

T-12560

T- 12560

NOAA FORM 76-35 (3-76)	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Map No. T-12560	Edition No. 1
Job No. PH-6402	
Map Classification FINAL FIELD EDITED MAP	
Type of Survey SHORELINE	
LOCALITY	
State HAWAII	
General Locality HAWAII ISLAND, WEST COAST KAILUA TO SOUTH CAPE	
Locality KAALUALU BAY	
19 63 TO 1979	
REGISTRY IN ARCHIVES	
DATE	

NOAA FORM 76-36A (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.	
<b>DESCRIPTIVE REPORT - DATA RECORD</b>		TYPE OF SURVEY <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED	
PHOTOGRAMMETRIC OFFICE Coastal Mapping Division Atlantic Marine Center, Norfolk, VA		SURVEY <del>XX</del> T-12560 MAP EDITION NO. (1) MAP CLASS FINAL JOB PH- 6402	
OFFICER-IN-CHARGE R. Matsushige		LAST PRECEDING MAP EDITION TYPE OF SURVEY <input type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED	
JOB PH- _____ MAP CLASS _____ SURVEY DATES: 19__ TO 19__			
<b>I. INSTRUCTIONS DATED</b>			
<b>1. OFFICE</b>		<b>2. FIELD</b>	
Compilation Oct. 28, 1969 Amendment I Jan. 3, 1973 Memo Sept. 1, 1978 Compilation (CM-7713) Jan. 23, 1978		Control/field inspection Nov. 2, 1977	
<b>II. DATUMS</b>			
1. HORIZONTAL: <input type="checkbox"/> 1927 NORTH AMERICAN		OTHER (Specify) Old Hawaiian	
2. VERTICAL: <input checked="" type="checkbox"/> MEAN HIGH-WATER <input type="checkbox"/> MEAN LOW-WATER <input type="checkbox"/> MEAN LOWER LOW-WATER <input type="checkbox"/> MEAN SEA LEVEL		OTHER (Specify)	
3. MAP PROJECTION Transverse Mercator		4. GRID(S) STATE Hawaii ZONE 1	
5. SCALE 1:10,000		STATE ZONE	
<b>III. HISTORY OF OFFICE OPERATIONS</b>			
OPERATIONS		NAME	
DATE			
1. AEROTRIANGULATION BY METHOD: Analytic LANDMARKS AND AIDS BY		R. Fisher May 1978	
2. CONTROL AND BRIDGE POINTS PLOTTED BY METHOD: Coradomat CHECKED BY		S. Solbeck May 1978 S. Solbeck May 1978	
3. STEREOSCOPIC INSTRUMENT PLANIMETRY BY COMPILATION CHECKED BY INSTRUMENT: Wild B-8 SCALE: 1:10,000 CONTOURS BY CHECKED BY		D. Butler Sept. 1978 J. Roderick Sept. 1978 N.A. N.A.	
4. MANUSCRIPT DELINEATION PLANIMETRY BY CHECKED BY METHOD: Smooth drafted CONTOURS BY CHECKED BY SCALE: 1:10,000 HYDRO SUPPORT DATA BY CHECKED BY		C. Blood Oct. 1978 D. Butler Oct. 1978 N.A. N.A. C. Blood Oct. 1978 D. Butler Oct. 1978	
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY		D. Butler Oct. 1978	
6. APPLICATION OF FIELD EDIT DATA BY		L. Williams June 1980	
7. COMPILATION SECTION REVIEW BY		C. Blood June 1980	
8. FINAL REVIEW BY		J. Hancock May 1987	
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY		J. Hancock June 1987	
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY		P. Dempsey Aug 1987	
11. MAP REGISTERED - COASTAL SURVEY SECTION BY		E.L. DAUGHERTY SEP 87	

NOAA FORM 76-36B (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY			
T-12560 <b>COMPILATION SOURCES</b>					
<b>1. COMPILATION PHOTOGRAPHY</b>					
CAMERA(S) Wild R.C. 8"S", S = 152.29mm		TYPES OF PHOTOGRAPHY LEGEND (C) COLOR (P) PANCHROMATIC (I) INFRARED		TIME REFERENCE	
TIDE STAGE REFERENCE <input checked="" type="checkbox"/> PREDICTED TIDES <input type="checkbox"/> REFERENCE STATION RECORDS <input type="checkbox"/> TIDE CONTROLLED PHOTOGRAPHY				ZONE Hawaii MERIDIAN 150th	<input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> DAYLIGHT
NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE	
63S(P) 7960-7962 *	Aug. 31, 1963	09:31	1:30,000	1.1 FT. above M.L.L.W.	
63S(C) 8016-8019 **	Aug. 31, 1963	10:10	1:15,000	1.6 FT. above M.L.L.W.	
				Mean tide range = 1.7FT.	
REMARKS *Bridging/compilation photographs, **Compilation/hydro support photographs					
<b>2. SOURCE OF MEAN HIGH-WATER LINE:</b>  The mean high water line was compiled from office interpretation of the compilation photographs using stereo instrument and graphic methods.					
<b>3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE:</b>  No mean lower low water line was compiled.					
<b>4. CONTEMPORARY HYDROGRAPHIC SURVEYS</b> (List only those surveys that are sources for photogrammetric survey information.)					
SURVEY NUMBER H-9854 H-9857	DATE(S) 1979	SURVEY COPY USED Registered	SURVEY NUMBER	DATE(S)	SURVEY COPY USED
<b>5. FINAL JUNCTIONS</b>					
NORTH TP-00380 (CM-7713)	EAST None	SOUTH None	WEST T-12559		
REMARKS					

T-12560

## HISTORY OF FIELD OPERATIONS

I. ☒ FIELD INSPECTION OPERATION☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	E. Cline	Feb.-Sept. 1964
2. HORIZONTAL CONTROL	RECOVERED BY E. Cline	July 1964
	ESTABLISHED BY E. Cline	July 1964
	PRE-MARKED OR IDENTIFIED BY E. Cline	July 1964
3. VERTICAL CONTROL	RECOVERED BY None	
	ESTABLISHED BY None	
	PRE-MARKED OR IDENTIFIED BY None	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY None	
	LOCATED (Field Methods) BY None	
	IDENTIFIED BY None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY E. Cline	Aug. 1964
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY N.A.	

