Form 504
U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Planimetric Air Photographic Survey
Type of Survey Shoreline
T-8857, T-8858
Field No. Ph-2 (45) Office No. & T-8859

LOCALITY
State Washington
General locality F.D. Roosevelt Lake
Locality Spokane River, Marble Flat to Little Falls

1946-1947
CHIEF OF PARTY
J. T. Jarman

LIBRARY & ARCHIVES
DATE November 10, 1949
DATA RECORD

T-8857

30 minute 1:125,000

Field Office: Coulee Dam, Wash.  Chief of Party: J. T. Jarman


Instructions dated (II III): 4/3/47  5/15/47  Copy filed in Descriptive
Report No. T-  
Photogrammetry Office Files.

Completed survey received in office: 24 April, 1948

Reported to Nautical Chart Section:  5 May, 1948

Reviewed: 24 Jan. 1949  Applied to chart No.  Date:

Redrafting Completed: ——

Registered: 19 Oct. 1948  Published:

Compilation Scale: 1:10000  Published Scale:

Scale Factor (III): None

Geographic Datum (III): N. A. 1927  Datum Plane (III): Mean Sea Level (USBR/1945) =
Reference Station (III): MOUND (USBR) 1938 x 1947

Lat.: 47° 56' 03.717" (114.3m)  Long.: 118° 11' 06.582" (136.6m) Adjusted x
Unadjusted

State Plane Coordinates (VI): Washington, North Zone

x = 2,649,040.82  y = 351,994.99

Military Grid Zone (VI)
PHOTOGRAPHS (III)

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<tr>
<th>Number</th>
<th>Date</th>
<th>Time</th>
<th>Scale</th>
<th>Water Level</th>
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<td>17489 to 17492 Inc.</td>
<td>8/22/46 12:21 EST</td>
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<td>U.S. Army single lens</td>
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<tr>
<td>4-2-493 to 6-2-493 Inc.</td>
<td>1944 Unknown</td>
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<td>1:20000</td>
<td>Unknown</td>
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<td>92-2-493</td>
<td>1944 Unknown</td>
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<td>1:20000</td>
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<td>337W-5M253</td>
<td>7/18/45</td>
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<td>1:36000</td>
<td>Unknown (Set p-3, Compil. Sheet)</td>
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Note: A print of photograph No. 337-W-16Fl-5-M-253, Scale 1:36000 may be obtained from negatives on file at the office of the Chief of Staff, U.S. Air Force, Washington 25, D.C.

Mean Range: None
Spring Range: None

Camera: (Kind or source) USC&GS, 9 lens, focal length 8.25 inches
U.S. Army, single lens, focal length 8.25 inches

Field Inspection by: See remarks page 3 date: Summer 1947

Field Edit by: None date:

Date of Mean High-Water Line Location (III): 8/22/46

Projection and Grids ruled by (III) Washington Office date: July 1947
" " " checked by: Washington Office date: July 1947

Control plotted by: James L. Harris date: Jan. 15, 1948
Control checked by: Ree H. Barron date: Jan. 16, 1948

Radial Plot by: J. L. Harris & J. E. Deal date: Jan. 30, 1948

Detailed by: Marie B. Elrod date: March 9, 1948

Reviewed in compilation office by: Ree H. Barron date: March 22, 1948

Elevations on Field Edit Sheet checked by: None date:
STATISTICS (III)

Land Area (Sq. Statute Miles): 44.0 (Complete detail along shoreline) (Skeleton detail interior)

Shoreline (More than 200 meters to opposite shore): 22.5 statute miles

Shoreline (Less than 200 meters to opposite shore): 2.5 statute miles

Number of Recoverable Topographic Stations established: 2

Number of Temporary Hydrographic Stations located by radial plot: 61

Leveling (to control contours) - miles:

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:
Recovery of horizontal control:
  C. Hanavich, J. C. Lajoye, J. H. Winniford  6/27/47 to 11/18/47

Shoreline Inspection:
  J. C. Lajoye  11/6/47 to 11/10/47

Interior Field Inspection and Geographic Names
  J. H. Winniford  6/29/47 to 7/14/47
DATA RECORD

T-3853

30 minute 1:125000

Field Office: Coulee Dam, Wash. Chief of Party: J. T. Jarman


Instructions dated (II III): 4/3/47 5/15/47 Copy filed in Descriptive
Division of
Report No. T-(VI)
Photogrammetry Office Files

Completed survey received in office: 28 April, 1948

Reported to Nautical Chart Section: 5 May, 1948

Reviewed: 2 Feb, 1949 Applied to chart No. Date:

Redrafting Completed:

Registered: 14 Oct, 1949 Published:

Compilation Scale: 1:10000 Published Scale:

Scale Factor (III): None

Geographic Datum (III): N. A. 1927 Datum Plane (III): Mean Sea Level (U.S.G.S.)

