Project: Kailua Road Intersection Improvements Project Location: Kailua, Oahu, Hawaii Project Number: 110922-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Key to Log of Borings Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1 Elevation (feet): Elevation (MSL, feet).
2 Depth (feet): Depth in feet below the ground surface.
3 Sample Type: Type of soil sample collected at the depth interval shown.
4 Sample Number: Sample identification number.
5 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6 U.S.C.S: Type of material encountered.
7 Graphic Log: Graphic depiction of the subsurface material encountered.
8 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9 Pocket Pen./Torvane, tsf: the reading from Poecket Penetrometer or Torvane.
10 Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.
11 Dry Unit Weight, pcf: Dry weight per unit volume of soil sample measured in laboratory, in pounds per cubic foot.
12 Remarks and Other Tests: Other Tests

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

Asphaltic Concrete (AC)
Basalt Rock Formation
Boulders
Fat CLAY, CLAY w/SAND, SANDY CLAY (CH)
Silty GRAVEL (GM)
Silty SAND (SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS

Auger sampler
Bulk Sample
3-inch-OD California w/ brass rings
CME Sampler
Grab Sample
HQ Coring
3-inch OD Modified California w/ brass liners
Pitcher Sample
PQ Coring
Probing w/Pointed Tip
2-inch-OD unlined split spoon (SPT)
Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting)
Minor change in material properties within a stratum
Inferred/gradational contact between strata
Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

PLATE A-0.1

Project: Kailua Road Intersection Improvements Project Location: Kailua, Oahu, Hawaii Project Number: 110922-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 1 Sheet 1 of 1

Date(s) Drilled **11/27/23**	Logged By **CH**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **21.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+103 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings, Gravel, and AC Patch**	Location **See Site Plan (Plate 2.1)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
103	0						8-inch ASPHALTIC CONCRETE				
					GM		Grayish brown SILTY GRAVEL with some sand, medium dense, moist (base material)				
			1	25	CH		Reddish brown SILTY CLAY with some sand and gravel (coralline), stiff, moist (fill)	3.0	32	90	Sw.= 2.1%
			2	10					31		
98	5		3	19	CH		Reddish brown to brown SILTY CLAY with some sand and a little gravel, stiff, moist (alluvium)	2.5	38	78	UC= 1.8ksf
93	10		4	11			grades to very stiff		39		LL=59, PI=32
					CH		Reddish brown with multi-color mottling SILTY CLAY with some sand and decomposed gravel, very stiff, moist (alluvium)				
88	15		5	29				3.5	44	80	
83	20		6	10			grades to stiff		51		
							Boring terminated at approximately 21.5 feet below the existing ground surface				
78	25						*Elevations of borings estimated from Google Earth imagery				

PLATE A-1

Project: **Kailua Road Intersection Improvements** Project Location: **Kailua, Oahu, Hawaii** Project Number: **110922-00**	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 2 Sheet 1 of 1

Date(s) Drilled **11/27/23**	Logged By **CH**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **8.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+102 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings, Gravel, and AC Patch**	Location **See Site Plan (Plate 2.1)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
102	0						8-inch ASPHALTIC CONCRETE				
					GM		Grayish brown SILTY GRAVEL with some sand, medium dense, moist (base material)				
			1	30/9" +10/0" Ref.	CH			2.0	34	100	
							Light brown SILTY CLAY with some sand and gravel, stiff, moist (fill)				
			2	20/0" Ref.					--		
							Gray BOULDER, hard (alluvium)				
					CH		Brown SILTY CLAY with some sand and gravel, hard, moist (alluvium)				
97	5										
			3	72					31		
							Gray BOULDER, hard (alluvium)				
			4	20/0" Ref.					--		
							Boring terminated at approximately 7.0 feet below the existing ground surface on an apparent hard boulder				
92	10										
87	15										
82	20										
77	25										

PLATE A-2

Project: **Kailua Road Intersection Improvements** Project Location: **Kailua, Oahu, Hawaii** Project Number: **110922-00**	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 3 Sheet 1 of 1

Date(s) Drilled **11/28/23**	Logged By **CH**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **13.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+88 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings, Gravel, and AC Patch**	Location **See Site Plan (Plate 2.2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
88	0						8-inch ASPHALTIC CONCRETE				
					GM		Grayish brown SILTY GRAVEL with some sand, medium dense, moist (base material)				
					SM						
			1	34	CH		Brownish tan SILTY SAND with some gravel, medium dense, moist (fill)		8	131	
			2	25			Brownish tan SILTY CLAY with some sand, gravel, and cobbles, very stiff, moist (fill)		14		
83	5				CH		Brown SILTY CLAY with some sand and a little gravel, stiff, moist (alluvium)				
			3	9				1.5	26	100	Sw.= 8.9%
78	10										
			4	31					21		
							Grayish brown BASALT, moderately weathered, hard (basalt rock formation)				
			5	10/0" Ref.			Boring terminated at approximately 13.5 feet below the existing ground surface on apparent hard basalt rock formation		--		
73	15										
68	20										
63	25										

PLATE A-3

Project: **Kailua Road Intersection Improvements** Project Location: **Kailua, Oahu, Hawaii** Project Number: **110922-00**	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 4 Sheet 1 of 1

Date(s) Drilled **11/28/23**	Logged By **CH**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **15.3 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+91 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings, Gravel, and AC Patch**	Location **See Site Plan (Plate 2.2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
91	0						8-inch ASPHALTIC CONCRETE				
					GM		Grayish brown SILTY GRAVEL with some sand, medium dense, moist (base material)				
			1	30	SM				14	110	
					CH		Brownish gray SILTY SAND with some gravel, medium dense, moist (fill)				
			2	23			Reddish brown SILTY CLAY with some sand and gravel, hard, moist (alluvium)		30		LL=57, PI=28
86	5										
			3	32					27		
81	10										
			4	47					33		
76	15		5	30/3" Ref.			Grayish brown BASALT, highly to moderately weathered, hard (basalt rock formation)		--		
							Boring terminated at approximately 15.3 feet below the existing ground surface on apparent hard basalt rock formation				
71	20										
66	25										

PLATE A-4