Terra rossa-filled solution cavity. Highly weathered, densely fractured zone bearing many small solution cavities. Terra rossa-filled solution cavity. Solution cavities are lined or filled with terra rossa. The rock mass has a low primary porosity and a high secondary porosity. Highly weathered, densely fractured zone bearing many small solution cavities.
8'-0"	② NX	9:18AM 9:20AM 9:24AM			28% 0%	12 - 15°, J, W, TR Fi, Ir, R			Same white limestone as above, 50% or core area is terra rossa-filled cavity. Lithified terra rossa filled cavity.
10'-0"									

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



ENGINEERS FIELD BORING LOG

BORING NO. B8
 SHEET 2 OF 4
 DATE : START 12-15-06
 END 12-20-06
 ELEV. (+MSL) +15.29' 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 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: 14.46Ft. ELEV.: +0.83' MSL TIME: 8:57AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.38Ft. ELEV.: +0.91' MSL TIME: 1:48PM DATE: 01-10-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX	9:24AM						Core barrel is blocked at approximately 11' with terra rossa mud and breccia cavity fill.	
11'-0"	Cont'd	9:37AM							
11'-6"	③ NX	10:00AM		3.75"	63%		13 - 0°, J, W, TR Pa, Ir, VR 14 - 0°, J, W, Fe Su, TR Pa, Ir, R		Moderately weathered, extremely strong, white limestone rock, very dense, low in primary and secondary porosity. The bottom 2.5" of sample is more weathered, medium strong, vuggy, iron-stained rock.
	④ NX	10:13AM			0%				
		10:37AM							
		10:53AM		10"	56%		15 - 0°, J, N, Fe Su, Ir, R 16 - 45°, J, W, Fe Su, Ir, VR		Terra rossa and limestone breccia-filled cavity.
13'-0"		10:56AM			40%				
	⑤ NX	11:27AM			56%		17 & 18 - 0°, J, MW, Fe Su, TR Pa, Sd Pa, Ir, R 19 - 5°, J, MW, Sd Fi, Ir, R 20 - 25°, J, MW, Sd Fi, Ir, R		Highly weathered, fragmented limestone in sand matrix. Weakly cemented, highly weathered, weak rock, sand matrix. Cavity observed while drilling, no fill
		11:28AM					21 - 10°, J, N, Fe Su, Sd Pa, BM Su, Ir, R (occurs across 0.5' solution cavity) 22 - 5°, J, N, Fe Su, BM Sp, Ir, VR 23 - 10°, J, VN, Fe Su, BM Sp, Ir, R 24 - 0°, J, VN, Fe Su, Ir, VR (occurs across 1" breccia cavity) 25 - 0°, J, N, Fe Su, Ir, VR 26 & 27 - 0°, J, N, Fe Su, Ir, VR		Weakly cemented, highly weathered, weak rock, sand matrix.
15'-0"		11:29AM		33.5"					Moderately weathered, very strong, dense, white fossiliferous limestone, moderate primary and secondary porosity, iron staining throughout.
		11:30AM							
		11:32AM							
18'-0"		11:37AM			23%				
	⑥ NX	2:18PM					28 - 0°, J, W, Fe Su, Ir, R 29 - 0°, J, N, Fe Su, Ir, R		Moderately weathered, very strong, dense, white fossiliferous limestone, moderate primary and secondary porosity, iron staining throughout.
		2:22PM					30 - 0°, J, MW, Fe Su, Ir, R (occurs across 0.5' soil solution cavity)		
20'-0"		2:27PM							

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



ENGINEERS FIELD BORING LOG

BORING NO. B8
SHEET 3 OF 4
DATE : START 12-15-06
END 12-20-06
ELEV. (+MSL) +15.29' 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 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: 14.46Ft. ELEV.: +0.83' MSL TIME: 8:57AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.38Ft. ELEV.: +0.91' MSL TIME: 1:48PM DATE: 01-10-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	⑥ NX Cont'd	2:27PM 2:32PM 2:37PM		55"	92%		31 - 0°, J, MW, Fe Su, Ir, FP		Slightly weathered, extremely strong, very dense, white fossiliferous limestone, vuggy, moderate primary and secondary porosity, some larger fossil solution cavities throughout (<2"Ø), less iron staining than above.
23'-0"		2:42PM			68%		32 - 0°, J, N, No, No, Ir, R 33 - 20°, J, N, No, No, Ir, R 34 - M		
25'-0"	⑦ NX	9:06AM 9:10AM 9:14AM 9:19AM 9:23AM		63"	100%		35 - 0°, B, Sd Fi, Pl, S 36 - 0°, J, W, TR Pa, Ir, R 37 - 0°, J, W, TR Pa, Ir, VR		Completely weathered limestone in sand matrix.
28'-3"		9:35AM			92%				
	⑧ NX	10:21AM 10:30AM		15.5"	103%		38 - 0°, J, N, TR Pa, Ir, SR (occure across calcite-lined, 0.5"Ø, vertical solution conduit)		
29'-5"		10:31AM			62%		39 - M 40 - M 41 - 20°, J, MW, Fe Su, Oil Su, Si Pa, Ir, SR		Same rock type as above, although greasy black oil is observed on the outer surface of the core and within joints, no calcite is observed, however iron-staining is still present.
30'-0"	⑨ NX	8:40AM					42 - 20°, J, MW, Fe Su, Sd Si Pa, Ir, R 43 - M 44 - 0°, J, W, Fe Su, Ir, SR		

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



ENGINEERS FIELD BORING LOG

BORING NO. B8
 SHEET 4 OF 4
 DATE : START 12-15-06
 END 12-20-06
 ELEV. (+MSL) +15.29' 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 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: 14.46Ft. ELEV.: +0.83' MSL TIME: 8:57AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.38Ft. ELEV.: +0.91' MSL TIME: 1:48PM DATE: 01-10-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑨ NX Cont'd	8:44AM			98%				
		8:49AM		46.5"			45 - 0°, J, N, Fe Su, Ir, R 46 - 0°, J, MW, No, No, Ir, R	* Vertical iron-stained solution cavity, approx. 1.5"Ø	
		8:52AM					47 - 0°, J, MW, Fe Su, Ir, R		Slightly weathered, very strong, white fossiliferous limestone, dense, moderate primary porosity, very low secondary porosity, vuggy.
33'-6"		8:55AM			83%		48 - M 49 - M		
	⑩ NX	9:52AM			102%		50 - 0°, J, N, No, No, Ir, R		
		9:56AM					51 - 0°, J, MW, No, No, Ir, SR		
35'-0"		10:01AM					52 - 0°, J, MW, No, No, Ir, R (occurs within zone of increased weathering)		
		10:06AM		61"			53 - 0°, J, MW, No, No, Ir, R 54 - 0°, J, MW, TR Su, Ir, R		Slightly weathered, very strong, white 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 of core, localized zones of increased weathering to moderately weathered, as shown.
36'-8"		10:11AM					55 - 0°, J, N, Fe Sp, Ir, R		
		10:16AM			96%		56 - 0°, J, N, Fe Sp, TR Su, Ir, R (occurs along calcite-lined, 0.5"Ø, solution conduit)		
	⑪ NX	11:04AM			88%		57 - M 58 - Top of Cavity, TR Fi, Ir, R 59 - Bot. of Cavity, TR Fi, Ir, R		Terra rossa-filled cavity.
		11:07AM		21"			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 2"Ø solution cavity at 60") 63 - M		Slightly weathered, very strong, white fossiliferous limestone, same as above.
40'-0"									
40'-6"		11:13AM			61%				

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B9
SHEET 1 OF 4
DATE : START 12-20-06
END 12-21-06
ELEV. (+MSL) +15.27' 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 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: 6.0 Ft. WATER: DEPTH: 14.71Ft. ELEV.: +0.56' MSL TIME: 9:00AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.44Ft. ELEV.: +0.83' MSL TIME: 1:51PM DATE: 01-10-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"									"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface.
5'-0"									Native Pedro Castle Formation bedrock encountered at approximately 1'-6" below surface of roadway.
6'-0"	① NX	1:56PM			68%	1 - 0° J, W, TR FI, Ir, R 2 - 0° J, W, TR FI, Ir, R		Rate of Penetration = 7.2 mpf	Core sample is approximately 80% lithified terra rossa cavity fill with completely weathered limestone breccia.
8'-0"		2:00PM				3 - 10° J, W, TR FI, Ir, R			Core sample is approximately 50% lithified terra rossa cavity fill with completely weathered limestone breccia.
		2:10PM		46"		4 - 25° J, W, TR FI, Ir, R			Slightly weathered, extremely strong, very dense, very low primary porosity, low secondary porosity, increasing with depth.
		2:18PM				5 - 45° J, MW, TR FI, Ir, VR			
10'-0"		2:27PM			58%				

