



GEOLABS, INC.

Geotechnical Engineering

INTERSTATE ROUTE H-1 AND H-201
DESTINATION SIGN UPGRADE/
REPLACEMENT, PHASE 3
FAP NO. NH-0300 (144)
ISLAND OF OAHU, HAWAII

Log of
Boring

1

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation : N/A
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
UC= 2460 psi UC= 1810 psi	9	70	100	100	53/4"	22/6" +50/2"	5	G	ML	GM	4-inch ASPHALTIC CONCRETE
	16										Gray SILTY GRAVEL (BASALTIC) with some sand (basaltic), moist (fill)
	26										Brown SANDY SILT with some gravel (basaltic) (fill)
	38										Grayish brown TUFF , medium hard (volcanic tuff)
											Brown SANDY SILT with a little gravel, very stiff, moist (weathered volcanic tuff)
											Grayish brown TUFF , moderately to closely fractured, slightly weathered, medium hard (volcanic tuff)
											grades to slightly fractured
											Grayish brown TUFF , severely fractured, highly weathered, soft (volcanic tuff)
											Grayish brown TUFF , closely fractured, slightly weathered, medium hard (volcanic tuff)
											Boring terminated at 31 feet

Date Started: March 27, 2018

Date Completed: March 27, 2018

Logged By: N. Vaiana

Total Depth: 31 feet

Work Order: 7341-00

Water Level: 11.5 ft. 03/27/2018 1303 HRS

Drill Rig: CME-75DG2

Drilling Method: 4" Solid Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

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Log of
Boring

2

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation : N/A
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
UC= 1090 psi	12									GM	4-inch ASPHALTIC CONCRETE
	14									GM	Brownish gray SILTY GRAVEL (BASALTIC) with some sand (basaltic), moist (fill)
	31		100	20	10/0" Ref.		5				Brown SILTY GRAVEL (BASALTIC) with some sand (basaltic), moist (fill)
UC= 1410 psi			100	60			10				Grayish brown TUFF , severely to closely fractured, slightly weathered, medium hard (volcanic tuff)
			100	48			15				grades to moderately fractured
			100	5			20				grades to closely fractured
			100	5			25				
			100	5			30				
Boring terminated at 31 feet											

Date Started: March 28, 2018

Date Completed: March 28, 2018

Logged By: N. Vaiana

Total Depth: 31 feet

Work Order: 7341-00

Water Level: 11.0 ft. 03/28/2018 1300 HRS

Drill Rig: CME-75DG2

Drilling Method: 4" Solid Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

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Log of
Boring

3

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet): 14.5 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
TXUU $S_u = 1.6$ ksf	14	110			48					GP	7-inch ASPHALTIC CONCRETE
	24				17					GM	Gray SANDY GRAVEL (BASALTIC) with a little silt, dense, moist (fill)
										SP	Gray GRAVELLY SAND (BASALTIC) , medium dense, moist (fill)
	32	86			41	2.5	5			GM	Gray with brown mottling SILTY GRAVEL (BASALTIC) , medium dense, moist (fill)
										CH	Gray SILTY CLAY with some gravel (basaltic) and a little cobbles, stiff to very stiff, moist (fill)
										CH	Dark brown SILTY CLAY , very stiff, wet (alluvium)
	62				5		10				grades to medium stiff
LL=110 PI=78 TXUU $S_u = 1.5$ ksf	23	105			10		15			GM	Dark gray SILTY GRAVEL (BASALTIC) with some sand, loose, wet (alluvium)
			19								grades with silty clay pockets locally
	47				6		20			CH	Gray with tan mottling SILTY CLAY with a little gravel (coralline), medium stiff (alluvium w/ coral debris)
			100								grades to very stiff
	67	61			17	3.3	25				
			52								
	56				10		30			ML	Gray with brown mottling CLAYEY SILT with some sand, stiff (alluvium)
			64				35				

Date Started: April 18, 2018

Date Completed: April 19, 2018

Logged By: S. Latronic

Total Depth: 38 feet

Work Order: 7341-00

Water Level: ∇ 15.0 ft. 04/18/2018 2240 HRS

Drill Rig: CME-45C TRUCK

Drilling Method: 4" Solid Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

A - 3.1



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Log of
Boring

3

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	(Continued from previous plate)
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	55	67			14	2.0	40			ML	Boring terminated at 38 feet * Elevations estimated from Topographic Survey Map prepared by Controlpoint Surveying, Inc. dated February 15, 2018.
							45				
							50				
							55				
							60				
							65				
							70				

