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STATE	PROJECT	SHEET NO.	TOTAL SHEETS
HI	HI A-AD 6(6)	A5	A18

PROJECT: HI-A-AD 6(6) - SADDLE ROAD

DATE OF FIELD WORK: SEPTEMBER 2010
DATE OF FINAL ADJUSTMENT: SEPTEMBER 2010

PROJECT UNITS: FEET US
COORDINATE SYSTEM: LAMBERT NAD83, HAWAII ZONE 5101
BASED ON CORS STATIONS PAH6 & UP05
EPOCH:2002.0000, DATED SEPTEMBER 30, 2010

VERTICAL DATUM: SEA LEVEL (GPS ELEVATIONS BASED ON ELEVATIONS AT STATIONS PARK, SR83 & OMAOKOILI)
ALL COORDINATES ARE IN US SURVEY FEET

STATE PLANE COORDINATES				NAD 83					
POINT NAME	NORTH	EAST	ELEVATION	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT	MAPPING ANGLE	COMBINED FACTOR	DESCRIPTION
OMAOKOILI	319066.288	1641784.899	7089.75	19°42'42.89130"N	155°29'45.67873"W	7182.05	0°00' 04.8"	0.99962273	DRILL HOLE & TRIANGLE CUT IN LAVA
PARK	332467.148	1630968.689	6485.52	19°44'55.71938"N	155°31'38.91458"W	6577.477	-0° 00' 33.4"	0.99965178	ALUMINUM CAP STAMPED PARK
PUU PA	420060.367	1570331.659	2667.774	19°59'23.55478"N	155°42'14.85614"W	2742.087	-0° 04' 11.2"	0.99984097	USGS UNSTAMPED DISK
SR83	344166.916	1602076.474	5605.86	19°46'51.57484"N	155°36'41.47887"W	5694.633	-0° 02' 15.8"	0.99969564	ALUMINUM CAP STAMPED SR-83
PUU HINAI	388125.576	1544952.466	1442.352	19°54'06.65194"N	155°46'40.40631"W	1515.674	-0° 05' 40.5"	0.99990458	CENTER OF A 2.5" IRON PIPE
KEAMUKU	361162.363	1560432.012	3076.418	19°49'39.61917"N	155°43'57.80127"W	3154.512	-0° 04' 44.2"	0.99982295	CENTER OF A 2.5" IRON PIPE
NOHONAOHAE	394526.538	1577290.544	3251.587	19°55'10.53921"N	155°41'01.59798"W	3328.979	-0° 03' 45.4"	0.99981181	CENTER OF A 2.5" IRON PIPE
PAH6	248812.251	1825696.351	598.333	19°31'03.61097"N	154°57'43.02958"W	650.456	0°10' 47.2"	0.99997491	GPS CORS
UP05	513149.316	1508858.686	198.932	20°14'45.16685"N	155°53'01.65376"W	256.315	-0°07' 58.1"	0.99997425	GPS CORS

NOTE: TO PRECISELY CHECK DISTANCES BETWEEN POINTS AS MEASURED ON THE GROUND:
INVERSE THE STATE PLANE COORDINATES AND DIVIDE THE COMPUTED DISTANCE BY A MEAN OF THE COMBINED FACTOR OF THE TWO POINTS.

TO COMPUTE GEODETIC AZIMUTHS USE THE FOLLOWING FORMULA:
GEODETIC AZIMUTH = GRID AZIMUTH + MAPPING ANGLE

PROJECT: HI-A-AD 6(6) - SADDLE ROAD

DATE OF FIELD WORK: SEPTEMBER 2010
DATE OF FINAL ADJUSTMENT: SEPTEMBER 2010

PROJECT UNITS: FEET US
COORDINATE SYSTEM: LOCAL COORDIANTES

VERTICAL DATUM: SEA LEVEL (GPS ELEVATIONS BASED ON ELEVATIONS AT STATIONS PARK, SR83 & OMAOKOILI)
ALL COORDINATES ARE IN US SURVEY FEET

