PHOTOGRAMMETRY BRANCH
COASTAL MAPPING PROGRAM

PROJECT CM-8701
COMPLETION REPORT

WASHINGTON

COLUMBIA RIVER
PASCO TO RICHLAND
TP-01477 AND TP-01478

Agency Vault - Original Report

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PASCO TO RICHLAND
TP-01477 AND TP-01478

1988

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
NAUTICAL CHARTING DIVISION

PHOTOGRAMMETRY BRANCH
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Clearance and Approval

This report summarizes the photogrammetric operations related to project completion and is submitted for approval. The maps, associated project data, and this report meet the requirements and standards of the Photogrammetry Branch Coastal Mapping Program. Clearance for project registration is requested.

Submitted by,

David R. Miller
Coastal Mapping Unit
Field Photogrammetry Section

APPROVED:

7/31/91
CAPT Fidel T. Smith Date
Chief, Field Photogrammetry Section

11/7/91
CDR Lewis A. Lapine Date
Chief, Photogrammetry Branch
Nautical Charting Division, Office of Geodetic Charting Services

COMPLETION REPORT

COASTAL MAPPING PROGRAM PROJECT CM-8709
COLUMBIA RIVER
PASCO TO RICHLAND
WASHINGTON

TABLE OF CONTENTS

COASTAL MAPPING PROGRAM PROJECT CM-8701

PROJECT SUMMARY

INTRODUCTION

Coastal Mapping Program Project CM-8701 Columbia River, Pasco to Richland, Washington consists of two coastal survey maps depicting the shoreline and other cartographic features. The assigned map identifiers for this project were TP-01477 and TP-01478 and these were mapped at a scale of 1:20,000. Map TP-01477 has an inset at a scale of 1:20:000, which is an extension of the northern border of the project limits. Both maps are based on the North American Datum 1983 (NAD 83) depicted by the Lambert Conformal Conic Projection and offset ticks for the NAD 27.

The purpose of this project is to provide contemporary coastal zone survey data for the maintenance of the National Ocean Service Nautical Charting Program.

PLANNING

The Coastal Planning Unit initiated the planning phase for this project. The Pacific Marine Center Coastal Surveys Unit was assigned all horizontal control activities. Aerial photography was the responsibility of the Flight Operation Unit. Field instructions were issued July 15, 1988. A copy of these instructions are bound in Appendix A.

FIELD OPERATIONS

Field Operations were conducted between August 8, 1988 and September 22, 1988 and consisted of aerial photography and the recovery and the identification (premarking) of horizontal control necessary for aerotriangulation. Field operations were summarized by the Chief of Party in a report bound in Appendix B. Refer to Appendix C for information on the horizontal control related to this project.

Photographs utilized for this project were taken in September 1988. Color negative photographs were acquired for aero-triangulation and map compilation at a 1:50,000 scale using a Wild RC-10B camera, which has a focal length of 152.74 mm.

The aerial photographs of the project site were reviewed in September 1988 by the Coastal Planning Unit for proper endlap, horizontal control, target visibility and adequate coverage of the project site.

AEROTRIANGULATION

The aerotriangulation phase was completed in March 1989 by the Aerotriangulation Unit. The Aerotriangulation Report is bound in Appendix C and contains information on placement of horizontal control statistics and a summary of the procedures employed.

COMPILATION

Compilation is based on aerotriangulation that has met the requirements for National Standards of Map Accuracy and on office interpretation of aerial photographs. Compilation, processing, and dissemination of all applicable amending National Ocean Service (NOS) Photogrammetric Instructions and data is in accordance with Coast and Geodetic Survey (C&GS) Topographic Manual, Part II, and approved sections of the new Coastal Mapping Operation Manual.

The compilation phase was initiated in May 1991 and completed in June 1991 by the Coastal Compilation Unit, field office. The photogrammetric work station utilized in data acquisition was Wild B-8, SN# 2109. Compilation was accomplished through the application of standard analog compilation techniques. The shoreline on this project represents the interface of the land and water at the time of photography. The water datum on this project is based on a pool level of 340 feet above Mean Sea Level.

For information on the photographs used in the compilation phase, refer to the control photographs diagram of the Aerotriangulation Report. Map Compilation Sources Pages also provide information on the photographs used in the completion of each map and are bound in Appendix D.

The final maps were smooth drafted except for the application of annotation which was accomplished by using waxed back stripper film.

The selection of Geographic Names came from United States Geological Surveys (USGS) quadrangles and National Ocean Service charts. They were submitted to the Chief Geographer of the Nautical Charting Division and were approved.

FINAL REVIEW

The final review phase of this project began July 1991 and was completed August 1991. The coastal survey maps were evaluated as meeting the requirements of the National Standards of Map Accuracy. The coastal survey maps and project data sets comply with the general requirements for a standard coastal mapping project. All source data, photographic devices, surveying and photogrammetric measurement instruments meet the standards of accuracy established for the disciplines of photography, field surveying and photogrammetry.

During the Final review phase, all necessary copies of project products and data were acquired. A Chart Maintenance Print and a Notes to Hydrographer Print was generated for each map within the project.

Comparisons were made with the prior surveys of the project area.

A comparison was made between the maps and the following National Ocean Service Charts:

CHART	EDITION	SCALE	DATE
18542	8th	1:20,000	February 21, 1987
18545	12th	1:20,000	October 1, 1983

This project completion report is the authoritative summary for project CM-8701 and is in compliance with Section 14, Project Completion Report of the Photogrammetry Branch Coastal Mapping Program Operations Manual.

