

TP-00070

TP-00070

NOAA FORM 76-35 (6-80)	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Map No. TP-00070	Edition No. 1
Job No. CM-7712	
Map Classification FINAL, FIELD EDITED MAP	
Type of Survey SHORELINE	
LOCALITY	
State HAWAII	
General Locality HAWAII - NORTH COAST	
Locality HAENA	
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 19<sub>76</sub> TO 19<sub>80</sub> </div>	
REGISTERED IN ARCHIVES	
DATE	

## DESCRIPTIVE REPORT - DATA RECORD

## TYPE OF SURVEY

- ☒ ORIGINAL  
☐ RESURVEY  
☐ REVISED

SURVEY TP- 00070

MAP EDITION NO. (1)

MAP CLASS Final

JOB ~~XPH~~-CM-7712

## PHOTOGRAMMETRIC OFFICE

Coastal Mapping Division, Norfolk, VA

## OFFICER-IN-CHARGE

Roy K. Matsushige

## LAST PRECEDING MAP EDITION

## TYPE OF SURVEY

- ☐ ORIGINAL  
☐ RESURVEY  
☐ REVISED

JOB PH- \_\_\_\_\_

MAP CLASS \_\_\_\_\_

SURVEY DATES:

19 \_\_\_\_ TO 19 \_\_\_\_

## I. INSTRUCTIONS DATED

## 1. OFFICE

Aerotriangulation----- Feb. 13, 1978  
Compilation ----- April 12, 1979

## 2. FIELD

Control ----- Nov. 2, 1977

## II. DATUMS

## 1. HORIZONTAL:

☐ 1927 NORTH AMERICAN

OTHER (Specify)

Old Hawaiian

## 2. VERTICAL:

- ☒ MEAN HIGH-WATER  
☐ MEAN LOW-WATER  
☐ MEAN LOWER LOW-WATER  
☐ MEAN SEA LEVEL

OTHER (Specify)

## 3. MAP PROJECTION

Transverse Mercator

## 4. GRID(S)

STATE

Hawaii

ZONE

1

## 5. SCALE

1:20,000

STATE

ZONE

## III. HISTORY OF OFFICE OPERATIONS

OPERATIONS		NAME	DATE
1. AEROTRIANGULATION	BY	S. Solbeck	Jan. 1979
METHOD: Analytic	LANDMARKS AND AIDS BY	None	--
2. CONTROL AND BRIDGE POINTS	PLOTTED BY	S. Solbeck	Jan. 1979
METHOD: Coradomat	CHECKED BY	S. Solbeck	Jan. 1979
3. STEREOSCOPIC INSTRUMENT	PLANIMETRY BY	R. Kravitz	Apr. 1979
COMPILATION	CHECKED BY	J. Roderick	Apr. 1979
INSTRUMENT: Wild B-8 and graphic	CONTOURS BY	N.A.	
SCALE: 1:20,000	CHECKED BY	N.A.	
4. MANUSCRIPT DELINEATION	PLANIMETRY BY	L. Williams	Apr. 1979
	CHECKED BY	F. Margiotta	May 1979
METHOD: Smooth drafted	CONTOURS BY	N.A.	
	CHECKED BY	N.A.	
SCALE: 1:20,000	HYDRO SUPPORT DATA BY	L. Williams	Apr. 1979
	CHECKED BY	F. Margiotta	May 1979
5. OFFICE INSPECTION PRIOR TO FIELD EDIT	BY	F. Margiotta	May 1979
6. APPLICATION OF FIELD EDIT DATA	BY	G. A. Morris	Aug. 1981
	CHECKED BY	D. Butler	Apr. 1982
7. COMPILATION SECTION REVIEW	BY	D. Butler	Apr. 1982
8. FINAL REVIEW	BY	J. Hancock	Aug. 1985
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH	BY	J. Hancock	Sept. 1985
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH	BY	P. Dempsey	Nov. 1985
11. MAP REGISTERED - COASTAL SURVEY SECTION	BY	E. DAUGHERTY	DEC 1985

NOAA FORM 76-36B (3-72)		TP-00070 <b>COMPILATION SOURCES</b>				U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
<b>1. COMPILATION PHOTOGRAPHY</b>							
CAMERA(S) F. L. = 153.21 mm Zeiss RMK A15/23 Lens 118960		TYPES OF PHOTOGRAPHY LEGEND (C) COLOR (P) PANCHROMATIC (I) INFRARED		TIME REFERENCE ZONE Hawaii			
TIDE STAGE REFERENCE <input checked="" type="checkbox"/> PREDICTED TIDES <input type="checkbox"/> REFERENCE STATION RECORDS <input type="checkbox"/> TIDE CONTROLLED PHOTOGRAPHY				STANDARD <input checked="" type="checkbox"/>		MERIDIAN 150th	
<input type="checkbox"/> DAYLIGHT							
NUMBER AND TYPE		DATE		TIME		SCALE	
77GSAASY-337-341 76GSAASY-212-214 76GSAASY-219-224		Feb. 19, 1977 Dec. 18, 1976 Dec. 18, 1976		12:37 14:03 13:54		1:50,000 1:30,000 1:30,000	
						STAGE OF TIDE 0.5 ft. above M.L.L.W. 1.2 ft. above M.L.L.W. 1.2 ft. above M.L.L.W.	
						Mean range = 1.6 ft.	
REMARKS Photography by American Aerial Survey, Inc. of Northern California Geodetic Survey							
<b>2. SOURCE OF MEAN HIGH-WATER LINE:</b>							
The mean high water line was compiled by instrument methods using the 1:50,000 scale photos and graphically using the 1:30,000 scale photos ratioed as follows:							
212-214 x1.50 219-224 x1.51							
<b>3. SOURCE OF MEAN LOW-WATER LINE:</b>							
No low water line was compiled due to alongshore surf action.							
<b>4. CONTEMPORARY HYDROGRAPHIC SURVEYS</b> (List only those surveys that are sources for photogrammetric survey information.)							
SURVEY NUMBER		DATE(S)		SURVEY COPY USED		SURVEY NUMBER	
H-9908 H-9909		Sept/Oct 80 Oct/Nov 80		Registered Registered		H-9911 Oct/Nov 80	
						Registered	
<b>5. FINAL JUNCTIONS</b>							
NORTH		EAST		SOUTH		WEST	
No survey		No survey		TP-00822		PH-6703 T-13314	
REMARKS							

