

1578

WILSON

EXETER'S
FIELD BOOK
No. 437

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6 + (20 - 16) \div 2$ or 2 ft. added to $30.6 = 32.6$. For slopes of 1 on 1½ see inside of back cover.

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ENGINEERING DEPARTMENT,
CITY OF SAN DIEGO,
CALIFORNIA.

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of a high grade 50% rag paper
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Made in U. S. A.

Survey and soundings for
EROSION PROJECT IN
MISSION Bay channel
and Ocean Front from
Ocean Beach to Mission Beach

CITY Survey PARTY

C. Moore chief 5-2-40.

F. Osborn chain

S. Hale "

Record of angles by

T #1 read by Moore

See 1555-71

for MHT Survey at
Ocean Beach 3-28-29.

~~INDEXED~~
E.F.B.

41+40 #17 ^{on} chisel cut walk cont'd. P4
△ 28°14' RT.

38+50 STA #14

36+00 STA #15

35+44.53 POT. NOT Sdg LINE

33+50 STA #14

31+00 STA #13

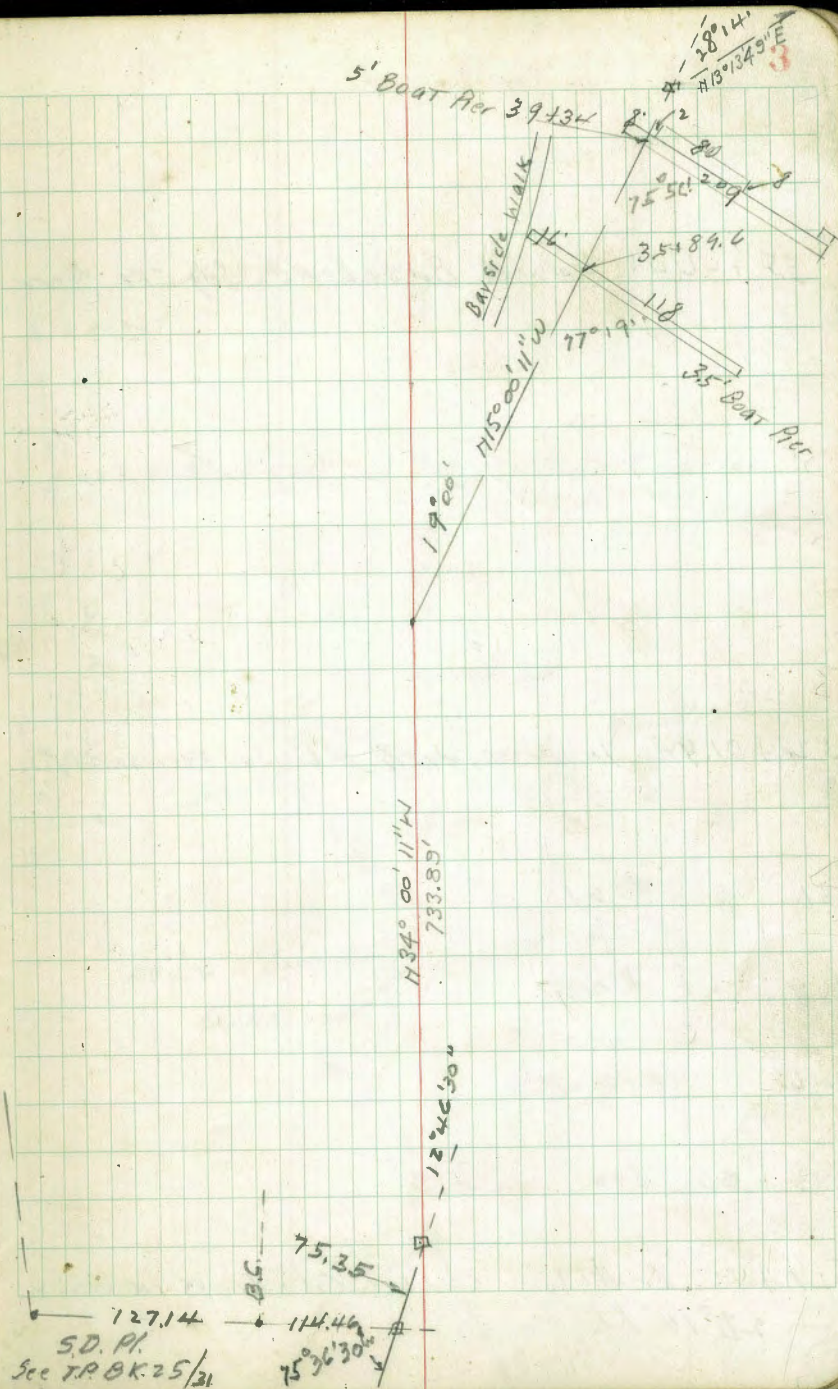
30+00 ^{on Baseline} chisel cross Bayside walk
△ 19°00' RT.

28+50 STA #14
X on walk 15' W. Nail on fence

26+50 = Nail on Mole

25+14.11 STA #11
40' W chisel X walk. edge Pav. →

22+46.11 STA #10 MISSION Bridge STA. Con. Max.
12°46'30" LT.



55+46.41 end Baseline Sdg. Sta. #22

52+01.94 INTERSEC. WITH N.E. SAN FERNANDO PL.

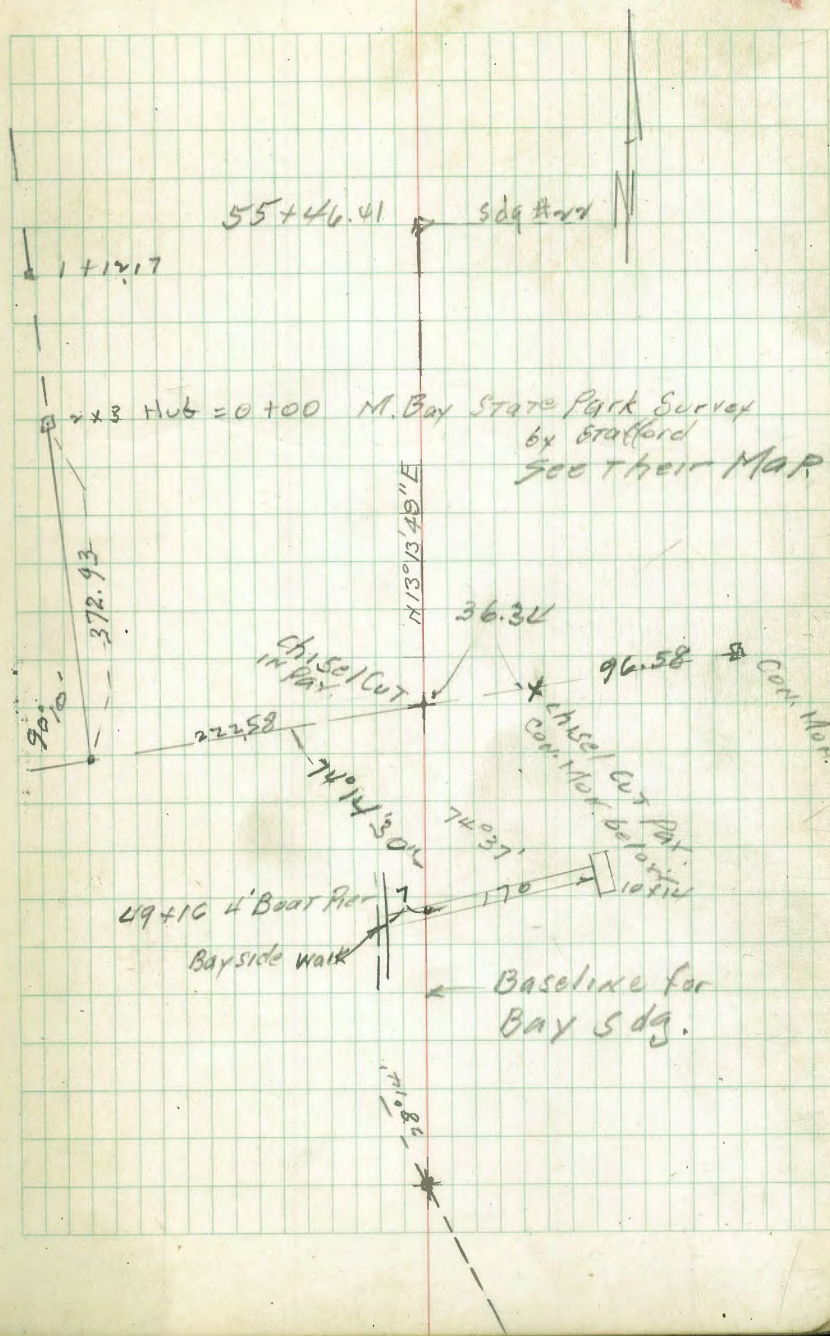
51 #21

48+50 #20

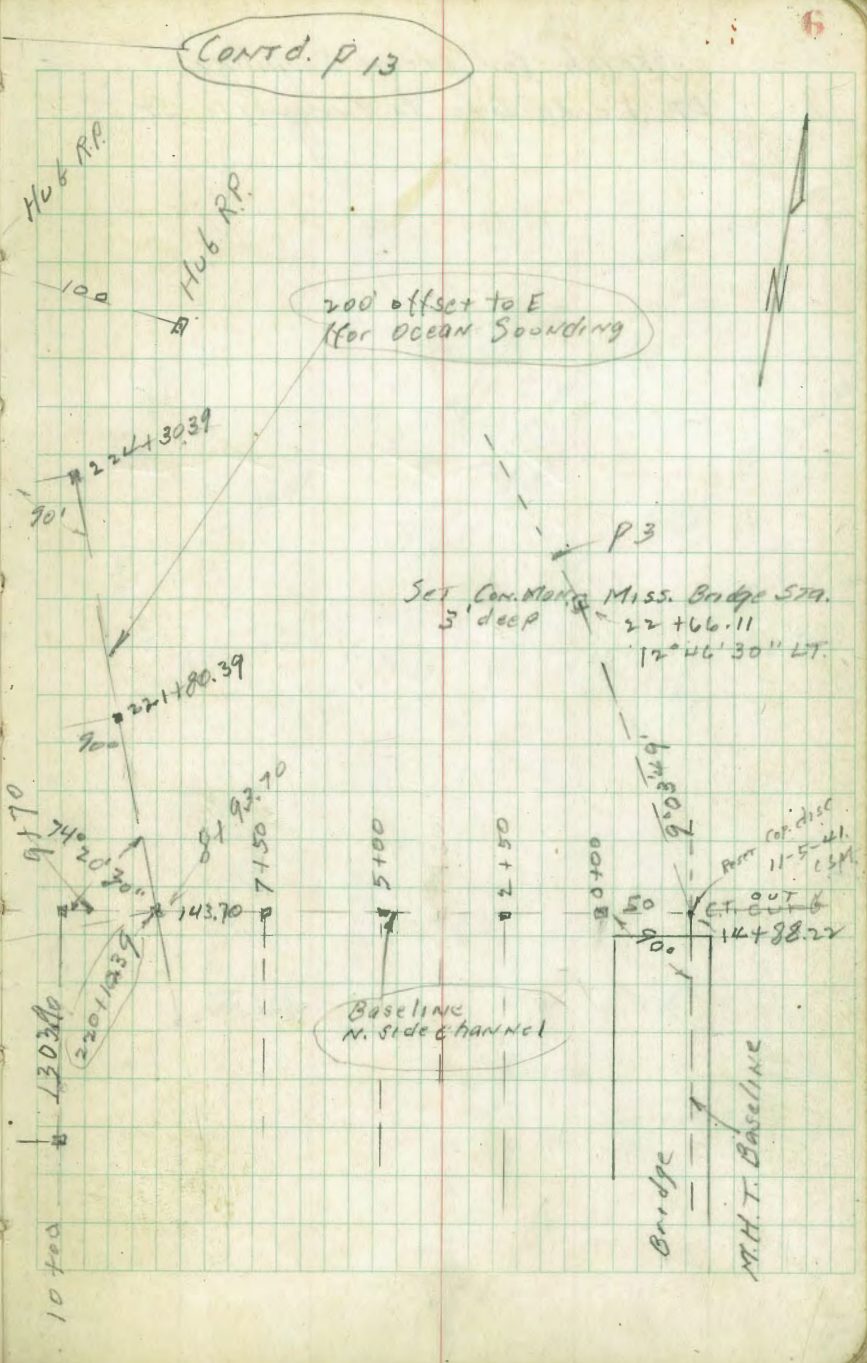
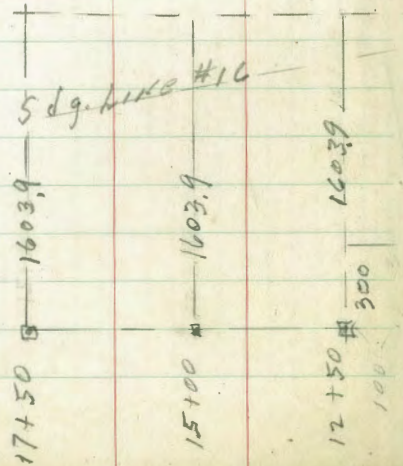
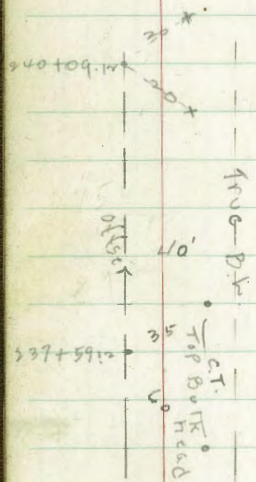
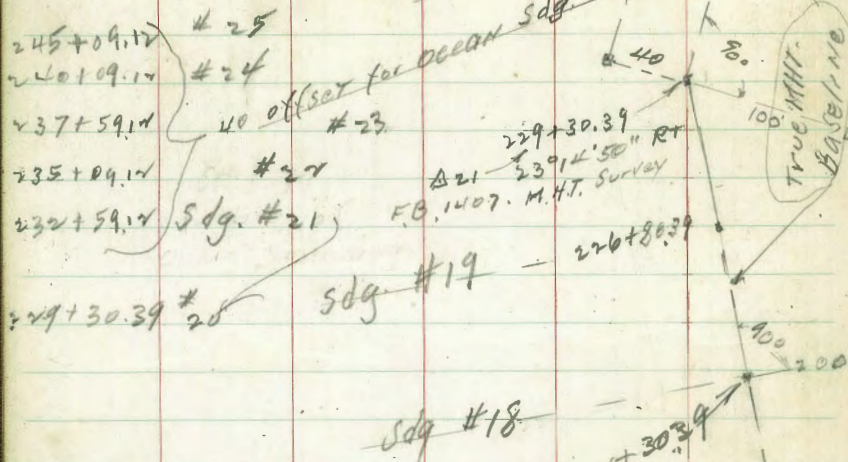
46 #19

43+50 Sta. Sdg #18

41+40 Δ #17 chisel cut cross in walk
28°14' RT.



Sketch for sounding channel
West of Bridge



Sdg. Line #3

M.H.T. Baseline
Sounding Baseline

T#1

90°

658'

