

T 11796

T-11796

NOAA FORM 76-35 (3-76)	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Map No. T-11796	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 KEALAKEKUA BAY	
1963 TO 1972	
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 Div. Atlantic Marine Center, Norfolk, VA		SURVEY <u>XX-T-11796</u> MAP EDITION NO. <u>(1)</u> MAP CLASS <u>FINAL</u> JOB <u>PH-6402</u>	
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 <u>PH-</u> MAP CLASS <u></u> SURVEY DATES: 19 <u></u> TO 19 <u></u>	
<b>I. INSTRUCTIONS DATED</b>			
<b>1. OFFICE</b>		<b>2. FIELD</b>	
Compilation Oct. 28, 1969 Amendment 1 Jan. 3, 1973 Memo Sept. 1, 1978		Control/ Field Inspection May 8, 1964	
<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  Polyconic		4. GRID(S) STATE <u>Hawaii</u> ZONE <u>1</u>	
5. SCALE 1:5,000		STATE <u></u> ZONE <u></u>	
<b>III. HISTORY OF OFFICE OPERATIONS</b>			
OPERATIONS		NAME	DATE
1. AEROTRIANGULATION METHOD: Stereoplanigraph		J. Perrow	June 1969
2. CONTROL AND BRIDGE POINTS METHOD: Coradomat		J. Perrow J. Perrow	June 1969 June 1969
3. STEREOSCOPIC INSTRUMENT COMPILATION INSTRUMENT: Wild B-8 SCALE: 1:5,000		A. Shands R. Pate N.A. N.A.	Dec. 1969 Dec. 1969  
4. MANUSCRIPT DELINEATION METHOD: Smooth drafted SCALE: 1:5,000		A. Shands R. Pate N.A. N.A. A. Shands R. Pate	Dec. 1969 Mar. 1972  Dec. 1969 Mar. 1972
5. OFFICE INSPECTION PRIOR TO FIELD EDIT		R. Pate	Mar. 1972
6. APPLICATION OF FIELD EDIT DATA		R. Minton G. Vanderhaven	Apr. 1974 Apr. 1974
7. COMPILATION SECTION REVIEW		G. Vanderhaven	Apr. 1974
8. FINAL REVIEW		J. Hancock	Apr. 1987
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH		J. Hancock	June 1987
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH		P. Dempsey	Aug 1987
11. MAP REGISTERED - COASTAL SURVEY SECTION		E. LAUGHERY	SEP 87

T-11796  
COMPILATION SOURCES

## 1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild RC-8 "E" &amp; "S"

E=152.71mm, S=152.29mm

## TIDE STAGE REFERENCE

☒ PREDICTED TIDES☐ REFERENCE STATION RECORDS☐ TIDE CONTROLLED PHOTOGRAPHYTYPES OF PHOTOGRAPHY  
LEGEND

(C) COLOR

(P) PANCHROMATIC

(I) INFRARED

## TIME REFERENCE

## ZONE

Hawaii

## MERIDIAN

150th

☒ STANDARD☐ DAYLIGHT

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
63S(C) 8136-8139**	Sept. 1, 1963	10:24	1:15,000	1.0 Ft, above MLLW
69E(C) 9334-9336**	Mar. 13, 1969	09:53	1:15,000	1.1 Ft, above MLLW
63S(C) 8073-8074*	Sept. 1, 1963	09:13	1:30,000	0.4 Ft, above MLLW
				Mean Tide Range = 1.4 Ft.

## REMARKS

\*Bridging photographs, \*\*Compilation/hydro support photographs

## 2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was compiled from office interpretation of the compilation photographs using stereo instrument and graphic methods.

## 3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE:

No mean lower low water line was compiled

## 4. CONTEMPORARY HYDROGRAPHIC SURVEYS (List only those surveys that are sources for photogrammetric survey information.)

SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED
H-9308	1972	Registered			
H-9346					

## 5. FINAL JUNCTIONS

NORTH  
NoneEAST  
T-12547SOUTH  
T-12547WEST  
T-12546

## REMARKS

This inset map is contained within portions of 1:10,000 scale maps T-12546 and T-12547.

T-11796

## HISTORY OF FIELD OPERATIONS

I. ☒ FIELD INSPECTION OPERATION☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Newsom	Feb.-Sept. 1964
2. HORIZONTAL CONTROL	RECOVERED BY: Cline ESTABLISHED BY: None PRE-MARKED OR IDENTIFIED BY: None	Sept. 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: E. Cline LOCATED (Field Methods) BY: None IDENTIFIED BY: E. Cline	Sept. 1964 Sept. 1964
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/Sept 1964
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY: N.A.	

