

5444

ORIGINAL

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

JAN 31 1936

Acc. No. _____

5444

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. Patton, Director

State: New Jersey

DESCRIPTIVE REPORT

Topographic } Sheet No. T5444
Hydrographic }

LOCALITY

~~Long Beach~~

~~Beach Arlington to Beach Haven~~

ATLANTIC COAST

LOWER LONG BEACH

Photographs 1932-

1933

Field Inspection

~~1935~~ and Planetable Surveys

1935

1936

1935

compiled —

CHIEF OF PARTY

R. C. Bolstad, Jr. H. & C. Engr.

U. S. GOVERNMENT PRINTING OFFICE: 1928

1216-3

Partially applied to drawing of Chart 1216-Aug. 9, 1937-JFW.

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 for-
warded to the Office.

Field No. 76

REGISTER NO.

15444

State New Jersey

General locality Long Beach ATLANTIC COAST

Locality Beach Arlington to Beach Haven LOWER Long Beach

Photographs April 15, 1932

Scale 1:10000 Date of Survey Jan. 23, 1933

XXXXXX Vessel Air Photo Compilation Party No. 12, New York City

Remond S. S. S.

-STATISTICS-

on

SHEET, FIELD NO. 76, REG. NO. T5444

PHOTOGRAPHS AS FOLLOWS:-

66-4-88 to 66-4-91 incl. taken April 15, 1932
 66-6-84 to 66-6-91 incl. taken April 15, 1932
 66-6-26 to 66-6-28 incl. taken April 15, 1932
 M62 to M83 (871-14) incl. taken Jan. 23, 1933 @ 12:25 P.M.

	BY	DATE
		From To
ROUGH RADIAL PLOT	None	
SCALE FACTOR (1.000)	None	
SCALE FACTOR CHECKED	None	
PROJECTION	<i>E.H. Peckworth</i> R.H. Peckworth	10/20/34
PROJECTION CHECKED	<i>J.P. O'Donnell</i> J.P. O'Donnell	10/20/34
CONTROL PLOTTED	<i>W.E. Brown</i> W.E. Brown	10/30/34 & 11/3/34
CONTROL CHECKED	<i>W.E. Hackett & H.L. Hawkins</i> W.E. Hackett & H.L. Hawkins	3/28/35
TOPOGRAPHY TRANSFERRED	None	
TOPOGRAPHY CHECKED	None	
SMOOTH RADIAL LINE PLOT	<i>J.B. Moreland</i> J.B. Moreland	3/29/35 - 4/1/35
RADIAL LINE PLOT CHECKED	<i>F.M. Overby</i> F.M. Overby	4/18/35 - 4/21/35
DETAIL INKED	<i>J.B. Moreland</i> J.B. Moreland	4/25/35 - 5/3/35 (less 6/15/35 - 7/2/35 (9 day
PRELIMINARY REVIEW OF SHEET	<i>W.E. Hackett</i> W.E. Hackett	7/3/35 - 7/9/35

AREA OF DETAIL INKED 4.0 sq. Statute Miles (Land Area)
 AREA OF DETAIL INKED 0.1 sq. Statute Miles (Shoals in Water Area)
 LENGTH OF SHORELINE (more than 200 m. from nearest opposite shore)
38.0 Statute Miles
 LENGTH OF SHORELINE (rivers and sloughs less than 200 m. wide)
20.7 Statute Miles

LENGTH OF STREETS, ROADS, TRAILS, RAILROADS etc. 46.2 Statute Miles

GENERAL LOCATION Long Beach

LOCATION Beachhaven to Surf City

DATUM North American 1927

STATION Beach Arlington 1932

Latitude 39° 38' 40.269" (1241.9 m.)

Longitude 74° 10' 52.563" (1253.3 m.)

COMPILER'S REPORT

for

AIR PHOTO TOPOGRAPHIC SHEET FIELD NO. 76

GENERAL INFORMATION

The 1934 Air Photo Field Inspection Report for the east coast of New Jersey (Metedeconk River to Townsend Inlet), attached to the Descriptive Report for Air Photo Topographic Sheet Reg. No. T5286, furnished the necessary field information for the compilation of this sheet. Additional information was obtained from Mr. R.L. Fisher and Mr. G. Crowther, Draftsman and Surveyor respectively, of Party No. 12, who are familiar with the topography of this area.

The accompanying STATISTICS SHEET details all the necessary data in connection with the compilation of this sheet.

