

5724

Diag'd. on Diag. Ch. No. 77-1

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Air Photo

Field No. CS-215-C Office No. F- 5724

LOCALITY

State Maryland

General locality Eastern Shore

Locality Tilghman Island

Photos - May 1, 1937 - June 24, 1937

194 1

CHIEF OF PARTY

L. W. Swanson

LIBRARY & ARCHIVES

DATE

5724

Applied to Chart 1225 before review May 21, 1941 L.A.M.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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. T-5724

REGISTER NO.

State Maryland

General locality Eastern Shore

Locality Tilghman Island

Scale 1:10,000 Date of photographs June 24, 1937

~~Vessel~~ Air Photo Party # 2

Chief of party L.W. Swanson

~~Surveyed by~~ Field Inspection - D.A. Jones, R.A. Gilmore

Inked by N.L. Kaslow

Heights in feet above to ground to tops of trees

Contour, Approximate contour, Form line interval feet

Instructions dated May 13, June 1, 1938; August 28, 1939

Remarks: This sheet is a revision of T* 5425, dated 1/3/35

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As received:

Reviewed: 28 Nov. 1941

Redrafted:

Published: 1943

Registered: 19 Jan. 1944

REG. NO.

T-5724

DATA RECORD T- 5724

Photo No.	Date	Time	Scale	Alt.	Stage of Tide
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* 1484	: 5/1/37	: 2:40-48	: 1:10,000	: Unknown: Approx. 6.875 ft.	: Approx. 0.2ft above mlw
**AHY*6-75, 76;					
77,78,79,80;					
81.	: 6/24/37	: Unknown	: 1:10,000	: "	: Unknown

Camera : *U.S. Coast & Geodetic Survey nine lens- focal length $8\frac{1}{4}$ inches.
 ** U.S. Dept of Agriculture single lens - focal length unknown. These pictures were originally taken at a scale of 1:20,000 and then enlarged to a scale of 1:10,000.

General Information

Chief of Party..... L.W. Swanson
 Projection by..... Washington Office (Sheet T5425)
 Control Plotted on Photos..... N.L. Kaslow 3/41
 Control Plotted on Smooth Sheet..... Washington Office
 Additional Control Plotted on Smooth Sheet..... N.L.Kaslow 3/41
 Radial Points pricked by..... N.L. Kaslow 3/41
 Shoreline and Details Inked by..... N.L. Kaslow 3/41 ; 15 days
 Preliminary Review by..... L.W. Swanson

Statistics

Area (land)..... 3 sq. miles
 Shoreline(more than 200 m. from opposite shore) 12.6 stat. mi.
 Shoreline(less " " " " ") 0.0 stat mi
 Roads trails and streams..... 14.2 stat mi

Reference Station

Mays, 1934. Adjusted

Datum N.A. 1927

Latitude 38- 42' 17.895" (551.8 m) Field adjusted
 Longitude 76- 20' 44.530" (1076.0 m)

Maryland State Grid X coordinate: 986,720.11 feet
 (Lambert-single zone) Y coordinate: 318,098.17 feet
 Instructions

Dated May 13, June 1, 1938
 Instructions for rough draft..... August 28, 1939

Field Inspection: Fall, 1939
 Spring, 1940

PA. Benson

Radial Plot

The location and distribution of the available photos for this sheet were of such nature that a combined plot could not be run in conjunction with any other sheet. It was therefore necessary to obtain sufficient control for each photograph in order to orient it separately. At the northern boundary of the sheet this was done by augmenting the available ground control with points transferred from the radial plot for sheet T-5723. At the southern end of the sheet it was necessary to establish additional control by triangulation. Stations Persimmon, Larry, Tower (Weather Bureau), and Light (Black Walnut Cove), were established for that purpose. With the aid of these additional controls each photograph could be oriented very accurately by at least a four point fix. The fact that all the single lens were in one flight over the center of the island made it difficult to obtain good radial intersections over the south central portion of the sheet. This difficulty was circumvented by obtaining good points on either side of the flight lines and checking those points that fell near the flight line under the projector. Good results were obtained.

~~sharp~~ Sharps Island plotted separately. See pages
the page 5.

Control

The following triangulation stations were recovered and used for control of the photographs:

Peoples Chapel, Tilghman Island, 1909
Southern Methodist Episcopal Church, Tilghman Island, 1909
Mays, 1934
Avalon, 1909
Knapp, 1933

Station Paw Paw was recovered and pricked, but did not check with the other stations. Since station Mays is nearby, Paw Paw was disregarded entirely.

The following additional triangulation stations were established for the purpose of controlling the photographs falling on the lower half of the sheet:

Larry, 1941
Persimmon, 1941
Tower (Weather Bureau), 1941
Light (Black Walnut Cove), 1941

Notes on Detailing

An air photo compilation from five lens pictures, completed in 1935, covering the same area was available. Instead of making small changes all over the sheet (T-5425), it was deemed more expedient to redraw the whole. Considerable difficulty was experienced in tracing the outlines of houses and barns due to the fact that in the process of enlargement the images lost their sharp definition.

