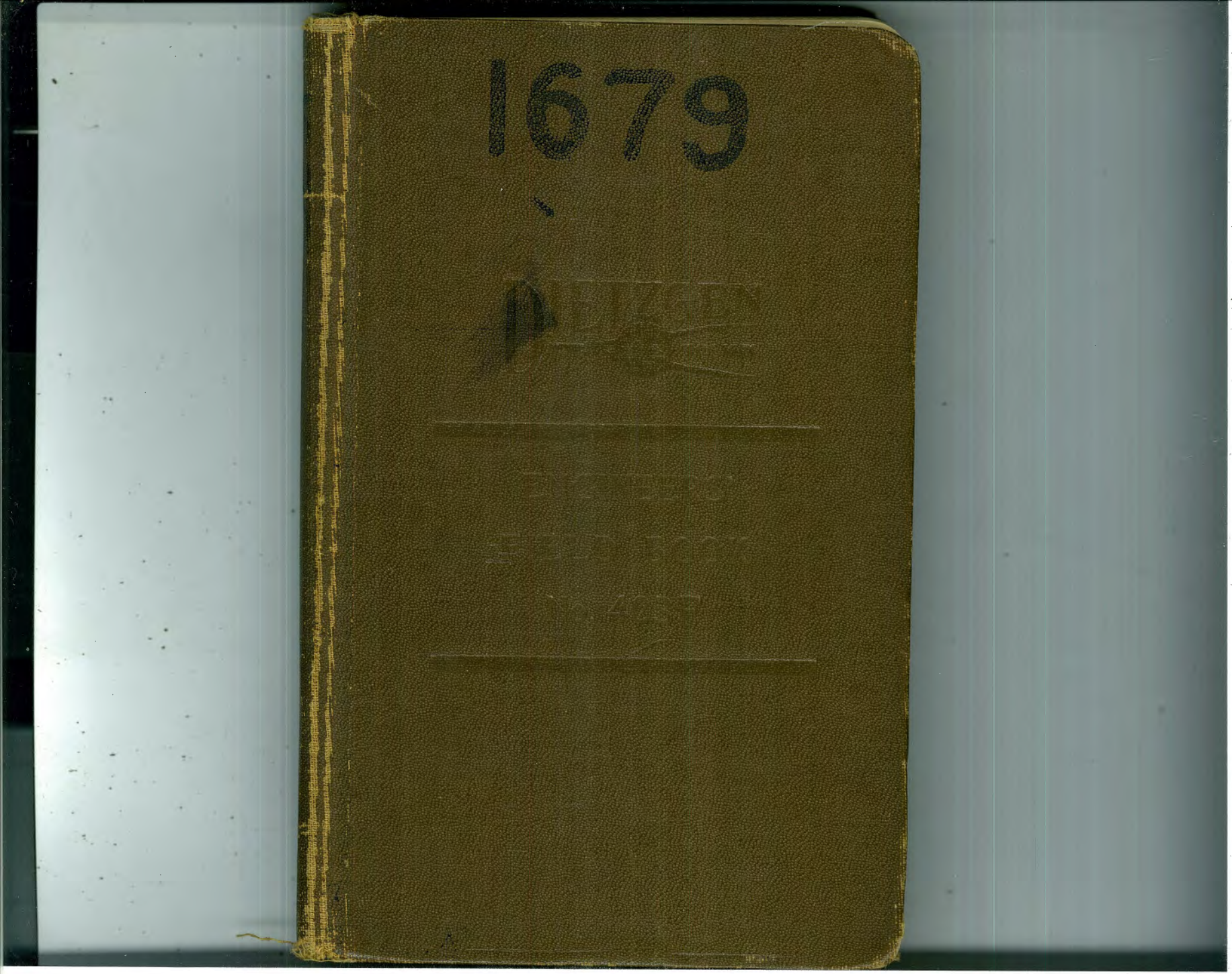
1679

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.

1679

CITY ENGINEER'S OFFICE

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Made in U. S. A.

Proposed Access 52nd at Contour Blvd 7x

Topog. And Survey of Portion Pk. - 1783

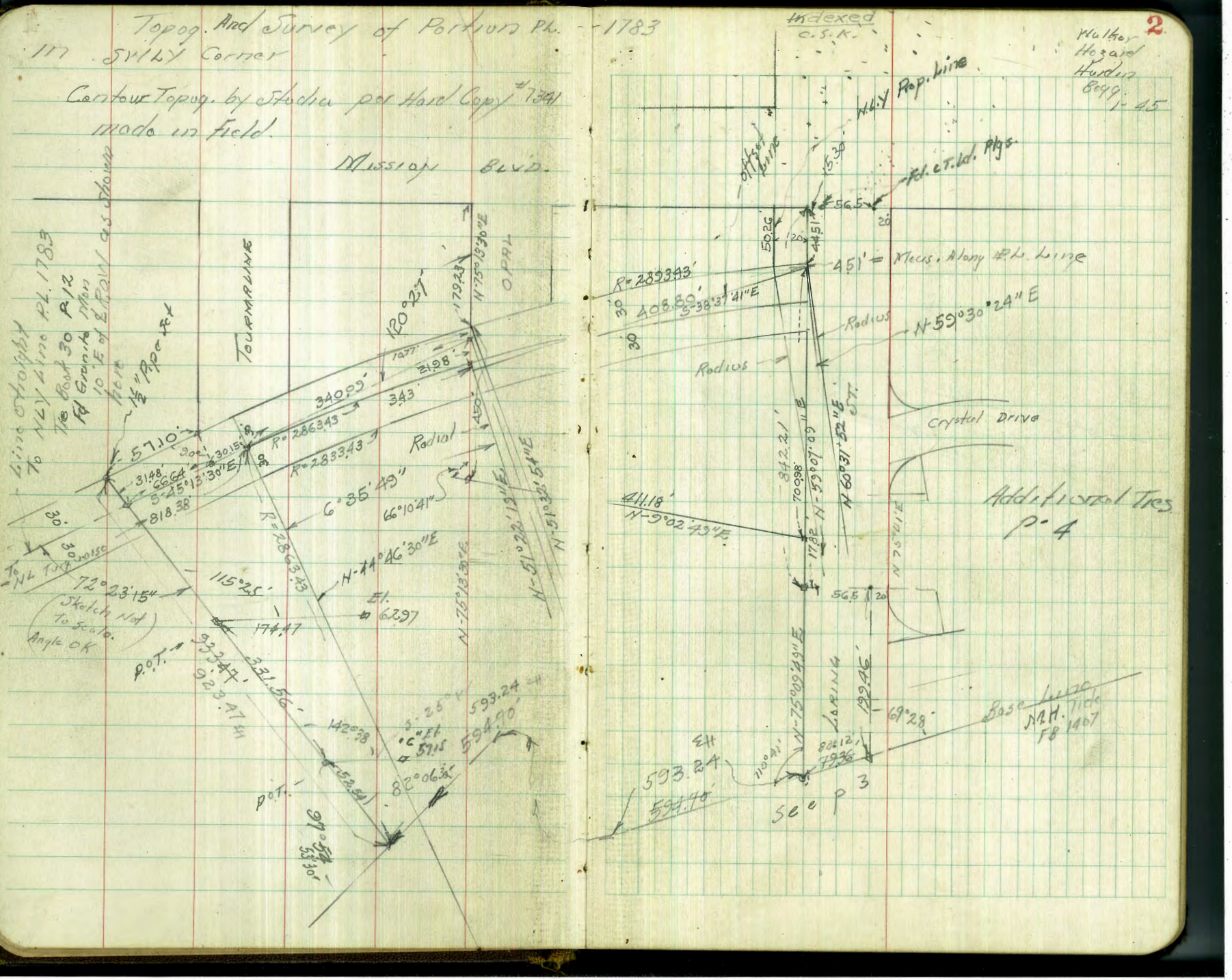
117 SWLY Corner

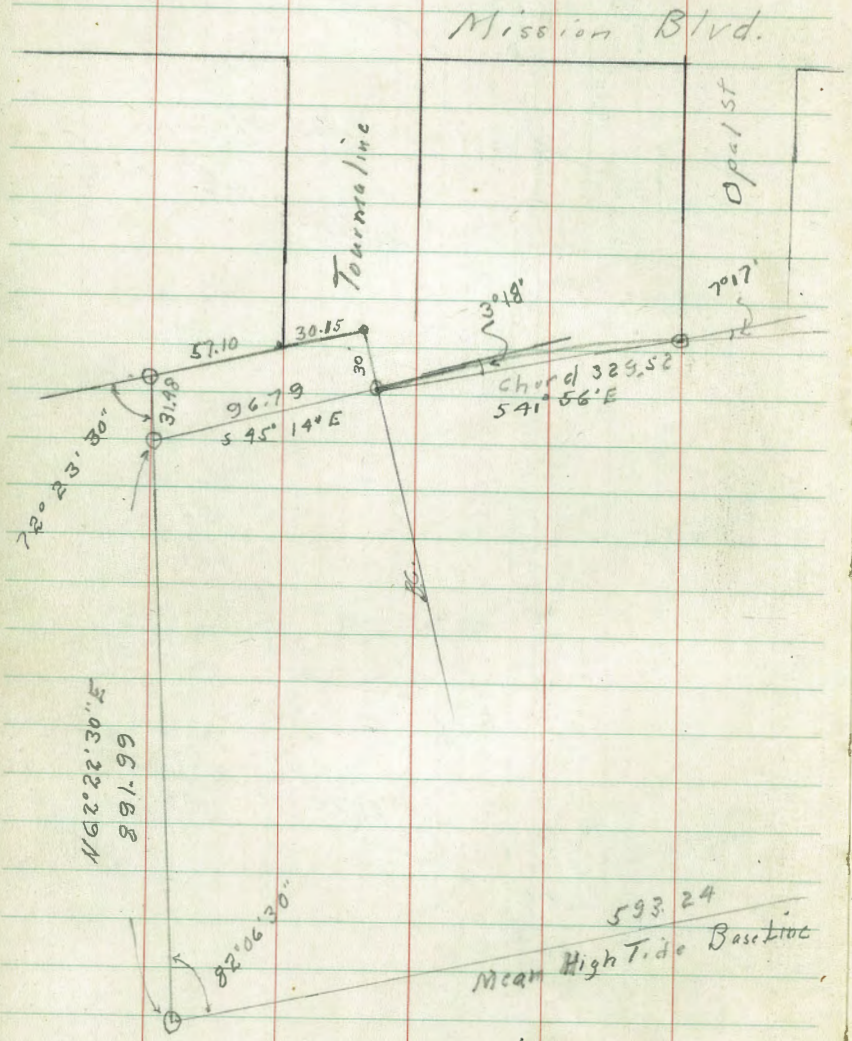
Contour Topog. by Stadia per Hard Copy #734 made in Field.

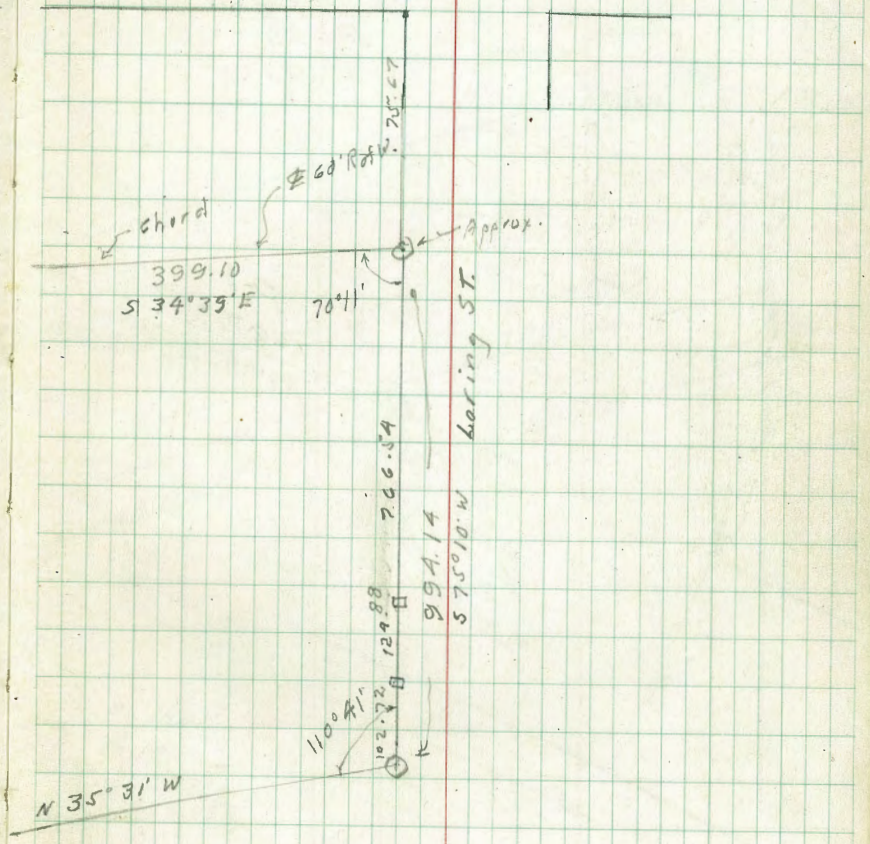
Indexed C.S.K.

Mulkey Hazard Hurdus Begg 1-45

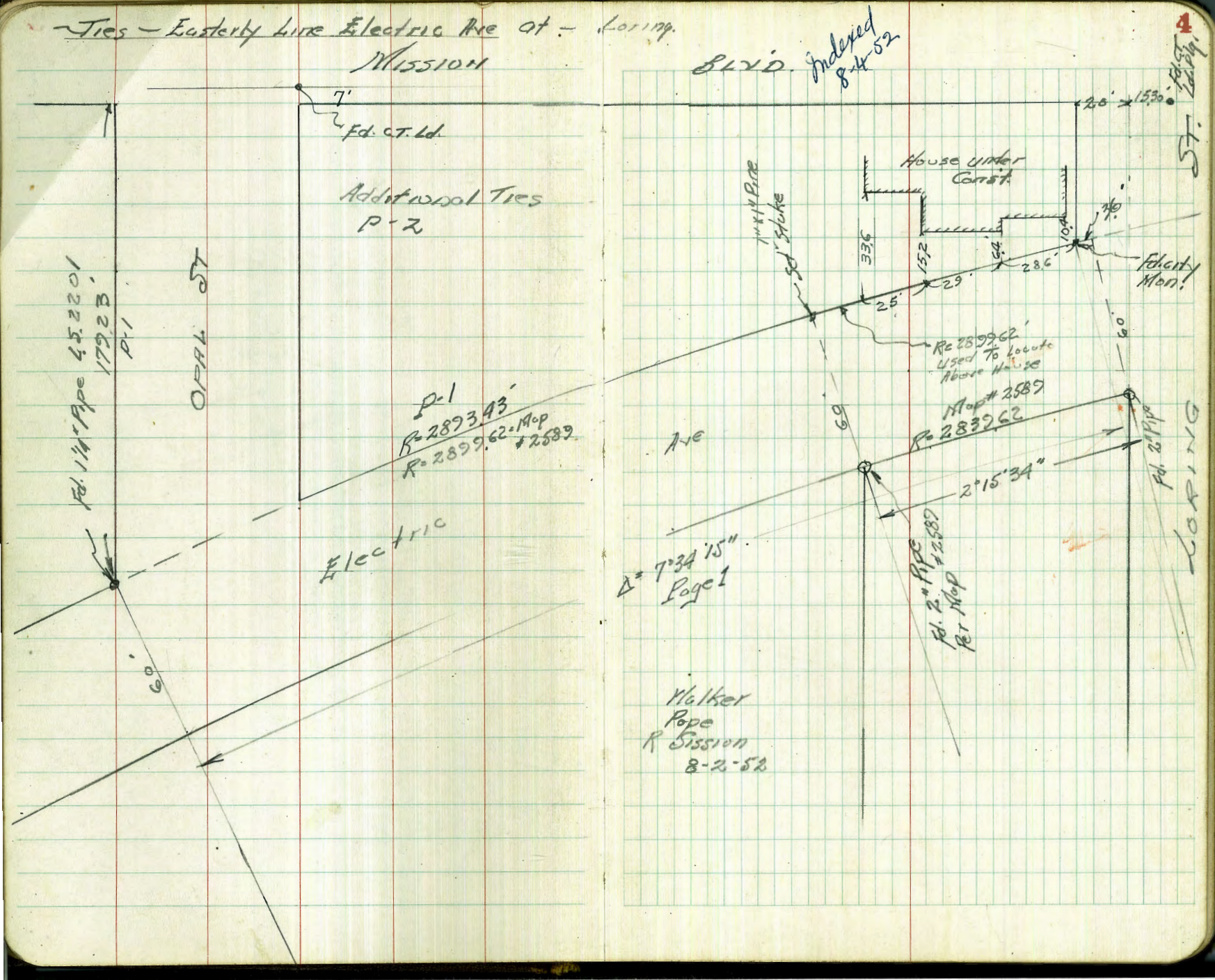
2




Mission Blvd.
Tourraine line
Opal St
57.10
30.15
31.49
96.79
S 45° 14' E
3°48'
chord 329.52
S 41° 56' E
7°17'
30'
72° 23' 30"
N 62° 22' 30" E
89.99
82° 06' 30"
593.24
Mean High Tide Baseline


R 60' Radius
chord
399.10
S 34° 39' E
Approx.
70° 41'
726.54
994.14
S 75° 10' W
Loring St.
124.88
102.72
110° 41'
N 35° 31' W

Ties — Easterly Line Electric Ave at — Loring.



Indexed
C.S.K.

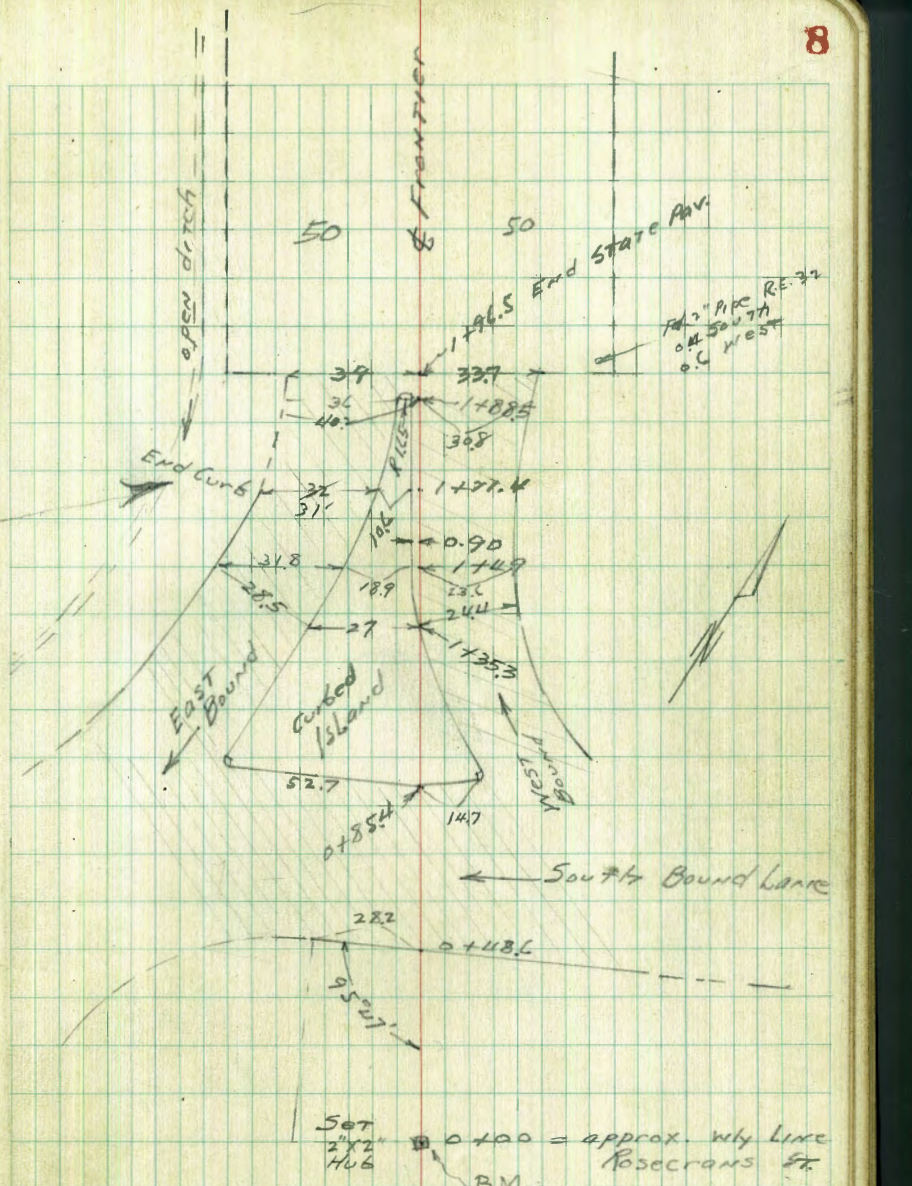
X sec Frontier St. 100' wide.

