

5374

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U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

JAN 23 1935

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

DESCRIPTIVE REPORT

Photo
Topographic
Hydrographic

Sheet No. T-5374

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

SEP 5 1934

Acc. No. _____

State CALIFORNIA
North of San Diego Bay
LOCALITY
Vicinity of San Diego
MISSION BAY

1934

CHIEF OF PARTY

Robert W. Knox, H. & G. Engr.

U. S. GOVERNMENT PRINTING OFFICE: 1934

5374

Applied to cdt. 5107 J.M.A. Feb. 1936
" " 5101 May 20, 1936 L.M.J.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5374

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.

REGISTER NO. T-5374 5374

State CALIFORNIA

General locality North of San Diego Bay.
SOUTHERN CALIFORNIA ~~San Diego~~

Locality MISSION BAY

Scale 1:10,000 Date of photographs December 22, 1933
~~survey~~

Vessel Project No. 102, Launch and Field Party, California

Chief of party Robert W. Knox

Surveyed by See data sheet of descriptive report

Inked by

Heights in feet above to ground to tops of trees

Contour, Approximate contour, Form line interval feet

Instructions dated April 14, 1932 and supplemental

Remarks: Compiled from aerial photographs Nos. 1 to 5, inc.
Nos. 108 to 126, inc. and Nos. 134 to 152, inc. at a
scale of 1:10,500 for reproduction by the photo
lithographic process at a scale of 1:10,000.

DATA SHEET

NO. T-5374

PORTION OF WORK	DONE BY	DATE COMPLETED
PROJECTION PLOTTED	<i>W.J. Mignola</i> W.J. Mignola	April 27, 1934
PROJECTION CHECKED	<i>S.B. Lane</i> S.B. Lane	April 27, 1934
CONTROL PLOTTED	<i>S.B. Lane</i> S.B. Lane	May 3, 1934
CONTROL CHECKED	<i>W.J. Mignola</i> W.J. Mignola	May 3, 1934
RADIAL LINE PLOT	<i>S.B. Lane</i> S.B. Lane	May 16, 1934
RADIAL PLOT CHECKED	<i>John G. Mathisson</i> J.C. Mathisson	May 16, 1934
COMPILED IN PENCIL	<i>S.B. Lane</i> S.B. Lane	June 9, 1934
INKED	<i>W.J. Mignola</i> W.J. Mignola	

STATISTICS

Area of Sheet: 12.7 square statute miles
 Length of Shore Line: 19.0 statute miles
 Length of Rivers and Sloughs: 6.0 statute miles

DESCRIPTIVE REPORT
PHOTO TOPOGRAPHIC SHEET NO. T-5374
MISSION BAY
CALIFORNIA
SCALE 1:10,500

PROJECT INFORMATION

For information which applies to the entire project see descriptive report for Sheet No. T-5371.

DESCRIPTION OF AREA

This sheet covers the area from a line about half a mile north of the north shore line of San Diego Bay to a line about one mile south of Soledad Mountain. It extends from the ocean shore to about one mile east of the east shore line of Mission Bay.

This sheet joins Sheet No. T-5375 to the north and Sheet No. 5373 to the south.

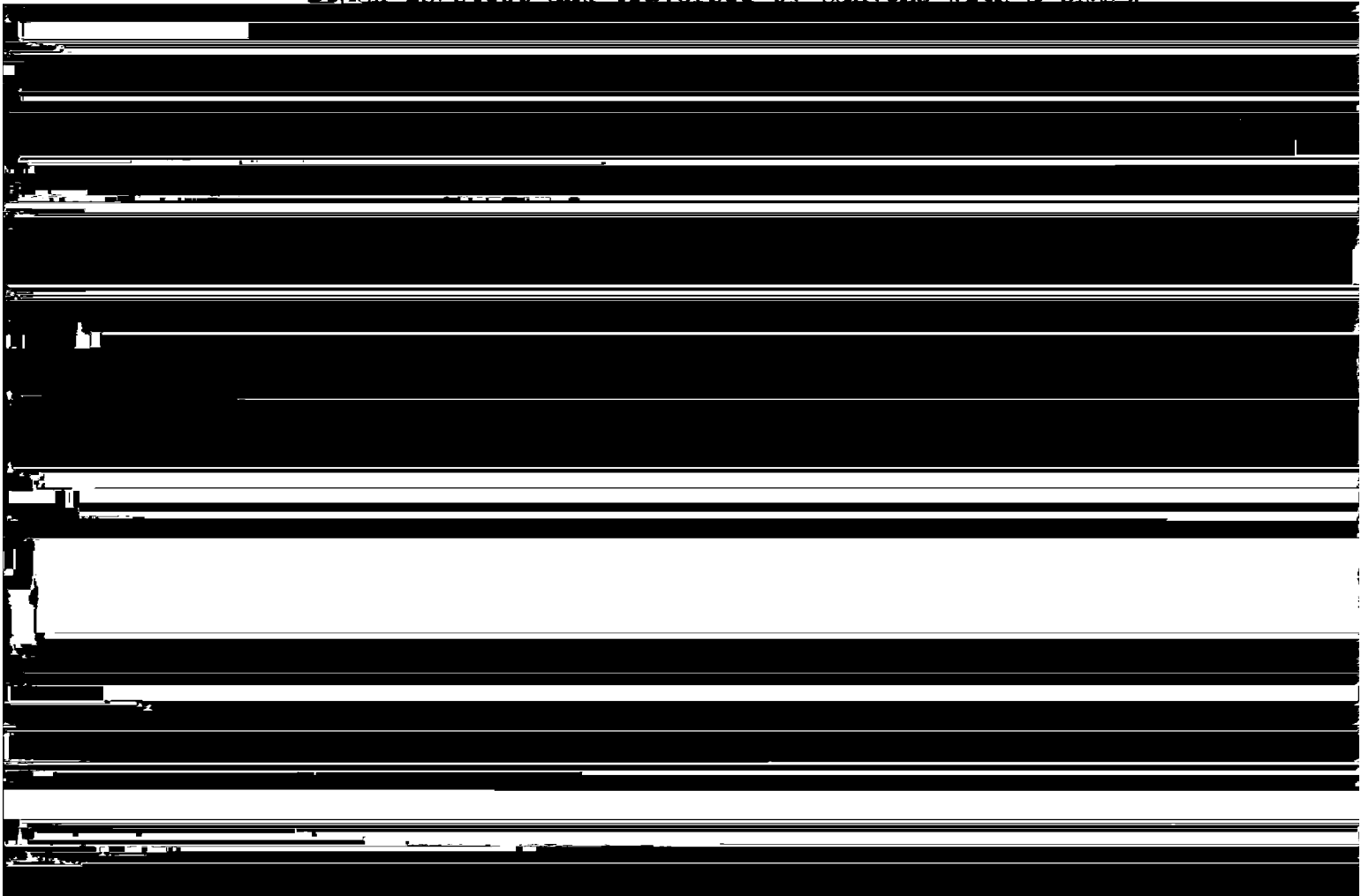
Mission Bay occupies the middle portion of the sheet. This bay covers considerable territory, but is very shallow. Extensive mud flats are visible at low water in many places, and grass is visible over considerable areas when the mud on which it grows is submerged.