POINT NAME	NORTH	EAST	ELEVATION	DESCRIPTION
OMAOKOILI	0	0	7089.75	DRILL HOLE & TRIANGLE CUT IN LAVA
PARK	13400.1616	-10816.1613	6485.52	ALUMINUM CAP STAMPED PARK
PUU PA	100989.0501	-71453.2086	2667.774	USGS UNSTAMPED DISK
SR83	25098.8674	-39707.6856	5605.86	ALUMINUM CAP STAMPED SR-83
PUU HINAI	69054.7329	-96830.8126	1442.352	CENTER OF A 2.5" IRON PIPE
KEAMUKU	42092.7788	-81351.1551	3076.418	CENTER OF A 2.5" IRON PIPE
NOHONAOHAE	75456.2341	-64493.9614	3251.587	CENTER OF A 2.5" IRON PIPE

NOTE: Coordinates based on Government Survey Traingulation Station "OMAOKOILI"

Please see sheet 1 of 2 for New Permanent Control



(THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
[Signature]
Licensed Professional Surveyor

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

SURVEY CONTROL

SHEET 1 of 1

Project: HI-A-AD 6(6) - Saddle Road

Permanent Monuments and Markers

Coordinate System: Local Coordinates

Project Units: U.S. Survey Feet

Point Number	Northing	Easting	Elevation	Description	Station	Offset	LT/RT
99	48045.591	-86508.523	2531.706	2" AL CAP	201+44.67	119.47	LT"
100	47136.928	-86240.861	2594.624	2" AL CAP	210+96.13	130.68	LT"
101	46226.719	-86113.092	2628.616	2" AL CAP	219+72.67	149.43	RT"
102	45587.148	-85237.603	2688.497	2" AL CAP	230+27.18	-52.251	LT"
103	45295.015	-85070.457	2713.952	2" AL CAP	233+27.85	95.21	RT"
104	45081.234	-84622.177	2736.782	2" AL CAP	238+11.13	81.495	RT"
105	44845.714	-84001.461	2779.726	2" AL CAP	244+69.37	97.04	RT"
106	44686.878	-83577.329	2821.506	2" AL CAP	249+22.07	110.52	RT"
107	44646.354	-82822.289	2851.495	2" AL CAP	256+49.79	94.76	LT"
108	44325.937	-81946.161	2885.696	2" AL CAP	265+70.45	92.58	LT"
109	43669.479	-81444.058	2956.078	2" AL CAP	273+83.70	98.22	RT"
110	43019.343	-80949.216	2978.742	2" AL CAP	281+97.68	76.67	LT"
111	42206.161	-80721.19	3027.381	2" AL CAP	290+47.53	60.99	LT"
112	41730.093	-80661.625	3045.088	2" AL CAP	294+96.83	99.66	RT"
113	41218.095	-80224.806	3076.896	2" AL CAP	301+44.36	97.16	RT"
114	40754.171	-79323.649	3146.598	2" AL CAP	311+36.16	76.47	LT"
115	40326.087	-78719.79	3207.066	2" AL CAP	318+76.19	92.25	LT"
116	39728.069	-78202.989	3226.16	2" AL CAP	326+47.51	80.32	RT"
117	39138.938	-77501.683	3286.552	2" AL CAP	335+79.20	98.58	RT"
118	38450.091	-76938.477	3340.834	2" AL CAP	344+83.80	79.65	RT"
119	37647.368	-76400.675	3424.289	2" AL CAP	354+49.40	114.52	RT"
120	37084.197	-75643.942	3463.602	2" AL CAP	363+72.81	94.89	LT"
121	36674.817	-75150.947	3470.933	2" AL CAP	370+19.57	97.5	LT"
122	36089.287	-74494.398	3556.981	2" AL CAP	378+98.50	60.25	LT"
123	35467.566	-73954.756	3628.594	2" AL CAP	387+09.88	79.05	RT"
124	35082.219	-73204.622	3714.417	2" AL CAP	395+34.44	97.89	LT"
125	34624.422	-72975.668	3752.929	2" AL CAP	400+01.57	111.35	RT"
126	34225.772	-72173.189	3796.016	2" AL CAP	408+75.06	88.45	LT"
127	33660.648	-71494.237	3840.916	2" AL CAP	417+58.40	81.18	LT"
128	33079.855	-71058.51	3885.869	2" AL CAP	424+58.57	96.5	RT"
129	32749.004	-69966.262	3943.842	2" AL CAP	435+89.95	87.45	LT"
130	32443.664	-69457.61	3982.876	2" AL CAP	441+56.11	101.2	RT"
131	32257.649	-68461.927	4045.988	2" AL CAP	451+68.81	80.79	RT"
132	32067.807	-67561.713	4098.877	2" AL CAP	460+88.82	83.55	RT"
133	32035.425	-66588.185	4185.551	2" AL CAP	470+48.58	82.77	LT"
134	31753.571	-65629.593	4254.157	2" AL CAP	480+30	91.01	LT"
135	31385.926	-65026.274	4266.732	2" AL CAP	487+18.89	93.54	LT"
136	30992.414	-64521.306	4308.468	2" AL CAP	493+59.01	84.22	LT"
137	30368.379	-63987.45	4362.88	2" AL CAP	501+61.21	91.55	RT"
138	29933.542	-63066.776	4426.995	2" AL CAP	511+71.84	83.99	LT"
139	29564.616	-62653.998	4451.916	2" AL CAP	516+98.77	87.46	RT"