This sheet was compiled from single lens photographs taken by the Aero Service Corporation, 1612 Chancellor St., Philadelphia, Pennsylvania. In addition, a set of single lens photographs taken by the Soil Erosion Service of New Jersey was used as an aid in the interpretation of detail. The photographs of the Aero Service Corporation are on a 1:10,000 scale, enlarged from the original negatives which are on an approximate scale of 1:21,800. There are three sets of these photographs all of which were taken on April 15, 1932. No record of the hour at which these photographs were taken was available, and so it is not possible to determine the stage of tide. The high water line was located on the photographs at intervals by accurate measurements taken by the field inspection party. The supplementary flight of single lens photos Nos. M62-M83 (871-14) taken by the Soil Erosion Service of New Jersey were flown on January 23, 1933 from 12:15 to 12:33 P.M. At this time the tide at Beachhaven, on the inner coast, was 0.5' above low water; at Cedar Bonnet the tide was 0.6' above low water; the tide at the outer coast was 0.4' above low water. These tide levels were computed from the Predicted Tide Tables of the U.S. Coast and Geodetic Survey.

CONTROL

(a) Sources

The following sources of control were used in the compilation of this sheet:-

- (a) Triangulation by Lieut. C.D. Meaney, 1932, field positions adjusted to North American 1927.
- (b) Theodolite observations - observed recoverable topographic stations (See item 4 on page 5, Field Inspection Report of this area, attached to Descriptive Report Reg. No. T 5286). These stations are shown by the regulation black circle of which there are six such stations that occur on this sheet, and all are described on Form 524. The names, as described, are as follows:

~~Cupola, Long Beach C. G. (not used, however, located by A.P.T.)~~
N. Gable, Bonnet Club
Cupola, Shiptown C. G. Station
S. Gable, Reed Id.
Gray Tank
Incinerator Stack
Engleside Cupola

- (c) Track traverse of the Pennsylvania R.R., Philadelphia & Reading branch has been used as supplementary control and checked with the radial plot.

(b) Errors

There are no apparent errors in the control positions for this sheet. The control on this sheet is in general strong, even though it is located in a narrow band along the center line of flight. In a few cases, the radial line plot allowed only two flat cuts, directly along the center line of flight, necessitating proportioning. Except for this, the radial line plot gave good intersections.

(c) Discrepancies

No other control stations established by other organizations was used in the compilation of this sheet.

COMPILATION

(a) Method

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

(b) Adjustment of Plot

The photographs in this area appear to have very little scale fluctuations or tilt. No unusual adjustments were necessary.

(c) Interpretation

The usual graphic symbols were used as approved by the Board of Surveys and Maps, 1932, and no great difficulty was experienced in interpreting the photographic detail. Good motor roads are indicated by a double full line, and poor motor roads by a double dashed line. A single dash line was used to indicate exceedingly poor roads, trails and paths. There are numerous trails or roads leading from the main highway to the outer coast which are indicated by a single dash line.

Where there was any difference in the shoreline, bulkheads, and docks, between the photographs supplied by the Aero Service Corporation and the photographs supplied by the ~~Soil Erosion~~ *U.S. Beach* ~~Service of New Jersey~~, the latter were used because of a later date, except for such detail that had been identified and located by the field inspection party. The field inspection was made after the Soil Erosion Service photographs were taken.

There are numerous drainage ditches in the marsh areas. Only the main ditches have been shown.

The Phila. and Reading R.R., Seashore Branch, extends for the entire length of the sheet. At the north end of the sheet, where the tracks connect with the mainland, there was at one time

Additional Note:

(c) Interpretation:- Bridges

see Page 7

There are only two bridges of importance to navigation on this sheet, and both of them are located at the northern end. These are the drawbridges of the Railroad and the highway and are shown on the overlay sheet, and mentioned on page 5.

The other fixed bridges of the Railroad and highway have exceedingly low clearances, of amounts such that they might possibly be clear only for rowboats and then only at low tide. There is one such fixed bridge, however, that has a clearance much greater than any of the others and that is the fixed highway bridge immediately to the west of the drawbridge. This is a wooden arch bridge, and from the estimate of the field men who made an inspection of this area its clearance is thought to be about 5 feet above high water.

1935 Survey (Hydes.) of Lt. A. H. Biggs showed
give correct data on clearances, etc.

"3381 notgill Arlington Beach Arlington 1932" and
a complete Y turn with the tracks running north and south of this point, but at present the tracks and ties have been removed from the north turn and only the roadbed remains. The roadbed has been indicated by a single dash line. The

On Reed Island the recoverable topographic station "S. Gable, Reed Id." only has been shown; a small wooden water tank and coal bin together with two grounded house boats have been omitted because of their closeness to this station.

