

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

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

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

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6 + (20 - 16) \div 2$ or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1½ see inside of back cover.
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1684

CITY ENGINEER'S OFFICE

INDEXED

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.

Main + Rigel

□ in S. cb. - w.L. ~~Man~~ Rigel

6.28

10.24 = Sw. Bridge

Alley Blk 6 Berkeley Hqts 2 to 6

Chalcedony (Drain Profile - West end) } { 7-11

Missouri } { 10-11

Alignment Hobart Canyon Freeway L'line 15-48

Ties " " " " L'line 51-72.

Survey Lot 31-32 Block 289 S.D. Land & Town 49

Survey Fly R/W Hobart Blvd at Main St 50

Hobart Blvd Topog L' 34th + Imperial 75

Survey Fly R/W Hobart Blvd Martin 34th 76

Survey Lot 344 Block 32 Detmire + Sarban 77

Survey Lot 3 to 8 Incl. Block 2 Hunterdale 78

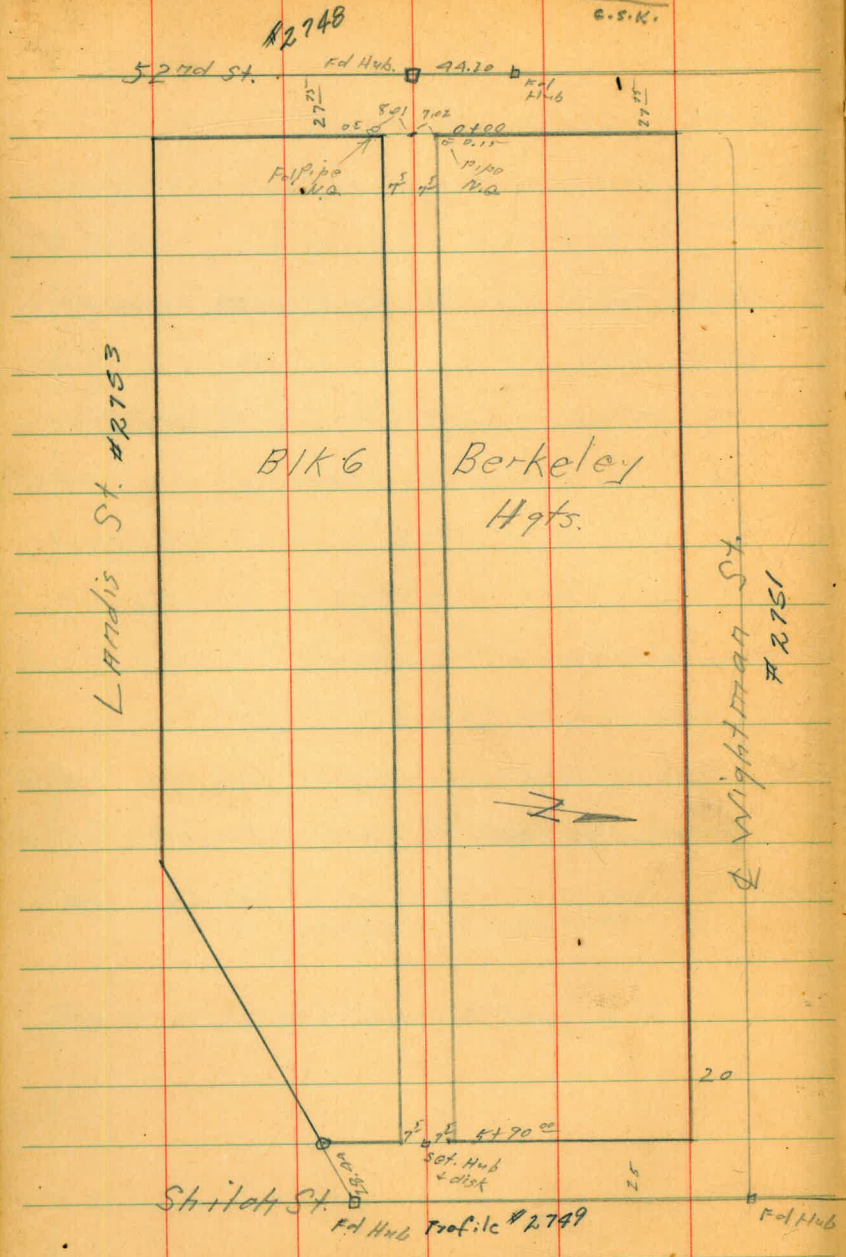
Survey Fly R/W Hobart Blvd North Florence St 79

Survey Channel Channel R/W Blk 4 Haffenden + Summitale 80

Survey Corner, E. Line Lot 43, + N. Line Alley P. 15
Hunters Addition, AS per DWG. 7242-4

Proposed ST. { 3546 + SLY Line "B" (to wily) to P.L.

Indexed
c.s.K.



Alley BIK 6 Berkeley Hqts.
Cross Section

2
Sommerville
W Moore
Mott
9-28-47

N.W.B.P. 52nd CHIV.	12.63	328.20	—	315.57
	9.77	337.39	0.58	327.62
	8.66	340.88	5.17	332.22
		0-10		
N-25			7.1	333.8
N			7.9	333.0
Φ			8.1	332.8
S			8.4	332.5
S+25			9.6	331.3
		0+00		
S-25			9.3	331.6
S			8.2	332.7
Φ			7.7	333.0
N			7.4	333.5
N+25			6.5	334.4
		0+03		
N-25			4.5	336.4
N			5.9	335.0
Φ			6.8	334.1
S			8.0	332.9
S+25			9.3	331.6

340.88

0+10

S-25	7.8	333.1
S	4.6	336.3
E	4.1	336.8
N	3.1	337.8
N+25	0.6	340.3

0+50

N-10	2.0	338.9
N	3.0	337.9
E	3.6	337.3
S	4.2	336.7
S+50	9.5	331.4

1+00

S-50	5.5	335.4
S	2.8	338.1
S+0.7	S. Edge pole # 5214	
E	2.1	338.8
N	1.6	339.3
N+10	1.2	339.7

T.P. 11.05 351.83 0.10 340.78

Alley BIK 6 Berkeley Hgts

π
351.83

3

1+50

N-10	7.9	343.9
N	8.5	343.3
E	9.1	342.7
S	9.8	342.0
S+50	13.3	338.5

2+95

S-50	11.8	340.0
-15	8.5	343.3
S	7.4	344.4
E	5.9	345.9
+3	5.0	346.8
N	5.1	346.7
+10	4.4	347.4

2+31

N-10	3.9	347.9
N	5.0	346.8
E	6.0	345.8
S	6.9	345.0
S+5 ^L	E. NYS. 15 cone. walk	7.37 344.4
+50	9.4	342.4

* 2+34			
S-50	on Rect + conc. N. + S. Wall.	6.10	345.7
S-50	Ground	6.8	345.0
S	Ground + Wall, Rough Conc	6.3	345.5
S+2.5	End N. + S. Wall	6.2	345.6
⊕		5.8	346.0
N		4.9	346.9
N+10		3.9	347.9

2+35

S Line start wire fence

2+39

S. E. Pole # 5250 d.g. in alley on south

2+56.5

N-10		3.3	348.5
N		3.8	348.0
⊕		4.7	347.1
S		5.1	346.7

S+0.2 End wire fence
start shed

2+67.5

S	End shed ^{on} line	4.5	347.3
⊕		4.1	347.7

2+67.5 Cont.

N	351.83	3.2	348.6	
N+10		2.6	349.2	
	3+00			
N-10		1.1	350.7	
N		1.3	350.5	
⊕		1.4	350.4	
S		1.7	350.1	
+10		1.7	350.1	
T.P.	7.15	358.23	0.75	351.08
2x2 Hub ⊕ Pot.	3+45 ⁵²		6.78	351.45
	3+50			
S-10		6.8	351.4	
S		6.7	351.5	
⊕		6.7	351.5	
N		6.6	351.6	
N+10		6.2	352.0	
	3+90			
N-10		5.5	352.7	
N		5.6	352.6	
⊕		5.5	352.7	

X 3+90
358.23

Φ + 6 ²	S. Edge pole # 175276		
S		6.7	351.5
S+10		6.0	352.2
	A+25		
S-10		5.0	353.2
S		5.0	353.2
Φ		5.1	353.1
N		5.1	353.1
N+10		4.8	353.4
	A+50		
N-10		4.9	353.3
N		5.1	352.8
Φ		5.1	353.1
S		5.0	353.2
S+10		4.9	353.3
	A+75		
S-10		4.6	353.6
S		4.6	353.6
Φ		4.6	353.6
N		4.9	353.3
+10		4.8	353.4

5+00
358.23

N-10		4.6	353.6
N		4.7	353.5
Φ		4.7	353.5
S		4.8	353.4
+10		4.9	353.3
	5+25		
S-10		4.3	353.9
S		4.6	353.6
Φ		4.6	353.6
N		4.5	353.7
+10		4.5	353.7
	5+50		
N-10		4.2	354.0
N		4.3	353.9
Φ		4.1	354.1
S		4.0	354.2
+10		4.1	353.8
	5+75		
S-10		4.3	353.9
S		4.2	354.0

5 + 75 Cont.

358.23

⊕		4.4	353.8
N		4.5	353.7
+10		4.5	353.7

W.L. Shiloh 5 + 90.00

N-10		4.6	353.6
N		4.6	353.6
⊕ Ground		4.6	353.6
⊕ 2x2 Hub		4.96	353.29
S		4.4	353.8
S+10		4.3	353.9

6 + 15 = ⊕ Shiloh

S-50		4.2	354.0
S		4.0	354.2
⊕		4.2	354.0
N		4.2	354.0
N+50		3.6	354.6

check B.M. 2x2 R.W. Hub

⊕ Shiloh + N. Line Ogden 3.24 354.99

F.B. 1553-P 12. OK

Cross section Chalcedony.

East Line Ocean Blvd. to West.

Indexed
c.s.r.

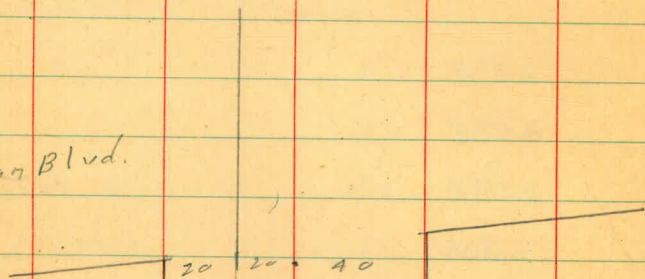
7

4-30-47

W.O.# 31189

Sommermeier
W Moore
Mellan
Roberts

Ocean Blvd.



S.C.B. line

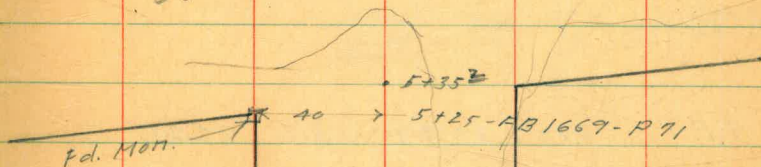
F.B. 1729-12

3 + 35

Alley

Missouri

Ocean Blvd.



F 335

Ed. Mon.

40

40

Chalcedony St

Chalcedony

+ #1 - E/c

5+74

T.P. 0.78 11.43 12.34 10.65

5+87

T.P. 0.78 22.99 12.70 22.21

5+68

5+57

5+48

B.M. - Mon. SW.
Ocean Blvd
Chalcedony
1669/76

4.75

34.91

- 30.16

9.1
50 25.8

24.4	24.4	25.9	30.0	30.6	17.8	19.6	15.2	13.8	25.7	26.1	24.7	31.3
10.5	10.5	7.0	12.9	12.3	12.1	15.3	19.7	21.1	9.2	8.8	10.2	3.6
40	28	18	15	8	3		11	18	35	40	44	52
8.2	8.0	4.3	5.1	10.30.9	6.2		19.3	3.6	3.7			
40	32	23	11	4			19	40	50			

34.91

5.4	5.4	5.3	8.0	7.3	7.2	5.4	4.6	8.9	10.4
6.0	6.0	6.1	3.4	4.1	4.2	6.0	6.8	2.5	1.0
55	40	30	17		6	8	14	20	40

11.43

6.0	9.1	10.8	6.4	2.8	9.7	14.1	16.3
17.0	13.9	12.2	16.6	29.2	13.9	8.9	6.7
55	40	22.99	10	19	21	40	55

18.9	18.0	20.5	19.6	21.8	24.3	16.1	11.6	15.8	22.9	30.9
10.0	16.9	14.4	15.3	7.1	10.6	18.8	23.3	19.1	12.0	4.0
50	40	30	26	10		5	15	31	40	55

Chalcedony

Profile on So Curb line Chalcedony

Man. SE. Cor
Chalcedony
& Ocean Blvd

4.75 34.91 — 30.16

FB 1669

FB 1669
P. 7.6

5+48 17.3 15.6

5+57 20.8 14.1

5+68 23.2 11.7

T.P. 0.78 22.99 12.70 22.21

5+87 20.2 2.8

T.P. 0.78 11.43 12.34 10.65

5+99 2.5 8.9

6+02 too slope 7.5 3.9

7+15 Beach 8.3 3.1

See page 11

Ocean Blvd - West.

	3.1	3.1	3.2	3.1	3.1	3.4	3.5
	$\frac{8.3}{55}$	$\frac{8.3}{40}$	$\frac{8.2}{20}$	8.3	$\frac{8.3}{20}$	$\frac{8.0}{40}$	$\frac{7.9}{55}$
	3.8	3.7	3.9	3.9	3.9	6.3	7.0
	$\frac{7.6}{55}$	$\frac{7.7}{40}$	$\frac{7.5}{20}$	7.5	$\frac{7.5}{20}$	$\frac{5.1}{40}$	$\frac{4.9}{55}$
				11.43			

6+15 1N sand on beach

6+02

11.43

Drain Profile West End Missouri

B.M. Mon.

168A-8

9.95

40.11

30.16

From F.B. 1669/16

For Stationing see F.B. 1729-29

5+10		3.7	36.4
+13		3.4	36.7
5+17		2.4	37.7
↳ 10RT		2.3	37.8
↳ 10LT		2.5	37.6
5+23		5.2	34.9
↳ 10RT		4.8	35.3
↳ 10LT		5.7	34.4
5+27		10.4	29.7
↳ 10RT		10.4	29.7
↳ 10LT		10.4	29.7
+33		12.2	27.9
↳ 10RT		12.2	27.9
↳ 10LT		12.2	27.9
T.P.	1.35	29.06	12.40
			27.91
5+36		12.5	16.6
↳ 10RT		12.0	17.1
↳ 10LT		12.5	16.6

29.06

5/1/47

10

T.P.	0.61	16.87	12.80	16.26
5+56	Top Cliff slope		13.4	3.5
↳ 10RT			13.4	3.5
↳ 10LT			13.4	3.5
5+75	non sand		14.0	2.9
↳ 10RT			14.0	2.9
↳ 10LT			14.0	2.9

Sommarmeyer
W Moore
Malfer
Roberts

Profile So. Cb. line Chalcedony

Start at Sta. 5+50 - FB 1669-77					
B.M. 1684 P. 8	1.80	31.96	-	30.16	Sw. Mon. Chalcedony + acc. Blud.
5+50		1.8		30.2	Sommermayr W Moore Melton 5-12-47
+55		5.8		26.2	
+65		8.4		23.6	
T.P.	1.13	20.38	12.71	19.25	
86	Bk. in slope	10.5		9.9	
90	Toe slope	12.9		7.5	
6+10	in sand	16.9		3.5	

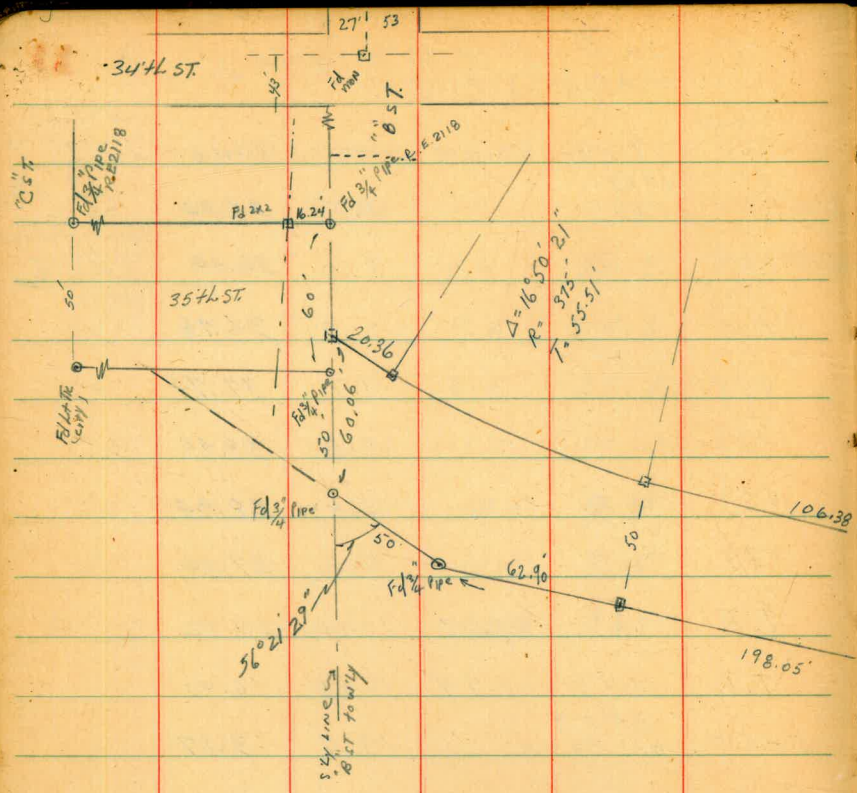
Correction in profile on P. 9
5-12-47

Drain Profile West End
Missouri St.

11

B.M. P. 8	¹⁶⁸⁴ 9.28	37.44	-	30.16	Sw Mon. Chalcedony + acc. Blud.	
A+50	¹⁷²⁹ P29	1		3.5	35.94	
5+00				3.0	36.44	Sommermayr W Moore L Melton 5/14/47
+10				2.7	36.74	
+17				1.7	37.74	
+23				5.0	34.44	
+27				9.6	29.84	
+33				11.6	27.84	
T.P.	1.35	28.67	12.12		27.32	
T.P.	0.75	16.77	12.65		16.02	
5+67	Edge of sand			13.6	3.17	
5+75	on sand			13.7	3.07	

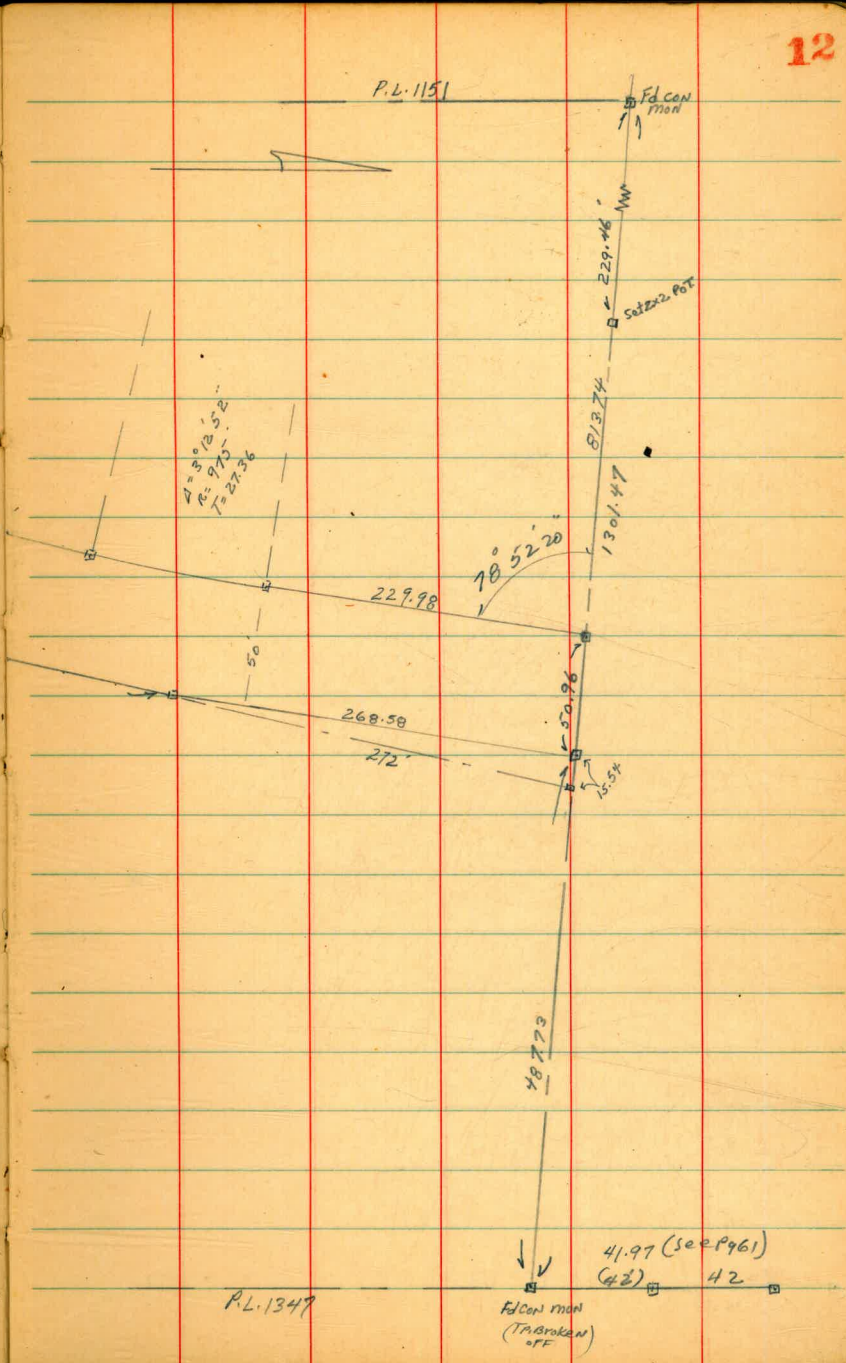
Page 10 O.K.
C.H.S. 5/14/47



Clark
Gaber
Bunker
O'Neil

11-30-55
W.O. 20016

F.B. 2311-5
F.B. 2070-10
Ref. 7248-A-1 (D.M.G.)
T.P.S 105-113



P.L. 1347

F.L. 3/4
mon
(broken)
off

41.97 (see p 61)
(42) 42

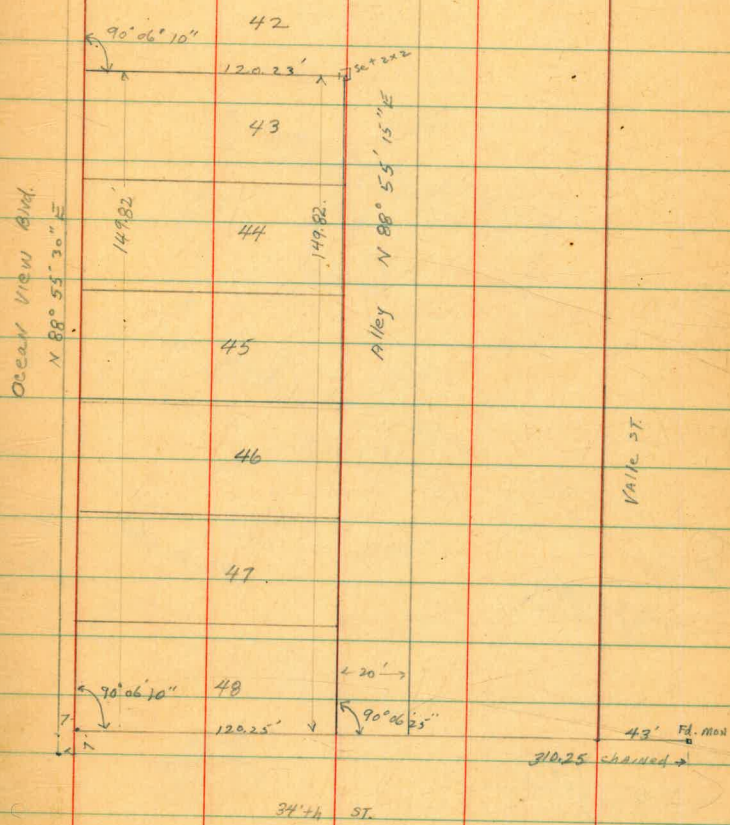
Corner, EAST LINE Lot 43, Hunter's Add.