## II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

2. VERTICAL CONTROL IDENTIFIED

None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
63S(P)7961*	KAMILO (HGS) (HTS,1938), 1898 (Direct & Sub. Pt.)		
*Partial ratio print			

3. PHOTO NUMBERS (Clarification of details)

63S(P) 7960-7963 (1:30,000 matte contact photographs)

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

1 Form 152, 1 Project field report

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# HISTORY OF FIELD OPERATIONS

I. ☒ FIELD INSPECTION OPERATION (Additional Hor. Control) ☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Melby	Jan. 1978
2. HORIZONTAL CONTROL	RECOVERED BY L. Riggers	Jan. 1978
	ESTABLISHED BY L. Riggers	Jan. 1978
	PRE-MARKED OR IDENTIFIED BY L. Riggers	Jan. 1978
3. VERTICAL CONTROL	RECOVERED BY None	
	ESTABLISHED BY None	
	PRE-MARKED OR IDENTIFIED BY None	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY None	
	LOCATED (Field Methods) BY None	
	IDENTIFIED BY None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY L. Riggers	Jan. 1978
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY N.A.	

## II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

2. VERTICAL CONTROL IDENTIFIED

None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
77 GS AASY* 555	KAMILO (HGS) (HTS, 1938), 1898 (Direct & Sub. Pt. A)		
	*Matte Contact Print		

3. PHOTO NUMBERS (Clarification of details)

None

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE

6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

1 NOAA Form 76-53

NOAA FORM 76-36C  
(3-72)U. S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEYT-12560  
HISTORY OF FIELD OPERATIONSI. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	(NOAA SHIP RAINIER) W. Melby	Oct.-Dec. 1979
2. HORIZONTAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	None None None
3. VERTICAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	None None None
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY LOCATED (Field Methods) BY IDENTIFIED BY	None None None
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	T. Clark
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	N.A.

Oct-Dec 1979

## II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

None

2. VERTICAL CONTROL IDENTIFIED

None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details) 63S(C)8016-8019 (Cronapaque ratios, 1:10,000 scale)  
(76GS AASY 50, reference is made to this photo on field edit paper print;  
however, photo could not be located during final review.)

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

1 Field edit film print, 1 Field edit paper print, 1 Field edit report

T-12560  
RECORD OF SURVEY USE

## I. MANUSCRIPT COPIES

COMPILATION STAGES			DATE MANUSCRIPT FORWARDED	
DATA COMPILED	DATE	REMARKS	MARINE CHARTS	HYDRO SUPPORT
Compilation complete pending field edit	Oct. 1978	Class II manuscript	Oct. 1978	Oct. 1978
Field edit applied compilation complete	June 1980	Class I manuscript	June 1980	June 1980
Final Review	May 1987	Final Map	July 1987	July 1987

II. LANDMARKS AND AIDS TO NAVIGATION None

## 1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS

2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: None3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: \_\_\_\_\_

## III. FEDERAL RECORDS CENTER DATA

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.  
2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☐ FORM NOS 567 SUBMITTED BY FIELD PARTIES.  
3. ☒ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C.  
ACCOUNT FOR EXCEPTIONS:

4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: \_\_\_\_\_

## IV. SURVEY EDITIONS (This section shall be completed each time a new map edition is registered)

SECOND EDITION	SURVEY NUMBER TP - _____ (2)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY  MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY  MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY  MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	

JOB PH-6402  
 SHORELINE MAPPING  
 HAWAII IS. WEST COAST  
 AILUA TO SOUTH CAPE  
 SCALE 1:10,000

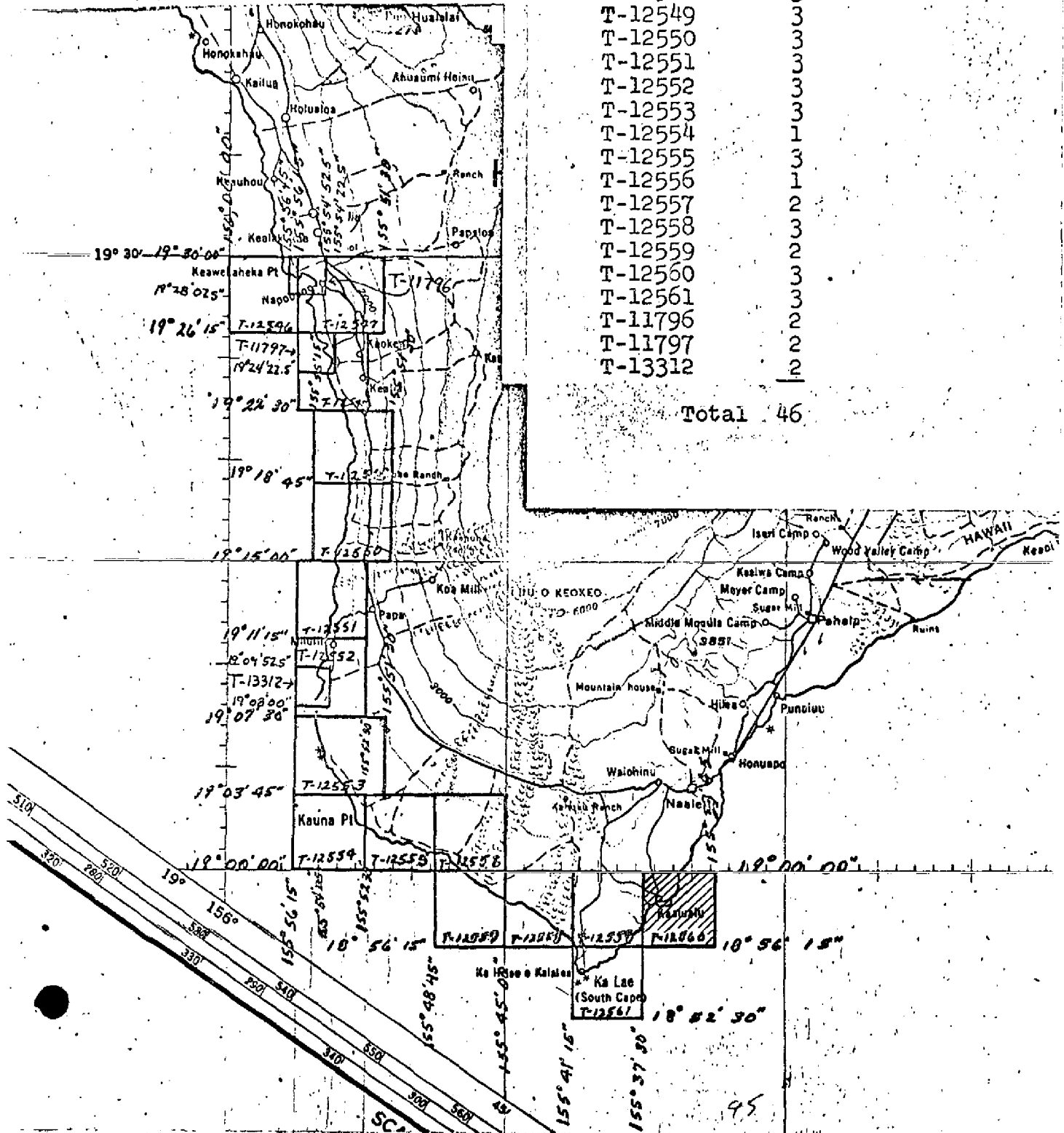
JOB PH-6402

OFFICIAL MILEAGE FOR COST ACCOUNTS

Sheet No.	Area Sq. Miles
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T-12546	1
T-12547	3
T-12548	3
T-12549	3
T-12550	3
T-12551	3
T-12552	3
T-12553	3
T-12554	1
T-12555	3
T-12556	1
T-12557	2
T-12558	3
T-12559	2
T-12560	3
T-12561	3
T-11796	2
T-11797	2
T-13312	2