Mission Beach is a low sand spit which separates Mission Bay from the ocean. It is used as a resort.

Crown Point extends into Mission Bay from the north. This point has a height of about forty feet, is fairly level on top, and breaks into the water with steep slopes a short distance back of the high water line. These slopes are shown hachured on the sheet.

Pacific Beach lies to the north of Mission Bay. It slopes gently upward to the limit of the rectangular street system shown on the sheet. At this point it breaks into the rough and steep foothills of Soledad Mountain.

The slope of the ground north of Pacific Beach is steep and traversed by canyons with a sharp



points, and what there were often came in deep shadow which made it impossible to be certain that the same point had been picked on all photographs.

For the reasons stated above, the location of intermittent drainage in this section is believed to have a maximum probable error of ten meters.

Rose Canyon carries the main line of the Atchison Topeka and Santa Fe Railway to the north, and the principal state highway to Los Angeles. The slope of the west wall is very steep.

East of Mission Bay the land rises abruptly. It is ridged by dry canyons, shown on the sheet by the intermittent drainage symbol.

Tecolote Creek, usually referred to as Tecolote Canyon, drains a considerable area.

There is little cultivation on this sheet. The scattered cultivated fields to the north of Mission Bay are located in the bottoms of the canyons and at the foot of the slopes. They have been indicated on the sheet.

The south shore of Mission Bay is low and marshy with many grass areas extending out beyond high water line. West of the Mission Bay Causeway the land rises abruptly from the edge of the marsh, and is broken up by two principal drainage systems, shown on the sheet

by the symbol for intermittent drainage.

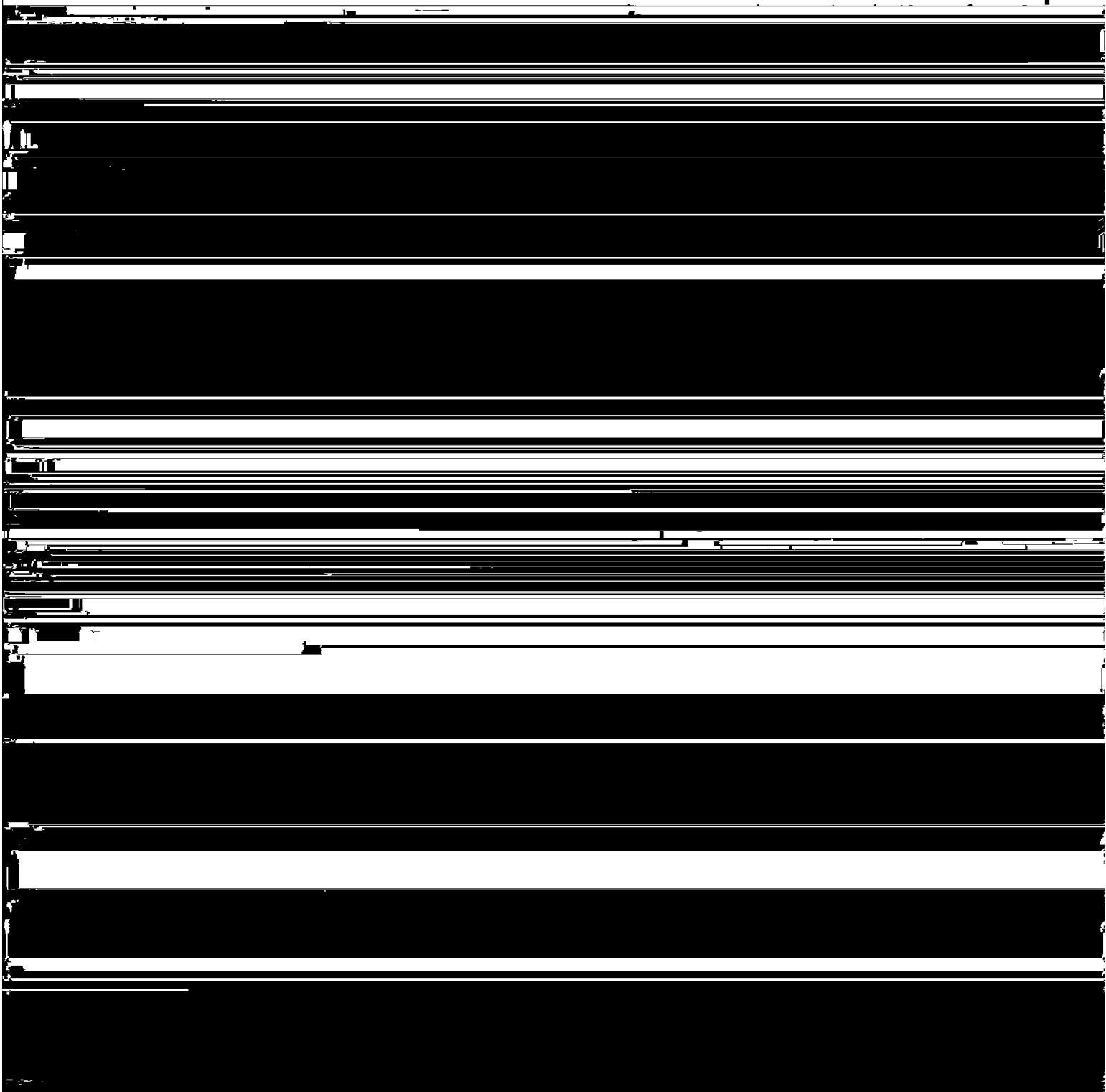
East of Mission Bay Causeway there is very