Point Number	Northing	Easting	Elevation	Description	Station	Offset	LT/RT
140	29400.581	-62051.691	4502.974	2" AL CAP	523+04.75	107.41	RT"
141	29380.05	-61278.206	4540.247	2" AL CAP	530+58.20	112.3	RT"
142	29439.466	-60743.735	4554.136	2" AL CAP	535+95.36	86.76	RT"
143	29670.178	-60045.324	4607.057	2" AL CAP	543+06.95	99.39	LT"
144	29689.541	-59030.77	4651.437	2" AL CAP	553+13.38	73.55	LT"
145	29514.905	-58058.186	4713.4	2" AL CAP	562+78.94	96.27	LT"
146	29155.08	-57727.501	4744.394	2" AL CAP	567+18.58	111.83	RT"
147	29047.915	-56741.481	4812.42	2" AL CAP	576+70.51	166.65	LT"
148	28753.062	-56136.705	4847.148	2" AL CAP	583+42.09	125.8	LT"
149	28165.992	-55353.909	4901.382	2" AL CAP	592+90	116.86	RT"
150	28056.727	-54544.539	4937.984	2" AL CAP	600+86.64	79.07	LT"
151	27912.659	-53905.904	4981.18	2" AL CAP	607+56.33	75.55	LT"
152	27676.342	-53127.856	5068.717	2" AL CAP	615+32.77	146.78	RT"
153	27824.772	-52495.147	5090.998	2" AL CAP	621+60.49	108.56	RT"
154	28268.62	-51799.032	5126.325	2" AL CAP	629+65.47	56.96	LT"
155	28458	-51226.164	5162.38	2" AL CAP	635+50.33	85.19	RT"
156	29248.424	-50584.632	5165.089	2" AL CAP	645+51.31	68.67	LT"
157	29774.758	-49700.646	5199.983	2" AL CAP	655+83.45	77.33	RT"
158	30182.245	-48875.768	5242.829	2" AL CAP	664+93.52	86.38	LT"
159	30085.089	-47804.814	5314.534	2" AL CAP	675+49.30	97.69	LT"
160	29725.692	-47123.161	5381.168	2" AL CAP	682+83.69	135.74	RT"
161	29760.471	-46119.059	5425.346	2" AL CAP	692+65.88	75.74	LT"
162	29431.511	-45021.41	5462.04	2" AL CAP	703+92.43	80.39	LT"