

TP-00732

ORIGINAL

TP-00732

NOAA FORM 76-35	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Type of Survey	Shoreline
Job No.	CM-7311 Map No. TP-00732
Classification No. Final	Edition No. 1
Field Edited Map	
LOCALITY	
State	Washington
General Locality	Tacoma Harbor
Locality	Commencement Bay
1973 TO 1974	
REGISTRY IN ARCHIVES	
DATE	

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974-762-901

RCS 18453-9-30-81 RL

RCS 18445-5-9-30-81-RL

RCS 18448 9-30-81-KL

NOAA FORM 76-36A (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.					
DESCRIPTIVE REPORT - DATA RECORD		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> TYPE OF SURVEY <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED </td> <td style="width: 50%;"> SURVEY TP. <u>00732</u> MAP EDITION NO. <u>(1)</u> MAP CLASS <u>Final</u> JOB <u>CM-7311</u> </td> </tr> </table>		TYPE OF SURVEY <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED	SURVEY TP. <u>00732</u> MAP EDITION NO. <u>(1)</u> MAP CLASS <u>Final</u> JOB <u>CM-7311</u>		
TYPE OF SURVEY <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED	SURVEY TP. <u>00732</u> MAP EDITION NO. <u>(1)</u> MAP CLASS <u>Final</u> JOB <u>CM-7311</u>						
PHOTOGRAMMETRIC OFFICE Coastal Mapping Division Atlantic Marine Center, Norfolk, VA OFFICER-IN-CHARGE Jeffrey G. Carlen, Cdr., NOAA		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;"> LAST PRECEDING MAP EDITION </td> </tr> <tr> <td style="width: 50%;"> TYPE OF SURVEY <input type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED </td> <td style="width: 50%;"> JOB <u>PH-</u> MAP CLASS <u> </u> SURVEY DATES: 19 <u> </u> TO 19 <u> </u> </td> </tr> </table>		LAST PRECEDING MAP EDITION		TYPE OF SURVEY <input type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED	JOB <u>PH-</u> MAP CLASS <u> </u> SURVEY DATES: 19 <u> </u> TO 19 <u> </u>
LAST PRECEDING MAP EDITION							
TYPE OF SURVEY <input type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED	JOB <u>PH-</u> MAP CLASS <u> </u> SURVEY DATES: 19 <u> </u> TO 19 <u> </u>						
I. INSTRUCTIONS DATED							
1. OFFICE		2. FIELD					
Aerotriangulation Compilation		May 17, 1973					
Aug 30, 1973 Jan 22, 1974							
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 Polyconic		4. GRID(S) <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">STATE Washington</td> <td style="width: 50%;">ZONE South</td> </tr> </table>		STATE Washington	ZONE South		
STATE Washington	ZONE South						
5. SCALE 1:5,000		STATE ZONE					
III. HISTORY OF OFFICE OPERATIONS							
OPERATIONS		NAME	DATE				
1. AEROTRIANGULATION METHOD: <u>Analytic</u>		I. O. Raborn	1/74				
2. CONTROL AND BRIDGE POINTS METHOD: <u>Calcomp</u>		R. Robertson	1/74				
3. STEREOSCOPIC INSTRUMENT COMPILATION INSTRUMENT: <u>Wild B-8</u> SCALE: <u>1:7,500</u>		R. R. White L. O. Neterer NA NA	2/74 2/74 				
4. MANUSCRIPT DELINEATION METHOD: <u>Smooth Draft</u> SCALE: <u>1:5,000</u>		F.R. Gustafson & R.R. White R. R. White NA NA F. R. Gustafson R. R. White	2/74 2/74 2/74 2/74				
5. OFFICE INSPECTION PRIOR TO FIELD EDIT		R. R. White	2/74				
6. APPLICATION OF FIELD EDIT DATA		J. R. Minton A. L. Shands	5/75 5/75				
7. COMPILATION SECTION REVIEW		A. C. Rauck, Jr.	5/77				
8. FINAL REVIEW		A. L. Shands	Jan 1978				
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH		A. L. Shands	Mar 1978				
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH		J. B. Phillips	March 1978				
11. MAP REGISTERED - COASTAL SURVEY SECTION		R. T. Carter	May 1978				

NOAA FORM 76-36B
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEYTP-00732
COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild RC-8 "E"		TYPES OF PHOTOGRAPHY LEGEND (C) COLOR (P) PANCHROMATIC (I) INFRARED		TIME REFERENCE	
TIDE STAGE REFERENCE <input checked="" type="checkbox"/> PREDICTED TIDES <input type="checkbox"/> REFERENCE STATION RECORDS <input 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	
73E(C) 9075 and 9076	6/22/73	09:43	1:15,000	7.8 ft. above MLLW	
73E(C) 9104	6/22/73	09:55	1:15,000	7.7 ft. above MLLW	
73E(C) 9113	6/22/73	10:18	1:15,000	7.4 ft. above MLLW	
73E(C) 9093 and 9094	6/22/73	09:55	1:15,000	7.7 ft. above MLLW	

REMARKS

2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was delineated from the above listed photography.

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

None compiled.

