10963
10963a

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Diag. Cht. No. 1.

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Topographic

Field No. Ph-40,000-895 *Office No.* T-10963 10963 & 10963A T-10963A

LOCALITY

State Idaho

General locality Clearwater County

Locality Orofino

July

19 59

CHIEF OF PARTY

Victor E. Serena

LIBRARY & ARCHIVES
JUL 1962

DATE

USCOMM-DC 5087

FORM 181
(4-23-54)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT - DATA RECORD

T-10963

Project No. (II): 40,000895 (PART I)

Quadrangle Name (IV):

Field Office (II): Orofino, Idaho

Chief of Party: Victor E. Serena (Photogrammetry) O.S. Risvold (Geodesy)

Photogrammetric Office (III): Baltimore, Maryland

Officer-in-Charge: William F. Deane

Instructions dated (II) (III): 27 April 1959
Ref. instructions 8 " "
15 " "
24 " "

Copy filed in Division of Photogrammetry (IV)

Method of Compilation (III): Kelsh Plotter

Manuscript Scale (III): 1:24,000

Stereoscopic Plotting Instrument Scale (III): 1:7200

Scale Factor (III): 1.000

Date received in Washington Office (IV):

Date reported to Nautical Chart Branch (IV):

Applied to Chart No.

Date:

Date registered (IV):

Publication Scale (IV): 1:24,000

Publication date (IV):

Geographic Datum (III): N.A. 1927

Vertical Datum (III):

Mean sea level except as follows:
Elevations shown as (25) refer to mean high water
Elevations shown as (5) refer to sounding datum
i.e., mean low water or mean lower low water

Reference Station (III):

Lat.:

Long.:

Adjusted
Unadjusted

Plane Coordinates (IV):

State:

Zone:

Y=

X=

Roman numerals indicate whether the item is to be entered by (II) Field Party, (III) Photogrammetric Office, or (IV) Washington Office.

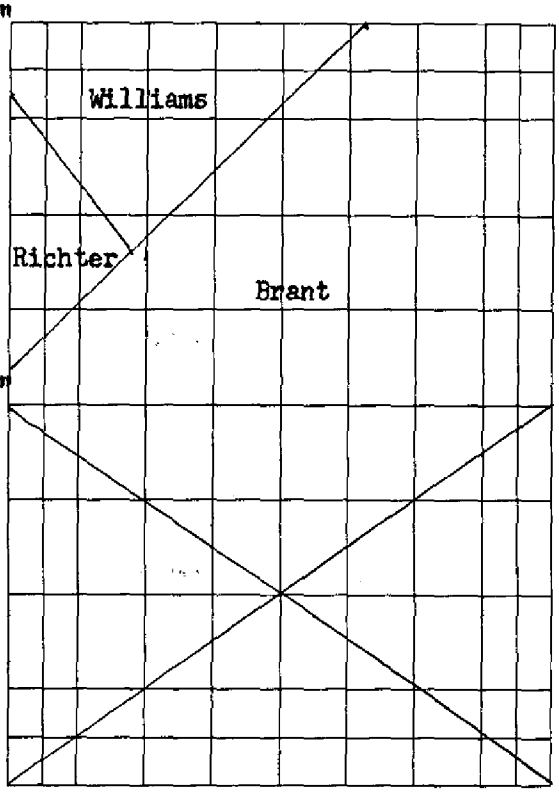
When entering names of personnel on this record give the surname and initials, not initials only.

COMM-DC-57842

115° 56' 15"

115° 45' 00"

46° 56' 00"



46° 50' 45"

Areas contoured by various personnel
(Show name within area)
(II) (III)

FORM 181b
(4-23-54)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT - DATA RECORD

Field Inspection by (II): R. B. Melby — Date: July 1959

Planetable contouring by (II): — Date:

Completion Surveys by (II): — Date:

Mean High Water Location (III) (State date and method of location):

Projection and Grids ruled by (IV): D. M. Brant — Date: 10/29/59

Projection and Grids checked by (IV): H. P. Eichert — Date: 10/29/59

Control plotted by (III): D. M. Brant — Date: 10/29/59

Control checked by (III): H. P. Eichert — Date: 10/29/59

Radial Plot or Stereoscopic Control extension by (III): W. A. Kuncis — Date: 9/1/59 to 11/30/59

