



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

B-1

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 495 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	4				29/6" +25/0" Ref.						9.5-inch <b>ASPHALTIC CONCRETE</b>
								G	GW		Gray coarse subangular <b>SANDY GRAVEL</b> , very dense, damp (base course)
	20								GM		Brownish gray coarse subangular <b>SILTY GRAVEL</b> , very dense, damp (subbase course)
											Gray <b>BASALT</b> , moderately fractured, moderately weathered, hard (a'a basalt)
							5				Boring terminated at 3.5 feet
							10				* Elevations estimated from Topographic Survey Map transmitted by Wesley R. Segawa & Associates, Inc. on February 6, 2014.
							15				

Date Started: October 7, 2013

Date Completed: October 7, 2013

Logged By: S. Latronic

Total Depth: 3.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 12" Solid Stem Auger

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

Plate

A - 1



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REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

B-2

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 682.2 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	8				79						14-inch <b>ASPHALTIC CONCRETE</b>
										SW-SM	Tan <b>GRAVELLY SAND</b> with a little silt, very dense, damp (base course)
										CH	Brownish gray <b>SILTY CLAY</b> with some cobbles, very stiff, moist (colluvium)
	66	61			43		5			ML	Orangish brown <b>SANDY SILT</b> with remnant of rock structure, very stiff, moist (saprolite)
											grades to stiff, very moist
	64	58			13		10				
											Boring terminated at 11 feet
							15				

Date Started: October 8, 2013

Date Completed: October 8, 2013

Logged By: S. Latronic

Total Depth: 11 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 2



# GEOLABS, INC.

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REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

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Boring

**B-3**

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 863.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	16				97						11.5-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray subangular <b>SANDY GRAVEL</b> , very dense, damp (base course)
										GM	Brownish gray medium to coarse <b>SILTY GRAVEL</b> with a little sand and traces of cobbles, very dense, moist (subbase course)
											Gray <b>BASALT</b> , moderately fractured, slightly to moderately weathered, hard (a'a basalt)
							5				Boring terminated at 4.5 feet
							10				
							15				

Date Started: October 8, 2013

Date Completed: October 8, 2013

Logged By: S. Latronic

Total Depth: 4.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

**A - 3**



# GEOLABS, INC.

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REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

B-4

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1014.1 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	13				71						8.5-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray medium to coarse subangular <b>SANDY GRAVEL</b> with traces of silt and a little cobbles, very dense, damp (base course)
	36				24		5			GM	Brownish gray <b>SILTY GRAVEL</b> with a little sand and some cobbles, very dense, moist (fill)
										MH	Orangish brown <b>CLAYEY SILT</b> , very stiff, moist (residual soil)
											Boring terminated at 7 feet
							10				
							15				

Date Started: October 9, 2013

Date Completed: October 9, 2013

Logged By: S. Latronic

Total Depth: 7 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 4



# GEOLABS, INC.

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WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

B-5

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1054.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	13				55						10-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
	56	66			22					CH	Brown <b>SILTY CLAY</b> with traces of sand, stiff, moist (fill)
	59				7		5			CH	Brown with multi-color mottling <b>SILTY CLAY</b> , medium stiff to stiff, moist to very moist (older alluvium)
	62	61			19		10				
							15				Boring terminated at 11.5 feet

Date Started: October 9, 2013

Date Completed: October 9, 2013

Logged By: S. Latronic

Total Depth: 11.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 5



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WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

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Boring

B-6

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1092.7 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
											9-inch <b>ASPHALTIC CONCRETE</b>
	14				36					GW-GM GW-GM	Tan <b>SANDY GRAVEL</b> with some silt, dense, moist (base course) Gray <b>SANDY GRAVEL</b> with a little silt, medium dense, moist (fill)
	55				3						grades to loose
							5			CH	Dark grayish brown <b>SILTY CLAY</b> , soft to medium stiff, very moist (older alluvium)
	52	70			7	0.8				MH	Brown with multi-color mottling <b>CLAYEY SILT</b> , medium stiff, very moist (older alluvium)
	72				3	0.8	10				
							15				Boring terminated at 12 feet

