

1610

LEAF

FIELD BOOK

1928

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.

MICRO

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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1610

CITY ENGINEER

ENGINEERING DEPARTMENT
CITY OF SAN DIEGO,
CALIFORNIA.

The paper stock of this book is made of a high grade 50% rag paper having a water resisting surface. This book is sewed with Bing Special Enamel Waterproof Thread.

Made in U. S. A.

Index

Page

E. 1 line Sewer Alignment From Valencia Park
from City Boundary at Valencia Park
West to Intersection Logan Ave 2-

#2 VALENCIA PARK SEWER

EI Line

West from City Boundry

(Levels Book 1609)

Mag. Bear.

1/23/41

Isbell

Edsterly

Farrow

Indexed

LM

6+00

5+00

4+00

3+00

2+74.96 L Rt. 15°26'

S. 74°30' W.

2+00

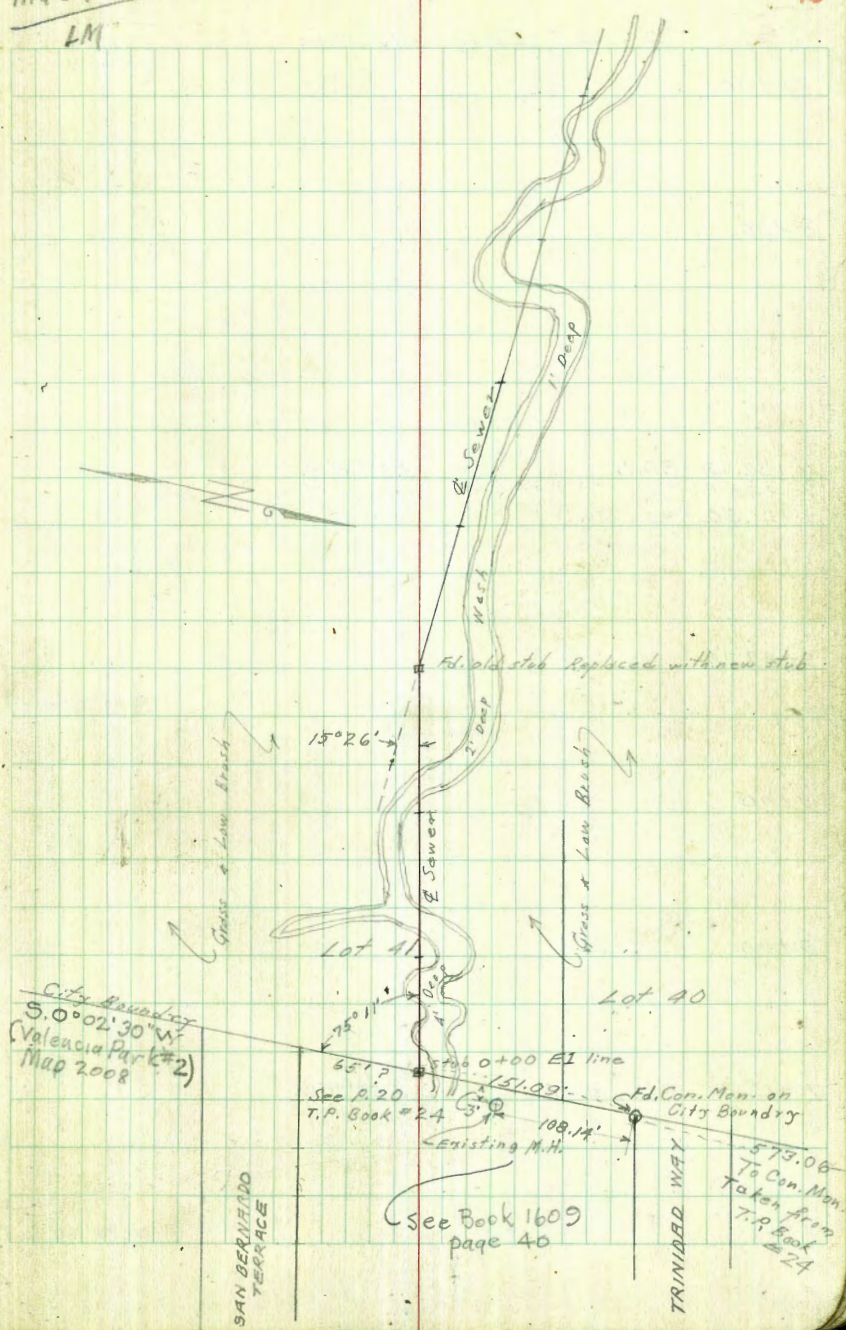
1+00

0+00

S. 59° W.

N 89°20'30" W

S 75°13'30" W



"E 1 line"

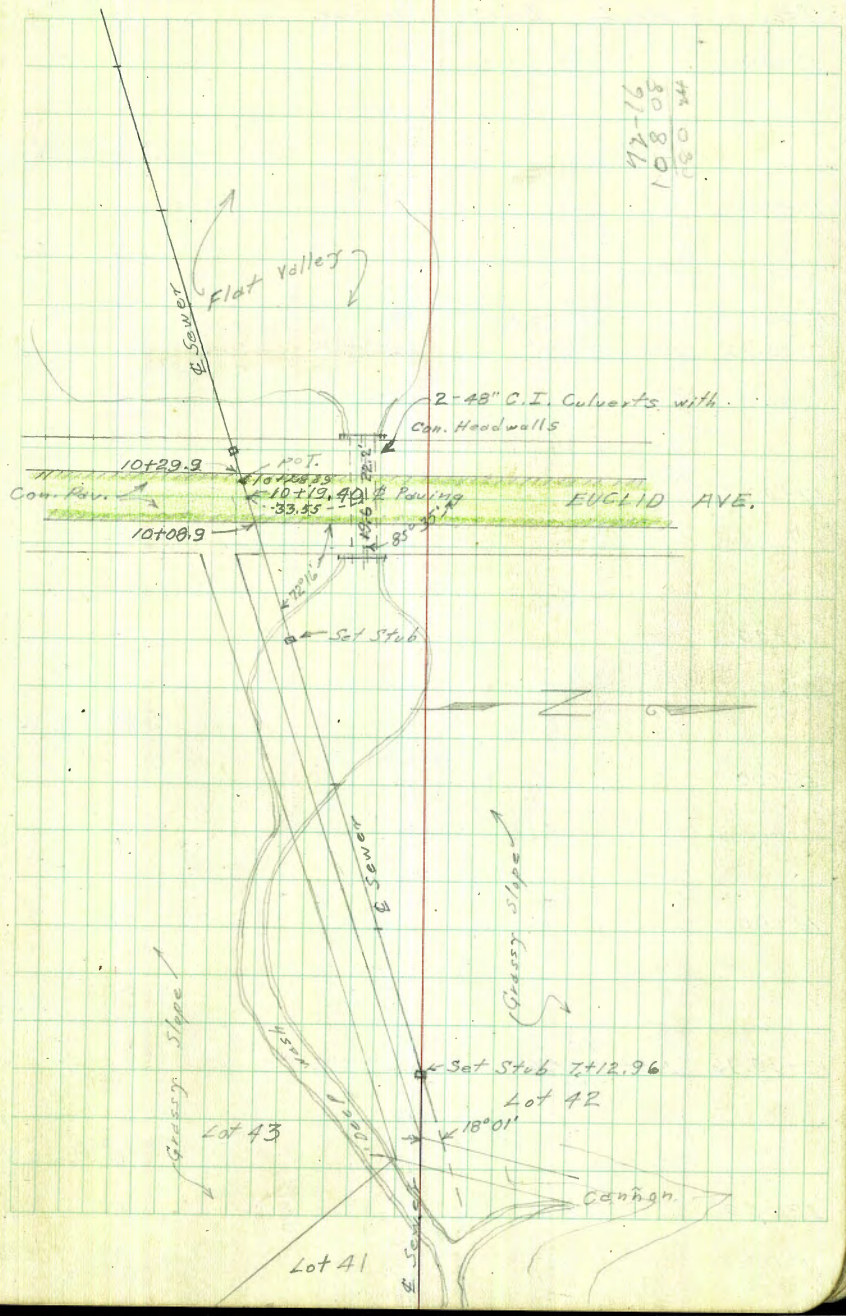
7/24/41

Isbell
Easterly
Farrow

Sta.	Def. L	Bear.	Mag. Bear.
12+00			
11+00			
10+32.68 = P.O.T.			S. 58° 30' W.
10+28.59 = Set	asp Dick Ld + Tack in Pav.		
10+21.30 = 7 in Pav.			
9+89.99			
9+00			
8+00			
7+12.96 = Lt. 18° 01'			S. 58° 30' W.
7+00			

S 72° 30' W

N 89° 20' 30" W



42-80 1/2
80 1/2
91-80 1/2

EUGLID AVE.

Lot 43

Lot 42

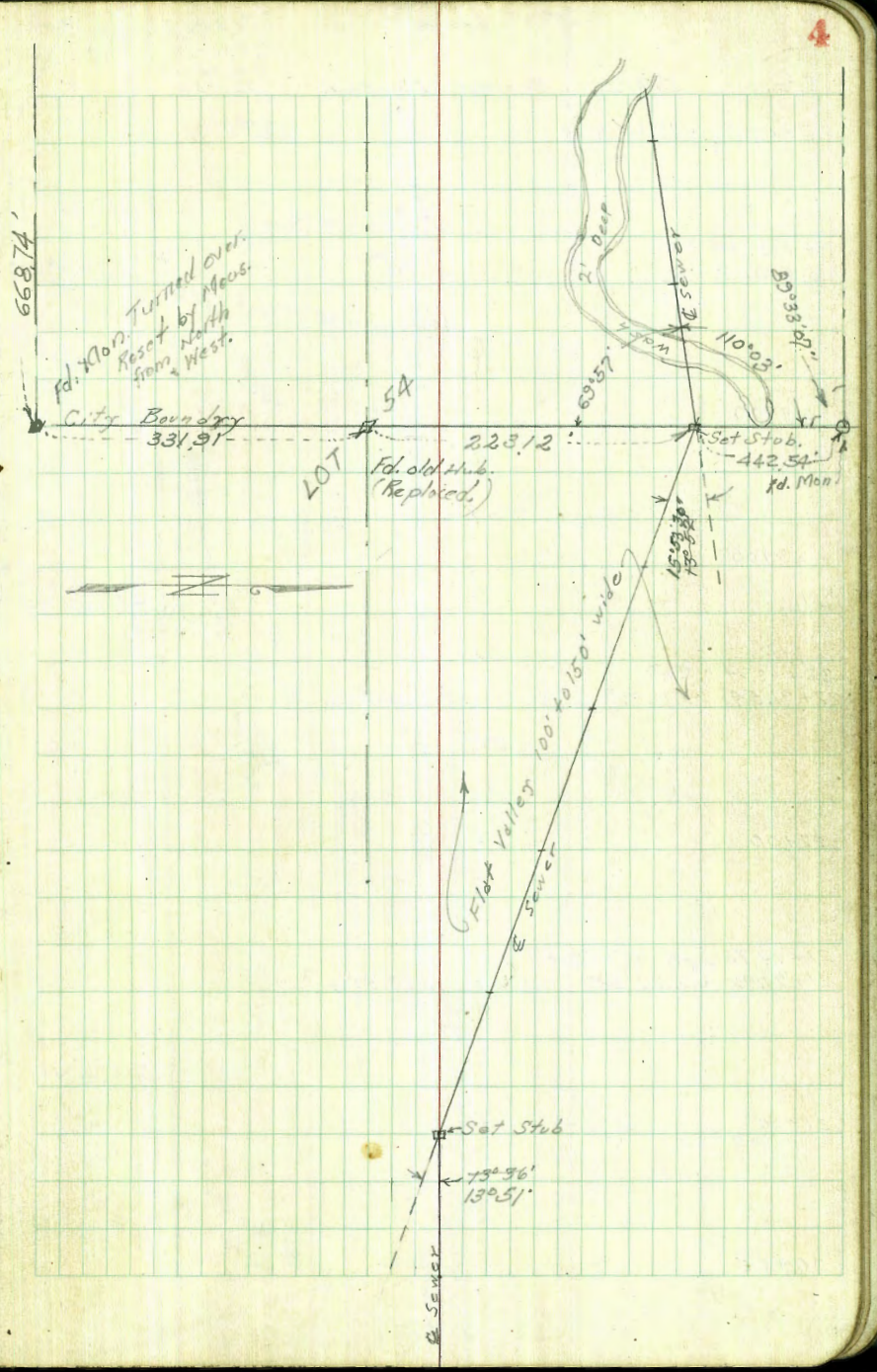
Lot 41

Con'ngh.

57" LIND

7/24/41
Isbell
Easterly
Farrow

Sta.	Dip. L.	Bedr.	Mag. Bear.
19+00			
18+00			S. 70° 36' W ✓
17+02.84	Δ Lt. 15° 53' 30"		
17+03.96	Lt. 13° 52'		S. 56° 30' W.
17+00			
16+00			
15+00			S. 86° 29' 30" W ✓
14+00			
13+38.96	Lt. 13° 51' L.Rt. 73° 36'		S. 70° W.
13+00			S. 72° 38' 30" W ✓

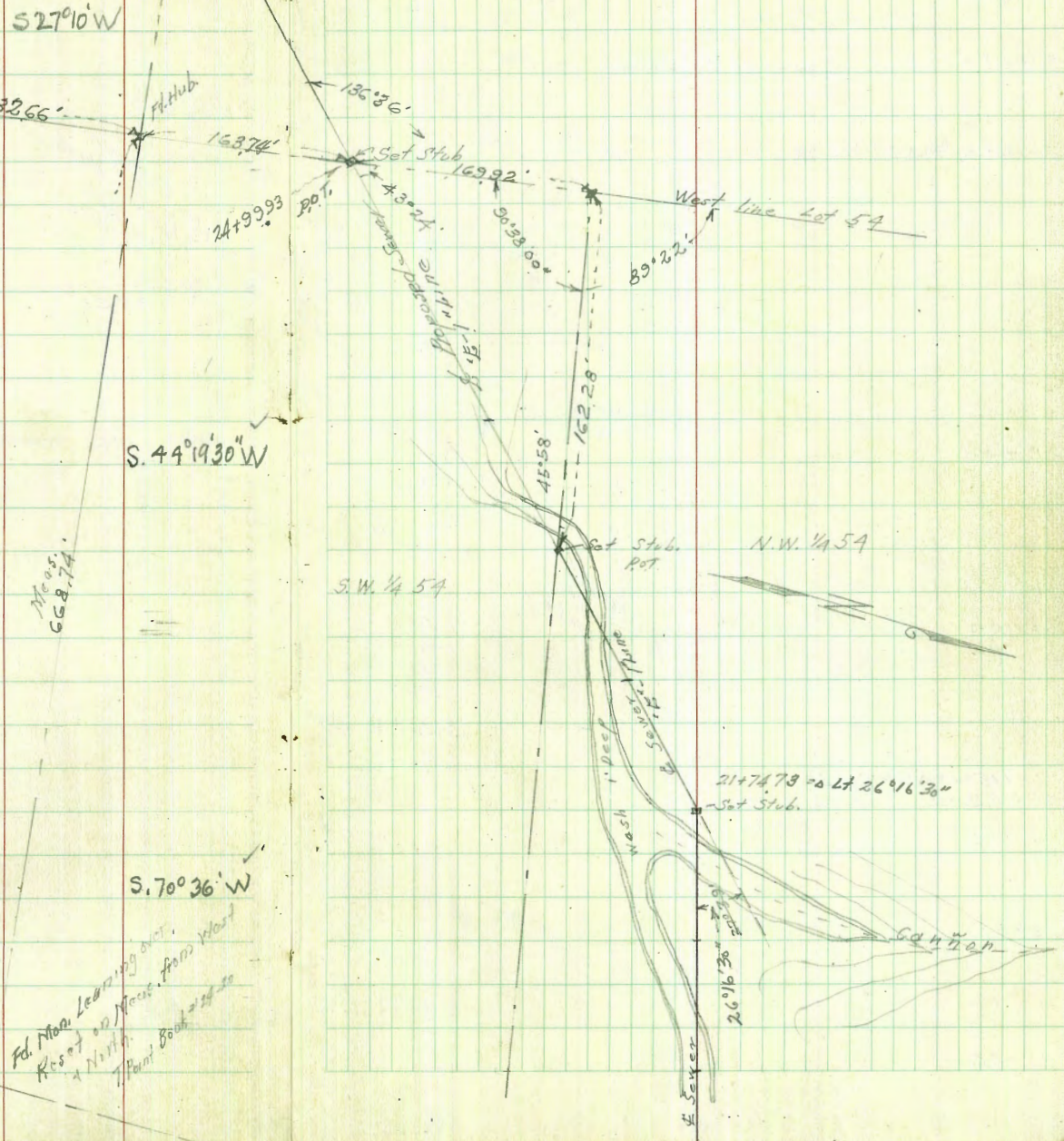


5 1/2" Line

7/29/41
Isbell
Easterly
Farrow

27+18.04
Δ 17°29'30" H

Sta.	Def. L	Bearing	Mag. Bear.
27+15.04		Δ 17°29'30" H	
24+99.23	P.O.T.		
25+99.15			
24+00			
23+00			
22+63.74	P.O.T.		
22+74.59	P.O.T.		
22+00			
21+79.73	Δ Lt.	26°16'30"	
21+74.96	Δ H.	27°39'	
21+00			
20+00			



