1650

DIXON

ENGINEERS'

FIELD BOOK

No. 403 E

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)÷2 or 2 ft. added to 30.6 =32.6. For slopes of 1 on 1½ see inside of back cover.

1650

CITY ENGINEER

This Field Book is manufactured of a High Grade 50% Rag Paper having a WATER RESISTING SURFACE, and is sewed with Bing Special Enamel Waterproof thread.

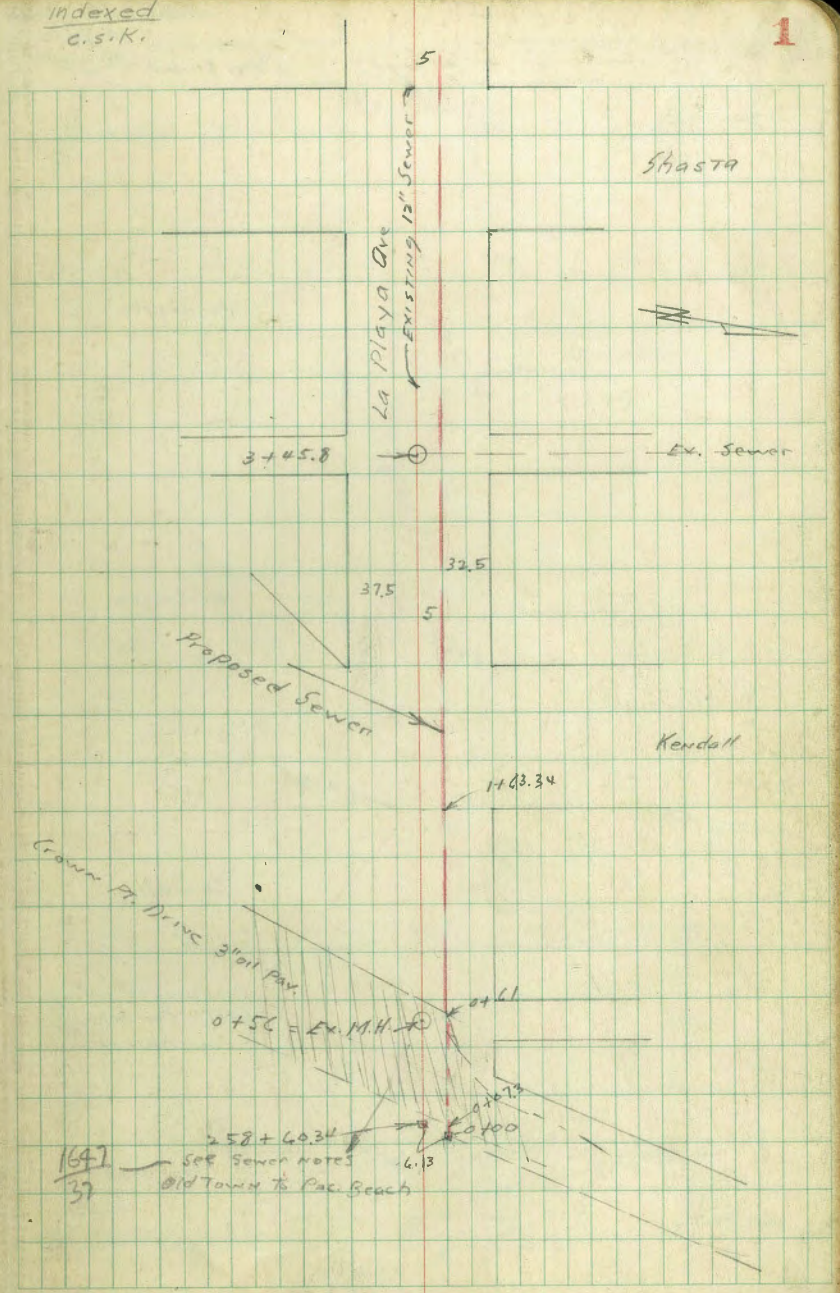
Made in U. S. A.

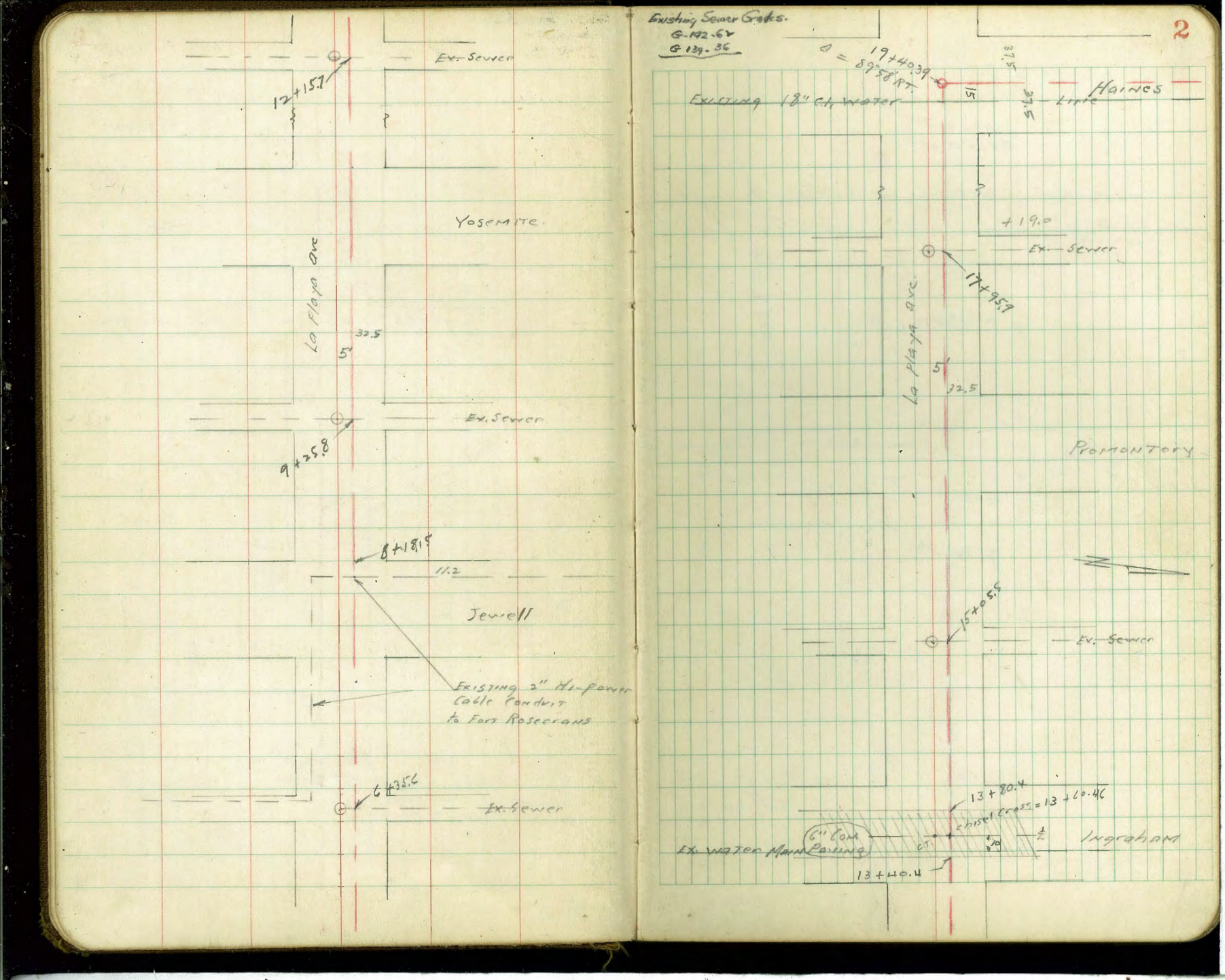
Kettner Blvd Market to Harbor 65-69

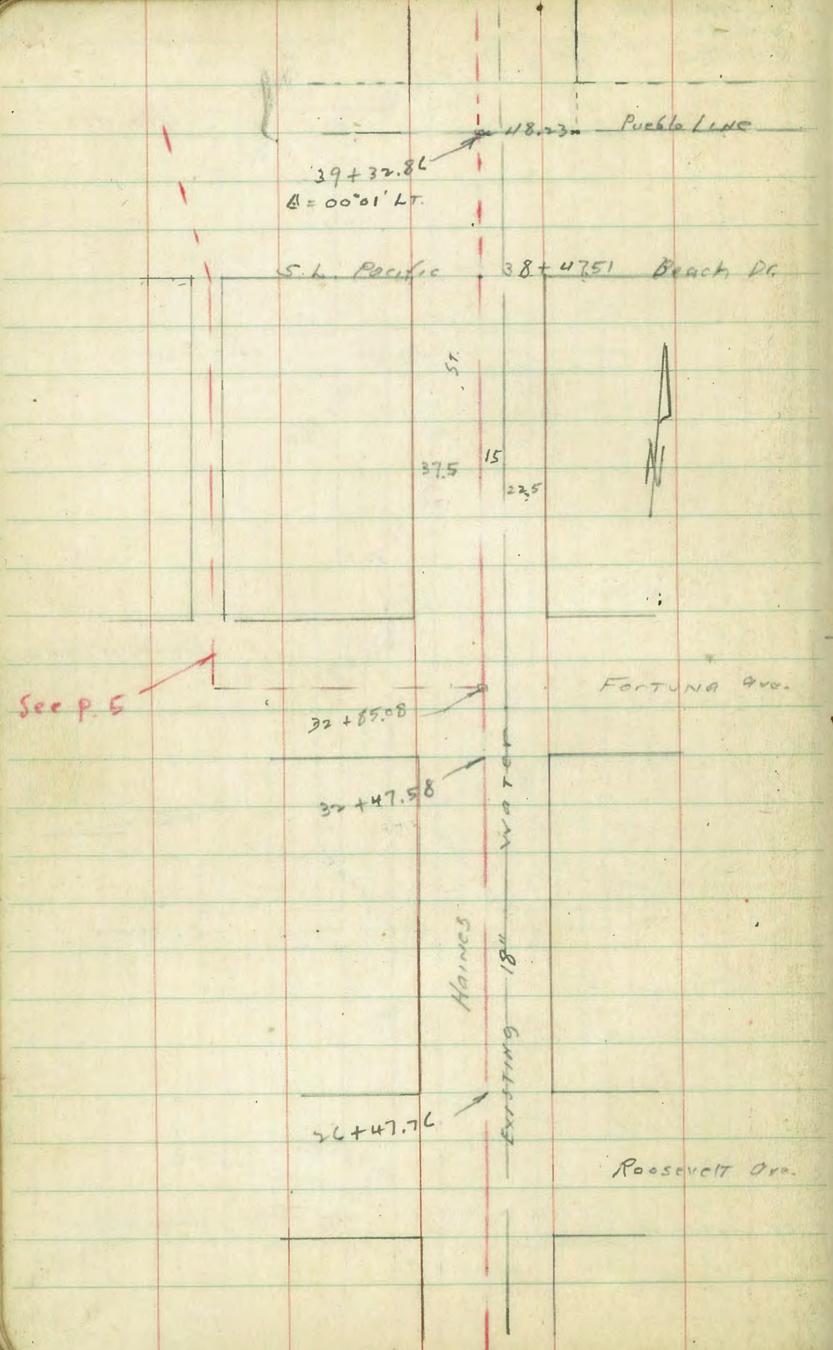
C. Moore
Sommerreyer
W. Moore
Jan. 1943.

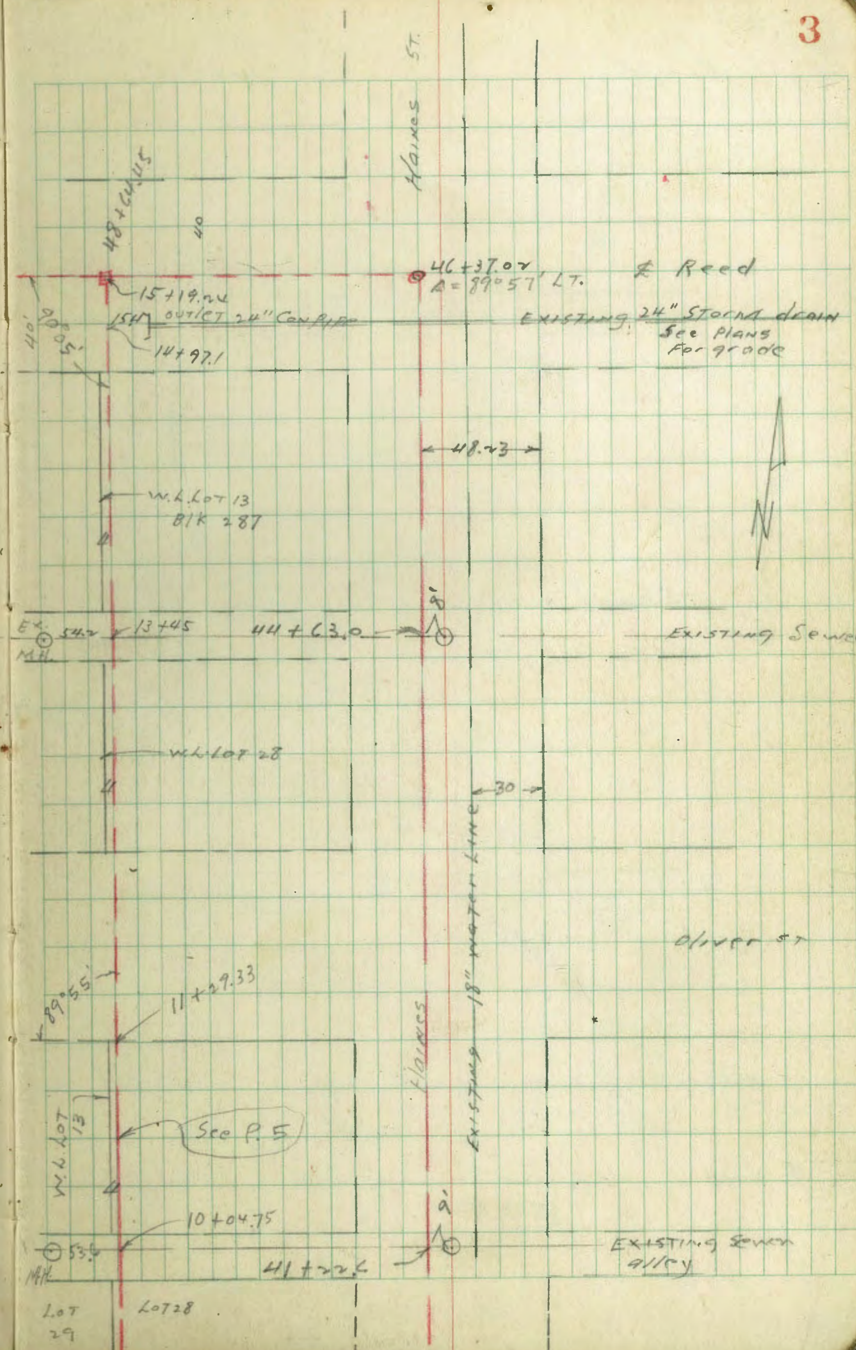
Crown Point to La Jolla Trunk Sewer.

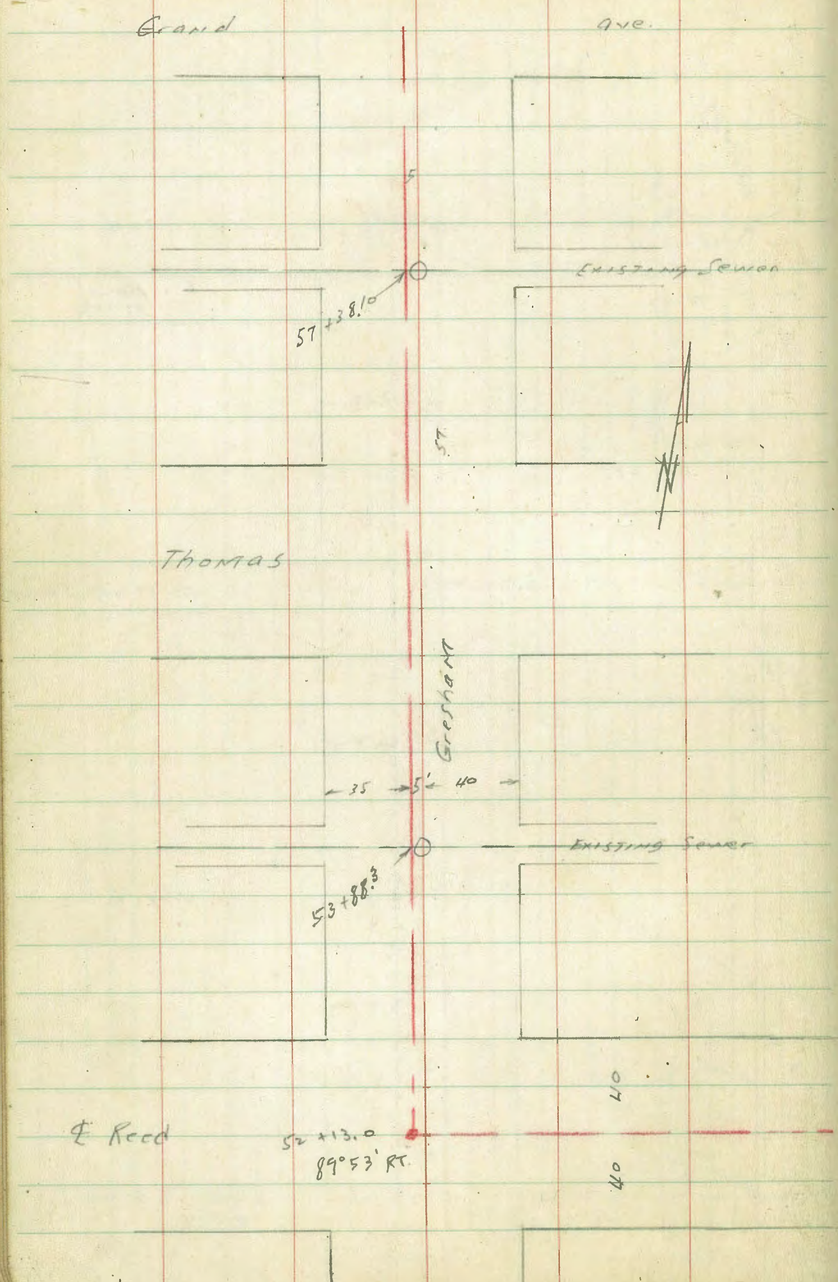
Indexed
C.S.K.



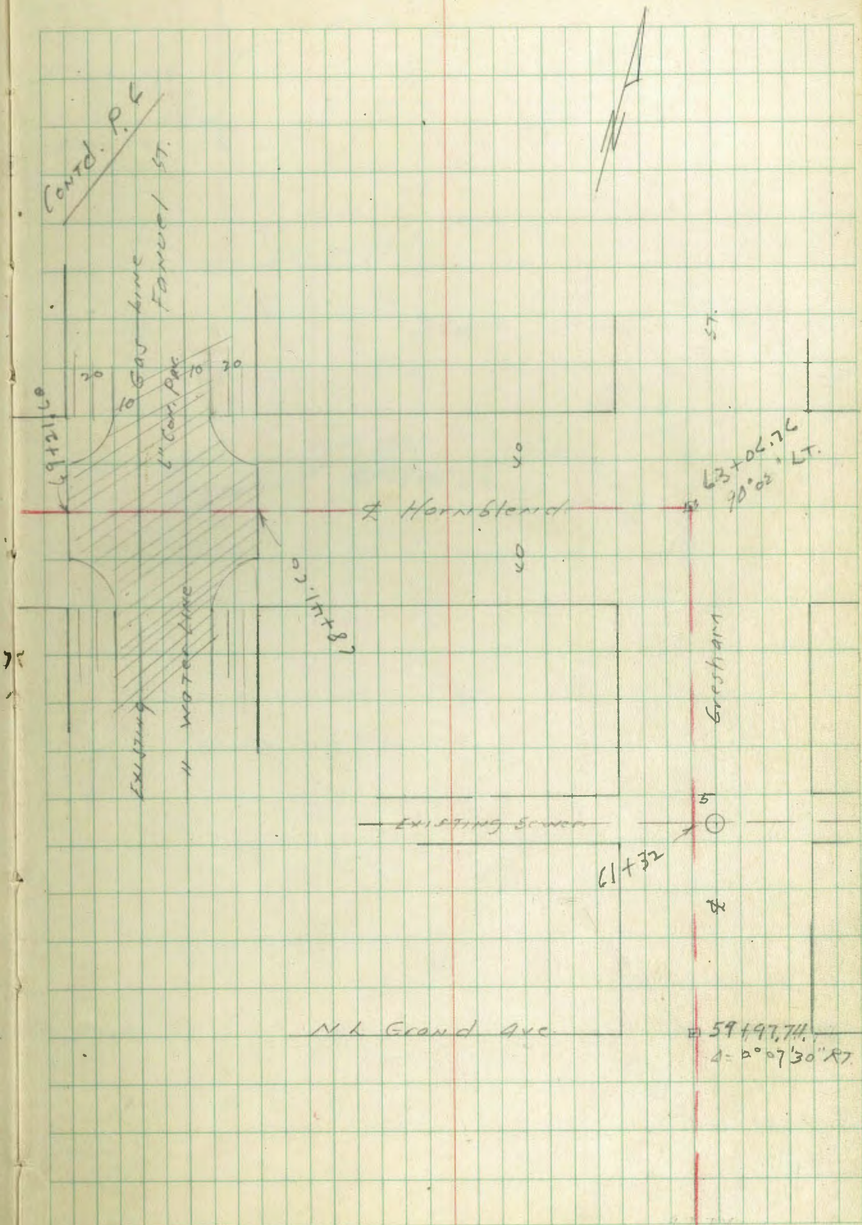

Existing Sewer Grades.
G-192.62
G-189.36
Ex. Sewer
12+15.7
Yosemite
La Playa Ave
32.5
5'
Ex. Sewer
9+25.8
8+18.9
11.2
Jewell
Existing 2" Hi-Power Cable Conduit to Fort Rosecrans
6+35.6
Ex. Sewer
Δ = 89°58'PT.
19+40.39
37.5'
15'
Existing 18" C.I. Water
Haines
Line
+19.9
Ex. Sewer
17+9.59
La Playa Ave.
5'
32.5
Promontory
15+05.54
Ex. Sewer
13+80.4
Chisel Cross = 13+60.46
6" Conc. Paving
Ex. Water Main
C.L.
Ingraham
13+40.4


39+32.86
Δ = 00°01' LT.
118.23
Pueblo Line
S.L. Pacific
38+47.51
Beach Dr.
St.
37.5
15
22.5
N
See P. 5
32+85.08
Fortuna Ave.
32+47.58
Haines
Existing 18" Water
26+47.76
Roosevelt Ave.

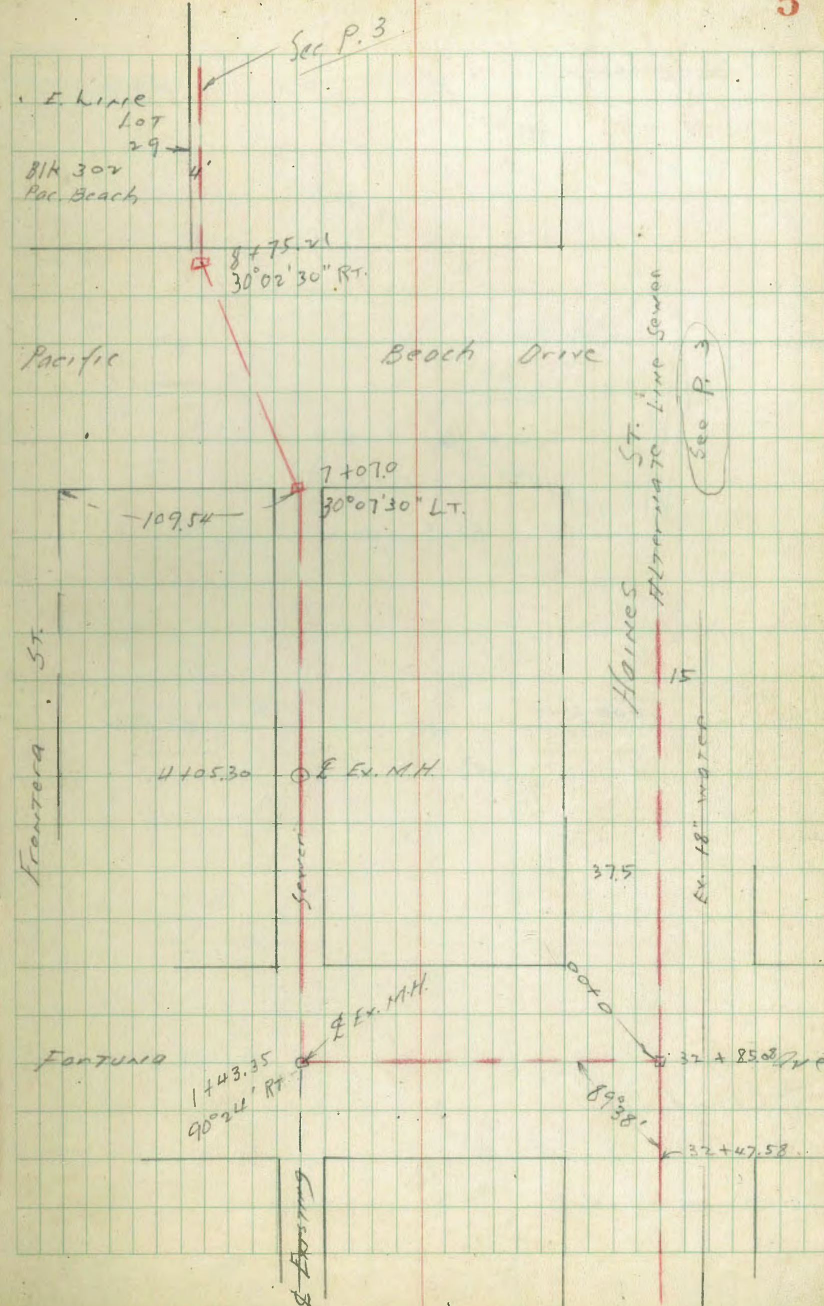

Haines St.
48+64.45
40
46+37.07
Δ = 89°57' LT.
℄ Reed
15+19.24
40'
90°05'
15 M outlet 24" Con. Pipe
14+97.1
Existing 24" Storm drain
See Plans
For grade
48.23
N
W.L. Lot 13
Blk 287
Ex. MH
54.2
13+45
44+63.0
8'
Existing Sewer
W.L. Lot 28
30
89°55'
11+29.33
Oliver St
Haines
Existing 18" Water Line
W.L. Lot 13
See P. 5
10+04.75
53.5
MH
41+22.6
9'
Existing Sewer
alley
Lot 29
Lot 28

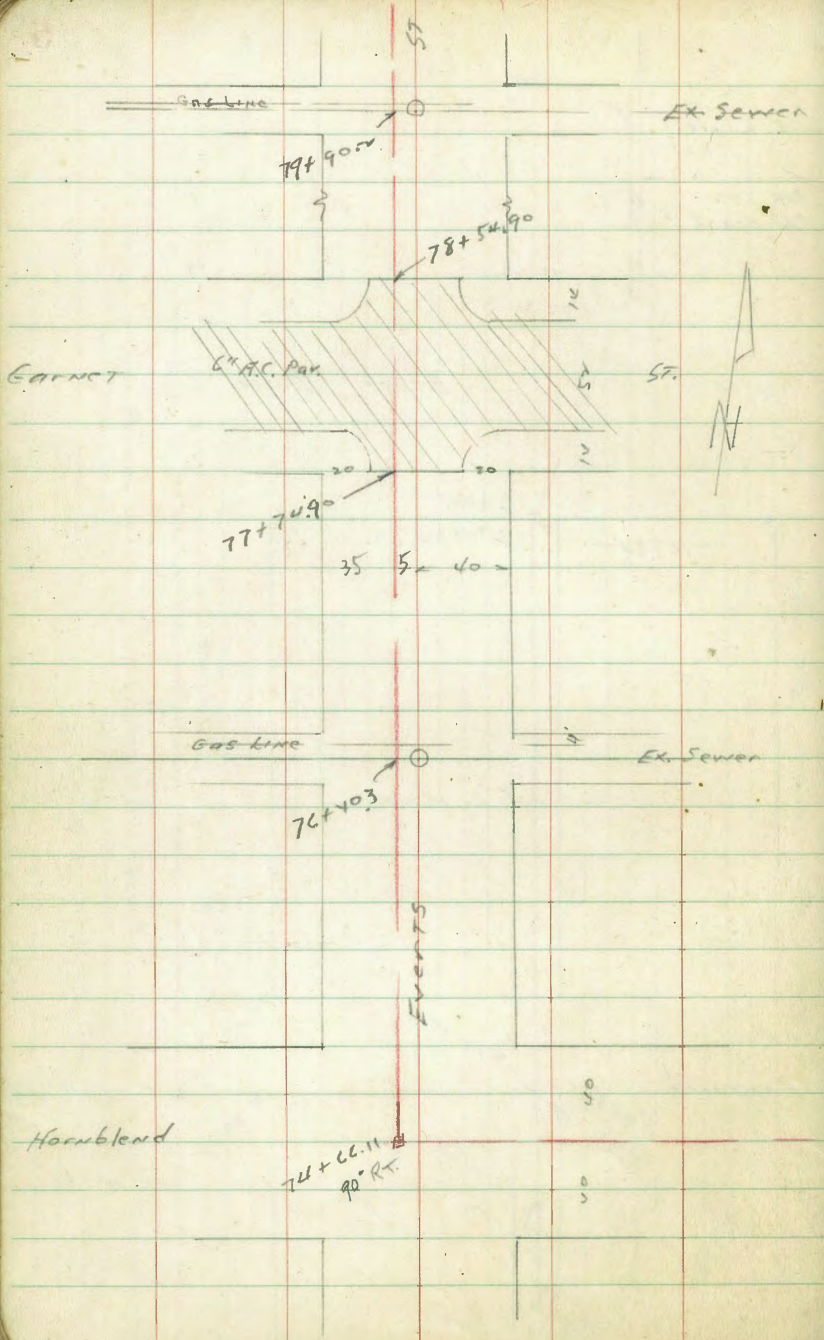


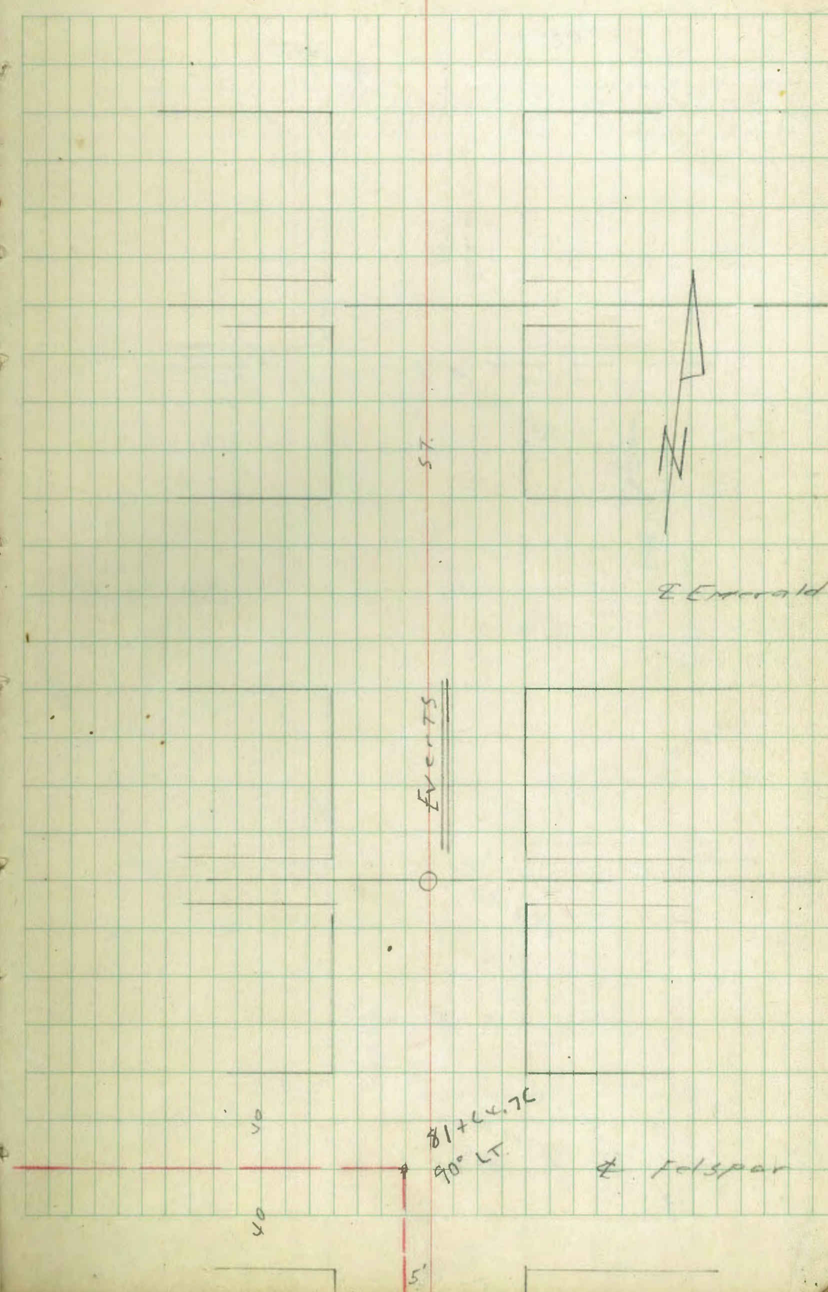
Grand
Ave.
Existing Sewer
57+38.10
St.
Thomas
Gresham
35
5'
40
Existing Sewer
53+88.3
40
℄ Reed
52+13.0
89°53' RT.
40

