

10837

Diag. Cht. No. 6157.

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Shoreline

Field No. Ph-5807 Office No. T-10837

LOCALITY

State Oregon and Washington

General locality Columbia River

Locality Cascade Locks

1951-59

CHIEF OF PARTY

L.G. Taylor, Chief of Party

C.H. Bishop, Portland Photo. Off.

LIBRARY & ARCHIVES

DATE May 1962

USCOMM-DC 5087

10837

DESCRIPTIVE REPORT - DATA RECORD

T - 10837

Project No. (II): Ph-5807

Quadrangle Name (IV):

Field Office (II): Hood River, Oregon

Chief of Party: Lorne G. Taylor

Charles H. Bishop, Unit Chief

Photogrammetric Office (III): Portland, Oregon

Officer-in-Charge: Lorne G. Taylor

Instructions dated (II) (III): Undated

Copy filed in Division of

Field and Office

Photogrammetry (IV)

Modification: - Letter 73/rrj dated 9 March 1959

Letter 831/es dated 12 March 1959

Method of Compilation (III): Kelsh Stereoscopic Instrument

Manuscript Scale (III): 1:10,000

Stereoscopic Plotting Instrument Scale (III): Viewing Scale

1:6000

Scale Factor (III): None

Pantograph Scale

1:10,000

Date received in Washington Office (IV):

Date reported to Nautical Chart Branch (IV):

Applied to Chart No.

Date:

Date registered (IV): 10/5/61

Publication Scale (IV):

Publication date (IV):

Refer to datum

Geographic Datum (III): N.A. 1927

Vertical Datum (III): profile on manu-

script

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

From 72.0 ft. above M.S.L. at Bonneville
Dam Forebay and upstream at the grad-
ient of Bonneville Pool as of the date
of photography, 30 Aug. 1958.

Reference Station (III): STEVE, 1957

Lat.: 45° 41' 02.632"

Long.: 121° 54' 19.358"

Adjusted X
Unadjusted

Plane Coordinates (IV):

State: Oregon

Zone: North

Y= 738,615.71 ft.

X= 1,640,834.92 ft.

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.

DESCRIPTIVE REPORT - DATA RECORD

Field Inspection by (II): Charles H. Bishop
Robert B. Melby

Date: February 1959

Planetable contouring by (II):

Date:

Completion Surveys by (II):

Date:

Shoreline

~~Mean High Water~~ Location (III) (State date and method of location): Located by field inspection on 2-24-59 on single lens ratio prints taken 8-30-58 and delineated by Kelsh stereoscopic instrument on this photography supplemented by models of U. S. E. photography taken on 7-22-57. The shoreline is the gradient of Bonneville Dam Pool from 72.0 ft. normal pool level at the forebay and proceeding upstream at the

Projection and Grids ruled by (IV): pool gradient of 30 Aug. 1958,
P. Demsey the date of photography

Date:

12-19-58

Projection and Grids checked by (IV):

Date:

12-23-58

Shoup
Control plotted by (III): L. L. Graves

Date:

2-25-59

Control checked by (III): J. E. Deal

Date:

2-26-59

Radial Plot or Stereoscopic George Ball
Control extension by (III):

Date:

2-11-59

Planimetry D. N. Williams
Stereoscopic Instrument compilation (III):
Contours

Date:

3-23-59

Date:

Manuscript delineated by (III): J. L. Harris (Scribing)
C. C. Harris (Stick-up)

Date:

4-24-59

5-11-59

Photogrammetric Office Review by (III): J. L. Harris

Date:

5-15-59

Elevations on Manuscript
checked by (II) (III):

Date:

DESCRIPTIVE REPORT - DATA RECORD

Camera (kind or source) (III): U.S.C. & G.S. Single lens 58 S

Number	Date	Time	Scale	Bonneville Dam
				Pool (Forebay) Stage of Tide
58 S 7886A thru 7888A	8-30-58	10:23	1:30,000(contact) 1:10,000(ratio)	73.6 ft. above M.S.L.
U. S. Engineers 57-4334 & 57-4335	7-22-57	13:47	1:24,000(contact)	73.7 ft. above M.S.L.
Bonneville Power Administration 2-9 and 2-10	7-3-52	13:35	1:42,000(contact)	*Not applicable

*Used only for interior detail compilation

Tide (III)

Reference Station:

Subordinate Station:

Subordinate Station:

Not applicable

Ratio of Ranges	Mean Range	Spring Range

Washington Office Review by (IV):

Final Drafting by (IV):

Drafting verified for reproduction by (IV):

Proof Edit by (IV):

Date: Aug 1961

Date: Apr-May 1959

Date: Aug 1961

Date: Oct 1961

Land Area (Sq. Statute Miles) (III): 11

Shoreline (More than 200 meters to opposite shore) (II): 5

Shoreline (Less than 200 meters to opposite shore) (III): 1

Control Leveling - Miles (II):

Number of Triangulation Stations searched for (II): 17

Recovered: 9

Identified: 3

Number of BMs searched for (II):

Recovered:

Identified:

Number of Recoverable Photo Stations established (III): 4

Number of Temporary Photo Hydro Stations established (III): None

Remarks:

6

SUMMARY
TO ACCOMPANY SHORELINE MAP MANUSCRIPTS
T-10837 through T-10846

The ten (10) subject map manuscripts represent the westernmost shoreline surveys of project PH-5807. The project covers the Columbia River and adjacent land areas of Oregon and Washington from Bonneville Dam eastward to the vicinity of McNary Dam. It was designed to aid in the revision of existing nautical charts and in the construction of new ones from the Dalles upstream to Umatilla. T-10837 through T-10846 extend from Bonneville eastward to Rowland Lake.

A stereoplanigraph bridging plot of subject surveys was done in the Washington Office in February 1959 (see pages 13 through 16 of Descriptive Report T-10837). The map manuscripts were compiled by stereoscopic instrument (Kelsh Plotter) in the Portland Photogrammetric Office from March to July 1959 from photography of August 1958 (plus U.S. Engineers' photography of July 1957 and Bonneville Power Administration photography of July 1952) and results of field inspection of February to April 1959.

The completed compilations as submitted to the Washington Office are the result of adequately scribed sheets and suitable for the direct reproduction of registration copies.

A cronar film positive at the compilation scale of 1:10,000 and the Descriptive Report of each will be registered and filed in the Bureau Archives.

August 1961

FIELD INSPECTION REPORT

PROJECT PH-5807

Columbia River - Bonneville to Umatilla

Sheets 10837, 10838 and 10839

2. Areal Field Inspection:

This area is in the Columbia River Gorge. There are steep wooded hills on both sides of the river and on each side a railroad and federal highway parallel each other near the river's edge. The Bridge of the Gods crosses the river at Cascade Locks. Lumbering is the main industry. The two incorporated towns within the area are Cascade Locks, Oregon, and Stevenson, Washington.