124 + 17.94

Sdg. Line #2

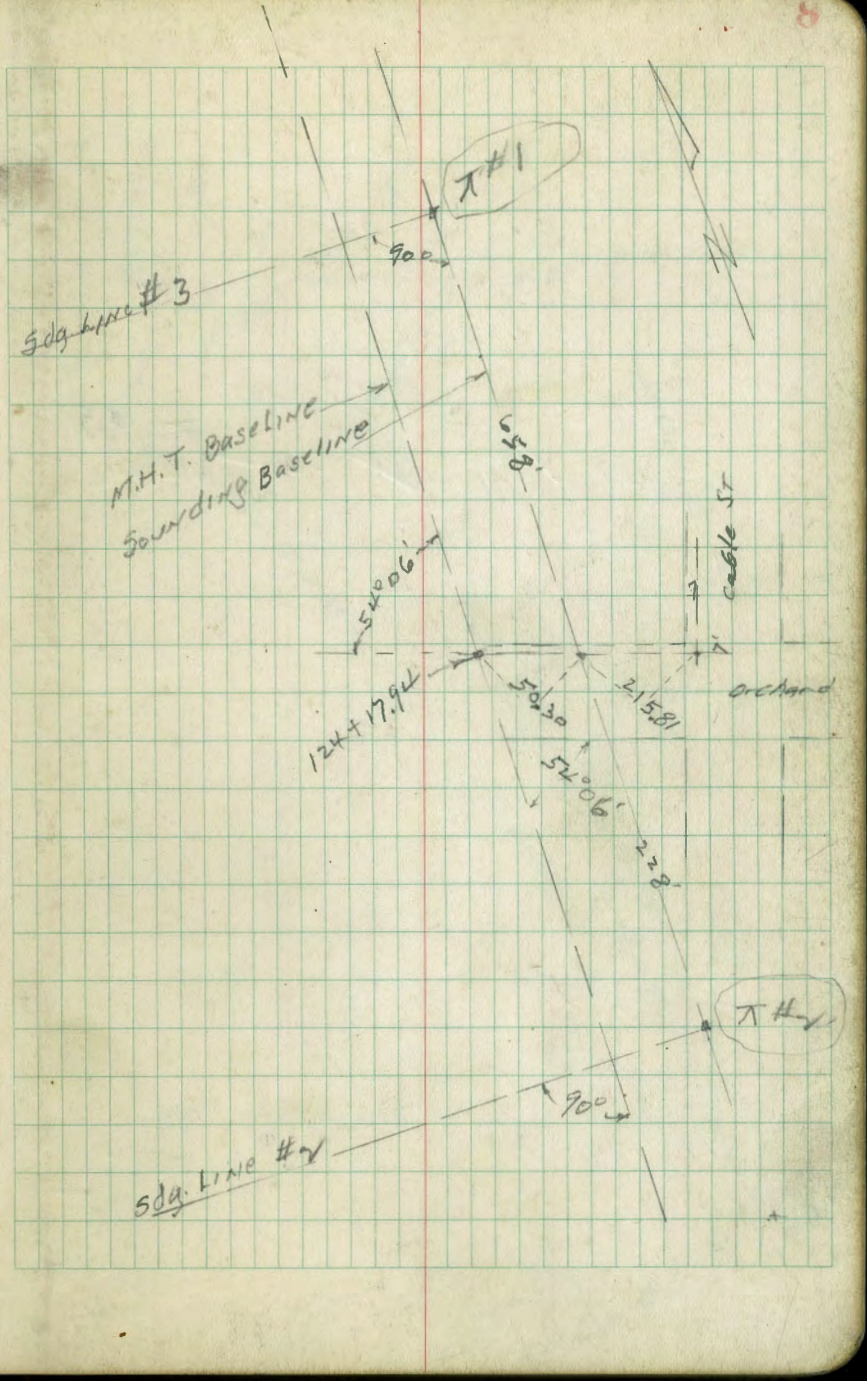
90°

T#2

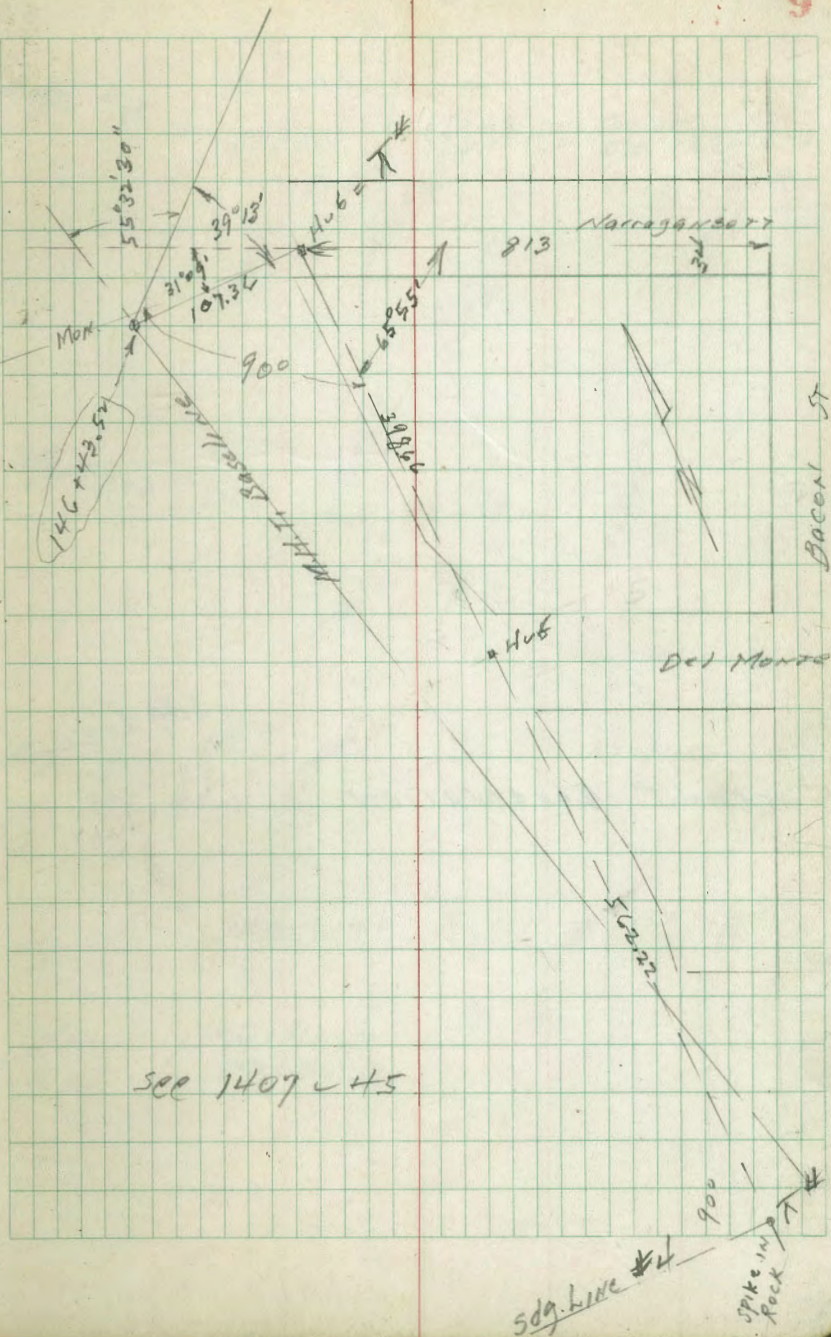
Cable St

Orchard

5406'
5030'
5206'
21581'
228'

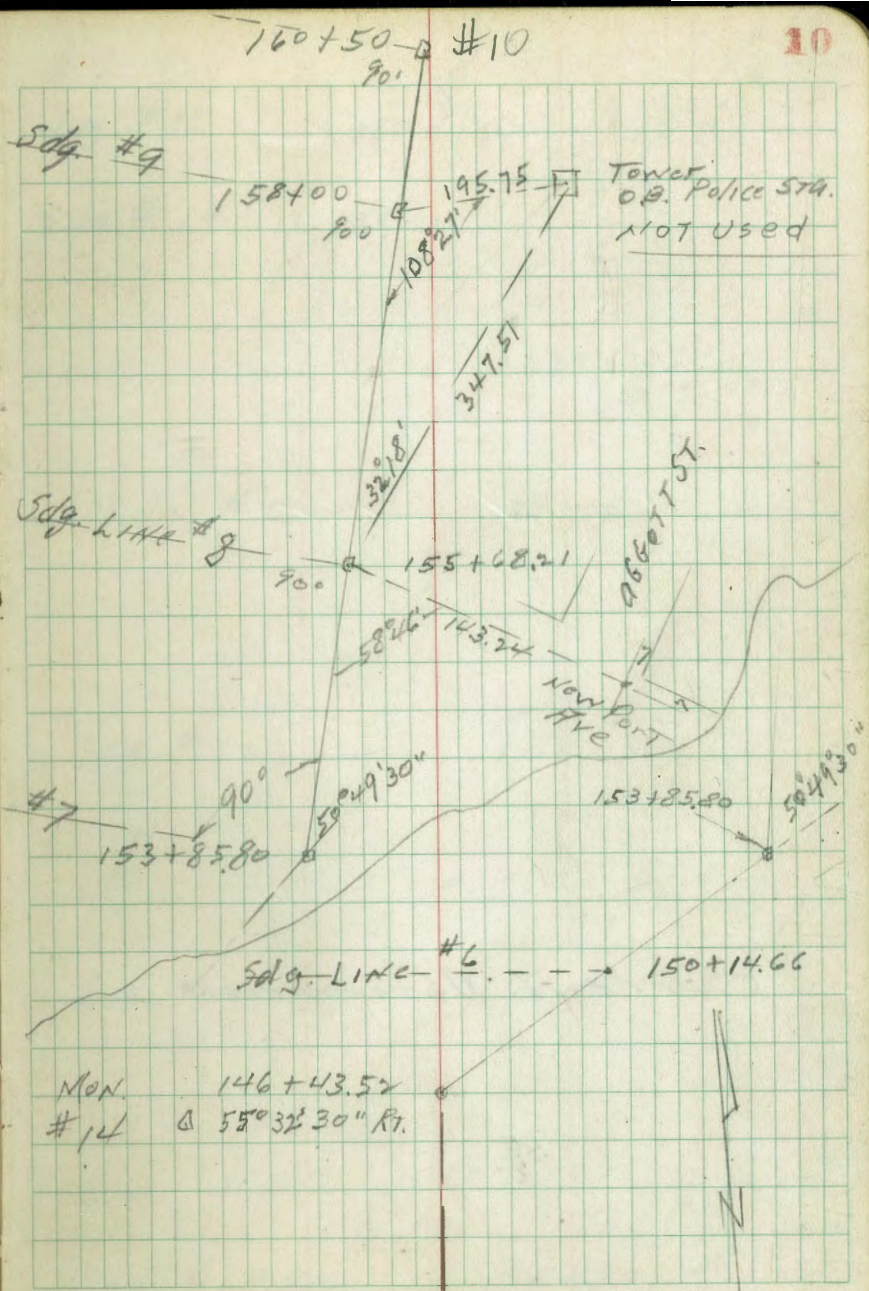


sdg. line #5



Current Observation

Sdg Line



~~sdg #15 - 172+50~~ 1" pipe

17° 42' 20"

M.H.T. B.L.
FB 14 07 19

~~sdg #14 - 170+50~~

169+2795
46° 36' 07" RT

~~sdg #13 - 168+00~~

~~sdg #12 - 165+50~~

M.H.T. B.L.

~~sdg #11 - 143+00~~

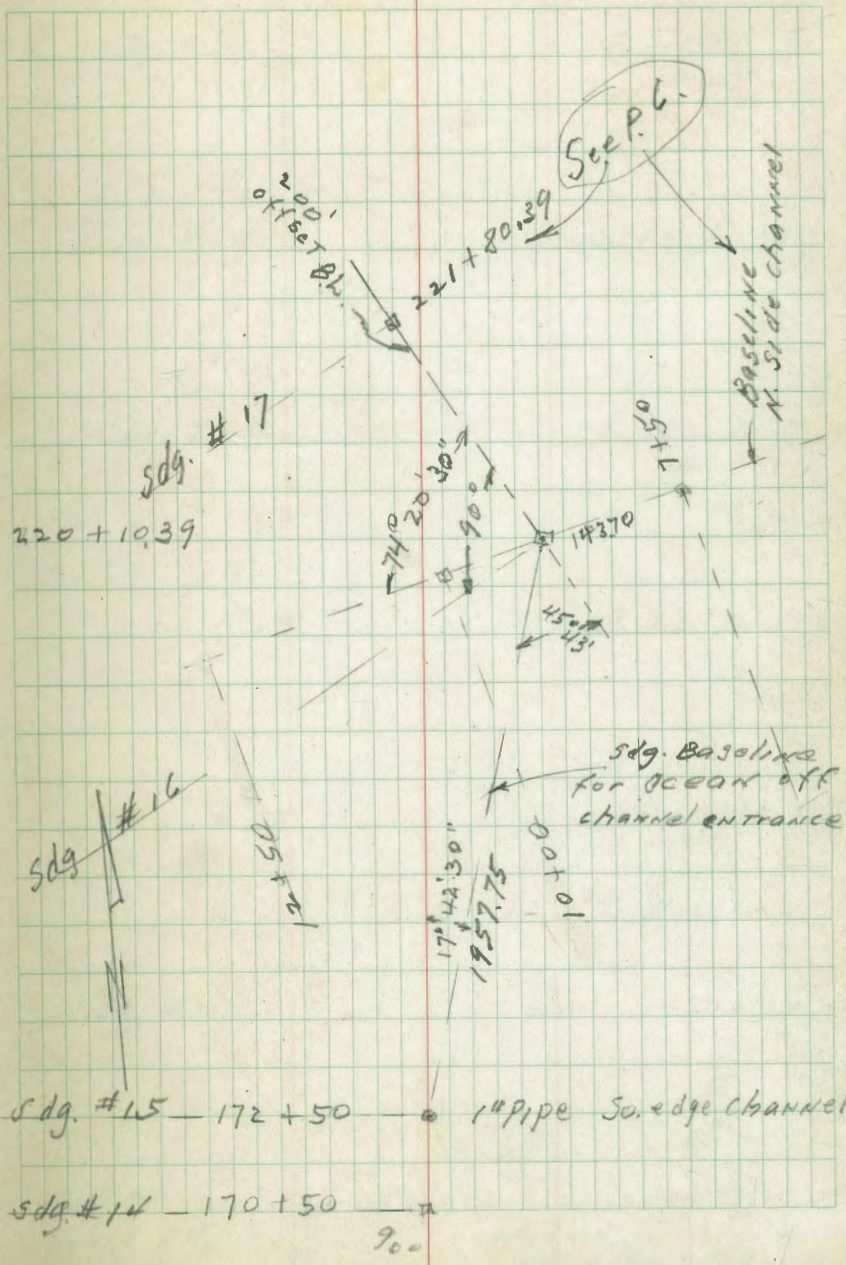
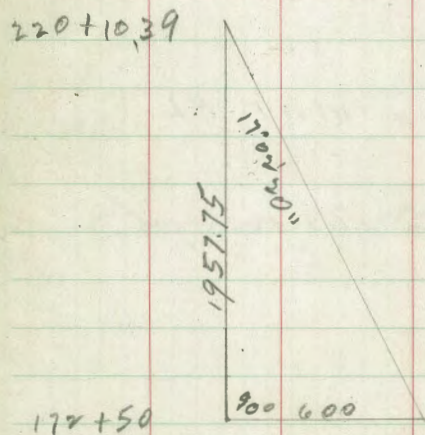
~~sdg #10 - 160+50~~

Current Observations

NOTE! Betw. 172+50 1" Iron pipe
and 220+10.39 INT. of 200' offset
Baseline & North side channel
Baseline, Ocean sounding lines
are NOT numbered.

This area is off the Bay entrance
and shots will be very irregular.

INT. of 200' offset Bl.
on N. side channel "



Sdg. #15 — 172+50 — 1" pipe So. edge channel
Sdg. #14 — 170+50 — 900

Sdg. #30

268+10

Sdg. #29

263+0980 POT
CT.

✓ Sdg. #28

258+0961 Δ = 0.35 LY.

Sdg. #27

255+0950 POT
CT.

✓ Sdg. #26

250+0931 POT.
CT.

← M.H.T. Baseline

Sdg. #25

C.T. WALK 245+0912

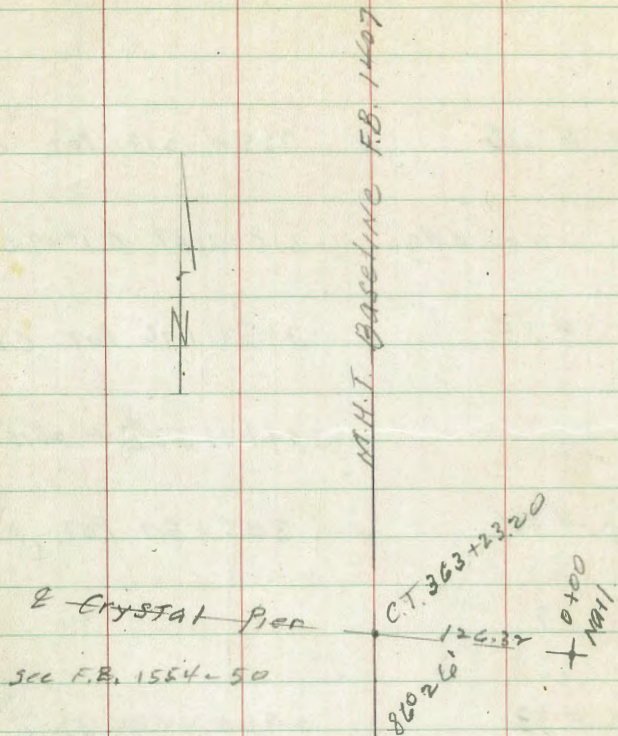
Sdg. #24

FROM P. 6

40'

240+0912 ✓

N. end
40' offset B.L.



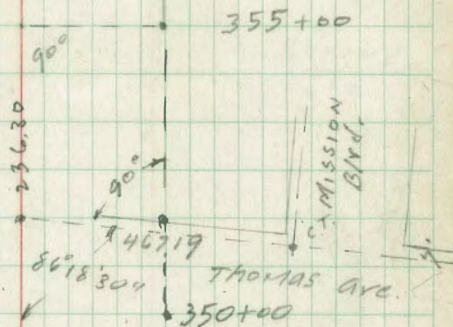
✓ Sdg # 41

• 375+00 100' RA NE
" " SE

Sdg # 40 NOT TAKEN • 365+00

✓ Sdg # 39

← 86' → Sounding Baseline



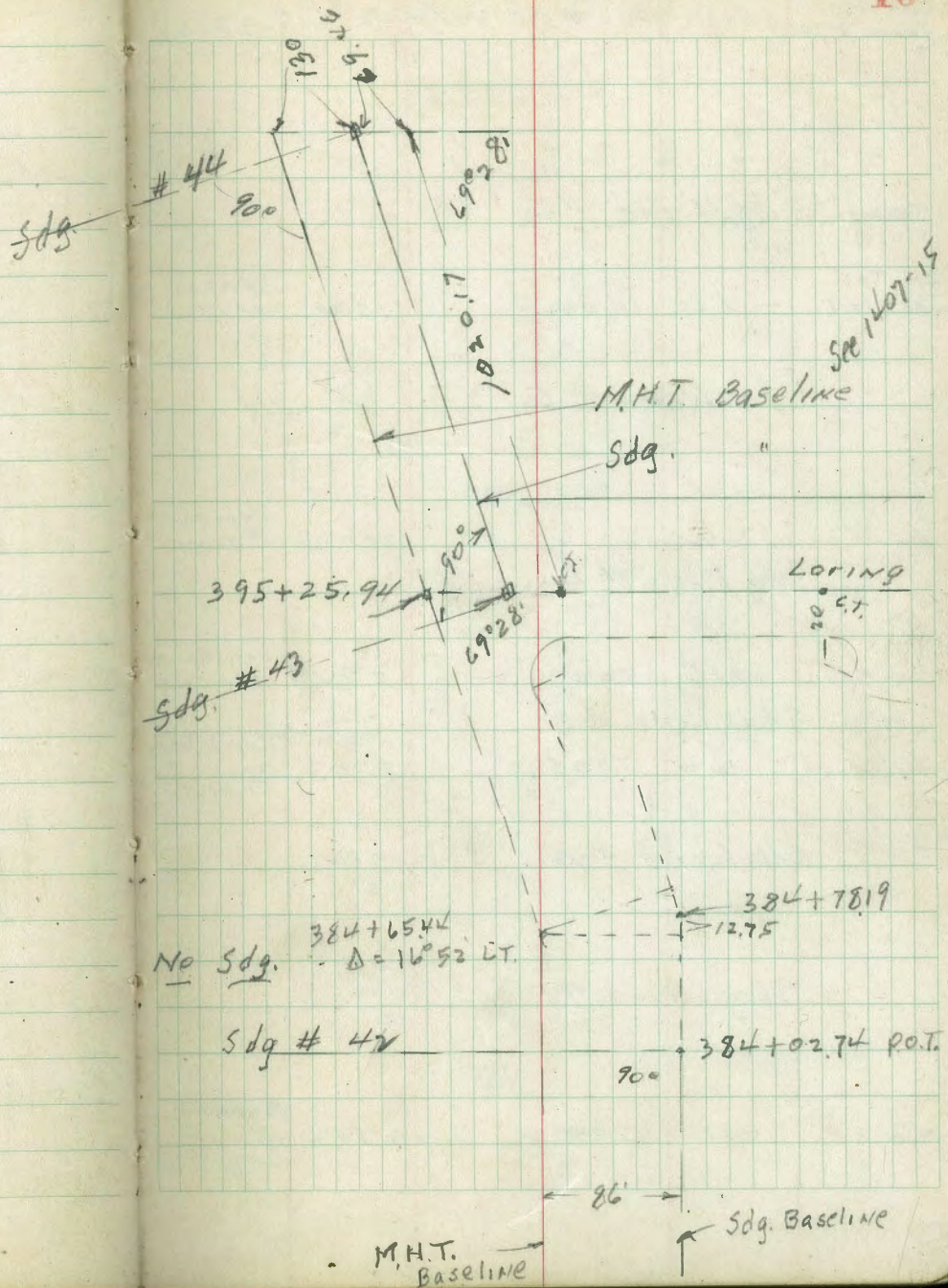
✓ Sdg # 38

• 345+00 100' RA NE
" " SE

✓ Sdg # 37

• 335+02.62 P.O.T. X IN
WALK

← M.H.T. Baseline



Contd.
from p 79

X sec of Beach
Sdg. Line #1 N/Y To 6 8-23-40

150 + 14.4 Sdg. Line #6

B.M. Top
Sea Wall - 1.30 14.00 15.30 36' RT. of 153 + 8580.

