T-10939

7-10939

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey	PLANIMETRIC	
	Office No. T-10939	
	LOCALITY	
State	ALABAMA	
	MOBILE BAY	
Locality	DEER RIVER	
	7 10 63	

1957 - 1961

CHIEF OF PARTY Joseph K. Wilson, Chief of Field Party V.Ralph Sobieralski, Tampa District Officer

LIBRARY & ARCHIVES

ATC FES 5

USCOMM-DC 5087



DESCRIPTIVE REPORT - DATA RECORD

T = 10939

Project No. (II): Ph-5704

Ouadrangle Name (IV):

Field Office (II): Pascagoula, Mississippi

Chief of Party: Joseph K. Wilson

Photogrammetric Office (III): Tampa District Office Officer-in-Charge: V. Ralph Sobieralski

Instructions dated (II) XXX 23 June 1958 (Field)

Copy filed in Division of Photogrammetry (IV)

10 Feb. 1959 (Field Suppl. 1)

9 September 1959 (Stereo Bridging)

(III) 7 April 1959 (Office) 17 Aug. 1959 (Office Suppl. 1)

6 October 1959 (Office Suppl. 1)

17 Aug. 1959 (Field Suppl. 2) 10 November 1959 (Field & Office Suppl. 3) Location of Aids to Navigation dated 7 October 1959

Method of Compilation (III): Graphic

Manuscript Scale (III): 1:10,000

Stereoscopic Plotting Instrument Scale (III): Inapplicable

Scale Factor (III): None

Date received in Washington Office (IV): JUL 2 Date reported to Nautical Chart Branch (IV):

Applied to Chart No.

Date:

Date registered (IV):

Publication Scale (IV): `

Publication date (IV):

Geographic Datum (III):

N. A. 1927

Vertical Datum (III):

Mean sea level except as follows:

Elevations shown as (25) refer to mean high water Elevations shown as (5) refer to sounding datum i.e., mean low water or mean lower low water

Reference Station (III):

310-2 (AGS) 1940

Lat.:

Long.:

Adjusted _Unadjusted.

Plane Coordinates (IV):

State: AT.ABAMA

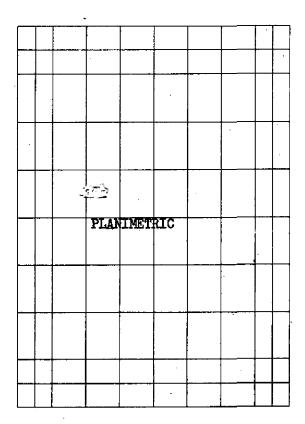
Zone:

185,994.90 Ft.

x= 307,892.46 Ft.

Roman numerals indicate whether the item is to be entered by (II) Field Party, (III) Photogrammetric Office. or ((V) Washington Office.

When entering names of personnel on this record give the surname and initials, not initials only.



Areas contoured by various personnel (Show name within area)
(II) (III)

Inapplicable

DESCRIPTIVE REPORT - DATA RECORD

Wm. M. Reynolds

Field Inspection by (II): M. A. Stewart

Date:

May 1959

Planetable contouring by (II): Inapplicable

Date:

Completion Surveys by (II): E. E. Brown

Date:

March 1961

Mean High Water Location (III) (State date and method of location):

Air Photo Compilation

Date of photography: 19 November 1957

Projection and Grids ruled by (IV):

P. J. Dempsey (W.O.)

Date:

Aug. 1959

Projection and Grids checked by (IV): R. D. Shoup (W.O.)