Date Started: October 10, 2013

Date Completed: October 10, 2013

Logged By: S. Latronic

Total Depth: 12 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 6



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REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

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Boring

B-7

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 914.2 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	45				24						6.5-inch <b>ASPHALTIC CONCRETE</b>
	40	79			80					GW-GM GW	Tan <b>SANDY GRAVEL</b> with some silt, dense, moist (base course)
	51				25		5			MH	Gray <b>SANDY GRAVEL</b> with traces of silt, very dense, damp (base course)
											Reddish brown <b>CLAYEY SILT</b> with a little sand and gravel, very stiff, moist (fill)
	43	72			50/5"		10				Brown <b>TUFF</b> , closely fractured, slightly to moderately weathered, medium hard to hard (volcanic tuff)
							15				Boring terminated at 11.4 feet

Date Started: October 11, 2013

Date Completed: October 11, 2013

Logged By: S. Latronic

Total Depth: 11.4 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

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# GEOLABS, INC.

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REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

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Boring

B-8

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 748.4 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	13				31						12-inch <b>ASPHALTIC CONCRETE</b>
	12	123			20					GW GM	Gray <b>SANDY GRAVEL</b> with traces of silt, very dense, damp (base course) Brownish gray <b>SILTY GRAVEL</b> with some sand, medium dense to dense, moist (fill)
	25				18		5			CL	Reddish brown to grayish brown <b>GRAVELLY CLAY</b> , stiff, moist (fill)
	24	88			22		10				Boring terminated at 11.5 feet
							15				

Date Started: October 15, 2013

Date Completed: October 15, 2013

Logged By: S. Latronic

Total Depth: 11.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 8



Date Started: October 16, 2013	Water Level: Not Encountered	<div>Plate</div> <div>A - 9</div>
Date Completed: October 16, 2013		
Logged By: S. Latronic	Drill Rig: CME-55GY	
Total Depth: 12.5 feet	Drilling Method: 4" Solid Stem Auger	
Work Order: 6782-00(A)	Driving Energy: 140 lb. wt., 30 in. drop	

Date Started: October 16, 2013	Water Level: Not Encountered	Plate  <div style="font-size: 2em; font-weight: bold;">A - 10</div>
Date Completed: October 16, 2013		
Logged By: S. Latronic	Drill Rig: CME-55GY	
Total Depth: 11.5 feet	Drilling Method: 4" Solid Stem Auger	
Work Order: 6782-00(A)	Driving Energy: 140 lb. wt., 30 in. drop	



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Log of  
Boring

B-11

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 462.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
											9-inch <b>ASPHALTIC CONCRETE</b>
	21				41					GW	Gray subangular <b>SANDY GRAVEL</b> with traces of silt, dense, moist (base course)
	48	73			24	1.8	5			CH	Brown with orange mottling <b>SILTY CLAY</b> with a little fine gravel, stiff, moist (fill)
											grades with more silt
	49	73			14		10				
											Boring terminated at 11 feet
							15				

Date Started: October 17, 2013

Date Completed: October 17, 2013

Logged By: S. Latronic

Total Depth: 11 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 11



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REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

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Boring

B-12

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 663.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	17				50/5"						9-inch <b>ASPHALTIC CONCRETE</b>
	14									GW-GM	Tan <b>SANDY GRAVEL</b> with some silt, dense, moist (base course)
										MH	Brown <b>CLAYEY SILT</b> with a little sand and gravel, very stiff, moist (fill)
					20/0" Ref.						Gray <b>BASALT</b> , moderately fractured, slightly weathered, hard
							5				Boring terminated at 4.5 feet
							10				
							15				

