

9 Form 524 descriptions filed

5650

Air  
Photo

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

DESCRIPTIVE REPORT

Topographic } Field 17  
Sheet No. Reg. 5650  
~~Hydrographic~~

State New Jersey

LOCALITY

N. J. Coast, Delaware Bay

Dennis Creek to Dias Creek

Goshen and Vicinity

Photographs — 1952  
Field Inspection — 1936  
Compiled — 1936

~~1936~~

CHIEF OF PARTY

E. H. Kirsch

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. 17

REGISTER NO. 5650 T5650

State New Jersey

General locality N. J. Coast Delaware Bay

Locality Dennis Creek to Dias Creek. Goshen and Vicinity  
Photographs 4-18-32

Scale 1:10 000 Date of survey Compilation Oct., 19 36

Vessel Air Photo Party No. 21.

Chief of party E. H. Kirsch

Surveyed by See data sheet in the descriptive report.

Inked by Ralph L. Fisher

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

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

Instructions dated May 16th, 1935, 19

Remarks: None.

## SHEET FIELD NO. 17

REGISTER NO. 5650

## Photo Nos.

66-9-29  
 66-7-65 to 73  
 66-7-97 to 98  
 66-7-13 to 20

## Date

4-19-32  
 4-18-32  
 4-18-32  
 4-18-32

Projection By

L. C. Ripley 5-9-35

Projection Checked By

T. B. Nutting 5-9-35

Control Plotted By

E. J. Anderson 1935

Control Checked By

P. W. Hund 1935

Control Plotted on Photographs By

*E. H. Kirsch*  
 E. H. Kirsch Aug. 1936

Control Checked on Photographs By

R. L. Fisher Oct. 1936

Smooth radial plot By

*E. H. Kirsch*  
 E. H. Kirsch Sept. 1936

Smooth radial plot Checked By

R. L. Fisher Oct. 1936

Detailed By

R. L. Fisher Oct. 1936

## STATISTICS

Land area detailed 23.3 square statute miles  
 Length of Coast Line 5.8 Statute Miles  
 Length of Shore Line 0 (More than 200 meters wide)  
 Length of Shore Line 20.6 (Less than 200 meters wide)

Ref. Sta.: Goshen, 1932

Datum: N.A. 1927.  $39^{\circ} 08' 13.308 (410.4 m)$   
 $74^{\circ} 51' 12.195 (292.9 m)$

N.J. Grid Coord.  $x = 1,947,035.12$   
 $y = 110,662.64$

## GENERAL INFORMATION

### STATISTICS

This sheet covers a land area of 23.3 square statute miles. There are 5.8 statute miles of coast line, 0.0 statute miles of shore line as measured along streams and bays more than 200 meters wide and 20.6 statute miles of streams less than 200 meters in width.

### GENERAL REPORT:

This sheet is a continuation of compilations to the south and east and covers the area on Delaware Bay from Dennis Creek to Dias Creek. Outside of a few small towns the sheet consists of farm lands, Marsh and small timbered areas. The area is very flat and is but a few feet above sea level.

The area adjacent to Delaware Bay is marshy and is subject to erosion. There is a narrow sand beach from the southern end of the sheet to Bidwells Ditch, but north of there in most cases the marsh grass extends to the low water line.

### PHOTOGRAPHS:

This sheet was compiled from parts of four flights of single lens, 1:10 000 scale aerial photographs, taken by the Aero Service Corp. of Philadelphia, Pa.

Photo No. 66-9-29 covers the north west edge of the compilation.

Photos No. 66-7-65 to 73 cover the western half of the sheet and run parallel to the coast line.

Photos No. 66-7-97 to 98 cover the north eastern edge of the compilation.

Photos No. 66-7-13 to 20 run from the south eastern to the northern edges of the compilation.

Practically all of the photographs are of good scale and free from excessive tilt.

## CONTROL

### SOURCES:

Triangulation by C. D. Meaney, 1932. Triangulation by Robinson, 1933. Traverse by Air Photo Party No. 21. 1936. The traverse runs from J. A. Bonds triangulation station MAY to C. D. Meaney's triangulation station GOSHEN, and the field computations of this traverse are submitted with this report. The only marks left in the field are six N. J. Geodetic control Survey marks which were tied in with this traverse.

## CONTROL

### ERRORS:

No errors in the control were found.

## COMPILATION

### METHOD:

The usual radial line method as described in "Notes on the compilation of planimetric line maps from five lens aerial photographs" was used in compiling this sheet.

### ADJUSTMENTS OF THE PLOT:

No unusual adjustments of the plot were necessary.

