PHOTOGRAMMETRY BRANCH
COASTAL MAPPING PROGRAM
PROJECT CM-8607
COMPLETION REPORT
TEXAS
MULLET ISLAND TO RIO GRANDE RIVER
TP-01456 thru TP-01461

Agency Draft — Original

PHOTOGRAMMETRY BRANCH

COASTAL MAPPING PROGRAM

PROJECT CM-8607

COMPLETION REPORT

TEXAS

MULLET ISLAND TO RIO GRANDE RIVER

TP-01456, TP-01457, TP-01458,
TP-01459, TP-10460, TP-01461

1987

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 National Ocean Service Coastal Mapping Program. Clearance for project registration is required.

Submitted by,

Lowell O. Neterer, Jr.
Final Reviewer
Field Photogrammetry Section

Approved

Section Chief
Chief, Field Photogramemtry Section

3/28/91

Branch Chief
Chief, Photogrammetry Branch
Nautical Charting Division, Office of Charting and Geodetic Services

COMPLETION REPORT
COASTAL MAPPING PROGRAM
PROJECT CM-8607
MULLET ISLAND TO RIO GRANDE RIVER
TEXAS

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COASTAL MAPPING PROGRAM PROJECT CM-8607
PROJECT SUMMARY

INTRODUCTION

Project CM-8607 Mullet Island to Rio Grande, Texas, consists of six maps TP-01456 thru TP-01461 at 1:20,000 scale. All maps are based on North American Datum 1983 (NAD 83) depicted by the Lambert Conformal Conic Projection (full line) and offset tick for the NAD 27.

This project extends from the Rio Grande River latitude 25° 56' 00" north to Mullet Island latitude 26° 28' 00" including the shoreline of the Intracoastal Waterway and adjacent waterways.

PLANNING

This project was planned in support of the Nautical Charting Program. It was determined that six 1:20,000 scale maps were needed to meet the project requirements.

Planning include the selection of 15 horizontal control stations to control six strips of color photography: four strips of color photography at 1:50,000 scale, one strip each of color photography at 1:20,000 scale and 1:30,000 scale.

FIELD OPERATION

Refer to the Premarking Reports included in Appendices A and B of this Completion Report.

The cameras used for the acquisition of photography to meet the requirements for this project were:

Wild RC-10Z (focal length 153.15 millimeters), serial number Z-1391
Wild RC-10B (focal length 152.74 millimeters), serial number B-1777

AEROTRIANGULATION

Refer to the Aerotriangulation Report included in Appeidix C of this Completion Report.

COMPILATION

Refer to the office instructions which are included in Appendix D of this Compilation Report.

Compilation was accomplished at the Atlantic Marine Center from May 1989 through August 1989.

The Wild B-8 stereo instruments B8-2109 and B8-2125 were used to compile the maps by analog methods.

Ratio infrared MLLW tide coordinated photography was used to graphically compile the MLLW line on the Gulf of Mexico.

Refer to the Map Compilation Source page included in Appendix E for the number, tide data, and scale of the photographs used for each map.

The maps were smooth drafted. The project indexes and formats were applied with wax-backed stick up.

The selection of Geographic Names came from USGS quadrangles and NOS Nautical Charts. They were submitted to the Chief Geographer of the Nautical Charting Division and were approved.

FINAL REVIEW

The final review of this project began in August 1990 and was completed in September 1990.

Included with the appendices is the approved listing of discrete point data for application in the Nautical Charting Program.

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

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

CHART	EDITION	SCALE	DATE
411	40th	1:2,160,000	June 3, 1989
11300	28th	1:460,732	September 3, 1988
11301	17th	1:80,000	June 13, 1987
11303	15th	1:40,000	February 6, 1988
11300	15th	1:40,000	October 7, 1989

Differences were noted on Chart Maintenance Prints

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

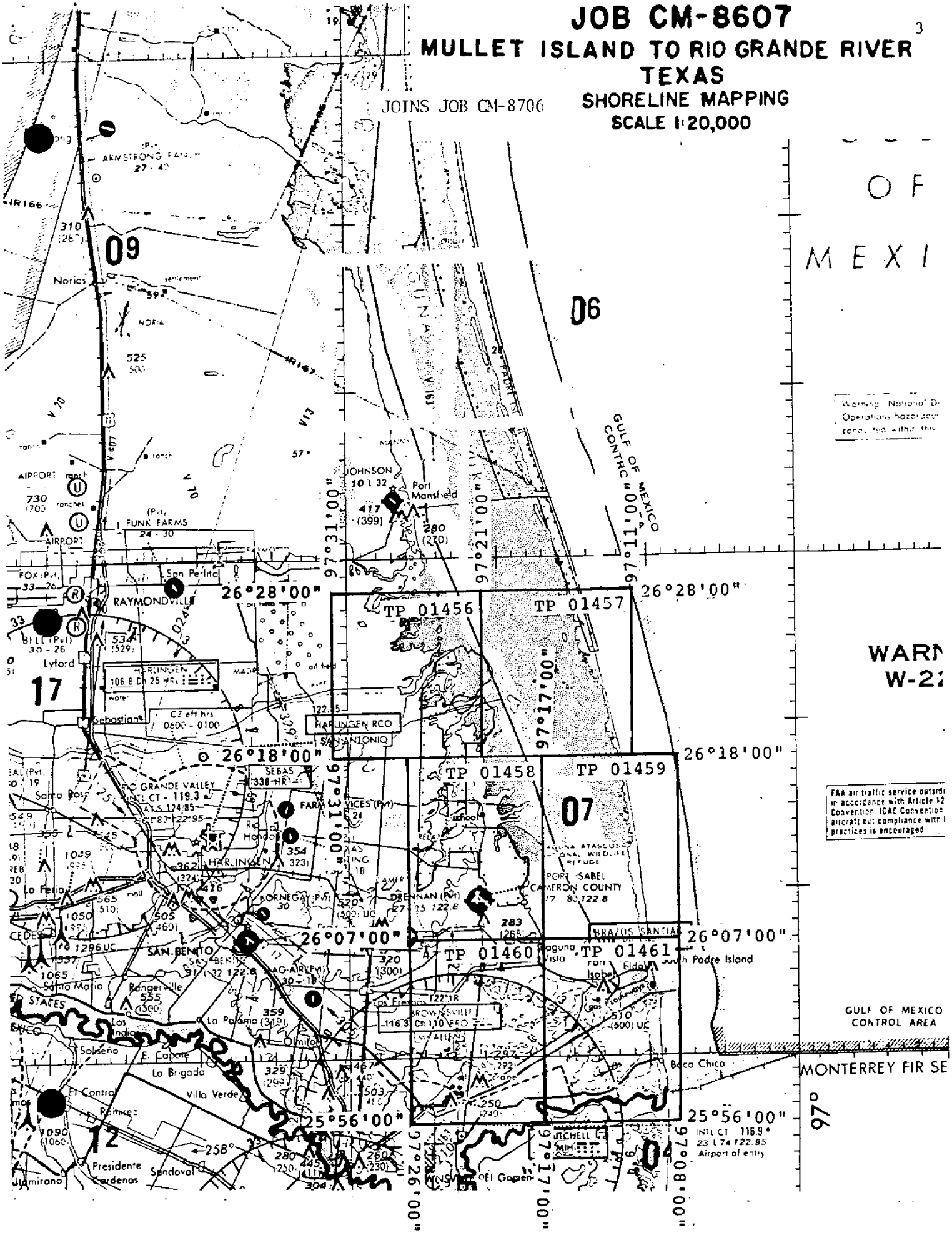
Reproduction Branch Aeronautical Charting Division
8X reduction negative of each map

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

Hydrographic Surveys Branch
Notes to Hydrographer Prints
Copies of Cartographic Features of Charting Interest Forms

JOB CM-8607

MULLET ISLAND TO RIO GRANDE RIVER
TEXAS
SHORELINE MAPPING
SCALE 1:20,000



PROJECT GEODETIC CONTROL LISTING

PROJECT: CM-8706

GEODETIC DATUM: North American Datum of 1983

The following permanent geodetic control was recovered or established during the 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#	GEOGRAPHIC COORDINATES (°-'-") LATITUDE	LONGITUDE	QC	DAY/YEAR
LEGION 2 1969	260971	26 33 29.469	97 25 39.812	3	001/1969
W 671 1949	260971	26 30 14.574	97 29 40.390	3	001/1949
HARENA 1939	260971	26 31 16.317	97 16 10.215	3	001/1939
NEGRO 1949	260972	26 27 27.007	97 14 48.736	3	001/1949
NOPAL 1949	260973	26 24 12.706	97 31 10.124	3	001/1949
HORSE USE 1950	260972	26 21 05.869	97 19 53.759	3	001/1950
COAST 1939	260972	26 14 29.466	97 11 23.283	3	001/1950
R.G. SMITH GIN TANK 1949	260972	26 12 57.134	97 26 46.844	3	001/1949
POINT ISABEL EAST BASE 1886	260972	26 04 45.441	97 15 11.928	3	001/1886
BRAZOS 1939	260972	26 04 30.280	97 09 51.761	3	000/1939
TRANCAS 1985	260972	26 00 28.190	97 16 38.985	3	001/1985
PORT BROWNSVILLE GULF WHSE CO TANK 1950	250971	25 56 50.570	97 24 17.095	3	001/1950
RANGE 1939	250971	25 57 50.495	97 14 39.512	3	001/1939
DEL MAR AZ 1939	250971	25 59 43.566	97 10 00.786	3	001/1939

Remarks:
All geodetic survey operations were performed by OCGS personnel in October 1987.

Listing approved by: Lowell O Neterer Jr. — Final Reviewer, L.O. Neterer, Jr.

