HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM Q 191551 STATION 1152
HAWAII
LATITUDE 19 °30' TO 20 °00'
LONGITUDE 155 °00' TO 155 °30'
DIAGRAM NE 5-1,5 HAWAII

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION B

STATE HAWAII

YEAR 1902

THIRD

-ORDER

SOURCE G-SP156

GEODETIC LATITUDE	VATION METERS
-------------------	---------------

STATE COORDINATES (Feet)						
STATE & ZONE	CODE	х	Υ	8 IOR A BI ANGLE		
HI 1	5101	623,945.44	384,336.66	+ 0 07 22		

 $^{\circ}$ PLANE AZIMUTH HAS BEEN COMPUTED BY THE ~ heta~ OR $\Delta~$ Q $^{\circ}$ Formula neglecting the second term.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From seath)	PLANE AZIMUTH *	CODE
	12.2	* *	
	i		

QO 346

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 191551 STATION 1153

HAWAII
LATITUDE 19 °30' TO 20 °00'
LONGITUDE 155 °00' TO 155 °30'
DIAGRAM NE 5-1,5 HAWAII

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION STEEPLE CATHOLIC CHURCH

STATE: HAWAII

YEAR 1930

THIRD -OR

SOURCE G-SP156 NO OBSERVATION CHECK ON THIS POSITION

 GEODETIC LATITUDE:
 19 48 12.93
 ELEVATION:
 METERS

 GEODETIC LAMITUDE:
 155 05 44.45
 FEET

STATE & ZONE	CODE	×	ν	8 OR △ GI ANGLE
1 1	5101	638,984.57	352,509.64	+ 0 08 13

*PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\, heta\,$ 108 $\Delta\,$ 91 FORMULA NEGLECTING THE SECOND TERM.

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

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 191551 STATION 1154

HAWAII

LATITUDE 19 °30' TO 20 °00'

CONGITUDE 155 °00' TO 155 °30'

DIAGRAM NE 5-1,5 HAWAII

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION SUMMIT

STATE HAWAII

YEAR: 1892

THIRD

.00055

SOURCE: G-SP156

GEODETIC LATITUDE:	19 °4	9 26.23	ELEVATION	METERS
GEODETIC LONGITUDE:		0 14.77		FEET

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	×	*	# IOR A 41 ANGLE	
HI 1	5101	510,025.64	359,738.78	+ 0°00′36	

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

TO STATUM ON OBJECT	<u> </u>	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH *	CODE
		0	104-	

AUG 1979

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

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

QUAD 191551 HAWAII

STATION 1155

LATITUDE 19 050' TO 20 000' LONGITUDE 155 000 / TO 155 030 /

DIAGRAM NE 5-1,5 HAWAII

ADJUSTED HORIZONTAL CONTROL DATA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA FORM 76-39 (12-70) (FORMERLY CAGS FORM 528)

1

NAME OF STATION: SUMMIT USGS

DESCRIPTION OF TRIANGULATION STATION

STATE: Hawaii

COUNTY Hawaii

U.S. DEPARTM

QUADRANGLE NO.

NEAREST TOWN [iilo CHIEF OF PARTY: L. A. Critchlow

DESCRIBED BY: L.A.C. YEAR: 1977

SURFACE-STATION N	IARK,	DISTANCES AND DIRE OBJECTS W	HICH CAN BE	SEEK L KOM	HE GROUND AT		RECTION	
	DBJECT		BEARING	PEET	METERS	١	MECHON	<u> </u>

The station is located on the highest part of Mauna Kea, about 26 miles west-northwest of Hilo, about 295 meters south-southeast of the University of Hawaii Observatory, and is on ground about 6 meters higher than the leveled ground around the observatory.

To reach the station from the post office at Hilo go westerly on State Highway 20 for 27.3 miles to a paved side road on the right. Turn right and go northerly on the paved road (which turns into a graveled road at about the 9000-foot elevation) to the summit of Mauna Kea, the University of Hawaii Observatory, and the station site. The station mark is a USGS disk stamped 13.796 SUNMIT 1955 cemented to the top of a 2-1/2-inch pipe driven into the ground.

SUMMIT USGS

OBS BY NGS

NAME OF STATION

HAWAII STATE

YEAR 1977

SECOND

G-16241 SOUTE OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE:	19 49 25.33591 155 28 15.06479	ELEVATION	4207.3 13803	METERS FEET
GEODETIC LONGITUDE:				

	CODE	×	· ·	8 OH △ GI ANGLE	
STATE & ZONE	5101	510,018.51	359,648,59	+ 0 00 36	

PLANE AZIMUTH HAS BEEN COMPUTED BY THE & IOR A OF FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	(From south)	CODE
	6		

THESE DATA DETAINED FROM ADJUSTMENT OF JAN 1979

3M 149

*Refers to notes in manuals of triangulation and state publications of triangulation. Direction-angle measured clockwise, referred to initial sta 1 То nearest meter only, when no trigonometric leveling is being done.

AUG 1979

U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY + NATIONAL GENDETIC SURVEY

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

QUAD 191551 STATION 1156 HAWAII LATITUDE 19 030 . TO 20 000 . LONGITUDE 155 .00 , TO 155 .30 , DIAGRAM NE 5-1,5 HAWAII

DESCRIPTION TRIANGULATION STATION

NAME OF STATION: TELECOM

ESTABLISHED BY: L.A. Critchlow YEAR: 1977 STATE: Hawaii

COUNTY: Hawaii

BENCH MARK ALSO

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 28 miles northwest of Hilo. HEIGHT OF TELESCOPE ABOVE STATION MARK 4 FEET.

HEIGHT OF LIGHT ABOVE STATION MARK

	OBJECT	BEARING	MARK, REFERENCE MARK	DISTANCE				
<u> </u>			DEANING	PEET	METERS	1 '	DIRECTI	ЮN
			1 1		-	ĺ		

Station is located near the summit of Mauna Kea Mountain, near the southwest corner of the University of Hawaii Observatory and in a concrete sidewalk that runs along the west side of the observatory.

To reach the station from the post office in Hilo, go westerly on State Highway 20 for 27.3 miles to a paved road right. Turn right and go northerly on the paved road (which turns into gravel at about the 9000 foot level) to the summit, University of Hawaii Observatory and the station as described.

