5649

Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

Air Photo

Topographic } FIELD 16
~~*Hydrographic*~~ } *Sheet No.* Reg. 5649

State New Jersey

LOCALITY

Delaware Bay

~~Cowell Creek to Dias Creek~~

Vicinity of Cape May

1936

CHIEF OF PARTY

E. H. Kirsch

U.S. GOVERNMENT PRINTING OFFICE: 1934

applied to Chart 827, July 1939 C.R.

Form 537a
Ed. Nov., 1929

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. 16 T5649

REGISTER NO. 5649

State New Jersey

General locality Delaware Bay

Locality ~~Cowall Creek to Dias Creek~~ Vicinity of Cape May
Photographs 4-18-32

Scale 1:10 000 Date of survey Compilation Nov., 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 F. H. McBeth

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.

applied to Chart 1217 apr. 29, 1938 - J.F.W.

applied to chart 1218. May 1, 1937
S.K.S.

applied to chart 1219 from chart 1218. May 25, 1937
S.H.S.

SHEET NO. 16

REGISTER NO. 5649

Photo Nos.	Date
66-7-46 to 48	4-18-32
66-7-37 to 45	4-18-32
66-7-57 to 65	4-18-32
66-7-21 to 26	4-18-32

Projection By	L. C. Ripley 5-8-35
Projection Checked By	T. B. Nutting 5-8-35
Control Plotted By	E. J. Anderson 1935
Control Checked By	P. W. Hund 1935
Control Plotted on Photos By	E. H. Kirsch Sept. 1936
Control Checked on Photos By	F. H. McBeth Oct. 1936
Smooth Radial Plot By	E. H. Kirsch Sept. 1936
Radial Plot Checked By	F. H. McBeth Oct. 1936
Detailed By	F. H. McBeth Oct. & Nov. 1936.

~~Stastı~~

Statistics

Land Area Detailed 29.0 square statute miles

Length of Coast Line 6.7 Statute Miles

Length of Shore Line 0.0 Statute miles (More than 200 meters wide)

Length of shore line 9.0 Statute miles (less than 200 meters wide)

Ref. Sta. Coxall, 1933

Datum N.A. 1927 39° 00' 47.125 (1453.2 m.)
74° 57' 01.825 (43.9 m)

N.J. Grid Coord. X = 1,919,345.41 ft.
65,593.62 ft.

GENERAL INFORMATION

STATISTICS:

This sheet covers a land area of 29.0 sq. statute miles. There are 6.7 statute miles of coast line, 0.0 statute miles of shore line more than 200 meters wide, and 9.0 statute miles of streams less than 200 meters wide.

GENERAL REPORT:

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

There is a narrow strip of sand beach extending the length of the sheet on Delaware Bay. Part of the area adjacent to Delaware Bay is marshy.

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.

Photos 66-7-46 to 48 Cover the south western Shore line.
Photos 66-7-38 to 45 Cover the western edge of the sheet.
Photos 66-7-5 to 11 extend from the southeastern to the northwestern corners of the compilation.
Photos 66-7-22 to 25 Cover the northeastern corner of the compilation.

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

CONTROL

SOURCES:

Triangulation by Robinson, 1933, furnished the control for this compilation. A short traverse was run by this party from triangulation station Dias to a point on state highway No. S 49. The traverse was not closed and the points were not marked. The field computations are submitted with this report.

ERRORS:

No errors in the control were found.

Radial points were transferred to three sides of this sheet from adjacent sheets. These radial points, two triangulation stations, and the short traverse mentioned above constitutes the only control for the sheet. The sheet is poorly controlled, but the pictures run with no difficulty and various flights joined well. There are 18 N. J. Geodetic Control Survey Stations on the sheet. These were field inspected and positions obtained by the radial plot. The positions have been reported on form 524. It is expected that the State of N. J. will execute a second order

traverse over these marks within the next year. Comparisions of their positions should be made with forms 524 for this sheet, which will check the accuracy of this poorly controlled plot.

An inspection of the compilation will show that additional control for this sheet would have been quite costly. Due to a shortage of personnel and funds, it was not practical to put in more control.

