

5627

U. S. COAST & GEODETIC SURVEY  
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Form 504 Rev. Dec. 1933	
DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY R. S. PATTON, DIRECTOR	
DESCRIPTIVE REPORT	
Photo Topographic <del>Hydrographic</del>	Sheet No. T - 5627
State <u>FLORIDA</u>	
LOCALITY	
<u>BISCAYNE BAY</u>	
<u>KEY BISCAYNE AND VIRGINIA KEY</u>	
193 5	
CHIEF OF PARTY	
<u>E. R. McCarthy</u>	

U. S. GOVERNMENT PRINTING OFFICE: 1934

5627

Applied to Cht. 583 Mar. 12, 1936  
Applied to chart 848 April 22, 1936 <sup>K.R.</sup>  
Applied to chart 847 May 6, 1936 W.A. Bruder  
Applied to chart 1248 Mar. 17, 1937 J.H.S.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

uplicate

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. ....

REGISTER NO. **1 - 5627**

State Florida.

General locality Biscayne Bay

Locality Key Biscayne and Virginia Key.

Scale 1:10,000 Date of photographs January 25, 1935

Vessel Shore Party, Project NT 158.

Chief of party E. R. McCarthy

Surveyed by See data sheet attached to descriptive report.

Inked by " " " " " "

Heights in feet above ..... to ground to tops of trees

Contour, Approximate contour, Form line interval ..... feet

Instructions dated November 17, 1933

Remarks: Compiled from aerial photographs at a scale of 1:10,200

for reproduction by the photo-lithographic process at a scale of 1:10,000

*Blueprint mch, scale 1:10,200 filed 2/23/36*

DATA SHEET:

SHEET REGISTER NO. T - 5627

Portion of work	Done by	Date completed.
Projection By:	W. J. Mignola	June 5, 1935.
Projection Checked By:	D. L. Ackland.	June 6, 1935.
Control Plotted By:	W. J. Mignola.	June 6, 1935.
Control Checked By:	T. H. Aldrich.	June 6, 1935.
Radial Plot By:	<i>J. C. Mathisson.</i>	June 8, 1935.
Radial Plot Verified By:	O. H. Niemela.	June 17, 1935.
Compiled in Pencil By:	<i>J. C. Mathisson.</i>	June 29, 1935.
Inked By:	O. H. Niemela.	July 12, 1935.

Area of Sheet, 5.5 square statute miles.

Length of shoreline, 19.0 statute miles.

Length of rivers and canals, 2.1 statute miles.

DESCRIPTIVE REPORT  
to accompany  
PHOTO-TOPOGRAPHIC SHEET  
REGISTER NO. T - 5627  
KEY BISCAYNE AND VIRGINIA KEY  
FLORIDA  
1935  
SCALE 1:10,000

E. R. McCarthy, Chief of Party.  
John  
John C. Mathisson, In charge, photo-compilation,

PROJECT INFORMATION:

General information, appertaining to the entire project, is contained in the General Descriptive Report which is attached to the report for Sheet Register No. T - 5629.

DESCRIPTION OF AREA:

This sheet covers the area of Key Biscayne and Virginia Key and the surrounding shoal areas. These two Keys form the east shore of Biscayne Bay south of Miami Beach.

The topography of Virginia Key is very low, the average elevation being not more than five feet above mean high water. The highest part of the Key is found along the southeast side where the soil is sandy and covered with a thick growth of brush and a few scattered Australian pines.

The southeast shoreline is sandy and the steep gradient of the beach makes a rather narrow stretch between the high and low water lines. The northwest shoreline is mangrove and the high water line or the high ground line was indeterminate from the photographs. The entire northwest side of the Key is covered with mangrove which gives away inshore to brush and scrub trees. These trees and brush have begun to grow where the marsh areas have been drained, causing the mangrove to die out.

The Key is undeveloped. Several ditches and a channel have been dug to drain the area for mosquito control.

A portion of Key Biscayne has been extensively developed by private interests. A great deal of the original mangrove marsh has been cleared and

Note All lines delinienting shoal areas on this compilation have been shown dashed. While ~~parts~~ parts of these areas may be bare at low water as in the case mentioned on the opposite page The lines do not in most cases represent Low Water Line.