Date:

Aug. 1959

Control plotted by (III): V. P. Cackowski

Date:

Sept. 1959

Control checked by (III): R. R. Wagner

Date:

Sept. 1959

Radial Plot or Stereoscopic-R. R. Wagner

Date:

Jan. 1960

Control-extension-by (III):

Planimetry

Contours

Date:

Stereoscopic Instrument compilation (III):

Inapplicable

Date:

Manuscript delineated by (III): E. T. Ogilby

Date:

April 1960

of compilation

Photogrammetric Office Review by (III): W. H. Shearouse

Date:

May 1960

Elevations on Manuscript

Inapplicable

Date:

checked by (II) (III):

COMM- DC- 57842

U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT - DATA RECORD

Camera (kind or source) (III): C&GS Nine-lens camera

		PHOTOGRAPHS (I	11)	
Number	Date	Time	Scale	Stage of Tide
56803 56804	19 Nov. 1957	1442 1443	1:10,000	+0.6

Predicted Tide (III) Diurnal

Reference Station: MOBILE, MOBILE RIVER

Subordinate Station: Subordinate Station:

Ratio of MENDE | Spring | Ranges Range Range

Washington Office Review by (IV):

Date:

Final Drafting by (XXX): V. P. Cackowski (Tampa District Office) Date: May 1961 " reviewed by: W. H. Shearouse, (Tampa District Office)

May 1961

Drafting verified for reproduction by (IV):

Date:

Proof Edit by (IV):

Date:

Land Area (Sq. Statute Miles) (III): 9

Shoreline (More than 200 meters to opposite shore) (III): 8 -Shereline (Less than 200 meters to opposite shere) (III):

Control Leveling - Miles (II): Inapplicable

Number of Triangulation Stations searched for (II):

Recovered:

Identified:

2

3×

Number of BMs searched for (II):

Recovered:

Identified:

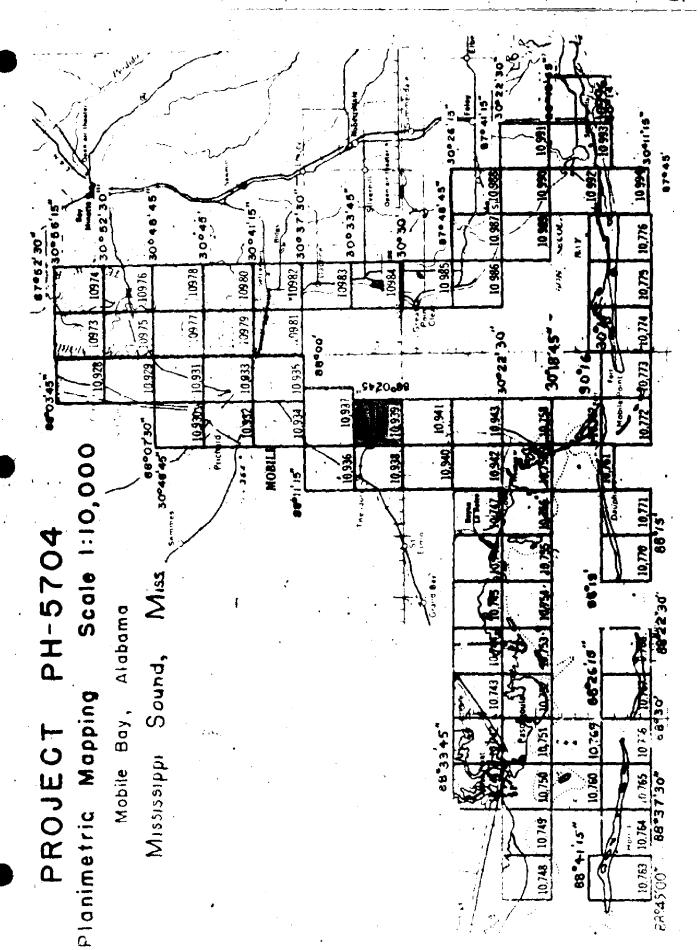
Number of Recoverable Photo Stations established (III):

Number of Temporary Photo Hydro Stations established (III): None

Remarks:

*Reference Mark identified for one lost station

COMM- DC- 57842



FIELD INSPECTION REPORT

Project Ph-5704

Maps T-10937 thru T-10939

2. AREAL FIELD INSPECTION

These maps are located along the western shore of Mobile Bay and just south of the city of Mobile.