The sand dunes shown on the photographs have been shown on this sheet, but they are continually changing and therefore they are symbolic rather than in exact position. The photos taken by the ~~Soil Erosion Service~~ ^{U.S. Beach Erosion Board} were used in spotting these sand dunes, both because they were taken more recently and because they showed the dunes more clearly than the photos taken by the Aero Service Corporation.

The only bridges of importance to navigation on this sheet are the ones that cross Manahawkin Bay, between Cedar Bonnet and the outer coast. The railroad bridge is a swing bridge with a vertical clearance of one foot above M.H.W. and a horizontal clearance of 47 feet. The highway bridge is of the single leaf bascule type with a vertical clearance of 7.3 feet above M.H.W. and a horizontal clearance of 50.7 feet. This information was obtained from notes on the photographs placed there by the field inspection party. The highway bridge is listed by the Dep't of Navigation and Commerce of the State of New Jersey as having a vertical clearance of 7.8' as compared with 7.3' as given by the field party. The notes as given by the field inspection have been accepted and marked on the cover sheet.

See also Page 7

(d) Information from Other Sources

The track data of the Pennsylvannia R.R., Seashore Branch, was used to locate streets, bridges, and other topographic features necessary for detailing.

Beach Erosion Board

The ~~Soil Erosion Service~~ photographs were used for interpreting the photographic detail in areas where the Aero Service Corp. photographs were not distinct.

(e) Conflicting Names

The name Beach Arlington, which appears on this cover sheet, is not shown on U.S. Coast and Geodetic Survey Chart No. 1216. On Chart No. 33 of the Department of Conservation and Development of the State of New Jersey there is only one town shown in this area, and it is called Shipbottom - Beach Arlington. The 1934 Road Map of New Jersey, published by the New Jersey State Highway Commission, Trenton, New Jersey, shows two towns, Beach Arlington and Ship Bottom, with Beach Arlington north of the latter.

When, at the conclusion of this compilation, these discrepancies were noted, a letter was sent to the Officer in Charge, of the Ship Bottom Coast Guard Station asking for correct information to right these discrepancies.

The letter, which was received in reply, is attached to this descriptive report. Since the letter states that both Ship Bottom and Beach Arlington have separate post offices they have been shown as two separate towns, with Beach Arlington north of Ship Bottom as shown on the N.J. State Highway Map, noted above.

(continued on reverse side of this sheet)

The fact that Triangulation Station "Beach Arlington 1932" falls to the north of Ship Bottom Coast Guard Station, and therefore to the north of the Ship Bottom Post Office (since the Post Office is directly in back of the Coast Guard Station), is a further verification of the correctness of the positions of the two towns as shown on this sheet;- namely Beach Arlington north of Ship Bottom.

COMPARISON WITH OTHER SURVEYS

Junctions with all adjoining sheets are satisfactory. An old topographic sheet of this area, bT 2456, dated 1889, was found to be incomplete and obsolete, and therefore was not used for comparison.

LANDMARKS

A list of landmarks, including those to be expunged, has been submitted by this party. in the field inspection report which is attached to the descriptive report for sheet Reg. No. T 5286. It is assumed that the field party which will carry on operations in this in the near future , will check this list and make revisions if necessary.

There are also many other objects, such as houses, ends of docks, etc., which are within the accuracy specified under the following heading, RECOMMENDATIONS FOR FURTHER SURVEYS, and may be used to obtain hydrographic "fixes". Care should be taken in using the houses to use the center as the size shown on this sheet may be expanded somewhat.

RECOMMENDATIONS FOR FURTHER SURVEYS

The compilation of this sheet is believed to have a probable error of not over two meters in well defined detail of importance for charting and of four meters for other data. It is understood that the width of roads and similar objects may be slightly expanded in order to keep the detail clear and to keep it from photographing as a solid area in the photo-lithographic process.

To the best of my knowledge 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

J. B. Moreland

J. B. Moreland
Draftsman

Assisted by

W. E. Hackett
W. E. Hackett
Surveyor

J. G. Albert
J. G. Albert
Draftsman

*a better estimate of accuracy is
0.3 mm to 0.5 mm for interstitial points and
0.3 to 0.8 mm for other detail on the scale
of the alluvial compilation* *Reg.*

* The clearances noted on the opposite page have been discussed with Lieut. Riggs and are accepted and shown with his agreement.

