

N 10-11-36" W CAUS. 3/4.

Book No 32

311

COASTER-EL-11.39

S-75°49'07"E

N 51°27'22"W

29°26'45"W

29°16'45"

65+00 w/c.B.H. EL = 11.91  
 61+00 = 11.29  
 62+00 = 10.60  
 63+00 = 11.38  
 64+00 = 11.93  
 65+00 = 11.91  
 66+00 = 11.29  
 67+00 = 11.20  
 68+00 = 12.93  
 N/W COR. BASE = 11.32 #4590

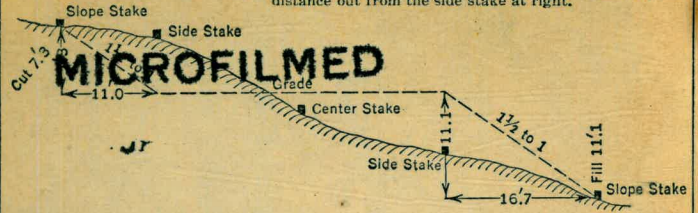
The paper in this book No. 373A

is made of 50% high grade rag stock

with a WATER RESISTING surface sizing.

**DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING**  
 Roadway of any Width. Side Slopes 1 1/2 to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	Distance out from Side or Shoulder Stake									Cut or Fill	
	0	.1	.2	.3	.4	.5	.6	.7	.8		.9
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

KEUFFEL & ESSER CO., N. Y.

12,321-4. kh, c, yx. chss.

245° - 47'  
 180° -  
 -----  
 65° - 47'

014  
 40  
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 360

0117  
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 468

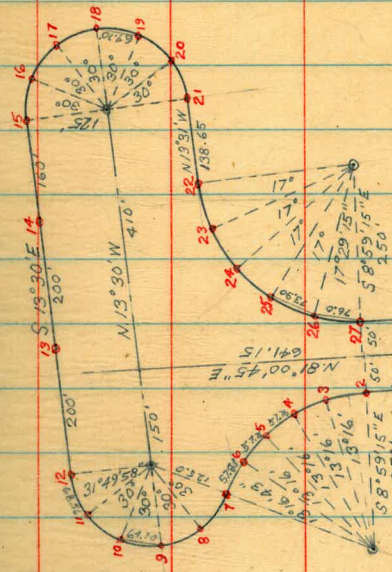
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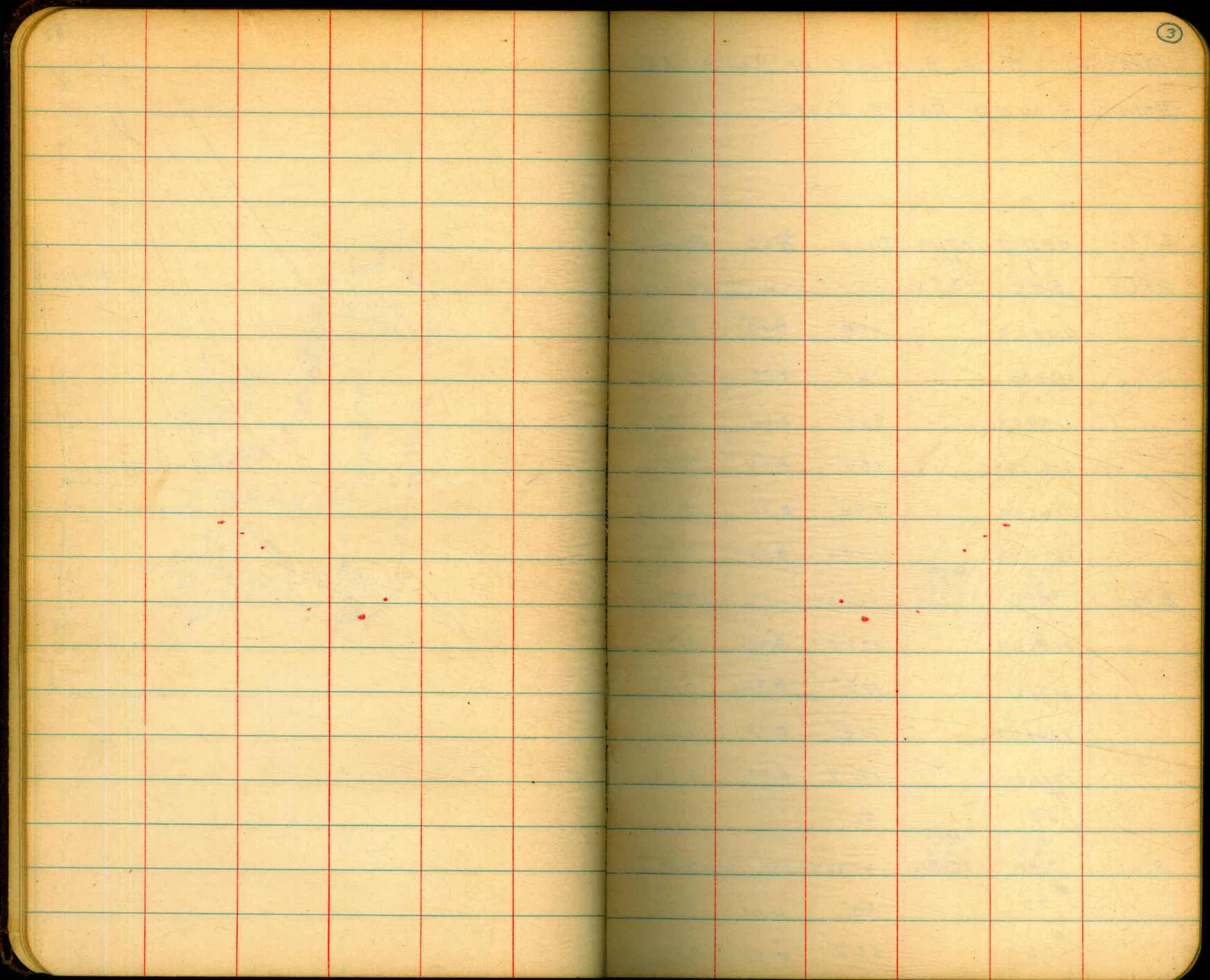
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SCALE 1" = 300'





MEAN HIGH TIDE SURVEY OF SANTA CLARA  
POINT & WEST SHORE LINE

BARRAGAN  
SHERRY  
STANLEY

3-3-98  
CLEAR  
WARM  
CALM

(9)

STA OBJECT AZIM DIST ROD ELEV

B.M. 5.05 13.55 8.50

(X) IN WALK STA-112+00

8.50 13.55  
5.05 9.80  
13.55 8.75

✓ 112+00 155' 8.75 9.80

✓ 113+00 161' 8.75 9.80

✓ 114+00 160' 8.75 9.80

✓ 115+00 150' 8.75 9.80

✓ 116+00 176' 8.75 9.80

✓ 117+00 134.5 8.75 9.80

B.M. 7.82 H.11 8.90

(X) IN WALK STA-118+00

8.90 13.22  
7.82 9.80  
13.22 8.92

✓ 118+00 123.5' 8.92 9.80

✓ 119+00 125' 8.92 9.80

✓ 120+00 118' 8.92 9.80

✓ 121+00 191.5 8.92 9.80

✓ # 28 71' 9.80

B.M. 7.91 15.81 8.40

(X) IN WALK STA-122+00

8.40 15.81  
7.91 9.80  
15.81 11.01

✓ # 27 58' 11.01 9.80

✓ # 26 65.5' 11.01 9.80

3-3-48

⑤

## MEAN HIGH TIDE SURVEY SANTA CLARA POINT

STA	OBJECT	AZIM	DIST	ROD	ELEV
✓	# 25	H.I. 15.81	68'	11.01	9.80
✓	# 29		71'	"	"
✓	# 23		73'	"	"
✓	# 22		73'	"	"
✓	# 21		69.5	"	"
T.P.	+ 1.99	H.I. 17.30		0.00	15.81
✓	# 20		65.5'	12.50	9.80
✓	# 19		65'	"	"
✓	# 18		61.5'	"	"
✓	# 17		59'	"	"
✓	# 16		50.5'	"	"
✓	# 15		69.5	"	"
✓	# 14		76'	"	"
✓	# 13		67'	"	"
✓	# 12		65'	"	"
✓	# 11		60'	"	"

TOP FIRE PLUG

$$\begin{array}{r} 15.81 \\ 1.99 \\ \hline 17.30 \end{array}$$

$$\begin{array}{r} 17.30 \\ 9.80 \\ \hline 12.50 \end{array}$$

SANTA CLARA PT.



## MEAN HIGH TIDE SURVEY SANTA CLARA POINT

STA	OBJECT	AZIM H.I.	DIST	POD	ELEV
T.B.M	+	16.98			15.81
✓	#				
	# 10		57.1	11.68	4.80
✓	# 9		52.5	"	"
✓	# 8		52.5	"	"
✓	# 7		49.0	"	"
✓	# 6		54.1	"	"
✓	# 5		53.1	"	"
✓	# 4		54.1	"	"
✓	# 3		57.1	"	"
✓	# 2		50.5	"	"
✓	# 1		81.1	"	"
T.B.M				8.05	8.93 =
					8.91
T.B.M	+	H.I.			
T.B.M	5.36	13.77			8.91
✓	STA- 124+00		107.5	8.97	4.80
✓	STA- 125+00		102.1	"	"
✓	STA- 126+00		106.5	"	"
	Δ 126+70.70 QUEENSTON		109.1	"	"
T.B.M.	+4.80	H.I.=13.15			8.35
✓	128+00		106.1	8.35	4.80
✓	129+00		103.1	"	4.80
	130+00		122.1	"	4.80

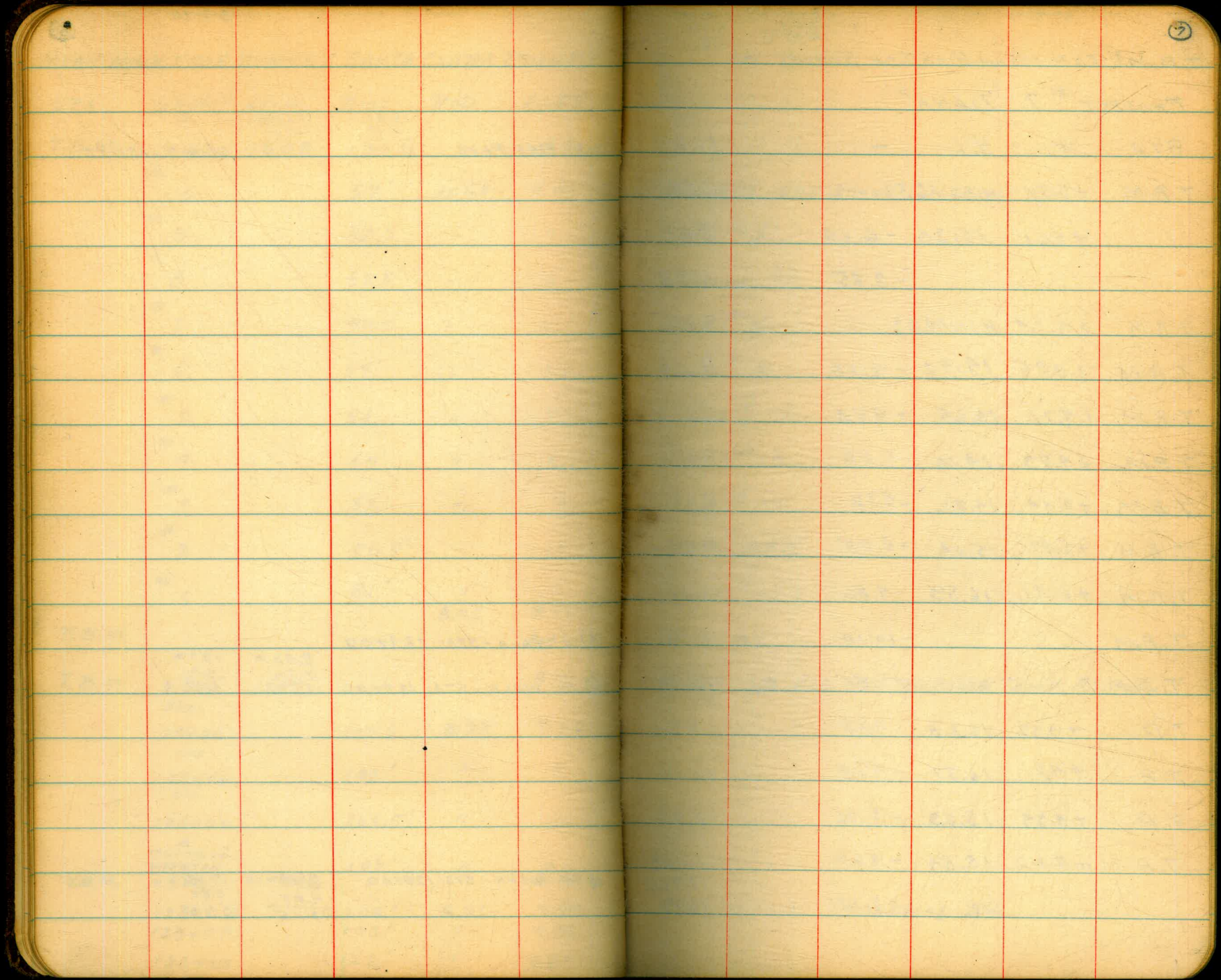
	15.81	16.98	
	0.67	4.80	
TOP FIRE PLUG	16.98	11.68	SANTA CLARA PT.

⊗ IN WALK - STA - 124+00

	8.91	13.77
	5.36	4.80
⊗ IN WALK - STA - 124+00	13.77	8.97

⊗ IN WALK - STA - 128+00

	8.35	13.15
	4.80	1.80
	13.15	8.35



BARRAGAN 4-29-48  
SHEPPS WINDY  
STANLEY COOL  
CLEAR

4-29-48

(8)

T.B.M.<sup>s</sup> FOR MEAN HIGH TIDE SURVEY OF

PROJECT # 7 "DANA"

STA	+	H.I.	-	ELEV	
T.B.M	+5.54	H.I.=16.33		10.79	TOP HUB STA-64+00 CAUSEWAY B/L.
	+5.61	15.30	-6.64	9.69	HUB # 5
			-3.85	11.45	RADIUS "L"
T.B.M	+4.64	H.I.=14.33		9.69	HUB # 5
T.B.M.	+4.85	14.52	-4.66	9.67	HUB # 9
T.B.M.	+4.71	14.65	-4.58	9.94	HUB # 13
T.B.M	+4.73	14.10	-5.28	9.37	HUB # 18
T.B.M	+5.44	14.22	-5.32	8.78	HUB # 24
T.B.M	+5.87	15.04	-5.05	9.17	HUB # 24-D"
T.B.M	+6.41	16.59	-4.86	10.18	HUB # 25-C"
T.B.M			-10.14	6.45	HUB # 27
T.B.M			-5.85	10.74	HUB AT S/E END OF PROPOSED TEMP BRIDGE.
T.P	+4.37	16.28	-4.68	11.91	
T.P	+4.21	16.31	-4.18	12.10	
T.P	+4.34	15.29	-5.36	10.95	
T.P	+5.20	15.84	-4.65	10.64	
			-5.11	10.73#	
				10.79	STA-64+00 CAUSEWAYS B/L.

BARRAGAN 4-30-18  
 BERRY'S FAIR WIND  
 STANLEY'S COOL  
 VISIBILITY FAIR

③

MEAN HIGH TIDE SURVEY OF SHORE LINE  
 OF PROJECT # 7 "DANA"

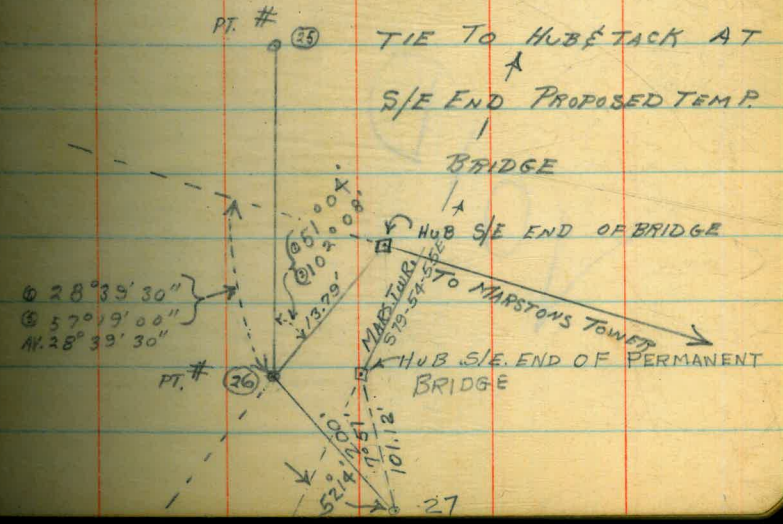
STATION	OBJECT	AZIM	DIST	ROD	ELEV	REMARKS
T.B.M.	+3.59	H.I. =	15.04		11.45	TOP OF HUB RADIUS "6"
"0"			27.0	10.24	4.8	290 EAST OF #1" (DIST. OUT AT 90° TO #1")
"1"			37.0	"	"	(" " " " " #2")
"2"			24.5'	"	"	(" " " " " #1")
"3"			20.0'	"	"	(DIST. OUT ON LINE WITH RADIUS "4")
"4"			17.0'	"	"	(DIST. OUT AT 90° TO #5")
T.B.M.	+1.92	H.I. =	14.61		9.69	TOP OF HUB # 5
"5"			30.0'	9.81	4.8	(DIST. OUT AT 90° TO #4")
"6"			27.0'	"	"	(DIST. IN DIRECTION OF RADIUS "D")
"7"			25.0'	"	"	(" " " " " " " )
"8"			26.0'	"	"	(" " " " " " " )
"9"			29.5'	"	"	(" " " " " " " )
"10"			30.0'	"	"	(" " " " " " " )
"11"			30.0'	"	"	(" " " " " " " )
"12"			30.0	"	"	(" " " " " " " )

