HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

Q 201561 STATION 1202 ILAWAH 20 °30' TO 21 °00' LONGITUDE 156 ° 30' TO 156 ° 30' DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

RECOVERY DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: SHORE D Established By: HGS CHIEF OF PARTY: C.T.H.

Year: 1881 YEAR: 1950

Hawali County, Maul

Described bys G.B.G. NOTE. HEIGHT OF TELESCOPE ABOVE STATION MARK METTOD. HEIGHT OF LIGHT ABOVE STATION MARK

Surface-station mark, Underground-station mark DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROB WHICH CAN BE SEEN FROM THE GROUND AT THE STATION PIMOE HGS 1950 0 00 00 15.811 128 55 07-12.221 212 40 00-Reference Nark No.1 51.88 Reference Mark No.2 SE

Station was established by the Hawaiian Government Survey in 1881 and described as follows; On southern coast of East Maui, in eastern part of Kahikinui District, south of Lualailua Hills. Marked by iron stake in cairn of stones.

The station was recovered as described. The iron stake was removed and replaced by a standard disk set in a square topped concrete post projecting 6 inches. Stamped SHORE D 1950. The iron stake was tied off

projecting c inches. Stamped Shore D 1950. The iron stake was tred oil and the new mark set at the same location.

The under ground mark is a standard disk set in concrete 36 inches below the surface, stamped Shore D 1950.

Reference mark No.1 is a standard disk set in a large buried boulder projecting 2 feet above the ground. Stamped Shore D 1950.

Reference mark No.2 is a standard disk set in rock outcrop projecting 3 feet above the ground. Stamped SHORE D 1950.

To reach from the Makena Post Office: go easterly for 4.0 miles to junction of roads above prison camp, continue ahead on main highway for 3.6 miles, turn right onto dim road and go 0.2 miles to a locked gate at north side of stone correl. Continue ahead on track road down hill to coast, turn left and follow dim tracks along coast for 1.3 miles to station near low rock walls.

> U.S. DEPARTMENT OF CONMERCE - COAST AND GEOGETIC SURVEY RECOVERY NOTE, TRIANGULATION STATION

 \mathbf{R}

NAME OF STATION: SHORE D ESTABLISHED BY: H.G.S. RECOVERED BY: H.J.S.

YEAR: 1881 STATE: YEAR: 1961 COUNTY:

Hawaii Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

The station was recovered in good condition as described by C.T.H. in 1950. Both reference marks were recovered. To reach the station from State Highway 31, secure key to gate from the Ulapalakua Ranch Office at Makena Post Office and store.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION. SHORE D

HAWAII

YEAR 1881

FIRST

ORDER

SOURCE: G- 9311

20 35 12.118 GEODETIC LATITUDE 8.1 METERS FLEVATION. GEODETIC LONGITUDE: 156 18 04.999 27

		STATE COORDINATES (Feet)		
STATE & ZONE	CODE	×	٧	O OR A OI ANGLE
HI 2	5102	624,938.01	52,160.32	+ 0°07′42

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, heta\,$ (or $\Delta\,$ or formula neglecting the second term

TO STATION OR OBJECT	GEODETIC AZIMUTH (From well)	PLANE AZIMUTH * (Fram south)	COD
AZIMUTH MARK 1968	91 34 45.3	91 27 03	5102
			l

QE 250

(continued on next page)

JUN 1978 U.S. DEPARTMENT OF COMMERCE U.S. DEPARTMENT UF CUMMERCE ADMINISTRATION NATIONAL OCEANS AND ATMOSPHERIC ADMINISTRATION HATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

NATIONAL GEODETIC SURVEY OLD HAWAIIAN DATUM

STATION 1202 QUAD 201561 LATITUDE / TO LONGITUDE DIAGRAM

SHORE D (continued)

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: SHORE D YEAR: 1881 5TATE: YEAR: 1968 COUNTY ESTABLISHED BY: HOS Maui RECOVERED BY: R.C. Munson COUNTY: Island: Maui

HEIGHT OF LIGHT ABOVE STATION MARK HEIGHT OF TELESCOPE ABOVE STATION WARK 1.49 METERS. DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAM BE SEEN FROM THE GROUND AT THE STATION BEARING METERS and DIRECTION ---οÖ OÓ 00.0 LUALAILUA (HGS) 1879 ----1950 DISTANCE OR 51.88 15.811 29 NB R.M. No. 1 R.M. No. 2 14 01 SE 00 00.0 30 00 13 56 - (About 1/4-mile) 287 35 26.5 Azimuth mark

Station was recovered and all marks found in good condition. An asi-

muth mark was established. A complete description follows:
Station is located about 7-3/4 miles southeast of Ulupalakua, 2 miles
south of the Lualailua Hills, along south coast of the island, on Kiakeana Point, on a low, grassy rise.

To reach station from the post office at Ulupalakua, go southeast on State Highway 37 for 0.65 mile; take right fork and follow Highway 31 for 6.3 miles to a dim crossroad just before reaching the Lualailua Hills. Go

right for 0.15 mile; take right fork and go 0.15 mile to locked gate. (Rey was obtained from Mr. Stephen Perreira at Kula). Pass through gate and go 1.75 miles to T-junction. Go left 0.65 mile to sea coast. Follow road left 0.2 mile to wire gate. Pass through gate and continue for 0.55 mile to right angle turn and asimuth mark on right. Continue on track road for 0.35 miles to restain.

to right angle turn and asimuth mark on right. Continue on track road for 0.35 mile to station.

Station mark is a standard disk stamped "SHORE D 1950", set in the top of a 10-inch-square, concrete monument that projects 3 inches from ground. It is 40 feet south of track road, 67 feet south of the south end of a 12 x 27-foot stone enclosure, and about 75 feet north from sea. There is at present a large hydrographic-survey signal over the station.

Reference mark number one is a standard disk stamped "SHORE D NO 1 1950", cemented in a drill hole in the west end of a large, 5 x 9-foot 1950", center line of track road and 2.7 feet lower than station mark.

Reference mark number two is a standard disk stamped "SHORE D NO 2 1950", cemented in a drill hole in a lava outcrop that projects 16 inches

1950", cemented in a drill hole in a lava outcrop that projects 16 inches from ground. It is 14 feet northwest of a stone fence corner and 2.6 feet lower than station mark.

Azimuth mark is a standard disk stamped "SHORE D 1950 1968", cemented azimuth mark is a standard disk stamped "SHARE DIFFO 1900", Cemented in a drill hole in a 5-foot-diameter boulder that projects 3 feet above ground. It is 28.5 feet west of the west end of a short, high, stone wall, 85 yards west of track road, about 100 yards southwest of the right-angle turn in the road, and about 80 yards north of a large cairn that sets near the sea.

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1203
HAWAII
LATITUDE 20 °50' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: SHORE N

STATE HAWAII

YEAR 1912

THIRD

....

SOURCE: G-SP156

GEODETIC LATITUDE	20 37 53.673		
GEODETIC LONGITUDE	156 11 51.039	ELEVATION	METERS
			FEET

STATE COORDINATES (Feel)					
CODE	×	Υ	B OR A GI ANGLE		
51 02	660,421.44	138,550.70	+ 0 09 55		
	_		!		
		CODE X	CODE X Y		

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, g\,$ or $\Delta\,$ 4 $\,$ formula neglecting the second term,

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	CODE
	.9.	(30) 85	
		!	
]	
]	i i	
	1		

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1204

HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAUI

ADJUSTED HORIZONTAL CONTROL DATA

SOB HILL RED ROOF HOUSE (Maui County, Hawaii, K.T. Adams, 1929) The center of a red roofed, buff colored house, two gables in Trent, facing the Kahului Harbor. At the present, it is the most prominent object on the high sand hills to the north of the town of the content of the town of the high sand the chicken business.
prominent object on the high sand hills to the chicken business.