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

SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
TP-00729	TP-00733	TP-00734	TP-00731

REMARKS

TP-00732

32

HISTORY OF FIELD OPERATIONS

I. ☒ FIELD INSPECTION OPERATION☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. B. Melby	6/73
2. HORIZONTAL CONTROL	RECOVERED BY R. B. Melby	6/73
	ESTABLISHED BY None	
	PRE-MARKED OR IDENTIFIED BY R. B. Melby	6/73
3. VERTICAL CONTROL	RECOVERED BY NA	
	ESTABLISHED BY NA	
	PRE-MARKED OR IDENTIFIED BY NA	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY None	
	LOCATED (Field Methods) BY None	
	IDENTIFIED BY 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 NA	

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

2. VERTICAL CONTROL IDENTIFIED

NA

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
73E(C)9074	GULL 2, 1962		

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 152

1 Form 6135 (Tellurometer Observation)

1 Form 943A

2 Form 29's

TP-00732

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	M. Fleming	3/74 - 4/74
2. HORIZONTAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	None None None
3. VERTICAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	NA NA NA
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	NA

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED None		2. VERTICAL CONTROL IDENTIFIED NA	
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: <input type="checkbox"/> REPORT <input checked="" type="checkbox"/> NONE		6. BOUNDARY AND LIMITS: <input type="checkbox"/> REPORT <input checked="" type="checkbox"/> NONE	
7. SUPPLEMENTAL MAPS AND PLANS None			
8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodasy Division) 1 Field Edit Ozalid and Field Edit Report			

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

TP-00732

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	M. Fleming	12/74 - 1/75
2. HORIZONTAL CONTROL	RECOVERED BY L. Riggers - D. Eilers	12/74
	ESTABLISHED BY None	
	PRE-MARKED OR IDENTIFIED BY None	
3. VERTICAL CONTROL	RECOVERED BY NA	
	ESTABLISHED BY NA	
	PRE-MARKED OR IDENTIFIED BY NA	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY L. Riggers - D. Eilers	12/74
	LOCATED (Field Methods) BY L. Riggers - D. Eilers	12/74
	IDENTIFIED BY 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 D. Eilers	12/74
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY NA	

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

None

2. VERTICAL CONTROL IDENTIFIED

NA

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details)

73E(C)9113

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

1 set Plans of Grain Export Facility

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

2 Form 76-40's

1 Original Field Edit Ozalid

Addenda Field Edit Report

NOAA FORM 76-36D
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATIONTP-00732
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.	2/74	Class III Manuscript Superseded	3/74	3/74
Field edit applied. Compilation complete.	5/75	Class I Manuscript	5/77	
Final Review	Jan. 1978	Final	Feb. 1978	

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
1		6/16/77	Landmark
1		6/16/77	Aids

2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: June 16, 1977
3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: _____

