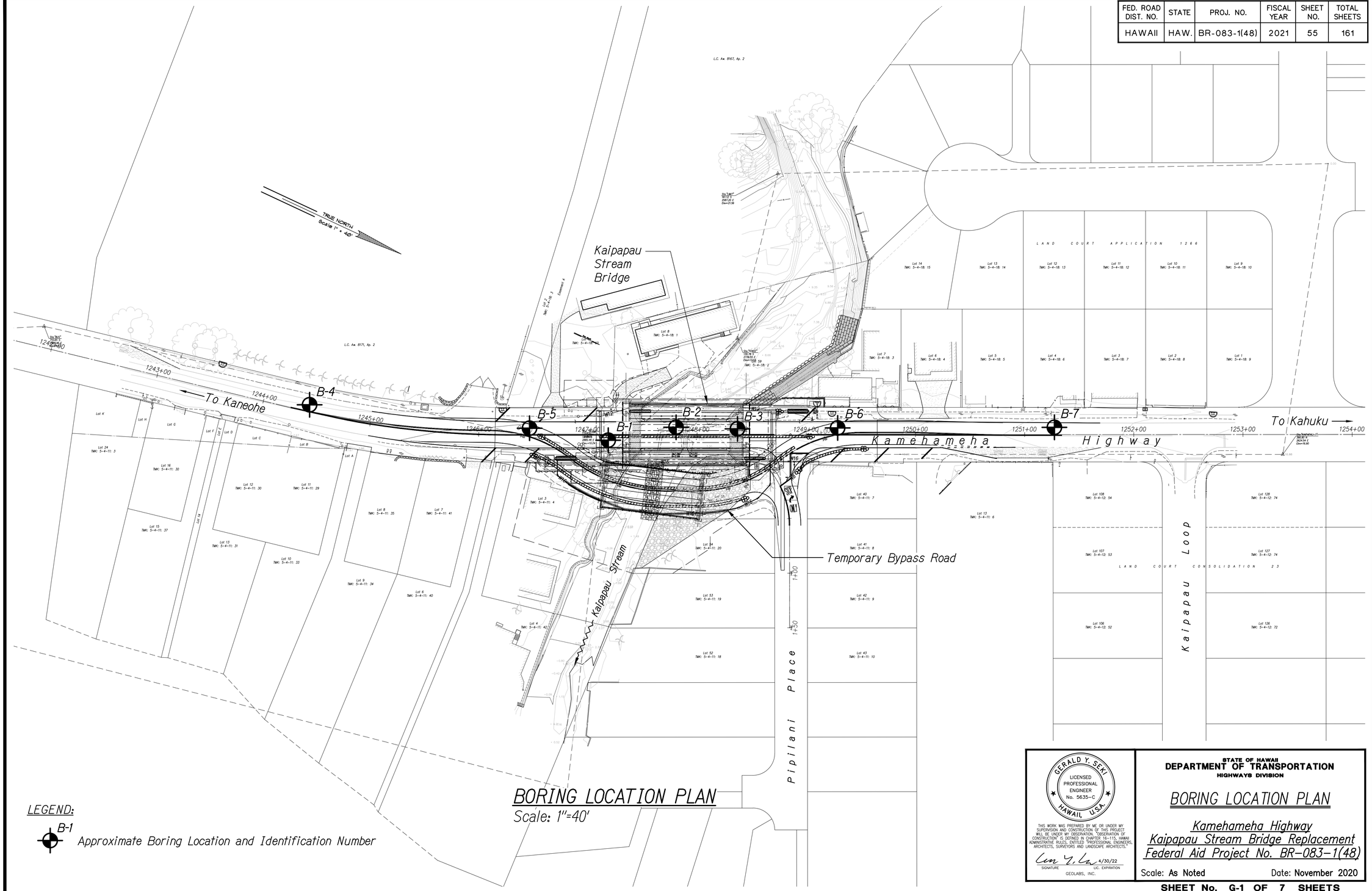
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(48)	2021	55	161



