5448 (Original)

(This report also includes the Air-photo Field Inspection Reports for New Jersey, Part 1, George Washington Bridge to Bedloes Island, and Part 2, Southern Portion of Jersey City and Bayonne.)

5448 SUPPLEMENTAL T

5448 SUPPLEMENTAL T

Form 504
Rev. Dec. 1933

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

DESCRIPTIVE REPORT

Air-Photo
Topographic
~~Hydrographic~~ } *Sheet No.* T-5448

State New Jersey

LOCALITY

Hudson River.

Edgewater.

Photographs Taken Nov 1934

CHIEF OF PARTY

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

U.S. GOVERNMENT PRINTING OFFICE: 1934

Applied to Chart 746 – Mar 24, 1939 L.M.Z.

Corrections to Mar 15, 1939 applied to 746 L.M.A. 3/16/39

" " 4/4/39 " " " " 9/9/39

Supl' applied to Chart 746 11-16-40 B.C.M.

FIELD INSPECTION REPORT

to be attached to

DESCRIPTIVE REPORT for COMPILATION (Field No. 60), REG. NO. T 5448

AIR PHOTO FIELD INSPECTION REPORT

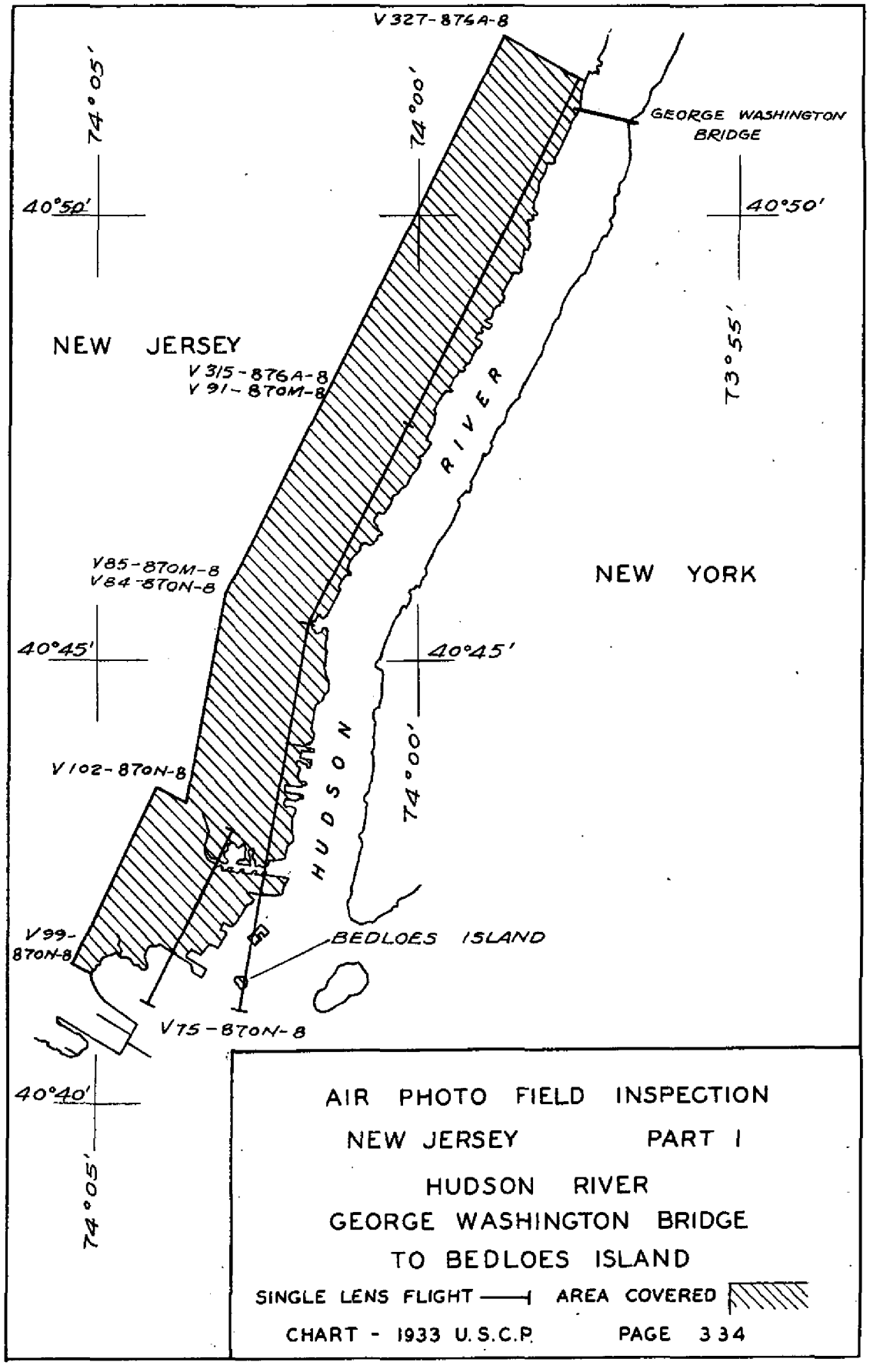
for

NEW JERSEY

PART I

HUDSON RIVER; GEORGE WASHINGTON BRIDGE

TO BEDLOES ISLAND



AIR PHOTO FIELD INSPECTION

NEW JERSEY PART I

HUDSON RIVER

GEORGE WASHINGTON BRIDGE

TO BEDLOES ISLAND

SINGLE LENS FLIGHT —| AREA COVERED

CHART - 1933 U.S.C.P. PAGE 334

AIR PHOTO FIELD INSPECTION REPORT

for

A PART OF NEW JERSEY

PART I

During part of the months of December 1934 and January and February 1935, a field inspection was made of single lens photographs (taken by U.S. Army Air Corps with a K-7C camera) covering the area along the New Jersey side of the Hudson River from the George Washington Bridge to Bedloes Island and extending approximately a mile and a quarter inland. The area, 18 square statute miles, was covered by two members of Party No. 12, New York City, with U.S.C.& G.S. truck No. 509.

The compilation of the area covered by this field inspection is shown on air photo topographic sheets numbered as follows:

Reg. No. T5277 (east part)
T5278 (east part)
T5448
T5449
T5450
T5451 (west part)
T5470

PHOTOGRAPHS

Flight lines of photographs are indicated on the preceeding index map and the numbers and dates on which the photographs were taken are given below.

Single Lens Photos

V 75 to V 84 - 870N - 8	Nov. 25, 1934	Approx.	11:00 A.M.
V 85 to V 91 - 870M - 8	" " "	"	11:00 A.M.
V 99 to V102 - 870N - 8	" " "	"	11:00 A.M.
V315 to V327 - 876A - 8	" " "	"	11:00 A.M.

The single lens photographs are contact prints, approximately 1:7500 scale, taken by the U.S. Army Air Corps with a new special type camera known as the K-7C type, focal length approximately 24".

GENERAL DESCRIPTION OF TOPOGRAPHY

The following general information is given to supplement the notes marked directly on the photographs.

The topography in this section is in two distinct levels separated by the Palisades at the north and their continuation at a lesser height at the south. In the north the cliff is very steep and is relatively close to the Hudson River while to the south, in the Jersey City area, it is farther inland. The plateau thus formed slopes down to the extensive marsh along Overpeck Creek and the Hackensack River, to the west.

From Fort Lee south, the river is lined with many docks and bulkheads. Appropriate notes giving the numbers and ownership appear on the photographs. Numerous railroads have large

terminals in this area. Also there are many large industrial plants. An extensive network of main highways also covers this area.

CONTROL

(1) Triangulation

Triangulation performed by the parties of Lieut. R.W. Woodworth from 1930 to 1933; Lieut. J. Bowie in 1933 and Lieut. C.A. Egner in 1930 forms the basis for control in this area. The positions of the main scheme stations are listed in the portfolio of the final office adjusted positions on N.A. 1927 Datum. For intersection stations the field position computations may be converted to N.A. 1927 Datum by applying a correction determined by comparison of common stations. Corrections to Lieut. Egner's positions are Lat. -12.7m., Long. +3.5m.; for Lieut. Woodworth's positions Lat. -12.0m. Long. +3.5m.

(2) Topography

In the vicinity of George Washington Bridge, the Air Photo Topographic Sheet, Reg. No. T4568 (on 1:5,000 scale) of 1931 will have to be tied into by sheets, field Nos. 64 and 83.

(3) Port of New York Authority

Information prepared by the Port of New York Authority may be used as noted below.

		A.P.T. Field Sheet No.	Scale
Railroad Terminal Map of New York Harbor		All	1:36,000
Topographic Plan	MH - F - 2A	63(east part)	1: 1,200
" "	MH - F - 2	63(east part), 81.	1: 1,200
" "	MH - F - 3	81.	1: 1,200

(4) U.S. Engineer Department Stations

Many U.S.E.D. stations were recovered and spotted on the photographs. Descriptions of these stations are submitted on Form 524 herewith.

(5) Railroad Data

Railroad data, of use to the detailer, has been obtained and is available for all the yards and important trackage in this area.

(6) Stations Spotted on Photographs

Number of stations spotted:-

Triangulation	73
U. S. E.	30
Landmarks	4
Total	107

ADDITIONAL CONTROL

On March 22nd a theodolite 3-point fix was obtained to supplement the control for air photo compilation sheet, Reg. No. T5448. Adescription is submitted on recoverable topo. station form 524. Following are the directions and position computations for this station which has been named LEON;-

Station: LEON State: New Jersey County: Bergen Date: March 22, 1935
Observer: R.C. Bolstad Instrument: Berger 7" No. 232

Objects Observed	Time h. - m.	Tel. or R	D	Reps	Angle	A "	B "	Angle Mean	Mean D and R	Remarks
Tank(knitting mills) 1932	11 25 11 35	D R	1		00-01 180-01	00 00 15 15		@7.5	00-00-00.0	windy, clear
Tank(Armour Soap Works) 1932		D R	1		66-50 246-50	10 10 30 25		18.8	66-49-13.8	
Tank(Flintkote) 1932		D R	1		133-42 313-42	50 50 50 50		50.0	133-41-45.0	
Tank(Knitting Mills) 1932		D R	1		00-01 180-01	00 00 10 00		02.5	00-00-00.0	

Second Set:-

Tank(Knitting Mills) 1932	11 37 11 45	D R	1		90-01 270-01	00 00 00 00		60.0	00-00-00.0	
Tank(Armour Soap Works) 1932		D R	1		156-50 336-50	00 00 10 10		05.0	66-49-05.6	
Tank(Flintkote)1932		D R	1		223-42 43-42	30 30 45 45		37.5	133-41-38.1	
Tank(Knitting Mills) 1932		D R	1		90-00 270-01	55 55 05 00		58.8	00-00-00.0	

List of Directions

Tank (Knitting Mills) 1932	00-00-00.0
Tank (Armour Soap Works) 1932	66-49-09.7
Tank (Flintkote) 1932	133-41-41.6

Recovery cards (Form 526) have been written for the triangulation stations visited where the station was lost or the description was inadequate.

All stations visited were spotted on the photographs.

NAMES

No new names, differing from those given on existing U.S.C. & G.S. Charts, were obtained.

BRIDGES

The only important bridge in the area, the George Washington Bridge over the Hudson River, is adequately covered in the Coast Pilot for this region.

COAST PILOT NOTES

No discrepancies or additions for the Coast Pilot Notes have been noted by this field inspection party.