There are no incorporated towns or airports within the limits of these maps. The gulf-Mobile and Ohio Railroad has been discontinued. It has been shown as dismantled in places and in other areas it has been omitted as it is no longer a map feature. The Louisville and Nashville Railroad in map T-10938 is active.

The Theodore Army Terminal, two pieces of U S Air Force property and the south portion of Brookley Air Force Base are located within the limits of these maps.

The area is served by State Highway 59, 163 and U. S. Highway 90. Dog River runs through map T-10937.

Field Inspection has been accomplished on the following nine-lens photographs: 56783, 56784, 56785, 56803, 56804, 56805, 56806, 56807, 56850, 56851, 56852, 56853, 56854.

The 1957 nine-lens photographs were of fair quality. Some prints were very clear while others were distorted. The field inspection is believed to be complete and all phases adequately indicated.

3. HORIZONTAL CONTROL

All coast and Geodetic Survey and Alabama Geodetic Survey stations have been searched for and reported on form 526.

The following stations have been reported on form 526 as "destroyed", "lost" or "not recovered":

T-10937

DOG RIVER BEACON ECC., 1935 310-6, Ala. Geod. S., 1940

312-3, Ala. Geod. S., 1939

312-4, Ala. Geod. S., 1939

330-2, Ala. Geod. S., 1940

T-10938

300-8, Ala. Geod. S., 1939

300-9, Ala. Geod. S., 1939

302-1, Ala. Geod. S., 1940

302-2, Ala. Geod. S., 1940

307-1, Ala. Geod. S., 1940

323-2, Ala. Geod. S., 1940

332-1, Ala. Geod. S., 1940

332-2, Ala. Geod. S., 1940

T-10939

310-3, Ala. Geod. S., 1940 310-4, Ala. Geod. S., 1940 332-4, Ala. Geod. S., 1940 332-5, Ala. Geod. S., 1940

Two substitute points were identified for station McGOWIN, 1935. Either of which are believed to be adequate, however substitute point No. 1 is probably the weaker of the two.

There was no supplemental control established.

4. VERTICAL CONTROL

There are no tidal bench marks within the limits of these sheets.

5. CONTOURS AND DRAINAGE

Contouring is inapplicable.

The drainage has been delineated throughout the limits of these maps. In many areas there is no definite drainage due to the flatness of the land.

All drainage, within this area, is toward either Mobile Bay, Dog River,

Deer River or Fowl River.

6. WOODLAND COVER

The cover was classified in accordance with Project Instructions and the Topographic Manual. The field inspector has shown in its entirety all swamp and marsh limits. As a whole, the distancton between marsh and swamp can be easily seen. Areas which photographed gray, are sometimes swamp or marsh. Other areas which photographed white are either marsh or fast land.

7. SHORELINE AND ALONGSHORE FEATURES

The mean high-water line is both apporent and fast. It has been shown in accordance with symbols as specified in the Topographic Manual. The shoreline was inspected by skiff or by walking along the shore.

The low-water line was not determined. The land area along Mobile Bay is about 6 to 12 feet above sea level. There is little or no foreshore.

All Docks, wharves, piers, etc. have been indicated on the photographs. Submarine and overhead cables, crossing navigable waters, have been shown on the photographs.

Shoreline Inspection has been shown on the following nine-lens photographs: 56803, 56804, 56805, 56806, 56807, 56849, 56850, 56851, 56852, 56853, 56854.

8. OFFSHORE FEATURES

Several piling have been shown on the photographs. No other offshore features were noted.

LANDMARKS AND AIDS

There are no landmarks for Nautical Charts within this area. Several fixed aids to Navigation were identified. Fixed aids, which could be identified by the direct method, are shown on the photographs while single pile structures, which could not be seen on the photographs, were located by sextant fixes. Form 567 will be submitted for these aids at a later date.

There are no aeronautical aids.