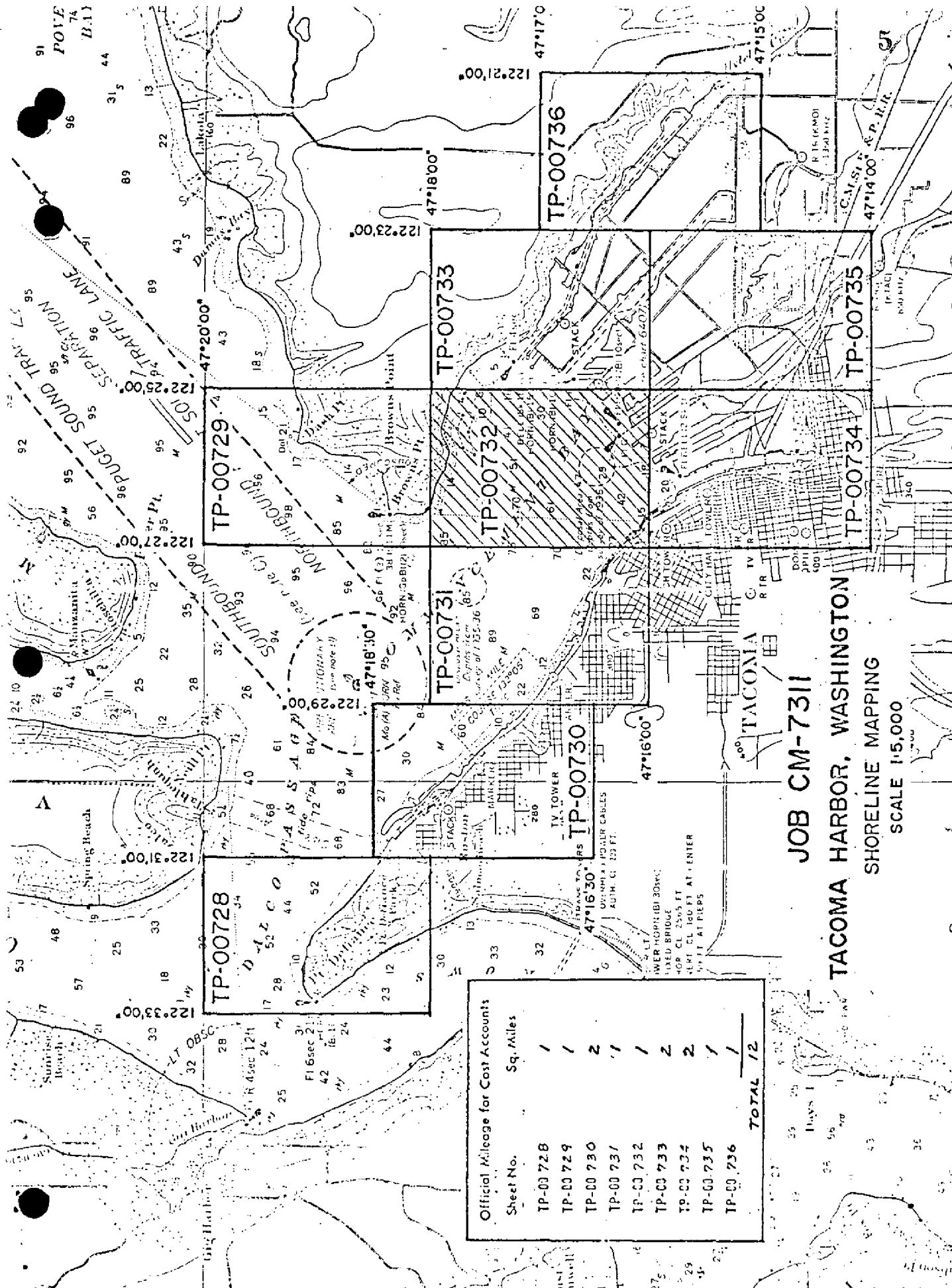
III. FEDERAL RECORDS CENTER DATA

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.
2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☒ FORM NOS ⁷⁶⁻⁴⁶ ~~62~~ SUBMITTED BY FIELD PARTIES.
3. ☒ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C.
ACCOUNT FOR EXCEPTIONS:

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

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

SECOND EDITION	SURVEY NUMBER TP - _____ (2)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	



JOB CM-7311
TACOMA HARBOR, WASHINGTON
SHORELINE MAPPING
SCALE 1:5,000

Official Mileage for Cost Accounts		
Sheet No.	Sq. Miles	
TP-00 728	/	
TP-00 729	/	
TP-00 730	2	
TP-00 731	/	
TP-00 732	/	
TP-00 733	2	
TP-00 734	2	
TP-00 735	/	
TP-00 736	/	
TOTAL		12

SUMMARY TO ACCOMPANY

DESCRIPTIVE REPORTS TP-00728 thru TP-00736

The maps covered in this summary comprise all of Project CM-7311. They are all standard shoreline maps covering Commencement Bay and including the Hylebos, Blair, Sitcum, Milwaukee, Puyallup, St. Paul, Middle and City Waterways. The purpose of the project is to provide up-to-date shoreline and alongshore delineation in support of contemporary hydrographic surveys and for nautical chart construction. All maps are 1: 5,000 scale.

Photography of the area was flown at 1:15,000 scale in June, 1973. Both onshore and offshore flights were flown. Ratios of the offshore flights were processed by the compilation office for photo-hydro support.

Field work prior to compilation was limited to the recovery and identification of horizontal control used in bridging. There was no clarification of details.

Bridging was done at the Washington Science Center in January, 1974, using the onshore flights. Analytic triangulation methods were used. Points common to the offshore flights were established to determine ratio scales.

The maps were compiled at the Atlantic Marine Center during February and March, 1974, by Wild B-8 instrument method.

Many buildings currently charted are not shown on the maps. In most cases, buildings are shown on the chart as they appear on the photographs. However, in a few instances buildings shown on the chart are not visible on the photographs. Where this is so, that fact is stated in the review report of the affected map.

Field edit was partially done in April, 1974 and completed in December, 1974. It was applied to the maps at the Atlantic Marine Center in May, 1975.

Final review was performed at the Atlantic Marine Center in January, 1978. The original base maps and all pertinent data was forwarded to the Washington Science Center for final registration.

FIELD INSPECTION

TP-00732

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

PHOTOGRAMMETRIC PLOT REPORT

Tacoma Harbor

Washington

Job CM-7311

January 1974

21. Area Covered

The area covered by this report pertains to the shoreline of Commencement Bay, Tacoma, Washington. This area is covered by nine 1:5,000 scale sheets, TP-00728 thru TP-00736.

22. Method

Three strips of 1:15,000 scale color photography were bridged by analytic aerotriangulation methods. Strip No. 1 was measured on the David W. Mann Company mono comparator Model 422 and strips 2 and 3 were measured on the Wild stereo comparator. Sketch number 1 shows the flight lines of the photography and the placement of the control used in the adjustment. The three strips were controlled by field identified control paneled in 1973. Old control, which was office identified, was floated for checks. Ties were made between all bridging strips. Common points were located between the bridging photography and the offshore flights to determine the ratio scale. One cronapaque and one matte each were ordered of the offshore flights. Sketch number 2 shows the flight lines of the offshore photography. Data for ruling projections were furnished to the Coradomat to be plotted on the Washington South Plane Coordinate System.

23. Adequacy of Control

The control was adequate.

24. Supplemental Data

USGS quadrangles were used to provide vertical control for the adjustment.

25. Photography

The photography was adequate.