Fd. Moar Learning
Rise of Moar
North
Point South

L. Seizer

"E" Line

July 28-1941
Isbell
Easterly
Farrow

Walter
Easterly
Farrow
Wells
8-11-41

6

Sta. Def. L Bearing Mag. Dist

S. 54° 16' W.

31+05.58 = P.O.T. CT. 1/4 Disk to Logan Ave

30+83.34 = Δ 27° 06' Rt

30+00

29+00

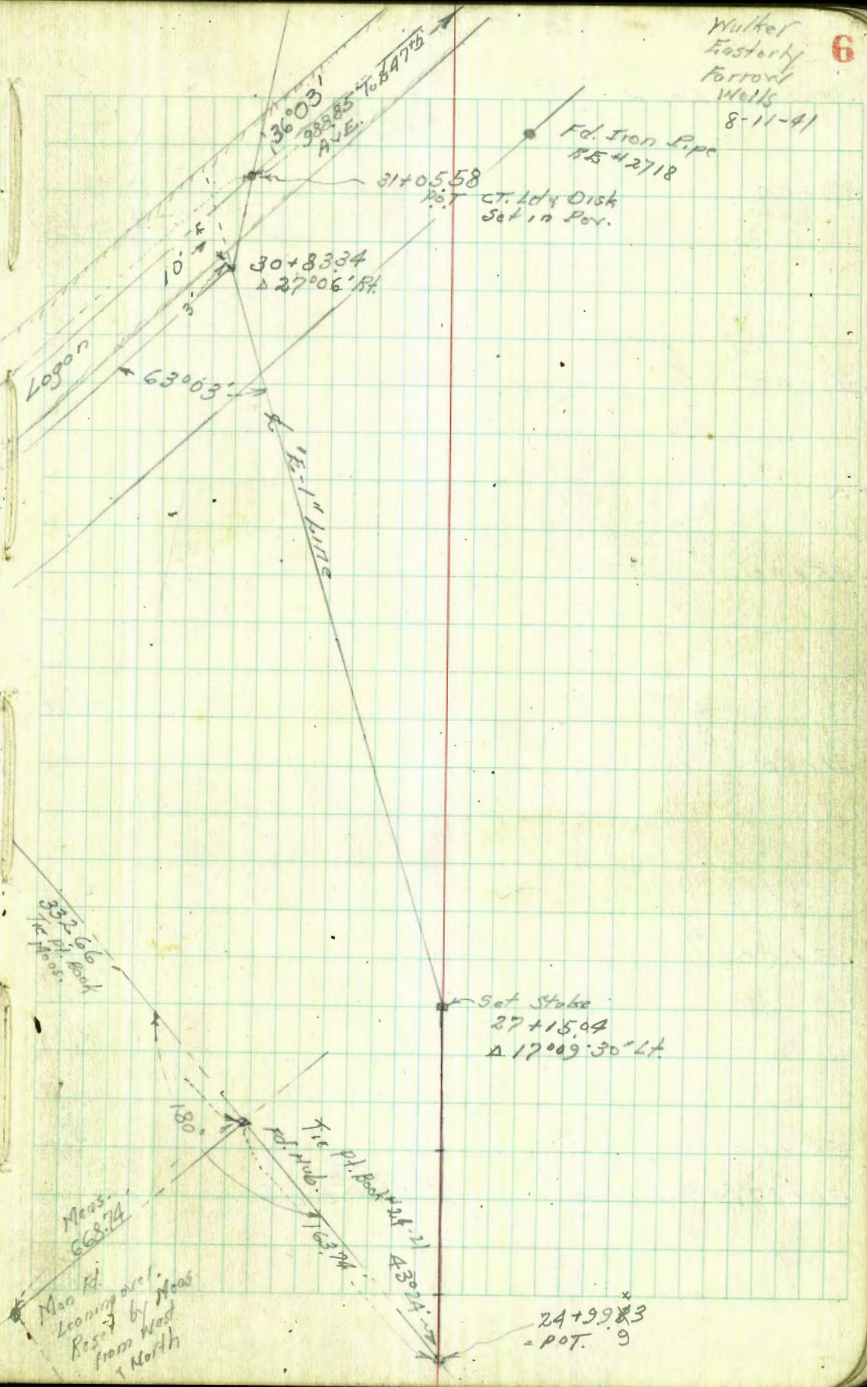
28+00

27+15.04 = Δ 17° 09' 30" Lt
27+15.26 = Δ

27+00

26+00

S. 40° 19' 30" W



"E-1" line

Sta. Ref. x

37+00

36+00

35+00

34+00

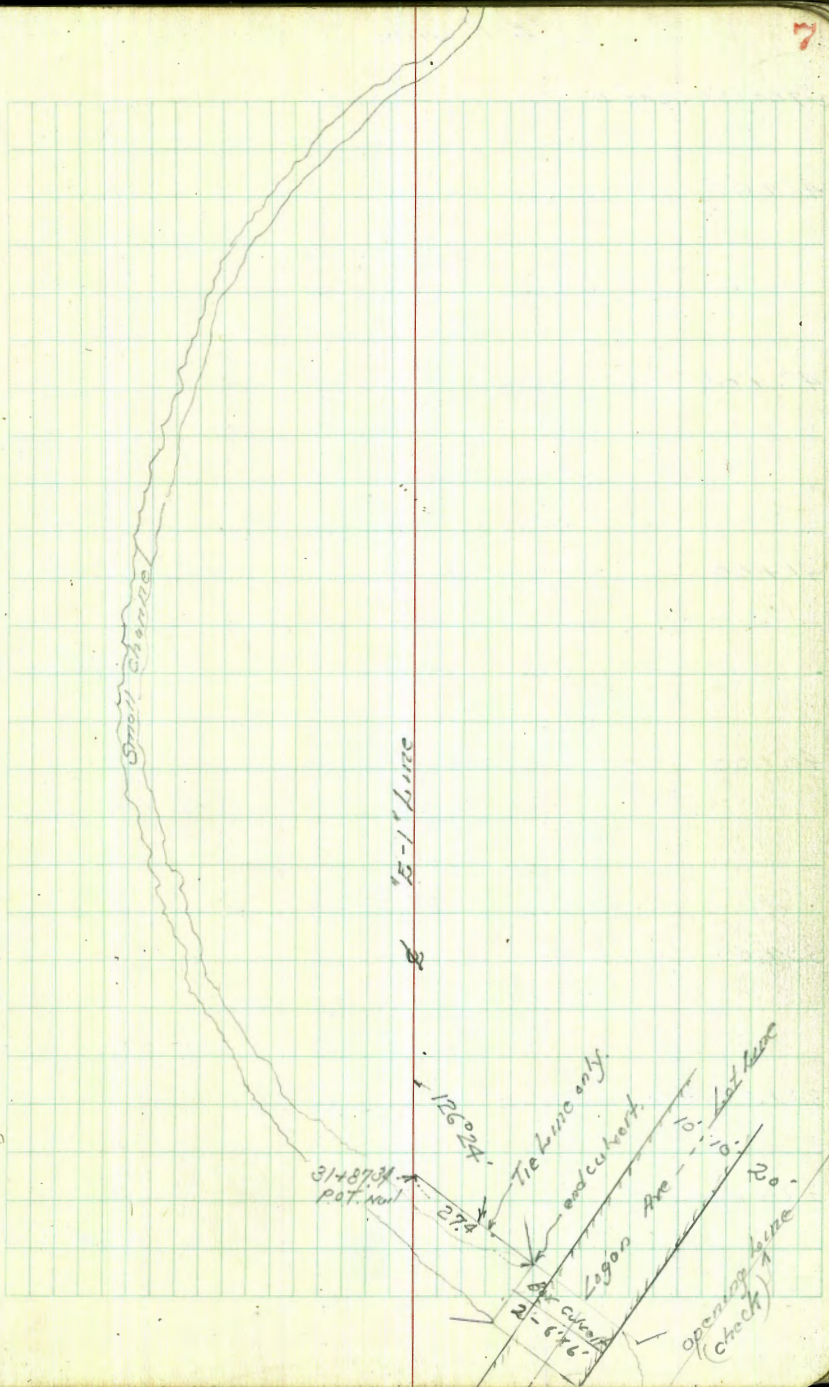
33+00

32+00

Intersection

31+87.74 = West edge 6' x 6' Dble Box Culvert produced

S. 54° 16' W



Station. Def.

43+00

42+00

41+00

40+00

39+00

38+38.54 = Δ 10°02' Lt. Set paving stake

38+00

S. 44°14' W

S. 54°16' W

"E-1" Line

38+38.54
Δ 10°02' Lt.

"E-1" Line

"E-1" line

S 35° 51' 30" W

51+73.85 = $\Delta 7^{\circ} 28' 30''$ Lt. = End "E-1" line

50+71.05 = Intersection lot line

45+41.80 = Intersection (Double Box
Culvert produced.)

