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 SOILS (More than 50% of the material is LARGER than No. 200 sieve size.)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines.)		GW	Well graded gravels, gravel–sand mixtures, little or no fines.
				GP	Poorly graded gravels or gravel–sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines.)		GM	Silty gravels, gravel–sand–silt mixtures.
				GC	Clayey gravels, gravel–sand–clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size.)	CLEAN SANDS (Little or no fines.)		SW	Well graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines.)		SM	Silty sands, sand–silt mixtures.
				SC	Clayey sands, sand–clay mixtures.
FINE GRAINED SOILS (More than 50% of the material is SMALLER than No. 200 sieve size.)	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 GREATER than 50.)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils.
					FRESH TO MODERATELY WEATHERED BASALT
					VOLCANIC TUFF / HIGHLY TO COMPLETELY WEATHERED BASALT
					CORAL

SAMPLE DEFINITION		
2" O.D. Standard Split Spoon Sampler	Shelby Tube	RQD Rock Quality Designation
3" O.D. Split Tube Sampler	NX / 4" Coring	Water Level

W.O. 12-5327	DOT SWMP Phase 6 and 7
Hirata & Associates, Inc.	BORING LOG LEGEND

Plate A3.1

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 12-5327

BORING NO. B5 DRIVING WT. 140 lb. START DATE 5/21/12
SURFACE ELEV. 7.5± DROP 30 in. END DATE 5/21/12

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						
			55	77	18	Clayey SILT (MH) – Brown, moist, stiff, with sand and gravel. Covered by a thin layer of brown silty sand.
			23	84	31	
5						Boulder from 5 to 7 feet. Groundwater encountered at 5.7 feet on 5/22/12 at 10:30 am.
			2	33	160	Clayey SILT (OL) – Dark brown, soft, organic.
10			3	20	259	
						End boring at 11.5 feet.
15						
20						
25						
30						

Plate A4.5

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 12-5327

BORING NO. B6 DRIVING WT. 140 lb. START DATE 5/22/12
SURFACE ELEV. 8± DROP 30 in. END DATE 5/22/12

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0						Silty SAND (SM) – Brown, moist, dense, with gravel.
			12/6" 10/No Penetration	79	14	
5			42	92	10	Boulders from 6.5 feet.
						End boring at 8 feet.
10						Neither groundwater nor seepage water encountered.
15						
20						
25						
30						

Plate A4.6

Note:
See Sheet EC-04 for approximate location of soil borings B5 & B6

JASON H. LAU LICENSED PROFESSIONAL ENGINEER NO. 9360-C HAWAII USA

4/30/14
EXP. DATE

This work was prepared by me or under my supervision.

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

SHEET No. B-01 OF 2 SHEETS

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

UNIV_CLOVERLEAF_WEST_BLDNG 6/30/2013 9:23:5 AM

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

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 12-5327

BORING NO. B7 DRIVING WT. 140 lb. START DATE 5/14/12
SURFACE ELEV. 10± DROP 30 in. END DATE 5/15/12

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0		☐	11/6" 25/5"	83	28	Silty SAND (SM) – Brown, moist, medium dense, with gravel. (Fill) Concrete fragments at 1 foot.
						Boulder from 2.5 to 4 feet.
5		☐	14	70	16	Clayey from 5 feet.
	▽	☐	21	71	45	Groundwater encountered at 7.7 feet on 5/15/12 at 9:47 am.
10						End boring at 9.5 feet.
15						
20						
25						
30						

Plate A4.7

HIRATA & ASSOCIATES, INC.

BORING LOG

W.O. 12-5327

BORING NO. B8 DRIVING WT. 140 lb. START DATE 5/11/12
SURFACE ELEV. 9.5± DROP 30 in. END DATE 5/11/12

DEPTH	GRAPH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (PCF)	MOIST. CONT. (%)	DESCRIPTION
0		☐	29	84	14	Silty SAND (SM) – Mottled brown, moist, medium dense, with gravel.
		☐	12/6"	80	15	
			50/3"			WEATHERED BASALT (WM) – Mottled brown, medium hard, moderately weathered.
5		▭	10/ No Penetration			
						End boring at 6 feet.
						Neither groundwater nor seepage water encountered.
10						
15						
20						
25						
30						

Plate A4.8

Note:
See Sheet EC-08 for approximate location of soil borings B7 & B8

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
N.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

UNIV_CLOVERLEAF_EAST_BLDNG 8/20/2013 9:55:54 AM

JASON H. LAU LICENSED PROFESSIONAL ENGINEER NO. 9360-C HAWAII USA

4/30/14
EXP. DATE

This work was prepared by me or under my supervision.

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

SHEET No. B-02 OF 2 SHEETS