The following notes, appearing on the celluloid sheet, are here repeated in order to make for completeness of report:

1. Blue lines outside of the H.W.L. are the approximate limits of the offshore shoal areas as they appear on the photographs.
2. All areas unless otherwise symbolized are under cultivation
3. Double dashed and double full line roads are shown by solid center lines, labeled with the width; single dashed roads are so indicated.

*This sheet T5724 supersedes T5425 which will
be withdrawn from sales as soon as T5724 is printed.*

Comparison with Previous Surveys

T-5425

This compilation was prepared from five lens air photos taken 11-28-33, and recommended for approval 1-3-35.

In general the shoreline of the 1935 compilation checks fairly well with that of the present. No large discrepancies are evident, although local differences ranging up to 15 meters in magnitude may be noted. Some of these differences may be due to some erosion and others, to a difference in interpretation of the high water line. Specifically there seems to have been an erosion of roughly 30 meters in width and 450 meters in length on the western shore of the island just south of Lat. 38-41. On the same shoreline south of Lat. 38-43, a sliver 20 meters wide and 600 meters long appears to have eroded. At Black Walnut Point and Lower Bar Neck Point appear to be due to difference in interpretation of shoreline and graphics. The delineation of shoreline at these two points may be more correct on the present compilation than that on the earlier one, because the additional triangulation available in the first instance, afforded a very accurate orientation of pictures.

Geographic Names

The names appearing on sheet T- 5425 were checked by Lieut.(j.g.) J.N. Jones and found to be correct. The sole exception being Barron Neck. This neck of land is locally known as Bar Neck. This seems to agree with the names at the two ends of the neck, namely, Upper and Lower Bar Neck Point, which appear on the U.S.C.&G. Chart No. 1225.

Land marks

The landmark Tower appearing on chart 1225 has been out in by triangulation, and the new position will be found listed on form 567. Ho.Cu. appearing on the same chart has been destroyed.

Aids to Navigation

Copy of letter from U.S. Coast Guard is included in this report and is self explanatory. New positions for those lights which have not been moved since the date of the photographs(6-24-37) are given on form 567. The position for these were obtained by radial intersection. Lights nos. 1951, 1952, and 1971, having been reestablished since 6-24-37, were located by sextant.

Junction

A good junction with sheet T-5723 was made. The meridial line 76-22' does not appear to line up. Since there is no land area along that line, no attempt was made to distribute the error. It is possible that the error is solely in that line alone and not in the entire projection. Corrected in office.

Accuracy of Survey

As has previously been noted, the photographs used in this compilation were originally 1:20,000 and then enlarged to 1:10,000. In so doing, the sharpness

of some topographic features are blurred out. The error thus introduced would be local and not of great extent; in the case of houses, they would in some instances be errors in shape, but not in position. The large amount of good control used permitted very accurate orientation of the photographs, despite the absence of fiducial marks. In general it may be said that the accuracy of this sheet is consistent with that of the other sheets in this project.

Hydrographic Signals

Due to lack of photographs some of the hydrographic signals in the south central part of the sheet were determined by only two cuts. These signals were encircled with green ink and should be used with caution.

Respectfully submitted,

Ned L. Kaslow

Ned L. Kaslow
Sr. Photogrammetric Aid (Field)

April 10
Baltimore, Md. ~~March 25~~, 1941.

Approved:

L. W. Swanson
L. W. Swanson, Chief of Party

Location of Sharps Island: The island is covered by one more lens photo No 1445, centered on the island and including Δ ita. Sharps I. light Ho. Position of the center of the photograph was determined by the 3 pt fixes discussed on the following pages.

Orientation of the photograph was on Δ Sharps Island light House.

~~The scale of the island was~~ The island was then traced directly from the photograph which is to the same scale as the collarbird.

a scale check was obtained by three short distances measured on the island - and by the distances to the light House.

BG Jones

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METHOD EMPLOYED IN THE DETERMINATION OF LOCATION OF F.I.S.

"THORN", SHARPS ISLAND, MARYLAND.

See note on opposite page.

Due to the absence of any triangulation stations on Sharps Island and to the lack of photographs of a scale which would permit a radial plot to be run in the usual manner, it was necessary to determine a geographic position of some object which could be identified in the office print of Sharps Island, in order to properly detail the same.

On November 15, 1939, Ensign A. L. Wardwell observed a round of sextant angles, to all prominent objects which could be identified and determined from the photographs of the adjoining shore. The objects observed upon were: 1. Silo, near triangulation station Dupont 1934, 2. Water Tank, on Irish Creek, 3. Tower, at Fairbanks, and 4. Sharps Island Light House 1898-1934. The point from which these observations were made was the prominent thorn tree, near the center of the island which has been called F.I.S. "Thorn". The angles were recorded on the back of Field Inspection Photograph No. 1445 (nine lens) and the F.I.S. pricked on same.

