HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

QUAD 221593 STATION 1101 TONGITUDE 22 ° 30' TO 160 ° 30' DIAGRAM NF 4-6 KAUAI

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

TRAVERSE

DESCRIPTION OF TREASURATED INVERSECTION STATION

Name of Station: Sandia 1 Launcher

CHIEF OF PARTY: D.J.Florwick

YEAR: 1964 STATE: Hawaii

COUNTY: Kauai

Description, including sketch of object: The station is located in the Atomic Energy Commission security area, 0.3 mile north of the main gate and 95 feet east of the west security

A traverse connection was made to triangulation station SANDIA 1964, distance being 5.912 meters (19.396 feet) northeast of station SANDIA 1964. The mark is the center of the base of SANDIA NO 1 Launcher.

Described by		

Comm-DC 34313

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION SANDIA 1 LAUNCHER

STATE HAWAII

YEAR 1904

THIRD

G-13403 SOUNCE OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE	22 03 44.5930 159 47 04.8041	ELEVATION.	METERS
GEODETIC LONGITUDE	255 41 0488041		FEET

Table 1		STATE COORDINATES (Fret)		
STATE & ZONE	CODE	x	¥	DR∆ STANGLE
HI 4	5104	403,599.92	83,296.90	- 3°06′25

PLANE AZIMUTH HAS BEEN COMPUTED BY THE B OR A & FORMULA NEGLECTING THE SECOND TERM

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

POSITION DETERMINED BY TRAVERSE FROM STATION SANDIA

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

QUAD 221593 STATION 1102 HAWAII LATITUDE 22 °00' TO 22 °30' LONGITUDE 159 ° 30' TO 160 ° 00' DIAGRAM NF 4-6 KAUAI

Form 525b (11-8-55)

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

TRAVERSE

DESCRIPTION OF THE INCULATION INTERESCRIPTION STATION

NAME OF STATION: Sandia 2 Launcher

CHIEF OF PARTY: D.J.Florwick

YEAR: 1964 STATE: HAWRII

COUNTY: Kauai

Description, including sketch of object: The station is located in the Atomic Energy Commission security area, 0.3 mile north of the main gate and 116 feet east of the west security

A traverse connection was made to triangulation station SANDIA 1964, distance being 58.079 meters (190.547 feet) east-southeast of station SANDIA 1964. The mark is the center of the base of Sandia NO 2 Launcher.

Com-DC 34313

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION SANDIA 2 LAUNCHER

STATE HAWAII

YEAR 1964

THIRD

6-13403 SOUND OBSERVATION CHECK ON THIS POSITION

	22 °03 '44.0918	ELEVATION	METERS
GEODETIC LATITUDE	139 47 02.9669		FEET
GEODETIC LONGITUDE	257 11 0011111		

STATE & ZONE	CODE	×	Y	BIOR A A ANGLE
11 4	5104	403,772.65	83,240.00	- 0 06 24

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE -g FOR Δ - GI FORMULA NEGLECTING THE SECOND TERM.

ef- j	CODE

POSITION DETERMINED BY TRAVERSE FROM STATION SANDIA

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM

QUAD 221593 STATION 1103 HAWAII LATITUDE 22 °00' TO 22 °30' LONGITUDE 159 ° 30' TO 160 ° 00' DIAGRAM NF 4-6 KAUAI

PORM 343 (9-18-89)

U.S. DEPARTMENT OF COMMERCE

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: SANDS

STATE: HAWAII

COUNTY: KAUA1

CHIEF OF PARTY: D.J.Florwick

YEAR: 1964

DESCRIBED BY: R.K. Moore

7a	SURFACE-STATION MARK, UNDERGROUND-STATION MARK	DISTANCE. AL DUREC	TIONS TO	EIGHT OF LIGH AZIMUTH MAR E SEEN FROM 1	K REFERENCE	MADES	AND OD	METER
	OBJECT		BEARING	DIST	ANCE			
	(DEAMING	PEET	METERS	7	DIRECT	IONT
lla lla	CANUTE (H&N) RM 1 RM 2 Bonham Auxiliary Lan Control Tower	ding Field,	NNE SE S	29.310 29.725 (Aprox. 0.	8.933 9.061 2 mile)	39 133 195	36 38 40	00.00 00 24 04.7

The station is located about 9.5 miles west of the town of Waimea, about 0.2 mile north of the control tower on Bonham Auxiliary Landing Field, about 0.5 mile east of the Pacific Ocean, about 0.4 mile southwest of the north end of the runway and on the southwest side of Bonham Auxiliary Landing Field.

To reach the station from the main gate at Bonham Auxiliary Landing Field, go north on a macadam road for 0.65 mile to a T-road left. Turn left on a macadam road and go west for 0.25 mile to a track road right. Continue southerly on main road for

0.4 mile to the station on the left.

The station mark, a standard disk stamped SANDS 1964, is set in the top of a 12-inch round concrete block and projecting 6 inches above the ground. It is 155 feet west -northwest of the west edge of the runway and 5 feet north-northeast of the north edge of the ramp leading off the west side of the runway.

Reference mark number 1, a standard disk stamped SANDS NO 1 1964, is set in the

top of a 12-inch square concrete block and projecting 1 inch above the ground. It is 155 feet west-northwest of the west edge of the runway and 34 feet north-northeast of

of the north edge of the ramp leading off the west side of the runway.

Reference mark number 2, a standard disk stamped SANDS NO 2 1964, is set in the top of a 12-inch square concrete block and projecting 2 inches above the ground. It is 125 feet west-northwest of the west edge of the runway and 3 feet north-northeast of the ramp leading off the west side of the runway.

