
PHOTOGRAMMETRY BRANCH
COASTAL MAPPING PROGRAM
PROJECT CM-8313
COMPLETION REPORT
SOUTH CAROLINA
BULLS BAY TO ST HELENA SOUND
TP-01274 thru TP-01288

Agency Vault - Original

PHOTOGRAMMETRY BRANCH
COASTAL MAPPING PROGRAM

PROJECT CM-8313

COMPLETION REPORT

SOUTH CAROLINA

BULLS BAY TO ST HELENA SOUND

TP-01274, TP-01275, TP-01276, TP-01277, TP-01278
TP-01279, TP-01280, TP-01281, TP-01282, TP-01283
TP-01284, TP-01285, TP-01286, TP-01287, TP-01288

1985

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

PHOTOGRAMMETRY BRANCH
COASTAL MAPPING PROGRAM

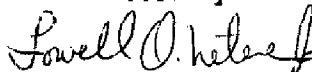
PROJECT CM-8313
COMPLETION REPORT
SOUTH CAROLINA
BULLS BAY TO ST HELENA SOUND

TP-01274, TP-01275, TP-01276, TP-01277, TP-01278
TP-01279, TP-01280, TP-01281, TP-01282, TP-01283
TP-01284, TP-01285, TP-01286, TP-01287, TP-01288

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 requested.

Submitted by



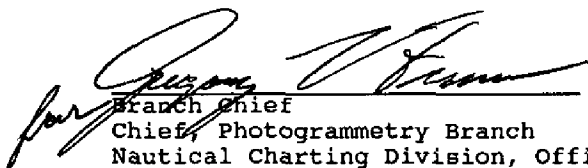
Lowell O. Neterer, Jr.
Final Reviewer
Field Photogrammetry Section

Approved



Section Chief
Chief, Field Photogrammetry Section

8/1/90
Date



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

10/10/90
Date

COMPLETION REPORT
COASTAL MAPPING PROGRAM
PROJECT CM-8313
BULLS BAY TO ST HELENA SOUND
SOUTH CAROLINA

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COASTAL MAPPING PROGRAM
PROJECT CM-8313
PROJECT SUMMARY

INTRODUCTION

Project CM-8313 Bulls Bay to St. Helena Sound, South Carolina consists of fifteen maps TP-01274 through TP-01281, TP-01283 and TP-01288 at 1:20,000 scale, TP-01282 and TP-01284 thru TP-01287 at 1:10,000 scale.

All maps are based on North American Datum 1927 (NAD 27) depicted by the Lambert Conformal Conic Projection.

This project extends from St. Helena Sound latitude 32 20' 00" longitude 80 24' 00" northeast to Bulls Bay latitude 33 00' 00" longitude 79 30' 00".

PLANNING

This project was planned in support of the Nautical Charting Program. It was determined that the fifteen maps, 10 at 1:20,000 scale and 5 at 1:10,000 scales were needed to meet project requirements.

Planning included the selection of thirteen premarked horizontal control stations in February and March 1985 and two supplemental photoidentified control stations selected in April 1986 to control 8 strips of color photography with 5 strips at 1:50,000 scale and 3 strips at 1:30,000 scale.

There are also 8 strips of black and white infrared, tide coordinated photography with 5 strips at 1:50,000 scale and 3 strips at 1:30,000 scale.

The photographs were needed to meet the requirements for completing this photogrammetric project.

FIELD OPERATION

Refer to the Field Project Instructions included in Appendix A and the two field reports in Appendix B for horizontal control information.

The cameras used for the acquisition of the photography were:

WILD RC-10Z (focal length 153.15 millimeters), serial number Z-1391 and WILD RC-8E (focal length 152.71 millimeters) no serial number.

AEROTRIANGULATION

Refer to the Aerotriangulation Report in Appendix C of this Completion Report for accuracy of the horizontal control used.

COMPILATION

Refer to the office instructions which are included in Appendix D of this Completion Report for methods of compilation.

Compilation was accomplished at the Atlantic Marine Center from April 1989 through February 1990.

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

Ratioed infrared MLLW tide coordinated photographs were used to graphically compile the MLLW line.

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

The maps and descriptive notes were smooth drafted. The project indexes and formats were applied with wax-back stickup.

The selection of Geographic Names came from U.S.G.S. quadrangles and N.O.S. Nautical Charts. They were submitted to the Chief Geographer of the Nautical Charting Division and were approved and are listed in Appendix F.

FINAL REVIEW

The final review of this project began in April 1990 and was completed in June 1990.

The project was compiled from photography obtained before hurricane Hugo struck this area in September 1989.

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.

<u>CHART</u>	<u>EDITION</u>	<u>SCALE</u>	<u>DATE</u>
11517	12	1:40,000	August 25, 1985
11518	24	1:40,000	October 29, 1988
11521	18	1:80,000	September 5, 1987
11522	13	1:40,000	October 22, 1988
11523	12	1:20,000	January 11, 1986
11524	36	1:20,000	October 3, 1987
11526	8	1:20,000	May 11, 1988
11527	12	1:20,000	March 8, 1986
11531	15	1:80,000	July 21, 1984

Significant differences were noted on Chart Maintenance Prints.

DISSEMINATION OF 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

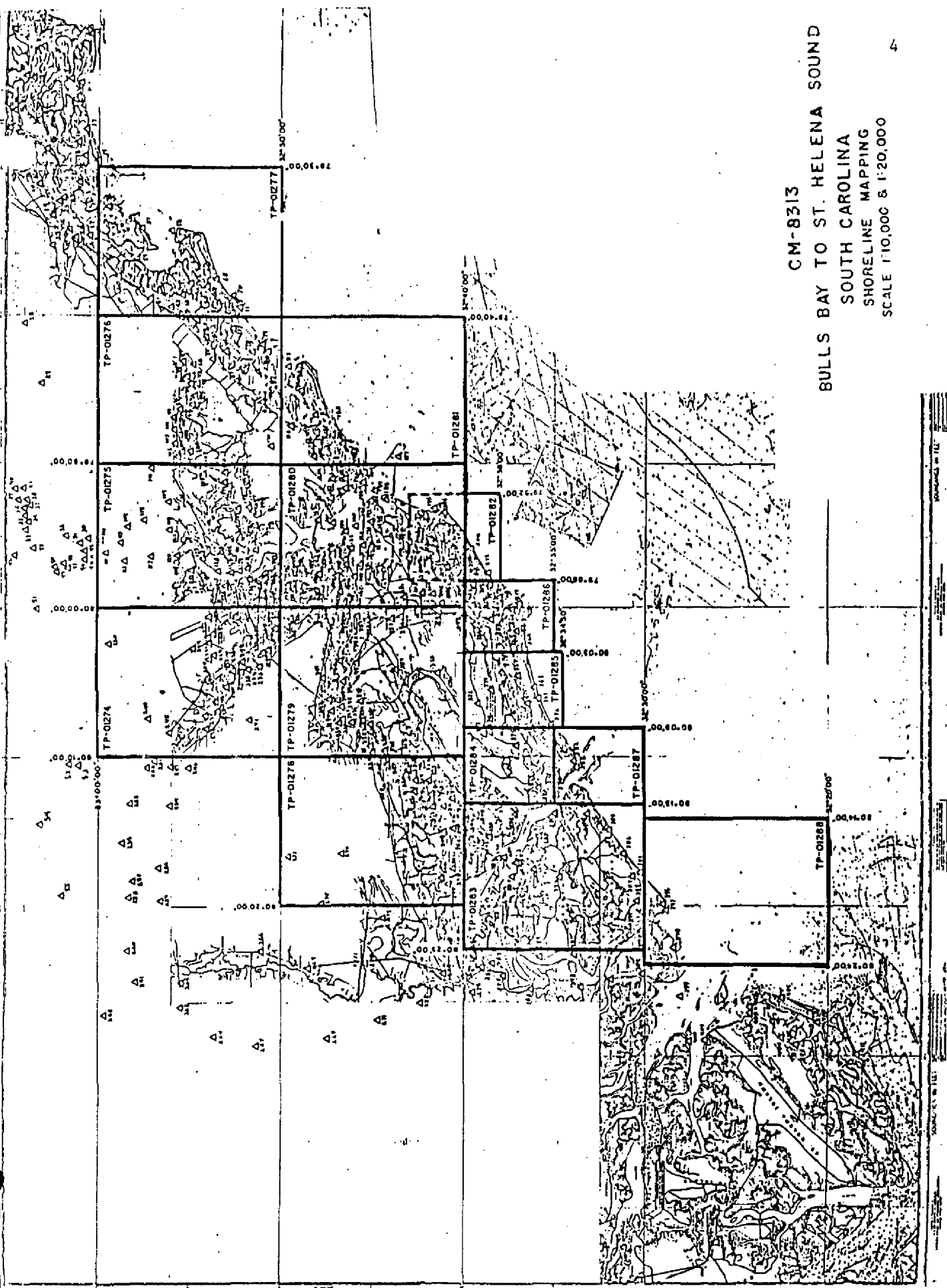
Photogrammetric Electronic Data Library
Not applicable

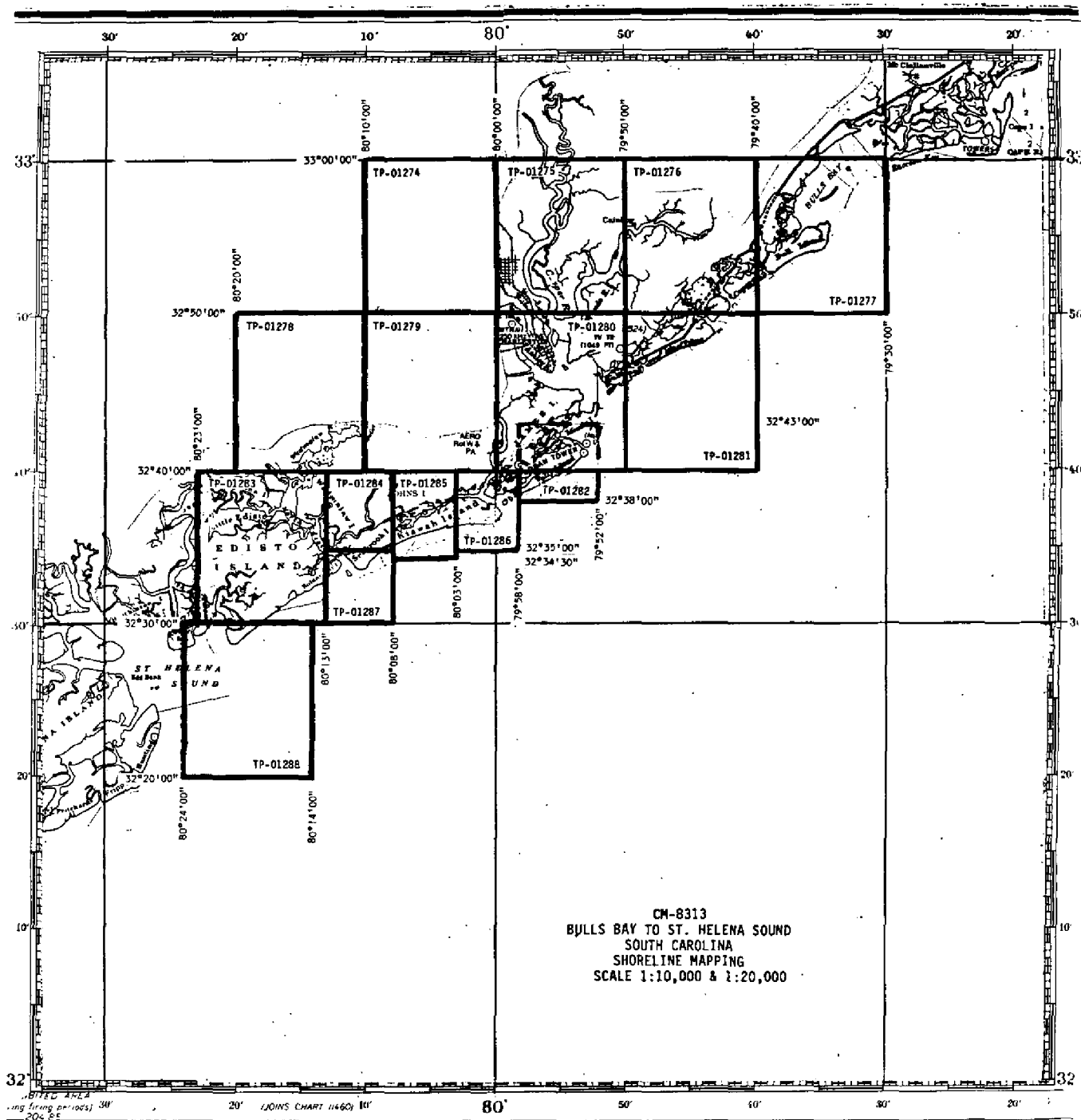
Reproduction Branch Aeronautical Charting Division
8X reduction negative of each map

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

CM-8313
 BULLS BAY TO ST. HELENA SOUND
 SOUTH CAROLINA
 SHORELINE MAPPING
 SCALE 1:10,000 & 1:20,000





PROJECT GEODETIC CONTROL LISTING

PROJECT: CM 8317

GEODETIC DATUM: North American Datum of 1927

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

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

GEODETIC COORDINATES (°-'-")

<u>STATION NAME</u>	<u>QUAD #</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>QC</u>	<u>DAY/YEAR</u>
KEY 1934 ✓	330792 ✓	33 01 13.660 ✓	79 28 20.514 ✓	3 ✓	001/1934 ✓
WHITE 1934 ✓	320794 ✓	32 53 41.822 ✓	79 42 54.186 ✓	3 ✓	001/1934 ✓
OSWALD 2 1963 ✓	320794 ✓	32 43 01.310 ✓	79 56 15.255 ✓	3 ✓	001/1963 ✓
CRIS 1985 ✓	320801 ✓	32 34 02.058 ✓	80 10 57.893 ✓	3 ✓	001/1985 ✓
COFFIN 1933 ✓	320802 ✓	32 26 41.160 ✓	80 28 50.425 ✓	3 ✓	001/1983 ✓
MURRAY RM5 1963 ✓	320801 ✓	32 34 42.172 ✓	80 17 50.064 ✓	3 ✓	001/1963 ✓
RENKEN 1985 ✓	320801 ✓	32 43 58.981 ✓	80 09 35.664 ✓	3 ✓	001/1985 ✓
KEN 1933 ✓	320801 ✓	32 49 35.361 ✓	80 01 24.709 ✓	3 ✓	001/1933 ✓
TUXBERRY RM1 1965 ✓		32 55 50.394 ✓	79 48 46.388 ✓	3 ✓	001/1965 ✓
NOLL 1934 ✓	330793 ✓	33 02 14.986 ✓	79 57 31.333 ✓	3 ✓	001/1934 ✓
FIRE 1934 ✓	320801 ✓	32 56 01.780 ✓	80 10 39.530 ✓	3 ✓	001/1934 ✓
WARREN 1932 ✓	320801 ✓	32 49 38.666 ✓	80 16 34.745 ✓	3 ✓	001/1934 ✓
RUN 1934 ✓	320801 ✓	32 44 27.645 ✓	80 20 57.879 ✓	3 ✓	001/1935 ✓
BOR 1933 ✓	320802 ✓	32 24 18.102 ✓	80 26 44.937 ✓	3 ✓	001/1933 ✓
AWENDAW 1962 ✓	330793 ✓	33 02 33.1088 ✓	79 35 21.0179 ✓	3 ✓	001/1962 ✓

Remarks:

All geodetic survey operations were performed by OC&GS personnel in February and March 1985 and April 1986

Listing approved by

Lowell O. Neterer, Jr.
Final Reviewer Lowell O. Neterer, Jr.