BORING LOCATION PLAN
Scale: 1"=40'

LEGEND:

B-1 — Approximate Boring Location and Identification Number

ORIGINAL PLAN	SURVEY PLOTTED BY	BSY DATE * * * *
	DRAWN BY	DATE
NOTE BOOK	TRACED BY	
	DESIGNED BY	WC
No.	QUANTITIES BY	
	CHECKED BY	

GERALD Y. SEKI
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. "OBSERVATION OF CONSTRUCTION" IS DEFINED IN CHAPTER 16-115, HAWAII ADMINISTRATIVE RULES, ENTITLED "PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS AND LANDSCAPE ARCHITECTS."

Gen Y. Le 4/30/22
SIGNATURE LIC. EXPIRATION

GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOCATION PLAN

Kamehameha Highway
Kaipapau Stream Bridge Replacement
Federal Aid Project No. BR-083-1(48)

Scale: As Noted Date: November 2020

SHEET No. G-1 OF 7 SHEETS

RMTC JOB NO. : 1-19548-0E

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(48)	2021	56	161

GEOLABS, INC.
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Rock Log Legend

ROCK DESCRIPTIONS

	BASALT		FINGER CORAL
	BOULDERS		LIMESTONE
	BRECCIA		SANDSTONE
	CLINKER		SILTSTONE
	COBBLES		TUFF
	CORAL		VOID/CAVITY

ROCK DESCRIPTION SYSTEM

ROCK FRACTURE CHARACTERISTICS

The following terms describe general fracture spacing of a rock:

Massive:	Greater than 24 inches apart
Slightly Fractured:	12 to 24 inches apart
Moderately Fractured:	6 to 12 inches apart
Closely Fractured:	3 to 6 inches apart
Severely Fractured:	Less than 3 inches apart

DEGREE OF WEATHERING

The following terms describe the chemical weathering of a rock:

Unweathered:	Rock shows no sign of discoloration or loss of strength.
Slightly Weathered:	Slight discoloration inwards from open fractures.
Moderately Weathered:	Discoloration throughout and noticeably weakened though not able to break by hand.
Highly Weathered:	Most minerals decomposed with some corestones present in residual soil mass. Can be broken by hand.
Extremely Weathered:	Saprolite. Mineral residue completely decomposed to soil but fabric and structure preserved.

HARDNESS

The following terms describe the resistance of a rock to indentation or scratching:

Very Hard:	Specimen breaks with difficulty after several "pinging" hammer blows. Example: Dense, fine grain volcanic rock
Hard:	Specimen breaks with some difficulty after several hammer blows. Example: Vesicular, vugular, coarse-grained rock
Medium Hard:	Specimen can be broked by one hammer blow. Cannot be scraped by knife. SPT may penetrate by ~25 blows per inch with bounce. Example: Porous rock such as clinker, cinder, and coral reef
Soft:	Can be indented by one hammer blow. Can be scraped or peeled by knife. SPT can penetrate by ~100 blows per foot. Example: Weathered rock, chalk-like coral reef
Very Soft:	Crumbles under hammer blow. Can be peeled and carved by knife. Can be indented by finger pressure. Example: Saprolite

Plate
A-0.2

LOG LEGEND FOR ROCK 5014-00.GPJ GEOLABS.GDT 3/13/14

GEOLABS, INC.
Geotechnical Engineering

Soil Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			USCS	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS (MORE THAN 50% OF MATERIAL RETAINED ON NO. 200 SIEVE)	GRAVELS (MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE)	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (MORE THAN 12% FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS (50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE)	CLEAN SANDS (LESS THAN 5% FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (MORE THAN 12% FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE-GRAINED SOILS (50% OR MORE OF MATERIAL PASSING THROUGH NO. 200 SIEVE)	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			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