ADJUSTED HORIZONTAL CONTROL DATA

STATE HAWAII

1964 YEAR

SECOND

SOURCE G-13403

GEODETIC LATITUDE:	22 02 40.5469 159 47 35.1032	ELEVATION	3.50 METERS
			11.5 PERT

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	×	¥	# IOR A 41 ANGLE
HI 4	5104	403,559.73	76,834.13	- 0°06′25
		4 4 4 4		

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, heta\,$ IOR Δ all Formula neglecting the second term

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	CODE
CANUTE H N	177 54 00.7	178 00 26	5104

QF 415

Refers to notes in manuals of triangulation and state publications of triangulation. † Direction-angle measured clockwise, referred to initial station. † To nearest meter only, when no trigonometric leveling is being done. USCOMM-DC 27171-P89

(continued on next page)

HORIZONTAL CONTROL DATA

/EY Dy the

NATIONAL GEODETIC SURVEY

OLD HAWAIIAN DATUM

SANDS (continued)

RECOVERY NOTE, TRIANGULATION STATION

R

RECOVERY NOTE, TRIANGULATION STATION

DIAGRAM

R

NAME OF STATION: SANDS ESTABLISHED BY: D.J. Florwick YEAR: 1964 STATE: Hawaii RECOVERED BY: D. J. Florwick YEAR: 1965 COUNTY: Kauai	BENCH MARK ALS	0	<u>x</u> -
RECOVERED BY: D. J. Florwick YEAR: 1965 COUNTY KAUAI AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 8 miles HEIGHT OF TELESCOPE ABOVE STATION MARK 15 FEET. HEIGHT OF LIGHT ABOVE	E STATION MARK	.4	FEET.

		DIST	ANCE	DIRECTION		
OBJECT	BEARING	RING FEET METERS				
CANUTE (H&N) 1964 Reference Mark No. 1 Reference Mark No. 2 Bonham Auxiliary Landing Field	NE SE	29.28 29.705 (0.8	8.925 9.056 mile)	00 39 133 195	00 56 38 40	00.0 40 00 05.7

The station mark, reference mark No. 1 and reference mark No. 2 were recovered as described and found in good condition. The horizontal direction to reference mark No. 1 was found in error by 20 minutes. Following is a new description.

The station is located 8 miles northwest of Kekaha, 0.8 mile north of the control tower, 0.3 mile east of the Pacific Ocean, between the

runway and an abandoned parking area for airplanes which is now used as a launching area, at Bonham Auxiliary Landing Field.

To reach the station from the junction of StateHighway 50 and 55 in the small village of Kekaha, go northwest on State Highway 50 for 6.55 miles to a fork in the road. Keep the left fork and go west on the oiled road for 0.4 mile to a crossroad at the main gate at Bonham Auxiliary Landing Field. Turn right and go north on an oiled road for 0.6 mile to a side road left. Turn left and go west and south on an oiled road for 0.4 mile to the northeast corner of a launching area. Continue straight ahead along the east edge of the launching area for 0.2 mile to the southeast corner of the area. Turn left for 66 feet to the station on the left as described.

The station mark, a standard disk stamped SANDS 1964, set in the top of a 12-inch cylindrical concrete monument which projects 5 inches above the surface of the ground. It is 141 feet west-northwest of the northwest edge of the runway, 66 feet east-southeast of a jog in the launching area and 4 feet north-northeast of the northeast edge of the launching area.

Reference mark No. 1, a standard disk stamped SANDS NO 1 1964, set in the top of a 12-inch square concrete monument which projects 1 inch above the surface of the ground. It is 138 feet west-northwest of the northwest edge of the runway, 70 feet east of a jog in the launching area and 33 feet north-northeast of the northeast edge of the launching

Reference mark No. 2, a standard disk stamped SANDS NO 2 1964, set in the top of a 12-inch square concrete monument which projects 1 inch above the surface of the ground. It is 112 feet west-northwest of the northwest edge of the runway, 95 feet east-southeast of a jog in the launching area and 4 feet north-northeast of the northeast edge of the launching area.

NAME OF STATION: SI ESTABLISHED BY: D RECOVERED BY: D	.J.F.	YEAR: YEAR:	1964 1965	STATE:	Hawaii	BENCH MARK	ALSO	★
AIRLINE DISTANCE AND HEIGHT OF TELESCOPE A	DIRECTION FROM				HEIGHT OF LIGHT ABO	OVE STATION MARK	15	FEET.

		DISTANCE				
OBJECT	BEARING	FEET METERS		DIRECTION		
CANUTE (H&N) 1964 Reference Mark 3 Reference Mark 2	NE SE	33.913 29.710 15.98h	10.338 9.054		00 00.0 19 37 37 32	

The station mark and reference mark No. 2 were recovered as described and found in good condition. Reference mark No. 1 was destroyed by construction equipment. The horizontal distance and direction to reference mark No. 2 were found to be correct. Reference mark No. 3 was established at this time.

The station is on the island of Kauai, about 10 miles northwest of the town of Kekaha and 1/h mile east of the Pacific Ocean. It is at Bonham Auxiliary Landing Field, about 0.8 mile north of the control tower and 0.3 mile north-northwest of the main gate. To reach the station from the main gate at Bonham Auxiliary Landing Field, go west

and south on an oiled road for 0.h mile. Turn sharp right and go northeast along an abandoned taxiway for 0.5 mile. Turn left and go north crossing the runway for 0.15 mile to the station.

The station mark, a standard disk stamped SANDS 1964, is set in the top of a 12-inch concrete cylinder which projects 5 inches above the surface of the ground. It is 139 feet northwest of the northwest edge of the runway and 3.8 feet northeast of the northeast edge of an abandoned aircraft parking area.

Reference mark No. 2, a standard disk stamped SANDS NO 2 1964, is set in the top of a 12-inch square concrete monument which is set flush with the surface of the ground. It is 110 feet northwest of the northwest edge of the runway and 2 feet

northeast of the northeast edge of the asphalt.

Reference mark No. 3, a standard disk stamped SANDS NO 3 1964, is set in the top of a 10-inch square concrete monument which is set flush with the surface of the ground. It is 131 feet northwest of the northwest edge of the runway and 37-1/2 feet northeast of the northeast edge of the asphalt.

* 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.

FORM C&GS-5260 (0-24-04)

U.S. DEPARTMENT OF COMMERCE

(continued on next page)

JUN 1978 U.S. DEPARTMENT OF COMMERCE NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the NATIONAL GEODETIC SURVEY OLD HAWAIIAN DATUM

R

QUAD 221593 STATION 1103 LATITUDE TO LONGITUDE ' TO DIAGRAM

SANDS (continued)

FORM 5260

U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: SANDS ESTABLISHED BY: D.J.F. YEAR: 1964 STATE: Hawaii RECOVERED BY: D.M. Whipp / YEAR: 1966 COUNTY: Kauai

Island: Kauai HEIGHT OF TELESCOPE ABOVE STATION MARK 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 OBJECT DISTANCE FEET METERS DIRECTION CANUTE (H&N) 1964 00 RM No. 3 00 00.0 NE 33.920 RM No. 2 10.339 41 18 02 SE 29.718 Bonham, ALF, Control Tower, 1964 9.058 133 38 40 SSW 195 40 06.8

Station mark and reference marks No. 2 and 3 were recovered in good condition. Reference mark number 1 has been destroyed and No. 3 was set by another party. A complete description follows:

Station is located 7 miles northwest of Kekaha, on Bonham Auxiliary Landing Field, 0.8 mile north-northeast of the control tower, and along the north side of a wide macadam ramp connecting the runway with an abandoned parking area.

