

JUN 1978
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 201564 STATION 1152
HAWAII
LATITUDE 20 ° 30' TO 21 ° 00'
LONGITUDE 156 ° 30' TO 157 ° 00'
DIAGRAM NF 4-16 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: **TURTONS MILL CHIMNEY**
STATE: **HAWAII** YEAR: **1912** **THIRD** ORDER

SOURCE: **G-SP156**

GEODETIC LATITUDE:	20 ° 52' 54.52	ELEVATION:	METERS
GEODETIC LONGITUDE:	156 40 43.76		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	ρ OR Δ OR ANGLE *
HI 2	5102	495,850.44	199,155.32	- 0 00 16

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE ρ OR Δ OR FORMULA NEGLECTING THE SECOND TERM

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

QD 014

JUN 1978
 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 201564 STATION 1153
 HAWAII
 LATITUDE 20 ° 30' TO 21 ° 00'
 LONGITUDE 156 ° 30' TO 157 ° 00'
 DIAGRAM NF 4-16 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: U
 STATE: HAWAII YEAR: 1912 THIRD ORDER
 SOURCE: G-SP136

GEODETIC LATITUDE:	20 ° 57' 00.22	ELEVATION:	305	METERS
GEODETIC LONGITUDE:	156 32 08.82	SCALED		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	β OR Δ ANGLE *
HI 2	5102	544,659.62	224,012.96	+ 0 02' 45"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE β OR Δ ° FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH * (From south)	CODE
QD 008			

JUN 1978
 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 201564 STATION 1154
 HAWAII
 LATITUDE 20 ° 30' TO 21 ° 00'
 LONGITUDE 156 ° 30' TO 157 ° 00'
 DIAGRAM NF 4-16 MAUI

SEE STATION KAEA

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: USLHS MARK NEAR KAEA

STATE: HAWAII

YEAR: 1962

SECOND

-ORDER

SOURCE: G-13124

NO OBSERVATION CHECK ON THIS POSITION

GEODETIC LATITUDE:	20 ° 44' 07.484	ELEVATION	23	METERS
GEODETIC LONGITUDE:	156 57 59.441	SCALED		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ OR Δ OR ANGLE*
HI 2	5102	397,542.41	146,127.61	- 0 06' 22"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ OR Δ FORMULA NEGLECTING THE SECOND TERM

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH* (From south)	CODE
POSITION DETERMINED BY TRAVERSE FROM STATION KAEA			
QF 375			

ATAC HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201504 STATION 1155
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

DEPARTMENT OF COMMERCE, RECOVERY NOTE, TRIANGULATION STATION. **R**
 U. S. GOVERNMENT PRINTING OFFICE, FORM 596.
 NAME OF STATION: WAIIEHU CHURCH BUFF SPIRE STATE: HAWAII COUNTY: MAUI
 ESTABLISHED BY: J. C. G. YEAR: 1912 LOCALITY: WAILUKU DISTRICT
 RECOVERED BY: K. T. ADAMS YEAR: 1929

Detailed statement as to the fitness of the original description: Buff spire of the Hawaiian Church in the village of Waiiehu, about 3 1/2 miles northwest of Kahului. The church is of masonry construction, and more than 40 years old.

This is apparently the same as "Buff Spire" located in 1912 as it is the only spire in the village.

NAME OF STATION: WAIIEHU CHURCH BUFF SPIRE
 STATE: HAWAII YEAR: 1912 THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE: <u>20° 55' 09.543</u>	ELEVATION: _____	METERS
GEODETIC LONGITUDE: <u>156° 30' 41.444</u>		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ ION Δ θ I ANGLE *
HI 2	510z	552,952.12	212,894.25	+ 0° 03' 19"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ ION Δ θ I FORMULA NEGLECTING THE SECOND TERM.

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

00 072

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1156
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

Waihee (Maui Island, J. C. Gauger, 1912).—In northwestern Maui, in Kaanapali District, on the summit of the most prominent hill in the ridge on the northwest side of Waihee Valley. Station may be reached by following any one of the first three ridges northwest of the Waihee stream. Pack animals can follow the cattle trails for nearly two-thirds of the distance up the hill, but the final climb is through an almost impenetrable growth of ferns, vines, and tropical growth. The station is on the northern shoulder of the summit about 10 meters back from the abrupt downward slope. Subsurface mark is a bottle set in concrete 2½ feet below the surface of ground. Surface mark is a 5-inch draitile pipe set flange down in a block of concrete and projecting 5 inches above surface. The pipe is filled with cement, and centered with a standard bronze station mark.

RECOVERY NOTE, TRIANGULATION STATION

R

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 FORM NO. 561
 (Rev. Feb. 1965)

NAME OF STATION: WAIHEE
 ESTABLISHED BY: J. C. Gauger YEAR: 1912 STATE: Hawaii
 RECOVERED BY: C. T. Husemeyer YEAR: 1950 COUNTY: Maui

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

The station was recovered, as described, in good condition. Pack animals can no longer be used on the lower slope of the station hill because of the heavy growth of jungle vegetation which has grown up since 1912. The building party spent 4 days clearing a trail to this station and 1 mere day in recovering the old station disk. Two reference marks were established. A new description follows.--

The station is located near the summit of a brush and fern covered hill, named Lanilili, which lies about 5 miles northwest of Wailuku, about 3.5 miles south of Kahakuloa, about 2.5 miles northeast of Eko Crater, about 1.5 miles west of (magnetic bearing 240) a Boy Scout Camp and on the crest of the long ridge which lies just north of the Waihee River. Ground of slightly higher elevation lies about 100 feet south of the station. The station is about 30 feet east of a cliff and a lone tree. A tangle of rotted ferns, about 3 feet deep, covers the hill and makes future recovery difficult.