B.G.D.

1/27/36



spoil, dredged from the surrounding water area, used to fill the area. Extensive cultivation of an experimental nature has been accomplished during the past ten years. The area is planted almost entirely in coconut palms and various tropical fruits. At this time the cultivation has been discontinued. The north and south ends of Key Biscayne have not been developed.

A channel has been dredged across Key Biscayne between the property of the Matheson Estate on the north and the Deering Estate on the south. The channel was dredged to depth of approximately 16 feet but is closed to the flow of the tide by a dam under the bridge near the east end. The west end is also closed to navigation by a chain across the channel. The division line between the above properties is the row of pine trees just south of this dredged channel.

There is a dredged channel into the small mangrove fringed bay on the southwest side of Key Biscayne. This channel is marked by four stakes placed at the four corners of the cut and locally maintained. There is approximately 6 feet of water in this channel. A series of soundings, spotted on field photograph No. 108-B, were obtained in the channel and the small bay. These soundings were obtained at 8:30 A.M. on July 12, 1935. *The channel stakes were not located. B.G.D. 1/27/36*

~~There~~ There is a natural channel on the northwest side of Key Biscayne that does not appear on the present editions of the published charts of the area. This channel is partially obstructed by a bar covered three feet at mean low water. The remaining portion of the channel is from  $4\frac{1}{2}$  to 9 feet deep. A line of soundings, taken at 11:00 A.M. on July 12, 1935, are spotted on photographs Nos. 101-C and 102-C. It is believed that these soundings are spotted very accurately as the points of the shoal were very clear at the time the soundings were taken. *Photographs not in office This date but will be filed in room 1209 when received from The field.*

There is a three pile beacon at the entrance to the channel south of triangulation station Hurricane. This beacon, as well as the single pile beacon to the west, are maintained by the Matheson Estate. These two beacons have been shown on the compilation.

The large shoal area north of Biscayne Channel is bare approximately 1 foot at mean low water. This area is dotted with deep 'pot' holes, averaging from 6 to 8 feet deep. These deeper areas have been shown on the compilation. *limited by a dashed line See note on opposite page.*

The wreck of an old sailing bark lies on the south edge of the above shoal, just north of Biscayne Channel. Only the port side of the ship remains and the keel fastenings project about six feet above mean low water.

The sunken wreck, charted northeast of Key Biscayne was reported in a letter to the Director on July 17, 1935. *(25° 43', 80° 08')*

A portion of Key Biscayne lies within the city limits of Coral Gables while Virginia Key is within the corporate limits of the city of Miami Beach. Definite information with which to delineate these limits was not obtained but it is believed that the north city limits of Coral Gables is the center line of North Cross Road, shown on the compilation.

#### GENERAL INFORMATION:

The area of this sheet is covered by a single flight of five-lens~~x~~ photographs. These photographs are Nos. 91 to 113 inclusive and were secured at 1:15 P. M. on January 25, 1935.

An index of photographs is appended to the General Descriptive Report of the area.

#### CONTROL:

For a description of the control used in the compilation of this sheet, see the General Descriptive Report which is made a part of the report for Sheet Register No. T - 5629.

There is appended to this report a list of triangulation stations used in the compilation. This list shows the plotting distances used for the scale of the sheet, 1:10,200.

#### COMPILATION METHOD:

The usual radial line method <sup>thru out</sup> was used in the compilation of this sheet. The excellent distribution of control made it possible to develop the radial plot without difficulty. An adjustment of the radial plot was not necessary. <sup>Standard symbols were used, except in the case of bench marks which are shown with a small circle instead of the standard symbol (X)</sup>

#### INTERPRETATION OF PHOTOGRAPHS:

Generally, the photographs were very clear and adequate for charting purposes. A few cases of questionable interpretation due to the detail being removed from the center of the photographs were encountered. These areas were inspected in the field.

The shoal areas and natural channels were distinct on the photographs when these features appeared at or near the centers of the prints. In order to delineate the western limits of the shoals along the west side of Key Biscayne and Virginia Key, it was necessary to inspect them in the field due to the fact that these features appeared out on the wing photographs. The accuracy of this western limit is questionable because these shoal areas break away gradually into the deeper water of Biscayne Bay.

