

4764a

Diag. Cht. No. 8201-3

4764a

Form 504	
DEPARTMENT OF COMMERCE & COAST AND GEODETIC SURVEY	
U. S. COAST AND GEODETIC SURVEY	
State: ALASKA	
11-5613	DEC 9 1929 Acc. No.
DESCRIPTIVE REPORT.	
Hydrographic Sheet No. 2a 4764a	
LOCALITY:	
S. E. ALASKA	
KEKU STRAITS	
DEVIL'S ELBOW	
1929	
CHIEF OF PARTY:	
E. W. Eickelberg	

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 2a

REGISTER NO. **47642**

State S. E. Alaska

General locality Keku Strait

Locality Devil's Elbow

Scale 1:5,000 Date of survey April-July-Oct, 1929

Vessel EXPLORER

Chief of Party H. A. Cotton and E. W. Eickelberg

Surveyed by Thos. B. Reed

Protracted by Thos. B. Reed

Soundings penciled by Thos. B. Reed

Soundings in ~~fathoms~~ feet

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by

Inked by Warren H. Bauford

Verified by Warren H. Bauford

Instructions dated February 19, 1929

Remarks:

DESCRIPTIVE REPORT

To accompany Hydrographic Sheet No. 2a

4.4764²

INSTRUCTIONS: This work was done under instructions dated February 19, 1929.

Survey Methods: All soundings were taken with a hand lead, part being taken from a sounding launch, and part, in the more confined areas, from a skiff to avoid smashing the propellor on the rocks. On "a" day an effort was made to run cross lines across the narrow part of the channel at low water slack with a pulling boat. The duration of slack at low water was found to be so short however, that very little sounding could be done at low water slack. Sounding was very difficult in this area on account of the strong currents. In general the soundings were taken near high water slack.

DISCREPANCIES: The minus 4 foot sounding mentioned in the instructions and shown on the photostat of sheet 4764, 100 meters N. E. of Signal NINE is incorrect. This area was inspected from the shore while building signals at the time of a minus two foot tide and no rocks other than those on the photostat were showing. Several soundings also fall in the close vicinity of this questionable sounding.

Considerable discrepancy exists between some of the boat sheet plotting and smooth sheet plotting due to the signals being relocated by plane table after the sounding was done and some signals being changed considerably. There was no doubt as to the recovery of the 1927 signals on this sheet, except signal GOF which is doubtful within one or two meters from the 1927 location. The boat sheet for this area was made from the photostat of the insert on sheet 4764 and some of the discrepancies between rough and smooth plotting are undoubtedly due to distortion in the photostat paper.

The 1927 survey shows a 9 foot spot 80 meters North of Beacon 9 on which falls a 12 foot sounding on this sheet. Due to the rocky irregular bottom in this area it is recommended that the 9 foot sounding should not be rejected.

Discrepancies in the low water line as located by the topographer in 1927 were found in a number of places. The tide flats outside of the low water line are in general, high and extremely rocky and sounding lines were carried in as close to the beach as possible with safety to the sounding launch.

The two rocks shown in mid-channel on the photostat, 125 meters east of signal NINE are connected, ~~at shore~~ ^{and show} as one large rock at about minus 2 feet tide and both are awash at one half foot of tide (checked by tidal marigram from Monte Carlo Island.)

Practically all of the bottom on this sheet is rocky and very irregular.

DANGERS: On account of the constricted nature of the passage through Devil's Elbow and the difficulty of avoiding the rocks in mid-channel off Beacon 9 and the shoal off Beacon 7, it is advisable that no boat attempt passage through unless there is at least 2 feet more tide than the draft of the boat. The current floods Northward through the Elbow and attains an estimated maximum velocity of 10 knots on the large tides and on account of the sharp turn in the channel at this point forms dangerous whirlpools.

ANCHORAGES: The bight immediately north north west of signal MIT makes a good small boat anchorage while waiting for slack water to pass through the Elbow. Boats coming through from the southward generally tie up to the piling of the old fish trap about two miles to the southward while waiting for slack water in the Elbow.

TIDAL NOTE: From "a" day to "d" day soundings were reduced from the automatic gauge at Monte Carlo Island with a correction of + 20 minutes in the time of low water, plus one foot in height of high water, and time of high water same as at Monte Carlo Island.

"e" day Vol. 2 was reduced from the automatic gauge at Entrance Island correcting it to Monte Carlo Island as follows: minus 1.0 foot to H.W. minus 5 minutes to L.W. and minus 25 minutes to H.W. making the correction to Devil's Elbow given in the preceding paragraph.