Total 46





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SUMMARY TO ACCOMPANY  
DESCRIPTIVE REPORT

T-12560

This 1:10,000 scale Final Field Edited Map is one of nineteen maps that comprise PH-6402, Hawaii Island, West Coast, Kailua to South Cape. The project consists of sixteen 1:10,000 scale maps (T-12546 thru T-12561) and three 1:5,000 scale inset maps (T-11796, T-11797, T-13312).

The purpose of this map was to furnish data in support of hydrographic operations and to provide current shoreline data for marine charts.

This map includes shoreline along the southern coast of Hawaii Island from Latitude 18° 57.5' to Latitude 19° 00.0'. The map defines the southern limit for the project and junctions with shoreline project CM-7713, map T-00380.

Photo coverage for the project was adequately provided in August/September 1963 using the Wild RC-8 "S" camera. Photography consisted of 1:30,000 scale panchromatic photographs used for field inspection, aerotriangulation, and compilation. Color photographs at 1:15,000 scale were obtained for compilation and hydro support. Additional color photographs at 1:15,000 scale were obtained in March 1969 with the Wild RC-8 "E" camera. These supplemental photographs were used to compile inset maps T-11796 and T-11797. The stage of tide for all project photographs was based upon predicted tide data. No infrared photographs were provided.

Field work prior to aerotriangulation consisted of the recovery and establishment of horizontal control by photoidentification methods. A field inspection was performed for the project area utilizing the 1:30,000 scale contact photographs. This activity was conducted in February thru September 1964 in conjunction with the northern adjoining project PH-6401. Due to inadequate bridging results, additional horizontal control was established in January 1978 in conjunction with the southern adjoining project, CM-7713.

Analytic aerotriangulation was provided by the Washington Science Center in June 1969. Bridging results for maps T-12559 thru T-12561 could not be satisfactorily achieved. Consequently, the bridge for adjoining project CM-7713 was extended to include horizontal control for the three maps. Refer to the Photogrammetric Plot Report for CM-7713 dated May 10, 1978.

Compilation for this map was performed at the Coastal Mapping Section, Atlantic Marine Center in October 1978. Copies of the initial compilation and hydrographic support data were forwarded to the hydrographer for field edit.

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Field edit was conducted in October thru December 1979 by NOAA ship RAINIER personnel in conjunction with hydrographic surveys H-9854 and H-9857.

Application of field edit was performed at the original compilation office in June 1980. Map copies were submitted to Marine Charts and to the hydrographer for smooth sheet application.

Final review was performed at the Atlantic Marine Center in May 1987. A comparison was made with the common hydrographic survey and nautical chart. The original base manuscript and related data along with a final Chart Maintenance Print and a Hydrographic Print were forwarded to the Washington Science Center for registration and distribution.

## FIELD INSPECTION

T-12560

Field activity prior to compilation included a field inspection of the shoreline and the recovery/photoidentification of horizontal control necessary for project aerotriangulation. Results of the 1964 field inspection were submitted on the 1:30,000 scale contact photographs. Due to inadequate bridging results for maps T-12558 thru T-12561, additional horizontal control was established in January 1978 in conjunction with adjoining project CM-7713.

UNITED STATES GOVERNMENT

# Memorandum

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

40

631W

TO : Chief, Photogrammetric Field Operations  
THRU : Honolulu Field Officer *DR*

DATE: August 5, 1964

FROM : Lt(jg) Edward P. Cline

SUBJECT: Control Identification Project No. 21413

No problems were found in the control identification on Project 21413. The following is a list of the stations identified on the various Flight Lines:

FLIGHT STRIP NO. 5

WAIKAKUU, 4, 1951  
KAPUKAWAA, 1884  
OHEPUUPUU, 1890

FLIGHT STRIP NO. 6

KAMOI, 1948  
NA PUU & PELE, 1891  
PUU KI, 1914  
TANK, 1948

Supplimental Station Pricked:  
KAUNA POINT LIGHT, 1948

FLIGHT STRIP NO. 7

KALAE 2, 1948  
PALAHEMO 1898  
KAMILO, 1898  
KIPAEPAE, 1898

Supplimental Stations Pricked:  
KALAE LIGHT, 1948  
KALAE, 1887  
MAHANA, 1898

The ratio prints provided by the Washington Office were of great assistance in the identification of the stations and they were very well placed.

*Edward P. Cline*  
Edward P. Cline

Photogrammetric Plot Report  
Hawaii Island, Hawaii  
PH-6402

June 10, 1969

21. Area Covered

This project extends along the southwest shore of Hawaii Island. It includes T-sheets 12546 through 12561 at 1:10,000 and T-sheets 11796, 11797 and 13312 at 1:5,000. This project joins PH-6401 which extends along the north-west shore of the island.

22. Method

Strips were bridged on the stereoplanigraph and adjusted by IBM 1620 methods. Strip #4 discussed in the report for PH-6401. Strip #10 was adjusted on five triangulation stations with tie points from Strips #4 and #11 as checks. Strip #11 was adjusted on five stations with one station and tie points as checks. The adjustment of Strip #12 met with considerable problems. These problems were due to control identification on stations KAMILO, KIPAEPAE on the northeast end of the strip. Points were dropped from Strip #11 to enable model 63-S-7964 and 7965 to be set, thus enabling T-sheet 12561 to be completed.

T-sheets 12559 and 12560 must await further field work. Difficulties were also experienced in bridging Strip #13. This problem was resolved by dropping enough points from Strips #4 and #10 to set individual models between 63-S-8080 and 8085. All points between strips were averaged. Points were drilled by using the Wild PUG.

23. Adequacy of Control

Control provided by the field was adequate. The following stations could not be held in the bridging adjustments.