July 25, 1990
Date

APPENDICES

APPENDIX A
PROJECT FIELD INSTRUCTION



UNITED STATES DEPARTMENT OF COMMERCE⁷
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
CHARTING AND GEODETIC SERVICES
Rockville, MD. 20852

NOV 2 1984

N/CG2313:EP

Chief, Photogrammetry Branch
Atlantic Marine Center

PROJECT INSTRUCTIONS: FIELD - Job CM-8313, Bulls Bay to St. Helena Sound,
South Carolina, Shoreline Mapping

1.0. PURPOSE

The purpose of this instruction is to provide specifications and a schedule for: (1) placing targets on horizontal control stations required for aerotriangulation, and (2) furnishing field support to obtain tide-coordinated infrared aerial photography.

2.0. AREA

Shoreline mapping at 1:10,000 and 1:20,000 scales will cover the shoreline and adjacent waterways from Bulls Bay to St. Helena Sound, South Carolina. The 1:10,000-scale mapping will cover Kiawah Island and vicinity.

3.0. PHOTOGRAPHY

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

3.2 Target identification photography will be obtained at 1:15,000 scale and may be obtained 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 observation furnished by radio.

5.0 HORIZONTAL CONTROL

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



5.2. 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.

5.3. New control stations, where needed, shall be established by triangulation, trilateration, traverse, or a combination of the three methods, in accordance with Third-Order, Class I specifications provided in the Director's Instructions for Third-Order Surveys, dated October 31, 1974.

5.4. Notify the Chief, Coastal Planning Unit (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

Note 1: As soon as possible after all control stations have been paneled, the field party will forward to the Rockville Office, Attention 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.

Note 2: Wing panels will be used with all targets in accordance with established specifications but may be modified to conform with local terrain conditions.

6.1. Panel each station selected to meet horizontal control requirements in accordance with specifications given on the attached sheet for the various scales of photography indicated on the control requirements diagram.

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

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

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

6.5. Panel substitute stations wherever shadows or relief displacement will obscure the home stations.

6.6. 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

7.1. 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.

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 ± 0.5 foot and mean lower low water ± 0.5 foot.

8.2. The tide staffs to be monitored during tide-coordinated photography and the mean high water and mean lower low water datums will be furnished in advance of the field work.

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 March and April. Tide predictions will be furnished with the tidal data.

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

9.0. LEVELING

After completion of photography, 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. TIME

Coordinated Universal Time (UTC or Zulu, Z) shall be used for all tide staff observations for agreement with standard air photo mission timekeeping procedures. Air Photo Mission 1 will provide UTC time checks before and after each session of photography.

11.0. COMMUNICATIONS

Radio transceivers shall be used for communications between the tide observer and the air photo mission. On the day prior to initial photography, the field unit should confer with the Chief, Air Photo Mission 1, and make mutually satisfactory arrangements for regular contacts and/or conferences as appropriate.

12.0. SCHEDULE

All stations shall be premarked and ready for photography by March 5, 1985. If premarking is not completed by this date, inform the Chief, Coastal Planning Unit (N/CG2313), so that this information can be relayed to the air photo mission.

13.0. REPORT

A field operations report covering all pertinent information as to field work performed, tide staffs monitored, etc., is required promptly upon completion of the field phase of the project.

14.0. RECORDS

All field records will be sent through N/MOA2222 review prior to being forwarded to the Rockville Office, Attention: N/CG2313.

15.0. MODIFICATIONS OF INSTRUCTIONS

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

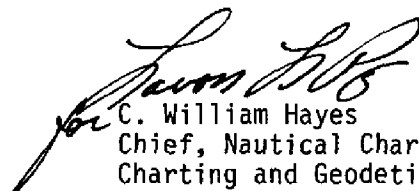
16.0. COSTS

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

17.0. RECEIPT

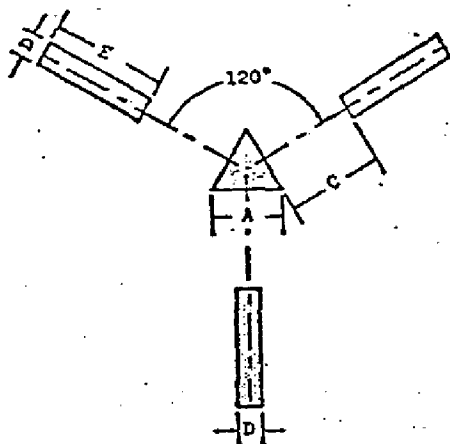
Receipt of these instructions shall be acknowledged.

Wesley V. Hull
Director
Atlantic Marine Center
Marine Operations

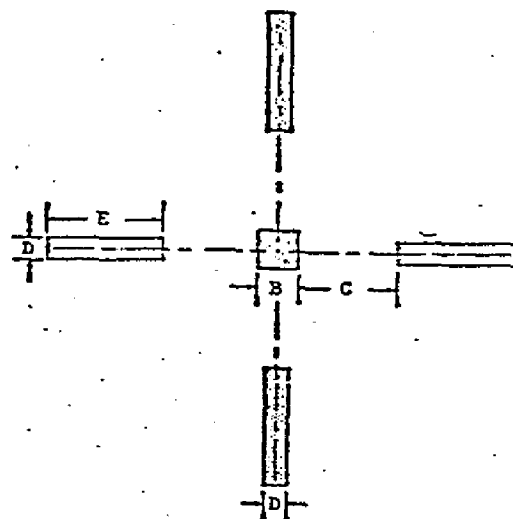

C. William Hayes
Chief, Nautical Charting Division
Charting and Geodetic Services

SPECIFICATIONS FOR PREMARKING CONTROL STATIONS
Revised November 23, 1976

ARRAY NO. 1



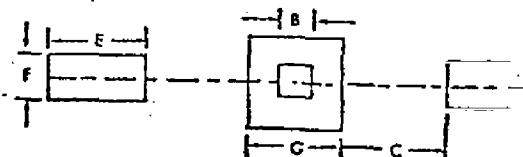
ARRAY NO. 2



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)

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>
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

CM-8313
BULLS BAY TO ST. HELENA SOUND, SOUTH CAROLINA
PREMARKING PROJECT REPORT

The premarking for this project was performed during the period of February 19, 1985 through March 23, 1985 as specified in the PROJECT INSTRUCTIONS dated November 2, 1984. All panels were in place on March 1, 1985. Array No 1 for 1:50,000 scale photography was used to premark the Horizontal Control Stations. Minor modifications were made to the specified arrays and are indicated in the attachments to this report.

Horizontal premarking and the positioning of the panels was accomplished as per the standards set forth by the National Map Standards of Accuracy. Horizontal panel #1 was the only panel set directly over a geodetic station. Panels #2 and #9 were set over the reference marks to geodetic stations. Panels #4 and #7 were positioned from computed doppler satellite positions obtained during this project. Panels #3, 5, 6, 8, 10, 11, 12, and 13 were located using reverse solars from geodetic stations. Station Oswald 2, a second order Triangulation station, was used as the controlling station for the doppler (MAGNAVOX 1502 GEOCEIVERS) stations located, stations CRIS (panel #4) and RENKEN (panel #7).

The photoidentification flying was completed by March 10, 1985. All bridging photography was completed by March 14, 1985. Problems between the predicted tides and the actual tides caused some delay on the infrared photography. Also smoke caused by local burning created a visual problem throughout the project and possibly added five to seven days to the projects completion date. Perhaps the seasonal burning in these southern areas could be anticipated in future projects.

For tide control the Charleston Custom House, Cooper River Entrance Tidal Gage was used. Levels were observed on March 1, 1985 using three tidal bench marks and leveling to the Electric Tape Gage reference. The elevation of the reference checked to within one-half of a hundredth of a foot from its published elevation in reference to MLLW. Levels were again observed after the photography was completed, on March 20, 1985 and the Electric Tape Gage reference checked to within one hundredth of a foot. Tide observations were conducted throughout the infrared photography.

All the panels were checked immediately after the bridging photography and were found undisturbed. The property owners of Panels #7, 9, 10 and 11 requested the materials from the panels on the completion of the photography. They were notified by March 23, 1985 that the project was completed and they could have the material provided they remove it from the position and dispose of it as they wish. The remaining nine panels were completely removed by March 22, 1985.

Originals of all field records are submitted herein except where originals were required for submission to separate activities. In these cases copies are herein submitted.

Submitted,

Robert D. Croix

Robert DeCroix
Chief, Coastal Party

CM-8313
BULLS BAY TO ST. HELENA SOUND, SOUTH CAROLINA

SUPPLEMENTAL PHOTOIDENTIFICATION

During April 1986 we photoidentified two additional stations and verified a nautical aid as requested by the Rockville Office. The point for Circle #1 was within the area requested on photo 85 Z(C) 1817; this point is SUB STATION A, BOR 1933, and is indicated on photo 85 Z(C) 1818.

We determined that COMBAHEE BANK LIGHT 1955 had been destroyed. The old light was a four (4) pile structure, and a new three (3) pile structure was built in this area. It was intersected for position from two setups with no check. It is identified as NEW COMBAHEE LIGHT. A photogrammetric check on the surveyed positioned should be determined.

For Circle #2, we recovered Station AWENDAW 2 1962, and photoidentified two sub points.

Positions are as follows:

SUB STATION A, BOR 1933 (Circle #1)

LAT. 32-28-39.7276 LONG. 80-25-06.4326

NEW COMBAHEE LIGHT (No check position)

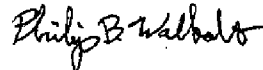
LAT. 32-27-58.7629 LONG. 80-26-05.2719

AWENDAW 2 1962 (Circle #2)

Sub Point 1 LAT. 33-02-35.4953 LONG. 79-35-19.8661

Sub Point 2 LAT. 33-02-33.4336 LONG. 79-35-22.6726

Submitted by



Philip B. Walbolt
7 May 1986

NOTE: We could find only one (1) positive photo point for Circle #1.

APPENDIX C
AEROTRIANGULATION REPORT

AEROTRIANGULATION REPORT
CM-8313
BULLS BAY TO ST. HELENA SOUND, SOUTH CAROLINA
MARCH 1988

21. AREA COVERED

The area covered by this report is from St. Helena Sound on the west to Bulls Bay on the east. This area is covered by ten 1:20,000-scale manuscripts; TP-01274 through TP-01281, TP-01283, TP-01288, and five 1:10,000-scale manuscripts; TP-01284 through TP-01287.

22. METHOD

Five strips of 1:50,000-scale and three strips of 1:30,000-scale color photographs were measured and adjusted to ground using the IDPF.

Ratio values were determined for the color bridging photographs and the MLW black-and-white infrared photographs.

One hundred and seventy-one fixed aids to navigation and landmarks were positioned during aerotriangulation.

A ballpoint pen base and a final base manuscript were plotted on the Kongsberg flatbed plotter using the South Carolina State Plane Coordinate System, South Zone. This is a Lambert conformal conic projection. The datum is 1927.

All the color bridging photographs had to be renumbered because the camera had to be mounted backwards in the airplane.

23. ADEQUACY OF CONTROL

The horizontal control provided for this project proved to be adequate. Thirteen control stations were used in the block adjustment and a few office identified control stations were used as check control.

This project meets NOS requirements for map manuscripts.

24. SUPPLEMENTAL DATA

Nautical charts were used to help locate the aids and landmarks on the color bridging photography. USGS quads were used to obtain elevations to furnish vertical control for the block adjustment.

25. PHOTOGRAPHY

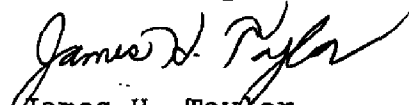
Strip 50-1, which passes through TP-01277, could not be measured

fully to the end of the sheet due to topographic conditions on the photographs. The MLW IR did not cover TP-01287 fully along the coast.

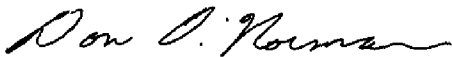
The 1:30,000-scale color that appears on TP-01287, strip 30-1, could not be tied to the 1:50,000-scale due to the shifting sand. To compile this area, the 1:50,000-scale color photographs will have to be used. Ratios were ordered of the 1:30,000-scale color bridging photographs of this area.

The quality of the photographs proved to be adequate for this project.

Submitted by


James H. Taylor

APPROVED AND FORWARDED:



Don O. Norman
Chief, Aerotriangulation Unit

CM-8313
NOTES TO COMPILER

The bridging/compilation photographs were renumbered.

The aerotriangulation position and the published position of some of the fixed aids differed excessively. The light list and the Nautical Chart Branch team leader for this area verified that these aids have been rebuilt. The aerotriangulation position was plotted. They are identified as LT5_ _.

Both the aerotriangulation position and the published position were plotted on some lights. Compilation will have to decide which position is correct. The published position is plotted with the project index numbers - H289, H308, H317A, H317B, H317C, the aerotriangulation position with LT5_ _.

Point #126 is a water tank plotted with the aerotriangulation position.

