TP 00535

TP 00535

NOAA FORM 76-35
(3-76)

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

DESCRIPTIVE REPORT

Map No.	*Edition No.*
TP-00535	1

Job No.
CM-7704

Map Classification
FINAL, FIELD EDITED MAP

Type of Survey
SHORELINE

LOCALITY

State
California

General Locality
San Francisco and San Pablo Bays

Locality
San Mateo Bridge

1977 TO 1980

REGISTRY IN ARCHIVES

DATE

*U.S. GOVERNMENT PRINTING OFFICE:1976-669-248

NOAA FORM 76-36A (3-72) — U. S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.

DESCRIPTIVE REPORT - DATA RECORD

TYPE OF SURVEY	SURVEY TP-00535
☒ ORIGINAL	MAP EDITION NO. ( )
☐ RESURVEY	MAP CLASS Final
☐ REVISED	JOB XX-CM-7704

PHOTOGRAMMETRIC OFFICE: Coastal Mapping Division, Norfolk, VA

OFFICER-IN-CHARGE: Roy K. Matsushige, CDR, NOAA

LAST PRECEEDING MAP EDITION

TYPE OF SURVEY: ☐ ORIGINAL ☐ RESURVEY ☐ REVISED

JOB PH-_____ MAP CLASS _____ SURVEY DATES: 19__ TO 19__

I. INSTRUCTIONS DATED

1. OFFICE		2. FIELD
Aerotriangulation	April 13, 1977	Control-Premarking February 7, 1977
Compilation	August 3, 1977	
Amendment 1	April 20, 1978	
Amendment 2	April 6, 1979	
Amendment 3	July 30, 1979	
Compilation	July 2 1981	

II. DATUMS

1. HORIZONTAL: ☒ 1927 NORTH AMERICAN — OTHER (Specify)

2. VERTICAL: ☒ MEAN HIGH-WATER ☐ MEAN LOW-WATER ☒ MEAN LOWER LOW-WATER ☐ MEAN SEA LEVEL — OTHER (Specify)

3. MAP PROJECTION: Lambert Conformal

4. GRID(S): STATE California, ZONE 3

5. SCALE: 1:20,000 — STATE, ZONE

III. HISTORY OF OFFICE OPERATIONS

OPERATIONS		NAME	DATE
1. AEROTRIANGULATION METHOD: Analytic	BY	R. Kelly	July 1977
	LANDMARKS AND AIDS BY		
2. CONTROL AND BRIDGE POINTS METHOD: Coradomat	PLOTTED BY	S. Solbeck	July 1977
	CHECKED BY	S. Solbeck	July 1977
3. STEREOSCOPIC INSTRUMENT COMPILATION	PLANIMETRY BY	I. Perkinson	April1978
	CHECKED BY	J. Byrd	April1978
INSTRUMENT: Wild B-8	CONTOURS BY	N.A.	
SCALE: 1:25,000	CHECKED BY	N.A.	
4. MANUSCRIPT DELINEATION	PLANIMETRY BY	I. Perkinson	May 1978
	CHECKED BY	J. Roderick	June 1978
METHOD: Graphically smooth drafted	CONTOURS BY	N.A.	
	CHECKED BY	N.A.	
SCALE: 1:20,000	HYDRO SUPPORT DATA BY	I. Perkinson	May 1978
	CHECKED BY	J. Roderick	June 1978
5. OFFICE INSPECTION PRIOR TO FIELD EDIT	BY	J. Roderick	June 1978
6. APPLICATION OF FIELD EDIT DATA	BY	R. Minton	June 1981
	CHECKED BY	J. Hancock	April1982
7. COMPILATION SECTION REVIEW	BY	J. Hancock	April1982
8. FINAL REVIEW	BY	J. Hancock	April1982
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH	BY	J. Hancock	April1982
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH	BY	R. Kelly	July 1982
11. MAP REGISTERED - COASTAL SURVEY SECTION	BY	[illegible]	[illegible]

NOAA FORM 76-36A — SUPERSEDES FORM C&GS 181 SERIES

Chief, Photo Map and Imagery Unit

NOAA FORM 76-36B
(3-72)

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

TP-00535

COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

CAMERA(S): Wild R.C. 10: "B" (B=152.74mm)

TYPES OF PHOTOGRAPHY LEGEND
(C) COLOR
(P) PANCHROMATIC
(I) INFRARED

TIME REFERENCE
ZONE: Pacific — [X] STANDARD
MERIDIAN: 120th — [ ] DAYLIGHT

TIDE STAGE REFERENCE
[ ] PREDICTED TIDES
[X] REFERENCE STATION RECORDS
[X] TIDE CONTROLLED PHOTOGRAPHY *

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
77B(P)2607-2609 **	Mar.4,1977	13:22	1:50,000	Not computed
77B(P)2652-2656	Mar.4,1977	14:15	1:50,000	Not computed
77B(P)3708-3715 ***	Mar18,1977	13:52	1:30,000	Not computed
77B(I)3912-3918 Alt.*	Mar29,1977	14:21	1:40,000	0.07 Ft. below MLLW
77B(I)2913-2921 Alt.*	Mar.5,1977	12:37	1:40,000	0.17 Ft. above MHW

**Photographs ratioed to map scale for graphic compilation of San Mateo Bridge.

REMARKS Photographs 77B(P)2652-2656 were used for stereoscopic instrument compilation of the interior detail and the selection of pass points common to the hydro support and tide coordinated infrared photographs. *** Hydro support photographs.

2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was compiled graphically from the above listed tide coordinated infrared photographs controlled with pass points selected and dropped during the stereo instrument compilation. Additions and modifications to the mean high water line may resulted from the compilation of the field edit data listed on form 76-36C.

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

The mean lower low water line was compiled graphically from the above listed tide coorinated infrared photographs controlled with pass points selected and dropped during the stereo instrument compilation. Additions and modifications to the mean lower low water line may have resulted from the compilation of the field edit data listed on form 76-36C.

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

SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED
H-9819	1981	None: See Review Report, item#64			
H-9872	1981				

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
TP-00533	No survey	TP-00537 TP-00536	TP-00534

REMARKS
TP-00533 and TP-00536 are 1:10,000 scale. TP-00534 and TP-00537 are 1:20,000 scale.

NOAA FORM 76-36B
(3-72)

* U.S. G.P.O. 1972-769381/568 REG.#6

NOAA FORM 76-36C
(3-72)

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

TP-00535

HISTORY OF FIELD OPERATIONS

I. [X] FIELD INSPECTION OPERATION (Premarking) [ ] FIELD EDIT OPERATION.

OPERATION		NAME	DATE
1. CHIEF OF FIELD PARTY		R. Melby	Feb. 1977
2. HORIZONTAL CONTROL	RECOVERED BY	R. Melby	Feb. 1977
	ESTABLISHED BY	R. Melby	Feb. 1977
	PRE-MARKED OR IDENTIFIED BY	R. Melby	Feb. 1977
3. VERTICAL CONTROL	RECOVERED BY	None	
	ESTABLISHED BY	None	
	PRE-MARKED OR IDENTIFIED BY	None	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED *(Triangulation Stations)* BY	None	
	LOCATED *(Field Methods)* BY	None	
	IDENTIFIED BY	None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION [ ] COMPLETE [ ] SPECIFIC NAMES ONLY [XX] NO INVESTIGATION — BY		
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

2. VERTICAL CONTROL IDENTIFIED
None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
77B(P)2656	Red Hill Top, 1947 (Sub Pt.)		
77B(P)2652	San, 1947 (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 [X] NONE

6. BOUNDARY AND LIMITS: [ ] REPORT [X] NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS *(Sketch books, etc.* DO NOT *list data submitted to the Geodesy Division)*

2-forms 76-53, 1 field report, 2-forms 77-53 (Bks.)

*U.S. GOVERNMENT PRINTING OFFICE: 1974 - 768-078

NOAA FORM 76-36C
(3-72)

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

TP-00535

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION ☒ FIELD EDIT OPERATION. (Original field edit, see item # 8)

OPERATION		NAME	DATE
1. CHIEF OF FIELD PARTY		D. Taylor, LCDR, NOAA	Aug. 1980
2. HORIZONTAL CONTROL	RECOVERED BY	B. Lund	RAug. 1980
	ESTABLISHED BY	None	
	PRE-MARKED OR IDENTIFIED BY	None	
3. VERTICAL CONTROL	RECOVERED BY	None	
	ESTABLISHED BY	None	
	PRE-MARKED OR IDENTIFIED BY	None	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (*Triangulation Stations*) BY	B. Lund	Aug. 1980
	LOCATED (*Field Methods*) BY	B. Lund	RAug. 1980
	IDENTIFIED BY	B. Lund	Aug. 1980
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☐ SPECIFIC NAMES ONLY ☒ NO INVESTIGATION — BY		
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

None

PHOTO NUMBER	STATION NAME

2. VERTICAL CONTROL IDENTIFIED

None

PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS (*Clarification of details*)

Ratio photographs 77B(P)3709-3714 and 77B(R)3914

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

(see below)

PHOTO NUMBER	OBJECT NAME
77B(P)3709	San Leandro Marina Range Front Light

PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE

6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

Engineer plans from Kennedy Engineers Inc., "East Bay Dischargers Authority"; descriptive plans and remarks for "Oro Loma Sanitary District".

[redacted]

NOAA FORM 76-36C
(3-72)

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

TP-00535

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION ☒ FIELD EDIT OPERATION. (Supplemental field edit, see Item #8)

OPERATION		NAME	DATE
1. CHIEF OF FIELD PARTY		D. Taylor,LCDR, NOAA	July 1981
2. HORIZONTAL CONTROL	RECOVERED BY	None	
	ESTABLISHED BY	None	
	PRE-MARKED OR IDENTIFIED BY	None	
3. VERTICAL CONTROL	RECOVERED BY	None	
	ESTABLISHED BY	None	
	PRE-MARKED OR IDENTIFIED BY	None	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED *(Triangulation Stations)* BY	None	
	LOCATED *(Field Methods)* BY	None	
	IDENTIFIED BY	None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☐ SPECIFIC NAMES ONLY ☒ NO INVESTIGATION BY	None	
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

None

2. VERTICAL CONTROL IDENTIFIED

None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS *(Clarification of details)*

None

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE

6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS *(Sketch books, etc.* **DO NOT** *list data submitted to the Geodesy Division)*

1 form 76-109 (Bk.), 1 field edit report

NOTE: This is additional field edit information as requested by PMC concerning discrepancies associated with the original field edit.

*U.S. GOVERNMENT PRINTING OFFICE: 1974 - 768-078

NOAA FORM 76-36D
(3-72)

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

TP-00535

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.	June 1978	Class III manuscript	Aug. 1978	Sept. 1978
Partial field edit compile applied.	June 1981	*Class III manuscript	None	June, 1981
Final reviewed; supplemental field edit applied and reviewed.	April 1982	Final Map	April, 1982	April 1982
*Manuscript was never advanced to a final review. See Review Report, item # 61 for remarks.		Class I map prior to		

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
Pages 4			Appropriate forms (76-40) are attached with this Descriptive Report; no forms were forwarded prior to final review.

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

Records Center upon completion of the entire project.