C. 2 and 4 of designation Report H 6142 and



7
ADDITIONAL NOTE.

After completion of this compilation the 1935 Aluminum Control Sheets of Lieut. B. H. Rigg were furnished this party for comparison. The outer shore line as was shown on the compilation, was changed to agree with that as shown on the aluminum control sheets as they were executed at a latter date than the field inspection of the 1932 photographs.

There were only a few slight changes necessary to the compilation in order to agree with the aluminum control sheets. There are now no discrepancies between the 1935 A.C. Sheets of Lieut. Rigg and this compilation. The 1935 hydrographic sheets of this area (if there are any) were not furnished this party for comparison; it is therefore assumed that the shoreline of this compilation (previously furnished the hydro. party) is correct except where differences were noted in on the A.C. Sheets.

The following 1935 triangulation stations of Lieut. Rigg were established after the completion of this compilation, and were therefore not used in controlling the plot. They have, however, been shown on this compilation.

Shelter 1935

Bonnet 1935 (Spelled "Bonnett" on descriptive card).

Just south of triangulation station "Standpipe 1932" the short R.R. side or spur track on the west side of the main track has not been shown on this compilation because of overcrowding of detail in this area. The spur track has been marked on photo M75-871-14 by the field inspection party.

The duck blind shown on this sheet at Lat. $39^{\circ}-37.3'$, Long. $74^{\circ}-12.7'$ is constructed in a somewhat permanent nature; it shows clearly on the 1932 photographs.

BRIDGES.

X
See opposite
Page.
Correct
B.H.R.
The bridges of importance to navigation on this sheet are at the north limit; the information as listed on the cover sheet has been obtained from the field inspection party (See Field Inspection Report attached to Descriptive Report T-5286, page 14, items 13 & 14.) On Lieut. Rigg's Topo. sheet "L" is shown a vert. clearance of 6.5 feet above M.H.W. for the R.R. Swing bridge. This is in direct contrast to the 1.0 ft. clearance above M.H.W. as obtained by the U.S.E.D., the N.J. State Board of Commerce & Navigation, and the field inspection party who verified this as being correct. Mr. R.L. Fisher, now on this party and who performed the field inspection of this area states that he is positive the 1.0 ft. (within few tenths of ft.) clearance is correct and that Lieut. Rigg has made some error. Since Mr. Fisher definitely recalls the bridge and the 1.0 ft. clearance has been checked by three different parties, it has been shown on the overlay sheet. M.H.W. Bridge

For the Highway Single Leaf Bascule bridge Lieut. Rigg shows a vertical clearance of 7.1 feet above M.H.L. (4) If it is meant that the vertical clearance is 7.1 feet above the mean high water this value checks closely the value obtained by the field inspection party (7.3 ft.) For the horizontal clearance Lt. Rigg gives 49 feet. By actual taped measurement the field inspection party obtained 50.7 feet which checks that obtained by the N.J.B.C. & N. and also the U.S.E.D. Call it 50' B.H.R.

NAMES.

The names appearing on this compilation are submitted on the forms on the preceeding page.

RECOVERABLE TOPOGRAPHIC STATIONS .

The following tabulation lists all recoverable objects located on this compilation by a small black circle:

Name	Lat.	Long.	Method of Determination.
N. Gable Bonnett Club (d)	39°-39.5'	74°-11.4'	T.S. & A.C.S. "L".
Shipbottom C.G. Cupola (d)	39°-38.3'	74°-11.0'	T.S. & A.C.S. "L".
Mast Shipbottom C.G. (d)	39°-38.3'	74°-11.0'	A.C.S. "L".
S. Gab. Reed I. (d)	39°-38.1'	74°-12.7'	T.S. & A.C.S. "L".
Chy. Yel Frame House (d)	39°-37.8'	74°-11.3'	A.C.S. "L".
Grey Tank (d)	39°-36.8'	74°-12.2'	T.S. & A.C.S. "L".
Wood Tank (d)	39°-36.7'	74°-12.4'	A.C.S. "L".
Cupola- Long Beach C.G.S. (d)	39°-35.1'	74°-13.4'	A.C.S. "M".
Sig. Mast Long Beach C.G. (d)	39°-35.1'	74°-13.4'	A.C.S. "M".
E. Gab. 3 Story Bldg. (d)	39°-34.5'	74°-13.6'	A.C.S. "M".
Incinerator Stack (d)	39°-34.3'	74°-14.2'	T.S. & A.C.S. "M".
E. Gab. Hotel (d)	39°-34.2'	74°-13.9'	A.C.S. "M".