Stack the land rises steadily. Steep cliffs edge the
highwater line, increasing steadily in height. These
cliffs have been shown by hachures but in places they

old mouth of Rose Creek and north of Mission Bay has been shown on the sheet.

Crystal Pier, at the west end of Garnet Street in Pacific Beach, is now being remodeled. The



from the photographs. When the country flattened out it was often impossible to determine any definite location for such drainage, even by a field inspection. In such cases the symbol for intermittent drainage was shown as far as a definite location could be determined and then fanned out to indicate that it had disappeared. This condition is clearly shown just south of the Cudahy Packing Company plant, at which place there is a well defined wash east of the railway and a pool under the trestle, but no definite channel to the west.

The trails shown by single dotted lines near the east limits of the sheet are very poor roads. They have been shown because they are passable for light cars and trucks, and may prove of use in visiting triangulation stations located in this area.

South of Mission Bay and west of Mission Bay Causeway the tracks of the interurban electric railway cross the marsh on a fill. A boulevard parallel to these tracks and a short distance to the south has been built since the date of the photographs. It has been shown on the sheet. Culverts, shown by dotted lines, connect the drainage south of this boulevard with Mission Bay.

The main line of the Atchison Topeka and Santa Fe Railway crosses this sheet east of Mission Bay.

There are a few cultivated fields south of the levee at the south edge of the sheet. This levee extends from the State Highway to Mission Bay Causeway. D

The top of this levee is wide and flat, and has evidently been used as a road in the past, but at the present time it is fenced off at road crossings to prevent traffic from entering. For that reason it is not shown as a road on the sheet.

The system of rectangular co-ordinates established by the U.S. Engineers for San Diego Bay has been extended to include the area of Mission Bay. This system uses the former C. & G. Survey station OLD TOWN as origin.

The entire area of this sheet falls in the city limits of the City of San Diego.

CONFLICTING NAMES

U.S. Geological Survey quadrangles and early editions of charts show the prominent point on the north shore of Mission Bay as Bay Point. This point is now known universally as Crown Point, and for this reason has been so designated on this sheet. The name Bay Point has completely disappeared from local use.

See also page 14

BRIDGES

Three bridges appear on this sheet, a wood pile trestle between Ocean Beach and Mission Beach across the entrance to Mission Bay and two concrete pile trestles on Mission Bay Causeway. The trestle at the mouth of Mission Bay carries electric railway tracks and highway. The two on Mission Bay Causeway are highway spans. All are fixed, without draw span.

BRIDGE	CLEARANCE ABOVE MHW
Across Entrance Mission Bay	7.6 feet
North Bridge, Mission Bay Causeway	30.0 feet max.

At the time of securing pictures Nos. 1 to 5 inc. the tide stood at about 3.9 feet above MLLW. At the time of the other photographs it stood at about 4.3 feet above MLLW. This data was used in determining the location of the high water line north of Point Medanos and in those portions of Mission Bay where the high water line was not obscured in the pictures by a fringe of grass. For a further discussion of this point see later paragraph in this report under heading INFORMATION FROM OTHER SOURCES.

CONTROL

The control for the compilation of this sheet was executed by Charles Pierce in 1933.* This control was supplemented by theodolite three-point fixes executed by the compilation party in 1934.*

A list of the triangulation stations and three-point fixes used in the compilation is attached at back to this report. This list gives the plotting distances used for the scale of this sheet -- 1:10,500.

In some cases the names of the intersected stations as given by the triangulation party have been shortened to facilitate showing them on the sheet.

** Control used was field computations
on 1927 N.A. datum.*

B. G. Jones

COMPILATION

The usual radial line method was used in the compilation of this sheet.

No adjustments were made in the plot as there was sufficient control to properly fix each photograph.

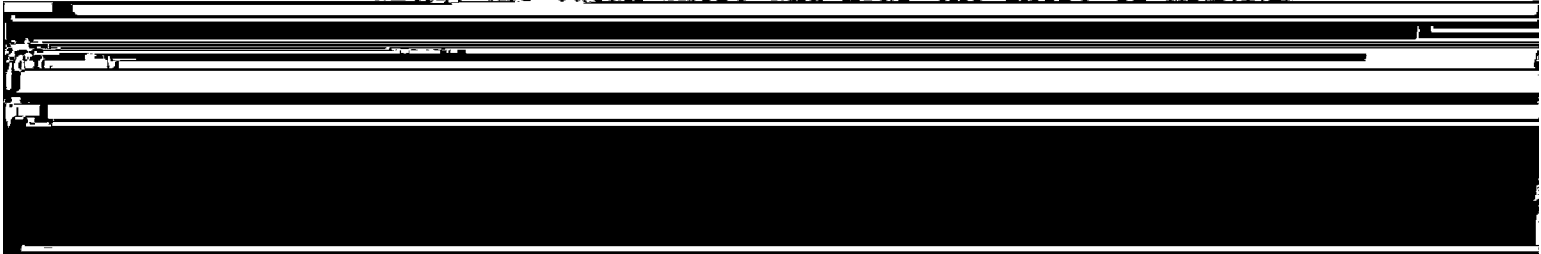
INTERPRETATION OF PHOTOGRAPHS

In general, the detail of the photographs was sufficiently clear for charting purposes.