Reference Station (III): CROW (USBR) 1935 r 1947

Lat.: 47° 50' 02.487" (76.3m) Long.: 118° 08' 32.399" (673.8m) Adjusted x
Unadjusted

State Plane Coordinates (VI): Washington North Zone

X = 2,660,813.06 Y = 3,157,779.79

Military Grid Zone (VI)
PHOTOGRAPHS (III)

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<th>Number</th>
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<th>Time</th>
<th>Scale</th>
<th>Water level above M.S.L.</th>
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Tide from (III): None

Mean Range: None

Spring Range: None

Camera: (Kind or source) USCGS 9 lens, focal length 8.25 inches

U.S. Army, single lens, focal length 8.25 inches

Field Inspection by: See remarks Page 3 date: Summer 1947

Field Edit by: None date:

Date of Mean High-Water Line Location (III): 8/27/46

Projection and Grids ruled by (III) Washington Office date: July 1947

" " " checked by: Washington Office date: July 1947

Control plotted by: James L. Harris date: Jan. 16, 1948

Control checked by: Ree H. Barron date: Jan. 16, 1948

Radial Plot by: J. L. Harris & J. E. Deal date: Jan. 30, 1948

Detailed by: Carita Wiebe date: Mar. 31, 1948

Reviewed in compilation office by: Ree H. Barron date: April 8, 1948

Elevations on Field Edit Sheet checked by: None date:
STATISTICS (III)

Land Area (Sq. Statute Miles): 42.5 (Complete detail along shoreline) (Skeleton detail interior)

Shoreline (More than 200 meters to opposite shore): 15.0 statute miles

Shoreline (Less than 200 meters to opposite shore): 3.0 statute miles

Number of Recoverable Topographic Stations established: None

Number of Temporary Hydrographic Stations located by radial plot: 46

Leveling (to control contours) - miles:

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:

Recovery of Horizontal Control:
C. Hanavich, J. C. Lajoye, J. H. Winniford 7/30/47 to 11/21/47

Shoreline inspection:
J. C. Lajoye 11/18/47 to 11/21/47

Interior Field Inspection & Geographic Names:
J. H. Winniford 7/2/47 to 7/16/47
DATA RECORD

T-8859

Bissell, Washington (USE)  Project No. (II): Fn-2(45)

30 minute 1:125000

Field Office: Couse Dam, Wash. Chief of Party: J. T. Jarman


Instructions dated (II III): 4/3/47  5/15/47  Division of
Copy filed in Descriptive  Report No. T -
Photogrammetry Office Files.

Completed survey received in office: 28 April, 1948

Reported to Nautical Chart Section: 5 May 1948

Reviewed: 11 Feb 1949  Applied to chart No.  Date:

Redrafting Completed: ---

Registered: 14 Oct 1949  Published:

Compilation Scale: 1:10000  Published Scale:

Scale Factor (III): None

Geographic Datum (III): N.A. 1927  Datum Plane (III): Mean Sea Level (USBR 1947)

Reference Station (III): POWER (USBR) 1935 r 1947

Lat.: 47° 49' 26.227" (810.0m)  Long.: 117° 54' 41.229" (857.6m) Adjusted x

Heart Plane Coordinates (VI): Washington, North Zone

X = 2,717,622.33  Y = 3,194,176.95

Military Grid Zone (VI)
PHOTOGRAPHS (III)

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U. S. Army Single Lens

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<td>348W-5M253</td>
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Tide from (III): None

Mean Range: None  Spring Range: None

Camera: (Kind or source)USC&GS 9 lens, focal length 8.25 inches

U. S. Army single lens, focal length 8.25 inches

Field Inspection by: See remarks page 3  date: Summer 1947

Field Edit by: None  date:

Date of Mean High-Water Line Location (III): 8/27/46

Projection and Grids ruled by (III) Washington Office  date: August 1947

" " " checked by: Washington Office  date: August 1947

Control plotted by: J. L. Harris  date: Jan. 16, 1948

Control checked by: Reé H. Barron  date: Jan. 16, 1948

Radial Plot by: J. L. Harris & J. E. Deal  date: Jan. 30, 1948

Detailed by: Helen Letson  date: Mar. 22, 1948

Reviewed in compilation office by: Reé H. Barron  date: April 2, 1948

Elevations on Field Edit Sheet checked by: None  date:
STATISTICS (III)

Land Area (Sq. Statute Miles): 42.5 (Complete detail along shoreline)
(Skeleton detail interior)

Shoreline (More than 200 meters to opposite shore): 6.0 statute miles

Shoreline (Less than 200 meters to opposite shore): 7.5 statute miles
(measured along centerline of river)

