

TP-00537

TP-00537

NOAA FORM 76-35 (3-76) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
<h1>DESCRIPTIVE REPORT</h1>	
Map No. TP-00537	Edition No. 1
Job No. CM-7704	
Map Classification CLASS III (FINAL)	
Type of Survey SHORELINE	
<h2>LOCALITY</h2>	
State California	
General Locality San Francisco and San Pablo Bays	
Locality Ravenswood Slough	
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 1977 TO 19 </div>	
<h2>REGISTRY IN ARCHIVES</h2>	
DATE	

NOAA FORM 76-36A (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.		TYPE OF SURVEY <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED		SURVEY TP-00537 MAP EDITION NO. (1) MAP CLASS III, FINAL JOB YH -CM-7704	
DESCRIPTIVE REPORT - DATA RECORD							
PHOTOGRAMMETRIC OFFICE Coastal Mapping Division, Norfolk, Va.				LAST PRECEDING MAP EDITION TYPE OF SURVEY <input type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED			
OFFICER-IN-CHARGE Roy K. Matsushige, CDR.				JOB PH. _____ MAP CLASS _____ SURVEY DATES: 19__ TO 19__			
I. INSTRUCTIONS DATED							
1. OFFICE Aerotriangulation April 13, 1977 Compilation Aug. 3, 1977 Amendment I April 20, 1978 Amendment II April 6, 1979 Amendment III July 30, 1979 Compilation (Memo) July 2, 1981				2. FIELD Control- Premarking Feb. 7, 1977			
II. DATUMS							
1. HORIZONTAL: <input checked="" type="checkbox"/> 1927 NORTH AMERICAN				OTHER (Specify)			
2. VERTICAL: <input checked="" type="checkbox"/> MEAN HIGH-WATER <input type="checkbox"/> MEAN LOW-WATER <input checked="" type="checkbox"/> MEAN LOWER LOW-WATER <input type="checkbox"/> MEAN SEA LEVEL				OTHER (Specify)			
3. MAP PROJECTION Lambert Conformal				4. GRID(S) STATE CA ZONE 3			
5. SCALE 1:20,000				STATE ZONE			
III. HISTORY OF OFFICE OPERATIONS							
OPERATIONS				NAME		DATE	
1. AEROTRIANGULATION BY METHOD: Analytic LANDMARKS AND AIDS BY				R. Kelly		July 1977	
2. CONTROL AND BRIDGE POINTS PLOTTED BY METHOD: Coradomat CHECKED BY				S. Solebeck		July 1977	
3. STEREOSCOPIC INSTRUMENT PLANIMETRY BY COMPILATION CHECKED BY				J. Moler		Dec. 1978	
INSTRUMENT: Wild B-8 SCALE: 1:25,000				R. Kravitz		Dec. 1978	
4. MANUSCRIPT DELINEATION PLANIMETRY BY CHECKED BY				J. Moler		Dec. 1978	
METHOD: Graphic, smooth drafted SCALE: 1:20,000				C. Blood		Feb. 1979	
HYDRO SUPPORT DATA BY CHECKED BY				J. Moler		Dec. 1978	
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY				C. Blood		Feb. 1979	
6. APPLICATION OF FIELD EDIT DATA BY CHECKED BY				None			
7. COMPILATION SECTION REVIEW Class III BY				C. Blood		Feb. 1979	
8. FINAL REVIEW Class III BY				J. Hancock		Aug. 1981	
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY				J. Hancock		Aug. 1981	
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY				G. Fromm		Sept. 1981	
11. MAP REGISTERED - COASTAL SURVEY SECTION BY				H. D. Wolfe		MAP 1982	

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

COMPILATION SOURCES

TP-00537

1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild RC-10(B) (B=152.74MM.)		TYPES OF PHOTOGRAPHY LEGEND (C) COLOR (P) PANCHROMATIC (I) INFRARED		TIME REFERENCE	
TIDE STAGE REFERENCE <input type="checkbox"/> PREDICTED TIDES <input checked="" type="checkbox"/> REFERENCE STATION RECORDS <input checked="" type="checkbox"/> TIDE CONTROLLED PHOTOGRAPHY				ZONE Pacific	<input checked="" type="checkbox"/> STANDARD
				MERIDIAN 120th	<input type="checkbox"/> DAYLIGHT
NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE	
77B(P) 2668-2671 *	Mar 4, 1977	14:31	1:50,000	Not computed	
77B(P) 2656 & 2657 *	Mar 4, 1977	14:15	1:50,000	Not computed	
77B(P) 3742-3745 **	Mar 18, 1977	14:23	1:30,000	Not computed	
77B(P) 3716-3718 **	Mar 18, 1977	13:52	1:30,000	Not computed	
77B(I) 3934 & 3936	Mar 29, 1977	14:39	1:40,000	-.04 Ft. MLLW	
77B(I) 3918	Mar 29, 1977	14:21	1:40,000	-.09 Ft. MLLW	
77B(I) 2948, 2950, 2952	Mar 5, 1977	12:54	1:40,000	+.13 Ft. MHW	
77B(P) 3731 **	Mar 18, 1977	14:05	1:30,000	Not computed	

REMARKS * Compilation photography; ** Hydro support photography;
Infrared photography (MLLW and MHW) was ratioed to 1:20,000 scale.

2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was compiled graphically using ratio prints 1:20,000 scale of the appropriate tide-coordinated black-and-white infrared photographs listed above under Item I.

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

The mean lower low water line was compiled graphically using ratio prints 1:20,000 scale of the appropriated tide-coordinated black-and-white infrared photographs listed above under Item I.

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
TP-00536 & TP-00535	TP-00538	No survey	No Survey

REMARKS The northwest portion of this map is represented by the 1:10,000 inset map, TP-00536.

NOAA FORM 76-36C
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEYTP-00537
HISTORY OF FIELD OPERATIONSI. ☒ FIELD INSPECTION OPERATION (Premarking) ☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Melby	Feb. 1977
2. HORIZONTAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	" " "
	L. Riggers	Feb. 1977
3. VERTICAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	
	N.A. N.A. N.A.	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY LOCATED (Field Methods) BY IDENTIFIED BY	
	None None None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	None
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	N.A.

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

Premark

2. VERTICAL CONTROL IDENTIFIED

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
77B(P) 2669 77B(P) 2670	DUM, 1930 (Sub Pt.)		