## MEAN HIGH TIDE SURVEY OF SHORE LINE OF PROJ. # 7 "DAN"

STATION	OBJECT	AZIM	DIST	ROD	ELEV	REMARKS
T.B.M	+4.67	H.I. = 14.61			9.94	TOP OF HUB # 13
"13"			28.0'	9.81	4.80	(DIST. IN DIRECTION OF RADIUS "D")
"14"			30.0'	"	"	(" " " " " " " )
"15"			29.0'	"	"	(" " " " " " " )
"16"			31.5'	"	"	(" " " " " " " )
"17"			28.0'	"	"	(" " " " " " " )
"18"			31.0	"	"	(" " " " " " " )
"19"			34.5'	"	"	(" " " " " " " )
"20"			32.0			(" " " " " " " )
T.B.M	+6.15	H.I. = 14.93			8.78	TOP OF HUB # 24
"21"			33.0'	10.13	4.80	(DIST. IN DIRECTION OF RADIUS "D")
"22"			33.0'	"	"	(DIST. OUT AT 90° TO # 21)
"23"			30.0'	"	"	(DIST. OUT ON LINE WITH RADIUS "M")
"24"			29.5'	"	"	(" " " " " " " )
"24-A"			32.0	"	"	100' WEST OF # 24 (ON TAN); DIST. OUT AT 90° TO # 24
"24-B"			27.0	"	"	200' " " " (" " "): " " " " " "
"24-C"			25.0	"	"	300' " " " (" " "): " " " " " "

MEAN HIGH TIDE SURVEY OF SHORE LINE OF BAY # 7 "DANA"

STATION	OBJECT	AZIM	DIST	ROD	ELEV	REMARKS
T.B.M.	+5.99	H.I.=		+5.99	9.17	TOP OF HUB # "24-D"
"24-D"			26.0'	10.36	4.80	400' WEST OF # 29 (ON TAN); DIST. OUT AT 90° TO # 29
"25"			28.5'	"	"	(PT. 513' WEST OF # 29). DIST. OUT AT 90° TO # 29
"25-A"			27.0'	"	"	100' WEST OF # 25 (ON TAN); DIST. OUT AT 90° TO # 25
"25-B"			28.0'	"	"	200' " " " (" " ); " " " " " "
"25-C"			27.0'	"	"	300' " " " (" " ); " " " " " "
"25-D"			28.0'	"	"	400' " " " (" " ); " " " " " "
T.B.M.		H.I.= 16.27		+5.53	10.70	TOP OF HUB AT S/E END OF PROPOSED TEMP. BRIDGE.
"26"			15.0'	-11.47	"	(PT. 305' WEST OF # 25). DIST. OUT AT 90° TO # 25
"26-A"			26.0'	-11	"	100' S/W OF # 26 ON LINE WITH # 27
"27"			10.0'	"	"	200' S/W OF # 26 (END OF TRAVERSE) DIST. OUT AT 90° TO # 26



STA-	+	H.I.	-	ELEV
B.M.	4.17	16.56		11.39
T.B.M.	4.11	14.11	6.56	9.00
T.B.M.	3.14	13.19	4-06	9.05
T.B.M.	4.14	14.16	3.17	9.02
T.B.M.	4.96	15.01	4.11	9.05
T.P.	4.52	15.84	3.69	9.32
T.P.	4.50	15.84	4.50	9.34
T.P.	4.87	15.62	5.09	9.75
T.P.	4.72		3.23	11.39

VOID

USED "COASTER"	11.39	16.56	6.56-10	11.39
	4.17	4.80		4.17
	16.56	11.76		15.56
	14.11	4.11-10	15.22	4.80
	4.80		11.39	
	9.31		7.23	10.76
TOP OF 2"x2" HUB #	14.11	10.05	13.19	3.19-10
	4.24	3.19	4.80	
	10.05	13.19	8.39	
TOP OF 2"x2" HUB # 6	13.19	10.02	14.16	4.16-10
	3.17	4.14	4.80	
	10.02	14.16	9.36	
TOP OF 2"x2" HUB # 8	10.05	15.01	5.01-10	
	4.90	4.80		
	15.01	10.21		
TOP OF 2"x2" HUB # 10	15.01	11.32		
	3.69	4.52		
	11.32	15.84		
	15.84	11.34		
	4.50	4.50		
	11.34	15.84		
	15.84	10.75	15.62	
	5.09	4.87	7.23	
	10.75	15.62	11.39	
USED "COASTER"				

5-11-48

BARRAGAN  
SHERRY  
STANLEY 5-11-48

(73)

LEVELS FOR MEAN HIGH TIDE SURVEY OF  
VENTURA POINT SHORE LINE

STA-	+	H.T.	-	ELEV
B.M.	3.71	15.10		11.39
T.B.M.	3.71	13.73	5.08	10.02
T.B.M.	2.92	12.93	3.72	10.01
T.B.M.	5.57	15.60	2.90	10.03
T.P.	4.88	15.14	5.34	10.26
T.P.	4.20	14.62	4.72	10.42
			3.24	11.38

USED A "COASTER"

TOP HUB (2"x2") # 5

TOP HUB (2"x2") # 7

TOP HUB (2"x2") # 10

U.S.P.D. Δ "COASTER" ELEV = 11.39

11.39	15.10	5.10 - 10
3.71	4.80	
15.10	10.20	
13.73	5.08	13.73
4.64	10.02	4.80
13.09	3.71	8.92
13.73	13.73	10.01
3.72	2.92	12.93
10.01	12.93	8.13
12.93	10.03	12.93
2.90	5.57	4.80
10.03	15.60	15.60
15.60	7.80	15.60
5.34	10.80	6.57
10.26	10.80	8.97
	10.26	15.14
	4.88	10.42
	15.14	4.20
	15.14	10.72
	15.14	14.62
		3.23



MEAN HIGHTIDE SURVEY OF WLY. SHORE OF VENTURA FT.

5-11-48

(14)

STATION	OBJECT	ANGLE	DIST	ELEV	BEARING
	MARSTONS TWR.	① 30° 08'			
"COASTER" U.S.E.D.	DEF. LT. 30° 08' 30"	AV. 30° 08' 15"			574° 07' 23" W
<sup>09</sup> 198.05'	STA-1+98 <sup>06</sup>	③ 60° 16' 30"	#3 10 <sup>10</sup>	10°	574° 07' 38" W
	"COASTER"	① 46° 19'			
<sup>13</sup> 1+98 <sup>05</sup>	DEF. RT. 46° 19' 00"	AV. 46° 48' 15"	198.05	10°	N 59° 03' 37" W
	STA-3+91. <sup>43</sup>	② 93° 37' 30"	#2 10 <sup>10</sup>		
<sup>36</sup> 143.28'					
	1+98 <sup>05</sup>	① 13° 57'			
<sup>15</sup> 3+91. <sup>43</sup>	DEF. LT. 13° 56' 00"	AV. 13° 56' 30"	143.35	10°	N 72° 59' 37" W
	STA-4+71. <sup>48</sup>	③ 27° 53' 00"	#1 10 <sup>10</sup>		N 73° 00' 07" W
130.05'					
	3+91. <sup>43</sup>	① 106° 34'			
<sup>50</sup> 4+71. <sup>48</sup>	DEF. LT. 106° 33' 30"	AV. 106° 33' 30"	130.05	10°	50° 26' 53" W
<sup>72.81</sup> <sup>82</sup>	STA 5+94. <sup>31</sup>	② 213° 07' 00"	7.8		50° 26' 23" W
			1st PT		
	4+71. <sup>48</sup>	① 92° 50'			
<sup>32</sup> 5+94. <sup>31</sup>	DEF. LT. 92° 50' 00"	AV. 92° 50' 00"	72.83	1.8	N 87° 36' 53" E
<sup>113.33</sup> <sup>118.33</sup>	STA-6+57. <sup>64</sup>	③ 185° 40' 00"	#3		N 87° 36' 23" E
	6+62. <sup>65</sup>		4.8		

N	W
575	94 07 E
30	08 15
106	52 22
90	89 59 60
15	15 52 02
	74 07 38
	46 48 15
	120 56 23
	179 59 60
	59 03 37
	13 56 30
	73 00 07
	72 57 37
	0 00 30
	179 59 60
	179 33 37
	26 23
	73 00 07
	106 33 30
	179 33 37
	19 60
	92 50 00
	26 23
	2 23 37
	92 50 00
	26 23
	2 23 37
	0 26 23
	2 50
	3 70 23
	89 59 60
	2 23 37
	89 59 60
	2 23 37
	87 36 23

STATION	OBJECT	ANGLE	DIST	ELEV	BEARING
	5+44 <sup>91</sup>	① 37° 35'			
6+62 <sup>65</sup> 6+57 <sup>69</sup> 13	DEF. RT.	37° 35' 00"	AV. 37° 34' 30"	113.33 118.33	④ 4.8 554° 48' 07"
1 30 <sup>17</sup>	STA- 7+87 <sup>81</sup> 7+92 <sup>78</sup>	② 75° 09' 00"			
	6+57 <sup>64</sup>	③ 95° 56' 00"			
7+92 <sup>78</sup> 7+87 <sup>81</sup>	DEF. RT.	④ 47° 58' 00"	130.17	④ 4.8	56° 50' 07" E
2 33 <sup>82</sup>	STA- 10+27 <sup>63</sup>	AV. 47° 58' 00"			
	6+57 <sup>64</sup>	① 88° 18'			
		② 176° 36' 00"			
7+87 <sup>81</sup> 7+92 <sup>78</sup>	DEF. LT.	AV. 88° 18' 00"	DIST- 38.33	10.0	③ 191° 54'
	1+98 <sup>05</sup>	#3 10' EX. LINE			① 95°
		(TIE)			
	7+87 <sup>81</sup>				573° 25' 07" E
10+27 <sup>63</sup> 1 83 <sup>82</sup>	DEF. LT.	66° 35' 00"	239.8	4.8	
	STA- 12+11 <sup>52</sup>	⑤			
	10+27 <sup>63</sup>				
12+11 <sup>52</sup> 2 80 <sup>13</sup>	DEF. LT.	10° 10' 30"	183.8	4.8	583° 35' 37" E
	STA- 14+91 <sup>65</sup>	⑥			

554° 48' 07" E

8819

143° 06' 07"

179 59 60

143 06 07

N 36° 53' 53" W

89 59 60

36 53 53

53 06 07

95 57

115

③ 191° 54'

① 95°

95 56

95 55 89

36 53 53

53 03 07

STATION	OBJECT	ANGLE	DIST.	ELEV.	BEARING
	12 + 11 <sup>52</sup>				
14 + 91 <sup>65</sup> 2 44 <sup>38</sup>	DEF. RT. STA-17+36 <sup>03</sup>	23° 25' 00" #7	280.13	4.8	S 60° 10' 37" E
	14 + 91 <sup>65</sup>				
17 + 36 <sup>03</sup> 2 44 <sup>66</sup>	DEF. RT. STA-19+80 <sup>69</sup>	10° 24' 00" #8		4.8	S 49° 46' 37" E
	17 + 36 <sup>03</sup>				
19 + 80 <sup>69</sup> 2 55 <sup>31</sup>	DEF. LT. STA-22+36 <sup>00</sup>	00° 30' 00" #9		4.8	S 50° 16' 37" E
	19 + 80 <sup>69</sup>				
22 + 36 <sup>00</sup> 2 83 <sup>29</sup>	DEF. RT. STA-25+19 <sup>39</sup>	19° 05' 00" #10		4.8	S 31° 11' 37" E
	22 + 36 <sup>00</sup>				
25 + 19 <sup>39</sup> 4 68 <sup>28</sup>	DEF. LT. STA-26+88 <sup>02</sup>	20° 55' 00" #11		4.8	S 52° 06' 37" E



STATION	OBJECT	ANGLE	ELEV	BEARING
	31+11 <sup>63</sup>			
31+76 <sup>89</sup> 1 40 <sup>36</sup>	DEF. LT.	103° 13' 00"	10°	S49° 11' 53" W
	33+17 <sup>25</sup> (#13)			
	31+76 <sup>89</sup>			
33+17 <sup>35</sup> 1 24 <sup>24</sup>	DEF. RT.	22° 58' 00"	10°	S67° 09' 53" W
	34+91 <sup>99</sup> (#12)			
	33+17 <sup>89</sup>			
34+91 <sup>99</sup> 1 24 <sup>24</sup> 24 21	DEF. RT.	35° 33' 00"	10°	N77° 17' 07" W
	35+69 <sup>20</sup> (#11)			
	34+91 <sup>99</sup>			
35+69 <sup>20</sup> 1 51 <sup>39</sup>	DEF. RT.	25° 15' 00"	10°	N52° 02' 07" W
	37+15 <sup>59</sup> (#10)			
	35+69 <sup>20</sup>			
37+15 <sup>59</sup> 2 85 <sup>17</sup>	DEF. RT.	20° 28' 00"	10°	N31° 34' 07" W
	40+00 <sup>76</sup> (#9)			

STATION	OBJECT	ANGLE	ELEV	BEARING
	37+15 <sup>59</sup>			
40+00 <sup>26</sup> 2 44 <sup>31</sup>	DEF. LT.	16° 20' 00"	10°	N 47° 54' 07" W
	42+45 <sup>10</sup>	(#8)		
	40+00 <sup>26</sup>			
42+45 <sup>10</sup> 2 55 <sup>62</sup>	DEF. LT.	5° 35' 00"	10°	N 53° 29' 07" W
	45+00 <sup>72</sup>	(#7)		
	42+45 <sup>10</sup>			
45+00 <sup>72</sup> 2 38 <sup>15</sup>	DEF. LT.	6° 25' 00"	10°	N 59° 54' 07" W
	47+98 <sup>87</sup>	(#6)		
	45+00 <sup>72</sup>			
47+98 <sup>87</sup> 2 46 <sup>21</sup>	DEF. LT.	27° 13' 30"	10°	N 87° 07' 37" W
	50+45 <sup>78</sup>	(#5)		
	47+98 <sup>87</sup>			
50+45 <sup>78</sup> 1 52 <sup>85</sup>	DEF. RT.	3° 03' 00"	10°	N 84° 04' 37" W
	STA-51+98 <sup>63</sup>	(#4)		

267<sup>22</sup>

STATION	OBJECT	ANGLE	ELEV	BEARING
	50+45 <sup>78</sup>			
51+98 <sup>63</sup> 2 67 <sup>22</sup>	DEF RT	73° 56' 00"	10°	N 10° 08' 37" W
	59+65 <sup>85</sup>	(#3)		
	51+98 <sup>63</sup>	AV. 84° 17' 45"		
59+65 <sup>85</sup>	DEF. RT.	① 87° 18' 00"    198.15'		N 74° 09' 23" E
	"COASTER"	② 168° 35' 30"		

STA	OBJECT.	ANGLE	DIST.	BEARING	ELEV
				$554^{\circ}48'07''E$	
	6+57.64				
7+87.81	RT.	① $44^{\circ}45'$ ② $89^{\circ}30'$			4.80
<u>85.87</u>			85.87	$510^{\circ}03'07''E$	
	8+73.68				
	6+57.64				
7+87.81	RT	① $15^{\circ}52'$ ② $31^{\circ}44'$		$57-48-07$ $15-52$ $N38-56-07W$	4.80
	7+25.75		62.06	$N50^{\circ}48'53''E$	
	7+87.81			$N6^{\circ}50'07''E$	
10+27.63	LT	① $12^{\circ}49'$ ② $25^{\circ}38'$			4.80
	9+85.08		42.55	$N19^{\circ}39'07''W$	
	7+87.81				
10+27.63	LT	① $45^{\circ}14'$ ② $90^{\circ}28'$	38.31		4.80
	10+65.94			$552^{\circ}04'07''E$	
	12+11.52			$(583^{\circ}35'37''E)$	
14+91.65	RT.	① $18^{\circ}15'$ ② $36^{\circ}29'00''$	120.68	$565^{\circ}21'07''E$	4.80
<u>120.65</u>		AV. $18^{\circ}14'30''$			
6+12.33	16+12.33				

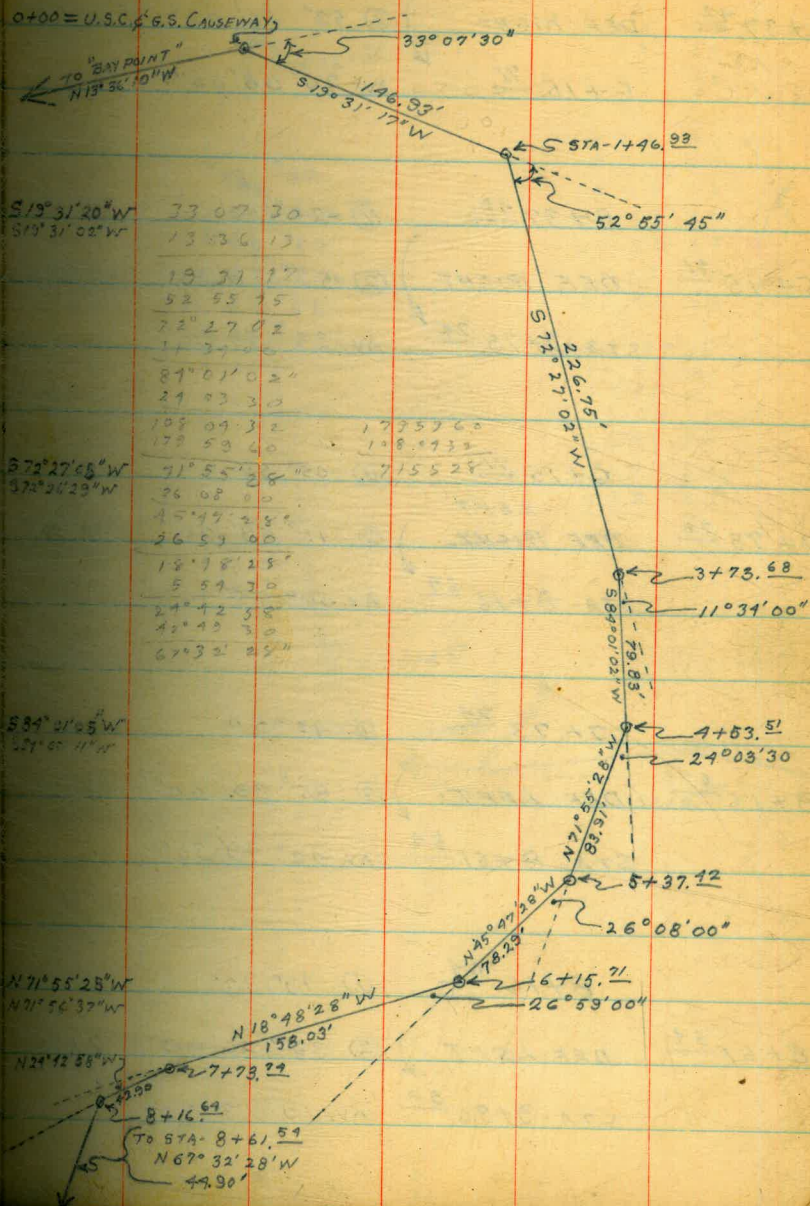


STA	OBJECT	ANGLE	DIST	BEARING	ELEV.
				N 87° 07' 37" W ✓	
45+00.72		① 15° 11' 00"			
47+98.87	RT.	② 30° 22' 00"			10.0
145.34			145.34	57° 56' 37" E	
46+53.53					
50+45.78		① 11° 32'		(58° 04' 37" E) ✓	
51+98.63	RT.	② 23° 04'	48.89	57° 42' 37" E	10.0
48.89					
51+49.74					
50+45.78		① 65° 47'		(N 89° 04' 37" W)	
				18.17	
51+98.63	RT.	② 131° 34'	73.44	N 18° 17' 37" W	10.0
73.44					
52+72.07					



