

TP-00720

NOAA FORM 76-35
(3-76)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

Map No.	TP-00720	Edition No.	1
Job No.	CM-7215		
Map Classification	Final		
	Field Edited Map		
Type of Survey	Shoreline		
	LOCALITY		

0720

NOAA FORM 76-36A (3-72) U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.		TYPE OF SURVEY ☒ ORIGINAL ☐ RESURVEY ☐ REVISED		SURVEY TP. <u>00720</u> MAP EDITION NO. <u>(1)</u> MAP CLASS <u>Final</u> JOB <u>MM CM-7215</u>					
DESCRIPTIVE REPORT - DATA RECORD									
PHOTOGRAMMETRIC OFFICE Coastal Mapping Division Atlantic Marine Center, Norfolk, VA OFFICER-IN-CHARGE Jeffrey G. Carlen, Cdr.		LAST PRECEDING MAP EDITION <table style="width:100%;"> <tr> <td style="width:50%;"> TYPE OF SURVEY ☐ ORIGINAL ☐ RESURVEY ☐ REVISED </td> <td style="width:50%;"> JOB <u>PH.</u> MAP CLASS <u> </u> SURVEY DATES: 19 <u> </u> TO 19 <u> </u> </td> </tr> </table>				TYPE OF SURVEY ☐ ORIGINAL ☐ RESURVEY ☐ REVISED	JOB <u>PH.</u> MAP CLASS <u> </u> SURVEY DATES: 19 <u> </u> TO 19 <u> </u>		
TYPE OF SURVEY ☐ ORIGINAL ☐ RESURVEY ☐ REVISED	JOB <u>PH.</u> MAP CLASS <u> </u> SURVEY DATES: 19 <u> </u> TO 19 <u> </u>								
I. INSTRUCTIONS DATED									
1. OFFICE			2. FIELD						
Aerotriangulation October 6, 1975 Compilation January 7, 1976			Premarking April 16, 1973 Premarking Supplement I August 18, 1975						
II. DATUMS									
1. HORIZONTAL: ☐ 1927 NORTH AMERICAN			OTHER (Specify) Old Hawaiian Datum						
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) <table style="width:100%; font-size: small;"> <tr> <td style="width:50%;">STATE</td> <td style="width:50%;">ZONE</td> </tr> <tr> <td style="height: 30px;"></td> <td></td> </tr> </table>			STATE	ZONE		
STATE	ZONE								
5. SCALE 1:10,000			<table style="width:100%; font-size: small;"> <tr> <td style="width:50%;">STATE</td> <td style="width:50%;">ZONE</td> </tr> <tr> <td style="height: 30px; text-align: center;">Hawaii</td> <td style="text-align: center;">3</td> </tr> </table>			STATE	ZONE	Hawaii	3
STATE	ZONE								
Hawaii	3								
III. HISTORY OF OFFICE OPERATIONS									
OPERATIONS		NAME	DATE						
1. AEROTRIANGULATION BY METHOD: Analytic LANDMARKS AND AIDS BY		R. Kelly	Dec 1975						
2. CONTROL AND BRIDGE POINTS PLOTTED BY METHOD: Coradomat CHECKED BY		Solbeck	Dec 1975						
3. STEREOSCOPIC INSTRUMENT PLANIMETRY BY COMPILATION CHECKED BY INSTRUMENT: Wild B-8 CONTOURS BY SCALE: 1:7,500 CHECKED BY		L. O. Neterer, Jr.	Jan 1976						
4. MANUSCRIPT DELINEATION PLANIMETRY BY CHECKED BY METHOD: Smooth Draft CONTOURS BY CHECKED BY SCALE: 1:10,000 HYDRO SUPPORT DATA BY CHECKED BY		C. Parker	Jan 1976						
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY		J. Byrd	Jan 1976						
6. APPLICATION OF FIELD EDIT DATA BY CHECKED BY		J. R. Minton	Sep 1976						
7. COMPILATION SECTION REVIEW BY		A. L. Shands	Sep 1976						
8. FINAL REVIEW BY		A. L. Shands	Apr 1978						
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY		A. L. Shands	Apr 1978						
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY		J. B. Phillips	June 1978						
11. MAP REGISTERED - COASTAL SURVEY SECTION BY		R. T. Cator	Aug 1978						

TP-00720
COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild RC-8		TYPES OF PHOTOGRAPHY LEGEND (C) COLOR (P) PANCHROMATIC (I) INFRARED		TIME REFERENCE	
TIDE STAGE REFERENCE ☒ PREDICTED TIDES ☐ REFERENCE STATION RECORDS ☐ TIDE CONTROLLED PHOTOGRAPHY				ZONE Hawaii MERIDIAN 150th	☒ STANDARD ☐ DAYLIGHT
NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE	
75TNHY 3769(P) - 3771(P)	1/17/75	10:05	1:15,000	0.7 ft. above MLLW	
75TNHY 3752(P) - 3758(P)	1/17/75	10:00	1:15,000	0.7 ft. above MLLW	
75TNHY 3862(P)	1/28/75	11:37	1:30,000	0.2 ft. above MLLW	

REMARKS

Subordinate tide station - Moku O Loe, Oahu.

Reference tide station - Honolulu, Hawaii.

M.H.W. = 1.6 ft.

2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was compiled from the above listed photographs.

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

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
No Survey	No Survey	No Survey	TP-00719

REMARKS

HISTORY OF FIELD OPERATIONS

1. ☒ FIELD INSPECTION OPERATION☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Melby	9/75
2. HORIZONTAL CONTROL	RECOVERED BY R. Melby	9/75
	ESTABLISHED BY R. Melby	9/75
	PRE-MARKED OR IDENTIFIED BY L. Riggers	9/75
3. VERTICAL CONTROL	RECOVERED BY NA	
	ESTABLISHED BY NA	
	PRE-MARKED OR IDENTIFIED BY NA	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY R. Melby	9/75
	LOCATED (Field Methods) BY R. Melby	9/75
	IDENTIFIED BY None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☐ SPECIFIC NAMES ONLY ☒ NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	None
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	NA

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

2. VERTICAL CONTROL IDENTIFIED

NA

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
75TNHY 3864	PAPAA 2, 1932		
75TNHY 3862	MOKAPU, 1872		

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 ☒ 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)