Oct 5, 1990 — 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

October 2, 1987 N/CG2313:JDM

Chief, Photogrammetry Branch
Atlantic Marine Center

PROJECT INSTRUCTIONS: FIELD - Job CM-8607, Gulf of Mexico, Mullet Island to Rio Grande River, Texas, Shoreline Mapping

1.0. PURPOSE

These instructions provide specifications and a schedule for: (1) placing targets on horizontal control stations in advance of aerial photography and (2) furnishing field support to obtain tide-coordinated infrared aerial photography.

2.0. AREA

The area to be mapped is located in Texas from Mullet Island to the Rio Grande River along the Gulf of Mexico. Shoreline mapping at 1:20,000 scale will cover the shoreline of the coast, intracoastal waterway, and adjacent sounds.

3.0. PHOTOGRAPHY

3.1. Aerotriangulation photography at 1:50,000 scale, 1:30,000 scale, 1:20,000 scale, and supplemental bridging and compilation photography at 1:30,000 scale will be obtained using color film. Also, 1:50,000-scale black-and-white infrared photography, that is tide coordinated, will be obtained at mean high and mean lower low water.

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.

4.0. ASSIGNMENT

You are assigned all field operations required to: (1) place targets on horizontal control stations and (2) provide ground support needed to obtain tide-coordinated photography. The Chief, Air Photo Mission 1, will be responsible for scheduling photography at the required times, based on tide staff observations furnished by radio.

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 a chart section, quad, or any graphic depicting the station location, panel array used, and the panel number. This will assist in the film quality review and target identification and will 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 deviations 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 substitute 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 of 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. TIDE OBSERVATIONS AND RECORDS FOR TIDE-COORDINATED PHOTOGRAPHY

8.1. Tide-coordinated photography will be flown when the stage of tide is mean high water +.3 foot and mean lower low water ±.3 foot.

8.2. The tide station at South Padre Island, Texas (877-9751), will be in operation during the field phase of the project. Tidal datums and predictions for South Padre Island and time differences over the project area will be furnished.

8.3. Periods when the tides are predicted to be in range for mean lower low water and for mean high water occur throughout the months of October and November.

8.4. Staff readings at South Padre Island are required at 15-minute intervals during all tide-coordinated photograhpic flights. Use NOAA Form 77-53, Tides, to record staff observations.

8.5. The tide station at Port Mansfield, Texas (877-8490), will be in operation during the field phase of the project. This inside staff will be monitored to ensure that no abnormal meteorological conditions are occurring during the black-and-white infrared photography of the area.

9.0. LEVELING

Make a level connection to the tide staff from at least two tidal bench marks. Use NOAA Form 76-77, Leveling Record--Tide Station, to record leveling data.

10.0. SCHEDULE

Scheduling will follow immediately upon the completion of Job CM-8706, Gulf of Mexico, Intracoastal Waterway, Cuba Island to Mullet Island, Texas, if time and weather permit. This project may be rescheduled for early spring 1988 if it is not accomplished during the fall 1987 field season.

11.0. REPORT

A field operations report covering all pertinent field work performed is required upon completion of the field phase of this project.

12.0. RECORDS

All field records will be sent through N/MOA2222 for review prior to being forwarded to N/CG2313.

13.0. MODIFICATIONS OF INSTRUCTIONS

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

14.0. COSTS

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

15.0. RECEIPT

Acknowledge receipt of these instructions.

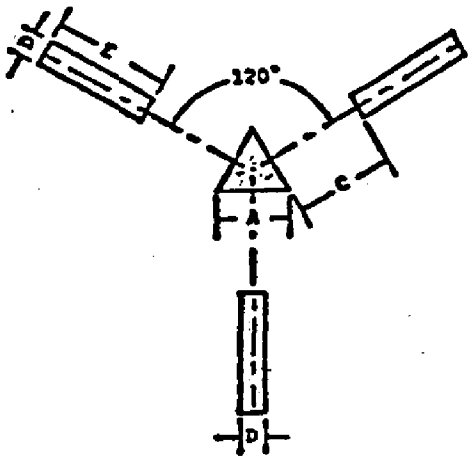
Christian Andreasen

Ray E. Moses
Director
Atlantic Marine Center

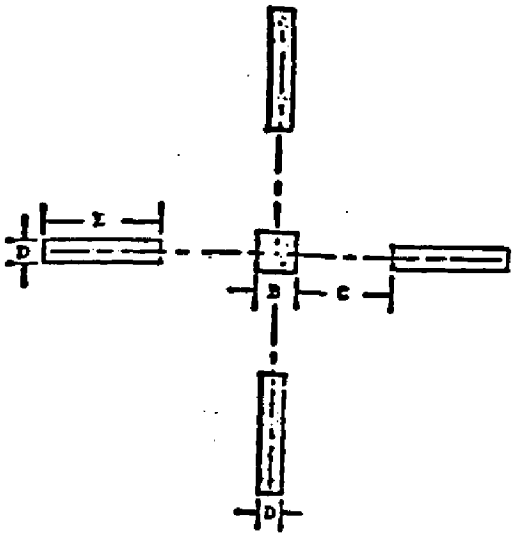
Christian Andreasen
Chief, Nautical Charting Division
Charting and Geodetic Services

SPECIFICATIONS FOR PREMARKING CONTROL STATIONS
Revised November 23, 1976

ARRAY NO. 1

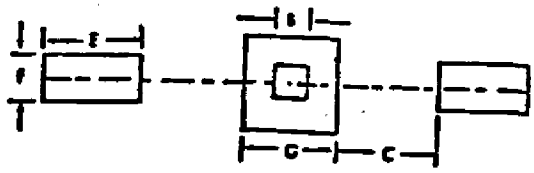


ARRAY NO. 2



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 OPERATION REPORT

NATIONAL OCEAN SERVICE

ATLANTIC MARINE CENTER

COASTAL SURVEYS

PROJECT REPORT

SHORELINE MAPPING - PREMARKING

CM-8607

GULF OF MEXICO, MULLET ISLAND TO RIO GRANDE RIVER, TEXAS

PROJECT REPORT

SHORELINE MAPPING - PREMARKING

CM-8607

GULF OF MEXICO, MULLET ISLAND TO RIO GRANDE RIVER, TEXAS

1.0 PURPOSE:

This project was accomplished to provide targets on horizontal control stations required for aerotriangulation and to provide field support for tide-coordinated infrared aerial photography according to PROJECT INSTRUCTIONS: FIELD - Job-8607, Gulf of Mexico, Mullet Island to Rio Grande River, Texas, Shoreline Mapping dated 2 October 1987.

2.0 AREA:

Shoreline mapping is located in Texas from Mullet Island to the Rio Grande River along the Gulf of Mexico. It covers the coastline, intracoastal waterway, and adjacent sounds.

3.0 PARTICIPATION:

3.1 Personnel:

Party Chief	P. Walbolt
Assistant	J. Koster

Assistance was also provide by the personnel of the NOAA Air Photo Mission.

3.2 Equipment:

2 4x4 carry-all trucks
1 Wild T-2 Theodolite
1 EDMI HP-3808
1 NI2 Level
4 MX 350 Radios
2 Aircraft Radios

4.0 FIELD ACTIVITY:

4.1 FIELD METHODS:

Fifteen (15) stations were paneled for aerotriangulation photography. Each target that was offset was positioned in accordance with Photo Instruction No. 22. Recovery notes are submitted for each horizontal control station used on this project.

(2)

Each panel was verified as being in position subsequent to the bridging photography.

A graphic showing the position of each panel was mailed to the Rockville Office.

4.2 CONTROL:

The North American Datum of 1983 was the controlling horizontal datum.

4.3 DISCUSSION OF RESULTS:

Panels were located using the following methods:

#1 Paneled direct station LEGION 2
LAT 26-33-29.46934 LON 97-25-39.81286

#2 Reverse solar at station W 671
LAT 26-30-14.5736 LON 97-29-40.3897

#3 Paneled direct station HARENA
LAT 26-31-16.31657 LON 97-16-10.21490
(this is also Panel 10 on CM-8706)

#4 Paneled direct station NEGRO
LAT 26-27-27.00684 LON 97-14-48.73600
(this is also Panel 11 on CM-8706)

#5 Paneled direct station NOPAL 1949
LAT 26-24-12.70584 LON 97-31-10.12440

#6 Paneled direct station HORSE USE 1950
LAT 26-21-05.86862 LON 97-19-53.75930

#7 Traverse from station HORSE USE 1950
LAT 26-20-48.6561 LON 97-12-30.8902

#8 Paneled direct station COAST 1939
LAT 26-14-29.46576 LON 97-11-23.28334

#9 Reverse solar at station R G SMITH GIN TANK
LAT 26-12-58.9294 LON 97-26-46.5181

#10 Paneled direct station POINT ISABEL EAST BASE 1886
LAT 26-04-45.44082 LON 97-15-11.92853

#11 Paneled direct station BRAZOS 1939
LAT 26-04-30.27972 LON 97-09-51.76064

#12 Paneled direct station TRANCAS
LAT 26-00-28.18996 LON 97-16-38.98480

#13 Reverse solar and base line at station
PORT BROWNSVILLE GULF WHSE CO TANK
LAT 25-56-52.6216 LON 97-23-47.0293

#14 Paneled direct station RANGE
LAT 25-57-50.49472 LON 97-14-39.51200

#15 Traverse from station DEL MAR AZ
LAT 25-57-47.8710 LON 97-08-50.5616

Level ties were made to the tide gages at Bob Hall Pier, Port Mansfield, and South Padre Island.

6.0 STATISTICS:

Number of stations paneled	15
Number of stations recovered	19
Number of Tide Gages Leveled	3

7.0 RECORDS:

All original records with the exception of the recovery notes will be forwarded to Rockville, Md. N\CG2314. The original recovery notes will be processed through the MTEN Format for inclusion into the National Geodetic Service Data Base. A copy of all field data and this report will be maintained at Atlantic Marine Center's Coastal Survays Unit, N\MOA2222.