RECOVERABLE OBJECTS

Descriptions were made on Form 524 of all recoverable objects which have been spotted on the photographs. The positions will be determined by the air photo radial plot and noted on the cards. Also a list of positions will be included in the descriptive report accompanying each compilation sheet.

Landmarks

The major (chartable) landmarks have been previously submitted and cut in as triangulation stations. A list was submitted by Lieut. R.W. Woodworth, 1930 - 1933. Additional possible landmarks were spotted on the field photographs. These landmarks were spotted from land, apparently being the only available objects in the area selected. They exhibit a degree of prominence and will fall within the classification for Class C landmarks mentioned in the descriptive report for air photo topographic sheet Reg. No. T5059, paragraph, "Landmarks and Report on Review of Sheet". They have been shown by the letter "C" on the photographs.

CHANGES

Very few changes have occurred in the topographic detail since the date that the photographs were taken (Nov. 25, 1934).

Submitted by

D.B. Bennett
Draftsman

D.B. Bogart
D.B. Bogart
Draftsman

Feb. 28, 1935

— Leon —

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

INVERSE POSITION COMPUTATION

$$s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)=\frac{\Delta\lambda_1 \cos\phi_m}{A_m}$$

$$s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)=\frac{-\Delta\phi_1 \cos\frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha=\Delta\lambda \sin\phi_m \sec\frac{\Delta\phi}{2}+F(\Delta\lambda)^3$$

in which $\log \Delta\lambda_1 = \log(\lambda'-\lambda)$ − correction for arc to sin*; $\log \Delta\phi_1 = \log(\phi'-\phi)$ − correction for arc to sin*; and $\log s = \log s_1 +$ correction for arc to sin*.

— N. A. 1927 —

NAME OF STATION

1. ϕ	40 47 54.88	Tank (Knitting Mills)	λ	74 00 37.29	
2. ϕ'	40 48 37.41	Tank (Armour, Soap Works)	λ'	74 01 29.98	
$\Delta\phi$ $(=\phi'-\phi)$	+ 00 - 42.53		$\Delta\lambda$ $(=\lambda'-\lambda)$	+ 00 - 52.69	
$\frac{\Delta\phi}{2}$	+ 00 - 21.265		$\frac{\Delta\lambda}{2}$	+ 00 26.345	
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	40 48 16.14				
$\Delta\phi$ (secs.)	42.53		$\Delta\lambda$ (secs.)	52.69	
log $\Delta\phi$	1.6286954		**log** $\Delta\lambda$	1.7217282	
cor. arc−sin	−		cor. arc−sin	−	
log $\Delta\phi_1$	1.6286954		log $\Delta\lambda_1$	1.7217282	
log cos $\frac{\Delta\lambda}{2}$			**log cos** ϕ_m	9.8790637	
colog B_m	1.4892095		**colog** A_m	1.4909020	
log $\left[s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right]$	3.1179049 (opposite in sign to $\Delta\phi$)		**log** $\left[s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\right]$	3.0916939	
			log $\left[s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right]$	3.1179049	
log $\Delta\lambda$	1.7217282	3 log $\Delta\lambda$	**log tan** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.9737890	
log sin ϕ_m	9.8152321	log F	$\alpha+\frac{\Delta\alpha}{2}$	136 - 43 - 40.57	
log sec $\frac{\Delta\phi}{2}$	−	log b	**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.8359843	
log a	1.5369603		**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.8621952	
a	+ 34.432		**log** s_1	3.2557096	
b			cor. arc−sin	+	
$-\Delta\alpha$ **(secs.)**	- 34.43		log s	3.2557096	
$-\frac{\Delta\alpha}{2}$	- 17.22				
	+ 00 - 17.22				
$\alpha+\frac{\Delta\alpha}{2}$	136 43 40.57				
α **(1 to 2)**	136 43 57.79				
$\Delta\alpha$	− 00 - 34.43				
	180			Comp. by DBB	
α' **(2 to 1)**	316 - 43 - 23.36			" G.C.M.	

*Use the table on the back of this form for correction of arc to sin.

NOTE.—For log s up to 4.52 and for $\Delta\phi$ or $\Delta\lambda$ (or both) up to 10′, omit all terms below the heavy line except those printed (in whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—0810

U. S. GOVERNMENT PRINTING OFFICE: 1931

Table of arc-sin corrections for inverse position computations

log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$	log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$	log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$
4. 177	1	2. 686	5. 223	124	3. 732	5. 525	497	4. 034
4. 327	2	2. 836	5. 234	130	3. 743	5. 530	508	4. 039
4. 415	3	2. 924	5. 243	136	3. 752	5. 534	519	4. 043
4. 478	4	2. 987	5. 253	142	3. 762	5. 539	530	4. 048
4. 526	5	3. 035	5. 260	147	3. 769	5. 543	541	4. 052
4. 566	6	3. 075	5. 269	153	3. 778	5. 548	553	4. 057
4. 599	7	3. 108	5. 279	160	3. 788	5. 553	565	4. 062
4. 628	8	3. 137	5. 287	166	3. 796	5. 557	577	4. 066
4. 654	9	3. 163	5. 294	172	3. 803	5. 561	588	4. 070
4. 677	10	3. 186	5. 303	179	3. 812	5. 566	600	4. 075
4. 697	11	3. 206	5. 311	186	3. 820	5. 570	613	4. 079
4. 716	12	3. 225	5. 318	192	3. 827	5. 575	625	4. 084
4. 734	13	3. 243	5. 326	199	3. 835	5. 579	637	4. 088
4. 750	14	3. 259	5. 334	206	3. 843	5. 583	650	4. 092
4. 765	15	3. 274	5. 341	213	3. 850	5. 587	663	4. 096
4. 779	16	3. 288	5. 349	221	3. 858	5. 591	674	4. 100
4. 792	17	3. 301	5. 356	228	3. 865	5. 595	687	4. 104
4. 804	18	3. 313	5. 363	236	3. 872	5. 600	702	4. 109
4. 827	20	3. 336	5. 369	243	3. 878	5. 604	716	4. 113
4. 857	23	3. 366	5. 376	251	3. 885	5. 608	729	4. 117
4. 876	25	3. 385	5. 383	259	3. 892	5. 612	743	4. 121
4. 892	27	3. 401	5. 390	267	3. 899	5. 616	757	4. 125
4. 915	30	3. 424	5. 396	275	3. 905	5. 620	771	4. 129
4. 936	33	3. 445	5. 403	284	3. 912	5. 624	785	4. 133
4. 955	36	3. 464	5. 409	292	3. 918	5. 628	800	4. 137
4. 972	39	3. 481	5. 415	300	3. 924	5. 632	814	4. 141
4. 988	42	3. 497	5. 422	309	3. 931	5. 636	829	4. 145
5. 003	45	3. 512	5. 428	318	3. 937	5. 640	845	4. 149
5. 017	48	3. 526	5. 434	327	3. 943	5. 644	861	4. 153
5. 035	52	3. 544	5. 440	336	3. 949	5. 648	877	4. 157
5. 051	56	3. 560	5. 446	345	3. 955	5. 652	893	4. 161
5. 062	59	3. 571	5. 451	354	3. 960	5. 656	909	4. 165
5. 076	63	3. 585	5. 457	364	3. 966	5. 660	925	4. 169
5. 090	67	3. 599	5. 462	373	3. 971	5. 663	941	4. 172
5. 102	71	3. 611	5. 468	383	3. 977	5. 667	957	4. 176
5. 114	75	3. 623	5. 473	392	3. 982	5. 671	973	4. 180
5. 128	80	3. 637	5. 479	402	3. 988	5. 674	989	4. 183
5. 139	84	3. 648	5. 484	412	3. 993	5. 678	1005	4. 187
5. 151	89	3. 660	5. 489	422	3. 998			
5. 163	94	3. 672	5. 495	433	4. 004			
5. 172	98	3. 681	5. 500	443	4. 009			
5. 183	103	3. 692	5. 505	453	4. 014			
5. 193	108	3. 702	5. 510	464	4. 019			
5. 205	114	3. 714	5. 515	474	4. 024			
5. 214	119	3. 723	5. 520	486	4. 029			

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

INVERSE POSITION COMPUTATION

$$s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)=\frac{\Delta\lambda_1 \cos\phi_m}{A_m}$$

$$s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)=\frac{-\Delta\phi_1 \cos\frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha=\Delta\lambda \sin\phi_m \sec\frac{\Delta\phi}{2}+F(\Delta\lambda)^3$$

in which log $\Delta\lambda_1$=log $(\lambda'-\lambda)$−correction for arc to sin*; log $\Delta\phi_1$=log $(\phi'-\phi)$−correction for arc to sin*; and log s=log s_1+ correction for arc to sin*. — N.A.1927 —

NAME OF STATION

1. ϕ	40 48 37.41 ✓	Tank (Armour Soap Wks.)	λ	74 01 29.98 ✓	
2. ϕ'	40 51 02.01 ✓	Tank (Flintkote	λ'	74 01 43.05 ✓	
$\Delta\phi$ $(=\phi'-\phi)$	+ 02 - 24.60 ✓		$\Delta\lambda$ $(=\lambda'-\lambda)$	+ 00 - 13.07 ✓	
$\frac{\Delta\phi}{2}$	+ 01 - 12.30 ✓		$\frac{\Delta\lambda}{2}$	+ 00 - 06.535 ✓	
$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	40 - 49 - 49.71 ✓				
$\Delta\phi$ (secs.)	144.60 ✓		$\Delta\lambda$ (secs.)	13.07 ✓	
log $\Delta\phi$	2.160 1683 ✓		**log** $\Delta\lambda$	1.116 2756 ✓	
cor. arc−sin	−		cor. arc−sin	−	
log $\Delta\phi_1$	2.160 1683 ✓		log $\Delta\lambda_1$	1.116 2756 ✓	
log cos $\frac{\Delta\lambda}{2}$			**log cos** ϕ_m	9.878 8935 ✓	
colog B_m	1.489 2115 ✓		**colog** A_m	1.490 9026 ✓	
log $\left[s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right]$	3.649 3798 ✓ (opposite in sign to $\Delta\phi$)		**log** $\left[s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\right]$	2.486 0717 ✓	
			log $\left[s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right]$	3.649 3798 n ✓	
log $\Delta\lambda$	1.116 2756 ✓ 3 log $\Delta\lambda$		**log tan** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	8.836 9191 n ✓	
log sin ϕ_m	9.815 4603 ✓ log F		$\alpha+\frac{\Delta\alpha}{2}$	176 04 20.44 ✓	
log sec $\frac{\Delta\phi}{2}$	log b		**log sin** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	8.835 6706 ✓	
log a	0.931 7359 ✓		**log cos** $\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.998 9787 n ✓	
a	+08.545 ✓		**log** s_1	3.650 4011 ✓	
b			cor. arc−sin	+	
$-\Delta\alpha$ **(secs.)**	- 08.54 ✓		log s	3.650 4011 ✓	
$-\frac{\Delta\alpha}{2}$	- 04.27 ✓				
	+ 00 04.27 ✓				
$\alpha+\frac{\Delta\alpha}{2}$	176 04 20.44 ✓				
α **(1 to 2)**	176 04 24.71 ✓				
$\Delta\alpha$	− 00 08.54 ✓				
	180			Comp by DBB.	
α' **(2 to 1)**	356 - 04 - 16.17 ✓			✓ " GCM.	

*Use the table on the back of this form for correction of arc to sin.