NAME OF STATION SOB HILL RED ROOF HOUSE
STATE HAWAII YEAR 1929

THIRD ---

COURCE G- 447

GEODETIC LATITUDE	20 53 35.845 156 29 53.436	ELEVATION	METERS FEET
GEODETIC LONGITUDE			

STATE & ZONE	CODE	×	٧	P OH △ OI ANGLE
1 2	5102	557,513.34	203,405.11	+ 0 03 36

*PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\, heta$ + FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH	PLANE AZIMUTH *	CODE
	* * *	((*)	

QF 028

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1205
HAHAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM

NO ORIGINAL TEXT

STONE (Mau1 County, Hawa11, J.F. Pratt, 1904; O.W. Swainson, 1930) - Station is on prominent rocky ledge 20 feet high on southwest remarked by paint on rocks. There were no distinguishing landmarks

ADJUSTED HORIZONTAL CONTROL DATA

ME OF STATION STUNE		
ATE HAWAII	YEAR 1904	THIRD

SOURCE G-SP156
OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE 156 26 47-11 ELEVATION. METERS	GEODETIC LATITUDE	20 39 29.94 156 26 47.11	ELEVATION	
--	-------------------	-----------------------------	-----------	--

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	×	· ·	FION A BLANGLE
HI Z	5102	575,256.87	118,082.56	+ 0 04 40

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE ~artheta (OR Δ) FORMULA NEGLECTING THE SECOND TEHM.

	The second it	1190.	
TO STATION OR OBJECT	GEODETIC AZIMUTH	PLANE AZIMUTH "	CODE
	3 1 13	2 120	
	ł	!	
		i	
	· ·	' '	

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1206
HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAUI

SEE STATION KOOLAU

				ITROL DAT			
ME OF STATION SURVEY	MARK NEAR	1950			SECON	4D	DÉR
ATE:	YE.						
NO OBSERVATION			ON				
EODETIC LATITUDE	20 45 51. 156 13 32.	004 102		SCA	LED	2281	METE
		STATE COORDI	NATES (Feet				
STATE & ZONE	CODE	×		٧			OI ANGL
HI 2	5102	650,691	. 05	156,6	32.44	+ 0	09 2
PLANE AZIMUTH HAS BEEN CO	MPUTED BY THE 8 11	DR A SI FORMULA	NEGLECTING	THE SECOND TER	м,		
TOSTAT	ION OR OBJECT			ner rough)	PLANE A	ZIMUTH *	col
						QE 4.	38
						QE 4	38

SEE STATION KAMOA

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM Q 2015-1 STATION 1207
HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAUI

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: TANK

STATE HAWAII

YEAR 1965

THIRD

....

OND OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE	20 42 39.834	Programme and the second	
GEODETIC LONGITUDE:	156 26 31.808	ELEVATION:	METERS
			FEET

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	ж		FIOR A SI ANGLE	
11 2	51 02	576,723.52	137,242.88	+ 0 04 46	

*PLANE AZIMUTH HAS BEEN COMPUTED BY THE & OR & 6) FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	CODE
	0 , *	D , "	
	the later and		
		H	

POSITION DETERMINED BY TRAVERSE FROM STATION KAMDA

QF 576

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM STATION 1208

HAWAII LATITUDE LONGITUDE	20 °30' TO 21 156 °00' TO 156	°00′ °30′
DIAGRAM	NF 4-16 MAUI	

Tug (Maui Island, J. C. Gauger, 1912).—On northwest coast of Maui, in
Wallet District near the end of a sandstone ridge southeast of wallet village
and secomplete porth by east of station Hay, and SU meters back from the beach.
It is on the enur which approaches nearest the shore line and commands a view
of the coast line both north and south of the station. Inis is a plantation survey
tation Marked by a 5-inch draintile nine cemented flange end down into the
pendstone rock with about 5 inches projecting above surface. Pipe is filled with
concrete and centered with standard bronze disk.

RECOVERY NOTE, TRIANGULATION STATION. HAWAII COUNTY: MAUL STATE: ESTABLISHED ST: J.C. GAUGER YEAR: 1912 LOCALITY: WAILUKU DISTRICT RECOVERED BY: K.T. ADAMS YEAR: 1929. Detailed statement as to the fitness of the original description: __Round_as_.describeda.

A galf course is under construction about the fact of the hill on which Tug is located. The entrance to the course is about 350 meters southeast of the station. A wooden water tank is about 175 meters further up the slepe of the sand hill.

> U.S. DEPARTMENT OF CONNERCE - COAST AND GEODETIC SURVEY RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: J.C.G. ESTABLISHED BY

W.R.P.

RECOVERED BY:

7

YEAR: 1912 STATE: Hawaii YEAR: 1960 COUNTY: Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

The station was recovered. It is located on the hill just west of the ninth tee at Waiehu Public Golf Course. The north, south and east sides of the hill have been graded away and the station has been left on a pinnacle of sand. The mark has been exposed to a height of one ft. and the large concrete base is flush with the ground but is solid. The pipe surrounding the concrete in which the mark is set projects about 8 inches above the disk.

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION. TUG YEAR: 1912 HawaiiBENCH MARK(S) ALSO ESTABLISHED BY: J.C. Gauger STATE: Maui YEAR: 1968 COUNTY: RECOVERED BY: R.C. Munson Island: Maui AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

Station was found destroyed. The sand hill is wearing away due to wind erosion and the concrete monument was laying at the foot of the hill.

U.S. DEPARTMENT OF COMMERCE

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION

STATE: HAWAII

YEAR: 1912

THIRD

SOURCE: G-52183

GEODETIC LATITUDE:	20 °55 '46.338 156 29 52.651	SCALED	18	METERS FEET
GEODETIC LONGITUDE:				

STATE & ZONE	CODE	×	Υ	Ø IOR △ ØI ANGLE
HI 2	5102	557,573.93	216,570.89	+ 0°03′3

MPUTED BY THE \$ 108 \(\Delta \) FORMULA NEGLECTING THE SECOND TERM.

GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	CODE
0 ' "		

QF 027

FORM C&GS-526 (1-45)

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1209
HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAUI

SECOND

Ulalena (Maui Island, Hawaiian Government Survey, 1877).—In northern Maui, on the summit of a prominent wooded hill in Honopou, in the district of Hamakualoa, about 5 miles due south of the seashore at Halehaku. Marked by a rock with a cross directly under a scaffold and platform 16 feet high, the observing table being set on the trunk of a large tree cut off 19 feet above the ground. In 1912 reported lost, and Ulalena 2 established.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION. ULALENA

STATE HAWAII

YEAR 1877

SOURCE G-SP156

GEODETIC LATITUDE: 20 °52 10. 539 ELEVATION 658 METERS SCALED FEET

		STATE COORDINATES (Feet	,	
STATE & ZONE	CODE	×	·	8 OR A 41 ANGLE
HI 2	5102	640,749.91	194,948.71	+ 0 08 49

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, heta\,$ formula neglecting the second term

TO STATION OR OBJECT	GEODETIC AZIMUTH (From touth)	PLANE AZIMUTH * (From south)	CODE
	10. 7	1.0	

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561

STATION 1210

20 °30' TO 21 °00 LATITUDE LONGITUDE 156 00' TO 156 030'

DIAGRAM NF 4-16 MAUI

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: ULALENA 2

Hawaii County: Maui

NOTE,	PARTY: C. T. HUBOMOYOF YEAR: 195 HEIGHT OF TELESCOPE ABOVE STATION BARK 1.27 METE Surface-station mark. DISTANCES AND DIRECTION WHICH C.	RS.T	MEMBER OF S	HIDD BY: G . LI GHT ABOVE STATE RENCE MARKS DUND AT THE S	AND PROMINE	7 NETERS.
77	Underground-station mark WHICH C	BEARING	DIST	MCE	DIN	CTION
	PIIHOLO HGS 1871 Reference mark No.1 Reference mark No.2	NE S	18.13 31.50	5.527 9.599	0 0 145 17 282 53	0 00.0 15 09-

- 1 Located in northern Naui, about six miles southeast of Haiku, on the northwest end of a prominent wooded hill in Honopou, Makawao District, about 5 miles due south of the sea shore at Halehaku. The station was established by Maui Agricultural Co. A concrete post with a two inch pipe in the center. A standard disk stamped ULALENA 2 was cemented in

Reference mark No.1 is a standard disk welded to the top of a 21 inch iron pipe projecting one foot, stamped ULALEMA 2 NO 1 1949.

Reference mark No.2 is a standard disk welded to a 21 inch iron pipe Reference mark No.2 is a standard disk welded to a 21 inch iron pipe

projecting one foot, stamped ULALENA 2 NO 2 1949.

To reach from the Post Office at Eathu: go east on Hana read for 8.0

miles to Hoolawa Wash, turn right through gate and follow bladed road southerly for 2.5 miles to fork. From here pack south along ridges to top of hill and station.