#### INFORMATION FROM OTHER SOURCES:

Most of the topographic detail appearing on this compilation was obtained from the photographs of the area. The location of four new groins at Cape Florida were obtained from sextant fixes. These groins were constructed to retard erosion.

The location of the various single pile beacons were also obtained by sextant fixes. A third angle was taken to obtain a check on the position. The fixes were plotted on the compilation with a steel protractor. Form 567 has been submitted to cover the location of these beacons. (Submitted with D.R. T-5628).

A map of the developed portion of Key Biscayne was used from which to obtain the names of the various roads appearing on the compilation.



#### COMPARISON WITH CONTEMPORARY SURVEYS:

Only the northern tip of Virginia Key is duplicated by contemporary <sup>planetable</sup> surveys <sup>7-6275</sup> in this area. This area is shown on Sheet Register No. T - 6275, surveyed during 1934 by the party of H. A. Cotton.

Very good agreement is noted between this survey and the detail as it appears on the present compilation.

#### COMPARISON WITH PREVIOUS SURVEYS:

The area of this sheet is covered by Air-photo Compilation No. 4529 made during 1928.

The high water line along the sand beach on the east side of Key Biscayne and the high water line on Southwest Point shows very good agreement with the present compilation. The delineation of the channel across Key Biscayne is in excellent agreement between the two sheets. Generally, the roads shown solid on the original compilation agree very well with the present sheet.

Differences are noted in the delineation of the edge of the mangrove on the northwest side of Key Biscayne. The general detail is good but the area is shifted 20 or 25 meters southeast of the correct position.

Extensive developments, accounting for differences, have taken place on Key Biscayne since the date of the original survey. The channel across Key Biscayne has been completed and a bridge and two jetties constructed at the east end. Differences are also noted which were due to dredging operations in South Basin and Hurricane Harbor.

Considerable erosion is noted at Cape Florida. The southern tip of the Cape shows about 50 meters erosion since the date of the last survey. Groins have been constructed to protect the beach and the old lighthouse on the east side of the Cape.

The delineation of the high water line on the <sup>coastal</sup> ~~southeast~~ side of Virginia Key is not in agreement with the present compilation. This difference reaches a maximum of approximately 60 meters near the northeast end of the Key. The northwest edge of the mangrove also show changes since the previous survey, due partially to the mangrove growth extending out into the shoal area of Biscayne Bay.

The dredged channel and mosquito control ditches on Virginia Key have been dug since the date of the previous survey.

#### LANDMARKS :

'Landmarks for Charts' for the area of this sheet were submitted on September 17, 1935. A duplicate copy of this list is attached to the descriptive report for Sheet Register No. T - 5629.

A copy of the permanent ( non-floating ) aids to navigation located in the area of this sheet, is attached to the descriptive report for Sheet Register No. T - 5628.

CONFLICTING NAMES:

*The name "Biscayne Channel" is not shown on the compilation for although it may be approved, the complete channel does not show this name.*

The name of the two natural channels south of Key Biscayne do not appear on the present edition of the published chart of the area. These are Cape Florida Channel and Biscayne Channel. The latter is also known locally as Old Flagler Channel, but the use of Biscayne Channel is more common. *ok* ~~It is recommended that these two names be placed on future editions of charts of the area.~~ *It is the name used in the Local Light and Buoy List for 1935 covering the lights and beacons along this channel. sam.*

South Basin and Hurricane Harbor are names used by the owners of the private estate on Key Biscayne. Because these features were made and named by the owners and because they are in general use, it is recommended that they be placed on future editions of published charts of the locality.

RECOMMENDATION FOR FURTHER SURVEYS:

It is believed that this compilation fully covers the area and that further surveys are not needed at the present time.

The compilation is believed to have an error of 2 meters or less for well defined detail of importance for charting and other detail, except the indefinite shoal areas, are believed to be within 4 meters of the actual location. The western limits of some of the shoal areas, when they appear out on the wing prints, will exceed the above limits.

*This compilation is well controlled and has been carefully compiled but a better estimate of the accuracy for work on this scale is 0.3 to 0.5 mm for intersected points and 0.3 to 0.8 mm for other detail. B.G.J. 1/27/36*

*John C. Mathisson.*  
John C. Mathisson,  
Jr. H. & G. E.,  
U. S. Coast and Geodetic Survey.