Date Started: October 17, 2013

Date Completed: October 17, 2013

Logged By: S. Latronic

Total Depth: 4.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 12



# GEOLABS, INC.

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REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

**B-13**

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 910.1 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
											15-inch <b>ASPHALTIC CONCRETE</b>
	28				20/1"					GM	Reddish gray angular <b>SILTY GRAVEL</b> , very dense, damp (subbase course)
	19				50/1"						Gray <b>TUFF</b> , moderately fractured, slightly to moderately weathered, hard (volcanic tuff)
	15				50/1"		5				Boring terminated at 4.6 feet
							10				
							15				

Date Started: October 18, 2013

Date Completed: October 18, 2013

Logged By: S. Latronic

Total Depth: 4.6 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

**A - 13**



# GEOLABS, INC.

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WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

B-14

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1056.6 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
											9-inch <b>ASPHALTIC CONCRETE</b>
	20				38					GW-GM GW	Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
										MH	Gray angular <b>SANDY GRAVEL</b> with traces of silt, dense, moist (base course)
											Grayish brown <b>CLAYEY SILT</b> with some gravel, stiff, moist (fill)
	82				8		5			MH	Brown with orange mottling <b>CLAYEY SILT</b> with traces of decomposed gravel, stiff, moist (saprolite)
	83	49			21						
							10				
							15				Boring terminated at 12.5 feet

Date Started: October 22, 2013

Date Completed: October 22, 2013

Logged By: S. Latronic

Total Depth: 12.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

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REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

B-15

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1066.5 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	6				11						10.5-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray <b>SANDY GRAVEL</b> with traces of silt, medium dense, moist (base course)
										GM	Brownish gray <b>SILTY GRAVEL</b> with a little sand, medium dense, moist (subbase course)
	63	63			8					MH	Grayish brown <b>CLAYEY SILT</b> with some gravel, stiff, moist (fill)
							5			MH	Brown <b>CLAYEY SILT</b> , stiff, moist (older alluvium)
											Boring terminated at 5 feet
							10				
							15				

Date Started: October 21, 2013

Date Completed: October 21, 2013

Logged By: S. Latronic

Total Depth: 5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 15



# GEOLABS, INC.

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REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

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Boring

B-16

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1032.6 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	22				29						8-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray medium to coarse <b>SANDY GRAVEL</b> with traces of silt, dense, moist (base course)
	56				7					GM	Brownish gray <b>SILTY GRAVEL</b> with a little sand, dense, moist (fill)
							5				grades to medium dense
										MH	Orangish brown <b>CLAYEY SILT</b> with some decomposed gravel, stiff, moist (saprolite)
	55	55			11		10				grades with more gravel
											Boring terminated at 12 feet
							15				

Date Started: October 22, 2013

Date Completed: October 22, 2013

Logged By: S. Latronic

Total Depth: 12 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

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# GEOLABS, INC.

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WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

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Boring

B-17

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 911.1 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	21				46						12-inch <b>ASPHALTIC CONCRETE</b>
										GP	Gray poorly graded medium to coarse subangular <b>GRAVEL</b> with traces of silt, dense, moist (base course)
										GW-GM	Grayish brown <b>SANDY GRAVEL</b> with a little silt, dense, moist (subbase course)
											Gray <b>BASALT</b> , moderately fractured, slightly weathered, very hard
											Boring terminated at 4 feet
							5				
							10				
							15				

Date Started: October 21, 2013

Date Completed: October 21, 2013

Logged By: S. Latronic

Total Depth: 4 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

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# GEOLABS, INC.

