

1676



ENGINEERS

FIELD BOOK



1676

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

CITY ENGINEER'S OFFICE
SAN DIEGO CALIF.

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.

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 1 1/2 see inside of back cover.
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Upas St. Pipeline
cuts

B.M.B.P. 31st + Upas		328.99		
	2.09	331.08		
0+49.6	4.0	327.1	322.0	
1+00	4.3	326.8	322.0	
1+50	4.7	326.4	321.6	
2+00	5.2	325.9	321.2	
2+50	5.6	325.5	320.8	
3+00	6.0	325.1	320.4	
3+50	6.2	324.9	320.0	
4+00	6.2	324.9	320.0	
4+50	5.4	325.7	320.84	
5+00	4.6	326.5	321.69	
5+50	3.9	327.2	322.53	
6+00	3.1	328.0	323.38	
6+25	2.7	328.4	323.80	
6+50	2.4	328.7	323.80	
7+00	2.4	328.7	323.80	
7+50	3.7	327.4	322.80	
8+00	5.2	325.9	321.36	
B.M.B.P. 31st + Upas	2.09	328.99		

Cuts

5.1

4.8

4.8

4.7

4.7

4.7

4.9

4.9

4.9

4.8

4.7

4.6

4.6

4.9

4.9

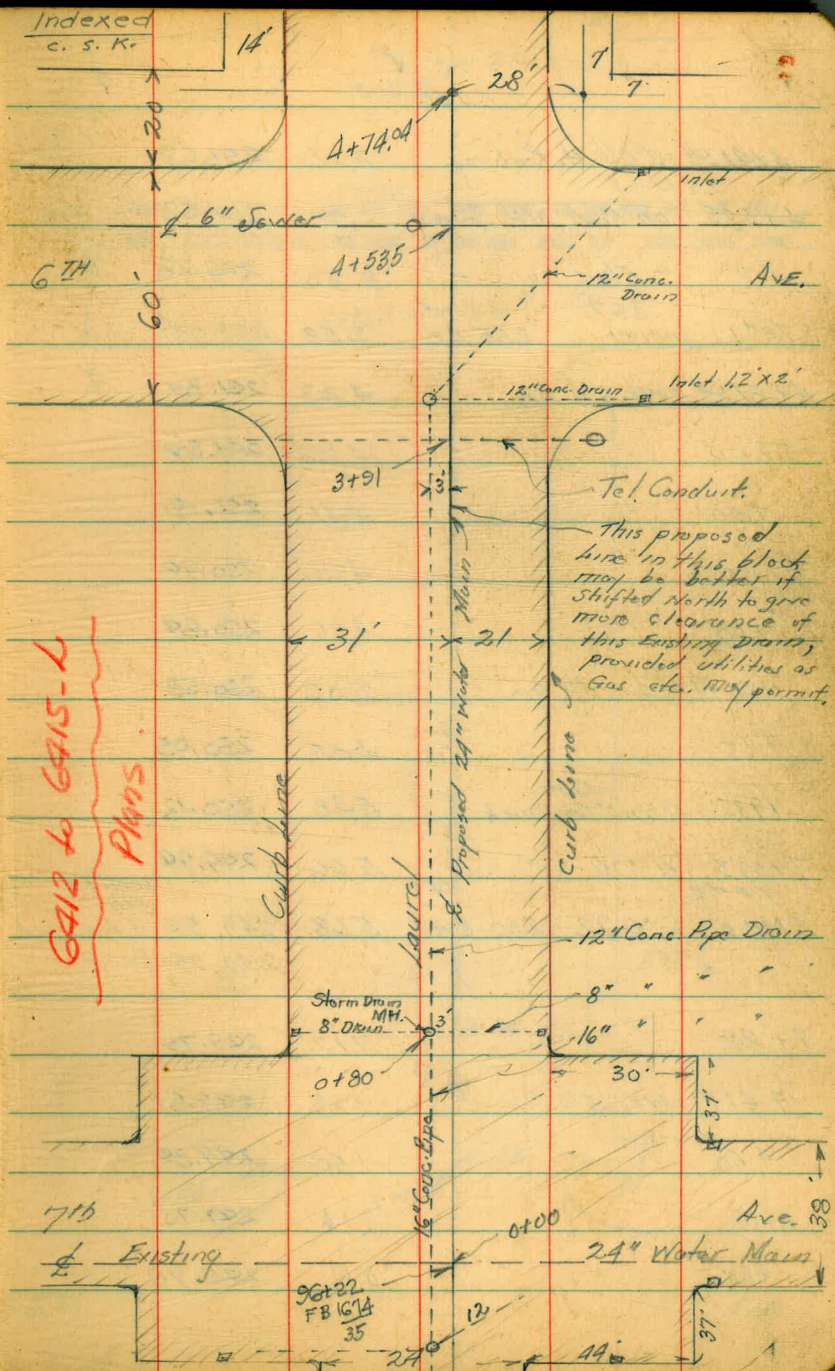
4.6

4.5

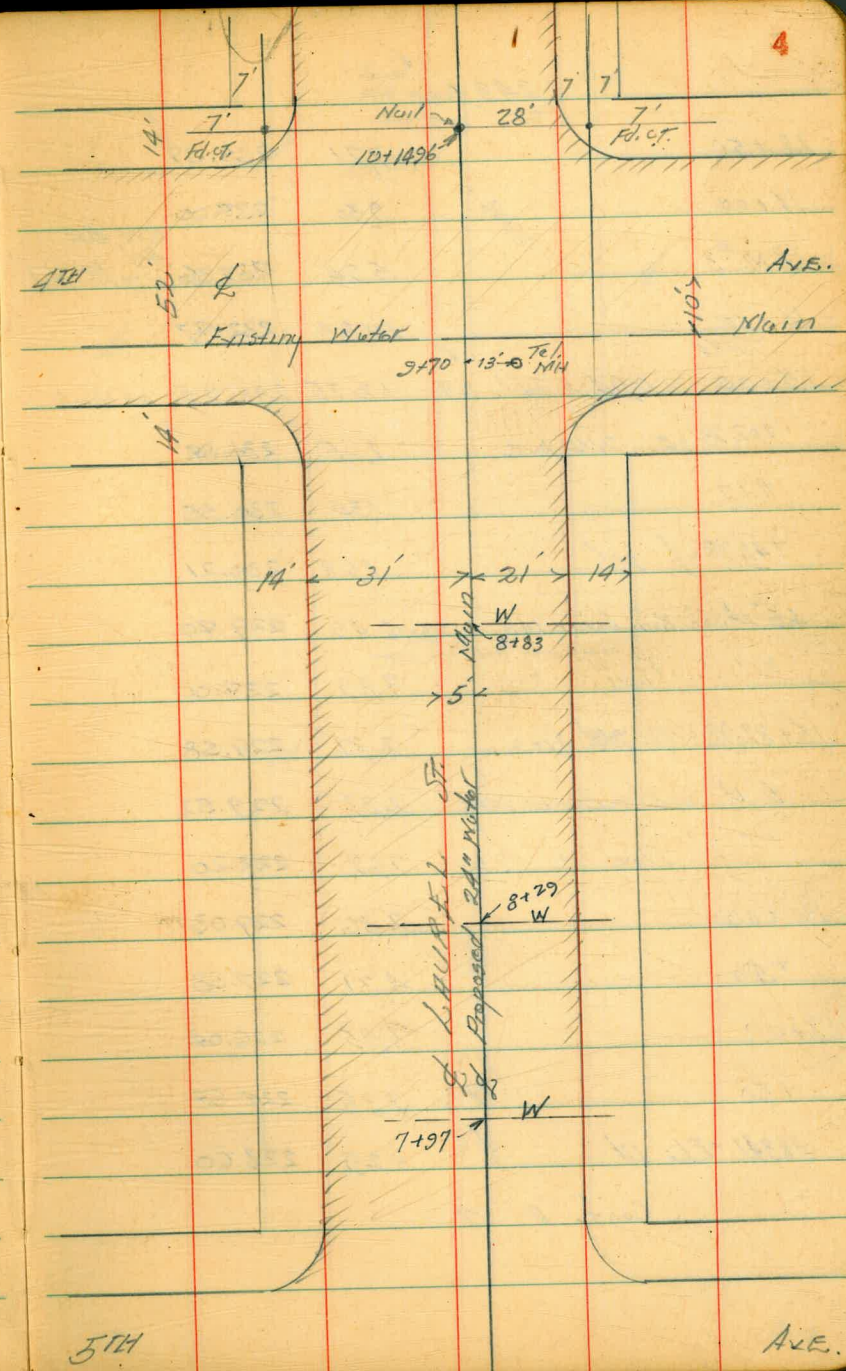
Walker
Hurdin
Baggs
10-5-44

LOCATION And LEVELS - PROPOSED
24" WATER MAIN
from 7th and Laurel Sts.
to Kettner and Laurel

Station	Description	Elevation	Notes
B.M. #1	2.53	254.46	N.W. 8th Laurel + 6.74
0+00	Existing 24" Water Main on Parry	6.60	247.86
150		6.12	248.34
180		5.85	248.61
3' Lt. S. Storm Drain M.H.	Rim = 5.86		248.60
" on Flow " M.H.	10.67		243.79
20' Rt. on Grating Inlet	6.05		248.91
" " " Flow 8" Pipe	8.55		245.91
1+00		5.66	248.80
150		5.23	249.23
2+00		4.60	249.86
150		4.18	250.28
3+00		3.60	250.86
150		3.29	251.17
4+00		2.98	251.97
102		2.97	251.99
3' Lt. on Rim Storm Drain M.H.	2.94		251.52
" " " Flow	6.21		248.25
46.5' Rt. on Top Grating	2.91		251.55
" " " Flow 12" Pipe	6.17		248.29

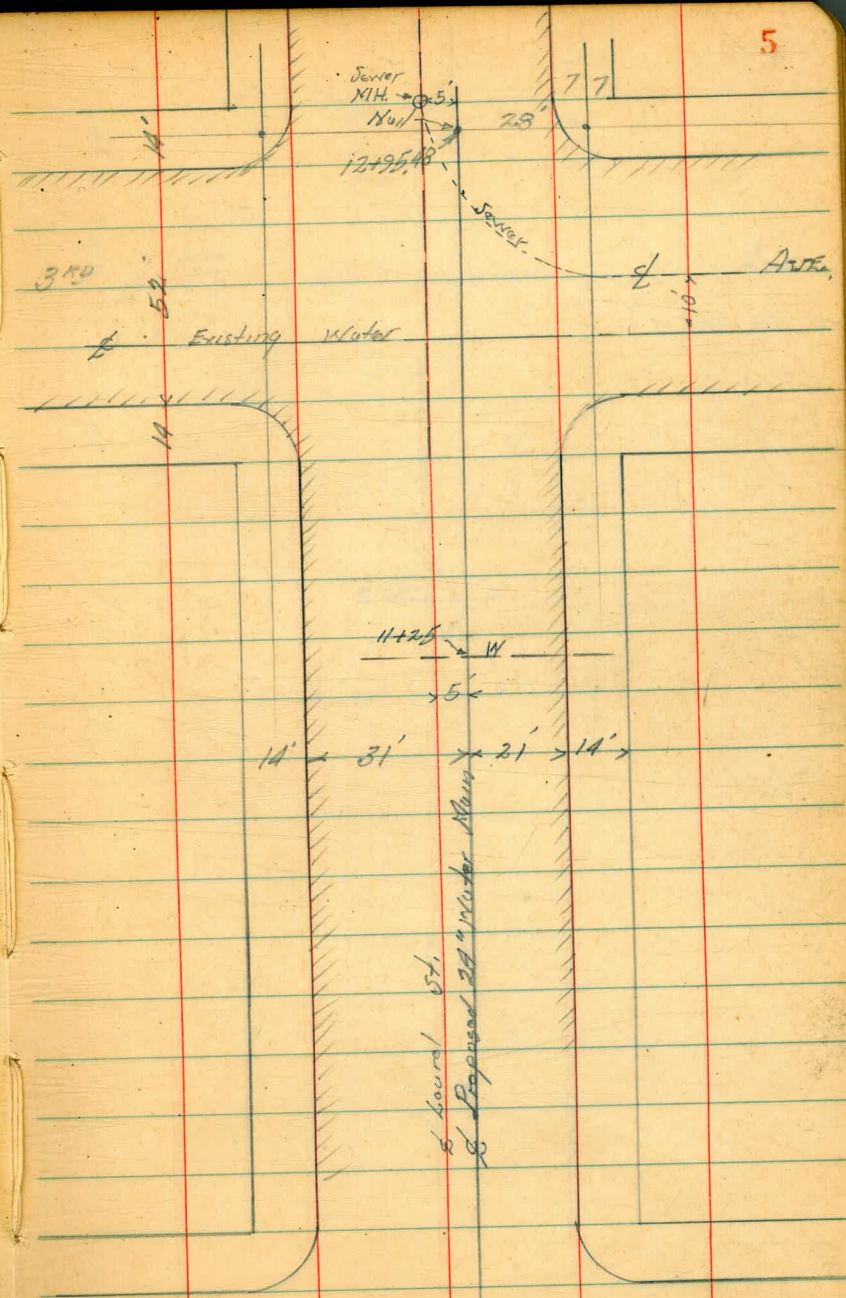


	250.84 ✓		
9+00		6.51	249.33
+41.96 = E.L. 4th Ave		8.18	242.66
9+50		8.49	242.35
+56		8.60	242.24
+82		8.30	242.54
10+00		8.65	242.19
+08		8.75	242.09
10+21.96 = W.L. 4th Ave		8.90	241.94
+50		9.52	241.32
T.P. #3	1.97	243.30	2.51
11+00		3.25	240.05
+50		4.43	238.87
12+00		5.67	237.63
+22.48 = E.L. 3rd Ave		6.35	236.95
+36.48 Gut		6.87	236.43
+50		6.39	236.71
+62.48 = 3rd		6.35	236.95
+88.48 w/Gut.		6.32	236.98
13+02.48 = W.L. 3rd		6.21	237.09
5' H. on Run NW		6.22	237.08
" " " Flow Main to 12th Central St. Sewer		14.09	229.21
" " " Branch " to 3rd Ave - North		13.50	229.80
7.93			



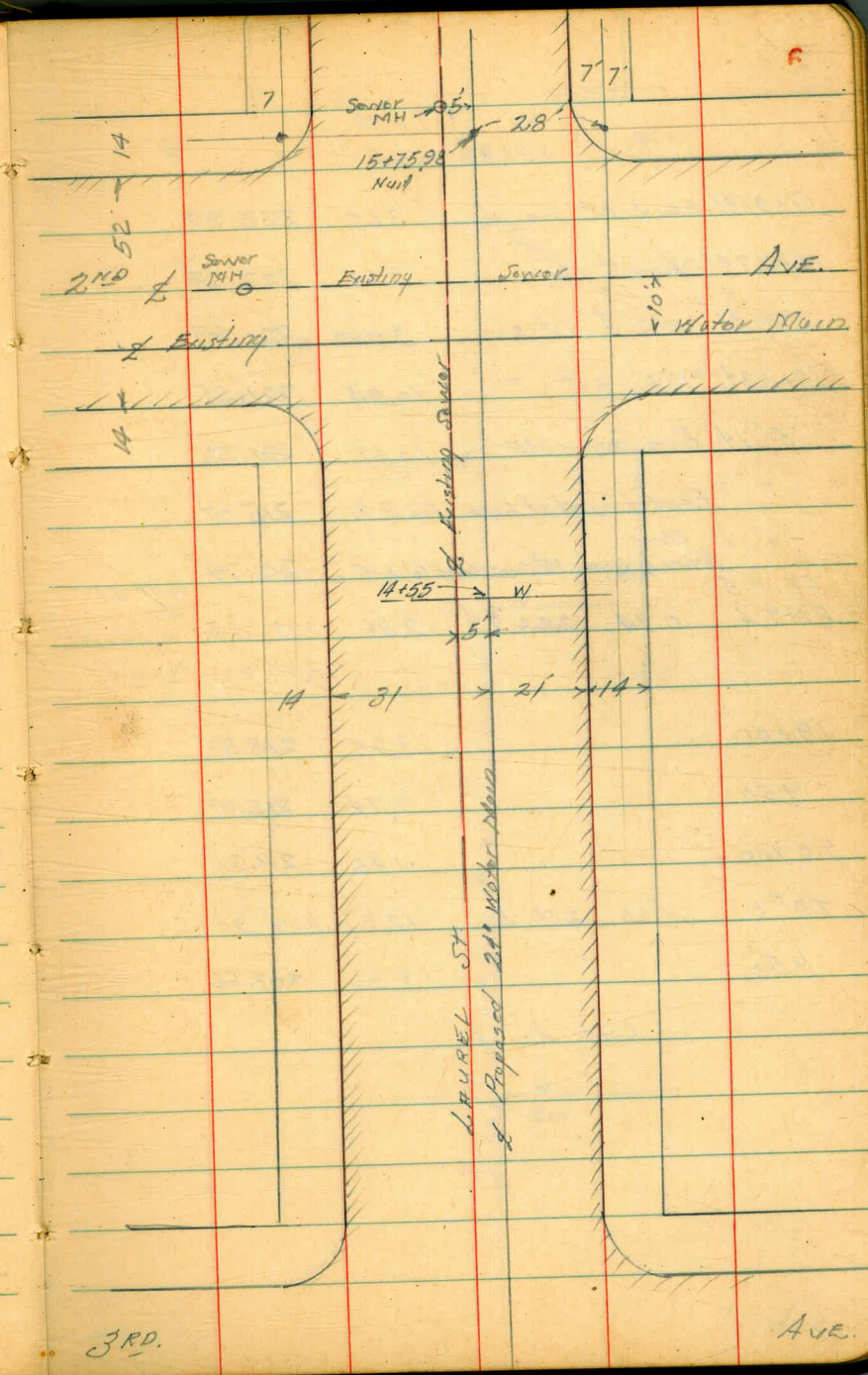
	243.30			
13+50		7.71	235.59	
14+00		9.30	237.00	
B.M. #3		5.24	237.26	N.W. 3rd 3rd - toward
14+50		10.82	232.97	
TP #4				
15+00	0.24	231.89	12.35	230.95 on Nail
702.98	= EL. 2ND AVE		1.05	230.87
717		1.34	230.55	
742.98	= 2nd		1.68	230.21
45' H. on Rim Sewer MH		2.49	229.40	
" " Flow "		7.89	227.00	
15+82.98	= W.L. 2nd Ave		2.31	229.58
5' H. on Rim Sewer MH		2.37	229.52	
" " Flow "		2.69	222.20	
16+00		2.86	229.03	
+50		4.31	227.58	
17+00		5.85	226.04	
+50		7.35	224.54	
18341	= EL. 1st		8.29	223.60

Cont. p. 7



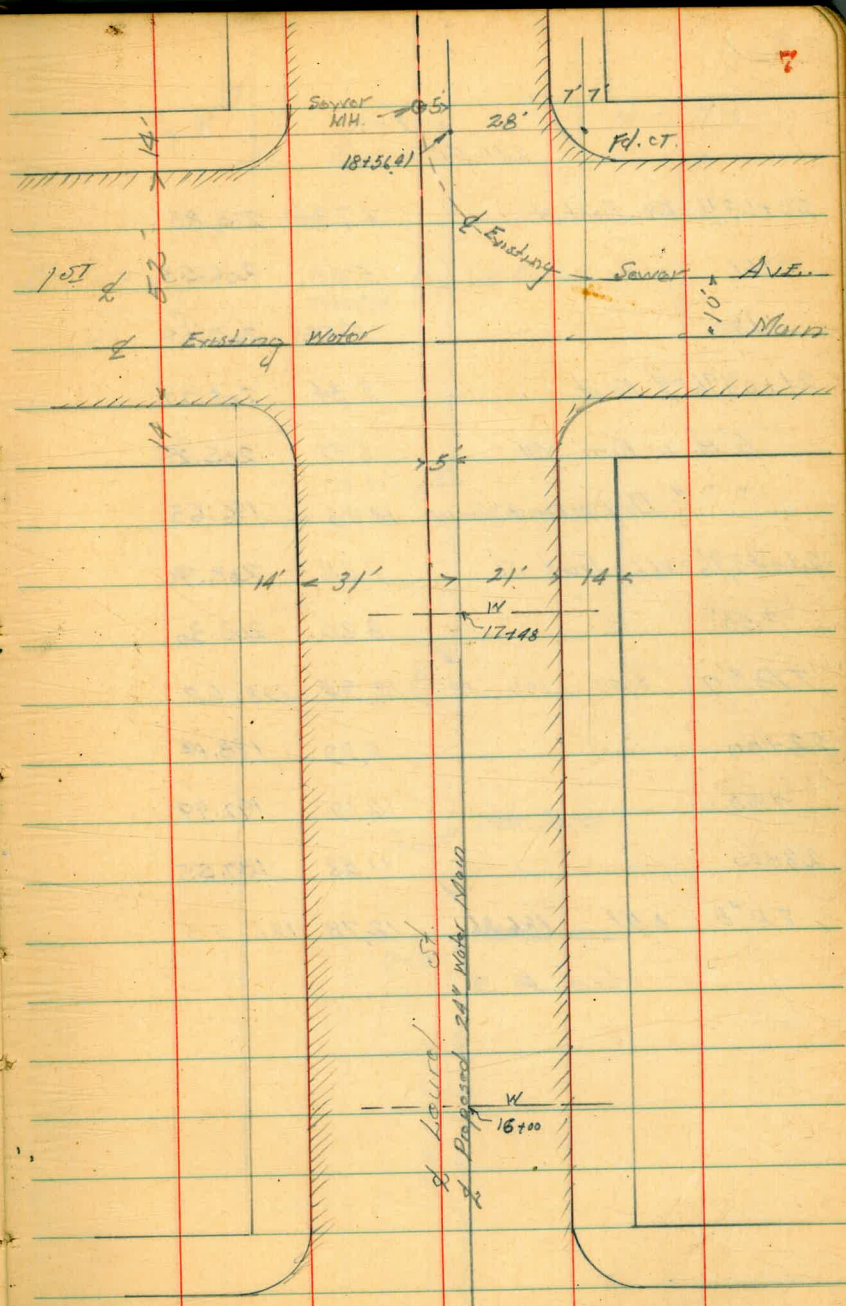
4TH

AVE.