To reach from the post office at Wailuku; go easterly, toward Kahului for one block; turn left, onto Market street, and go northwest and north for 3.6 miles; pass through the village of Waihee and continue northwesterly, toward Kahakuloa, for 3.2 miles; turn left, pass through a beard gate at a sign reading Boy Scout Camp, and go south and west for 1.1 miles to the Boy Scout Camp and the end of truck travel. From this point pack southwest for about 200 feet and go through a beard gate; follow a dim trail southwest, keeping to the left hand side of a small draw, for about 0.3 mile to the crest of the ridge which overlooks the Waihee River Canyon; bear right and follow the crest of the ridge, westerly, for about 1.0 mile to a small swampy meadow; bear right, cross over a small stream, and pack northwest for about 0.3 mile to the flat summit of a lower spur ridge; go to the left and follow the crest of the spur ridge, southwesterly, for about 0.3 mile to the summit of the hill and the station.

The station is a standard disk, unstamped, set in the top of a 5 inch tile pipe which is about flush with the surface of the ground.

Reference mark number 1 is a standard disk, stamped WAIHEE NO 1 1949, set in the top of a 3 inch concrete pipe which projects about 2 feet. It is located at about the same elevation as the station.

Reference mark number 2 is a standard disk, stamped WAIHEE NO 2 1949, set in the top of a 3 inch cast iron soil pipe which projects about 4 inches. It is located at about the same elevation as the station.

OBJECT	BEARING	FEET	METERS	DIRECTION
HONOLUA //				00 00 00 //
HAY 1912 //	SE //	4 miles //		193 39 12 //
R. M. No. 1 //	E //	14.926 //	4.550 //	214 27 00 //
R. M. No. 2 //	S //	19.002 //	5.793 //	288 22 41 //

(continued on next page)

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WAIHEE
 STATE: HAWAII YEAR: 1912 FIRST ORDER
 SOURCE: G- 9311

GEODETIC LATITUDE	20° 57' 00.794	ELEVATION	761.5 METERS
GEODETIC LONGITUDE	156 33 14.964		2563 FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	PLANE AZIMUTH ANGLE *
HI 2	5102	538,390.28	224,066.11	+ 0° 02' 25"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE P OR Δ P FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH* (From south)	PLANE AZIMUTH* (From south)	CODE
HONOLUA	103 06 47.5	103 04 23	5102

QE 350

JUN 1978
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 NATIONAL GEODETIC SURVEY
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1156

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

WAIHEE (continued)

FORM 325a
 (9-12-59)

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

R

NAME OF STATION: WAIHEE
 ESTABLISHED BY: J.C. Gauger YEAR: 1912 STATE: Hawaii
 RECOVERED BY: R.C. Munson YEAR: 1969 COUNTY: Maui
 Island: Maui

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	
DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION				
HONOLUA -----1950 DISTANCE				00 00 00.0
HAY 1912	SE	4 miles		193 09 12
R.M. No. 1	E	14.925	4.550	214 27 00
R.M. No. 2	S	19.002	5.793	288 22 41
-----1969 DISTANCE-----				
R.M. No. 1	E	14.920	4.548	
R.M. No. 2	S	18.980	5.786	

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

Station is located about 3 miles west-northwest of Waihee and 1 mile southwest of Maluhia Camp, on a brushy hill of about 2563 feet elevation, named Lanillili.

To reach station from the junction of Main and Market Streets in Wailuku, go north on Market Street, continuing on State Highway 33, for 3.6

miles to Waihee Village; continue on the highway for 3.1 miles to sign on left "CAMP MALUHIA". Follow macadam drive left for 0.75 mile to locked chain gate; pass through gate and continue for 0.2 mile to second gate. Pass through gate and keep ahead past houses, for 50 yards, to fork. Take left fork and go 0.05 mile to board gate to right of 2 water tanks. Pass through gate and go up steep grade (with 4-wheel-drive) for 0.15 mile to end of truck travel at a right curve, in guava trees. Pack south up trail about 1/4-mile to pali, then go right, following along ridge line about 1 mile to small meadow, go right across meadow, and up other side, about 1/4-mile, to top and station. NOTE: Key for locked gates was obtained at Camp caretaker's house. A 3-hr. pack if trail is open; it soon becomes overgrown with uluhi fern.

Station mark is a standard disk, unstamped, set in the top of a concrete-filled, 7-inch-diameter, sewer pipe that projects 2 inches from ground. It is near the northeast end of the long, narrow, top of the hill, 20 feet southeast of the cliff and 30 feet southeast of a small, lone tree that sets on steep side of the hill.

Reference mark number one is a standard disk stamped "WAIHEE NO 1 1949" set in the top of a 3-inch-diameter, concrete-filled pipe that projects 2 feet from ground. It is at about same elevation as station mark.

Reference mark number two is a standard disk stamped "WAIHEE NO 2 1949" set in the top of a 2-inch iron pipe that projects 4 inches from ground and is about 4 inches higher than station mark.

*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 37178-P88

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1157
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

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

NAME OF STATION: WAIHEE CHURCH YELLOW SPIRE STATE: HAWAII COUNTY: MAUI
 ESTABLISHED BY: L. C. G. YEAR: 1912 LOCALITY: WAILUKU DISTRICT
 RECOVERED BY: K. T. ADAMS YEAR: 1922

Detailed statement as to the fitness of the original description: The spire of the Hawaiian Church in the village of Waihee, about 4 miles N.W. of Kahului. The church is of masonry construction, more than 40 or 50 years old.