NOTE.—For log s up to 4.52 and for $\Delta\phi$ or $\Delta\lambda$ (or both) up to 10′, omit all terms below the heavy line except those printed (in whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places. 11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

Table of arc-sin corrections for inverse position computations

log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$	log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$	log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$
4. 177	1	2. 686	5. 223	124	3. 732	5. 525	497	4. 034
4. 327	2	2. 836	5. 234	130	3. 743	5. 530	508	4. 039
4. 415	3	2. 924	5. 243	136	3. 752	5. 534	519	4. 043
4. 478	4	2. 987	5. 253	142	3. 762	5. 539	530	4. 048
4. 526	5	3. 035	5. 260	147	3. 769	5. 543	541	4. 052
4. 566	6	3. 075	5. 269	153	3. 778	5. 548	553	4. 057
4. 599	7	3. 108	5. 279	160	3. 788	5. 553	565	4. 062
4. 628	8	3. 137	5. 287	166	3. 796	5. 557	577	4. 066
4. 654	9	3. 163	5. 294	172	3. 803	5. 561	588	4. 070
4. 677	10	3. 186	5. 303	179	3. 812	5. 566	600	4. 075
4. 697	11	3. 206	5. 311	186	3. 820	5. 570	613	4. 079
4. 716	12	3. 225	5. 318	192	3. 827	5. 575	625	4. 084
4. 734	13	3. 243	5. 326	199	3. 835	5. 579	637	4. 088
4. 750	14	3. 259	5. 334	206	3. 843	5. 583	650	4. 092
4. 765	15	3. 274	5. 341	213	3. 850	5. 587	663	4. 096
4. 779	16	3. 288	5. 349	221	3. 858	5. 591	674	4. 100
4. 792	17	3. 301	5. 356	228	3. 865	5. 595	687	4. 104
4. 804	18	3. 313	5. 363	236	3. 872	5. 600	702	4. 109
4. 827	20	3. 336	5. 369	243	3. 878	5. 604	716	4. 113
4. 857	23	3. 366	5. 376	251	3. 885	5. 608	729	4. 117
4. 876	25	3. 385	5. 383	259	3. 892	5. 612	743	4. 121
4. 892	27	3. 401	5. 390	267	3. 899	5. 616	757	4. 125
4. 915	30	3. 424	5. 396	275	3. 905	5. 620	771	4. 129
4. 936	33	3. 445	5. 403	284	3. 912	5. 624	785	4. 133
4. 955	36	3. 464	5. 409	292	3. 918	5. 628	800	4. 137
4. 972	39	3. 481	5. 415	300	3. 924	5. 632	814	4. 141
4. 988	42	3. 497	5. 422	309	3. 931	5. 636	829	4. 145
5. 003	45	3. 512	5. 428	318	3. 937	5. 640	845	4. 149
5. 017	48	3. 526	5. 434	327	3. 943	5. 644	861	4. 153
5. 035	52	3. 544	5. 440	336	3. 949	5. 648	877	4. 157
5. 051	56	3. 560	5. 446	345	3. 955	5. 652	893	4. 161
5. 062	59	3. 571	5. 451	354	3. 960	5. 656	909	4. 165
5. 076	63	3. 585	5. 457	364	3. 966	5. 660	925	4. 169
5. 090	67	3. 599	5. 462	373	3. 971	5. 663	941	4. 172
5. 102	71	3. 611	5. 468	383	3. 977	5. 667	957	4. 176
5. 114	75	3. 623	5. 473	392	3. 982	5. 671	973	4. 180
5. 128	80	3. 637	5. 479	402	3. 988	5. 674	989	4. 183
5. 139	84	3. 648	5. 484	412	3. 993	5. 678	1005	4. 187
5. 151	89	3. 660	5. 489	422	3. 998			
5. 163	94	3. 672	5. 495	433	4. 004			
5. 172	98	3. 681	5. 500	443	4. 009			
5. 183	103	3. 692	5. 505	453	4. 014			
5. 193	108	3. 702	5. 510	464	4. 019			
5. 205	114	3. 714	5. 515	474	4. 024			
5. 214	119	3. 723	5. 520	486	4. 029			

Check on Inverse

Check on Inverse

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

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

			°	′	″				°	′	″
α	2 to 3					α	3 to 2				
2d ∠	&		+			3d ∠	&		−		
α	2 Tank (Armour Soap Wks) to 1 Tank (Knitting Mill		316	49	23.36 ✓	α	3 Tank (Armours Soap Wks) to 1 Tank (Flint Kota)		356	04	16.17 ✓
Δα			+	00	34.43 ✓	Δα			+	00	08.54 ✓
			180	00	00.0				180	00	00.0
α′	1 to 2		136	43	57.79 ✓	α′	1 to 3		176	04	24.71 ✓

First Angle of Triangle

	°	′	″			°	′	″		°	′	″		°	′	″
φ	40	48	37.41 ✓	2 Tank (Armour Soap Wks)	λ	74	01	29.98 ✓	φ	40	51	02.01 ✓	3 Tank (Flint Kota	λ	74	01	43.05 ✓
Δφ	−	00	42.53 ✓		Δλ	−	00	52.69 ✓	Δφ	−	02	24.60 ✓		Δλ	−	00	13.07 ✓
φ′	40	47	54.88	1 Tank (Knitting Mills)	λ′	74	00	37.29 ✓	φ′	40	48	37.41 ✓	1 Tank (Armour Soap Wks)	λ′	74	01	29.98 ✓

	Logarithms	Values in seconds
s	3.2557096 ✓	
+ Cos α	9.8621611 ✓	
B	8.5107900 ✓	
h	1.6286607 ✓	1st term +42.527 ✓
s²	6.5111.41 ✓	
Sin²α	9.67204 ✓	
C	1.34069 ✓	
	7.52.41.4 ✓	2d term +0.003
h³	— —	
D	—	
		3d term + —
		−Δφ +42.530 ✓

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	40	48	16.1 ✓		
s				3.2557096 ✓	
Sin α				9.8360228 ✓	
A′				8.5040981 ✓	
Sec φ′				0.1208977 ✓	
Δλ				1.7217282	52.69 ✓
Sin½(φ+φ′)				9.8152320 ✓	
−Δα				1.5369602	34.43 ✓

	Logarithms	Values in seconds
s	3.6504011 ✓	
+ Cos α	9.9989781 ✓	
B	8.5107870 ✓	
h	2.1601662 ✓	1st term +144.5992 ✓
s²	7.30080 ✓	
Sin²α	7.67160 ✓	
C	1.34129 ✓	
	6.31369 ✓	2d term +0.0002 ✓
h³	4.3203 ✓	
D	2.3878 ✓	
	6.7081 ✓	3d term +0.0005 ✓
		−Δφ +144.5999 ✓

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	40	49	49.7 ✓		
s				3.6504011 ✓	
Sin α				8.8352015 ✓	
A′				8.5090974 ✓	
Sec φ′				0.1209749 ✓	
Δλ				1.1162754	13.07 ✓
Sin½(φ+φ′)				9.8154603 ✓	
−Δα				0.9317357	8.54 ✓

11—9362 U. S. GOVERNMENT PRINTING OFFICE: 1940

Comp by DYB-1
✓ " GCM

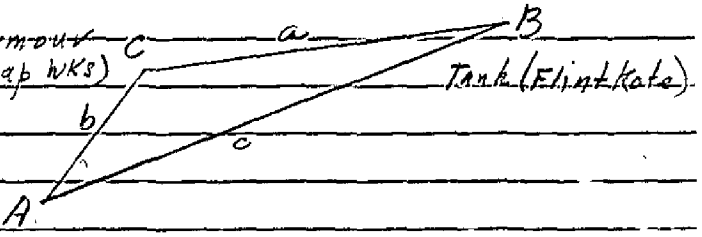
DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
Form 665
Ed. Dec. 1929

TRIANGLE COMPUTATION USING TWO SIDES AND INCLUDED ANGLE

$\left[\frac{a}{b} = \tan(45° + \phi)\right.$ (Call longer side a): $\tan \frac{1}{2}(A_p - B_p) = \tan \phi \tan \frac{1}{2}(A_p + B_p)$: $\left. c = \frac{a \sin C_p}{\sin A_p}\right]$*

C_s	140° 38' 58.6"	Log a	3.6504011	Log m	1.4047
Sph. excess / 3	000	Log b	3.2557096	Log sin C_s	9.8021
C_p	140 38 58.6	Log tan $(45+\phi)$	10.3946915	Log a	3.6504
$\frac{1}{2} C_p$	70 19 29.3	$(45° + \phi)$	68 03 01.47	Log b	3.2557
$90° - \frac{1}{2} C_p = \frac{1}{2}(A_p + B_p)$	19 40 30.7	ϕ	23 03 01.47	Log sph. ex.	8.1111
$\frac{1}{2}(A_p - B_p)$	8 39 04.0	Log tan ϕ	9.6289133	Sph. excess	0.01
Sum $= A_p$	28 19 34.7	Log tan $\frac{1}{2}(A_p + B_p)$	9.5533531		
Diff $= B_p$	11 01 26.7	Log tan $\frac{1}{2}(A_p - B_p)$	9.1822664		
C_p	140 38 586				

(Sketch)



Log a	
Log sin C_p	
Colog sin A_p	
Log c	

CHECK COMPUTATION

No.	STATION	SPHERICAL ANGLE	SPHERICAL EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3				
	1				
	2				
	3				
	1-3				
	1-2				
	2-3				
	1				
	2				
	3				
	1-3				
	1-2				

*The subscripts s and p on this form refer to spherical and plane angles respectively.

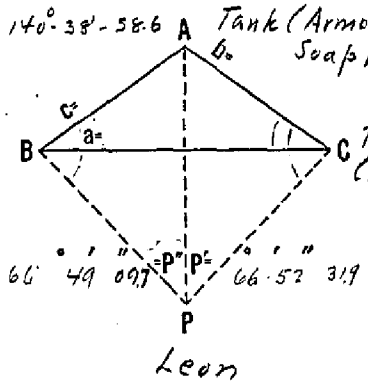
U. S. GOVERNMENT PRINTING OFFICE: 1929 11—11142

Comp by WBB-1
" " G.C.M.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 655
Ed. Sept., 1929

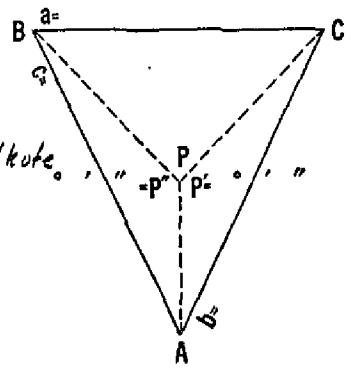
COMPUTATION OF THREE-POINT PROBLEM

Case 1

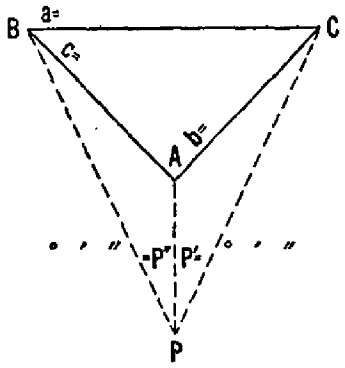


Tank (Knitting Mills

Case 2



Case 3



Cases 1 and 2

P'	66 52 31.9 ✓
P"	66 49 09.7 ✓
A	140 38 58.6 ✓
Sum	274 20 40.2 ✓
½ Sum	137 10 20.1 ✓