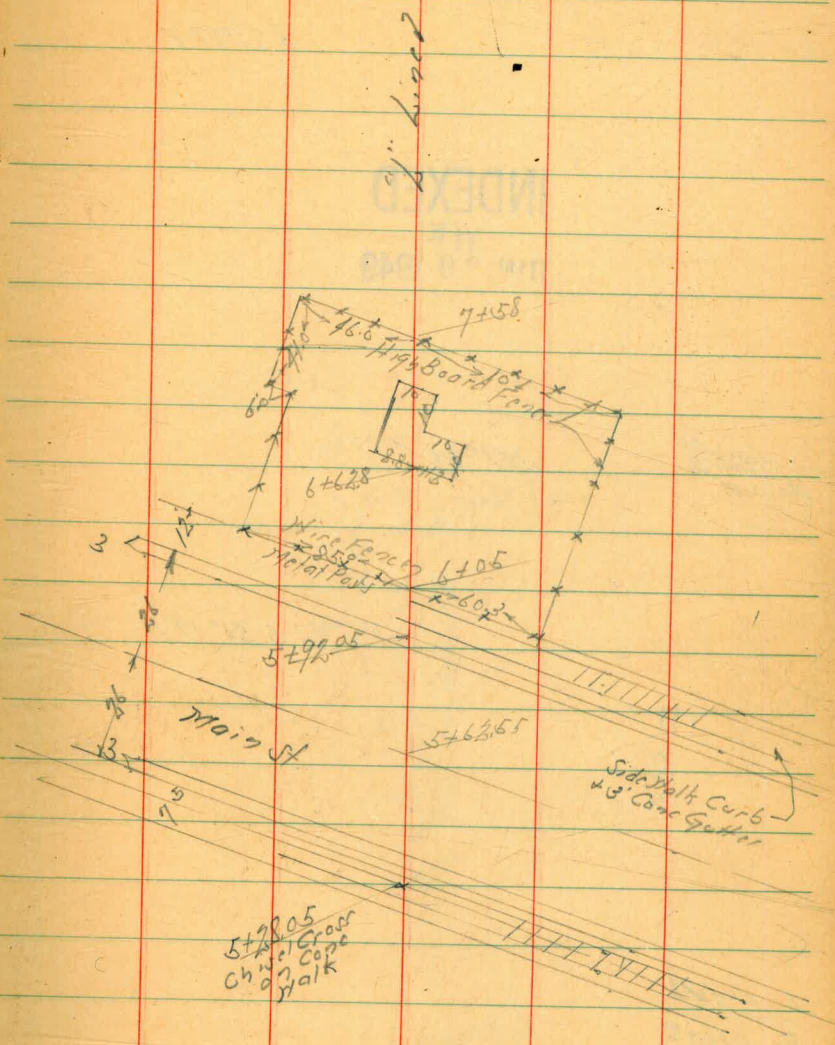
15

Jack 3-20-52
Shepherd No. 2006
Bruner
Bryson

AS Per Drwg. 7242-L

35th ST.





Alignment of Hoback Canyon Freeway
 L line Col Mag.
 Station Align Lt. Rt. Bear. Bear.

14+48.76 P.O.T. N.21°07'E

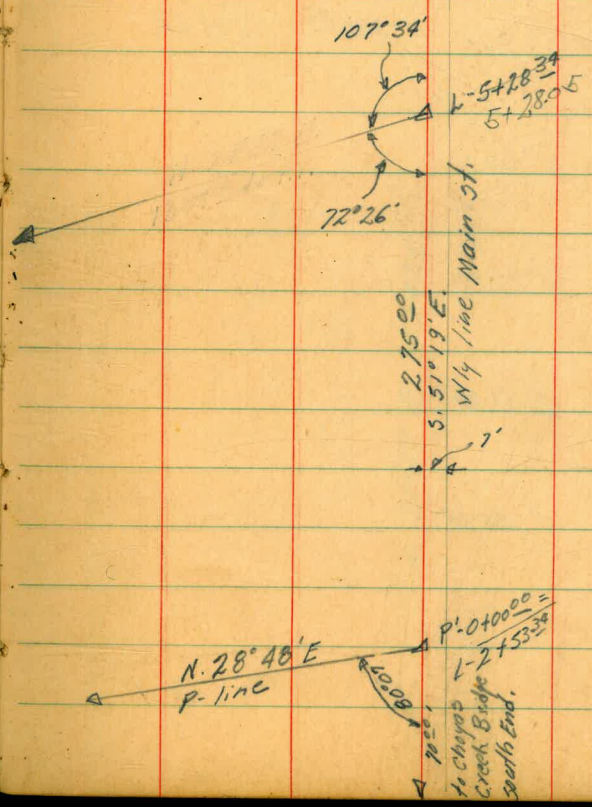
INDEXED
 WK
 JUN 20 1949

L-5+28³⁴
 Main St. 107°34'

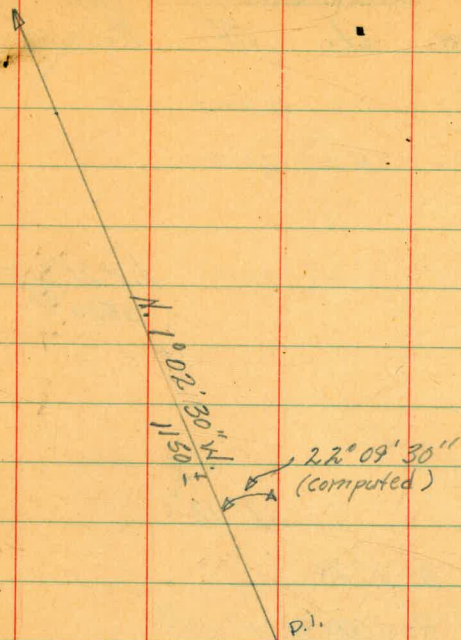
5.51°19'E

275.00

L-2+53³⁴
 P-0+00⁰⁰



Station	Align.	Deflection.		Cal.	Mag.
		Lt.	Rt.	Bear.	Bear.
22+00	P.O.T. Hub				
				N 1° 02' 30" W 1150 ±	
20+66.82	F.C.	11° 05'			
20+10		9° 11'			
			Δ-22° 09' 30" 22° 10'		
+50		7° 45.04'	R-1000' Lt.		
			T-195 ⁸¹	195.89	
19+0		6° 19.10'	L-386 ⁷⁴	386.88	
+50		4° 53.16'			
18+0		3° 27.22'			
+50		2° 01.28'			
17+0		0° 35.34'			
16+79.14	B.C.				



Station	Align.	Deflection.		Cal. Bearing	Mag. Bear.
		Lt.	Rt.		
46+30.00	P.O.T.				
41+50.00	P.O.T.	offset 20 ft.			
36+75.00	P.O.T.	offset 20 ft.		N. 1° 21' 30" E	3538.92
1-31+09.27	E.C.		1° 12'		
			D-2° 24'		
1-31-		R-4000 ft.	1° 09' 96"		
		T. 83.29			
		L. 167.55			
+50		def. ft. -0.4297	0° 48' 47"		
		" 50 - 0° 21' 49"			
1-30-			0° 26' 28"		
+50			0° 05' 49"		
1-29+37.22	B.C.		0° 00'		
				N. 1° 02' 30" W.	



Station Align.	Deflection		Col. Beat.	Mag. Beat.
	H.	R.		

L-74+26^{31'} B.C.

70+20.00^{00'} P.O.T.

L-65+60^{00'} Δ

7°51' Start

1088.40

57+45.52 P.O.T.

56+50.00 P.O.T.

L-54+71^{60'} P.O.T.

54+00 P.O.T. on 40 ft. line

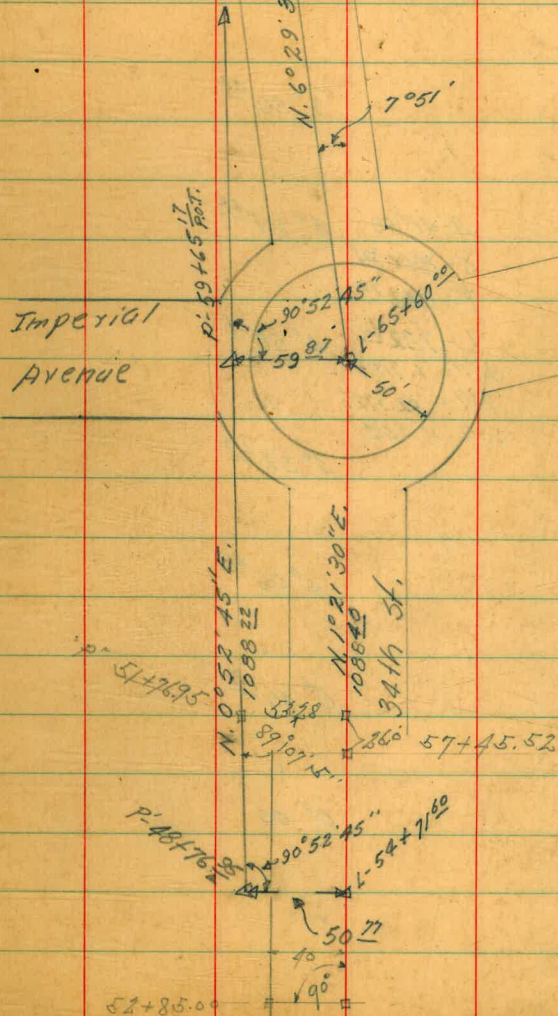
N. 6°29'30" W.
1250'

N. 1°21'30" E.

April 10-45
S. 0005
81.54
026091
8099

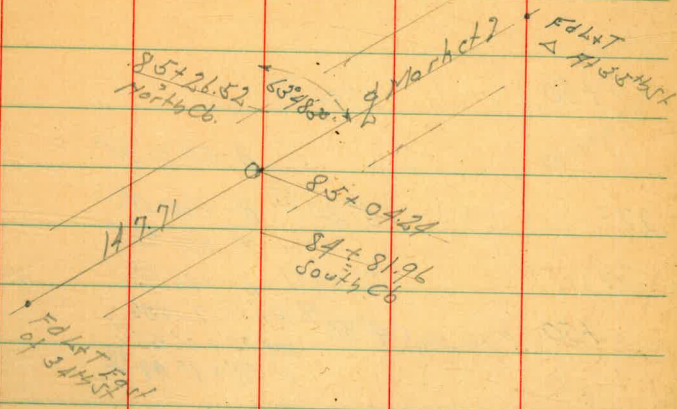
20

"P" Line 1652



Station	Align.	Deflection.		Co l Bear.	MO9 Bearing
		Lt.	Rt		
L-78-			10° 42 ³⁰		
+50			9° 16 ³⁶		
L-77-			7° 50 ⁴²		
+50		A-41° 59'	6° 24 ⁴⁸		
		R-1000 Rt.			
		T-303 ⁷⁰			
L-76		L-732 ⁷⁵	4° 58 ⁵⁴		
		def'n = 1.7189			
		25ft = 42.9725			
+50		50ft = 1° 25 ³⁴	3° 32 ⁶⁰		
L-75-			2° 06 ⁶⁶		
+50			0° 40 ⁷²		
L-74+26 ³¹ 80.			0° 00		

Station	Align.	Lt.	Rt.	Col. Bear.	Mag. Bear.
89+10.10	P.O.T.			N. 35° 29' 30" E.	
				2149 ⁵⁶	
85+89.92	P.O.T.				
85+26.52	-11 cb of Market				
1-81+59 ⁰⁶	E.C.			20° 59' 50"	
+50				20° 43' 58"	
1-81				19° 17' 24"	
+50				17° 52' 00"	
1-80-				16° 26' 00"	
+50				15° 00' 12"	
1-79-				13° 34' 18"	
+90.00	P.O.C.			12° 17'	
1-78+50				12° 08' 24"	



Station	Align.	Lt.	Rt.	Col Bear.	Mag. Bear.
---------	--------	-----	-----	--------------	---------------

+50

8° 07' 58"

Δ-53° 20' 30"

97-

out

6° 20' 15"

R- 800 Lt.

T- 401 85"

+70

5° 15.69

L- 744 29'

+50

P.O.C. Nail

4° 32' 72"

def. ft. = 2.1486

def 25' = 0° 53' 71"

" 50' = 1° 47' 43"

96-

2° 45' 29"

+50

0° 57' 86"

L-95+23-07

B.C.

0° 00'

957 41.32

N. 35° 29' 30" E.

Δ 90+87 51

N. 1° 34' E.

95+23-07 B.C.

108° 41' 30"

7172' 30"

7174

N. 35° 23' W

112.51'

11.19

3577

97+92 63

N. 35° 29' 30" E.

"P" 7

Station	Align.	Deflection		col. Bear.	Mag. Bearing.
		Lt.	Rt.		
102-			$24^{\circ} 14^{\prime} 45''$		
+50			$22^{\circ} 27^{\prime} 42''$		
101-			$20^{\circ} 39^{\prime} 59''$		
+50			$18^{\circ} 52^{\prime} 16''$		
100-			$17^{\circ} 04^{\prime} 28''$		
+50			$15^{\circ} 17^{\prime} 50''$		
99-			$13^{\circ} 29^{\prime} 57''$		
+954 P.O.C. = 2			$13^{\circ} 20^{\prime} 12''$		
+50			$11^{\circ} 42^{\prime} 44''$		
98-			$9^{\circ} 55^{\prime} 02''$		

Station	Align.	Deflection		Cal Bearing	Mag. Bearing
		Lt.	Rt.		

107+37⁰² B.C.N. 17° 51' W.
1176.62'

105+42.22 P.O.T.

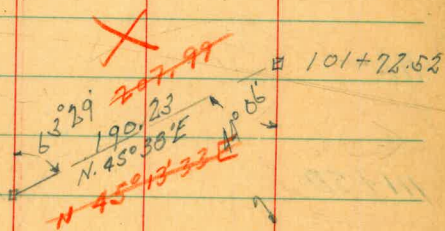
469.23'

L-102+67⁸⁶ E.C. 26° 40' ²⁵ ✓102+50 . 26° 01' ⁸⁸

13' Rt. P-line

Station	Align.	Deflection		Col. Bearing	Mag. Bearing
		Lt.	Rt.		
111 -			$12^{\circ} 59^{\prime 25}$		
+50			$11^{\circ} 12^{\prime 32}$		
110 -			$9^{\circ} 24^{\prime 28}$		
+50		$\Delta - 41^{\circ} 48' 30''$	$7^{\circ} 37^{\prime 46}$		
+45	P.O.C.	R - 800' Pt. T - 305.56 L - 583.75	$7^{\circ} 26.7'$		
109 -		def Pt. = 2.1486 " 25 = $0^{\circ} 53.2'$ " 50 = $1^{\circ} 47.43'$	$5^{\circ} 50^{\prime 03}$		
+50			$4^{\circ} 02^{\prime 60}$		
108 -			$2^{\circ} 15^{\prime 17}$		
+50			$0^{\circ} 27^{\prime 74}$		
107+37.29	B.C.		$0^{\circ} 00'$		

109+28.17 P.O.C.



Station	Align.	Deflection		Cal.	Mag.
		Lt.	Rt.	Bear.	Bear.

126+0	A-6° 51' 30"	1° 47' ⁸⁶		
-------	--------------	----------------------	--	--

R-2000' Pt.
T-119.84

+43.93 FC 3° 25'

125+50	L-239 ⁴⁰	1° 04' ⁸⁹		
--------	---------------------	----------------------	--	--

def. Pt. = 0.8594
" 25' = 0° 21' ⁸²
" 50' = 0° 42' ²⁷

Void see opp. page

127+0 2° 47.22'

125+50		0° 21' ⁹²		
--------	--	----------------------	--	--

450 2° 04.25'

A 6° 50'
R 2000'
T 119.41
L 238.53

L-124+74 ⁴⁰ B.C. 0° 00'

126+0 1° 21.28'

450 0° 38.31'

N. 23° 57' 30" E.

125+0 54° B.C. RT

1133.55

184.56

Station	Align.	Deflection		Cal.	Mag.
		Lt.	Rt.	Bear.	Bear.

173512

N. 30° 49' E.
2021⁹⁸

127+13⁸⁹ E.C.

3° 25'⁷⁵

Yield

127-0

3° 13'⁸⁰

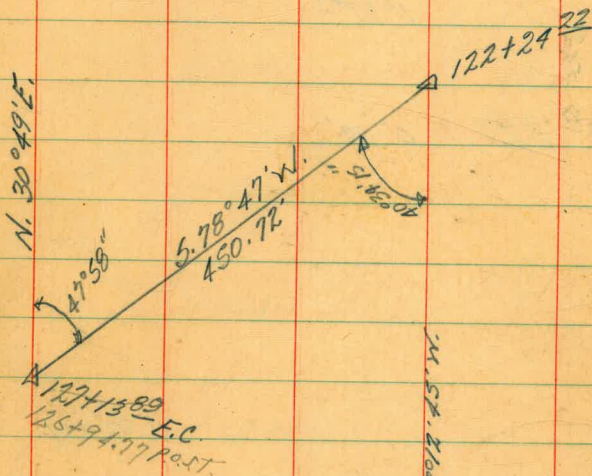
126+50

2° 30'⁸³

29

142+41.78 Nail

139+25.41 Nail



134+87.66

P.O.T. Nail

130+30.69

P.O.T. Nail

Station	Align.	Deflection		Col.	Mag.	Lt.	Pt.
		Lt.	Rt.	Bear.	Bear.		
146-			$\Delta - 18^{\circ} 58'$				
		$4^{\circ} 19^{56}$	R-1000 Lt.			147+60.06 EC	$9^{\circ} 29^{25}$
			T-167.04				
			L-331.03			+50	$9^{\circ} 11.95'$
+50		$2^{\circ} 53^{62}$	diff = 1.7189	void see opp page		+10 POC	$8^{\circ} 05.20'$
			"25' 0" 42.97				
			"50' 10" 25.94			147+0	$7^{\circ} 46.02'$
145-			$1^{\circ} 27^{68}$				
						+50	$6^{\circ} 20.08'$
1-144+48	B.C.	$0^{\circ} 00'$					$\Delta 18^{\circ} 58' 30''$ R 1000' T 167.12' L 331.18'
						146+0	$4^{\circ} 54.14'$
						+50 POC	$5^{\circ} 28.20'$
			N. $30^{\circ} 49' E$			145+0	$2^{\circ} 02.26'$
						+50	$0^{\circ} 36.32'$
						144+28.88 BC Lt.	

Station	Align.	Deflection		Cal	Mag.
		Lt.	Rt.	Bear.	Bear.