Stereoscopic Instrument compilation (III): Planimetry) D. M. Brant) E. L. Williams; Contours) J. C. Richter — Date:) 3/25/60

Manuscript delineated by (III): — Date:

Photogrammetric Office Review by (III): — Date:

Elevations on Manuscript checked by (II) (III): Washington office Review Unit — Date:

COMM-DC-57842

FORM 181c
(4-23-54)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT - DATA RECORD

Camera (kind or source) (III): C&GS Type "W" - 6" focal length

PHOTOGRAPHS (III)

Number	Date	Time	Scale	Stage of Tide
59-W-5524 thru 5525			1:36,000	
5581 " 5585			"	
5593 " 5597			"	

Tide (III)

Ratio of Ranges	Mean Range	Spring Range

Reference Station:
Subordinate Station:
Subordinate Station:

Washington Office Review by (IV): S.G. Blankenbaker — Date: Proj. work sheets review - Jan. thru Mar. 1960

Final Drafting by (IV): Washington office Drafting unit — Date: Proj. drafting Feb. thru May 1960

Drafting verified for reproduction by (IV): J.J. Streifler - A.K. Heywood — Date: Proj. edit

Proof Edit by (IV): A.K. Heywood — Date: March thru May 1960

Land Area (Sq. Statute Miles) (III): 54
Shoreline (More than 200 meters to opposite shore) (III):
Shoreline (Less than 200 meters to opposite shore) (III):
Control Leveling - Miles (II):
Number of Triangulation Stations searched for (II): Recovered: Identified: 3
Number of BMs searched for (II): Recovered: Identified: 17
Number of Recoverable Photo Stations established (III):
Number of Temporary Photo Hydro Stations established (III):

Remarks:

COMM-DC-57842

PROJECT PH-40,000-895

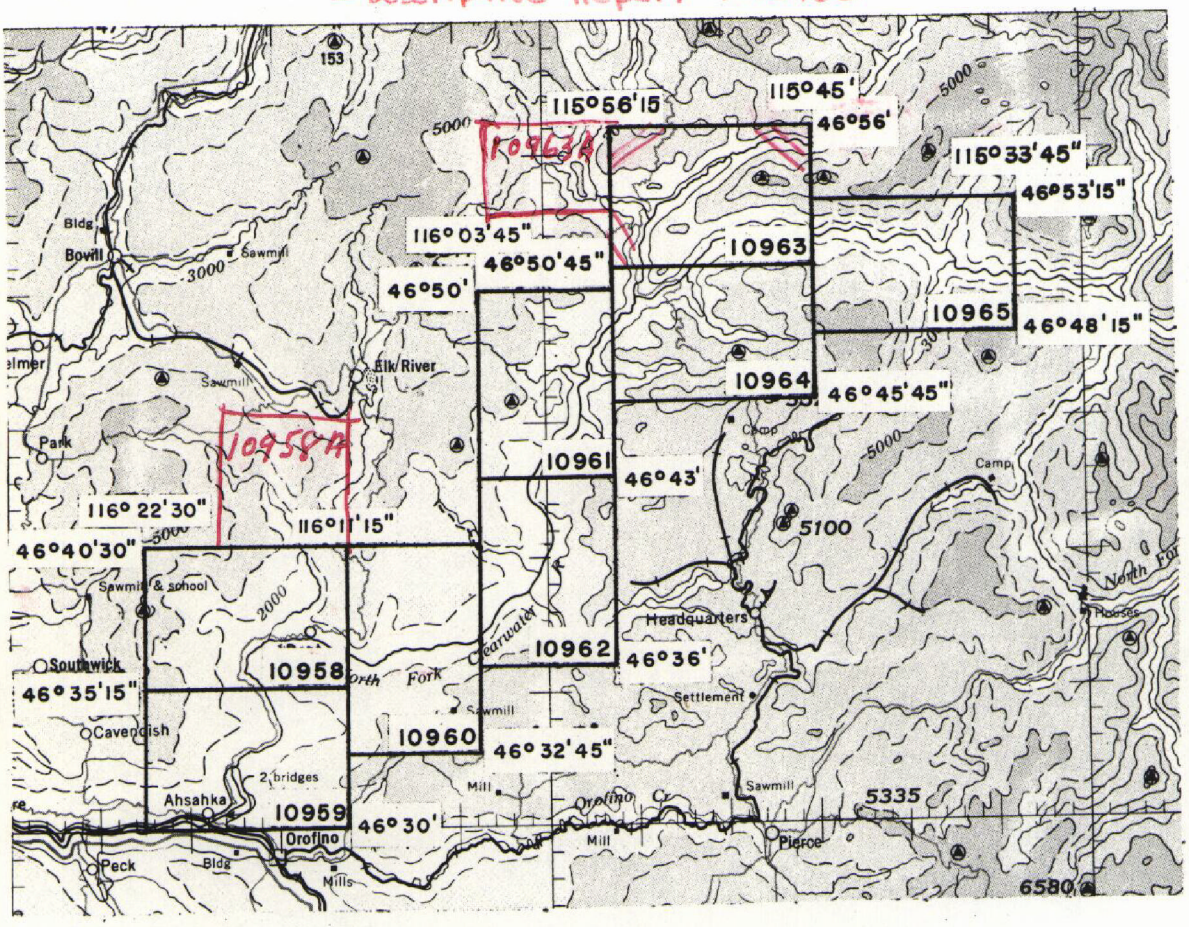
PART I

Topographic Mapping Scale 1:24,000

BRUCES EDDY DAM SITE

NORTH FORK CLEARWATER RIVER, IDAHO

See plot sketch. Two additional manuscripts added to project.
- Descriptive Report T-10965-



Official Mileage For Cost Accounts

Sheet Number	Area Sq. Mi.
10958 + A	54
10959	54
10960	54
10961	54
10962	54
10963 + A	54
10964	54
10965	54
TOTAL	432 Sq. Mi. Area

SUMMARY TO ACCOMPANY DESCRIPTIVE REPORTS
for

T-10958	T-10962
T-10959	T-10963
T-10960	T-10964
T-10961	T-10965

The eight 1:24,000 scale, 40 ft. contour interval topographic maps covered by this Summary comprise Part I of Project 40,000-895. The project location is the site and vicinity of the proposed Bruces Eddy Dam and reservoir on the Clearwater River in Idaho. Part I (eastern section) covers a part of the North Fork of the Clearwater River and its drainage area. Part II (western section) extends along the Clearwater River from Lewiston to Ahsahka, Idaho and will consist of eleven 1:6,000 scale, 10 ft. contour interval topographic maps.

This is a combined photogrammetric mapping and geodetic control survey project undertaken by the Coast and Geodetic Survey as a specialized surveying service to the Corps of Engineers on a reimbursable basis.

The field workwas accomplished as a joint operation by the Divisions of Photogrammetry and Geodesy. Geodetic survey parties recovered and established horizontal and vertical control by conventional triangulation and leveling methods. Photogrammetrists were assigned to geodetic parties to assist in geodetic work and to perform the photogrammetric phases of the control work. Field inspection for interpretation of the photographs was accomplished by photogrammetrists. Photography for this section of the project was flown by the Coast and Geodetic Survey. It consists of 5 strips of "W" camera photographs at an approximate contact scale of 1:40,000.

The work provides horizontal and vertical control for future large scale mapping by the Corps of Engineers and topographic maps for use in preliminary planning for the proposed dam and reservoir. Coast and Geodetic Survey field work and mapping accomplished for this project will be used by the Forest Service for standard 7½ minute quadrangle mapping in the area.

An "Index of Project Material on File" is a part of the Project Completion Report. Field photographs, field notebooks, control station identification cards, and copies of the IBM records were supplied the Corps of Engineers. Duplicate sets of CSI cards are on file in the Division of Photogrammetry. Duplicate sets of field photographs used in horizontal bridging (bridge points and horizontal control) are on file in the Division of Photogrammetry.

