

5443

ORIGINAL

5443

Form 504
Ed. June, 1923

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton, Director

State: New Jersey

DESRIPTIVE REPORT

Topographic } Sheet No. 7 5443
~~Hydrographic~~

LOCALITY

East Coast of New Jersey

Manahawkin

1935

CHIEF OF PARTY

Roswell C. Bolstad, Jr. H. & G. E.

Applied to drawing of Chart 1216 - Aug 9, 1937 - J.F.W.
" compilation " 825 1938 P.L.J.

3742

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. 575

REGISTER NO. T 5443

T5443

State New Jersey

General locality East Coast of New Jersey

Locality Manahawkin

Scale 1:10000 Date of survey photographs April 4, 15, 1932

compilation June 27, 1935

Vessel Air-photo Compilation Party No. 12

Chief of party Roswell C. Bolstad, Jr. U.S. G.S.

Surveyed by See Statistic Sheet

Inked by H.L. Hawkins

Heights in feet above to ground to tops of trees

Contour, Approximate contour, Form line interval feet

Instructions dated November 15, 1932, 193

Remarks: Compiled on a scale of 1:10000 and printed by
photo-lithography

-STATISTICS-

on

| | |
|----------------------------|--------------------------|
| SHEET; FIELD NO. <u>75</u> | REG. NO. <u>T5443</u> |
| PHOTOS NO. | DATE OF PHOTOGRAPHS |
| 66-4-2 ✓ | April 4, 1932 |
| 66-4-43 ✓ | April 4, 1932 |
| 66-4-91 to 95 ✓ | April 15, 1932 |
| 66-4-40 to 41 | April 4, 1932 |
| 66-6-39 to 41 ✓ | April 15, 1932 |
| 66-6-17 to 22 ✓ | April 15, 1932 |
| 66-4-85 to 87 ✓ | April 4, 1932 DATE |

| | | |
|-----------------------------|----------------------|--------------------------|
| PROJECTION | <u>W.E. HACKETT</u> | <u>10/21/34</u> |
| PROJECTION CHECKED | <u>W.R. AYERS</u> | <u>10/21/34</u> |
| CONTROL PLOTTED | <u>H.L. HAWKINS</u> | <u>3/18/35</u> |
| CONTROL CHECKED | <u>W.E. HACKETT</u> | <u>3/18/35</u> |
| TOPOGRAPHY TRANSFERRED | <u>none</u> | |
| SMOOTH RADIAL LINE PLOT | <u>H.L. HAWKINS</u> | <u>3/18/35 to 4/1/35</u> |
| RADIAL LINE PLOT CHECKED | <u>J.G. ALBERT</u> | <u>4/1/35</u> |
| DETAIL INKED | <u>H. L. HAWKINS</u> | <u>6/27/35</u> |
| PRELIMINARY REVIEW OF SHEET | <u>J. J. SANIGAN</u> | <u>7/16/35-7/20/35</u> |

AREA OF DETAIL INKED 22.9 sq. Statute Miles (Land Area)

AREA OF DETAIL INKED 00.0 sq. Statute Miles (Shoals in Water Area)

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

LENGTH OF SHORELINE (less than 200 m. from nearest opposite shore)
91.0 Statute Miles

LENGTH OF STREETS, ROADS, TRAILS, RAILROADS, etc. 64.6 Statute Miles

GENERAL LOCATION East Coast of New Jersey

LOCATION Manahawkin

DATUM North American 1927

| | | |
|---------|-----------------------------|--|
| STATION | Mc Kinlay (1932) | Latitude 39 43 12.203 (376.4) |
| | CLAM (1935) | Longitude 74 15 00.923 (22.0) |
| | CLAM (1935) | Latitude 39° 40' 09.576" (295.3) |
| | | Longitude 74° 13' 52.658" (1255.1) |
| | | (adjusted value) |

COMPILER'S REPORT
for
AIR-~~PHOTO~~ TOPOGRAPHIC SHEET FIELD NO. 75
REG. NO. T5443

GENERAL INFORMATION

The air-photo field inspection report for the East Coast of New Hersey, Metedeconk River and Townsend Inlet, attached to Report for sheet T 5286 furnished the necessary field data for the compilation of this sheet.