NOTES  = Zone of Increased Weathering

 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B9
 SHEET 2 OF 4
 DATE : START 12-20-06
 END 12-21-06
 ELEV. (+MSL) +15.27' 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 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: 6.0 Ft. WATER: DEPTH: 14.71Ft. ELEV.: +0.56' MSL TIME: 9:00AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.44Ft. ELEV.: +0.83' MSL TIME: 1:51PM DATE: 01-10-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	① NX Cont'd	2:27PM							
							6 - Top of Cavity, TR Fi, IR, VR		Terra rossa-filled cavity.
11'-8"	② NX	2:32PM 2:58PM 3:07PM 3:14PM 3:21PM 3:27PM			83%		7 - 0°, J, W, TR Su, Ir, R 8 - 25°, J, MW, TR Pa, Fe Su, Ir, VR (intermediate vertical solution cavity lined with black secondary minerals) 9 - 0°, J, W, Fe Su, BM Sp, Ir, R	Rate of Penetration = 6.8 mpf	Slightly weathered, extremely strong, white limestone rock, having a low primary and secondary porosity, very dense and hard, with some localized zones of increased weathering, porosity, containing black secondary minerals throughout.
15'-0"				49.5"			10 - 5°, J, MW, Sd Si TR Pa, BM Sp, Ir, R 11 - 15°, J, MW, Sd Si Gv TR Pa, BM Sp, Ir, R	Terra rossa filled solution cavities.	Increased weathering, black secondary minerals throughout, weakly cemented with sand and gravel cavity infill.
16'-8"	③ NX	3:32PM 8:55AM 9:01AM 9:06AM 9:11AM			78%		12 - 15°, J, N, TR Pa, Fe Su, BM Su, Ir, R 13 - 0°, J, N, No, No, Ir, R 14 - 50°, J, N, No, No, Ir, R 15 - 0°, J, N, No, No, Ir, R (small fossil solution cavity (0.5"Ø) on outer surface of joint) 16 - 10°, J, N, No, No, Ir, R 17 - 0°, J, N, Ca Li, Ir, R	Rate of Penetration = 5.0 mpf	Slightly weathered, extremely strong, white limestone rock, low primary and secondary porosity, some vugs, few solution conduits and cavities, well cemented and dense.
20'-0"					90%				

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



ENGINEERS FIELD BORING LOG

BORING NO. B9
 SHEET 3 OF 4
 DATE : START 12-20-06
 END 12-21-06
 ELEV. (+MSL) +15.27' 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 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: 6.0 Ft. WATER: DEPTH: 14.71Ft. ELEV.: +0.56' MSL TIME: 9:00AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.44Ft. ELEV.: +0.83' MSL TIME: 1:51PM DATE: 01-10-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	③ NX Cont'd	9:16AM							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"		9:20AM				18 - M			
	④ NX	9:59AM			85%			Rate of Penetration = 5.8 mpf	Terra Rossa-filled cavity
		10:05AM				19 - 0°, J, N, No, No, Ir, R 20 - 0°, Top of Cavity, TR Su, Ir, VR 21 - 0°, Bot. of Cavity, TR Fi, Ir, R 22 - 20°, J, N, Siltstone Fi, Ir, SR 23 - 0°, J, MW, TR BM Pa, Ca Li, Ir, SR (intersects solution cavity) 24 - 0°, J, MW, Fe Su, Ir, R (occurs along fossil solution cavity)			Bedded layers of lithified cavity fill
		10:09AM		51"				Vertical terra rossa filled solution cavity, approx. 0.5'±	Extremely strong, fresh, fossiliferous white limestone, very low primary porosity, low secondary porosity, some terra rossa-filled cavities and solution conduits observed throughout.
25'-0"		10:17AM							
		10:23AM						Rate of Penetration = 5.4 mpf	Slightly weathered, very strong, fossiliferous white limestone, moderate primary porosity, low secondary porosity, vuggy, some zones of increased weathering along which most joints occur, very little staining or cavity fill throughout core sample.
26'-8"	⑤ NX	10:28AM			75%				
		11:03AM				25 - 0°, J, N, No, No, Ir, R (intersects oxide-lined small solution cavity) 26 - 0°, J, N, No, No, Ir, R 27 - M		Rate of Penetration = 5.4 mpf	Slightly weathered, very strong, fossiliferous white limestone, moderate primary porosity, low secondary porosity, vuggy, some zones of increased weathering along which most joints occur, very little staining or cavity fill throughout core sample.
		11:07AM							
		11:11AM		46"				Rate of Penetration = 5.4 mpf	Slightly weathered, very strong, fossiliferous white limestone, moderate primary porosity, low secondary porosity, vuggy, some zones of increased weathering along which most joints occur, very little staining or cavity fill throughout core sample.
		11:15AM							
30'-0"					73%				

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



ENGINEERS FIELD BORING LOG

BORING NO. B9
SHEET 4 OF 4
DATE : START 12-20-06
END 12-21-06
ELEV. (+MSL) +15.27' 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 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: 6.0 Ft. WATER: DEPTH: 14.71Ft. ELEV.: +0.56' MSL TIME: 9:00AM DATE: 12-22-06

CHECKED BY: _____ DATE: _____ DEPTH: 14.44Ft. ELEV.: +0.83' MSL TIME: 1:51PM DATE: 01-10-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑤ NX Cont'd	11:21AM				34 - M			
31'-8"		11:30AM							
	⑥ NX	12:04PM			84%	35 - 0°, J, W, TR Fe Su, Ir, SR		Rate of Penetration = 8.4 mpf	
		12:14PM				36 - 10°, J, N, No, No, Ir, R <small>(intersects small calcite-lined fossil solution cavity)</small>			Slightly weathered, very strong to extremely strong, fossiliferous white limestone, very low primary and secondary porosity, some vugs, few small cavities.
		12:23PM				37 - 5°, J, MW, No, No, Ir, SR			
		12:30PM		50.25"		38 - 5°, J, N, No, No, Ir, SR			
35'-0"		12:38PM				39 - 0°, J, N, No, No, Ir, SR		Vertical iron-stained solution cavity, approx. 0.2"Ø	
		12:46PM				40 - 10°, J, N, No, No, Ir, SR			
		1:40PM				41 - 0°, J, N, No, No, Ir, SR			Slightly increased weathering and porosity, very strong rock, small iron-stained solution cavities throughout.
36'-8"		1:47PM			84%	42 - M <small>(intersects a vertical 1.5"Ø iron-stained solution cavity)</small>			
	⑦ NX	1:59PM			94%	43 - 0°, J, N, No, No, Ir, S		Rate of Penetration = 8.25 mpf	
		2:07PM				44 - 10°, 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 porosity and solution cavities.
40'-0"		2:13PM		45"		45 - 5°, J, MW, No, No, Ir, SR			
						46 - 0°, J, MW, No, No, Ir, SR			
						47 - 5°, J, MW, Fe Su (minor), Ir, SR			
						48 - 0°, J, MW, No, No, Ir, R			
40'-8"					100%	49 - M			

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



ENGINEERS FIELD BORING LOG

BORING NO. B10
 SHEET 1 OF 4
 DATE : START 12-22-06
 END 12-27-06
 ELEV. (+MSL) +16.10' 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 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: 15.33Ft. 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	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.			
5'-0"	① NX	9:22AM			103%	1 - M 2 - 25°, J, MW, Fe Su, Rts., Ir, R 3 - 45°, Sh, MW, Fe Su, Rts., Ir, R 4 - 20°, Sh, MW, Fe Su, BM Sp, Rts., Ir, R		Rate of Penetration = 5.6 mpf	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 .			
		9:29AM										
		9:36AM										
		9:44AM										
		9:47AM										
		9:50AM										
8'-0"	② NX	10:08AM			61.5"	5 - 0°, J, T, No, No, Ir, R 6 - 0°, Cav., W, Fe Su, TR Pa, Ir, VR 7 - 0°, J, MW, No, No, Ir, R 8 - 0°, J, MW, Fe Su, Ir, R 9 - 0°, J, MW, Fe Su, Ir, R (intersects 2 No. terra rossa-filled 0.5"Ø solution cavity) 10 - 0°, J, MW, Fe Su, Ir, VR (intersects solution cavity)		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.			
		10:09AM										
		10:12AM										