Case 3

P'	
P"	
Sum	
A	
A − sum	

S = 180° − ½ sum = 42 49 39.9 ✓ S = ½ (A − sum) =

Log c =	3.2557096 ✓
Log sin P' =	9.9636244 ✓
Colog b =	6.3495989 ✓
Colog sin P" =	0.0365577 ✓
Sum = log tan Z =	9.6054906 ✓
Z =	21 57 28.5 ✓
Z + 45° =	66 57 28.5 ✓
Log cot (Z + 45°) =	9.6287382 ✓
Log tan S =	9.9670377
Sum = log tan ϵ =	9.5957759 ✓ (sign +)
ϵ	21 31 01.3 ✓
S	42 49 39.9 ✓

(Tan ϵ+)		(Tan ϵ−)
S + ϵ = angle ABP	64 20 41.2 ✓	S − ϵ = angle ABP
S − ϵ = angle ACP	21 18 38.6 ✓	S + ϵ = angle ACP

BPA	66 49 09.7 ✓	APC	66 52 31.9 ✓	PCB	10 17 11.9 ✓
ABP	64 20 41.2 ✓	PCA	21 18 38.6 ✓	CBP	36 01 06.5 ✓
PAB	48 50 09.1 ✓	CAP	91 48 49.5 ✓	BPC	133 41 41.6 ✓
	180 00 00 ✓		180 00 00 ✓		180 00 00

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1929
11—9912

Comp by DBB-GCM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

11—9121

COMPUTATION OF TRIANGLES

State: New Jersey

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.2557096 ✓
GB	1 Leon	66 49 09.7 ✓		09.7 ✓		09.7 ✓	0.0365577 ✓
	2 Tank (Knitting Mills)	64 20 41.2 ✓		41.2 ✓		41.2 ✓	9.9549251 ✓
	3 Tank (Armour Soap Wks)	48 50 09.1 ✓	(c)	09.1 ✓		09.1 ✓	9.8766952 ✓
	1-3						3.2471924 ✓ (2)
	1-2						3.1689625 ✓ (1)
	2-3						3.6504011 ✓
	1 Leon	66 52 31.9 ✓		31.9 ✓		31.9 ✓	0.0363756 ✓
	2 Tank (Armour Soap Wks)	91 48 49.5 ✓		49.5 ✓		49.5 ✓	9.9997823 ✓
	3 Tank (Flintkote)	21 18 38.6 ✓		38.6 ✓		38.6 ✓	9.5604155 ✓
	1-3						3.6865590 ✓ (2)
	1-2						3.2471922 ✓
	2-3						3.6504011 ✓
	1 Tank (Knitting Mills)	28 19 34.7 ✓		34.7 ✓		34.7 ✓	0.3237708 ✓
	2 Tank (Armour Soap Wks)	140 38 58.6 ✓		58.6 ✓		58.6 ✓	9.8021311 ✓
	3 Tank (Flintkote)	11 01 26.7 ✓		26.7 ✓		26.7 ✓	9.2815370 ✓
	1-3						3.7763030 ✓
	1-2						3.2557089 ✓ (1)
	2-3						3.7763030 ✓
	1 Leon	133 41 41.6 ✓		41.6 ✓		41.6 ✓	0.1408444 ✓
	2 Tank (Knitting Mills)	36 01 06.5 ✓		06.5 ✓		06.5 ✓	9.7698114 ✓
	3 Tank (Flintkote)	10 17 11.9 ✓		11.9 ✓		11.9 ✓	9.2518152 ✓
	1-3						3.6865588 ✓
	1-2						3.1689626 ✓

Do not write in this margin

Comp. by [illegible]
Ch. by GCM

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

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

— N.A.-1927 —

		°	'	"			°	'	"
α	2 Tank (Knitting Mills) to 3 Tank (Armour Soap Wks)	136	43	57.8 ✓	α	3 Tank (Armour Soap Wks) to 2 Tank (Knitting Mills)	316	43	23.4 ✓
2d ∠	&	+ 64	20	41.2 ✓	3d ∠	&	- 48	50	09.1 ✓
α	2 do to 1 Leon	201	04	39.0 ✓	α	3 do to 1 Leon	267	53	14.3 ✓
Δα		+	00	14.8 ✓	Δα		+	00	49.2 ✓
		180	00	00.0			180	00	00.0
α'	1 Leon to 2 Tank (Knitting Mills)	21	04	53.8 ✓	α'	1 Leon to 3 Tank (Armour Soap Wks)	87	54	03.5 ✓
		66	49	09.7 ✓					

First Angle of Triangle

	°	'	"		λ	°	'	"		°	'	"		λ	°	'	"
φ	40	47	54.88 ✓	2 Tank (Knitting Mills)	λ	74	00	37.29 ✓	φ	40	48	37.41 ✓	3 Tank (Armour Soap Wks)	λ	74	01	29.98 ✓
Δφ	+	00	44.63 ✓		Δλ	+	00	22.64 ✓	Δφ	+	00	02.11 ✓		Δλ	-	01	15.33 ✓
φ'	40	48	39.51 ✓	1 Leon	λ'	74	00	14.65 ✓	φ'	40	48	39.52 ✓	1 Leon	λ'	74	00	14.65 ✓

	Logarithms	Values in seconds
s	3.1689625 ✓	(631.7) ✓
Cos α	9.9699258 ✓	1219.1 ✓
B	8.5107910 ✓	(1850.8) ✓
h	1.6496793 ✓	1st term -44.6354 ✓
s²	6.23792 ✓	
Sin²α	9.11171 ✓	
C	1.34051 ✓	
	6.69014 ✓	2d term +0.00051 ✓
h³	—	
D	—	
	—	3d term + —
		-Δφ -44.6349 ✓

	°	'	"
½(φ+φ')	40	48	17.2 ✓

	Logarithms	Values in seconds
s	3.1689625 ✓	
Sin α	9.5558564 ✓	(1062.9) ✓ 343.4
A'	8.5090979 ✓	(1406.3)
Sec φ'	0.1209788 ✓	
Δλ	1.3548956 ✓	22.641 ✓
Sin½(φ+φ')	9.8152348 ✓	
-Δα	1.1701304 ✓	-14.79 ✓

	Logarithms	Values in seconds
s	3.2471924 ✓	
Cos α	8.5666157 ✓	
B	8.5107900 ✓	
h	0.3245981 ✓	1st term -02.115 ✓
s²	6.49438 ✓	
Sin²α	9.99941 ✓	
C	1.34069 ✓	
	7.83448 ✓	2d term +0.007 ✓
h³	—	
D	—	
	—	3d term + —
		-Δφ -02.108 ✓

	°	'	"
½(φ+φ')	40	48	38.5

	Logarithms	Values in seconds
s	3.2471924 ✓	
Sin α	9.9997047 ✓	
A'	8.5090979 ✓	
Sec φ'	0.1209788 ✓	
Δλ	1.8769738 ✓	75.331 ✓
Sin½(φ+φ')	9.8152867 ✓	
-Δα	1.6922605 ✓	-49.22 ✓

11—9362 U. S. GOVERNMENT PRINTING OFFICE, 1929

Comp by DBG.
✓ " GCM.

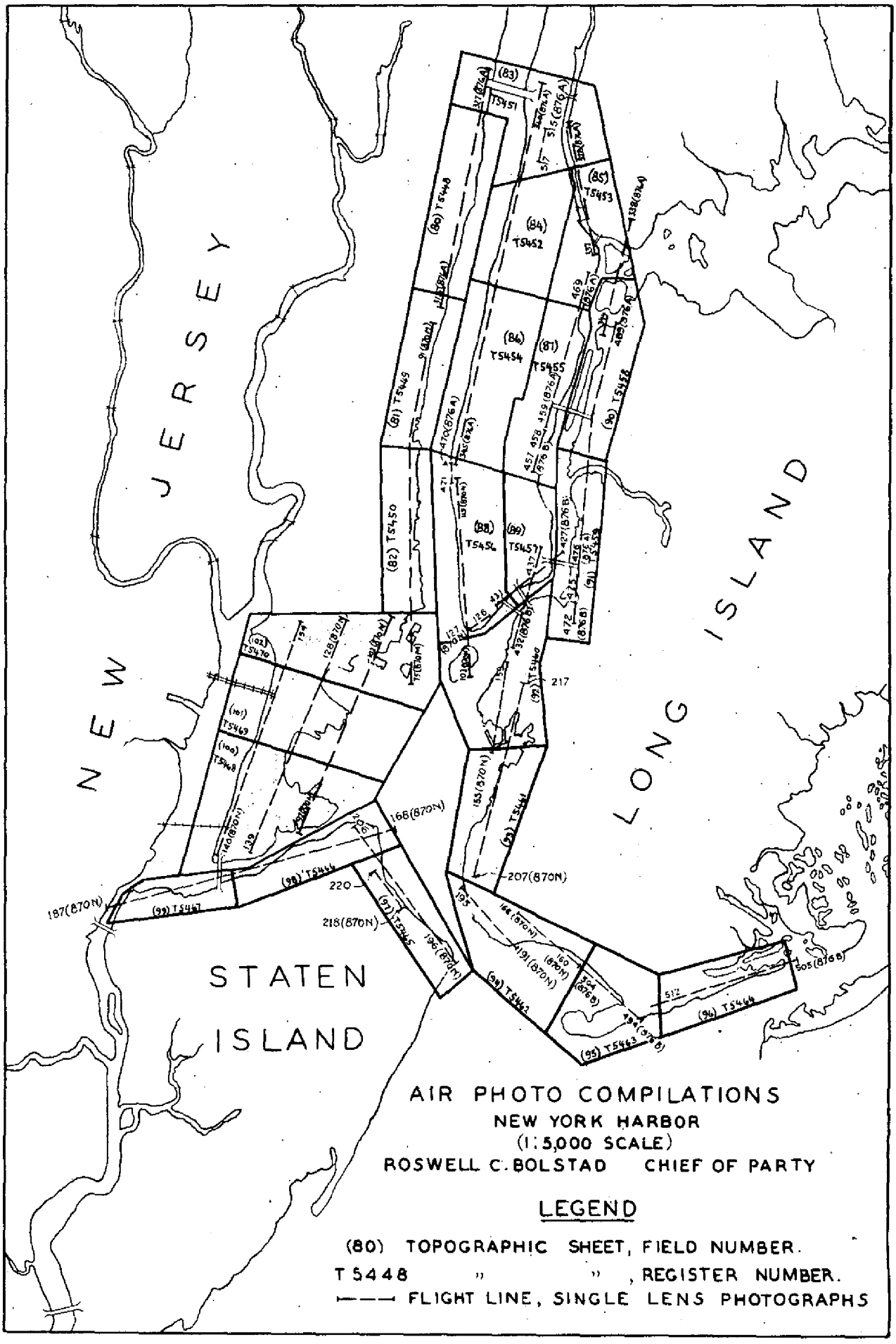
AIR PHOTO FIELD INSPECTION REPORT

for

NEW JERSEY

PART II

SOUTHERN PORTION OF JERSEY CITY AND BAYONNE.



AIR PHOTO COMPILATIONS

NEW YORK HARBOR

(1:5,000 SCALE)

ROSWELL C. BOLSTAD CHIEF OF PARTY

LEGEND

(80) TOPOGRAPHIC SHEET, FIELD NUMBER.

T 5448 " " , REGISTER NUMBER.

——— FLIGHT LINE, SINGLE LENS PHOTOGRAPHS

AIR PHOTO FIELD INSPECTION REPORT

for

A PART OF NEW JERSEY

PART II.

During part of the months of December 1934 and January, February and June 1935, a field inspection was intermittantly made of the single lens photographs (taken by the U.S. Army Air Corps with a K-7C camera) covering the area of New Jersey from the New York Bay on the east to Newark Bay on the west extending from Bedloes Island to Kill van Kull. The area, 11 square statute miles was covered by three members of Party No. 12 (two members at a time), N.Y.C. with U.S.C. & G.S. trucks Nos. 397 and 509.