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)

1 - form 76-53, 2 - form 77-53, 1 Field Report

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

RECORD OF SURVEY USE

TP-00537

I. MANUSCRIPT COPIES

COMPILATION STAGES			DATE MANUSCRIPT FORWARDED	
DATA COMPILED	DATE	REMARKS	MARINE CHARTS	HYDRO SUPPORT
Compilation complete, pending field edit.	Feb 1979	Class III manuscript	Feb 6, 1979	
Final Review, Class III	Aug 1981	Final Class III Map Field edit canceled	Aug ^{Dec.} 1981	

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS

2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: _____3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: _____

III. FEDERAL RECORDS CENTER DATA

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

Federal Record Center data for this map will be held by Photogrammetry Division
 and not forwarded until completion of all CM-7704 maps. Maps will be registered
 4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: 12/8/81 as received.

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 REPORTS
TP-00537

This 1:20,000 shoreline manuscript is one of fifteen maps, TP-00524 thru TP-00538 that comprise project CM-7704, San Francisco and San Pablo Bays, California. This project consists of eight 1:20,000 maps, six 1:10,000 maps featuring San Francisco Bay entrance and one 1:10,000 inset map of the Redwood Creek area.

The initial purpose of this project was to provide data in support of hydrographic operations beginning in the Fall of 1978. However, due to rapid cultural coast development, field activity has been temporarily delayed. Photogrammetry memo/instrucción dated July 2, 1981, has reassigned this project, in its present stage, for final review and registration. Registration will include 10 Final Maps and 5 Final Class III Maps. Immediately afterward, a Revision Survey using 1981 photography is scheduled to facilitate hydrography and to provide Nautical Charts with current shoreline information.

This 1:20,000 scale Final Class III Map, of which field edit has not been accomplished, features the waterway between Ravenswood Point and Dumbarton Point. The northwest portion of this map is represented by a 1:10,000 inset map, TP-00536.

Field work prior to compilation was accomplished in March 1977; this involved the establishment of horizontal control in order to meet aerotriangulation requirements. During this period, ground support was provided for obtaining tide-coordinated photography and several of the project's navigational aids and landmarks for Charts were field determined.

Photo coverage was provided in March 1977 for aerotriangulation and compilation using panchromatic film with the "B" camera at 1:50,000 and 1:30,000 scales. Hydro support photography was taken using panchromatic film with the "B" camera at 1:30,000 scale. Tide coordinated black and white infrared photography at MHW and MLLW was supplied using the "B" camera at 1:40,000 and 1:30,000 scales.

Analytic aerotriangulation was adequately provided by the Washington Science Center in July 1977.

TP-00537

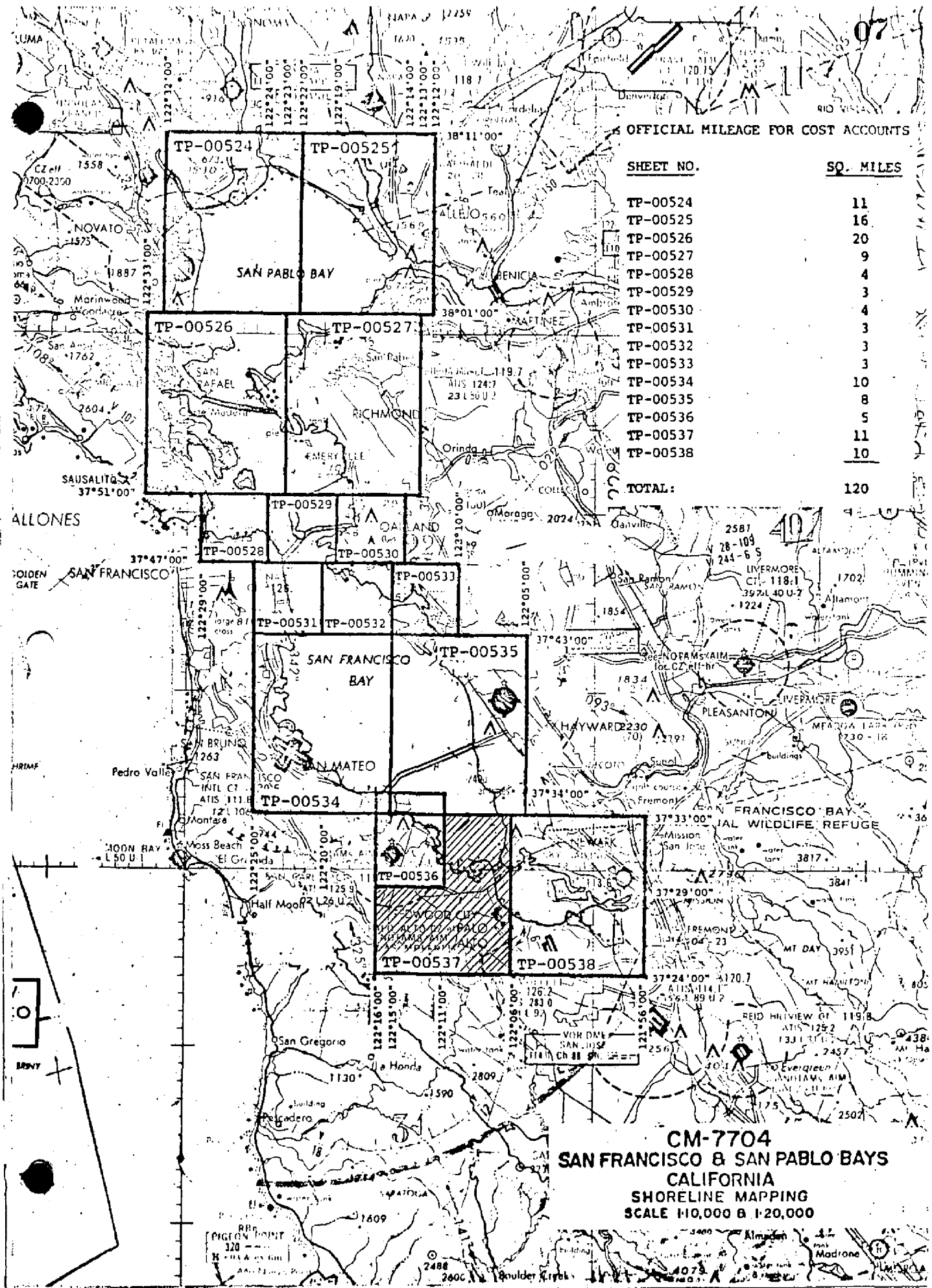
Compilation was performed at the Atlantic Marine Center in February 1979. The Class III manuscript was forwarded to PMC for the combined field edit and hydrographic operations. However, these functions have been temporarily canceled due to active cultural and shoreline changes that have developed since the 1977 photography. It is anticipated that current data will be furnished to the hydrographer and Nautical Charts through the 1981 Revision Survey.

