

SUB-APPENDIX A  
GEOTECHNICAL

GEOTECHNICAL WASH/BORING LOGS

ANALYTICAL SAMPLE RESULTS

Hole No. CB-HI97-1

<b>DRILLING LOG</b>		DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1
1. PROJECT Hillsboro Inlet Deepening		10. SIZE AND TYPE OF BIT See remarks		
2. LOCATION (Coordinates or Station) X=801,676 Y=699,882		11. DATUM FOR ELEVATION SHOWN (TBM or NSL) NGVD		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Fading 314		
4. HOLE NO. (As shown on drawing title and file number) CB-HI97-1		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 3 undisturbed: 0		
5. NAME OF DRILLER C. Robbins		14. TOTAL NUMBER OF CORE BOXES 2		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. ELEVATION GROUND WATER Tidal		
7. THICKNESS OF BURDEN 4.9 Ft.		16. DATE HOLE STARTED COMPLETED 09/13/97 09/13/97		
8. DEPTH DRILLED INTO ROCK 17.3 Ft.		17. ELEVATION TOP OF HOLE -10.4 Ft.		
9. TOTAL DEPTH OF HOLE 22.2 Ft.		18. TOTAL CORE RECOVERY FOR BORING 84 %		
		19. SIGNATURE OF GEOLOGIST J. Authur		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC X	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-10.4	.0					-10.4	
			SAND, poorly graded, fine to medium grained quartz, little shell fragments, calcareous, brown, (SP) gray	73	1	SPLIT SPOON	15 68 32/0.1
			some shell fragments, brown and gray	53		SPLIT SPOON	26 50 44
				53	2	SPLIT SPOON	8 28 37
-14.9	4.5			100	3	-14.9	
-15.3	4.9		silty SAND, fine to medium grained quartz, some shell fragments, calcareous, light gray, (SM)			SPLIT SPOON	100
			LIMESTONE, hard, moderately weathered, highly porous and pitted, few small vugs, fossiliferous, light brown, low angle open joints: 6.0', 8.4', 9.3', 9.8', 10.1', 11.3', 13.0', 13.6', 14.4', 15.9', 16.2', 16.6', 16.7', 16.8', 17.0', 18.0', 18.5', 19.2', 20.8'	84	ROD 84	4" x 5.5" Diamond Bit O.T. = 15 min H.P. = 100 psi W.R. = 100%	
			from 10.2' to 14.8', slightly to moderately porous and pitted			-20.5	
			from 14.8' to 16.8', highly vuggy with small to large vugs	100	ROD 100	4" x 5.5" Diamond Bit O.T. = 12 min H.P. = 100 psi W.R. = 100%	
			from 16.8' to 16.9', poorly cemented			-25.3	
			from 16.9' to 19.2', few small vugs, light gray	100	ROD 83	4" x 5.5" Diamond Bit O.T. = 18 min H.P. = 110 psi W.R. = 100%	
			from 19.2' to 19.4', white, from 19.2' to 20.1', slightly porous and pitted, from 19.2' to 20.8', very hard, slightly to moderately weathered			-29.6	
			from 19.4' to 20.8', light brown	53	ROD 53	4" x 5.5" Diamond Bit O.T. = 14 min H.P. = 200 psi W.R. = 100%	
			from 20.1' to 20.8', moderately to highly porous, pitted and vuggy, with small to large vugs			-32.6	
-32.6	22.2		NOTE: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.			-32.6	
						1 3/8" I.O. splitspoon with 140 lb hammer falling 30"	



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PROJECT Hillsboro Inlet Deepening

HOLE NUMBER CB-HI97-1

Hole No. CB-HI97-2

<b>DRILLING LOG</b>	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET OF 1
1. PROJECT Hillsboro Inlet Deepening	10. SIZE AND TYPE OF BIT See remarks	11. DATUM FOR ELEVATION SHOWN (TBM or HSL) NGVD	
2. LOCATION (Coordinates or Station) X=801,528 Y=699,935	12. MANUFACTURER'S DESIGNATION OF DRILL Faling 314	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 1 undisturbed: 0	
3. DRILLING AGENCY Savannah District	14. TOTAL NUMBER OF CORE BOXES 2	16. ELEVATION GROUND WATER Tidal	
4. HOLE NO. (As shown on drawing title and file number) CB-HI97-2	15. DATE HOLE STARTED COMPLETED 09/14/97 09/14/97	17. ELEVATION TOP OF HOLE -8.9 Ft.	
5. NAME OF DRILLER C. Robbins	18. TOTAL CORE RECOVERY FOR BORING 87 %	19. SIGNATURE OF GEOLOGIST J. Authur	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED	7. THICKNESS OF BURDEN 1.3 Ft.		
8. DEPTH DRILLED INTO ROCK 19.4 Ft.	9. TOTAL DEPTH OF HOLE 20.7 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC x	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-9.9	0					-9.9	0
-11.2	1.3		SAND, poorly graded, fine to medium grained quartz, calcareous, brown, (SP)	62	1	SPLIT SPOON	11
			LIMESTONE, hard, moderately weathered, highly porous and pitted, fossiliferous, light brown, low angle open joints: 2.8', 4.2', 5.5', 6.3', 8.1', 10.2', 10.7', 11.4', 12.1', 12.6', 12.8', 13.4', 14.0', 14.6', 15.5', 16.2', 16.8', 17.0', 17.4', 18.4', 18.7', 19.3'	86	ROO 86	4" x 5.5" Diamond Bit D.T. = 14 min H.P. = 80 psi W.R. = 0%	2.5
			from 5.2' to 5.5', brown stains, sand coating at 5.5'				5
			from 5.5' to 6.3', cavity				
			from 6.3' to 11.4', few small vugs				7.5
				100	ROO 100	4" x 5.5" Diamond Bit D.T. = 27 min H.P. = 100 psi W.R. = 0%	10
							12.5
			from 11.4' to 15.8', very hard to hard, moderately to highly weathered, highly vuggy with small vugs	100	ROO 91	4" x 5.5" Diamond Bit D.T. = 8 min H.P. = 100 psi W.R. = 0%	15
							17.5
			from 16.8' to 17.0', poorly cemented and badly broken				
			from 18.4' to 18.7', fragmented	71	ROO 61	4" x 5.5" Diamond Bit D.T. = 8 min H.P. = 100 psi W.R. = 100%	20
-30.6	20.7					-30.6	22.5
			NOTE: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.			1 3/8" I.O. splitspoon with 140 lb hammer falling 30"	

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PROJECT  
Hillsboro Inlet Deepening

HOLE NUMBER  
CB-HI97-2

Hole No. CB-HI97-3

<b>DRILLING LOG</b>		DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1
1. PROJECT Hillsboro Inlet Deepening		10. SIZE AND TYPE OF BIT See remarks		
2. LOCATION (Coordinates or Station) X=801,243 Y=700,061		11. DATUM FOR ELEVATION SHOWN (TBM or NSI) NGVD		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) CB-HI97-3		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 1 undisturbed: 0		
5. NAME OF DRILLER C. Robbins		14. TOTAL NUMBER OF CORE BOXES 2		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. ELEVATION GROUND WATER Tidal		
7. THICKNESS OF BURDEN 3.0 Ft.		16. DATE HOLE STARTED COMPLETED 09/14/97 09/14/97		
8. DEPTH DRILLED INTO ROCK 16.0 Ft.		17. ELEVATION TOP OF HOLE -12.3 Ft.		
9. TOTAL DEPTH OF HOLE 19.0 Ft.		18. TOTAL CORE RECOVERY FOR BORING 80 %		
		19. SIGNATURE OF GEOLOGIST J. Authur		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-12.3	0					-12.3	
			SAND, poorly graded, fine to medium grained quartz, some shell fragments, calcareous, grayish brown, (SP)	53	1	SPLIT SPOON	1 3
			some fine gravel size shell fragments, light gray	67		SPLIT SPOON	12 74
-14.4	2.1		LIMESTONE, soft			WASHED	
-15.3	3.0		LIMESTONE, hard, moderately to highly weathered, highly porous and pitted, moderately vuggy with small vugs, few large vugs to 4.3', fossiliferous, gray, low angle open joints: 4.2, 5.8', 6.4', 6.8', 7.4', 7.8', 8.3', 8.4', 9.1', 9.8', 10.5', 10.7', 11.3', 11.7', 12.1', 12.6', 14.1', 14.6'	98	RCD 98	4" x 5.5" Diamond Bit D.T. = 7 min H.P. = 100 psi W.R. = 90%	
			from 7.9' to 11.7', highly vuggy with small to large vugs				
			from 8.3' to 8.4', fragmented				
			from 11.7' to 12.1', moderately hard, highly weathered, light gray				
			from 13.0' to 14.1', fragmented, from 13.0' to 15.0', soft to moderately hard, highly weathered				
			from 14.1' to 15.0', poorly cemented and badly broken				
			from 15.0' to 15.8', cavity				
			from 15.8' to 19.0', light brownish gray	87	RCD 48	4" x 5.5" Diamond Bit D.T. = 4 min H.P. = 100 psi W.R. = 90%	
-31.3	19.0					-31.3	
			NOTE: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.			1 3/8" I.D. splitspoon with 140 lb hammer falling 30" split spoon	