DISSEMINATION OF PROJECT DATA AND PRODUCTS

National Archives/Federal Records Center:
Copy of the Project Completion Report
Brown jacket contents, e.g. field data, Aerotriangulation

Agency Archives:
The original Project Completion Report
Registration copy of each map

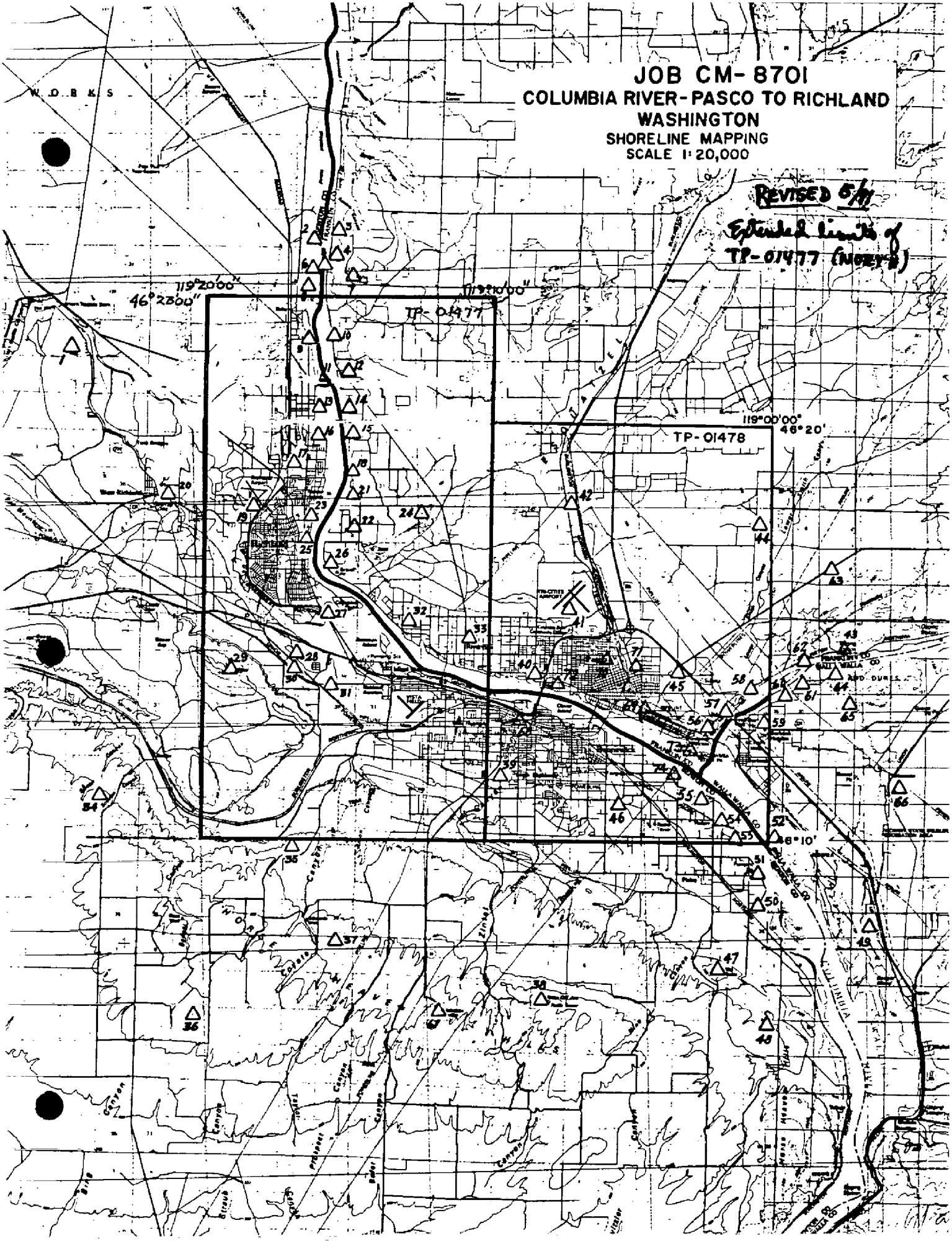
Photogrammetric Electronic Data Library:
Not applicable

Reproduction Branch Aeronautical Charting Division:
8x reduction negative of each map

Mapping and Charting Branch:
Abbreviated copy of the Project Completion Report
Chart Maintenance Prints

Hydrographic Surveys Branch:
Notes to Hydrographer Prints

All final project data and products were forwarded to the Production Control Unit, headquarters office, for registration and dissemination.


JOB CM-8701
COLUMBIA RIVER-PASCO TO RICHLAND
WASHINGTON
SHORELINE MAPPING
SCALE 1:20,000
REVISED 6/11
Extended limits of
TP-01477 (NOEV-8)
TP-01477
TP-01478
119°20'00"
46°28'00"
119°10'00"
119°00'00"
46°20'
46°10'
W. D. B. K. S.

PROJECT GEODETIC CONTROL LISTING

PROJECT: CM-8709

GEODETIC DATUM: North American Datum of 1983

The following permanent geodetic control was recovered during photogrammetric operations. Data pertaining to stations is resident in the National Geodetic Survey Division (NGSD) Horizontal Control Databank.

Refer to Nautical Charting Division Standard Digital Data Exchange Format documentation for quality codes (QC) criteria.