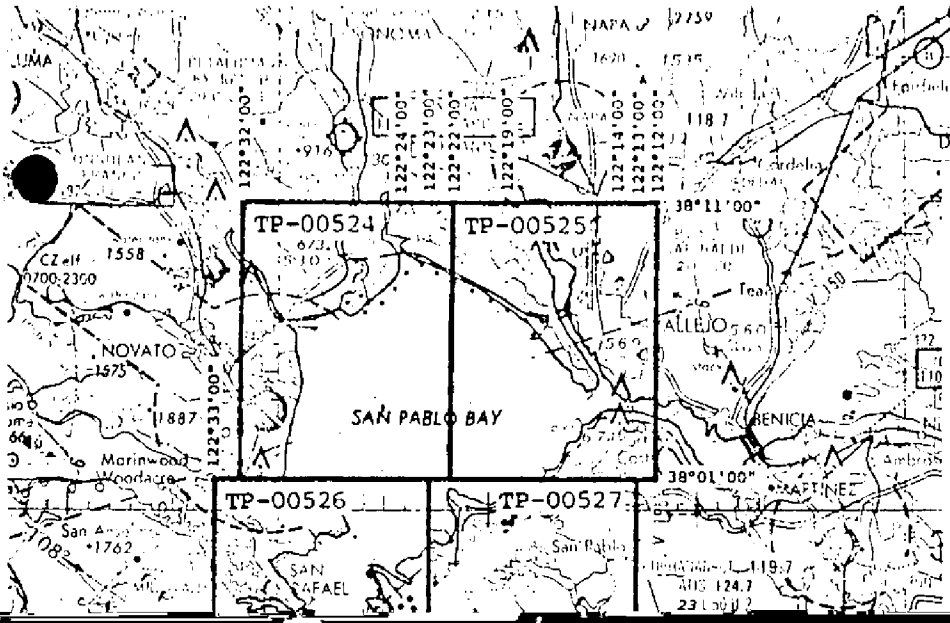
1. ☐ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☐ COMPUTER READOUTS.
2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☒ FORM NOS 76X SUBMITTED BY FIELD PARTIES. (76-40)
3. ☒ SOURCE DATA *(except for Geographic Names Report)* AS LISTED IN SECTION II, NOAA FORM 76-36C. ACCOUNT FOR EXCEPTIONS: TP-00530, TP-00531, TP-00532, TP-00533 and TP-00535 completes CM-7704. Data held for completion is being forwarded to the Federal Records Center.
4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: SEPTEMBER 14, 1982

IV. SURVEY EDITIONS *(This section shall be completed each time a new map edition is registered)*

	SURVEY NUMBER	JOB NUMBER	TYPE OF SURVEY
SECOND EDITION	TP - _____ (2)	PH - _____	☐ REVISED ☐ RESURVEY
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS ☐II. ☐III. ☐IV. ☐V. ☐FINAL
THIRD EDITION	SURVEY NUMBER	JOB NUMBER	TYPE OF SURVEY
	TP - _____ (3)	PH - _____	☐ REVISED ☐ RESURVEY
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS ☐II. ☐III. ☐IV. ☐V. ☐FINAL
FOURTH EDITION	SURVEY NUMBER	JOB NUMBER	TYPE OF SURVEY
	TP - _____ (4)	PH - _____	☐ REVISED ☐ RESURVEY
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS ☐II. ☐III. ☐IV. ☐V. ☐FINAL

NOAA FORM 76-36D

*U.S. GOVERNMENT PRINTING OFFICE:1977-765-092



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

SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORT

TP-00535

This 1:20,000 scale final shoreline map 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/instruction 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 afterwards, a Revision Survey using 1981 photography is scheduled to facilitate hydrography that has not been accomplished and to provide Nautical Charts with current shoreline information.

This shoreline map corresponds geographically with portions of hydrographic surveys H-9869 (1981) and H-9872 (1981). At the time of final review, processing of these surveys had been deferred pending receipt of the final shoreline maps. A copy of this final map was forwarded to the Hydrographic Surveys Division.

This final map is a 1:20,000 scale shoreline map that portrays the eastern coast of the southern part of San Francisco Bay from the Metropolitan Oakland International Airport to Coyote Hills Slough.

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. At the time of final review, the 1981 revision survey photography, at 1:40,000 scale, became available and was used to evaluate the existing map.

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

Compilation was performed at the Atlantic Marine Center in June 1978. The Class III manuscript was forwarded to the Pacific Marine Center for the combined field edit and hydrographic operations.

Field edit was performed in conjunction with hydrographic survey H-9869 in August 1980 by personnel assigned to the Pacific Hydrographic P Party. Reference to the hydrographic survey will provide additional information corresponding to this map.

Application of field edit was performed at the Pacific Marine Center in June 1981. However, additional field edit was requested and the map was forwarded to the Atlantic Marine Center for final review as a partial field edited Class III Map.

Additional field edit data, submitted as a Supplemental Field Edit Report, was forwarded to final review in October 1981.

Final review was performed at the Atlantic Marine Center in April 1982. The supplemental field data was applied and reviewed in accordance with the original field edit. Reference to the field edit reports will indicate geographic and cultural changes resulting from the time lapse between the original (1980) and supplemental (1981) field edits.

A final Chart Maintenance Print was prepared during final review and forwarded to the Marine Charts Division. This information will supersede the previous Class III maintenance print submitted in August 1978.

A copy of this final map was forwarded to the Hydrographic Surveys Division as a "Hydrographic Maintenance Print". This print will indicate all revisions and additions made to the previous Class III map (partial field edit applied). Accompanying this map copy will be a complete set of 76-40 forms for the landmarks and nonfloating aids to navigation.

This Descriptive Report contains all pertinent information used to compile this final map. This data and the original base manuscript were forwarded to the Washington Science Center for final registration and preparation for the 1981 Revision Survey.

FIELD INSPECTION

TP-00535

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

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: Robert 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 eletronic 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.

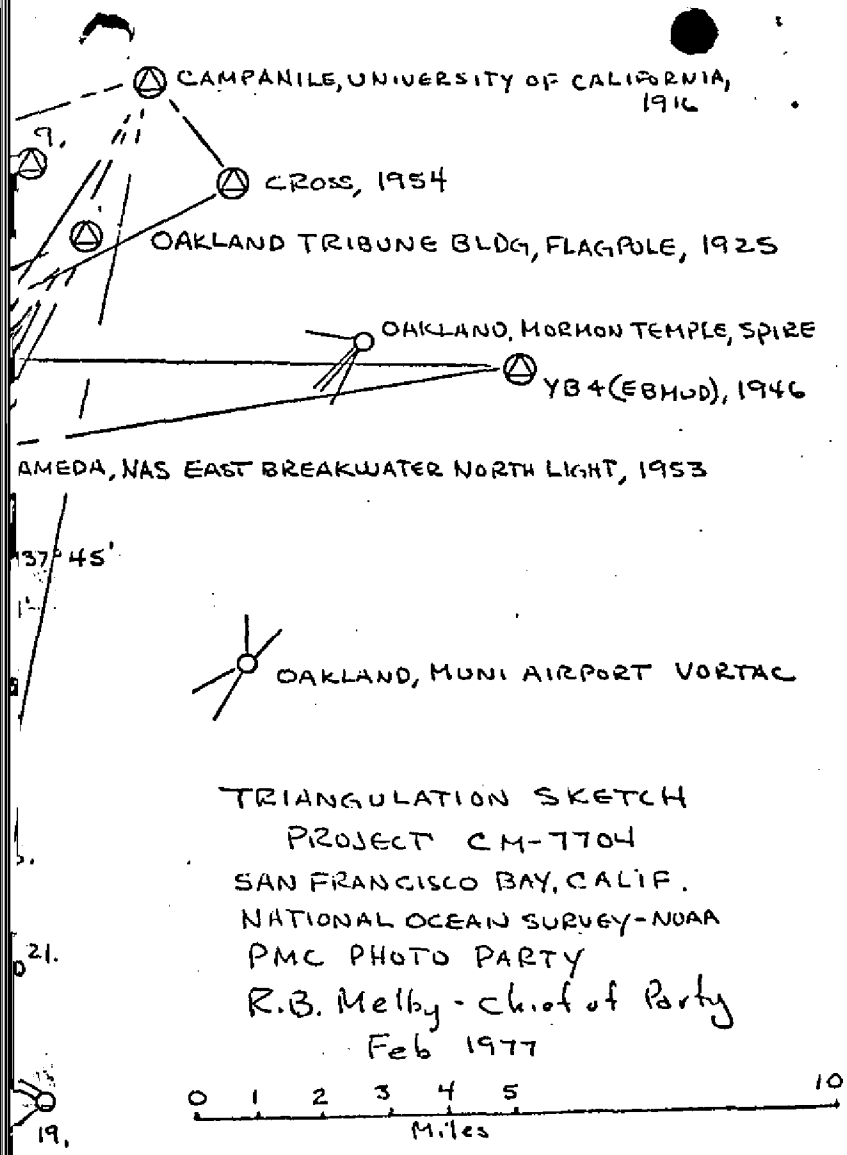
The coordinator would transmit time checks and receive tide staff readings of involved stations and filter and transmit to the aircraft the flight lines that were within the required tide ranges and maintain a summary of staff readings.

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.



TRIANGULATION SKETCH
PROJECT CM-7704
SAN FRANCISCO BAY, CALIF.
NATIONAL OCEAN SURVEY - NOAA
PMC PHOTO PARTY
R.B. Melby - Chief of Party
Feb 1977

0 1 2 3 4 5 10
Miles

22. SAN BRUNO SHOAL CHANNEL LIGHT 1
23. SAN BRUNO SHOAL CHANNEL LIGHT 2
24. SAN BRUNO SHOAL CHANNEL LIGHT 4
25. SAN BRUNO SHOAL CHANNEL LIGHT 3
26. SAN FRANCISCO BAY RADAR TOWER

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

Robert B. Kelly

Approved and Forwarded:

John D. Perrow Jr

John D. Perrow, Jr
Chief, Aerotriangulation Section

NOTE TO COMPILER

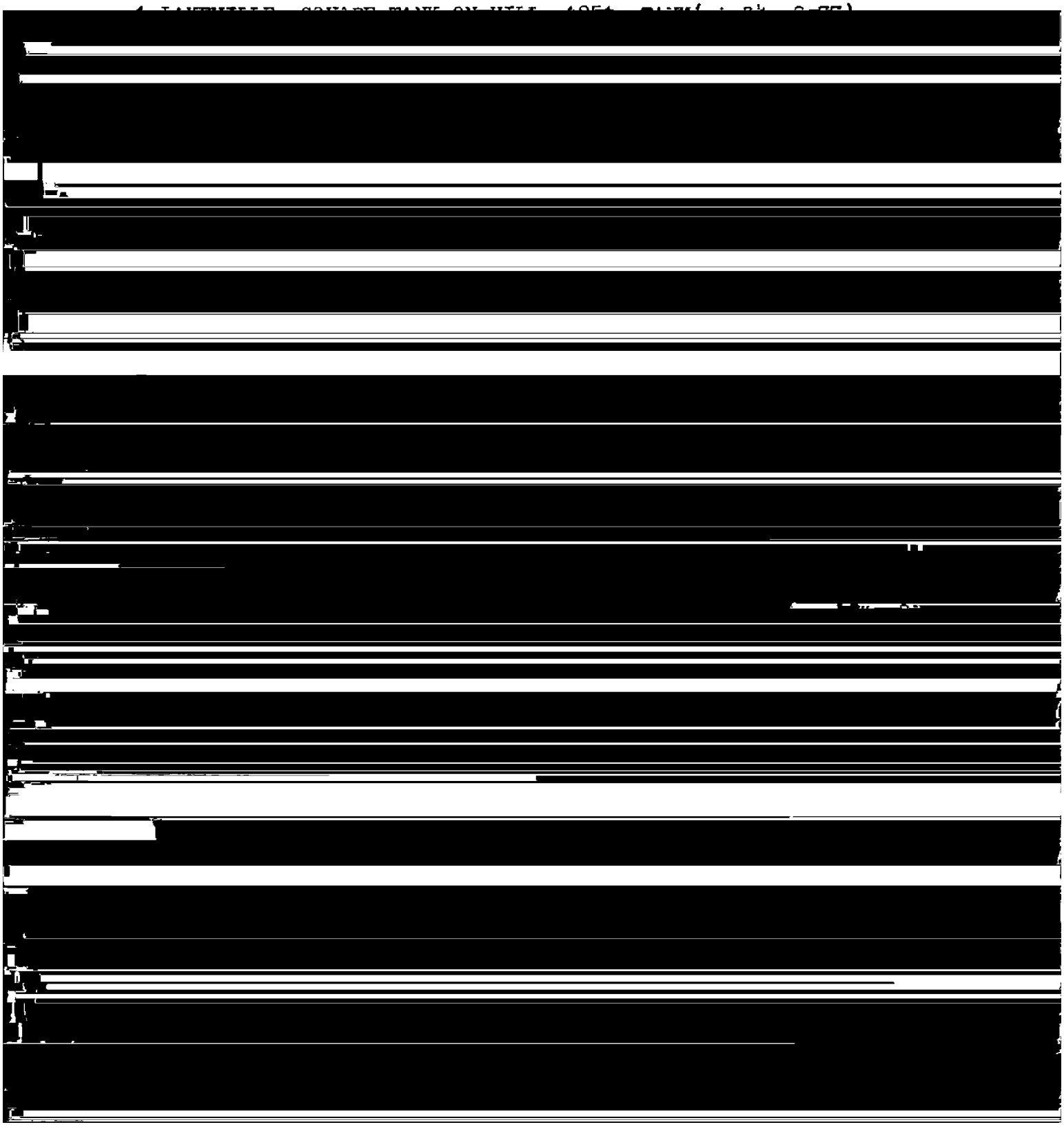
Photograph 77B 2644 was ratioed for graphic compilation of Point Pinole.

Photograh 77B 2658 was ratioed for hydro support.

Strip 8 was not bridged, but photographs 77B 2608 and 2609 were ratioed for graphic compilation of San Mateo Bridge.

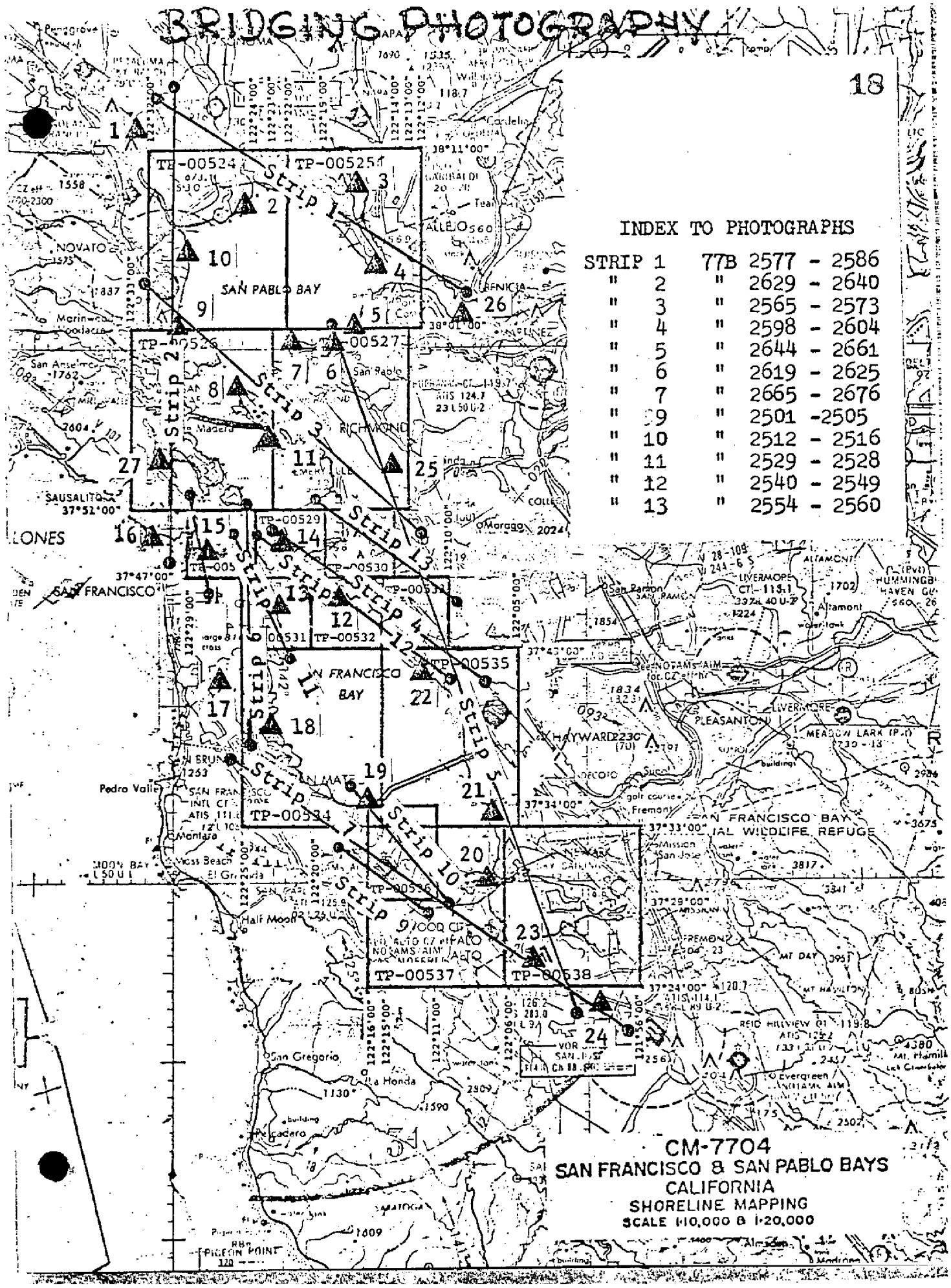
Strips 9, 10, 11, 12, 13,and 14 were not bridged, but points were dropped for setting models on B-8 .