The compilations of the area covered by this field inspection is shown on air photo topographic sheets numbered as follows:

Reg.No.	Field No.
T5468	100
T5469	101
T5470	102

PHOTOGRAPHS

Flight lines of photographs are indicated on the preceeding index map and the numbers and dates on which the photographs were taken are given below.

SINGLE LENS PHOTOS

V 75-V 78 - 870N-8	Nov. 25, 1934	Approx. 11:00 A.M.
V92-V 102 - 870N-8	Nov. 25, 1934	Approx. 1:00 P.M.
V128-V135 - 870N-8	Mar. 27, 1935	Approx. 11:30 AM.
V140-V154 - 870N-8	Mar. 27, 1935	Approx. 11:30 A.M.

The single lens photogrpahs are contact prints, approximately 1:7,500 scale, taken by the U.S. Army Air Corps. with a new special type camera known as K-7C type, focal length approximately 24".

GENERAL DESCRIPTION OF TOPOGRAPHY

The following general information is given to supplement the notes marked directly on the photographs.

The topography in this area is, on the whole, quite level, rising gradually from New York Bay and Newark Bay, slightly more so at the northern part. The section is quite heavily built up and the water front is well lined with docks and bulkheads, the greatest density being along the Kill van Kull. Several railroads have their freight terminals along New York Bay, among them being

the Pennsylvannia Railroad, the Central Railroad of New Jersey, and the Lehigh Valley Railroad. On Constable Point there are several oil refinery companies, including the Standard Oil Co. of New Jersey, the Tidewater Oil Co. and the Vaccum Oil Co. On Bergen Point are located the plants of the Texas Oil Co. and the Richfield Oil Co. In addition, there are many large industrial plants in this area.

CONTROL

(1) Triangulation

The triangulation performed by Lieut. R.W. Woodworth from 1930 - 1933 forms a basis for the control in this area. The positions of the main scheme stations are listed in the portfolio of the final office adjusted positions on N.A. 1927 Datum. For intermediate stations, the field positionscomputations amy be converted to N.A. 1927 Datum by applying a correction determined by comparison of common stations (Correction to Lieut. Woodworth's positions - Lat. -12.0 m., Long. -3.5 m.)

(2) Topography

The plane table topographic sheets,of Lieut. I.E. Rittenberg, Sept. and October 1934, sheet numbers T6124 to T6127 inclusive may also be used for control.

(3) U.S. Engineer Department Stations

Many U.S.E.D. stations were recovered and spotted on the photographs. Descriptions of these stations are submitted on Form 524, herewith.

(4) Railroad Data

Blueprints of railroad data, of use to the detailer, have been obtained and are available for all the yards and important trackage in this area.

(5) Stations Spotted on Photographs

Number of stations spotted:-

Triangulation	56
Topographic	65
U.S.E.	14
Total	135

Recovery cards (Form 526) have been written for the triangulation stations visited, where the stations were lost or the descriptions were inadequate.

All stations visited were spotted on the photographs.

NAMES

No new names differing from those given on existing U.S. C. & G.S. charts were obtained.

BRIDGES

The four bridges of importance to navigation in this area,

namely the Bayonne Bridge over the Kill van Kull, the Central Railroad of New Jersey Bridge and the Lehigh Valley Railroad and Pennsylvannia Railroad Bridge (jointly operated) both over Newark Bay, and the Central Railroad of New Jersey Bridge over the Hackensack River are all adequately covered in the Coast Pilot for this region.

COAST PILOT NOTES

No discrepancies or additions for the Coast Pilot Notes have been noted by this field inspection party.

RECOVERABLE OBJECTS

Descriptions were made on Form 524 of all recoverable objects which have been spotted on the photographs. The positions will be determined by the air photo radial plot and noted on the cover-sheets. Also a list of positions will be included in the descriptive report accompanying each compilation sheet.

LANDMARKS

The major (chartable) landmarks have been previously submitted and cut in as triangulation stations. A list was submitted by Lieut. R.W. Woodwarth 1930-1933.

Any landmark list which may have been submitted by Lt. Rittenberg, while conducting the 1934 field operations in this locality, has not been submitted for this party's use.

CHANGES

Very few changes have occurred in the topographic detail since the dates that these photographs were taken (Nov. 1934 and March 1935).

Submitted by,

D.B. Bennett

D.B. Bennett, Draftsman

D.B. Bogart

D.B. Bogart, Draftsman

J.B. Moreland

J.B. Moreland, Draftsman

June 26, 1935

COMPILER'S REPORT

for

COMPILATION, FIELD NO. 80.

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. 80

REGISTER NO. T-5448.

State New Jersey

General locality Hudson River

Locality Edgewater

Scale 1:5,000 * Date of ~~survey~~ photographs - Nov. 25, 1934, 19
Date of compilation - Feb. 24, 1936

Vessel Air Photo Compilation Party No. 12.

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

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

Inked by D. B. Bennett & R. C. Bolstad.

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

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

Instructions dated November 15th., 1932

Remarks: Compiled on a scale of 1:5,000 and printed by photo-lithography.

* Blueprint enlargement from 1:~~10~~ 5000

- STATISTICS -

On

COMPILATION, FIELD NO. 80, REGISTER NO. T-5448.

Photograph Numbers	Date	Time
316 - 325 (876A-8)	Nov. 25, 1934	10:52 A.M.

Stage of Tide - - Taken at Mean High Water.

	By	Date From	To
SCALE FACTOR (1.000)	R.C.Bolstad (Previously determined)		
PROJECTION	D.B.Bennett D.B.Bennett	3/13/35	
PROJECTION CHECKED	J.P.O'Donnell J.P.O'Donnell	3/13/35	
CONTROL PLOTTED	D.B.Bennett D.B.Bennett	3/15/35	
CONTROL CHECKED	R.H.Peckworth R.H.Peckworth	3/16/35	
TOPOGRAPHY TRANSFERRED	None		
TOPOGRAPHY CHECKED	None		
SMOOTH RADIAL LINE PLOT	D.B.Bennett D.B.Bennett	3/17/35 - 4/2/35	
RADIAL LINE PLOT CHECKED	W.E.Hackett H.L.Hawkins W.E.Hackett & H.L.Hawkins	4/3/35 & 6/15/35	
DETAIL INKED	D.B.Bennett D.B.Bennett R.C.Bolstad R.C.Bolstad	4/4/35 - 4/30/35 2/17/36 - 2/24/36	
PRELIMINARY REVIEW OF SHEET	R.C.Bolstad R.C.Bolstad	2/24/36 - 2/28/36	

AREA OF DETAIL INKED 4.8 Sq. Statute Miles (land area).

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

LENGTH OF SHORELINE (more than 200 m. from nearest opposite shore) 7.4 Statute Miles.

LENGTH OF SHORELINE (rivers, sloughs, etc. less than 200 m. wide) (including docks) 4.6 Statute Miles.

LENGTH OF STREETS, ROADS, TRAILS, RAILROADS, ETC. 77.0 Statute Miles.

DATUM North American 1927. (Final adjusted)

STATION Absolutely (U.S.E.) 1932 Latitude 40°-48'-20.470" (631.4 m.)

Longitude 73°-59'-04.588" (107.5 m.)

New York System of Plane Coordinates

Long Island Zone x = [illegible]

y = [illegible]

New Jersey System of Plane Coordinates

x = 2,188,823.95

y = 719,182.00

COMPILER'S REPORT
for
AIR PHOTO TOPOGRAPHIC SHEET, FIELD NO. 80.

GENERAL INFORMATION.

The Air-photo Field Inspection Report for New Jersey, Part 1, Hudson River, George Washington Bridge to Bedloes Island, attached herewith, furnished the necessary information for the compilation of this sheet. As this sheet was compiled principally by Mr. Bennett who performed the field inspection of this locality additional questions regarding detail have been clarified and correctly shown on this compilation.

This sheet has been compiled from a single strip of single lens photographs, numbers 316 to 325 (876A-8), taken Nov. 25, 1934 at 10:52 am. which is at practically mean high water. The photographs were taken by the U.S. Army Air Corp at Mitchell Field, L.I., N.Y. with a special camera recently developed by the Fairchild Aerial Camera Corporation, 62-10 Woodside Ave., Woodside, New York City and the cooperation of the Air Corp. Inasmuch as these photographs were among the first to be taken with this camera mechanical difficulties were encountered which caused considerable trouble at first and in some cases, due to the short interval of time between exposures, affected the photo overlap and tilt. The camera is known as the "K-7C" by the Army and as the "K-7A" by the Fairchild Corporation. The Army plane was piloted by Lieut. Cullen at an altitude very close to 15,000 feet; the photographer was Sergeant Cates. A 24 inch cone (focal length 24") was used which placed the original negatives on a scale of 1:7,500. Contact prints were furnished the field party for inspecting purposes and the original negatives were used to enlarge a set of office prints to a 1:5,000 scale in the Washington Office. These office prints were furnished this party and were used for the compilation of this sheet.

CONTROL.

(a) Sources.

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

(1) Triangulation, 1932, Lt. Woodworth (Office Adjusted).
(2) Theodolite-observed control station "LEON", 1935, Lt.(j.g.) Bolstad. (See form 524).
(3) Theodolite-taped traverse, 1935, by Lt.(j.g.) Bolstad. (See page 4.)
(4) U.S.E.D. stations as listed on page 7, and described on form 524 submitted with this report.

(b) Errors.

No error in any of the above control established by this Bureau was discovered. There were a few small errors discovered in the locations of the U.S.E.D. stations, item 4 above. (See following paragraph for details.)

(c) Discrepancies.

