

8333

Form 504  
Rev. Dec. 1933  
DEPARTMENT OF COMMERCE  
U.S. COAST AND GEODETIC SURVEY  
R. S. PATTON, DIRECTOR

## DESCRIPTIVE REPORT

Topographic

~~Hydrographic~~

Sheet No. N

State California

LOCALITY

Golden Gate

Point Diablo to Frank Valley

1934-35

CHIEF OF PARTY

F.H. Hardy

U. S. GOVERNMENT PRINTING OFFICE: 1934

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY  
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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. N

REGISTER NO. **6336**

State California

General locality Golden Gate  
~~North Entrance to San Francisco Bay~~

Locality Point Diablo<sup>10</sup> to Point Bonita and thence to Frank Valley

Scale 1: 10000 Date of survey Dec. 1934 - Feb., 1935

Vessel Ship GUIDE

Chief of party F. H. Hardy

Surveyed by John C. Bliss

Inked by John C. Bliss

Heights in feet above M.H.W. to ground ~~to tops of trees~~

~~Contour~~ Approximate contour, ~~Form line interval~~ 20 feet

Instructions dated May 31, 1934 Proj. HT 184, 19  

Remarks: \_\_\_\_\_

DESCRIPTIVE REPORT

TO ACCOMPANY

TOPOGRAPHIC FIELD SHEET # "N"

STR. GUIDE

F.H. HARDY, COMMANDING

PROJECT H.T. 184

AUTHORITY, LIMITS, PARTY, DATES

The authority for the work is contained in paragraph 6 of Director's Letter 22RS-1995-Gu 1- May 31, 1934 Subject, instructions Project H.T. 184. Instructions call for a detailed topographic survey of Pacific Coast shoreline from Point Diablo, on the north shore of the Golden Gate, north to vicinity of triangulation station "Little Lagoon 1916". The field work was done by a party under J.C. Bliss, Surveyor, acting under instructions from Commanding Officer U.S.C. & G. S. Ship Guide, between December 16th, 1934 and February 15th, 1935.

GENERAL DESCRIPTION

The country surveyed on this sheet is mountainous and the coast is very rugged. Rocky bluffs rise sheer from the coast to elevations of 500 feet and more. There are several small stretches of sandy beach, namely in Tennessee Cove, Muir Beach, Rodeo Cove and in the vicinity of triangulation station "Shore Cone ". The major portion of the inshore area is covered with rocks which causes the the sea to break generally over the entire inshore area, even in calm weather.

The topography on this sheet was controlled by triangulation stations established in various years and plotted on

North American 1927 Adjusted Datum. These stations were numerous in the vicinity of Bonita Cove but were rather widely spaced northward along the coast. A list of the names and the geographic positions of the the stations used is attached hereto.

#### METHODS

An aluminum mounted paper sheet, on which the triangulation stations had been carefully plotted, was used with the standard U.S.C. & G.S. planetable equipment. Before beginning topography, triangulation stations "Point Diablo Light" , "Barry" , and "Little Lagoon" were occupied and the existing triangulation scheme checked and found in order. No trouble with distortion was encountered while using the aluminum mounted paper sheet.

#### FIELD WORK

A great deal of bad weather was encountered in the execution of the work on this sheet and in order not to delay the hydrographic party, a survey of the shoreline, bluff line and offlying rocks was first undertaken, leaving interior detail to a later date. Hydrographic signals were established as the work progressed

Field work was begun from an offset position at triangulation station "Point Diablo Light 1928". From here a traverse was executed westward to triangulation station "Shore Cone 1887". All rocks awash and all breakers encircled with a dotted line were located with three or more intersecting cuts. All important rocks above high water were located in a like manner. This holds true in all succeeding traverses. A check of one meter was obtained on checking into "Shore Cone" leaving no adjustment necessary.

From "Shore Cone" a traverse was executed westward



to triangulation station "Bonita Bluff 2 1887". A flat check was obtained here. The shoreline in Bonita Cove was nearly all roddable. Any portion that the rodmen could not reach was located by planetable cuts.

From triangulation station "Bonita Bluff 2" a traverse was executed to triangulation station "Bonita Point Lighthouse 1909" with a closing error of two meters. From the end of the bight west of the Coast Guard Dock to the south end of Rodeo Cove, it was impossible to reach high water line so it was located by planetable cuts and tangent lines dropped from rodmen along the top of the bluff. The existent detail on Point Bonita proper was located from set-ups near triangulation station "Bonita Point Lighthouse."