Sdg. Line #5

T.P. 14.05 47.20 0.01 33.15
NEBP 13.10 33.16 20.06 Newport Bacon

Sdg. Line #4

NEBP 17.16 50.21 33.05 Del Monte Bacon

Sdg. Line #3

BP Scurb 1.20 58.25 57.05 Del Mar Ocean Front

Sdg. Line #2

Sdg. Line #1

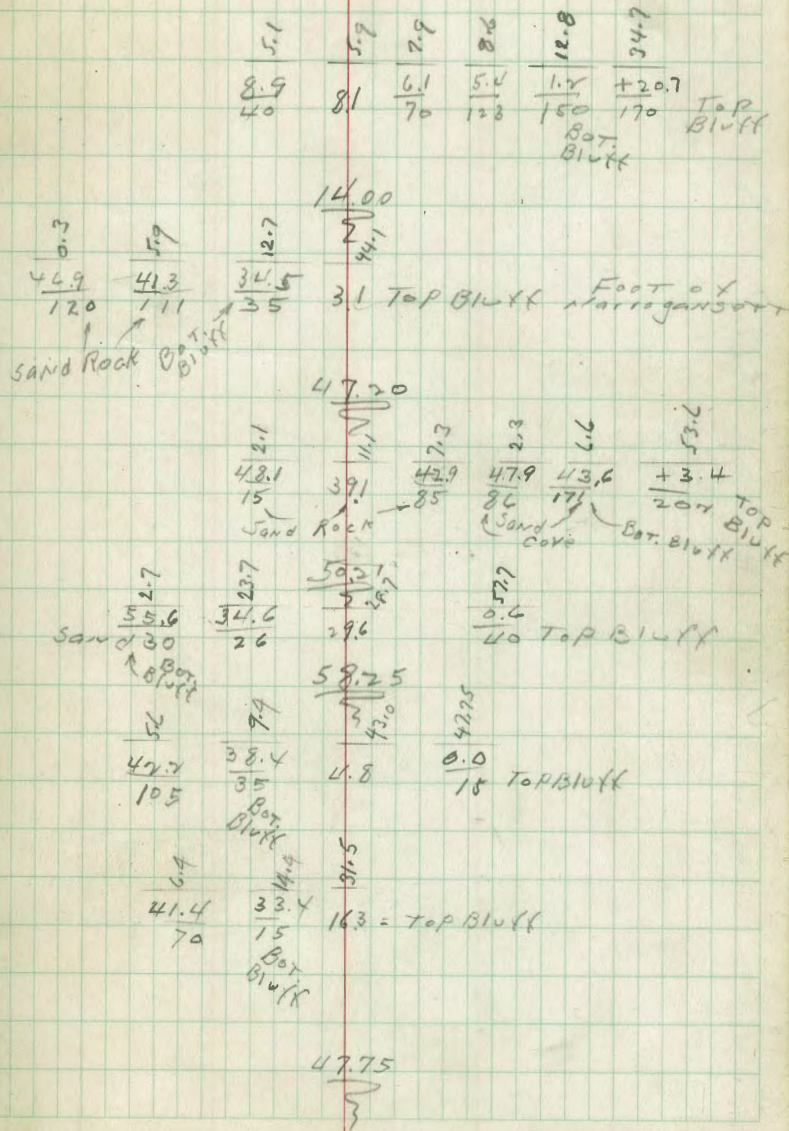
NEBP 10.61 47.75 37.14 Pescadero + Sunset cliffs Bluff

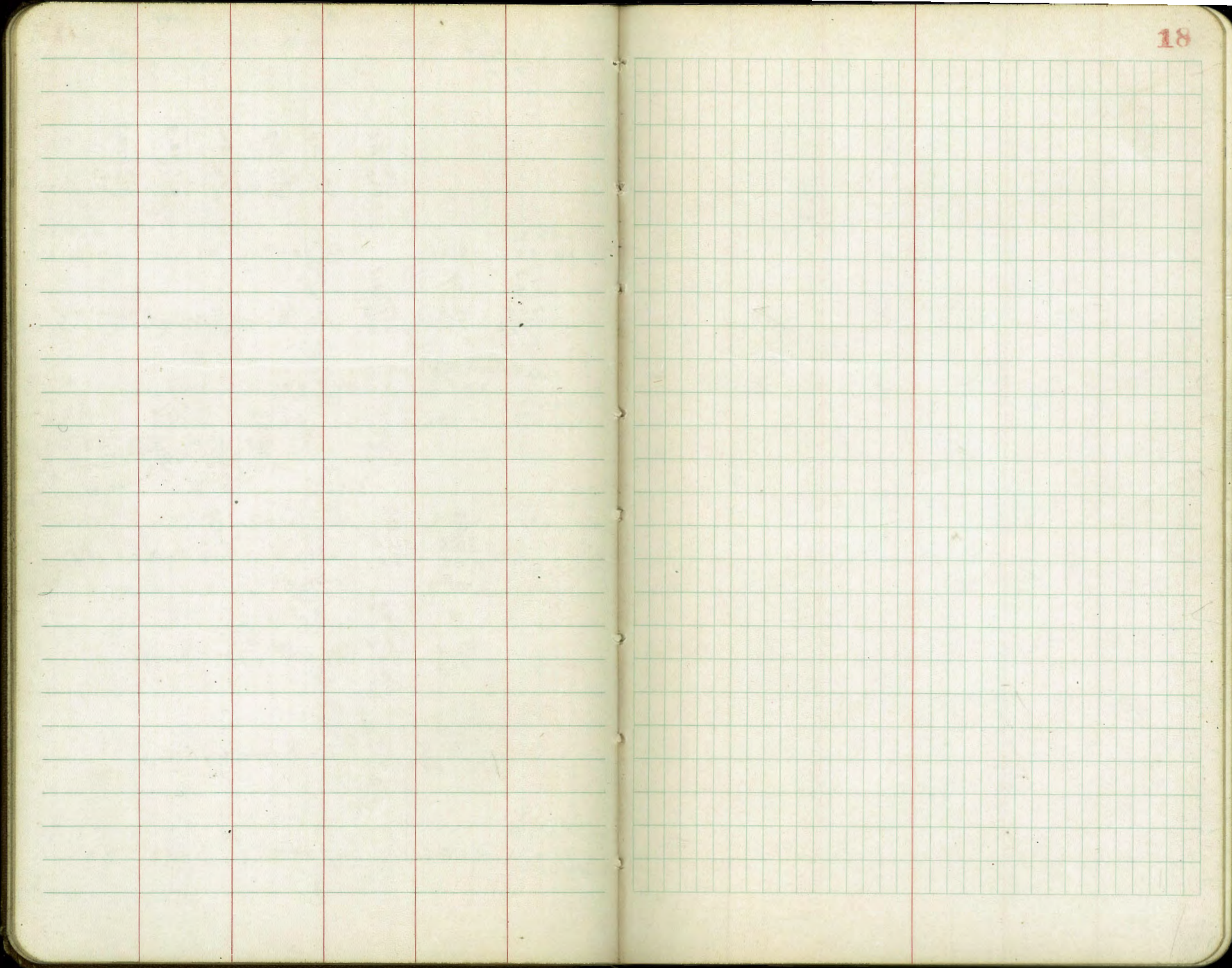
LT
plotted
a.s.k.

B.K.

RT.

17





Ocean Sdg. Line #1 Pt. Loma Ave.

5-20-40

P. 7.

T #1 = 1000' S. of 3+44 Prop. Pier

F.S. on 3+44

TIME

No.	Δ	Sdg.	TIME
1			Tide 0.8 3.2 1:52 P.M.
1		beg. in shore	14° 31' LT.
2		27° 45' "	11.0 -10.2
3		36° 40' "	14.0 -13.2
4		47° 08' "	17.0 -16.2
5		53° 59' "	20.0 -19.2
6		59° 59' "	21.0 -20.2
7		63° 08' "	26.0 -25.2
8		67° 01' "	30.0 -29.2
9		end out 67° 47' "	32.0 -31.2 2:13

5-20-40.

Weather cloudy

Water quiet

T #1 Moore

T #2 Hale

Sdg. Osborn

2 life guards + dory

Sdg. line #2 - T #1 658' N of Orchard

No.

Δ

Sdg.

000' sight on T #2

See P. 8

As turned RT.

No.	Δ	Sdg.	TIME
1		beg. OUT	71° 33' RT 31.0 -30.0 2:41 PM
2		67° 10' "	27.0 -26.0
3		64° 10' "	23.0 -21.9
4		56° 50' "	17.0 -15.9
5		47° 51' "	14.0 -12.8
6		38° 22' "	8.0 -6.8
7		end in shore 26° 26' "	4.0 -2.7 2:56
8			Tide 1.3

Sdg. line #3

5-20-40

#1 & #2 same as for
Sdg. line #2

No.	A	Sdg	TIME Tide + 1.4
1	beg. inshore 91°40' RT	4.0	3:03 PM -2.6
2	90°00' "	6.0	-4.6
3	89°00' "	10.0	-8.5
4	90°01' "	12.0	-10.5
5	90°14' "	17.0	-15.4
6	90°10' "	21.0	-19.4
7	91°46' "	22.0	-20.3
8	91°34' "	25.0	-23.3
9	90°01' "	26.0	-24.2
10	90°09' "	29.0	-27.2
11	end 89°56' "	31.0	-29.2 3:25 PM Tide + 1.8

	Sdg #15		5-20-40 cloudy water quiet
	T #1 on 172+50		Time beg.
0:00	F.S. " 220+1039	T #1	9:00 AM
	Δ	Sdg.	Tide +4.6
①	beg. inshore #15 107°06' LT	5.0	-0.4
2	✓ 107°20' "	14.0	-9.4
3	✓ 106°42' "	20.0	-15.5
4	✓ 108°49' "	25.0	-20.5
5	✓ 107°52' "	26.0	-21.6
6	✓ 107°04' "	32.0	-27.6
7	✓ 107°37' "	33.0	-28.7
8	✓ END #15 107°40' "	38.0	-33.7
	ocean sdg. area off channel entrance outside of PLUNGE LIKE		Tide +4.2
1	✓ beg. out 94°02' LT	37.0	9:30 -32.8
2	✓ 93°02' "	30.0	-25.8
3	✓ 91°00' "	26.0	-21.9

	Δ	Sdg	22 TIME
4	✓ 86°51' LT	18.0	-13.9
5	✓ 82°40' "	12.0	-8.0
6	✓ end inshore 77°46' "	5.0	-1.1
①	beg. inshore 54°10' "	5.0	-1.2 9:54 Tide +3.8
2	✓ 72°56' "	15.0	-11.2
3	✓ 80°24' "	19.0	-15.3
4	✓ 82°42' "	24.0	-20.4
5	✓ 85°06' "	27.0	-23.5
6	✓ 88°02' "	31.0	-27.5
7	✓ end out 90°32' "	35.0	-31.6 5:19.7
①	beg. out 82°58' "	35.0	-31.6 10:22 AM Tide +3.4
2	✓ 79°01' "	30.0	-26.6
3	✓ 73°57' "	25.0	-21.6

4 ✓	63° 53' LT	15.0	-11.7
5 ✓	55° 15' "	10.6	-7.3
6 ✓	42° 32' "	6.0	-2.8
			Tide + 3.2
7 ✓	end in shore 40° 25' "	4.0	-0.8
			10:42
8 ✓	bag " 44° 50' "	11.0	-7.9
			10:50
			Tide + 3.1
9 ✓	58° 42' "	7.0	-3.9
3 ✓	66° 46' "	18.0	-15.0
4 ✓	72° 11' "	26.0	-23.1
5 ✓	76° 07' "	32.0	-29.1
6 ✓	77° 40' "	34.0	-31.2
7 ✓	end out 79° 36' "	36.0	-33.3
			11:11 AM
			Tide + 2.7
8 ✓	beg. in ON #16 74° 21' "	35.0	-32.3
9 ✓	72° 24' "	31.0	-28.3

3 ✓	70° 10' LT	30.0	-27.4
4 ✓	68° 17' "	26.0	-23.5
			11:31 AM
			Tide + 2.5
5 ✓	65° 00' "	12.0	-9.5
6 ✓	64° 08' "	11.0	-8.6
			OUTGOING TIDE VERY STRONG HERE
7 ✓	62° 31' "	11.0	-8.7
8 ✓	57° 52' "	7.0	-4.7
9 ✓	55° 10' "	7.0	-4.8
10 ✓	end #16 in shore 44° 44' "	12.0	-9.9
			11:56
			Tide + 2.1

Sdg. Line #4 P.9 5-20-40

π #1 or #5

π #2 " #4⁰⁰⁰ S. on π #2

Δ to RT

		Sdg.	Tide+2.3
			TIME
1 ✓	beg out 60°51' RT.	31.0	-28.7 3:47
2 ✓	64°09' "	27.0	-24.7
3 ✓	60°10' "	25.0	-22.7
4 ✓	56°01' "	23.0	-20.6
5 ✓	50°12' "	20.0	-17.6
6 ✓	40°42' "	16.0	-13.6
7 ✓	31°36' "	11.0	-8.5
8 ✓	end inshore 15°18' "	6.0	-3.5 4:01 Tide+2.5

5-20-40-2A
Sdg. Line #5

π #1 + #2 SAME as for Sdg #4

Δ Sdg. Tide+2.7 TIME

1 ✓	beg. inshore 90°04' RT.	6.0 - 3.3	4:07
2 ✓	90°30' "	7.0 - 4.3	
3 ✓	90°20' "	14.0 - 11.2	
4 ✓	90°24' "	18.0 - 15.2	
5 ✓	90°11' "	20.0 - 17.1	
6 ✓	90°01' "	22.0 - 19.1	
7 ✓	90°10' "	28.0 - 25.0	
8 ✓	end out 90°15' "	31.0	-28.0 4:21 Tide +3.0

Sdg. Line #14 5-21-40.

T #1 ON Sdg. Line #7 153+8580 (P.7)
 0000 F.S. ON T #2 = Δ⁵ LT. Weather - Cloudy
 WATER QUIET

	Δ	Sdg. Tide + 4.3	TIME
1 beg.			
1 IN Shore	20° 14'	LT. 5.0	-0.7 8:50 AM
2 ✓	27° 20'	LT. 12.0	-7.7
3 ✓	34° 35'	" 17.0	-12.7
4 ✓	40° 31'	" 20.0	-15.6
5 ✓	46° 40'	" 25.0	-20.6
6 ✓	50° 21'	" 26.0	-21.6
7 ✓	54° 18'	" 28.0	-23.5
8 ✓	57° 11'	" 31.0	-26.5
9 ✓	60° 08'	" 36.0	-31.5 9:06 Tide + 4.5

Sdg. Line #13

5-21-40 25

T #1 set up on #9 153+8580
 0000 F.S. ON T #2

	Δ	Sdg. Tide + 4.6	TIME
beg. out			
1 ✓	64° 49'	LT. 35.0	-30.4 9:16 AM
2 ✓	62° 34'	" 32.0	-27.4
3 ✓	60° 04'	" 28.0	-23.4
4 ✓	54° 38'	" 26.0	-21.4
5 ✓	48° 58'	" 23.0	-18.4
6 ✓	43° 33'	" 19.0	-14.4
7 ✓	35° 37'	" 15.0	-10.4
8 ✓	25° 40'	" 6.0	-1.4 9:33
END IN SHORE			Tide + 4.6

5-21-40

Sdg. line #12

T #1 ON #7 153+8580
0°00' F.S. ON T #2

	Sdg.	TIME	Tide+4.5
beg in shore			
1 ✓	35°17' LT. 6.0	-1.5	9:44
2 ✓	42°20' " 14.0	-9.5	
3 ✓	47°56' " 16.0	-11.5	
4 ✓	52°53' " 22.0	-17.5	
5 ✓	56°45' " 25.0	-20.6	
6 ✓	59°16' " 25.0	-20.6	
7 ✓	62°01' " 26.0	-21.6	
8 ✓	64°25' " 26.0	-21.6	
9 ✓	66°14' " 30.0	-25.7	
10 ↓	67°42' " 32.0	-27.7	
11 ↓	end out 69°16' " 36.0	-31.7	10:00 AM Tide+4.3

5-21-40 26

Sdg. line #11

T #1 ON #7 80° F.S. ON T #2 = Bk. OK #11

	Sdg.	TIME	Tide+4.2
beg. out Δ			
1 ✓	73°08' LT. 35.0	-30.8	10:12 AM
2 ✓	70°57' " 29.0	-24.8	
3 ✓	68°57' " 26.0	-21.8	
4 ✓	66°57' " 25.0	-20.9	
5 ✓	64°36' " 26.0	-21.9	
6 ✓	61°33' " 24.0	-19.9	
7 ✓	58°14' " 20.0	-16.0	
8 ✓	53°25' " 18.0	-14.0	
9 ✓	46°36' " 10.0	-6.1	
10 ↓	end in shore 29°49' " 10.0	-6.1	10:28 AM Tide+3.9