1. KEEI SOUTH BASE, 1948, SS #1 and SS #2, could not be held in Strip #13, as was the case of Strip #4 in PH-6401. No reasons could be determined for the lack of adjustment with other points.

2. KAMILO, 1949 and SS #1      3. KIPAEPAE, 1948  
and SS #1. Problems with these two stations could  
not be resolved. Re-identification of the stations  
is planned at the same time that work continues  
to the east.

4. McCANDLESS, 1948 SS #1 and SS #2 although held  
in the bridging could be seen on only one photograph  
in Strip #10 due to cloud coverage.

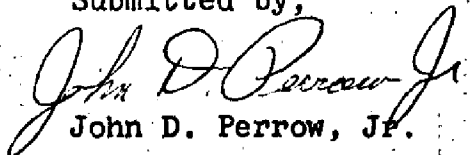
24. Supplemental Data

Ratio prints will be provided to aid in compilation.  
Local USGS quads were used to provide vertical points  
needed for the strip adjustment program.

25. Photography

Photography was not adequate to provide coverage of  
the 1:5,000 scale sheets. This inadequate coverage was  
caused by a change in the limits of the 1:5,000 areas  
after bridging was nearing completion. Photography was  
adequate in regard to definition and overlap.

Submitted by,

  
John D. Perrow, Jr.

Approved by,



Henry P. Eichert  
Chief, Aerotriangulation Section

Notes to Compiler  
PH-6402  
Hawaii Island, Hawaii

The following points should be used in setting individual models along Strips #12 and #13.

(1) 63-S-7964-7965

Points 68803, 68804, 67100, 67101, 64100, 64101, 64102 and 64103.

(2) 63-S-8080-8081

Points 22330, 23310, 23800, 23801

(3) 63-S-8081-8082

Points 77331, 78333, 22801, 23800, McCANDLESS SS #1 and SS #2

(4) 63-S-8082-8083

Points 76331, 77331, 77333

(5) 63-S-8083-8084

Points 75331 HONAUNAU ST. BENEDICT CATH. CH. SPIRE, 1948 plus points dropped from model 8082-8083.

(6) 63-S-8084-8085

Points 75331, 75333 plus points dropped from model 8083-8084.

Plates 63-S-7821 and 7824 were not used in bridging Strip #10.

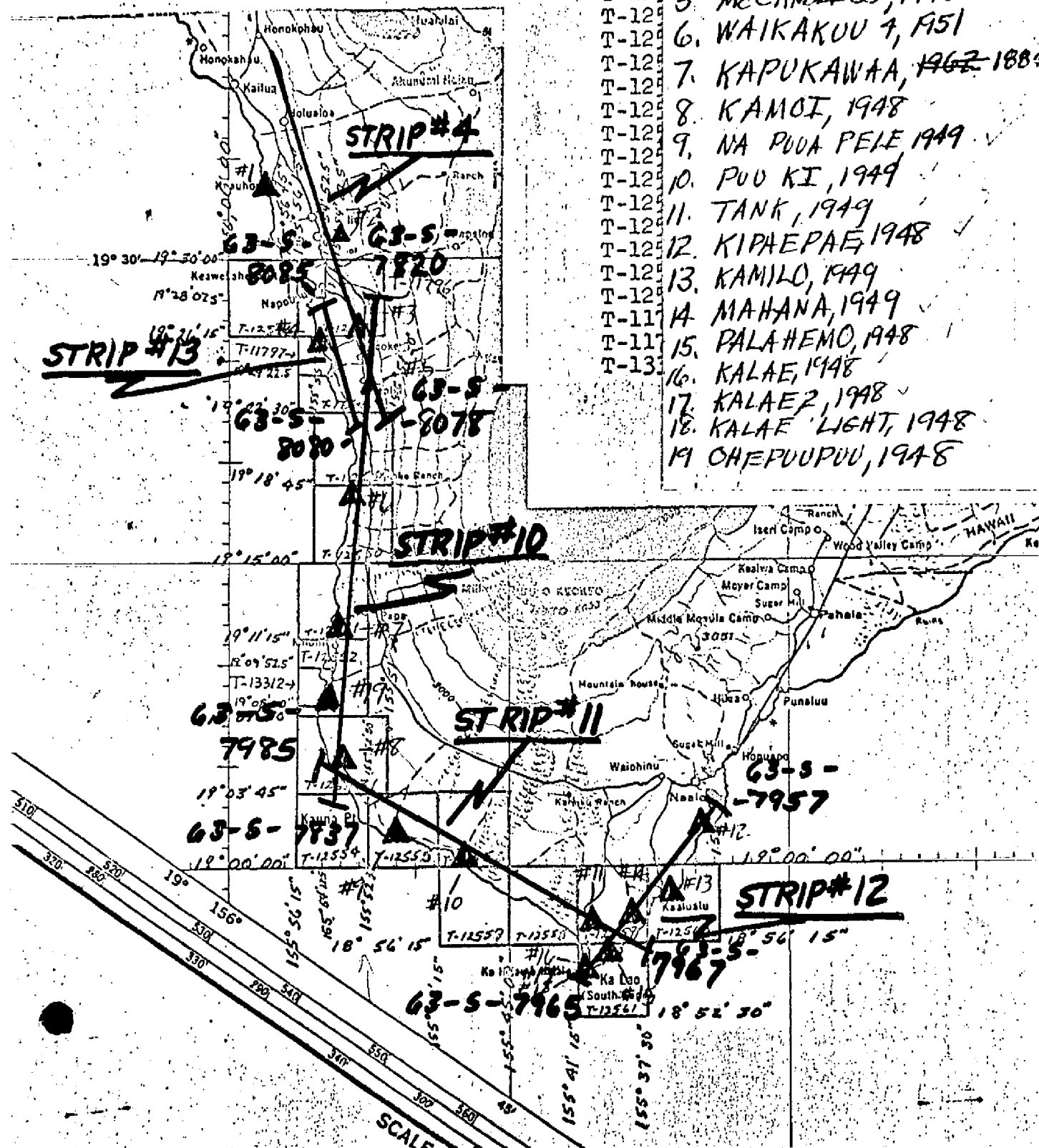
Plates 63-S-7976, 7978, 7880, 7982 and 7984 were not used in Strip #11.

11

JOB PH-6402

OFFIC

Sheet  
No.





PHOTOGRAMMETRIC PLOT REPORT  
HAWAII ISLAND-SOUTHEAST COAST  
CM-7713

May 10, 1978

Area Covered

This project covers most of the southeast coast of Hawaii Island, Hawaii. The following T-sheets are involved:

TP-00375 thru TP-00380 (1:20,000)  
TP-00488 and TP-00489 (1:5,000)

In addition to the above T-sheets, T-12559 thru T-12561 at 1:10,000 scale from PH-6402 are also covered.