TP-00070  
HISTORY OF FIELD OPERATIONS

- 1.
- ☒
- FIELD INSPECTION OPERATION Photo Identification
- ☐
- FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Melby	Jan.-Feb. 1978
2. HORIZONTAL CONTROL	RECOVERED BY R. Melby	Jan. 1978
	ESTABLISHED BY None	--
	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 None	--
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY N.A.	--

## II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED
- 
- photoidentified

2. VERTICAL CONTROL IDENTIFIED
- 
- None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
77GSAASY-339	Kaloli 2, 1949 (Sub. pts. A & B identified)		

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 - Form 76-53 and 1 - Field Operations Report.

NOAA FORM 76-36C  
(3-72)U. S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY

TP-00070

## HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	A. J. Patrick	Oct. 1980
2. HORIZONTAL CONTROL	RECOVERED BY C.P. Hancock, P.E. Pegnato	Oct. 1980
	ESTABLISHED BY C.P. Hancock, P.E. Pegnato	Oct. 1980
	PRE-MARKED OR IDENTIFIED BY None	
3. VERTICAL CONTROL	RECOVERED BY N.A.	
	ESTABLISHED BY N.A.	
	PRE-MARKED OR IDENTIFIED BY N.A.	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY H. F. Trimble	Oct. 1980
	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 A.F. Trimble, T.A. Baxter	Oct. 1980
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY N.A.	

## II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

None

2. VERTICAL CONTROL IDENTIFIED

N.A.

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details)

76GSAASY 212-214, 220-223 (ratios)

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)

One film Field Edit Ozalid,

One Field 76-40 Form

One Field Edit Report and accompanying note

One sketch (attached to Field Edit Ozalid)



NOAA FORM 76-36D  
(3-72)U. S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATIONTP-00070  
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.	Apr. 1979	Class III manuscript superseded	Aug. 1979	Aug. 1979
Field edit applied, compilation complete.	Apr. 1982	Class I manuscript superseded	None	Apr. 1982
Final Review	Aug. 1985	Final Map	Oct. 31, 1985	

## II. LANDMARKS AND AIDS TO NAVIGATION

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

NUMBER (pages)	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
1		Oct. 31, 1985	1 landmark for charts