STATION NAME	QUAD	LATITUDE	LONGITUDE	QC	DAY/YEAR
BREAK USE 1949	461192	46°20'15.452"	119°15'03.772"	3	001/1949
GROSSCUP 1947	461192	46°17'59.067"	119°21'23.414"	3	001/1947
LESLIE USE 1950	461192	46°13'47.649"	119°15'26.380"	3	001/1950
STRAW USE 1948	461183	46°13'27.622"	118°59'38.664"	3	001/1948

Remarks:

All geodetic survey operations were performed by the Office of Charting and Geodetic Services personnel in August and September 1988.

Listing approved by: David R. Miller
David R. Miller, Coastal Mapping Unit

7/30/91
Date

APPENDICES

APPENDIX A

PROJECT FIELD INSTRUCTIONS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

July 15, 1988

TO: N/MOP - Robert L. Sandquist

FROM: N/CG2 - Christian Andreasen

SUBJECT: PROJECT INSTRUCTIONS: FIELD - Job CM-8701, Columbia River, Pasco to Richland, Washington, Shoreline Mapping

Subject instructions are forwarded for signature and issue to the Chief, Program Services Division.

The copies required for distribution by this office have been retained.

Attachment

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

from

Chief, Program Services Division
Pacific Marine Center

PROJECT INSTRUCTIONS: FIELD - Job CM-8701, Columbia River, Pasco to Richland, Washington, Shoreline Mapping

1.0. PURPOSE

These instructions provide specifications and a schedule for placing targets on horizontal control stations in advance of aerial photography. This project is in support of Marine Chart Branch's request for new shoreline data in order to compile a chart extension.

2.0. AREA

The area to be mapped is located in eastern Washington from Burbank to North Richland. Mapping at 1:20,000 scale will cover the shoreline and islands of the Columbia and Snake Rivers.

3.0. PHOTOGRAPHY

3.1. Aerotriangulation photography at 1:50,000 and supplemental compilation photography at 1:30,000 scale will be obtained using color negative film.

3.2. If target configuration and placement necessitate it, target identification photography may be obtained at 1:15,000 scale and may be flown at less than optimum photographic conditions. The chief of the photo field party will consult with the chief of the air photo mission to determine if this requirement exists.

4.0. ASSIGNMENT

You are assigned all field operations required to:
(1) place targets on horizontal control stations and
(2) provide pool elevation data for the date of the photography.

5.0. HORIZONTAL CONTROL

5.1. The horizontal datum for this project is NAD 83.

5.2. Horizontal control requirements for aerotriangulation have been furnished as part of the field data.

5.3. Limit recovery of horizontal control stations to those needed to meet aerotriangulation requirements. Prepare and submit recovery notes for each station for which a search was made.

5.4. New control stations, where needed, shall be established by triangulation, trilateration, traverse, satellite positioning, or a combination of the four methods, in accordance with Third-Order, Class I specifications provided in Standards and Specifications for Geodetic Control Networks, dated September 1984.

5.5. New stations will be monumented if they are required for future work in the area needing geodetic control.

5.6. Notify N/CG2313 if recovery of existing control does not meet aerotriangulation requirements. An alternative will be selected, if possible, to avoid establishing new control.

6.0. PREMARKING OF CONTROL

6.1. As soon as possible after all control stations have been paneled, the field party will forward to N/CG2313, by Overnight Express Service, the 7 1/2' quads and a copy of the CSI card when the quad does not adequately depict the target location. These quads will depict the station location, panel array used, and the panel number. This will assist in the film quality review, target identification, and help expedite the results to the field unit.

6.1.1. Wing panels will be used with all targets in accordance with established specifications but may be modified to conform with local terrain conditions.

6.2. Aerotriangulation Control

6.2.1. Panel each station selected to meet horizontal control requirements in accordance with specifications given on the attached sheet for 1:50,000-scale photography.

6.2.2. Use panel array No. 1 for targets with a normal background; it may be modified, as necessary, to conform with local terrain conditions. Any deviation from given panel and spacing dimensions should be indicated on the large-scale sketch on NOAA Form 76-53, Control Station Identification Card.

6.2.3. Panel array No. 3 shall be used in areas where the background offers poor contrast to the center panel, such as on sandy terrain.

6.2.4. The distance given for dimension "C" may be increased, but not decreased.

6.2.5. Panel substitute stations wherever shadows or relief displacement will obscure the specified control stations. Monumented stations (reference marks, azimuth marks) are preferred subtitute stations.

6.2.6. Substitute stations will be positioned to the specifications stated in Photogrammetric Instruction No. 22, Revised September 30, 1965, section 4.02.2.

6.2.7. In cases where the target might be subject to vandalism, select two photoidentifiable objects. Observe directions and distances to them from the home station and record with sketch and description on separate NOAA form 76-53.

7.0. CONTROL STATION IDENTIFICATION CARD

Prepare and submit a NOAA form 76-53 for each paneled station. Observe Photogrammetric Instruction No. 22, Revised September 30, 1965, except as follows:

a. Record distances and directions in the usual manner to the center of the station panel of all targets used as substitutes for horizontal control stations.

b. In the space provided for the sketch of Substitute Station A, make a large-scale sketch for the immediate vicinity showing the array used.

c. In the space provided for a sketch of Substitute Station B, make a smaller scale sketch that shows the relationship of the target to the surrounding terrain. Include one or more salient features to assist office personnel in locating the target on the photographs.

d. Indicate on suitable chart bases the approximate locations of all targets placed.