GOVERNMENT PRINTING OFFICE

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

11-7002

NAME OF STATION: WAIHEE CHURCH YELLOW SPIRE

STATE: HAWAII

YEAR: 1912

THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE:	<u>20° 56' 12.250</u>	ELEVATION:	
GEODETIC LONGITUDE:	<u>156 30 58.994</u>	METERS FEET	

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	β OR Δ OR ANGLE *
<u>HI 2</u>	<u>5102</u>	<u>551,282.46</u>	<u>219,178.96</u>	<u>+ 0 03 13</u>

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE β OR Δ OR α FORMULA NEGLECTING THE SECOND TERM.

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

QD 073

JUN 1978
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 201564 STATION 1158
HAWAII
LATITUDE 20° 30' TO 21° 00'
LONGITUDE 156° 30' TO 157° 00'
DIAGRAM NF 4-16 MAUI

ADJUSTED HORIZONTAL CONTROL DATA

NO ORIGINAL TEXT

DEPARTMENT OF COMMERCE, U. S. NAVY AND AIR FORCE SURVEY, FORM 505. RECOVERY NOTE, TRIANGULATION STATION. **R**

NAME OF STATION: WAIHEE MILL STACK STATE: HAWAII COUNTY: MAUI
ESTABLISHED BY: J. C. G. YEAR: 1912 LOCALITY: WAILUKU DISTRICT
RECOVERED BY: K. T. ADAMS YEAR: 1929

Detailed statement as to the fitness of the original description: The masonry stack still exists in the village of Waihee, about 4 miles northwest of Kahului Harbor, but the mill has been abandoned and only parts of the walls remain. This is the property of the Wailuku Sugar Company.

This apparently the same as "Waihee Chimney".

UNCLASSIFIED PORTION ONLY

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

11-7888

NAME OF STATION WAIHEE MILL STACK
STATE HAWAII YEAR 1912 THIRD ORDER

SOURCE G-SP156

GEODETIC LATITUDE: <u>20° 56' 02.194</u>	ELEVATION: METERS
GEODETIC LONGITUDE: <u>156° 30' 46.990</u>	FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ OR Δ OR ANGLE*
HI 2	5102	552,421.30	218,165.46	+ 0 03 18

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ OR θ' FORMULA NEGLECTING THE SECOND TERM.

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

QD 074

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1159
 HAWAII
 LATITUDE 20 ° 30' TO 21 ° 00'
 LONGITUDE 156 ° 30' TO 157 ° 00'
 DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

DEPARTMENT OF COMMERCE, U. S. OCEAN AND ATMOSPHERIC SURVEY, FORM 508, RECOVERY NOTE, TRIANGULATION STATION.

R

NAME OF STATION: WAIKAPU CHURCH STATE: HAWAII COUNTY: MAUI

ESTABLISHED BY: P. W. P. YEAR: 1899 LOCALITY: WAILUKU DISTRICT

RECOVERED BY: K. T. ADAMS YEAR: 1929

Detailed statement as to the fitness of the original description: The old Hawaiian Church in the village of Waiikapu about 3/4 miles southwest of Kahului Harbor. The church is more than 50 years old.

DEPARTMENT PRINTING OFFICE NOTE.—One of these forms must be used for every station recovered. 11-7283

NAME OF STATION: WAIKAPU CHURCH

STATE: HAWAII YEAR: 1899 ORDER: THIRD

SOURCE: G-SP156

GEODETIC LATITUDE:	<u>20 ° 51' 38.091</u>	ELEVATION:	METERS
GEODETIC LONGITUDE:	<u>156 30 44.102</u>		FEET

STATE COORDINATES (Eeri)				
STATE & ZONE	CODE	X	Y	φ OR Δ or ANGLE °
<u>HI 2</u>	<u>5102</u>	<u>552,720.68</u>	<u>191,519.89</u>	<u>+ 0 ° 03' 18"</u>

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE φ OR Δ or ANGLE 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

QUAD 201564 STATION 1160
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 Form 822
 Rev. Aug. 1965

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: WAIKULU 2 STATE: Hawaii COUNTY: Maui
 CHIEF OF PARTY: C. T. Hensmeyer YEAR: 1950 Described by: C. J. Hoepfel

NOTE	HEIGHT OF TELESCOPE ABOVE STATION MARK METERS	HEIGHT OF LIGHT ABOVE STATION MARK METERS	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION			
Type	Surface-station mark	Underground-station mark	OBJECT	BEARING	DISTANCE feet meters	DIRECTION: ° ' "
		1.48				
			LANINI (HGS) 1950			00 00 00
pipe	R. M. No. 1		WNW	18.242	5.560	84 23 53
pipe	Survey mark		WN	16.250	4.954	100 07 01
pipe	R. M. No. 2		WNW	25.110	7.655	167 14 33

The station is located on the summit of a low, brush covered, knoll which lies, in pasture land, about 7 miles northeast of Lahaina, about 4.5 miles south of Lipoa Point, about 3.5 miles east of Lahinahina Point, about 0.15 mile south of a track road and 75 feet northeast of a wire fence.

To reach from the Courthouse in Lahaina; go northwest, on the road which leads toward Honolulu, for 9.0 miles; turn right, onto a dirt road, and go easterly through the pineapple fields, for 1.15 miles; pass to the right hand side of a small shack and continue, easterly, for 0.65 mile; turn left and go northerly for 0.45 mile; turn right, onto a dim track road, and follow up grade for 0.35 mile; pass through a board gate and continue up grade for 0.5 mile to a board gate on the right; turn left

and follow the cleared road, easterly, for 0.5 mile to the crest of a low ridge; turn right and go southwest, across country, for 0.15 mile to the summit of the low knoll and the station.

