

8339

Diagrams on diagram chart No. 78-3

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Topographic
Quadrangle

Field No. Shacklefords Office No. T-8339 (original)

LOCALITY

State Virginia

General locality King and Queen County

Locality Shacklefords

DATE OF PHOTOS 12-31-42

194 5

CHIEF OF PARTY

K. T. Adams and R. W. Knox

LIBRARY & ARCHIVES

DATE July 28, 1947

B-1870-1 (1)++

DATA RECORD

Form T-1

T-8339

T8339

Quadrangle (II): Shacklefords, 7 $\frac{1}{2}$ '

Project No. (II): 289-W1

Field Office: Washington Office

Chief of Party: K. T. Adams

Compilation Office: Washington

Chief of Party: R. W. Knox

Instructions dated (II III):

~~Copy filed in Descriptive~~
~~Report No. T----- (VI)~~

See Field Inspection Report

~~Completed survey received in office:~~

Survey completed in office: July 16, 1945

Reported to Nautical Chart Section: ✓

Reviewed: ✓

Applied to chart No.

Date:

Redrafting Completed: ✓

Registered: 7/47

Published:

Compilation Scale: 1:20,000

Published Scale: 1:31,680

Scale Factor (III): 1.0

Geographic Datum (III): N.A. 1927

Datum Plane (III): MSL

Reference Station (III): Cologne, 1942

Lat.: 37°31' 36".730

Long.: 76°42' 12".627

Adjusted
~~Unadjusted~~

State Plane Coordinates (VI): Virginia, South

X = 2,520,947.09

Y = 439,503.73

Military Grid Zone (VI)

PHOTOGRAPHS (III)

<u>Number</u>	<u>Date</u>	<u>Time</u>	<u>Scale</u>	<u>Stage of Tide</u>
12884 - 12887	12-31-42	11:38	1:20,000	
12917 - 12920	12-31-42	12:25	1:20,000	

Tide from (III):

Mean Range:

Spring Range:

Camera: (Kind or source) U. S. C. & G. S. Nine Lens

Field Inspection by: Commander Ray L. Schoppe
Vertical Control by: H. R. Cravat

date: 1944
Spring 1945

Field Edit by: H. R. Cravat

date: 1945

Date of Mean High-Water Line Location (III):

Projection and Grids ruled by (III) Stephen Rose

date: Dec., 1944

" " " checked by: Stephen Rose

date: Dec., 1944

Control plotted by: W. D. Harris, R. J. Tallman

date: Dec., 1944

Control checked by: G. C. Tewinkel

date: Dec., 1944

Radial Plot by: W. D. Harris, ^{Stores} R. J. Tallman

date: Dec., 1944

Detailed by: W. D. Harris, R. J. Tallman,
O. N. Dalbey

date: Feb. - May 1945

Reviewed in compilation office by:

date:

H R. BROOKS

SEPT, 1945

Elevations on Field Edit Sheet
checked by:

date: 28 May 1947

STATISTICS (III)

Land Area (Sq. Statute Miles): 59.

Shoreline (More than 200 meters to opposite shore): None

Shoreline (Less than 200 meters to opposite shore): None

Number of Recoverable Topographic Stations established: None

Number of Temporary Hydrographic Stations located by radial plot: None

Leveling (to control contours) st. miles: 100. ±

Roman numerals indicate whether the item is to be entered by,

(II) Field Party, (III) Compilation Party, or, (VI) the Washington Office.

When entering names of personnel on this record give the surname
and initials (not initials only).

Remarks:

This sheet was compiled in the Washington Office with the
Reading Stereocartograph for both contours and planimetry.

OUTLINE OF OPERATIONS

PROJECT 289W-1

(INCLUDING QUADRANGLE T-8339)

This project, CS 289W-1, originally was part of war mapping Project CS 289, which involved the production of 7½-minute topographic quadrangles by photogrammetric methods, but all contouring by planetable. ①

In the winter of 1943-4 it was decided by the War Department that all field work would be discontinued July 1, 1944. Since the entire project 289 could not be completed, it was subdivided and on subproject 289W, which included quadrangle T-8339, field work was limited to the identification of horizontal control, the recovery of existing bench marks, and the field inspection and clarification of photographic details. This limited field work was completed. The instructions for field work for subproject 289W, dated March 13, 1944, are filed in the Photogrammetric Section.

After July 1, subproject 289W was further divided into two subprojects, within which all remaining work for the production of standard 7½-minute quadrangles will be completed by the U. S. Coast and Geodetic Survey. See attached layout. These subprojects are:

- (a) 289W-1: (including quadrangle T-8339) In this subproject contouring will be accomplished on the ~~stereocartograph~~ {nine-lens plotting instrument}. Field work on this subproject is being directed from the Washington Office.
- (b) 289W-2: Quadrangles on this subproject are being compiled in the Baltimore Photogrammetric Office by the usual graphic methods and the contouring is being accomplished by planetable.

The field inspection report for subproject CS 289W-1 containing a list of recommended landmarks and a report on the identification of horizontal control for each quadrangle is filed in the Review Unit, Photogrammetric Section.

The completion of subproject 289W-1 will require field work in addition to that accomplished on project 289W. This additional field work will include:

- (a) The establishment of permanent third-order level lines.

- (b) Fourth-order levels for vertical control for stereoscopic instrument contouring.
- (c) Reidentification of horizontal control in some instances.
- (d) Field edit of the compiled manuscripts and vertical accuracy tests.

Copies of the instructions for this additional field work dated November 14, 1944 and December 5, 1944 are filed in the Photogrammetric Section. This additional field work was started in the autumn of 1944, was continued through the winter, and will continue through most of the calendar year 1945. This field work is being directed by the Topography Section, Division of Coastal Surveys, with the exception that the Chief of the Baltimore Photogrammetric Office is disbursing officer for the party. At this time Mr. Harland R. Cravat is chief of the field party.

With particular reference to quadrangle T-8339, the field work accomplished on subproject 289W included the classification of roads, buildings, bridges and woodland; identification of streams, and swamp and marsh areas; recovery and identification of horizontal control, identification of political boundaries; and partial investigation of geographic names. The additional field work accomplished under subproject 289W-1 included approximately 100 miles of trigonometric levels and approximately 38 miles of barometric levels. A brief report on the leveling is attached.