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PROJECT  
Hillsboro Inlet Deepening

HOLE NUMBER  
CB-HI97-3

Hole No. CB-HI97-4

<b>DRILLING LOG</b>	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1
1. PROJECT Hillsboro Inlet Deepening		10. SIZE AND TYPE OF BIT See remarks	
2. LOCATION (Coordinates or Station) X=801.057 Y=700.145		11. DATUM FOR ELEVATION SHOWN (TBM or HSL) NGVD	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) CB-HI97-4		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 5 undisturbed: 0	
5. NAME OF DRILLER C. Robbins		14. TOTAL NUMBER OF CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. ELEVATION GROUND WATER Tidal	
7. THICKNESS OF BURDEN 15.1 Ft.		16. DATE HOLE STARTED COMPLETED 09/15/97 09/15/97	
8. DEPTH DRILLED INTO ROCK 0.0 Ft.		17. ELEVATION TOP OF HOLE -19.8 Ft.	
9. TOTAL DEPTH OF HOLE 15.1 Ft.		18. TOTAL CORE RECOVERY FOR BORING 37 %	
		19. SIGNATURE OF GEOLOGIST J. Authur	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5
-19.8	0					-19.8	0
			SAND, poorly graded, fine to medium grained quartz, some shell fragments, calcareous, gray, (SP)	50	1	SPLIT SPOON	2 9 23 30
			fine gravel size shell fragments, trace quartz, slight petroleum odor	40	2	SPLIT SPOON	9 17
			fine to medium grained quartz, some shell fragments, little fine gravel sized shell fragments, some petroleum odor, from 4.5' to 6.0', trace wood and plastic	40	3	SPLIT SPOON	28 6 4
				40	4	SPLIT SPOON	4 1 2
				0		SPLIT SPOON	2 18 24
						WASHED	28
			fine grained quartz, little fine to medium grained shell, little fine to coarse gravel sized coral fragments, light gray	10	5	SPLIT SPOON	7 8 1
-34.9	15.1					-34.9	15
			NOTE: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.			1 3/8" I.O. split spoon with 140 lb hammer falling 30"	17.5 20 22.5

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PROJECT  
Hillsboro Inlet Deepening

HOLE NUMBER  
CB-HI97-4

Hole No. CB-HI97-5

<b>DRILLING LOG</b>	<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Jacksonville District	<i>SHEET 1 OF 2</i>
<b>1. PROJECT</b> Hillsboro Inlet Deepening		<b>10. SIZE AND TYPE OF BIT</b> See remarks	
<b>2. LOCATION (Coordinates or Station)</b> X=801,104 Y=689,903		<b>11. DAY ON FOR ELEVATION SHOWN (TBM or HSL)</b> NGVD	
<b>3. DRILLING AGENCY</b> Savannah District		<b>12. MANUFACTURER'S DESIGNATION OF DRILL</b> Fading 314	
<b>4. HOLE NO. (As shown on drawing title and the number)</b> CB-HI97-5		<b>13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN</b> disturbed: 6 undisturbed: 0	
<b>5. NAME OF DRILLER</b> C. Robbins		<b>14. TOTAL NUMBER OF CORE BOXES</b> 1	
<b>6. DIRECTION OF HOLE</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>15. ELEVATION GROUND WATER</b> Tidal	
<b>7. THICKNESS OF BURDEN</b> 11.2 Ft.		<b>16. DATE HOLE STARTED COMPLETED</b> 09/15/97 09/15/97	
<b>8. DEPTH DRILLED INTO ROCK</b> 11.9 Ft.		<b>17. ELEVATION TOP OF HOLE</b> -11.9 Ft.	
<b>9. TOTAL DEPTH OF HOLE</b> 23.1 Ft.		<b>18. TOTAL CORE RECOVERY FOR BORING</b> 55 %	
<b>19. SIGNATURE OF GEOLOGIST</b> J. Authur			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-11.9	0					-11.9	0
-13.4	1.5		GRAVEL, poorly graded, fine to coarse, trace of fine to medium grained quartz, gray and brown, (GP)	20	1	SPLIT SPOON	4
-14.9	3.0		PEAT, trace of fine quartz sand and shell fragments, calcareous, very dark brown and dark gray, (PT)	67	2	SPLIT SPOON	8
-16.4	4.5		silty SAND, fine grained quartz, dark brown and gray, (SM)	73	3	SPLIT SPOON	7
			SAND, poorly graded, fine grained quartz, trace of fine to medium grained shell, gray, (SP)	60	4	SPLIT SPOON	8
				53		SPLIT SPOON	9
				47	5	SPLIT SPOON	4
-22.4	10.5			20		SPLIT SPOON	4
-23.1	11.2		silty SAND, fine to medium grained quartz, trace of fine limestone gravel, gray and light gray, (SM)	86	6	SPLIT SPOON	3
			LIMESTONE, moderately to highly weathered, highly porous, pitted and vuggy, with small to large vugs, fossiliferous, light brownish gray, low angle open joints, 11.4', 11.5', 12.6', 13.4', 14.2', 15.4', 16.1', 16.4' from 12.3' to 16.4', light gray	100	ROD 87	4" x 5.5" Diamond Bit O.T. = 17 min H.P. = 100 psi W.R. = 100%	
-28.3	16.4					-28.3	
-28.8	16.9		PEAT, silty, slightly calcareous, dark brown, (PT)				
-29.5	17.6		SAND, poorly graded, fine grained quartz, gray, (SP)				
-29.9	18.0		PEAT, silty, dark brown, (PT)				
			cavity	33	ROD 0	4" x 5.5" Diamond Bit O.T. = 13 min H.P. = 100 psi W.R. = 0%	
-33.1	21.2		LIMESTONE, highly weathered, highly porous, pitted and vuggy, with small to large vugs.	100	ROD 37	4" x 5.5" Diamond Bit O.T. = 5 min H.P. = 100 psi W.R. = 0%	

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PROJECT  
Hillsboro Inlet Deepening

HOLE NUMBER  
CB-HI97-5

Hole No. CB-HI97-5

DRILLING LOG (Cont. Sheet)		ELEVATION TOP OF HOLE		SHEET 2 OF 2			
PROJECT		INSTALLATION					
Hillsboro Inlet Deepening		3rd Sonoma District					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC #	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-34.4	22.5						
-35.0	23.1		fossiliferous, light gray, fragmented to 21.4' from 21.9' to 22.3', poorly cemented, badly broken, brown and gray from 22.3' to 22.7', fragmented from 22.7' to 23.1', brown and gray  NOTE: 1. Soils are field visually classified in accordance with the United Soils Classification System.	100	ND 37	-35.0 1 3/8" I.D. splitspoon with 140 lb hammer falling 30"	22.5 25 27.5 30 32.5 35 37.5 40 42.5 45 47.5 50

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PROJECT Hillsboro Inlet Deepening