January 5, 1988
Submitted by:
Philip B. Walbolt
Philip B. Walbolt

Approved:
Jim D. Shea
Jim D. Shea
Chief, Coastal Surveys

APPENDIX C

AEROTRIANGULATION REPORT

AEROTRIANGULATION REPORT
CM-8607
MULLET ISLAND TO RIO GRANDE RIVER, TEXAS

AUGUST 1988

AREA COVERED

This report covers the area from Mullet Island to the Rio Grande River, Texas. The project consists of six 1:20,000-scale sheets; TP-01456 through TP-01461.

METHOD

Four strips of 1:50,000-scale color photographs, one strip of 1:30,000-scale color photographs, and one strip of 1:20,000-scale color photographs were bridged by analytic aerotriangulation methods and adjusted to ground using the General Integrated Analytical Triangulation Program (GIANT). Pre-marked control stations were used as horizontal control. In addition, office identified geodetic intersection stations were used as supplemental control. The photographs were measured using the National Ocean Service Analytic Plotter (NOSAP) under control of the Integrated Digital Photogrammetric Facility Software (IDPF). Common points were transferred between strips to ensure adequate junctioning.

Ratio values were determined for the bridging photographs, as well as the 1:50,000-scale MHW, MLLW, and Mid-Range infrared 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 Texas 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. A listing of closures to control is attached.

CM-8607

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 photographs were adequate for the job. Fiducial 3, fiducial 7, and the areas adjacent to them were out of focus on approximately twelve percent of the film positives. These fiducials exhibited relatively high residuals when fitted to the master fiducial system. The contact prints showed no evidence of being out of focus.

Submitted by,

Victor E. McNeel

Victor E. McNeel

Approved and Forwarded

Don O. Norman

Don O. Norman
Chief, Aerotriangulation Unit

CM-8607

RATIO VALUES

1:20,000 Bridging Photographs	Ratio Value
87 B(CN) 8165 through 8189	0.99
1:30,000 Bridging Photographs	
87 B(CN) 8148 through 8156	1.47
1:50,000 Bridging Photographs	
87 B(CN) 8199 through 8205	2.50
87 B(CN) 8219 through 8251	2.49
87 B(CN) 8255 through 8263	2.48
MLLW 1:50,000 Black and White Infrared	
87 Z(R) 3353 through 3366	2.48
Mid-Range 1:50,000 Black and White Infrared	
87 Z(R) 3444 through 3458	2.45
87 Z(R) 3460 through 3474	2.45
87 Z(R) 3482 through 3486	2.44
87 Z(R) 3488 through 3492	2.45
87 Z(R) 3494 through 3496	2.46
MHW 1:50,000 Black and White Infrared	
87 Z(R) 3503 through 3517	2.49

CM-8607

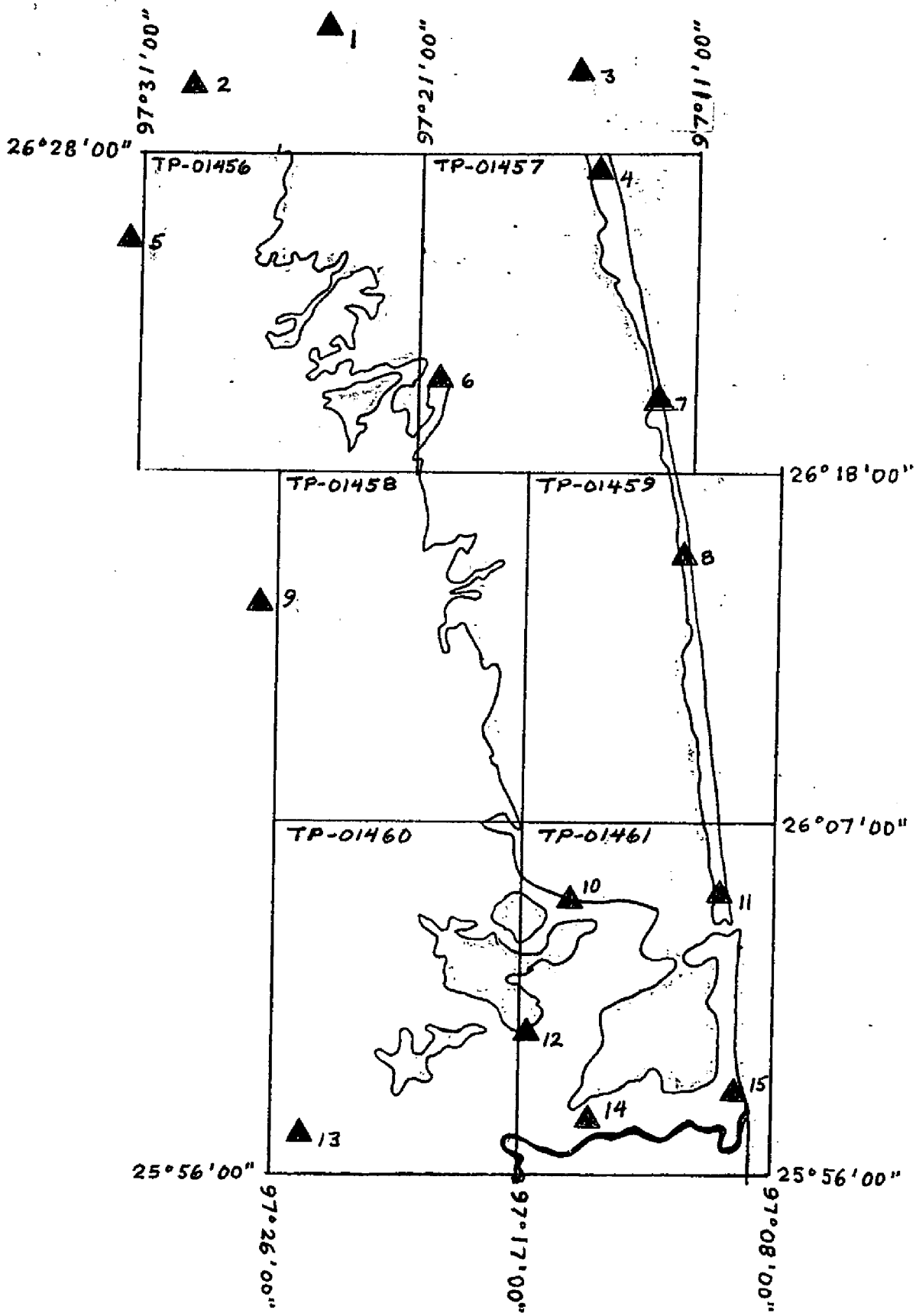
FIT TO CONTROL

▲ = control held in adjustment
□ = aids or landmarks not held in adjustment

		STATION NAMES	POINT NO.	VALUES IN FEET X	Y
▲	1.	LEGION 2 1969	219100	+0.5	+1.0
▲	2.	W 671 SUB STATION	250101	-0.2	+0.9
▲	3.	HARENA 1939	148100	+1.1	+0.1
▲	4.	NEGRO 1949	151100	-1.5	-0.1
▲	5.	NOPAL 1949	256100	+1.5	-0.8
▲	6.	HORSE USE 1950	224100	-1.0	+2.1
▲	7.	PANEL #7	156101	+1.0	-0.1
▲	8.	COAST 1939	172100	-0.1	+0.2
▲	9.	R. G. SMITH GIN TANK SUB STA	261101	-0.1	-3.2
▲	10.	POINT ISABEL EAST BASE 1886	231100	-1.0	-0.6
▲	11.	BRAZOS 1939	182100	-3.1	+1.8
▲	12.	TRANCAS	237100	+2.6	+0.2
▲	13.	PORT BROWNSVILLE GULF WHSE. CO. TANK SUB STATION	199101	-0.9	+1.5
▲	14.	RANGE	234100	+0.1	-2.7
▲	15.	DEL MAR AZ. SUB STATION	189101	+1.2	+0.4
□		PORT BROWNSVILLE GULF WHSE. CO. TANK	199100	-0.4	-0.1
□		PORT ISABEL N. TANK	204141	-1.0	+0.1
□		PORT MANSFIELD MUN. TANK 2	220141	+2.0	-1.5
□		PORT MAMSFIELD MUN. TANK	220142	-3.7	+6.7
□		R. G. SMITH RANCH TANK, 1949	246141	+6.8	-2.9
□		R. G. SMITH GIN TANK	261100	+1.2	-3.9
□		BAYVIEW MUNICIPAL TANK	263141	+5.9	-2.3
□		BRAZOS SANTIAGO ENT RNG R LT	183151	-3.6	+4.1
□		HARLINGEN PORT ISABEL LT 2	224151	+2.8	+8.2
□		HARLINGEN PORT ISABEL LT 39	226151	-5.1	-4.9