COMPILATION

METHOD:

The usual radial line method as described in "Notes on the compilation of planimetric line maps from 5 lens aerial photographs" was used in compiling this sheet.

ADJUSTMENTS OF THE PLOT:

No unusual adjustments of the plot were necessary.

INTERPRETATION:

The time of the day at which the pictures were taken was not known and therefore the stage of the tide at the time the photos were taken could not be ascertained. As the photos were four years old at the time of the compilation it was deened necessary to field inspect the entire coast line.

It is believed that the coast line as shown is correct for the present date. The date of the field inspection was OCTOBER 7th, 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.

New streets have been built in Lat. 39° - 02.1' Long. 74° - 56.5' & Lat. 39° - 02.9' Long. 74° - 55.5'. These streets were added to thee compilation from notes furnished by the field inspection party

There are several piers on Delaware Bay. Only a few of the more permanent ones have been shown. Other piers are removable and are taken up each fall. As they are not always put back in the same place, it was deemed sufficient to show only the permanent ones

CONFILCTING NAMES:

U. S. C. & G. S. Chart 1218	State Dept. of Conservation Atlas sheet No. 37	U. S. G. S. Dennisville Quad.
Not Shown	Nummytown	Nummytown
Not shown	Pierce's Point Wooden road marker shows Pierce's Point.	Pierce Point
Not Shown	Erma (Small Village)	Not shown
Not Shown	Wildwood Junction	Not Shown
Not Shown	Whitesboro	Not Shown
Anglesea Junction	Wildwood Junction	Anglesea Junction

From field inspection the developments of Wildwood Villas, Del Haven, and Miami Beach have been added. These names were taken from road markers.

The name MAREY LDG. on chart No. 1218 should be expunged, as the small settlement in this vicinity is known as Wildwood Villas.

COMPARISION WITH OTHER SURVEYS:

Satisfactory junctions have been made with sheets No. 15 Reg. No. 5648 on the south, No. 14 Reg. No. 5647 on the east, No. 13 Reg. No. 5646 on the north and No. 17 Reg. No.5650 on the north.

LANDMARKS FOR CHARTS:

A list of marked recoverable stations have already been submitted on form 524. A list of landmarks for charts has already been submitted for the project.

BRIDGES:

There are no bridges on this compilation.

RECOMMENDATIONS 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 of importance for charting, and no additional topographic surveys are necessary.

Submitted By

Assisted By
E. H. Kirsch
Chief of Party.

E. H. Kirsch

F. H. McBeth.

	Remarks	Decisions
1		
2		
3	'Pierce's Pt. Ldg.' on Soil Map Millville Sheet	
4		
5		
6		
7		R.R abandoned Importance removed.
8		
9		
10		
11		
12		
13		
14	On AAA Road Map "Nummytown"	
15		
16		
17	Also "Caxall Cr." on M.P. Map. Coxhall (pencil) on T-153 or Coxall's Cr on T-1549	
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		

M 234

GEOGRAPHIC NAMES

Survey No. T-5649

Name on Survey	A: On Chart No. 1218	B: On previous survey No.	C: On U. S. quadrangle Maps	D: From local information	E: N.J. State On-Local-Maps Com & Dev. #37	F: P. O. Guide or Map	G: Rand McNally Atlas	H: U. S. Light List	K: R.R. Guide	
Delaware Bay	✓		✓							1
Dias Creek (creek)	✓	~~Dyers Cr.~~ T-1549	✓							2
Pierces Point		Pierce's Pt T-1649	✓		Pierce's Pt.					3
Dias Creek (village)	✓	Dyers Cr. T-154	✓							4
Green Creek (creek)	✓	T-154	✓							5
Green Creek (village)	✓	✓	✓		✓	✓				6
Anglesea Junction	✓		✓						Atlantic City	7
Miami Beach				✓ (D.R.)						8
Fishing Creek	✓	T-1549	✓		✓					9
Del Haven				✓ (D.R.)						10
Whitesboro			P.M.M. ✓		✓	✓				11
Burleigh			✓		✓		✓			12
~~Wildwood~~ Villas				✓ (D.R.)		Villas	Villas			13
Nummytown			✓		✓					14
Rio Grande	✓		✓		✓	✓				15
Wildwood Junction	✓				✓	✓				16
Coxall Creek	✓	Cox Hall Cr T-149	Coxall Cr.							17
Erma					✓		✓			18
Delavan Creek	✓	Delavans Cr. T-148								19
Bennett	✓		✓		✓	Bennetts	✓		✓	20
Fishing Cr. (settlement)	✓		✓		✓		✓			21
										22
										23
										24
										25
										26
										27

