4471

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

....., *Director*

State: .....

DESCRIPTIVE REPORT

Topographic / *Hydrographic* } *Sheet No.* 4471

LOCALITY

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192

CHIEF OF PARTY

.....

GOVERNMENT PRINTING OFFICE

4471

Applied to compilation 4167 2.M.A. Mar. 1941

" " " 4140 2.M.A. June "

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

E. Lester Jones, *Director*

State: Ter. of Hawaii.

DESCRIPTIVE REPORT

Topographic ~~*Hydrographic*~~ *Sheet No.* G.

LOCALITY

Territory of Hawaii.

Island of Hawaii.

Puako Bay.

1929.

CHIEF OF PARTY

K. T. Adams.

GOVERNMENT PRINTING OFFICE

Form 537a
11—5813

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.

REGISTER NO. 4471

State ~~Territory of~~ Hawaii Islands

General locality NW. Coast Island of Hawaii.

Locality Puako Bay.

Scale 1 - 2,500. Date of survey Jan. 23 to 27. Feb. 8, 9 1929.

Vessel U. S. C. & G. S. S. GUIDE.

Chief of Party K. T. Adams, H. & G. Engr.

Surveyed by Glendon E. Boothe, Jr. H. & G. Engr.

Inked by Glendon E. Boothe, Jr. H. & G. Engr.

Heights in feet above ----- to ground to tops of trees

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

Instructions dated Letter of December 21, 1928., 1928.

Remarks: No inland detail or form lines.

GPO

DESCRIPTIVE REPORT
to accompany

TOPOGRAPHIC SHEET NO. G.
Scale 1-2,500.

Puako Bay, Island of Hawaii, T. H.

Date of Instructions: Letter of December 21, 1928.

Date of Survey: January 23 to 27, inclusive, February 8,9,1929.

Chief of Party: K. T. Adams, H. & G. Engr.

Topographer: Glendon E. Boothe, Jr. H. & G. Engr.

LIMITS:

This sheet covers the shoreline of Puako Bay, goes about 1.1 miles to the north, and 0.9 miles to the southwest of the old dock at Puako Bay. The sheet only extends back a short distance from the shoreline. All buildings are located.

CONTROL:

The triangulation station PUAKO was recovered, and the triangulation station PACK established. A thirty foot tower was built over the triangulation station PUAKO by the observing party. Azimuth lines to Kawaihae Lighthouse, and triangulation station Anaehoomalu, both stations being off the sheet, were used for orientation.

METHOD:

The party consisted of one officer, and three men. The regular plane table methods were used. Signals for the hydrographic sheet that were erected by the signal building party were located.

The table was set up on the thirty foot signal at station PUAKO, and oriented on Kawaihae Lighthouse. Cuts were taken on all signals that were visible altho very few of the signals could be seen on account of the algeroba trees, which grow up to the storm line.

The orientation was carried up to signal BOX, and was checked by resection on signal PUAKO. From signal BOX to the northern end of the sheet no check was available. Great care was taken with the distances and the orientation.

To the southward signal ON was checked by resection on signal.PUAKO, but from there on the orientation, and the distances had to be carried without any means of checking.

Practically all of the outlaying rocks of any size were rodded in, and the rest located by intersection.

GENERAL DESCRIPTION:

The algeroba trees grow up to the storm line along the entire coast with the exception of the space between signals HEL and IT, which is filled with cocoanut trees. The algeroba trees are so thick that it is difficult to get through them, and extend this way for an average distance of about one eighth mile inland. The trees along the shore line reach a height of about thirty feet but decrease in height and size the farther inland they go. Before reaching the vicinity of the signal PACK the trees are only a large bush.

The shoreline of this sheet,with the exception of the ~~xexceptionxof~~ sand, and gravel beaches,is made up of an old lava flow. This lava is very black in color , and is smooth.

The sheet might be divided into two parts considering the type of shoreline - the northern, and the western parts. The northern part to be from the signal THE north and the western part to the west of this signal.

The northern part of the sheet has a shoreline, in general, that is made up of steep, nearly vertical, cliffs ranging in height from about thirty feet at signal CLI to a few feet at signal NO. Altho this section of the sheet has the only sandbeach of any size. North of signal CLI the steep cliffs break off almost abruptly into a wide, yellow, sand beach. The cliffs are the highest at signal CLI, andgradually decrease in height to about six to ten feet at signal SET. From signal SET to a gravel point just north of signal NIX the shoreline is very rough with six to ten feet cliffs , and offlaying rocks. There is a small gravel, and small stone beach betweensignals UP and BOX but it is of no value for landing. Reaching from south of signal NIX to east of signal NO there is a wide, gently sloping, yellow sand beach. This beach has breakers in the calmest weather, altho not very large. The point that signal NO is located on has a rocky shoreline with six to ten foot cliffs, and many outlaying rocks to the south and west. The gravel beach with small rocks between signals NO and CAN has bad breakers in all weather. It appears to have a backwash. Running along from signal CAN to signal WHO the shoreline is composed of steep, rocky cliffs from six to ten feet in height. From signal WHO to the dock there is a gravel beach with small stones.

