NOAA FORM 76-35
(U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATOMIC ADMINISTRATION
NATIONAL OCEAN SURVEY)

DESCRIPTIVE REPORT

Map No.  T-12546  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

Locality  KAILUA TO SOUTH CAPE

KEAWEAHEKA BAY

1963 TO 1972

REGISTRY IN ARCHIVES

DATE

*U.S. GOVERNMENT PRINTING OFFICE: 1976-669-248
**DESCRIPTIVE REPORT - DATA RECORD**

**PHOTOGRAMMETRIC OFFICE**
Coastal Mapping Div.
Atlantic Marine Center, Norfolk, VA

OFFICER-IN-CHARGE
R. Matsushige

**I. INSTRUCTIONS DATED**

<table>
<thead>
<tr>
<th>INSTRUMENTS DATED</th>
<th>1. OFFICE</th>
<th>2. FIELD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compilation</td>
<td>Oct. 28, 1969</td>
<td>Control/Field Inspection May 8, 1964</td>
</tr>
<tr>
<td>Amendment 1</td>
<td>Jan. 3, 1973</td>
<td></td>
</tr>
<tr>
<td>Memo</td>
<td>Sept. 1, 1978</td>
<td></td>
</tr>
</tbody>
</table>

**II. DATUMS**

1. HORIZONTAL:
- 1927 NORTH AMERICAN
- OTHER (Specify)

2. VERTICAL:
- MEAN HIGH-WATER
- MEAN LOW-WATER
- MEAN LOWER LOW-WATER
- MEAN SEA LEVEL

3. MAP PROJECTION
- Polyconic

4. GRID(S)
- STATE: Hawaii
- ZONE 1

**III. HISTORY OF OFFICE OPERATIONS**

<table>
<thead>
<tr>
<th>OPERATIONS</th>
<th>METHOD</th>
<th>NAME</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. AEROTRIANGULATION</td>
<td>Stereoplanigraph</td>
<td>J. Perrow</td>
<td>June 1969</td>
</tr>
<tr>
<td>2. CONTROL AND BRIDGE POINTS</td>
<td>Corodemat</td>
<td>J. Perrow</td>
<td>June 1969</td>
</tr>
<tr>
<td>3. STEREOSCOPIC INSTRUMENT COMPILATION</td>
<td>Planiometry by, Checked by</td>
<td>L. Neterer</td>
<td>Oct. 1969</td>
</tr>
<tr>
<td></td>
<td>Scale: 1:10,000</td>
<td>N.A.</td>
<td></td>
</tr>
<tr>
<td>4. MANUSCRIPT Delineation</td>
<td>Planiometry by, Checked by</td>
<td>A. Shands</td>
<td>Dec. 1969</td>
</tr>
<tr>
<td></td>
<td>Contours by, Checked by</td>
<td>R. Pate</td>
<td>Feb. 1972</td>
</tr>
<tr>
<td></td>
<td>Method: Smooth drafted</td>
<td>N.A.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scale: 1:10,000</td>
<td>Hydro Support Data by, Checked by</td>
<td>A. Shands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R. Pate</td>
<td>Feb. 1972</td>
</tr>
<tr>
<td>5. OFFICE INSPECTION PRIOR TO FIELD EDIT</td>
<td>By</td>
<td>R. Pate</td>
<td>Feb. 1972</td>
</tr>
<tr>
<td>6. APPLICATION OF FIELD EDIT DATA</td>
<td>By</td>
<td>L. Graves</td>
<td>Feb. 1973</td>
</tr>
<tr>
<td></td>
<td>Checked by</td>
<td>R. White</td>
<td>Feb. 1973</td>
</tr>
<tr>
<td>7. COMPILATION SECTION REVIEW</td>
<td>By</td>
<td>R. White</td>
<td>Feb. 1973</td>
</tr>
<tr>
<td>8. FINAL REVIEW</td>
<td>By</td>
<td>J. Hancock</td>
<td>April 1973</td>
</tr>
<tr>
<td>9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH</td>
<td>By</td>
<td>J. Hancock</td>
<td>June 1987</td>
</tr>
<tr>
<td>10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH</td>
<td>By</td>
<td>E.L. MacRae</td>
<td>May 1977</td>
</tr>
<tr>
<td>11. MAP REGISTERED - COASTAL SURVEY SECTION</td>
<td>By</td>
<td>E.L. MacRae</td>
<td>May 1977</td>
</tr>
</tbody>
</table>
1. **Compilation Photography**