B. G. Jones

July 17, 1945

STATEMENT TO ACCOMPANY DESCRIPTIVE REPORT T- 8339
7/22/47

1. This summary of survey methods used and the method of handling T-8339 and adjoining quadrangles is provided for the convenience of those processing and using the map in the future.

2. The several mapping operations were:

- (a) Nine-lens aerial photography and laboratory processing.
- (b) Field surveys for identification of shoreline, clarification of photographic details, and establishment and identification of horizontal control.
- (c) Compilation of planimetry and contours on a 1:20,000 scale manuscript by stereoscopic instrument methods.
- (d) Preliminary office review of the compiled manuscript.
- (e) Field edit and accuracy tests.
- (f) Final office review of the manuscript to insure completeness and conformance with specifications. This included correction of the manuscript in accordance with the field edit survey.
- (g) Drafting, reproduction, and publication. See paragraph 3.
- (h) Registry in archives. See paragraph 4.

3. T-8339 and the adjoining quadrangles will be smooth drafted, published, and distributed by the Geological Survey in accordance with the agreement of March 25, 1947.

4. The following data for T-8339 may be needed from time to time either in the U. S. Geological Survey or the Coast and Geodetic Survey. They are filed and may be obtained as follows:

- (a) Original manuscript corrected after field edit. - The manuscript is being forwarded to the Geological Survey at this time for smooth drafting. It

will be eventually returned to the Coast and Geodetic Survey and will be filed in the Division of Photogrammetry. Meanwhile, it may be obtained from the Geological Survey if needed for nautical chart correction or other purposes.

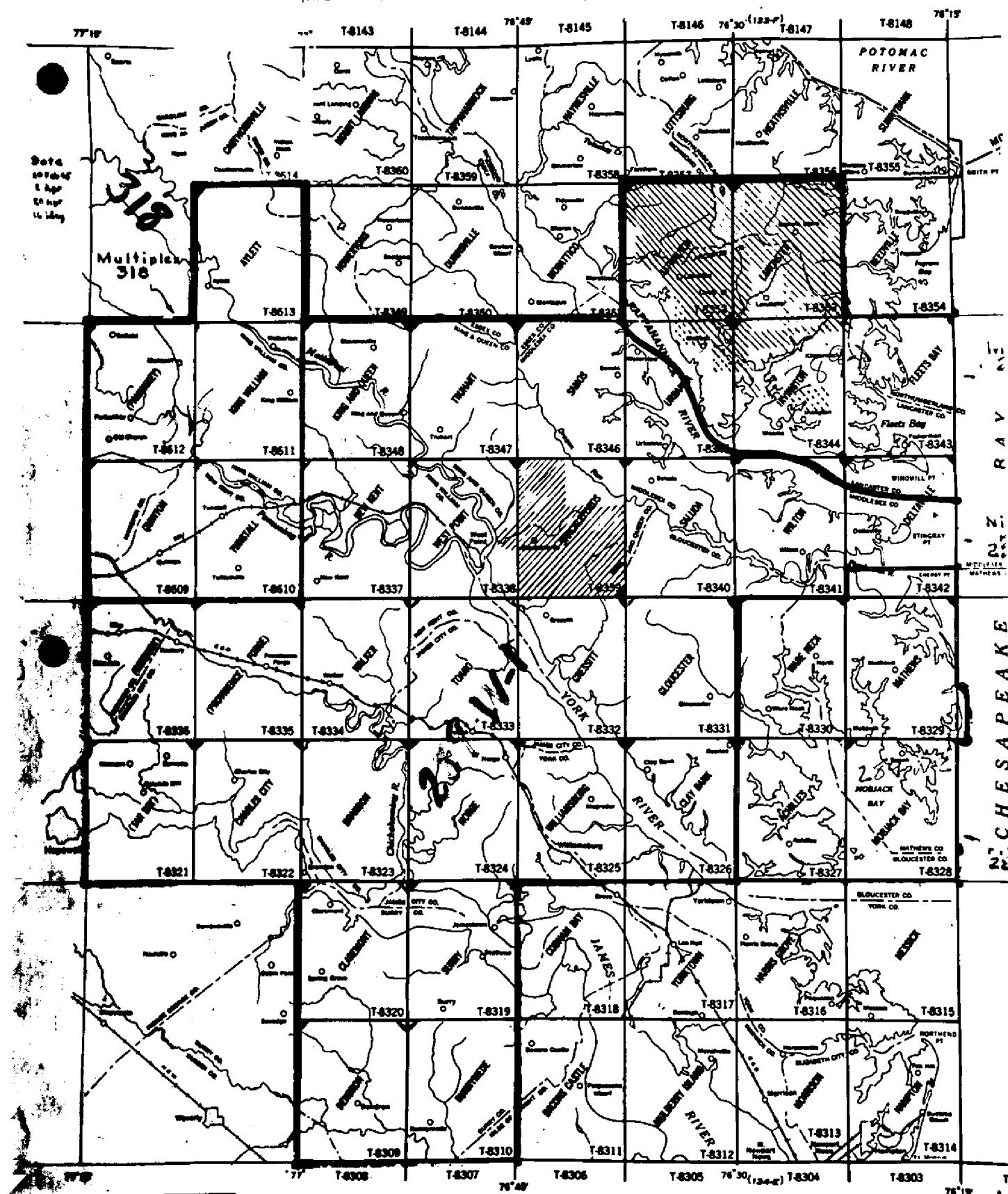
- (b) Field edit sheet. - The field edit sheet is filed in the Division of Photogrammetry. It will be loaned to the Geological Survey or other divisions of the Coast Survey upon request.
- (c) Descriptive report. - The descriptive report together with a 1:20,000 scale photographic print of the manuscript (a above) is being registered in the Coast and Geodetic Survey archives at this time. When T-8339 is published a cloth-backed colored print will also be registered. The descriptive report will be withdrawn from the archives and loaned to the Geological Survey upon request

B.G. Jones

B. G. Jones
Technical Assistant to the
Chief, Div. of Photogrammetry

VIRGINIA - MD.

WAR DEPARTMENT
CORPS OF ENGINEERS, U. S. ARMY



Map by the U. S. Coast and Geodetic Survey under the
direction of the Chief of Engineers, U. S. Army, 1943.
SCALE 1:31,000 or 1:25,000

Planimetry only by
plotting instrument.