HOLE NUMBER CB-HI97-5

Hole No. CB-HI97-6

<b>DRILLING LOG</b>	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2
1. PROJECT Hillsboro Inlet Deepening	10. SIZE AND TYPE OF BIT See remarks		
2. LOCATION (Coordinates of Station) X=801,23; Y=699,699	11. DATUM FOR ELEVATION SHOWN (784 or NSL) NGVD		
3. DRILLING AGENCY Savannah District	12. MANUFACTURER'S DESIGNATION OF DRILL Fasing 314		
4. HOLE NO. (As shown on drawing title and file number) CB-HI97-6	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0		
5. NAME OF DRILLER C Robbins	14. TOTAL NUMBER OF CORE BOXES 3		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED	15. ELEVATION GROUND WATER Tidal		
7. THICKNESS OF BURDEN 0.0 Ft.	16. DATE HOLE STARTED COMPLETED 09/16/97 09/16/97		
8. DEPTH DRILLED INTO ROCK 27.8 Ft.	17. ELEVATION TOP OF HOLE -4.4 Ft.		
9. TOTAL DEPTH OF HOLE 27.8 Ft.	18. TOTAL CORE RECOVERY FOR BORING 92 %		
	19. SIGNATURE OF GEOLOGIST J. Authur		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	NO. SAMPLE NUMBER	REMARKS	
-4.4	0					-4.4	
			LIMESTONE, very hard, moderately to highly weathered, slightly to moderately porous and pitted, few small to large vugs, fossiliferous, light gray, low angle open joints: 0.3', 1.4', 3.8', 5.1', 6.2', 9.8', 8.9', 10.6'	100	ROD 100	4" x 5.5" Diamond Bit D.T. = 15 min H.P. = 100 psi W.R. = 0%	
			from 0.3' to 5.1', small vugs, from 0.3' to 15.8', gray				-8.0
			from 2.8' to 5.1', moderately weathered, moderately porous and pitted				
			from 5.1' to 8.4', highly vuggy, from 5.1' to 12.7', highly porous and pitted	100	ROD 100	4" x 5.5" Diamond Bit D.T. = 20 min H.P. = 100 psi W.R. = 0%	
			from 8.4' to 12.7', very hard to hard, small vugs, from 8.4' to 15.8', moderately vuggy				-12.8
			from 9.8' to 9.9', fragmented				
			from 11.7' to 11.8', fragmented	100	ROD 85	4" x 5.5" Diamond Bit D.T. = 10 min H.P. = 100 psi W.R. = 0%	
			from 12.7' to 15.8', hard, from 12.7' to 17.4', moderately to highly porous and pitted, from 12.7' to 25.3', small to large vugs				-17.1
			from 13.9' to 14.0', fragmented, from 13.9' to 14.1', poorly cemented	100	ROD 79	4" x 5.5" Diamond Bit D.T. = 6 min H.P. = 100 psi W.R. = 0%	
			from 15.8' to 17.4', moderately hard, moderately to highly vuggy, light gray, from 15.8' to 20.4', highly weathered				-21.8
		from 17.4' to 25.3', hard, highly vuggy					
		from 18.2' to 18.7', fragmented					
		from 20.2' to 20.4', fragmented	100	ROD 44	4" x 5.5" Diamond Bit D.T. = 6 min H.P. = 50 psi W.R. = 0%		
		from 20.4' to 25.3', brownish gray					
		from 21.3' to 21.7', fragmented					
		from 22.1' to 23.1', fragmented					

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PROJECT: Hillsboro Inlet Deepening

HOLE NUMBER: CB-HI97-6

Hole No. CB-H197-6

DRILLING LOG (Cont. Sheet)		ELEVATION TOP OF HOLE		PROJECT		INSTALLATION	
		-4.4 Ft.		Hillsboro Inlet Deepening		Jacksonville District	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	
-26.9	22.5		from 23.6' to 23.8', fragmented  from 25.2' to 25.3', fragmented	52	ROD #	4" x 5.5" Diamond Bit O.T. = 10 min H.P. = 50 psi W.R. = 0%	22.5
-32.2	27.8		NOTE: 1. Soils are field visually classified in accordance with the United Soils Classification System.			1 3/8" I.D. splitspoon with 140 lb hammer falling 30"	27.6
							22.5
							25
							27.6
							27.8
							30
							32.5
							35
							37.5
							40
							42.5
							45
							47.5
							50

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PROJECT  
Hillsboro Inlet Deepening

HOLE NUMBER  
CB-H197-6

Hole No. CB-HI97-7

<b>DRILLING LOG</b>		DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2
1. PROJECT Hillsboro Inlet Deepening		10. SIZE AND TYPE OF BIT See remarks		
2. LOCATION (Coordinates of Station) X=801,352 Y=699,453		11. DATUM FOR ELEVATION SHOWN (TBW or MSL) NGVD		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and the number) CB-HI97-7		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0		
5. NAME OF DRILLER C. Robbins		14. TOTAL NUMBER OF CORE BOXES 3		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. ELEVATION GROUND WATER Tidal		
7. THICKNESS OF BURDEN 0.0 Ft.		16. DATE HOLE STARTED COMPLETED 09/17/97 09/17/97		
8. DEPTH DRILLED INTO ROCK 25.8 Ft.		17. ELEVATION TOP OF HOLE -6.3 Ft.		
9. TOTAL DEPTH OF HOLE 25.8 Ft.		18. TOTAL CORE RECOVERY FOR BORING 82 %		
		19. SIGNATURE OF GEOLOGIST J. Authur		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS
-6.3	0		LIMESTONE, hard, moderately weathered, highly porous, pitted and vuggy with small vugs, fossiliferous, light yellowish brown, low angle open joints: 0.9', 1.8', 3.7', 4.6', 4.7', 4.9'	94	ROD 89	4" x 5.5" Diamond Bit D.T. = 17 min H.P. = 50 psi W.R. = 75%
			from 7.8' to 10.0', moderately hard to hard, from 7.8' to 11.6', moderately to highly weathered	100	ROD 75	4" x 5.5" Diamond Bit D.T. = 8 min H.P. = 50 psi W.R. = 75%
			from 10.0' to 11.6', moderately hard			
-17.9	11.6		silty SAND, fine grained, calcareous, dark brown, (SM)	72	ROD 36	4" x 5.5" Diamond Bit D.T. = 8 min H.P. = 50 psi W.R. = 75%
-18.9	12.6		LIMESTONE, moderately hard, moderately to highly weathered, moderately porous, highly pitted and vuggy with large vugs, fossiliferous, gray	100	ROD 81	4" x 5.5" Diamond Bit D.T. = 8 min H.P. = 50 psi W.R. = 75%
			from 14.8' to 15.2', soft, highly weathered, friable, poorly cemented			
			from 15.7' to 17.8', moderately to highly vuggy, small to large vugs, from 15.7' to 18.8', moderately hard to hard			
			from 17.8' to 18.8', moderately to highly porous, pitted and vuggy			
			from 18.8' to 23.0', very hard to hard, highly porous, from 18.8' to 25.4', slightly to moderately weathered, small vugs, light gray	100	ROD 100	4" x 5.5" Diamond Bit D.T. = 10 min H.P. = 25 psi W.R. = 75%

(continued)


ENG FORM 1030 PREVIOUS EDITIONS ARE OBSOLETE. MAR 71	PROJECT Hillsboro Inlet Deepening	HOLE NUMBER CB-HI97-7
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Hole No. CB-HI97-7

**DRILLING LOG (Cont. Sheet)** ELEVATION TOP OF HOLE -6.3 Ft. SHEET 2 OF 2

PROJECT Hillsboro Inlet Deepening INSTALLATION Jacksonville District

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC X	SAMPLE NUMBER	REMARKS
-------	-------	--------	---	------------	---------------	---------

-28.8	22.5					
			from 23.0' to 25.4', moderately vuggy	100		-29.3
				86	RCD 86	4" x 5.5" Diamond Bit O.T. = 7 min H.P. = 25 psi W.R. = 75%

-32.1	25.8					-32.1
-------	------	--	--	--	--	-------

			NOTE: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.			1 3/8" I.D. splitspoon with 140 lb hammer falling 30"
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ENG FORM 1630 PREVIOUS EDITIONS ARE OBSOLETE. MAR 71 PROJECT Hillsboro Inlet Deepening MOLE NUMBER CB-HI97-7