Final review was performed at the Atlantic Marine Center in August 1981. At this time a comprehensive examination and office edit was accomplished to assure an accurate and complete photogrammetric map. The context of this Descriptive Report contains all the pertinent information used to compile this Final Class III Map.

The original base manuscript and all pertinent data was forwarded to the Washington Science Center for final registration and preparation for the 1981 Revision Survey.

OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.	SQ. MILES
TP-00524	11
TP-00525	16
TP-00526	20
TP-00527	9
TP-00528	4
TP-00529	3
TP-00530	4
TP-00531	3
TP-00532	3
TP-00533	3
TP-00534	10
TP-00535	8
TP-00536	5
TP-00537	11
TP-00538	10
TOTAL:	120



CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:10,000 & 1:20,000

FIELD INSPECTION

TP-00537

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



09

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Pacific Marine Center

April 4, 1977

CPM17/RBM

TO: C3415 Coastal Mapping

FROM:

Robt. B. Melby 4/5/77
Robert B. Melby
Chief, PMC Photo Party

SUBJECT: Field Operations Project CM-7704, San Francisco and San Pablo Bays, California

Horizontal Control:

Twenty-five horizontal control stations were paneled for aerial photography as indicated on the project diagram that was furnished to the photo-field party. A majority of the stations were paneled by the sub. pt. method as the stations did not lend themselves to being paneled direct. Distances up to about 2 miles were determined to the sub. points (panels), utilizing a Ranger III, laser distance measuring instrument. It was rapid, accurate and unaffected by electronic disturbances, normal to a high population and/or industrial area like the project encompassed.

Vandalism was a problem, in regard to panels, as several were disturbed and required relaying or substituting with photo identifiable points.

Several aids to navigation and landmarks for charts were located by third-order tirangulation intersection methods. The aids to navigation (lights) marking the channel through San Bruno shoal would have been difficult to positively photo-identify.

All photo-panels were removed after photography to verify their being in place at the required time and to maintain a "cleanup" policy. All panels were in place by March 1, 1977.

Tide Controlled Photography:

The South San Francisco Bay shoreline was photography and controlled by nine, preselected tide stations. With the aid of the Pacific Tide Party, California Boundary Project, all nine stations were manned at the same time. A coordination point was selected in the southeast section of the City of Oakland that was capable of direct F.M. radio communications with all the stations and the photo-mission aircraft.



C3415 Coastal Mapping
April 4, 1977
Page 2

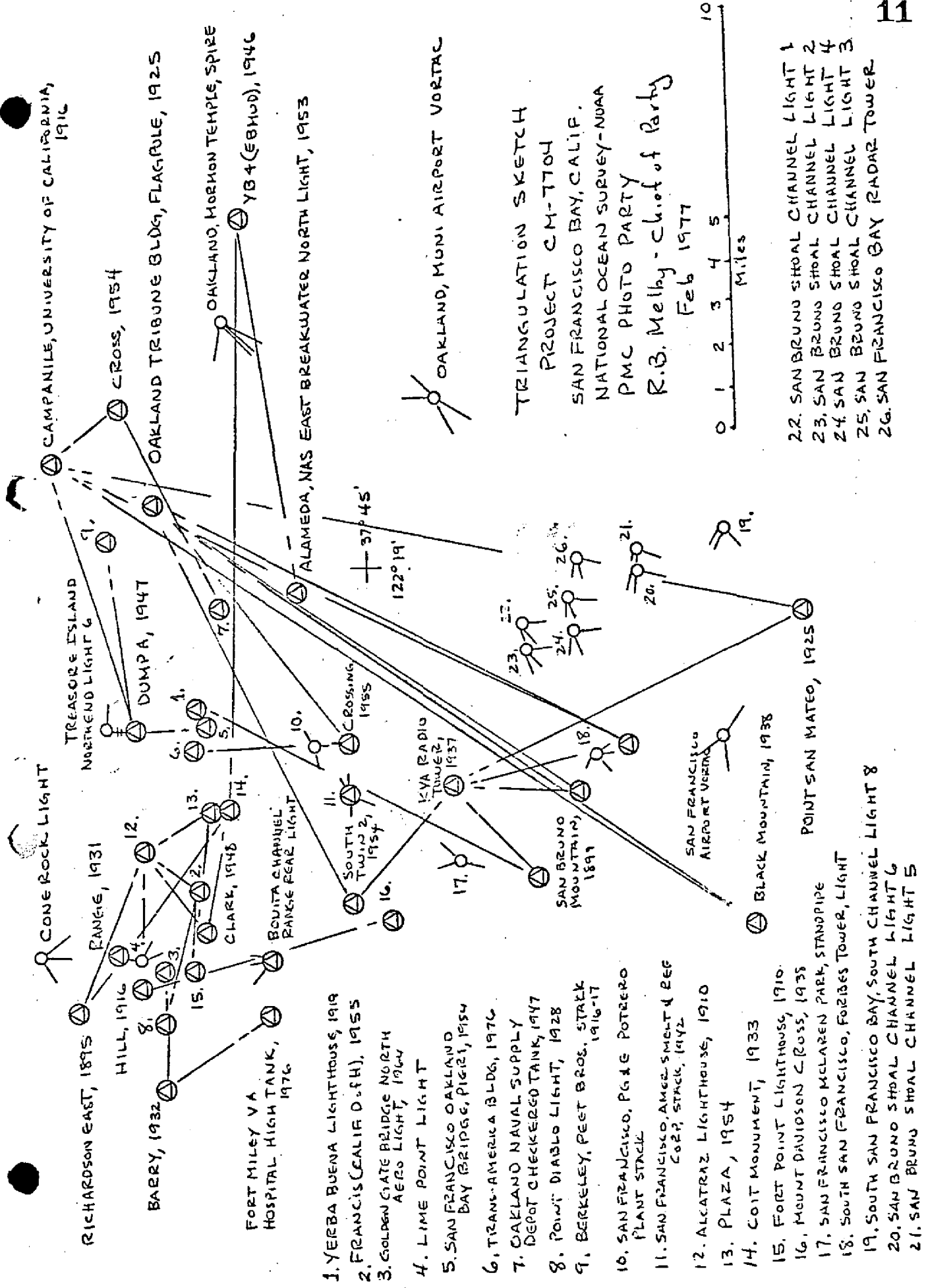
The coordinator would transmit time checks and receive tide staff readings of involved stations and filter and transmit to the aircraft the flight lines that were within the required tide ranges and maintain a summary of staff readings.