AREA CONTOURED

Since last report

To date

Approved

ITEMS
COMPLETED

Field Inspection

Leveling

Photography

Calculation

DESCRIPTIVE REPORT ON SUPPLEMENTAL LEVELING

Quadrangle T-8339, Project 289W

Virginia

Leveling was started on November 13, 1944 and completed on December 22, 1944.

One hundred miles of trigonometric levels and 38 miles of barometric levels were run.

All trigonometric levels were closed on existing U. S. Coast and Geodetic Survey bench marks, or supplemental level points with the exception of the C and CZ loops. These loops were less than one mile in length and unchecked. All other loops were closed within an accuracy of 2 feet or less.

It was attempted to keep all barometric elevations within an accuracy of 3 feet or less. About 40% of the points established were tested by trigonometric levels and those found to be over the allowable error were marked no good on the field photographs.

Supplemental level points were marked on field photographs Nos. 12884, 12885, 12886, 12918, and 12919. Elevations shown in blue ink were determined by trigonometric methods, purple were also determined by trigonometric methods but unchecked, and elevations in green ink were determined by barometric methods.

For further details refer to "Special Report on Trigonometric and Barometric Leveling, Quad. T-8339, Project 289W, Virginia" by Harland R. Cravat. Filed in Photogrammetric Section.

Respectfully submitted,



Harland R. Cravat
Jr. Carto Engr.

Compilation Report - T-8339

26. Control:

Horizontal Control: Four second and third order U. S. C. & G. S. triangulation stations which fall on this sheet and seven other stations in adjacent areas were used as horizontal control. All of these stations were identified satisfactorially and were "held" in the radial plot. In each instance, the station was either pricked direct or else a field inspection point was used. No stations were identified indirectly by reference distances.

Vertical Control: Spirit levels, trigonometric levels, and barometer elevations furnished one hundred or more miles of level lines for this quadrangle. Elevations were obtained about every half mile along level lines, which were run on roads at approximate intervals one mile. For large areas in which no roads existed, spot elevations were obtained. The reason for the multiplicity of elevations was that the Plotter was being used for the first time and it was not possible to know just how much control would be required. This sheet was used as a test for the instrument as well as a training sheet for the operators.

In general, the vertical control was sufficient. But there were instances where more control in particular small areas would have been beneficial. Such control would perhaps have been impractical to obtain since the places were usually wooded areas where the cost would have been comparatively large, the identification of suitable points questionable, and the ultimate value doubtful. Considering the quadrangle as a whole, fewer elevations possibly could have been supplied, but all were used to an advantage. With more careful planning, fewer points could have been requested, but the positions of these points would have been more exacting and the reduction of the total mileage doubtful.

In the northwest part of the sheet there was an area in which the Plotter interpretation could not be made to agree with the vertical control data. The area involved the level line which was designated by the letters CV. The discrepancy has been called to the attention of the field edit party for correction or verification.

27. Radial Plot:

This sheet was plotted alone since the distribution of control points was favorable.

The following twelve metal mounted 1:20,000 scale nine lens photographs were used, extreme care having been exercised

in the transforming process since they were to be used for contouring as well as for a radial line plot:

12917 - 12920
12884 - 12887
12865
12866
12868
12869

Transparent vinylite templets were used in the radial plot since the differential shrinkage is very small with respect to changes in humidity. The map projection was a base rectangular grid ruled on dyrite, a type of vinylite sheet. The resulting positions of the radial plot were later transferred by pricking onto the manuscript projection ruled on acetate which showed both the state grid and the geographic projection. Only a small number of detail points were determined by the main radial plot and later it became necessary to locate additional detail points.

The customary method of laying the plot was employed. The chamber junctions were not perfect on the photographs which caused some radial directions to be inconsistent. These instances were analyzed and the erroneous photograph chamber was determined by elimination and noted.

The method used for "cutting-in" supplementary detail points was perhaps new. The radial templet was placed back on the photograph in its original position and kept there during the cutting-in process. On the templet appeared the radial line as drafted through the image as well as the prick hole which was made at the completion of the radial plot and which represented the map position of the image. This kept the detailer informed as to what chambers held and did not hold as indicated by whether or not the prick hole was on the radial line, and also what the amount and direction of error was. The basis of this procedure lies in the assumption that during the main radial plot adjustment, the workman is best informed, and the prick hole represents his decision based upon his observation of the behavior of several photographs and their respective chamber junctions. The additional detail points are cut in by orienting individual photographs under the map manuscript. The use of the main radial plot templets as described above makes it possible to orient each photograph in the exact position it held in the main radial plot.

Azimuth lines both in line of flight and cross-flight to all possible photographs were utilized throughout. Pass points and detail points were utilized in all the photographs in which they appeared regardless of the distance from the center, the

amount of overlap, or the number of rays through the point.

The plot held very well to all control, azimuth lines, and pass points, with the exception of isolated chamber junction errors mentioned above. There was no reason to suspect any part of the area to be of low accuracy.

28. Detailing - The Reading Stereocartograph Process:

All the planimetric detail and contour lines were drawn with the Reading Stereocartograph, which is the stereoscopic plotting instrument used in conjunction with the nine lens aerial camera, the transforming printer, and the special rectifying camera, all built by the Coast and Geodetic Survey. The stereocartograph is referred to as the Plotter in this report. This is the first quadrangle mapped by means of this instrument.

The Rectification Templet: A templet was used in the process of rectification in conjunction with computed data. It consisted simply of the original main radial plot templet with about eight well distributed detail points displaced for their elevations from the prick hole which represented the map position at 1:20,000 scale. The displacement e was computed with slide rule from the relation:

$$e = r^1 h / (H - h) \quad \text{where}$$

r^1 = the radial distance from templet center to prick hole

h = elevation of the object, either as given by our own vertical control or from U. S. G. S. quadrangles.

H = the theoretical flying height necessary to make 1:20,000 scale photographs = 13,749 feet.

The displacing of the position was performed by a special instrument (made in the C. & G. S. instrument division under the direction of Commander O. S. Reading) by which it is possible to set exactly upon a point on a line, turn a screw until the computed displacement is registered on a dial to 0.01 m.m., and then accurately prick the new point on the same line.