MEAN HIGH TIDE SURVEY OF WEST HALF  
TIERRA DEL FUEGO ISLAND

STATION	OBJECT	ANGLE	DIST
	"BAY POINT"	① 33° 09' 30"	
U.S.E.D Δ "CAUSEWAY"	DEF. RIGHT (FIRST POINT) 4.8 EL. STA-1+46.93	② 66° 15' 00" AV. 33° 07' 30"	146.93
	"CAUSEWAY"	① 52° 55'	
1+46.93	DEF. RIGHT STA-3+73.68	② 105° 51' 30" AV. 52° 55' 45"	226.71
	1+46.93	① 11° 34'	
3+73.68	DEF. RIGHT STA-4+53.51	② 23° 08' 00" AV. 11° 39' 00"	79.83
	3+73.68	① 24° 04'	
4+53.51	DEF. RIGHT STA-5+37.72	② 48° 07' 00" AV. 21° 03' 30"	83.91



STATION OBJECT ANGLE DIST

8-4-18

(25)

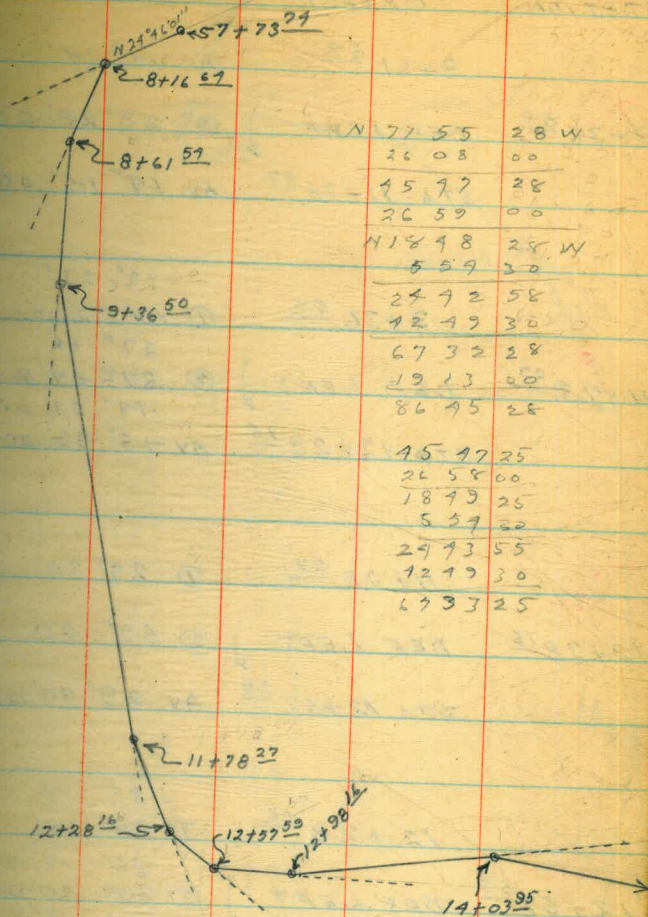
<sup>7</sup>  
 5+37 <sup>12</sup> DEF. RIGHT } ① 26° 08'  
 6+15 <sup>71</sup> } ② 52° 16' 00" 78.23 N45°42'25"W  
 } AV. 26° 08' 00" N75°48'55"W

X  
<sup>5</sup>  
 5+37 <sup>12</sup> } ① 26° 58'  
 6+15 <sup>71</sup> DEF. RIGHT } ② -26° 59' -  
 } 53° 56' 00" 158.03 N18°42'25"W  
 } AV. 26° 58' 00" N78°51'13"W  
 STA-7+73 <sup>24</sup> }

<sup>6</sup>  
 7+73 <sup>74</sup> DEF. RIGHT } ① 05° 55'  
 } ② 11° 49' 00" 42.92 N23°42'58"W  
 } AV. 05° 54' 30" N54°46'01"W  
 STA-8+16 <sup>64</sup> }

<sup>7</sup>  
 8+16 <sup>64</sup> DEF. LEFT } ① 42° 50'  
 } ② 85° 39' 00" 44.90 N67°32'25"W  
 } AV. 42° 49' 30" N67°35'43"W  
 STA-8+61 <sup>54</sup> }

<sup>8</sup>  
 8+61 <sup>54</sup> DEF. LEFT } ① 19° 13'  
 } ② 38° 26' 00" 74.96 N86°45'35"W  
 } AV. 19° 13' 00" N86°49'07"W  
 STA-9+36 <sup>50</sup> }



N	77.55	28 W
	26.08	00
	45.77	28
	26.59	00
N	118.98	28 W
	55.9	30
	24.72	58
	12.49	30
	67.32	28
	19.13	00
	86.45	26
	45.47	25
	26.58	00
	18.79	25
	5.57	22
	24.73	55
	12.19	30
	67.33	25

STATION OBJECT ANGLE DIST.

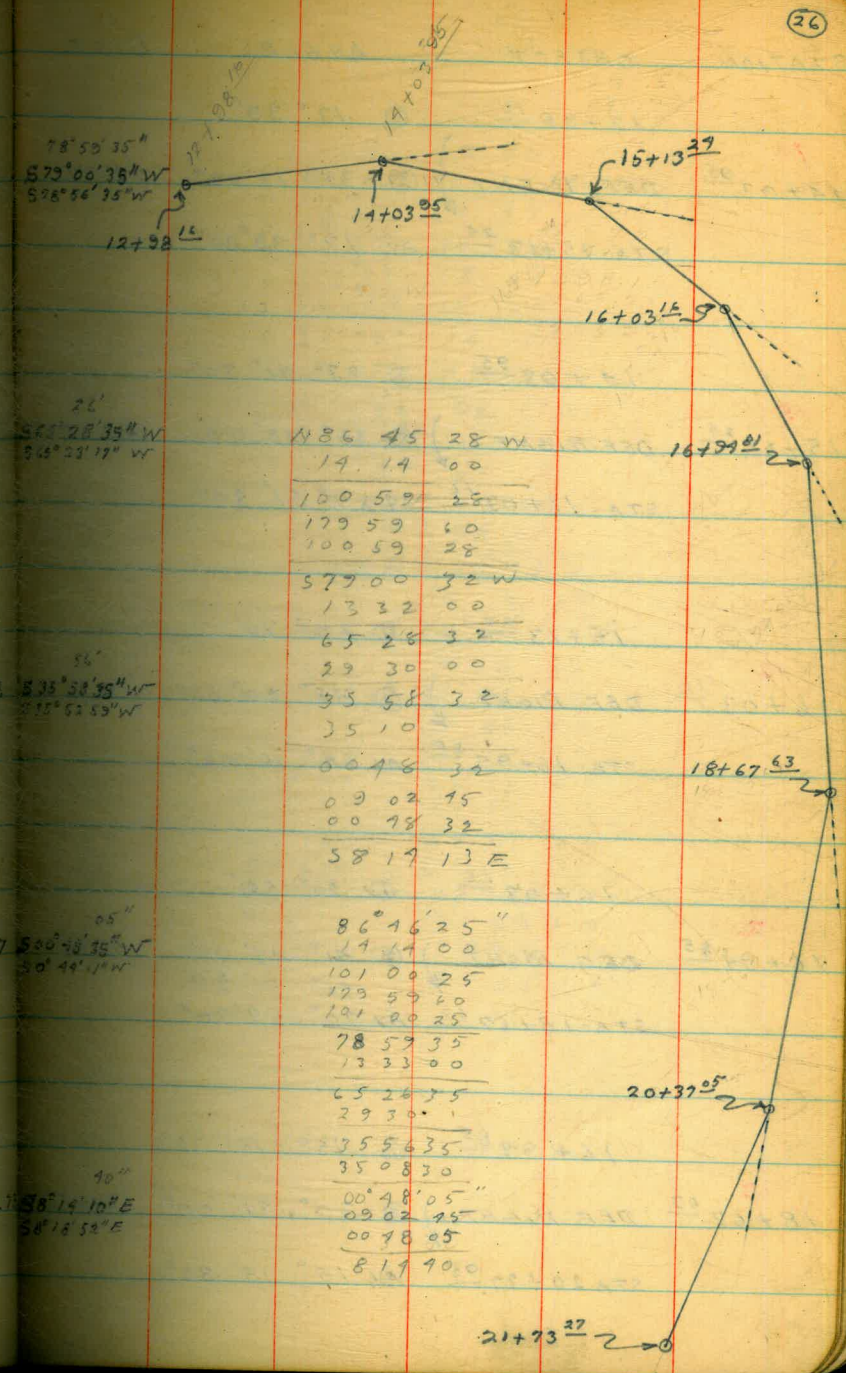
8+61<sup>51</sup> ① 14° 11'  
 9+36<sup>50</sup> DEF LEFT ② 28° 28' 00" 271.77  
 STA-11+78<sup>22</sup> AV. 14° 14' 00"

X  
 10 9+36<sup>50</sup> ① 13° 33'  
 11+78<sup>22</sup> DEF LEFT ② 73° 32' 00" 49.89  
 STA-12+28<sup>16</sup> AV. 73° 32' 00"

11 11+78<sup>22</sup> ① 29° 30'  
 12+28<sup>16</sup> DEF LEFT ② 59° 00" 29.43  
 STA-12+57<sup>59</sup> AV. 29° 30' 00"

X  
 12 12+28<sup>16</sup> ① 35° 10'  
 12+57<sup>59</sup> DEF LEFT ② 70° 20' 00" 40.57  
 STA-12+98<sup>15</sup> ③ 35° 10' 00"

13 12+57<sup>59</sup> ① 09° 03'  
 12+98<sup>16</sup> DEF LEFT ② 18° 05' 30" 105.3  
 STA-14+03<sup>25</sup> AV. 09° 02' 45"



1486	45	28	W
14	14	00	
100	59	25	
179	59	60	
100	59	28	
577	00	32	W
13	32	00	
65	28	32	
29	30	00	
35	58	32	
25	10		
00	48	32	
09	02	15	
00	78	32	
58	19	13	E
86	46	25	"
14	14	00	
101	00	25	
179	59	60	
101	00	25	
78	59	35	
13	33	00	
65	28	35	
29	30	00	
25	56	35	
35	08	30	
00	48	05	
09	02	15	
00	48	05	
8	19	40	

STATION OBJECT ANGLE DIST.

14  
14+03.<sup>95</sup> DEF. RIGHT } ① 17° 39' 109.29  
STA-15+13<sup>29</sup> AV. 17° 39' 00"

20"  
S 39° 21' 50" W  
89° 19' 50" W

17 39 00  
S 08 14 13 E  
5 09 27 97 W  
27 71 30  
5 37 05 17 W  
24 10 00

15  
15+13.<sup>29</sup> DEF. RIGHT } ① 27° 41' 30"  
STA-16+03<sup>16</sup> AV. 27° 41' 30"

25' 50"  
S 37° 26' 20" W  
53° 01' 03" W

61 16 17  
20 52 30  
5 82 08 97 W  
15 15 30  
97 27 17  
17 9 59 60  
97 24 17

16  
16+03<sup>16</sup> DEF. RIGHT } ① 24° 10'  
STA-16+99.<sup>85</sup> AV. 24° 10' 00"

15' 50"  
S 61° 16' 20" W  
56° 18' 44" W

82 07 50  
15 15 30  
97 23 20  
17 9 59 60  
97 23 20  
82 36 90  
61 15 50  
20 51 30  
82 07 30  
15 15 30  
97 22 50  
17 9 59 60  
97 22 50  
82 37 10

17  
16+99.<sup>85</sup> DEF. RIGHT } ① 20° 52'  
STA-18+67<sup>63</sup> AV. 20° 52' 30"

20"  
S 32° 01' 50" W  
53° 01' 56" W

18  
18+67.<sup>63</sup> DEF. RIGHT } ① 15° 15' 30"  
STA 20+39.<sup>95</sup> AV. 15° 15' 30"

37' 10"  
N 82° 36' 40" W  
N 82° 22' 52" W

102  
20 51 30  
46 93 00

(27)

STATION OBJECT ANGLE DIST

18+67.<sup>63</sup> ① 12° 43' 30" S

19 20+37.<sup>05</sup> DEF RIGHT } ② 25° 27' 30" 136.32

21+73.<sup>37</sup> AV 12° 43' 30"

20 21+73.<sup>37</sup> DEF RIGHT } ① 19° 50'

22+77.<sup>79</sup> ② 39° 40' 00" 109.92

AV 19° 50' 00"

21+73.<sup>32</sup> ① 19° 57'

21 22+77.<sup>79</sup> DEF RIGHT } ② 39° 54' 00" 147.21

STA-24+25.<sup>00</sup> AV 19° 57' 00"

22 22+77.<sup>79</sup> ① 11° 30'

24+25.<sup>00</sup> DEF RIGHT } ② 23° 01' 00" 145.69

25+70.<sup>69</sup> AV 11° 30' 30"

24+25.<sup>00</sup> ① 14° 06'

23 25+70.<sup>69</sup> DEF RIGHT } ② 28° 11' 30" 94.99

26+65.<sup>68</sup> AV. 14° 05' 45"

2037.<sup>00</sup>  
126.32  
2173.37  
109.92

90"  
N 69° 53' 10" W  
N 69° 59' 40" W  
N 83° 35' 43" W  
12 43 30  
N 70 52 13 W  
19 50 00  
N 51° 02' 13" W  
19 57 00  
21 05 13  
11 30 30  
19 34 43  
14 05 45  
N 05 28 58 W

N 82 35 43 W  
12 43 30  
69 52 13  
19 50 00  
50 02 13  
19 57 00  
30 05 13  
11 30 30  
N 18 34 43 W  
14 05 45  
N 04 28 58 W

82 37 10  
12 43 30  
69 52 13  
19 50 00  
50 03 40  
19 57  
30 06 40  
11 30 30  
18 34 10  
14 05 45  
7 30 25

STATION OBJECT ANGLE DIST

24  
26+65<sup>68</sup> DEF RIGHT ① 16° 24' 120.93'  
② 32° 47' 30" 20"  
N 11° 53' 50" E  
N 11° 45' 50" E

STA-27+86<sup>61</sup> AV. 16° 23' 45"

X  
26+65<sup>68</sup> ① 12° 16' 30"  
② -12° 19'

25  
27+86<sup>61</sup> DEF RIGHT ② 24° 38' 00" 237.15  
21° 33' 30"  
N 24° 12' 50" E  
N 11° 02' 17" E

STA 30+23<sup>76</sup> AV. +2° 19' 00"  
12° 16' 45"

26  
30+23<sup>76</sup> DEF LEFT ① 10° 00'  
② 20° 01' 00" 85.86  
09' 35"  
N 14° 12' 20" E  
N 14° 01' 29" E

STA 31+09<sup>62</sup> AV. 10° 00' 30"

27  
31+09<sup>62</sup> DEF LEFT ① 18° 28'  
② 36° 56' 00" 83.27  
18' 25"  
N 14° 15' 40" W  
N 4° 28' 49" W

STA-31+92<sup>89</sup> AV 18° 28' 00"

X  
28  
31+92<sup>89</sup> DEF LEFT ① 25° 08'  
② 50° 16' 00" 96.53  
26' 25"  
N 23° 23' 40" W  
N 26° 35' 07" W

STA-32+89<sup>72</sup> AV. 25° 08' 00"

26+65.68  
1420.93  
27+86.61  
237.15

16 23 45  
5 28 58  
30 23 76  
85.86

10° 54' 47"  
12.99 0.0  
3109.62  
83.27

N 23 13 47 E  
10 00 30  
3172 89  
96 53

13 13 17  
18 28 00  
3289 42

10 05  
5 19 43  
25 08 00

20 22 43

16 23 45  
N 09 28 58 W

N 17 59 47 E  
12 19 00

24 13 47  
10 00 30

14 13 17  
18 28 00

A 15 17

16 23 45  
N 9° 30' 25" W

N 11 53 20 E  
12 16 45

21 00 05  
10 00 30

17 09 35  
18 28 00

19 09 35  
4 18 25

25 08 00  
29 26 25

2° 45"



STATION	OBJECT	ANGLE	DIST	
	31+92 <sup>83</sup>	① 20° 17'		
<sup>29</sup>				
32+89 <sup>42</sup>	DEF. LEFT	② 40° 33' 00"	77.53	N 43° 40' 10" W N 43° 51' 55" W
	33+66 <sup>95</sup>	AV. 20° 16' 30"		
	32+89 <sup>42</sup>	① 23° 14'		
<sup>30</sup>				
33+66 <sup>95</sup>	DEF LEFT	② 46° 27' 30"	143.80	N 71° 53' 55" W N 73° 05' 58" W
	35+10 <sup>75</sup>	AV. 23° 13' 45"		
	33+66 <sup>95</sup>	① 09° 56'		
<sup>31</sup>				
35+10 <sup>75</sup>	DEF LEFT	② 19° 51' 00"	75.13	N 32° 43' 25" W N 33° 01' 36" W
	35+85 <sup>93</sup>	AV. 09° 55' 30"		
	35+10 <sup>75</sup>	① 12° 24'		
<sup>32</sup>		② 24° 48' 00"		
35+85 <sup>93</sup>	DEF RIGHT	② 24° 49' 30"	87.78	N 70° 24' 40" W N 70° 38' 04" W
	36+73 <sup>21</sup>	AV. 12° 24' 45"		
	35+85 <sup>93</sup>	① 06° 16'		
<sup>33</sup>				
36+73 <sup>21</sup>	DEF RIGHT	② 12° 32' 00"	110.78	N 64° 08' 40" W N 64° 22' 02" W
	37+84 <sup>49</sup>	AV. 06° 16' 00"		