The station is a standard disk, stamped WAIKULU 2 1950, brazed to the top of a 2 1/2 inch iron pipe which projects about 1 foot.

Reference mark number 1 is a standard disk, stamped WAIKULU NO 1 1950, brazed to the top of a 2 1/2 inch iron pipe which projects about 1 foot. It is located at about the same elevation as the station.

Reference mark number 2 is a standard disk, stamped WAIKULU NO 2 1950, brazed to the top of a 2 1/2 inch iron pipe which projects about 1 foot. It is located at about the same elevation as the station.

The Survey Mark is the top and center of a 2 1/2 inch iron pipe which projects about 1 foot. It is located at about the same elevation as the station.

* Refer 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.
 16-58282-1 U. S. GOVERNMENT PRINTING OFFICE

(continued on next page)

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WAIKULU 2
 STATE: HAWAII YEAR: 1950 FIRST ORDER

SOURCE: G- 9311

GEODETIC LATITUDE: 20° 58' 01.961	ELEVATION: 434.3 METERS
GEODETIC LONGITUDE: 156° 38' 09.776	1425 FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	ϕ OR Δ OR ANGLE °
HI 2	5102	510,446.11	230,224.91	+ 0° 00' 39"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE ϕ OR Δ FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	CODE
MANINI	23 01 18.5	23 00 39	5102

QE 361

JUN 1978
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY, NATIONAL GEODETIC SURVEY

HORIZONTAL CONTROL DATA

by the
 NATIONAL GEODETIC SURVEY
 OLD HAWAIIAN DATUM

QUAD 201564

STATION 1160

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

WAIKULU 2 (continued)

FORM 524a
 10-10-58

U.S. DEPARTMENT OF COMMERCE
 COAST AND GEODETIC SURVEY

R

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: **WAIKULU 2**
 ESTABLISHED BY: **C.T. Husemeyer** YEAR: **1950** STATE: **Hawaii**
 RECOVERED BY: **R.C. Munson** YEAR: **1969** COUNTY: **Maui**
 Island: **Maui**

HEIGHT OF TELESCOPE ABOVE STATION MARK **1.5** METERS. HEIGHT OF LIGHT ABOVE STATION MARK METERS.
 DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	
MANINI (HGS) 1882-----1950	DISTANCE and DIRECTION-----	00	00	00.0
R.M. No. 1	WNW	18.242	5.560	84 23 53
Survey mark	NW	16.250	4.954	100 07 01
R.M. No. 2	NNE	25.110	7.655	167 14 33
MANINI (HGS) 1882-----1969	DISTANCE and DIRECTION-----	00	00	00.0
R.M. No. 1	WNW	18.233	5.558	84 23 13
Survey pipe	WNW	16.254	4.955	100 07 53
Haweia Point Light 1912	NW			118 23 46.2
R.M. No. 2	NNE	25.097	7.650	167 08 40

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

Station is located about 6-3/4 miles north-northeast of Lahaina and 3 miles east-northeast of the sea-coast, near the upper end of the pineapple fields, on a rounded, grassy hill of about 1425 feet elevation, along the northeast side of Kaopala Gulch.

To reach station from the post office in Lahaina, go northeast on Papalaua Street for 0.2 mile; turn left and go northerly on State Highway 30 for 7.0 miles to side road right, at power pole No. 67. Go right for 50 yards to private pineapple field crossroad; continue ahead, keeping along right side of pineapple fields, for 3.2 miles to top of grade at edge of pineapple field. Turn right and go 0.05 mile to station in grassy area.

Station mark is a standard disk stamped "WAIKULU 2 1950", brazed to the top of a 2-1/2-inch iron pipe that projects 10 inches from ground. It is about 600 feet west-northwest from the upper boundary fence of the pineapple land, 75 yards southwest of edge of pineapple field, and 3 feet northwest of a white witness post.

Reference mark number one is a standard disk stamped "WAIKULU 2 NO 1 1950", brazed to the top of a 2-1/2-inch iron pipe that projects 10 inches from ground. It is 5.1 feet south of the Survey pipe and 14 inches lower than station mark.

Reference mark number two is a standard disk stamped "WAIKULU 2 NO 2 1950", brazed to the top of a 2-1/2-inch iron pipe that projects 12 inches from ground and is at about same elevation as station mark.

Survey pipe is a badly-rusted, 2-3/4-inch iron pipe, projecting 2 feet from ground, and is at about same elevation as station mark.

*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.

USCGM-OC 27173-P89

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1161
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 FORM 515
 Rev. Aug. 1968

RECOVERY OF TRIANGULATION STATION

NAME OF STATION: WAILUKU STATE: Hawaii COUNTY: Maui

CHIEF OF PARTY: G.T. Husemeyer YEAR: 1950 Described by: G.B.G.

NOTE*	HEIGHT OF TELESCOPE ABOVE STATION MARK METERS.†	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION		HEIGHT OF LIGHT ABOVE STATION MARK METERS.
		OBJECT	DIRECTION‡	
	Surface-station mark, Underground-station mark	BEARING	DISTANCE feet meters	

Located on the north coast of Central Maui, Wailuku District, about 1 mile, airline, north of the town of Wailuku, on the highest point on the range of sand hills east of the Wailuku-Waihee Road, about 1200 feet north of angle in Puuohala Road.