The new positions on the templet were carefully marked with a small fine black circle. The corresponding images on the photograph were also marked with a fine black circle just larger than that on the templet, and also circled in white ink on both sides of the black to give contrast for visual rectification. The new positions represented corresponding

image positions as they would appear on an untilted photograph at the scale of 1:20,000.

Tilt Determination: An approximate method of tilt determination was employed which obtained the values (1) angle of tilt, (2) angle of swing, and (3) factor of magnification, all required for rectification. The method may be called the Displacement Method. It consists of (1) placing the rectification templet on the photograph; (2) noting the various discrepancies between photograph and templet positions for points; (3) thus estimating quite accurately the approximate positions of the principal line, axis of tilt, and direction in which the nadir point lay, and measuring with a protractor the angle of swing from a specified line of reference; (4) from a measurement of the radial distances of photograph and templet positions for a point on or near the axis of tilt, computing a ratio of enlargement or reduction necessary to make the photograph scale equal that of the templet; (5) applying this ratio to the radial distance of a point on the templet on or near the principle line; (6) measuring the remaining displacement c (due to tilt alone) between the photograph and corrected templet positions; (7) substituting in the following equation for computing the angle of tilt, the third and last required element:

$$\sin t = cf / n^2 \quad \text{where}$$

t = the resultant angle of tilt

c = the remaining displacement all due to tilt

f = focal length of the photograph = 209.5 m.m.

n = the radial distance of the photograph image from its center.

Approximate Rectifier Settings: Specially compiled tables, graphs, and simple empirical equations were used in obtaining the eight settings for the rectifying camera from the three found with the tilt determination. The resulting settings were such as to perform correct geometric rectification as well as retain sharp focus and serve as a starting point for the final adjustments.

Final Rectifier Settings: The original metal mounted transformed print was placed in the negative holder of the rectifying camera, the rectifying templet was placed in the position of the sensitive paper, and the respective approximate settings were made. With photoflood lamps used for illuminating the photograph, the black-and-white circles were seen projected onto the templet. Proper rectifier settings were obtained when all pairs of corresponding circles coincided. The templet table was adjusted in position and inclination, and the lens was adjusted in position until such a condition

was attained as closely as possible. Then new settings were read and all the settings were re-set according to a specific procedure to ensure that the geometric and optical requisites were restored. The circles again were inspected and further slight adjustment and re-sets were made in a similar manner until the circles agreed as closely as possible. When the adjustment was complete, the photographer recorded the final settings, marked any points on the templet which were greatly inconsistent, replaced the templet with metal mounted paper, and made the photographic print.

This adjustment of the settings seldom brought all the circles exactly "on". The discrepancies were due to human errors accumulated from the photograph preparation, radial plot, and relief displacements. Usually all consistent points fit to within 0.2 or 0.3 m.m.

The process resulted in a negative print which was found to be undesirable for use with the Plotter. Hence a re-rectification was accomplished, using zero tilt and unity magnification to produce a positive photograph, again on metal mounted paper. Actually, the templet was also used again to insure against accidental errors.

This complete process was duplicated for the eight photographs used by the Plotter for compiling the sheet. The final adjustments of the rectifier for most of the photographs was performed by the operators of the Plotter, but later procedure transferred this task to the air photographic laboratory under Mr R. E. Ask.

The Plotter: The Plotter (Stereocartograph) is a parallax measuring type of stereoscopic instrument which consists chiefly of tables on which to set and adjust a pair of photographs; a viewing stereoscope with a floating dot arrangement in the optical system; a means of moving the stereoscope from point to point over the photographs at will and at the same time actuating a pencil point which traces the path of the floating dot on a map sheet; a means for separating the two photographs with a foot wheel which (1) causes the floating marsh to seem to rise or fall, (2) records the amount of movement on a calibrated indicator and (3) changes the scale of the drawing mechanism.

Operation of the Plotter: A transparent overlay sheet was prepared for one photograph showing the elevations of all the vertical control points in the area. Two overlapping photographs were placed on their respective tables and centered with a centering device and clamped firmly into position. The centering was done with respect to the nadir point, whose position was computed from the final rectifier

settings and plotted on the photograph. Each photograph table was rotated about its respective center and the tables then separated with a hand wheel until a stereoscopic view was seen and the indicator showed a correct elevation when the floating dot was placed on a vertical control point near the center of one of the photographs.

Readings were made on many of the vertical control points in the area of overlap and the elevation discrepancies were recorded on the overlay sheet. Then the photographs were rotated a small amount individually and the separation changed systematically so as to reduce the elevation discrepancies within the overlap area as a whole. Stereoscopic vision was restored by a y-parallax screw adjustment on one of the photographs. This process of adjustment was repeated until no improvement could be obtained from further adjustments. Then readings were again made at all vertical control points and along all chamber junction lines and the final discrepancies were recorded on the overlay. If the discrepancies were relatively large, correction lines were drawn on the overlay similar to contour lines which served to notify the operator when to change the indicator setting to compensate for the discrepancy. It was usually necessary to break the overlap area down into smaller areas and perform the similar adjustments independent of those required for the overlap area as a whole. At first, each smaller area was thus compiled on a separate sheet. Later practice is to compile the entire overlap onto a single sheet even though separate adjustments are required for particular areas.

The causes of the elevation discrepancies were (1) errors in transformation (chamber junctions) which in turn result largely from differential film shrinkage and the inability to compensate for it, (2) errors in photograph preparation, (3) errors in the adjustment and interpretation of the radial plot, and (4) errors in the final adjustments of the rectifying camera. The third and fourth causes were results to a great extent of the first cause. The pure error due to rectification (4) was considered as comparatively small and was quite easily compensated for on the plotter. Small discrepancies were particularly noticeable since an error of 0.1 m.m. parallel to the direction flight appeared as an error of five feet in elevation.

The operator then proceeded to trace the planimetry of the overlap area, keeping the floating dot in contact with the features by means of the foot wheel. The drawing was made in pencil on a blank sheet of acetate. Roads, side roads, and isolated buildings were shown as well as those

points which were used as pass points and detail points in the radial plot. The sheet was removed when the planimetry was completed because the drawing would become damaged by the excessive effort spent on the sheet while contouring.

The contour lines were traced onto a second sheet of blank acetate upon which were again plotted the positions of all the pass points and detail points of the radial plot. The contours were drawn by moving the stereoscope over the photograph in such directions that the floating dot seemed at all times to be in contact with the ground, the indicator having been set at a desired contour elevation and corrected according to the information on the overlay sheet. Shoreline and streams were traced on the contour sheet in the same manner as planimetry.

