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U. S. COAST & GEONETIC SURVEY
LIGRAPY + VA ARCHIVES

MAY 8 1939

CONFIDENTIAL

Form 504 Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

L. O. Colbert Director

Aleutian Islands

State: ***

DESCRIPTIVE REPORT

Topographic \

Sheet No. Reg.N. T-6648 Field Nos. P-38; P-38A

LOCALITY

Aleman Talanda

South side of Umnak Island

Driftwood Bay Black Cape

1938

CHIEF OF PARTY

A. M. SOBIERALSKI, H.&G.E.

DECLASSIFICATION BY NOAA

PURSUANT TO DOC SYSTEMATIC REVIEW

GUIDELINES AS DESCRIBED IN SECTION

3.3 (a), EXECUTIVE ORDER 12356

applied to Ch 8861 - Jan 1942 - JW " " 9025 Mar. 1942 - 3711.00

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 Letters P-38; P-38A

T6648 a (P-38a) T6648 b (P-38)

38b)

REGISTER NO. T-6648

State Aleutian Islands					
General locality Aleutian Islands Umnak Island Black Cape (T6638a)					
LOCALITY COUNT SIDE OF UMPAR ISLAND, Driftwood Res					
Scale 1:20,000 Black Cape to Cape Udak (T-66 Scale 1:20,000 Date of survey Summer , 1938					
Vessel U.S.C.&G.S.S. SURVEYOR					
Chief of PartyA. M. Sobieralski					
Surveyed by W. R. Tucker					
Inked by W. R. Tucker					
Heights in feet above M.H.W. to ground taxtapsxafxtrags					
ContourxxApproximatexcontour Form line interval 100 feet					
Instructions dated February 3 , 1938					
Remarks:					

DESCRIPTIVE REPORT

to accompany

TOPOGRAPHIC SHEET T-6648

Field Nos. P-38; P-38A

SOUTH SIDE OF UMNAK ISLAND, ALASKA

DRIFTWOOD BAY

Project No. HT-218

Season 1938

INSTRUCTIONS:

This work was executed in accordance with Director's Instructions dated February 3, 1938.

EXTENT OF SURVEY:

This survey covers all of Driftwood Bay, Umnak Island, Alaska and extends southwestward along shore line to a point at Lat. 52° - 54.86' N. and Long. 168° - 50.34' W. It also covers that portion of the land area of Umnak Island included between Lat. 52° - 54.3' N. and 52° - 59.5' N. and Long. 168° - 41.0' W. and 168° - 50.0' W.; with the exception of a small portion of the land area between Long. 168° - 41.0' W. and 168° - 42.0' W. included on sheet M-37.

GENERAL DESCRIPTIONS AND COMMENTS:

The shoreline shown on this sheet is rocky and precipitous except at the heads of bays and several coves or bights which indent the shoreline. Sand and gravel beaches are found at the heads of these coves and low bluffs of from 5 ft. to 30 ft. rise abruptly from the beaches at the grass line; then gives way to flat lands and valleys beyond. Where the shore line is rocky, numerous rock islets, rocks awash, small rocky reefs, and sunken rocks lie offshore.

That part of the shore line included on this sheet between triangulation stations "PORT 1937" and "RIT 1938", and called "EAST ARM" by the survey party was executed on a 1:10,000 scale on a separate tin sheet and designated P-38A. The rock Islands around triangulation station "PORT 1937" and signals "TAX", "NUB", and "POT" were located prior to this survey on 20,000 sheet M-37, but naturally the work executed on the larger scale should control should any discrepancy between the two surveys be found. All features above the mean high water line are shown on 20,000 sheet P-38.

The shore line of the Islands around triangulation station "PORT 1937" is rocky, rising from the water line as rock cliffs on the north side and as gradual rocky slopes on the south side.

From signal "POT" to signal "DUB" we find a rocky shore line backed by gradual rocky slopes. From signal "DUB" to signal "GOB" a low water rocky reef extends out from the high water line and we find a narrow sand beach backed by low bluffs between these signals.

From about 75 meters west of signal "GOB" a narrow high water rocky ledge extends approximately 900 meters westward to signal "ED". This rock ledge affords protection from southerly seas as it averages from 10 ft. to 15 ft. in height. This ledge is connected to the mainland by a low water reef. The shore line continues rocky to the vicinity of signal "RUM". From this point we find a sand and gravel beach backed by gradual grassy slopes and fronted by an extensive low water reef to signal "SAP" then a flat sand beach extends to near signal "COB". A large stream enters from the northeast justsouth of signal "DUNE".