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: ULALENA 2 HawaiiBench MARK(S) ALSO ESTABLISHED BY: C.T. Husemeyer YEAR: 1950 YEAR: 1968 COUNTY: Mauri RECOVERED BY: R.C. Munson Island: Maui AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts

Station was recovered and all marks found in good condition. A complete description follows:
Station is located about 5-1/2 miles southeast of Haiku and 1-1/4
Station is located about 5-1/2 miles southeast of Haiku and 1-1/4
Station is located about 5-1/2 miles southeast of Haiku and 1-1/4
Station is located about 5-1/2 miles southeast of Haiku and 1-1/4

miles south of the Wailoa Ditch, on a timbered hill of about 2153 feet miles south of the Wailoa Ditch, on a timbered hill of about 2153 feet elevation that projects sharply above the general terrain and is quite elevation that projects sharply above the general terrain and is quite prominent. This hillhas very tall trees on top, and also a heavy cover of ferns and other vegetation over 6 feet high, and station is difficult

To reach station from the main intersection in Paia, go east on State to locate. Highway 36 for 11.9 miles to Hoolawa Gulch and a side road right. Turn sharp right, through board gate, and go upgrade for 0.3 mile to locked gate (key was obtained at the E.W.I. Office in Upper Paia). Pass through gate and continue for 2.0 miles to fork and end of truck travel. Pack southerly up along ridge about 1-3/4 miles to station. NOTE: The ridge is covered with uluhe fern and station is very difficult to reach.
Station mark is a standard disk stamped "ULALENA 2 1949", set in the

top of a 2-1/2-inch iron pipe that projects 2 inches from the top of a 12-inch-square, concrete monument which projects 5 inches from the a 12-inch-square, concrete monument which projects 5 inches from the ground. It is located well down on the northwest end of the long, narrow top of the hill, about 20 feet lower than the highest point; 30 feet south of a large, gnarled koa tree and 32 feet north of the large, horizontal koa tree under which RM 2 is located.

Reference mark number and is a reference number and is a referen

large, horizontal kos tree under which RM 2 is located.

Reference mark number one is a standard disk stamped "ULALENA 2
NO 1 1949", set in the top of a 2-1/2-inch iron pipe that projects
1 foot from ground and is 2 feet lower than station mark. It is
5.524 m (18.121 ft.) from station, in azimuth 214° 49' 26".

Reference mark number two is a standard disk stamped "ULALENA 2
NO 2 1949", set in the top of a 2-1/2-inch iron pipe projecting 1 foot
from ground and about 5 feet higher than station mark; set under the
large, horizontal trunk of a koa tree. It is 9.632 m (31.600 ft.)
from station, in azimuth 352° 25' 20".

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION ULALENA 2

I IAWAH STATE

YEAR 1950

FIRST

G- 9311

GEODETIC LATITUDE	20 52 12.568 156 15 16.978	ELEVATION	656.2 2153	METERS FECT	
GEODETIC LONGITUDE					

STATE & ZONE	cop€	×	¥	# 108 A BI ANGLE
1 2	5102	640,639.85	195,153.14	+ 0 08 48

TO STATION OR OBJECT	GEODETIC AZIMUTH (From seath)	PLANE AZIMUTH (From south)	CODE
PIIHOLO	69 32 10.6	69 23 23	5102

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

0 201561 STATION 1211 U 201901 HAMAII LATITUDE 20 °30' TO 21 °00' LONGITUDE 156 °00' TO 156 °30' DIAGRAM NF 4-16 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION UMA

STATE HAWAII

YEAR 1904

THIRD - OADER

SOURCE: G-SP156

GEODETIC LATITUDE	20 38 30.96		
GEODETIC LONGITUDE:	156 17 41.49	ELEVATION.	METERS
		AND STATE OF THE S	FEET

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	х	Y	B OR A BI ANGLE	
HI 2	5102	627,125.78	112.226.51	+ 0 07 52	
	12.70				

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE ~eta~ (or $\Delta~$ 4). Formula neglecting the second term,

(From south)	PLANE AZIMUTH * (From ionili)	CODE
9 , 4	(#) (X) (#	

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

R

STATION 1212 0 201561 IIAMAH 20 °30' TO 21 °00' LONGITUDE 156 ° 00' TO 156 °30' DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: VON ESTABLISHED BY: A.L. Wardwell YEAR: 1962 STATE: Hawaii BENCH MARK(S) ALSO

RECOVERED BY: R.C. MUNBON YEAR 1968 COUNTY: Maui Island: Maui AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

Station was recovered and identified by an angle check. Located about 7-1/2 miles south of the Kibei post office and 2-1/2 miles north of Puu Olai, along the seacoast, on a brushy point at the Von Tempsky home.

at the Von Tempsky home.

To reach station from the post office at Kihei, go south on State
Highway 31 for 6.1 miles to end of macadam road; continue, on graded road,
for 1.85 miles to track side road right, between power poles 26 and 27,
about 50 yards before the last 1 of 3 windmills along makai side of road.
Go right on track road for 0.1 mile to seacoast and end of road. Pack
about 100 feet west to station.

Station is marked by a 1-inch, iron pipe projecting 14 inches from
ground. It is on the narrow, flat part of the brushy tip, inside tree
line, 16 feet east from bare rock beach, 10 feet south of north edge of
point and a 6-foot drop down to rock beach, and 105 feet west of the

track road.
There is a 3-foot cairn built over the pipe.

ADJUSTED HORIZONTAL CONTROL DATA

STATE HAWAII

YEAR 1962

THIRD

SDURCE: G-12995

	20 40 33.929	ELEVATION	METERS
GEODETIC LATITUDE	156 26 49.214		FEET
GEODETIC LONGITUDE	136 20 438214		

STATE & ZONE	CODE	×	¥	H OR A GI ANGLE
11 2	5102	575,088.33	124,538.10	+ 0 04 39

*PLANE AZIMUTH HAS BEEN COMPUTED BY THE | heta| OR Δ = FORMULA NEGLECTING THE SECOND TERM,

GEODETIC AZIMUTH	PLANE AZIMUTH 4	COD
	W	
		(Franciscath) (Franciscath)

QF 267

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1213
HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAUI

Wai Ale (Maui Island, Hawaiian Government Survey, 1883).—East of the central part of East Maui, in Hana District, on the northeastern slope of Mount Haleakala, north of the Kipahulu Valley, on the brow of a "pali" overlooking the Pond of Wai Anapanapa (Sparkling Water). Marked by a concrete post, with redwood post signal.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WAI ALE

STATE HAWAII

YEAR 1883

SECOND

00050

SOURCE G-SP156

	- 0 1 1			_
GEODETIC LATITUDE	20 44 15.417 156 07 35.060	ELEVATION	2243	METERS
GEODETIC LONGITUDE		SCALED		FEET

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	×	¥	# IOR A #1 ANGLE	
HI 2	5102	684,607.14	147,141.24	+ 0°11'29	
		- 6		İ	

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, heta\,$ OR riangle or riangle or all formula neglecting the second term

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH	CODE
		8.	

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1214 IIAWAH LATITUDE 20 °30' TO 21 °00' LONGITUDE 156 ° 00' TO 156 °30' DIAGRAM NF 4-16 MAUI

U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: WATAKOA

STATE: Hawa11

COUNTY: Mau1

CHIEF OF PARTY: C.T. Husemeyer

YEAR: 1950

DESCRIBED BY: G R Grimm

7a	HEIGHT OF TELESCOPE ABOVE ST SURFACE-STATION MARK, UNDERGROUND-STATION MARK			AZIMUTH MARK E SEEN FROM TI				
	OBJECT		BEARING			T		
			- DEARING	PEET	METERS	1	DIRECT	IONE
12c 12c	KAMOA Reference Mark No. Light House, McGre Azimuth Mark Reference Mark No.	gor Pt.	S W WNW N	35.03 5 miles 0.2 mile 35.87		0 3 96 122 181	00 09 24 40 46	00.0 24.6 16.3 25.7 43.9

Located on the south coast of Central Maui, Wailuku District, about one mile, airline, northeast of the Kihei Post Office, and about one mile in from the shore, in an open fenced enclosure leased by the C.A.A., in a fence line 477 feet south southeast of the southeast corner of a fence around the Range Finder building, a standard disk set in the top of a 12 inch square concrete post projecting six inches, stamped WAIAKOA 1950. The underground mark is set in concrete 30 inches below the surface, stamped WAIAKOA 1950.

Reference mark No. 1 is north of the station, a standard disk set in a boulder 18 inches west of the fence and flush with the ground, stamped WAIAKOA NO 1 1950.

Reference mark No. 2 is south of the station, a standard disk set in a boulder 18 inches west of the fence and flush with the ground, stamped WAIAKOA NO 2 1950.

