

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-064-1(2)	1987	99	151

Depth in Feet	Log #	Location	Penetration Resistance	Description
0				Test Pit : R-1 File : 359.1 Elevation : 5.0' Date : 11-25-81 Water level: 5.0'
1				Description
2				Dark brown Silty SAND (SM) with Coral Gravel, dense, moist (FILL)
3				Tan Silty SAND and Coral GRAVEL (SM-GM) dense, moist (FILL)
4				Dark gray SAND with Gravel (SP), loose to medium dense, wet (FILL)
5		R-1		Tan Coral GRAVEL with Silt (GP) medium dense, saturated.
5		R-2		Test pit terminated at 5.0'

Depth in Feet	Log #	Location	Penetration Resistance	Description
0				Test Pit : R-2 File : 359.1 Elevation : 6.5' Date : 11-25-81 Water level: None Encountered
1				Description
2				Brown Silty SAND with Gravel and debris (SM), loose to medium dense, damp (FILL)
3				
4				Dark gray SAND with Gravel (SP), loose to medium dense, moist (FILL)
5		R-2-1		Gray organic Silty CLAY (OL), medium stiff, most LL=47, PI=20
6		R-2-2		Test Pit terminated at 6.0'

Depth in Feet	Log #	Location	Penetration Resistance	Description
0				Test Pit : R-3 File : 359.1 Elevation : 7.2' Date : 11-25-81 Water level: None Encountered
1				Description
2				Brown fine Coral Gravelly SAND (SP), medium dense, damp.
3				
4				Brown SAND (SP) with Coral Gravel, medium dense, moist.
5		R-3-1		Gray fine SAND (SP), medium dense, wet.
5.5				Test pit terminated at 5.5'

Depth in Feet	Log #	Location	Penetration Resistance	Description
0				Boring : R-4 File : 359.1 Elevation : 6.2' Date : 11-13-81 Water level : 6.0' Datum: MSL
1				Description
2		R-4-1	98	Tan fine SAND (SP) with Coral Gravel, medium dense to dense, damp
3				
4		R-4-2	49	
5				Gray organic silty CLAY (OH), soft, moist
6				
7		R-4-3	21	Gray Sandy Coral GRAVEL (GM-GW) with Silt, medium dense, saturated.
8				
9		R-4-4	40.5	
10				Boring terminated at 9.5'

Depth in Feet	Log #	Location	Penetration Resistance	Description
0				Test Pit : R-5 File : 359.1 Elevation : 5.3' Date : 11-13-81 Water level: 5.0' Datum: MSL
1				Description
2		R-5-1	54	Tan Coral Gravelly SAND (SW), loose to medium dense, damp (at 4.0' grading to fine SAND (SP) very loose)
3				
4		R-5-2	18	
5		R-5-3	4	Gray organic CLAY (OH), soft, saturated LL=61, PI=32
6				
7		R-5-4	20	Gray Coral Gravelly SAND (SW) dense, saturated.
8				
9				
10		R-5-5	11	(at 10.0' grading to loose)
11				
12				
13				
14				
15				
16		R-5-6	18	
16.5				Boring terminated at 16.5'

Depth in Feet	Log #	Location	Penetration Resistance	Description
0				Boring : R-6 File : 359.1 Elevation : 4.6' Date : 11-13-81 Water level: 4.0' Datum: MSL
1				Description
2		R-6-1	9	Brown Silty fine SAND (SC) with Coral Gravel, loose, damp.
3				
4		R-6-2	10	
5				Gray organic silty CLAY (OH), soft, saturated
6				
7		R-6-3	18	
8				
9		R-6-4	20	Gray Coral Gravelly SAND (SW), loose to medium dense, saturated
10				Boring terminated at 10.0'

Notes:

- The boring logs shown are from the report titled "Subsurface Investigation Report, Proposed Fixed-Span Bridge, Sand Island Access Road Improvements, Honolulu, Oahu, Hawaii," Feb. 14, 1984, by Fewell Geotechnical Engineering, Ltd.
- The locations of the borings are shown on Sheets H 7, H 8, H 9, H 10, and S-4.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**BORING LOGS R-1, R-2,
R-3, R-4, R-5, R-6**

SAND ISLAND ROAD WIDENING
2ND. BRIDGE AND APPROACHES
FEDERAL AID PROJECT NO F-064-1(2)