2 Form 76-53's

1 Form 76-40

TP-00720

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE	
1. CHIEF OF FIELD PARTY	C. Townsend	3-4/76	
2. HORIZONTAL CONTROL	RECOVERED BY J. Osborn	3-4/76	
	ESTABLISHED BY None		
	PRE-MARKED OR IDENTIFIED BY None		
3. VERTICAL CONTROL	RECOVERED BY NA		
	ESTABLISHED BY NA		
	PRE-MARKED OR IDENTIFIED BY NA		
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY J. Osborn	3-4/76	
	LOCATED (Field Methods) BY J. Osborn	3-4/76	
	IDENTIFIED BY J. Osborn	3-4/76	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☐ SPECIFIC NAMES ONLY BY ☒ NO INVESTIGATION		
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY J. Osborn	3-4/76	
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY NA		
II. SOURCE DATA			
1. HORIZONTAL CONTROL IDENTIFIED		2. VERTICAL CONTROL IDENTIFIED	
		NA	
PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

TP-00720

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.	Jan. 1976	Class III Manuscript	1/30/76	1/30/76
Field edit applied. Compilation complete.	Sept. 1976	Class I Manuscript	9/30/76	
Final Review	April 1978	Final	April, 1978	
<i>Examined in Quality Control June 1978</i>			<i>Shoreline changes made</i>	<i>Aug, 1978</i>

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
2 2		10/04/76	Aids to be charted (1 to be revised)
1 1		10/04/76	Aids to be deleted
2 2		10/04/76	Landmarks to be charted
1		10/04/76	Landmark to be deleted
			<i>A new listing is submitted to supersede</i>
			<i>the 76-40 forms forwarded on 10-4-76.</i>

2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: October 4, 19763. ☐ 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 ~~607~~ SUBMITTED BY FIELD PARTIES.
3. ☒ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C.
ACCOUNT FOR EXCEPTIONS:

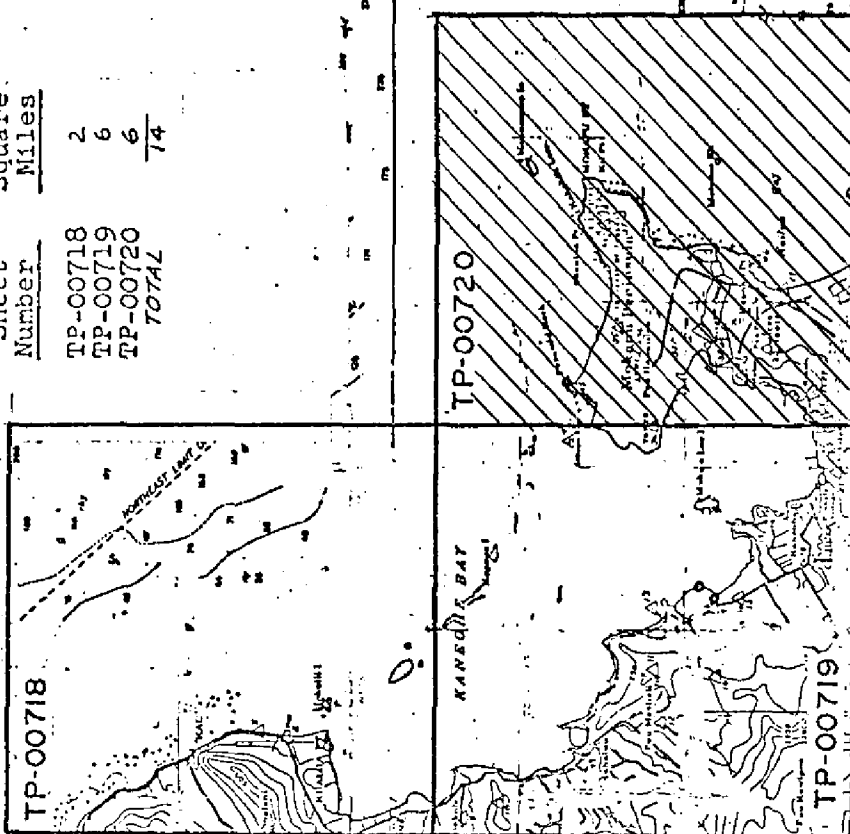
4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: _____

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 ☐ REVISED ☐ RESURVEY MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY ☐ REVISED ☐ RESURVEY MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY ☐ REVISED ☐ RESURVEY MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	

OFFICIAL MILEAGE FOR COST ACCOUNT

Sheet Number	Square Miles
TP-00718	2
TP-00719	6
TP-00720	6
TOTAL	14

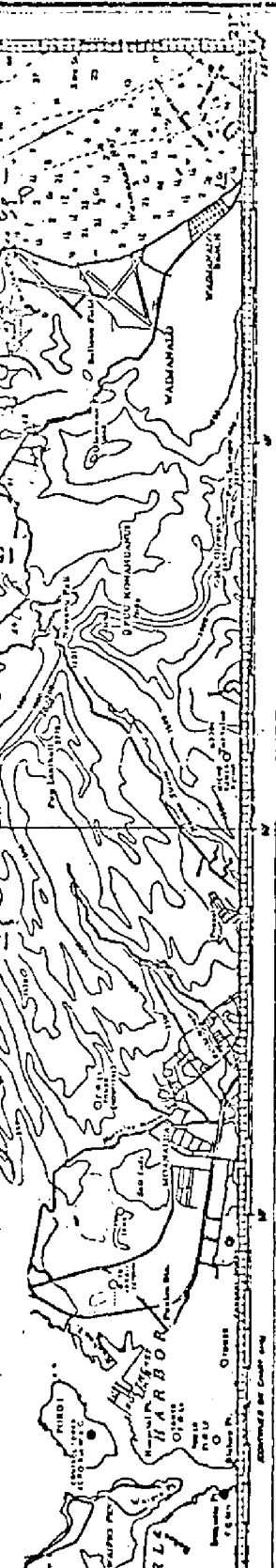


JOB CM-7215
Kaneohe Bay, OAHU ISLAND
HAWAII

SHORELINE MAPPING
SCALE 1:10,000

LEGEND:
A HORIZONTAL CONTROL STATION

REVISED 11-28-75 R.W.W.



SUMMARY TO ACCOMPANY DESCRIPTIVE REPORTS

TP-00718 THROUGH TP-00720

The maps included in this summary comprise all of Project CM-7215, Kaneohe Bay, Oahu Island, Hawaii. Each is a 1:10,000 scale standard shoreline map, the purpose of which is to provide shoreline and alongshore data in support of hydrographic operations and for nautical chart compilation.

The area covered is that of Kaneohe Bay extending from just below Mahie Point on the north southward to and including the Mokapu Peninsula. This project originally consisted of ~~nine~~ 1:5,000 scale maps (TP-00718 through TP-00727) covering about the same area. All instructions and correspondence dealing with map scale make reference to the 1:5,000 scale maps with the exception of the compilation instructions. The compilation instructions make reference only to the three 1:10,000 scale maps TP-00718 through TP-00720. These are the only maps compiled for the project.