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B10
 SHEET 2 OF 4
 DATE : START 12-22-06
 END 12-27-06
 ELEV. (+MSL) +16.10' 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 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: 15.33Ft. 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	10:12AM			100%		17 - 25°, J, MW, 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.
		10:13AM					18 - M		
		10:15AM		60"			19 - 40°, J, W, Fe Su, Ir, VR		
							20 - M		
							21 - M		
13'-0"		10:18AM			44%				
	③ NX	10:41AM			98%		22 - M	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.
		10:43AM					23 - 40°, J, W, TR Su, Ir, R (joint occurs along solution passage)		
15'-0"		10:46AM		59"					Slightly increased weathering, medium strong rock with numerous terra rossa-lined vugs and small cavities (<0.5"Ø), high primary porosity, moderate secondary porosity.
		10:48AM							
		10:51AM							
18'-0"		10:52AM			91%		24 - 0°, J, N, TR Pa, BM Sp, Ir, R		
							25 - 0°, J, MW, TR Su, BM Sp, Ir, R (joint intersects solution cavity <1"Ø)		
							26 - M		
	④ NX	11:15AM					27 - 0°, J, MW, No, No, Ir, R	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).
		11:18AM					28 - 0°, J, MW, Fe Su, Ir, VR		
							29 - 0°, J, W, No, No, Ir, VR		
							30 - 0°, J, MW, No, No, Ir, VR		
20'-0"		11:22AM					31 - 0°, J, N, No, No, Ir, R		

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B10
 SHEET 3 OF 4
 DATE : START 12-22-06
 END 12-27-06
 ELEV. (+MSL) +16.10' 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 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: 15.33Ft. 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	11:22AM			103%	32 - 0°, J, N, No, No, Ir, R			
		11:25AM		62"		33 - 0°, J, MW, No, No, Ir, R			
		11:28AM				34 - 0°, J, MW, No, No, Ir, R			Slightly less weathered (moderately), strong rock, vuggy, having a moderate primary porosity and a low secondary porosity, no staining or fill observed throughout.
23'-0"		11:31AM			91%				
	⑤ NX	9:00AM			100%	35 - 0°, J, MW, SD Pa, Ir, VR 36 - M		Rate of Penetration = 2.6 mpf	
		9:03AM				37 - 20°, J, MW, Fe Su, Ir, R 38 - 20°, J, MW, No, No, Ir, VR 39 - 25°, J, W, No, No, Ir, VR 40 - 20°, J, MW, No, No, Ir, VR 41 - 40°, J, N, No, No, Ir, VR 42 - 15°, J, MW, No, No, Ir, VR 43 - 0°, J, MW, No, No, Ir, VR			
25'-0"		9:05AM		60"		45 - 0°, J, MW, No, No, Ir, VR		Rock core is poorly cemented and completely weathered down to rock fragments	Highly weathered, weak rock. Weakly cemented, densely fractured, white rock, medium-low density, moderate primary and secondary porosity.
		9:08AM							
		9:10AM				46 to 58 - M			
28'-0"		9:13AM			18%				
	⑥ NX	10:09AM						Rate of Penetration = 3.4 mpf	
		10:13AM				59 - 0°, J, MW, No, No, Ir, R (partial disintegration (decomposition) to face of joint) 60 - 0°, J, MW, No, No, Ir, R 61 - M			Moderately weathered, strong rock, white limestone, with localized areas of increase weathering, as shown. Rock is dense, having a moderate primary and secondary porosity.
30'-0"		10:16AM				62 - M			

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B10
 SHEET 4 OF 4
 DATE : START 12-22-06
 END 12-27-06
 ELEV. (+MSL) +16.10' 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 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: 15.33Ft. 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 ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑥ NX Cont'd	10:16AM			100%	63 - M			
		10:19AM				64 - M			
				60.25"		65 - 0°, J, MW, No, No, Ir, R			
		10:21AM				66 - M			
						67 - M			
33'-0"		10:26AM			88%	68 - 0°, J, N, No, No, Ir, SR			
	⑦ NX	11:02AM			93%	69 - M		Rate of Penetration = 6.4 mpf	
		11:05AM				70 - 0°, J, MW, No, No, Ir, SR			Slightly weathered, very strong, white rock. Very dense, having a low primary and secondary porosity, with few vugs and cavities.
						71 - 0°, J, N, No, No, Ir, SR			
35'-0"		11:11AM				72 - 0°, J, N, No, No, Ir, SR			
				55.75"		73 - 0°, J, N, No, No, Ir, SR (joint intersects small (0.5") terra rossa-filled solution cavity)			
						74 - 0°, J, MW, No, No, Ir, SR			
		11:18AM				75 - 0°, J, MW, No, No, Ir, R			
						76 - 0°, J, MW, No, No, Ir, SR (occurs along fossil lined with calcite)			Moderately weathered, very strong, white rock. Very dense, having a low primary porosity and moderate secondary porosity.
		11:25AM							
38'-0"		11:34AM			93%	77 - 0°, J, N, Fe Su, Ir, FP			
	⑧ NX	12:13PM			99%	78 - M			
						79 - 0°, J, W, Fe Su, Ir, SR			
		12:24PM		23.75"		80 - 0°, J, W, TR Pa, Chalk Su, Ir, R		Rate of Penetration = 3.8 mpf	
						81 - 0°, J, TR Pa, Ir, VR			
						82 - 0°, J, N, No, No, Ir, R			
						83 - 0°, J, N, No, No, Ir, R			
40'-0"		12:32PM			52%	84 - 0°, J, N, No, No, Ir, R			
						85 - 0°, J, N, No, No, Ir, R			Moderately weathered, very strong, white rock. Very dense, having a low primary and secondary porosity, zones of highly weathered, iron-stained rock, as shown.

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B11
SHEET 1 OF 4
DATE : START 12-28-06
END 01-02-07
ELEV. (+MSL) +15.72' 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 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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	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.
5'-0"	① NX	9:03AM 9:05AM 9:11AM 9:21AM 9:31AM			68% 42.75" 56%	                     	1 - 0°, Top of Cavity, Fe Su, Ir, R 2 - 70°, J, N, Fe, Su, BM Sp, Ir, R 3 - 0°, J, W, TR Fi, Ir, R 4 - 0°, J, W, TR Fi, Ir, R 5 - 35°, J, MW, TR, Su, Ir, VR 6 - 35°, J, N, No, No, Ir, R 7 to 10 - 35°, J, N, Sd Si Pa, Ir, SR 11 - 50°, J, W, TR Su, Ir, R 12 - 0°, Top of Cavity, TR Su, Ir, R	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 zones of increased weathering and terra rossa filled joints. Extremely strong, moderately weathered, stained white rock. 3.5" Ø cavity, unknown fill. Rock core not recovered.
8'-3"	② NX	9:38AM 10:12AM 10:21AM						Rate of Penetration = 3.2 mpf	Bedded, platy, densely fractured, white bedded rock, strong mudstone. Extremely strong, dense, white mudstone, very low primary and secondary porosity, with bedded layers of flint rock, some localized zones of increased weathering and terra rossa filled joints.
10'-0"									