BOUNDARIES, MONUMENTS AND LINES

Boundary limits have been shown on the photographs for the Theodore Army Terminal, portion of Brookley Air Force Base, and two U. S. Air force properties. A map of the Theodore Army Terminal, showing its boundary limits, is included with the map data. The limits of this reservation have been shown on the photographs throughout, however, the compiler should make any small necessary adjustments which can be taken from the boundary map.

11. OTHER CONTROL

There were no monumented to cographic stations established. There were no photo-hydro objects identified.

12. OTHER INTERIOR FEATURES

Roads and buildings have been classified on the photographs in accordance with Photogrammetric Instructions 54 and 56.

In accordance with project Instructions, there were no bridge clearances measured.

13. GEOGRAPHIC NAMES

A systematic Geographic Names Investigation was not required. There were no name discrepancies noted other than the new names of the federal properties discussed under paragraph 10.

14. SPECIAL REPORTS AND SUPPLEMENTAL DATA

Geographic Names Report, Part 1 and 2 Project Ph-5704; submitted to Washington 1-22-59.

Transmittal of maps T-10940 thru T-10943 to Washington on 4-21-59.

Submitted; 21 May 1959

Joseph K. Wilson

Chief of Party

DESCRIPTIVE REPORT U.S. DEPARTMENT OF COMMERCE

FORM **164** (4-23-54)

BNTROL RECORD

COAST AND GEODETIC SURVEY

MAP T. /0939		PROJE	PROJECT NO. 7%-5704	SCALE OF MAP /:/0,000	0,000	SCALE FACTOR	J.R.
STATION	SOURCE OF INFORMATION (INDEX)		LATITUDE OR y. COORDINATE LONGITUDE OR x. COORDINATE	DISTANCE FROM GRID IN FEET. OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
DEER RM2,	douch	N.A. 1929	30 32. 1			629,7 1	
REYMANDS RMZ,	ž	. "	30 30			244.1.1	
310-2 (465) 1940	A.G.P.	ů	200	2/66914			1 4PC 23
310-3/0651 1940	į	h,	4=19 & 414.80 ft.	59257.7			
310-4 (265) 1940	//	11	4=197,314,34 ft.	60/4/.5			
333-1/465)1940	46R.	=	4 = 182, 814. 84 ft. 4 = 304 485,35 ft.	55722.1			
332-5-(465)1940	38		4=200,936.95ft	45163.0	LAN	Botted	
332-4 (445) 1940	:		301 450.38	6 1402.2			
15KAN) 145'9	Field.		30 3/ 14,04			432.3 (1415.3)	PLODE 6/28/60
Theodore, U.S. A.my Terminal	1	N A V1	332 3			1084.2(514.9)	00 90C 6/25/60
•							
1 FT. = 3048006 METER	×	ļ	Mrs 17 Sept 1959	CHECKEN BY. //S		Mest West	COMM. OC. 57843
COPITOTED DISTANCEMENT	***************************************			WILLIAM OIL		LANDERS LE CONTRACTOR LA CONTR	1

COMPILATION REPORT T-10939

PHOTOGRAMMETRIC PLOT REPORT

Submitted with T-10928.

31. DELINEATION

The graphic method was used. The field inspection was adequate except for the drainage problems discussed under Item 34. The ninelens photographs were of fair scale and a flight of single-lens infragon "L" series photography was used to assist in the interpretation of the shoreline.

32. CONTROL

See photogrammetric plot report.

33. SUPPLEMENTAL DATA

Plan of Theodore Army Terminal - see Item 41.

34. CONTOURS AND DRAINAGE

Contours are inapplicable.

The drainage was delineated by the field inspector which proved to be "sketched", in the dense swamps. In a number of places throughout the project this sketching was found to be in error, which cast doubt on all such streams. Therefore, only the drainage positively identified by stereoscopic examination has been shown on the map manuscript. Please refer to a letter dated 10 October 1960 on DRAINAGE, Ph-5704, to Chief, Photogrammetry Division from Tampa District Officer, a copy of which is enclosed herewith.