## 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)

63(S) 8085, 8086 (1:30,000 scale matte contacts)

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME
63(S) 8085 "	Napoopoo Light Cooks Monument		

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 Project field report

NOAA FORM 76-36C  
(3-72)U. S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEYT-11796  
HISTORY OF FIELD OPERATIONSI. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	(NOAA Ship RAINIER) G. Haraden	Sept. 1972
2. HORIZONTAL CONTROL	RECOVERED BY S. Hollingshead ESTABLISHED BY None PRE-MARKED OR IDENTIFIED BY None	Sept. 1972
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 S. Hollingshead LOCATED (Field Methods) BY None IDENTIFIED BY S. Hollingshead	Sept. 1972
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 S. Hollingshead	Sept. 1972
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY N.A.	

## 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)

63(S) 8138 (Matte ratio, 1:5,000 scale)

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

PHOTO NUMBER

OBJECT NAME

PHOTO NUMBER

OBJECT NAME

63(S)8138

"

Napoopoo Light  
Cooks Monument

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 Field edit paper print  
1 Field edit report  
1 Form 76-40

T-11796  
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	Mar. 1972	Class II manuscript	None	July 1972
Field edit applied, compilation complete	Apr. 1974	Class I manuscript	June 1980	May 1974
Final Review	Apr. 1987	Final Map	July 1987	July 1987

## II. LANDMARKS AND AIDS TO NAVIGATION

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

NUMBER pages	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
2		June 1980	Landmarks & Aid. for Charts

2. ☒ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: June 19803. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: None

## III. FEDERAL RECORDS CENTER DATA

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.  
2. ☐ CONTROL STATION IDENTIFICATION CARDS; ☒ FORM NOS 26-40 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	



SUMMARY TO ACCOMPANY  
DESCRIPTIVE REPORT

T-11796

This 1:5,000 scale Final Field Edited Inset 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 provides a large scale portrayal of Kealakekua Bay and vicinity. This inset map is contained within the northern segment of maps T-12546 and T-12547.

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. In addition, 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 adjoining project PH-6401.

Analytic aerotriangulation for the 1963 photography was adequately provided by the Washington Science Center in June 1969. Tie points from photo strip #4 contained in adjoining project PH-6401 were included in this bridge. Results from the bridge were used indirectly to control this inset map. Since the 1969 photographs, used to compile this map, were not included in the bridge, compilation was task with determining control common to the 1963 and 1969 photography. During the compilation of the common smaller scale map T-12547, sufficient pass points were established by stereo instrument methods to adequately control the 1969 photographs. Aerotriangulation activity included ruling the base manuscript and also provided ratio prints of the 1963 and 1969 photographs for compilation and hydrographic/field edit operations.

Compilation for this inset map was performed at the Coastal Mapping Section, Atlantic Marine Center in March 1972. The primary source of compilation was the 1969 color photographs; however, the field inspected



T-11796

1963 bridging photographs and the 1963 color photographs were used to supplement the photointerpretation. Copies of the initial compilation and hydrographic support data were forwarded to the hydrographer for field edit.

Field edit was conducted in conjunction with hydrographic survey H-9308 by NOAA Ship RAINIER personnel in September 1972.

Application of field edit was completed at the original compilation office in April 1974 and the manuscript was advanced to Class I. Map copies were submitted to the hydrographer for smooth sheet application.

Final review was performed at the Atlantic Marine Center in April 1987. A comparison was made with the common hydrographic surveys 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-11796

Field activity prior to compilation included a field inspection of the shoreline and the recovery/photoidentification of horizontal control necessary for project aerotriangulation. Field inspection consisted of an evaluation of the 1963 1:30,000 scale contact photographs. The 1969 photographs used to compile this manuscript were not field inspected.

UNITED STATES GOVERNMENT

# Memorandum

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

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63/W

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 a FELE, 1891  
PUU KI, 1914  
TANK, 1948

Supplimental Station Pricked:  
KAUNA POINT LIGHT, 1949

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

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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.

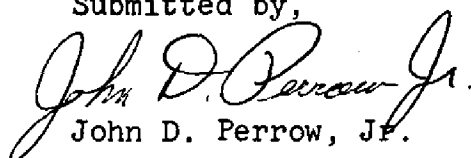
#### 24. Supplemental Data

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

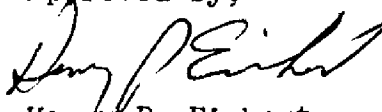
#### 25. Photography

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.