### INTERPRETATION:

The time at which the pictures were taken was not known and therefore the stage of the tide at the time of the photos were taken could not be ascertained. As the photos were four years old at the time of the compilation it was deemed necessary to field inspect the entire Coast line. Measurements were taken from points that could be clearly seen on the photographs such as ditches and ponds. It is believed that the coast line as shown is correct for the present date. THE DATE OF THE FIELD INSPECTION WAS OCTOBER 8th, 1936.

The photos were generally clear and no unusual difficulty was encountered in interpreting the detail.

### INFORMATION FROM OTHER SOURCES:

In all cases where it was determined that changes had been made in piers, docks etc. since the photos were taken, field measurements were taken and the present shape and condition were shown on the compilation.

There is a civilian conservation camp at Lat.  $39^{\circ} 06.3'$  and Long.  $74^{\circ} 52.7'$  which does not appear on the photos. This was added to the compilation from a map obtained from the commanding officer and from field inspection notes.

At the mouth of Bidwells Ditch jetties are being constructed. These were shown on the compilation in their finished state as the construction work on them will be finished this fall. The position of these jetties was determined by field inspection notes and by information obtained from the N. J. Board of Commerce and Navigation.

### CONFLICTING NAMES:

All names in ink on the overlay sheet were taken from U. S. C. & G. S. Chart No. 1218, N. J. Department of Conservation and Development Atlas Sheet No. 37, and U. S. Geological Sheet (DENNISVILLE)

The railroad cutting across the North east corner of the compilation is now known as the Pennsylvania Reading Seashore Lines. This name was verified by the railroad officials. It was shown on the chart No. 1218 as the Atlantic City R. R.

Reeds Beach (Lat.  $39^{\circ} 07'$  Long.  $74^{\circ} 53'$ ) is a new name for a small settlement. It was verified by field inspection, local residents, highway signs, State highway maps, and N. J. Department of Conservation and Development Atlas Sheet No. 37. It also appears in the telephone book. As this is a well established name it is recommended that it be added to the charts covering this area and that the name (THE HUMMOCKS) shown on chart No. 1218 be expunged. Hummock means a small elevation, and this area is very flat. The field inspection party states that THE HUMMOCKS is not used by local residents and is unknown to them.

OLD ROBINS BRANCH (Lat.  $39^{\circ} 11'$  Long.  $74^{\circ} 52.5'$ ), CROW CREEK (Lat.  $39^{\circ} 10'$  Long.  $74^{\circ} 51'$ ) and SLUICE CREEK (Lat.  $39^{\circ} 10'$  Long.  $74^{\circ} 50'$ ) are new names for small streams. They appear on U. S. Geological Survey Quad. (DENNISVILLE) and N. J. Department of Conservation and Development Atlas Sheet No. 37. They were verified by the field inspection party. The name SLUICE CREEK also appears on a State highway marker.

BIDWELLS DITCH (Lat.  $39^{\circ} 07'$  Long.  $74^{\circ} 52'$ ) is a new name verified by the field inspection party. It also appears on a State highway marker.

South DENNIS (a town at the N. E. corner of the compilation) was verified by field inspection party. It appears in the telephone book, on highway signs and on the N. J. Department of Conservation and Development Atlas sheet No. 37.

#### COMPARISON WITH OTHER SURVEYS:

Satisfactory junctions have been made with sheets No. 12, Reg. No. 5645 on the north east; No. 13, Reg. 5646 on the southeast; and sheet No. 16, Reg. 5649 on the south. Sheets to the north and northwest have not yet been started.

#### LANDMARKS:

A list of marked recoverable stations has already been submitted. There are no landmarks for charts on this sheet.

#### BRIDGES:

There are no bridges of importance to navigation on this compilation.

The Sluice Creek bridge (Lat.  $39^{\circ} 09.7'$  Long.  $74^{\circ} 49.9'$ ) is a fixed concrete girder bridge. Ver. Clearance 2.0 feet above M. H. W. Hor.

by logs with cross planks. These are shown on the compilation as in most cases they are the only means of access to the marsh areas.

RECOMMENDATION FOR FURTHER SURVEYS:

This compilation is believed to have a probable error of not more than .3 MM in position of well defined detail for charting and not more than .6 MM for other detail.

To the best of my knowledge this sheet is complete in all detail for charting and no additional topographic surveys are necessary.