From triangulation station "Bonita Point Lighthouse" a traverse was executed northward to triangulation station "Bird Island Radio Compass Station 1921" where a closing error of one meter was obtained.

From triangulation station "Bird Island R.C.S." a long traverse was executed northward to a point on the south edge of Tennessee Cove. Triangulation station "Elk 1916" was then occupied and a check traverse run to the previously established traverse point on the south edge of Tennessee Cove. A closing error of two meters was obtained, leaving no adjustment necessary.

From triangulation station "Elk" a traverse was executed northward to topographic signal "Yap". A strong three point fix was obtained on the bluff above "Yap" and a breakdown to "Yap" showed the traverse to be in error only about a meter.

From topographic station "Yap" a traverse was executed northward to triangulation station "Little Lagoon 1916" and

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the northerly limits of the sheet. This traverse closed with an error of two meters. All traverse points were well marked for future occupancy if necessary.

The shoreline from the northerly end of Rodeo Cove to the southerly end of the small cove just north of topographic signal "Tan" with the exception of Tennessee Cove, had to be located by planetable cuts and tangent lines dropped from rodmen along the top of the bluffs. From the cove just north of topographic signal "Tan" to Muir Beach the shoreline was located by rod. The top of the bluff from Pirate's Cove to Muir Beach was located from a traverse that began and ended with a strong planetable three point fix.

The shoreline of Muir Beach and as far west as the point west of Muir Beach was located by rod but the remaining portion to the northerly limits of the sheet had to be located by planetable cuts and tangent lines dropped from rodmen along the top of the bluff.

The detail at Muir Beach was located from a previously established point in a closed traverse.

From a previously established traverse station on Tennessee Point a traverse was executed southward for the purpose of locating the dirt road along the bluff. Some buildings in the little valley north of Rodeo Lagoon were also located. The traverse was checked into topographic station "Tut" with a closing error of one meter. The shoreline of Rodeo Lagoon was rodged and with the exception of the westerly end checked very closely the old survey of A. F. Rodgers in 1887. However the present survey was made when the lagoon was full of water from heavy rains and high seas. A few days later a break in the beach had drained the lagoon to an entirely different line so it is hard to say as to what the definite limits of the lagoon should be.

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The existing detail on the broad part of Point Bonita was located by a traverse beginning at triangulation station "Barry 1932" and running northwesterly to the buildings at the easterly end of Rodea Lagoon, where the traverse was checked by a planetable three point fix with a closing error of two meters.

#### LANDMARKS FOR CHARTS

The target shown on the high ground to the north of Elk Valley on chart 5532 was found to be down. However, a large latticed hydrographic signal was erected from the materials at hand. This was whitewashed. The signal was securely guyed with wire cable and should stand. The United States Engineers are supposed to maintain these targets but apparently have discontinued to do so.

The target shown on the high ground to the north of Frank Valley on chart 5532 is still in good condition.

Three large radio poles, painted orange and black, were carefully located near the Coast Guard radio station just east of Bird Island. Their position and description are given on accompanying landmark list. These poles are very prominent and are considered good landmarks for the chart.

The tower of the Coast Guard station was also located as a landmark.

Form 567 for these landmarks accompanies the sheet.

#### COMPARISONS WITH OLD SURVEYS AND CHART 5532

T-2128 1887-1892

From Point Diablo to the easterly limits of the present survey the shoreline of the old survey practically coincides with the new. The three rocks shown in the cove just east of Point Diablo on the old survey were checked. A buried rock and several rocks awash not shown

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on the old survey were located in this cove by the present survey. ✓

There are no major differences in the shoreline between the old and new surveys from Point Diablo to station "Shore Cone". ✓  
Several rocks awash not shown on the old surveys were located by the new survey.

From "Shore Cone" to topographic signal "Eat" several discrepancies were discovered in the old survey. These discrepancies were noted in the field from the bromide transfer of the old survey. As in the case of all other discrepancies noted with the old surveys, these were carefully checked and corrected. ✓

The small point shown on the old survey as being 110 meters west of "Shore Cone" is really 128 meters west. ✓

The point containing hydrographic signal "Dum" is about 20 meters further west than shown on the old survey. ✓

Several rocks awash not shown on the old survey in this area were located in the present survey. The small bight just west of "Dum" is as shown on the present survey and not as shown on the old. ✓

From topographic station "Eat" to topographic station "Hot" no major discrepancies were discovered in the shoreline of the old survey. The present survey was carefully executed and in any minor differences should be favored.

