

# 5098

(Original)

5098

Form 504  
Rev. Dec. 1933  
DEPARTMENT OF COMMERCE  
U.S. COAST AND GEODETIC SURVEY  
R. S. PATTON, DIRECTOR

**DESCRIPTIVE REPORT**  
Air-Photo  
Topographic }  
~~Hydrographic~~ } Sheet No. T-5098

State ..... New Jersey .....

LOCALITY

Barnegat Bay.

Barnegat.

1932

CHIEF OF PARTY

Roswell C. Bolstad - - Jr. H. & G. Engr.

Applied to drawing of Chart 1216 - July 30, 1937 - J.F. Walker  
" " compilation " 825 1938 P.L.D. #1000

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

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. 48

REGISTER NO. T-5098 **T5098**

State New Jersey

General locality East Coast of New Jersey, Barnegat Bay.

Locality Barnegat, N.J.

Scale 1:10,000 Date of ~~survey~~ photographs- April 4, 1932

Date of Compilation- Jan. 23, 1936

Vessel Air Photo Compilation Party No. 12.

Reviewed and recommended for approval- Roswell C. Borstad  
Chief of party

Surveyed by See STATISTICS SHEET, page 2 of this report.

Inked by R. L. Fisher.

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

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

Instructions dated November 15th., 19 32.

Remarks: Compiled on a scale of 1:10,000 and printed

by photo-lithography.

1216-*tr*

- STATISTICS -

on

SHEET, FIELD NO. 48 REG. NO. T-5098

DATE OF PHOTOGRAPHS April 4, 1932 TIME Near Noon.

(See back this page for Photonumbers.) From DATE To

ROUGH RADIAL PLOT \_\_\_\_\_

SCALE FACTOR (1.000) Previously determined. \_\_\_\_\_

SCALE FACTOR CHECKED \_\_\_\_\_

PROJECTION J. B. MORELAND J. B. Moreland 10/19/34

PROJECTION CHECKED J. G. Albert J. B. ALBERT 10/19/34

CONTROL PLOTTED J. B. MORELAND J. G. ALBERT 10/24/34 & 2/25/35  
J. B. Moreland & J. G. Albert

CONTROL CHECKED J. P. O'DONNELL J. P. O'Donnell " "  
J. K. Betchellor & J. P. O'Donnell

TOPOGRAPHY TRANSFERRED None \_\_\_\_\_

TOPOGRAPHY CHECKED \_\_\_\_\_

SMOOTH RADIAL LINE PLOT J. G. ALBERT J. G. Albert 3/11/35 - 3/25/35

RADIAL LINE PLOT CHECKED J. J. LAMIGAN J. J. Lanigan 3/26/35

DETAIL INKED J. G. ALBERT J. G. Albert 3/27/35 - 4/17/35  
R. L. Fisher R. L. Fisher

PRELIMINARY REVIEW OF SHEET J. P. O'DONNELL J. P. O'Donnell & R. C. Bolstad 1/25/36 - 2/13/36  
J. P. O'Donnell & R. C. Bolstad

AREA OF DETAIL INKED 20.2 Sq. Statute Miles (Land area)

AREA OF DETAIL INKED 0.0 Sq. Statute Miles (Shoals in water area)

LENGTH OF SHORELINE (more than 200 m. from the nearest opposite shore)  
14.3 Statute Miles.

LENGTH OF SHORELINE (rivers and sloughs less than 200. m. wide)  
34.6 Statute Miles

LENGTH OF STREETS, ROADS, TRAILS, RAILROADS, ETC. 121.0 Statute Miles.

GENERAL LOCATION Barnegat Bay, East Coast N. J.,

LOCATION Barnegat.

DATUM North American 1927 (~~Final adjusted office.~~)

STATION Barnegat W. T. 1932 Latitude 39°-45'-20.405" (629.3 m.)

Longitude 74°-13'-19.191" (456.8 m.)

(Adjusted)

8000-1

GA

Photograph Numbers:-

.....

.....

(66-4)43

(66-4)2 to 8 inclusive.

(66-4)79 to 85 inclusive.

COMPILER'S REPORT

for

AIR PHOTO TOPOGRAPHIC SHEET, FIELD No. 48.

GENERAL INFORMATION.