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



ENGINEERS FIELD BORING LOG

BORING NO. B11
 SHEET 2 OF 4
 DATE : START 12-28-06
 END 01-02-07
 ELEV. (+MSL) +15.72' 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 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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	10:35AM			94%	21 - 0°, J, MW, TR Pa, Ir, SR			
		10:48AM		46.25"		22 - 0°, J, MW, No, No, Ir, R			
						23 - 0°, J, MW, No, No, Ir, R			Extremely strong, moderately weathered, vuggy, iron stained white rock, low primary porosity, moderate secondary porosity.
12'-4"		11:28AM			78%	24 - M			
	③ NX	11:48AM		11"	100%			Rate of Penetration = 7.3 mpf	Very strong, moderately weathered, medium dense, moderate primary and secondary porosity, white rock.
13'-3"		12:00PM			82%	25 - J, W, No, No, Ir, R			
	④ NX	1:37PM			97%	26 - M		Rate of Penetration = 4.0 mpf	
		1:45PM				27 - 0°, J, MW, No, No, Ir, R			
15'-0"		1:57PM		43.75"		28 - 0°, J, MW, No, No, Ir, R			Moderately altered, very strong rock, discolored to beige (dolomitized), very dense, low primary porosity, moderate secondary porosity, some small solution cavities throughout lined with calcite or iron-stained.
		2:21PM				29 - 0°, J, MW, No, No, Ir, R			
						30 - 0°, J, MW, No, No, Ir, R			
17'-0"		2:41PM			67%	31 - 0°, J, MW, No, No, Ir, R			
	⑤ NX	9:34AM			98%	32 - 0°, J, MW, Fe Su, Ir, R		Rate of Penetration = 7.2 mpf	
		9:36AM		14.75"		33 - 0°, J, W, No, No, Ir, VR			
18'-3"		9:43AM			77%	34 - 0°, J, MW, No, No, Ir, VR (solution widened flow conduit present between joints 37 and 39)			Moderately altered, very strong rock, white, low primary and secondary porosity, small iron-stained vugs and cavities throughout (<0.5"Ø), very dense
	⑥ NX	10:06AM				35 - 0°, J, W, Si Pa, Ir, R		Rate of Penetration = 5.2 mpf	
		10:13AM				36 - M			
						37 - 50°, J, W, BM Sp, Ir, R			
						38 - 40°, J, MW, BM Sp, Ir, R			
						39 - 0°, J, MW, Fe Su, Ir, R			
						40 - M			
						41 - 15°, J, N, No, No, Ir, R			
20'-0"						42 - 10°, J, N, No, No, Ir, R			

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



ENGINEERS FIELD BORING LOG

BORING NO. B11
 SHEET 3 OF 4
 DATE : START 12-28-06
 END 01-02-07
 ELEV. (+MSL) +15.72' 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 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.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	⑥ NX Cont'd	10:18AM			98%	43 - 10°, J, N, No, No, Ir, R (0.78" fossil solution cavity to edge of joint)			Solution cavities throughout up to 2" in Ø, no staining or fill observed.
		10:24AM		59"		44 - 0°, J, W, No, No, Ir, R (occurs along fossil solution cavity 2" in Ø)			
		10:27AM				45 - 0°, J, N, Fe Su, Ir, R (TR Su solution cavity to outer edge of core - 0.61")			Highly weathered, medium strong rock, dense, terra rossa-stained, densely fractured. Moderate primary and secondary porosity with numerous solution widened terra rossa-stained cavities and vugs.
						46 - 0°, J, W, No, No, Ir, R		* Completely weathered, terra rossa-stained, rock fragments.	
						47 - 0°, J, W, TR Su, Ir, R			
23'-3"		10:32AM			75%	48 - 0°, J, MW, No, No, Ir, R			
						49 - 0°, J, W, Fe Su, Ir, R			
						50 - M			
25'-0"	⑦ NX	11:05AM			98%			Rate of Penetration = 1.2 mpf	
		11:06AM							
		11:07AM		59"					
		11:09AM				51 to 78 - M			Highly weathered, weakly cemented, weak rock, densely fractured (all assumed to be mechanical), white, no staining or fill observed, low density, high primary porosity, moderate secondary porosity, vuggy, with some small solution cavities.
		11:10AM							
28'-3"		11:11AM			0%				
	⑧ NX	11:43AM						Rate of Penetration = 2.6 mpf	
		11:46AM				79 to 89 - M			
30'-0"									

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



ENGINEERS FIELD BORING LOG

BORING NO. B11
 SHEET 4 OF 4
 DATE : START 12-28-06
 END 01-02-07
 ELEV. (+MSL) +15.72' 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 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.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑧ NX Cont'd	11:48AM			103%				
		11:50AM		62"		90 to 96 - M			
		11:51AM				97 - 0°, J, MW, No, No, Ir, R			Moderately weathered, very strong rock, white, low primary and secondary porosity, dense, some small vugs and solutions cavities throughout (<0.5"Ø), no staining or cavity fill observed to entire core.
						98 - 0°, J, N, No, No, Ir, R			
						99 - 0°, J, N, No, No, Ir, R			
33'-3"		11:56AM			36%				
	⑨ NX	8:48AM			101%	100 - M		Rate of Penetration = 5.0 mpf	
		8:53AM				101 - 0°, J, N, No, No, Ir, R			Moderately weathered, strong rock, white, moderate primary porosity and low secondary porosity, dense, some small vugs and solutions cavities throughout (<1"Ø), no staining or cavity fill observed.
						102 - 5°, J, MW, No, No, Ir, R			
						103 - 10°, J, MW, No, No, Ir, R			
35'-0"		8:56AM		60.5"		104 - 20°, J, N, No, No, Ir, R			
						105 - 0°, J, N, No, No, Ir, SR			
		9:01AM				106 - 0°, J, N, No, No, Ir, R			
		9:06AM				107 - 0°, J, N, No, No, Ir, SR (occurs along fossil solution cavity, no staining or fill)			Very strong rock, slightly less weathered than above, white, low primary and secondary porosity, dense, some small vugs and solutions cavities throughout (<1"Ø), some iron-staining observed in areas, localized zones of increased weathering present.
38'-3"		9:13AM			88%				
	⑩ NX	10:27AM			96%	108 - M		Rate of Penetration = 7.0 mpf	
		10:35AM		23"		109 - 5°, J, MW, No, No, Ir, R (small calcite lined vugs to surface)			
						110 - 10°, J, MW, No, No, Ir, R (small calcite-lined fossil cavity 0.5"Ø to 80% of sectional area of core)			
40'-0"						111 - 0°, J, MW, No, No, Ir, R			
40'-3"		10:41AM			67%	112 - 0°, J, MW, No, No, Ir, VR			
						113 - 50°, J, MW, No, No, Ir, R			
						114 - 0°, J, N, No, No, Ir, R			

NOTES = Zone of Increased Weathering

= Cavity/Void

ENGINEERS FIELD BORING LOG

BORING NO. B12
 SHEET 2 OF 4
 DATE : START 01-03-07
 END 01-04-07
 ELEV. (+MSL) 14.56' 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 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: 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.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	11:23AM			102%		18 - 50°, Sh, Fe Su, Ir, R		
		11:27AM							
		11:32AM		61"					
13'-0"	③ NX	11:38AM			88%		19 - M		
		12:01PM			103%		20 - 25°, J, MW, Fe Su, Ca Li, BM Sp, Ir, R,	Rate of Penetration = 3.8 mpf Vertical solution conduit to outer surface of core (approx. 25% 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.
		12:07PM					21 - 40°, J, MW, Ca Li, Ir, VR,		Zones of increased weathering are highly weathered rock.
15'-0"		12:11PM		62"			22 - 0°, J, MW, Fe Su, Ir, VR 23 - 20°, J, MW, Fe Su, Ir, VR 24 - 60°, J, MW, Fe Su, Si Pa, BM Su, Ir, VR 25 - 0°, J, MW, Fe Su, Si Pa, BM Su, Ir, VR 26 - 35°, J, MW, TR Fi, BM Su, Ir, R		Entire core is light brown/beige colored (dolomitized), vuggy and iron stained.
		12:14PM					27 - 0° J, MW, Fe Su, Ir, VR 28 - 0° J, MW, Fe Su, Ir, VR (27 & 28 occur along fossil solution cavity)		Medium strong, moderately weathered, moderate primary porosity, low secondary porosity, medium density.
		12:17PM					29 - 0°, J, MW, No, No, Ir, R		
18'-0"	④ NX	12:20PM			85%		30 - 0°, J, MW, Fe Su, Ir, R		
		12:38PM					31 - 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.
		12:40PM					32 - 0°, J, MW, No, No, Ir, R 33 - 30°, J, MW, No, No, Ir, R 34 - 30°, J, W, No, No, Ir, R 35 - 15°, J, W, No, No, Ir, R		
							36 - 0° J, W, No, No, Ir, R 37 & 38 - M		
20'-0"		12:42PM							