The accompanying " STATISTIC SHEET " details all data in connection with the compilation of this sheet.

This sheet has been compiled from photographs taken by the Aero Service Corp., 1612 Chancellor St., Philadelphia, Pennsylvania. The prints are 1:10000 scale enlargements from the original negatives which were taken on a scale of 1:22000 approximately. The pictures were taken on April 4, 1932 and on April 15, 1932. The tide could not be determined because no data was available as to the hour the photographs were taken.

The area covered by this sheet is rural, consisting mainly of marsh and pine woods.

CONTROL

(A) Sources

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

(a) Triangulation by Lieut. C.D. Meaney in 1932 (adjusted)

(b) Theodolite-observed control stations (see field inspection report of this area attached to report for sheet T 5286.)

All control was converted to the N.A. 1927 datum for this compilation. The difference between unadjusted field computations and the final office positions would be un-plottable on the scale of this compilation.

There were no topographic sheets of sufficiently recent date to use as control in this area.

In accordance with the Director's letter of November 25, 1934 (refer 22-AA, 1990.16), the theodolite-observed control stations have been shown by the $2\frac{1}{2}$ millimeter black circle and described on form 524.

The railroad traverses of the Tuckerton R.R. was used as supplementary control. Since no bearings were given for the traverse, they had to be computed from the curve data. The resulting bearings did not always hold to the plot although the distances along the separate tangents held good and were used to help control the plot.



Photograph taken from the west end of Manahawkin-Beach Arlington Highway Bridge- shows small piers on the northerly side of the bridge. Photo taken toward the west.

(B) Errors

No errors were found in the control run in by the field inspection party.

(C) Discrepancies

No control stations established by the any other organizations were used for the compilation. There were no bearings given for and on the R.R. traverse of the Tuckerton R.R. In addition to the above, no data was available for the connection between the Tuckerton R.R. and the Philadelphia Beach Haven R.R. The railroad traverse therefore, was used only for control on long straight courses where both ends could be tied to the radial plot.

COMPILATION

(A) Method

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

(B) Adjustment of Plot

The photographs of this area have very slight scale differences due to variations in the altitude of the plane. The slight tilt encountered was not enough to cause any unusual amount of adjustment.

(C) Interpretation

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

The double full line was used to indicate first order roads, the double dashed line to indicate roads of lesser importance and the single dashed line to indicate very poor roads and trails. Unless labeled on the photographs, the classification of these roads had to be determined under the stereoscope.

The area along shore is low, flat and marshy, with a vertical edge. There is little rise and fall of tide in this area and no great difficulty was experienced in interpreting the high water line.

The outlets to the two lakes along the western edge of the sheet at Manahawkin and Cedar Run are indistinct. Where visible, these have been shown but where the exact course is unknown, they have been shown by a heavy dashed line. Marsh lines have been added in these areas to show the existence of low wet ground.

No attempt has been made to show all the ditches in the marsh area. The ditches are crossed at intervals by small plank bridges. No trails are visible approaching these bridges.

There are no bridges of importance to navigation on this sheet. (See last page.)

Additional Note:

(E) Conflicting Names:

The name "Manahawkin" which appears on this overlay sheet, also appears on U.S.C. & G.S. Chart No. 1216 with the same spelling. On the U.S. Geological Survey Chart covering this area, i.e. the Long Beach Sheet of New Jersey, latest reprinting June 1913; and also on Atlas Sheet No. 33 of the New Jersey Department of Conservation and Development (Edition of 1929) the name appears as "Manahawken". The field men from this party who stayed in this town one week lived at the Manahawkin Hotel and assert that the name of the town, the hotel, the creek and the bay is as shown on the Coast and Geodetic Survey Chart. This name, therefore, was adopted as the correct one.