A rocky low water reef extends from about 125 meters west of signal "DUNE" all around the cove to signal "MEX". This reef extends offshore about an average of 150 meters.

The shoreline between signals "YET" and "COB" is backed by a low wide valley to the east and northeast.

From signal "COB" around to signal "RUB" we have a narrow gravel beach backed by about 30 meter grass flats, then rising abruptly in steep slopes of 50 to 100 ft. in height. A large stream enters from the west just south of signal "RUB". Here also was located the temporary camp of the survey party.

From signal "OFF" around to signal "SAM" we have boulder and rocky shore line backed by 20 to 30 meter flat rocky ledges then rising abruptly to 100 ft. to 250 ft. bluffs; and numerous rock islets, rocks awash, and sunken rocks off shore.

This whole cove around from signal "ED" to signal "MEX" affords excellent small boat landings.

From signal "SAM" around to 200 meters north of signal "ZAG" we find rocky shore line-backed by 50 ft. to 70 ft. bluffs with numerous sunken rocks and rocks awash offshore; thence for 400 meters we find a gravel beach backed by gentle grassy slopes; the gravel beach continues on westward to signal "HAG"; fronted by an extensive low water rocky reef offshore for an average of 250 meters; and backed from signal "CIG" to 200meters past signal "ROT" by steep bluffs of 400 ft. to 50 ft. in height.

Between signals "ROT" and "HAG" we have a gravel beach backed by a low flat grassy valley. A large stream enters at signal "JAW".

From signal "HAG" to signal "GAT" we have a rocky shore line rising abruptly as a 50 ft. bluff and fronted by an extensive low water rocky reef.

At signal "GAT" a large stream enters from the northwest causing a narrow break in the bluffs. From this point a narrow gravel beach extends to signal "PAR" with occassional small stretches of boulder and sand beach. 200 ft. bluffs rise abruptly from the shore line between signals "GAT" and "EBB" with extensive low water reefs extending offshore. From signal "EBB" to signal "JAP" the area back of the shoreline is flat and grass covered except for a 100 ft. sand hill at signal "KID".

From near signal "JAP" to near signal "PAY" 250 ft. bluffs rise from a point 20 to 30 meters back of the high water line; these bluffs give way to a narrow valley at signal "PAY" which extends westward.

From this point all around Cape Udak to signal "LAG" we have in general rocky shore line with 400 ft. to 500 ft. rocky bluffs rising abruptly at the water line, with numerous rock islets, rocks awash, and sunken rocks offshore. The only break in the cliffs or bluffs is at signal "MIX" where it is possible to climb up a steep slope to the 500 ft. plateau of Cape Udak. Small boat landings are very difficult in this whole area except in very calm weather.

From signal "LAG" to signal "OH" we find a wide gravel and sand beach backed by 200 ft. to 125 ft. bluffs. From signal "OH" to the end of this survey just west of signal "POP" we have 300 ft. rocky cliffs rising abruptly from the mean high water line. At signal "SAN" a 150 ft. sand hill shows very prominently.

A low water rocky reef extends considerable distance off- Not covered shore from signal "SAN" westward. The limits of this reef were not by 1938 hydro. located as it was not practicable for the topographer to be in this be vicinity at low tide.

Probably will

CONTROL:

Second and third order triangulation stations established during the 1937 and 1938 field seasons furnished the control for this survey.

SURVEYING METHODS:

On this survey only a few short closed traverses were run, most of the signals being located by three or more intersecting cuts and the shore line, limits of reefs, and other topographic features being rodded in from set-ups at points so located. Triangulation stations were located with this method of topographic surveying in mind and therefore most topographic signals were cut in directly from at least three triangulation stations.

All important off-lying features were located either by direct rod readings or by intersecting cuts.

TRAVERSES:

Short closed traverses with no appreciable closing errors and requiring no adjustments, were run as follows:

From triangulation station "RIT 1938" to signal "ZAG" which had been located previously from intersecting cuts.

From triangulation station "DER 1938" to triangulation station "REM 1938".

From triangulation station "NAK 1938" to signal "WIK" which had been previously located by intersecting cuts.

ELEVATIONS:

All elevations shown on this sheet were located by one of the following methods or by a combination of them: A. With the plane table by means of intersecting cuts. In most cases two or more vettical angles were used in computing the elevations. B. By two or more cuts and vertical angles from prominent knolls with a 7 inch theodolite and the cuts plotted on this sheet with a steel protractor. C- By three or more sextant cuts and vertical angles taken from various offshore positions in hydrographic launch and the cuts plotted on this sheet with a steel protractor.