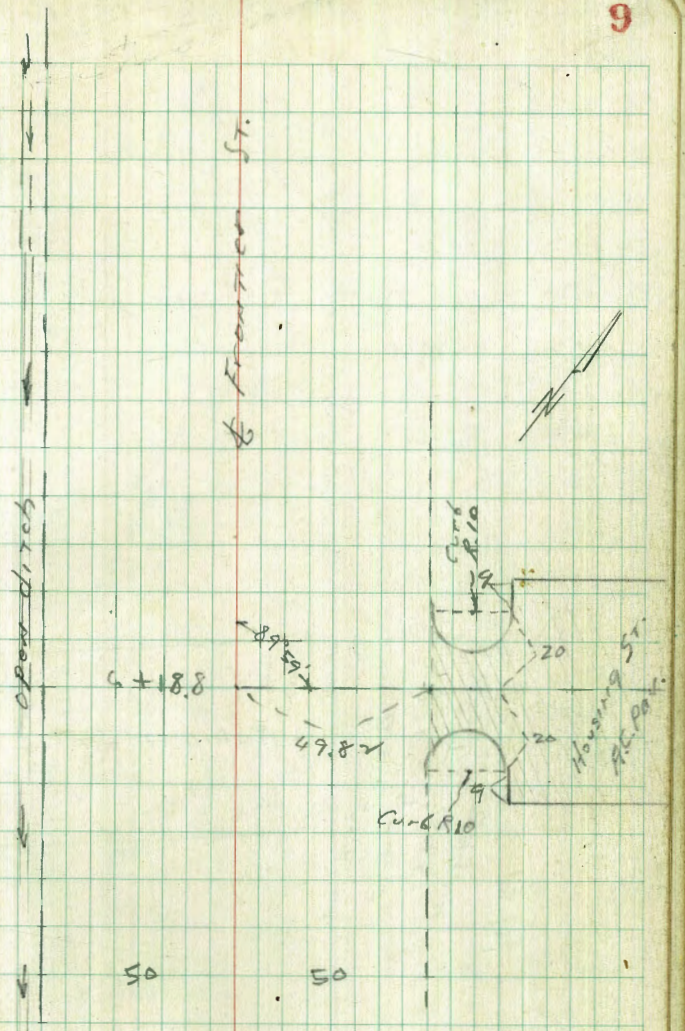
Rosecrans to Midway

C.M. Moore
Sommermeyer
W. Moore
8-27-45.

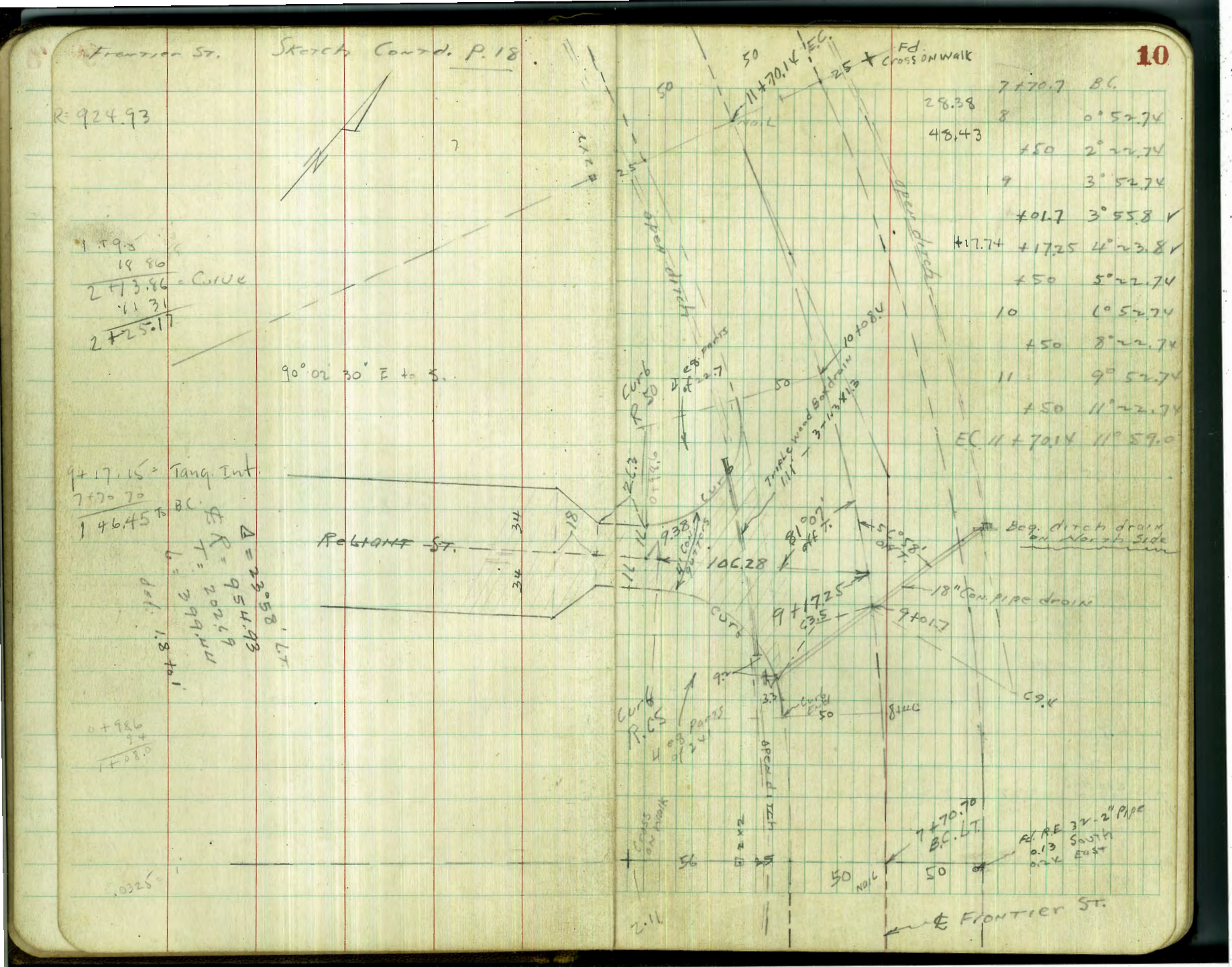
Note! Beg. at 2+15 N+S ½ of Frontier div. in 4 eq. parts of 12.5

wly. cb. ends at sta. 1+70.3
1/9/60 CHH




St.
Frontage
Curb Line
℄ + 18.8
49.82
49.82
Curb R10
Curb R10
20
20
St.
Housing
P.C. Pave.
50
50

Frontier St. Sketch Contd. P. 18



Xsec of Frontier
Sketch p.8

2 + 50					1.2 / 7.1 / 6.9
2 + 15 Beg. base N + S ½ of street divided in 4 eq. parts of 12.5					1.40 / 6.9 / 7.3 South
1 + 96.5					
1 + 88.5					
					3.74 / 4.50 / 5.4 / c6
1 + 47					
T.P. 2x2 Hub e 700	5.38	8.30	5.09	2.92	
Swly B.P. & M #1	5.04	8.01		2.97	Rosecrans Kurtz

LT ℄ RT.

0	2.8	2.8	3.0	3.2	3.2	3.1	3.2	3.0	2.9		
9.3	5.6	5.5	5.3	5.1	5.1	5.2	5.1	5.3	5.2		
63	5.2	50							50		
ditch											
-1.1	2.7	2.7	2.8	3.0	3.1	3.2	3.2	3.2	3.1		
9.2	5.6	5.7	5.5	5.3	5.2	5.1	5.1	5.1	5.2		
65	5.7	50	37.5	25	12.5		12.5	25	37.5	50	
ditch										North	
			3.00	3.13		3.33	3.30	3.27	3.88		
			5.10	5.17		4.97	5.00	5.03	4.72		
			39	19.5			16.8	33.7	33.7		
			cdge Pav.					97	c6		
	3.08	3.19	3.39	3.41	3.38	3.38	3.27	3.24	3.86		
	5.37	5.11	4.91	4.39	4.42	4.92	5.01	5.06	4.44		
	40.2	27.7	11.5	4.2	0.9	94T	15.4	30.8	30.8		
	94T	B		c6	c6			97	c6		
	3.11	3.28	3.26	3.75	3.71	3.21	3.23	3.11	3.80		
	5.19	5.04	5.04	4.55	4.59	5.09	5.07	5.19	4.55		
	51.5	35.6	20.2	19.7	0.9	C.T.	11.8	23.6	23.6		
	97		94T	66	c6			94T	c6		
						8.30					

6+00					1.15 / 7.2 / 65	-0.35 / 8.7 / 61	2.65 / 5.7 / 53	2.75 Lt. / 5.6 / 50	2.95 / 5.4	3.05 / 5.3	3.25 / 5.1	3.25 / 5.1	3.25 / 5.1	3.25 / 5.1	3.05 Rt / 5.3	2.75 / 5.6 / 50
+50					1.15 / 7.2 / 67	-0.15 / 8.5 / 62	2.65 / 5.7 / 52	2.75 / 5.6 / 50	2.85 / 5.5	3.05 / 5.3	3.25 / 5.1	3.35 / 5.0	3.25 / 5.1	3.25 / 5.1	3.15 / 5.2	2.85 / 5.5 / 50
T.P.	2.82	8.35	2.77	5.53								8.35				
5+00					1.2 / 7.1 / 67	+0.5 / 8.8 / 64 ditch	2.5 / 5.8 / 52	2.8 / 5.5 / 50	2.8 / 5.5	3.1 / 5.2	3.2 / 5.1	3.2 / 5.1	3.2 / 5.1	3.3 / 5.0	3.0 / 5.3	2.9 / 5.4 / 50
+50					1.0 / 7.3 / 67	0.0 / 8.3 / 61 ditch	2.2 / 6.1 / 52	2.7 / 5.6 / 50	2.8 / 5.5	3.0 / 5.3	3.1 / 5.2	3.2 / 5.1	3.2 / 5.1	3.2 / 5.1	3.0 / 5.3	2.8 / 5.5 / 50
4+00					1.1 / 7.2 / 67	+0.8 / 9.1 / 61 ditch	2.5 / 5.8 / 52	2.7 / 5.6 / 50	2.8 / 5.5	3.0 / 5.3	3.2 / 5.1	3.2 / 5.1	3.2 / 5.1	3.2 / 5.1	3.0 / 5.3	2.8 / 5.5 / 50
+50					1.1 / 7.2 / 66	-0.6 / 8.9 / 60 ditch	2.6 / 5.7 / 52	2.7 / 5.6 / 50	2.7 / 5.6	3.0 / 5.3	3.2 / 5.1	3.3 / 5.0	3.2 / 5.1	3.2 / 5.1	2.9 / 5.4	2.7 / 5.6 / 50
3+00					1.2 / 7.1 / 67	+0.8 / 9.1 / 61 ditch	2.5 / 5.8 / 52	2.7 / 5.6 / 50	2.8 / 5.5	3.0 / 5.3	3.2 / 5.1	3.2 / 5.1	3.2 / 5.1	3.1 / 5.2	3.0 / 5.3	2.7 / 5.6 / 50
		8.30										8.30				

						Lt			℄			Rt		
8+00		1.75 6.6 71	-0.45 8.8 63	2.75 5.6 54	2.85 5.5 50	2.85 5.5	3.05 5.3	3.15 5.2	3.25 5.1	3.35 5.0	3.45 4.9	3.45 4.9	3.65 4.7 50	
7+70.70	BC Lt.	1.25 7.1 69	-0.35 8.7 63	2.65 5.7 53	2.75 5.6 50	2.85 5.5	3.05 5.3	3.15 5.2	3.25 5.1	3.25 5.1	3.45 4.9	3.45 4.9	3.45 4.9 50	
+50		1.25 7.1 68	-0.15 8.5 62	2.65 5.7 53	2.75 5.6 50	2.85 5.5	3.05 5.3	3.15 5.2	3.15 5.2	3.25 5.1	3.35 5.0	3.35 5.0	3.35 5.0 50	
7		1.25 7.1 68	-0.45 8.8 62	2.55 5.8 53	2.75 5.6 50	2.85 5.5	2.95 5.4	3.15 5.2	3.25 5.1	3.25 5.1	3.25 5.1	3.15 5.2	3.15 5.2 50	
+50		1.25 7.1 67	-0.45 8.8 62	2.65 5.7 53	2.75 5.6 50	2.85 5.5	3.15 5.2	3.25 5.1	3.25 5.1	3.25 5.1	3.25 5.1	3.15 5.2	3.0 5.4 50	
6+18.8	℄ Housing St. on North								3.25 5.1	3.25 5.1 25		2.75 5.6 50	2.85 5.5 70	2.50 5.85 100

drains NEly →

Low spot

8.35

8.35

10+00

+50

9+17.75 ℄ Reliant ST. Δ 81°07' Lt. off ℄

+01.7 Int. 18" drain

9+00

8+46

4.35

Xsec Contd. p.22

See Check Levels p.17

T.P. B.M. #2 5.32 3.03 O.K. 3.13?

Chiseled Δ 23' Rt. of 11+70.14 on S. edge walk Gr. Bk. 213-74

				Lt.				℄				Rt.			
11+70.14 E.C.	2.45 5.9 68	0.05 8.3 61	2.45 5.9 53	2.65 5.7 50	2.55 5.8	2.75 5.6	2.75 5.6	2.95 5.2	3.15 5.2	3.25 5.1	3.35 5.0	3.15 5.2 50	3.15 5.2 54	1.85 6.5 60	2.95 5.4 65
+50	2.35 6.0 69	0.35 8.0 61	2.85 5.5 54	2.75 5.6 50	2.65 5.7	2.85 5.5	2.95 5.4	3.05 5.3	3.15 5.2	3.25 5.1	3.35 5.0	3.25 5.1 50	3.25 5.1 54	1.95 6.4 60	2.95 5.4 65
11+00	2.65 5.7 68	0.25 8.1 61	2.75 5.6 54	2.75 5.6 50	2.65 5.7	2.85 5.5	2.85 5.5	3.05 5.3	3.25 5.1	3.25 5.1	3.35 5.0	3.65 4.7 50	3.65 4.7 54	1.85 6.5 60	2.95 5.4 65
+50	2.55 5.8 67	-0.15 8.5 61 ditch	2.55 5.8 54	2.55 5.8 50	2.45 5.9	2.75 5.6	2.85 5.5	3.05 5.3	3.15 5.2	3.25 5.1	3.35 5.0	3.55 4.8 50	3.55 4.8 54	1.55 6.8 60 ditch	2.85 5.5 65
10+08.4					3.12 5.23 50 66	2.45 5.90 50 GUT									

8.35

8.35

Levels on Curb Returns
on Reliant St.

H.I.
8.35

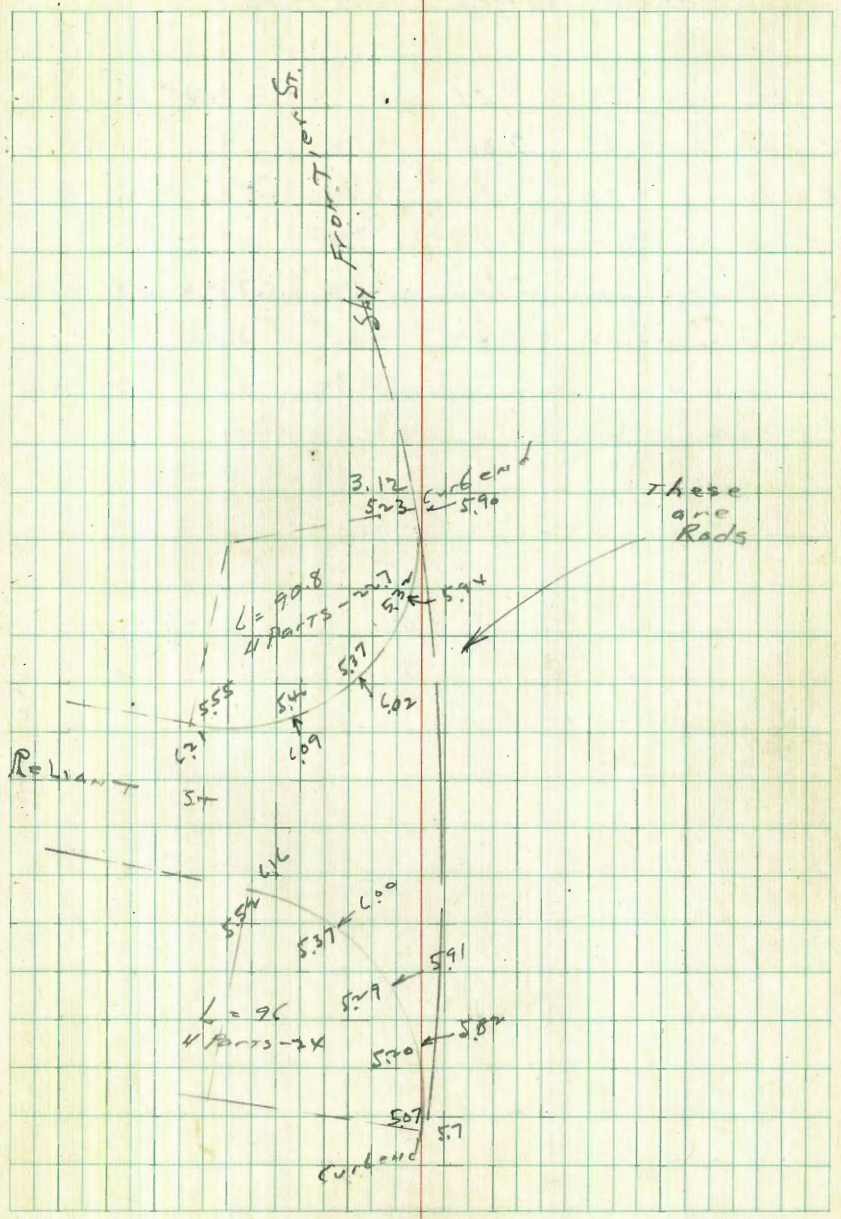
Sketch p 10.

	Wood Box	
E end FL. Triple Curb.		8.9
W " " " "		8.7

8.35 / 5.23 / 3.12

8.35 / 5.55 / 2.80

8.35 / 5.29 / 3.06



Check Levels from P. 15

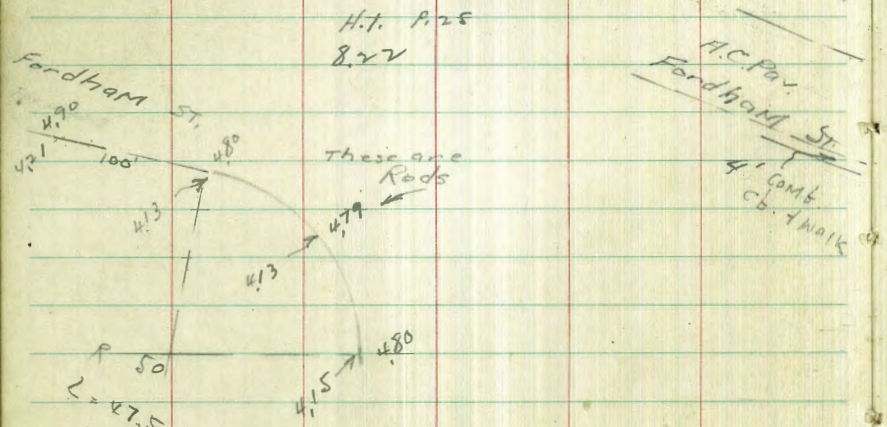
SWBP	4.84	7.81		2.97	Rosecrans Kurtz
T.P. 3 x N Hub 0+00	4.89	7.80	4.90	2.91	2.94 ✓
T.P. P.15	2.24	7.77	2.27	5.53	5.53 ✓
T.P.	5.00	7.99	4.78	2.99	
T.P.	4.96	7.99	4.96	3.03	(3.13)
T.P.	5.12	8.12	4.81	3.18	
			4.80	3.12	3.12

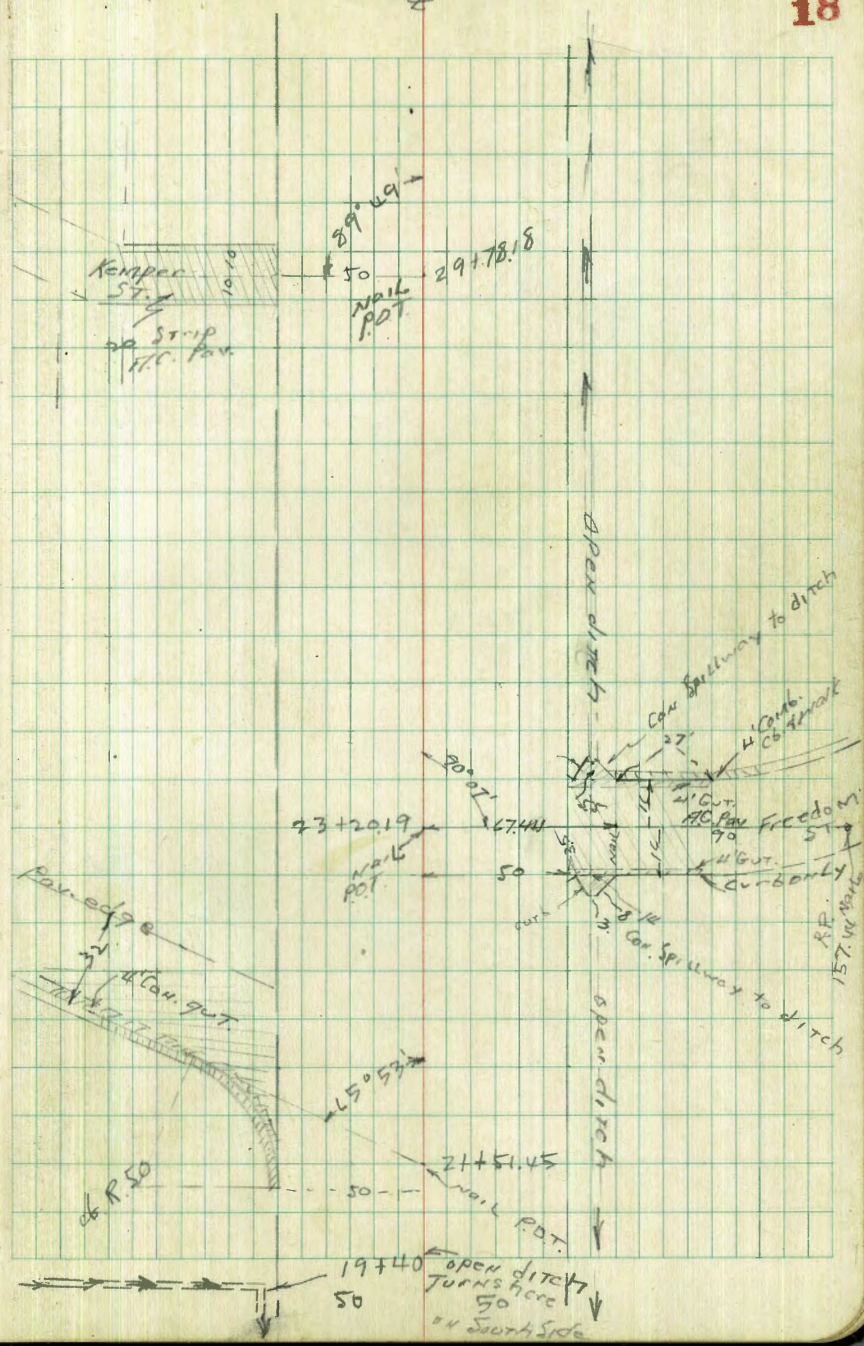
B.M. #1 This walk proves to have settled 0.10