Method

Two strips of 1:50,000 (strips 1 and 2) and one strip of 1:30,000 (strip 4) panchromatic photography were bridged by analytic aero-triangulation methods.

Strip 4 was bridged solely to provide compilation points for 1:15,000 compilation photography covering TP-00488 and TP-00489.

Ties were made with strip 2 of CM-7712 on the north coast and strip 12 of PH-6402 located near the southern end of the island.

Ratio points for the offshore 1:30,000 scale strips 11 thru 18 were read on the 1:50,000 strips.

Strip 12, 1:30,000, of PH-6402 which would not adjust satisfactorily in 1969 for unknown reasons was rebridged using old horizontal control along with 1977 identified horizontal control and ties from the 1:50,000 strip 2 of the CM-7713 project.

Strips 2 and 4 of CM-7713 and strip 12 of PH-6402 adjusted satisfactorily. The 1964 subpoint for KAMILO (HTS) 1898 is believed to be in error and was disregarded.

Strip 1 of CM-7713 could not be adjusted to meet bridging accuracy standards for all stations. A problem is suspected with PULAMA 1914 but could not be resolved. The final adjustment to this strip was made letting PULAMA 1914 float and disregarding the error in y of about -25 feet at this station.

Ratio points for an offshore 1:15,000 color strip were read on Strip 12. (PH-6402)

T-sheets TP-00375 through TP-00380, TP-00488, TP-00489, and T-12559 through T-12561 were plotted and sent to AMC at Norfolk, Virginia.

Adequacy of Control

With the exception of a horizontal control problem in strip 1 the horizontal control was adequate.

Vertical control was obtained from shoreline points and USGS quadrangle elevations and was satisfactory.

Photography

The quality and location of the photography was satisfactory.

This photography was flown by American Aerial Survey, Inc., with a Zeiss RMK-A 15/23 camera, lens serial number 118960.

Submitted by:

*Robert E. Fisher*

Robert E. Fisher

Approved and Forwarded:

*Don O. Norman*

Don O. Norman  
Acting Chief  
Aerotriangulation Section

## HORIZONTAL CONTROL FOR CM-7713

- 1 KALAE LIGHT 1948
- 1A KALAE 2, 1948
- 1B KALAE 1887
- 2 PALAHEMO 1898
- 3 MAHANA 1898
- 4 KAMILO (HTS) 1898
- 5 STEIN 2 (HTS) 1949
- 6 LUU 1930
- 7 PUU ULAULA 1914
- 8 HILINA USGS 1961
- 9 PULAMA 1914
- 10 KALIU 1949
- 11 CAPE KUMUKAHI LIGHTHOUSE 1949

## HORIZONTAL FIT TO CONTROL (FEET)

STRIP #1 (1:50,000)

6. LUU 1930 SUB PT.	(1.90, 0.26) (1.45, -1.00)
7. PUU ULAULA 1914	(-3.55, -0.98)
8. HILINA USGS 1961 SUB PT. A SUB PT. B	(5.34, -1.60) (1.67, 1.16)
9. PULAMA 1914 SUB PT. A SUB PT. B	(4.59, -23.68) (11.88, -28.72)
10. KALIU 1949 SUB PT.	(-2.05, -8.61) (0.03, -2.17)

STRIP #2 (1:50,000)

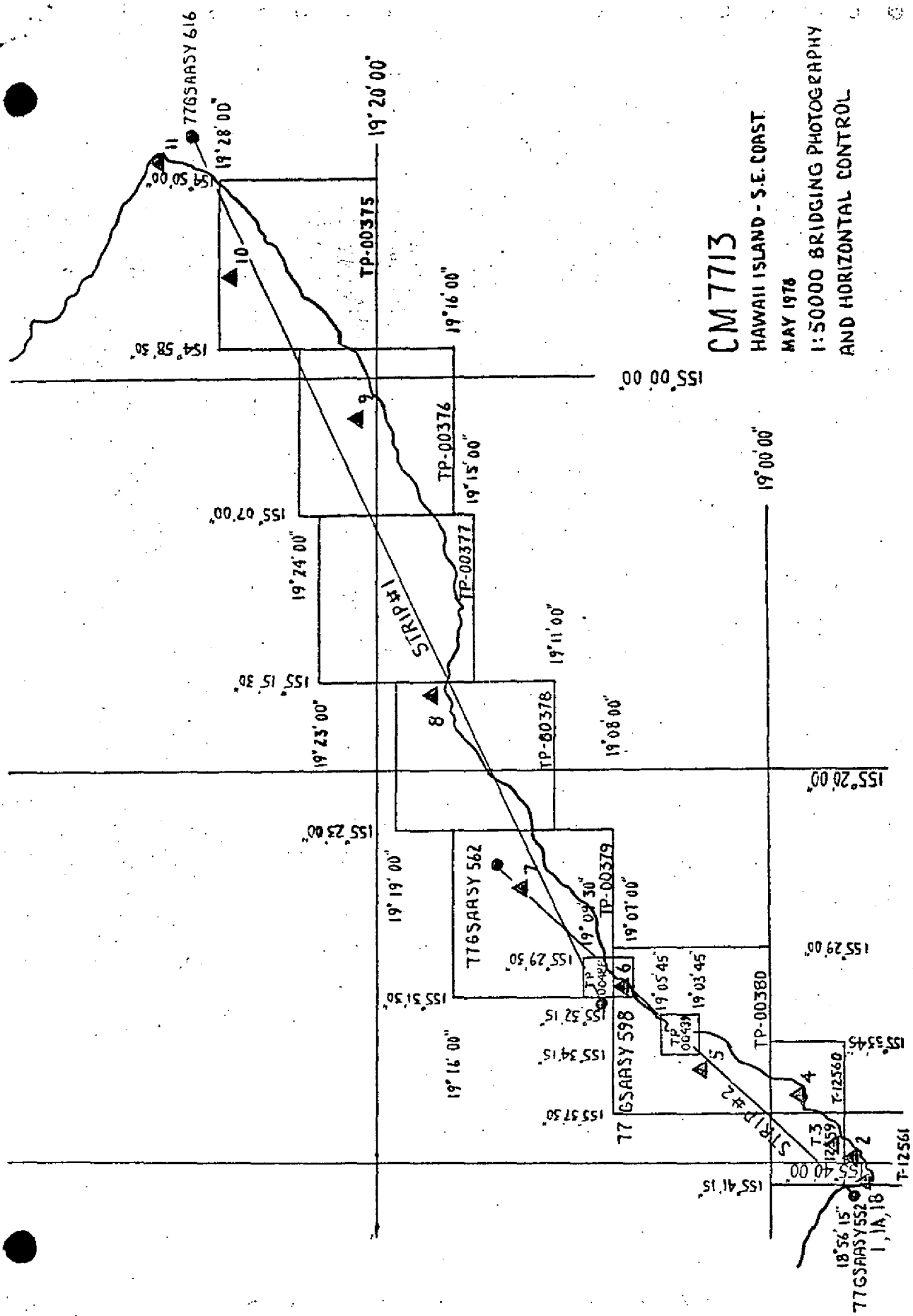
1A KALAE 2, 1948 SUB PT. A SUB PT. B	(-0.96, 0.23) (1.19, 0.95)
4. KAMILO (HTS) 1898 SUB PT.	(2.06, 0.58) (0.33, -0.11)
5. STEIN 2 (HTS) 1949 SUB PT.	(-1.26, -1.59) (2.42, 1.99)
6. LUU 1930 SUB PT.	(-0.07, 1.16) (-0.24, -0.47)
7. PUU ULAULA 1914	(0.23, -0.36)