CM-8313
RATIO VALUES

BLACK-AND-WHITE INFRARED MLW PHOTOGRAPHS

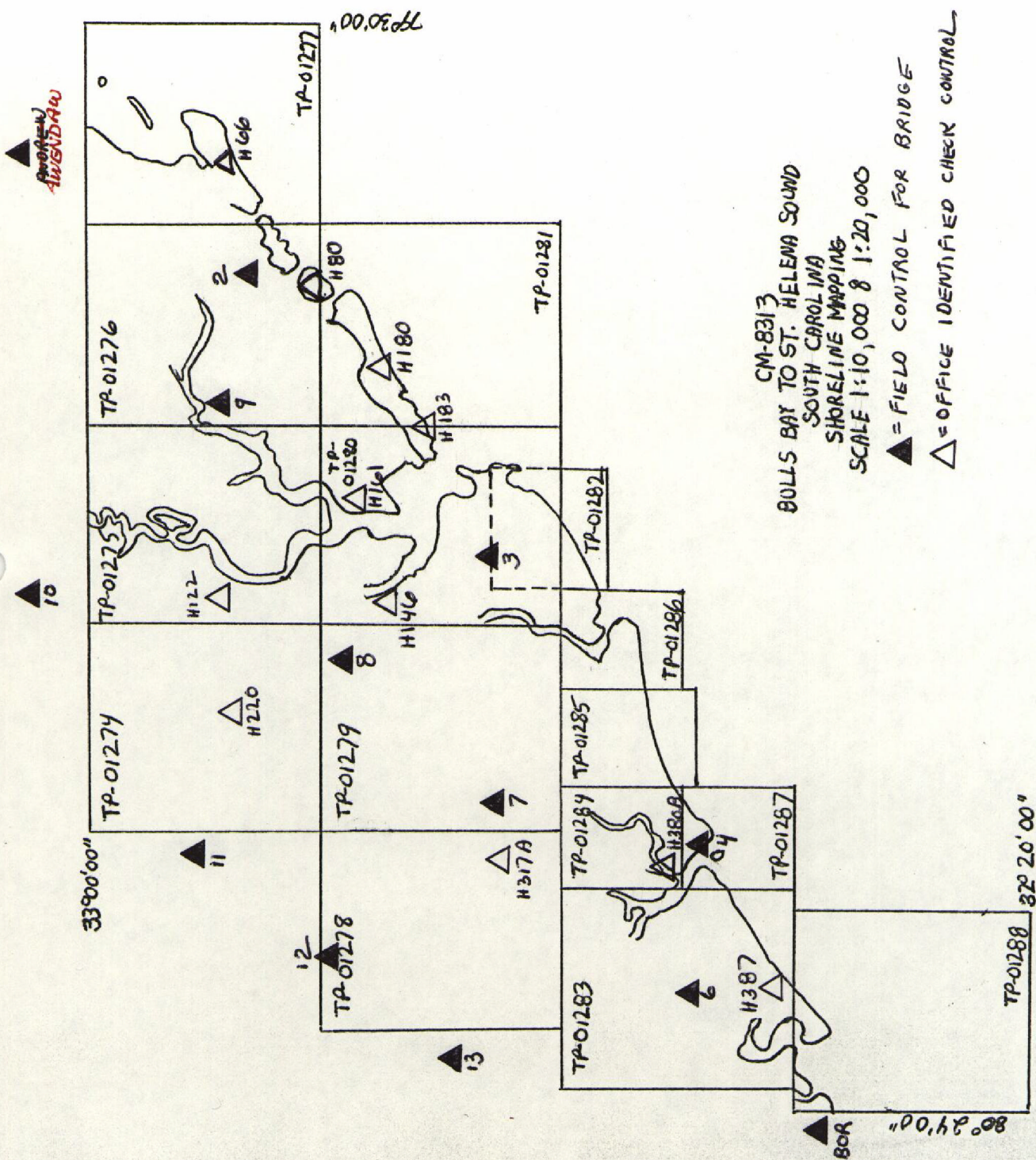
<u>PHOTO NO'S.</u>	<u>RATIO</u>
85-ER-3412 thru 3413	2.52
3430 thru 3443	2.52
3450 thru 3465	2.52
3471 thru 3489	2.52
3496 thru 3508	2.52
3539 thru 3551	3.02
3558 thru 3572	3.02
3578 thru 3581	3.02

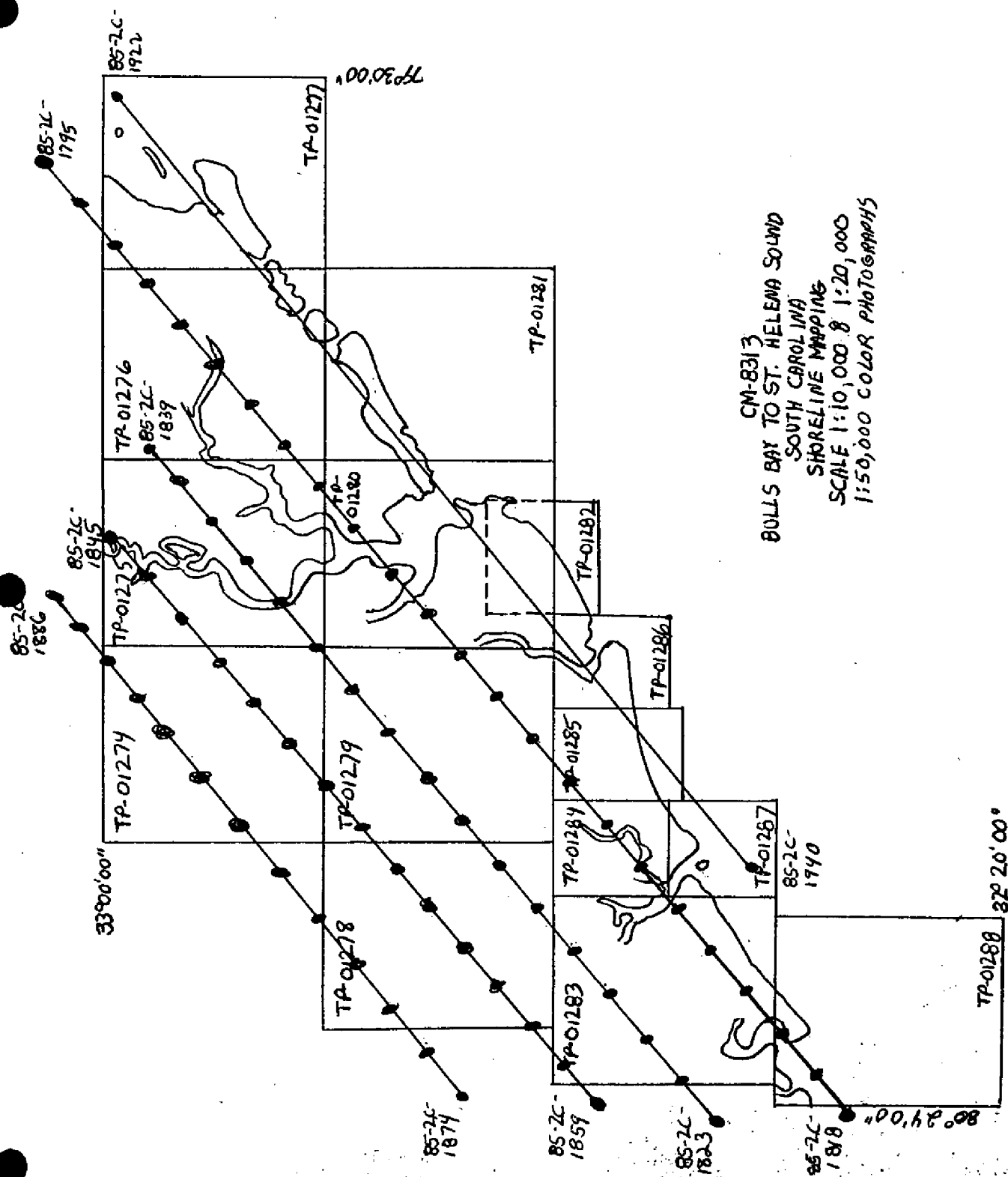
COLOR BRIDGING PHOTOGRAPHS

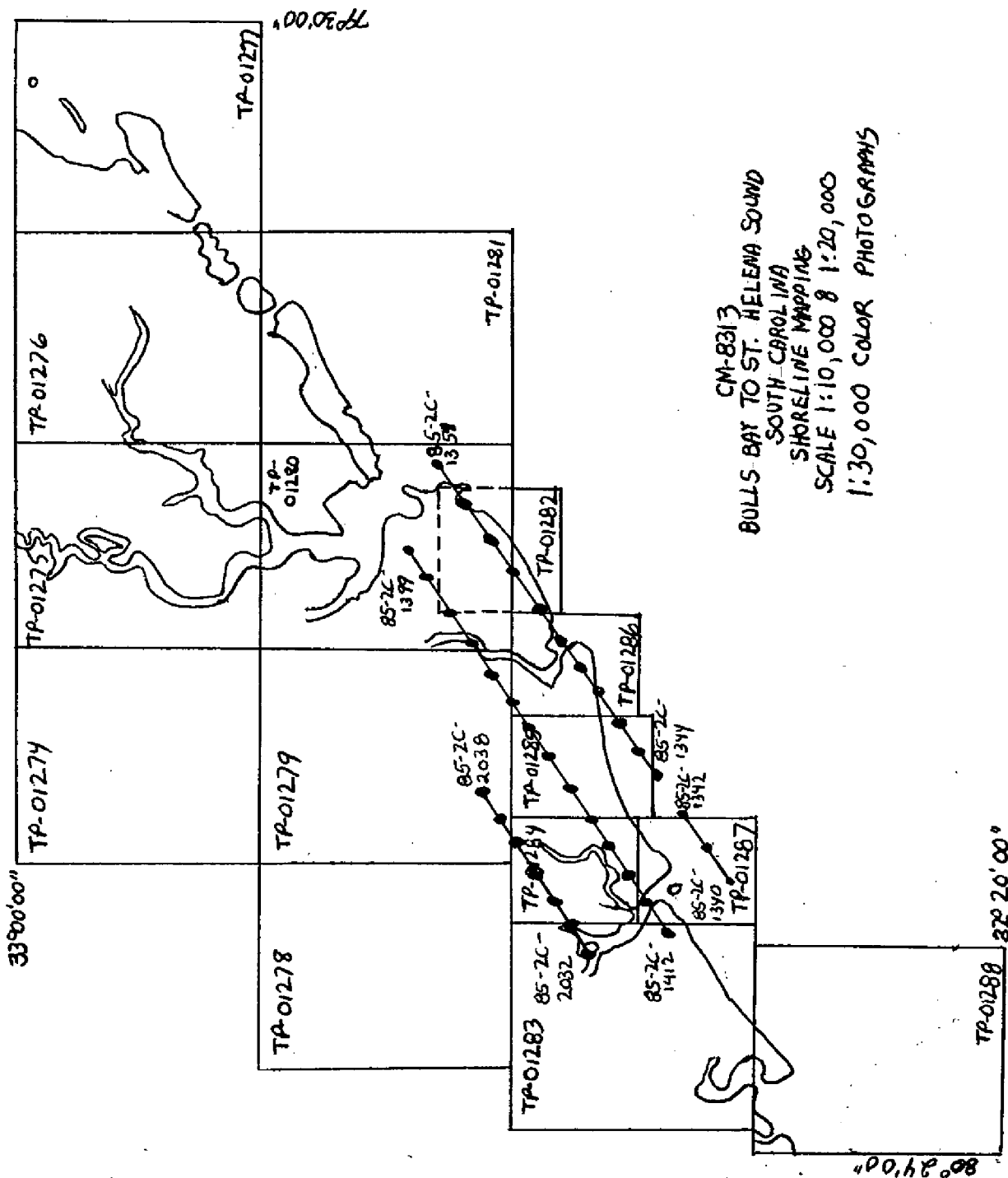
<u>ACTUAL NUMBERS</u>	<u>BRIDGING NUMBERS</u>	<u>RATIO</u>
85-ZC-1341 thru 1354	3901 thru 3911	2.93
1399 thru 1412	3801 thru 3814	2.92
1795 thru 1818	5201 thru 5224	2.43
1823 thru 1839	5301 thru 5317	2.44
1845 thru 1859	5401 thru 5415	2.44
1874 thru 1886	5501 thru 5513	2.44
1922 thru 1940	5101 thru 5119	2.44
2033 thru 2038	3701 thru 3706	2.95