JOB PH-6402

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SHORELINE MAPPING

JOB PH-6402

HAWAII IS. WEST COAST

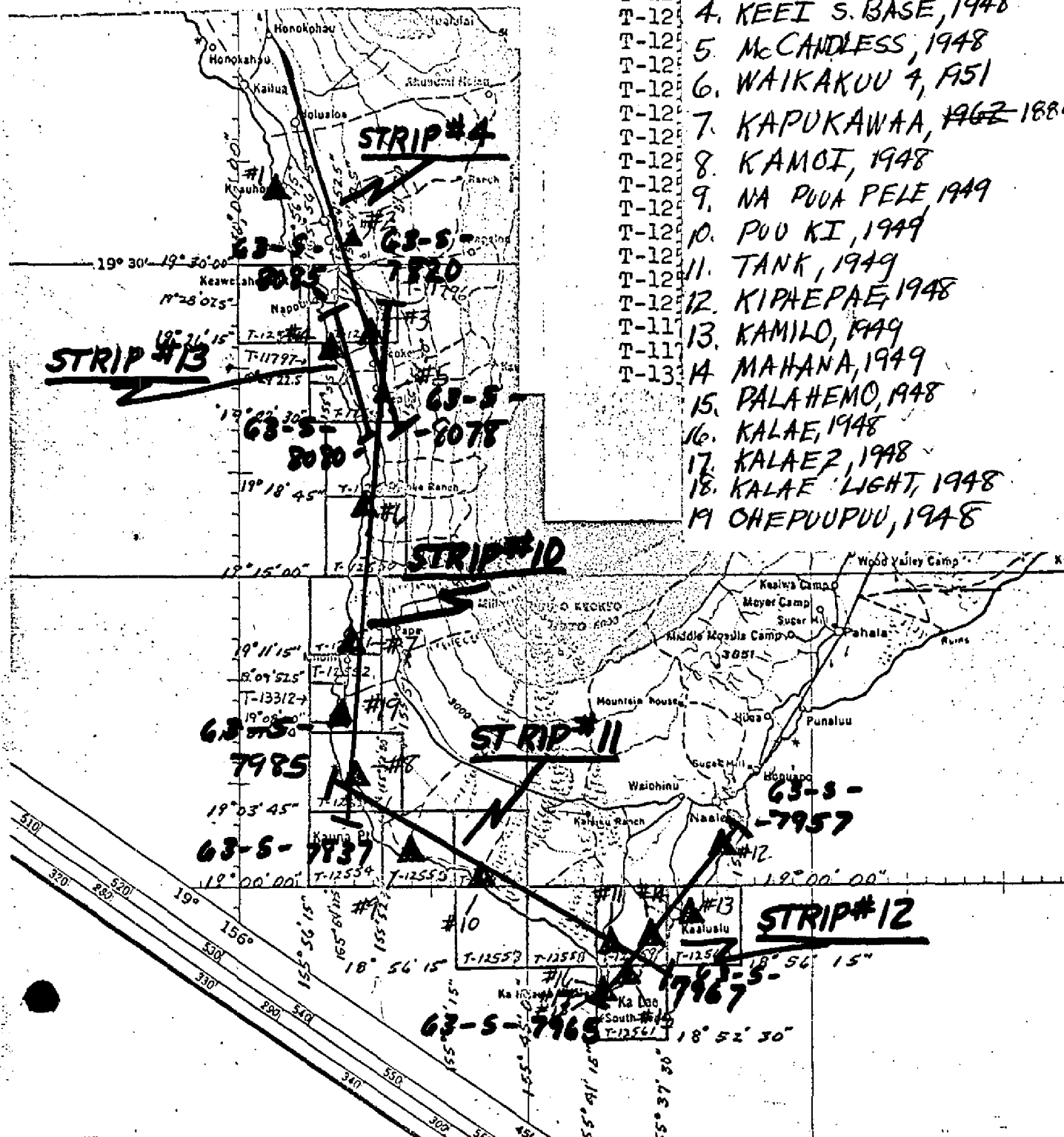
OFFICIAL MILEAGE FOR COST ACCOUNT

KAHILUA TO SOUTH CAPE

SCALE 1:10,000

Sheet  
No.