5-21-40

Sdg. Line #10

T #1 on Sdg Line #10

0:00' F.S. on T #2 Δ^8 LT = Non on 70+50
 1 beg. inshore 89° 59' LT 5.0 - 1.2 TIME 11:10
 Tide +3.8

2 ✓ 90° 00' " 9.0 - 5.2

3 ✓ 90° 04' " 15.0 - 11.2

4 ✓ 90° 05' " 19.0 - 15.2

5 ✓ 89° 48' " 25.0 - 21.3

6 ✓ 89° 54' " 23.0 - 19.3

7 ✓ 89° 50' " 26.0 - 22.3

8 ✓ 90° 01' " 25.0 - 21.3

9 ✓ 89° 59' " 26.0 - 22.4

10 ✓ 90° 00' " 29.0 - 25.4

11 ✓ 89° 55' " 32.0 - 28.4

12 ✓ end out 89° 57' " 35.0 - 31.4 10:56
 Tide +3.6

Sdg. #9

5-21-40 27

T #1 on Sdg #9 F.S. on T #2 170+50

1 beg. out 89° 26' LT 36.0 - 32.6 11:10
 Tide +3.4

2 ✓ 89° 25' " 31.0 - 27.6

3 ✓ 89° 52' " 28.0 - 24.6

4 ✓ 89° 58' " 25.0 - 21.7

5 ✓ 89° 56' " 24.0 - 20.7

6 ✓ 90° 07' " 21.0 - 17.7

7 ✓ 90° 00' " 21.0 - 17.7

8 ✓ 90° 08' " 17.0 - 13.8

9 ✓ 90° 07' " 13.0 - 9.8

10 ✓ end inshore 89° 20' " 5.0 - 1.8 11:25
 Tide +3.2

Sdg. # 8 5-21-40
0°00' 170+50

T #1 ON #8 F.S. ON T #2 AS TO LT

	Sdg	TIME
1 beg. ^{inshore}	89°17' LT 6.0 - 2.9	11:34 Tide + 3.1
2 ✓	90°01' " 10.0 - 6.9	
3 ✓	90°00' " 15.0 - 11.9	
4 ✓	89°50' " 18.0 - 14.9	
5 ✓	90°06' " 19.0 - 16.0	
6 ✓	89°54' " 21.0 - 18.0	
7 ✓	89°42' " 22.0 - 19.0	
8 ✓	90°06' " 26.0 - 23.0	
9 ✓	89°53' " 26.0 - 23.0	
10 ✓	89°55' " 29.0 - 26.1	
11 ✓	89°53' " 30.0 - 27.1	
12 ✓	89°48' " 32.0 - 29.1	
13 end OUT	89°55' " 35.0 - 32.1	11:52 Tide + 2.9

5-21-40. 28
OCEAN. Sdg. LINE #7 170+50

T #1 ON #7 F.S. ON T #2 AS TO LT

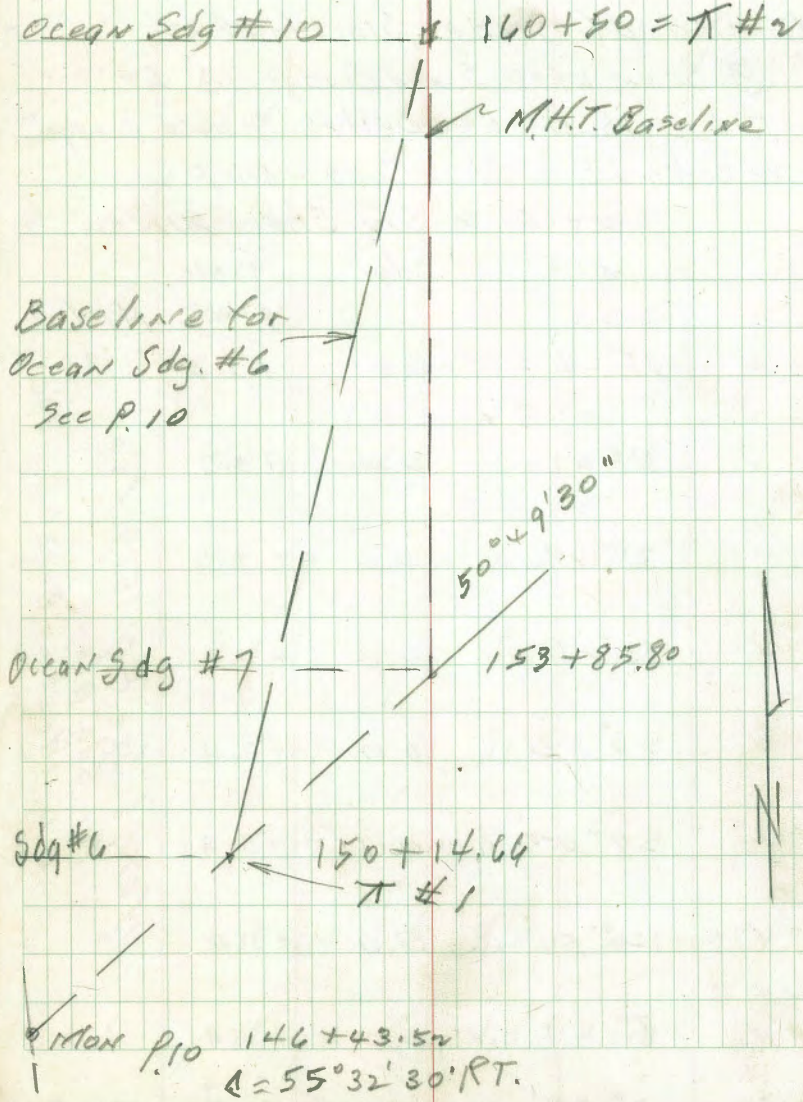
	Sdg.	TIME
1 beg. ^{inshore}	89°30' LT 6.0 - 4.6	2:00 PM Tide + 1.4
2 ✓	90°30' " 10.0 - 8.6	
3 ✓	89°54' " 15.0 - 13.6	
4 ✓	89°55' " 15.0 - 13.6	
5 ✓	90°00' " 20.0 - 18.7	
6 ✓	89°53' " 20.0 - 18.7	
7 ✓	90°15' " 25.0 - 23.7	
8 ✓	89°40' " 24.0 - 22.7	
9 ✓	90°08' " 27.0 - 25.8	
10 ✓	89°58' " 29.0 - 27.8	
11 ✓	90°01' " 31.0 - 29.8	2:30 PM Tide + 1.2

Ocean Sdg Line #6

5-21-40

π #1 on " #6 F.S. on #10 p. 11
 = 160 + 50

	Δ	Sdg.	TIME
1 ✓	$109^{\circ}55'$	LT. 31.0	-30.0 2:45 PM. Tide + 1.0
2 ✓	$109^{\circ}35'$	" 29.0	-28.0
3 ✓	$109^{\circ}56'$	" 25.0	-24.0
4 ✓	$110^{\circ}15'$	" 21.0	-19.9
5 ✓	$109^{\circ}52'$	" 18.0	-16.9
6 ✓	$109^{\circ}49'$	" 16.0	-14.9
7 ✓	$110^{\circ}26'$	" 12.0	-10.8
8 ✓	$110^{\circ}12'$	" 7.0	-5.8 3:00 PM. Tide + 1.2



Mission Bay Sdg. 5-22-40

Area E. of Bridge and
Sly shore to San Fernando

T #1 ON Hub 20 E. CT. IN CURB

N. end of Bridge, STA. 14+88.22

B.S. ON 0+00 S. end Bridge. Δ^8 LT.

T #2 IS ON 0+00 Hub S. end Bridge

20' E & 20' S of CT. IN CURB See P. 2

0+00 = Sly Shore Line.

Δ Sdg TIME

8:45 AM

1 ✓ 25° 42' LT 0.0 +3.3 Tide +3.3

2 ✓ 34° 01' " 0.0 +3.3

3 ✓ 35° 09' " 0.0 +3.3

4 ✓ 33° 06' " 0.0 +3.3

5 ✓ 26° 40' " 0.0 +3.4

6 ✓ 20° 02' " 0.0 +3.4

7 ✓ 12° 54' " 0.0 +3.4

8 ✓ 8° 49' " 0.0 +3.4

9 ✓ 3° 30' " 0.0 +3.4

8:51 AM

Tide +3.4

Weather Cloudy H.M.

Water Quiet

2+50 Sta #1 5-22-40

30

Δ Sdg

1 ✓ 4° 30' LT 10.0 - 6.5

2 ✓ 12° 46' " 9.0 - 5.5 9:00 AM
Tide +3.5

3 ✓ 20° 48' " 8.0 - 4.5

4 ✓ 28° 00' " 7.0 + 1.5

5 ✓ 34° 48' " 1.0 + 2.6

5+00 STA #2

1 ✓ 50° 15' LT 1.0 + 2.6

2 ✓ 45° 52' " 2.0 + 1.6

3 ✓ 41° 49' " 5.0 - 1.3

4 ✓ 37° 59' " 7.0 - 3.3

5 ✓ 34° 37' " 5.5 - 1.7

6 ✓ 27° 24' " 8.0 - 4.2 9:17

Tide +3.8

7 ✓ 22° 04' " 4.0 - 0.2

STRONG INCOMING CURRENT

Note! See H.B. 1579 P. 30
for Sdg. along
E.L. Mission Beach Bridge

		5+00				
		Δ	Sdg			
8	✓	11°06' LT	6.0	-2.1	9:22	Tide +3.9
		7+50	STA. #3			
1	✓	12°01' LT	8.0	-4.1	9:25	Tide +3.9
2	✓	28°04' "	7.5	-3.6		
3	✓	42°44' "	5.0	-1.0		
4	✓	48°10' "	6.0	-2.0		
5	✓	54°20' "	4.0	0.0	9:30	Tide +4.0
		10+00	STA. #4			
1	✓	66°21' LT	3.0	+1.1		
2	✓	64°45' "	4.0	+0.1	9:37	Tide +4.1
3	✓	58°12' "	4.0	+0.1		
4	✓	55°17' "	5.0	-0.8		
5	✓	49°14' "	6.0	-1.8		
6	✓	42°09' "	8.0	-3.8		

		10+00			5+00-40 31	
		Δ	Sdg			TIME
7	✓	36°24' LT	9.0	-4.7		
8	✓	12°01' "	11.0	-6.7	9:50	Tide +4.3
		12+50	STA. #5			
1	✓	20°50' LT	6.0	-1.65	9:53	+4.35
2	✓	53°46' "	12.0	-7.65		
3	✓	68°05' "	10.0	-5.65		
4	✓	71°54' "	6.0	-1.6		
5	✓	75°55' "	5.5	-1.1		
6	✓	77°46' "	4.0	+0.4		
7	✓	80°15' "	3.0	+1.4	10:04 AM	Tide +4.4
		STA. #6	14+88.22 Δ	10:31 LT. on Baseline		
1	✓	90°05' LT	1.0	+3.3	10:33	Tide +4.3
2	✓	90°05' "	7.0	-2.7		
3	✓	97°07' "	13.0	-8.7		

5-27-40.

	Δ	5dg.	TIME	
✓	✓	95°50' LT.	12.5	-8.3
✓	✓	96°00' ..	7.0	-2.8
✓	✓	94°54' ..	7.0	-2.8
✓	✓	95°34' ..	6.0	-1.8
✓	✓	94°48' ..	5.0	-0.8

Tide +4.2
 10:45 = 4.2 ON
 Tide START
 Mission Bridge

T#1 ON 14+88.22, 0°00' ON
 T#2 16+13.22? (22+66.11 - F.B. 1570-16)

16+13.22 ✓ STA #7

✓	✓	85°50' RT.	2.5	+1.4	11:09
✓	✓	84°59' "	3.0	+0.9	Tide +3.9
✓	✓	80°34' "	6.0	-2.1	
✓	✓	83°34' "	6.0	-2.1	
✓	✓	81°09' "	6.0	-2.2	
✓	✓	80°07' "	7.5	-3.7	

✓	✓	77°48' RT	10.0	-6.2	
✓	✓	74°44' "	12.0	-8.2	
✓	✓	68°23' "	15.0	-11.3	
✓	✓	52°21' "	10.0	-6.3	
✓	✓	55°50' "	12.0	-8.3	backup! edge deep channel
✓	✓	52°00' "	5.0	-1.3	
✓	✓	34°30' "	3.0	+0.6	
✓	✓	14°12' "	8.0	-4.4	

18+13.22 ✓ STA. #8
 T#1 ON 14+88.22 F.S. ON T#4

✓	✓	4°04' LT.	4.0	-0.4	11:35
✓	✓	4°10' RT.	2.0	+1.6	Tide +3.6
✓	✓	29°12' "	6.0	-2.4	
✓	✓	35°21' "	18.0	-14.4	

5	✓	44°50' RT	14.0	-10.5
6	✓	50°57' "	7.5	-4.0
7	✓	55°29' "	5.0	-1.5
8	✓	62°00' "	5.5	-2.0
9	✓	63°25' "	3.0	+0.5 11:48 Tide + 3.5

20 + 13.22 / STA. #9
T#1 ON 14 + 88.22 F.S. ON T#2

1	✓	70°14' RT	1.0	+2.4 11:55 Tide + 3.4
2	✓	69°10' "	4.0	-0.6
3	✓	61°58' "	6.0	-2.6
4	✓	54°57' "	5.0	-1.7
5	✓	49°39' "	7.0	-3.7
6	✓	43°52' "	10.0	-6.7
7	✓	33°29' "	17.0	-13.7

	Δ	Sdg	TIME
8	✓	27°07' RT	18.0 -14.8 5-22-40
9	✓	15°27' "	7.0 -3.8
10	✓	7°07' "	2.0 +1.2
11	✓	2°40' "	2.0 +1.2 Tide + 3.2 12:15
T#1 ON 30 + 00 SIGHTING ON T#2 Δ 19°00' RT.			
STA. #10 22 + 66.11 Δ 12°46'30" LT. Baseline 0°00'			
1	✓	9°40' LT.	11.0 -8.8 1:55 PM Tide + 2.2
2	✓	10°14' "	15.0 -12.8
3	✓	14°45' "	25.0 -22.8
4	✓	24°53' "	17.0 -14.9
5	✓	33°40' "	5.0 -2.9
6	✓	40°10' "	2.0 +0.1
7	✓	46°18' "	5.0 -3.0
8	✓	49°50' "	4.0 -2.0 2:10 PM. Tide + 2.0

Weather cleared
Water BUILT

	Δ	SDG	TIME
T#1 ON 30+00 F.S. ON T#1	$0^{\circ}00'$		
STA. #11	25+16.11		
			ANOTHER 1/4 & 1/2 CHANNEL APPROX 350' EAST OF THIS
1	✓	66°21' LT	3.0 -1.1 2:15 PM Tide +1.9
2	✓	63°16' "	5.0 -3.1
3	✓	59°43' "	5.0 -3.1
4	✓	56°34' "	2.0 -0.1 E edge Sand Bar
5	✓	50°30' "	0.5 +1.4 ON BAR
6	✓	44°32' "	2.0 -0.2 W edge Bar
7	✓	42°55' "	9.0 -7.2
8	✓	37°34' "	24.0 -22.2
9	✓	30°00' "	34.0 -32.2
10	✓	24°26' "	34.0 -32.2
"	✓	20°30' "	27.0 -25.3
12	✓	14°32' "	16.0 -14.3
13	✓	7°38' "	9.0 -7.3

5-22-40.34

	Δ	SDG	TIME
14	✓	4°40' LT	5.0 -3.3 2:35 PM Tide +1.7
T#1 ON 30+00 F.S. ON T#2			
28+50 ✓			STA. #12
1	✓	17°10' LT	15.0 -13.4 2:42 Tide +1.6
2	✓	33°46' "	27.0 -25.4
3	✓	43°10' "	25.0 -23.4
4	✓	59°15' "	16.0 -14.4
5	✓	69°11' "	6.0 -4.4
6	✓	71°54' "	1.0 +0.5 sand Bar
7	✓	77°28' "	1.0 +0.5 " "
8	✓	79°02' "	3.0 -1.5
9	✓	81°06' "	5.0 -3.5 IN 2 nd channel
10	✓	82°21' "	1.0 +0.5 E edge " " Tide +1.5
			SAND BAR 4 THEN 3 rd channel E OF #10 SHOT

Very Swift out-
going Current

5-22-40.
π #1 ON P.O.T. 35+46.53

0°00' Sight ON 30+00 (31+00)
Δ Sdg. TIME

STA. #13	31+00	W. edge bar	PM
1	✓ 68°42' LT	1.0 +0.3	3:16 Tide +1.3
✓	✓ 65°40' "	5.0 -3.7	
3	✓ 60°25' "	3.0 -1.7	
4	✓ 54°14' "	1.0 +0.3	
5	✓ 46°22' "	2.0 -0.7	Crossing Bar
6	✓ 42°30' "	6.0 -4.7	
7	✓ 33°55' "	12.0 -10.7	
8	✓ 24°23' "	25.0 -23.7	
9	✓ 18°02' "	29.0 -27.7	
10	↓ π #2 will get thru 100' E of B. h.	15.0 -13.7	
11	" " " " 15.0' "	25 " " "	3:34 Tide +1.3

End 5-22-40.