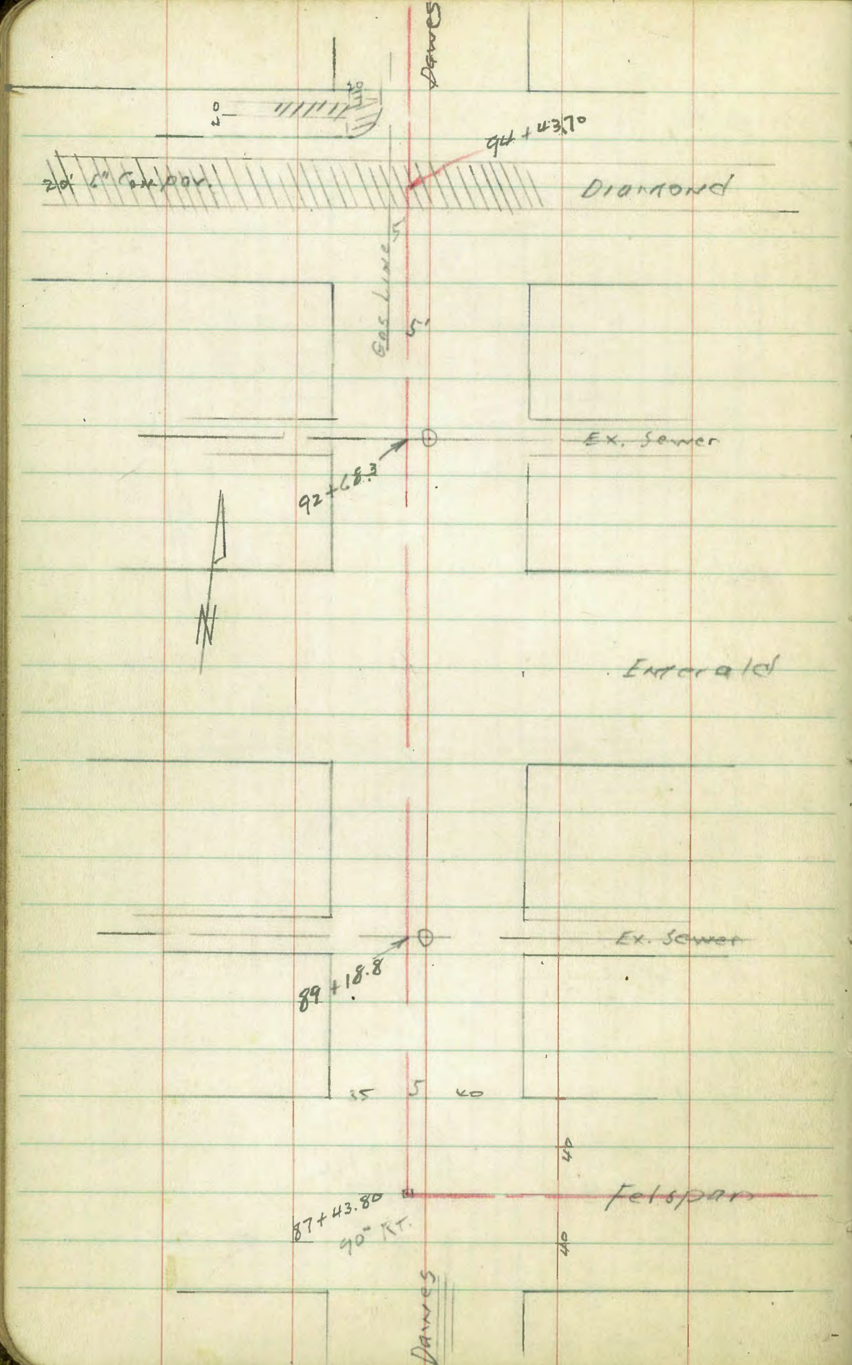


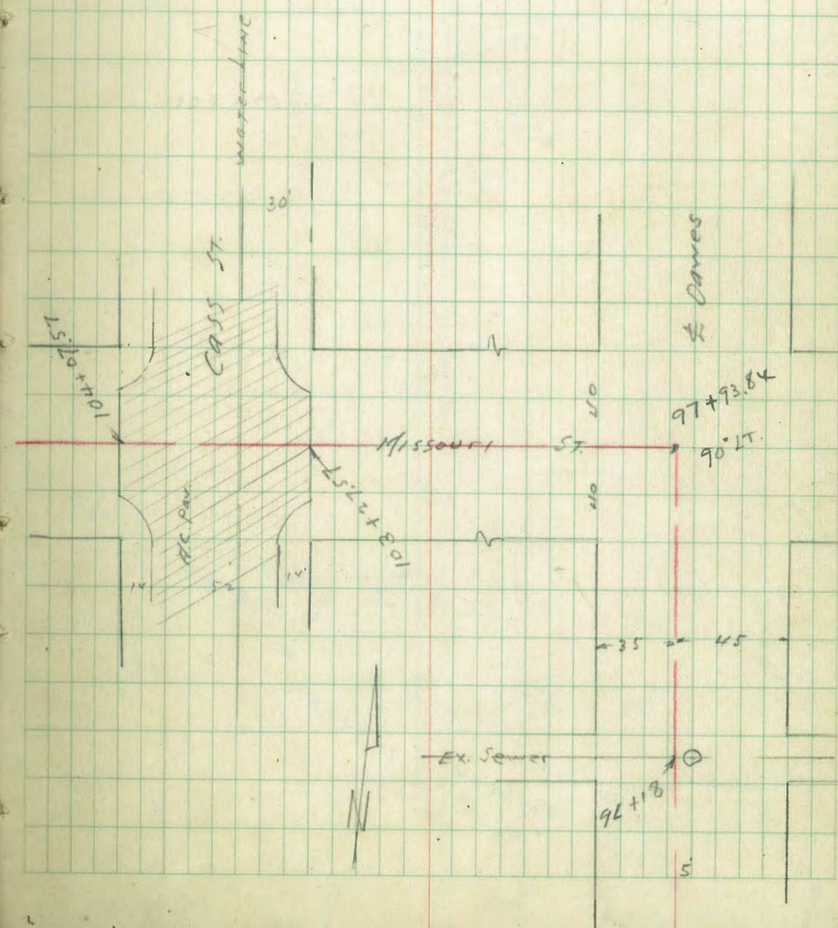
Contd. P. 6
Fonduel St.
Gas Line
6" Con. Pav.
Existing
Water Line
20
10
10
20
69+21.60
℄ Hornblend
40
40
68+17.60
63+06.76
90°02' LT.
St.
Gresham
Existing Sewer
61+32
℄
N L Grand Ave
59+97.74
Δ = 0°07'30" RT

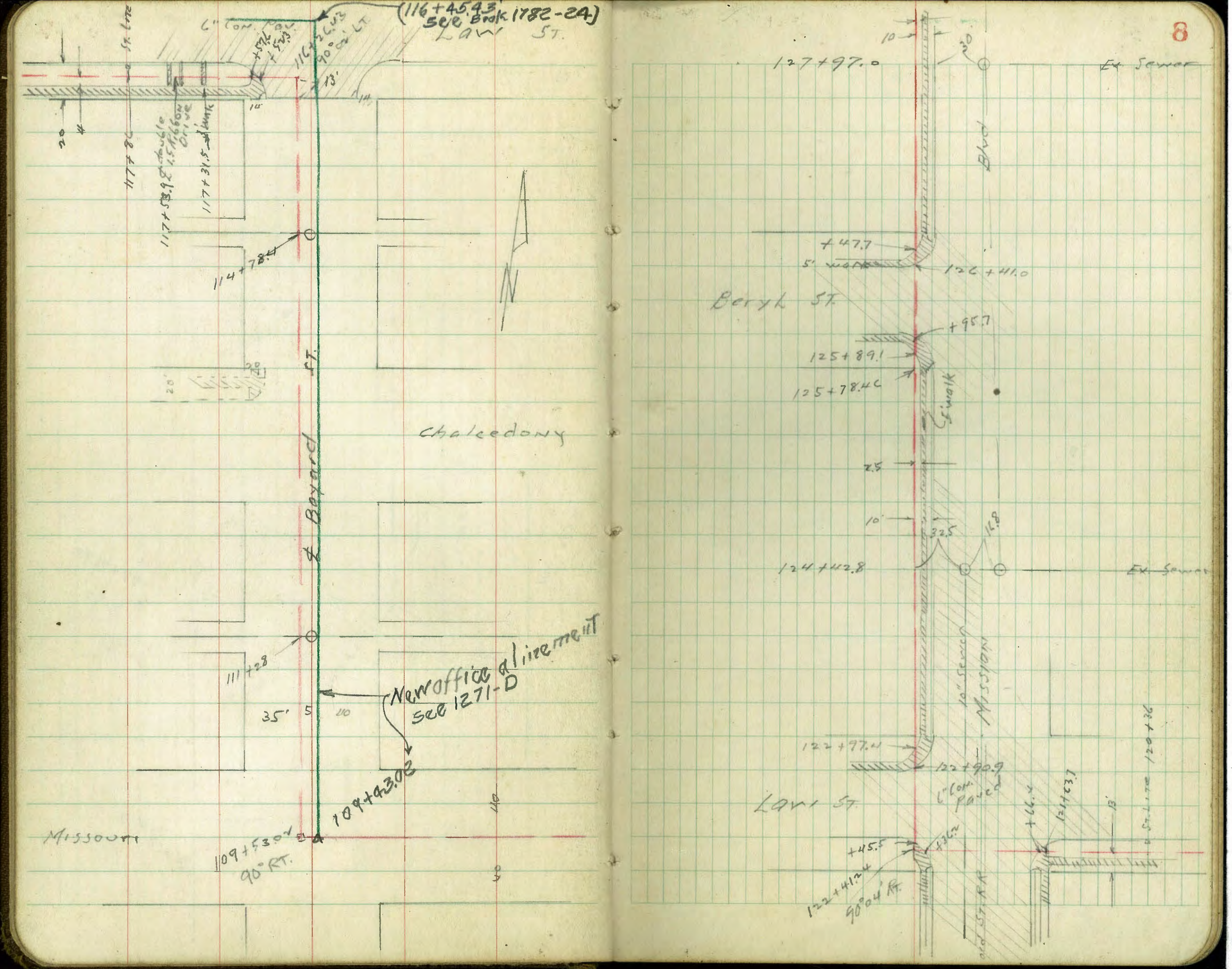

See P. 3
E. Line Lot 29
4'
Blk 302 Pac. Beach
8+75.21
30°02'30" Rt.
Pacific Beach Drive
7+07.0
30°07'30" Lt.
109.54
Frontera St.
4+05.30
℄ Ex. M.H.
Sewer
Haines St.
Alternate Line Sewer
See P. 3
15
Ex. 18" water
37.5
Fortuna Ave
℄ Ex. M.H.
1+43.35
90°24' Rt.
89°38'
32+85.08
32+47.58
℄ Existing

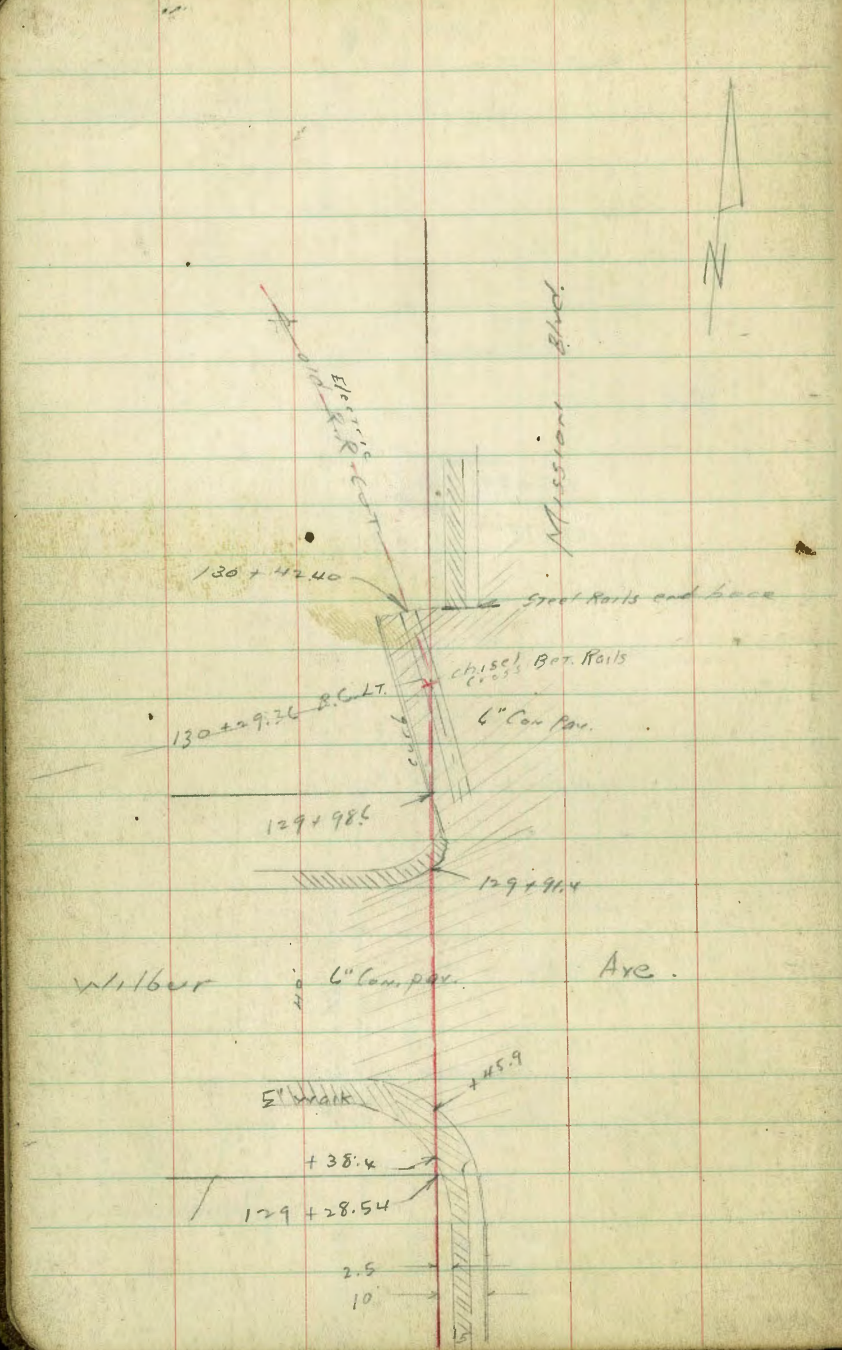

Gas Line
Ex Sewer
79+90
78+54.90
Garnet
6" A.C. Pav.
St.
N
20
77+74.90
35
5
40
Gas Line
Ex. Sewer
76+40.3
Everts
40
Hornblend
74+66.11
90° RT.

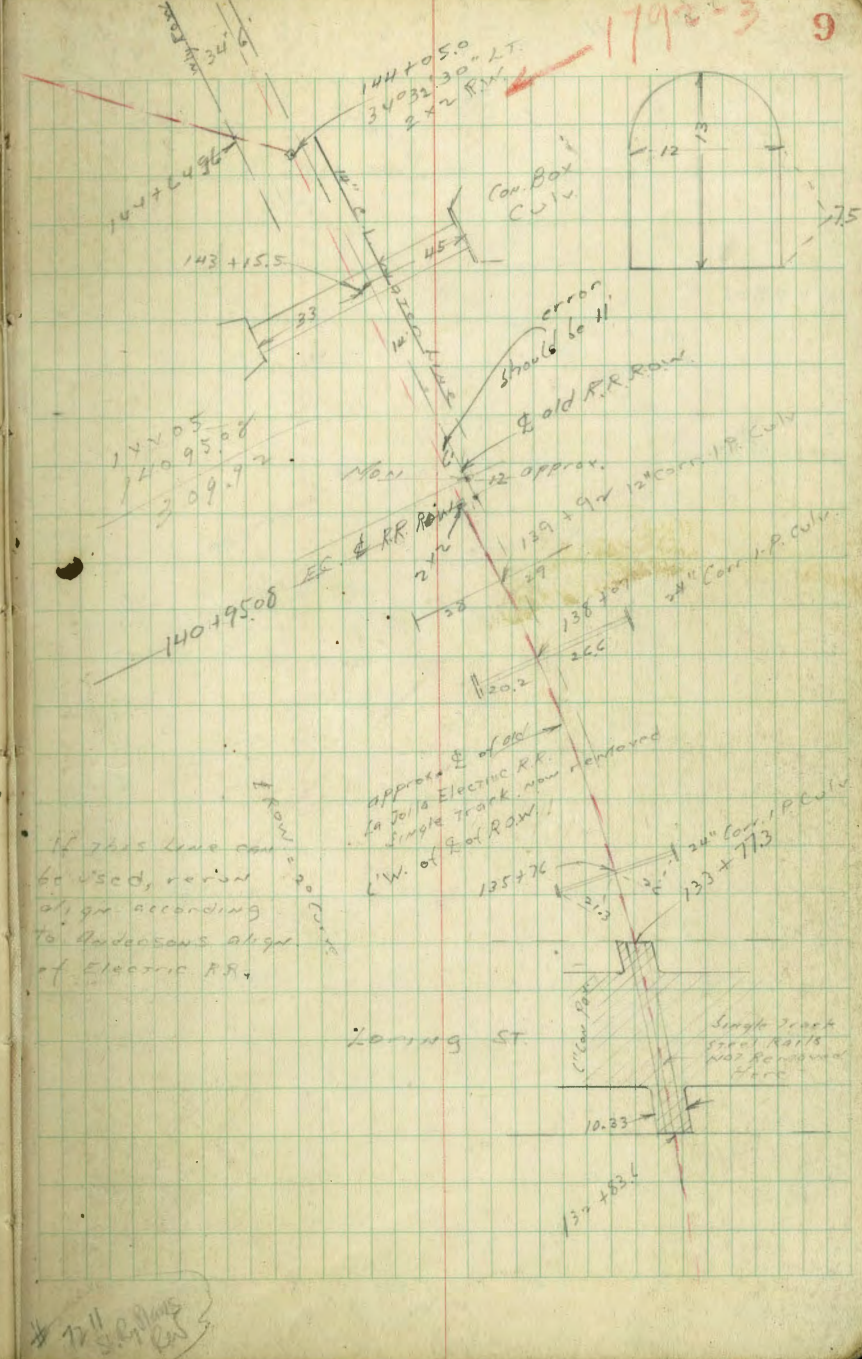

St.
N
℄ Emerald
Everts
40
81+64.76
90° LT
℄ Felspar
5'

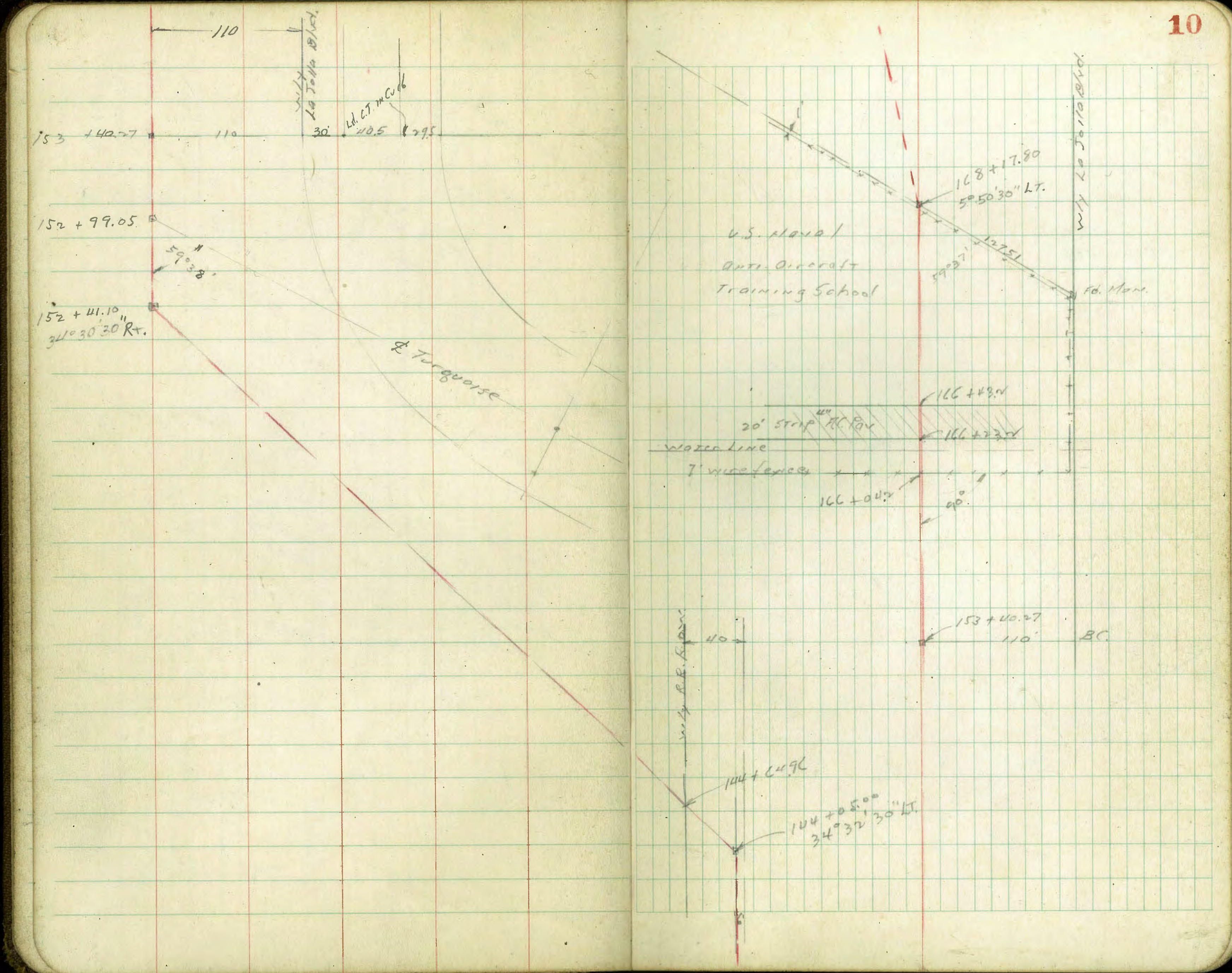

Dawes
94+43.70
Diamond
Gas Line
5'
Ex. Sewer
92+68.3
N
Emerald
Ex. Sewer
89+18.8
35
5
40
40
Felspar
87+43.80
90° Rt.
40
Dawes

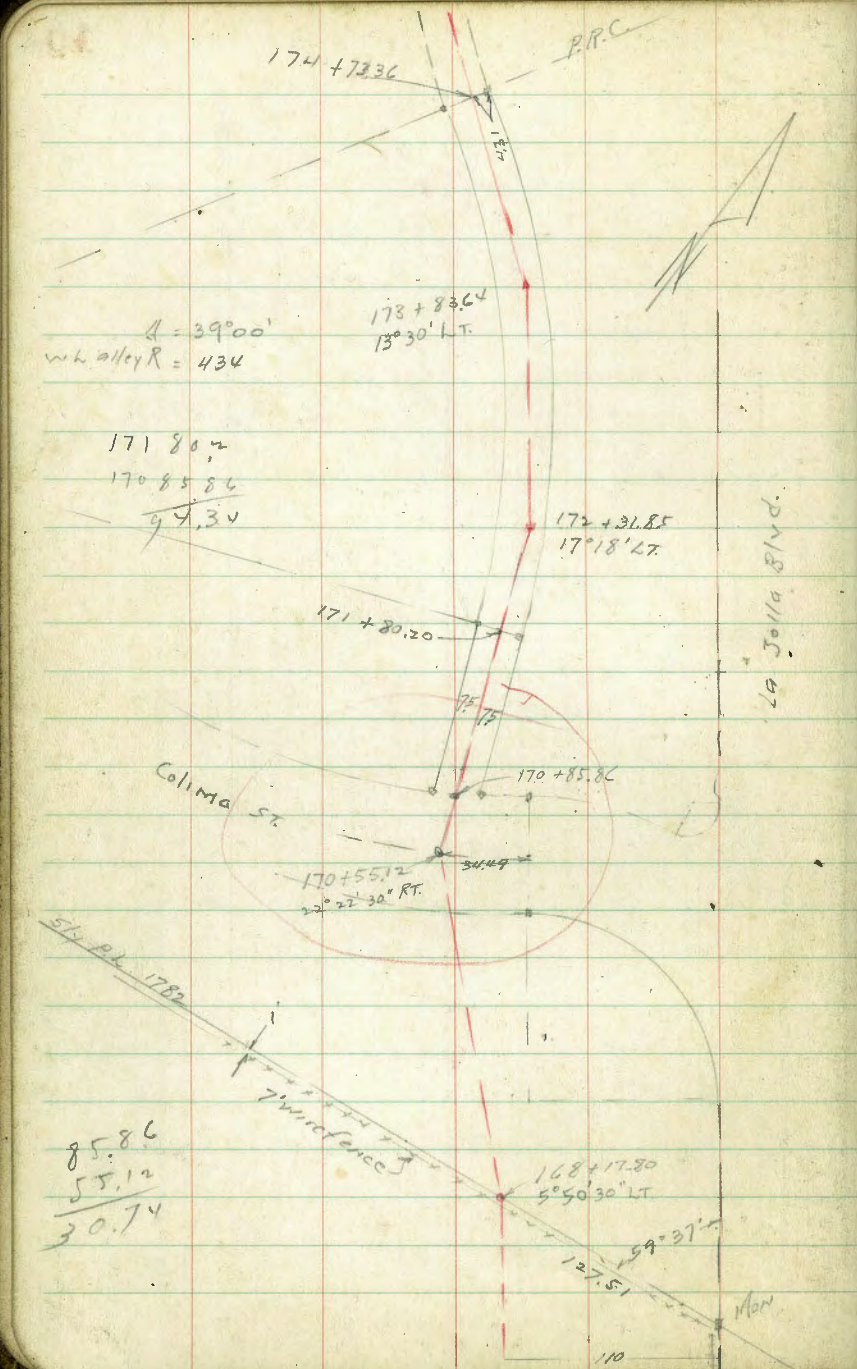

Water Line
30'
Cass St.
Missouri St.
97+93.84
90° Lt.
Dawes
40
40
14
14
35
45
Ex. Sewer
96+18
N
5'

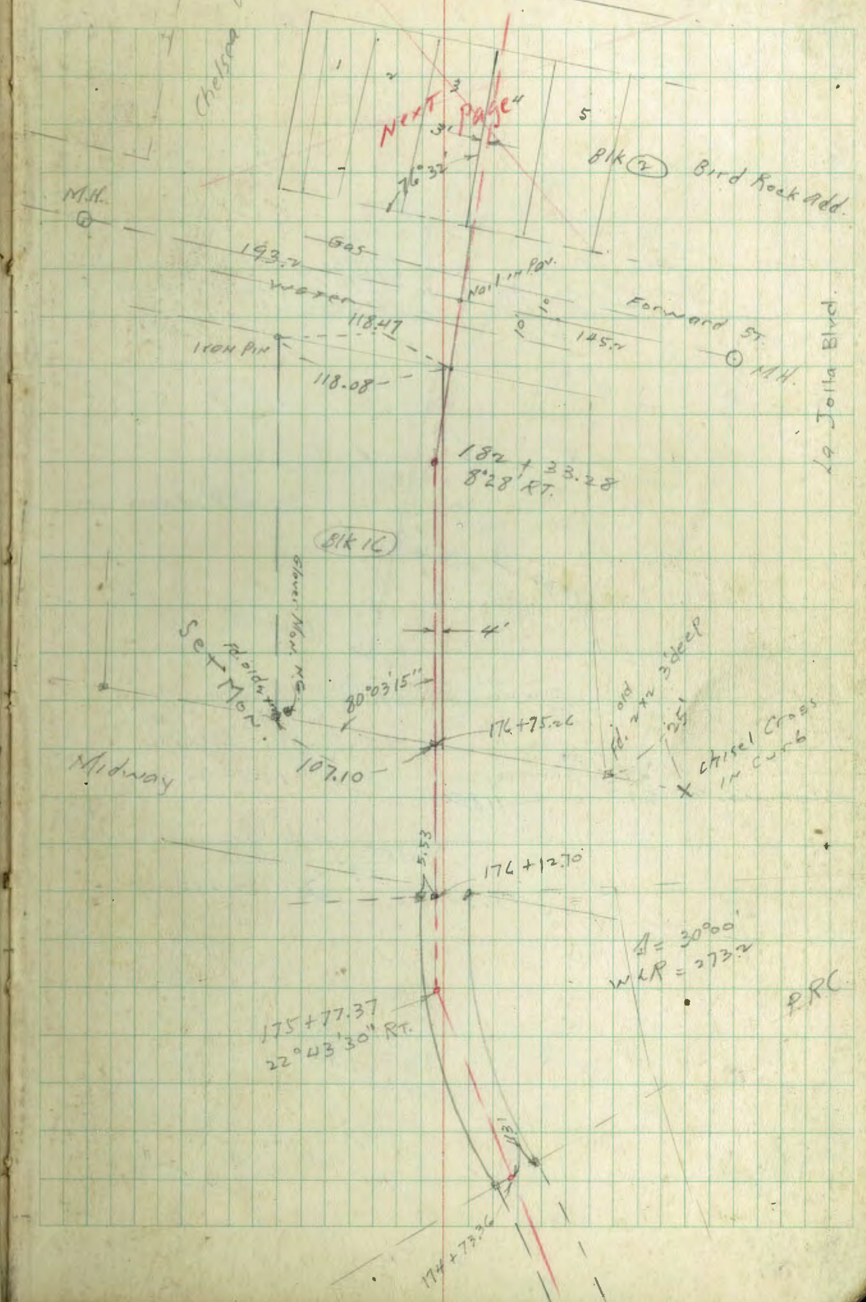

(116+45.43 See Book 1782-24)
Law St.
117+80
114+78.4
Chalcedony
Bayard St.
111+28
New office alinement see 1271-D
35'
109+43.03
Missouri
109+53.0
90° RT.
N
127+97.0
Ex. Sewer
Blvd
+47.7
5' walk
126+41.0
Beryl St.
+95.7
125+89.1
125+78.4
124+42.8
Ex. Sewer
10" Sewer
Mission
122+77.4
122+90.9
Law St.
6" Com. Paved
+45.5
122+41.2
90°04' Rt.
120+36

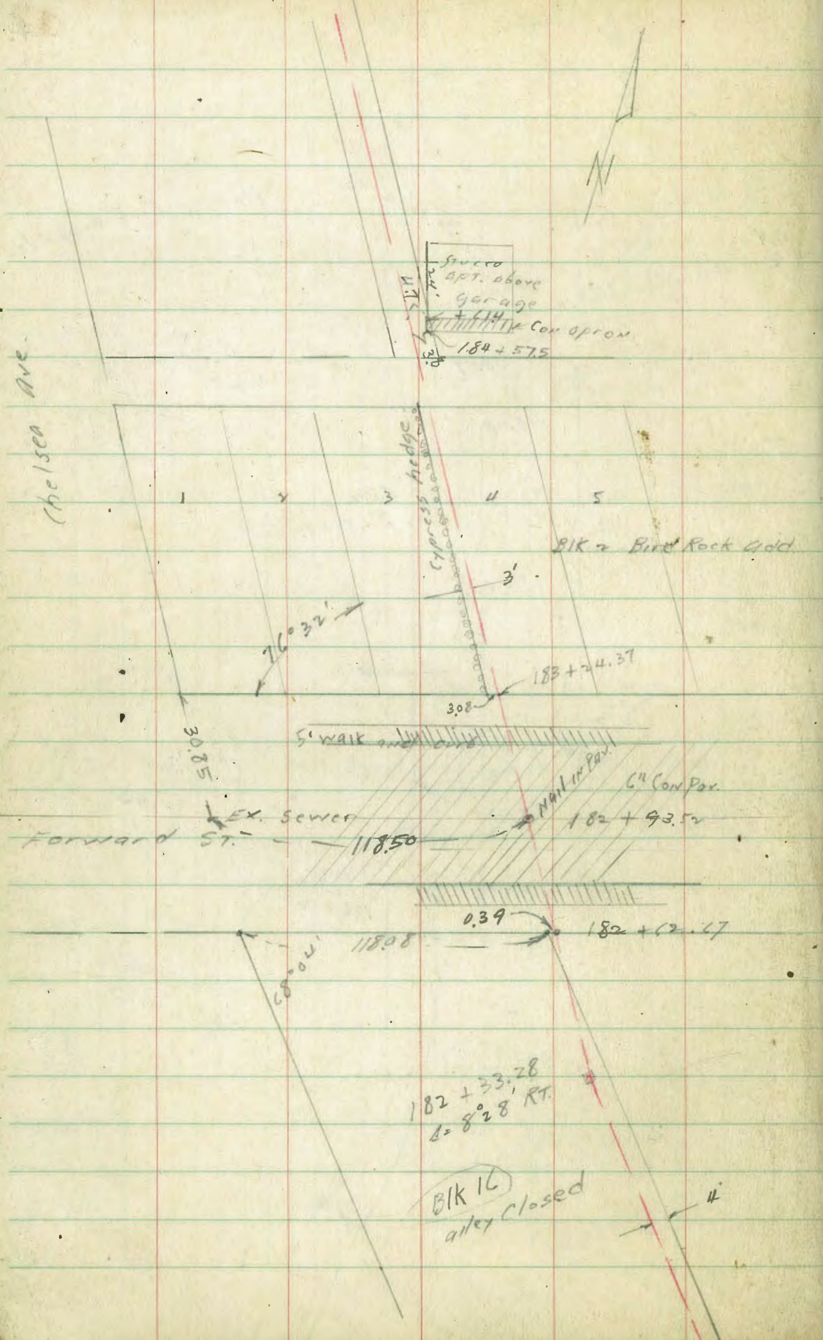

N
Electric
old R.R. cut
Mission Blvd.
130+42.40
Steel Rails and Base
chisel Cross Bet. Rails
130+29.36 E.C. LT.
6" Con Pav.
129+98.6
129+91.4
Wilbur
6" Com. pav.
Ave.
5' walk
+45.9
+38.4
129+28.54
2.5
10
15

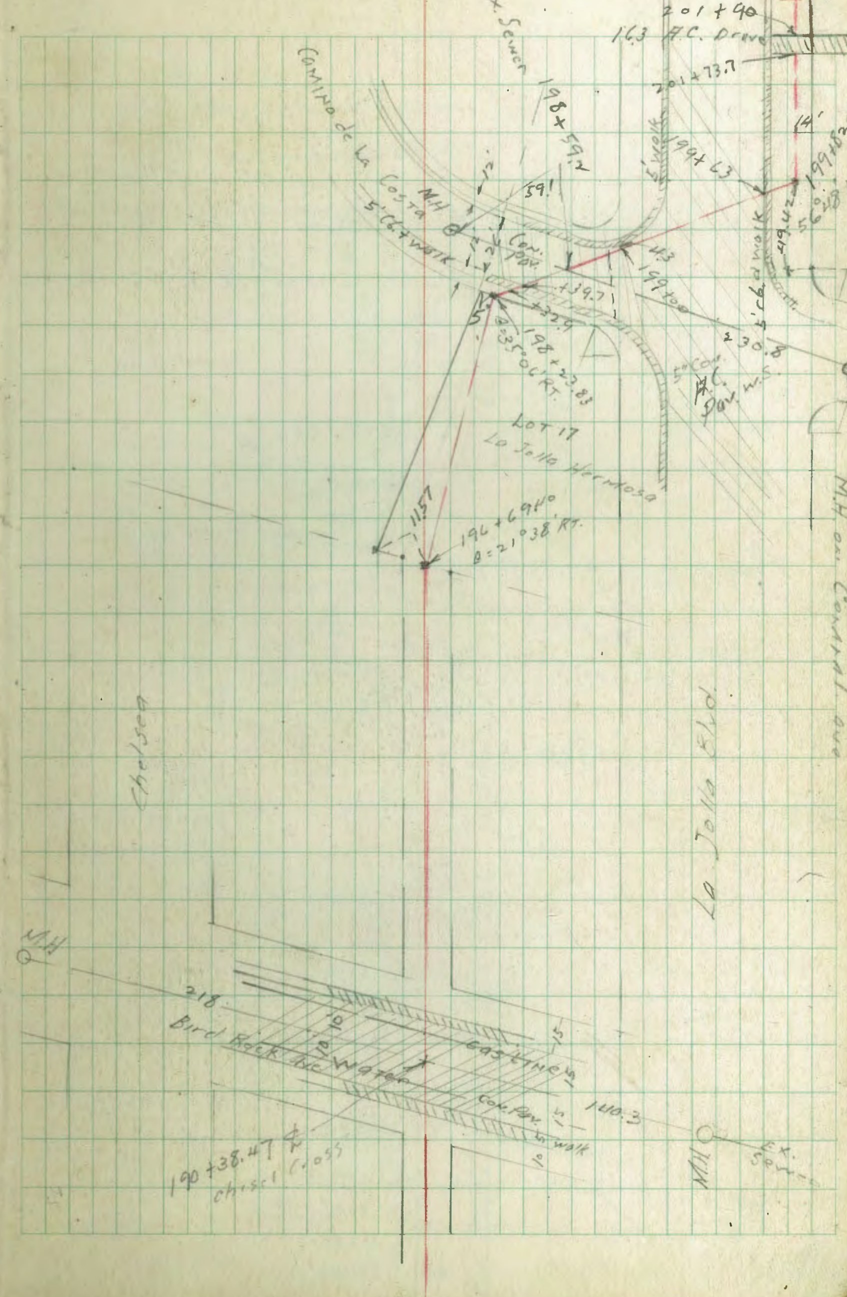

1793-3
144+05.0
34°32'30" LT.
2x2 R.W.
144+24.96
Con. Box Culv.
12
13
7.5
143+15.5
45
33
error
should be 11'
℄ old R.R. R.O.W.
144+05
140+95.08
309.92
Mon
12 approx.
139+97 12" Corr. I.P. Culv.
140+95.08 E.C. ℄ R.R. R.O.W.
138+27 24" Corr. I.P. Culv.
20.2
26.6
approx. ℄ of old La Jolla Electric R.R. single track now removed
6' W. of ℄ of R.O.W.
If this line can be used, reroute align according to Andersons align. of Electric RR.
135+76
24" Corr. I.P. Culv.
133+77.3
Loring St.
6" Con. Pav.
Single Track Steel Rails Not Removed Here
10.33
132+83.6

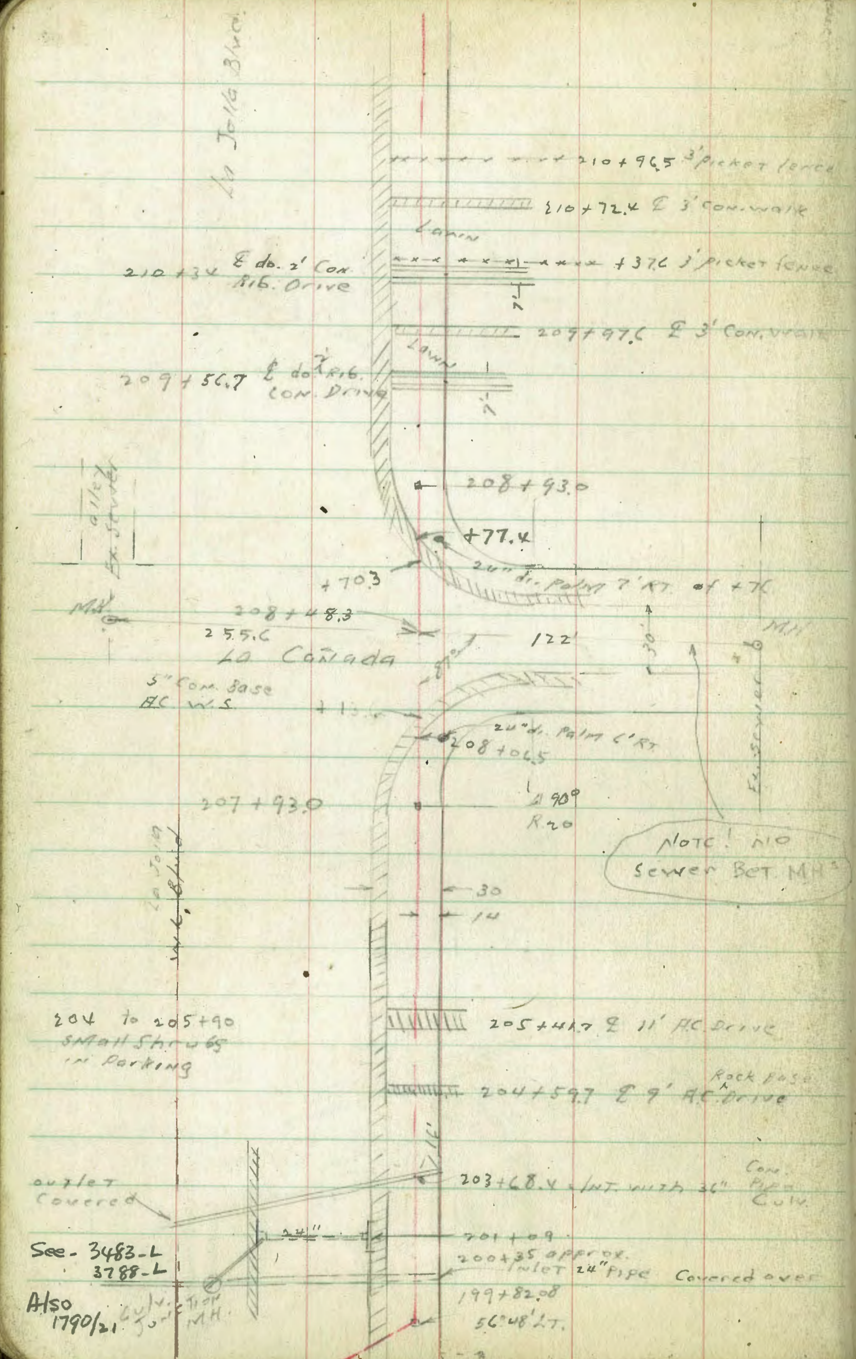

110
W'ly La Jolla Blvd.
153 + 40.27
110
30'
40.5
29.5
152 + 99.05
59°38'
152 + 41.10
34°30'20" Rt.
℄ Turquoise
168 + 17.80
5°50'30" LT.
U.S. Naval
Anti-Aircraft
Training School
127.51
59°37'
Fd. Mon.
W'ly La Jolla Blvd.
20' Strip 4" AC Pav.
Water Line
7' wire fence
90°
153 + 40.27
110'
BC
W'ly R.R. R/W
40
144 + 05.00
34°32'30" Lt.

