

TP-00364

TP-00364

NOAA FORM 76-35
(6-80)U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

Map No.

TP-00364

Edition No.

1

Job No.

CM-7806

Map Classification

CLASS III (FINAL)

Type of Survey

SHORELINE

LOCALITY

State

MICHIGAN

General Locality

ST. MARYS RIVER

Locality

MISSION POINT

1982 TO 19

REGISTERED IN ARCHIVES

DATE

| | | | |
|---|--|--|--|
| NOAA FORM 76-36A (3-72) | | U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN. | |
| DESCRIPTIVE REPORT - DATA RECORD | | TYPE OF SURVEY <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED | |
| PHOTOGRAMMETRIC OFFICE Coastal Mapping Unit, Atlantic Marine Center, Norfolk, VA | | SURVEY TP. <u>00364</u> MAP EDITION NO. <u>(1)</u> MAP CLASS <u>III (FINAL)</u> JOB <u>CM-7806</u> | |
| OFFICER-IN-CHARGE A. Y. Bryson, CDR | | LAST PRECEDING MAP EDITION TYPE OF SURVEY <input type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED | |
| JOB PH. _____ MAP CLASS _____ SURVEY DATES: 19__ TO 19__ | | | |
| I. INSTRUCTIONS DATED | | | |
| 1. OFFICE | | 2. FIELD | |
| Aerotriangulation June 24, 1983 Compilation (OFFICE) Sept. 12, 1983 | | Horizontal Control June 4, 1982 (Photoidentification) | |
| II. DATUMS | | | |
| 1. HORIZONTAL: <input checked="" type="checkbox"/> 1927 NORTH-AMERICAN | | OTHER (Specify) | |
| 2. VERTICAL: <input type="checkbox"/> MEAN HIGH-WATER <input type="checkbox"/> MEAN LOW-WATER <input type="checkbox"/> MEAN LOWER LOW-WATER <input type="checkbox"/> MEAN SEA LEVEL | | OTHER (Specify) International Great Lakes Datum (1955) | |
| 3. MAP PROJECTION Transverse Mercator Projection | | 4. GRID(S) STATE: Michigan ZONE: East | |
| 5. SCALE 1:10,000 | | STATE: ZONE: | |
| III. HISTORY OF OFFICE OPERATIONS | | | |
| OPERATIONS | | NAME | DATE |
| 1. AEROTRIANGULATION BY METHOD: <u>Analytic</u> LANDMARKS AND AIDS BY | | <u>R. Johanson</u> | <u>Aug. 1983</u> |
| 2. CONTROL AND BRIDGE POINTS PLOTTED BY METHOD: <u>Coradomat</u> CHECKED BY | | <u>R. Johanson</u> | <u>Aug. 1983</u> |
| 3. STEREOSCOPIC INSTRUMENT PLANIMETRY BY COMPILATION CHECKED BY INSTRUMENT: <u>Wild B-8</u> CONTOURS BY SCALE: <u>1:10,000</u> CHECKED BY | | <u>R. Kravitz</u> <u>W. McLemore</u> <u>N.A.</u> <u>N.A.</u> | <u>Oct. 1983</u> <u>Oct. 1983</u> |
| 4. MANUSCRIPT DELINEATION PLANIMETRY BY METHOD: <u>Smooth Drafted</u> CHECKED BY SCALE: <u>1:10,000</u> HYDRO SUPPORT DATA BY CHECKED BY | | <u>R. Kravitz</u> <u>W. McLemore</u> <u>N.A.</u> <u>N.A.</u> <u>R. Kravitz</u> <u>W. McLemore</u> | <u>Nov. 1983</u> <u>Dec. 1983</u> <u>Nov. 1983</u> <u>Dec. 1983</u> |
| 5. OFFICE INSPECTION PRIOR TO FINAL REVIEW FINAL REVIEW BY | | <u>W. McLemore</u> | <u>Dec. 1983</u> |
| 6. APPLICATION OF FIELD EDIT DATA BY | | <u>N.A.</u> | |
| 7. COMPILATION SECTION REVIEW CHECKED BY | | <u>N.A.</u> | |
| 8. FINAL REVIEW CLASS III BY | | <u>W. McLemore</u> | <u>Dec. 1983</u> |
| 9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY | | <u>J. Hancock</u> | <u>Feb. 1984</u> |
| 10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY | | <u>J. Hancock</u> | <u>Mar. 1984</u> |
| 11. MAP REGISTERED - COASTAL SURVEY SECTION BY | | <u>Robert Kelly</u> | <u>March 1984</u> |
| | | <u>E. DAUGHERTY</u> | <u>Nov. 1984</u> |

NOAA FORM 76-36B
(3-72)CM-7806
TP-00364
COMPILATION SOURCESU. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY**1. COMPILATION PHOTOGRAPHY**

| | | | | | |
|---|--------------|---|----------|------------------|--|
| CAMERA(S) Wild RC-10(Z) (Z=153.15mm) | | TYPES OF PHOTOGRAPHY LEGEND | | TIME REFERENCE | |
| TIDE STAGE REFERENCE <input type="checkbox"/> PREDICTED TIDES <input checked="" type="checkbox"/> REFERENCE STATION RECORDS <input type="checkbox"/> TIDE CONTROLLED PHOTOGRAPHY | | (C) COLOR (P) PANCHROMATIC (I) INFRARED | | ZONE Eastern | <input checked="" type="checkbox"/> STANDARD |
| | | | | MERIDIAN 75th | <input type="checkbox"/> DAYLIGHT |
| NUMBER AND TYPE | DATE | TIME | SCALE | STAGE OF TIDE | |
| 82 Z(C) 3257 - 3259 | June 2, 1982 | 14:35 | 1:30,000 | 579.1 ft. | |
| 82 Z(C) 3322 - 3323 | June 2, 1982 | 16:04 | 1:30,000 | 579.1 ft. | |

REMARKS *Water levels at the time of photography are indicated as they were recorded from the U.S. Slip, Michigan gage.