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)
S	SHELBY TUBE SAMPLE	TV	TORVANE SHEAR (tsf)
G	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-0.1

LOG LEGEND FOR SOIL 5014-00.GPJ GEOLABS.GDT 3/13/14

GEOTECHNICAL NOTES:

1. *A geotechnical engineering report entitled "Geotechnical Engineering Exploration, Kamehameha Highway (Route 83), Kaipapau Stream Bridge Replacement, Koolauloa, Oahu, Hawaii" dated August 6, 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.*
2. *For boring locations, see Sheet G-1.*
3. *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.*
4. *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.*
5. *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.*

GERALD Y. SEKI
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

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4/30/22
SIGNATURE LIC. EXPIRATION

GEOLABS, INC.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOG LEGENDS & NOTES

Kamehameha Highway
Kaipapau Stream Bridge Replacement
Federal Aid Project No. BR-083-1(48)

Scale: No Scale Date: November 2020

SHEET No. G-2 OF 7 SHEETS

RMTC JOB NO. : 1-19548-0E

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(48)	2021	57	161

GEOLABS, INC.
Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 1

Approximate Ground Surface Elevation (feet MSL): 11 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	USCS	Description
	45				15	1.5		SW	6-inch ASPHALTIC CONCRETE
								CH	Light tan GRAVELLY SAND (CORALLINE) with silt, dense, dry
	49	64			30	1.0	5		Brown with multi-color mottling SILTY CLAY with sand and highly weathered gravel (basaltic), medium stiff, damp
								SM	grades with cobbles (basaltic)
Sieve - #200 = 22.0%	35		0		7		10		Grayish dark brown SILTY SAND (BASALTIC) with well-rounded gravel (basaltic), loose (recent alluvium)
							15		grades with cobbles (basaltic)
			0		30/.3' Ref.			GP	Brownish gray GRAVEL AND COBBLES (BASALTIC) in a silt matrix, dense
	10				37		20		
			0						
							25	SC	Brown with multi-color mottling CLAYEY SAND (BASALTIC) with gravel (basaltic), loose to medium dense
	29				10				
			0						
							30	GW	Brown with multi-color mottling SANDY ROUNDED GRAVEL (BASALTIC) in a silt matrix, dense
	33				31				
			52				35		grades with boulders (basaltic)
			50		5/.0' Ref.				Brown with multi-color mottling COBBLES AND GRAVEL (BASALTIC) in a clayey silt matrix, slightly cemented, dense (old alluvium)
							40		
			84		15/.3' Ref.				
							45		
Sieve - #200 = 56.9%	45		100		23				grades to medium dense, breaks down to brown sandy silt
							50		
	49				22				
			100				55		
	59				30				
			86				60		
	45				28				
			86				65		
	50				15				
			100			1.5		MH	Brown with multi-color mottling CLAYEY SILT with sand and some gravel (basaltic), medium stiff (old alluvium)
			67		10/.0' Ref.		70	ML	grades with moderately weathered boulders (basaltic) at 69.8 feet
							75		

Date Started:	August 21, 2006	Water Level: ▽	9.1 ft. 08/23/2006 1000 HRS
Date Completed:	August 22, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	112.5 feet	Drilling Method:	4" Auger & PQ Coring
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING LOG DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

GEOLABS, INC.
Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 1

(Continued from previous plate)

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	USCS	Description
Sieve - #200 = 83.5%	49		100		19		80	ML	Grayish brown with multi-color mottling SILT with sand, medium stiff (saprolite)
	74		100	0	41				grades to brown with multi-color mottling with clay
			84	0	30/.3' Ref.		85		Greenish gray with multi-color mottling BASALT, closely to severely fractured, highly to extremely weathered, medium hard (basalt formation)
			7		15/.3' Ref.		90	SC	Brown to gray with multi-color mottling CLAYEY SAND, medium dense (saprolite)
	63		100		22		95		
	47		86	0	51		100		Gray with multi-color mottling BASALT, closely to severely fractured with some slickensided surfaces on fractures, highly to extremely weathered, medium hard (basalt formation)
	47		71	0	50		105		
	56				38		110	SM	Brownish gray with multi-color mottling SILTY SAND with gravel, dense (saprolite)
									Boring terminated at 112.5 feet
							115		* Elevations estimated from Site Plan transmitted by R. M. Towill Corporation on February 17, 2006.
							120		
							125		
							130		
							135		
							140		
							145		
							150		