Hole No. CB-HI97-8

<b>DRILLING LOG</b>	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1
1. PROJECT Hillsboro Inlet Deepening	10. SIZE AND TYPE OF BIT See remarks		
2. LOCATION (Coordinates or Station) X=801,618 Y=699,038	11. DATUM FOR ELEVATION SHOWN (TBM or HSL) NGVD		
3. DRILLING AGENCY Savannah District	12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) CB-HI97-8	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed 2 undisturbed 0		
5. NAME OF DRILLER C. Robbins	14. TOTAL NUMBER OF CORE BOXES 2		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED	15. ELEVATION GROUND WATER Tidal		
7. THICKNESS OF BURDEN 3.0 Ft.	16. DATE HOLE STARTED COMPLETED 09/17/97 09/17/97		
8. DEPTH DRILLED INTO ROCK 17.7 Ft.	17. ELEVATION TOP OF HOLE -11.4 Ft.		
9. TOTAL DEPTH OF HOLE 20.7 Ft.	18. TOTAL CORE RECOVERY FOR BORING 94 %		
	19. SIGNATURE OF GEOLOGIST J. Authur		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/0.5'
-11.4	0		SAND, poorly graded, fine to medium grained quartz, little shell, calcareous, gray, (SP)	33	1	SPLIT SPOON	1
							2
							3
							12
							30
							70
-14.4	3.0		LIMESTONE, hard, slightly weathered, highly porous, moderately to highly pitted, moderately vuggy, small vugs, fossiliferous, light brown, low angle open joints, 3.6', 7.4', 8.6', 9.9', 12.2', 12.7', 13.9'	100	R00 100	4" x 5.5" Diamond Bit D.T. = 12 min H.P. = 80 psi W.R. = 20%	
			from 8.0' to 9.4', slightly porous, moderately pitted, light gray				
			from 9.4' to 12.2', moderately weathered, highly pitted	100	R00 94	4" x 5.5" Diamond Bit D.T. = 11 min H.P. = 80 psi W.R. = 90%	
			from 12.2' to 13.5', moderately to highly porous, few small vugs, from 12.2' to 14.7', slightly weathered				
			from 13.5' to 14.7', slightly porous, moderately pitted, few small vugs, light gray, from 13.5' to 20.7', very hard to hard	100	R00 100	4" x 5.5" Diamond Bit D.T. = 9 min H.P. = 80 psi W.R. = 0%	
			from 14.7' to 17.1', moderately weathered, highly porous and pitted, highly vuggy, small to large vugs, yellowish brown				
			from 17.1' to 18.1', moderately to highly pitted, moderately porous and vuggy, small vugs, light gray to light brown, from 17.1' to 18.9', slightly to moderately weathered	100	R00 100	4" x 5.5" Diamond Bit D.T. = 16 min H.P. = 80 psi W.R. = 0%	
			from 18.1' to 19.9', slightly porous, slightly to moderately pitted, few small vugs, light brown				
			from 19.9' to 20.7', moderately weathered, highly vuggy, small vugs				
-32.1	20.7		NOTE: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.			1 3/8" I.D. split spoon with 140 lb hammer falling 30"	

EMD FORM 1030 PREVIOUS EDITIONS ARE OBSOLETE. MAR 71	PROJECT Hillsboro Inlet Deepening	HOLE NUMBER CB-HI97-8
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Hole No. CB-H197-9

<b>DRILLING LOG</b>	<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Jacksonville District	<i>SHEET 1</i> OF 2
<b>1. PROJECT</b> Hillsboro Inlet Deepening		<b>10. SIZE AND TYPE OF BIT</b> See remarks	
<b>2. LOCATION (Coordinates or Station)</b> X=801,716 Y=699,595		<b>11. DATUM FOR ELEVATION SHOWN (TBM or MSL)</b> NGVD	
<b>3. DRILLING AGENCY</b> Savannah District		<b>12. MANUFACTURER'S DESIGNATION OF DRILL</b> Fading 314	
<b>4. HOLE NO. (As shown on drawing title and file number)</b> CB-H197-9		<b>13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN</b> disturbed: 3 undisturbed: 0	
<b>5. NAME OF DRILLER</b> C. Robbins		<b>14. TOTAL NUMBER OF CORE BOXES</b> 2	
<b>6. DIRECTION OF HOLE</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>15. ELEVATION GROUND WATER</b> Tidal	
<b>7. THICKNESS OF BURDEN</b> 6.8 Ft.		<b>16. DATE HOLE STARTED COMPLETED</b> 09/ /97 09/ /97	
<b>8. DEPTH DRILLED INTO ROCK</b> 15.8 Ft.		<b>17. ELEVATION TOP OF HOLE</b> -10.4 Ft.	
<b>9. TOTAL DEPTH OF HOLE</b> 22.7 Ft.		<b>18. TOTAL CORE RECOVERY FOR BORING</b> 82 %	
		<b>19. SIGNATURE OF GEOLOGIST</b> J. Auhur	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	BLOWS/ 0.5'
-10.4	0		SAND, poorly graded, fine to medium grained quartz, some shell, calcareous, light brown, (SP)	53	1	-10.4	6
							8
						-11.9	16
				53		SPLIT SPOON	18
						-13.4	13
							9
				53	2	SPLIT SPOON	12
						-14.9	15
							9
				60		SPLIT SPOON	11
						-16.4	12
-17.3	6.9		some light gray medium to coarse sand size shell fragments, trace of silt	100	3	SPLIT SPOON	8
						-17.3	100
			LIMESTONE, hard, moderately weathered, moderately porous and pitted, few small vugs, fossiliferous, light gray	100	ROD 100	4" x 5.5" Diamond Bit D.T. = 53 min H.P. = 10 psi W.R. = 75%	
			from 9.9' to 10.0', soft to moderately hard, moderately to highly weathered			-20.4	
			from 10.0' to 14.7', slightly weathered, from 10.0' to 15.9', highly porous and pitted	100	ROD 100	4" x 5.5" Diamond Bit D.T. = 17 min H.P. = 25 psi W.R. = 75%	
			from 14.0' to 14.7', slightly weathered, few small vugs, light gray, from 14.0' to 15.9', highly porous and pitted			-25.1	
			from 14.7' to 15.9', slightly to moderately weathered, few small to large vugs, from 14.7' to 17.7', light yellowish brown	100	ROD 90	4" x 5.5" Diamond Bit D.T. = 28 min H.P. = 80 psi W.R. = 75%	
			from 15.9' to 16.2', moderately hard to hard			-28.1	
			from 16.2' to 16.6', hard, from 16.2' to 17.7', slightly to moderately weathered				
			from 16.6' to 16.9', moderately hard to hard				
			from 16.9' to 17.7', hard	82	ROD 82	4" x 5.5" Diamond Bit D.T. = 13 min H.P. = 80 psi W.R. = 75%	
			from 17.7' to 19.3', very hard, slightly weathered, slightly to moderately porous, few small vugs, light gray				
			from 19.3' to 21.8', very hard to hard, slightly to moderately				

DMR FORM 1036 PREVIOUS EDITIONS ARE OBSOLETE.  
MAR 71

PROJECT  
Hillsboro Inlet Deepening

HOLE NUMBER  
CB-H197-9

DRILLING LOG (Cont. Sheet)		ELEVATION TOP OF HOLE		SHEET 2 OF 2			
PROJECT		INSTALLATION					
Hillsboro Inlet Deepening		Jacksonville District					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC #	SAMPLE NUMBER	REMARKS	5.0 / SKID
-32.9	22.5		weathered, highly porous and pitted, highly vuggy, few small vugs, light gray to light yellowish brown	R2	337	1 3/8" I.D. splitspoon with 140 lb hammer falling 30"	22.5
			NOTE: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.				25
							27.5
							30
							32.5
							35
							37.5
							40
							42.5
							45
							47.5
							50
DWS FORM 1030 PREVIOUS EDITIONS ARE OBSOLETE. MAR 71		PROJECT Hillsboro Inlet Deepening		HOLE NUMBER CB-HI97-9			