Because of the elevation of the coordination site a Motorola Walkie-Talkie was sufficient to maintain communications to all sites and the aircraft.

The operation was rather smooth as all observers were on station at the required time and no radio or transportation failures were experienced at the required times. The only difficulty encountered was an erratic tidal behavior during one series of projected favorable tides when during an unusual high pressure atmospheric condition the predicted tide range decreased by about 0.7 foot, causing stations to go out of range and greatly altering the tidal pattern.

Recommendations:

It is recommended that the field data, tidal predictions, etc., be furnished to the field units, with ample advance time to allow a thorough research and planning of the field phases of the project.



PHOTOGRAMMETRIC PLOT REPORT
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA

Job CM-7704

July 22, 1977

21. Area Covered

This report covers eight 1:20,000 sheets, TP-00524, TP-00525, TP-00526, TP-00527, TP-00534, TP-00535, TP-00537, TP-00538, and seven 1:10,000 sheets TP-00528, TP-00529, TP-00530, TP-00531, TP-00532, TP-00533, and TP-00536 of San Francisco Bay and San Pablo Bay, California

22. Method

Seven strips of 1:50,000 scale panchromatic photography, taken with the "B" camera were bridged by analytic aero-triangulation methods and adjusted to ground on the California Zone 3. Common pass points were positioned between the 1:50,000 scale and 1:30,000 scale panchromatic photography, also taken with the "B" camera to provide horizontal control for compilation of the 1:10,000 and 1:20,000 scale maps.

Tide-coordinated supplemental photography, 1:30,000 and 1:40,000 scale MHW and MLLW were tied to the 1:50,000 scale bridging photography for shoreline compilation of 1:10,000 and 1:20,000 scale maps by means of positioning common points for ratio prints.

The 1:30,000 scale hydro support photography was also tied to 1:50,000 scale bridging photography by common points to determine the exact ratios. Tie points were used to augment datum between bridging strips. After running a strip adjustment on strip 5, it was found, for no apparent reason, that the control and tie points did not fit. This was resolved by running a block adjustment. Ruling of manuscripts and plotting of points was done on the Coradomat. A list was forwarded with this job, CM-7704, to AMC for selection of ratios to be ordered.

23. Adequacy of Control

The horizontal control provided was adequate except for Bench Mark H - 111, 1932 paneled substation, which did not hold in strips 5 and 7. The home station was plotted on a USGS quadrangle and did not fall in the area given in the description. All other control held within the accuracy required by National Standards of Maps at 1:10,000 and 1:20,000 scale.

24. Supplemental Data

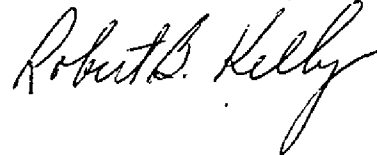
Local shoreline and USGS quadrangles were used to provide elevations for vertical adjustments of bridges.

25. Photography

The photography was adequate as to placement of flight lines, consistent quality, definition and absence of haze.

Submitted by:

Robert B. Kelly



Approved and Forwarded:



John D. Perrow, Jr.
Chief, Aerotriangulation Section

KEY TO NUMBERED CONTROL
STATIONS USED IN ADJUSTMENT
AND CLOSURES

1 LAKEVILLE, SQUARE TANK ON HILL, 1951	TANK(1.04, -3.77)
	PANEL(-.25, .23)
2 BUG (SLC), 1951	COULD NOT SEE
3 SLAUGHTERHOUSE PT. 3, 1921	(-2.22, .52)
4 MARE ISLAND SOUTHEAST=, 1952	(3.02, -.23)
5 PINOLE HERCULES POWDER CO., TANK, 1947	(.38, -.17)
6 WILSON, 1852	(.08, -.10)
7 POINT PINOLE ATLAS DOCK, SHED E. GABLE, 1950	COULD NOT SEE
8 SAN PABLO RIDGE, 1897	(2.14, -1.21)
9 GROVE POINT 2, 1887	(-.65, .49)
10 PETALUMA CREEK, 1851	(1.70, -.24)
11 RICHARD, 1932	(-2.08, .91)
12 ALAMRDA N.A.S. E: BREAKWATER N. LT. 1953	(.00, .00)
13 CROSSING, 1955	(-.09, -.42)
14 T I C9, 1947	(.00, .00)
15 CLARK, 1948	(.45, .74)
16 BARRY, 1932	(-3.36, -.98)
17 SAN BRUNO MTN. (RADIO STA. KNBC MAST), 1899	(.03, .49)
18 POINT SAN BRUNO, 1925	(.04, -.19)
19 GUANO ISLAND, 1851	(3.33, -1.50)
20 DUM, 1930	(-1.31, 1.01)
21 RED HILL, 1851	(-.05, .01)
22 SAN, 1947	(.27, .20)
23 BENCH MARK H 111, 1932	DID NOT FIT ADJUSTMENT
24 COFFIN 2, 1974	(.07, -.02)
25 BALDOPRAK (EBMUD), 1946	(-.15, .02)
26 BUCK, 1949	(-1.04, -.52)
27 MANZANITA (CADH), 1972	(-1.01, -1.09)

BRIDGING PHOTOGRAPHY

15

INDEX TO PHOTOGRAPHS

STRIP 1	77B 2577 - 2586
" 2	" 2629 - 2640
" 3	" 2565 - 2573
" 4	" 2598 - 2604
" 5	" 2644 - 2661
" 6	" 2619 - 2625
" 7	" 2665 - 2676
" 9	" 2501 - 2505
" 10	" 2512 - 2516
" 11	" 2529 - 2528
" 12	" 2540 - 2549
" 13	" 2554 - 2560

CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:10,000 & 1:20,000

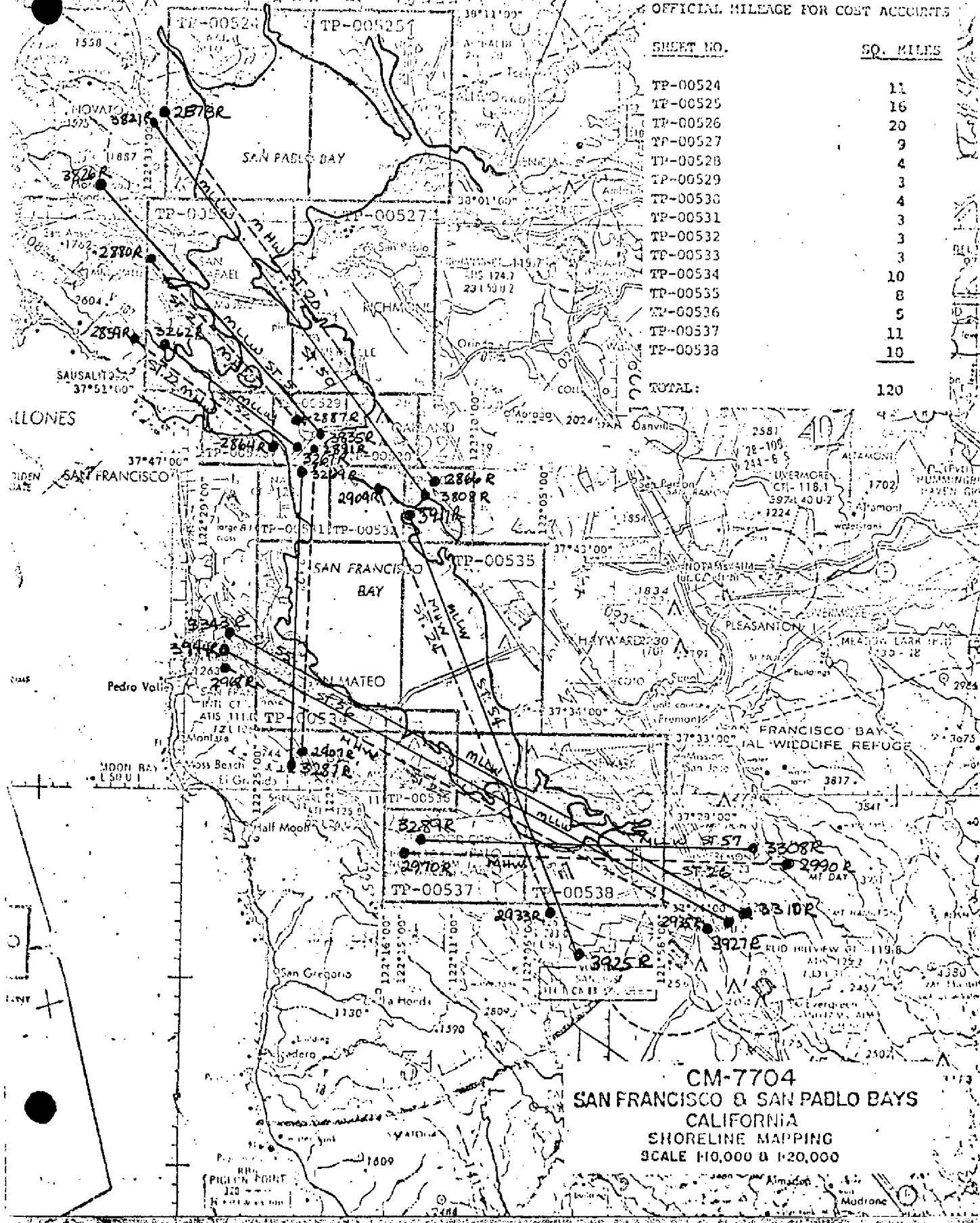
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MLLW
mHW

16

OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.	SQ. MILES
TP-00524	11
TP-00525	16
TP-00526	20
TP-00527	9
TP-00528	4
TP-00529	3
TP-00530	4
TP-00531	3
TP-00532	3
TP-00533	3
TP-00534	10
TP-00535	8
TP-00536	5
TP-00537	11
TP-00538	10
TOTAL:	120



HIGH & LOW WATER INFRARED PHOTOGRAPHY

1:30,000 MLLW
MHW
MLW

17

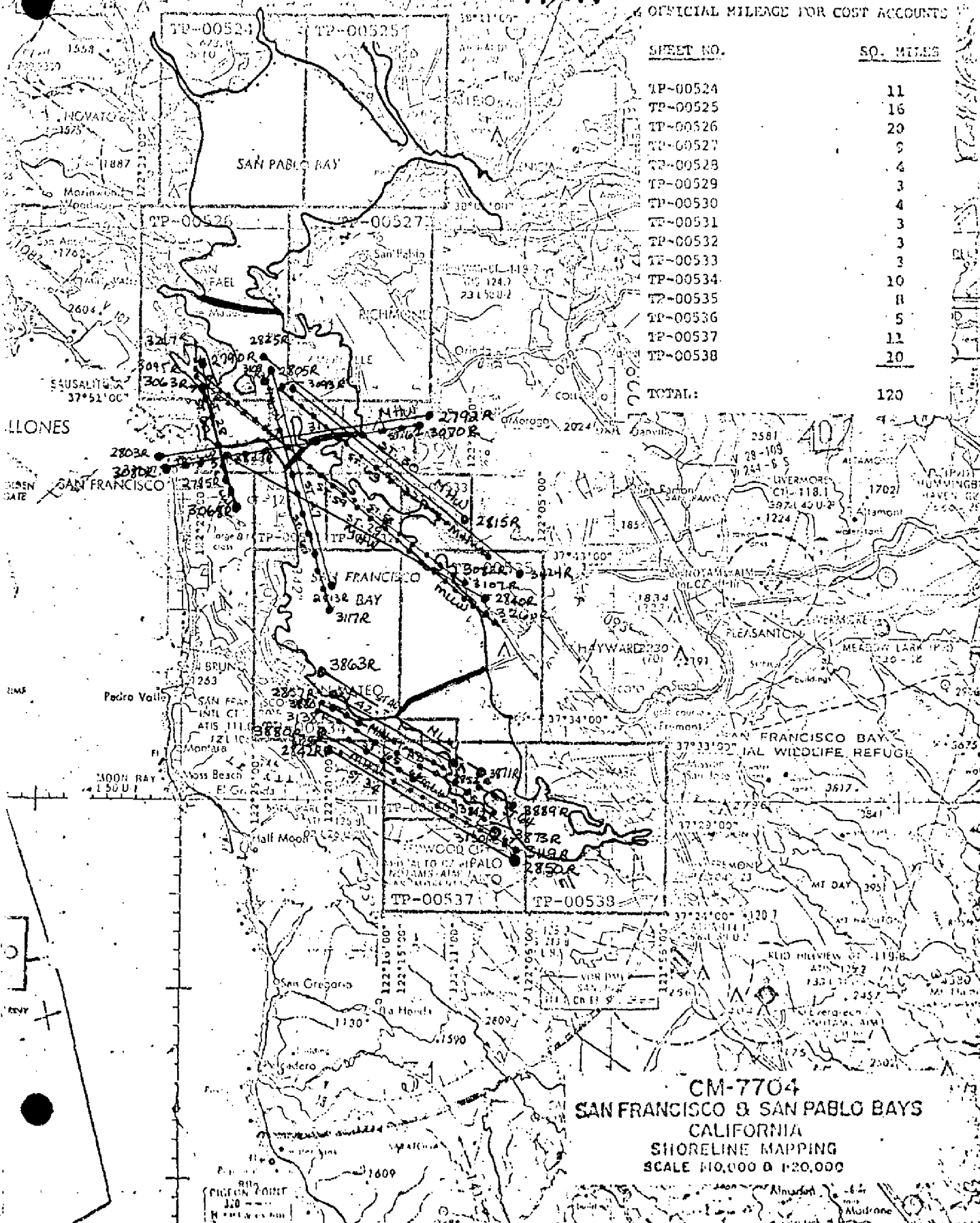
OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.