The locations of objects 1. and 2. were determined from a radial plot of well controlled 1:20000 photographs and their positions scaled from the control sheet. The position of the water tank was a little stronger than that of the silo in as far as there were three check cuts on the former. The position of 3. was scaled from T-5724. 4. is located by triangulation.

Two three-point problems were solved from the above data and G.P.s were computed from same, using objects 1., 2., and 3. for one fix and objects 2., 3., and 4. for the other. The agreement of the two positions was good and the accepted position, which is the mean of the two, is probably correct within 4 meters.

The accepted position of F.I.S. "Thorn" is:

	FIRST FIX	SECOND FIX
Lat. 38° 37' +248 meters.	/(246 m.)	(251 m.)
Long. 76° 21' +1317 meters.	/(1316 m.)	(1318 m.)

The data for the above and computations of same are attached to this report.

Respectfully submitted,

James H. Jones
James H. Jones,
Jr. H. & G. E.

July 19, 1940

APPROVED & FORWARDED:

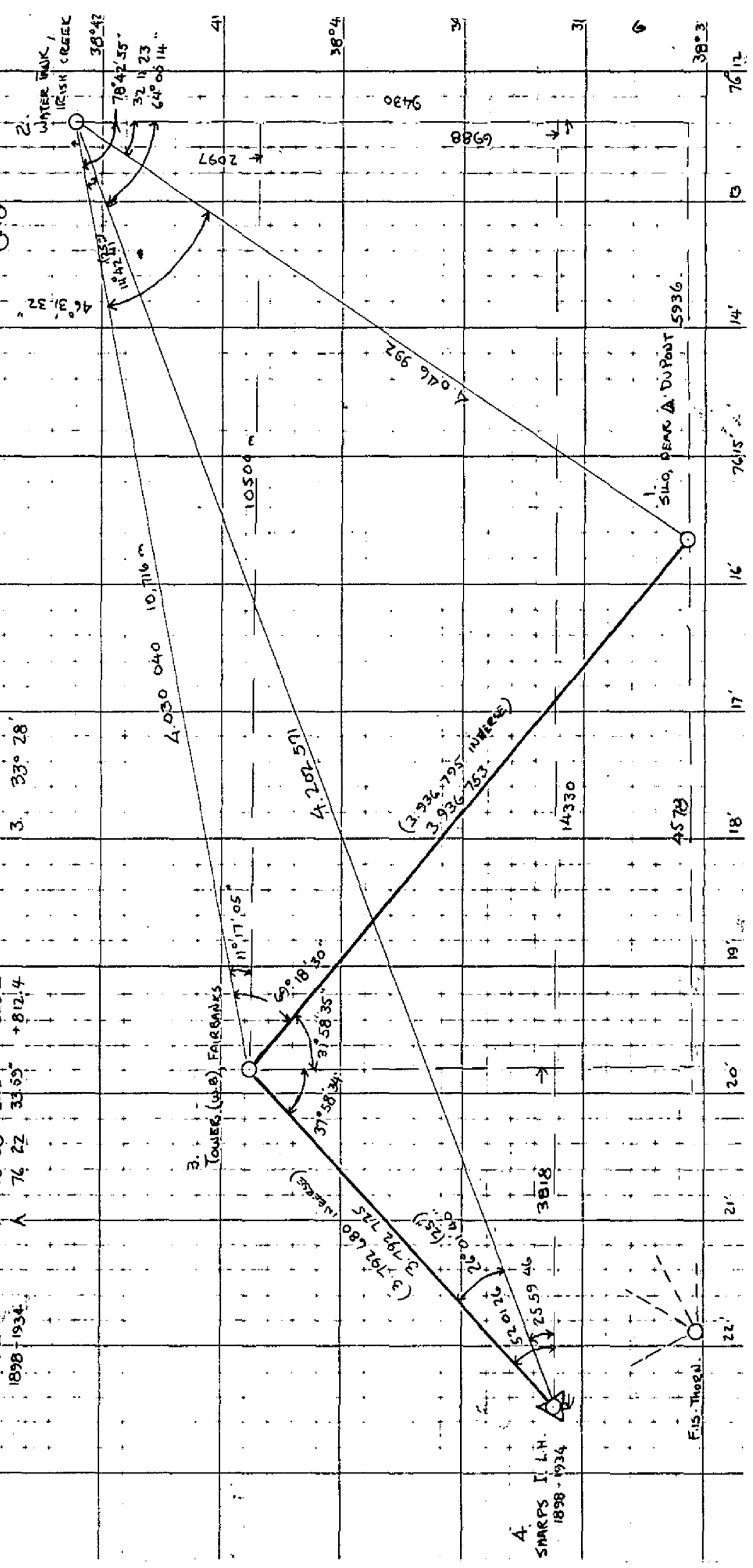
L. W. Swanson
L. W. Swanson, Chief of Party