NOTES  = Zone of Increased Weathering

 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B12
 SHEET 3 OF 4
 DATE : START 01-03-07
 END 01-04-07
 ELEV. (+MSL) 14.56' 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 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: 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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	12:42PM			97%				
		12:43PM		58"			39 to 51 - M		
		12:45PM							
23'-0"		12:47PM			7%				
	⑤ NX	1:20PM			96%			Rate of Penetration = 0.8 mpf	
		1:20PM							
25'-0"		1:21PM		57.5"			52 to 78 - M		Highly weathered, weakly cemented, weak rock, white limestone, low density, moderate primary porosity, densely fractured.
		1:22PM							
		1:23PM							
28'-0"		1:24PM			0%				
	⑥ NX	2:01PM						Rate of Penetration = 3.4 mpf	
		2:02PM					79 to 89 - M		
30'-0"		2:03PM							

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B12
 SHEET 4 OF 4
 DATE : START 01-03-07
 END 01-04-07
 ELEV. (+MSL) 14.56' 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 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: 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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑥ NX Cont'd	2:03PM 2:07PM 2:13PM		61.25"	102%	90 - M 91 - 0°, J, MW, No, No, Ir, SR 92 - 0°, J, MW, No, No, Ir, R 93 - 10°, J, N, No, No, Ir, R 94 - 15°, J, N, No, No, Ir, R 95 - 0°, J, N, No, No, Ir, R (occurs along fossil solution cavity) 96 - 10°, J, VN, No, No, Ir, R 97 - 10°, J, VN, No, No, Ir, R			Moderately weathered, very strong, very dense, low primary and secondary porosity, white limestone, with some small vugs and cavities (<0.5"Ø), no staining or cavity fill observed.
33'-0"		2:18PM			33%	98 - 10°, J, N, No, No, Ir, SR 99 - M			
	⑦ NX	2:47PM 2:54PM			95%	100 - 0°, J, N, No, No, Ir, SR 101 - 0°, J, N, No, No, Ir, R (occurs along fossil solution cavity) 102 - 0°, J, N, No, No, Ir, R		Rate of Penetration = 3.2 mpf	
35'-0"		2:59PM		57"		103 - 0°, J, N, No, No, Ir, R 104 - 0°, J, N, No, No, Ir, FP 105 - 15°, J, N, No, No, Ir, R (occurs along fossil surface) 106 - 20°, J, N, No, No, Ir, R (occurs along fossil surface, VN along face of fossil) 107 - 20°, J, N, No, No, Ir, R			Slightly weathered, very strong, very dense, very low primary porosity and low secondary porosity, white limestone.
38'-0"		3:13PM			82%	108 - M			
	⑧ NX	9:05AM 9:12AM		23.5"	98%	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	Moderately weathered, very strong, very dense, low primary porosity, moderate secondary porosity, vuggy with many small solution cavities, no staining or fill observed throughout.
40'-0"		9:18AM			79%				

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B13
 SHEET 1 OF 4
 DATE : START 01-04-07
 END 01-05-07
 ELEV. (+MSL) 19.47' 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 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: 15.61Ft. ELEV.: +3.86' MSL TIME: 9:53AM DATE: 01-08-07

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

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"									"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface.
3'-0"		10:30AM							Native Pedro Castle Formation bedrock encountered at approximately 1'-6" below surface of roadway.
5'-0"	① NX	10:32AM			101%		1 - 0°, J, MW, No, No, Ir, VR 2 - 40°, J, MW, No, No, Ir, VR 3 - 0°, J, MW, No, No, Ir, VR 4 - 0°, J, W, No, No, Ir, VR 5 - 0°, J, W, Fe Su, Ir, VR 6 - 0°, J, MW, No, No, Ir, VR 7 - 10°, J, MW, No, No, Ir, VR	Rate of Penetration = 2.4 mpf	Medium strong to weak rock, moderately to highly weathered, densely fractured, medium-low density, white rick, moderate to high primary and secondary porosity, with zones of increased weathering, as shown.
8'-0"		10:34AM			60.5"		8 - 45°, Sh, MW, Roots, Si Pa, Ir, VR 9 - 0°, J, MW, No, No, Ir, VR 10 - 0°, J, MW, No, No, Ir, VR 11 - 30°, J, W, Si Pa, Ir, VR 12 - 0°, J, MW, Si Pa, Ir, VR		
		10:37AM							
		10:40AM							
		10:42AM			72%				
	② NX	11:17AM					13 - M	Rate of Penetration = 3.2 mpf	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.
		11:20AM					14 - 0°, J, MW, No, No, Ir, R		
10'-0"		11:22AM					15 - 35°, J, W, Si Pa, Ir, R		

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B13
 SHEET 2 OF 4
 DATE : START 01-04-07
 END 01-05-07
 ELEV. (+MSL) 19.47' 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 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: 18.52Ft. ELEV.: +0.95' MSL TIME: 5:09PM DATE: 01-12-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	11:22AM			101%				
		11:25AM				16 - 30°, J, N, No, No, Ir, VR			
		11:29AM		60.5"		17 - 10°, J, N, No, No, Ir, VR			Strong rock, less weathered than above, increased density, lower porosity.
						18 - 0°, J, N, Fe Su, Si Pa, Ir, R 19 - 65°, J, N, Fe Su, Si Pa, Ir, R			
13'-0"	③ NX	11:33AM			78%	20 - 30°, J, MW, Fe Su, Si Pa, Ir, R			Medium strong rock, moderately weathered, medium density, beige (slightly discolored) rock, vuggy, moderate primary and secondary porosity, some minor iron staining and terra rossa cavity fill observed.
		1:16PM			100%	21 - M 22 - 0°, J, MW, No, No, Ir, R 23 - 40°, J, N, Fe Su, Si Pa, Algae, Ir, VR 24 - M		Rate of Penetration = 4.4 mpf	
		1:19PM							
15'-0"		1:24PM				25 - 0°, J, N, No, No, Ir, R			
				60"		26 - 0°, J, MW, Ca Li, FP, R 27 - 0°, J, W, No, No, FP, R			Very strong rock, moderately weathered, vuggy with several larger (<2"Ø) solution cavities. Cavities have no fill, some are iron stained. Entire core is discolored and assumed to be dolomitized. Rock is dense, well cemented and has a low primary porosity and a moderate secondary porosity.
		1:28PM				* 28 - 0°, J, W, No, No, FP, R * 29 - 0°, J, W, Fe Su, FP, R		Fossil solution cavities (approx. 1.8"Ø)	
		1:33PM							
18'-0"	④ NX	1:38PM			66%	30 - 0°, J, MW, Fe Su, FP, R 31 - M			
		2:30PM				32 - 0°, J, MW, No, No, R (occurs along fossil solution cavity)		Rate of Penetration = 4.0 mpf	Localized zones of increased weathering observed, as shown. Rock is becoming stonger with depth.
		2:34PM				33 - 60°, J, MW, Dark Grey Minerals Su, Sp, Ir, VR			
						34 - M			
20'-0"		2:37PM							

NOTES = Zone of Increased Weathering
 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B13
 SHEET 3 OF 4
 DATE : START 01-04-07
 END 01-05-07
 ELEV. (+MSL) 19.47' 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 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: 18.52Ft. ELEV.: +0.95' MSL TIME: 5:09PM DATE: 01-12-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	2:37PM			104%	35 - M (occurs along fossil solution cavity)			Rock is dense, moderately weathered, vuggy, having a moderate primary porosity and a low secondary porosity, some iron staining throughout.
		2:41PM		62.25"		36 - M			
						37 - 30", J, MW, Fe, Su, Ir, R			
		2:45PM				38 - M			Extremely strong rock at base of core.
23'-0"		2:50PM			93%				
	⑤ NX	8:46AM			107%	39 - M		Rate of Penetration = 1.8 mpf	Moderately to highly weathered, medium strong to weak, medium-low density, moderately cemented white limestone rock.
		8:48AM							
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			
		8:53AM							Highly weathered, weak, low density, poorly cemented rock.
28'-0"		8:55AM			31%				
	⑥ NX	9:22AM						Rate of Penetration = 2.8 mpf	
		9:23AM				60 to 69 - M			
30'-0"		9:24AM							