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Log of  
Boring

B-18

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 815.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	22				29						9.5-inch <b>ASPHALTIC CONCRETE</b>
										GP	Gray <b>GRAVEL</b> with a little sand and traces of silt, very dense, damp (base course)
										GW	Brownish gray <b>SANDY GRAVEL</b> with traces of silt, dense, moist (subbase course)
										MH	Grayish brown <b>CLAYEY SILT</b> with some gravel, very stiff, moist (fill)
										MH	Orangish brown <b>CLAYEY SILT</b> with a little sand, hard, damp (saprolite)
	30				50/3"		5				Gray <b>BASALT</b> , moderately fractured, slightly to moderately weathered, medium hard to hard
											Boring terminated at 8 feet
							10				
							15				

Date Started: October 24, 2013

Date Completed: October 24, 2013

Logged By: S. Latronic

Total Depth: 8 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

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# GEOLABS, INC.

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REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

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Boring

B-19

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 655.4 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	13				69						8-inch <b>ASPHALTIC CONCRETE</b>
										GP	Gray coarse <b>GRAVEL</b> with a little sand and traces of silt, dense, moist (base course)
										GW-GM	Brownish gray <b>SANDY GRAVEL</b> with a little silt, very dense, moist (subbase course)
											grades with cobbles
	45	70			55		5			CH	Grayish brown to gray <b>SILTY CLAY</b> with a little cobbles, very stiff, moist to very moist (colluvium)
	40	80			17		10				
							15				Boring terminated at 11.5 feet

Date Started: October 25, 2013

Date Completed: October 25, 2013

Logged By: S. Latronic

Total Depth: 11.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 19




# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

B-20

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 474.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	16				35					6-inch <b>ASPHALTIC CONCRETE</b>	
								GP	Gray medium to coarse <b>GRAVEL</b> with a little sand and traces of silt, dense, moist (base course)		
								GM	Brownish gray coarse <b>SILTY GRAVEL</b> with a little sand, dense, moist (subbase course)		
								SM	Grayish brown <b>SILTY SAND</b> with some gravel and a little cobbles, medium dense to dense, moist (fill)		
	37	76			16		5	MH	Dark grayish brown <b>CLAYEY SILT</b> with some gravel, stiff, moist (fill)		
	61	62			12			MH	Orangish brown <b>CLAYEY SILT</b> with a little fine gravel, stiff, very moist (older alluvium)		
									Boring terminated at 12 feet		
							15				

Date Started: October 25, 2013

Date Completed: October 25, 2013

Logged By: S. Latronic

Total Depth: 12 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 20



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-1

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 475.3 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
											8.5-inch <b>ASPHALTIC CONCRETE</b>
									GW		Gray coarse subangular <b>SANDY GRAVEL</b> with traces of silt, very dense, damp (base course)
									GM		Grayish brown coarse subangular <b>SILTY GRAVEL</b> with a little sand, dense, damp (subbase course)
											Boring terminated at 2.5 feet
							5				
							10				
							15				

Date Started: October 7, 2013

Date Completed: October 7, 2013

Logged By: S. Latronic

Total Depth: 2.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 21



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-2

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 592.2 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	8				59						13-inch <b>ASPHALTIC CONCRETE</b>
										SW-SM	Tan <b>GRAVELLY SAND</b> with a little silt, very dense, moist (base course)
										MH	Grayish brown <b>CLAYEY SILT</b> with a little gravel, very stiff, moist (fill) Boring terminated at 3.1 feet
							5				
							10				
							15				

Date Started: October 8, 2013

Date Completed: October 8, 2013

Logged By: S. Latronic

Total Depth: 3.1 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 22



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-3

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 772.7 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	20				30						11-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray medium to coarse subangular <b>SANDY GRAVEL</b> , very dense, damp (base course)
										GM	Brownish gray coarse <b>SILTY GRAVEL</b> with a little sand and traces of cobbles, very dense, moist (subbase course)
										CH	Grayish brown <b>SILTY CLAY</b> with some gravel, very stiff, moist (fill)
											Boring terminated at 4 feet
							5				
							10				
							15				