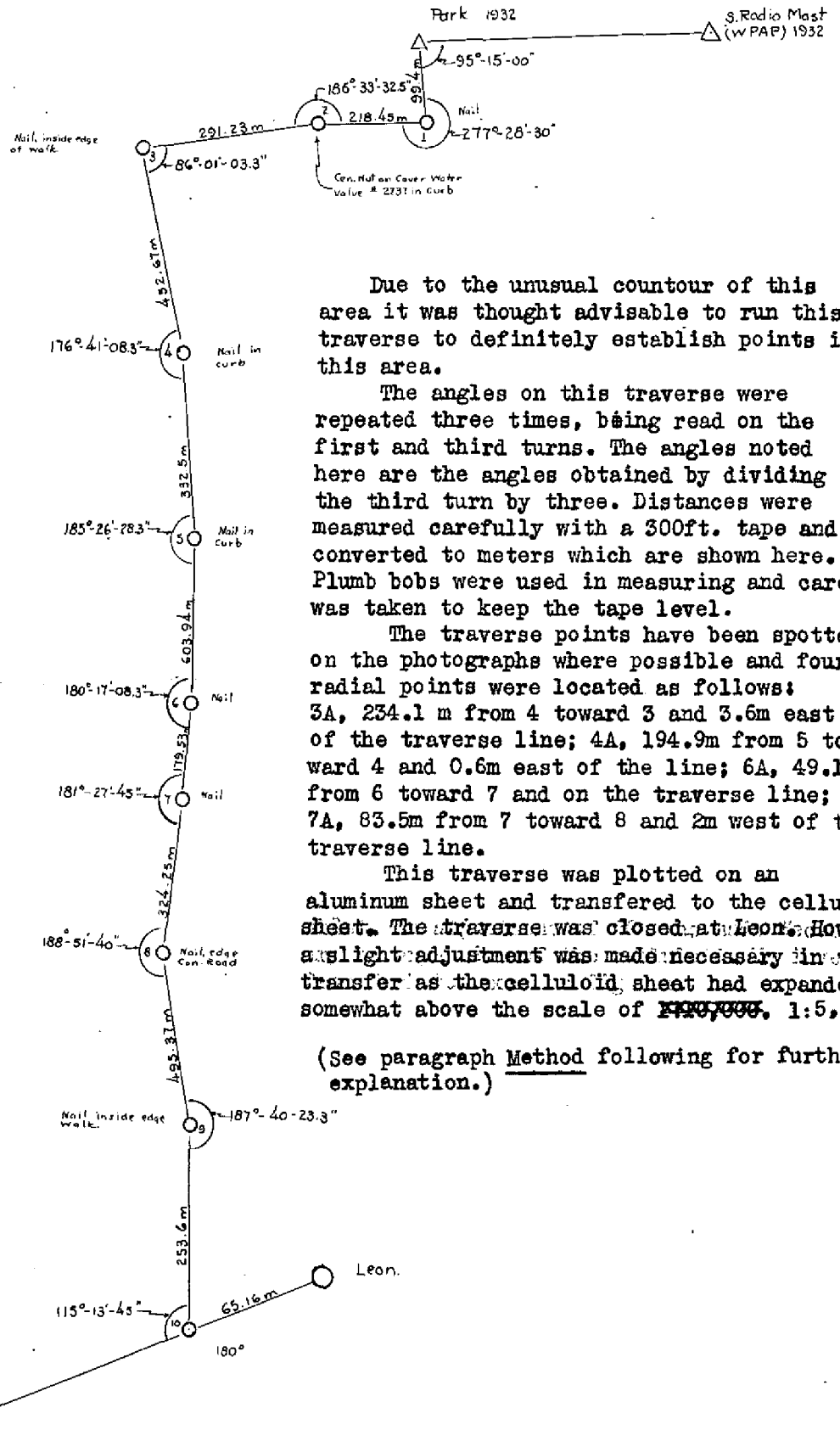
No errors in the U.S.E.D. stations were discovered in making the radial plot except for the two stations mentioned below.

◎ R.C.N.J. Ref. Mon. - new position as determined by the photo plot and shown on this sheet, lies 1½ meters on azimuth 280° (from north) from the U.S.E.D. position.

Ⓟ Progress - new position as determined by the photo plot and shown on this sheet, lies 1 meter distant on azimuth 110° (from north) from the U.S.E.D. position.

See following paragraph Method for further explanation.

TRAVERSE FOR ADDITIONAL CONTROL AT THE JUNCTION OF SHEETS 80 and 64.



Due to the unusual countour of this area it was thought advisable to run this traverse to definitely establish points in this area.

The angles on this traverse were repeated three times, being read on the first and third turns. The angles noted here are the angles obtained by dividing the third turn by three. Distances were measured carefully with a 300ft. tape and converted to meters which are shown here. Plumb bobs were used in measuring and care was taken to keep the tape level.

The traverse points have been spotted on the photographs where possible and four radial points were located as follows: 3A, 234.1 m from 4 toward 3 and 3.6m east of the traverse line; 4A, 194.9m from 5 toward 4 and 0.6m east of the line; 6A, 49.1m from 6 toward 7 and on the traverse line; 7A, 83.5m from 7 toward 8 and 2m west of the traverse line.

This traverse was plotted on an aluminum sheet and transfered to the celluloid sheet. The traverse was closed at Leon. However a slight adjustment was made necessary in the transfer as the celluloid sheet had expanded somewhat above the scale of ~~1:10,000~~, 1:5,000.

(See paragraph Method following for further explanation.)

COMPILATION.

(a) Method.

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

Due to the fact that the photographs taken by this type camera are rectangular in shape and offer greater chances for improper azimuth orientation, the U.S.E.D. stations and the theodolite-taped traverse mentioned in paragraph CONTROL, Sources were used to control the plot in addition to the triangulation. The U.S.E.D. stations, as listed in the back of this report, were plotted on an aluminum sheet from their coordinate values. The coordinate positions of the 1932 triangulation stations "Edgewater (U.S.E.)" and Absolutely (U.S.E.)" were also plotted on this sheet. In order to make certain of a proper tie-in on the celluloid compilation sheet the coordinate position of triangulation station "Park 1932" was computed and found to be N 17,529 ft., W 8061 ft. This coordinate position of "Park" was then plotted on the 1:5,000 scale coordinate grid on the aluminum sheet. The celluloid sheet (1:5,000 scale) was then placed over the aluminum coordinate sheet and the positions of the three common stations placed in agreement. (All three stations as plotted on the coordinate grid agreed with the geographical positions as plotted on the celluloid compilation sheet within a few tenths mm.). The positions of the remaining U.S.E.D. stations were then pricked off on the compilation sheet and were used in controlling the plot. However, this position was not accepted without falling in agreement with the plot. The two stations listed in the preceeding paragraph DISCREPANCIES were found by the photo plot to be slightly in error. The spotting of station R.C.N.J. Ref. Mon. may have caused this slight discrepancy however station Progress is correctly spotted as can be verified by the description given on form 524 submitted herewith.

Because of the weak radial intersections obtained along the inshore side (Westerly) of this compilation where a junction is made with compilation, field no. 64 the theodolite-taped traverse as listed on page 4 was made to strengthen this area.

(b) Adjustments of Plot.

No unusual adjustments of the photo plot were necessary. The difficulty at first encountered of making an agreement in area of junction with compilation no. 64 was due to the weak intersecting radials at the outer extremities of the photographs. These radials gave a strong North-South location but somewhat weak in an East-West direction. The traverse (see page 4) has eliminated this error.

(c) Interpretation.

No difficulty was experienced in interpreting the photographic detail, the detailer, Mr. Bennett, having performed the field inspection of the area. It may be that some pileing and dolphins, wrecked barges, and building outlines in shadows have been missed or shown slightly in error due to the complicacy of detail. However, an earnest endeaver was made to avoid any errors and it is beleived the compilation is complete and correct.

The usual graphic symbols were used as approved by the Board of Surveys and Maps (1932) with the exception of the following;

At lat. 40°-50.2', long. 73°-58.3' a small brook is piped through a culvert and has been indicated thus — · — · — · — · — .

There are many wrecked barges in this area; they are usually above the mean high water. They have been shown by a broken line (dash) symbol to indicate the actual boundaries. Adequate notes have been placed on the overlay sheet calling attention to these.

The crest of the bluff, when definate, has been shown thus ᵐᵐᵐᵐᵐᵐᵐᵐ with the longer slope dashes indicating a greater drop in elevation. When the crest becomes somewhat doubtful or indefinate the dashed line has been used.

In the vicinity of lat. 40°-50.5', long. 73°-58.1' there are two streams which are intermittent, flowing only during the rainy season or during period of melting snow. They have been shown thus —·—·—·—·— .

Pileing and dolphins have been shown by a very small circle and labeled on the overlay sheet. This area is subject to change and therefore pileing and dolphins shown on this compilation are those indicated by the field inspection party on the field prints and those appearing when viewed under the steroscope; it is suggested that field verification of this compilation may show other piles and dolphins now in this area.

The houses, buildings and oil tanks shown on this compilation include only the waterfront area (except other inland prominent buildings) or area of visibility from the river. Adequate labels on the overlay sheet provide for the omitted buildings. No attempt has been made to show latrines, small woodsheds, garages, etc. Due to shadows small porches, bays, etc. on some of the buildings may have been omitted and therefore will not conform strictly to plan view; there is no remedy except to obtain photos with the sun at higher altitudes. At lat. 40°-49.5', long. 73°-58.5' a group of buildings in the shadows has been omitted on this compilation. However these will not be visible from the waterfront as there are large building in front.

At lat. 40°-50.2', long. 73°-58.2' a short dashed line leading out to an isolated dock indicates the northerly limit of old wooden junk which may offer some connection to the otherwise isolated dock. A study under the stereoscope failed to clarify and Mr. Bennett is no longer with the party due to shut-down because of lack of funds. Also at lat. 40°-50.4', long. 73°-58.1' a dock is shown with the outer extremities surrounded by a dashed line which indicates junk, trash and piles, and further information from Mr. Bennett is not available.

(d) Information from Other Sources.

The only information obtained from other sources than the photos was obtained by Mr. Bennett, the compiler of this sheet, who conducted the field inspection and made notes on the field prints.

Railroad track traverse data aided in detailing the correct track layout in complicated areas.

(e) Names.

All geographical names shown on this compilation have been listed on the special forms in the back of this report.

COMPARISON WITH OTHER SURVEYS.

(a) Junctions

This compilation joins 1-5,000 scale compilations T-5451 on the north and T-5449 on the south. At its western limits it makes junction with the 1-10,000 scale compilation T-5278. All junctions are in proper agreement.

(b) Discrepancy with Compilation T-4568.

A comparison of the two compilations shows numerous discrepancies which is for the most part due to inadequate control of the 1931 compilation. Since compilation T-4568 is also on a 1-5,000 scale it may be placed directly under this celluloid compilation and the discrepancies readily observed (Conversion to N.A. 1927 datum will be required).

(c) Discrepancy with Chart 746.

A comparison of this compilation with the present edition of chart no. 746 reveals that practically all the detail shown on chart 746 is out of position. Part of this error is due to datum change; however, when the landmarks of chart 746 (triangulation stations) are made to coincide with the celluloid compilation (photographic negative on 1-10,000 scale used for comparison) positions, it is noted that the waterfront detail is in error in places as much as 22 meters. This is particularily true of the Ford Motor Company pier and also detail S.E. of the radio towers (WPAP).

On chart 746 there are many water areas shown clear, without obstructions, which are now badly fouled with wrecked barges.

Chart 746 also shows a slope (form lines) in place of the very definate bluff, the crest-line of which has been shown on the compilation.

LANDMARKS.

The list of landmarks for the area covered by this compilation were previously submitted, Feb. 22, 1933, by Lieut. Woodworth. No changes in these landmarks are recommended. These landmarks have been shown on chart 746 and can be clearly seen on the photographs; they are all 1932 triangulation stations by Lt. Woodworth.

LIST OF RECOVERABLE STATIONS

The following tabulation lists all recoverable objects shown on this compilation by a small ($2\frac{1}{2}$ mm. diam.) black circle. They have been located by the photo plot and cards, form 524, are herewith submitted for all objects ~~except~~ also R.C.N.J. Ref. Mon. (which is a witness mark for former triangulation station WAT).

NAME	LATITUDE	LONGITUDE
R.C.N.J. Ref. Mon.	40°-50'- 1085 m.	73°-57'- 1371 m.
U.S. Mon. 27 (U.S.E.)	-50.3'	-58.2'
U.S. Mon. 25 (U.S.E.)	-49.8'	-58.3'
Station 22 (U.S.E.)	-49.4'	-58.5'
U.S. Mon. 22a (U.S.E.)	-49.0'	-58.8'
Sounding Sta. OLE (U.S.E.)	-49.0'	-58.6'
U.S. Mon. 21 (U.S.E.)	-48.8'	-59.2'
Coal (U.S.E.)	-48.7'	-58.8'
Sounding Sta. PIER NO. 1 (U.S.E.)	-48.3'	-59.1'
U.S. Mon. 20 (U.S.E.)	-48.5'	-59.6'
Progress (U.S.E.)	-47.9'	-59.5'
LEON ***	-48.7'	74°-00.3'

NOTE:- *** Located by theodolite three-point fix (See form 524 also Part 1 of Field Inspection Report.)