Azimuth mark is 0.2 mile west northwest of the station, 30 feet north of the center of the road at a point where road curves down hill, a standard disk set in a boulder flush with the ground, stamped WAIAKOA 1950.

To reach from the Post Office at Kihei, bear left from highway and go east for 200 feet, take right fork and go east for 0.5 mile, turn left and go north for 0.3 mile, turn left through iron gate, go 0.2 mile then turn right across country to fence and station near old shack.

orm 526 11-8-55)

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAIAFOA

ESTABLISHED BY C.T.H. RECOVERED BY:

YEAR: 1950 STATE:

Hawaii

H.J.S. YEAR: 1961 COUNTY: l'aui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

The station, both reference marks, the azimuth mark and the southeast corner of the fence around the F.A.A. range finder building (now dismantled) were recovered in food condition as de scribed. A new "to reach" follows:

From the store and Post Office at Kihei, go south along Highway 31 for 0.5 mile to a paved road left. Turn left and go 0.1 mile to a crossroad and "STOF" sign. Con tinue straight ahead for 0.3 mile to the iron gate in the fence surrounding the F.A. A. reservation. Pass th rough the gate and follow the paved road for 0.2 mile to the abandoned F.A.A. site. Turn right across country to south reservation fence and the station. The old shack mentioner in the 1950 description is gone.

(continued on next page)

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAIAKOA

HAWAII

1950

FIRST

ORDER

SOURCE: G- 9311

156 27 0C 228 ELEVATION 39-		220, 1, 1			
147	GEODETIC LATITUDE: GEODETIC LONGITUDE:	20 46 44.205 156 27 09.228	ELEVATION	39.4 129	METERS

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	×	¥	B IOH A BI ANGLE
HI 2	5102	573,138.51	161,892.73	+ 0°04′33

PLANE AZIMUTH HAS BEEN COMPUTED BY THE | heta| for Δ | heta| formula neglecting the second term

Qé 301

JUN 1978 U.S. DEPARTMENT OF COMMERCE

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY , NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

OLD HAWAIIAN DATUM

QUAD 201561

STATION 1214

NATIONAL GEODETIC SURVEY

' TO LATITUDE LONGITUDE / TO DIAGRAM

WAIAKOA (continued)

NAME OF STATION: ESTABLISHED BY:

RECOVERED BY:

C.T. Husemeyervear: 1950 STATE: R.C. Munson YEAR:

Hawaii 1968 COUNTY: Maui

		and: Maui					
EIGHT OF TELESCOPE ABOVE STATION MARK 1.55			ABOVE STATION			METER	*
DISCOURSE AND DIDECTIONS TO ATMITTH MARK D	FFERENCE MAR GROUND AT TH	KS AND PROMINE E STATION	NT OBJECTS WH	ICH CAI	4 BE SE	EH	
		DIST	ANCE		DIRECT	104	
OBJECT	SEARING	FEET	METERS		DIREC .	10%	_
PUU O KALI (HGS) 18791950 R.M. No. 2	DISTANCE S WNW	and DIREC 35.03	TION 10.680 mile	00° 51 170	00 03 34	00.0 30 30.8	
Azimuth Mark R.M. No. 1 PUU O KALI (HQS) 18791968	N	35.87	10.934	229 00	40	49 00.0 25	
R.M. No. 2 McGregor Point Light 1950 Asimuth Mark R.M. No. 1	ANA (0.2 mile) 10.936	144 170 229	18 34 43	20.6 40.6	

RECOVERY NOTE, TRIANGULATION STATION

Station was recovered and all marks found in good condition. The C.A.A. buildings are gone. A complete description follows:
Station is located about 1 mile southeast of the Kinei post office and 3/4-mile east from the sea, at about 129 feet elevation, on a flat-topped rise in grassy land, 217 feet west of center line of Noe Street, 477 feet south-southeast of an old, white-painted, board-fence enclosure, and in a north-south fence line.

To reach station from the post office at Kihei, go south on State Highway 31 for 0.5 mile; turn left and go east on Ohukai St. for 0.45 mile to second crossroad; continue ahead for 0.35 mile; turn left and go north on Noe St. for 0.1 mile to power pole No. 2 on left. Go left, cross-country,

Noe St. for 0.1 mile to power pole No. 2 on left. Go left, cross-country, for 200 feet to station.

Station mark is a standard disk stamped "WAIAKOA 1950", set in the top of a 10-inch-square, concrete monument that projects 4 inches. It is 3 feet north of a white witness post and 201.5 feet west of power pole No. 2.

Reference mark number one is a standard disk stamped "WAIAKOA NO 1 1950", cemented in a drill hole in bedrock flush with ground, 1 foot west of the fence line and 0.4 foot higher than station mark.

Reference mark number two is a standard disk stamped "WAIAKOA NO 2 1950", cemented in a drill hole in a small bedrock outcrop that projects 3 inches. It is 1-1/2 feet west of the fence line and 0.25 foot lower than station mark.

Azimuth mark is a standard disk stamped "WAIAKOA 1950", cemented in a drill hole in bedrock flush with ground. It is 37 feet north of the center line of the old, C.A.A. macadam road, 4 feet northeast of a cairn,, at the upper end of a right curve of the road.

To reach azimuth mark from the second crossroad, mentioned above, pass

To reach azimuth mark from the second crossroad, mentioned above, pass through wire mesh gate on left and follow narrow macadam road northwest for 0.15 mile to top of the right curve, and mark on left.

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

0 201561 STATION 1215 HAWAII LATITUDE 20 °30' TO 21 °00' LONGITUDE 156 °30' TO 156 °30'

ARTIMENT OF COMMERCE
L COLIT AND CEDETIC SURVEY
DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: WAIAKOA, HOLY GHOSTYEAR: 1950 STATE: CATHOLIC CHURCH, SPIRE

IbwaiiCounty: Laui

CHIEF OF PARTY: C. T. Husemeyer

Description, including sketch of object:

The station is the top and center of the spire on the roof of the Holy Ghost Church (Catholic). The church is a wooden octagonal structure which is 84 feet in height. It lies 0.2 mile north of the Jaiakon Post Office and 100 feet west of the paved highway.

RECOVERY NOTE, IRIANGULATION STATION INTERSECTION
NAME OF STATION Malakoa, Holy Ghost Catholic Church, spire RECOVERED BY: R.C. MUNBOD YEAR: 1968

ARICHME DISTANCE AND DIRECTION FROM NEAREST TOWN:

ARICHME DISTANCE AND DIRECTION FROM NEAREST TOWN:

SECULATE Hawaii BENCH MARK(8) ALSO STATE: Hawaii BENCH MARK(8) ALSO SECULATED IN STATE IN

Detailed statement as to the fitness of the original description, including marks found, stampings, changes made, and other pertinent facts:

Station was identified by angle from various points, and recovered. Located about 4 miles south of Pukalani, just above old Highway 37, at Pulehu. Station is the center of the spire of the church, a very prominent, octagonal structure, with silver roof and white walls; about 84 feet high and with a cross on peak of spire.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAIAKOA HOLY GHOST CATH CHURCH

STATE: HAWAII

YEAR 1950

THIRD

- ORDER

SOURCE: G- 9311

GEODETIC LATITUDE:	23 45 57.781		
GEODETIC LONGITUDE:	156 19 48.128	ELEVATION	METERS
occount conditions.			FECT

STATE COORDINATES (Fect)				
STATE & ZONE	CODE	×	·	FIOR A BI ANGLE
HI 2	5102	015,004.51	157,280.32	+ 0°07′10

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, heta\,$ formula neglecting the second term.

TO STATION OR OBJECT	GEODETIC AZIMUTH (Prim lauth)	PLANE AZIMUTH * (From south)	COOE

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1216
HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 416 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

MARE OF STATION: WAIELI

STATE: HAWAII VEAR: 1904 THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE: 20 40 34.63 ELEVATION: MEYERS DEDUCTIC LONGITUDE: 156 02 20.60 FEET

STATE & ZONE	CODE	×	Y	Ø IOR △ GI ANGLE
1I 2	5102	714,541.74	124,972.91	+ 0°13′18

PLANE AZIMUTH HAS BEEN COMPUTED BY THE \$ IOR \(\Delta \) OF FORMULA NEGLECTING THE SECOND TERM.