Two supplemental manuscripts added to project (Part I)
T-10958 A {filed with T-10958}.
T-10963 A {filed with T-10963}
No Descriptive Reports filed for these "small area" maps.

DATA INCLUDED IN THE DESCRIPTIVE REPORT FOR

T-10965

PH 40,000 - 895 (Part I)

Stereo-instrument compilation report

Bridging report

Triangulation stations positions

Triangulation sketch

Photo index

Field Inspection Report

REVIEW REPORT
TOPOGRAPHIC SURVEYS
T-10958 through T-10965

Horizontal and vertical bridging was done by stereoplanigraph in the Washington Office. "Work Sheets" were compiled and inked in the Baltimore Office. The maps were scribed and printed in one color in the Washington Office. No field edit was accomplished on the project.

The "work sheets" and accompanying field and office data were reviewed in the Washington Office. Verification of drafting was accomplished prior to reproduction.

The maps comply with the National Horizontal Standards of Map Accuracy. Bridging problems on two strips are discussed in the Bridging Report. The questionable areas on two strips fall outside the project area.

Vertical bridging was satisfactory. The tree cover common to much of the project presented a problem in contouring. Although the heights of some timber stands were measured by helicopter, the accuracy of contours is questionable in areas of heavy growth.

Reviewed by

S. G. Blankenbaker
S. G. Blankenbaker

Approved by:

L C Lande
Chief, Review and Drafting
Photogrammetry Division

J E Waugh
Chief, Photogrammetry
Division

SCOPE

This report summarizes the activities of the C&GS on reimbursable Project 40,000-895, Clearwater River, Idaho.

For convenience of reporting, the project is divided into two parts. Part I is designated as the area east of Orofino in the vicinity of the Bruces Eddy Dam site along the North Fork Clearwater River. Part II encompasses that area from Lewiston along the Clearwater River to Ahsahka, Idaho.

A project layout accompanies this report and may be referred to for these areas.

For clarity, each phase of the project is discussed under separate heading.

PROJECT 40,000-895
TOPOGRAPHIC MAPPING
Clearwater River, Idaho

General

On January 9, 1959, negotiations were initiated between Admiral Pierce of the C&GS and Mr. C. W. Waggoner of the Corps of Engineers, Walla Walla District. General specifications were outlined at that time. On January 27, 1959, Mr. Waggoner visited the Washington Office to discuss details of the project.

Negotiations were continued by an exchange of correspondence which resulted in the acceptance of the project on a reimbursable basis to be completed in the spring of 1960.

Purpose

The Army Engineers propose to build one of the world's larger dams located on the North Fork of the Clearwater River near Orofino, Idaho, designated as Bruces Eddy Dam Site.

Existing map coverage was limited to the 1:250,000 series. The dam site area (Part I) required the mapping of nine 1:24,000 surveys and eleven (Part II) 1:6,000 surveys.

The 1:24,000 series were to provide the Engineers with reconnaissance maps for preliminary planning. Field work was to provide monumented horizontal and vertical control for future larger scale mapping anddevelopment of the reservoir site.

Photography

The photography on Part I was flown by Photo Mission 702 of the C&GS. A flight map with five carefully oriented lines giving the most advantageous placement for stereoscopic bridging was furnished. Excellent adherence to these flight lines by the Photo Mission was obtained. Photography was of good quality taken with the 6" Wild Aviogon camera at 1:36,000 scale on August 25, 1959.

The photography on Part II was taken by Pacific Aerial Surveys under contract to the Corps of Engineers. Specifications as to altitude, endlap and camera were set by C&GS.

Photography continued

The first film was received and examined in August 1959. Some strips were rejected and subsequently rephotographed. The photography was of poor quality in one quadrant due to exhaust of aircraft. Tests proved that parallax could be cleared using this photography. Difficulty was encountered during the vertical bridging operations tying models together. (See side heading "Map Accuracy").

Project Diagram

Soil conservation photography taken 1954 at 1:60,000 scale was used to lay an uncontrolled mosaic for use as a project diagram. Nine sheets were laid out to conform to the drainage area. They do not conform to the standard 1:24,000 topographic series. Copies of this diagram were forwarded to Mr. Waggoner for approval.