	231.89			
17+9741 EGut. 2nd Ave	8.65	223.29		
18+2341 = L 1st Ave	9.25	222.69		
14941 = WGut. 1st Ave	9.90	221.99		
18+6391 = Y.L. 1st "	10.34	221.55		
5' Lt. Rinn Sewer MH	10.37	221.52		
" " Flood-Land at line	16.82	215.07		
" " Flood Branch line 1st Ave	6.15	215.79		
TR # 5				
BM # 4	0.74	222.77	2.86	222.93
				222.00 - Record
19+00	3.95	218.82		
150	7.74	215.03		
20+00	11.46	211.31		
TR # 6	1.66	211.56	12.87	209.90
150	3.90	207.66		

Cont. P. 8

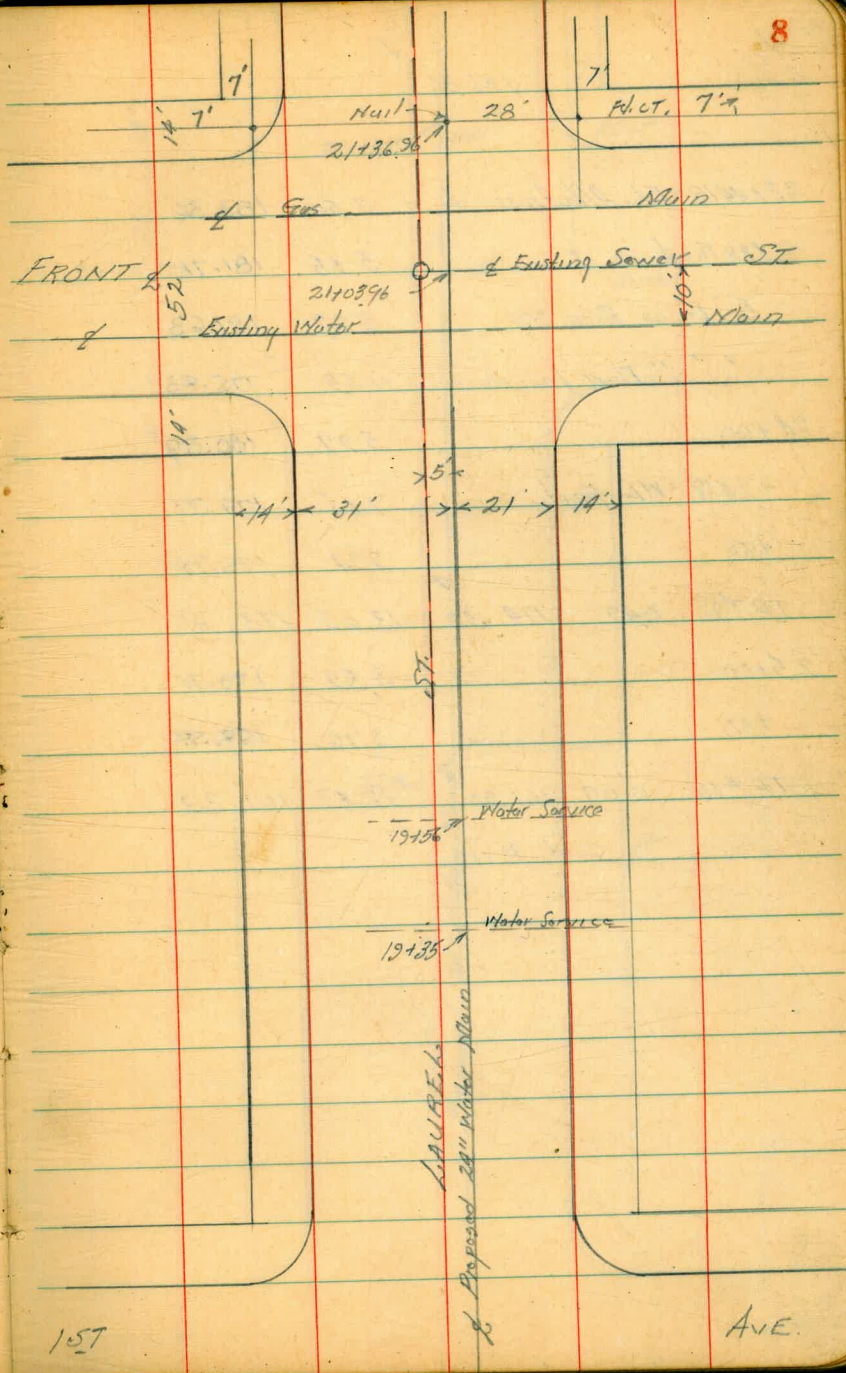


2ND

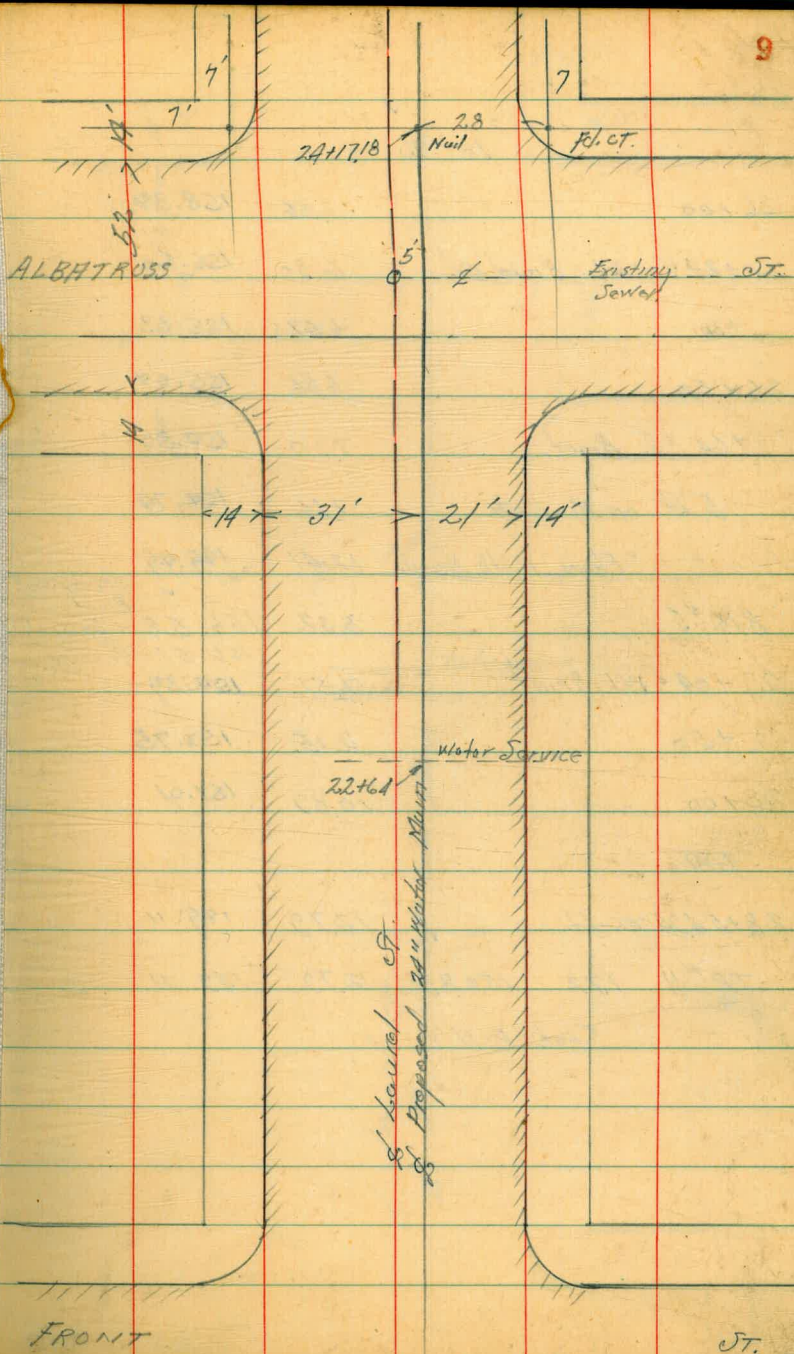
Ave.

	211.56			
20+6396 = E.L. Front St	4.73	206.83		
766	5.03	206.53		
778	5.52	206.07		
21+0396 = E. Front	6.34	205.22		
5' H. on Perm. Main	6.32	205.24		
" " " Flory N Branch Sewer	14.93	196.63		
21+4396 = W.L. Front St.	7.66	203.90		
+50	8.26	203.30		
TP #7 0.51	122.13	12.94	198.62	
22+00	0.99	198.19		
+50	6.19	192.99		
23+00	11.58	187.55		
TP #8 0.51	186.86	12.78	186.35	

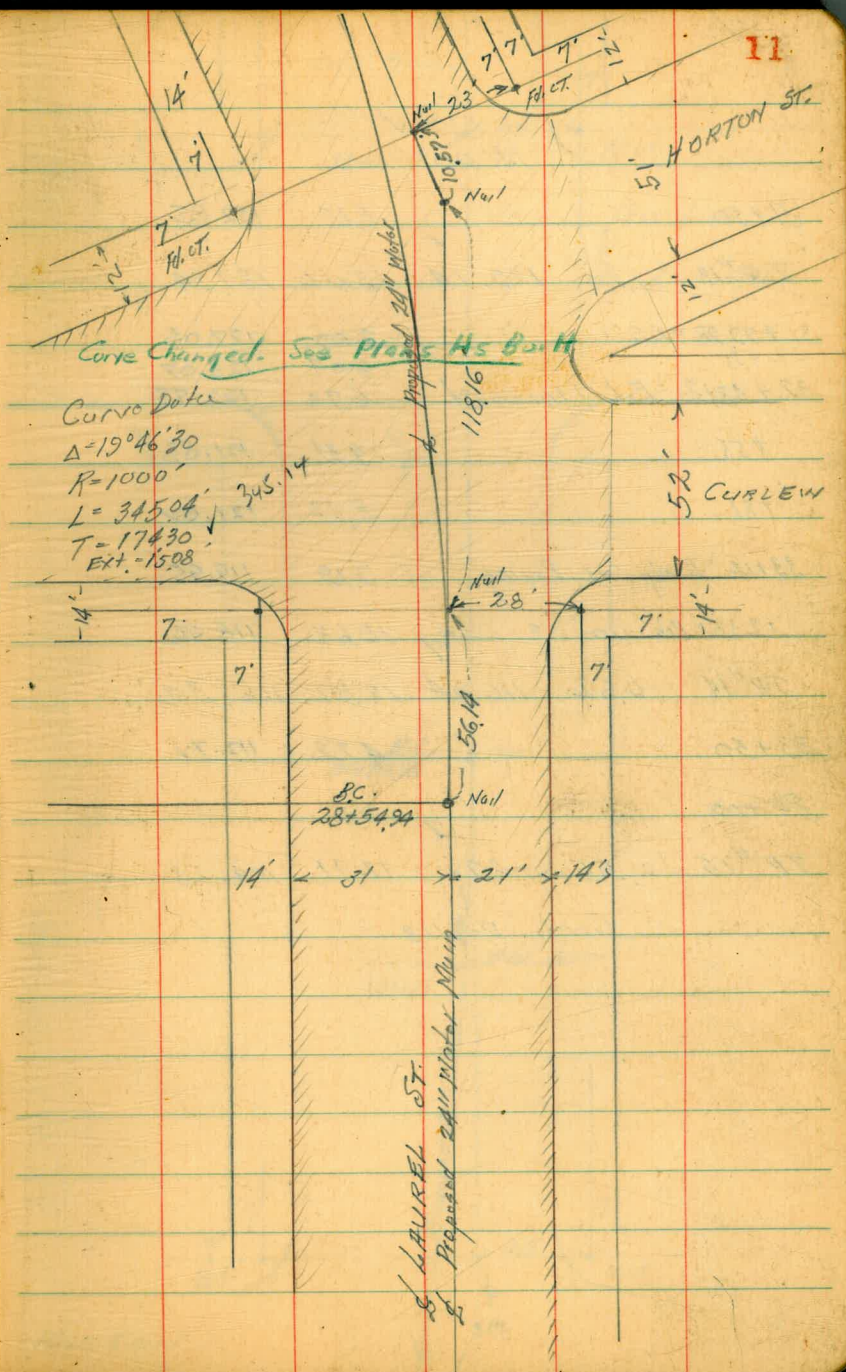
Cont. P. 9



	186.86	✓		
23+44.18 - E.L. Albatross St.	3.50		183.36	
+88.18 =	5.15		181.71	
5' Lt. on Rm MH	5.23		181.63	
" " " Flow from North.	11.43		175.43	
24+00	5.97		180.89	
+24.19 = W.L. Front	7.15		179.71	
+50	9.94		176.92	
TP #9	0.49	✓	174.30	13.05
25+00	3.59		170.71	
+50	2.76		169.59	
TP #10	0.07	✓	161.90	12.47
	Cont. P-10			

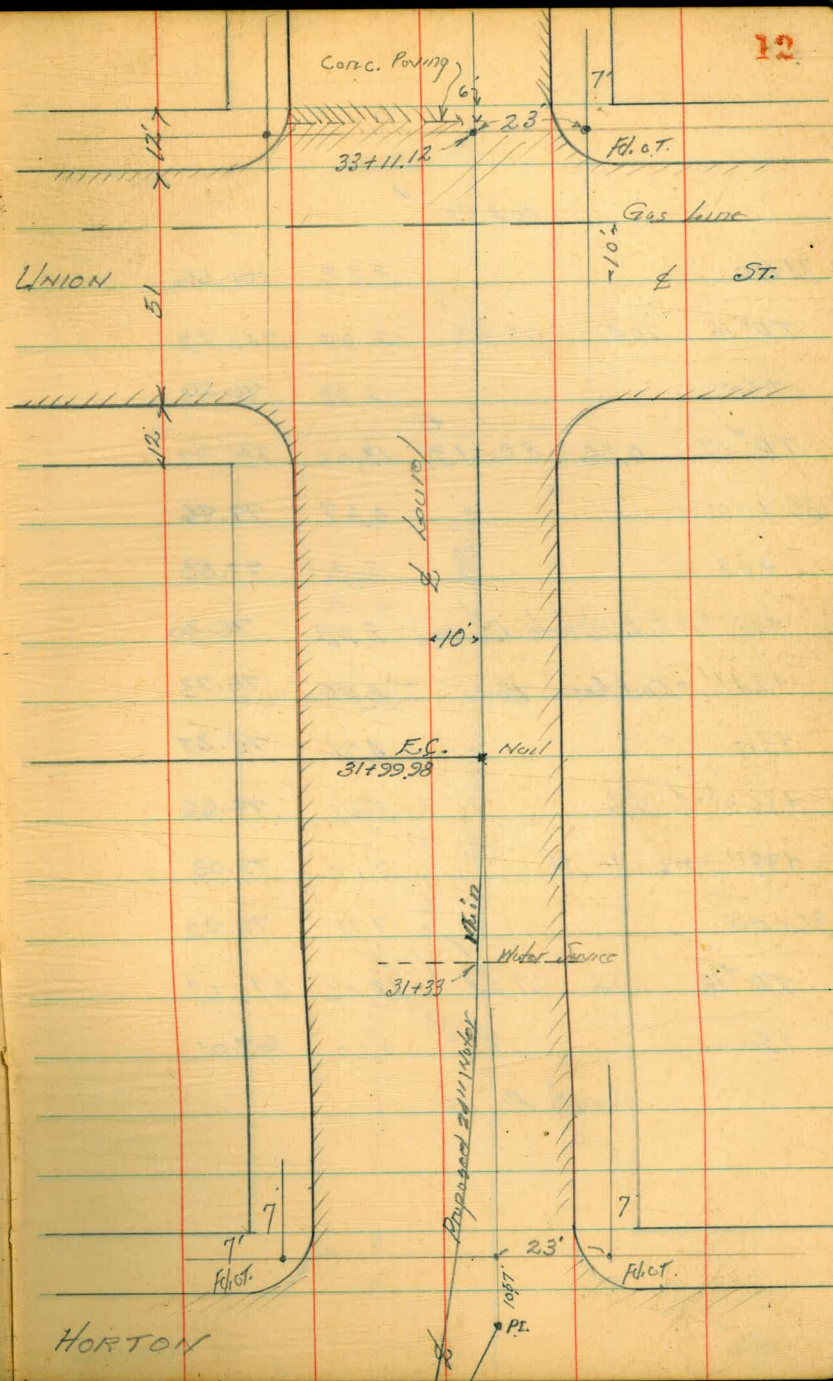


	150.83		
29+00		3.28	147.55
+0.41 = E. h. Curlew St.		3.42	147.91
718		3.58	147.25
BM #6		4.63	146.20 + Laurel 146.07 = Rev.
old location BM 07' N		4.68	146.15
29+50		3.87	146.96
30+00		4.56	146.27
+30.2 = W. b. line Horton		5.35	145.98
+43.5 = W. L. Horton		6.00	144.83
30+50		6.64	144.19
31+00 on Nail			
TP #12 2.37	141.00	12.20	138.63
Cont. P-12			

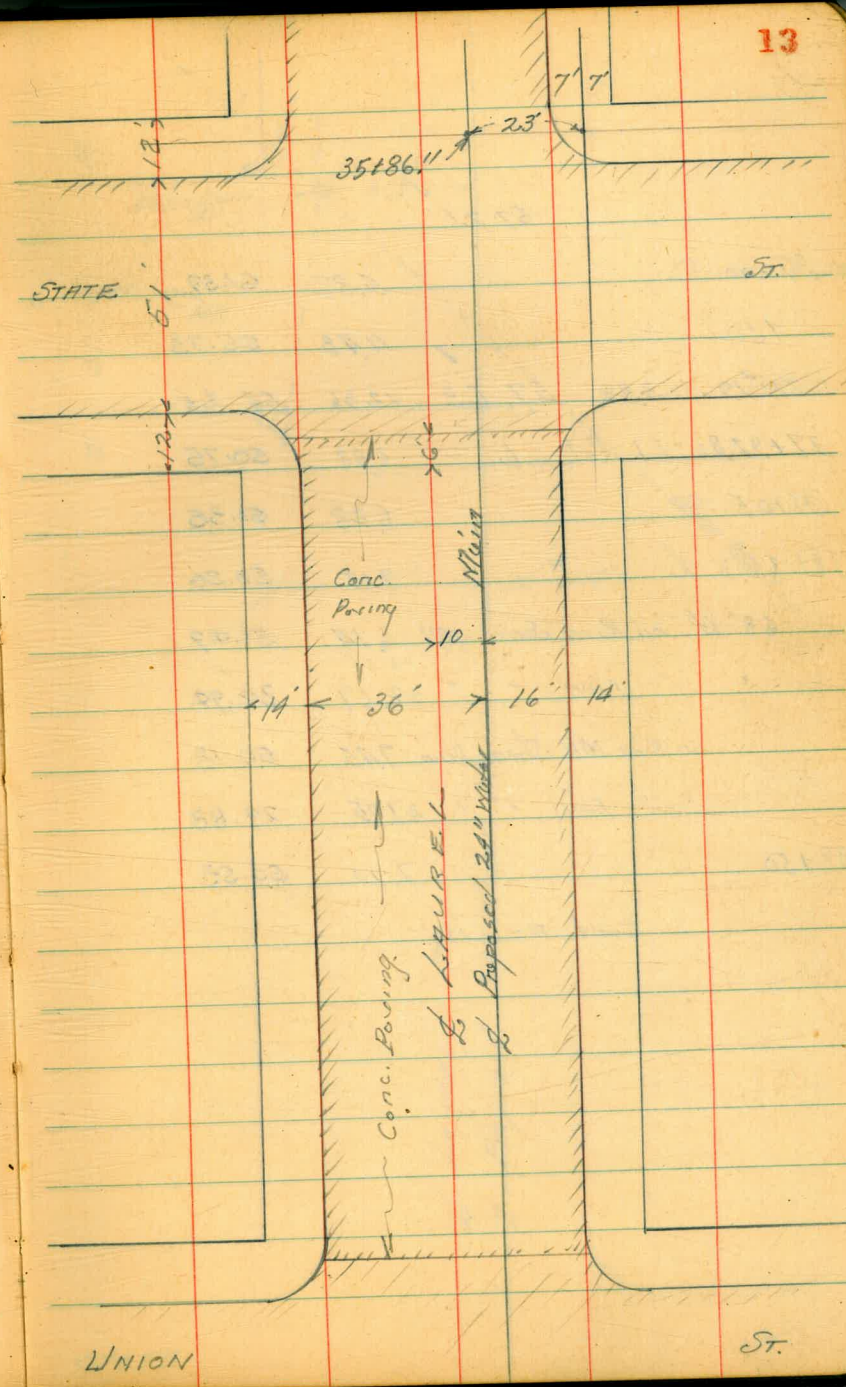


	✓	141.00		
31+50			8.15	132.85
T.P.#13	1.20	122.14	13.06	127.94
31+99.98 = F.C.			2.09	127.05
32+35			6.07	123.07
32+43.12 = F. edge Union St			6.70	122.49
+55			7.31	121.83
+81			8.12	121.07
33+12 = E. edge Conc. Paving			2.19	119.95
+238 = 8th. 10 "			10.68	118.96
T.P.#14	0.62	116.94	12.82	116.32
33+50			4.22	112.77
34+00				
T.P.#15	0.55	104.78	12.71	104.23

Cont. p. 13

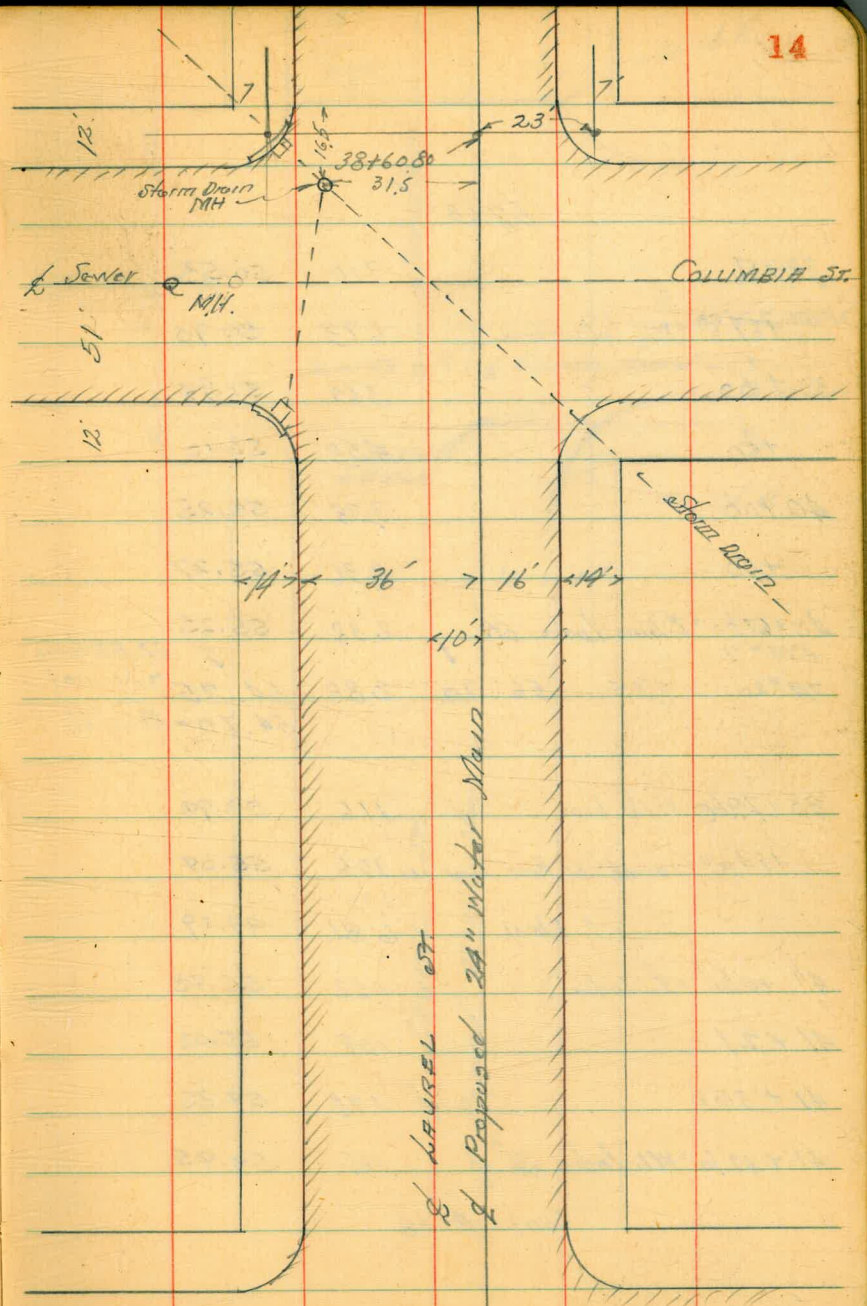


		104.78	✓		
34+00			✓	3.22	101.56
TP#16	104	22.83		12.99	21.79
+50				2.33	96.50
TP#17	0.36	80.13	✓	13.06	79.77
35+00				0.67	79.46
+08				2.30	77.83
+18" = E.L. State St.				3.93	76.20
+24" = End Conc. Pav.				4.40	75.73
+30				4.76	75.37
+55 6" = E. State				5.47	72.66
+93" = W.L. + St.				7.10	73.03
36+00			✓	7.71	72.92
TP#18	0.14	67.21		13.06	67.07
+50				0.20	67.01
					Cont. P-15



		67.21 ✓		
37+00		5.82	61.39	
750		11.48	55.73	
TP#19	3.38	57.63	12.26	54.25
37+92.80 = E.L. Columbia		6.88	50.75	
38+05		6.28	51.35	
38+30.3 L	"	7.13	50.56	
68' ht. on Riser Sewer MH		6.14	51.49	
" " Flow " "		22.69	34.94	
on Riser MH Storm Drain		7.45	50.18	
" " Flow " "		27.75	29.88	
38+50		7.10	50.53	

Cont. P- 15



STATE

ST.