Names underlined in red approved by GHE on 12/29/36

M 234

M-350

T-5649

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 Gollon

Points used for plotting grid:

x 1,930,000 ft y 85,000	x 1,930,000 y 75,000
x 1,950,000 y 85,000	x 1,945,000 y 75,000
x 1,920,000 y 65,000	x 1,930,000 y 55,000
x 1,940,000 y 65,000	x y

Triangulation stations used for checking grid:

X=1,919,345.41 Y=65,593.62'

1. Coxall 1933 (ref sta)
2. Dias 1933
3.
4.
5.
6.
7.
8.

T-5649

Form No. 743
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Ed. May 1965

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION

x	1,930,000.00	$\log S_g$	4.844509723
K	2.	$\log (1200/3937)$	9.484015833
x' $(=x-K)$	- 70,000.00	$\log (1/R)$	.1086
$x'^3/(6\rho_o^2)_g$	- .13	$\log S_m$	4.329123942
S_g	69,999.87	cor. arc to sine	- .81
		$\log S_1$	4.329123111
$3 \log x'$	14.535294123	$\log A$	8.509142011
$\log 1/(6\rho_o^2)_g$	4.581021313	$\log \sec \phi$	0.109940583
$\log x'^3/(6\rho_o^2)_g$	9.117315436	$\log \Delta\lambda_1$	2.948170955
		cor. sine to arc	+ .134
$\log S_m^2$	8.658247846	$\log \Delta\lambda$	2.948172289
$\log C$	1.314010	$\Delta\lambda$	887.50880
$\log \Delta\phi$	9.972258		
y	85,000.00		
ϕ' (by interpolation)	39° 04' 00".1977 889	λ (central mer.)	74° 40' "
$\Delta\phi$	- .9381	$\Delta\lambda$	+ 14' 47".5080
ϕ	39° 03' 59".2596 08	λ	74° 54' 47".5080
	182.71 mm		114.24 mm

Explanation of form:

$x' = x - K$

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

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

R = scale reduction factor

ϕ' is interpolated from table of y

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

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

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

$\log S_1 = \log S_m$ — cor. arc to sine

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

$\lambda = \lambda$ (central mer.) $- \Delta\lambda$

U. S. GOVERNMENT PRINTING OFFICE 11—11521

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U. S. COAST AND GEODETIC SURVEY
Ed. May 1935

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION

x	1,950,000.00	$\log S_g$	4.69896957
K	2,000,000.00	$\log (1200/3937)$	9.48401583
x' $(=x-K)$	−50,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_o^2)_g$	−.05	$\log S_m$	4.18299626
S_g	49,999.95	cor. arc to sine	−41
		$\log S_1$	4.18299585
3 log x'	14.09691000	$\log A$	8.50914200
$\log 1/(6\rho_o^2)_g$	4.54010213	$\log \sec \phi$	6.10990662
$\log x'^3/(6\rho_o^2)_g$	8.67793213	$\log \Delta\lambda_1$	2.80204447
		cor. sine to arc	+68
$\log S_m^2$	8.36598252	$\log \Delta\lambda$	2.80204515
$\log C$	1.31410	$\Delta\lambda$	633.9356
$\log \Delta\phi$	9.6800003		
y	85,000,00		
ϕ' (by interpolation)	39° 04′ 00.1889	λ (central mer.)	74° 40′ ″
$\Delta\phi$	−.4786	$\Delta\lambda$	+ 10 33.9356
ϕ	39 03 59.7103	λ	74 50 33.9356
	184.13 mm.		81.60 mm.