(D) Information from Other Sources

Track traverse data of the Tuckerton R.R. and the Philadelphia and Beach Haven R.R. were used only as stated in the paragraph under Control (A) Sources.

(E) Conflicting Names

There are no names on this sheet conflicting with the U.S.C. & G.S. Charts of this area.

COMPARISON WITH OTHER SURVEYS

The junctions with all adjoining sheets are satisfactory.

There were no topographic sheets of sufficiently recent date to compare with this sheet.

LANDMARKS

In the area covered by this sheet, the present charts show no landmarks.

Nearly all prominent objects along shore have been cut in by the field inspection party and are described on Form 524 by this party. In addition to these theodolite observed control stations, the following recoverable objects have been located on this sheet by the radial line plot.

| | | |
|-----------------------------------|---------------|-------------------|
| Cedar Run M.E. Ch. | Lat. 39° 40' | 1707.7 m. (142.7) |
| | Long. 74° 16' | 260.6 m. (1169.3) |
| C.W.A. 2254 | Lat. 39° 40' | 697.7 m. (1152.7) |
| | Long. 74° 16' | 1081.6 m. (348.5) |
| Baptist Ch. Spire, Manahawkin. | Lat. 39° 41' | 1683.5 m. (166.9) |
| | Long. 74° 15' | 683.6 m. (746.1) |
| C.W.A. 2253 | Lat. 39° 41' | 1280.6 m. (569.8) |
| | Long. 74° 15' | 823.8 m. (605.9) |

These recoverable stations will be also listed in the "List of Recoverable Topographic Stations" at the end of this report.

There are many other objects (such as houses, ends of docks etc.) which are located within the accuracy specified under the following heading RECOMMENDATIONS FOR FURTHER SURVEYS and may be used to obtain hydrographic fixes.

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 Lieut. B.H. Rigg, who is at present conducting operations in this area, will check the list and make any revisions if necessary.

RECOMMENDATIONS FOR FURTHER SURVEYS

The compilation of this sheet is believed to have an probable error of not over two (2) meters in well defined detail of importance for charting purposes and of not over four (4) meters for other data. It is understood that the widths of roads and other objects may be slightly expanded in order to keep the detail clear and to keep it from photographing as a solid area in the photolithographic 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.

a better estimate of the accuracy of location on this compilation is 0.3 to 0.5 millimeter for intersected points and 0.3 to 0.8 millimeter for other detail on the scale of the celluloid.

B.G.G.

Submitted by

H.L. Hawkins

H.L. Hawkins

Draftsman.

RECOVERABLE TOPOGRAPHIC STATIONS.

This list includes all recoverable objects shown on this compilation by the regulation small black circle. They have all been described on form 524 (except Baptist Ch. Spire, Manahawkin) and are submitted with Lt. Rigg's Graphic Control sheet, field letter "L" or with the Descriptive Report T-5286 (see pages 5 & 6).