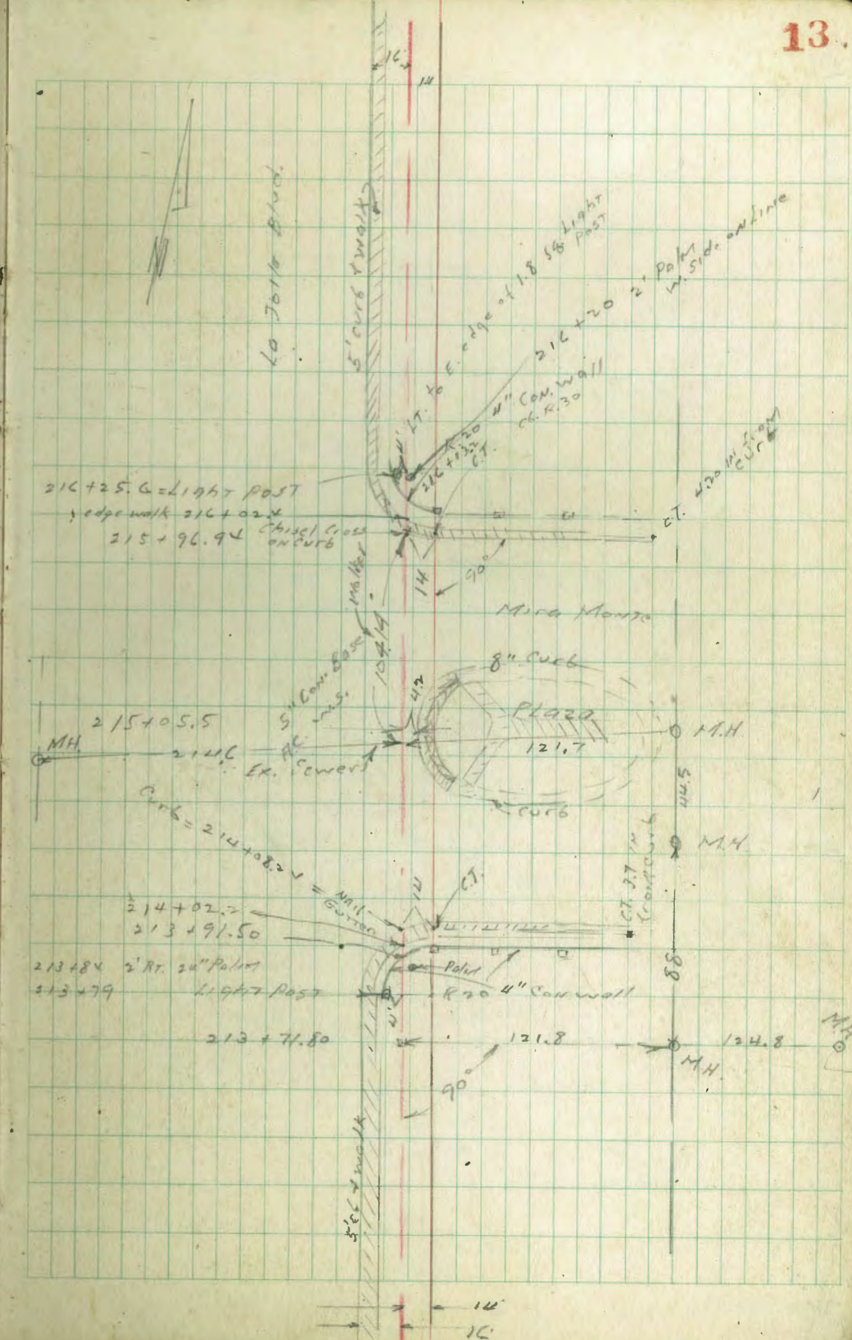

174+73.36
P.R.C.
173+83.64
13°30' LT.
Δ = 39°00'
w.h. alley R = 434
171 80.2
170 85.86
94.34
172+31.85
17°18' LT.
171+80.20
La Jolla Blvd.
Colima St.
170+85.86
170+55.12
22°22'30" RT.
34.49
5ly pk 1782
7' wire fence
168+17.80
5°50'30" LT.
59°37'
127.51
Mon
110
85.86
55.12
30.74

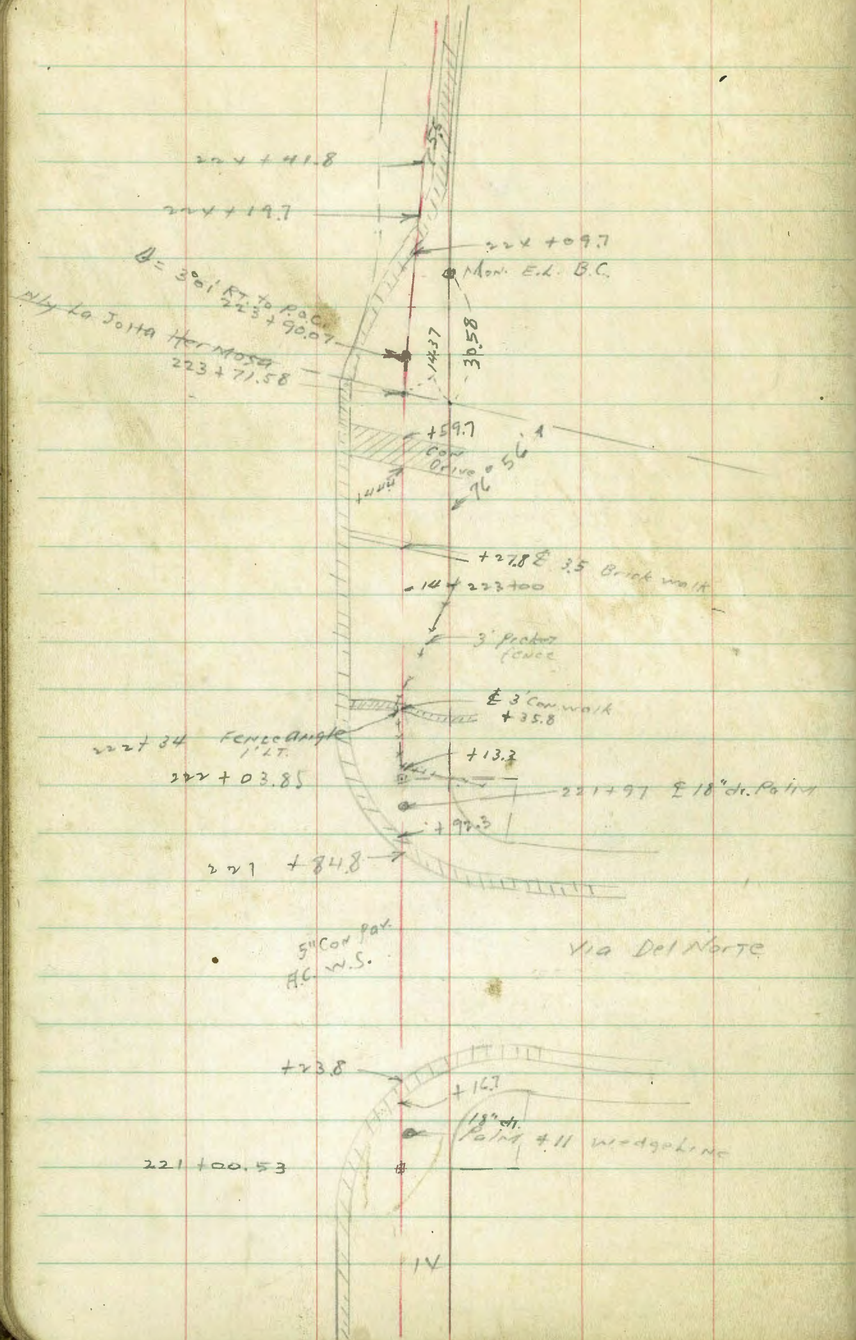

alley
Chelsea Ave
Next Page
3'
76°32'
Blk 2 Bird Rock Add.
M.H.
Gas
193.4
Water
Nail in Pav.
118.47
Iron Pin
118.08
Forward St.
145
M.H.
La Jolla Blvd
182+33.28
8°28' RT.
Blk 1C
4'
Set Mon.
80°03'15"
176+75.26
107.10
Midway
fd. old 2x2 3' deep
chisel cross in curb
5.53
176+12.30
Δ = 30°00'
w.h. R = 273.2
P.R.C
175+77.37
22°43'30" RT.
174+73.36

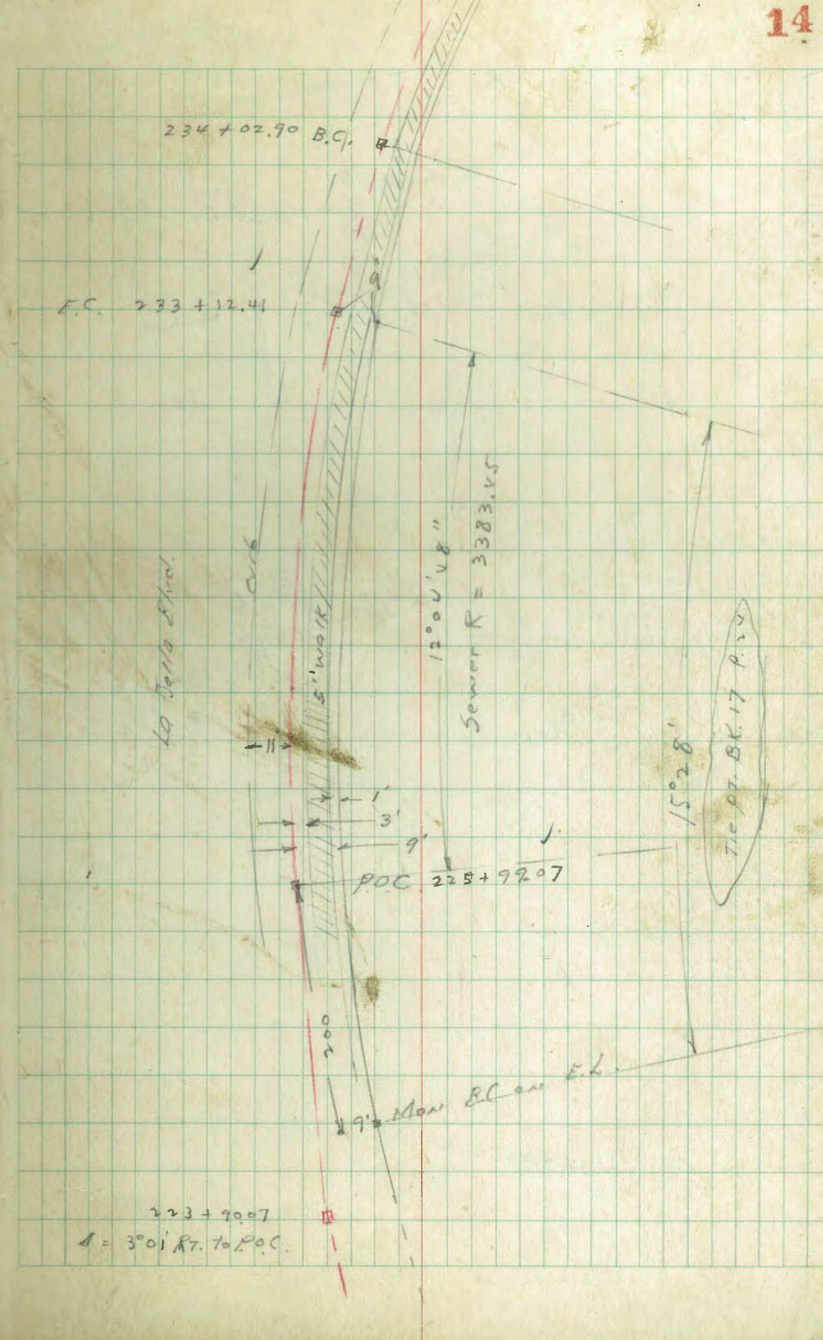

Chelsea Ave
Stucco apt. above garage
Con apron
184 + 57.5
1
2
3
4
5
Cypress hedge
Blk 2 Bird Rock Add.
3'
76°32'
183 + 24.37
3.08
30.85
5' walk and curb
Nail in Pav.
6" Con Pav.
Ex. Sewer
Forward St.
118.50
182 + 93.52
0.39
182 + 62.67
118.98
68°04'
182 + 33.28
Δ= 8°28' RT.
Blk 16
alley closed
4'

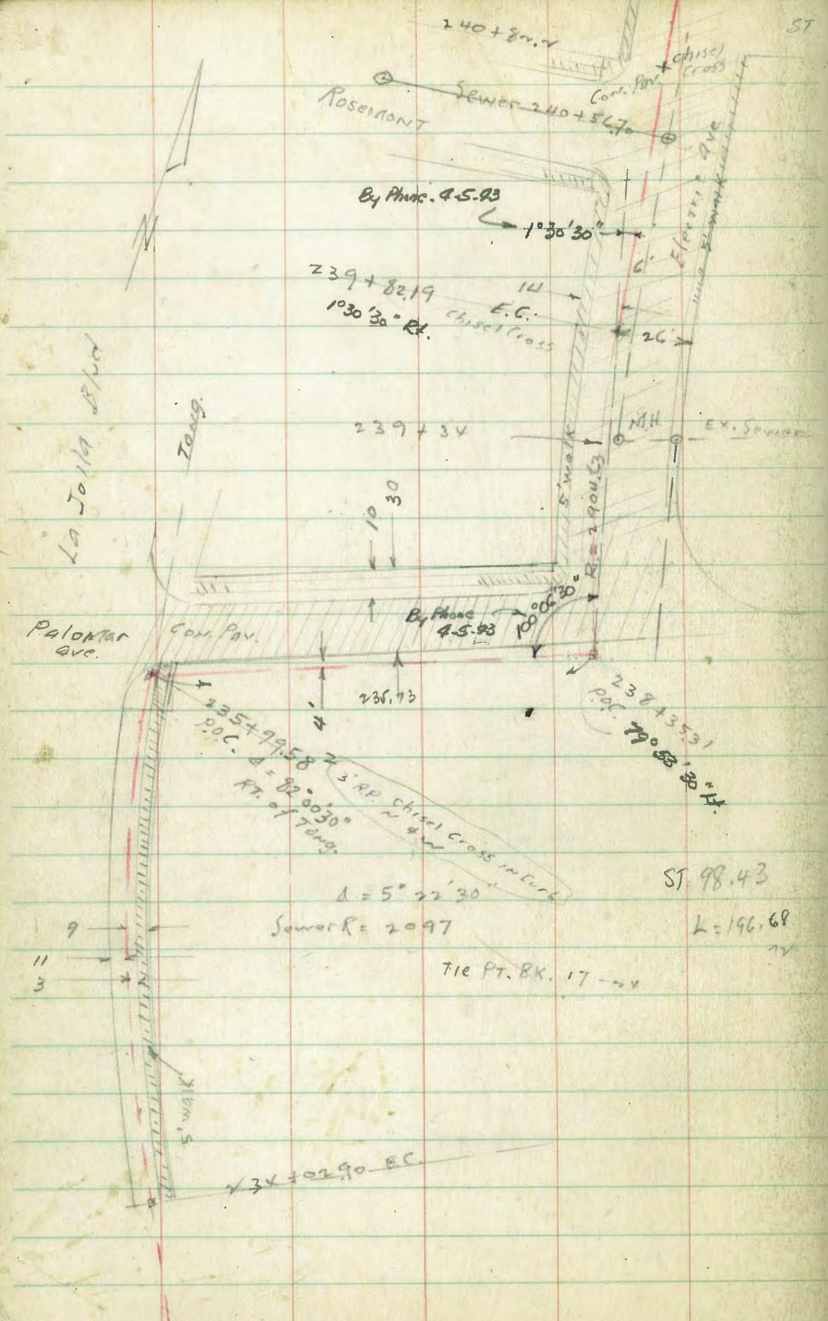

Ex. Sewer
198+59.2
Camino de La Costa
MH
5' Cct walk
Con. Pav.
59'
201 + 90
16.3 A.C. Drive
201 + 73.7
14'
199+82.08
199+63
149.42
56°48' LT
5' Cct walk
43
199+00
39.7
32.9
198 + 23.83
Δ=35°06' RT.
230.8
Lot 17
La Jolla Hermosa
115.7
196+69.40
Δ=21°38' RT.
Chelsea
La Jolla Blvd
MH
218
Bird Rock Ave
Water
Gas Line
Con. Pav.
walk
140.3
MH
Ex. Sewer
190+38.47
chisel cross

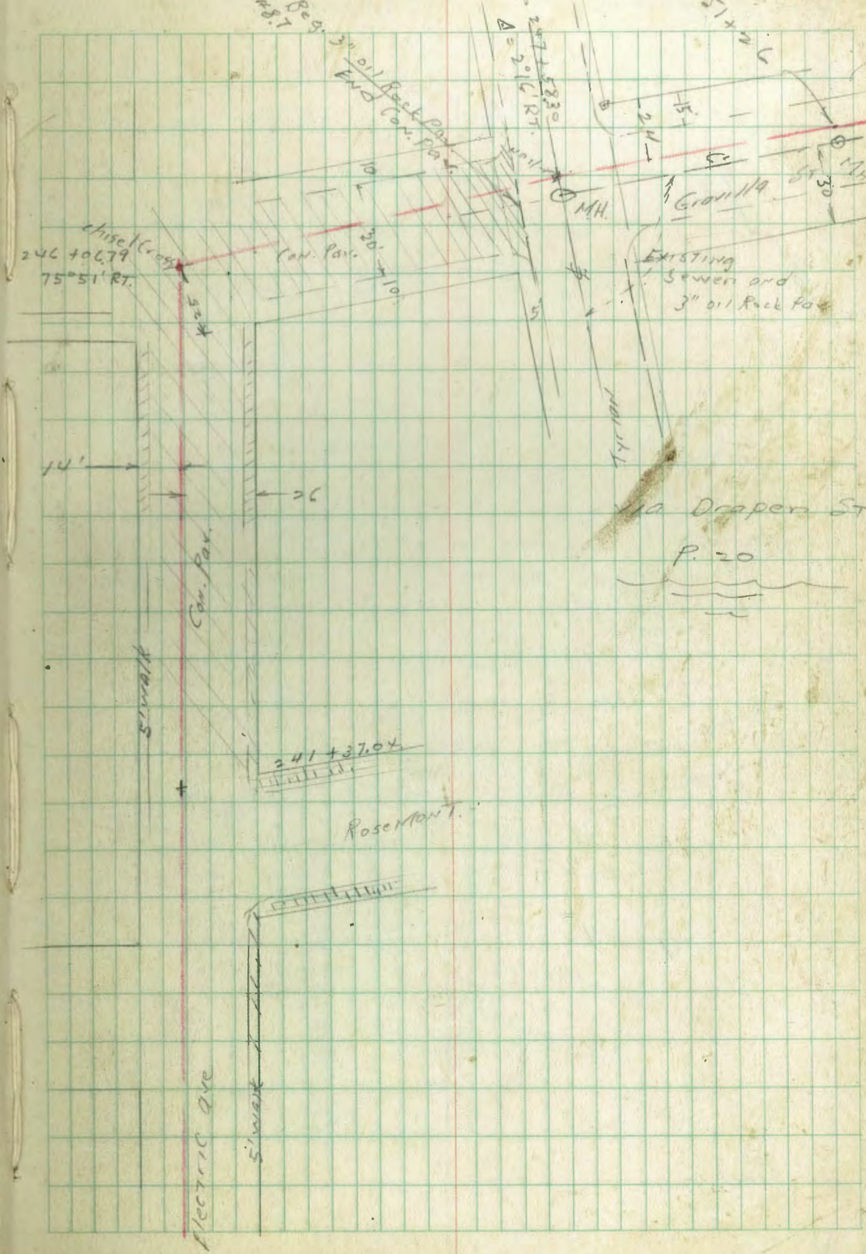

La Jolla Blvd.
210+96.5 3' picket fence
210+72.4 ℄ 3' Con. walk
Lawn
210+34 ℄ do. 2' Con. Rib. Drive
+37.6 3' picket fence
209+97.6 ℄ 3' Con. walk
Lawn
209+56.7 ℄ do. 2' Rib. Con. Drive
7'
208+93.0
+77.4
+70.3
24" di. Palm 7' Rt. of +76
208+48.3
255.6
La Cañada
M.H.
122'
30'
M.H.
5" Con. Base AC W.S.
24" di. Palm 6' Rt.
208+06.5
Δ 90°
R 20
207+93.0
Ex. Sewer
Note! No Sewer Bet. MH's
30
14
La Jolla Blvd.
205+44.7 ℄ 11' AC Drive
204 to 205+90 Small Shrubs in Parking
204+59.7 ℄ 9' AC Rock base Drive
outlet Covered
203+68.4 Int. with 36" Con. Pipe Culv.
24"
201+09
200+35 approx. Inlet 24" Pipe Covered over
199+82.08
56°48' Lt.
Culv. Junction MH.
See - 3483-L
3788-L
Also 1790/21


N
16
14
La Jolla Blvd.
5' curb + walk
1 Lt. to E. edge of 1.8 sq. Light Post
216+20 2' Palm W. side on line
4" Con. wall Δ R.30
216+20
216+13.3 C.T.
216+25.6 = Light Post
edge walk 216+02.4
215+96.94
Chisel Cross on Curb
C.T. 4.20 W. from curb
14
90°
Mira Monte
Walker
5" Con. Base AC W.S.
10.4
8" Curb
Plaza
215+05.5
M.H.
214.6
Ex. Sewer
121.7
M.H.
Curb
Curb = 214+08.3 = M.H. Gutter
44.5
M.H.
C.T.
214+02.2
213+91.50
C.T. 3.7 Con. Curb
213+84 2' Rt. 24" Palm
213+79 Light Post
Palm
R 20 4" Con. wall
88
213+71.80
121.8
124.8
M.H.
M.H.
90°
5' curb + walk
14
16

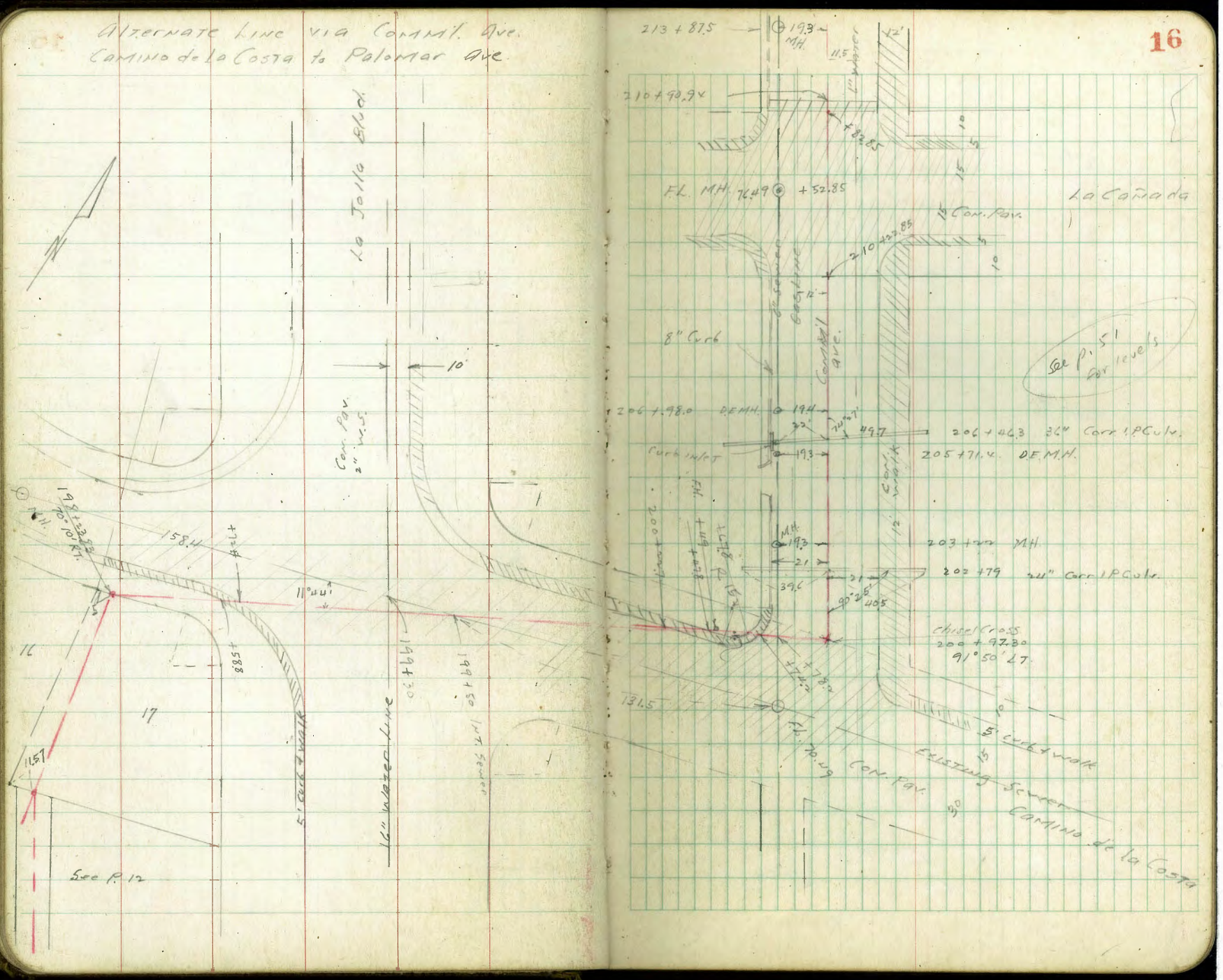

224 + 41.8
224 + 19.7
224 + 09.7
Mon. E.L. B.C.
Δ = 3°01' Rt. to P.O.C.
223 + 90.07
Nly La Jolla Hermosa
223 + 71.58
14.37
30.58
+59.7
Con Drive
76° 56'
+27.8 ℄ 3.5 Brick walk
-14 + 223+00
3' Picket fence
℄ 3' Con walk
+35.8
222 + 34 Fence Angle 1' Lt.
+13.3
222 + 03.85
221 + 97 ℄ 18" dr. Palm
+92.3
221 + 84.8
5" Con Pav.
AC W.S.
Via Del Norte
+23.8
+16.7
18" dr. Palm 4.11 wedge line
221 + 00.53
IV

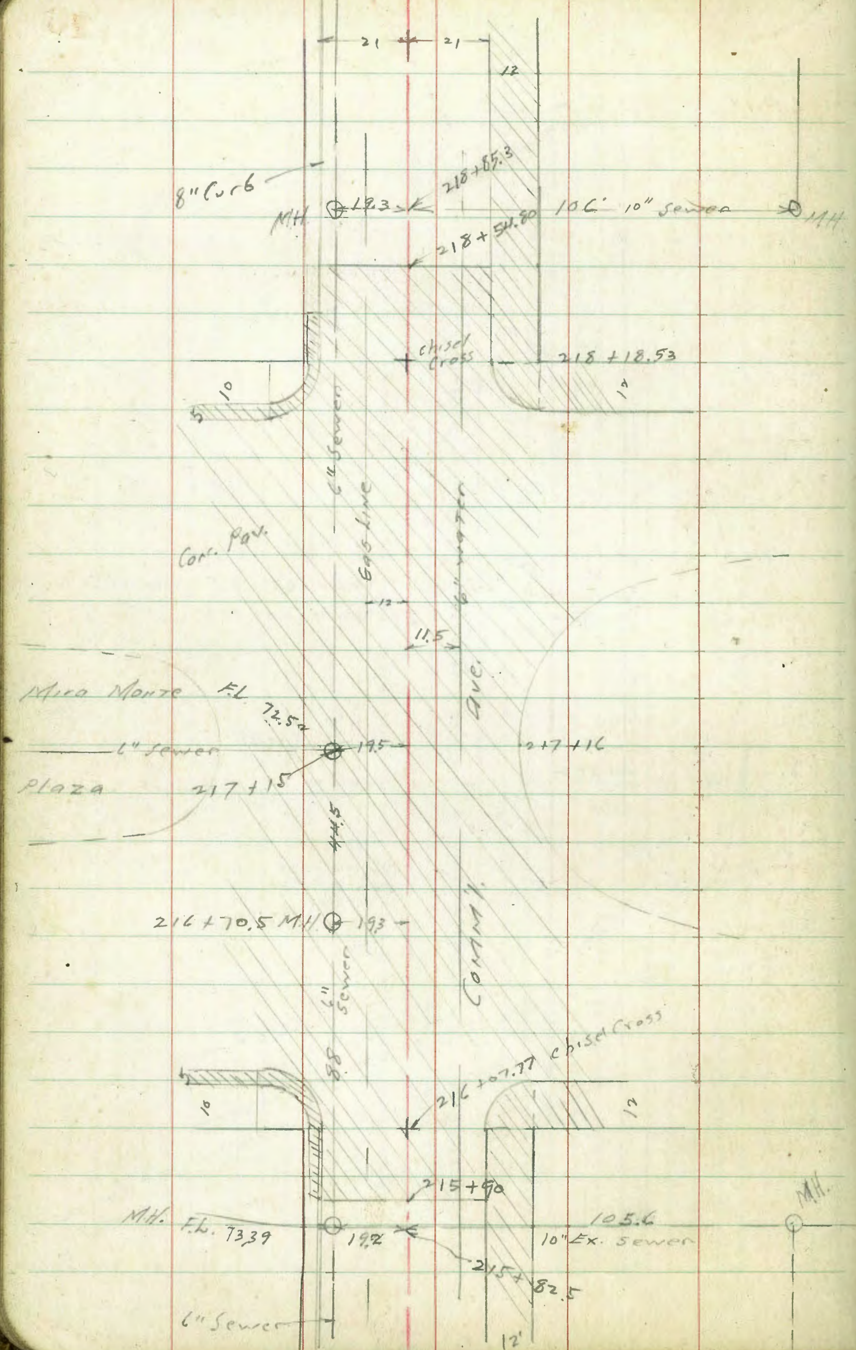

234 + 02.90 B.C.
E.C. 233 + 12.41
La Jolla Blvd.
Curb
5' walk
12°00'48"
Sewer R = 3383.45
15°28'
Tie pt BK 17 P.I.V
11
1'
3'
9'
P.O.C. 225 + 99.07
200
9' Mon. B.C. on E.L.
223 + 90.07
Δ = 3°01' Rt. to P.O.C.