51  
20  
111

32 89 42  
77.53

33 66 95  
77.53  
351 0 75  
75.13

30 22 43  
20 16 30  
N 50 39 13 W  
23 13 15  
53 52 58  
9 55 30  
N 83 48 28 W  
12 24 45  
N 71 23 43  
6 16  
N 65 07 43 W

N 29 26 25 W  
20 16 30  
79 42 55  
23 13 75  
72 56 70  
9 55 30  
82 52 10  
12 24 00  
70 28 10  
6 16  
69 12 10

STATION OBJECT ANGLE DIST

34  
37+89<sup>19</sup> DEF RIGHT ① 13° 12' 30"  
② 26° 25' 00" 155.33'  
STA-39+39<sup>82</sup> AV. 13° 12' 30"

35  
39+39<sup>82</sup> DEF. RIGHT ① 12° 21' 20"  
② 24° 43' 00" 151.51'  
40+31<sup>32</sup> AV. 12° 21' 30"

36  
40+31<sup>32</sup> DEF RIGHT ① 16° 13'  
② 32° 26' 00" 172.57'  
42+63<sup>89</sup> AV. 16° 13' 00"

37  
42+63<sup>89</sup> DEF RIGHT ① 14° 29'  
② 28° 57' 30" 177.81'  
44+38<sup>20</sup> AV. 14 28' 45"

38  
44+38<sup>20</sup> DEF RIGHT ① 10° 13' 10"  
② 20° 25' 30" 80.11'  
45+18<sup>81</sup> AV. 10° 14' 00"

59' 40"  
N50°56'10"W  
W51°10'10"W

38' 10"  
N58°34'40"W  
W34°48'58"W

25' 10"  
N32°21'40"W  
W57°36'15"W

56' 25"  
N07°53'55"W  
W88°07'49"W

16' 20"  
N03°21'05"E  
W85°04'38"E  
7' 45"

N 65 07 43 W  
13 12 30  
N 78 20 13 W  
12 21 30  
65 58 43  
16 13 00  
49 45 43  
14 28 45  
35 16 58  
10 14 00  
N 25 02 58 W

50 55 13  
S  
R/SIDE WINDOW WHITEHOUSE  
YELLOW BACK GROUND

N 64 12 10 W  
13 12 30  
50 59 10  
12 21 30  
38 38 10  
16 13 00  
22 25 10  
14 28 15  
N 07 56 25 W  
10 12 45  
7 56 25  
02 16 20

37 89 49  
155.737  
293982  
15150  
409132  
17257  
926389  
17481  
493870  
80.71  
4518.81

77 20 13  
50 35 13  
27 25 00  
64 07 43  
13 12 30

50 55 13  
12 21 30  
38 33 43  
16 13 00  
22 20 13  
14 28 45

07 51 58  
10 14 00  
7 51 58  
20 22 02"

STATION OBJECT ANGLE DIST

39  
45+18 <sup>81</sup> DEF RIGHT ① 12° 21' ✓  
② 24° 17' 00" 103.98  
46+22 <sup>79</sup> AV. 12° 23' 30"

X  
40  
46+22 <sup>79</sup> DEF RIGHT ① 10° 31'  
② 23° 02' 00" 238.81  
23° 00' 30"  
48+61 <sup>71</sup> AV. 11° 30' 15"

41 <sup>71</sup>  
48+61 DEF RIGHT ① 20° 46' 30" ✓  
② 41° 33' 00" 162.42  
STA-50+25 <sup>12</sup> AV 20° 46' 30"

42 <sup>12</sup>  
50+25 DEF RIGHT ① 12° 32' ✓  
② 25° 05' 00" 171.35  
51+96 <sup>47</sup> AV 12° 32' 30"

X  
43  
51+96 <sup>47</sup> DEF RIGHT ① 12° 21' 30"  
② 24° 43' 00"  
24° 45' 00"  
53+24 <sup>09</sup> AV 12° 22' 30"

N 25° 02' 58" W  
45 18 81  
12 23 30  
103.98  
12 39 28  
7622.79  
11 31 00  
238.91  
01° 8' 28"  
4861.70  
143.41  
20 46 30  
5025.12  
01 08 28  
171.35  
19° 38' 02"  
5196.47  
12 32 30  
127.62  
32° 10' 32"  
5329.09  
12 22 30  
N 49° 33' 02" E

N 02° 22' 02" E  
12 23 30  
19 45 32  
11 31 00  
26 16 32  
20 46 30  
N 02 16 20 E  
12 23 30  
19 39 50  
11 30 15  
26 10 05  
20 46 30  
46 56 35  
12 22 30  
59 29 05  
12 21 30  
71 58 02  
71 50 35

STATION OBJECT ANGLE DIST.

44  
53+24<sup>09</sup> 51+96<sup>17</sup> ① 12° 27' ✓

DEF. RIGHT ② 29° 55' 00" 185.51

55+09<sup>63</sup> AV 12° 27' 30"

45  
55+09<sup>63</sup> 53+24<sup>09</sup> ① 5° 17' ✓

DEF. RIGHT ② 10° 33' 30" 307.60

58+17<sup>23</sup> AV 5° 16' 45"

46  
58+17<sup>23</sup> 55+09<sup>63</sup> ① 13° 30' ✓

DEF. RIGHT ② 27° 01' 00" 109.21

59+26<sup>97</sup> AV 13° 30' 30"

47  
59+26<sup>97</sup> 58+17<sup>23</sup> ① 27° 46' ✓

DEF. RT. ② 55° 32' 00" 97.30

60+21<sup>27</sup> AV 27° 46' 00"

48  
60+21<sup>27</sup> 59+26<sup>97</sup> ① 58° 41' 30" ✓

DEF. RIGHT ② 117 23 00 91.30

61+15<sup>57</sup> AV 58° 41' 30"

N44° 33' 02" E 5329.09

12 27 30 185.51

57° 00' 32" 5509.63

5 16 45 307.60

62° 17' 17" 5812.23

13° 30' 30" 109.21

75 17 17 5926.97

27 46 00 97.30

93 33 17 6024.27

179 59 60 91.30

93 33 17 115.57

86 26 13

58 41 30

27 44 13

91

27 31

13 45' 30"

12 45

192

16

66 N71 58 02 E

12 27 30

84 25 32

5 16 45

89 42 17

13 30 30

103 12 47

179 59 60

576 47 13

27 46 00

49 01 13

58 41 30

0 19 13

49 01 13

940 47

N71 59 35 E

12 27 30

84 25 32

5 16 45

89 42 17

13 30 30

103 05 20

179 59 60

103 05 20

76 51 90

27 160 0

19 08 90

58 41 30

49 08 10

5 32 50

18 05"  
N89° 21' 35" E  
N81° 04' 35" E

39 50"  
N83° 41' 20" E  
N81° 21' 02" E

54 40"  
S76° 48' 10" E  
S77° 08' 46" E

08 40"  
S43° 02' 10" E  
S40° 23' 09" E

33 50"  
S09° 35' 20" W  
S03° 18' 08" W

STATION	OBJECT	ANGLE	DIST
		12° 07' 30" ✓	
X	60+29 <sup>27</sup>	① 12° 06'	
49		24° 15' 30"	
61+15 <sup>57</sup>	DEF LEFT	② 24° 12' 30"	215.27
		12° 07' 15"	
	63+30 <sup>81</sup>	AV. 12° 06' 15"	
		07° 53' ✓	
	61+15 <sup>57</sup>	① 07° 58'	
50		15° 17' 00"	
63+30 <sup>81</sup>	DEF LEFT	② 15° 57' 00"	58.18
		07° 53' 30"	
	6389 <sup>01</sup>	AV. 02° 58' 30"	
		19° 50' ✓	
	63+30 <sup>81</sup>	① 19° 49'	
51		19° 42'	
63+89 <sup>01</sup>	DEF LEFT	② 39° 34' 00"	83.82
		39° 29' 00"	
		19° 44' 00"	
	64+72 <sup>83</sup>	AV. 19° 50' 30"	
		23 30' 30" ✓	
	63+89 <sup>01</sup>	① 23° 28'	
52		47° 01' 06"	
64+72 <sup>83</sup>	DEF LEFT	② 46° 57' 00"	96.20
		23° 30' 30"	
	65+69 <sup>03</sup>	AV. 23° 28' 30"	
		22° 35' 00"	
	64+72 <sup>83</sup>	① 22° 37' 30"	
53		45° 11' 00"	
65+69 <sup>03</sup>	DEF LEFT	② 45° 15' 00"	111.60
		22° 35' 30"	
	66+80 <sup>63</sup>	AV. 22° 37' 30"	

34' 55"  
S 02° 26' 55" E  
S 02° 19' 55" E  
8' 00"

13° 28' 25"  
S 16° 23' 35" E  
S 16° 43' 43" E  
3' 00"

18' 55"  
S 30° 18' 25" E  
S 30° 34' 31" E  
6' 30"

43' 25"  
S 52° 40' 55" E  
S 54° 05' 19" E  
8' 30"

24' 55"  
S 76° 18' 25" E  
S 76° 41' 07" E

57

117

5 27 49 43 E

12 06 15

39° 56' 58"

7 58 30

47 49 28

19 47 00

67 36 28

23 28 30

91 04 58

179 59 60

91 04 58

N 88 55 02 E

22 37 30

66 17 32

7 53 30

31

170

151

181

5430

39

19

59

19

12

S 09

2

7

10

19

30

23

53

42

76

70

23

53

42

76

71

71

8-12-18

34

6115 57

215 27

6330 84

5817

6389 01

83.82

6472 83

96 20

6569 03

111 60

6680 63

83

28 60

111 60

83

28 60

111 60

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STATION	OBJECT	ANGLE	DIST	BEARING		
(59) 54	65+69 <sup>03</sup>	25° 41' ① 25° 40'			51 19 30	6680.63
		51° 21' 30"		77° 54' 20"	15 39 45	100.77
66+80 <sup>63</sup>	DEF LEFT	② 51° 19' 30"	100.77'	N78° 01' 50" E		6781.90
		25° 40' 45"		N77° 37' 50" E		90.73
	67+81 <sup>10</sup>	AV. 25° 39' 45"			N 66 17 32 E	6872.13
					29 39 45	87.05
					36 37 47	6959.48
					18 40 00	82.06
	66+80 <sup>63</sup>	① 18° 40'			N 17 57 47 E	7018.27
(60) 55	67+81 <sup>10</sup>	② 37° 20'	90.73	N 20° 21' 50" E	24 11 45	68.27
	DEF LEFT			N 68° 57' 32" E	17 57 47	7116.48
	68+72 <sup>13</sup>	AV. 18° 40' 00"			06 13 58	
					14 16 30	
					20 30 28	
					17 09 00	
					37 39 28	
	67+81 <sup>10</sup>	① 24° 11' 30"				76 17 28
56	68+72 <sup>13</sup>	② 48° 23' 30"	82.05'	N 35° 10' 05" E	576 24 55 E	25 39 45
				N 74° 45' 29" E	25 10 75	101 57 13
	69+59 <sup>18</sup>	AV. 24° 11' 45"			102 05 40	179 59 60
					179 59 60	
					102 05 40	78 02 47
	68+72 <sup>13</sup>	① 14° 16' 30"			N 47 51 20 E	18 40
57	69+59 <sup>18</sup>	② 28° 33' 00"	83.06'	N 20° 53' 35" E	18 40 00	59 22 77
				N 20° 28' 41" E	59 19 20	24 11 45
	70+98 <sup>21</sup>	AV. 14° 16' 30"			24 11 45	35 11 02
					35 02 35	14 16 30
					14 16 30	20 54 32
					20 46 05	17 09 00
					17 09 00	03 45 32
					03 37 05	
	69+59 <sup>18</sup>	① 17° 09'				
58	70+98 <sup>21</sup>	③ 34° 18' 00"	68.24'	N 03° 44' 35" E		
				N 3° 18' 23" E		
	71+16 <sup>18</sup>	AV. 17° 09' 00"				

STATION	OBJECT	ANGLE	DIST	BEARING
	70+48 <sup>29</sup>	① 22° 09' ✓		
59 71+16 <sup>48</sup>	DEF LEFT	② 44° 18' 00"	88.03'	N18°21'25"W N18°49'55"W
	72+09 <sup>51</sup>	AV. 22° 09' 00"		
	71+16 <sup>48</sup>	① 07° 08' ✓		
60 72+04 <sup>51</sup>	DEF RIGHT	② 19° 15'	65.62'	N11°16'55"N N11°42'43"W
	72+70 <sup>13</sup>	AV. 07° 07' 30"		
	72+04 <sup>51</sup>	① 19° 01' ✓		
61 72+70 <sup>13</sup>	DEF RIGHT	② 38° 01' 00"	78.21'	N49°43'35"E N17°29'E
	73+90 <sup>39</sup>	AV. 19° 00' 30"		
	72+70 <sup>13</sup>	① 16° 35' 30" ✓		
62 73+98 <sup>39</sup>	DEF RIGHT	② 33° 11' 00"	65.09'	N22°13'05"E N23°52'41"E
	74+13 <sup>38</sup>	AV. 16° 35' 30"		
	73+48 <sup>39</sup>	① 23° 33' ✓		
63 74+13 <sup>38</sup>	DEF RIGHT	② 47° 06' 00"	76.30'	N47°52'05"E N47°25'23"E
	74+89 <sup>68</sup>	AV. 23° 33' 00"		

N37° 39' 28" W	7116.48
22 09 00	88.03
N59 48 28 W	7207.51
07 07 30	65.62
52 10 58	7270.13
19 00 30	78.21
33 40 28	7398.37
12 35 30	65.04
21 09 58	7113.78
23° 33' 00"	76.30
21 09 58	7989.68
02° 28' 02"	

22 09 00	
N 3 45 32 E	
N18 23 28 W	
7 07 30	
11 15 58	
19 00 30	
22 09 00	
N 03 37 05 E	
18 31 55	
07 07 30	
11 24 25	074402
19 00 30	123530
11 49 25	201932
7 36 05	233300
16 35 30	435232
29 11 55	
23 33 00	
47 44 35	

STATION	OBJECT	ANGLE	DIST	BEARING
	74+13 <sup>38</sup>	① 16° 45'		
64	74+89 <sup>68</sup>	DEF RIGHT ② 33° 31' 00"	88.08	N 69° 37' 35" E 1
	75+77 <sup>26</sup>	AV 46° 45' 30"		
	74+89 <sup>68</sup>	① 10° 06' 30"		
65	75+77 <sup>26</sup>	DEF RIGHT ② 20° 12' 30"	177.17	N 77° 43' 50" E
	77+54 <sup>93</sup>	AV 10° 06' 15"		
	75+77 <sup>26</sup>	① 80° 41'		
	75+77 <sup>26</sup>	④ 161° 22'		
66	77+54 <sup>93</sup>	DEF. RIGHT ③ 242° 02' 00"	111.79	S 29° 35' 30" E 3
	STA-102+00 CAUSE. B/L.			S 25° 02' 00" E.
	= STA-78+66 <sup>22</sup>	AV. 80° 40' 40"		
	STA-96+00 CAUSE B/L	① 14° 51'		
(CAUSEWAY B/L)	102+00	DEF LEFT ② 29° 42' 00"		S 50° 43' 33" E
	(LAST PT. ON M.H.T. LINE)			S 18° 11' 18" E
	77+54 <sup>93</sup>	AV 14° 51' 00"		
	U.S.E.D. Δ			
	"BAY POINT"	① 5° 58'		
CAUSEWAY B/L	102+00	DEF LEFT ② 11° 56' 00"		N 77° 37' 20" E
	(LAST PT. ON M.H.T. LINE)			N 13° 01' 00" W
	77+54 <sup>93</sup>	AV 5° 58' 00"		

N 02° 28' 02" E	7489.68	2912
16 15 30	88.08	8270
N 19° 13' 32" E	7577.76	111.82
10 06 15	177.17	
29 19 47	7754.93	
80 40 40	111.79	
140.00 27	7866.72	90
179 59 60		122
110 0 27		3 40"
589° 5' 33" E		3/120
19° 51' 00"		
595° 08' 33" E		
10 17 36		
67 54 57		2996
		81.83
		111.79
N 74 44 17 E		
80 41 00	179 59 60	
163 25 17	158 25 17	
19 5	2434 73	
	1451 30	
BAY POINT		947 13
5° 58'	14° 51'	
11° 56' 00"	29 72	
S 25° 02' 00" E	19° 51' 00"	
5 58 00		
19° 04' 00"	CAUSE W/B/L	
	25 12 57	
	5 58	
	20 14 57"	
N 47 44 35 E	10 11 36	10 11 36
16 46 30	9 44 33	9 51 00
67 31 05		
10 06 15	0° 27' 03"	20 36
	20 36	
N 77 37 20 E	24 42 00	
80 40 40	19 51	
	3 51 00	
155 16 00		
179 50 40		
155 18 00		
24 42 00		



## LEVELS FOR MEAN HIGH TIDE SURVEY OF WEST HALF — TIERRA DEL FUEGO ISLAND

STATION	+	H.I.	-	ELEV
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T.B.M. #4	3.84	17.59		13.75
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	2.90	16.77	3.72	13.87
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	3.45	15.76	4.46	12.31
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	4.41	16.97	3.20	12.56
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T. B. M.  
STA-102+00  
CAUSEWAY B/L.

			4.78	12.19
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TRAVERSE TIE OF PT. (#29) <sup>(M.H.T.L.)</sup> STA-32+89.12 } STA-89+00 CAUSEWAY B/L

STATION	OBJECT	ANGLE	DIST
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STA-76+00  
CAUSEWAY B/L.

① 96° 28'

STA-89+00  
(CAUSEWAY B/L)

INT. RIGHT  
STA-32+89.12

③ 289° 23' 00"

1513.26'

586° 16' 04" W

PT. #29 M.H.T.L.

AV. 96° 27' 40"

FROM PAGE (23)

13.25

13.87

3.84

2.90

17.59

16.77

12.31

3.45

15.76

3.20

STA-102+00 ⊗ IN CURB

CAUSEWAY B/L. EL. = 12.25

12.56

4.41

16.97

4.78

12.19

FINAL SOUNDINGS PROV. #9 8-25-46

"CDE" SECTION.