1. POINT, 1928
2. KANAKU, 1948
3. HONAUNAU ST. BENEDICT  
CATH. CH. SPIRE, 1948
4. KEEI S. BASE, 1948
5. McCANDLESS, 1948
6. WAIKAKU 4, 1951
7. KAPUKAWAA, 1962-1884
8. KAMOI, 1948
9. NA PUUA PELE 1949
10. POU KI, 1949
11. TANK, 1949
12. KIPAEPAE, 1948
13. KAMILO, 1949
14. MAHANA, 1949
15. PALAHEMO, 1948
16. KALAE, 1948
17. KALAE 2, 1948
18. KALAE LIGHT, 1948
19. OHEPUUPUU, 1948



Photogrammetric Plot Report

PH-6401

Hawaii Island, Hawaii

Feb. 4, 1969

21. Area Covered

The area covered by this report is along the northwest coast of Hawaii Island. T-sheets in this area are numbered 12534 thru 12541, 12543, and 12545 at 1:10,000 scale. T-sheets 12542, 12544, 12635, 13131 and 13132 at 1:5,000 scale. Sheets T-12527 thru 12533 and 13154 were covered by a previous report on Strips #1 and #2.

22. Method

All strips were bridged on the stereoplanigraph and adjusted by IBM 1620 methods. Strip #3 was adjusted on four stations with two additional stations as checks. Strip #4 was adjusted on seven stations with two additional stations as checks. Strip #6 was adjusted on two control points plus 7 tie points. Strip #7 was adjusted on one control station and three tie points. Strip #8 was adjusted on three control stations and three tie points. All tie points between strips were averaged. Points were drilled using the Wild PUG.

23. Adequacy of Control

The control provided by the field was adequate after reidentification of Anaehoomalu 1913, Lana Cone, 1913 and the identification of Hand, 1928 and Nawai 1928. The following stations could not be held in the bridging adjustments.

1. LAVA CONE, 1913, SS #A and SS #B ("NEAR"). By holding four triangulation stations and floating substitute stations "NEAR A AND B", a 1 ft. check was achieved between these substitute stations and placed LAVA CONE, 1913 80 ft. north of survey mark "NEAR" and on the high point of the immediate area. This bares out the field recovery note for station LAVA CONE 1913 that the survey mark "NEAR" and intersection station LAVA CONE, 1913 are not one and the same. Geodesy Division has been notified of our findings and the bridging information added to their files.
2. KEEI SOUTH BASE, 1948 SS #1 and SS #2 could not be held in Strip #4 by 11' and 16' respectively. It is believed these errors are due to bad identification, since seven other stations were held in the adjustment. This station falls in Strip #4 but is outside of the PH-6401 area of compilation.



24. Supplemental Data

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 with the exception of T-12542. 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,

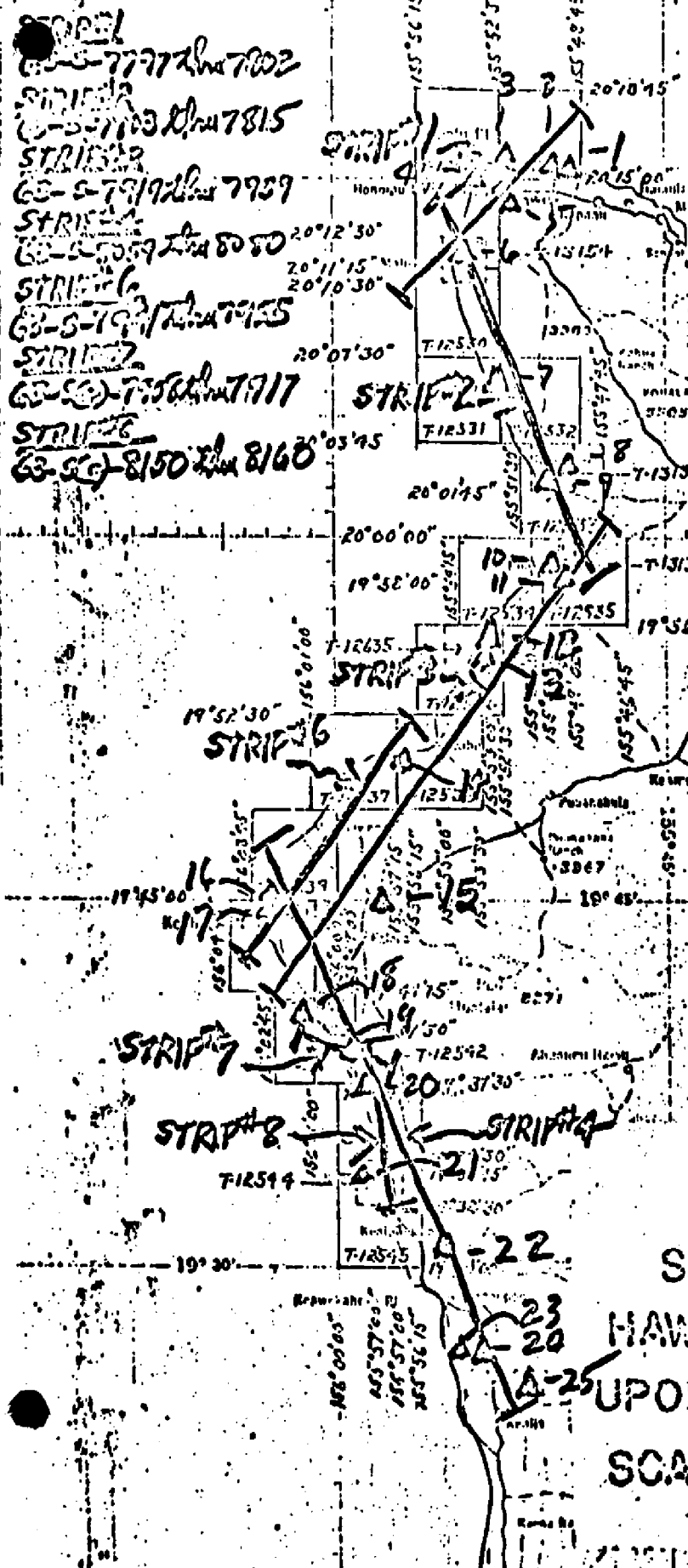
*John D. Perrow Jr.*  
John D. Perrow, Jr.