OBODETIC AZIMUTH

OBODETIC AZIMUTH

(From south)

Object

Ob

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1217
HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WAIKAPU

STATE: HAWAII

YEAR: 1912

THIRD

SOURCE G-SP156
OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE:	20 °52 '48. 08		
GEODETIC LONGITUDE:	156 29 33.29	ELEVATION	METERS
			FEE7

		STATE COORDINATES (Feet)	
STATE & ZONE	CODE	×	*	8 OR A BI ANGLE
HI 2	5102	559,428.77	198,588.05	+ 0 03 43
		j		

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\, g\,$ IOR $\, \Delta\,$ GI FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH	PLANE AZIMUTH * (From south)	CODE	

90 070

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

STATION 1218

0 201561 STATION 1215
HAWAII LATITUDE 20 °30' TO 21 °00' LONGITUDE 156 °00' TO 156 °30' DIAGRAM NF 4-16 MAUI

SEE STATION HUNT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAILEA

STATE HAWAII

YEAR 1904

THIRD

SOURCE G-SP156
NO OBSERVATION CHECK ON THIS POSITION

20 40 50.91 156 26 49.77 ELEVATION GEODETIC LATITUDE FEET GEODETIC LONGITUDE

STATE & ZONE	CODE	×	Υ	Ø IDR △ GI ANGLE
I 2	5102	575,033.22	126.251.24	+ 0°04′39

HAS BEEN COMPUTED BY THE | heta| for Δ | heta| formula neglecting the second term,

"

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

0 201561 STATION 1219 ILAWAH 20 °30' TO 21 °00' LATITUDE LONGITUDE 156 °00' TO 156 °30' DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU

Recovered by: F.W.Perkins Year: 1899 State: Recovered by: C.T.Husemeyer Year: 1950 County: Maui

Detailed statement as to the fitness of the original description:

On the northwest coast of Maui, in Wailuku District, on the sand stone ridge on the east side of Iao Valley, about 465 meters southwest from the rear range day beacon which is on the same ridge. The station is on a little rise in the ridge, and is marked by a bronze nail driven into the sandstone, and covered with a small cairn of stones. By grad ing for a building.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU ESTABLISHED BY: F.W. Perkins YEAR: 1899 RECOVERED BY: R.C. Munson YEAR: 1968 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

Hawaii BENCH MARK(S) ALSO COUNTY: Maui Island: Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

Station is gone. This ridge now has homes on it.

NAME OF STATION. WAILUKU

STATE: HAWAII

YEAR 1859

THIRD

SOURCE: G-92183

	 		_	
GEODETIC LATITUDE: GEODETIC LONGITUDE:	3 58.980 9 35.783	SCALE		MFTERS FEET

ADJUSTED HORIZONTAL CONTROL DATA

		STATE COORDINATES (Feet)	
STATE & ZONE	CODE	х	•	# OR A A ANGLE
1I 2	5102	559,184.65	205,741.02	+ 0 03 43
				}

PLANE AZIMUTH HAS BEEN COMPUTED BY THE # HIR & AL FORMULA NEGLECTING THE

TO STATION OR OBJECT	GEODETIC AZIMUTH	PLANE AZIMUTH * (From south)	CODE
	* *	300	
		j -	
	i		
	!		

QF J25

THE BUILDING OF THE PARTY OF TH

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM: 0 201561 STATION 1220

HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °30' TO 156 °30'
DIAGRAM NF 416 MANU

U.S. DEPARTMENT OF COMMERCE

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: WAILUKU EAST BASE STATE: Hawaii

CHIEF OF PARTY: C.T. Husemeyer YEAR: 1950

DESCRIBED BY: C.J. Hoeppel

COUNTY: Maui

7a	HEIGHT OF TELESCOPE ABOVE S SURFACE-STATION MARK, UNDERGROUND-STATION MARK	DISTANCES AND DIRECT	TONS TO	ATTHUTH MADE	DECEDENCE			METE
	OBJECT		EARING	DIST	NCE		0.0	
				FEET	METERS	1 6	PRECTI	ONS
	LUKE 1912 Wailuku Mast, (Ra	dio Station				oo	00	00
12c pipe	KMVI) R. M. No. 1 R. M. No. 2 Puunene Airport B		NW NNE SE	4.5 m11 79.439 150.469	24.213	10 78 195	00 52	31. 23 45

The station is located on waste cane land which lies about 5 miles north northeast of Kihei, about 4 miles southeast of Wailuku, 1.75 miles east of the highway which runs between Kahului and Kihei, 59 feet northwest of a Troad intersection, 33 feet west of a lone tree, 28 feet northeast of a small tin shack and 28 feet north of a concrete irrigation ditch.

To reach from the post office at Kahului, go southeast for 1.8 miles to the Puunene Village; turn right and go south on the road which leads to Kihei for 1.65 miles; turn left onto a graded road and go easterly for 1.75 miles to the station on the left hand side of the road.

The station is a standard disk, stamped WAILUKU EAST BASE 1949, set in the top of a square concrete post which projects about 4 inches.

The underground station is a standard disk, stamped WAILUKU EAST BASE 1949, set into an irregular mass of concrete which is about 30 inches below the surface of the soil.

Reference mark number 1 is a standard disk, stamped WAILUKU E BASE NO 1 1949, set into a drill hole in a boulder which is flush with the surface of the ground. It is located 28 feet west of an irrigation ditch and about 5 feet lower than the station. Reference mark number 2 is a standard disk, stamped WAILUKU

Reference mark number 2 is a standard disk, stamped WAILUKU E BASE NO 2 1949, cemented in the top and center of a 10 inch iron pipe which projects about 4 inches. It is located at about the agraded road.

(continued on next page)

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAILUKU EAST BASE

STATE HAWAII

YEAR 1950

FIRST

RST -ORDER

SOURCE: G- 9311

GEODETIC LATITUDE: GEODETIC LONGITUDE:	20 50 50.763 156 26 19.238	ELEVATION	74.7 245	WETERS
			415	FEET

		STATE COORDINATES (Feet)	
STATE & ZONE	CODE	×	٧	P OR A B ANGLE
HI 2	5102	577,846.90	186,774.74	+ 0 04 52
		CALL NOT 1		-

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, heta\,$ OR $\Delta\,$ OF FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From sauth)	PLANE AZIMUTH *	CODE
LUKE	122 26 54.3	122 22 02	5102

JUN 1978

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY , NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

NATIONAL GEODETIC SURVEY OLD HAWAIIAN DATUM

STATION 1220 QUAD 201561 o / TO LATITUDE / TO LONGITUDE DIAGRAM

WAILUKU EAST BASE (continued)

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU EAST BASE

ESTABLISHED BY: C.T. Husemeyer YEAR: 1950 RECOVERED BY: R.C. MUNSON YEAR: 1968 Hawaii STATE: Mau1 COUNTY: Maui Island: Maui

DISTANCES AND DIRECTIONS TO AZIMUT	1.5 METE	FHCE HAR	EIGHT OF LIGHT KS AND PROMINE E STATION	ABOVE STATION	CH CAN	e see	HETERS
OBJECT		BEARING	PRET	METERS	0	RECTIO	ON
	B DISTAN) NW NNE SE	79.439 150.469	24.213 45.863	- 00 10 78 195 00 10 78 195	00 00 52 43 00 00 52 43	00.0 31.6 23 45 00.0 28.8 18

Station was recovered and all marks found in good condition. A com-

Station was recovered and all marks found in good condition. A complete description follows:

Station is located about 1-3/4 miles southeast of Puunene, 6 miles Station is located about 1-3/4 miles east of the junction of State Highway southwest of Paia, and 1-3/4 miles east of the junction of State Highway 35 and 40; along the north side of Highway 40, a graded road, on a brush-covered rise at about 245 feet elevation, where the road begins dropping covered rise at about 245 feet elevation, where the road begins dropping covered rise at about 245 feet elevation, where the road begins dropping covered rise at about 245 feet elevation. To reach station from the Kahului Shopping Center, go southerly on State Highway 35 for 1.9 miles to Puunene; continue on Highway 35 for 1.7 miles to intersection with Highway 40. Turn left and go east on Highway 40 for 1.75 miles to station on left, at a T-road intersection. Station mark is a standard disk stamped "WAILUKU EAST BASE 1949", Station mark is a standard disk stamped "WAILUKU EAST BASE 1949", set in the top of an 8-inch-square, concrete monument that projects 4 inches above ground. It is in tall koa brush, 32 feet west of a large, lone, kiawe tree, 46 feet north of center line of the highway, 61 feet northwest of the intersection of the highway with a T-road running south, 30 feet north-northwest of a T-intersection of canals, and 2 feet north of a white witness post.

of a white witness post.

of a white witness post.