STA. N 116+00

0+00 = STA. N 116+00 PI-P5 B/L

SOUND WEST

DIST.	SOUND	DIST.	SOUND
<u>13:27</u> 0+00	5.0 +0.1	<u>13:31</u> +70	13.9 -8.8
+10	4.8 +0.3		13.9 —
(5.1)	5.1 -0.1		14.0 -8.3
	6.0 -0.9	2+00	14.0 —
	11.9 -6.8		14.0 —
+50	14.0 -8.9	(5.1)	14.0 —
	13.5 -8.1		13.7 -8.6
	13.4 -8.3		13.9 -8.8
	13.4 -8.3	+50	13.7 -8.6
	13.5 -8.1		13.8 -8.7
+1+00	13.7 -8.6		13.6 -8.5
	13.8 -8.7		13.5 -8.1
	13.9 -8.8		13.5 —
	14.0 -8.9	3+00	13.8 -8.7
	14.2 -9.1		13.8 —
	14.1 -9.0		13.8 —
+60	14.1 —	+30	13.9 -8.8

DIST.	SOUND	DIST.	SOUND
<u>13:34</u> +40	14.0 -8.9	+30	12.3 -7.2
(5.1)	14.1 -9.0		12.3 —
	14.0 -8.9	+50	12.2 -7.1
	14.0 —		12.3 -7.2
	13.9 -8.8		12.1 -7.0
	14.0 -8.9	(5.1)	<del>12.5</del> 11.5 -6.1
4+00	14.0 —	<u>13:38</u>	10.9 -5.8
	13.9 -8.8	6+00	9.5 -4.1
	13.9 —		
	14.0 -8.9		
	14.1 -9.0		
+50	14.3 -9.2		
	14.3 —		
	13.7 -8.6		
	12.9 -7.8		
	12.1 -7.0		
5+00	12.2 -7.1		
	12.1 -7.0		
+20	12.2 -7.1		

PX PX (39)

STA. N 120+00

8-25-98

N 120+00 CONT

PX (40)

0400 = STA. N. 120+00 P/P5 B/L

SOUND WEST

DIST.	SOUND		DIST.	SOUND	
<u>13:51</u>					
0+00	5.2	-0.1	+80	14.1	-9.0
+10	5.2	—	(5.1)	14.1	—
(5.1)	5.0	+0.1	2+00	14.0	-8.9
	5.2	-0.1		14.0	—
	10.1	-5.0		14.3	-9.2
+50	13.1	-8.0		14.5	-9.1
	13.6	-8.5		13.3	-8.2
	13.6	—	+50	12.8	-7.7
	13.8	-8.7		12.8	—
	14.0	-8.9		13.0	-7.9
1+00	14.1	-9.0		13.1	-8.0
	14.0	-8.9		13.1	—
	13.9	-8.8	3+00	13.1	—
	14.0	-8.9		13.2	-8.1
	14.2	-9.1		13.8	-8.7
+50	14.3	-9.2		14.0	-8.9
	14.4	-9.3		14.4	-9.0
+70	14.1	-9.0	+50	14.2	-9.1

DIST. SOUND

13:58

+60

(5.1)

4+00

+50

11:812:

5+00

+70

DIST. SOUND

14:00

+50

(5.1)

6+00

STA. N 119+00 8-25-48

0+00 = STA N 119+00 PIP5 B/L

SOUND WEST

DIST	SOUND		DIST.	SOUND	
<u>14:10</u> 0+00	4.9	+0.2	+80	13.7	-8.6
+10	4.9	—	(5.1)	13.9	-8.8
(5.1)	4.9	—	2+00	13.9	—
	4.9	—		13.9	—
	9.5	-4.4		13.9	—
+50	12.8	-7.7		13.8	-8.7
	13.0	-7.9		13.3	-8.2
	13.2	-8.1	+50	13.1	-8.0
	13.4	-8.3		13.0	-7.9
	13.6	-8.5		13.0	—
1+00	13.3	-8.2		13.1	-8.0
	13.3	—		13.0	-7.9
	13.4	-8.3	3+00	13.1	-8.0
	13.5	-8.4		13.0	-7.9
	13.7	-8.6		13.0	—
+50	13.9	-8.8		13.2	-8.1
	13.8	-8.7		13.2	—
+70	13.7	-8.6	+50	13.3	-8.2

STA. N 119+00 CONT. (41)

DIST.	SOUND		DIST.	SOUND	
<u>14:17</u> +60	13.4	-8.3	<u>14:19</u> +50	5.0	+0.1
(5.1)	13.5	-8.7	(5.1)		
	13.7	-8.6			
	13.5	-8.4			
4+00	13.0	-7.9			
	12.9	-7.8	6+00		
	12.8	-7.7			
	13.1	-8.0			
	12.8	-7.7			
+50	12.8	—			
	12.8	—			
	12.8	—			
	12.8	—			
	12.9	-7.8			
5+00	12.9	—			
	13.0	-7.9			
	12.6	-7.5			
	11.2	-6.1			
+40	8.1	-3.0			

STA. N 118+00 8-25-48

0+00 = STA. N 118+00 ON P'P 5 B/L

SOUND WEST

DIST.	SOUND	DIST.	SOUND
14:27 0+00	4.9 +0.1	14:30 +80	13.9 -8.9
+10	4.8 +0.2	(5.0)	13.9 —
(5.0)	4.9 +0.1	2+00	13.8 -8.8
	6.2 -1.2		14.0 -9.0
	11.5 -6.5		14.1 -9.1
+50	13.3 -8.3		14.5 -9.5
	13.5 -8.5		14.1 -9.1
	13.8 -8.8	+50	13.2 -8.2
	14.0 -9.0		12.7 -7.7
	14.1 -9.1		12.5 -7.5
1+00	14.0 -9.0		12.8 -7.8
	14.1 -9.1		12.8 —
	14.1 —	3+00	12.6 -7.6
	14.0 -9.0		12.5 -7.5
	14.1 -9.1		12.8 -7.8
+50	14.1 —		12.9 -7.9
	14.0 -9.0		13.0 -8.0
+70	13.9 -8.9	+50	13.2 -8.2

STA N 118+00 CONT.

(42)

DIST.	SOUND	DIST.	SOUND
14:32 +60	13.1 -8.1	+50	
(5.0)	13.1 —		
	13.2 -8.2		
	13.1 -8.1		
4+00	13.1 —		
	13.1 —	6+00	
	12.8 -7.8		
	12.7 -7.7		
	12.2 -7.2		
+50	12.1 -7.1		
	12.2 -7.2		
	12.4 -7.4		
	12.3 -7.3		
14:34	12.3 —		
5+00	12.0 -7.0		
	11.9 -6.9		
+40			

STA N. 107+00

8-25-48

0+00 = STA. N. 107+00 ON P1P5 B/L

SOUND WEST

DIST	SOUND	DIST.	SOUND
<u>14:54</u> 0+00	6.5 - 1.7	<u>14:58</u> +80	12.8 - 8.0
+10	4.9 - 0.1	<u>4.8</u>	12.8 —
<u>4.8</u>	3.0 + 1.8	2+00	13.0 - 8.2
	4.0 + 0.8		13.1 - 8.3
	8.7 - 3.9		13.1 —
+50	14.1 - 9.3		13.2 - 8.4
	14.9 - 10.1		13.2 —
	14.0 - 9.2	+50	13.5 - 8.7
	14.4 - 9.6		13.5 —
	14.5 - 9.7		13.5 —
1+00	14.3 - 9.5		13.5 —
	13.3 - 8.5		13.1 - 8.3
	13.1 - 8.3	3+00	13.1 —
	13.1 —		12.9 - 8.1
	13.2 - 8.4		12.9 —
+50	13.2 —		13.0 - 8.2
	13.2 —		13.0 —
+70	13.1 - 8.3	+50	13.3 - 8.5

STA N. 107+00 CONT.

(43)

DIST. SOUND

15:00  
+60

	13.3 - 8.6
<u>4.7</u>	13.3 —
	13.4 - 8.7
	13.7 - 9.0
+100	13.1 - 8.4
	13.2 - 8.5
	13.5 - 8.8
	13.8 - 9.1
	13.2 - 8.5
+50	13.6 - 8.9
	13.2 - 8.5
	13.0 - 8.3
	13.1 - 8.4
	12.7 - 8.0
5+00	13.2 - 8.5
	14.3 - 9.6
	14.0 - 9.3
	13.8 - 9.1
+40	13.2 - 8.5

DIST. SOUND

SOUND EAST

14:43

0+00	6.5 - 1.7
+10	3.3 + 1.5
	3.3 —
<u>4.8</u>	3.1 + 1.7
	3.2 + 1.6
+50	3.1 + 1.7
<u>0+60</u> 14.48	3.0 + 1.8
+50	12.9 - 8.2
<u>4.7</u>	13.0 - 8.3
	13.5 - 8.8
	13.7 - 9.0
	13.8 - 9.1
15:05 6+00	13.1 - 8.4
+10	13.1 - 8.4
+20	13.0 - 8.3
+30	12.6 - 7.9
+40	12.2 - 7.5
+50	12.2 - 7.5
+60	12.3 - 7.6
+70	12.8 - 8.1
+80	12.7 - 8.0
+90	12.7 - 8.0
7+00	12.7 - 8.0



STA. N. 108+00 **PX** 8-26-49

0+00 = STA. N. 108+00 P'P5 B/L  
SOUND WEST

DIST	SOUND		DIST	SOUND
10:41				
0+00	1.0	+2.6	+80	12.9 -9.2
+10	1.1	+2.5		12.7 -9.0
<b>(3.6)</b>	1.1	+2.5	2+00	12.1 -8.4
	4.9	-1.3		12.0 -8.3
	9.9	-6.3		12.2 -8.5
+50	10.2	-6.6		12.2 -8.5
	10.9	-7.3		12.0 -8.3
<u>10:45</u>	10.9	-7.3	+50	12.7 -9.0
10:58	11.0	-7.3		12.7 -9.0
<b>(3.7)</b>	11.2	-7.5		12.4 -8.7
1+00	11.6	-7.9		12.1 -8.4
	11.5	-7.8		12.1 -
	11.9	-8.2	3+00	12.1 -
	12.2	-8.5		12.2 -8.5
	12.0	-8.3		12.2 -
+50	12.2	-8.5		12.2 -
	12.5	-8.8		12.0 -8.3
+70	12.6	-8.9	+50	12.0 -

STA N 108+00 CONT. (75)

DIST	SOUND		DIST	SOUND
11:00				
+60	12.1	-8.4	+50	12.1 -8.4
<b>(3.7)</b>	12.1	-	<b>(3.7)</b>	12.1 -
	12.1	-		12.0 -8.3
	12.1	-		11.6 -7.9
4+00	12.0	-8.3		11.7 -8.0
	12.1	-8.4	6+00	11.5 -7.8
	12.7	-9.0		11.3 -7.6
	13.0	-9.3		11.5 -7.8
	13.0	-		11.6 -7.9
+50	12.9	-9.2		11.5 -7.8
	13.0	-9.3	+50	11.5 -
	12.8	-9.1		11.6 -7.9
	12.1	-8.4		11.4 -7.7
	12.0	-8.3		11.8 -8.1
5+00	12.0	-		11.7 -8.0
	12.0	-	7+00	11.9 -8.2
	12.0	-	11:04	11.7 -8.0
	12.0	-		
+40	12.1	-8.4		



STA. N. 109+00 8-26-48

0+00 = STA. N. 109+00 PIP5 B/L

SOUND WEST

DIST	SOUND	DIST.	SOUND	PA
11:10 0+00	1.6	+2.2	11:14 +80 11.9	-8.1
+10	1.6	+2.2	(3.8) 11.9	-
(3.8)	1.7	+2.1	2+00 11.8	-8.0
	7.0	-3.2	11.7	-7.9
	11.3	-7.5	11.8	-8.0
+50	11.7	-7.9	11.7	-7.9
	11.6	-7.8	11.8	-8.0
	11.9	-8.1	+50 12.0	-8.2
	12.0	-8.2	12.1	-8.3
	12.2	-8.4	12.0	-8.2
1+00	12.2	-8.4	11.9	-8.1
	12.0	-8.2	11.7	-7.9
	12.1	-8.3	3+00 11.7	-7.9
	12.1	-	11.4	-7.6
	12.0	-8.2	11.7	-7.9
+50	12.1	-8.3	11.9	-8.1
	11.9	-8.1	12.0	-8.2
+70	11.9	-8.1	+50 12.2	-8.4

STA. N. 109+00 CONT.

(96)

DIST.	SOUND	DIST.	SOUND
11:17 +60 12.3	-8.4	+50 12.3	-8.4
(3.9) 12.6	-8.7	(3.9) 11.6	-7.7
12.7	-8.8	12.3	-8.4
12.8	-8.9	11.6	-7.7
4+00 12.8	-8.9	11.7	-7.8
12.8	-	6+00 11.7	-
12.8	-	11.8	-7.9
12.7	-8.8	11.7	-7.8
12.7	-	11.5	-7.6
+50 12.8	-8.9	11.8	-7.9
12.6	-8.7	+50 11.8	-
11.9	-8.0	11.8	-
11.8	-7.9	11.8	-
11.8	-	11.9	-8.0
5+00 12.0	-8.2	12.1	-8.2
11.8	-7.9	11:20 7+00 12.4	-8.5
11.6	-7.7		
12.2	-8.3		
+40 12.2	-8.3		

STA. N 110+00 8-26-48

0+00 = STA N. 110+00 PI-PE B/L

DIST	SOUND	WEST	DIST.	SOUND	PX
11:27 0+00	2.0	+2.0	11:30 +80	11.9	-7.9
+10	2.1	+1.9	(4.0)	11.9	—
(4.0)	2.1	—	2+00	11.9	—
	7.5	-3.5		12.0	-8.0
	11.4	-7.4		12.0	—
+50	11.5	-7.5		12.0	—
	11.6	-7.6		12.4	-8.4
	11.4	-7.4	+50	12.1	-8.1
	11.8	-7.8		12.0	-8.0
	12.0	-8.0		11.8	-7.8
1+00	11.8	-7.8		11.7	-7.7
	11.8	—		12.1	-8.1
	11.9	-7.9	3+00	12.1	—
	11.9	—		12.7	-8.7
	11.9	—		12.8	-8.8
+50	11.8	-7.8		12.8	—
	11.8	—		12.7	-8.7
+70	11.8	—	+50	12.8	-8.8

STA. N 110+00 CONT. (97)

DIST.	SOUND	DIST.	SOUND
11:32 +60	12.9 -8.9	+50	13.1 -9.1
(4.0)	13.0 -9.0	(4.0)	12.5 -8.5
	13.0 —		12.5 —
	12.9 -8.9		11.9 -7.9
4+00	12.7 -8.7		11.8 -7.8
	12.8 -8.8	6+00	11.3 -7.3
	12.9 -8.9		11.9 -7.9
	12.8 -8.8		11.7 -7.7
	12.3 -8.3		11.9 -7.9
+50	12.4 -8.4		12.0 -8.0
	12.3 -8.3	+50	12.1 -8.1
	12.1 -8.1		12.8 -8.8
	12.1 —		13.0 -9.0
	12.7 -8.7		13.5 -9.5
5+00	12.8 -8.8	11:37	13.3 -9.3
	12.8 —	7+00	13.3 -9.3
	13.1 -9.1	+10	13.3 -9.3
	13.1 —	+20	13.7 -9.7
	13.1 —	+30	14.0 -10.0
	13.1 —	+40	13.9 -9.9
	13.1 —	+50	13.4 -9.4
+40	13.1 —	+60	12.9 -8.9
	13.1 —	+70	12.5 -8.5
	13.1 —	+80	12.5 -8.5

STA. N 111+00

8-26-48

0+00 = STA. N 111+00

PIPS

B/L

SOUND WEST

DIST

SOUND

DIST.

SOUND

PX

13:17  
0+00

3.0

+1.8

+80

13.3

-8.5

+10

3.0

—

(4.8)

13.4

-8.6

(4.8)

3.0

—

2+00

13.7

-8.9

4.4

+0.4

13.6

-8.8

10.0

-5.2

14.8

-10.0

+50

11.7

-6.9

14.0

-9.2

11.9

-7.1

13.0

-8.2

11.6

-6.8

+50

12.9

-8.1

13.3

-8.5

13.1

-8.3

12.9

-8.1

13.0

-8.2

1+00

12.8

-8.0

13.1

-8.3

12.5

-7.7

13.4

-8.6

12.5

—

3+00

13.1

-8.3

12.9

-8.1

13.0

-8.2

13.3

-8.5

13.0

—

+50

13.5

-8.7

13.0

—

13.2

-8.4

12.6

-7.8

+70

13.3

-8.5

+50

12.6

—

STA. N 111+00 CONT. PX

(48)

DIST.

SOUND

DIST.