## TABLE OF CONTROL

STATION	Corr. to N.A. 1927		POSITION (North American Datum)		PLOTING DISTANCES	
	Lat.	Long.				
Key, 1934	25° 45'	80° 08'	96.1	(1750.2)	94.2	(1715.9)
			1656.1	( 16.1)	1623.6	( 15.8)
Range Beacon, 1934.	25° 44'	80° 08'	1804.4	( 41.8)	1769.0	( 41.0)
			2.5	(1669.7)	2.4	(1637.0)
Virginia, 1934.	25° 44'	80° 08'	1717.8	( 128.4)	1684.1	( 125.9)
			793.9	( 878.3)	778.3	( 861.1)
✓ Cape Florida, Light- house (old tower) 1850.	25° 39'	80° 09'	1812.6	( 33.7)	1777.1	( 33.0)
			625.0	(1048.3)	612.8	(1027.7)
✓ Cape Fla. Chan. R.R. Bn., 1930. <i>Rag</i>	25° 39'	80° 09'	1246.1	( 600.2)	1221.7	( 588.4)
			557.4	(1115.9)	546.5	(1094.0)
Biscayne Chan. Light No. 5, 1930.	25° 39'	80° 11'	820.7	(1025.6)	804.6	(1005.5)
			998.6	( 674.7)	979.0	( 661.5)
○ Light No. 8, 1930. <i>Not</i>	25° 39'	80° 09'	423.4	(1422.9)	415.1	(1395.0)
			2.1	(1671.6)	2.1	(1638.8)
✓ Light No. 20, 1930.	25° 39'	80° 10'	424.7	(1421.6)	416.4	(1393.7)
			1503.8	( 169.8)	1474.3	( 166.5)
Bear, 1935.	25° 43'	80° 08'	1172.6	( 673.7)	1149.6	( 660.5)
			1573.9	( 98.6)	1543.0	( 96.7)
Coast, 1935.	25° 41'	80° 08'	1382.8	( 463.5)	1355.7	( 454.4)
			749.7	( 923.3)	735.0	( 905.2)
Hurricane, 1935.	25° 41'	80° 10'	297.4	(1548.9)	291.6	(1518.5)
			1126.2	( 546.9)	1104.1	( 536.2)
Bn. 1935. Front Range	25° 44'	80° 11'	421.9	(1424.4)	413.6	(1396.5)
			32.9	(1639.4)	32.2	(1607.3)
Bn. 1935. Rear Range	25° 43'	80° 10'	933.7	( 912.6)	915.4	( 894.7)
			1656.9	( 15.7)	1624.4	( 15.4)
Bn. 2, 1935.	25° 44'	80° 11'	969.7	( 876.6)	950.7	( 859.4)
			33.0	(1639.3)	32.3	(1607.2)
Bn. 28, 1935.	25° 42'	80° 10'	974.7	( 871.6)	955.6	( 854.5)
			1649.3	( 23.4)	1617.0	( 22.9)

# GEOGRAPHIC NAMES

Survey No.

Name on Survey	A	B	C	D	E	F	G	H	K	
✓ <u>Virginia Key</u>	✓									1
✓ <u>Bear Cut</u>	✓									2
✓ <u>Northwest Point</u>	✓									3
✓ <u>Key Biscayne</u>	✓									4
✓ <u>West Point</u>	✓									5
✓ <u>Southwest Point</u>	✓									6
✓ <u>Cape Florida</u>	✓									7
✓ <u>Cape Florida Channel</u> <i>none</i>				✓						8
✓ <u>North Cross Road</u>	"				✓					9
✓ <u>Ocean Road</u>	"				✓					10
✓ <u>Landing Road</u>	"				✓					11
✓ <u>Flamingo Island</u>	"				✓					12
✓ <u>Nassau Road</u>	"				✓					13
✓ <u>Palm Road</u>	"				✓					14
<del><u>Ocean Road</u></del>	"									15
✓ <u>South Line Road</u>	"				✓					16
✓ <u>Pine Road</u>	"				✓					17
✓ <u>Monkey Island</u>	"				✓					18
✓ <u>Hurricane Harbor</u>	"			✓						19
✓ <u>South Basin</u>	"			✓						20
✓ <u>Air Line Road</u>	"				✓					21
✓ <u>Biscayne Bay</u>	✓									22
✓ <u>Atlantic Ocean</u>	✓									23
<del><u>Biscayne Channel</u></del> <i>none</i>								✓		24
✓ <u>Biscayne channel</u>				✓	✓					25
										26
										27