The station is a chiseled cross in a concrete sidewalk that runs along the west side of the observatory. It is 10.3 feet south of the top of a concrete step, 5.7 feet northwest of the southwest corner of the observatory, 0.9 foot west of the east edge of the sidewalk and 0.04 foot north of a gap in the concrete that marks a section of the

Walk. ([Note desc.)

Note: This station was marked and used by the U.S. Department of Commerce, Office of Telecommunications, Institute for Telecommunications Sciences, Eoulder, Colorado.

Name of chief of party should be inserted here. The person who actually visited the station should sign his name at the end of the recovery note.

SUPERSEDES CAGS FORM SZSA WHICH MAY BE USED

U.S. DEPARTMENT OF COMMERCE

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: TELECOM

OBS BY NGS

STATE: HAWAII

1978

SECOND

ORDER

6-16241

19 49 33.09101 GEODETIC LATITUDE: 155 28 20.17969 GEODETIC LONGITUDE

4201.9 ELEVATION METERS 13786

STATE COOMDINATES (Fert)						
STATE & ZONE	CODE	×	¥ .	FOR A BI ANGLE		
11 1	5101	509,530.05	360,430.83	+ 0°00'34		

Plane azimuth has been computed by the | heta| for Δ | heta| formula neglecting the second term.

		Taria.				
	TO STATION OR OBJECT	GEODETIC AZIMUTH (From seath)	PLANE AZIMUTH * (From south)	CODE		
		• •	0 , .			
			- a			
		1	ı i			

THESE DATA OBTAINED FROM ADJUSTMENT OF JAN 1979

3M 151

STATES

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

Q 191551 1157 HAWAII LATITUDE 19 °30' TO 20 °00' LONGITUDE 155 ° 00' TO 155 ° 30' DIAGRAM NE 5-1,5 HAWAII

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: TOLEDO

Hawa11County: Hawa11

NOTE,	HEIGHT OF TELESCOPE ABOVE STATION MAI	K 6.96 METERS.		cribed by:	3.B.G		6 METE
1(a)							
	OBJECT	BEARING	DIST	ANCE			
		BEARING	foot	meters		DIREC	HON:
	ALALA H.G.S. R.M.No.2				°	00	00"-
l(a)	R.M.No.2	WSW	38.468	11.724	133	02	39.5
103	Pepeekeo Pt. Light He	ouse 2663	,	/	347	18	00.8
L(a)	R.M. No.1	ENE-	42.130	12.841	321	ດາ	54.7

Located in eastern Hawaii, North Hilo District, about 15 miles, airline, north of Hilo and about 2.5 miles inland from the coast on a prominent wooded ridge above the came land, on the north side of Waikaumalo stream, on land owned by Richard Toledo.

Station is a standard disk welded to the top of an iron pipe and set in the center of a square topped concrete post, projecting 8 inches above the ground. Stamped TOLEDO 1949.

Reference mark No.1 is east northeast of the station. A standard disk welded to the top of an iron pipe and set in the center of a square topped concrete post, projecting 8 inches above the ground. Stamped TOLEDO NO21:1949.

Reference mark No.2 is west southwest of the station. A standard disk welded to the top of an iron pipe set in the center of a square topped concrete post, projecting 8 inches above the ground. Stamped TOLEDO NO 2 1949.

To reach from the post office at Hile: go north on the coast highway for 20.1 miles to Ninole post Office, continue shead for 0.4 miles, turn left off highway and go up hill on came road for 1.5 miles, turn left and go 0.5 miles to a covered bridge and end of truck travel. From here pack acuthwest along north bank of stream to first wooded ridge and station.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: TOLEDO

HAWAII

YEAR. 1949

SECOND

ORDER

SOURCE: G- 9279

GEODETIC LATITUDE: GEODETIC LONGITUDE:	19 °55 '02.'644 155 11 23.881	ELEVATION:	445.4 1461	METERS
		1		

STATE COORDINATES (Feet)						
STATE & ZONE	CODE	37 bx = 66 =	·/ • • • • • • • • • • • • • • • • • • •	8 IOR A SI ANGLE		
HI 1	5101	606,497.42	393,773.37	+ 0°06′20		

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, heta\,$ (or $\triangle\,$ 4) Formula neglecting the second term.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From seub)	PLANE AZIMUTH * (from south)	CODE
HAIKU	216 56 22.1	216 50 02	5101
	to the second se		

QE 122

(continued on next page)

JUN 1978 U.S. DEPARTMENT OF COMMERCE U.S. DEPAKEMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY HORIZONTAL CONTROL DATA

NATIONAL GEODETIC SURVEY OLD HAWAIIAN DATUM

TOLEDO (continued)

U.S. DEPARTMENT OF COMMERCE

FORM 5260 (9-10-59)

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: TOLEDO ESTABLISHED BY: C.T. Husemeyer YEAR: 1949 STATE Hawaii YEAR: 1966 COUNTY: Hawaii RECOVERED BY D.M. Whipp Island: Hawaii

н	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTIONS.		ABOVE STATION	MARK		METERS.		
Γ	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFE FROM THE GRO	RENCE MAR	KS AND PROMINE	HW STOBLED TH	ICH CAN	BE SEE		l
H		275.00	DISTA	NCE		IRECTI		ı
Т	OBJECT	BEARING	PEET	METERS	٥	SKECII	,,,	i
	HAIKU (HGS) 1877 RM No. 3 COOK (HGS) 1949 (*1949 distance) RM No. 4	E ESE W	14.760 *333.178 14.833	4.500	00 51 67 231	00 50 14 50	00.0 32 16.1 49	/

Station mark was recovered in good condition. The reference marks were searched for by distance and angle but could not be found and are believed destroyed. Two new reference marks were established. A complete description follows:

Station is located about 4 miles west-northwest of Hakalau and 2 miles west-southwest of Honohina village, on brush-covered ridge along north side of Waikaumalo Stream, in hilly pasture land, at about 1461 feet elevation. It is 333.2 feet west-northwest of station COOK (HGS), 75 yards northeast of dim stock trail and about 1/3-mile west-northwest of a radio mast. To reach station from the post office at Ninole, go northwest on State

Highway 19 for 0.05 mile; turn left, into deep cut, and follow cane road uphill for 0.5 mile to payed crossroad; continue ahead for 0.2 mile to fork just after passing station HAIKU on the left. Take right fork and go 0.25 mile to crossroad. Turn right and go 0.8 mile to crossroad. Keep ahead, upgrade, for 0.6 mile to end of truck travel where road turns left and a dim cane road continues ahead. Walk southwest on cane road about 130 yards to metal gate at edge of cane field. From here follow about 130 yards to metal gate at edge of cane field. From here follow old trail along an old road route across pasture land for about 700 yards (on a heading about 20° right of the radio mast) to where trail crosses ridge. Turn left along ridge line about 75 yards to station. NOTE: Station may also be reached by following description to COOK (HGS), then clearing a trail through brush and crossing Waikaumalo Gulch.