To reach station from junction of State Highways 50 & 55 at Kekaha, go northwest on State Highway 50 for 7.0 miles; take left fork and go 0.4 mile to entrance to the landing field. Turn right, inside gate, and go

north for 0.6 mile to paved side road left. Turn left and go west for 0.4 mile to northeast corner of macadam parking area. Turn left and go south along left edge of macadam for 0.2 mile to intersection with the wide ramp. Turn left and go 60 feet to station on left.

Station mark is a standard disk stamped "SANDS 1964", set in the top of a 12-inch-diameter, concrete monument that projects 4 inches. It is 142 feet west of the corner of the intersection of the ramp and runway, 60.5 feet east of corner of intersection of ramp and parking area, and 14.5 feet north of edge of macadam ramp.

Reference mark number two is a standard disk stamped "SANDS NO 2 1964", set in the top of a 12-inch-square, concrete monument flush with ground, 12.4 feet north of edge of macadam ramp and 112 feet west of corner of intersection of runway and ramp.

Reference mark number three is a standard disk stamped "SANDS NO 3 1964*, set in the top of a 12-inch-square, concrete monument flush with ground. It is in heavy grass area, at about same elevation as station.

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.

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

USCOMM-DC 27173-000

FORM 5260

U.S. DEPARTMENT OF COMMERCE

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: SANDS ESTABLISHED BY: D.J. Florwick RECOVERED BY: U.S. Navy YEAR: 1964 / STATE: Hawaii YEAR: 1971/ COUNTY: Kauad

HEIGHT OF TELESCOPE ABOVE STATION MARK DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION METERS. HEIGHT OF LIGHT ABOVE STATION MARK OBJECT DISTANCE BEARING FEET DIRECTION METERS BONHAM 1961 (Reference Mark No. 5 00 00 00,00 NE 27.835 Reference Mark No. 4 8.485 175 55 27 29 SE 36.460 11.113 DF Antenna / 276 50 S (approx. 0.7 mile) R.M. 4 to R.M. 5 335 30 20.6 49.760 -15.168

The underground station mark was the only mark recovered. Heavy equipment had destroyed the surface station mark, reference mark No. 2 and reference mark No. 3. A new surface station mark, reference mark No. 4 and reference mark No. 5 were established at this time by the Geophysics Division of the Pacific Missile Range at Point Mugu, California. A new and complete description follows:

The station is located on the Barking Sands Parific Missile Range Facility, about 0.3 mile southwest of the north end of the runway and 0.25 mile east of the

To reach the station from the sentry post at the Main Gate of the Barking Sands Pacific Missile Range Facility, go northerly on Nohili Road for 0.5 mile. Turn left on Kalanamahiki Pl. No. and continue northerly for 0.6 mile. Turn left and go west and south on Palai Olani Road for 0.65 mile to an aircraft parking area and the station mark, on the left. -

The station mark is a standard disk, stamped SANDS 1964 1971, set in the top of a 12-inch diameter concrete post that projects 5 inches above the surface of the ground. It is 135 feet west-northwest of the west edge of the runway and 5 feet north-northeast of the north edge of an asphalt aircraft parking area.

Reference mark No. 4 is a standard disk, stamped SANDS 1964 NO 4 1971, set in the top of a 12-inch diameter concrete post that projects 3 inches above the surface of the ground. It is 99 feet west-northwest of the west edge of the runway and 5 feet north-northeast of the north edge of the aircraft parking area.

Reference mark No. 5 is a standard disk, stamped SANDS 1964 NO 5 1971, set in the top of a 12-inch diameter concrete post that projects 5 inches above the surface of the ground. It is 135 feet west-northwest of the west edge of the runway and 33 feet north-northeast of the north edge of the aircraft parking area.

The DF Antenna is mounted in the center of the roof of the control tower and is the highest object in the immediate vicinity. It is a mast with an array of dipoles arranged radially around it near the top. Point observed was the top and center of

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

USCOMM-DC 27178-P86

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

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM QUAD 221593

STATION 1104

HAWAII LATITUDE 22 ° 00' TO 22 ° 30' LONGITUDE 159 ° 30' TO 160 ° 00' DIAGRAM NF 4-6 KAUAI

FORM 525

U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: SILVER

STATE: Hawaii

county: Kauai

CHIEF OF PARTY: W.S. Simmons

YEAR: 1966

DESCRIBED BY: R.M.M

7a	SURFACE-STATION MARK, UNDERGROUND-STATION MARK	DISTANCES AND DIRE	CTIONS TO	AZIMUTH MARI E SEEN FROM 1	ABOVE STATE			METE
	OBJECT		BEARING	DIST				
			BEARING	PEET	METERS	P	RECTIO	110
1b 1b	OHAIULA 1964 Reference Mark No. Reference Mark No. RM 1 To RM 2	1 2	NE S	104.13 34.995 123.24	(31.739) 10.667 (37.564)	00 17 132	00 25 45	00 02 38

The station is at Bonham Auxiliary Landing Field, 0.3 mile southwest of the Main Gate, 0.1 mile northeast of the Administration Building, 200 feet southeast of a asphalt strip which parallels the northeast runway, set directly under a powerline.

To reach the station from the main gate at Bonham Auxiliary Landing Field, go west and south on an asphalt road for 0.15 mile to a fork in the road. Take the right fork and go south-southwest on the asphalt road for 0.15 mile to the station on the right.

The station mark, a standard disk stamped SILVER 1966, is set in the top of a 10-inch round concrete monument which projects 3 inches above the surface of the ground. It is 102 feet west of the center of the asphalt road, 37 feet north of a power pole and 3.3 feet northwest of a 4 x 4-inch white witness post and sign.