KEY TO NUMBERED CONTROL STATIONS USED IN ADJUSTMENT AND CLOSURES



BRIDGING PHOTOGRAPHY

18



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

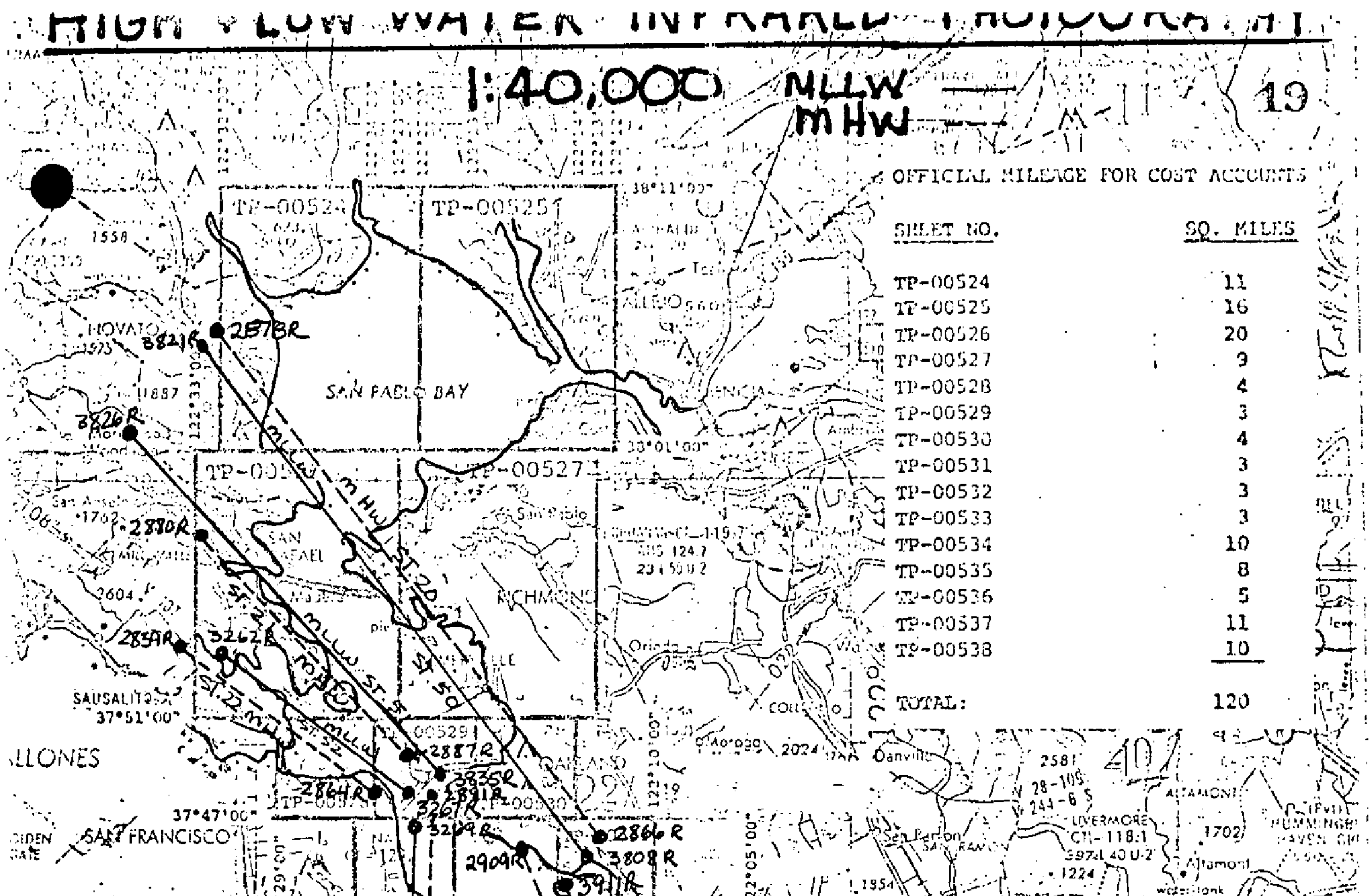
CM-7704

SAN FRANCISCO & SAN PABLO BAYS

CALIFORNIA

SHORELINE MAPPING

SCALE 1:10,000 & 1:20,000

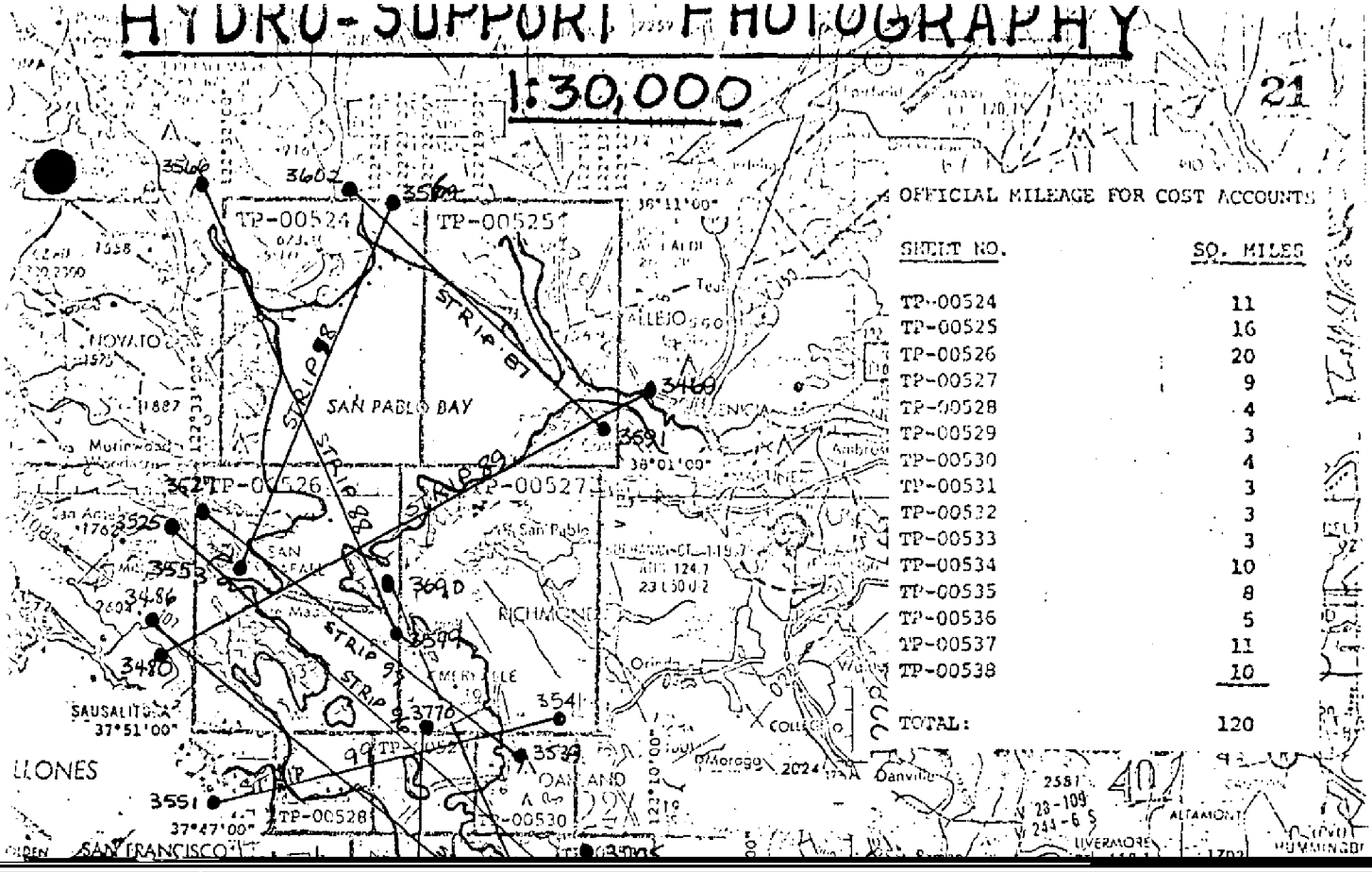


OFFICIAL MILEAGE FOR COST ACCOUNTS

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

HYDRO-SUPPORT PHOTOGRAPHY

1:30,000



OFFICIAL MILEAGE FOR COST ACCOUNTS

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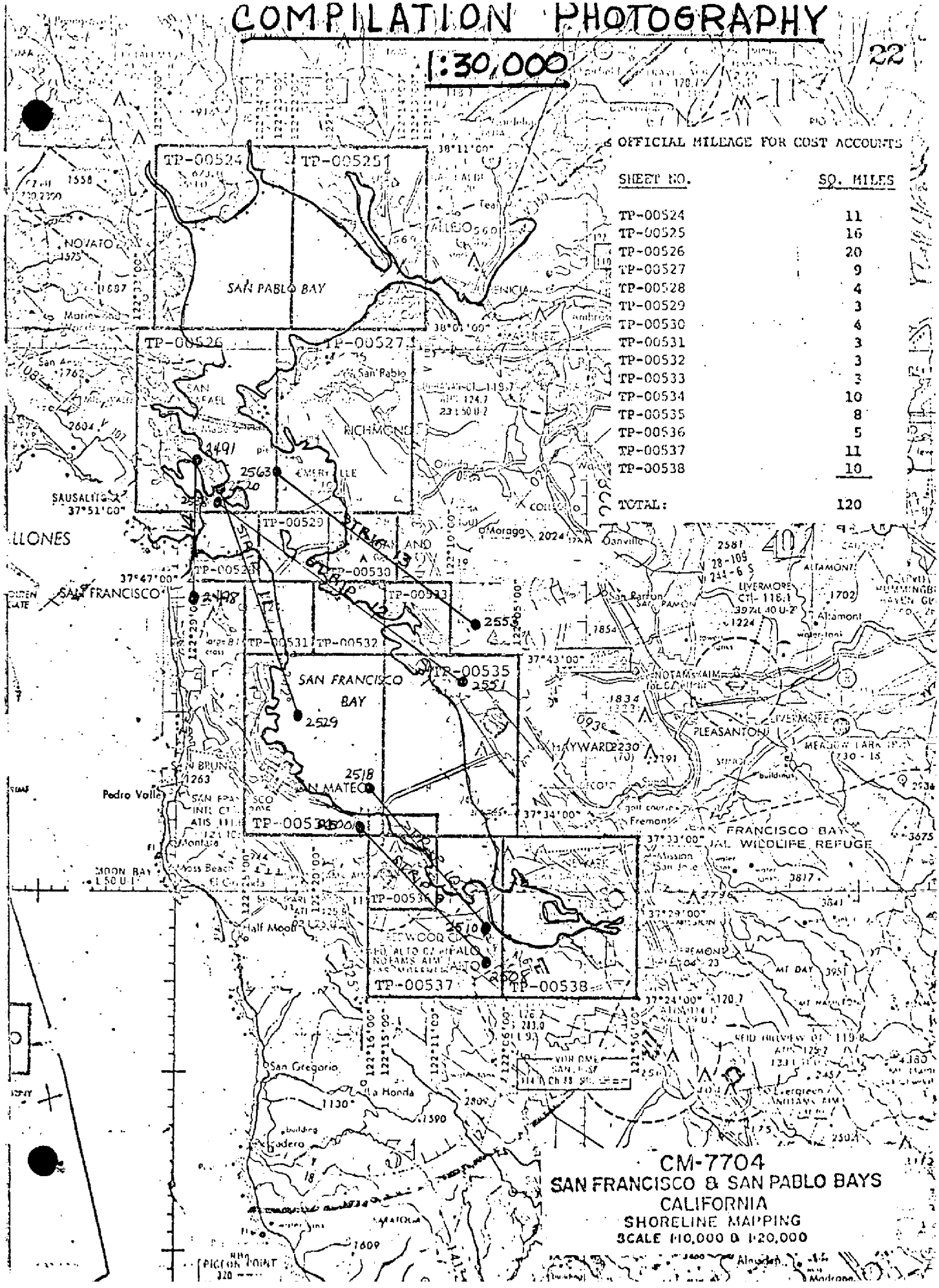
TP-00525	16
TP-00526	20
TP-00527	9
TP-00528	4
TP-00529	3
TP-00530	4
TP-00531	3
TP-00532	3
TP-00533	3
TP-00534	10
TP-00535	8
TP-00536	5
TP-00537	11
TP-00538	10
TOTAL:	120

COMPILATION PHOTOGRAPHY

1:30,000

22



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 M10,000 & 1:20,000

NOAA FORM 76-41
(6-75)

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

DESCRIPTIVE REPORT CONTROL RECORD

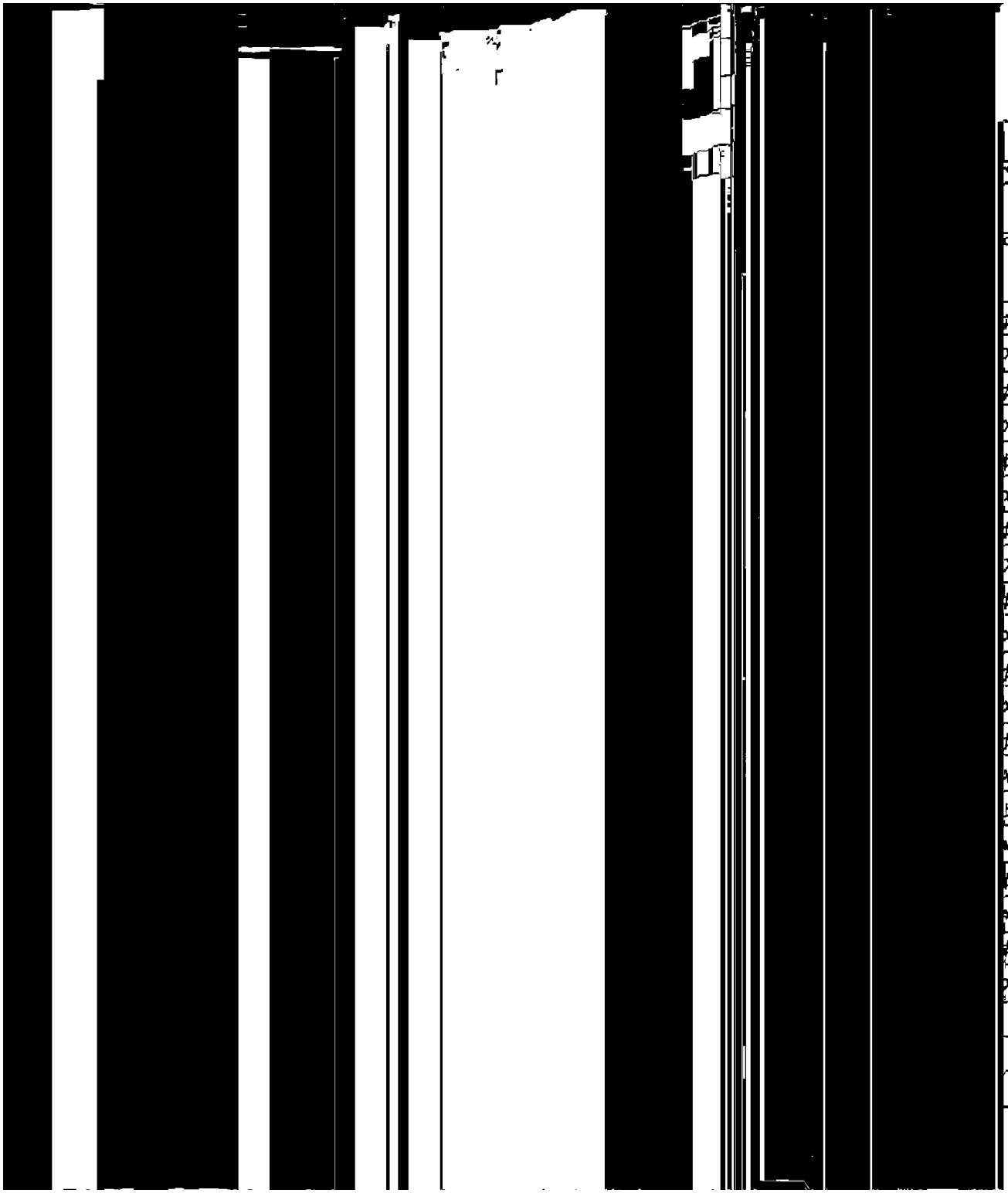
MAP NO.	JOB NO.	GEODETIC DATUM	ORIGINATING ACTIVITY
TP-00535	CM-7704	North American 1927	PMC Photogrammetric Branch

STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRIANGULATION POINT NUMBER	COORDINATES IN FEET STATE California ZONE 3	GEOGRAPHIC POSITION φ LATITUDE λ LONGITUDE	Departures REMARKS Front	Back
HAYWARD, CALIFORNIA HOME BRAND TANK, 1931	371221	366	x= 1,536,430.72	φ 37°40'03.187"	98.2m	(1751.5m)
			y= 429,073.53	λ 122°06'05.936"	145.5m	(1325.1m)
RED HILL TOP, 1947	371221	657100	x= 1,538,059.82	φ 37°33'14.065"	433.6m	(1416.1m)
			y= 387,661.07	λ 122°05'36.907"	905.9m	(566.8m)
SALT, 1925	371221	360	x= 1,523,233.80	φ 37°36'26.894"	829.1m	(1020.6m)
			y= 407,423.29	λ 122°08'45.312"	1111.4m	(360.3m)
SAN, 1947	371221	652100	x= 1,515,487.87	φ 37°42'23.708"	730.9m	(1118.9m)
			y= 443,654.82	λ 122°10'29.617"	725.5m	(744.3m)
SAN MATEO BRIDGE TRANSMISSION TOWER NO. 1, 1955	371221	310 520	x= 1,522,403.25	φ 37°37'04.933"	152.1m	(1697.7m)
			y= 411,285.78	λ 122°08'56.478"	1385.1m	(86.4m)
SAN MATEO BRIDGE TRANSMISSION TOWER NO. 2, 1955	371221	519	x= 1,520,601.35	φ 37°36'58.341"	1798.7m	(51.1m)
			y= 410,650.78	λ 122°09'18.731"	459.4m	(1012.1m)
SAN MATEO BRIDGE TRANSMISSION TOWER NO. 3, 1955	371221	309 518	x= 1,518,798.64	φ 37°36'51.738"	1595.1m	(264.7m)
			y= 410,014.78	λ 122°09'40.993"	1005.4m	(466.2m)
SAN MATEO BRIDGE TRANSMISSION TOWER NO. 4, 1955	371221	517	x= 1,516,996.96	φ 37°36'45.129"	1391.3m	(458.5m)
			y= 409,378.30	λ 122°10'03.241"	79.5m	(1392.1m)
SAN MATEO BRIDGE TRANSMISSION TOWER NO. 5, 1955	371221	308 516	x= 1,515,196.32	φ 37°36'38.525"	1187.7m	(662.1m)
			y= 408,742.41	λ 122°10'25.475"	624.8m	(846.8m)
SAN MATEO BRIDGE TRANSMISSION TOWER NO. 6, 1955	371221	515	x= 1,513,395.52	φ 37°36'31.919"	984.1m	(865.7m)
			y= 408,106.44	λ 122°10'47.710"	1170.2m	(301.5m)

COMPUTED BY J.R. MINTON	DATE 05/12/81	COMPUTATION CHECKED BY		DATE
LISTED BY J.R. MINTON	DATE 05/12/81	LISTING CHECKED BY G. Hamrol		DATE April 1982
HAND PLOTTING BY J.R. MINTON	DATE 05/12/81	HAND PLOTTING CHECKED BY G. Hamrol		DATE April 1982

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

23



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

RD

ORIGINATING ACTIVITY
PMC Photogrammetric Branch

GEOGRAPHIC POSITION ϕ LATITUDE λ LONGITUDE	Departures ~~REMARKS~~ Front	Back
ϕ 37°36'25.312"	780.4m	(1069.4m)
λ 122°11'09.952"	244.1m	(1227.6m)
ϕ 37°36'18.696"	576.4m	(1273.4m)
λ 122°11'32.194"	789.7m	(682.0m)
ϕ 37°36'12.081"	372.5m	(1477.3m)
λ 122°11'54.426"	1335.0m	(136.7m)
ϕ 37°36'05.470"	168.6m	(1681.2m)
λ 122°12'16.667"	408.8m	(1063.0m)
ϕ 37°35'58.850"	1814.3m	(35.4m)
λ 122°12'38.919"	954.7m	(517.1m)
ϕ 37°35'52.239"	1610.5m	(239.3m)
λ 122°13'01.147"	28.1m	(1443.7m)
ϕ 37°35'45.629"	1406.7m	(443.1m)
λ 122°13'23.373"	573.4m	(898.5m)
ϕ 37°35'39.014"	1202.8m	(647.0m)
λ 122°13'45.613"	1119.0m	(352.9m)
ϕ 37°35'32.390"	998.6m	(851.2m)
λ 122°14'07.838"	192.3m	(1279.7m)
ϕ 37°35'25.965"	800.5m	(1049.3m)
λ 122°14'29.321"	719.3m	(752.6m)
	DATE	
	DATE April 1982	
	DATE April 1982	

IS OBSOLETE.

NOAA FORM 76-41
(6-75)

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

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	GEODETIC DATUM	ORIGINATING ACTIVITY
TP-00535	CM-7704	North American 1927	PMC, Photogrammetric Branch

STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRIANGULATION POINT NUMBER	COORDINATES IN FEET STATE California ZONE 3	GEOGRAPHIC POSITION φ LATITUDE λ LONGITUDE	Departures REMARKS Front	Back
SAN MATEO BRIDGE TRANSMISSION TOWER NO. 17, 1955	371221	302 504	x= 1,494,089.79 y= 400,276.47	φ 37°35'11.021" λ 122°14'45.779"	339.8m (1510.0m) 1123.2m (348.9m)	
SAN MATEO BRIDGE TRANSMISSION TOWER (TRA), 1955	371221		x= 1,523,894 y= 411,569	φ 37°37'07.99" λ 122°08'38.01"	246.3m (1603.5m) 932.2m (539.3m)	
TIDE, 1930	371221	367	x= 1,510,272.84 y= 430,357.51	φ 37°40'11.329" λ 122°11'31.511"	349.3m (1500.5m) 772.3m (698.2m)	
TRANSMISSION TOWER AT BEND IN LINE, 1931	371221	358	x= 1,538,505.07 y= 403,319.36	φ 37°35'48.936" λ 122°05'34.688"	1508.7m (341.1m) 850.9m (620.9m)	
			x= y=	φ λ		
			x= y=	φ λ		
			x= y=	φ λ		
			x= y=	φ λ		
			x= y=	φ λ		
			x= y=	φ λ		

COMPUTED BY	DATE	COMPUTATION CHECKED BY	DATE
J.R. MINTON	05/12/81		
LISTED BY J.R. MINTON	DATE 05/12/81	LISTING CHECKED BY G. Hanson	DATE April 1982
HAND PLOTTING BY J.R. MINTON	DATE 05/12/81	HAND PLOTTING CHECKED BY G. Hanson	DATE April 1982

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

COMPILATION REPORT

TP-00535

31. DELINEATION:

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

Graphic compilation methods were used to delineate the San Mateo Hayward Bridge. Ratio photographs 77B(P)2607-2609 were processed for an accurate portrayal of this feature.

32. CONTROL:

Horizontal control was adequate. See the attached Photogrammetric Plot Report, dated July 22, 1977.

33. SUPPLEMENTAL DATA:

None

34. CONTOURS AND DRAINAGE:

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

35. SHORELINE AND ALONGSHORE DETAILS:

Alongshore details were delineated by the Wild B-8 stereoplotter and by office interpretation of the photographs.

See form 76-36B, items 2 and 3 for delineation of the mean high water and mean lower low water lines.

36. OFFSHORE DETAILS:

No unusual problems.

37. LANDMARKS AND AIDS:

Preliminary 76-40 forms consisting of 1 page of Navigational Aids and 1 page of Landmarks for Charts were prepared for field edit.

38. CONTROL FOR FUTURE SURVEYS:

None

39. JUNCTIONS:

See the attached form 76-36B, item 5 of the Descriptive Report concerning junctions.

40. HORIZONTAL AND VERTICAL ACCURACY:

See item #32

46. COMPARISON WITH EXISTING MAPS:

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

Hayward, Calif., 1959, photorevised 1968 and 1973
San Leandro, Calif., 1959, photorevised 1968 and 1973
Redwood Point, Calif., 1959, photorevised 1968 and 1973

47. COMPARISON WITH NAUTICAL CHARTS:

A comparison was made with the following National Ocean Survey Charts.

No. 18651, scale 1:40,000 scale, 27th edition, dated July3, 1976
No. 18652, scale 1:80,000 scale, 16th edition, dated Mar. 26, 1977

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY:

None

ITEMS TO BE CARRIED FORWARD:

None

Submitted by:
Irene Perkinson
Irene Perkinson
Cartographic Technician
June 2, 1978

Approved:
for
Albert C. Rauck, Jr.
Chief, Coastal Mapping Section

ADDENDUM TO THE COMPILATION REPORT-FIELD EDIT

[redacted]

PHOTOGRAMMETRIC OFFICE PRE-HYDRO AND FIELD EDIT REVIEW

TP-00535

PROJECTION AND GRIDS JR	TITLE JR	HORIZONTAL CONTROL JR	PHOTOGRAMMETRIC PLOT REPORT JR
DETAIL POINTS AND PASS POINTS JR	PROCESSED RATIOS JR	AIDS TO NAVIGATION JR	LANDMARKS JR
MEAN HIGH WATER LINE JR	LOW-WATER LINE JR	ROCKS, SHOALS, ETC. JR	ALONG SHORE AND OTHER PHYSICAL FEATURES JR
WATER FEATURES JR	ALONG SHORE AND OTHER CULTURAL FEATURES JR	BRIDGES JR	ROADS JR
BUILDINGS JR	RAILROADS JR	CONTOURS AND SPOT ELEVATIONS N.A.	GEOGRAPHIC NAMES JR
JUNCTIONS JR	LEGIBILITY OF THE MANUSCRIPT JR	COMPILATION REPORT JR	FIELD EDIT OZALID JR
COMPARISON WITH NAUTICAL CHARTS JR	COMPARISON WITH PRIOR SURVEYS JR	COMPARISON WITH EXISTING MAPS JR	FIELD PRINTS AND OTHER COPIES JR

REVIEWER	DATE	SUPERVISOR	DATE
Joanne Roderick	June 1978	Albert Rauck Jr	June 1978

REMARKS

PHOTOGRAMMETRIC OFFICE POST-HYDRO AND FIELD EDIT REVIEW

MANUSCRIPT NUMBERS JH	FORMAT STICK-UP JH	MANUSCRIPT SIZE JH	HORIZONTAL CONTROL JH
PHOTO HYDRO STATIONS JH	PLOTTING OF SEXTANT FIXES JH	AIDS TO NAVIGATION JH	LANDMARKS JH
MEAN HIGH WATER LINE JH	LOW-WATER LINE JH	ROCKS, SHOALS, ETC. JH	ALONG SHORE AND OTHER PHYSICAL FEATURES JH
WATER FEATURES JH	ALONG SHORE AND OTHER CULTURAL FEATURES JH	PIPELINES, CABLES, ETC. JH	BRIDGES JH
ROADS JH	BUILDINGS JH	RAILROADS JH	CONTOURS AND SPOT ELEVATIONS JH (N.A.)
GEOGRAPHIC NAMES JH	JUNCTIONS JH	FIELD EDIT PHOTOGRAPHS JH	FIELD EDIT OZALID JH
GEOGRAPHIC FIX POSITIONS JH	FIELD FORMS JH	FIELD EDIT REPORT JH	APPROVED TIDES JH
CHART MAINTENANCE PRINT AND OTHER COPIES JH	PREPARATION FOR FINAL REVIEW JH	COMPILER Richard Minton (PMC)	DATE June 1981

REVIEWER	DATE	SUPERVISOR	DATE
Jerry Hancock (AMC)	April, 1982	Billy Barnes (AMC)	April, 1982

REMARKS

The initial application of field edit was accomplished at the Pacific Marine Center. However, due to dicrepancies associated with the field edit data, additional field data was requested and submitted in July 1981. This additional data was applied and reviewed during final review at AMC.