S 43° 20' W

44+08.58 = P.O.T. = Intersection lot line = Set Ld + Tack
Copper Disk

43+82.86 = $\Delta 0^{\circ} 54' 00''$ Lt. Set Paving Stake

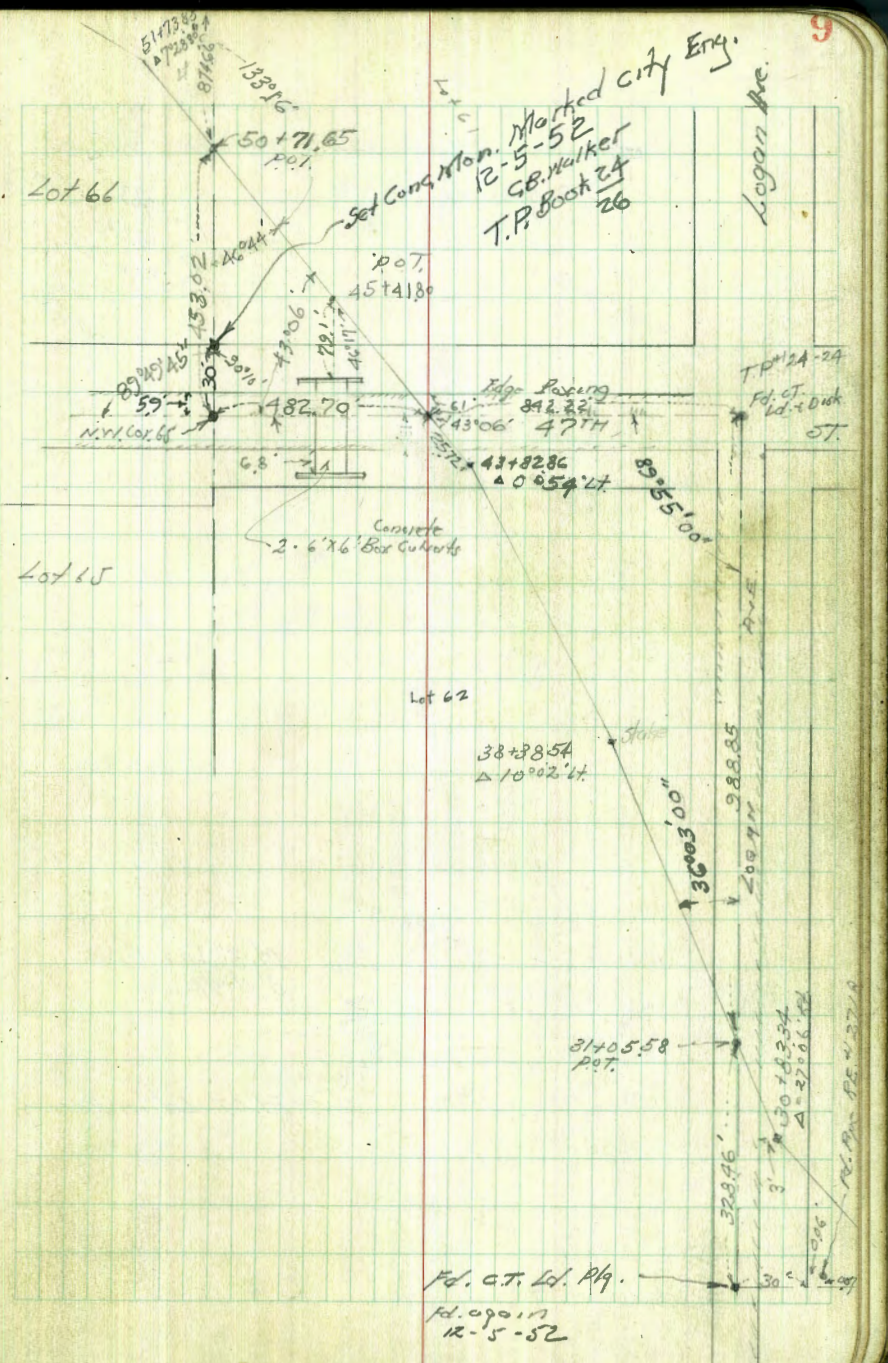
S 44° 14' W

38+38.54 = $\Delta 10^{\circ} 02' 14''$

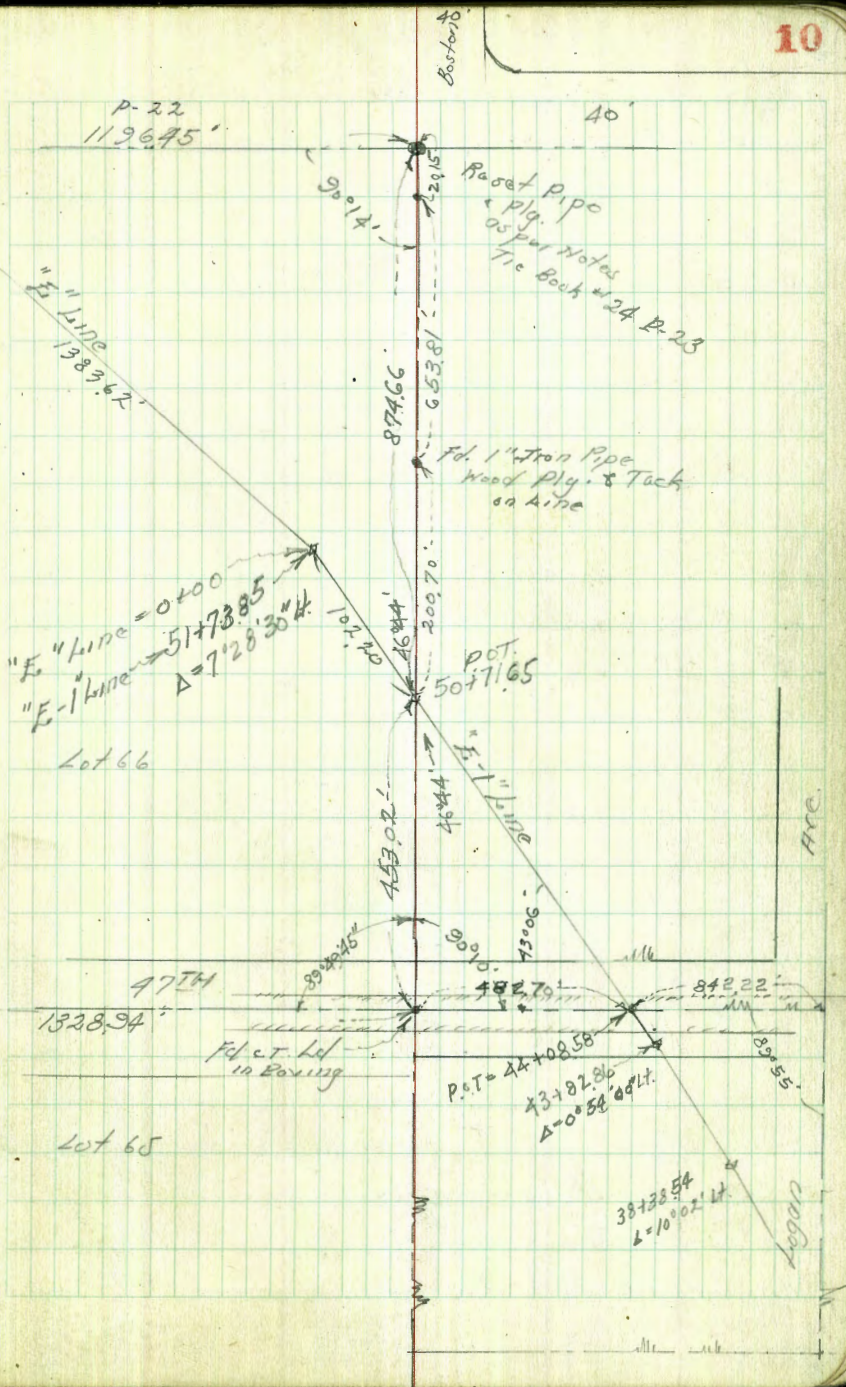
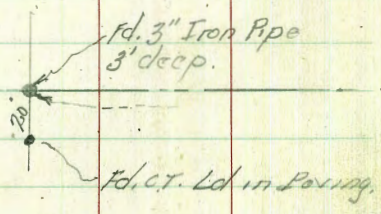
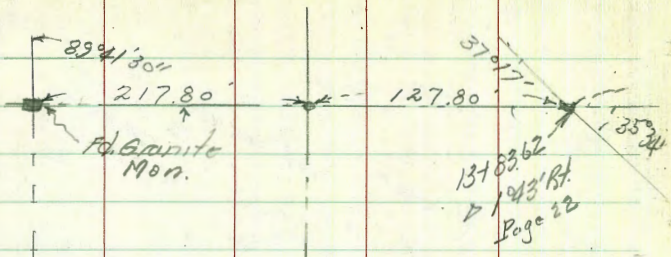
S 54° 16' W

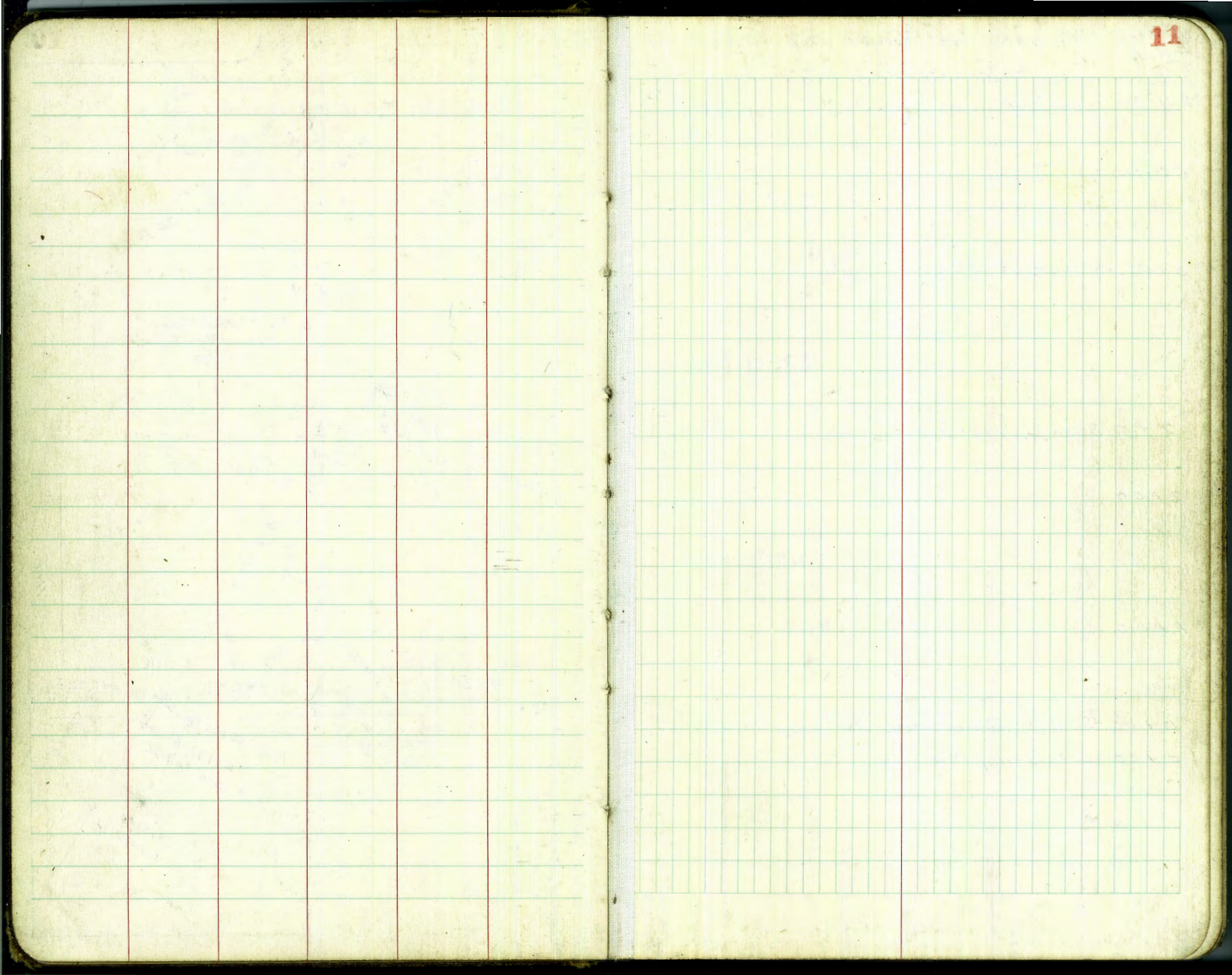
31+05.58 = P.O.T.

30+83.34 = $\Delta 27^{\circ} 06' 14''$



F.d. C.T. Ld. Plg.
Rd. 09017
R-5-52





Logan Ave. Preliminary Sewer
Location.
Cont. from P-12

Station

S. 52° 33' 20" W.

9+00

8+54.46 = Δ Lt. 13° 31' 20" Lt.

8+00

S. 66° 04' 40" W.

7+00

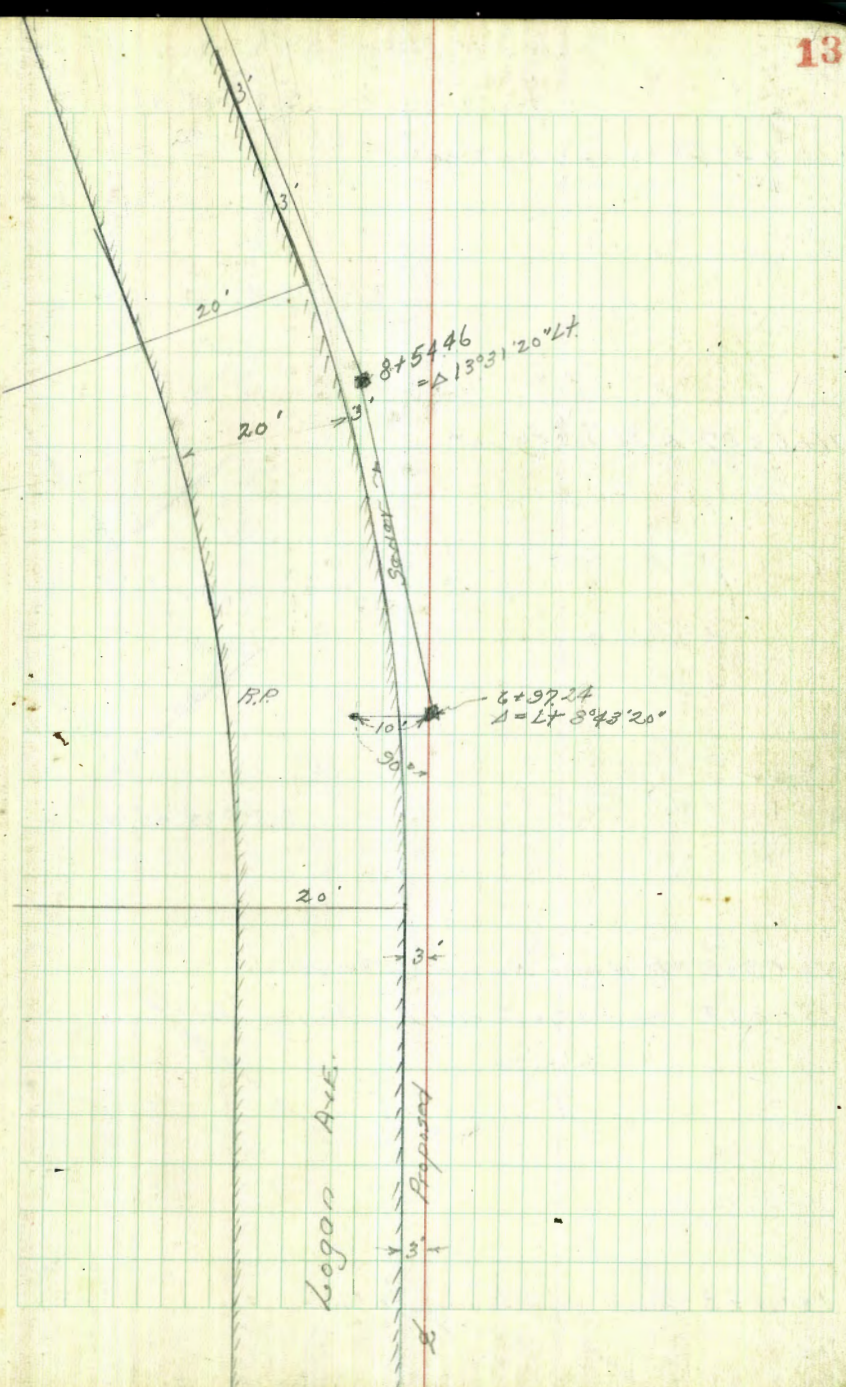
6+97.24 = Δ Lt. 8° 43' 20"

5+00

S. 74° 48' W

5+00

4+00



S. 81° 44' W

12+48.28 = Δ Pt. 18° 12' 20"

S. 63° 32' 40" W

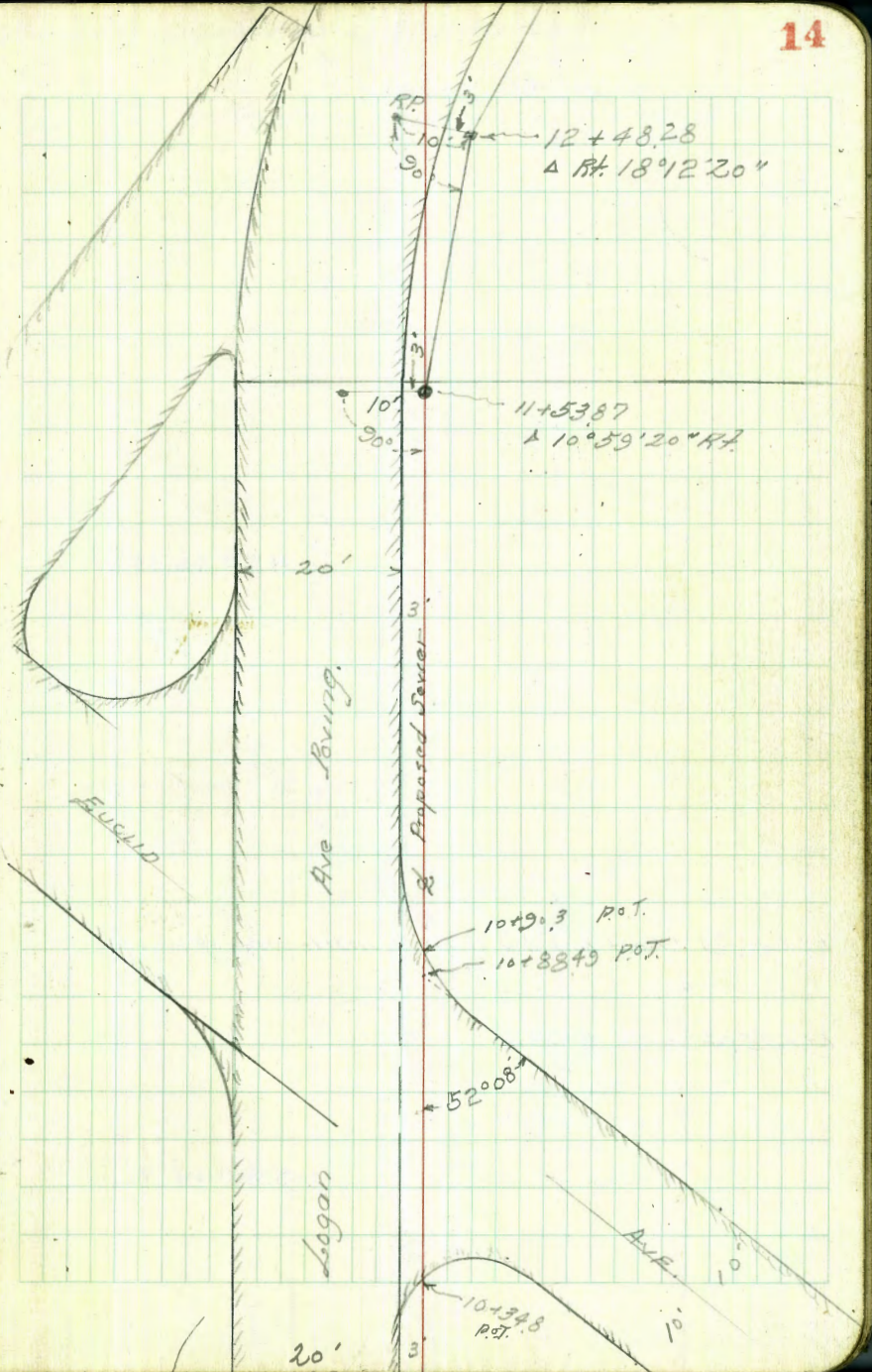
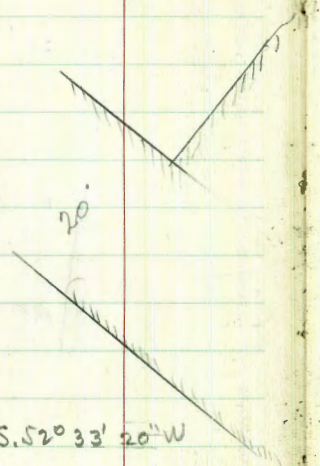
11+53.87 = Δ Pt. 10° 59' 20"

S. 52° 33' 20" W

10+90.3 = West edge Paving on Curve

10+88.49 = West edge Euclid Ave Paving. (Produced)