2. SOURCE OF MEAN HIGH-WATER LINE:

The term "Mean High Water Line" is not applicable. The shoreline is defined as the visible line of contact on the photographs between land and water. Delineation of the shoreline was derived by photo interpretation of the above listed color compilation/bridging photographs.

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

This item is not applicable to the project.

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 1:20,000 TP-00206 | EAST 1:20,000 TP-00206 | SOUTH 1:20,000 TP-00206 | WEST 1:10,000 TP-00363 |
|----------------------------|---------------------------|----------------------------|---------------------------|

REMARKS This 1:10,000 scale inset map lies within the limits of TP-00206; there is no detail junction to the north with TP-00206.

NOAA FORM 76-36C
(3-72)

CM-7806

TP-00364

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

HISTORY OF FIELD OPERATIONS

I. ☒ FIELD MARKING OPERATION (PHOTOIDENTIFICATION) ☐ FIELD EDIT OPERATION.

| OPERATION | NAME | DATE |
|-------------------------------------|---|------------|
| 1. CHIEF OF FIELD PARTY | J. Dunford | Sept. 1982 |
| 2. HORIZONTAL CONTROL | RECOVERED BY N.A. ESTABLISHED BY N.A. PRE-MARKED OR IDENTIFIED BY N.A. | |
| 3. VERTICAL CONTROL | RECOVERED BY N.A. ESTABLISHED BY N.A. PRE-MARKED OR IDENTIFIED BY N.A. | |
| 4. LANDMARKS AND AIDS TO NAVIGATION | RECOVERED (Triangulation Stations) BY N.A. LOCATED (Field Methods) BY N.A. IDENTIFIED BY N.A. | |
| 5. GEOGRAPHIC NAMES INVESTIGATION | TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY BY <input checked="" type="checkbox"/> NO INVESTIGATION | |
| 6. PHOTO INSPECTION | CLARIFICATION OF DETAILS BY N.A. | |
| 7. BOUNDARIES AND LIMITS | SURVEYED OR IDENTIFIED BY N.A. | |

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

None identified on this map

2. VERTICAL CONTROL IDENTIFIED

N.A.

| PHOTO NUMBER | STATION NAME | PHOTO NUMBER | STATION DESIGNATION |
|--------------|--------------|--------------|---------------------|
| | | | |

3. PHOTO NUMBERS (Clarification of details)

N.A.

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

N.A.

| PHOTO NUMBER | OBJECT NAME | PHOTO NUMBER | OBJECT NAME |
|--------------|-------------|--------------|-------------|
| | | | |

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

N.A.

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

Project Field Report

RECORD OF SURVEY USE

TP-00364

I. MANUSCRIPT COPIES

| COMPILATION STAGES | | | DATE MANUSCRIPT FORWARDED | |
|--------------------|-----------|---------------------|---------------------------|---------------|
| DATA COMPILED | DATE | REMARKS | MARINE CHARTS | HYDRO SUPPORT |
| Final reviewed map | Feb. 1984 | Final Class III map | 3/22/84 | 3/23/84 |
| | | | | |
| | | | | |
| | | | | |

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

| NUMBER pages | CHART LETTER NUMBER ASSIGNED | DATE FORWARDED | REMARKS |
|-----------------|---------------------------------|-------------------|-----------------|
| 4 | | 3/22/84 | NOAA form 76-40 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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

III. FEDERAL RECORDS CENTER DATA

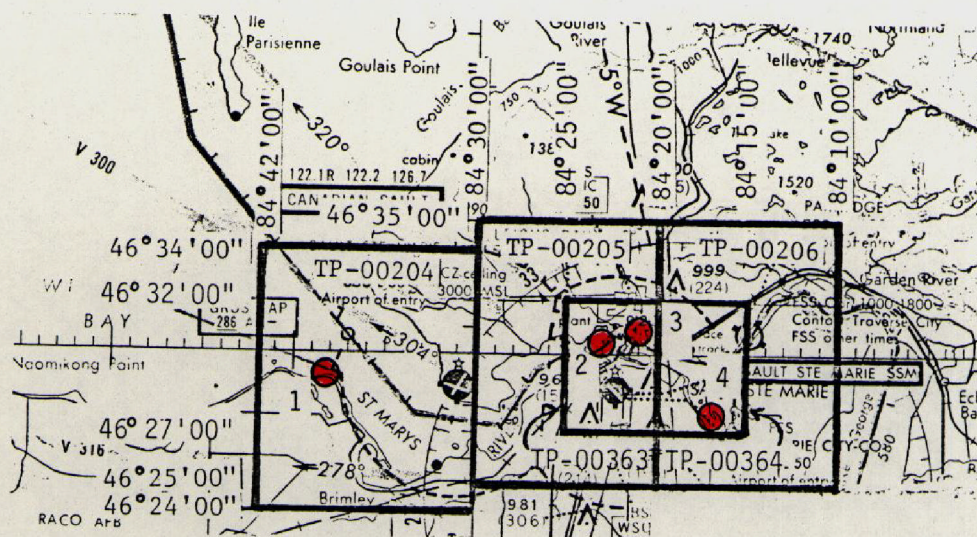
1. ☐ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.
 2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☐ FORM NOS 567 SUBMITTED BY FIELD PARTIES.
 3. ☒ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C.
 ACCOUNT FOR EXCEPTIONS: The original field report will be archived under CM-8412