Reference mark number one is a standard disk stamped "WAILUKU EAST BASE NO 1 1949", cemented in a drill hole in a boulder flush with the ground, 4 feet west of the base of a dirt bank, 28 feet west of an irrigation canal, and 2.8 feet lower than station mark.

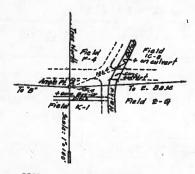
Reference mark number two is a standard disk stamped "WAILUKU EAST BASE NO 2 1949", set in the top of a 10-inch-diameter pipe filled with concrete and projecting 4 inches above ground. It is on top of the brush-covered rise on south side of highway, 90 feet southeast of the intersection of center lines of the highway and the T-road south, and intersection of center lines of the highway and the T-road south, and is 3.5 feet higher than station mark.

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM Q 201561 STATION 1221
HAMAI I
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAUI

WAILUKU EAST BASE A (HTS) (Maui County, Hawaii, C.T. Husemeyer, 1950) -- The station lies on the south side of the old, graded, road which runs between Waikapu and Kula. It is 1.1 miles east of the paved highway which runs between Punnene and Kihei, 101 feet west of the center of a concrete bridge which spans a concrete irrigation ditch, 20 feet north of the center of a dirt irrigation ditch, 18 feet south of the center of a graded road and Just north of Field K-1.

The station is a standard Territory Survey disk, stamped WAILUKU EAST BASE A 1950, set into the top of a cylindrical concrete post which is about 6 inches below the surface of the soil.



RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU EAST BASE A (HTS)

ESTABLISHED BY: C.T. HUSEMEYEY YEAR: 1950

RECOVERED BY: R.C. MUNSON YEAR: 1968

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: ISland: Maui

Detailed statement as to the funess of the original description, including marks found, stampings, changes made, and other perturent facts:

Station was found in the roadway of Highway 40, a graded, county road, flush with road surface; the road was widened some time after station was established. Observations were made on 4 nearby triangulation stations and the station was found to be undisturbed.

Located about 1-1/2 miles south-southeast of Puunene and 1 mile east of State Highway 35, along Highway 40 at a canefield crossroad and at the

To reach station from the post office in Puunene, go west on Hansen Rd. for O.1 mile; turn left and go southerly on State Highway 35 for 1.75 station.

Station is a Hawaii Territorial Survey disk, stamped "WAILUKU E BASE A 1950", set in a concrete monument flush with road. It is 12 feet south feet west of the concrete bridge over canal.

feet west of the concrete bridge over canal.

NOTE: A new station, WAILUKU EAST BASE A 2, was established nearby, See description for WAILUKU EAST BASE A 2.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAILUKU EAST BASE A HTS

STATE HAWAII

YEAR 1950

THIRD

ORDE

SOURCE G- 9311

GEODETIC LATITUDE:	20 50 48.073	ELEVATION	52.2	METERS
GEODETIC LONGITUDE:	156 26 56.615	acc variou	171	FEET

		STATE COORDINATES (Feet)	
STATE & ZONE	CODE	×	· ·	B OR A B ANGLE
HI 2	5102	574,302.15	186,498.44	+ 0°04'39

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\, heta\,$ OR $\Delta\,$ G $\,$ FORMULA NEGLECTING THE SECOND TERM

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH " (From south)	CODE
		• • •	
		1, 21, 1	
	an very series		

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561 STATION 1222
HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'

DIAGRAM NF 4-16 MAUI

ADJUSTED HORIZONTAL CONTROL DATA

DEPARTMENT OF COMMERCE LA COMM

NAME OF STATION: WAILUKU BAST STATE: Hawaii County: Maui BASE A 2 Island: Maui Chief of Party: R.C. Munson Year: 1968 Described by: R.F. Hanson NOTE, RIGHT OF TREESOPE STATES HARE 1.5 RETERI. HEIGHT OF INTERCRATED HARE

DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROWING AND THE STATION THE GROUND AT THE STATION Surface-station mark, Underground-station mark DIRECTION 00 57 50 36 16 00 68 00.0 LUKE 1912 N E SW WSW 80 Chiseled Cross (RM No.2) 26.356 8.033 137 22.2 WAILUKU BAST BASE 1950 47.783 14.565 85.968 26.203 20.9 R.M. No. 1 WAILUKU EAST BASE A (HTS) 1950

Station is located about 1-1/2 miles south-southeast of Puunene and 1 mile east of State Highway 35, along the south edge of Highway 40, where it crosses Haiku Ditch.

To reach station from the post office in Pumene, go wast on Hansen Rd. for 0.1 mile; turn left and go southerly on State Highway 35 for 1.75 miles to crossroad; turn left and go east on Highway 40 for 1.1 miles to station.

Station mark is a standard disk stamped "WAILUKU EAST BASE A 2 1968", set in the top of a 10-inch-square, concrete monument that projects 4 inches from ground. It is on the narrow bank on west side of canal, 5 feet south of west end of the south concrete bridge rail, 13.5 feet

south of center line of bridge and highway, 11 feet east of center line of field road, 3 feet west of west edge of canal and 1.8 feet southeast of a white witness post.

of need road, 3 rest west of west edge of canal and 1.0 rest seeds of a white witness post.

Reference mark number one is a standard disk stamped "MATLUKU E BASE
A 2 MO 1 1968", cemented in a drill hole in the south end of a stone and
concrete irrigation canal abutment, flush with ground. It is 13 feet
west of center line of field road and about 3 feet lower than station.

Reference mark number two is a 3-inch cross chiseled into the top

Reference mark number two is a 3-inch cross chiseled into the top of the west end of the north concrete bridge rail, about 30 inches higher than road and station. The figures "EL. 178.61" are chiseled into the face of the concrete rail, just below the cross.

WAILUKU	FAST	BASE	Δ	2
MATERIA	EWAI	DWDC	_	•

STATE HAWAI

YEAR 1968

THIRD

- DAD

G-12664
SOUND OBSERVATION CHECK ON THIS POSITION

QEODETIC LATITUDE 20 °50 '48."21823	ELEVATION	53.3	METERS
156 26 55.72198		175	FEET

STATE & ZONE	CODE	×	•	8 108 A ANGLE
1 2	5102	574,386.83	186,513.21	+ 0°04'39

THE ATMITT HAS BEEN COMPUTED BY THE A IOR A SI FORMULA NEGLECTING THE SECOND TERM

- ° - 1. 1. 0 ° 0	0 ' "	
7 54 49.8	127 50 11	5102

POSITION DETERMINED BY TRAVERSE FROM STATION WAILUKU E BAS A

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

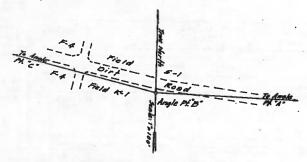
R

R

0 201561 STATION 223
HAWALII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 56 °30'
DIAGRAM NF 4-16 MAUI

WAILUKU EAST BASE B (HTS) (Mau1 County, Hawai1, C.T. Husemeyer, 1950) -- The station is located on the south side of the old, graded road which runs between Waikapu and Kula. It is 0.5 mile east of the paved highway which runs between Puunene and Kihei, 161 feet east of the center of a road intersection, 24 feet south of the center of a graded road and on the north edge of Field K-1.

It is a standard Territory Survey disk, stamped WATLUKU EAST BASE B 1950, set into the top of a cylindrical concrete post which projects about 1 foot.



RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: Wailuku East Base B (HTS)

ESTABLISHED BY: C.T. HUSEMEYE' YEAR: 1950

RECOVERED BY: U.S.G.S. YEAR: 1954

AIRLIME DISTANCE AND DIRECTION FROM NEAREST TOWN:

Detailed statement as to the fitness of the original description, including marks found, stampings, changes made, and other pertinent facts:

Station destroyed by Hawaiian Commercial & Sugar Co.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU EAST BASE B (HTS)
ESTABLEMED BY: C.T. Husemeyer year. 1950
RECOVERED BY: R.C. Munson Year. 1968
ARRIDED DESTANCE AND DIRECTION FROM NEAREST TOWN.

ARRIDED EDSTANCE AND DIRECTION FROM NEAREST TOWN.