N. 11° 51' E.
2401⁶⁸

1898¹²

1-142+00⁰² F.C. 9° 29⁰⁰

+50 8° 37³⁸

147- 7° 11⁴⁴

146+50 5° 45⁵⁰

157+21.96 P.O.T. 1/4th S&L line

149+39.94 P.O.T. nail

148+22.94 P.O.T. nail

Station	Align.	Deflection.		Col	Mag.
		Lt.	Rt.	Bear	Bear.
		$\theta_3 - 8^{\circ}45'$			
+78 ¹⁴		Ls - 250	$1^{\circ}52'$ ✓		
168+03		Ts - 336.52			
		L.C. - 249 ¹⁴			
+53 ¹⁴			$1^{\circ}26'$ ✓		
168+03			$1^{\circ}12'$		
+28 ¹⁴			$1^{\circ}03'$ ✓		
167+51	T.S.		$0^{\circ}04'$		
168+03 ¹⁴			$0^{\circ}44'$ ✓		
+78 ¹⁴			$0^{\circ}28'$ ✓		
+53 ¹⁴			$0^{\circ}16'$ ✓		
+28 ¹⁴			$0^{\circ}07'$ ✓		
167+03 ¹⁴			$0^{\circ}02'$ ✓		
166+78 ¹⁴	T.S.		$0^{\circ}00'$		
166759.91	7				

N. 11° S E.

Station	Align.	Deflection		Col.	Mag.
		Lt.	Rt.	Bear.	Bear.
165 ⁷⁵			1°26'	2.22	
+40 ⁷⁵			1°52'	1.88	✓
171+15 ⁷⁵			2°22'	0.51	
+90 ⁷⁵	C.S.	De - 11°23'	2°55'		22.58
		De - 7°	5°41' ⁵⁰	0.00	
		Lc - 162'			
+75		R 818.51	5°08.5'		
171+50		Def. Ref. 2.1	4°16'		
+25			3°23.5'		
170+50			2°31'		
+80			1°49'		✓
170+50			0°46'		✓
+28 ^{14'}	S.C.		0°00'		
			2°55'		✓
169-03 ^{14'}			2°22'		✓

Set P.I. Hub

Station	Align.	Deflection		Cal.	Mag.
		Lt.	Rt	Bearing	Bear.

N. 40° 44' E.

172
+90⁷⁵ S.T.

0° 00' ✓ 5° 50'

173
+15⁷⁵

0° 02' ✓ 5° 31'

+90⁷⁵

0° 01' ✓ 5° 08'

+65⁷⁵

0° 16' ✓ 4° 42'

+40⁷⁵

0° 28' ✓ 4° 12'

172
+15⁷⁵

0° 44' ✓ 3° 39'

171
+90⁷⁵

1° 03' ✓ 3° 02' ✓

Station	Align.	Deflection.		Cal.	Mag.
		Lt.	Rt.	Bear.	Bear.
+59 ⁶⁵		1°52' ✓			
+34 ⁶⁵		1°26' ✓		8°45'	
				Ls-250'	
				L.C.-249'	
175+09 ⁶⁵		1°03' ✓			
+84 ⁶⁵		0°44' ✓			
+59 ⁶⁵		0°28' ✓			
+34 ⁶⁵		0°16' ✓			
174+09 ⁶⁵		0°07' ✓			
+84 ⁶⁵		0°02' ✓			
173+59 ⁶⁵ T.S.		0°00'			

Set Hubs

Station	Align	Deflection		Cal.	Mag.
		Lt.	Rt.	Bear	Bear
+75		12° 47.5'	✓		
+50		11° 55'	✓		
179-		10° 10'	✓	$D_c - 37^{\circ} 03'$	
				$D_c - 7^{\circ}$	
+50		8° 25'	✓	$L_c - 529.23$	
				R 818.51	
				L 529.28	
				Lc 520.11	
178-		6° 40'	✓		
+50		4° 55'	✓		
+25	P.O.C.	4° 02.5'			
177-		3° 10'	✓		
+70		2° 07'	✓		
+50	out	1° 25'	✓		
+40	✓	1° 03.7'	✓		
		0° 00'			
176 + 09	S.C.	2° 55'	✓		
+84 ⁴⁵		2° 22'	✓		

Set H45

Station	Align.	Deflection		Cal.	Mag.
		Lt.	Rt.	Bear.	Bear.
+63 ⁹³		0°44'	3°39'		
+38 ⁹³		1°03'	3°02'		
182+13 ⁹³		1°26'	2°22' ✓		
+88 ⁹³		1°52'	1°38' ✓		
+63 ⁹³		2°22'	0°51' ✓		
+38 ⁹³ C.S.		2°55'	18°31' ^{50'}		
+25		18°02' ✓			
181-		17°10' ✓			
+75		16°17.5' ✓			
+50		15°25' ✓			
180-		13°40' ✓			

Set Hub 11.01 South

Station	Align.	Deflection.		Col.	Mag.
		Lt.	Rt.	Bear.	Bear.

184+86⁰⁹ T.S. See Page 43

974

N. 13° 49' W.

+88⁹³ S.T. 0° 00' 5° 56'

Hall Roof of Chicken Shed

+63⁹³ 0° 02' 5° 21' 8" - 8° 45'
L.C. 249²⁴

+38⁹³ 0° 07' 5° 08'

183+13⁹³ 0° 16' 4° 42'

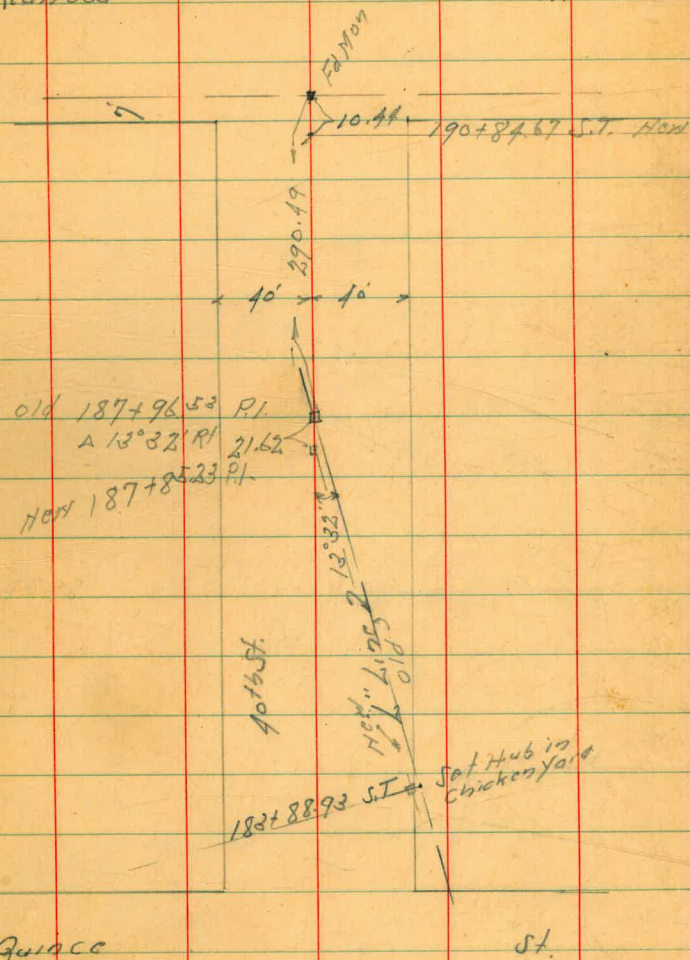
+88⁹³ 0° 28' 4° 12'

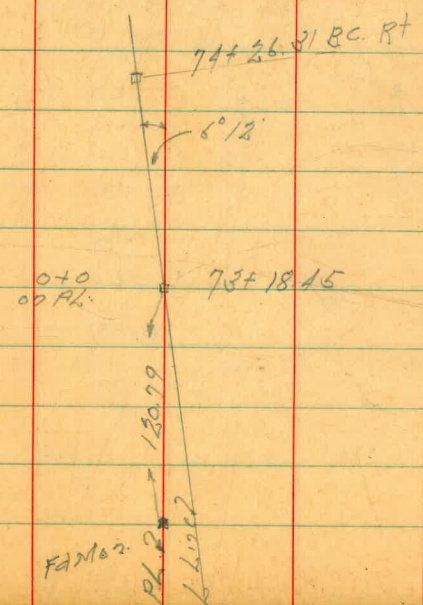
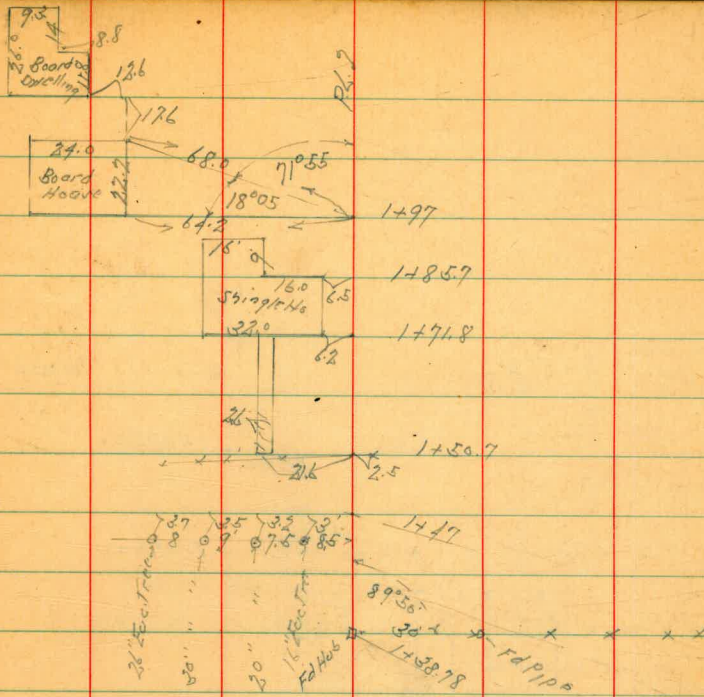
Station	Align.	Deflection.		Cal.		Mag.	
		Lt.	Rt.	Bear	Bear		
187+50	$\Delta_c - 9^{\circ}13'$ $D_c - 3^{\circ}$ $L_c - 307^{22}$		$1^{\circ}42^{50}$				
187-			$0^{\circ}57^{50}$				
+50			$0^{\circ}12^{50}$				
+36 ⁰⁹	S.C.		$0^{\circ}00'$ $0^{\circ}45'$		Void		See Page 43
186+06 ⁰⁹	$\theta - 2^{\circ}15'$ $L_c - 150'$ $L.C. - 149^{99}$		$0^{\circ}29'$				
+76 ⁰⁹			$0^{\circ}16'$				
+46 ⁰⁹			$0^{\circ}07'$				
185+16 ⁰⁹			$0^{\circ}02'$				
184+86 ⁰⁹	T.S.		$0^{\circ}00'$				

Station	Align	Deflection		Cal	Mag
		Lt	Rt.		
				N. 0° 06' W	
190+93 ³¹	S.T.		0° 00'		
+63 ³¹		B ₃ - 2° 15'	0° 02'		
		L ₅ - 150'			
		L.C. 149 ⁷²			
+33 ³¹			0° 07'		
190+03 ³¹			0° 16'	Void See page 44	
+73 ³¹			0° 23'		
+43 ³¹	C.S		0° 45'		
			4° 36 ⁵⁰		
189-			3° 57 ⁵⁰		
130+50			3° 12 ⁵⁰		
188			2° 27 ⁵⁰		

Redwood

St.



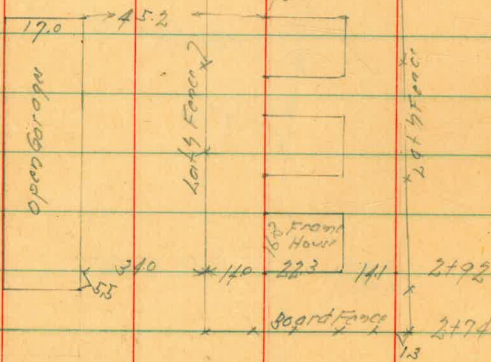
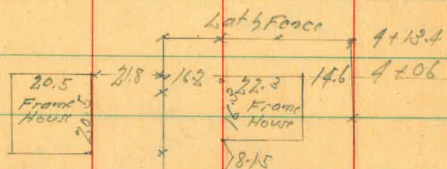


5 St

P.L. 2

Same

Fdn. 4+28.7

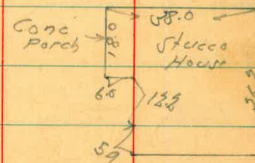


P.L. 2

4+28.7
Mon

90°

105.6



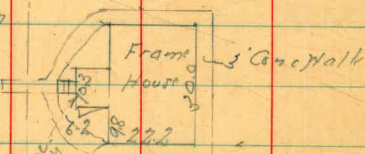
4+03.7

29°
Pow Pole

5' Cypress Hedge

3+77.4

59.7



3+77.4

60.2

Conc Porch

5' Cypress Hedge

2+70

28°

Pow Pole

Wire Fence

2+46

36

24' Palm

		PT	
+75	$\Delta e 9^{\circ} 02'$	$2^{\circ} 07.3'$	
	$D = 3^{\circ}$		
	$L = 301.11$		
+50	$L.C. 300.80$	$1^{\circ} 41.8'$	
+25	$Rc 1909.86$	$1^{\circ} 22.3'$	
187+0		$0^{\circ} 59.8'$	
+75		$0^{\circ} 37.3'$	
+50		$0^{\circ} 14.8'$	
		$0^{\circ} 00'$	
133.56	S.C.	$0^{\circ} 45'$	
186+03.56	$Bs 2^{\circ} 15'$	$0^{\circ} 29'$	
	$Ls 150$		
	$L.C. 149.99$		
+73.56	$T.S. 301.67$	$0^{\circ} 16'$	
+43.56		$0^{\circ} 07'$	
185+13.56		$0^{\circ} 02'$	
184+83.56	T.S.	$0^{\circ} 00'$	No Hub center in S ₁₁₀

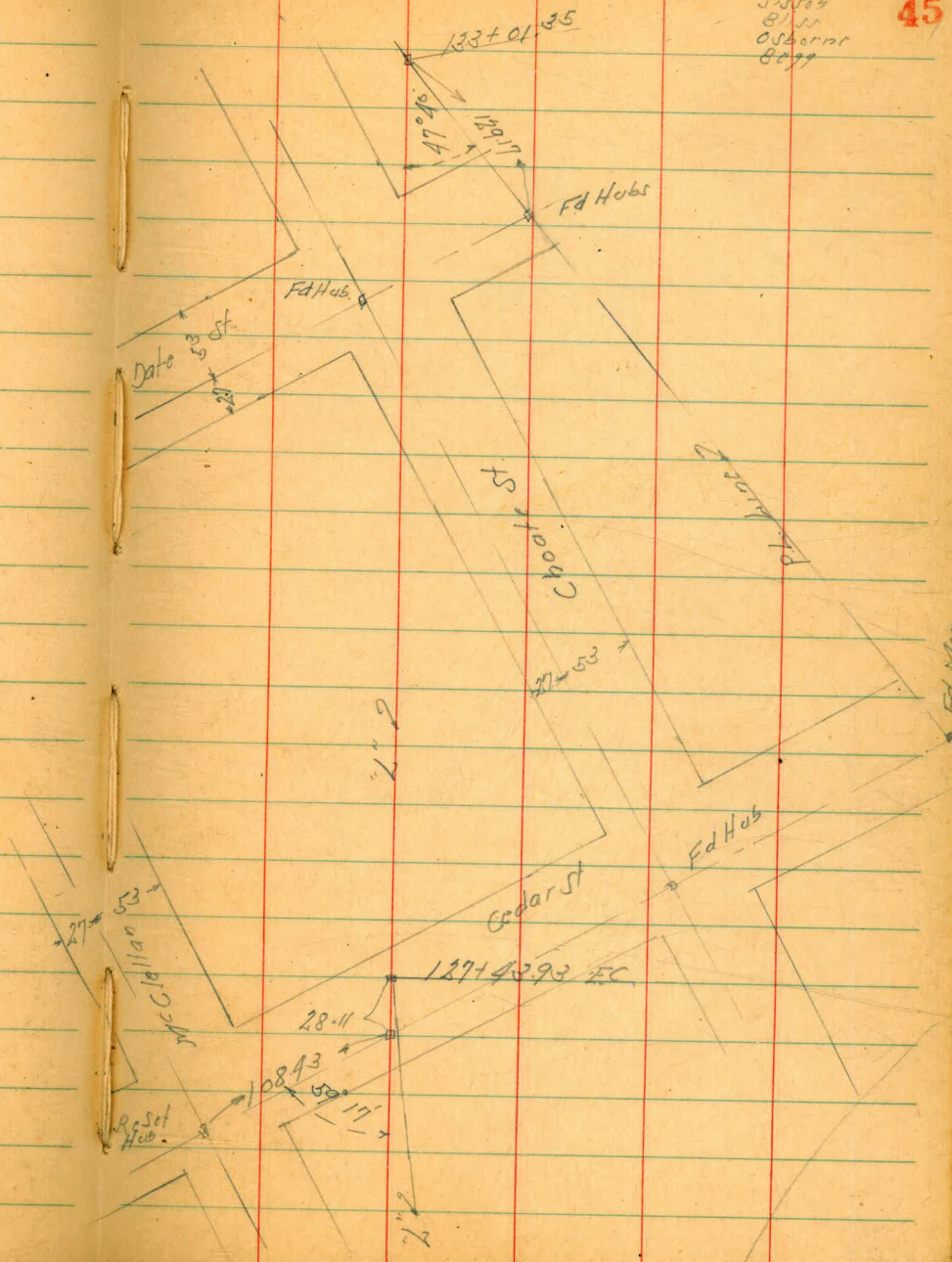
	RT.	
+ 84.67 S.T. 3.74 Sof S.L. Redwood	1° 30'	
+ 54.67	1° 19'	
	05 2° 15'	
190+21.67	LS 150 LS. 149.99	1° 05'
+ 94.67		0° 47'
+ 64.67		0° 25'
+ 34.67 C.S.	$\frac{0^{\circ} 00'}{4^{\circ} 31'}$	
189+0		3° 59.8'
+ 50		3° 14.8'
+ 25		2° 52.3'
188+0		2° 29.8'

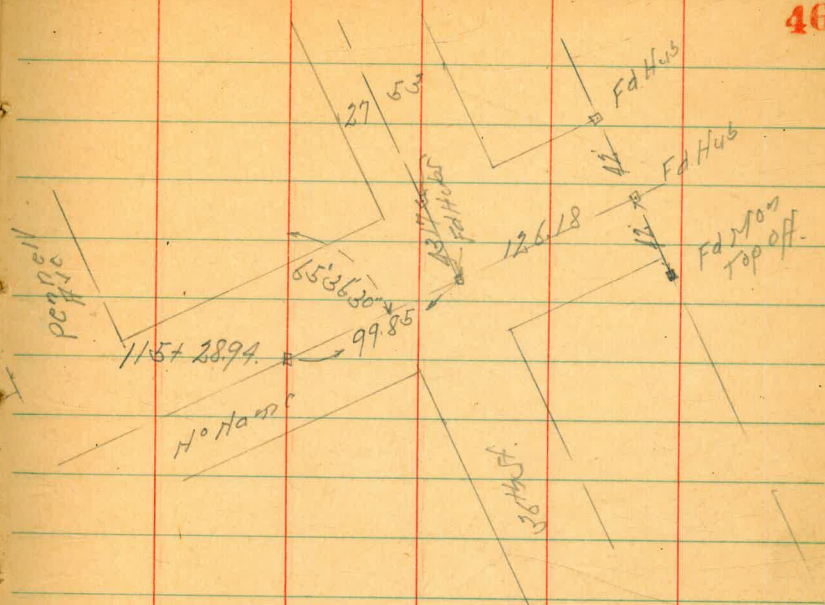
190+10 ← 35 → 25 →
Rabbit
Dump
189+90 ← 30 →

Hoback Canyon Tier 2 Line

June 29-45
Sutton
8155
Osborn
8177

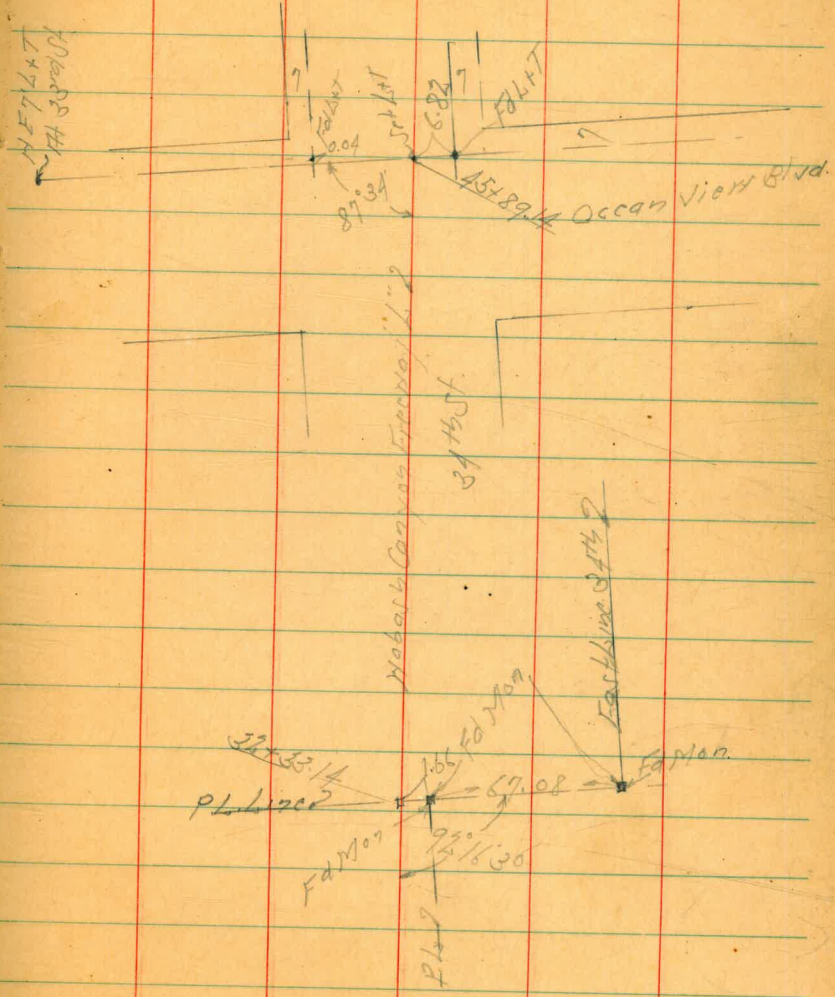
45



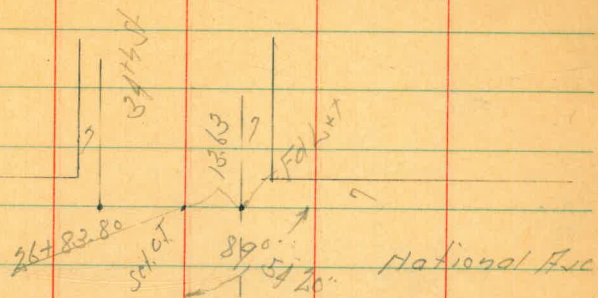


"L" line?