From topographic station "Hot" to triangulation station "Bonita Point Lighthouse 1909" a large discrepancy was discovered in the shoreline of the east side of Point Bonita. There is a great deal of distortion in the bromide of the old survey but not enough to account for this discrepancy. When this discrepancy was noted in the field the area between the Coast Guard dock and "Point Bonita Lighthouse" was checked twice. The shoreline shown on this sheet is very close to its present limit. There has been several slides in this vicinity and

this may account for some of the difference.

From "Bonita Point Lighthouse" north to the southerly end of Rodeo Cove, a fair agreement was obtained with the old survey considering the large amount of distortion in the bromide. All rocks shown on the old survey are shown as rocks above high water. The present survey besides showing additional rocks shows the true nature of the existing ones. The limits of Bird Island as shown on the present survey are more nearly correct than those of the old survey.

There are three rocks towards the westerly end of the island rather than two as shown on the old survey. The bight in the point just east of Bird Island goes almost thru the point as shown on the present survey. It is not as shown on the old survey.

The old survey must have used the base of the bluff line in the south end of Rodeo Cove as highwater line. This is incorrect. The highwater line is as shown on the present survey.

The contours of the old survey were partially checked and changed where found in error as shown in red on the present survey. As a general rule original survey contours were very good.

T-4521 1929

Additional rocks at the south end of Point Bonita not shown on T-4521 were located on the present survey.

"Bonita Wash Rock" a rock awash located by triangulation and checked by planetable is not shown on T-4521.

In the area between "Bonita Point Lighthouse" and Bird Island there are various minor differences in shoreline between T-4521 and the new survey probably attributed to the fact that this area had to be mapped solely by planetable cuts. The present survey was carefully

compiled and is considered close to the highwater line as it now exists. ✓

The offlying rock detail between "Bontia Point Lighthouse" and Bird Island checks very closely on the two surveys. A few additional rocks not shown on T-4521 are shown on the new survey. ✓

The two rocks near the westerly end on Bird Island shown as rocks awash on T-4521 are really never covered and should be shown as on the present survey. There are always heavy breakers over these rocks making it difficult to determine their true nature. ✓

The two rocks about thirty meters north of Bird Island are larger than shown on T-4521. Tangent cuts were taken to the rocks on the present survey and their correct size and shape thus determined is shown. ✓

Two additional rocks awash not shown on T-4521 were located by the present survey in Rodeo Cove. The difference in the shoreline of Rodeo Lagoon is explained in an earlier paragraph. ✓

In the area between Rodeo Cove and Tennessee Point some differences between the shoreline of T-4521 and the present survey were discovered. A transfer of T-4521 was on the sheet of the present survey so any differences were investigated before being shown on the new survey. The offlying rock detail checked fairly well with the exception of the fact that the present survey located several additional rocks not shown on T-4521. The detail shown as a <sup>dry</sup> rock and rock awash about 110 meters southwest of Tennessee Point on T-4521 is really one large rock awash. It is shown as three rocks awash on this sheet but the dotted lines encircling these rocks is the real limit of the single rock awash. No rock was found in the group off Tennessee Point to fit the location of triangulation station "North Point Rock 1892". T-4521 shows a rock in close vicinity of this station but a careful investigation by the present survey ✓

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showed this rock to be non-existent.

The rock awash about 185 meters northwest of Tennessee Point was carefully located by this survey. A disagreement of about ten meters was obtained with the location of the rocks awash shown in the same vicinity on T-4521. Because five or six intersecting cuts were obtained to these rocks on the present survey its new location is considered to be the correct one.

A like discrepancy was found in the location of the fairly large rock containing topographic station "Rip". This rock was carefully located by the present survey and its new location is considered more nearly correct than that shown on T-4521.

Three rocks awash between this rock and Tennessee Point were located by the present survey. These were not shown on T-4521.

Additional offlying rock detail between Tennessee Point and topographic station "Sun" was located by the present survey. Otherwise a good check was obtained with T-4521.

At topographic station "Uno" the shoreline is as shown on the present survey and not as shown on T-4521. Three rocks awash just south of topographic station "Uno" not shown on T-4521 were located by the present survey.