The completed contour and planimetry sheets were traced onto the acetate projection sheet in ink by a photogrammetric aid who understood the radial plot process and the operation of the Plotter. A small adjustment was required to make the Plotter positions of pass points and detail points agree with the radial plot positions shown on the manuscript. This adjustment needed to be done with good judgement and with the knowledge that a radial plot position could be in error, and it was sometimes necessary to cut-in additional detail points to solve horizontal discrepancies. The reasons for such planimetric discrepancies were due to the same causes as mentioned above for elevations. In addition was the personal error of the operator, and also the fact that if an error occurred in the direction of flight on the Y (left) photograph, or perpendicular to the line of flight on the X (right) photograph, it would be reproduced by the plotter in full magnitude on the map sheet. The Plotter itself was checked three times during the mapping of this sheet for mechanical discrepancies by the instrument division and was not found to be out of adjustment.

The draftsman also applied all the field inspection data as indicated on the field inspection photographs, and applied any other information to make the rough draft a complete manuscript map. He made slight corrections in shapes (topographic expression) and positions to agree with the photographs as well as add the boundaries of wooded areas if and when they were omitted on the planimetric sheet.

The eight photographs used in the Plotter for this sheet were 12917 to 12920 and 12884 to 12887. The operators were W. D. Harris, R. J. Tallman, and O. N. Dalbey. The manuscript map was drawn by the operators in addition to A. H. Faulds, N. A. Cluff, and H. R. Brooks. The sheet was begun about February 15, 1945, and completed about May 30. During

this period the plotting was interrupted for three weeks for the training of Mr. Dalbey. The Plotter was operated on two shifts for a total of 13 hours per day except during the training period. The slow rate of progress must not be used as a criterion for planning future work because since that time a similar sheet was completed in four weeks.

- 29. Supplemental Data -- None
- 30. Mean High-Water Line -- None
- 31. Low-Water and Shoal Lines -- None
- 32. Details Offshore -- None
- 33. Wharves and Shoreline Structures -- None
- 34. Landmarks and Aids to Navigation -- None
- 35. Hydrographic Control -- None
- 36. Aeronautical Aids -- None
- 44. Comparison with Existing Quadrangles:

The manuscript was compared with U. S. G. S. quadrangle Urbanna, 1918, 1:62,5000. All discrepancies are minor and are due to difference in scale of the two maps and the difference in time at which they were compiled.

- 45. Comparison with Nautical Charts -- Does not apply.

G. C. Tewinkel

G. C. Tewinkel

Inspected by:

B. S. Jones
B. S. Jones

SUPPLEMENTAL FIELD INSPECTION REPORT

T-8339 - Shacklefords Quad. (3730/7637.5/7.5)

This supplemental field inspection report for quadrangle T-8339 is prepared August 29, 1945 by Azriel La Fave in conjunction with his field-edit report, to supplement the general field inspection report submitted in 1944 by War Mapping Party No. 1. This latter report covered project CS-289W which included quadrangle T-8339.

1. Description of Area.

Quadrangle T-8339 is located in the tide-water section of Virginia, about three miles east of the town of West Point, and about the same distance south of Saluda. There are no densely populated sections, but the large number of country stores, rural post offices, adequate road system, and rural electrification give many parts of the quadrangle the advantages of a more urban area.

The land is a comparatively flat upland dissected with many deep gullies. The headwaters of most streams are over 80 feet in elevation, dropping rapidly to sea level. For the most part, the steeper drainage areas are wooded with mixed pine and hardwood. The extremely flat areas where drainage is poor are covered with a dense growth of pine. About 70 percent of the area is wooded; the remainder being cultivated.

2. Completeness of Field Inspection.

See 1944 Field Inspection Report for project CS-289W.

3. Interpretation of Photographs.

See 1944 Field Inspection Report for project CS-289W.

4. Horizontal Control.

All stations referred to in the 1944 report are still in good condition.

5. Vertical Control.

See 1944 Field Inspection Report for project CS-289W.

Three additional bench marks were found during the field-edit survey and were added to the manuscript, as follows:

P-48, 1934	U.S.C. & G.S.
BM 102, 1916	U.S.G.S.
BM 93, 1916	U.S.G.S.

6. Contours and Drainage.

See 1944 Field Inspection Report for project CS-289W and also Item 6 in Field Edit Report.

7, 8, 9, and 10 - Not applicable to this quadrangle.

11. Landmarks and Aids to Navigation.

The outstanding landmark in this quadrangle is Shacklefords Fire Lookout Tower. Its height above the ground is 107 feet, and above mean (?) sea level approximately 195 feet. No warning lights nor distinctive marks are on it. It is listed under Aeronautical Aids to Navigation in the 1944 Field Inspection Report and reported on Form 567.

12 and 13 - Not applicable to this quadrangle.

14. Road Classification.

See item 14 in the Field Edit Report

15. Bridges.

There are no bridges over navigable waters in this quadrangle.

16. Buildings.

See 1944 Field Inspection Report and also item 16 in the Field Edit Report.

17. Boundary Monuments and Lines.

See 1944 Field Inspection Report and also item 17 in the Field Edit Report.

18. Geographic Names.

Geographic names in this quadrangle were investigated in 1944 by J. W. Stingley. A special geographic name report, which included this area, was submitted in 1944.

COMPILATION

26 through 45 reported in a special report by G. C. Tewinkel of the Washington Office.

Respectfully submitted August 29, 1945



Harland R. Cravat
Photogrammetric Engineer

FIELD EDIT REPORT

T-8339 Shackelfords Quadrangle (3730/7637.5/7.5)

Virginia

Project CS 289W-1

Harland R. Cravat, Chief of Party

The field-edit survey was made by Azriel La Fave, Photogrammetric Engineer, from 15 July to 25 August, 1945 in accordance with Director's instructions dated

Vertical accuracy tests were also made during this period, although they had been preceded by other accuracy tests by Harland R. Cravat in February 1945 (see paragraph 48).

46. Methods

The field-edit man rode in a truck over every passable road in the quadrangle, checking buildings, roads, drainage, and contours. Where a large area had no adequate roads traversing it, the area was covered on foot. Geographic names were checked with posted signs or local residents. Political boundaries were checked by courthouse records, and local residents.