10+34.8 = East edge Paving on Curve



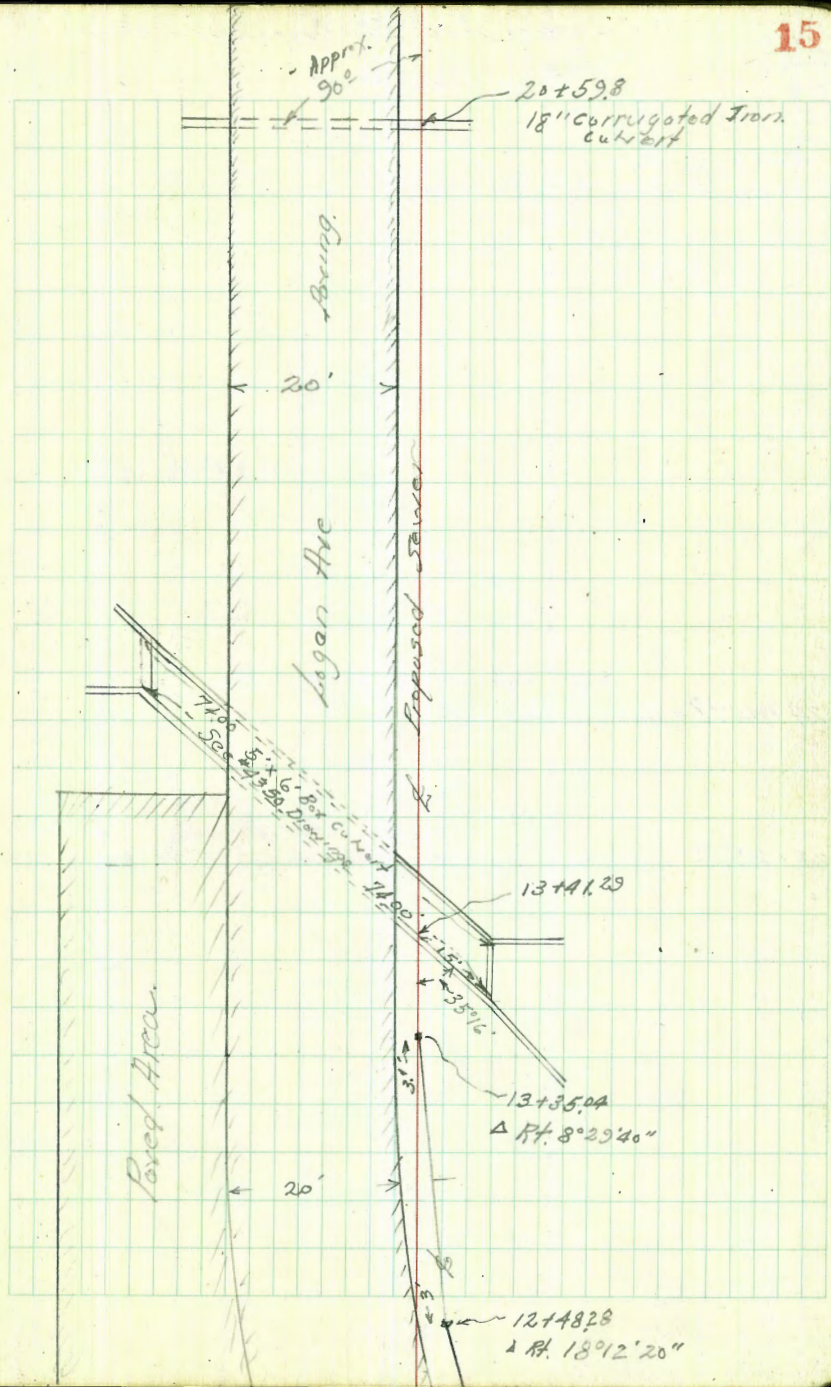
Logan Ave Sewer Preliminary Location
 Bet Valencia Park
 & 47th Street.

$N 89^{\circ} 46' 20'' W$

13+41.29 = East line Box Culvert inside edge of Wall

13+35.04 = $\Delta R. 8^{\circ} 29' 40''$

5.81' 44" W



Walker
Easterly
Hells
Forest
9-13-91

Logan Ave Preliminary Sewer
Cont. from p. 15

End this line
= 27+55.13 = 30+83.34 "E-1" Line

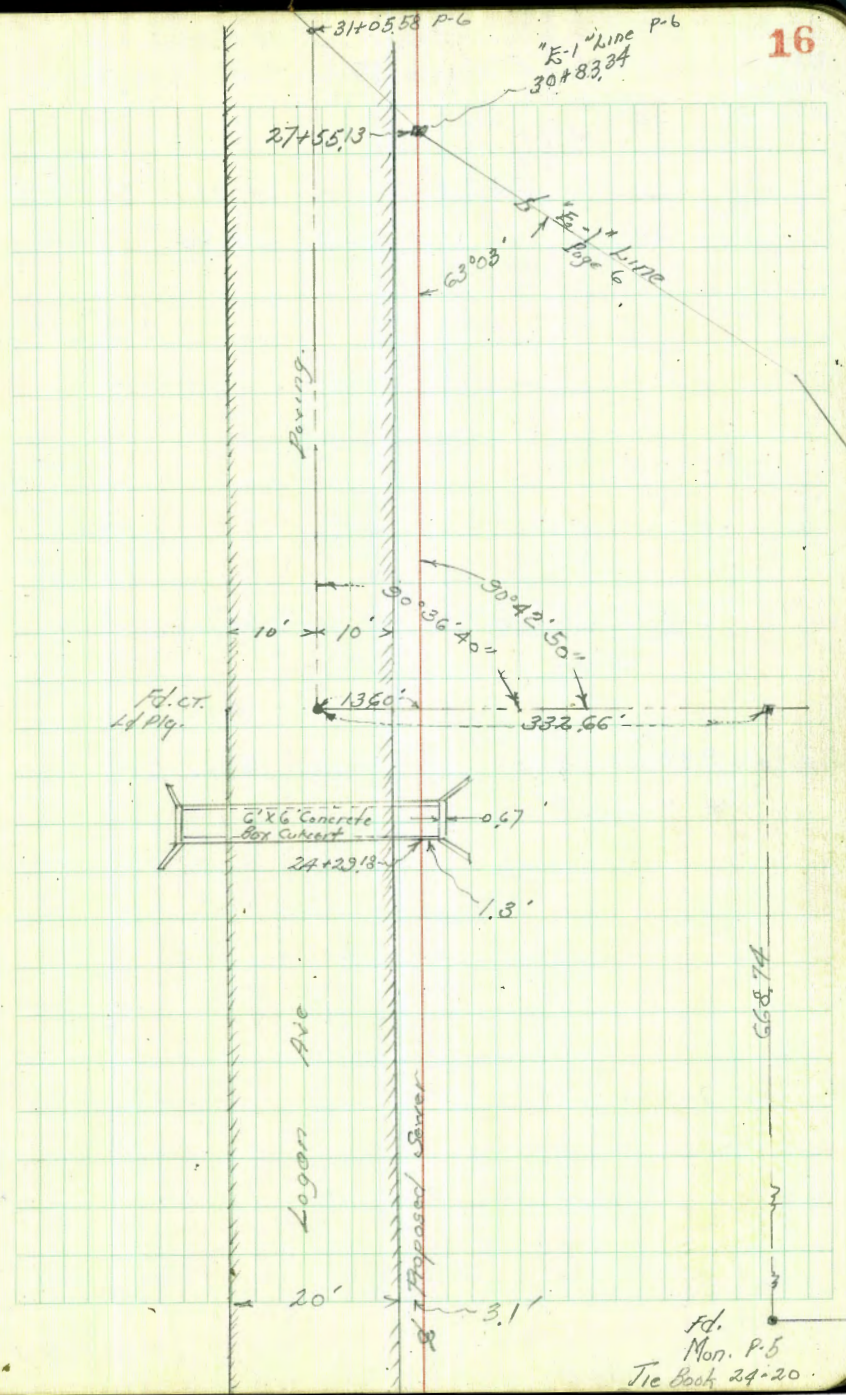
N 89° 46' 20" W

P.O.T. Note: No angle was made here

24+44.47 = Intersection bet line

24+22.18 = Intersection East edge (outside) 6' x 6' Box Culvert

Concrete



Multer
Esbozo
Hozuid
4-15-43

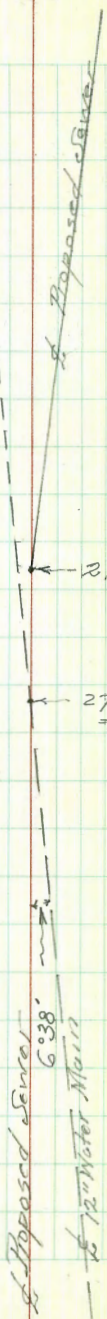
Location Existing 12" Water Main
With "E" line Valencia Park Sewer

27+72	328	3822	34.94	8 MP 2.5 FB 1649-19
Top 12" Main		7.48	30.74	

27+87.38 = Δ RT 4°16'45" Page 23

27+46.98 = P.O.T. = Int 12" Water Main

17



Walker
Osborne
Hazard
7-23-43

Location Existing Water Main
Valencia Park Sewer 5" Line

20+34.4 Int 1 1/2" Water Main

+65 Water Main 8.2' Ht.

12+40 Water Main 10.5' Ht.

18+16.08 = P.O.T. Spike Page 23

18+4.73 Int. 3" Water Main

17+21 = P.O.T. = Int. 2" Water Main

819
B.P. in Valley Wall = 43.41

5.04

X = 48.45

3.70 = Rod on 3" Water

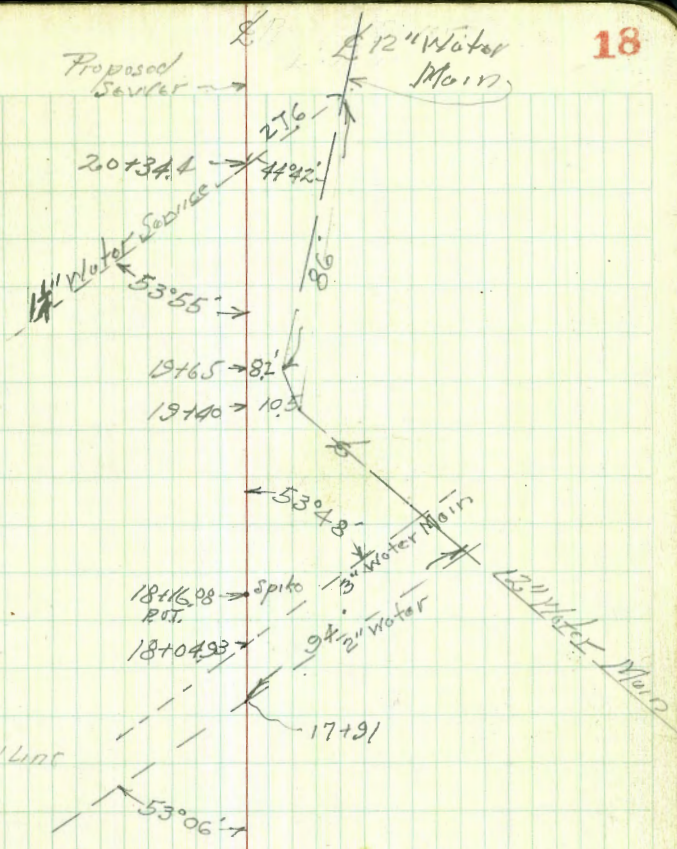
44.75 = Elev. " "

6.0 =

42.45

(BK 1409 P 22)
also 1610 P 23

Approx Rod 2" Line



A table with 6 columns and 20 rows. The columns are defined by vertical red lines, and the rows are defined by horizontal green lines. The table is currently empty.

A table with 10 columns and 20 rows. The columns are defined by vertical green lines, and the rows are defined by horizontal green lines. The table is currently empty.

Wulker
Wells
O'Farrell
8-18-41

Preliminary Location
Trunk line Sewer "E" line

South of Logan Ave.

Bet 47TH &

Shown as "E" line on Rumsey's Survey Map.