Nabatah Canyon Ties L' Line

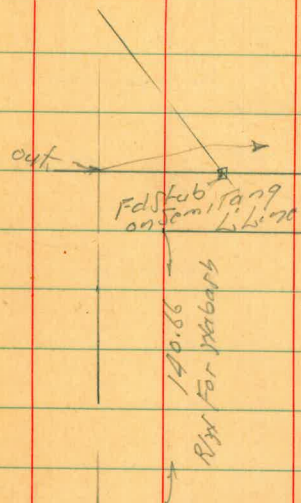


N.E. 9.6.17
 #1966
 #1967



2.1.2

Survey Lot 31-32 Block 289
 San Diego Land + Town Cos
 South Chollas Add



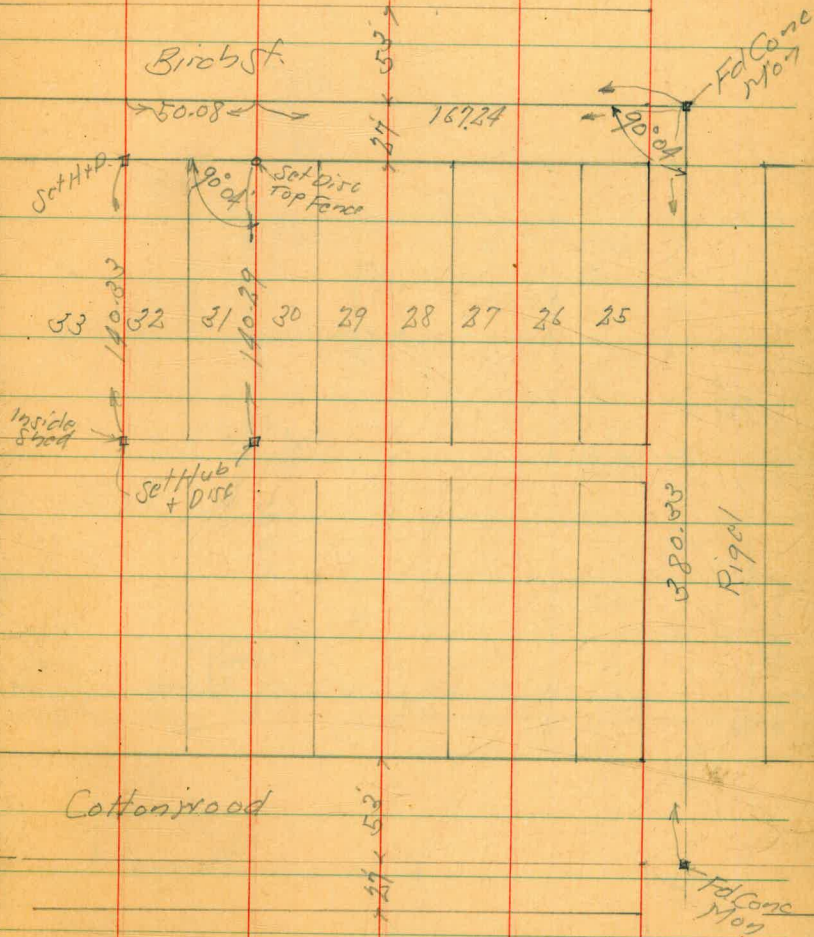
Page 52
 647.98

Block
 289
 San Diego Land + Town
 Cos South Chollas Add

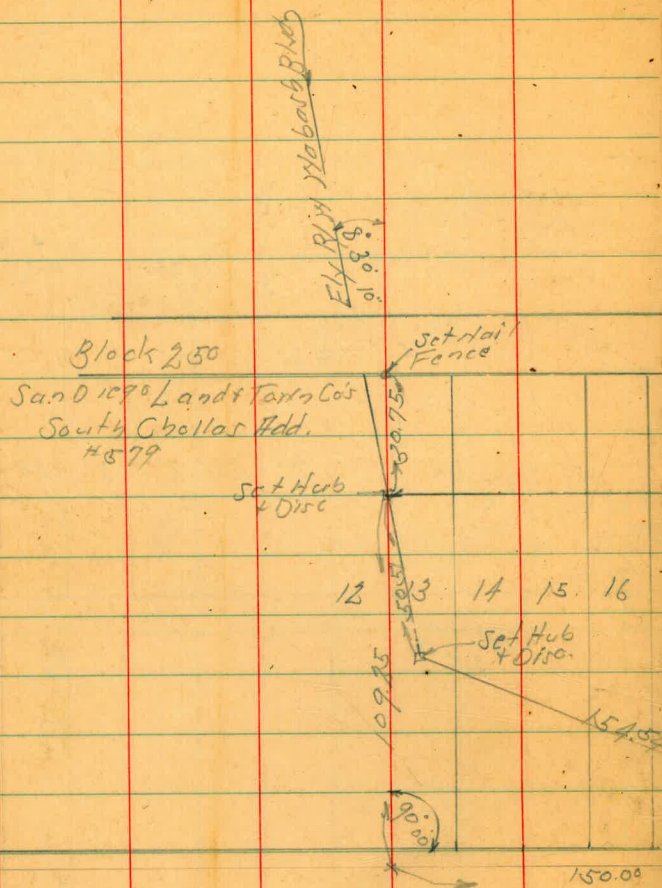
Pluto

Aug 16 50
 H.S. 5500
 Garber
 Rorer

49



Survey Eastern Right of Way
 Hobart Blvd Block 250 San Diego Land &
 Town Cos South Chollar Hdd.



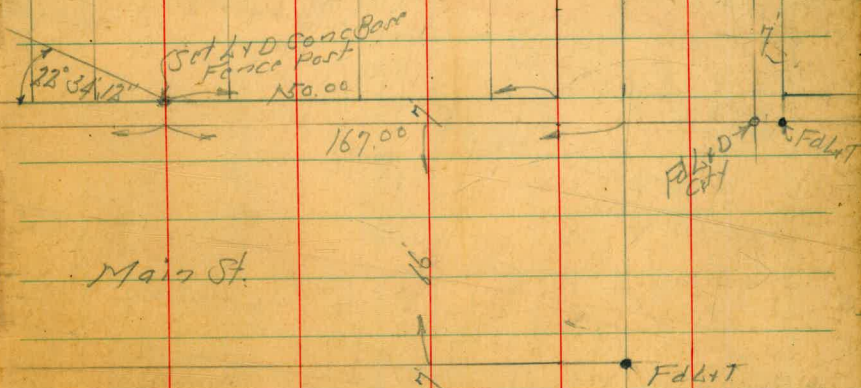
Hug. 15-50
 #51550
 Garber
 Porter
 Chavez

50

Fd. Cons. Mon.
 13 Line
 Cottonwood

F.G. West

17 18 19 20 21 22 23 24 25 26



Main St.

Fd. Lt

Wabash Freeway Ties L' Line
Main St. to 40th St. & Landust.

INDEXED

WK
JUN 30 1949

June 7-48
Sisson
Smith
Tiller
Johnson
No. 90001

Alignment L' 1873-87

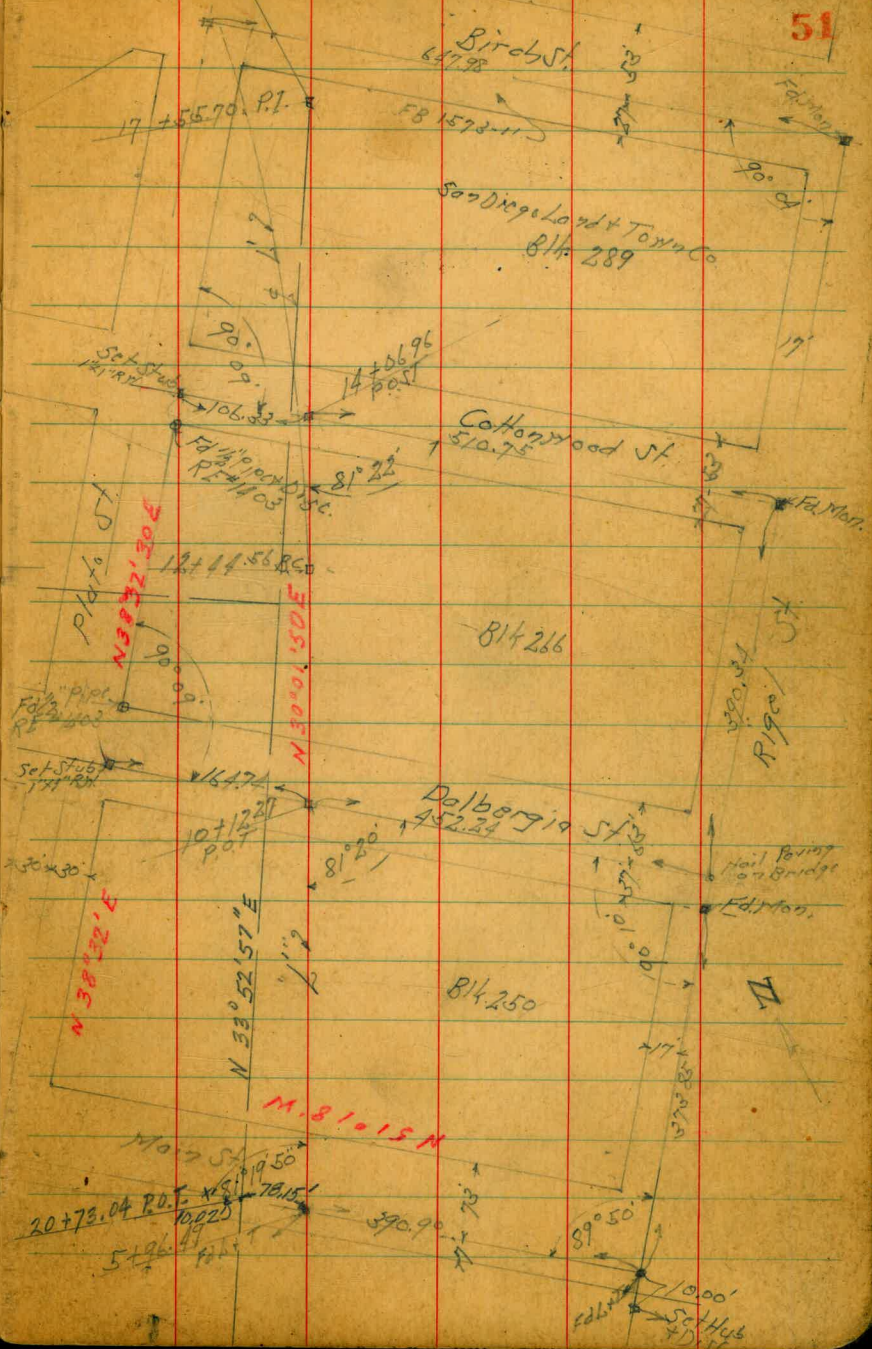
~~28740.50~~
~~R2000~~
~~78111~~
1/1000.85

12+37.55 Ahd. 80
26+98.01 Bk

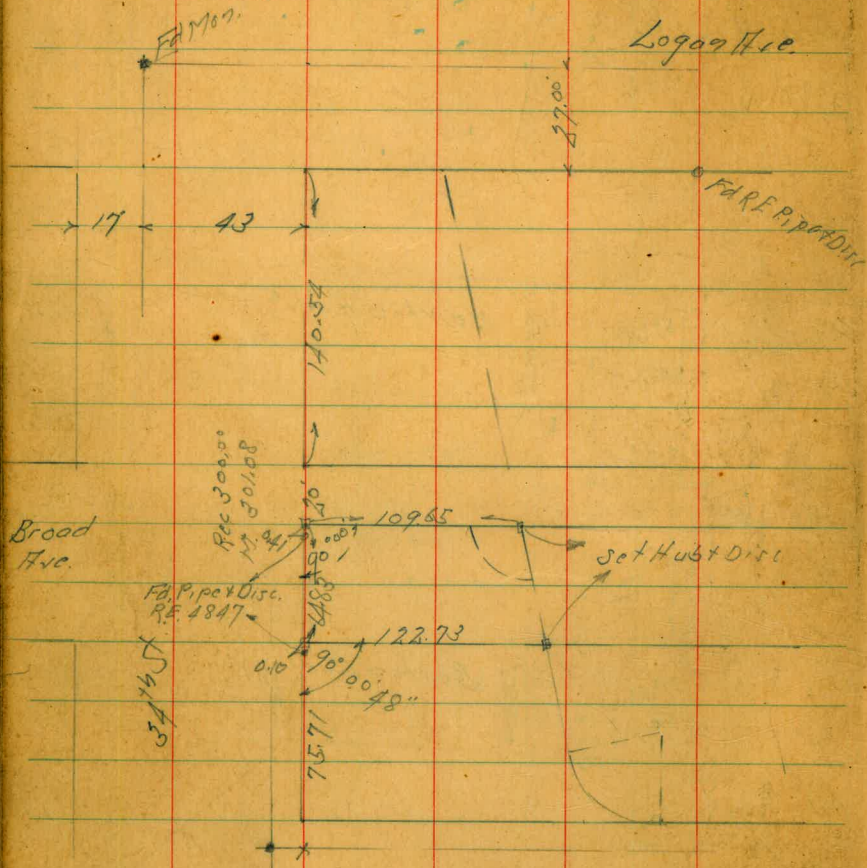
$\Delta = 32^\circ 31' 27''$
 $\phi R = 1800'$
 $T = 525.06'$
 $L = 1021.78'$