Weather Clear
Water BUIST

5-23-40. 35

π #1 ON 33+50

0°00' Sight ON π #2 = 22+66.11

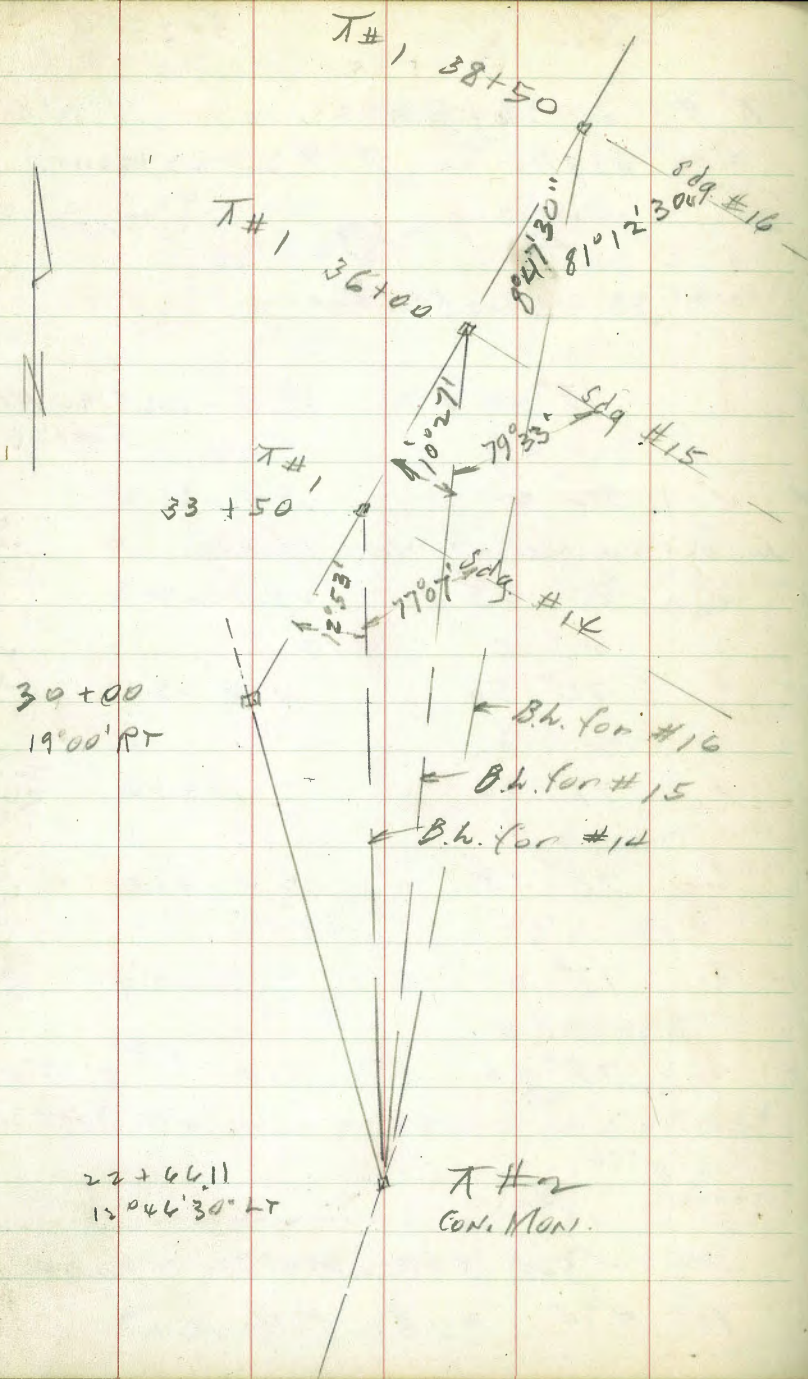
Δ Sdg. TIME

33+50 = STA. #14

1	✓ 78°44' LT	13.0 -10.2	9:20 AM Tide +2.8
✓	✓ 82°00' "	28.0 -25.2	
INCOMING current Very Strong			
3	✓ 80°05' "	23.0 -20.1	
✓	✓ 76°56' "	6.0 -3.1	
5	✓ 77°16' "	7.0 +1.0	
6	✓ 78°18' "	7.0 +1.0	
7	✓ 77°27' "	4.0 -0.9	
8	✓ 78°26' "	1.0 +2.1	9:33 AM Tide +3.1

USCG TIDE GAUGE
DATUM 2.7
8:30 AM
MB Bridge

See SKETCH next page
for #14 #15 #16



5-23-4036

Δ #1 on 36+00
 000' sight on T#2
 Δ Sdg.

Time

36+00 #15

1	✓	79° 32' LT.	1.0 +2.3	9:48 Tide +3.3
2	✓	79° 28' "	2.0 +1.3	
3	✓	79° 08' "	3.0 +0.3	
4	✓	79° 22' "	5.0 -1.7	
5	✓	78° 32' "	12.0 -8.6	
6	✓	80° 18' "	21.0 -17.6	
7	✓	81° 30' "	27.0 -23.6	
8	✓	80° 25' "	20.0 -16.5	
9	✓	82° 02' "	12.0 -8.5	
10	✓	80° 45' "	4.0 ✓ -0.5	10:03 Tide +3.5

current strong

T #1 ON STA 38+50 5-23-40
 0°00' SIGHT ON T #2

sdg. 38+50 #16
 Δ sdg.

1	✓	81° 38' LT	1.0 + 2.7	[10:16] Tide + 3.9
2	✓	81° 04' "	5.0	-1.3
3	✓	82° 35' "	10.0	-6.3
4	✓	82° 20' "	10.0	-6.3
5	✓	83° 05' "	15.0	-11.2
6	✓	81° 10' "	15.0	-11.2
7	✓	82° 05' "	6.0	-2.2
8	✓	82° 35' "	3.0	+0.9
9	✓	82° 17' "	2.0	+1.9
10	✓	81° 50' "	2.0	+1.9 10:25 Tide + 3.9

T #1 ON STA 51+00 5-23-40
 0°00' SIGHT ON T #2 = 41+40

ON Δ sdg. TIME

#17	41+40 = Δ	28° 14' Pt on Baseline		
1	✓	63° 17' LT.	1.0 + 3.2	10:50 Tide + 4.2
2	✓	60° 06' "	2.0	+2.2
3	✓	54° 57' "	1.0	+3.2
4	✓	47° 46' "	5.0	-0.8
5	✓	42° 06' "	13.0	-8.8
6	✓	37° 55' "	22.0	-17.8
7	✓	31° 46' "	17.0	-12.8
8	✓	25° 20' "	12.0	-7.8
9	✓	20° 09' "	10.0	-5.8
10	✓	15° 21' "	4.0	+0.2
11	✓	10° 59' "	2.0	+2.2 11:06

A.M.
Tide + 4.2

5-23-40

T #1 on 51+00

0°00' sight on T #2 = 43+50

A Sdg. TIME

43+50 Sdg. #18

1	✓	10°41' LT.	4.0	-0.5	12:30 Tide +3.5
2	✓	21°42' "	5.0	-1.5	
3	✓	26°50' "	10.0	-6.5	
4	✓	33°58' "	20.0	-16.5	
5	✓	40°37' "	16.0	-12.5	
6	✓	46°45' "	6.0	-2.6	
7	✓	52°37' "	1.0	+2.4	
8	✓	57°50' "	2.0	+1.4	12:40 Tide +3.4

5-23-40³⁸

T #1 on 55+46.41

0°00' sight on T #2 = 46+00

A Sdg. TIME

46+00 = Sdg. #19

1	✓	55°40' LT.	2.0	+1.1	1:14 Tide +3.1
2	✓	51°17' "	4.0	-0.9	
3	✓	45°13' "	8.0	-4.9	
4	✓	39°13' "	11.0	-8.0	
5	✓	32°56' "	18.0	-15.0	
6	✓	27°42' "	20.0	-17.0	
7	✓	21°51' "	11.0	-8.1	
8	✓	18°10' "	7.0	-4.1	
9	✓	11°52' "	4.0	-1.2	
10	✓	7°22' "	3.0	-0.2	1:43 Tide +2.8

5-23-40
T #1 on 55+46.41

0°00' sight on T #2 = STA 48+50

Δ Sdg. TIME

Sdg 48+50 #20

1 ✓ 11°37' LT 2.0 +0.9 [1:35]
Tide +2.9

2 ✓ 20°55' " 7.0 - 4.1

3 ✓ 27°30' " 10.0 - 7.1

4 ✓ 34°13' " 13.0 - 10.1

5 ✓ 41°44' " 14.0 - 11.1

6 ✓ 48°32' " 10.0 - 7.2

7 ✓ 52°17' " 11.0 - 8.2

8 ✓ 56°22' " 10.0 - 7.2

9 ✓ 62°09' " 6.0 - 3.2

10 ✓ 64°02' " 2.0 + 0.8 1:45
Tide +2.8

This line approx. on So. side of
Channel which runs Ely to
So. Causeway Bridge

Sdg STA. 51+00 5-23-40 39

T #1 on 55+46.41

0°00' sight on T #2 STA 51+00

Δ Sdg. #21 TIME

1 ✓ 75°15' LT. 4.0 - 1.4 [2:05]
Tide +2.6

2 ✓ 73°16' " 9.0 - 6.4

3 ✓ 70°00' " 13.0 - 10.4

4 ✓ 67°10' " 11.0 - 8.4

5 ✓ 63°13' " 9.0 - 6.4

6 ✓ 58°02' " 10.0 - 7.4

7 ✓ 53°04' " 10.0 - 7.5

8 ✓ 44°56' " 10.0 - 7.5

9 ✓ 37°04' " 8.0 - 5.5

10 ✓ 26°15' " 6.0 - 3.5

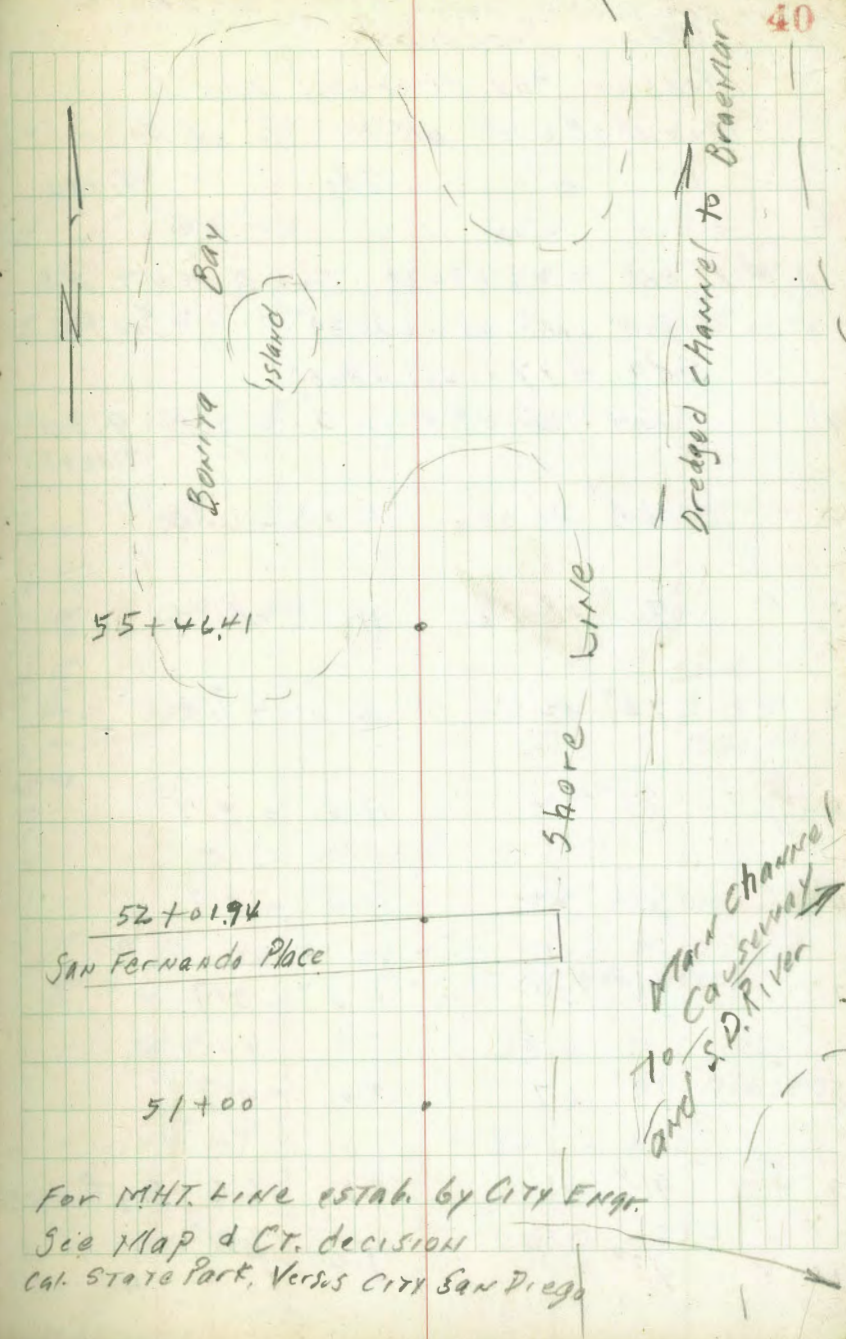
11 ✓ 19°20' " 4.0 - 1.5
2:15
Tide +2.5

T #1 on 55+46.4
0°00' sight on T #2 = 51+00

55+46.4 Sdg #22

- 1 ✓ 90°00' LT 10.0 - 7.6 2:26
Tide + 2.4
- 2 ✓ 90°30' " 9.0 - 6.4
crossing Nly channel to Braemar
- 3 ✓ 89°00' " 8.0 - 5.6
- 4 ✓ 90°25' " 5.0 - 2.6
cross sand Bar
- 5 ✓ 89°35' " 1.0 + 1.4
- 6 ✓ 89°40' " 1.0 + 1.35
- 7 ✓ 90°24' " 2.0 + 0.35
going up Ely channel to Causeway
- 8 ✓ 90°05' " 5.0 - 2.65
- 9 ✓ 89°20' " 15.0 - 12.65
- 10 ✓ 89°35' " 14.0 - 11.65 2:36 PM.
Tide + 2.35

Tie this to State Park Bay
Map of Edges.



over 1 hr. wasted thru the
 Great Am. Public. Reser. B.L.
 Ocean Sounding

5-24-40.

Mission Bay Channel Nly to
 Bird Rock or Pt. So. of False Pt.
 Sdg. TIME

T #1 ON 229+3039 True M.H.T. B.L.
 0°00' Sight on 226+80.39 Sec P.G
 Sdg. #17 = 221+80.39

1 ✓	64°10'	RT.	6.0	-3.8	9:30 Tide+2.2
2 ✓	68°56'	"	9.0	-6.8	
3 ✓	73°18'	"	11.0	-8.8	
4 ✓	76°42'	"	10.0	-7.8	
5 ✓	81°24'	"	11.0	-8.7	
6 ✓	84°21'	"	11.0	-8.7	
7 ✓	86°50'	"	11.0	-8.7	
8 ✓	89°07'	"	9.0	-6.7	
9 ✓	91°21'	"	9.0	-6.6	Big Combers
10 ✓	93°01'	"	7.0	-4.6	" "

Tide Staff M.B. Bridge
7:50 AM 1.3

Weather clear
 Water fairly quiet

41

11 ✓	94°28'	RT	9.0	-6.6	
12 ✓	95°46'	"	16.0	-13.6	
13 ✓	96°49'	"	25.0	-22.5	
14 ✓	97°57'	"	28.0	-25.5	
15 ✓	98°58'	"	30.0	-27.5	
16 ✓	99°39'	"	32.0	-29.4	
17 ✓	100°32'	"	35.0	-32.4	9:55 Tide+2.6

Sdg. #18

T #1 0°00' Sight on T #2

T #1 SAME as for Sdg. #17
 T #2 Now on True M.H.T. B.L. Sec 1479

1 ✓	103°22'	RT	35.0	-32.3	10:10 Tide+2.7
2 ✓	102°27'	"	30.0	-27.3	
3 ✓	101°37'	"	26.0	-23.3	

4	✓	99° 47' RT	12.0 - 9.2	
5	✓	98° 24' "	8.0 - 5.2	
6	✓	95° 50' "	10.0 - 7.2	Big Combers
7	✓	91° 50' "	11.0 - 8.1	Big Combers
8	✓	85° 43' "	9.0 - 6.1	
9	✓	75° 10' "	9.0 - 6.1	10:20 Tide + 2.9

Sdg # 19

π # 1 on 226 + 80.39

0°00' sight on 224 + 30.39 True MHT BL

1	✓	112° 48' RT.	8.0 - 4.8	10:40 Tide + 3.2
2	✓	112° 40' "	9.0 - 5.8	
3	✓	112° 51' "	11.0 - 7.8	
4	✓	113° 15' "	10.0 - 6.8	Big ground swell and Combers
5	✓	112° 53' "	10.0 - 6.8	

6	✓	112° 42' RT	10.0	-6.7
7	✓	113° 33' "	10.0	-6.7
8	✓	113° 15' "	11.0	-7.7
9	✓	113° 28' "	10.0	-6.7
10	✓	113° 20' "	13.0	-9.7
11	✓	113° 17' "	13.0	-9.6
12	✓	113° 42' "	12.0	-8.6
13	✓	113° 15' "	23.0	-19.6
14	✓	113° 35' "	29.0	-25.6
15	✓	113° 36' "	32.0	-28.6 11:00. Tide + 3.4

good wind now
and white caps

Boat in trough is NOT in sight

ON 40' W offset
 Ocean Sdg #20 from M.H.T. Bk.
 T #1 ON 240 + 09.12 = Sdg. #24
 0°00' sight ON T #2 ON #20

	A	Sdg	TIME
1 ✓	23° 40' RT	8.0 -4.3	12:55 Tide +3.7
2 ✓	28° 24' "	10.0 -6.3	
3 ✓	34° 16' "	10.0 -6.3	
4 ✓	39° 31' "	11.0 -7.3	
5 ✓	44° 00' "	11.0 -7.3	
6 ✓	48° 12' "	11.0 -7.4	
7 ✓	51° 18' "	11.0 -7.4	
8 ✓	54° 50' "	12.0 -8.4	big combers
9 ✓	57° 41' "	12.0 -8.4	
10 ✓	60° 19' "	11.0 -7.4	
11 ✓	63° 33' "	12.0 -8.5	
12 ✓	64° 04' "	24.0 -20.5	

	A	Sdg	TIME
13 ✓	65° 24' RT	30.0 -26.5	
14 ✓	67° 31' "	33.0 -29.5	1:20 PM Tide +3.5

Sdg #21 ON 40' W offset
 T #1 SAME AS FOR #20
 0°00' sight ON T #2

1 ✓	73° 57' RT	33.0 -29.6	1:35 Tide +3.4
2 ✓	72° 22' "	30.0 -26.6	
3 ✓	71° 16' "	26.0 -22.6	
4 ✓	69° 01' "	15.0 -11.6	
5 ✓	67° 13' "	13.0 -9.6	
6 ✓	65° 39' "	11.0 -7.7	
7 ✓	63° 26' "	10.0 -6.7	
8 ✓	61° 55' "	8.0 -4.7	TOP COMBER
9 ✓	58° 40' "	9.0 -5.7	1:45 Tide +3.3

10 Too dangerous to come nearer shore
 Big Combers!

Sdg #22

still on 40' offset
west

T#1 Same as for #20 & #21
0.00' sight on T#2 which is So. of T#1

		sdg	TIME
1 ✓	46° 22'	RT 8.0 -4.8	1.54 Tide +3.2
2 ✓	51° 20'	" 10.0 -6.8	
3 ✓	58° 00'	" 11.0 -7.8	
4 ✓	63° 23'	" 12.0 -8.8	
Now No. of School Combers			
5 ✓	67° 30'	" 7.0 -3.8	
6 ✓	70° 05'	" 10.0 -6.8	
7 ✓	72° 11'	" 14.0 -10.9	
8 ✓	74° 20'	" 17.0 -13.9	
9 ✓	75° 53'	" 23.0 -19.9	
10 ✓	76° 32'	" 26.0 -22.9	
11 ✓	77° 54'	" 29.0 -25.9	
12 ✓	78 48	31.0 -27.9	2:23 Tide +3.1

Sdg #23

40' offset 41

T#1 ON 237+591 ✓
0.00' sight to So. of T#2

		sdg	TIME
1 ✓	89° 57'	RT 35.0 -32.0	2:34 Tide +3.0
2 ✓	89° 52'	" 35.0 -32.0	
3 ✓	90° 01'	" 34.0 -31.0	
4 ✓	89° 58'	" 31.0 -28.0	
5 ✓	89° 46'	" 29.0 -26.0	
Very STRONG NLY CURRENT here			
6 ✓	89° 51'	" 26.0 -23.0	
7 ✓	90° 11'	" 21.0 -18.0	
8 ✓	90° 52'	" 15.0 -12.1	
9 ✓	90° 03'	" 11.0 -8.1	
10 ✓	90° 30'	" 14.0 -11.1	
11 ✓	89° 52'	" 13.0 -10.1	
12 ✓	89° 50'	" 12.0 -9.1	
13 ✓	90° 00'	" 7.0 -4.1	2:44 Tide +2.9

Sdg # 24 40 offset
to West. of
S.N.