Hole No. WP-4

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET OF 1	
1. PROJECT Hillsboro Inlet Deepening				10. SIZE AND TYPE OF BIT See remarks			
2. LOCATION (Coordinates or Station) X=801,174 Y=700,131				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) NGVD			
3. DRILLING AGENCY Savannah District				12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314			
4. HOLE NO. (As shown on drawing title and file number) WP-4				13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN disturbed: 0 undisturbed: 0			
5. NAME OF DRILLER C. Robbins				14. TOTAL NUMBER OF CORE BOXES 0			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				15. ELEVATION GROUND WATER Tidal			
7. THICKNESS OF BURDEN 3.4 Ft.				16. DATE HOLE STARTED COMPLETED 08/19/97 09/19/97			
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				17. ELEVATION TOP OF HOLE -13.2 Ft.			
9. TOTAL DEPTH OF HOLE 3.4 Ft.				18. TOTAL CORE RECOVERY FOR BORING % X			
				19. SIGNATURE OF GEOLOGIST J. Authur			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	
-13.2	0					-13.2	0
						WASHED	
-16.6	3.4					-16.6	2.5
							5
							7.5
							10
							12.5
							15
							17.5
							20
							22.5

ENG FORM 1636 PREVIOUS EDITIONS ARE OBSOLETE.  
MAR 71

PROJECT  
Hillsboro Inlet Deepening

HOLE NUMBER  
WP-4



Hole No. WP-6

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 1	
1. PROJECT Hillsboro Inlet Deepening				10. SIZE AND TYPE OF BIT See remarks			
2. LOCATION (Coordinates or Station) X=801,480 Y=700,326				11. DATUM FOR ELEVATION SHOWN (TBM or HSL) NGVD			
3. DRILLING AGENCY Savannah District				12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314			
4. HOLE NO. (As shown on drawing title and file number) WP-6				13. TOTAL NO. OF OVERBURDEN SAMPLES YARDEN disturbed 0 undisturbed 0			
5. NAME OF DRILLER C. Robbins				14. TOTAL NUMBER OF CORE BOXES 0			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				15. ELEVATION GROUND WATER Tidal			
7. THICKNESS OF BURDEN 0.1 Ft.				16. DATE HOLE STARTED COMPLETED 09/19/97 08/19/97			
8. DEPTH DRILLED INTO ROCK 0.0 Ft.				17. ELEVATION TOP OF HOLE -7.7 Ft.			
9. TOTAL DEPTH OF HOLE .1 Ft.				18. TOTAL CORE RECOVERY FOR BORING %			
				19. SIGNATURE OF GEOLOGIST J. Authur			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS	
= 7.8	0					= 7.8	0
							2.5
							5
							7.5
							10
							12.5
							15
							17.5
							20
							22.5

ENG FORM 1830 PREVIOUS EDITIONS ARE OBSOLETE.  
MAR 71

PROJECT  
Hillsboro Inlet Deepening

HOLE NUMBER  
WP-6



Engineering and Environmental Services, Inc.

LOG OF BORING 81 SHEET 1 OF 2

PROJECT <b>HILLSBORO INLET</b>			PROJECT NO. <b>6025501</b>		
LOCATION <b>Hillsboro/Pompano Beach, FL</b>			ELEVATION AND DATUM <b>+2 (WATER ELEV.)</b>		
DRILLING AGENCY <b>AMDRILL, Inc.</b>			DATE STARTED <b>5/18/94</b>		DATE FINISHED <b>5/18/94</b>
DRILLING EQUIPMENT <b>CME 55 (Barge mounted)</b>			COMPLETION DEPTH <b>30.2 ft (el-26.2)</b>		ROCK DEPTH <b>26 ft (el-22)</b>
SIZE AND TYPE OF BIT <b>2 1/16 in. O.D. Tricone Drill Bit</b>			NO. SAMPLES	DIST. <b>3</b>	UNDIST. <b>-</b>
CASING <b>4 in. O.D.</b>			WATER LEVEL	FIRST	COMPL
CASING HAMMER		WEIGHT <b>140 lbs</b>	DROP <b>30 in</b>	FOREMAN <b>WAYNE JEFFERS</b>	
SAMPLER <b>2 in. <math>\phi</math> split spoon</b>			INSPECTOR <b>JULIO LOSTAD</b>		
SAMPLER HAMMER		WEIGHT <b>140 lbs</b>	DROP <b>30 in</b>		

ELEVATION	SYMBOL	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOC.	TYPE	REC'D. FT.	PENETR. RESIST. DOWN.	
		TOP OF BARGE $\nabla$						START: 2:05 pm
+20			1					
			2					
			3					
			4					
			5					
			6					
			7					
			8					
			9					
			10					
			11					
			12					
			13					
			14					

ELEVATION

+20

top

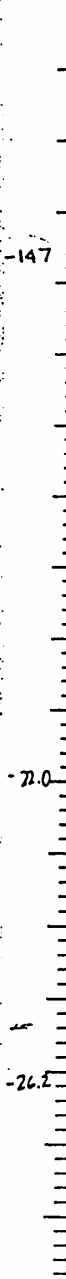
WATER

JOB NO. 6025501  
DATE 5/18/94

LOG OF BORING NO. B1

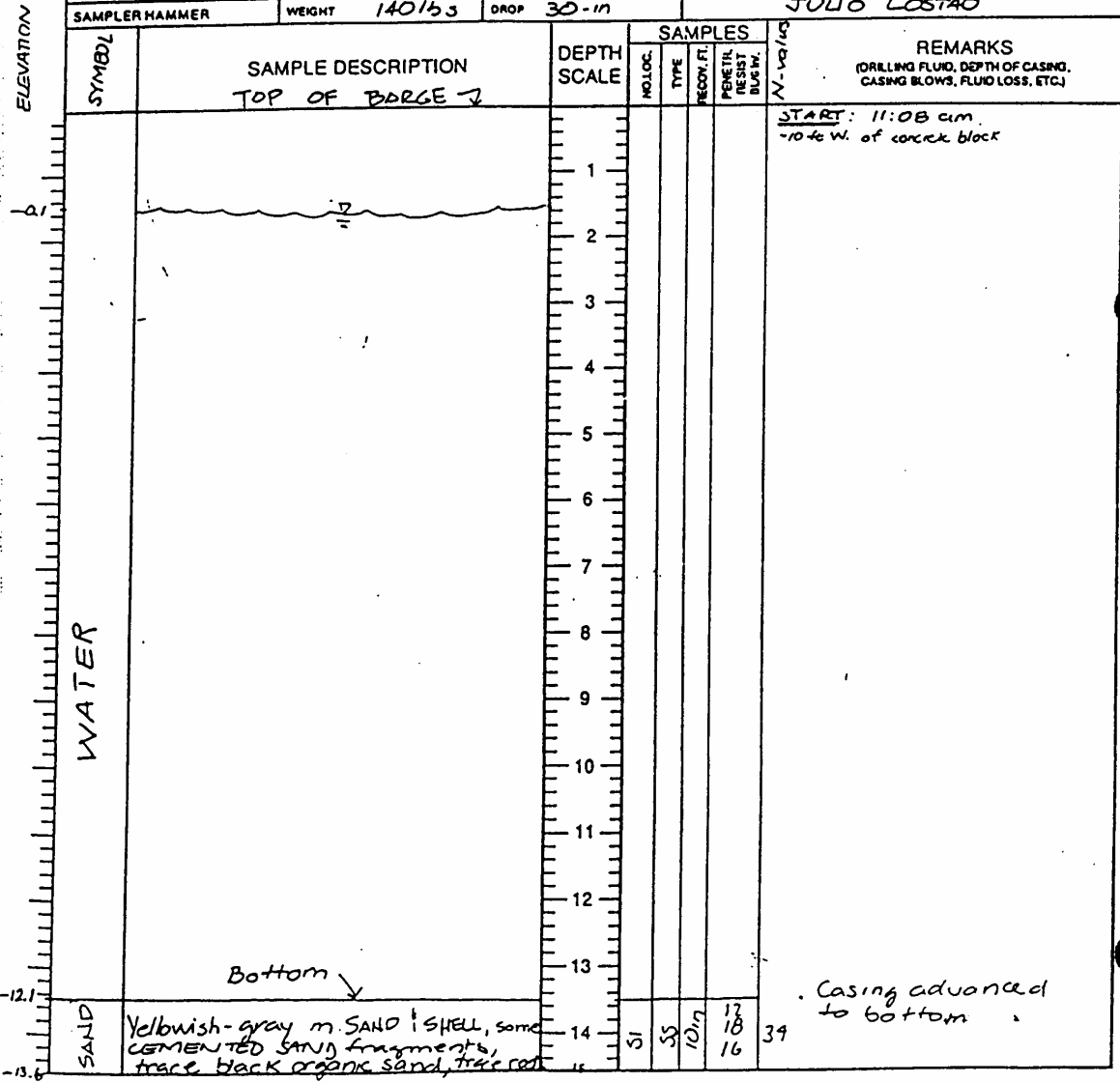
SHEET 2 OF 2

ELEVATION



SYMBOL	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOC.	TYPE	REG. FT.	PENETR. RESIST. BL. IN.	
WATER	Bottom	16					
		17					
		18					
SAND	Dark Brown fine SAND, trace root fibers	19				2	• Casing advanced to bottom  42         25   • Some rig chatter from D=26 to 28.7ft         Finish: 2:56 pm
		20	51	SS	12in	4	
		21				8	
	m. Greenish-gray SAND	22					
		23					
		24				5	
		25	52	SS	72	9	
		26				16	
		27					
		28					
CEMENTED SAND and SHELL	Tan CEMENTED SAND and SHELL	29				12	
		30	53	SS	12	28	
						33	
	Bottom of B1 @ D=30.2ft					6L	