Note:- A.C.S. means Aluminum Control Sheet of Lieut. Rigg, 1935.

T.S. means Theodolite-observed Control Station (See page 5 in field inspection report attached to descriptive report T-5286.).

The positions and descriptions of the theodolite-observed control stations were furnished to Lieut. Rigg before his topography was started, and were found to be in agreement with his planetable determination. All these objects have been described on form 524 and submitted with the aluminum control sheets.

Roswell C. Bolstad, Jr.
 Roswell C. Bolstad, Jr. H. & G. E.,
 Chief of Party #12.

Ship Bottom,

Fifth.

Ship Bottom, N.J.

6 July,

35.

From: Officer in Charge, SHIP BOTTOM Station.
To : Roswell C. Belstad, 330 West 42nd. Street,
New York City, N.Y.

Sir: Replying to your letter of 5 July, 1935 you are in-
formed that there appears to be a very complicated state of aff-
airs regarding the names of these small communities around here.

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:

$\frac{x}{y}$ _____

$\frac{x}{y}$ _____

$\frac{x}{y}$ _____

$\frac{x}{y}$ _____

$\frac{x}{y}$ _____

$\frac{x}{y}$ _____

$\frac{x}{y}$ _____

$\frac{x}{y}$ _____

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	<u>2,135,000.00</u>	$\log S_0$	<u>5.13033075</u>
K	<u>2,</u>	$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>135,000.00</u>	$\log (1/R)$	<u>1086</u>
$x'^3/(6\rho_0^2)_0$	<u>0.94</u>	$\log S_m$	<u>4.61435744</u>
S_0	<u>134,999.06</u>	cor. arc to sine	<u>300</u>
$3 \log x'$	<u>15,39100101</u>	$\log S_1$	<u>4.61435444</u>
$\log 1/(6\rho_0^2)_0$	<u>4.5810213</u>	$\log A$	<u>8.50912713</u>
$\log x'^3/(6\rho_0^2)_0$	<u>9.9720226</u>	$\log \sec \phi$	<u>0.11357149</u>
$\log S_m^2$	<u>9.22871488</u>	$\log \Delta \lambda_1$	<u>3.23705306</u>
$\log C$	<u>1.323077</u>	cor. sine to arc	<u>+ 507</u>
$\log \Delta \phi$	<u>0.551792</u>	$\log \Delta \lambda$	<u>3.23705413</u>
y	<u>300,000.00</u>	$\Delta \lambda$	<u>1235.0688</u>
ϕ' (by interpolation)	<u>39 39 25.2198</u>	λ (central mer.)	<u>74 40 "</u>
$\Delta \phi$	<u>3.5628</u>	$\Delta \lambda$	<u>28 46.7764</u>
ϕ	<u>39 39 21.6570</u>	λ	<u>74 11 13.2212</u>
$1'' \phi = 30.841$	<u>667.94</u>	$1'' \lambda = 23.842$	<u>332.14</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

ϕ' 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	<u>2,125,000.00</u>	$\log S_0$	<u>5.0969075⁴⁴</u>
K	<u>2</u>	$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>125,000.00</u>	$\log (1/R)$	<u>10.86¹³</u>
$x'^3/(6\rho_0^2)_0$	<u>-.74</u>	$\log S_m$	<u>4.5809342²²</u>
S_0	<u>124,999.26</u>	cor. arc to sine	<u>-.258</u>
$3 \log x'$	<u>15.29073003</u>	$\log S_1$	<u>4.5809316⁵⁴</u>
$\log 1/(6\rho_0^2)_0$	<u>4.5810213</u>	$\log A$	<u>8.5091285⁷</u>
$\log x'^3/(6\rho_0^2)_0$	<u>9.8717513</u>	$\log \sec \phi$	<u>0.11331384</u>
$\log S_m^2$	<u>9.1618684²⁶</u>	$\log \Delta\lambda_1$	<u>3.2033736⁵⁶</u>
$\log C$	<u>2.322445</u>	cor. sine to arc	<u>+ .434</u>
$\log \Delta\phi$	<u>0.484313</u>	$\log \Delta\lambda$	<u>3.2033779⁹⁴</u>
y	<u>285,000.00</u>	$\Delta\lambda$	<u>1592.2687⁴</u>
ϕ' (by interpolation)	<u>39 36 56.9689</u>	λ (central mer.)	<u>74 40</u>
$\Delta\phi$	<u>- 3.0501</u>	$\Delta\lambda$	<u>- 26 37.2689⁴</u>
ϕ	<u>39 36 53.9188</u>	λ	<u>74 13 22.7313⁶</u>
30.840	1662.94	23.853	542.24