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-7806
 SAINT MARYS RIVER
 MICHIGAN
 SHORELINE MAPPING
 SCALE 1:10,000
 1:20,000



Joins Job CM-8412

Revised 8-30-83

The following
 TP-sheets are
 cancelled:

TP-00207
 TP-00358
 TP-00359

Revised 3-12-84

The following
 TP-sheets are
 assigned to Job CM-8412:

TP-00353 TP-00356
 TP-00354 TP-00360
 TP-00357
 TP-00361
 TP-00431

● = Tide Level Gage

- 1 - Point Iroquois
- 2 - S.W. Pier, Sault Ste. Marie
- 3 - U.S. Slip, Sault Ste. Marie
- 4 - Frechette Point

SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORT

TP-00364

This 1:10,000 scale final class III inset map portrays a portion of the St. Marys River which forms the outlet for Lake Superior and flows into Lake Huron. This inset map lies within the limits of TP-00206 and depicts a larger scale portrayal of the river just below St. Marys Falls and the junction at Sugar Island.

The purpose of this map is to provide current charting formation for nautical chart maintenance and to furnish shoreline support data for hydrographic survey operations.

Photo coverage was adequately provided by 1:30,000 scale natural color photography taken in June 1982 with the RC 10(Z) camera. At the time of photography, a water level reading of 579.1 feet was recorded at the permanent gage located at the U.S. Slip, Michigan. This established the shoreline datum for the map based on the 1955 International Great Lakes Datum.

Filed work prior to compilation was accomplished in September 1982. This involved the recovery, establishment and photoidentification of horizontal control necessary for aerotriangulation. There was no field inspection performed.

Analytic aerotriangulation was adequately provided by the Washington Science Center. Aerotriangulation activity also included ruling the base manuscript and determining ratio values for the photographs.

Compilation was performed by the Coastal Mapping Unit at the Atlantic Marine Center in December 1983. Delineation of map detail was accomplished using stereo instrument methods based upon interpretation of the mapping photographs. Since no additional field activity was scheduled, the map and accompanying descriptive report were prepared for final review.

Final review was performed at the Atlantic Marine Center in February 1984. A "Chart Maintenance Print" was prepared and forwarded to the Marine Chart Branch. Also, a "Notes to Hydrographer" print was prepared for the proposed hydrographic activity. During final review, it became apparent that various charted landmarks and fixed navigational aids, common to this map, had been recently tied to the N.G.S. horizontal network. Information concerning the status and availability of these features was relayed via the aforementioned prints.

This Descriptive Report contains all pertinent information used to compile this Final Class III Map. The original base manuscript and all pertinent data were forwarded to the Washington Science Center for final registration.

FIELD INSPECTION

TP-00364

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

CM-7806, St. Marys River, Michigan

Shoreline Mapping

Work on this project was completed in accordance with Project Instructions dated June 4, 1982.

Thirteen (13) horizontal control stations were photoidentified on this project.

The original project diagram called for twelve (12) station sites. Station Number 12 was extremely difficult to reach by truck or boat so stations were located North and South of the original requirements.

Horizontal control for this area consists of N.G.S. Data, International Boundary Control Data, Lake Survey Data, and control established by the Canadian Hydrographic Service (CHS). All of the control is 1927 NAD. Two (2) control stations on this project were near horizontal control stations established by the CHS. This party ran traverses from IBC stations to the CHS stations. A discrepancy of about seven meters was observed between REF MON 22 (IBC) and Canadian Survey Monument 9606 (BEAR).

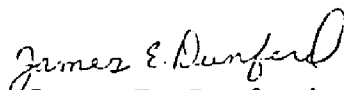
A discrepancy of about three meters was found between REF MON 2 (IBC) and Canadian Survey Control Station M-29-MI-77.

This office will check into this matter and attempt to discover a possible solution to the differences.

All control on this project is based on either published IBC control or published NGS control. If a problem with the aerotriangulation occurs it is recommended that CAM 513 be contacted to discuss the problem.

Field work on this project was accomplished during the period September 7, 1982 to September 24, 1982.

Submitted by:


James E. Dunford, Jr.

9

PHOTOGRAMMETRIC PLOT REPORT
SAINT MARYS RIVER, MICHIGAN
CM-7806

FEBRUARY 1984

21. AREA COVERED

This report pertains to five sheets, two 1:10,000 (TP-00364 and TP-00363), three 1:20,000 scale sheets (TP-00204 to TP-00206). The 1:10,000 scale sheets covered the shoreline of Sault Ste. Marie. The 1:20,000 covered the shoreline from White Fish Bay to Little Lake George and Lake Nicolet.