Date Started: April 18, 2018

Date Completed: April 19, 2018

Logged By: S. Latronic

Total Depth: 38 feet

Work Order: 7341-00

Water Level: ∇ 15.0 ft. 04/18/2018 2240 HRS

Drill Rig: CME-45C TRUCK

Drilling Method: 4" Solid Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

A - 3.2



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Boring

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Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation : N/A
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
Sieve - #200 = 11.9%	4	116			61					GW	12-inch ASPHALTIC CONCRETE
	6				12						Gray angular SANDY GRAVEL (BASALTIC) with traces of clayey silt, dense, moist (fill)
	7	74			14		5			SP- SM	Brownish gray GRAVELLY SAND (BASALTIC) with a little silt, medium dense, moist (fill) grades to loose
TXUU S _u =5.8 ksf			50				10				grades to sandy gravel locally
	27				23					MH	Reddish brown CLAYEY SILT with a little gravel (basaltic), very stiff, moist (residual soil)
			28				15			CH	Reddish brown SILTY CLAY , very stiff to hard, moist (residual soil)
	35	172	100		82	>4.5	20			MH	Dark brown SILTY CLAY with some decomposed gravel, hard, moist (weathered clinker)
	37				74		25			MH	Gray CLAYEY SILT with remnant rock structure, hard, moist (saprolite)
			98	40			30				Gray vugular BASALT , severely to closely fractured, slightly weathered, hard (basalt formation) grades to moderately fractured
							35				Boring terminated at 31.5 feet

Date Started: April 15, 2018

Date Completed: April 16, 2018

Logged By: S. Latronic

Total Depth: 31.5 feet

Work Order: 7341-00

Water Level: ▼ Not Encountered

Drill Rig: CME-45C TRUCK

Drilling Method: 4" Solid Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

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Log of
Boring

5

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation : N/A
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
LL=52 PI=14	19	99			37					GW	6-inch ASPHALTIC CONCRETE
	32				48						Gray angular SANDY GRAVEL (BASALTIC) , dense, moist (fill)
	58	64			84		5			MH	Reddish brown CLAYEY SILT with some decomposed gravel, hard, moist (residual soil)
	42				30		10				grades with remnant rock structure
UC= 7270 psi	29	95			31/6" +50/5"	>4.5	15				
			79	29			20				Gray vugular BASALT , closely fractured, slightly weathered, hard (basalt formation)
			100	17			25				
			100	72			30				grades to moderately fractured
											Boring terminated at 31.5 feet

Date Started: April 16, 2018

Date Completed: April 17, 2018

Logged By: S. Latronic

Total Depth: 31.5 feet

Work Order: 7341-00

Water Level: ▼ Not Encountered

Drill Rig: CME-45C TRUCK

Drilling Method: 4" Solid Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

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Boring

6

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation : N/A
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
LL=82 PI=46	16	91			50	>4.5			12-inch ASPHALTIC CONCRETE		
	30				19				Gray SANDY GRAVEL (BASALTIC) , medium dense to dense, moist (fill)		
	42	68			17	>4.5			Brown with gray mottling CLAYEY SILT with some gravel (basaltic) and a little sand, very stiff, moist (fill)		
UC= 24170 psi	30		100	72	50/2"				5	Brown SILTY CLAY with some sand and gravel, stiff to very stiff, moist (residual soil)	
									10	SM	Brownish gray SILTY SAND (BASALTIC) with some gravel, dense to very dense, wet (saprolite)
UC= 19190 psi			93	15					15	Gray BASALT , slightly to moderately fractured, unweathered to slightly weathered, very hard (basalt formation)	
									20	grades with clayey seams locally, closely fractured	
			100	70					25		
									30		
									35		
										Boring terminated at 26.5 feet	