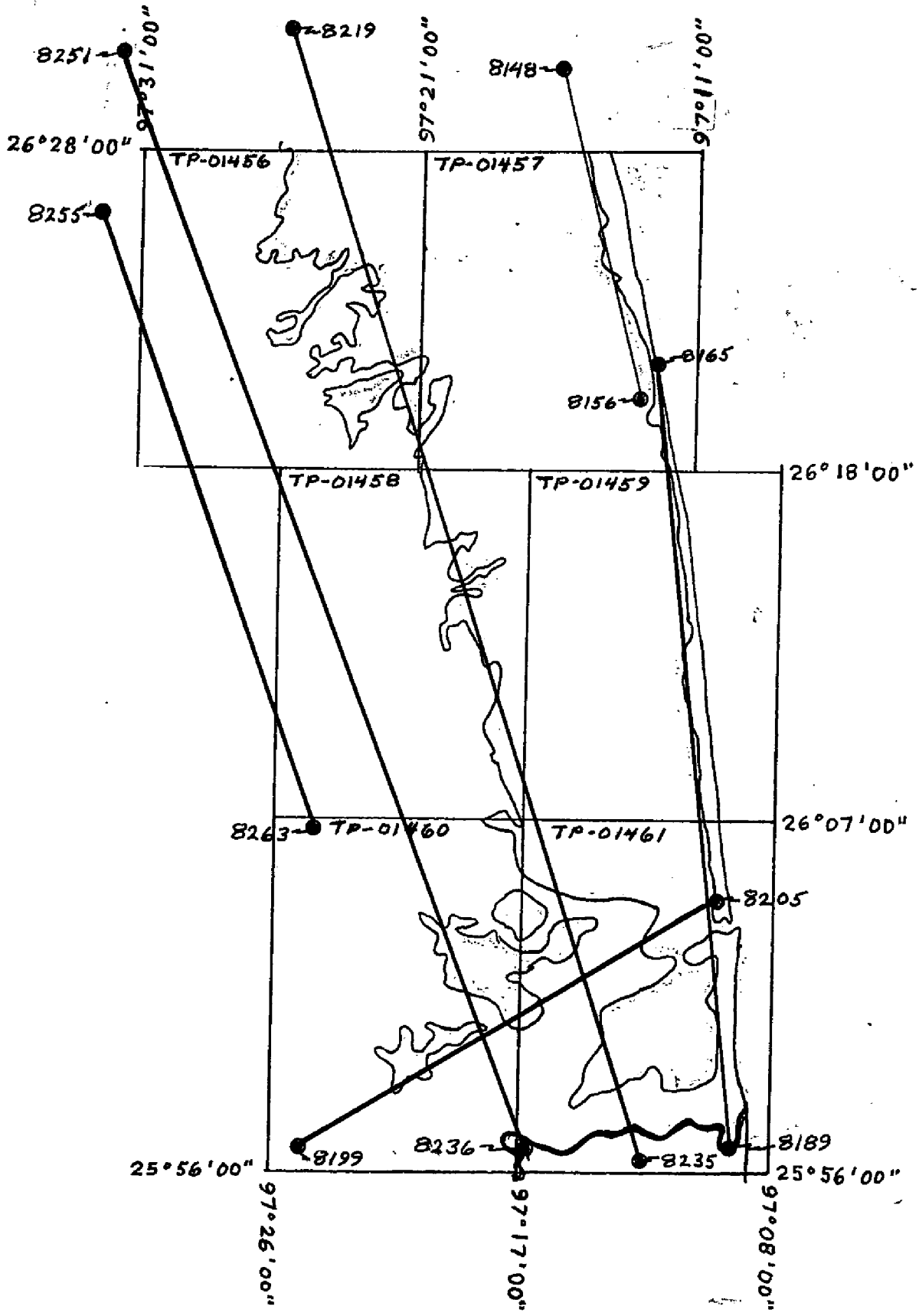
CM-8607
MULLET ISLAND TO RIO GRANDE RIVER
TEXAS
SCALE = 1:20,000

HORIZONTAL CONTROL



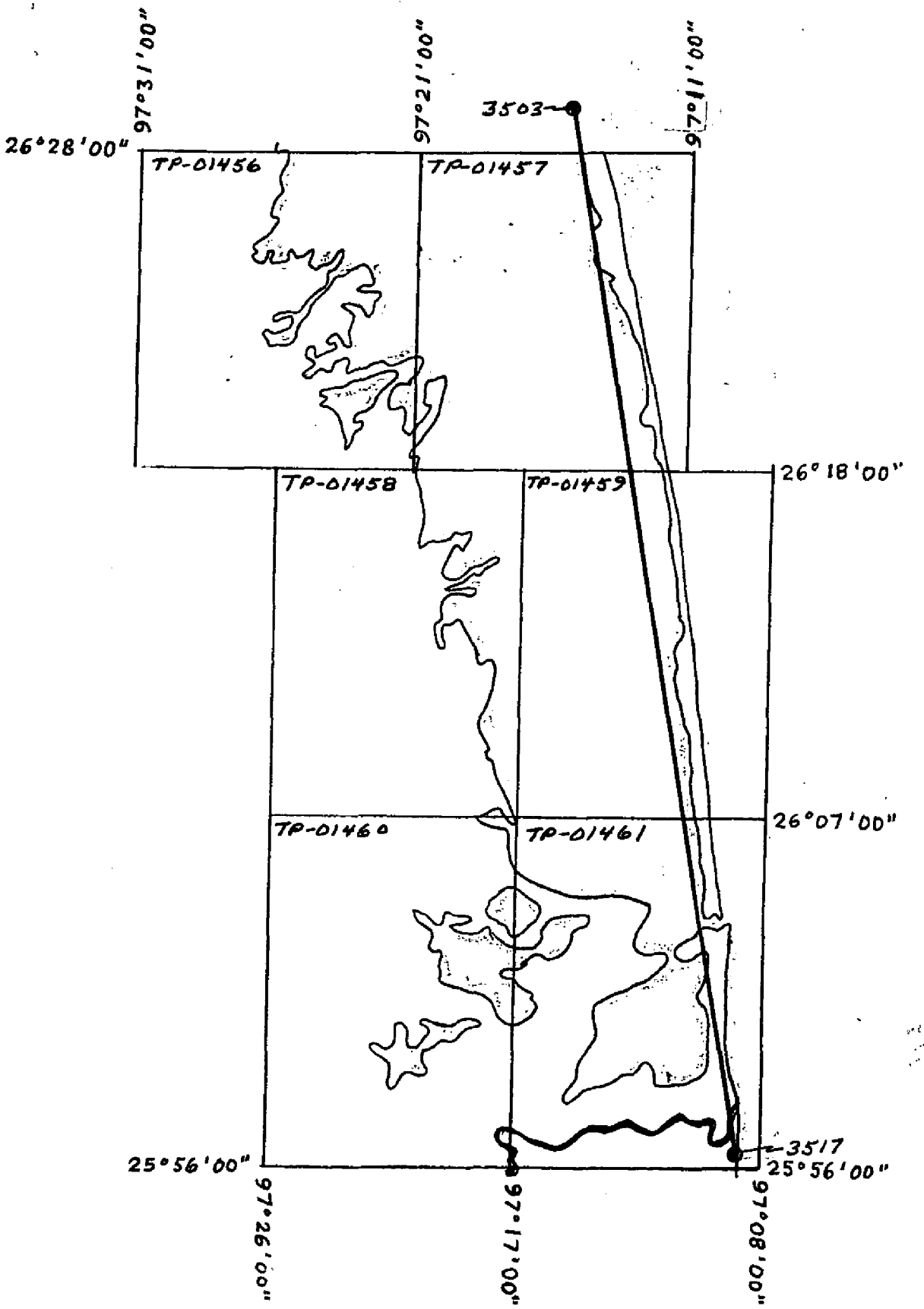
CM-8607
MULLET ISLAND TO RIO GRANDE RIVER
TEXAS
SCALE = 1:20,000

BRIDGING PHOTOGRAPHS (87 B CN)



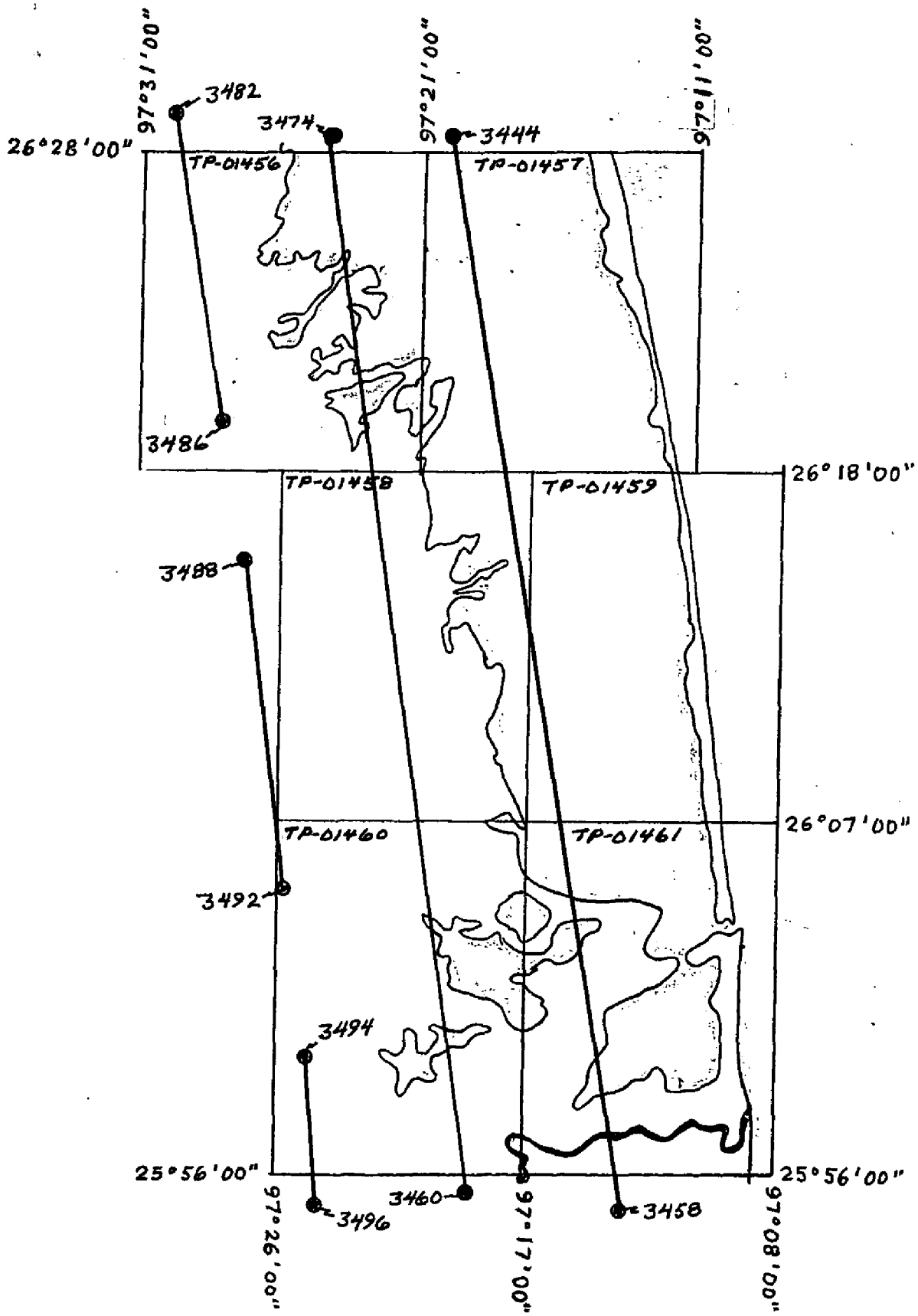
CM-8607
MULLET ISLAND TO RIO GRANDE RIVER
TEXAS