Station was established in 1907 by S.M. Kakanui, and marked with a 2½ inch galvanized pipe set in sandstone rock with 6 inches projecting above the surface. It was remarked in 1929 by V.S. Seward with a ¾ inch galvanized pipe set in concrete pier. Top of pier five inches below surface of ground and covered with one inch of soil. Over which was built a type B Hawaii Tressitory Survey Monument. The center of the pipe target holder was used as the station.

To reach from the intersection of Main and Market Streets in Wailuku: go north on Market Street toward Waihee for 1.0 mile, turn right on plantation road and go 0.05 miles, turn left and go 0.1 mile. From here pack east up slope to top of ridge and station.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: WAILUKU
 ESTABLISHED BY: S.M.K. YEAR: 1907 STATE: Hawaii BENCH MARK(S) ALSO
 RECOVERED BY: R.C. Munson YEAR: 1968 COUNTY: Maui
 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: Island: Maui

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

Station was recovered in good condition. Located about 1 mile north of Wailuku, 1500 feet north-northeast of Mill Reservoir, 400 feet east of Kahekili Highway, and on the highest point of the sand hills along the east side of Kahekili Highway, at about 327 feet elevation.

To reach station from the intersection of Main and Market Streets in Wailuku, go north on Market St. for 0.5 mile to crossroad in Happy Valley; continue ahead, on Kahekili Highway, for 0.45 mile to crossroad. Turn right and go 0.05 mile to crossroad; turn left and go north along base of hills for 0.15 mile to end of truck travel. Pack uphill about 150 yards to top and station.

Station is marked by a Type B signal, with the 6 x 6-foot, concrete platform flush with ground. A red and white metal target extends 8 feet above platform. Station is the center of the 2-1/2-inch iron pipe which holds the target.

NAME OF STATION: WAILUKU
 STATE: HAWAII YEAR: 1907 THIRD ORDER

SOURCE: G- 9311

GEODETIC LATITUDE	20° 54' 18.991	ELEVATION	59.7 METERS
GEODETIC LONGITUDE	156° 30' 15.627		327 FEET

STATE COORDINATES (feet)				
STATE & ZONE	CODE	X	Y	θ OR Δ θ † ANGLE †
HI 2	5102	555,404.82	207,756.02	+ 0° 05' 29"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ θ † FORMULA NEGLECTING THE SECOND TERM.

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

JUN 1978
 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 201564 STATION 1162
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: MAILUKU CHIMNEY
 STATE: HAWAII YEAR: 1912 THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE:	20° 53' 36.19"	ELEVATION:	METERS
GEODETIC LONGITUDE:	156 30 21.60		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ OR Δ ANGLE*
HI 2	5102	554,842.84	203,437.18	+ 0° 03' 26"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ FORMULA NEGLECTING THE SECOND TERM.

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

QD 071

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1163
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 Form 538

RECOVERY NOTE, TRIANGULATION STATION.

NAME OF STATION: **WAILUKU CO. MILL STACK** STATE: **HAWAII** COUNTY: **MAUI**

ESTABLISHED BY: **J.C.G.** YEAR: **1912** LOCALITY: **WAILUKU DISTRICT**

RECOVERED BY: **K.T. ADAMS** YEAR: **1929**

Detailed statement as to the fitness of the original description: **At DISAPPEAR AN ALUMINUM colored smoke stack about 150 feet high of the Wailuku Sugar Mill in the town of Wailuku, built in 1901.**

NAME OF STATION: **WAILUKU CO MILL STACK**

STATE: **HAWAII** YEAR: **1912** ORDER: **THIRD**

SOURCE: **G- 9311**

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 Form 538 b

RECOVERY OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: **WAILUKU SUGAR CO. MILL, STACK** YEAR: **1950** STATE: **HAWAII** COUNTY: **MAUI**

CHIEF OF PARTY: **C. J. Hucseyer**

Description, including sketch of object:
 The station is the top and center of a steel smoke stack at the Wailuku Sugar Company Mill in the town of Wailuku. It is painted black, is about 8 feet in diameter and 165 feet in height. It is located on the westerly side of the boiler house and mill and rests on a concrete base which is 20 by 20 feet. Company engineers report that the stack was erected about the year of 1900.

GEODETIC LATITUDE: 20° 53' 52.93	ELEVATION:	METERS
GEODETIC LONGITUDE: 156° 30' 05.23		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ OR Δ ° ANGLE °
HI 2	5102	556,353.28	205,127.68	+ 0° 03' 32"

U. S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY
 (11-8-55)

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: **Wailuku Sugar Co., Mill Stack**

ESTABLISHED BY: **J.C.G.** YEAR: **1912** STATE: **HAWAII**

RECOVERED BY: **W.R.P.** YEAR: **1960** COUNTY: **MAUI**

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:
 The station was recovered in good condition as described by C.T.H. in 1950 except that the stack is now aluminum colored with black paint on the top 10 feet.

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ ° FORMULA NEGLECTING THE SECOND TERM.

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

RECOVERY NOTE, TRIANGULATION STATION INTERSECTION

NAME OF STATION: **Wailuku Sugar Company Mill, stack**

ESTABLISHED BY: **J.C.G.** YEAR: **1912** STATE: **HAWAII** BENCH MARK(S) ALSO

RECOVERED BY: **R.C. Munson** YEAR: **1969** COUNTY: **MAUI**

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: **Island: Maui**

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:
 Station was recovered. It is the tall, black stack, located at the Wailuku Sugar Co. Mill in Wailuku.