From topographic station "Uno" north to topographic station "Ray" there is a good agreement in shoreline with T-4521 but the offlying rock detail on T-4521 is very sketchy. The detail in this area was carefully located by the present survey and the rocks as they actually exist are shown.

The point shown on this survey about 80 meters west of topographic station "Ray" is shown as a detached rock on T-4521. However no water passes behind this point at present so the shoreline

is as shown on this sheet. The same thing holds true for the point containing hydrographic signal "X<sub>1</sub>". This is also shown as a detached rock on T-4521. However no water passes behind it at the present time. A rock awash 190 meters south of topographic station "Ray" and two breakers about 105 meters south of the shoreline between topographic station "Ray" and "X<sub>1</sub>" were located on the present survey. These were not shown on T-4521.

In the southern part of the cove at Muir Beach several additional rocks not shown on T-4521 were located. A sharp breaker 180 meters southwest of topographic station "Yap" was also located by the present survey. This breaker is not shown on T-4521.

The position of the two rocks directly south of the point containing hydrographic signal "Up" were verified and they are as shown on T-4521 and the present survey.

The rock awash about 475 meters northwest of "Up" and 63 meters offshore is not shown on T-4521.

Any variation in the top of the bluff line between T-4521 and the present survey may be attributed to the difference in opinion as to what actually constitutes the limit of the top of the bluff. This country is very rugged and the bluffs are continually sliding which causes changes from year to year.

T-3659 1916-17

The small section of shoreline shown on T-3659 does not agree with the present survey. It is possible that erosion may have caused the changes shown on the present survey.

The Coast Guard Dock is as shown on the present survey. A slide carried away the old dock and boat house in 1932 and they were rebuilt in their present location.

The detail shown around the Coast Guard Station is as shown



on this sheet and not as shown on T-3659. There is no longer a power house connected to the Coast Guard Dock.

The stack shown just east of Bonita Point Lighthouse on T-3659 has been destroyed.

#### Chart 5532

This chart was not reduced to scale but a visual comparison was made between topographic sheet field no. "N" and chart 5532.

The rock shown over the "4" in 124 feet just west of Bonita Point Lighthouse on chart 5532 is probably triangulation station "Bonita Wash Rock 1892" which is a rock awash baring two or three feet at M.L.L.W.

The rock detail off the southern end of Point Bonita as determined by the present survey does not check chart 5532. A rock is shown on chart 5532 off the southern end of Point Bonita but no evidence of one was visible from shore.

Chart 5532 shown no rocks immediately off the western end of Bird Island where two exist. Instead of the three rocks shown on chart 5532 immediately north of Bird Island there are only two as shown on the present survey.

About 180 meters northwest of Tennessee Point on chart 5532 the chart shows two rocks, a rock awash and a sunken rock. Three rocks awash were located in this vicinity by the present survey but there are no rocks above highwater.

In the vicinity of the rocks awash shown about 190 meters due south of topographic station "Ray" on the present survey chart 5532 shows a rock and a rock awash. This is incorrect, because a close investigation showed no rocks above highwater in the immediate vicinity.

Chart 5532 shows three rocks awash off the southern end

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of Muir Beach. Most of the rocks located in this vicinity by the present survey are rocks above highwater as shown on the sheet. ✓

There are many discrepancies in the offlying detail between Pirate's Cove and Muir Beach on chart 5532. It should be changed to agree with the present survey. ✓

#### GEOGRAPHIC NAMES

Muir Beach not shown previously on charts or old surveys is an incorporated sub-division and its legal name is Muir Beach. It has also become well known locally by this name, probably due to the large sign displayed on the highway at the entrance to the beach. ✓

Pirate's Cove not previously shown on the charts or old surveys is well known locally by this name and it is the site of several small shacks located by this party. ✓

When possible old geographic names shown on charts were verified.

#### MAGNETIC MERIDIAN

The magnetic meridian shown on this sheet was checked several times during the progress of the survey and varied but little. ✓  
The declination as measured by steel protractor is  $17^{\circ} 48'$ .

#### MISCELLANEOUS

There is a loading platform on the small point containing hydrographic signal "Pole" on the east side of Point Bonita. The Coast Pilot lists it as a wharf but its limits are back of the shoreline so it is not a wharf in the true sense of the word.

Three tidal bench marks were located in the vicinity of the Coast Guard dock in Bonita Cove. These are shown on the sheet.