FIXES:-

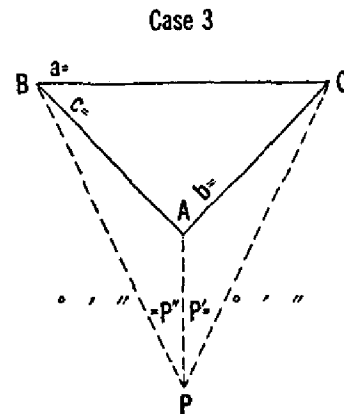
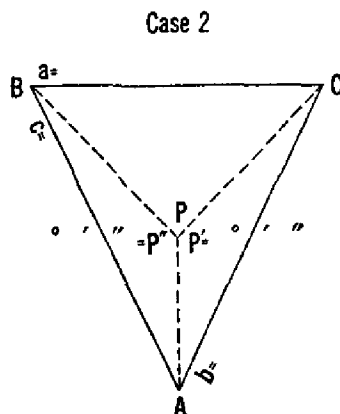
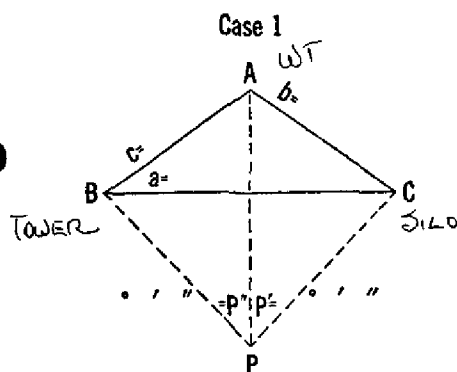
1. $69^{\circ} 40'$
3. $45^{\circ} 02'$
2. $33^{\circ} 28'$
3. $45^{\circ} 02'$
4. $36^{\circ} 13'$
2. $33^{\circ} 28'$

(Rough Sketch showing values used in computation of FIS "thorn". Distances shown in sketch were computed using traverse tables. These values were used except where inverse computations were made. Angles are computed from traverse tables and were used in computations with minor adjustments, which were made necessary by inverse computation values.)

1. SILO, BENE DU PONT (SCALES)
 $38^{\circ} 37' 01.005''$
 $76^{\circ} 16' 46.377''$
 $+31m$
 $+1122m$
2. WATER TANK, LEON CR (SCALES)
 $38^{\circ} 42'$
 $76^{\circ} 16'$
 $+211m$
 $+988m$
3. TOWER, FAIRBANKS T-5724
 $38^{\circ} 40' 58.33''$
 $76^{\circ} 15' 55.70''$
 $+1814m$
 $+1347m$
4. SHARPS I. L. H. 1898-1934
 $38^{\circ} 38' 20.21''$
 $76^{\circ} 22' 33.59''$
 $+623.2$
 $+812.4$



COMPUTATION OF THREE-POINT PROBLEM



Cases 1 and 2

P' 36 13
P'' 33 28
A 46 31 32

Sum 116 12 32
1/2 Sum 58 06 16

$S = 180^\circ - \frac{1}{2} \text{ sum} = 121^\circ 53' 44''$

Case 3

P'
P''

Sum
A

A - sum

$S = \frac{1}{2} (A - \text{sum}) =$

Log c = 4.030 040
Log sin P' = 9.771 470
Colog b = 5.953 008
Colog sin P'' = 2.588 492

Sum = log tan Z = 10.013 010

Z = 45 51 29
Z + 45° = 90 51 29

Log cot (Z + 45°) = 8.175 425
Log tan S = 10.205 974

Sum = log tan ε = 8.381 399 (sign +)

ε 1° 22' 43"
S 121° 53' 44''

(Tan ε +)

S + ε = angle ABP
S - ε = angle ACP

(Tan ε -)

S - ε = angle ABP
S + ε = angle ACP

BPA 33 28
ABP 123 16 27
PAB 23 15 33

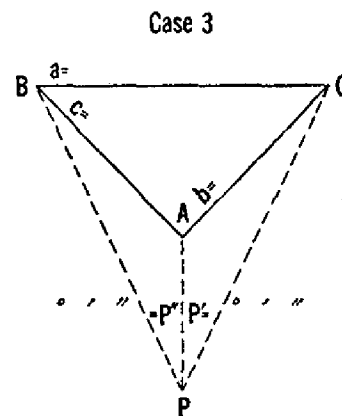
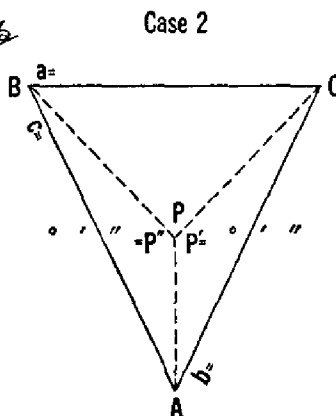
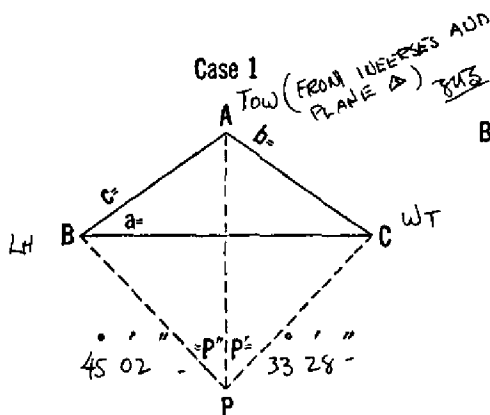
APC 36 13
PCA 120 31 01
CAP 23 15 59