SCALE: AS NOTED DATE: JUN, 1986
SHEET NO. 99-1 OF 4 SHEETS

Depth in Feet	Log #	Location	Penetration Resistance	Test Pit : B-1	File : 359.1
				Elevation : 5.8'	Date : 11-23-81
				Water level : 4.5'	
0				Description	
1				Tan SAND and Coral GRAVEL (SW) medium dense, moist.	
2					
3					
4				Tan SAND (SP), loose, wet	
5				Gray organic Silty CLAY (OH) with Sand soft, Wet LL = 52, PI = 35	
				Test Pit terminated at 5.0'	

Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-2	File : 359.1
				Elevation : 5.9'	Datum : MSL
				Date : 11-23-81	
				Water level : 5.2'	
0				Description	
1				Brown Silty SAND with Coral Gravel, medium dense to dense, damp (Fill)	
5	15		36	Tan fine SAND with Clay pockets loose, damp.	
7			7	Tan Coral GRAVEL with Sand and gray Clay, medium dense, moist to wet.	
10			23	Gray organic CLAY (OH), soft to medium stiff, Saturated.	
15	10		10	Gray Silty SAND and Coral GRAVEL, medium dense, saturated.	
12			12	(at 12.0' grading to loose)	
4			4	(Lagoon Deposit)	
20	59/0.2'		59/0.2'	Gray organic CLAY (OH), Very soft, saturated.	
25				White Coral/Algal REEF, hard	
30				(Cemented Detritus)	
25				Nx Core : 5.0' run, 95% recovery	
30				Nx Core : 5.0' run, 80% recovery	
35					
38/0.8'			38/0.8'	(at 30.0' grading with pockets of dense sand.)	
35				White Coral/Algal REEF, medium hard.	
53			53	Nx Core : 5.0' run, 50% recovery.	
40			5	Tan Sandy Coral GRAVEL with Silt (GW-GM), loose, saturated.	
45				(Coral Detritus)	
				Boring terminated at 48.5'	

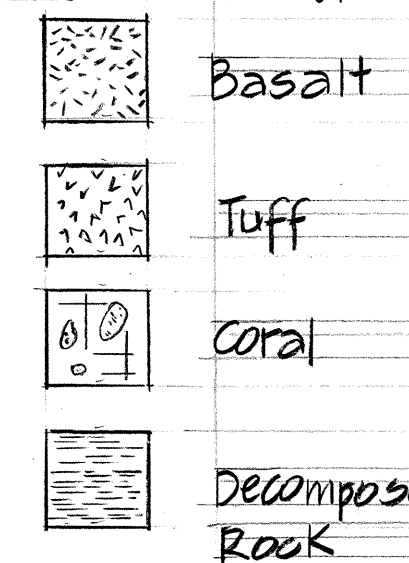
Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-3	File : 359.1
				Elevation : 6.4'	Datum : MSL
				Date : 11-25-81	
				Water level : 5.5'	
0				Description	
5	129		156	Tan Silty SAND with Coral Gravel (SW-SM) very dense, damp.	
10	24		26	Tan Coral SAND and GRAVEL, medium dense, saturated.	
15	43		15	Gray organic CLAY (OH), medium stiff, saturated.	
15	7		5	Gray Silty SAND and Coral GRAVEL (SM-GM), loose to medium dense, saturated.	
20	30		30	(Lagoon Deposit)	
25	8		8	Gray organic CLAY (OH) with Coral Gravel and shells, soft, saturated.	
30	64		64	Coral/Algal REEF with pockets of dense to very dense Sand, hard	
35			40	Nx Core : 5.0' run, 80% recovery.	
40			45/0.6	(at 30.0' grading with more sand packets)	
45				Nx Core : 5.0' run, 50% recovery	
50			22	Coral/Algal REEF with pockets of dense Sand, medium hard.	
55			37	(Cemented Detritus)	
60			81	Nx Core : 5.0' run, 95% recovery.	
65			53	Nx Core : 5.0' run, 90% recovery.	
70			135	Tan Silty GRAVEL with Sand (GM) and sections of cemented Coral/Algal REEF, medium dense to dense.	
				Nx Core : 5.0' run, 25% recovery	
				(Coral Detritus)	
				(at 60.0' grading to Sandy GRAVEL with Silt (GW-GM))	
				Tan Sandy GRAVEL with silt (GW-GM), medium dense to very dense, saturated.	
				(Coral Detritus)	
				Boring terminated at 70.0'	

Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-4	File : 359.1
				Elevation : 0.0	Datum : MSL
				Date : 12-14-81	
				Water level : 0.0	
0				Description	
5				Water	
10	2		2	Bottom of Channel	
15	9		9	Gray Silty GRAVEL with Sand and shells, very loose to loose, saturated.	
20	8		8	(Lagoon Deposit)	
20	139		67	40/3 Coral/Algal REEF, hard.	
25	41		41	White Coral/Algal SAND and GRAVEL (GW) with cemented sections, medium dense to very dense, saturated.	
30	53		53	(Coral Detritus)	
35	22		22	Tan/white SAND and Coral GRAVEL (GW), medium dense, saturated.	
40	15		20	(Coral Detritus)	
45	25/0.9'		25/0.9'	Brown Clayey Coral GRAVEL with Sand (GC), loose to medium dense, saturated.	
50	32		32	(Coral Detritus)	
55	59		59	Tan Silty Coral GRAVEL with Sand, dense, saturated.	
60				(Coral Detritus)	
65	10		10	Tan Silty Coral GRAVEL with Sand, loose to medium dense, saturated.	
70	16		16	(Coral Detritus)	
75	31		31	Coral GRAVEL with Sand and Silt, loose to medium dense, saturated.	
80	37		37	Tan Silty Coral GRAVEL with Sand (GM), medium dense, saturated.	
85	57		57	(Coral Detritus)	
90	19		19	(at 71.0' grading to medium dense to dense.	
95	35		35	(at 76.0' grading to loose to medium dense, Sandy GRAVEL with Silt (GW)	
				(at 87.5' grading to loose)	
				Boring terminated at 95.5'	

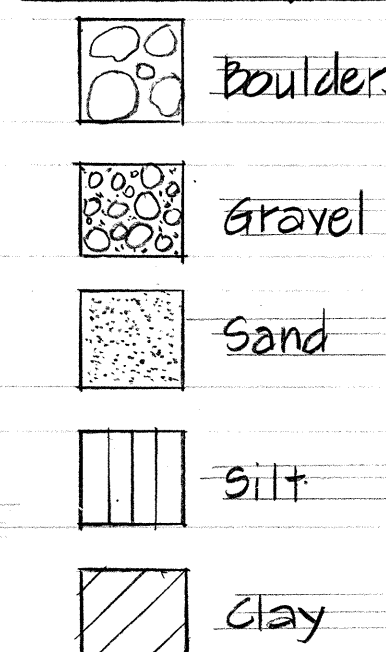
Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-5	File : 359.1
				Elevation : 0.0	Datum : MSL
				Date : 12-18-81	
				Water level : 0.0	
0				Description	
5				Water	
10					
15					
20					
25					
30					
35				Bottom of Channel	
40				Gray organic Clayey SILT (OH), very soft, saturated.	
45	38		29	Gray fine SAND (SP), medium dense, saturated.	
50	19		19	Tan/white Sand Coral GRAVEL with Silt (GR-GM), loose to medium dense, saturated.	
55	32		32	(Coral Detritus)	
60	17		17	Tan/white Silty SAND and Coral GRAVEL (GM-SM), medium dense to dense, saturated.	
65	38		38	(Coral Detritus)	
70	40		40	Tan/white Silty SAND and Coral GRAVEL (GM-SM), medium dense, saturated.	
75	18		18	Tan/white Silty Coral GRAVEL with Sand (GM), dense, saturated.	
80	11		11	(at 70.0' grading with intermittent cemented sections and medium dense sand pockets)	
85	22		22	(Coral Detritus)	
90	14		14	Tan/white Silty Coral GRAVEL with Sand and intermittent cemented sections, medium dense, saturated.	
95	27		27	(Coral Detritus)	
100	22		22	Tan fine SAND (SP), medium dense, saturated	
				(Beach Sand)	
				Boring terminated at 100.5'	