Station mark is a standard disk stamped "TOLEDO 1949", set in the top

of an 8-inch-square, concrete monument that projects 6 inches. There is a cribbing of several large iron bars 3 inches square and 30 inches long,

built up around the mark. Reference mark number three is a standard disk stamped "TOLEDO 1949 NO 3 1966", brazed to the top of a 2-inch, iron pipe that is set in cement and projects 4 inches. It is about 8 inches lower than station.

Reference mark number four is a standard disk stamped "TOLEDO 1949 NO 4 1966", brazed to the top of a 1-1/2-inch, iron pipe that is set in cement and projects 8 inches. It is 6 inches higher than station mark.

NOTE - One of these forms must be used for every station recovered.

USCOMM-DC 27178-P86

STATION 1157 QUAD 191551 ' TO LATITUDE TO LONGITUDE DIAGRAM

^{*}Name of chief of party should be inserted here. The officer who actually visited the station should sign his name at the end of the recovery note.

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 191551 STATION 1158
HAWAI I
LATITUDE 19 °30' TO 20 °00'
LONGITUDE 155 °00' TO 155 °30'
DIAGRAM NE 5-1,5 HAWAII

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION. VIEIRA

STATE: HAWAII

YEAR: 1901

THIRD

.

SOURCE G-SP156

	0 / #		
GEODETIC LATITUDE	19 56 36.854	ELEVATION	WETERS
GEODETIC LONGITUDE	155 10 21.807		FEET
			1994

STATE COORDINATES (Feet)						
STATE & ZONE	CODE	×	Y	# OR & BLANCE		
HI 1	5101	612,401.91	403,288.64	+ 0 06 42		

*PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\, heta\,\,$ Of $\Delta\,\,$ 4 FORMULA NEGLECTING THE SECOND TERM.

15.	*	W	-	
	}			
	1794			

QO 352

AUG 1979

U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY | 1/ATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM QUAD 191551 HAWAII LATITUDE 19 030 ' TO 20 000' LONGITUDE 155 .00 , TO 155 .30 , DIAGRAM NE 5-1,5 HAWAII

DESCRIPTION

TRIANGULATION STATION

NAME OF STATION: VR 1-6 HIDT ESTABLISHED BY: L.A. Critchlow YEAR: 1977 STATE Hawaii COUNTY: Hawaii

BENCH MARK ALSO

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: at the west edge of Keasu HEIGHT OF TELESCOPE ABOVE STATION MARK 4 FEET. HEIGHT OF LIGHT ABOVE STATION MARK 4

OBJECT	BEARING -	DISTANCE			DIRECTION	
		PEET	METERS		DIRECT	ION
KEAAU 1949 RM 1 ' RM 2 ' RM I to RM 2	NW ENE	29.43 25.94 48.27	8.970 7.910 14.713	00 1111 232	00 04 16	00 29 42

The station is located about 8 miles south-southeast of Hillo on the west edge of Keasu at the junction of State Highways 11 and 13.

To reach the station from the junction of State Highways 11 and 19 in Hilo, go south on Highway 11 for 7.5 miles to the junction of State Highway 13 and Highway 11. Turn left and go about 100 feet to the station site on the left near the center of a traffic island.

The station marks are State of Hawaii survey disks stamped VR 1-6 1977. The surface disk is set in a round concrete post 0.4 foot below the ground. The undergound disk is set in an irrecular mass of con-

the ground. The undergound disk is set in an irregular mass of concrete about 4 feet below the ground. They are 23.2 feet south of a road, 16.8 feet north of a road, 14 feet south of a curb and 14.2 feet

northwest of a lightpole.

Reference mark 1, stamped 1, is a railroad spike with a punch hole marking the center, cemented in a drill hole in a curb, 33.5 feet east of the west end of the curb and 9 feet south of the road. Reference mark 2, stamped 2, is a railroad spike with a punch hole marking the center, cemented in a drill hole in a curb, 14.4 feet northeast of a lightpole and 7 feet south of the road.

Name of chief of party should be inserted here. The person who actually visited the station should sign his name at the end of the recovery note.

NDAA FORM 76-96 SUPERSEDES CAGS FORM 528A WHICH MAY BE USED

U.S. DEPARTMENT OF COMMERCE

ADJUSTED HORIZONTAL CONTROL DATA

VR 1-6 HIGT

OBS BY NGS

MAWALI

SECOND

5-16241

GEODETIC LATITUDE	19 37 34.75144 155 02 30.34871	ELEVATION	104.7 343	METERS FEET
GEODETIC LONGITUDE:				

STATE & ZONE	CODE	×	¥	B IOR A BI ANGLE
1 1	5101	657,214.54	288,175.98	+ 0 09 12

PUTED BY THE $\, heta\,$ IOR $\Delta\,$ III. FORMULA NEGLECTING THE SECOND TERM.

GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	CODE
34 47 54.0	34 38 42	5101
	= 'e v	
	(From south)	(From south) (From south)

THESE DATA UBTAINED FROM ADJUSTMENT OF JAN 1979

3M 157

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM QUAD 191551 STATION 1160 LATITUDE 19 030 , TO 20 000 , LONGITUDE 155 .00 / TO 155 .30 / DIAGRAM NE 5-1,5 HAWAII

DESCRIPTION RECOMBREMENTE: TRIANGULATION STATION

NAME OF STATION: YP. 1-8A HIDT

ESTABLISHED BY: L.A. Critchlow YEAR: 1978 STATE: Hawaii COUNTY: Hawaii

BENCH MARK ALSO

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: In Mountain View HEIGHT OF TELESCOPE ABOVE STATION MARK & FEET.