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B13
 SHEET 4 OF 4
 DATE : START 01-04-07
 END 01-05-07
 ELEV. (+MSL) 19.47' 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 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: 18.52Ft. ELEV.: +0.95' MSL TIME: 5:09PM DATE: 01-12-07

NOT ENCOUNTERED ☐

DEPTH (Ft)	SAMPLE NO. and TYPE/CORE RUN	DRILLING TIME	BLOWS/0.5 Ft. ON SAMPLER	RECOVERY (IN.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑥ NX Cont'd	9:24AM			97%				Highly weathered, weak, low density, poorly cemented rock.
		9:26AM							Rock is partially discolored (dolomitized) to approximately 1/2 of core sectional area, and is slightly strengthened.
		9:29AM		58"			70 to 81 - M		Rock is slightly less weathered than top portion but still considered highly weathered, weak to medium strong rock.
33'-0"	⑦ NX	9:36AM			9%			Calclite lined fossil solution cavity (approx. 1'10")	
		12:53PM			103%		82 - 0°, J, N, No, No, Ir, R	Rate of Penetration = 4.6 mpf	
		12:58PM					83 - 0°, J, N, No, No, Ir, R		
							84 - 0°, J, MW, No, No, Ir, R		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.
35'-0"		1:02PM		61.5"			85 - 0°, J, MW, No, No, Ir, R (occurs along a 1.5'10" fossil solution cavity)		
	⑧ NX	1:06PM					86 - 0°, J, MW, Fe Su, Ir, R (occurs along a 0.5'10" fossil solution cavity)		
		1:11PM					87 - 35°, J, MW, Fe Su, Ir, R		
38'-0"		1:16PM			95%		88 - 0°, J, MW, Fe Su, Ir, R (occurs along fossil solution cavity with smooth surface)		
		1:46PM			106%		89 - M	Fossil solution cavity (approx. 1'10"), no fill or staining Rate of Penetration = 6.5 mpf	
		1:53PM		25.5"			90 - 0°, J, N, Fe Su, Ir, R		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.
40'-0"		1:59PM			100%		91 - 0°, J, N, Fe Su, Ir, R 92 - M		

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B14
SHEET 1 OF 4
DATE : START 01-08-07
END 01-09-07
ELEV. (+MSL) +20.4' 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 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 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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"									"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface.
3'-0"		9:25AM							Native Pedro Castle Formation bedrock encountered at approximately 1'-0" below surface of roadway.
5'-0"	① NX	9:27AM			93%	1 - M 2 - M 3 - M 4 - M 5 - M 6 - M 7 - M		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.
8'-0"		9:28AM				8 - 0°, J, MW, Si Pa, Ir, VR 9 - M			
		9:29AM		55.5"		10 - M 11 - 0°, J, MW, Fe Su, Ir, VR 12 - 20°, J, MW, Fe Su, Ir, VR 13 - M 14 - M			Highly weathered weak rock, slightly less weathered than above and no iron staining or cavity fill is observed.
		9:30AM				15 - M 16 - M			
		9:32AM			26%				
	② NX	9:50AM				17 - 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.
		9:51AM				18 - M			
10'-0"		9:54AM				19 - M			

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



ENGINEERS FIELD BORING LOG

BORING NO. B14
 SHEET 2 OF 4
 DATE : START 01-08-07
 END 01-09-07
 ELEV. (+MSL) +20.4' 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 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 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.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	9:54AM			98%	20 - M			Medium strong, well cemented rock. Moderately to highly weathered, vuggy, white rock, moderate primary and secondary porosity, partially discolored (dolomitized) in areas.
		9:57AM		59"		21 - M			
		9:59AM				22 - M			
						23 - M			
13'-0"	③ NX	10:02AM			85%	24 - M			Rate of Penetration = 3.8 mpf
		10:23AM			102%	25 - M			
		10:28AM				26 - 0°, J, MW, No, No, Ir, R (occurs along 0.75" fossil solution cavity)			
						27 - 0°, J, MW, No, No, Ir, R			
15'-0"		10:33AM		61.25"		28 - 0°, J, N, No, No, Ir, R (intersects with 1" fossil solution cavity)			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).
		10:37AM				29 - 0°, J, N, No, No, Ir, R (intersects with 0.75" fossil solution cavity)			
						30 - 0°, J, W, Fe Su, Ir, FP (lost occurs along 2" fossil solution cavity)			
		10:40AM				31 - 0°, J, MW, Fe Su, Ir, VR 32 - 0°, J, MW, Fe Su, Ir, VR		Intersecting iron-stained solution conduit to approximately 50 % of the core sectional area.	
18'-0"		10:42AM			82%	33 - 0°, J, MW, Fe Su, Ir, R		Intersecting iron-stained 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.
						34 - 0°, J, MW, Fe Su, Ir, R			
						35 - 0°, J, MW, Fe Su, Ir, R			
						36 - M			
	④ NX	11:01AM				37 - 0°, J, MW, No, No, Ir, R		Rate of Penetration = 2.4 mpf	Highly weathered, moderate primary and secondary porosity, medium strong rock.
		11:03AM				38 - 0°, J, MW, No, No, Ir, R			
						39 - 0°, J, MW, No, No, Ir, R			
20'-0"		11:06AM				40 - 40°, Sh, N, TR Pa, Ir, R		Intersecting iron-stained solution conduit to approximately 50 % of the core sectional area.	Very strong rock, moderate weathered, discolored (dolomitized), dense, medium low primary and secondary porosity.

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B14
 SHEET 3 OF 4
 DATE : START 01-08-07
 END 01-09-07
 ELEV. (+MSL) +20.4' 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 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 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.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	11:06AM			100%	41 - M			
		11:08AM		60"		42 - M			
		11:10AM				43 - M			Strong rock, moderately weathered, vuggy, moderate primary and secondary porosity, white rock (no discoloration).
						44 - M			
					88%	45 - M			
23'-0"	⑤ NX	11:13AM				46 - M			
		11:35AM			108%	47 - M		Rate of Penetration = 2.2 mpf	Highly weathered, weak rock, poorly cemented, high primary porosity, low density.
		11:37AM				47 to 56 - M			
25'-0"		11:39AM		64.5"		57 - 0°, J, N, No, No, Ir, R (occurs along 1"0 fossil solution cavity with slight Fe Su)			
		11:41AM							
		11:44AM				58 to 66 - M			Moderately weathered, strong rock, with localized zones of increased weathering to highly weathered, white, vuggy and porous, moderate primary and secondary porosity, medium dense, white rock, no discoloration, staining or cavity fill to entire core.
28'-0"	⑥ NX	11:46AM			64%				
		1:27PM						Rate of Penetration = 4.6 mpf	
		1:29PM				67 to 78 - M			
30'-0"		1:32PM							

NOTES  = Zone of Increased Weathering

 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B14
 SHEET 4 OF 4
 DATE : START 01-08-07
 END 01-09-07
 ELEV. (+MSL) +20.4' 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 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: 29.60Ft. 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.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑥ NX Cont'd	1:32PM			100%	79 - M			
		1:35PM							
		1:40PM		63.25"		80 - 0°, J, VN, Fe Su, Ir, Sr (occurs along fossil solution cavity lined with calcite) 81 - 55°, J, MW, Fe Su, FP (occurs along fossil surface) 82 - M			Extremely strong rock, very dense, slightly weathered, white rock. Very low primary porosity, moderate secondary porosity, few vugs, some larger (<2"Ø) iron stained solution cavities and flow conduits.
33'-3"		1:50PM			66%	83 - 0°, J, MW, Fe Su, TR Pa, Ir, R (intersects vertical solution cavity 1'Ø) 84 - 0°, J, N, No, No, Ir, R			
	⑦ NX	2:22PM			98%	85 - M 86 - 0°, J, MW, No, No, Ir, R		Rate of Penetration = 9.2 mpf	
		2:33PM							
35'-0"		2:41PM		58.5"		87 - 0°, J, N, Fe Su, Ca Li (intersects small solution cavity <0.5"Ø)			Extremely strong rock, slightly weathered, white and beige rock (mottled discoloration, partially dolomitized), some vugs, very low primary and secondary porosity, very dense.
		2:48PM							
		2:59PM				88 - 0°, J, N, No, No, Ir, R			
38'-3"		3:08PM			92%	89 - 0°, J, N, No, No, Ir, R (intersects fossil solution cavity to approx. 60% of core sectional area) 90 - M			
	⑧ NX	8:40AM			100%	91 - 0°, J, MW, No, No, Ir, SR		Rate of Penetration = 7.5 mpf	
		8:48AM		24"		92 - 0°, J, MW, No, No, Ir, SR 93 - 15°, J, MW, No, No, Ir, R			Very strong rock, slightly to moderately weathered, white rock, some vugs, very low primary and secondary porosity, very dense, no staining, discoloration or cavity fill observed.
40'-0"						94 - 0°, J, N, No, No, Ir, R			
40'-3"		8:55AM			79%	95 - M			