FORM LINES:

Form lining on this sheet was carried inland as far as the land formation permitted visibility. The general land configuration was verified from various positions offshore.

On the east the form lining joins that of topographic sheet T-6649 also executed by this topographer during this field season.

West of Long. 168° - 47' W. and North of Lat. 52°- 55.3' N. the form lining on this sheet joins that of Topographic sheet T-6647 and the junctions were made in collaboration with Mr. F. A. Riddell who executed the topographic work on that sheet.

MAGNETIC MERIDIAN:

Magnetic meridian was determined at triangulation station
"RIT 1938" with Declinatoire No. 231 which was tested at Green Lake
Magnetic station at the beginning and end of the 1938 field season
(See 1938 report on magnetics).

Division of T.M. 4 S. states no such
report received. No local attraction indicated.

JUNCTIONS WITH ADJACENT SURVEYS:

This survey joins Topographic Sheet T-6649, Field No. M-37, on the east. A junction was effected on the shoreline just west of signal "FOX" both sheets having atjunction at triangulation station "PORT 1937"; the form lining joining at Long. 168° - 42.0' W. North of Latitude 52° - 59.4' N. between Longitudes 168° - 42.0' W. and 168° - 47.0' W. no junction could be made as survey of that area had not been completed at this date.

West of Long. 168° - 47.0' W. and North of Lat. 52° - 55.3' N. the form lining joins that of Topographic Sheet T-6647 as noted under heading "FORM LINES". On the southeast no junctions could be made as the survey of this section has not been completed at this date.

COMPARISON WITH EXISTING CHARTS:

Chart 8802 is the only chart available showing this area, and due to the small scale of this chart no detailed comparison could be made.

NAMES:

UMNAK ISLAND; BLACK CAPE; DRIFTWOOD BAY; and CAPE UDAK are from Chart 8802.

Traders Cove (see keep name list in both)

EAST ARM is the name given by the survey party to the first large cove east of Driftwood Bay proper. This name does not appear on any present charts.

REMARKS:

Due to the desire for close development of the cove NORTH ARM the survey of this area was executed on a 1:10,000 scale on a separate tin sheet designated as a sub-sheet of the main 20,000 sheet. All signals were transferred from the 10,000 sheet to the 20,000 sheet by mechanical means to facilitate their use by the hydrographic party. For location of signals, highwater line and all features outside the high water line the 10,000 sheet takes priority.

STATISTICS:

Statute Miles of Shoreline

17.3

Area in Square Statute miles

20.0

Respectfully submitted:

William R. Tucker, Aid

U. S. Coast and Geodetic Survey

Forwarded:

RAY L. SCHOPPE, H.&G.E. Commanding Officer

U.S.C.&G.S.S. SURVEYOR

APPROVAL SHEET

to accompany

TOPOGRAPHIC SHEET T-6648, FIELD Nos. P-38; P-38A

Topographic Sheet T-6648, Field Nos. P-38; P-38A and its accompanying descriptive report, have been reviewed and examined and are hereby approved:

A. M. SØBIERALSKI. H.&G.E.

Chief of Party

U. S. Coast and Geodetic Survey

LIST OF SIGNALS

to accompany

DESCRIPTIVE REPORT FOR TOPOGRAPHIC SHERT T-6648

TRIANGULATION STATIONS OUTSIDE H.W.L.:

- PORT -1937 Marked station on highest point of largest of group of rock islands.
- WEB 1938 Marked Station near south end of rock islet.
- NAK 1938 Marked station on rock ledge about 50 feet outside from rocky bluff at highwater line-station is covered by 2 feet of water at high tide.

TOPOGRAPHIC SIGNALS:

- BON Whitewashed driftwood -- not recoverable.
- © EREAK Beginning of slope (elev. 520°) near eastern end of Cape UDAK shows up very prominently from the southwest.
 - CIG White washed boulder -- not recoverable.
 - COB Whitewashed driftwood -- not recoverable.
 - ~ COP Whitewashed face of cliff not recoverable.
- COX Whitewashed face of rock cliff in line with shoreline and at beginning of narrow rock highwater ledge-recoverable.
 - DIX Whitewashed rock cliff -- not recoverable. 2
 - DUB Whitewashed rock cliff -- not recoverable.
 - DUNE Prominent small sand dune -- recoverable.
 - EBB Whitewashed rock cliff -- not recoverable.
 - ED Whitewashed rock near west end of rock ledge-- not recoverable
 - FEN Whitewashed face of cliff -- not recoverable.
- FUN Whitewashed face of cliff on rock islet -- not recoverable.
 - GAT Whitewashed driftwood -- not recoverable.
 - GOB Whitewashed rock -- not recoverable.
 - CRAY Light gray spot in rock cliff (elev. 125') -- recoverable.
 - GUT Whitewashed face of rock cliff-not recoverable.
 - HAG Whitewashed rock cliff -- Not recoverable.
- HI Top of prominent waterfall (elev. 40') -- recoverable.
 - HIP Whitewashed face of rock cliff -- not recoverable.
 - ~HOG Whitewashed rock--not recoverable.
 - ILL Prominent waterfall -- recoverable.
 - JAP -Whitewashed driftwood -- not recoverable.

LIST OF SIGNALS (cont.)

to accompany

DESCRIPTIVE REPORT FOR TOPOGRAPHIC SHEET T-6648

TOPOGRAPHIC SIGNALS (cont):

- JAW Whitewashed large log -- not recoverable.
- √JOB Whitewashed top of rock cliff--not recoverable.
- *** KID Whitewashed driftwood--not recoverable.
 - LAR Whitewashed rock--not recoverable.
 - IAT Whitewashed face of rock cliff -- not recoverable.
 - MAT Whitewashed rock--not recoverable.
 - MEX Marked station B.M. # 1--1938on small rock.
 - MIX Whitewashed boulder -- not recoverable.
 - ~MOL Whitewashed rock--not recoverable.
 - MCM Whitewashed top of rock islet -- recoverable.
 - MON White washed face of cliff -- not recoverable.
 - MOY Whitewashed face of cliff -- not recoverable.
 - NED Whitewashed rock cliff -- not recoverable.
 - NET Whitewashed driftwood -- not recoverable.
 - NIP Whitewashed face of cliff on rock islet -- not recoverable.
 - NOB Whitewashed face of cliff -- not recoverable.
 - NUB Whitewashed rock -- not recoverable.
 - NUN Whitewashed rock--not recoverable.
 - DAT Whitewashed rock -- not recoverable.
 - OFF .- Officers tent at survey camp -- not recoverable.
 - OH Whitewashed boulder -- not recoverable.
 - OUT Whitewashed rock cliff -- not recoverable.
 - PAN Whitewashed rock cliff -- not recoverable.
 - PAR Whitewashed rock cliff -- not recoverable.
 - PAY Whitewashed cliff -- not recoverable.
 - POP Whitewashed face of rock cliff -- not recoverable.
 - POT Whitewashed top of rock islet -- recoverable.
 - PIN Whitewashed face (20' high) pinnacle rock--recoverable.
 - RIP Whitewashed face of cliff -- not recoverable.
 - ROT Whitewashed face of sliff -- not recoverable.
 - RUB Camp outhouse -- not recoverable.
 - RUM Whitewashed Rock--not recoverable.
 - SAM Whitewashed rock--not recoverable.
 - SAN Whitewashed driftwood--not recoverable.
 - SAP Whitewashed pinnacle rock -- recoverable.
 - SUB Whitewashed driftwood -- not recoverable.
 - TAX Whitewashed top rock on large rock island-not recoverable.
- *IAG Whitewashed face of cliff-not recoverable.

LIST OF SIGNALS (cont)

to accompany

DESCRIPTIVE REPORT FOR TOPOGRAPHIC SHEET T-6648

TOPOGRAPHIC SIGNALS (cont):

TIN - Whitewashed driftwood -- not recoverable.

TIT - Whitewashed top of large rock--not recoverable.

US * Whitewashed top of large rock--not recoverable.

VIL - Whitewashed face of rock cliff -- not recoverable.

WIK - Whitewashed face of rock cliff -- not recoverable.

YAK - Whitewashed boulder -- not recoverable.

YEN - Whitewashed rock--not recoverable.

YET - Whitewalhed driftwood -- not recoverable.

ZAG - Whitewashed rock--not recoverable.

Decisions

	Normal No.	
1	USGB decision	File No. 525 685
2	Traders Cove - Submitted to USGB 7/15/39	. 525 685
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Pacific Ocean)									3
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MEMORANDUM IMMEDIATE ATTENTION

SURVEY DESCRIPTIVE REPORT	xvxxxxxx	registered June 14, 1939 verified
XXXIIHOXØSTAXXX	No. T-6648ab	reviewed approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE	Initial	Attention called to
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RETURN TO

82 T. B. Reed

1 MBOR

Section of Field Records

REVIEW OF TOPOGRAPHIC SURVEY NO. 6648a (1938) FIELD NO. P-38A.