3. Horizontal Control:

- a. No supplemental control was established.
- b. No datum adjustments were made by the field party.
- c. Stations of other agencies except fixed aids to navigation were not recovered.
- d. All stations required by the project instructions were recovered.
- e. The following stations have been reported as lost or destroyed:

Sheet 10837

Cascade Locks, Church Near School 1939	Destroyed
Cascade Locks, Flagstaff 1901	Destroyed
Cascade Rapids Upper Range Front Light 1939	Lost
Navigation Beacon on Rock, Middle of River 1939	Destroyed
Portland-Spokane, Airway Beacon at Cascade Locks 1939	Destroyed
Portland-Spokane, Airway Beacon 1 mile West of Stevenson 1939	Destroyed
Stevenson Front Range Light 1939	Destroyed
Stevenson Light 1939	Destroyed
Stevenson School Cupola, Flagpole 1939	Destroyed
Stevenson, Skamania County Courthouse Cupola 1939	Destroyed
T2N, R7E, D.L.C. No. 42, Northeast Corner (USE) 1939	Destroyed

Sheet 10838

Bradford Slough Entrance Light 1939	Lost
Bradford Slough Light 1939	Destroyed
Portland-Spokane, Airway Beacon over Highway Tunnel at Eagle Creek 1939	Lost
Sheridan Point Light 1939	Destroyed

Sheet 10839

Carson, SP&S R.R. Depot, W. Gable 1939	Lost
Ceiling Light 1939	Destroyed
Portland-Spokane Airway Beacon, 44 mile Green Blinker 1939	Destroyed
Portland-Spokane Airway Beacon, (END R.M. NO. 1)1939	Destroyed

f. Bradford Slough Light 1939 has been replaced by Bradford Island Light 3, which was located by triangulation in 1959.

Bradford Slough Entrance Light 1939 was moved several feet in 1959. It has been located by photogrammetric methods.

4. Vertical Control:

Not applicable.

5. Contours and Drainage:

Contours are not applicable to this project.

Very little drainage has been indicated on the field photographs, except to delineate a stream where it is crossed by a road or railroad or where it enters the river.

6. Woodland Cover:

Representative areas of woodland cover have been classified in accordance with requirements for topographic maps.

7. Shoreline and Alongshore Features:

a. The line delineated on the photographs is the normal pool level of the Bonneville Pool. Readings obtained from the U.S. Engineers gage show the water level on the 1951 photography to be 7.3 ft. above the normal pool level at Bonneville. This will not affect the position of the shoreline an appreciable amount, as the bank along the shoreline is steep. A short stretch of shoreline on the south side of Bradford Island was located by planetable on Photograph 51-0-7060. The pool level on the 1958 photography is approximately 1.5 feet above normal

pool level and as the bank along the shoreline is steep, the edge of the water may be considered as the line to be mapped.

b. Low water line is not applicable to this project.

c. There are no foreshore features within the limits of this report.

d. Bluffs and cliffs have been indicated on the field photographs. Heights have been estimated.

e. There are no docks, wharves or piers in the area covered by this report. Occasionally barges tie up at the old lock at Cascade Locks, but this is not a regular moorage.

f. There are no submarine cables in the area covered by this report.

g. The only other shoreline structures are two log dumps in the vicinity of Stevenson, Washington, and groins just east of Government Cove on the Oregon side of the river.

8. Offshore Features:

Offshore features are small islands, rocks and piling in the vicinity of lumber mills. Heights of offshore features have been estimated.

9. Landmarks and Aids:

a. Two landmarks for nautical charts were selected - an elevated water tank on Bradford Island (Station Bonneville Dam Water Tank 1957) and a black metal stack about 1.5 miles southwest of Stevenson, Washington. The stack was located by photogrammetric methods.

b. No interior landmarks or outstanding features were selected.

c. Two aeronautical aids are within the area covered by this report. Both have been located by triangulation. One is a fan-marker near Stevenson, Washington (Station Fan Marker, Stevenson, 1957) and the other is an airway beacon on the Oregon side of the river near the east edge of Sheet 10839 (Station Portland-The Dalles Airway Beacon No. 4 1939).

d. The following fixed aids to navigation have been identified on the field photographs:

<u>Aid and Type of Structure</u>	<u>Photo</u>	<u>Sheet</u>
Bradford Slough Light 2 (temporary structure)	51-0-7061	10838
Bradford Island Light 3 (permanent structure, triangulation, 1959)	51-0-7061	10838
Bradford Slough Entrance Light 4 (Temporary structure)	51-0-7060	10838
Sheridan Point Light 5 (temporary structure)	51-0-7060	10838
Cascade Rapids Lower Range Front Light 6 (temporary structure)	51-0-7858	10838
Cascade Rapids Lower Range Rear Light (temporary structure)	51-0-7058	10838
Cascade Rapids Upper Range Front Light 9 (permanent structure, triangulation, 1959)	58-S-7887A	10837
Cascade Rapids Upper Range Rear Light (temporary structure)	58-S-7887A	10837
Cascade Locks Light 10 (temporary structure)	58-S-7885A	10837
Stevenson Range Front Light 13 (permanent structure, triangulation, 1959)	58-S-7886A	10837
Stevenson Range Rear Light (temporary structure, triangulation, 1939)	58-S-7886A	10837

Data for determination of the azimuths of the following ranges has been obtained and recorded on the reverse side of the photographs listed below.

<u>Range</u>	<u>Photo</u>
Cascade Rapids Lower Range	51-0-7058
Cascade Rapids Upper Range	58-S-7887A
Stevenson Range	58-S-7886A

e. Two floating aids to navigation were located by sextant fixes and recorded on the back of the field photographs listed below.

<u>Aid</u>	<u>Photo</u>	<u>Sheet</u>
Cascade Locks Lower Buoy 8	58-S-7887A	10838
Gold Dust Rock Buoy 12	58-S-7887A	10837

10. Boundaries, Monuments and Lines:

Boundaries within the area covered by this report are Multnomah - Hood River County line, Cascade Locks city limits, and Stevenson city limits.

The county line between Multnomah and Hood River Counties is rather indefinite. Definite information could not be obtained from the county engineer in Hood River.

A map of Cascade Locks, Oregon, was obtained and sufficient points common to both the map and the field photographs were identified for the compiler to transfer the city limit from the map to the manuscript. See Map of Cascade Locks and photograph 58-S-7885A.

The city limit of Stevenson, Washington, was obtained in a similar manner. See Map of Stevenson, Washington, and photograph 58-S-7885A.