57.63 ✓
38+56 710 50.53

16780 = W.L. Columbia 673 50.90

39+00 569 51.94

+50 453 53.10

40+00 338 54.25

+50 236 55.27

40+67.60 = E. line India St. 3.38 55.25

8M+7 ✓ SE. BR. India
TP#20 1.35 56.10 2.88 54.75 & Laurel
54.70 = Record

40+72.60 E. C. Line 1.16 54.92

+84.60 10' W. of River Survey MH 106 55.04

" " Floor 875 6.81 49.29

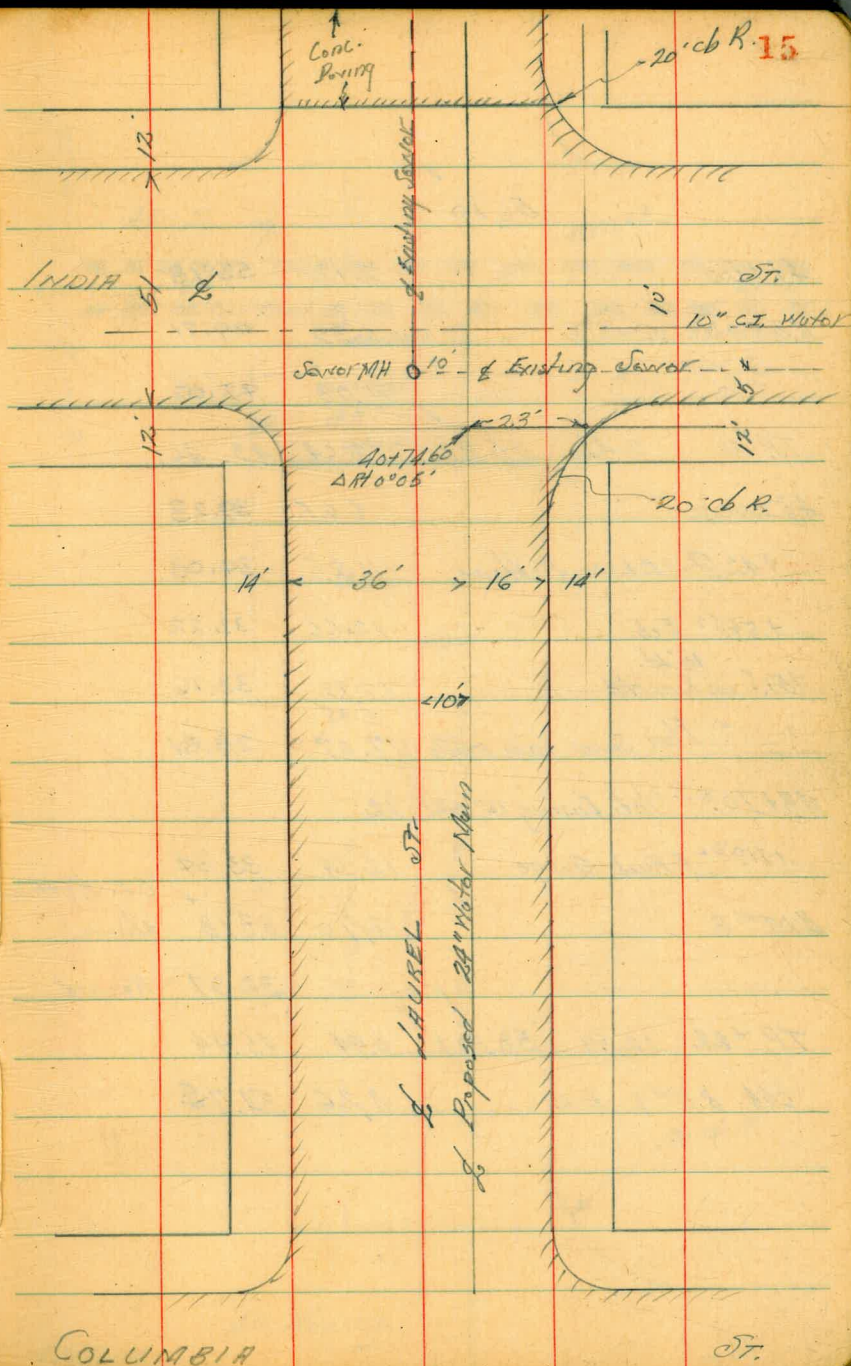
41+05.1' = E. India 0.62 55.48

41+21 1.08 55.02

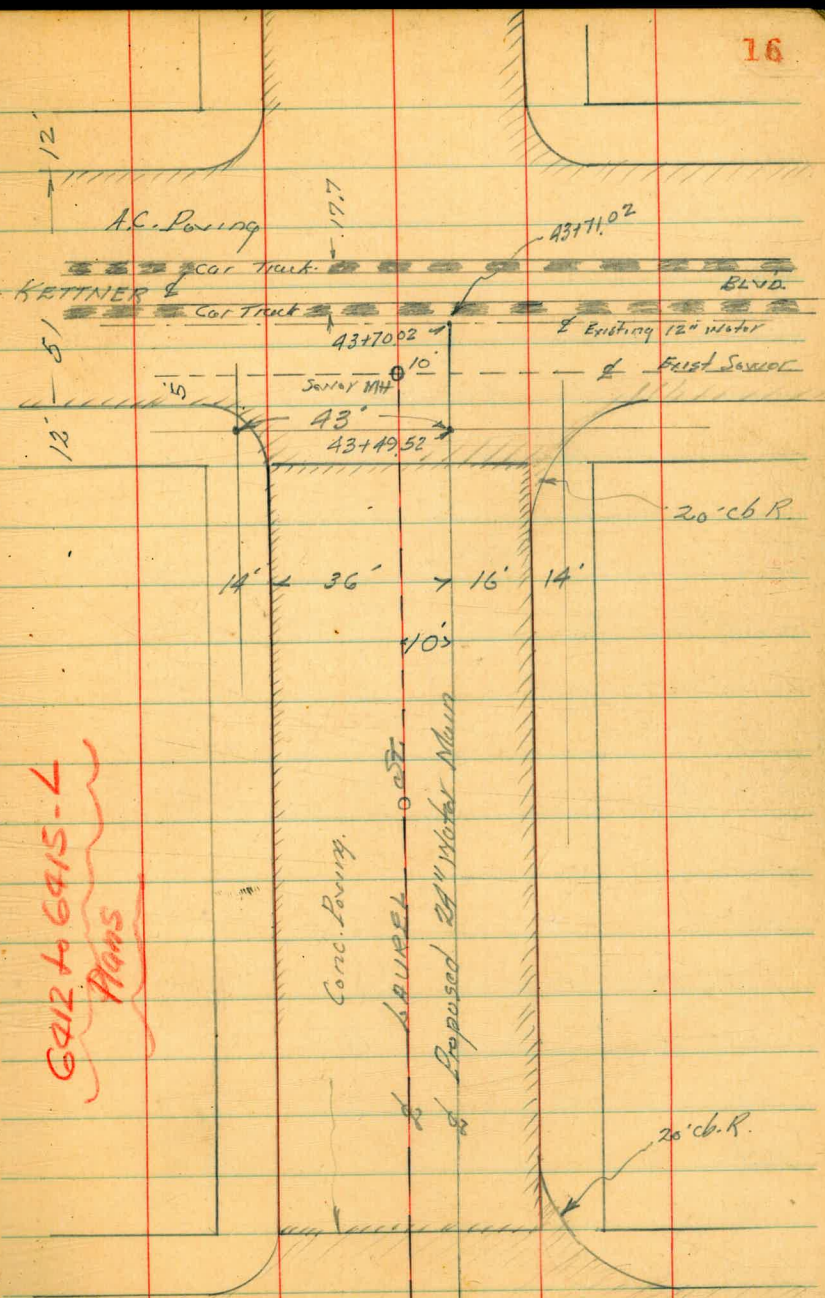
41+30.6 1.75 54.35

41+42.6 = W.L. India St. 1.65 54.45

Cont. P 16



		56.10		
41+50		2.12	53.98	
42+00		6.39	49.71	
+50		11.08	45.02	
TP#41	2.42	45.88	12.64	43.46
43+00		6.65	39.23	
+42.50 = E. Line Kettner		11.85	34.03	
+54.50 Feb.		12.66	33.22	
10' Ht.				
759.5 on Run MH		12.72	33.16	
" " Floor Sensor from North		17.07	28.81	
43+70.02 = Int. Existing 12" Water		12		
+71.02 = E. Rail - Gauge		12.54	33.34	St. Kettner
BM#8		12.70	33.18	board
			32.97	= Record
TP#22	12.57	38.01	0.44	45.44
chk. BM#7 P. 15		3.26	54.75	



6412 to 6415 - L
Plans

INDIA

AC. Paving.

JT.

Survey - Proposed Water Main

index
C.S.N.

Walker, Upas, Bancroft, and Juniper Sts.
Hazard
Hudson

S.M.H. = Sewer Manhole

12-26-44 W.S. = Water Service

Gate V = Gate Valve

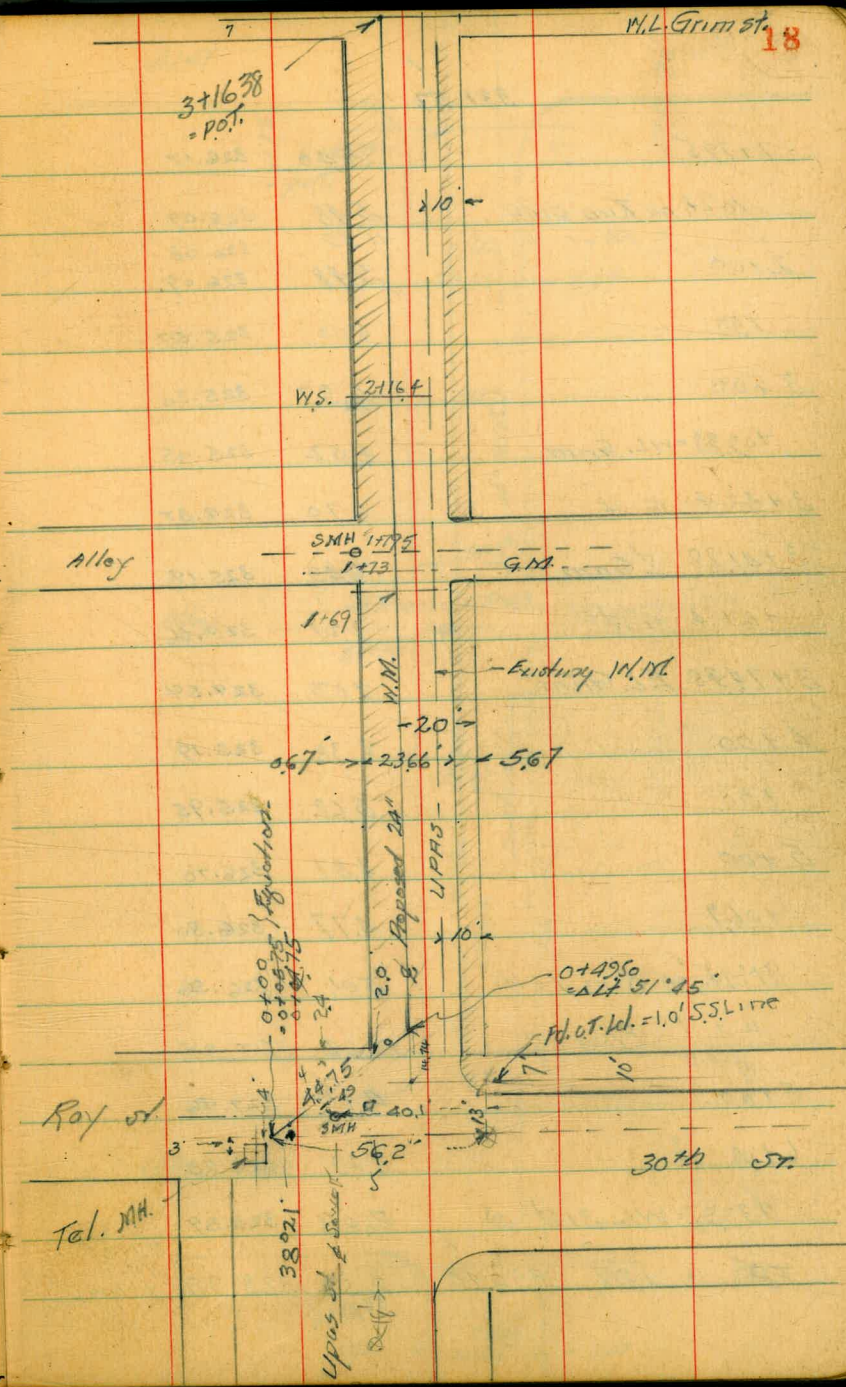
Gas V = Gas "

G.M. = Gas Main

W.M. = Water "

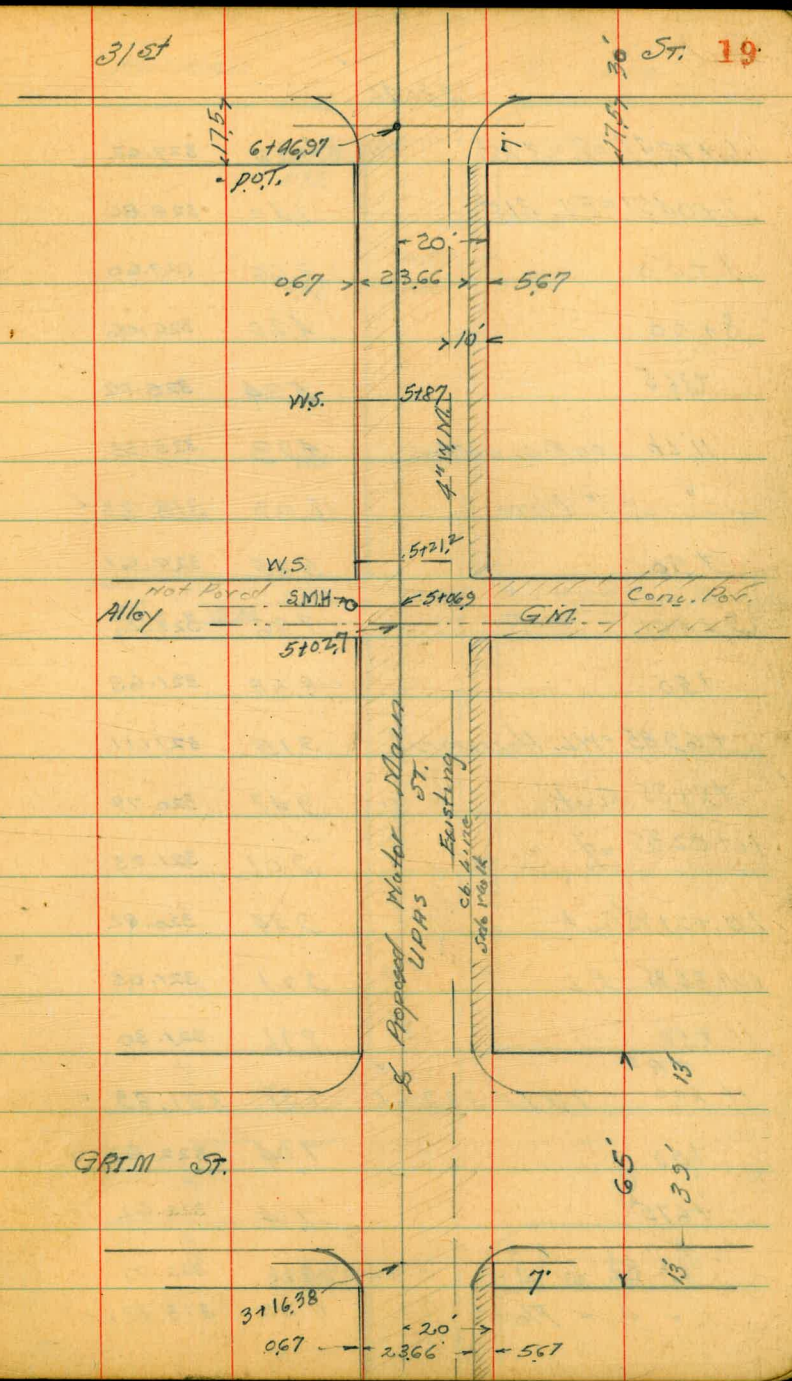
Station	Dist	Elevation	Notes
	140	330.39	✓
		328.99	✓ 31st
TP	4.10	331.57	2.92 327.47
0+00			
0+04.75			Equation 3.99 327.58
0+20			
0+21.5			4.09 327.98
4.9' Rt. of			
5' Rt. on Rim S.M.H.	4.10	327.97	
on flow from north	11.92	319.65	200 ft
" flow to west	13.17	318.90	✓
0+27.3			4.15 327.92
7.5' Rt. on Water M.H.	4.23	327.39	
(0+37.3) 0.5' Lt. = Gate V			
0+41.1			4.50 327.07
0.5' Lt. on Gate V.	4.50	327.07	
0+49.5 = Δ Lt. 51° 45'	4.37	327.20	
1+00	4.82	326.75	
1+50	5.20	326.37	

W.L. Grim St. 18



1+79.5		540	326.17
10' Lt. on Rim SMH.		548	326.09
" " " Flow		11.49	320.08
2+00		548	326.09
750		600	325.57
3+00		637	325.20
109.38 = V.L. Grit		652	325.05
3+22.4 Gut.		670	324.87
3+41.88 = 2 Grit		643	325.12
+61.4 Gut		721	329.36
3+74.38 EL. Grit		703	324.54
4+00		638	325.19
750		562	325.95
5+00		487	326.70
106.9		477	326.80
11' Lt. on Rim M.H.		501	326.56
" " " Flow "		10.64	320.93
5+50		411	327.96
6+00		329	328.28
739.97 = V.L. 31st St		2.68	328.89
TP	1.27	330.26	2.58 328.99

NUMB. 3104
4 Uped



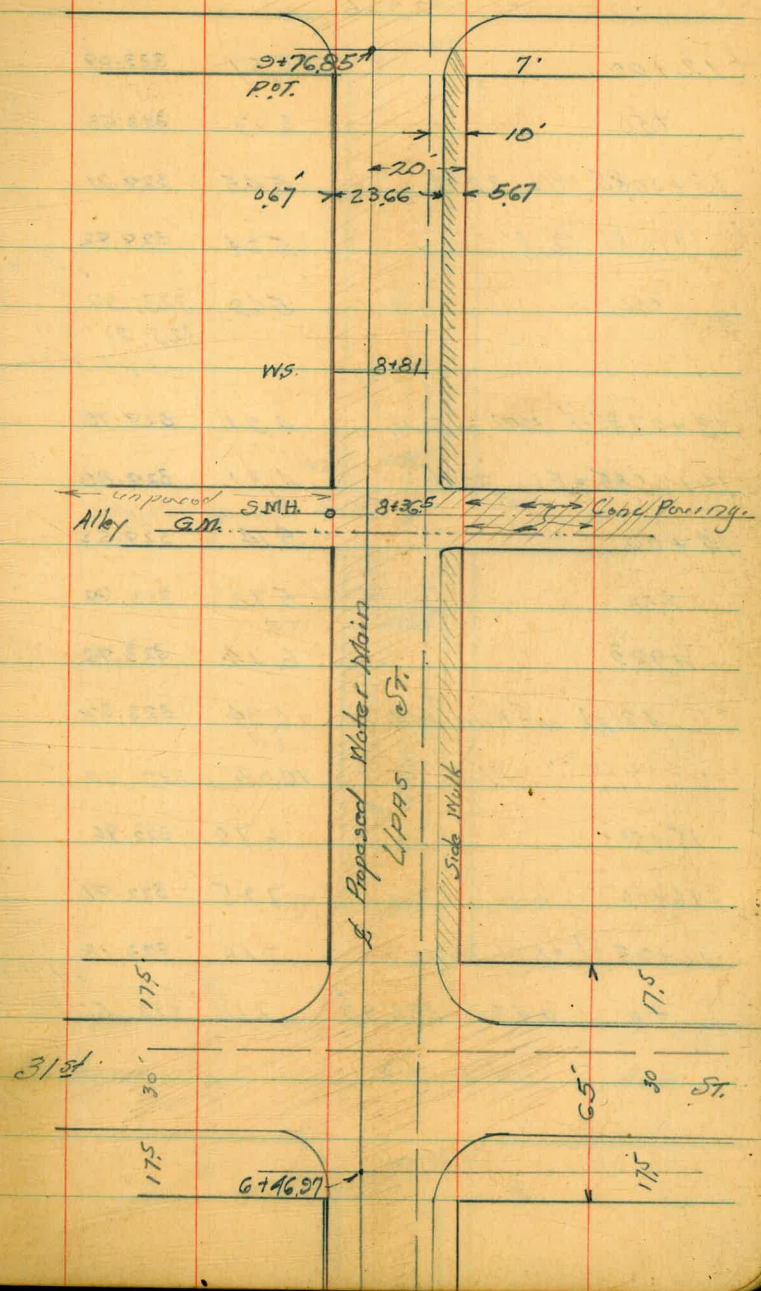
33076 ✓

6+72.47 = 2 31st	1.24	329.02
7+04.97 = E.L. 31st	1.40	328.86
7+50	2.66	327.60
8+00	4.20	326.06
+365	5.24	325.02
11' Lt on Riv. SMH	4.23	325.33
" " Flow "	12.03	318.23 ✓
+50	5.65	322.61
9+00	7.06	323.20
+50	8.58	321.68
+62.85 = W.L. Hermann	9.15	321.11
+82.85 Gut	9.47	320.79
10+02.35 = " "	9.01	321.25
10+21.85 Gut	9.44	320.82
10+34.85 E.L. "	9.21	321.05
10+50	8.96	321.30
TR		
11+00 7.77 329.66	8.37	321.89 ✓
+50	7.04	322.62
+675	7.04	322.62
4.6' Rt. on 65	7.16	322.50
" " " Flow	11.53	318.13