Black Cape, South Side of Umnak Island, Aleutian Islands. Surveyed in Summer, 1938, Scale 1:10,000. Instructions dated Feb. 3, 1938, (SURVEYOR).

Plane Table Survey.

Aluminum Mounted.

Chief of Party - A. M. Sobieralski. Surveyed by - W. R. Tucker. Inked by - W. R. Tucker. Reviewed by - J. A. McCormick, December 2, 1939. Inspected by - H. R. Edmonston.

1. Junctions with Contemporary Surveys.

> Junctions with T-6648b (1938) on the west and T-6649 (1938) on the east are satisfactory. T-6648b (1938) covers form lines and other inland detail in the area back of high water line on the present survey.

. 2. Comparison with Prior Surveys.

This Bureau has made no previous surveys in this area.

3. Comparison with Chart 8802 (New Print of November 3, 1938).

The chart is on a very small scale and the little detail shown in the common area is superseded by the present survey.

Condition of Survey. 4.

Satisfactory.

Compliance with Instructions for the Project. 5.

Satisfactory.

Additional Field Work Recommended. 6.

None.

Examined and Approved:

T. B. Reed,

Chief. Section of Field Records.

Chief. Division of Charts.

Chief, Section of Field Work.

Chief, Division of H. & T.

Section of Field Records

REVIEW OF TOPOGRAPHIC SURVEY NO. 6648b (1938) FIELD NO. P-38.

Black Cape to Cape Udak, South Side of Umnak Island,
Aleutian Islands.
Surveyed in Summer, 1938, Scale 1:20,000.
Instructions dated Feb. 3, 1938 (SURVEYOR)

Plane Table Survey.

A

6

Aluminum Mounted.

Chief of Party - A. M. Sobieralski Surveyed by - W. R. Tucker Inked by - W. R. Tucker Reviewed by - J. A. McCormick, December 2, 1939. Inspected by - H. R. Edmonston

1. Junctions with Contemporary Survey.

Junctions with T-6648a (1938) and T-6649 (1938) on the east and with T-6647 (1938) on the west are satisfactory. The junction with T-6647 is for form lines only.

2. Comparison with Prior Surveys.

This Bureau has made no previous surveys in this area.

3. Comparison with chart 8802 (New Print of November 3, 1938).

Charted topography in this area is on such a small scale as to resemble the present survey only in a general way. The present survey supersedes the information now charted in the common area.

4. Condition of Survey.

Remarks made in the review of T-6649 (1938) concerning the apparent improbability of some of the form line detail on that survey apply equally to such detail on the present survey. There are several elevations on the present survey which appear to have been overlooked or misinterpreted when the form lines were drawn. A photographic copy of the survey has been sent to the field party for inspection and possible revision of questionable form lines.

5. Compliance with Instructions for the Project.

Satisfactory except as noted in preceding paragraph.

6. Additional Field Work Recommended.

See par. 4.

Examined & Approved:

T. B. Reed,

Chief, Section of Field Records.

Tred. L. Peacock Chief, Section of Field Work. Chief, Division of Charts.

Chief, Division of H. & T.

40 January 5, 1939

To: Ensign William R. Tucker, U. S. Coast and Geodetic Survey, Ship SURVEYOR, 601 Federal Office Building, Seattle, Washington.

Through: Commanding Officer. Ship SURVEYOR.

From: The Director.

U. S. Coast and Geodetic Survey.

Subject: Topographic surveys Nos. T-6648b and T-6649.

During the review of the above topographic surveys made by you on the south coast of Umnak Island in 1938, certain discrepancies have been noted between the form lines and elevations shown on the surveys. While it is unlikely that you can at this time, from memory, coordinate properly all the discrepancies it is believed that you may be able to correct a part of them.

There are being forwarded to you by registered mail photostatic copies of T-6648b (in two sections) and T-6649. You will note that the following elevations which disagree with the form lines have been circled in yellow pencil on the photostats:

T-60	<u>6486</u>	<u>T-6649</u>
505	435	30 5
510	430	205
535	410	331
500	310	520
545	325	310
535	435	310
430	135	320

Such corrections to the form lines as you may be able to make, from memory, should be indicated on the photostats, or if desired, on a tracing vellum overlay, and the photostats returned to this office.