1:50,000 MHW INFRARED PHOTOGRAPHS (87 Z R)



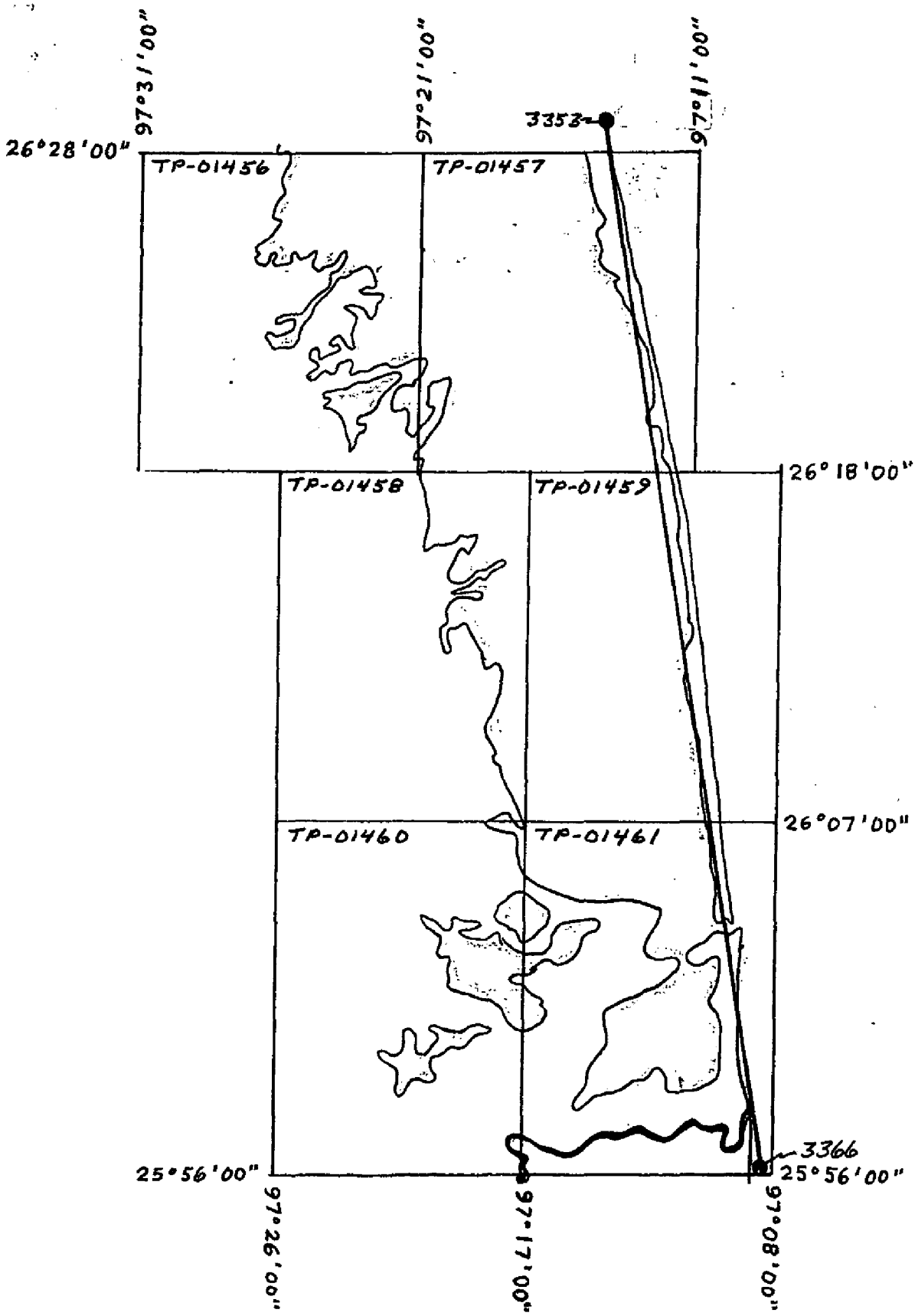
CM-8607
MULLET ISLAND TO RIO GRANDE RIVER
TEXAS

1:50,000 MID-RANGE INFRARED PHOTOGRAPHS (87 ≠ R)



CM-8607
MULLET ISLAND TO RIO GRANDE RIVER
TEXAS

1:50,000 MLLW INFRARED PHOTOGRAPHS (87 ≠ R)



APPENDIX D

PROJECT OFFICE INSTRUCTIONS

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

May 3, 1989

Chief, Photogrammetry Branch
Atlantic Marine Center

PROJECT INSTRUCTIONS: OFFICE - Project CM-8607, Gulf of Mexico, Mullet Island to Rio Grande River, Texas, Shoreline Mapping

1.0. PURPOSE

1.1. These instructions provide basic specifications for the production of data to be used in the nautical charting program. Compilation shall be based on aerotriangulation that has met the requirements of National Standards of Map Accuracy and on an office interpretation of aerial photographs.

1.2. Unless otherwise specified in these instructions, compilation, processing, and dissemination of all data shall be in accordance with the C&GS Topographic Manual, Part II, and applicable amending NOS Photogrammetric Instructions and approved sections of the new Coastal Mapping Program Operations Manual (CMP-OM).

2.0. GENERAL

2.1. Scope. Six 1:20,000-scale maps will be produced; TP-01456 through TP-01461. Coverage will include the outer coast line and the shore areas of the Intracoastal Waterway and adjacent bays. All data collection and processing will be based on NAD 83. Supplemental data sets associated with each map will be prepared for use by charting and hydrographic activities.

2.2. Field Operations. Field work generally consisted of aerial photography, tidal observations, and the recovery, establishment, and identification (premarking) of geodetic control necessary for aerotriangulation. There was no field inspection of the shoreline.

2.3. Photography. General information is indicated below.

Type	Scale	Camera	Date
Color	1:50,000	Wild RC-10 (B)	11/4/87
Color	1:50,000	Wild RC-10 (B)	11/11/87
Color	1:30,000	Wild RC-10 (B)	10/28/87
Color	1:20,000	Wild RC-10 (B)	11/4/87

Infrared (B&W)	1:50,000	Wild RC-10 (Z)	11/11/87
Infrared (B&W)	1:50,000	Wild RC-10 (Z)	11/16/87
Infrared (B&W)	1:50,000	Wild RC-10 (Z)	11/17/87

The photographic coverage was obtained for aerotriangulation and basic mapping. The infrared photography was tide coordinated. Available infrared photographic coverage will be used to develop the approximate MLLW line and complement shoreline delineation.

2.4. Aerotriangulation. Six strips of color photographs were bridged using analytical aerotriangulation methods; four strips of the 1:50,000-scale photography and one strip each of the 1:20,000 and the 1:30,000-scale photography. Primary geodetic control used was premarked; office photoidentified intersection stations provided supplemental control. Elevations from USGS quadrangles were used as vertical control. Common points between strips were established to augment the datum tie. The amount of aerotriangulated control proved adequate and meets National Standards of Map Accuracy and NOS accuracy requirements. Aerotriangulated control is based on NAD 83.

2.5. Charts Affected. Charts 11301 through 11303 depict areas common to this survey. Charts 11302 and 11303 are 1:40,000 scale, chart 11301 is 1:80,000 scale.

2.6. Datums. The horizontal datum requirement is NAD 83. The vertical datums and planes of reference for symbolization are MHW and MLLW. The symbolization of rocks, reefs, ledges, and wrecks shall be referred to MLLW; all other coastal features will be referred to MHW.

2.7. Tide Data. Tide levels at the times of infrared photography will be furnished. Reference data used to determine the tide levels are indicated in an office memorandum (N/CG232:GF, Tide Information, dated 3/19/88), which will also be provided.

2.8. Miscellaneous. The northern portion of this survey will adjoin project CM-8706, which is currently in the production cycle.

3.0. ASSIGNMENT

You are assigned all office operations necessary to effect shoreline mapping and the preparation of the data sets required in support of nautical charting and hydrographic activities.

4.0. DATA FURNISHED

a. Field records
b. Control and project diagrams
c. Tide data

d. Horizontal control data and records
e. Bridged color photographs (film positives)
f. Contact prints (color and infrared)
g. Ratio photographs (infrared)
h. Aerotriangulation Report
i. Computer listings
j. Base manuscripts

5.0. COMPILATION

5.1. Limits. Standard shoreline maps are required. The offshore limit of compilation is directly related to the extension and placement of the photogrammetrically established horizontal control. Compilation of interior features will be generally consistent with the limits indicated under section 5.6.

5.2. Delineation

5.2.1. Delineation will be accomplished using instrument and graphic compilation methods. Shoreline and coastal structures, offshore detail, and interior features shall be based on interpretation of the bridged photographs and delineated using analog and/or analytical stereoplotters. Contact prints of the available MHW infrared photography will be provided to complement the feature interpretation and delineation using bridged photographs. Graphic compilation using enlargement prints of the infrared photographs is required to develop the approximate MLLW line. Compile sufficient coastal detail and/or common image points from the bridged photographs to control graphic compilation.