PCB 76 21 03
CBP 53 57 57
BPC 69 41

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

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COMPUTATION OF THREE-POINT PROBLEM



Cases 1 and 2

P'	33 28
P''	45 02
A	139 16 10

Sum	217 46 10
1/2 Sum	108 53 05

$$S = 180^\circ - \frac{1}{2} \text{ sum} = 71 \ 06 \ 55$$

Case 3

P'	
P''	

Sum	
A	

A - sum

$$S = \frac{1}{2} (A - \text{sum}) =$$

Log c	=	3.792 680
Log sin P'	=	9.741 508
Colog b	=	5.969 960
Colog sin P''	=	.150 262

$$\text{Sum} = \log \tan Z = 9.654 420$$

$$Z = 24^\circ 17' 15''$$

$$Z + 45^\circ = 69^\circ 17' 15''$$

$$\text{Log cot } (Z + 45^\circ) = 9.577 627$$

$$\text{Log tan } S = 10.465 874$$

$$\text{Sum} = \log \tan \epsilon = 10.043 501 \quad (\text{sign } +)$$

$$\epsilon = 47^\circ 51' 54''$$

$$S = 71 \ 06 \ 55$$

(Tan ϵ +)

S + ϵ = angle ABP
S - ϵ = angle ACP

(Tan ϵ -)

S - ϵ = angle ABP
S + ϵ = angle ACP

BPA	45 02 00
ABP	118 58 49
PAB	15 59 11

APC	33 28
PCA	23 15 01
CAP	123 16 59

PCB	8 32 36
CBP	92 57 24
BPC	78 30 -

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

comp 813

INVERSE POSITION COMPUTATION

9

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

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

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

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*.

		NAME OF STATION			
1. ϕ	38° 40' 58.829"	TOWER	λ	76° 19' 55.730"	
2. ϕ'	38° 37' 01.005"	SILLO	λ'	76° 16' 46.377"	
$\Delta\phi (= \phi' - \phi)$	3 57.824		$\Delta\lambda (= \lambda' - \lambda)$	3 09.353	
$\frac{\Delta\phi}{2}$	1 58.912		$\frac{\Delta\lambda}{2}$	-	
$\phi_m (= \phi + \frac{\Delta\phi}{2})$	38° 38' 59.917"		$\Delta\lambda$ (secs.)	189.353	
$\Delta\phi$ (secs.)	237.824				
$\log \Delta\phi$	2.376 256		$\log \Delta\lambda$	2.277 272	
cor. arc-sin	-		cor. arc-sin	-	
$\log \Delta\phi_1$			$\log \Delta\lambda_1$		
$\log \cos \frac{\Delta\lambda}{2}$			$\log \cos \phi_m$	9.892 637	
$\text{colog } B_m$	1.489 046		$\text{colog } A_m$	1.490 848	
$\log \left\{ s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.865 312 (opposite in sign to $\Delta\phi$)		$\log \left\{ s_1 \sin \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.660 757 n	
			$\log \left\{ s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.865 312 n	
$\log \Delta\lambda$	2.277 272	$3 \log \Delta\lambda$	$\log \tan \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.195 445 n	
$\log \sin \phi_m$	9.795 575	$\log F$	$\alpha + \frac{\Delta\alpha}{2}$	328° 01' 13.5"	
$\log \sec \frac{\Delta\phi}{2}$		$\log b$	$\log \sin \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.723 962	
$\log a$	2.072 847		$\log \cos \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.928 517	
a	118.3		$\log s_1$	3.936 795	
b			cor. arc-sin	+ -	
$-\Delta\alpha$ (secs.)	118.3		$\log s$	3.936 755	
$\frac{\Delta\alpha}{2}$	59.1				
$\alpha + \frac{\Delta\alpha}{2}$	328° 01' 13.5"				
α (1 to 2)	328 00 14.4				
$\Delta\alpha$	+ 1 58.3				
	180				
α' (2 to 1)	148 02 12.7				

* 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.

comp 811.3

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			

INVERSE POSITION COMPUTATION

10

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

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

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

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*.