Jerry L. Hancock
Final Review, April 1982

FIELD EDIT REPORT

TP-00535 SCALE 1:20,000

OPR-L123-PHP-80

BAY AREA SURVEY EXPEDITION

SAN FRANCISCO BAY

CALIFORNIA

CM-7704

PACIFIC HYDROGRAPHIC PARTY

DIRK R. TAYLOR, LCDR. NOAA

CHIEF OF PARTY

August 29, 1980

I. METHODS

Field edit for TP-00535 was conducted in accordance with chapter 11 of the "Manual of Coastal Mapping Procedures" by personnel of the Pacific Hydrographic Party. Shoreline inspection was accomplished by walking in the marsh and mud flats and from a 17 foot Boston Whaler (NOAA 594) at tides that allowed for a complete visual inspection of the extensive mud flats. Near shore skiff work could only be accomplished at higher tides as the entire shoreline area cannot be reached at zero tides. Southern areas, south of the San Mateo-Hayward Bridge were also inspected by truck as a levee road runs along the beach face. Field edit was accomplished on julian days 130, 136, 137, 142, 143, 152, 156, 165, 172, 192, and 193, 1980.

Compilation of the sheet was verified by direct inspection of the various photos during field edit. Features which were not visable on the photography or had changed since the time of photography were located by ground survey methods or depicted on engineering drawings accompanying this report. Detailed drawings of construction projects involving extensive changes to the shoreline were obtained and verified as accurate by the field editor, eliminating the need for further ground surveys.

Additional position data was collected with the automated launch Hydro-Log system.(julian days 130, 137, 192, and 193). As this was the most feasible method to work in and around the construction activities along the San Leandro Marina Channel. This data was collected during Hydrographic Survey H-9869 (using 3 lines of position, electronic and visual) to locate uncompiled features on TP-00535. Care was taken to insure that the same data would not appear on both the field edit and hydrographic data. Position numbers taken on these days are not sequential with those in the field edit notebook.

Changes, additions, and deletions to the sheet were noted on the Field Edit Sheet and chronapaque photographs, NOS 18 MAR-77B 3709, 77B 3710, 77B 3711, and NOS 29 MAR-77BR 3914, all of which are ratio prints at a scale of 1:20,000. Fixed aids to navigation along the San Leandro Marina Channel were located by hydrographic methods (detached positions) because of conditions which would have made geodetic location of these markers extremely difficult. This was done after consultation with the Pacific Marine Center. Landmarks were inspected form seaward and verified or revised as necessary on Form 76-40. All elevations were recorded in feet at Greenwich Mean Time on this survey.

Copies of horizontal control station recovery notes and station descriptions for the area covered by this survey are included with the data package. The originals will be submitted with the horizontal control report that will accompany hydrographic survey H-9869.

II. ADEQUACY AND COMPLETENESS OF COMPILATION

Compilation of TP-00535 was generally complete and adequate. Most

the date of photography some extensive changes have been made along some of the shoreline which require further clarification.

South of San Leandro Marina, Lat. 37° 41' 25.1" N, Long. 122° 10' 57.3" W, a temporary construction facility is in place. A steel bulkhead with a dredged channel, small boat dock, dolphins, and the necessary equipment to handle large pipe laying barges is in place. The contract calls for the reclamation of the shoreline to original condition at the termination of the work on the East Bay Dischargers Authority sewage pipeline. The dredged channel will remain (see hydrographic survey H-9869) and the two lane concrete bridge over Estudillo Canal will also remain. This site is the eastern terminous of the 96 inch outfall pipe. For additional details see the accompanying engineering drawings. The features noted on the field edit sheet were located using NOAA Launch 1016. The engineering drawing was supplied by Kennedy Engineers, engineering firm for the East Bay Discharges Authority. The drawing is titled "Bay Outfall" dated 8 August 1977. This drawing is based on the California state plane coordinate system, zone 3. It accurately depicts the configuration of the pipeline and the accuracy has been verified by the field editor.

At Roberts Landing there exists a foul area, lat. 37° 40' 18.9"N, Long. 122° 09' 58.7"W as outlined on photo 18 MAR 77B 3710. The mud flats both north and south of San Lorenzo Creek are covered with many decaying trees and logs washed down stream. Most of these obstructions are partially buried in the mud and therefore somewhat stable (non-floating). Although numerous, these obstructions are confined to the mud flats. The group of piles located north of the snags is the remains of earlier structures at Roberts Landing.

Southeast of Roberts Landing, Lat. 37° 40' 00.0"N, Long. 122° 09' 40.0"W exists a feature compiled as a breakwater. This feature is an abandoned outfall pipeline from the Oro Loma Sewage Treatment Plant. Information for this facility is contained in notes on the field edit sheet, the field edit notebook, and a pamphlet from the management of Oro Loma. A 65 foot square tower atop the pump house has been located as a Landmark as it shows quite clearly from seaward. There is a no check position on the double red clearance light atop the northwest wall of the tower.

Along the shoreline between Hayward Landing and Johnson Landing a great deal of marsh land restoration has occurred. East Bay Regional Parks system has submitted a set of engineering drawings covering this area. These drawings represent the finished topography and the various changes to the shoreline. The drawings are based on the California state plane coordinate system, zone 3. The accuracy of the drawings was verified by the field editor.

The toll booth structure for the San Mateo-Hayward Bridge was transferred to the manuscript for the purposes of the field editor. The toll booth is of landmark value and is much easier to see on hazy days than the transmission towers. The toll booth was transferred to the field edit sheet from photo 18 MAR 77B 3712. The center of the toll booth was located by radial plot on the signal overlay sheet and added to the 76-40, Landmarks for Charts.

To assist in the delineation and identification of salt evaporators (salt ponds) and other features in South San Francisco Bay an information sheet was obtained and included in the data package. Various public agencies are taking over some of the shoreline properties and converting them from salt ponds to marshland and wildlife habitats. The location of these areas are shown on the map titled "Trust for Public Land Options I & II" which is included in the data package.

The overhead power cable crossing at Alameda Creek Flood Control Channel has been moved from it's previous location to Lat. 37° 35' 39" N, Long. 122° 06' 14" W, which is much further inshore. The channel at this point is above the mean high water line and therefore the powerline constitutes little hazard to navigation. The support poles are 85 feet and the center of the catenary is 40 feet above the channel. To the east of the powerline crossing lies a 6 inch steel pipe crossing the channel on or below the mudline. At the north and south terminus of this pipe crossing is a sign stating "Pipe Line Crossing". Evidence on the south side of the channel indicates that this pipeline is used to pump brine from one salt evaporator pond to another. However, it is not in use at this time.

At Lat. 37° 33' 10" N, Long. 122° 07' 25" W an investigation of the offshore bottom configuration was conducted by foot at zero and below tides. What appears as light colored streaks on photo NOS 29 MAR 77 BR 3918 indicating possible mud groins actually turn out to be exposed bars of gravel (shale rock). The gravel probably comes down "Coyote Hills Slough" during high water runoff. Wave action causes the alignment as seen in the photo. "Red Hill" further east, is the site of a red shale rock quarry which is the most likely source of the gravel. The relief above the surrounding mud flats of the gravel bars is 0.1 to 0.3 feet and constitutes no hazard to navigation.

III. GEOGRAPHIC NAMES

Mulford Gardens and Mulfrod Landing are no longer in use as the names of these areas. Mulford Gardens is San Leandro and Mulford Landing is San Leandro Marina.

"Bridge" at Estudillo Canal is incorrect, the structure that the word refers to is a flood control valve gate. However, a new 2 lane concrete bridge has been constructed at the western end of Estudillo Canal as shown on the field edit sheet.

IV. MANUSCRIPT ACCURACY

Work incidental to hydrographic surveys H-9869 and 9872 provided a convenient check of the horizontal accuracy of the manuscript. Correlation between photo-located features and geodetically located features, inspected shoreline, hydrography, and agreement of redundant 3 point fixes using both geodetic and photo signals verified the horizontal accuracy of the manuscript.

V. RECOMMENDATIONS

In an area undergoing rapid growth and development as the San Francisco Bay shoreline it is suggested that the field edit be conducted as soon after photography and compilation as possible.

The area shown on this manuscript is of a flat tide land type topography. It would have been helpful if details had been shown further inshore, i.e. levees and salt evaporators. This would assist greatly in scaling and in orientation of personnel in unfamiliar territory.

VI. UNCHARTED DANGERS AND OBSTRUCTIONS

In the area north of the launch ramp and breakwater at the San Leandro Marina there are many ruins of old docks and mooring structures. Most of these are piles rotted at or just above the mud line and some bare at high water. All lie within the limits of the foul area shown.

Various piles (wood) and platforms used in the construction of the East Bay Dischargers Authority outfall pipeline depicted on the field edit sheet southeast of San Leandro Marina Channel and northwest of the channel entrance are temporary and will be removed upon completion of project construction. Completion is scheduled for October 1980.

A small steel platform is located just off the beach face south of San Leandro Marina at Lat. 37° 40' 55" N, Long. 122° 10' 38" W. It bares 3 feet above the mean high water line and is shown on photo NOS 18 MAR 77B 3709.

At Hayward Landing a foul area exists around the south end of the rock and wooden breakwater remains. This foul area is the remains of some buildings which are destroyed. The foundations remain and the old rails and iron pipes are above the mudline. These ruins pose a hazard to any craft landing on the beach. All obstructions are within the foul area limits shown on the field edit sheet.

At Lat. 37° 33' 03.09" N, Long. 122° 09' 38.04" W there stands a steel tripod that bares less than 0.5 feet at mean high water. Built around and above this is a National Ocean Survey free standing tide gage platform. This structure is still sound and bares 8 feet at 1745 Z on julian day 165. As the wooden structure deteriorates it will be less visible, however the steel tripod will still remain (stainless or bronze alloy, structure of Navy origin). This obstruction corresponds to one shown on chart 18651, 30th edition, Sept. 8/79 as a Pile PA. See position #8016 in the data.