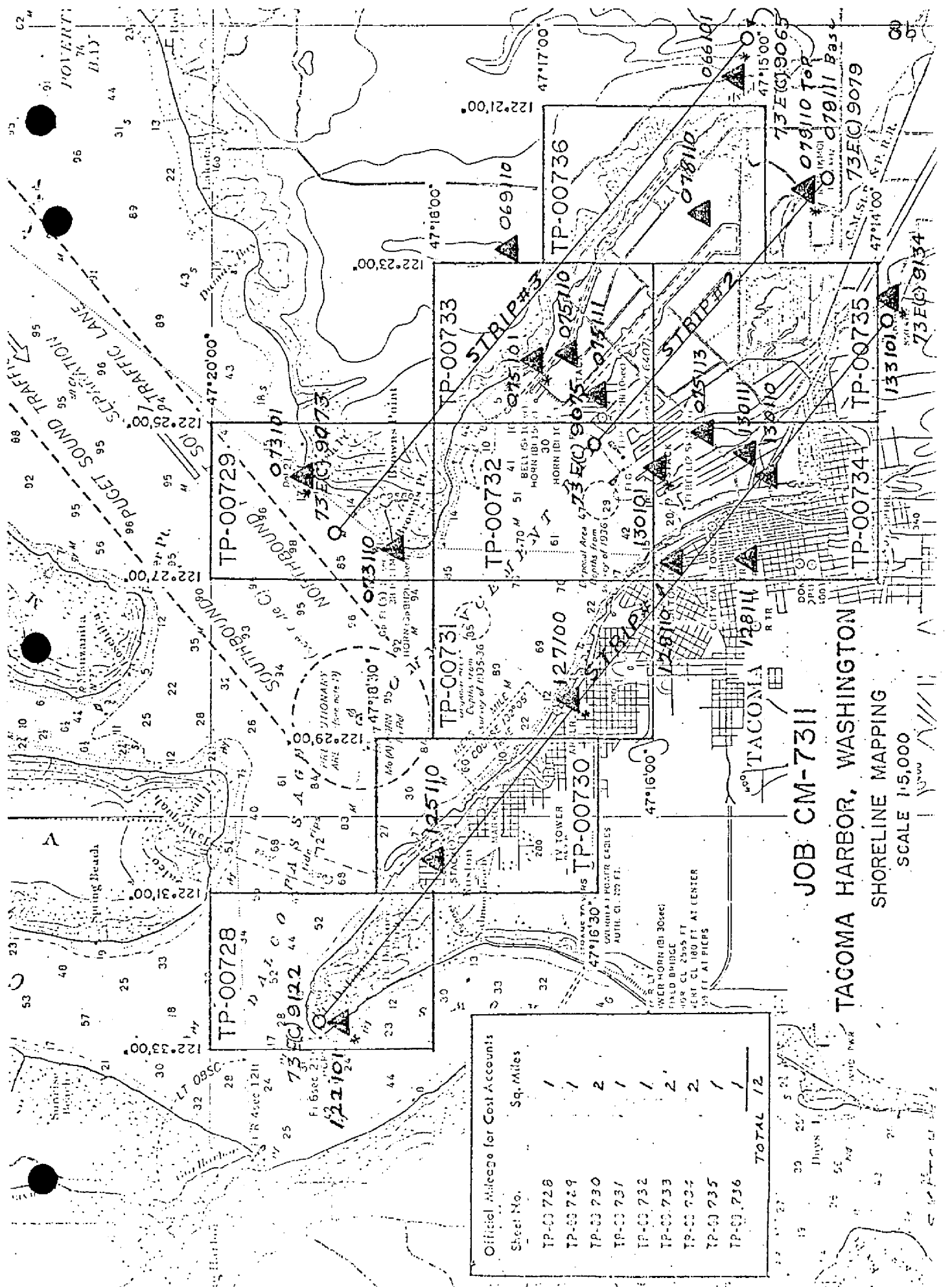
Respectfully submitted,

Ivey O. Raborn
Ivey O. Raborn

Approved and Forwarded:

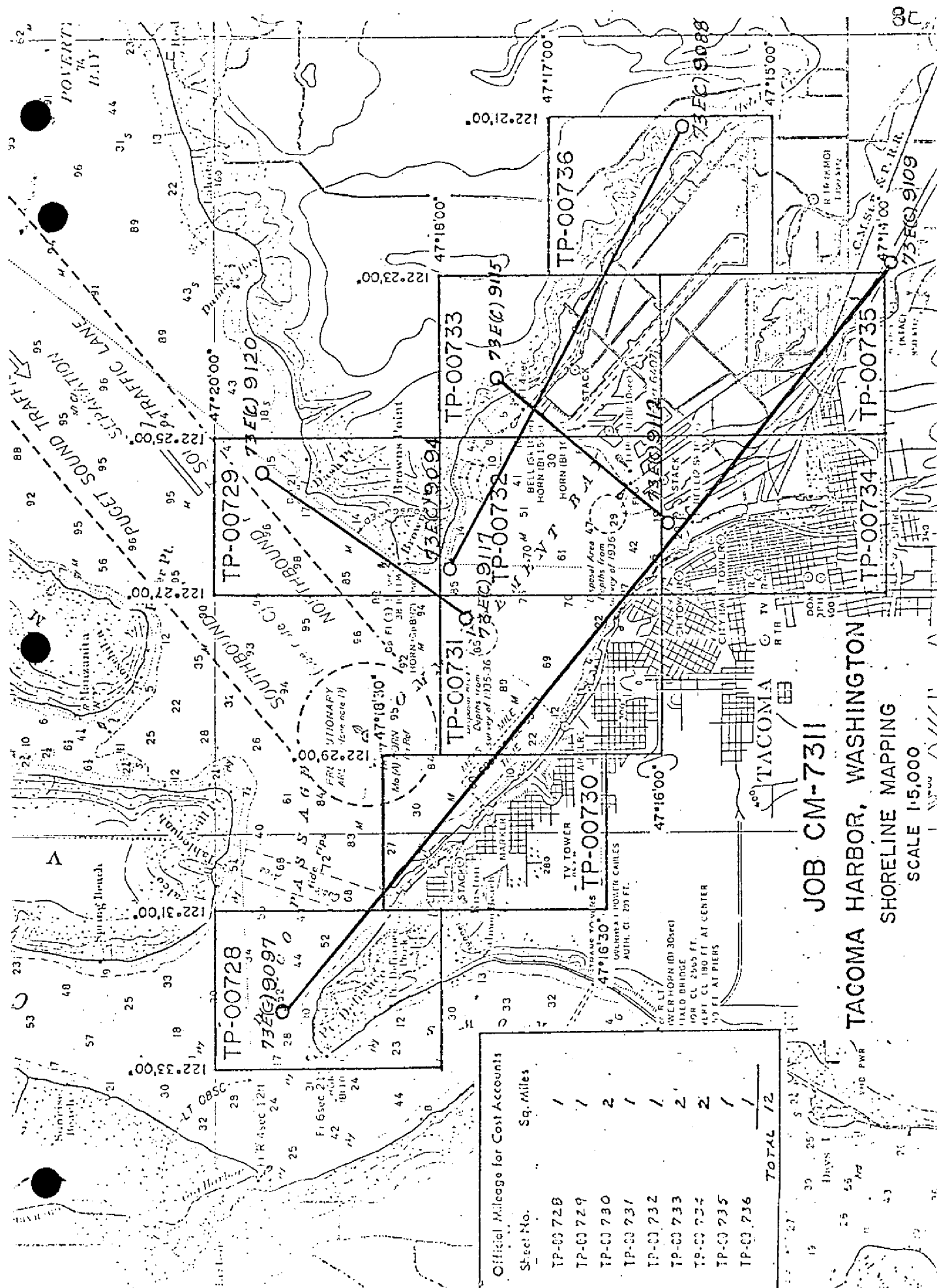
John D. Perrow, Jr.
John D. Perrow, Jr.

Chief, Aerotriangulation Section



Official Mileage for Cost Accounts		
Sheet No.	Sq. Miles	
TP-00 728	1	
TP-00 729	1	
TP-00 730	2	
TP-00 731	1	
TP-00 732	1	
TP-00 733	2	
TP-00 734	2	
TP-00 735	1	
TP-00 736	1	
TOTAL		12

JOB CM-7311
TACOMA HARBOR, WASHINGTON
SHORELINE MAPPING
SCALE 1:5,000



JOB CM-7311
 TACOMA HARBOR, WASHINGTON
 SHORELINE MAPPING
 SCALE 1:5,000

Official Mileage for Cost Accounts		
Sheet No.	Sq. Miles	
TP-00 728	1	
TP-00 729	1	
TP-00 730	2	
TP-00 731	1	
TP-00 732	1	
TP-00 733	2	
TP-00 734	2	
TP-00 735	1	
TP-00 736	1	
TOTAL		12

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRI- ANGULATION POINT NUMBER	GEODEIC DATUM		ORIGINATING ACTIVITY		REMARKS	
					TP-00732	CM-7311	NA 1927	Division, AMC, Norfolk, Virginia	COORDINATES IN FEET	GEOGRAPHIC POSITION
					STATE	ZONE	ϕ LATITUDE	λ LONGITUDE		
GULL 2, 1962	G.P. Vol 2 P. 421				X=		ϕ 47 17 53.595		1655.1	(197.8)
					Y=		λ 122 25 49.000		1029.5	(231.1)
MILWAUKEE SLIP TANK, 1927	G.P. Vol 1 P. 88				X=		ϕ 47 16 01.658		51.2	(1801.7)
					Y=		λ 122 25 15.768		331.5	(929.8)
TACOMA, THIN BLACK STACK, 1935	G.P. Vol 1 P. 246				X=		ϕ 47 16 01.872		57.8	(1795.1)
					Y=		λ 122 25 41.991		882.7	(378.6)
DRON, 1905	G.P. Vol 1 P. 004				X=		ϕ 47 17 59.729		1844.6	(8.3)
					Y=		λ 122 26 27.217		571.8	(688.7)
PUYALLUP WATERWAY JETTY LIGHT, 1973	Field comp.				X=		ϕ 47 16 14.938		461.3	(1391.6)
					Y=		λ 122 25 32.379		680.6	(580.6)
MILWAUKEE WATERWAY SHOAL LIGHT, 1973	Field comp.				X=		ϕ 47 16 14.428		445.6	(1407.3)
					Y=		λ 122 25 26.461		556.2	(705.0)
					X=		ϕ			
					Y=		λ			
					X=		ϕ			
					Y=		λ			
					X=		ϕ			
					Y=		λ			
					X=		ϕ			
					Y=		λ			
					X=		ϕ			
					Y=		λ			
COMPUTED BY	A. C. Rauck, Jr.				DATE	2/01/74	COMPUTATION CHECKED BY	F. R. Gustafson	DATE	2/01/74
LISTED BY					DATE		LISTING CHECKED BY		DATE	
HAND PLOTTING BY					DATE		HAND PLOTTING CHECKED BY		DATE	

COMPILATION REPORT

TP-00732

31. DELINEATION:

Delineation was by the Wild B-8 stereoplotter, using 1:15,000 color photography. Quality of photographs was adequate.