Reference mark No. 1, a standard disk stamped SILVER NO 1 1966, is set in the top of a 12-inch round concrete monument which projects 6 inches above the surface of the ground. It is 26 feet west of the center of the asphalt road and 3.5 feet west of a yellow fire hydrant.

Reference mark No. 2, a standard disk stamped SILVER NO 2 1966, is set in the top of a 12-inch round concrete monument which projects 4 inches above the surface of the ground. It is 82 feet west of the center of the asphalt road and 2 feet north of a power pole.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION SILVER

---- HAWAII

YEAR 1967

SECOND

-ORDER

SOURCE G-14044

GEODETIC LATITUDE	22 °02 ′14.″2642 159 47 06.4096	ELEVATION	4.41 METERS
GEODETIC LONGITUDE.			14.5 FEET

STATE COORDINATES (Feet)							
STATE & ZONE	CODE	×	¥	PIORA GI ANGLE			
HI 4	5104	403,431.87	74,182,21	- 0 06 25			
				1			

PLANE AZIMUTH HAS BEEN COMPUTED BY THE BIOR A BI FORMULA NEGLECTING THE SECOND TERM

TO STATION OR OBJECT	GEODETIC AZIMUTH (From samb)	PLANE AZIMUTH *	CODE
CABLE	7 44 15.8	7 50 41	5104

QF 582

*Refers to notes in manuals of triangulation and state publications of triangulation. I Direction-angle measured clockwise, referred to initial station.

1To nearest meter only, when no trigonometric leveling is being done.

UNCOMM-DC 27171-P85

(continued on next page)

HORIZONTAL CONTROL DATA

NATIONAL GEODETIC SURVEY OLD HAWAIIAN DATUM

NAME OF STATION: SILVER

CABLE 1964

RM 1

STATION 1104 OUAD 221593 o ' TO LATITUDE , TO LONGITUDE DIAGRAM

SILVER (continued)

RECOVERY NOTE, TRIANGULATION STATION

RECOVERY NOTE, TRIANGULATION STATION

YEAR: 1966 STATE: Hawaii

BENCH MARK ALSO

(31.739)

NAME OF STATION: SILVER ESTABLISHED BY: W.S.S.

YEAR: 1966 STATE: Hawaii

BENCH MARK ALSO X

RECOVERED BY: F. L. Jeffries YEAR: 1968 COUNTY: Kauai AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:

HEIGHT OF TELESCOPE ABOVE STATION MARK 4 FEET.

HEIGHT OF LIGHT ABOVE STATION MARK

		E STATION DIST	ANCE		DIRECT	ON
OBJECT	BEARING	PEET	METERS		JINECT	
CABLE 1964 Reference Mark No. 2 Reference Mark No. 1 RM 1 To RM 2	S NE	104.14	10.670´ (31.742) (37.567)´	00 4 249	00 26 04	00.0 09' 35'

The station mark, reference mark No. 1 , reference mark No. 2 were recovered as described and found in good condition. The horizontal distance and direction to both reference marks were checked and verified. Following is a new and complete description.

The station is located at the Pacific Missile Range Facility, Barking Sands, 0.3 mile northwest of the Main Gate, 0.1 mile northeast of the Adminstration Building and 200 feet southeast of an asphalt strip which parallels the northeast runway.

To reach the station from the main gate at Pacific Missile Range Facility, Barking Sands, go west and north on Ola Ka Moi Road for 0.5 mile to the station on the left.

The station mark, a standard disk stamped SILVER 1966, is set in the top of a 10-inch round concrete monument which projects 3 inches above the surface of the ground. It is 102 feet west of the center of Ola Ka Moi Road and 3.3 feet northwest of a white witness post and sign.

Reference mark No. 1, a standard disk stamped SILVER NO 1 1966, is set in the top of a 12-inch round concrete monument which projects 6 inches above the surface of the ground. It is 26 feet west of the center of the road and 3.5 feet west of a yellow fire hydrant.

Reference Mark No. 2, a standard disk stamped SILVER NO 2 1966, is set in the top of a 12-inch round concrete monument which projects 8 inches above the surface of the ground. It is 82 feet west of the center 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.

PORM C&GS-5260 (12-68)

U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

ESTABLISHED BY: W.S.S." RECOVERED BY: P.M.M. (U.S.N.) Y ARELINE DISTANCE AND DIRECTION FROM NEW HEIGHT OF TELESCOPE ABOVE STATION MARK DISTANCES AND DIRECTIONS TO AZIMUT.	FEET.	Kausi ' ing Sands l HEIGHT OF LIG	PMR Facilit		FEET.
DISTANCES AND DIRECTIONS TO AZIMOTE	NOM THE GROUND AT THE		ANCE	DIRECTIO	
OBJECT	BEARING	FEET	METERS	DIRECTI	
				0 '	." ,

The underground station mark and reference mark 1 were recovered in good condition. The surface station mark and reference mark 2 had been destroyed. A new surface station mark was established directly above the old underground mark. It is a 12-inch square concrete monument which projects about 18 inches above the ground surface and has a standard triangulation station disk (Coast and Geodetic Survey), stamped SILVER 1966 1972. No new reference mark was established. The route to the station has not changed.

The new elevation for SILVER 1966 1972 is 4,634 meters or 15,202 feet.

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAHAN DATUM

QUAD 221593 HAWAII LATITUDE 22

ADJUSTED HORIZONTAL CONTROL DATA

STATION 1105

22 ° 00' TO 22 ° 30' LONGITUDE 155 ° 30' TO 160 ° 00' DIAGRAM NF 4-6 KAUAI

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: SPS 10 Radar

FORM C&G5-525b (1-08)

CHIEF OF PARTY: F.L. Jeffries YEAR: 1968 STATE: Hawaii

COUNTY: Kauai

Description, including sketch of object: The station is located at the south side of the administration building at the Barking Sands Pacific Missile Range Facility. It is a curved radar screen of metal mesh, mounted atop a 3-legged steel tower that is about 60 feet in height. Point observed was the center of rotation of the radar

Described by _______
U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

NAME OF STATION SPS 10 RADAR

STATE HAWAII

THIRD

SOURCE: G-14107

GEODETIC LATITUDE	22 °01 '43.'95797		
GEODETIC LONGITUDE	159 47 06.62985	ELEVATION	METERS
			FEET

STATE COORDINATES (Feet)							
STATE & ZONE	CODE	×	¥	B OR A BI ANGLE			
HI 4	5104	403,405.44	71,124.09	- 0 06 25			
				Here She			

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, eta$ 10R Δ 41 FORMULA NEGLECTING THE SECOND TERM.