Names underlined in red approved

by *C. H. Hagan* on 1-29-36

REVIEW OF AIR PHOTO COMPILATION T 5627 (1936)  
1:10,000

Comparison with Recent Planetable Surveys

T 6275 (1935), 1:10,000

Only the northern tip of Virginia Key is common to the area of this compilation. The temporary beacons in latitude  $25^{\circ} 45'$ , longitude  $80^{\circ} 08'$ , a stake and the pipe awash just off the coast of Virginia Key were all transferred in this office. There is good agreement over the common area and all detail on T 6275 is shown on this compilation for this area. Detail transferred by L. A. McGann, checked by R. M. Berry, Jan. 26, 1936.

Comparison with Previous Topographic Surveys

T 336 (1851), 1:20,000

The survey for T 336 covers the entire area of this compilation as well as a portion of the west shore of Biscayne Bay. These islands show no development on T 336 and there are many changes. T 336 is superseded by this compilation over the common area.

T 1049 (1867), 1:20,000

The survey for T 1049 covers only a small portion of this compilation. The greater portion of T 1049 extends north to the head of Biscayne Bay. The high water line of Virginia Key is the only topographic detail on T 1049 in common with this compilation. This portion of T 1049 is superseded by this compilation.

T 3375 (1913), 1:20,000

The survey for T 3375 covers the coastline only from Indian Creek in latitude  $25^{\circ} 50'$  to Cape Florida in latitude  $25^{\circ} 40'$ . Over the common area the changes in the position of the high water line are comparatively small. Largest changes of position occur on Virginia Key where differences range between 10 and 70 meters. Differences in position of high water line on Key Biscayne are smaller. T 3375 is superseded by this compilation over the common area.

T 3758 (1919), 1:20,000

The survey for T 3758 covers Biscayne Bay and the outer coast between latitude  $25^{\circ} 44'$  and latitude  $25^{\circ} 56'$ . T 3758 covers Virginia Key and a portion of Key Biscayne. In the mangrove areas where the position of the high water line is indefinite T 3758 is not complete. T 3758 is superseded by this compilation over the common area.

T 3759 (1919), 1:20,000

The survey for T 3759 covers the lower end of Biscayne Bay between latitude  $25^{\circ} 36'$  and latitude  $25^{\circ} 43'$ . The lower portion of Key Biscayne

is within the common area. The changes of detail are not prominent except for the natural channel which crosses the island in approximately latitude  $25^{\circ} 41'$ . Erosion has taken place on the outer coast and amounts to between 10 and 40 meters. A change of culture consists of a palm growth in place of mangrove in an area on the west side of the island between latitude  $25^{\circ} 41'$  and  $25^{\circ} 41.6'$ . The compilation is more detailed than the survey for T 3759 in places where the high water line is indefinite on account of mangrove growth.

T 4529 (1930), 1:20,000 (Air photo compilation)

The entire area of compilation T 5627 is covered by T 4529. A complete comparison is contained in the preceding report for T 5627 on page 4 and no additional discussion is necessary. T 4529 is superseded by this compilation over the common area.

Comparison with Charts Nos. 583 and 1248

Landmarks and aids to navigation are shown complete on this compilation to the date of the Local Light and Buoy List for 1935. There are two privately maintained pile beacons on this compilation which are not shown on these charts, one at latitude  $25^{\circ} 41'$ , longitude  $80^{\circ} 10.7'$ , the other at latitude  $25^{\circ} 41.1'$ , longitude  $80^{\circ} 10.95'$ . A pile is shown on these charts at latitude  $25^{\circ} 41.15'$ , longitude  $80^{\circ} 11'$ . This is believed to be the old position of one of these pile beacons.