B.M. #3 chisel □ S. edge Walk on W side Frontier. front of D. House # 3 x 12

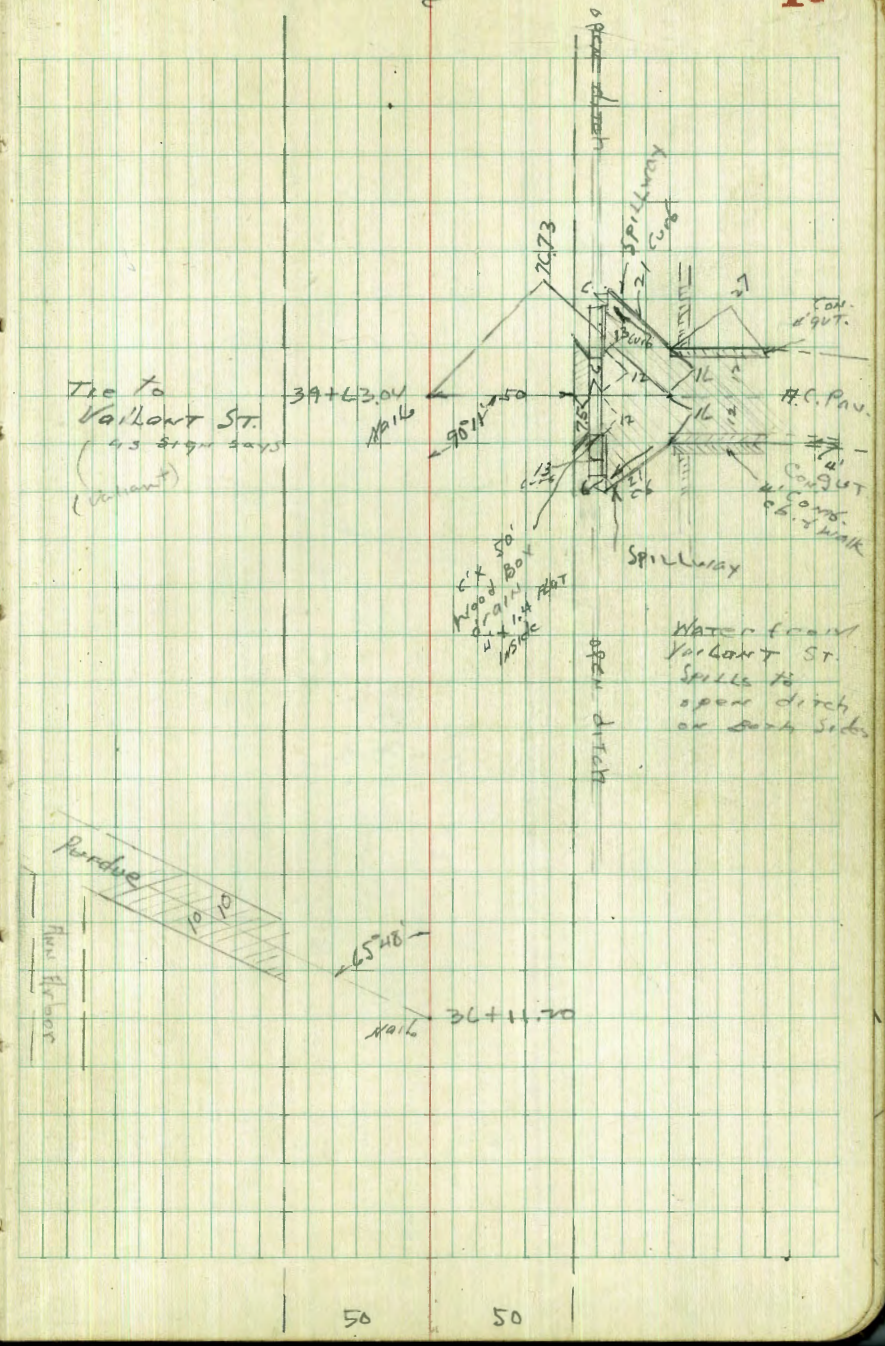
G.B. #13 - 7x

Frontier St. Contd. from P. 10

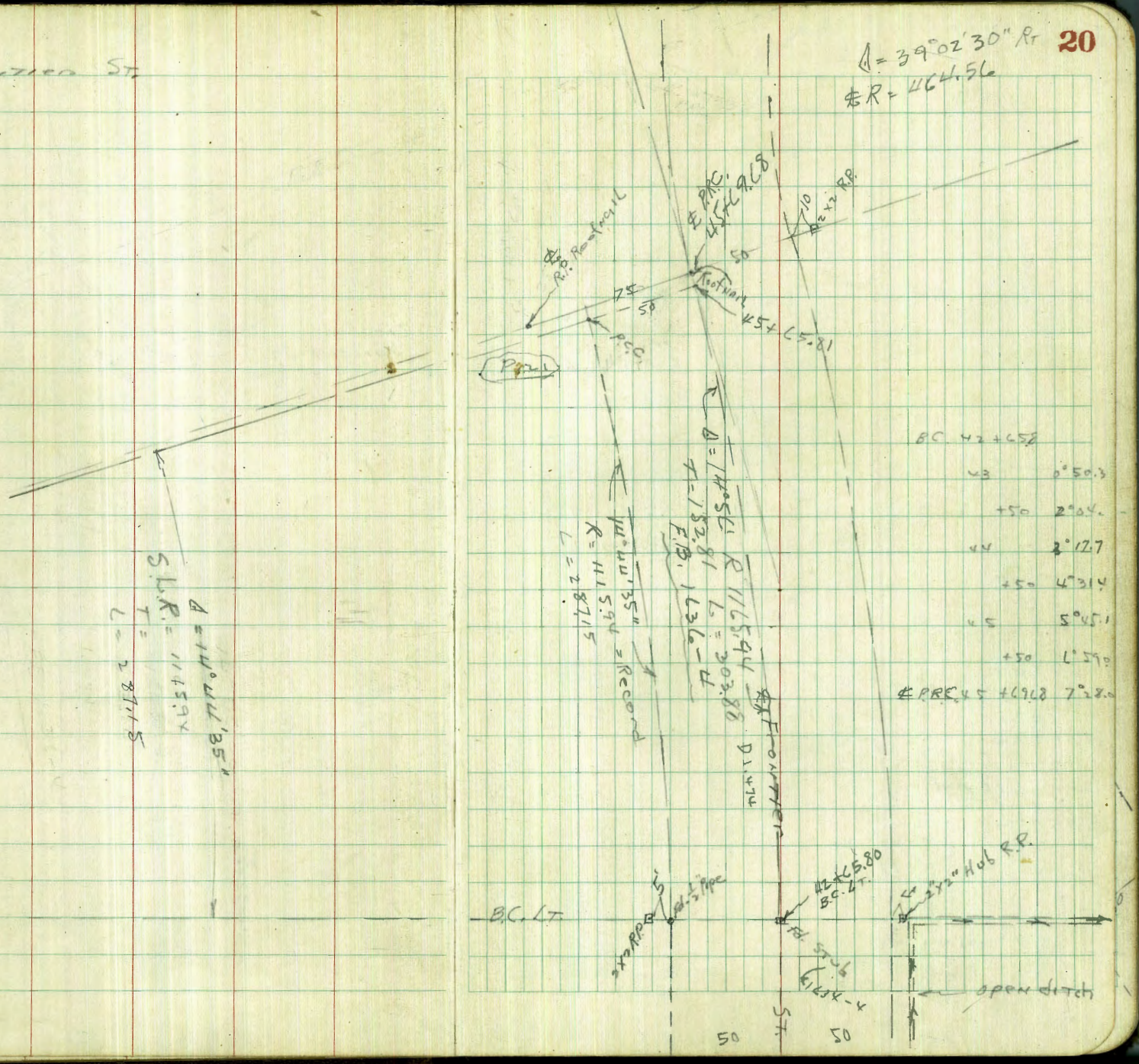




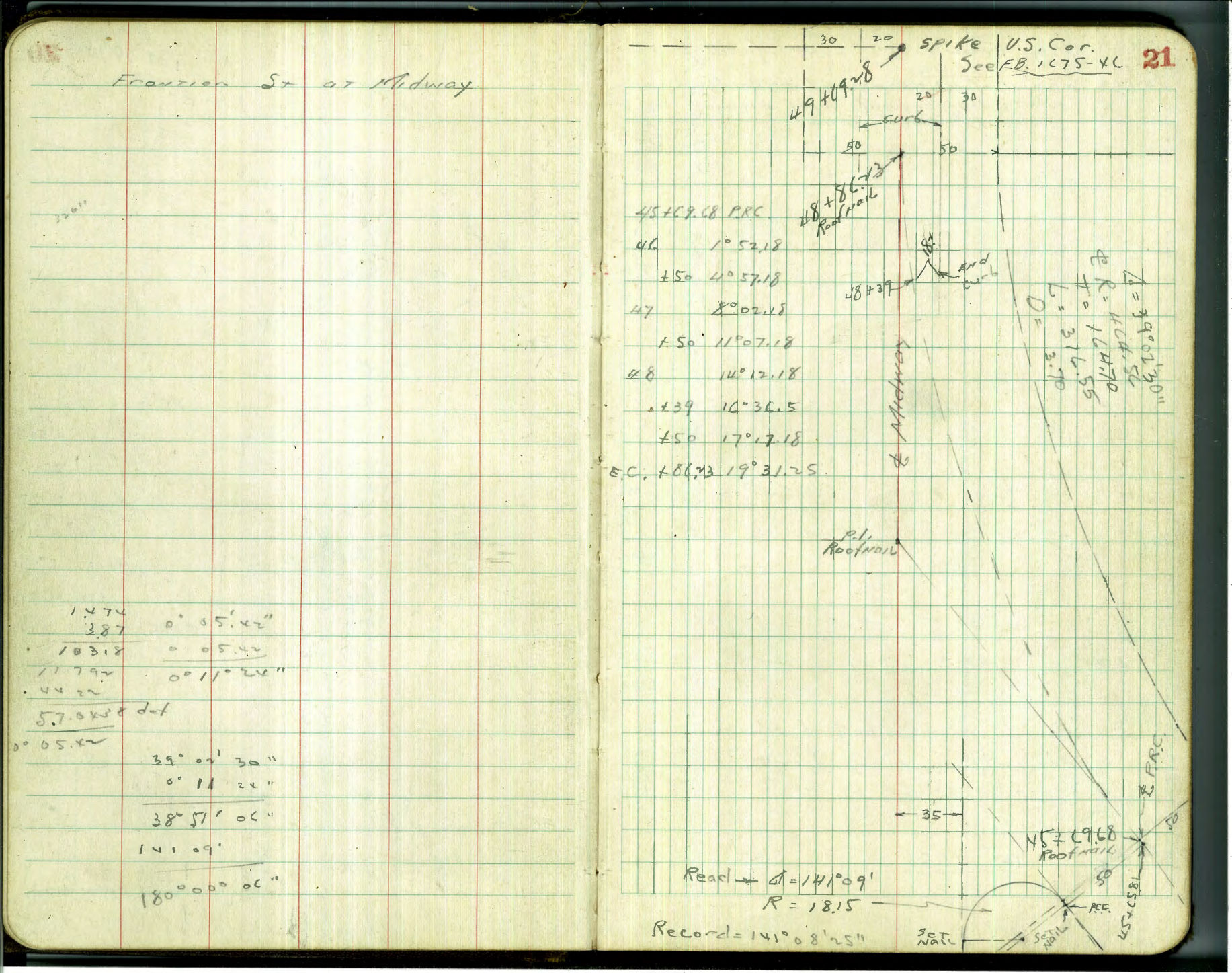
Frontier St.


Tie to
Vallant St.
(as sign says)
(Vallant)
39+63.04
Nail
90°
50
Spillway
Curb
Con. Gut.
R.C. Pav.
Con. Gut.
w/ Conc. C.G. & Walk
Spillway
Water from Vallant St. spills to open ditch on both sides
open ditch
Pardue
Fnc. Posts
65.48'
36+11.70
Nail
50
50

Frontera St.


Δ = 39°02'30" Rt
℄R = 464.56
℄ Rt. Re-Track
Pond
P.C.C.
Δ = 14°44'35"
T = 153.81
L = 303.88
R = 1159.94
Δ = 14°44'35"
R = 1159.94
L = 298.15
T = 149.15
℄ Frontera
D 1.474
B.C. Lt.
Old 1½ Pipe
Edge Pvmt.
Edge Pvmt.
℄ 37½" H06 R.C.P.
open ditch
B.C. 42+65.8
+50 0°50.3
+50 2°04.
43 2°12.7
+50 4°31.4
45 5°45.1
+50 6°59.0
℄ P.R.C. 45+69.68 7°28.0
50
50

Frontier St at Midway



1.474
3.87
1031.8
11.792
44.22
5.7.0 K's d-1
0° 05.42"

0° 05.42"
0° 11' 24"
0° 11' 24"

39° 03' 30"
0° 11' 24"
38° 51' 06"
141° 09'
180° 00' 00"

Reduced by C.S.K. 9-26-45

Xsec Frontier. Contd. from p. 15

14+65 = 20' N of N.L. = Parking Lot, Bridged over. ART; figure cut of grid without trying to meet grade.

+50

14

+50

13

+50

12

11

BM #2 4.93 7.96 3.03

Note! N & S half of Frontier div. in 4 eq. parts of 12.5

L.T. ℄ RT.

ditch, Skipped Levels

7.96

ditch

								Lt				℄			Rt			
+50					2.3 5.9 67	0.3 7.9 60	2.9 5.3 53	3.1 5.1 50	3.1 5.1	3.3 4.9	3.2 5.0	3.1 5.1	3.2 5.0	3.2 5.0	3.0 5.2	2.8 5.4 50	3.0 5.2 57	2.0 6.2 60	3.4 4.8 65
T.P.	5.06	8.22	4.80	3.16								8.22							
17					2.5 5.5 66	0.8 7.2 60	3.1 4.9 53	3.1 4.9 50	3.0 5.0	3.2 4.8	3.1 4.9	3.1 4.9	3.2 4.8	3.2 4.8	3.1 4.9	2.9 5.1 50	2.9 5.1 57	2.0 6.0 60	3.4 4.8 65
+50					2.7 5.3 66	0.8 7.2 60	3.2 4.8 53	3.0 5.0 50	3.0 5.0	3.1 4.9	2.9 5.1	2.9 5.1	3.1 4.9	3.1 4.9	3.0 5.0	2.8 5.2 50	2.8 5.2 57	2.0 6.0 60	3.3 4.7 65
16					2.4 5.6 67	0.6 7.4 60	3.0 5.0 53	2.9 5.1 50	2.9 5.1	3.0 5.0	2.9 5.1	2.9 5.1	3.0 5.0	3.0 5.0	3.0 5.0	2.8 5.2 50	2.9 5.1 54	2.1 5.9 59	3.2 4.8 64
+50					2.5 5.5 67	0.8 7.2 60	2.8 5.2 53	2.8 5.2 50	2.9 5.1	3.1 4.9	3.0 5.0	3.0 5.0	3.2 4.8	3.1 4.9	3.0 5.0	2.7 5.3 50	2.9 5.1 54	2.1 5.9 59	3.2 4.8 64
15					2.5 5.5 67	0.4 7.6 60 ditch	2.9 5.1 53	2.9 5.1 50	2.9 5.1	3.0 5.0	3.0 5.0	3.1 4.9	3.1 4.9	3.2 4.8	3.0 5.0	2.9 5.1 50	2.8 5.2 56	2.0 6.0 60 ditch	3.0 5.0 64
		796										7.96							

LT ℄ RT

+50

chisel ☐ on walk

check to BM. #3 73' RT. 19+91 4.67 3.60 3.67

20

19+40 open ditch on South side ends here and turns South

19+30 20' N of N.L. = Pack Lot - Skip

19

+50

18

8.22

23 + 04.19 E c6 Line Freedam

23 + 98.6

T.P. 4.57 8.35 4.44 3.78

+ 50

22

= 15° 53' Lt. to E c6 line of Fordham St.

21 + 51.45 Sec. at 90° with Frontier

Sketch + c6 Levels P. 18

21

8.22

Lt & Rt.