The dock is a small wooden structure with a narrow gauge railroad track running out on it. Only small boats can go alongside. At one time there was a sugar mill just south of this dock, and the

railroad came in from the sugar fields. This mill has been torn down, and the railroad torn up, except in some parts. The largest building just south of the dock is used to store honey, and algeroba beans.

The point that signal THE is on is very steep, and rocky, running about eight feet in height.

The shoreline of the western part of this sheet is practically made up of very black, smooth lava running out into the water on a gentle slope with many detached rocks of the same material. On this part of the sheet there are no sand beaches, altho there are several small gravel, and small rock ones. From the shoreline up to the line of the sand the shore is of lava rock on a very gentle slope. At the western end of the sheet there is a small gravel beach, and an old dock that has been almost destroyed. It cannot be used. At one time the narrow gauge railroad ran from the dock at PUAKO to this dock.

The houses on this sheet are deserted with the exception of the one at signal DOC; the one at signals DID and HEL; and the one at signal HOUSE.

Puako Bay affords very little protection. It is open to the northerly and northwesterly winds. The bay, itself, is very deceiving. From outside it looks good butis full of sunken rocks, and very little water can be carried up to the dock. Only small boats can go alongside. The harbor mouth is about 325 meters across but only in the calmest weather. In moderate weather , due to breakers, the opening is about 150 meters, and in bad weather it is practically impossible to get in and out. Ships do not stop at Puako regularly

In calm weather small boats can land at various places along the cliffs on the northern part of the sheet; at the sand beach from signal NIX to signal NO; at the beach east of the dock; and at the dock. Landings can be made in calm weather with small boats on the western part of this sheet in the Bay, and at the gravel beach at signal DOC.

DISCREPANCIES:

Most of the signals on this sheet were located on topographic sheet No. E, scale 1-20,000. These signals were relocated on this sheet, topographic sheet No. G. Of the nineteen signals common to the two sheets the average difference was computed as follows;

In latitude the signals on Sheet No. E are an average of 0.31 meters south of their position on sheet No.G; and in longitude the signals on sheet No. E are 0.54 meters east of their position on sheet No. G.

The greatest difference between the signals on the two sheets is in the signal PIN. On sheet No. E this signal is 17.6 meters west and 5.0 meters north of its position on Sheet No. G.

This signal was the tops of tall trees, and was an intersection station.

LANDMARKS:

No noticeable features are noted approaching Puako Bay except that the cocoanut trees show up well. On a closer inspection the long house, red roofed, at signal CENTER; the warehouse at signal IN; and the dock show.

The shoreline is heavily wooded, and the land runs up to the mountains in the distance, covered with small algeroba brush and broken up with gullies, and small hills.

STATISTICS:

Statute miles of shore line - - - - - - - - -	5.5
Statute miles of railroad tracks - - - - -	0.09
Area in square statute miles - - - - - - -	0.1
Working days - - - - - - - - - - - - - - - -	8
Number of men in party - - - - - - - - - -	3

Respectfully submitted,

Glendon E. Boothe

Glendon E. Boothe,
Jr. H. & G. Engr.
U. S. C. & G. Survey.

Approved; Forwarded.

K. T. Adams

K. T. Adams,
H. & G. Engr.
U. S. C. & G. Survey.

Location of signals on topographic sheet No. "G", Puako, Hawaii, T.H.

STATION	LATITUDE ° ' "	METERS	LONGITUDE ° ' "	METERS	DESCRIPTION
CLI	19-59	(837.7) 1007.3	155-49	(316.5) 1427.6	White washed cairn of rock on edge of bluff
SET	19-59	(982.7) 862.3	155-49	(75.3) 1668.9	Small white flag
GAG	19-59	(1018.5) 826.5	155-49	(90.8) 1653.4	White washed cairn of rock & white flag
UP	19-59	(1299.4) 545.6	155-50	(1682.4) 61.9	Small white flag
BOX	19-59	(1362.8) 482.2	155-50	(1706.1) 38.2	W.W. cairn of rock on point
NIX	19-59	(1577.1) 267.9	155-49	(206.2) 1538.1	W.W. cairn of rock on point
LUZ	19-59	(1684.5) 160.5	155-49	(173.3) 1571.0	W.W. rocks on rocky point
DIG	19-58	(50.9) 1794.1	155-49	(153.0) 1591.5	White flag
NO	19-58	(112.2) 1732.8	155-50	(1686.3) 62.2	Pole in W.W. cairn
CAN	19-58	(263.5) 1581.5	155-50	(1587.8) 156.7	W.W. on Rock
TET	19-58	(319.4) 1525.6	155-50	(1534.2) 210.3	W.W. on Rock
WHO	19-58	(577.6) 1267.4	155-50	(1658.3) 86.2	W.W. cairn
IN	19-58	(695.5) 1149.5	155-50	(1609.4) 135.1	Seaward gable of seaward bldg at Dock
THE	19-58	(687.5) 1157.5	155-50	(1558.6) 185.9	W.W. & flag
HOUSE	19-58	(803.5) 1039.5	155-50	(1541.8 202.7	Northeast Corner of long house

Location of signals on topographic sheet No. "G", Puako, Hawaii, T.H.