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

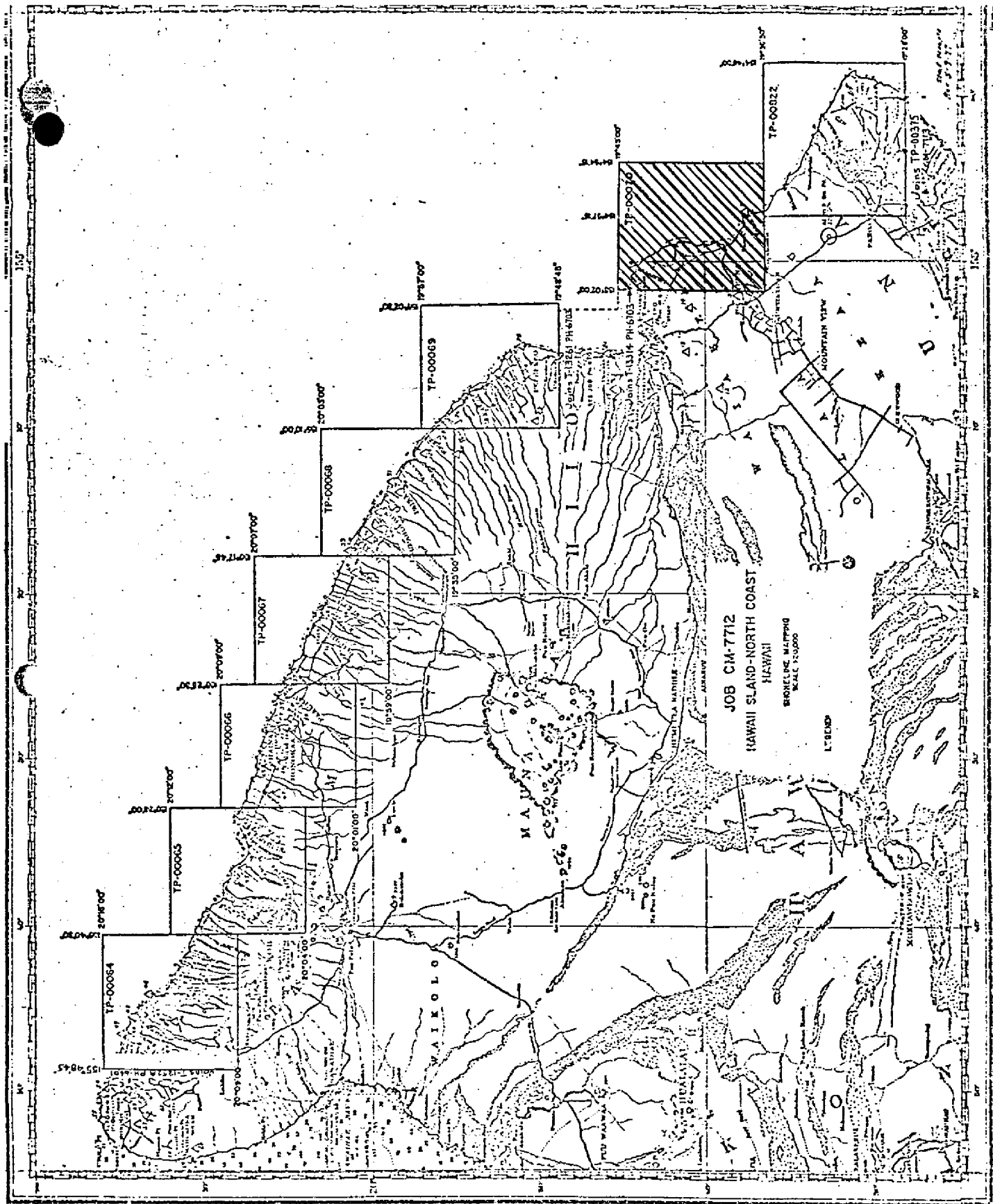
## III. FEDERAL RECORDS CENTER DATA

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.
2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☒ FORM NOS 76-40 ~~96~~ 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
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL



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SUMMARY TO ACCOMPANY  
DESCRIPTIVE REPORT

TP-00070

This 1:20,000 scale final shoreline map is one of eight maps that comprise project CM-7712, Hawaii Island, North Coast, Hawaii. The eight 1:20,000 scale maps are assigned as TP-00064 through TP-00070 and TP-00822.

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 portrays a portion of shoreline along the eastern coast of Hawaii Island from Lat. 19°36.5' to Lat. 19°45.0'.

Photo coverage for the project was adequately provided with panchromatic photography flown by a private contractor, American Aerial Survey, Inc., with the Zeiss RMKA 15/23 camera. Aerotriangulation/ compilation photographs at 1:50,000 scale and supplemental compilation/ photo-hydro support photographs at 1:30,000 scale were taken at various times from Dec. 1976 to March 1977. The 1:30,000 scale supplemental photography did not cover the extreme 30 seconds of Longitude in the northwest region of this map. However, the 1:50,000 scale compilation/ bridging photographs were sufficient for shoreline delineation.

Field work prior to compilation consisted of the recovery, establishment, and photoidentification of horizontal control necessary for aerotriangulation. This activity was completed February 1978.

Analytic aerotriangulation was adequately provided by the Washington Science Center in January 1979. This activity also included ruling the base manuscripts and providing ratio photographs for compilation.

Compilation by office interpretation of the mapping photographs was performed at the Coastal Mapping Section, Atlantic Marine Center in May 1979. Copies of the Class III manuscript and hydrographic support data were forwarded to the hydrographer for field edit. A copy of the Class III manuscript was also submitted to the Marine Charts Section

Field edit for this map was performed in conjunction with hydrographic survey H-9908 by NOAA Ship FAIRWEATHER personnel in October 1980.

Application of field edit data was accomplished at the Photogrammetric Section, Pacific Marine Center in April 1982 and the manuscript was advanced to Class I. A copy of the Class I manuscript was forwarded to the Hydrographic Surveys Branch.

Final review was performed at the Atlantic Marine Center in August 1985. At this time a comparison was made with a registered copy of contemporary hydrographic surveys, H-9908, H-9909, and H-9911, common to



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this map. There were no significant differences. A final Chart Maintenance Print and Notes to Hydrographer Print were prepared and forwarded to Photogrammetry headquarters for distribution.

The Descriptive Report for this final field edited map contains all pertinent information used to produce this map. The original base manuscript and related data were forwarded to the Washington Science Center for final registration.

## FIELD INSPECTION

TP-00070

There was no field inspection prior to compilation. Field work accomplished was limited to the recovery and photoidentification of the horizontal control necessary for the aerotriangulation of the project.

## FIELD OPERATIONS REPORT

### Projects CM-7712 & CM-7713

North and Southeast Coast, Island of Hawaii, Hawaii

January - February 1978

#### Area:

The two adjoining projects covers the southeast and northeast coast of the Island of Hawaii. The southernmost portion of the area is virtually a desert with little rainfall. The northeast coast is subjected to considerable rainfall and sugar cane fields are commonplace.

Except for a couple of small, isolated beaches, the shoreline is steep and rocky, where the lava flows reached the ocean.

#### Photography:

Panchromatic aerial photography was furnished the field unit for the photo-identification of the required horizontal control stations, necessary for the aerotriangulation. The photography was considered adequate for the field identification.