Date Started:	August 21, 2006	Water Level: ▽	9.1 ft. 08/23/2006 1000 HRS
Date Completed:	August 22, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	112.5 feet	Drilling Method:	4" Auger & PQ Coring
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING LOG DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

ORIGINAL PLAN
SURVEY PLOTTED BY — DATE
DRAWN BY — BSY
TRACED BY
DESIGNED BY
QUANTITIES BY — WC
CHECKED BY
NOTE BOOK
No.

GERALD Y. SEKI
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

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Gerald Y. Seki 4/30/22
SIGNATURE — LIC. EXPIRATION
GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS - 1

Kamehameha Highway
Kaipapau Stream Bridge Replacement
Federal Aid Project No. BR-083-1(48)

Scale: No Scale — Date: November 2020

SHEET No. G-3 OF 7 SHEETS

RMTC JOB NO. : 1-19548-0E

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(48)	2021	58	161

GEOLABS, INC. — Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 2

Approximate Ground Surface Elevation (feet MSL): 11.5 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	USCS	Description
							0				3-inch ASPHALTIC CONCRETE
											6-inch CONCRETE
							5				AIR
							10				WATER
			0				15			GM	Grayish dark brown SILTY GRAVEL with sand (basaltic), medium dense
Sieve - #200 = 14.2%	30		67		13		20				Gray CONCRETE, very hard (debris)
			10				25				Gray rounded GRAVEL AND COBBLES (BASALTIC), very loose (recent alluvium)
Sieve - #200 = 6.7%	46		0		25		30			SP-SM	Brown SAND with silt and gravel (basaltic), medium dense (old alluvium)
	51		57		28		35			SM	Brown with multi-color mottling SILTY SAND with gravel, medium dense (old alluvium)
Sieve - #200 = 40.4%	52		100		33		40				Brownish gray to grayish brown with multi-color mottling COBBLES AND GRAVEL (BASALTIC) with some boulders, slightly cemented, dense (conglomerate)
			75		10/.0' Ref.		45				
	43		100		33		50				
			100		15/.3' Ref.		55				
			100		8/.0' Ref.		60				
	48		100		54		65				
	44		71		50		70				grades with clayey silt, medium dense
	62		71		27		75				

Date Started:	August 24, 2006	Water Level: ▽	10.0 ft. 08/24/2006 1230 HRS
Date Completed:	August 25, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	112 feet	Drilling Method:	5" Auger & PQ Coring
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING_LOG_DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

GEOLABS, INC. — Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 2

(Continued from previous plate)

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	USCS	Description
Sieve - #200 = 33.6%	54		100		38		80			SM	Brownish gray with multi-color mottling SILTY SAND, dense (saprolite)
	58		100	19	33		85				Greenish gray with white and black mottling BASALT, closely to severely fractured, highly weathered, medium hard to hard
	42		100	0	30/.3' Ref.		90				grades to severely fractured
			33	7	10/.0' Ref.		95			SM	Brown with multi-color mottling SILTY SAND with some clay, dense (saprolite)
Sieve - #200 = 33.8%	46		71	14	53		100				Grayish brown with multi-color mottling BASALT, closely to severely fractured, highly weathered, medium hard (weathered basalt)
			63		8/.3' Ref.		105			GM	Gray with multi-color mottling SILTY GRAVEL with sand, medium dense (saprolite)
			100	83	10/.0' Ref.		110				Gray with dark gray and brown mottling vesicular to dense BASALT, closely to moderately fractured, moderately weathered, hard (basalt formation)
							115				Boring terminated at 112 feet
							120				
							125				
							130				
							135				
							140				
							145				
							150				