STATION	LATITUDE	METERS	LONGITUDE	METERS	DESCRIPTION
	o ' "		o ' "		
CENTER	19-58	(812.2) 1033.0	155-50	(1530.6) 213.9	Center of long, narrow house
HEL	19-58	(761.6) 1083.4	155-50	(1451.4) 293.1	W.W. trunk of cocoanut tree
DID	19-58	(758.1) 1086.9	155-50	(1403.6) 340.9	Flag on pole
PIN	19-58	(890.0) 955.0	155-50	(1251.9) 492.6	Tall, straight, tops of iron wood trees
IT	19-58	(831.5) 1013.5	155-50	(1033.7) 710.8	W.W. trunk of cocoanut tree
ON	19-58	(717.8) 1127.2	155-50	(924.7) 819.8	Flag on pole in Algeroba tree
HER	19-58	(949.7) 895.3	155-50	(506.3) 1238.2	W.W. cairn
DOC	19-58	(1287.7) 557.3	155-50	(157.1) 1587.4	W.W. on end of old dock

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

March 27, 1931.

SECTION OF FIELD RECORDS

Report on Topographic Sheet No. 4471

Puako Bay, Hawaiian Islands

Surveyed in 1929

Instructions: Letter dated December 21, 1928 (GUIDE)

Chief of Party, K. T. Adams

Surveyed by G. E. Boothe

Inked by G. E. B.

1. Control - The control for this sheet was based on △ Puako and azimuths to Kawaihae Lighthouse and △ Anaehoomalu. Since Puako was the only triangulation point on the sheet no checks were obtained on the work. However, the signals that were located on this sheet are the same as were located on the 1:20,000 scale control sheet for this area (see boat sheet, H. 5006) and a comparison between the two sheets shows a very close agreement in the signals. The shoreline on this sheet can therefore be considered the same as if run on an adjusted traverse.

2. Comparison with T. 3422 - A comparison with the 1913 topographic survey (scale 1:20,000) was made and the same discrepancy was noted in the shoreline to the northward of △ Puako as was noted on the lower portion of T. 4472 (see review for that sheet). As I have already considered the cause of this in great detail in connection with the latter sheet, I shall not go into that again here. Suffice it to say that the discrepancy noted between the 1913 survey T. 3422 and the present survey T. ~~3871~~ 4471 bears out my belief expressed in the review of T. 4472 that the field party in 1913 failed to carry the adjustment of the shoreline (due to the mixup in Kawaihae Light) through to △ Puako and only adjusted it for the area around Kawaihae.

From △ Puako southward the agreement between the two sheets is good. Some differences will be noted around the southern entrance to Puako Bay. This is accounted for by the different interpretations of the high water line and I have been informed by the topographer that the flat lava shoreline makes this very probable. The rocks awash and sunken rocks on T. 3422 that fell

within the limits of the new survey have all been considered and with the exception of the outermost rock awash near ⊙ Gin (this has been transferred to H. 5009 in red) and the bare rocks to the southwest of ⊙ Gin on T. 3422 (this will be mentioned below) can be disregarded since they either fall within a reef or close to the limits of a reef defined on the new hydrographic survey (H. 5009).

Reef to southwest of ⊙ Gin on T. 3422 - This reef was not picked up by the topographer on the new survey nor was it picked up by the new hydrographic survey. The office has referred this matter to the field party and at this writing is still awaiting a reply. No final action is therefore possible now, and the whole matter will be disposed of when H. 5009 is reviewed, and if it is decided to retain it will be transferred to the new survey.

3. Note to Compiler - Inasmuch as the important information from T. 3422 has been transferred to the new hydrographic survey it will be unnecessary to use the old topography within the limits of the new topographic survey, T. 4471.

The change necessitated in the old topography between the limits of T. 4471 and T. 4472 has been considered and explained in a memorandum attached to Descriptive Report, T. 3422.

4. Reviewed by A. L. Shalowitz, March 1931.

Approved:

K.T. Adams
Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H.and T.)

L.C. Dellet.
Chief, Division of Charts

G Rude
Chief, Div. of Hyd'y and Top'y

Chief, Div. of Hyd'y and Top'y

Form 537a
11—5813

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4471

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.

REGISTER NO. 4471

State Hawaiian Islands ~~Territory of Hawaii. Islands.~~

General locality NW. Coast of Hawaii ~~Island of Hawaii.~~

Locality Puako Bay.

Scale 1 - 2,000. Date of survey Jan.23 to27.Feb.8,9 1929.

Vessel U. S. C. & G. S. CUIE.

Chief of Party H. T. Adams, H. & G. Engr.

Surveyed by Clendon E. Boothe, Jr. H. & G. Engr.

Inked by Clendon E. Boothe, Jr. H. & G. Engr.

Heights in feet above ——— to ground to tops of trees

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

Instructions dated October 8th, 1928.

Remarks: No inland detail or form lines.

GPO