Submitted by:

Bruce H. Lund
Survey Technician

Approved and forwarded:

Dirk R. Taylor
LCDR, NOAA
Chief of Party

SUPPLEMENT TO THE FIELD EDIT REPORT
IN RESPONSE TO "ADDENDUM TO THE COMPILATION
REPORT, FIELD EDIT, TP-00535"

The Pacific Hydrographic Party's copy of the field edit records indicate that the final correctors were applied to positions 2762, 2767, 5009, 5010, 5013, and 5014. Position 5007 inadvertently missed the corrector for rate 2. The corrector computations were performed by more than one operator, there appears to be a slight shift in the second decimal place. This is probably due to an error in rounding prior to calculating the corrector and the new rates for the position. This is an unfortunate oversight on the part of the field editor in checking the work. However, these slight shifts should not change the position by more than one or two meters.

Position 8012, San Leandro Front Range Light was represented correctly on the field edit ozilid and when submitted, was depicted along the southwestern face of the fishing pier. When the copy of the manuscript was returned to the field editor, the light was plotted incorrectly ashore. The accompanying sketch may be used to plot the range light photogrametrically, or the new position by computation may be used (This position is derived from the original raw data). In either case the range light must be represented as showing down the channel as this is the actual condition.

New data has been obtained to re-position ORO LOMA Sewage Treatment Plant Surge Tower (position #8007). The new computation resulted in a position of 37° 40' 03.467" N, 122° 09' 35.851" W. This is less than 0.5 meters from the position originally submitted with the field edit report. This should prove helpful in tightening the positions that rely on signal #875 and allow those features to be plotted with out the "PA" designation.

Positions 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2769, 2772, 5009, 5010, 5013, 5014, 5015, 5016, and 5019 were all temporary features associated with the construction of the ORO LOMA Outfall Pipeline. All these features have been removed. Piles and platforms were removed at of below the mudline. The along shore features have also been removed and the area has been returned to its natural state and little evidence of any construction remains. None of the bulkheads, dolphins, piles, and platforms remain and all of these features should be removed from the manuscript. The field editor made a physical search of the site and all of the piles were removed intact and donated to the Hayward Area Recreation Department by the construction company. No further fix data can be obtained on any of these features. See the attached letter from the vice president of the construction company for confirmation. Note: The concrete two lane bridge north of fix 5016 is a permanent feature and is presently in place.

In regards to the MLLW line in the vicinity of Daybeacons 13 and 15 at the San Leandro Marina, it should be noted that in general the MLLW line is approximately 10 meters (+ or - 3 meters) from the face of the paved seawall/ embankment (see the attached sketch). The island to the south of San Leandro Marina entrance was addressed in a supplement to the Descriptive Report to Survey H-9869. With the San Leandro Front Range (signal #312) and ORO LOMA Sewage Treatment Plant Surge Tower (signal #875) positions strengtheded,

this data is now valid.

Position 8024 is the location for one of the piles south of the San Mateo-Hayward Bridge, previously plotted as 'Pile PA" at latitude 37° 34' 26.73" N, longitude 122° 09' 07.63" W. The pile plotted at latitude 37° 35' 49.3" N, longitude 122° 09' 09.4" W has been destroyed. There is no evidence of this pile remaining. A thorough search of the mud flats was made when they were bare. There is evidence of the Leslie Salt Company's barge scraping the mud flats during movement. The pile was old and not very sound at the time of the original field edit. The pile was probably knocked down at the mud line by the barge. This pile should be deleted from the manuscript.

Along the shore, south of the San Mateo-Hayward Bridge at latitude 37° 36' 01" N, longitude 122° 08' 49" W, there are several large iron bolts projecting vertically from wood and other debris. These appear to be the remains of a wreck (position 8025). Nearby, in a southerly direction is an old boiler lying northeast to southwest, 20 meters in length (position 8026) indicating additional wreckage. Also nearby there are some additional piles (NE of position 8025) near the MHWL and the wave cut beach face (positions 8027 and 8028). These items were not submitted with the original Field Edit report as Leslie Salt Company had a dragline and barge moored at this point and it was not clear as to what was construction material and what was debris. This material would have been submitted with the hydrography in this area but it became available for scrutiny during the search for piles P.A.

Leslie Salt Company has substantially reinforced and enlarged the levee with large blocks of broken concrete and stone between positions 8030 and 8031. Offshore of this new construction at position 8029 a large metal cylinder is standing on end. The cylinder is 1.5 meters in diameter and probably originated from the debris included with the riprap on the levee.

Form 76-109 contains the fix data for all items covered by this supplementary report and more detailed information about size and condition of each of the items noted with the positioning data. The signal numbers have been noted on each page to facilitate computations.

In regards to the questions about the San Mateo-Hayward Bridge Toll Booth, this structure is a good reference point for coastal navigation along the east side of San Francisco Bay from San Leandro to the Dumbarton Bridge. The toll booth structure and associated buildings are massive and may be seen in the smog and haze by day and these structures are very well lighted making them readily visible at night. As per previous recomendations, the transmission towers should be compiled by geodetic position so that they can be used by the mariner when visible. These towers are galvanized and are barely visible most of the day against the haze and smog background. They are not lighted with exception of the two tallest towers which bracket the channel (17 and 18).

Submitted by:

Bruce H. Lund

Bruce H. Lund
Survey Technician
July 1981

Approved and Forwarded by:

Dirk R Taylor

Dirk R. Taylor
LCDR. NOAA
Chief of Party

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

April 30, 1982

TO: OA/C322, Norman E. Banks
Chart Information Branch

THRU: OA/CAM52, Billy H. Barnes *Billy H. Barnes*
Chief, Coastal Mapping Branch, AMC

FROM: OA/CAM52x1, Jerry L. Hancock *JLH*
Coastal Mapping, Final Review, AMC

SUBJECT: Cover page to accompany 76-40 forms, Nonfloating Aids and Landmarks for Charts, Proj. CM-7704, TP-00535, San Francisco Bay, Ca.

Field investigation for all fixed aids to navigation and landmarks was performed in July 1980 by the Pacific Hydrographic Party stationed in San Francisco Bay.

The majority (11) of nonfloating aids marking the entrance to San Leandro Marina were located by the hydrographic method known as Raydist/Hydrolog positioning system. These detached positions do not meet basic accuracy requirements specified for fixed aids; however, the positions generally agree with the currently charted positions. Due to registration priorities for this map, all Raydist located aids were reluctantly compiled as position approximate in order that we may accomondate Marine Charts at this time. A recommendation has been relayed to the Hydrographic Processing Division, PMC to field relocate these aids so precise positional data can be applied to the corresponding hydrographic survey (H-9869, 1981) which will succeed this shoreline map.

One new landmark was recommended by the field editor for addition to the charts. This feature is a Surge Tower which has a red clearance light atop a square structure with 20 Ft. sides. The tower is 65 Ft. tall and is built on the pumphouse of the Oro Loma Sewage Treatment Plant.

C C:
OA/C3421
OA/CPM32

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

April 30, 1982

TO: OA/CPM3, Cdr. John W. Carpenter
Chief, Processing Division, PMC

THRU: OA/CAM52, Billy H. Barnes Billy H. Barnes
Chief, Coastal Mapping Branch, AMC

FROM: OA/CAM52x1, Jerry L. Hancock
Coastal Mapping, Final Review, AMC

SUBJECT: Nonfloating Aids to Navigation, Proj. CM-7704, TP-00535, H-9869 (1981), San Francisco Bay, Ca.

Attached is a copy of the final 76-40 forms, Nonfloating Aids or Landmarks for Charts, as submitted from Coastal Mapping, Final Review, to the Marine Charts Division. The explanation, as addressed to Marine Charts, indicates the method of location for the fixed aids at San Leandro Marina channel entrance. This was necessary because the hydrographic (Raydist) detached positions, submitted as field edit data for TP-00535, do not agree with unverified photo positions observed from May 1981 aerial photographs. Because the altitude of this photography is excessively high (20,000 Ft.) and offshore horizontal photo control is limited, definite photo locations could not be achieved. However, there is enough photo evidence to indicate a 5 to 15 meter error in the Raydist determinations.

It is recommended that the aids listed as Raydist located be redetermined by field survey methods and be applied to the corresponding Hydrographic Survey (H-9869) now awaiting final processing in the Verification Branch, PMC.

CC:
OA/C3421
OA/CPM32

REVIEW REPORT TP-00535

SHORELINE

61. GENERAL STATEMENT:

Final review was performed at the Atlantic Marine Center in April 1982. Field edit was conducted in August 1980 and additional field data was obtained in July 1981. Specific items affected by this additional field data are addressed in the submitted Supplemental Field Edit Report. For a schedule of the office and field operations, refer to the Summary contained in the Descriptive Report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

Not applicable.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

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

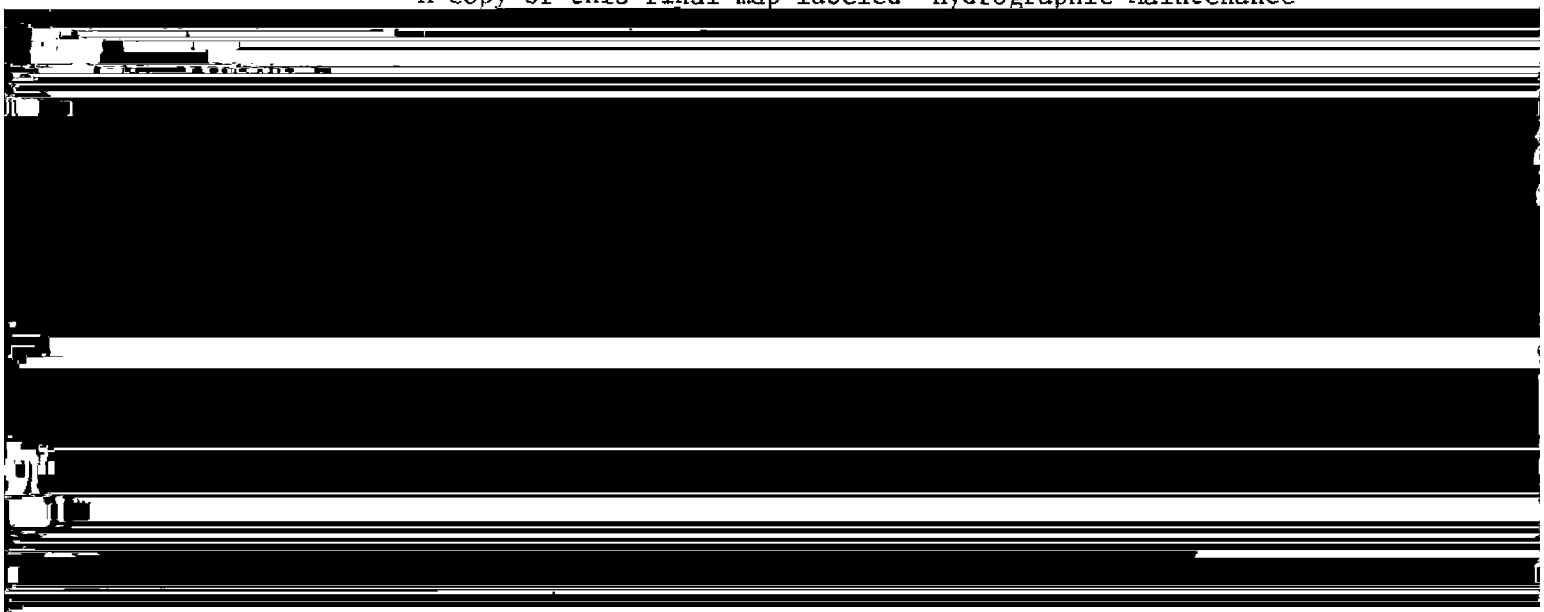
San Leandro, Calif., 1959, photorevised 1968 and 1973
Redwood Point, Calif., 1959, photorevised 1968 and 1973

No significant differences were noted.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

This final shoreline map corresponds geographically with portions of hydrographic surveys H-9869 (1981) and H-9872 (1981). At the time of final review no comparison was made with these surveys as they have not been completely processed.