There are no other boundaries to be mapped in the area covered by this report. See note below.*

11. Other Control:

Photo-hydro control is not applicable to this project.

The following recoverable topographic station (unmarked) was identified for photogrammetric location:

<u>Station</u>	<u>Photo.</u>
CORN 1959	58-S-7887A

12. Other Interior Features:

Roads have been classified in accordance with Photogrammetry Instruction 56, date 1 July 1958.

Buildings have been classified in accordance with Photogrammetry Instruction 54, date 2 January 1958. Public buildings and landmark buildings have been circled for mapping.

Instructions did not call for clearance measurements on the bridges in the area covered by this report and none were measured.

The overhead cable at Government Cove (Lat. $45^{\circ} 41' 15''$, Long. $121^{\circ} 50' 25''$) should be deleted from the chart. It has been removed.

* Note: The Oregon-Washington boundary is available from coordinates in Oregon Senate Bill No. 1. 49th Legislative Assembly, Chapter 94 O.L. 1957.

There is an emergency landing strip at Cascade Locks, Oregon. It has been indicated on photograph 58-S-7885A.

A fish hatchery at Eagle Creek (Sheet 10838) was located on photograph 51-0-7060 by planetable.

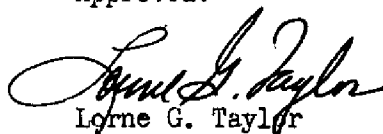
13. Geographic Names:

Geographic names are the subject of a special report.


14. Special Reports and Supplemental Data:

- a. Map of Cascade Locks, Oregon
- b. Map of Stevenson, Washington
- c. Geographic Names Report - Part I
Columbia River, Bonneville to The Dalles.

Approved:


Lorne G. Taylor
LCDR, C&GS
Officer-in-Charge

Respectfully submitted:


Charles H. Bishop
Cartographer

PHOTOGRAMMETRIC PLOT REPORT
COLUMBIA RIVER PH-5807
(STEREOPLANIGRAPH BRIDGE)

21. Area Covered

T-10837 thru T-10845

22. Method

Two single-lens stereoplanigraph bridges were run; Strip #58-58S-7864A thru 58-S-7885A and Strip #77-51-0-7058 thru 51-0-7061. Strip #58 was an I.B.M. adjustment. Strip #77 was a straight line adjustment.

23. Adequacy of Control

Strip #77 consisted of 3 stereo-models. The control in this bridge was very poor. Station CASCADE LOCK CHURCH NEAR SCHOOL, 1939, was difficult to see and SS "A" and SS "B" of GODS, 1957 were poor. A straight line adjustment was computed using GODS 1957, SS "A" and B.P.A DOWNSTREAM TOWER 1, 1957 as terminal stations. Station BONNEVILLE DAM WATER TK, 1957 did not agree too well (13 ft. in X) with the other stations in the bridge. However, it is felt that all stations and pass points will have standard mapping accuracy.

Strip #58, I.B.M. adjusted, proved that stations T3N RIDE SECT. 28&29 IRON PIPE, 1939 SS "A" and CLOVER, 1957 SS "B" should be used with caution. These are borderline points. Station ORCHARD, 1957 SS "B" did not hold in the adjustment and should not be used (see paragraph 26 for further details).

24. Supplemental Data

None

25. Photography

51-0 photography is of poor quality. 58-S photography, photographs 58-S-7882A-7886A have heavy cloud cover on the north side of the river which might result in a certain degree of difficulty in the compilation work. (see paragraph 27 for further details and possible suggestion to the problem).

26. Kelsh Models

The Washington Office set two models on the Kelsh in order to check the bridging accuracy. The models were 58-S-7869A-7870A and 58-S-7873A-7874A; both models held with the exception of ORCHARD 1957 SS "B" and no solution to that problem can be offered.

- 2 -

27. Graphic Plot

Model 58-S-7883A-7885A can be set, but due to the clouds, model 58-S-7886A-7887A is believed to be impossible to clear. In Strip #77 points were dropped (see photo 58-S-7885A) so that a small graphic plot might be done to fill the hole caused by cloud cover.

28. General Information

A portion of Strip #58 east of photo 58-S-7868A is being held by the Washington Office, in order to have common pass points to the strips that will be bridged in the near future. We are furnishing I.B.M. positions for the entire strip. The control data and photographs are for the area covered by Manuscripts T-10837-T-10845, as indicated on the plot sketch. In Strip #58 plate 58-S-7884A was not used in the bridging process.