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B15
SHEET 1 OF 4
DATE : START 01-09-07
END 01-10-07
ELEV. (+MSL) +19.09' 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 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: 3.5 Ft. WATER: DEPTH: 18.42Ft. ELEV.: +0.67' MSL TIME: 8:18AM DATE: 01-11-07

CHECKED BY: _____ DATE: _____ DEPTH: 18.32Ft. ELEV.: +0.77' MSL TIME: 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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
0'-0"									"Cayman Rock" granular roadway fill material deposited upon outcropping bedrock surface.
3'-6"		10:22AM							Native Pedro Castle Formation bedrock encountered at approximately 1'-6" below surface of roadway.
5'-0"	① NX	10:25AM			99%	1 - 0°, J, MW, Fe Su, TR Pa, Ir, VR		Rate of Penetration = 4.2 mpf	Very strong, white limestone, moderately weathered with many iron stained small solution cavities throughout (<2" in diameter), low primary porosity, moderate secondary porosity, dense, with localized zones of increased weathering, as shown.
		10:29AM				2 - 10°, M			
		10:33AM		59.5"		3 - 0°, J, MW, Fe Su, Ir, R (occurs along fossil surface)			
		10:37AM				4 - 0°, J, N, No, No, Ir, R (intersects horizontal fossil solution cavity, approx. 1" Ø)			
8'-6"		10:43AM			94%	5 - M			
	② NX	11:02AM			98%	6 - 5°, M		Rate of Penetration = 4.6 mpf	
10'-0"		11:07AM		59"	93%				

NOTES  = Zone of Increased Weathering

 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B15
 SHEET 2 OF 4
 DATE : START 01-09-07
 END 01-10-07
 ELEV. (+MSL) +19.09' 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 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: 3.5 Ft. WATER: DEPTH: 18.42Ft. ELEV.: +0.67' MSL TIME: 8:18AM DATE: 01-11-07

CHECKED BY: _____ DATE: _____ DEPTH: 18.32Ft. 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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
10'-0"	② NX Cont'd	11:10AM			98%		7 - 0° J, N, Fe Su, Ir, R (approx. 10% of core area, remaining 90% of core area is Fe Su fossil solution cavity)		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					9 - 0° J, MW, Fe Su, Ir, R (occure along a 1.25' fossil cavity to approx. 60% of the core sectional area)		
							10 - 0° J, N, No, No, Ir, R (intersects 0.5' solution cavity lined with calcite)		
13'-6"		11:25AM			93%		11 - 25° J, MW, Fe Su, Ir, R		
	③ NX	11:57AM			104%		12 - M	Rate of Penetration = 5.4 mpf	Extremely strong, white limestone, slightly to moderately weathered, dense with localized zones of increased weathering, as shown. Some small (<2" diameter) fossil solution cavities observed throughout, some are iron stained and others no staining is observed. Very little staining or fill is observed throughout the entire length of core.
15'-0"		12:02PM					13 - 0° J, N, No, No, Ir, FP (fossil pattern)		
		12:08PM		62.5"			14 - 25° J, N, No, No, Ir, R (intersects with 0.5' solution cavity containing many small fossils)		
		12:13PM					15 - 25° J, N, No, No, Ir, R		
		12:17PM					16 - 25° J, W, Fe Su, TR Pa (intersects with 1' solution cavity)		
18'-6"		12:24PM			104%		17 - M		
	④ NX	8:33AM			103%		18 - 5° J, N, No, No, Ir, R (occure along a 2' fossil cavity to approx. 80% of the core sectional area)	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.
20'-0"		8:39AM		61.5"			19 - 10° J, N, Fe Su, Ir, R		
					85%				

NOTES = Zone of Increased Weathering

= Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B15
SHEET 3 OF 4
DATE : START 01-09-07
END 01-10-07
ELEV. (+MSL) +19.09' 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 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: 3.5 Ft. WATER: DEPTH: 18.42Ft. ELEV.: +0.67' MSL TIME: 8:18AM DATE: 01-11-07

CHECKED BY: _____ DATE: _____ DEPTH: 18.32Ft. 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.)	RECOVERY (%) RQD %	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
20'-0"	④ NX Cont'd	8:44AM			103%		20 - 0°, J, N, No, No, Ir, R		
		8:48AM		61.5"			21 - 0°, J, MW, Fe Su, Ca Li (lined), Ir, R		
		8:52AM			85%		22 - 40°, J, MW, BM Sp, Fe Su, Ir, VR		
							23 - 35°, J, MW, Fe Su, Ir, VR		
							24 - 0°, J, N, Fe Su (minor), BM Sp, Ir, R		
23'-6"		9:00AM					25 - 0°, J, MW, Sd Pa, BM Sp, Ir, R		
	⑤ NX	9:29AM			104%		26 - M	Rate of Penetration = 4.0 mpf	Slightly increased in degree of weathering to moderately weathered, very strong rock, partially discolored with dark grey minerals, dense, with slightly increased porosity.
		9:32AM					27 - 0°, J, MW, BM Sp, Ir, R		
							28 - 10°, J, MW, BM Sp, Sd Pa, Ir, R		
25'-0"							29 - 0°, J, MW, BM Sp, Ir, R		
		9:35AM		62.5"			30 - 15°, J, N, BM Sp, Ir, R		
							31 - 0°, J, N, No, No, Ir, R		
		9:39AM					32 - 50°, Sh, N, Fe Su, No, Ir, R		
							33 - 10°, J, N, BM Sp, Ir, R		
		9:43AM					34 - 55°, Sh, MW, Fe Su, TR Pa, Sd Pa		Extremely strong, slightly weathered, white limestone, very low primary and secondary porosity, partially discolored (dolomitized) and very dense.
							35 - 15°, J, MW, BM Sp, Ir, VR		
28'-6"		9:49AM			85%		36 - 0°, J, N, No, No, Ir, R		
	⑥ NX	10:12AM					37 - M	Rate of Penetration = 5.75 mpf	Some localized zones of increased weathering to moderately weathered, very strong rock.
		10:22AM					38 - 0°, J, W, TR Pa, BM Sp, Si Pa, Ir, R		
30'-0"							39 - 0°, J, MW, BM Sp, Ir, R		

NOTES  = Zone of Increased Weathering

 = Cavity/Void



ENGINEERS FIELD BORING LOG

BORING NO. B15
 SHEET 4 OF 4
 DATE : START 01-09-07
 END 01-10-07
 ELEV. (+MSL) +19.09' 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 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: 3.5 Ft. WATER: DEPTH: 18.42Ft. ELEV.: +0.67' MSL TIME: 8:18AM DATE: 01-11-07