A copy of this final map labeled "Hydrographic Maintenance



partial field edited Class III map supersedes all previously forwarded information pertaining to TP-00535. In addition, a complete

TP-00535

65. COMPARISON WITH NAUTICAL CHARTS:

A comparison was made with the following National Ocean Survey charts:

No. 18651, 32nd. edition, 1:40,000 scale, dated August 1, 1981
No. 18652, 20th. edition, 1:80,000 scale, dated May 16, 1981

The majority of nonfloating aids to navigation at San Leandro Marina were located by hydrographic methods (Raydist detached positions). Refer to the final 76-40 forms and the recommendation to the Hydrographic Processing Division, PMC, to relocate these aids by approved field methods.

There are several important field remarks and recommendations addressed to the Marine Charts Division concerning various chartable features corresponding to this map. These remarks are located in the original (1980) field edit report and the supplemental (1981) field edit report contained in this Descriptive Report.

A final Chart Maintenance Print for this map was prepared during final review and forwarded to Marine Charts. This information will supersede the previous Class III maintenance print submitted in August 1978 from the original compilation office at AMC. Remarks on the final Chart Maintenance Print will indicate discrepancies associated with the above listed charts.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:

This final map and accompanying descriptive report represents revised data as a result of final review and supersedes all previous map classifications.

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

Submitted by:
Jerry L. Hancock
Jerry L. Hancock
Final reviewer

Approved for forwarding:
Billy H. Barnes
Billy H. Barnes
Chief, Photogrammetric Branch, AMC

Approved:

Chief, Photogrammetric Branch, Rockville

Chief, Photogrammetry Division

October 13, 1981

GEOGRAPHIC NAMES

FINAL NAME SHEET

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

TP-00535

Alameda Creek

Bay Farm Island

Coyote Hills Slough

Estudillo Canal

Flood Control Channel

Hayward Landing

Johnson Landing

Metropolitan Oakland International Airport

Mt. Eden Creek

Mulford Gardens (Ppl)

Roberts Landing

San Francisco Bay

San Leandro

San Leandro Marina

San Lorenzo Creek

San Mateo-Hayward Bridge

Southern Pacific (RR)

Sulphur Creek

Approved by:

Charles E. Harrington

Charles E. Harrington
Chief Geographer, OA/C3x5

DISSEMINATION OF PROJECT MATERIAL

CM-7704

San Francisco and San Pablo Bays

NATIONAL ARCHIVES/FEDERAL RECORD

PACKAGE (BOX)

- Field Edit Ozalid(s)
- Engineer Plan(s)
- Field Sketch(es)
- NOAA Forms 76-40
- Master Station Lists
- Fix Vol(s) (275)
- NOAA Forms 76-41
- Revision Survey Photographs
- Field Edit Ratio Photographs
- Plot Report(s) (Duplicate copy(ies)

Project Completion Report

BUREAU ARCHIVES

- Registered Copy(ies) of Map(s)
- Descriptive Report(s) of Map(s)

REPRODUCTION DIVISION

- 8x Reduction Negative(s) of Map(s)

OFFICE OF STAFF GEOGRAPHER

- Geographer Name Standard(s)

MARINE CHART DIVISION

- Chart Maintenance Print(s) of Map(s)

NOAA FORM 76-40 (8-74)
Replaces C&GS Form 567.

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

NONFLOATING AIDS

FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[X] TO BE CHARTED
[ ] TO BE REVISED
[ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Pacific Hydro Party PMC, Seattle, WA	CA	San Francisco Bay	7/29/80

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
	CM-7704	TP-00535	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
	*Hydrographic detached positions determined by Raydist/Hydroplot positioning system. See accompanying cover page for remarks.							
	SAN LEANDRO MARINA							
LIGHT (Horn)	* Light 1	37 40	16.6 511	122 13	17.8 436	Beyond photo limits.	F-Raydist-L 5/9/80	18651 18652
LIGHT	* Light 2	37 40	15.3 470	122 13	15.5 379	Beyond photo limits	F-Raydist- L 5/9/80	"
DAYBEACON	* Daybeacon 4	37 40	27.8 856	122 12	59.4 1457	Not visible on photos	F-Raydist-L 5/9/80	"
DAYBEACON	* Daybeacon 5	37 40	44.8 1382	122 12	41.9 1027	"	F-Raydist-L 5/9/80	"
DAYBEACON	* Daybeacon 6	37 40	43.7 1348	122 12	39.5 967	"	F-Raydist-L 5/9/80	"
DAYBEACON	* Daybeacon 7	37 40	58.2 1795	122 12	24.1 592	"	F-Raydist-L 5/9/80	"
DAYBEACON	* Daybeacon 8	37 40	56.8 1751	122 12	22.4 549	"	F-Raydist-L 5/9/80	"
DAYBEACON	* Daybeacon 9	37 41	13.4 413	122 12	04.6 113	"	F-Raydist-L 5/9/80	"

TYPE

OBJECTS INSPECTED

POSITIONS DETERMIN

FORMS ORIGINATED
AND REVIEW GROUP
ACTIVITIES

OFFICE
1. OFFICE
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NOAA FORM 76-40 (8

NOAA FORM 76-40 (8-74)
Replaces C&GS Form 567.

NONFLOATING AIDS TO NAVIGATION - FOR CHARTS

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

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Pacific Hydro Party PMC, Seattle, WA	CA	San Francisco Bay	7/29/80

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OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
	CM-7704	TP-00535	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE // D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE // D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
	*Hydrographic detached positions determined by Raydist / Hydroplot positioning system. See accompanying cover page for remarks.							
	SAN LEANDRO MARINA							
DAYBEACON	* Daybeacon 10	37 41	12.2 376	122 12	03.4 82	Not visible on photos	F-Raydist-L 7/10/80	18651 18652
DAYBEACON	* Daybeacon 13	37 41	38.9 1200	122 11	32.3 792	"	F-Raydist-L 7/10/80	"
DAYBEACON	* Daybeacon 14	37 41	39.3 1211	122 11	28.6 702	"	F-Raydist-L 7/10/80	"
DAYBEACON	Daybeacon 15, located photogrammetrically from 1977 compilation photos and position confirmed by May 1981 photos.	37 41	40.45 1247	122 11	30.53 748	77B(P)3710 3/18/77	Not verified	"
LIGHT	Range Front Light	37 41	43.20 1332	122 11	25.17 617	77B(P)3709 3/18/77	V-Vis (Field sketch) 7/81	"
LIGHT	Range Rear Light	37 41	57.90 1785	122 11	06.50 159	Not visible on photos	F-4-8-L 4/10/80	"
DAYBEACON	Daybeacon 3	37 40	29.85 920	122 13	00.18 4	"	F-4-8-L 7/10/81	"
DAYBEACON	Daybeacon 11	37 41	29.49 909	122 11	44.50 1090	"	F-4-8-L	"

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD	B. H. Lund	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	B.H. Lund	FIELD ACTIVITY REPRESENTATIVE
	J.R. Minton	OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	J.L.Hancock, Final review, April 1982	☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

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

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

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

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

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.

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

NONFLOATING AIDS

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

FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[XX] TO BE CHARTED
[ ] TO BE REVISED
[ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Pacific Hydro Party PMC, Seattle, WA	CA	San Francisco Bay	7/29/80

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
	CM-7704	TP-00535	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
DAYBEACON	San Leandro Marina Daybeacon 12	37 41	27.97 862	122 11	42.76 1048	Not visible on photos	F-4-8-L 5/16/80	18651 18652

LBH3

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	
OBJECTS INSPECTED FROM SEAWARD	B.H.Lund	☐ PHOTO FIE ☒ HYDROGRA ☐ GEODETIC ☐ OTHER (Spe
POSITIONS DETERMINED AND/OR VERIFIED	B.H.Lund	FIELD ACTIVIT
	J.R.Minton	OFFICE ACTIV
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	J.L.Hancock, Final review, April 1982	☐ REVIEWER ☐ QUALITY C REPRESEN

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

1. 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

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

FIELD (Cont'd)

   B. Photogrammetric field positio
   entry of method of location o
   date of field work and number
   graph used to locate or ident
   EXAMPLE: P-8-V
   8-12-75
   74L(C)2982

II. TRIANGULATION STATION RECOVERED
   When a landmark or aid which is
   angulation station is recovered
   Rec.' with date of recovery.
   EXAMPLE: Triang. Rec.
   8-12-75

III. POSITION VERIFIED VISUALLY ON P
   Enter 'V-Vis.' and date.
   EXAMPLE: V-Vis.
   8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS ar
entirely, or in part, upon control
by photogrammetric methods.

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
- [XX] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[XX] TO BE CHARTED
[ ] TO BE REVISED
[ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Pacific Hydro Party PMC, Seattle, WA	CA	San Francisco Bay	7/29/80

The following objects HAVE [XX] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
	CM-7704	TP-00535	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
CONTROL TOWER	Metropolitan Oakland Int. Airport Control Tower	37 42	45.02 / 1388	122 12	47.93 / 1174	77B(P)3708 3/18/77	V-Vis 5/21/80	18651 18652
TANK	(Hayward California Home Brand Tank, 1931)	37 40	03.187 / 98.2	122 06	05.936 / 145.5	77B(P)2653 3/4/77	Triang. Rec. 5/21/80	"
RADIO TOWER	S.W. of four (KFAX)	37 37	54.59 / 1683	122 07	49.96 / 1225	77B(P)3712 3/18/77	V-Vis 5/22/80	"
AERO ROT W&G	Hayward Airport Rotating Beacon	37 39	45.71 / 1409	122 07	12.68 / 311		F-4-6-L 6/4/80	"
SURGE TOWER	Red clearance light atop square surge tower (20ft.sides, height 65 ft.) on pump house at ORO LOMA Sewage Treatment Plant. New landmark recommended by field editor.	37 40	03.48 / 107	122 09	35.84 / 878		F-4-6-L 6/12/80	"

TYPE OF ACTION

OBJECTS INSPECTED FROM SEAWARD

POSITIONS DETERMINED AND/OR VERIFIED

FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES

OFFICE

1. OFFICE IDENTIFIED AND LO
   Enter the number and dat
   day, and year) of the ph
   identify and locate the
   EXAMPLE: 75E(C)6042
   8-12-75

FIELD

1. NEW POSITION DETERMINED
   Enter the applicable dat

F - Field	P -
L - Located	Vis
V - Verified	
1 - Triangulation	5 -
2 - Traverse	6 -
3 - Intersection	7 -
4 - Resection	8 -

   A. Field positions* requ
      location and date of
      EXAMPLE: F-2-6-L
      8-12-75

*FIELD POSITIONS are determi
 vations based entirely upon

NOAA FORM 76-40 (8-74)

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. ____________________

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 Review.

CHART	DATE	CARTOGRAPHER	REMARKS
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
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			Drawing No.