The sunken wreck shown on the compilation at latitude  $25^{\circ} 43.6'$ , longitude  $80^{\circ} 08.1'$  is shown on chart 1248 but not on chart 583.

Other changes to be made to these charts are discussed under the comparison with T 4529 on page 4 of the preceding descriptive report.

*Donald A. McIsaac*  
Jan. 28, 1936.

*V.B.G. Jones*

REVIEW OF AIR PHOTO COMPILATION NO. T - 5627.

Chief of Party: E. R. McCarthy

Compiled by: John C. Mathis

Project: Shore Party, HT 158

Instructions dated: Nov., 17, 1933.

1. The charts of this area have been examined and topographic information necessary to bring the charts up to date is shown on this compilation. (Par. 16a, b,c,d,e,g and i; 26; and 64)
2. Change in position, or non-existence of wharfs, lights, and other topographic detail of particular importance to navigation which affect the chart, is discussed in the descriptive report. (Par. 26; and 66 g,n)
3. Ground surveys by plane table, sextant, or theodolite have been used to supplement the photographic plot where necessary to obtain complete information, and all such surveys are discussed in the descriptive report. (Par. 65; and 66 d,e)
4. Blue-prints and maps from other sources which were transmitted by the field party contain sufficient control for their application to the charts. (Par. 28)  
No maps transmitted.
5. Differences between this compilation and contemporary plane table and hydrographic surveys have been examined and rectified in the field before forwarding the compilations to the office and are discussed in the descriptive report.
6. The control and adjustment of the photo plot are discussed in the descriptive report. Unusual or large adjustments are discussed in detail and limits of the area affected are stated. (Par. 12b; 44; and 66 c,h,i)
7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, and 44)  
*High water line on sand beach obtained from field inspection photos.*  
*Can*

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Refer also to the pamphlet "Notes on the Compilation of Planimetric Line Maps from Five Lens Air Photographs."



8. ~~The representation of low water lines, reefs, coral reefs and rocks,~~ and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41)
9. Recoverable objects have been located and described on Form 524 in accordance with circular 30, 1933, circular letter of March 3, 1933, and circular 31, 1934. (Par. 29, 30, and 57)  
*None transmitted*
10. A list of landmarks was furnished on Form 567 and instructions in the Director's letter of July 16, 1934, Landmarks for Charts, complied with. (Par. 16d, e; and 60)
11. All bridges shown on the compilation are accompanied by a note stating whether fixed or draw, clearance, and width of draw if a draw bridge. Additional information of importance to navigation is given in the descriptive report. (Par. 16c)  
No bridges except over private waterways.
12. Geographic names are shown on the overlay tracing. The accepted local usage of new names has been determined and they are listed in the report, together with a general statement as to source of information and a specific statement when advisable. Complete discussion of place names differing from the charts and from the U. S. G. S. Quadrangles is given in the descriptive report, together with reasons for recommendations made. (Par. 64, and 66k)
13. The geographic datum of the compilation is ~~North American~~ and the reference station is correctly noted. (unadjusted)
14. Junctions with adjoining compilations have been ~~examined~~ and are in agreement. (Par. 66j) *Inspected, OK.*
15. The drafting is satisfactory and particular attention has been given the following:
  1. Standard symbols authorized by the Board of Surveys and Maps have been used throughout except as noted in the report.
  2. The degrees and minutes of Latitude and Longitude are correctly marked.

3. All station points are exactly marked by fine black dots. ✓
4. Closely spaced lines are drawn sharp and clear for printing. ✓
5. Topographic symbols for similar features are of uniform weight. ✓
6. All drawing has been retouched where partially rubbed off. ✓
7. Buildings are drawn with clear straight lines and square corners where such is the case on the ground. ✓

(Par. 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48)

16. No additional surveying is recommended at this time.

17. Remarks:

18. Examined and approved;

ER. Mc Carney  
Chief of Party

19. Remarks after review in office:

*See pages immediately preceding for detailed report on office verification.*

Reviewed in office by: *Lemard A. McSauer* ✓ *B. G. Jones*

Examined and approved:

C. T. Green  
Chief, Section of Field Records  
L. O. Robert  
Chief, Division of Charts

J. B. Borden  
Chief, Section of Field Work  
G. H. Wade  
Chief, Division of Hydrography  
and Topography.