Explanation of form:

$x'=x-K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

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GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION

x	1,920,000.00	$\log S_g$	4.903088490
K	2,000,000.00	$\log (1200/3937)$	9.484015833
x' $(=x-K)$	− 80,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_o^2)_g$	− .20	$\log S_m$	4.387115559
S_g	79,999.80	cor. arc to sine	− 106
		$\log S_1$	4.387114453
3 log x'	14.709269997	$\log A$	8.509143399
$\log 1/(6\rho_o^2)_g$	4.541021 3	$\log \sec \phi$	0.109567980
$\log x'^3/(6\rho_o^2)_g$	9.250251 3	$\log \Delta\lambda_1$	3.005825572
		cor. sine to arc	+ 175
$\log S_m^2$	8.774231178	$\log \Delta\lambda$	3.005827747
$\log C$	1.313165	$\Delta\lambda$	1013.5087″
$\log \Delta\phi$	0.087396		
y	66,000.00		
ϕ' (by interpolation)	39° 00′ 42.5004″	λ (central mer.)	74° 40′
$\Delta\phi$	− 1.2229	$\Delta\lambda$	+ 16′ 53.5087″
ϕ	39° 00′ 41.2775″	λ	74° 56′ 53.5087″
	127.29 mm.		128.76 mm

Explanation of form:

$x'=x-K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

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GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION

x	1,940,000.00	$\log S_g$	4.77415067
K	2,000,000.00	$\log (1200/3937)$	9.48401583
x' $(=x-K)$	− 60,000.00	$\log (1/R)$	.1086
$x'^3/(6\rho_o^2)_g$	− .08	$\log S_m$	4.26217736
S_g	59,999.92	cor. arc to sine	− .59
		$\log S_1$	4.26217677
3 log x'	14.33445375	$\log A$	8.50914339
$\log 1/(6\rho_o^2)_g$	4.58102130	$\log \sec \phi$	0.10956871
$\log x'^3/(6\rho_o^2)_g$	8.91547505	$\log \Delta\lambda_1$	2.88088847
		cor. sine to arc	+ .98
$\log S_m^2$	8.52435472	$\log \Delta\lambda$	2.88088985
$\log C$	1.313165	$\Delta\lambda$	760.1335″
$\log \Delta\phi$	9.837526		
y	65,000.00		
ϕ' (by interpolation)	39° 00′ 42.5004″	λ (central mer.)	74° 40′ ″
$\Delta\phi$	− .6829	$\Delta\lambda$	+ 12′ 40.1335″
ϕ	39° 00′ 41.8175″	λ	74° 52′ 40.1335″
	128.94 mm.		96.58 mm.

Explanation of form:

$x'=x-K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

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GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION

x	1,930,000.00	$\log S_g$	4.845097 23
K	2,000,000.00	$\log (1200/3937)$	9.484015 83
x' $(=x-K)$	-70,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_o^2)_g$	-.13	$\log S_m$	4.329123 92
S_g	69,999.87	cor. arc to sine	-.81
		$\log S_1$	4.329123 11
$3 \log x'$	14.535294 12	$\log A$	8.509142 70
$\log 1/(6\rho_o^2)_g$	4.581021 3	$\log \sec \phi$	0.109736 97
$\log x'^3/(6\rho_o^2)_g$	9.116315 4	$\log \Delta\lambda_1$	2.948002 78
		cor. sine to arc	+.134
$\log S_m^2$	8.658247 84	$\log \Delta\lambda$	2.948004 12
$\log C$	1.313587	$\Delta\lambda$	882.1644
$\log \Delta\phi$	9.971835		
y	75,000.00		
ϕ' (by interpolation)	39° 02' 21.3449"	λ (central mer.)	74° 40' ~~44.2857~~
$\Delta\phi$	-.9372	$\Delta\lambda$	14' 47.1644"
ϕ	39° 02' 20.4077"	λ	74° 54' 47.1644"
	62.93 mm		113.44 mm