26+97.70

Boston Ave



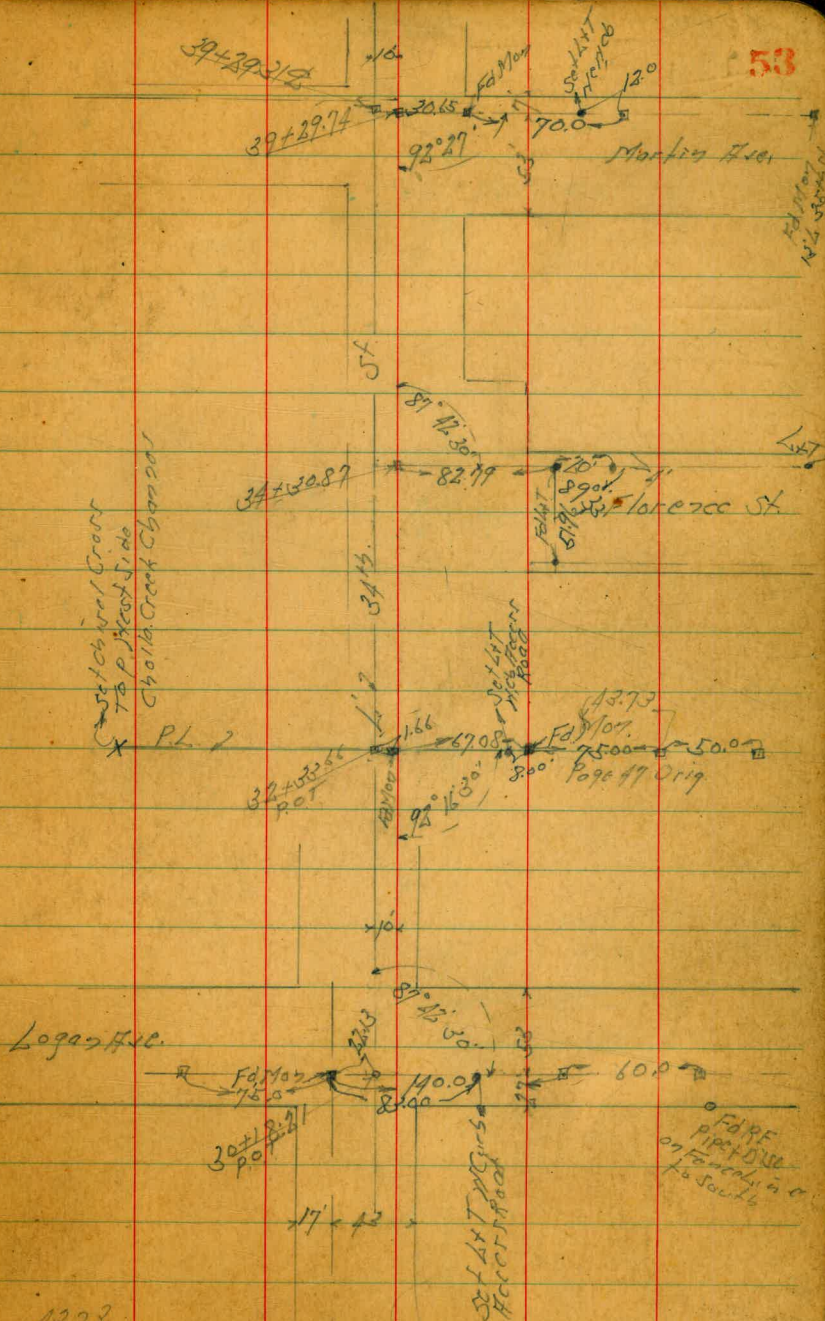
Hobash Freeway Tie L' Line



March 8-50
 H.S. Sisson
 D. Smith
 Rorer
 Chavez
 No. 22008

1279

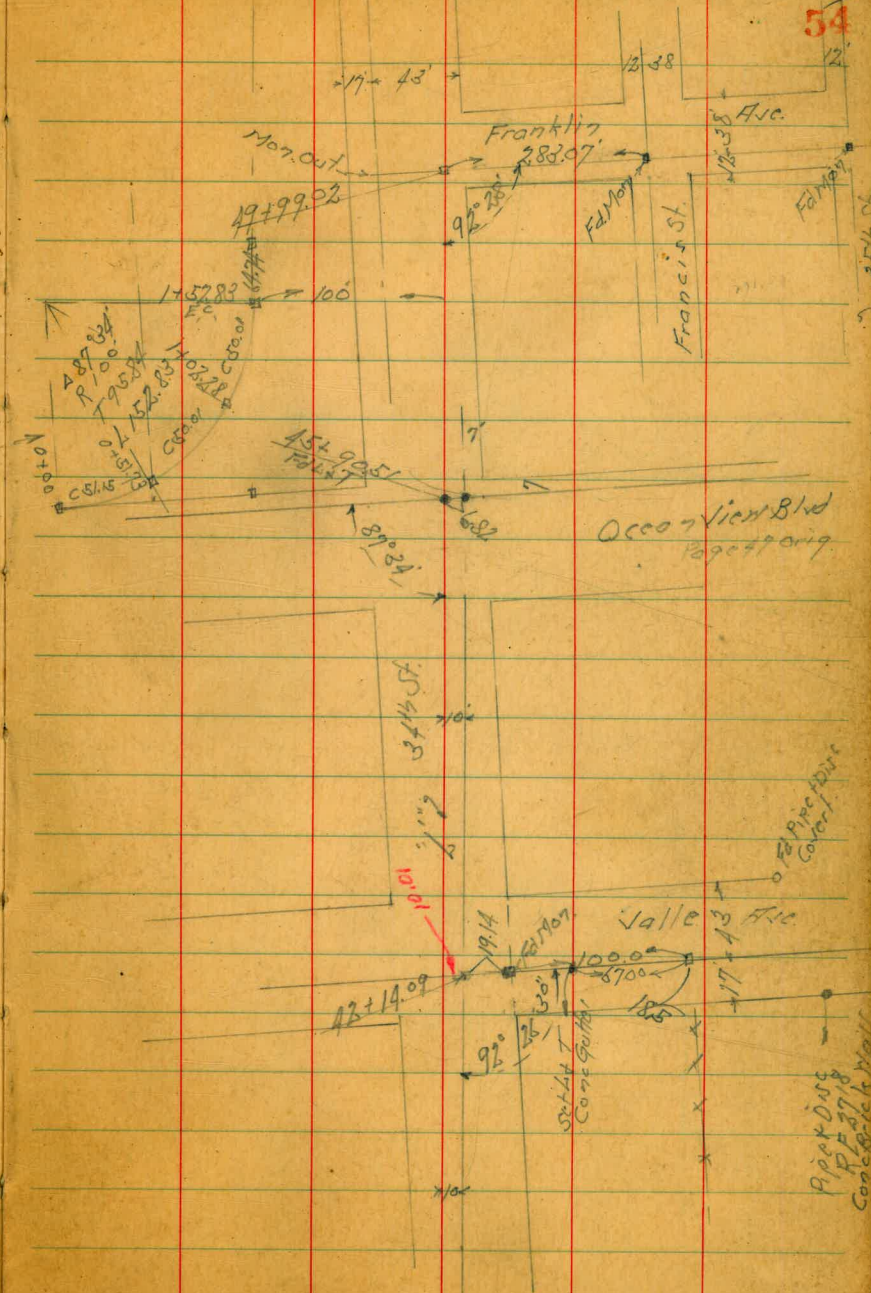
53



Nobash Freeway Tie L Line

Set 5 Hubs 2 1/2"
Feb 13-51
Harrison
Gardner
Pope
Clark
R/W 7242 L

54

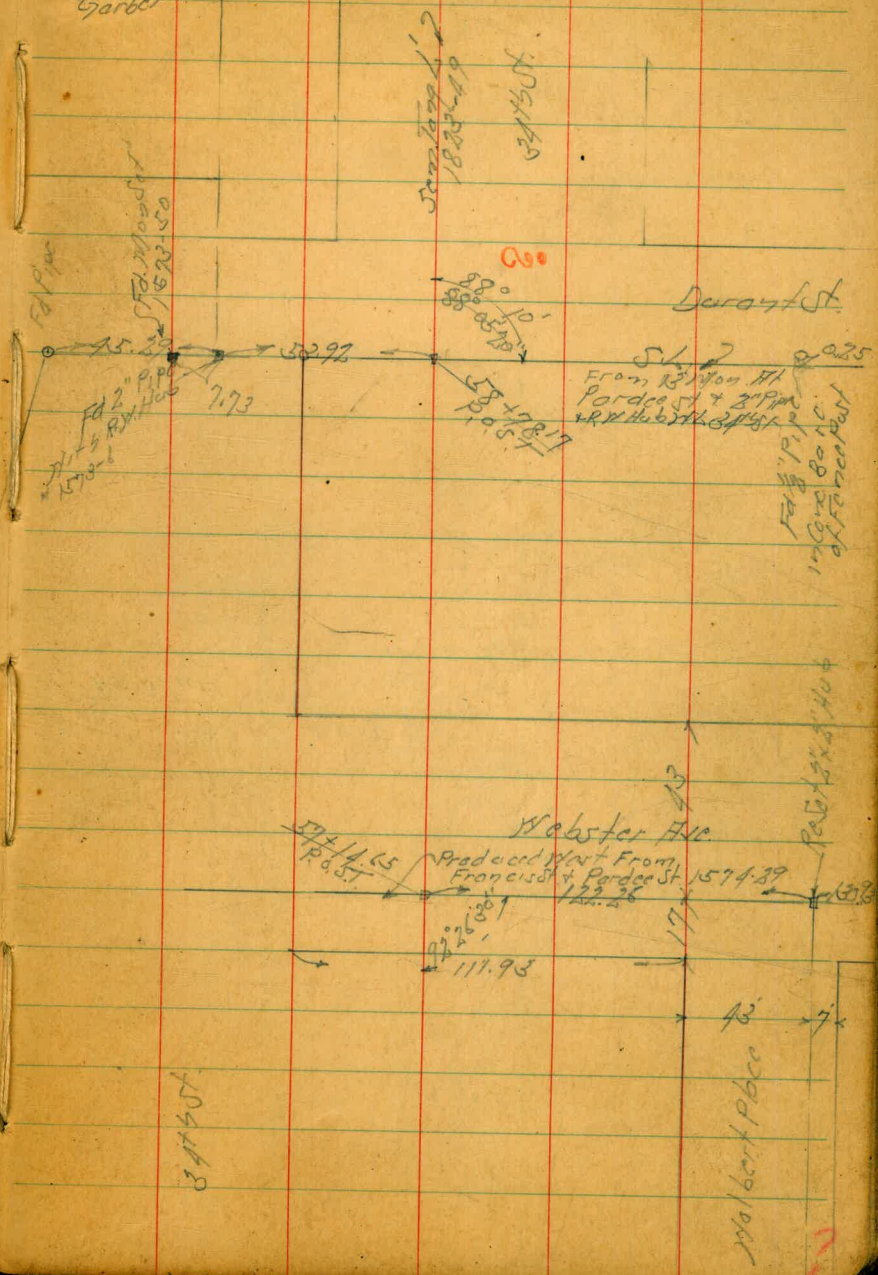


Wabash Freeway Tie L Line

Aug. 30-48

Smith
Baker
Gardner

55

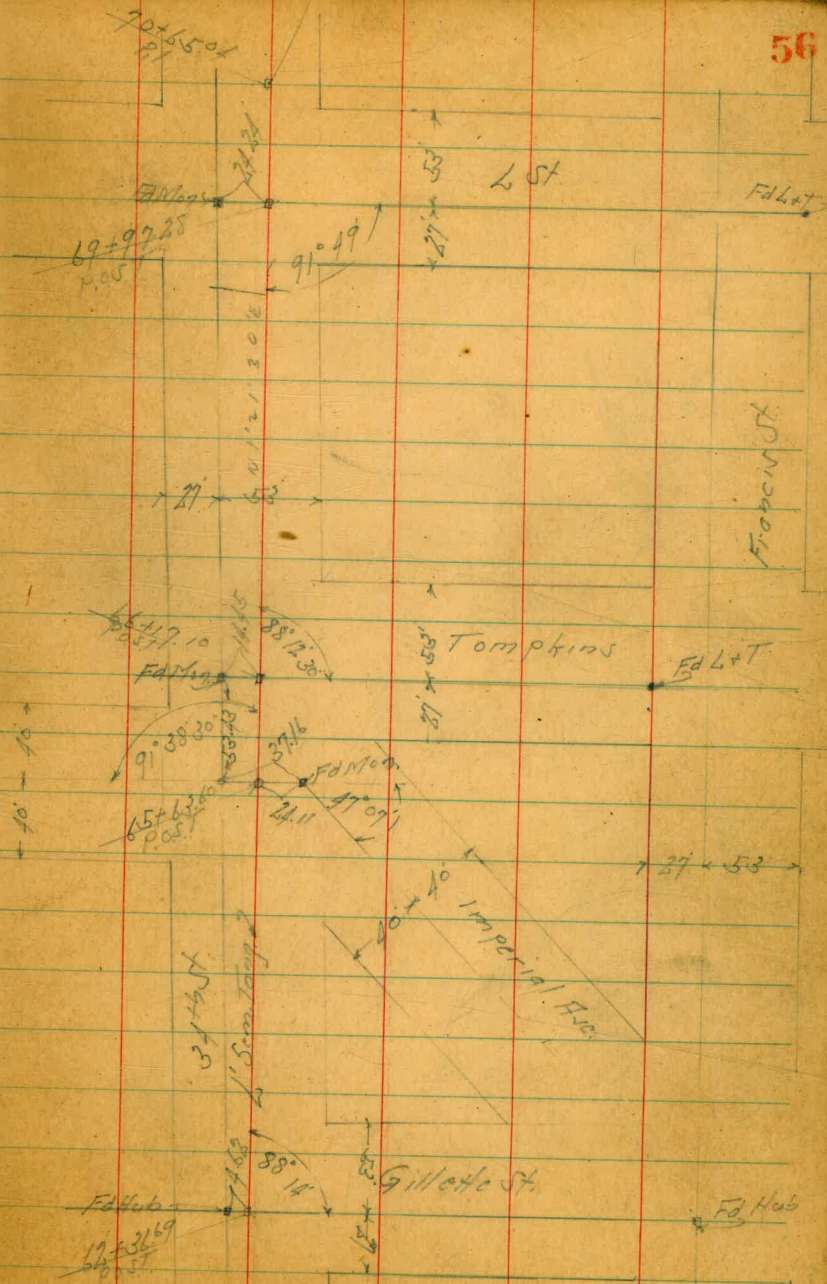


Wabash Freeway Ties & Lists

July 2-18
Sisson
Smith
Becher
Lee

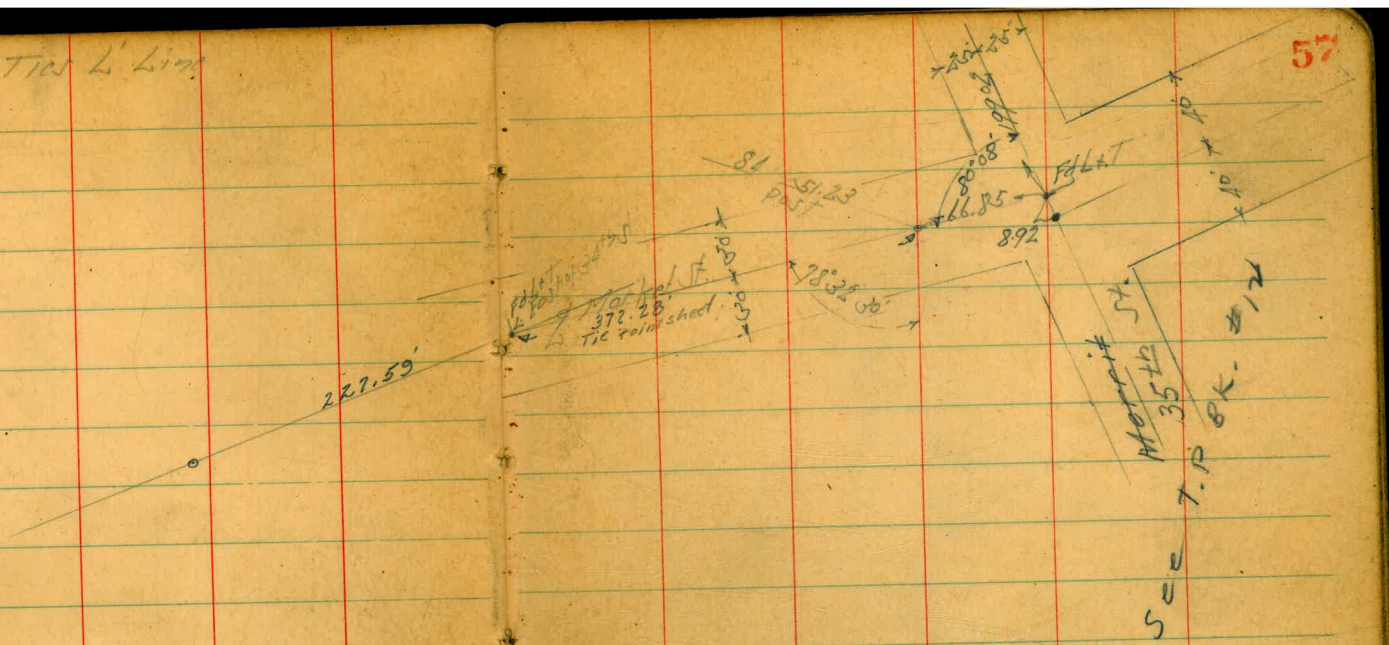
Imperial Ave

56

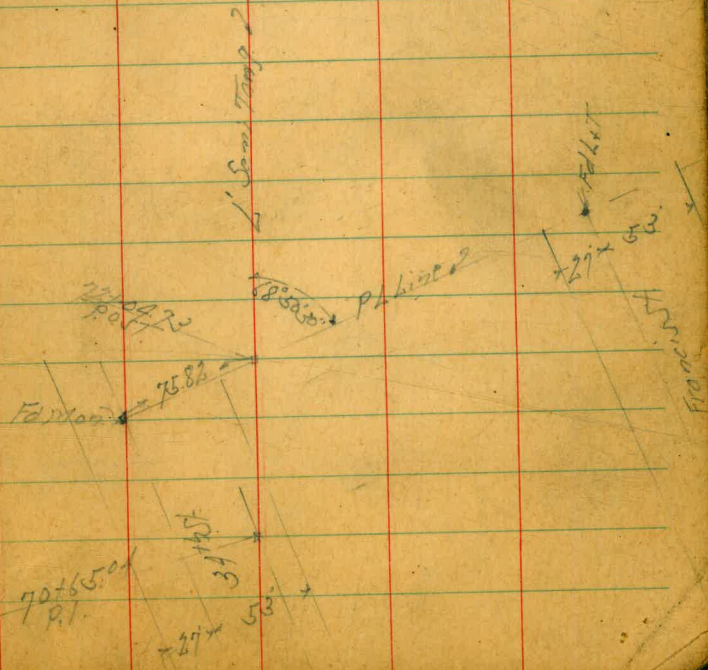


Wabash Freeway TIC L' Lim

57



70+65.04 P.I.

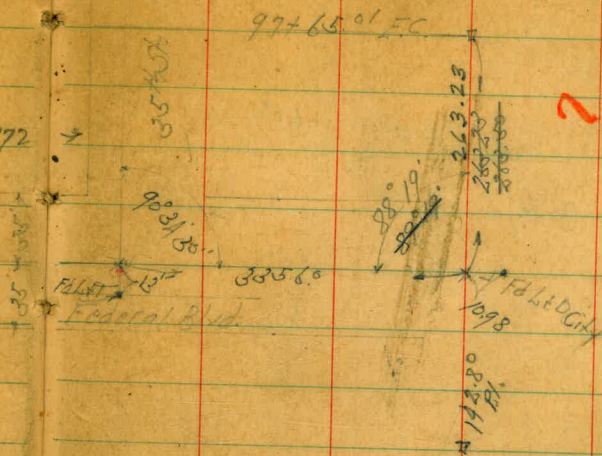


Hobbs Freeman Ties L' Line

Fed. Man.
Pickwick
17-43

58

Page 92



520.71-T.P.

526.58

See Page 80

Merritt St

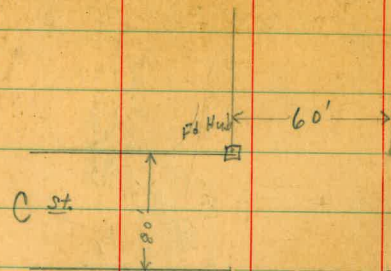
87+43.53 EC

S14 PL 1151
TP # 19-36

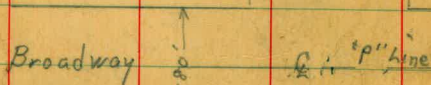


Wabash Freeway "L" Line Ties
Broadway + C St.

D. Smith Sept. 23, 1948
w Becker
w Barber

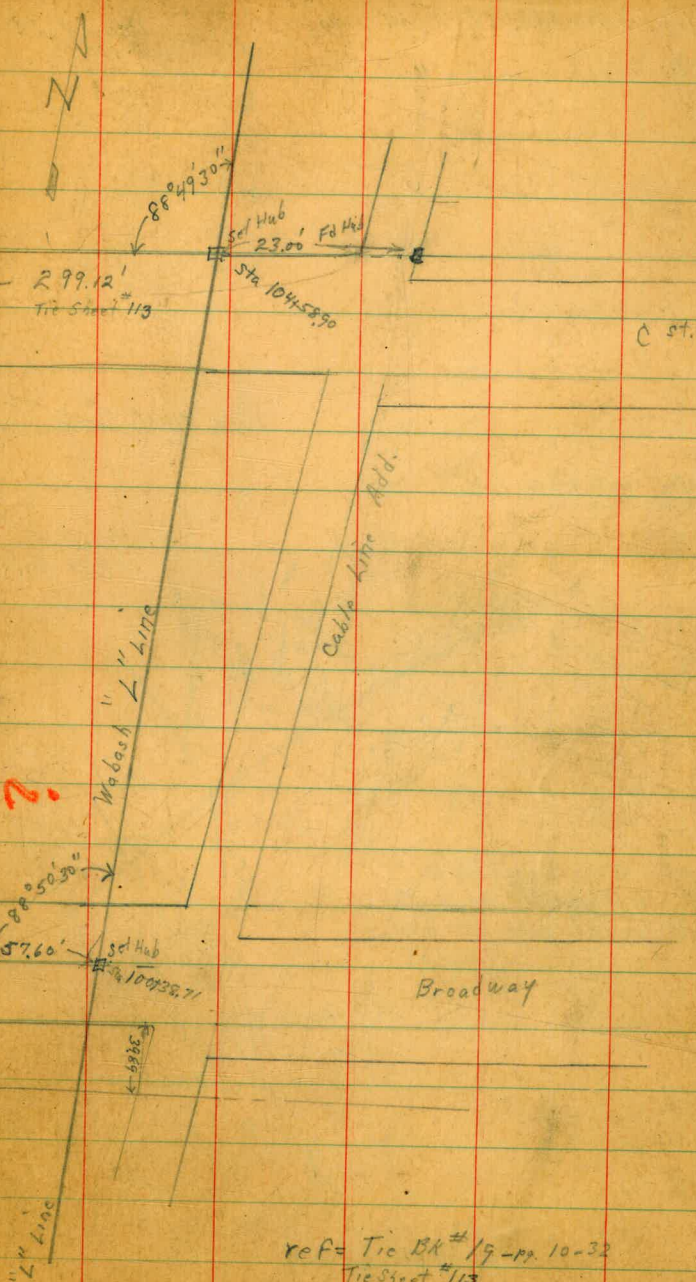


35th St



E PL 1151

37+26.37
35+84
191.77

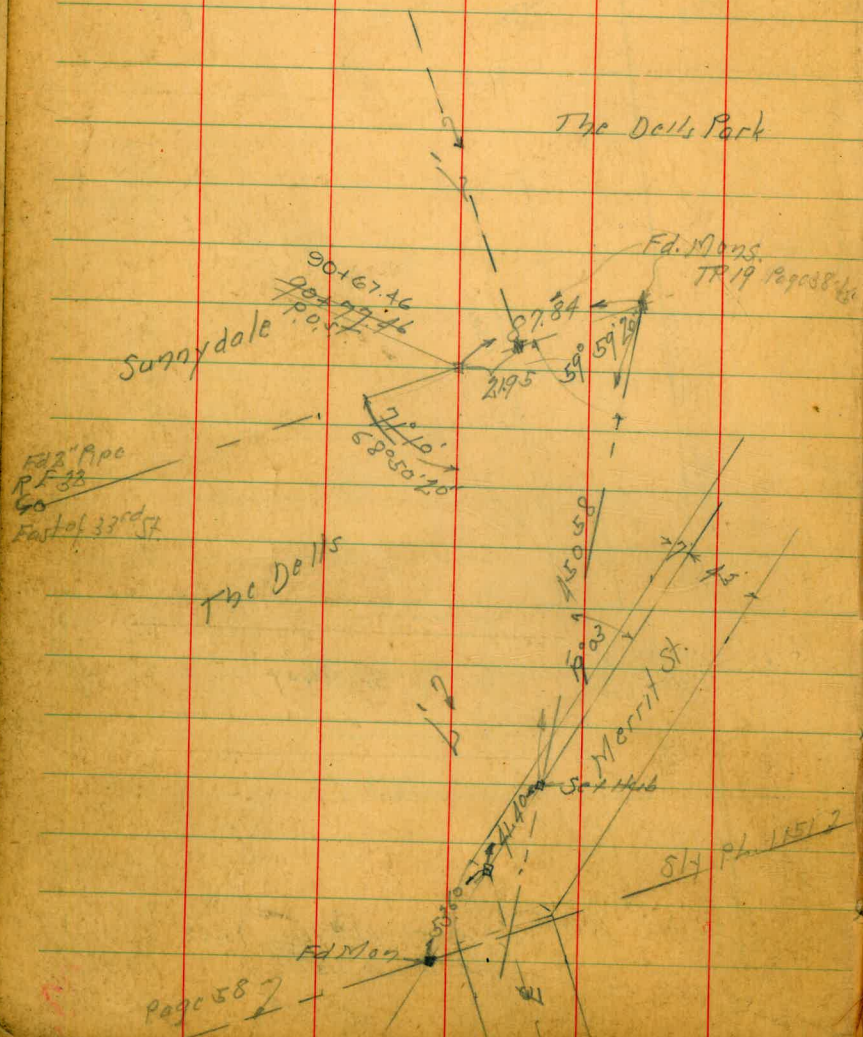


59

ref = Tie Bk # 19 - pp. 10-32
Tie Sheet # 113

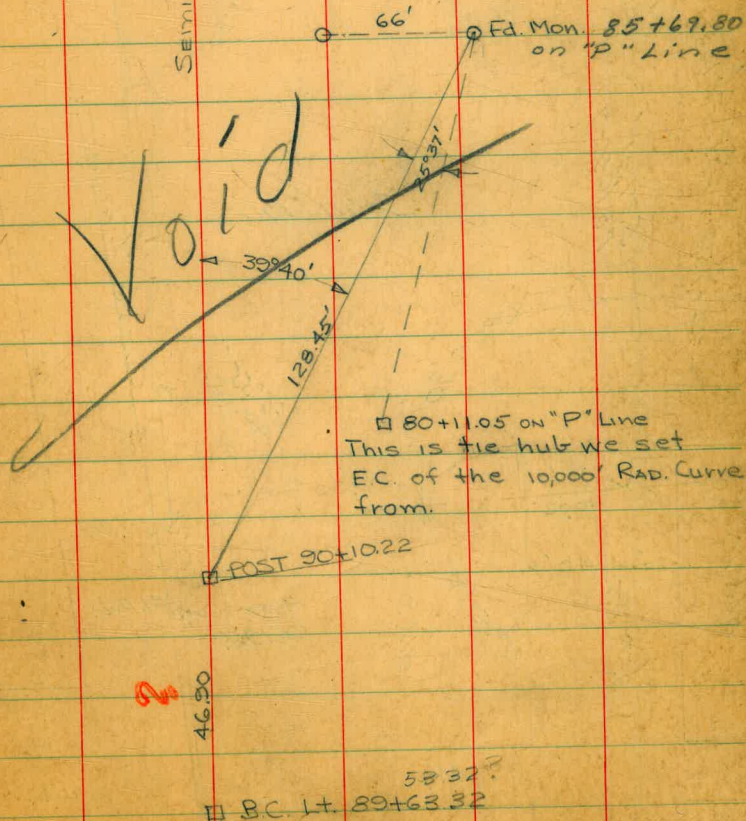
?

Dec. 14-48
S. Gray
Smith
Becker
Garber



9-29-48

SEMI-TAN. "L" LINE?