8.0. SCHEDULE

All stations shall be premarked and ready for photography by August 27, 1988. If premarking is not completed by this date, inform N/CG2313 so this information can be relayed to the air photo mission.

9.0. REPORT

A field operations report covering all pertinent field work performed is required upon completion of the field phase of this project. The report shall be accompanied by all field data observed and collected and forwarded to N/CG2313.

10.0. MODIFICATIONS OF INSTRUCTIONS

If changes in procedures and methods seem advisable, please make appropriate recommendations to this office.

11.0. COSTS

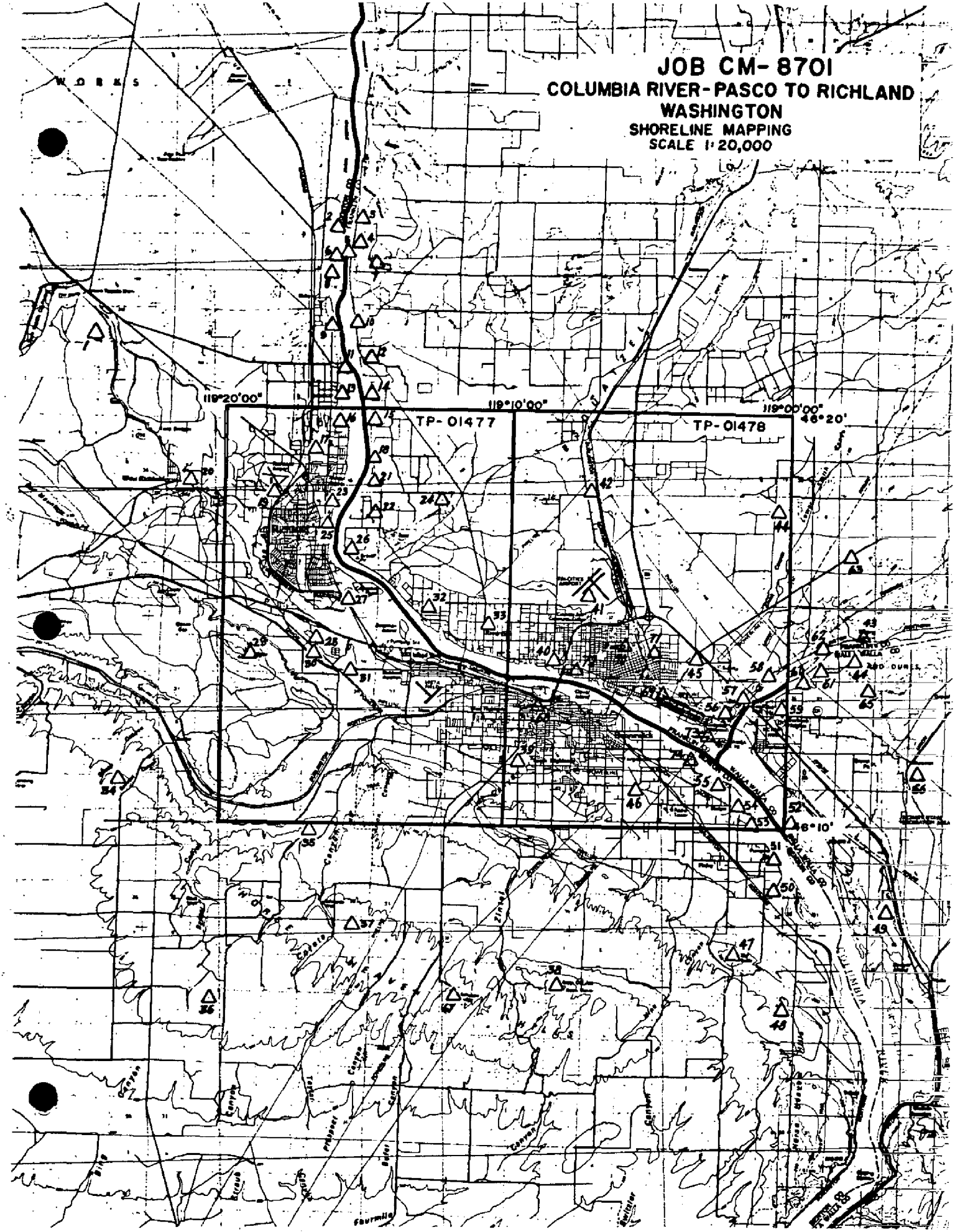
All costs incurred on this assignment shall be charged to Task 8K6C01.

12.0. RECEIPT

Acknowledge receipt of these instructions.

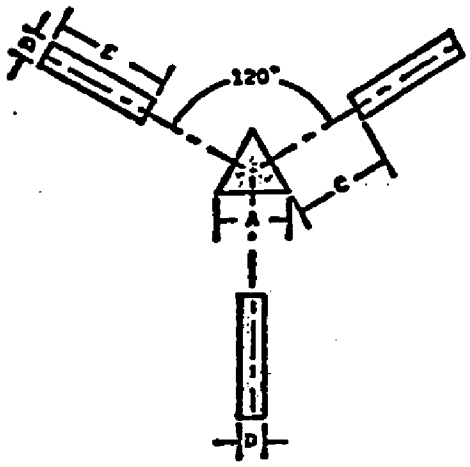
Robert L. Sandquist
Director
Pacific Marine Center

Christian Andreasen
Chief, Nautical Charting Division
Charting and Geodetic Services