Explanation of form:

$x' = x - K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda = \lambda$ (central mer.) $- \Delta\lambda$

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GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION

x	1,945,000.00	$\log S_g$	4.7403622 2
K	2,000,000.00	$\log (1200/3937)$	9.4840158 3
x' $(=x-K)$	-55,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_o^2)_g$	-.06	$\log S_m$	4.2243949 1
S_g	54,999.94	cor. arc to sine	-50
		$\log S_1$	4.2243884 1
3 log x'	14.2210807	$\log A$	8.5041426 9
$\log 1/(6\rho_o^2)_g$	4.5610213	$\log \sec \phi$	0.1097 3758
$\log x'^3/(6\rho_o^2)_g$	8.8021094	$\log \Delta\lambda_1$	2.8432 6866 8
		cor. sine to arc	+83
$\log S_m^2$	8.4487782	$\log \Delta\lambda$	2.8432 6951
$\log C$	1.3133587	$\Delta\lambda$	697.0590
$\log \Delta\phi$	9.7623665		
y	75,000.00		
ϕ' (by interpolation)	39° 02' 21.3449	λ (central mer.)	74° 40' "
$\Delta\phi$	-.5786	$\Delta\lambda$	11 37.0590
ϕ	39 02 20.7663	λ	74 51 37.0590
	64.04 mm.		89.13 mm.

Explanation of form:

$x'=x-K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

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GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION

x	1,930,000.00	$\log S_g$	4.845097 23
K	2,000,000.00	$\log (1200/3937)$	9.484015 83
x' $(=x-K)$	−70,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_o^2)_g$	−.13	$\log S_m$	4.329123 92
S_g	69,999.87	cor. arc to sine	−81
		$\log S_1$	4.329123 11
$3 \log x'$	14.535294 12	$\log A$	8.509147 08
$\log 1/(6\rho_o^2)_g$	4.581021 3	$\log \sec \phi$	0.105399 77
$\log x'^3/(6\rho_o^2)_g$	9.116315 4	$\log \Delta\lambda_1$	2.947666 96
		cor. sine to arc	+134
$\log S_m^2$	8.658247 84	$\log \Delta\lambda$	2.947668 30
$\log C$	1.312742	$\Delta\lambda$	886.4787
$\log \Delta\phi$	9.970990		
y	55,000.00		
ϕ' (by interpolation)	38° 59′ 03.6556″	λ (central mer.)	74° 40′ ″
$\Delta\phi$	−.9354	$\Delta\lambda$	14 46.4787
ϕ	38 59 02.7202	λ	74 54 46.4787
	8.39 mm		111.87 mm

Explanation of form:

$x' = x - K$

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

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

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 - $ cor. arc to sine

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

$\lambda = \lambda$ (central mer.) $- \Delta\lambda$

U. S. GOVERNMENT PRINTING OFFICE 11-11521

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
Form 596

POSITION COMPUTATION, TRAVERSE

			°	′	″
α	Dias	to Reeds.	196	22	03.4
$\angle$		&	+199	24	58.9
α	2 Dias	to 1 T.P.1	35	47	02.3
$\Delta\alpha$				−	2.7
			180	00	00.0
α'	1 T.P.1	to 2 Dias	215	46	59.6

Do not write in this margin.

	°	′	″			°	′	″
ϕ	39	04	43.656	2 Dias	λ	74	54	33.647
$\Delta\phi$		−	4.658	177.06	$\Delta\lambda$			+ 4.307
ϕ'	39	04	38.998	1 T.P.1	λ'	74	54	37.954

	Logarithms	Values in seconds	
s	2.248 121	1202.66	
Cos α	9.909 143	+ 647.69	
B	8.510 922		
h	0.668 186	1st term	4.6578
s^2	4.4962		
$\sin^2\alpha$	9.5339		
C	1.3141		
	5.3442	2d term	+
h^2			
D			
		3d term	+
		$-\Delta\phi$ +	4.658

	°	′	″
$\frac{1}{2}(\phi+\phi')$	39-04-41.3		

	Logarithms	Values in seconds
s	2.248 121	912.3
Sin α	9.766 956	+ (5 29.9)
A′*	8.509 142	
Sec ϕ'	0.109 974	
$\Delta\lambda$	0.634 193	4.3072
Sin $\frac{1}{2}(\phi+\phi')$	9.799 602	
$-\Delta\alpha$	0.433 795	2.715

* Use ϕ' as the argument for taking out A′.