Outlet Spillway

8.77

LT RT

± 50

± 50

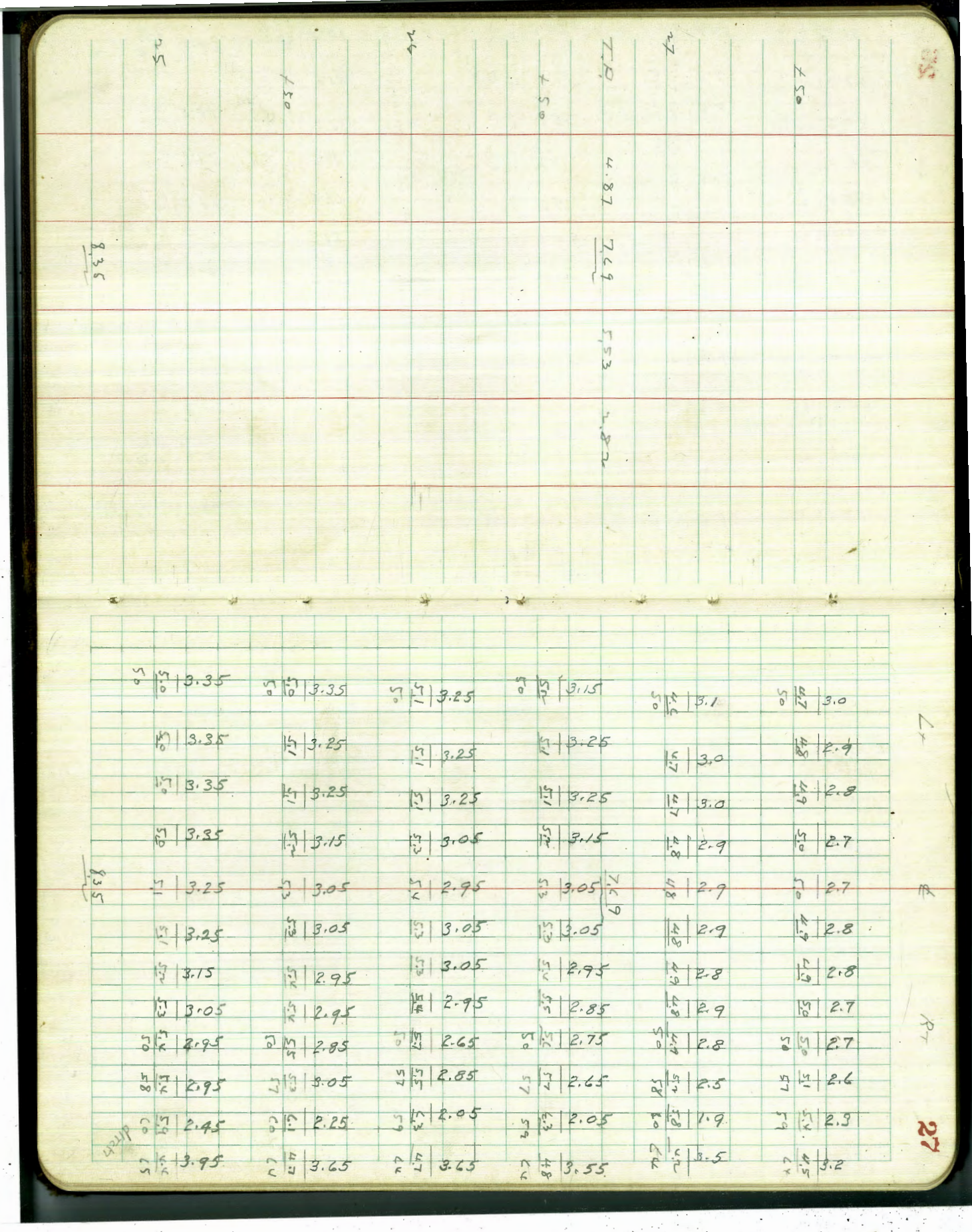
± 47.69

± 36.19 W 66 Freedom

~~43.19~~ 4 Freedom

875

835



Lt ℄ RT

30

+78+18 ℄ Kempton 20' strip paving

+50

29

+74 Parking Lot 20' N of ℄ Skip Levels
Bridged over ditch

+50

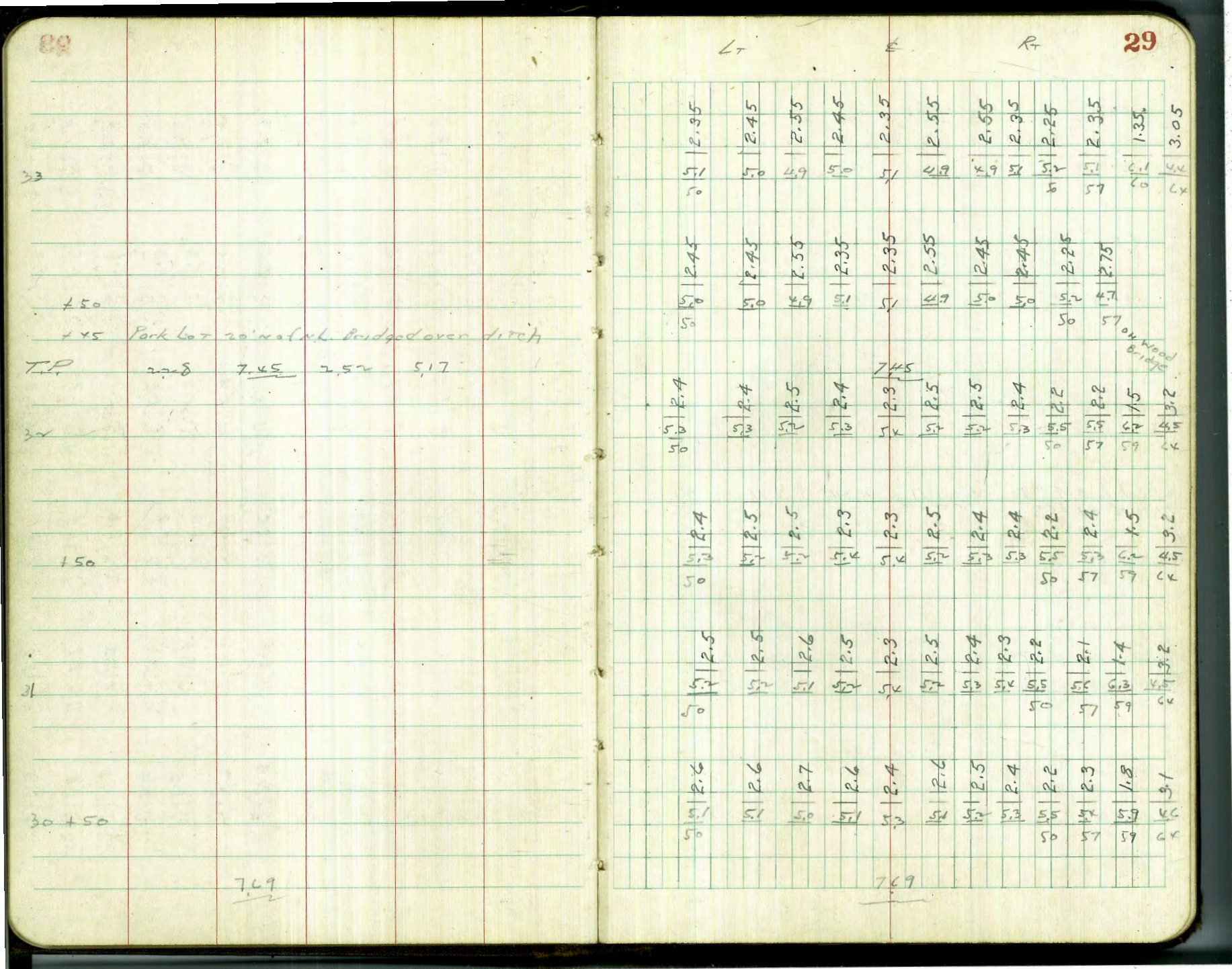
28

check to B.M. #4

chisel ☐ Sedge walk 4.11 3.58 3.64 − 0.06

79' N of 27+90

7.69


Lt
℄
Rt
+50
+45
Park lot 20'n of ℄ Bridged over ditch
TP 22.8 7.45 2.52 5.17
+50
30+50
7.69
7.69
Wood B-idge

check to B.M. #5 chisel ☐ on walk 4.34 3.11 3.17
79' N of 34+65 0.04

Station	Lt				℄				Rt			
36	5.1 / 2.25 50	5.2 / 2.25	5.1 / 2.35	5.1 / 2.35	5.1 / 2.35	5.1 / 2.35	5.1 / 2.35	5.2 / 2.25	5.3 / 2.15 50	4.9 / 2.55 57	5.9 / 1.55 60	4.4 / 3.05 65
+50	5.1 / 2.35 50	5.1 / 2.35	5.0 / 2.45	5.1 / 2.35	5.1 / 2.35	5.0 / 2.45	5.0 / 2.45	5.2 / 2.25	5.3 / 2.15 50	5.2 / 2.25 57	6.4 / 1.05 59	4.4 / 2.95 65
35	5.1 / 2.35 50	5.0 / 2.45	5.0 / 2.45	5.0 / 2.45	5.1 / 2.35	4.9 / 2.55	5.0 / 2.45	5.1 / 2.35	5.3 / 2.15 50	5.2 / 2.25 57	6.4 / 1.05 59	4.5 / 2.95 65
+50	5.1 / 2.35 50	5.1 / 2.35	5.0 / 2.45	5.1 / 2.35	5.2 / 2.25	5.0 / 2.45	5.0 / 2.45	5.2 / 2.25	5.3 / 2.15 50	5.2 / 2.25 57	6.3 / 1.15 59	4.4 / 3.05 66
34	5.1 / 2.35 50	5.0 / 2.45	5.0 / 2.45	5.0 / 2.45	5.2 / 2.25	4.9 / 2.55	5.0 / 2.45	5.1 / 2.35	5.2 / 2.25 50	5.1 / 2.35 57	6.2 / 1.25 60	4.4 / 3.05 65
33+50	5.1 / 2.35 50	5.0 / 2.45	5.0 / 2.45	5.0 / 2.45	5.2 / 2.25	4.9 / 2.55	4.9 / 2.55	5.1 / 2.35	5.2 / 2.25 50	5.2 / 2.25 57	6.1 / 1.35 60	4.3 / 3.15 65

ditch

7.45

7.45

+50

38

TP 5.46 7.59 5.32 2.13

+50

37

+50

36+16 Park Lot 20'N of N.L. Bridged over ditch Skip Levels

36+11.20 65°48' LT. Sec. on ℄ of Purdue ST.

7.45

+50

+50

+0

+30 E Valiant St.

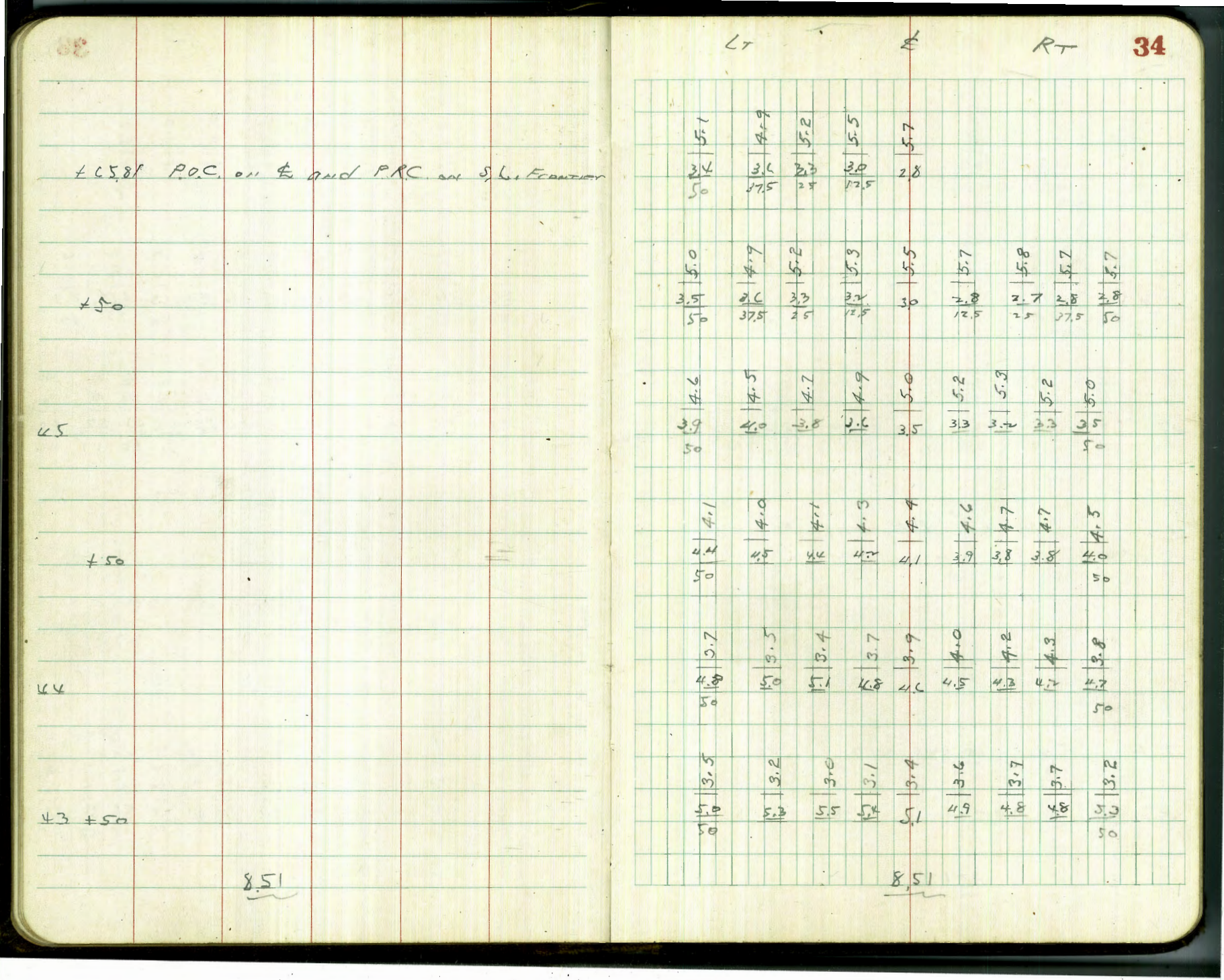
29

7.59

7.59

43					
+65.80 BCLT = End ditch on N.					
42+50					
B.M. #6	5.75	8.51		2.76	
Check to B.M.B.P. Top S. hdwl. Triple Box Culv. at Midway & W. Pt. Loma Blvd.			7.87	2.89	2.90 0.01
T.P.	5.86	10.76	3.28	4.90	
T.P. B.M. #6 80' N of 42+25	5.42	8.18	4.83	2.76 ✓	Chisel □ on walk 2.86 0.10
42					
		7.59			

Lt				℄			Rt				
3.2 5.3 50	3.2 5.3	3.1 5.4	3.1 5.4	3.2 5.3	3.1 5.4	3.0 5.5	3.0 5.5	2.7 5.8 50			
2.9 5.6 50	2.9 5.6	3.0 5.5	2.9 5.6	2.9 5.6	3.0 5.5	2.9 5.6	2.8 5.7	2.3 6.2 50	2.4 6.1 55	0.2 8.3 60	
2.7 5.8 50	2.9 5.6	2.9 5.6	2.9 5.6	2.9 5.6	2.9 5.6	2.9 5.6	2.7 5.8	2.2 6.3 50	2.4 6.1 55	0.2 8.3 59	2.5 6.0 66
				8.51							
2.6 5.0 50	2.7 4.9	2.7 4.9	2.7 4.9	2.5 5.1	2.7 4.9	2.6 5.0	2.5 5.1	2.1 5.5 50	2.1 5.5 55	0.1 7.5 58	2.6 5.0 64
				7.59							


LT
RT
+C5.8' P.O.C. on ℄ and P.R.C. on S.L. Frontage
+50
45
+50
44
43 +50
8.51
8.51

Lt. ℄ Rt.

48

+50

47

approx. ℄ Midway

Note! E.P. = edge paving

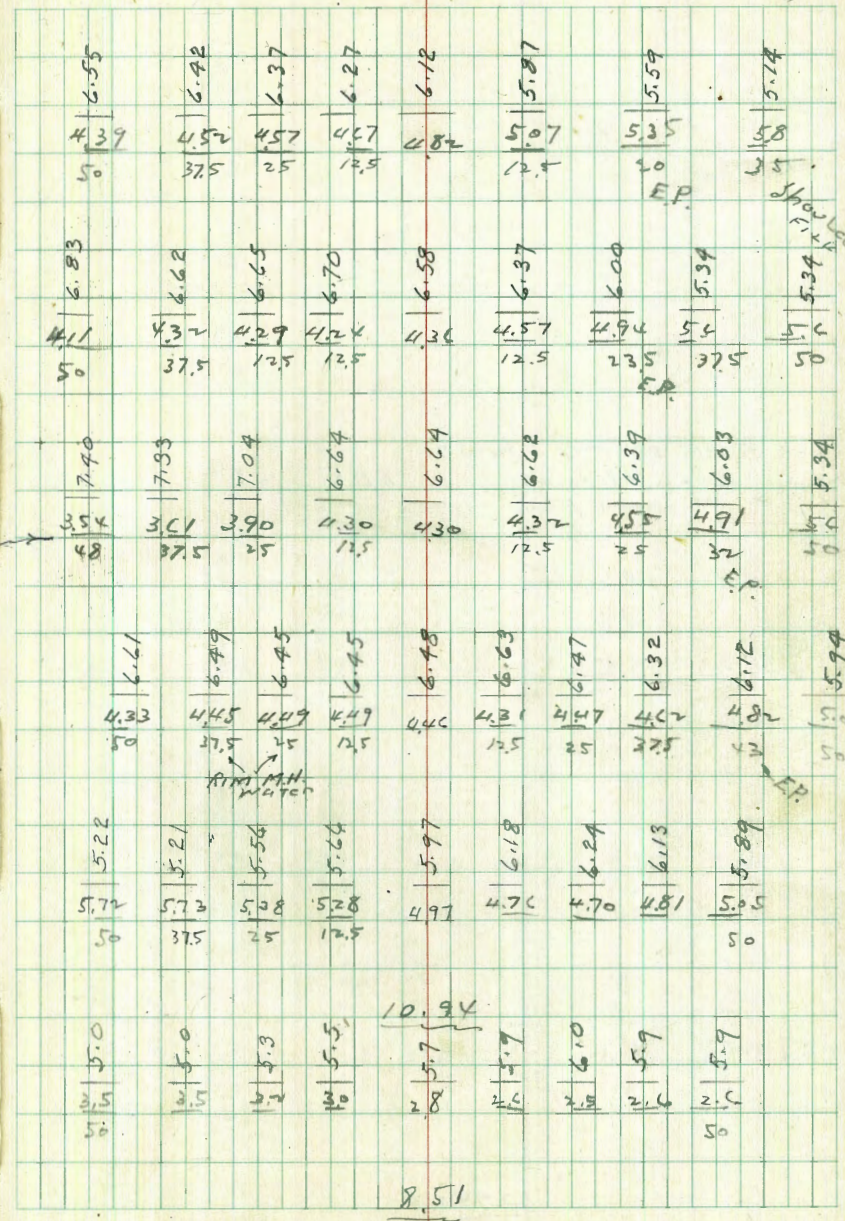
+50

46

T.P. 50L 10.9V 2.63 5.88

45+69.68 ℄ P.R.C.

8.51



Check to B.M. B.P. Top S. hdwl. Box Culv. on Midway at W. Pt. Loma Blvd. 8.05 2.89 2.90

	Lt			℄		Rt	
48+86.23 E.C.	5.61 5.33 20 c6	4.87 6.07 20 9T	5.04 5.90 10	5.07 5.87	4.87 6.07 10	4.60 6.34 20 9T	5.24 5.70 20 c6
+50	6.19 4.75 24.3 c6	5.61 5.33 24.3 9T	5.71 5.23 12.5	5.56 5.38	5.24 5.70 12.5	5.02 5.92 18.8 9T	5.53 5.41 18.8 c6
48+39	6.29 4.65 27 c6	5.75 5.19 27 9T.	5.89 5.05 12.5	5.68 5.26	5.47 5.47 17.5	5.14 5.80 18.2 9T	5.55 5.39 18.2 c6. End

10.94

10.94

Walker Hardin Bogy

H-2145

Cross Section - 51st Street 60' Wide

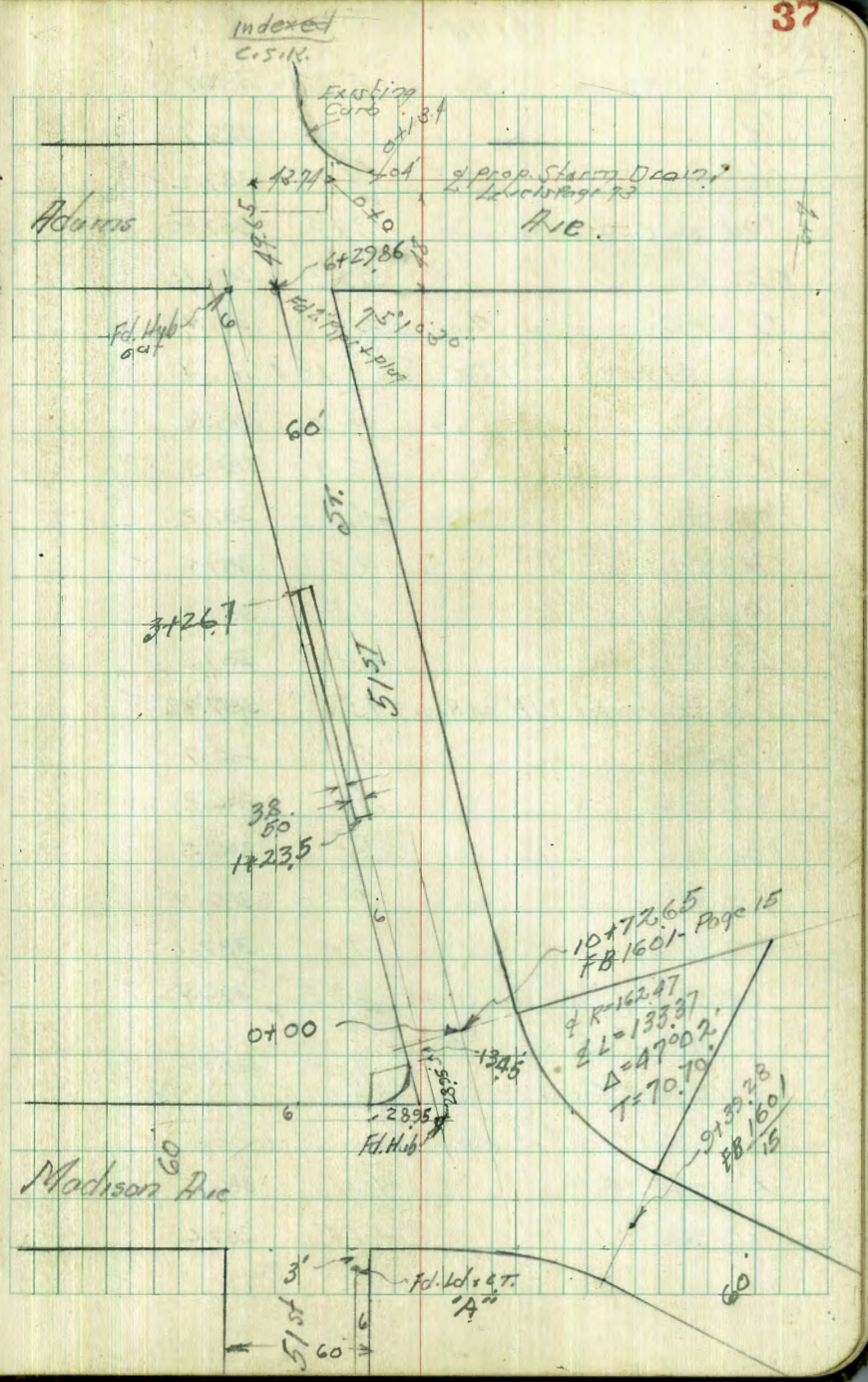
from Madison Ave

to Adams Ave

12C65, 9"/14.5

Indexed C.S.I.K.