22. METHOD

Four strips were bridged by analytical aerotriangulation methods. All four strips were bridged on the NOSAP. Field identified control and tie points were used for the strip adjustment. Ratio values were determined for both the 1:50,000 and 1:30,000 scale color photography. State Plane Coordinates in the Michigan East Zone were used for the strip adjustments and for plotting on the Coradomat.

23. ADEQUACY OF CONTROL

The control was adequate for the job and was within the National Standards of Map Accuracy.

24. SUPPLEMENTAL DATA

USGS quadrangles were used to provide vertical control for the strip adjustments.

25. PHOTOGRAPHY

This project originally contained 13, 1:20,000 and 2, 1:10,000 manuscripts. Three of the 1:20,000 manuscripts were deleted because of incomplete photo coverage. The remaining seven manuscripts south of latitude 46°25'00" were dropped from the project because of unsatisfactory results with the aerotriangulation of the two main strips in the area. This unit believes the problem may be due to the photography of the RC-10 "C" camera. See the attached memo to Lawrence Fritz, dated October 19, 1983.

October 19, 1983

N/CG2322

TO: N/CG23 - Lawrence W. Fritz
 FROM: N/CG2322 - Don Norman
 SUBJECT: St. Marys River, Michigan
 CM-7806

The following results have appeared in the adjustment of strips during the aerotriangulation of project CM-7806:

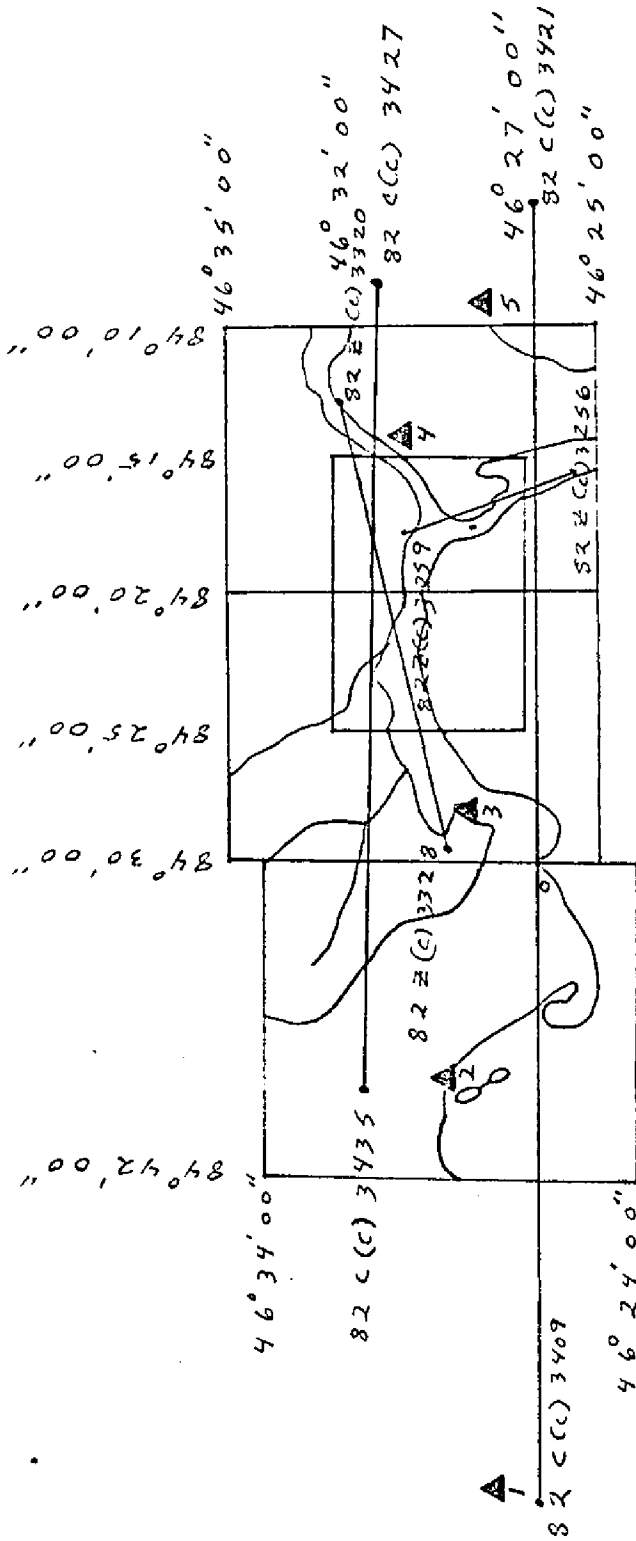
- a. The positions of tie points between overlapping strips differ excessively (14 feet). Visual inspection of the points on the P.U.G. does not reflect this difference.
- b. The positions of "perfect" images that are measured on two strips differ excessively.
- c. The adjustment of four horizontal control stations with a second degree polynomial shows a lack of fit to the control of 10 feet. This is much larger than we have experienced in the past (with good photography).
- d. The positions of companion subpoints differ excessively in their fit to control.
- e. The fiducial analysis shows an excessive lack of fit of the fiducials of the film positives and the original negatives to the flash plates.

I do not believe any landmarks or aids to navigation should be positioned with this photography. I also have considerable reservations about using this photography for mapping.