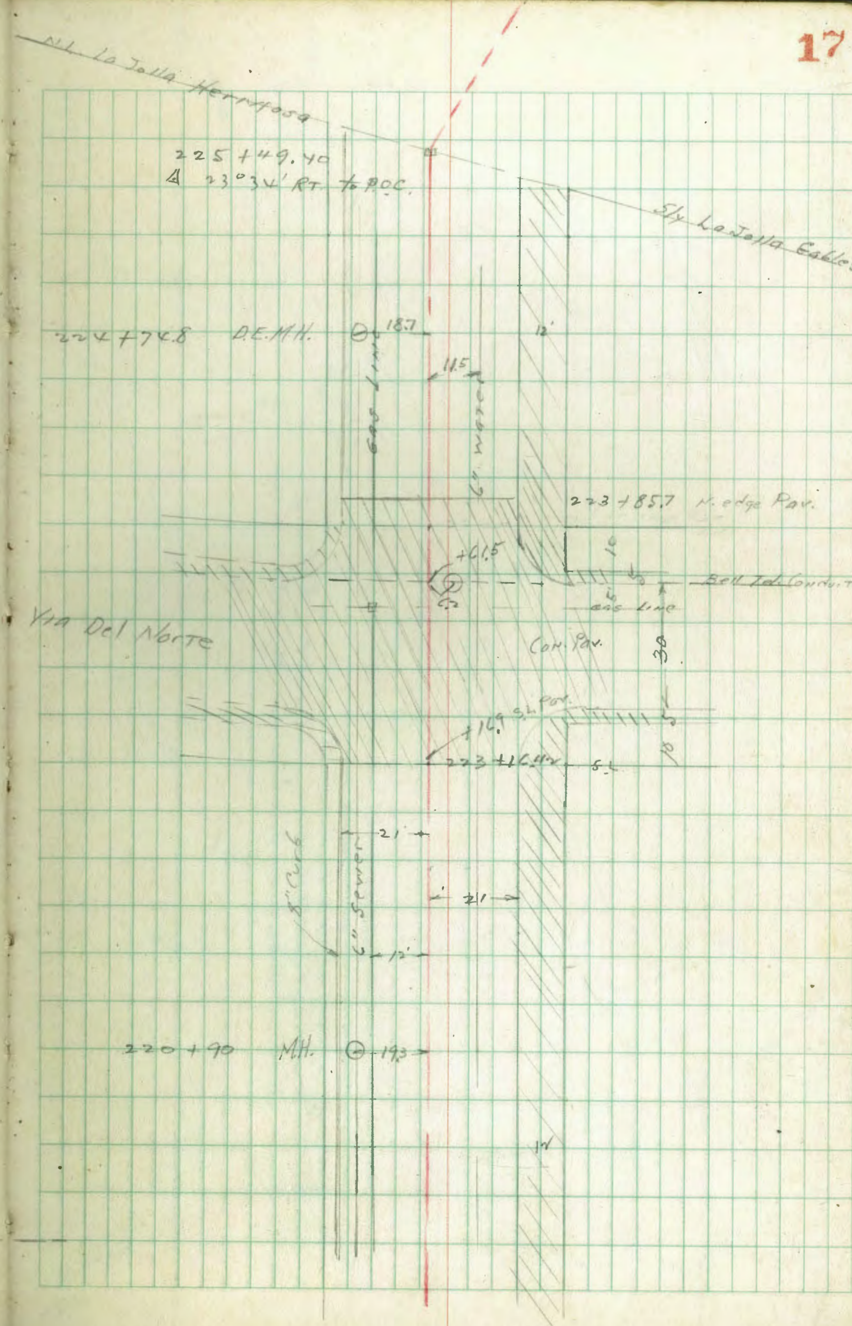

240+80 ~
ST.
Chisel Cross
Con. Pav.
Rosemont
Sewer 240+56.70
By Phone 4-5-93
1°30'30"
Electric Ave
239+82.19
1°30'30" Rt.
E.C.
Chisel Cross
26'
La Jolla Blvd
Tang.
239+3
MH
Ex. Sewer
5' walk
10
30
By Phone 4-5-93
10°00'30"
Palomar Ave.
Con. Pav.
235.73
238+35.31
P.O.C.
79°53'30" Lt.
235+99.58
P.O.C. Δ = 82°00'30" Rt. of Tang.
3' Rp. Chisel Cross in Curb
ST 98.43
Δ = 5°22'30"
Sewer R = 2097
L = 196.68
9
11
3
Tie Pt. Bk. 17
5' walk

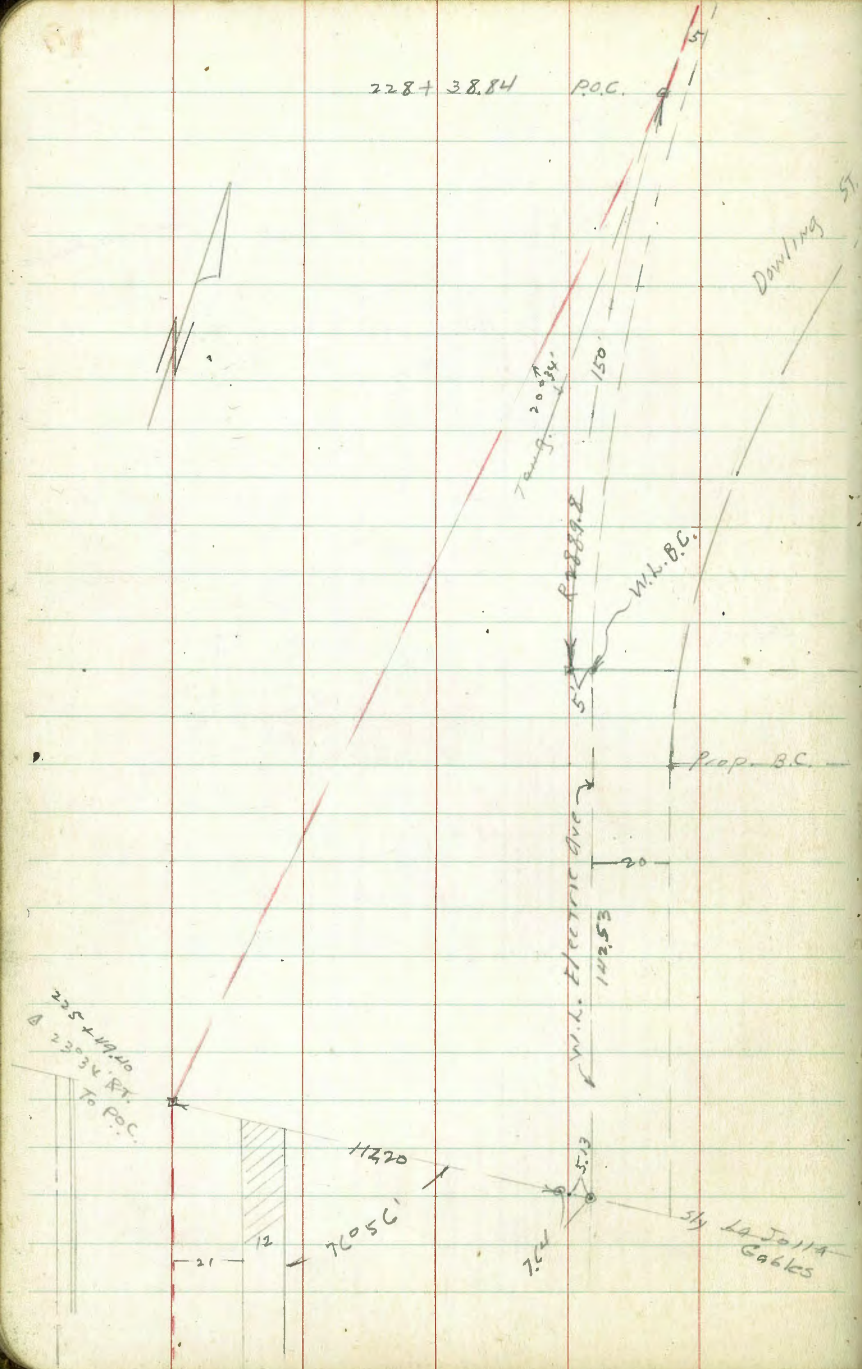

247+48.7
Beg. 3" oil Rock Pav.
End Con. Pav.
ST.
Δ = 2°16' Rt.
251+
M.H.
Granilla St.
30
240+06.79
75°51' Rt.
Chisel Cross
Con. Pav.
Existing Sewer and 3" oil Rock Pav.
14'
26
Draper St.
P. 20
5' walk
Con. Pav.
241+37.04
Rosemont
Electric Ave
5' walk

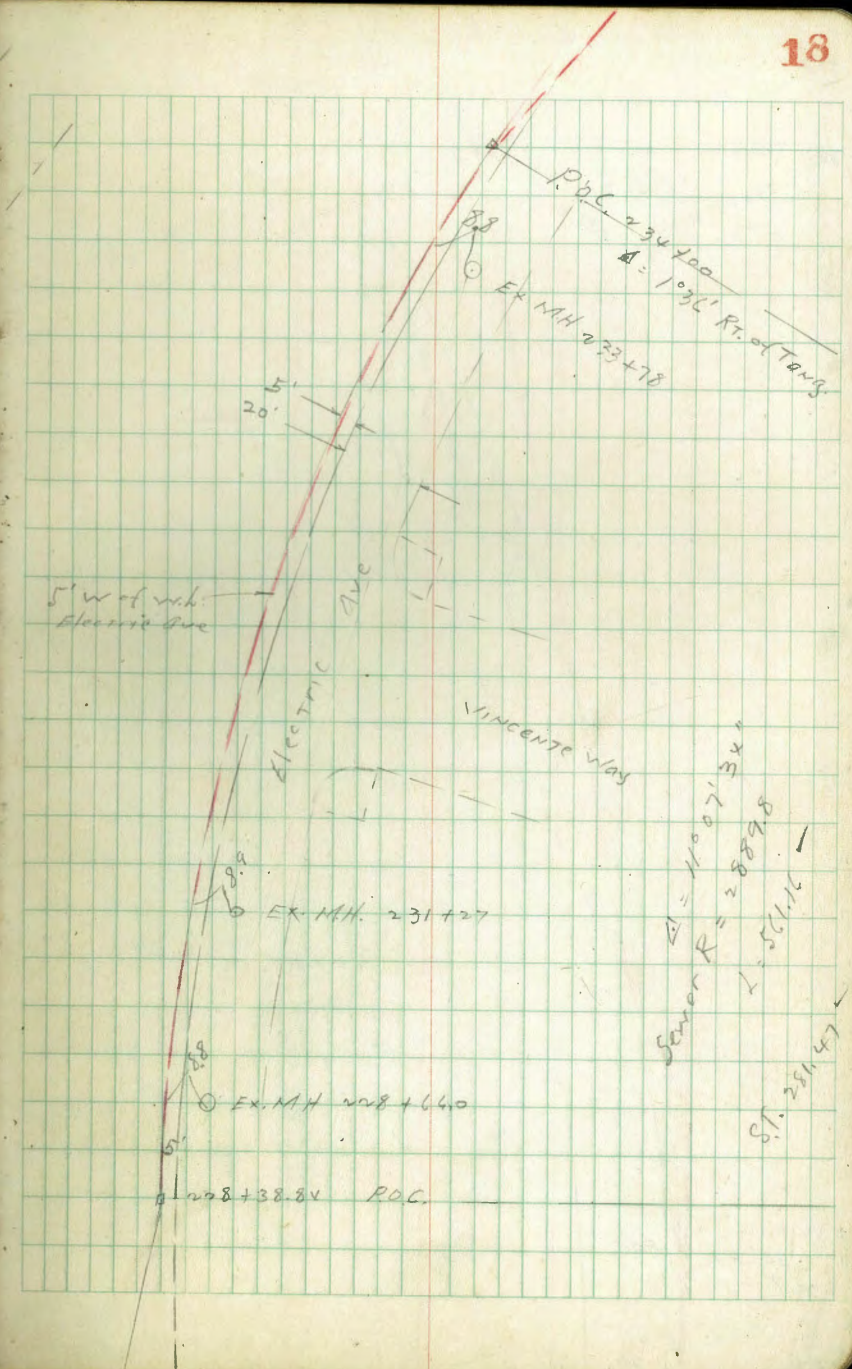
Alternate Line via Commit. Ave.
Camino de la Costa to Palomar Ave.

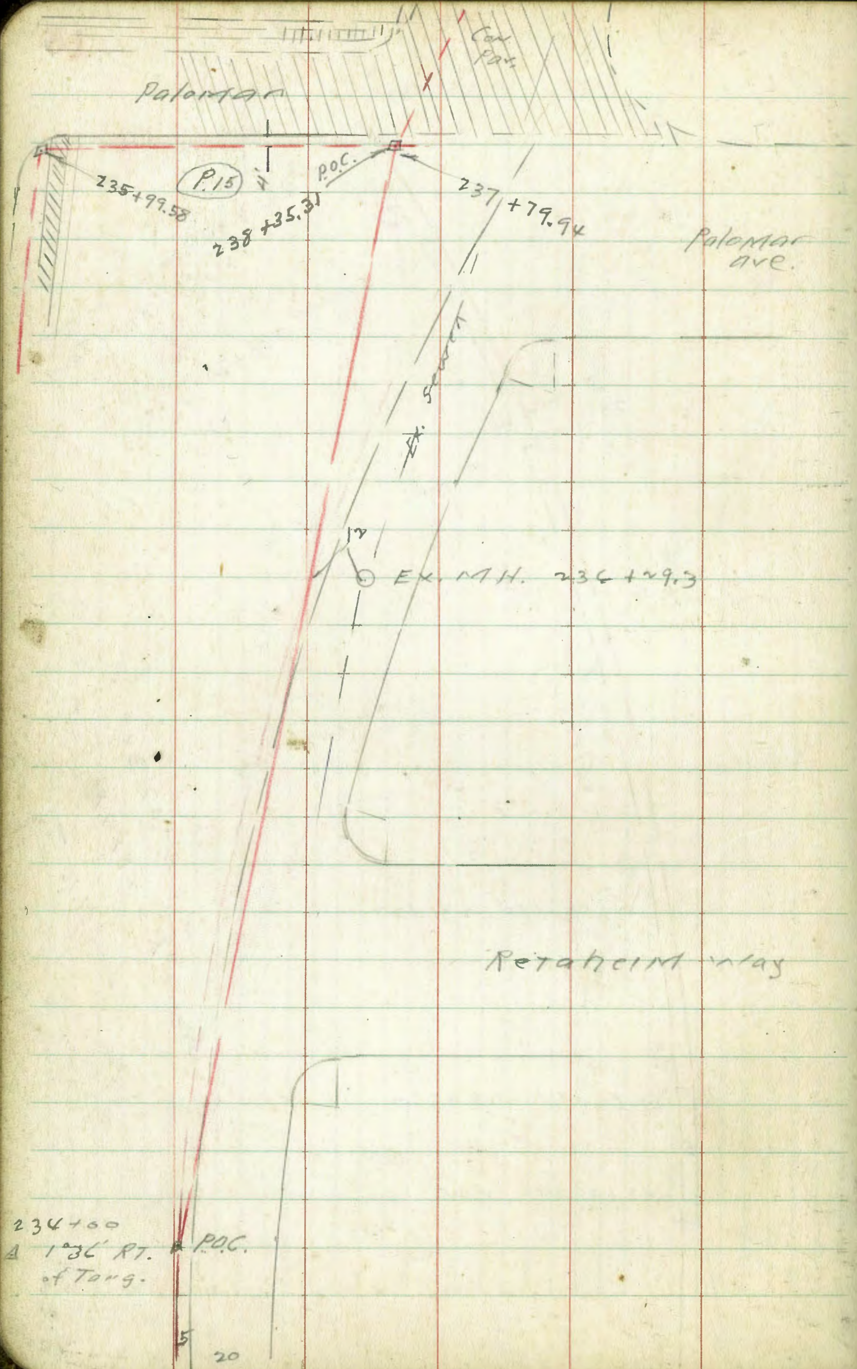



8" Curb
MH
18.3
218+85.3
218+54.80
10C' 10" Sewer
MH
chisel Cross
218+18.53
6" Sewer
Gas line
6" water
Com. Pav.
11.5
Ave.
Mira Monte
F.L. 72.50
6" Sewer
Plaza
217+15
19.5
217+16
44.5
Comm'l
216+70.5 MH
19.3
6" Sewer
88
216+07.77 chisel Cross
215+90
MH. F.L. 73.39
19.2
105.6
10" Ex. Sewer
215+82.5
6" Sewer
12'
MH.


N.L. La Jolla Hermosa
225+49.40
Δ 23°34' Rt. to P.O.C.
Sly La Jolla Gables
224+74.8
D.E. MH.
18.7
11.5
Gas Line
6" water
223+85.7 N. edge Pav.
+61.5
Bell Tel. Conduit
Gas line
Via Del Norte
Com. Pav.
30
16.9 Sl. Pav.
21
8" Curb
6" Sewer
12'
220+90 MH.
19.3


228 + 38.84
P.O.C.
Dowling St.
Tang.
150
R 2889.8
W.L.B.C.
5'
Prop. B.C.
20
W.L. Electric Ave
142.53
235 + 49.40
142.20
70°56'
5.3
7.6
Sly La Jolla Gables
21
12


P.O.C. 234+00
Δ = 1°36' Rt. of Tang.
8.8
Ex MH 233+78
5'
20'
5' W of W.L. Electric Ave
Electric Ave
Vincente Way
Δ = 11°07'34"
Sewer R = 2889.8
L = 561.16
ST. 281.47
8.9
Ex. M.H. 231+27
8.8
Ex. MH 228+66.0
5'
228+38.84 P.O.C.


Palomar
Car Bar
P.15
P.O.C.
235+99.58
238+35.31
237+79.94
Palomar ave.
Ex. M.H. 236+29.3
Retaheim Way
234+00
Δ 1°36' Rt. of Tang.
P.O.C.
20

Trunk Sewer Line

Via Draper St.

from P 15

260+23 End 3" oil Rock Pav.

Bonair St.

259+68.74 Beg. 3" oil Rock Pav.

Draper

6" Sewer

No. 5

257+53.84

Bonair Pl.

M.H.

Thin oil Pav.

10 20 20 10

Thin oil Pav.

Nail 255+14.65 89°55' Lt.

Granville St. 6" Sewer End 3" oil Rock Pav.

See Book 1725/17 Sewer

Draper

220'

6" Sewer

266+97

121

Ex. M.H.

Levels Pg. 56

Not Paved

10 20 20 10

265+18.9

Con. Pav.

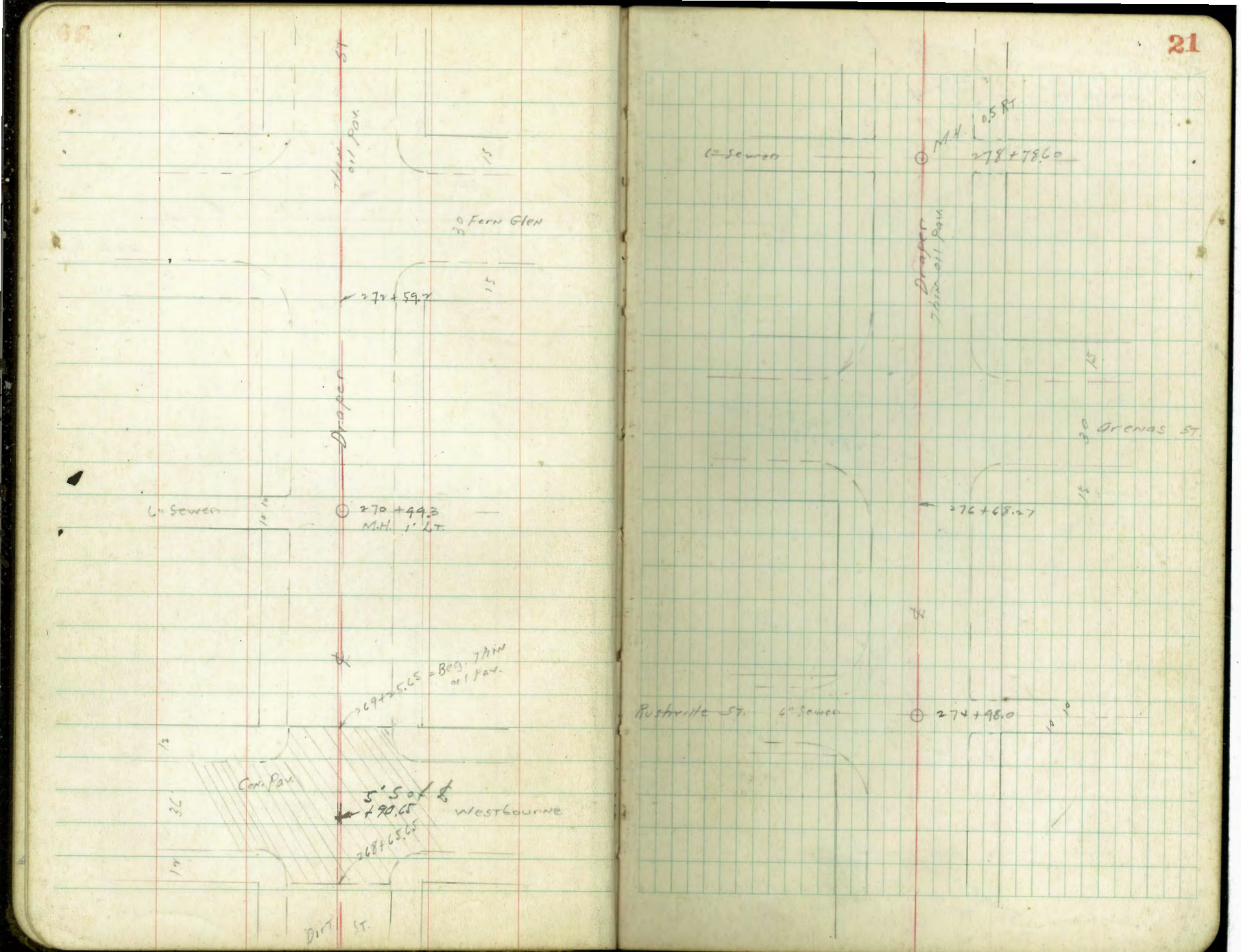
Nautilus

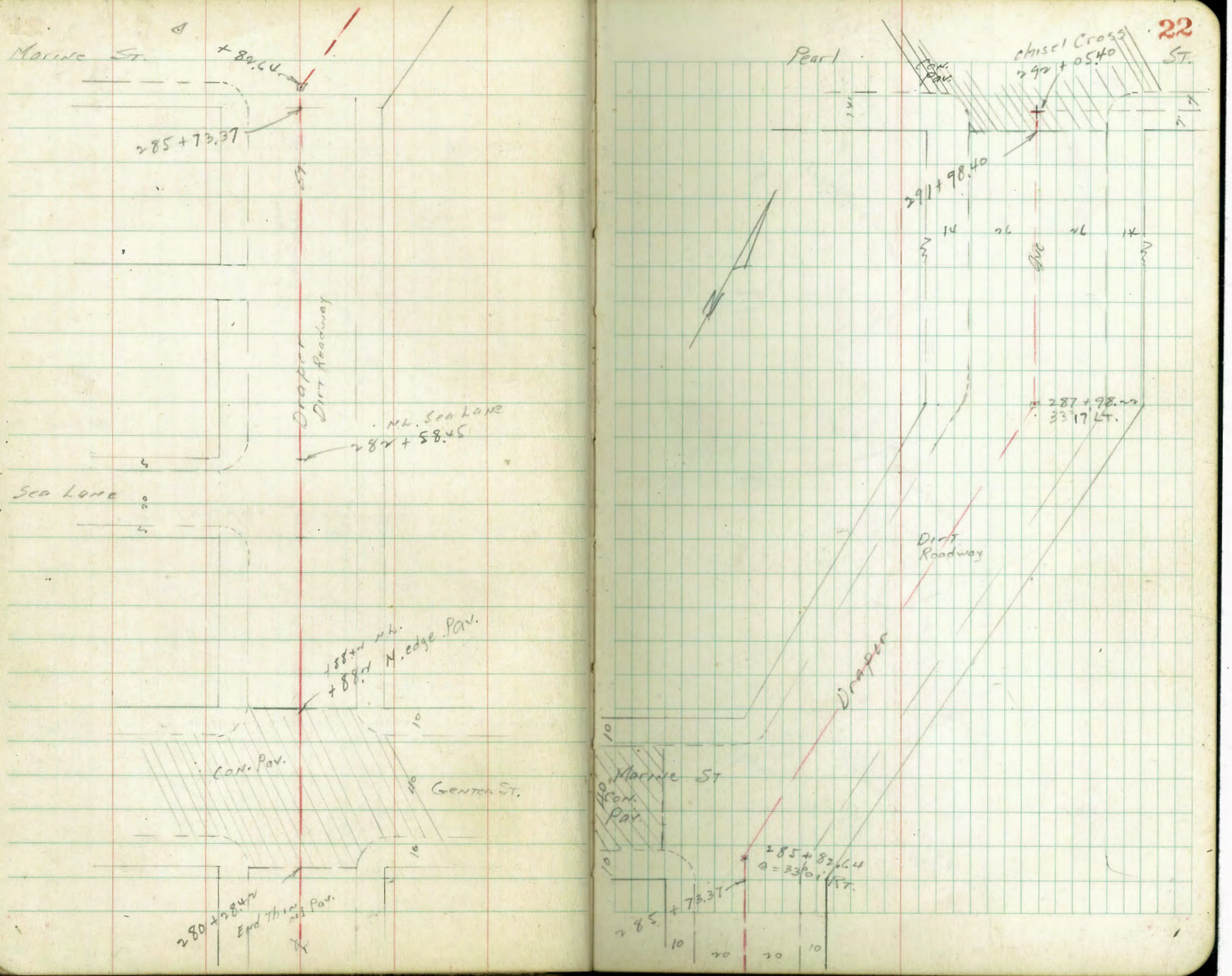
264+58.9

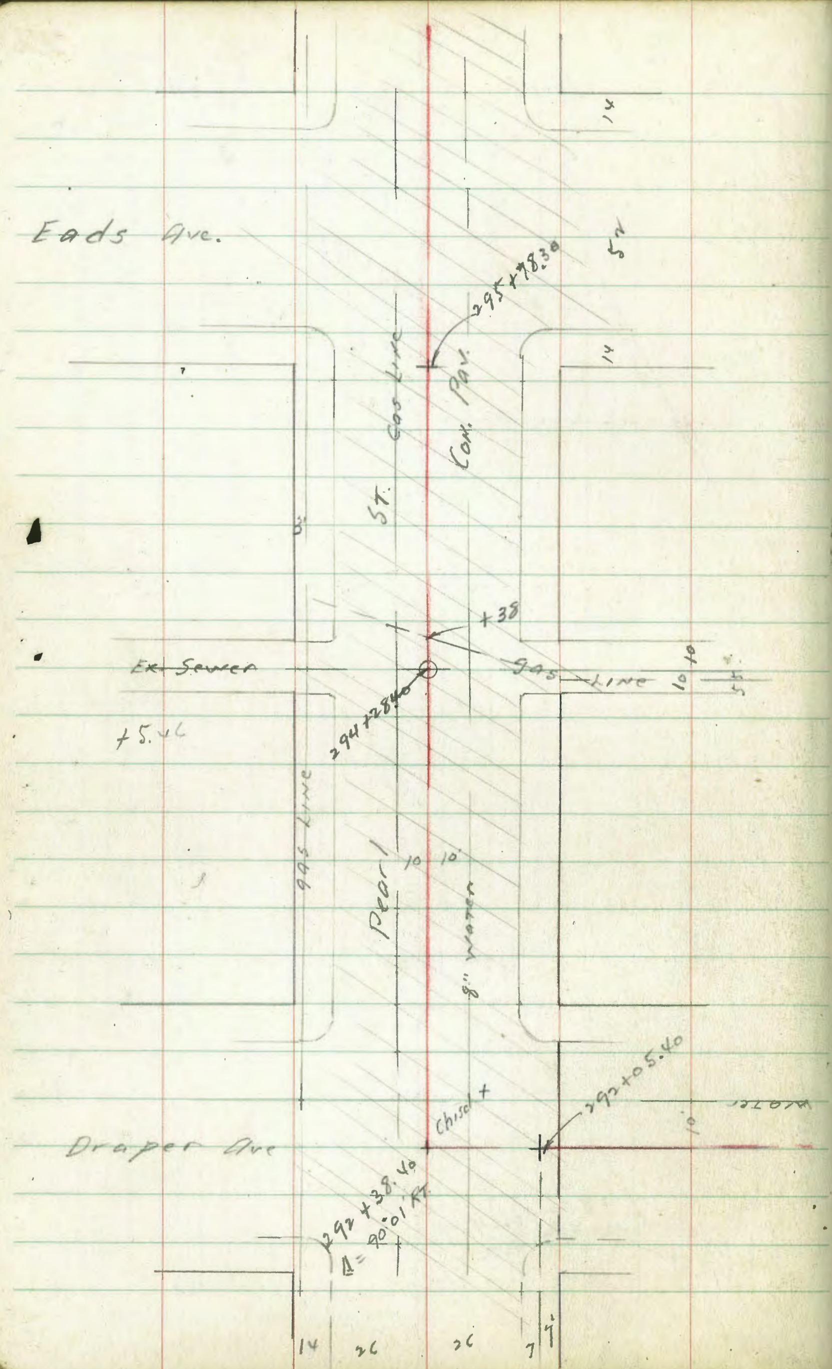
6" Sewer

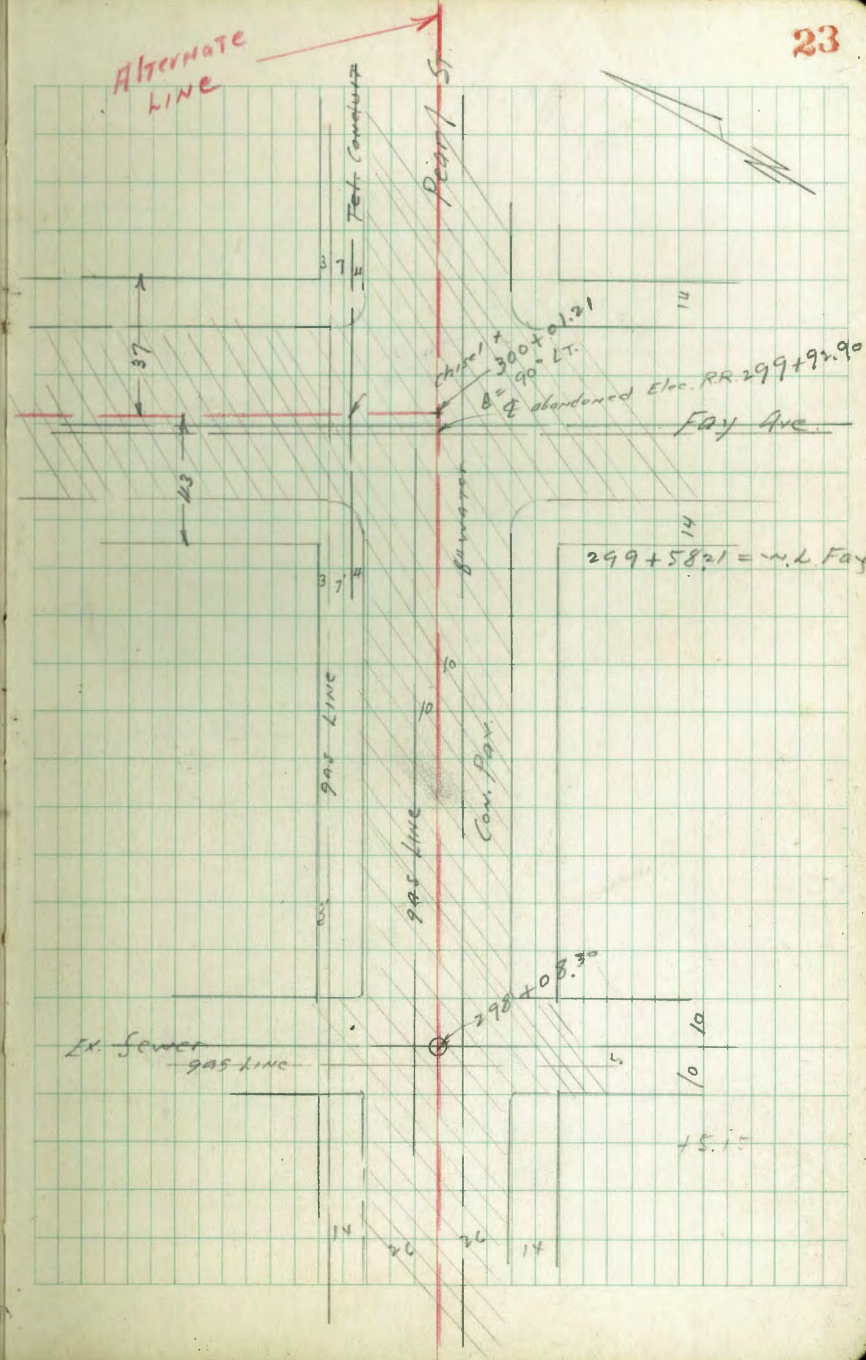
263+43.6 M.H.

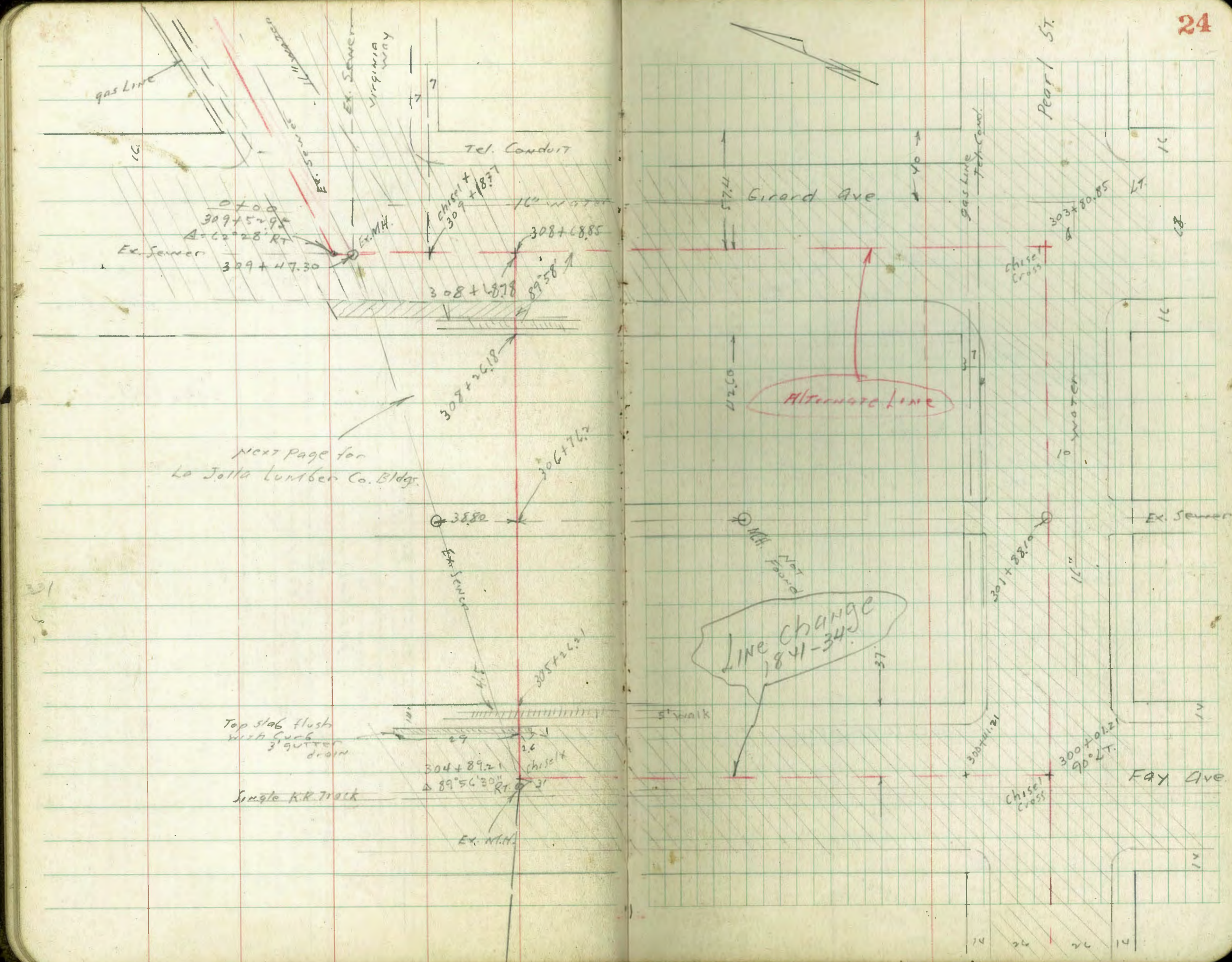
Not Paved


Thin oil pav.
Fern Glen
277+59.7
Draper
6" Sewer
270+44.3
M.H. 1' Lt.
269+75.65 = Beg. Thin oil pav.
Conc. Pav.
5' Sod
270+90.65
Westbourne
268+65.65
Dirt St.
6" Sewer
M.H.
278+78.60
0.5 Rt
Draper
Thin oil pav.
Grenas St.
276+68.27
Rushville St.
6" Sewer
274+98.0