Submitted

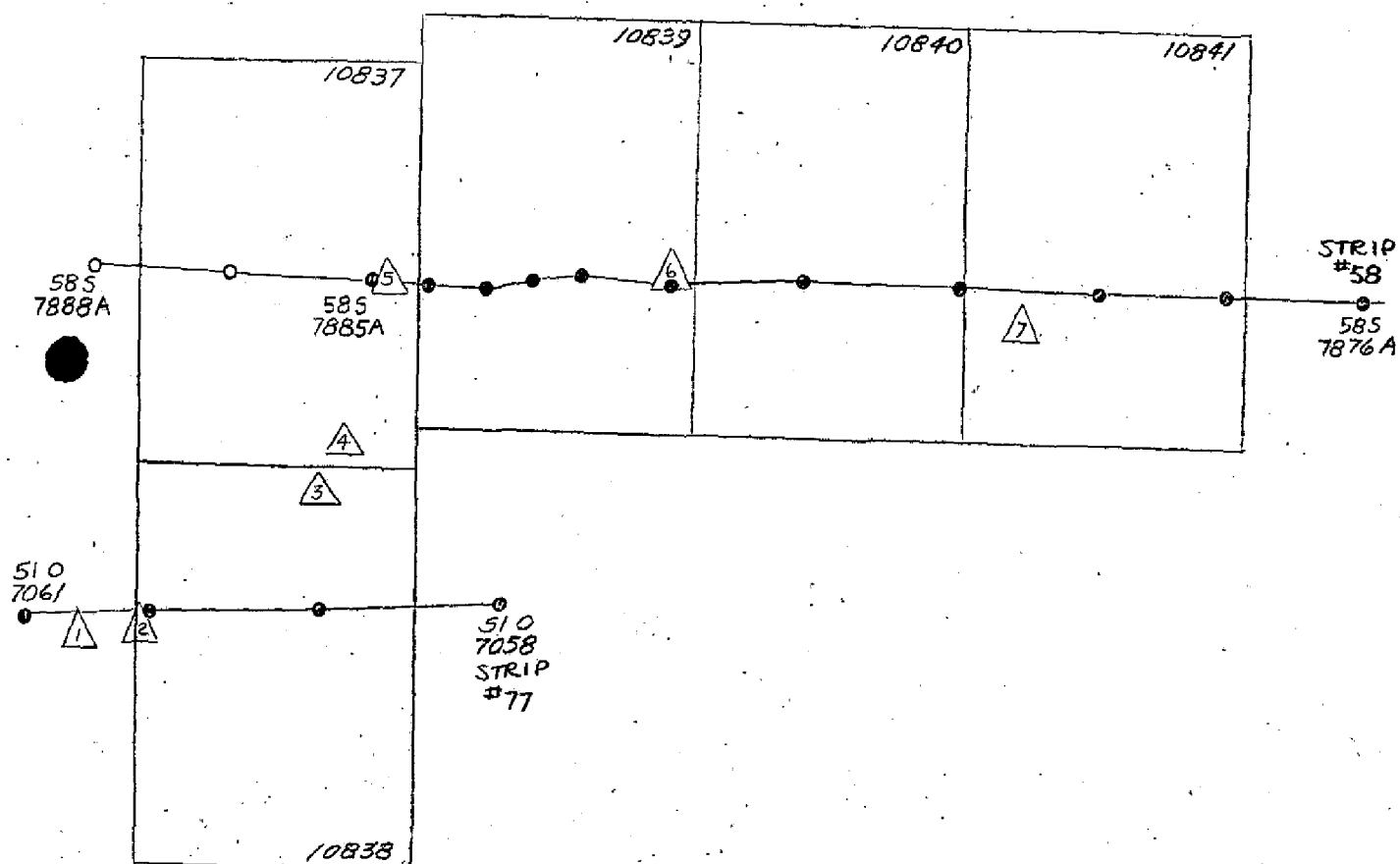
George Ball
George Ball
11 Feb 1958

Approved

Morton Keller
Morton Keller

PART 1 OF 2

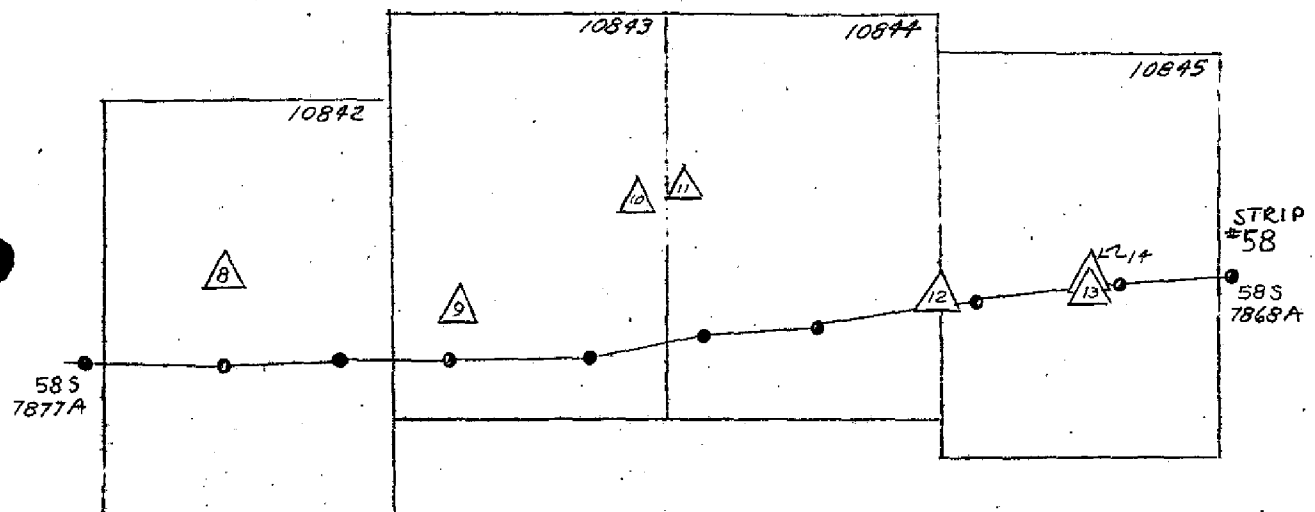
PH-5807



- 1 B. P. A. DOWNSTREAM TOWER 1957
- 2 BONNEVILLE DAM WATER TANK 1957
- 3 GODS 1957
- 4 CASCADE LOCKS NEAR SCHOOL 1939
- 5 STEVENSON REAR RANGE LT 1939
- 6 ANDER 1957
- 7 SHELLROCK 1957

PART 2 OF 2

PH-5807



- 8 T3N, R9E, SECTION 27 & 34
EAST 1/16 COR. MON.(USE) 1939
- 9 ORCHARD 1957
- 10 T3N RIDE SECT 28 & 29
IRON PIPE 1939
- 11 T3N RIDE SECT 22 (USE) MON 1939
- 12 CLOVER 1957
- 13 BINGEN UNION OIL CO.
- 14 GASOLINE TK SOUTH ONE OF 4 1939
- 14 BINGEN SCHOOL FLAG POLE 1939

STEREOPLANIGRAPH BRIDGE REPORT

T-10837 thru T-10845

The orientation of the Kelsh models in this bridge do not confirm the statement in Item 23 "Adequacy of Control" relative to Bonneville Dam Water Tank, 1957. When all the pass points and identified control points are held in the models the water tank also holds very well to its published position. An error of thirteen feet in an X direction could readily be seen because the image is very clear in the models. Measurements made from station BONNE to the tank in 1957 were verified in the field in March 1959. Inquiry was made of the U. S. Engineers and the Bonneville Power Administration and it was definitely determined that neither TOWER # 1 or the water tank have been moved since 1951. The water tank was built in September 1950. It is also felt that Sub station "A" for GODS, 1957 is well within the limits of accuracy set forth in Paragraph 6 of Photogrammetric Instructions No. 22 dated 4-26-58. Sub station "B" for GODS, 1957 is not considered good because of the indistinct image of the gable of the house.

The Portland District U. S. Engineers recently completed a survey of this same area Scale 1" = 200' on the Balplex using 1957 photography and the same control as identified for the stereoplanigraph bridge. All stations including the water tank were held. Kelsh plates of this 1957 photography were obtained and models oriented to supplement the 1951 Coast and Geodetic Survey photography and these also bear out the above remarks.

SCALE FACTOR.....None.

COMPUTED BY:	J.E.D.	DATE	12-4-58	CHECKED BY:	J.L.H.	DATE	12-5-58		COMM-DC-57843
1 FT. = 3048006 METER									

COMPILATION REPORT

Map Manuscript T-10837

Project Ph-5807

31. Delineation:

The Kelsh Stereoscopic Instrument was used to compile the planimetry.

The C&GS photography of 8-30-58 was inadequate to compile much of the planimetry because clouds obscured part of the Washington shoreline, most of the area of Stevenson, Washington and along the entire north parts of the photographs. Neither did this photography reach to the north limits of detail of the manuscript as indicated on the project index.