Number of Recoverable Topographic Stations established: 1

Number of Temporary Hydrographic Stations located by radial plot: 45

Leveling (to control contours) - miles:

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:
Recovery of horizontal control: C. Hanavich, J. C. Lajoye, J. H. Winnford 10/17/47 to 11/21/47

Shoreline Inspection: J. C. Lajoye 11/24/47 to 11/26/47

Interior field inspection and geographic names: J. H. Winnford 7/7/47 to 7/22/47
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<th>LONGITUDE OR $\zeta$-COORDINATE</th>
<th>DISTANCE FROM GRID IN FEET, OR PROJECTION LINE IN METERS (FORWARD)</th>
<th>DISTANCE FROM GRID OR PROJECTION LINE IN METERS (BACK)</th>
<th>N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS (FORWARD)</th>
<th>N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS (BACK)</th>
<th>FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS (FORWARD)</th>
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<td>r. 1947</td>
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<td>r. 1947</td>
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1 FT = 0.3048006 METER

COMPUTED BY F.H. Elrod & J.L. Harris
DATE 1/5/48
CHECKED BY J.E. Deal
DATE 1/6/48
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<th>SOURCE OF INFORMATION (INDEX)</th>
<th>DATUM</th>
<th>LATITUDE OR Y-COORDINATE</th>
<th>LONGITUDE OR X-COORDINATE</th>
<th>DISTANCE FROM GRID IN FEET OR PROJECTION LINE IN METERS</th>
<th>DATUM CORRECTION</th>
<th>N.A. 1927-DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS</th>
<th>FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS</th>
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1 FT. = 0.3048008 METER

COMPUTED BY: J. L. Harris
DATE: 1/8/48

CHECKED BY: F. H. Elrod
DATE: 1/9/48
FIELD INSPECTION REPORT
AREA OF THE THIRD RADIAL PLOT
Project PH-2 (45)

1. Description of the Area:

The third radial plot consists of three shoreline surveys numbered 8857 to 8859 inclusive, and it includes the area of the Spokane River from near its mouth upstream to dam at Little Falls, Wn.

The topography on the south side of the river is quite similar to that found on the south side of the Franklin D. Roosevelt Lake between Grand Coulee and the mouth of the Spokane River. It is a rolling plateau underlain by basalt formations. The plateau overlooks the Spokane River canyon from an elevation of 1200 to 1300 feet. At the lower elevations, island outcrops of granite are found. Sandy benches of varying widths adjoin the river.

A broad sandy bench extends southeastward from the large bend in the river found in sheet 8857 to a point about 1.5 miles northwest of the large eastward meander at the junction of sheets 8858 and 8859. Along this east-west meander the plateau rises abruptly from the lake shore and is heavily incised by a lateral drainage pattern. On the south side of the river, the remainder of the area between this plateau and Little Falls, Wn., is characterized by sandy benches found between the river and the plateau to the south.

On the north side of the river a rolling topography is found consisting of sandy plains with an underlying structure of granite or shale which have outcropped in places. A large granitic intrusion has been cut through by the Spokane River in the Twin Buttes area (at the river bend in 8857) and steeply incised canyon walls are the result. Proceeding eastward the granitic terrain yields to a wide sandy bench which continues to the southwestern limits of sheet 8857. This bench gives way to a rolling plateau, which rises steeply in many places from the shore of the river, with rock bluffs composed of granite or shale which are interrupted occasionally by sandy embankments. This terrain extends through 8858 and the west half of sheet 8859 except for a narrow elevated sand bench (Wyncoo Flats) found south of Cayuse Mountain. A large flat sandy bench marks the remainder of the area in sheet 8859.

The greater part of the area is covered with softwoods of varying density and grasslands. The Spokane Indian Reservation extends along the entire north side of the Spokane River. Logging and grazing of cattle are the chief enterprises. A few scattered mining operations are found on the south side of the river as well as logging, cattle grazing and farming. The topography of the area as a whole is not conducive to the development of an agricultural economy.

The road system is very poorly developed. A graded and drained provides access to the river from the south side at Laughons Landing.
North of the river a graded and drained road leading south and then east from State Highway 22 just south of sheet 8861 cuts through sheet 8857 where it leaves the area and re-enters in sheet 8859 between Wellpinit and Little Falls. Aside from these two main roads, there are a few scattered roads (logging or dirt roads) that provide access to the river.

Little Falls, Wh., which is associated with a hydro-electric plant, is a small and only town in this radial plot area.

For additional information refer to the field inspection report for the area of the first radial plot under side heading 1, in the general description of the area.

2. Completeness of Field Inspection:

The field inspection for the clarification of details on the photographs, and for the classification of roads, shoreline, buildings, etc. etc. has been completed in accordance with the instructions for this Project dated 3 April 1947. For additional information see side heading 2 of the "Field Inspection Report, Area of the First Radial Plot, Project PH-2 (45)".