32. CONTROL:

See the attached Photogrammetric Plot Report dated January 1974.

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 and the mean high water line were delineated by the Wild B-8 stereoplotter and by office interpretation of the photographs.

36. OFFSHORE DETAILS:

There were no offshore details compiled.

37. LANDMARKS AND AIDS:

Compilation office prepared work copies of Forms 76-40 were forwarded to the field editor for verification, location and/or deletion.

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:

No statement.

46. COMPARISON WITH EXISTING MAPS:

A comparison has been made with the following USGS Quadrangle: TACOMA NORTH, WASHINGTON, scale 1:24,000, 1961, photorevised 1968..

47. COMPARISON WITH NAUTICAL CHARTS:

A comparison has been made with the following USC&GS Chart: No. 6407, scale 1:15,000, 12th edition, January 27, 1973.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY:

None.

ITEMS TO BE CARRIED FORWARD:

None.

Submitted by:

Albert C. Rauck Jr. FOR
F. R. Gustafson
Cartographic Aid
February 1974

Approved for forwarding:

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

January 11, 1978

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-7311 (Tacoma Harbor, Washington)

TP-00732

Burlington Northern (RR)

Commencement Bay

Milwaukee Waterway

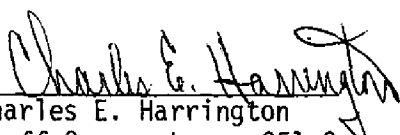
Puyallup Waterway

Sitcum Waterway

Tacoma

Union Pacific (RR)

Approved by:


Charles E. Harrington
Staff Geographer - C51x2

NOAA FORM 75-74 (7-75)		U.S. DEPARTMENT OF COMMERCE NOAA NATIONAL OCEAN SURVEY	
PHOTOGRAMMETRIC OFFICE REVIEW TP - 00732			
1. PROJECTION AND GRIDS RRW	2. TITLE RRW	3. MANUSCRIPT NUMBERS RRW	4. MANUSCRIPT SIZE RRW
CONTROL STATIONS			
5. HORIZONTAL CONTROL STATIONS OF THIRD-ORDER OR HIGHER ACCURACY RRW	6. RECOVERABLE HORIZONTAL STATIONS OF LESS THAN THIRD-ORDER ACCURACY (Topographic stations) NA	7. PHOTO HYDRO STATIONS NA	
8. BENCH MARKS RRW	9. PLOTTING OF SEXTANT FIXES NA	10. PHOTOGRAMMETRIC PLOT REPORT RRW	11. DETAIL POINTS RRW
ALONGSHORE AREAS (Nautical Chart Data)			
12. SHORELINE RRW	13. LOW-WATER LINE RRW	14. ROCKS, SHOALS, ETC. RRW	15. BRIDGES RRW
16. AIDS TO NAVIGATION RRW	17. LANDMARKS RRW	18. OTHER ALONGSHORE PHYSICAL FEATURES RRW	19. OTHER ALONGSHORE CULTURAL FEATURES RRW
PHYSICAL FEATURES			
20. WATER FEATURES RRW	21. NATURAL GROUND COVER NA	22. PLANETABLE CONTOURS NA	
23. STEREOSCOPIC INSTRUMENT CONTOURS NA	24. CONTOURS IN GENERAL NA	25. SPOT ELEVATIONS NA	26. OTHER PHYSICAL FEATURES RRW
CULTURAL FEATURES			
27. ROADS RRW	28. BUILDINGS RRW	29. RAILROADS RRW	30. OTHER CULTURAL FEATURES RRW
BOUNDARIES			
31. BOUNDARY LINES NA		32. PUBLIC LAND LINES NA	
MISCELLANEOUS			
33. GEOGRAPHIC NAMES RRW	34. JUNCTIONS RRW	35. LEGIBILITY OF THE MANUSCRIPT RRW	
36. DISCREPANCY OVERLAY RRW	37. DESCRIPTIVE REPORT RRW	38. FIELD INSPECTION PHOTOGRAPHS NA	39. FORMS RRW
40. REVIEWER Richard R. White 2/74		SUPERVISOR, REVIEW SECTION OR UNIT Albert C. Rauck, Jr.	
41. REMARKS (See attached sheet)			
FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT			
42. Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted under item 43.			
COMPILER J. R. Minton 9.2. Shands	5/75	SUPERVISOR Albert C. Rauck, Jr.	
Reviewer A. L. Shands	5/75	Albert C. Rauck, Jr.	
43. REMARKS Refer to Form 76-360, Items 7 and 8			

FIELD EDIT REPORT

COMMENCEMENT BAY

TACOMA, WASHINGTON

OPR-412

MARCH - APRIL 1974

INTRODUCTION

Field edit reports are attached for the following maps: TP-00728, TP-00729, TP-00730, TP-00731, TP-00732, TP-00733, TP-00734, TP-00735, and TP-00736. Copies of the Field Edit Ozalids and extra ozalids were compared in the field with actual shore features. The field edit was done before signals were built in many areas, so positions of many items were estimated relative to nearby features. In many instances these positions fell on one or more natural ranges. Some sextant fixes were possible and were recorded for future reference. Height data for all features were noted as referenced to MLLW or MHW or simply by time and date. Unless followed by a "Z" for GMT, all times are in Zone +7 (105° meridian).

All notes have been made in violet ink on the Field Edit Ozalids with the exception of TP-00733 for which another sheet was used and labeled "Smooth Ozalid." All deletions are noted or underlined with green ink.