The high water line along the ocean shore south of SILVER SPRAY STACK was concealed in many places by the top of the bluff. This was due to the center of the pictures being a considerable distance inshore. For a further discussion of this matter see following section of this report.

The photographs of Mission Bay clearly indicate the location and shape of the underwater channels, but in places where there was a grass fringe it was found impossible to locate the high water line with certainty from the pictures alone. For a further discussion of this see following section of this report.

The larger and more prominent buildings along the ocean shore and near the shore of Mission



Schools and post-offices throughout the area of this sheet have been shown.

Due to the large extent of mud flats, frequently covered with grass, it was impossible to determine the location of the low water line of Mission Bay with any degree of accuracy. The mud flats are very nearly level, and a difference of a few tenths in the elevation of the water causes a great change in the low water line. For this reason no attempt has been made to show the low water line inside Mission Bay.

INFORMATION FROM OTHER SOURCES

Due to the fact that the top of the bluff concealed the shore line in many places south of Δ SILVER SPRAY STACK, both high and low water were run

in by topographic party on Topo Sheet Field No. K. Much the same condition exists along the ocean shore north of latitude 48° , and the latter section was run in by topographic party on Topo Sheet Field No. I. Due to constantly changing conditions at the mouth of Mission Bay, covered in a supplemental report, the high and low water lines in this vicinity were run

in by topographic party on Topo Sheet Field No. J.

All three of these sheets were drawn at a scale of 1:10,000, Photostats at a scale of 1:10,500 to correspond to the scale of the celluloid sheet were made locally, and the high and low water lines shown on the topographic sheets, K, I, and J, transferred to the celluloid sheet. Photostats transmitted separately cover.

These topographic sheets were found very valuable in locating detached rocks which are scattered thickly along the coast and are not visible in the photographs due to the breakers.

The location of the high water line where there was a grass fringe on the shores of Mission Bay was determined by field inspection, as were the extent of the marsh areas. Due to the very flat slope of the land in such places the exact location of the high water line was a very difficult matter, but it is believed to be accurately shown on the sheet. Minor changes, however, may be found desirable after the vicinity has been sounded by the hydrographic party.

Maps furnished by the Chief Engineer of the Atchison Topeka and Santa Fe Railway were used to check the location of tracks of that company along the east shore of Mission Bay. They were found particularly

valuable in determining the location and length of spurs and sidings.

The location of highway just south of the electric railway tracks and west of Mission Bay Causeway was determined by inspection in the field.

COMPARISON WITH OTHER SURVEYS

The junction of this sheet with Sheet No. T-5375 to the north and with T-5373 to the south has been checked and found satisfactory.

The only chart of this area available in the office here for purposes of comparison is No. 5106^{*}. As this chart is on a scale of 1:40,000, comparison was impossible except in a general way.

This sheet was compared with photostat of topographic sheet Registry No. 2013, dated 1889. This comparison developed an interesting change in the mouth of Rose Creek, on the north side of Mission Bay. The old mouth, as shown on Sheet No. 2013 is clearly indicated on the photographs, and has been shown on the sheet as intermittent drainage. It was not developed whether the change in the location of

** There is no recent chart on 1:40,000 scale of Mission Bay. Publication of 5106 cancelled in May 1918
B. J. J.*

Accuracy The values of 2 to 4
meters given on the opposite page
are rather high. The compilation
is well controlled and has been
carefully plotted but for graphic
work on this scale a better estimate
is an accuracy of elevation
of 2 to 5 meters for interested points
and 2 to 8 meters for other detail. The
extreme of 8 meters B. G. Jones
applying only to stream
lines, drainage lines, and curved
roads in hilly sections.

this creek was natural or artificial.

Comparison in a general way was made with sheets of the U.S.G.S. and with local maps, including one by the Park Department of the State of California. Such comparisons failed to develop any doubts as to the accuracy of this sheet.

The name "Atwood" appears on both our charts No. 5101 and 5102, and on the sheets of the U.S.G.S. This name is no longer in use, there is no such station on the railroad, and it has therefore been discontinued in making up this sheet.

The small artificial bay ^{east} ~~west~~ of the amusement center of Mission Beach is known locally as Bonita Bay. Local usage is the only authority for the name.

LANDMARKS

List of landmarks on Form 567 has been submitted to cover the entire area of this project. Copy has been attached to descriptive report of Sheet No. T-5371.

RECOMMENDATIONS FOR FURTHER SURVEYS

This compilation is believed to have a probable error of less than 2 meters in positions of well defined detail of importance for charting purposes, and of less than 4 meters for all other data except that the location of intermittent drainage near the

See opposite page.

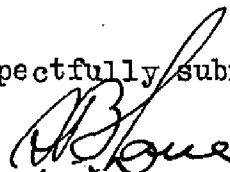
edges of the sheet which may be in error to a slightly greater extent. (See last paragraph on page 2, ante.)

LETTERING

As far as possible, printed names furnished by the office were attached to the sheet. The names of topographic features for which there were no printed names supplied have been shown on the cover name sheet. The names of three-point fixes are shown on cover name sheet, and if a picture reference point other than the point of set-up, it is so noted.

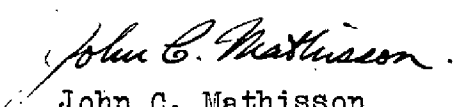
A line was drawn through each name on the cover name sheet when the name was attached to the celluloid. It is respectfully requested that names be provided and attached in the office for all names not so ruled out on the cover name sheet.

Respectfully submitted



S. B. Lane
Compiler

Approved



John C. Mathisson
Jr. H. & G. Engr.
U.S.C. & G. Survey

BEACH ACCRETION AND EROSION
ENTRANCE TO MISSION BAY
CALIFORNIA

During the compilation of the photo-topographic sheet of Mission Bay, California, Register No. 5374, it became evident that the shore line at the entrance of Mission Bay was changing rapidly.