Page 2 Ensign William R. Tucker January 5, 1940

The following, which applies also to T-6648b, is quoted for your information from the reviewer's report on T-6449:

"Some of the form lining on the present survey has the appearance of improbability. In such rugged country almost anything is possible but the sudden transitions from steep to gentle slopes and the winding valleys and ridges would have been more plausible if supported by a few additional elevations and by bluff symbols and intermediate form lines of no definite interval where necessary (S. P. 144, pages 80 to 83). There are several elevations on the survey which appear to have been everlooked or misinterpreted when the form lines were drawn. A photographic copy of the survey has been sent to the field party for inspection and possible revision of form lines."

Please note that the photostats are confidential.

(Signed) J. H. HAWLEY
Acting Director.

SUPPLEMENTAL DESCRIPTIVE REPORT

TO ACCOMPANY TOPOGRAPHIC SHEET T-6648b

ALEUTIAN ISLANDS

SOUTH SIDE OF UMNAK ISLAND, ALASKA

- 0 -

SEASON OF 1938

- 0 -

U.S.S. SURVEYOR - A.M. SOBIERALSKI Comdg.

SURPPLEMENTAL DESCRIPTIVE REPORT

TO ACCOMPANY TOPOGRAPHIC SHEET T-6648b

SEASON OF 1938

FORM LINES:

Due to lack of explanation of the type of area covered by the original descriptive report the reviewer desired further information relative to form lining.

From off-shore the land area appears to be a gradual smooth slope extending from the bluffs above the high water line to the flat, apparently unbroken ridge of 400 to 500 foot elevation which runs down the approximate center of UMNAK ISLAND (northeast to southwest) in this area. Upon inspection of the area from nearby peaks and ridges it will be noted that the area is broken irregularly by long winding valleys of various shapes and sizes and that the center ridge, although not broken by any great number of valleys of any depth, is characterized by innumerable small individual knolls or tits rising above the ridge along its entire length. The individual knolls are not prominent enough however to be of aid to the navigator. Lack of prominent features on this land area for determining elevations or for aids to navigation will be readily noticeable.

A few small, individual, grass covered knolls or tits, rising from 20 feet to 60 feet above the immediate terrain were a great help to the topographer, who was able to identify them and determine their elevation from tops of near by bluffs.

Lack of sufficient days of clear weather made it impracticable to determine as many elevations as would be desired. (The area between Vsevidof Peak and Driftwood Bay seemed to be a catch basin for rainy and foggy weather as well as high winds).

After the elevations as shown on the sheet were determined, a rough tracing of the sheet was made including the elevations. On days when rough seas and high winds prevented other work, this topographer walked over majority of the area covered by this sheet and sketched in form lines, drainage areas, streams, etc. The abrupt changes from steep to gentle slopes were noted by the topographer and the form lines drawn accordingly. Admittedly 100 foot form lines do not convey as clear an outline of the land configuration as would be desired, but due to lack of prominent peaks or other features which might be of aid to the navigator, it is doubtful if the extra trips and great cost required for detail contouring of this area would be practicable.

ELEVATIONS:

In several cases, the center of the number representing the point to which the elevation referred, obscurred or prevented drawing the immediate contour and caused confusion as to the accuracy of the location of the contours. These contours which were omitted on the original sheet are herewith explained and also their location is furnished on a tracing of sheet.

Beginning at the northeast end of the sheet and following elevations south and westward: (505) is the top of a rocky knoll about 25 feet above the ground surface in its vicinity; (510) is the top of a grassy knoll about 30 feet above surrounding terrain; (535) is the top of a rocky knoll about 60 feet above land at its base; (500) is top of a rocky kholl about 40 feet above surrounding terrain: (310) is the top of a grass covered knoll about 25 feet above remainder of the ridge; (325) is the top of a large grassy knoll which rises about 100 feet above its base; (545) is the top of a rocky knoll about 70 feet above its base; (535) is the top of a grassy knoll about 60 feet above its base; (430) is the top of a grassy knoll about 80 feet above its base: (410) is the top of a rocky kholl about 60 feet above remainder of the ridge; (435) is the top of a large grassy hill: (435) is the top of a large knoll about 100 feet above its base; (135) is the top of a small individual knoll which rises about 100 feet above its base: (430) is the top of a small knoll which rises about 70 feet above its base.

Respectfully submitted.

Villiam R. Tucker

Aid

U.S. Coast & Geodetic Survey

Examined & Forwarded:

Ray L. Schoppe, H.&G.E.

Commanding Officer

U.S.C.&G.S.S. SURVEYOR