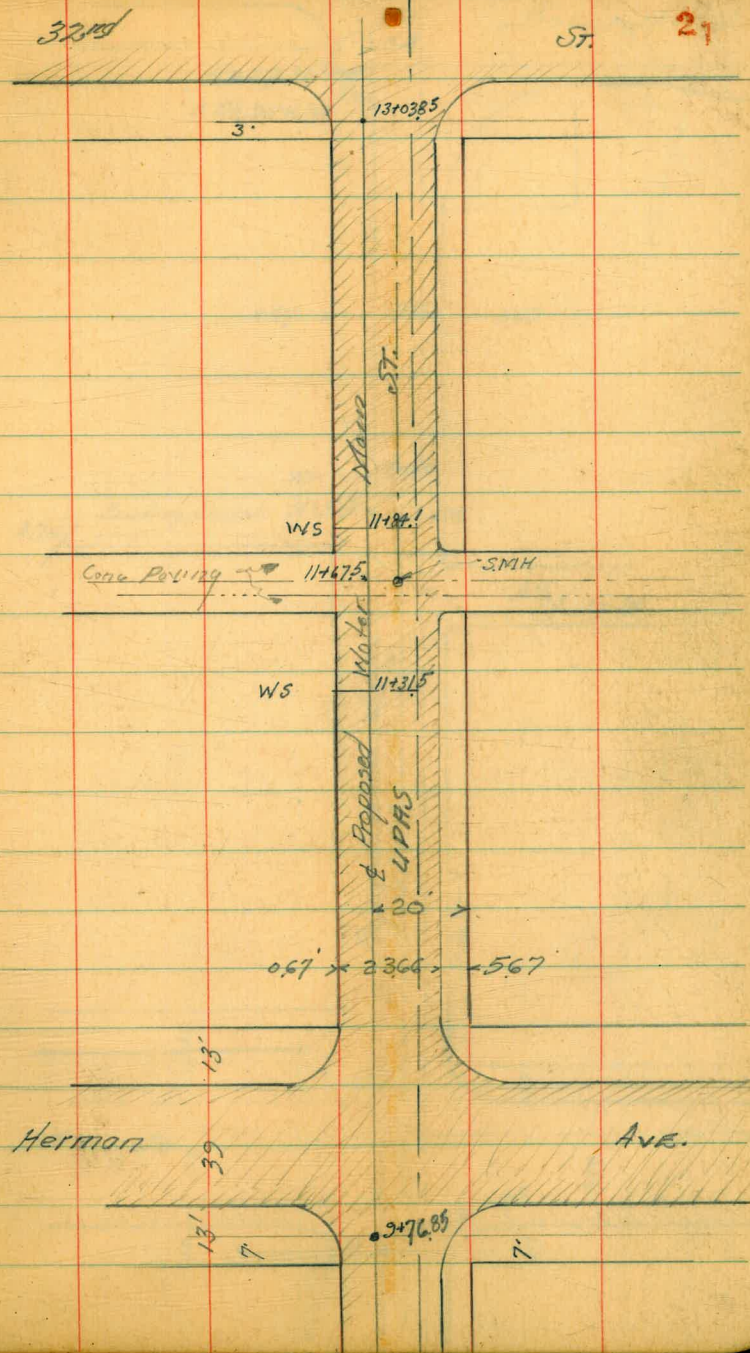
Herrman

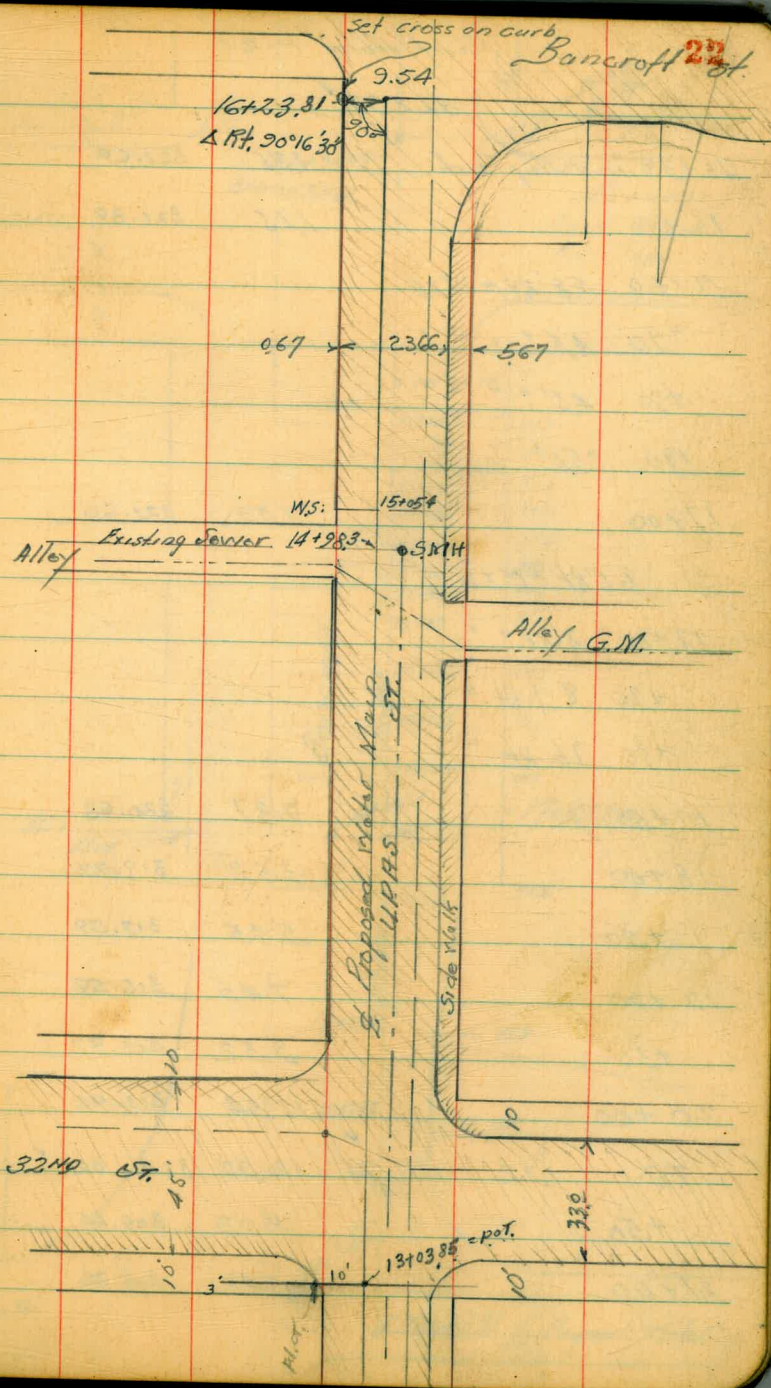
Ave

21

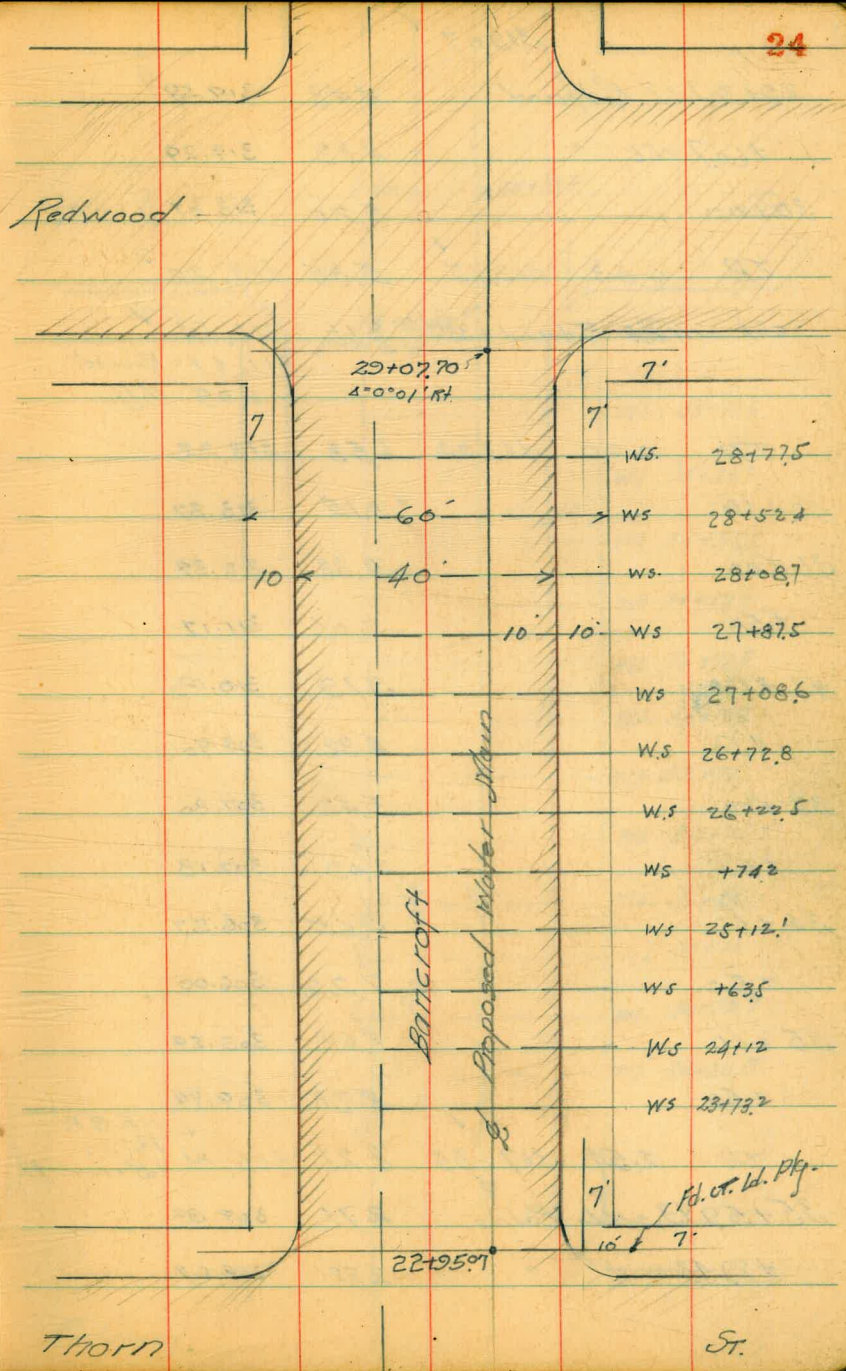


322.66 ✓			
12+00	6.57	323.09	
750	6.03	323.63	
13+00.85 = W.L. 321 st	5.45	324.21	
110.85 Cont.	5.24	324.92	
chk.	5.69	323.97	✓ 511.80 32 nd 11/19/24
		323.90 = 8M	
		0.07 diff.	
13+27.35 = E. 321 st on South	4.91	324.75	
13+65.85 = E.L. 321 st	4.81	324.85	
14+00	5.14	324.52	
750	5.72	323.99	
798.3	6.24	323.92	
4.8' H. on E. R. 112 nd M.H.	6.34	323.32	
" " " Flow "	10.02	319.64	✓
15+50	6.70	322.96	
16+00	7.25	322.91	
16+23.81 = Δ R 4 90° 16' 30"	7.48	322.18	
T.P. 0.43 322.99 ✓	7.10	322.56	✓ NY, B.P. Bancroft 4/19/24
Cont. p. 2.3			322.47 Bancroft

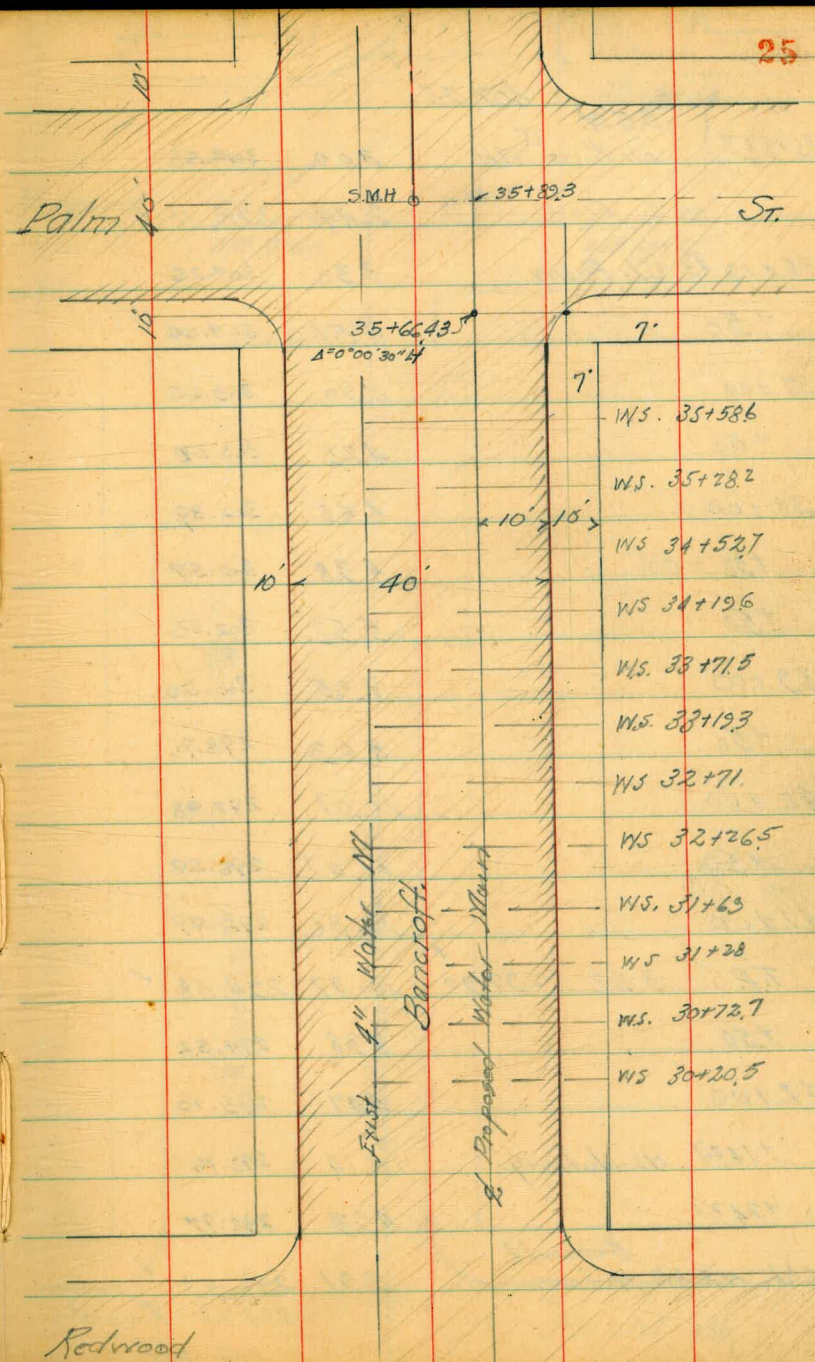




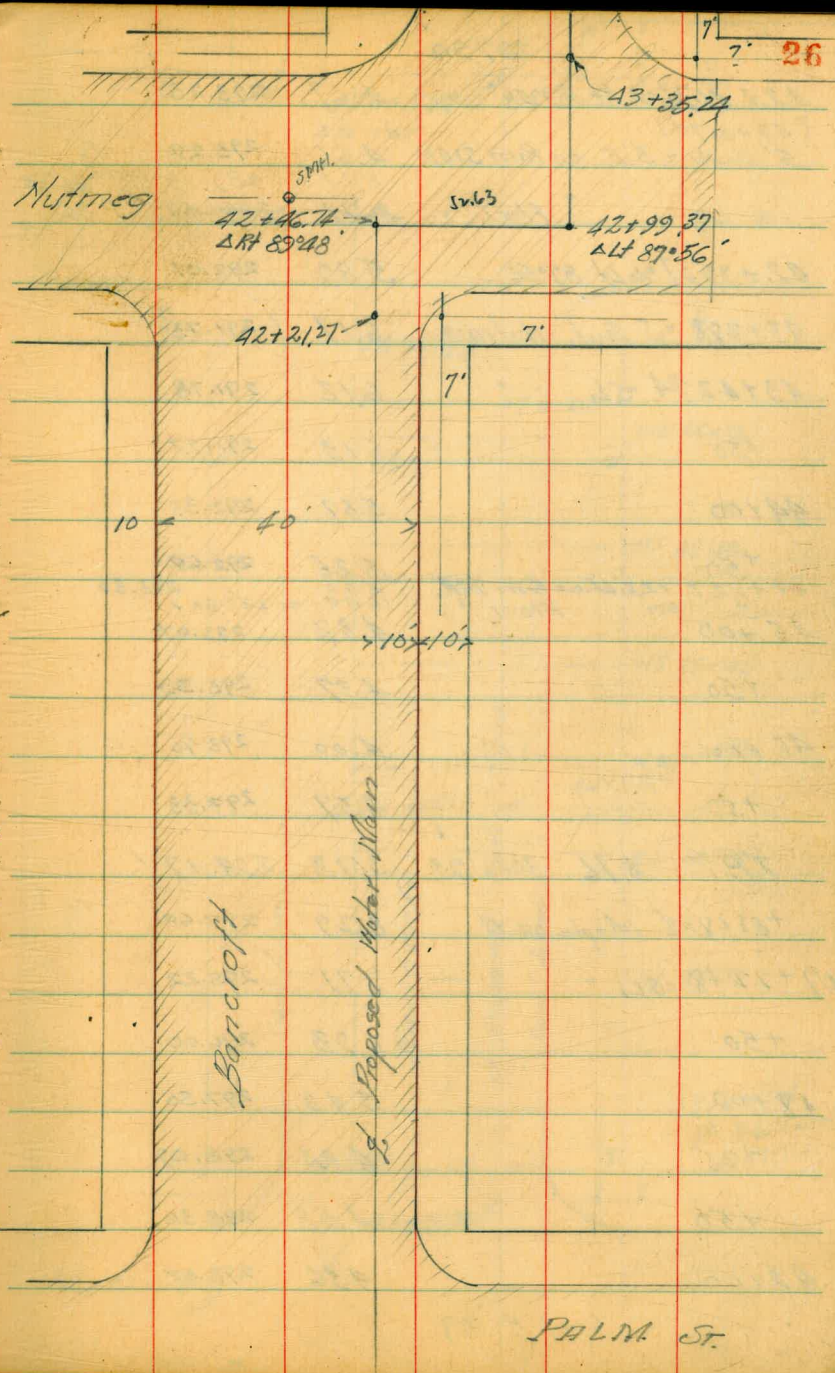
	311.74		
21+50		4.61	307.13
22+00		5.15	306.59
+42.07 = N.L. Thorn St		5.57	306.17
+52.07 = N. Gut.		5.90	305.89
+72.07 = " "		5.29	306.95
+92.07 = " "		5.70	306.09
23+02.07 = S.L.		5.31	306.93
+50		4.73	307.01
24+00		4.21	307.53
+50		3.82	307.92
25+00		2.71	309.03
TP	10.04 319.07	2.71	309.03 ✓
+50		8.81	310.26
26+00		7.57	311.50
+50		6.78	312.29
27+00		6.18	312.89
+50		5.38	313.69
28+00		5.04	314.03
+50		4.74	314.33
29+00.7 = N.L. Redwood		4.39	314.68
+10.7		4.38	314.69



	319.07 ✓		
22+30.7 = L Redwood	1.48	319.59	
+60.7 = SL "	1.83	319.29	
30+00	5.20	313.87	
T.P. 6.53	312.75 ✓	5.85	313.22 ✓
chk. N.Y.B.P. Redwood + 33 rd	8.11	311.64 ✓	
		311.61 = Record	
		0.03 diff.	
T.P. 0.00	313.22	6.53	313.22
30+50	+0.15	313.37	
31+00	0.88	312.39	
+50	2.05	311.17	
32+00	3.19	310.03	
+50	4.32	308.90	
33+00	5.42	307.80	
+50	6.09	307.13	
34+00	6.65	306.57	
+50	7.22	306.00	
35+00	7.68	305.59	
+50	8.28	304.94	
T.P. 2.54	307.55 ✓	8.21	305.01 ✓
			N.E.B.P. Palm + Bancroft
35+59.43 = N.L. Palm	2.71	304.89	
+89.43 L "	2.88	304.67	



		307.55 ✓		
(35+89.3)	5.54 on Rim	5 MH	3.00	309.55
	"	Flood	2.44	298.11 ✓
36+19.43	El. Palm		3.30	309.25
+50			3.51	309.09
37+00			3.90	303.65
+50			4.25	303.30
38+00			4.66	302.89
+32 = Bk.			4.98	302.57
+50			5.52	302.03
39+00			7.05	300.50
+50			8.63	298.97
40+00			10.07	297.98
+50			11.01	296.59
41+00			12.06	295.99
T.P.	3.32	297.90 ✓	12.97	294.58 ✓
+50			3.38	299.52
42+00			4.47	293.93
+14.27	N.L. Nutmeg.		4.74	293.16
+24.27			4.93	292.97
chk. N.E. BR.	Barcroft		3.91	293.99 ✓
	Nutmeg.			294.08 - Record
				009 off.



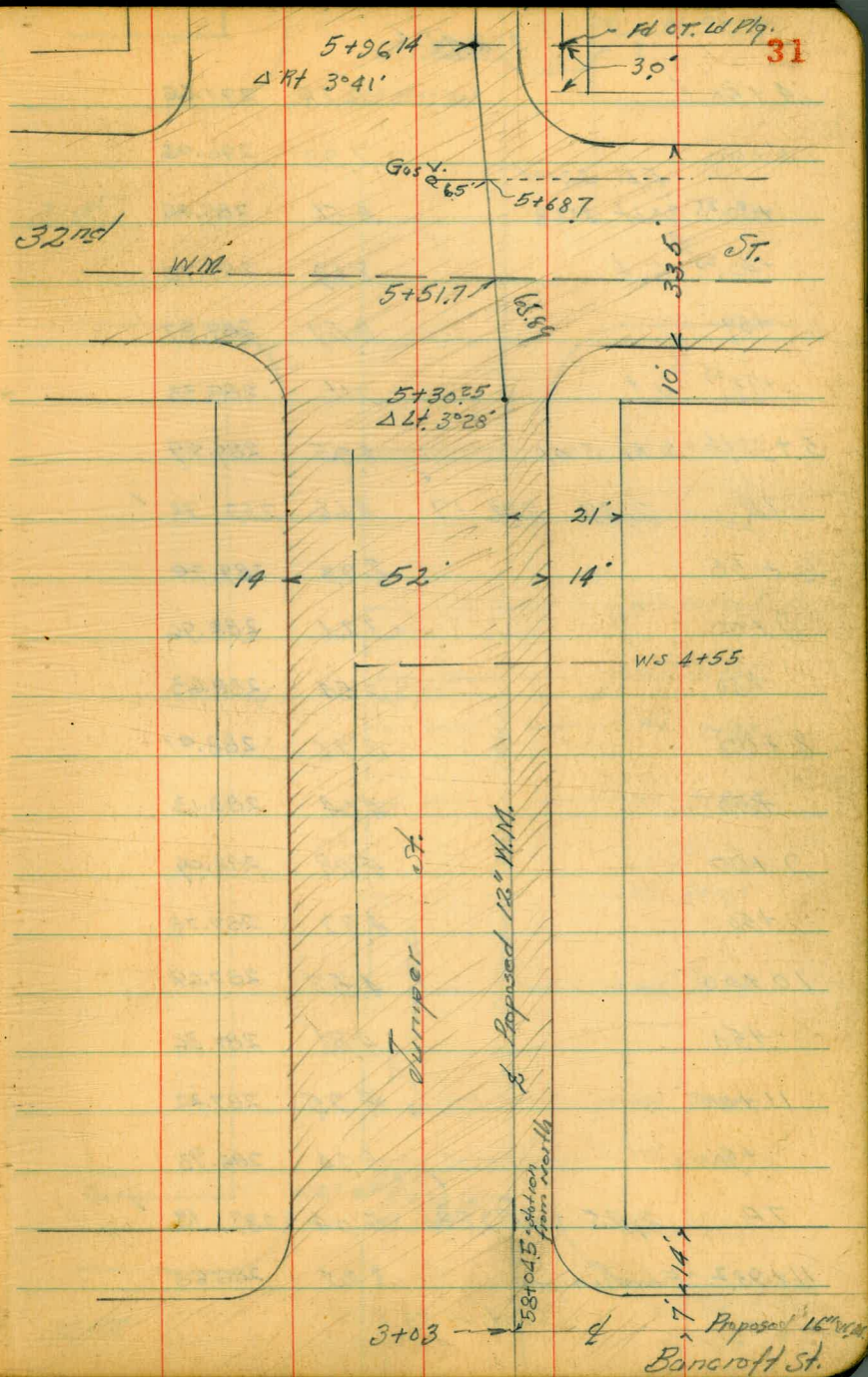
Profile levels - Water Main

Jumpers

* P. 28

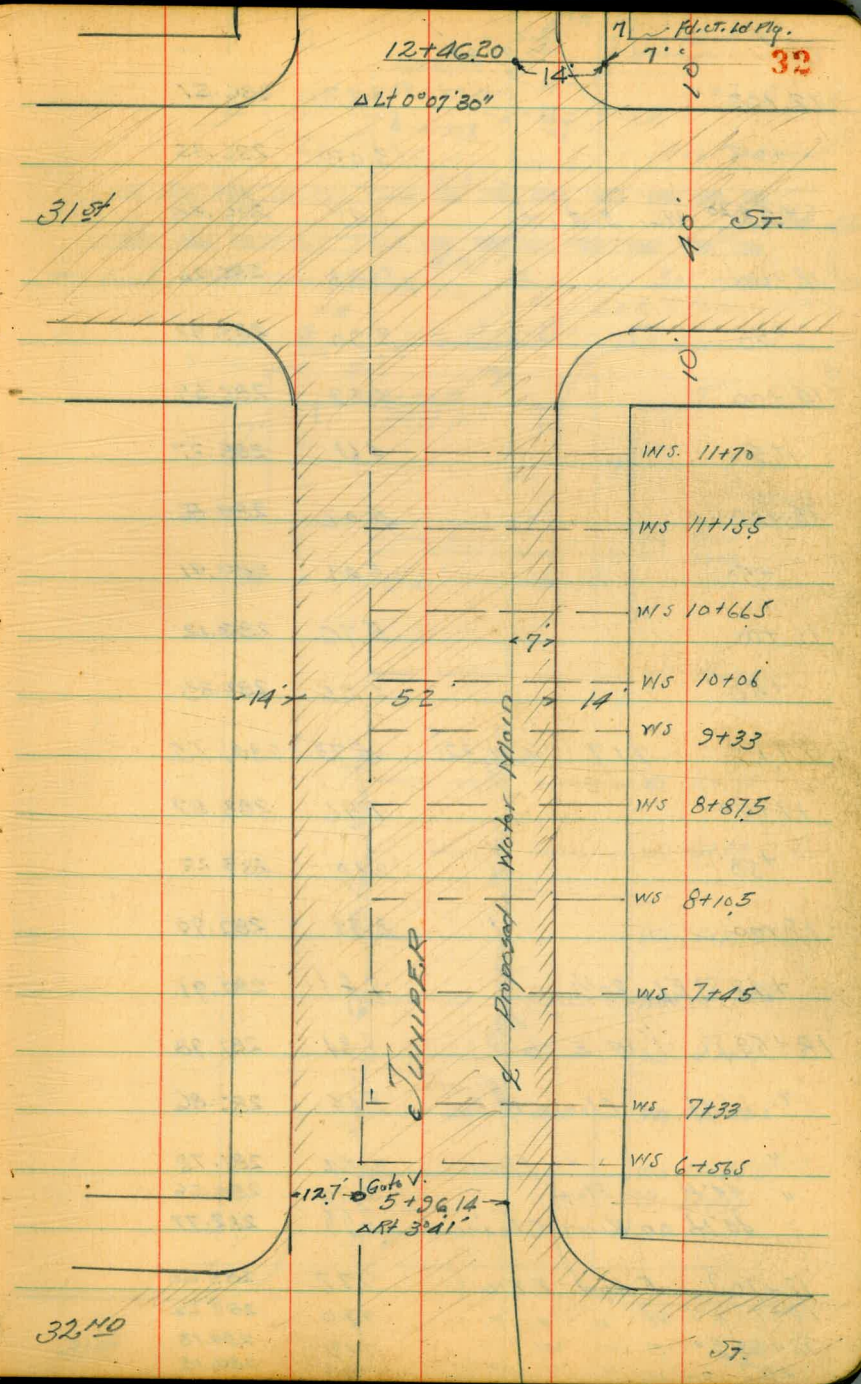
285.60

0+00	13.26	271.69
+09.5	13.27	272.33
19" H. on Flow S.M.H.	27.08	258.52 ✓
19" H. on Rim S.M.H.	12.98	272.62
0+17	12.85	272.75
7" H. on Rim Gas M.H.	12.70	272.90
0+50 = W.L. 3310	10.58	275.02
1+00	6.19	279.91
+50	1.66	283.99
T.P.	13.35	298.44
0.51	285.09	
2+00	10.03	288.91
+50 = E.L. Bancroft	5.68	292.76
+70	5.05	293.39
+80 = Int. Exst. Water Main	4.60	293.89
+98 & Bancroft	4.29	294.15
+98.5 = Int. Gas M.	4.12	294.32
3+03 = 58' + 0.5' from North	4.06	294.38
+30	4.10	294.39
3+50	4.49	293.95
4+00	5.59	292.85
(2+90) 19" H. on Rim M.H.	4.26	294.18
" " " Flow "	14.47	283.97