<table>
<thead>
<tr>
<th>Camera(s)</th>
<th>Types of Photography Legend</th>
<th>Time Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild RC-8 &quot;S&quot;, S=152.29mm</td>
<td>(C) Color (P) Panchromatic (I) Infrared</td>
<td>Zone: Hawaii, Standard Meridian: 150th</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number and Type</th>
<th>Date</th>
<th>Time</th>
<th>Scale</th>
<th>Stage of Tide</th>
</tr>
</thead>
<tbody>
<tr>
<td>63S(C) 8035-8036**</td>
<td>Aug. 31, 1963</td>
<td>10:30</td>
<td>1:15,000</td>
<td>1.4 FT. above MLLW</td>
</tr>
<tr>
<td>63S(C) 8139**</td>
<td>Sept. 1, 1963</td>
<td>10:26</td>
<td>1:15,000</td>
<td>1.0 FT. above MLLW</td>
</tr>
<tr>
<td>63S(P) 8072-8073*</td>
<td>Sept. 1, 1963</td>
<td>09:13</td>
<td>1:30,000</td>
<td>0.4 FT. above MLLW</td>
</tr>
</tbody>
</table>

**Remarks:** Bridging/Compilation 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.)*

<table>
<thead>
<tr>
<th>Survey Number</th>
<th>Date(s)</th>
<th>Survey Copy Used</th>
<th>Survey Number</th>
<th>Date(s)</th>
<th>Survey Copy Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-9346</td>
<td>1972</td>
<td>Registered</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. **Final Junctions**

<table>
<thead>
<tr>
<th>North</th>
<th>East</th>
<th>South</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-12545 (PH-6401)</td>
<td>T-12547, T-11796*</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

**Remarks:** Inset map T-11796 (1:5,000 scale) lies within the northeast portion of this manuscript.
**HISTORY OF FIELD OPERATIONS**

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>NAME</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CHIEF OF FIELD PARTY</td>
<td>R. Newsom</td>
<td>Feb.-Sept. 1964</td>
</tr>
<tr>
<td>2. HORIZONTAL CONTROL</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>3. VERTICAL CONTROL</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>4. LANDMARKS AND AIDS TO NAVIGATION</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>5. GEOGRAPHIC NAMES INVESTIGATION</td>
<td>E. Cline</td>
<td>Sept. 1964</td>
</tr>
<tr>
<td>6. PHOTO INSPECTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. BOUNDARIES AND LIMITS</td>
<td>N.A.</td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE DATA**

| 1. HORIZONTAL CONTROL IDENTIFIED | None |
| 2. VERTICAL CONTROL IDENTIFIED  | None |

<table>
<thead>
<tr>
<th>PHOTO NUMBER</th>
<th>STATION NAME</th>
<th>PHOTO NUMBER</th>
<th>STATION DESIGNATION</th>
</tr>
</thead>
</table>

3. PHOTO NUMBERS (Clarification of details)

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

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

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)

Project field report
**HISTORY OF FIELD OPERATIONS**

1. **FIELD EDIT OPERATION**

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>NAME</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CHIEF OF FIELD PARTY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. HORIZONTAL CONTROL</td>
<td>Recovered by</td>
<td>Sept. 1972</td>
</tr>
<tr>
<td></td>
<td>(NOAA Ship RAINIER)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G. Haraden</td>
<td></td>
</tr>
<tr>
<td>3. VERTICAL CONTROL</td>
<td>Recovered by</td>
<td>Sept. 1972</td>
</tr>
<tr>
<td></td>
<td>(Triangulation Stations)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S. Hollinshead</td>
<td></td>
</tr>
<tr>
<td>4. LANDMARKS AND AIDS TO NAVIGATION</td>
<td>Recovered (Field Method)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Located</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Field Method)</td>
<td></td>
</tr>
<tr>
<td>5. GEOGRAPHIC NAMES</td>
<td>Investigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of Investigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specific Names Only</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>6. PHOTO INSPECTION</td>
<td>Clarification</td>
<td>Oct. 1972</td>
</tr>
<tr>
<td></td>
<td>Details by</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S. Hollinshead</td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE DATA**