SQ. MILES

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TP-00530	4
TP-00531	3
TP-00532	3
TP-00533	3
TP-00534	10
TP-00535	8
TP-00536	5
TP-00537	11
TP-00538	10

TOTAL: 120



HYDRO-SUPPORT PHOTOGRAPHY

1:30,000

18

OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.

SO. MILES

TP-00524	11
TP-00525	16
TP-00526	20
TP-00527	9
TP-00528	4
TP-00529	3
TP-00530	4
TP-00531	3
TP-00532	3
TP-00533	3
TP-00534	10
TP-00535	8
TP-00536	5
TP-00537	11
TP-00538	10

TOTAL: 120

CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:10,000 & 1:20,000

COMPILATION PHOTOGRAPHY

1:30,000

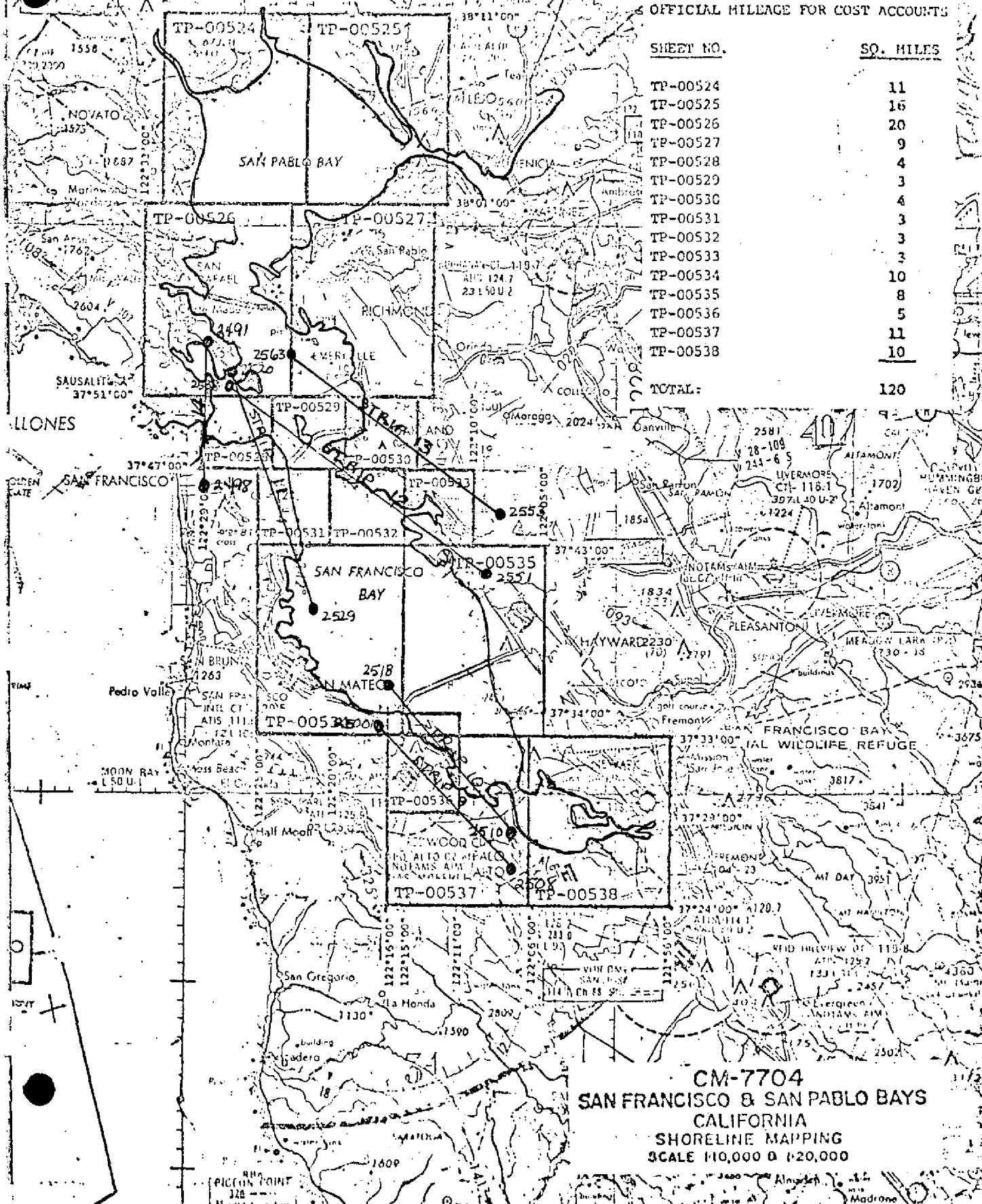
19

OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.