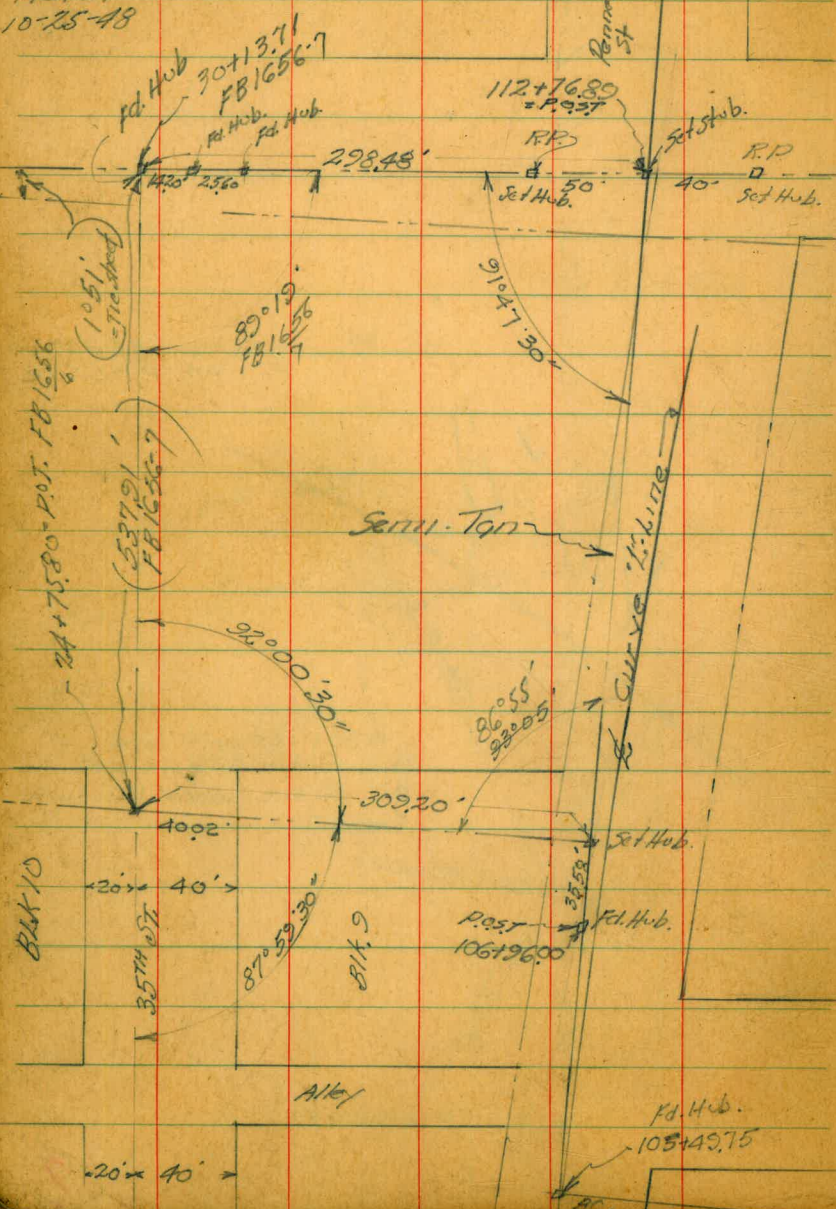
7

WABASH CANYON FREEWAY

Walker
Smith
Johnson
Hatch
10-25-48

"L" - Line Ties

Fd. Hub & P.I.



36TH ST

"A" St.

36TH ST
CST

1329.31
To SE Cor of
N.E. 1/4 R.V. 14
T16 Book 19

41.97

old
Fd. Hub.
Fd. Conc.
Post.
Top End
off.

BERECH

PENNELL ST

114

L. Line

ASH

27' 53"

67.68'

212.43'

158.11'

27' 53"

PI

see next page

STREET

STREET

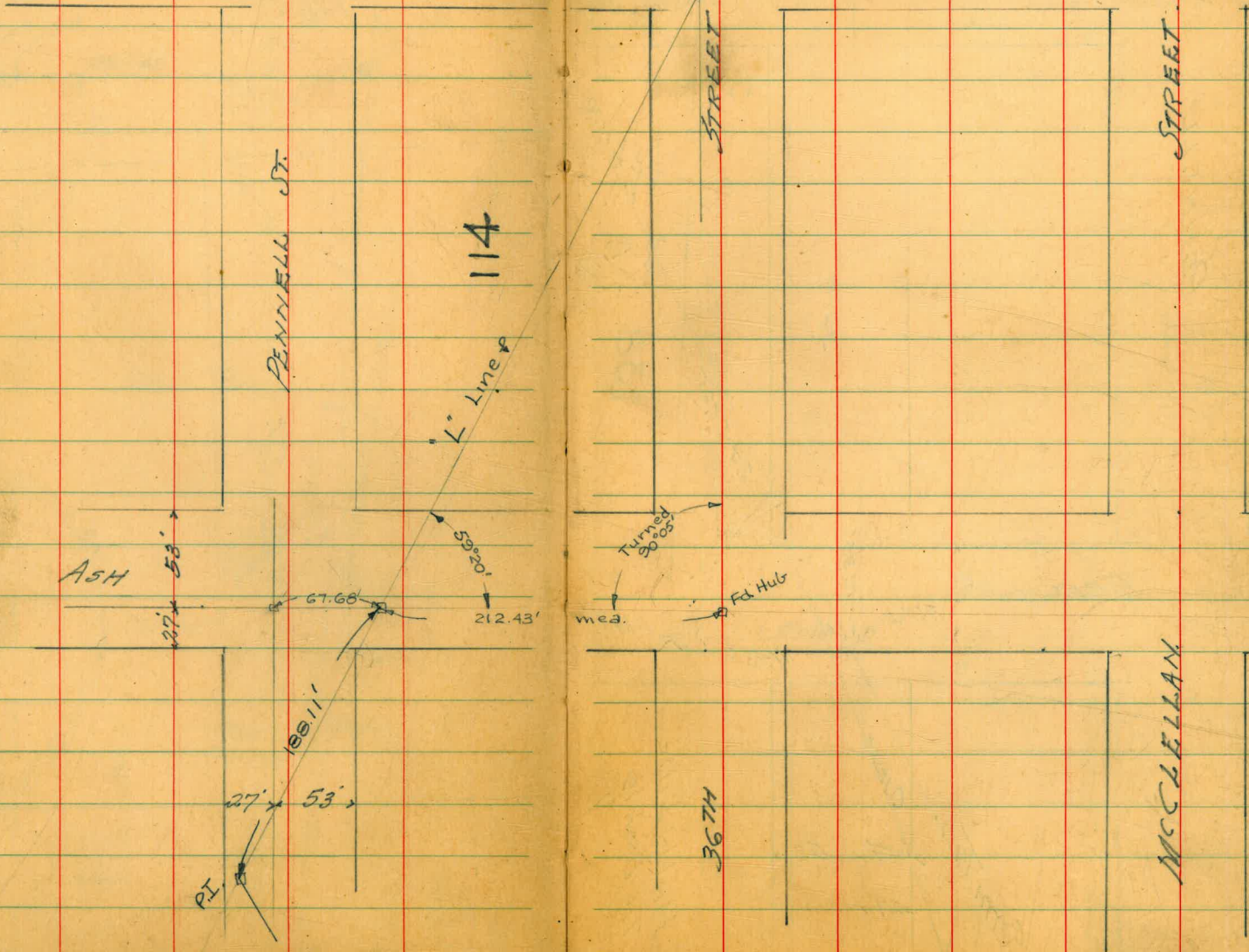
Turned 90° 03'

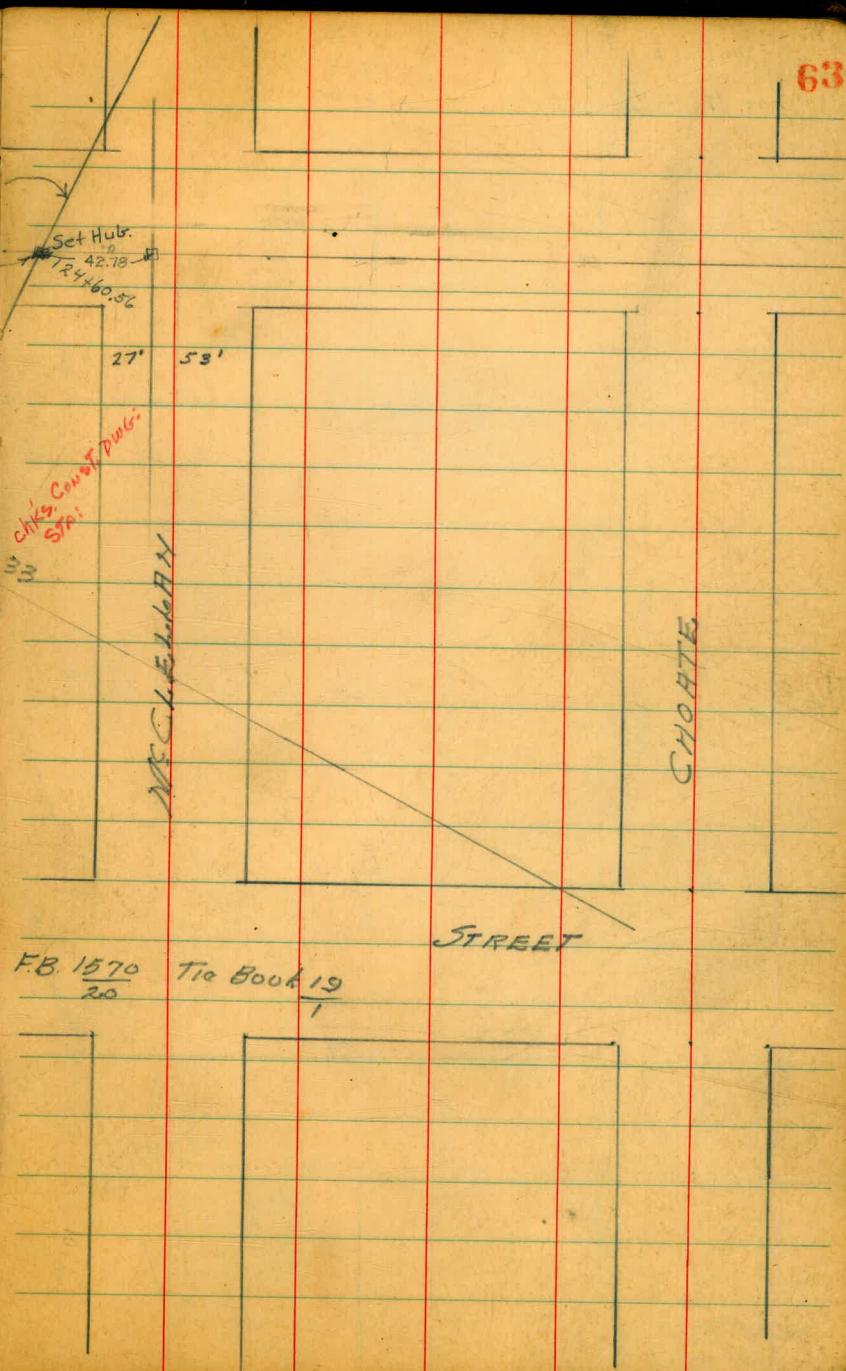
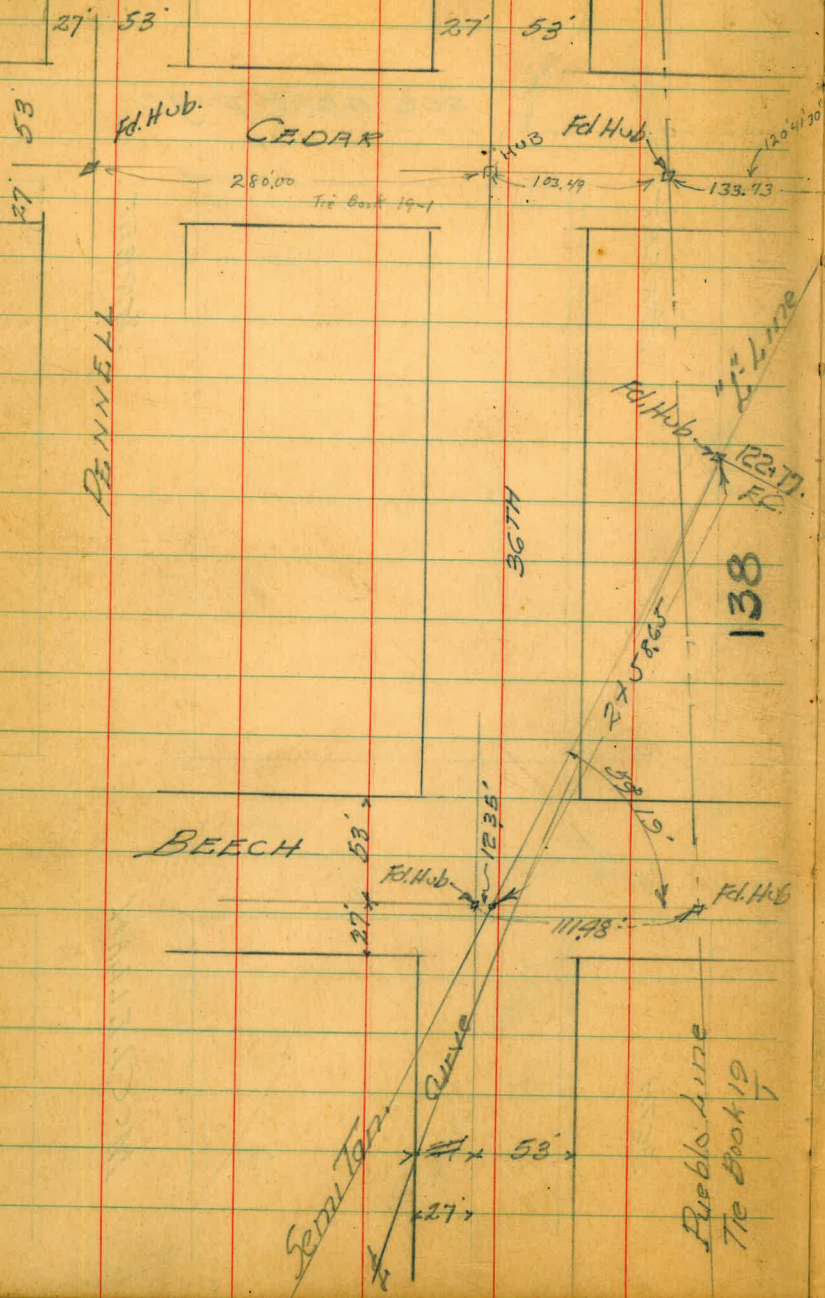
Fd. Hub

mea.

367H

MCCLELLAN





Wabash Ties Cont.
Landis + Dwight

Smith
Becker
Garber
Sept 27 1918

64

39th St

Landis St

De la Cruz Park

Dwight St

Set Hub
Dirc

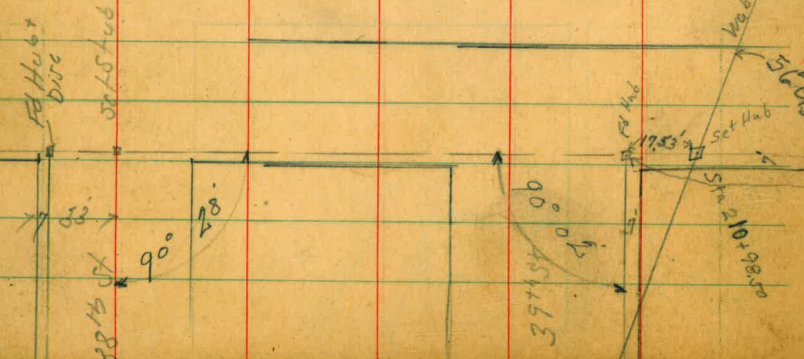
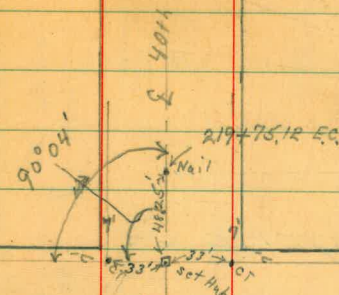
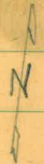
Set Hub

Set Hub

Set Hub

3113.98
Tie # 21-10

ref Tie BK # 21-10
Tie Sheet 3533



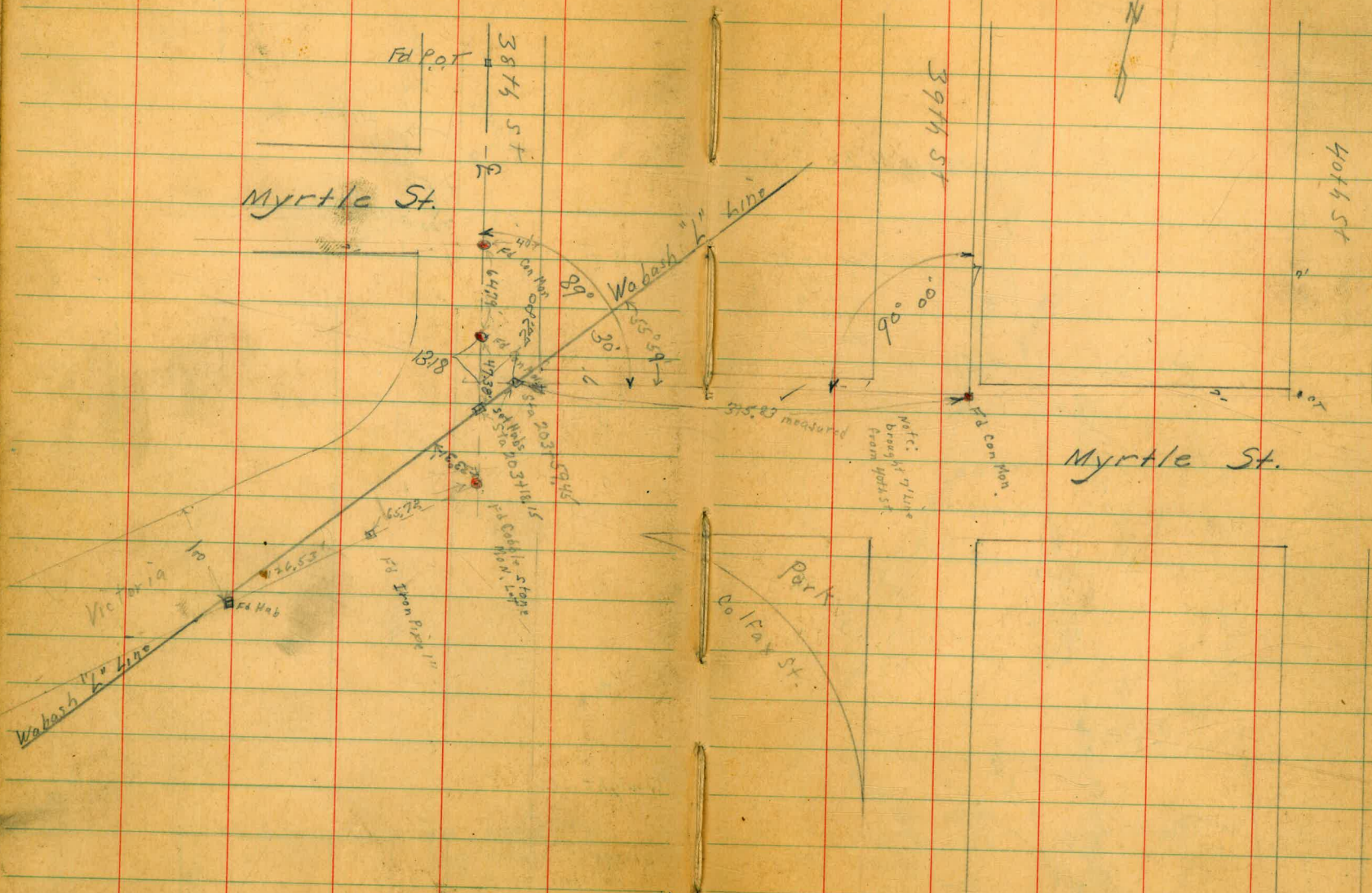
40th St

Wabash Ties "L" Line Cont.
Myrtle # 3874

Smith
Barber
Bunch

Sept 27 1948

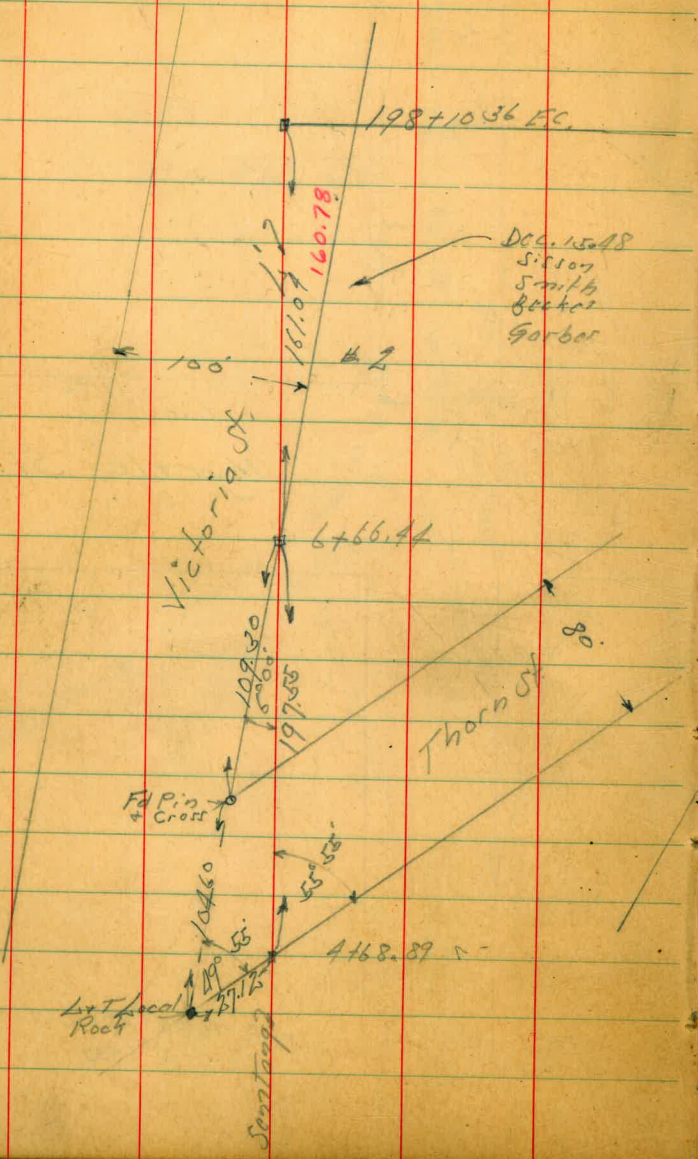
35



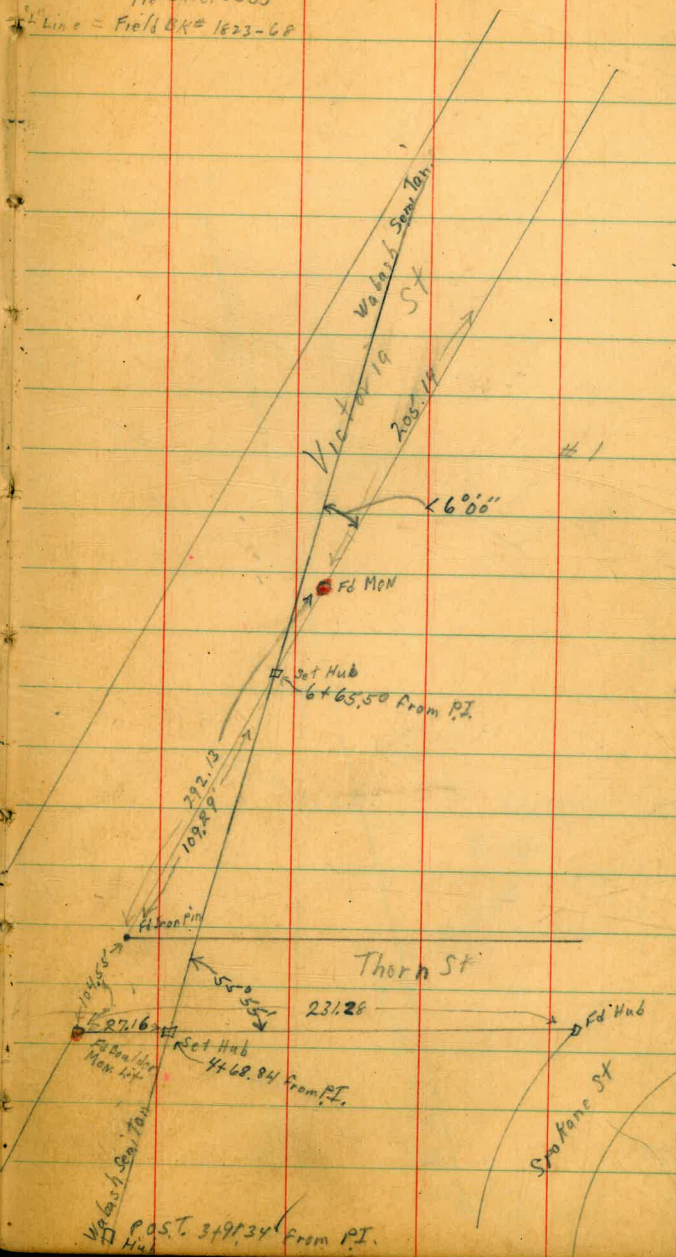
ref. Tie BA # 22-11, 27
Tie sheet # 3533