FB1601 29	8.13	388.50 ✓		380.37	BM S.E.B.P. Madison & 49th
T.P.	4.82	391.06 ✓	2.26	386.24	on Tack "A"
I.P.	4.91	391.74 ✓	4.23	386.83	Sketch
Cbk Walk	10+31 FB1601-29		5.66	386.08 ✓	386.03
	0+00				
-05'	on Lawn		2.6	389.1	
W			3.0	388.7	
cb.			4.7	387.0	
1/4			4.8	386.9	
℄			4.8	386.9	
1/4			5.5	386.2	
cb.			5.8	385.9	
E.			5.3	386.4	
+5			4.2	386.8	
0+18.5	℄ 8.5 Conc. Drive	on East Line	4.97	386.77	
0+23	℄ 2' Conc. Walk on W	on West	3.72	388.02	1.8 in st.
0+52	℄ Conc. Drive 14' Wide		3.88	387.86	16' in st.
	0+50				
-5			4.9	386.8	
E			5.1	386.6	
cb			5.4	386.3	
+3			5.7	386.0	
1/4			5.3	386.4	



℄	5.0	386.7
¼	4.8	386.9
cb.	4.5	387.2
+44 on Conc. Drive	3.88	387.86
W.L.	3.63	388.11
+9 of Garage on Floor	2.30	389.44
1+00 ℄ Elec Pole 10.4 in st.		
-5	2.9	388.8
W	3.4	388.3
+2	4.0	387.7
cb.	4.3	387.4
¼	4.5	387.2
℄	4.4	387.3
3' N = ℄ Sewer MH on Rim	4.32	387.42
¼	5.0	386.7
+7	5.4	386.3
cb.	5.2	386.5
E	5.0	386.7
+5	4.6	387.1
0+92 = Guy Pole 95' in st. on E.	4.82 ✓	386.92
0+72.5 = ℄ Conc Ribbon Drive on E on Line	4.44	387.30
1+18.5 = ℄ Conc. Ribbon Drive on E. 6.8' Wide		2' Ribbons
1+23.5 = beg. 5' Conc. Walk on W		
E edge Walk	4.21	387.53
W " "	4.14	387.60

1+44 = ℄ 3' Conc. Walk	4.47	387.27 on E.L.
1+50		
-5	4.5	387.2
E	4.7	387.0
cb.	4.8	386.9
¼	4.8	386.9
℄	4.5	387.2
¼	4.5	387.2
cb.	4.3	387.4
+3.2 on E. edge Side Walk	4.27	387.47
+8.2 " W " "	4.15	387.59
W	3.5	388.2
+5	3.1	388.6
2+00		
-5	3.7	389.0
W	3.3	388.9
+3.8 = W. edge Side Walk	3.96	387.78
+8.8 = E " " "	4.04	387.70
cb.	4.1	387.6
¼	4.3	387.4
℄	4.2	387.5
¼	4.5	387.2
cb.	4.5	387.2
E.	4.8	386.9
+5'	4.9	386.8

391.74 ✓ 51st St.

2+30.5=℄ 27' Conc. Walk		4.34	387.40 on E Line
2+32 =℄ 6" Acacia Tree on E 2' in St			
+48 " " " " " " " "			
+64 " " " " " " 9.5 " "			
2+50			
-5		4.1	387.6
E		4.3	387.4
Cb.		4.4	387.3
¼		4.4	387.3
℄		4.1	387.6
¼		4.1	387.6
Cb.		3.8	387.9
+32 on E edge Walk		-3.81	387.93
+8.2 " W " "		3.75	387.99
W		3.2	388.5
+5		2.7	389.0
T.P.	5.91 393.73	3.92	387.82
3+00			
-5		4.6	389.1
W		5.0	388.7
+38 on W Walk		5.54	388.19
+88 " "		5.72	388.01
Cb.		5.7	388.0
¼		6.0	387.7
℄		6.0	387.7
¼		6.2	387.5

39373 ✓

Cb.		6.2	387.5
E		6.2	387.5
+5		6.2	387.5
2+71=℄ 3' Conc Walk on E Line		6.24	387.49
3+33 on Rim N.H.		5.56	388.17 E St.
3+26.7 = End Exist. Side Walk on W			
E edge Walk		5.57	388.16
W. " " 6.8' Wide		5.41	388.32
		5.37	388.36 2' Ribbon
3+31.2=℄ Ribbon Drive		3.8 in St.	on West St
3+47 = ℄ 16" Pepper Tree on E 8.5' in St.			
3+50			
E-5		6.1	387.6
E		6.0	387.7
Cb		6.0	387.7
+2		6.2	387.5
¼		6.0	387.7
℄		5.6	388.1
¼		5.6	388.1
Cb.		5.4	388.3
+8		5.4	388.3
W		5.0	388.7
+5		4.7	389.0
3+57 =℄ 3' Conc. Walk		5.10 on W	3.8' in St. 388.62
3+85.6=℄ 7' Conc. Ribbon Dr. on W		4.63	3.8 " St 389.10
4+05.5=℄ 3' Conc. Walk		4.46	3.8' in St 389.27
3+80.05=℄ 3' Conc. Walk		5.16	387.97 1' Bucl.

39373 ✓ 51st St.

4+00			
-5		4.2	389.5
W		4.4	389.3
Cb.		5.0	388.7
+3		5.5	388.2
W		5.3	388.4
E.		5.2	388.5
W		5.6	388.1
+8		6.1	387.6
Cb		5.8	387.9
E		5.6	388.1
+5		6.0	387.7
4+05 = ℄ 12" Pepper Tree on E 8.5' in St			
4+22.5 ℄ 4" Hackberry Tree on E 9' in St			
+47.5 = 3 " " " 9' " "			
4+50			
-5		6.1	387.6
E		5.5	388.2
Cb.		5.5	388.2
W		5.4	388.3
E		5.0	388.7
W		5.1	388.6
Cb.		5.0	388.7
Tr		4.4	389.3
W		4.4	389.3
+5		4.6	389.1

39373 ✓ 40

4+79 = ℄ Elec Pole 10.6' in St. on W		
5+00		
-5	4.1	389.6
W	4.2	389.5
Cb.	4.6	389.1
W	4.7	389.0
E.	4.8	388.9
W	5.2	388.5
Cb.	5.3	388.4
E	5.2	388.5
+5	5.3	388.4
5+02.5 Elec. Pole on W 10.0' in St		
5+03.74 = ℄ 2' Conc. Walk on W 3' in St		389.99
5+50		
-5	3.5	390.2
W	3.5	390.2
Cb.	4.2	389.5
+4	4.7	389.0
W	4.6	389.1
E.	4.5	389.2
W	4.8	388.9
Cb.	5.1	388.6
North E on Conc. Ribbon	4.80	388.93
7' " South "	5.00	388.73
	5.20	388.53
5+28.5 = ℄ 6.7' Conc. Drive on East Line on E Line		
5+67 = ℄ 3' Conc. Walk	4.34	389.39

39373 ✓ 51 st

6+00

-5		5.1	388.6	
E.		4.9	388.8	
cb.		4.9	388.8	
¼		4.6	389.1	
L.		4.3	389.4	
¼		4.4	389.3	
cb.		4.2	389.5	
+6		3.8	389.9	
W		3.9	389.8	
+5				

.05' in st.

5+58 to S.L. Adams on 14" Eugene Hedge

L Sta = 6+29.86 Section diag. on S.L. Adams

W		4.7	389.0	
cb.		4.0	389.7	
¼		4.0	389.7	
L.		4.2	389.5	
¼		4.5	389.2	
cb.		4.6	389.1	
E	✓	4.6	389.1	on NE Top cb Adams + 5½
T.P.	5.30	392.88	6.15	387.58

for chk out see cont Levels P. 42 ✓

Walker Hayden Esq. 11-2-15

Cross Section - Adams Ave.

from 51st St to 49th St. 12' cbs. 9' 14's

60' Wide

E. Stations π p.91 392.88 ✓

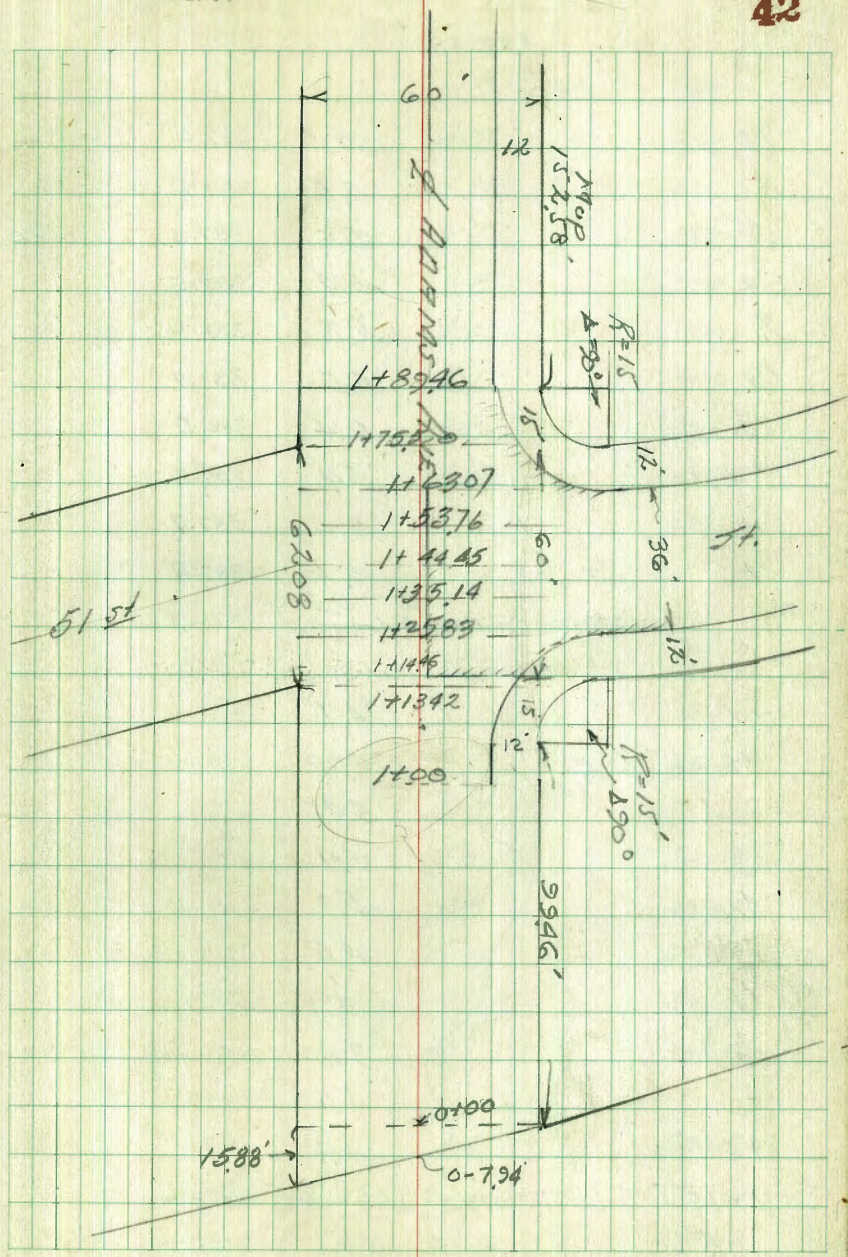
0-7.94 = diagonal station on Bdy line

-15		14.8	378.1
S		15.8	377.1
cb.		16.1	376.8
'14		16.4	376.5
℄		16.2	376.7
'14		14.1	378.8
cb.		15.0	377.9
N		14.6	378.3
+15		13.4	379.5
	0+10		
-10		6.4	386.5
N		6.5	386.4
+9		9.7	383.2
cb.		7.7	385.2
'10		7.4	385.5
℄		7.6	385.3
'14		8.8	384.1
cb.		8.6	384.3
S		8.0	384.9
+10		8.5	384.4

0+16 = Tel Pole 8' N of ℄ on South

Indexed C.S.K.

42



392.88 ✓

0+50

-10	5.3	387.6
S	5.5	387.4
cb.	5.6	387.3
1/4	5.4	387.5
L	5.3	387.6
1/4	5.5	387.4
cb.	6.4	386.5
+4	5.4	387.5
N	5.2	387.7
+5	5.1	387.8

~~0+88 on End Retaining N~~ to 5.20

1+00

N	4.7	
+6 on ~~cb~~ Ret	4.93	
Gut.	5.95	
cb.	5.9	
1/4	5.0	
L	4.6	
1/4	3.9	
cb	3.8	
St.	4.2	
+5	4.4	

~~1+15.5 = Tel Pole on South 85' to St~~

392.88 ✓

1+00

-5	3.9	389.0
N	4.2	388.7
cb.	5.30	387.58
Gut.	5.7	387.2
1/4	5.3	387.6
L.	4.8	388.1
1/4	4.1	388.8
cb.	3.8	389.1
S	4.2	388.7
+5	4.3	388.6

1+04 = Tel Pole on South 81' n St.

1+13.42

S	4.0	388.9
cb.	3.8	389.1
1/4	3.9	389.0
L.	4.5	388.4
4	5.0	387.9
cb.	5.5	387.4
+4.2 Gut	5.5	387.4
" on cb. Ret.	4.93	387.95
N.	4.5	388.4

1+14.46

N	4.6	388.3
+7 on cb Ret.	4.90	388.0
Gut. at cb Ret.	5.5	387.4
cb Gut	5.43	387.95

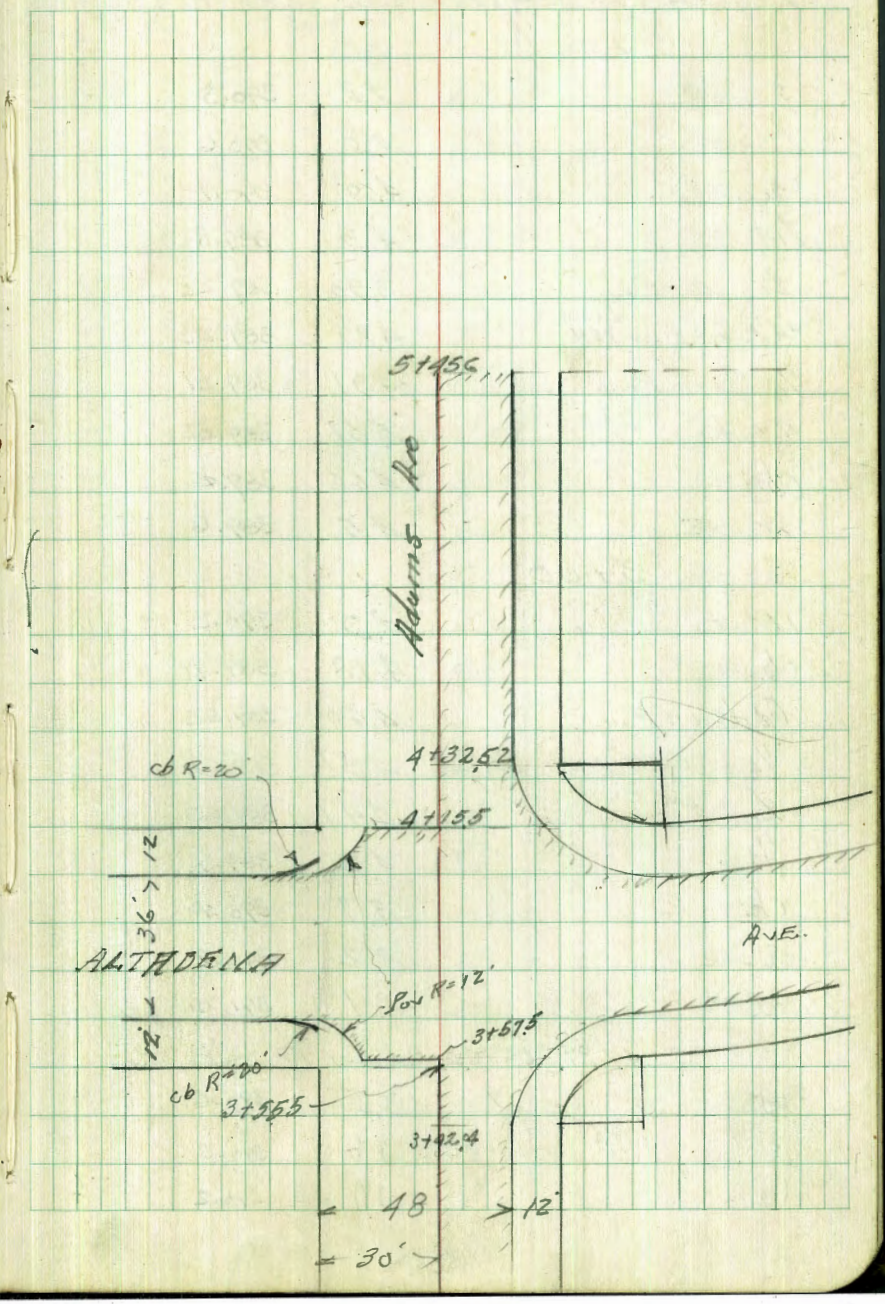
392.88 ✓ Adams Ave.

¼ on Pav	4.91	387.97
℄ " "	4.62	388.26
¼	3.9	389.0
cb.	3.8	389.1
S	3.9	389.0
1+25.83		
S	3.8	389.1
cb.	3.8	389.1
¼	4.0	388.9
℄ on Pav.	4.51	388.37
¼ " "	4.80	388.08
cb. " "	5.32	387.56
N " "	5.10	387.78
1+35.14		
N on Pav.	4.97	387.91
+10 " " ℄ Valley Gut	5.32	387.56
cb " "	5.25	387.63
¼ " "	4.76	388.12
℄ " "	4.44	388.44
¼	3.9	389.0
cb.	3.8	389.1
S	3.6	389.3
1+44.45		
S	3.3	389.6
cb.	3.6	389.3
¼	3.9	389.0

392.88 ✓

℄ on Pav	4.35	388.53
¼ " "	4.70	388.18
cb. " "	5.14	387.74
+2 ℄ Valley Gut	5.19	387.69
N on Pav	4.81	388.07
1+53.76		
N on Pav	4.64	388.24
+11 ℄ Valley	5.00	387.88
cb on Pav	5.00	387.88
¼ " "	4.64	388.24
℄ " "	4.37	388.51
¼	3.8	389.1
cb.	3.4	389.5
SL.	3.2	389.7
1+63.07		
SL	3.1	389.8
cb.	3.3	389.6
¼	3.7	389.2
℄ on Pav	4.40	388.48
¼ " "	4.55	388.33
Gut " " ℄ Valley	4.85	388.03
N " "	4.58	388.30
1+75.50		
N on walk	3.97	388.91
+8' on cb Rot.	4.08	388.80
10 " Gut	4.51	388.37

	392.88		
cb.	on Pav.	4.58	388.30
1/4	" "	4.40	388.48
℄	" "	4.16	388.72
1/4		3.6	389.3
cb.		3.2	389.7
S		2.8	390.1
	1+89.46		
-S		2.5	390.4
S		2.7	390.2
cb.		3.1	389.8
1/4		3.5	389.4
℄	on Pav.	4.04	388.87
1/4	" "	4.23	388.65
Gut	"	4.38	388.50
cb.		4.05	388.83
N		4.0	388.9
	2+00		
N		3.8	389.1
cb.		3.98	388.90
Gut.	Pav.	3.32	389.56
1/4	"	4.20	388.68
℄	"	4.00	388.88
1/4		3.4	389.5
cb.		3.1	389.8
SL		2.6	390.3
+2.2	OD 31' conc walk	2.43	390.45



392.88 ✓ Adams Ave.

TP	4.13	39412	2.89	389.99 on C.T.
	2+50			
-5			3.3	390.8
5			3.5	390.6
Cb.			4.0	390.1
1/4			4.3	389.8
L	on Pav.		4.90	389.22
44 E. on Rim	Sewer MH		4.89	389.23
1/4	on Pav		4.91	389.21
N Gut.	"		5.07	389.05
Cb.			4.66	389.46
N			4.5	389.6
	3+00			
N			3.9	390.2
Cb.			4.18	389.94
Gut.	on Pav.		4.60	389.52
1/4	" "		4.51	389.61
L	" "		4.47	389.65
1/4			4.2	389.9
Cb.			3.7	390.4
S			3.2	390.9
+5			3.1	391.0
	3+42.09 = BC	Cb Rot. on N		
-5			3.5	390.6
S			3.6	390.5
Cb.			3.9	390.2

Ld Pkg 3' SSL Adams 6' W. of E.L. Altadena Ave

3+42.09 ℄ Cont 39412 ✓

1/4		4.1	390.0
L	on Pav	4.10	390.02
1/4	" "	4.15	389.97
Gut	"	4.23	389.89
Cb		3.76	390.36
N		3.3	390.8
	3+55.5 ± = E.L.	Altadena on South	
N		3.4	390.7
+2	on Cb Rot	3.65	390.47
"	" Gut Rot	4.05	390.07
Cb	" "	4.03	390.09
1/4	" "	4.01	390.11
L	" "	4.05	390.07
1/4		4.0	390.1
Cb.		4.0	390.1
S		3.8	390.3
+5		3.5	390.6
	3+57.5		
S		3.8	390.3
Cb.	on Pav.	4.05	390.07
1/4	" "	4.07	390.05
L	" "	4.03	390.09

39412 ✓ Adams Ave

3+67.5 = E cb. Alladena on South

N on Pav.	403	390.09
N Gut. "	397	390.15
1/4 "	391	390.21
℄ "	398	390.14
1/4 "	408	390.04
cb "	418	389.94
S	446	389.66
S on End cb.	408	390.07

3+76.5 = E 1/4 Alladena on South

S on Pav.	435	389.77
cb. " "	416	389.96
1/4 " "	403	390.09
℄ " "	390	390.21
1/4 " "	387	390.25
Gut. " "	390	390.22
N " "	390	390.22

3+85.5 = ℄ Alladena on South

N on Pav.	385	390.27
Gut. " "	387	390.25
1/4 " "	388	390.24
℄ " "	392	390.20
1/4 " "	401	390.11
cb. " "	411	390.01
S " "	426	389.86

3+91.5 = W 1/4 Alladena on S

S on Pav.	434	389.78

3+85.5 39412 ✓

S cb on Pav.	412	390.00
1/4 " "	404	390.08
℄ " "	393	390.19
1/4 " "	391	390.21
cb " "	391	390.21
N " "	390	390.22

4+03.5 = W cb. Alladena on South

N on Pav.	407	390.05
cb. " "	399	390.13
1/4 " "	395	390.17
℄ " "	402	390.10
1/4 " "	411	390.01
cb " "	423	389.89
S " "	443	389.69
" on End cb	399	390.13

4+15.5 = W.L. Alladena on South

S	387	390.9
+9	395	390.6
cb. on Pav.	410	390.02
1/4 " "	406	390.06
℄ " "	397	390.15
1/4 " "	403	390.09
cb " "	419	389.93
+6 " " at cb Rat.	413	389.99
+6 on cb	383	390.29
N " walk	374	390.38

39412 ✓

	4+50			
N			3.8	390.3
cb.			3.97	390.15
Gut.	on Pav.		4.38	389.74
½	" "		4.27	389.85
℄	" "		4.21	389.91
½			4.0	390.1
cb			3.7	390.4
S			2.9	391.2
+5			2.9	391.2
	5+00			
-5			3.6	390.5
S			3.6	390.5
cb.			4.0	390.1
½			4.3	389.8
℄	on Pav		4.60	389.52
½	" "		4.72	389.40
Gut.	in " " Drive Way		4.91	389.21
N	" " "		4.21	389.91

Beginning Conc. Tile wall on ℄ 4.5' High.
5+45.6 = End cb & Pav. on N

N			4.7	389.4
cb.			4.81	389.31
Gut.	on Pav		5.19	388.93
½	" "		5.07	389.05
℄	" "		5.07	389.10
½			4.7	389.8

39412 ✓

cb.	4.0	390.1	
S	4.0	"	
+5	4.0	"	
	5+55		
-5	4.0	"	
S	4.0	"	
cb	3.8	390.2	
½	4.2	389.8	
℄	4.8	389.3	
½	5.0	389.1	
cb	5.5	388.6	
+2	4.3	389.8	
N of Wall	3.9	390.2	
	3.57	390.55	

5785 = ℄ 3.5' Conc. Walk on South 2' in St.
6+00 = ℄ Conc. Slab on South 8' Wide 3.4' in St.