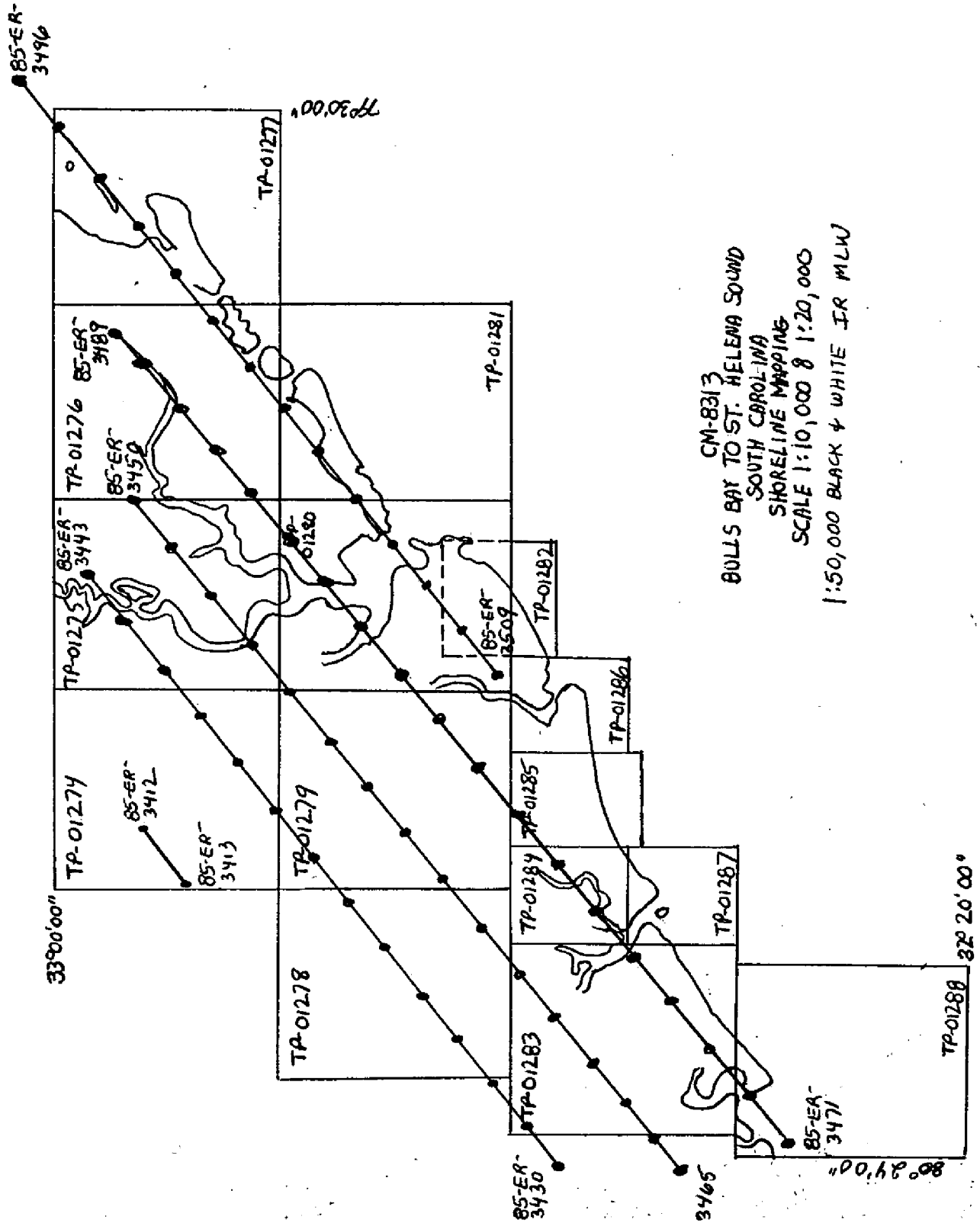
CM-8313
FIT TO CONTROL
BLOCK ADJUSTMENT
▲ = CONTROL HELD

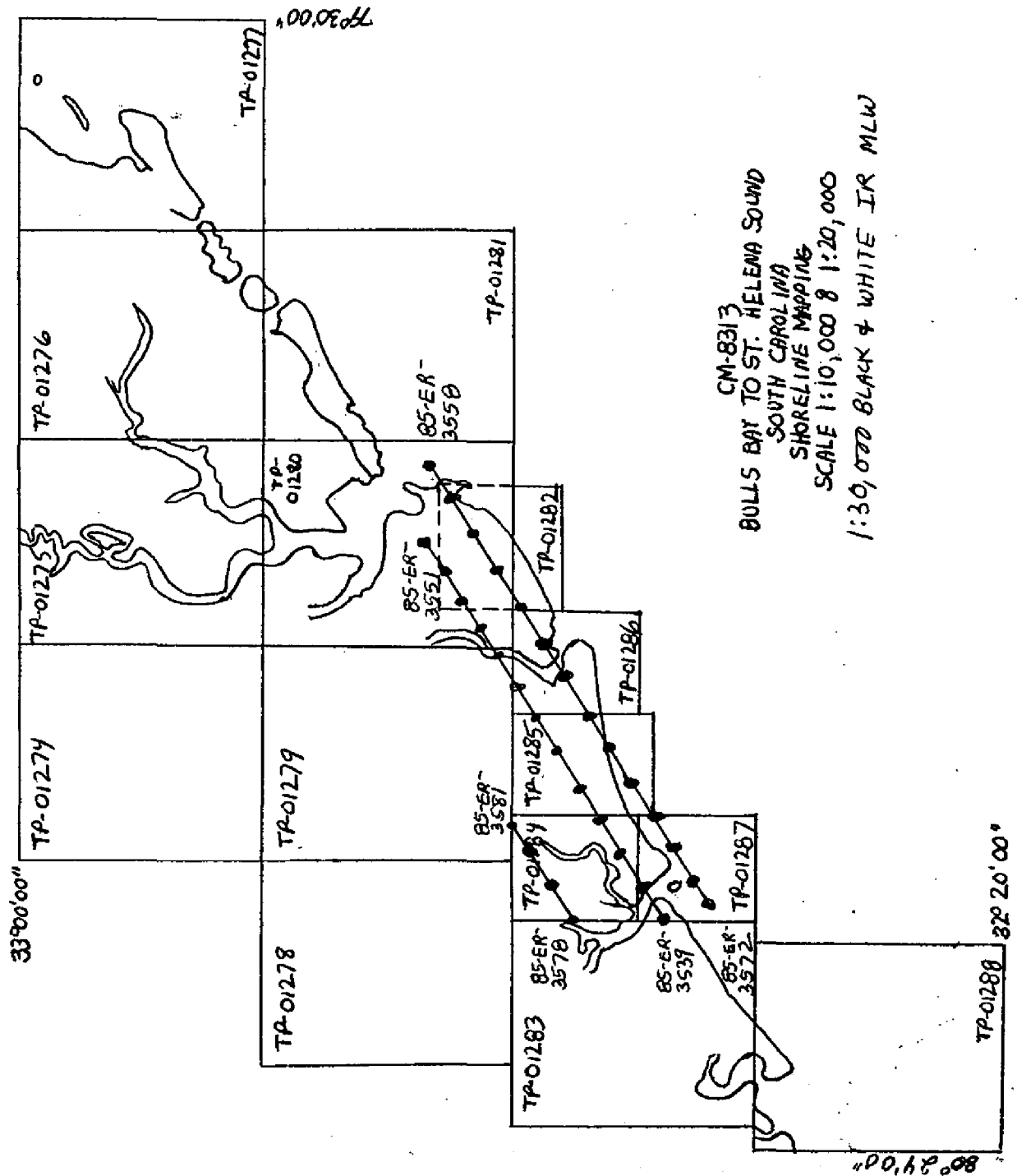
<u>STATION NAME</u>	<u>AERO NO.</u>	<u>X FT.</u>	<u>Y FT.</u>
White, 1934 RM #1	▲114101	+ 1.1	- 3.0
Oswald 2, 1963 S.S.	▲108101	+ 1.5	+ 1.2
Cris, 1934 RM #1	▲102101	- 0.8	- 1.7
<i>John</i> Murray RM 5 S.S.	▲315101	+ 1.2	+ 2.0
<i>AWENDAW</i> ~~Andrew~~ 2, 1962 S.S. #1	▲224101	- 0.7	+ 0.2
<i>AWENDAW</i> ~~Andrew~~ 2, 1962 S.S. #2	▲224102	- 0.9	+ 0.6
Bor Sub Station A	▲201101	0.0	- 0.3
Renken Sub Point	▲310101	+ 1.9	- 1.5
Ken Sub Point	▲306101	+ 1.4	+ 1.5
Tuxberry RM 1	▲301101	- 2.5	- 0.5
Noll Sub Point	▲501101	- 0.4	+ 1.7
Fire Sub Point	▲506101	- 0.1	+ 0.7
Warren Sub Point	▲510101	- 2.3	+ 2.1
Run Sub Point	▲513101	+ 0.6	- 0.1
Bull Island Coast Guard Tower 1937	H66	+ 4.8	- 5.9
Deweese Is. Coast Artillery Tower, 1963	H80	+ 0.8	- 0.9
Port Terminal Tank, 1919	H122	+ 3.2	- 2.3
Windemere Tank, 1928	H146	+10.6	- 8.3
Mt. Pleasant Range Rear Lt., 1963	H161	+ 7.8	- 4.0
Mt. Pleasant TV Sta WSCS Mast, 1963	H167	-10.4	+4.0
Isle of Palms Municipal Tank, 1963	H180	+ 3.2	- 2.6
Sullivans Island Township Comm Tank, 1963	H183	- 2.3	- 3.9
Charleston AFB Mun. Apt. Twn. BN., 1963	H222	+ 1.6	- 5.6
Charleston AFB Mun. Apt. Tank 2, 1963	H224	+ 6.4	- 0.3
Charleston AFB Mun. Apt. Tank 1, 1963	H220	+ 3.8	0.0
Wadmalaw River Lt. 96, 1963	H308	+ 3.0	+ 9.0
Wadmalaw River Range Front Lt., 1960	H317A	+ 8.0	- 8.0
Wadmalaw River Range Rear Lt., 1960	H317C	+ 3.6	+ 1.5
Wadmalaw River Light 69, 1960	H319	+ 3.5	-12.4
North Edisto River Ent. Rng. R. Lt., 1953	H380B	+ 5.8	- 0.2
Edisto Beach St. Park Water Tank, 1963	H387	+ 3.0	- 7.6
Folly Beach Township Water Tank, 1956	H208	+ 0.2	- 0.9











APPENDIX D
PROJECT OFFICE INSTRUCTIONS



24

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

APR 10 1989

Chief, Photogrammetry Branch
Atlantic Marine Center

PROJECT INSTRUCTIONS: OFFICE - Project CM-8313, Bulls Bay to
St. Helena Sound, South Carolina, 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. Fifteen maps will be produced; TP-01274 through TP-01288. Maps TP-01282 and TP-01284 through TP-01288 will be produced at 1:10,000 scale, the others will be 1:20,000 scale. Coverage will include the outer coastline and the shoreline areas of adjacent navigable waters; e.g. the Intracoastal Waterway, connecting rivers and bays. All data collection and processing will be based on NAD 27. 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.

<u>Type</u>	<u>Scale</u>	<u>Camera</u>	<u>Date</u>
Color	1:50,000	Wild RC-10 (Z)	3/13/85
Color	1:30,000	Wild RC-10 (Z)	3/3/85
Color	1:30,000	Wild RC-10 (Z)	3/6/85
Color	1:30,000	Wild RC-10 (Z)	3/13/85



2

Infrared (B&W)	1:50,000	Wild RC-8 (E)	12/7/85
Infrared (B&W)	1:50,000	Wild RC-8 (E)	12/9/85
Infrared (B&W)	1:30,000	Wild RC-8 (E)	12/10/85
Panchromatic	1:40,000	Wild RC-10 (Z)	2/15/84

In general, the 1:50,000-scale photographic coverage will be used for 1:20,000 mapping, the 1:30,000-scale photography for 1:10,000 mapping. This infrared photography was tide-coordinated. Available infrared photographic coverage will be used to develop the approximate MLLW line and complement shoreline delineation. The infrared photography performed December 7, 1985 was coordinated based on the MHW tidal datum; this coverage only extends over the northwestern portion of the project. All other infrared photography was taken based on the MLLW datum. Except for a small area, the MLLW infrared coverage extends over the entire project site. The exception is within the limits of TP-01286; complete coverage along the coastline in the immediate vicinity of Stono Inlet was not obtained; e.g. offshore shoal areas.

2.4. Aerotriangulation

2.4.1. Eight strips of color photographs were bridged using analytical aerotriangulation methods; five strips of 1:50,000-scale photography and three strips of 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 final aerotriangulation adjustment was effected as a block. The amount of aerotriangulated control proved adequate and meets National Standards of Map Accuracy and NOS accuracy requirements. Aerotriangulated control is based on NAD 27.

2.4.2. Aerotriangulated control points were not established in two isolated instances. Control could not be determined for all the 1:30,000-scale color photographs common to the survey limits of TP-01287; definitive common image points could not be identified and adequately transferred/measured between overlapping photographs. Control could not be adequately extended, using the 1:50,000-scale color photographs, to the northern coastline peninsula of Bulls Bays, which is located within the limits of TP-01277. The 1:40,000-scale photographs of this area were bridged under project CM-8303, the adjoining project to the north, and will be provided as a supplemental compilation source.

2.5. Charts Affected. Charts 11517, 11518 PF, 11521 through 11527, and 11531 depict areas common to this survey. Charts 11521 and 11531 are 1:80,000 scale, the others are 1:40,000 scale or larger.

2.6. Datums. The horizontal datum requirement is NAD 27. 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 have been determined based on reference station for the Charleston Custom House gage and published hourly height and time differences to selected subordinate sites. This information is indicated in a office memorandum (N/CG2321:GF, Tide Data, CM-8313, dated 10/25/88) which will be furnished.

2.8. Miscellaneous. This project will adjoin two contemporary projects, CM-8303 and CM-8506.

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. Nautical charts and USGS quadrangles
- 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
- k. Field data

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 stereo-plotters. 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. Complete infrared coverage was not obtained for TP-01286; refer to section 2.3. Compile sufficient coastal detail and/or common image points from the bridged photographs to control graphic compilation.

5.2.2. It will be necessary to use the 1:50,000-scale bridged photographs to compile the area of TP-01287 where the 1:30,000-scale coverage could not be bridged. This will require using an analytical stereo-plotter. Coordinate this phase of compilation with N/CG2321. Panchromatic photographs (1:40,000 scale) were bridged under project CM-8303, the adjoining project to the north, and provide coverage of the northern portion of Bulls Bay; refer to section 2.3. Compare these bridged photographs with the color photographs acquired for this project. If the photographic representation of these features are common, use the bridged panchromatic photographs to supplement the compilation (TP-01277) and properly document.

5.2.3. Where selectivity is required because of density of detail, features that have landmark significance are 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. Instead, a representative pattern of the symbol or area outline is to be shown, augmented by an explanatory note. Small features, especially when dangerous to navigation, may be slightly exaggerated in size, closely resembling their true shape; e.g., bare rock, islet.

5.2.4. Final manuscripts will depict the Lambert Conformal Conic Projection (full line) and grid ticks based on the South Carolina State Coordinate System (South Zone).

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 0, 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, 5.2.2, 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 5.2.3.

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.

<u>Types of Data</u>	<u>Distribution</u>
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 5.2.2 and 5.15.

6.0. SCHEDULE

Schedule project completion by September 30, 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.

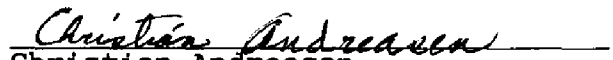
8.0. COSTS

All costs incurred on this assignment shall be charted 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-8313

TP-01274

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)5505-5507	03-13-85	11:07	1:50,000	+3.3 ft
85Z(C)5410, 5411	03-13-85	10:13	1:50,000	+2.5 ft
85Z(C)5306, 5307	03-13-85	09:56	1:50,000	+2.2 ft
85E(R)3412-3413	12-09-85	10:56	1:50,000	+1.1 ft
85E(R)3438-3440	12-09-85	11:09	1:50,000	+1.7 ft
85E(R) 3454	12-09-85	11:27	1:50,000	+0.2 ft
				MEAN TIDE RANGE = 5.2 ft

COMPILER: P.L. Evans, Jr.

DATE: 04/20/89

REVIEWER: C. Blood

DATE: 04/25/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated, based on subordinate station records for Greggs Landing and Goose Creek.