Assisted By

*E. H. Kirsch*

E. H. Kirsch  
Chief of Party, No. 21.

Submitted By

Ralph L. Fisher

## Remarks

## Decisions

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## GEOGRAPHIC NAMES

Survey No. T-5650

GEOGRAPHIC NAMES												
Survey No. T-5650												
Name on Survey	<div>On Chart No. 1218</div> <div>On previous survey No. T-154, T-153</div> <div>On U. S. quadrangle Maps</div> <div>From local information</div> <div>Not on local Maps</div> <div>On local Maps</div> <div>P. O. Guide or Map</div> <div>Rand McNally Atlas</div> <div>U. S. Light List</div>											
	A	B	C	D	E	F	G	H	K			
<u>✓ Old Robins Branch</u>			✓		✓					1		
<u>✓ Dennis Creek</u>	✓	✓	✓		✓					2		
<u>✓ Crow Creek</u>			✓		✓					3		
<u>✓ Sluice Creek</u>		Mill Cr.	✓		✓					4		
<u>✓ South Dennis</u>		Dennis-ville	So. Dennis-ville		sp.	✓	✓			5		
<u>✓ Delaware Bay</u>	✓		✓		✓					6		
<u>✓ Goshen Creek</u>	✓		✓		✓					7		
<u>✓ Goshen</u>	✓	✓	✓		✓	✓				8		
<u>✓ Reeds Beach</u>					✓					9		

## 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 R. E. Ask

Positions checked by R. E. Ask

Grid inked on machine by R. E. Ask

Intersections inked by Frank R. Gollo

Points used for plotting grid:

x 1,940,000 ft.  
y 125,000

x 1,940,000  
y 105,000

x 1,955,000  
y 125,000

x  
y

x 1,925,000  
y 105,000

x  
y

x 1,940,000  
y 95,000

x  
y

Triangulation stations used for checking grid:

- $X=1,947,035.12$   $Y=110,662.67$
1. Goshen 1932 (ref. sta.) 5. \_\_\_\_\_
  2. Dennis Creek 6. \_\_\_\_\_
  3. Rear Range Light 1933 7. \_\_\_\_\_
  4. Dennis Creek 8. \_\_\_\_\_
  5. Front Range Light 1933 8. \_\_\_\_\_
  6. Reeds 1933 8. \_\_\_\_\_

T-5650

# GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

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

$x$	<u>1,940,000.00</u>	$\log S_e$	<u>4.77815067</u>
$K$	<u>2,000,000.00</u>	$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>-60,000.00</u>	$\log (1/R)$	<u>1.086</u>
$x'^3/(6\rho_e^2)$	<u>-.08</u>	$\log S_m$	<u>4.26217736</u>
$S_e$	<u>59,999.92</u>	cor. arc to sine	<u>59</u>
		$\log S_1$	<u>4.26217677</u>
$3 \log x'$	<u>14.33445375</u>	$\log A$	<u>8.50913924</u>
$\log 1/(6\rho_e^2)$	<u>4.5810213</u>	$\log \sec \phi$	<u>0.11058327</u>
$\log x'^3/(6\rho_e^2)$	<u>8.9154750</u>	$\log \Delta\lambda_1$	<u>2.88189928</u>
		cor. sine to arc	<u>+ 99</u>
$\log S_m^2$	<u>8.52435472</u>	$\log \Delta\lambda$	<u>2.88190027</u>
$\log C$	<u>1.315700</u>	$\Delta\lambda$	<u>761.9040</u>
$\log \Delta\phi$	<u>9.840055</u>		
$y$	<u>125,000.00</u>		
$\phi'$ (by interpolation)	<u>39 10 38.5601</u>	$\lambda$ (central mer.)	<u>74 40</u>
$\Delta\phi$	<u>-.6919</u>	$\Delta\lambda$	<u>12 41.9040</u>
$\phi$	<u>39 10 34.8682</u>	$\lambda$	<u>74 52 41.9040</u>
	<u>107.53 mm</u>		<u>100.60 mm</u>

Explanation of form:

$$x' = x - K$$

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

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

$R$  = scale reduction factor

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

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

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

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

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

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

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

T-5650

# GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J.

STATION \_\_\_\_\_

$x$	<u>1,955,000.00</u>	$\log S_0$	<u>4.65321222</u>
$K$	<u>2,000,000.00</u>	$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>-45,000.00</u>	$\log (1/R)$	<u>1.086</u>
$x'^3/(6\rho_0^2)_0$	<u>-.03</u>	$\log S_m$	<u>4.13723891</u>
$S_0$	<u>44,999.97</u>	cor. arc to sine	<u>33</u>
$3 \log x'$	<u>13.95963753</u>	$\log S_1$	<u>4.13723858</u>
$\log 1/(6\rho_0^2)_0$	<u>4.5810213</u>	$\log A$	<u>8.50913923</u>
$\log x'^3/(6\rho_0^2)_0$	<u>8.5406548</u>	$\log \sec \phi$	<u>0.11058379</u>
$\log S_m^2$	<u>8.27447782</u>	$\log \Delta\lambda_1$	<u>2.75696160</u>
$\log C$	<u>1.315700</u>	cor. sine to arc	<u>56</u>
$\log \Delta\phi$	<u>9.590178</u>	$\log \Delta\lambda$	<u>2.75696216</u>
$y$	<u>125,000.00</u>	$\Delta\lambda$	<u>571.4288"</u>
$\phi'$ (by interpolation)	<u>39 10 35.5601</u>	$\lambda$ (central mer.)	<u>74 40 "</u>
$\Delta\phi$	<u>1.3892</u>	$\Delta\lambda$	<u>9 31.4288"</u>
$\phi$	<u>39 10 35.1709</u>	$\lambda$	<u>74 49 31.4288"</u>
	<u>108.46 mm</u>		<u>75.45 mm</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  $y$