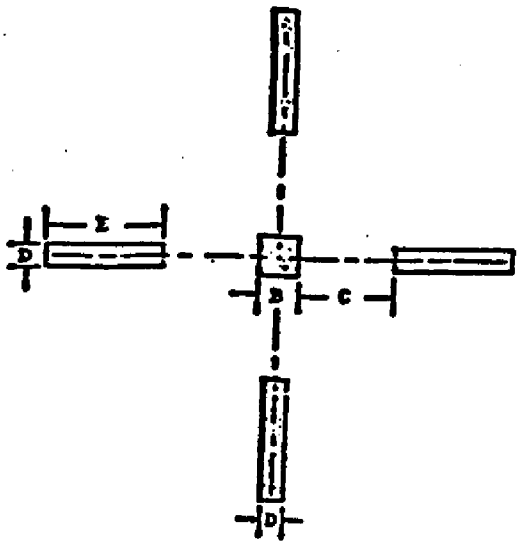

JOB CM-8701
COLUMBIA RIVER - PASCO TO RICHLAND
WASHINGTON
SHORELINE MAPPING
SCALE 1:20,000
TP-01477
TP-01478
119°20'00"
119°10'00"
119°00'00"
46°20'
46°10'

SPECIFICATIONS FOR PREMARKING CONTROL STATIONS
Revised November 23, 1976

ARRAY NO. 1

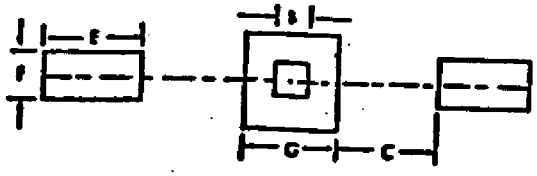


ARRAY NO. 2



NOTE:
1. The dimensions and centering of center panel over station or substitute station are critical.
2. Panel array No. 1 is preferred but No. 2 is acceptable.
3. Array No. 3 - for contrast in very light colored areas. The border surrounding center panel and the recognition panels shall be black.
4. Chief of party will select array that makes best application of field conditions and is authorized to adjust or omit one of the recognition panels if terrain is not suitable for placement of entire array.

ARRAY NO. 3



Photography Scale	PANEL AND SPACING DIMENSIONS (IN METERS) A	B	C	D	E	F	G
1:10:000	0.5	0.3	1.3	0.2	0.9	0.9	1.5
1:20,000	1.1	0.7	2.6	0.4	1.8	0.9	1.9
1:30,000	1.6	1.0	3.9	0.5	2.7	0.9	2.2
1:40,000	2.2	1.3	5.2	0.7	3.6	0.9	2.5
1:50,000	3.2	2.0	7.8	1.1	5.4	1.8	3.8
1:60,000	3.8	2.3	9.1	1.3	6.3	1.8	4.1
1:70,000	4.4	2.6	10.4	1.4	7.2	1.8	4.4
1:80,000	5.0	3.0	11.7	1.5	8.0	1.8	4.8
1:100,000	6.4	4.0	18.2	2.2	10.8	3.6	7.6

APPENDIX B

FIELD OPERATIONS REPORT

U.S. DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL OCEAN SERVICE

PACIFIC MARINE CENTER

PACIFIC PHOTO PARTY

FIELD REPORT

PROJECT CM-8701

COLUMBIA RIVER

PASCO TO RICHLAND

WASHINGTON

AUGUST, 1988

I. AUTHORITY

By instruction of the Director, Pacific Marine Center.

II. DATES

Initial field work was accomplished between August 8 and 12, 1988. The project was revisited and the panels repaired on August 30, 1988 prior to photography. The photo panels were removed on September 22, 1988.

I. PURPOSE

The purpose of this project was to premark horizontal control in accordance with Project Instructions: FIELD - Job CM-8701, Columbia River, Pasco to Richland, Washington, Shoreline Mapping. The instructions are dated July 15, 1988.

IV. TERRAIN AND WORKING CONDITIONS

The project area is about 225 miles southeast of Seattle, a four and one half hour drive over interstate highways This region of Washington is arid and sagebrush covered in it's natural state. The areas immediately adjacent to the river are farmed heavily and a network of irrigation canals is maintained by a regional water authority. The area was easily accessed by vehicle but permission had to be acquired from private parties for panel placement. The Photo Party found four control stations that had been disturbed due to expanded agricultural activity or the encroachment of new residential areas.

The weather was normal for the time period of field operations. The field party encountered bright sunshine, ninety degree temperatures and no precipitation.

The Photo Party experienced some difficulty using Magnavox 1502 Geoceivers on the northern end of this project. Between 8:00am and 5:00pm daily the Geoceivers recorded excessive interference on the 400 MHZ frequency, limiting data collection during these periods. The Photo Party suspects this background noise may have originated from within the nearby Hanford Nuclear Reservation.

The towns of Richland, Kennewick and Pasco have all desired services and materials, although Kennewick's proximity to bridges across the river made it the most convenient lodging location for the Photo Party..

The Army Corps of Engineers office in Portland, Oregon maintains records of the pool levels behind all dams on the Columbia River. They provided the following general information and should be contacted at (503)221-3741 for specific information when the exact date and time of photography are established.

A normal release of 100,000 CFS at the McNary dam produces 1 foot difference in elevation of the pool level at Pasco and a maximum release of 800,000 CFS produces a 5 foot difference in elevation. The highest pool level is 356 feet above mean sea level but the normal level, which is expected for the time of photography, is between 335 and 340 feet.