PROJECT <b>HILLSBORO INLET</b>		PROJECT NO. <b>6025501</b>	
LOCATION <b>HILLSBORO/ROMANO BEACH, FLORIDA</b>		ELEVATION AND DATUM <b>-0.1 (WATER ELEV.)</b>	
DRILLING AGENCY <b>AMDRILL, INC.</b>		DATE STARTED <b>5/18/94</b>	DATE FINISHED <b>5/18/94</b>
DRILLING EQUIPMENT <b>LME 55 (BARGE MOUNTED)</b>		COMPLETION DEPTH <b>25.0 ft (cl-23.6)</b>	ROCK DEPTH <b>19.0 ft (cl-17.6)</b>
SIZE AND TYPE OF BIT <b>2 3/16 in. o.d. Tricone Drill Bit</b>		NO. SAMPLES <b>DIST. 2</b>	UNDIST. <b>-</b> CORE <b>1</b>
CASING <b>4" O.D.</b>		WATER LEVEL	FIRST <b>-</b> COMPL <b>-</b> 24 HR. <b>-</b>
CASING HAMMER	WEIGHT <b>140 lbs</b>	DROP <b>30"</b>	FOREMAN <b>WAYNE JEFFERS</b>
SAMPLER <b>2-in. d split spoon, double core barrel</b>			INSPECTOR <b>JULIO LOSTAO</b>
SAMPLER HAMMER	WEIGHT <b>140 lbs</b>	DROP <b>30-in</b>	







JOB NO. <u>6025501</u>		LOG OF BORING NO. <u>B3</u>					
DATE <u>5/23/94</u>		SHEET <u>2</u> OF <u>2</u>					
SYMBOL	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOG.	TYPE	REG. FL.	PENETR. RESIST. BL. IN.	
ELEVATION -15.4 CEMENTED SAND and SHELL, and COQUINA -20.4 -25.4	YELLOWISH-BROWN CEMENTED SAND and SHELL, and COQUINA.	16	S	S	S	S	<ul style="list-style-type: none"> <li>• Driller advanced hole to D=20 ft to do core run.</li> <li>• hole was lost</li> <li>• Driller moved barge approximately 2ft. and drilled to el -20.4</li> <li>• Core run was drilled to el -25.4</li> <li>• Core sample was lost due to rough weather and abrupt movements of barge.</li> </ul>
		17					
		18					
		19					
		20					
		21					
		22					
		23					
		24					
		25					
	Bottom of Boring B3 @ D = 25 ft (el -25.4)						

PROJECT <u>HILLSBORO INLET</u>		PROJECT NO. <u>6025501</u>	
LOCATION <u>Hillsboro/Pompano Beach, FL</u>		ELEVATION AND DATUM <u>+2. (WATER ELEV.)</u>	
DRILLING AGENCY <u>AMDRILL, Inc</u>		DATE STARTED <u>5/24/94</u>	DATE FINISHED <u>6/6/94</u>
DRILLING EQUIPMENT <u>CME 55 (Barge mounted)</u>		COMPLETION DEPTH <u>25K (e1-21.6)</u>	ROCK DEPTH <u>8ft (e1-4.6)</u>
SIZE AND TYPE OF BIT <u>2 15/16 in. O.D. Tricone Drill Bit</u>		NO. SAMPLES	DIST. 1 UNDIST. - CORE 2
CASING <u>4 in. O.D.</u>		WATER LEVEL	FIRST - COMPL - 24 HR. -
CASING HAMMER	WEIGHT <u>140 lbs</u>	DROP <u>30 in</u>	FOREMAN <u>WAYNE JEFFERS</u>
SAMPLER	<u>2 in. Ø split spoon</u>		INSPECTOR <u>JULIO LOSTAO</u>
SAMPLER HAMMER	WEIGHT <u>140 lbs</u>	DROP <u>30 in</u>	

DEPTH SCALE	SAMPLE DESCRIPTION	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
		NO. LOC.	TYPE	REC'D. FT.	PERCENT REPT. BUR. IN.	
1	TOP OF BARGE					Start: 8:30am (on block)
2						
3						
4						
5						
6						
7						
8	Bottom					- Casing advanced to bottom
9	Greenish-gray SANDSTONE					- Core run done 5/24/94
10						
11	Yellowish-tan SANDSTONE					
12						
13						
14						

ELEVATION  
 WATER  
 SANDSTONE  
 120  
 46  
 26

RUN 1  
 NY DOUBLE TUBE CORE BARREL  
 REC = 21/60 = 35%  
 ROD = 15/60 = 25%

6/6/94 Start: 8:30am  
 • 1 bag of "Florigel H-1" added to ~150gal of water to form drilling mud

JOB NO. <u>6025501</u>		LOG OF BORING NO. <u>B4</u>					
DATE <u>6/6/94</u>		SHEET <u>2</u> OF <u>2</u>					
SYMBOL	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOC.	TYPE	REC'D. FT.	PENETR. RESIST. BLOWN.	
SANDSTONE	Greenish-gray SANDSTONE	16	51	55	50	35	• casing drilled to D = 15ft 85/10m on 6/6/29 • Driller advanced hole to D = 20ft  • Rock core characterized by many voids and discontinuity  Finish: 9:18am
		17					
		18					
		19					
		20					
		21					
		22					
		23					
		24					
		25					
	Bottom of Boring B4 @ D = 25 (el - 21.6)						

PROJECT <i>HILLSBORO INLET</i>			PROJECT NO. <i>6025501</i>		
LOCATION <i>HILLSBORO/POMPANO BEACH, FLORIDA</i>			ELEVATION AND DATUM <i>+19 (WATER ELEV)</i>		
DRILLING AGENCY <i>AMDRILL, INC.</i>			DATE STARTED <i>5/18/94</i>	DATE FINISHED <i>5/18/94</i>	
DRILLING EQUIPMENT <i>CME 55 (Barge mounted)</i>			COMPLETION DEPTH <i>29.4ft (c1-25.6)</i>	ROCK DEPTH <i>17.5ft (c1-14.1)</i>	
SIZE AND TYPE OF BIT <i>2 1/4 in. O.D. Tricone Drill Bit</i>			NO. SAMPLES	DIST. <i>3</i>	UNDIST. <i>-</i> CORE <i>1</i>
CASING <i>4 in. O.D.</i>			WATER LEVEL FIRST <i>-</i> COMPL. <i>-</i> 24 HR. <i>-</i>		
CASING HAMMER	WEIGHT <i>140 lbs</i>	DROP <i>30 in</i>	FOREMAN <i>WAYNE JEFFERS</i>		
SAMPLER <i>2 in. Ø Split Spoon</i>			INSPECTOR <i>JULIO LOSTAO</i>		
SAMPLER HAMMER	WEIGHT <i>140 lbs</i>	DROP <i>30 in</i>			

ELEVATION	SYMBOL	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOC.	TYPE	REC'D. FT.	PERCENT RESIST. BLOW IN	
		TOP OF BARGE ↓						START: 12:59 pm
+1.9		water	1					
			2					
			3					
			4					
			5					
			6					
			7					
			8					
			9					
			10					
			11					
		Bottom	12					
-9.1			13	51	55	6 in	2	Casing advanced to bottom
		Yellowish-brown m. SAND and SHELL	14				2	
+0.6	SAND						2	