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

ϕ' 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	<u>2,150,000.00</u>	$\log S_g$	<u>5.17608753</u>
K	<u>2</u>	$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>150,000.00</u>	$\log (1/R)$	<u>1086</u>
$x'^3/(6\rho_0^2)_g$	<u>1.29</u>	$\log S_m$	<u>4.66011422</u>
S_g	<u>149,998.71</u>	cor. arc to sine	<u>371</u>
$3 \log x'$	<u>15.52827378</u>	$\log S_1$	<u>4.66011051</u>
$\log 1/(6\rho_0^2)_g$	<u>4.5810213</u>	$\log A$	<u>8.50912818</u>
$\log x'^3/(6\rho_0^2)_g$	<u>0.1092951</u>	$\log \sec \phi$	<u>9.44231149</u>
$\log S_m^2$	<u>9.32022844</u>	$\log \Delta\lambda_1$	<u>3.28255018</u>
$\log C$	<u>1.322445</u>	cor. sine to arc	<u>+ 625</u>
$\log \Delta\phi$	<u>0.642673</u>	$\log \Delta\lambda$	<u>3.28255643</u>
y	<u>285,000.00</u>	$\Delta\lambda$	<u>1916.7101</u>
ϕ' (by interpolation)	<u>39 36 56.9689</u>	λ (central mer.)	<u>74 40 "</u>
$\Delta\phi$	<u>4.3921</u>	$\Delta\lambda$	<u>31 56.7101</u>
ϕ	<u>39 36 52.5768</u>	λ	<u>74 08 03.2899</u>
30.240	1621.5m	23.853	78.5m

Explanation of form:

$$x' = x - K$$

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

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

R = scale reduction factor

ϕ' 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 _____

	<u>2,135,000.00</u>	$\log S_r$	<u>5.13032075</u>
	<u>2</u>	$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>135,000.00</u>	$\log (1/R)$	<u>1086</u>
$x'^3/(6\rho_0^2)_0$	<u>.94</u>	$\log S_m$	<u>4.61435744</u>
	<u>134,999.06</u>	cor. arc to sine	<u>- 1248</u>
		$\log S_1$	<u>4.61435444</u>
$\log x'$	<u>15.39100131</u>	$\log A$	<u>8.50912956</u>
$1/(6\rho_0^2)_0$	<u>4.5810213</u>	$\log \sec \phi$	<u>0.11256881</u>
$x'^3/(6\rho_0^2)_0$	<u>9.9720226</u>	$\log \Delta\lambda_1$	<u>3.23645281</u>
		cor. sine to arc	<u>+ 506</u>
S_m^2	<u>9,22871488</u>	$\log \Delta\lambda$	<u>3.23645787</u>
$\log C$	<u>1.321603</u>	$\Delta\lambda$	<u>1723.6449</u>
$\log \Delta\phi$	<u>0.550318</u>		
y	<u>265,000.00</u>		
ϕ' (by interpolation)	<u>39 33 39.2995</u>	λ (central mer.)	<u>74 40 "</u>
$\Delta\phi$	<u>3.5507</u>	$\Delta\lambda$	<u>- 24 43.6449</u>
ϕ	<u>39 33 35.7488</u>	λ	<u>74 11 16.3151</u>
30.840	<u>1102.54</u>	23.876	<u>389.5</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

ϕ' is interpolated from table of y

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

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

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

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

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

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

T-5444

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J.

STATION _____

x	2,115,000.00	$\log S_0$	5.05469565
K	2,	$\log (1200/3937)$	9.48401583
$x' (=x-K)$	115,000.00	$\log (1/R)$	10.86
$x'^3/(6\rho_0^2)_0$	— .58	$\log S_m$	4.54372834
S_0	114,999.42	cor. arc to sine	— 217
$3 \log x'$	15.18209352	$\log S_1$	4.54372817
$\log 1/(6\rho_0^2)_0$	4.5810213	$\log A$	6.50912921
$\log x'^3/(6\rho_0^2)_0$	9.7631148	$\log \sec \phi$	0.11305641
$\log S_m^2$	9.08744468	$\log \Delta \lambda_1$	3.16598546
$\log C$	1.321414	cor. sine to arc	+ 362
$\log \Delta \phi$	8.429258	$\log \Delta \lambda$	3.1659853
y	270,000.00	$\Delta \lambda$	146.2466
ϕ' (by interpolation)	39 34 28.7170	λ (central mer.)	74 40 203
$\Delta \phi$	— 2.5668	$\Delta \lambda$	— 24 25.3426
ϕ	39 34 26.1502	λ	74 15 34.7574
30.840	806.1 m	23.870	31.5799