| NAME | LAT. | LONG. | METHOD OF DETERMINATION. |
|-------------------------------|-----------|-----------|--------------------------|
| Cedar Run M.E. Church | 39°-40.9' | 74°-16.2' | A.P.T.* |
| C.W.A. 2254 (or E.R.A.) | 39°-40.4' | 74°-16.7' | A.P.T.* |
| Baptist Ch. Spire, Manahawkin | 39°-41.9' | 74°-15.4' | A.P.T.* |
| C.W.A. 2253 (or E.R.A.) | 39°-41.7' | 74°-15.6' | A.P.T.* |
| × Bridge | 39°-43.0' | 74°-12.5' | T.S.✓ |
| × N. Gable Garage | 39°-42.0' | 74°-11.2' | T.S.✓ |
| × Stream | 39°-42.1' | 74°-13.1' | T.S.✓ |
| Methodist Ch., Manahawkin | 39°-41.8' | 74°-15.2' | T.S. |
| × Turtle | 39°-41.5' | 74°-10.9' | T.S.✓ |
| Thompson's Garage, S. Gable | 39°-40.8' | 74°-13.6' | T.S. & A.C.S."L". |
| Man | 39°-40.2' | 74°-13.9' | T.S. & A.C.S."L". |
| Track | 39°-40.2' | 74°-12.9' | T.S. & A.C.S."L". |
| Mill | 39°-39.5' | 74°-13.7' | T.S. |
| Bridge (Cox Estate) | 39°-38.8' | 74°-16.9' | T.S. |
| Pavilion (C.R.Y.Club) | 39°-38.6' | 74°-14.8' | T.S. & A.C.S."L". |
| N. Gable Dinner Pt. Creek | 39°-39.4' | 74°-16.3' | T.S. |
| S. Gable (Cedar Run Cr.) | 39°-39.9' | 74°-15.9' | T.S. |
| So. Gable Popular | 39°-39.1' | 74°-13.3' | A.C.S."L". |
| Chy. 3 Story House | 39°-40.1' | 74°-12.9' | A.C.S."L". |

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

The positions and descriptions of the T.S. and A.P.T. stations were furnished Rigg before his topography was completed, and were verified by him, when shown above with A.C.S. following T.S., as being correct. It is noticed that Rigg shows many of these stations which he failed to verify on his graphic control sheet; it is believed they should not have been inked in unless checked.

Remarks

Decisions

| | | |
|----|---|-----------------------------|
| 1 | | |
| 2 | <i>On photo-camp. only.</i> | |
| 3 | | |
| 4 | At mouth there is a "Cedar Run Yacht Club". | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | *Spelled "Manahawken" on old Geol. maps; <u>Manahawkin</u> correct. | |
| 12 | " " " " " " " | " O.K. 6/15 6/15 |
| 13 | " " " " " " " | " SEE ERH 2 |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | *Owned by the Pennsylvania; locally known and referred to as "Beachhaven R.R.". | |
| 18 | <i>Name on Field Prints</i> | <i>2/19/27 RWE</i> |
| 19 | | |
| 20 | | |
| 21 | | |
| 22 | | |
| 23 | | |
| 24 | | |
| 25 | | |
| 26 | | |
| 27 | | |

GEOGRAPHIC NAMES
 Survey No. T-5443.
 Air Photo Compilation.

1216, Special
 3243, Report
 Geographic
 Names, 1955
 On U.S. Quadrangle
 Maps
 Rigg's
 Air-photo
 Field
 Inspection
 From local
 information
 On local Maps
 P. O. Guide or Map
 Rand McNally Atlas
 U. S. Light List
 Hwy.
 Maps, &
 Signs.

| Name on Survey | A | B | C | D | E | F | G | H | K | |
|--|---|---|----|-------------|---|---|---|---|----|----|
| <u>Horse Point</u> | x | x | x | | | | | | | 1 |
| <u>Channel Creek</u> | | | x | | | | | | | 2 |
| <u>Dinner Pt. Cr.</u> | x | x | x | 3 men x | | | | | | 3 |
| <u>Cedar Run</u> | x | x | | 2 men x | | | | | x* | 4 |
| <u>Popular Pt.</u> | x | x | x | | | | | | | 5 |
| <u>Mill Creek</u> | x | x | x | 3 men x | | | | | | 6 |
| <u>Thorofare Island</u> | | x | x | | | | | | | 7 |
| <u>Staffordville</u> | x | | x | 3 men x | | | | | x | 8 |
| <u>Mayetta</u> | x | | x | 2 men x | | | | | x | 9 |
| <u>Cedar Run (village)</u> | x | | x | 3 men x | | | | | x | 10 |
| <u>Manahawkin</u> | x | | x* | 4 men x | x | x | | | x | 11 |
| <u>Manahawkin Bay</u> | x | | x* | 2 men x | | | | | | 12 |
| <u>Manahawkin Creek</u> | x | | x* | 2 men x | | | | | | 13 |
| <u>Turtle Cove</u> | x | | x | 3 men x | | | | | | 14 |
| <u>Main Pt.</u> | x | | x | | | | | | | 15 |
| <u>Flat Creek</u> | x | | x | 2 men x | | | | | | 16 |
| <u>Philadelphia and Beach Haven R.R. *</u> | | | x | 3 men x* | x | | | | | 17 |
| <u>Manahawkin Lake</u> | | | | ✓ | | | | | | 18 |
| | | | | | | | | | | 19 |
| | | | | | | | | | | 20 |
| | | | | | | | | | | 21 |
| | | | | | | | | | | 22 |
| | | | | | | | | | | 23 |
| | | | | | | | | | | 24 |
| | | | | | | | | | | 25 |
| | | | | | | | | | | 26 |
| | | | | | | | | | | 27 |