Approved by,

*Henry P. Eichert*

Henry P. Eichert  
Chief, Aerotriangulation Section

per phone call John Perrow 3/5/69  
Old Hawaiian Datum



1. KEPU 1 2, 1948
2. KEPUHI, 1913
3. KEALAHUEA 2, 1948
4. LORAN TOWER, 1948
5. PUU ULU, 1913
6. RED TANK, 1948
7. KEAWANUI, 1948
8. PUU KAMALI, 2, 1928
9. KAWAIAE LT. 1928
10. PUKO, 1873
11. PUKO NEW, 1948
12. ANAHOOMALU, 1913
13. HAND, 1928
14. NAWAI, 1928
15. LAVA CONE, 1913
16. KEAHOLE 2, 1948
17. KEAHOLE, 1882
18. KEARUOLD PT. NAV. RANGE MARKER, 1948
19. KAILUA, 1887
20. KAHALO, 1882
21. POINT, 1928
22. KEALAKEMU KONA CH. SPIRE, 1948
23. KEET SOUTH BASE, 1948
24. HONAHUUA ST. BENEDICT CATH. CHURCH SPIRE, 1948
25. MC CANDLESS, 1948

JOB PH-6401

SHORELINE MAPPING

HAWAII IS. WEST COAST  
UPOLO POINT TO KAILUA  
SCALE 1:5,000 & 1:10,000

## DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	GEODETTIC DATUM			ORIGINATING ACTIVITY				
		Old Hawaiian Datum	COORDINATES IN FEET		GEOGRAPHIC POSITION				
STATION NAME	SOURCE OF INFORMATION (Index)	PH-6401	AEROTRI-ANGULATION POINT NUMBER	STATE	ZONE	HAUWAI	φ LATITUDE	λ LONGITUDE	REMARKS
T-11796									
NAPOOPOO LIGHT, 1928	G.P. Pg. 34						φ 19° 28' 55.877"		
							λ 155° 56' 21.592"		
NAPOOPOO, KAHIKOLU	G.P. Pg. 34						φ 19° 28' 21.182"		
CHURCH, SPIRE, 1913							λ 155° 55' 05.795"		
							φ		
							λ		
							φ		
							λ		
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COMPUTED BY	A. C. Rauck, Jr.		DATE 8-4-69	COMPUTATION CHECKED BY					DATE
LISTED BY			DATE	LISTING CHECKED BY					DATE
HAND PLOTTING BY			DATE	HAND PLOTTING CHECKED BY					DATE

## COMPILATION REPORT

T-11796

31. DELINEATION:

Delineation was accomplished by stereo instrument methods using the 1969 1:15,000 scale compilation photographs. Ratio prints of the 1:15,000 scale 1963 photographs along with the 1969 photographs were used graphically to supplement the compilation of minor detail and to assist in photointerpretation. Field inspected data, annotated on the 1963 1:30,000 bridging photographs, was applied where the features could be accurately identified and transferred to the 1969 compilation photographs. Individual rocks that could not be clearly identified were not compiled.

Photo coverage and quality were adequate.