#### Horizontal Control:

All of the stations were reached by vehicle or short distance back packing

Several sun azimuths were observed to determine the azimuth to substitute stations. Greenwich Mean Time was observed and recorded with short wave radio signals from WWVH and a digital watch. Time and observed zenith distances were recorded to permit either the time/azimuth or time/altitude method of computation.

Station HILINA USGS 1961 was photo-identified and a sun azimuth was observed. B.M. 139YY USGS was used as an intermediate azimuth point, in conjunction with the sun azimuth. The B.M. did not have a previous azimuth or position. The U.S.G.S. published data lists R.M.I. as 46°00' 26". A telephone conversation with the U.S.G.S. in Menlo Park, California confirmed the number 4 and 6 were transposed and the azimuth should read 64°00' 26". The reference mark was used as a check angle.

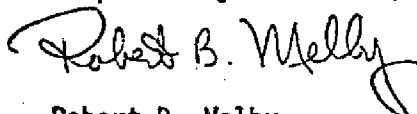
Station PUU ULAULA was photo-identified using a sun azimuth and a stack. the stack is station PAHALA, KAU SUGAR CO STACK, 1977. An N.G.S. Geodetic Field Party was working in the area and a position of the stack should be available from Geodesy in the near future. However, the sun azimuth can be used to determine the azimuth to the sub-points.

Page 2

The field-photo data was submitted to the Rockville office before this report was written to permit the aerotriangulation of the flightlines at the earliest date.

Two non-floating aids to navigation and one landmark for charts were located by triangulation/traverse methods. They have been entered and submitted on form 76-40 to C-3415.

Respectfully Submitted,



Robert B. Melby  
Chief, PMC Photo Party  
CPM 133



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PHOTOGRAMMETRIC PLOT REPORT  
Island of Hawaii, Hawaii  
CM-7712

Jan. 2, 1979

AREA COVERED

The area covered by this report is the northern coast of the Island of Hawaii, excluding Hilo and its immediate surroundings. The area is covered by eight 1:20,000 scale manuscripts (TP-00064 through TP-00070 and TP-00822).

METHOD

Two strips of 1:50,000 scale black-and-white panchromatic photography were bridged by analytic aerotriangulation methods. Field identified control was provided.

Common points were located on the bridging photography and the 1:30,000 scale photography for ratio purposes.

Ratio prints have been ordered. The manuscripts were ruled on the Coradomat.

ADEQUACY OF CONTROL

The adjustment to ground of one strip in this project, as well as two strips on CM-7713 (the southeast coast), was not as good as expected. On strip one of CM-7713, the subpoints for Pulama, 1914 would not fit with the other control, being off by approximately 25 feet. Five stations were used to adjust this strip with a second degree curve. The largest residual error in the fit to the five stations was 3.5 feet which is considered reasonable.

On strips 2 and 4 of CM-7713 the intersection station, Honuopo, Hutchinson Sugar Co. Mill Stack, 1967, would not fit with the other control points. It was off approximately 16 feet. The fit to the other control points was good.

On strip one of this project the adjustment to ground is very poor; but no control points can be isolated as causing the poor adjustment. In the final adjustment, six control points were used to form a third degree curve. The largest residual error in the fit was six feet. Other control points were used as checks in this adjustment. The largest error of these was 16 feet and two were off by about 10 feet.

No apparent reason can be found for the discrepancies in the control for these two projects.

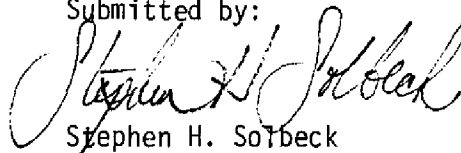
SUPPLEMENTAL DATA

USGS quads were used to provide vertical control for the job. Nautical charts covering this area were used to locate aids and landmarks.

PHOTOGRAPHY

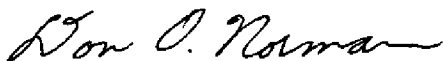
The coverage, overlap, and quality of the photography proved adequate for the job.

Submitted by:



Stephen H. Solbeck

Approved and Forwarded:



Don O. Norman  
Chief, Aerotriangulation Section

## CM-7712 HAWAII ISLAND, north coast strip 1

6 stations 3 degree

▲ 385100	PEPEEKEO POINT LT., 1948	( -0.8 -3.0 )
385101	sub point	( -0.8 -4.0 )
386100	HONOHINA, 1877 The image on the photo is very poor and its lack of fit has to be ignored although it does seem to be too large.	( -16.3 +7.7 )
▲ 387101	PUU OHAI, 1877 sub point	( -1.5 +3.4 )
392141	PAAUILO STACK, 1948	( +8.4 -4.6 )
▲ 392101	OPIHILALA, 1948 sub point A	( +6.2 +3.6 )
392102	sub point B	( +4.6 +1.4 )
394141	PAAUHAU, PAAUHAU SUGAR CO. STACK, 1913	( +6.6 +1.4 )
▲ 397101	PUU MAUU NORTH, 1938 sub point A	( -4.1 -2.6 )
397102	sub point B	( -10.4 -2.3 )
▲ 402100	NIULII, 1913	( -0.7 -5.6 )
403100	KAUHOLA POINT LT., 1948	( +3.5 -6.8 )
403141	HIND STACK, 1948	( -11.3 +0.1 )
403401	KOHALA MILL STACK, 1948	( +2.0 -4.4 )
404141	CATHOLIC CHURCH WEST CROSS ON BELFRY, 1948	( -4.0 +4.6 )
404101	KEALANEWA 2, 1948 sub point A	( +3.1 +2.3 )
▲ 404102	sub point B	( +1.0 +3.9 )
405141	LORAN A, TOWER, 1964	( -1.5 +10.4 )
405142	LORAN C, TOWER, 1964	( -4.1 +8.1 )