All results of the field-edit survey were shown on the field-edit sheet.

The following information resulting from the field-edit survey is reported by item numbers, supplementing information under corresponding item numbers in the 1944 Field Inspection Report or the Compilation Report:

6. Contours and Drainage:

All contours visible from the roads and all in cleared areas were examined for shape or relative position. Any contour which seemed to be out of position with reference to a known elevation was checked either by hand-level or plane-table. No attempt was made to check all contours within all the wooded areas, but the field-edit man walked over many woods roads, along which a good check was obtained.

Near Lat. 37°36' and Long. 76°43' some contours were changed. Because of the dense woods growth, the stereoscopic instrument operator probably could not see the ground in the photographic models.

For perhaps the same reason, the contours were in error in the vicinity of Lat. $37^{\circ}34'$ and Long. $76^{\circ}42'$.

It is difficult at this time to verify the drainage satisfactorily because of the recent extremely heavy rainfall. The location of the main stream of Dragon Run was not completely checked in the field because of the extremely high water in the swamp.

The drainage pattern as a whole is very satisfactory and complete, and aids in giving good topographic expression to the map.

14. Classification of Roads:

In 1944 roads were classified on the field-inspection photographs according to instructions dated Nov. 16, 1942.

During the field edit many roads were deleted entirely or their classification was changed to comply with General Instructions dated June 30, 1945 and clarifying letter from Mr. B. G. Jones dated August 17, 1945.

16. Buildings:

Many of the buildings that were added during the field edit have been built since the 1944 field inspection. Buildings that were deleted were temporary or buildings that have deteriorated since the 1944 field inspection.

17. Boundary Monuments and Lines:

The county boundary line near Lat. $37^{\circ}35'$, Long. $76^{\circ}39\frac{1}{2}'$ was changed from its position as shown on the field inspection photographs after examining courthouse records and marks on the ground:

COUNTY LINE DISCREPANCY

There was no apparent discrepancy in the county or Magisterial District Lines except near Lat. $37^{\circ}45'$, Long. $76^{\circ}39\frac{1}{2}'$.

All old maps show this county line here a straight or nearly straight line approximately in green ink. This line varies slightly on different maps but a straight line here is graphically impossible if it is to be fitted to accepted boundary marks.

*Sketch and
Letter attached
at back of this
report.*

Descriptions of this county line were destroyed in 1865. Magisterial District lines are not described by reference to natural boundaries and county lines. In hope of finding parts of the county line described in deeds, survey books, or processioners books of properties along the line were examined, but no worthwhile information was found.

Mr. Wilson believes that the line comes north along the road to his fence line thence west northwest along the fence to a blazed pine tree; thence northeast to Dragon Run. On this last course, there was a line ditch dug at the time of the Civil War.

The field editor carefully examined this course for evidences of this ditch. At point A, it is very well preserved. Elsewhere along the line, one cannot be positive that the occasional depressions are part of the ditch, though it is possible.

At point B, Mr. Wilson and Mr. Carlton agree that that part of the woods line was always reputed to be the line.

The deed of Mr. Wilson's farm is registered in the Gloucester County Courthouse. If the green lines were correct, his property should have been recorded in King and Queen County. As far as it could be traced, this property was always recorded in Gloucester County.

*See decision of Review Section opposite first page
of the Review Report.*

18. Geographic Names:

Referring to the geographic names listed by Mr. Jack Stingley on the Urbanna Quadrangle of the U. S. G. S., the field editor suggests the following changes:

Change Beulahland to Beulah Church
Delete Buena Vista, locally known only as Cologne.
(There is also a Buena Vista Post Office elsewhere in the State of Virginia.)

noted 11/23/46 L.H.

19. Telephone and Power Lines:

A high-voltage power-line was scheduled to be built in the south central part of the quadrangle. Its north-west-southeast course is very conspicuous on the field inspection photograph. This line was actually built along the west side of Highway No. 14.

The field-edit party located the telephone and power lines which are shown along the roads on the field-edit sheet.

47. Adequacy of Compilation:

The compilation was very satisfactory - roads and drainage seemed to be accurately located. Detail from the field-inspection photographs was properly interpreted.

48. Accuracy Tests (Vertical):

Four vertical accuracy checks were made on the quadrangle by planetable traverse methods. The first check, a very intensive one in the vicinity of Shackelfords Fire Lookout Tower, was made by Mr. Harland R. Cravat during the period of Feb. 12, 1945 to Feb. 22, 1945, and is the subject of a special report written at that time and attached to this report.

During the field edit three additional vertical accuracy checks were made by Harland R. Cravat and Azriel LaFave. The areas tested were labeled No. 1, No. 2, and No. 3 on the field-edit sheet. Mr. Cravat made checks No. 1 and No. 3; Mr. LaFave made check No. 2. The checks were made by planetable, with the following results:

57 points tested.
52 points in error less than 10 feet.
4 points in error from 10 to 20 feet.
1 point in error more than 20 feet.
91 % of points tested in error less than
 $\frac{1}{2}$ contour interval.

The combined results of all tests are as follows:

- 209 points tested.
- 185 points within an accuracy of zero to $\frac{1}{2}$ contour interval of error.
- 13 points in error from $\frac{1}{2}$ to one full contour interval
- 11 points in error over one full contour interval.
- 89% of points tested fall within the limits of zero to $\frac{1}{2}$ contour interval of error.

The apparent vertical error has not been decreased by assuming a horizontal displacement within the permissible horizontal error for the map scale in arriving at the above results. Even so, the vertical accuracy tests give results only slightly below the National Standards of Accuracy.

(Horizontal)

No horizontal accuracy tests.

49. Junctions:

Junctions will be checked when the adjoining quadrangles are field-edited and the results will be included in the reports on those quadrangles.

50. Review of First Proof:

Mr. G. L. Evans, Surveyor for the Chesapeake Corp., whose address is P. O. Box 203, West Point, Va., has expressed a keen desire to review one of the first proofs of this quadrangle.