During our work in the survey area, a great deal of new construction was observed. Shoreline construction sites were noted - as fully as possible - on the ozalids. It is suggested that any questions about new piers, etc. under construction be directed to the Property Manager, Port of Tacoma (address below).

Hugh Wild
Property Manager
Port of Tacoma
P.O. Box 1837
Tacoma, WA 98401

Compilation of the maps agreed well with actual shore features; any discrepancies are noted on the ozalids. Field edit of these manuscripts is not complete, especially for the inland. It is felt that all shore features of importance to the mariner have been adequately covered and noted.

Submitted by,

R. W. Mercer

R.W. Mercer
ENS, NOAA

Approved by,

Michael H. Fleming

M.H. Fleming
CDR, NOAA
Commanding Officer
NOAA SHIP DAVIDSON

FIELD EDIT REPORT

MAP TP-00732

TACOMA, WASHINGTON

MARCH-APRIL, 1974

Field edit of map TP-00732 was done by Ens. John L. Oswald during the months of March and April, 1974. Inspection was done from small boats.

METHOD

A copy of the Field Edit Ozalid was examined in the field and mapped features verified by visual inspection or by sextant fixes. Unmapped features were located by sextant fixes or by "best guess" where visual control was inadequate. All height data have been reduced to MLLW. All times noted are GMT +7 time zone.

ADEQUACY OF COMPILATION

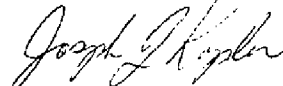
Compilation of this map is good and compares well with fix data and hydrography. However, it must be noted that the deliniation of log boom staging areas and storage are constantly changing; in addition there is vigorous new construction along the waterfront. For information concerning plan drawings or present and future construction contact Mr. Hugh Wild, Property Manager, Port of Tacoma, P.O. Box 1837, Tacoma, Washington, 98401.

RECOMMENDATIONS

It is recommended that this map be revised in accordance with the notes on the Ozalid and fix information and then accepted as an advanced manuscript.

It is also recommended that the Property Manager of the Port of Tacoma be contacted and the plans of present and future construction be applied.

Submitted by,

Joseph J. Kapler
LTJG, NOAA

Attachments:

Site Location Plan
Contract No. 343
Bulk Export Terminal
Form 76-40 N Stack of
St. Regis Paper Mill

ADDENDA FIELD EDIT REPORT

Commencement Bay, Washington
Dec 1974 - Jan 1975
OPR-412
Project CM-7311

This report is a follow-up and completion of the original field edit accomplished in this area in March and April of 1974. Certain deficiencies were noted in the original field edit; and this report is being submitted to correct, clarify, or alleviate any errors or misconceptions that may have been conveyed in the original report.

Although this report was not intended to be a complete re-field edit of the area, certain items from the previous report were checked to verify positions and resolve suspect features. It is suspected the original field editors did not use the photographs to their full advantage as the majority of items in question could be located by photogrammetric methods.

The majority of the landmarks were verified by computing the inverse for intersection stations and occupying marked triangulation stations and observing theodolite cuts.

The field edit copies of the manuscripts were used for the field corrections (in blue and dated) and the photographs were cross-referenced to the field edit copies.

Adequacy: The extent and accuracy of this field edit with amended items of the original field edit and completed forms 76-40 now appears complete.

Pertinent information for each individual discrepancy sheet is listed under that specific sheet.

TP-00728

Re-field edited 12/11/74. Agreed with the original field edit except the bluff in question is considered of landmark value. It is of significant height, and distinct boundaries are clear as plotted.

For verification of Pt. Defiance Light see attached NOAA Form 76-40.

TP-00729

Re-field edited 12/11/74. Original field edit complete. Brown Point Lighthouse recovered. See attached form 76-40.

TP-00730

Re-field edited on 12/12/74, 12/13/74, and 1/10/75. All landmarks were recovered. Lighted aids to navigation were located by photogrammetric methods on photograph 73E9100. The triangulation station TARGET, 1952, in question was reported destroyed in 1965 by H.J.S. (page 41 of book 392) and no attempt was made to recover it.

The position of the Commencement Bay Measured Nautical Mile northwest range front marker was determined by an angle distance from reference mark of the triangulation station TARGET. The position of the northwest range rear marker was determined by an angle and distance from the reference mark of triangulation station BLUFF, 1935. Both positions are less than third order. See the enclosed computations and form 76-40.

TP-00731

Re-field edited on 12/12/74. The positions of the Commencement Bay Measured Nautical Mile southeast markers, both front and rear, were determined by an angle and distance from RUSTON, RM NO2. Both positions are less than third order. See the enclosed computations and form 76-40.

TP-00732

Re-field edited on 12/10/74. Nonfloating aids to navigation were triangulation stations that were recovered. The new stack considered of landmark value was located photogrammetrically.

The Grain Export Facility under construction in April, 1974, is nearing completion. The pier faces are complete with work on the tower continuing. Port authorities expect to have the facility in operation in June, 1975. The plans for this facility were obtained and are enclosed.

TP-00733

This sheet was re-field edited on 12/10/74, 1/6/75, and 1/10/75. Two charted tanks are gone and should be deleted from the charts. See enclosed form 76-40.