BORING LOG LEGEND

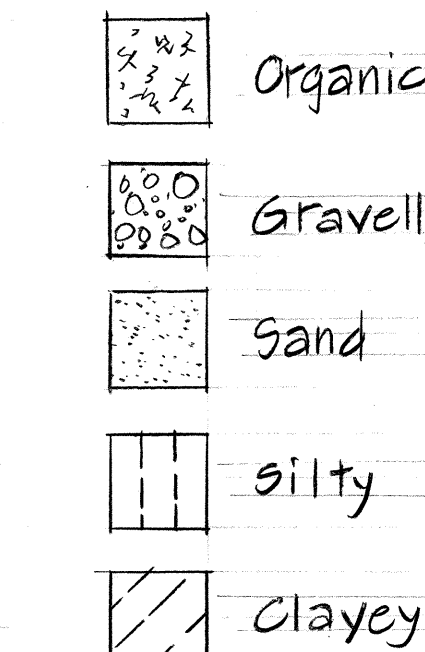
Major Rock Types



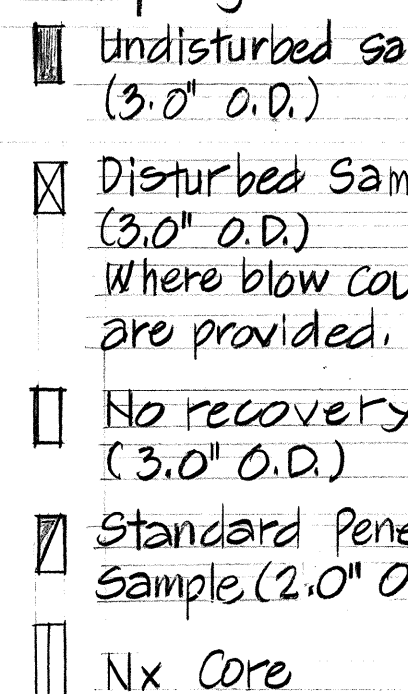
Major Soil Types



Descriptive Terms



Sampling Terms



Water level

() Unified Soil Classification

Note:

All samplers were driven by a 140 pound hammer falling 30 inches. Penetration Resistance is given as the number of blows required to advance the sampler 12 inches unless noted otherwise.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**BORING LOGS B-1, B-2,
B-3, B-4, & B-5**

SAND ISLAND ROAD WIDENING
2ND BRIDGE AND APPROACHES
FEDERAL AID PROJECT NO. F-064-1(2)

SCALE: AS NOTED DATE: JUN, 1986

SHEET No. BL-20F 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-064-1(2)	1987	101	151

Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-6	File : 359-1
				Elevation : 0.0	Datum : M.S.L.
				Date : 1-6-82	
				Water level : 0.0	
0				Description	
5				Water	
10					
15					
20					
25					
30					
35					
40				Bottom of Channel	
45				Gray Sand CLAY (OH), very soft, saturated.	
50				White/tan SAND and Coral GRAVEL, loose, saturated.	
55				Coral/Algal GRAVEL with some cementation and pockets of sand, very dense, saturated.	
60				(Partially Cemented Coral Detritus)	
65				Tan/white Silty Coral GRAVEL with silt (GP-GM), loose to medium dense, saturated.	
70				(Coral Detritus)	
75				Tan/white Silty Coral GRAVEL with silt (GP-GM), medium dense, saturated.	
80				Brown Clayey SAND with Coral GRAVEL (GC), medium dense, saturated.	
85				Light gray Silty GRAVEL with sand and pockets of silty clay (GM), loose to medium dense, saturated.	
90				(Coral Detritus)	
95				Tan/light gray Sand Coral GRAVEL with silt (GP-GM), loose to medium dense, saturated.	
100				(Coral Detritus)	
105				Tan/Light gray Silty SAND and Coral GRAVEL, loose to medium dense, saturated.	
110				Tan Silty Coral/Algal GRAVEL with sand and some cemented sections, dense, saturated.	
				Brown Clayey Coral GRAVEL (GC), medium dense, saturated.	
				Brown Gravelly CLAY (OH), stiff to very stiff, saturated.	