Indexed
LM

Stations

Notes on
This Page Abandoned
See Page 22

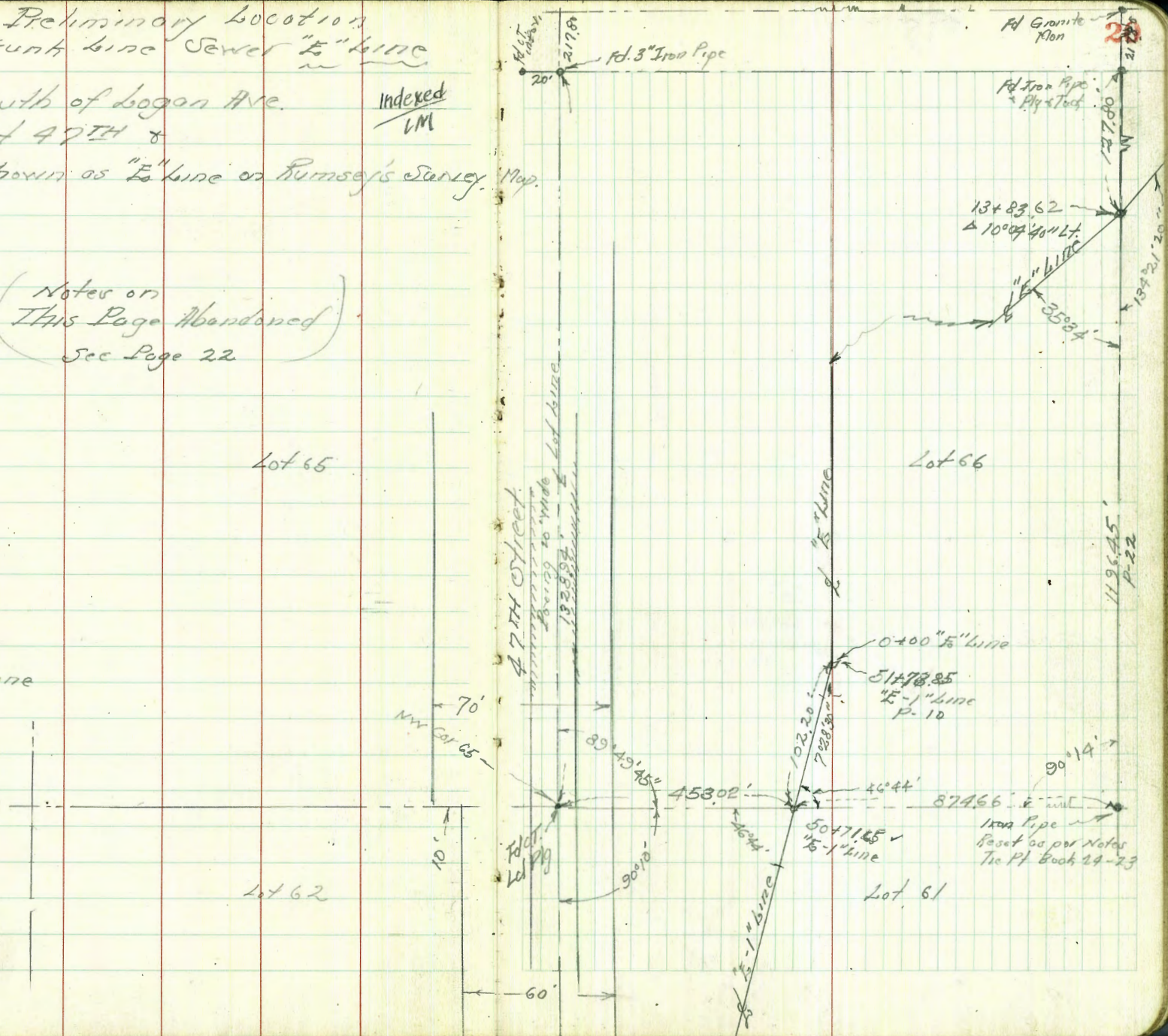
Lot 65

Lot 66

0+00 "E" line

Lot 62

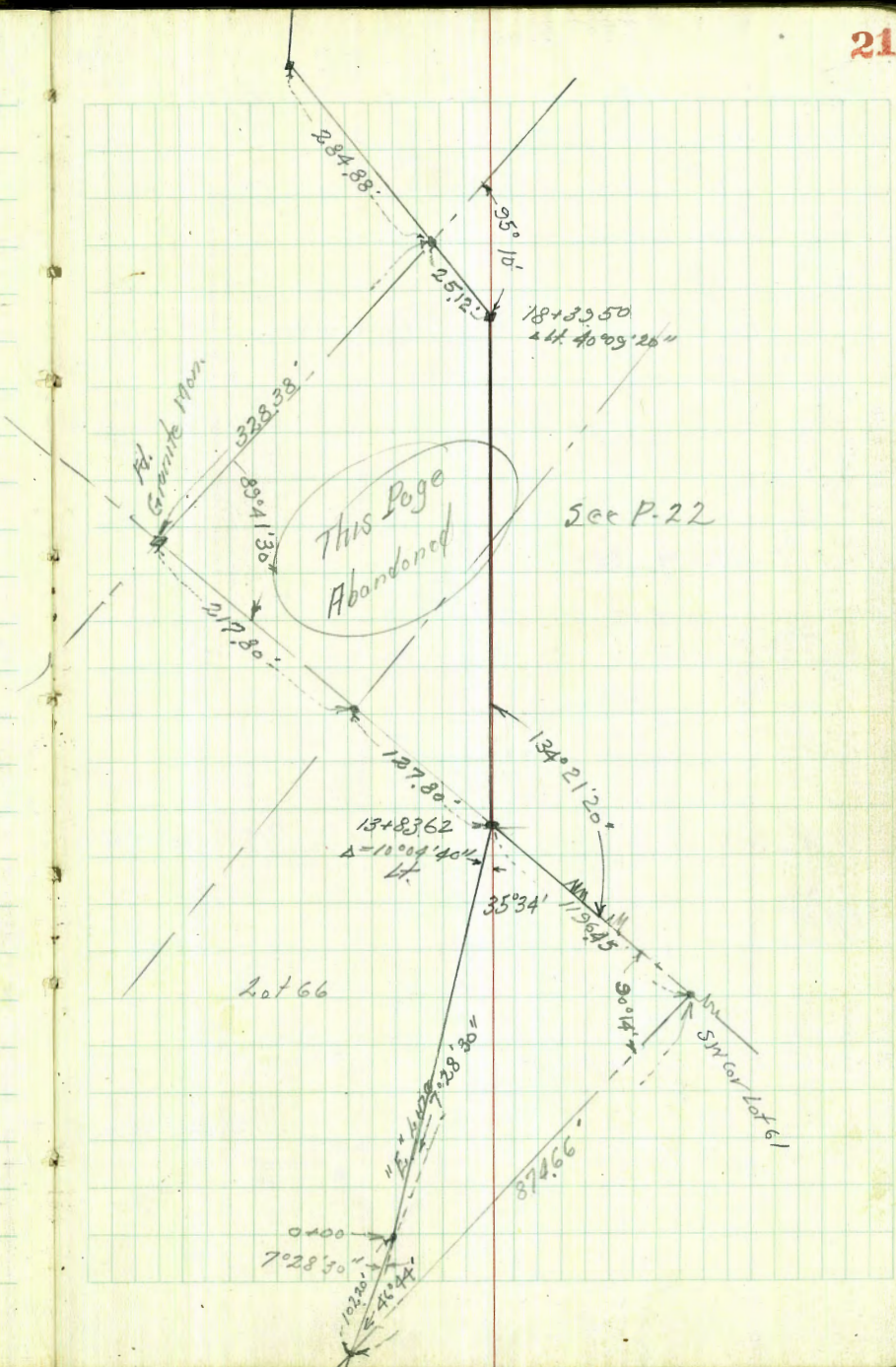
Lot 61



Station

18+39.50 Δ 44° 40' 09" 20"

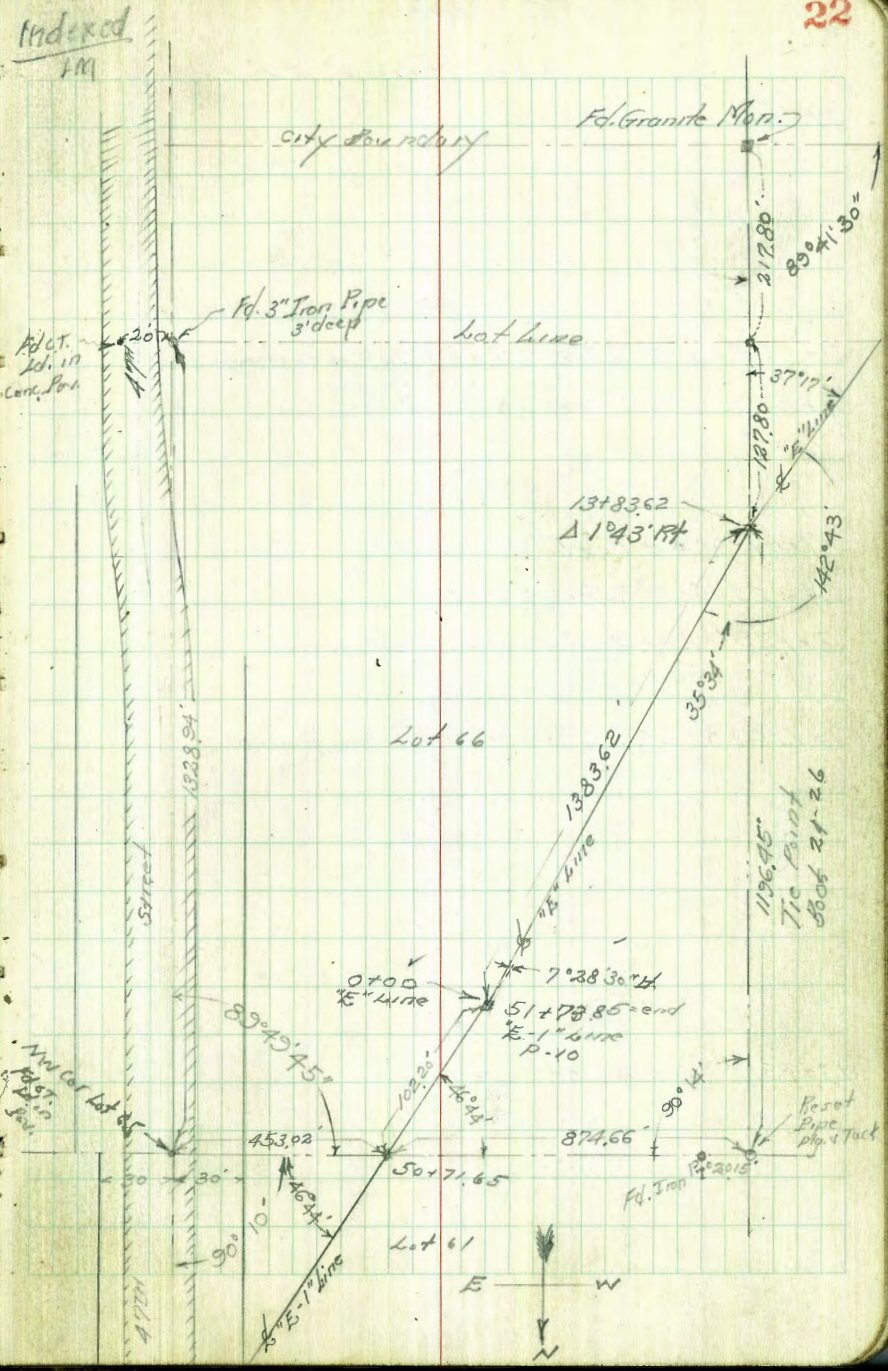
13+83.62 Δ 10° 04' 40" 17"



Walker Wells
 D. Farrow
 8-18-41 from 47th St to Disposal Point
 of UNK Kingwood Streets.
 Profile Levels FS 1609-21

$13+83.62 = \Delta 143' \text{ ft}$

0+00 "E" line $\Delta 7^{\circ}28'30''$ from "E-1" line
 51+73.85 "E-1" line equals above 0+00 on "E" line



S. $37^{\circ}34'30''$ W.

S. $35^{\circ}51'30''$ W.

S. $43^{\circ}20'$ W.

Lot 62

13+83.62
 $\Delta 143' \text{ ft}$

Lot 66

Lot 65

0+00 "E" line
 51+73.85 "E-1" line
 P-10

1196.95'
 The Point
 Book 21-26

Lot 61

E W



"E" line

Cont. from P-22

Station

32+00.07 = P.O.T. set Copper Disk 1d & Tack in Conc. Pav.

31+96.07 = $\Delta 29^{\circ}55'30''$ RL = 3' East of East edge Pav.

31+87.78 = P.O.T. Stake on Sub. line

$S. 41^{\circ}51'15''$ W.

27+87.38 = $\Delta 4^{\circ}16'45''$ RL 2" X 2" R.W. Hub

24+22.45 = P.O.T. Pavng Stake

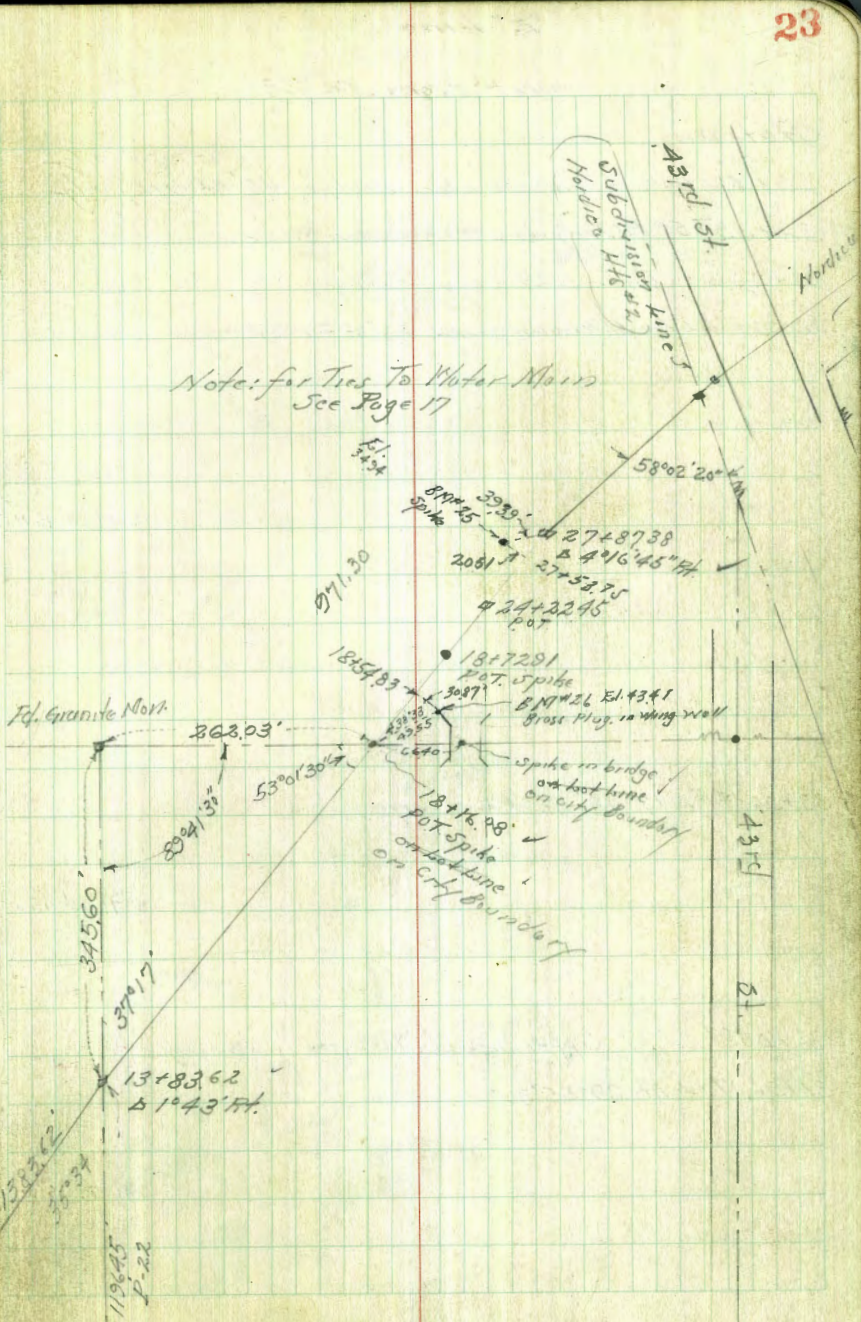
18+72.91 = P.O.T. Spike set flush with ground

18+16.08 = P.O.T. Spike set 0.2' below ground

13+83.62 = $\Delta 1^{\circ}43'$ RL

$S. 37^{\circ}43'$ W.

$S. 35^{\circ}51'30''$ W.



68+62.74 = SWWY Lip of Culvert

68+52.74 = SWWY end Box Culvert

68+48.47 = SWWY line Main St

68+36.74 = Southwest cb. ^{LINE} Main St

68+00 = P.O.T. Nail in Pav.

cb's are
0.27' off.

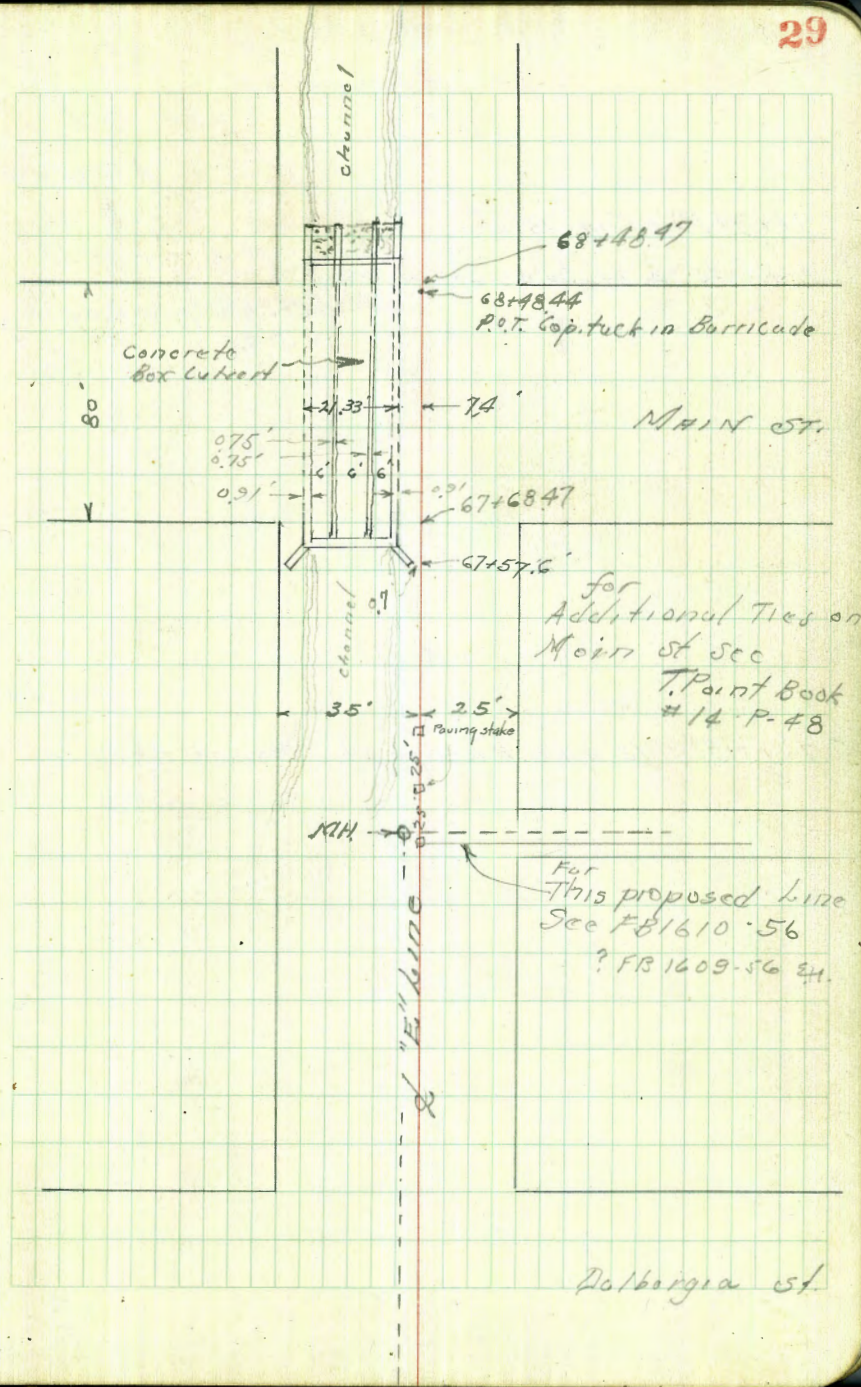
67+68.47 = NW Main St

67+64.84 = NWWY end 5'x6' Triple Box Culvert

67+57.6 = NWWY Cor. Wing Wall 0.7' ht = cor. Concrete

53° 22' 30" W

66+19 = Existing M.H. 5' ht



Dolbergia St.