Date Started:	August 24, 2006	Water Level: ▽	10.0 ft. 08/24/2006 1230 HRS
Date Completed:	August 25, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	112 feet	Drilling Method:	5" Auger & PQ Coring
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING_LOG_DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

SURVEY PLOTTED BY: BSY DATE
DRAWN BY:
TRACED BY: WC
DESIGNED BY:
QUANTITIES BY:
CHECKED BY:
ORIGINAL PLAN
NOTE BOOK
No.

GERALD Y. SEKI
LICENSED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.

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SIGNATURE 4/30/22 LIC. EXPIRATION
GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS – 2

Kamehameha Highway
Kaipapau Stream Bridge Replacement
Federal Aid Project No. BR-083-1(48)

Scale: No Scale Date: November 2020

SHEET No. G-4 OF 7 SHEETS

RMTC JOB NO. : 1-19548-0E

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(48)	2021	59	161

GEOLABS, INC. Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 3

Approximate Ground Surface Elevation (feet MSL): 12 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	USCS	Description
							0		9-inch ASPHALTIC CONCRETE
	51	68			21			GW MH	Brown SANDY GRAVEL (CORALLINE) with silt, dense, dry (base course)
	13		0		16		5	ML	Brown with multi-color mottling CLAYEY SILT with extremely weathered gravel (basaltic), medium stiff, moist (fill)
								SM	Brown with multi-color mottling fine SANDY SILT with gravel (basaltic), medium stiff, damp (fill)
Sieve - #200 = 13.5%	29		0		2		10		Dark brown SILTY SAND with gravel, very loose (recent alluvium)
							15		grades with organic matter
	29		0		6				
	27		0		1		20	SP	Dark brown poorly graded SAND with some well-rounded gravel in a silt matrix, very loose (recent alluvium)
			0		10/.0' Ref.		25		grades with well-rounded cobbles and boulders (basaltic)
	56		0		17		30	GC	Brown with multi-color mottling CLAYEY ROUNDED GRAVEL (BASALTIC) with sand, medium dense (old alluvium)
	56		0		11	1.0	35	CL	Brown with multi-color mottling SANDY CLAY with rounded gravel (basaltic), medium stiff (old alluvium)
	55		0		10	1.0	40		
	42		0		39		45	GW-GM	Brown with multi-color mottling rounded GRAVEL (BASALTIC) with sand and silt in a clay matrix, slightly cemented, dense (old alluvium)
Sieve - #200 = 8.4%	26		0		36		50		
	39		29		36		55		
			100		15/.3' Ref.		60		Greenish gray with multi-color mottling slightly cemented COBBLES AND BOULDERS (BASALTIC) with gravel in a clay matrix, dense (old alluvium)
	28		71		26		65		grades to medium dense, breaks down to silty sand
Sieve - #200 =	68		100		23		70		grades to brown with multi-color mottling
							75		

Date Started:	August 22, 2006	Water Level: ▽	9.7 ft. 08/22/2006 1310 HRS
Date Completed:	August 24, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	112 feet	Drilling Method:	5" Auger & PQ Coring
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING_LOG_DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

GEOLABS, INC. Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 3

(Continued from previous plate)

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	USCS	Description
41.7%									
	62		100		26		80	CL	Brown with multi-color mottling SANDY CLAY, medium stiff (old alluvium)
			75		10/.0' Ref.		85		Gray with multi-color mottling densely cemented COBBLES AND GRAVEL (BASALTIC), dense (weathered conglomerate)
	41		100		25/.3' Ref.		90		grades to brownish gray with multi-color mottling, medium dense
	55		84		15/.3' Ref.		95		grades to moderately cemented, dense
	57		100		10/.0' Ref.		100		grades to gray with multi-color mottling, densely cemented
			100		15/.1' Ref.		105		grades to reddish brown with black mottling
			100		10/.0' Ref.		110		grades to very dense
							115		Boring terminated at 112 feet
							120		
							125		
							130		
							135		
							140		
							145		
							150		