QE 424

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1164
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

NO ORIGINAL TEXT

ADJUSTED HORIZONTAL CONTROL DATA

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 FORM 535b

RECOVERY NOTE, TRIANGULATION STATION. **R**

NAME OF STATION: WAILUKU KAAHUMANU CHURCH SPIRE
 STATE: HAWAII COUNTY: MAUI
 ESTABLISHED BY: F.W.P. YEAR: 1899 LOCALITY: WAILUKU DISTRICT
 RECOVERED BY: K.T. ADAMS YEAR: 1929

Detailed statement as to the fitness of the original description: This is the spire of the Kaahumanu Church, Hawaiian Church in the town of Wailuku. The church and spire are light buff in color and the spire is trimmed in red giving the appearance of red and white from a distance. The spire is capped with a half ball from which a short plain gale projects. A clock is set in the square base of the spire. The church is the most prominent object in the town of Wailuku, when viewed from the vicinity of Kahului Harbor. The present church is more than 50 years old.

NAME OF STATION: WAILUKU KAAHUMANU CH SPIRE
 STATE: HAWAII YEAR: 1899 THIRD - ORDER
 SOURCE: G-5311

GEODETIC LATITUDE	20° 55' 21.433	ELEVATION:	METERS
GEODETIC LONGITUDE	156° 30' 28.744		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ 10N Δ θ' ANGLE*
HI 2	5102	554,166.92	201,947.65	+ 0° 05' 24"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ 10N Δ θ' FORMULA NEGLECTING THE SECOND TERM.

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

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 FORM 535b

RECOVERY OF TRIANGULATION INTERSECTION STATION **R**

NAME OF STATION: WAILUKU, KAAHUMANU CHURCH, SPIRE
 YEAR: 1950 STATE: Hawaii COUNTY: Maui
 CHIEF OF PARTY: C. T. Husemeyer

Description, including sketch of object:
 The station is the top and center of the sharp spire on the roof of the Kaahumanu Church in the town of Wailuku. The church lies on the westerly side of High Street between Lain and Wells Streets.
 The steeple is constructed of wood, has a clock in its belfry, and rises from the easterly end of the church roof. It is 106 feet in height.

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

NAME OF STATION: Wailuku, Kaahumanu Church, Spire
 ESTABLISHED BY: F.W.P. YEAR: 1899 STATE: Hawaii
 RECOVERED BY: W.R.P. YEAR: 1960 COUNTY: Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:
 The station was recovered in good condition as described. It is the most prominent object in the town of Wailuku and is now painted green and white.

RECOVERY NOTE, TRIANGULATION STATION INTERSECTION **R**

NAME OF STATION: Wailuku, Kaahumanu Church, spire
 ESTABLISHED BY: F.W.P. YEAR: 1899 STATE: Hawaii BENCH MARK(S) ALSO
 RECOVERED BY: R.C. Munson YEAR: 1968 COUNTY: Maui
 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: Island: Maui

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:
 Station was recovered. Located in Wailuku at junction of Wells and High Streets, across High Street from the post office. Station is a tall, slim, octagon, white and green spire with wind arrow on top.
 (J.V.D., 1978)--The station was recovered in good condition as described.

QE 403

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1165
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 Form 855
 Rev. Aug. 1962

DESCRIPTION OF TRIANGULATION STATION

NAME OF PARTY: WAWAEKU		STATE: Hawaii	COUNTY: Maui
CHIEF OF PARTY: Harold J. Seaborg		YEAR: 1962	Island: Lanai
HEIGHT OF TELESCOPE ABOVE STATION MARK 1.47 METERS.†		Described by: R.F. Hanson	
NOTE*	HEIGHT OF LIGHT ABOVE STATION MARK METERS.		
Surface-station mark, UNDERGROUND-STATION MARK DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION			
	OBJECT	BEARING	DISTANCE feet meters
12c	MUNRO		
	R.M. No. 2	WNW	70.28 21.423
12c	R.M. No. 1	NNE	19.40 5.912
			00 00 00.0 58 27 12 154 22 27

Station is located about 3-1/2 miles airline northeast of Lanai City and 2 miles southwest of Imao Point, on the summit of Wawaeku Mountain, a prominent, bare hill of about 1230 feet elevation that rises above the grassy slopes which run up to the southwest from the northeast coast of the island.

To reach station from the post office in Lanai City, go northerly on Highway 44 for 8.6 miles to end of paved road at sign "SHIPWRECK BEACH". Continue on dirt road, Highway 44, for 1.35 miles to gate on right. Continue ahead for 0.45 mile to fork just after rounding sharp right curve. Take right fork, straight ahead, leaving main road and going southwest up draw, for 0.1 mile to edge of trees. Continue southwest on track road up along open slopes for 2.0 miles to end of hill. Bear left along rim of hill for 0.05 mile, then go down across saddle and up north side of hill, a distance of 0.15 mile, to top of hill and station.

Station mark is a standard disk stamped "WAWAEKU 1962", braced to the top of a 1-1/2-inch iron pipe that is set in cement and projects 5 inches above ground. It is on the east one of two knolls about 60 feet apart and at about the same elevation, which comprise the top of the mountain, and is 59 feet east-southeast of a cairn on the west knoll.

Reference mark number one is a standard disk stamped "WAWAEKU NO 1 1962", cemented in a drill hole in a 1 x 2-1/2-foot boulder that projects about 1 foot above ground. It is about 2 feet lower than the station mark.

Reference mark number two is a standard disk stamped "WAWAEKU NO 2 1962", cemented in a drill hole in a 2 x 3-foot, oval-shaped boulder that projects about 8 inches above ground. It is 21.5 feet northwest of the cairn, 4 feet lower than the station mark and on the north side of a large boulder that extends about 2 feet higher than the mark.