35. SHORELINE AND ALONGSHORE DETAILS

The shoreline and alongshore details were indicated on the photographs by the field inspector. The low-water line was from office interpretation.

36. OFFSHORE DETAILS

Located from the photographs without difficulty.

Tampa District Office P. O. Box 190 Tampa 1 Florida

10 October 1960

To:

Chief, Photogrammetry Division Coast and Geodetic Survey Washington, D. C.

Subject:

Drainage - PH-5704 MOBILE BAY

The greater portion of the drainage in subject project consists of narrow fingers of swamp (500-1500 Ft. wide) with a perennial stream meandering through the swamp. The field inspector has complied with project instructions by delineating this drainage on the field photographs. Due to the density of the swamp trees, it is impossible to see the stream beds except for occasional short stretches.

We have carefully examined all the streams under the stereoscope on various office photographs. Comparison with the U. S. Geological Survey quadrangles indicates their dratuage delineation to be more accurate than our field party's delineation. (Reference copy of memorandum to Wilson attached). One sample area has been returned to the field party and our conclusions were verified for that one particular stream.

We do not believe the streams warrant the expense of the field party traversing them for accurate location, neither do we believe that they should be mapped unless their position is fairly accurate. It appears that this drainage has been delineated on the field photographs without an adequate check with U.S.G.S. quadrangles and/or actual field investigation even though considerable time was probably spent on this phase of the field work. Considerable time has also been spent studying these discrepancies in the office.

It is suggested that the field parties be informed of a definite policy on how much time should be spent on accurately locating drainage, omitting it entirely, or using P.D.U.

On this project, since the narrow fingers of swamp indicate the drainage pattern fairly well, and the streams can be identified only in short stretches, we are omitting them as a whole.

Survey T-10938 is being scribed and will be forwarded in approximately four (u) weeks. The foregoing discrepancies will be noted on various field photographs for your attention.

It is thought that bringing this matter to your attention might eliminate similar difficulties in future projects.

(signed) William R. Kachel LCTR, C&GS Tampa District Officer

37. LANDMARKS AND AIDS

There are no landmarks.

Form 567 for nonfloating aids to navigation was submitted to the Washington Office under date of 15 July 1960.

38. CONTROL FOR FUTURE SURVEYS

One topographic station was established. This station was identified on the field photograph but was not listed in Item 11. It was used to locate daybeacons from sextant fixes however and is included in Item 49.

39. JUNCTIONS

Junctions were made with T-10937 to the north, T-10938 to the west and T-10941 to the south. Mobile Bay lies to the east.

40. HORIZONTAL AND VERTICAL CONTROL

No statement.

41. BOUNDARIES

The boundary of Theodore Army Terminal was delineated from the field inspection on photographs 56802 and 56852. The map of this reservation mentioned in Item 10 was not received with the project data. A copy was obtained later which proved the delineation to be substantially correct.

46. COMPARISON WITH EXISTING MAPS

Comparison was made with C&GS Air Photo Compilation T-5532, DOG RIVER AND VICINITY, 1935, scale 1:20,000; and USGS Quadrangle HOLLINGERS ISLAND, dated 1953, scale 1:24,000. The comparison was favorable and the changes were to be expected because of the difference in dates.

47. COMPARISON WITH NAUTICAL CHARTS

Comparison was made with C&GS Chart 1266, scale 1:80,000, dated January 1961, corrected to 11 February 1961, and found to be favorable. The source of the topography for the chart appears to be the maps listed under Item 46.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None.

ITEMS TO BE CARRIED FORWARD

None.

William a. Rosure

for E. T. Ogilby Cartographer (Photo)

APPROVED AND FORWARDED

V. Ralph Sobieralski Tampa District Officer

48. GEOGRAPHIC NAME LIST

Geographic names were taken from the HOLLINGER'S ISLAND quadrangle (see Item 46).