		NAME OF STATION			
1. ϕ	38° 40' 58.83"	TOWER	λ	76° 19' 55.73"	
2. ϕ'	38° 38' 20.21"	LIGHT HOUSE	λ'	76° 22' 33.59"	
$\Delta\phi (= \phi' - \phi)$	- 2 38.62		$\Delta\lambda (= \lambda' - \lambda)$	+ 2 37.86	
$\frac{\Delta\phi}{2}$	1 19 31		$\frac{\Delta\lambda}{2}$		
$\phi_m (= \phi + \frac{\Delta\phi}{2})$	38 39 29.52				
$\Delta\phi$ (secs.)	158.62		$\Delta\lambda$ (secs.)	157.86	
$\log \Delta\phi$	2.200 358 n		$\log \Delta\lambda$	2.198 272	
cor. arc - sin	-		cor. arc - sin	-	
$\log \Delta\phi_1$	-		$\log \Delta\lambda_1$	-	
$\log \cos \frac{\Delta\lambda}{2}$	-		$\log \cos \phi_m$	9.892 588	
$\text{colog } B_m$	1.489 047		$\text{colog } A_m$	1.490 848	
$\log \left\{ s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.689 405 (opposite in sign to $\Delta\phi$)		$\log \left\{ s_1 \sin \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.581 708 +	
			$\log \left\{ s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.689 405 +	
$\log \Delta\lambda$	2.198 272	$3 \log \Delta\lambda$	$\log \tan \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.892 303	
$\log \sin \phi_m$	9.795 653	$\log F$	$\alpha + \frac{\Delta\alpha}{2}$	37° 58' 04"	
$\log \sec \frac{\Delta\phi}{2}$	-	$\log b$	$\log \sin \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.789 029	
$\log a$	1.993 925		$\log \cos \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.896 723	
a	98.6"		$\log s_1$	3.792 680	
b	-		cor. arc - sin	+ -	
$-\Delta\alpha$ (secs.)	98.6		$\log s$	3.792 680	
$\frac{\Delta\alpha}{2}$	49.3 +				
$\alpha + \frac{\Delta\alpha}{2}$	37 58 04				
α (1 to 2)	37 58 53				
$\Delta\alpha$	- 1 39				
	180				
α' (2 to 1)	217 57 14				

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

comp 813
✓ by A

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.

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				

COMPUTATION OF TRIANGLES

State: *MD*

11-9121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
						0 1 "	
2-3							4.030 040
1		THORN				33 28	.258 492
2		TOWER				123 16 27	9.922 235
3		WATER TANK				23 15 33	9.596 477
1-3							4.210 767
1-2							3.885 009
2-3							4.046 992
1		THORN				36.13	228 530
2		SILLO				120 31 01	9.935 245
3		WATER TANK				23 15 59	9.596 604
1-3							4.210 767
1-2							3.872 126
2-3							3.936 795
1		THORN				69 41	.027 895
2		TOWER				53 57 57	9.907 769
3		SILLO				56 21 03	9.920 356
1-3							3.872 459
1-2							3.885 046
2-3							
1							
2							
3							
1-3							
1-2							

Do not write in this margin

comp 845

COMPUTATION OF TRIANGLES

State: MD.

11-0121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
2-3							3.792 680
1	THORN	45 02					.150 262
2	LH	118 58 49					9.941 902
3	TOWER	15 59 11					9.439 978
1-3							3.884 844
1-2							3.382 920
2-3							4.030 040
1	THORN	33 28					.258 492
2	TOWER	123 16 59					9.922 190
3	WT.	23 15 01					9.596 320
1-3							4.210 722
1-2							3.884 852
2-3							4.202 571
1	THORN	78 30					.008 807
2	LH	92 57 24					9.999 422
3	WT	8 32 36					9.171 894
1-3							4.210 800
1-2							3.383 272
2-3							
1							
2							
3							
1-3							
1-2							

comp 313

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

11-9362 U. S. GOVERNMENT PRINTING OFFICE: 1960

Comp 213

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

FIRST ANGLE OF TRIANGLE									
2		3		4		5		6	
α	2	TOWER	to 3	328	00	14.4	α	3	TOWER
β	2		&	+ 53	57	57	β	3	
α	2		to 1	21	58	11.4	α	3	
$\Delta\alpha$							$\Delta\alpha$		
α'	1		to 2	180	00	00.0	α'	1	
ϕ	38	40	58.829	2	TOWER	55.730	ϕ	38	37
$\Delta\phi$		3	50.827			1	$\Delta\phi$		+
ϕ'	38	37	08.002	1	TOWER	54.411	ϕ'	38	37
Logarithms		Values in seconds		Values in seconds		Values in seconds		Values in seconds	
s	3.885 046							s	3.872 459
$\cos\alpha$	9.967 258							$\cos\alpha$	8.468 650
B	8.510 951							B	8.510 956
h	2.363 255							h	10.852 065
s^2	1.7701							s^2	7.7449
$\sin^2\alpha$	9.1460							$\sin^2\alpha$	9.999 6
C	1.3078							C	1.3071
	8.2239								9.0516
h^2								h^2	
D								D	
		2d term + 017						2d term + 113	
		3d term +						3d term +	
		-Δφ		230.827				-Δφ	
								7000	