Apparently, it was decided around November, 1975 to cancell all 1:5,000 scale maps in the project and replace them with 1:10,000 scale maps. Documents authorizing this change, however, are not available to this reviewer at this time.

Field work prior to compilation was limited to the recovery and identification of horizontal control necessary for bridging. It was begun under orders dated April 16, 1973. However, the photography obtained at that time was not suitable for compilation. This part of the job was redone in September, 1975.

Photography was flown by a private contractor in December, 1975 and January, 1976. It was flown with panchromatic film at 1:15,000 and 1:30,000 scale. Coverage was not extended to allow the delineation of the southern shoreline of Kailua Bay. The quality was excellent.

Bridging was done at the Washington Science Center in December, 1975. All maps were compiled at the Atlantic Marine Center using the Wild B-8 stereoplotter.

Field edit was performed in March, 1976 and applied to the maps in September, 1976 at the Atlantic Marine Center. Final Review also took place at the Atlantic Marine Center in April, 1978.

The original base map and all pertinent data is forwarded to the Washington Science Center for reproduction and final registration.

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FIELD INSPECTION

TP-00720

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

Photogrammetric Plot Report
Kaneohe Bay, Oahu Island, Hawaii
Job CM-7215
December 1975

21. Area Covered: This report covers three 1:10,000 sheets, TP-00718, TP-00719, and TP-00720 of Kaneohe Bay, Oahu Island, Hawaii.

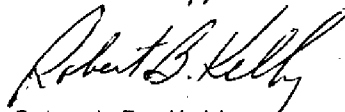
22. Method: Three strips of 1:30,000 photography and one strip of 1:15,000 photography were bridged by analytic aerotriangulation methods and adjusted to ground on the Hawaii State Plane Coordinate System, Zone three. The attached two sketches shows the placement of horizontal control, bridging photographs, and photographs to be used for compilation. Bridge points were drilled on the 1:15,000 scale photography and measured on 1:30,000 scale bridging photography for ratioing photographs to be used in compilation. Ratios were ordered and sheets were plotted on the Coradomat.

23. Adequacy of Control: The horizontal control provided was adequate except for Pahu, 1910 home station which could not be seen. All other control held within the accuracy required by National Standards of Map Accuracy at 1:10,000.

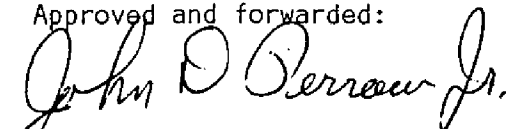
24. Supplemental Data: Local shoreline and U.S. Geological Survey quadrangles were used to provide elevations for vertical adjustments of bridges.

25. Photography: RC-8 black-and-white film positives were adequate as to coverage, overlap, and definition.

Submitted by,


Robert B. Kelly

Approved and forwarded:


John D. Perrow, Jr.
Chief, Aerotriangulation Section

INDEX TO CONTROL

- 5 State Survey 5-1, 1969
- 6 State Survey 4-29, 1969
- 7 State Survey 4-32, 1969
- 8 State Survey 4-24, 1969
- 9 Pahu, 1910
- 10 Papaa, 1932
- 11 Pyramid Rock Light, 1975
- 12 Mokapu, 1872