N of Wall	3.8	390.3	
+12	4.0	390.1	
cb	5.8	388.3	
+3	5.1	389.0	
½	5.1	389.0	
℄	5.0	389.1	
½	4.4	389.7	
cb.	4.0	390.1	
+8.6 on Conc. Slab	3.30	390.82	
S " " "	3.10	391.02	
+43 " " "	2.77	391.35	at house

39412 ✓

6+19.5 = ℄ 14' Conc. Drive on South 11.3 in st

SL on Drive	3.34	390.78
+11.3' " " end	3.96	390.16

6+27 to ℄ Line 50th - Eugene Hodge 3' in st.

6+26.5 to 6+56 = (2' Conc. Walk on South Parallel to St. N. edge) = 1' in St.

6+26.5 on N edge Above Walk	3.41	390.71
6+56.0 " " " " "	4.06	390.06

6+50

S	4.1	390.0
cb	4.3	389.6
¼	4.8	389.3
℄	5.3	388.8
¼	5.7	388.4
+6	5.6	388.5
cb	6.1	388.0
+1	4.5	389.6
N cl Walk	4.0	390.1

6+80

N of Walk	4.4	389.7
+7	4.8	389.3
cb	6.4	387.7
¼	6.2	387.9
℄	6.1	388.0
¼	6.1	388.0
cb	6.7	387.9
+3	5.4	388.9

6+80 39412 ✓

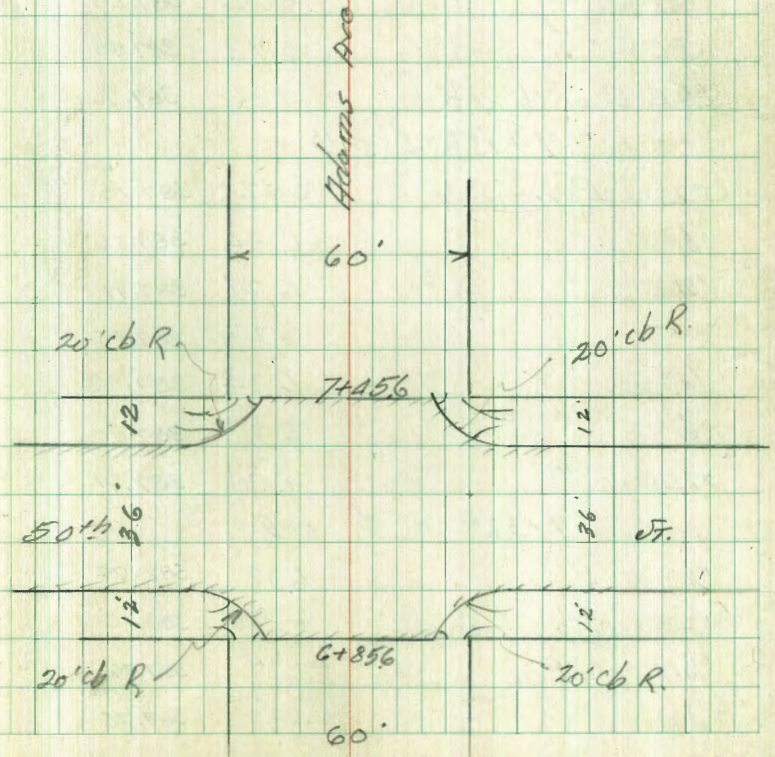
49

cb+6	5.1	389.0
S	5.0	389.1

End Conc. Tile Wall on N

6+85.6 ± = ℄ Line 50th St. Wall on N

S on Walk	6.05	388.07
+10.3 on cb Rot.	6.21	387.91
Cut. on Pav.	6.60	387.52
¼ " "	6.42	387.70
℄ " "	6.27	387.85
¼ " "	6.27	387.85
Cut	6.48	387.64



6+85.6

Cut 12 = N Cut at cb Rot	6.48	387.64
on cb Rot.	6.04	388.08
N	5.4	388.7
13' East 6+97.6		
N on cb Rot.	6.02	388.10 on cb Rot.
N " Cut Par.	642	387.70
cb on Par.	6.43	387.69
1/4 " "	653	387.59
℄ " "	6.52	387.60
1/4 " "	6.53	387.59
cb " "	662	387.50
SL " "	672	387.40
1.5 ± E on cb Rot.	616	387.96
7+15.6 = ℄ 58½		
SL. Par.	642	387.70
cb. "	6.36	387.75
1/4 "	6.21	387.91
℄ "	627	387.85
1/4 "	6.24	387.88
cb "	6.22	387.90
NL "	6.21	387.91
7+33.6 = N ℄ 50½		
N on Par.	6.38	387.74
12' N on cb	6.00	388.12
cb. on Par.	6.38	387.74
1/4 " "	637	387.75

℄ on Par.	6.39	387.73
1/4 " "	643	387.59
cb " "	6.50	387.62
SL " "	6.57	387.55
12' N on cb Rot.	6.15	387.97
7+45.6 = N L. 50½		
SL	58	388.3
10.3 on cb Rot.	616	387.96
" " Cut Par.	658	387.57
cb. on Par.	652	387.60
1/4 " "	626	387.86
℄ " "	618	387.94
1/4 " "	622	387.90
cb " "	639	387.73
11.7 " " at cb Rot	645	387.67
" on cb.	611	388.01
N	5.7	388.4
7+70		
-5	4.3	389.8
N	4.5	389.6
cb	44	389.7
12	61	388.02
1/4	59	388.2
℄	58	388.3
1/4	59	388.2
cb	59	388.2

39412 ✓

7+70

cb+3		5.3	388.8
S		4.8	389.3
+5		4.7	389.4
	8+00	(7+97 ± ℄ 14' Conc. Drive on South 3.8' in ℄)	
S. on conc. Drive		4.32	389.80
+3.8' " Too "		4.74	389.38
cb.		5.6	388.5
1/4		5.5	388.6
℄		5.5	388.6
1/4		5.7	388.4
+6		5.8	388.3
cb.		5.3	388.8
+5		4.3	389.8
N.		4.4	389.7
+5		4.4	389.7
	8+50		
-5		4.2	389.9
N		4.1	390.0
+10		4.1	390.0
cb.		4.7	389.4
+1		5.5	388.6
1/4		5.3	388.8
℄		5.1	389.0
1/4		5.3	388.8
cb.		5.6	388.5
+12		5.1	389.0

39412 ✓

S.L.		4.8	389.3
+5		4.7	389.4
	8+80 ✓		
T.P.	4.97	394.28	4.81 389.31
-5		5.6	388.7
S.L.		5.5	388.8
cb.		5.5	388.8
1/4		5.2	389.1
℄		5.0	389.3
1/4		5.2	389.1
cb		5.0	389.3
+7		4.9	389.4
N		4.3	390.0
+5		4.1	390.2
	8+90		
-5		4.1	390.2
N		4.1	390.2
cb		4.3	390.0
+5		4.9	389.4
1/4		5.0	389.3
℄		4.9	389.4
1/4		5.0	389.3
cb		5.5	388.8
+12		4.9	389.4
S		4.6	389.7
+5		4.4	389.9

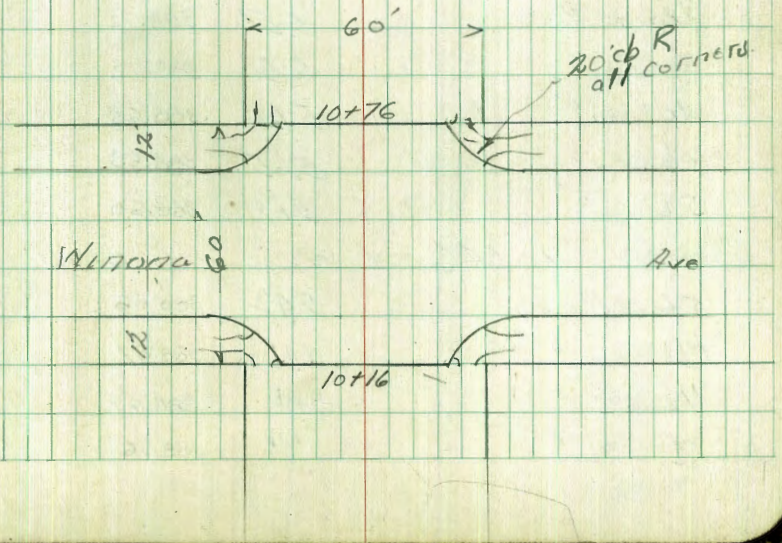
394.28 ✓

8+93=℄ 2' Conc. Ribbon on N on Line	3.55	390.73
9+00=W " " " "	3.51	390.77
9+00		
-5	3.4	390.9
N on Drive (Same as Above)	3.51	390.77
cb	4.1	390.2
+4	4.7	389.6
1/4	4.9	389.4
℄	4.8	389.5
1/4	5.0	389.3
cb	5.3	389.0
+2	4.2	390.1
5	4.3	390.0
+6	4.3	390.0
9+14.5=℄ 3' Conc. Walk on N (on Line)	3.17	391.11
9+32.5 9+18=℄ 2' " " " "	3.28	391.00 on Line
9+48.5=℄ 10' Conc. Drive on South 1' in St.		
9+50		
-9.6 on Drive at Garage	3.38	390.90
55 on Drive	3.66	390.62
cb.	4.7	389.6
+2.	4.9	389.4
1/4	4.9	389.4
℄	4.8	389.5
1/4	4.8	389.5
+6	4.7	389.6

394.28 ✓

52

cb.	3.5	390.8
N	3.0	391.3
10+00		
N	4.0	390.3
+11	4.3	390.0
cb.	5.2	389.1
1/4	5.2	"
℄	5.2	"
1/4	5.2	"
+7	5.4	388.9
cb	4.2	390.1
5	4.0	390.3
+5	4.1	390.2
10+16 - ℄ Winona Ave		
5	5.0	389.3



39428 ✓

5+10.3 on cb Rot,	5.30	388.98
" " Gut. Pav.	5.64	388.64
cb. on "	5.65	388.63
¼ " "	5.51	388.77
℄ " "	5.32	388.96
¼ " "	5.34	388.94
cb " "	5.41	388.87
+1.7 on " at cb Rot	5.40	388.88
" " cb Rot	5.03	389.25
N	4.8	389.5
10+28 = E cb. Winona Ave		
-8 on cb. P.C. Rot	4.96	389.32
" " Gut " "	5.38	388.90
chk. BM	4.92	389.36 / 389.33 ✓NE Winona ✓Adams Roads
N L. Pav.	5.41	388.87
cb "	5.51	388.77
¼ "	5.56	388.72
℄ "	5.56	388.72
¼ "	5.60	388.68
cb. "	5.65	388.63
SL "	5.68	388.60
10+46 = ℄ Winona		
SL Pav.	5.42	388.86
cb. on "	5.41	388.87
¼ " "	5.31	388.97
℄ " "	5.37	388.96

39428 ✓

N ¼ on Pav.	5.31	388.97
cb " "	5.27	389.06
N ¼ " "	5.15	389.13
10+64 = N ¼ cb Winona		
N-8 on cb - P.C. Rot	5.03	389.25
" " Gut. Pav	5.48	388.80
N ¼ " "	5.53	388.75
cb. on Pav.	5.48	388.80
¼ " "	5.51	388.77
℄ " "	5.55	388.73
¼ " "	5.64	388.64
cb " "	5.61	388.67
SL. " "	5.67	388.61
+8 on cb. P.C. Rot	5.33	388.95
" " Pave.	5.81	388.47
10+76 = N L. Winona Ave		
SL.	4.8	389.5
+10.3 on cb	5.23	389.05
Gut Pav.	5.58	388.70
cb "	5.62	388.66
¼ "	5.46	388.82
℄ "	5.30	388.98
¼ "	5.37	388.91
cb. "	5.59	388.69
+1.7 Pav at cb Rot	5.55	388.73
cb Rot	5.14	389.14
N	4.9	389.5

394.28 Adams Ave

	11+00		
5		3.5	390.8
+10		4.1	390.2
cb		4.9	389.4
1/4		4.8	389.5
℄		4.7	389.6
1/4		4.6	389.7
cb		4.5	389.8
+1		3.9	390.4
N		3.8	390.5
+5		3.6	390.7
		11+53-6 15' Conc Drive on N 3' in st.	
	11+50		
N-5	on Drive	3.48	390.80
N	" "	3.58	390.70
+3'	" "	3.62	390.66
+7		3.7	390.6
cb		4.4	389.9
1/4		4.4	389.9
℄		4.2	390.1
1/4		4.4	389.9
+7		4.7	389.6
cb		4.3	390.0
5		4.0	390.3
	12+00		
5		4.4	390.1
cb		4.6	389.7

12+00 — 394.28 ✓

cb+3	5.7	388.6
1/4	5.7	388.6
℄	5.5	388.8
1/4	5.5	"
+7'	5.5	"
cb	3.9	390.4
N	3.7	390.6
+5'	3.6	390.7
12+20± = EL Alley		
-5	4.2	390.1
N	4.4	389.9
+9	4.7	389.6
cb	6.2	388.1
+2	7.3	387.0
1/4	7.0	387.3
℄	7.0	"
1/4	7.0	"
cb	6.7	387.6
+9	4.9	389.4
SL	4.6	389.7
12+30 = East edge East Paving		
SL on Pav.	8.12	386.16
cb " "	7.93	386.35.1
1/4 " "	7.78	386.50
℄ " "	7.47	386.81
1/4 " "	7.52	386.76

12+30	394.28 ✓	Adams Ave	
H Cb on Pav		7.70	386.58 ✓
H L " "		7.84	386.44
12+40 = 1/4 Alley.			
H.L. on cb		7.49	386.79
" " Pav		7.53	386.75
cb " "		7.78	386.50
1/4 " "		7.62	386.66
℄ " "		7.69	386.59
1/4 " "		7.98	386.30
cb. " "		8.28	386.00
S.L. " Pav		7.95	386.33
" " cb.		7.77	386.51
Chk. NEBP. Winona " Adams		4.92	389.36 ✓
			389.33 ← B.M.
			0.03

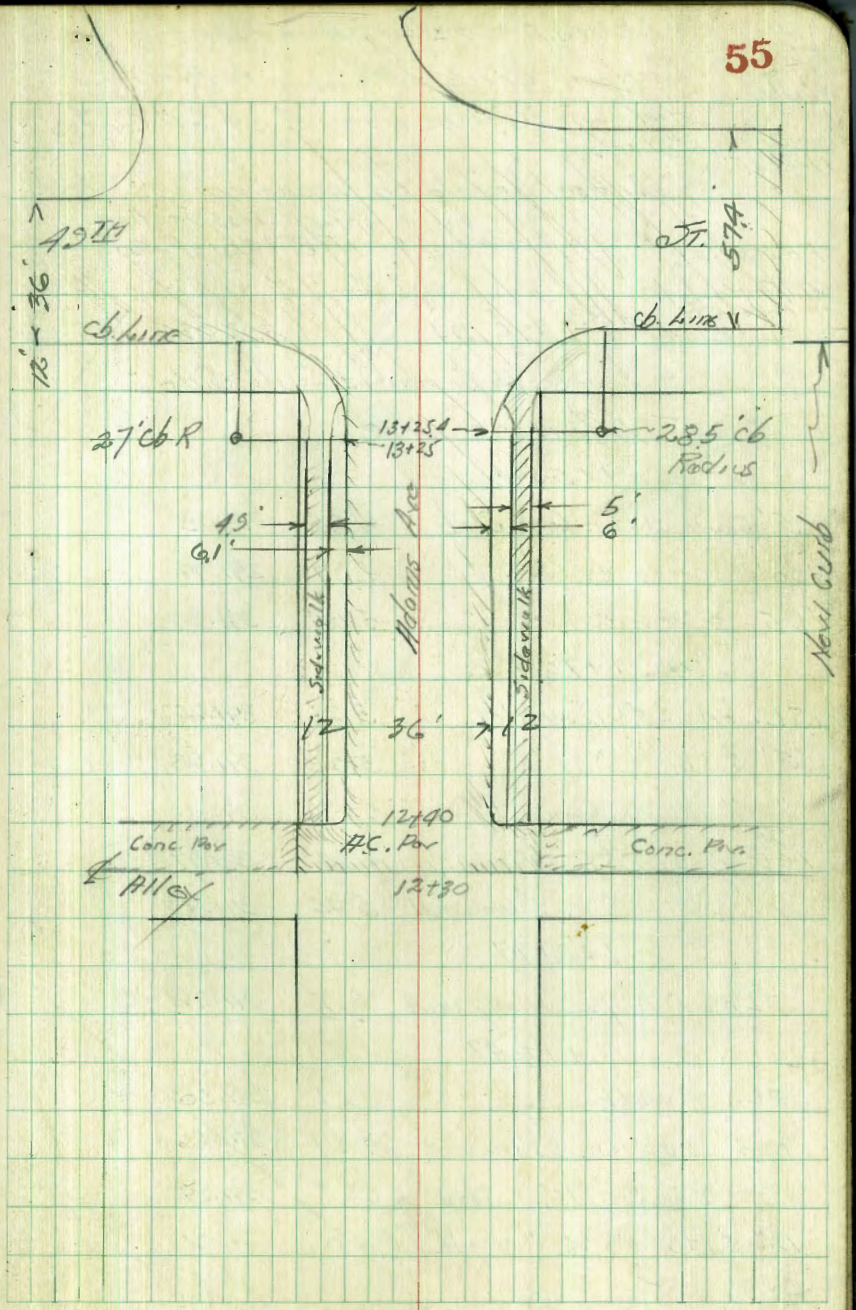
Walker 11-27-45
" Party

Additional Sections on Adams ✓

4,36	393.72		389.36 B.M. above
12+70			
S+1' on curb		7.88	385.84
S cb.		8.00	385.72
Gut.		8.46	385.26
S 1/4		8.07	385.65
℄		7.96	385.76
N 1/4		7.92	385.80
Gut.		7.97	385.75
cb.		7.53	386.19
+11' on curb		7.54	386.18

Notes Reviewed - 11-7-45

Cont. P. 58



Walker
Hyden
Huntley
11-6-45

Levels on Improvements
Contour Blvd. - Monroe to Madison
And on Monroe Ave East of Contour Blvd.