Note:

"f" day Vol. 2 was recorded in this record by mistake and was later copied in Vol. 2 sheet 4764 as "h" day. (plotted on sheet No. 4764).

STATISTICS

DAY	STAT. MI. OF SOUNDING LINES	NO. OF SOUNDINGS	NO. OF POSITIONS	VOL.
a	0.3	37	8	1
b	5.5	200	56	1
c	5.0	209	65	1
d	7.7	582	147	1
e	1.9	272	43	2
TOTAL	20.4	1300	419	

Respectfully submitted,



T. B. Reed, Lieut. (j.g.)
U.S.C. & G.S.S. EXPLORER

TIDAL NOTE TO ACCOMPANY SHEET NO. 2a

From "a" day to "d" day soundings were reduced from the automatic gauge at Monte Carlo Island with a correction of plus 20 minutes in the time of low water, plus 1 foot in time of high water, and time of high water same as at Monte Carlo Island.

Mean L. L. W. = 4.0 feet on Monte Carlo Id. staff.

Highest tide observed = 13.5 ft.

Lowest tide observed = minus 1.1 ft.

"e" day, Vol 2 was reduced from the automatic gauge at Entrance Island correcting it to Monte Carlo Island as follows: minus 1.0 ft to H.W. minus 5 minutes to L.W. and minus 25 minutes to H.W. making the correction to Devils Elbow given in the preceding paragraph.

EXAMINATION AND APPROVAL SHEET.

Hydrographic Sheet No. _____ (Field No. 2a)
and the accompanying records have been inspected by the
Chief of Party and are approved.



E. W. Eickelberg,
Commanding Officer,
U.S.C. & G.S.S. EXPLORER.

NOTE TO ACCOMPANY DESCRIPTIVE REPORT OF DEVIL'S ELBOW:-

Comparison of 1929 work with that of 1927 completed by Captain Cotton. The work of 1927 was completed by Captain Cotton before he received orders to relocate all signals on 1:5000 scale and on my taking command a party was sent to relocate these signals on Devil's Elbow and Summit Islands sheets.

A tracing of the 1927 work accompanies the smooth sheet. Some of the apparent discrepancies would in all likelihood be cleared up by replotting the 1927 work with the new location of signals. A case in mind is the 14 foot spot 200 meters Southeast of signal VEN.

In every case where the 1927 work shows shoal soundings I would recommend retaining these on account of the irregularity of the bottom.



E. W. Eickelberg,
Commanding Officer,
U.S.C. & G.S.S. EXPLORER.

DESCRIPTIVE REPORT

TO ACCOMPANY TOPOGRAPHIC SHEET NO. *reprinted as Boat Sheet*

DEVIL'S ELBOW, KEKU STRAITS, S.E. ALASKA

INSTRUCTIONS: Director's instructions dated February 19, 1929. E. W. Eickelberg, Chief of Party.

EXTENT: This survey includes the location of signals only, in the vicinity of Devil's Elbow.

CONTROL: The four triangulation stations shown were used for control on this sheet. All of the stations were recovered.

SURVEY METHODS: The survey was accomplished by the usual plane table methods and the location of each signal is shown by a point enclosed in a pencil circle. A traverse was run from PLAT to DEVIL closing with no appreciable error so that no adjustment was necessary. Signals MIT, IK and BON were located by two cuts and a rod reading. Signals ONE, and BEAK were located by 3 intersecting cuts. Signal NO was located by 3 cuts and a rod reading from DEVIL. Signals YET and TON were located by 4 cuts each. A traverse was run from DEVIL to FOG closing with an error of 3 meters which was adjusted. Signals NINE, SEV, VEN and GOF were located by rod readings. The position of GOF was also checked by a resection from FOG and a cut from CHANGE. TES was located by 3 cuts and a traverse from CHANGE. The traverse was closed back on CHANGE with no error.

The old location of the signals are shown with red circles. These were taken from the photostat of the hydrographic sheet of this area. The locations of the same signals by this survey are shown by small pencil circles.

Magnetic north was observed with the declinatoire at triangulation stations PLAT and DEVIL. DEVIL was also occupied with compass declinometer No. H-12 for a comparison with the declinatoire. The declination at triangulation station DEVIL was found to be $33^{\circ} 21'$ east using the declinometer. Using the declinatoire No. 110 the declination was $33^{\circ} 13.7'$ east. A comparison was also obtained at triangulation station FAST on sheet "F". The error of declinatoire No. 110 as compared with declinometer No. H-12 at stations DEVIL and FAST is as follows:

At DEVIL = $+0^{\circ}-07.3'$

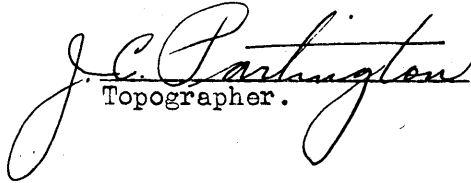
At FAST = $+0^{\circ}-14.2'$

Declination values on the sheet are uncorrected for diurnal variation and index correction.