This was first discovered when a field inspection of the area showed a marked change in the location of the high water line since the date of the photographs, and was later checked by very careful plane table surveys executed by the topographic party.

This discussion is intended to present the facts gathered by this party without any attempt to reach a conclusion as to the causes of the changes.

Photographs secured December 22, 1933 covered this area very effectively, and were used in the compilation of the sheet. It was then discovered that the same area appeared in a wing print of a photograph secured January 7, 1934, and that there was a marked difference in the shore line evident in this later print.

On May 7, 1934, prior to the compilation of this sheet, a plane table survey of this area had been run for the purpose of locating signals for hydrographic work. This survey included an accurate location of the

high and low water lines at the entrance to Mission Bay. The high water line as determined by this survey failed to correspond with that shown on any of the photographs.

Because of the marked changes noted, an additional plane table survey of this area was made by the topographic party on July 17, 1934. It is Topo Sheet Field No. "J". This sheet was executed very carefully and it was used to locate high and low water lines in this area on Sheet No. 5374, as it was the most recent information available. This sheet was executed at about one hour from low tide, and the low water line determined as accurately as possible.

Four maps of this area, on celluloid, are attached to this report.

No. 4 shows the shore line in this area as determined from a compilation of photographs secured December 22, 1933. A dotted line on this drawing encloses the area of breakers, or shoal water.