Kelsh plates of 1:24,000 scale photography made by the U. S. Engineers, Portland District, on 7-22-57 were obtained. These were used to complete the compilation of the Washington shoreline, the town of Stevenson, Washington and other places adjacent to the Washington shoreline that were covered by clouds on the C&GS photography.

In order to complete the interior detail on the Washington side of the Bonneville Dam Pool to the north detail limits of the manuscript we borrowed Kelsh Plates of 1:42,000 photography made by the Bonneville Power Administration on 7-3-52. Contact prints of this photography were also borrowed. These were forwarded to the field unit and the cloud covered areas on the C&GS photography were field inspected as to current conditions. The area was then compiled by Kelsh Instrument at a viewing scale of 1:10,000.

The pencil detail of the Kelsh compilation was inked on the manuscript. This detail was transferred to a rust colored scribe coat sheet by the blue cote method and then scribed in the negative. A contact black line positive was made on Cronarflex. Symbols and type stick-up were applied to the contact positive and it is submitted in this form as the advance manuscript.

32. Control:

Refer to the Photogrammetric Plot Report (Stereoplanigraph Bridge) T-10837 thru T-10845 and to an appendix to this report submitted by the Portland Photogrammetric Office. These are included as part of this descriptive report, pages 13 thru 17.

The pass points located in this control extension along with the identified horizontal control stations were adequate to orient the Kelsh models. Near the north limits of the map manuscript the Bonneville Power Administration furnished coordinates and identification of a transmission tower which was used to supplement the pass points in controlling the models in this area. This station is not shown on the manuscript because the quality of its accuracy could not be ascertained.

33. Supplemental Data:

Corporate limits of Stevenson, Washington and Cascade Locks, Oregon were respectively obtained from plans of these towns submitted by the field unit. They are:

Map of Stevenson, Washington and Vicinity, January 1952,
Scale 1" = 200', City Limits, Partial Revision 11-5-58,
Office of County Engineer.

Map of Cascade Locks, Oregon - Scale 1" = 500'

Several points selected from the maps by the field unit were identified on the photographs. These points were located on the manuscript with the Kelsh Instrument. The corporate limits were then transferred to the manuscript by use of the vertical projector. It was necessary to adjust the azimuth of the corporate limit lines shown on the maps in order to fit the compiled planimetry.

34. Contours and Drainage:

Contours are not applicable.

The drainage shown on the manuscript was delineated from field inspection notes supplemented by minute examination of the Kelsh models for drainage and by visual inspection of the U.S.G.S. topographic quadrangle, "Hood River, Washington - Oregon, Scale 1:125,000.

35. Shoreline and Alongshore Details:

The shoreline shown on this manuscript is at the gradient of Bonneville Dam Pool referenced to the normal pool level of 72.0 feet above M.S.L. at the forebay of the dam and proceeding upstream at the gradient of the pool as of 30 August 1958 the date of photography. A graph, printed on stick-up material, from which the elevation of the shoreline above M.S.L. may be determined at any given place has been applied to each manuscript.

Facts relative to the determination of the shoreline to be shown on the manuscript are contained in the following:

Letter to The Director (4 pages) dated 19 February 1959
Subject: "Normal Pool Level and Normal River Stage
for Ph-5807".

Letter 831:es dated 12 March 1959
Subject: "Normal Pool Level for Ph-5807".

Thermo-Fax copies of this correspondence, which is considered as supplemental instructions for this project are included at the end of this descriptive report.

The shoreline and alongshore structures were adequately field inspected.

Low-water and shoal lines were not field inspected and no attempt was made to investigate for any available photography from which these features might be determined.

36. Offshore Details:

Numerous small islands, rocks, foul areas, dolphins and piling have been shown as interpreted by the field unit.

The baring data shown for the rocks refers to the gradient of the shoreline of the manuscript as described in Item 35. Shoreline and Alongshore Details.

37. Landmarks and Aids:

Forms 567 listing these features for both nautical and aeronautical charts were forwarded to Washington on 6 May 1959. Refer to letter to The Director dated 26 February 1959, Subject: Location of "Aids to Navigation", Project Ph-5807". Refer to letter 73/rrj dated 9 March 1959, Subject: Modification to Instructions Project Ph-5807, Columbia River - Aids to Navigation. Thermo-Fax copies of this correspondence are included at the end of this descriptive report.

38. Control for Future Surveys:

Form 524 is submitted for recoverable topographic station CORN 1959, an unmarked station. It is listed in Paragraph 49. Notes to the Hydrographer.

39. Junctions:

A satisfactory junction has been completed with T-10837. There are no contemporary surveys joining T-10838 on the east, west or south.

40. Horizontal and Vertical Accuracy:

Vertical Accuracy is not applicable.

There are no areas on this manuscript that are considered to be of sub-normal horizontal accuracy.

46. Comparison with Existing Maps:

Comparison was made with U.S.G.S. 30 minute Hood River - Washington - Oregon quadrangle, scale 1:125,000. The shoreline features of this quadrangle are obsolete since it was compiled before the flooding of Bonneville Dam Pool.

47. Comparison with Nautical Charts:

Comparison was made with nautical chart #6157, scale 1:40,000, 3rd Edition July 14, 1958, hand corrected 9-6-58.


"Items to be applied to the nautical chart immediately".

None.

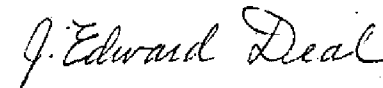
"Items to be carried forward".

None.

Approved:


Lorne G. Taylor
LCDR, C&GS
Officer-in-Charge

Respectfully submitted:


J. Edward Deal
Cartographer
C&GS

49. Notes to the Hydrographer:

Form 524 has been submitted for station CORN 1959, an unmarked recoverable topographic station.

Forms 567 have been submitted listing the geographic positions of Landmarks and Aids to Navigation shown on the manuscript as follows:

- Cascade Rapids Upper Range Front Light 9, 1959
- Cascade Rapids Upper Range Rear Light, 1959
- Cascade Locks Light 10, 1959
- Stevenson Range Front Light 13, 1959
- Stevenson Range Rear Light, 1939
- STACK, tall black steel, 1959

The location of photo-hydro stations was not applicable to this project.