Names und printed
 by *[Signature]* 2/5/36

ADDITIONAL NOTE FOR COMPILATION, FIELD NO. 75.

After the completion of this compilation the 1935 Aluminum Control Sheets of Lt. Rigg were furnished this party for comparison. There is only one sheet, field letter "L" which effects this sheet; according to Lt. Rigg his sheet "K" which also covers this area is a blank sheet with nothing on. In making the comparison with sheet "L" it was found necessary to revise some of the compilation shoreline to a very small extent. However, it was changed to agree with the latter survey since the aerial photographs were taken in 1932 and there is mention of shore line erosion on several of Lt. Rigg's topo. sheets. There are no discrepancies existing in this compilation and the topo. sheets of 1935. The hydrographic sheets were not furnished this party and it is assumed there is no disagreement since word to the contrary has never been furnished this party.

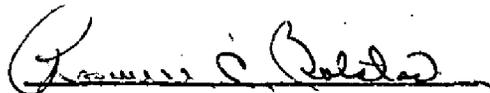
The following 1935 triangulation stations of Lt. Rigg have been shown on this compilation although they were not available for controlling the radial plot:- CEDAR RUN, CLAM, POPULAR, TURTLE, and FLAT. The shoreline on the compilation agrees with the shoreline reference measurements as given in the descriptions for each of these stations.

The only bridge of importance to navigation shown on this compilation is the fixed wooden highway bridge near signal "Chy. 3 Story House". The vertical and horizontal clearances as shown on the compilation over-lay sheet was obtained from the graphic control sheet "L"⁷⁶³⁹⁹. A portion of this bridge can be seen from the Kodak photo on the back of page 3 of this report.

A list of geographic names appearing on this sheet are submitted on the special forms herewith.

additional planable work in 1936 on T 6500. also remains at lock.

Feb. 6th., 1936



Roswell C. Bolstad,
Chief of Party No. 12.

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION _____

| | | | |
|----------------------------|---------------|--------------------------|---------------|
| x | 2,125,000.00 | $\log S_o$ | 5.09690744 |
| K | 2,000,000.00 | $\log (1200/3937)$ | 9.48401583 |
| $x' (=x-K)$ | + 125,000.00 | $\log (1/R)$ | 1.046 |
| $x'^3/(6\rho_o^2)_o$ | — .74 | $\log S_m$ | 4.58093413 |
| S_o | 124,999.26 | cor. arc to sine | — 257 |
| | | $\log S_1$ | 4.58093156 |
| $3 \log x'$ | 15.29073003 | $\log A$ | 8.50912748 |
| $\log 1/(6\rho_o^2)_o$ | 4.5810213 | $\log \sec \phi$ | 0.11348616 |
| $\log x'^3/(6\rho_o^2)_o$ | 9.8717513 | $\log \Delta\lambda_1$ | 3.20354520 |
| | | cor. sine to arc | + 434 |
| $\log S_m^2$ | 9.16186426 | $\log \Delta\lambda$ | 3.20354954 |
| $\log C$ | 1.322766 | $\Delta\lambda$ | 1597.8998 |
| $\log \Delta\phi$ | 0.484734 | | |
| | | | |
| y | 295,000.00 | | |
| ϕ' (by interpolation) | 39 38 35.8029 | λ (central mer.) | 74 40 " |
| $\Delta\phi$ | — 2.0530 | $\Delta\lambda$ | — 26 37.8998 |
| ϕ | 39 34 32.7499 | λ | 74 13 22.1002 |