No. 3 shows the shore line as it appears on one wing print secured January 7, 1934. This shore line was secured by fitting the topographic detail resulting from the compilation of the December 22, 1933 photographs over that on the single wing print of the January 7, 1934 flight and tracing, as compilation was impossible with

only a single print of the area available. While the result is somewhat approximate at best, it serves to show a very marked change in the high water line between the dates of the two flights.

No. 2 shows the high and low water lines in the area as determined from the plane table survey of May 7, 1934.

No. 1 shows the high and low water lines in the same area as determined by the plane table survey of July 17, 1934, and corresponds to the shore line as finally determined on Sheet No. 5374.

A study of this data indicates that the beach has a marked tendency of accretion between the months of January and July. This accretion is very plainly shown on the high water line of Point Medanos.

The shoal area is larger on Nos. 3 and 4 than it is on Nos. 1 and 2. It appears that the tendency is to remove the sand from this area and deposit it on the beach.

No. 2, executed May 7, 1934, shows a sandy hook southwest of the hotel pier on the south side of the entrance. No. 1, secured two months after No. 2, shows this hook filled in and a solid connection with the beach to the east. On July 17, 1934 there was a low depression with water just inshore.

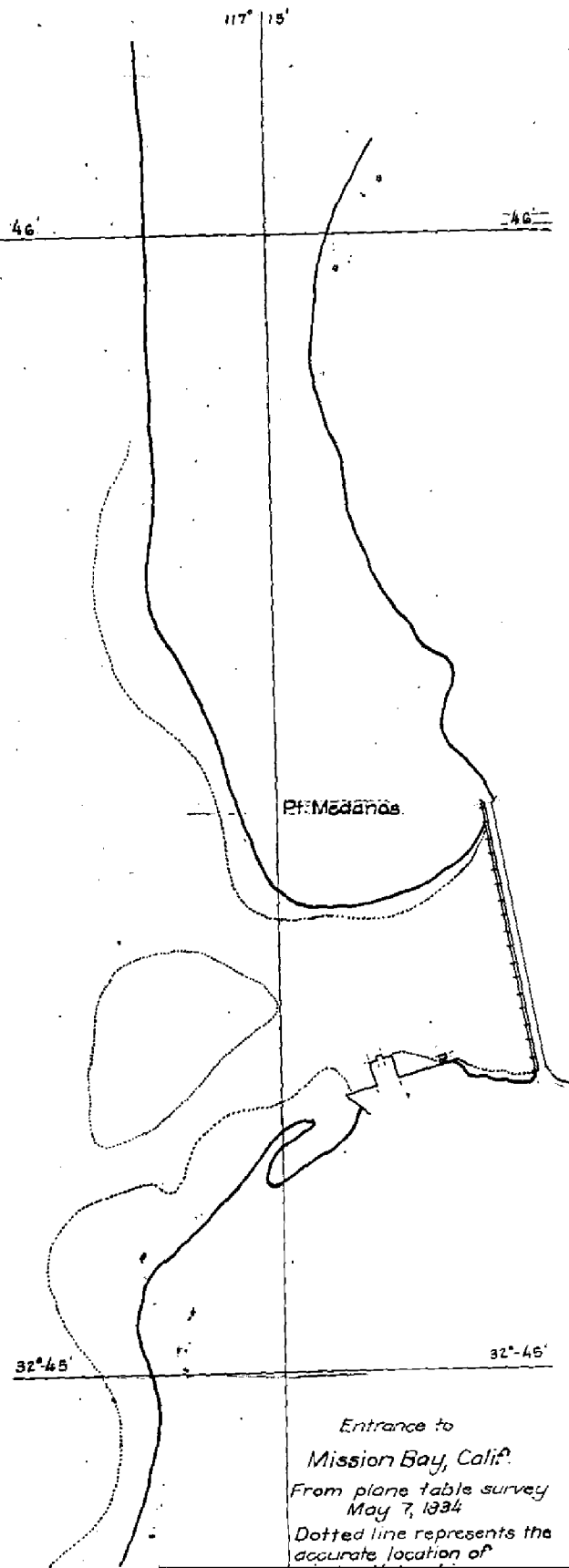
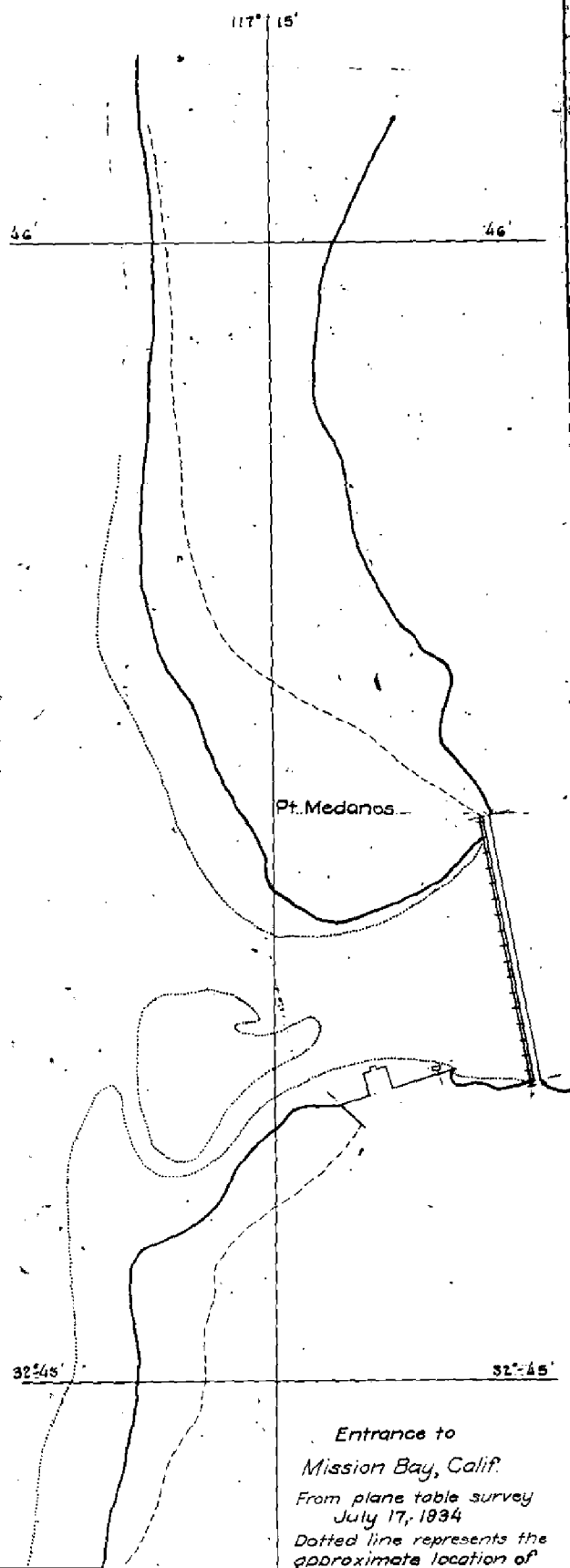
During this period the building-up process was general throughout the area.