5.2.2. Where selectivity is required because of density of detail, features that have landmark significance of interest to a mariner are always retained. When features are too small or too numerous to show to scale, no attempt should be made to show all features. Instead, a representative pattern of the symbol or area outline is to be shown, augmented by an explanatory note. Small features (e.g., bare rock, islet), especially when dangerous to navigation, may be slightly exaggerated in size, closely resembling their true shape.

5.2.3. Final manuscripts, based on NAD 83, will depict the Lambert Conformal Conic Projection (full line); NAD 27 offset ticks are required. Refer to Photogrammetry memorandum instruction, "Implementation of the NAD 83 in the Coastal Mapping Program, " dated October 2, 1987.

5.3. Cartographic Comparison. A comparison with the most recently published charts shall be made during all compilation phases. This effort (1) is particularly important to ensure charted open-water features shown as bare or uncovering are investigated and (2) will complement the interpretation of detail

and/or the identification of conflicts. Questionable differences between map detail and the charts shall be noted and reported on map copies prepared in support of charting and hydrography, e.g., Chart Maintenance Print, Notes to Hydrographer Print.

5.4. Geodetic Control. Refer to Photogrammetry memorandum instruction, "Listing and Plotting of Control Stations on Shoreline Manuscripts," dated July 23, 1968, and "Labeling Triangulation Stations Field Positions on NOS Maps and in NOS Descriptive Reports," dated November 3, 1978.

5.5. Navigational Aids

5.5.1. Locate or confirm aerotriangulated and geodetic positions of visible charted landmarks, fixed aids to navigation, and/or cartographic features that have possible landmark value using analytical and/or analog methods.

5.5.2. Refer to Photogrammetric Instruction No. 78 for symbolization and labeling. Map features of possible landmark value are to be symbolized the same as charted landmarks, however, label with upper and lower case letters, e.g., Tank (Possible Landmark).

5.5.3. Prepare a listing of the charted landmarks and/or fixed aids identified. The listing shall also contain features of possible landmark value. The listing shall indicate:

a. Map and project identifier
b. Map scale
c. Feature description
d. Carto code
e. Geographic position
f. NCD quality code
g. Date of photogrammetric source
h. Horizontal datum
i. Nautical chart(s) affected

The assignment of feature codes shall be in compliance with the specifications set forth in section 10 of the CMP-OM. Refer to Nautical Charting Division Standard Digital Data Exchange Format (NCD SDDEF), Version 1 documentation dated April 1, 1985, for clarification of NCD quality codes. Geodetic positions shall be reported to three decimal places; positional data determined using approved photogrammetric methods as described in NCD SDDEF, appendix D, shall be reported to two decimal places.

5.5.4. The medium for reporting information concerning charted navigational aids investigated and not compiled will be the Chart Maintenance Print.

5.6. Roads and Streets. The requirements for the selection of roads outlined in Photogrammetric Instruction No. 56, Revision 1, are modified; the minimum requirement is (1) to show the first road, street, or highway paralleling the shoreline or coastal areas not subject to inundation and (2) all those providing access to the shore area or between this paralleling feature and the shoreline. Requirements for symbolization are outlined in Photogrammetric Instruction No. 56, Amendment 1.

5.7. Railroads. Two parallel tracks spaced less than .5mm apart, as measured on the manuscript, shall be symbolized as a single track. Only the limiting tracks shall be shown for multiple tracks or railroad yards, augmented by a descriptive note.

5.8. Buildings. Buildings coinciding with the shoreline, marine service and port facilities, and buildings on coastal structures are to be shown. These conditions complement the general requirements for the selection of buildings outlined in Photogrammetric Instruction No. 54, Revision No. 2, Provisional.

5.9. Bridges and Cable Crossings. Procedures are outlined in Photogrammetric Instruction No. 27, Revision 1.

5.10. Rocks, Reefs, and Ledges. Symbolization shall be in accordance with the eighth edition (November 1984) of Nautical Chart Symbols and Abbreviations, Chart No. 1, Section O, Dangers. Refer to section 2.6.

5.11. Drafting. Manuscripts will be drafted in accordance with Photogrammetric Instructions No. 55, Revision 2. When drafting small features or related symbols, the minimum length/size shall be 0.7 mm.

5.12. Geographic and Object Names

5.12.1. Requirements for names, including their placement, are outlined in Photogrammetric Instruction No. 63.

5.12.2. Obtain final geographic names list using the procedures outlined in Photogrammetric Instruction No. 63, section 2.03.1, last paragraph.

5.13. Reports. Refer to sections 1.2 and 7.2. Information required for inclusion in the Project Completion Report (PCR) will be provided by N/CG2321. Include in the PCR a detailed discussion of the compilation methods and sources used for feature delineation and a brief statement, when applicable, about the selectivity of detail as indicated in section 5.2.2.

5.14. Chart Maintenance Print. Prepare a stable base copy of each reviewed map and label Chart Maintenance Print. General

requirements are specified in Photogrammetric Instruction No. 69 for completing this print. When preparing this print, keep in mind the objective is to provide comprehensive information about the adequacy, reliability, and completeness of map detail, as well as differences noted between the map and chart(s). Examples are (1) the inability to satisfactorily interpret photographic detail and (2) a difference between the chart(s) and map in the representation of a feature. This effort cannot be emphasized too strongly, because proper evaluation and usage of map detail will depend on this information. Include a statement regarding features not located in section 5.5.4.

5.15. Support Data. Supplemental survey data required to support charting and hydrographic activities are indicated below. Coordinate the processing and distribution of these data with N/CG2321. Refer to sections 2.1, 5.3, 5.5.3, and 5.14.

Types of Data	Distribution
Chart Maintenance Prints Listings of navigational aids	N/CG2211
* Notes to Hydrographer Prints Listings of navigational aids	N/CG241

* These prints will be stable base map copies; the same information that is reported on each of the corresponding Chart Maintenance Prints shall be included.

5.16. Communication. Forward a copy of each transmittal letter to N/CG2314 and N/CG2321. Refer to sections 5.13, 5.15, and 6.0.

6.0. SCHEDULE

Schedule project completion by December 1, 1990. If this schedule cannot be met, inform N/CG2321 immediately.

7.0. MODIFICATIONS OF INSTRUCTIONS

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

7.2. Departures from basic specifications, as necessitated by unique characteristics and special requirements for these mapping projects, shall be contained in supplementary instructions or described in the text of the Job Completion Report; e.g., feature symbolization.

8.0. COSTS

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

9.0. RECEIPT

Acknowledge receipt of these instructions.

Ray E. Moses
Director
Atlantic Marine Center

Christian Andreasen
Chief, Nautical Charting Division
Charting and Geodetic Services

APPENDIX E

MAP COMPILATION SOURCE PAGES

DESCRIPTIVE DATA

CM-8607

TP-01456

MAP SCALE 1:20,000

CHARTS - 411, 11300, 11301, 11303, 11306

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
87B(CN)8221-8226	01-11-87	0956	1:50,000	Diurnal
87B(CN)8245-8247	11-11-87	1012	1:50,000	Diurnal
87B(CN)8249-8250	11-11-87	1012	1:50,000	Diurnal
87B(CN)8257-8258	11-11-87	1025	1:50,000	Diurnal
87Z(R)3469,3471,3473	11-16-87	1326	1:50,000	+0.2 MHW
87Z(R)3483-3485	11-16-87	1339	1:50,000	+0.2 MHW
				MEAN TIDE RANGE = Diurnal

REVIEWER: F. Mauldin DATE: 05/19/89

COMPILATION REMARKS:

All times are referenced to Central Standard Time.

Water level for infrared photography is tide coordinated based on the Port Mansfield gage. Laguna Madre is non-tidal. The water level is subject to meterological condition.

An approximate mean high water line symbol was used in Laguna Madre in areas where there was no clear division between the mud flats and what appeared to be the mean high water line.

DESCRIPTIVE DATA

CM-8607

TP-01457

MAP SCALE 1:20,000

CHARTS - 411, 11300, 11301, 11303, 11306

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
87B(CN)8150-8156	10-28-87	1006	1:30,000	Diurnal
87B(CN)8165-8169	11-04-87	0920	1:20,000	Diurnal
87B(CN)8222-8226	11-04-87	0956	1:50,000	Diurnal
87Z(R)3505,3507	11-17-87	0925	1:50,000	-0.1 ft at MHW
87Z(R)3354,3356	11-11-87	0930	1:50,000	+0.4 ft at MLLW
87Z(R)3445,3447,3449	11-16-87	1312	1:50,000	+0.2 ft at MHW
				MEAN TIDE RANGE = Diurnal

REVIEWER: C. Blood DATE: 05/31/89

COMPILATION REMARKS:

All times are referenced to Central Standard Time.

Water level for infrared photography is tide coordinated based on the Port Mansfield gage for Laguna Madre and South Padre Island for the Gulf Coast.

Laguna Madre is non-tidal. The water level is subject to meterological condition.

An approximate mean high water line symbol was used in Laguna Madre in areas where there was no clear division between the mud flats and what appeared to be the mean high water line.

DESCRIPTIVE DATA

CM-8607

TP-01458

MAP SCALE 1:20,000

CHARTS - 411, 11300, 11301, 11303, 11306

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
87B(CN)8225-8230	11-11-87	0956	1:50,000	Diurnal
87B(CN)8240-8245	11-11-87	1012	1:50,000	Diurnal
87B(R)3465,3467,3469	11-16-87	1326	1:50,000	+0.2 ft at MHW
87Z(R)3487,3489,3491	11-16-87	1339	1:50,000	+0.2 ft at MHW
87Z(R)3449,3451 3453	11-16-87	1312	1:50,000	+0.2 ft at MLLW
				MEAN TIDE RANGE = Diurnal

REVIEWER: C. Blood DATE: 06/08/89

COMPILATION REMARKS:

All times are referenced to Central Standard Time.

Water level for infrared photography is tide coordinated based on the Port Mansfield gage.

Laguna Madre is non-tidal. The water level is subject to meterological condition.