The Air-photo Field Inspection Report for the East Coast of New Jersey, attached to the Descriptive Report for compilation, register number T-5286, furnished the necessary information for the compilation of this sheet. Additional information was obtained from Mr. J.K. Batchellor and myself (Mr. R.L. Fisher) who are acquainted with this locality having performed the photo field inspection.

This sheet was compiled from strips of single lens photographs taken by the Aero Service Corporation, 1612 Chancellor St., Philadelphia, Pennsylvania, with a camera equipped with a special lens (Orthomessar, 8 inch focal length). The original negatives were on a scale of about 1:21,800, and enlargements were made to 1:10,000 scale by using the old topographic sheets to bring image of negative to proper scale. No information was available from the Aero Service Corporation in regard to the time of day at which these photographs were taken; it appears no record was kept by this company. An approximation can be made, however, by observing the shadows; from this observation it is believed the pictures were taken shortly before noon.

CONTROL.

(a) Sources.

Control for the compilation of this sheet was obtained from the following sources:-

- (1) Triangulation by C.D. Meaney, 1932 (1st. Order, Adjusted).
- (2) Theodolite position by R.C. Bolstad (See field inspection report, T-5286, pages 5 & 6).
- (3) Lieut. Rigg's 1935 triangulation stations GUN, GAT, GULF, WARE, & SHELL were plotted on this compilation but not used in controlling the photo plot as they were not available until after the compilation was practically completed. Lieut. Rigg's 1935 position of BARNEGAT W.T. was not used as Lieut. Meaney observed on this station in 1932.
- (4) The Tuckerton R.R. and the Central R.R. of N.J. track traverses were used. (See paragraph Discrepancies.)

(b) Errors.

In making the radial plot no errors in any of the above listed control stations were discovered.

(c) Discrepancies.

There was a slight disagreement between the railroad traverses as plotted from the data obtained from the R.R. companies and the position as obtained by the radial plot between control stations Padoga and Barnegat Water Tank. There was also a similar disagreement with the Tuckerton R.R. traverse. In both cases the trouble is undoubtedly due to erroneous bearings obtained by computation from the curve data; it was noticed that on tangent track the plus distances to cross-roads, etc. checked out very well. The photo plot is well controlled and the adjusted position of the tracks is now without question as shown on this compilation.

COMPILATION.

(a) Method.

The usual radial line method of plotting was used in the compilation of this sheet.

(b) Adjustments of Plot.

By holding to all the available control no unusual adjustments of the plot were required. The photos in general have very little tilt, are close to the 1:10,000 scale, and the radial plot intersections were good. In some cases the necessary amount of overlap between adjacent photos could have been improved with a corresponding effect on the strength of the plot. On some of the photographs there is apparently a slight distortion near the outer edges and corners.

(c) Interpretation.

The usual graphic symbols were used as approved by the Board of Surveys and Maps (1932) and no difficulty was experienced in interpreting the photographic detail.

The area along the shore is low, flat and marshy with a vertical edge. There was little difficulty in interpreting the high water line.

The western edge of this sheet consists of gradual rolling country with the low hills covered principally with pine. The soil is generally very sandy.

Near the northwestern corner of this compilation there is some swamp land covered with a heavy growth of cedar. This area was shown by the marsh symbol but the lines broken at intervals and the tree symbol inserted.

A few areas in the woods were partially cleared for real estate developments a number of years ago. These areas since been grown over with a new growth of trees and brush and are no longer accessible; they have therefore been omitted from this sheet.

Just to the west of Waretown there are a group of four cranberry bogs. The two center bogs are dry for most of the year and it appears they may have been abandoned although the berries are picked. Because they do not show signs of regular use they have been shown with the small stream running through them and the boundary limits omitted on one of them.

In latitude  $39^{\circ}-43.8'$ , longitude  $74^{\circ}-12.9'$  is shown a small wooden fixed bridge. It is used by light horse-drawn wagons which carry the hay from the salt marsh. The trail leading to this bridge is not passable for automobiles.

There are numerous drainage ditches and small ponds in the marsh areas; only the main ditches and ponds have been shown.

The double full line was used to indicate first class roads, the double dashed line to indicate second class or poor motor roads, and the single dashed line to indicate exceedingly poor roads, trails and paths.

G - T6398 a

(d) Information from Other Sources.