STRIP #4 (1:30,000)

5. STEIN 2 (HTS) 1949 SUB PT.	(-0.01, -0.04) (0.11, 4.03)
6. LUU 1930	(0.00, 0.00)
7. PUU ULAULA 1914	(0.01, 0.01)

STRIP #12 (1:30,000)

- |                              |                |
|------------------------------|----------------|
| 4. KAMILO (HTS) 1898         | (4.01, -0.39)  |
| 3. MAHANA 1898               | (1.48, 0.46)   |
| 2. PALAHEMO 1898             | (2.64, -1.31)  |
| 1B. KALAE 1887               | (0.36, -0.37)  |
| 1A. KALAE 2, 1948<br>SUB PT. | (2.30, 1.46)   |
| 1. KALAE LIGHT 1948          | (-0.16, -0.27) |

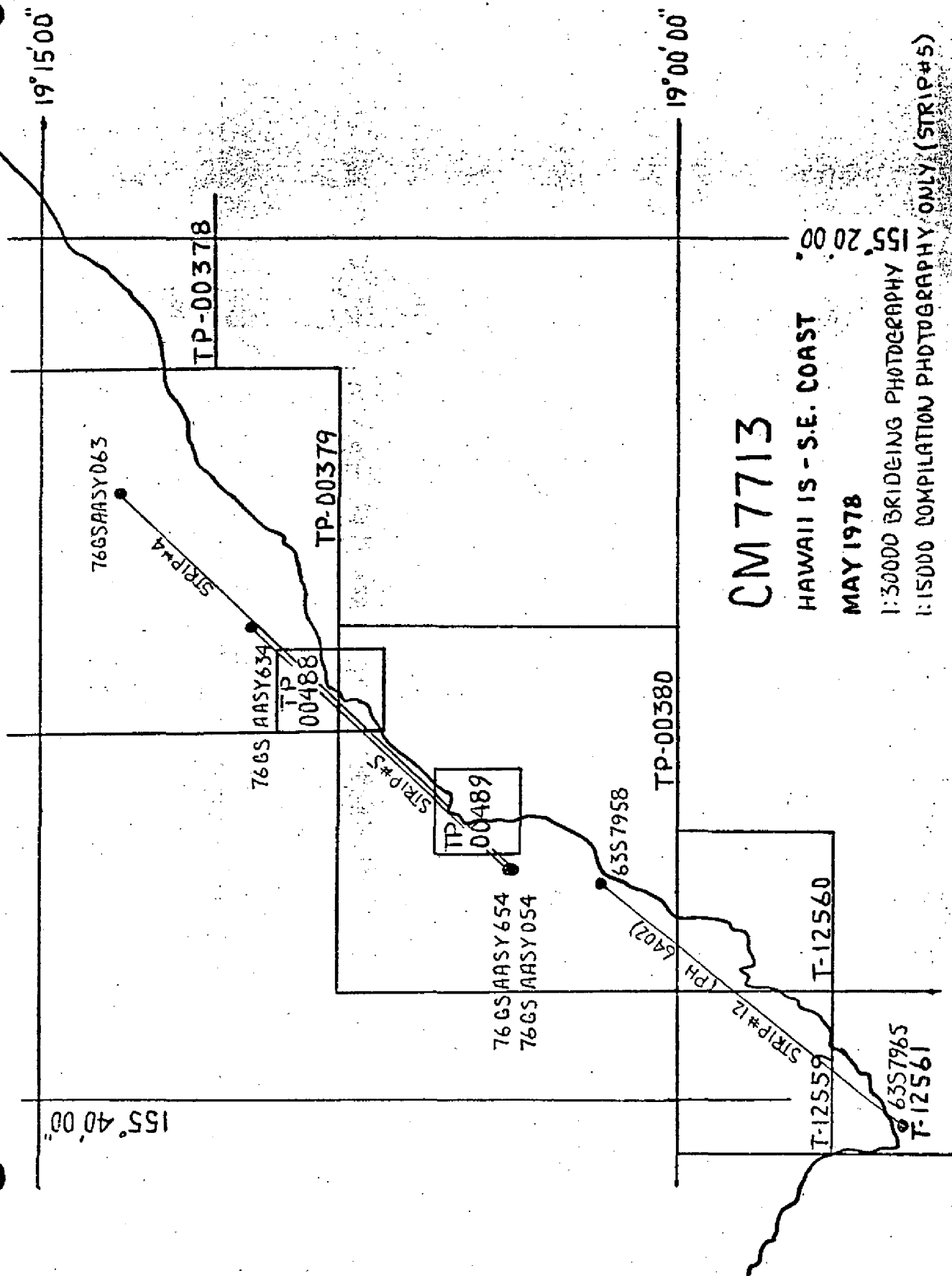


CM 7713

HAWAII ISLAND - S.E. COAST

MAY 1976

1:50000 BRIDGING PHOTOGRAPHY  
AND HORIZONTAL CONTROL



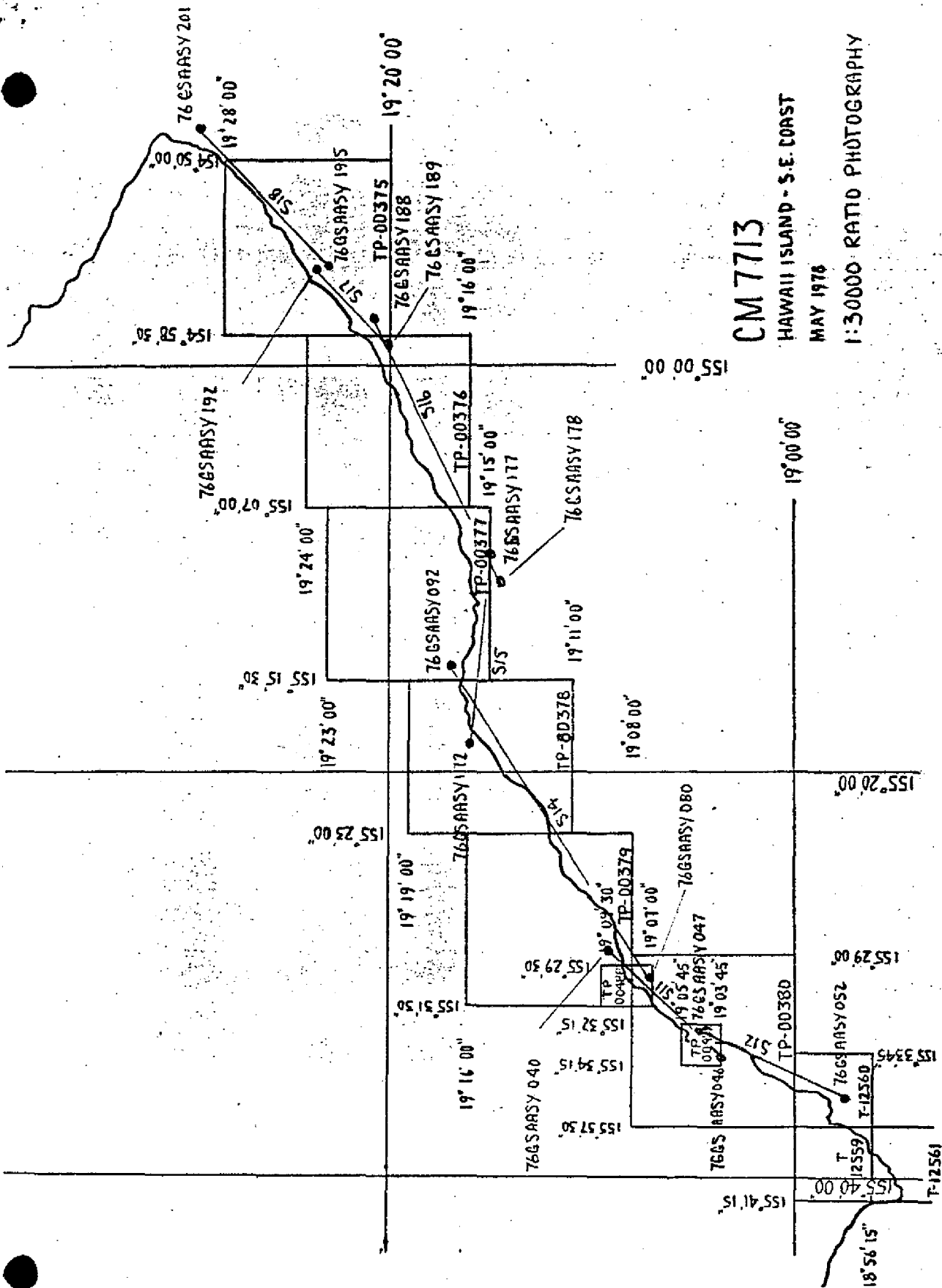
CM 7713

HAWAII IS - S.E. COAST

MAY 1978

1:30000 BRIDGING PHOTOGRAPHY

1:15000 COMPILATION PHOTOGRAPHY ONLY (STRIP#5)



CM 7713

HAWAII ISLAND - S.E. COAST

MAY 1976

1:30000 RATIO PHOTOGRAPHY



## DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	PH-6402	SOURCE OF INFORMATION (Index)	AEROTRI- ANGULATION POINT NUMBER	GEODETIC DATUM		ORIGINATING ACTIVITY	
					Old Hawaiian Datum	Geographic Position	Coastal Mapping Section, AMC	
STATION NAME					COORDINATES IN FEET	$\phi$ LATITUDE	REMARKS	
					STATE <u>Hawaii</u>	$\lambda$ LONGITUDE		
					ZONE <u>1</u>			
KAMILO (H.G.S.)	G.P.				X=	$\phi$ 18° 58' 23.300"		
(H.T.S. 1938), 1898	Pg. 19				Y=	$\lambda$ 155° 36' 15.919"		
					X=	$\phi$		
					Y=	$\lambda$		
					X=	$\phi$		
					Y=	$\lambda$		
					X=	$\phi$		
					Y=	$\lambda$		
					X=	$\phi$		
					Y=	$\lambda$		
					X=	$\phi$		
					Y=	$\lambda$		
					X=	$\phi$		
					Y=	$\lambda$		
					X=	$\phi$		
					Y=	$\lambda$		
					X=	$\phi$		
					Y=	$\lambda$		
					X=	$\phi$		