N/CG2322:DNORMAN:443-8210:apk
 10/19/83

FILE COPY

| CODE | SURNAME | DATE | CODE | SURNAME | DA |
|------|---------|------|------|---------|----|
| | | | | | |
| | | | | | |
| | | | | | |



SAINT MARYS RIVER, MICHIGAN

CM-7806

BRIDGING PHOTOGRAPHY

82 C(C) & 82 Z(C)

1:30,000 & 1:50,000

SAINT MARYS RIVER, MICHIGAN
CM-7806

FIT TO CONTROL
X AND Y IN FEET

| NAME | POINT NO. | X | Y |
|--|-----------|-------|-------|
| <u>STRIP 1</u> | | | |
| 5. Whipple, 1944 | | | |
| △ Sub Pt A | 427101 | 0.08 | 2.60 |
| △ Sub Pt B | 427102 | -0.95 | -1.27 |
| 4 Cass 1943 | | | |
| △ Sub Pt A | 429101 | 0.99 | -1.05 |
| △ Sub Pt B | 429102 | 1.21 | 0.61 |
| 3 Pine IBC 1943 | | | |
| △ Sub Pt A | 432101 | -2.05 | 0.70 |
| Sub Pt B | 432102 | -7.57 | 3.09 |
| 2 Point Iroquois Lighthouse 1943 | | | |
| △ Sub Pt A | 435100 | 1.42 | 2.01 |
| △ Sub Pt B | 435101 | -0.33 | -1.68 |
| △ Sub Pt B | 435102 | -0.38 | -0.69 |
| <u>STRIP 2</u> | | | |
| 1 McNearney RM 1 1965 | | | |
| △ Sub Pt A | 409101 | -4.63 | 8.03 |
| Sub Pt B | 409102 | -0.84 | 0.49 |
| 2 Point Iroquois Lighthouse 1943 | | | |
| △ Sub Pt A | 435100 | 0.81 | 0.04 |
| △ Sub Pt B | 435101 | 2.15 | -2.92 |
| Sub Pt B | 435102 | 4.59 | -4.97 |
| 3 Pines IBC 1943 | | | |
| △ Sub Pt A | 432101 | -1.21 | 0.58 |
| Sub Pt B | 432102 | -5.44 | -3.88 |
| 5 Whipple 1944 | | | |
| △ Sub Pt A | 427101 | -2.17 | 2.58 |
| △ Sub Pt B | 427102 | 2.74 | -3.12 |
| Point Aux Pins Rear Range Lt. Ontario 1943 | | | |
| △ | 416150 | -3.14 | 1.01 |
| Point Aux Pins Front Range Lt Ontario 1943 | | | |
| △ | 416151 | 1.68 | 1.37 |

2

| <u>NAME</u> | <u>POINT NO.</u> | <u>X</u> | <u>Y</u> |
|------------------|------------------|----------|----------|
| Tie from strip 1 | 414801 | 2.00 | -7.57 |
| Tie from strip 1 | 414802 | 1.90 | -7.02 |
| Tie from strip 1 | 416801 | 3.46 | 1.63 |
| Tie from strip 1 | 416802 | 4.76 | -0.14 |
| Tie from strip 1 | 418801 | 5.91 | -7.32 |
| Tie from strip 1 | 418802 | 4.10 | -6.11 |
| Tie from strip 1 | 420801 | 1.23 | 0.61 |
| Tie from strip 1 | 420802 | -0.62 | -2.42 |
| Tie from strip 1 | 421801 | -0.51 | -4.34 |
| Tie from strip 1 | 421802 | -2.22 | 5.37 |
| Tie from strip 1 | 421803 | 0.50 | -2.73 |

STRIP 3

4 Cass 1943

△
△

| | | | |
|----------|--------|------|-------|
| Sub Pt A | 429101 | 1.29 | -1.01 |
| Sub Pt B | 429102 | 2.54 | 0.13 |

3 Pines IBC 1943

△

| | | | |
|----------|--------|-------|-------|
| Sub Pt A | 432101 | -2.36 | -0.67 |
| Sub Pt B | 432102 | -4.95 | -4.28 |

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| | | | |
|------------------|--------|-------|-------|
| Tie from strip 1 | 429801 | -2.53 | -2.32 |
| Tie from strip 1 | 429802 | -1.68 | 1.61 |
| Tie from strip 1 | 429803 | 1.36 | -0.47 |
| Tie from strip 1 | 429804 | -2.13 | -0.43 |
| Tie from strip 1 | 430801 | -1.49 | 0.98 |
| Tie from strip 1 | 430802 | -1.66 | 6.02 |
| Tie from strip 1 | 430803 | 0.04 | -2.27 |
| Tie from strip 1 | 430804 | -1.09 | 2.64 |
| Tie from strip 1 | 431801 | 3.04 | 1.24 |
| Tie from strip 1 | 431802 | 3.55 | 0.20 |
| Tie from strip 1 | 433801 | 0.38 | -0.32 |

STRIP 4

4 Cass 1943

△
△

| | | | |
|----------|--------|------|-------|
| Sub Pt A | 429101 | 1.80 | -0.49 |
| Sub Pt B | 429102 | 1.54 | -0.07 |