Three landmarks (triangulation stations) were recovered and recovery notes submitted. The twin chimneys were located photogrammetrically on photograph 73E9091. The charted stack mentioned in the April, 1974, field edit as being of no landmark value is considered of landmark value in this report. Although poorly visible from Commencement Bay, it is quite distinguishable in the Hylebos Waterway. See photograph 73E9091.

Two large dome-shaped storage elevators depicted on the charts, but not compiled on the ozalid, should be left on the charts, as they are salient features and visible from offshore in Commencement Bay. See photograph

73E9113. Two navigation lights were recovered, and the fog signals were located photogrammetrically on photograph 73E9114.

TP-00734

The three items not previously investigated were field edited 12/12/74 and noted on the ozalid. One nonfloating aid to navigation was recovered. One tank, as noted on form 76-40, should be deleted from the chart, as it no longer exists.

Fourteen landmarks were located. Twelve were triangulation and were recovered. Two were located photogrammetrically on photograph 73E9104.

TP-00736

Re-field edited 12/12/74. The new boat^{ramp} was located on photograph 73E9090 by planetable methods. It is a private boat ramp and not maintained by the port authorities. The two stacks considered of landmark value by this field edit were located photogrammetrically on photograph 73E9089 and 73E9088.

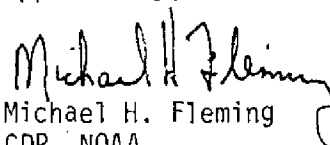
There is new construction of a barge-loading facility in the Blair Waterway turning basin. The plans for this facility were obtained from the Port authorities and are enclosed.

Respectfully submitted,



D.S. Eilers
LTJG, NOAA

Approved by,



Michael H. Fleming
CDR, NOAA
Commanding Officer

Replaces C&GS Form 567.

NONPEDIANT INTERESTS OR LANDMARKS FOR CHARTS

**U.S. DEPARTMENT OF COMMERCE
AND ATMOSPHERIC ADMINISTRATION**

NONPEDIANT INTERESTS OR LANDMARKS FOR CHARTS

<input checked="" type="checkbox"/> TO BE CHARTED	REPORTING UNIT (If field party, ship or office)	STATE	LOCALITY	DATE	<input type="checkbox"/> COMPILATION ACTIVITY <input type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW GRP. <input type="checkbox"/> COAST PILOT BRANCH (See reverse for responsible personnel)
<input type="checkbox"/> TO BE REVISED	Coastal Mapping Div.	Washington	Tacoma Harbor	5/05/75	
<input type="checkbox"/> TO BE DELETED	AMC, Norfolk, VA				
The following sheets HAVE <input checked="" type="checkbox"/> HAVE NOT <input type="checkbox"/> been inspected from seaward to determine their value as landmarks.					

[illegible]

RESPONSIBLE PERSONNEL		ORIGINATOR	
TYPE OF ACTION	NAME		
OBJECTS INSPECTED FROM SEAWARD		<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)	
POSITIONS DETERMINED AND/OR VERIFIED	L. L. Riggers, PMC; D. S. Eilers, Lt. (jg), NOAA J. R. Minton, AMC	FIELD ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW		OFFICE ACTIVITY REPRESENTATIVE	
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 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		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	
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.			

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	L. L. Riggers, PMC; D. S. Eilers, Lt. (jg), NOAA J. R. Manton, AMC
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
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 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	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
**FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	

REVIEW REPORT
TP-00732

SHORELINE

January 18, 1978

61. GENERAL STATEMENT:

The two new piers located at lat. 47 16.3', long. 122 25.1' and lat. 47 16.0', long. 122 26.5' were compiled from engineering drawings supplied by the field editor. These facilities were under construction during field edit. Their positions are considered approximate. There is no adequate tie between the engineering drawings and the geodetic datum of the map.

The field editor indicated on the ozalid that "Puyallup Waterway Jetty Light 1" was incorrectly located. He observed the light to be on the seaward end of a jetty. A jetty was shown on the Class III map 60 meters southwest of the light. During field edit application, it was discovered that the position of the jetty was in error, not that of the light.

Many of the features located by the field editor were simply spotted on the field edit ozalid. No sextant fixes were taken and the features were not identified on the photographs. They are labeled "(PA)" for position approximate on the map.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

Not applicable.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

Not applicable.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

The map was compared with a copy of Final Verified Smoothsheets H-9412 (DA-5-3-74) and H-9411 (DA-5-2-74). There are no significant differences.

65. COMPARISON WITH NAUTICAL CHARTS:

The map was compared with Chart 18453, 1:15,000 scale, 14th edition dated May 29, 1976. The position and configuration of the two new piers mentioned in paragraph 61 are

different on the chart than on the map. A pier in ruin symbolized on the chart at lat. 47 16.2', long. 122 26.9' is not visible on the photographs.

There are many more piles charted at Puyallup and Milwaukee Waterways and also the north shore of Commencement Bay than are shown on the map. Those not shown on the map were not dealt with by the field editor or hydrographer. They are not visible on the photography.

The configuration of the northwest shoreline of Puyallup Waterway on the chart is significantly different than that shown on the map.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:

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

Submitted by:

A. L. Shands

A. L. Shands
Final Reviewer

Approved for forwarding:

Albert C. Rauch, Jr. For

Jeffrey G. Carlen, CDR
Chief, Coastal Mapping Division, AMC

Approved:

John D. Pervaw Jr.

Chief, Photogrammetric Branch

James C. Allen

Chief, Coastal Mapping Division