JOB CM-7215

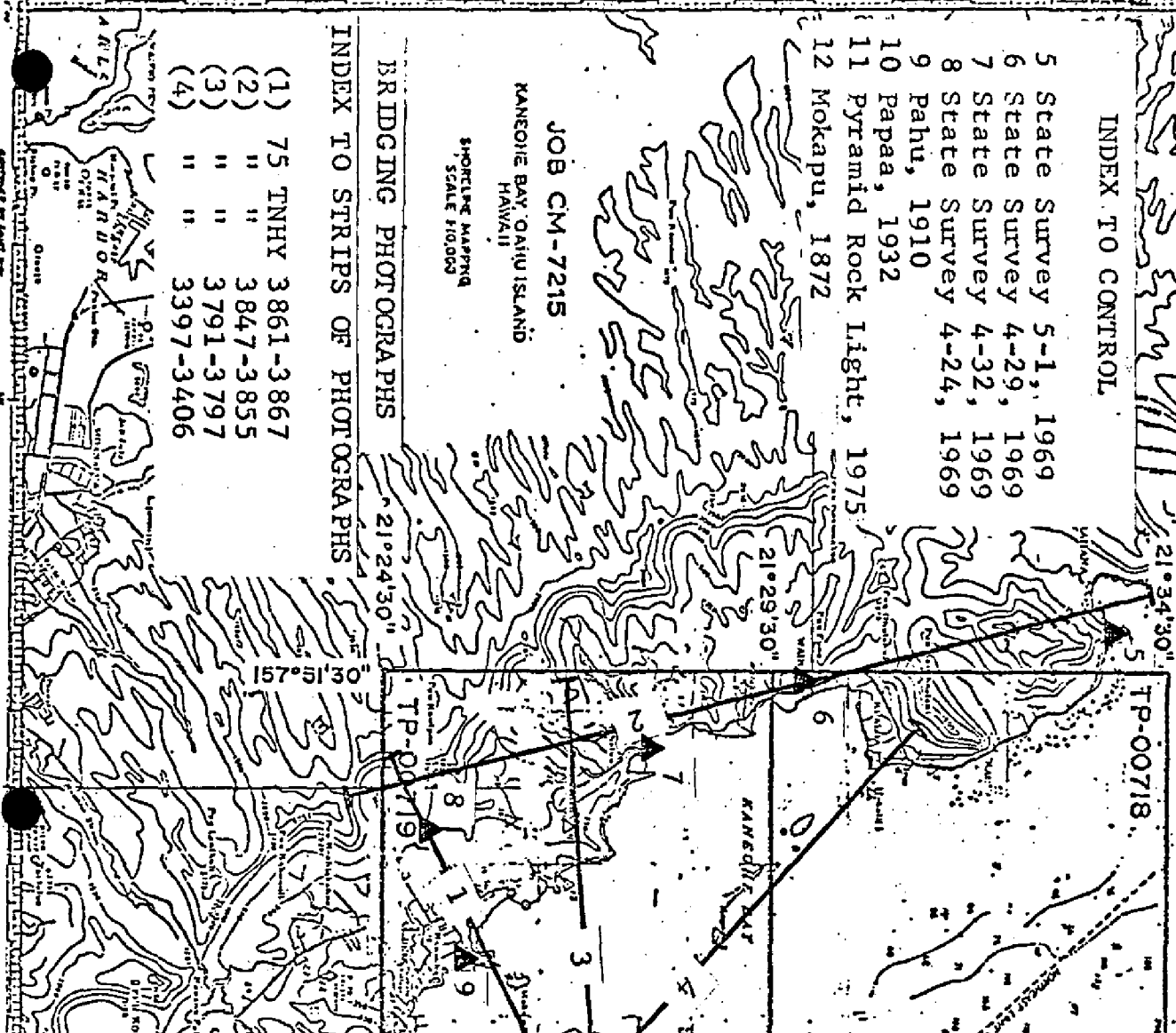
KANEHIE BAY OAHU ISLAND
HAWAII

SHORT-TERM MAPPING
SCALE 1:10,000

BRIDGING PHOTOGRAPHS

INDEX TO STRIPS OF PHOTOGRAPHS

- (1) 75 TNHY 3861-3867
- (2) " 3847-3855
- (3) " 3791-3797
- (4) " 3397-3406





JOB CM-7215

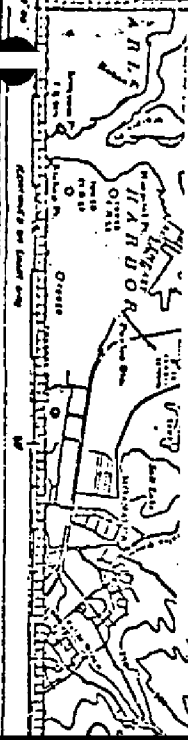
KANEOHE BAY, OAHU ISLAND
HAWAII

SPOTLIGHT MAPPING
SCALE 1:10,000

COMPILATION PHOTOGRAPHS 21°24'30"

INDEX TO STRIPS OF PHOTOGRAPHS

(5)	75	TNHY	3752-3759
(6)	"	"	3765-3771
(7)	"	"	3780-3786
(8)	"	"	3283-3296



MAP NO.	JOB NO.	GEODETTIC DATUM	ORIGINATING ACTIVITY	Coastal Mapping
TP-00720	CM-7215	Old Hawaiian	Division. AMC. Norfolk. Virginia	

STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRI- ANGULATION POINT NUMBER	COORDINATES IN FEET		GEOGRAPHIC POSITION		REMARKS	
			STATE ZONE	Hawaii 3	ϕ	λ	FORWARD	BACK
			x=		ϕ			
			y=		λ			
PYRAMID ROCK LIGHT, 1975	Form 76-40 PMC Photo Party, 1975	F-3-6-L	x=		ϕ	21 27 55.542	1708.2	(137.1)
			y=		λ	157 45 58.577	1686.5	(40.9)
KANEOHE BAY, MCAS, HAWAIILOA HILL BEACON, 1952	Quad 211573 P. 1150		x=		ϕ	21 27 04.39602	135.2	(1710.1)
			y=		λ	157 45 34.42812	991.3	(736.3)
STATE SURVEY 4-20, 1969	Quad 211573 P. 1023		x=		ϕ	21 26 34.69916	1067.2	(778.1)
			y=		λ	157 45 27.66537	796.7	(931.0)
MOKAPU, 1872	Quad 211573 P. 1021		x=		ϕ	21 27 26.77673	823.5	(1021.8)
			y=		λ	157 44 04.66576	134.3	(1593.2)
STATE SURVEY 4-15, 1969	Quad 211573 P. 1022		x=		ϕ	21 25 17.06615	524.9	(1320.4)
			y=		λ	157 44 50.60042	1457.2	(270.8)
KANEOHE, HAWAIIAN TELEPHONE CO., MICROWAVE TOWER, 1969	Quad 211573 P. 1025		x=		ϕ	21 25 32.18045	989.7	(855.6)
			y=		λ	157 45 35.15498	1012.4	(715.5)
STATE SURVEY 4-22, 1969	Quad 211573 P. 1029		x=		ϕ	21 25 48.27240	1484.6	(360.7)
			y=		λ	157 45 53.32904	1535.8	(192.1)
STATE SURVEY 4-21, 1969	Quad 211573 P. 1028		x=		ϕ	21 26 09.67067	297.4	(1547.9)
			y=		λ	157 45 48.10515	1385.3	(342.5)
PAPAA 2, 1932	Quad 211573 P. 1024		x=		ϕ	21 25 32.23069	991.3	(854.0)
			y=		λ	157 45 34.73979	1000.5	(727.4)

LISTED BY	A. C. Rauck, Jr.	DATE	1/06/76	LISTING CHECKED BY	F. Mauldin	DATE	1/07/76
HAND PLOTTING BY	J. Roderick	DATE	1/09/76	HAND PLOTTING CHECKED BY	D. Butler	DATE	1/09/76

COMPILATION REPORT

TP-00720

31. DELINEATION:

Delineation was by the Wild B-8 stereoplotter. Photography was adequate.

32. CONTROL:

See the Photogrammetric Plot Report dated December, 1975.

33. SUPPLEMENTAL DATA:

None.

34. CONTOURS AND DRAINAGE:

Contours are not applicable to the project. Drainage was delineated by office interpretation of the photographs.

35. SHORELINE AND ALONGSHORE DETAILS:

The shoreline and all alongshore details were delineated by office interpretation of the photographs.

36. OFFSHORE DETAILS:

Mokumanu Island and Mokolea Rock were compiled from office interpretation of the photographs.

37. LANDMARKS AND AIDS:

Appropriate copies of Form 76-40, Landmarks and Nonfloating Aids to Navigation, were forwarded to the field editor and hydrographer for further processing.

38. CONTROL FOR FUTURE SURVEYS:

None.

39. JUNCTIONS:

See the Form 76-36B, Item #5 of this Descriptive Report concerning junctions.

40. HORIZONTAL AND VERTICAL ACCURACY:

No Statement.

46. COMPARISON WITH EXISTING MAPS:

A comparison has been made with USGS Quadrangle MOKAPU, HAWAII, scale 1:24,000, dated 1968.

47. COMPARISON WITH NAUTICAL CHARTS:

A comparison has been made with the Charts 19359, scale 1:15,000, dated September, 1974, 6th edition, and 19357, scale 1:80,000, 13th edition, dated December 14, 1974.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None.

ITEMS TO BE CARRIED FORWARD

None.