A cable crossing sign near the Coast Guard dock is also shown. Efforts were made to determine the direction of the cable without success. ✓

No attempt was made to locate the gun emplacements and

military roads on this sheet. ✓

A large number of the hydrographic stations on this sheet were permanently marked. Form 524 cards for these stations accompany the sheet. *not received Sept. 1, 1936. RLB* ✓

COMPARISON WITH CHART 5532- ADDITIONAL NOTE:

A wreck is shown by symbol on chart 5532 off the southern end of Point Bonita, but no evidence of one was visible from shore, at any time. ✓

STATISTICS

Shoreline	8.4	Statute Miles
Road	4.3	" "
Area	2.8	Sq. Statute Miles

H 5853 - none

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Respectfully submitted,

John C. Bliss  
John C. Bliss, Surveyor  
U.S.C. & G. S.

Approved and forwarded,

F. H. Hardy  
F. H. Hardy, H. & G. E.  
Chief of Party, C. & G. Survey  
Commanding Ship Guide

L. P. Ruyter  
H. & G. E. ✓

DEPARTMENT OF COMMERCE  
U.S. COAST AND GEODETIC SURVEY

## LANDMARKS FOR CHARTS

Oakland, California

Topographic sheet N

April 8, 1935, 193

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

F. H. Hardy

Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED
	LATITUDE		LONGITUDE		DATUM		
	°	D.M. METERS	°	D.P. METERS			
RADIO MASTS	37 49	606	122 31	1444	HA 1927	Plane table	5532
RADIO MAST	37 49	797	122 31	1411		do	do
RADIO MAST	37 49	747	122 31	1398	do	do	do
TOWER. ( @ Ca ) Coast Guard Station	37 49	562	122 31	698	do	do	do
FLAGPOLE, Fort Barry	37 49	1621	122 31	326	do	do	do
( Bird I. Radio Compass Δ ) WHITE SHACK	37 49	606	122 32	267	do	Triang.	do
TARGET ( Δ Little Lagoon )	37 51	1408	122 35	106	do	do	do
TARGET ( Δ Elk )	37 50	1201	122 35	259	do	do	do
TARGET ( Δ SLIDE USS )	37 52	699	122 35	1196	do	do	do
The positions of all landmarks located by plane table were verified by plotting back onto the original survey sheets. The triangulation stations were verified by comparing them with the triangulation data.							
L. P. Raynor, H. & G. Eng'r							

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive identification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaffs and like objects are not sufficiently permanent to chart.



# CONTROL STATIONS

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Topographic Sheet Field No. N

Name	Latitude	DM	Longitude	DP
Elk 1916	37 50	1281	122 33	259
Bonita Point L. H. 1910	37 48	1738	122 31	1036
Little Lagoon 1916	37 51	1408	122 35	106
Barry 1932	37 49	426	122 31	1154
Coyote Ridge 2 1916	37 51	1836	122 33	119
Bird I. R. C. station 1921	37 49	806	122 32	267

Data on the above triangulation stations were found in the photostat sheets of adjusted positions as received from the Washington Office.

Bonita Rock 1887	37 48	1610	122 31	921
Bonita Bluff 2 1887	37 49	692	122 31	604
Cluster Rock 1892	37 49	744	122 30	489
Grayback double end, 1892	37 49	330	122 31	875
Shore Cone 1887	37 49	886	122 30	982
Bonita Wash Rock 1892	37 48	1728	122 31	1195
Bonita Outer Rock 1892	37 48	1627	122 31	1060
Grayback 1892	37 49	885	122 31	259
Grayback White Tip 1892	37 49	667	122 31	531
Shore Cone Rock 1887	37 49	852	122 30	997
West Diablo Under Rock 1892	37 49	472	122 30	293

Data on the above triangulation stations were taken from Appendix 5, Report of 1910, Triangulation in California Part II and referred to the N. A. 1927 adjusted datum by subtracting 33 meters from the D.M.'s and 30.2 meters from the D.P.'s as given in the above publication.