BRIDGES.

There are no bridges of importance to navigation within the area of this compilation.

RECOMMENDATIONS FOR FURTHER SURVEYS.

The compilation of this sheet is beleived to have a probable error of not over 1 meter in position for well defined waterfrontdetail of importance for charting, not over 2 meters for other waterfront detail and not to exceed 3 meters for inland detail.

This compilation is beleived to be complete in all detail of importance for charting purposes, within the accuracy stated above, and no additional surveys are required.

Submitted by-

Feb. 28th, 1936.

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

	Remarks	Decisions
1	See map (1) for city limits. City name derived from former fort name.	
2	See map (1) for city limits.	
3	See map (1) for city limits.	
4	See map (1) for city limits.	
5		
6		
7	Local New Yorkers, particularily commercial concerns, steamship companies, etc., always refer to "NORTH RIVER"; name "Hudson River" very seldom used by them.	
8	** Does not appear to be well established.	
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		

GEOGRAPHIC NAMES

Survey No. T-5448.

Air-photo Compilation.

746

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F	G P. O. Guide or Map	H Rand McNally Atlas	K T 5447 U.S. Light List / Hwy. Maps.	
Fort Lee	x		x	2 men x	(2)* (1)*				(3)*	1
Edgewater	x		x	3 men x	(1)* (2)*				(3)*	2
Cliffside Park				2 men x	(1)* (2)*			*	(3)*	3
Fairview			x		(1)* (2)*				(3)*	4
North Hudson Park					(1)* (2)*					5
Palisades Amusement Park				3 men x				*		6
Hudson River	x		x	3 men x**	(1)* (2)*				(3)*	7
~~Shadyside~~ **	x		x					*		8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

* LEGEND:- (1)- -From the Port of New York Authority Railroad Terminal Map of New York Harbor.

(2)- -From the Map of the City of New York, Board of Estimate and Apportionment, 1933.

(3)- -From the New Jersey State Board of Commerce and Navigation Highway Map, 1934.

Names underlined in red approved on 5/8/36 A.C.R.V.

M 234

REVIEW OF AIR PHOTO COMPILATION T 5448
Scale 1:5,000

Comparison with Graphic Control Surveys

There are no graphic control surveys in this area.

Comparison with Previous Topographic Surveys

T 4554 (1930), 1:5,000

T 4554 covers the area on the compilation from a line just north of the 125th St. Ferry northward past the limits of the sheet.

Detail is in agreement within about 5 meters and much better in places. Agreement is within 1 or 2 meters for points used for topographic stations. Considerable cultural change has taken place in this area and the compilation is adequate to supersede T 4554 in all points of detail throughout the area common to the two surveys.

T 3151 (1911), 1:10,000

T 3151 consists of corrections and additions made on a printed copy of chart No. 369^{8}. There are no major conflicts that cannot be explained as cultural changes. The compilation is adequate to supersede T 3151 in all points of topographic detail throughout the area common to the two surveys.

T 4568 (1931), 1:5,000

T 4568 is an early air photo compilation. The greatest discrepancy noted is in the position of the top of the Palisades bluff which disagrees by about 6 meters in one place. At this point is a triangulation station which was not available to the compiler of T 4568 and T 5448 is therefore accepted as correct. Agreement in general is within 3 meters. The recent compilation, being of later date, better supplied with control, and made from better photographs, is accepted as correct.

Comparison with Contemporaneous Hydrographic Surveys

There are no hydrographic surveys contemporaneous with the compilation, the latest hydrographic survey having been made in 1885.

Comparison with Chart No. 746

The statement on page 7 of the preceding descriptive report, paragraph (c), "Discrepancy with Chart 746", covers the case in hand. The

Note The hachured lines on this compilation represent the ~~top~~ of the bluffs. Examination of the photographs shows numerous minor errors in the contours shown in this area on the present chart 746. ~~It~~ These contours are from old surveys and there have been numerous changes due to construction. It is recommended that the contours be removed from chart 746 and replaced by the bluff lines shown on this compilation and on T 5449, and T 5451 which cover the west shore for the full extent of the chart. New compilations are being made along the East shore in ~~the~~ the area of chart 746 but are not yet in the office.

BGG

discrepancies are so numerous that no attempt is made to go into detail in discussing them. Practically a complete redrawing of this area on chart No. 746 will be necessary in order to apply the corrections. A very careful study of both field and office photographs has been made to insure that all possible detail has been taken from them. Very few additions were necessary. See also opposite page

The wreck shown at the end of a group of old barges (lat. 40° 49.9', long. 73° 58.3') cannot be seen on the photographs and is not shown on the compilation. Its existence, however, is not disproved.

Landmarks, Lights and Beacons

All landmarks charted in this area are shown on the compilation. There are no non-floating aids to navigation in this area.

Accuracy

Except for the extreme northwest corner of the sheet where control is sparse, the radial plot is well controlled. An unusually large number of points has been intersected by the plot so as to enable the draftsman to overcome the position displacements and scale fluctuations due to the difference of elevation that has occurred on the sheet due to the beginnings of the Hudson River Palisades. The photographs are clear and as true to scale as is possible with the difference in elevation that occurs here (over 300 feet in places). Experience in this office has taught that, even with careful plotting and good photographs, it is not practicable in general to depend on positions much closer than 0.2 mm. to 0.5 mm. for intersected points and 0.2 mm. to 0.8 mm. for traced detail. The above figures constitute a better statement of the accuracy of the compilation than that given on page 8 of the preceding report. The intersected points are so closely spaced along the waterfront that the waterfront detail in general can probably be said to be shown with accuracy equal to intersected points.

Ralph M. Berry

Apr. 22, 1936. Ralph M. Berry

B.G. Jones

The New Jersey and New York (long inland zone) systems of State Coordinates are shown on this compilation. Computations are enclosed at back of this report. Computations made by Division of Geodesy. Positions plotted by R.M. Berry and checked by J.A. McGann Grids drawn on Projection Ruling Machine. The reason for showing both grids on this compilation is discussed on page 2 of Review T 5458

BGJ

REVIEW OF AIR PHOTO COMPILATION NO. T-5448

Chief of Party: Roswell C. Bolstad Compiled by: (See STATISTICS SHEET).

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

✓1. The charts of this area have been examined and topographic information necessary to bring the charts up to date is shown on this compilation. (Par. 16a, b,c,d,e,g and i; 26; and 64)

✓2. Change in position, or non-existence of wharfs, lights, and other topographic detail of particular importance to navigation which affect the chart, is discussed in the descriptive report. (Par. 26; and 66 g,n)

✓3. Ground surveys by plane table, sextant, or theodolite have been used to supplement the photographic plot where necessary to obtain complete information, and all such surveys are discussed in the descriptive report. (Par. 65; and 66 d,e)

✓4. Blue-prints and maps from other sources which were transmitted by the field party contain sufficient control for their application to the charts. (Par. 28)

✓5. Differences between this compilation and contemporary plane table and hydrographic surveys have been examined and rectified in the field before forwarding the compilations to the office and are discussed in the descriptive report.

✓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 ~~marsh 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) None shown on this sheet.

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

✓ See page. 7.

✓10. A list of landmarks was furnished on Form 567 and instructions in the Director's letter of July 16, 1934, Landmarks for Charts, complied with. (Par. 16d, e; and 60) ✓ See page 7.

✓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 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 (adjusted) 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: Due to the shut-down of party operations in July 1935 because of insufficient funds Mr. D.B.Bennett, the compiler of this sheet, was not available for writing the COMPILER'S REPORT herewith submitted. It has been written by the reviewing officer.

18. Examined and approved;

Roswell C. Bolstad, Jr.H.& G.Engr.,
Chief of Party

19. Remarks after review in office:
See preceding review report.

Reviewed in office by: Ralph Moore Berry ✓ B.G. Jones

Examained and approved:

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

Fred. L. Peacock
Chief, Section of Field Work

L.O. Colbert
Chief, Division of Charts

G Rude
Chief, Division of Hydrography and Topography.

T-5448

Plane coordinates on Lambert projection

State L. Island Station Absolutely (U.S.E.) 1932

ϕ = 40° 48′ 20.470 λ = 73° 59′ 04.588

Tabular difference of R for 1″ of ϕ = 101.20267

R (for min. of ϕ)		24,253,248.71	y′ (for min. of ϕ)			209,296.59
Cor. for sec. of ϕ		− 2,071.62	Cor. for sec. of ϕ			+ 2071.62
R		24,251,177.09	y′			211,368.21
			y″ (=2R $\sin^2 \frac{\theta}{2}$)			+ 0.37
θ (for min. of λ)		+ 0° 00′ 39.24493	y			211,368.58
Cor. for sec. of λ		− 3.00093				+834.3 −384.9
θ		36.24400	$\frac{\theta}{2}$			° ′ ″
θ''	For machine computation	″		For machine computation		
			log θ''			1.55923612
log θ''		1.55923612	colog 2			9.69897000
S for θ		4.68557486	S for $\frac{\theta}{2}$			4.68557487
log sin θ	sin θ		log sin $\frac{\theta}{2}$	sin $\frac{\theta}{2}$		5.94378099
log R		7.38473282		R sin $\frac{\theta}{2}$		
log x′		3.62954380	log $\sin^2 \frac{\theta}{2}$	R $\sin^2 \frac{\theta}{2}$		11.88756198
x′	R sin θ	+ 4,261.32	log R			7.38473282
		2,000,000.00	log 2			0.30103000
x		2,004,261.32	log y″			9.57332480
		+159.3 −1059.8				

$x = 2{,}000{,}000.00 + R \sin \theta$

$y = y' + 2R \sin^2 \frac{\theta}{2}$

y′ = the value of y on the central meridian for the latitude of the station

S = log of ratio for reducing arc expressed in seconds to sine (see log tables)

R, y′, and θ are given in special tables

(R 340)

T-5448

Geodetic positions from transverse Mercator coordinates

State N. J. Station Intersection

x	2,188,000.00	$\log S_g$	5.27415201
C	2	log (1200/3937)	9.48401583
x' (=x−C)	+188,000.00	log (1/R)	+ 1086
$x'^3/(6\rho_o^2)_g$	− 2.53	$\log S_m$	4.75817870
S_g	+187,997.47	cor. arc to sine	− 582
		$\log S_1$	4.75817288
$\log S_m^2$	9.516357	log A	8.50909749
log C	1.340934	log sec φ	0.12106678
log Δφ	0.857291	$\log \Delta\lambda_1$	3.38833715
		cor. sine to arc	+ 1017
y	726,000.00	$\log \Delta\lambda$	3.38834732
φ'(by interpolation)	40° 49' 35."0988	Δλ	2445."385
Δφ 1406.0 .46500	− 7.1993	λ (central mer.) 1850.8	74° 40' "
φ 653.8 860.16	40 49 27.900	Δλ .24358	40 45.385
	+1721.2m	λ 450.8 342.5	73 59 14.615
	=129.6		+685.0m
			−721.0m

