FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1I-01-14M	2014	36	42

MAJOR DIVISIONS			GROUP SYMBOLS		TYPICAL NAMES		
COARSE GRAINED	GRAVELS (More than 50% of coarse	CLEAN GRAVELS		GW	Well graded gravels, gravel—sand mixtures, little or no fines.		
		(Little or no fines.)		GP	Poorly graded gravels or gravel—sand mixtures, little or no fines.		
	fraction is LARGER than the No. 4	GRAVELS WITH FINES		GM	Silty gravels, gravel—sand—silt mixtures.		
SOILS (More than 50% of the	sieve size.)	(Appreciable amt. of fines.)		GC	Clayey gravels, gravel—sand—clay mixtures.		
material is LARGER than	SANDS	CLEAN SANDS (Little or no fines.)		SW	Well graded sands, gravelly sands, little or no fines.		
No. 200 sieve size.)	(More than 50% of coarse			SP	Poorly graded sands or gravelly sands, little or no fines.		
	fraction is SMALLER than the No. 4	SANDS WITH FINES (Appreciable amt. of fines.)		SM	Silty sands, sand—silt mixtures.		
	sieve size.)			SC	Clayey sands, sand—clay mixtures.		
	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.		
FINE GRAINED				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
SOILS (More than 50% of the					Organic silts and organic silty clays of low plasticity.		
material is SMALLER than		SILTS AND CLAYS (Liquid limit GREATER than 50.)			Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.		
No. 200 sieve size.)	(Liquid lim				Inorganic clays of high plasticity, fat clays.		
					Organic clays of medium to high plasticity, organic silts.		
HIGHLY ORGANIC SOILS			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	PT	Peat and other highly organic soils.		
			+ + + + + + + + - + - + - + 	FRES	SH TO MODERATELY WEATHERED BASALT		
				VOLC	CANIC TUFF / HIGHLY TO COMPLETELY WEATHERED BASALT		
				COR	AL .		
		•	SAMP	LE DE	EFINITION		
2" O.D.	Standard Split	Spoon Sampler		\boxtimes s	Shelby Tube RQD Rock Quality Designation		
3" O.D.	Split Tube Sam	pler		N	IX / 4" Coring \(\sum_{\overline{\subset}}\) Water Level		
W.O. 12	-5327			DC	T SWMP Phase 6 and 7		
	ociates, Inc.		n	\sim D	ING LOG LEGEND		

HIRATA & ASSOCIATES, INC. BORING LOG W.O. <u>12-5327</u> __ DRIVING WT. _____140 lb. _ START DATE <u>5/21/12</u> BORING NO. SURFACE ELEV. 7.5± DROP_____ ___ END DATE ______5/21/12 D G S F R A BLOWS DRY MOIST P A P PFR DFNSITY CONT T P L FOOT (PCF) (%) H H E E DESCRIPTION Clayey SILT (MH) — Brown, moist, stiff, with sand 55 77 18 Covered by a thin layer of brown silty sand. 23 84 31 Boulder from 5 to 7 feet. Groundwater encountered at 5.7 feet on 5/22/12 at 10:30 am. Clayey SILT (OL) — Dark brown, soft, organic. 33 259 20 End boring at 11.5 feet. -15- -20-_25_

HIRATA & ASSOCIATES, INC.

BORING NO._

SURFACE ELEV.___

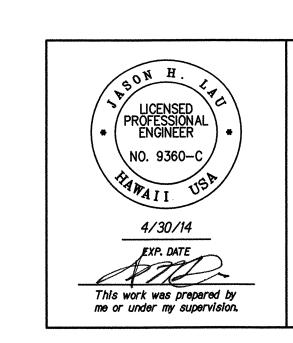
BORING LOG W.O. <u>12-5327</u> DRIVING WT. 140 lb.

_ START DATE_____5/22/12__ END DATE 5/22/12 30 in.

DRY MOIST.
DENSITY CONT.
(PCF) (%) BLOWS PER FOOT DESCRIPTION Silty SAND (SM) — Brown, moist, dense, with gravel. 12/6" 79 10/No Penetration 92 Boulders from 6.5 feet. End boring at 8 feet. Neither groundwater nor seepage water encountered. -15-

<u>Note:</u> See Sheet EC-04 for approximate location of soil borings B5 ¢ B6

Plate A4.5



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SOIL BORING LOG

ALA WAI WATERSHED STORM WATER BEST MANAGEMENT PRACTICES ON OAHU Project No. H1I-01-14M

Date: January 2014

Scale: None

SHEET No. B-01 OF 2 SHEETS

Plate A4.6

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1I-01-14M	2014	37	42

HIRATA & ASSOCIATES, INC.

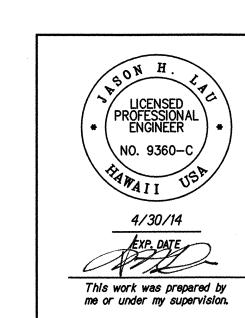
			В	ORING LOG	W	/.0. <u>12–5327</u>
BORING NO SURFACE ELEV				. 140 lb. 30 in.		
S A M P L L D E P T H	BLOWS	DRY DENSITY (PCF)	MOIST. CONT. (%)		DESCRIPTION	0710712
	11/6" 25/5"	83	28	Silty SAND (SM) — I with gravel. (Fill) Concrete fragmer	nts at 1 foot.	dium dense,
5 - 5 - 1 - 1 - 1	14	70	16	Boulder from 2.5 Clayey from 5 fe		
	21	71	45	Groundwater enco 5/15/12 at 9:47	ountered at 7.7 fo am.	eet on
10				End boring at 9.5 f	eet.	
—15— ——————————————————————————————————						
-20-		,				
						
						Plate A4.7

				В	ORING LOG	W	.0. <u>12–5327</u>
BORING NO.		B8		RIVING WT	. 140 lb.	START DATE	5/11/12
SURFACE EL	EV	9.5±		ROP	. 140 lb. 30 in.	END DATE	5/11/12
D G	S						
F R		BLOWS	DRY	MOIST.			
P A T P		PFR FOOT	DENSITY (PCE)	CONT. (%)		DESCRIPTION	
<u>H H H </u>		<u> </u>	(ECF)	(/0)			
- 0 - 1 [1]	╁╘┤				Silty SAND (SM) -	Mottled brown ma	oist medium
		29	84	14	Silty SAND (SM) — dense, with grav	el.	not, mediam
		12/6"	80	15			
	귂	12/6" 50/3"		10	WEATHERED BASAL hard, moderatel	T (WM) — Mottled	brown, medium
	<u>-</u> +		•		hard, moderatel	y weathered.	
	<u>'</u> † '4	10/ N	o Penetra	tion			
					End boring at 6 fe	et.	
					Neither groundw	ater nor seepage v	vater
					encountered.	, ,	
-10-							

						t .	
-15-							
						•	
- The Address of the							
-20-					•	¥	
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-25-	-						
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Plate A4.8

<u>Note:</u> See Sheet EC-08 for approximate location of soil borings B7 **\$** B8



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SOIL BORING LOG

ALA WAI WATERSHED STORM WATER
BEST MANAGEMENT PRACTICES ON OAHU
Project No. H1I-01-14M
Scale: None Date: January 2014

Scale: None

SHEET No. B-02 OF 2 SHEETS

37