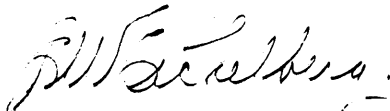
The signals on this sheet were recovered and rebuilt by Lieut., T. B. Reed and were located by Lieut., J. C. Partington.

List of signals and description of the recovery of each accompany this report.

Respectfully submitted,


Topographer.

Approved and forwarded,


E. W. Eickelberg,
Chief of Party.

LIST OF SIGNALS ON SHEET "2"

*registered as
boat sheet 4764a*

SIGNAL	LAT.	D.M.	LONG.	D.P.	
BEAK	56° 38'	275	133° 42'	31	Beacon # 2A
				(223)	Highest point of rock. Same as
	56 38	447	133 41	800	1927 station.
				(601)	Signal cloth in scrub tree.
IK	56 38	465	133 41	422	Part of 1927 cloth found still in place.
				(861)	White wash. 1927 white wash found
BOF	56 38	532	133 41	162	still in place. (Same as old signal)
				(130)	White wash on log--1927 white wash
NO	56 38	239	133 40	893	found. (In same place as old signal)
				(252)	Queer shaped root. Not same as
YET	56 38	00	133 40	771	signal YES of 1927.
NINE	56 38	74	133 41	214	Beacon # 9.
		(131)		(527)	Banner (same position as 1927)
ONE	56 37	1725	133 41	496	Old banner found in place.
		(111)		(873)	
SEV	56 37	1745	133 41	150	Beacon # 7.
		(383)		(852)	White wash (same position as 1927)
VEN	56 37	1493	133 41	171	Old white wash found.
		(417)		(217)	White wash on stump (same position
TCN	56 37	1439	133 40	806	as 1927. Old white wash found C.K.
		(930)		(674)	Banner--old banner found lying on
COF	56 37	926	133 41	349	ground. Replaced but may be one or
		(1021)		(363)	two meters from old position.
TES	56 37	835	133 40	660	Banner--old banner found lying on
					ground. Pile of stones used in 1927
					to hold bottom of pole still in
					place. Banner replaced in same po-
					sition as signal of 1927.

NOTE TO ACCOMPANY TOPOGRAPHIC DESCRIPTIVE REPORT

DEVIL'S ELBOW

FIELD LETTER "G"

*registered as
boat sheet H, 4764a*

The sheet on which this projection and work is done was originally intended to be used as a Smooth Sheet. However, it was found best to make a new hydrographic Smooth Sheet and use this sheet for relocating and checking the recovery of the hydrographic signals. The new locations/~~being~~ ^{have been} left in pencil. The old work shown in ink was made by transfer from bromides of the 1927 hydrographic sheets. The new locations shown in pencil were used for the plotting of the 1929 Devil's Elbow hydrography. This sheet was also used for finding the limits of the local attraction, several declinatoire readings and compass declinometer values being taken.

E. W. Eickelberg

E. W. Eickelberg,
Chief of Party,
U.S.C. & G. Survey.

LIST OF AIDS TO NAVIGATION

<u>SIGNAL</u>	<u>LAT.</u>	<u>D.M.</u>	<u>LONG.</u>	<u>D.P.</u>	
BEAK	56° 38'	275	133° 42'	31	Beacon # 2A
NINE	56 38	74	133 41	214	Beacon # 9.
SEV	56 37	(111) 1745	133 41	(873) 150	Beacon # 7.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. "G" *Registered as Boat Sheet for H. 47643*

REGISTER NO.

State S. E. Alaska

General locality Keku Strait

Locality Devil's Elbow

Scale 1:5,000 Date of survey July, 1929.

Vessel U.S.C. & G.S.S. EXPLORER

Chief of Party E. W. Eickelberg

Surveyed by J. C. Partington

Inked by J. C. Partington

Heights in feet above.....to ground to tops of trees
No heights determined.

Contour, Approximate contour, Form line interval.....feet

Instructions dated February 19, 1929.

Remarks:.....