1. HORIZONTAL CONTROL IDENTIFIED
   - None

2. VERTICAL CONTROL IDENTIFIED
   - None

<table>
<thead>
<tr>
<th>PHOTO NUMBER</th>
<th>STATION NAME</th>
<th>PHOTO NUMBER</th>
<th>STATION DESIGNATION</th>
</tr>
</thead>
</table>

3. PHOTO NUMBERS (Clarification of details)
   - 63(5) 8087 (Matte ratio 1:10,000 scale)

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED
   - None

<table>
<thead>
<tr>
<th>PHOTO NUMBER</th>
<th>OBJECT NAME</th>
<th>PHOTO NUMBER</th>
<th>OBJECT NAME</th>
</tr>
</thead>
</table>

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
### Record of Survey Use

**I. Manuscript Copies**

<table>
<thead>
<tr>
<th>Compilation Stages</th>
<th>Date Forwarded</th>
<th>Marine Charts</th>
<th>Hydro Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compilation complete pending field edit</td>
<td>Feb. 1972</td>
<td>Class II manuscript</td>
<td>None</td>
</tr>
<tr>
<td>Field edit applied, compilation complete</td>
<td>Feb. 1973</td>
<td>Class I manuscript</td>
<td>June 1980</td>
</tr>
</tbody>
</table>

**II. Landmarks and Aids to Navigation**

None

**III. Federal Records Center Data**

1. Bridging Photographs; Duplicate Bridging Report; Computer Readouts.
2. Control Station Identification Cards; Form No. 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)

<table>
<thead>
<tr>
<th>Survey Edition</th>
<th>Survey Number</th>
<th>Job Number</th>
<th>Type of Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Edition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second Edition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third Edition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth Edition</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOAA Form 76-36D**

*U. S. GPO: 1977+76-292/1196 Reprint 6*
SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORT
T-12546

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 west coast of Hawaii Island from Latitude 19° 26' 15" to Latitude 19° 30' 00". The northeast segment of this map is portrayed by a portion of inset map T-11796, 1:5,000 scale. This map defines the northern limit for the project and junctions with shoreline project PH-6401, map T-12545.

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 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. Aerotriangulation activity included ruling the base manuscripts and also provided ratio prints for compilation and hydrographic/field edit operations.

Compilation for this map was performed at the Coastal Mapping Section, Atlantic Marine Center in February 1972. The northeast segment of this map was not compiled since it is mapped at 1:5,000 scale on inset map T-11796. 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-9346 by NOAA Ship RAINIER personnel in October 1972.

Application of field edit was completed at the original compilation office in June 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 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-12546

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.
Memorandum

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

FROM: Lt.(Jg) Edward P. Cline

DATE: August 5, 1964

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
KAMOII, 1948
NA PUU a PELE, 1891
PUU KI, 1914
TANK, 1948
Supplemental Stations Pricked:
KAUNA POINT LIGHT, 1949

FLIGHT STRIP NO. 7
KALAE 2, 1948
PALAHEMO, 1898
KAMLO, 1898
KIPAEPAE, 1898
Supplemental 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

CC: Honolulu Field Office
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 northwest 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 KAM WO, 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. KAMIL0, 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
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 HONAUANAU 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.
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 PUQ.

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 bare 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.