3. Interpretation of the Photographs:

Shale outcrops, which weather more readily than granite or basalt, give a gentle rounded appearance of mottled tones; the vegetal covering is usually grass in an area underlain by shale and for a typical example of such an area refer to the field photographs in the vicinity of Cayuse Mountain.

For additional information refer to the special report mentioned above.

4. Horizontal Control:

Refer to this side heading of the "Field Inspection Report, Area of the First Radial Plot ...".

5. Vertical Control:

Idem

6. Contours and Drainage:

Idem

7. Shoreline Plane of Reference:

Idem

8. Low-Water Line:

Idem
9. Wharves and Shoreline Structure:

There were no wharves or shoreline structures in the area covered by this report.

10. Details Offshore from the Shoreline Plane of Reference:

In areas where the shoreline is rocky, submerged rocks and ledges are suspected. Any rocks found awash or bare have been noted on the photographs, and the height of rocks that are above the plane of reference has been indicated. The approximate limits of shoal areas have been shown; they are found usually where the benches adjoin the lake or river.

A large prominent sand bar was found in the middle of the Spokane River near the junction line of sheets 8858 and 8859. A submerged rock was located, also, in the river about 1 mile downstream from the dam at Little Falls.

11. Landmarks and Aids to Navigation:

What few prominent and less prominent landmarks were found were recommended for future charting. There are no aids to navigation in the river.

12. Hydrographic Control:

Photo hydro stations were established in accordance with the instructions for this Project and as amended by the letter from the Acting Director dated 9 July 1947, on the subject of locating photo hydro stations.

Along several areas where steep wooded banks were encountered, no photo hydro stations were established since no definite detail was identifiable on the photographs. One such area was found along the south bank of the river near Little Falls, Wn.

13. Landing Fields and Aeronautical Aids:

There were no landing fields or aeronautical aids in the area.

14. Road Classification:

Refer to this side heading of the "Field Inspection Report, Area of the First Radial Plot, ...".

15. Bridges and Cable Crossings:

There were no bridges or cable crossings (submarine and overhead) across navigable waters found within the area.

16. Buildings and Structures:

A complete field investigation for any buildings or structures along the waterfront. Inland only those buildings and structures were
identified that were visible from the water. Inland all public buildings were noted for which there was photograph coverage.

17. Boundary Monuments and Lines:

The original instructions relating to this phase of the work have been abrogated. Refer to the Acting Director's letter dated 7 November 1947, on the subject of the Lake Roosevelt reservation boundary.

18. Geographic Names:

Refer to this side heading of the "Field Inspection Report, Area of the First Radial Plot, ...".

21. Field Photographs:

Idem

22. Symbols and Color Scheme:

Idem

23. CP stations along the Reservoir Boundary:

Refer to this side heading of the "Field Inspection Report, Area of the Fourth Radial Plot, Project PH-2 (45)".

Approved by:  
J. T. Jarman,  
Chief of Party

Respectfully submitted:  
Charles Hanavich,  
Topographic Engineer
26. Control:

Twenty horizontal control stations were recovered and identified by the field parties for use in controlling the radial plot in the area of these three map manuscripts. All of the objects selected for sub-stations could be identified with certainty on a majority of the photographs. The stations were well spaced over the area and were sufficient to control the radial plot.

Because of insufficient end lap in line of flights, the use of the stereoscope was limited for transferring horizontal control stations and photo hydro signals from one photograph to another. This often made it impossible to obtain stereoscopic vision when viewing a stereoscopic pair. (See paragraph 2 of letter 711-63, dated 23 September 1947, on the subject of photographs.)

All horizontal control stations, which were recovered by the field party, were plotted on the map manuscripts. In addition, at the request of the hydrographic party, all unrecovered USER 3rd order stations lying along the shore of the lake, which were not found to be destroyed, were plotted. This was done in order to facilitate their recovery by the hydrographic party if they were needed. The original descriptions for this 3rd order control were written prior to the time that the lake was impounded, and were therefore inadequate. These unrecovered stations were indicated by a dashed line triangulation station symbol, and a note pertaining to same was lettered in the margin of the manuscript.

A complete tabulation of the horizontal control stations shown on these three map manuscripts is contained on several sheets of Form M-2388-12, which are attached to this descriptive report.

27. Radial Plot:

These three map manuscripts Nos. T-8857 to T-8859 inclusive, were combined into one radial plot known as Radial Plot No. 3, Project Ph-2(45). This radial plot was completed in the same manner as Radial Plot No. 1 which has been fully described under Item 27 of the "Descriptive Report, Map Manuscripts T-8849 to T-8852 Inc., Area of the First Radial Plot, Project Ph-2(45)."
28. **Detailing:**

These maps were compiled in accordance with instructions for Project Ph-2(45). Features and symbols were shown as indicated in Photogrammetry Instructions No. 10, 12, and 17.