Explanation of form:

$$x' = x - K$$

$$S_o = x' - \frac{x'^3}{(6\rho_o^2)_o}$$

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

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 | 2,125,000.00 | $\log S_0$ | 5.49680744 |
| K | 2,000,000.00 | $\log (1200/3937)$ | 9.48401583 |
| $x' (=x-K)$ | 125,000.00 | $\log (1/R)$ | 1086 |
| $x'^3/(6\rho_0^2)_0$ | -.74 | $\log S_m$ | 4.58093413 |
| S_0 | | cor. arc to sine | - 257 |
| | | $\log S_1$ | 4.58093156 |
| $3 \log x'$ | 15.29073003 | $\log A$ | 8.50912643 |
| $\log 1/(6\rho_0^2)_0$ | 4.5810213 | $\log \sec \phi$ | 0.11374496 |
| $\log x'^3/(6\rho_0^2)_0$ | 9.8717513 | $\log \Delta\lambda_1$ | 3.20380295 |
| | | cor. sine to arc | + 435 |
| $\log S_m^2$ | 9.16186426 | $\log \Delta\lambda$ | 3.20380730 |
| $\log C$ | 1.323497 | $\Delta\lambda$ | 1598.8485 |
| $\log \Delta\phi$ | 0.485365 | | |
| | | | |
| y | 310,000.00 | | |
| ϕ' (by interpolation) | 39 41 04.0531 | λ (central mer.) | 74 40 " |
| $\Delta\phi$ | - 3.0575 | $\Delta\lambda$ | - 26 38.8485 |
| ϕ | 39 41 00.9956 | λ | 74 13 21.1512 |

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

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

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

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

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

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

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

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 possibly be used later.

R.E. Ask

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION _____

| | | | |
|----------------------------|------------------------------------|--------------------------|--------------------|
| x | 2,125,000.00 | $\log S_e$ | 5.09690744 |
| K | 2,000,000.00 | $\log (1200/3937)$ | 9.48401583 |
| $x' (=x-K)$ | + 125,000.00 | $\log (1/R)$ | 10.86 |
| $x'^3/(6\rho_0^2)$ | - .74 | $\log S_m$ | 4.58093413 |
| S_e | 124,999.26 | cor. arc to sine | - 12.52 |
| $3 \log x'$ | 15.29073003 | $\log S_1$ | 4.58093156 |
| $\log 1/(6\rho_0^2)$ | 4.5810213 | $\log A$ | 8.50912574 |
| $\log x'^3/(6\rho_0^2)$ | 9.8717513 | $\log \sec \phi$ | 0.11391770 |
| | | $\log \Delta\lambda_1$ | 3.20397500 |
| | | cor. sine to arc | + 4.35 |
| $\log S_m^2$ | 9.16186826 | $\log \Delta\lambda$ | 3.20397935 |
| $\log C$ | 7.3239 ¹⁴ ₅₂ | $\Delta\lambda$ | 3095" 1517.4820 |
| $\log \Delta\phi$ | 0.445 ⁷⁷⁶ ₂₈ | | |
| y | 320,000.00 | | |
| ϕ' (by interpolation) | 39 42 42.8859 | λ (central mer.) | 74 40 " |
| $\Delta\phi$ | - 3.060 ⁴ ₇ | $\Delta\lambda$ | 7 26 39.4820 |
| ϕ | 39 42 39.8252 | λ | 74 13 20.5180 |