Date Started: October 8, 2013

Date Completed: October 8, 2013

Logged By: S. Latronic

Total Depth: 4 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 23



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-4

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 951.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	20				48/6" +40/3"						14-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray medium to coarse subangular <b>SANDY GRAVEL</b> with traces of silt, very dense, damp (base course)
										GM	Brownish gray <b>SILTY GRAVEL</b> with some sand, very dense, moist (subbase course)
											Gray <b>BASALT</b> , hard (a'a basalt) Boring terminated at 3 feet
							5				
							10				
							15				

Date Started: October 9, 2013

Date Completed: October 9, 2013

Logged By: S. Latronic

Total Depth: 3 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 24





# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-5

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1040.9 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	4				100						10-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
										GW	Gray <b>SANDY GRAVEL</b> with traces of silt, very dense, damp (base course)
										MH	Grayish brown <b>CLAYEY SILT</b> with some gravel, very stiff, moist (fill) Boring terminated at 3.25 feet
							5				
							10				
							15				

Date Started: October 9, 2013

Date Completed: October 9, 2013

Logged By: S. Latronic

Total Depth: 3.25 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.4

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 25



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-6

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1072.9 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	10				69						10-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Tan <b>SANDY GRAVEL</b> with a little silt, very dense, moist (base course)
										MH	Grayish brown <b>CLAYEY SILT</b> with some sand and a little gravel, very stiff, moist (fill) Boring terminated at 3.2 feet
							5				
							10				
							15				

Date Started: October 10, 2013

Date Completed: October 10, 2013

Logged By: S. Latronic

Total Depth: 3.2 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 26



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-7

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 980.5 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	16				50/5"						5.5-inch <b>ASPHALTIC CONCRETE</b>
										GW	Tan <b>SANDY GRAVEL</b> with traces of silt, very dense, damp (base course)
										GW	Gray <b>SANDY GRAVEL</b> with traces of silt, very dense, damp (base course)
											Gray vesicular <b>BASALT</b> , moderately fractured, slightly to moderately weathered, medium hard to hard (pahoehe basalt)
											Boring terminated at 3 feet
							5				
							10				
							15				

Date Started: October 10, 2013

Date Completed: October 10, 2013

Logged By: S. Latronic

Total Depth: 3 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 27



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-8

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 845.4 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	17										10-inch <b>ASPHALTIC CONCRETE</b>
											Gray <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
											Grayish brown <b>SILTY GRAVEL</b> with some sand, very dense, moist (fill)
											Boring terminated at 1.8 feet
							5				
							10				
							15				

Date Started: October 11, 2013

Date Completed: October 11, 2013

Logged By: S. Latronic

Total Depth: 1.8 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 28



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-9

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 647.7 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	35				14						7.5-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
										MH	Brown <b>CLAYEY SILT</b> with traces of gravel, stiff, moist (fill)
										ML	Brown with gray mottling <b>SANDY SILT</b> with some clay and a little decomposed gravel, stiff, moist (saprolite)
											Boring terminated at 3.1 feet
							5				
							10				
							15				

Date Started: October 16, 2013

Date Completed: October 16, 2013

Logged By: S. Latronic

Total Depth: 3.1 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 29



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-10

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 450.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	52	65			14						9-inch <b>ASPHALTIC CONCRETE</b>
										GP	Gray <b>GRAVEL</b> with traces of silt, dense, moist (base course)
										CH	Reddish brown <b>SILTY CLAY</b> with a little gravel, very stiff, moist (fill)
											Boring terminated at 3.4 feet
							5				
							10				
							15				

Date Started: October 16, 2013

Date Completed: October 16, 2013

Logged By: S. Latronic

Total Depth: 3.4 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 30



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-11

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 372.2 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	46										8-inch <b>ASPHALTIC CONCRETE</b>
											Gray poorly graded angular <b>GRAVEL</b> with traces of silt, dense, damp (base course)
											Reddish brown <b>SILTY CLAY</b> with a little fine gravel, stiff, moist (fill)
											Boring terminated at 1.75 feet
							5				
							10				
							15				