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| | | | |
|------------------|--------|--------|-------|
| Tie from strip 2 | 419801 | 0.94 | 0.13 |
| Tie from strip 2 | 419802 | -0.98 | 3.12 |
| Tie from strip 2 | 419803 | 0.98 | -1.82 |
| Tie from strip 2 | 419804 | -14.08 | 2.84 |
| Tie from strip 1 | 429805 | -0.61 | -1.34 |
| Tie from strip 1 | 429806 | -0.27 | 0.46 |
| Tie from strip 1 | 429807 | -1.34 | 2.80 |
| Tie from strip 1 | 429808 | -2.82 | -1.69 |

SAINT MARYS RIVER, MICHIGAN
CM-7806

FEBRUARY 1984

Ratio values for 1:50,000 scale bridging photography:

82-C(C)-3409-3421 X 2.573

82-C(C)-3427-3435 X 2.576

Ratio values for 1:30,000 scale bridging photography:

82-Z(C)-3256-3259 X 2.998

82-Z(C)-3320-3328 X 2.996

COMPILATION REPORT
TP-00364

31 - DELINEATION

Delineation was accomplished using stereo instrument compilation methods. Shoreline, alongshore and interior detail were based upon office interpretation of the 1:30,000 scale bridging/compilation color photographs. All photographs used to compile this map are listed on NOAA Form 76-36B. The color compilation photography was adequate; however, sun glare caused difficulty in identifying off-shore features.

32 - CONTROL

At the time of compilation, a Photogrammetric Plot Report was not available. Stereo model solutions were adequate based on the control furnished.

33 - SUPPLEMENTAL DATA

None.

34 - CONTOURS AND DRAINAGE

Contours are not applicable to the project. Drainage was compiled by office interpretation of the photographs.

35 - SHORELINE AND ALONGSHORE DETAILS

The shoreline and alongshore details were compiled from office interpretation of the photographs. The shoreline compiled was the visible line of contact between land features and the water surface at the time of photography. Based on the International Great Lakes Datum (1955) the water level taken at U.S. Slip, Michigan gage was 579.1 feet.

36 - OFFSHORE DETAILS

Offshore details were compiled by instrument methods as described in item #31. Because photographic interpretation of shallow areas can be very inaccurate, they were not delineated on the manuscript. Delineation of shallow areas was, however, furnished as advisory information to the hydrographer.

37 - LANDMARKS AND AIDS

There are 12 charted landmarks and 12 charted navigational aids within the mapping limits of this manuscript. Among these 10 landmarks and 7 aids were either located or verified photogrammetrically. Appropriate information was prepared on the 76-40 forms and submitted with this map.

TP-00364

One of the charted navigational aids consists of 2 lights (Frechette Point Range Front Light and Frechette Point Light 91) located on the same structure according to the 1983 U.S. Coast Guard Light List. They are also charted with a single light symbol with two different light characteristics.

38 - CONTROL FOR FUTURE SURVEYS

None.

39 - JUNCTIONS

Refer to the Data Record Form 76-36B, item 5 of the Descriptive Report.

40 - HORIZONTAL AND VERTICAL ACCURACY

See item #32.

45 - COMPARISON WITH EXISTING MAPS

A comparison was made with the following U.S. Geological Survey Quadrangle: Sault Ste. Marie South, Mich.-Ont., dated 1951, photorevised 1975, scale 1:24,000.

47 - COMPARISON WITH NAUTICAL CHARTS

A comparison was made with the following NOS Charts: 14884, 33rd edition, dated February 26, 1983, scale 1:40,000 (with 1:20,000 scale inset); and 14883, 35th edition, dated December 13, 1980, scale 1:40,000.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None.

ITEMS TO BE CARRIED FORWARD

None.

Submitted by,

Robert R. Kravitz
Robert R. Kravitz
Cartographic Technician
November 10, 1983

Approved,

James L. Byrd, Jr.
James L. Byrd, Jr.
Chief, Coastal Mapping Unit

REVIEW REPORT
SHORELINE

TP-00364

61. GENERAL STATEMENT

Refer to the Summary included in this Descriptive Report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS

Not applicable.

63. COMPARISON WITH MAPS OF OTHER AGENCIES

A comparison was made with U.S.G.S. Quadrangle Sault Ste. Marie South, Mich.-Ont., 1:24,000 scale, dated 1951, photorevised, 1975.

The U.S.G.S. Quadrangle does not include complete coverage of the Canadian shoreline portrayed on this map; however, a comparison was made with a Canadian map from the Dept. of Energy, Mines and Resources, Sault Ste. Marie, Canada-USA, 1:250,000 scale, dated 1977.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS

No contemporary hydrographic survey was conducted prior to this shoreline mapping project.

65. COMPARISON WITH NAUTICAL CHARTS

A comparison was made with NOS Charts: 14884, 33rd edition, dated February 26, 1983, scale 1:40,000 (inset 1:20,000); and 14883, 35th edition, dated December 13, 1980, scale 1:40,000.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS

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

Submitted by,

Jerry L. Hancock
Jerry L. Hancock
Final Reviewer

Approved for forwarding,

Billy H. Barnes
Billy H. Barnes
Chief, Photogrammetric Section, AMC

Approved,

Gregory H. Freeman
Chief, Photogrammetric Section, Rockville

John Gray
Chief, Photogrammetry Branch

Dec. 21, 1983

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-7806 (Saint Marys River, Michigan)