These Levels taken on Improvements that were built after Cross Sections were taken per FB 1601-P-20

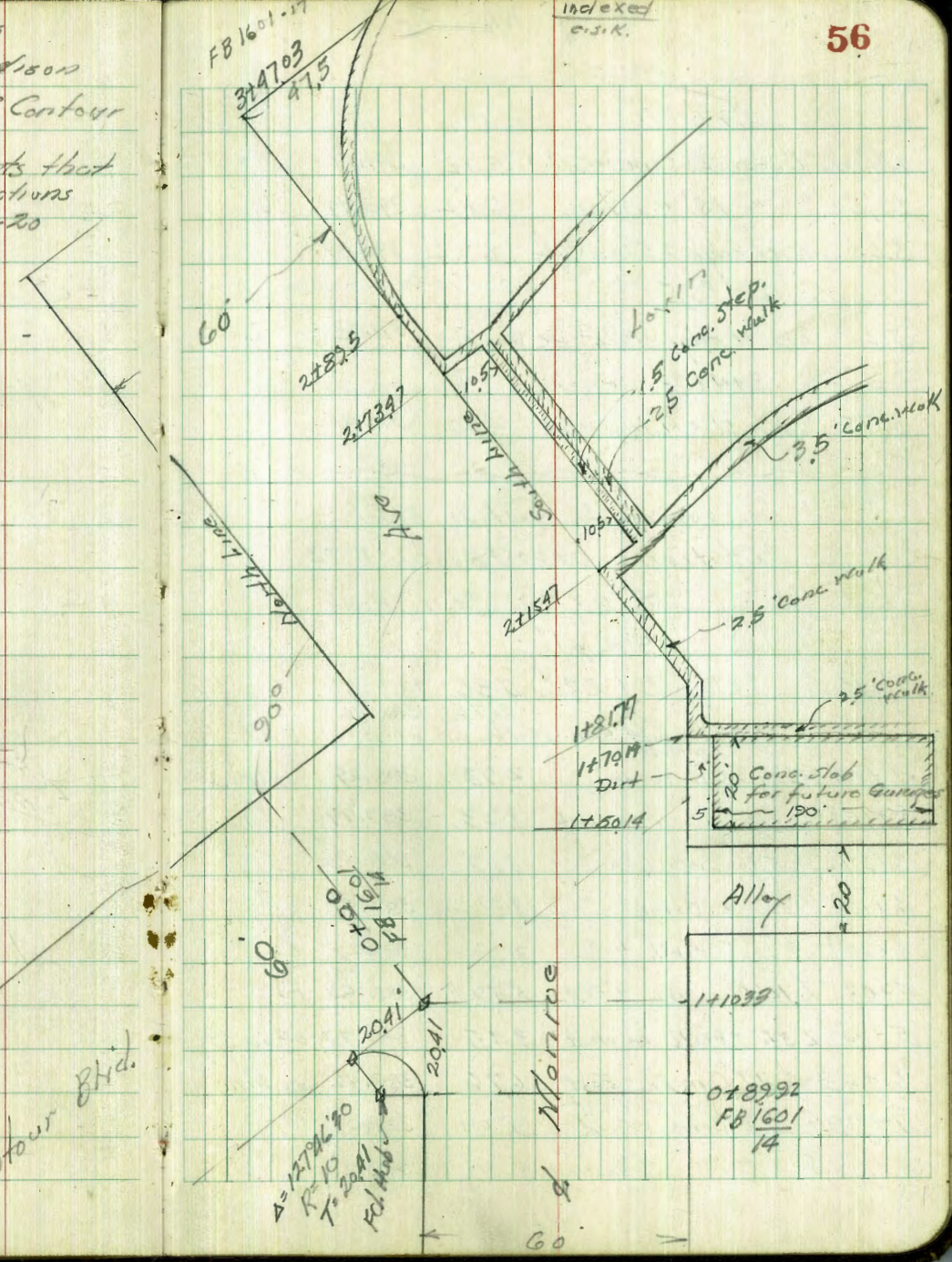
FB 1601-P-16

B.M. Notch in Pole SW Contour + Monroe	4.83	396.91 ✓	392.08

Levels - Improvement South Side - Monroe Ave.

1+50.14		
5' South SL. on Conc. Slab	4.88	392.03
100' " " " " "	4.97	391.94
195 " " " " "	5.04	391.87
1+70.14		
SL. on 2.5 Conc. Walk	5.26	391.65
5' S.S.L. " " "	5.23	391.68
" " on Conc Slab	4.80	392.11
90 100' South SL " "	4.94	391.97
96' " " " 2.5' Conc. Walk	5.94	391.97
1+81.77		
S.L. on Angle "N edge Walk	4.95	391.96
2+15.47		
S.L. " Walk	5.41	391.50
10.5' S.S.L. on 3.5' Conc. Walk	5.27	391.64
" " " 1.5' " Step.	5.67	391.24
12' S.S.L. " 2.5 " Walk	5.40	391.51

Contour Blvd.



✓ Monroe

396.91

2+73.47

12.' SSL. on 3.5' Conc. Walk	5.72	391.19	
10.5 " " 1.5' " Step.	6.12	390.79	
S.L. on N edge 2.5' Conc. Walk	6.02	390.89	
2+89.5			
S.L. on N edge Walk = BC Walk	5.88	391.03	
3+47.03			
47.5 South SL. = N edge Walk	4.50	392.41	

Improvements Contour Blvd.

Stations 0+00 FB 1601 P-14

= 0+00 This Book

396.91 ✓

T.P.	3.67	391.22 ✓	2.36	387.55
			2.76	388.46

2+84.5 = ℄ 4' Conc. Walk on West 1' Back.

3+04.3 = ℄ 9.3' Conc. Drive on West	2.93	388.29	1.5' Back
3+15.3 = ℄ 11.5 " " on West	3.23	387.99	0.3 Back
3+57.5 = 5' Conc. Walk " "	3.19	388.03	0.3' "
4+00 = 8' " Drive " "	3.81	387.41	0.3 "
4+20.4 " Walk " "	3.73	387.29	0.3 "
4+08 = ℄ 16' Conc. Drive " East	5.59	385.63	0.4 "
5+34 = ℄ 3.5 " Walk on West	3.45	387.77	0.4 in St
6+43 = ℄ 7.7' Conc. Dr. " East	6.76	382.46	on Line
7+99.4 = ℄ 3' Conc. Walk on West	9.13	382.09	" "
8+62.5 " 3' " " on West	8.99	382.23	" "

Contour Blvd. Cont.

391.22 ✓

8+89.5 = ℄ 9' Conc. Drive on West	8.40	382.82	on Line
FB 1601 - P-25			
Chk. EC. Hub 6+77.45	5.48	385.74 ✓	385.74 ✓
Chk cb 6+99.45	6.64	384.58 ✓	
FB 1601 P-25		384.62	
		0.04	
T.P. 8.54 396.09 ✓	3.67	387.55	
Chk Starting 811	4.01	392.08 ✓	

Notes Reduced 11-7-65 JG

Adams Ave
Cont. from P-55

393.72

13+00

N cb.	8.08	385.64
" Gut.	8.58	385.14
" ¼	8.48	385.24
℄	8.51	385.21
¼	8.77	384.95
Gut.	9.12	384.60
cb.	8.67	385.10
+6' on walk	8.54	385.18
+11' " "	8.48	385.24

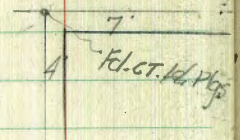
13+25

S. cb	9.01	384.71
Gut.	9.45	384.27
¼	9.15	384.57
℄	8.95	384.77
¼	8.94	384.78
N. Gut.	9.03	384.69
N cb.	8.56	385.16
+6' on walk	8.56	385.16
+11' on walk	8.50	385.22

Walker
Harden
Hunter
2-7-46

LOCATION - PROPOSED DRAIN

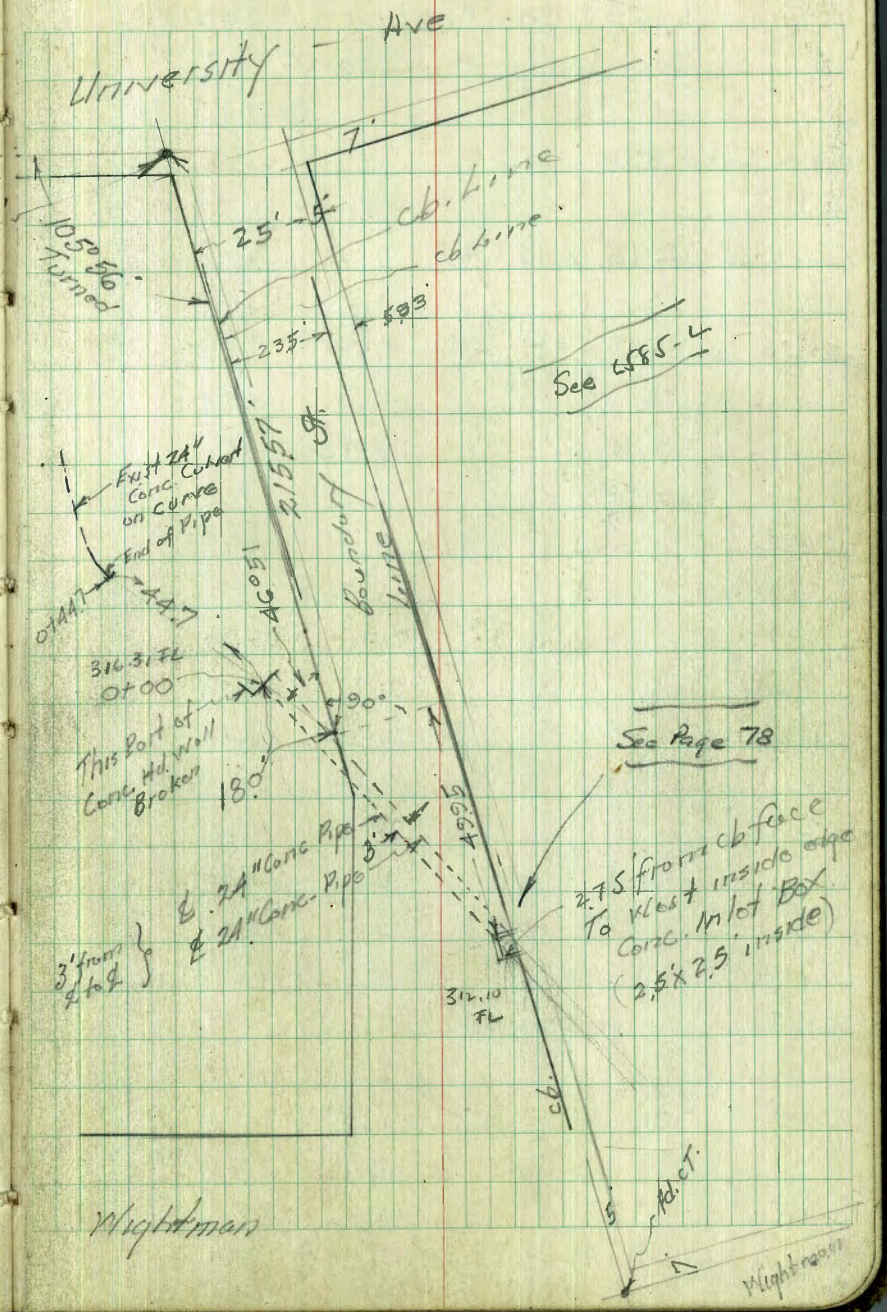
BLK 50
Between Univ. Ave and Wightman
West of Boundary St.



	5.54	334.58		329.04	BM. HEBP Lands ± Boundary NE Tack Wightman ± Boundary
T.P.	6.58	331.75	2.41	325.17	
on cb of Grating			5.69	326.06	
" Grating			6.34	325.41	
" Flow Sly 24" Pipe			19.65	312.10	
0-18.5 on Gut. Pan			5.64	326.11	
0-18.0 on cb.			5.11	326.64	
0-12 " Ground			5.0	326.8	
0+00 on Hd Wall			12.76	318.99	
0+00 on Flow 24" (South) Pipe			15.44	316.31	
+22			14.4	317.4	
+44.7 on Flow Line = 24" Line from North			14.10	317.65	
+50 on Ground			8.0	323.8	
+70 " "			5.4	326.4	
T.P.	10.45	335.62	6.58	325.17	
Chk Starting BM.			6.58	329.04	✓

Indexed
C.S.K.

59

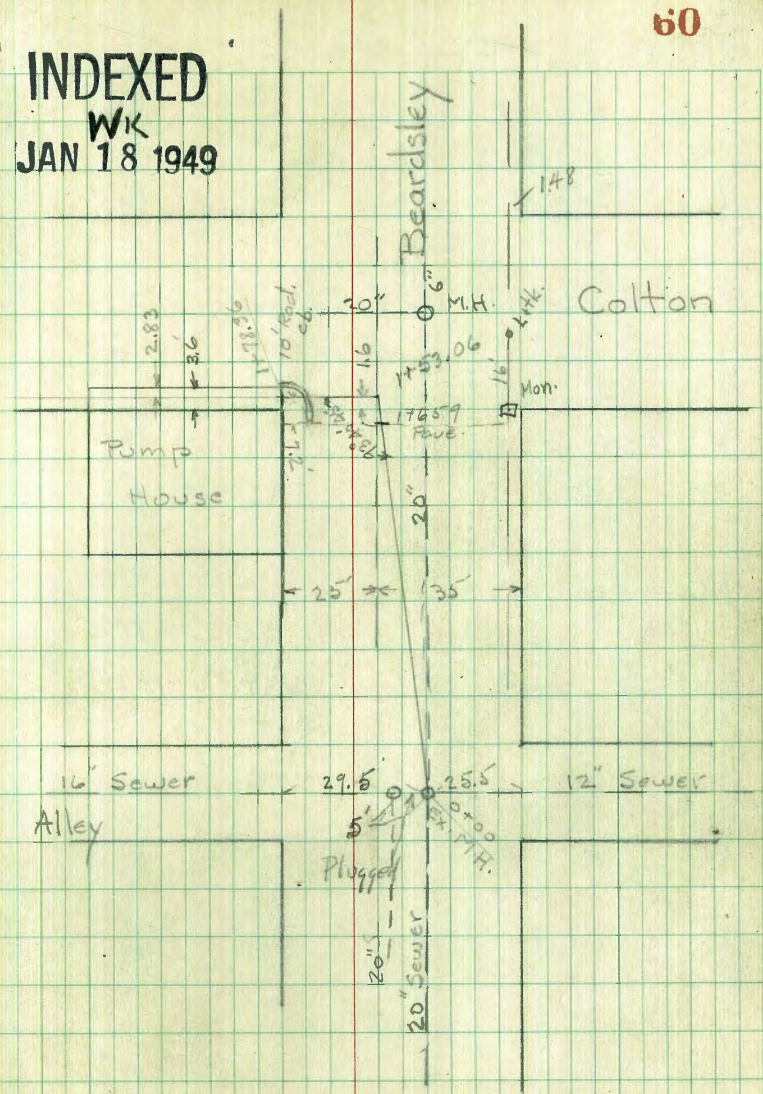


Osborne
Hendricks
Hardin
Huntley
2-7-46

Location Proposed Sewer
Beardsley & Colton

B.M. Sigsbee + Colton	870	15.60		6.90	2½" Pipe N.E.
T.P.			3.31	12.29	
	295'	15.24			
0+00 on Rim of MH			7.59	7.65	
Flow Line 12"			14.80	0.44	
" " 20" N+S.			16.42	-1.18	
+50			6.0	9.2	
1+00			4.8	10.4	
1+53.06 = Angle pt.			2.2	13.0	
+68.4			2.54	12.70	
5' Rt.			2.22	13.02	
7.2' Lt. =	Top of end of curb.		2.14	13.10	
.	Gutter		2.84	12.40	
12' Lt.			3.1	12.1	
+71.2 =	Curb Top 10' Rad.		1.94	13.30	
	Gutter		2.57	12.67	
+73.4	1.1 Lt. to ℄ Power Pole # 1799 (Underground Cable)				
1+78.36 = E edge of Pump House			2.76	12.48	
10' Lt.	" " " " "		2.77	12.47	
2.8 Rt. =	End of 10' Rad Curb.	Top	1.73'	13.51	
		Gut.	2.76	12.48	
10' Rt.			1.96	13.28	
Check on Rim MH. # 22			1.63	13.61 13.59	

B. 1607
P. 32



F.O.
4-9-46

Additional F.L. of M.H.'s

B.M. - Sigsby & Colton N.E. Pipe		6.90	
9.23	16.13		
M.H. @ Beardsly & Colton.			
F.L. 20" from the W Turns and goes S.			
F.L. 20" on S. side M.H.	16.29	-.16	
F.L. 6" from N.	9.95	6.18	
F.L. M.H. at 0+00			
F.L. 20" from N.	16.84	-.71	
F.L. 12" from E.	15.71	.42	
Check Rim M.H.	2.52	13.61 ✓	See P. 60

Re Cross Section Contour Blvd.
Monroe Ave to 51st St + Madison Ave.
Original Sections + Sketch #1601-14-15

0+50

+41

+20

+07.5 = ℄ 2 Ribbon Drive 9' wide on Rt.

0+0 = ℄ Monroe on Lt.

0-15

B.M. 390 39598 39208 Nail Pole SW Monroe & Contour

Indexed
Crs'k.

Lt-W ℄ Rt-E

April 10-46
Sisson
Maddox
Mr-199

62

391.2 / 43 / 30
391.3 / 47 / 18
392.1 / 39
392.2 / 38 / 18
392.3 / 37 / 30
392.39 / 38 / 30.3
392.17 / 38 / 30.4
392.02 / 39 / 30.2
391.3 / 47 / 30
391.7 / 43 / 18
392.43 / 38.5
392.2 / 38 / 18
391.9 / 41 / 30
391.6 / 46 / 30
392.0 / 40 / 18
392.2 / 38
391.9 / 41 / 18
391.85 / 43 / 30.2
39598 +

Contour Blvd.

+50.92 B.C. of Lt.

+08

1+00

+89

+74

+69 202 Rt of ℄ = Ely Tel Pole

+63 225 Lt of ℄ = Wly Power Pole

0+5535

395.98

Lt ℄ Rt 63

390.7 390.5 390.7 390.5 390.7 390.7

391.95

391.0 391.1 390.8 391.6 391.2 391.9

392.46

392.64

392.37

395.98

TP	234	390.83	7.49	388.49
+94	21 Rt of ℄ = ℄ 12" Palm			
+83				
+78.21				
+75	21 Rt of ℄ = ℄ 9" Palm			
+58.52				
2+29.14				
2+18	202 Rt of ℄ Fly TEL Pole			
1+99.76				
1+83				
		395.98		

Lt. ℄ Rt.

388.48
7.50
℄ = Fly Line

388.49 388.0 388.4 387.5 387.7 387.9
7.49 8.0 7.6 8.5 8.3 8.1
Top of Hub 18 13 18 30

388.3 388.4 388.7 387.9 388.1 388.5
7.7 7.6 7.3 8.1 7.9 7.5
30 18 14 18 30

389.0 389.2 389.3 388.4 388.6 389.1
7.9 6.8 6.7 7.6 7.4 6.9
30 18 14 18 30

389.4 390.0 389.9 389.5 389.7 389.1 389.7
6.6 6.0 6.1 6.5 6.3 6.9 6.3
30 18 18 18 30

390.57
6.46
30
Top of Hub

395.98

Contour Blvd.

Lt. ℄ Rt. 65

+10

+90 24.6 Lt of ℄ = W/ Power Pole

+67 20 Rt of ℄ = E/ Tel Pole

+68

+50

+21

+16

3+05

390.83

390.83

5+01

+96.71 = BC. Lt.

+57 227 Rt of ℄ = Wly 8" Palm

4+50

+39 223 Rt of ℄ = Wly 6" Palm

+29

+21

4+16

390.83

Lt. ℄ Rt

386.62

4.31
G0 = 24 Wly 8" Palm
Conc Drive

387.4 386.5 386.3 386.5 385.6 385.8 386.5
5.4 4.4 4.6 4.3 5.7 5.0 4.6
G0 18 18 16 18 30

387.2 387.0 386.5 385.9 385.7 385.8
5.6 5.8 5.3 4.9 5.1 5.0
G0 18 15 18 30

385.90

4.93
G0 = 24 Wly 8"
Conc Drive

387.28

3.65
G0 = 24 Elm 4"
Conc Walk

385.61

5.22
G0 = Wly Conc
Drive

390.83

Contour Blvd.

6+70

5+98

+93 20.5 Lt. of ℄ Wly Power Pole

5+79

5+50

5+35

5+21

390.83

Lt. ℄ Rt.

387.3 386.3 385.6 385.1 385.4 385.4 384.7 384.8 385.9

5.5 30 | 5.5 39 | 5.7 18 | 5.7 17 | 5.4 9 | 5.4 | 6.1 15 | 6.0 18 | 6.9 30

386.23

4.60

386.69

4.33

387.6 386.3 385.8 386.3 385.4 385.8 386.3 387.0

3.3 30 | 4.5 18 | 5.0 16 | 4.5 | 5.4 16 | 5.0 18 | 4.5 28 | 3.8 30

388.20

3.63

387.76

3.07

29.3

4.38

386.54

390.83

7+07.33 = Ec. 52° St. From P

6+94.15

6+77.45 FC

+75 222 Rt of ℄ = Ely Power Pole

TP 1.95 386.19 6.59 384.34

+50

+43

+35 21 Rt of ℄ = Ely Tel Pole

6+16

390.83

Lt. ℄ Rt.

384.17 383.5 382.7 382.1 382.6 382.2

384.58 384.18 383.8 383.1 382.6 382.9 383.0

385.74 384.8 383.6 383.6 383.1 383.3 383.6

386.6 385.2 384.7 383.8 384.4 386.19 384.3 383.3 383.5 384.0

384.47

386.78

390.83

Contour Blvd. 8+00 51 TO 52
8+65
8+92

8+0 194 Lt of ℄ = Sly Power Pole

+72 183 Rt of ℄ = Nly Tel Pole

7+67.33 = WL 52nd St. From N

7+55.5

7+42 = W Cb From South

7+37.33 = ℄ 52nd St. From North

7+21.29 = ℄ 52nd St From South

386.19

Lt. ℄ Rt. 69

382.09 381.9 381.6 381.2 381.1 381.6
4.10 4.3 4.6 4.8 4.1 4.6
30 30 18 30

382.0 382.2 381.9 381.7 381.5 381.7
3.5 4.0 4.3 4.5 4.7 4.5
30 18 18 30

383.46 382.6 382.1 381.9 381.6 381.4
3.73 3.6 4.1 4.3 4.6 4.8
30 18 18 30

383.42 383.11 382.8 382.4 381.7 381.5
3.97 4.08 4.4 4.1 4.5 4.7
30 18 18 30

383.25 382.9 382.4 381.8 381.6
3.94 4.33 4.1 4.4 4.6
30 18 18 30

383.92 383.3 382.4 381.7 382.1 382.4
3.97 3.9 4.8 4.5 4.1 4.1
30 18 14 18 30

386.19

9+50					
9+39.28	= BC RT				
TP	1.35	389.40	1.14	388.05	
9+0					
+92					
+65					
8+50					
		386.19			

386.19

Contour Blvd.