32. CONTROL:

Control for this sheet was established by instrument compilation methods from the common 1:10,000 scale manuscript T-12547. When map T-12547 was compiled from 1963 photographs, common points were established on the 1969 photography and the positions were plotted on this manuscript. Refer to the Office Instruction dated October 28, 1969-Item 5.08 and Photogrammetric Plot Reports dated February 4, 1969 (PH-6401) and June 10, 1969.

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 fowl limits were delineated from office interpretation of the 1969 compilation photographs and from the annotated 1963 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-11796

37. LANDMARKS AND AIDS:

Appropriate data was prepared for field edit.

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 this report, Item 32.

46. COMPARISON WITH EXISTING MAPS:

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

47. COMPARISON WITH NAUTICAL CHARTS:

A comparison was made with C. & G.S. Charts:

4123, 2nd edition, scale 1:10,000, June 12, 1967

4140, 3rd edition, scale 1:80,000, January 24, 1966.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY:

None.

ITEMS TO BE CARRIED FORWARD:

None.

Submitted by:

*for* *Jerry L. Hancock*  
Arnold L. Shands  
Cartographer  
December 1969

Approved:

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

## ADDENDUM TO THE COMPILATION REPORT

T-11796

Field edit was performed in conjunction with hydrographic surveys H-9308 and H-9346 in September 1972. Field edit did not resolve the difference between the published and photo position for Captain Cook's Monument and Napcoopo Light. The photo position for both features were submitted on the 76-40 forms. The manuscript was advanced to Class I.

October 24, 1969

GEOGRAPHIC NAMES

FINAL NAME SHEET

PH-6402 Hawaii

T-11796

Captain Cook ----(Not Compiled)

Cook Point

Cooks Monument

Island of Hawaii

Kaawaloa

Kaawaloa Cove

Kealahou Bay

Manini Beach

Napoopoo

Napoopoo Lighthouse

Napoopoo Park

Pacific Ocean

Approved by:

A. J. Wright  
A. Joseph Wright  
Chief Geographer

Prepared by:

Frank W. Pickett  
Frank W. Pickett  
Cartographic Technician

FIELD EDIT REPORT

OPR-419, 1972

T-12539 through T-12550  
T-13382 T-11796  
Kona Coast, Hawaii

NOAA Ship RAINIER

CAPT G.E. HARADEN  
Commanding



## INTRODUCTION - METHODS

Field edit was accomplished between 14 September and 26 October 1972 by personnel of the NOAA Ship RAINIER. Work was performed from a 16 foot skiff. Landings were made where necessary to verify shoreline character.

The field edit started approximately 0.4 miles north-east of Puialoa Point, Hawaii and extended southward to Puoa Point (see appendix). Editing was completed on Manuscripts T-12539, T-12540, T-12541, T-12542, T-13382, T-12543, T-12544, T-12545, T-11796, T-12546, T-12548, and T-12549. Field edit was begun but not completed on Manuscript T-12550. No field edit was done on Manuscripts T-12547 and T-11797.

All additions and corrections were noted in purple on the field edit ozalids. Deletions were accented in green. Photos used in this edit were from PH-6401 and 6402. Values given for distances from MHWL and heights of rocks were estimated. All time references were made to 150° W longitude.

To aid in cross-referencing, A "Manuscript Reference Index" and a "Position Abstract" are included in the appendix. Also included in the appendix are: 1) List of detached positions, 2) A complete signal tape listing, 3) Listing of Triangulation Stations recovered, established, and re-established.

### ADEQUACY OF COMPILATION

The compilation of the MHWL on the edited manuscripts was excellent and required very few corrections. In general the compilation of off-shore features was also excellent. Time and height data for rocks not identified on the manuscripts has been included on the photographs.

### DISCUSSION AND RECOMMENDATIONS

#### T-12539 (completed) Mahailua Bay

The shoreline in this area is primarily composed of steep cliffs 20' high, interspersed with sandy beach. The northern and southern-most buildings at Mahailua Bay are the only two prominent objects in the vicinity and therefore are of landmark value. The wooden windmill located at  $19^{\circ} 47' 13.35''$  N and  $156^{\circ} 02' 22.50''$  W, is no longer standing and should be deleted from C&GS Chart 4140. Further information is furnished on NOAA Form 76-40 (see appendix).

#### T-12540 (completed) Makako Bay

The shoreline in this area is composed primarily of low bluffs and sandy beach with marsh surrounding fish ponds.

Keahole Point Lighthouse is of landmark value. The lighthouse was field identified from photo 63-S-7943. Further information is provided on NOAA Form 76-40 (see appendix).