ISLAND OF HAWAII

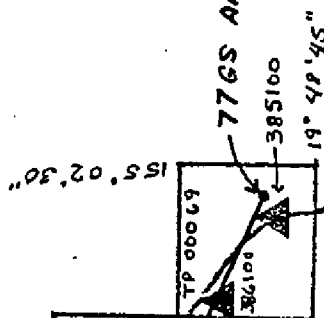
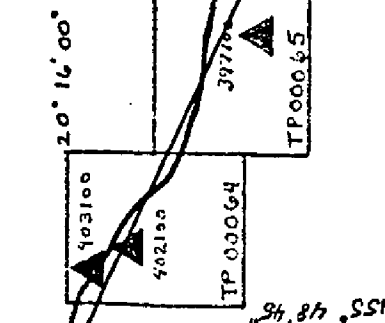
NORTH COAST

CM-7712

BRIDGING PHOTOGRAPHY

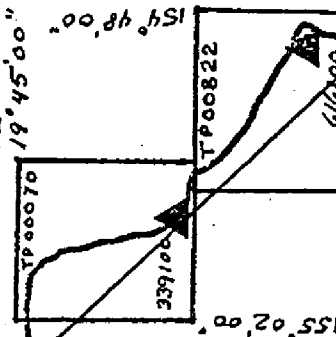
1:50000

77GS AASY 405



77GS AASY 384

77GS AASY 342



154' 48' 00"

19' 28' 00"