An approximate mean high water line symbol was used in Laguna Madre in areas where there was no clear division between the mud flats and what appeared to be the mean high water line.

DESCRIPTIVE DATA

CM-8607

TP-01459

MAP SCALE 1:20,000

CHARTS - 411, 11300, 11301, 11302, 11303

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
87B(CN)8168-8179	11-04-87	0920	1:20,000	Diurnal
87B(CN)8227-8230	11-11-87	0958	1:50,000	Diurnal
87Z(R)3358,3360,3362	11-11-87	0930	1:50,000	+0.4 MLLW
87Z(R)3509,3511,3513	11-17-87	0925	1:50,000	-0.2 MHW
87Z(R)3449,3451,3453	11-16-87	1312	1:50,000	+0.2 MHW
				MEAN TIDE RANGE = Diurnal

REVIEWER: Fay T. Mauldin DATE: 06/01/89

COMPILATION REMARKS:

All times are referenced to Central Standard Time.

Infrared photography is tide-coordinated and referenced to the gage at South Padre Island for the Gulf Coast and Port Mansfield for Laguna Madre.

An approximate mean high water line symbol was used in Laguna Madre in areas where there was no clear division between the mud flats and what appeared to be the mean high water line.

DESCRIPTIVE DATA

CM-8607

TP-01460

MAP SCALE 1:20,000

CHARTS - 411, 11300, 11301, 11302

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
87B(CN)8199-8202	11-04-87	0954	1:50,000	Diurnal
87B(CN)8238-8240	11-11-87	1012	1:50,000	Diurnal
87Z(R)3461,3463,3465	11-16-87	1326	1:50,000	+0.2 ft at MHW
87Z(R)3493,3495	11-16-87	1340	1:50,000	+0.2 ft at MHW
				MEAN TIDE RANGE = Diurnal

REVIEWER: Fay T. Mauldin DATE: 06/20/89

COMPILATION REMARKS:

All times are referenced to Central Standard Time.

Water level for infrared photography is tide coordinated based on the Port Mansfield gage for Laguna Madre.

An approximate mean high water line symbol was used in Laguna Madre in areas where there was no clear division between the mud flats and what appeared to be the mean high water line.

DESCRIPTIVE DATA

CM-8607

TP-01461

MAP SCALE 1:20,000

CHARTS - 411, 11300, 11301, 11302, 11303

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
87B(CN)8179-8189	11-04-87	0920	1:20,000	Diurnal
87B(CN)8231-8238	11-11-87	1010	1:50,000	Diurnal
87Z(R)3513-3517	11-17-87	0929	1:50,000	-0.2 MHW
87Z(R)3362-3266	11-11-87	0930	1:50,000	+0.4 MLLW
87Z(R)3453-3457	11-16-87	1317	1:50,000	+0.2 MHW
87Z(R)3461-3463	11-16-87	1326	1:50,000	+0.2 MHW
				MEAN TIDE RANGE = Diurnal

REVIEWER: C. Blood DATE: 08/07/89

COMPILATION REMARKS:

All times are referenced to Central Standard Time.

Water level for the infrared photography is tide coordinated based on the Port Mansfield gage for Laguna Madre and the South Padre Island gage for the Gulf Coast.

An approximate mean high water line symbol was used in Laguna Madre in areas where there was no clear division between the mud flats and what appeared to be the mean high water line.

APPENDIX F

APPROVED GEOGRAPHIC NAMES

GEOGRAPHIC NAMES
FINAL NAME SHEET
CM-8607 (Mullet Island to Rio Grande River, Texas)
TP-01456

Arroyo City
Atascoso, Cayo
Colorado, Arroyo
Colorado Cutoff, Arroyo
Goose Island
Hawk Island
Josephine Island
Madre, Laguna
McGilvery Island
Mud Island
Mullet Island
North Point
Pintail Pond
Red Head Cove
Worth Point

Approved:

Charles E. Harrington

Charles E. Harrington
Chief Geographer
Nautical Charting Division
Charting and Geodetic Services

AUG 22 1989

GEOGRAPHIC NAMES
FINAL NAME SHEET
CM-8607 (Mullet Island to Rio Grande River, Texas)
TP-01457

Colorado Cutoff, Arroyo
Colorado Island
Deer Island
El Morro Island
Green Island
Heron Island
Horse Island
La Punta Larga
Los Tanques
Madre, Laguna
Mexico, Gulf of
Padre Island
Rattlesnake Island
Red Head Bluff
Yucca Island

Approved:

Charles E. Harrington

Charles E. Harrington
Chief Geographer
Nautical Charting Division
Charting and Geodetic Services

AUG 22 1989

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GEOGRAPHIC NAMES
FINAL NAME SHEET
CM-8607 (Mullet Island to Rio Grande River, Texas)
TP-01458

Atascosa, Laguna
Atascoso, Cayo
Barclay Island
Bayview
Caballo Island
Coyote Point
El Realito Bay
El Realito Peninsula
Gabrielson Island
Gatlin Point
Grulla, Loma de la
Holly Beach
Laguna de los Patos
Laguna Vista Cove
Madre, Laguna
Medio Island
Moranco Blanco
Needle Island
Port Isabel - Cameron County Airport
Port of Isabel Reservoir, City of
Primero Island
Red Head Bluff
Resaca de los Cuates
Rincon de Guajardo
Stover Cove
Stover Point
Three Islands
Townsite Point
Ultimo Island

Approved:

Charles E. Harrington

Charles E. Harrington
Chief Geographer
Nautical Charting Division
Charting and Geodetic Services

GEOGRAPHIC NAMES
FINAL NAME SHEET
CM-8607 (Mullet Island to Rio Grande River, Texas)
TP-01459

Madre, Laguna
Mexico, Gulf of
Padre Island
Primero Island
South Padre Island (locale)

Approved:

Charles E. Harrington

Charles E. Harrington
Chief Geographer
Nautical Charting Division
Charting and Geodetic Services

GEOGRAPHIC NAMES
FINAL NAME SHEET
CM-8607 (Mullet Island to Rio Grande River, Texas)
TP-01460

Bird Island
Brownsville Fishing Harbor
Brownsville Ship Channel
Carretas Crossing
Cenizal, Loma del
El Tular
Goose Island
Goose Island Passing Basin
Grande, Bahia
Jauja, Loma de la
La Arravegada
La Aura Crossing
La Escalera
Laguna Vista (locale)
Larga, Laguna
Lobos, Loma de los
Long Ridge
Madre, Laguna
Madriguera, Loma de la
Missouri Pacific (RR)
Port Brownsville
Port of Isabel Reservoir, City of
Puerta de Trancas
Punta de las Bahias
Redhead Ridge
Rincon Largo
Rio Grande
San Martin Lake
Yeguas, Loma de las

Approved:

Charles E. Harrington

Charles E. Harrington
Chief Geographer
Nautical Charting Division
Charting and Geodetic Services

GEOGRAPHIC NAMES
FINAL NAME SHEET
CM-8607 (Mullet Island to Rio Grande River, Texas)
TP-01461

Alejos, Loma Tio
Ballo, Loma del
Banderita, Loma de la
Boca Chica Bay
Boca Chica Beach
Boca Chica Passing Basin
Brazos Island
Brazos Santiago Pass
Brownsville Ship Channel
Burro, Loma del
Clark Island
Corvinas, Paso
Cuchilla, Loma la
Cut Off Channel
Del Mar
Del Mar Beach
Divisadero, Loma del
Draga, Loma de la
Ebanitos, Loma de los
Estrella, Loma de la
Gachupines, Loma de las
Gato, Loma del
Gavilan, Mesa del
Grande, Bahia
Islote, Loma del
Laguna Heights
Laguna Madre Channel
Larga, Laguna
Long Island
Los Montes
Lena Seca, Loma de la
Macho, Loma del
Madre, Laguna
Mesquite, Loma del
Mexico
Mexico, Gulf of
Ochoa, Loma
Padre Island
Palangana, Loma de la
Pelona, Loma
Pita, Loma de la

Plata, Loma
Port Isabel
Port Isabel Channel
Port Isabel Side Channel
Port isabel Turning Basin
Potrero Cercado, Loma del
Rincon Chiquito, Loma del
Rio Grande
Rio Grande, Mouth of
Roque, Posta de
Silvan, Loma
South Bay
South Bay Pass
South Padre Island (locale)
Tarpon Bend
Tequios, Loma de las
Tules, Loma Tia
United States
Vacas, Loma de las
Vadia Ancha
Verdolaga, Lake

Approved:

Charles E. Harrington

Charles E. Harrington
Chief Geographer
Nautical Charting Division
Charting and Geodetic Services

APPENDIX G

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

COASTAL MAPPING PROJECT: CM-8607, MULLET ISLAND TO RIO GRANDE RIVER, TEXAS

NOS CHARTS AFFECTED: 411, 11300, 11301, 11303, 11306

GEODETIC DATUM: NAD 1983

The following charted cartographic features and newly identified cartographic features of possible landmark value have been identified and measured during photogrammetric operations. Refer to Nautical Charting Division Standard Digital Data Exchange Format documentation for quality code (QC) criteria and clarification of cartographic codes (CC). Please note that cartographic code 993 is a photogrammetric source code for cartographic features of possible landmark value.