H - T6398 b

Lt. Rigg's topographic sheets G and H covering this area were not received until after the compilation of this sheet was practically completed. However a comparison was made and in area where discrepancies occurred changes were made in the compilation shoreline so that there are now no conflicts between these surveys. It was unnecessary to make but very little change in the compilation in order to effect this agreement.

The reference measurements to shoreline as given in the descriptions of the triangulation stations, as listed on page 3, Control, Rigg 1935, were compared with this compilation and there is no disagreement.

(e) Names.

For all geographical names see the special tables included in the back of this report.

Lieut. Rigg's hydrographic sheets were not available and any names shown thereon, as mentioned in his descriptive reports, have not been shown on the compilation over-lay sheet unless mentioned elsewhere.

LANDMARKS.

A list of landmarks, including those to be expunged, has been submitted by this party in the field inspection report attached to Descriptive report T-5286, and also Lt. Sammons in 1935. They have all been shown on this sheet.

There are many other objects (such as houses, ends of docks, etc.) which are believed to be located within the accuracy specified under the paragraph Recommendations for Further Surveys, and may be used to obtain hydrographic fixes. Care should be taken when using the houses to use the center as the size shown on the compilation may be expanded somewhat.

BRIDGES.

The only bridge of importance to navigation appearing on this compilation is at the northern portion of the sheet and is the Oyster Creek highway bridge. The bridge is of minor importance, however, the data regarding it has been shown on the over-lay sheet. This information was obtained from the field inspection report attached to the descriptive report T-5286.

RECOMMENDATIONS FOR FURTHER SURVEYS.

The compilation of this sheet is believed to have a probable error of not over 2 meters in position for well defined detail of importance for charting, and not over 4 meters for other detail. It is understood the widths of roads and similar objects may be slightly exaggerated in order to keep the detail clear and to avoid the closing up of lines during the photo-lithographic process.

To the best of my knowledge and belief this sheet is complete in all detail of importance for charting purposes, within the accuracy stated above, and no additional surveys are required.

Submitted by-

R. L. Fisher  
R. L. Fisher, Draftsman.

\* A better estimate of accuracy on this compilation is 0.3 to 0.5 mm for intersected points and 0.3 to 0.5 mm for least adjustment between intersections R.L.F.

LIST OF RECOVERABLE STATIONS.

This list includes all recoverable objects, shown by a small black circle on this compilation. They have all been described on form 524 by either Lt. Sammons in 1935 or Lt. Bolstad in 1935 (See T-5286).

NAME	LAT.	LONG.	METHOD OF DETERMINATION.
F.P. (Oyster Creek)	39-48.5	74-11.3	T.S. & A.C.S."G".
Fogel	39-48.0	74-10.7	T.S. & A.C.S."G".
Cabin (U.S.E.)	39-48.0	74-11.1	T.S. & A.C.S."G".
Steps	39-47.5	74-11.0	T.S. & A.C.S."G".
<del>Padoga Pagoda</del>	<del>39-47.7</del>	<del>74-11.5</del>	<del>T.S. &amp; A.C.S."G".</del>
1st. M.E.Church, Waretown	39-47.5	74-11.6	A.P.T.
E.R.A. 2247	39-47.1	74-12.0	A.P.T.
Cottage (U.S.E.)	39-46.9	74-11.1	T.S. & A.C.S."G".
Kelley	39-46.6	74-11.2	T.S. & A.C.S."H".
Blind Tank	39-46.4	74-11.7	T.S. & A.C.S."H".
White Chy. (Plastered)	39-45.7	74-11.7	T.S. & A.C.S."H".
Light	39-45.1	74-11.3	T.S. & A.C.S."H".
E.R.A. 2250	39-45.2	74-13.4	A.P.T.
Barnegat M.E. Ch.	39-45.2	74-13.3	T.S.
Wright Mem. Presb. Ch. Barnegat	39-45.1	74-13.4	A.P.T.
E. Gab. Yel. Ho.	39-43.5	74-13.2	A.P.T.
* <del>Wet</del>	<del>39-43.5</del>	<del>74-12.5</del>	<del>T.S.</del>
N. Gable Dark Ho.	39-44.5	74-10.9	T.S. & A.C.S."H".
Private	39-48.7	74-10.2	A.C.S."G".
Roop	39-48.8	74-11.3	A.C.S."G".
Beer	39-48.8	74-11.2	A.C.S."G".
Inne	39-47.2	74-11.1	A.C.S."G".
Sock	39-45.9	74-11.6	A.C.S."H".
Mock	39-45.2	74-11.4	A.C.S."H".
Lion	39-45.0	74-11.6	A.C.S."H".
Got	39-44.9	74-11.7	A.C.S."H".
Nes	39-44.7	74-11.9	A.C.S."H".
Rack	39-44.7	74-11.9	A.C.S."H".
Bird	39-44.5	74-10.8	A.C.S."H".
Cora	39-43.7	74-10.8	A.C.S."H".
Eva	39-43.7	74-10.8	A.C.S."H".
Shoot	39-43.3	74-11.1	A.C.S."H".
Bay	39-47.5	74-11.1	A.C.S."G".