749.04

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

ϕ' is interpolated from table of y

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

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

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

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

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

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

Remarks

Decisions

1	*Also there is a Suber Bonnet Club on the Island.	
2	*Spelled "Manahawken" on Geological Maps. Manahawkin Bay was verified by town, hwy., & store signs as correctly spelled.	
3	*On Geol. chart name Ship Bottom L.S.S. appears. See paragraphs on NAMES, page 5, this report.	
4	*See paragraph on NAMES, page 5, this report.	
5	*Many men have heard name but there appear to be many different names in local use(See Lt. Rigg's Special Report, Geographic Names, 1935). Outside of immediate local area Reed Island probably best known.	
6	*Verified by Lt. Rigg (See Rigg's Special Report, Geographic Names).	
7	* " " " " " " " " " "	" .
8	* " " " " " " " " " "	" .
9	* " " " " " " " " " "	" .
10	* " " " " " " " " " "	" .
11	* " " " " " " " " " "	" .
12	* Name "BRANT BEACH" appears on water tank.(see Lt. Meaney's 1932 triangulation.)	
13	* On Geol. Map shown as Beach Haven. Beachhaven is correct.	
14		
15	*Shown officially on the N.J.State Hwy. map.	
16	*Shown on the official N.J.State Hwy. Map.	

*Correct by the Pennsylvania locally known and referred to as "Reed Island"

GEOGRAPHIC NAMES

Survey No. T-5444

Name on Survey	1216 3243											
	A	B	C	D	E	F	G	H	I	J	K	L
Cedar Bonnet ✓	x		x	5 men x*								1
Manahawkin Bay ✓	x		x*	4 men x								2
Ship Bottom ✓ (Two mounds)	x		*	x*						x		3
Beach Arlington ✓				x*						x		4
Reed Island ✓	x		x	2 men x*								5
Flat I. ✓	x		x	x*								6
High I. ✓	x		x	4 men x*								7
Daniel I. ✓	x		x	x*								8
Ham I. ✓	x		x	x*								9
Marshelder Is. ✓	x		x	6 men x*	x							10
Shelter I. ✓	x		x	x*								11
Brant Beach ✓	x			x*						x		12
Beach Haven ✓ (Two mounds)	x		x*	5 men x		x				x		13
Long Beach ✓	x		x	5 men x	x					x		14
Beach Haven Crest ✓										x*		15
Peahala ✓				3 men x						x*		16
Penn. Reading R.R. / Seashore Lines				*								17
Little Island ✓			x	*								18
Parker Island ✓ 54065			x	1 men x*								19
39-34.7 74-13.6 Spray Beach												20
Parker Island												21
												22
												23
												24
												25
												26
												27

on N.J. Atlas Sheet No. 33

duplication ✓

NJ Atlas
54, #33

Names underlined and approved
by *O. H. H. H.* on 3/5/36.

REVIEW OF AIR PHOTO COMPILATION T-5444

Comparison with Contemporary Graphic Control Surveys

T-6399a and b (1935 and 1936), 1:10,000

The above graphic control surveys were made in 1935 but some additional work for hydrographic control was done in 1936. The described topographic signals that were located in 1936 have been added to the compilation in this office. The photos were taken in 1932 and 1933 but the outer coast high water line was taken from the above graphic control surveys and 1935 field inspection. All information and detail shown on the above graphic control surveys and covered by this compilation is shown on the compilation except temporary topographic signals and the magnetic meridian.

Comparison with Contemporary Hydrographic Surveys

H-6142 (1935), 1:10,000

The shoreline used for that portion of H-6142 covered by this compilation was taken from the compilation and is in agreement with the soundings.

Comparison with Former Topographic Surveys

T- 119	(1841),	1:20,000
T-1315a	(1872),	"
T-2456	(1899),	"
T-2457	(1901),	"

Comparison with T-119 shows numerous changes in detail as regards shape and size of islands and the shoreline in general. Comparison with T-1315a shows small changes in shoreline. T-2456 and T-2457 cover only the outer coastline and comparison with this compilation shows no large changes. The compilation is complete and adequate to supersede the sections of the above topographic surveys it covers.