The transforming printer at the Washington Office was not in proper adjustment at the time the photographs were printed, and they could not be oriented in their entirety at the compilation table when radially plotting various types of pass points. Enough pass points, however, had been established during the radial plot so that each chamber of each photograph could be separately oriented. For at least two of the chambers on each photograph it was found necessary to de-center the photograph radially, to or from the chamber being oriented, so that the radial to the pass points and horizontal control stations in the chamber would pass through their positions on the map manuscript.

Detailing was accomplished in the following manner:

1. All photo hydro signals, and shoreline pass points were radially plotted. Because of difficulties which have arisen on this and other projects, and in order to insure the accuracy of photo hydro signals, the located positions were then verified by a supervisor, and all questionable signals were rejected. (Shoreline pass points of two radial intersections are shown with green, waterproof ink circles on the reverse side of the map manuscripts.)

2. The shoreline was detailed from those photographs on which it was clearly visible and on which the bluffs were displaced outward from the center. (It might be stated that there were cases, particularly at the heads of narrow coves where displaced banks, cliffs and trees and insufficient photograph coverage made it difficult to delineate the shoreline. In many of these places, stereoscopic vision could not be obtained. The shoreline in these areas was detailed after all photographs had been studied. It is, however, subject to minor changes by the hydrographic party.)

3. Pass points for use in detailing inshore planimetric features were located and the compilation of the sheet was completed.

4. A careful review was made of all radially plotted pass points and planimetric details.

In the area of T-3859, the nine lens photograph coverage was not sufficient to accurately compile the planimetric details, especially at several points along the shoreline of the Spokane River, between Long. 117° 54' and Long. 117° 58'. In this area, the angle of intersection of the radials was so small that many planimetric pass points and photo hydrographic signals could not be located accurately. Investigation disclosed that the U.S. Engineer District Office at Portland had prints of single lens photographs of this area, flown on July 13, 1945, at a scale of 1:36000. Two of these prints were obtained numbered as follows:
347 W 16FL  M 1  16 PS  18 July 1945  5 M  253
348 W 16FL  M 1  16 PS  18 July 1945  5 M  253

By use of the vertical projector central portions of these prints were
enlarged and radials were obtained which contributed to the accurate
location of pass points, etc. Because of errors usually found when an
enlargement is made with the vertical projector, the planimetry and photo
hydrographic signals in this part of the river, which is very narrow,
are questionable. They are believed to be of sufficient accuracy for use
during the hydrographic survey. This office has been requested to return
the two single lens prints, previously listed, to the U. S. Engineer
Office in Portland. Should the Washington Office desire prints of these
two photographs they may be secured from negatives on file at the office
of the "Chief of Staff, U. S. Air Force, Washington 25, D. C."

Osaïd prints of the completed map manuscripts were furnished to the
hydrographic party; however, it is recommended that they be used for
reference purposes only. As many difficulties are encountered when trans-
ferring hydrographic signals and shoreline from distorted osaïd prints
to boat sheets, it is hoped that the hydrographic party can be furnished
boat sheets for their 1948 field work similar to those which were made for
the Willamette River Hydrography. (Photogrammetric Project Ph-13(46) and
Hydrographic Project CS-323)

Because of insufficient photograph coverage, small interior areas near
the limits of the map manuscripts could not be detailed.

Whenever possible the stereoscope was used in determining the location
of the tops of bluffs along the shoreline. The location of these bluffs
could be determined more readily from photographs on which they were
displaced away from the waterline and principal point of the photograph.
Detail pass points were radially plotted near or along the tops of these
bluffs so that they could be compiled as accurately as possible.

In many places it was very difficult to identify sufficient pass points/for the compilation of roads. This was particularly true in areas of
severe changes in relief, and in places where roads wound through dense
woods. Similar conditions caused trouble in compiling the drainage,
especially since the use of the stereoscope was very limited in interior areas.

Because of the numerous new roads and many changes in road alignment,
it was found easier to compile all through roads as they appeared on the
photographs rather than to make comparisons with old surveys and quadrangles
and to compile only the changes as suggested in the instructions for this
project.

It is believed that all provisions of Paragraph 32 of the Instructions
relative to drafting have been applied to the map manuscripts.
29. **Supplemental Data:**

The following map, which will be forwarded with the map manuscripts, was used to supplement the photographs:

Black and White Print:--Spokane Indian Reservation, Washington
Scale:--1"= 1 mile

The following map, which was also used, will be forwarded when the project is completed:

Black and White Print---Existing & Relocated Highways and Railroads
Scale:--1"= 4 miles.