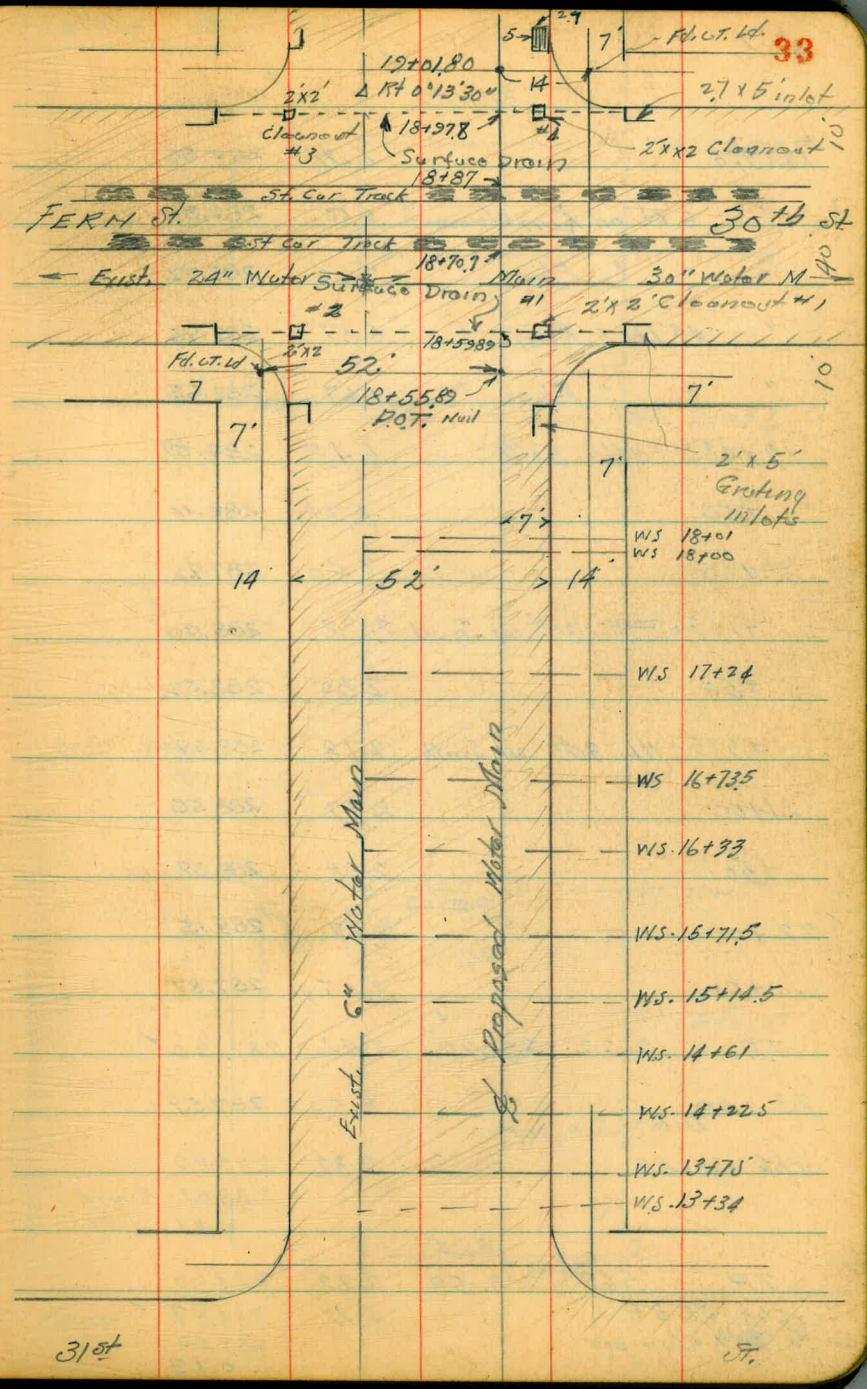


		298.44 ✓		
4+50		6.78	291.66	
5+00	EL. 32ND	7.99	290.95	
	+30.25 = ΔL 3°28'	8.56	289.88	
	+40.25 Cut	8.69	289.75	
	+57	8.57	289.87	
	+73.25 W ✓	9.11	289.33	
5+96.14 = Δ RT 3°41'		8.95	289.49	
TP	2.39 292.17 ✓	8.66	289.78 ✓	
6+50		2.93	289.29	
7+00		3.21	288.96	
	+50	3.52	288.63	
8+00		3.76	288.91	
	+50	4.04	288.13	
9+00		4.08	288.09	
	+50	4.39	287.78	
10+00		4.53	287.69	
	+50	4.81	287.36	
11+00		4.95	287.22	
	+50	5.24	286.93	
TP	2.75 289.88 ✓	5.04	287.13 ✓	
11+98.2	EL. Juniper	3.25	286.63	

Cont. p. 33

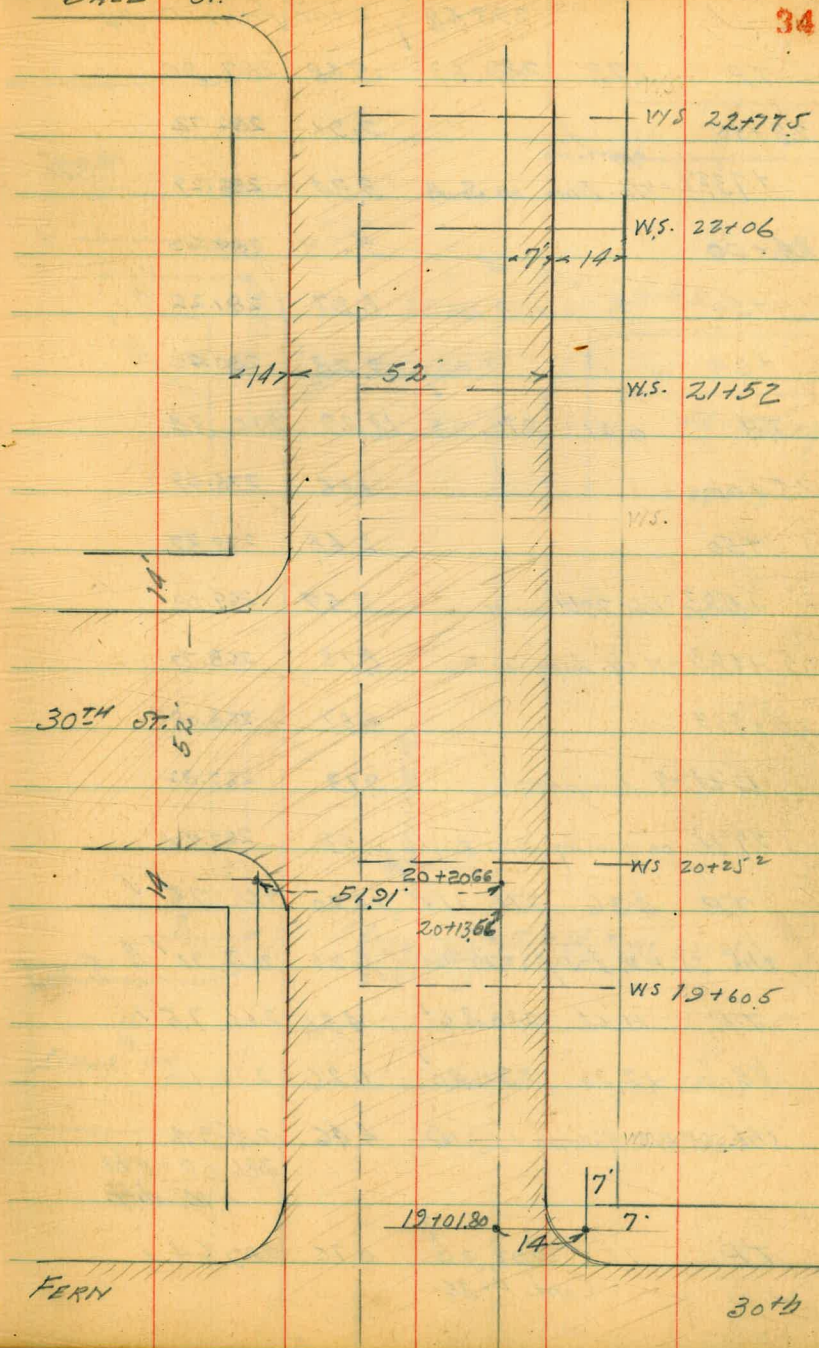


		289.88		
12+00		3.37	286.51	
+23		3.03	286.85	
+53.20	WL. 31st St	3.45	286.93	
13+00		3.68	286.20	
+58		3.90	285.98	
14+00		4.29	285.59	
+50		4.61	285.27	
15+00		5.02	284.86	
+50		5.47	284.91	
16+00		5.76	284.12	
+50		6.05	283.83	
T.P.	717 291.32	5.73	284.15	
17+00		7.75	283.57	
+50		8.10	283.22	
18+00		8.38	282.99	
+48.89	E.L. 30th	8.41	282.91	
18+59.89	= 1' W. E. cb	8.34	282.98	
"	6' R.R. on Cleanout Box ^{Rim}	8.46	282.86	
"	" " Flow	9.54	281.78	
"	44" H on Flow	9.76	281.56	
"	14" H on Rim Cleanout	8.55	282.77	
18+70.7	E. Rail E. Track	7.72	283.60	
18+78.4	W " " "	7.70	283.62	
18+82.3	E " W "	7.19	284.13	
+87	W " " "	7.19	284.13	

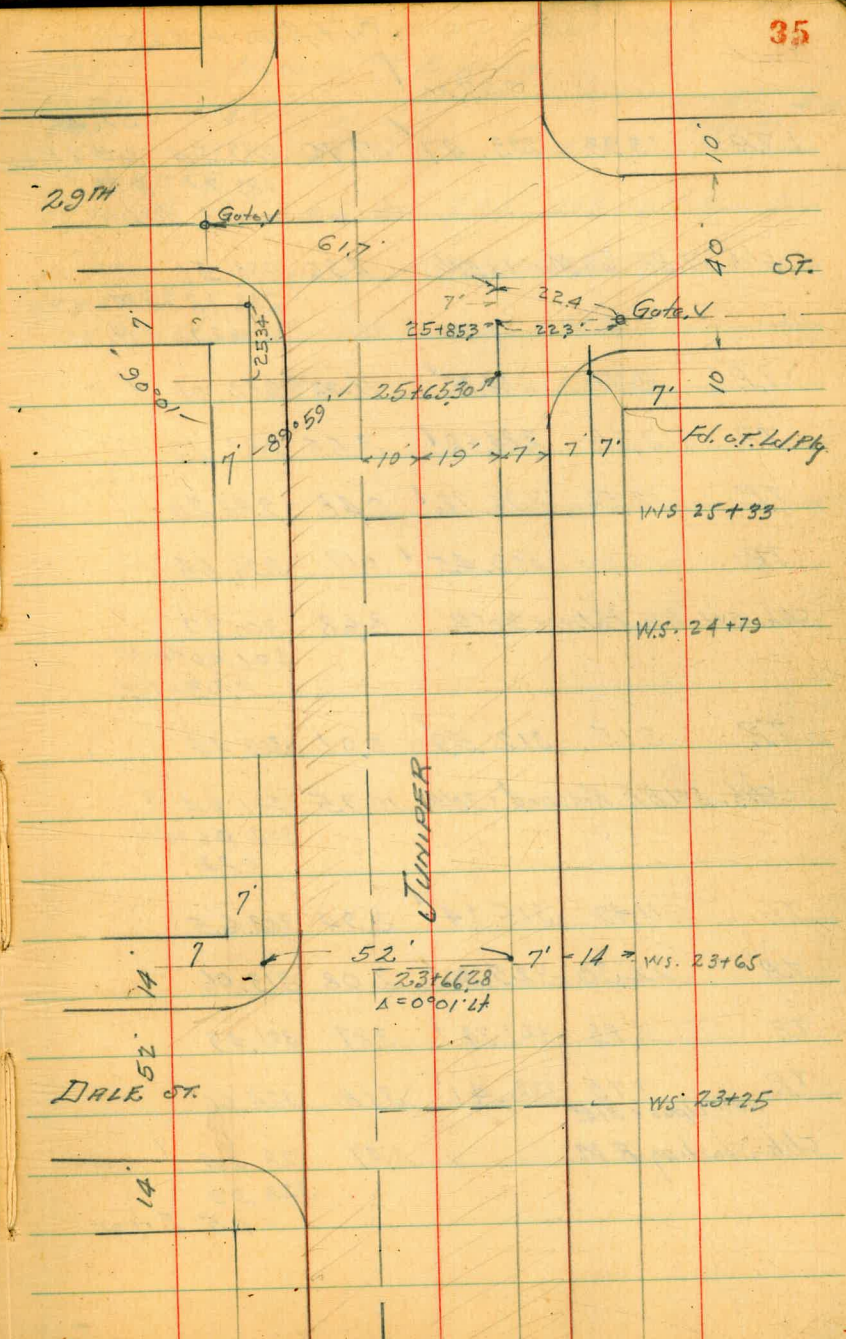


29132

18+978		6.46	282.86
"	6' Rht. on Fern Clearcut	6.50	282.82
"	" Flow "	7.60	283.72
"	44' Lt. " Ritt "	6.37	284.95
"	" " Flow "	7.67	283.65
19+088	= W.L. 30th	6.43	282.89
+50		5.21	286.11
20+00		3.40	287.92
+13.66	= EL. 30th on South	2.92	288.40
+50		2.80	288.52
+935	= W.L. 30th on South	2.78	288.54
21+00		2.77	288.55
+50		2.98	288.32
22+00		3.17	288.15
+50		3.45	287.87
T.P.	2.22 290.12	3.42	287.90 ✓
23+00	Dolo + Juniper	2.53	287.59
chk SE BP		2.32	287.80
			288.01 - Round
			0.21 diff
T.P.	5.68 293.58	2.22	287.90 ✓
chk SE BP		4.71	288.37 ✓
	30th + Juniper		289.00
			0.13



		293.58	Cont. from P-34	
TP	1.73	289.63	5.68	287.90
23+50			2.91	286.72
	opposite			
	+73.78 = W.L. Dale on South	3.34		286.29
24+00			5.03	284.60
+50			8.37	281.26
+60			9.23	280.40
TP	0.61	276.95	13.29	276.34
25+00			1.06	275.89
+50			6.68	270.27
+58.3 = E.L. 29th on N			7.57	269.38
25+68.3 = N cb. Line on Pav.			8.18	268.77
25+85.3			8.87	268.08
19th & Juniper			9.13	267.82
29th on paving	Dist. Exist - Water Main	9.53		267.92
TP	4.36	271.11	10.20	266.75 ✓
chk. S.E. B.P. 1 & 29th			6.20	264.91 <small>no record in NY Book</small>
TP	11.61	278.36	4.36	266.75 ✓
TP	12.30	290.40	0.26	278.10
chk. S.E. B.P. Kolman + 29th			4.46	285.94
				286.08 = 8 M.
				0.14 diff.
TP	7.66	297.30	0.76	289.64 ✓
	Cont. P-36			



Cont. from p. 35

	2.27.30				
TR	3.93	293.47	7.76	289.54	SE BP 30th (Kalmia)
				289.71 - 8 M.	
				0.17 diff.	
chk. SE BP San Marcos x 30th		4.96		288.51	
				288.78 - 8 M.	
				0.27 diff.	
TR	2.71	284.72	11.96	282.01	✓
TR	3.51	284.68	3.55	281.17	
TR	12.52	296.72	0.48	284.20	
TR	12.90	309.45	0.17	296.55	
chk. SW BP Palms x 30th		8.68		300.77	
				301.00 - 8 M.	
				0.23 - diff.	
TR	3.15	312.59	0.01	309.44	
chk. SW BP Redwood x 30th		10.75		301.84	✓
				302.06 - 8 M.	
				0.22	
TR	11.99	315.14	8.94	303.65	
TR	12.30	325.36	2.08	313.06	
TR	6.35	327.84	3.87	321.49	
TR	7.75	332.41	3.18	324.66	
chk. Starting B.M.		3.47		328.94	✓
				328.99	
				0.05 Error.	

Walker
Hogard
Hardin
Boop. 1-15-45

check Rims And Flow M.H.S
Nutmeg And Barcroft

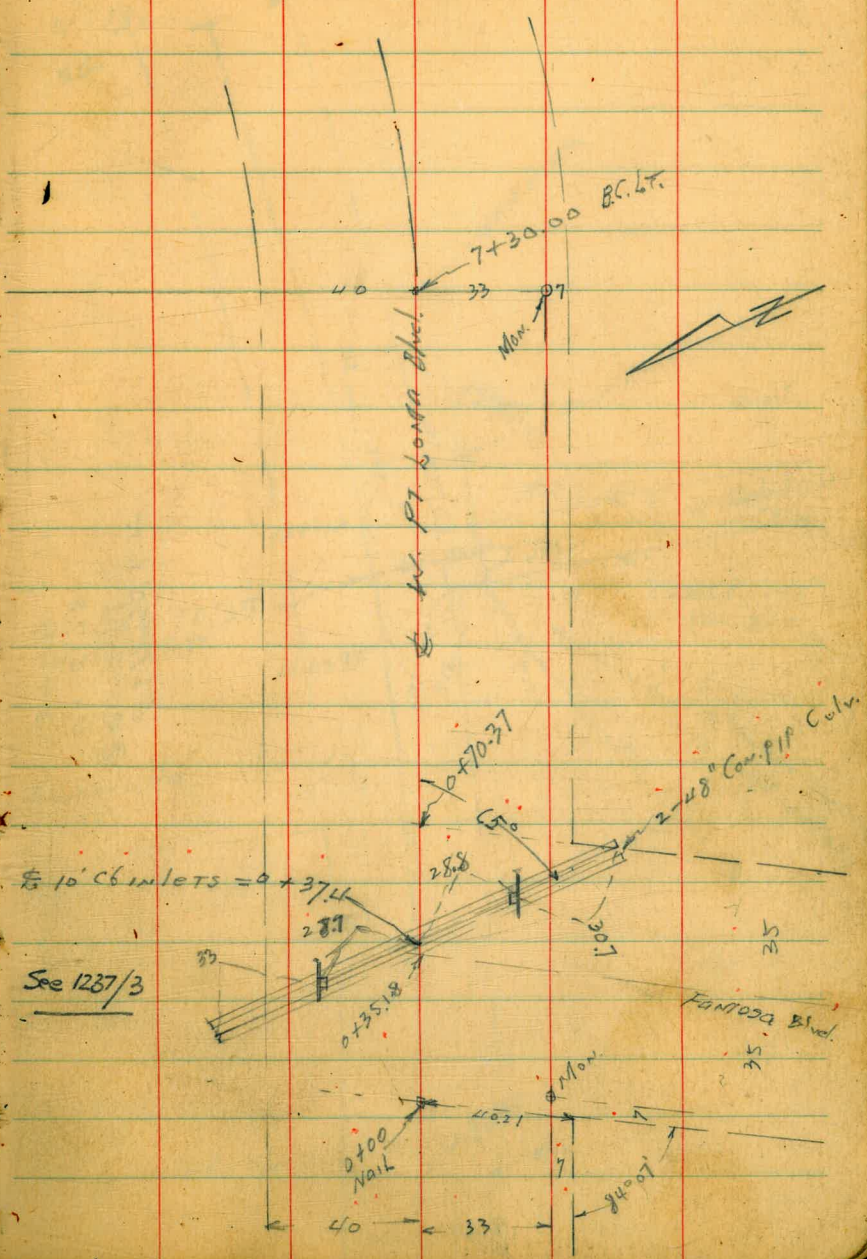
36

SE BP 26
Nutmeg
Barcroft

	295	296.94		293.99	
				5' S. 11" = 5'E	
(42 + 46.74)		on Rim MH	3.64	293.30	✓
		" Flow "	7.70	289.24	✓
(43 + 42.24)		4.017 Rim MH.	4.82	292.12	✓
126		" Flow "	8.05	288.89	✓

C. Moore Xsec W. Pt. Loma Blvd. 80' wide
Johanna Meyer 141' width
W. Moore
3-30-45 FANTOSA Blvd. to Midway

NOTE! & STA.