ALABAMA ALLIGATOR BAYOU

BELLEFONTAINE

CEDAR POINT ROAD

DEER RIVER POINT

HAMMOCK ROAD
HOLLINGERS ISLAND CHANNEL
HOLLINGERS ISLAND (ISLAND)
HOLLINGERS ISLAND (TOWN)
HOLLINGERS ISLAND SCHOOL

ISLAND ROAD

LAURENDINE ROAD
LOUISVILLE AND NASHVILLE RAILROAD

MIDDLE FORK DEER RIVER MOBILE BAY MOBILE COUNTY

NORTH FORK DEER RIVER

SOUTH FORK DEER RIVER ST. PHILIPS CHURCH STATE 163

THEODORE ARMY TERMINAL

All names checked
and approved
12-10-65

a. J. Wraight

49. NOTES FOR THE HYDROGRAPHER

One topographic station was established. It is a natural object: WATER CISTERN, 1960

50

PHOTOGRAMMETRIC OFFICE REVIEW OF ADVANCE MANUSCRIPT

T- 10939

	WHS WHS SAIG
1. P	rojection and grids WHS 2. Title WHS 3. Manuscript numbers WHS 4. Manuscript size WHS
	Unclassified Control Stations
5, H	orizontal control stations of third-order or higher accuracy WHS 6. Recoverable horizontal stations of less
	third-order accuracy (topographic stations) WHS 7. Photo hydro stations XX 8. Bench marks XX
	lotting of sextant fixes XX 10. Photogrammetric plot report WHS 11. Detail points WHS
	ALONGSHORE AREAS
	(Nautical Chart Data)
12.	Shoreline WHS 13. Low-water line WHS 14. Rocks, shoals, etc. WHS 15. Bridges XX 16. Alds
to n	avigation <u>WHS</u> 17. Landmarks <u>None</u> 18. Other alongshore physical features <u>WHS</u> 19. Other along—
shor	e cultural features WHS
	· ·
	PHYSICAL FEATURES
20.	Water features WHS 21. Natural ground cover WHS 22. Planetable contours XX 23. Stereoscopic
	rument contours XX 24. Contours in general XX 25. Spot elevations XX 26. Other physical
feat	ures_WHS
	CULTURAL FEATURES
27.	Roads WHS 28. Buildings WHS 29. Rallroads WHS 30. Other cultural features WHS
	BOUNDARIES
31.	Boundary lines WHS 32. Public land lines XX
:	
	MISCELLANEOUS
33.	MISCELLANEOUS WHS Geographic names34. Junctions35. Legibility of the manuscript36. Discrepancy
over	lay XX 37. Descriptive Report MMS 38. Field Inspection photographs WHS 39 Forms WHS
40.	William H. Shearause Milton M. Slavery
	Reviewer Supervisor, Review Section or Unit ' William H. Shearouse Milton M. Slavney
41.	Remarks (see attached sheet)
	FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT
42.	Additions and corrections furnished by the field completion survey have been applied to the manuscript. The
mar	suscript is now complete except as noted under item 43. william a Rasserl William & Sasserl
	for R. R. Wagner Milton M. Slavney
	Compiler

43. Remarks:

Field Edit Report (Shoreline) Maps T-10938, T-10939, T-10940, & T-10941 Project Fh-5704

51. Methods

The shoreline was inspected by truck, skiff, and walking along the beach. The distance to the MHWL was spot checked at intervals from points of known location and found to be correct and adequate, except where noted on enclosed ozalids copies of the map manuscripts.

Ozalid copies of T-10939 and T-10941 are enclosed with this report. Corrections and additions are shown in red ink and deletions in green on the ozalid prints.

52. Adequancy of Compilation

The map compilation appears complete and adequate.

53. Map Accuracy

The shoreline of the maps is accurate, except for the changes since photography, as shown on the field edit ozalids.

54. Recommendations

There are no recommendations.

55. Examination of Froof Copy

No one was contacted to examine a proof copy of the map.