HEIGHT OF LIGHT ABOVE STATION MARK &

OBJECT		DIST				
	BEARING	PEET	METERS	1 '	PIRECT	ION
KUIANI KGS 1891 RM 1 1 RM 2 1 RM 1 to RH 2 1	HE HE	20.72 36.71 16.56	6.313	00 159 163	00 35 40	00.0 30 32

The station is located in Hountain View and is on state property. To reach the station from the post office in Hountain View, 50 northerly on State Highway 11 for 0.35 mile to a side road left and the station on the left.

The station marks are State Of Hawaii Survey Disks stamped VR 1-0A 1977. The surface disk is set in the top of a 12-inch round concrete post that is 5 inches below the ground surface. It is 39 feet north-northeast of the center of North Luako Road, 34 feet west-northwest of the center of State Wichen 11 and 20 feet south-southeast of a popular

northeast of the center of North Luako Road, 34 feet west-northwest of the center of State Highway 11 and 29 feet south-southeast of a power pole. The underground disk is set in the top of an irregular mass of concrete that is about 48 inches below the ground surface.

Reference mark 1 is a 1/2 inch iron pipe, cemented in a round mass of concrete that is flush with the ground surface. It is 59 feet northeast of the center of North Luako Road, 33 feet east-southeast of the power pole and 28 feet west-northwest of the center of State Highway 11.

Reference mark 2 is a 1/2 inch iron pipe, set in asphalt on the shoulder of the road and flush with the ground. It is 72 feet north-northeast of the center of North Luako Road, 46.5 feet east of the power pole and 13 feet west-northwest of the center of State Highway 11.

ADJUSTED HORIZONTAL GONTROL DATA

NAME OF STATION: VR 1-8A HIUT

OBS BY NGS

STATE: HAWAII

YEAR: 1978

SECOND

6-16241

19 33 21.25849 GEODETIC LATITUDE: 443.2 155 06 29.00615 METERS GEODETIC LONGITUDE 1454 FEET

STATE COORDINATES (Feet)						
STATE & ZONE	CODE	×	*	BORA OF ANGLE		
HI 1	5101	654,957.26	262,548.49	+ 0 07 52		

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

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	CODE
KULANI HGS	80 71 22.7	79 °53 ′30 ″	5101

THESE DATA OBTAINED FROM ADJUSTMENT OF JAN 1979

3M 161

* Name of chief of party should be inserted here. The person who actually visited the station should sign his name at the end of the

SUPERSEDES CAGS FORM 526A WHICH MAY BE USED.

U.S. DEPARTMENT OF COMMERCE

4 U.S. CPG: 1976-665-661/1220 Rogton (

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

25.3.

0 191551 STATION 1161 HAWAII LATITUDE 19 °30' TO 20 °00' LONGITUDE 155 °00' TO 155 °30' DIAGRAM NE 5-1.5 HAWAII

U. S. COAST AND GEOCETIC SURVEY
POPIN 525

DESCRIPTION OF TRIANGULATION STATION

(USGS)

NAME OF STATION: WAIAKEA MAUKA STATE

Hawaii County: Hawaii

CHIEF OF	· HEIGHT OF TELESCOPE ABOVE STATION MARK 1.32 METERS.1 HEIGHT				scribed by: C.		орре	1 METERS
	Surface-station mark, Underground-station mark Underground-station mark Which can be seen from the ground at the s						CINENT	
	OB	VECT	BEARING	DIST	ANCE	_		
			DEMONG	foat	meters		HECTI	ON t
pipe =	KAIWIKI NEW (U. R. M. No. 1 = R. M. No. 2 =	sgs) -	SE =	29.790 = 34.464 =	9.081 - 10.504 -	00 167 273	00 14 52	00 = 03 = 01 =

The station is located on the crest of a low bluff, planted in sugar cane, which lies about 5 1/2 miles northwest of Olas, about 5 1/2 miles southwest of Hilo and about 1000 feet northwest of Camp 8. Higher ground is to the westward of the station.

To reach from the post office at Hile; go southerly for 3.2 miles; turn right and go westerly for 0.85 mile; turn left, keeping on the paved road, and continue west and south for 4.45 miles to Camp 8 and the end of truck travel. From this point pack northwest for about 1000 feet to the high ground and the station.

The station is a U.S. Geological Survey bronze disk, stamped 1132, set in the top of a 4 1/2 inch pipe which is located in the top and center of a cairn about 5 feet in height. The top of the cairn has been

capped with a triangular slab of concrete which is about 7 feet on each side. $^{\circ}$

Reference mark number 1 is a standard disk, stamped WAIAKEA
MAUKA USGS NO 1 1949, brazed to the top of a 2 1/2 inch pipe which projects
about 1 foot above the ground and is about 5 feet lower than the station.

Reference mark number 2 is a standard disk, stamped WAIAKEA
MAUKA USGS NO 2 1949, brazed to the top of a 2 1/2 inch pipe which projects
about 1 foot above the ground and is about 5 feet lower than the station.

Form 526 (11-8-55) U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: WAIAKEA MAUKA (USGS)
ESTABLISHED BY: C.T.H. YEAR. 1949

ESTABLISHED BY: C.T.H. YEAR: 1949 STATE: Hawaii RECOVERED BY: H.J.S. YEAR: 1962 COUNTY: Hawaii

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

The station and both reference marks were recovered as described in 1949. The directions for reaching the station given in the 1958 recovery note by H.O.F. are correct.

The description and the recovery note are both adequate except that Kindale St. refered to in the 1958 "to reach" should be Kinoole St.

*Name of third of party should be inserted here. The efficer who actually visited the station should sign his name at the end of the recovery note.

NOTE.—One of these forms must be used for every station recovered.