DESCRIPTIVE DATA

CM-8313

TP-01275

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1834-1839	03-13-85	09:56	1:50,000	+2.2 ft MLLW
85Z(C)1845-1848	03-13-85	10:13	1:50,000	+2.2 ft MLLW
85Z(C)1801-1804	03-13-85	09:24	1:50,000	+1.6 ft MLLW
85E(R)3361-3363	12-07-85	15:29	1:50,000	-0.8 ft MLLW
85E(R)3483,3485,3487	12-09-85	11:48	1:50,000	at MLLW
85E(R)3454	12-09-85	11:27	1:50,000	+0.2 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: R. Zepp/F. Mauldin

DATE: 10/20/89

REVIEWER: Robert R. Kravitz

DATE: 11/15/89

COMPILATION REMARKS:

All tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated, based on subordinate station records for Greggs Landing and Goose Creek.

DESCRIPTIVE DATA

CM-8313

TP-01276

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1798-1802	03-13-85	09:24	1:50,000	+1.6 ft MLLW
85Z(C)1838-1839	03-13-85	09:56	1:50,000	+2.2 ft MLLW
85Z(C)1925-1929	03-13-85	11:33	1:50,000	+3.6 ft MLLW
85E(R)3485-3488	12-09-85	11:48	1:50,000	at MLLW
85E(R)3501-3503	12-09-85	12:08	1:50,000	+0.1 ft MLLW
				MEAN TIDE RANGE =5.2 ft

COMPILER: P. L. Evans

DATE: 9/12/89

REVIEWER: C. Blood

DATE: 11/30/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.
 Color compilation photography is based on predicted tide tables for Charleston.
 The infrared photography is tide coordinated, based on tide records for Charleston Custom House.

DESCRIPTIVE DATA

CM-8313

TP-01277

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1922-1926	03-13-85	11:34	1:50,000	+3.6 ft MLLW
85Z(C)1796,1797	03-13-85	09:24	1:50,000	+1.6 ft MLLW
85E(R)3498-3501	12/09/85	12:09	1:50,000	+0.1 ft MLLW
84Z(P)1051	02/15/84	14:40	1:40,000	+1.3 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER - D. Miller

DATE - 12/19/89

REVIEWER - F. Mauldin

DATE - 12/21/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston

Custom House, also the panchromatic photo 84Z(P)1051 of Project CM-8303.

The infrared photography is tide coordinated, based on the Charleston Custom House gage.

DESCRIPTIVE DATA

CM-8313

TP-01278

MAP SCALE - 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1827-1830	03-13-85	09:56	1:50,000	+2.2 ft MLLW
85Z(C)1852-1857	03-13-85	10:13	1:50,000	+2.5 ft MLLW
85E(R)3460-3461	12-09-85	11:27	1:50,000	+0.1 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER - A. Cranfill

DATE - 12/22/89

REVIEWER - C. Blood

DATE - 02/02/90

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated, based on subordinate station records for Bears Bluff.

DESCRIPTIVE DATA

CM- 8313

TP-01279

MAP SCALE - 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1934-1935	03-13-85	11:35	1:50,000	+3.6 ft above MLLW
85Z(C)1806-1810	03-13-85	09:20	1:50,000	+1.6 ft above MLLW
85Z(C)1830-1834	03-14-85	04:55	1:50,000	+2.2 ft above MLLW
85Z(C)1851, 1852	03-14-85	10:12	1:50,000	+2.5 ft above MLLW
85E(R)3480	12-09-85	11:50	1:50,000	+0.1 ft above MLLW
85E(R)3457	12-09-85	11:27	1:50,000	+0.2 ft above MLLW
85E(R)3356, 3357, 3358	12-07-85	15:30	1:50,000	-0.8 ft below MHW
				Mean Tide Range = 5.2 ft

COMPILER - A.L. Grimes

DATE - 09/28/89

REVIEWER - C.E. Blood

DATE - 11/29/89

COMPILATION REMARKS:

DESCRIPTIVE DATA

CM-8313

TP-01280

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1930-1935	03-13-85	11:33	1:50,000	+3.6 ft MLLW
85Z(C)1803-1807	03-13-85	09:23	1:50,000	+1.6 ft MLLW
85Z(C)1834-1835	03-13-85	09:56	1:50,000	+2.2 ft MLLW
85E(R)3505,3507	12-09-85	12:08	1:50,000	+1 ft MLLW
85E(R)3480-3483	12-09-85	11:48	1:50,000	at MLLW
85E(R)3454	12-09-85	11:27	1:50,000	+0.2 ft MLLW
85E(R)3547,3548	12-10-85	12:36	1:50,000	+0.2 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: D. Miller

DATE: 8/2/89

REVIEWER: C. Blood

DATE: 8/30/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated based on the Charleston Custom House gage and subordinate station records for Goose Creek.

DESCRIPTIVE DATA

CM-8313

TP-01281

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1927-1931	03-13-85	11:33	1:50,000	+3.6 ft MLLW
85E(R)3503, 3505	12-09-85	12:14	1:50,000	+0.1 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: A. L. Grimes

DATE: 4/14/89

REVIEWER: Fay T. Mauldin

DATE: 4/18/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated based on the Charleston Custom House.

DESCRIPTIVE DATA

CM-8313

TP-01282

MAP SCALE 1:10,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1349-1353	03-03-85	11:31	1:30,000	+0.6 ft MLLW
85Z(C)1400-1402	03-06-85	10:27	1:30,000	+1.9 ft MLLW
85E(R)3559-3562	12-10-85	12:44- 12:52	1:30,000	-0.4 ft MLLW
85E(R)3550	12-10-85	12:32- 12:39	1:30,000	-0.4 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: David R. Miller

DATE: 05/01/89

REVIEWER: C. Blood

DATE: 05/06/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated based on subordinate station records for Snake Island.

Photograph 3550 was enlarged by the vertical projector to complete the MLLWL.

DESCRIPTIVE DATA

CM-8313

TP-01283

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1812-1817	03-13-85	09:24	1:50,000	+1.6 ft MLLW
85Z(C)1824-1828	03-13-85	09:56	1:50,000	+2.2 ft MLLW
85Z(C)1857-1858	03-13-85	10:13	1:50,000	+2.5 ft MLLW
85E(R)3430	12-09-85	11:09	1:50,000	-0.5 ft MLLW
85E(R)3461-3464	12-09-85	11:27	1:50,000	+0.1 ft MLLW
85E(R)3472-3476	12-09-89	11:48	1:50,000	+0.1 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: P.L. Evans

DATE: 01/10/90

REVIEWER: C. Blood

DATE: 01/24/90

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated based on subordinate station records for Dawho Bridge and Bears Bluff.

DESCRIPTIVE DATA

CM-8313

TP-01284

MAP SCALE 1:10,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1408-1411	03-06-85	10:27	1:30,000	+1.9 ft MLLW
85Z(C)2033-2037	03-13-85	14:36	1:30,000	+3.6 ft MLLW
85E(R)3540-3542	12-10-85	12:36	1:30,000	-0.4 ft MLLW
85E(R)3578 3581	12-10-85	13:03	1:30,000	-0.5 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: Robert R. Kravitz

DATE: 12-19-89

REVIEWER: C. Blood

DATE: 01-09-90

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated based on subordinate station records for Bears Bluff and Snake Island.

DESCRIPTIVE DATA

CM-8313

TP-01285

MAP SCALE 1:10,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1345-1346	03-03-85	11:31	1:30,000	+0.6 ft MLLW
85Z(C)1404-1409	03-06-85	10:27	1:30,000	+1.9 ft MLLW
85E(R)3566-3568	12-10-85	12:48	1:30,000	-0.4 ft MLLW
85E(R)3543-3546	12-10-85	12:36	1:30,000	-0.4 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: Albert L. Grimes

DATE: 08/04/89

REVIEWER: C. Blood

DATE: 09/29/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated based on subordinate station records for Snake Island.

DESCRIPTIVE DATA

CM-8313

TP-01286

MAP SCALE 1:10,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1346-1349	03-03-85	11:31	1:30,000	+0.6 ft MLLW
85Z(C)1403-1406	03-06-85	10:27	1:30,000	+1.9 ft MLLW
85E(R)3547	12-10-85	12:32- 12:39	1:30,000	-0.4 ft MLLW
85E(R)3563-3565	12-10-85	12:44- 12:52	1:30,000	-0.4 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: R. R. Kravitz

DATE: 08/02/89

REVIEWER: C. Blood

DATE: 09/11/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated based on subordinate station records for Snake Island.

DESCRIPTIVE DATA

CM-8313

TP-01287

MAP SCALE 1:10,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1409-1412	03-06-85	10:27	1:30,000	+1.9 ft MLLW
85Z(R)3539-3541	12-10-85	12:36	1:30,000	-0.5 ft MLLW
85Z(R)3570-3572	12-10-85	12:50	1:30,000	-0.4 ft MLLW
*85Z(C)1939-1940	03-13-85	11:33	1:50,000	+3.6 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: D. R. Miller

DATE: 12/01/89

REVIEWER: F. T. Mauldin

DATE: 12/14/89

COMPILATION REMARKS:

The MLLW infrared photography was tide coordinated based on reference station records for staff at Charleston Custom House and published time and height differences for subordinate station Folly Island. The color photography was based on predicted tides.

All tide data is referenced to Eastern Standard Time.

* This map was compiled by analog method with one exception. The island, latitude 32 32.5', longitude 80 10.2' was compiled by analytical method using the above listed 1:50,000 color photography. The island was plotted on the Hewlett-Packard plotter and transferred graphically to the map. The MLLW line was compiled graphically from the above listed tide coordinated MLLW infrared photography.

DESCRIPTIVE DATA

CM-8313

TP-01288

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
85Z(C)1816-1817	03-13-85	09:24	1:50,000	+1.6 ft MLLW
85E(R)3471, 3472	12-09-85	11:48	1:50,000	+0.1 ft MLLW
				MEAN TIDE RANGE = 5.2 ft

COMPILER: Robert R. Kravitz

DATE: 06/29/89

REVIEWER: Charles Blood

DATE: 07/05/89

COMPILATION REMARKS:

Tide data is referenced to Eastern Standard Time.

Color compilation photography is based on predicted tide tables for Charleston Custom House.

The infrared photography is tide coordinated based on subordinate station records for Bears Bluff.

APPENDIX F
APPROVED GEOGRAPHIC NAMES

GEOGRAPHIC NAMES
FINAL NAME SHEET
CM-8313 (Bulls Bay to St. Helena Sound, SC)

TP-01274

Accabee Flats
Ashley River
Brickyard Creek
Church Creek
Cohen Hill (locale)
Cowhead Reach
CSX (RR)
Dorchester Creek
Drayton
Drayton Hall
Eagle Creek
Fort Bull (locale)
Goose Creek
Goose Creek Reservoir
Greggs Landing
Joshua
Keivling Creek
Lambs
Macbeth Creek
Middleton Place
Popperdam Creek
Runnymede
Sawpit Creek
Wando Woods (locale)
West Marsh Island

TP-01275

Anneville
Ashley River
Back River
Beresford Creek
Bermuda Creek
Big Island (1)
Big Island (2)
Brown Pond
Charleston Heights
Clouter Creek
Cooper River
CSX (RR)
Daniel Island
Deweys Hill (locale)
Dorchester
Dutchman Island

Dutes Pond
East Marsh Island
Filbin Creek
Flagg Creek
Foster Creek (1)
Foster Creek (2)
Goose Creek
Grove Creek
Hard Landing
Hobcaw Creek
Hopewell Creek
Horlbeck Creek
Johnfield Creek
Juba Island
Logan Pond
Long Point
Lyman Creek
Martin Creek
Martins Point Landing
Murray Landing
New Tenant Pond
Noisette Creek
North Charleston
Nowell Creek
Old Goose Creek
Old Tenant Pond
Parker Island
Point Hope Island
Ralston Creek
Rathall Creek
Red Bank Landing
Rodent Island
Sanders Creek
Sevenmile (locale)
Shipyard Creek
Snowden
Snow Point
Southern (RR)
Stack Reach
The Grove (locale)
Thomas Island
Venning Landing
Wando River
Waylyn
Whipper-Barnoy
Woods Point

2

Yellow House Creek
Yellow House Landing

TP-01276

Alston Creek
Atlantic Ocean
Big Hill Marsh
Big Paradise Island
Boone Hall Creek
Bullyard Sound
Cainhoy
Capers Creek
Capers Inlet
Capers Island
Cat Island
Chandler
Clauson Creek
Copahee Sound
Crab Bank
Darts Point
Deep Creek
Dewees Creek
Dewees Island
Dorrill Creek
Fogarty Creek
Goat Island
Guerin Creek
Hamlin Sound
Horlbeck Creek
Horsebend Creek
Intracoastal Waterway
Lachicotte Creek
Little Paradise Island
Mark Bay
Mary Island
Mill Creek
O'Hare Point
Old House Creek (1)
Old House Creek (2)
Palmetto Point
Parker Island
Philip
Porcher Bluff (locale)
Price Creek
Santee Pass
Schooner Creek
Ten Mile (locale)
Toomer Creek (1)
Toomer Creek (2)
Toomer Point
Wagner Creek

Wagner Point
Wando
Wando River
Watermelon Creek
White Point
Whiteside Creek
Woodville

TP-01279

Abbapoola Creek
Ashley River
Bohicket Creek
Bulls Creek
Buzzards Roost Point
Charleston
Church Creek (1)
Church Creek (2)
CSX (RR)
Elliott Cut
Fenwick Crossroads (locale)
Hoopstick Island
Hut Creek
Intracoastal Waterway
James Island
Johns Island (1)
Johns Island (2)
Johns Island Airport
Log Bridge Creek
Long Branch Creek
Melrose
New Cut
Oakland
Pennys Creek
Pierpont
Pleasant Point
Rantowles
Rantowles Creek
Red Top (locale)
Saint Andrews
Sandy Bay
Stono River
Sylvia Lane (locale)
Wadmalaw Island
Wallace River
Wappoo Creek
West Marsh Island

TP-01280

Albemarle Point
Ashley River
Bass Creek
Centerville
Charleston Harbor
Conch Creek
Cooper River
Cove, The
Crab Bank
CSX (RR)
Cummings Point
Daniel Island
Drum Island
Duck Island
Elliott Cut
Folly Creek
Fort Johnson (site)
Fort Sumter (site)
Goldbug Island
Haddrell Point
Hobcaw Creek
Hobcaw Point
Hog Island
Holland Island Creek
Intracoastal Waterway
James Island
James Island Creek
Jeanette Creek
Johns Island
Johns Island Airport
King Flats Creek
Molasses Creek
Morris Island
Mount Pleasant
Myers
Myers Bend
Newmarket Creek
Old town Creek
Orangegrove Creek
Oyster Point
Parrot Point
Parrot Point Creek
Patriots Point
Plum Island
Remly Point
Saint Andrews
Scanlonville
Schooner Creek
Shem Creek
Shipyard Creek