"E" Line

Cont from P. 29

N 50° 34' 30" W

71+97.29 = Mon 13' Lt

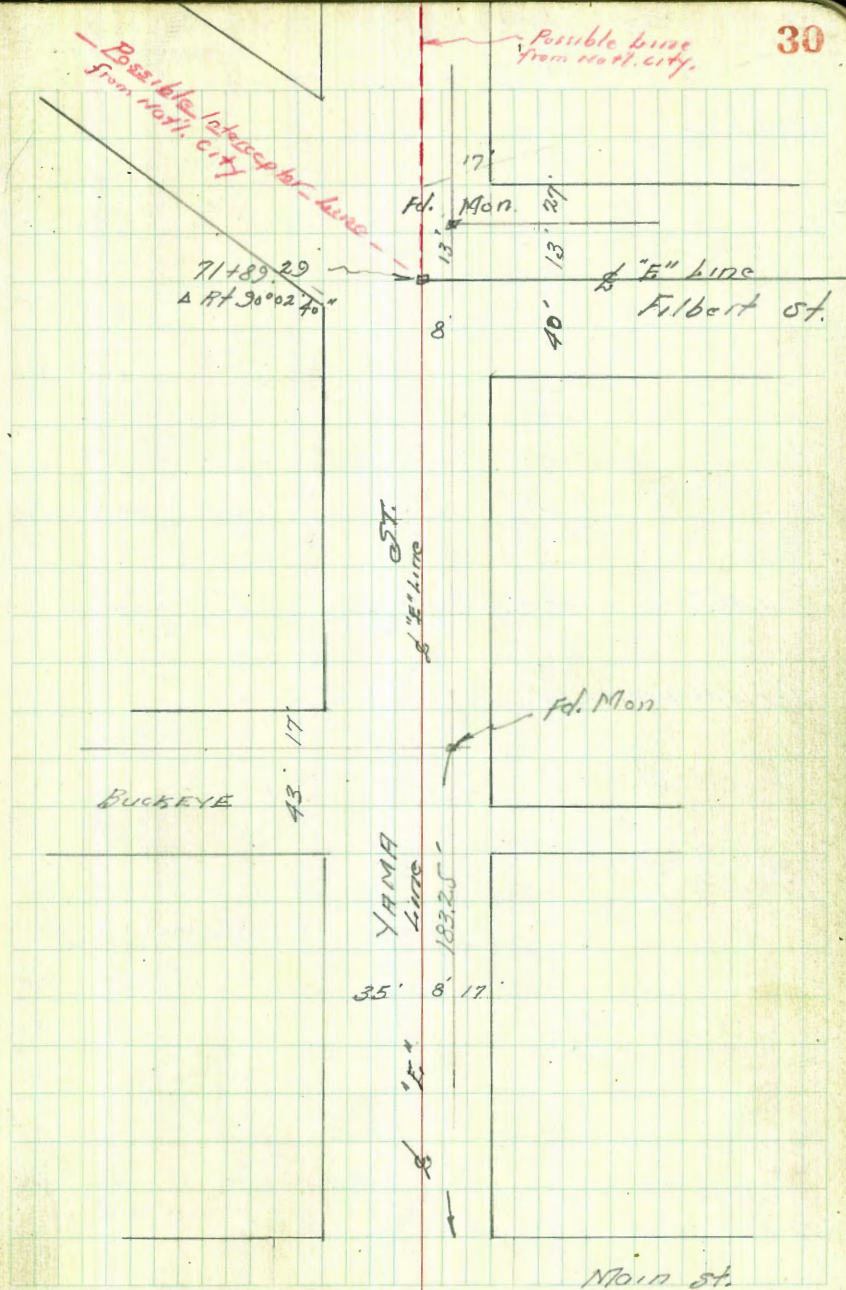
71+89.29 = Δ Rt 30° 02' 40"

Paving stub set
When Levels R_o run
after st, was pored by Navy
6-3-43

S 39° 22' 30" W

70+31.47 = 13' Line Buckeye st. Mon 8' Rt.

30



"5" line
Continued from P. 32

Station

92+28.6 = 6" Water Main

92+24.33 = 8' 8" 31'

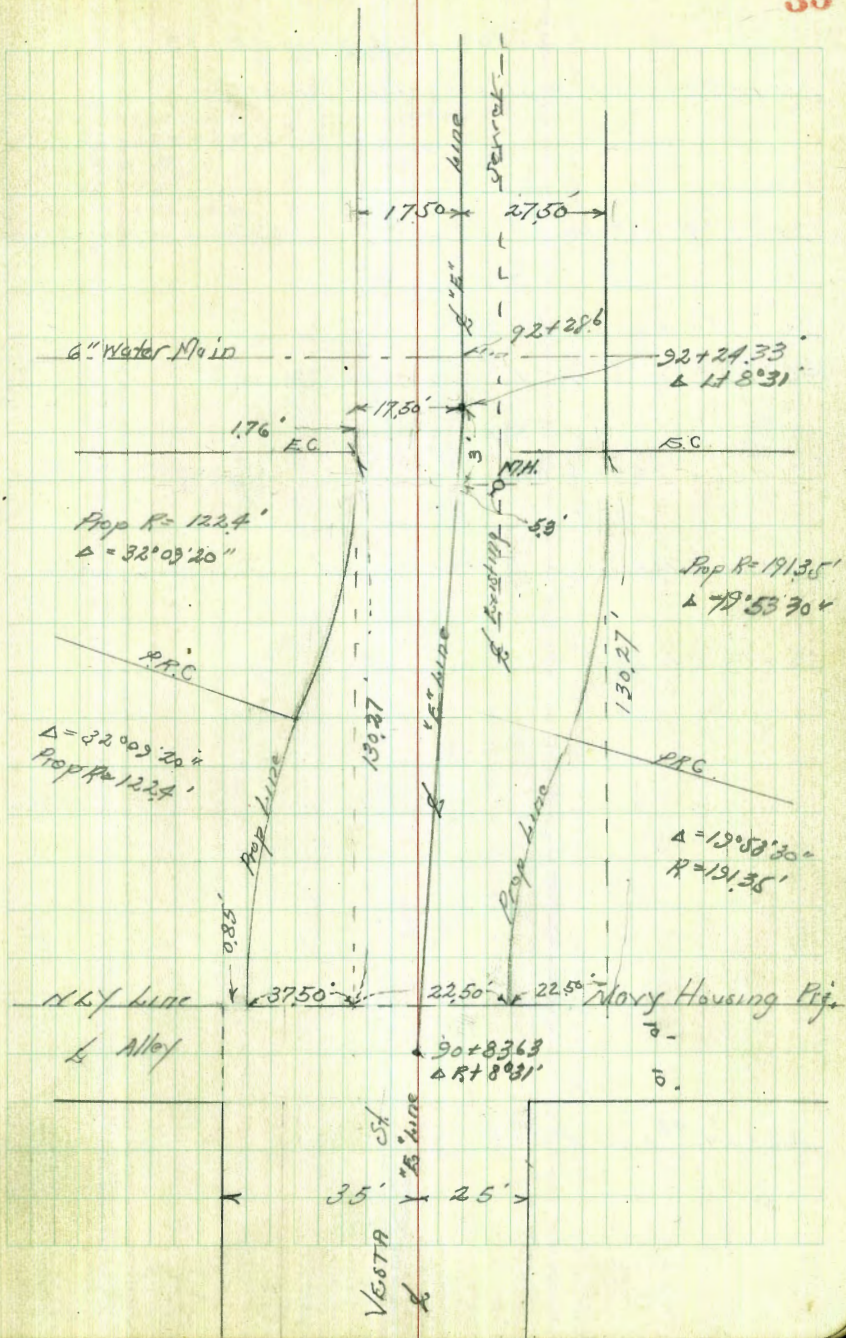
92+21.3 = MH 5.3' Rt.

3.37° 22' 40" W

5.47° 53' 40" W

90+83.65 = 8' Rt. 8° 31'

3.37° 22' 40" W



"E" Line

Continued from p. 33

97+57.79 = P.O.T. Nail end offset line

97+26.74 = P.O.T. Nail

96+94.8 opp cb Ret B.C.

96+79 = 5 1/2" line M^c Candless St.

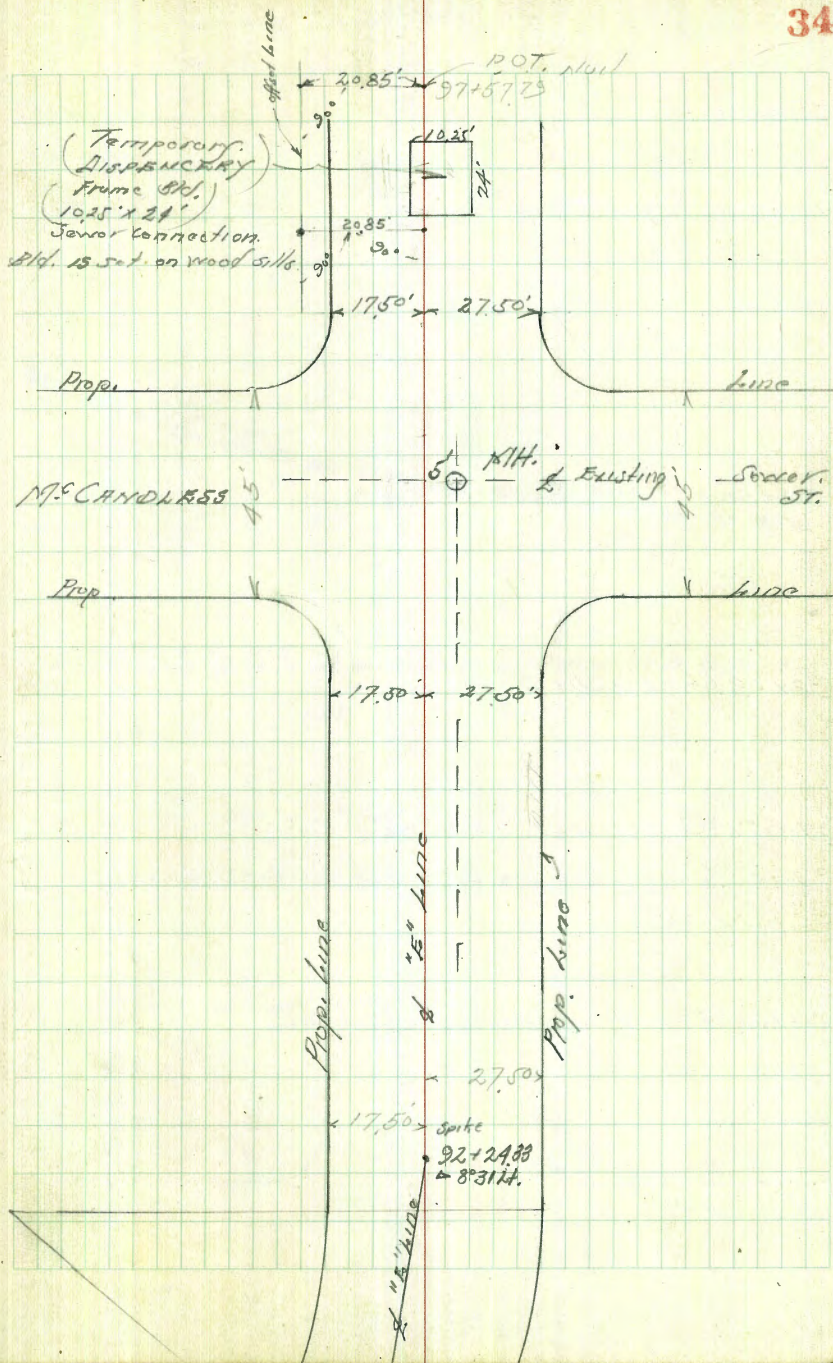
96+56.5 = MH 5' H

96+34 = 1/2" line M^c Candless St.

96+18 cb Ret B.C.

539° 22' 40" W

92+24.33 Δ Lt 8° 31'



"Z" Line

Continued from P. 34

Station

S 5° 36' 40" E

100+34.47 = Δ 90° 00' 40" RT

99+50.22 = P.O.T. of A.T. & S.F.R.R.

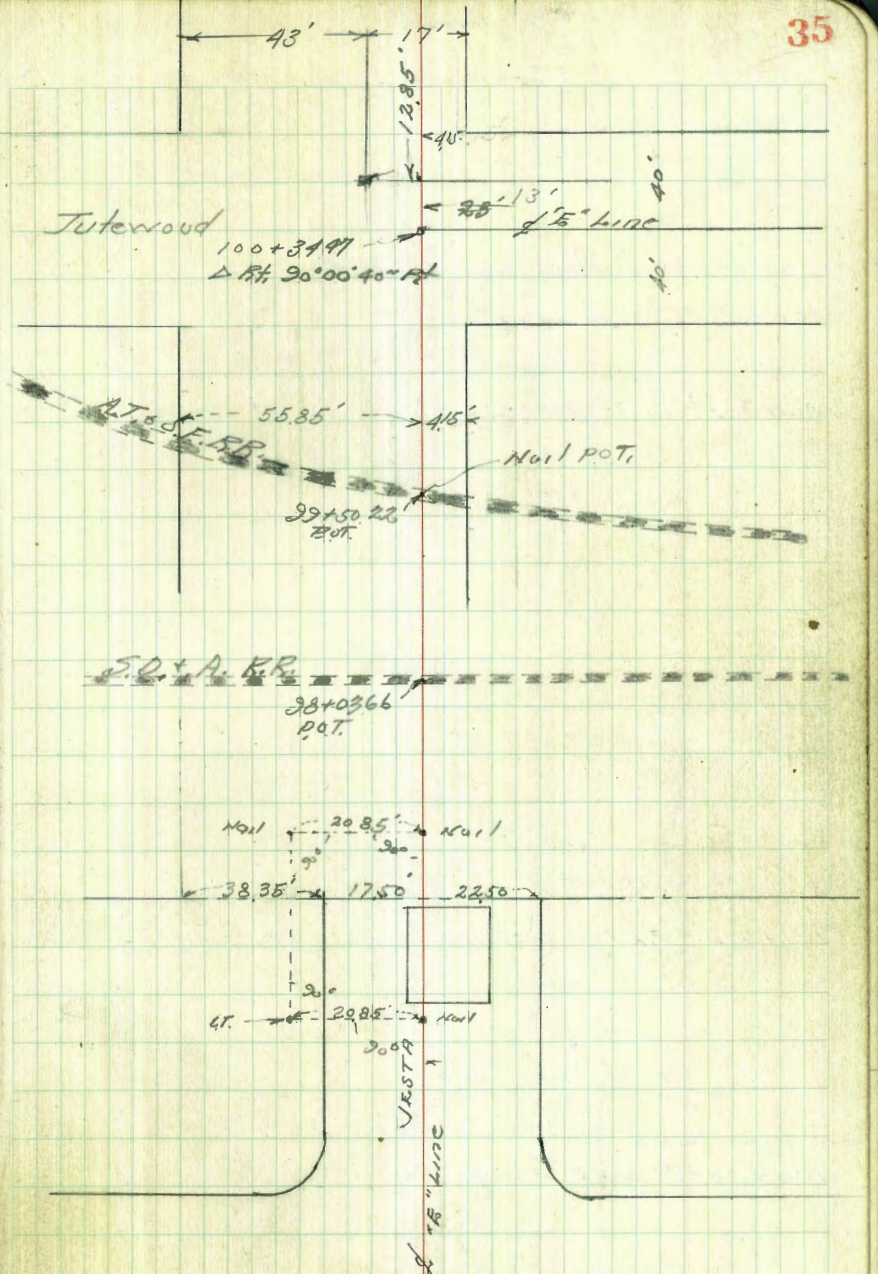
98+03.66 = Δ S.D. & A. R.R.

S 39° 22' 40" W

97+57.59 = P.O.T. Nail = End offset line

97+53.66 = NLY Line S.D. & A. R.R. Right of Way

97+26.74 = P.O.T. = beginning offset line



9-11-41

"E" Line

Continued from P-35

Station

108+53.35 = outside edge Box "A"

108+50.35 = A Rt. 44°05'

106+38.38 Δ Lt. 83°22'

101+68.5 = WLY Rail Spur Track

101+61.5 = ELY Rail Spur To Kelp Plant

100+34.97 = A Rt. 89°57'

36

Detritus
Bld.