77GS AASY 333



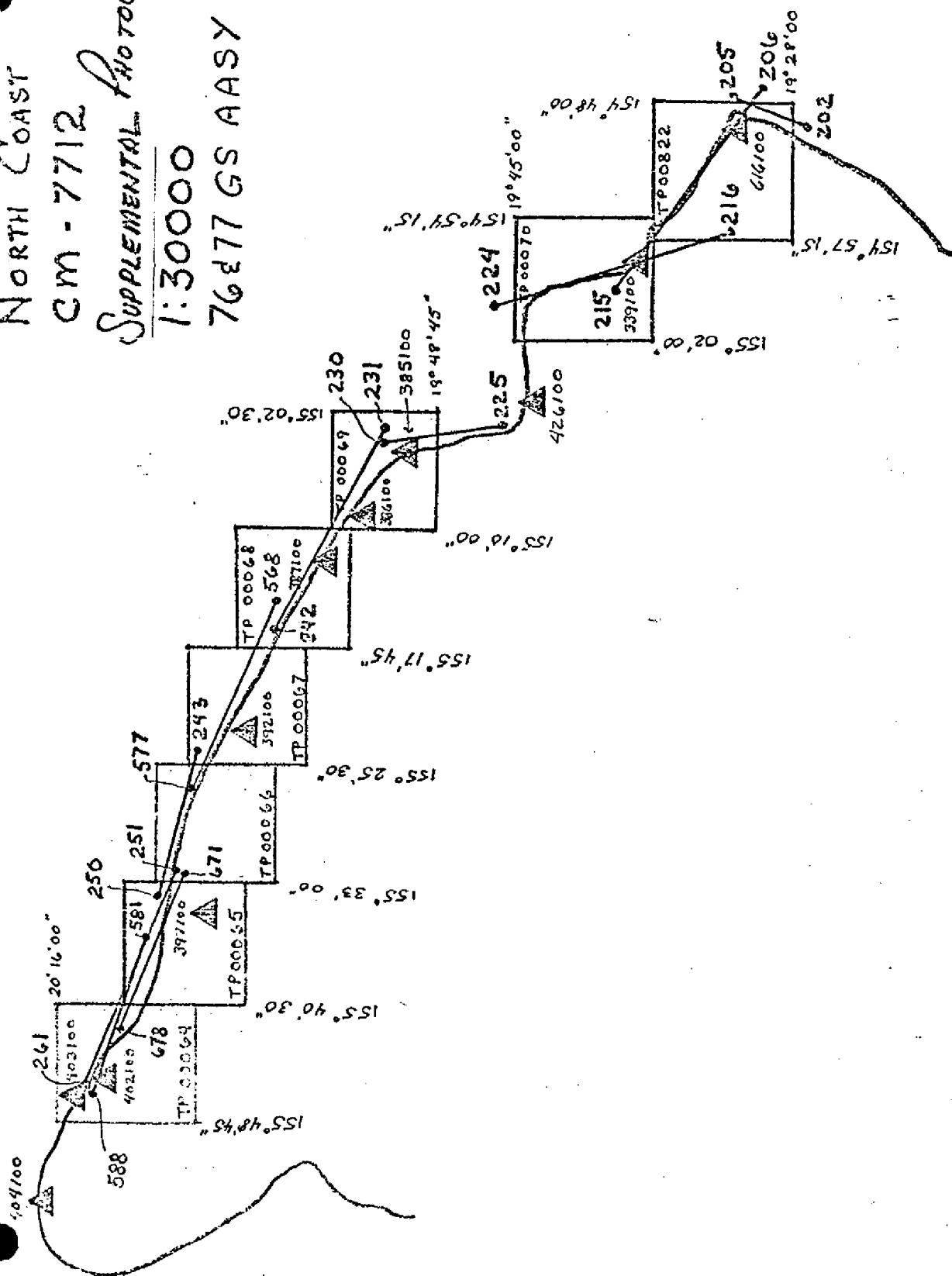
ISLAND OF HAWAII  
NORTH COAST

CM - 7712

SUPPLEMENTAL PHOTOGRAPHY

1:30000

76477 GS AASY





## COMPILATION REPORT

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31 - DELINEATION

Delineation was by instrument method using the Wild B-8 stereoplotter and 1:50,000 scale black & white photographs. Points common to the 1:30,000 ratios were selected to aid in graphic compilation of the mean high water.

32 - CONTROL

Refer to the Photogrammetric Plot Report dated Jan. 2, 1979.

33 - SUPPLEMENTAL DATA

None.

34 - CONTOURS AND DRAINAGE

Contours are not applicable to the project. Drainage was delineated by the Wild B-8 stereoplotter and by office stereoscopic interpretation of the ratioed photographs.

35 - SHORELINE AND ALONGSHORE DETAILS

The mean high water line was office edited and refined from the ratioed photographs.

Alongshore details were delineated by the office interpretation of the ratioed photographs.

36 - OFFSHORE DETAILS

Offshore details such as rocks and submerged ledge were difficult to delineate due to the surf action.

37 - LANDMARKS AND AIDS

There were no nonfloating aids within the mapping limits of this manuscript. There was one charted landmark within the mapping limits and its position was verified photogrammetrically.

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 Report dated January 2, 1979.

46 - COMPARISON WITH EXISTING MAPS

A comparison was made with USGS quadrangles Pahoa North, HA., scale 1:24,000, dated 1965 and Keaau Ranch, HA., scale 1:24,000, dated 1963 and Hilo, HA., scale 1:24,000, dated 1963.

47 - COMPARISON WITH NAUTICAL CHARTS

A comparison was made with N.O.S. Chart No. 19320, scale 1:250,000, 12th edition, dated June 17, 1978.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None.

ITEMS TO BE CARRIED FORWARD

None.

Submitted by:

*Langley Williams*

*for* Langley Williams  
Cartographic Technician  
Date: April 17, 1979

Approved:

Albert C. Rauck, Jr.  
Chief, Coastal Mapping Section



ADDENDUM TO THE COMPILATION REPORT

TP-00070  
CM-7712

FIELD EDIT

Since the stage of tide of the photography and the surf action alongshore would not permit delineation of a MLLW line, the ledge areas identified by the field editor were not applied. All of these small areas are in-shore of the breaker limit line which describes a hazard to navigation.

Compiled rocks that the Field Editor recommended for deletion, because they are part of ledge areas, were retained since no MLLW line was compiled:

3 rocks at 19°42'35", 154°59'20"  
1 rock at 19°37'59", 154°58'15"  
1 rock at 19°37'30", 154°57'01"

\*\*The Field Editor submitted a sketch for the location of 3 islets and a rock in the area where there was insufficient photo coverage (19°44'15", 155°01'50"). The data was not adequate for accurate positioning of these items. However, they have been delineated in their approximate positions by using the distances given with the aid of the 1:50,000 scale bridging photographs.

The feature described as an "artificial stone reef", designed to enclose a swimming area at Haena (19°38'49", 154°09'01") was labeled as a break-water.

Submitted by:

*Jerry L. Hancock*

for David Butler, Cartographer  
April 15, 1982

\*\* The 1:50,000 scale compilation/bridging photographs were used to delineate by instrument methods the rocks and islets of this area. The rocks were located without difficulty; consequently, the area was revised and the previous approximate position notification was removed.

Jerry Hancock  
Final Review  
Aug. 1985

*Jerry L. Hancock*

13  
AUG 13 1985

GEOGRAPHIC NAMES

FINAL NAME SHEET

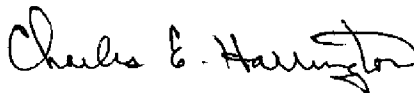
CM-7712 (Island of Hawaii - North Coast)

TP-00070

Anapuka  
Haena  
Kahului  
Kalele  
Kaloli Point  
Keauhou  
Kipaepae

Leleiwi Point  
Pacific Ocean  
Paki  
Papai  
Papuaa  
Paukupahu  
Wahine Maka Nui

Approved:



Charles E. Harrington  
Chief Geographer  
Nautical Charting Division

FIELD EDIT REPORT  
TP-00070  
HAWAII, EAST COAST  
October, 1980

DESCRIPTION

The shoreline on this sheet from Kaloli Point north to Leleiwi Point is characterized by rugged, eroding lava cliffs which are characteristic of this region of Hawaii Island. The wave action in the area is eroding the 30 - 60 ft. high cliffs along the coastline at a moderate rate, resulting in much rock and boulder rubble in the surf zone. Small beaches of boulders or coarse gravel occur infrequently, but there are no harbors of refuge or small boat landings along this portion of the coast. Geologically, the coastal terrain is of recent origin with very little vegetation within 100 yards of the water.