Shutes Folly Island
Simpson Creek
Sol Legare Island
Southern (RR)
Stono
Stono River
Sullivans Island
Sullivans Island (locale)
Sullivans Island Narrows
Town Creek
Wando River
Wappoo Creek
Wolfpit Run

TP-01281

Atlantic Ocean
Big Hill Marsh
Breach Inlet
Cedar Creek
Clubhouse Point
Conch Creek
Deweese Creek
Deweese Inlet
Deweese Island
Eagle Island
Goat Island
Gray Bay
Hamlin Creek
Hamlin Sound
Inlet Creek
Intracoastal Waterway
Isle of Palms
Isle of Palms (locale)
Little Goat Island
Long Creek
Meeting Reach
Morgan Creek
Old House Creek
Pine Island
Seven Reaches
Sullivan Island
Sullivan Island (locale)
Swinton Creek

TP-01282

Atlantic Ocean
Block Island Creek
Bowen Island
Cutoff Reach
First Sister Creek

4

Folly Beach
 Folly Beach (locale)
 Folly Creek
 Folly Island
 Folly River
 Fort Johnson Creek
 Goat Island
 Heron Island
 Lighthouse Creek
 Lighthouse Inlet
 Long Island
 Morris Island
 Oak Island
 Oak Island Creek
 Pea Island
 Rat Island
 Rat Island Creek
 Riverland
 Robbins Creek
 Seaside
 Seaside Creek
 Secessionville
 Secessionville Creek
 Second Sister Creek
 Sol Legare Island

TP-01285

Abbapoota Creek
 Atlantic Ocean
 Bryans Creek
 Chaplin Creek
 Eagle Point
 Haulover Creek
 Johns Island
 Kiawah Island
 Kiawah River
 Legareville
 Mullet Hall (locale)
 Seabrook Island
 Shullbred Point

TP-01286

Abbapoola Creek
 Alligator Creek
 Atlantic Ocean
 Bass Creek
 Bird Key
 Chaplin Creek
 Cinder Point
 Cole Island

Cutoff Reach
 Folly Creek
 Folly Island
 Folly River
 Green Creek
 James Island
 Kiawah Island
 Kiawah River
 Legareville
 Robbins Creek
 Sandy Point
 Snake Island
 Stono Inlet
 Stono River
 Thumb Point

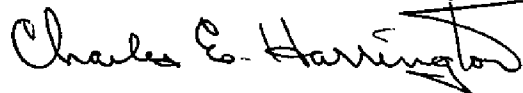
TP-01287

Atlantic Ocean
 Captain Sams Creek
 Captain Sams Inlet
 Deveaux Bank
 Edisto Island
 Kiawah Island
 Kiawah River
 Long Island
 North Edisto River
 Ocella Creek
 Privateer Creek
 Privateer Point
 Seabrook Beach
 Seabrook Island
 South Creek

TP-01288

Atlantic Ocean
Bay Point
Big Bay Creek
Edisto Beach
Edisto Beach (locale)
Edisto Island
Fish Creek
Jefford Creek
Otter Creek
Otter Islands
Pine Island
Pine Island Creek
St. Helena Sound
Scott Creek
South Edisto River

APPROVED:

A handwritten signature in cursive script, reading "Charles E. Harrington". A long horizontal line extends from the end of the signature to the right.

Charles E. Harrington
Chief Geographer, Nautical
Charting Division

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-8313 (Bulls Bay to St. Helena Sound, S.C.)

TP-01277

Anderson Creek
Atlantic Ocean
Back Creek
Belvedere Creek
Bird Island
Bird Island Shoal
Blind Creek
Bull Creek
Bull Harbor
Bull Island
Bull Narrows
Bulls Bay
Capers Island
Hickory Bay
Intracoastal Waterway
Jack Creek
Lower Summerhouse Pond
Moccasin Pond
Moores Landing
Northeast Point
Price Creek
Price Inlet
Saltpond Creek
Schooner Creek
Sewee Bay
Summerhouse Creek
Upper Summerhouse Pond
Vanderhorst Creek
Venning Creek
White Island

TP-01278

Berry Hill (locale)
Church Creek
Church Flats
CSX (RR)
Gibson
Goshen
Goshen Point
Intracoastal Waterway
Lower Toogoodoo Creek
Meggett
New Cut Landing
New Cut

New Cut
Oyster House Creek
Rivers (locale)
Stono River
Swinton Creek
Toogoodoo Creek
Wadmalaw Island
Wadmalaw Island (locale)
Wadmalaw River
Wadmalaw Sound
Wallace
Yonges Island

TP-01283

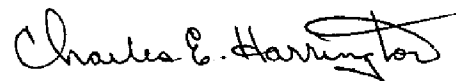
Atlantic Ocean
Bailey Creek
Bears Bluff (locale)
Big Bay Creek
Bluff Point
Botany Bay Island
Dawho River
Edingville Beach
Edisto Beach
Edisto Island (locale)
Edisto Island
Fishing Creek (1)
Fishing Creek (2)
Frampton Creek
Frampton Inlet
Intracoastal Waterway
Jehossee Island
Jeremy Inlet
Leadenwah Creek
Little Britton Island
Little Edisto (locale)
Little Edisto Island
Milton Creek
Mud Creek
Neck, The
North Creek
North Edisto River
Ocella Creek
Park Island
Peters Point
Pine Island
Pine Island Creek

Pines, Point of
Pockey Island
Rabbits Point
Russel Creek
Sand Creek
Scanawah Island
Scott Creek
Shingle Creek
Slann Island
South Edisto River
St. Pierre Creek
Steamboat Creek
Steamboat Landing
Store Creek
Tom Point Creek
Toogoodoo Creek
Townsend River
Wadmalaw Island
Wadmalaw Point
Wadmalaw River
Westbank Creek
White Point
White Point Landing
Whooping Island
Whooping Island Creek

TP-01284

Adams Creek
Bloody Point
Bohicket Creek
Cherry Point
Fickling Creek
Haulover Creek
Horse Island
Jenkins Point
Johns Island
Kiawah River
Leadenwah Creek
Long Island
North Edisto River
Rockland
Rockville
Seabrook Island
Wadmalaw Island

Approved:



Charles E. Harrington
Chief Geographer, Nautical
Charting Division

APPENDIX G
CARTOGRAPHIC FEATURES OF CHARTING INTEREST

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

COASTAL MAPPING PROJECT: CM-8313, BULLS BAY TO ST HELENA SOUND, SC

NOS CHARTS AFFECTED: 11517, 11518, 11521, 11522, 11523, 11524, 11525, 11526, 11527, and 11531

GEODETIC DATUM: NAD 1927

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 (-'-")		NCD Q.C.	DATE OF LOCATION
		LATITUDE	LONGITUDE		
COOPER RIVER					
LOWER RANGE FRONT LIGHT	208	32 50 49.12	79 55 39.86	4	072/1985
LOWER RANGE REAR LIGHT	209	32 50 58.84	79 55 38.62	4	072/1985
UPPER RANGE FRONT LIGHT	208	32 50 56.61	79 55 43.45	4	072/1985
UPPER RANGE REAR LIGHT	209	32 50 53.16	79 55 36.62	4	072/1985
LIGHT 58	200	32 53 45.89	79 57 40.81	4	072/1985
RANGE A FRONT LIGHT	208	32 54 35.80	79 55 39.25	4	072/1985
RANGE A REAR LIGHT	209	32 54 37.27	79 55 28.11	4	072/1985
RANGE B FRONT LIGHT	208	32 54 26.73	79 56 07.09	4	072/1985
RANGE B REAR LIGHT	209	32 54 22.92	79 56 10.30	4	072/1985
LIGHT 68	200	32 54 41.77	79 55 45.91	4	072/1985
LIGHT 69	200	32 54 53.11	79 55 54.13	4	072/1985
RANGE C FRONT LIGHT	208	32 56 00.56	79 56 22.88	4	072/1985
LIGHT 70	200	32 55 12.45	79 55 43.48	4	072/1985
DAYBEACON 70A	224	32 55 24.50	79 55 51.90	7	072/1985
LIGHT 72	200	32 55 50.85	79 56 09.85	4	072/1985
RANGE G FRONT DAYBEACON	944	32 56 24.29	79 55 30.28	4	072/1985
RANGE G REAR DAYBEACON	944	32 56 09.70	79 55 21.30	7	072/1985
COOPER RIVER					
LIGHT 57	200	32 53 31.83	79 57 57.15	4	072/1985
DIKE LIGHT 46A	200	32 49 21.891	79 55 38.975	4	072/1985
DIKE LIGHT 47	200	32 49 27.657	79 55 55.790	4	072/1985
NORTH DEGAUSSING RANGE					
WEST PLATFORM LIGHT	200	32 49 56.712	79 55 56.392	4	072/1985

FEATURE DESCRIPTION	NCD	GEOGRAPHIC POSITION (-'-")		NCD	DATE OF
		CC	LATITUDE LONGITUDE		
DEGAUSSING RANGE EAST PLATFORM LIGHT ✓	200 ✓	32 46	27.844 ✓ 79 55 05.659 ✓	4 ✓	072/1985 ✓
DEGAUSSING RANGE WEST PLATFORM LIGHT ✓	200 ✓	32 46	27.501 ✓ 79 55 22.282 ✓	4 ✓	072/1985 ✓
BACK RIVER WATER INTAKE STRUCTURE OBSTRUCTION LT ✓	200 ✓	32 58	03.17 ✓ 79 56 18.62 ✓	4 ✓	072/1985 ✓
CLOUTER CREEK LIGHT ✓	200 ✓	32 52	59.31 ✓ 79 56 31.83 ✓	4 ✓	072/1985 ✓
U.S. NAVY PLATFORM LIGHT ✓	200 ✓	32 55	01.90 ✓ 79 55 41.30 ✓	7 ✓	072/1985 ✓
WANDO RIVER RANGE B FRONT DAYBEACON ✓	944 ✓	32 52	26.20 ✓ 79 51 09.30 ✓	7 ✓	072/1985 ✓
RANGE B REAR DAYBEACON ✓	944 ✓	32 52	26.80 ✓ 79 51 03.80 ✓	7 ✓	072/1985 ✓
RANGE C FRONT DAYBEACON ✓	944 ✓	32 53	06.20 ✓ 79 50 40.40 ✓	7 ✓	072/1985 ✓
RANGE C REAR DAYBEACON ✓	944 ✓	32 53	00.80 ✓ 79 50 40.20 ✓	7 ✓	072/1985 ✓
RANGE D FRONT DAYBEACON ✓	944 ✓	32 54	04.00 ✓ 79 50 27.10 ✓	7 ✓	072/1985 ✓
RANGE D REAR DAYBEACON ✓	944 ✓	32 53	59.00 ✓ 79 50 25.10 ✓	7 ✓	072/1985 ✓
RANGE E FRONT DAYBEACON ✓	944 ✓	32 54	30.00 ✓ 79 50 38.90 ✓	7 ✓	072/1985 ✓
RANGE A FRONT LIGHT ✓	208 ✓	32 48	26.767 ✓ 79 55 08.479 ✓	4 ✓	072/1985 ✓
RANGE A REAR LIGHT ✓	209 ✓	32 48	22.810 ✓ 79 55 12.916 ✓	4 ✓	072/1985 ✓
WINYAH BAY-CHARLESTON HARBOR LIGHT 65 ✓	200 ✓	32 57	31.99 ✓ 79 38 21.33 ✓	4 ✓	072/1985 ✓
LIGHT 68 ✓	200 ✓	32 57	06.26 ✓ 79 38 44.72 ✓	4 ✓	072/1985 ✓
LIGHT 71 ✓	200 ✓	32 56	34.96 ✓ 79 39 06.24 ✓	4 ✓	072/1985 ✓
LIGHT 76 ✓	200 ✓	32 55	50.11 ✓ 79 39 26.65 ✓	4 ✓	072/1985 ✓
LIGHT 80 ✓	200 ✓	32 55	07.32 ✓ 79 39 43.92 ✓	4 ✓	072/1985 ✓
LIGHT 82 ✓	200 ✓	32 54	37.816 ✓ 79 40 19.588 ✓	4 ✓	072/1985 ✓
LIGHT 86 ✓	200 ✓	32 54	08.385 ✓ 79 40 32.200 ✓	4 ✓	072/1985 ✓
LIGHT 89 ✓	200 ✓	32 53	38.247 ✓ 79 41 19.919 ✓	4 ✓	072/1985 ✓
LIGHT 92 ✓	200 ✓	32 53	02.231 ✓ 79 41 43.123 ✓	4 ✓	072/1985 ✓
LIGHT 96 ✓	200 ✓	32 52	05.085 ✓ 79 42 46.450 ✓	4 ✓	072/1985 ✓
LIGHT 99 ✓	200 ✓	32 51	38.433 ✓ 79 43 09.494 ✓	4 ✓	072/1985 ✓
LIGHT 103 ✓	200 ✓	32 51	00.702 ✓ 79 43 46.640 ✓	4 ✓	072/1985 ✓
LIGHT 108 ✓	200 ✓	32 50	07.170 ✓ 79 44 32.759 ✓	4 ✓	072/1985 ✓
DAYBEACON 109 ✓	767 ✓	32 49	59.20 ✓ 79 44 31.80 ✓	7 ✓	072/1985 ✓
LIGHT 111 ✓	200 ✓	32 49	25.712 ✓ 79 44 39.428 ✓	4 ✓	072/1985 ✓
LIGHT 116 ✓	200 ✓	32 48	30.436 ✓ 79 45 22.734 ✓	4 ✓	072/1985 ✓