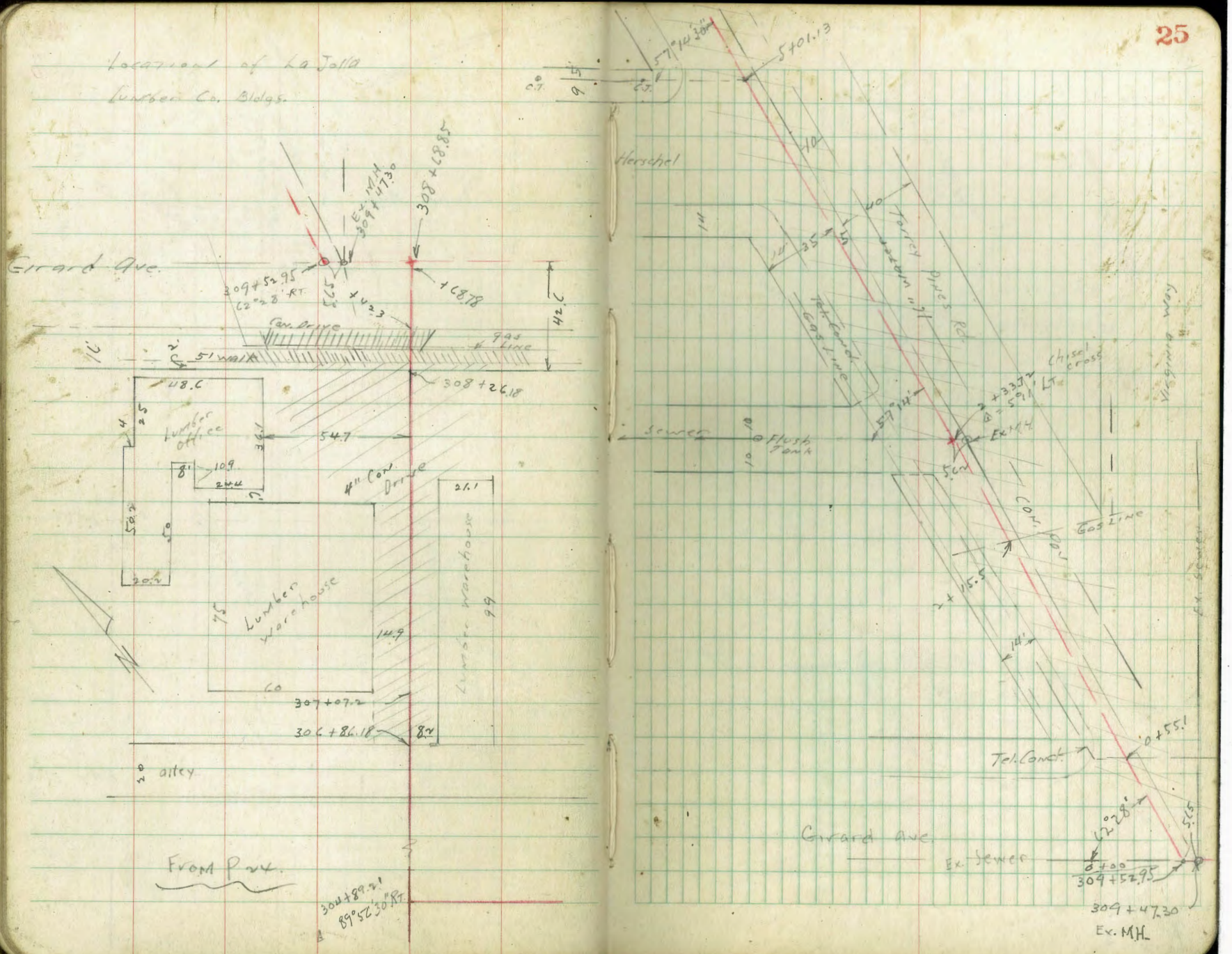

Marine St.
+82.64
285+73.37
Dirt Roadway
N.W. Sea Lane
287+58.45
Sea Lane
188+- N.W.
+89+- N. edge Pav.
Con. Pav.
Genter St.
280+38.4+-
End Thin Con. Pav.
Pearl
Chisel Cross St.
291+05.40
Con. Pav.
291+98.40
14
26
26
14
Ave
287+98.--
33.17 Lt.
Dirt Roadway
Drapier
10
Marine St
Con. Pav.
285+82.64
A = 33°0'
Lt.
285+73.37
10
20
20
10

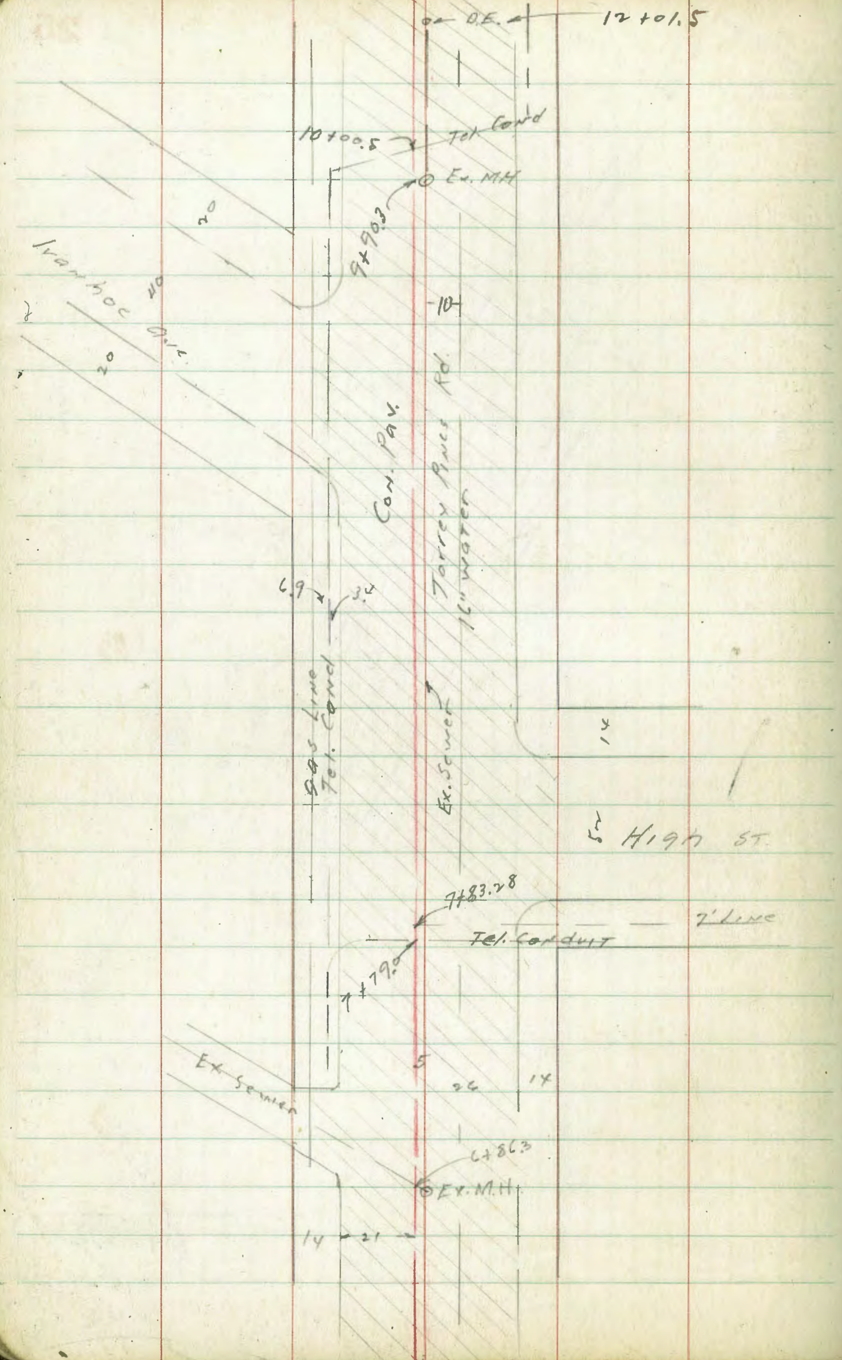

Eads Ave.
St.
Gas Line
Con. Pav.
295+78.30
+38
Ex. Sewer
gas line
294+28.40
+5.4L
gas line
Pearl
8" water
Draper Ave
Chisel +
292+05.40
292+38.40
Δ = 90°01' Rt.
14
26
26
7

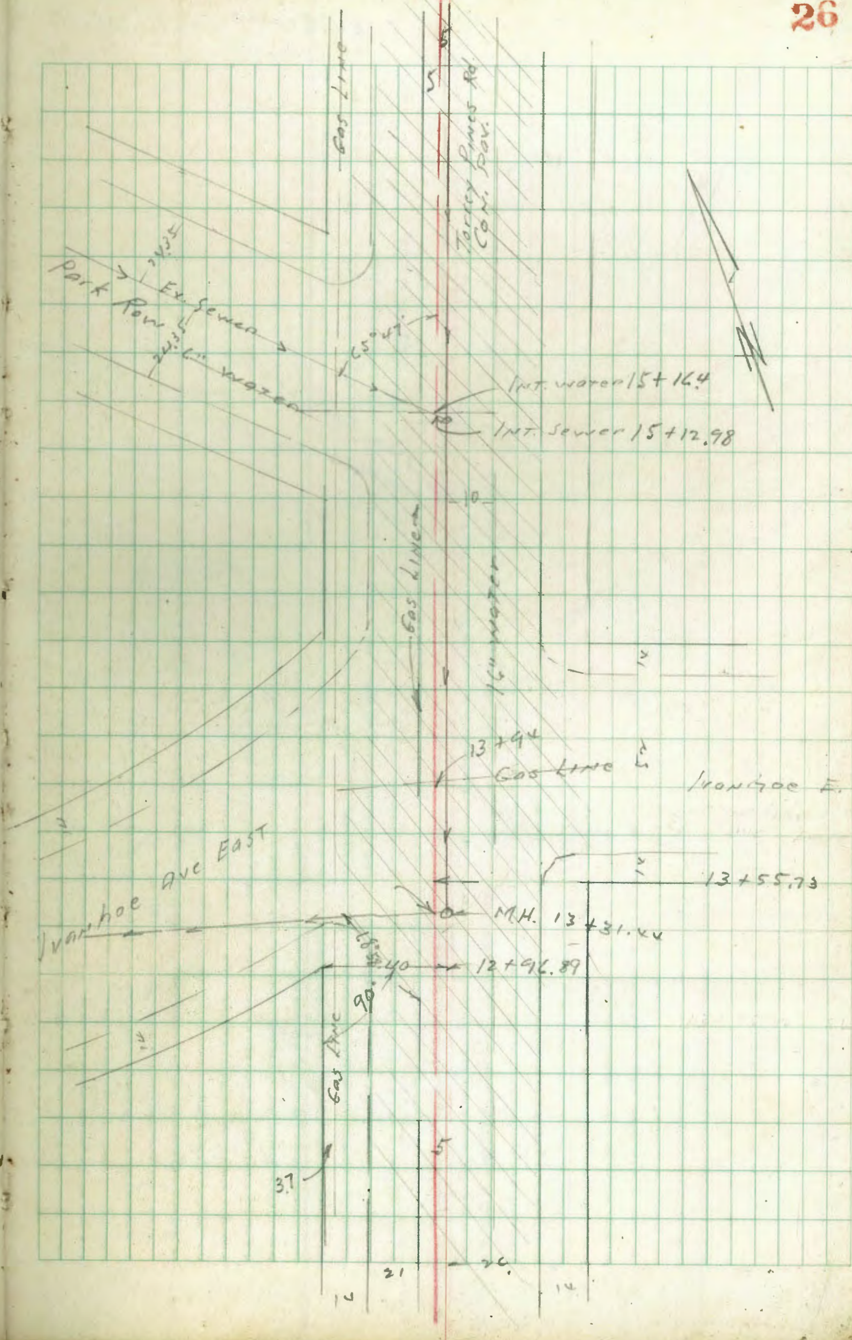

Alternate Line
Tel. Conduit
Pearl St.
37
43
chisel +
300+01.21
Δ = 90° LT.
℄ abandoned Elec. RR 299+92.90
Fay Ave
299+58.21 = W.L. Fay
8" water
gas line
gas line
Con. Pav.
298+08.30
Ex. Sewer
gas line
14
26
26
14

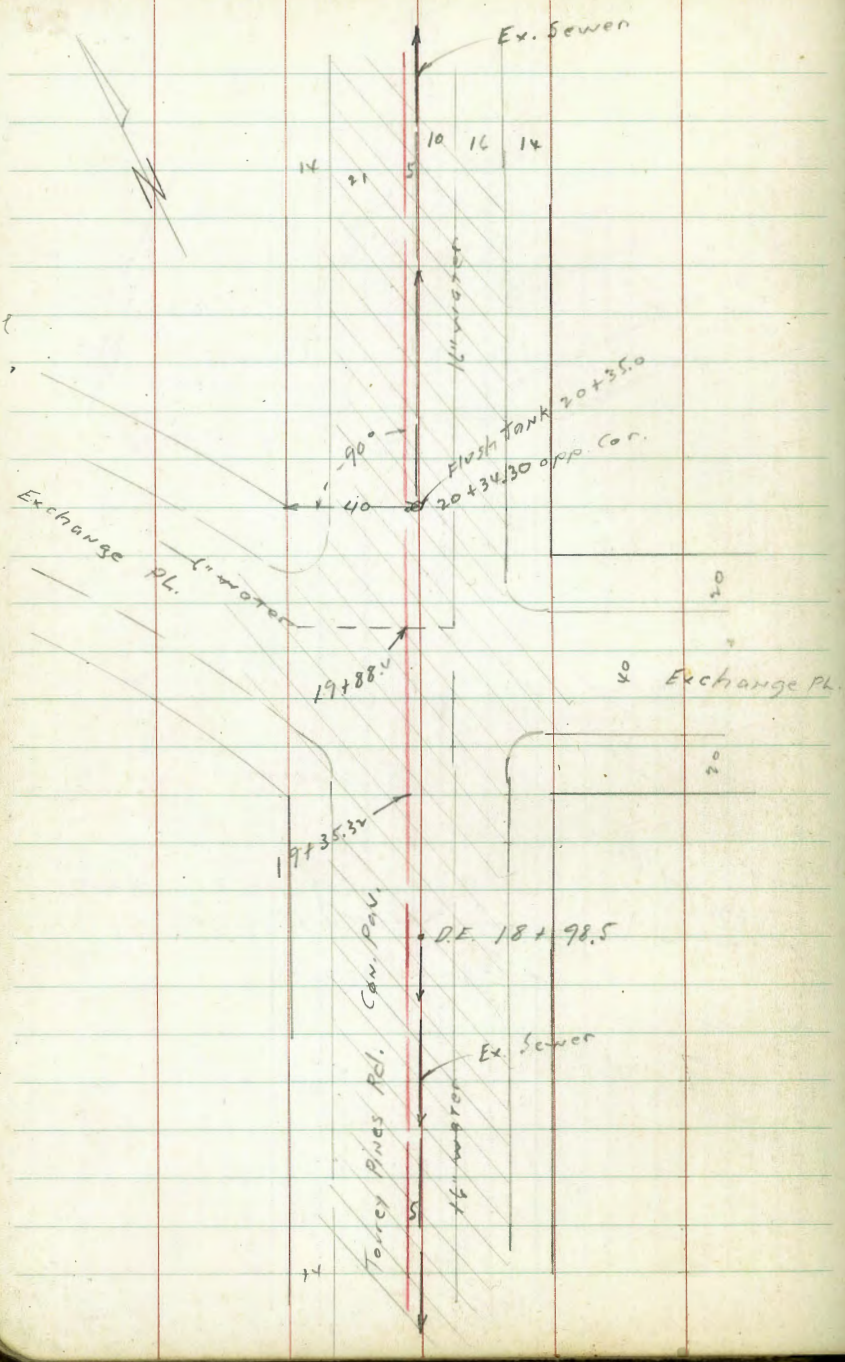

gas Line
Ex. Sewer
Virginia Way
Tel. Conduit
chisel +
309+18.31
16" water
0+00
309+52.95
Δ=62°28' RT
Ex. Sewer
Ex. M.H.
309+47.30
308+68.85
308+68.78
89°58'
308+26.18
Next Page for
La Jolla Lumber Co. Bldg.
306+76.7
38.80
Ex. Sewer
305+26.2
Top slab flush with curb
3' gutter drain
304+89.21
Δ 89°56'30" RT.
chisel X
Single R.R. Track
Ex. M.H.
5' walk
Girard Ave
gas Line
Tel. Cond.
Pearl St.
303+80.85
LT.
chisel Cross
Alternate Line
water
Ex. Sewer
M.H. Not Found
301+88.10
16"
Line change
1841-34
300+41.21
300+01.21
90° LT.
chisel Cross
Fay Ave

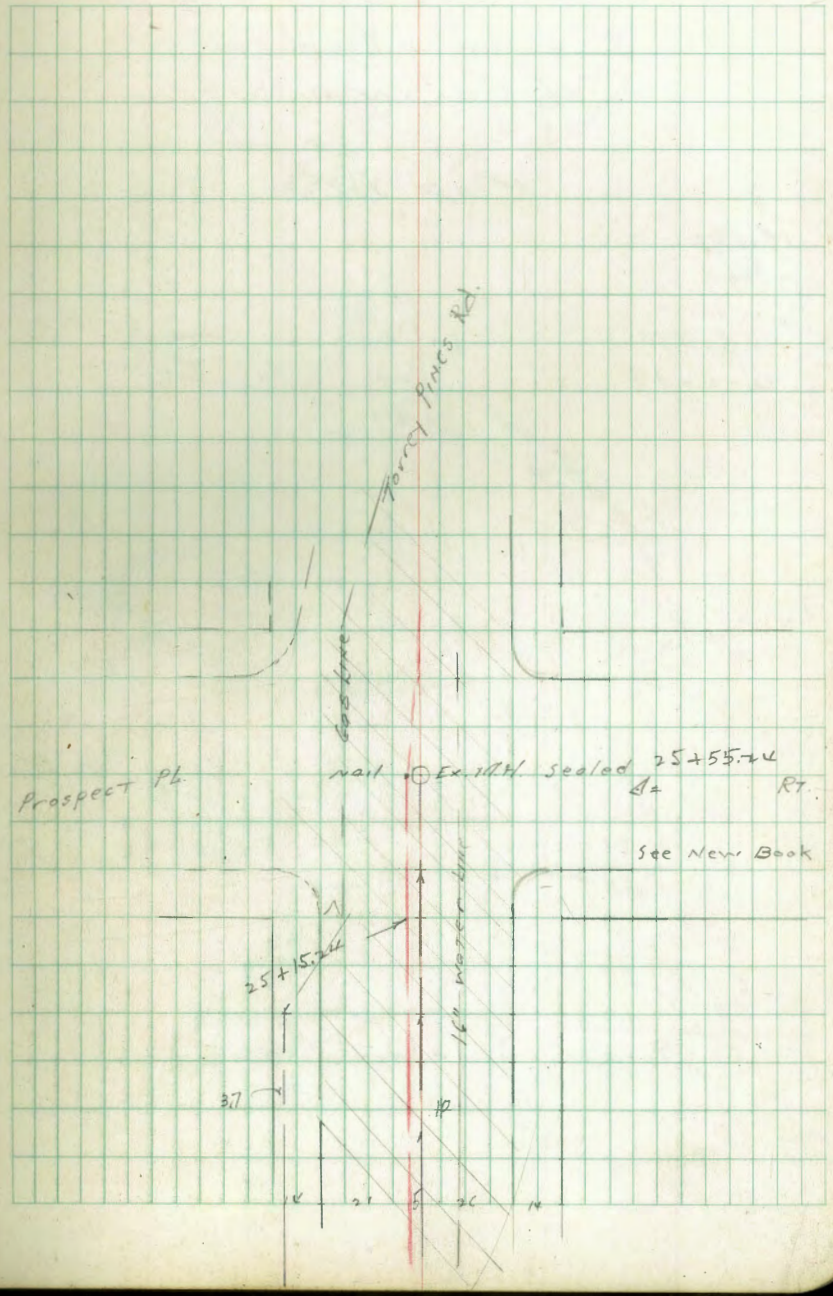
Location of La Jolla Lumber Co. Bldgs.




O.E.
12+01.5
10+00.5
Tel Cond
Ex. MH
9+90.3
Ivanhoe Ave
Con. Pav.
Torrey Pines Rd
16" water
6.9
3.4
Gas Line
Tel. Cond
Ex. Sewer
14
High St.
7+83.28
Tel. Conduit
7+79.0
Ex. Sewer
6+86.3
Ex. M.H.
26
14
14
21


Gas Line
Torrey Pines Rd
Con. Pav.
Park Row
Ex. Sewer
6" water
Int. water 15+16.4
Int. Sewer 15+12.98
Gas Line
16" water
13+94
Gas Line
Ivanhoe E.
Ivanhoe Ave East
13+55.73
M.H. 13+31.44
12+96.89
Gas Line
3.7
14
21
26
14


Ex. Sewer
10
16
14
14
21
5
4" water
Flush Tank 20+35.0
90°
Flush Tank 20+34.30 opp. Cor.
40
Exchange Pl.
4" water
19+88.4
Exchange Pl.
20
20
19+35.32
D.E. 18+98.5
Con. Pav.
Ex. Sewer
4" water
Forest Pines Rd.
5
14


Forest Pines Rd.
Gas Line
Prospect Pl.
nail
Ex. mh. sealed
25+55.74
Rt.
See New Book
25+15.24
16" water line
3.7
17
14
21
5
20
14

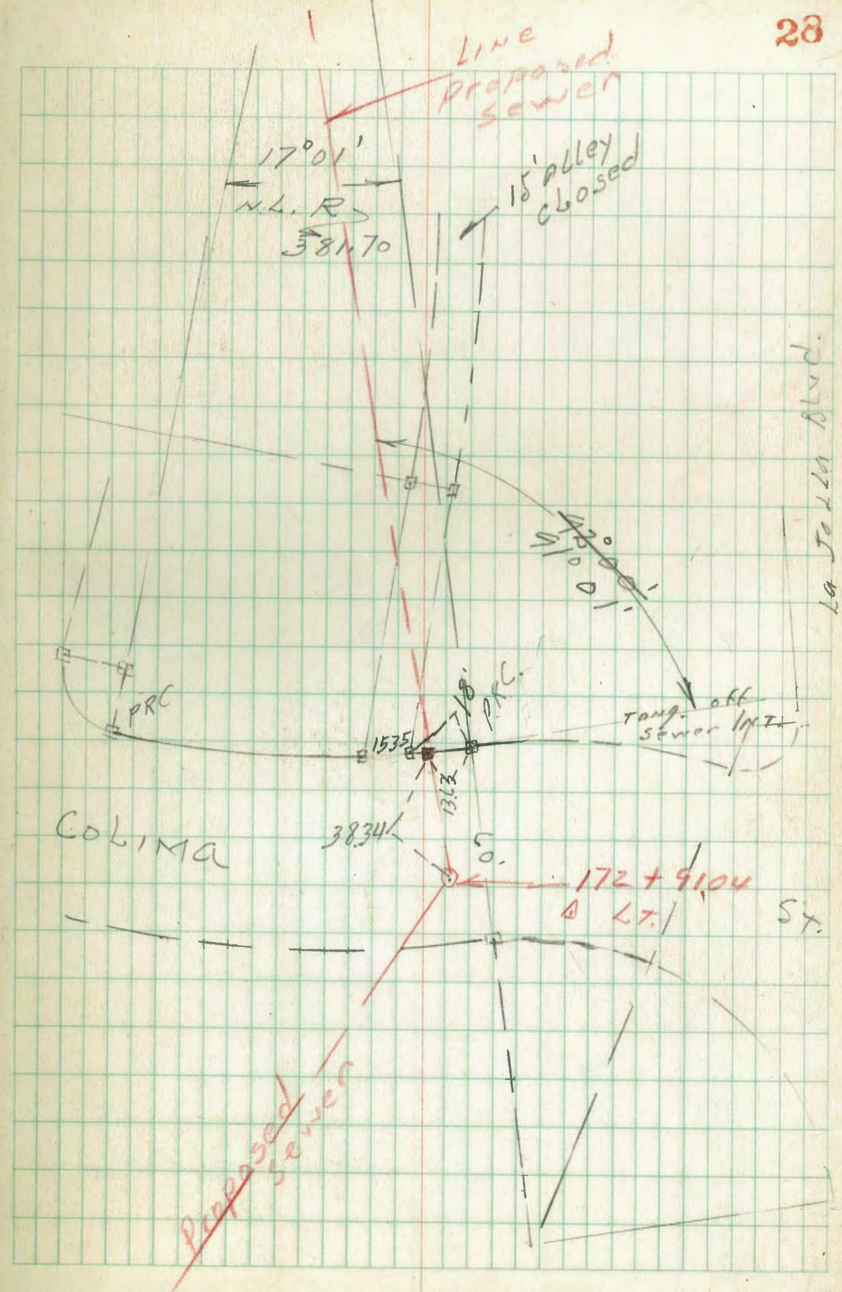
Trunk Sewer #3
Tie on Nly Line
of Colima St.

Map 1563

Moore
Begg
Greer
Roberts
4-6-48

13.63
4.503
4089
6815
5452
61.37589
60

1° 01.37 def. to Sewer Int.



Trunk Sewer Levels

Pac. Beach to La Jolla

NE Cor. La Playa & Kendall See Levels Old Town to Pac. B.

B.M. Mon	6.15	31.04		24.89	
0+00			9.0	22.0	
0+07.3 edge pav			8.5	22.5	
0+50 S'wo			8.0	23.0	
0+61 edge pav.			8.05	22.99	
1			8.0	23.0	
1+50			7.6	23.4	
2			6.8	24.2	
2+50			6.2	24.8	
3			5.2	25.8	
3+45.8 E alley			4.2	26.8	
" S'S M.H. Rim			4.29	26.75	
" " " F.L.			13.08	17.96	
4			3.2	27.8	
4+50			2.6	28.4	
5			2.6	28.4	
5+50			3.0	28.0	
T.P.	1.20	28.86	3.38	27.66	
6			1.6	27.3	
6+35.6 E alley			2.2	26.7	

Notes Reduced 4-3-43

28.86

6+35.6 S'S M.H. Rim	2.28		26.58
" " " F.L.	11.78		17.08
7	4.1		24.8
7+50	4.6		24.3
8	4.7		24.2
8+06 concrete flo-power	4.6		24.3
" F.L. 4" " " Cable	7.8		21.1
8+50 "	4.7		24.2
9	4.6		24.3
9+58 Sewer	4.5		24.4
" S'S M.H. Rim	4.56		24.30
" " " F.L.	12.70		16.16
9+50	4.5		24.4
10	4.4		24.5
10+50	3.9		25.0
T.P.	5.90	30.86	3.90	24.96	
11	5.7		25.2
11+50	5.3		25.6
12	5.0		25.9
12+57 E alley	5.1		25.8
" S'S M.H. Rim	5.47		25.39
" " " F.L.	15.50		15.36
13+50	5.1		25.8

		30.86			
13			5.1	25.8	
+40.4	E. edge	Con pav	4.90	26.0	
+60.46	℄	" "	4.52	26.34	Ingraham
+80.4	W	" " "	4.61	26.25	
14			4.3	26.6	
+50			5.5	25.4	
15			5.6	25.3	
+05.5	℄ alley		5.6	25.3	
"	5' S	M H Rim	7.10	23.76	
"	"	" F.L.	15.67	15.19	
+50			5.7	25.16	
T.P.	6.55	34.16	3.25	27.61	
16			8.3	25.9	
+50			7.1	27.1	
17			5.0	29.2	
+50			3.3	30.9	
+95.9	℄ alley		2.3	31.9	
"	5' S	M H Rim	3.93	30.23	
"	"	" F.L.	20.93	13.23	
18			2.3	31.9	
+50			2.3	31.9	
19	See plans for 16" water line		3.8	30.4	Old
+40.39	Hub Δ	89°58' Rt	5.34	28.82	Hub out.
	La Playa + Haines				

La Playa & Haines

		34.16			
T.P.	7.78	36.60	5.34	28.82	Δ Hub
+50			7.3	29.3	
20			6.5	30.1	
+50			5.6	31.0	
21			5.0	31.6	
+50			4.4	32.2	
22			3.9	32.7	
+50			3.4	33.2	
23			3.2	33.4	
+50			1.1	35.5	
T.P.	9.01	45.28	0.33	36.27	
24			8.5	36.8	
+50			7.5	37.8	
25			6.6	38.7	
+50			5.5	39.8	
26			5.1	40.2	
+47.76 ℄ Roosevelt			5.0	40.3	
+50			5.0	40.3	
27			5.4	39.9	
+50			6.0	39.3	
28			6.6	38.7	
+50			7.4	37.9	
29			7.7	37.6	

45.28

29+50			8.0	37.3	
T.P.	6.30	43.58	8.00	37.28	
30			6.6	37.0	
+50			6.2	37.4	
31			6.2	37.4	
+50			5.7	37.9	
32			4.7	38.9	
+50			4.0	39.6	
Set nail B.M. Pole			2.99	40.59	Sw cor Fortuna & Haines
32+85.08 = Δ of Plan	Fortuna & Haines		3.2	40.4	
33			2.4	41.2	
+50 — Levels on alternate line via Haines Nly to Reed ave. See P. 3			0.8	42.8	
T.P.	7.25	49.50	1.33	42.25	
34			5.1	44.4	
+50			5.0	44.5	
35			4.5	45.0	
+50			3.4	46.1	
36			2.0	47.5	
+50			0.3	49.2	

49.50

T.P.	9.77	59.01	0.26	49.24	
37			7.8	51.2	
+50			6.0	53.0	
38			5.2	53.8	
+47.51	S. Line of Pac. Beach Dr.		5.0	54.0	
39			5.9	53.1	
+32.86	Δ = 0° 01' Lt. Pueblo Line		6.81	52.20	ST~6
+50			7.0	52.0	
40			8.5	50.5	
+50			10.3	48.7	
41			12.3	46.7	
T.P.	1.68	48.09	12.60	46.41	
41+22.6 alley			2.3	45.8	
"	9' E M.H. Rim		2.37	45.72	
"	" " " F.L.		9.58	38.51	
+50			3.1	45.0	
42			4.3	43.8	
+50			4.9	43.2	
43			4.9	43.2	
+50			4.4	43.7	
44			3.7	44.4	
+50			3.2	44.9	
+63 alley			3.0	45.1	

4809

44+63	8'E	M.H. Rim	2.94	45.15	
"	"	" FL	13.96	34.13	
45			2.6	45.5	
+50			1.6	46.5	
46			1.0	47.1	
See plan for "M" Cen. drain grade					
T.P.	471	5x27 ✓	0.53	47.56	
46+37.0x	Δ 89°57'27"		4.7	47.6	Haines & Reed
+50			3.7	48.6	
47			5.1	47.x	
+50			7.7	44.6	
48			11.x	41.1	
T.P.	479	4x.38 ✓	1x.68	39.59	
48+50			3.9	38.5	
48+6x.45 = End		Alternate Line	4.78	37.60 ✓	STUB = T.P.

Main Line levels cont'd p. 34

Levels via Ex. Sewer in alley Bet. Fortuna & Pac. Beach Dr. and Haines & Frontera

33

BM Nail in Pole	0.3x	40.93 ✓		40.59 ✓	P 37x
32+85.08 = 0+00	See p. 5		c.5	40.4	Δ 90°-x LT Haines & Fortuna
0+30			0.8	40.1	
+50			3.3	37.6	
1			7.9	33.0	
1+43.35	Δ 40°-x' RT		10.70	30.23	Existing R.IM M.H.
"	"	"	16.0x	29.91	F.L. "
1+55			11.x	29.5	
+75			10.8	30.1	
x			8.5	32.x	
+50			7.3	33.6	
T.P.	9.77	x3.95 ✓	6.75	34.18	
3			9.5	34.5	
+50			8.x	35.8	
4+05.3	Ex M.H. Rim		6.7x	37.23	
"	" " F.L.		1x.95	31.00	
+50			4.7	39.3	
5			3.3	40.7	
+50			1.8	42.2	
6			1.x	42.8	
+50			1.x	42.8	
+70			1.x	42.6	

43.95

7+00		3.1	40.9	
7+07	STUB Δ 30°07'30" LT	3.47	40.28	S.L. Pacific Beach Dr.
T.P.	3.24	42.52	3.67	40.28	STUB
7+50		6.3	36.2	
+67		7.4	35.1	
8+00		9.9	32.6	
+12		6.7	35.8	
+50		7.2	35.3	
8+75.21	Δ 30°02'30" RT	8.3	34.2	
9		8.2	34.3	
+50		8.0	34.5	
10+04.75	Intr. Ex. 9" Sewer	8.6	33.9	
"	53.6 W 1 MH Rim	11.88	30.68	
"	" " " FL	22.14	20.38	
10+50		8.5	34.0	
11		8.2	34.3	
+9.33	S.L. Oliven St.	7.8	34.7	
+55		7.5	35.0	
+58		8.5	34.0	
T.P.	4.60	41.39	5.75	36.77	
12		6.0	35.8	
+50		6.1	35.3	

41.39

13		6.1	35.3
13+45	Intr. Ex. 9" Sewer	5.9	35.5
"	54.4 W 1 MH Rim	9.65	31.78
"	" " " FL	16.69	24.70
14		5.6	35.8
+50		4.9	36.5
+90		3.7	37.7
14+97.1		5.0	36.7	OUTLET CON. 24" RCP drain
"	15.4 E FL Ex.	5.40	35.99	24" RCP drain
15		5.2	36.0	
+05		4.2	37.2	STUB and ALTERNATE LINE
15+19.24 = 48+64.45		3.80	37.59	37.60 P.33

Cont. Main Sewer Line

0+28	37.88		37.60	T.P. 484+4445 STUB P.33
49+00		1.9	36.0	
+50		3.6	34.3	
50		4.8	33.1	
+50		5.2	32.5	
51		5.7	32.2	
+50		5.9	32.0	
52		5.9	32.0	STUB Reed & Gresham
52+13.00	Δ 89°53' RT	6.37	31.51	

		37.88		New hub Lower	
T.P. 52+13.0	3.11	34.62 ✓	6.37	~~31.51~~ ✓	angle ~~stub~~ out
T.P.	2.87	28.78 ✓	8.71	25.91	
Check to B.P. NW Pacific Dr. and Gresham. See F.B. 1442			7.68	21.10 ✓	21.18 / 0.08
			Set 2x2	10-9-47	
52+13.0	8.18	39.69		~~31.51~~ ✓	angle ~~stub~~ out
+50			7.3	32.4	
53			6.6	33.1	
+50			5.7	34.0	
53+88.3 Int. Sewer Line			5.1	34.6	
" 5' E MH Rim			4.77	34.92	
" " " F.L.			11.08	28.61	
54			5.1	34.6	
+50			4.5	35.2	
55			4.0	35.7	
+50			3.3	36.4	
56			2.6	37.1	
+50			1.9	37.8	
T.P.	8.16	45.99 ✓	1.86	37.83	
57			7.4	38.6	
+38.10 Int. Sewer line			6.7	39.3	
" 5' E M.H. Rim			6.42	39.57	
" " " F.L.			12.26	33.73	
+50			6.5	39.5	

		45.99			
58			5.6	40.4	
+50			4.3	41.7	
+85			2.5	43.5	
59			2.0	44.0	
+50			1.2	44.8	
+97.72 N ℄ Grand			1.82	44.17	stub
T.P.	6.00	50.17 ✓	1.82	44.17	stub
60+30			6.4	43.8	
+50			6.3	43.9	
61			5.6	44.6	
61+32 Int. Sewer Line			5.3	44.9	
" 5' E MH Rim			4.93	45.24	
" " " F.L.			11.28	38.89	
+50			5.0	45.2	
62			4.3	45.9	
+50			3.5	46.7	
63			2.8	47.4	
+06.76 90°02' Lt.			2.7	47.5	℄ Hornblend at Gresham
T.P.	0.82	48.29 ✓	2.70	47.47	angle stub
63+50			1.9	46.4	
64			2.9	45.4	

		48.29 ✓			
64+50			3.9	44.4	
65			4.3	44.0	
+50			4.8	43.5	
66			5.2	43.1	
+50			5.3	43.0	
67			5.5	42.8	
+50			5.6	42.7	
68			5.9	42.4	
T.P.	3.11	45.50 ✓	5.90	42.39	
68+41.6	E.L. Fanuel St.		4.09	41.41	6" Conc. Pav
+81.6	℄ "		4.56	40.94 ✓	" "
69+21.6	W.L.		5.06	40.44	" "
+50			4.4	41.1	
70			4.3	41.2	
+50			4.8	40.7	
71			5.4	40.1	
+50			6.3	39.2	
72			7.2	38.3	
+50			7.9	37.6	
73			9.0	36.5	
+50			10.0	35.5	
T.P.	5.50	41.12 ✓	9.88	35.62	
		41.12 ✓			
74			6.6	34.5	
+50			7.6	33.5	Hornblend & Events Stub
74+66.11 Δ 90° Rt			7.98	33.24	
75			7.7	33.4	
+50			6.7	34.4	
76			5.9	35.2	
+40.3 Int. Sewer			4.7	36.4	
" 5' E M.H. Rim			4.52	36.60	
" " " F.L.			11.04	30.09	
+50			4.6	36.5	
77			4.2	36.9	
+50			3.0	38.1	
+74.90 S.L. Garnet			2.12	39.00	A.C. Pav
78+14.9 ℄ "			1.55	39.57	"
+40.9 N. 66 Line "			1.76	39.36	"
78+54.9 N.L. "			1.25	39.87	"
T.P.	8.38	48.10 ✓	1.40	39.72	
Fd. B.P. B.M. NW Cor Garnet & Events			8.54	39.56 ✓	See office B.M. Book 39.53 Record.
79			7.1	41.0	
+50			6.3	41.8	
+90.2 Int. Sewer Line			5.7	42.4	
" 5' E MH Rim			5.32	42.78	
" " " F.L.			11.22	36.88	