NOTE:- A.C.S. denotes Aluminum Control Sheet, Rigg, 1935 (Sammons).  
 T.S. denotes Theodolite-observed control Station (See pages 5 & 6 in field inspection report attached to Desc. Report T-5286).  
 A.P.T. denotes location by Air Photo Topography (Radial plot).

The positions and descriptions of the T.S. and A.P.T. stations were furnished Sammons before his topography was completed, and were all verified by his graphic control sheets (when shown above with the A.C.S following T.S.).

~~\* WET is not recoverable.~~

Remarks

Decisions

1	*It. Sammons Topo. Desc. Report for "G" & "H", 1935.	
2	* " " " " " " " " " " .	
3	* " " " " " " " " " " .	
4	* " " " " " " " " " " .	
5	* Standard highway sign (cast iron).	
6	* " " " " " " " " " " .	
7	* Same remark as for lines 1 and 5.	
8	* " " " " " " " " " " .	
9	* Same remark as for line 1. ** A railroad name meaning "the place where R.R. lines meet or cross". Should not be charted as there is no settlement as name would infer.	
10	* Same remark as for line 1.	
11	* Name taken from official N.J. State Highway map.	
12		
13	* Name taken from street sign by field party.	
14	* " " " " " " " " " " .	
15	* Same remark as for line 1.	
16	* " " " " " " " " " " .	
17	*Marked along highway at intervals by standard cast iron signs.	
18	* " " " " " " " " " " " " " " .	
19	* <i>Added by F. R. Jollon 1/25/37</i>	
20		
21		
22		
23		
24		
25		
26		
27		

GEOGRAPHIC NAMES

Survey No. T-5098

Name on Survey	1216, 5243		Arr-photo field inspection.		P. O. Guide or Map		Rand McNally Atlas		R.Y. GUIDE U.S. Light List		Hwy. maps, & Signs.
	A	B	C	D	E	F	G	H	K		
<u>Gunning River</u>	x	x*	x	2 men x							1
<u>Gulf Point</u>	x	x*	x	3 men x							2
<u>Conklin Island</u>	x	x*	x	2 men x							3
<u>Double Creek</u>	x	x*		1 man x							4
<u>Waretown Creek</u>			x	4 men x	x					x*	5
<u>Lochiel Creek</u>	<i>On photo-compilation only</i>									x*	6
<u>Oyster Creek</u>	x	x*	x	5 men x	x					x*	7
<u>Waretown</u>	x	x*	x	5 men x	x	✓				x	8
<u>Waretown Junction **</u>	x	x*							✓		9
<u>Barnegat</u>	x	x*	x	5 men x	x	x				x	10
<u>Lower Dock</u>	<i>On photo-compilation only</i>									x*	11
<u>Monkeytown Road</u>	<i>do.</i>										12
<u>Bay Street (In Barnegat)</u>	<i>On photo-compilation only</i>									x*	13
<u>Main Street(" " )</u>	<i>do.</i>									x*	14
<u>Tuckerton R.R.</u> <small>* name changed</small>	x	x*	x	3 men x	x					x	15
<u>C.R.R. of N.J.</u>	x	x*	x	4 men x	x					x	16
<u>Highway, route U.S.9</u>	<i>On photo-compilation only</i>									x*	17
<u>" ; " N.J.4</u>	<i>do.</i>									x*	18
<u>Barnegat Bay *</u>	x										19
	Names underlined in re approved										20
	by C. Egan on 3/4/30										21
											22
<u>* Southern N.J. R.R.</u>									✓		23
											24
											25
											26
											27

*Rosi*  
T-5098\*

PLANE COORDINATE GRID SYSTEM

Positions of grid intersections used for fitting the grid to this compilation were computed by Division of Geodesy and the computation forms are included in this report.