## REVIEW OF TOPOGRAPHIC SURVEY No. 6336 (1934-5) "N"

Title (Par. 56) *Point Diablo to Frank Valley, Golden Gate, California*Chief of Party *F.H. Hardy* Surveyed by *John C. Bliss* Inked by *John C. Bliss*Ship *Guide* Instructions dated *May 31, 1934* Surveyed in *Dec. 1934 - Feb. 1935*

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 7, 8, 9, 13, 16.) ✓
2. The character and scope of the survey satisfy the instructions. ✓
3. The control and closures of traverses were adequate. (Par. 12, 29.) ✓
4. The amount of vertical control that the Manual specifies for -contours-formlines- was accomplished. (Par. 18, 19, 20, 21, 22, 23.) ✓
5. The delineation of -contours-formlines- is satisfactory. (Par. 49, 50.) *Contours in pencil are from T-400(1853) and T-2128(1897-92) Revised contours and elevations have been inked in red.* ✓
6. There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.) *None have been submitted*
7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.) ✓
8. The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41.) *The elevations in blue on the topo. sheet are from a field inspection by the hydrographic party. (see Desc. Rep. H-5853/1935)* ✓
9. Rocks and other important details shown on previous surveys and on the chart were verified. (Par. 25, 26, 27.) *The Descriptive Report gives a detailed comparison of the present survey with T-4521(1929) and T-3659(1916), representing the earlier surveys, and a general comparison with chart 5532, representing all the prior surveys. For a list of prior surveys see the back of this sheet.*
10. The span, draw and clearance of bridges are shown. (Par. 16c.) *No bridges are shown on the sheet.*
11. Locations and elevations of summits are given. (Par. 19, 51.) *in the area where contours were revised.*
12. ~~The tree line was shown on mountains. (Par. 16g.)~~

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.



T-321 (1850) scale 1-10 000. This survey covers the area from Point Diablo to the north end of Rodeo Cove. There are a number of minor differences in shoreline due probably to weathering and manner of representing the various features. The present survey shows a number of additional rocks outside the shoreline.

T-400 (1853) scale 1-10 000. This survey extends from Rodeo Cove to northward. This survey is authority for the contours <sup>on the chart</sup> and very few changes are indicated on the present survey. A few additional rocks have been located on the present survey but other differences in rocks and shoreline generally may be traced to weathering or <sup>to a</sup> different interpretation of symbols used on the above survey.

T-663 (1857-77) scale 1-10 000. This survey shows details in the vicinity of Point Bonita. Slides and weathering have changed the shoreline to some extent. Only a few of the more prominent offshore details are shown on the survey and they are represented by more or less indefinite symbols.

T-2128 (1887-92) scale 1-10 000. This survey covers the area between Point Diablo and Rodeo Cove and is the source of the penciled <sup>on the present survey</sup> contours in this area. The general agreement with the present survey is good. Differences in shoreline and highwater rocks are probably due to weathering and slides. The present survey locates a number of additional rocks.

T-3659 (1916-17) and T-3659 b (1921) scale 1-10 000. The 1916 survey shows a revision of details on Point Bonita. The 1921 survey simply notes "no important changes in details" for this locality. These surveys do not add any information of current value to the present survey. See Desc. Rep. for more detailed comparison.

T-4521 (1929) scale 1-10 000. This survey shows shoreline and off shore rocks from Point Bonita northward. For detailed comparison see Desc. Rep. page 5.

Because all important features were verified, and differences between the above surveys and the present survey were checked by the topographer in the field, T-6336 (1934-5) should supersede these prior surveys except the basic contouring on the two surveys mentioned in par. 5 of this review.



13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.) ✓
14. The descriptive report also contains additional information required in aero-topography relative to type of photographs, method of compilation and type of ground control.
15. The descriptions of recoverable stations and references to shore line were accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of IMs and DPs, 68.) *None forwarded with sheet, see Desc. Rep page 13.*
16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 16d, e, 60.) ✓
17. The magnetic meridian was shown and declination was checked. (Par. 17, 52.) ✓
18. The geographic datum of the sheet is *North American 1927* and the reference station is correctly noted. (Par. 34.) ✓
19. Junctions with contemporary surveys are adequate.  
*There are no contemporary surveys joining this sheet.*
20. Geographic names are shown on the sheet and are covered by the Descriptive report. (Par. 64, 66k.) ✓
21. The quality of the drafting is good. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.) ✓
22. No additional surveying is recommended. ✓
23. The Chief of Party inspected and approved the sheet and the descriptive report after review by *L. P. Raynor, H & G. Eng'r.* ✓
24. Remarks:

Reviewed in office by *R. J. Christman, Sept. 1<sup>st</sup>, 1936.*

Examined and approved:

*E. K. Green.*  
Chief, Section of Field Records  
*L. O. Colburn.*  
Chief, Division of Charts

*Fred. L. Peacock*  
Chief, Section of Field Work  
*Glunde*  
Chief, Division of Hyd. and Top.