JOB NO. 6025501  
DATE 5/18/94

LOG OF BORING NO. 86  
SHEET 2 OF 2

ELEVATION	SYMBOL	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOC.	TYPE	PCOR. FT.	PENETR. RESIST. BL. IN.	
-14.1	SAND		16					
			17					
		Grayish-white CEMENTED SAND and SHELL	18	52	55	8 1/2"	40	90 fpm
			19				50/3 1/2"	Driller advanced hole to D = 19 ft
-17.6		Tan CEMENTED SAND and SHELL	20					Hard drilling, change in strata inferred
			21					
			22					
		Tan CEMENTED SAND and SHELL	23	53	55	8 1/2"	50/3 1/2"	Driller advanced hole to D = 24 ft
-20.4			24					Finish: 1:08 pm Start: 1:10 pm
		Tan CEMENTED SAND and SHELL	25					Unconfined Compressive Strength test taken in the CEMENTED SAND and SHELL.
			26					
			27					
		Tan COQUINA (Anastasia Formation)	28					
-25.6			29					Finish: 1:17 pm
		Bottom of Boring @ D=29ft (el - 25.6)						

PROJECT <u>HILLSBORO INLET</u>		PROJECT NO. <u>6025501</u>	
LOCATION <u>Hillsboro/Pompano Beach, FL</u>		ELEVATION AND DATUM <u>-0.4 (WATER ELEV)</u>	
DRILLING AGENCY <u>AMDRILL, Inc.</u>		DATE STARTED <u>3/20/94</u>	DATE FINISHED <u>5/20/94</u>
DRILLING EQUIPMENT <u>CME 55 (Barge mounted)</u>		COMPLETION DEPTH <u>26 ft (el-24.9)</u>	ROCK DEPTH <u>17.5 ft (el-16.15)</u>
SIZE AND TYPE OF BIT <u>2 15/16 in. O.D. Tricone Drill Bit</u>		NO. SAMPLES	DIST. <u>3</u> UNDIST. <u>-</u> CORE <u>1</u>
CASING <u>4 in. Ø</u>		WATER LEVEL	FIRST <u>-</u> COMPL. <u>-</u> 24 HR. <u>-</u>
CASING HAMMER	WEIGHT <u>140 lbs</u>	DROP <u>30 in.</u>	FOREMAN <u>WAYNE JEFFERS</u>
SAMPLER <u>2 in. Ø split spoon</u>		INSPECTOR <u>JULIO LOSTAO</u>	
SAMPLER HAMMER	WEIGHT <u>140 lbs.</u>	DROP <u>30 in</u>	

SYMBOL	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES					REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)	
			NO. LOC.	TYPE	REC'D. FT.	PENETR. RESIST. DUR. IN.	W. OF ROD		
	TOP OF BARGE ↓							START: 7:15am ~ 3 ft. E. of concrete block	
WATER		1							
		2							
		3							
		4							
		5							
		6							
		7							
		8							
		9							
SAND	Yellowish-brown m. SAND and SHELL	10	51	35	5/15	WOR	2	Casing advanced to bottom 1 bag of "Florigel H-1" add to ~ 150 gal. of water to make drilling mud WOR = weight of rod	
		11					2		
		12							
		13							
		14							
			52	35	↓	3			

JOB NO. 60255  
DATE 5/20/94

LOG OF BORING NO. B7

SHEET 2 OF 2

ELEVATION	SYMBOL	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOC.	TYPE	RECD. FT.	PENETR. RESIST. BL. IN.	
-14.9	SAND	Yellowish-brown m. SAND and SHELL	16	52	35	12 1/2	6 7 11	13
-16.5		_____ ? _____ ? _____ ?	17					
	COQUINA / CEMENTED SAND and SHELL	Tan COQUINA (Anastasia Formation)	18					<ul style="list-style-type: none"> <li>• Hard drilling, change in strata inferred @ D = 17.5 ft</li> <li>• 50/min. - little recovery</li> <li>• Driller advanced hole to D = 21 ft (el - 19.9) for core run</li> <li>• Unconfined Compressive Strength test taken in the COQUINA</li> </ul>
-19.9		Tan COQUINA (Anastasia Formation)	19	53	31	8	50	
		Tan CEMENTED SAND and SHELL	20					
		Tan COQUINA (Anastasia Formation)	21					
		Tan COQUINA (Anastasia Formation)	22					
		Tan CEMENTED SAND and SHELL	23					
		Tan CEMENTED SAND and SHELL	24					
-24.1		Tan CEMENTED SAND and SHELL	25					
		Bottom of Boring @ el - 24.9	26					FINISH: 8:13am

HILLSBORO INLET  
WASH BORING PROFILES

Coastal Systems International (June 94)

WASH BORINGS	TOP OF SEDIMENT (MLW)	TOP OF ROCK (MLW)	SEDIMENT THICKNESS
1	-20.2	-20.2	7.0
2	-15.7	-15.7	1.5
2A	-11.6	-12.6	1.5
3	-7.9	-10.9	3.0
4	-6.1	-11.1	5.0
5	-14.2	-16.4	2.2
7	-18.3	-19.1	0.8
9	-7.9	-8.9	1.0
10	-11.7	-14.2	2.5
11	-10.4	-12.2	1.8
12	-7.2	-11.0	3.8
13	-7.5	-13.7	6.2
14	-8.5	-16.7	8.2
15	-12.0	-13.5	1.5
16	-7.7	-9.7	2.0
17	-7.7	-10.2	2.5
18	-7.7	-10.0	2.3
19	-7.7	-13.7	6.0
20	-8.5	-16.2	7.7
22	-6.9	-15.2	8.3
23	-9.8	-15.8	6.0
24	-12.3	-19.0	6.7



**INTERCOUNTY  
LABORATORIES, INC.**

308 Northwest 170th Street  
N. Miami Beach, FL 33169  
Dade: (305) 651-8483  
Broward: (305) 728-8483  
Fax: (305) 651-4460

*Geotechnical, Environmental and Materials Testing Engineers*

REPORT OF:           **ROCK CORE TESTS**  
CLIENT:             Langan Engineering & Environmental Services, Inc.  
PROJECT:            Hillsboro Inlet - LEES Project #6025501  
ADDRESS:            Deerfield Beach, Florida  
REPORT NO.:         1-C  
PAGE NO.:            1 of 2

CORE NUMBER:	B-2	B-4	B-4
	#6 to #7	#5 to #6 (top)	#5 to #6 (bottom)
ROCK DESCRIPTION:	Gray Limestone	Light brown Limestone	Light brown Limestone

DATE TESTED:	06/15/94	06/15/94	06/15/94
LENGTH (RECEIVED):	6.07"	2.79"	4.84"
LENGTH (CUT):	4.06"	2.51"	4.17"
LENGTH (CAPPED):	4.19"	2.65"	4.19"
DIAMETER:	1.95"	1.93"	1.95"
AREA (SQ. IN.):	2.99	2.93	2.99
TOTAL LOAD (LBS):	5,800	4,900	1,000
CORRECTED COMPRESSIVE STRENGTH (PSI):	1,940	1,585	335

Checked by: AS. Glistey

REPORT OF: ROCK CORE TESTS  
CLIENT: Langan Engineering & Environmental Services, Inc.  
PROJECT: Hillsboro Inlet - LEES Project #6025501  
PAGE NO.: 2 of 2

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CORE NUMBER:	B-6	B-7
	#0 to #1	#10 to #11
ROCK DESCRIPTION:	Light brown Limestone	Light brown Limestone

DATE TESTED:	06/15/94	06/15/94
LENGTH (RECEIVED):	5.97"	4.96"
LENGTH (CUT):	4.07"	3.90"
LENGTH (CAPPED):	4.13"	4.02"
DIAMETER:	1.95"	1.95"
AREA (SQ.IN.):	2.99	2.99
TOTAL LOAD (LBS):	2,000	4,000
CORRECTED COMPRESSIVE STRENGTH (PSI):	669	1,338

NOTES:

- The above tests were performed in general accordance with ASTM D 2938-86 "Unconfined Compressive Strength of Intact Rock Core Specimens".
- Moisture specimens were "laboratory air-dried".