48. Geographic Names:

Cascades Locks
Columbia River
Columbia River Highway
Hood River County
Kanaka Creek
Lewis & Clark Highway
Oregon
Rock Cove
Rock Creek
Skamania County
Spokane, Portland & Seattle RR
Spring Creek
Stevenson
Union Pacific RR
Washington

George M. Bee
Geographic Names Section
July 1961

PHOTOGRAMMETRIC OFFICE REVIEW

T- 10837

1. Projection and grids X 2. Title X 3. Manuscript numbers X 4. Manuscript size X

CONTROL STATIONS

5. Horizontal control stations of third-order or higher accuracy X 6. Recoverable horizontal stations of less than third-order accuracy (topographic stations) X 7. Photo hydro stations None 8. Bench marks X
9. Plotting of sextant fixes X 10. Photogrammetric plot report X 11. Detail points X

ALONGSHORE AREAS

(Nautical Chart Data)

12. Shoreline X 13. Low-water line None 14. Rocks, shoals, etc. X 15. Bridges X 16. Aids to navigation X 17. Landmarks X 18. Other alongshore physical features X 19. Other along-shore cultural features X

PHYSICAL FEATURES

20. Water features X 21. Natural ground cover X 22. Planetable contours None 23. Stereoscopic instrument contours None 24. Contours in general none 25. Spot elevations None 26. Other physical features X

CULTURAL FEATURES

27. Roads X 28. Buildings X 29. Railroads X 30. Other cultural features X

BOUNDARIES

31. Boundary lines X 32. Public land lines None

MISCELLANEOUS

33. Geographic names X 34. Junctions X 35. Legibility of the manuscript X 36. Discrepancy overlay None 37. Descriptive Report X 38. Field inspection photographs X 39. Forms X
40. _____

Reviewer

J. Edward Deal

Supervisor, Review Section or Unit

41. Remarks (see attached sheet)

FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT

42. Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted under item 43.

Compiler_____
Supervisor

43. Remarks:

M-2623-12

74-100
73
758

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
PORTLAND PHOTOGRAMMETRIC OFFICE
405 Custom House
Portland 9, Oregon

POST OFFICE ADDRESS:

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

AIR MAIL

10 February 1960

To: The Director
Coast and Geodetic Survey
Washington 25, D. C.

Subject: Heights of Rocks and Ledges - Ph-5807

Reference: 711-kak dated 3 February 1960

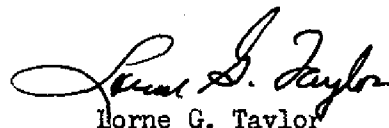
The following gage readings taken at the time of photography is submitted in reply to the last paragraph of reference letter.

Water Surface gage readings 28 Aug. 1958 reduced to MSL 1947 adjustment, obtained from Walla Walla District, U. S. Army Engineers.

	River Mile	MSL Elev.
Arlington	241.6	186.5
Patterson	278.4	235.0
Umatilla River	288.7	250.7

Enclosure (2) indicates additional gage readings and is a copy of enclosure 2 referred to in your letter. No additional water surface elevations are available for this section of the river.

The above data has been plotted on enclosure (1) and I believe that the best water surface elevation at any other point would be determined from an estimated profile based on the plotted gage readings and the U.S.E. profiles.



Horne G. Taylor
LCDR, C&GS
Officer-in-Charge

- Encl. (1) U.S.E. Drwng CLW-201- $\frac{1}{2}$
Low Water Profile, Celilo
to Mouth of Snake River
- Encl. (2) Copy ltr NPPGW-2 U.S. Army Portland
District Engineer dated 2-10-59

LGT/bpo

ELEVATIONS & DISCHARGES at Noon August 28, 29, 30, 1958

Bonneville to The Dalles

Date	Bonneville Pool Gages				The Dalles		* Bonneville	
	Forabay	Stevenson	Hood River	Lyle	Tailrace	Outflow	Local Inflow	Total Inflow
Aug. 1958:	(153.3)	(150.5)	(149.5)	(148.0)	(192.3)			
28	73.5	74.05	74.38	74.01	75.5	103.0	2.7	105.7
29	73.5	74.10	74.47	74.74	75.6	103.8	2.7	106.5
30	73.5	74.09	74.43	74.61	75.5	99.7	2.7	102.4

* Includes tributaries between The Dalles and Bonneville Dams.

The Dalles to McNary

Date	The Dalles Pool Gages				McNary		The Dalles	
	Forabay	Celilo	Miller	Rubio	Tailrace	Outflow	Local Inflow	Total Inflow
Aug. 1958:	(191.9)	(190.6)	(204.0)	(203.0)	(190.8)			
28	159.76	160.15	160.27	160.00	162.05	92.4	5.1	97.5
29	159.84	160.25	160.29	160.60	162.60	90.5	5.1	105.6
30	159.87	160.21	160.25	160.60	161.78	90.2	5.2	95.4

* Includes tributaries between McNary and The Dalles Dams.

Note: All discharges are in 1,000 c.f.s.

Sum 100.0

U. S. ARMY ENGINEER DISTRICT, PORTLAND
CORPS OF ENGINEERS
628 PITTOCK BLOCK
PORTLAND 5, OREGON

WPGW-2

10 February 1959

Photogrammetric Office
U. S. Coast and Geodetic Survey
405 Custom House
Portland 9, Oregon

ATTENTION: Lt. Commander Lawrence C. Taylor

Gentlemen:

In answer to your telephone request of February 6, 1959, we are inclosing a tabulation of noon water surface elevations and flows for the Columbia River from Bonneville Dam to McNary Dam for the period August 28-30, 1958. The observed water surface elevations through Bonneville pool are for a flow near 100,000 c.f.s. and indicate a 1.9-foot slope between the Bonneville forebay and the tailwater of The Dalles powerhouse, a greater gradient than previous backwater computations showed.

The backwater profiles you received from the Walla Walla District are referenced to mean sea level, 1929 adjustment.

Please feel free to contact this office should additional questions arise.

Very truly yours,

1 Incl (in dupe)
Tabulation - Elevations & Discharges

W. L. WINEGAR
Colonel, Corps of Engineers
District Engineer



150 YEARS OF SERVICE
1807 - 1957

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
WASHINGTON 25, D. C.

IN REPLY ADDRESS THE SURVEYOR
GENERAL AND GEODETIC SURVEY
AND NOT THE BUREAU OF LAYERS
AND REFER TO NO. 8911-00

March 12, 1959

To: LCDR Lorne G. [unclear]
Portland Photogrammetric Office
Coast and Geodetic Survey
405 Custom House
Portland 9, Oregon

Subject: Normal pool level for Ph-5807

Reference: Your letter dated 14 February 1959

Your detailed study of the problem of determining a pool level for the photo-panoramic plot has been examined and your recommendations are satisfactory for mapping the shoreline for nautical chart purposes.

In reference, though, to item No. 5 page 5 of your letter, we will select the normal pool level as established by the Corps of Engineers for the sounding datum of such areas. This difference between the sounding datum and the shoreward position will not be serious nor affect the practical use of the chart. It will be very small as you noted. The normal pool level is based on the treatment of charts 6153 and 6154 for the Sandy Pool.