SOUND

13:23  
+60

12.7

-7.9

13:25

+50

12.0

-7.2

(4.8)

12.6

-7.8

(4.8)

12.1

-7.3

12.7

-7.9

12.6

-7.8

12.5

-7.7

12.5

-7.7

4+00

12.2

-7.4

12.6

-7.8

12.3

-7.5

6+00

12.8

-8.0

12.3

—

12.9

-8.1

12.9

-8.1

13.0

-8.2

13.1

-8.3

13.8

-9.0

+50

13.5

-8.7

14.1

-9.3

13.0

-8.2

+50

14.5

-9.7

13.0

—

14.9

-10.1

12.9

-8.1

15.0

-10.2

12.8

-8.0

14.9

-10.1

5+00

12.2

-7.4

13:28

15.3

-10.5

12.8

-8.0

7+00

14.5

-10.7

12.8

—

+10

14.5

—

12.7

-7.9

+20

14.0

-9.2

12.4

-7.6

+30

14.0

—

+40

13.5

-8.7

+50

13.0

-8.2

+60

12.0

-7.2

STA. N 112+00		8-26-48			
0+00 = STA. N 112+00 PIP5		B/L			
SOUND WEST				PX	
DIST.	SOUND	DIST.	SOUND		
		14:00			
0+00	3.3 +1.7	+80	13.6 -8.6		
13:55					
+10	3.4 +1.6	(5.0)	13.8 -8.8		
(5.0)	3.6 +1.4	2+00	13.8 -8.8		
	3.9 +1.1		13.9 -8.9		
	4.8 +0.2		13.9 -8.9		
+50	11.0 -6.0		13.8 -8.8		
	13.0 -8.0		13.4 -8.4		
	12.9 -7.9	+50	13.3 -8.3		
	12.9 -7.9		13.9 -8.9		
	12.8 -7.8		14.0 -9.0		
1+00	12.7 -7.7		13.9 -8.9		
	12.3 -7.3		13.8 -8.8		
	12.5 -7.5	3+00	13.4 -8.4		
	13.1 -8.1		13.4 -8.4		
	13.2 -8.2		13.2 -8.2		
+50	13.1 -8.1		13.2 -8.2		
	13.3 -8.3		13.3 -8.3		
+70	13.3 -8.3	+50	13.2 -8.2		

STA. N 112+00		CONT.		(19)
DIST.	SOUND	DIST.	SOUND	
14:02		14:04		
+60	13.2 -8.2	+50	13.0 -8.0	
(5.0)	13.0 -8.0	(5.0)	13.2 -8.2	
	13.0 —		13.6 -8.6	
	13.0 —		14.0 -9.0	
4+00	13.0 —		14.6 -9.6	
	12.9 -7.9	6+00	14.5 -9.5	
	12.9 —		14.2 -9.2	
	12.9 —		14.5 -9.5	
	13.9 -8.9		14.9 -9.9	
+50	13.8 -8.8		14.4 -9.4	
	13.5 -8.5	+50	14.0 -9.0	
	13.6 -8.6		13.8 -8.8	
	13.6 -8.6		14.2 -9.2	
	13.5 -8.5		14.2 -9.2	
5+00	13.6 -8.6	14:06	14.0 -9.0	
	13.9 -8.9	7+00	13.0 -8.0	
	13.3 -8.3	+10	12.5 -7.5	
	13.5 -8.5	+20	11.3 -6.3	
+40	12.9 -7.9			

STA. N 113+00 8-26-48

0+00 = STA. N. 113+00 PIPE B/L  
SOUND WEST

DIST	SOUND		DIST.	SOUND	
14:12			14:17		
0+00	4.1	+0.9	+80	13.5	-8.5
+10	4.0	+1.0	(5.0)	13.3	-8.3
(5.0)	3.9	+1.1	2+00	13.2	-8.2
	3.9	+1.1		13.0	-8.0
	8.4	-3.4		13.1	-8.1
+50	13.0	-8.0		13.0	-8.0
	13.5	-8.5		12.8	-7.8
	13.3	-8.3	+50	12.0	-7.0
	13.3	-8.3		14.1	-9.1
	13.3	—		14.1	-9.1
1+00	13.0	-8.0		14.1	-9.1
	12.9	-7.9		14.5	-9.5
	13.3	-8.3	3+00	14.0	-9.0
	13.8	-8.8		13.8	-8.8
	13.5	-8.5		13.9	-8.9
+50	13.2	-8.2		13.8	-8.8
	13.0	-8.0		13.7	-8.7
+70	13.6	-8.6	+50	13.9	-8.9

STA. N. 113+00 CONT.

(50)

DIST	SOUND		DIST.	SOUND	
14:19			14:21		
+60	13.4	-8.4	+50	13.9	-8.9
(5.0)	13.4	-8.4	(5.0)	13.7	-8.7
	13.5	-8.5		14.2	-9.2
	13.7	-8.7		13.8	-8.8
4+00	13.8	-8.8		13.1	-8.1
	13.4	-8.4	6+00	13.9	-8.9
	13.6	-8.6		13.9	—
	14.8	-9.8		13.1	-8.1
	14.7	-9.7		12.8	-7.8
+50	14.2	-9.2		11.9	-6.9
	14.1	-9.1	+50	11.6	-6.6
	14.0	-9.0	14:23	10.5	-5.5
	13.5	-8.5			
	13.6	-8.6			
5+00	13.9	-8.9			
	13.4	-8.4	7+00		
	13.0	-8.0			
	13.5	-8.5			
+40	13.5	-8.5			

STA. N 114+00 8-26-48

0+00 = STA. N 114+00		PIPS B/L			
SOUND WEST					
DIST.	SOUND	DIST.	SOUND		
14:30		14:34			
0+00	4.1	+0.9	+80	13.9	-8.9
+10	4.1	—	(5.0)	13.7	-8.7
(5.0)	4.3	+0.7	2+00	13.8	-8.8
	4.8	+0.2		13.6	-8.6
	9.2	-4.2		13.4	-8.4
+50	13.0	-8.0		13.2	-8.2
	13.3	-8.3		13.7	-8.7
	13.8	-8.8	+50	13.9	-8.9
	13.9	-8.9		14.1	-9.1
	13.5	-8.5		14.0	-9.0
1+00	14.2	-9.2		13.8	-8.8
	14.5	-9.5		13.2	-8.2
	14.0	-9.0	3+00	13.1	-8.1
	13.8	-8.8		13.1	—
	14.0	-9.0		13.1	—
+50	14.1	-9.1		13.2	-8.2
	14.2	-9.2		13.2	—
+70	14.0	-9.0	+50	13.2	—

STA. N. 114+00 CONT. (5)

DIST. SOUND		DIST. SOUND			
14:36		14:39			
+60		+50			
(5.0)	13.2	-8.2	(5.0)	13.5	-8.5
	13.4	-8.4		13.3	-8.3
	13.4	—		13.7	-8.7
	13.5	-8.5		13.8	-8.8
4+00	13.2	-8.2		13.3	-8.3
	13.0	-8.0	6+00	13.2	-8.2
	13.1	-8.1		13.2	—
	13.5	-8.5		13.0	-8.0
	14.8	-9.8		11.5	-6.5
+50	14.4	-9.4	14:41	10.3	-5.3
	14.0	-9.0	+50	<del>9.5</del>	-1.5
	14.0	—			
	14.1	-9.1			
	13.3	-8.3			
5+00	13.1	-8.1			
	13.2	-8.2	7+00		
	13.2	-8.2			
	13.4	-8.4			
+90	13.5	-8.5			

STA N. 115+00

8-26-48

STA. N 115+00 CONT. (52)

0+00 = STA N 115+00		PIPE		B/L	DIST	SOUND	STA. N 115+00 CONT. (52)				
SOUND WEST					14:53		DIST	SOUND			
DIST.	SOUND	DIST.	SOUND		+60	14.5	-9.3	+50	13.0	-8.0	
14:48		14:50			(5.0)	14.5	—	(5.0)	13.0	-8.0	
0+00	4.2	+0.8	+80	13.8	-8.8						
						14.4	-9.4		13.0	-8.0	
+10	4.0	+1.0	(5.0)	13.8	—						
(5.0)	4.2	+0.8	2+00	13.9	-8.9	14.4	—		13.1	-8.1	
	5.9	-0.9		13.8	-8.8	4+00	14.8	-9.8		13.0	-8.0
	10.2	-5.2		13.9	-8.9		14.1	-9.1	6+00	12.1	-7.1
+50	12.6	-7.6		13.8	-8.8		14.0	-9.0	14:55	10.0	-5.0
	13.1	-8.1		13.3	-8.3		13.9	-8.9			
	13.0	-8.0	+50	13.0	-8.0		13.9	—			
	13.1	-8.1		13.8	-8.8	+50	13.9	—			
	13.3	-8.3		13.1	-8.1		13.0	-8.0			
1+00	13.5	-8.5		14.0	-9.0		12.7	-7.7			
	13.5	—		14.0	—		12.6	-7.6			
	13.5	—	3+00	14.0	—		12.8	-7.6			
	13.6	-8.6		13.9	-8.9	5+00	12.7	-7.7			
	13.9	-8.9		14.0	-9.0		12.5	-7.5			
+50	14.0	-9.0		13.9	-8.9		12.8	-7.8			
	13.9	-8.9		14.0	-9.0		12.8	-7.8			
+70	13.9	—	+50	14.7	-9.7	+40	13.0	-8.0			

STA. N. 117+00 8-26-48

0+00 = STA. N 117+00 PIPE B/L

SOUND WEST

DIST	SOUND		DIST	SOUND	
15:05 0+00	4.6	+0.4	15:10 +80	14.2	-9.2
+10	5.0	0.0	(5.0)	14.2	—
(5.0)	4.8	+0.2	2+00	14.0	-9.0
	4.8	+0.2		14.0	—
	9.0	-4.0		14.0	—
+50	12.4	-7.4		14.0	—
	12.2	-7.2		13.7	-8.7
	12.8	-7.8	+50	13.4	-8.4
	13.0	-8.0		13.2	-8.2
	13.1	-8.1		13.0	-8.0
1+00	13.3	-8.3		13.0	-8.0
	13.4	-8.4		13.0	—
	13.5	-8.5	3+00	13.0	—
	13.6	-8.6		13.0	—
	13.9	-8.9		13.2	-8.2
+50	14.0	-9.0		13.3	-8.3
	14.0	—		13.3	—
+70	14.1	-9.1	+50	13.5	-8.5

STA. N 117+00 CONT. (53)

DIST. SOUND

DIST. SOUND

15:13  
+60

(5.0)

4+00

+50

5+00

+40

13.5	-8.5	+50	12.0	-7.0	
(5.0)	13.5	—	(5.0)	11.2	-6.2
13.5	—		9.8	-4.8	
13.6	-8.6		8.0	-3.0	
13.8	-8.8	15:16	6.3	-1.3	
13.9	-8.9	6+00			
13.7	-8.7				
13.8	-8.8				
13.0	-8.0				
+50	12.9	-7.9			
12.2	-7.2				
12.3	-7.3				
12.1	-7.1				
12.2	-7.2				
5+00	12.1	-7.1			
12.1	—				
12.0	-7.0				
12.1	-7.1				
+40	12.0	-7.0			



12" - STORM DRAIN EXTENSION

PROJECT NO. 3.1

STA	+	H.I.	-	ELEV.
B.M.	3.70	16.74		13.04
			11.00	5.74
			12.10	4.64
T.B.M.			7.06	9.68

(2.80)

11-2-48

(59)

(4.65)

CHISL ⊕ ON CONC CURB DIVIDING STRIP  
TOP OF PIPE 12"  
BOTTOM OF PIPE 12"

	hr	da - 8Hr
Dragline Operator	2.2375	17.86
<u>Oilier</u>	1.6625	13.30
	<u>O.T.</u>	<u>hr.</u>
Supt.	4.50	3.00
Laborer	2.23125	1.4875
Pipe Layers	2.68125	1.7875
Carpenter	3.05625	2.0375
Pump Operator	2.53125	1.6875
Concrete Men	2.53125	1.6875
Concrete Finisher	2.1125	16.90

## Time & Material Record.

Nov. 1 Completed hauling and placing  
1 1555 cu. yds fill @ 89¢.  
1 1-day Rent for 2"x4" Pump @ 4<sup>00</sup>  
1 6 hrs. Pump-man @  
2 7 hrs. Pump-man @ (OT)

Nov. 2 1-day Rent for Pump @ 4<sup>00</sup>  
4 10 1/2 hrs. Pump-man @  
81 10 hrs. Rent Drag-line & Op. @  
93 TRUCK & TRAILER #11, Model Dragline @ 7.50 2-Hrs.  
3 4 hrs. " A-frame Truck & Op. @  
5 3 1/2 " " 10-wheel Flat @ 5.50  
94 CRANE NO. 7-2HRS @ 11.00 LOADING MATS  
8-9 31,100 # Gravel, Fenton.

6 5 1/2 hr. Pipe-man  
7 3 1/2 hr. Laborer 3 hrs. Turner

Laid 3-20' lgths. of Pipe

Nov. 3 2 hrs. Rent A-frame  
10 15000 # Gravel, Fenton.  
12 8 hr. Pipe-man  
13 8 1/2 hr. Pump-man  
14 8 hr. Laborer 3 hrs. Turner  
15 8 hr. Dragline & Op.

Laid 2-20' lgths of Pipe.

## 12" Storm-Drain Extension.

Nov. 4 16 8 hrs. Dragline  
8 hrs. Pump-man  
18 8 hrs. Pipe-man  
19 8 hrs. Laborer  
17 1 da. Rent Pump.

Turner 3 hrs.

Laid 2-20' lgths. Pipe

Nov. 5 22 8 hrs. Drag-line  
23 9 hrs. Pump-man  
20 7 hrs. Pipe-man  
21 8 hrs. Laborer  
30 14,700 # Gravel, Fenton.  
31 1 hr. Truck-Crane, Artukovich  
3 hrs. Turner. @ 3<sup>00</sup>

Laid 1-20' lgth. Pipe.

Nov. 6-4 9 1/2 hrs. Dragline

27 10 " Pumpman

26 9 " Pipeman

25 9 " Laborer

8 " Pump Rent

Laid 2-20' Lgths. (10x20-200')

Nov. 8<sup>34</sup> 8 hrs. Pump Rent

8 hrs. Dragline

33 9 1/2 " Pumpman

28 8 " Pipeman

29 8 " Laborer

32 15,000 # Gravel.

Laid 2-10' lengths (220')

Nov. 9 215 Cu. Yds. Dirt.

35 8 hrs. Dragline

8 " Pump

36 9 " Pumpman

38 8 " Pipeman

37 8 " Laborer

Laid 2-10' Lengths. (240')

Nov. 10, 1948

Nov 10<sup>28</sup> 8 hrs. Dragline rent

39 8 " Pump "

41 7 " Pipe-man

39 8 " Pumpman

40 7 " Laborer

Laid 1-10' Lgth. (250')

Nov. 15 Hauled 430 Cu. Y. Dirt. Started digging after lunch. (total 2200 Cu. Y.)

42 2 1/2 hr Dragline

43 9 1/2 hr. Pumpman

44 1- da pump.

47 1- hr Pipe-man

~~45~~ hr Laborer

Nov<sup>46</sup> 13 5-hr Pumpman (OVERTIME)

Nov<sup>47</sup> 14 5-hr Pumpman

Nov<sup>82</sup> 13 7-hr Carpenter

Nov. 16, 1948

Nov. 16 <sup>45</sup> 7-Hrs Dragline  
" <sup>83</sup> - 8-Hrs Carpenter  
" <sup>79</sup> 10½ Hrs Pumpman  
" <sup>50</sup> 8½ Hrs Pipeman  
" <sup>51</sup> 8-Hrs Laborer  
" <sup>52</sup> 8-Hrs Pump Rent  
" <sup>53</sup> 3-Hrs Supt  
" <sup>54</sup> 15,000# Gravel

Nov 17

<sup>55</sup> 6-Hrs Dragline  
<sup>56</sup> 9-Hrs Pumpman  
<sup>57</sup> 8-Hrs Pipeman  
<sup>58</sup> 8 Hrs Laborer  
1-DAY Pump Rent  
3-Hrs Supt  
<sup>84</sup> - 7-Hrs Carpenter

Nov. 18, 1948

Nov. 18, <sup>59</sup> 8-Hrs Dragline  
<sup>60</sup> 10½ Hrs Pumpman  
<sup>61</sup> 8 Hrs Pipeman  
<sup>62</sup> 8 Hrs Laborer  
1-DAY Pump Rent  
3-Hrs Supt

Nov. 19, 1948

<sup>63</sup> 8-Hrs Dragline  
<sup>64</sup> 11-Hrs Pumpman  
<sup>65</sup> 8-Hrs Pipeman  
<sup>66</sup> 8-Hrs Laborer  
1-DAY Pump Rent  
3-Hrs Supt

Nov. 22, 1948

<sup>67</sup> 8-Hrs Dragline  
<sup>68</sup> 11½ Hrs Pumpman  
<sup>69</sup> 8-Hrs Pipeman  
<sup>70</sup> 8-Hrs Laborer  
1-DAY Pump Rent  
3-Hrs Supt  
<sup>85</sup> - 1-Hr Dump Truck @ 3.90

Nov. 23, 1948

71 5½ Hrs Dragline

72 11½ Hrs Pumpman

73 4½ Hrs Pipeman

74 4½ Hrs Laborer

1-Day Pump Rent

3-Hrs Supt

Base { 3900# Sand - 1-Yd DEL-BY/HAN Sec  
Slab { 5200# 1½ Rock 2-Yds " " "