Date Started: October 17, 2013

Date Completed: October 17, 2013

Logged By: S. Latronic

Total Depth: 1.75 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 31



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-12

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 562 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
											10.5-inch <b>ASPHALTIC CONCRETE</b>
											Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
											Brown <b>CLAYEY SILT</b> , stiff, moist (older alluvium) Boring terminated at 1.9 feet
							5				
							10				
							15				

Date Started: October 17, 2013

Date Completed: October 17, 2013

Logged By: S. Latronic

Total Depth: 1.9 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 32





# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-13

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 767.2 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	16				54		5			GM GM GM GM	8-inch <b>ASPHALTIC CONCRETE</b>
											Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
											Gray <b>SANDY GRAVEL</b> with traces of silt, dense, damp (base course)
											Brownish gray <b>GRAVELLY COBBLES</b> with a little sand and traces of silt, dense, damp (fill)
											Grayish brown <b>SILTY GRAVEL</b> with a little clay, dense, moist (fill)
							10				Boring terminated at 4.5 feet
							15				

Date Started: October 18, 2013

Date Completed: October 18, 2013

Logged By: S. Latronic

Total Depth: 4.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 33



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-14

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1091.7 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	69				7						7.5-inch <b>ASPHALTIC CONCRETE</b>
										GW- GM GW	Tan <b>SANDY GRAVEL</b> with some silt, dense, moist (base course)
											Gray <b>SANDY GRAVEL</b> with traces of silt, dense, damp (base course)
											Brownish gray <b>GRAVELLY COBBLES</b> with some sand, dense, damp (fill)
										MH	Grayish brown <b>CLAYEY SILT</b> with some gravel, stiff, moist (fill)
										MH	Orangish brown <b>CLAYEY SILT</b> , medium stiff to stiff, moist (older alluvium)
							5				Boring terminated at 4.5 feet
							10				
							15				

Date Started: October 18, 2013

Date Completed: October 18, 2013

Logged By: S. Latronic

Total Depth: 4.5 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 34



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-15

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1086.6 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	12				5						13-inch <b>ASPHALTIC CONCRETE</b>
										GP	Gray poorly graded angular <b>GRAVEL</b> with traces of silt, loose to medium dense, damp (base course)
										MH	Grayish brown <b>CLAYEY SILT</b> , medium stiff, moist (fill) Boring terminated at 3.9 feet
							5				
							10				
							15				

Date Started: October 18, 2013

Date Completed: October 18, 2013

Logged By: S. Latronic

Total Depth: 3.9 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 35



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-16

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 1050.5 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	19				39						16.5-inch <b>ASPHALTIC CONCRETE</b>
										SM	Tannish brown <b>SILTY SAND</b> with some gravel, dense, moist (base course)
										MH	Tannish brown <b>CLAYEY SILT</b> with some gravel and a little sand, very stiff, moist (fill)
											Boring terminated at 3.8 feet
							5				
							10				
							15				

Date Started: October 22, 2013

Date Completed: October 22, 2013

Logged By: S. Latronic

Total Depth: 3.8 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 36



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-17

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 979.2 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	16				8						7-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray <b>SANDY GRAVEL</b> with traces of silt, dense, damp (base course)
										GM	Brownish gray <b>SILTY GRAVEL</b> with traces of clay, loose to medium dense, moist (fill)
	11				25/1"		5				Gray <b>BASALT</b> , hard Boring terminated at 4.6 feet
							10				
							15				

Date Started: October 21, 2013

Date Completed: October 21, 2013

Logged By: S. Latronic

Total Depth: 4.6 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 37



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-18

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 815.7 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	22				37						10.5-inch <b>ASPHALTIC CONCRETE</b>
										GP	Gray coarse <b>GRAVEL</b> with traces of sand, dense, damp (base course)
										GM	Brownish gray <b>SILTY GRAVEL</b> with a little sand and traces of clay, dense, moist (subbase course)
										ML	Grayish brown <b>GRAVELLY SILT</b> with a little sand, very stiff, moist (fill)
											Boring terminated at 3.7 feet
							5				
							10				
							15				