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

Station was searched for but not found. The road has been widened in this vicinity and the mark is believed to be destroyed.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WAILUKU EAST BASE B HTS

STATE HAWAII

YEAR: 1950

THIRD

-ORDER

SOURCE G- 9311

	0			
GEODETIC LATITUDE	23 53 48.879		42.0	
GEODETIC LONGITUDE	156 27 29.317	ELEVATION		METERS
			138	FEET

		STATE COORDINATES (Feet)	
STATE & ZONE	CODE	х	•	B OR A BI ANGLE
HI 2	5102	571,200.33	186,575.65	+ 0 04 27
	-			

*PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\, heta\,\,$ OR $\Delta\,\,$ 41 FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From sauth)	PLANE AZIMUTH * (From south)	CODE	
		0 , -		
		[[

WAILUKU EAST BASE C (HTS) (Maui County, Hawaii, C.T. Husemeyer, 1950) -- The station is located 215 feet west of the center of the intersection of the old, graded road which runs between Waikapu and Kula and the paved highway which runs between Turnene and Ki-

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

STATION 1224 0 201561 HAWAII 20 °30' TO 21 °00' LATITUDE LONGITUDE 156 000' TO 156 030'

MAUI

NF 4-16

WAILUKU EAST BASE C HTS

HAWAII

THIRD

G- 9311

GEODETIC LATITUDE	50 55.349 27 57.130	ELEVATION	33.71 MET
GEODETIC LONGITUDE			

		STATE COORDINATES (Feet)		
STATE & ZONE	CODE	×	¥	# ON A BI ANGLE
HI 2	5102	568,561.52	187,225.07	+ 0 04 17
				12.0

PLANE AZIMUTH HAS BEEN COMPUTED BY THE BOOK OF FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH *	CODE
		* *	

ADJUSTED HORIZONTAL CONTROL DATA

DIAGRAM

and Kula and the paved highway which runs between Puunene and Kihei, 17 feet north of the center of a graded road, 7 feet south of the edge of a dirt irrigation ditch and just south of Field F-5.

The station is a standard Territory Survey disk, stamped WAILUKU EAST BASE C 1950, set in the top of a cylindrical concrete post which projects about 1 inch. This disk was also tied in by first order levels on the Puunene-Kihei line.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU EAST BASE C (HTS) ESTABLISHED BY: C.T. Husemeyer YEAR: 1950 RECOVERED BY: R.C. Munson YEAR: 1968

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

Hawaii BENCH MARK(B) ALBO STATE: COUNTY: Mau1 Island:Maui

Detailed statement as to the fitness of the original description, including marks found, atampings, changes made, and other pertinent facta:

Station was found destroyed; the monument has been pushed from the ground by road equipment, so the disk was removed at this time.

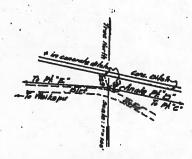
HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

Q 201561 STATION 1225 LIAWAH LATITUDE 20 °30' TO 21 °00' LONGITUDE 156 ° 00' TO 156 ° 30' DIAGRAM NF 4-16 MAUI

WAILUKU EAST BASE D (HTS) (Mau1 County, Hawaii, C.T. Husemeyer, 1950) -- The station is located on the north side of the old, graded road which runs between Waikapu and Kula. It is 1.0 mile west of the paved highway which runs between Puunene and Kihel, 25 feet south of the center of a concrete irrigation ditch, 18 feet north of the center of a graded road and on the south side of Field H-7.

The station is a standard Territory Survey disk, stamped WAIL-UKU EAST BASE D 1950, set in the top of a cylindrical concrete post which projects about 1 foot.



RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU EAST BASE D (HTS) ESTABLISHED BY: C.T. HUSEMEYET YEAR: 1950 STATE: Hawai RECOVERED BY: R.C. Munson YEAR: 1968 COUNTY. Mau1 Hawaii BENCH MARK(5) ALSO AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: Island: Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts: Station mark was recovered and found to be projecting excessively

Station mark was recovered and found to be projecting excessively from ground, however, it was straight, so was lowered and re-enforced with a mass of concrete around the base of the monument, and a witness post was established. A complete description follows:

Station is located about 2 miles southwest of Punnene and 1-3/4 miles east of Waikapu, along the north side of Highway 40, in the narrow, koacovered strip between the road and an irrigation canal.

To reach station from the junction of State Highways 30 and 40 in Waikapu, go east on Highway 40, a dirt road, for 1.9 miles to station on left. Station mark is a Hawaii Territory Survey disk, stamped WAILUKU EAST Jecting 1 foot. It is 17 feet north of center line of road, 23.8 feet south of south wall of the canal, 27.79 feet southeast of a 3-inch, chiseled cross in the top of the south wall of the canal, 135 feet east of power pole No. 11, and 1 foot east of a white witness post. pole No. 11, and 1 foot east of a white witness post.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAILUKU EAST BASE D HTS

STATE HAWAII

THIRD

ORDER

SOURCE G- 9311

GEODETIC LATITUDE:	20 51 05.859	ELEVATION	48.3	METERS
GEODETIC LONGITUDE:	156 28 50.787		158	FEET

STATE COORDINATES (Fmt)					
d: ANGLE	8 OR A 41 A	· ·	×	CODE	STATE & ZONE
J3 58	+ 0 03	188,279.32	563,471.11	51 02	HI 2
	+ 0	188,279.32	563,4/1.11	5102	

PLANE AZIMUTH HAS BEEN COMPUTED BY THE # IOR A # FORMULA NEGLECTING THE SECOND TERM

TO STATION OR OBJECT	GEODETIC AZIMUTH (From soulb)	PLANE AZIMUTH *	CODE
S		(8) 78 8	
		1	

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

0 201561 STATION 1226 HAWAII LANGITUDE 20 °30' TO 21 °00' LONGITUDE 156 °30' TO 156 °30' DIAGRAM NF 4-16 MAUI

WAILUKU EAST BASE E (HTS) (Maui County, Hawaii, C.T. Husemeyer, 1950) -- The station is located on the south side of the old, graded road which runs between Waikapu and Kula. It is 1.4 miles west of the highway which runs between Puunene and Kihei, 62 feet north of a wire fence which marks the boundary line of Field L Pasture and in sandy soil which is subject to shifting.

The station is a standard Territory Survey disk, stamped WAIL-UKU EAST BASE E 1950, set in the top of a cylindrical concrete post which projects about 1 foot.

Posture Field

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAILUKU EAST BASE E HTS

YEAR 1950

THIRD

-ORDER

SOURCE: G~ 9311

GEODETIC LATITUDE	20	51 06.656			
GEODETIC LONGITUDE.		29 11.537	ELEVATION	58.4	METERS
				192	FEET

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	×	· ·	H OR A BI ANGLE	
HI 2	5102	561,502.99	188,361.53	+ 0 03 5.1	
	6- P-27-				

 $^{\circ}$ PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\, heta\,\,$ OR $\Delta\,\,$ 41 FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From routh)	PLANE AZIMUTH * (From south)	CODE
WAILUKU EAST BASE D HTS	272 27 29.0	272 23 38	5102

QE 389

(continued on next page)

JUN 1978

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

NATIONAL GEODETIC SURVEY OLD HAWAIIAN DATUM

STATION 1226 QUAD 201561 LATITUDE / TO LONGITUDE DIAGRAM

WAILUKU EAST BASE E (HTS) (continued)

RECOVERY NOTE, TRIANGULATION STATION

MAME OF STATION: WAILUKU EAST BASE E (HTS)
ESTABLISHED BY: C.T. Husemeyer YEAR: 1950
RECOVERED BY: R.C. MUNSON / YEAR: 1968 Hawaii STATE: Maui COUNTY: Island: Maui

		DIST	ANCE	1	DIRECT	TION
OBJECT	BEARING	PEET	METERS	-	OTHER.	**
WAILUKU EAST BASE D (HTS) 1950 R.M. No. 2 R.M. No. 1	S N	47.420 89.850	14.555 27.387	00 88 268	00 43 47	00.0 37 51

Station was found, by traverse from WAILUKU EAST BASE D, under a 2-foot cover of sand. The area around the mark was leveled off, 2 reference marks were established, and a witness post was set. A complete description follows:

Station is located about 1.3 miles east-southeast of Waikapu, along the south side of Highway 40, in a 90-foot-wide brushy strip between road and a fence line, and at the south side of a low sand hill about 3 feet higher than the station mark.

To reach station from the junction of State Highways 30 and 40 in Waikapu, go east on Highway 40 for 1.5 miles to station on right.

Station mark is a Hawaii Territory Survey disk, stamped "WAILUKU E BASE E 1950", set in the top of a 10-inch-diameter, concrete monument that projects 3 inches above ground. It is 550 feet west of a canal, 49.5 feet north of fence-line, 41 feet south of center line of road, and 18 inches east of a white witness post.