10+73.65 = EC

7+50

7+31

10+0

9+67

389.40

Lt. Rt.

388.7 387.8 387.0 386.93 385.7 386.0 386.4

387.1 386.8 386.8 386.6 385.6 385.9 386.2

386.05

386.0 386.0 386.0 385.1 384.5 384.9 384.8 385.1

385.68

389.40

Cross Section 52nd Contour Blvd North

Sketch 1601-15

Indexed C.S.K.

1+25

1+0

0+75

0+50

0+25

0+0 = N.L. Contour Blvd.

BM 0.83 386.57 385.74 07 N 06 6+77.18 E Contour 1601-25

April 12-46
S. Stout
Waddell
Wright

Lt. = N

Rt. = S

72

353.3 363.6 368.7 373.7 376.7 378.1 378.6

379.6 368.9 371.7 374.9 376.0 378.2 379.8 380.3

368.6 378.8 376.8 376.8 377.3 378.0 378.4 379.0 379.6

379.0 378.7 378.1 378.9 379.2 379.8 380.0 380.3

381.4 381.3 380.9 380.7 380.2 380.5 380.9

381.7 381.4 381.6 382.1 382.1

386.57

Levels. Proposed Storm Drain
Adams Ave. East of 51st St.
Sketch Page 37

Indexed
C.S.K.

BM	2.05	388.63		386.58	NE Top CB Adams + 51st page 41
0-17	= El. RC Pipe		2.16		
0+00			2.28		
+13.4			2.3		
"	0.4' N of ℄ - El. CB		2.05		on Top
+50			2.7		
+76	= Bottom Ditch		3.7		
+79			3.8		
1+05			4.6		
+16	= El. Fill + Rubbish		12.0		
TP	0.41	377.04	13.00	376.63	
+44			12.7		
TP	0.11	364.40	12.75	364.29	
+60			8.1		
TP	0.85	352.48	12.77	351.63	
2+0			14.3		

Osborne
McCoy
Hardin

6-12-46

Add Elev. on Houses and Walks on Contour Blvd. - 51st to 52nd Used S.L. of Contour Blvd. for Base Line - from 6+77.45 to 9+39.28 See Sketch B 1601 P 15'

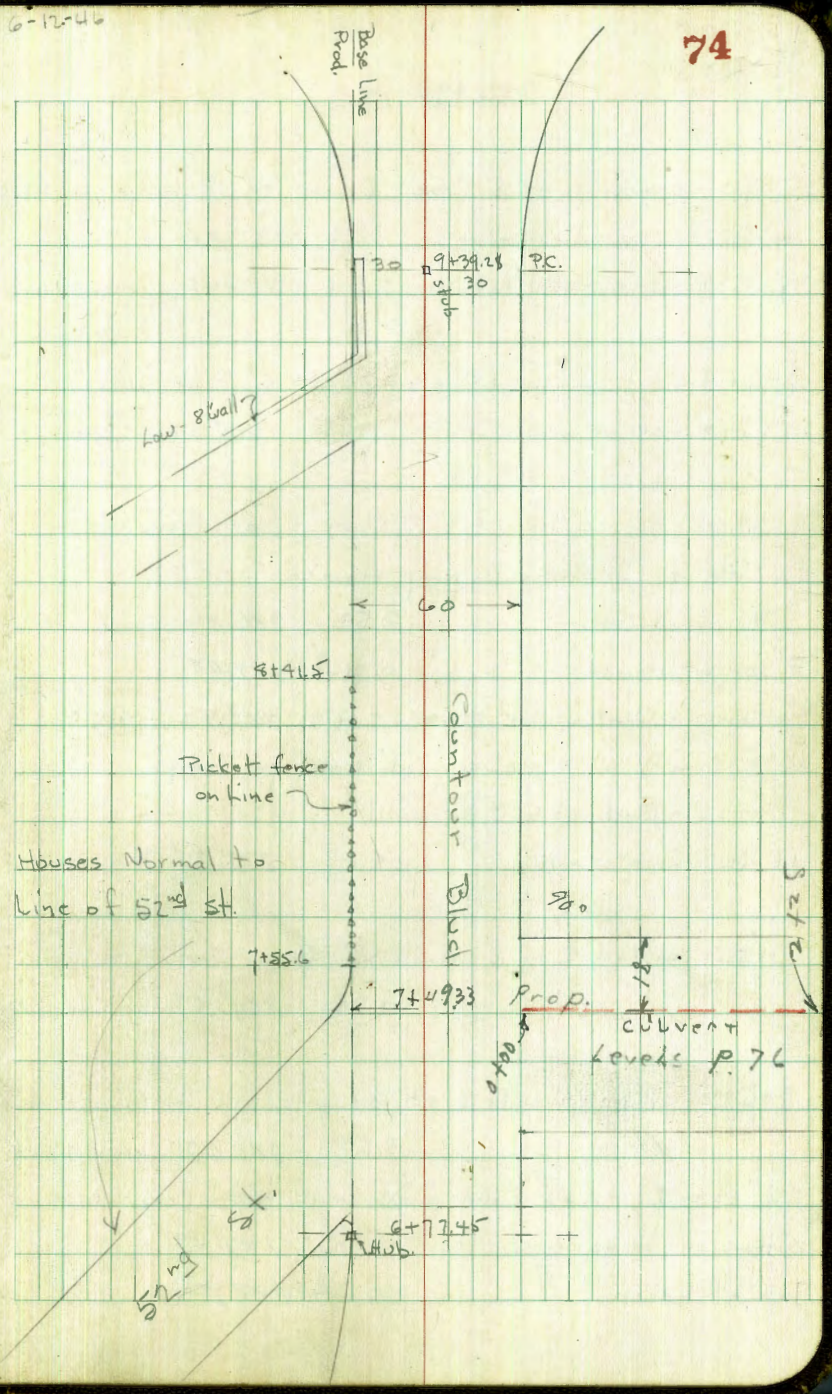
B.M.	0.75	386.49	385.74	Hub 6+77.45 P- 72

6+79 - 60' Rt = N.L. and ℄ 16' Conc Driveway to

Gararge - Conc. floor of House	2.70	383.79	= edge of Conc.
75' Rt = floor of Gar. + front	2.46	384.03	= floor.
Floor of House - large Stucco	1.83	384.66	
Bottom of Vents under House	2.35	384.14	
Ground elev. on low W. side walk	5.9	380.6	105' Rt.
8+00 = ℄ & N. end of 3' Conc.	4.40	382.09	
18' Lt. = Front of House siding Stucco +	1.00	385.49	Floor Elev.
Ground in front of House	3.8	382.7	
14' Lt. = Bottom of Conc. Steps 4' wide	3.69	382.80	
18' Lt. = Top. of Conc. Steps	1.21	385.28	

8+50 = Opp. front Door of Stucco House - with 12'x5' Conc. porch + 4'x4' conc. steps

21' Lt. = House	1.21	385.28	floor of House
Top of porch	1.40	385.09	
Bottom of steps	3.80	382.69	on Conc. walls
Ground at low N.E. Cor. of House	4.2	382.3	
8+62 = ℄ & N. end 3' Conc. walk	4.26	382.23	on walk



386.49

8+90 = ℄ + N.end of 8' Conc Drive to Garage above in House
on line = on conc. Drive 3.68 382.81
39 Lt. on line parallel to Alley 2.04 384.41' Conc. floor of Gar.

9+21.8 = int. of line + face of N+S. 8" Conc. wall
1.8 Rt = Cor. of wall + T.P. 1.45 385.04 Top Conc. Wall
4.30 389.34

9+39.28 = P.C. - 19' Lt. = ℄ Conc. floor Garage in
E. side of Stucco + Siding House
Floor of Gar. 2.52 386.82
Floor of House 0.26 389.08
Bottom of Vent under House 2.42 386.92 About lowest spot.
Note: from P.C. W. - base Line prod. ahead on Tang.
9+41.5 = End. of 8" Conc. wall
1.1 Rt. = face at end 4.07 385.27 Top wall

9+50 = .4 Rt. = ℄ of N. end of 15' Conc. Drive to above gar.
4.32 385.02 on Conc. Dr.

9+68 = .7 Lt. = N. end + ℄ of 3' Conc. walk to House above
3.67 385.67 on end walk
25' Lt. = ℄ 4'x5.5' Conc. porch with 4x2' Conc. Steps
Bottom of Steps 1.92 382.82
Top of porch 0.44 388.90

389.34

9+50 = See P. 70 - add. elev. to show floor of Gar.
66.6 Rt. from ℄ = Conc. floor of Double Garage 4.29 / 385.05 on floor

Indexed
C.S.K.

Levels for Culvert on
52nd at Contour Blvd, See P. 74

Moore
Begg
Roberts

W.O. 31200

9-15-47

0 + 50

0 + 35

0 + 29

0 + 00 E.L. Contour Blvd.

BM. Hub
L + 77.5
P. 72

L 55 387.9 385.74

Lt = North & Rt 76

378.19	376.39	379.09
9.1	8.9	8.2
/10		/10
380.69	379.29	379.69
6.6	8.0	7.6
/10		/10
381.29	380.99	380.39
6.0	6.3	6.9
/10		/10
381.49	381.49	381.59
5.8	5.8	5.7
/10		/10

387.9

check to orig BM		0.x	385.7x	385.7x
T.P.	13.2	386.15	0.38	372.87
T.P.	9.88	373.27	0.x9	363.39
2+25				
2+00				
T.P.	0.81	363.88	11.9x	363.07
1+50				
1+25				
T.P.	0.2x	375.01	12.5x	374.77
1+00				
		387.29		

346.18	351.58	357.08
17.7	12.8	6.8
10		10
350.28	355.88	361.38
+9.6	7.0	2.5
10		10

363.88

360.01	365.21	369.61
15.0	9.8	5.x
10		10
368.11	370.11	373.51
6.9	4.9	1.5
8		10

fol. 2" Pipe
12

375.01

371.29	374.49	375.59
16.0	12.8	11.7
10		10

387.29

Detail of Conn. To Inlet on Boundary - S. of Univ. - See P. 59 - for Survey.

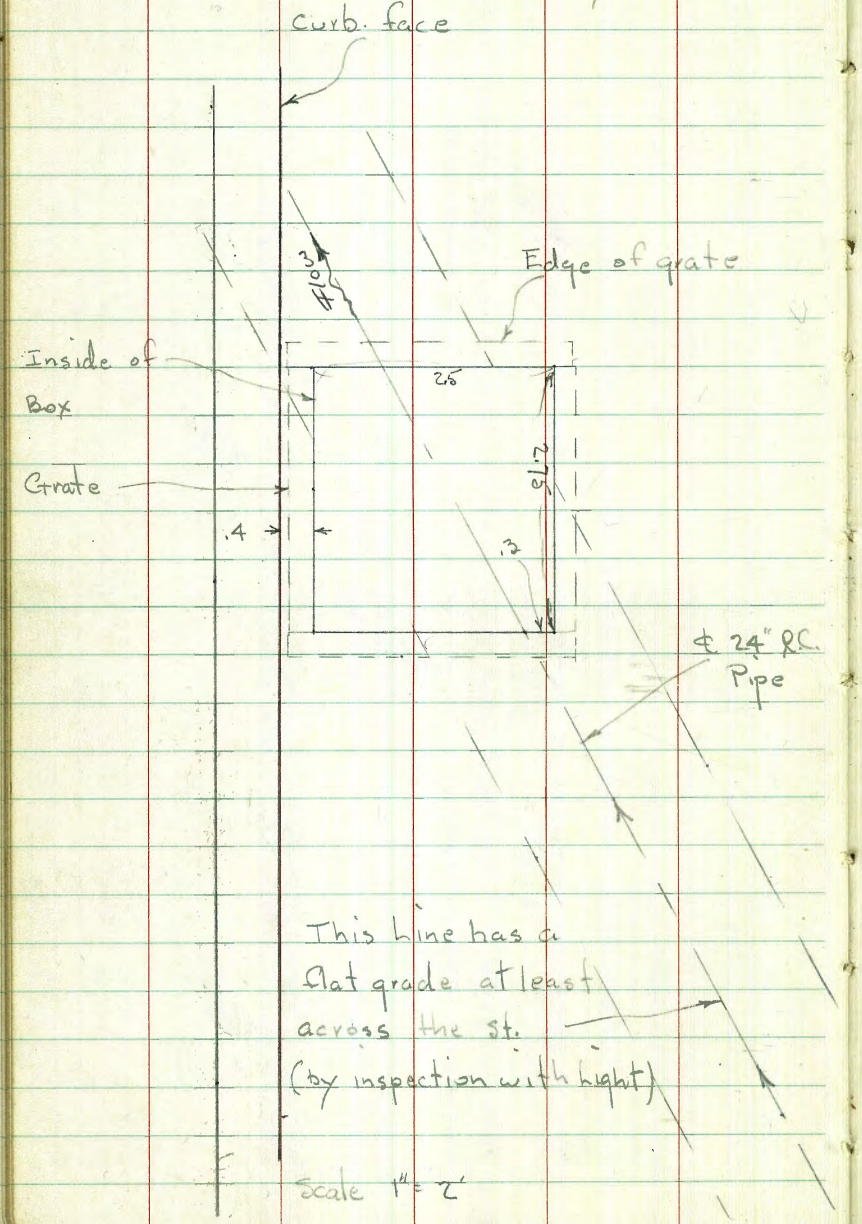


TABLE VI.—CORRECTIONS FOR SUB-CHORDS AND LONG CHORDS.

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	196.96	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	.85	.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. $A=\frac{a}{c}$

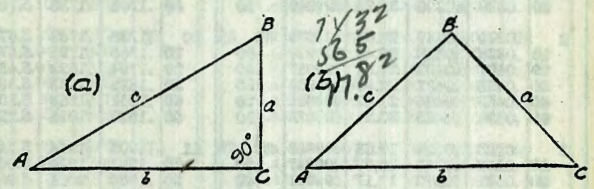
cos. $A=\frac{b}{c}$

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

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

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

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

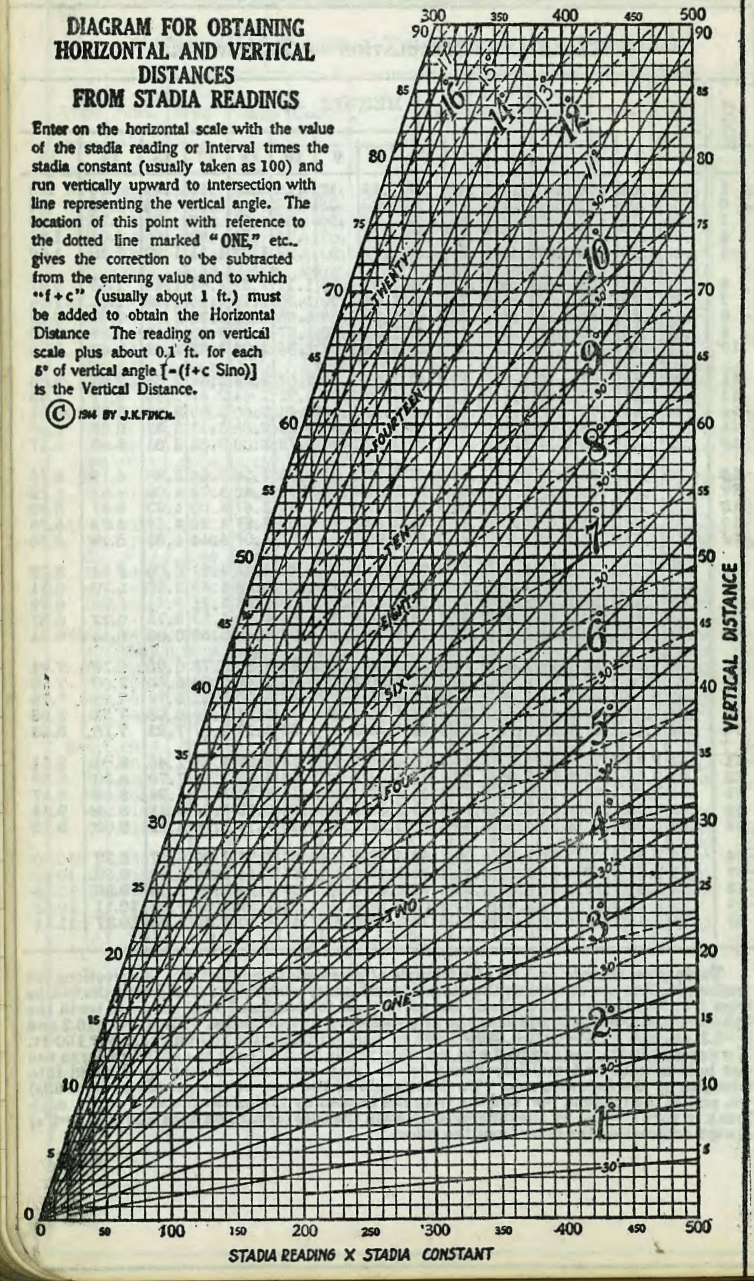


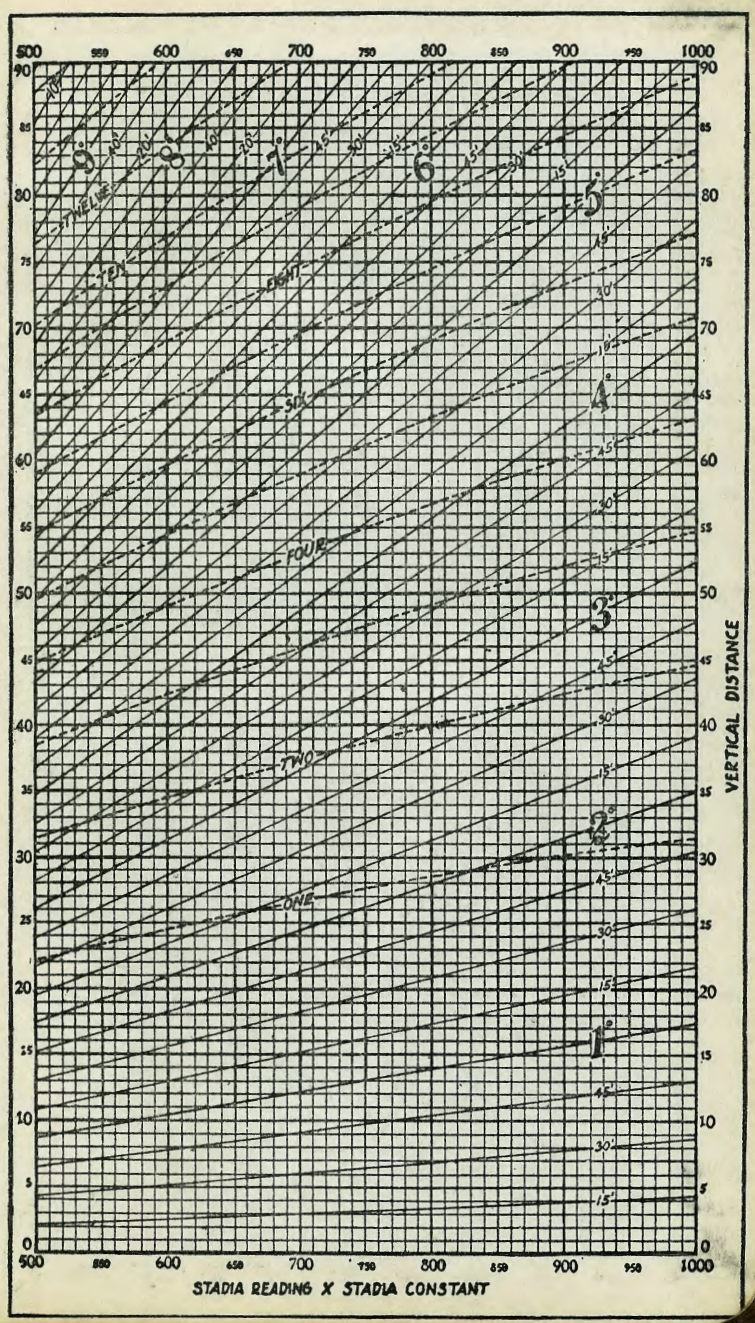
FORMULA FOR SOLVING TRIANGLES.

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	$s=\frac{1}{2}(a+b+c)$, $\text{area}=\sqrt{s(s-a)(s-b)(s-c)}$

DIAGRAM FOR OBTAINING HORIZONTAL AND VERTICAL DISTANCES FROM STADIA READINGS

Enter on the horizontal scale with the value of the stadia reading or Interval times the stadia constant (usually taken as 100) and run vertically upward to intersection with line representing the vertical angle. The location of this point with reference to the dotted line marked "ONE," etc., gives the correction to be subtracted from the entering value and to which "f+c" (usually about 1 ft.) must be added to obtain the Horizontal Distance. The reading on vertical scale plus about 0.1 ft. for each 5° of vertical angle [=(f+c Sino)] is the Vertical Distance.





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.