					Y=	$\lambda$		
COMPUTED BY	A. C. Rauck, Jr.	DATE	7-29-69	COMPUTATION CHECKED BY	D. Butler	DATE	9-18-78	
LISTED BY		DATE		LISTING CHECKED BY		DATE		
HAND PLOTTING BY		DATE		HAND PLOTTING CHECKED BY		DATE		

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

## COMPILATION REPORT

T-12560

31. DELINEATION:

Delineation was by instrument methods using the Wild B-8 stereoplotter and 1:30,000 scale panchromatic compilation/bridging photographs. Ratio prints of the 1:15,000 scale color photographs were used graphically to supplement the compilation of minor detail and to assist in photo interpretation.

The field inspection supplied on the 1:30,000 scale contact prints was difficult to interpret. Individual rocks that could not be clearly identified during compilation were not compiled.

Photo quality and coverage were adequate.

32. CONTROL:

Specified control stations from adjoining project CM-7713 were provided to strengthen the horizontal control for this manuscript.

Refer to the Photogrammetric Plot Reports, dated June 10, 1969 and May 10, 1978 (CM-7713).

33. SUPPLEMENTAL DATA:

None.

34. CONTOURS AND DRAINAGE:

Contours are inapplicable. Drainage was delineated from the compilation photographs.

35. SHORELINE AND ALONGSHORE DETAILS:

The shoreline, coral and foul limits were delineated from office interpretation of the photographs and from the annotated photographs resulting from the precompilation field inspection. Because of the small tide range, no mean lower low water line was compiled.

36. OFFSHORE DETAILS:

Compilation of offshore detail was performed as described in Item #31.

T-12560

37. LANDMARKS AND AIDS:

There are no charted landmarks or fixed aids within the limits of this manuscript.