Date Started: October 24, 2013

Date Completed: October 24, 2013

Logged By: S. Latronic

Total Depth: 3.7 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 38



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-19

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 751.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	25				35						9.5-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray coarse <b>SANDY GRAVEL</b> with traces of silt, dense, moist (base course)
										GM	Brownish gray <b>SILTY GRAVEL</b> with a little sand, dense, moist (subbase course)
										MH	Grayish brown <b>CLAYEY SILT</b> with some gravel, very stiff, moist (fill)
							5				Boring terminated at 3.9 feet
							10				
							15				

Date Started: October 23, 2013

Date Completed: October 23, 2013

Logged By: S. Latronic

Total Depth: 3.9 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 39



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-20

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 603.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	26				18						10-inch <b>ASPHALTIC CONCRETE</b>
										GP	Gray coarse <b>GRAVEL</b> with a little sand and traces of silt, dense, moist (base course)
										GW-GM	Brownish gray <b>SANDY GRAVEL</b> with a little silt, dense, moist (subbase course)
										ML	Grayish brown <b>GRAVELLY SILT</b> with a little clay, stiff, moist (fill)
										CH	Gray <b>SILTY CLAY</b> , stiff, moist (colluvium)
											Boring terminated at 3.75 feet
							5				
							10				
							15				

Date Started: October 25, 2013

Date Completed: October 25, 2013

Logged By: S. Latronic

Total Depth: 3.75 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 40





# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-21

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 900.7 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	38				29						7.5-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
										GW-GM	Brownish gray <b>SANDY GRAVEL</b> with some silt, medium dense, moist (fill)
										SM	Grayish brown <b>SILTY SAND</b> with a little gravel, medium dense, moist (saprolite)
							5				Boring terminated at 3.75 feet
							10				
							15				

Date Started: October 11, 2013

Date Completed: October 11, 2013

Logged By: S. Latronic

Total Depth: 3.75 feet

Work Order: 6782-00(A)

Water Level:

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 41



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-22

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 810.5 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	30				29						7-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
										GW	Gray coarse <b>SANDY GRAVEL</b> with a little cobbles and traces of silt, very dense, damp (base course)
										SM	Reddish brown <b>SILTY SAND</b> , dense, moist (saprolite)
											Gray <b>BASALT</b> , hard
											Boring terminated at 3.8 feet
							5				
							10				
							15				

Date Started: October 11, 2013

Date Completed: October 11, 2013

Logged By: S. Latronic

Total Depth: 3.8 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

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# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-23

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 701.2 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	6				10						8.5-inch <b>ASPHALTIC CONCRETE</b>
	42				15					GP	Gray poorly graded angular <b>GRAVEL</b> with traces of silt, loose, moist (base course)
							5			MH	Grayish brown <b>CLAYEY SILT</b> with a little sand and decomposed gravel, stiff, moist (saprolite)
											Boring terminated at 5.4 feet
							10				
							15				

Date Started: October 15, 2013

Date Completed: October 15, 2013

Logged By: S. Latronic

Total Depth: 5.4 feet

Work Order: 6782-00(A)

Water Level:

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 43



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-24

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 685.1 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	10				43/6" +50/5"						6.5-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Tan <b>SANDY GRAVEL</b> with a little silt, dense, moist (coralline base course)
											Gray dense <b>BASALT</b> , closely fractured, slightly to moderately weathered, hard (dike complex)
											Boring terminated at 3.1 feet
							5				
							10				
							15				

Date Started: October 15, 2013

Date Completed: October 15, 2013

Logged By: S. Latronic

Total Depth: 3.1 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 44



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-25

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 465.6 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	5				5						9-inch <b>ASPHALTIC CONCRETE</b>
									GP		Gray poorly graded angular <b>GRAVEL</b> with traces of silt, medium dense, moist (base course)
									GP		Gray poorly graded angular <b>GRAVEL</b> with a little silt, loose, moist (fill)
							5				Boring terminated at 3.7 feet
							10				
							15				