Boring terminated at 110.0'

Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-7	File : 359-1
				Elevation : 0.0	Datum : M.S.L.
				Date : 12-29-81	
				Water level : 0.0	
0				Description	
5				Water Bottom of Channel	
10				Gray Silty fine SAND (SM) with Coral GRAVEL, loose, saturated (Lagoon Deposit)	
15				Gray Silty SAND and Coral GRAVEL, loose, saturated (Lagoon Deposit)	
20				8/0.9' Gray organic CLAY (OH), soft, saturated	
25				28/0.1' Coral/Algal REEF, hard (Cemented Detritus)	
30				Tan/white Silty SAND and Coral GRAVEL (SM-GM), medium dense to dense, saturated	
35				(Coral Detritus)	
40				Tan/white SAND and GRAVEL, loose to medium dense, saturated (Coral Detritus)	
45				Brown Clayey Coral GRAVEL (GC), very loose, saturated (at 33.5' grading to Gravelly CLAY (CH) soft, saturated.	
50				White Gravelly CLAY (CL) with fine sand, very stiff to hard, saturated.	
55				White Silty GRAVEL with SAND with pockets of silt (GP-GM), medium dense to dense, saturated.	
60				(Coral Detritus)	
65				White Clayey Coral GRAVEL and SAND (GC-SC), loose to medium dense, saturated.	
70				(Coral Detritus)	
75				Tan/white Clayey SAND and Coral GRAVEL (GC-SC) with cemented sections, medium dense, saturated.	
80				Cavity	
85				(Coral Detritus)	
90				(at 89.5' grading to dense.)	
95				Cavity	
100				Tan/white Silty SAND with Gravel (SM)	
				Tan/white Silty SAND with Gravel (SM), medium dense.	
				Boring terminated at 99.5'	

99.5

Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-8	File : 359-1
				Elevation : 6.8'	Datum : M.S.L.
				Date : 11-19-81	
				Water level : 0.0'	
0				Description	
5				Tan Silty SAND with Coral GRAVEL and concrete fragments, dense, damp	
10				Coral SAND and GRAVEL with silt, dense, damp (Fill)	
15				Coral and basalt GRAVEL with sand, dense, saturated (Fill)	
20				Gray Sandy GRAVEL (GP) with clay, loose, saturated (Lagoon Deposit)	
25				(at 18.0' grading to very loose)	
30				Coral/Algal REEF, with pockets of sand, hard.	
35				Nx Core : 5.0' run, 40% recovery (Cemented Detritus)	
40				Coral/Algal REEF with sand pockets, hard	
45				Nx Core : 3.5' run, 71% recovery	
50				Tan Silty SAND and Coral GRAVEL, medium dense, saturated	
55				Brown Clayey GRAVEL (GC) with sand, medium dense, saturated.	
60				Tan Silty SAND and Coral GRAVEL (SM-SM), medium dense to dense, saturated.	
65				(Coral Detritus)	
70				Coral/Algal REEF, with seams of very dense sand and coral gravel, hard.	
				Nx Core : 4.0' run, 63% recovery.	
				(Cemented Detritus)	
				Coral/Algal REEF with seams of very dense sand and coral gravel, hard.	
				Boring terminated at 70.0'	

Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-9	File : 359-1
				Elevation : 7.6'	Datum : M.S.L.
				Date : 11-13-81	
				Water level : 6.7'	
0				Description	
5				Brown SAND and Coral GRAVEL, dense, damp (Fill)	
10				Coral GRAVEL with sand, dense, wet (Fill)	
15				Tan and black Silty SAND, medium dense.	
20				Gray organic CLAY (OH) soft, saturated	
25				Gray Silty SAND with Coral GRAVEL (SM), loose, saturated.	
30				(Lagoon Deposit)	
				Coral/Algal REEF, hard (Cemented Detritus)	
				Boring terminated at 29.0'	

Depth in Feet	Log #	Location	Penetration Resistance	Boring : B-10	File : 359-1
				Elevation : 7.7'	Datum : M.S.L.
				Date : 11-19-81	
				Water level : 7.5'	
0				Description	
5				Tan SAND (SW), with Coral GRAVEL, medium dense to dense, damp	
10				Gray fine Clayey SAND (SC), medium dense, saturated.	
15				Gray organic CLAY (OH), soft, saturated	
20				Dark gray Silty SAND (SP-SM) with Coral GRAVEL, very loose to loose, saturated	
25				Gray Clayey GRAVEL (GC), medium dense, saturated.	
				(at 23.5' grading to very dense.)	
				Coral/Algal REEF, hard.	
				Boring terminated at 24.0'	

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**BORING LOGS B-6, B-7,
B-8, B-9, & B-10**

SAND ISLAND ROAD WIDENING
2ND. BRIDGE AND APPROACHES
FEDERAL AID PROJECT NO. F-064-1(2)