The only significant hazard to mariners in this area is the offshore reef known as Wahine Maka Nui at 19°39'52"N, 154°58'45"W. However, small craft attempting to approach close to shore have to contend with submerged rocks and strong swell common to this area.

West of Leleiwi Point, the coastline is characterized by low, eroding lava points separated by bays which are foul with rocks and surf. Offlying rocks make the low beach areas inaccessible to landings by small craft.

Hilo Radio Range, 1949, is a tower of landmark value at 19°43'55"N, 155°01'32"W. The tower location was verified visually by the field editor who visited the station.

METHODS

Field edit was accomplished by walking all of the shoreline with the photographs and paper manuscripts. Little regard was paid to heights of tide due to the small range of tide and the clarity of the water. Rocks not on the manuscript were identified on the paper photographs in the field using a magnifying glass and transferred to the cronopaque photos using a light table and a mirror stereoscope on board the ship. All items added to the manuscript are indicated on the photographs in violet ink. The appropriate photograph is referenced by number on the T-sheet. Green ink was used on the manuscript to indicate items to be deleted. Changes to geographic names are indicated in red ink.

Photographic coverage for this sheet ended at approximately longitude 155° 01'25"W, at the headland due north of Hilo Radio Range, 1949. A ledge was sketched in on the north end of this headland based on field edit observations and measurements. It was also necessary to sketch a bay west of this headland due to the lack of photo coverage. There are a number of islets and rocks in this bay. A Rangematic 1000 optical ranging device was calibrated on a measured range set upon a pier in Hilo and used to establish the proportionate size and

shape of the bay and to locate the prominent features within the bay. A rough sketch attached to the T-sheet shows the bay and islets and foul areas and the observation points and ranges to these features. This is not intended to be a precise survey, but is included to serve as an aid to the compiler in the interpretations of the photographs that were not available for the field edit operation.

#### ADEQUACY AND COMPLETENESS OF COMPILATION

No rocks, ledges or islets were compiled west of longitude  $155^{\circ}01'25''W$ . There are some items which should be included in this region. Since there was no photo coverage in this area, these items were positioned using measurements from identifiable points of land on the manuscript.

Numerous rocks were added within the "foul with rocks and submerged ledge" limits by the field editor to clarify detail of the coast. The foul limits indicated by the compiler were adequate north to latitude  $19^{\circ}41'20''N$ . North of this region, the foul limits were changed by the field editor based on field observations and the shoreward ends of sounding lines. Launch OIC's were instructed to break sounding lines at the surf line and, though some signs of surf may appear in the photographs seaward of the ends of these lines, the inshore sounding line limits demonstrate the point where the surf became a hazard to small boat handling and should be considered the "foul with rocks and surf" limits.

Two items were specifically addressed by the compiler to be identified in the field. A "lighted object" at  $19^{\circ}44'04''N$ ,  $155^{\circ}00'01''W$ , and another "object" at  $19^{\circ}44'12''N$ ,  $155^{\circ}01'12''W$ . Neither item could be located by the field editor on the photographs or in the field.

#### GEOGRAPHIC NAMES

All of the geographic names on this sheet were verified in the field as those names used by the local residents. They are underlined in violet ink. Two names on this sheet were changed slightly in local usage. These are Paki Bay, labeled Paki on the T-sheet, at  $19^{\circ}37'55''N$ ,  $154^{\circ}58'10''W$ , and Papai Bay, labeled Papai on the T-sheet, at  $19^{\circ}41'45''N$ ,  $154^{\circ}58'55''W$ . The word "Bay" is added to these names in red on the sheet to indicate the change.

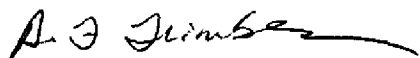
#### MANUSCRIPT ACCURACY

No formal accuracy tests were conducted.

#### RECOMMENDATIONS

This manuscript will be complete, accurate and acceptable for charting purposes upon application of field edit data.

Submitted by:



A. F. Trimble  
Ensign, NOAA

Approved by:



W. F. Forster  
Commander, NOAA



FIELD EDIT NOTE  
OPR-T126-FA-80  
HAWAII, NORTHEAST COAST  
October, 1980

There is a distinct difference between the northern sheets, TP-00069 and T-13261, and the southern sheets, TP-00070 and TP-00822, in this project. The southern coastline is characterized by heavy surf and rugged lava terrain. Field edit was accomplished by walking the shoreline to identify items on the photographs. The northern coastline is characterized by steep, heavily vegetated bluffs which made walking impractical. Field edit for these sheets was accomplished from an open skiff. Little regard was paid to stages of tide during field edit investigations because of the small tidal range and tremendous clarity of the water in these areas.

Constant heavy surf made standing on rocks and ledges impossible, but photo clarity allowed most items to be picked directly on the photo. In a few instances, water clarity allowed the field editor to see submerged rocks which could not be seen on the photos but could be a potential hazard to mariners. In these instances, foul limits were extended, according to estimated distances, to include the potential hazard.

Compiled foul limits were changed in numerous areas on all of the sheets. In some cases, the foul limits were shown extending much farther seaward than deemed necessary by the field editor. Upon field inspection, these areas were found to have frequent foam patches which can be seen on the photographs and may have been mistaken for rocks or heavy surf.