<u>FEATURE DESCRIPTION</u>	<u>NCD CC</u>	<u>GEOGRAPHIC POSITION (-' -")</u>		<u>NCD Q.C.</u>	<u>DATE OF LOCATION</u>
		<u>LATITUDE</u>	<u>LONGITUDE</u>		
LIGHT 118 ✓	200 ✓	32 47 29.609 ✓	79 47 53.788 ✓	4 ✓	072/1985 ✓
DAYBEACON 122 ✓	224 ✓	32 46 09.00 ✓	79 51 06.50 ✓	7 ✓	053/1989 ✓
DAYBEACON 123 ✓	767 ✓	32 46 02.40 ✓	79 51 12.30 ✓	7 ✓	072/1985 ✓
LIGHT 125 ✓	200 ✓	32 45 52.60 ✓	79 51 30.80 ✓	7 ✓	072/1985 ✓
LIGHT 127 ✓	200 ✓	32 46 03.188 ✓	79 51 55.066 ✓	4 ✓	072/1985 ✓
LIGHT 130 ✓	200 ✓	32 46 05.00 ✓	79 52 12.50 ✓	7 ✓	072/1985 ✓
RANGE C FRONT LIGHT ✓	208 ✓	32 46 07.437 ✓	79 51 55.388 ✓	4 ✓	072/1985 ✓
RANGE C REAR LIGHT ✓	209 ✓	32 46 09.40 ✓	79 51 47.20 ✓	7 ✓	072/1985 ✓
WADMALAW RIVER					
LIGHT 69 ✓	200 ✓	32 43 00.612 ✓	80 10 45.583 ✓	3 ✓	072/1985 ✓
LIGHT 77 ✓	200 ✓	32 42 36.084 ✓	80 11 23.598 ✓	4 ✓	072/1985 ✓
LIGHT 80 ✓	200 ✓	32 42 04.097 ✓	80 12 16.834 ✓	4 ✓	072/1985 ✓
LIGHT 82 ✓	200 ✓	32 41 49.269 ✓	80 12 32.072 ✓	4 ✓	072/1985 ✓
LIGHT 83 ✓	200 ✓	32 41 44.643 ✓	80 12 52.982 ✓	4 ✓	072/1985 ✓
LIGHT 86 ✓	200 ✓	32 41 55.694 ✓	80 13 12.849 ✓	4 ✓	072/1985 ✓
LIGHT 91 ✓	200 ✓	32 41 08.586 ✓	80 13 24.037 ✓	4 ✓	072/1985 ✓
LIGHT 94 ✓	200 ✓	32 40 32.353 ✓	80 14 41.345 ✓	4 ✓	072/1985 ✓
RANGE A REAR LIGHT ✓	209 ✓	32 42 38.550 ✓	80 11 26.486 ✓	4 ✓	072/1985 ✓
RANGE A FRONT LIGHT ✓	208 ✓	32 42 34.506 ✓	80 11 31.934 ✓	3 ✓	072/1985 ✓
LIGHT 97 ✓	200 ✓	32 39 51.169 ✓	80 14 04.619 ✓	4 ✓	072/1985 ✓
LIGHT 99 ✓	200 ✓	32 39 15.096 ✓	80 14 27.520 ✓	4 ✓	072/1985 ✓
LIGHT 102 ✓	200 ✓	32 39 07.036 ✓	80 15 27.636 ✓	4 ✓	072/1985 ✓
STONO RIVER					
DAYBEACON 2 ✓	224 ✓	32 38 20.16 ✓	80 00 49.69 ✓	7 ✓	062/1985 ✓
DAYBEACON 3 ✓	767 ✓	32 39 28.99 ✓	80 00 47.52 ✓	7 ✓	062/1985 ✓
DAYBEACON 4 ✓	224 ✓	32 39 53.01 ✓	79 59 53.27 ✓	7 ✓	62/19855 ✓
LIGHT 21 ✓	200 ✓	32 46 04.10 ✓	80 01.33.50 ✓	7 ✓	072/1985 ✓
* RANGE A & B FRONT LIGHT ✓	208 ✓	32 46 46.00 ✓	80 03 02.90 ✓	7 ✓	072/1985 ✓
RANGE A REAR LIGHT ✓	209 ✓	32 46 48.521 ✓	80 03 07.864 ✓	4 ✓	072/1985 ✓
RANGE B REAR LIGHT ✓	209 ✓	32 46 48.716 ✓	80 02 58.107 ✓	4 ✓	072/1985 ✓
LIGHT 21A ✓	200 ✓	32 46 38.539 ✓	80 02 46.877 ✓	4 ✓	072/1985 ✓
LIGHT 23 ✓	200 ✓	32 46 38.046 ✓	80 03 08.957 ✓	4 ✓	072/1985 ✓

* Position for Stono River Range A and Range B Front Lts only listed once.

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION (-'-")		NCD Q.C.	DATE OF LOCATION
		LATITUDE	LONGITUDE		
LIGHT 25 ✓	200 ✓	32 46 12.923 ✓	80 04 08.928 ✓	4 ✓	072/1985 ✓
RANGE C FRONT LIGHT ✓	208 ✓	32 46 34.263 ✓	80 04 29.864 ✓	4 ✓	072/1985 ✓
RANGE C REAR LIGHT ✓	209 ✓	32 46 33.594 ✓	80 04 25.841 ✓	4 ✓	072/1985 ✓
LIGHT 30 ✓	200 ✓	32 46 42.157 ✓	80 05 10.384 ✓	4 ✓	072/1985 ✓
LIGHT 31 ✓	200 ✓	32 46 45.741 ✓	80 05 29.096 ✓	4 ✓	072/1985 ✓
RANGE D FRONT LIGHT ✓	208 ✓	32 47 15.450 ✓	80 06 04.641 ✓	4 ✓	072/1985 ✓
RANGE D REAR LIGHT ✓	209 ✓	32 47 19.842 ✓	80 06 10.183 ✓	4 ✓	072/1985 ✓
LIGHT 39 ✓	200 ✓	32 46 50.587 ✓	80 06 57.296 ✓	4 ✓	072/1985 ✓
LIGHT 53 ✓	200 ✓	32 44 48.599 ✓	80 08 22.645 ✓	4 ✓	072/1985 ✓
LIGHT 55 ✓	200 ✓	32 44 49.959 ✓	80 09 05.376 ✓	4 ✓	072/1985 ✓
DAYBEACON 57 ✓	767 ✓	32 44 57.50 ✓	80 09 18.90 ✓	7 ✓	072/1985 ✓
DAYBEACON 57A ✓	767 ✓	32 44 57.70 ✓	80 09 41.00 ✓	7 ✓	072/1985 ✓
LIGHT 63 ✓	200 ✓	32 44 08.157 ✓	80 10 15.050 ✓	4 ✓	072/1985 ✓
PREFERRED CHANNEL LIGHT B ✓	200 ✓	32 45 59.50 ✓	80 00 07.80 ✓	7 ✓	072/1985 ✓
JOHNS ISLAND PIER OBSTRUCTION LIGHT ✓	200 ✓	32 45 00.50 ✓	80 08 10.00 ✓	7 ✓	072/1985 ✓
DRUM ISLAND CHANNEL RANGE FRONT LIGHT ✓	208 ✓	32 48 38.475 ✓	79 54 33.494 ✓	4 ✓	072/1985 ✓
REAR LIGHT ✓	209 ✓	32 48 31.727 ✓	79 54 18.940 ✓	4 ✓	072/1985 ✓
PREFERRED CHANNEL LIGHT D ✓	200 ✓	32 49 00.877 ✓	79 55 37.130 ✓	4 ✓	072/1985 ✓
SHEM CREEK RANGE REAR LIGHT ✓	209 ✓	32 47 22.089 ✓	79 53 12.562 ✓	4 ✓	072/1985 ✓
FRONT LIGHT ✓	208 ✓	32 47 19.524 ✓	79 53 12.704 ✓	4 ✓	072/1985 ✓
MOUNT PLEASANT CHANNEL LIGHT 8 ✓	200 ✓	32 46 54.40 ✓	79 52 33.40 ✓	7 ✓	072/1985 ✓
RANGE FRONT LIGHT ✓	208 ✓	32 46 28.385 ✓	79 53 02.617 ✓	4 ✓	072/1985 ✓
RANGE REAR LIGHT ✓	020 ✓	32 47 04.216 ✓	79 53 41.184 ✓	4 ✓	072/1985 ✓
SHIPYARD CREEK CHANNEL LIGHT 2 ✓	200 ✓	32 49 49.175 ✓	79 56 09.027 ✓	4 ✓	072/1985 ✓
CHANNEL LIGHT 4 ✓	200 ✓	32 49 50.486 ✓	79 56 22.527 ✓	4 ✓	072/1985 ✓
CHARLESTON HARBOR NORTH CHANNEL RANGE A FRONT LIGHT ✓	208 ✓	32 46 52.915 ✓	79 54 12.454 ✓	4 ✓	072/1985 ✓
RANGE A REAR LIGHT ✓	209 ✓	32 47 01.202 ✓	79 54 25.787 ✓	4 ✓	072/1985 ✓
RANGE B FRONT LIGHT ✓	208 ✓	32 46 46.004 ✓	79 54 48.063 ✓	4 ✓	072/1985 ✓
RANGE B REAR LIGHT ✓	209 ✓	32 46 47.378 ✓	79 54 57.964 ✓	4 ✓	072/1985 ✓
RANGE C REAR LIGHT ✓	209 ✓	32 46 22.805 ✓	79 54 20.293 ✓	4 ✓	072/1985 ✓

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION (-'-")		NCD Q.C.	DATE OF LOCATION
		LATITUDE	LONGITUDE		
RANGE C FRONT LIGHT -	208	32 46 36.211	79 54 30.977	4	072/1985
RANGE D FRONT LIGHT -	208	32 46 53.869	79 54 58.745	4	072/1985
RANGE D REAR LIGHT -	209	32 46 47.378	79 54 57.964	4	072/1985
LIGHT 4 -	200	32 46 42.295	79 53 45.849	4	072/1985
LIGHT 9	200	32 46 57.457	79 54 57.081	4	072/1985
CHARLESTON HARBOR SOUTH CHANNEL RANGE FRONT LIGHT	208	32 45 31.228	79 55 37.288	4	072/1985
RANGE REAR LIGHT -	209	32 45 31.083	79 55 59.356	4	072/1985
CHARLESTON LIGHT -	200	32 45 27.829	79 50 36.342	4	072/1985
PATRIOTS POINT OBSTRUCTION LIGHT	200	32 47 16.437	79 54 37.591	4	072/1985
TOWN CREEK CHANNEL LIGHT 4 -	200	32 48 16.479	79 55 49.345	4	072/1985
CHANNEL LIGHT 5 -	200	32 48 33.781	79 55 58.429	4	072/1985
ASHLEY RIVER LIGHT 3 -	200	32 46 11.80	79 56 41.90	7	072/1985
APPROACH RANGE FRONT LIGHT	208	32 46 23.808	79 57 10.065	4	072/1985
APPROACH RANGE REAR LIGHT	209	32 46 32.749	79 57 23.178	4	072/1985
DAYBEACON 8 -	224	32 47 59.70	79 58 23.40	7	072/1985
DAYBEACON 9	767	32 48 11.20	79 58 28.00	7	072/1985
WAPPOO CUT DAYBEACON 9	767	32 45 55.60	79 59 03.50	7	052/1985
FORT SUMTER RANGE FRONT LIGHT	208	32 44 51.038	79 51 48.731	4	072/1985
REAR LIGHT	209	32 45 17.166	79 52.43.722	4	072/1985
FOLLY RIVER LIGHT 9	200	32 37 50.74	79 59 34.98	7	062/1985
LIGHT 14	200	32 38 33.572	79 58 45.387	4	062/1985
LIGHT 12	200	32 38 15.043	79 59 02.056	4	062/1985
DAYBEACON 17	767	32 38 52.90	79 57 54.50	7	062/1985
DAWHO RIVER LIGHT 115	200	32 37 06.962	80 17 20.264	4	072/1985
LIGHT 119	200	32 37 24.534	80 17 48.658	4	072/1985
LIGHT 121	200	32 37 49.245	80 18 31.140	4	072/1985
LIGHT 125	200	32 37 49.172	80 18 57.200	4	072/1985
DAYBEACON 128	224	32 38 12.30	80 19 50.00	7	072/1985
LIGHT 130	200	32 38 20.043	80 20 11.274	4	072/1985
NORTH CREEK LIGHT 135	200	32 37 41.863	80 21 14.620	4	072/1985
LIGHT 137	200	32 37 14.495	80 21 30.693	4	072/1985

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION (-'-")		NCD Q.C.	DATE OF LOCATION
		LATITUDE	LONGITUDE		
DAYBEACON 139 ✓	767 ✓	32 37 06.52 ✓	80 22 09.09 ✓	7 ✓	072/1985 ✓
WHITE POINT					
LIGHT 110 ✓	200 ✓	32 37 43.621 ✓	80 16 38.120 ✓	4 ✓	072/1985 ✓
BOHICKET CREEK					
DAYBEACON 7 ✓	767 ✓	32 35 40.80 ✓	80 10 55.10 ✓	7 ✓	065/1985 ✓
DAYBEACON 8 ✓	224 ✓	32 35 56.98 ✓	80 10 32.33 ✓	7 ✓	065/1985 ✓
NORTH EDISTO RIVER ENTRANCE					
RANGE FRONT LIGHT ✓	020 ✓	32 34 56.353 ✓	80 12 30.143 ✓	3 ✓	065/1985 ✓
RANGE REAR LIGHT ✓	209 ✓	32 35 19.912 ✓	80 12 58.043 ✓	3 ✓	065/1985 ✓
SOUTH EDITSO RIVER					
LIGHT 2 ✓	200 ✓	32 29 35.58 ✓	80 21 00.01 ✓	4 ✓	072/1985 ✓
DAYBEACON 2A ✓	224 ✓	32 30 20.90 ✓	80 21 18.60 ✓	7 ✓	072/1985 ✓
DAYBEACON 3 ✓	767 ✓	32 31 10.60 ✓	80 22 18.38 ✓	7 ✓	072/1985 ✓
TANK ✓	086 ✓	32 50 39.000 ✓	80 00 09.500 ✓	7 ✓	072/1985 ✓
AERO ✓	020 ✓	32 53 56.376 ✓	80 02 02.572 ✓	3 ✓	072/1985 ✓
TANK ✓	086 ✓	32 50 00.85 ✓	79 52 50.05 ✓	4 ✓	072/1985 ✓
STACK ✓	993 ✓	32 50 16.20 ✓	79 56 59.00 ✓	7 ✓	072/1985 ✓
TANK ✓	086 ✓	32 50 54.80 ✓	79 56 39.40 ✓	7 ✓	072/1985 ✓
SPIRE ✓	086 ✓	32 51 19.10 ✓	79 58 19.20 ✓	7 ✓	072/1985 ✓
RADIO TOWER ✓	198 ✓	32 51 19.67 ✓	79 58.55.42 ✓	4 ✓	072/1985 ✓
STACK ✓	086 ✓	32 51 42.48 ✓	79 58 08.66 ✓	4 ✓	072/1985 ✓
TANK ✓	086 ✓	32 51 59.17 ✓	79 58 29.88 ✓	4 ✓	072/1985 ✓
RADIO TOWER ✓	198 ✓	32 52 20.20 ✓	79 58 35.90 ✓	7 ✓	072/1985 ✓
TANK ✓	993 ✓	32 52 51.74 ✓	79 58 17.45 ✓	4 ✓	072/1985 ✓
TANK ✓	086 ✓	32 52 57.28 ✓	79 58 28.92 ✓	4 ✓	072/1985 ✓
TANK ✓	020 ✓	32 54 17.33 ✓	79 57 48.05 ✓	3 ✓	072/1985 ✓
ELEVATOR ✓	086 ✓	32 54 22.59 ✓	79 57 25.13 ✓	4 ✓	072/1985 ✓
TV TOWER ✓	086 ✓	32 54 22.60 ✓	79 55 14.50 ✓	7 ✓	072/1985 ✓
TOWER ✓	086 ✓	32 55 40.53 ✓	79 56 15.23 ✓	4 ✓	072/1985 ✓
TOWER ✓	086 ✓	32 55 44.91 ✓	79 56 22.82 ✓	4 ✓	072/1985 ✓
TOWER ✓	086 ✓	32 55 33.30 ✓	79 50 02.80 ✓	7 ✓	072/1985 ✓
TOWER ✓	086 ✓	32 55 32.80 ✓	79 50 03.60 ✓	7 ✓	072/1985 ✓
TOWER ✓	086 ✓	32 56 07.85 ✓	79 56 18.84 ✓	4 ✓	072/1985 ✓
TOWER ✓	086 ✓	32 56 17.22 ✓	79 56 08.15 ✓	4 ✓	072/1985 ✓
TANK ✓	086 ✓	32 59 02.68 ✓	79 55 43.51 ✓	4 ✓	072/1985 ✓