V. PERSONNEL

J. Gary Fredrick	Party Chief (NOS, Pacific Photo Party)
J. Richard Minton	Assistant (NOS, Pacific Photo Party)

VI. EQUIPMENT

Wild T-2 Theodolite	No. 257486
Hewlett Packard 3810 EDMI	No. 1929A00358
Magnavox 1502 Geoceivers	No.s 168 and 543
3-Prism Retro Reflectors	
Wild adjustable tripods	
30 meter steel tape	

VII. FIELD METHODS

Eight existing control stations were recovered and used to control surveying activity within this project. Reference marks were taped and compared to published values and the sites were compared with the historic descriptions. Substitute stations were located by observing horizontal directions and distances from the existing control and by satellite translocation, but were not monumented.

Standard 1:50,000 dimension white targets and recognition wing panels were used on all sites although conditions mandated variations in array configurations. The Control Station Identification Cards for each site define modified or abbreviated arrays.

VIII. STATISTICS

CONTROL STATIONS RECOVERED	8
CONTROL STATIONS ESTABLISHED	0
PANELS DEPLOYED	8
PANELS PLACED DIRECTLY OVER CONTROL STATIONS	5
PANELS POSITIONED BY CONVENTIONAL METHODS	2
PANELS POSITIONED BY SATELLITE TRANSLOCATION	1

X. RECORDS

All photo panels deployed by the Photo Field Party have been described and sketched on CSI cards. The CSI cards, field data and computations will be forwarded to the Rockville office, along with this report, for dissemination as required.

XI. RESULTS

The following list of NAD 1983 geographic positions is the result of the operations described in this report.

SITE NO.	STATION NAME	LATITUDE	LONGITUDE	METHOD
1.	BREAK USE 1949	46° 20' 15.45220"	119° 15' 03.77210"	Direct
2.	GROSSCUP 1947	46° 17' 59.06691"	119° 21' 23.41421"	Direct
3.	Photo Panel #3	46° 16' 26.283 "	119° 15' 29.464"	Sat Trans
4.	LESLIE USE 1950	46° 13' 47.64921"	119° 15' 26.38031"	Direct
5.	Photo Panel #5	46° 13' 16.362"	119° 06' 05.564"	Sub Point
6.	Photo Panel #6	46° 10' 51.967"	119° 05' 13.062"	Sub Point
7.	HUMOREST USE 2 AZ MK	46° 11' 35.56146"	118° 55' 37.98952"	Direct
8.	STRAW USE 1948	46° 13' 27.62182"	118° 59' 38.66442"	Direct

IGF

APPENDIX C

AEROTRIANGULATION REPORT

AEROTRIANGUALATION REPORT
CM-8701
PASCO TO RICHLAND
COLUMBIA RIVER
WASHINGTON
MARCH, 1989

AREA COVERED

This report covers an area on the Columbia River in eastern Washington from Burbank to North Richland. The project consists of two 1:20,000 scale sheets; TP-01477 and TP-01478.

METHOD

Three strips of 1:50,000 scale color photographs were bridged by analytical aerotriangulation methods and adjusted to ground using the GIANT program. All three strips were measured using the STK comparator. Pre-marked control stations were used as horizontal control. In addition, office identified geodetic intersection stations were used as supplemental control. Common points were transferred between strips to ensure adequate junctioning.

Ratio values were determined for the bridging photographs. A copy of these values and a sketch of the photo coverage are attached to this report.

The base manuscripts were plotted on the Kongsberg Plotter. The positions are in the Washington State Plane Coordinate System, South Zone. This is a Lambert conformal conic projection. All positions are based on NAD 1983. In addition, 10 mm ticks depicting NAD 1927 projection intersections were plotted at twice the interval of the NAD 1983 projection intersections.

ADEQUACY OF CONTROL

The control was adequate and meets the National Ocean Service requirements.

In the GIANT adjustment, larger than normal ground residuals were noticed on three horizontal control stations. No errors could be determined in the photo measurements or in the ground positions of the horizontal control. Excessively large residuals were also noticed on film positive fiducials in an output of the program ICRMAIN which generates the refined image coordinates. It was decided to rerun ICRMAIN but to allow only a rotation, translation, and overall scale correction in the fit of the fiducials. This produced larger residuals on the fiducials, but

did not distort the image coordinates of points on the photographs. This resulted in a better fit to the horizontal control points.

The large risiduals on the film positive fiducials were probably due to some problem during the printing of the film positives.

A listing of closures to control is attached.

SUPPLEMENTAL DATA

USGS topographic quadrangles were used to obtain vertical control for bridging. NOS nautical charts were used to locate fixed aids and landmarks.

PHOTOGRAPHY

The coverage, overlap, and quality of the color photographs were adequate for the job.

Submitted by,

Lloyd W. Harrod, Jr.