30. **Mean High-Water Line:** (Lake Shoreline at the adopted plane of reference) *

A complete discussion of this feature may be found in Paragraph 7 of the "Field Inspection Report, Area of the First Radial Plot," which has been submitted.

The above field inspection report indicates that the water level of the Spokane River area of the Franklin D. Roosevelt Lake is 1290.0 ft. above M.S.L. This is probably true for all water areas falling in T-3857 and in most of T-3858. There is however, a definite current in the Spokane River from the dam at Little Falls to a point about 7.0 miles downstream. By comparing the map manuscripts with maps that were compiled before the Coulee Dam was built, it can be seen that little additional water has been impounded in this area. It is suggested that the hydrographic party investigate the above facts and determine if there is a gradient in the Spokane River between the dam at Little Falls and a point several miles downstream.

The mean high-water line (Lake shoreline at the adopted plane of reference) is shown by a continuous black acid ink line, .008" in thickness. There are no marsh areas bordering the shoreline.

31. **Low-Water and Shoal Lines:**

The field inspection unit did not indicate any low-water lines within the limits of these map manuscripts.

Approximate shoal lines have been shown by a light, dashed black acid ink line, as indicated by the field party.

32. **Details Offshore from the Mean High-Water Line:**

Refer to Paragraph 10 of the Field Inspection Report.

* A profile of the reservoir water level from Grand Coulee Dam to the International Boundary, is attached to the Descriptive Report for the Fifth Radial Plot (T.8863 & T.8865).
33. Wharves and Shoreline Structures:

There were no wharves or shoreline structures in the area covered by this report.

34. Landmarks and Aids to Navigation:

Form 567, recommending the charting as landmarks of the following objects, is attached.

CHURCH (West Gable) T-8857
STACK T-8859

There are no fixed aids to navigation in this part of the river.

35. Hydrographic Control:

Statistics on signals in the area of these three map manuscripts are as follows:

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Most of the signals which were rejected, were located in dense tree areas or hidden by displaced cliffs or ridges, and could not be identified with certainty on enough photographs to establish satisfactory positions. (The field party could not determine this point with alternate photographs.) Because of poor photograph placement or coverage, angles of intersection of the radials were often so small that the actual positions of photo hydro stations were questionable. It was also necessary to prick many signals on photographs where the banks were not displaced away from the water line and principal point. Because of these facts the photo hydro signals, in the area of these three map manuscripts, should not be considered as accurate as those which have been established over the remainder of this project. They are, however, believed to be of sufficient accuracy for use during the hydrographic survey. Refer to remarks, contained in this descriptive report, Item 28 "Detailing", concerning photo hydro stations in the area of T-8859.

A list of the photo hydrographic signals, shown on these three map manuscripts, is attached to this descriptive report.

36. Landing Fields and Aeronautical Aids:

There are no landing fields or aeronautical aids in this area.
37. **Geographic Names:**

Geographic Names are the subject of a special report, "Investigation of Geographic Names, Sheets 8849 to 8859 inclusive, Project Ph-2(45)," which was submitted to the Washington Office by the field party. List of approved names attached to this Descriptive Report.

38. **Recoverable Topographic Stations:**

Copies of Form 524 are being submitted for the two stations listed under Item 34 "Landmarks and Aids to Navigation. In addition Form 524 is being submitted for station "CAE, 1947". Forms 524 filed in Div. of Photogs. General Files.

39. **Junctions:**

Complete and satisfactory junctions have been made between all map manuscripts in this and adjacent radial plots.

40. **F. D. Roosevelt Lake Reservation Line:**

Please refer to Item 40 in the Descriptive Report for the 1st Radial Plot, Project Ph-2(45).

44. **Comparisons with Existing Topographic Surveys:**

All existing maps of the area were at a much smaller scale, and were made before the waters of the F. D. Roosevelt Lake were impounded. Due to these facts, only a visual comparison could be made.

45. **Comparisons with Nautical Charts:**

There are no nautical charts of the area.