Sheet Size

Manuscript dimensions on Part I were restricted to 21" x 25½" overall for use in a bound brochure to be assembled by Corps of Engineers. The scale was 1:24,000 and contained both polyconic and state grid.

Overall size on Part II was 29" x 42", the format taken from samples furnished by the Engineers. Grid ticks at 2500' intervals were scribed. No polyconic projection was shown. The sheets were skewed so that the Clearwater River tended to bisect each sheet.

Field Operations

During operational planning of this project, it became evident that field operations would be difficult due to dense woods (Part I), mountainous terrain (Parts I and II) and lack of access roads (Part I).

The use of helicopters was proposed to overcome these difficulties and later proved to be worthwhile.

Any interior areas serviced by roads were many times inaccessible during the initial phase of field operation, due to ruts and washouts caused by spring thaws or deadfalls caused by storms. Later, Forest Service personnel arrived to clear fire lanes permitting survey parties to enter some station sites.

Horizontal Control (Parts I and II)

All previously established stations within the project area were recovered by the reconnaisance party. Additional control needed for aero-triangulation was established by conventional triangulation methods. A sketch of the triangulation scheme is included with this report.

Control recovered or stations selected by the reconnaisance party prior to aerial photography were premarked whenever possible.

58 stations were identified by direct or substitute station methods in Part I and 34 in Part II.

Vertical Control (Part I)

Bureau bench marks of second-order accuracy were established along the river to form the basis for control leveling in the project area. Elevations were extended from these lines and carried through the triangulation net by reciprocal vertical angle observations. Additional elevations were achieved using tellurometer derived distances and vertical angles. Closed trigonometric theodolite and short hand level loops were employed to make final connections to vertical control points.

Vertical control points were identified in pairs normal to the flight line and spaced every third model. In addition, the elevation of any identifiable features existing along level lines which could be readily cut in from triangulation stations was also given.

In Part I, the elevations of 183 vertical control stations were determined and in Part II, 61 such stations were recorded. In addition, the heights of all triangulation stations within the project area were determined.

All vertical control was marked by the field party with copper weld or 1" iron pipe suitably stamped.

Field Inspection

Field inspection was complete within the limits of photography on Part I and within the limits of the 1:16,000 scale photography on Part II. This included classification of roads, buildings, vegetation and drainage. Also included was the identification of all bench marks whether or not they were to be used as control for model points.

Office Operations

Part I

Alternate strips were bridged horizontally and vertically by the stereoplanigraph and adjusted analytically by IBM programming.

The density of horizontal control averages four to six stations per strip and sufficient vertical control was furnished by pairs of elevations normal to the flight line every third model.

Additional horizontal and vertical control was established during the aerotriangulation to enable each model to be delineated by Kelsh methods.

Original requests by the Army Engineers for a 50' interval was modified at the urging of the Geological Survey to 40'. These surveys could then be utilized by them for standard 7½' quadrangles.

Part II

The 1:30,000 scale photography was bridged by stereoplanigraph methods to establish supplemental horizontal control points sufficient in density to fix the position of each 1:16,000 scale photograph.

The 1:16,000 scale photographs were then bridged both horizontally and vertically providing enough control for individual models to be compiled by the Kelsh Plotter.

These Kelsh models were compiled on 1:6,000 scale work sheets with a contour interval of 10'. All data with the exception of a woods overlay was delineated on these work sheets.

Instructions limited the extent of contouring to approximately 400' above the river elevation.

Drafting and Edit

All work sheets were reviewed prior to scribing by the Review Section. The work sheets were then penciled into manuscripts and scribed after which the manuscirpt was edited prior to reproduction.

Map Accuracy

Every attempt was made throughout the project to maintain the standards of National Map Accuracy.

Field parties charged with the responsibility of selecting vertical control points were instructed to choose a site varying less than one foot in a fifteen foot radius. This in itself required diligent searching.

Instrument operators selecting additional vertical control whose elevations were to be determined by IBM adjustment chose as well defined points as possible. Six such elevations were furnished each Kelsh model, four near the outer edges and two near the physical centers, to insure that absolute orientation would be in the same plane.

Tree heights were determined by helicopter as an aid to the operator delineating contours.