TO STATION ON OBJECT	GEODETIC AZIMUTH (From smith)	PLANE AZIMUTH * (From south)	CODE
	0 , .	0 , 0	
		2.37	
		1 1 1	
		111	

HORIZONTAL CONTROL DATA

by the National Ocean Survey OLD HAWAIIAN DATUM QUAD 221593 STATION 1106
HAWAII
LATITUDE 22 ° 00' TO 22 ° 30'
LONGITUDE 159 ° 30' TO 160 ° 00'
DIAGRAM NF 4-6 KAUAI

FORM 343 (8-18-89) U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: TACAN

STATE: Hawaii

COUNTY: Kauai

CHIEF OF PARTY: F.L. Jefiries

S YEAR: 1968

DESCRIBED BY: A.K.R.

desc	HEIGHT OF TELESCOPE ABOVE ST SURFACE-STATION MARK, UNDERGROUND-STATION MARK	TATION MARK METERS, METERS, DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE M OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT					T THE STATION	
	OBJECT			DISTANCE		DIRECTIONS		
			BEARING	FEET METERS				

The station is located on the Barking Sands Pacific Missile Range Facility, in a narrow area between the beach and the runway, about 0.5 mile north of the runway.

about 0.5 mile north of the runway.

To reach the station from the sentry post at the main gate of the Barking Sands Pacific Missile Range Facility, go northerly along Barking Sands Pacific Missile Range Facility, go northerly along Barking Sands Pacific Missile Range Facility, go northerly along Barking Sands Pacific Missile Range Facility, go northerly along Endlands I was a south and south and south and south and pacific I will be a triangular intersection. Turn left and go south and southeast on Palai Olani Rand for 0.4 mile to a road on the right and continue southerly on Oic Road for 0.2 mile runway. Turn right and continue southerly on Oic Road for 0.2 mile to a road on the right and the 3000-foot marker of the runway on the left. Turn right and go west for 0.1 mile to the end of the road and

the station mark on the left.

The station mark is a plain brass disk, stamped TACAN 1968, cemented in a drill hole in the concrete roof of an old air-raid shelter. It is 80 feet south of the center of an old aircraft shelter, 18.5 feet east-southeast of the center of the door to the revetment, 18.5 feet east-southeast of the west edge of the roof of the air-raid shelter, 10.4 feet east of the west edge of the roof of the shelter, 5.8 feet north of the south edge and 4.5 feet south of the north edge.

n edge. No azimuth mark or reference marks were established. ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION

__ HAWAII

YEAR 1968

SECOND

-

SOURCE: G-14107

GEODETIC LATITUDE	22 °02 ′26.70561 159 47 16.68791	ELEVATION	7.40 METERS 24.3 FEET
GEODETIC LONGITUDE	159 41 16.68191		

		STATE COORDINATES (Feet)		
STATE & ZONE	CODE	×	•	e IOR △ at ANGLE
11 4	5104	402,467.21	75,439.47	- 0 06 29
		F 8 1 1 1 1 1 1 1		170.5

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE ~ heta~ (or $\Delta~$ $^{
m q}$) Formula neglecting the second term.

(From south)	(From south)	
	-5-2	

QF 607

*Refers to notes in manuals of triangulation and state publications of triangulation. 1Direction-angle measured clockwise, referred to initial station.

1To nearest meter only, when no trigonometric leveling is being done.

USCOMM-DC 27171-P89 /

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM

R

QUAD 221553 STATION 1107
HAWAI I
LATITUDE 22 ° 00' TO 22 ° 30'
LONGITUDE 155 ° 30' TO 160 ° 00'
DIAGRAM NF 46 KAUAI

Thorn (Kauai Island, F. G. Engle, 1927).—On southwest coast of Kauai, 1½ miles west of Kaunalewa, in black volcanic rock, on a low sand dune about 10 feet above sea level and 100 meters inshore, in a district of rolling sand dunes, sandy pasture, and algeroba trees. There is no trail; cut across to the shore from the road which runs to Waieli. Marked according to note 4, a standard disk in bowlder.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: THORN

ESTABLISHED BY: F.G.E. YEAR: 1927 STATE: HAWA!!

ARECOVERED BY: D.M. Whipp YEAR: 1966 COUNTY: KAUA!

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: Island: Kauai

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

Station was searched for by inverse from a trial point established nearby, however could not be found and is believed destroyed. The sand beach has receded considerably and the brush line is now several feet inshore from station location.

FORM C&GS-526 11-65) USCOMM-DC 18509-P68

U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION THORN

STATE HAWAII

YEAR 1927

THIRD

METERS

FEET

SOURCE G-SP156

 GEODETIC LATITUDE
 22 00'16.194

 GEODETIC LONGITUDE
 159 46 23.183

 SCALED

	STATE COORDINATES (Feet)		
CODE	x	ν	B OR A BI ANGLE
5104	407,477.50	62,260.50	- 0 06 08
		CODE X	5104 V

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

GEODETIC AZIMUTH (From south)	PLANE AZIMUTH*	CODE
120 05 20 11		
		(From south) (From south)

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM

STATION 1108 QUAD 221593 HAWAII HAWAII LATITUDE 22 ° 00' TO 22 ° 30' LONGITUDE 159 ° 30' TO 160 ° 00' DIAGRAM NF 4-6 KAUAI

Tit (Kauai Island, F. G. Engle, 1927).—On north coast of Kauai, a high tit on the seaward end of a prominent ridge about midway between Wainiha Bay and Kailiu Point. The point is easily seen from Hanalei Bay, but fades into background when directly offshore from station. Not marked.

U.S. DEPARTMENT OF CONMERCE - COAST AND GEODETIC SURVEY 178 528

RECOVERY NOTE, TRIANGULATION STATION INTERSECTION

NAME OF STATION: Tit YEAR: 1927 STATE: ESTABLISHED BY: F.G.E. RECOVERED BY: F.G.E. YMAR: 1965 COUNTY: Kauai Island: Kauai Kauai

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

fied by angle at station HANALEI and is in good condition. A small rock projection, better described as a nipple, at the 1600-foot elevation on north end of the rugged, high ridge on west side of Wainiha River, and about 1/4-mile south from shoreline.