SQ. MILES

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TP-00538	10
TOTAL:	120



CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:30,000 TO 1:20,000

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	STATION NAME	JOB NO.	GEODETTIC DATUM		AEROTRI- ANGULATION POINT NUMBER	COORDINATES IN FEET		GEOGRAPHIC POSITION		ORIGINATING ACTIVITY		REMARKS
			TP-00537	CM-7704		N.A. 1927	STATE California	ZONE 3	φ LATITUDE	λ LONGITUDE	Coastal Mapping Division, AMC	
DUM, 1930		371222 Page 1017			669100	X= 1,527,528.41	Y= 367,473.74	φ 37°29'52.702"	λ 122°00'43.309"			1624.7 225.0
DUMBARTON DRAWBRIDGE LIGHT, 1925		" 1078			334	X=	Y=	φ 37°29'51.518"	λ 122°00'31.065"			1063.8 410.0
DUMBARTON HIGHWAY BRIDGE, EAST TOWER, 1931		371221 2045			335	X=	Y=	φ 37°30'21.620"	λ 122°00'00.847"			1588.2 261.5
DUMBARTON HIGHWAY BRIDGE, WEST TOWER, 1931		" 2046				X=	Y=	φ 37°30'20.072"	λ 122°00'03.080"			763.1 710.8
MAYFIELD RADIO MAST, 1932		371222 1101			320	X=	Y=	φ 37°26'43.857"	λ 122°00'39.909"			666.5 1183.2
CHARLESTON SLOUGH, NORTH SIDE TALL TRANSMISSION TOWER, 1931		" 1076			321	X=	Y=	φ 37°27'31.633"	λ 122°00'02.783"			20.7 1452.9
						X=	Y=	φ	λ			618.8 1230.9
						X=	Y=	φ	λ			75.6 1398.0
						X=	Y=	φ	λ			1352.1 497.7
						X=	Y=	φ	λ			981.0 493.9
						X=	Y=	φ	λ			975.2 874.5
						X=	Y=	φ	λ			68.4 1406.2
						X=	Y=	φ	λ			
						X=	Y=	φ	λ			
						X=	Y=	φ	λ			
COMPUTED BY A. Rauck Jr.						COMPUTATION CHECKED BY L. Neterer Jr.						DATE Sept. 20/77
LISTED BY A. Rauck Jr.						LISTING CHECKED BY F. Margiotta						DATE Aug. 19/77
HAND PLOTTING BY						HAND PLOTTING CHECKED BY						DATE

COMPILATION REPORT

TP-00537

31. DELINEATION

Delineation was by instrument methods using the Wild B-8 stereoplotter. Compilation photography was adequate. The mean high water and mean lower low water lines were compiled graphically from the tide coordinated infrared ratio photos indicated on form 76-36B.

32. CONTROL

Horizontal control was adequate. Refer to the Photogrammetric Plot Report, dated July 22, 1977.

33. SUPPLEMENTAL DATA

None

34. CONTOURS AND DRAINAGE

Contours are not applicable to this project. See item #31.

35. SHORELINE AND ALONGSHORE DETAILS

See item #31.

36. OFFSHORE DETAILS

No unusual problems.

37. LANDMARKS AND AIDS

Preliminary 76-40 forms consisting of one page of Navigational Aids and two pages of Landmarks for charts were 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

See item #32.

46. COMPARISON WITH EXISTING MAPS

A comparison was made with the following U.S.G.S. Quadrangles:

Redwood Point, CA; 1:24,000 scale; 1959, photo revised 1968/1973
Palo Alto, CA; 1:24,000 scale; 1961, photo revised 1968/1973
Mountain View, CA; 1:24,000 scale; 1961, photo revised 1968/1973
Newark, CA; 1:24,000 scale; 1959, photo revised 1968/1973

47. COMPARISON WITH NAUTICAL CHARTS

A comparison was made with the following National Ocean
Survey charts: No. 18652, 1:40,000/1:80,000 scale, 16th Ed.,
March 26, 1977; No. 18651, 1:40,000 scale, 29th Ed, Aug 12, 1978.

ITEM TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None

ITEMS TO BE CARRIED FORWARD

None

Submitted by:

for *Jeff Moler*
Jeff Moler
Cartographic Technician

Date: December 19, 1978

Approved:

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

PHOTOGRAMMETRIC OFFICE PRE-HYDRO AND FIELD EDIT REVIEW

23

TP- 00537

PROJECTION AND GRIDS C.B.	TITLE C.B.	HORIZONTAL CONTROL C.B.	PHOTOGRAMMETRIC PLOT REPORT, C.B.
DETAIL POINTS AND PASS POINTS C.B.	PROCESSED RATIOS C.B.	AIDS TO NAVIGATION C.B.	LANDMARKS C.B.
MEAN HIGH WATER LINE C.B.	LOW-WATER LINE C.B.	ROCKS, SHOALS, ETC. C.B.	ALONG SHORE AND OTHER PHYSICAL FEATURES C.B.
WATER FEATURES C.B.	ALONG SHORE AND OTHER CULTURAL FEATURES C.B.	BRIDGES C.B.	ROADS C.B.
BUILDINGS C.B.	RAILROADS NONE	CONTOURS AND SPOT ELEVATIONS NONE	GEOGRAPHIC NAMES C.B.
JUNCTIONS C.B.	LEGIBILITY OF THE MANUSCRIPT C.B.	COMPILATION REPORT C.B.	FIELD EDIT OZALID C.B.
COMPARISON WITH NAUTICAL CHARTS C.B.	COMPARISON WITH PRIOR SURVEYS NONE	COMPARISON WITH EXISTING MAPS C.B.	FIELD PRINTS AND OTHER COPIES C.B.
REVIEWER 77 Charles Blood	DATE Feb. 1979	SUPERVISOR A. C. Rauck Jr.	DATE Feb. 1979

REMARKS

PHOTOGRAMMETRIC OFFICE POST-HYDRO AND FIELD EDIT REVIEW

MANUSCRIPT NUMBERS	FORMAT STICK-UP	MANUSCRIPT SIZE	HORIZONTAL CONTROL
PHOTO HYDRO STATIONS	PLOTTING OF SEXTANT FIXES	AIDS TO NAVIGATION	LANDMARKS
MEAN HIGH WATER LINE	LOW-WATER LINE	ROCKS, SHOALS, ETC.	ALONG SHORE AND OTHER PHYSICAL FEATURES
WATER FEATURES	ALONG SHORE AND OTHER CULTURAL FEATURES	PIPELINES, CABLES, ETC.	BRIDGES
ROADS	BUILDINGS	RAILROADS	CONTOURS AND SPOT ELEVATIONS
GEOGRAPHIC NAMES	JUNCTIONS	FIELD EDIT PHOTOGRAPHS	FIELD EDIT OZALID
GEOGRAPHIC FIX POSITIONS	FIELD FORMS	FIELD EDIT REPORT	APPROVED TIDES
CHART MAINTENANCE PRINT AND OTHER COPIES	PREPARATION FOR FINAL REVIEW	COMPILER	DATE
REVIEWER	DATE	SUPERVISOR	DATE

REMARKS

Class III manuscript, no field edit accomplished.