TP-00364

Baie de Wasai
Black Point
Cook Island
Frechette Creek
Frechette Point
Hog Island
Island No. 1 (1)
Island No. 1 (2)
Island No. 2
Island No. 3
Island No. 4
Little Rapids
Michigan
Mission Creek
Mission Point
Old Channel
Ontario
Saint Marys River
Sault Ste. Marie (Michigan)
Sault Ste. Marie (Ontario)
Shingwauk Island
Sugar Island
Topsail Island

Approved

Charles E. Harrington
Charles E. Harrington
Chief Geographer
Nautical Chart Division



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
ATLANTIC MARINE CENTER
MOA 221x1, Coastal Mapping, Final Review
439 West York St.
Norfolk, VA 23510

March 15, 1984

SUBJECT: Landmarks and Nonfloating Aids, CM-7806, St. Marys River, Michigan

This cover page accompanies the 76-40 forms and briefly describes the procedure used to process and locate the landmarks and aids for the 5 final Class III maps (TP-00204, TP-00205, TP-00206, TP-00363, TP-00364) of project CM-7806.

The landmarks / aids that were clearly identifiable from the photographs were located by stereo instrument methods based on aerotriangulated horizontal control. Those not located were listed either as "not identifiable", meaning they were indistinguishable from surrounding detail, or as "not visible", meaning there was no apparent photographic image.

It became apparent during final review that several charted landmarks and nonfloating aids, primarily in the vicinity of St. Marys Falls, had been recently incorporated into the NGS horizontal network. This information was not used during compilation. However, reference has been noted on the 76-40 forms for those landmarks / aids currently published in the NGS index for Quads N46084100 thru N46084400 and the printout listing assigned No. G-16789. Attached with this packet is the NGS index and adjusted positions.



| NOAA FORM 76-40 (8-74) Replaces C&GS Form 567. | | | | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | | | | ORIGINATING ACTIVITY | | | |
|---|---|---|-------|--|----|-------|------------------|---|-------|-------|--|
| NONFLOATING AIDS GREEN RED AND FOR CHARTS | | | | LOCALITY | | | | DATE | | | |
| REPORTING UNIT (Field Party, Ship or Office) | | | | STATE | | | | DATE | | | |
| Coastal Mapping Unit, AMC, Norfolk, VA | | | | Michigan | | | | St. Marys River | | | |
| The following objects HAVE <input type="checkbox"/> HAVE NOT <input checked="" type="checkbox"/> been inspected from seaward to determine their value as landmarks. | | | | DATUM | | | | METHOD AND DATE OF LOCATION (See instructions on reverse side) | | | |
| OPR PROJECT NO. | | | | SURVEY NUMBER | | | | CHARTS AFFECTED | | | |
| JOB NUMBER | | | | TP-00364 | | | | CHARTS AFFECTED | | | |
| CM-7806 | | | | TP-00364 | | | | CHARTS AFFECTED | | | |
| DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses) | | | | POSITION | | | | METHOD AND DATE OF LOCATION (See instructions on reverse side) | | | |
| CHARTING NAME | | | | LATITUDE | | | | LONGITUDE | | | |
| | | | | ° / ' " D.M. Meters | | | | ° / ' " D.P. Meters | | | |
| LIGHT | | Upper Nicolet Range Front Light | 46 27 | 15.5 | 84 | 55.6 | 82 Z(C) 3257 | 6-2-82 | 14883 | 14884 | |
| LIGHT | | Upper Nicolet Range Rear Light | 46 27 | 44.2 | 84 | 11.0 | 82 Z(C) 3257 | 6-2-82 | 14883 | 14884 | |
| LIGHT | △ | Frechette Point Range Front Light | 46 27 | 20.1 | 84 | 45.9 | 82 Z(C) 3257 | 6-2-82 | 14883 | 14884 | |
| LIGHT | △ | Frechette Point Light 91 (Lights on same structure) | 46 27 | 55.6 | 84 | 24.1 | 82 Z(C) 3257 | 6-2-82 | 14883 | 14884 | |
| LIGHT | △ | Little Rapids Cut Light 95 | | | | | NOT IDENTIFIABLE | | 14883 | 14884 | |
| LIGHT | △ | Little Rapids Cut Light 96 | | | | | NOT IDENTIFIABLE | | 14883 | 14884 | |
| LIGHT | △ | Little Rapids Cut Light 98 | | | | | NOT IDENTIFIABLE | | 14883 | 14884 | |
| LIGHT | △ | Little Rapids Cut Light 99 | 46 29 | 12.0 | 84 | 08.3 | 82 Z(C) 3259 | 6-2-82 | 14883 | 14884 | |
| LIGHT | △ | Bayfield Rock Range Front Light (Bayfield Rock Front Range Lt., 1943) | 46 29 | 19.86 | 84 | 58.96 | 82 Z(C) 3259 | 6-2-82 | 14883 | 14884 | |
| LIGHT | △ | Bayfield Rock Range Rear Light | 46 29 | 16.9 | 84 | 46.7 | 82 Z(C) 3259 | 6-2-82 | 14883 | 14884 | |

| RESPONSIBLE PERSONNEL | |
|---|--|
| TYPE OF ACTION | NAME |
| OBJECTS INSPECTED FROM SEAWARD | |
| POSITIONS DETERMINED AND/OR VERIFIED | Robert R. Kravitz |
| FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES | <input type="checkbox"/> PHOTO FIELD PARTY <input 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 I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75 | FIELD (Cont'd) B. Photogrammetric field positions* require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982 |
| FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection P - Photogrammetric Vis - Visually 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 | II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 |

*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.