-STATION

Comm-DC 34314

ADJUSTED HORIZONTAL CONTROL DATA

TIT NAME OF STATION:

STATE: HAWAII

YEAR: 1927

THIRD

G-SP156
SOUND OBSERVATION CHECK ON THIS POSITION

	22 °13 '07.16	ELEVATION	METERS
GEODETIC LATITUDE	159 34 22.07		FEET
GEODETIC LONGITUDE	109 04 22.01		

STATE & ZONE	CODE	×	Y	8 OR A GI ANGLE
HI 4	5104	475,375.15	139,980.99	- 0 01 39

PLANE AZIMUTH HAS BEEN COMPUTED BY THE \$ (OR A G) FORMULA NEGLECTING THE SECOND TERM.

TO STATION OF OBJECT	GEODETIC AZIMUTH (Front tenth)	PLANE AZIMUTH * (From small)	CODE
	• , •	0 , "	

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM QUAD 221593 STATION 1109 HAWAII LATITUDE 22 ° 00' TO 22 ° 30' LONGITUDE 155 ° 30' TO 160 ° 33' DIAGRAM NF 4-6 KAUAI

TRAVERSE STATION OF THE STATION

Name of Station: The Antenna

CHIEF OF PARTY: P.C. Johnson YEAR: 1967 STATE: Hawaii

Kauai

Description, including sketch of object: 0.15 mile southwest along an asphalt road from the Liain Gate to Barking Sends Pacific Lissile Range Facility; thence 0.6 mile south along the left fork to a crossroad; thence 0.1 mile south on

The station is the center of a large dish antenna, mounted on the top of a cylindrical pedestal painted white in color and 25 feet in height.

A connection was nade to triangulation station CANE 1965. Distance being 51.86 meters or 169.90 feet north of triangulation station CAME 1965.

РОЯМ C&GS-525Ь (12-ев) ИЗСОММ-DC 26200-Рев

U.S. DEPARTMENT OF COMMERCE ESSA COAST AND GEODETIC SURVEY " AND

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION. THE ANTENNA

HAWAII

YEAR. 1967

THIRD

SOUND: G-14044
SOUND: OBSERVATION CHECK ON THIS POSITION

22 °01 '47.8345 GEODETIC LATITUDE: 159 47 04.8294 ELEVATION METERS GEODETIC LONGITUDE: FEET

STATE COORDINATES (Feet)							
STATE & ZONE	CODE	x	Y Y	ORA 4 ANGLE			
HI 4	5104	403,575.57	71.514.95	- 0 06 24			

PLANE AZIMUTH HAS BEEN COMPUTED BY THE | heta| OR Δ | heta| Formula neglecting the second term

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From sauth)	CODE
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POSITION DETERMINED BY TRAVERSE FROM STATION CANE

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM

STATION 1110 QUAD 221593 HAWAII 22 ° 30' TO 22 ° 30' LONGITUDE 159 0 30' TO 160 00' DIAGRAM NF 4-6 KAUAI

FORM 525

U.S. DEPARTMENT OF COMMERCE

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: TM Boresight Antenna ' STATE: Hawaii '

COUNTY: Kauai '

CHIEF OF PARTY: P.C. Johnson

YEAR: 1967

DESCRIBED BY: J.E.S.

esc.	SURFACE-STATION MARK, UNDERGROUND-STATION MARK	DISTANCES AND T	ES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINEN OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION					
	OBJECT			DISTANCE		DIRECTIONS		
		BEARING	FEET	METERS				
						١		

The station is located on the Barking Sands Pacific Missile Range Facility, about 0.3 mile south of the main gate, 0.25 mile northeast of the control tower and 0.1 mile west of the east boundary of the base.

west of the east boundary of the base.

To reach the station from the Main Gate of the Barking Sands Pacific Missile
Range Facility, go southwest on an asphalt road for 0.15 mile to a fork. Take the
right fork and continue southwest on an asphalt road for 0.2 mile to a road on the
left, just before reaching the ESSA Weather Bureau building. Turn left and go east on
a graveled road for 0.1 mile to the station on the right.
The station is the tip of a flat, triangular antenna mounted near the top and on
the south side of a 100-foot, 3-legged tower that is painted alternately red and

white. A temporary point was plumbed under the tip of the antenna and the station was occupied from the ground.

ADJUSTED HORIZONTAL CONTRO

NAME OF STATION:	TM	BORESIGHT	ANTENNA

STATE: HAWAII

YEAR: 1967

SECOND

SOUNCE: G-14044

GEODETIC LATITUDE:	22 °02 ′09 °8931 159 47 02 9873	SCALED	5	METERS FEET
GEODETIC LONGITUDE:				

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	×	v	9 IOR A BY ANGLE	
HI 4	5104	403,753.03	73,740.53	- 0° 36′ 24	

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\,\,\,$ 9 IOR Δ $\,\,$ 41 FORMULA NEGLECTING THE SECOND TERM.

ANE AZIMUTH HAS BEEN COMPUTED BY THE B TORKS STATION OF OBJECT	GEODETIC AZIMUTH (From senth)	PLANE AZIMUTH * (From south)	CODE
		• , *	

OF 585

*Refers to notes in manuals of triangulation and state publications of trianguion. † Direction-angle measured clockwise, referred to initial station. † The new-state meter only, when no trigonometric leveling is being done.

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM QUAD 221593 STATION 1111 HAWAII 22 ° 00' TO 22 ° 30' LONGITUDE 159 ° 30' TO 160 ° 00' DIAGRAM NF 4-6 KAUAI

TRAVERSE DESCRIPTION OF \$1 \$25.500 TRAVERSE TATION

NAME OF STATION: TN Target Board

FORM C&G5-525b (12-68) USCOMM-DC 36280-P65

CHIEF OF PARTY: P.C. Johnson YEAR: 1967 STATE: Hawaii

Kauai

Description, including sketch of object:0.15 mile southwest along an asphalt road from the Main Gate to Barking Sands Pacific Missile Range Facility; thence 0.2 mile southwest along the right fork, thence 0.1 mile east along a graveled road.

The station is a 4-foot square metal target, painted black and white and is 94 feet above the surface of the ground on a 3-legged red and white painted metal tower.

A traverse connection was made to triangulation station Thi Boresight Antenna. Distance being 2.1789 meters or (7.119) feet northwest of station Til Boresight Antenna.