Mr. Waggoner of the Engineer's Office, when in Washington recently--examined these charts in the making. The subject of pool level fluctuation was considered and he advised that we would recommend the establishment of visible marks for use by the boating public. We will erect them when erected and carry a note explaining their use. The public then can make their own deductions to soundings for determining pool level.

There is one situation which should be noted in regard to this starting problem. In the upper part of the plot, there probably will be some just below the water level because of the gradient of the shoreline that would be the sounding datum. These areas should be noted on the photo surveys.

Assistant Director

District Officer, CGS

PORTLAND PHOTOGRAMMETRIC OFFICE
405 Custom House
Portland 9, Oregon

19 February 1959

To: The Director-
Coast and Geodetic Survey
Washington 25, D. C.

Subject: Normal pool level and normal
river stage for Ph-5807

Reference: (a) ltr. 732/rab, Instructions,
Project Ph-5807, Sec. 13

The data required in Section 13.03 of reference (a) poses several problems which will be discussed for The Bonneville pool, The Dalles pool and normal river above The Dalles pool.

There are no established values to satisfy the data required concerning normal pool level or normal river stage. All of these values are variables depending on the river discharge at the particular place involved. The river discharge varies according to the following factors; (a) seasonal runoff (b) inflow between gaging stations (c) released storage or spilled storage (d) regulated flow through penstocks depending on power demands. These factors are not entirely predictable and past records indicate a wide variance depending on conditions at the time.

Selecting a recommended discharge to best suit the requirements for mapping the normal pool level and normal river stage was accomplished in the following manner.

1. A study of the Summary Hydrograph, enclosure (1), indicates a mean daily flow of 100,000 cfs or more about 75 percent of the time and further that this is the actual flow between the months October through February. The hydrograph, based on a 78 year record, does not indicate the present effect of storage water released from existing dams during periods of low flow.

To: The Director
19 February 1959

2.

The following figures were compiled from published reports of the U. S. Geological Survey titled "Month-end Storage in Major Reservoirs in the Pacific Northwest".

	Storage released in acre feet
Coulee Dam (10 yr. av.)	1,557,000
Hungry Horse Dam	1,400,000
Kootnay Lake Dam (based on International Joint Committee Orders)	<u>673,000</u>
	3,630,000

The value 3,630,000 ac. ft. represents the total storage released in a six month period during an average runoff year.

$$\frac{3,630,000}{180 \times 1.9835} = 10,166 \text{ or } 10,000 \text{ cfs average storage released during 6 months period of low flow.}$$

100,000 cfs (from hydrograph) / 10,000 cfs (released storage) = 110,000 cfs recommended discharge to determine the gradient in pools and normal river stage in area above The Dalles pool.

The discharge and gage elevations at time of photography are indicated by enclosure (2).

Discharges and gage elevations have been selected and tabulated on enclosure (3) for various river stages to illustrate different pool elevations and gradients and the upper river profile.

Enclosure (5) was compiled from the data indicated by enclosures (2)(3)(4) to illustrate the changes in pool water surfaces and the upper river at various discharges. The water surface profile at time of photography was interpolated from the USA Water Surface Profiles (enclosure 4). The 450,000 cfs was selected for illustration since it represents the Adopted Normal High Water Discharge as determined by the legal branch of USA for the McNary Project. The low water profile was transferred to enclosure (5) from enclosure (6).

The following recommendations are submitted for your approval.

1. That 110,000 cfs be selected as the discharge value to define normal pool level and normal river stage.

To: The Director
19 February 1959

3.

2. 72.0 feet is the design normal pool level at Bonneville; however, for the past several years the pool has varied daily from about 73.5 feet to 72.5 feet to maintain additional power head. It is recommended that 72.0 feet be adopted as the normal pool level at Bonneville Dam and the gradient shown at time of photography on 28 August 1958 (enclosure (2)) be adopted for shoreline mapping. The water surface would appear 1.5 feet higher in the photographs than the adopted normal pool level which will not present a difficult problem for field inspection.

3. The design normal pool level at The Dalles is 160.0 feet. Photography was taken at 159.8 feet with a discharge of about 100,000 cfs. It is recommended that the pool level and gradient at time of photography be considered as the normal pool level for shoreline mapping.

4. It is recommended that 0.5 feet be added to the plotted river profile at time of photography to adjust the elevations to a flow of 110,000 cfs.

5. It is recommended that the pool gradients selected for 1 and 2 above be used as the sounding datum and that the adopted low water profile enclosure (6) be adopted for the river above the upper limit of The Dalles Pool.

If the above recommendations are not approved please advise so that field party procedures can be modified as necessary.

Lorne G. Taylor
LCDR, C&GS
Officer-in-Charge

Enclosures (1) Summary Hydrographs USE drwg CL-05-24/8
(2) ltr NPPGW-2 U.S. Army, Portland District Engineer dated 2/10/59
(3) Tabulation of selected discharges and gage heights
(4) Water surface profiles USE drwg CL-201-19
(5) Columbia River profile - Portland Photo. Office
(6) Low water profile Celilo to Mouth of Snake River
USE drwg CLW-201-1/2

cc: Portland District Officer

LGT/bpo

SELECTED DISCHARGES & GAGE READINGS

Bonneville to The Dalles

Date	Bonneville Pool Gages				The Dalles		Bonneville: The Dalles	
	Forebay	Stevenson	Hood River	Lyle	Tailrace	Outflow	Total Outflow	Forebay
12/2/58	72.2	72.8	73.1	73.3	73.9	112,600	121,600	159.90
11/9/58	73.7	74.2	74.3	74.7	75.0	108,100	121,700	
12/6/58	72.3	72.9	73.1	73.3	73.9	110,200	123,300	159.97
11/15/58	72.2	73.0	73.3	73.5	74.3		140,500	
5/20/58	79.5	82.7	84.2	85.75	88.8	450,500	459,400	

8/30/58 73.6
(1000-1100)

1/14/57 79.3
(1200)

7/12/57 79.7

Elev. are MSL 1947 adjustment

The Dalles to McNary

Date	The Dalles Pool Gages				McNary		The Dalles: Umatilla: Patterson		
	Forebay	Celilo	Miller	Rufus	Tailrace	Total Outflow	Wx Bu.	Ferry	
					252.94	108,000	251.95		
						107,000			235.82
	156.0	156.4	156.5	157.1		106,000			
	158.9	159.3	159.3	159.6		102,000			
6/10/58	154.9	158.05		164.15		450,000			
6/16/58	155.1	157.8		163.9		450,000			
5/18/57	153.0	157.8	159.6	164.9		450,000			
	158.2	160.25	161.6	164.7		450,000			
1/27/58	159.8	161.8	163.04	166.25		450,000			

Elev. are MSL 1947 adjustment

C MAR 1959

73/rrj
9 March 1959

To: Officer in Charge
Portland Photogrammetric Office
Coast and Geodetic Survey
P.O. Box 1000
Portland 9, Oregon

Subject: Modification to Instructions - Project PH-5807
Columbia River - Aids to Navigation

Your letter of 16 February and your detailed report dated 20 February describing the Corps of Engineers' location of aids to navigation on the Columbia River has been examined.