		44.10 ✓			
80			5.6	42.5	
+50			4.7	43.8	
81			3.4	44.7	
+50			2.6	45.5	
81+64.76	Δ 90° Lt.		2.2	45.9	Events of Felspar
82			2.7	45.8	
+50			3.3	44.8	
83			3.8	44.3	
+50			4.4	43.7	
84			4.8	43.3	
+50			5.4	42.7	
T.P.	1.57	44.37 ✓	5.30	42.80	
85			2.4	42.0	
+50			3.0	41.8	
86			3.9	40.5	
+50			4.6	39.8	
87			5.3	39.1	
+25			6.0	38.8	
87+43.80	90° Rt.		5.88	38.92	Felspar + Dawes
+50			5.6	38.8	
88			4.6	39.8	
+50			3.7	40.7	
89			2.8	41.6	

44.37 ✓

89+18.8	Lt. Sewer Line	2.4	42.0	
"	5' E. M.H. Rim	2.09	42.28	
"	" " F.L.	8.21	36.16	
T.P.	9.02	51.36 ✓	2.03	47.34	Iron Pin in P.P. 20' Lt. of 89+00
89+50		8.6	42.8	
90		7.6	43.8	
+50		6.7	44.7	
91		5.6	45.8	
+50		4.8	46.6	
92		4.0	47.2	
+50		3.0	48.2	
+68.3	Lt. Sewer Line	2.5	48.9	
"	5' E M.H. Rim	3.10	48.26	
"	" " F.L.	cover stuck		
93		1.7	49.7	
+50		0.8	50.6	
T.P.	10.78	61.74 ✓	0.40	50.96	
94		10.1	51.6	
+28		9.5	52.2	
+30		10.0	51.7	
+33.7	Edge of 20' Con. Pav. on Diamond	9.90	51.84	

61.74 ✓

Station / Description					Remarks
94 + 53.7 N.L. 20' Con. Pav.			9.83	51.91	Diamond
95			9.0	52.7	
+ 50			7.4	54.3	
96			6.0	55.7	
+ 18 Int. Sewer Line			5.5	56.2	
" 5' E M.H. Rim			5.94	55.80	
" " " F.L.			11.82	50.92	
+ 50			5.0	56.7	
97			3.9	57.8	
+ 50			2.5	59.2	
+ 93.84 Δ 90° LT.			1.5	60.2	Missouri & Dawes
98			1.6	60.1	
+ 50			2.4	59.3	
99			3.5	58.2	
+ 50			4.7	57.0	
T.P.	2.30	59.19 ✓	4.85	56.89	
100			2.8	56.4	
+ 50			3.3	55.9	
101			3.8	55.4	
+ 50			4.3	54.9	
102			5.0	54.2	
+ 50			5.9	53.3	
103			6.4	52.8	

59.19 ✓

Station / Description					Remarks
103 + 27.57 E.L. Cass			6.75	52.44	on A.C. Pav.
+ 41.57 E Gut. "			7.16	52.03	" "
+ 67.57 ℄ "			6.69	52.50	" "
104 + 07.57 W.L. "			7.28	51.91	" "
+ 50			8.0	51.2	
105			8.7	50.5	
T.P.	1.32	51.98 ✓	8.55	50.64	
+ 50			2.0	50.00	
106			2.7	49.3	
+ 50			3.4	48.6	
107			4.2	47.8	
+ 50			4.8	47.2	
108			5.3	46.7	
+ 50			5.8	46.2	
109			6.6	45.4	
109 + 53.02 Δ 90° Rt.			7.5	44.5	Missouri & Bayard
Check to Con. Mon. Missouri & Bayard See F.B. ~~1651~~ 1629/18	S.W. Cor. 1' outside Corner		9.10	42.88 ✓	
110			6.5	45.5	
T.P.	9.09	55.19 ✓	5.88	46.10	

		55.19			
x19 Bayard St.					
110+50			8.6	46.6	
111			7.6	47.6	
+28	Int. Sewer Line		6.7	48.5	
"	5' E M.H. Rim		6.81	48.38	
"	" " " F.L.		12.61	42.58	
+50			6.3	48.9	
112			5.4	49.8	
+50			4.4	50.8	
113			3.1	52.1	
+50			1.9	53.3	
N.W. T.P. 7' C.J.	8.40	61.24	2.35	52.84	Bayard & Chalcedony
114			6.8	54.4	
+50			5.8	55.4	
+78.4	Int. Sewerline		5.1	56.1	
"	5' E. M.H. Rim		4.97	56.27	
"	" " " F.L.		11.62	49.62	
115			4.7	56.5	
+50			3.8	57.4	
116			2.9	58.3	
+13.43	S.L. Law St.		2.89	58.35	Con. Pav.
116+26.43	= Δ 90°02' Lt.		2.72	58.52	" "
+52.3	gutter		3.60	57.64	" "
"	Top curb		3.05	58.19	

		61.24			
116+57.6	edge sdw.		3.02	58.22	
T.P. Fd. B.P.	2.72	61.65	2.31	58.93	N.W. Cor. in curb Bayard & Law
117			3.7	58.0	
+31.5	℄ on 3' Con. walk		4.07	57.58	
+53.9	" ℄ Con. ribbon drive		4.21	57.44	via Law St. in S. parking Betw. cb. & walk
118			4.7	56.9	
+50			5.2	56.4	
119			5.6	56.1	
+50			6.1	55.6	
120			6.6	55.1	
+50			7.0	54.7	
121			7.5	54.2	
+50			7.9	53.8	
+63.7	edge Con. walk		7.97	53.68	
+66.4	Top curb		8.03	53.62	
"	gutter		8.69	52.96	Con. Pav.
T.P. See F.B. 1649/2 Fd. B.P.	5.52	60.62	6.55	55.10	N.E. in Curb Law and Mission Blvd.
122+01.24	℄ Miss. Blvd		7.35	53.27	Con. Pav. Betw. rails
+08.7	Int. N & S Sewer		7.35	53.27	Con. Pav.
"	So. 1482 Ex. M.H. Rim		10.31	50.31	
"	" " " 10" F.L. Sewer		16.47	44.15	

60.62

122+362	gutter	8.46	52.16	Con. Pav.
"	Top curb	7.82	52.80	
122+41.24	W.L. Mission Blvd. ∠ 90°04' RT	7.98	52.64	edge of sdw
+45.5	Top curb	8.05	52.57	
"	gutter	8.73	51.89	Con. Pav.
+68.24	℄ Law	7.66	52.96	" "
+90.9	gutter	7.43	53.19	" "
"	Top curb	6.78	53.84	
+97.4	" sdw	6.64	53.98	
123+00		6.6	54.0	
+50		5.9	54.7	
124		5.1	55.5	
+42.8 = W.L. Mission Blvd		4.3	56.3	
"	32.5 E = Ex. MH Rim	3.93	56.69	
"	" " " " F.L.	10.73	49.89	10" Sewer
"	49.3 E " " Rim	3.80	56.82	
"	" " " " F.L.	10.61	50.01	
+50		4.2	56.4	
125		3.3	57.3	
+50		2.5	58.1	
+78.46	S.L. Beryl St.	2.0	58.6	
+89.1	inside edge Con. walk	1.98	58.64	
+95.7	Top curb	2.26	58.36	
"	gutter	2.62	58.00	Con. Pav.
126+18.46	℄ Beryl	1.40	59.22	" "

60.62 ✓

126+41	gutter		1.35	59.27	Con. Pav.
"	Top curb		0.64	59.98	
+47.7	inside edge Con walk		0.48	60.14	
T.P.	9.80	69.42 ✓	1.00	59.62	
Fd. B.M. B.P. N.E. Cor. Beryl & Mission Blvd.			8.60	60.82 ✓	old City El. 60.75 See F.B. 1649/2 for new Elev.
127			8.5	60.9	
+50			7.7	61.7	
+97	W.L. Mission Blvd.		7.0	62.4	
"	40' E M.H. Rim		6.67	62.75	
"	" " F.L.		13.98	55.44	
128			7.0	62.4	
+50			5.9	63.5	
129			5.0	64.4	
+38.4	inside walk		4.56	64.86	
+45.9	Top curb		4.76	64.66	
"	gutter		5.35	64.07	Con Pav
+68.54	℄ Wilbur		4.64	64.78	" "
+91.4	N. gutter		4.41	65.01	" "
"	Top curb		3.77	65.65	
+98.6	" "		3.75	65.67	
"	W. gutter		4.33	65.09	" "
130+29.36	B.C. Lt.		3.71	65.71	" "

69.42

130 + 42.4	End Conc. Pav. and 8 Single Track	3.57	65.85	
T.P. Fd. BM. B.P. NE	6.83	73.08	3.17	66.25
130 + 50			7.2	65.9
131			6.7	66.2
+ 50			6.3	66.8
132			5.6	67.5
+ 50			4.9	68.2
+ 83.6	Beg. Conc. Pav. S.L. Loring		4.24	68.82
133	on Pav		4.02	69.06
+ 50	" "		3.26	69.72
+ 77.3	End Conc. Pav.		2.93	70.15
134			3.2	69.9
+ 50			2.8	70.3
135			2.3	70.8
T.P.	6.21	77.09	2.20	70.88
+ 50			5.9	71.2
135 + 7.6			5.5	71.6
" 26' RT.			10.76	66.33
" 21.3 LT.			12.20	64.89
136			5.3	71.8
+ 50			4.7	72.2

Mission Blvd & Wilbur

See F.B. 1637 / 1699 / 2

77.09

137		4.1	73.0
+ 50		3.3	73.8
138		2.6	74.5
+ 07		2.5	74.6
" 24.6 Rt.	FL. 24" Culv. Inlet	9.09	68.00
" 20.2 Lt.	" " "	12.50	64.59
+ 50		1.8	75.3
139		1.1	76.0
T.P.	4.97	79.91	2.15	74.94
+ 50		3.1	76.8
+ 90	12" Conc. I.P. Culv.		
"	Rt. F.L. Inlet	10.20	69.71
" 28	Lt.	15.4	69.0
140		2.8	77.1
+ 50		1.6	78.3
140 + 95.8	E.C.	0.7	79.2
T.P.	8.37	88.05	0.23	79.68
+ 50		8.0	80.1
141		7.1	81.0
+ 50		6.0	82.1
142		5.2	82.7

8805 ✓

143+15.5 ℄ 12' Con. Box Culv.		5.3	82.8
" 10' Rt = Shoulder		5.3	82.8
" 45' Rt = Inlet F.L.		33.5±	57.53
" 9 Lt Shoulder		5.4	82.6
" 33 Lt Outlet F.L.		36.63	51.9±
143+50		4.4	83.7
144		3.3	84.8
+05.0 ∠ 34°32'30" Lt.		2.6	85.5
20d Spike in T.P. IP # 5178	0.48 87.01 ✓	1.5±	86.53 ✓ 160' Rt of 146+00
144 +0		2.6	84.4
+35		4.6	82.4
+50		4.4	82.6
+80		5.0	81.6
145		4.8	82.2
+50		5.8	81.2
146		6.4	80.6
+50		6.8	80.2
147		7.9	79.1
+50		8.6	78.4
148		9.6	77.4
T.P.	141 79.2± ✓	9.18	77.83

79.2± ✓

42

148+50		2.9	76.3
149		3.8	75.4
+50		4.7	74.5
150		5.9	73.3
+50		6.6	72.6
151		7.2	72.0
+50		8.2	70.8
152		9.1	70.1
+41.10 ∠ 34°30'30" Rt		10.70	68.52 Stub
+50		10.6	68.6
152+99.05 ℄ Turquoise		11.0	68.2
153+40.47		11.3	67.9
Ld. C.T. in C.E. T.P. 140' Rt of 153+40.47	1.27 74.17 ✓	6.32 7.90	73.18 from USC&G. Walther Eng. 1423
+50		6.3	67.9
154		7.3	66.9
+50		8.0	66.2
155		8.2	65.8
+50		9.2	65.0
156		9.7	64.5
T.P.	3.28 68.1± ✓	9.33	64.8±
+50		4.0	69.1
+65		4.5	63.6

		68.1N ✓		
156	+70	wash	9.6	58.5
	+85	"	9.5	58.6
	+90		4.8	63.3
157			4.8	63.3
	+50		5.8	62.3
158			6.N	61.9
	+50		5.8	62.3
159			5.5	62.6
	+50		5.9	62.2
160			6.0	61.N
	+50		6.0	61.N
161			6.0	61.N
TP		6.06 68.45 ✓	.573	62.39
	+50		6.4	62.1
162			6.N	62.3
	+50		6.N	62.3
163			6.0	62.5
	+50		5.7	62.8
	+60		4.7	63.8
	+75		4.3	64.N
	+79	wash	5.6	62.9
	+85	"	4.6	63.9
164			4.4	64.1
	+50		3.8	64.7

		68.45 ✓		
165			2.6	65.9
	+50		2.0	66.5
166			1.7	66.8
TP		12.25 79.28 ✓	1.4N	67.03
	+06		1N.N	67.1
	+08		1N.9	66.8
	+N3.5	S edge 20' Pav.	1N.N8	67.00 to USNaval Anti-aircraft School
	+N3.5	W " "	12.N8	66.80
	+50		13.3	66.0
	+60		11.9	67.2
167			11.8	67.5
	+50		10.5	68.8
168			8.6	70.7
168	+17.80	Δ 5°50'30" LT.	7.69	71.59 8706
	+50		6.3	73.00
169			4.3	75.00
	+50		2.5	76.8
170			1.5	77.8
TP		5.87 83.90 ✓	1N.5	78.03
				FB. 1403 = 78.3N ✓
Check to Swap		Colima & Lotella Blvd.	5.88	78.0N ✓ 77.98 old City
170+55.1N		Δ 22°00'30" RT	6.7	77.3 ✓ & Colima St.

83.90 ✓

171			7.3	76.6	
+50			8.0	75.9	
172 ✓			8.2	75.7	
172 +31.85 Δ 17°18' LT.			9.0	74.9	
T.P.	2.74	77.64 ✓	9.00	74.90 ✓	172+31.85 Δ STUB
+50			3.0	74.6	
173			4.4	73.2	
+50			6.8	70.8	
+83.64 Δ 13°30' LT.			7.6	70.0	
174			8.9	68.7	
+50			12.0	65.6	
T.P.	1.42	66.69 ✓	12.37	65.27	
175			3.3	63.4	
+25			5.2	61.5	
+50			5.2	61.5	
+60			8.6	58.1	
175 +77.37 Δ 22°43'30" RT.			8.1	58.6	
+82 wash			10.8	55.9	
+89 "			11.7	55.0	
+91			7.7	59.0	
176 +12.70			7.8	58.9	
+50			7.1	59.6	
+75.26 NL Midway			6.66	60.03	✓ STUB

Has been changed by Navy

See Page 80 (Back of Book 1650)

66.69 ✓

177			5.8	60.9	
+50			3.3	63.4	
T.P.	8.58	73.46 ✓	1.81	64.88	
178			7.6	65.9	
+50			6.3	67.2	
179			4.9	68.6	
+50			4.5	69.0	
180			4.5	69.0	
+50			4.6	68.9	
181			4.3	69.2	
+50			4.7	68.8	
182			4.3	69.2	
+33.28 Δ 8°28' RT.			4.25	69.21	
T.P.	8.00	77.21 ✓	4.25	69.21	Δ STUB
182 +55			7.9	69.3	
+62.67 SL Forward			8.5	68.7	
+78.09 Top Sch			9.10	68.11	
" S 9u7 Con. Pav.			9.64	67.57	
182 +93.52 ℄ Forward			9.34	67.87	Pav.
" 145.2 RT. M.H. Rim			2.22	74.99	Ex. Sewer on
" " " " F.L.			13.38	63.83	Forward
" 193.2 LT " Rim			19.07	58.14	
" " " " F.L.			23.41	53.80	

77.21

183 + 08.95	N	gut	9.80	67.8
"	Top N	c6	9.19	68.02
+ 15			9.2	68.0
+ 24.37	NL Forward		8.0	69.2
+ 50			7.8	69.7
184			7.7	69.5
T.P.	5.19	74.99 ✓	7.41	69.80
+ 50			5.1	69.9
185			5.3	69.7
+ 50			6.8	68.2
+ 80			8.5	66.5
186			9.2	65.8
+ 12			8.4	66.6
+ 30			5.7	69.3
+ 55			4.3	70.7
187			3.0	72.00
+ 50			1.7	73.3
188			0.7	72.3
T.P. Top Latch 188+00	6.39	81.17 ✓	0.21	74.78
+ 50			6.2	75.0
189			5.7	75.5
+ 50			4.9	76.3

81.17

190	4.8		76.8
+ 3.05 S.C.G. Bird Rock Ave	5.67		75.50
" gut. p.v.	6.36		79.81
+ 38.47 E Bird Rock Ave	5.80		75.37 Pav.
" 140.3 Ft. MH. Rim	1.89		79.28
" " " " F.L.	15.09	66.08	Existing Sewer Bird Rock Ave.
" 218 Lt. " Rim	15.11	66.06	
" " " F.L.	18.35	62.82	
+ 53.9 N gut	6.06		75.11
+ 59 N edge walk	5.4		75.8
Check Th. B.M. B.P. SW Cor. La Jolla Ave. & Bird Rock Ave	2.08	79.09 ✓	79.06 = City 79.29 = F.B. 1423
190 + 70	5.0		76.2
+ 80	4.0		77.2
191	3.9		77.3
+ 50	4.4		76.8
192	5.3		75.9
T.P. Spike & Pole 192 + 25	3.79	80.00 ✓	76.21
+ 50	4.9		75.1
193	5.1		74.9
+ 50	4.6		75.4
194	4.9		75.1
+ 50	5.0		75.0

80.00

195			5.9	72.1	
	+50		6.3	73.7	
196			7.7	72.3	
	+50		8.6	71.8	
-196 +69.40 Δ 21°38' RT.					S.L. La Jolla Hermosa
STA 6					
T.P. +69.40	8.07	78.50 ✓	9.57	70.43	
197			8.4	70.1	
	+50		8.9	69.6	
198			8.8	69.7	
198 +43.83	Δ 35°01' RT.		8.40	70.10	S.L. Camino de La Costa
	+37.9 S edge 5' Con. walk		9.04	69.96	
	+39.7 Top S Curb		8.81	69.69	
	" Gut. Con. Pav.		9.28	69.22	
198 +59.4	Int. Ex Sewer		8.40	70.10	E Camino de La Costa Con. Pav.
"	59.4 Lt. M.H. Rim		11.84	66.66	
"	" " " F.L.		17.44	61.06	
"	+30.8 RT " Rim		0.78	78.22	on Contact
"	" " " F.L.		7.01	~~70.99~~ 71.99	
199 Pav.	4.3 out from Curb		7.34	71.16	
	+39		5.7	72.78	
check to B.M. B.P. W.ch. on La Jolla Blvd. 125' S. of Camino de la Costa			7.41	75.89 ✓	75.84 old City 76.18 = Walker F.B. 1423
199 +43	E Gut. pav.		6.3	72.18	

78.50

199 +63 Top curb		5.95	72.55
+69 inside edge Con. walk		5.81	72.69
199 +87.08 Δ 56°48' Lt		5.70	72.80 STA 6
200		7.2	71.3
+35		8.1	70.8
+50		8.0	70.5
+74 5' Lt. 10" acasia Tree			7
201		5.8	72.7
+37 Bdg. Lawn		5.4	73.1
+50 on "		5.4	73.1
+73.7 S.L. Oil rock drive		5.2	73.3 end of Lawn
+90 N.L. " "		5.1	73.4
T.P. 5.27	79.56 ✓	4.71	74.29
202		4.2	73.9
+24 6' Lt. 8" acasia Tree			
+50		5.8	73.8
203 6' Lt. 8" acasia Tree		6.1	73.5
+35		5.8	73.8
+50		7.2	72.2
+68.2 ground Inv. 36"		5.6	79.0 Con. pipe Culv.
" F.L. " "		18.2	61.36 " " "
204		5.3	79.3
+35		5.2	79.4

79.56

204 + 59.7	℄ of 9' all rock Drive	4.00	75.6	
205		3.0	76.6	
T.P.	8.66	83.19	5.03	74.53
+ 24	6' Lt. 8" acacia Tree			
+ 41.4	℄ of 11' M.C Drive	6.75	76.88	
+ 50		6.4	77.0	
206		5.3	77.9	
+ 50		5.3	77.9	
207		4.9	78.3	
+ 50		5.0	78.2	
+ 93	on Prop. B.C.	4.75	78.88	
208 + 0.5	inside edge Con. walk	6.4	76.77	6' Rt. 24" di. ℄ Palms
+ 13.6	Top curb	6.45	76.78	
"	gut pan.	6.80	76.39	
+ 43	pan. ℄ La Cañada	6.51	76.68	
T.P.	5.51	84.45	4.45	78.94
208 + 48.3	on Pan. on Line Ret. Ex. M.H.	7.76	76.69	
"	122' Rt. to Ex. M.H. Rim	0.77	83.68	on Line of Comm'l.
"	" " " " F.h.	7.96	76.49	
"	255 Lt " " Rim	20.30	57.09	alley Line
"	" " " " F.h.	24.56	59.89	

These M.H.'s are NOT connected by any line

84.45

B.M. T.F. 6.00 87.45 8.03 76.42

B.M. B.P. 47 NE La Jolla Blvd La Cañada

208 + 70.3	gut. Pan.	6.01	76.71	
"	Top curb	5.55	76.87	
+ 76	7' Rt. to 24" di. Palm			
+ 77.4	N. edge con. walk	5.45	76.97	
208 + 93	Prop. E.C.	4.7	77.7	
209		4.4	78.0	
+ 50		4.2	78.2	
+ 50.7	℄ of do. R.6. Con. drive	4.36	78.06	
+ 97.6	℄ 3' Con. walk	4.77	77.65	
210 + 34	℄ do. R.6. Con. Drive	4.93	77.85	
+ 50	Lawn	4.6	77.8	
+ 54	6' Lt. to 8" acacia			
+ 77.4	℄ 3' Con. walk	4.77	77.65	
211		4.5	77.9	
+ 25	6' Lt. 14" di. Eucal. Tree			
+ 50		4.1	78.3	
211 + 4	6' Lt. 8" di. acacia	4.2	78.2	
+ 50		3.6	78.8	
+ 75	6' Lt 6" acacia Tree			
213		3.3	79.1	
T.F.	6.18	85.39	3.21	79.21
+ 50		5.8	79.6	

85.39 ✓

213+71.8		5.69	79.70	STUB
" 50' RT.		3.9	81.5	
" 100' RT.		3.1	82.3	
" 111.8 RT Base 4" Con. Wall		3.0	82.8	
" 119.8 RT Top C&G		2.81	82.68	
" 121.8 RT. EX. MH RIM		3.35	82.02	on Comm'l.
" " " " " " F.L.		12.00	73.39 ✓	
213+91.5 Top 4" Con wall		3.86	81.53	
" ground		6.5	78.9	
214+00.7 Inside edge		6.70	78.7	
+08.7 Top curb		6.68	78.71	
" S. gut pav		7.15	78.28	
+50 Pav		6.55	78.88	
214+92.8 Pav. Int. Ex. Service		6.45	78.98	
" 121.7 RT. to Ex. MH Rim		3.45	81.98	
" " " " " " F.L.		12.87	72.57	on Comm'l.
" 214.6 Lt " " " Rim		10.98	74.91	
" " " " " " F.L.		18.67	66.72	alley W. of Blvd
T.P. 7.16 86.76 ✓		5.79	79.60 ✓	Top Curb 4.2E of 215+05.5
215+05.5 Pav. & P/A29 Mira Monte		7.73	79.03	
+50 "		7.70	79.06	
+96.5 gut. Pav.		8.05	78.71	
" Top curb		7.65	79.11	

86.76 ✓

216+02.4 " edge walk	7.64		79.12
+13.4 ground Base wall	7.6		79.16
" Top 4" Con wall	4.86		81.9
+14	6.5		80.3
+50 6' Lt. 6" acasia Tree	6.5		80.3
217	6.3		80.5
+25 6' Lt. 8" acasia Tree			
+50	7.3		79.5
218 6' Lt. 8" acasia	7.5		79.3
+50	7.6		79.2
+76 6' Lt. 10" acasia Tree			
219	7.5		79.3
+50 6' Lt. & 18" dh Eucal. Tree	7.3		79.5
220	7.4		79.4
T.P. 6.59 86.76 ✓	7.09		79.67
+50	6.8		79.5
221+00.53 Prop. B.C.	6.11		80.15 STUB
+16.7 edge walk	6.19		80.07
+23.8 Top curb	6.15		80.11
" gut Pav	6.64		79.62
+50 Pav	6.68		80.18
+84.8 " gut	6.14		80.12
" Top curb	5.77		80.49

86.26 ✓

221+923	inside edge Con. walk	5.74	80.52	
222+03.85	Prop. B.C.	5.32	80.94	STUB
+30	6' Lt. 18" di. Palm			
+35.8	℄ 3' Con walk	5.35	80.91	
+50	Lawn	5.4	80.9	
+65	6' Lt. 18" di. Palm			
223		5.0	81.3	
+25	6' Lt 8" acasia			
+27.8	℄ 3.5 Brick walk	5.30	80.96	
+44.4	S edge Con Drive	5.32	80.94	
+59.7	N " " "	5.33	80.93	
+70	6' Lt. 16" di. Palm			
+71.58	N.L. La Jolla Hermosa	5.12	81.14	STUB
223+90.07	Δ 3°01' Rt. to P.O.C.	5.35	80.91	"
224+09.7	E. edge walk	5.55	80.71	
+19.7	W " "	5.57	80.69	
+21	4.6 Lt. E. edge P.P.			
+41.8		5.4	80.9	
"	5.5 Rt. W. edge walk	5.37	80.89	
+50		5.5	80.8	
225		5.0	81.3	
Check to BM. B.P. N.W. curb Via Norte & La Jolla Blvd.		6.70	79.56 ✓	79.87 = F.B. 1473 = old City
T.P.	6.44	87.85 ✓	4.85	81.41 ✓

87.85 ✓

225+35	3' Lt. 6" acasia			
+50		6.3	81.6	
+85	4' Lt. 6" acasia			
225+99.07	P.O.C.	5.95	81.90	STUB
226+50		5.7	82.2	
+89	4' Lt. 8" acasia			
227		5.4	82.5	
+50		5.0	82.9	
228		4.6	83.3	
+50		4.3	83.6	
229		4.1	83.8	
+50		3.9	84.0	
+86	4' Lt. 6" acasia			
230		3.9	84.0	
T.P.	1.80 86.01 ✓	3.64	84.21	
+50		2.5	83.5	
231		3.2	82.8	
+50		3.8	82.2	
232		4.6	81.4	
+50		5.4	80.6	
233		5.9	80.1	
+12.41	E.C.	6.92	79.09	STUB
+50		6.5	79.5	

86.01 ✓

234+00.90	B.C. RT.		6.81	79.20	STUB
+50			7.0	79.0	
T.P	5.96	85.03 ✓	6.94	79.07	
235			6.4	78.6	
+75	4' Lt. 10" Acacia				
+50			6.4	78.6	
235+99.58	P.O.C. Δ 82°00'30"	RT. of Forw	6.41	78.62	STUB
Check to E.M.B.P. NE Cor. in c/l La Jolla Blvd. & Palomar			6.51	78.54 ✓	78.83 F.B. 1443
236+00.58	W. edge Con. Walk		6.25	78.78	
+07.58	E " " "		6.12	78.91	
+50			5.8	79.2	
237			4.8	80.2	
+50			3.7	81.3	
238			2.8	82.2	
238+25.31	P.O.C.		2.06	82.97	STUB
T.P	6.07	89.04 ✓	2.06	82.97	STUB
+39.31	Beg. Con. Pav S.L. Palomar		6.04	83.00	
+59	Pav.		6.50	82.54	
239	"		5.61	83.83	
+34	"		5.04	87.00	

89.04 ✓

239+34	C'Rt. M.H. Rim	4.84	88.20
"	" " F.L.	9.99	79.05
+50	Pav.	4.80	84.24
239+82.19	E.C. Pav.	4.46	84.58
240	Pav	4.55	84.49
+50	"	5.13	83.91
+56.7	Lt. Ex. Sewer	5.19	83.85
"	C'Rt MH Rim	5.16	83.88
"	" " F.L.	11.17	77.92
+82.20	Pav	5.53	83.51 N.L. Rosemont to West
Check to SEBP in curb Rosemont & Electric		5.18	83.86 ✓ 83.80 = old City
241	Pav	5.72	83.32
+50	"	6.10	82.94
242	"	6.45	82.59
T.P	239 85.73 ✓	6.20	82.84 ✓
+50	Pav	3.55	82.18
243	"	3.90	81.83
+50	"	4.24	81.49
+81	"	4.53	81.20
244	"	4.98	80.75
+50	"	6.77	79.96
245	"	7.54	78.19
+50	"	8.90	76.83
+94	"	10.02	75.71
246	"	9.89	75.84
246+06.79	Δ 75°51' Rt.	9.86	75.87
T.P. Ld. C.T. sdw		9.00	76.73 ✓ S.E. Cor Electric & Gravilla

Contd on P. 55

Levels on ALTERNATE Sewer Line
via Comm'l Ave P.16
Camino de la Costa to Palomar Ave.

Sta.		B.S.	H.I.	F.S.	Elev.	
P. 46						
BM EP 1251 on W. curb		3.87	79.76 ✓		75.89	La Jolla Blvd & Camino de La Costa
P. 12 & P. 16						
198 + 23.83	Δ 70°10' RT.			9.66	70.10	Stub.
+ 58.8	edge con. walk			8.45	71.31	
+ 72.4	S. cb Camino Costa			8.09	71.67	
"	gut pav			8.37	71.39	
199	Pav			6.87	72.89	
+ 20	"			6.40	73.36	
+ 30	" approx. intersec of 16" water line			6.50	73.26	about 4' deep
+ 40	" valley gut			6.57	73.19	
+ 50	"			6.04	73.72	
200	"			5.01	74.75	
+ 22.7	" gut			4.17	75.59	
"	Top N cb La Costa			3.61	76.15	
+ 47.8	edge walk			2.38	77.38	
+ 49.	S. side F.H.			2.3	77.5	
+ 67.8	edge walk			1.35	78.41	
+ 74.2	Top curb			1.30	78.46	
"	gut. Pav.			1.77	77.99	
+ 78.2	Pav. Int. Ex. Sewer Line			1.64	78.12	
"	26.8 So. to Ex. M.H. ℄ Camino de La Costa				70.49	El. F.L.
200 + 97.30	Δ 91°50' LT. N.L. Camino de La Costa End of Con. Pav.			1.05	78.71	
			79.76 ✓			
T.P.		6.34	85.11 ✓	0.99	78.77	
201				6.3	78.8	
+ 50				6.1	79.0	
202				5.7	79.4	
+ 50				5.3	79.8	
+ 79	Int. 24" Corr. I.P. Culv.			5.2	79.9	
"	39.6 LT. outlet			11.69	73.42	F.L.
"	40.5 RT inlet			7.18	77.93	F.L.
203				5.0	80.11	
+ 22				4.8	80.3	
"	19.3 LT. Ex. M.H.			5.65	79.46	Rim
"	" "			11.96	73.15	F.L.
+ 50				4.5	80.6	
204				4.0	81.1	
+ 50				3.5	81.6	
T.P.		7.16	88.85 ✓	3.42	81.69	
205				6.6	82.3	
+ 50				6.0	82.9	
+ 71.4				5.7	83.2	
"	19.3 LT. D.E. M.H.			7.23	81.62	Rim
"	" "			14.13	74.72	F.L.
206				5.4	83.5	
+ 46.3	Int. 36" Corr. I.P. Culv.			5.2	83.7	
"	49.7 Rt inlet			9.54	79.31	F.L.
"	22' Rt. Top cb. inlet			5.42	83.43	
"	" " grate			7.18	81.67	
"	" " Bot. Box			15.38	73.47	F.L.

88.85

206 + 98	4.4	84.5	
" 19.4 Lt. D.E.M.H	5.64	83.21	R.M.
" " " "	10.06	78.79	E.L.
207 + 50	3.8	85.1	
208	3.6	85.3	
+ 50	3.5	85.4	
209 ✓	3.6	85.3	
T.P. 4.43 89.69	3.59	85.26	
+ 50	4.7	85.0	
210	4.8	84.9	
+ 72.85 S.L. of La Cañada	5.04	84.65	Con. Beg. Pav.
+ 37 valley gut	5.44	84.25	Pav.
+ 52.85 E La Cañada	5.37	84.32	Pav.
" 19.4 Lt. Ex. M.H.		76.49	El. F.L.
+ 68 valley gut	5.67	84.02	Pav.
+ 87.85 N.L. La Cañada	5.38	84.31	Pav.
+ 90.4	5.28	84.41	End Con. Pav.
211 dirt	5.2	84.5	
+ 50	5.4	84.3	
212	5.7	84.0	
+ 50	6.0	83.7	
213	6.2	83.5	
+ 50	6.4	83.3	
+ 87.5	6.6	83.1	
" 19.3 Lt Ex. M.H.	7.65	82.08	R.M.
" " " "	15.06	74.63	F.L.

+.0

89.69 ✓

T.P. 3.58	87.63		
STA 6			
214	4.5	83.1	
+ 50	4.8	82.8	
215	5.0	82.6	
+ 50	5.0	82.6	
+ 82.5 Int. 10" Sewer.	4.9	82.7	ground
" 19.2 Lt. Ex. M.H.		73.39	Elev. F.L.
" 105.6 Rt " "	2.77	84.86	R.M.
" " " "	11.47	76.16 ✓	F.L.
+ 90 Beg. con. Pav.	4.85	82.78	
216 Pav.	4.96	82.67	
+ 07.77 S.L. Mira Monte	5.14	82.49	opposite Ld. & Ct's
+ 20 " valley gut.	5.49	82.14	
+ 50 "	5.14	82.49	
+ 70.5 "	5.14	82.49	
" 19.3 Lt. Ex. M.H.	5.45	82.18	R.M.
" " " "	14.69	72.94	F.L.
217 Pav.	5.04	82.59	
+ 15 "	5.07	82.56	
" 19.5 Lt. M.H.	15.11	72.52 ✓	El. F.L.
" " " "	5.69	81.98	R.M.
+ 16 Pav. & Plaza	5.07	82.56	
+ 50 "	5.04	82.59	
218 "	5.44	82.21	
+ 06 " valley gut.	5.50	82.15	

EL. CONAM 213 + 87.5

87.63

					opposite
218	+18.53	Pav. Mk. Mica Mont.	5.23	82.80	Ld. & C.L.
	+35	Pav.	4.8~	82.81	
	+54.8	End Conc. Pav.	4.7~	82.91	
T.P.		5.34	88.25	4.7~	82.91	E end Pav. +54.8
218	+85.3	Lt. Ex. Semon	5.~	83.1	ground
	"	19.3 Lt. Ex. M.H.	6.25	82.02	R.M.
	"	" " "	12.15	76.10	F.L.
	"	106 Rt. " "	2.63	85.62	R.M.
	"	" " "	10.40	77.85	F.L.
219			5.3	83.0	
	+50		5.~	83.1	
220			5.1	88.~	
	+50		4.9	83.2	
220	+90		4.7	83.6	ground
	"	19.3 Lt. Ex. M.H.	5.47	82.78	R.M.
	"	" " "	10.87	77.38	F.L.
221			4.6	83.7	
	+50		4.4	83.9	
222			4.1	88.2	
	+50		3.7	88.6	
223			3.6	88.7	
T.P.		4.7~	91.33	3.64	87.61	
223	+16~	S.L. Via Norte	ground	6.7	89.6	
	+169	Beg. Conc. Pav.		6.73	89.60	
	+18	Pav.		6.81	89.52	

91.33

223	+45	Pav.		6.48	89.85	
	+45	"		6.39	89.94	
	+85.7	End Conc. Pav.		6.17	85.16	
224				6.~	85.1	
	+50			5.9	85.2	
	+74.8	ground		5.7	85.6	
	"	18.7 Lt. D.E.M.H.		6.49	88.89	R.L.M.
	"	" " "		11.59	79.79	F.L.
225				5.6	85.7	
	+49.40	Δ 23°34' Rt. to P.O.C.		5.5~	85.81	STUB M.L. La Jolla Hermosa
226				4.7	86.6	
	+50			3.8	87.5	
227				3.1	88.~	
	+50			2.6	88.7	
228				1.8	89.5	
	+38.84	P.O.C.		1.05	90.28	STUB
T.P.		3.85	94.13	1.05	90.28	P.O.C. & STUB
228	+66			3.7	90.4	ground
	"	8.8 Rt. Ex. I.M.H.		3.30	90.8	R.M.
	"	" " "		7.9~	86.2~	F.L.
229				4.0	90.1	
	+50			4.5	89.6	
230				4.9	89.~	
	+50			5.~	88.9	

	9V13 ✓		
~31	5.0	89.1	
+27	5.1	89.0	ground
" 89 Rt. Ex. M.H.	5.0~	89.11	R.M.
" " " " "	9.7~	89.39	F.L.
+50	5.3	88.8	
~34	5.7	88.2	
+50'	6.0	88.1	
~33	4.5	87.6	
T.P. ~77 90.43 ✓	6.~7	87.66	
+50	3.~	87.0	
+78	3.8	86.6	ground
" 88 Rt. Ex. M.H.	3.36	87.07	R.M.
" " " " "	7.86	82.57	F.L.
~3~ : PoC Δ 1°36' Rt. of T. to PoC.	4.1	86.3	
+50	4.6	85.8	
~35	4.6	85.8	
+50	5.0	85.4	
~36	6.0	84.2	
+29.3	6.6	83.8	ground
" 12' Rt. Ex. M.H.	5.61	84.82	R.M.
" " " " "	9.59	80.82	F.L.
+50	6.9	83.5	
~37	7.~	83.~	
+50	7.5	82.9	
~37 +79.94 PoC N'ly of S.L. Palomar	7.43	83.00 ✓	Stub 82.97 T.P. P. 50
~38 +35.31			

Contd from P. 50

Levels on Trunk Sewer via Gravilla and Draper St. from Gravilla to Pearl. See P. 15 and 20

T.P. Ld. C.T. in Sdw.	4.10	82.83 ✓		76.73 ✓	SE Cor. Gravilla & Electric
246+50	Com. Pav		6.07	76.81	
247	" "		4.77	78.06	
+48.7	End Com. Pav. Beg. 3" oil Rock Pav.		3.89	78.94	
247+58.30	Δ = 2°16' Rt.		3.50	79.33	Gravilla St. & Tyrian St.
"	6' Rt. Ex. M.H.		3.39	79.44	R. in M.
"	" "		7.24	75.59	F.L.
+70			3.65	79.18	
T.P. S.E. Cor. B.P. Found	8.06	88.44 ✓	2.45	80.38	Gravilla & Tyrian
248	3" oil rock Pav.		8.66	79.78	
+50	" "		7.70	80.74	
249	" "		6.50	81.94	
+50	" "		5.31	83.13	
250	" "		4.00	84.44	
+50	" "		2.67	85.77	
251	" "		1.47	86.97	
+46	" "		0.79	87.65	
"	6' Rt. Ex. M.H.		0.50	87.94	R. in M.
"	" " "		5.16	83.28	F.L.