CHECKED BY: _____ DATE: _____ DEPTH: 18.32Ft. 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.)	RECOVERY (%)	FRACTURE FREQUENCY	DISCONTINUITY DESCRIPTOR	REMARKS	DESCRIPTION
30'-0"	⑥ NX Cont'd	10:27AM			99%		40 - 0°, J, N, No, No, Ir, SR		
		10:31AM		56.5"			41 - 10°, J, MW, No, No, Ir, R		
		10:35AM					42 - 10°, J, N, No, No, FP (foam pattern)		
		*					43 - 10°, J, N, No, No, Ir, R (intersects with 0.5" solution cavity)		
							44 - 0°, J, VN, No, No, Ir, R (intersects 2" solution cavity to approximately 40% of the core sectional area)		
33'-3"		11:00AM			92%		45 - 0°, J, MW, No, No, Ir, R		
	⑦ NX	11:40AM			100%		46 - M	Average Rate of Penetration = 9.25 mpf	Extremely strong, slightly to moderately weathered, dense, discolored (dolomitized), the degree of which is increasing with depth, low primary porosity and moderate secondary porosity, iron stained and calcite lined vugs and small cavities.
		11:47AM					47 - 0°, J, N, No, No, Ir, SR (~0.5" calcite lined solution cavity present of joint surface)		
							48 - 0°, J, MW, No, No, Ir, SR (~0.5" calcite lined solution cavity present of joint surface)		
35'-0"		11:55AM		56.75"			49 - 0°, J, N, No, No, Ir, SR (~0.5" calcite lined solution cavity present of joint surface)		
							50 - 0°, J, MW, No, No, Ir, R (~0.5" calcite lined solution cavity present of joint surface)		
		12:06PM					51 - 0°, J, MW, No, No, Ir, R (~0.5" calcite lined solution cavity present of joint surface)		
							52 - 0°, J, MW, No, No, Ir, R (~0.5" calcite lined solution cavity present of joint surface)		
		12:17PM					53 - 0°, J, N, No, No, Ir, R		
							54 - 0°, J, N, No, No, Ir, R		
38'-0"		12:29PM			82%		55 - 0°, J, MW, Fe Su, TR Pa, Black Precipitated Minerals, Ir, VR		Very strong, white (no dolomitization) limestone, low primary and secondary porosity, dense and slightly weathered.
	⑧ NX	1:10PM			81%		56 - M	Rate of Penetration = 15.5 mpf	Extremely strong, moderately altered, white limestone, low primary porosity, moderate secondary porosity, very dense.
		1:27PM		19.5"			57 - 0°, J, MW, Fe Su, Ir, R		
							58 & 59 - 40°, Sh, N, Fe Su, Black Precipitated Minerals, TR Pa, Ir, R		
							60 - 0°, J, N, No, No, Ir, R (intersects small fossil cavity)		
40'-0"		1:41PM			77%		61 - M		

NOTES = Zone of Increased Weathering

= Cavity/Void

**COLEMAN ENGINEERING COMPANY**

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
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	Cross Sectional Dimensions (in.)		Moisture Condition	Area (sq. in.)	Load Rate (psi)	Load (lbs.)	Unit Strength (psi)
				Diameter	Length					
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 occasional 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

**COLEMAN ENGINEERING COMPANY**

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
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	Cross Sectional Dimensions (in.)		Moisture Condition	Area (sq. in.)	Load Rate (psi)	Load (lbs.)	Unit Strength (psi)
				Diameter	Length					
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 specimens tested in vertical direction. Ends were ground to required flatness. The composition of the limestone material was quite variable and occasional 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

**COLEMAN ENGINEERING COMPANY**

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
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	Cross Sectional Dimensions (in.)		Moisture Condition	Area (sq. in.)	Load Rate (psi)	Load (lbs.)	Unit Strength (psi)
				Diameter	Length					
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

Remarks: All specimens tested in vertical direction. Ends were ground to required flatness. The composition of the limestone material was quite variable and occasional 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

**COLEMAN ENGINEERING COMPANY**

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:** 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 Sectional Dimensions (in.)		Moisture Condition	Area (sq. in.)	Load Rate (psi)	Load (lbs.)	Unit Strength (psi)
				Diameter	Length					
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

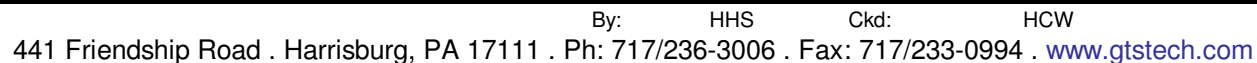
Remarks: Rock Cores B1 and B4 were wavy (sides irregular). All samples tested vertical direction.

Tested By: W. Rice **Date:** 1/24/2007 **Submitted By:** _____ **Date:** 1/26/2007

Savannah Gully
07001-56
7/23/2007

* Does not meet sample standards for minimum height/diameter ≥ 2.0	Avg.	252.4
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Moisture Condition of Samples	Air-dry
Temperature at Testing	68 deg.
Rate of Loading	150 lbs/ sec
Direction of Load Application	Vertical to core





Water Authority-Cayman LABORATORY ANALYSIS REPORT

PO Box 1104 GT, 13G Red Gate Lane, George Town, Cayman Islands

Tel 949-6352, Fax 949-0094



Certificate No. 1931.01

Name: Mr. Mike Bond
Address: c/o Stuart Petch
Water Authority-Cayman

Re: Well (LV-9-2004)
Telephone: 814-2131
Fax:

Paid: N/A

Lab Number: 69816
Sample Origin: Well (LV-9-2004)
Sample Point: Direct from well through Watara
Sample Collector: S.Petch
Date & Time Collected: 11-Jul-07 @ 11:05 AM
Date & Time Received: 11-Jul-07 @ 11:40 AM
Date & Time of Analysis: 11-Jul-07 @ 12:00 PM
Date of Report: 30-Jul-07

RESULTS

General Appearance of Sample			Microbiological Analysis			
Visual observations	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	SM 9223 B
Clarity: Clear	TE		Thermotolerant coliform bacteria:	n/d	cfu/100ml	SM 9222 D
			Heterotrophic bacteria:	n/d	cfu/ml	SM 9215 D

TNTC: Too Numerous To Count; *CGwColi: Confluent Growth with coliforms, n/d: not done

Physico-chemical Analysis

Result	units	Method	Analyst	Result	units	Method	Analyst
Alkalinity*	n/d	mg/l	SM 2320 B	Iron, Total*	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 MM	Sodium*	n/d	mg/l	ASTM D2791
Chlorine Residual, Free*	n/d	mg/l	SM 4500-Cl ⁻ G	Sulphate*	n/d	mg/l	USEPA 375.4
Chlorine Residual, Total*	n/d	mg/l	SM 4500-Cl ⁻ G	Suspended Solids, Total:	n/d	mg/l	SM 2540 D
COD*	n/d	mg/l	SM 5220 B	Suspended Solids, Fixed*	n/d	mg/l	SM 2540 E
Electrical Conductivity:	n/d	μ S/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
Hydrogen Sulphide*	0.010	mg/l	SM 4500-S ²⁻ D TE				

Note: n/d indicates analysis not done

COMMENTS:

Results as requested.

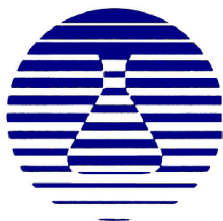
Tests with an asterisk * are not covered by our current A2LA accreditation

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

Reviewed by Laboratory Manager: BWA

Date: 30-Jul-07

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)	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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Certificate of Analysis

July 20, 2007

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

Lab ID#: **9693190**

Page: 1 Of 2

Project Name: **Grand Cayman - Savannah Gully**
Workorder ID: **Grand Cayman - Savannah Gully**

PO#:

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.

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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.

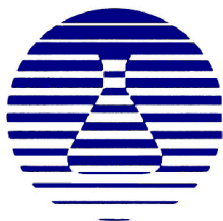
Qualifier Flags - These flags may follow individual results for a specific analyte

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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Certificate of Analysis

July 20, 2007

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

Lab ID #: **9693190001**
Received: 07/12/07 10:57
Discard: 08/03/07

Page: 2 Of 2

Project Name: **Grand Cayman - Savannah Gully**
Workorder ID: **Grand Cayman - Savannah Gully**

PO#:
COC Number:

Sample ID: **LV-9-2004-1**
Date Collected: 07/11/07 11:00

Matrix: Ground Water
Collected by: Collected by Customer

Analysis Parameter	Result	Units	RDL	Method	Completed	Prep Date	By	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	LMN	C
Sulfide, Total	ND	mg/L	1.0	376.1/4500F	07/16/07 08:00	07/16/07	LMN	C
METALS								
Calcium, Total	331	mg/L	0.11	SW846 6010B	07/19/07 13:34	07/18/07	JWK	B1
Magnesium, Total	106	mg/L	0.11	SW846 6010B	07/19/07 13:34	07/18/07	JWK	B1

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Raymond J. Martrano
Laboratory Manager