Positions plotted by \_\_\_\_\_

Positions checked by \_\_\_\_\_

Grid inked on machine by \_\_\_\_\_

Intersections inked by \_\_\_\_\_

Points used for plotting grid:

x  
y

x  
y

x  
y

x  
y

x  
y

x  
y

x  
y

x  
y

Triangulation stations used for checking grid:

1. \_\_\_\_\_ 5. \_\_\_\_\_

2. \_\_\_\_\_ 6. \_\_\_\_\_

3. \_\_\_\_\_ 7. \_\_\_\_\_

4. \_\_\_\_\_ 8. \_\_\_\_\_

\* This grid was not plotted on celluloid because of poor projection. The attached computations may be used later. R.E. Ask

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION \_\_\_\_\_

$x$	2,130,000.00	$\log S_0$	5.11394054
$K$	2,000,000.00	$\log (1200/3937)$	9.48401583
$x' (=x-K)$	+ 130,000.00	$\log (1/R)$	1.086
$x'^3/(6\rho_0^2)_0$	— .84	$\log S_m$	4.59796723
$S_0$	129,999.16	cor. arc to sine	— 279
$3 \log x'$	15.34143005	$\log S_1$	4.59796444
$\log 1/(6\rho_0^2)_0$	4.5810213	$\log A$	9.50912331
$\log x'^3/(6\rho_0^2)_0$	9.9218514	$\log \sec \phi$	0.11452318
$\log S_m^2$	9.19693446	$\log \Delta\lambda_1$	3.22161093
$\log C$	1.325390	cor. sine to arc	+ 472
$\log \Delta\phi$	0.521324	$\log \Delta\lambda$	3.22161565
$y$	355,000.00	$\Delta\lambda$	1665.7723
$\phi'$ (by interpolation)	39 48 29.7972	$\lambda$ (central mer.)	74 40 "
$\Delta\phi$	— 3.3214	$\Delta\lambda$	— 27 45.7723
$\phi$	39 48 25.4758	$\lambda$	74 12 14.2277

Explanation of form:

$$x' = x - K$$

$$S_0 = x' - \frac{x'^3}{(6\rho_0^2)_0}$$

$$S_m = \frac{1}{R} \left( \frac{1200}{3937} \right) S_0$$

$R$  = scale reduction factor

$\phi'$  is interpolated from table of  $y$

$$\Delta\phi = C S_m^2$$

$$\phi = \phi' - \Delta\phi$$

$$\Delta\lambda_1 = S_1 A \sec \phi$$

$$\log S_1 = \log S_m - \text{cor. arc to sine}$$

$$\log \Delta\lambda = \log \Delta\lambda_1 + \text{cor. arc to sine}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION \_\_\_\_\_

$x$	2,140,000.00	$\log S_r$	5.14612478
$K$	2,000,000.00	$\log (1200/3937)$	9.48401583
$x' (=x-K)$	+ 140,000.00	$\log (1/R)$	10.86
$x'^3/(6\rho_0^2)$	- 1.05	$\log S_m$	4.63015147
$S_r$	139,998.95	cor. arc to sine	- 326
$3 \log x'$	15,43838412	$\log S_1$	4.63014821
$\log 1/(6\rho_0^2)$	4.5810213	$\log A$	8.50912332
$\log x'^3/(6\rho_0^2)$	0.0194054	$\log \sec \phi$	0.11452224
$\log S_m^2$	9.26030294	$\log \Delta\lambda_1$	3.25379377
$\log C$	1.325390	cor. sine to arc	+ 548
$\log \Delta\phi$	0.545693	$\log \Delta\lambda$	3.25379925
$y$	355,000.00	$\Delta\lambda$	1793.9038
$\phi'$ (by interpolation)	39 48 28.7972	$\lambda$ (central mer.)	74 40 "
$\Delta\phi$	- 3.9521	$\Delta\lambda$	- 29 53.9038
$\phi$	39 44 24.9451	$\lambda$	74 10 06.0962