Approved and Forwarded

Don O. Norman

Don O. Norman
Chief, Aerotriangulation Unit

RATIO VALUES
CM-8701

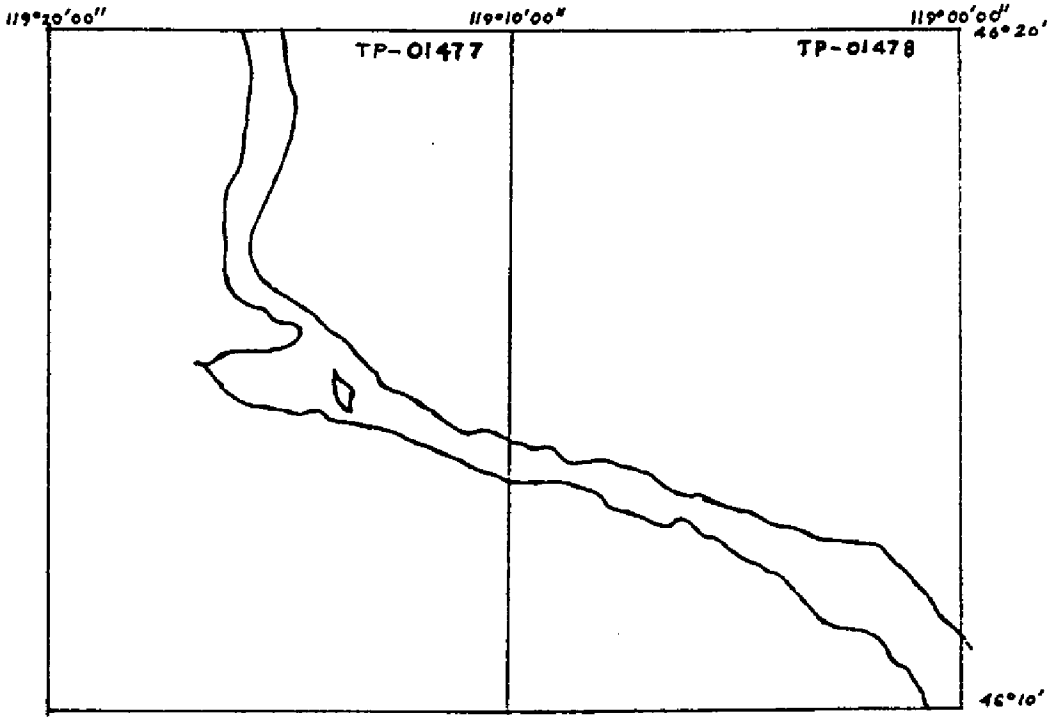
1:50,000 Bridging Photographs	Ratio Value
88 B CN 2594 - 2603	2.49
88 B CN 2605 - 2608	2.49
88 B CN 2611 - 2614	2.49

FIT TO CONTROL
CM-8701

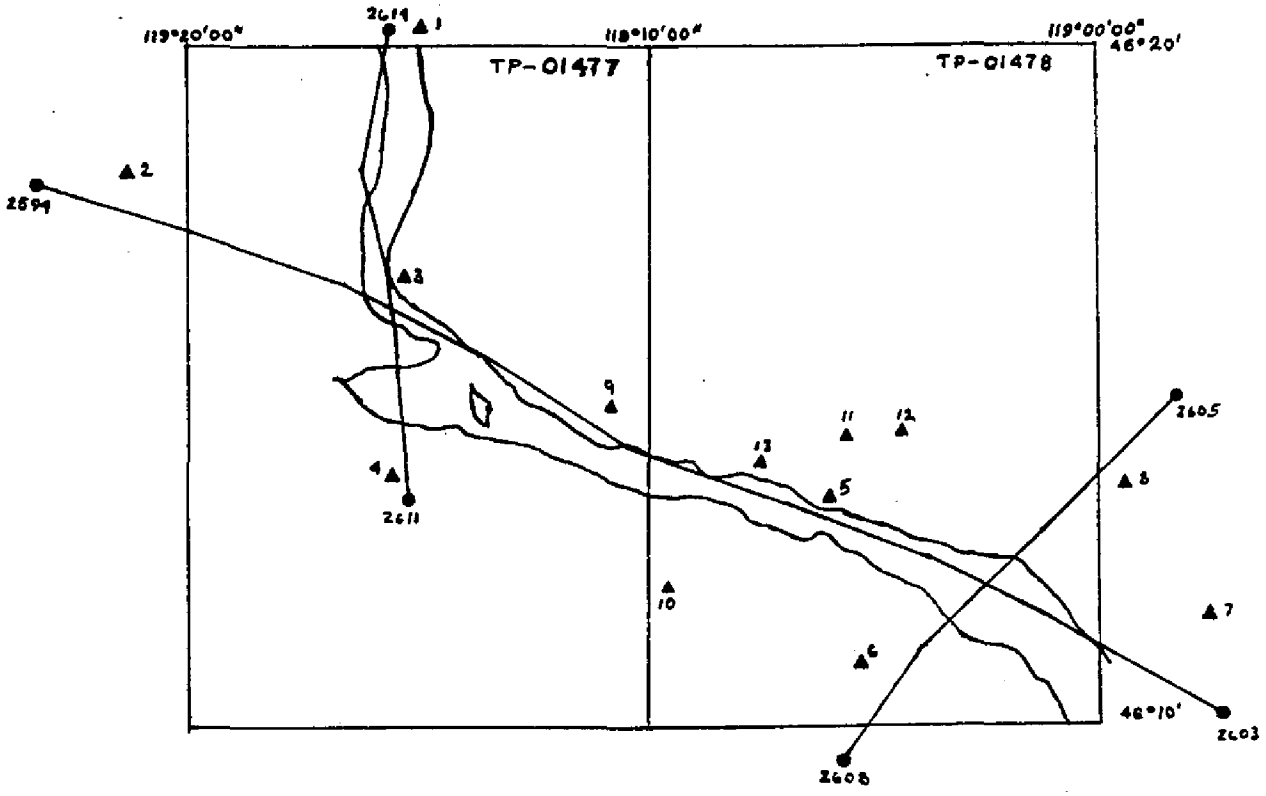
	STATION NAMES	POINT NO.	VALUES IN FEET X	Y
▲ 1.	BREAK USE 1949 PANEL #1	(614100)	0.28	0.69
▲ 2.	GROSSCUP, 1947 PANEL #2	(594100)	1.76	0.34
▲ 3.	PHOTO PANEL #3	(596101)	-3.30	-0.05
▲ 4.	LESLIE USE 1950 PANEL #4	(597100)	-0.33	0.08
▲ 5.	APPROACH Sub Pt. PANEL #5	(599101)	-2.58	-1.46
▲ 6.	JUNK RM 2 PANEL #6	(600101)	5.86	2.84
▲ 7.	HUMOREST USE 2 AZ MK. PANEL #7	(602100)	0.19	0.81
▲ 8.	STRAW USE 1948 PANEL #8	(601100)	-1.81	-3.26
9.	PASCO, RADIO STA. KALE, CENTER MAST	(598101)	3.00	-7.34
10.	KENNEWICK WATER TANK	(598102)	2.17	-5.00
11.	PASCO EAST MUNICIPAL TANK	(599103)	0.80	2.14
12.	PASCO WEST MUNICIPAL TANK	(599104)	-0.14	3.64
13.	PASCO RADIO STATION KORD MAST	(599105)	0.09	-1.92