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

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

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

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

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

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



T-5650

# GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J.

STATION \_\_\_\_\_

$x$	<u>1,940,000.00</u>	$\log S_e$	<u>4.77815067</u>
$K$	<u>2,000,000.00</u>	$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>-60,000.00</u>	$\log (1/R)$	<u>1086</u>
$x'^2/(6\rho_0^2)$	<u>-.08</u>	$\log S_m$	<u>4.26217736</u>
$S_e$	<u>59,999.92</u>	cor. arc to sine	<u>- 59</u>
$3 \log x'$	<u>14.33445375</u>	$\log S_1$	<u>4.26217677</u>
$\log 1/(6\rho_0^2)$	<u>4.5410213</u>	$\log A$	<u>8.50914131</u>
$\log x'^3/(6\rho_0^2)$	<u>8.9154750</u>	$\log \sec \phi$	<u>0.11007526</u>
$\log S_m^2$	<u>8.52435472</u>	$\log \Delta\lambda_1$	<u>2.88139334</u>
$\log C$	<u>1.314433</u>	cor. sine to arc	<u>+ 99</u>
$\log \Delta\phi$	<u>9.838788</u>	$\log \Delta\lambda$	<u>2.88139433</u>
$y$	<u>95,000.00</u>	$\Delta\lambda$	<u>761.0170</u>
$\phi'$ (by interpolation)	<u>39 05 39.0324</u>	$\lambda$ (central mer.)	<u>74 40 "</u>
$\Delta\phi$	<u>-.6899</u>	$\Delta\lambda$	<u>12 41.0170</u>
$\phi$	<u>39 05 38.3425</u>	$\lambda$	<u>74 52 41.0170</u>
	<u>118.24 mm</u>		<u>98.59 mm</u>

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

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

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

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

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

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

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

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

T-5650

# GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE

N. J.

STATION

$x$	1,940,000.00	$\log S_e$	4.77815067
$K$	2,000,000.00	$\log (1200/3937)$	9.48401583
$x' (=x-K)$	-60,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_0^2)_e$	-.09	$\log S_m$	4.26217736
$S_e$	59,999.92	cor. arc to sine	59
$3 \log x'$	14.33445375	$\log S_1$	4.26217677
$\log 1/(6\rho_0^2)_e$	4.5810213	$\log A$	8.50914062
$\log x'^3/(6\rho_0^2)_e$	8.9154750	$\log \sec \phi$	0.11024483
$\log S_m^2$	8.52435472	$\log \Delta\lambda_1$	2.84156182
$\log C$	1.314455	cor. sine to arc	+ 99
$\log \Delta\phi$	9.839210	$\log \Delta\lambda$	2.88156281
$y$	105,000.00	$\Delta\lambda$	761.3122
$\phi'$ (by interpolation)	39 07 17.8754	$\lambda$ (central mer.)	74 40
$\Delta\phi$	-.6906	$\Delta\lambda$	12 41.3122
$\phi$	39 07 17.1848	$\lambda$	74 52 41.3122
	53.00 mm		99.25 mm

Explanation of form:

$$x' = x - K$$

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

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

$R$  = scale reduction factor

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

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

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

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

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

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

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

Sta	Objects	X	Dist to next Sta.					
May	Channel/ T.P.1	180-05-45.2	741.65	T.P.11	T.P.10 T.P.12	202-47-30.8	476.68	
T.P.1	May T.P.2	182-24-31.2	821.47	T.P.12	T.P.11 T.P.13	175-04-42.1	942.85	
T.P.2	T.P.1 T.P.3	228-22-30.4	1339.28	T.P.13	T.P.12 T.P.14	147-44-02.9	321.96	
T.P.3	T.P.2 T.P.4	112-56-36.7	530.41	T.P.14	T.P.13 T.P.15	149-29-44.2	423.67	
T.P.4	T.P.3 T.P.5	251-08-25.8	1465.48	T.P.15	T.P.14 T.P.16	197-24-06.2	387.31	
T.P.5	T.P.4 T.P.6	179-54-52.4	1967.21	T.P.16	T.P.15 Goshen	120-07-34.2	111.07	
T.P.6	T.P.5 T.P.7	187-55-30.0	3873.07	Goshen	T.P.16 P.M.2	284-31-04.2		
T.P.7	T.P.6 T.P.8	147-44-10.8	520.42					
T.P.8	T.P.7 T.P.9	66-45-7.9	1218.53					
T.P.9	T.P.8 T.P.10	201-39-29.2	390.74 308.49					
T.P.10	T.P.9 T.P.11	150-24-37.5	767.43					



# POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

Ed. April, 1920

FIRST ANGLE OF TRIANGLE			
°	'	"	"
39	04	42.764	2 May.
	+	13.959	741.65
39	04	56.723	1 T.P.
Logarithms	Values in seconds		
2.870199	+1749.1		
9.763754	-101.1		
8.510922			
1.144875			
5.74404			
9.82216			
1.3142			
6.8762			
2d term	+ .0008		
3d term	+		
-Δφ	-13.959		
305	23	07.2	to 3 Channel
+180	05	45.2	&
125	28	52.4	to 1 T.P.
180	00	00.0	
305	28	36.6	to 2 May.
°	'	"	"
39	04	56.723	3 T.P.
	+	46.357	821.47
39	05	13.080	1 T.P.
Logarithms	Values in seconds		
2.914592	+403.3		
9.788229	-1447.0		
8.510921			
1.213742			
5.8292			
9.7944			
1.3142			
6.9378			
2d term	+ .001		
3d term	+		
-Δφ	-16.357		
305	28	36.6	to 3 Channel
+180	05	45.2	&
125	28	52.4	to 1 T.P.
180	00	00.0	
305	28	36.6	to 2 May.
°	'	"	"
39	04	56.723	3 T.P.
	+	46.357	821.47
39	05	13.080	1 T.P.
Logarithms	Values in seconds		
2.914592	+403.3		
9.788229	-1447.0		
8.510921			
1.213742			
5.8292			
9.7944			
1.3142			
6.9378			
2d term	+ .001		
3d term	+		
-Δφ	-16.357		

# POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

Ed. April, 1929

$\alpha$	2	T.P. 2	to 3	T.P. 1	307	52	50.8	$\alpha$	3	T.P. 3	to 2	T.P. 2	356	15	18.9
$2^d \angle$			&		+ 22.8	22	30.4	$3^d \angle$					- 112	56	36.7
$\alpha$	2	T.P. 2	to 1	T.P. 3	77.6	15	21.2	$\alpha$	3	T.P. 3	to 1	T.P. 4	109	11	55.6
$\Delta \alpha$							- 2.3	$\Delta \alpha$						-	13.1
					180	00	00.0						180	00	00.0
$\alpha'$	1	T.P. 3	to 2	T.P. 2	356	15	18.9	$\alpha'$	1	T.P. 4	to 3	T.P. 3	489	11	42.5

FIRST ANGLE OF TRIANGLE																																																																																																																								
°		'		"		°		'		"		°		'		"																																																																																																								
$\phi$	39	05				74	49			56.418	3	T.P.3	$\lambda$	74	49	11.064																																																																																																								
$\Delta\phi$		+								5.656		530.41	$\Delta\lambda$			+ 20.846																																																																																																								
$\phi'$	39	05				74	49			02.074	1	T.P.4	$\lambda'$	74	49	31.910																																																																																																								
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POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