Explanation of form:

$$x' = x - K$$

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

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

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 | 2,110,000.00 | $\log S_0$ | 5.04139068 |
| K | 2,000,000.00 | $\log (1200/3937)$ | 9.48401583 |
| $x' (=x-K)$ | + 110,000.00 | $\log (1/R)$ | 1086 |
| $x'^3/(6\rho_0^2)_0$ | - .51 | $\log S_m$ | 4.52541737 |
| S_0 | 109,999.49 | cor. arc to sine | - 1199 |
| $3 \log x'$ | 15.12417807 | $\log S_1$ | 4.52541538 |
| $\log 1/(6\rho_0^2)_0$ | 4.5810213 | $\log A$ | 8.50912643 |
| $\log x'^3/(6\rho_0^2)_0$ | 9.7051994 | $\log \sec \phi$ | 0.11374615 |
| $\log S_m^2$ | 9.05283474 | $\log \Delta\lambda_1$ | 3.14828797 |
| $\log C$ | 1.323497 | cor. sine to arc | + 337 |
| $\log \Delta\phi$ | 0.374332 | $\log \Delta\lambda$ | 3.14829134 |
| y | 310,000.00 | $\Delta\lambda$ | 1406.9911 |
| ϕ' (by interpolation) | 39 41 04.0531 | λ (central mer.) | 74 40 " |
| $\Delta\phi$ | - 2.3732 | $\Delta\lambda$ | - 23 28.9911 |
| ϕ | 39 41 01.6799 | λ | 74 16 33.0089 |

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 | 2,135,000.00 | $\log S_0$ | 5.13033075 |
| K | 2,000,000.00 | $\log (1200/3937)$ | 9.48401583 |
| $x' (=x-K)$ | + 135,000.00 | $\log (1/R)$ | 1086 |
| $x'^3/(6\rho_0^2)_0$ | - .94 | $\log S_m$ | 4.61435744 |
| S_0 | 134,999.06 | cor. arc to sine | - 300 |
| $3 \log x'$ | 15.39100131 | $\log S_1$ | 4.61435444 |
| $\log 1/(6\rho_0^2)_0$ | 4.5810213 | $\log A$ | 8.50912644 |
| $\log x'^3/(6\rho_0^2)_0$ | 9.9720226 | $\log \sec \phi$ | 0.11874407 |
| $\log S_m^2$ | 9.22471489 | $\log \Delta\lambda_1$ | 3.23722495 |
| $\log C$ | 1.323497 | cor. sine to arc | + 507 |
| $\log \Delta\phi$ | 0.552212 | $\log \Delta\lambda$ | 3.23723002 |
| y | 310,000.00 | $\Delta\lambda$ | 1726.7522 |
| ϕ' (by interpolation) | 39 41 04.0531 | λ (central mer.) | 74 40 " |
| $\Delta\phi$ | - 3.5663 | $\Delta\lambda$ | - 28 46.7522 |
| ϕ | 39 41 00.4868 | λ | 74 11 13.2478 |

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

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

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

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

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

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

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

REVIEW OF AIR PHOTO COMPILATION T-5443
Scale 1:10,000

Comparison with Graphic Control Surveys

T-6500 (June 1936), 1:10,000

Position of recoverable station (N. Gable Garage) at lat. $39^{\circ} 42.1'$ long. $74^{\circ} 11.2'$ differs by some four meters from position shown on T-5443. The latter has been determined by theodolite from strong control and is accepted. Form 524 corresponds to this position.

No other discrepancies.

T-6399a (July 1935), 1:10,000

A railroad bridge across Manahawkin Bay has been partly destroyed by a hurricane in November 1935. See page 3 of descriptive report, H-6142, and descriptive report, T-6399a. Piling, awash at M.H.W., remains. This bridge has not been deleted from the compilation because the extent of damage has not been determined by the field parties but a note has been placed on the compilation.

No discrepancies noted.