▲ Points held in the adjustment

Station numbers keyed to horizontal control sketch



JOB CM-8701
COLUMBIA RIVER - PASCO TO RICHLAND
WASHINGTON
SHORELINE MAPPING
SCALE 1:20,000



JOB CM-8701
COLUMBIA RIVER - PASCO TO RICHLAND
WASHINGTON
SHORELINE MAPPING
SCALE 1" 20,000

LEGEND:

● = 1:50,000 COLOR (Bridging)

APPENDIX D

MAP COMPILATION SOURCES PAGES

DESCRIPTIVE DATA

CM-8701

TP-01477

MAP SCALE - 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88B(CN)2597-2598	9/01/88	0907	1:50,000	
88B(CN)2611-2615	9/01/88	0929	1:50,000	
				POOL LEVEL

PREPARED BY: ROBERT KRAVITZ DATE: 06/12/91

Robert P. Kravitz

COMPILATION REMARKS:

The map was compiled using the interface of the water and the land as the plane of reference. The compilation is referred to a mean pool level of 340 feet above mean sea level.

DESCRIPTIVE DATA

CM-8701

TP-01478

MAP SCALE- 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88B(CN)2598-2602	9/01/88	0907	1:50,000	
				POOL LEVEL

PREPARED BY: ROBERT KRAVITZ DATE- 06/04/91

Robert R. Kravitz

COMPILATION REMARKS:

The map was compiled using the interface of the water and the land as the plane of reference. The compilation is referred to a mean pool level of 340 feet above mean sea level.

APPENDIX E

APPROVED GEOGRAPHICAL NAMES

27
JUL 15 1991

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-8701 (Columbia River, Pasco to Richland, Washington)

TP-01477

Bateman Island
Columbia Point
Columbia River
Island View
Johnson Island
Nelson Island
Richland
Union Pacific (RR)
U.S. Government (RR)
Wallula, Lake
Yakima River

TP-01478

Ainsworth Junction
Burbank
Burbank Heights
Burlington Northern (RR)
Clover Island
Columbia River
East Pasco
Foundation Island
Hedges
Indian Island
Kennewick
Pasco
Port of Kennewick
Port of Pasco
Snake River
Strawberry Island
Union Pacific (RR)
Villard Pond
Wallula, Lake

Approved:

Charles E. Harrington

Charles E. Harrington
Chief Geographer
Nautical Charting Division

APPENDIX F

MEMORANDUMS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
December 8, 1988

MEMORANDUM FOR: The Record

FROM: James D. McNamara
Coastal Planning Unit
Photogrammetry Branch, NCD

SUBJECT: Review and Wrap-up, CM-8701, Columbia River, Pasco to Richland, Washington, Shoreline Mapping

This shoreline mapping project was scheduled for late summer of 1988. The Pacific Marine Center (PMC) photo field party was scheduled to panel this project following their return from Alaska. The work on this project was accomplished between August 8 and 12, 1988. The PROJECT INSTRUCTIONS : FIELD, dated July 15, 1988 specified the photo panels were to be in place by August 27, 1988. This project was planned in support of nautical charts and was at the request of the Marine Chart Branch for an extension to Chart 18542, based on the Chart Plan of October 2, 1986.

The compilation photography was secured on August 4, 1988, Air Photo Mission 2, while enroute to Southern California to work the Channel Islands project. This photography was secured with color negative film at 1:30,000 scale. The bridging photography was not secured at this time, as the photo panels were not in place. The project site was photographed on August 16, 1988 by Mission 2 while enroute to Minneapolis. The bridging photography was lost due to camera shutter failure.

On September 1, 1988, Air Photo Mission 1 after its departure from Alaska and enroute to Washington Dulles secured the bridging photography and reflew the compilation photography. A review of the bridging photography determined that all of the photo panels were in place and discernible. A comparison of the two sets of compilation photography was made. The first set of photography secured by Air Photo Mission 2 appears to be of better quality having been secured with better visibility conditions.

There was no Black and White Infrared photography secured as the water level at the project site is controlled by McNary Dam. The normal pool elevation is a function of release rate of the dam.

The data set for this project includes the Bridging and Compilation photography, the field operations report, and the NAD 27 offset data which was processed and placed on magnetic tape.