FIRST ANGLE OF TRIANGLE				SECOND ANGLE OF TRIANGLE				THIRD ANGLE OF TRIANGLE				
$\alpha$	$\beta$	$\gamma$	$\delta$	$\alpha$	$\beta$	$\gamma$	$\delta$	$\alpha$	$\beta$	$\gamma$	$\delta$	
2	T.P.4	to 3	T.P.3	289	11	42.5		3	T.P.5	to 2	T.P.4	
$\Delta\alpha$				+251	08	25.8		$\Delta\alpha$				
2	T.P.4	to 1	T.P.5	180	40	08.3		3	T.P.5	to 1	T.P.6	
$\Delta\alpha$						+ 12		$\Delta\alpha$				
1	T.P.5	to 2	T.P.4	180	00	00.0		1	T.P.6	to 3	T.P.5	
$\Delta\alpha$				00	40	08.5		$\Delta\alpha$				
$\phi$	39 06	2	T.P.4	74	49	31.910		$\phi$	39 06	3	T.P.5	
$\Delta\phi$				$\Delta\lambda$		13.57		$\Delta\phi$				
$\phi'$	39 06	49.596	1	T.P.5	74	49	31.553	$\phi'$	39 07	53.388	1	T.P.6
Logarithms	3 165 980	Values in seconds	1529.52	Logarithms	3 165 980	Values in seconds	1529.52	Logarithms	3 165 980	Values in seconds	1529.52	
$s$	3 165 980	$\lambda(\phi+\phi')$	39-06-25.8	$s$	3 165 980	$\lambda(\phi+\phi')$	39-06-25.8	$s$	3 165 980	$\lambda(\phi+\phi')$	39-06-25.8	
$\cos\alpha$	9 999 993	Logarithms	7.767.746	$\cos\alpha$	9 999 993	Logarithms	7.767.746	$\cos\alpha$	9 999 993	Logarithms	7.767.746	
$B$	8.510 920	$\sin\alpha$	8.509 141	$B$	8.510 920	$\sin\alpha$	8.509 141	$B$	8.510 920	$\sin\alpha$	8.509 141	
$h$	1.676.893	$A'$	0.110 197	$h$	1.676.893	$A'$	0.110 197	$h$	1.676.893	$A'$	0.110 197	
$s^2$	6.333 20	$\sec\phi'$	9.553 064	$s^2$	6.333 20	$\sec\phi'$	9.553 064	$s^2$	6.333 20	$\sec\phi'$	9.553 064	
$\sin^2\alpha$	5.533 55	$\Delta\lambda$	9.799 873	$\sin^2\alpha$	5.533 55	$\Delta\lambda$	9.799 873	$\sin^2\alpha$	5.533 55	$\Delta\lambda$	9.799 873	
$C$	1.3145	$\sin\frac{1}{2}(\phi+\phi')$	9.354 937	$C$	1.3145	$\sin\frac{1}{2}(\phi+\phi')$	9.354 937	$C$	1.3145	$\sin\frac{1}{2}(\phi+\phi')$	9.354 937	
$3/820$		$-\Delta\alpha$		$3/820$		$-\Delta\alpha$		$3/820$		$-\Delta\alpha$		
$h^2$		2d term	+	$h^2$		2d term	+	$h^2$		2d term	+	
$D$		3d term	+	$D$		3d term	+	$D$		3d term	+	
		$-\Delta\phi$	47.524			$-\Delta\phi$	47.524			$-\Delta\phi$	47.524	

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

2 T.P.6		to 3 T.P.5		00		15		01.1		3		T.P.7		to 2 T.P.6		8		10		45.6	
2d L				+187		55		30.0		34 L				&		+147		44		10.8	
2 T.P.6		to 1 T.P.7		188		10		31.1		3		T.P.7		to 1 T.P.8		155		54		56.4	
Δα						+14.5				Δα								-		5.6	
1 T.P.7		to 2 T.P.6		8		10		00.0		1		T.P.8		to 3 T.P.7		180		00		00.0	
																335		54		50.8	
FIRST ANGLE OF TRIANGLE																					
39 07		53.288		2 T.P.6		74		49		39 09		57.706		3 T.P.7		74		49		08.253	
Δφ		+2		04.318		38.73.07		-		+		15.407		520.42		Δλ				+8.847	
39 09		57.706		1 T.P.7		74		49		39 10		13.113		1 T.P.8		74		49		17.100	
Logarithms		3.588 055		Values in seconds		39-08-55.5		Logarithms		2.716 354		Values in seconds		39-10-05.4		Logarithms		2.716 354		Values in seconds	
s		9.995 564		(70.7)		3.588 055		Logarithms		9.960 445		Cos α		9.610 947		s		9.610 947		+ 410.5	
B		8.510 917		1st term		12.42.19		9.152 907		8.510 915		h		1.187 714		Sin α		8.509 139		(1029.9)	
h		4.094 536				198.13		8.509 140		5.43 27.		s²		5.43 27.		A'		0.110 546			
s²		7.176 1				(1242.26)		0.110 520		9.22 15		Sin² α		9.22 15		Sec φ'		0.110 546			
Sin² α		8.305 8				22.942		1.360 622		1.315 5		C		1.315 5		Δλ		0.946 786		8.846 8	
C		1.315 0						9.800 260		5.96 97		h²		5.96 97		Sin ½(φ+φ')		9.800 441			
		6.796 9		2d term + .0006		14.48		1.160 880				D				-Δα		0.747 227		5.587	
		4.189 0																			
		2.383 1		3d term + .0004		124.218															
		6.572 1		-Δφ																	

# POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

Ed. April, 1929

FIRST ANGLE OF TRIANGLE									
2 T.P.8 to 3 T.P.7					3 T.P.9 to 2 T.P.8				
&					&				
2 T.P.8 to 1 T.P.9					3 T.P.9 to 1 T.P.10				
&					&				
1 T.P.9 to 2 T.P.8					1 T.P.10 to 3 T.P.9				
$\alpha$	39	10	13.113	2 T.P.8	$\phi$	39	09	44.057	3 T.P.9
$\Delta\phi$	-	29.056	12.18.53	$\Delta\phi$	$\Delta\phi$	-	4.335	308.49	$\Delta\lambda$
$\phi'$	39	09	44.057	1 T.P.9	$\phi'$	39	09	39.724	1 T.P.10
Logarithms	3.085 836	9.866 472	8.510 914	Logarithms	2.489 241	9.636 859	8.510 916	0.637 016	Logarithms
$s$	1358.7	(491.7)	29.055	Values in seconds	$s$	1236.4	(204.1)	34398	Values in seconds
$\cos\alpha$	9.866 472	8.510 914	1.463 222	Logarithms	$\cos\alpha$	9.636 859	8.510 916	0.637 016	Logarithms
B	1.463 222	6.171 7	9.662 1	$s$	B	8.510 916	4.977 85	9.909 6	h
h	6.171 7	9.662 1	1.315 6	$s^2$	h	4.977 85	9.909 6	1.315 3	$s^2$
$s^2$	9.662 1	1.315 6	7.149 4	$\sin^2\alpha$	$s^2$	9.909 6	1.315 3	6.403 4	$\sin^2\alpha$
$\sin^2\alpha$	1.315 6	7.149 4	1.336 9 50	$\Delta\lambda$	C	1.315 3	6.403 4	1.336 9 50	C
C	7.149 4	1.336 9 50	1.336 9 50	$\sin\frac{1}{2}(\phi+\phi')$	$\sin\frac{1}{2}(\phi+\phi')$	9.800 423	1.336 9 50	1.336 9 50	$\sin\frac{1}{2}(\phi+\phi')$
$\sin\frac{1}{2}(\phi+\phi')$	9.800 423	1.336 9 50	1.336 9 50	$-\Delta\alpha$	$-\Delta\alpha$	1.336 9 50	1.336 9 50	1.336 9 50	$-\Delta\alpha$
$-\Delta\alpha$	1.336 9 50	1.336 9 50	1.336 9 50	2d term	2d term	1.336 9 50	1.336 9 50	1.336 9 50	2d term
2d term	1.336 9 50	1.336 9 50	1.336 9 50	3d term	3d term	1.336 9 50	1.336 9 50	1.336 9 50	3d term
3d term	1.336 9 50	1.336 9 50	1.336 9 50	3d term	3d term	1.336 9 50	1.336 9 50	1.336 9 50	3d term
3d term	1.336 9 50	1.336 9 50	1.336 9 50	3d term	3d term	1.336 9 50	1.336 9 50	1.336 9 50	3d term

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

		° ' "		° ' "		° ' "	
$\alpha$	2	T.P.9	to 3	T.P.8	222	39	27.0
$\Delta\alpha$			&		+201	39	29.2
$\alpha$	2	T.P.9	to 1	T.P.10	64	19	06.2
$\Delta\alpha$							9.2
$\alpha'$	1	T.P.10	to 2	T.P.9	180	00	00.0
$\alpha'$	1	T.P.10	to 3	T.P.10	244	18	57.0

FIRST ANGLE OF TRIANGLE

		° ' "		° ' "		° ' "	
$\phi$	39	09	44.057	2	T.P.9	74	49
$\Delta\phi$			- 5.491		390.74		+ 14.645
$\phi'$	39	09	38.566	1	T.P.10	74	50

		° ' "		° ' "		° ' "	
		Values in seconds		Values in seconds		Values in seconds	
$s$	2.591 888	1189.4	+	2.885 039	558.6	39-09-28.3	
$\cos\alpha$	9.636 859	(661.0)		9.914 810	(1291.8)		
B	8.510 916			8.510 916			
h	0.739 663	549.11		1.310 765	20.453		
$s^2$	5.1824			5.7700			
$\sin^2\alpha$	9.9096			9.5112			
C	1.3153			1.3154			
	6.4073	2d term + .0002		6.5966			
$h^2$							
D							
		3d term +				3d term +	
		- $\Delta\phi$ +	5.491			- $\Delta\phi$ +	20.453



POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

FIRST ANGLE OF TRIANGLE											
		° ' "		° ' "		° ' "		° ' "		° ' "	
		to 3		to 2		to 1		to 3		to 2	
$\alpha$	2	T.P. 13		T.P. 12		232		35		05.6	
$2^d \angle$						+147		44		02.9	
$\alpha$	2	T.P. 13		T.P. 14		20		19		08.5	
$\Delta \alpha$								-2.9		00.0	
$\alpha'$	1	T.P. 14		T.P. 13		180		00		00.0	
$\alpha'$	1	T.P. 13		T.P. 14		200		19		05.6	
$\phi$	39	08	51.216	2	T.P. 13	$\lambda$	74	51	12.317	$\phi$	39
$\Delta \phi$			-9.791			$\Delta \lambda$			4.656	$\Delta \phi$	
$\phi'$	39	08	41.425	1	T.P. 14	$\lambda'$	74	51	16.973	$\phi'$	39
VALUES IN SECONDS											
$s$	2.507802	127.5		39.08-46.3		2.627028		860.5		39.08-34.7	
$\cos \alpha$	9.972098	(572.8)		9.993100		9.993100		+ (989.9)		9.247598	
$B$	8.510916			2.507802		8.510917		1st term		8.509140	
$h$	0.990816	9.791		9.540638		1.131045		13.522		8.509140	
$s^2$	5.0156			8.509140		5.2540				8.509140	
$\sin^2 \alpha$	9.0812			0.110389		8.4952				8.509140	
$C$	1.3153			0.667969		1.3151				8.509140	
	5.4121	+ 2.9		9800392		5.0643		2d term		8.509140	
$h^2$				0.468361		5.0643		+ 2.9		8.509140	
$D$						5.0643				8.509140	
		-9.791				5.0643				8.509140	



POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

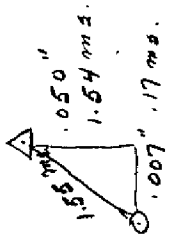
		° ' "		° ' "		° ' "	
$\alpha$	2	T.P. 15	to 3	T.P. 14	169	48	51.8
$\Delta\alpha$			&		+197	24	06.2
$\alpha$	2	T.P. 15	to 1	T.P. 16	7	14	58.0
$\Delta\alpha$							-1.3
$\alpha'$	1	T.P. 16	to 2	T.P. 15	180	00	00.0
$\alpha'$	1	T.P. 16	to 3	T.P. 16	187	12	56.7

FIRST ANGLE OF TRIANGLE

		° ' "		° ' "		° ' "	
$\phi$	39	08	27.903	2	T.P. 15	74	51
$\Delta\phi$			-12.460				
$\phi'$	39	08	15.443	1	T.P. 16	74	51

		° ' "		° ' "		° ' "	
		Values in seconds		Values in seconds		Values in seconds	
$s$	2.588059	476.3		(1374.1)		39-08-21.6	
$\cos \alpha$	9.996546						
$B$	8.510917						
$h$	1.095522						
$s^2$	5.1761						
$\sin^2 \alpha$	8.1980						
$C$	1.3151						
$h^2$	4.6892						
$D$							

16300 meters  
1.55 = 1 in 10,516



first order Goshen  
39-08-13.308  
74-51-12.195

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
Form 27  
Ed. April, 1929

# POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

[illegible]

11-9302 U. S. GOVERNMENT PRINTING OFFICE: 1969

W. J. Geod. S. No. 2789

## REVIEW OF TOPOGRAPHIC MAP T-5650

### Data Record

Triangulation to 1933  
Supplemental Traverse to 1936  
Photographs to April 1932  
Field Inspection to Oct. 8, 1936 (Page 2, D. R.)  
No graphic control or supplemental planetable surveys  
No contemporary ~~topographic~~ <sup>hydrographic</sup> surveys  
H. W. Line as of Oct. 8, 1936 (page 2, D. R.)

### Comparison with Previous Topographic Surveys

T-153 (10,000) (1842)  
T-154 (10,000) (1842)  
T-1549a (20,000) (1883)  
T-4568 (10,000) (1932)

Comparison with the previous topographic surveys shows this compilation to be adequate to supersede the sections of those surveys which it covers. The general shape of the coast line and creeks is the same as on the previous surveys but there have been numerous changes in details of the High Water Line and in the roads.

### Comparison with Chart 1215

This compilation shows numerous corrections to details of the High Water line and to the roads on Chart 1218.

No landmarks have been recommended for this area of Chart 1218.

### Control

The compilation is well controlled from about latitude 39°09' southward. See page 1 regarding supplemental traverse.

North of latitude 39°09' very little control was available. The N. J. Geodetic Survey Stations shown north of latitude 39°09' were located by the photo plot and did not control the plot. A check on the accuracy of the plot will be obtained by comparison with the state traverse positions of these stations. The state traverse positions will probably be available shortly and a record of the comparison will be added to this review.

*B. G. Jones*

September 14, 1937.

REVIEW OF AIR PHOTO COMPILATION NO.

Chief of Party: E. H. Kirsch

Compiled by: Ralph L. Fisher

Project: H.T. 205

Instructions dated: May 16th, 1935

- ✓ 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 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."

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)
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: *None*

✓ 18. Examined and approved;

*E. H. Kirsch*  
Chief of Party

19. Remarks after review in office:

Reviewed in office by: *B. G. Jones* 9/23/37

Examined and approved:

*B. H. Green*  
Chief, Section of Field Records  
*L. O. Solbert*  
Chief, Division of Charts

*Fred. L. Peacock*  
Chief, Section of Field Work  
*G. W. Hinde*  
Chief, Division of Hydrography  
and Topography.