88.44 ✓

T.P.	11.05	99.21 ✓		0.28	88.16
251+50	3" oil Rock Pav.			10.66	88.55
252	"			8.60	90.61
+50	"			6.07	93.14
253	"			3.55	95.66
+50	"			1.29	97.92
T.P.	11.97	110.96 ✓		0.22	98.99
254	3" oil Rock Pav			10.53	100.43
+50	"			8.14	102.82
+84.6	End 3" oil Rock Pav			6.30	104.66 Beg. Thin oil
1755+14.65	Δ 89°55' Lt			5.12	105.84
+50				4.12	106.8 via St.
256				1.3	109.7 Draper
+45				0.2	110.8 St.
T.P.	4.60	115.51 ✓		0.05	110.91
+50				4.1	111.8
+75				3.9	111.6
257				3.8	111.7
+53.84	℄ Bengie Pl.			4.1	111.8
"	40.5 Lt. Ex. M.H.			5.91	109.60 R. in M.
"	" " "			10.79	109.72 F.L.

175.51 ✓ Via Draper St.

258			5.0	110.5	
	+50		6.N	109.3	
259			7.N	108.3	
	+50		8.C	106.9	
	+68.7C	Sl. Bonair St	9.0	106.5	End Thin o/l
	+8N		9.5	106.0	Beg 3" oil rock Pav.
260			9.50	106.01	In Intersection
	+16		10.1	105.91	
	+N3	end 3" o/l Rock	10.0	105.5	
Found T.P. B.P.	6.50	111.09 ✓	9.9N	105.59	SW Curb Bonair & Draper
	+50		6.3	105.8	
261			5.9	106.N	
	+50		5.C	106.5	
N L N			5.N	106.9	
	+43.C	Intersect Ex. M.H.	5.0N	107.07	RIM
	"	"	9.9N	102.15	F.L.
	+50		5.0	107.1	
N L 3			5.N	106.9	
	+50		5.N	106.7	
N L N			5.7	106.9	
	+50		5.9	106.2	
Found T.P. B.P.	4.36	110.11 ✓	6.34	105.75	SW Curb Nautilus & Draper

110.11

N L 4 + 58.69	Sl. Nautilus	3.98	106.13	Con. Pav.
+70		4.5C	105.55	" "
+88.69	Sl. Nautilus	3.85	106.26	" "
N L 5 +0C		4.NN	105.89	" "
+18.69	Sl. Nautilus	3.41	106.50	" "
+50		4.0	106.1	
N L 6		4.4	105.7	
+50		4.9	105.2	
N L 6 +9N	Via 6" Sewer	5.0	105.1	ground
" 131 Ft. to Ex. M.H.		+3.95	119.06	RIM
" " " " "		0.9N	109.17	F.L.
N L 7		5.0	105.1	
+50		5.4	104.7	
N L 8		5.9	104.2	
+50		6.1	104.0	
Found B.P. T.P. Curb	3.41	106.57 ✓	6.95	103.16 ✓ SW Curb Westbourne & Draper
N L 8 +65.65	Sl. Westbourne	3.83	103.78	Con. Pav.
+77		3.6N	102.95	" "
+95.65		3.1C	103.91	" "
N L 9 + 13		4.0N	102.55	" "
N L 9 +25.65	Rt. Westbourne	3.30	103.27	" "
+50		3.8	102.8	
N L 10		4.3	102.3	
+50		5.7	101.9	

106.57 ✓

270 + 99.3	E Ex.	M.H.	4.81	101.76	Rim
"	"	"	10.49	96.08	F.L.
271 + 50			5.4	101.2	
272			6.0	100.6	
+ 59.7	S.L. Fern Glen		6.7	99.9	
+ 74			6.7	99.9	
+ 89			6.7	99.9	
273 + 03			6.7	99.9	
+ 50			5.5	101.1	
T.P.	6.77	108.71 ✓	5.13	101.44	
274			5.7	102.5	
+ 50			4.7	108.0	
+ 98	Int. Ex. M.H.		2.60	105.6	@ Rushville Rim
"	"	"	8.13	100.08	F.L.
Fd. Id. + Nail T.P. in Curb	8.74	113.13 ✓	3.89	104.39	S.W. Cor. Rushville & Draper 104.6 from USGS
275 + 50			6.5	106.6	
276			5.3	107.8	
+ 50			4.7	108.9	
+ 68.7	S.L. Arenas		3.8	109.3	S.E. Cor. Arenas & Draper
Fd. BM. B.P. curb			2.68	110.45 ✓	
277			3.5	109.6	
+ 50			3.6	109.5	

113.13 Via Draper St.

278			4.0	109.1	
+ 50			4.3	108.8	
T.P.	3.56	112.37 ✓	4.32	108.81	
+ 78.6	E Ex. M.H.		3.63	108.74	Rim
"	"	"	8.39	103.98	F.L.
279			3.9	108.5	
+ 50			4.7	107.7	
280			5.2	107.2	
+ 78.4	S.L. Center		5.55	106.82	Conc. Pav.
+ 38			5.83	106.55	" "
+ 58.4			5.73	106.69	" "
+ 78			6.29	106.08	" "
+ 88.2	end Conc. Pav.		6.09	106.28	" "
+ 88.4	N.L. Center		Beg. dirt St.		
T.P. Fd. BM. BP Curb	1.76	108.16 ✓	5.97	106.40	S.W. Cor Center & Draper 106.3 / 106.48 } Old City Various Elev.
281			7.1	106.1	
+ 50			3.4	104.8	
282			4.6	103.6	
+ 50			5.4	102.8	
+ 58.25 = N.L. Sea Lane			5.6	102.6	
283			6.2	102.0	
+ 50			6.8	101.4	

108.16 ✓ — Via Draper St.

284			2.2	101.0	
+50			7.7	100.5	
T.P.	4.22	104.69 ✓	7.69	100.47	
285			4.6	100.1	
+50			5.0	99.7	
+73.37 S.L. Marine St.			5.2	99.5	
285 +82.62 Δ = 33°01' Rt.			5.27	99.42	STU 6
286			5.0	99.69	
+50			4.6	100.1	
287			4.5	100.2	
+50			4.3	100.4	
287 +98.22 Δ = 33°17' Lt.			4.46	100.23	STU6 S.L. La Jolla Park
T.P.	0.20	100.43 ✓	4.46	100.23	STU6
288 +50			1.4	99.0	
289			2.7	97.7	
+50			4.0	96.4	
290			5.4	95.0	
+50			6.5	93.9	
291			7.8	92.6	
+50			8.9	91.5	
291 +98.40 S.L. Pearl St.			9.88	90.55	Begin Con. Pav.

✓ 100.43

T.P.	9.60	103.06 ✓	6.97	93.46	
T.P. B.M. BP	6.60	108.78	0.88	102.18	SE Cor Curb Eads & Pearl 102.42 F.B. 1649-5
T.P.	7.45	115.20 ✓	1.03	107.75	
T.P.	7.06	119.35 ✓	2.91	112.29	
check to B.M. B.P. SE Cor. of Curb Pearl & Girard			4.07	115.28	

old City Elev. 115.17, error 0.11 | F.B. 1649-5 115.51, error 0.23

Levels

Cont. Ely on ℄ Pearl from Draper

SEBP	0.26	102.44 ✓		102.18	✓ Pearl & Eads
292 +12.4 got Con. Pav.			12.47	89.97	
+38.40 Δ 90°01' RT			12.28	90.16	℄ Pearl
+50			12.13	90.31	
293			11.05	91.39	
+50			9.47	92.97	
294			7.76	94.68	

		102.44 ✓			
94 +18.40	Ex. M.H. Rim		6.85	95.59	
"	"	F.L.	12.31	90.13	
+50			6.09	96.35	
95			4.57	97.87	
+50			2.94	99.50	
+78.3	Wly Ends		2.04	100.90	
96			1.70	100.78	
+50			1.03	101.91	
97			0.17	102.37	
T.P.	7.44	109.60	0.42	102.18	BM. End Pearl SE Cor
+50			6.30	103.30	
98			5.29	104.31	
+08.2	Ex MH Rim		5.24	104.36	
"	" "	FL	10.39	~~99.21~~	99.21
+50			4.44	105.16	
99			3.52	106.08	
+50			2.66	106.94 ✓	Via 3' Ely of ℄ Fay
300 +01.21	Chisel Cross Δ = 90° LT.		2.05	107.55	
+41.21	Nly Pearl		2.57	107.03	
+50			2.82	106.78	
301			4.57	105.03	
T.P.	0.10	105.09 ✓	4.61	104.99 ✓	
+50			1.71	103.38	
302			3.48	101.61	
+50			5.10	99.99	
303			6.80	98.29	

		105.09			
303 +50			8.97	96.82	
304			10.06	95.03	
+50			11.68	93.41	
+89.21	∡ 89° 56' 30" Rt		13.02	92.07	Pav.
Ex. M.H.	3' W of angle Pt		13.33	91.76	Rim
" "	" " " "	"	20.94	~~87.15~~	F.L.
305			12.70	92.39	
1.2	Top Curb		14.57	92.52	
+76	ground		14.4	92.7	
+30	"		11.8	93.3	
+50	"		11.6	93.5	
306	"		11.4	93.9	
+50	"		11.3	93.8	
T.P.	4.57	98.58 ✓	11.10	93.99	
+76	Int. Ex. Sewer		4.8	93.8	ground
"	388 LT. Ex. M.H.		5.64	92.92	Rim
"	" " " "	"	12.54	86.09	F.L.
+86.5	Beg. 4" Con. drive		5.18	93.40	
307	conc. drive		5.13	93.45	
+50	" "		4.75	93.83	
308	" "		3.80	94.78	
+26.18	" "		2.91	95.67	
+33.6	" "		2.90	95.68	
+42.3	9w Pav.		3.82	94.76	W curb Girard
T.P.	5.01	99.75 ✓	3.84	94.74 ✓	

99.75 ✓

308+68.78	Δ = 89°58' Lt.	4.06	95.69 ✓	Pav.
309		4.81	94.94	"
+18.37	Sly 7' Virginia Way	5.25	94.50	"
+47.30	Ex. M.H.	5.83	93.92	R.M.
"	" " "	11.54	88.21	F.L.
309+52.95	Δ 42°28' Rt. S.E'ly Cor. Girard	11.64	88.13	Pav.
BMBP Curb + Virginia Way		4.57	95.18	95.45
	F.B. 1649 P 5. From USC&G		✓	0.27

Levels on Alternate Line on Pearl & Girard P. 24

300+01.21		8.56	116.11 ✓	107.55	Chisel Cross P. 59
+24	Pav.		8.66	107.95	
+50	"		7.95	108.16	
301	"		6.97	109.14	
+50	"		6.19	109.92	
+88.10	Ex. M.H.		5.61	110.50	RIM
"	"	"	11.96	104.15	FL.
302	Pav		5.34	110.79	
+50	"		4.55	111.56	
303	"		3.69	112.42	
+50	"		2.87	113.29	
+80.85	Δ 90° approx.	Lt.	2.67	113.29	
304	Pav		3.76	112.85	
			✓		P. 58
check to SE BP	Pearl & Girard		0.83	115.78	115.78
304+21	Pav		3.71	112.80	
+50	"		4.91	111.20	
305	"		6.74	109.37	
+50	"		8.66	107.45	
			✓		
T.P.	0.47	107.45	9.13	106.98	
306	Pav.		1.69	105.56	

107.45

306+50	Pav	3.55	103.70
307	"	5.46	101.79
+50	"	7.37	99.88
308		9.19	98.06
+50		10.96	96.29
		✓	
308+68.85 = 308+68.78	P. 24	11.55	95.70 95.69
check to SE BP	Girard & Virginia Way	17.06	95.19 ✓

Sewer Levels on Torrey Pines Rd.
Girard to Prospect Pl.

Sta.		B.S.	H.I.	F.S.	Elev.	
Girard SEB.P. Virginia		10.51	105.70		95.19 ✓	P. 61
309+52.95 0+00 = Eq.	Δ = 62°28' Rt. Page 25 Sketch			11.85	93.85	Pav.
0+50				11.33	94.37	"
1				10.92	94.78	"
+50				10.14	95.56	"
+75				9.60	96.10	"
2				8.54	97.16	"
2+33.72	Δ = 5°11' Lt.			6.91	98.79	"
"	M.H. Rim 5.02 Rt			7.00	98.70	
"	" F.L. " "			12.49	93.21	
2+50				6.08	99.62	
3				3.50	102.20	
+50				0.96	104.72	
T.P.		9.02	114.60 ✓	0.12	105.58	
4+00				7.37	107.23	
4+27				5.99	108.61	
+50				5.79	108.81	
5				5.18	109.42	
+25				4.89	109.71	
+50				4.24	110.36	
6				2.40	112.20	

Sta.		B.S.	H.I.	F.S.	Elev.	
6+50				0.52	114.08	
T.P.		12.64	127.20 ✓	0.04	114.56	
6+86.3	Int. Sewer in alley			11.74	115.46	
"	M.H. Rim 5.7 Rt.			11.89	115.31	
"	" F.L. " "			17.99	109.21	
7				11.25	115.95	
+50				8.87	118.33	
7+83.28	Sly 7' High St.			7.03	120.17	
8				6.19	121.01	
+50				3.71	123.49	
+85				1.96	125.24	
9				1.35	125.85	
T.P.		12.39	139.49 ✓	0.10	127.10	
9+50				11.66	127.83	
9+90.3				10.13	129.36	Pav
"	5 Rt M.H.			10.11	129.38	Rim
"	" "			15.75	123.74	F.L.
10				9.82	129.67	
+27				8.51	130.98	
+50				6.36	133.13	
11				1.42	138.07	

		139.49 ✓			
T.P.	12.60	151.86 ✓	0.73	139.26 ✓	
11 + 75			11.30	140.56	
+ 50			9.21	142.65	
+ 83			6.90	144.96	
12 + 01.5	Par. Pipe D.E		6.01	145.85	
+ 47			3.88	147.98	
13			2.33	149.53	
	H - 56 - 1938			✓	154.994
	Mon. Brass disk Swly Cor				6.119
	U.S.G.S. Tarrey Pines Rd. and		3.08	148.78	148.875
	Ivanhoe Ave. East				
	F.B. 1149 pg.				
13 + 31.44	Mr. Sewer Line		1.45	150.91	Pay.
"	5' Rt. M.H. Rim		1.73	150.63	
"	" " F.L.		6.75	145.11	
13 + 50			0.95	150.91	
		✓			
T.P.	7.39	159.07	0.18	151.68	
14			6.79	152.28	
+ 50			5.96	153.11	
15			5.14	153.93	
15 + 14.98	Mr. Ex. Sewer		4.98	154.09	Pay.
"	5.5 Rt. M.H. Rim		4.85	154.22	
"	" " F.L.		10.44	148.63	
+ 50			4.46	154.61	

Notes Revised 8-5-03

		159.07 ✓			
16			3.48	155.59	
+ 50			2.37	156.70	
17			1.22	157.85	
+ 50			0.66	158.81	
T.P.	9.01	167.82 ✓	9.01	158.06	
18			7.81	160.26	
+ 50			6.68	161.39	
19			5.42	162.65	
+ 35.37	St. Exchange		4.43	163.64	
+ 50			4.27	163.80	
+ 75			3.90	164.17	
20			3.61	164.46	
+ 25			3.34	164.73	
+ 35			3.55	164.52	
"	5' Rt. Flush Tank M.H. Rim		3.51	164.56	D.E.
"	" " F.L.		12.49	155.58	
+ 50			4.05	164.02 ✓	
21			5.43	162.64	
+ 50			7.12	160.95	
T.P.	1.05	167.87 ✓	6.25	161.82	
22			3.24	159.63	

162.87 ✓

22 + 50		4.56	158.31
23		5.94	156.95
+ 50		7.18	155.69
24		8.64	154.25
+ 50		10.09	152.78
25		11.44	151.93
+ 15.24		11.88	150.99
+ 9		11.99	150.88
+ 55.24	Nail Δ ? Rt.	12.07	150.80	E Prospect
"	5' Rt M.H. Rim	12.06	150.81
"	" Cover is cracked and has been sealed.		
	when seal is broken, a new cover will be required		
T.P.	575	157.15 ✓	11.47	151.40
check to City Con. Mon. SEly Cor Torrey Pines Rd. and Prospect Pl.	New F.B. 1649-C	4.94	152.21 ✓
or Ely Line Prospect Pl. 0.5 inside of Curb			
Flush with walk			
check to BM. SEly 7' C.T. Torrey Pines Rd & Prospect		4.89	152.26 ✓

157.15

T.P.	0.17	144.38	12.94	144.21
check to BM.BP S. Cor. Curb Prospect & Park Row		12.61	131.77	132.08 / 0.31

161.487 = USC & G. 1649-C walker Oct. 1940
9.01
152.477

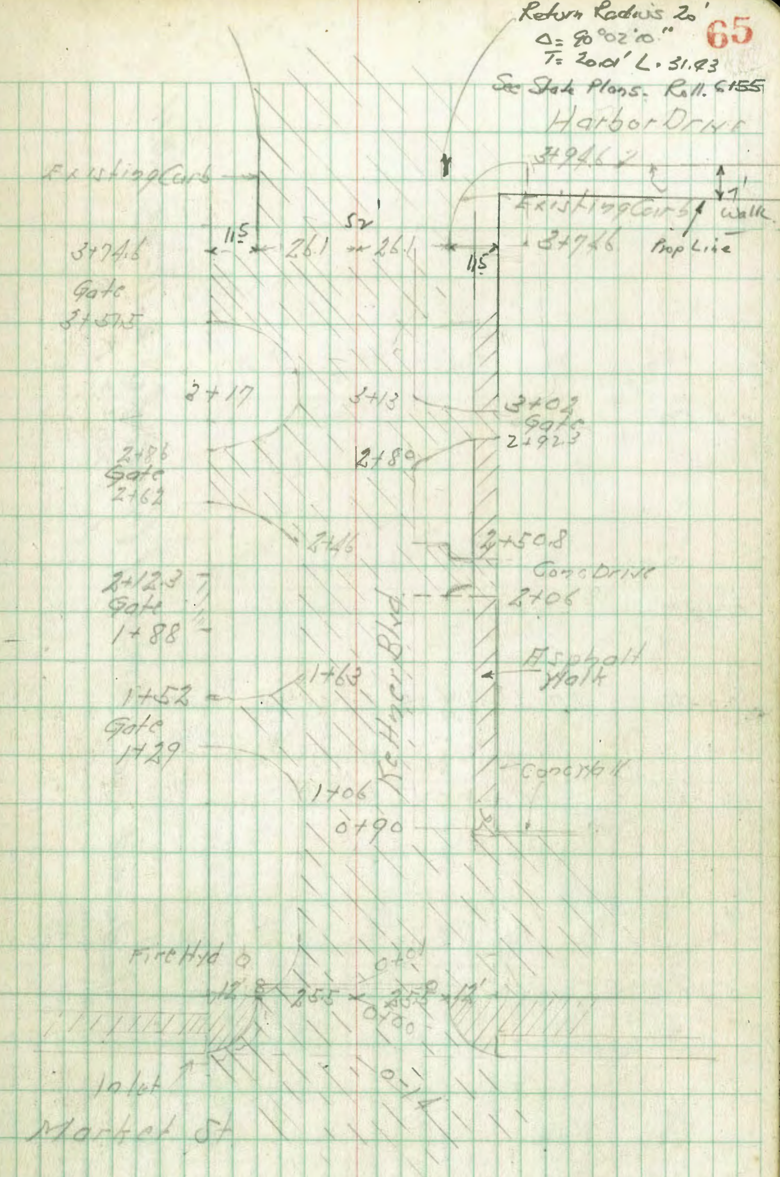
161.656 = USC & G walker 1930 - FB 1423
9.01
152.646

Cross Section Kettner Blvd.
Market St to Harbor Drive
Levels next page

indexed
C.S.K.

Feb. 15-44
Sisson
Bliss
Osborne

387.91 Stake
7
394.91
394.6
.3 Diff



0+54					
0+50					
0+10					
0+05	27' Lt of ℄ = ℄ Fire Hyd.				
0+01 =	Cross Culvert				
0+00 =	S.L. Market St.				
0-14 =	S Cb of Market				
BM	5.35	6.75		1.40	SY&P Market + Kettner

Reduced and Plotted of Paper Profile 2-16-44 @BH.
1" = 20' r 1" = 3'

Lt = E ℄ Rt = W

2.40✓
1.25 / 37.8 = HW Pav. Jnt.

2.4✓ 2.2✓ 1.90✓ 1.90✓ 1.66✓ 1.70✓ 1.79✓
4.4 / 37.5 — 4.6 / 25.5 — 4.85 / 15 = E1 Pav — 4.85 — 5.09 / 13 — 5.05 / 25.5 — 4.96 / 37.5 on Pav

2.5✓ 2.6✓ 1.72✓ 1.70✓ 1.61✓ 1.58✓ 1.31✓ 1.44✓ 1.17✓
4.3 / 37.5 — 4.2 / 25.5 — 5.03 / 19 = E1 Pav. — 5.05 / 13 — 5.14 — 5.17 / 13 — 5.44 / 22 — 5.31 / 25.5 — 5.58 / 37.5 on Pav

1.36✓ 1.27✓ 1.88✓ 1.74✓ 1.72✓ 0.69✓
5.39 / 23.5 = FL — 5.48 / 23.5 = FL Pipe — 4.87 / 13 — 5.01 — 5.03 / 13 — 6.06 / 22 = FL Corr Pipe

2.0✓ 0.59✓ 1.70✓ 1.87✓ 1.86✓ 1.69✓ 1.60✓ 1.39✓ 0.97✓ 0.83✓ 1.02✓
4.8 / 37.5 — 6.16 / 25.5 Gutter — 5.05 / 25.5 = Pav Edge — 4.88 / 22 — 4.89 / 13 — 4.96 — 5.15 / 13 — 5.36 / 19 — 5.78 / 21 — 5.92 / 25.5 = Gut. — 5.73 / 25.5 = Cb
1.24✓
5.51 / 37.5 = Hg 14

0.96✓ 1.89✓ 1.94✓ 1.85✓ 1.79✓ 1.57✓ 1.41✓ 0.86✓ 1.39✓
5.79 / 37.5 Gutter — 2.91 / 37.5 = Cb Top Pav — 4.81 / 25.5 — 4.90 / 13 — 4.96 — 5.18 / 13 — 5.64 / 25.5 — 5.89 / 37.5 Gutter — 5.36 / 37.5 = Cb Top

6.75

Station				
1+88				
1+75	28.3 Lt of ℄ = Ely Power Pole			
1+52				
1+29				
TP	7.02	9.16	4.61	2.14
1+03.5	28' Rt of ℄ = Wly Power Pole			
1+0				
0+90				
0+69				

6.75

Lt ℄ Rt

2.20 ✓ / 6.96 / 37.5 = Wly Pole

2.06 ✓	2.41 ✓	2.57 ✓	2.53 ✓	2.30 ✓	2.6 ✓	2.95 ✓	3.11 ✓
7.10	6.75	6.59	6.53	6.86	6.6	6.21	6.05
37.5 on Pole	25.5	15		15	25.5	31.5	37.5

2.02 ✓	2.37 ✓	2.39 ✓	2.52 ✓	2.13 ✓	2.4 ✓	2.74 ✓	3.00 ✓
7.14	6.79	6.77	6.63	7.03	6.8	6.42	6.16
37.5 on Pole	25.5	15		15 = Wly Pole	25.5	31.5 = Ely Walk	37.5

9.16

2.2 ✓	2.5 ✓	2.20 ✓	2.33 ✓	1.90 ✓	2.2 ✓	2.58 ✓	2.68 ✓
4.6	4.3	4.55	4.42	4.85	4.6	4.17	4.07
37.5	25.5	15		15 = Wly Pole	25	31.5 = Ely Walk	37.5

1.9 ✓	1.7 ✓	2.09 ✓	2.18 ✓	1.81 ✓	2.15 ✓	2.61 ✓
4.9	5.1	4.66	4.57	4.94	4.60	4.14
37.5	25.5	15 = Ely Pole		15	25.5	37.5

2.35 ✓ / 4.40 / 37.8 = S Wly Power Pole

6.75

TP	6.55	9.87	5.84	8.32
2+86				
2+62				
2+50.8				
2+28	= ℄ Drive Police Garage on Rt.			
2+12.3				
2+06				

9.16

Lt. ℄ Rt. 2+50.8

2.75✓	3.21✓	3.30✓	3.43✓	3.29✓	3.53✓	3.62✓	3.83✓
6.41 / 37.5	5.95 / 25.5	5.86 / 15	5.73	5.87 / 15	5.63 / 23 = H4 Pav	5.54 / 31.5	5.33 / 37.5

2.74✓
6.42 / 37.5 on Pav

2.38✓	2.8✓	3.04✓	3.06✓	3.17✓	3.05✓	3.01✓	3.28✓	3.70✓	3.99✓
6.78 / 37.5	6.4 / 25.5	6.12 / 21 = Edge Pav	6.10 / 15	5.99	6.11 / 15	6.15 / 20	5.88 / 25.5 = Sdlk Conc Pa.	5.46 / 31.5 = Ely Wall	5.17 / 37.5

2.16✓	2.62✓	2.99✓	3.11✓	2.95✓	2.97✓	3.61✓	4.84✓
7.00 / 37.5 on Pav	6.54 / 25.5	6.17 / 15	6.05	6.21 / 15	6.19 / 17	5.55 / 25.5	4.32 / 37.5

Garage Sill Elev 5.32

2.13✓
7.03 / 37.5 on Pav

2.16✓	2.6✓	2.86✓	2.96✓	2.68✓	2.91✓	3.44✓	3.60✓
7.00 / 37.5	6.6 / 25.5	6.30 / 15 = Ely Pav	6.20	6.48 / 15 = H4 Conc To Garage	6.25 / 25.5	5.72 / 31.5 = Ely Walk	5.56 / 37.5

9.16

BM			8.48	1.39	SW BP Market + Keller
4+21					
3+94.6	= N Cb Line Harbor Dr.				
3+74.6	= Nly Curb Ends				
3+55					
3+50	28.5 Lt of ℄ = Ely Power Pole				
3+31.7	26.8 Rt of ℄ = Wly " "				
3+13					

9.87

5.37√	4.77√	5.09√	5.28√
4.50 / 26.1 = Cb	5.10 / 26.1 = Gutter	4.78 / 15	4.59

5.09√	4.43√	4.69√	4.86√	4.83√	4.70√	4.53√	5.13√
4.78 / 26.1 = Cb Top	5.44 / 26.1 = Gutter	5.18 / 15	5.01	5.04 / 15	5.17 / 26	5.34 / 46.1 = Gutter	4.74 / 46.1 = Cb Top

3.19√	4.85√	4.12√	4.41√	4.49√	4.36√	4.14√	4.84√	4.1√
6.68 / 37.5 = Yard Pav.	5.02 / 26.1 = Cb	5.75 / 26.1 = Gutter	5.46 / 15	5.38	5.51 / 15	5.73 / 26.1 = Gutter	5.03 / 26.1 = Cb Top	5.8 / 37.5

3.08√	3.45√	3.97√	4.05√	3.84√	3.79√	3.89√	3.93√
6.79 / 37.5	6.42 / 25.5	5.90 / 15	5.82	6.03 / 15	6.08 / 21.5 = Nly Pav.	5.98 / 31.5	5.94 / 37.5

3.3√	3.4√	3.30√	3.56√	3.38√	3.6√	3.81√	3.96√
6.6 / 37.5	6.5 / 25.5	6.57 / 15	6.31	6.19 / 15	6.3 / 25.5	6.06 / 31.5 = Ely Walk	5.91 / 37.5

9.87

Levels on Recreation Area
Mission Beach Amusement Center

Moore
Sommermeyer
W. Moore
Bc993

2-38.9 — 4 — 41 = N 1/2   6-19-44

BM.
7.49
0.57
8.06

Intersec. ℄

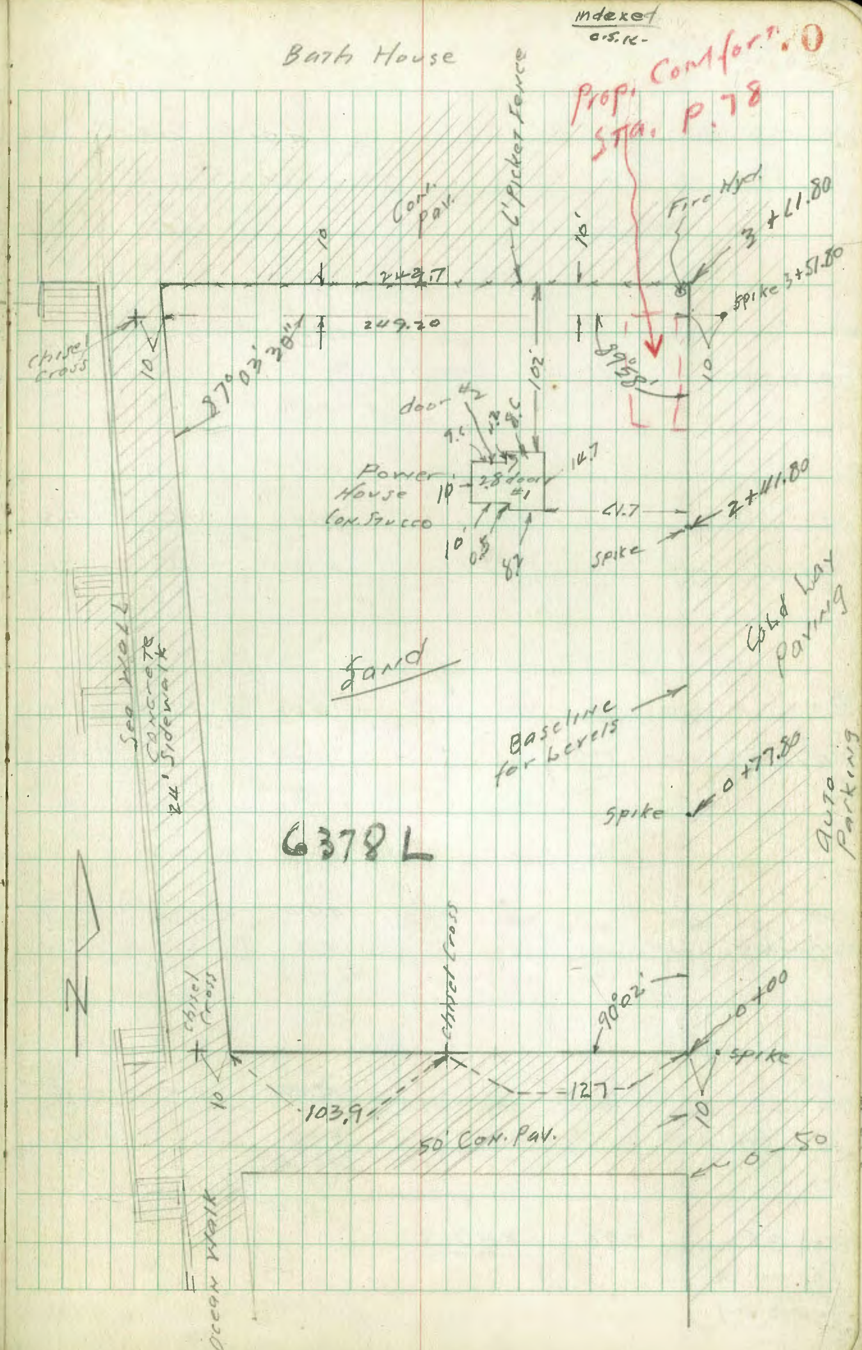
Nly Path 3.10 / 4.96 ✓   3.17 / 4.89   3.23 ✓   ~~3.28 / 4.78~~   ~~3.33 / 4.73~~   3.38 / 4.68 = 3.28

4.83   4.81   4.80   4.79   4.78   0.10

3 — 42.33 E 1/2 — 3 — 36 = W 1/2

Ely Path

1.35	1.98	2.61	℄ 3.23	3.75	4.27	4.80
6.71	6.08	5.45	4.83	4.31	3.79	3.26



Sketch P. 70

LT. — Baseline W. edge Par — RT.