Cons

(continued on next page)

ADJUSTED HORIZONTAL CONTROL DATA

WAIAKEA MAUKA JSGS

OBS BY CGS

HAWAII

FIRST

U- 9279

GEODETIC LATITUDE: 19 \$9 02.59200 155 07 38.46500

ELEVATION 345.81 METERS 1134.5

STATE COORDINATES (Feet)						
STATE & ZONE	CODE	×	٧	P OR A G. ANGLE		
1 1	5101	628,219.41	296,966.76	+ 0°07′31		

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE \$ IGR & GI FORMULA NEGLECTING THE SECOND TERM.

	(Fram south)	CODE
201 03 '06.6	200 °55 '35 °	5101
	201 03 06,6	200 55 35

THESE DATA ARE USTAINED FROM ADJUSTMENT OF 1951

3M 162

JUN 1978

U.S. DEPARTMENT OF COMMERCE U.S. DEPARTMENT OF CUMMERCE ADMINISTRATION NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL GEODETIC SURVEY NATIONAL GEODETIC SURVEY HORIZONTAL CONTROL DATA

NATIONAL GEODETIC SURVEY

OLD HAWAIIAN DATUM

QUAD 191551

STATION 1161

' TO LATITUDE / TO LONGITUDE DIAGRAM

WAIAKEA MAUKA (USGS) (continued)

RECOVERY NOTE, TRIANGULATION STATION

FORM 5264

U.S. DEPARTMENT OF COMMERCE RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAIAKEA MAUKA (USGS) **Hawaii** ESTABLISHED BY: C.T. Husemeyer YEAR: 1949 STATE: COUNTY: Hawaii YEAR: 1966 RECOVERED BY: D.M. Whipp Island: Hawaii

METERS HEIGHT OF TELESCOPE ABOVE STATION MARK 1.5 METERS, HEIGHT OF LIGHT ABOVE STATION MARK DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION DIRECTION FRET METERS ----1949 DISTANCE and DIRECTION-----00 00 00.0 KAIWIKI NEW (USGS) 14 52 167 03 29.790 SE 01 RM No. 1 34.464 10.504 273 RM No. 2 -----1966 DISTANCE and DIRECTION----00 00 00.0 KAIWIKI NEW (USGS) 1949 167 03 9.069 14 03 52 20 SSE RM No. 1 34.425 10.493 273 RM No. 2

Station was recovered and all marks found in good condition. is now pasture, with scattered brush. A complete description follows:
is now pasture, with scattered brush. A complete description follows:
station is located about 5-1/2 miles southwest of Hilo, in the Waiakea Homestead District, at 1135 feet elevation, on the east end of a low bluff in pastureland, 1100 feet west of Malaai Rd. and 1200 feet west-southwest of the junction of Malaai Rd. and Ainaola Drive. To reach station from the post office in Hilo, go southeast on Kincole St. for 3.2 miles to crossroad. Turn right and follow Kawailani St. for

0.85 mile; take left fork and follow Ainaola Drive for 2.7 miles; take
left fork, continuing on Ainaola Drive, for l.4 miles to T-junction. Turn
left and go south on Malaai Rd. for 0.1 mile to stock pen on right, and end
of truck travel. Walk west across pasture for about 1100 feet to station.

Station mark is a U.S. Geological Survey disk, stamped "1183", set in
the top of a 4-inch-diameter, concrete-filled, cast-iron pipe set in a
large cairm. A triangular, concrete platform, 7 feet on each side, has
been built on top of the cairn, and extends 3 feet above ground. A concrete block 2 feet high is secured to center of the platform and supports
a red and white metal target 10 feet tall. Station mark is visible a red and white metal target 10 feet tall. Station mark is visible through a passage under the block.

Reference mark number one is a standard disk stamped "WAIAKEA MAUKA USGS NO 1", brazed to the top of a 2-inch, iron pipe projecting 14 inches above ground. It is about 3 feet lower than station mark.

Reference mark number two is a standard disk stamped "WAIAKEA MAUKA USGS NO 2", brazed to the top of a 2-inch, iron pipe that projects 8 inches above ground. It is about 3 feet lower than station mark.

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: WAIAKEA MAUKA (USGS) ESTABLISHED BY: C. T. Husemeyer YEAR: 1949 YEAR: 1975 RECOVERED BY: R. B. Melby

STATE: Hawaii COUNTY: Hawaii

BENCH MARK(S) ALSO

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 52 miles SW of Hilo

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

The station and reference mark 2 were recovered in good condition. Reference mark 1 was not found and it is believed to be lost as the ground at the described location of the mark has been graded.

NAME OF STATION: WATAKEA MAUKA USGS BENCH MARK ALSO ESTABLISHED BY: C. T. Husemeyer YEAR: 1949 STATE: Hawaii RECOVERED BY: * L. A. Critchlow YEAR: 1977 COUNTY: Hawaii AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 5-1/2 miles southwest of Hilo. HEIGHT OF LIGHT ABOVE STATION MARK 4 HEIGHT OF TELESCOPE ABOVE STATION MARK & FEET.

	FROM THE GROUND AT THE STA		DISTANCE		DIRECT	FION
OBJECT	BEARING	FEET	METERS		DIREC	
HALAI 2 HGS HILO VOR ITO RM 3 ' RM 4' RM 3 to RM 4'	NE SE S	About 7 37.58 33.84 31.22	miles 11.454 10.313 9.517	172	00 32 19 49	00.0 28.6 01 44

The station mark was recovered in good condition. A house is now located at the station site. Reference marks 1 and 2 were searched for but not recovered and were believed destroyed when the house was put in. Reference marks 3 and 4 were set at this time and due to changes a new description follows.

The station is located about 5-1/2 miles southwest of Hilo, 5-1/2 miles northwest of Kurtistown and on property owned by Mr. Howard E.

Kent who lives at the station site. To reach the station from the junction of State Highways 11 and 19 in the east part of Hilo, go south on highway 11 for 2.55 miles to a cross road. Turn right and go west on Kawailani Street for 0.9 mile to a fire station on the left. Continue west on Kawailani Street for 0.15 mile to a fork and cross road. Turn left, then right and go southwest on Ainaola Road for 2.5 miles to a fork. Take the left fork and continue southwest on Ainaola Road for 1.35 miles to a T-road. Turn left and go south on Malaai Road for 0.1 mile to a track road on the right. Turn right going through a gate and go west on the track road for 0.3 mile to the top of the hill at Mr. Howard E. Kent's resident and the station site.