FOR FILES OF FIELD RECORDS SECTION

ECM

January 17, 1930

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 4764 a

Locality: Devils Elbow (Kaku Strait) Alaska

Chief of Party: H. A. Cotton and E. W. Sichelberg, in 1929

Plane of reference is mean lower low water, reading
4.0 ft. on tide staff at Monte Carlo Island

~~Entrance Island~~

5.2 ft on tide staff at Entrance Island

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

Paul C. Whitney

Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4764-A

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet . 419 . . .
Number of positions checked . 87 . . .
Number of positions revised . 2 . . .
Number of soundings recorded . 1300 . . .
Number of soundings revised . 253 . . .
Number of signals erroneously
plotted or transferred . . . 0 . . .

Date: - January 28 - 1930

Cartographer: Warren H. Bayford

SECTION OF FIELD RECORDS

REPORT ON SHEET No. 4764-A

JAN - 28 - 1930.

CHIEF OF PARTY

PROTRACTED BY

VER & INKED BY

SURVEYED IN

SURVEYED BY

SOUNDINGS PLOTTED BY

1.) The records were found to conform to requirements of the General Instructions for Field Work.

2.) The protracting was excellent, only two positions having to be replotted.

3.) The plotting of soundings was fairly good except during "e" day. Almost eighty percent of the soundings plotted during "e" day had to be erased and replotted. Absolutely no regard was paid to time interval during this day.

- 4/ The sounding line crossings were found to be adequate.
- 5/ The development in channels and on shoals was sufficient.
- 6/ The depth curves are the result of using both this survey and the previous survey i.e. H 4764a - and H 4764 and arriving at the final curves by taking into consideration the soundings on both sheets. The curves on the previous sheet i.e. H 4764 were changed so as to agree with the "composite" curves on this sheet, and are exactly the same.
- 7/ The sheet was reasonably clean and the work was legible.
- 8/ The field plotting was completed to the extent prescribed in the General Instructions except as noted in # 3 (three)
- 9/ The office draftsman had to do over that portion of the work noted in # 3 (three)

10/ The protracting was done by
Thos. B. Reed, and was excellent work.

The penciling of the soundings
during "e" day was very poor and was
done by Thos. B. Reed.

Respectfully submitted

Warren H Bamford.

Section of Field Records
Report on Hyd. Sheet No. 4764^a
Devils Elbow, Keku Strait, S. E. Alaska
Surveyed in 1929
Hand lead soundings

Instructions dated Feb. 19, 1929 (Explorer)

Chief of Party - H. A. Cotton, E. H. Eickelberg

Surveyed by - J. B. Reed

Protracted and plotted by - J. B. Reed

Verified and inked by - H. H. Bamford

1. The records conform to the requirements.
2. The plan, character and extent of the survey satisfy the general and specific instructions.

3. In view of the irregularity of the bottom the sounding line crossings are satisfactory.
4. The information is sufficient for completely drawing the usual depth curves with the exception of the low water curve, which can be partially indicated. The curves were drawn to conform as closely as possible with both H. 4764 and H. 4764^a. In areas where the depths on the two sheets disagree, the curves follow the shoaler soundings.
5. There are no junctions except with the work of 1927, H. 4764. The work on this sheet, H. 4764^a, is intended to supplement the hydrography of 1927 and not to supersede it. Comparison of the two surveys show that discrepancies exist in some places. The chief of party suggests that a replotting of the 1927 work, using the relocated position of signals might iron out some of these differences, but the office decided against doing this, as it is doubtful if it would improve the

agreement. In all cases where the soundings disagreed, the plotting of both sheets was investigated and checked, but in only one instance was a change made. Pos. 76 b, in the records of H.4764, was rejected and the soundings on the line between pos. 75 b and pos. 77 b were omitted. This is the line on which the minus 4 ft. sounding, which has since been proven either erroneous or out of position, was obtained. This line was thought to be out of position, when the 1927 work was verified and the 1929 work seems to confirm this belief. The 9 ft. sounding, 80 me. north of Beacon 9, falls on this line and is therefore omitted.

The 4 ft. sounding (pos. 44 b. in records of H.4764) about 200 meters east of Beacon 9, appears doubtful but will be retained, as it has not been disproved by the latest work.

6. The usual amount of field plotting was done by the field party. The protracting was excellent and the plotting of soundings was good, with the exception of "c" day, which was poorly plotted.

7. Character and scope of surveying - good.
8. While a closer development of the 6 ft shoal, in about Lat. $56^{\circ}-38'$ (240 me), Long $133^{\circ}-41'$ (720 me), would have been desirable, no additional work is recommended.

Reviewed by R. L. Johnston

March 27, 1930.