75 4½ Hrs Cement Finisher

95 { 1-Water Wagon 1-Hrs @ 3.90  
2-HRS FOR DRIVER @ 1.5875

98 1-Batch Truck 2-Hrs @ 3.90

86 1-Flat Rack (Haul Mixer) 2½ Hrs @ 3.90

1-¼ Yd Mixer

Nov. 24, 1948

76 4-Hrs Dragline

77 12½ Hrs. Pumpman

78 8 Hrs. Pipeman

79 9½ Hrs Laborer

1-Day Pump Rent

3 Hrs. Supt

80 5 Hrs. Carpenter

5 Yds. Transit Mixed Conc. @ 8.75 Cu. Yd.

Nov. 27, 1948

88 4-Hrs Dragline

96 Nov. 26, 48 PIPEMAN 5-HRS

DEC. 1, 1948

89- 2 Hrs. Dragline

90- 2-Hrs Crane No. 11-MOVING MATS

91- 2- " " " " Crane

Nov. 29, 1948

97 5-Hrs Pipeman

DEC. 3, 1948

92 2-HYS TRUCK & TRAILER # 11- PULL OUT DOZER

5-HYS. DOZER - RD-2 @ 7.00

PAYING DANA BANDING

LAYOUT PLAN

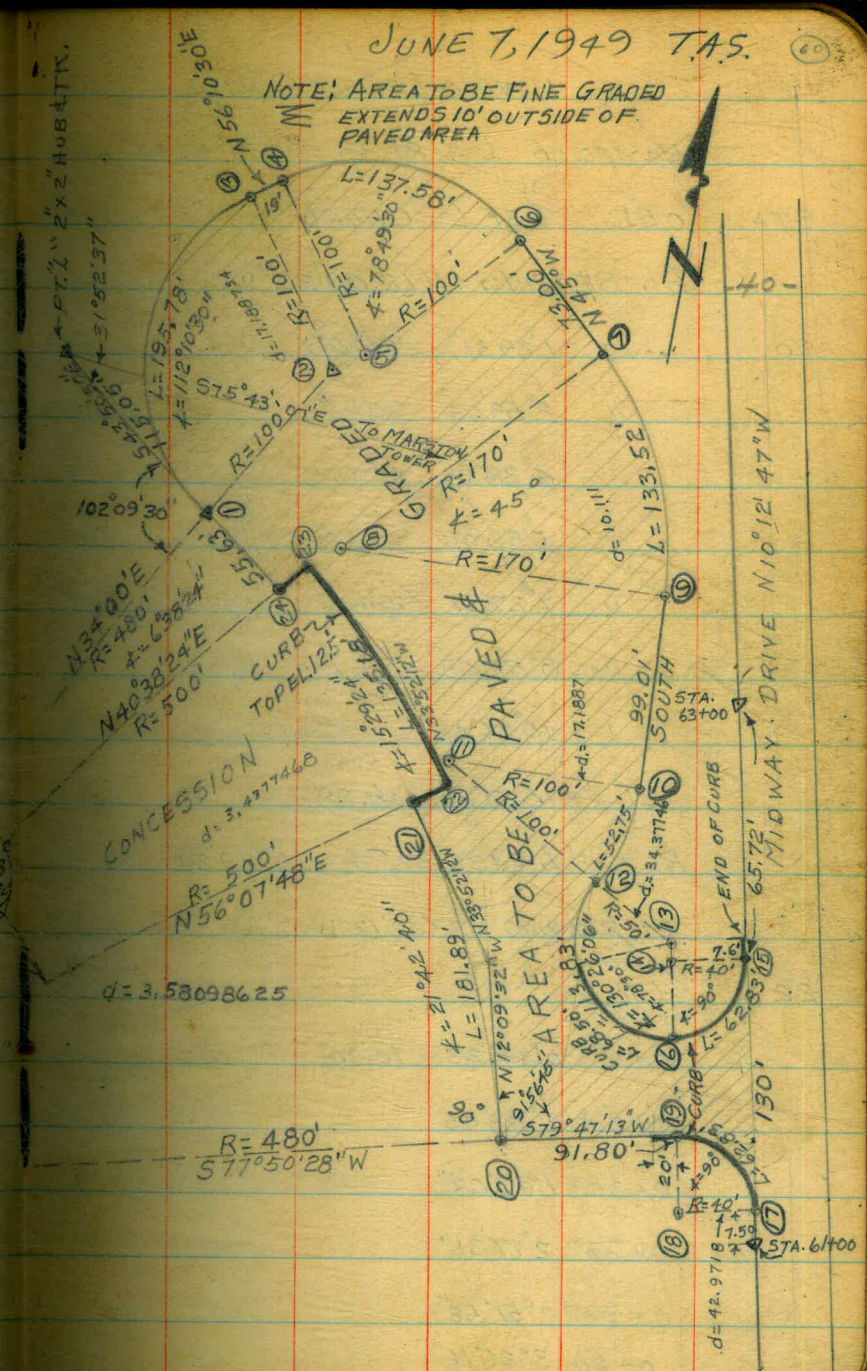
NOTE: THE Ls LISTED BELOW ARE TYPICAL FOR CENTERS  
 No. 18, & No. 14, FOR EQUAL ARCS OF 10.0' RADIALLY

STA	OBJ.	INT. L	R = 40.00'
		0°	
15, 0R17.		14°19'26"	
		28°38'52"	
		42°58'18"	
18, 0R14.		57°17'45"	
		71°37'11"	
		85°56'37"	
		90°00'	
		CENTER NO 13. R = 50.00' ARC = 10.0'	
16		0°	
13	RT.	11°27'33"	
		22°55'06"	
		34°22'39"	
		45°50'12"	
		57°17'45"	
		68°45'18"	
		78°29'43"	

Contd. on Pg. 61.

JUNE 7, 1949 T.A.S.

NOTE: AREA TO BE FINE GRADED  
 EXTENDS 10' OUTSIDE OF  
 PAVED AREA



PAVING LAYOUT CONTD.

R=480.00 L=181.89  $\Delta=21^{\circ}42'40''$

STA. OBJ. DEF L CHORD

P.I. BEARING - N  $12^{\circ}09'32''$  W

20 LT.  $1^{\circ}29'31''$  25.00

"  $2^{\circ}59'03''$  "

"  $4^{\circ}28'34''$  "

"  $5^{\circ}58'06''$  "

"  $7^{\circ}27'37''$  "

"  $8^{\circ}57'09''$  "

"  $10^{\circ}26'40''$  "

21  $13^{\circ}16'30''$  5.05  
 $10^{\circ}51'20''$  6.89

R=500' L=135.32  $\Delta=15^{\circ}29'24''$

P.I. BEARING N  $33^{\circ}52'12''$  W

22 0+00 LT.

0+10  $0^{\circ}34'23''$  10.00

0+20  $1^{\circ}08'45''$

0+30  $1^{\circ}43'08''$

0+40  $2^{\circ}17'31''$

0+50  $2^{\circ}51'53''$

0+60  $3^{\circ}26'16''$

STA OBJ. DEF L CHORD

0+70  $4^{\circ}00'38''$  ✓

0+80  $4^{\circ}35'00''$  ✓

0+90  $5^{\circ}09'24''$  ✓

1+00  $5^{\circ}43'46''$  ✓

1+10  $6^{\circ}18'09''$  ✓

1+20  $6^{\circ}52'32''$  ✓

1+30  $7^{\circ}27'00''$  ✓

EC. 1+35.8  $7^{\circ}44'42''$

NOTE: FOR CURVES WITH 100' RADIUS

$\Delta$  FOR 25' OF ARC. =  $14^{\circ}19'26''$  ✓

" 50' " " =  $28^{\circ}38'52''$

" 75' " " =  $42^{\circ}58'19''$

" 100' " " =  $57^{\circ}17'45''$

" 125' " " =  $71^{\circ}37'11''$

" 150' " " =  $85^{\circ}56'37''$

" 175' " " =  $100^{\circ}16'03''$

R=170'  
 $\Delta$  FOR 25' OF ARC =  $8^{\circ}25'33''$

" 50' " " =  $16^{\circ}51'06''$

" 75' " " =  $25^{\circ}16'39''$

" 100' " " =  $33^{\circ}42'12''$

" 125' " " =  $42^{\circ}07'45''$

25  
 175 (61)  
 6.89  
 181.89



PROFILE & GRADES ON NORTH CURB  
 AT ENTRANCE TO "DANA LANDING"

STA	+ H.I.	-	ELEV	TOP CURB GRADE	CUT	FILL To P.C.B.
B.M.	5.37	16.78		11.41		
B.C. = 0+00 (3' OFF) 0+00			5.62	11.16	11.33	0.12
0+10			6.22	10.56	11.38	0.82
0+20			6.07	10.71	11.39	0.68
0+30			5.94	10.84	11.90	0.56
0+40			5.94	10.84	11.92	0.58
0+50			5.76	11.02	11.55	0.53
XXXXX 0+60			5.69	11.09	XXXX	XXXX
P.C.C. P.C.C. = 0+00			5.72	11.06	11.75	0.69
P.C.C. + 10 0+10			5.52	11.21	11.95	0.69
0+20			5.34	11.44	12.15	0.71
0+30			5.25	11.52	12.32	0.80
0+40			5.04	11.74	12.50	0.76
0+50			5.01	11.77	12.62	0.85
0+60			4.97	11.81	12.68	0.87
F.C.			4.92	11.86	12.70	0.84
T.B.M.			5.45	11.32	B.M.	B.M.

65+00 W/C.B. 1/2  
 X TOP CURB.

B.M. { N/W COR. Lamp Post  
 BASE # 4590  
 CENTER ENTRANCE  
 TO DANA LANDING.

PROFILE & GRADES ALONG SOUTH  
 CURB AT ENTRANCE TO DANA "LANDING"

STA	+	H.I.	-	ELEV	GRADE	CUT	FILL
0+00							
B.C. = 0+00		(FROM LAST PAGE)					
0+10		16.78	5.72	11.06	11.38		0.32
0+20			5.78	11.00	11.39		0.39
0+30			5.65	11.13	11.40		0.27
0+40			5.60	11.18	11.42		0.24
0+50			5.55	11.23	11.53		0.22
0+60			5.42	11.36	xxx		xxx
E.C.			5.40	11.38	11.75		0.37
EC. +20			5.05	11.73	12.15		0.42

MATCH CURB (EXISTING)

PROFILE & GRADES FOR CURB IN  
 FRONT OF BUILDING-DANA LANDING

25+00 W/END  
 194. TOP CURB

STA	T	H.I.	-	ELEV	GRADE	CUT	FILL
B.M.	5.39	16.80		11.41			
W/END							
AT SOUTH			5.50	11.30	12.55		1.25
SOUTH							
B.C.			5.33	11.97			1.08
SOUTH							
E.C.			5.34	11.46			1.09
0+00							
0+10			5.28	11.52			1.03
+20			5.19	11.61			0.99
+30			5.29	11.56			0.99
+40			5.08	11.72			0.83
50			5.23	11.57			0.98
60			5.15	11.65			0.90
70			4.98	11.82			0.73
80			5.08	11.72			0.83
90			5.08	11.72			0.83
100			5.09	11.71			0.84
110			5.02	11.78			0.77

PROFILE & GRADES FOR CURB IN  
FRONT OF BUILDING-DANA BASIN

5.08

STA	+	H.I.	-	ELEV	GRADE	CUT	FILL
120		16.80	4.92	11.88			0.67
NORTH B.C.			4.91	11.89			0.66
<del>134</del>							
<del>W/END @</del>							
NORTH			5.08				
NORTH			4.95	11.85			0.70
E.C							
W/END @			5.08	11.72			0.83
NORTH							

BM.	5.72	17.13		11.41			
2+38 <sup>82</sup>			5.20	11.93	13.00		1.07
2+23			5.23	11.90			1.10
2+17 <sup>59</sup>			5.24	11.89			1.11
1+98			5.32	11.81			1.19
1+73			5.30	11.83			1.17
1+48			5.12	12.01			0.99
1+23 B.C.			4.91	12.22			0.78
			-		13.00		-
0+75			4.97	12.16	12.92		0.76

11.91  
5.52  
16.93

STA	+ H.I.	-	ELEV	GRADE	CUT	FILL
B.M	5.52	16.93	11.91			
1.		4.98	11.95	12.42		0.47
2.		4.96	11.97	12.35		0.38
3.		4.93	12.00	12.35		0.35
4.		4.78	12.25	12.35		0.10
5.		4.97	11.96	12.35		0.39
6.		4.83	12.10	12.42		0.32
7.		4.88	12.05	12.50		0.45
8.		4.93	12.00	12.50		0.50
9.		4.92	12.01	"		0.49
10.		4.92	12.01	"		0.49
11.		4.86	12.07	"		0.43
12.		5.00	11.93	"		0.57
13.		4.91	12.02	12.45		0.42
14.		4.80	12.07	12.40		0.33
1+25				LEFT	RIGHT	
1+25		4.97	11.96		12.50	0.54
1+09		5.04	11.89			LEFT 0.72
			12.61	12.68		RIGHT 0.79

6  
2  
7

15  
78  
3

(67)

STA	T	H.L.	-	ELEV	RIGHT GRADE	LEFT GRADE	F.L.L.
0775		16.93	5.17	11.76	F-1.02 12.78	F-0.95 12.71	
0750			5.05	11.88	F-0.97 12.85	F-0.91 12.79	
0725			5.02	11.91	F-1.02 12.93	F-0.98 12.89	
0700			4.67	12.26	13.00		0.74
15. R.			4.63	12.30	13.00		0.70
16			4.70	12.23	"		0.77
17. P.P.			4.64	12.29	"		0.71
18			4.72	12.21	12.99		0.78
19			4.70	12.23	12.98		0.75
20			4.59	12.39	12.96		0.57
21. E.C.			4.57	12.36	12.94		.58
22. B.C.			4.69	12.29	12.92		.63
23			4.72	12.21	12.90		.69
24			4.81	12.12	12.88		.76
25			4.82	12.11	12.85		.74
26			4.79	12.14	12.85		.71
27			4.73	12.20	12.92		.72
R-28			4.66	12.27	13.00		.73

	17.13	-	El.	Grade	Cut	Fill
0+50			5.16	11.97	12.85	0.88
0+25			5.19	11.94	12.77	0.83
0+00			5.03	12.10	12.70	0.60
1			4.89	12.24	12.67	0.48
2			4.85	12.28	12.65	0.37 0.42
3			4.88	12.25	12.62	0.37 0.45
4C			4.97	12.16	12.60	0.44
5			4.92	12.21	"	0.39
6			4.88	12.25	"	0.35
7			4.90	12.23	"	0.37
8			4.88	12.25	"	0.35
9			4.92	12.21	"	0.39
10			4.90	12.23	"	0.37
11			4.96	12.17	12.60	0.43
12			5.02	12.11	12.62	0.51
13			4.99	12.14	12.65	0.51
14			5.00	12.13	12.67	0.54
15			4.95	12.18	12.70	0.52

11.91  
5.91  
17.32

15'  
45'

69

STA-65+00  
w/c 13/16  
⊗ Top Curve

STA	+ H.I.	-	ELEV	GRADE	CUT	FILL
B.M	5.91	17.32	11.91			
1		5.34	11.98	13.00		1.02
2		5.32	12.00	"		1.00
3		5.32	12.00	"		1.00
4		5.36	11.96	"		1.04
5		5.37	11.95	"		1.05
6		5.40	11.92	"		1.08
7		5.49	11.83	12.96		1.13
8		5.31	12.01	12.92		0.91
9		5.44	11.88	12.88		1.00
10		5.42	11.90	12.86		0.96
11		5.40	11.92	12.85		0.93
12		5.43	11.89	12.88 12.92		0.99
13		5.46	11.86	12.92		1.06
2+17	59	5.42				1.0
		<del>5.42</del>	11.90			F. 1.11
2+23		5.41				0.9
		<del>5.41</del>	11.91			F. 1.10



GRADES & LEVELS FOR ISLAND AT  
ENTRANCE TO DANA LANDING

STA + H.I. - ELEV GRADE CUT FILL

B.M 5.30 16.62 11.32

R=3'  
EAST RADIUS 5.82

R=1'  
WEST RADIUS GONE 5.97

S/EC. } R=3' 11.15 0.35

CENTER } R=3' 10.80 11.10 0.30

N/EC. } R=3' 11.15 0.35

B.M 4.86 16.18 11.32

S/EC. } R=1' 11.83 1.04

CENTER } R=1' 5.39 10.79 11.83 1.04

N/EC. } R=1' 11.85 1.04

4.99 11.79

4.42 11.76

$$\begin{array}{r} 41 \\ 369 \\ .73 \\ \hline 11.11 \\ 11.83 \end{array}$$

$$\begin{array}{r} 49 \\ 510 \\ 3518 \\ 5025 \\ \hline 25 \\ 25 \\ 5 \end{array}$$

$$\begin{array}{r} 25 \\ 45 \\ 25 \\ 5 \end{array}$$

$$\begin{array}{r} 27 \\ 5 \\ 11.32 \\ 4.85 \\ 16.18 \\ 5.39 \\ \hline 10.79 \end{array}$$

N/A COR LMPD 097

11.83  
10.79  
1.04

11.15  
16.80  
.35

N/A COR BASE LAMP POST #4590 (ENTRANCE) 1.10  
10.80  
.20

16.18  
9.99  
11.79  
11.76

LEVELS & GRADES ALONG (15) FROM  
EDGE OF PAVEMENT DANA LANDING  
PAVEMENT

STA	+	H.I.	-	ELEV	GRADE	CUT	FILL	
B.M.	5.68	17.00		11.32				N/W COR. BASE LAMP POST # 4590 (ENTRANCE)
T.O.P CURB				CURB				
0+20			4.86	12.24	11.65	0.49		
+25			5.06	11.94	11.71	0.23		12.55
+50			5.20	11.80	12.5	0.70		4.90 17.45
+75			5.81	11.19	12.06	0.87		8.51 50.10
= PT (20)"								17
0+31.8			6.13	10.87	11.86	0.93		5
0+00(20)"			5.92	11.08	11.80	0.72		85
(20)" +25			5.94	11.06	11.8	0.74		
+50			6.00	11.00	11.8	0.80		70.35 42.20
+75			6.00	11.00	11.8	0.80		25.7 7.9
+100			5.95	11.05	11.8	0.75		17.5 9.9
(20)" +125			6.06	10.94	11.8	0.86		12.55 4.90
+150			6.03	10.97	11.8	0.83		17.45
(20)" +175			5.90	11.10	11.8	0.70		
T.P.			4.45	T.P. 12.55				TOP CURB AT NORTH END FRONT OF BUILDING
T.P.	4.90	17.45		T.P. 12.55				

16  
25  
42

92  
75  
7  
12.5  
11.83

11.32  
5.68  
17.00  
4.86  
1.9

(71)

STA	+	H.I.	-	ELEV	GRADE	CUT	FILL
"①"	-50	17.45	6.01	11.44	11.80		0.36
	-25		6.15	11.30	11.8		0.50
"①"	=						
	0+00		6.03	11.42	11.8		0.38
	+25		6.06	11.39	11.8		0.41
	+50		6.09	11.91	11.8		0.39
	+75		5.90	11.55	11.8		0.25
"①"	+100		5.83	11.62	11.8		0.18
	+125		5.69	11.81	11.8	0.01	
	+150		5.35	12.10	11.8	0.30	
	+175		5.23	12.22	11.9	0.32	
	S.C = PT # ③						
	+195 ±		5.68	11.77	12.0	0.23	12.30
	B.C = PT # 4						10.72
			6.00	11.75	12.15	0.70	1.58
PT # 4	+25'		6.46	10.99	12.32	1.33	
	+50		6.52	10.89	12.50	1.61	
B.M	5.96	17.37		11.41			
"④"	+75		6.55	10.72	12.30	0.58	
	+100'		6.35	11.02	12.10	1.08	
	+125'		5.04	12.33	12.05	0.28	

STA - 65+00 w/cb. B/L. @ Top CURB

11.91  
5.96  
17.37

137  
25  
12

6-2 99

(73)

137  
50

53

87  
57

STA	+	H.L.	-	ELEV	GRADE	CUT	FILL
"6"							
FC.		12.37		4.67	12.70	11.93	0.77
+25				5.50	11.87	11.82	0.05
+50				5.69	11.68	11.71	0.03
B.C.				5.55	11.82	11.60	0.22
+20				5.82	11.55	11.55	GRADE
+45				5.95	11.42	11.50	0.08
+70				5.90	11.47	11.50	0.03
+95				CUT		11.50	
+120				5.95	11.42	11.50	0.08
+145							
FC.				5.85	11.52	11.50	0.02
+25				5.80	11.57	11.55	0.02
+50				5.76	11.61	11.60	0.01
+75				5.87	11.50	11.70	0.20
+99							
B.C.				5.71	11.66	11.80	0.14
+				5.58	11.79	11.90	0.11
+				5.39	11.98	12.00	0.02
P.B.C.				5.59	11.78	12.10	0.32