Explanation of form:

$$x' = x - K$$

$$S_r = x' - \frac{x'^3}{(6\rho_0^2)}$$

$$S_m = \frac{1}{R} \left( \frac{1200}{3937} \right) S_r$$

$R$  = scale reduction factor

$\phi'$  is interpolated from table of  $y$

$$\Delta\phi = C S_m^2$$

$$\phi = \phi' - \Delta\phi$$

$$\Delta\lambda_1 = S_1 A \sec \phi$$

$$\log S_1 = \log S_m - \text{cor. arc to sine}$$

$$\log \Delta\lambda = \log \Delta\lambda_1 + \text{cor. arc to sine}$$

$$\lambda = \lambda (\text{central mer.}) - \Delta\lambda$$

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION \_\_\_\_\_

$x$	2,120,000.00	$\log S_0$	5.07917486
$K$	2,000,000.00	$\log (1200/3937)$	9.48401583
$x' (=x-K)$	+ 120,000.00	$\log (1/R)$	10.86
$x'^3/(6\rho_0^2)_0$	— .66	$\log S_m$	4.56320555
$S_0$	119,999.34	cor. arc to sine	— 237
		$\log S_1$	4.56320318
$3 \log x'$	15.23754375	$\log A$	8.50912539
$\log 1/(6\rho_0^2)_0$	4.5810213	$\log \sec \phi$	0.11400455 <sup>28</sup>
$\log x'^3/(6\rho_0^2)_0$	9.8185651	$\log \Delta\lambda_1$	3.18633312 <sup>144</sup>
		cor. sine to arc	+ 401
$\log S_m^2$	9.12641110	$\log \Delta\lambda$	3.18633713 <sup>544</sup>
$\log C$	1.324153 <sup>26</sup>	$\Delta\lambda$	1535.8047 <sup>28</sup>
$\log \Delta\phi$	0.450564 <sup>39</sup>		
$y$	325,000.00		
$\phi'$ (by interpolation)	39 43 32.3022	$\lambda$ (central mer.)	74 40 "
$\Delta\phi$	— 2.8224 <sup>19</sup>	$\Delta\lambda$	— 25 35.8047 <sup>28</sup>
$\phi$	39 43 29.4802 <sup>3</sup>	$\lambda$	74 14 24.1913 <sup>72</sup>

Explanation of form:

$$x' = x - K$$

$$S_0 = x' - \frac{x'^3}{(6\rho_0^2)_0}$$

$$S_m = \frac{1}{R} \left( \frac{1200}{3937} \right) S_0$$

$R$  = scale reduction factor

$\phi'$  is interpolated from table of  $y$

$$\Delta\phi = C S_m^2$$

$$\phi = \phi' - \Delta\phi$$

$$\Delta\lambda_1 = S_1 A \sec \phi$$

$$\log S_1 = \log S_m - \text{cor. arc to sine}$$

$$\log \Delta\lambda = \log \Delta\lambda_1 + \text{cor. arc to sine}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE	<u>N. J.</u>	STATION	
$x$	<u>2,140,000.00</u>	$\log S_0$	<u>5.14612478</u>
$K$	<u>2,000,000.00</u>	$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>+ 140,000.00</u>	$\log (1/R)$	<u>10.86</u>
$x'^3/(6\rho_0^2)_0$	<u>1.05</u>	$\log S_m$	<u>4.63015147</u>
$S_0$	<u>139,998.95</u>	cor. arc to sine	<u>3.26</u>
		$\log S_1$	<u>4.63014821</u>
$3 \log x'$	<u>15.43838412</u>	$\log A$	<u>6.50912540</u>
$\log 1/(6\rho_0^2)_0$	<u>4.5810213</u>	$\log \sec \phi$	<u>0.11400277</u>
$\log x'^3/(6\rho_0^2)_0$	<u>0.0194054</u>	$\log \Delta\lambda_1$	<u>3.25327638</u>
		cor. sine to arc	<u>+ 5.46</u>
$\log S_m^2$	<u>9.26030294</u>	$\log \Delta\lambda$	<u>3.25328184</u>
$\log C$	<u>1.3241<sup>28</sup></u>	$\Delta\lambda$	<u>1791.7683</u>
$\log \Delta\phi$	<u>0.5844<sup>31</sup></u>		
$y$	<u>326,000.00</u>		
$\phi'$ (by interpolation)	<u>39 43 32.3022</u>	$\lambda$ (central mer.)	<u>74 40 "</u>
$\Delta\phi$	<u>3.844<sup>09</sup></u>	$\Delta\lambda$	<u>29 51.7683</u>
$\phi$	<u>39 43 28.4614</u>	$\lambda$	<u>74 10 08.2317</u>