π# back on 240+09.12
0°00' sight to So. on π#2

1	✓	90° 00' RT	7.0 - 4.1	2:50 Tide+2.9
2	✓	90° 03' "	10.0 - 7.1	
3	✓	90° 00' "	12.0 - 9.1	
4	✓	90° 00' "	12.0 - 9.1	
5	✓	89° 54' "	14.0 - 11.2	
6	✓	90° 02' "	14.0 - 11.2	
7	✓	90° 10' "	11.0 - 8.2	
8	✓	90° 22' "	16.0 - 13.2	
9	✓	90° 33' "	21.0 - 18.2	
10	✓	90° 18' "	26.0 - 23.3	
11	✓	90° 10' "	28.0 - 25.3	
12	✓	90° 12' "	29.0 - 26.3	
13	✓	90° 00' "	31.0 - 28.3	3:08 Tide+2.7

Sdg # 25

45

π# ON 258+09.61
A
0°00' sight ON π#2
ON True BH.
Sdg. BACK TANG.

1	✓	61° 15' RT	37.0 - 28.4	3:27 Tide+2.6
2	✓	59° 17' "	30.0 - 27.4	
3	✓	57° 18' "	28.0 - 25.4	
4	✓	54° 07' "	26.0 - 23.4	
5	✓	50° 25' "	21.0 - 18.4	
6	✓	47° 01' "	16.0 - 13.5	
7	✓	42° 40' "	11.0 - 8.5	
8	✓	37° 38' "	9.0 - 6.5	

9 is in surf. 3:45
Tide+2.5

End of 5-24-40.

Tide staff covered with seaweed

ocean Sdg. # 26

5-29-40

T #1 ON 258+09.61

0°00' SIGHT ON T #2 ON BACK TANG.

	Δ	Sdg	TIME
1. ✓	36°00' RT.	6.0 - 3.2	1:30 P.M. Tide + 2.8
2 ✓	43°26' "	7.0 - 4.2	
3 ✓	49°29' "	10.0 - 7.2	
4 ✓	54°22' "	14.0 - 11.2	
5 ✓	60°14' "	20.0 - 17.1	
6 ✓	63°21' "	25.0 - 22.1	
7 ✓	65°49' "	27.0 - 24.1	
8 ✓	67°52' "	30.0 - 27.1	
9 ✓	69°44' "	32.0 - 29.0	
10 ✓	71°17' "	34.0 - 31.0	

clear
- very Windy Sdg. # 27

46

T #1 ON 255+09.5 0°00' ON T #2 BACK T

1 ✓	90°01' RT.	35.0 - 31.9
2 ✓	89°52' "	31.0 - 27.9
3 ✓	89°37' "	30.0 - 26.9
4 ✓	89°32' "	27.0 - 23.8
5 ✓	89°32' "	25.0 - 21.8
6 ✓	89°46' "	20.0 - 16.8
7 ✓	89°50' "	16.0 - 12.8
8 ✓	89°56' "	12.0 - 8.7
9 ✓	89°53' "	9.0 - 5.7
10 ✓	89°15' "	6.0 - 2.7 2:20 P.M. Tide + 3.3

CONTD P58

Survey of M.H.T. 4.91 vsc46
 along Wly shore Mission Bay
 MISSION BEACH BRIDGE to SAN FERNANDO Pt.

HE. B.P. 3.65 11.45

$$\begin{array}{r} 9.01 \text{ San Diego Pt.} \\ - 1.21 \text{ Miss. Bldg} \\ \hline 7.80 \text{ SCAG DATUM} \end{array}$$

6.54 / 4.91 MHT

14 + 88.22

16 + 18.22

18 + 13.22

20 + 13.22

22 + 46

22 + 46.11 Δ 12° 46' 30" LT Mole #1

T.P. 522 948 719 426
 457 491

23 + 15

24

25 + 16.11

5-27-40 LT

Moore
 Osborn
 Hale

B.P. 11.45

RT

47

$$\begin{array}{r} 6.54 \\ \hline 171 \\ \hline 6.54 \quad 12.01 \\ \hline 85 \quad 75 \end{array}$$

$$\begin{array}{r} 6.54 \\ \hline 114 \end{array}$$

$$\begin{array}{r} 6.54 \\ \hline 75 \\ \hline 6.54 \\ \hline 81 \end{array}$$

$$\begin{array}{r} 13.22 \\ \hline 85 \\ \hline 13.22 \\ \hline 95 \end{array}$$

$$\begin{array}{r} 14.0 \\ \hline 7 \\ \hline 14.0 - 2.55 \end{array}$$

$$\begin{array}{r} 4.57 \\ \hline 50 \end{array}$$

$$\begin{array}{r} 4.57 \\ \hline 24 \end{array} = \text{MHT}$$

$$\begin{array}{r} 4.57 \\ \hline 13 \end{array}$$

9.48

26+16

26+40

26+45

Mole #2

26+60

"

26+75

28+50

31+00

32

T.P.

11.08

14.20

6.36

3.12

33

+10

+35

Mole #3

+45

LT.

RT.

RT.

48

4.57
24.57
354.57
884.57
904.57
704.57
84.57
54.57
39.3
449.3
909.3
1009.3
110

14.20

35+20

36

38+50

T.P. 381 11.68 6.33 7.87

40+00

41+40 Δ 28°14' RT

43+50

+80

44 Mole ± 4

+30

+40

46+00

48+50

LT

Baseline

RT

49

$\frac{9.3}{46}$

$\frac{9.3}{35}$

$\frac{9.8}{5}$

$\frac{6.77}{10}$

$\frac{6.77}{40}$

$\frac{6.77}{27}$

$\frac{6.77}{40}$

$\frac{6.77}{90}$

$\frac{6.77}{105}$

$\frac{6.77}{26}$

$\frac{6.77}{2}$

$\frac{6.77}{19}$

T.P. 6.28 11.68 14.44 3.52 8.16

51

55+46.41

T.P. 8.58 17.24 5.78 8.64

check to Srta. San Fernando 0.58 16.66 - 9.01
+ Sea Wall 7.57 7.65
0.08

LT.

Baselinc

RT.

50

9.53
78

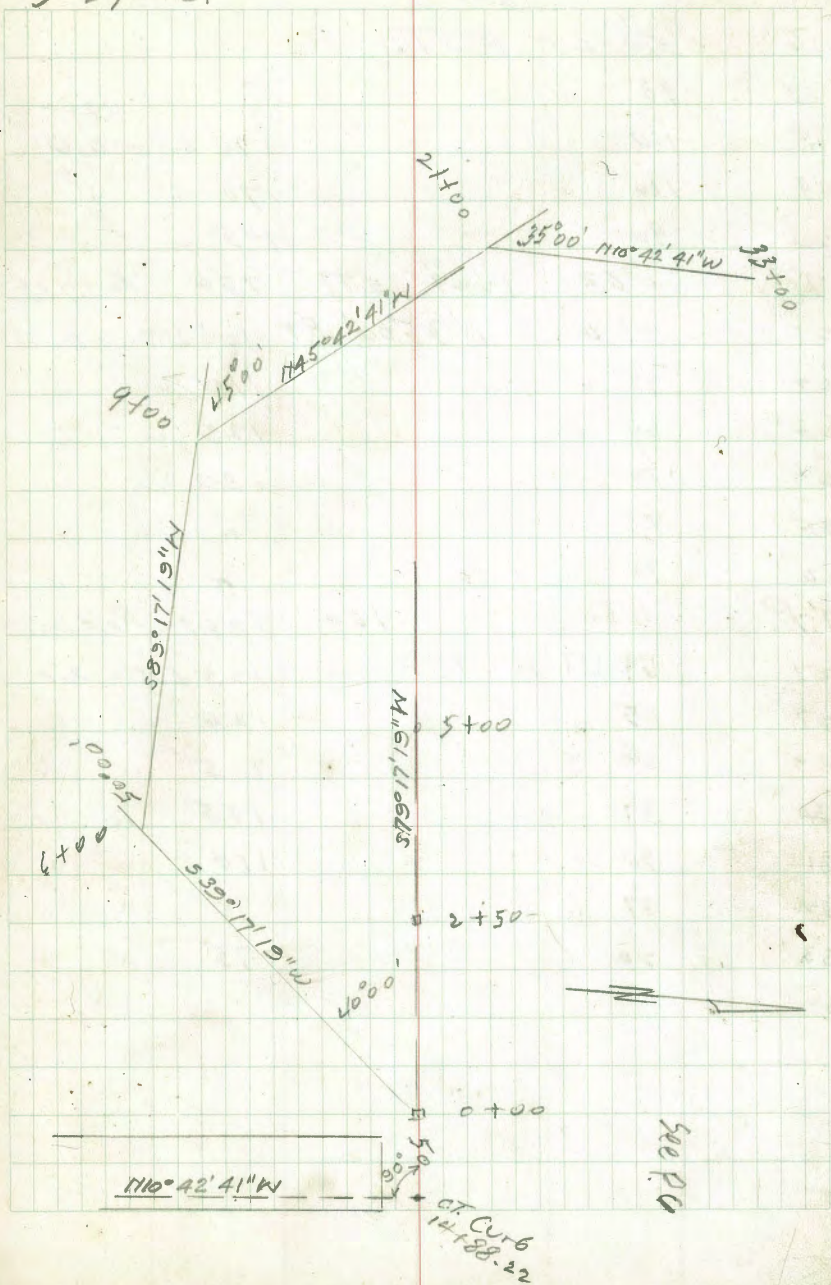
9.53
200

M.H.T. 4.91
 N side channel
 M.B. Bridge Nly to So. end of Seawall

P.M.R.P.	10.57	18.37	9.01	S.P. Pt.
			-1.21	MISS. Bld
			7.80	V8646
		13.46	4.91	

0+00	=	HUB			
1+00		29	LT.		
2+00		22	"		
3+00		16	"		
4+00		29	"		
5+00		42	"		
T.P.	4.99	10.38	12.98	5.39	Rod 5.47
6+00	3'	LT	A	50'00"	RT
7+00	10	LT			
7		72	"		
8		98	"		
9		42	"	45°00'	RT
T.P.	6.50	12.83	4.05	6.33	Rod 7.92
10		41	LT		
11		35	"		
12		30	"		
13		27	"		
14		33	"		
15		40	"		
T.P.	4.90	13.43	4.30	8.53	Rod 8.52

5-27-40.



13.43

16	50	LT	P.O.T.		
17	93	"			VSC46
18	110	"		170	LT = 0.0
19	110	"		170	" "
20	90	"		145	" "
T.P.	4.63		12.29	5.77	7.66 Rod 738
21	41	LT	Δ 3500' RT.	100	LT = 0.0
22	55	"		110	" "
23	66	"		125	" "
24	70	"		130	" "
25	71	"		"	" "
26	70	"		"	" "
T.P.	4.96		160	10.69	Rod 1072
27	69	LT	P.O.T.	125	LT = 0.0
28	65	"		120	" "
29	64	"		115	" "
30	57	"		115	" "
31	50	"		110	" "
32	37	"		90	" "
33	20	"		75	" "

M.H.T. of 5-28-40
 " " JAN. - 39.

Newport N.Y. to M.B. Bridge

CITY			9.01	abbott
NEBP	0.93	16.44	4.50	Newport
			15.57	USCG.
		11.53	4.91	M.H.T.

153 + 85.80 = Δ 50° 49' 30" LT. -4.0
245

155 + 48.21 INT.

158

160-150

T.P. 3.98 13.37 7.10 9.34 Rod 841

163

165 + 50

168

169 + 27.95 M.H.T. Lowden
Survey 46° 36' 07" RT.
1407

170 + 50

LT.

Baseline

RT.

53

M.H.T. 5-28-40.
 USCG
 zero

approx. M.H.T.
 JAN. 1939

0.0 M.H.T.
 $\frac{0.0}{210}$ 95

M.H.T.
 $\frac{0.0}{36}$ = R.I.P
 = Tide

0.0
 $\frac{0.0}{290}$ 106

75

0.0
 $\frac{0.0}{300}$ 195

107

0.0
 $\frac{0.0}{252}$ 117

100

-4.0 $\frac{0.0}{160}$ 75 = 161 + 50 = R.I.P Tide

0.0
 $\frac{0.0}{200}$ 95

150

0.0
 $\frac{0.0}{325}$ 147

120

0.0
 $\frac{0.0}{405}$ 205

200

0.0
 $\frac{0.0}{465}$ 190

275

0.0
 $\frac{0.0}{420}$ 165

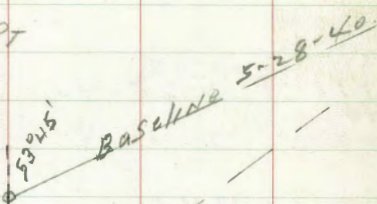
350

13.32
 T.P. 507 12.64 5.75 7.57 Rod 7.78

172+50 ^{1" Pipe} Δ 53°45' RT

175

1" Pipe = 172+50



170+50

169+27.95

168+00

London
 Baseline
 F.B. 1407

see p 11

177+00

T.P.
 179 P.O.T. 568 11.92 6.50 6.24 Rod 7.01

181

183

185 Δ 33°35' RT.

T.P. 490 10.87 5.95 5.97 Rod 5.96

LT

RT

54

M.H.T. 5-28-40 M.H.T. JAN. 1939
 Zero MHT

$\frac{0.0}{510}$ 75 ON SPLIT OF A

$\frac{0.0}{480}$ 95

$\frac{0.0}{620}$ 57

450

25

570

24

320

24

130 Ocean Village
 Bulkhead

14

118

channel Edg.
 will show these

10.87

187

188 Δ 7° 54' RT.

B.M. B.P. 3.04

15.27

15046

12.23

B.P. Curd
Send Bridge

T.P. 3.60

13.42

5.45

9.82

Rod 8.51

190

191

192

193

193+48

LT.

5-28-40.

57

29

78

10

1

21

BASELINE

RT

Jan 1939

55

60 Bulkhead

29

55

47

40

10

188+00

7° 54'

M.B. Bridge

193+48

Channel Sdg.
bet. M.B. Bridge + Surf.

STA. 2+50

T#1 ON 0+00, 0'00' FS ON 9+70

T#2 " 9+70 " " " 0+00

	Δ	Sdg.	TIME
1 ✓	79° 20' LT	0.0	+0.9 9:50 A.M. Tide +0.9
2 ✓	78° 50' "	12.2	-11.1
3 ✓	77° 26' "	9.0	-8.1
4 ✓	76° 33' "	8.0	-7.1
5 ✓	75° 17' "	5.0	-4.1
6 ✓	72° 42' "	8.0	-7.1
7 ✓	69° 22' "	8.0	-7.1
8 ✓	64° 58' "	3.0	-2.1
9 ✓	59° 51' "	3.0	-2.1
10 ✓	50° 46' "	0.0	+0.9

5-29-40
clear + quiet

M.B. Tide STAFF
9:04 A.M. 1.8

T#1 + T#2

58

STA. 5+00

SAME

1 ✓	41° 52' LT	0.0	+0.9
2 ✓	47° 50' "	2.0	-1.1
3 ✓	53° 21' "	10.0	-9.1
4 ✓	58° 21' "	15.0	-14.1
5 ✓	61° 51' "	9.0	-8.1
6 ✓	64° 31' "	8.0	-7.1
7 ✓	65° 19' "	5.0	-4.1
8 ✓	67° 27' "	0.0	+0.9 10:12 Tide +0.9
		T#1	
	7+50	T#2	SAME
1 ✓	54° 54' LT.	0.0	+0.9
2 ✓	52° 40' "	5.0	-4.1

3	✓	48° 18' LT	10.0	-9.1
4	✓	44° 31' "	11.0	-10.1
5	✓	40° 07' "	11.0	-10.0
6	✓	37° 05' "	5.0	-4.0
7	✓	33° 24' "	0.0	+1.0

STA 9 + 70
 X#1
 X#2 SAME

1	✓	10° 21' LT	0.0	+1.0
2	✓	18° 21' "	0.3	+0.8
3	✓	23° 52' "	2.0	-0.9
4	✓	29° 01' "	8.0	-6.9
5	✓	34° 07' "	11.0	-9.9
6	✓	39° 44' "	10.0	-8.8

57
 7 ✓ 43° 30' LT 5.0 -3.8

8 ✓ 45° 28' " 0.0 +1.2

STA 9 12 + 50
 X#1
 X#2 SAME

1 ✓ 35° 46' LT 0.0 +1.2

2 ✓ 33° 22' " 5.0 -3.7

3 ✓ 29° 59' " 10.0 -8.7

4 ✓ 25° 37' " 13.0 -11.7

5 ✓ 21 36 11.0 -9.7

6 ✓ 18° 03 7.0 -5.6

7 ✓ 15° 10 3.0 -1.6

8 ✓ 11° 15 0.0
 +1.4
 Tide +1.4
 11:02 AM

5-29-40. Tide turned in 10:35 "
 Tide staff 1.8 11:10 AM.