Station LAE will serve as the azimuth mark.

NOTE: A 4-wheel-drive vehicle is required to drive to station.

* Refer to notes in manuals of triangulation and state publications of triangulation.
 † To nearest meter only, when no trigonometric leveling is being done.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: **WAWAEKU**
 STATE: **HAWAII** YEAR: **1962** SECOND ORDER

SOURCE: **G-13124**

GEODETIC LATITUDE: 20° 51' 53.672	ELEVATION: 574.2 METERS
GEODETIC LONGITUDE: 156° 52' 58.783	1228 FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	δ DR Δ δ' ANGLE
HI 2	5102	426,143.23	193,116.24	- 0 04 37

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE δ DR Δ δ' FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH* (From south)	CODE
MUNRO	42 51 25.8	42 56 03	5102

QF 555

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1166
 HAWAII
 LATITUDE 20 ° 30' TO 21 ° 00'
 LONGITUDE 156 ° 30' TO 157 ° 00'
 DIAGRAM NF 4-16 MAUI

ADJUSTED HORIZONTAL CONTROL DATA

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 FORM 535
 Rev. Aug. 1963

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: **WEST POINT** STATE: **HAWAII** COUNTY: **MAUI**

CHIEF OF PARTY: **A. L. WARDWELL** YEAR: **1963** Described by: **J. G. L.**

NOTE*	HEIGHT OF TELESCOPE ABOVE STATION MARK METERS.†	HIGHLY OF LIGHT ABOVE STATION MARK METERS.	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION		
			DISTANCE		DIRECTION †
			feet	meters	D / S
	Surface-station mark, Underground-station mark				

The station is located on the West side of the crescent shaped volcanic cone known as Molekiki Island, in the southwest corner of a block of concrete used as a base for a derrick, about 15 meters south of the Northwest tip of the island, and 105 meters Northwest of the east end of a concrete groin. It is a standard triangulation disk stamped "WEST POINT 1963", set in concrete in a drill hole in a block of concrete.

Detailed descriptions

NAME OF STATION: **WEST POINT**
 STATE: **HAWAII** YEAR: **1963** THIRD ORDER

SOURCE: **G-12955**

GEODETIC LATITUDE:	20 ° 38' 09.185	ELEVATION	8 METERS
GEODETIC LONGITUDE:	156 30 05.504	SCALED	FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	β OR Δ † ANGLE °
HI 2	5102	550,483.00	109,912.95	+ 0 03' 30"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE β OR Δ † FORMULA NEGLECTING THE SECOND TERM.

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

JUN 1978
 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 201564 STATION 1167
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WET
 STATE: HAWAII YEAR: 1904 THIRD ORDER

SOURCE: G-SP156

GEODETTIC LATITUDE	20 34 57.294	ELEVATION:	METERS
GEODETTIC LONGITUDE	156 37 35.752		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ FOR Δ ANGLE *
HI 2	5102	513,705.27	90,526.41	+ 0° 00' 51"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ FOR Δ ANGLE FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETTIC AZIMUTH (From 10000)	PLANE AZIMUTH * (From 10000)	CODE

90 214

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1168
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

DESCRIPTION OF TRIANGULATION STATION

DEPARTMENT OF COMMERCE
 U. S. COAST AND GEODETIC SURVEY
 Form 525
 Rev. Aug. 1948

NAME OF STATION: WET 2

STATE: HAWAII

COUNTY: MAUI

CHIEF OF PARTY: H. J. S.

YEAR: 1963

Described by: R. K. H.

NOTE*	HEIGHT OF TELESCOPE ABOVE STATION MARK METERS.1	HEIGHT OF LIGHT ABOVE STATION MARK METERS.	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION			
			BEARING	DISTANCE		DIRECTION †
2	Surface-station mark			feet	meters	
12c	LOW ₂ 1963 (on Mt. Iua Kealialuna)	E	46.39	14.140	5800	0 00 00.0
	RM 1	SE		4100	1 33 00	
12a	KAHOOLAWE ₂ 1963 (on Mt. Moaula)	S	26.91	8.203	122 32 36	10.8
	RM 2	SW		4100	138 30 04.1	
	COB ₂ 1963 (on prominent knoll)	SW		4200	166 07 13.1	
	MAKA 1963 (on Makaanalae Point)					

Station is located on a small point on the north shore of Kahoolawe Island. The station is 1300 meters northeast of Ahupu Bay, 2200 meters southwest of Kueha Bay, and 400 meters northeast of the bottom of Kaukamoku Gulch. The mark is located 60 feet south of and 30 feet above the HWL on the edge of a rocky knoll about 50 feet inland from the top of the 20 foot bluff forming the general shoreline on this point. WET₂ is located 109.6 feet southeast of former station WET which is located on the extreme part of the point, 10 feet from the edge of the bluff, and marked by a pole supported by a pile of rocks.

Station mark is stamped WET₂ 1963, and set with concrete in a drill hole in

a patch of exposed bedrock 4 feet in diameter and level with surrounding ground. No underground or witness marks were established.

Reference mark 1 is a standard disc stamped WET₂ 1963 NO 1 set with concrete in a drill hole in a large rock on the edge of the same knoll approximately level with the station.