Approved by,

Henry P. Eichert
Chief, Aerotriangulation Section
1. KEPUHI 2, 1948
2. KEPUHI, 1913
3. KEALAKEHEA 2, 1948
4. LORAN TOWER, 1948
5. PUU ULA, 1913
6. RED TANK, 1948
7. KEAWANUI, 1948
8. PUU KAMALI, 2, 1928
9. KAUAINEE LT, 1928
10. PUAKO, 1873
11. PUAKO NEW, 1948
12. ANAHEIMALU, 1913
13. HAND, 1928
14. NAWAI, 1918
15. LAVA CONE, 1913
16. KEAHOLE 2, 1948
17. KEAHOLE, 1882
18. KEALOA PT, NW, RANGE MARKER, 1948
19. KAILUA, 1887
20. KAHILU, 1892
21. POINT, 1928
22. KEALAKEHEA KONA CH, SPIRE, 1945
23. KEEI SOUTH BASE, 1948
24. HONAIWAI ST. BENEDECT CATH. CHURCH SPIRE, 1946
25. McCANDLES, 1948

JOBS PH-6401
SHORELINE MAPPING
HAWAII IS. WEST COAST
UPOLU POINT TO KAILUA
SCALE 1:5,000 & 1:10,000
<table>
<thead>
<tr>
<th>STATION NAME</th>
<th>SOURCE OF INFORMATION (Index)</th>
<th>AEROTRIANGULATION POINT NUMBER</th>
<th>COORDINATES IN FEET</th>
<th>GEOGRAPHIC POSITION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAPOOPOO LIGHT, 1928</td>
<td>G.P.</td>
<td></td>
<td>x=</td>
<td>19° 28' 55.877&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pg. 34</td>
<td></td>
<td>y=</td>
<td>155° 56' 21.592&quot;</td>
<td></td>
</tr>
<tr>
<td>KEOPUKA, 1948</td>
<td>G.P.</td>
<td></td>
<td>x=</td>
<td>19° 29' 25.746&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pg. 15</td>
<td></td>
<td>y=</td>
<td>155° 57' 09.162&quot;</td>
<td></td>
</tr>
<tr>
<td>KEANEKAHEKA (H.G.S.) 1891</td>
<td>G.P.</td>
<td></td>
<td>x=</td>
<td>19° 29' 14.602&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pg. 16</td>
<td></td>
<td>y=</td>
<td>155° 57' 03.772&quot;</td>
<td></td>
</tr>
</tbody>
</table>

COMPUTED BY A. C. Rauck, Jr. DATE 7-31-69
LISTED BY DATE
HAND PLOTTING BY DATE
COMPUTATION CHECKED BY F. P. Marziotta DATE 2-1-73
LISTING CHECKED BY DATE
HAND PLOTTING CHECKED BY DATE
31. **DELINEATION:**

Delineation was by instrument methods using the Wild B-8 stereoplotter and 1:30,000 scale panchromatic compilation/bridging photographs. Keawekaheka Point was not visible on the compilation photographs; consequently, the area was compiled graphically using 1:15,000 color photographs.

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 except for the 1:30,000 scale photo coverage of Keawekaheka Point.

32. **CONTROL:**

Refer to the 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 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.

37. **LANDMARKS AND AIDS:**

None
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 February 4, 1969 (PH-6401) and June 10, 1969.

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:

[Signature]
Arnold L. Shands
Cartographer
December 1969

Approved:

[Signature]
Albert C. Rauck, Jr.
Chief, Coastal Mapping Section
ADDENDUM TO THE COMPILATION REPORT

T-12546

Field edit was performed in conjunction with hydrographic survey H-9346 in October 1972. Adequate field data was furnished to advance the manuscript to Class I.
GEOGRAPHIC NAMES
FINAL NAME SHEET
PH-6402 Hawaii
T-12546

Cock Point —— Not compiled
Island of Hawaii
Keawekaheka Bay
Keawekaheka Point
Napoopoo Lighthouse—Not compiled
Pacific Ocean

Approved by:

A. Joseph Wright
Chief Geographer

Prepared by:

Frank W. Pickett
Cartographic Technician
FIELD EDIT REPORT

OPR-419, 1972

T-12539 through T-12550 &
T-13382 T-11794

Kona Coast, Hawaii

NOAA Ship RAINIER

CAPT C.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 mile northeast 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 Malilu 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°40'25.85" N and longitude 156°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 Mokuakaua 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°38'34.80" N, and longitude 156°00'03.46" W, and the Kona Airport Airway Beacon have been removed and should be deleted. The church spire, latitude 19°38'24.22" N and longitude 155°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°35'52.50" N, longitude 155°58'31.50" W and latitude 19°34'39.60" W, longitude 155°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.
(completed) Keawekaheka Bay

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

There are no objects of landmark value.