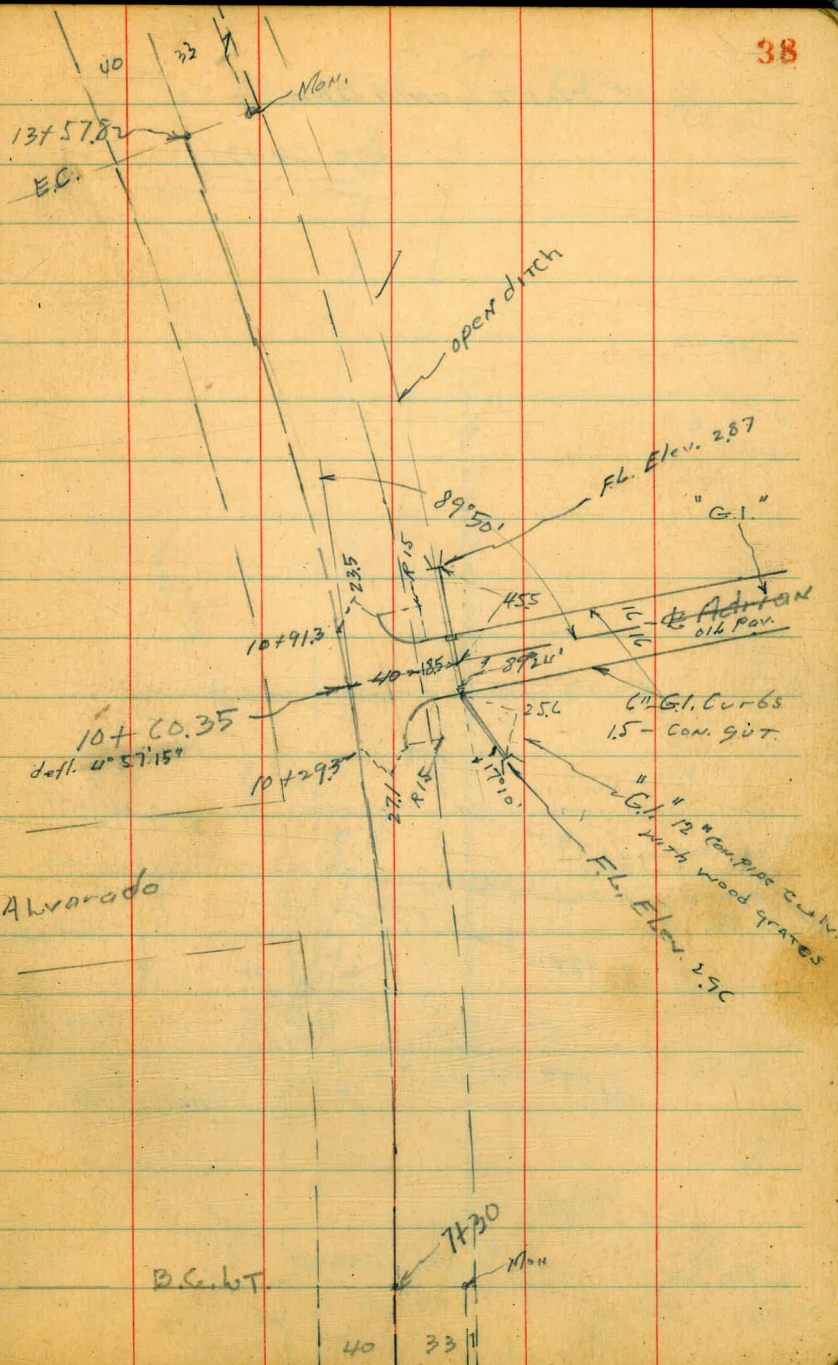


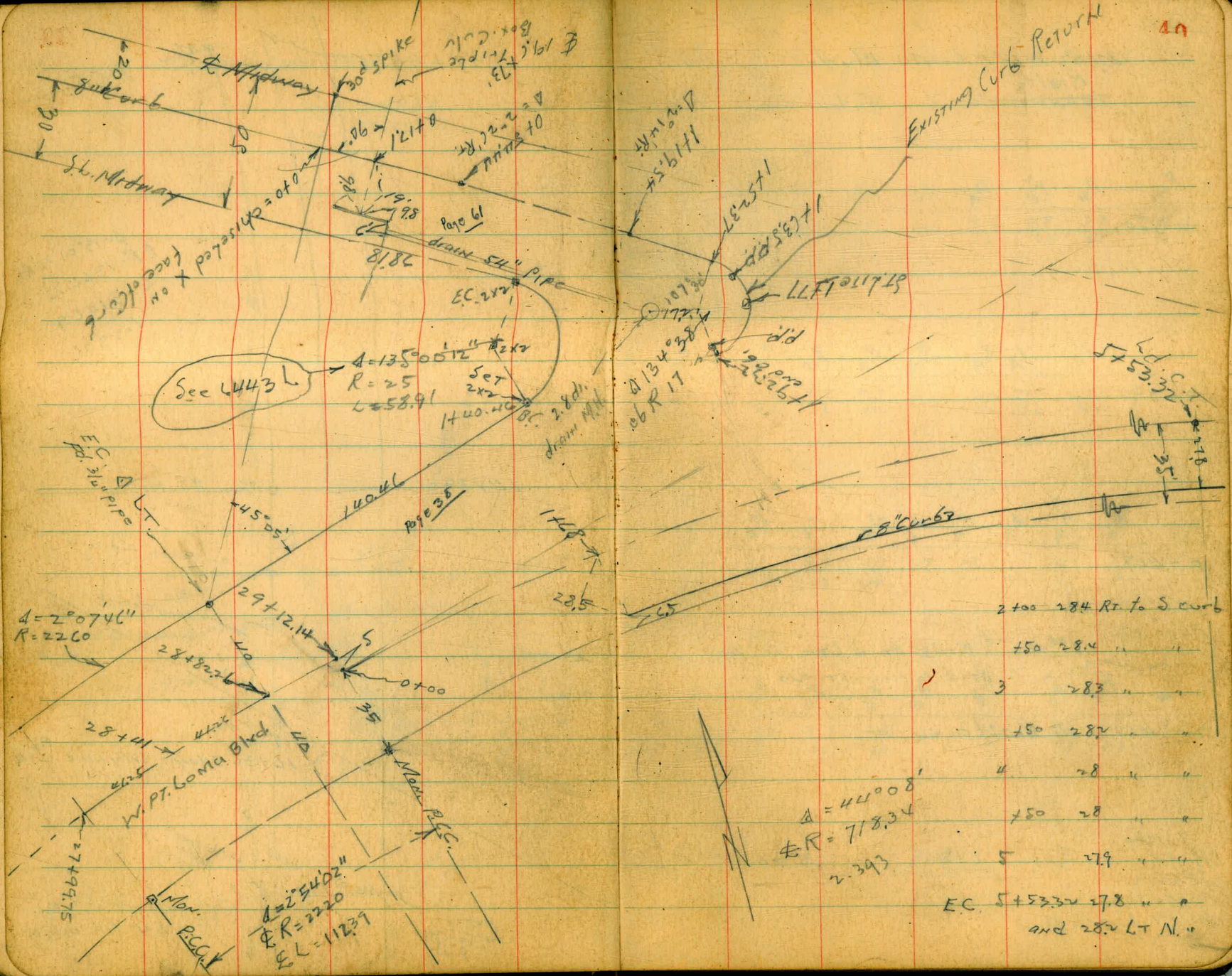
W. Pt. Loma Blvd.

$\Delta = 18^{\circ}50'$ LTT
 BR = 1910
 L = 27.82
 8999 : 11

Alvarado

B.C. & T.





See 4443 L
 $\Delta = 135^{\circ}05'12''$
 $R = 25$
 $L = 58.91$
 SET 2x2
 140.46
 2.8 di.
 drain M.H.

$\Delta = 2^{\circ}07'46''$
 $R = 22.60$
 $28 + 12.14$
 $28 + 82 = 6$
 $28 + 41$
 4125
 W. PT. Loma Blvd
 27 + 99.75
 Nov. P.C.C.T.
 $\Delta = 2^{\circ}54'02''$
 $R = 22.20$
 $EC = 112.39$

$\Delta = 44^{\circ}08'$
 $R = 718.34$
 2.393

2 + 00	284	Rt. to S curb
150	284	" "
3	283	" "
150	282	" "
4	28	" "
150	28	" "
5	27.9	" "
EC	5 + 53.32	27.8 " "
		and 28.2 LT N. "

EXISTING CURB RETURN



Xsec. W. Pt. Loma Blvd.
 Rialto
~~Tandula~~ to Midway

→ 350

0-390

0-417

Please Note! 1st & 2nd Rods Rt. + Lt. on Pav.
 Read to nearest 0.10

0-461.8 E Rialto ST.

Spike
 BM PP. 5.37 8.45 3.08
 SE Cor.
 Famosa +
 W. Pt. Loma Blvd.

LTEN

R7-5

41

4.4	4.2	3.4	6.1	4.1	4.0	4.7	4.1	4.7
4.1	4.3	5.1	4.6	4.4	4.5	4.8	3.8	3.8
4.0	2.5	2.3	1.0		1.0	2.5	2.7	4.0

4.5	4.5	3.8	4.3	4.5	4.5	4.1	4.1
4.0	4.0	4.7	4.2	4.0	4.0	4.4	3.4
4.0	2.5	2.3	1.0		1.0	2.6	4.0

4.5	4.9	4.2	4.6	4.8	4.8	4.4	4.4	5.4
3.4	3.6	4.2	3.9	3.7	3.7	4.1	4.1	3.1
4.0	2.5	2.3	1.0		1.0	2.3	2.7	4.0

5.5	5.5	4.8	5.3	5.5	5.4	4.9	5.9	6.0
3.0	3.0	3.7	3.2	3.0	3.1	3.6	2.6	2.5
4.0	2.6	2.2	1.0		1.0	2.0	2.8	4.0

8.45

0-100

0-150

0-200

0-250

0-300

Reduced to New Green Profile 4/11-1945

8#5
2

Lt

R

Rt

42

2.7	2.7	2.0	5	2.6	5	2.1	2.7	2.2
5.8	5.8	6.5	6.0	5.9	6.0	4.4	5.8	5.3
40	27	25	10	59	10	23	24	40

3.0	3.0	2.4	2.7	2.8	2.7	2.3	2.2	3.3
5.5	5.5	6.1	5.8	5.7	5.8	6.2	5.3	5.7
40	25	23	10	10	10	21	23	40

3.4	3.3	2.6	2.9	3.1	3.0	2.6	3.3	3.3
5.7	5.7	5.9	5.6	5.5	5.5	5.9	5.2	5.2
40	26	24	10	5	10	23	22	40

3.6	3.5	2.7	3.3	3.5	3.4	2.9	3.5	3.5
5.9	5.9	5.8	5.7	5.7	5.7	5.7	5.0	5.0
40	25	23	10	10	10	22	26	40

3.8	3.8	3.1	3.6	3.3	3.7	3.2	4.3	4.2
4.7	4.7	5.6	4.9	4.7	4.8	5.3	5.7	5.7
40	25	22	10	47	10	5	2	40

8#5
2

0 + 37.4 £ cb inlets on a 15°

W. end 10' cb inlets See sketch p. 27

0 + 35.8 £ Famosa Prod. nly

0 + 00 = Wly Famosa Produced nly

0 - 50

8.45

43

Lt			Rt		
-6.88	1.92	0.97	0.90	2.10	-5.86
15.33	6.53	7.48	7.55	6.35	14.31
6.9	cb	grate	grate	cb	5.25
4 pipe	28.9			28.8	4 pipe

1.91	1.00	1.17	2.08
6.54	7.45	7.28	6.37
cb	gr	gr	cb

1.4	1.6	0.9	1.5	1.8	1.6	1.1	1.6	1.5
7.1	6.9	7.6	7.0	6.7	6.9	7.4	6.9	7.0
40	27	26	10	4	10	25	28	40

1.8	1.6	1.1	1.5	1.7	1.6	1.1	1.5	1.3
6.7	6.9	7.4	7.0	6.8	6.9	7.4	7.0	7.2
40	26	26	10	8	16	23	26	40

1.7	1.5	1.3	1.8	2.0	2.0	1.6	2.2	2.6
6.8	7.0	7.2	6.7	6.5	6.5	6.9	6.3	5.9
40	26	26	10	45	10	22	25	40

8.45

2

+50

T.P. spike 3.48 4.56 5.37 3.08
B.M.

1400

0 + 70.37 Ely Famosa prod. nily

E end 10' 06" in 4075

8.45

L7

R

R7

44

1.6	1.5	0.8	1.2	1.4	1.2	1.1	1.8	1.9
5.0	5.1	5.8	5.2	5.7	5.4	5.5	4.8	4.7
40	26	22	10		10	23	27	40

1.3	1.3	0.9	1.0	1.3	1.2	0.8	1.7	1.5
5.3	5.3	5.7	5.6	5.3	5.4	5.8	4.9	5.0
40	26	22	10		10	24	27	40

6.56

1.2	1.3	0.9	1.1	1.3	1.1	0.7	1.3	1.1
7.3	7.2	7.6	7.4	7.2	7.4	7.2	7.2	7.6
40	25	22	10		10	25	27	40

1.4	1.5	0.9	1.2	1.4	1.3	0.9	1.7	1.5
7.1	7.0	7.6	7.3	7.1	7.2	7.6	6.8	7.0
40	26	23	10		10	25	27	40

1.91

0.97

1.17

2.08

6.56
26

7.48
57

7.28
91

1.37
90

8.45

+50

x

+50

2

x+50

6.50

1.6	1.9	1.4	1.8	2.0	1.9	1.4	1.9	2.0
5.0	4.7	5.2	4.8	4.7	4.7	5.2	4.7	4.6
40	25	22	10	47	10	23	26	40

1.7	1.7	1.1	1.6	1.9	1.7	1.2	1.6	1.9
4.9	4.9	5.5	5.0	4.7	4.9	5.4	5.0	4.7
40	26	23	10	47	10	23	26	40

1.7	1.7	1.1	1.5	1.8	1.7	1.2	1.7	1.6
4.9	4.9	5.5	5.1	4.8	4.9	5.4	4.9	5.0
40	26	22	10	48	10	23	26	40

2.0	1.6	1.1	1.5	1.7	1.6	1.2	1.9	1.9
4.6	5.0	5.5	5.1	4.9	5.0	5.4	4.7	4.7
40	25	22	10	49	10	21	26	50

1.8	1.6	1.0	1.3	1.6	1.6	1.1	1.6	1.7
4.8	5.0	5.5	5.3	5.0	5.1	5.5	5.0	4.9
40	24	22	10	50	10	24	26	40

6.50

7

T.P. 6.30 9.6v 3.24 3.3v

+50

6

+50

5

6.56

L+

R

R+

46

3.9	3.7	3.1	3.6	3.8	3.8	3.5	3.0	4.0
5.7	5.9	6.5	6.0	5.8	5.8	6.1	5.8	5.6
40	26	23	10		10	23	26	40

9.6v

3.8	3.6	3.0	3.4	3.1	3.6	3.1	3.5	3.4
2.8	3.0	2.6	3.2	2.7	3.0	3.5	3.1	3.2
40	26	23	10		10	23	26	40

3.3	3.1	2.6	3.1	3.3	3.2	2.7	3.2	3.3
3.3	3.5	4.0	3.5	3.3	3.4	3.9	3.4	3.3
40	26	22	10		10	23	26	40

3.0	2.7	2.1	2.7	2.9	2.8	2.3	2.8	2.9
3.6	3.9	4.5	3.9	3.7	3.8	4.3	3.8	3.7
40	27	23	10		10	26	27	40

2.5	2.3	1.7	2.2	2.4	2.4	1.8	2.3	2.5
4.1	4.3	4.9	4.4	4.2	4.2	4.8	4.3	4.1
40	27	23	10		10	23	26	40

6.56

9 2° 33.0

150 1° 48.0

8 1° 03.0

150 0° 18.0 LT

7430 BC, LT

9.62

LT R 47

4.8	4.6	4.4	4.6	4.9	4.9	4.7	4.9	4.9
4.8	5.0	5.2	5.0	4.7	4.7	4.9	4.7	4.7
40	21	19	10		10	24	26	40

4.9	4.9	3.8	4.2	4.5	4.5	4.1	4.3	4.2
4.7	5.2	5.8	5.4	5.1	5.1	5.5	5.3	5.4
40	25	21	10	5	10	24	20	40

4.2	4.1	3.6	3.9	4.2	4.3	4.0	4.4	4.3
5.4	5.5	6.0	5.7	5.6	5.3	5.6	5.2	5.3
40	25	22	10	5	10	23	26	40

4.0	3.9	3.5	3.8	4.1	4.1	3.8	4.2	4.6
5.6	5.7	6.1	5.8	5.5	5.5	5.8	5.4	5.0
40	25	22	10	35	10	23	22	40

4.0	3.8	3.3	3.7	4.0	4.0	3.7	4.0	4.2
5.6	5.8	6.3	5.9	5.6	5.6	5.9	5.6	5.4
40	22	23	10	35	10	23	27	40

9.62

T.P. 1.88 7.03 4.47 5.15

12 7°02.9

+50 6°17.9

11 5°32.9

10 + 91.3

10 + 75.3 Fly cb Addition

962
12

L+

R

R+

49

3.4	3.7	3.9	4.2	4.2	3.8	3.0
6.2	5.9	5.7	5.4	5.4	5.8	6.6
4.0	6.1	5.0	5.4	5.0	2.3	4.0

4.4	4.1	3.9	4.2	4.6	5.5	4.1	3.5
5.2	5.5	5.7	5.6	5.0	5.1	5.5	6.1
5.0	5.2	6.1	5.0	5.0	5.0	2.6	6.0

4.4	4.5	4.2	4.5	5.0	5.1	4.9	4.9
5.2	5.1	5.4	5.1	4.6	4.5	4.7	4.7
6.0	2.5	1.9	1.0	4.6	1.0	2.3	4.0

5.02

4.60
33.5
47

5.47

4.5
23.5
cb end

4.6	4.7	4.5	4.8	5.0	5.1	5.1	5.14	5.61	5.29	5.82	6.10	6.55
-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------

5.0	4.9	5.1	4.8	4.6	4.5	4.5	4.48	4.01	4.33	3.80	3.54	3.07
5.0	2.5	1.0	1.0	1.0	1.0	2.0	3.85	3.85	5.93	5.93	1.00	1.00
							97	06	59.97	06	97	06
								80				

961
12

+415 24" Culv.

-1.52
 8.55
 50.5
 E.L. 24" P.P.

14

9°25'0
 13 + 57.82 EC. Beg. here; storm ditch
 drains low point at Chapman
 on N. side w. of Loma Blvd.
 approx 10' N of N. edge Pav.
 this is dangerous if not barricaded;
 should be filled back.
 13 = 8°32.9

12 + 50 7°47.9

7.03

	Lt		C		Rt		50	
2.5	2.4	2.8	2.9	3.3	3.3	2.8	2.4	2.01
4.5	4.6	4.2	4.1	3.7	3.7	4.2	4.6	5.0
40	25	19	10		10	22	40	50

50
50
53
6.1"
ditch

2.0	2.7	2.9	3.0	3.4	3.4	3.1	3.0	2.4
5.0	4.3	4.1	4.0	3.6	3.6	3.9	4.0	4.6
40	23	18	10	26	10	21	30	40

2.0	2.8	2.9	3.1	3.4	3.4	3.2	2.9
5.0	4.2	4.1	3.9	3.6	3.6	3.8	4.1
40	24	18	10	30	10	22	40

2.6	3.1	3.4	3.7	3.6	3.2	3.4
4.4	3.9	3.6	3.3	3.4	3.8	3.6
40	20	10	33	10	22	40

2.8	3.4	3.5	3.6	4.0	4.0	3.6	3.4
4.2	3.6	3.5	3.4	3.0	3.0	3.4	3.6
40	25	19	10	30	10	22	40

7.03

TR

4.50

6.80

4.73

2.30

17

1.50

16

1.50

15

7.03

LT

R

R

51

2.0	1.2	1.6	1.7	1.9	1.8	1.6	2.1
5.0	5.8	5.4	5.3	5.1	5.2	5.4	4.9
40	24	18	10	15	10	21	40

2.2	1.6	1.8	2.0	2.2	2.2	1.9	2.3
4.8	5.4	5.2	5.0	4.8	4.8	5.1	4.7
40	25	19	10	18	10	22	40

2.2	2.0	2.1	2.5	2.5	2.1	1.7
4.8	4.5	4.9	4.5	4.5	4.9	5.3
40	18	10	45	10	22	60

2.5	2.3	2.4	2.8	2.8	2.2	1.4
4.5	4.7	4.6	4.7	4.7	4.8	5.0
40	18	10	45	10	22	40

2.0	2.5	2.6	3.1	3.0	2.5	2.3
5.0	4.5	4.6	3.9	4.0	4.4	4.7
40	21	10	35	10	22	40

7.03

+17.2 G.I. ditch on S. side end here

+50

+25

18 ditch on N side ends here

17+50

6.80

5.0
1.8

Lr

R

R+

	1.6	1.48	1.85
5.2	5.32	4.95	
	17.7	17.7	
	97	cb end	

1.4	1.4	1.2	1.1	1.4	1.6	1.5	1.2	1.5	1.6
5.4	5.4	5.6	5.7	5.4	5.2	5.3	5.6	5.3	5.2
40	29	25	19	10	5.2	10	18	20	40

1.5	1.2	1.0	1.2	1.4	1.6	1.5	1.1	1.6
5.3	5.6	5.8	5.6	5.4	5.2	5.3	5.7	5.2
40	18	25	16	10	5.2	10	19	40

1.7	1.3	1.0	1.3	1.5	1.6	1.6	1.3	1.6
5.7	5.5	5.8	5.5	5.3	5.2	5.2	5.5	5.2
40	29	27	17	10	5.2	10	19	40

1.8	1.0	1.4	1.5	1.8	1.6	1.4	2.0
5.0	5.0	5.4	5.3	5.0	5.2	5.4	4.8
28	26	18	10	5.0	10	19	40

6.80

+50

1292

19+14.2

18+98.2 & Chapman

+822

6.80

Lt R+ R+

1.8	1.6	1.3	1.6	1.8	1.6	1.6	2.1
<u>5.0</u>	<u>5.2</u>	<u>5.5</u>	<u>5.2</u>	<u>5.0</u>	<u>5.2</u>	<u>5.2</u>	<u>4.7</u>
5.0	2.5	2.1	1.0	5.0	1.0	1.8	4.0

1.7	1.38	1.85
5.1	5.44	4.95
	17.7	17.7
	97.	cb end

1.6	1.6	1.6	1.6	1.79	2.26	1.84	2.30
<u>5.2</u>	<u>5.2</u>	<u>5.2</u>	<u>5.2</u>	<u>5.0</u>	<u>4.74</u>	<u>4.96</u>	<u>4.50</u>
5.2	1.0	1.8	2.9	3.7	3.7	4.0	4.0
			97	97	97	97	cb

0.00	2.32	2.81
6.80	FL. 8" grate	4.48
	Pipe in Box	100
		97
		100
		cb

1.6	1.2	1.8	1.5	1.6	1.6	1.6	1.95	2.73
<u>5.2</u>	<u>5.0</u>	<u>5.0</u>	<u>5.3</u>	<u>5.2</u>	<u>5.2</u>	<u>5.2</u>	<u>4.85</u>	<u>4.07</u>
5.0	2.5	1.9	1.0	5.0	1.0	1.8	4.0	100

good oil pav

1.6	1.5	1.55	1.67	2.24	1.59	2.29
<u>5.2</u>	<u>5.2</u>	<u>5.5</u>	<u>5.3</u>	<u>4.56</u>	<u>5.21</u>	<u>4.51</u>
5.2	1.0	1.8	3.7	3.7	4.7	4.7
			97	cb	grate	cb

2.29	2.78
4.51	4.04
100	100
97	cb

6.80

T.P.

4.92

8.35

3.37

3.43

22

+50

21+14

37' RT. Fl., 4" drain 4.98

1.82

21

+50

20

6.80

L

R

RT

54

2.2	2.1	2.0	2.1	2.4	2.2	2.0	2.4	2.4	2.3
$\frac{4.6}{40}$	$\frac{4.7}{26}$	$\frac{4.8}{22}$	$\frac{4.7}{10}$	$\frac{4.1}{11}$	$\frac{4.6}{10}$	$\frac{4.8}{20}$	$\frac{4.4}{23}$	$\frac{4.4}{30}$	$\frac{3.5}{40}$

2.2	2.1	1.7	2.1	2.3	2.1	2.0	2.1	3.1
$\frac{4.6}{40}$	$\frac{4.7}{25}$	$\frac{5.1}{23}$	$\frac{4.7}{10}$	4.5	$\frac{4.7}{10}$	$\frac{4.8}{17}$	$\frac{4.7}{25}$	$\frac{3.7}{40}$

2.4	2.3	1.6	1.9	2.1	1.9	1.8	1.9	2.8
$\frac{4.4}{40}$	$\frac{4.5}{26}$	$\frac{5.2}{23}$	$\frac{4.9}{10}$	4.7	$\frac{4.9}{10}$	$\frac{5.0}{19}$	$\frac{4.9}{25}$	$\frac{4.0}{40}$

2.1	1.7	1.5	1.8	2.0	1.7	1.6	1.8	2.4
$\frac{4.7}{40}$	$\frac{5.1}{27}$	$\frac{5.3}{22}$	$\frac{5.0}{10}$	4.8	$\frac{5.1}{10}$	$\frac{5.2}{19}$	$\frac{5.0}{25}$	$\frac{4.4}{40}$

2.0	1.4	1.5	1.7	1.9	1.8	1.6	1.8	2.2
$\frac{4.8}{40}$	$\frac{5.4}{26}$	$\frac{5.3}{20}$	$\frac{5.1}{10}$	4.9	$\frac{5.0}{10}$	$\frac{5.2}{16}$	$\frac{5.0}{25}$	$\frac{4.6}{40}$

6.80

Lx

P

P

+50

31	30	34	38	40	41	37	38
53	54	50	46	44	43	47	46
40	30	21	10		10	27	40
		P				P	

24

22	26	30	33	36	36	34	34
62	59	54	51	48	48	50	50
40	30	22	10		10	26	40

+50

24	27	29	32	32	30	36
60	57	55	52	52	54	48
40	22	10		10	25	40

27

23	21	25	29	28	25	29	36
61	62	59	55	56	59	56	49
40	21	10		10	22	30	40

22+50

18	21	22	26	25	23	24	31
66	63	62	58	59	61	60	53
40	19	10		10	20	30	40

835

835

L_r E R_r

v8 + 8 v.w.l end Curve + Δ to L.T. on N.L.