38. CONTROL FOR FUTURE SURVEYS:

None.

39. JUNCTIONS:

Refer to the Data Record Form 76-36B, Item 5.

40. HORIZONTAL AND VERTICAL ACCURACY:

Refer to the Photogrammetric Plot Reports dated June 10, 1969 and May 10, 1978 (CM-7713).

46. COMPARISON WITH EXISTING MAPS:

A comparison was made with USGS quadrangle Ka Lae, Hawaii, scale 1:24,000, dated 1959.

47. COMPARISON WITH NAUTICAL CHARTS:

A comparison was made with NOS Chart 19320, 12th edition, scale 1:250,000, dated June 17, 1978.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY:

None.

ITEMS TO BE CARRIED FORWARD:

None.

Submitted by:

*for* *Greg L. Hancock*  
Charles Blood  
Cartographic Technician  
October 1978

Approved:

*for* *Greg L. Hancock*  
Albert C. Rauck, Jr.  
Chief, Coastal Mapping Section

## ADDENDUM TO THE COMPILATION REPORT

T-12560

Field edit was conducted in October thru December 1979 by NOAA ship RAINIER personnel in conjunction with hydrographic surveys H-9854 and H-9857. Field annotated ratio photograph 76GS AASY50 from adjoining project CM-7713 was submitted with the field edit data. Adequate information was furnished to advance the manuscript to Class I.

GEOGRAPHIC NAMES

FINAL NAME SHEET

PH-6402 Hawaii

T-12560

Island of Hawaii ✓

Kaalela ✓

Kaalualu ✓

Kaalualu Bay ✓

Kaiole Bay ✓

Kaluachonu ✓

Kamilo Point ✓

Kii ✓

Pacific Ocean ✓

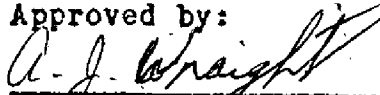
Paiahaa Bay ✓

Puu Koihala -----Not compiled.

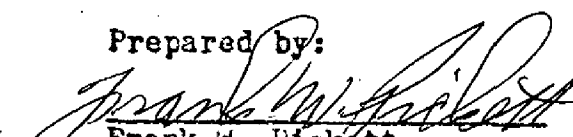
Puu Lou ✓

Puu Nahaha ✓

Approved by:

  
A. Joseph Wright  
Chief Geographer

Prepared by:

  
Frank W. Pickett  
Cartographic Technician

FIELD EDIT REPORT  
OPR-T126-RA-79  
CM-7713  
T-12560

HAWAII  
Hawaii, Southeast Coast  
Kaalualu Bay

1 Field Edit

6 October 1979 - 4 December 1979  
(J.D. 279 - J.C. 338)

### Methods

Field edit operations on T-12560 began 6 October 1979 (J.D. 279) and ended 4 December 1979 (J.D. 338). Ship's time (GMT-9) was used to reference shoreline features in the field, but conversion was made to GMT (Ship's time +9) on the field edit sheet and final discrepancy sheet. Notes on the field edit sheet and discrepancy print were made using colors with the following acceptable meanings: green-deletion of features; red-answers to specific questions on the sheets; violet-verification or additions.

The features were verified on foot. Additions of rocks were photo-pricked and referenced on the discrepancy print. Rocks that were not visible on photographs were located by magnetic bearing and estimated distance from a photo identifiable spot.

There were several rocks neither verified nor disproved, due to surf, difficulty of picking out specific rocks in a foul area, or the distance from shore. In these cases the rocks were left unreferenced on the discrepancy sheet.

The bare rock at 155° 36' 42" W, 18° 58' 05" N, was not found. Careful visual inspection from shore was fruitless, while surf prevented any other mode of investigation. Due to the negligible tide range it is highly doubtful that such a rock could have escaped notice had it actually bared 4 ft. at MHW, as indicated on the manuscript.

Due to surf, it was difficult and sometimes impossible to determine the exact limits of submerged ledges or foul areas.

The color photographs 8016, 8017, 8018, 8019, the black and white photograph 50, the discrepancy print and the field edit sheet were used to record and present data.

This field edit survey complied with Chapter 11, Manual of Coastal Mapping Field Procedure and project instructions.

### Adequacy and Completeness

The manuscript, as amended by the field edit survey, is adequate and complete. The entire sheet is field edited.

### Geographical Names

There was no investigation of geographical names.

### Manuscript Accuracy

Direct comparison of shoreline features with the discrepancy print and photos was used to determine accuracy. Agreement was excellent.

Recommendations

The rocks neither verified nor disproved should be retained as plotted on the manuscript. The bare rock at  $155^{\circ} 36' 42''$  W,  $18^{\circ} 58' 05''$  N, should be re-plotted as a rock awash.

This corrected manuscript should supercede all previous shoreline compilations.

Respectfully submitted,

Approved and Forwarded

*Thomas G. Clark*  
Thomas G. Clark  
Lieutenant, NOAA

*Wayne L. Mobley*  
Wayne L. Mobley  
Captain, NOAA  
Commanding

Attachments: Sketch  
76-36 A, B, C, D  
76-40 Landmarks for Navigation  
Master Signal Tape Listing

Separate Items: Photographs C&GS 31 AUG 63 S(C) 8016-8019  
NOS 15 DEC 76 GSAASY 50  
Final Discrepancy Print  
Field Discrepancy Print



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REVIEW REPORT  
SHORELINE  
T-12560

61. GENERAL STATEMENT:

Final review for this Final Field Edited Map was accomplished at the Atlantic Marine Center in May 1987. For a schedule of the office and field operations, refer to the Summary included with this Descriptive Report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

Not applicable.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

A comparison was made with USGS quadrangle Ka Lae, Hawaii, scale 1:24,000, dated 1962.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

A comparison was made with a registered copy of two 1979 hydrographic surveys; H-9854, RA-10-5-79, 1:10,000 scale and H-9857, RA-20-4-79, 1:20,000 scale. No significant differences were noted.

65. COMPARISON WITH NAUTICAL CHARTS:

A comparison was made with NOS Chart 19320, 13th edition, scale 1:250,000, dated July 10, 1982.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:

This map complies with the Project Instructions, and meets the requirements for National Standards of Map Accuracy.

Submitted by:

*Jerry L. Hancock*  
Jerry L. Hancock  
Final Reviewer

Approved for forwarding:

*Billy H. Barnes*  
Billy H. Barnes  
Chief, Photogrammetric Section, AMC

Approved:

*July O. Bohon*      *A. Y. Bryan*  
Chief, Photogrammetric Production Sec.      Chief, Photogrammetry Branch