Cont from
P 46

Sdg # 28

5-29-40

T # 1 on Sdg # 28 = 258 + 0.6

0°0' sight on T # 2 Back Tang. 2:35 assumed
Sdg. Tide + 3.4

1 ✓ 87°32' RT 7.0 - 3.6

2 ✓ 91°11' " 9.0 - 5.6

3 ✓ 89°34' " 10.0 - 6.6

4 ✓ 89°52' " 15.0 - 11.6

5 ✓ 89°51' " 18.0 - 14.6

6 ✓ 90°07' " 22.0 - 18.5

7 ✓ 89°53' " 24.0 - 20.5

8 ✓ 90°06' " 25.0 - 21.5

9 ✓ 90°04' " 27.0 - 23.5

10 ✓ 89°51' " 29.0 - 25.4

11 ✓ 89°55' " 30.0 - 26.4

58

12 ✓ 89°40' RT 31.0 - 27.4

13 ✓ 90°09' " 34.0 - 30.4
2:54
Tide + 3.6

Ocean Sdg # 29 = 263 + 09.80 Sdg

T # 1 on Sdg # 29 0°00' on T # 2 on T # 8

1 ✓ 89°30' RT 33.0 - 29.3 3:10

Tide + 3.7

2 ✓ 90°04' " 31.0 - 27.3

3 ✓ 89°58' " 29.0 - 25.3

4 ✓ 89°30' " 26.0 - 22.3

5 ✓ 90°03' " 28.0 - 19.3

6 ✓ 89°38' " 20.0 - 16.2

7 ✓ 88°53' " 17.0 - 13.2

8 ✓ 90°10' " 15.0 - 11.2

9 ✓ 90°17' " 10.0 - 6.2

10 ✓ 88°05' " 7.0 - 3.2
3:20
Tide + 3.8

5dg #30 Very Windy White Caps

T#	ON V	(31)	0°00' ON T#2		
T# 2	"	248+10		5-29-40	
1	✓	43°54' RT	6.0	-2.1	
2	✓	51°34' "	10.0	-4.1	
3	✓	54°16' "	11.0	-7.0	
4	✓	58°41' "	15.0	-11.0	3:40 Tide+4.0
5	✓	63°07' "	19.0	-15.0	
6	✓	65°48' "	22.0	-18.0	
7	✓	67°28' "	25.0	-20.9	
8	✓	69°58' "	27.0	-22.9	
9	✓	72°20' "	30.0	-25.9	
10	✓	73°44' "	32.0	-27.8	
11	✓	74°54' "	34.0	-29.8	3:55 Tide+4.2

Ocean Edg #31 Ventura Pt 59
T#1 ON 0°00' ON T#2

T#	ON	248+10			
T# 2	"	248+10			
1	✓	90°15' RT	35.0	-30.8	
2	✓	89°42' "	33.0	-28.8	
3	✓	90°04' "	31.0	-26.7	
4	✓	89°37' "	28.0	-23.7	4:10 Tide+4.3
5	✓	89°07' "	25.0	-20.7	
6	✓	89°42' "	22.0	-17.7	
7	✓	89°49' "	17.0	-12.6	
8	✓	90°04' "	15.0	-10.6	
9	✓	89°54' "	8.0	-3.6	
10	✓	89°42' "	5.0	-0.6	PM. 4:22 Tide+4.4

End 5-29-40.

Sdg # 32

5-31-40.

T #1 ON 285+10.62 0°00' ON 273+86.85

	A	Sdg.	TIME
1	✓ 89° 41' RT.	11.0 - 9.2	10:00 Tide+1.8
2	✓ 89° 48' "	15.0 - 13.2	
3	✓ 89° 46' "	20.0 - 18.2	
4	✓ 89° 35' "	25.0 - 23.3	
5	✓ 90° 06' "	27.0 - 25.3	
6	✓ 90° 23' "	29.0 - 27.3	
7	✓ 90° 09' "	30.0 - 28.4	
8	✓ 89° 20' "	33.0 - 31.4	No time Tide+1.6?

Weather clear & windg
white caps & big ground swell

Sdg. # 33

60

T #1 ON 285+10.62 0°00' ON 296+10.44

1	✓ 43° 27' LT.	34.0 - 32.5	10:40 Tide+1.5
2	✓ 41° 14' "	31.0 - 29.5	
3	✓ 58° 31' "	29.0 - 27.5	
4	✓ 56° 03' "	27.0 - 25.6	
5	✓ 53° 01' "	25.0 - 23.6	
6	✓ 48° 56' "	21.0 - 19.6	
7	✓ 44° 26' "	17.0 - 15.6	No time Tide+1.4?

big combers here

Sdg # 34
 T #1 ON 305+50. 0.00 ON 296+44.44
 A Sdg TIME

1	✓	90°11'	RT.	14.0	-12.8	11:10 Tide+1.2
2	✓	90°20'	"	15.0	-13.8	
3	✓	90°10'	"	18.0	-16.8	
4	✓	89°52'	"	22.0	-20.8	
5	✓	88°50'	"	24.0	-22.8	
6	✓	90°21'	"	25.0	-23.8	
7	✓	89°38'	"	27.0	-25.8	
8	✓	89°06'	"	30.0	-28.8	
9	✓	89°54'	"	31.0	-29.8	
10	✓	89°44'	"	34.0	-32.8	11:23 Tide+1.2

Sdg # 35 61
 T #1 ON 315+11.76
 0.00 ON T #2 ON 309+11.58 - A 40°26'15" E

1	✓	89°49'	RT.	33.0	-31.8	11:45 Tide+1.2
2	✓	90°15'	"	28.0	-26.8	
3	✓	89°17'	"	26.0	-24.7	
4	✓	89°45'	"	24.0	-22.7	
5	✓	89°47'	"	18.0	-16.7	
6	✓	89°31'	"	16.0	-14.6	
7	✓	89°53'	"	11.0	-9.6	12:00 Tide+1.4

called sdg. off in P.M.
 Too windy & rough.

END 5-31-40

Sdg. # 38 M.H.T. true B.L.
 T # 1 on 352+63.70 0°0' on T # 2
 T # 2 on 345+00

1	✓	50°29'	RT.	11	-8.3
					10:55 Tide+2.7
2	✓	56°02'	"	14	-13.3
3	✓	60°59'	"	21	-18.3
4	✓	64°15'	"	25	-22.3
5	✓	67°05'	"	26	-23.4
6	✓	68°31'	"	28	-25.4
7	✓	70°02'	"	30	-27.4
8	✓	71°04'	"	30	-27.4
9	✓	72°08'	"	32	-29.5
10	✓	73°12'	"	33	-30.5
11	✓	74°08'	"	34	-31.5
12	✓	74°31'	"	35	-32.5
					Tide+2.5 11:13

11:55 one life guard got Mail de Mare
 Got News " " for P.M.

Sdg. # 39 63
 T # 1 on 86' Ely offset Sdg. Baseline
 " " " 350+00 0°00' on T # 2
 T # 2 on 355+00 84' offset Ely

1	✓	61°04'	LT.	10	-8.2	1:30 Tide+1.8
2	✓	65°30'	"	15	-13.2	
3	✓	68°10'	"	17	-15.2	
4	✓	70°43'	"	21	-19.2	
5	✓	71°53'	"	22	-20.1	
6	✓	74°14'	"	26	-24.1	
7	✓	75°20'	"	27	-25.1	
8	✓	76°58'	"	28	-26.1	
9	✓	78°00'	"	30	-28.0	
10	✓	78°48'	"	31	-29.0	
11	✓	79°32'	"	33	-31.0	1:45 Tide+2.0

Sdg. # 41
 T # 1 on 384+0274 0°00' on T # 2
 T # 2 " 375+00 86' OFFSET Bk.

1	✓	45°11'	RT.	11.0	-8.2	2:50 Tide + 2.8
2	✓	49°40'	"	15	-12.2	
3	✓	52°24'	"	17	-14.2	
4	✓	55°14'	"	20	-17.2	
5	✓	58°00'	"	21	-18.2	
6	✓	60°25'	"	24	-21.2	
7	✓	63°12'	"	25	-22.2	
8	✓	65°03'	"	26	-23.1	
9	✓	67°18'	"	27	-24.1	
10	✓	68°55'	"	28	-25.1	
11	✓	70°38'	"	30	-27.1	
12	✓	71°35'	"	31	-28.1	
13	✓	73°42'	"	34	-31.1	Tide + 2.9 3:00

Sdg. # 42 for 65
 T # 1 & T # 2 SAME AS Sdg # 41

1	✓	89°54'	RT.	33.0	-29.8	3:17 Tide + 3.2
2	✓	90°00'	"	32	-28.8	
3	✓	90°06'	"	30	-26.8	
4	✓	90°06'	"	27	-23.8	
5	✓	90°10'	"	26	-22.8	
6	✓	90°02'	"	24	-20.7	
7	✓	90°04'	"	16	-12.7	
8	✓	89°57'	"	20	-16.7	
9	✓	90°16'	"	15	-11.7	
10	✓	89°58'	"	12	-8.7	3:30 Tide + 3.3

Sdg. # 43 off Loring St
 T#1 on 395+2594 0°0' on T#2
 130' offset Ely of M.H.T. Baseline See P 16

1	✓	90°08' LT	10	-6.4	3:55 Tide+3.6
2	✓	90°13' "	15	-11.4	
3	✓	90°06' "	20	-16.4	
4	✓	90°12' "	22	-18.4	
5	✓	90°04' "	23	-19.3	
6	✓	89°54' "	25	-21.3	
7	✓	90°06' "	27	-23.3	
8	✓	90°11' "	28	-24.3	
9	✓	90°11' "	30	-26.2	
10	✓	90°02' "	31	-27.2	
11		90°03' "	33	-29.3	4:10 Tide+3.8

Plot Loring St. Sewer outfall elev.

Sdg. # 44 66
 T#1 & T#2 SAME AS FOR Sdg. #43

1	✓	70°24' LT	34	-30.1	4:15 Tide+3.9
2	✓	68°54' "	30	-26.1	
3	✓	66°25' "	27	-23.1	
4	✓	64°37' "	22	-18.1	
5	✓	61°37' "	20	-16.1	
6	✓	59°50' "	16	-12.0	
7	✓	54°54' "	15	-11.0	
8	✓	50°43' "	14	-10.0	
9	✓	47°58' "	13	-9.0	4:30 Tide+4.0

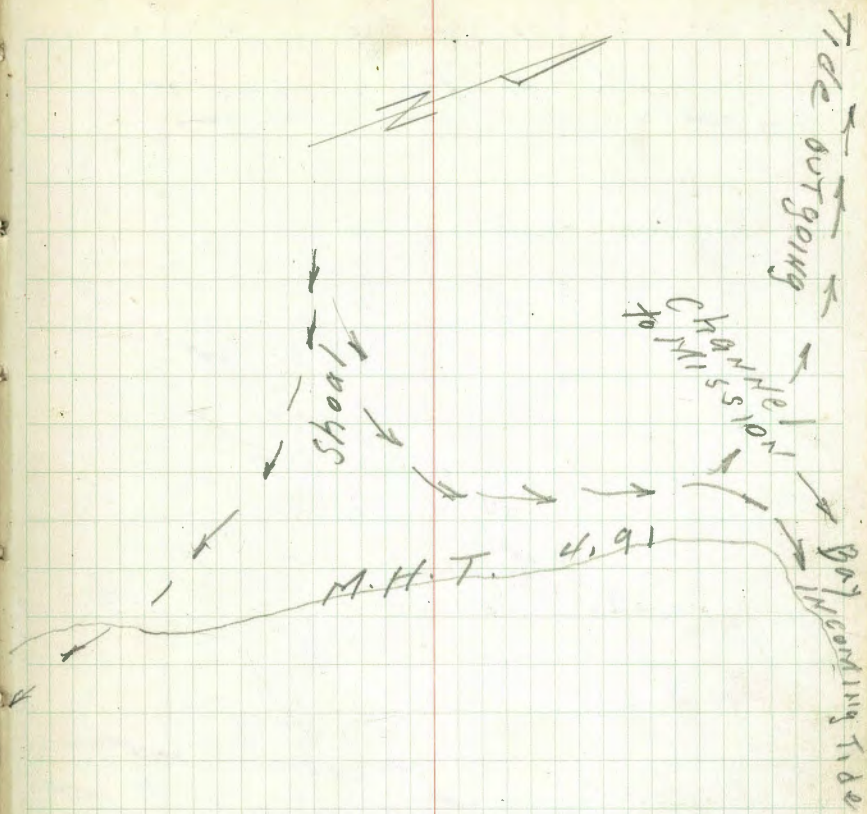
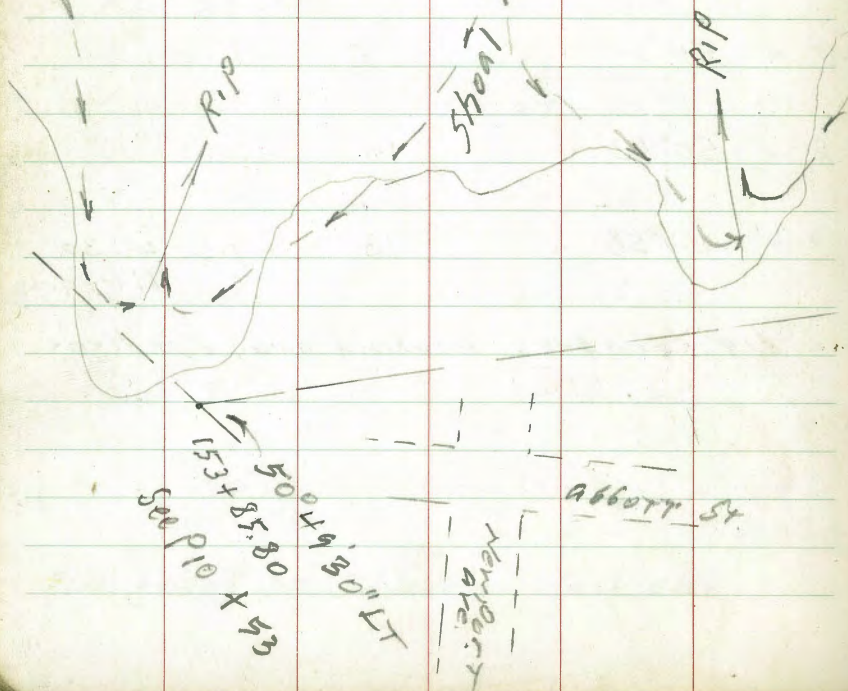
big combbers breaking away out here

This condition has existed for
past 4 years to my knowledge.

Moore

Nly drift
current approx. 20% of year
2000' off shore

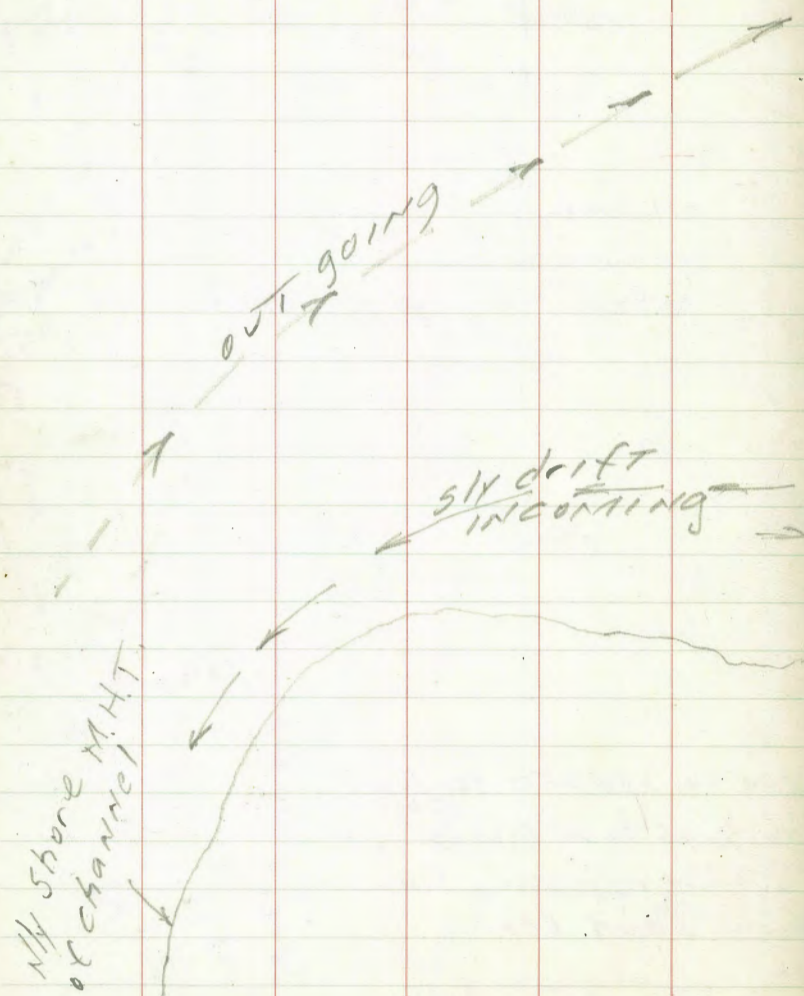
INSHORE CURRENTS
caused thru waves
regardless of INCOMING
or OUTGOING TIDES



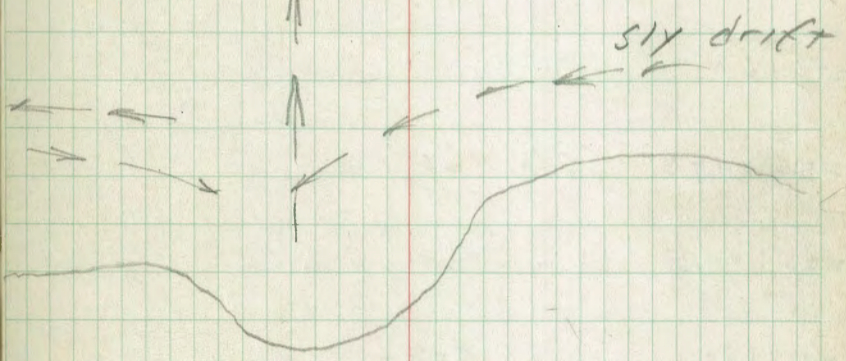
0+00 to 150+50 SANDROCK
SHORE
with 25 to 60' CLIFFS
150+50 Nly very fine
blow sand beach

1570±5
172+50 1" PIPE

100000z trip in
Nly drift 2000' out



Rip Tide
outgoing



MHW = M.H.T. and 0.0 USC & G. datum
 4.91 along Ocean Shore
 S. end Mission Nly to Loring St.