Box "B"

Existing 36" Sewer

Box "A" See Plan
Cholla Valley Line
Spur Track

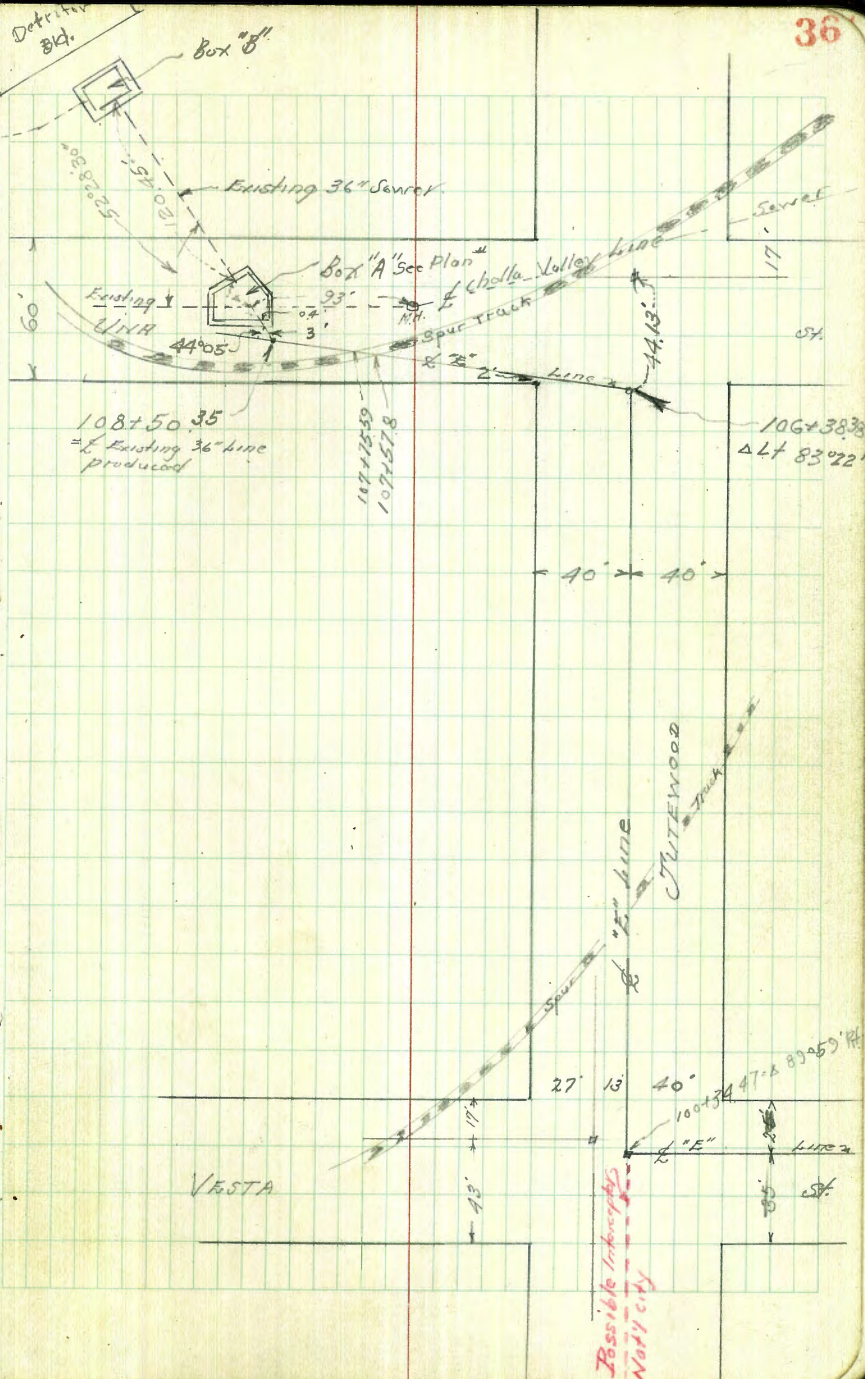
108+50.35
= Existing 36" line
produced

107+75.9
107+57.8

106+38.38
Δ Lt 83°22'

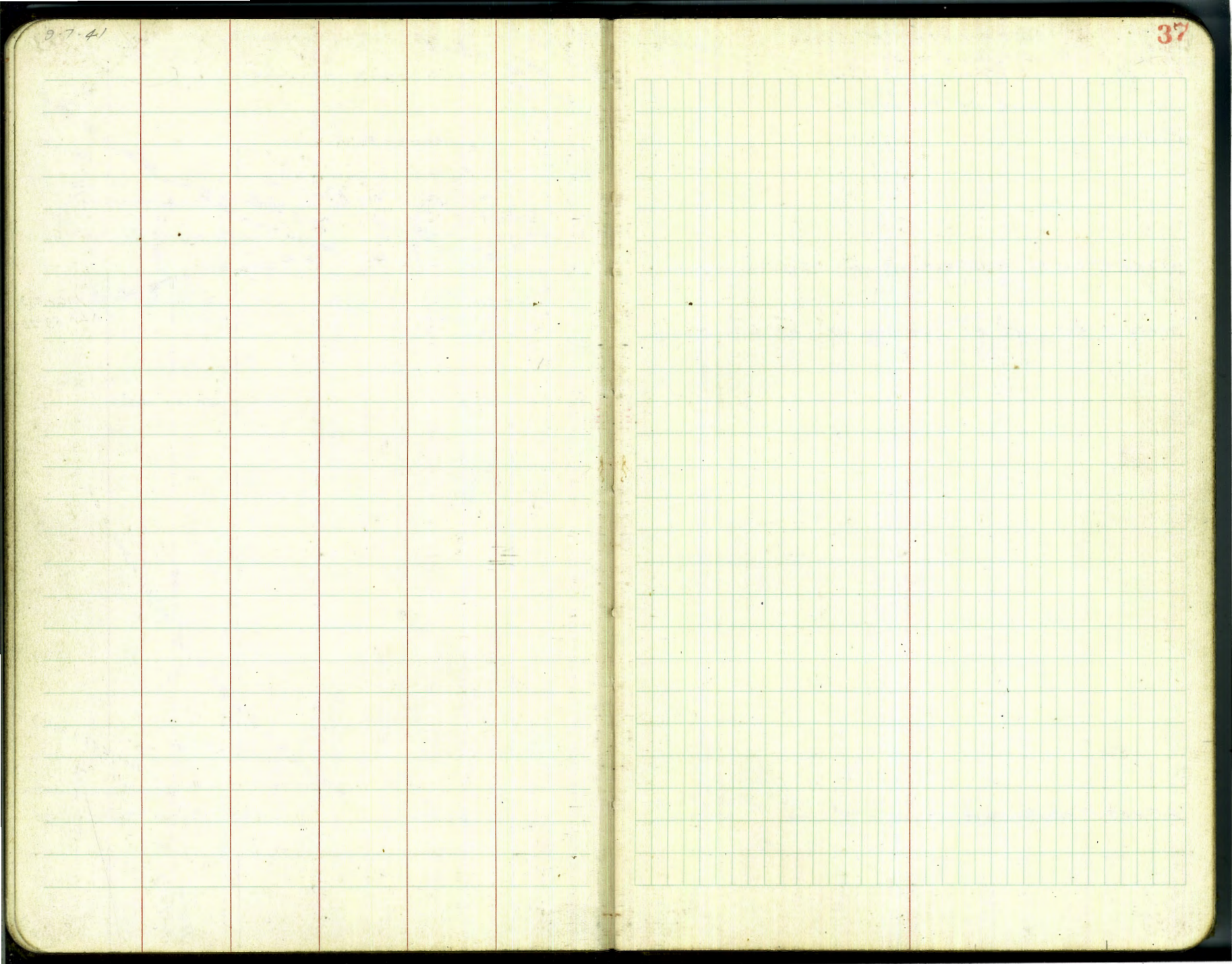
VESTA

Possible Intercepts
Near City



9-7-41

37



Walker
Wells
D. Farrow
9-7-41

ALTERNATE "E" Line
from Filbert & Vesta
to Sixa & Filbert

Indexed
LM

Levels FB #16 09 - 33

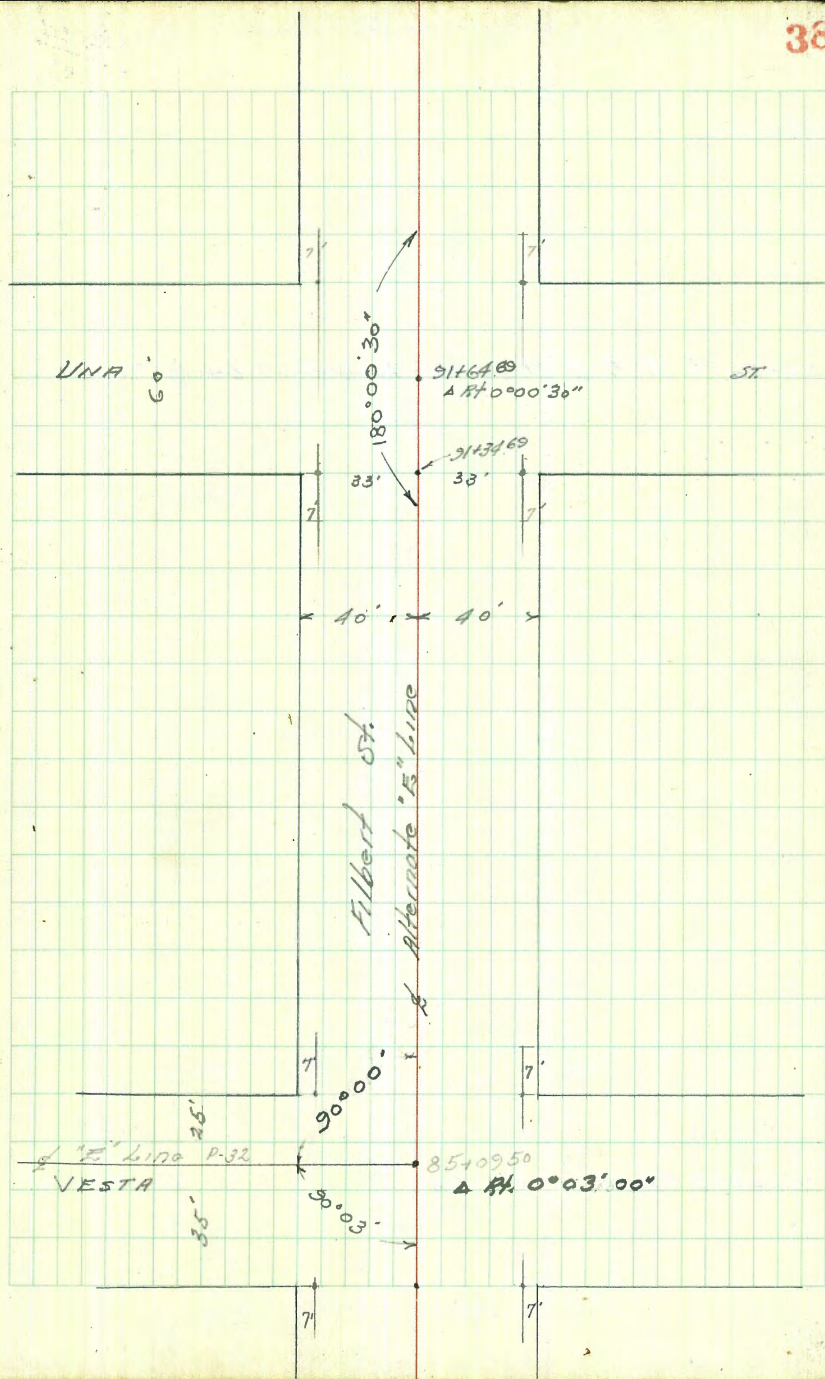
Station.

91+64.69 = A Pt 0°00'30" - Spike 0.2' below Surface

91+34.69 = P.O.T. Spike ELY Line Ulna St. 0.2' below Surface

85+09.50 = Beginning Alternate "E" Line

38



Alternate "E" Line

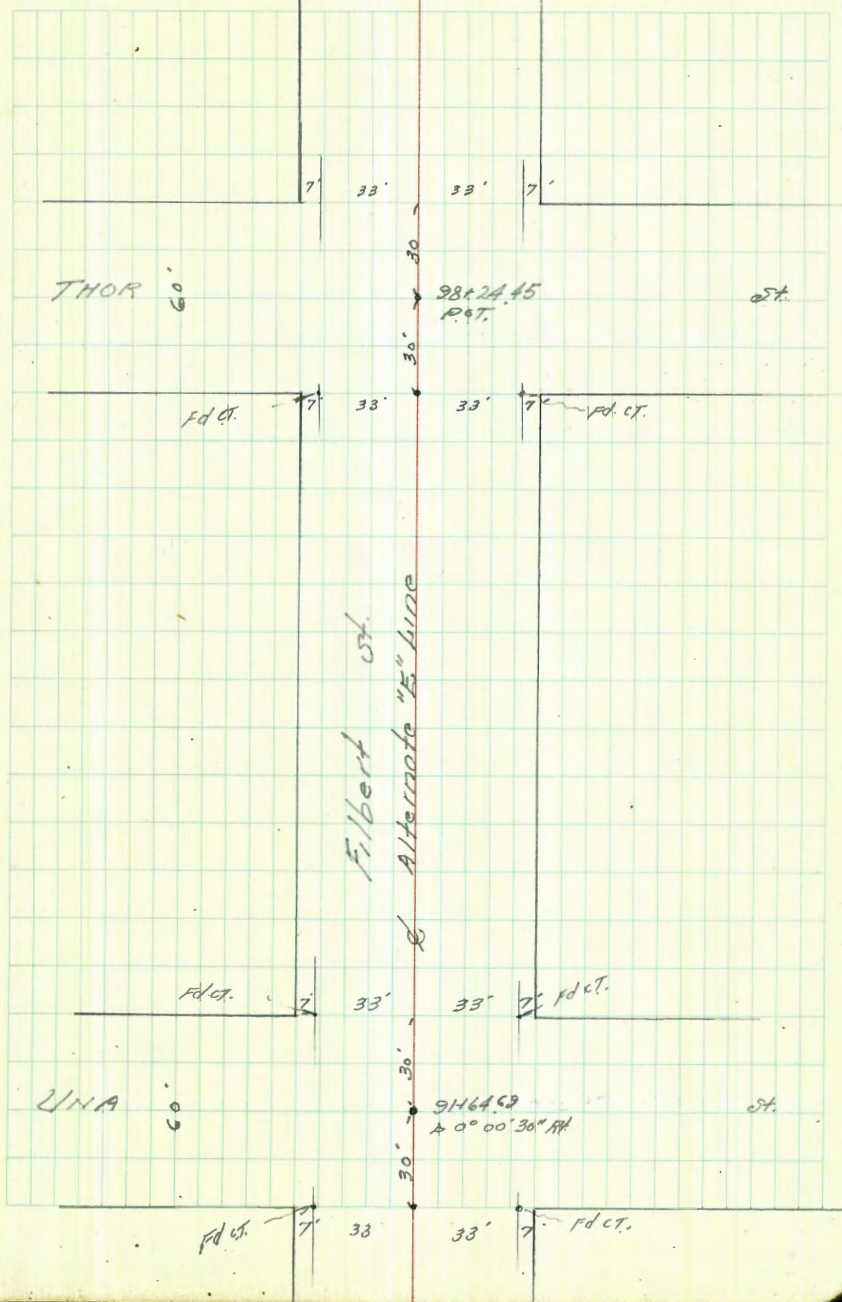
Cont. from P-38

Station.