5.9	5.6	5.3	5.9	6.0	6.4	6.3	6.1	5.6	5.9
4.5	4.6	5.1	4.5	4.4	4.0	4.1	4.3	4.6	4.7
40	30	20	10		10	20	30	37	40
			P					P	

v8 + 41

5.9	5.6	5.2	5.8	6.0	6.3	6.3	5.8	5.9
4.5	4.8	5.2	4.6	4.4	4.1	4.1	4.6	4.7
40	30	22	8		10	20	37	40
			P				P	

v7 + 99.75 P.C.C. C° 30.75

5.1	5.6	5.2	5.6	5.8	6.2	6.2	6.1	5.8	5.8
4.7	4.8	5.2	4.8	4.6	4.4	4.2	4.3	4.6	4.6
40	30	20	7		10	20	30	38	40
			P					P	

+50 5° 28.0

5.1	5.1	5.1	5.5	5.1	6.0	6.1	5.9	5.6
4.7	4.7	5.3	4.9	4.7	4.4	4.3	4.5	4.8
40	30	16	9		10	20	30	40
			P					P

T.P. 4.42 10.35 2.42 5.93

10.35

v7 4° 25.2

5.2	5.2	5.1	5.3	5.1	5.9	5.2
3.2	3.2	3.7	3.1	2.7	2.5	3.2
40	20	14		10	20	40
		P				P

8.35

8.35

Sec. on LT to P.I. N6 Blvd
+ S.W. Midway

1+68 $6^{\circ}42'$
= end cb. on S. and
Beg. of 6" Con. Base + 2" W.S. to 12" W.S.

66
5.4
68.

150 $5^{\circ}59.0$ NL.
1188 on Tan. = $\frac{5.5}{53}$

1 $3^{\circ}59.3$ 1140 NL.
8C. on NL. = $\frac{6.0}{54}$

B.M.B.P.
T.P. Box Curve on Midway
9.10 12.00 7.45 290 290

0+50 $10^{\circ}59.6$ 0+85
on NL. = $\frac{4.6}{48}$

0+00 = 40' E + 5'S = 35' E into Midway
29+2.14 PCC on S.W.

See Sketch
Also See L443 L

10.35

6.30	6.45	6.68	6.62	6.40	6.09	5.73	5.26	5.74
5.70	5.55	5.32	5.38	5.60	5.91	6.27	6.74	6.26
46	30	20	10		10	20	28.5	66
P							9T	

6.20	6.30	6.47	6.47	6.37	6.12	5.70	5.47	5.6
5.80	5.70	5.53	5.53	5.13	5.88	6.30	6.53	6.4
42	30	20	10		10	20	29	35
P							P	

6.0	5.80	6.20	6.23	6.33	6.10	5.83	5.47	5.7
6.0	6.20	5.80	5.77	5.47	5.90	6.17	6.53	6.3
40	34	20	10		10	20	28	35
	P						P	

12.00

6.1	5.8	5.6	6.1	6.3	6.3	6.1	5.8	5.8
4.3	4.8	4.8	4.3	4.7	4.7	4.3	4.6	4.6
40	30	23	10	Now 35'	10	20	29	35
		P					P	

6.0	6.1	5.4	5.7	6.0	6.2	6.1	6.3	6.1	5.9	5.7
4.4	4.3	5.2	4.7	4.4	4.4	4.0	4.1	4.3	4.5	4.7
40	30	20	11	5	5	10	20	30	30	40
		P							P	

35' E to Midway

10.35

L1 15° 57.2

f50 13° 57.5

3 11° 57.9

f50 9° 58.2

4 + 00 7° 58.6

12.00

L1

R

Pt

59

4.98	4.80	4.39	3.82	3.13	3.78
702	720	7.01	8.18	8.87	8.22
15		10	20	28	26

6.44	6.20	5.63 = 5.73	5.19	4.57	3.91	4.48
5.56	5.80	6.37	6.81	7.43	8.09	7.52
2	15		10	20	28	26

7.19	6.79	6.15	5.64	5.09	4.39	4.99
4.81	5.21	5.85	6.30	6.91	7.61	7.01
30	15		10	20	28	26

6.74	7.04	6.88	6.44	6.00	5.47	4.96	5.40
5.20	4.90	5.12	5.56	6.00	6.55	7.02	6.60
50	30	15		10	20	28	26

6.67	7.00	6.79	6.39	6.10	6.69	5.00
5.33	5.00	5.21	5.61	5.90	5.31	7.00
50	30	15		10	20	28

12.00

R.

97. in drive

next page

TR. DP.

Box Culv. 8.17 11.07 9.10 290

5 + 5332 E.C. 2204.0

5 19° 56.5

4 + 50 17° 56.8

12.00

Lr

+

Rt.

60

1.77 1.63 1.37 1.04 1.67

1023 $\frac{1037}{10}$ $\frac{1063}{20}$ $\frac{1096}{97}$ $\frac{1033}{26}$
278

2.68 2.54 2.20 1.80 2.25

932 $\frac{920}{10}$ $\frac{980}{20}$ $\frac{1020}{279}$ $\frac{975}{97}$
27

3.75 3.63 3.39 2.94 2.42 2.94

825 $\frac{837}{10}$ $\frac{861}{20}$ $\frac{901}{28}$ $\frac{958}{97}$ $\frac{906}{26}$

12.00

Levels on Midway Nly from
W. Pt. Love Blvd.

0+87

0+54.44 Δ 2' 26" RT Sec on Split A

0+00 see Sketch, P. 40

Note Sta. 15 on Sty Curb Line

0-50

0-100

1107 fwd
fr. P. Co

INDEXED
C.S.K.

LT = Nly

Baseline = Curb 65

5.34	4.68	5.05	5.18	5.16	5.04	5.7A	RT
5.73	6.39	6.02	5.89	5.91	6.03	5.33	6.2
4.8	4.8	30	20	10	9T		4.9
06	9T						30

4.98	4.32	4.67	4.84	4.77	4.53	5.18	6.1
6.09	6.75	6.40	6.23	6.30	6.54	5.89	5.0
40	40	30	20	10	9T		30
06	9T						

3.87	4.12	4.21	4.15	3.94	4.59
7.20	6.95	6.80	6.90	7.13	6.48
40	30	20	10	9T	
9T					

3.52	3.80	3.88	3.78	3.61	4.19
7.55	7.27	7.19	7.29	7.46	6.88
40	30	20	10	9T	
9T					

3.21	3.50	3.70	3.57	3.38	3.97
7.80	7.57	7.37	7.50	7.59	7.10
40	30	20	10	9T	
9T					

11.07

Ex. cb. Ret. Should be cut back
Please Notify "James Reading"

1+9232 E.C. end Ret

1+77

Reduced 4/11/45
Green Profile

1+635

1 9232
5231
3995

1+5237 B.C. of Ex. cb. Ret.

1+1954 A v 14' RT Sec. on split A

1107

end curb
on st.

LT

B.L. = curb 62

6.84	6.63	6.48	6.30	6.71	RT ₁
4.23	4.44	4.59	4.77	4.30 = end cb	
30	20	10	97		

6.71	6.70	6.51	6.24	6.53
4.30	4.37	4.50	4.83	4.24
30	20	10	97	

6.47	6.44	6.34	6.16	6.75
4.60	4.63	4.73	4.91	4.32
30	20	10	97	

5.64	5.92	6.05	6.14	6.17	6.08	6.59
5.43	5.15	5.02	4.93	4.90	4.99	4.48
51.1	40	30	20	10	97	

edge
Pav.

5.60	5.22	5.54	5.70	5.79	5.67	6.23	6.4
5.47	5.85	5.53	5.37	5.28	5.40	4.84	4.7
437	432	30	20	10	97		30

cb

1107

Paving Levels on Midway
at Frontiers CSN 5-21-45

+25 Bcy. recent tarring

+100

+75

+50

+25

+5237 B.C. = 0+100 See p. 62 for section

B.M. B.P.
Top of wall
Culv. on
Midway

6.12

9.12

2.90

Reduced 5-21-45
Put on Midway Dr. Green

LT.

RT.

RT. = 63

To S.

6.77	7.08	7.32	7.32	7.19	7.14
2.35	2.04	1.80	1.80	1.93	1.98
28	14		14	23	30

6.71	6.65	6.81	6.96	7.07
2.41	2.47	2.31	2.14	2.05
28	14		14	28

6.64	6.74	6.73	6.70	6.75
2.48	2.38	2.39	2.42	2.37
28	14		14	28

6.91	6.51	6.57	6.64	6.70
2.81	2.51	2.55	2.48	2.42
28	14		14	28

5.90	6.19	6.31	6.42	6.43
3.22	2.93	2.81	2.70	2.69
28	14		14	28

9.12
1/2

5

+75

+50

+25

2

+75

+50

9.12

LT								
3.70	3.95	3.99	3.72	2.98	2.82	2.48	3.00	64
$\frac{5.42}{28}$	$\frac{5.17}{14}$	5.13	$\frac{5.40}{14}$	$\frac{6.14}{28}$	$\frac{6.30}{30}$	$\frac{6.64}{97}$	$\frac{6.12}{6}$	

4.25	4.53	4.59	4.43	3.66	3.51	2.83	3.45
$\frac{4.87}{28}$	$\frac{4.59}{14}$	4.53	$\frac{4.79}{14}$	$\frac{5.26}{28}$	$\frac{5.21}{30}$	$\frac{6.29}{97}$	$\frac{5.47}{6}$

4.90	5.16	5.25	4.98	4.36	4.21	3.86	3.82
$\frac{4.22}{28}$	$\frac{3.97}{14}$	3.87	$\frac{4.14}{14}$	$\frac{4.76}{28}$	$\frac{4.91}{30}$	$\frac{5.86}{97}$	$\frac{5.30}{6}$

5.49	5.16	5.91	5.68	5.09	4.97
$\frac{3.63}{28}$	$\frac{3.36}{14}$	3.21	$\frac{3.44}{14}$	$\frac{4.03}{28}$	$\frac{4.15}{30}$

5.99	6.37	6.55	6.35	5.73	5.59
$\frac{3.13}{28}$	$\frac{2.75}{14}$	2.57	$\frac{2.77}{14}$	$\frac{3.39}{28}$	$\frac{3.53}{30}$

6.62	6.94	7.10	6.93	6.36	6.25
$\frac{4.50}{28}$	$\frac{2.18}{14}$	2.02	$\frac{2.19}{14}$	$\frac{2.76}{28}$	$\frac{2.87}{30}$

7.00	7.30	7.42	7.29	6.86	6.80	- X
$\frac{2.12}{28}$	$\frac{2.82}{14}$	1.70	$\frac{1.83}{14}$	$\frac{2.24}{28}$	$\frac{2.32}{30}$	

9.12

Lt \$ Pt

150

	0.79	1.27	1.43	1.17	0.62	1.22
drive	8.33	7.85	7.69	7.95	8.50	7.90
cb	28	14		14	28	cb
	97					

125

	1.11	1.55	1.70	1.46	0.79	1.29
drive	8.01	7.57	7.42	7.50	8.33	7.83
cb	28	14		14	28	cb
	97				97	

4 = approx 1' Wly of E.C. on S. side Midway

2.06	1.55	1.93	2.09	1.83	1.11	1.17	1.60
7.06	7.57	7.19	7.03	7.29	8.01	7.45	
cb	28	14		14	28	cb	
					97		

175

	2.02	2.39	2.51	2.25	1.47	1.92
drive	7.10	6.73	6.61	6.87	7.15	7.20
cb	28	14		14	28	cb
					97	

150

	2.18	2.62	2.88	2.96	2.68	1.92	1.79	2.25
5.94	6.50	6.24	6.16	6.44	7.20	7.33	6.87	
cb	28	14		14	28	28	cb	
						97		

3+25

3.65	3.12	3.39	3.46	3.18	2.37	2.07	
5.47	6.00	5.73	5.66	5.94	6.75	7.05	Drive
28	28	14		14	28	32	cb
					97		

9.12

9.12

LT

£

RT

Stop = £ cb inlets to RT + LT.

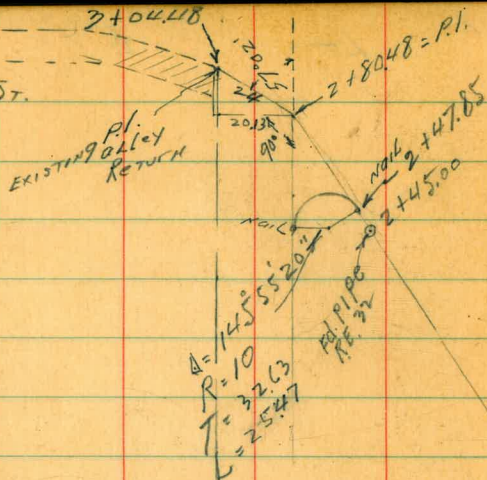
4+75

9.1~

1.01	0.29	1.14	1.30	1.04	0.35	-0.08	0.96
8.11	8.83	7.98	7.8~	8.08	8.77	9.~	8.15
cb	RT	LT		LT	RT	RT	cb
	0.52	1.16	1.29	1.04	0.49		
drive	8.50	7.95	7.81	8.08	8.53	cb	
cb	28	14		14	37	drive	
			9.1~				

X See ROSECRANS ST.
AT CADIZ ST.

C. Mace
S. Mace
W. F. M.
8-20-45.

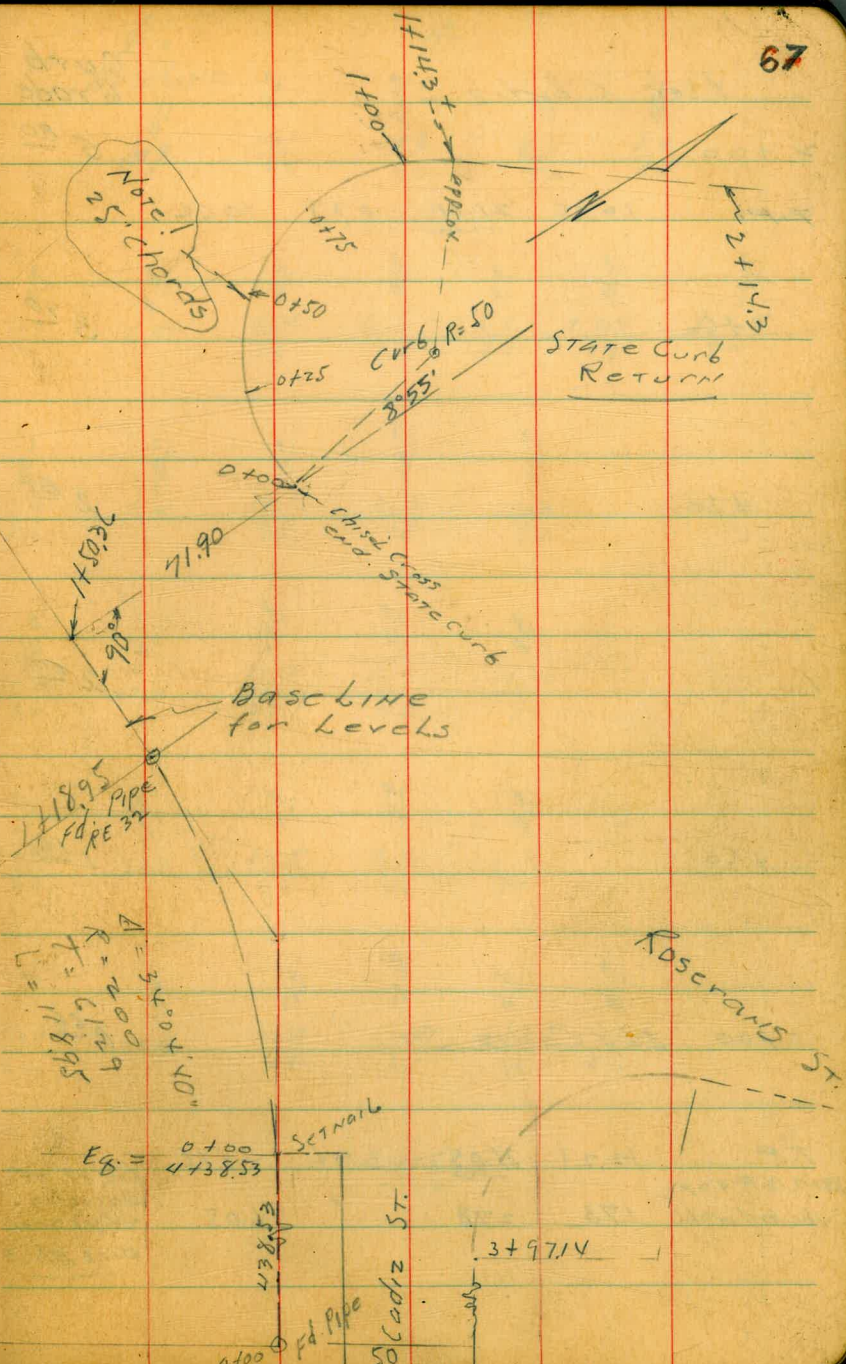


$\Delta = 145^\circ$
 $R = 10$
 $T = 32.63$
 $L = 25.47$

PO. PIPE

130

Note!
25' Chords



Baseline
for Levels

State Curb
Return

Curve R=50

$\Delta = 189^\circ$
 $R = 20$
 $T = 11.895$
 $L = 10.0$

Grade laid by
Mc. Rice & Jorgensen
8-24-45

Ed. C. F. P.
on Curb
See TIES
Dumb Book

ROSECRANS ST.

Set Nail

Eg. = 0+00
4+138.53

3+97.14

Ed Pipe

50 Cadiz St.

1 sec Cadiz St.

Curb
Grade

+100

5 80

T.P.

10.45 21.11 0.39 10.66

+160

3 90

+300

2 84

1

2 00

+50

1 16

0+00

Ely Cadiz St.

0 66

T.P.
B.M. B.P. Top
Curb. hd well

12.21 11.05 3.94 -1.16
1.73 2.78 1.05

100' N of
BARNETT
ELYTON
Bill Bliss

± =
Baseline

Rt.

10.31	11.9	10.3	12.5	11.1
10.8	10.1	10.8	8.5	8.0
	25	40	50	20

21.11

6.5	6.5	6.5	6.5	6.6	10.5	10.5
10	15	25	35	49	50	50

11.4	11.4	11.1	0.3	0.3
10	25	48	50	50

12.0	12.0	11.7	1.4	1.4
20	25	48	50	50

12.6	12.6	12.5	1.4	1.4
20	25	45	50	50

12.9	12.9	12.7	12.4	6.8	2.3
20	25	37	50	60	60

11.05

Mail
T.P. P. pole
0 + 10

12.98 33.35 0.74 20.37

0 + 00
4 + 38.53 =

Eq. 97 B.C. LT,

20 95

+ 97.14

18 25

+ 50

15 18

+ 25

13 55

3

11 92

+ 50

8 66

21.11

\$
Baseline

R.T.

10.3
1.8

10.0
2.1
25

19.1
2.0
50

18.9
2.1

17.2
3.4
25

17.6
3.3
50 = B.C. on N.L.

16.5
4.0

16.5
4.5
25

16.5
4.2
50

14.5
6.5

14.5
6.5
50

16.0
5.1
10

4.7
25

3.5
5.2
50

13.9
7.4

14.1
7.0
15

15.3
5.8
25

5.7
50

13.1
8.0

13.1
8.0
25

13.7
7.4
50

21.11

3 + 04.48 Ex. Ret. P.I.

37.60
2.28
Top cb.

2 + 80.48 = P.I. on NL alley

37.60
2.24
20
Top cb end

36.9
3.0
20
9.07

20' S of E.C. = SL alley Garage door sill

10' S of E.C. = E alley

Prop. E.C. on NL alley B/k. Pav

2 + 72.83 E.C.

36.70

+ 59.39

Δ - 77.00

36.43

R - 20'

1 + 47.85 New Prop. B.C.

T - 15.91

2 + 45.95 B.C.

L - 26.88

35.82

2 + 25

34.59

39.88

37.14
2.71
9.07

R.

71

36.6
3.3
10
2
alley

36.5
3.4

36.1
3.0
20

35.6
4.3
10

35.5
4.4

35.1
11.8

35.3
4.6
19
edge
pav.

35.8
4.1
3.5
pav.

36.9
3.0
5.5
pav.

34.0
5.9

34.5
4.8
2.4
pav.
edge

35.1
4.2
4.5
pav.

36.1
4.3
4.8
pav.

39.88

STATE CURB RETURN See Sketch

7 + 14.3

1 + 4.3

1 + 14.3 + EC

1 + 00

+ 75

+ 50

+ 25

0 + 00

39.88

~~39.88 X
0.13~~

~~39.75 TP
5.81~~

~~45.06 X~~

~~3/6~~

~~44.46 ON~~

~~BM SW
LITTLE +
POSTGRANS
41.75
0.29~~

~~45.06 X~~

~~1.91~~

~~43.15 TP~~

See Page Next

~~37.26~~

~~3.12~~

~~90T~~

~~37.26~~

~~1.95~~

~~90T~~

~~38.48~~

~~1.40~~

~~90T~~

~~38.48~~

~~1.06~~

~~90T~~

~~38.48~~

~~3.50~~

~~90T~~

~~38.48~~

~~3.34~~

~~1.34~~

~~90T~~

~~38.48~~

~~30.66~~

~~30~~

~~9.22~~

~~90T~~

~~28.31~~

~~11.51~~

~~90T~~

~~37.26~~

~~2.47~~

~~06~~

~~38.48~~

~~1.25~~

~~06~~

~~38.48~~

~~0.76~~

~~06~~

~~38.48~~

~~1.98~~

~~06~~

~~38.48~~

~~1.87~~

~~06~~

~~38.48~~

~~1.72~~

~~06~~

~~38.48~~

~~8.57~~

~~06~~

~~38.48~~

~~10.91~~

~~06~~

~~38.48~~

~~10.91~~

~~06~~

~~38.48~~

~~10.91~~

~~06~~

~~38.48~~

39.88

check Bench Marks

3988

T.P.	581	4506	063	3925	
check to B.M. SW Cor.			360	41.46	41.75 -0.29 Low
T.P.	966	5281	191	4315	
T.P.	1055	6257	079	5202	
check to B.M. SW Cor.			151	61.06	61.16 -0.10 Low
T.P. ^{ON} B.M. B.P.	1096	7202	151	61.06	
T.P.	851	7686	367	6835	
check to S.E. B.P. B.M.			308	73.78	73.88 -0.10 Low

check Back to starting B.M.

	1.77	43.23		41.46	
T.P.	0.94	31.08	13.09	30.14	
T.P.	1.58	21.33	11.33	19.75	
T.P.	1.73	10.10	12.96	8.37	
check to starting B.M.			9.01	1.09	1.05 -0.04

73

Rosecrans & Lytton This is a State B.M. ^{IRON} Bolt ^{14CB.}
old City B.M. was destroyed by
a STATE CURB INLET.

Evergreen & Lytton

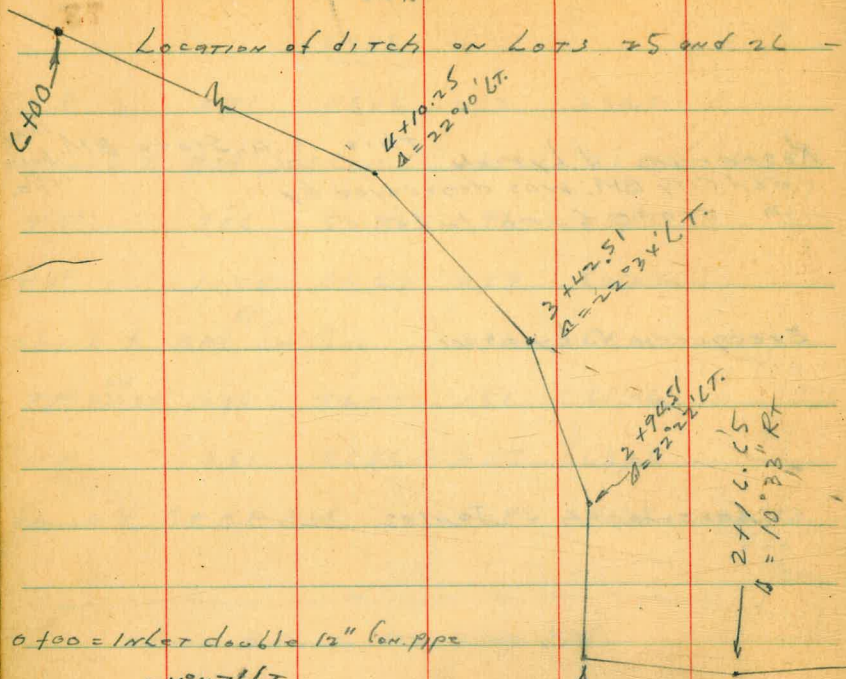
Charworth & James

SW B.M. Rosecrans & Lytton

Bill Bliss B.P. Top. Culv. Hdwh. 100' N of Lytton & Barnett
B.M. for Sewers

INDEXED
C.S.K.