Comparison with Charts 1216 and 3243

The stack shown on this compilation at lat. $39^{\circ} 34.3'$, long. $74^{\circ} 14.2'$ is on chart 1216 but is not on chart 3243.

Landmarks are discussed on page 6 of ^{this descriptive} ~~the preceding~~ report T-5444. Additional detailed discussion of landmarks and aids is contained in the descriptive report for graphic control surveys T-6399a and b.

Two temporary range beacons at lat. $39^{\circ} 34'$, long. $74^{\circ} 15'$ were located in June 1936 on T-6399b and are described in the report T-6399b.

This compilation shows a double electric pole 340 meters west of Manahawkin Highway Bridge. No information is available as to whether overhead wires exist at the draw.

Supplemental Surveys

This compilation was radial plotted from the photographs of April 1932.

The 1932 photographs have been supplemented by photographs of January 1933 covering the entire area of Long Beach on this compilation. Detail within the area of the 1933 photos is therefore up to date of January 1933. The limits of the 1933 photographs can be obtained from the air photo indexes.

The entire coast mean high water line is considered as of the date of graphic control surveys T-6399a and b of July 1935, and is so noted on the compilation. This shoreline was field inspected between November 1934 and March 1935 but has been revised to fit on and between the sections of the same shoreline surveyed by T-6399a and b in July 1935. T-6399a and b show frequent sections of the mean high water line but do not show the complete line.

Feb. 18, 1937.

L. C. Lande
B. G. Jones

REVIEW OF PHOTO TOPOGRAPHIC SURVEY NO.

Title (Par. 56)

Chief of Party Roswell C. Bolstad Compiled by (See page 2 of this report)

Project New York Air Photo Compilation Instructions dated Nov. 15, 1932.
Party No. 12

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 8; and 16, a, b, c, d, e, g and i.)

Paragraph 8 not applicable to this party.

2. The character and scope of the compilation satisfy the instructions and the "Notes on the Compilation of Planimetric Line Maps from Five Lens Aerial Photographs".

3. The control and adjustment of the radial plot were adequate. (Par. 12, 29.)

See paragraph (b) COMPILATION page 4

4. There is sufficient control on maps from other sources that were transmitted by the field party for their application to the charts. (Par. 28.)

5. High water line on marshy ~~and mangrove~~ coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.)

6. The representation of low water lines, ^{shoal areas and sand bars} ~~reefs, coral reefs and rocks~~, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41.)

7. Important details shown on previous surveys and on the chart have been compared with this sheet and a statement has been entered in the report regarding the removal from the chart or change in position of important detail such as rocks, lights, beacons, prominent objects, bridges, docks, and structures along the water front.

8. The span, draw and clearance of bridges are shown. (Par. 16c.)

9. The data furnished by the Field Inspection is adequate.

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.

10. The descriptive report covers all details listed in the Manual, so far as they apply to this survey. (Par. 64, 65 and 66.)
 11. The descriptive report also contains all additional information required in photo topography as prescribed in the instructions and in the "Notes on the Compilation of Planimetric Line Maps from Five Lens Aerial Photographs".
 12. The descriptions of recoverable stations and references to shore line were accomplished on Form 524, and scaling of positions checked. (Par. 29, 30 and 57.)
See paragraph under LANDMARKS page 6
 13. A list of landmarks for charts was furnished on Form 567 and scaling of positions checked. (Par. 16d, e, 60.)
 14. The geographic datum of the sheet is North American 1927 ^{adjusted} and the reference station is correctly noted. (Par. 34.)
 15. Junctions with contemporary surveys are adequate.
 16. Geographic names are shown on the sheet and are covered by the Descriptive Report. (Par. 64, 66k.)
 17. The quality of the drafting is good. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46.)
 18. No additional surveying is recommended.
 19. Remarks: Any additional notes and requirements affecting this area are referred to the report of Lt. B.H. Rigg who is conducting a combined-operations party in this area at the present time.
Preliminary Review W. B. Hackett
 20. Examined and approved: Surveyor
Roswell C. Boistad
Chief of Party
 21. Remarks after review in office:
- Reviewed in office by: L. R. Landy pg. Jones
- Examined and approved:
- E. F. Green
Chief, Section of Field Records
- L. O. Polk
Chief, Division of Charts
- Fred. L. Peacock
Chief, Section of Field Work
- Stude
Chief, Division of Hydrography and Topography.