Date Started:	August 22, 2006	Water Level: ▽	9.7 ft. 08/22/2006 1310 HRS
Date Completed:	August 24, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	112 feet	Drilling Method:	5" Auger & PQ Coring
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING_LOG_DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

SURVEY PLOTTED BY: BSY DATE
DRAWN BY:
TRACED BY:
DESIGNED BY: WC
QUANTITIES BY:
CHECKED BY:
ORIGINAL PLAN
NOTE BOOK
No.

GERALD Y. SEKI
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. "OBSERVATION OF CONSTRUCTION" IS DEFINED IN CHAPTER 16-115, HAWAII ADMINISTRATIVE RULES, ENTITLED "PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS AND LANDSCAPE ARCHITECTS."

SIGNATURE 4/30/22 LIC. EXPIRATION
GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS – 3

Kamehameha Highway
Kaipapau Stream Bridge Replacement
Federal Aid Project No. BR-083-1(48)

Scale: No Scale Date: November 2020

SHEET No. G-5 OF 7 SHEETS

RMTC JOB NO. : 1-19548-0E

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(48)	2021	60	161

GEOLABS, INC.
Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 4

Approximate Ground Surface Elevation (feet MSL): 9 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	USCS	Description
	20	83			33					SW	6-inch ASPHALTIC CONCRETE
	7				18					SP	Dark brown GRAVELLY SAND (CORALLINE) AND SOME CLAY, medium dense, damp
	27				6		5			SM	Dark brown with tan mottling poorly graded fine SAND, medium dense, damp
											Dark brown with tan mottling SILTY SAND, loose
Sieve - #200 = 1.1%	28				2		10			GW	Dark brown with tan mottling rounded GRAVEL with sand (coralline and basaltic), very loose
										SM	Tannish gray SILTY SAND with some gravel (coralline), very loose
	17				5		15				Boring terminated at 16.5 feet
							20				
							25				
							30				
							35				
							40				
							45				
							50				
							55				
							60				
							65				
							70				
							75				

Date Started:	August 29, 2006	Water Level: ▽	5.9 ft. 08/29/2006 0953 HRS
Date Completed:	August 29, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	16.5 feet	Drilling Method:	4" Auger
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING LOG DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

GEOLABS, INC.
Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 5

Approximate Ground Surface Elevation (feet MSL): 10 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	USCS	Description
LL=68	37	75			31	1.0				GW	5-inch ASPHALTIC CONCRETE
PI=41	33				9	1.0				CH	Brownish gray SANDY GRAVEL (BASALTIC) with silt, medium dense, dry
LL=64 PI=39	35	78			6		5			CH	Dark brown with orange mottling CLAY with some gravel (basaltic), medium stiff, damp grades to medium stiff to stiff at 3.3 feet
LL=54 PI=40											
	69				6		10			ML	Brownish tan fine CLAY with sand, soft to medium stiff, moist
											Grayish dark brown fine SANDY SILT, very loose
	32				15		15			SP	Brownish dark gray with light gray mottling poorly graded fine SAND with silt, medium dense
											Boring terminated at 16.5 feet
							20				
							25				
							30				
							35				
							40				
							45				
							50				
							55				
							60				
							65				
							70				
							75				

Date Started:	August 28, 2006	Water Level: ▽	8.4 ft. 08/28/2006 1348 HRS
Date Completed:	August 28, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	16.5 feet	Drilling Method:	4" Auger
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING LOG DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE
DRAWN BY ____ BSY
TRACED BY ____ .
DESIGNED BY ____ WC
QUANTITIES BY ____ .
CHECKED BY ____ .
NOTE BOOK ____ .
No. ____