Local observations indicate that this area goes through an annual cycle of change. Apparently the beach erodes during the winter months -- November to January -- and builds up during the summer. There appears to be no local data as to the extent of this change other than the fact that there are no structures of a permanent nature immediately adjacent to the beach, either north or south of the entrance. This is particularly noticeable as the area immediately to the north is a thickly settled beach resort.

The area of probable change is indicated by a dash line on Map No. 1, attached. The position of this line is very plain on the photographs.

Respectfully submitted

John C. Mathisson
John C. Mathisson
Jr. H. & G. Engr.
U.S.C. & G. Survey



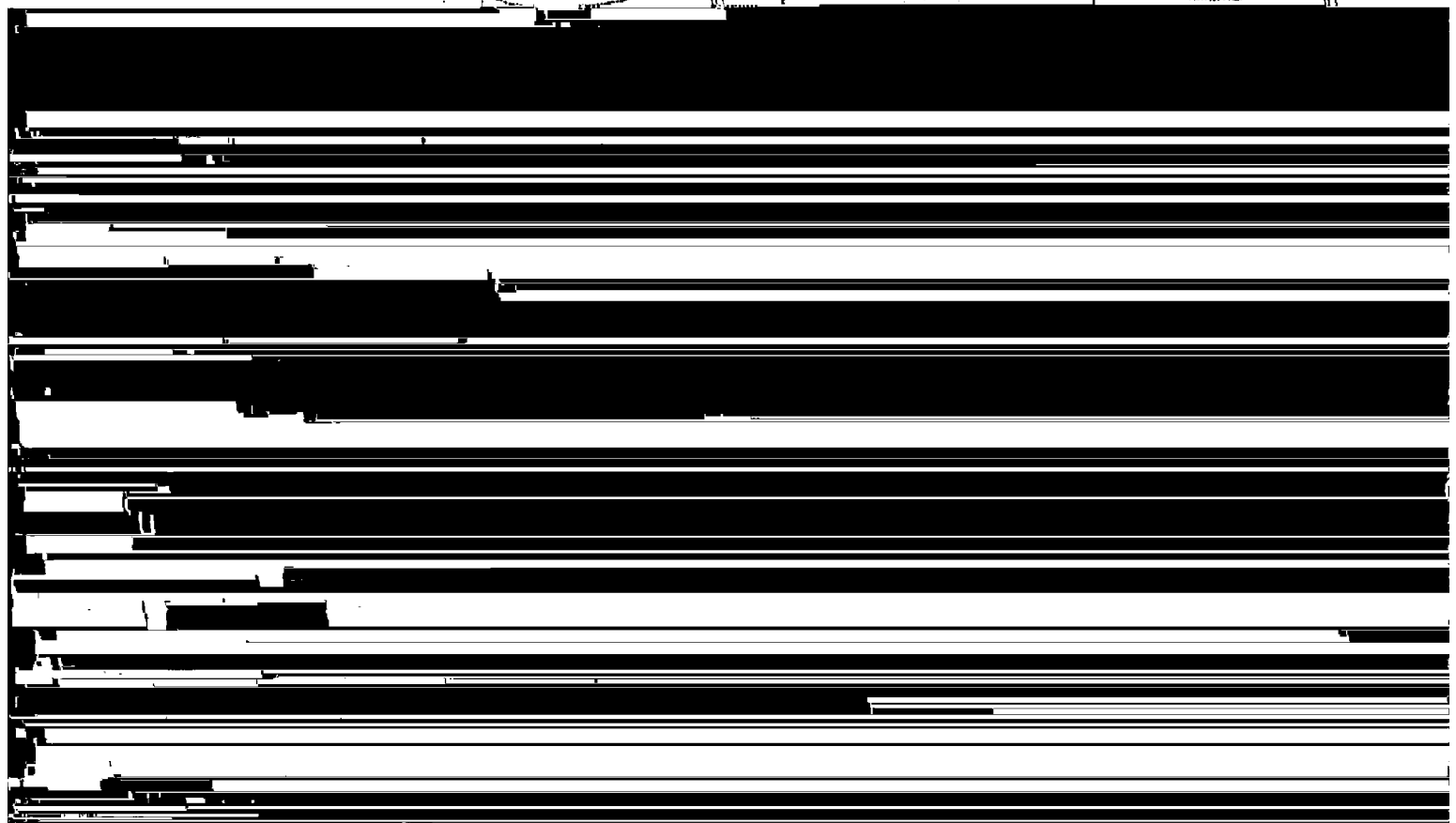
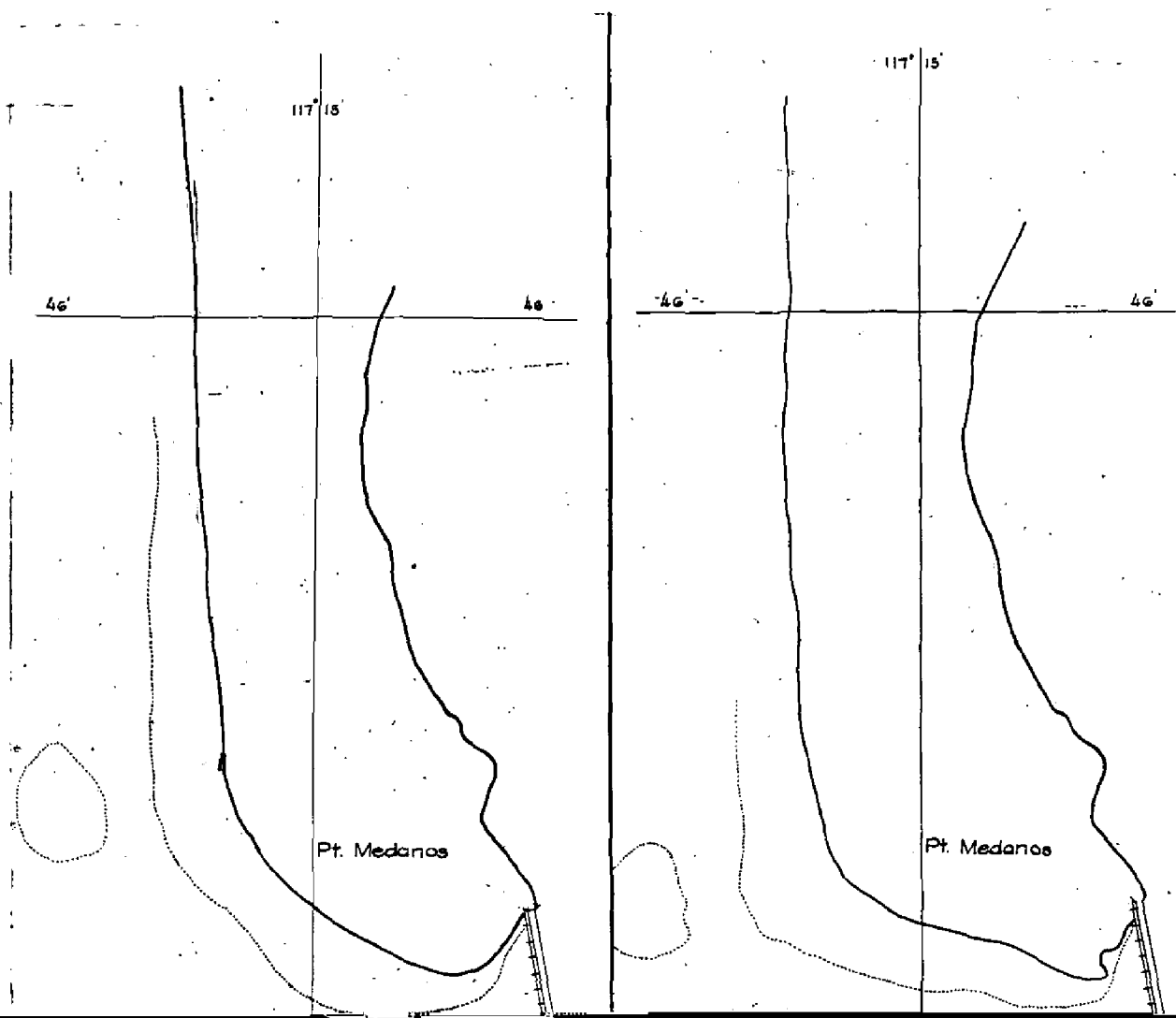