Submitted by:

Albert C. Rauck, Jr.
Charles Parker
Cartographic Technician
January 29, 1976

Approved:

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

April 20, 1978

11

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-7215 (Kaneohe Bay, Hawaii)

TP-00720

Fort Hase Cove

Halekou Pond

Kahekili Leap

Kailua Bay

Kaluapuhi Pond

Kaneohe Bay

Kapoho Point

Kawainui Canal

Keaalu

Kii Point

Mahinui

Malae

Mokumanu Islands

Mokapu Peninsula

Mokapu Point

Nuupia Pond

Pacific Ocean

Pali Kilo

Pukaulua Point

Puu Hawaiiiloa

Puu Papaa

Pyramid Rock

Ulupau Crater

Ulupau Head

Approved by:


Charles E. Harrington, C3x8
Chief Geographer

PHOTOGRAMMETRIC OFFICE REVIEW

T. 00720

1. PROJECTION AND GRIDS JLB	2. TITLE JLB	3. MANUSCRIPT NUMBERS JLB	4. MANUSCRIPT SIZE JLB
CONTROL STATIONS			
5. HORIZONTAL CONTROL STATIONS OF THIRD-ORDER OR HIGHER ACCURACY JLB	6. RECOVERABLE HORIZONTAL STATIONS OF LESS THAN THIRD-ORDER ACCURACY (Topographic stations) NA		7. PHOTO HYDRO STATIONS NA
8. BENCH MARKS NA	9. PLOTTING OF SEXTANT FIXES JLB	10. PHOTOGRAMMETRIC PLOT REPORT JLB	11. DETAIL POINTS JLB
ALONGSHORE AREAS (Nautical Chart Data)			
12. SHORELINE JLB	13. LOW-WATER LINE JLB	14. ROCKS, SHOALS, ETC. JLB	15. BRIDGES JLB
16. AIDS TO NAVIGATION JLB	17. LANDMARKS JLB	18. OTHER ALONGSHORE PHYSICAL FEATURES JLB	19. OTHER ALONGSHORE CULTURAL FEATURES JLB
PHYSICAL FEATURES			
20. WATER FEATURES JLB	21. NATURAL GROUND COVER NA		22. PLANETABLE CONTOURS NA
23. STEREOSCOPIC INSTRUMENT CONTOURS NA	24. CONTOURS IN GENERAL NA	25. SPOT ELEVATIONS NA	26. OTHER PHYSICAL FEATURES JLB
CULTURAL FEATURES			
27. ROADS JLB	28. BUILDINGS JLB	29. RAILROADS JLB	30. OTHER CULTURAL FEATURES JLB
BOUNDARIES			
31. BOUNDARY LINES NA		32. PUBLIC LAND LINES NA	
MISCELLANEOUS			
33. GEOGRAPHIC NAMES JLB	34. JUNCTIONS JLB		35. LEGIBILITY OF THE MANUSCRIPT JLB
36. DISCREPANCY OVERLAY JLB	37. DESCRIPTIVE REPORT JLB	38. FIELD INSPECTION PHOTOGRAPHS NA	39. FORMS JLB
40. REVIEWER J. Byrd J. Byrd		SUPERVISOR, REVIEW SECTION OR UNIT A. C. Rauck, Jr.	
41. REMARKS (See attached sheet)			
FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT			
42. Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted under item 43.			
COMPILER J. R. Minton J.R. Minton 9/76		SUPERVISOR A. C. Rauck, Jr.	
Reviewer A. L. Shands A.L. Shands 9/76		A. C. Rauck, Jr.	
43. REMARKS			

NOAA FORM 76-35

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

Type of Survey FIELD EDIT: KANEOHE BAY

Job No. CM 7215 Map No.

Classification No. Edition No.