T-13382 (completed) Honokohau Bay

The shoreline in this area is composed primarily of gently sloping lava flows with interspersed sandy beach and marsh surrounding Kaloko Fish Pond.

Keahuolu Point Northeast Range Marker, 1948, is of landmark value. Keahuolu Point Northwest Range Marker, 1948\*, has fallen over and is no longer visible from seaward. Four new navigational lights mark the entrance to the new boat basin at Honokohau, located just south of Maliu Point. Further information is provided on NOAA Form 76-40 (see appendix).

T-12541 (completed) Kailua Bay

The shoreline in this area is composed primarily of sloping lava rock with marsh surrounding small ponds and fish ponds at Honokohau Bay.

\* NOTE: Keahuolu Point Northeast Range Marker, 1948, and Keahuolu Point Northwest Range Marker, 1948, are located on Manuscripts T-12541 and T-13382.

The northern-most building at Honokohau, although small, is of landmark value as a navigational aid when entering the Honokohau boat basin. Keahuolu Point Northeast, Keahuolu Point Southeast, and Keahuolu Point Southwest Range Markers are very faded and weathered but are of landmark value. The building located at Honokohau (approximate location, latitude  $19^{\circ}40'25.85''$  N and longitude  $156^{\circ}01'44.83''$  W) and Keahuolu Point Northwest Range Marker are not visible from seaward and should be deleted. Further information is provided on NOAA Form 76-40 (see appendix).

T-12542 (completed) Kailua Bay

The shoreline in this area is composed primarily of low bluffs interspersed with sandy beach.

The facade of the Kona Hilton Hotel, which is illuminated yellow at night, and Kailua Lighthouse are of landmark value; both were intersected using second order, class II methods. A crane lighted at night by a floodlight and used by fishermen as a navigational aid and the Kailua Mokuaiakaua Church spire are also of landmark value.

The cattle pens, small craft warning mast, and building on the Kailua pier have been removed and should be deleted. The tanks located at latitude  $19^{\circ}38'34.80''$  N, and longitude  $156^{\circ}00'03.46''$  W, and the Kona Airport Airway Beacon have been removed and should be deleted. The church spire, latitude  $19^{\circ}38'24.22''$  N and longitude  $155^{\circ}59'37.05''$  W, is

present as described but is obscured by vegetation. Further information is provided on NOAA Form 76-40 (see appendix).

T-12543 (completed) Keauhou Bay

This area is composed primarily of rocky shoreline interspersed with sandy beaches.

New buildings at latitude  $19^{\circ}35'52.50''$  N, longitude  $155^{\circ}58'31.50''$  W and latitude  $19^{\circ}34'39.60''$  W, longitude  $155^{\circ}58'12.60''$  W are not of landmark value. A hotel just south of Kalaau o Kalakani and a blue church building at Kahaluu Bay are of landmark value.

A spire at Kahaluu Bay is not visible and should be deleted. Further information is provided on NOAA Form 76-40 (see appendix).

T-12544 (completed) Keauhou Bay

The shoreline in this area is primarily composed of lava bluffs 30 feet high.

Keauhou Bay Light and Keauhou Bay Entrance Directional Light (both lights on the same structure) and the Kona Surf Hotel (approximate position scaled) are of landmark value. Further information is provided on NOAA Form 76-40 (see appendix).

T-12545 (completed) Keikiwaha Point

The shoreline in this area is composed of low lava bluffs approximately 10 feet high. There are no objects of landmark value.

T-12546 (completed) Keawekahaka Bay

The shoreline in this area is primarily composed of lava bluffs approximately 30 feet high.

There are no objects of landmark value.

T-11796 (completed) Kealakekua Bay

The shoreline in this area consists of low lava bluffs six to ten feet high with rocky beaches and a steep cliff (160 feet high) on the northeast side of the bay.

Napoopoo, Kahikolu Church Spire, 1913, Napoopoo Lighthouse, and Captain Cook's Monument are all of landmark value. Further information is provided on NOAA Form 76-40 (see appendix).

T-12547 (incomplete) Kealakekua Bay

No field edit was done on this manuscript.

T-11797 (incomplete) Honaunau Bay

No field edit was done on this manuscript.

T-12548 (completed) Kauhako Bay

The shoreline in this area is composed of bluffs approximately 40-60 feet high with interspersed sandy beach. Buildings in the area indicated on the manuscript at Kauhako Bay are of landmark value. (building locations were not determined by the field editor or located by the compiler - see manuscript).

A church steeple located near Palianihi Point no longer exists and should be deleted.