11-9333 U. S. GOVERNMENT PRINTING OFFICE: 1976

U. S. GOVERNMENT PRINTING OFFICE: 1969

Comp 8M3

14

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

~~XXXXXXXXXXXXXXXXXXXX~~
TO BE DELETED

Baltimore, Md. _____ March 25, 1988 41

I recommend that the following objects which have (*have not*) been inspected from seaward to determine their value as landmarks, be ~~deleted from~~ (*deleted from*) the charts indicated.

The positions given have been checked after listing.

2.11. Symeon

Chief of Party.

[illegible]

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

U. S. GOVERNMENT PRINTING OFFICE

Sca/ed. Y.C.K. checked L.V.H.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TO BE CHARTED } **STRIKE OUT ONE**

LANDMARKS FOR CHARTS

Baltimore, Md.

March 25

41

163

I recommend that the following objects which have (*have not*) been inspected from seaward to determine their value as landmarks, be charted on ~~(the chart)~~ the charts indicated.

The positions given have been checked after listing.

Lee, Swenson

Chief of Party.

[illegible]

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

19 November, 1940

L.W. Swanson,
Chief of Party U.S.C. & G.S.,
307 Detention Building,
Port McHenry,
Baltimore, Md.

Subject: Positions, various lighted structures.

Reference: (s) Your letter 14 November, 1940

1. In reply to your request, the following is forwarded for your information:

Light List Number	Name of Light
1949	Blackwalnut Cove. Established 1929, original structure
1951	Upper Bar Neck. Destroyed 1940, not yet rebuilt.
1952	Middle Ground Bar. Destroyed 1936, 1940, not yet rebuilt
1953	Broad Creek. Rebuilt 1934, 1936, 1938, position doubtful
1954	Balls Creek. Established 1930, rebuilt 1938, 9' S.E. of old structure.
1968	Knappe Narrows West Entrance. Established 1930, rebuilt 1936
1969	Hoffman Point. Established 1935.
1970	Back Creek Out. Established 1935
1971	Knappe Narrows East Entrance. Rebuilt 1936, 1940, position doubtful.
1972	Knappe Narrows East Channel. Rebuilt 1934.
1973	Knappe Narrows Canal. Established 1935.
1974	Poplar Island Narrows. Rebuilt 1934, 1935, 1936, position doubtful.
1975	Ferry Bay Light (Ferry Cove). Rebuilt 1934, 1935.

2. These lights until recently were very susceptible to destruction by heavy ice during the winter months. In most cases, where lights are destroyed by ice, they are rebuilt as nearly as possible on their charted locations but their position is in general not positive enough for control purposes, since they are usually relocated by means of sextant angles and three-arm protractors. It appears that Blackwalnut Cove Light and Balls Creek Light are the only structures which may be safely used for control purposes.

Lucien J. Ker, Captain (E)
United States Coast Guard
By direction

REVIEW OF AIR PHOTO COMPILATION NO. T 5724

Chief of Party: L.W. Swanson

Compiled by: N.L. Kaslow

Project: H.T. 215

Instructions dated: May 13, 1938
June 1, 1938
Aug. 28, 1939

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, ~~h, i, e, g~~ and f; 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.
NO CONTEMPORARY SURVEYS
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; ~~h~~; and 66 c, ~~h, i~~)
7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, and ~~44~~)

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Refer also to the pamphlet "Notes on the Compilation of Planimetric Line Maps from Five Lens Air Photographs."

- ~~8.~~ The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41)
9. Recoverable objects have been located and described on Form 524 in accordance with circular 30, 1933, circular letter of March 3, 1933, and circular 31, 1934. (Par. 29, 30, and 57)
Form 524 is NOT submitted
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. 16a) e; and 60)
- ~~11.~~ All bridges shown on the compilation are accompanied by a note stating whether fixed or draw, clearance, and width of draw if a draw bridge. Additional information of importance to navigation is given in the descriptive report. (Par. 16c)
12. Geographic names are shown on the overlay tracing. The accepted local usage of new names has been determined and they are listed in the report, together with a general statement as to source of information and a specific statement when advisable. Complete discussion of place names differing from the charts and from the U. S. G. S. Quadrangles is given in the descriptive report, together with reasons for recommendations made. (Par. 64, and ~~65~~)
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. 66)
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, ~~47~~)

16. No additional surveying is recommended at this time.

17. Remarks:

It should be noted that this map drawing is compiled from a single flight of enlarged single lens photographs. Along the line of flight the intersection are necessarily weak and the southern end of the drawing in the vicinity of Blackwell Cove the detailing has been accomplished from radial located by two intersections. The projector was used for a great amount of work on this sheet.