SCALE: AS NOTED DATE: JUN, 1986
SHEET No. 31 OF 4 SHEETS

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

Depth in feet	Log #	Location	Penetration Resistance	Boring : B-11	File :
				Elevation : 0.0	Datum : MSL
				Date : 12-2-83	
				Water level : 0.0	
0				Description	
5				Water	
10					
35				Bottom of channel	
40				Light tan silty Coral SAND and GRAVEL, medium dense to dense, saturated.	
45		32			
50		43		White SAND and GRAVEL with SILT, medium dense to dense, saturated.	
55					
60		17		(At 60.0' grading to silty GRAVEL with sand)	
65		35		White silty GRAVEL with sand, medium dense to dense, saturated.	
70		28		White sandy GRAVEL with SILT, medium dense, saturated.	
75					
80		26			
85					
90		18		Gray/white sandy GRAVEL with SILT, medium dense, saturated.	
95					
100		25		Tan silty Coral SAND and GRAVEL, medium dense, saturated.	
105					
110		28			
115					
120		21		Tan SAND and GRAVEL with pockets of brown clayey SILT, medium dense, saturated.	
125					
130		29		Gray/white silty SAND with gravel, medium dense, saturated.	
135					
140		20		Brown clayey SILT, very stiff, saturated.	
145					
150					
155		30		Tan silty Coral GRAVEL with sand, medium dense, saturated.	
160					
165					
170					
175					
180					
185					
190					
195					
200				Boring terminated at 154.0'	

Depth in feet	Log #	Location	Penetration Resistance	Boring : B-12	File :
				Elevation : 0.0	Datum : MSL
				Date : 12-1-83	
				Water level : 0.0	
0				Description	
5				Water	
10					
35				Bottom of channel	
40				Gray/tan sandy Coral GRAVEL with SILT, loose to medium dense, saturated	
45				(At 43.0 to 44.0 feet, harder.)	
50					
55		7			
60					
65		28		White silty Coral GRAVEL with sand, medium dense, saturated.	
70					
75		12		Tan sandy Coral GRAVEL with SILT, loose, saturated.	
80					
85		19		Tan silty Coral GRAVEL with sand, medium dense, saturated.	
90					
95					
100		13		Tan white Coral SAND and GRAVEL with brown clay, medium dense, saturated.	
105					
110					
115		24		Tan/white sandy Coral GRAVEL with SILT, medium dense, saturated.	
120				Brown clayey SILT, stiff to very stiff, saturated.	
125					
130					
135					
140					
145					
150					
155					
160					
165					
170					
175					
180					
185					
190					
195					
200				Boring terminated at 120.0'	

Depth in feet	Log #	Location	Penetration Resistance	Boring : B-13	File :
				Elevation : 0.0	Datum : MSL
				Date : 12-16-83	
				Water level : 0.0	
0				Description	
5				Water	
10					
35				Bottom of channel	
40				Gray silty CLAY, soft, saturated.	
45		36.5'		Tan sandy Coral GRAVEL with SILT, loose to medium dense, saturated.	
50		18			
55		15			
60		6		Gray/white silty Coral GRAVEL with sand, loose, saturated.	
65		22		White silty Coral GRAVEL with sand, medium dense, saturated.	
70		25			
75		21			
80		31		White silty SAND and GRAVEL, dense, saturated.	
85		20		Tan silty Coral GRAVEL with sand, medium dense, saturated.	
90		21			
95		28			
100		23		Tan silty Coral GRAVEL with sand and pockets of clay, medium dense, saturated.	
105		24			
110		75		Tan Coral SAND and GRAVEL with brown SILT, very dense, saturated.	
115		24			
120		21		Brown clayey SILT, very stiff, saturated.	
125		17			
130		100/103		White Coral ROCK, hard, saturated.	
135		149/R		Boring terminated at 131.0'	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-064-1(2)	1987	102	151

STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
LAND TRANSPORTATION FACILITIES DIVISION	
BORING LOGS B-11, B-12 & B-13.	
SAND ISLAND ROAD WIDENING	
2ND. BRIDGE AND APPROACHES	
FEDERAL AID PROJECT NO. F-064-1(2)	
SCALE: AS NOTED	DATE: JUN, 1986
SHEET No. 31-4 OF 4 SHEETS	