U.S. DEPARTMENT OF COMMERCE

ADJUSTED HORIZONTAL CONTROL DATA

TM TARGET BOARD

HAWAII

1967

THIRD

-OBDER

G-14044 SOUND OBSERVATION CHECK ON THIS POSITION

22 "02 '09. 5636 GEODETIC I ATITUDE ELEVATION METERS 159 47 02.9942 GEODETIC LONGITUDE PEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	ж	٧	B OR A BI ANGLE
HI 4	5104	403,752.39	73,747.64	- ນິ06´24ັ

 ullet PLANE AZIMUTH HAS BEEN COMPUTED BY THE $_{ heta}$ FORMULA NEGLECTING THE SECOND TERM,

1 1			
TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (Fram south)	CODE
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POSITION DETERMINED BY TRAVERSE FROM STATION TM BORESIGT ANT

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM QUAD 221593 HAWAII

ADJUSTED HORIZONTAL CONTROL DATA

STATION 1112

LATITUDE 22 ° 00' TO 22 ° 30' LONGITUDE 159 ° 30' TO 160 ° 00'

DIAGRAM NF 4-6 KAUAI

TRAVERSE DESCRIPTION OF TRANSMISSION NAMED AND STATION

NAME OF STATION: USNHO Mark at HELO

CHIEF OF PARTY: W.S. Simmons Year: 1966 State: Hawaii

Description, including sketch of object:

15.5 miles north along State Highway 55 from the junction of State Highway 50 and 55 in Kekaha, thence 4.5 miles

west along an asphalt road. A traverse connection was made to triangulation station HELO, distance being (33.170 meters) 108.824 feet southeast. It is an U.S. Navy Hydrographic Office triangulation station disk set in a mass of plaster of Paris and rocks which is flush with the surface of the ground. It is 52 feet north of the center of the asphalt road.

U.S. DEPARTMENT OF COMMERCE

USNHO

1967

SECOND

G-134J3

NO OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE: 22 °07 '58, 7103 GEODETIC LONGITUDE. 25 °07 '58, 7103 GEODETIC LONGITUDE.	547.54 METERS 1796.4 PEET
--	------------------------------

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	×	Y	Ø IOR △ GI ANGLE	
4I 4	5134	423,727.56	138,906.07	- 0°05′06	

TO STATION OR OBJECT	GEODÉTIC AZIMUTH (From south)	PLANE AZIMUTH * (From mulb)	CODE
	0 , "	°	

POSITION DETERMINED BY TRAVERSE FROM STATION HELD

QF 526

FORM C&GS-525b (1-68)

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM

R

QUAD 221593 STATION 1113
HAWAII
LATITUDE Z2 ° 00' TO 22 ° 30'
LONGITUDE 159 ° 30' TO 160 ° 00'
DIAGRAM NF 4-6 KAUAI

Wainiha (Kauai Island, O. B. French, 1910).—In northwest Kauai, on the summit of the Wainiha Pali called Palikea, at the point where the "pali" turns sharply from a northeasterly direction to north, just above the power house. Station is in the middle of a small rounding bushy summit; there is another summit of same elevation 50 or 75 meters to the north which has a conspicuous tree on it. Approached down the "pali" from the east end of the Kaunuohua Ridge (Station Pali); very difficult. There is also said to be an old native trail leading up the "pali" from the power house. Station marked by bottle set in ground with neck flush with surface. Reference marks were set as follows: No. 1, lihue stump, 3 inches diameter, 2½ feet high, approximately west, 2.2 feet; No. 2, lihue stump, 3 inches diameter, 2½ feet high, approximately east, 2.7 feet.

NAME OF STATION: WAINIHA

ESTABLISHED BY: O.B.F. YEAR: 1910 STATE: Hawaii BENCH MARK(S) ALSO CALL

RECOVERED BY: D.M. Whipp YEAR: 1966 COUNTY: Kauai

ARRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: ISland: Kauai

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

Extensive digging was done but the bottle marking the station could not be found. Because of the isolated location it is unlikely that the station is destroyed. It would be difficult to attempt recovery of the point by angle check because of the almost continual cloud cover on the ridge.

The station peak was reached from the Wainiha Valley side, where a trail runs up a steep ridge about 1/2-mile north from the power station. Two days clearing is required to open trail along ridge line to station peak. A difficult, 6-hour pack after trail is cleared.

U.S. DEPARTMENT OF COMMERC

FORM C&G\$-526 (1-65) USC OMM-DC 18509-P65 ADJUSTED HORIZONTAL CONTROL DATA

AME OF STATION WAINIHA

IIAWAII

YEAR 1910

SECOND

00051

SOURCE: G-SP156

GEODETIC LATITUDE:	22 °11 ′14.812	ELEVATION:	983	METERS
GEODETIC LONGITUDE:	159 34 57.115	SCALED		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	×	Y	BION A BI ANGLE
1I 4	5104	472,076.05	128,645.65	- 0°01′52

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE |g| for Δ =1 formula neglecting the second term.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From sauth)	CODE
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HORIZONTAL CONTROL DATA

National Ocean Survey NORTH AMERICAN 1927 DATUM QUAD 221593

STATION 1114

HAWAII

22 ° 00' TO 22 ° 30' LATITUDE LONGITUDE 159 ° 30' TO 160 ° 00'

DIAGRAM NF 4-6 KAUAI

TRAVERSE DESCRIPTION OF THE MANUELLA DESCRIPTION STATION

Name of Station: Weather Vane 202

CHIEF OF PARTY: W.S. Simmons YEAR: 1966 STATE: Hawaii COUNTY: Kauai

Obscription, including sketch of object: 15.5 miles north along State Highway 55 from the junction of State Highway 50 and 55 in Kekaha, thence 5.1 miles west along an asphalt road.

A traverse connection was made to triangulation station MAKAW, distance being 9-149 meters, 30-020 feet east. The point traversed to was the center of a portable weather vane which is to be moved in

the near future.