Date Started: October 15, 2013

Date Completed: October 15, 2013

Logged By: S. Latronic

Total Depth: 3.7 feet

Work Order: 6782-00(A)

Water Level:

Drill Rig: CME-55GY

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 45



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-26

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 863.4 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
											4-inch <b>ASPHALTIC CONCRETE</b>
											6.5-inch <b>CONCRETE</b>
											Boring terminated at 0.85 feet
							5				
							10				
							15				

Date Started: October 18, 2013

Date Completed: October 18, 2013

Logged By: S. Latronic

Total Depth: 0.85 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 46



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-27

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 952.3 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	16				43						8-inch <b>ASPHALTIC CONCRETE</b>
										GP	Gray poorly graded coarse angular <b>GRAVEL</b> with traces of sand, dense, damp (base course)
										GW-GM	Brownish gray <b>SANDY GRAVEL</b> with a little silt, dense, moist (subbase course)
											Gray <b>BASALT</b> , hard (basalt formation) Boring terminated at 3.2 feet
							5				
							10				
							15				

Date Started: October 21, 2013

Date Completed: October 21, 2013

Logged By: S. Latronic

Total Depth: 3.2 feet

Work Order: 6782-00(A)

Water Level:

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 47



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-28

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 864.2 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	21				36						11-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Gray <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
										GM	Brownish gray <b>SILTY GRAVEL</b> with a little sand, dense, moist (subbase course)
										MH	Grayish brown <b>CLAYEY SILT</b> with some gravel, stiff, moist (fill)
											Boring terminated at 3.8 feet
							5				
							10				
							15				

Date Started: October 23, 2013

Date Completed: October 23, 2013

Logged By: S. Latronic

Total Depth: 3.8 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 48





# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAOKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-29

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 844.8 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	26				33						8-inch <b>ASPHALTIC CONCRETE</b>
										GW	Gray coarse <b>SANDY GRAVEL</b> with traces of silt, dense, moist (base course)
										GM	Brownish gray <b>SILTY GRAVEL</b> with a little sand, dense, moist (subbase course)
										MH	Grayish brown <b>CLAYEY SILT</b> with some gravel, very stiff, moist (fill)
											Boring terminated at 4 feet
							5				
							10				
							15				

Date Started: October 24, 2013

Date Completed: October 24, 2013

Logged By: S. Latronic

Total Depth: 4 feet

Work Order: 6782-00(A)

Water Level:

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 49



# GEOLABS, INC.

Geotechnical Engineering

REHABILITATION OF PALI HIGHWAY  
WAKKANAKA STREET TO KAMEHAMEHA HIGHWAY  
HONOLULU TO KANEOHE, OAHU, HAWAII

Log of  
Boring

C-30

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 791.6 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
	22				39						8.5-inch <b>ASPHALTIC CONCRETE</b>
										GW-GM	Gray medium to coarse <b>SANDY GRAVEL</b> with a little silt, dense, moist (base course)
										GM	Brownish gray <b>SILTY GRAVEL</b> with a little sand, dense, moist (subbase course)
										CL	Grayish brown <b>GRAVELLY CLAY</b> , very stiff, moist (fill)
											Gray <b>BASALT</b> , closely fractured, moderately to highly weathered, medium hard to hard (basalt formation)
											Boring terminated at 3.9 feet
							5				
							10				
							15				

Date Started: October 23, 2013

Date Completed: October 23, 2013

Logged By: S. Latronic

Total Depth: 3.9 feet

Work Order: 6782-00(A)

Water Level: Not Encountered

Drill Rig: DIEDRICH D-25.3

Drilling Method: 4" Solid Stem Auger

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

Plate

A - 50