LOCALITY

State HAWAII

General Locality OAHU

Locality KANEOHE BAY

19 76 TO 1976

REGISTRY IN ARCHIVES

DATE

FIELD EDIT: KANEOHE BAY

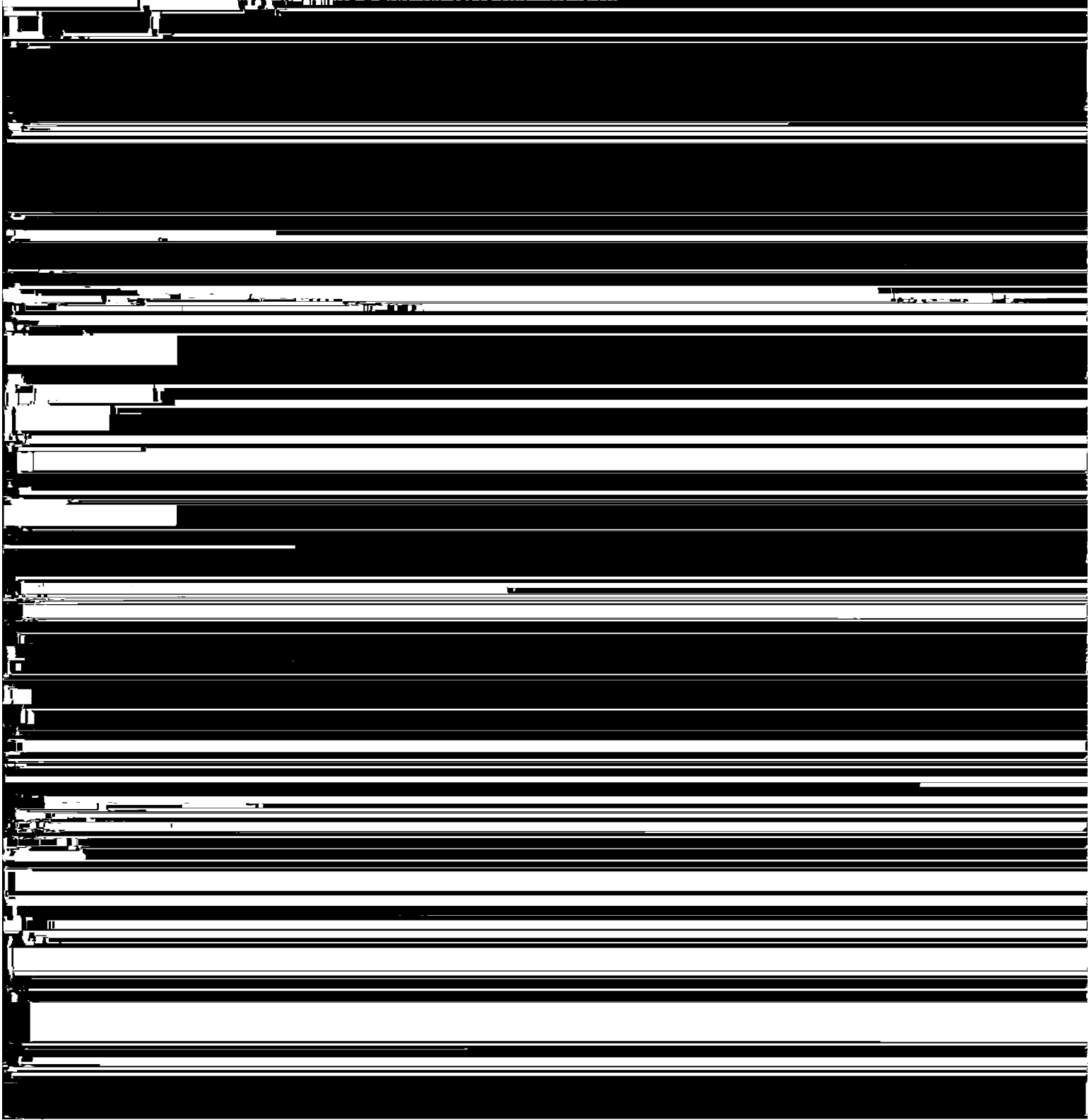
OPR-419-RA-76

MANUSCRIPT NO. TP-00718-00720

CHARLES K. TOWNSEND
CDR., NOAA
COMMANDING OFFICER

INTRODUCTION AND METHODS

Field Edit for the RAINIER's spring project, OPR-419-RA-76 began March 1st and was completed April 15, 1976. Normally only one field unit performed field edit but on occasion, early in the project, two field units operated simultaneously. The field edit was accomplished by walking, driving GSA vehicles, and in RAINIER



ADEQUACY OF COMPILATION

The compilation of the Manuscripts were adequate and complete. Compilation of the MHWL was generally very good. The MLLWL was compiled, wherever physically possible, by hydrographic Survey Operations and is not discussed in this text. There were numerous discrepancies, other than scale difference distortion, between the photo compiled T-Sheets and the 1:15,000 existing chart of Kaneohe Bay (NOS 19359; C&GS 4134). Except as noted on pages three(3) & five(5) T-Sheets were compiled correctly, with only minor changes verified by field edit. All rocks offshore, and inshore features are labeled and/or discussed on the Master Field Edit Sheet, and wherever possible, verified on the photographs.

Kaneohe Bay has numerous coral reefs both awash, submerged, and exposed. The obtain accurate and detailed depth delineation of these many shoal areas visual walk hydro crews obtained numerous detached pole soundings throughout these areas.

Quality and contrast of the reefs on the cronapaque photographs is excellent and was compared against actual reef conditions during field edit and against the hydrographic data. Some revisions to reef outlines and conditions were made, and are noted and referenced on the Master Field Edit Sheets. A combination of both photograph interpretation and hydrographic survey information is necessary for complete and adequate delineation of the shoal areas. For further information on survey operations, refer to Descriptive Reports, H-9593 and H-9594.

SHORELINE SUMMARIES

TP-00718: Field edit by LTJG Andreen commenced at the junction of TP-00718 and TP-00719 at latitude $21^{\circ} 29' 30''$ N, progressed northward to the manuscript limits at latitude $21^{\circ} 33' 40''$ N, and is complete. The shoreline compilation is generally excellent, with only very minor revisions directly north and south of latitude $21^{\circ} 30' 30''$, and the left tip of Kualoa Point.

The dams in the Molii Pond are verified as being constructed of rock, rip-rap, and small boulders. This area is in the process of becoming a wildlife refuge to adjoin the state park at Kualoa Point.

A small foul area was investigated off the central tip of Kualoa Point. It is small and the surrounding water is shallow, thus this area is not a serious hazard to navigation. The rock off shore, located at approximately $21^{\circ} 30' 30''$ N, $157^{\circ} 50' 15''$ W, was searched for and not found photogrammetrically but the hydrographer did locate this rock. The recommendation is for retention of the rock as shown in the hydrographic records.

The MHWL for Mokolii Island was compared visually with the photograph # 3291 and found accurate. The pipe charted at approximately $21^{\circ} 31' 15''$ N, $157^{\circ} 50' 05''$ W, was search for by the field editor and not found. Heavy surf in this region hampered the investigation process. A change to the hydrographic instructions put this outside the hydrographic projected area and therefore it was not searched for by the hydrographer. It is recommended that

the pipe be retained in its present location.

The region of piers and rip-rap beach between Latitudes $21^{\circ} 31' 15''$ and $21^{\circ} 32' 00''$ was inaccurately compiled. The shoreline is correct, however in the lower portion of this latitude span, the piers are in actuality rock groins extending approximately 8 feet out from the MHWL. The upper portion of this latitude span shows no discrepancies in either shoreline compilation or fore-shore characteristics, thus no field notes were necessary. Finally the tanks in question, charted at approximate latitude and longitude $21^{\circ} 32' 40''$ N, $157^{\circ} 51' 15''$ W were searched for thoroughly and not found. Deletion is recommended.

The coral reef lines showed generally good agreement in manuscript compilation and visual verification in the field. For further information on reef delineation, refer to DESCRIPTIVE REPORT: H-9594, OPR-419-RA-76.

All non-floating aids to navigation and landmarks for charts have been thoroughly researched and answered for this manuscript. Refer to "Separates Following the Text" for Form 76-40's.

TP-00719: Shoreline verification for this manuscript was begun by ENS OSBORN and Mr. MELBY at its junction with TP-00720 at approximate Latitude $21^{\circ} 24' 53''$ N and proceeded northwesterly to the junction with TP-00718. Inshore work was carried out in conjunction with the shoreline edit. Field Edit is complete for this manuscript.

Two small islands not previously compiled or charted were discovered at these approximate positions: 1) $21^{\circ} 24' 50''$ N, $157^{\circ} 47' 05''$ W, and 2) $21^{\circ} 25' 40''$ N, $157^{\circ} 47' 40''$ W. A minor revision of the MHWL is also noted at this first position. The islands are very small earthen masses with sparse grassy growth.

Seven concrete pilings that bare 3 feet were discovered on either side of the pier that serves the shuttling students to Moku-O-Loe-Island ($21^{\circ} 25' 55''$ N, $157^{\circ} 47' 42''$ W). These piles are a potential hazard to mariners unfamiliar with this region. A small inlet located on the southwestern tip of Moku-O-Loe Island was verified to exist. It was not previously compiled on the T-Sheet or charted. Two additional cement blocks at approximate position $21^{\circ} 25' 50''$ N, $157^{\circ} 48' 20''$ W that were not compiled were verified, and should be added to the one presently shown on the T-Sheet. Compilation on the concrete footings was verified. The masts no longer exist on these footings.

A 25 foot bluff was verified at the seaward tip of Kealohi Point. It is rocky in nature with grassy growth extending downward. This bluff is of landmark value to small boaters in the near vicinity. Also note Kaneohe Fishing Pier, just to the northeast of Kealohi Point, at approximate location $21^{\circ} 26' 50''$ N, $157^{\circ} 48' 45''$ W, is now called Heeia Kea Small Boat Harbor. For further information refer to Coast Pilot Report: Kaneohe Bay, OPR-419-RA-76.