(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).

(12547 (incomplete) Kealakekua Bay

No field edit was done on this manuscript.

(11797 (incomplete) Honaunau Bay

No field edit was done on this manuscript.

(12518 (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 Palialini 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,

[Signature]

Steven J. Hollinshead
LTJG, NOAA
MANUSCRIPT REFERENCE INDEX

OPR-419

FIELD EDIT

<table>
<thead>
<tr>
<th>MANUSCRIPT NUMBER</th>
<th>REFERENCE PHOTO NUMBERS</th>
<th>REFERENCE DETACHED POSITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-12539</td>
<td>63-S-7948</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S-8060</td>
<td></td>
</tr>
<tr>
<td>T-12540</td>
<td>63-S-7943</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S-8063*</td>
<td></td>
</tr>
<tr>
<td>T-12541</td>
<td>63-S-8063*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S-8094</td>
<td></td>
</tr>
<tr>
<td>T-13382</td>
<td>69-E-9255</td>
<td></td>
</tr>
<tr>
<td></td>
<td>69-E-9254</td>
<td></td>
</tr>
<tr>
<td>T-12542</td>
<td>63-S(C)-7913</td>
<td>Detached Positions</td>
</tr>
<tr>
<td></td>
<td>63-S(C)-7915</td>
<td>10/05/72</td>
</tr>
<tr>
<td></td>
<td>63-S(C)-7917</td>
<td></td>
</tr>
<tr>
<td>T-12543</td>
<td>63-S-8067</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S-8068</td>
<td></td>
</tr>
<tr>
<td>T-12544</td>
<td>63-S(C)-8158</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S(C)-8159</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S(C)-8160</td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: Photo 63-S-8063 used on T-Sheets T-12540 and T-12541
<table>
<thead>
<tr>
<th>Manuscript Number</th>
<th>Reference Photo Numbers</th>
<th>Reference Detached Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-12545</td>
<td>63-S-8088</td>
<td></td>
</tr>
<tr>
<td>Keikiwaha Point</td>
<td>63-S-8087*</td>
<td></td>
</tr>
<tr>
<td>T-12546</td>
<td>63-S-8087*</td>
<td></td>
</tr>
<tr>
<td>Keawekahēka Bay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-11796</td>
<td>63-S-8138</td>
<td>Detached Position 9/14/72</td>
</tr>
<tr>
<td>Kealakekua Bay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-12547</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Kealakekua Bay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-11797</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Honaunau Bay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-12548</td>
<td>63-S(C)-8027</td>
<td></td>
</tr>
<tr>
<td>Honaunau Bay</td>
<td>63-S(C)-8026</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S(C)-8025</td>
<td></td>
</tr>
<tr>
<td>T-12549</td>
<td>63-S(C)-8024</td>
<td></td>
</tr>
<tr>
<td>Kauluoa Point</td>
<td>63-S(C)-8023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S(C)-7888</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S(C)-7887</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63-S(C)-7886</td>
<td></td>
</tr>
<tr>
<td>T-12550</td>
<td>63-S(C)-7884</td>
<td></td>
</tr>
</tbody>
</table>

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

**NOTE:** No field edit done
61. GENERAL STATEMENT:

Final review for this Final Field Edited 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:

A comparison was made with a registered copy of H-9346, RA-10-9-72, surveyed in 1972 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
Final Reviewer

Approved for forwarding:

Billy H. Barnes
Chief, Photogrammetric Section, AMC

Approved:

Chief, Photogrammetric Production Sec. Chief, Photogrammetry Branch
# INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Revi

<table>
<thead>
<tr>
<th>CHART</th>
<th>DATE</th>
<th>CARTOGRAPHER</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Part Before After Verification Review Inspection Signed Via Drawing No.</td>
</tr>
</tbody>
</table>