Location of ditch on Lots 25 and 26 -



0+100 = Inlet double 12" Con. pipe

1+08.8 = 24°47' LT.
outlet single 10" I.P. drain
at Beg. of ditch

1+49.31 A 7°21' RT

1+70.61 A 15°18' LT

2+16.65 A 10°33' RT

2+55.31 A 84°42' RT

2+94.51 A 22°22' LT

3+42.51 A 22°34' LT = Beg. of Natural Water Way

4+10.25 A 22°10' LT

C+100 = IN FLAT Marsh

Boulevard Gardens

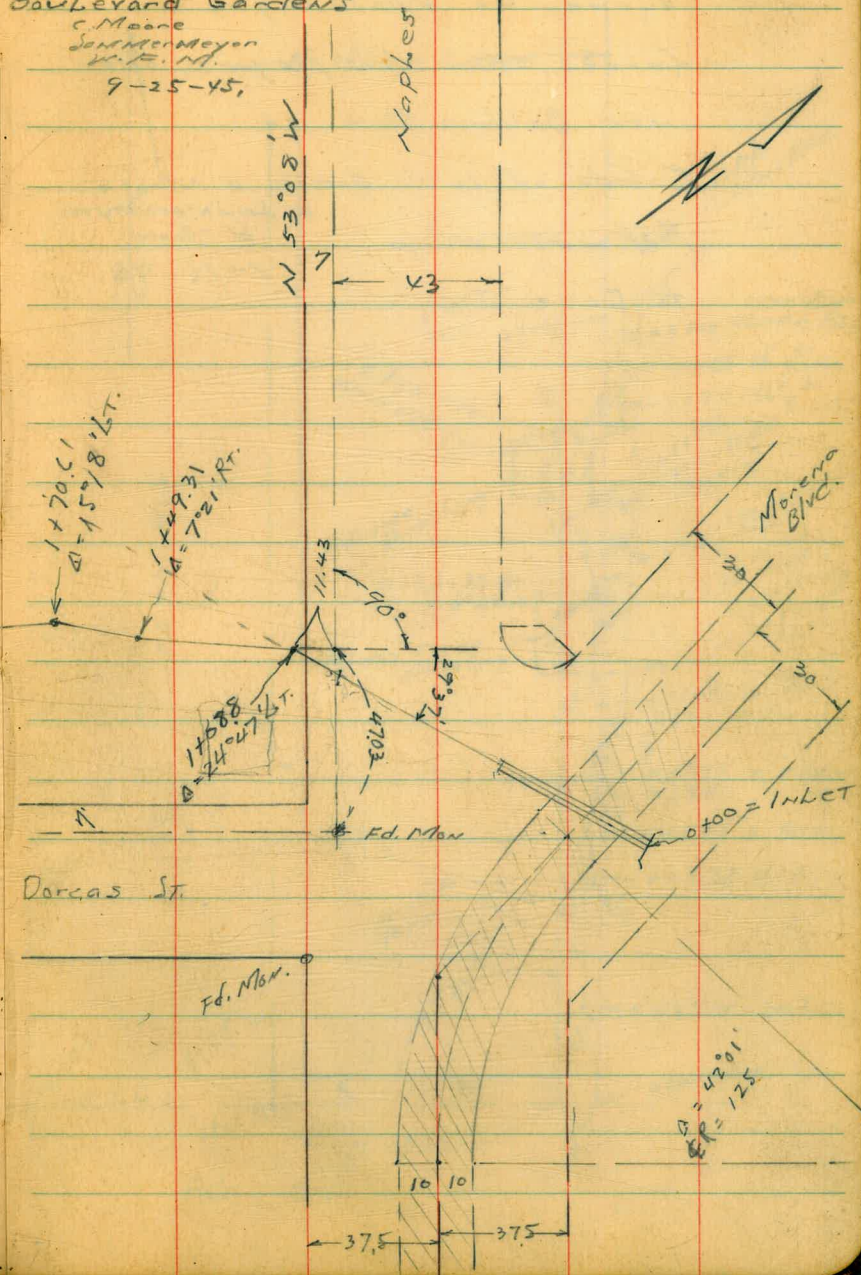
C. Moore
Sonne-Meyer
W.F.M.

9-25-45

Fd. Man.

Wilson = Vega St.

74



1+70.61
A = 15°18' LT.

1+49.31
A = 7°21' RT.

1+16.65
A = 10°33' RT.

2+55.31
A = 84°42' RT.

2+16.65
A = 10°33' RT.

11.43
A = 90°

293.21
A = 47°03'

Fd. Man.

Darcas St.

Fd. Man.

C+100 = INLET

A = 42°01'
R = 125'

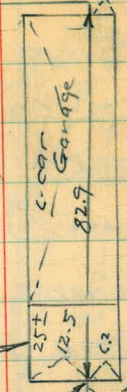
37.5 37.5

Cedar St. Contd. P. 77

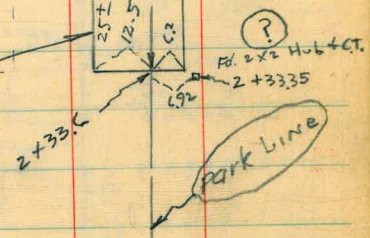
9' closing



ALTA MIRA APTS.

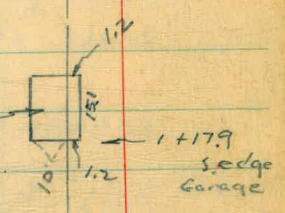


Dwelling



10th Ave

1 1/2 x 15.1
Bd Garage



Fd. Ld. CT.

Beech St. 77.11

0+00
Fd. Nail on Foot Bridge

INDEXED

JEP

Jan 19 1953

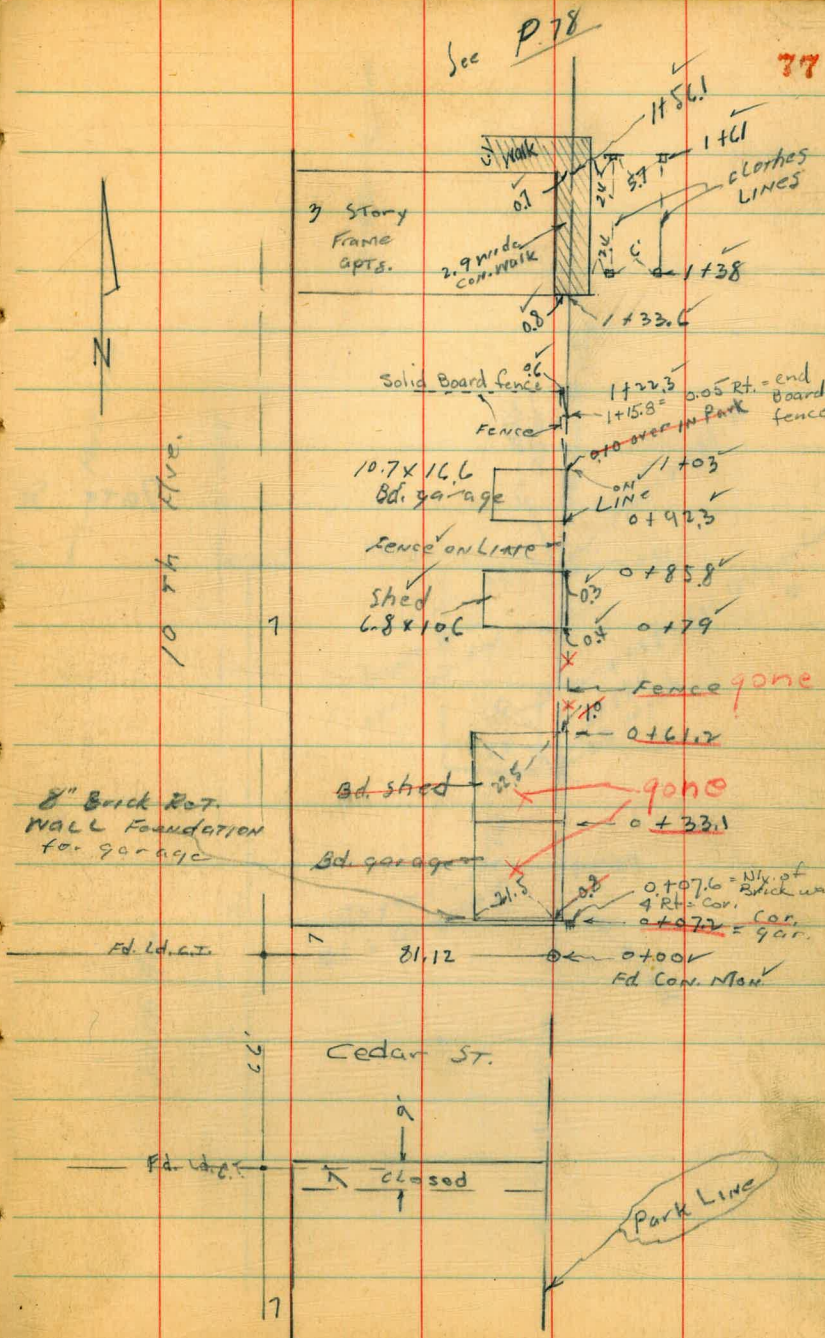
Check Survey of Park Line Bet. Cedar
+ Date + location of Sheds.

W.O. 20005 - 2-20-56 7.0.

See changes Noted on Sketch - P. 77 + 78

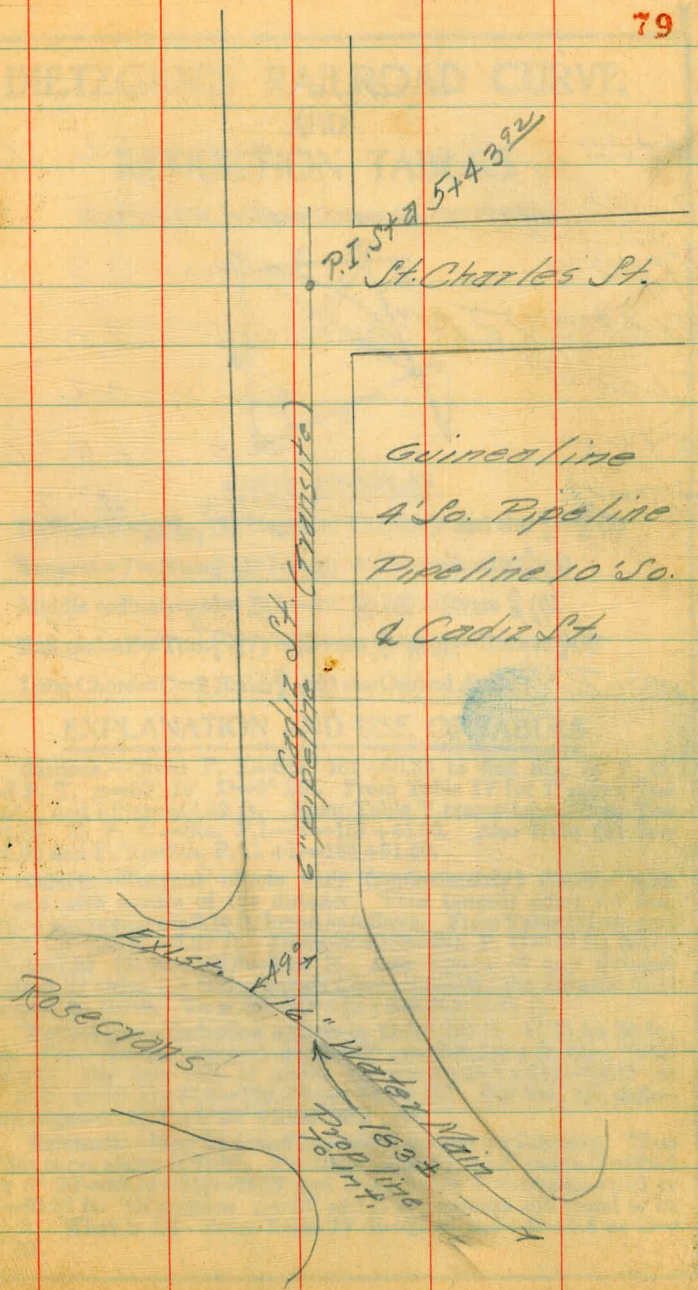
✓ = loc. Same

X - = Now gone



Cádiz St. Pipeline

	SE. Cor. NTC Gate		
	B.M. INT. Barnett + Lytton 2.69		
	5.26	7.95	
T.P.#1		3.45	4.50
	4.66	9.16	
T.P.#2		0.49	8.67
	12.26	20.93	
T.P.#3		0.25	20.68
	8.94	29.62	
0+00		1.7	27.9 C 5.9
0+50		5.9	23.7 C 3.8
1+00		9.0	20.6 C 3.8
1+50		11.1	18.5 C 3.7
T.P.#4		11.06	18.56
	0.18	18.74	
2+00		3.0	15.7 C 4.0
2+50		5.7	13.0 C 4.4
3+00		8.6	10.1 C 4.5
3+50		11.3	7.4 C 4.5
T.P.#5		11.74	7.00
	2.19	9.19	



Cadiz St. P.P.

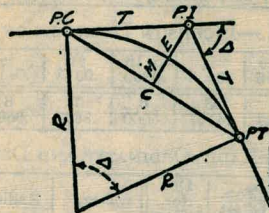
29.19

4+00	3.6	5.6	C4.8
4+50	5.1	4.1	C4.2
5+00	5.9	3.3	C3.9
5+53.92 T. & St. Charles	6.0	3.2	C4.0
5+50	6.0	3.2	C4.0
5+75	6.3	2.9	C3.8
T.P.#6	4.63	4.56	
	3.84	8.40	
B.M.	5.64	2.76	
B.M.#21	7.25	1.15	

A.B

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

Copyright, 1914, by Eugene Dietzgen Co., New York City



CURVE FORMULAS

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

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

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

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

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

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.—Sta. 161+60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $\div 8\frac{1}{2} = 414.49$ 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 = $7.27 \div (54.50 \div 100)^2 = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

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

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{2} = 91.27$ and from Table V correction = .10 or $E = 91.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
31°	1589.0	216.3	41°	2142.2	387.4	51°	2732.9	618.4
10'	1598.0	218.7	10'	2151.7	390.7	10'	2743.1	622.8
20	1606.9	221.1	20	2161.2	394.1	20	2753.4	627.2
30	1615.9	223.5	30	2170.8	397.4	30	2763.7	631.7
40	1624.9	226.0	40	2180.3	400.8	40	2773.9	636.2
50	1633.9	228.4	50	2189.9	404.2	50	2784.2	640.7
32°	1643.0	230.9	42°	2199.4	407.6	52°	2794.5	645.2
10	1652.0	233.4	10	2209.0	411.1	10	2804.9	649.7
20	1661.0	235.9	20	2218.6	414.5	20	2815.2	654.3
30	1670.0	238.4	30	2228.1	418.0	30	2825.6	658.8
40	1679.1	241.0	40	2237.7	421.4	40	2835.9	663.4
50	1688.1	243.5	50	2247.3	425.0	50	2846.3	668.0
33°	1697.2	246.1	43°	2257.0	428.5	53°	2856.7	672.7
10	1706.3	248.7	10	2266.6	432.0	10	2867.1	677.3
20	1715.3	251.3	20	2276.2	435.6	20	2877.5	682.0
30	1724.4	253.9	30	2285.9	439.2	30	2888.0	686.7
40	1733.5	256.5	40	2295.6	442.8	40	2898.4	691.4
50	1742.6	259.1	50	2305.2	446.4	50	2908.9	696.1
34°	1751.7	261.8	44°	2314.9	450.0	54°	2919.4	700.9
10	1760.8	264.5	10	2324.6	453.6	10	2929.9	705.7
20	1770.0	267.2	20	2334.3	457.3	20	2940.4	710.5
30	1779.1	269.9	30	2344.1	461.0	30	2951.0	715.3
40	1788.2	272.6	40	2353.8	464.6	40	2961.5	720.1
50	1797.4	275.3	50	2363.5	468.4	50	2972.1	725.0
35°	1806.6	278.1	45°	2373.3	472.1	55°	2982.7	729.9
10	1815.7	280.8	10	2383.1	475.8	10	2993.3	734.8
20	1824.9	283.6	20	2392.8	479.6	20	3003.9	739.7
30	1834.1	286.4	30	2402.6	483.3	30	3014.5	744.6
40	1843.3	289.2	40	2412.4	487.2	40	3025.2	749.6
50	1852.5	292.0	50	2422.3	491.0	50	3035.8	754.6
36°	1861.7	294.9	46°	2432.1	494.8	56°	3046.5	759.6
10	1870.9	297.7	10	2441.9	498.7	10	3057.2	764.6
20	1880.1	300.6	20	2451.8	502.5	20	3067.9	769.7
30	1889.4	303.5	30	2461.7	506.4	30	3078.7	774.7
40	1898.6	306.4	40	2471.5	510.3	40	3089.4	779.8
50	1907.9	309.3	50	2481.4	514.3	50	3100.2	784.9
37°	1917.1	312.2	47°	2491.3	518.2	57°	3110.9	790.1
10	1926.4	315.2	10	2501.2	522.2	10	3121.7	795.2
20	1935.7	318.1	20	2511.2	526.1	20	3132.6	800.4
30	1945.0	321.1	30	2521.1	530.1	30	3143.4	805.6
40	1954.3	324.1	40	2531.1	534.2	40	3154.2	810.9
50	1963.6	327.1	50	2541.0	538.2	50	3165.1	816.1
38°	1972.9	330.2	48°	2551.0	542.2	58°	3176.0	821.4
10	1982.2	333.2	10	2561.0	546.3	10	3186.9	826.7
20	1991.5	336.3	20	2571.0	550.4	20	3197.8	832.0
30	2000.9	339.3	30	2581.0	554.5	30	3208.8	837.3
40	2010.2	342.4	40	2591.0	558.6	40	3219.7	842.7
50	2019.6	345.5	50	2601.1	562.8	50	3230.7	848.1
39°	2029.0	348.6	49°	2611.2	566.9	59°	3241.7	853.5
10	2038.4	351.8	10	2621.2	571.1	10	3252.7	858.9
20	2047.8	354.9	20	2631.3	575.3	20	3263.7	864.3
30	2057.2	358.1	30	2641.4	579.5	30	3274.8	869.8
40	2066.6	361.3	40	2651.5	583.8	40	3285.8	875.3
50	2076.0	364.5	50	2661.6	588.0	50	3296.9	880.8
40°	2085.4	367.7	50°	2671.8	592.3	60°	3308.0	886.4
10	2094.9	371.0	10	2681.9	596.6	10	3319.1	892.0
20	2104.3	374.2	20	2692.1	600.9	20	3330.3	897.5
30	2113.8	377.5	30	2702.3	605.3	30	3341.4	903.2
40	2123.3	380.8	40	2712.5	609.6	40	3352.6	908.8
50	2132.7	384.1	50	2722.7	614.0	50	3363.8	914.5

35.27
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470545
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TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
61°	3375.0	920.2	71°	4086.9	1308.2	81°	4893.6	1805.3
10'	3386.3	925.9	10'	4099.5	1315.6	10'	4908.0	1814.7
20	3397.5	931.6	20	4112.1	1322.9	20	4922.5	1824.1
30	3408.8	937.3	30	4124.8	1330.3	30	4937.0	1833.6
40	3420.1	943.1	40	4137.4	1337.7	40	4951.5	1843.1
50	3431.4	948.9	50	4150.1	1345.1	50	4966.1	1852.6
62°	3442.7	954.8	72°	4162.8	1352.6	82°	4980.7	1862.2
10	3454.1	960.6	10	4175.6	1360.1	10	4995.4	1871.8
20	3465.4	966.5	20	4188.5	1367.6	20	5010.0	1881.5
30	3476.8	972.4	30	4201.2	1375.2	30	5024.8	1891.2
40	3488.3	978.3	40	4214.0	1382.8	40	5039.5	1900.9
50	3499.7	984.3	50	4226.8	1390.4	50	5054.3	1910.7
63°	3511.1	990.2	73°	4239.7	1398.0	83°	5069.2	1920.5
10	3522.6	996.2	10	4252.6	1405.7	10	5084.0	1930.4
20	3534.1	1002.3	20	4265.6	1413.5	20	5099.0	1940.3
30	3545.6	1008.3	30	4278.5	1421.2	30	5113.9	1950.3
40	3557.2	1014.4	40	4291.5	1429.0	40	5128.9	1960.2
50	3568.7	1020.5	50	4304.6	1436.8	50	5143.9	1970.3
64°	3580.3	1026.6	74°	4317.6	1444.6	84°	5159.0	1980.4
10	3591.9	1032.8	10	4330.7	1452.5	10	5174.1	1990.5
20	3603.5	1039.0	20	4343.8	1460.4	20	5189.3	2000.6
30	3615.1	1045.2	30	4356.9	1468.4	30	5204.4	2010.8
40	3626.8	1051.4	40	4370.1	1476.4	40	5219.7	2021.1
50	3638.5	1057.7	50	4383.3	1484.4	50	5234.9	2031.4
65°	3650.2	1063.9	75°	4396.5	1492.4	85°	5250.3	2041.7
10	3661.9	1070.2	10	4409.8	1500.5	10	5265.6	2052.1
20	3673.7	1076.6	20	4423.1	1508.6	20	5281.0	2062.5
30	3685.4	1082.9	30	4436.4	1516.7	30	5296.4	2073.0
40	3697.2	1089.3	40	4449.7	1524.9	40	5311.9	2083.5
50	3709.0	1095.7	50	4463.1	1533.1	50	5327.4	2094.1
66°	3720.9	1102.2	76°	4476.5	1541.4	86°	5343.0	2104.7
10	3732.7	1108.6	10	4489.9	1549.7	10	5358.6	2115.3
20	3744.6	1115.1	20	4503.4	1558.0	20	5374.2	2126.0
30	3756.5	1121.7	30	4516.9	1566.3	30	5389.9	2136.7
40	3768.5	1128.2	40	4530.4	1574.7	40	5405.6	2147.5
50	3780.4	1134.8	50	4544.0	1583.1	50	5421.4	2158.4
67°	3792.4	1141.4	77°	4557.6	1591.6	87°	5437.2	2169.2
10	3804.4	1148.0	10	4571.2	1600.1	10	5453.1	2180.2
20	3816.4	1154.7	20	4584.8	1608.6	20	5469.0	2191.1
30	3828.4	1161.3	30	4598.5	1617.1	30	5484.9	2202.2
40	3840.5	1168.1	40	4612.2	1625.7	40	5500.9	2213.3
50	3852.6	1174.8	50	4626.0	1634.4	50	5517.0	2224.3
68°	3864.7	1181.6	78°	4639.8	1643.0	88°	5533.1	2235.5
10	3876.8	1188.4	10	4653.6	1651.7	10	5549.2	2246.7
20	3889.0	1195.2	20	4667.4	1660.5	20	5565.4	2258.0
30	3901.2	1202.0	30	4681.3	1669.2	30	5581.6	2269.3
40	3913.4	1208.9	40	4695.2	1678.1	40	5597.8	2280.6
50	3925.6	1215.8	50	4709.2	1686.9	50	5614.2	2292.0
69°	3937.9	1222.7	79°	4723.2	1695.8	89°	5630.5	2303.5
10	3950.2	1229.7	10	4737.2	1704.7	10	5646.9	2315.0
20	3962.5	1236.7	20	4751.2	1713.7	20	5663.4	2326.6
30	3974.8	1243.7	30	4765.3	1722.7	30	5679.9	2338.2
40	3987.2	1250.8	40	4779.4	1731.7	40	5696.4	2349.8
50	3999.5	1257.9	50	4793.6	1740.8	50	5713.0	2361.5
70°	4011.9	1265.0	80°	4807.7	1749.9	90°	5729.7	2373.3
10	4024.4	1272.1	10	4822.0	1759.0	10	5746.3	2385.1
20	4036.8	1279.3	20	4836.2				

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883

7.014
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687

1856
101
17 x 8

766
42

89° 24' 18.47

17° 10'

45.5

25.6

13.57.80 90°

87.14

14 x 44.90

41.3

7

34.3

30
19

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.

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