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7

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet) : 36 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
LL=33 PI=1 TXUU S _u =6.0 ksf	11	77			56					ML	8-inch ASPHALTIC CONCRETE
	36				20					SP	Light brown with multi-color mottling SANDY SILT with a little gravel, very stiff to hard, moist (fill)
							5			ML	Tan GRAVELLY SAND (CORALLINE) , medium dense to dense, moist (fill)
					77/6" +25/1"						Brown SANDY SILT with some gravel, hard, moist (alluvium)
Sieve - #200 = 12.4%	36				36		10				
Sieve - #200 = 16.5%	27	77			37		15			SM	Brown with multi-color mottling rounded SILTY SAND with some gravel (basaltic), medium dense, moist (alluvium)
	40				10		20				
	27	104			19		25			GM	Brown SILTY GRAVEL with some sand (basaltic), medium dense (alluvium) grades with some cobbles
	42				18		30				
							35				

Date Started: January 4, 2022

Date Completed: January 4, 2022

Logged By: B. Aiu

Total Depth: 45.6 feet

Work Order: 7341-00

Water Level: 23.3 ft. 01/04/2022 1115 HRS

Drill Rig: CME-75DG2

Drilling Method: 4" Solid-Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

A - 7.1



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Log of
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7

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	(Continued from previous plate)
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	48	82			28					GM	grades with a little clay
	42				16/6" +25/1"		40				grades with boulders
	32	85			25/1"		45				Boring terminated at 45.6 feet
							50				* Elevations estimated from Topographic Survey Map prepared by Controlpoint Surveying, Inc. dated February 20, 2018.
							55				
							60				
							65				
							70				

Date Started: January 4, 2022

Date Completed: January 4, 2022

Logged By: B. Aiu

Total Depth: 45.6 feet

Work Order: 7341-00

Water Level: 23.3 ft. 01/04/2022 1115 HRS

Drill Rig: CME-75DG2

Drilling Method: 4" Solid-Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

A - 7.2



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Log of
Boring

8

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet): 35.5 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
LL=NP PI=NP TXUU S _u =4.8 ksf	11	123			99						9-inch ASPHALTIC CONCRETE
	40				51					GM	Reddish brown with gray angular SILTY GRAVEL (BASALTIC) with some sand, very dense, moist (fill)
	18	82			121		5			ML	Brown SANDY SILT , hard, moist (alluvium)
	38				34		10				
Sieve - #200 = 10.1%	19	95			25		15			GW-GM	Brown with multi-color mottling SANDY GRAVEL with a little silt, medium dense, moist (alluvium)
Sieve - #200 = 14.3%	27				28		20				grades with more silt
	38	91			33		25				grades with cobbles and boulders
	16				25/1"		30				Boring terminated at 30.1 feet
											* Elevations estimated from Topographic Survey Map prepared by Controlpoint Surveying, Inc. dated February 20, 2018.

Date Started: January 3, 2022

Date Completed: January 3, 2022

Logged By: B. Aiu

Total Depth: 30.1 feet

Work Order: 7341-00

Water Level: 22.7 ft. 01/03/2022 1035 HRS

Drill Rig: CME-75DG2

Drilling Method: 4" Solid-Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

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Log of
Boring

9

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation : N/A		
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description		
LL=38 PI=16 Sieve - #200 = 37.7%	25	92			18				GP	3-inch ASPHALTIC CONCRETE			
					109				SC	Brownish gray SANDY GRAVEL (BASALTIC) , moist (fill)			
	11								ML	Reddish brown CLAYEY SAND with some angular gravel, dense, moist (fill)			
		28			83			5		SM	Reddish brown SANDY SILT with a little clay, medium stiff, moist (residual soil)		
Sieve - #200 = 22.1%	27		100	21	34/6" +50/4"					Reddish brown and gray SILTY SAND (BASALTIC) with some gravel (basaltic), very dense, moist (saprolite)			
UC= 4340 psi			100	47							Brownish gray vugular BASALT , severely fractured, moderately weathered, hard (basalt formation)		
											grades to slightly fractured		
												grades to gray grades to closely to severely fractured	
UC= 2910 psi			97	10									
			100	63								grades to moderately fractured	
												Boring terminated at 31 feet	

Date Started: January 5, 2022

Date Completed: January 6, 2022

Logged By: B. Aiu

Total Depth: 31 feet

Work Order: 7341-00

Water Level: Not Encountered

Drill Rig: CME-75DG2

Drilling Method: 4" Solid-Stem Auger & PQ Coring

Driving Energy: 140 lb. wt., 30 in. drop

Plate

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