Explanation of form:

$$x' = x - K$$

$$S_0 = x' - \frac{x'^3}{(6\rho_0^2)_0}$$

$$S_m = \frac{1}{R} \left( \frac{1200}{3937} \right) S_0$$

$R$  = scale reduction factor

$\phi'$  is interpolated from table of  $y$

$$\Delta\phi = C S_m^2$$

$$\phi = \phi' - \Delta\phi$$

$$\Delta\lambda_1 = S_1 A \sec \phi$$

$$\log S_1 = \log S_m - \text{cor. arc to sine}$$

$$\log \Delta\lambda = \log \Delta\lambda_1 + \text{cor. arc to sine}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION \_\_\_\_\_

$x$	2,130,000.00	$\log S_0$	5.11394054
$K$	2,000,000.00	$\log (1200/3937)$	9.48401583
$x' (=x-K)$	+ 130,000.00	$\log (1/R)$	1.086
$x'^3/(6\rho_0^2)_0$	— .44	$\log S_m$	4.59796723
$S_0$	129,999.16	cor. arc to sine	— 279
		$\log S_1$	4.59796444
$3 \log x'$	15.34183005	$\log A$	8.50912436
$\log 1/(6\rho_0^2)_0$	4.5810213	$\log \sec \phi$	0.11426323
$\log x'^3/(6\rho_0^2)_0$	4.9228514	$\log \Delta\lambda_1$	3.22135203
		cor. sine to arc	+ 472
$\log S_m^2$	9.19593446	$\log \Delta\lambda$	3.22135675
$\log C$	1.324759	$\Delta\lambda$	1664.7796
$\log \Delta\phi$	0.520693		
$y$	340,000.00		
$\phi'$ (by interpolation)	39 46 00.544 <sup>503</sup>	$\lambda$ (central mer.)	74 40 "
$\Delta\phi$	— 3.3166	$\Delta\lambda$	— 27 44.7796
$\phi$	39 46 57.2244 <sup>337</sup>	$\lambda$	74 12 15.2204

Explanation of form:

$$x' = x - K$$

$$S_0 = x' - \frac{x'^3}{(6\rho_0^2)_0}$$

$$S_m = \frac{1}{R} \left( \frac{1200}{3937} \right) S_0$$

$R$  = scale reduction factor

$\phi'$  is interpolated from table of  $y$

$$\Delta\phi = C S_m^2$$

$$\phi = \phi' - \Delta\phi$$

$$\Delta\lambda_1 = S_1 A \sec \phi$$

$$\log S_1 = \log S_m - \text{cor. arc to sine}$$

$$\log \Delta\lambda = \log \Delta\lambda_1 + \text{cor. arc to sine}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

REVIEW OF AIR PHOTO COMPILATION T-5098

Scale 1:10,000

Comparison with Graphic Control Surveys.

1. T-6398a (July 1935) 1:10,000.  
No discrepancies noted.
2. T-6398b (July 1935) 1:10,000.  
No discrepancies noted.

The above Graphic Control surveys were returned to the field in 1936 for use in connection with the hydrographic surveys, but no additional plane table work was done, within the area of this compilation.

All detail on the above Control Sheets falling within the area of this compilation is now shown on T-5098 with the exception of temporary plane table stations and magnetic meridians.

Comparison with Contemporary Hydrographic Surveys.

H-6141 (May - July 1936) 1:10,000.

A beacon (Bn. 45 Fl. R.) shown on this hydrographic sheet at latitude  $39^{\circ}45.8'$ , longitude  $74^{\circ}10.2'$ , is not plotted on the compilation and can not be observed on the photos.

No other discrepancies noted.

H-6142 (June - July 1936) 1:10,000.