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION (°-'-") LATITUDE	LONGITUDE	NCD Q.C.	DATE OF LOCATION
ARROVO COLORADO CUTOFF CHANNEL					
LIGHT 10	200	26 21 32.70	97 20 47.20	7	308/1987
LIGHT 34	200	26 20 34.20	97 25 42.90	7	315/1987
LIGHT 45	200	26 19 28.10	97 26 48.00	7	315/1987
LIGHT 54	200	26 19 55.60	97 27 58.00	7	315/1987
LIGHT 67	200	26 20 08.70	97 29 40.76	4	315/1987
LIGHT 73	200	26 19 36.90	97 30 47.60	7	315/1987
CORPUS CHRISTI-PORT ISABEL HARLINGEN-PORT ISABEL					
LIGHT 4	200	26 21 20.427	97 19 23.572	4	308/1987
LIGHT 9	200	26 20 28.60	97 18 55.10	7	308/1987
LIGHT 17	200	26 19 40.50	97 18 34.80	7	308/1987
LIGHT 25	200	26 18 46.30	97 18 10.20	7	308/1987
LIGHT 33	200	26 17 50.60	97 17 45.30	7	315/1987
LIGHT 41	200	26 16 55.58	97 17 20.52	4	315/1987
LIGHT 49	200	26 15 58.80	97 17 00.30	7	315/1987
LIGHT 154	200	26 03 38.90	97 12.39.60	7	308/1987
CORPUS CHRISTI-PORT ISABEL					
LIGHT 316	200	26 24 51.50	97 20 58.30	7	308/1987
LIGHT 321	200	26 23 29.90	97 20 18.30	7	308/1987
BROWNSVILLE CHANNEL					
LIGHT 30	200	26 02 22.829	97 12 43.080	4	315/1987
LIGHT 32	200	26 01 54.074	97 13 39.193	4	315/1987
LIGHT 33	200	26 01 22.567	97 14 35.165	4	315/1987
LIGHT 35	200	26 00 56.382	97 15 27.494	4	315/1987
LIGHT 36	200	25 59 55.60	97 17 26.50	7	308/1987

* The 1989 Light List shows the position to vary from these listed positions.

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION (-'-") LATITUDE	LONGITUDE	NCD Q.C.	DATE OF LOCATION
LIGHT 37	200	25 59 50.54	97 17 23.39	4	308/1987
LIGHT 38	200	25 59 23.40	97 18 24.10	7	308/1987
LIGHT 42	200	25 58 25.70	97 20 21.40	7	308/1987
LIGHT 43	200	25 58 14.40	97 20 36.50	7	308/1987
RANGE D FRONT LIGHT	208	25 58 28.55	97 19 56.79	4	308/1987
RANGE D REAR LIGHT	209	25 58 04.01	97 20 40.52	4	308/1987
RANGE E FRONT LIGHT	208	26 01 27.596	97 14.37.266	4	315/1987
RANGE E REAR LIGHT	209	26 01 52.64	97 13 52.50	7	315/1987
RANGE A FRONT LIGHT	208	26 01 51.046	97 13 32.164	4	315/1987
RANGE A REAR LIGHT	209	26 01 24.562	97 14 16.010	4	315/1987
RANGE C FRONT LIGHT	208	26 02 16.842	97 12 43.394	4	315/1987
RANGE C REAR LIGHT	209	26 02 37.76	97 11 57.84	7	315/1987
RANGE B FRONT LIGHT	208	26 00 52.703	97 15 45.806	4	315/1987
RANGE B REAR LIGHT	209	26 00 28.155	97 16 39.170	4	315/1987
RANGE G REAR LIGHT	209	25 59 02.00	97 18 30.90	7	308/1987
BROWNSVILLE CHANNEL OBSTRUCTION LIGHT	200	25 57 34.42	97 22 53.00	4	308/1987
PORT ISABEL - SMALL BOAT HARBOR CHANNEL LIGHT 10	200	26 04 59.33	97 13 06.26	7	308/1987
SMALL BOAT HARBOR CHANNEL LIGHT 2	200	26 05 23.40	97 12 13.10	7	315/1987
LIGHT	200	26 04 39.97	97 12 27.02	7	308/1987
LIGHT 6	200	26 03 11.544	97 12 34.040	4	308/1987
WEST JUNCTION CHANNEL LT 3	200	26 02 53.410	97 12 30.671	4	308/1987
EAST JUNCTION CHANNEL LT 2	200	26 02.50.536	97 12 05.707	4	308/1987
EAST JUNCTION CHANNEL LT 4	200	26 02 56 334	97 12 23.379	4	308/1987
* BRAZOS SANTIAGO PASS LIGHT	200	26 04 24.196	97 09 52.017	4	308/1987
ENTRANCE RANGE FRONT LIGHT	208	26 03 56.856	97 10 26.296	4	308/1987
ENTRANCE RANGE REAR LIGHT	209	26 03 56.558	97 11 02.479	4	308/1987
LAGUNA MADRE CHANNEL ENTRANCE NORTH SIDE DREDGING RANGE FRONT DAYBEACON	221	26 03 58.474	97 10 18.057	4	308/1987
ENTRANCE NORTH SIDE DREDGING RANGE REAR DAYBEACON	222	26 03 58.219	97 10 45.685	4	308/1987
ENTRANCE SOUTH SIDE DREDGING RANGE FRONT DAYBEACON	221	26 03 55.508	97 10 18.055	4	308/1987
ENTRANCE SOUTH SIDE DREDGING RANGE REAR DAYBEACON	222	26 03 55.254	97 10 45.554	4	308/1987

* Position is identical Marine Radio Beacon.

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION (-'-") LATITUDE	LONGITUDE	NCD Q.C.	DATE OF LOCATION
RANGE FRONT LIGHT	208	26 04 05.358	97 09 48.904	4	308/1987
RANGE REAR LIGHT	209	26 04 18.81	97 09 26.67	7	308/1987
LIGHT 9	200	26 03 42.92	97 10 20.57	7	308/1987
LIGHT 16	200	26 03 31.06	97 10 52.52	7	308/1987
LIGHT 27	200	26 02 55.188	97 11 39.176	4	315/1987
TANK	086	26 19 51.64	97 26 26.89	4	315/1987
TANK	086	26 09 28.97	97 20 22.67	4	315/1987
TANK	086	26 08 17.32	97 10 23.83	4	308/1987
TANK	020	25 56 50.570	97 24 17.095	3	308/1987
TANK	086	25 57 18.75	97 22 55.76	4	308/1987
TANK	086	25 57 48.45	97 22 34.22	7	308/1987
TANK	086	25 58 02.44	97 22 40.26	7	308/1987
TANK	086	26 05 49.73	97 17 16.99	4	308/1987
TANK	086	26 04 12.341	97 13 07.885	4	308/1987
TANK	993	26 07 28.32	97 23 59.62	4	315/1987
RADIO TOWER	993	26 08 06.90	97 20 59.20	7	315/1987
TANK	993	26 06 44.855	97 10 12.867	4	308/1987
* MARINE RADIO BEACON	210	26 04 24.196	97 09 52.017	4	308/1987

* Position is identical Brazos Santiago Pass Lt.

Listing approved by: Lowell O. Watson — FINAL REVIEWER

Oct 5, 1990 — DATE

APPENDIX H

MEMORANDUM

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

March 16, 1988 N/CG2313:JDM

MEMORANDUM FOR: The Record

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

SUBJECT: Review and wrap-up Job CM-8607, Gulf of Mexico and Intracoastal Waterway, Mullet Island to Rio Grande River, Texas

This coastal mapping project was scheduled for fall 1987. The Atlantic Marine Center (AMC) photo field party set the photo panels for the project after setting the panels for the project directly to the north CM-8706, Cuba Island to Mullet Island. This is the third and final project to map the Gulf Coast and the Intracoastal waterway from Corpus Christi Bay to the Rio Grande River. The panels were to be in place immediately upon completion of Job CM-8706, if the time and weather permitted as stipulated in the PROJECT INSTRUCTIONS - FIELD dated October 2, 1987.

This project was planned in support of a scheduled Hydrographic Survey, OPR - K220. Two shoreline maps in the are are shortly required for that survey.

Fifteen horizontal control stations were paneled for this project. Two stations on the north end of the project were in common with the adjacent project. One photo panel that was not requested but left down from the adjacent project. The panel was not pulled earlier, as the access was hindered due to a mired road. This station is SKIN 2, 1939, which is just north of Hawk Island, it is visible on the photography. The outer barrier island was targeted with 1:30,000 and 1:20,000 scale targets for the bridging photography. This island is quite narrow and gets progressively more narrow as it approaches the end of South Padre Island. It would be impossible to bridge at a smaller scale. The remaining stations on the mainland were targeted with 1:50,000 scale panels.

The bridging photography was secured on October 28, November 11 and 12, 1987. The review of the bridging photography for the identification of the panels was hindered by inadequate detail on the quads which did not reflect the current

depiction of the area. The field party personnel, however, helped greatly by talking us to their location by phone. The bridging photography has some cloud shadows and some modeling effect on some lines. It is suitable for aerotriangulation and compilation.

The project required two tide station to be occupied to secure the tide-coordinated black and white infrared (B&W IR) photography. The outside line (ocean) was to be coordinated on the tide station at the Jetty on South Padre Island. The staff was observed during the MLLW and the first MHW flight. The staff did not appear to be observed, during a reflight of the MHW on November 17, 1987. The Hourly Tide Heights from the processed recording gage checked to be in acceptable range. Three lines of Mean Water Level B&W IR were required on the inside (bay) staff at Port Mansfield. Laguna Madre is considered non-tidal due to the small range of tide (.23 foot) in this area. The staff at Port Mansfield was not occupied for these lines. The review of the Hourly Tide Heights from the recording gage indicated that the photography was taken within the acceptable range.

The 1:30,000 scale color negative compilation photography was secured over the mainland. The sidelap was quite thin due to the lack of suitable cultural features for good navigation. It should be suitable for the mapping requirements.

The data set for this shoreline mapping project will consist of the following data: the color bridging photography, the color compilation photography, the B&W IR photography at MHW and MLLW and at Mean Water Level, the project field report, the tide records from the field, the tide data from the Marine Boundary and Tidal Datums Unit, and the NAD 27 offset data which will be requested from NGS.

cc:
N/CG23 - Bryson
N/CG231 - Brewer
N/CG232 - Raborn
N/CG2321 - Fromm
N/CG2313 - McNamara
N/CG2322 - Norman
N/MOA22 - North