NONFLOATING AIDS DRUGS ARE THE WAY TO CHARTS

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

ORIGINATING ACTIVITY

☐ HYDROGRAPHIC PARTY

☐ GEODETIC PARTY

PHOTO FIELD PARTY

☒ **COMPILATION ACTIVITY**

☐ FINAL REVIEWER

☐ QUALITY CONTROL & REVIEW GRP.
☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

REPORTING UNIT
(Field Party, Ship or Office)

Coastal Mapping Unit,

AMC, Norfolk, VA

☒ TO BE CHARTED

☐ TO BE REVISED

☐ TO BE DELETED

The following objects HAVE ☐ HAVE NOT ☒ been inspected from seaward to

JOB NUMBER

SURVEY NUMBER

TP-00364

N. A. 1927

N. A. 1927

TP-00364

DESCRIPTION

Record reason for deletion of landmark or aid to navigation.
Show triangulation station names, where applicable, in parenthesis.

 $\Delta_{\text{(NGS position available)}}$

Bayfield Dike Light

Sault Ste. Marie Wharf Light

NOT
IDENTIFIED

NOT
IDENTIFIED

14883
14884

14884

| RESPONSIBLE PERSONNEL | |
|---|---|
| TYPE OF ACTION | NAME |
| OBJECTS INSPECTED FROM SEAWARD | |
| POSITIONS DETERMINED AND/OR VERIFIED | Robert R. Kravitz |
| FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES | <input type="checkbox"/> PHOTO FIELD PARTY <input 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 I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75 | FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982 |
| FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection P - Photogrammetric Vis - Visually 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 | II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods. |
| *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. | |

| NOAA FORM 76-40 (8-74) Replaces C&GS Form 567. | | | | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | | | | ORIGINATING ACTIVITY | | | |
|---|---|------------------------------|---------|---|------|------------------|------------------------------|---|-------|--|--|
| NON-RELEASABLE OR LANDMARKS FOR CHARTS | | | | LOCALITY | | | | DATE | | | |
| REPORTING UNIT (Field Party, Ship or Office) | | | | STATE | | | | DATE | | | |
| Coastal Mapping Unit, AMC, Norfolk, VA | | | | Michigan | | | | St. Marys River | | | |
| TO BE CHARTED <input checked="" type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED | | | | TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED | | | | TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED | | | |
| The following objects HAVE <input type="checkbox"/> HAVE NOT <input checked="" type="checkbox"/> been inspected from seaward to determine their value as landmarks. | | | | DATE | | | | DATE | | | |
| OPR PROJECT NO. | | | | JOB NUMBER | | | | SURVEY NUMBER | | | |
| CM-7806 | | | | TP-00364 | | | | N.A. 1927 | | | |
| DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.) | | | | LATITUDE | | | | LONGITUDE | | | |
| CHARTING NAME | | | | POSITION | | | | METHOD AND DATE OF LOCATION (See instructions on reverse side) | | | |
| | | | | OFFICE | | | | FIELD | | | |
| | | | | CHARTS AFFECTED | | | | | | | |
| R | MAST | Approximate charted position | 46 27.2 | 84 19.6 | 50.9 | 82 Z(C) 3259 | Beyond 1:30,000 photo limits | 14884 | | | |
| CHY | | | 46 29 | 84 18 | 1085 | 6-2-82 | | 14883 | 14884 | | |
| FP | △(NGS position available) Topsail Island | | 46 29 | 84 17 | 1042 | 6-2-82 | | 14884 | | | |
| TR | △(NGS position available) Topsail Island | | 46 29 | 84 17 | 1152 | 6-2-82 | | 14884 | | | |
| SPIRE | | | 46 30 | 84 17 | 294 | 6-2-82 | | 14883 | 14884 | | |
| CHY | | | 46 30 | 84 19 | 295 | 6-2-82 | | 14883 | 14884 | | |
| CHY | | | 46 30 | 84 19 | 482 | 6-2-82 | | 14883 | 14884 | | |
| RTR | Approximate charted position | | 46 30.5 | 84 19.6 | | NOT IDENTIFIABLE | | 14884 | | | |
| R RELAY TR | △(NGS position available) | | 46 30 | 84 19 | 640 | 6-2-82 | | 14884 | | | |
| CROSS | | | 46 31 | 84 19 | 1090 | 6-2-82 | | 14884 | | | |

| RESPONSIBLE PERSONNEL | |
|---|--|
| TYPE OF ACTION | NAME |
| OBJECTS INSPECTED FROM SEAWARD | |
| POSITIONS DETERMINED AND/OR VERIFIED | |
| FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES | Robert R. Kravitz |
| INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' | |
| (Consult Photogrammetric Instructions No. 64) | |
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| FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection P - Photogrammetric Vis - Visually 5 - Field Identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 | III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH 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 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods. |
| *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. | |

[illegible]

| RESPONSIBLE PERSONNEL | |
|--|--|
| TYPE OF ACTION | NAME |
| OBJECTS INSPECTED FROM SEAWARD | |
| POSITIONS DETERMINED AND/OR VERIFIED | |
| FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES | Robert R. Kravitz |
| INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' | |
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| 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 |
| **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods. *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. | |