18. Examined and approved;

L. W. Swanson

Chief of Party

April 10, 1941

19. Remarks after review in office:

Reviewed in office by:

Examined and approved:

Chief, Section of Field Records

Chief, Division of Charts

Chief, Section of Field Work

Chief, Division of Hydrography and Topography.

Remarks.

Decisions

1	Appears on U.S.G.S as Barron Neck	386763 U.S.G.B.
2		" "
3		386762
4		386763
5		" U.S.G.B.
6		"
7		"
8		"
9		"
10		"
11		387763
12		"
13		"
14		"
15	One word: precedent in 1941 decision for a point in Potomac R.	386763
16		U.S.G.B.
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		

GEOGRAPHIC NAMES

Survey No. T-5724

Name on Survey	A. On Chart No.	B. On previous survey No. T-5425	C. On U. S. quadrangle Maps From local information	D. On local Maps	E. P. O. Guide or Map	F. Rand McNally Atlas	G. U. S. Light List	
- Bar Neck			X					1
- Sharps I.								2
- Cheptank R.								3
- Tilghman I.								4
- Blackwalnut Pt.								5
- Blackwalnut Cove								6
- Fairbank								7
- Lower Bar Neck Pt.								8
- Upper Bar Neck Pt.								9
- Dogwood Harbor								10
- Tilghman Island Landing								11
- Avalon								12
- Tilghman								13
- Harris Creek								14
- Pawpaw Cove								15
- Chesapeake Bay								16
								17
								18
								19
								20
								21
								22
								23
								24
								25
								26
								27

Names indicated in red approved

by Lt. Heck on 10/20/41

Division of Charts

Surveys Section

November 28, 1941

Review of Air Photographic Survey T-5724

There is no contemporary hydrographic survey of this area.

Previous Topographic Surveys

T-5425 1/10,000 1935 (Air Photo Survey)

A comparison is made on page 3 of the descriptive report for T-5724 between T-5724^{and T-5425} and the above mentioned comparison confines itself to shoreline differences, which it discusses adequately.

The interior detail agrees well except on Blackwalnut Point south of latitude $38^{\circ} 41'$, where the detail and shoreline on T-5724 are about 15 mm. south of the positions shown on T-5425. As four triangulation positions were established by the field party in 1941 to control T-5724 in this area, T-5724 is considered the more accurate.

T-2494 1/20,000 1900

Sharps Island in 1900 was approximately three times the length of the present island having washed away about 540 meters from its northern end and 400 meters from its southern extremity, the remainder being about 400 meters in a north and south direction and 220 meters in an east and west direction. It is mostly marsh with a small portion of high ground in the center and at the northern tip. From the photograph the water southeast of the island appears to be shallow for a distance of about 340 meters. Apparently there are no remains of the long pier formerly extending southeast of the island or of the hotel building formerly located on the high ground.

T-5724 is adequate to supersede T-5425, T-2494, and all previous topographic surveys which it covers. (For common detail in common areas)

For comparison with surveys prior to T-5425 see the descriptive report of T-5425.

Comparison with chart 1225

T-5724 was applied to chart 1225 May 21, 1941, previous to this review. No additional changes are indicated by this review.

Form 567 was filled out and sent to Nautical Charts Section as chart letter 208 (1941). A duplicate copy is filed at the back of the descriptive report.

Radial Plot

The radial plot is adequately discussed on page 2 of the descriptive report. Each photograph was well controlled and the plot is excellent except for the limitations inherent in a single flight line plot, namely, weakness of radial points near the flight line and the lack of sufficient photographs for more than two cuts at Blackwalnut Point.

Detailing and Field Inspection

The field inspection was good and complete except for the wooded areas in the southern part of Tilghman Island. No field inspection notes could be found in regard to the type of trees in this area. These woods were detailed as mixed deciduous and pine. From the photographs they appeared to be mostly pine with scattered deciduous.

Field inspection notes indicate that triangulation station "Collins House Red spire, 1898" has been destroyed by fire, and it is not shown on T-5724.

The detailing was good and complete except for a number of buildings in the towns of Tilghman and Avalon. These were added in the office where they could be identified with the aid of a stereoscope.

Accuracy

It is believed that radial points are within 0.5 mm of their correct position and that other detail of importance is within 1.0 mm of true position. The sheet is accepted as complying with the National Standard Map Accuracy requirements.

Reviewed by:

Inspected by:

D. H. Benson
D. H. Benson Nov. 28, 1941 K.H.M.

B. C. Jones
B. C. Jones Dec. 19, 1941

Examined and approved by:

K. T. Adams
Chief, Surveys Section
Division of Photogrammetry 3/49

Chief, Section of Topography

H. C. Edmonson
Chief, Division of Charts
Nautical Chart Branch
E. K. Green
Chief, Division of Coastal
Surveys