Fixed platform ruins were discovered on both sides of the

small boat channel which is cut or dredged through coral reef at approximate position $21^{\circ} 27' 25''$ N, $157^{\circ} 49' 40''$ W. These fixed ruins appear from their location to mark the channel. Their fixed nature warrants charting, and they can be used as an aids to navigation in this area.

The "T" shaped object at the far northern tip of Kahaluu Landing is in actuality a sea wall that has been filled, landscaped, and has a boat landing and covered storage added on its western side. The whole structure is a major portion of a large estate on the point. A small earth filled and landscaped circular seawall that can be interpreted as an island was located and verified 20 meters to the west of the tip of the "T".

A large foul area, within the limits of the main shoreline reef, was verified at approximate location, $21^{\circ} 28' 34''$ N, $157^{\circ} 50' 45''$ W. There are numerous small rocks baring, awash, and submerged within the limits defined on the Master Field Edit Sheet. An acceptable number were photo identified, and form an outline for the foul area. Further to the northeast, along the shoreline, a rocky region awash was verified seaward from a point of land just to the right of a stream outflow, at approximate position $21^{\circ} 29' 15''$ N, $157^{\circ} 50' 45''$ W.. This presents a hazard to small boat navigators who presently moor a short distance up the stream. Small skiffs were observed tied up in the stream, but none were seen to actually make the transit past the rocky region awash.

The Master Field Edit Sheet position of the 2 Lake Island

For further information on the coral reef survey methods used for delineation, refer to Descriptive Reports: H-9593 and H-9594, OPR-419-RA-76.

TP-00720: Shoreline verification began by ENS OSBORN and Mr. MELBY at the tip of the Kaneohe MCAS runway. First priority was to finish the inside bay shore to the junction with TP-00719. Once this was accomplished, field edit continued around the northern shoreline past Pyramid Rock and around Mokapu Point, then southward to the manuscript limits in Kailua Bay at approximate position $21^{\circ} 25' 25''$ N, $157^{\circ} 44' 48''$ W. Field edit is complete on this manuscript.

The mooring pier at Kaneohe Bay Yacht Club at Latitude $21^{\circ} 25' 15''$ N, $157^{\circ} 46' 15''$ W is back with earth that is grown over. The MHWL was verified along this pier and is noted on the Master Field Edit Sheet. It should be charted as shown.

Two small islands that previously were not charted or compiled were verified to exist along the eastern shore of the inner bay region. The approximate locations are 1) $21^{\circ} 25' 28''$, $157^{\circ} 46' 04''$ W and 2) $21^{\circ} 25' 14''$ N, $157^{\circ} 46' 05''$ W. Both are earth in composition with small mangrove growths. They should not however be considered as mangrove islands.

A small boat wreck was discovered and verified in the small bay that comprises the Marine Corps Air Station Marina, at approximately $21^{\circ} 26' 35''$ N, $157^{\circ} 45' 52''$ W. It is in very shallow water and appears to be no serious danger to navigation in the Marina. It should however, be charted for completeness.

The waters north of Pali Kilo are an extremely heavy surf zone. Boat investigations here were inconclusive due to the areas inaccessability. The region was visually inspected from the shoreline south of Pyramid Rock where the height gave a good vantage point. A breaker and foul area was outlined from this vantage point. The region is extremely foul with submerged rocks and boulders. It should be charted as such. This area is a definitely a dangerous area for all vessel traffic. Survey operations could not be undertaken due to its foul and dangerous nature.

All the shoreline surrounding Ulupau Crater is foul with ledges baring and awash plus regions of beach and rock shoreline. Specific rocks in the entire region were adequately searched for and either not found or not photographically identified. It is recommended that the ledges identified on the Master Field Edit Sheet and cronapaque photographs be charted and that specific rocks be retained. It is believed that they are portions of the ledges that extend the highest above the waterline.

A sewer outfall is under construction on the eastern shore of the Mokapu Peninsula at approximate position $21^{\circ} 27' 12''$ N, $157^{\circ} 43' 40''$ W. For final information on its position for charting purposes contact LT Robert Braddock, Assistant Public

small scale charts of Oahu and the northern islands in general.

All non-floating aids to navigation and landmarks for charts have been thoroughly researched and answered for this manuscript. For further information, refer to the Master Field Edit Index and the "Separates Following the Text". Reference the Horizontal Control Report; Kaneohe Bay, OPR-419-RA-76, for a discussion of the geodetic surveying techniques used for location of aids and landmarks.

Except for a small discrepancy at approximate position $21^{\circ} 26' 15''\text{N}$, $157^{\circ} 45' 37''\text{W}$ that is noted on the Master Field Edit Sheet and referenced photograph, the coral reef delineation shows good agreement with actual field observations. For further reef information, reference Descriptive Report: H-9593, OPR-419-RA-76.

ADDITIONAL INFORMATION

Visual Hydrography and photo located signals were a necessary part of the Kaneohe Bay portion of OPR-419-RA-76 to obtain adequate reef delineation in regions too shallow for electronic survey craft. Separate film ozalids for photogrammetrically located signals have been submitted. Information contained on the ozalids are: the number of the signal on the Master List, the photographs used for each ray transferred, and a reference to the "Separates Following the Text", PHOTO SIGNAL COMPUTATIONS. Field computations such as: the meters forward and backward that were scaled, conversion to seconds, and latitude and longitude computations will be found in these separates. Signal locations are listed on the Master Field Edit Sheet, and referenced to the Photo Signal Film Ozalid.

DATA PROCESSING

Position information for the Ahu-O-Laka, Runway, and Kapapa Island location was logged in visual hydrographic format and punched on paper tape. Geographic positions were computed using the ships PDP8/e computer. Data being submitted include visual master and corrector tapes for automated plotting, printouts of the tapes, and printouts of the geographic position computations for each 3 point sextant fix taken. A list of computer programs used follows:

RK 300 UTILITY COMPUTATIONS
Version 2/10/76

AM 602 "ELINORE" (EXTENDED LINE ORIENTED EDITOR)
Version 5/22/76

RECOMMENDATIONS

Hydrographic survey data must be used in conjunction with photographic analysis to obtain coral reef delineation. "Walk Hydro" was done over each reef to obtain sounding coverage, and

electronic survey vessels circled and transversed reefs to the extent that was permitted by safety. Coupling the two information sources will not only give excellent delineation but will facilitate the development of adequate depth curves along the steeply sloping sides of the reefs.