Launch OIC's were instructed to end sounding lines inshore at the point where the surf, rocks or ledges made small boat handling hazardous. All foul limits were compared to these inshore sounding line limits and adjusted by the field editor to incorporate this data and any additional rocks and ledges added from the photo-identified items. It is recommended that these foul limits be labeled "foul with rocks, submerged ledge and surf" since they were derived by these methods.

All items added to the shoreline manuscript were identified in the field on the paper photographs using a magnifying glass. These items were later picked on the final, cronopaque photographs using a mirror stereoscope and a light table for greater accuracy. Additions and changes were made to the T-sheet, in violet ink, by sliding the photographs under and tracing the item onto the manuscript. Because of photographic distortions, these positions should all be considered approximate. All deletions were made in green ink.

An investigation of geographic names was performed. United States Geological Survey topographic maps, road maps, and other local sources were consulted (see Geographic Names Report, OPR-T126-FA-80). Prominent names compiled on the T-sheet were underlined in violet or green ink to indicate the recommendation for retention or deletion. Additional new names are written and underlined in red ink.

The only notable inadequacy in compilation was on sheet TP-00070. Photographic coverage for this sheet ended at approximate longitude  $155^{\circ}01'25''\text{W}$ . The section west of this point had no compiled items, demonstrating a possible lack of photo coverage for the compiler. Items were sketched on the T-sheet by the field editor using distances from prominent, identifiable points of land on the manuscript. This is not intended to be a precise survey of this area, but should serve as a guide to the compiler in future interpretations of photographs that were not made available for the field edit operations.

Submitted by:



A. F. Trimble  
Ensign, NOAA

Approved by:



W. F. Forster  
Commander, NOAA

REVIEW REPORT  
TP-00070

SHORELINE

61 - GENERAL STATEMENT

Final review for this final field edited map was accomplished at the Atlantic Marine Center in August 1985. 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 the following 1:24,000 scale U.S.G.S. quadrangles:  
Hilo, Hawaii; dated 1963  
Keaau Ranch, Hawaii; dated 1963  
Pahoa North, Hawaii; dated 1965.

64 - COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS

A comparison was made with a registered copy of the following contemporary hydrographic surveys:  
H-9908, FA-20-4-80, 1:20,000 scale, field surveyed Sept./Oct. 1980  
H-9909, FA-20-5-80, 1:20,000 scale, field surveyed Oct./Nov. 1980  
H-9911, FA-10-3-80, 1:10,000 scale, field surveyed Oct./Nov. 1980.

The hydrographic surveys indicate various ledge limits along the shoreline. It appears that these limits were transferred from the field editors/hydrographer's delineation on the field edit print. However, according to the Addendum to the Compilation Report the ledge limits were not compiled on the shoreline map.

65 - COMPARISON WITH NAUTICAL CHARTS

A comparison was made with the following NOS Chart:  
19320, scale 1:250,000, 13th edition, 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.

TP-00070

Submitted by,

*Jerry L. Hancock*

Jerry L. Hancock  
Final Reviewer

Approved for forwarding,

*Billy H. Barnes*

Billy H. Barnes  
Chief, Photogrammetric Section, AMC

Approved,

*J. H. Mooney*

Chief, Photogrammetric Section,  
Rockville

*Ronald K. Brewer*

Chief, Photogrammetry Branch  
Rockville

Replaces C&amp;GS Form 567.

## NONFLOATING AIDS OR LANDMARKS FOR CHARTS

**U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

**ORIGINATING ACTIVITY**

- ☐ HYDROGRAPHIC PARTY  
☐ GEODETIC PARTY  
☐ PHOTO FIELD PARTY  
☒ COMPILATION ACTIVITY  
☐ FINAL REVIEWER  
☐ QUALITY CONTROL & REVIEW GRP.  
☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
photogrammetric Branch PMC, Seattle, WA	Hawaii	Hawaii - North Coast	Apr. 1982

The following objects HAVE ☒ HAVE NOT ☐ been inspected from seaward to determine their value as landmarks.

ward to determine their value as landmarks.

DATUM

SURVEY NUMBER

OPR PROJECT NO.

T-126

CM-7712

TP-00070

Old Hawaiian

**POSITION**

DESCRIPTION  
Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses.

## Identification of landmark o

LATITUDE

**O. P. Meers**

0.0 Meters

RADIO  
TOWER

(Hilo Radio Range, 1949)

151

55.317

755-07

32.190

937 3

11G7SAA5Y-341

Feb. 19, 1977 Oct. 4, 1980

- 15 -

4, 1980

19320

**METHOD AND DATE OF LOCATION**  
(See instructions on reverse side)

07313

07313

**CHARTS  
AFFECTED**

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	A. F. Trimble, Ensign, NOAA
POSITIONS DETERMINED AND/OR VERIFIED	A. F. Trimble, Ensign, NOAA
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G. A. Morris, Cartographic Technician
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
<b>OFFICE</b> <b>I. OFFICE IDENTIFIED AND LOCATED OBJECTS</b> Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	<b>FIELD (Cont'd)</b> <b>B. Photogrammetric field positions* require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.</b> EXAMPLE: P-8-V 8-12-75 74L(C)2982
<b>FIELD</b> <b>I. NEW POSITION DETERMINED OR VERIFIED</b> Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection P - Photogrammetric Vis - Visually 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	<b>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</b> Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 <b>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</b>
<b>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</b>	