REVIEW REPORT TP-00537
SHORELINE

61. GENERAL STATEMENT:

An extensive final review was performed for this Final Class III map. See the Summary included in this Descriptive Report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

Not applicable.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

A comparison was made with the following U.S.G.S. quadrangles, 1:24,000 scale:

Redwood Point, CA; 1959, photo revised 1968 and 1973
Palo Alto, CA; 1961, photo revised 1968 and 1973
Mountain View, CA; 1961, photo revised 1968 and 1973
Newark, CA; 1959, photo revised 1968 and 1973

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

The intended contemporary hydrographic survey has been temporarily postponed pending the assigned 1981 Revision Survey of this Class III Map. See the Summary included in this Descriptive Report.

65. COMPARISON WITH NAUTICAL CHARTS:

A comparison was made with N.O.S. chart 18651, 31st edition, July 12/80, 1:40,000 scale and chart 18652, 20th edition, April 16/81, 1:40,000/1:80,000 scale.

A previously mapped "rock" located on the northeast end of Hetch Hetchy Aqueduct off Dumbarton Point is very indefinite and was redefined during final review as an "obstruction." This "rock" now appears on current chart 18652 and apparently was transferred from the original Class III map. The exact terminology based on photo interpretation for this object cannot be concluded and will require field classification.

Based on interpretation of the infrared photography, the MLLW line north of Dumbarton Point, was revised and basically conforms with chart 18651.

TP-00537

Because of the penetrating qualities of infrared photography and the gentle gradient of the foreshore, identification of a distinct and consistent MLLW line was restricted. Hydrographic development of the MLLW line should be consulted for the final delineation of this feature.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:

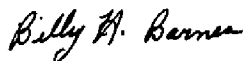
This map complies with the Project Instructions, and meets the requirements for Bureau Standards of Map Accuracy.

Submitted by:



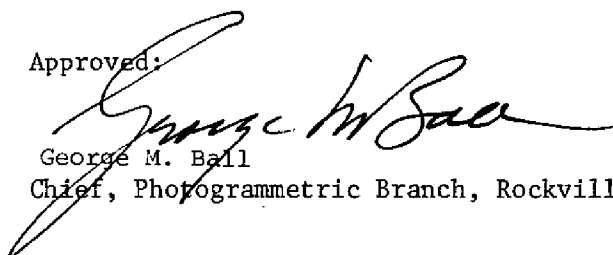
Jerry L. Hancock
Final Reviewer

Approved for forwarding:




Billy H. Barnes
Chief, Photogrammetric Branch, AMC

Approved:



George M. Ball
Chief, Photogrammetric Branch, Rockville



Walter S. Simmons
Chief, Photogrammetry Division

GEOGRAPHIC NAMES

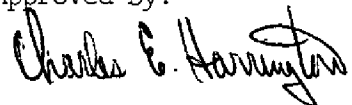
FINAL NAME SHEET

CM-7704 (San Francisco and San Pablo Bays, California)

TP-00537

Cooley Landing
Dumbarton Point
East Palo Alto
Flood Slough
Greco Island
Hetch Hetchy Aqueduct
Mayfield Slough
Palò Alto Municipal Airport
Ravenswood Point
Ravenswood Slough
Sand Point
San Francisco Bay
San Francisquito Creek
Southern Pacific (RR)
Westpoint Slough

Approved by:



Charles E. Harrington
Chief Geographer, OA/C3x5

NOAA FORM 76-40 (8-74)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				FOR CHARTS				ORIGINATING ACTIVITY	
Replaces C&GS Form 567.		NONFLOATING AIDS		STATE		LOCALITY		DATE		<input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> COMPILATION ACTIVITY <input checked="" type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW GRP. <input type="checkbox"/> COAST PILOT BRANCH (See reverse for responsible personnel)	
<input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED		REPORTING UNIT (Field Party, Ship or Office) Coastal Mapping Division A.M.C. Norfolk, VA		California		San Francisco and San Pablo Bays		Feb. 1979 Aug. 1981			
The following objects HAVE <input type="checkbox"/> HAVE NOT <input checked="" type="checkbox"/> been inspected from seaward to determine their value as landmarks. OPR PROJECT NO.		JOB NUMBER CM-7704		SURVEY NUMBER TP-00537		DATUM N.A. 1927		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED	
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE		LONGITUDE		POSITION		OFFICE	FIELD		
		° /	'	° /	'	D.M. Meters	D.P. Meters				
LIGHT	South Channel Light 14	37-30	49.7	122-08	01.6	1532.0	40.0	77B(P) 2669 3/4/77		18651 18652	
DAYBEACON	Mayfield Slough Entrance Daybeacon 2	37-29.2		122-07.0				Not Vis.		"	"
DAYBEACON	Mayfield Slough Entrance Daybeacon 4	37-28.6		122-06.9				Not Vis.		"	"
DAYBEACON	Mayfield Slough Entrance Daybeacon 6	37-28.4		122-06.3				Not Vis.		"	"
SIREN	Dumbarton Highway Bridge Fog Signal (Siren) (Dumbarton Highway Bridge, West Tower, 1931)	37-30	20.072	122-07	03.080	618.8	75.6	77B(P) 2669 3/4/77		"	"
BELL	Dumbarton Railroad Bridge Fog Signal (Bell) (Dumbarton Draw-Bridge Light, 1925)	37-29	51.518	122-06	31.065	1588.2	763.1	77B(P) 2669 3/4/77		"	"
AERO	Located at Palo Alto Municipal Airport	37-27	14.9	122-06	51.0	459	1253	77B(P) 2669 3/4/77		"	"
											27

-144

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	J. Hancock
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE 1. 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 P - Photogrammetric 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	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.	

28

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	J. Moler
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW	J. Hancock
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.	

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	J. Moler
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	J. Hancock
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 P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	III. 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 IIII. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.
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