All detail on the above control sheets falling within the area of this compilation is now shown on T-5443 with the exception of temporary planetable stations and magnetic meridians.

Comparison with Contemporary Hydrographic Survey

H-6142

The railroad bridge mentioned above (under T-6399a) is shown on this hydrographic sheet as on the compilation. See descriptive report, H-6142 (page 3) for note on destruction of this bridge in November 1935.

No discrepancies noted.

Comparison with Previous Topographic Surveys

T- 119 (1840-41), 1:20,000
T-1315a (1872), "
T-1315b (1873), "

On T-119 mild erosion has produced some small changes in the shoreline but the general topography has remained unchanged.

Comparison with T-1315a and T-1315b shows very few changes in interior topography or shoreline.

Many roads shown on T-5443 are duplicated on the older topographic surveys.

This compilation is complete and adequate to supersede the above topographic sheets in those areas common to the new and older surveys.

Comparison with Chart 3243 (1:80,000) (print of Aug. 1936)

Spits of land at lat. $39^{\circ}41.1'$, long. $74^{\circ}11.4'$ and at lat. $39^{\circ}38.7'$, long. $74^{\circ}14.2'$ have been separated from the mainland and now exist as islands.

A group of four islands at lat. $39^{\circ}41.6'$, long. $74^{\circ}10.8'$ cannot be discerned on the photos nor have they been picked up by the hydrographic parties in that area.

The railroad bridge across Manahawkin Bay has been ~~reported~~ partly destroyed by a storm with only piling, awash at M.H.W., remaining. The position of the section carried away is not known, the only information being that there are only piling remains over about 2000 ft. of the main span.

Several changes are observed in the roads in this area.

The present charts show no landmarks in this area. Refer also to page 5 of the descriptive report, T-5443.

Page 4 of descriptive report for graphic control survey T-6399a discusses aids in this area. The report states that no lights come within the area of T-6399a. However, T-6399a shows a light as located by planetable, July 1935, on the wharf at lat. $39^{\circ}38.6'$, long. $74^{\circ}14.9'$. This light has been transferred to this compilation. It is probably a privately maintained light.

Remarks

Numerous ditches have been omitted from this compilation, only the major ones being shown.

Riggs' 1935 triangulation stations have been plotted from unadjusted values. Adjusted values now available show differences which do not exceed 0.5 m., this difference not being plottable. All such stations may be considered to have been plotted from adjusted values.

Descriptions of recoverable stations are filed under T-6399a, T-6500 and T-5443.

Feb. 18, 1937

Frank R. Gollen

Frank R. Gollen
F. R. Jones

REVIEW OF AIR PHOTO COMPILATION NO. T 5443

Chief of Party: Roswell C. Bolstad

Compiled by (see page 2 of
Compiler's ReportProject: New York Air Photo Compilation Instructions dated: Nov. 15, 1932
Party No. 12

- ✓ 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.
- ✓ 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~~ coasts 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."

- ✓ 8. The representation of low water lines, ~~reefs, coral reefs and~~ rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41)

- ✓ 9. Recoverable objects have been located and described on Form 524 in accordance with circular 30, 1933, circular letter of March 3, 1933, and circular 31, 1934. (Par. 29, 30, and 57)

- ✓ 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)
Previously submitted, see paragraph on LANDMARKS, 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)

No bridges of importance to navigation occur on this sheet.

- ✓ 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 notes and requirements affecting this area may be found in Field Inspection Report of Lieut. B.H. Rigg, who is at present conducting field operations in this locality.

18. Examined and approved;
Preliminary review by:

J. J. Lanigan
J. J. Lanigan
Surveyor

Roswell C. Roswell
Roswell C. Roswell
Chief of Party

19. Remarks after review in office:

Reviewed in office by:

Frank R. Galloway
Frank R. Galloway

Examined and approved:

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

L. O. Pollock
L. O. Pollock
Chief, Division of Charts

Fred. L. Peacock
Fred. L. Peacock
Chief, Section of Field Work

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