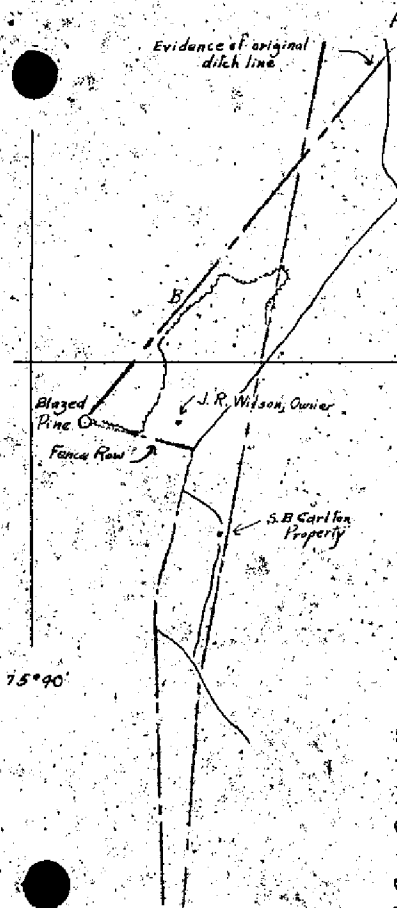
Mr. Evans is believed to be well qualified to make the review, as the firm he is working for has extensive timber holdings in the area, and is constantly planning new roads and settings for logging their pulp wood. He is well acquainted with the area and is also interested in the map in connection with his work.

Respectfully submitted August 29, 1945



Harland R. Gravat
Photogrammetric Engineer

COUNTY LINE DISCREPANCY



There was no apparent discrepancy in the county or Magisterial District Lines other than in the general locality of Lat. 37 45' and Long. 76 39'.

In this locality, all old maps show a straight line or a nearly straight line in the general vicinity of the one located in green. This line varies slightly on different maps but a straight line in that general direction is graphically impossible if it is to be fitted to accepted boundary marks.

Descriptions of this county line were destroyed in 1865. Magisterial District Lines have no description other than referring to natural boundaries and County Lines. In the hope of finding portions of the county line described in parcels along that line, deeds, survey books, and processioners books were examined but no worthwhile information was found.

Mr. Wilson believes that the line comes along the road to his fence line thence Northwest along the fence to a blazed Pine Tree; thence Northeast to the Dragon Run. On this last course, there was a line ditch dug at the time of the Civil War. The field editor carefully examined this course for evidences of this ditch. At point A, it is very well preserved. Elsewhere along the line, one cannot be positive that the occasional depressions are part of the ditch though it is possible.

At point B, Mr. Wilson and Mr. Carlton agree that that portion of the woods line was always reputed to be the line.

The deed of Mr. Wilson's farm is registered in the Gloucester County Court House. If the Green line were correct, his property should have been recorded in King and Queen County. As far as it could be traced, this property was always recorded in Gloucester County.

Asiel LaFave
Asiel LaFave
Photogrammetric Engineer

POST-OFFICE ADDRESS: Box 413, West point, Va.

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

28 KTA
836

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

September 10, 1945

To: Mr. B. G. Jones
Room 3102
U.S. Coast & Geodetic Survey
Washington, 25, D.C.

From: Azriel LaFave
Box 413
U.S. Coast & Geodetic Survey
West Point, Va.

Subject: Boundary Discrepancies, Field Edit Report T-8339

Regarding the boundary line ditch mentioned in the above report, I have here listed some additional statements which may help to clarify Item 17 of that report and answer the questions in your letter of September 6, 1945.

The so-called line ditch was not dug for military purposes. It was dug only as a means of preserving that line. It was not necessarily dug during the Civil War. If I remember Mr. Wilson's statement correctly he said that it was "dug about the time of the War Between The States or maybe before that". The war was mentioned only in an effort to give an approximate time of the digging. Since writing that report, I have been told by the secretary to Mr D.S. Mitchell, a local attorney, that at one time it was common practice in this part of Virginia to mark property lines with ditches.

The S.B. Carlton property is registered in Gloucester County.

According to Attorney Mitchell, if property lies in two counties, each part is registered in its respective county and the owner pays taxes in each county.

It is true that a blazed tree in itself means little and especially so when it is not old enough to be an original survey mark. Since it did have a mark on it and since it did seem to line up with points A and B, and does add strength to Mr. Wilson's story, it was thought that it should be mentioned for the reviewer's consideration.

Respectfully yours,

Azriel LaFave
Azriel LaFave



711-RCR

December 18, 1945

Noty: Also similar letter
to Clerk of
Gloucester Co.

No reply to date

5/27/47

The Clerk of the Court,
King and Queen County Court House,
King and Queen County, Virginia

Dear Sir:

In making the surveys for the production of topographic maps by this Bureau of Gloucester and King and Queen Counties, the survey party has found it very difficult to recover that section of the county boundary line from Dragon Run to Poropotank River. This section of the county boundary line as mapped by the field party of this Bureau after considerable investigation and discussion with local residents does not agree with the boundary as plotted on previous U. S. Geological Survey maps of the area.

The difficulty in mapping this boundary line correctly is indicated in the following extracts from the field party's report of August 1945.

1. County records for the properties adjacent to the line are not available.
2. Deeds and records of properties along the line do not indicate property lines adjacent to the county line.
3. Mr. Wilson, a property owner along the line, believes "that a part of the line comes along the road to his (westerly) fence line, thence northwest along the fence to a blazed pine tree, thence northwest to Dragon Run". Mr. Carlton, another owner along the line, concurs with Mr. Wilson in this belief. (Mr. Wilson's and Mr. Carlton's houses are indicated on the enclosed map.)

Enclosed with this letter is a copy of the manuscript of the Shacklefords quadrangle. The section of the boundary line as previously mapped is shown in blue. The section as mapped by the field party of this Bureau in August 1945 is shown in red. From the extracts from the surveyor's report as quoted above, you will understand that it is very

difficult for this office to obtain authoritative information for mapping the boundary. However, will you please examine the enclosed map and advise this office as to which of the lines you consider to be correct.

A similar inquiry is being forwarded to the County Clerk of Gloucester County.

This office will greatly appreciate any information tending to determine the correct line which you will supply.

Very truly yours,

~~(signed) J. H. HAWLEY~~

Enclosure

Acting Director.