Reference mark 2 is a standard disc stamped WET₂ 1963 NO 2. The mark is directly inland of the station and set with concrete in bedrock level with surrounding ground and approximately level with the station.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WET 2

STATE: HAWAII

YEAR: 1963

SECOND

SOURCE: G-13245

GEODETIC LATITUDE: 20° 34' 57.1030	ELEVATION: 16.0 METERS
GEODETIC LONGITUDE: 156° 37' 34.7068	52 FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	β OR Δ #1 ANGLE
HI 2	5102	513,804.58	90,507.16	+ 0 00 51

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE β OR Δ #1 FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	CODE
LOW 2	255 40 55.1	255 40 04	5102

QF 410

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1169
 HAWAII
 LATITUDE 20° 30' TO 21° 30'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

Wind (Lanai Island, F. G. Engle, 1927).—On western coast of Lanai, on nub of earth and large rocks which projects sharply from the hillside. It is a little below the bluff-line, and is reached by walking southeast from station *Gale*. (See description of *Gale*.) It is not visible from *Gale*. Marked according to note 5, standard disk in concrete in boulder. Two reference marks, note 12c, standard reference disks in concrete in boulders, were set at the following distances and azimuths from the station: No. 1, 2.87 meters (9.42 feet), 227° 44'; No. 2, 2.493 meters (8.18 feet), 111° 14'.

(11-8-55)

RECOVERY NOTE. TRIANGULATION STATION

R

NAME OF STATION: WIND
 ESTABLISHED BY: F.G.E. YEAR: 1927 STATE: Hawaii
 RECOVERED BY: H.J. Seaborg YEAR: 1962 COUNTY: Maui

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

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

Station is located about 5 miles airline northwest of Lanai City, on a small rocky knoll that sets a few yards southeast of and slightly lower, than the southeast end of the bare, red mesa.

To reach station from the post office in Lanai City, go northwest 0.05 mile; turn left and go 0.15 mile; turn right and go 0.5 mile to end of paved road. Continue on graded road for 0.8 mile to crossroad. Turn right and follow main road through pine - apple fields for 3.1 miles to end of fields. Continue on dirt road for 0.95 mile to fork. Take right fork through ironwood trees for 0.75 mile to dim left fork. Take left fork and go 0.15 mile to dim right fork just after passing a rain-trap. Take right fork and follow winding road across red, eroded area for 1.25 miles to station.

Station mark is a standard disk stamped "WIND 1927", cemented in a drill hole in a boulder on north side of knoll.

Reference mark number one is a standard disk stamped "WIND 1927", cemented in a drill hole in a boulder.

Reference mark number two is a standard disk stamped "WIND 1927", cemented in a drill hole in a boulder.

* 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.

COM-DC

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION WIND
 STATE HAWAII YEAR 1927 THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE	20° 52' 04.089	ELEVATION	533	METERS
GEODETIC LONGITUDE	156° 59' 36.670	SCALED		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	BORDER ANGLE
HI 2	5102	388,411.04	194,230.94	- 0° 06' 59"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE "10N Δ 01" FORMULA NEGLECTING THE SECOND TERM.

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

Q1 614

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1170
 HAWAII
 LATITUDE 20 ° 30' TO 21 ° 00'
 LONGITUDE 156 ° 30' TO 157 ° 00'
 DIAGRAM NF 4-16 MAUI

NO TEXT

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WRECK
 STATE: HAWAII YEAR: 1900 THIRD ORDER

SOURCE: G-SP156

GEODETIC LATITUDE:	20 ° 53' 07.262	ELEVATION:	METERS
GEODETIC LONGITUDE:	156 41 34.052		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ OR Δ OR ANGLE*
HI 2	5102	451,081.69	200,491.90	- 0 00 34

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ OR Δ OR Δ FORMULA NEGLECTING THE SECOND TERM.

TO STATION OR OBJECT	GEODETIC AZIMUTH (From 1901b)	PLANE AZIMUTH* (From 1901b)	CODE

QD 019

HORIZONTAL CONTROL DATA

by the
 National Ocean Survey
 OLD HAWAIIAN DATUM

QUAD 201564 STATION 1171
 HAWAII
 LATITUDE 20° 30' TO 21° 00'
 LONGITUDE 156° 30' TO 157° 00'
 DIAGRAM NF 4-16 MAUI

WRECK (Maui County, Hawaii, O.W.S., 1931)--Station is the highest point of an old partly submerged wrecked ship. It is located on the N side of Lanai Island about 1 mi. W of Light Tower. Just E of the station, there is a small break in the coral reef fringing the shore.

This is an intersection station.

(11-8-65)

RECOVERY NOTE, ~~TRANSFORMATION~~ STATION
 INTERSECTION **R**

NAME OF STATION: Wreck

ESTABLISHED BY: O.W.S. YEAR: 1931 STATE: Hawaii

RECOVERED BY: H.J. Seaborg YEAR: 1962 COUNTY: Maui

Island: Lanai

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

A section of an old wreck is visible in the approximate location of the station. It appears to be a section of one side of a ship and projects only a few feet above water.

A later wreck, a large, grey transport ship that appears to be a World War II type, lays about 1/4 mile east. See description for that intersection 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.

COMB-DC 34314

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WRECK

STATE: HAWAII

YEAR: 1931

THIRD

ORDER

SOURCE: G- 1432

GEODETIC LATITUDE:	20° 55' 30.582	ELEVATION:	METERS:
GEODETIC LONGITUDE:	156 55 01.616		FEET:

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ (OR Δ θ) ANGLE *
HI 2	5102	414,528.29	215,017.68	- 0° 05' 22"

* PLANE AZIMUTH HAS BEEN COMPUTED BY THE θ (OR Δ θ) FORMULA NEGLECTING THE SECOND TERM.

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

QF 134