The station mark is a USGS disk stamped 1183 set in the top of a 4-inch concrete-filled cast-iron pipe set in a large cairn. A triangular concrete platform, 7 feet on each side, has been built on top of the cairn and extends 3 feet above the ground. A concrete block 2 feet high is secured to the center of the platform and supports a red and white metal target 10 feet tall. It is 31 feet north of the north face of the house, Note, Desc.

Reference mark 3 is a NGS disk stamped WAIAKEA MAUKA USGS 1949 NO 3 1977. It is cemented in a drill hole in the concrete foundation of the house and projects about 4 inches above the ground surface. It is at the northeast corner of the house, Note, Desc.

Reference mark 4 is a NGS disk stamped WAIAKEA MAUKA USGS 1949 NO 4 1977. It is cemented in a drill hole in the concrete foundation of the house and projects about 4 inches above the ground surface. It is 31,5 feet west of the northeast corner of the house, 7 feet west of a water faucet and 0.3 foot north of the north edge of the house. Note, Desc.

Name of chief of party should be inserted here. The person who actually visited the station should sign his name at the end of the

NOAA FORM 76-96 SUPERSEDES CAGS FORM 528A WHICH MAY BE USED

U.S. DEPARTMENT OF COMMERCE U.S. CPO: 1976-665-661/1220 Region 6

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM Q 191551 STATION 1162
HAMAII
LATITUDE 19 "30" TO 20 "00"
LONGITUDE 155 "00" TO 155 "30"
DIAGRAM NE 5-1.5 HAWAII

DEPARTMENT OF COMMERCE.
U. S. COMST AND GEODETIC SURVEY
FORTH \$25 ,
Rev. Am. 184

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: WALAKEA NEW (USGS STATE!

Hawaii County: Hawaii

NOTE,	F OF PARTY: C. T. HUSSMOYOR YEAR: 1949				cribed by: C.		eppel HETE	EB8
14	Surface-station mark, Underground-station mark	DISTANCES AND DIRECTION WHICH			RENCE MARKS		INENT OBJECT	3
		JECT	BEARING	DIST	ANCE		IRECTION:	_
	08	JECI	BEVELLAC	foot	meters		INECTIONS	
pipe 4		lo Sugar Co.) =	N = SSE	4 miles 17.533 5 5.5 mil	5.346 =	14 3	00 00 = 35 36.2 00 30 = 08 43.5 53 16 = 0	

The station is located on the summit of a low knoll which lies about 5.5 miles northwest of Olaa, about 3 miles south of Hilo, about 1 mile west of the road which runs between Hilo and Olaa, about 150 yards east of a house and 19.8 feet west of power and telephone pole number 2.

To reach from the post office at Hilo; go southerly for 3.2 miles; turn right, at a service station, and go westerly for 0.85 mile; continue straight ahead, on a graveled road, for 0.2 mile; turn right and go north for 0.1 mile to a house and the end of truck travel. From this point pack easterly, through the yard for about 150 yards to the high point of the knoll and the station.

The station is a U. S. Geological Survey bronze disk, stamped

393, set in the top of an irregular mass of concrete which projects about 1 foot? Over this disk has been placed a concrete platform which is about 6 feet square and 5 feet high. The station mark has been left open to view.

Reference mark number 1 is a standard disk, stamped WAIAKEA NEW NO USGS , set in the top of a 2 1/2 inch pape which projects about 6 inches It is located 2 feet west of a telephone pole and about 2 feet lower than the station.

Reference mark number 2 is a standard disk, stamped WAIKEA MEW NO USGS, set into a drill hole in a boulder which projects about 1 1/2 feet. It is located on the crest of the ridge about 1 foot higher than the station.

DEPARTMENT OF COMMERCE IS A COMPT AND SECOND CHIMPT STATION STATION COMPT AND SECOND CHIMPT STATION COMPT AND STATION CO

R

NAME OF STATION: WATAKEA NEW (USGS)

ESTABLISHED BY: C.T.H. YEAR: 1949 STATE: HAWAII
RECOVERED BY: H.O.F. YEAR: 1958 COUNTY: HAWAII

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

The station was recovered as described in 1949, in good condition, and except for the following corrections:

The house is 301 feet west of the station, and the power and telephone pole is gone. To reach from the post office in Hilo, go S. W. along Kindole St., for 3.35 miles; turn right on Kawailani St., go 0.95 mile due west to forks of road; keep to right fork straight ahead for 0.2 mile; turn right on gravel road for 0.1 mile to house on right; station is about 150 yards on right and on high part of knoll.

(continued on next page)

ADJUSTED HORIZONTAL CONTROL DATA

WAIAKEA NEW USGS

OBS BY CGS

HAWAII

1949

SECOND

G- 9279

GEODETIC LATITUDE: GEODETIC LONGITUDE:	19 41 16.20500 156 05 11.08000	ELEVATION:	119.81 METERS 393.1 FEET
			PEET

		STATE COORDINATES (Feet	1)	
STATE & ZONE	CODE	×	Y	9 (OR △ 4) ANGLE
HI 1	5101	642,273.51	310,478.05	+ 0 °08 '22
	No. of the last			

PLANE AZIMUTH HAS BEEN COMPUTED BY THE # 10R A #1 FORMULA NEGLECTING THE SECOND TERM.