Respectfully submitted,

J. Edward Deal Jr.
Photogrammetric Engineer

Approved after additional comments were added:

Robert A. Earle
Chief of Party

jr
LANDMARKS FOR CHARTS

Coulee Dam, Washington

October 1947

J. T. Jarman & R. A. Earle

Chief of Party

<table>
<thead>
<tr>
<th>GENERAL LOCALITY</th>
<th>NAME AND DESCRIPTION</th>
<th>LATITUDE</th>
<th>LONGITUDE</th>
<th>DATUM</th>
<th>METHOD OF LOCATION</th>
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<td>N.A.</td>
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<td>N.A.</td>
<td>Radial Plot</td>
<td>1927</td>
<td>Area not charted</td>
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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.
Hydrographic Signal Sites
3rd Radial Plot
Sheets 8857, 8858, 8859

5701   Southerly and easterly of 2 pines (not flagged)
5701A  White rag on bush
5701B  Red flag on pine
5702   Red signal cloth on tree on point
5703   Lone pine on sidehill
5704   Orange cloth on tree at log dump
5705   Orange signal cloth on pine
5706   Ball top pine near road
5707   White signal cloth on pine
5708   White signal cloth on tallest pine
5709   Red signal cloth on pine tree
5710   Red signal cloth on large pine
5711   Orange signal cloth on pine
5712   Orange signal cloth on pine in draw
5713   White cloth on small lone pine
5714   White signal cloth on pine
5715   Red signal cloth on pine
5716   Red signal cloth on small pine
5717   Orange signal cloth on pine
5718   Orange cloth on pine tree
5719   White cloth on pine
5720   White signal cloth on pine
5721   Red signal cloth on forked pine
5722   Red signal cloth on middle of 3 small pines
5723 Orange signal cloth on pine
5724 Orange signal cloth on north and east pine of 2
5725 D/S of double pine in draw
5726 White signal cloth on pine
5727 Lone pine (not flagged)
5728 Orange cloth on small pine
5729 SW corner of small shed
5730 Prominent pine on top of rock
5731 River gable of main portion of unpainted shack
5732 White signal cloth on pine
5733 Red signal cloth on fir
5734 Red signal cloth on pine
5735 Small bushy pine on offshore end of rock
5736 Orange cloth on pine
5737 U/S of 2 pines: (not flagged)
5738 White signal cloth on pine
5739 White flag on stump of snag
5740 Dead top pine
5741 Red signal cloth on pine
5742 Orange signal cloth on pine
5743 Orange cloth on small pine
5744 Blazed pine, E side of draw
5745 White signal cloth on pine
5746 Large snag on rock slide
5747 NW gable of unpainted house
5752  White signal cloth on pine near shack
5753  White signal cloth on pine
5755  Red signal cloth on tree
5757  Lone pine (not flagged)
5759  Lone pine S of forked pine
5761  Orange cloth on pine
5763  Orange cloth on pine
5765  Red cloth on pine
5767  White cloth on pine
5769  White signal cloth on pine
5771  White signal cloth on pine
5803  Large forked pine (not flagged)
5804  Red cloth on small pine
5805  Dead tree in water
5806  Orange cloth on pine
5807  Red signal cloth on pine
5809  Orange cloth on small pine
5810  Red signal cloth on forked pine
5811  White cloth on pine
5812  White signal cloth on smallest pine
5813  Red cloth on pine
5814  Red signal cloth on pine
5815  Blazed tree D/S of 2
5816  Orange cloth on dead fir
5817  Orange cloth on small pine
5819  White cloth on small pine
5820  Snag on slide
5821  Red cloth on pine
5822  Point of rock on HML at clay bank
5823  Orange cloth on pine at HML
5824  White signal cloth on pine
5825  White cloth on pine
5826  Red cloth on pine
5827  Red signal cloth on pine
5828  Base of lone pine on point
5829  White cloth on pine
5830  White signal cloth on pine
5831  Red signal cloth on pine
5832  Red cloth on small pine
5833  White cloth on pine
5834  Orange cloth on dead fork top pine
5836  White cloth on tall pine
5837  Dead tree
5838  Red cloth on D/S of double pine
5839  White cloth on pine
5840  Orange cloth on middle pine of 3
5841  Red cloth on pine tree
5842  Red signal cloth on small pine
5843  Orange cloth on large pine
5844  White cloth on small pine center of small clump
5845  White signal cloth on lone pine
5846  Orange cloth on pine in slide area
5847  Red signal cloth on tall pine
5849  Large lone pine on point
5851  Forked snag
5853  White signal cloth tied on bush on point
5855  Red cloth on pine
5901  White signal cloth on dead bush
5902  Red cloth on small pine
5903  Red signal cloth on bush
5904  White cloth on pine
5905  Orange cloth on lone bush
5906  Orange cloth on dead pine
5907  White signal cloth on tall pine
5908  Red cloth on fir, 3 m from rock point
5909  D/S gable of barn
5909A Red signal cloth on pine
5910  White cloth on pine
5911  White cloth on pine
5912  Orange cloth on small pine
5913  Small pine on fence
5914  Red signal cloth on small lone pine
5915  Bushy pine in draw
5917  Broken top snag
5918  Red cloth on spindly pine
5919  White cloth on pine
5920  White cloth on pine
5921  Lone schoolmarm pine
5922  Orange cloth on pine
5923  Red cloth on pine at side of road.
5924  White signal cloth on pine
5925  Snag (not flagged)
5926  Red signal cloth on pine
5927  White cloth on pine
5928  Orange cloth on pine
5929  Red signal cloth on dead pine
5930  U/S gable of old house
5931  White cloth on pine
5932  Red cloth on small double pine
5933  Red signal cloth on pine
5935  White cloth on pine
5937  Red signal cloth on lone pine
5939  White cloth on pine
5941  Red signal cloth on pine
5943  Orange cloth on pine
5945  Lone small bushy pine on slide bank
5947  White cloth on pine
5949  Orange cloth on leaning pine
5951  White cloth on pine
5953  Dead snag
5955  Red cloth on pine
5957  Small pine on rocky point
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Names underlined in red are approved. 1/28/49 L. Hook.
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Names underlined in red are approved. 2/11/49 L. Hook
T-8857