Note:

No reply has been received from the Clerks of the Courts of King and Queens, and, Gloucester Counties in reply to the request for information pertaining to the boundary discrepancy between the two counties. The investigation by the field editor, Azriel La Fave was particularly exhaustive and appears to be an accurate description of the boundary as it exists. The line between these two counties will therefore be shown as a definite line. *as defined by the field editor.*

S. V. Gifford
Chg., Review Section
7/24/47

REVIEW REPORT FOR T-8339
Project CS-289W1
Shacklefords, Virginia Quadrangle

The manuscript for this quadrangle was the first one whose planimetry and topography were compiled entirely by the use of the Reading Stereocartograph.

Review procedure was changed somewhat to accommodate the new compilation system. An "Office Inspection" of the manuscript was made preliminary to the field edit to assure completeness and compliance with the latest specifications. Discrepancies were noted on a discrepancy overlay and a brief Office Inspection Report prepared for the benefit of the Field Editor. The discrepancy overlay data have been applied to the map manuscript and the overlay discarded. The Office Inspection Report has been incorporated with this report.

All headings omitted are not applicable or are fully covered in other sections of this report or the Project Report for Project CS-289W.

2 - Field Inspection - The field inspection of this quadrangle was performed on a set of field inspection photographs and was more than adequate for compilation purposes.

4 & 5 - Horizontal and Vertical Control - All^{available} horizontal and vertical control stations falling within the limits of this quadrangle are listed in the Field Inspection Report for Project CS-289W and have been plotted on this map manuscript.

6 - Contours - Discrepancies between contours obtained from the Reading Stereocartograph and spot elevations were referred to the Field Editor and have been reconciled by him. Contours which could not be shown in accurate position by the plotter operators were accurately determined by the Field Editor.

17 - Boundaries - The boundary line between King and Queen County and Gloucester County, south of Dragon Run, is still questionable. Letters have been written to the County Clerks of these counties requesting their assistance in verifying the position of the line as presently shown on the map manuscript. When replies to these letters are received a note stating the disposition of the situation will be placed at the end of this review.

~~See "Notes to Compilers and Reviewers" for sketch and account of this discrepancy.~~

44 - Comparison with existing Topographic Quadrangles - This manuscript has been compared with surveys and maps of the same area. It supercedes all such surveys and maps of common areas. Maps and surveys compared were:

1. USC&GS T-722, 1:20,000 dated 1885
2. USGS quadrangle "Urbanna", 1:62,500 dated 1917

See note -
opposite
page.

48 - Accuracy Tests - This map complies with National Map Accuracy Requirements.

Vertical accuracy tests were laid out by the Review Section, with the purpose of determining the merits of the Reading Plotter. The most difficult and not representative areas were selected. Even so, with an allowable horizontal shift the points tested are well within National Map Accuracy Requirements.

Reviewed by

H. R. Brooks
H. R. Brooks
Photogrammetrist

Inspected by

S. V. Griffith
S. V. Griffith
Chief, Review Section
January 9, 1946

Examined and approved by

B. G. Jones 7/22/47
B. G. Jones
Technical Asst. to the Chief, Div. of Photogrammetry

K. T. Adams
Comdr. K. T. Adams
Chief, Division of Photogrammetry

I. E. Rittenburg
Lt. Comdr. I. E. Rittenburg
Chief, Nautical Chart Branch

C. K. Green
Comdr. C. K. Green
Chief, Division of Coastal Surveys

GEOGRAPHIC NAMES

Survey No. T-8339

SHACKLEFORDS quadrangle

1 Name on Survey

	A	B	C	D	E	F	G	H	K	
✓ <u>Virginia</u>										✓ 1
✓ <u>Gloucester County</u>	Petsworth	district								✓ 2
✓ <u>King and Queen County</u>	Buena Vista	district								✓ 3
✓ <u>Middlesex County</u>	Saluda	district								✓ 4
✓ <u>U.S. No. 17</u>	(Tidewater Trail									✓ 5
<u>Va Nos. 14, 33, 198</u>										✓ 6
										7
✓ <u>New Hope Mem. Ch</u> and <u>New Hope Church</u>										✓ 8
✓ <u>Dragon Swamp</u>										✓ 9
✓ <u>Lovers Lane Road</u>										✓ 10
✓ <u>Mascot Road</u>	Mascot	School								✓ 11
✓ <u>Escoe Road</u>										✓ 12
✓ <u>Escoe Brook Church</u>										✓ 13
✓ <u>Glencie</u>										✓ 14
✓ <u>Batt</u>										✓ 15
✓ <u>Glebe Swamp</u>										✓ 16
✓ <u>Burnt Mill Creek</u>										✓ 17
✓ <u>Beulah Church</u>	(see Desc. Rep. page 6 of Field Edit Report)									✓ 18
✓ <u>Shacklefords</u>										✓ 19
✓ <u>Centerville (Shacklefords P O)</u>	Poropotone	church								✓ 20
✓ <u>Snow Hill</u>	Snow Hill	School								✓ 21
✓ <u>Golders Creek</u>								USGB		✓ 22
✓ <u>Cologne</u>	(see Desc. Rep. page 6 of Field Edit Report)									✓ 23
✓ <u>Poropotank River</u>								USGB		✓ 24
✓ <u>Grassitt Road</u>										✓ 25
✓ <u>Hookley</u>	Hookley P.O.	Hookley Church								✓ 26
✓ <u>Hookley Road</u>										✓ 27

GEOGRAPHIC NAMES

Survey No.

T-8339

GEOGRAPHIC NAMES											
Survey No. T-8339											
2	Name on Survey	A	B	C	D	E	F	G	H	K	
	<u>Bakers Creek</u>										1
	Zion Branch Church (P)	(see item 8), Notes to Compilers & Reviewers									2
		(not on Name Sheet) (Zion Branch Church T-8339)									3
	<u>Hockley Church</u> (P)		"		"	item 57)					4
	<u>Union Prospect Church</u> (P)		"		"	item 60)					5
											6
	<u>Tidewater Trail - George Washington Memorial Highway</u>							(US No. 17)		✓	7
	<u>Hockley Creek</u>									✓	8
											9
											10
		Names underlined in red approved									11
		by L. Heck on 1/23/46									12
		Re-checked 5/27/47 L. H.									13
	<u>SHAKLEFORDS LOOKOUT TOWER</u>									✓	14
											15
											16
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											23
											24
											25
											26
											27

Names underlined in red approved

by L. Heck on 1/23/46

Re-checked 5/27/47
L. H.