Station											Baseline		
0+77.8	4.41 / 4.06 / W.L. Walk	4.80 / 3.67 / 234.6 + or −	4.4 / 4.11 / 200	3.8 / 4.7 / 175	3.8 / 4.7 / 150	3.4 / 5.1 / 127	3.1 / 5.4 / 100	2.5 / 6.0 / 75	2.3 / 6.2 / 50	2.0 / 6.5 / 25	1.39 / 7.13	0.90 / 7.57 / 25	1.43 / 7.34 / 50
0+50	4.43 / 4.04 / W.L. Walk	4.79 / 3.68 / 233.5 + or −	4.3 / 4.2 / 200	4.0 / 4.5 / 175	3.7 / 4.8 / 150	3.6 / 4.9 / 127	3.5 / 5.0 / 100	3.2 / 5.3 / 75	2.9 / 5.6 / 50	2.0 / 6.5 / 25	1.26 / 7.21	0.83 / 7.64 / 25	1.06 / 7.41 / 50
0+25	4.40 / 4.07 / W.L. Walk	4.68 / 3.79 / 232 + or −	4.2 / 4.3 / 200	3.9 / 4.4 / 175	3.7 / 4.8 / 150	3.4 / 5.1 / 127	3.2 / 5.3 / 100	3.1 / 5.4 / 75	2.8 / 5.7 / 50	2.1 / 6.4 / 25	1.17 / 7.30	0.77 / 7.70 / 25	0.93 / 7.54 / 50
0+00	4.43 / 4.04 / W.L. Walk	4.79 / 3.73 / 220.9 E.L. Walk	4.36 / 4.11 / 200	3.99 / 4.48 / 175	3.52 / 4.95 / 150	3.10 / 5.37 / 127	2.73 / 5.74 / 100	2.23 / 6.24 / 75	1.84 / 6.63 / 50	1.43 / 7.04 / 25	1.03 / 7.44	0.72 / 7.75 / 25	0.88 / 7.59 / 50
0−25	4.44 / 4.03 / W.L. Walk	4.80 / 3.67 / 229.6 + or −	4.33 / 4.14 / 200	3.84 / 4.63 / 175	3.32 / 5.15 / 150	2.92 / 5.55 / 127	2.48 / 5.99 / 100	1.95 / 6.52 / 75	1.60 / 6.87 / 50	1.15 / 7.32 / 25	0.66 / 7.81	0.65 / 7.82 / 25	0.79 / 7.68 / 50
0−50	4.44 / 4.03 / 251.8 W.L. Walk	4.71 / 3.76 / ~~227.8~~ +22 8.33 + or − E.L. Walk	4.39 / 4.08 / 200	3.99 / 4.48 / 175	3.98 / 4.99 / 150	3.07 / 5.40 / 127	2.64 / 5.83 / 100	2.26 / 6.21 / 75	1.86 / 6.61 / 50	1.46 / 7.01 / 25	1.04 / 7.43	0.60 / 7.87 / 25	0.83 / 7.64 / 50

B.M. B.P. top Seawall & C. Subway 0.98 8.47 7.49

8.47

	4.39	4.80	4.6	4.5	
V + 25	4.08	3.67	3.9	4.0	
	WL walk	240 +or-	270	200	
	4.36	4.82	4.7	4.5	
V + 00	4.11	3.65	3.8	4.0	
	WL walk	240.6 +or- EL walk	220	200	
	4.50	4.80		4.3	
1 + 75	3.97	3.67		4.2	
	WL walk	239.7 +or- E.L. walk		200	
	4.42	4.75		4.1	
1 + 50	4.05	3.72		4.14	
	WL walk	238.2 +or-		200	
	4.39	4.79		4.8	
1 + 25	4.08	3.68		4.1	
	WL walk	237 +or-		200	
	4.39	4.70		4.5	
1 + 00	4.08	3.77		4.0	
	WL walk	235.5 +or-		200	

8.47

LT. W.L. Pav. 8.47 RT 72

4.8	4.3	4.0	3.9	3.5	3.1	2.8	1.63	1.22	1.89
4.1	4.4	4.5	4.6	5.0	5.4	5.7	6.84	7.25	6.98
175	150	127	100	75	50	25		25	50
4.3	4.0	3.9	3.8	3.5	2.9	2.8	1.68	1.15	1.30
4.4	4.5	4.6	4.7	5.0	5.6	6.1	6.83	7.35	7.17
175	150	127	100	75	50	25		25	50
4.2	4.1	3.9	3.9	3.7	2.9	2.9	1.59	1.06	1.29
4.3	4.4	4.6	5.1	5.3	5.6	6.1	6.88	7.41	7.18
175	150	127	100	75	50	25		25	50
3.9	3.7	3.7	3.5	3.1	2.6	2.1	1.51	1.02	1.22
4.6	4.8	4.8	5.0	5.4	5.9	6.4	6.96	7.45	7.25
175	150	127	100	75	50	25		25	50
4.1	3.9	2.9	2.9	3.0	2.6	2.2	1.95	0.99	1.16
4.4	4.6	5.6	5.6	5.5	5.9	6.3	7.02	7.53	7.31
175	150	127	100	75	50	25		25	50
3.9	3.10	3.6	3.3	2.9	2.9	2.2	1.76	0.9	1.11
4.6	4.5	4.9	5.2	5.6	6.1	6.3	7.01	7.56	7.36
175	150	127	100	75	50	25		25	50

8.47

		4.47	4.78	4.66	4.38	
3+61.8	South edge Con. Pav.	4.45	4.44	4.76	4.54	
		W.L. walk	249.7	225	200	
		4.45	4.76	4.5	4.3	4.1
3+51.8		4.47	4.46	4.4	4.6	4.8
		W.L. walk	249.7 E.L. walk	220	200	175
		4.48	4.78	4.6	4.3	4.1
3+25		4.44	4.44	4.3	4.6	4.8
		W.L. walk	247.4 +or-	220	200	175
		4.51	4.87	4.7	4.3	4.1
3+00		4.41	4.05	4.47	4.6	4.8
		W.L. walk	246.4 +or- E.L. walk	220	200	175
			4.89	4.90	4.5	4.5
2+75			4.43	4.07	4.4	4.4
			W.L. walk	245 +or-	220	200
T.P.	4.07 ~~4.07~~	8.92 ~~8.87~~	3.L.r	4.85		
		4.88	4.82	4.6	4.8	
2+41.80		4.03	3.65	2.9	4.1	
		W.L. walk	247.9 +or- E.L. walk	220	200	
		8.47				

LT B.L. RT. 73

4.03	3.85	3.65	3.25	3.00	2.71	2.37	2.08	1.39	1.76
4.89	5.07	5.27	5.67	5.92 ~~5.75~~	6.21	6.55	6.84	7.53	7.16
175	150	127	100		50	25		25 Top grate	50
	3.9	3.9	3.6	2.9	2.6	2.5	2.18	1.52	1.85
	5.0	5.0	5.3	6.0	6.3	6.4	6.78	7.40	7.07
	150	127	100	75	50	25		25	50
	3.9	3.8	3.6	3.0	2.7	2.3	1.99	1.88	1.80
	5.0	5.1	5.3	5.9	6.2	6.6	6.93	7.44	7.12
	150	127	100	75	50	25		25	50
4.10	3.9	3.6	3.3	2.9	2.5	1.89	1.89	1.86	
4.9	5.0	5.3	5.6	6.0	6.4	7.03	7.43	7.06	
150	127	100	75	50	25		25	50	
4.3	4.2	4.2	3.9	3.6	3.0	2.3	1.87	1.38	1.67
4.6	4.7	4.7	5.0	5.3	5.9	6.5	7.05	7.54	7.25
175	150	127	100	75	50	25		25	50
				8.92 ~~8.87~~					
4.4	4.2	4.1	4.0	3.5	3.2	2.7	1.82	1.23	1.60
4.1	4.3	4.4	4.5	5.0	5.3	5.8	6.45	7.24	6.87
175	150	127	100	75	50	25		25	50
				8.47					

Lt. B.L. Rt.

Check to B.M.		2.04	7.48 ✓	7.49	
T.P.	4.73	9.57 ✓	4.13	4.79	
#2 door Sill	"	"	5.35		3.57
#1 door Sill	power house		4.63		3.29
Top Con. Foundation	Power house		5.39		3.53

	4.82	4.68	4.85		4.50	4.09	3.83	3.34	3.32	3.01	2.73	2.45	2.19	1.82
3+81.8 are Pay.	4.50	4.24	4.07		4.42	4.23	5.09	5.32	5.60	5.91	6.19	6.47	6.78	7.10
	WL Walk	25	25		225	200	175	150	127	100	75	50	25	

1.50	1.75			
7.42	7.17			
25	50			

8.9 ✓

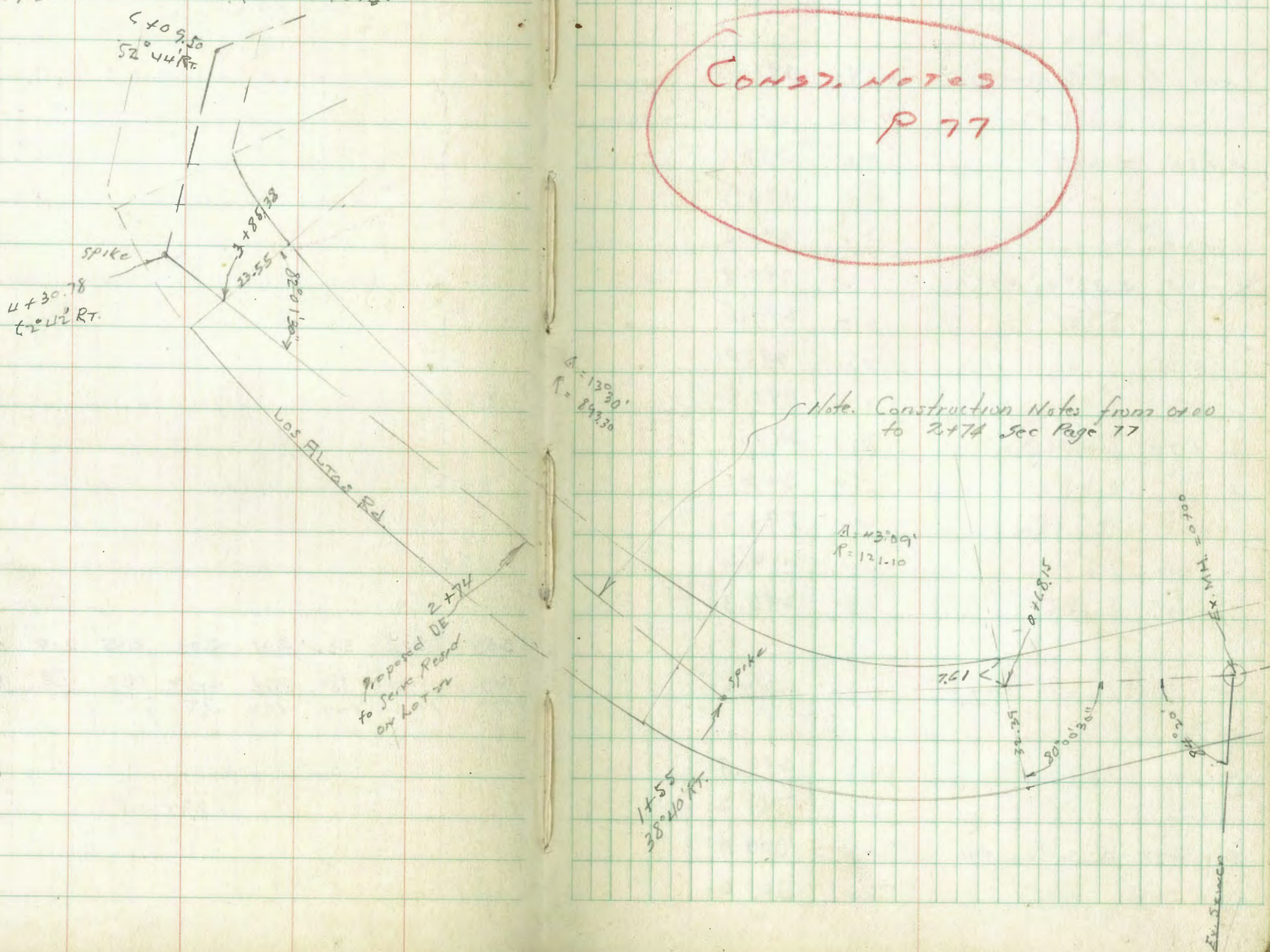
8.9 ✓

C.S. Moore
6-26-44

Indexed
E.S.K.

Proposed Sewer on Los Altos Rd. to Serve
Lot 22 Soledad Terr.

B.M.	11.03	276.54		265.51	Top NW Cor Lower Step 105' W of 8+54.88 Soledad Rd. & Los Altos
T.P.	Conc. R.W.		2.92	273.62 ✓	



CONST. NOTES
P 77

Note. Construction Notes from 0+00 to 2+74 See Page 77

E. Sewer Levels, Los Altos Rd.

	9.77	283.39		273.62	TP. P 75
TP	11.56	293.62	1.31	282.08	
T.P.	5.00	298.04	0.60	293.04	
0+00	Ex. MH. Rim		5.69	292.35	
"	" "	EL.	11.93	286.11	286.0
0+50			5.4	292.6	
1			4.7	293.3	
+25			4.5	293.5	
1+55	Δ 38°40' RT.		5.2	292.8	
2			6.5	291.5	
+25			7.0	291.0	
+50			7.2	290.8	
~+74	prop. P.E.		6.9	291.1	
3			5.9	292.1	
+25			4.7	293.3	
+50			3.4	294.6	
+75			1.7	296.3	
T.P.	12.01	309.37	0.68	297.36	
4+00			10.5	298.9	
+20			8.2	301.2	
~+30.78	Δ 64°42' RT		6.5	302.9	
+50			6.4	303.0	

309.37

Set Spike in P.Pole S.E Cor. City Res. P.rop. old site	4.61	304.76	BM	
5+00	4.4	305.0		
+50	3.2	306.2		
6	3.0	306.4		
6+09.5 Δ 52°44' RT.	3.2	306.2		
T.P. 1.55	307.90	3.07	306.35	
6+50	3.9	305.5		
7	2.8	301.6		
+50	12.3	297.1		
8	10.7	294.7		
+50	10.8	294.6		
9	10.3	295.1		
+50	13.7	295.7		
10	13.1	296.3		

Walker
Hogard
Hardin
9-1-44

Const. Grades for Sewer Extension
in Los Altos Road
To Serve Lot 22. Soledad Terrace
Plan 2835-R
Location as per Line as run in
this Book Page 75

Station				
	5.67	298.02	292.35	B.M. - Rim MH. Page 76
				El. Flow Line
0+00 = ℄ Existing MH.				286.11
+40		5.18	292.84	286.38
+80		3.90	294.12	286.65
1+20		3.88	294.14	286.92
1+55 = ℄ MH. Rt. 38°40		5.24	292.78	287.15
+95		6.23	291.79	287.42
2+35		7.05	290.97	287.69
+74 = PEnd		6.43	291.59	287.95
Rough Gk. ℄ 2+74		6.85	291.17	
			291.1 OK	

Cuts.	offsets.
6.46	6' Rt.
7.47	"
7.22	"
5.63	6.36' Rt. on diag. Bisector
4.37	6' Rt.
3.28	"
3.64	"

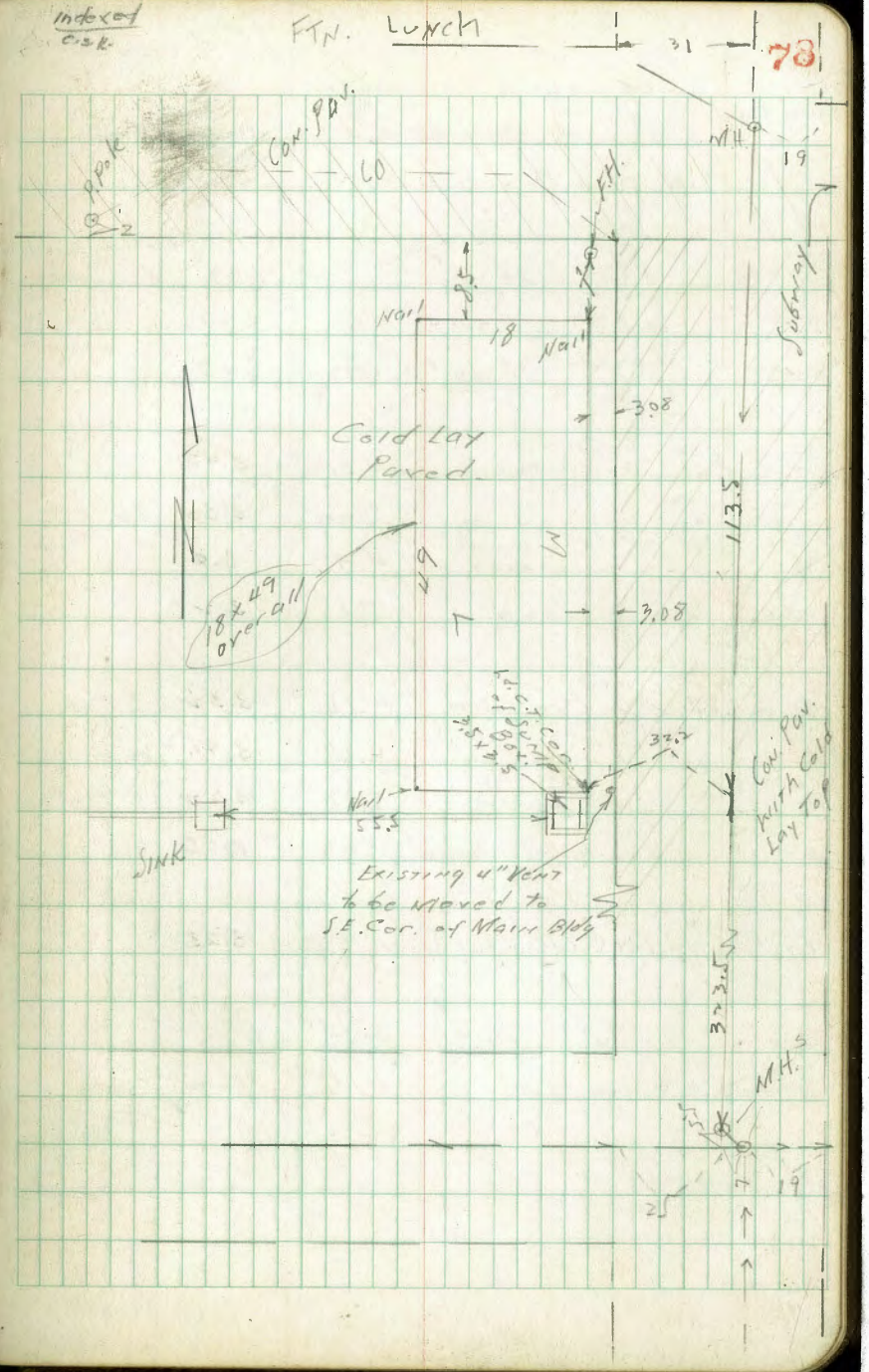
CSM
SMARMYR
WEM
10-17-44

Location & Levels — See P. 70
for Comfort Sta.
at N.E. Cor. of Picnic Area of
Mission Beach Amusement Center

B.M. BP.	1.67	9.16		7.49	Sea Wall & Subway
T.R.	4.69	6.45	7.40	1.76	
N.E. Cor. of Con. Sump Box			4.60	1.85	
S.E. " Comfort Sta.					
3.08 E of Cor. = Wedge pav.			4.69	1.82	
S.W. Cor. Comf. Sta			4.30	2.15	
N.W. " " "			4.14	2.31	
N.E. " " "			4.27	2.18	
3' E of N.E. Cor. pav			4.29	2.16	
N'y M.H. Rim			4.85	1.60	
" " F.L.			9.55	-3.10	
113.5 S. on pav			4.94	1.51	
3x3.5 S. of this pt. = M.H.			5.76	0.69	Rim
" " " " "			11.79	-9.89	F.L.
T.P.	5.86	9.19	3.33	3.33	
check to orig. B.M.			1.70	7.49	

Indexed C.S.K.

FTN. Lunch



Strand Way

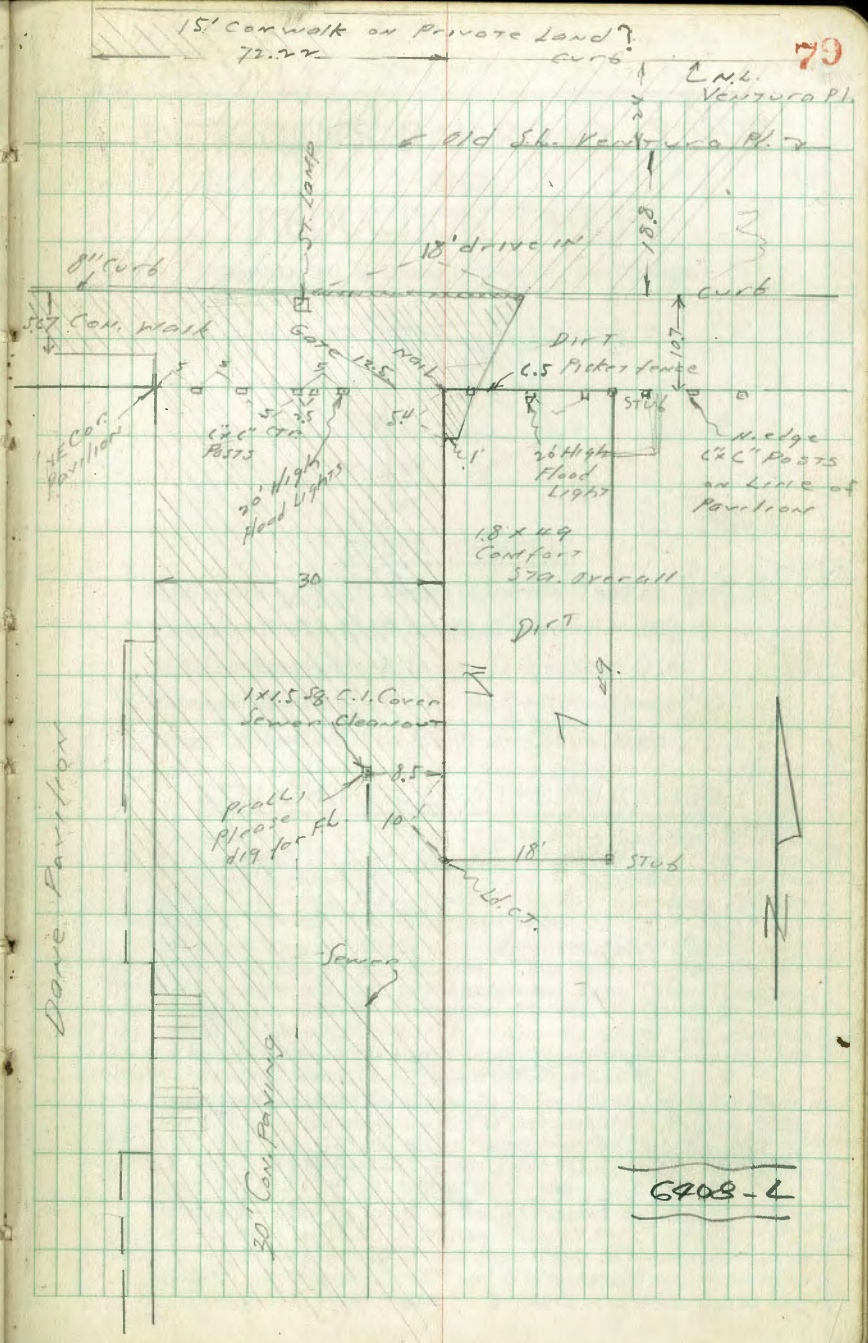
20'

CSM Location & Levels for

10-17-44. Comfort Sta. at NE Cor. Dance Pav.

Mission Beach Amusements etc.

					Santa Barbara Pl.
BMBP	3.40	10.43 ✓		7.03	Seawall
T.P.	1.83	9.20 ✓	3.06	7.37	
T.P.	4.85	8.30 ✓	5.75	3.45	
N.W. Cor. Sta.		Con. edge	4.88	3.42	
S.W. "		" "	5.00	3.30	Ld. C.T.
S.E. "		" dirt	4.9	3.8	
N.E. "		" "	5.1	3.4	
15' W of N.W. Cor. Sta.			4.98	3.32 ✓	℄ Pav
30 " " "		" "	4.89	3.41	W.L. "
15 " " S.W.		" "	5.08	3.22 ✓	℄ Pav
30 " " "		" "	5.05	3.25	W.L. "
on Top of 1x1.5 Cleanout Cover			5.05	3.25	
T.P.	7.14	11.17 ✓	4.27	4.03 ✓	
check to orig. B.M.			4.15	7.02 ✓	7.03



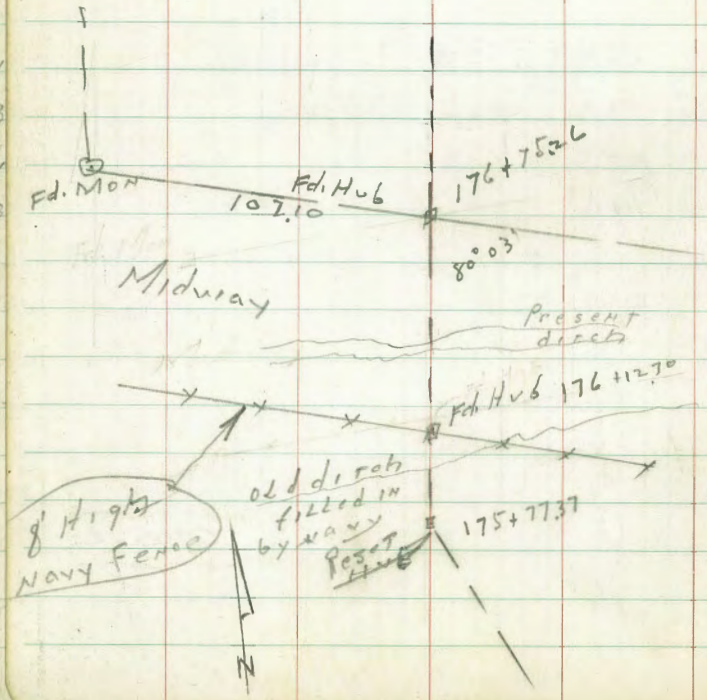
Senior Levels from P. xv

Moore ditch changed at Midway

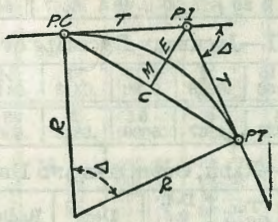
4-10-18

176+75.26 B.M. 5.15 60.03 STub P. 04

175+77.37	Δ PT.	6.5
176+12.7	at fence	6.2
+20		6.3
+29		10.9
+43		12.5
+45		5.8
175+75.26		5.1



DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES



CURVE FORMULAS

Radius=R=$\frac{50}{\text{sin. } D/2}$ (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)=Rvers $\frac{\Delta}{2}$ (6)

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

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

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T. Δ=62° 10′ D=8° 20′. From Table IV for 1° curve T=3454.1 and ÷8⅓=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—Sta. P. C.=54.50, hence offset=7.27 (54.50 ÷ 100)²=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 ÷ (2 x 688.26)=2.16 ft.

Deflections.—Deflection angle=½ D for 100 ft., ¼ D for 50 ft., etc. For c ft.=(in minutes) .3 x C x D° or=defl. for 1 ft. from Table III x C. For Sta. 158 of above curve=.3 x 54.5 x 8⅓=136.2′ or 2° 16.2′, or=2.50 x 54.5=136.2′ from Table III. For Sta. 159 deflection angle=2° 16.2′ +8° 20′ ÷2=6° 26.2′, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 115.37. For from Table IV for 1° curve E=960.6 for 8° 20′=960.6 ÷ 8⅓=115.27 and from Table V correction=.10 or E=115.37 ft. Or suppose Δ=32° and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and ÷42=5.5 or D=5° 30′.

TABLE VI.—CORRECTIONS FOR SUB-CHORDS AND LONG CHORDS.

FOR SUB-CHORDS ADD										Excess of arc per 100 ft.	LONG CHORDS				
D	10	20	30	40	50	60	70	80	90		D	200	300	400	500
4°	.00	.00	.01	.01	.01	.01	.01	.01	.00	.02	1	199.99	299.97	399.92	499.85
6	.00	.01	.01	.02	.02	.02	.02	.01	01	.05	2	199.97	299.88	399.70	499.39
8	.01	.02	.02	.03	.03	.03	.03	.02	.01	.08	3	199.93	299.73	399.32	498.63
10	.01	.02	.03	.04	.05	.05	.05	.04	.02	.13	4	199.88	299.51	398.78	497.57
12	.02	.04	.05	.06	.07	.07	.07	.05	.03	.18	5	199.81	299.24	398.10	496.20
14	.02	.05	.07	.08	.09	.10	.09	.07	.04	.25	6	199.73	298.90	397.26	494.53
16	.03	.06	.09	.11	.12	.12	.12	.09	.05	.33	7	199.63	298.51	396.28	492.57
18	.04	.08	.11	.14	.15	.16	.15	.12	.07	.41	8	199.51	298.05	395.14	490.31
20	.05	.10	.14	.17	.19	.20	.18	.15	.09	.51	9	199.38	297.54	393.86	487.75
22	.06	.12	.17	.21	.23	.24	.22	.18	.10	.62	10	199.24	296.96	392.42	484.90
24	.07	.14	.20	.25	.28	.28	.26	.21	.12	.74	12	198.90	295.63	389.12	478.34
26	.09	.17	.24	.29	.32	.33	.31	.25	.15	.86	14	198.51	294.06	385.22	470.65
28	.10	.19	.27	.34	.37	.38	.36	.29	.17	1.00	16	198.05	292.25	380.76	461.86
30	.11	.22	.31	.39	.43	.44	.41	.33	.19	1.15	18	197.54	290.21	375.74	452.02
32	.13	.25	.36	.44	.49	.50	.47	.38	.22	1.31	20	196.90	287.94	370.17	441.15
34	.15	.28	.40	.50	.55	.57	.53	.43	.25	1.48	22	196.32	285.44	364.06	429.30
36	.17	.32	.45	.56	.62	.64	.59	.48	.28	1.66	24	195.63	282.71	357.43	416.53
38	.18	.36	.51	.62	.70	.71	.66	.53	.31	1.86	26	194.87	279.76	350.30	402.89
40	.21	.40	.56	.69	.77	.79	.73	.59	.35	2.06	28	194.06	276.59	342.69	388.43
42	.23	.44	.62	.76	.85	.87	.81	.65	.38	2.28	30	193.18	273.20	334.61	373.20
44	.25	.48	.68	.84	.94	.96	.89	.72	.42	2.50	32	192.25	269.61	326.08	357.28
46	.27	.52	.75	.92	1.02	1.05	.98	.78	.46	2.74	34	191.26	265.81	317.12	340.73
48	.30	.57	.81	1.00	1.12	1.14	1.06	.86	.50	2.99	36	190.21	261.80	307.77	323.61
50	.32	.62	.89	1.09	1.21	1.24	1.15	.93	.55	3.24	38	189.10	257.60	298.03	305.99
52	.35	.67	.96	1.18	1.31	1.35	1.25	1.01	.59	3.52	40	187.94	253.21	287.94	287.94
54	.38	.73	1.04	1.28	1.42	1.46	1.35	1.09	.64	3.80	42	186.72	248.63	277.51	269.54
56	.41	.78	1.12	1.38	1.53	1.57	1.46	1.17	.69	4.09	44	185.44	243.87	266.78	250.85
58	.44	.84	1.20	1.48	1.65	1.69	1.57	1.26	.74	4.40	46	184.10	239.93	255.78	231.95
60	.47	.91	1.29	1.59	1.76	1.81	1.68	1.35	.80	4.72	48	182.71	233.83	244.51	212.92

NOTE.—When a chord of less than 100 ft. is used the corrections given in the above table should be added to the nominal length of chord to get the length which should be used in order that the 100 ft. points will check with those obtained by using the standard 100 ft. chord. Thus in locating a 14° curve by 25 ft. chords measure 25'.06 for each chord. Long chords are useful in passing obstacles.

TABLE VII.—MIDDLE ORDINATES FOR RAILS IN FEET.

Deg. of Curve	LENGTH OF RAILS. 32	30	28	26	24	22	20	Deg. of Curve	LENGTH OF RAILS. 32	30	28	26	24	22	20
1°	.022	.020	.016	.013	.011	.009	.008	16°	.356	.313	.273	.236	.200	.170	.139
2	.045	.038	.034	.029	.025	.021	.017	17	.378	.333	.290	.252	.213	.180	.148
3	.067	.058	.051	.044	.037	.031	.026	18	.400	.351	.306	.265	.225	.190	.156
4	.089	.079	.069	.060	.050	.042	.035	19	.423	.371	.324	.280	.238	.201	.165
5	.112	.099	.086	.074	.063	.053	.044	20	.445	.392	.341	.296	.250	.212	.174
6	.134	.117	.102	.088	.076	.064	.052	21	.466	.410	.357	.309	.262	.222	.182
7	.156	.137	.120	.104	.088	.074	.061	22	.487	.430	.375	.325	.275	.233	.191
8	.179	.158	.137	.119	.100	.085	.070	23	.509	.450	.390	.338	.287	.243	.199
9	.201	.175	.153	.133	.112	.095	.078	24	.531	.469	.408	.354	.299	.253	.208
10	.223	.196	.171	.148	.125	.106	.087	25	.552	.486	.424	.367	.311	.263	.216
11	.245	.216	.188	.163	.139	.117	.096	26	.573	.506	.441	.382	.323	.274	.225
12	.268	.236	.206	.179	.151	.128	.105	27	.594	.524	.457	.396	.335	.284	.233
13	.290	.254	.222	.192	.163	.138	.113	28	.618	.545	.475	.411	.348	.294	.242
14	.312	.275	.239	.207	.175	.148	.122	29	.638	.564	.491	.424	.361	.303	.250
15	.334	.295	.257	.223	.188	.159	.131	30	.660	.583	.508	.438	.374	.313	.259

SLOPE REDUCTIONS.

When distances are measured on a slope they may be reduced to the equivalent horizontal distance by the following approximate rule:—subtract from the slope distance the square of the rise divided by twice the slope distance. Thus for a slope distance of 250.3 ft. and a rise of 15 ft. correction=$15^2 \div 2 \times 250.3$=.45 (by slide rule) or horizontal distance=250.3—.45=249.85. When vertical angle=V. A. is measured horizontal distance=slope distance—slope distance (1—Cos. V. A.). Thus for slope distance of 248.7 ft. and V. A. of 4° 20′ from Table VIII Cos=.99714 and correction=1—.99714=.00286 per foot or total of .286×2½ (near enough)=.57 and horizontal distance=248.7—.57=248.13 ft.

TRIGONOMETRICAL FORMULAS.

See fig. (a).

sin. $A=\frac{a}{c}$

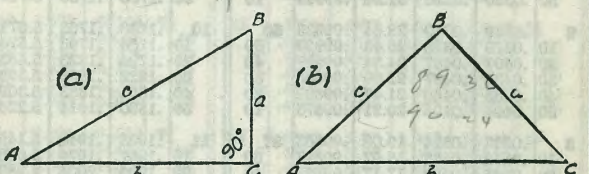
cos. $A=\frac{b}{c}$

tan. $A=\frac{a}{b}$

cot. $A=\frac{b}{a}$

sec. $A=\frac{c}{b}$

cosec. $A=\frac{c}{a}$



FORMULA FOR SOLVING TRIANGLES.

Given	Sought.	Right triangles. See fig. (a).
a, c	A, B, b	$\sin. A=\frac{a}{c}$, $\cos. B=\frac{a}{c}$, $b=\sqrt{(c+a)(c-a)}$
a, b	A, B, c	$\tan. A=\frac{a}{b}$, $\cot. B=\frac{a}{b}$, $c=\sqrt{a^2+b^2}$.
A, a	B, b, c	$B=90°-A$, $b=a \cot. A$, $c=\frac{a}{\sin. A}$.
A, b	B, a, c	$B=90°-A$, $a=b \tan. A$, $c=\frac{b}{\cos. A}$.
A, c	B, a, b	$B=90°-A$, $a=c \sin. A$, $b=c \cos. A$
Given	Sought.	Oblique triangles. See fig. (b).
A, B, a	b	$b=\frac{a \sin. B}{\sin. A}$
A, a, b	B	$\sin. B=\frac{b \sin. A}{a}$
a, b, C	$A-B$	$\tan. \frac{1}{2}(A-B)=\frac{(a-b) \tan. \frac{1}{2}(A+B)}{a+b}$
a, b, c	A	If $s=\frac{1}{2}(a+b+c)$, $\sin. \frac{1}{2}A=\sqrt{\frac{(s-b)(s-c)}{bc}}$, $\cos. \frac{1}{2}A=\sqrt{\frac{s(s-a)}{bc}}$, $\tan. \frac{1}{2}A=\sqrt{\frac{(s-b)(s-c)}{s(s-a)}}$, $\sin. A=\frac{2\sqrt{(s-a)(s-b)(s-c)s}}{bc}$
A, B, C, a	area	$\text{area}=\frac{a^2 \sin. B \sin. C}{2 \sin. A}$
A, b, c	area	$\text{area}=\frac{1}{2} b c \sin. A$
a, b, c	area	$s=\frac{1}{2}(a+b+c)$, $\text{area}=\sqrt{s(s-a)(s-b)(s-c)}$

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½

For Single Track Embankment.

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

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)÷2 or 2 ft. added to 41.9 =43.9. For slopes of 1 on 1 see inside of front cover.

MADE IN U.S.A.