Reference mark number one is a standard disk stamped "WAILUKU E BASE E 1950 NO 1 1968", set in the top of a 2-inch iron pipe that is set in concrete and projects 4 inches above ground. It is 49 feet north of center line of road, 8 inches south of fence line, and 0.5 foot higher than station mark.

Reference mark number two is a standard disk stamped "WAILUKU E BASE E 1950 NO 2 1968", set in the top of a 10-inch-diameter, concrete monument that projects 6 inches from ground. It is 2 inches north of fence line and 3 feet lower than station mark.

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

0 201561 STATION 1227 HAWATI LATITUDE 20 °30' TO 21 °00' LONGITUDE 156 00' TO 156 030' DIAGRAM NF 4-16 MAUI

U.S. DEPARTMENT OF COMMERCE

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: WAILUKU WEST BASE STATE: Hawaii

COUNTY: Mau 1

CHIEF OF PARTY: C.T. Husemeyer

YEAR: 1950

DESCRIBED BY: G.B.Grimm

R

7a	MEIGHT OF TELESCOPE ABOVE S SURFACE-STATION MARK, UNDERGROUND-STATION MARK	DISTANCES AND DIR	ECTIONS TO	AZIMUTH MARI	DEFERENCE			MINENT
	OBJECT		BEARING	DIST				
				PEET	METERS	7 °	RECTI	DNI
11b	LUKE 1912 KMVI Antenna Reference Mark No Puunene, North St		NNE NNE	3 miles 245.88	74.945	0 15 19	00 19 42	00.00 42.28 28.5
lla	mill Maui Airport, Lan Reference Mark No	ding Beacon	SE W	3 miles 3.5 mile 41.47		68 132 270	51 11 26	25.48 23.42 53.1

Located in central Maui, Wailuku District, about 3 miles airline southwest of Puunene and about 0.5 mile south of Waikapu village, at a prominent intersection in brush covered country at the south edge of a cane field. On the southeast end of a low sandstone ridge 150 feet northwest of the intersection.

Station is a standard disk set in a concrete post projecting

six inches. It is 8 feet north of the sheer edge of the ridge, stamped WAILUKU WEST BASE 1949.

Reference mark No. 1 is west of and about 4 feet lower than the station. A standard disk set in a concrete post, stamped WAILUKU WEST BASE NO 1 1949.

Reference mark No. 2 is north northeast of the station. A standard disk set in an iron pipe that is in the center of a concrete cylinder projecting 4 inches. This was a plantation station. Disk is stamped WALLUKU WEST BASE NO 2 1949.

To reach from the post office at Kahului, go west one block,

turn left and go southeast 1.9 miles to intersection in Puunene, turn right and go south on paved road toward airport for 1.7 miles, turn right at small green pump house and go west for 2.3 miles to intersection and station.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU WEST BASE

ESTABLISHED BY: C.T. HUSEMEYETYEAR: 1950 STATE: Hawaii BENCH MARK(S) ALSO RECOVERED BY: R.C. Munson YEAR: 1968 COUNTY: Maui AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: Island; Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

A trial point was established in the vicinity and the location of the station determined by inverse computation from this point, and was then proven by angle checks, but the mark was not found. A search was also made for the reference marks at the published distance and angles but they were not found. Considerable bulldozing has been done along the entire hill-top and all marks were probably destroyed then.

* Refers to notes in manuals of triangulation and state publications of triangulation.

**Direction-angle measured clockwise, referred to initial state to nearest meter only, when no trigonometric leveling is being done.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAILUKU WEST BASE

STATE HAWAII

1950

FIRST

ORDER

SOURCE G- 9311

	20 51 19.733			
GEODETIC LATITUDE	20 21 12.133		98.7	
GEODETIC LONGITUDE	156 29 57.061	ELEVATION		METERS
		_	324	FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	×	·	P OH A O ANGLE
11 2	5102	557,183.93	189,672.19	+ 0 03 35
				1

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\, heta\,$ IOR $\Delta\,$ C FORMULA NEGLECTING THE SECOND TERM

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From sauth)	CODE
LUKE	180 11 17.6	180 07 43	5102

POSITION DETERMINED BY TRAVERSE FROM STATION WAILUKU E BASE AND CHECKED BY ADDITIONAL OBSERVATIONS

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

GEODETIC LATITUDE

GEODETIC LONGITUDE

0 201561 STATION 1228
HAWAII
LATITUDE 20 °30' TO 21 °00'
LONGITUDE 156 °00' TO 156 °30'
DIAGRAM NF 4-16 MAU

ELEVATION

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WATGPAI-PUU	YEAR: 1934	THIRD -ORDER
SOURCE. G-SP156		

20 °39 '53.'52 156 13 37.96

STATE COORDINATES (Feet)						
STATE & ZONE	CODE	x	¥	θ IDR Δ αι ANGL€		
11 2	5102	650,232.97	120,613.79	+ 0 09 18		

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE \$\rho \text{IOR} \text{ of FORMULA NEGLECTING THE SECOND TERM.}

GEODETIC AZIMUTH

GEODETIC AZIMUTH

(From smith)

CODE

TO STATION OR OBJECT

GEODETIC AZIMUTH

(From south)

QD 163

METERS

FEET

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 201561

STATION 1229

IIAWAH LATITUDE DIAGRAM

20 °30' TO 21 °00' LONGITUDE 156 ° 00' TO 156 ° 30' NF 4-16 MAUI

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: Wasto

Havaii County: Muui

Described by: G.B.Grimm

YEAR: 1950 -CHIEF OF PARTY: C.T. HUSOMBYST -HEIGHT OF TELESCOPE ABOVE STATION WARK 1:340 METERS. HEIGHT OF LIGHT ABOVE STATION NASK METERR. NOTE, DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROP Surface-station mark, Underground-station mark WHICH CAN BE SEEN FROM THE GROUND AT THE STATION DISTANCE 00 00 FILTRACION . 11. 13 47.0 R.M. No. 1 -46.390 14.140 12 0 186 39 26.2 80.136 24.426 R.H. No. 2 .

Located about the center of Wailuku Peninsula, in the Wailuku District, about 5 miles, airline, southwest of Paia and about 2.5 miles southeast of Puunene, and about 0.2 miles north of a graded road, on a low open rise surrounded by came fields, with a row of trees along the west edge.

Station is about 30 feet east of a track road that runs through the conter of the cloaring. A standard disk set in the center of an 8 inch tile projecting 10 inches above the ground. Stamped WASTE 1949.

Reference mark No.1 is east of the station. A standard disk cemented in a buried boulder that projects about 4 inches. Stamped WISTE NO 1 1949. Reference mark No.2 is west of the station. A standard disk comented in a buried boulder that projects about 15 inches above the ground. Stamped

To reach from the Funnenc Most Market: go southeasterly on paved road toward airport for 1.7 miles, turn left at coment block plant and go easterly on graded read for 2.2 miles to cross road. Continue straight ahead for 0.5 miles then turn left at west edge of come field and follow track road north westerly for 0.2 miles to station on right.

Note: The station mark was probably set in 1912 but no record of it can be found.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: Waste

RECOVERED BY: U.S.G.S. AIR".INE DISTANCE AND DIRECTION FROM NEAREST TOWN:

ESTABLISHED BY C.T. HUSemeyer YEAR: 1949 STATE: Hawaii BENCH MARK(S) ALSO YEAR 1954 COUNTY Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts R.M. 2 has been destroyed by HC&S plantation.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WASTE

ESTABLISHED BY: C.T. Husemeyeryear: 1950 STATE: Hawaii BENCH MARKIS ALSO R.C. Munson YEAR: 1968 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

COUNTY Maui Island: Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

Station has been destroyed by by development of the land for cane growing.

A point was established in the vicinity by triangulation and the location of the station determined by inverse from this. Considerable digging was then done, but none of the marks were found.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WASTE

STATE: HAWAII

YEAR: 1950

FIRST

SOURCE: G- 9311

23 53 57.645 102.8 METERS GEODETIC LATITUDE ELEVATION 156 25 40.861 GEODETIC LONGITUDE 337 SEET

STATE COORDINATES (Feet)						
STATE & ZONE	CODE	×	٧	# OR A HE ANGLE		
HI 2	5102	581,485.83	187,474.36	+ 0 05 06		

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	CODE
TILTRATION	260 46 43.2	260 41 37	5102