FORM C&GS-525b (1-68)

U.S. DEPARTMENT OF COMMERCE

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WEATHER VANE 202

IIAWAH

YEAR 1966

THIRD

SOUND OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE:	22 °08 '17. 5319 159 43 52.2333	ELEVATION	METERS FEET
1		1	

		STATE COORDINATES (Feet)		
STATE & ZONE	CODE	×	F- •	# OR A 4) ANGLE
HI 4	5104	421,756.33	110,808.31	- 0°05′14°
		Device of the		

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	CODE
the factority seals			
	17		

POSITION DETERMINED BY TRAVERSE FROM STATION MAKAW

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM QUAD 221593 STATION 1115
HAWAII
LATITUDE 22 ° 00' TO 22 ° 30'
LONGITUDE 159 ° 30' TO 160 ° 00'
DIAGRAM NF 4-6 KAUAI

TRAVERSE DESCRIPTION OF TEXABLEMAN TRAVERSE STATION

Name of Station: Weather Vane 203

FORM C&G\$-525b (1-68)

CHIEF OF PARTY: W.S. Simmons Year: 1966 STATE: Hawaii County: Kau

Description, including sketch of object:

15.5 miles north along State Highway 55 from
the junction of State Highway 50 and 55 in Kekaha, thence 4.5 miles
west along an asphalt road.

west along an asphalt road.

A traverse connection was made to triangulation station HELO, distance being (30.224 meters), 99.160 feet southeast. The point traversed to a punch mark in the center of a portable weather vane.

G-13403

NAME OF STATION: WEATHER VANE 203

YEAR: 1567

THIRD

IRD

BOUNCE: G-13433 NO OBSERVATION CHECK ON THIS POSITION

SEODETIC LATITUDE:	22 °07 ′58.7545 159 43 31.3692	ELEVATION	METERS

ADJUSTED HORIZONTAL CONTROL DATA

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	×	¥	B OR A BI ANGLE	
HI 4	5104	423,715.10	108,910.55	- 0°05′06	

TO STATION OR OBJECT	GEODETIC AZIMUTH (Fram south)	PLANE AZIMUTH * (From south)	CODE
	. , .		
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			!

POSITION DETERMINED BY TRAVERSE FROM STATION HELD

HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM QUAD 221593 STATION 1116 HAWAII 22 ° 00' TO 22 ° 30' LONGITUDE 159 ° 30' TO 160 ° 00' DIAGRAM NF 4-6 KAUAI

Porm 525b (11-8-55)

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: Weather Vane 204

CHIEF OF PARTY: W.S. Simmons

YEAR: 1966 STATE: Hawaii

COUNTY: Kauai

Description, including sketch of object: 15.5 miles northerly along State Highway 55 from the junction with State Highway 50 at Kekaha, thence 2.85 miles westerly, downhill, along an asphelt road, thence 0.05 mile southwesterly along a track road.

The weather vane is mounted at the top of a 10-foot pole that is braced by an aluminum tripod. Point observed was the top and center of the pole.

Described b		

Comm-DC 34313

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WEATHER VANE 204

HAWAII

YEAR 1967

THIRD

ORDER

G-13403 NO OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE. GEODETIC LONGITUDE:	22 °07 '43. 9579 159 43 07. 4083	ELEVATION	METERS FEET

STATE COORDINATES (Feet)					
STATE & ZONE	CODE	×	Y	# OR A BI ANGLE	
HI 4	5104	425,965.77	107,414.14	- 0 04 57	
	1				

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE BORD 4 FORMULA NEGLECTING THE SECOND TERM

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	cop
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HORIZONTAL CONTROL DATA

by the National Ocean Survey NORTH AMERICAN 1927 DATUM QUAD 221593 STATION 1117 HAWAII 22 ° 00' TO 22 ° 30' LATITUDE LONGITUDE 159 ° 30' TO 160 ° 00' DIAGRAM NF 4-6 KAUAI

Wes (Kauai Island, F. G. Engle, 1927).—On north shore of Kauai, on west side of Hanalei Bay, on a knoll covered with grass and brush. Station is about 1½ miles northwest of the village of Hanalei, and is between the government highway and the coast. Marked according to note 4, a standard disk in bowlder. Reference marks, note 12c, standard reference disks in bowlders, were set at the following distances and azimuths from the station: No. 1, 3.54 meters (11.6 feet), 294° 36′; No. 2, 5.44 meters (17.8 feet), 335° 47′; No. 3, 6.42 meters (21.1 feet), 31° 25'. . . DEPARTMENT OF CUMERICE - COAST AND GROSTIC SURVEY

Porm 526 (11-8-55) RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: WES ESTABLISHED BY: F.G.E. YBAR: 1927 STATE: RECOVERED BY: D.M. Whipp YEAR: 1965 COUNTY: Kauai

Island: Kauai

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

Station mark and ref-

erence mark No. 1 have been destroyed by a wash; the station mark was found, set in a small boulder laying nearby. The reference mark was not found. Reference marks number 2 and 3 were recovered in good condition. Located on Makahoe Point on west side of Hanalei Bay, about 1-1/2 miles northwest of Hanalei, on open, grassy knoll about 65 yards east of point where the highway makes a hairpin left turn around point of ridge.

To each from the past office in Hanalei as northwest on State Mighway.

To reach from the post office in Hanalei go northwest on State Highway 56 for 2.1 miles to start of hairpin turn and end of truck travel. Pack east on trail through brush about 65 yards to top of knoll.

Reference mark number two is a standard disk stamped "WES 2 1927", cemented in a drill hole in a 6 x 8-inch rock projecting 1 inch. It is 6 feet south of the trail, 40 feet east of high point of knoll, and hidden by

Reference mark number three is a standard disk stamped "WES 3 1927", cemented in a drill hole in an 8-inch boulder projecting 2 inches. It is 7 7 feet south of the trail, 24 feet east of high point of knoll, and hidden by dense, small brush.

"Name of chief of party should be inserted here. The officer who actually visited the station should sign bis name at the Norm.—One of these farms must be used for every station recovered,

Comm-DC 343

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION

STATE HAWAII

YEAR 1927

THIRD

SOURCE G-SP156

GEODETIC LONGITUDE: 159 31 14-699 SCALED FEET	DECODETIC LATITUDE: 22 °13 '01. "083 DECODETIC LONGITUDE: 159 31 14.699	SCALED	30	METERS FEET
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STATE COORDINATES (Feet)						
STATE & ZONE	CODE	×	Ψ	# OR A BI ANGLE		
HI 4	5104	492,980.98	139,362.32	- 0 00 28		

PLANE AZIMUTH HAS BEEN COMPUTED BY THE $\, s\, \cos \Delta \, \, o \, \,$ Formula neglecting the second term

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