11—11227 U.S. GOVERNMENT PRINTING OFFICE: 1934

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
Form 596

POSITION COMPUTATION, TRAVERSE

			°	′	″
α	T.P.1	to D.O.S	215	46	59.6
∠		&	+ 77	48	49.6
α	2 T.P.1	to 1 T.P.2	293	35	49
Δα					+ 2.8
			180	00	00.0
α′	1 T.P.2	to 2 T.P.1	113	35	52.0

	°	′	″			°	′	″
φ	39	04	38.998	2 T.P.1	λ	74	54	37.954
Δφ		-	1.503	1552.76	Δλ		-	4.413
φ′	39	04	37.495	1 T.P.2	λ′	74	54	33.541

	Logarithms	Values in seconds	
s	2.063 559		
Cos α	9.602 386	+	
B	8.510 922		
h	0.176867	1st term	1.5026
s^2	4.1271		
$\sin^2\alpha$	9.9241		
C	1.3141		
	53653	2d term	+ ———
h^2			
D	- ———		
		3d term	+
		$-\Delta\phi$ +	1.503

	°	′	″
$\frac{1}{2}(\phi+\phi')$	39	04	38.2

	Logarithms	Values in seconds
s	2.063 559	
Sin α	9.962 077	-
A′*	8.509 142	
Sec φ′	0.109 970	
Δλ	0.644 748	44.131
Sin ½ (φ+φ′)	9.799 594	
$-\Delta\alpha$	0.44 43.4	2.78

Do not write in this margin.

* Use φ′ as the argument for taking out A′.

11—11227 U.S. GOVERNMENT PRINTING OFFICE: 1934

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
Form 596

POSITION COMPUTATION, TRAVERSE

			°	′	″
α	T.P.2	to T.P.1	113	35	52.0
$\angle$		&	+200	20	35.8
α	2 T.P.2	to 1 T.P.3	313	56	27.8
$\Delta\alpha$					+1.4
			180	00	00.0
α'	1 T.P.3	to 2 T.P.2	133	56	29.2

	°	′	″			°	′	″
ϕ	39	04	37.495	2 T.P.2	λ	74	54	33.541
$\Delta\phi$		−	1.704	75.71	$\Delta\lambda$		−	2.268
ϕ'	39	04	35.791	1 T.P.3	λ'	74	54	31.273

	Logarithms	Values in seconds	
s	1.879153		
Cos α	9.841 308	+	
B	8.510 922		
h	0.231385	1st term	1.7037
s^2	3.7583		
$\sin^2\alpha$	9.7147		
C	1.3141		
	4.7871	2d term	+
h^2			
D			
		3d term	+
		$-\Delta\phi$ +	1.704

	°	′	″	Logarithms	Values in seconds
$\frac{1}{2}(\phi+\phi')$	39	04	36.7		
s				1.879153	
Sin α				9.857365	−
A'*				8.509 142	
Sec ϕ'				0.109 967	
$\Delta\lambda$				0.355 624	22.679
Sin $\frac{1}{2}(\phi+\phi')$				9.799 589	
$-\Delta\alpha$				0.155 214	1.429

Do not write in this margin.

* Use ϕ' as the argument for taking out A'.