Further information is provided on NOAA Form 76-40 (see appendix).

T-12549 (completed) Kauluoa Point

The shoreline in this area is composed of cliffs from 10 to 60 feet high interspersed with gravel, sand, and rocky beaches. There are no objects of landmark value.

T-12550 (incomplete) Puoa Point

The shoreline in this area is composed of lava bluffs approximately 40-60 feet high. There are no objects of landmark value. Field edit was completed to Puoa Point.

Respectfully submitted,

*Steven J. Hollinshead*  
Steven J. Hollinshead  
LTJG, NOAA

## MANUSCRIPT REFERENCE INDEX

OPR-419

FIELD EDIT

MANUSCRIPT NUMBER	REFERENCE PHOTO NUMBERS	REFERENCE DETACHED POSITIONS
T-12539 Mahailua Bay	63-S-7948 63-S-8060	
T-12540 Makako Bay	63-S-7943 63-S-8063*	
T-12541 Kailua Bay	63-S-8063* 63-S-8094	
T-13382 Honokohau Bay	69-E-9255 69-E-9254	
T-12542 Kailua Bay	63-S(C)-7913 63-S(C)-7915 63-S(C)-7917	Detached Positions 10/05/72
T-12543 Keauhou Bay	63-S-8067 63-S-8068	
T-12544 Keauhou Bay	63-S(C)-8158 63-S(C)-8159 63-S(C)-8160	

\*NOTE: Photo 63-S-8063 used on T-Sheets T-12540  
and T-12541



MANUSCRIPT NUMBER	REFERENCE PHOTO NUMBERS	REFERENCE DETATCHED POSITIONS
T-12545 Keikiwaha Point	63-S-8088 63-S-8087*	
T-12546 Keawekaheka Bay	63-S-8087*	
T-11796 Kealakekua Bay	63-S-8138	Detatched Position 9/14/72
T-12547 Kealakekua Bay	**	
T-11797 Honaunau Bay	**	
T-12548 Honaunau Bay	63-S(C)-8027 63-S(C)-8026 63-S(C)-8025	
T-12549 Kauluoa Point	63-S(C)-8024 63-S(C)-8023 63-S(C)-7888 63-S(C)-7887 63-S(C)-7886	
T-12550	63-S(C)-7884	

\*NOTE: Photo 63-S-8087 used on T-Sheets T-12545 and T-12546

\*\*NOTE: No field edit done

REVIEW REPORT  
SHORELINE  
T-11796

61. GENERAL STATEMENT:

Final review for this Final Field Edited Inset Map was accomplished at the Atlantic Marine Center in April 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 Honaunau, Hawaii, dated 1959, scale 1:24,000.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

This map is common to hydrographic surveys H-9308, RA-5-2-72, 1:5,000 scale and H-9346, RA-10-9-72, 1:10,000 scale. A comparison with both surveys did not reveal any significant differences.

65. COMPARISON WITH NAUTICAL CHARTS:

A comparison was made with NOS charts:

19332, 6th edition, scale 1:10,000, February 15, 1986

19327, 8th edition, scale 1:80,000, September 5, 1981.

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:

*Jerry O. Roborn*  
Chief, Photogrammetric Production Sec.

*A. V. Bryan*  
Chief, Photogrammetry Branch

[illegible]

RESPONSIBLE PERSONNEL		ORIGINATOR
TYPE OF ACTION	NAME	
OBJECTS INSPECTED FROM SEAWARD	S. Hollinshead	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	S. Hollinshead	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G. Vanderhaven	<input type="checkbox"/> OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
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 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 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	<b>II. TRIANGULATION STATION RECOVERED</b> When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 <b>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</b> Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	

**NONE OF THESE ARE LANDMARKS FOR CHARTS**

## HOW TO OBTAIN CITIES OR LANDMARKS FOR CHARTS

[illegible]

RESPONSIBLE PERSONNEL		ORIGINATOR
TYPE OF ACTION	NAME	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
OBJECTS INSPECTED FROM SEAWARD	S. Hollinshead	<input type="checkbox"/> FIELD ACTIVITY REPRESENTATIVE <input type="checkbox"/> OFFICE ACTIVITY REPRESENTATIVE
POSITIONS DETERMINED AND/OR VERIFIED	S. Hollinshead	<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G. Vanderhaven	

**INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'**  
(Consult Photogrammetric Instructions No. 64.)

OFFICE	FIELD (Cont'd)
<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>II. TRIANGULATION STATION RECOVERED</b> When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75
<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 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

\*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

\*\*PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