Photograph quality was generally very good. Clarity and contrast facilitated good identification for shoreline verification and photo identification of visual signals. Coverage was lacking in some areas however. Excessive area gaps between certain photograph pairs forced six(6) visual signals to be located with only two positioning rays. There were three areas where lacking coverage existed. The first which has already been discussed earlier in this report was the lack of photo coverage for the islands in central Kaneohe Bay. The second was the North-South shoreline on TP-00718. A change in Hydrographic Project Instruction's project limits eliminated the need for photo picked signals in this area. Signals 310 and 316 were picked on the upper limits of TP-00719 using only two rays and they form the boundary of another region of limited coverage. When photo picking with two rays, every attempt was made to locate signals that were easily identifiable and provided strong intersection for the positioning rays. This was accomplished in all cases. However, it is recommended that either future photographs taken be provided for field work, especially, where photo identified signals are going to be used for hydrography.

Respectfully submitted:

John C. Osborn Jr.

John C. Osborn Jr.

ENS., NOAA

NOAA FORM 76-40 (8-74) Replaces C&GS Form 567.										U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION									
LANDMARKS FOR CHARTS										ORIGINATING ACTIVITY									
☒ TO BE CHARTED ☐ TO BE REVISED ☐ TO BE DELETED										☐ 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													
Coastal Mapping Div. Rockville, Md.		HAWAII		Kaneohe Bay, Oahu		June 1978													
OPR PROJECT NO.		JOB NUMBER		SURVEY NUMBER		DATUM		POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED							
419		CM-7215		TP-00720		Old Hawaiian													
CHARTING NAME		DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)		LATITUDE ° / ' / D.M. Meters		LONGITUDE ° / ' / D.P. Meters													
MICRO TOWER		(Kaneohe, Hawaiian Telephone Company, Microwave Tower, 1969) Ht. = 590		21 25		32.180 989.7 157 45 1012.4		35.155 1012.4		F-3-6-V March 1976		19359 19357 19340							
RADAR DOME				21 27		39.25 1207 157 45 1622		56.33 1622		F-3-6-L March 1976		" " " "							
RADAR DOME				21 27		42.19 1298 157 46 3		00.11 3		F-V-P March 1976		" " " "							
RADIO TOWER				21 27		42.84 1317 157 46 123		04.27 123		" " " "		19359							
RADIO TOWER				21 27		41.38 1272 157 46 115		03.99 115		" " " "		" "							
AERO		(Kaneohe, Hawaiian Telephone Company Microwave Tower, 1969)		21 25		32.180 989.7 157 45 1012.4		35.155 1012.4		F-V-Vis March 1976		19359 19357 19340							
AERO		Lighted		21 25		46.10 1418 157 45 1236		42 92 1236		F-3-6-L March 1976		19359							
AERO		Lighted		21 24		46 97 1445 157 46 191		06.65 191		F-3-6-L March 1976		" "							
AERO		Lighted		21 27		39.25 1207 157 45 1622		56.33 1622		" "		19359 19357							
AERO		Lighted		21 27		42.19 1298 157 46 3		00.11 3		F-V-P March 1976		" "							

	TYPE
	OBJECTS INSPECTED
	POSITIONS DETERMINED
	FORMS ORIGINATED AND REVIEW GROUP ACTIVITIES
OFFICE	
1. OFFICE	
Enter day, a	
identi	
EXAMPL	
FIELD	
1. NEW PO	
Enter	
F - Fi	
L - Lo	
V - Ve	
1 - Tr	
2 - Tr	
3 - In	
4 - Re	
A. Fie	
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Replaces C&GS Form 567.

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETEDREPORTING UNIT
(Field Party, Ship or Office)
Coastal Mapping Div.
Rockville, MdSTATE
HAWAIILOCALITY
Kaneohe Bay, OahuDATE
June 1978U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

LANDMARKS FOR CHARTS

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)The following objects HAVE ☒ BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO.

JOB NUMBER

SURVEY NUMBER

DATUM

POSITION

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

419

CM-7215

TP-00720

Old Hawaiian

04.27

June 1978

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

LATITUDE

LONGITUDE

D.P. Meters

FIELD

CHARTS
AFFECTED

AERO

Lighted

21 27

42.84

04.27

AERO

Lighted

21 27

41.38

03.99

AERO

Lighted

21 26

27.92

42.53

AERO

Lighted

21 27

04.80

34.46

REASON FOR DELETION OF LANDMARK OR AID TO NAVIGATION
(Show triangulation station names, where applicable, in parentheses)

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<i>J. B. Phillips</i>
INSTRUCTIONS FOR ENTRIES UNDER METHOD AND DATE OF LC (Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS 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	FIELD (Cont'd) B. Photogrammetric entry of me date of file graph used EXAMPLE: P 8 7
FIELD I. NEW POSITION DETERMINED OR VERIFIED 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	II. TRIANGULATION When a landma angulation st Rec. with da EXAMPLE: Tri 8-1 III. POSITION VERI Enter 'V-Vis. EXAMPLE: V-V 8-1 **PHOTOGAMMETRIC entirely, or in by photogrammetr
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS 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	FIELD (Cont'd) 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. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED 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	II. TRIANGULATION STATION RECOVERED 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 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH 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.
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

REVIEW REPORT
TP-00720

SHORELINE

April 18, 1978

61. GENERAL STATEMENT:

See Summary, page 6 of this Descriptive Report.

The north and south ranges of the $\frac{1}{2}$ nautical mile course in Kaneohe Bay do not form parallel azimuths. The positions of the markers shown on the map and reported on Form 76-40 are those submitted by the field editor. These features are not visible on the photographs.

Photograph coverage was not sufficient along the eastern shoreline to extend that shoreline to the southern limit of the map.

The mean lower low water line shown on the Class I Map was deleted during final review. That line was traced from a copy of Boatsheet H-9593.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

No comparison was made.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

No comparison was made.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

Comparison was made with a copy of Final Verified Smoothsheet H-9593 (RA-10-1-76). No significant differences were found.

65. COMPARISON WITH NAUTICAL CHARTS:

Comparison was made with Chart 19359, 1:15,000 scale, 6th edition dated September 28, 1974 and Chart 19357, 1:80,000 scale, 13th edition dated December 14, 1974.

The $\frac{1}{2}$ nautical mile range markers plot in different positions on the chart than on the map. Several mangrove islands shown on the map along the shoreline of Kaneohe Bay are not shown on the chart.

A wreck charted east of Pyramid Rock is not visible on the photographs and was not investigated by the field editor or hydrographer.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:

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

Submitted by:

A. L. Shands

A. L. Shands
Final Reviewer

Approved for forwarding:

Bill H. Barn

for Jeffrey G. Carlen, Cdr.
Chief, Coastal Mapping Division, AMC

Approved:

Bill H. Barn

Chief, Photogrammetric Branch

John D. Perreco Jr.

James C. Allen

Chief, Coastal Mapping Division