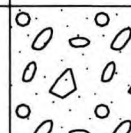
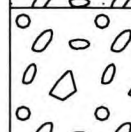

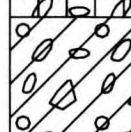
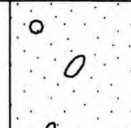
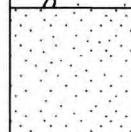

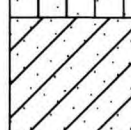

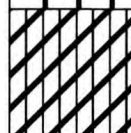

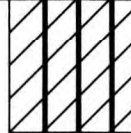
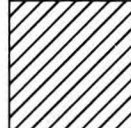

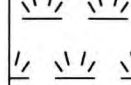




GEOLABS, INC.
Geotechnical Engineering

Soil Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			USCS		TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS	GRAVELS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		LESS THAN 5% FINES		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
		MORE THAN 12% FINES		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		LESS THAN 5% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES		SM	SILTY SANDS, SAND-SILT MIXTURES
		MORE THAN 12% FINES		SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE-GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT 50 OR MORE		MH	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
			HIGHLY ORGANIC SOILS		

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

LEGEND

	(2-INCH) O.D. STANDARD PENETRATION TEST	LL	LIQUID LIMIT (NP=NON-PLASTIC)
	(3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE	PI	PLASTICITY INDEX (NP=NON-PLASTIC)
	SHELBY TUBE SAMPLE	TV	TORVANE SHEAR (tsf)
	GRAB SAMPLE	PEN	POCKET PENETROMETER (tsf)
	CORE SAMPLE	UC	UNCONFINED COMPRESSION (psi)
	WATER LEVEL OBSERVED IN BORING AT TIME OF DRILLING	UU	UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf)
	WATER LEVEL OBSERVED IN BORING AFTER DRILLING		
	WATER LEVEL OBSERVED IN BORING OVERNIGHT		

Plate
A

GEOTECHNICAL NOTES:

- A geotechnical engineering report entitled "Geotechnical Engineering Exploration, HDOT ADA Compliance Project, Halawa Heights Road, Halawa, Oahu, Hawaii" dated November 24, 2014 has been prepared by Geolabs, Inc. A copy of the report is on file at the office of the Engineer for review by the Contractor.
- For boring locations, see Sheet
- The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsoil conditions from those depicted in the logs of borings may occur between and beyond the borings.
- The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.
- The data given is for general information only. Bidders shall examine the site and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for variations of subsoil quality or conditions other than at the boring locations shown and at the time the borings were taken.



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

John Chen
SIGNATURE
APR 30, 2018
DATE OF
LICENSE EXPIRY












STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION










SOIL LOG LEGEND & NOTES

HALAWA HEIGHTS ROAD
PEDESTRIAN BRIDGE
Proj. No. 7241A-01-13

Date: April 24, 2017

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7241A-01-13	2016	36	36

		GEOLABS, INC. Geotechnical Engineering					HDOT ADA COMPLIANCE PROJECT HALAWA HEIGHTS ROAD HALAWA, OAHU, HAWAII					Log of Boring 1	
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 469 *			
										Description			
LL=56 PI=23	33	76			20	3.0				7-inch ASPHALTIC CONCRETE			
									MH	5-inch CONCRETE			
	31				7	2.5				Reddish brown CLAYEY SILT with some sand and gravel (basaltic), very stiff, dry (fill) grades to medium stiff at 2.5 feet			
	17	52			48		5			grades with a little cobbles (basaltic)			
LL=70 PI=38									CH	Brown CLAY with a little sand and gravel (basaltic), hard, moist (fill)			
	31				36	3.0	10						
	28	102			20	>4.5	15		CH	Reddish brown CLAY, very stiff, dry (residual soil)			
	27				17	>4.5	20						
	34	85			40/6" +35/3"	>4.5	25		MH	Brown with multi-color mottling CLAYEY SILT with some sand and decomposed gravel, very hard, damp (residual soil)			
										Boring terminated at 26.3 feet			
										*Elevations estimated from Topographic Map transmitted by R. M. Towill Corporation on November 2, 2012.			
Date Started: December 11, 2012										Water Level:  Not Encountered			
Date Completed: December 11, 2012													
Logged By: D. Gremminger										Drill Rig: CME-45C TRUCK			
Total Depth: 26.3 feet										Drilling Method: 4" Solid Stem Auger			
Work Order: 6794-00										Driving Energy: 140 lb. wt., 30 in. drop			

		GEOLABS, INC. Geotechnical Engineering					HDOT ADA COMPLIANCE PROJECT HALAWA HEIGHTS ROAD HALAWA, OAHU, HAWAII				Log of Boring 2	
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 464 *		
										Description		
LL=66 PI=37 TXUU										8-inch ASPHALTIC CONCRETE		
	8	105			44	>4.5			SW	Tannish gray GRAVELLY SAND (CORALLINE) with some silt, dense, dry (fill)		
	25				12	>4.5			CH	Reddish brown CLAY with a little fine sand, very stiff, dry (fill)		
									CH	Brown CLAY with some sand and gravel (basaltic), very stiff, dry (fill)		
	36	88			19		5			grades with some cobbles and boulders (basaltic)		
	10				52		10					
										GP	Gray COBBLY BOULDERS (BASALTIC) with some clayey silt, very dense, dry (recent alluvium)	
					15/1"		15					
										CH	Reddish brown CLAY, very stiff, dry (residual soil)	
	22				19	>4.5	20					
	39	74			38	4.0	25		MH	Purplish gray with brown mottling CLAYEY SILT with a little fine sand, very stiff, damp (residual soil)		
										Boring terminated at 26.5 feet		
							30					
Date Started: December 11, 2012								Water Level: 		Not Encountered		
Date Completed: December 11, 2012												
Logged By: D. Gremminger								Drill Rig: CME-45C TRUCK				
Total Depth: 26.5 feet								Drilling Method: 4" Solid Stem Auger				
Work Order: 6794-00								Driving Energy: 140 lb. wt., 30 in. drop				

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



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

John Chen
SIGNATURE

APR 30, 2018
DATE OF
LICENSE EXPIRY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS

HALAWA HEIGHTS ROAD
PEDESTRIAN BRIDGE
Proj. No. 7241A-01-13

Date: April 24, 2017

SHEET No. G0.2 OF 2 SHEETS