Wabash "L" Line Ties Cont
 Victoria St + Thorn St

Smith
 Becker
 Garber
 Lee sent 27, 1948



ref: Tie Book #22-28, 11
 Tie Sheet 3533
 Line = Field BK# 1623-68

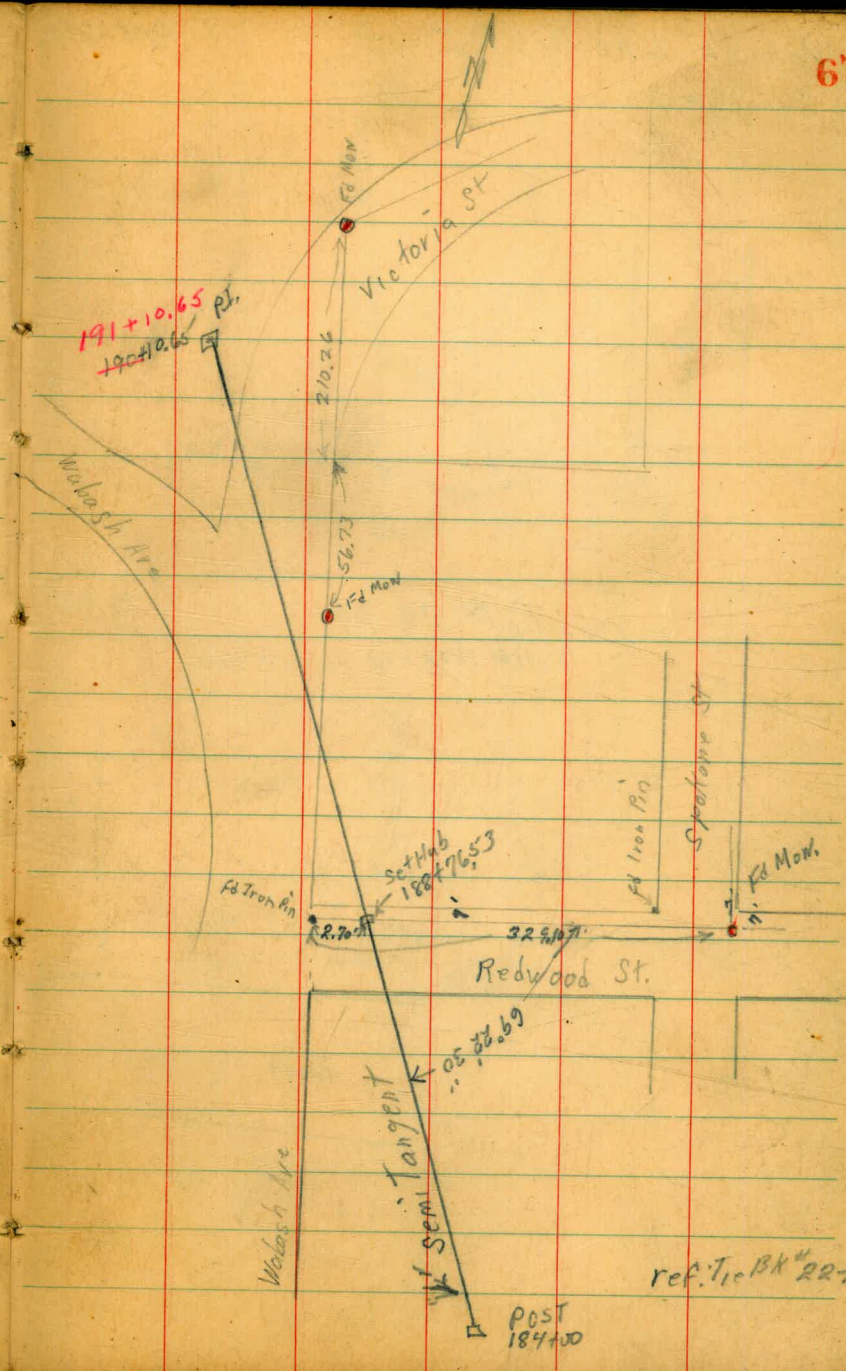


Vabash "L" line Ties
Redwood

Smith
Pecker
Garber
Clark

Sept 28 1948

67



Wabash "L" Line Ties Cont.

Quince & Olive

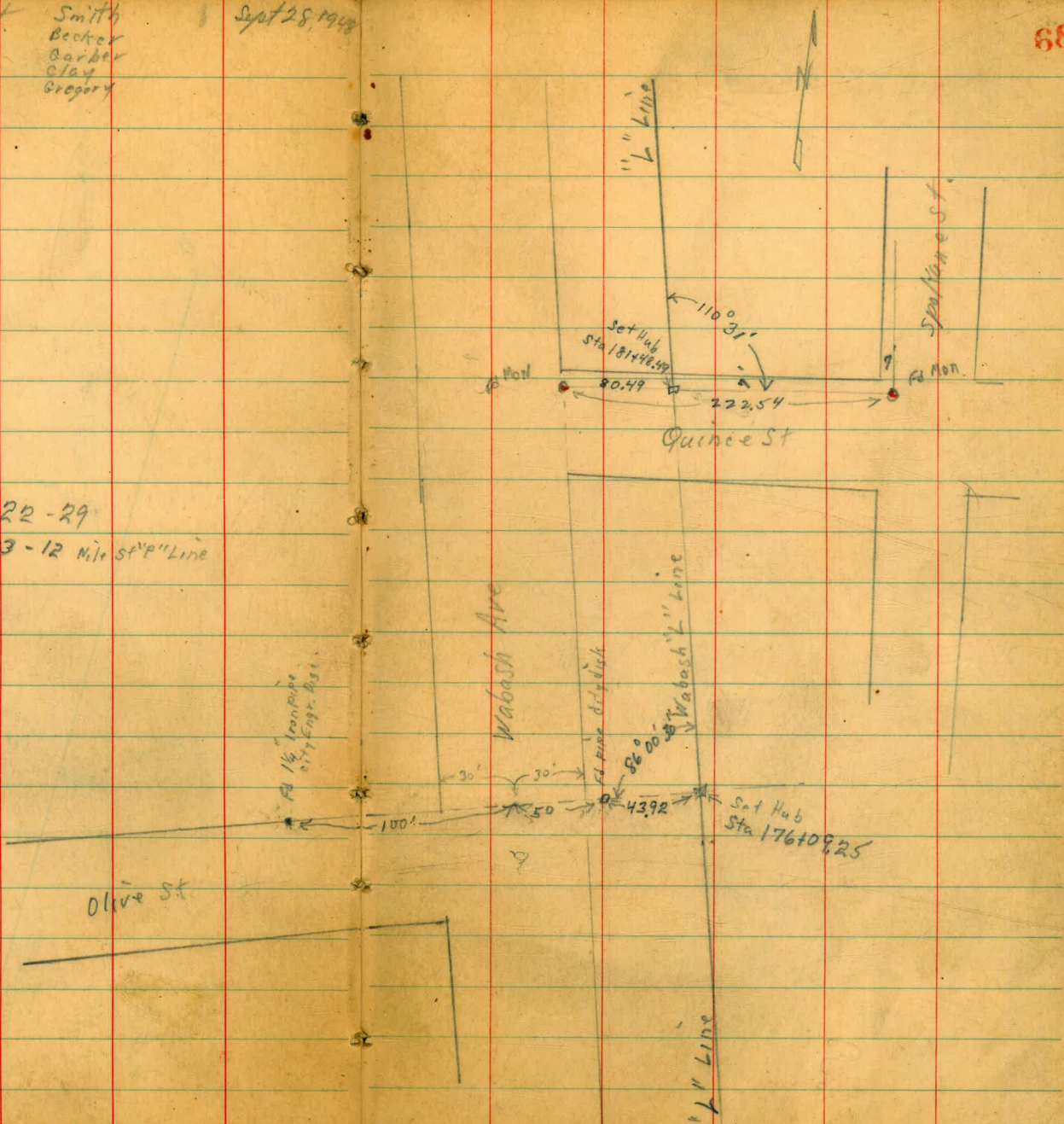
Smith
Becker
Barber
Clay
Gregory

Sept 28, 1949

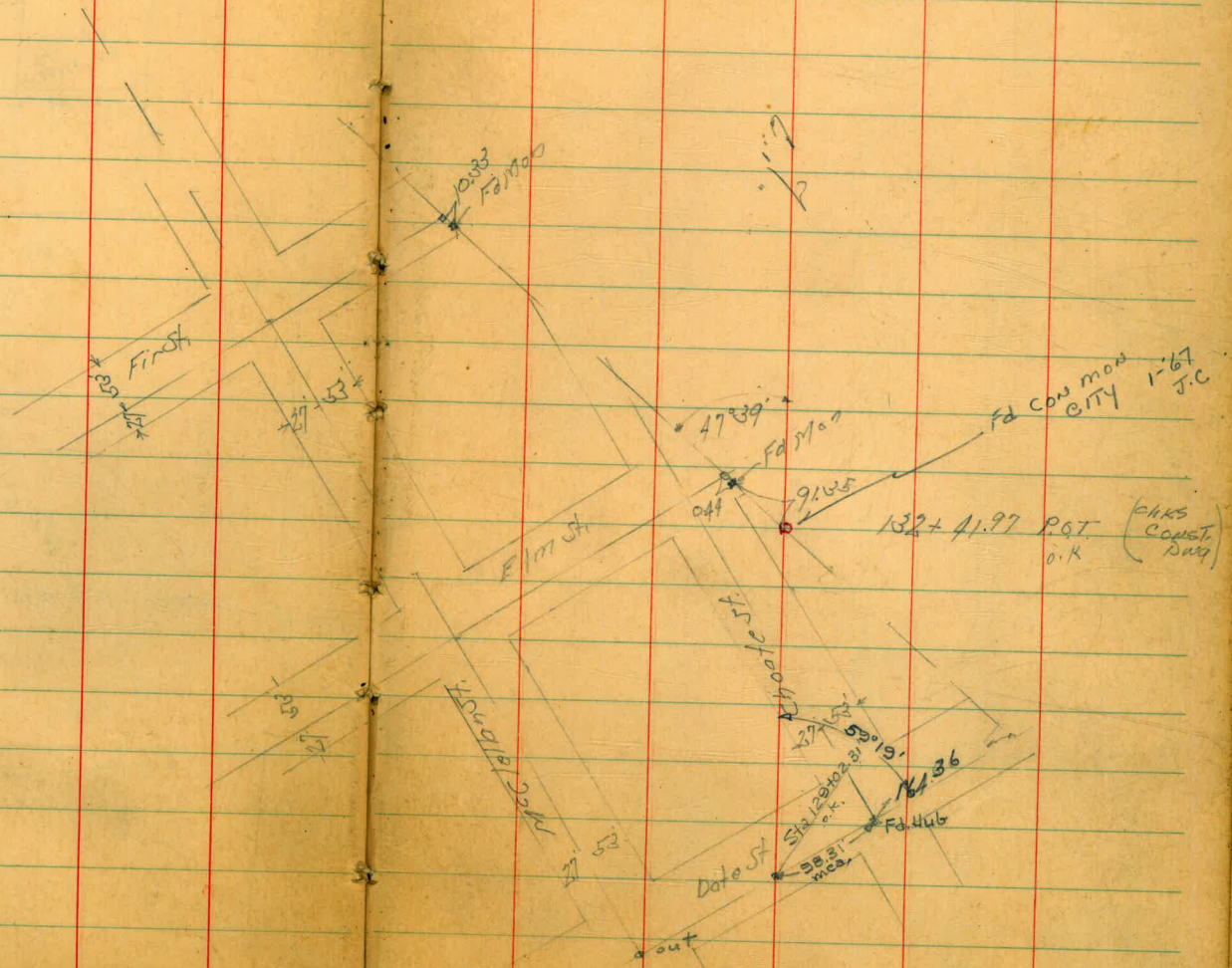
68

ref. Tie BK 22-29

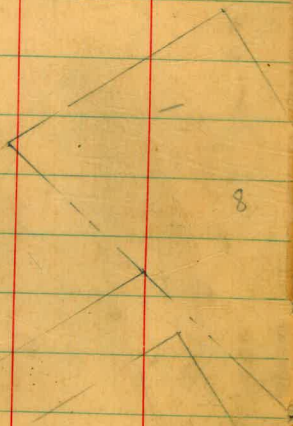
Field # 1823 - 12 N.W. ST "P" Line



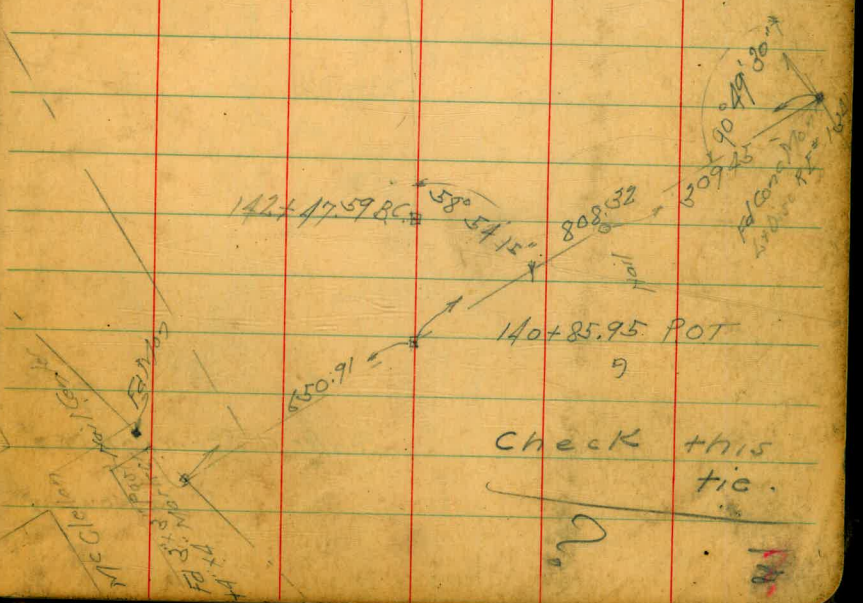
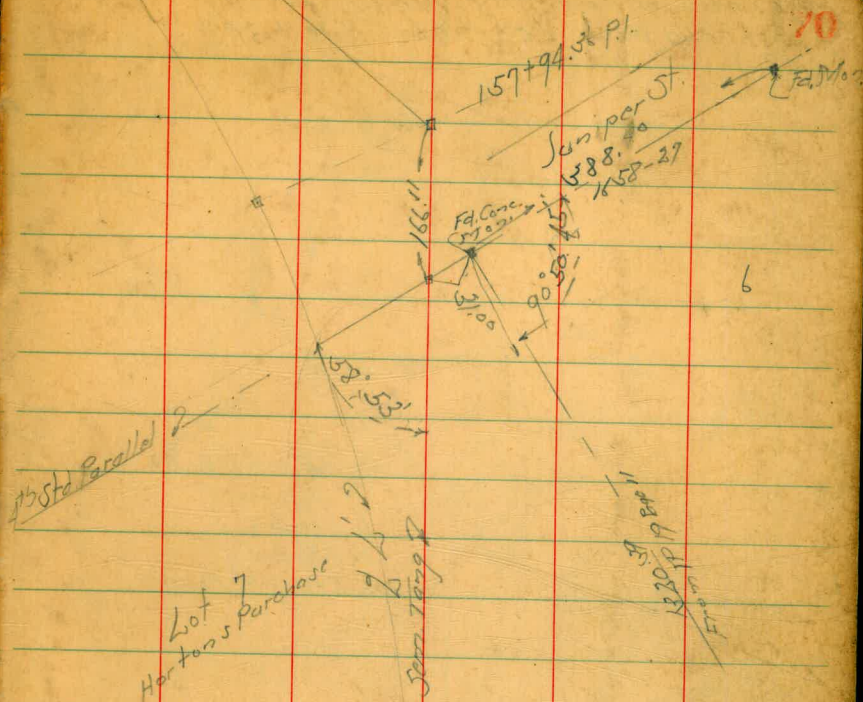
Oct. 4. 48
S. 0400
Smith's
Factor
Garber
Clark
Tie Point #19



Wabash Freerlay Ties L' Line
Lot 7 & 9 Horton's Purchase



Grape



Check this
tic.

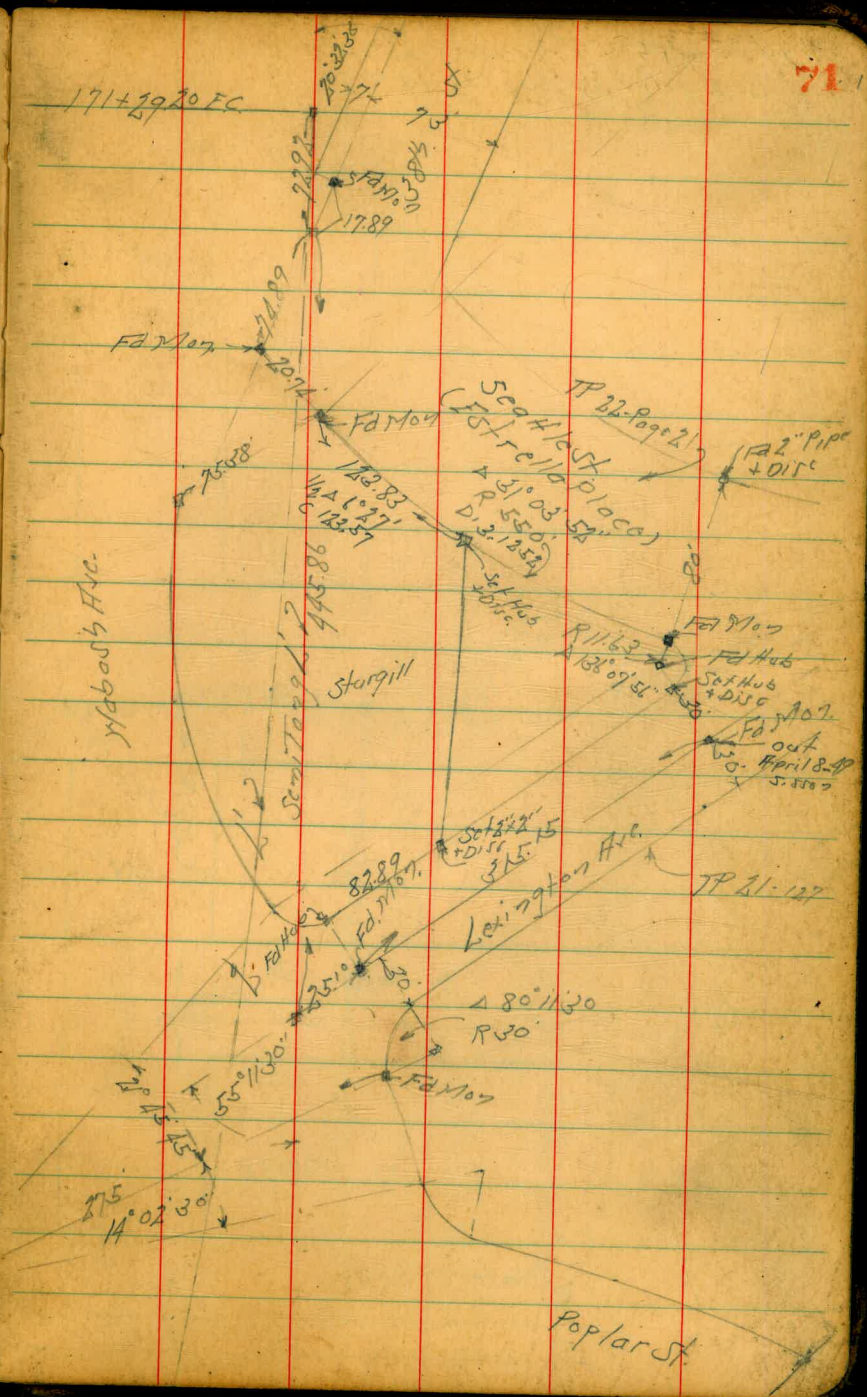
2

Wabash Freeway Ties L¹ Line
 Estrella Park Lexington Ave + 38th St

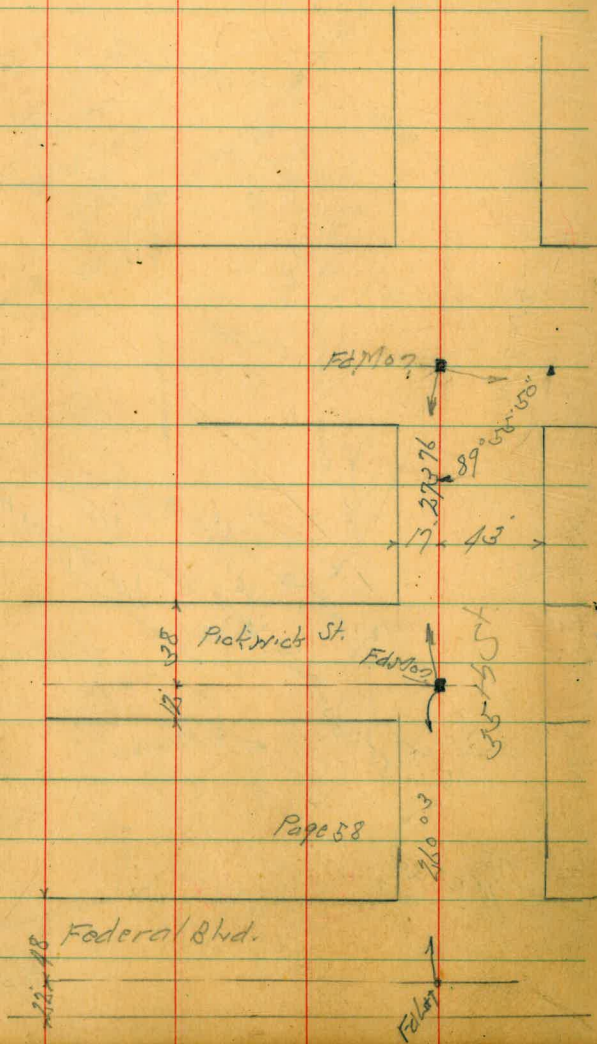
April 8-49
 H Sisson
 D Smith
 M Garber
 Set Storgill Points

Center of Estrella Park

Fd Mon



Map of Broadway L' Line
Broadway East of 35th St.