237+59.12 Sdg #23

239 approx on S. end Mission Beach seawall

240+09.12 Sdg #24

242+76 E Miss. Beach S.

244+09.12 Middle of Rip.

245+09.12 Sdg #25

246+60

250+09.31 Sdg #26

255+09.5 " #27

258+09.61 " #28

262

263+09.8 " #29

L.T.

0.0 M.H.T.

$\frac{0.0}{330}$ M.H.T. 230

$\frac{0.0}{302}$ M.H.T. 226

$\frac{2.0}{285}$ 211

$\frac{-2.0}{280}$ $\frac{0.0}{230}$ 190

$\frac{-4.0}{245}$ $\frac{0.0}{210}$ 180

$\frac{-4.0}{275}$ $\frac{0.0}{240}$ 195

$\frac{-4.0}{340}$ $\frac{0.0}{300}$ 226

$\frac{0.0}{260}$ 195

$\frac{0.0}{265}$ M.H.T. 201

250 168

220 120

$\frac{0.0}{200}$ M.H.T. 121

True Baseline see L.D. 1409

Moore 69
 Osborn
 Hale 6-7-40.

264+60 Middle rap

266+00

268+10 Sdg #30

273+85.85 " #31

285+10.02 " #32

294+00.00 " #33

305+50 #34

315+11.78 #35

325+12.13 #36

335+02.64 #37

345+00 #38

355+00 #39

Crystal Pier Sdg 6-7-40. 2:15 PM.

get your Tide Table

Crystal Pier Staff USCG 20

LT 0.0 MHT

$\frac{4.0}{205}$ $\frac{0.0}{145}$ $\frac{MHT}{94}$

$\frac{4.0}{230}$ $\frac{170}{170}$ $\frac{110}{110}$

$\frac{220}{220}$ $\frac{137}{137}$

$\frac{280}{280}$ $\frac{125}{125}$

$\frac{190}{190}$ $\frac{85}{85}$

$\frac{225}{225}$ $\frac{111}{111}$

$\frac{250}{250}$ $\frac{130}{130}$

$\frac{285}{285}$ $\frac{152}{152}$

$\frac{240}{240}$ $\frac{130}{130}$

$\frac{275}{275}$ $\frac{148}{148}$

$\frac{270}{270}$ $\frac{135}{135}$

$\frac{190}{190}$ $\frac{51}{51}$

Crystal Pier MHT

$\frac{sdg}{12}$ $\frac{8}{795}$ $\frac{sdg}{600}$ $\frac{7}{400}$ $\frac{sdg}{4}$ $\frac{sdg}{200}$ $\frac{MHT}{22}$

end Pier

375+00 Sdg # 41

384+02.74 " # 42

off boring^{st.} " # 43

" # 44 P 16

LT

RT

0.0 M.H.T.
190 45

220 70

190 35

60

True M.H.T. B.L.

M.H.T.
70

Moore
Osborn
Hall
8-20-40

Cross Section of Ocean
Beach Shore Line

STA. 153+85.80 Nly to 172+50

Additional Xsec. Notes

1.63+00 = Current Observation
(Sdg. line No. 11) 2.5
12.4
250

160+50 (Sdg. line No. 10) 3.1
11.8
340

T.P. 5.77 14.89 6.66 9.12

158+00 (Sdg. line No. 9)

155+68.21 INT. OF N 9' LINE of Newport Ave
(Sdg. line No. 8)

153+85.80 Δ 50°49'30" LT. Sdg. line #7
CURRENT OBSERVATION

NEBP 0.27 15.78
U.S.C & G DATUM 6.50
Newport ABBOTT 15.51
9.01

LT.

M.H.T.
B.L.

RT.

72

3.2	4.9	9.3	8.8	8.9	10.5	9.89	9.8	11.9	12.3	14.1
11.7 227	10.0 199	5.6 150	6.1 100	6.0 60	4.4 30	5.0 46	5.1 88	3.0 190	7.6 235	0.8 245
										dunes
4.9	7.8	8.8	9.4	10.1	9.2	9.4	10.6	13.2	15.4	
10.0 232	7.1 190	6.1 142	5.5 75	4.8 60	5.7	5.5 50	4.3 100	1.7 200	1.15 250	
										dunes
3.4	4.9	7.5	9.6	14.89						
12.4 280	10.9 220	8.8 175	6.2 100	9.0	6.8	6.3 55	4.1 115	11.7	12.8	10.0 200
3.6	4.9	7.4	8.7	8.8	12.2	14.2				
12.7 270	10.9 225	8.4 160	7.1 100	7.0	3.6 78	1.6 78				Top floor Bldg. Wall
4.0	4.9	8.6	9.0	12.8						
11.8 290	10.9 266	7.2 115	6.0	3.0 36	0.48 30	15.30				Top cent. Sea Wall

Xsec at 90° with B.L.

8-20-40

Set B.M. on 1" pipe 172+50 7.19 7.18 USCG

172+50 Current observation

172+50 1" pipe 17°42'30" RT, (Sdg. line No. 15)

170+50 (Sdg. line No. 14)

T.P. 5.41 14.37 5.93 8.96

168+00 (Sdg. line No. 13)

165+50 (Sdg. line No. 12.) $\frac{11.8}{250}$

14.89

LT.

M.H.T.
B.L.

RT.

73

9.7
$\frac{4.7}{600}$
$\frac{3.7}{700}$
$\frac{2.7}{720}$

1.4	4.9	9.6	8.1	7.5	7.7	8.0	8.4	10.0	10.0
$\frac{13.0}{200}$	$\frac{9.5}{123}$	$\frac{4.8}{75}$	6.3	$\frac{6.9}{100}$	$\frac{6.7}{200}$	$\frac{4.4}{250}$	$\frac{6.0}{300}$	$\frac{4.4}{400}$	$\frac{4.4}{500}$

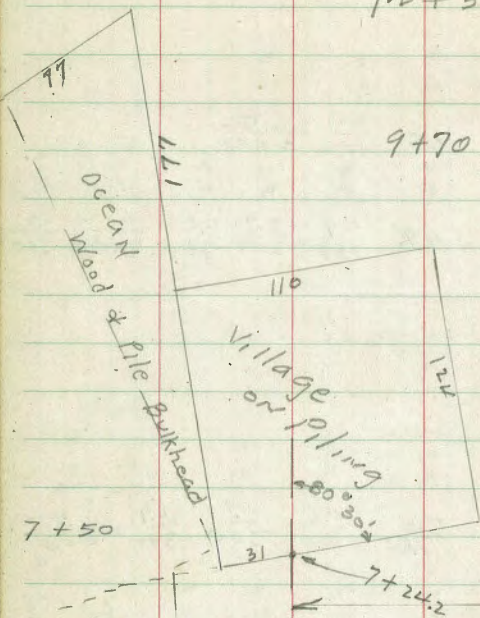
4.1	2.0	4.9	9.7	7.8	7.4	8.1	10.0	11.2
$\frac{13.3}{195}$	$\frac{12.4}{185}$	$\frac{9.5}{149}$	$\frac{4.7}{110}$	6.6	$\frac{7.0}{85}$	$\frac{6.3}{160}$	$\frac{4.4}{300}$	$\frac{3.7}{400}$

2.3	3.2	4.9	10.5	8.2	$\frac{14.37}{7.9}$	8.4	7.1	11.6	12.7
$\frac{12.6}{300}$	$\frac{11.7}{230}$	$\frac{10.0}{202}$	$\frac{4.4}{150}$	$\frac{6.7}{55}$	7.0	$\frac{6.5}{25}$	$\frac{5.8}{100}$	$\frac{3.3}{200}$	$\frac{2.7}{210}$

4.9	8.2	9.5	9.7	10.2	8.5	9.9	13.3	14.3
$\frac{10.0}{209}$	$\frac{6.7}{180}$	$\frac{5.4}{165}$	$\frac{5.2}{100}$	$\frac{4.7}{75}$	6.4	$\frac{5.0}{100}$	$\frac{1.6}{185}$	$\frac{0.6}{225}$

14.89

Xsec Beach S. side Channel
8-22-40 West of Mission Bay Bridge



7+50
5+100
T.P. Nail in Pile 3.66 12.95 8.63 9.29 9.35
2+50 0.06

0+100 Mission Bay Bridge

B.M.B.P. in Curb on E.L. 5.68 17.97 12.24 Sand Mission Bay Bridge USC + G.

12+50
10.9 7.6 8.5 7.2
2.8 4.1 5.2 4.5
1770 1410 1420 1380
Sand

9+70
17.7 11.5
+4.0 2.5
1540 1530
Top Rock Rip Rap Foot Voltairre St
Sand at Rip Rap

Deck of ocean Village sand at Bulkhead

1268.2

T.P. Bulkhead 12.2 7.5 9.0 7.6 4.9
0.8 3.5 4.0 5.1 8.1
1289 1289 1270 1268 1247
Sand

8+100
7.1 7.5 6.7 4.9 2.95
1427 1416 1360 1344
Top Rock Rip Rap

6+100
6.2 7.0 6.9 4.8
1445 1444 1435 1418
Top Bridge Bulkhead

17.97

LT plotted on S.K.

Baseline N. side channel 75 p. 2

5.9 5.9 2.9 5.7
7.8 7.8 7.0 8.0
1260 1300 1290 1140

4.9 9.0 9.3 5.0 5.1
4.9 4.7 4.4 8.7 8.6
1400 1338 1295 1230 1150

AGAINST Bulkhead

13.68

T.P.
12.95
3.85
9.10
4.58
13.68

13.4 9.6 9.0 4.3
+2.4 3.4 4.0 7.7
1303 1268 1235

12.2 7.5 9.0 7.6 4.9
0.8 3.5 4.0 5.1 8.1
1289 1289 1270 1268 1247
Sand

8+100
7.1 7.5 6.7 4.9 2.95
1427 1416 1360 1344
Top Rock Rip Rap

6+100
6.2 7.0 6.9 4.8
1445 1444 1435 1418
Top Bridge Bulkhead

Moore
Deborah
Male
8-21-40
Xsec Beach from
Channel Nly to Loring ST

237+59.17 Sdg. Line #23

T.P. 5.66 16.09 5.60 10.43

235+09.12 Sdg. #22

232+59.17 Sdg. Line #21

229+30.39 Δ True M.H.T. Baseline
Sdg #20 SET B.M. on Hub
7.03 = 9.00 EL.

Hub
T.P. 7.54 16.03 5.81 8.51

226+30.39 Sdg. Line #19

224+30.39 Sdg. Line #18

221+30.39 Sdg. Line #17

220+10.39 Sdg. Line #16
14.37
SET B.M. on Hub
936
USCAG

40' offset
Baseline Sexp. 6 25

WT	WT	WT	WT	WT	RT
2.4	11.3	12.0	11.4	11.5	12.7
13.7 225	4.8 105	4.1 25	4.7	4.6 20	3.7 35
					against fence
2.4	8.0	12.0	16.09	10.3	14.0
13.6 237.5	8.0 75	4.0 11.3	5.8	5.7 93	3.0 80
					10.3 100
13.7 120	9.7 55	4.7 11.3	5.8	4.7 100	5.7 200
					11.1 100
	12.7 90	4.7 10	5.4	7.2 100	5.7 200
					8.0 200
					8.2 275
					4.9 275
					9.9 300
					10.6 300
2.9	10.3	9.6	8.9	9.6	16.03
11.2 240	4.0 140	4.7 100	5.4 55	4.7 45	5.1 85
					8.5 80
					7.7 115
					8.4 200
					9.9 250
					10.9 300
3.1	9.9	7.8	7.9	9.6	9.7
11.2 280	4.4 195	6.5 100	6.9 60	4.7 10	4.6 45
					7.7 100
					7.6 200
					9.3 300
					9.5 300
					10.7 300
3.1	9.1	7.7	6.8	7.0	9.6
11.7 445	5.7 400	6.6 300	7.5 200	7.3 175	4.7 115
					8.2 57
					8.2 100
					5.7 200
					9.3 200
					9.7 300
3.3	8.5	7.3	6.9	7.2	9.4
11.0 490	5.8 400	7.0 300	7.4 200	7.1 100	4.9 25
					4.9 25
					9.36 A
					Hub 9.36
					14.37

268+10 Sdg. #30
FRONT of Mission Beach Bath House

263+09.80 Sdg #29

258+09.61 Δ Sdg #28

255+09.50 CT. Sdg. Line #27

250+09.31 C.T. POT. Sdg #26
SAN Gabriel Pl 6.99 - CITY B.M.
+ Seawall 9.01
16.00 = Top USCTG

END 8-21-40.

245+09.17 Sdg line #25

240+09.12 Sdg. Line #24

239 approx. S. end Mission Beach

16.09

M.H.T. B.L. 77

LT	7.1	7.9	7.5	
	$\frac{94}{140}$	$\frac{6.6}{105}$	$\frac{7.0}{20}$	8-22-40. Hard level off Seawall
	7.4	7.8	10.8	16.50
	$\frac{9.1}{150}$	$\frac{6.7}{110}$	$\frac{5.7}{8}$	
	7.2	10.3	10.4	12.4
	$\frac{9.3}{190}$	$\frac{6.7}{145}$	$\frac{6.1}{55}$	$\frac{4.1}{8}$
	7.7	10.5	10.5	12.5
	$\frac{9.8}{175}$	$\frac{6.0}{150}$	$\frac{6.0}{85}$	$\frac{4.0}{5}$
	7.8	10.9	10.4	12.8
	$\frac{8.7}{185}$	$\frac{5.1}{155}$	$\frac{5.6}{95}$	$\frac{3.7}{45}$
				16.00 USCTG
	8.2	11.2	10.4	11.7
	$\frac{7.9}{145}$	$\frac{4.9}{135}$	$\frac{5.7}{100}$	$\frac{4.4}{20}$
	11.4	11.4	11.1	16.1
				110' W offset Baseline p 6
	11.5	4.9	8.8	11.3
	$\frac{14.6}{230}$	$\frac{11.7}{140}$	$\frac{7.3}{105}$	$\frac{4.8}{95}$
				10.7
				12.2
				11.8
				16.11
				15 Sand
				+ 0.02 15 = Top can. Seawall
				B.M. B.P. S. end Seawall + 0.03
				16.12
				16.14
				0.02
				16.09

325+12.13

Sdg # 36

315+11.76

Sdg. # 35

305+50

Sdg # 34

296+12.44

Sdg # 33

285+10.62

Sdg # 32

273+86.85 Ventura Pl. Sdg. Line # 31

Current Observation Point

LT.

MHT.
BL.

RT.

78

5.3	9.8	9.8	11.4
$\frac{10.7}{170}$	$\frac{6.2}{105}$	$\frac{6.2}{100}$	$\frac{4.4}{7}$

6.0	10.0	10.0	11.9
$\frac{10.0}{165}$	$\frac{6.0}{105}$	$\frac{6.0}{100}$	$\frac{4.1}{7}$

6.4	10.0	9.9	11.6
$\frac{9.6}{130}$	$\frac{6.0}{100}$	$\frac{5.1}{97}$	$\frac{5.4}{4}$

5.7	10.0	10.0	
$\frac{10.3}{125}$	$\frac{6.0}{70}$	$\frac{6.0}{50}$	

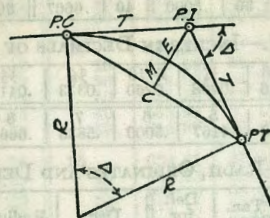
5.7	8.6	11.6	
$\frac{10.3}{140}$	$\frac{7.4}{90}$	$\frac{4.4}{8}$	

5.9	10.0	10.1	16.00
$\frac{10.6}{150}$	$\frac{6.5}{90}$	$\frac{4.4}{77}$	$\frac{16.00}{3}$

16.50

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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CURVE FORMULAS

Radius= $R = \frac{50}{\sin. \frac{D}{2}}$ (1) Degree of Curve= D and $\sin. \frac{D}{2} = \frac{50}{R}$ (2)

Tangent= $T = R \tan \frac{\Delta}{2}$ (3) Length of Curve= $L = 100 \frac{\Delta}{D}$ (4)

Middle ordinate= $M = R(1 - \cos. \frac{\Delta}{2})$ (5) $= R \text{vers} \frac{\Delta}{2}$ (6)

External= $E = T \tan \frac{\Delta}{4}$ (7) $= R \div \cos. \frac{\Delta}{2} - R$ (8) $= R \text{exsec} \frac{\Delta}{2}$ (9)

Long Chord= $C = 2 R \sin. \frac{\Delta}{2}$ (10) $\Delta = \text{Central Angle}$

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $\div 8\frac{1}{3} = 414.49$ ft. From Table V correction=.36 or $T = 414.85$ ft. P. C.=Sta. P.I.— $T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T.=Sta. P. C. + $L = 164 + 91.50$.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.=7.27 ft. Distance= $158 - \text{Sta. P. C.} = 54.50$, hence offset= $7.27 \frac{54.50}{100} = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

Deflections.—Deflection angle= $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft.=(in minutes) $.3 \times C \times D^\circ$ or=defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve=.3 $\times 54.5 \times 8\frac{1}{3} = 136.2'$ or $2^\circ 16.2'$, or= $2.50 \times 54.5 = 136.2'$ from Table III. For Sta. 159 deflection angle= $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{3} = 91.27$ and from Table V correction=.10 or $E = 91.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

DISTANCES FROM CENTER OF ROADWAY FOR
CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½
For Single Track Embankment.

15.78
491
14.87

0.74
0.73
0.72

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

66° 45' NW

1.8 9.04

8.10 3.9 6-4-40

12.13
09.51
02.62

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be $41.9 + (20 - 16) \div 2$ or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.