TABLE OF CONTROL

TRIANGULATION STATION	POSITION	Dms & DPs	METERS	PLOTTED II STANCE	SCALE 1:10,500
Coaster	Lat. 32° - 46' Long. 117° - 14'	537.7 1337.6	(1310.6) (224.0)	512.2 1273.9	(1248.2) (213.3)
Four Square Dome	Lat. 32° - 47' Long. 117° - 15'	1438.4 551.7	(409.9) (1009.4)	1369.9 525.4	(390.4) (961.3)
Ladrillo	Lat. 32° - 48' Long. 117° - 13'	1761.4 881.9	(86.9) (678.8)	1677.5 839.9	(82.8) (646.5)
Morena	Lat. 32° - 47' Long. 117° - 12'	74.7 568.7	(1773.6) (992.7)	71.1 541.6	(1689.1) (945.4)
Morena Air Beacon	Lat. 32° - 48' Long. 117° - 12'	1526.5 149.2	(321.8) (1411.6)	1453.8 142.1	(306.5) (1344.4)
Oil Derrick	Lat. 32° - 45' Long. 117° - 13'	1366.0 36.5	(482.3) (1525.2)	1301.0 34.8	(459.3) (1452.4)
Silver Spray Stack	Lat. 32° - 44' Long. 117° - 15'	11493.1 346.0	(355.2) (1216.1)	1422.0 329.5	(338.3) (1158.2)
Venice	Lat. 32° - 44' Long. 117° - 14'	687.3 444.0	(1161.0) (1118.1)	654.6 422.9	(1105.7) (1064.9)
Back Bay	Lat. 32° - 47' Long. 117° - 12'	1779.4 511.3	(68.9) (1049.8)	1694.7 487.0	(65.6) (999.8)
Bay Point	Lat. 32° - 46' Long. 117° - 14'	1462.0 243.6	(386.3) (1317.8)	1392.4 232.0	(367.9) (1255.0)
False Point	Lat. 32° - 48' Long. 117° - 16'	865.7 1.1	(982.6) (1559.8)	824.5 1.0	(935.8) (1485.5)
Island Point	Lat. 32° - 48' Long. 117° - 16'	1637.1 388.6	(211.2) (1172.2)	1559.1 370.1	(201.1) (1116.4)
Knoll	Lat. 32° - 48' Long. 117° - 15'	1449.8 768.5	(398.5) (792.3)	1380.8 731.9	(379.5) (754.6)
Flag Pole, S.D. A. & N. Academy	Lat. 32° - 48' Long. 117° - 14'	211.1 209.5	(1637.2) (1351.5)	201.0 199.5	(1559.2) (1287.1)

TABLE OF CONTROL (continued)

TRIANGULATION STATION	POSITION	DMS & DPs	METERS	PLOTTED DISTANCE	SCALE 1:10,500
Flag Pole, Casino Dome	Lat. 32° - 46' Long. 117° - 15'	307.6 69.5	(1540.7) (1492.1)	293.0 66.2	(1467.3) (1421.0)
Flag Pole Silver Gate Speedway	Lat. 32° - 45' Long. 117° - 13'	1280.9 522.7	(567.4) (1039.1)	1219.9 497.8	(540.4) (989.6)

THEODOLITE THREE-POINT FIXES BY COMPILATION PARTY

Intersec. Abbott St & Newport Ave.	Lat. 32° - 44' Long. 117° - 15'	1614.7 181.8	(233.5) (1380.5)	1537.8 171.8	(222.4) (1315.7)
Alta R.M.	Lat. 32° - 45' Long. 117° - 13'	281.0 1399.4	(1567.3) (162.6)	267.6 1332.8	(1492.7) (154.9)
Bond	Lat. 32° - 48' Long. 117° - 13'	450.9 286.3	(1397.3) (1274.8)	429.4 272.7	(1330.8) (1214.1)

Described on form 524 filed under

Note: In addition to the comparisons with the charts and other surveys given on page 13 and 14 of the report the compilation has been compared with plane table sheets T 2392(1887) and T4009(1922) in this office. The small amount of detail shown on these two plane table surveys in this area is superseded by the compilation.

B. G. Jones

Additional Review Note Added March 3, 1936

Comparison with Graphic Control Surveys

This compilation was reviewed and completed prior to the



REVIEW OF PHOTO TOPOGRAPHIC SURVEY NO. T-5374

Title (Par. 56) MISSION BAY

Chief of Party Robert W. Knox

Compiled by S.B. Lane

Project H.T. 102

Instructions dated

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 8; and 16, a, b, c, d, e, g and i.)
Yes
2. The character and scope of the compilation satisfy the instructions and the "Notes on the Compilation of Planimetric Line Maps from Five Lens Aerial Photographs".
Except as noted in descriptive report
3. The control and adjustment of the radial plot were adequate. (Par. 12, 29.)
Control adequate. No adjustment necessary
4. There is sufficient control on maps from other sources that were transmitted by the field party for their application to the charts. (Par. 28.)
No maps are transmitted with the sheet
5. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.)
Yes
6. 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.)
7. Important details shown on previous surveys and on the chart have been compared with this sheet and a statement has been entered in the report regarding the removal from the chart or change in position of important detail such as rocks, lights, beacons, prominent objects, bridges, docks, and structures along the water front.
Yes *see opposite page.*
8. The span, draw and clearance of bridges are shown. (Par. 16c.)
Yes
9. The data furnished by the Field Inspection is adequate.

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.

- ✓10. The descriptive report covers all details listed in the Manual, so far as they apply to this survey. (Par. 64, 65 and 66.)

Yes

- ✓11. The descriptive report also contains all additional information required in photo topography as prescribed in the instructions and in the "Notes on the Compilation of Planimetric Line Maps from Five Lens Aerial Photographs".

Yes

- ✓12. The descriptions of recoverable stations and references to shore line were accomplished on Form 524, and scaling of positions checked. (Par. 29, 30 and 57.)

Yes

- ✓13. A list of landmarks for charts was furnished on Form 567 and scaling of positions checked. (Par. 16d, e, 60.)

Yes given in report T 5371.

- ✓14. The geographic datum of the sheet is N.A. 1927 ^{unadjusted} and the reference station is correctly noted. (Par. 34.)

- ✓15. Junctions with contemporary surveys are adequate.

Yes

- ✓16. Geographic names are shown on the sheet and are covered by the Descriptive Report. (Par. 64, 66k.) *Pages 7 and 14 of the descriptive report. The new names have been shown pending Mr. Bacon's decision on their use.*

Yes

- ✓17. The quality of the drafting is good. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46.) *excellent*

18. No additional surveying is recommended.

19. Remarks:

20. Examined and approved:

Robert W. Knox

Robert W. Knox
Chief of Party

21. Remarks after review in office: *The report is very complete and the drafting exceptionally good. The detail shown is complete.*

Reviewed in office by:

B. G. Jones

Examined and approved:

K. T. Adams
Asst Chief, ~~Section of Field Records~~
~~Division of Charts~~
L. O. Pollock
Chief, Division of Charts

H. B. Borden

Chief, Section of Field Work

G. H. Hulse
Chief, Division of

Hydrography and Topography.