The elevation on T-8857 is subject to corrections
as shown in
used on H-7700 (9434-89). These corrections were
transferred to H-77045 from graphic control survey
L-R T-48A which were subsequently destroyed.
1M2 6-1-50
DIVISION OF PHOTOGRAMMETRY
Review Report of
Shoreline Map Manuscripts T-8857-T-8859
(area of the Third Radial Plot, Ph-2(45))

Subject numbers not used in this review report have been adequately covered in other parts of the descriptive report.

26 Control

All second-order triangulation stations had been adjusted from Grand Coulee Dam Grid Values to Lambert Projection values (N.A. 1927 datum); and all third-order triangulation stations (the CP series) had been adjusted from the same Grid to the Washington North Zone plane coordinate values.

A list of the recovered and unrecovered stations (form M-2388-12) is attached to the descriptive report.

The following stations were added to the map manuscripts during review:

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<td>Blaze (USBR) 1935</td>
<td>Cayuse (USBR) 1935</td>
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<td>Lost &quot; &quot;</td>
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<td>Chief &quot; &quot;</td>
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<td>Ledge &quot; &quot;</td>
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</tbody>
</table>

The spelling of station Detillian has been retained as listed by Geodesy (G.F. p. 1046) although it is in disagreement with the spelling of the road name appearing on the same map, and with the bridge name and the triangulation station name appearing on Plate II of U.S.G.S. Water-Supply Paper 377, 1915.

28 Detailing

The maps meet the required accuracy with respect to shoreline after the changes noted below were made. The inland detail is, in general, good.

T-8857; Minor changes in shoreline
A road was entirely re-drawn in the southeastern portion of the map manuscript.

T-8858; Minor changes in shoreline
A road No. 7 was re-drawn to make it a road No. 6, in agreement with field inspection notes.
T-8859: The cliffs on the north side of the lake, opposite Squaw Canyon, are formed in tilted stratified sedimentary rocks, while those on the south side are formed in basaltic flows. The cliffs in the sedimentaries were re-sculptured in order to show their distinctive character.

37 Geographic Names

A separate list (compiled by the Geographic Names Section) for each map manuscript is attached to the compound descriptive report.

The name "Spokane River" has been deleted from the map manuscripts, (except on the map lying west of Little Falls, T-8859), and the name "Franklin D. Roosevelt Lake" substituted.

Names added during review:

T-8858: Heartline Canyon
       Charlie Fleet Canyon
       The Slide

T-8859: Spring Creek

42 Supplemental Data


These maps give the plan and 7 profiles of the Spokane River. They have contours, numerous river elevations, and a second-order triangulation net. By consulting the bank elevations on these maps and on the U.S.G.S. Wellpinit quadrangle made prior to the river impounding, and comparing them with the bank conditions on survey T-8859, it is possible to deduce an approximate position for the 1290' elevation ("Level of Lake") of the river after impounding. (A note to this effect has been placed on the map manuscript.) Though the water must have been raised at least 20 feet, the width of the river is little affected because of the steep side walls.

Plate III shows an island in the loo of the river at 47° 50' / 117° 59' (no elevation given), but it does not appear on the present map manuscript, and no indication of its presence is discernible on the photographs.

43 Comparison with Previous Topo and Present Hydro Surveys

There are no earlier topographic surveys, and the hydrographic survey is in process.
Comparison with Existing Quadrangles

U.S.G.S.  Wellinit  1/62,500  ed 1941
U.S. E.  Davenport  1/125,000  rep. 1939 (no contours)

The present survey supersedes the above surveys for shoreline and roads in their common areas.

Reviewed by:

Lena T. Stevens
T-8857, 28 Jan. 1949
T-8858, 2 Feb. 1949
T-8859, 11 Feb. 1949

Approved by:

A.V. Griffith
Chief, Review Section, N.M.

W.M. Scifres
Chief, Division of Photogrammetry

W.M. Scifres
Chief, Division of Coastal Surveys