11—11227 U.S. GOVERNMENT PRINTING OFFICE: 1934

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
Form 596

POSITION COMPUTATION, TRAVERSE

			°	′	″
α	T.P.2	to T.P.2	133	56	29.2
∠		&	+192	15	47.9
α	2 T.P.3	to 1 T.P.4	326	12	17.1
Δα					+.9
			180	00	00.0
α′	1 T.P.4	to 2 T.P.3	146	12	18.0

	°	′	″			°	′	″
φ	39	04	35.791	2 T.P.3	λ	74	54	31.273
Δφ			−1.666	61.84	Δλ		−	1.431
φ′	39	04	34.125	1 T.P.4	λ′	74	54	29.842

	Logarithms	Values in seconds
s	1.791270	
Cos α	9.919618	+
B	8.510922	
h	0.221810	1st term 1.6665
s^2	3.582540	
$\sin^2\alpha$	9.4905	
C	1.3141	
	4.3271	2d term +
h^2		
D		
		3d term +
		−Δφ + 1.666

	°	′	″
½(φ+φ′)	39	04	34.9

	Logarithms	Values in seconds
s	1.791270	
Sin α	9.745249	−
A′*	8.509142	
Sec φ′	0.109964	
Δλ	0.155625	14309
Sin ½(φ+φ′)	9.799584	
−Δα	9.955209	.90

Do not write in this margin.

* Use φ′ as the argument for taking out A′.

11—11227 U.S. GOVERNMENT PRINTING OFFICE: 1934

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
Form 596

POSITION COMPUTATION, TRAVERSE

			°	′	″
α	T.P.4	to T.P.3	146	12	18.0
$\angle$		&	+155	50	36.6
α	2 T.P.4	to 1 T.P.5	302	02	54.6
$\Delta\alpha$					+2.3
			180	00	00.0
α'	1 T.P.5	to 2 T.P.4	122	02	56.9

	°	′	″			°	′	″
ϕ	39	04	34.125	2 T.P.4	λ	74	54	29.842
$\Delta\phi$		−	1.803	104.76	$\Delta\lambda$		−	3.694
ϕ'	39	04	32.322	1 T.P.5	λ'	74	54	26.148

	Logarithms	Values in seconds
s	2.020196	
Cos α	9.724801	+
B	8.510922	
h	0.255919	1st term 1802.7
s^2	4.04404	
$\sin^2\alpha$	98564	
C	1.31411	
	5.21109	2d term +
h^2		
D		
		3d term +
		$-\Delta\phi$ 1.803

	°	′	″	Logarithms	Values in seconds
$\frac{1}{2}(\phi+\phi')$	39	04	32.2		
s				2.020196	
Sin α				9.928189	−
A′*				8.509142	
Sec ϕ'				0.109962	
$\Delta\lambda$				0.561489	36.939
Sin $\frac{1}{2}(\phi+\phi')$				9.799580	
$-\Delta\alpha$				0.367069	2.3

Do not write in this margin.

* Use ϕ' as the argument for taking out A′.

11—11227 U.S. GOVERNMENT PRINTING OFFICE: 1984

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
Form 596

POSITION COMPUTATION, TRAVERSE

			°	′	″
α	T.P.5	to T.P.4	122	02	56.9
$\angle$		&	+180	45	57.5
α	2 T.P.5	to 1 T.P.6	302	48	54.4
$\Delta\alpha$					+19.2
			180	00	00.0
α'	1 T.P.6	to 2 T.P.5	122	49	13.6

	°	′	″			°	′	″
ϕ	39	04	32.327	2 T.P.5	λ	74	54	26.148
$\Delta\phi$		−	15.277	869.23	$\Delta\lambda$		−	30.388
ϕ'	39	04	17.045	1 T.P.6	λ'	74	53	55.760

	Logarithms	Values in seconds	
s	4.939 135		
Cos α	9.733 946	+	
B	8.510 922		
h	1.184003	1st term	15.2758
s^2	5.8782		
$\sin^2\alpha$	9.8490		
C	1.3141		
	7.0413	2d term	+.0011
h^2			
D			
		3d term	+
		$-\Delta\phi$ +	15.277

	°	′	″
$\frac{1}{2}(\phi+\phi')$	39	04	24.6

	Logarithms	Values in seconds
s	2.939 135	
Sin α	9.924 497	−
A′*	8.509 142	
Sec ϕ'	0.109 935	
$\Delta\lambda$	1.487 709	30.2885
Sin $\frac{1}{2}(\phi+\phi')$	9.799 558	
$-\Delta\alpha$	1.287 267	19.15

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* Use ϕ' as the argument for taking out A′.