<u>FEATURE DESCRIPTION</u>	<u>NCD</u>	<u>GEOGRAPHIC POSITION (-'--")</u>		<u>NCD</u>	<u>DATE OF</u>
		<u>CC</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>LOCATION</u>
TANK ✓	993 ✓	32	57 09.50 ✓	79 56 24.50 ✓	7 ✓ 072/1985 ✓
STACK ✓	993 ✓	32	53 55.34 ✓	79 58 00.25 ✓	4 ✓ 072/1985 ✓
TANK ✓	993 ✓	32	54 09.80 ✓	79 58 39.40 ✓	7 ✓ 072/1985 ✓
LOOKOUT TOWER ✓	020 ✓	32	50 41.975 ✓	79 42 24.101 ✓	3 ✓ 072/1985 ✓
TOWER ✓	086 ✓	32	55 26.29 ✓	79 49 58.50 ✓	7 ✓ 072/1985 ✓
TOWER ✓	086 ✓	32	55 26.45 ✓	79 49 57.38 ✓	7 ✓ 072/1985 ✓
TOWER ✓	020 ✓	32	54 24.949 ✓	79 36 48.901 ✓	3 ✓ 072/1985 ✓
TOWER ✓	993 ✓	32	59 36.46 ✓	79 36 35.41 ✓	4 ✓ 072/1985 ✓
RADIO TOWER (CENTER OF 3) ✓	086 ✓	32	49 26.80 ✓	80 00 10.10 ✓	7 ✓ 072/1985 ✓
RADIO TOWER ✓	198 ✓	32	46 23.80 ✓	80 00 56.40 ✓	7 ✓ 072/1985 ✓
TOWER ✓	086 ✓	32	46 46.940 ✓	80 03 26.744 ✓	4 ✓ 072/1985 ✓
TOWER ✓	086 ✓	32	46 39.012 ✓	80 03 26.143 ✓	4 ✓ 072/1985 ✓
TOWER ✓	086 ✓	32	46 31.354 ✓	80 03 25.518 ✓	4 ✓ 072/1985 ✓
TOWER ✓	993 ✓	32	44 11.90 ✓	80 00 28.80 ✓	7 ✓ 072/1985 ✓
TOWER ✓	993 ✓	32	44 11.40 ✓	80 00 36.60 ✓	7 ✓ 072/1985 ✓
TOWER ✓	993 ✓	32	42 02.264 ✓	80 00 18.359 ✓	4 ✓ 072/1985 ✓
RADIO TOWER ✓	993 ✓	32	43 35.868 ✓	80 05 56.729 ✓	4 ✓ 072/1985 ✓
RADIO TOWER ✓	993 ✓	32	43 16.10 ✓	80 04 57.90 ✓	7 ✓ 072/1985 ✓
TANK ✓	086 ✓	32	47 17.40 ✓	79 52 19.00 ✓	7 ✓ 072/1985 ✓
TV TOWER ✓	020 ✓	32	47 56.387 ✓	79 53 49.763 ✓	3 ✓ 072/1985 ✓
TV TOWER ✓	020 ✓	32	47 44.348 ✓	79 50 27.088 ✓	3 ✓ 072/1985 ✓
TV TOWER ✓	020 ✓	32	47 15.589 ✓	79 50 59.711 ✓	3 ✓ 072/1985 ✓
TANK ✓	086 ✓	32	46 54.914 ✓	79 55.33.466 ✓	4 ✓ 072/1985 ✓
CHURCH SPIRE ✓	086 ✓	32	46 33.90 ✓	79 55 51.90 ✓	7 ✓ 072/1985 ✓
CHURCH SPIRE ✓	086 ✓	32	46 43.60 ✓	79 55 46.40 ✓	7 ✓ 072/1985 ✓
CHURCH SPIRE ✓	086 ✓	32	47 12.00 ✓	79 56 14.40 ✓	7 ✓ 072/1985 ✓
MICRO TOWER ✓	086 ✓	32	47 23.327 ✓	79 55 49.744 ✓	4 ✓ 072/1985 ✓
TANK ✓	086 ✓	32	47 53.194 ✓	79 55 48.245 ✓	4 ✓ 072/1985 ✓
STACK (TWIN) ✓	086 ✓	32	47 55.848 ✓	79 56 09.246 ✓	4 ✓ 072/1985 ✓
STACK (TWIN) ✓	086 ✓	32	47 56.208 ✓	79 56 09.467 ✓	4 ✓ 072/1985 ✓
TANK ✓	086 ✓	32	48 05.820 ✓	79 56 32.565 ✓	4 ✓ 072/1985 ✓
TANK ✓	086 ✓	32	47 45.336 ✓	79 57 45.034 ✓	4 ✓ 072/1985 ✓

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION (-'-")		NCD Q.C.	DATE OF LOCATION
		LATITUDE	LONGITUDE		
RADIO TOWER ✓	086 ✓	32 48 15.180	79 57 35.037	4	072/1985 ✓
TOWER ✓	086 ✓	32 47 48.795	79 57 40.601	4	072/1985 ✓
RADIO TOWER ✓	086 ✓	32 49 05.479	79 57 44.849	4	072/1985 ✓
TANK ✓	020 ✓	32 46 36.815	79 58 14.094	3	072/1985 ✓
BUILDING ✓	086 ✓	32 46 51.296	79 57 55.064	4	072/1985 ✓
TOWER ✓	086 ✓	32 45 37.50	79 51 31.50	7	072/1985 ✓
TANK ✓	086 ✓	32 45 35.984	79 51 14.278	4	072/1985 ✓
TOWER ✓	086 ✓	32 44 48.077	79 51 50.917	4	072/1985 ✓
TOWER ✓	086 ✓	32 45 14.122	79 52 45.753	4	072/1985 ✓
TOWER ✓	086 ✓	32 45 20.176	79 52 41.683	4	072/1985 ✓
FLAG POLE ✓	086 ✓	32 45 07.20	79 52 29.70	7	072/1985 ✓
TANK ✓	086 ✓	32 45 00.309	79 53 57.341	4	072/1985 ✓
BUILDING ✓	993 ✓	32 47 20.829	79 55 33.435	4	072/1985 ✓
TANK ✓	993 ✓	32 45 24.10	79 59 33.50	7	072/1985 ✓
CUPOLA ✓	993 ✓	32 45 32.983	79 51 26.461	4	072/1985 ✓
TOWER ✓	993 ✓	32 44 54.125	79 51 46.878	4	072/1985 ✓
RADIO TOWER ✓	086 ✓	32 49 20.50	79 58 47.60	7	072/1985 ✓
STACK ✓	086 ✓	32 49 58.20	79 57 58.60	7	072/1985 ✓
WATER TOWER ✓	020 ✓	32 47 13.837	79 47 16.946	3	072/1985 ✓
TANK ✓	020 ✓	32 45 54.083	79 49 57.070	3	072/1985 ✓
TANK ✓	020 ✓	32 39 38.270	79 55 54.442	3	062/1985 ✓
TOWER ✓	020 ✓	32 41 42.652	79 53 01.748	3	062/1985 ✓
TANK ✓	086 ✓	32 30 41.240	80 17 57.626	3	072/1985 ✓
TANK ✓	086 ✓	32 34 50.25	80 09 35.61	4	065/1985 ✓
TANK ✓	086 ✓	32 29 01.90	80 19 55.90	7	072/1985 ✓
MICRO TOWER ✓	086 ✓	32 29 19.10	80 19 13.90	7	072/1985 ✓

Listing approved by: _____

FINAL REVIEWER

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

December 17, 1986 N/CG2313:JDM

TO: Memorandum for the Record

FROM: N/CG2313 - James D. McNamara

SUBJECT: CM-8313, Bulls Bay to St. Helena Sound, SC

The remaining lines of Mean High Water (MHW), black and white infrared photography are canceled. Lines 50-1, 50-2 and 50-3, and 30-1, 30-2, 30-3 and 30-4 are the only unsecured photographic requirements remaining on this project. There would be a considerable time lag between the original photography and the time when this photography might be secured. Shoreline delineation would be difficult, due to possible changes during this time lag. For this reason, the remaining black and white infrared MHW requirements are canceled.





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration⁰²
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

NOV 13 1987

N/CG221(A):ALT

MEMORANDUM FOR: ^{ay3} Commander A. Y. Bryson, NOAA
Chief, Photogrammetry Branch

FROM: Allen L. Taylor *Allen L. Taylor*
Automated Cartography Group

SUBJECT: Preferred Sequential T-sheet Completion of
Photogrammetric Projects CM-8506, CM-8313, and
CM-8303

During the past 3 years, there has been an increasingly cooperative effort between the Cartographic Revision Unit (CRU) and the AIS chart production element of MCB. Mr. August A. Tolzman and Mrs. Fannie B. Powers, respectively, have successfully coordinated production schedules to ensure the best available information from CRU sources has been processed in a timely and expeditious manner for inclusion on automated editions of NOS charts.

Recent examples include the first automated editions of chart 11468, Miami Harbor, and chart 11470, Port Everglades Harbor, and necessary revisions to the previously automated edition of chart 11490, St. Johns River.

While this coordination has had significant net results on a chart-by-chart basis, it is only logical to expand the process one level to include current photogrammetric projects. Closely coordinating photogrammetric projects with currently projected automated chart production schedules ensure that the best available information will be included on next editions of automated charts and potentially reduce redundant processing in the charting team.

It is, therefore, requested that three on-going projects in South Carolina be prioritized in the following order: (1) CM-8506; (2) CM-8303; and (3) CM-8313.

CLEARANCE:
N/CG22:WSSimmons

SIGNATURE AND DATE:

Walt H. Simmons
11-16-87

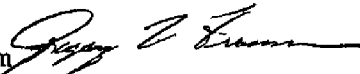




UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

October 25, 1988 N/CG2321:GF

MEMORANDUM FOR THE RECORD

FROM: Gregory L. Fromm 
Chief, Production Control Unit
Photogrammetry Branch

SUBJECT: Tide Data, Project CM-8313, South Carolina

1. Infrared photography was tide coordinated based on observed tide levels taken at station 866-5530:

Charleston Custom House staff
(Port Auth. Union Pier)
Copper River Entrance,
Charleston Harbor
Charleston, South Carolina

Approximate Locality = 32° 47' 00" N
79° 55' 00" W

2. The following data will accompany the project materials through the compilation pipeline and will be archived.

- * a. Reference stations records, Charleston Custom House gage
- b. Tide observation and staff leveling volumes; i.e. NOAA form 77-33 and NOAA form 76-77

* Records were furnished by the Tidal Datum Quality Assurance Section (N/OMA123); data consists of computer listings indicating the recorded daily high and low waters and hourly readings for the months of March 1985 and December 1985.

3. Tide data corresponding to the times of the infrared photography are indicated below. This information provides tide levels at selected sites throughout the project area and is provided to assist in the selection of compilation photographs. Tide levels have been determined based on reference stations records (Charleston Custom House) and the published hourly height and time differences for subordinate stations shown in the 1988 Tide Tables publication.



Abbreviations:

GL = Gregg's Landing
 DB = Dawho Bridge
 BB = Bears Bluff
 SI = Snake Island
 LB = Limehouse Bridge

CC = Charleston Custom House
 FI = Folly Island (outercoast)
 GC = Goose Creek (entrance)
 YI = Yorges Island (Wadmalaw R.)
 EST = Eastern Standard Time

Photographs	Date	Time (EST)	Tide Station	Tide Stage
85ER3408-3426	12/9/85	1054-1059	GL	+1.1 ft MLLW
85ER3428-3445	12/9/85	1104-1114	GL	+1.7 ft MLLW
			LB	+1.4 ft MLLW
			DB	- .5 ft MLLW
85ER3447-3468	12/9/85	1118-1136	BB	+ .1 ft MLLW
			GC	+ .2 ft MLLW
85ER3470-3492	12/9/85	1142-1154	CC	@ MLLW
			BB	+ .1 ft MLLW
85ER3494-3514	12/9/85	1200-1217	CC	+ .1 ft MLLW
			FI	+ .4 ft MLLW
85ER3325-3345	12/7/85	1503-1519	GL	-1.3 ft MHW
85ER3348-3366	12/7/85	1524-1534	GL	- .9 ft MHW
			LB	- .8 ft MHW
			DB	- .9 ft MHW
85ER3368-3392	12/7/85	1544-1602	BB	- .1 ft MHW
			GC	- .1 ft MHW
85ER3537-3554	12/10/85	1232-1239	CC	- .5 ft MLLW
			SI	- .4 ft MLLW
85ER3556-3572	12/10/85	1244-1252	FI	- .4 ft MLLW
			SI	- .4 ft MLLW
85ER3574-3585	12/10/85	1300-1305	BB	- .5 ft MLLW
85ER3587-3596	12/10/85	1321-1326	DB	- .4 ft MLLW
			YI	- .4 ft MLLW

Computations checked by

Patricia J. D. [Signature]