58 59 16.3		
20 23 10.2	158 °50 '55 "	5101
	1 404	

THESE DATA ARE UBTAINED FROM ADJUSTMENT OF 1951 LEVELING BY CGS

3M 163

HORIZONTAL CONTROL DATA

by the

NATIONAL GEODETIC SURVEY

OLD HAWAIIAN DATUM

QUAD 191551 STATION 1162

LATITUDE ° ' TO ° '
LONGITUDE ° ' TO ° '
DIAGRAM

WAIAKEA NEW (USGS) (continued)

FORM 5266

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

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: WAIAKEA NEW (USGS)
ESTABLISHED BY: C.T. Husemeyer YEAR: 1949
RECOVERED BY: D.M. Whipp YEAR: 1966
COUNTY: Hawaii
Island: Hawaii

EIGHT OF TELESCOPE ABOVE STATION MARK 2	.5 METERS, H	EIGHT OF LIGHT	T ABOVE STATIO	N MARK		METER
DISTANCES AND DIRECTIONS TO AZIMUTH MA	ARK, REFERENCE MAR M THE GROUND AT TH	KS AND PROMIN E STATION	ENT OBJECTS W	HICH CAN	BE SEE	N
		DIST	ANCE		IRECTI	~~
OBJECT	BEARING	PEET	METERS	٠ــــــــــــــــــــــــــــــــــ	IRECII	UN
HALAI (HGS) 18771949 Dis	stance and Dir	ection	5.346	- 00 93	00	00.0 30
RM No. 2	tance and Di	33.472 rection-	10.203	289	53	16
RM No. 1	ENE	17.530 33.477	10.204	289	50 54	45 25

Station was recovered and all marks found in good condition. The telephone pole mentioned in original description has fallen down and is lodged tightly against RM 1 and probably shifted it slightly, as indicated by the 10-minute difference between the 1949 and 1966 observations. A complete description follows:

Station is located about 2-3/4 miles south of Hilo, at 393 feet elevation, on a low knoll covered with tall dense grass and scattered guava trees on top and surrounded by sugar cane on the sides. It is about 125 yards east of a house and 150 yards southeast of a slaughter-house.

To reach station from the post office in Hilo, go southeast on Kincole Street for 3.2 miles; turn right and go west on Kawailani Street for 1.05 miles to gravel side road right, by water hydrant K-47. Turn right and go 0.1 mile to top of grade and house on right. From here walk east, making trail through dense grass, about 125 yards to station.

Station mark is a U.S. Geological Survey Triangulation disk stamped

Station mark is a U.S. Geological Survey Triangulation disk stamped "393", set in the top of a mass of concrete projecting 1 foot above ground. A Hawaii Territorial Survey Type A signal is centered over the mark; the concrete platform being 4 feet above ground and a red and white metal target extending 8 feet above the platform.

Reference mark number one is a standard disk stamped "WAIAKEA NEW USGS NO 1", brased to the top of a 2-inch iron pipe that projects 6 inches. It is at west edge of sugar cane growth and about 2 feet lower than station.

Reference mark number two is a standard disk stamped "WAIAKEA NEW USGS NO 2", cemented in a drill hole in an irregular-shaped boulder that projects 1-1/2 feet above ground. It is along crest of knoll, about 2 feet higher than station.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAIAKEA NEW (USGS)

ESTABLISHED BY: C. T. HUSemeyer Year: 1949

RECOVERED BY: R. B. Melby Year: 1975

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 2½ miles south of Hilo

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. Considerable brush and grass have grown up around the station site. The reference marks were not searched for.

NAME OF STATION: WAIAKEA NEW USGS ESTABLISHED BY: C.T. Husemeyer 'YEAR: 1949 RECOVERED BY: L.A. Critchlow YEAR: 1977	STATEHAWRII BENCH MARK	ALSO
RECOVERED BY: * L. A. Critchlow YEAR: 1977	COUNTY: Hawaii	
AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: HEIGHT OF TELESCOPE ABOVE STATION MARK 4 FEET.	HEIGHT OF LIGHT ABOVE STATION MARK	4 FEI

	DISTANCE					
OBJECT	BEARING	PEET	METERS		DIRECT	ION
HALAI 2 HGS HILO HARBOR COMMISSIONERS WATER FANK 1951	NE	About 3-	1/2 miles	00 53	00	00.0 48.9

The station mark and reference marks 1 and 2 were recovered in good condition. The distance and direction to reference marks 1 and 2 compared favorable to the 1966 date, the difference to reference mark 1 being 0.004 meters shorter and 01 minute, 42 seconds larger. The difference to reference mark 2 being 0.010 meters shorter and 01 minute, 02 seconds smaller. The 1966 description is adequate.

Name of chief of party should be inserted here. The person who actually visited the station should sign his name at the end of the recovery note.

NOAA FORM 76-96 SUPERSEDES CAGS FORM 526A WHICH MAY BE USED

U.S. DEPARTMENT OF COMMERCE NOAK

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

GEODETIC LATITUDE

GEODETIC LONGITUDE

0 151551 STATION 1163
HAWAII
LATITUDE 15 °30' TO 20 °00'
LONGITUDE 155 °00' TO 155 °30'
DIAGRAM NE 5-1.5 HAWAII

ELEVATION.

METERS

FEET

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WAIAU CRATER				
STATE HAWAII	YEAR	1892	THIRD	ORDER
G-SP1 56				

19 48 44.23

155 28 49.94

		STATE COORDINATES (Feet)	
STATE & ZONE	CODE	×	v	9 ON A ANGLE
HI 1	5101	506,689.34	355,501.39	+ 0 00 24

*PLANE AZIMUTH HAS BEEN COMPUTED BY THE # OR A 4 FORMULA NEGLECTING THE SECOND FERM.

TO STATION OR OBJECT GEOMETIC AZIMUTH (From south)

CODE

QO 365

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

0 151551 STATION 11:
HAWAII
LATITUDE 19 °30' TO 20 °00'
LONGITUDE 155 °00' TO 155 °30'
DIAGRAM NE 5-1,5 HAWAII STATION 1164

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WEST OF 2 STACKS

STATE HAWAII YEAR 1900

THIRD

-ORDER

SOURCE G-SP156 OBSERVATION CHECK ON THIS POSITION

19 50 44.62 155 05 18.67 ELEVATION METERS GEODETIC LATITUDE GEODETIC LONGITUDE FEET

STATE & ZONE	COOE	×	٧	8 IOR A BI ANGLE
HI 1	5101	641,408.96	367.818.22	+ 0°08'23

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE $~\theta~$ lor $\Delta~$ a) Formula neglecting the second term.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From senth)	PLANE AZIMUTH * (From insth)	CODE
	0 ' "		
		F 15 T	

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 191551 STATION 1165
HAWAII
LATITUDE 19 °30' TO 20 °00'
LONGITUDE 155 °00' TO 155 °30'
DIAGRAM NE 5-1,5 HAWAII '