GERALD Y. SEKI
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

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Gerald Y. Seki 4/30/22
SIGNATURE LIC. EXPIRATION
GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS – 4

Kamehameha Highway
Kaipapau Stream Bridge Replacement
Federal Aid Project No. BR-083-1(48)

Scale: No Scale Date: November 2020

SHEET No. G-6 OF 7 SHEETS

RMTC JOB NO. : 1-19548-0E

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(48)	2021	61	161

GEOLABS, INC.
Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 6

Approximate Ground Surface Elevation (feet MSL): 13 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	USCS	Description
							0			GW	6-inch ASPHALTIC CONCRETE
LL=56 PI=31	31 23	86			40 7	1.5				CH	Tan SANDY GRAVEL (CORALLINE), dense, dry
LL=56 PI=27 LL=55 PI=25	29	84			17	1.0 1.5	5			CH MH	Dark brown CLAY with some rounded gravel (basaltic), stiff, damp Dark brown SILTY CLAY with sand, medium stiff to stiff, damp
					15/.0' Ref.		10				Dark brown SILT with clay and sand, stiff, damp grades with cobbles and boulders (basaltic)
					10/.0' Ref.		15				Dark brown with multi-color mottling rounded GRAVEL AND COBBLES (BASALTIC) with silt, dense, damp
											Boring terminated at 15 feet
							20				
							25				
							30				
							35				
							40				
							45				
							50				
							55				
							60				
							65				
							70				
							75				

Date Started:	August 28, 2006	Water Level: ▽	Not Encountered
Date Completed:	August 28, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	15 feet	Drilling Method:	4" Auger
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING_LOG_DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

GEOLABS, INC.
Geotechnical Engineering

KAMEHAMEHA HIGHWAY (ROUTE 83)
KAIPAPAU STREAM BRIDGE REPLACEMENT
KOOLAULOA, OAHU, HAWAII

Log of Boring 7

Approximate Ground Surface Elevation (feet MSL): 15.5 *

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample	Graphic	USCS	Description
							0			GW	6-inch ASPHALTIC CONCRETE
LL=95 PI=64	26 17	84			28 10	1.0				CH	Brownish gray SANDY GRAVEL (BASALTIC), dense, dry
Sieve - #200 = 34.0%	30	85			18	1.0	5			SM MH SM	Dark brown with white and black mottling CLAY with some gravel (coralline), medium stiff to stiff, damp
Sieve - #200 = 8.9%	14				16		10			GP-GM	Light brownish tan SILTY SAND (CORALLINE), loose to medium dense, damp
					10/.0' Ref.						Brownish tan CLAYEY SILT, medium stiff to stiff, damp
							15				Dark brown with multi-color mottling SILTY SAND with some well-rounded gravel, medium dense, damp
							20				Dark brown GRAVEL with silt and sand, medium dense, damp grades with cobbles and boulders (basaltic) at 11.7 feet
											Boring terminated at 13 feet
							25				
							30				
							35				
							40				
							45				
							50				
							55				
							60				
							65				
							70				
							75				

Date Started:	August 28, 2006	Water Level: ▽	Not Encountered
Date Completed:	August 28, 2006		
Logged By:	Y. Chiba	Drill Rig:	CME-75
Total Depth:	13 feet	Drilling Method:	4" Auger
Work Order:	5014-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING_LOG_DOT 5014-00.GPJ GEOLABS.GDT 8/4/14

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

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4/30/22
SIGNATURE — LIC. EXPIRATION

GEOLABS, INC.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOGS – 5

Kamehameha Highway
Kaipapau Stream Bridge Replacement
Federal Aid Project No. BR-083-1(48)

Scale: No Scale — Date: November 2020

SHEET No. G-7 OF 7 SHEETS

RMTC JOB NO. : 1-19548-0E