Horizontal control was plentiful. A minimum of six stations appeared in each bridged strip of the 1:36,000 and 1:30,000 scale photography. Supplemental points established by stereoplanigraph to control the 1:16,000 scale photography was further refined by adjusting each strip by IBM methods.

Conclusions

Part I

In areas free of woods and in partially wooded areas (less than 50%) standard accuracy may be expected. In areas of dense woods, expressions may be weak with smoother contours as compared with open areas.

Using tree heights as guides, attempts were made to "dig in" with the floating mark utilizing the occasional openings in the trees to check the placement of the contour interval. These areas may be less than standard accuracy and cannot be verified except by extensive field edit.

Part II

The 1:16,000 scale photography as noted in a previous side heading was of generally poor quality. Approximately one-quarter of each exposure appeared to be out of focus and was apparent in the same quadrant on each photograph.

This inhibited the adjustment of the vertical bridging technique since the stereoscopy in these areas was "soft" the instrument elevations of selected images were hard to determine. Averages of many readings were used. When these instrument elevations were later adjusted in the AAH, the effect of the "softness" contributed to errors in the determined elevations.

In general, contours should be found to be of standard accuracy with isolated random areas in error of more than ½ contour interval.

Transmitted Data (Part I)

Field photographs (1:40,000):

59-W-5500 thru 59-W-5514
59-W-5551 thru 59-W-5538
59-W-5520 thru 59-W-5549
59-W-5490 thru 59-W-5518
59-W-5459 thru 59-W-5488

426 control station identification cards
4 Type level books
6 Sketch books
3 KMM lists (showing instrument horizontal and vertical control, positions and elevations)
1 Each bench mark positions by Kelsh Plotter Methods
5 Point substitute station positions (Form 164)
1 Photographic Mosaic report
1 Field Inspection report
2 Triangulation sketch (Phase 1 - 1959)
2 Triangulation sketch (Phase 2 - 1959)
1 Project diagram
Triangulation descriptions (1959 stations)
74 Pages adjusted horizontal control data (1959)
Descriptions and elevations vertical control data
Air photo index
1 Each ozmar film positive (sheets 1 thru 8)
3 Each Ozalid prints (double weight) (sheets 1 thru 8)

Transmitted Data (Part II)

Field Photographs (1:20,000)

AI 100 2498 thru 2503
AI 100 2508 thru 2522

Compilation Data (Part II) cont.

AG 100 2359 thru 2364
AG 100 2370 thru 2381
AG 100 2385 thru 2398
AG 100 2403 thru 2414
AG 100 2420 thru 2425

2 Each Cronar film positives (sheets 1 thru 11)
3 Each ozalid prints, double weight (sheets 1 thru 11)

Project Extension

On June 20, 1960, Mr. Waggoner telephone requesting additional compilation of small areas in the vicinity of Elk Creek and Breakfast Creek, designated as sheets 5A and 7A respectively. These sheets were compiled in like manner and forwarded August 19, 1960.

Respectfully Submitted:

A. K. Maywood

Approved:

Charles Theurer
Chief, Cartographic Branch

L. W. Swanson
Chief, Photogrammetry Division

* T-10958A, T-10963A

48. GEOGRAPHIC NAMES LIST

Anderson Creek

Breakfast Creek
Bruces Eddy (Title)
Boehls

Cedar Creek
Croty Creek

Gleason Creek
Gobblers Knob

Homestead Creek
Idaho Creek
Joes Creek

Larkins Creek
Larson Bar Airstrip
Little North Fork Clearwater River
Long Bar Creek
Loop Creek

Meadows Creek
Morris Saddle
Mosquito Creek
Montana Creek
North Fork Clearwater River
No-See-Um Creek

Rooney Creek

Smith Ridge
*Spires Creek
Stanton Creek

Trasher Creek

West Fork Long Bar Creek
West Fork Meadows Creek
West Fork Rooney Creek
Whiskey Creek

* B.G.N. Decision

GEOGRAPHIC NAME SECTION
6 JUNE 1960

NAUTICAL CHARTS BRANCH

SURVEY NO. T-10963 & T-10963A

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.