Submitted: 21 March 1961

Ernest E. Brown, ENS, C&GS

Photo-Hydro Support Unit 721

TIDE CO UTATION

PROJECT NO. Ph. 5704 T. 10939

Time and date of exposure 19 Nov 1957 7445

Subordinate station ___

Reference station - Mobile - 1 Mobile Riller

Diurnal Mean range

Ratio of ranges

30 h. m. Time Duration of rise or fall High tide Low tide

	Height	Height x Ratio
	feet	of ranges
High tide	1:51	
Low tide	42,	
Range of tide		111

/	Time
/	h. m.
High tide at Ref. Sta.	
Time difference	
Corrected time at Subordinate station	/

Time	h. m.	\		/
/	/	Low tide at Ref. Sta.	Time difference	Corrected time at Subordinate station
	F. F.			

							I
	n. m.		feet		feet	Photo. No.	
Time H. T. or L. T. Required time Interval	14 42.	Ht. H. T. or L. T. Tabular correction Stage of tide above MLW	10000	Feature bares		56803	
Time H. T. or L. T. Required time Interval		Ht. H. T. or L. T. Tabular correction Stage of tide above MLW		Feature bares Stage of tide above MLW Feature above MLW			
Time H. T. or L. T. Required time Interval		Ht. H. T. or L. T. Tabular correction Stage of tide above MLW		Feature bares Stage of tide above MLW Feature above MLW		e etalija	
Time H. T. or L. T. Required time		Ht. H. T. or L. T. Tabular correction Stage of tide above MLW		Feature bares Stage of tide above MLW Feature above MLW			
Time H. T. or L. T. Required time Interval		Ht. H. T. or L. T. Tabular correction Stage of tide above MLW		Feature bares. Stage of tide above MLW. Feature above MLW.			
Time H. T. or L. T. Required time		Ht. H. T. or L. T. Tabular correction Stage of tide above MLW		Feature bares Stage of tide above MLW Feature above MLW			1

M-2617-12

Checked by _____ Computed by ETO

NOTES TO THE WASHINGTON OFFICE REVIEWER

A large number of buildings and short roads noted by the field inspector were omitted. It is our belief that this is in accordance with current instructions. (Please refer to Photogrammetry Instructions No. 54 regarding buildings and the letter of 10 June 1960 from the Chief, Photogrammetry Division regarding short roads.) The field editor was requested to make further investigation and has verified our interpretation.

TAMPA

Review Report Planimetric Maps T-10936 thru T-10943 December 1965

61. General Statement

Area - The project encompasses Mobile Bay and its approaches.

Purpose - The object of this project is to provide base maps for nautical charting and shoreline and horizontal control data for hydrographic surveys.

62. Comparison with Registered Topographic Surveys

T-3712	-			1:40,000		1918
T-3713	•			1:40,000		1918
T-3716	*.		1.5	1:10,000		1919
T-5532		•	_	1:20,000	٠,	1934
T-5533	,		. 4	1:20,000		1934

There are cultural and shoreline changes due to the differences in time interval. T-19036 thru T-10943 are to supersede the above surveys of common area.

63. Comparison with Maps of Other Agencies

Theodore	1:24,000	1953
Hellingers	1:24,900	1953
Coden	1:24,000	1956
Bellefontaine.	1:24,000	1956

See Item 46.

64. Comparison with Contemporary Hydrographic Surveys

H-8573	7 - 2 4-	•	1:10,000		1961
H-8575		* - 7	1:10,000	 · ·	1961
H-8561 H-8587			1:10,000		1961 1961

Shoreline and control of subject surveys was furnished prior to the hydrographic surveys and apparently no differences of importance exist.

65. Comparison with Nautical Charts

1266 1:80,000 1965

Because of the scale difference only a visual comparison was made. No notable differences exist.

66. Adequacy of Results and Future Surveys

These maps comply with the National Map Accuracy Standards and meet Bureau requirements.

Reviewed by:

L.C. Landel

Approved by:

Chief, Photogrammetric Branch.

Chief, Nautical Chart Division

Chief, Photogrammetry Division