A position comparison of the aids to navigation located on the Portland and Walla Walla Corps of Engineers offices indicates that their positions are generally satisfactory for our purpose. Most of their positions are agree within 1 foot with a maximum disagreement of 7 feet. These differences are reasonable because of their method of measuring datum differences.

Authority to use the Walla Walla Corps of Engineers 3rd order positions is approved, providing a satisfactory datum check is obtained. The datum check will consist of photogrammetric locations of all permanent fixed aids to navigation that are identifiable on air photographs. Position agreements shall be within 1 foot at the 1:250,000 mapping scale.

Project Instructions PH-5807, Items 11.01 through 11.04 are modified to the following extent:

1. Bonneville to John Day Basins

- A. Permanent fixed aids to navigation shall be located by 3rd-order triangulation or traverse methods. The Walla Walla Corps of Engineers 3rd-order positions will be accepted provided a satisfactory datum check is obtained as described above.
- B. Temporary and floating aids to navigation shall be located by photogrammetric or topographic methods wherever Corps of Engineers' positions are not available.

Portland, Oregon, 1959

6 March 1959

2. John Day Dam Site to Portland

- A. All fixed and floating aids to navigation for this area are shown on the map when the reservoir is filled. The fixed and floating aids can be located by photographic or topographic means wherever Corps of Engineers positions are available.

Charles F. Jones
Assistant Director

Portland District Office

83

PORTLAND PHOTOGRAMMETRIC OFFICE
405 Custom House
Portland 9, Oregon

26 February 1959

To: The Director
Coast and Geodetic Survey
Washington 25, D. C.

Subject: Location of Aids to Navigation, Project Ph-5807

Reference: (a) 732/rab, Instructions - Shoreline Mapping
(b) ltr to Director - Subject: Aids to Navigation
dated 16 Feb. 1959
(c) 73/rrj, Subject: Party Affairs, Field & Office
dated 12/10/58

A field examination of all aids to navigation within the project limits has been completed. The tabulation below indicates the present status in regard to location of aids.

1. Fixed Aids with 3rd order C&GS position - - - - - 11
2. Fixed Aids (permanent structures) located by
other agencies, ref (b) - - - - - 39
3. Fixed Aids (permanent structure) not located - - - 56
4. Fixed Aids (Temporary structure) not located - - - 99
5. Buoys and daybeacons (unnumbered in L. L.) - - - - 64

The enclosed photos indicate the classification assigned to the various types of fixed aid structures in the project. This classification of permanent or temporary is indicated on the enclosed List of Aids and in the above tabulation.

40 of the 56^{unlocated} permanent type aids listed in 3 above are above the John Day Dam site. It is recommended that all fixed aids above the John Day Dam be located by photogrammetric or topographic methods rather than by triangulation methods, because these aids will be changed when the John Day reservoir is filled, USE estimate completion of John Day Dam about 1966.

If the above recommendation is not approved, it will represent a considerable triangulation project which will undoubtedly require additional personnel this summer in order to meet the project completion dates as outlined in ref. (c).

Lorne G. Taylor
LCDR, C&GS
Officer-in-Charge

LGT/bpo

REVIEW REPORT
of
SHORELINE MAP MANUSCRIPTS
T-10837 through T-10846
August 1961

62. Comparison with Registered Topographic Surveys

T-10838 only { A small portion of T-8607 (1948) of adjoining project PH-17 overlaps into T-10838. There are some discrepancies in this common area, however, the different ~~datums~~ could account for most of these. T-10838 supersedes T-8607 for the common area for nautical charting purposes. No other previously registered topographic surveys exist of subject coverage. } T-10838 only river datum places

63. Comparison with Maps of Other Agencies

Bonneville Dam, Ore.-Wash., 1:62,500, 1957, U.S. Geological Survey
Hood River, Ore.-Wash., 1:62,500, 1957, U.S. Geological Survey
White Salmon, Ore.-Wash., 1:62,500, 1957, U.S. Geological Survey

Subject surveys at scale of 1:10,000 do not readily permit a detailed comparison with above-listed quadrangles at 1:62,500. However, shoreline differences exist throughout.

64. Comparison with Contemporary Hydrographic Surveys

There are no contemporary hydrographic surveys of subject area.

65. Comparison with Nautical Charts

6157 1:40,000 Revised to March 1961

There are considerable disagreements between these surveys. An evaluation of these by the Nautical Chart Division for possible early consideration is recommended. Typical major discrepancies are at the following locations:

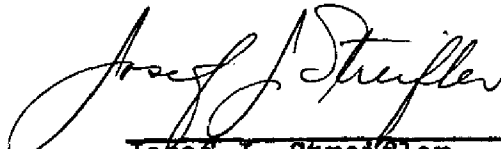
1. Lat. $45^{\circ} 41' 45''$, Long. $121^{\circ} 51'$ - in the vicinity of Government Cove
2. Lat. $45^{\circ} 41' 45''$, Long. $121^{\circ} 41'$ - see long point of land and islands SW thereof
3. At the Oregon shore of Columbia River directly west of Hood River - White Salmon Bridge (lat. $45^{\circ} 43'$ - long. $121^{\circ} 30'$ to $31'$).

- 2 -

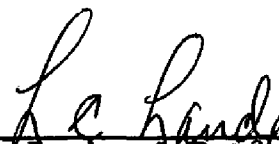
66. Adequacy of Results and Future Surveys

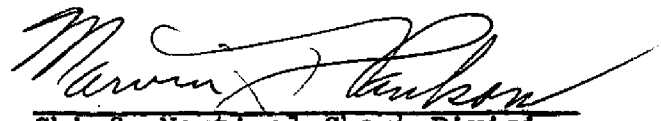
Subject surveys have been compiled according to instructions and no deficiencies in adequacy or accuracy are indicated.


Reviewed by:


Josef J. Streifler

Approved by:


Chief, Review & Drafting Section


Chief, Nautical Chart Division


Chief, Photogrammetry Division


Chief, Operations Division

NAUTICAL CHARTS BRANCH

SURVEY NO. T-10837

Record of Application to Charts

[illegible]

M-216B-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.