Copy to: 1-Client

Respectfully submitted,

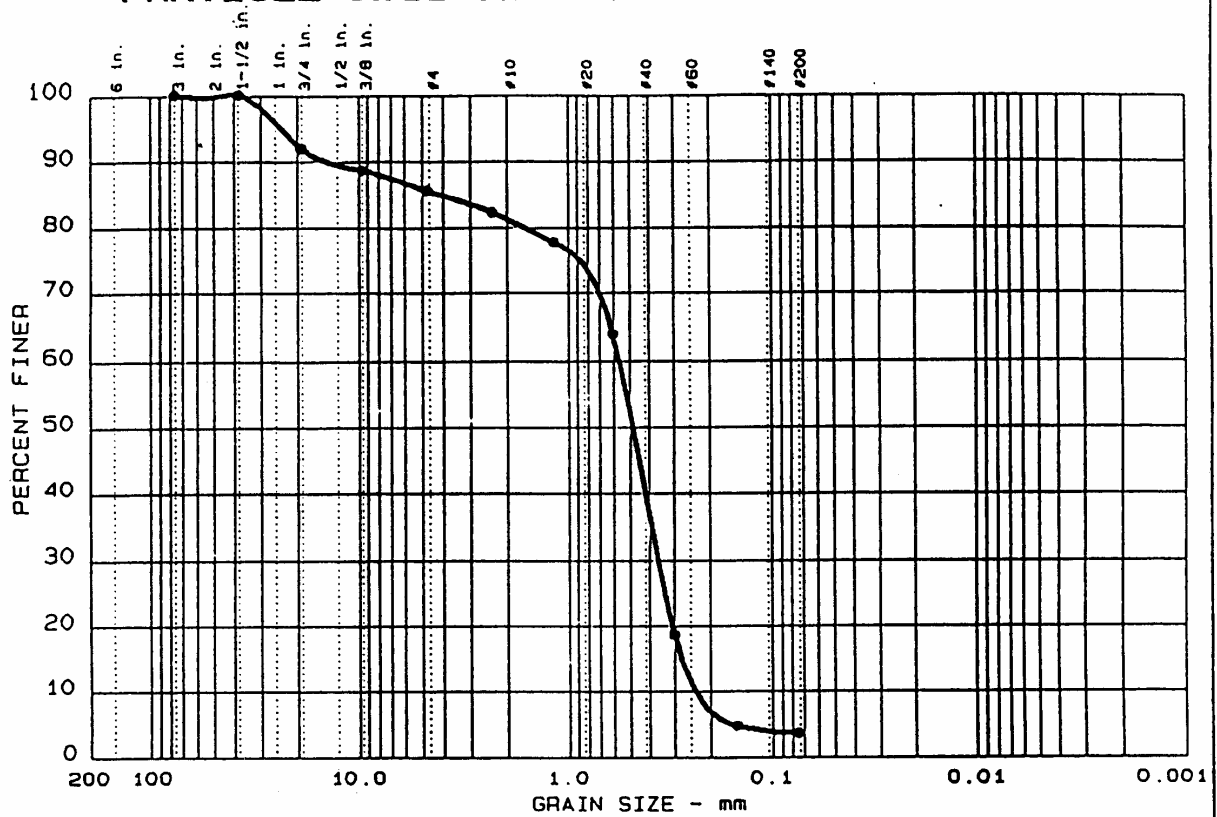
INTERCOUNTY LABORATORIES, INC.

*Alfredo Budik 6/15/94*

Alfredo Budik, P.E.  
Reg. State of Florida 43884

Checked by: AS 6/15/94

# PARTICLE SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
0.0	14.4	82.0	3.6		SP	---	---

SIEVE Inches size	PERCENT FINER	
3	100.0	
1.5	100.0	
0.75	92.0	
0.375	88.6	
GRAIN SIZE		
D <sub>60</sub>	0.56	
D <sub>30</sub>	0.36	
D <sub>10</sub>	0.23	
COEFFICIENTS		
C <sub>c</sub>	0.98	
C <sub>u</sub>	2.3	

SIEVE number size	PERCENT FINER	
4	85.6	
8	82.3	
16	77.8	
30	63.9	
50	18.6	
100	4.7	
200	3.6	

**Sample information:**

- Top Sand 82; 83; 86; 87
- Ten fine to medium grained sand

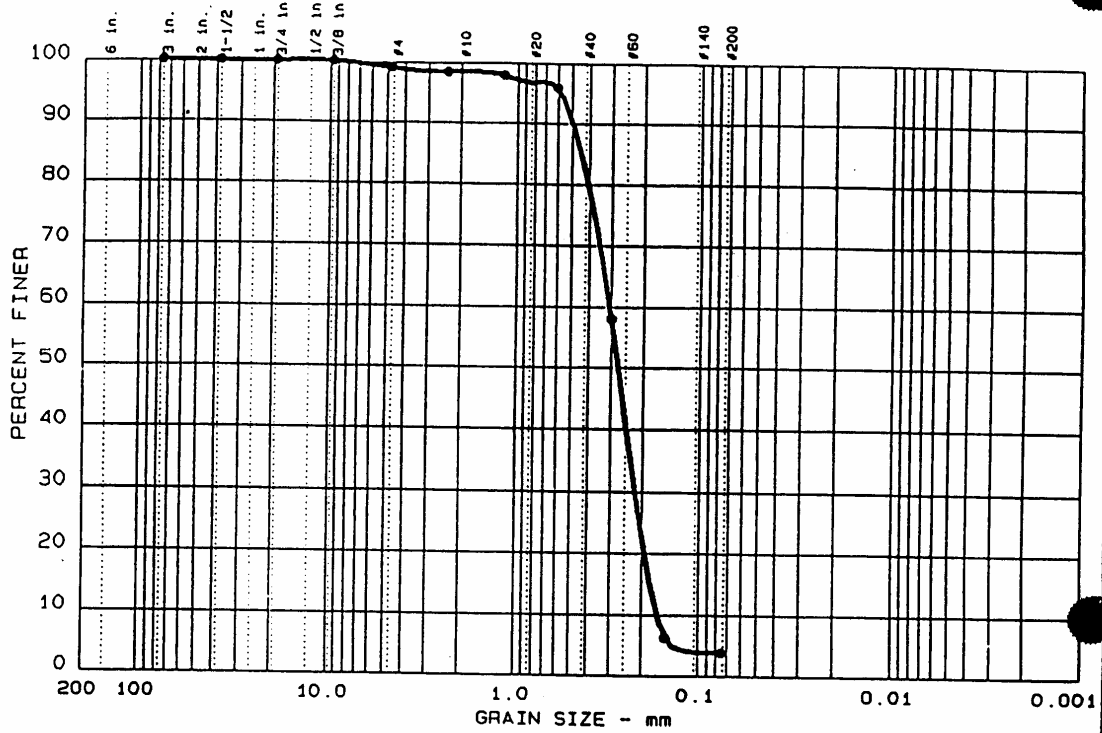
**Remarks:**

Minus 200 determined by sieve washing

**INTERCOUNTY  
LABORATORIES INC.**

Project No.: Langan  
Project: Hillsboro Inlet, LEES Project #6025501

# PARTICLE SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
0.0	1.0	95.2	3.8	3.8	SP	---	---

SIEVE inches size	PERCENT FINER		SIEVE number size	PERCENT FINER		Sample information: • B1; S1 Dark brown fine to medium grained sand  Remarks: Minus 200 determined by sieve washing
3	100.0		4	99.0		
1.5	100.0		8	98.4		
0.75	100.0		16	97.8		
0.375	100.0		30	95.9		
GRAIN SIZE						
D <sub>60</sub>	0.31		50	58.0		
D <sub>30</sub>	0.22		100	6.2		
D <sub>10</sub>	0.16		200	3.8		
COEFFICIENTS						
C <sub>c</sub>	0.95					
C <sub>u</sub>	1.9					

<b>INTERCOUNTY LABORATORIES, INC.</b>	Project No.: Langan Project: Hillsboro Inlet, LEES Project #6025501 Date: 05/08/01
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