11—11227 U.S. GOVERNMENT PRINTING OFFICE: 1934

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
Form 596

POSITION COMPUTATION, TRAVERSE

			°	′	″
α	T.P.6	to T.P.5	122	49	13.6
∠		&	+165	37	32.1
α	2 T.P.6	to 1 T.P.7	288	26	45.7
Δα					+ 4.0
			180	00	00.0
α′	1 T.P.7	to 2 T.P.6	108	26	49.7

	°	′	″			°	′	″
φ	39	04	17.045	2 T.P.6	λ	74	53	55.760
Δφ		−	1.668	162.5	Δλ		−	6.413
φ′	39	04	15.377	1 T.P.7	λ′	74	53	49.347

	Logarithms	Values in seconds
s	2.210 907	474.23 (13 76.16)
Cos α	9.500 257	
B	8.510 922	
h	0.222 086	1st term + 1186.95
s^2	4.4218	
$\sin^2\alpha$	9.9542	
C	1.3141	
	5.6901	2d term +
h^2		
D		3d term +
		−Δφ + 1.668

	°	′	″
½(φ + φ′)	39	04	16.2

	Logarithms	Values in seconds
s	2.210 907	162.5
Sin α	9.997 092	1186.3 (256.1)
A′	8.509 142	
Sec φ′	0.109 933	
Δλ	60 807 074	64.132
Sin ½ (φ + φ′)	9.999 535	
−Δα	0.60 6.609	4.042

OK
EHK.

Do not write in this margin.

* Use φ′ as the argument for taking out A′.

11—11227 U.S. GOVERNMENT PRINTING OFFICE: 1934

REVIEW OF AIR PHOTO COMPILATION T-5649

Data Record:

1. Triangulation to 1933.
2. Photographs to April 1932.
3. Field inspection to October 1936.
4. Theodolite and tape traverse 1936.

There are no graphic control sheets on contemporary hydrographic surveys in the area covered by this compilation. All detail on this compilation is of the date of the photographs except for mean high water line which was established by field inspection October 7, 1936.

Comparison with Topographic Surveys.

T-149 (1842) 1:10,000
T-153 (1842) 1:10,000
T-154 (1842) 1:10,000
T-1483 (1880) 1:10,000
T-1549a (1883) 1:20,000
T-4668 (1932) 1:10,000

There have been numerous changes in structural features, road alignments, and railroad locations. Much additional building and numerous real estate subdivisions have taken place.

Comparison with T-4668 reveals numerous small differences in location of roads, creeks, and the high water line.

The compilation is complete and adequate to supersede the above previous topographic surveys for charting.

Comparison with Chart 1218, 1:80,000

Comparison reveals numerous changes and additions to roads, extensive real estate subdivision, and numerous changes in piers.

There are no landmarks shown on the chart in the area covered by this compilation and no new landmarks have been recommended.

General

New Jersey Geodetic Control Station No. 2797 was found to disagree in position on the compilation with the description on the Form 524 card submitted with the report and also with the field inspection sketch book. The point was re-spotted on the photographs by the use of field measurements included in the description. It was then relocated on the compilation by

matching intersected points on the celluloid with points on the photographs. The geographic position was scaled by W.W. Schleiter and checked by L.C. Lauke

Several pier ruins along Delaware Bay which were omitted from the compilation were added in this office.

Mar. 31, 1937. W.W. Schleiter

VBGJones

REVIEW OF AIR PHOTO COMPILATION NO.

Chief of Party: E. H. Kirsch Compiled by: F. H. McBeth

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) None

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. None

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." M-67

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) None

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. Bunch
Chief of Party

19. Remarks after review in office:

Reviewed in office by: H. H. Schleiter * 3/31/37
✓ BG Jones

Examained and approved:

E. M. Green
Chief, Section of Field Records

Fred. L. Peacock
Chief, Section of Field Work

L. O. Colbert
Chief, Division of Charts

R. A. Ace
Chief, Division of Hydrography and Topography.