Station Intersection

x	2,188,000	$\log S_g$	5.27415201
C	2	log (1200/3937)	9.48401583
x' (=x−C)	+188,000.00	log (1/R)	+ 1086
$x'^3/(6\rho_o^2)_g$	− 2.53	$\log S_m$	4.75817870
S_g	187,997.47	cor. arc to sine	− 582
		$\log S_1$	4.75817288
$\log S_m^2$	4.516357	log A	8.50909693
log C	1.341268	log sec φ	0.12121062
log Δφ	0.857625	$\log \Delta\lambda_1$	3.38848043
		cor. sine to arc	+ 1018
y	734,000.00	$\log \Delta\lambda$	3.38849061
φ'(by interpolation)	40° 50' 54."1494	Δλ	2446."192
Δφ 1405.6 2/18242	− 7.2049	λ (central mer.) 1850.8	74° 40' "
φ 397.0 522.7	40 50 46.945	Δλ .23013	40 46.192
	40° 50' 30" +1045.4	λ 425.9m 323.5	73 59 13.808
	− 805.4		+647.0 m
			−758.6 (M-29)

(over)

Explanation of form:

$$x' = x - C$$

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

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

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.) $- \Delta\lambda$

T-5448

Geodetic positions from transverse Mercator coordinates

State N. J. Station Intersection

x	2,182,000	$\log S_g$	5.26006590
C	2	log (1200/3937)	9.48401583
x' (=x−C)	+182,000	log (1/R)	+ 1086
$x'^3/(6\rho_o^2)_g$	− 2.30	$\log S_m$	4.74409259
S_g	181,997.70	cor. arc to sine	− 546
		$\log S_1$	4.74408713
$\log S_m^2$	9.488185	log A	8.50909804
log C	1.340599 −10	log sec φ	0.12092387
log Δφ	0.828784	$\log \Delta\lambda_1$	3.37410904
		cor. sine to arc	+ 953
y	718,000.00	$\log \Delta\lambda$	3.37411857
φ' (by interpolation)	40° 48′ 16.0480	Δλ	2366.376
Δφ 1406.5 .15510 287.1	− 6.7419	λ (central mer.) 1850.8	74° 40′ "
φ	40 48 09.306	Δλ .85723 1059 80.5	39 26.564
	+574.2	λ	74 00 33.434
	−1276.6		74° 00′ 30" +161.0 −1245.5

Station Intersection pv

x	2,188,000	$\log S_g$	5.27415201
C	2	log (1200/3937)	9.48401583
x' (=x−C)	+188,000.00	log (1/R)	+ 1086
$x'^3/(6\rho_o^2)_g$	− 2.53	$\log S_m$	4.75817870
S_g	187,997.47	cor. arc to sine	− 582
		$\log S_1$	4.75817288
$\log S_m^2$	9.516357	log A	8.50909805
log C	1.340599	log sec φ	0.12092305
log Δφ	0.856956	$\log \Delta\lambda_1$	3.38819398
		cor. sine to arc	+ 1017
y	718,000.00	$\log \Delta\lambda$	3.38820515
φ' (by interpolation)	40° 48′ 16.0480	Δλ	2444.585
Δφ 1406.5 .14757 273.1	− 7.1938	λ (central mer.) 1850.8	74° 40′ "
φ	40 48 08.854	Δλ .25692 475.5 361.4	40 44.585
	+546.2 m	λ	73 59 15.415
	−1304.6		+722.8 m −683.7 (M 29)

(over)

Explanation of form:

$$x' = x - C$$

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

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

R = scale reduction factor

ϕ' is interpolated from table of y

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

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

$\Delta\lambda_1 = S_1 \dot{A} \sec \phi$

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

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

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

T-5448

Geodetic positions from transverse Mercator coordinates

State N. J. Station Intersection X

x	2,194,000	log S_g	5.28779550
C	2	log (1200/3937)	9.48401583
x' (=x−C)	+194,000.00	log (1/R)	+ 1084
$x'^3/(6\rho_o^2)_g$	− 2.78	log S_m	4.77182219
S_g	+193,997.22	cor. arc to sine	− 620
		log S_1	4.77181599
log S_m^2	9.543644	log A	8.50909694
log C	1.341268	log sec ϕ	0.12120977
log $\Delta\phi$	0.884912	log $\Delta\lambda_1$	3.40212270
		cor. sine to arc	+ 1084
y	734,000.00	log $\Delta\lambda$	3.40213354
ϕ'(by interpolation)	40° 50' 54."1494	$\Delta\lambda$	2524."257
$\Delta\phi$ 1405.6	− 7.6721	λ (central mer.) 1850.8	74° 40' "
ϕ 7.77462 3506.0 508.3	40 50 46.477	$\Delta\lambda$ 42.1290 7941 603.1	42 04.257
	40° 50' 30" + 1016.6	λ	73 57 53.743
	− 834.2		73° 57' 30" + 1206.2
			− 199.4

Station

x		log S_g	
C		log (1200/3937)	9.48401583
x' (=x−C)		log (1/R)	
$x'^3/(6\rho_o^2)_g$	−	log S_m	
S_g		cor. arc to sine	−
		log S_1	
log S_m^2		log A	
log C		log sec ϕ	
log $\Delta\phi$		log $\Delta\lambda_1$	
		cor. sine to arc	+
y		log $\Delta\lambda$	
ϕ'(by interpolation)	° ' "	$\Delta\lambda$	"
$\Delta\phi$	−	λ (central mer.)	° ' "
ϕ		$\Delta\lambda$	
		λ	

(M-29)

(over)

Explanation of form:

$$x' = x - C$$

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

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

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.) $- \Delta\lambda$

T-5448

Geodetic positions from Lambert coordinates

State Ky – L.I. Station Intersection 1

x	1,198,000,00	$R_b + A$	24,462,545.30
C	2	y	210,000,00
x' (= x – C)	– 20000.00	$R_b + A - y$	24,252,545.30
tan θ	0.000082465557	R	
θ	0° 00′ 17.″00974		
		y	210,000,00
$\frac{\theta}{\ell}$ (= Δλ)	26,006	y″	– 0.08
		y′	209,999.92
λ (central mer.)	74° ′ ″		
– Δλ 1406.5 .43343 609.6	26,006	φ (by interpolation) 18.0.8 .11583 214.4	40° 48′ 06.″950
λ	74 00 26,006		+ 428.8m
	+1219.2m		– 1422.0 m
	– 187.3		

Station Intersection 1

x	2,004,000,00	$R_b + A$	24,462,545.30
C	2,000	y	210,000,00
x' (= x – C)	4,000,00	$R_b + A - y$	24,252,545.30
tan θ	0.000164933114	R	
θ	0° 00′ 34.″01949		
		y	210,000.00
$\frac{\theta}{\ell}$ (= Δλ)	52.011	y″	– 0.33
		y′	209,999.67
λ (central mer.)	74° ′ ″		
– Δλ 1406.5 .13315 187.3	52.011	φ (by interpolation) 1850.8 .11578 214.3	40° 48′ 06.″947
λ	73 59 07.989		+ 428.6m
	+374.6m		1422.2
	10319		

$$\tan\theta = \frac{x - C}{R_b + A - y}$$

$$\Delta\lambda = \frac{\theta}{\ell}$$

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

$R = (R_b + A - y) \sec\theta$

$$y'' = 2R \sin^2\frac{\theta}{2}$$

$y' = y - y''$

C is constant added to x′ in computation of coordinates

R_b is map radius of lowest parallel

A is value of y′ for R_b; in most cases it is zero

φ is interpolated from table of y′

T-5448

1

Geodetic positions from Lambert coordinates

State N.Y. – L.I. Station Intersection

x	2,004	$R_b + A$	24,462,545.30
C	2.000	y	218,000.00
x' (= x – C)	4,000.00	$R_b + A - y$	24,244,545.30
tan θ	0.000164985557	R	
θ	0° 00′ 34.″03072		
	"	y	218,000.00
$\frac{\theta}{\ell}$ (= Δλ)	52.028	y″	– 0.33
		y′	217,999.67
λ (central mer.)	74° ′ ″		
– Δλ 1406.0 .13287 186.8	52.028	φ (by interpolation) 1850.3 .43327 801.9	40° 49′ 25.″996
λ	73 59 07.972		+1603.8 m
	+373.6 m		-247.0
	-1032.4		

Station Intersection

x	2,004	$R_b + A$	24,462,545.30
C	2,000	y	226,000.00
x' (= x – C)	4,000.00	$R_b + A - y$	24,236,545.30
tan θ	0.000165040002	R	
θ	0° 00′ 34.″04195		
	"	y	226,000.00
$\frac{\theta}{\ell}$ (= Δλ)	52.045	y″	= 0.33
		y′	225,999.67
λ (central mer.)	74° ′ ″	185018	
– Δλ 1405.9 .13258 186.4	52.045	φ (by interpolation) .75075 464.1	40° 50′ 45.″045
λ	73 59 07.955		40° 50′ 30″ +928.2 m
	+ 372.8 m		-922.6
	-1032.8		

$$\tan\theta = \frac{x - C}{R_b + A - y}$$

$$\Delta\lambda = \frac{\theta}{\ell}$$

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

$$R = (R_b + A - y)\sec\theta$$

$$y'' = 2R\sin^2\frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x′ in computation of coordinates

R_b is map radius of lowest parallel

A is value of y′ for R_b; in most cases it is zero

φ is interpolated from table of y′

(M-28)

Geodetic positions from Lambert coordinates

T-5448 off sheet

State N.Y. – L.I. Station Intersection

x	2,010	$R_b + A$	24,462,545;30
C	2,000	y	226,000.00
x' (= x – C)	10,000.00	$R_b + A - y$	24,236,545;30
tan θ	0.00041260006	R	
θ	0° 01' 25".10487 85".10487	y	226,000.00
$\frac{\theta}{\ell}$ (= Δλ)	130.113	y''	– 2.06
		y'	225;997.94
λ (central mer.)	74° ' "		
– Δλ 1405.6 .83145	2 10.113	φ (by interpolation 1850.8 .75047)	40° 50' 45".028
λ 465.9	73 57 49.887 73° 57' 30"+931.8 –473.8	463.6	40° 50' 30"+927.29 –923.6

Station

x		$R_b + A$	
C		y	
x' (= x – C)		$R_b + A - y$	
tan θ		R	
θ	° ' " "	y	
$\frac{\theta}{\ell}$ (= Δλ)		y''	–
		y'	
λ (central mer.)	° ' "		° ' "
– Δλ		φ (by interpolation)	
λ			

$$\tan\theta = \frac{x - C}{R_b + A - y}$$

$$\Delta\lambda = \frac{\theta}{\ell}$$

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

$$R = (R_b + A - y)\sec\theta$$

$$y'' = 2R\sin^2\frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x' in computation of coordinates

R_b is map radius of lowest parallel

A is value of y' for R_b; in most cases it is zero

φ is interpolated from table of y'

(M-28)

DESCRIPTIVE REPORT T-5448 SUPPLEMENTAL

June 2, 1939

Details shown in red and blue on T-5448 were plotted in this office from new photographs and field inspection and reported to the Nautical Chart Section in March, 1939, for correction of Chart No. 746.

Details shown in blue were plotted from the same photographs and field inspection, but were not reported to the Nautical Chart Section until June 3, 1939.

Photographs

Single lens 7" x 9", scale 1:10,000, negatives on file in this office. Photographs were made by the Photographic Unit, Naval Air Station, Washington, D. C., early in February, 1939.

Field Inspection

Made by the Tender GILBERT, in March-April, 1939. Field inspection notes are shown on ~~C. S. 158 (Air Photo Unit Files), and~~ on the field photographs and on a copy of chart 746 filed as Blueprint 32 854

Plot

The landmarks shown on T-5448 were located by a radial plot made by L. C. Lande from 1:5000 scale ratio prints.

Other details were transferred from the 1:10,000 scale contact prints in the projector by J. W. Giberman and L. C. Lande.

B.G. Jones
6/19/39