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

AVE OF STATION WHARF

STATE HAWAII

YEAR 1900

THIRD -DEDER

SOURCE G-SP156 NO OBSERVATION CHECK ON THIS POSITION

	9 / "		
GEODETIC LATITUDE	19 43 51.21	ELEVATION	METERS
GEODETIC LONGITUDE	155 04 22.18		FEET

STATE & ZONE	CODE	×	*	O OR A OI ANGLE
HI 1	5101	646,906.89	326,126.49	+ 0 08 39

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE |g| IOR Δ 41 FORMULA NEGLECTING THE SECOND TERM

TO STATION OR OBJECT	GEODETIC AZIMUTH (Fram nemb)	PLANE AZIMUTH * (From well)	CODE
	812	(2) (3)	
	I		

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM 0 191551 STATION 1166
HAWAII
LATITUDE 19 °30' TO 20 °00'
LONGITUDE 155 °00' TO 155 °30'
DIAGRAM NE 5-1,5 HAWAII

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WHITE

STATE HAWAII

1900

THIRD

-08068

SOURCE G-SP156
NO OBSERVATION CHECK ON THIS POSITION

43 33.98 GEODETIC LATITUDE: 19 43 33.98 GEODETIC LONGITUDE: 155 04 26.79	ELEVATION	METERS
--	-----------	--------

CODE	×	٧	B IOR A BI ANGLE
5101	646,470.85	324,387.22	+ 0°08′38

PLANE AZIMUTH HAS BEEN COMPUTED BY THE & IOR & 41 FORMULA NEGLECTING THE SECOND TERM,

TO STATION OR OBJECT	GEODETIC AZIMUTH (Frame south)	PLANE AZIMUTH	cope
	341		

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM Q 191551 STATION 1167
HAMAII
LATITUDE 19 °30' TO 20 °00'
LONGITUDE 155 °00' TO 155 °30'
DIAGRAM NE 5-1,5 HAWAII

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WHITE

STATE HAWAII

YEAR 1912

THIRD

onere

SOURCE: G-SP156 NO OBSERVATION CHECK ON THIS POSITION

	19 °52 '40.66 55 06 44.14	ELEVATION	WE TERS
--	------------------------------	-----------	---------

		STATE COORDINATES (Feet)	
STATE & ZONE	CODE	х	¥	B ORA BI ANGLE
HI 1	5101	633,222.91	379,505.16	+ 0 07 55
		-		İ

*PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, g \, \, | g \, R \, \Delta \, \, | \, g \, | \, FORMULA NEGLECTING THE SECOND TERM.$

TO STATION OR OBJECT	GEODETIC AZIMUTH	PLANE AZIMUTH * (Prom waith)	COD

QO 350

NOV 1979

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY + HATIDAAL GEORETIC SURVEY

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

QUAD 191551 HAWAII 19 ° 30' TO 20 ° 00' LATITUDE LONGITUDE 155 0 00 TO 155 0 30 DIAGRAM NE 5-1,5 HAWAII

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: PEPEEKEO RADIO STATION KIPA MAST

COUNTY: HAWAII CHIEF OF PARTY: R. B. MELBY YEAR: 1978 STATE: HAWALL

Description, including sketch of objects

NOAA FORM 76-81

LOCATED ABOUT 8 MILES NORTH OF THE CITY OF HILD, ON PEPEERED POINT, ABOUT 250 FECT NORTHWEST OF PEPEEKEO POINT LIGHT (AN AID TO NAVIGATION) AND IN A SMALL CLEARING ON THE EAST SIDE OF THE HOUSES.

THE STATION IS THE RED LIGHT ATOP A GUYED, 385 FOOT HIGH, BEELETON STEEL MAST, OF RADIO STATION KIPA.

U. S. DEPARTMENT OF COMMERCE

#U.S.G.P.O 1975-867-041

ADJUSTED HORIZONTAL CONTROL DATA

PEPEEKEO RAD STA KIPA MAST

OBS BY NGS

NAME OF STATION STATE

THIRD

G-16108

GEODETIC LATITUDE	19 51 02:81074	ELEVATION	METERS
GEODETIC LONGITUDE:	155 05 09.34818		FEET

STATE & ZONE	CODE	×	Υ	9 OR A BI ANGLE
(1 1	5101	642,294.34	369,655.50	+ 0, 08, 56

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

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	cone

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

RL 011

NOV 1979

U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY + HATIDHAL OCEAN SURVEY

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

QUAD 191551 HAWAII STATION 1169 LATITUDE 19 0 30' TO 20 0 00 LONGITUDE 155 0 00 TO 155 0 30 DIAGRAM NE 5-1,5 HAWAII

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: WATAKEA CREEK CHANNEL DAYBEACON 1

CHIEF OF PARTY: R. B. MELEY YEAR: 1978 STATE: HAWALL

COUNTY: HAWALL

Description, including sketch of object:

LOCATED IN HILD BAY, IN THE WAIAKEA DISTRICT OF THE CITY OF HILD, AT THE EAST ENTRANCE OF THE WAILOA RIVER AND IN ABOUT 3 FEET OF WATER.

THE STATION IS THE LONE PILE THAT SUPPORTS A SQUARE, GREEN DAYMARK WITH THE NUMBER 1 DISPLAYED. DESIGNATED UNDER NO. 3681 IN THE PUBLICATION LIGHT LIST, VOLUME III, PACIFIC COAST AND PACIFIC ISLANDS, 1977'.

HOAA FORM 76-81

U. S. DEPARTMENT OF COMMERCE NOAA

*U.S.G.P.O. 1975--667-041

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WATAKEA CREEK CHAN DAYBEACON 1

OBS BY NGS

HAWAII STATE

1978

THIRD

G-16108

GEODETIC LATITUDE	19°43′38:01589		
GEODETIC LONGITUDE	155 04 26.27406	ELEVATION	METERS
GEODETIC EONGITODE			FEET

	STATE COORDINATES (Feet)		
CODE	х	٧	OR A ANGLE
5101	646,519.12	324,794.48	+ 0 08 38
		CODE	

PLANE AZIMUTH HAS BEEN COMPUTED BY THE # IDR A GI FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From sauth)	PLANE AZIMUTH * (From south)	CODE
		į į	
	İ		
			l

THESE DATA OBTAINED FROM ADJUSTMENT OF AUG 1979

RL 012