At latitude  $39^{\circ}43.2'$ , longitude  $74^{\circ}10.5'$ , on T-5098, is shown a rather large island which can be seen on the older topographic sheets and which is very clearly visible on the photos. This island is not shown on the hydrographic sheet. This reviewer has transferred this island on to H-6142 in pencil pending the verification of H-6142. Instead there are shown on H-6142 two small islands the northernmost of which is non-existent on the photos and has not been transferred to T-5098. The southernmost is on the photos and is shown on the compilation.

A very small island shown on the compilation at latitude  $39^{\circ}44.4'$  longitude  $74^{\circ}11.6'$ , is not shown on H-6142. It is clearly defined on the photos and was existent in 1873 when it was shown on T-1315b. It, too, has been added in pencil to the hydrographic sheet pending the verification of this sheet.

Comparison with Previous Topographic Surveys.

T-118	(1839)	1:10,000
T-119	(1840-1841)	1:20,000
T-160	(1842)	1:20,000
T-1315b	(1873)	1:20,000
T-1371	(1874)	1:20,000

The topographic sheets 118, 119 and 160 were drawn almost 100 years ago and accordingly show considerable time changes. The entire shore line shows the effects of erosion. The more important changes are a considerable widening of Oyster Creek and severe changes at the mouth of Double Creek.

T-1315b shows few minor changes. One major change occurs at lat.  $39^{\circ}44.6'$ , long.  $74^{\circ}11.2'$ . The area known as Conklin Island and shown as an island on T-1315b has become attached to the mainland at its southern extremity. Near the northern end of Conklin Island the waters of Barnegat have broken through forming a smaller island. A spur of the mainland just west of the above island has been detached by a straight cut through it for harbor purposes.

T-1371 shows the same changes in Conklin Island at the mouth of Double Creek as were evident in T-1315b. In addition slips have been constructed at the mouth of Waretown Creek, and at the mouth of a stream just south of Waretown Creek, at lat.  $39^{\circ}47.3'$ . Piers shown on this topographic sheet no longer exist.

This compilation is complete and adequate to supersede all of the above topographic sheets in those areas common to the <sup>compilation</sup> new and older surveys.

Comparison with Chart 3243 (1:80,000) Oct. 1935.

The same differences at the mouth of Double Creek and about Conklin Island that were noted under T-1315b are to be noted in Chart 3243. The date of location of light (43-A) at the entrance to Double Creek is 1935.

All aids to navigation and landmarks shown on that part of Chart 3243 covered by T-5098 are shown on this compilation.

Remarks.

Drafting of this sheet is fair. Omission of numerous ditches and small ponds in swamp area along coast called for numerous additions to compilation, which were made by reviewer.

1/28/37.

F. R. Gollon.

*Frank R. Gollon*  
*B.G. Jones*

## REVIEW OF AIR PHOTO COMPILATION NO. T-5098

Chief of Party: Roswell C. Bolstad

Compiled by: (See page 2).

Project Air Photo Compilation Party #12. Instructions dated: Nov. 15, 1932.

- ✓ 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)
- ✓ 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. Lt. Sammon's hydro. sheets not forwarded to this party for comparison.
- ✓ 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)

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." 4-27

- ✓ 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) None on this sheet.
- ✓ 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)  

See page 6.
- ✓ 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) See page 5.
- ✓ 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)
- ✓ 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 N. A. 1927 and the reference station is correctly noted.
- ✓ 14. Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j)
- ✓ 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: Any additional reports and requirements affecting this area are referred to the reports of Lt. Sammon who conducted a survey of this area in 1935, both hydrographic and topographic. Field inspection report attached to descriptive report T-5286 also gives additional information.

18. Examined and approved;

  
Roswell C. Bolstad.  
Chief of Party

19. Remarks after review in office:

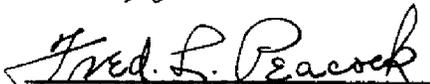
Reviewed in office by:

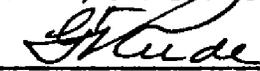
Examined and approved:

  
C. K. Green.  
Chief, Section of Field Records

  
L. O. Lobbat.  
Chief, Division of Charts

  
Frank R. Galloway  
- B. G. Jones

  
Fred L. Peacock  
Chief, Section of Field Work

  
G. H. Hude  
Chief, Division of Hydrography  
and Topography.