Nov. 13-48
S. S. S. S.
Smith
Baker
Garber

72



Also Page 59

1/2 Orange Park Sub.?

X See T.P. Sh. 115

see Page 59

Map of Broadway L' Line

Sewer Man Hole Locations
Mabers

INDEXED

^{NK}
MAY 30 1949

195+15 "B" 114' Lt. of $\frac{1}{2}$ - $\frac{1}{2}$ Sewer Man Hole

190+85 "B" 76' Lt. of $\frac{1}{2}$ - $\frac{1}{2}$ Sewer Man Hole

143+57 262' Lt. of $\frac{1}{2}$ - $\frac{1}{2}$ Sewer Man Hole

133+63 52.5' Lt. of $\frac{1}{2}$ - $\frac{1}{2}$ Sewer Man Hole Top is

June 29-49
Forsyth
N. Garber
Cato
Chavez

73

P.L.

190+96.5
Top of

Sewer Man Hole

52.5' Top of

6.2 Higher 133+0 $\frac{1}{2}$ - $\frac{1}{2}$

Location + Levels Test Holes
Malabash Freeway

74+05	20	81' of $\frac{1}{2}$	2.7 Above 3 Stub 74+10	
66+88	#1	15' of $\frac{1}{2}$	0.5	55.7
TP	12.84	56.19	0.42	42.25
65+36	#2	45' of $\frac{1}{2}$	5.0	38.8
TP	12.19	43.77	0.42	31.58
65+75	#3	40' of $\frac{1}{2}$	4.8	27.2
64+49	#4	45' of $\frac{1}{2}$	64	25.6
64+12	#5	78' of $\frac{1}{2}$	5.0	27.0
63+75	#6	54' of $\frac{1}{2}$	12.6	19.4
BM	2.43	52.00		29.57

Imperial
+ 27.75
B.P. of N Rail
Bridge

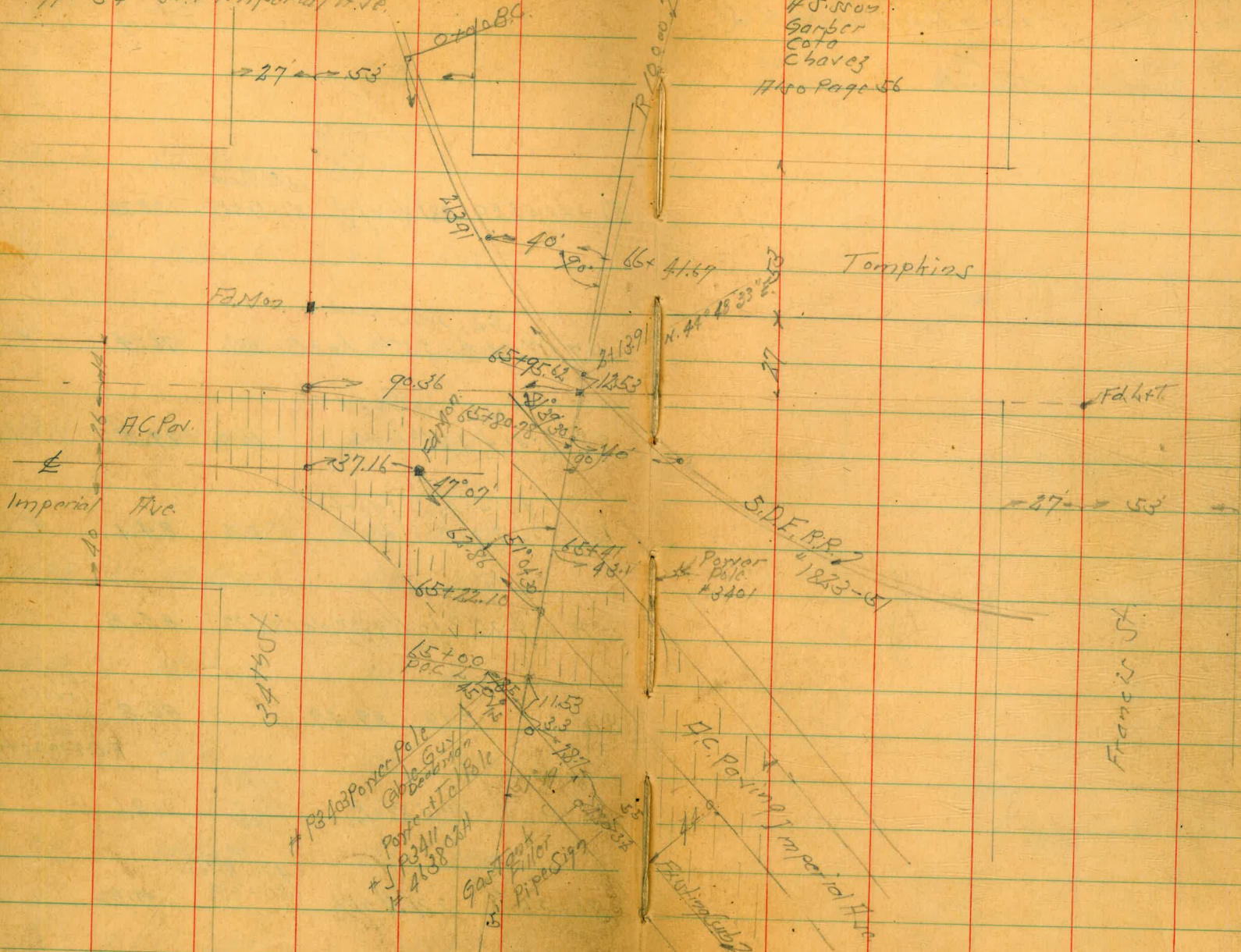
Oct 28-49
ASISMA
Gardner
Coto
Chavez

74

87+43.59	EC	28' of $\frac{1}{2}$	541 Above 87+42.53	138.73	✓	
117'	W of $\frac{1}{2}$	35' to N	52. Market 83+83-35'L.	13.1	76.4	✓
88'	W of $\frac{1}{2}$	35' to N	N.L. Market 84+44-35'L.	10.0	29.5	✓
13'	W of $\frac{1}{2}$	35' to N	83+77-66'R. 23' S of S.L. Market	5.4	84.1	✓
5'	W of $\frac{1}{2}$	35' to N	84+82-37'R. 25' W of N.L. 37		85.8	✓
BM	2.69	89.49		86.8		Hoil 15406.06A Market St Cross Sec F.B. 2002-46
83+0	19.5	81' of $\frac{1}{2}$	11.280 1.0 12.28 1.0		118.6	✓
80+35	#9	231' of $\frac{1}{2}$	42.0 Below 80+0		41.82	✓

Nabark Freeway Topog Δ Line
34th St + Imperial Ave.

Sept. 21-49
H. Sisson
Garber
Cota
Chavez
1740 Page 56



34th St.

P3403 Power Pole
at Benjamin
Power Pole
J P3411
4138 OAH
Gas Tank for
Pipe Sign

H.C. Paving Imperial Ave
Subst

Survey Eastern Right of Way
Wabash Blvd. Martin Ave. East of 34th St.

Sheet 3 of 17 Sheets

June 1-50
N.O. 22008

76

H. Simon
H. Garber
Chavez

F.M. 102.

Valle Ave.

F.M. 102.

Martin Ave.

Set 2" x 2" Hub
+ Disc.

34th St.

120.16

14' W. Wabash Blvd.

Set 2" x 2" Hub
+ Disc.

52.43

89° 53'

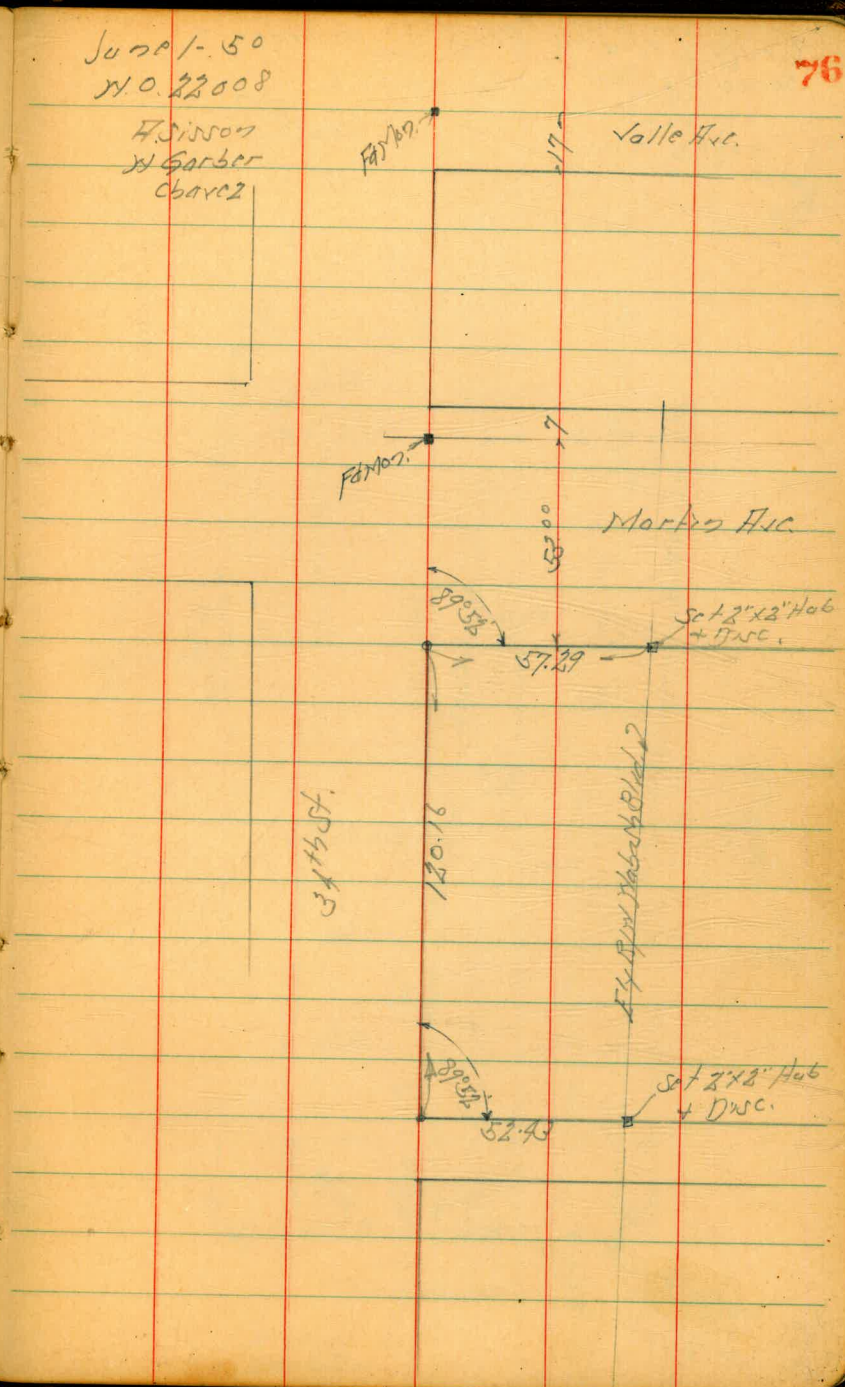
57.29

89° 53'

17

53° 00'

17



Re Sub. Lots 3-4-5-6-7-8 Block 2
Hunter's Add.

June 22, 50
H.S. 11007
Rorer
Bunch

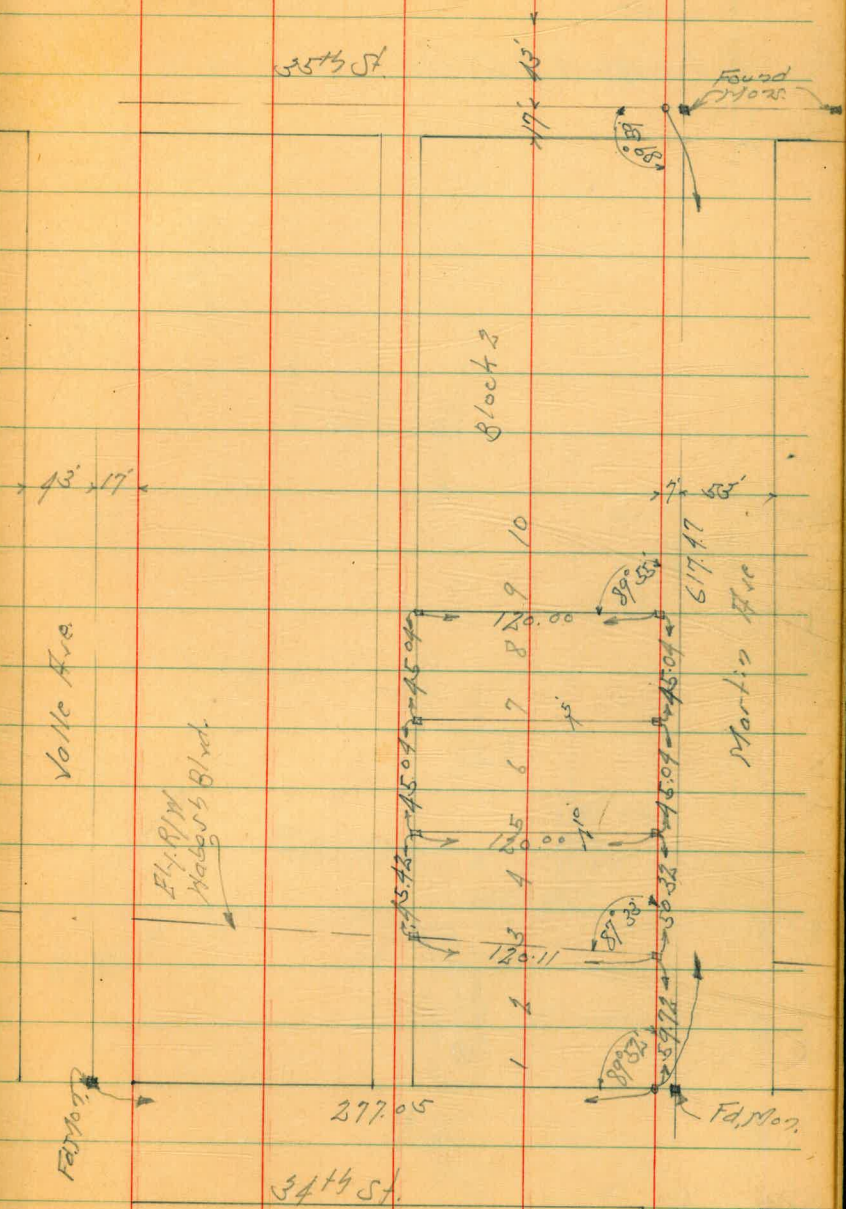


Denoter

2"x2" Hub & Disc Set

Nail Set

78



Wabash Blvd Ely. Line North of
Florence St.

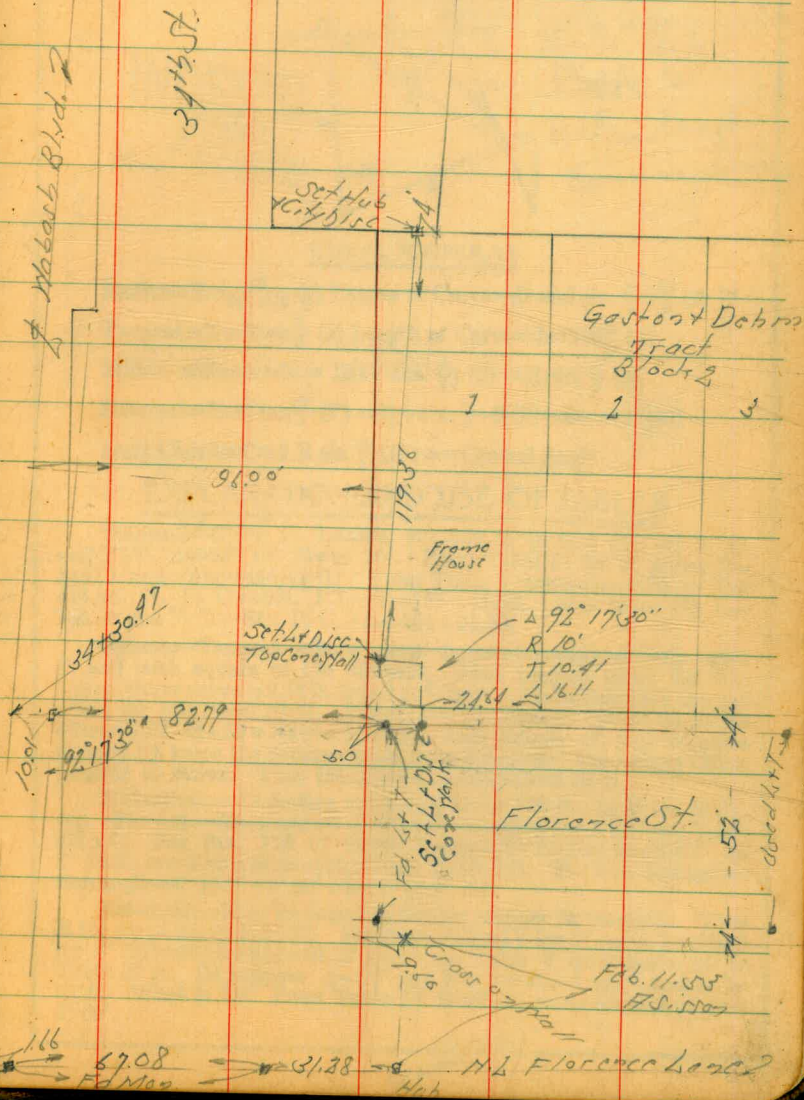
Lot 1 Block 2 Gaston + Debra Tract

Re Set
Feb. 18. 54
F.S. Simon

June 28. 50
F.S. Simon
Per
Chavez

79

See Page 58



Survey Right of Way for Change
 Change No 5055 Blvd
 Sec B

4.7246 L

35 1/2 St
 Closed

Block 4
 Hoffendens Sunnydale
 2419

FSX

St Hoff

1930
 Federal Blvd

166.97

171.29

50

22.66

22.57

59.9

804
 53
 53

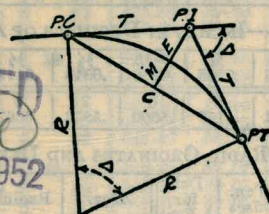
Nabors Blvd
 Sec B

March 19-52
 95.500
 603.00
 800.00

80

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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



Lots 5-6
 Block 4
 Hoffendens
 Sunnydale

INDEXED
 MAR 20 1952

CURVE FORMULAS

- Radius= $R = \frac{50}{\sin \frac{D}{2}}$ (1) Degree of Curve= D and $\sin \frac{D}{2} = \frac{50}{R}$ (2)
- Tangent= $T = R \tan \frac{\Delta}{2}$ (3) Length of Curve= $L = 100 \frac{\Delta}{D}$ (4)
- Middle ordinate= $M = R(1 - \cos \frac{\Delta}{2})$ (5) $= R \text{vers } \frac{\Delta}{2}$ (6)
- External= $E = T \tan \frac{\Delta}{4}$ (7) $= R + \cos \frac{\Delta}{2} - R$ (8) $= R \text{exsec } \frac{\Delta}{2}$ (9)
- Long Chord= $C = 2 R \sin \frac{\Delta}{2}$ (10) $\Delta = \text{Central Angle}$

EXPLANATION AND USE OF TABLES

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

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

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

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

19893
184.20
14.73

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.