6-25-43

10.7

9.2

(74)

9.3

.4

1.6

8.8

9

8.9

STA	+	H.I.	-	ELEV	GRADE	CUT	FILL
P.R.C. +05 <sup>3</sup>				5.60	11.77	12.10	0.33
+15 <sup>3</sup>				5.55	11.82	12.12	0.30
+25 <sup>3</sup>				5.56	11.81	12.18	0.34
+35 <sup>3</sup>				5.56	11.81	12.18	0.37
P.R.C. +45 <sup>3</sup>						12.20	

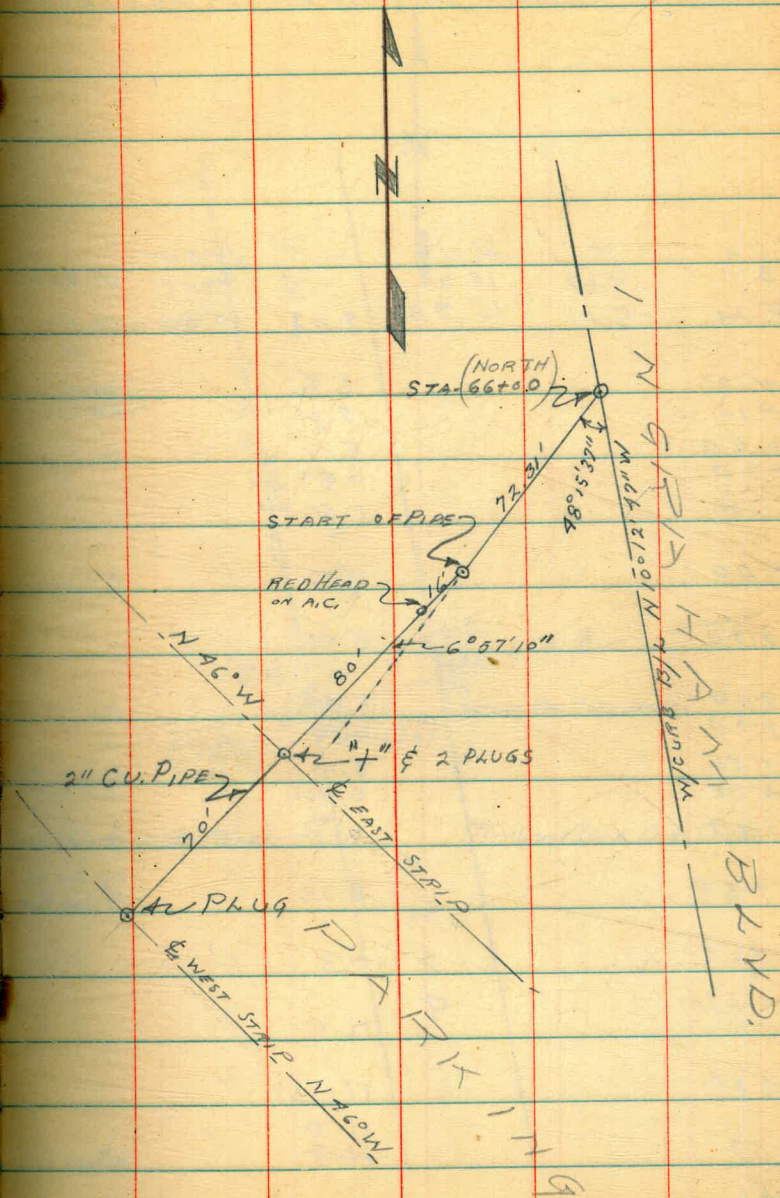
STA	+	H.I.	-	ELEV	GRADE	CUT	FILL
B.M.	5.16	16.7		11.20			
0+00		16.36		10.3	9.9		
0+10			5.45	10.89	9.3	1.6	
0+20			5.45	10.9	9.2	1.70	
			4.72	12.0	8.8	3.2	
			4.95	11.91	8.9	3.0	

11.20
5.16
16.36
67+00
8.1
7.86
16.36
6.50
9.86

LAY OUT OF WATER LINE TO PARKING  
LOT DATA LANDING

C. BARRAGAN 6-22-49  
E. WATSON  
A. SHERRY

(75)



LOCATION & PROFILE ALONG E OF PROPOSED  
CULVERT UNDER MIDWAY DRIVE (INGRAHAM)

STA	+	H.I.	-	ELEV	
B.M.	4.67	15.91		11.24	STA-61+00-N
T.B.M.	5.11	15.99	5.03	10.88	0+00 PROFILE STA-60+00-N
0-10			6.6		W/EDGE CONC PAD OVER INLET
0-10			5.11		
0+00			5.11		EDGE W/CURB
0+00			6.04		
0+10			5.50		
0+20			5.32		E INGRAHAM
0+30			5.48		
0+40			6.04		EAST CURB
0+40			5.16		
0+45			5.12		E/END CONC PAD OVER INLET
0+45			6.40		
0+47			7.15	8.84	END CONC SLOTT
0+58			8.23		EAST END OF 1/2 CORR. PIPE
0+65			10.3		
0+75			11.0		
1+25			11.1		
1+57			11.0		W/BANK OF SLUGH
1+60			11.2		
			13.0		IN SLUGH

NOTE

3/4 DIST. = 101.61' PER 100' GRID.

EDGE W/CURB

E INGRAHAM

EAST CURB

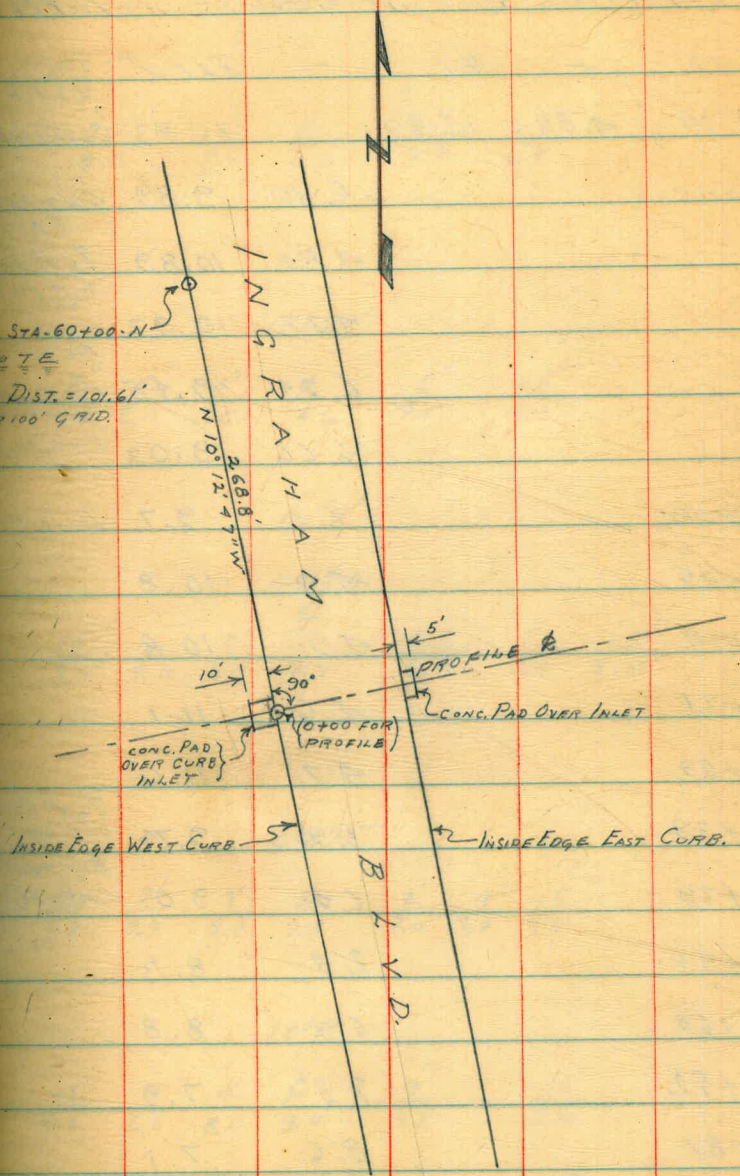
E/END CONC PAD OVER INLET

END CONC SLOTT

EAST END OF 1/2 CORR. PIPE

W/BANK OF SLUGH

IN SLUGH



## PROFILE ALONG LINE OF PROPOSED DRAIN

## CROSS SECTIONS H.I. = 15.69

EXTENSION WEST SIDE MIDWAY @ STA. N-77+00

0+00

STA	+	H.I.	-	ELEV	U.S.F.P	WEST			EAST		
B.M.	4.86	15.69		10.83	"CAVESWAY"	17'	5'	¢	2.3'	2.3'	
CONC			-5.80	9.89	GUTTER EAST	4.3	5.5	6.0	6.2	4.8	
"			4.80	10.89	T.O.P PAD						
"			4.77	10.92	T.O.P PAD WEST						
"			6.24	9.45	END F/L WEST						
"			6.66	9.03	END CHUTE	15'	7'	6'	4'	¢	6'
						4.0	4.6	6.1	6.6	4.6	4.1
0+00			6.0	9.7	DIRT						
+05			4.9	10.8							
+14			4.9	10.8		15'	6'	4'	¢	2.5'	5'
						3.5	4.0	6.3	7.5	6.7	3.6
+21			4.6	11.1							
+29			4.7	11.0							
+39			5.95	9.74	T.O.P CONC CASING						
+39			6.7	9.0	BOTTOM CONC CASING	15'	8'	7'	3'	¢	2'
						3.1	3.3	5.9	8.4	7.8	7.0
+50			7.4	8.3							
+60			6.9	8.8							
+72			7.8	7.9		15'	5'	4'	¢	9'	15'
						5.6	6.6	8.0	9.0	9.3	9.6
+81			8.6	7.1							
1+00			9.2	6.5		15'	10'	1+26	¢	10'	13'
1+15			9.6	6.1		11.8	12.1	12.5	13.0	14.2	
1+27			15.7	13.0	2.7						



## PROFILE ALONG LINE OF PROPOSED DRAIN

## PROFILE

EXTENSION WEST SIDE MIDWAY @ STA-N-98+00

STA	+	H.I.	-	ELEV
T.B.M.	3.79	16.04		12.25
A.C			4.72	
CONC			3.75	
CONC			5.20	10.84
"			5.80	10.24
"			4.80	
0+00			5.1	
+04			5.4	
+09			6.1	
+18			6.9	
+28			7.5	
+35			7.3	
+36			6.9	
+43			8.3	
+48			6.6	
+53			8.5	
+60			8.6	
+64			8.9	

O.A.D. W/C. 8 1/2  
STA-102+00GUTTER  
TOP CONCPAD WEST END  
FL & W/ENDPAD  
FL & END

CHUTE

TOP CONC  
LOWER END OF W/

STA	+	H.I.	-	ELEV
0+69				8.9
+81				9.3
+94				9.6
+98				9.8
1+07				10.7
CONC				4.85
CONC				6.98

TOP WING  
WALK BRIDGE  
BOTTOM WING  
WALK

## CROSS SECTIONS H.I. = 16.04

WEST 0+00 EAST

10'	5'	¢	22'
5.4	5.1	5.1	5.2

0+25

10'	5'	4'	3'	¢	3'	3.5'	10'
3.5	3.6	5.5	6.1	7.5	6.3	3.8	3.5

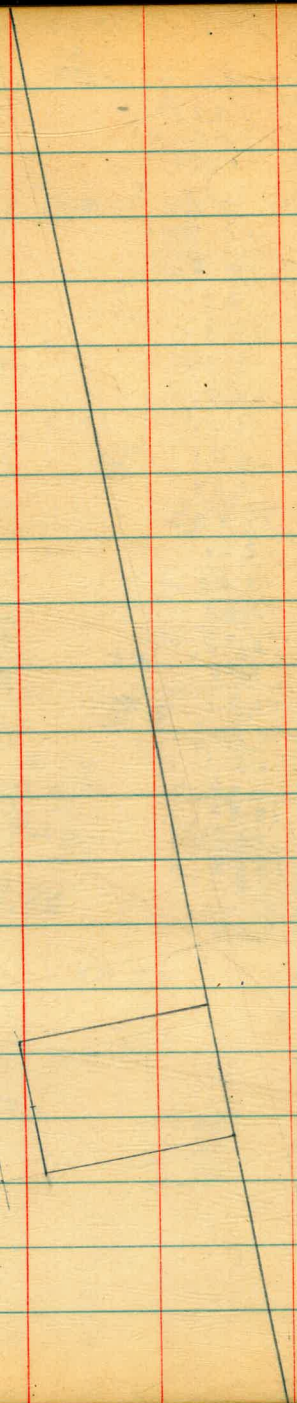
0+50

10'	5'	5'	¢	6'	11'	15'
3.3	3.4	7.3	7.5	5.7	3.6	3.3

0+75

15'	7'	6'	¢	5'	7'	15'
4.8	5.1	8.2	9.1	8.1	6.1	6.3

-15'  
-3.7 1+0.015'  
-10.4



	17.59 4.80 12.79	13.75 13.69	16.97 9.80 11.97 13.80 17.75 1.05	15.71 9.80 10.91
19.93 12.86 6.57	-	.06		
12.86 - #3	13.75 #4			
+6.95	+3.97			
19.81	19.52		13.75	
3.37	-2.79		5.71	
16.44	16.73		19.16	
3.37	+2.70		5.69	
19.81	19.93		13.77	
6.06	6.57		3.08	
13.75 #4	12.86 - #3		16.85	
3.84			4.89	
17.59 ✓	12.26		12.26	
-3.72	3.95			
13.87 ✓	15.71		12.25	
12.90	3.20		12.19	
16.77 ✓	12.51			
4.96 #5	9.91		.06	
12.26 - 12.31 #5	16.92			
+4.59	7.78			
16.90	12.19			
-3.08	05			
13.82	12.19			
5.62				
19.51				
5.71				
13.80				

12.50 FIN. 9.				
19				
12.33 - SUB. 9.				
12.55				
4.10				
16.65				
12.08				
4.57 ✓				
16.65				
12.21				
9.94 - 12.38				
12.22				
.17				
12.05				
16.65				
12.05				
9.65				
11.87				
17				
11.70				
16.65				
11.70				
4.95				
10.72 ✓				
12.55				
9.11				
16.66				
12.33				
7.33				
12.25				
15.5				
3				
12.35 ✓				
4.41				
4.78				
12.21				
12.55				
4.09				
16.64				
12.35				
4.29				
.17				
4.12				
9.76				
11.78				
16.65				
5.93				
12.25				
17				
11.95				
12				
11.78				
12.55				
12.45 -				
12.35 -				
12.08				
12.18				
16.65				
12.08				
16.65				
12.08				
16.65				
12.18				
3.66				
12.35				
17				
16.65				
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12.35				
17				
16.65				
12.18				
3.66				
12.35				
17				
16.65				
12.18				
3.66				

B  
a  
c  
= c/a  
a²  
c²  
C  
A  
+ B)  
+ B)  
y the  
9.4 ft.  
10' =  
slope  
n the  
ollow-  
.0041.  
dist-  
14 ft.,  
ft.  
IN U. S. A.

145.3  
25  
20.3  
18.9  
5.75° 41' 07" E

5.38	5.35	5.21
5.35		5.17
.03		.04
5.32		.03
11.32		.01
16.69		
12.50		
7.127.00		



45 ft  
40  
160  
5

5.3	5.2	5.2
5.3	5.3	5.3
5.1	2.59	10.1
5.4	2.65	2.60
216	2809	2700
270		
3718		

179 60  
66 18  
113 72



4.95  
7.60  
333

COMM  
BLDG

12.50	76	30	2.8	5.00
17	17	168.0		7.65
	.59			.35
12.33		60/16.0		
		120		
		480		
		180		

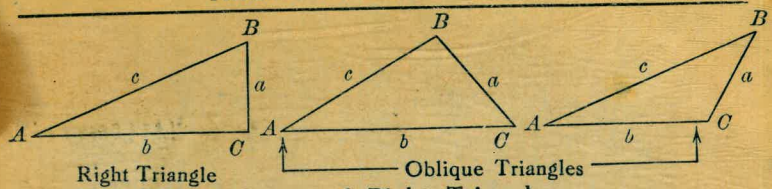
86-67-37  
15-11

371 36-37 E

4.21	9.21	4.14	.63
			12
			96
			4.70
			31
			.39

6.14	7	10
	5.87	4.84
	5.88	4.94
	12.3900	2.1040
	12.3900	2.1040
	10.1320	

TRIGONOMETRIC FORMULAE



Solution of Right Triangles

For Angle A.  $\sin = \frac{a}{c}$ ,  $\cos = \frac{b}{c}$ ,  $\tan = \frac{a}{b}$ ,  $\cot = \frac{b}{a}$ ,  $\sec = \frac{c}{b}$ ,  $\operatorname{cosec} = \frac{c}{a}$

Given a, b	Required A, B, c	$\tan A = \frac{a}{b} = \cot B$ , $c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B$ , $b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90^\circ - A$ , $b = a \cot A$ , $c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90^\circ - A$ , $a = b \tan A$ , $c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90^\circ - A$ , $a = c \sin A$ , $b = c \cos A$

Solution of Oblique Triangles

Given A, B, a	Required b, c, C	$b = \frac{a \sin B}{\sin A}$ , $C = 180^\circ - (A + B)$ , $c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}$ , $C = 180^\circ - (A + B)$ , $c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180^\circ - C$ , $\tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$ $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a + b + c}{2}$ , $\sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$ $\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}$ , $C = 180^\circ - (A + B)$
a, b, c	Area	$s = \frac{a + b + c}{2}$ , $\text{area} = \sqrt{s(s - a)(s - b)(s - c)}$
A, b, c	Area	$\text{area} = \frac{bc \sin A}{2}$
A, B, C, a	Area	$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10'. From Table, Page IX.  $\cos 5^\circ 10' = .9959$ . Horizontal distance =  $319.4 \times .9959 = 318.09$  ft. Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained.  $\cos 5^\circ 10' = .9959$ .  $1 - .9959 = .0041$ .  $319.4 \times .0041 = 1.31$ .  $319.4 - 1.31 = 318.09$  ft.

When the rise is known, the horizontal distance is approximately: - the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft. slope distance = 302.6 ft. Horizontal distance =  $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$  ft.