28+24.45 = P.O.T. of Thor Spike set 0.2 below Surface

21+64.69 = Δ Rt 0°00'30"

39



2-7-41

Alternate "E" Line

Cont. from P-39

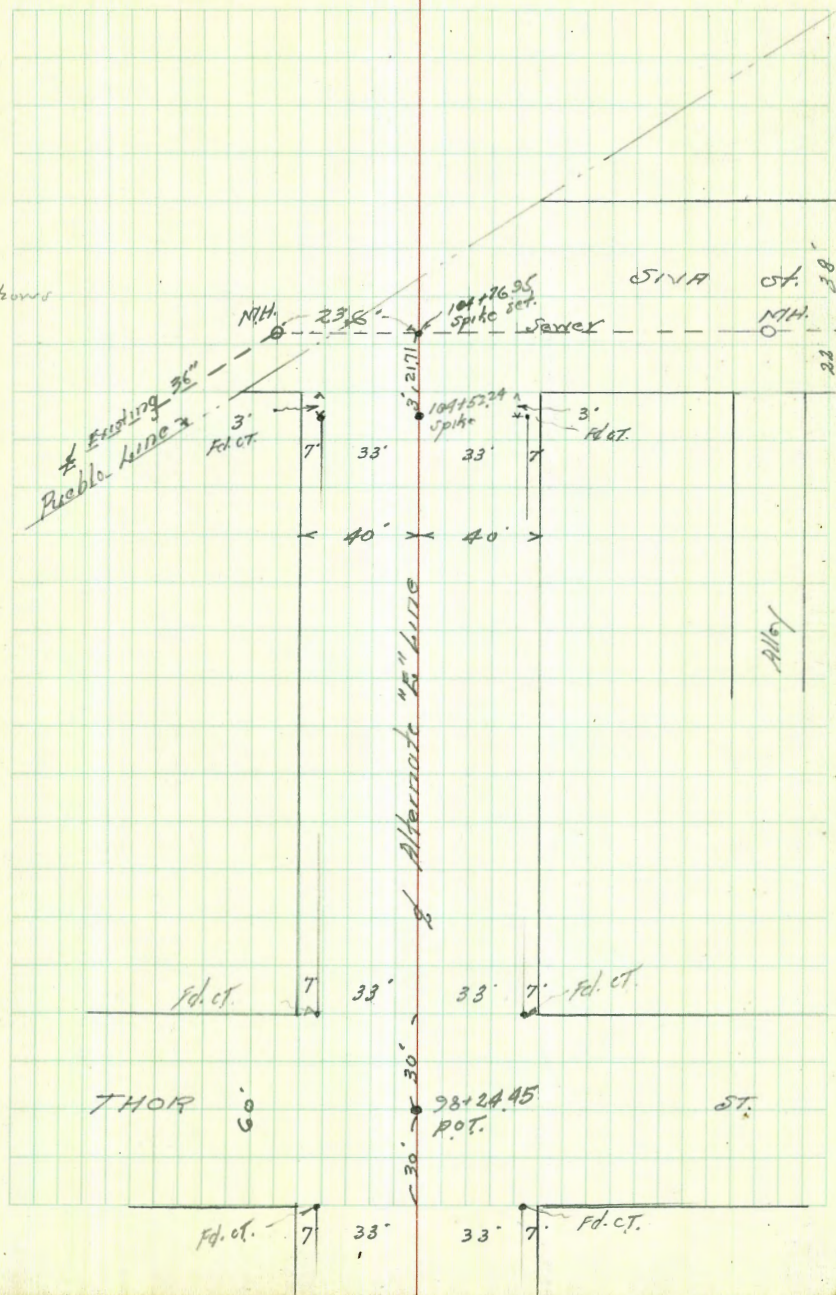
Station

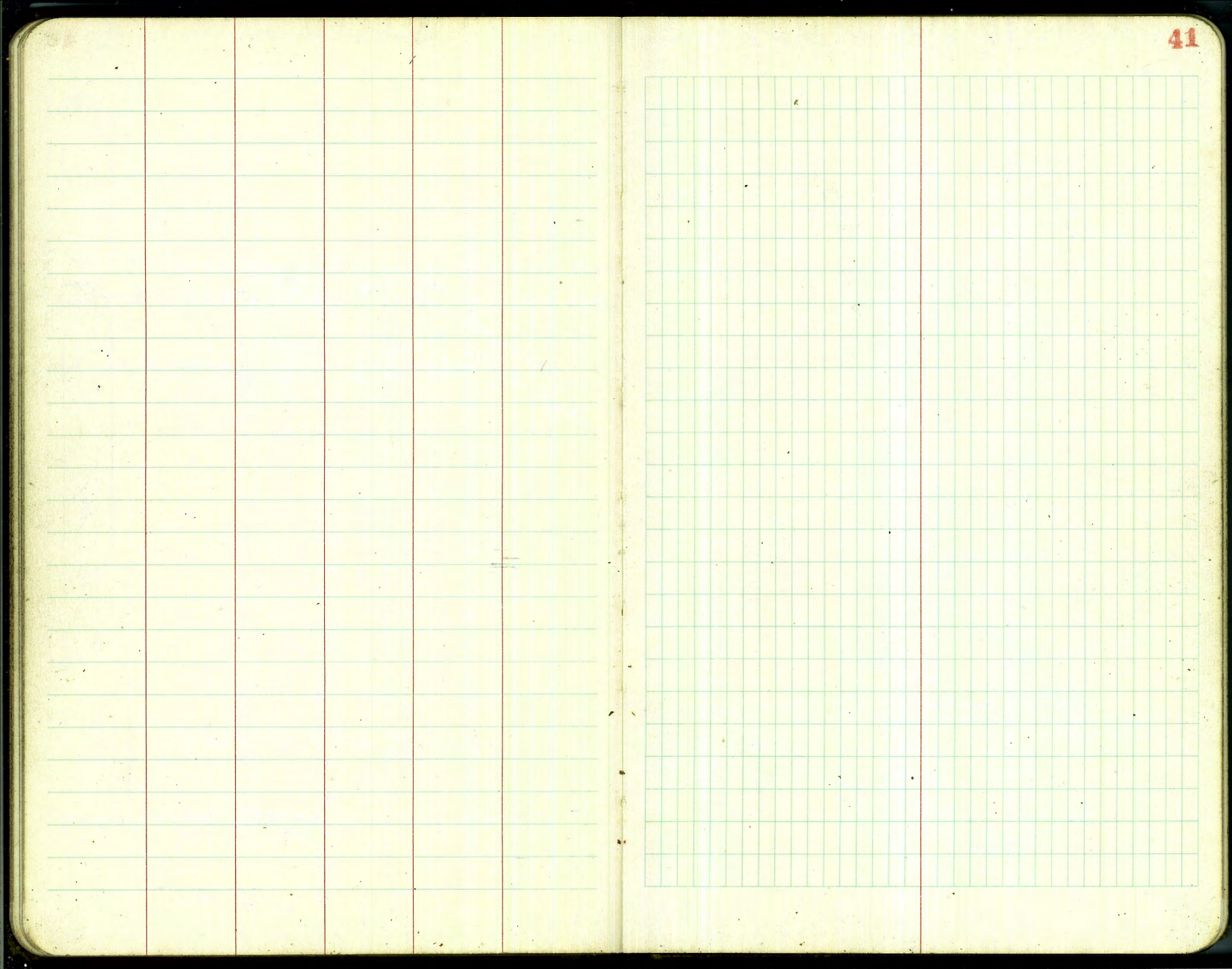
Note Existing Sewer is 0.29' further East than Plan shows

104+76.95 = Existing 36" Center. Spike set 0.2' below surface

104+52.24 P.O.T. Spike set 0.2' below surface

38+24.45 = P.O.T. Spike set 0.2' below surface





Unit #1 VALENCIA PARK SEWER LOCATION
"E-2" Line

Walker
Wells
D. Farwell
9-25-41
for levels see F.B. 1609-36-1

Station	Align.	Magnetic BEARING	TRUE BEARING
---------	--------	------------------	--------------

+85.46	E 30" Water Line (Steel Pipe)		
+83.77	= C.T. in 4"x14" Timber Support for Water Main		

3+00

532° 15' W 547° 63' 05" W

2+00

1+39.22 Δ 51° 42' 45"

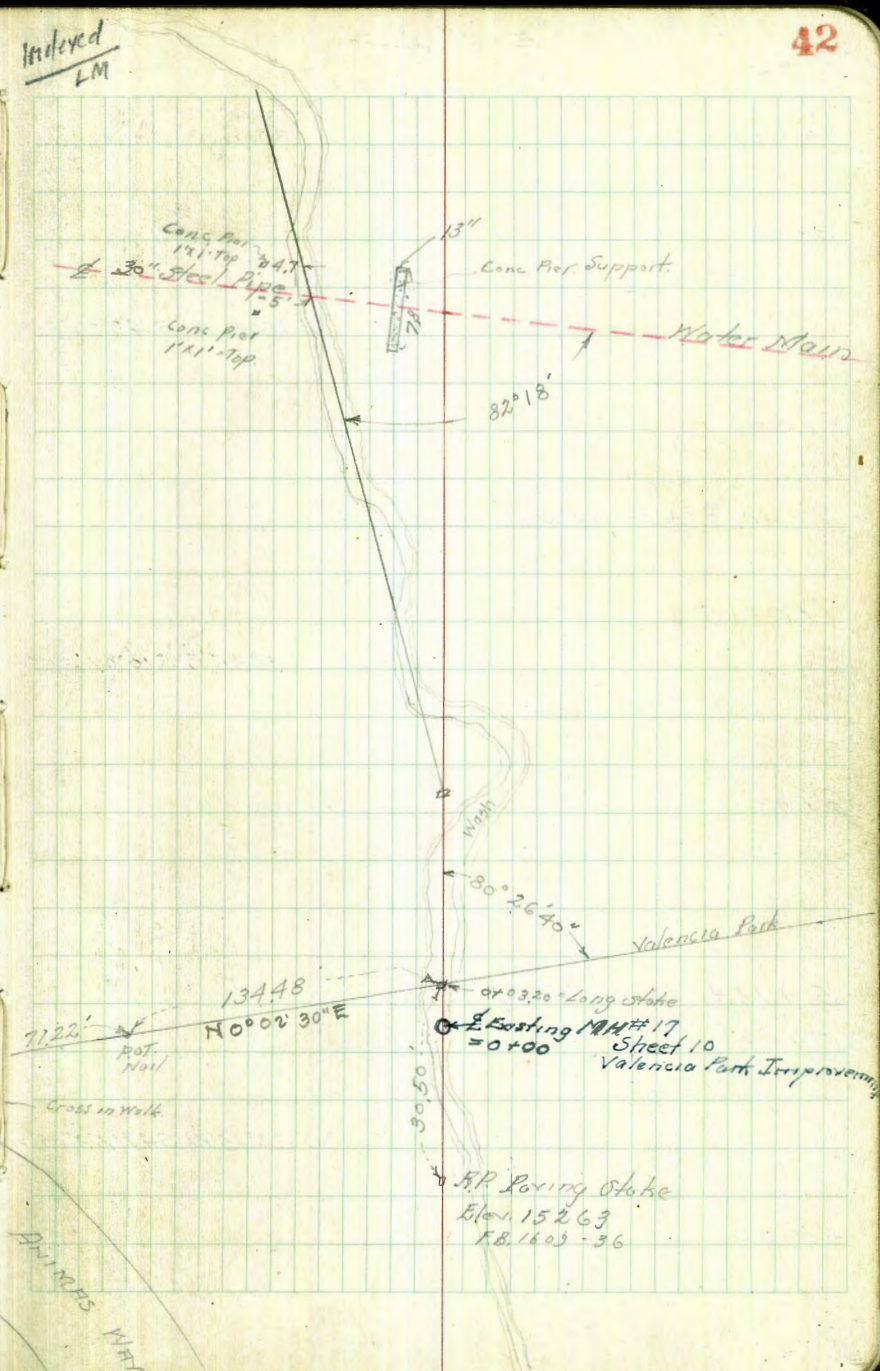
584° 10' W N 80° 24' 10" W

P.O.T. on
0+03.20 Intersection West Boundary Valencia Pk.

0+00 = Existing M.H.

LM
ML West Line
Fol. Conc. Man.
Fol. Conc. Man.

Inverted
LM



71.22'
P.O.T. Nail
Cross in Walk

134.48
N 0° 02' 30" E

or 0.320 Long Stake
Existing M.H. #17
= 0+00
Street 10
Valencia Park Improvements

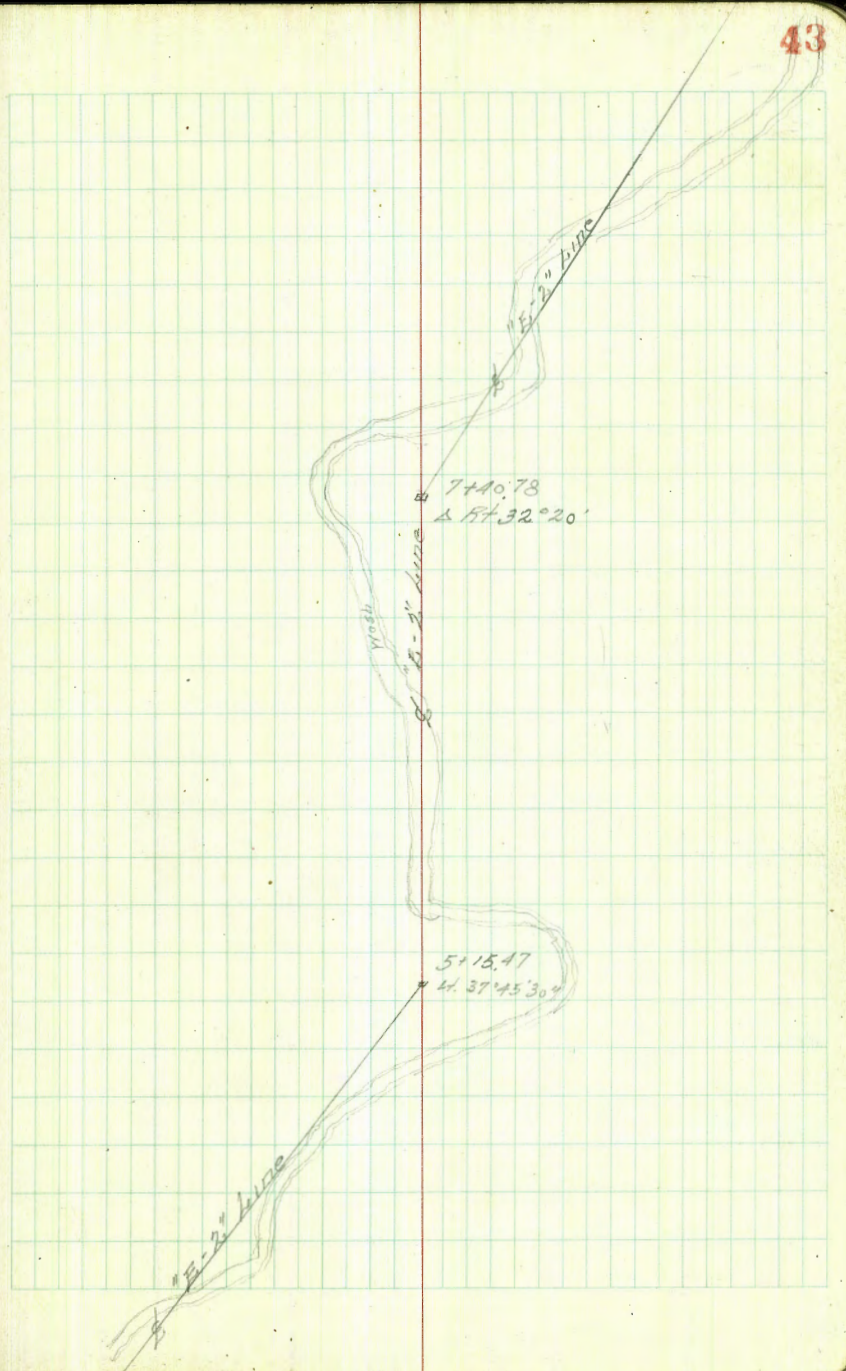
5.P. Poring Stake
Elev. 152.63
F.B. 1609-36

DWIGHT WAY

"E-2" Line

Cent. from P-42

Station	Align	Magnetic Bearing	True Bearing
9+00			
		S 26° 40' W	S 42° 27' 35" W
8+00			
	7+40.78 = Δ Pt 32° 20'		
7+00			
		S 5° 35' E	S 10° 07' 35" W
6+00			
	5+15.47 = Δ Lt 37° 45' 30"		
5+00			
		S 32° 15' W	S 47° 53' 05" W
4+00			



Walker
No 116
D. Ferry
9-25-11 (Finished)

"E-2" Line
Cont. from P. 43
Magnetic True
Bearing Bearing

14+1546 = Δ 10 "E-1" Line Page 3

14+00
+60

13+00

12+00

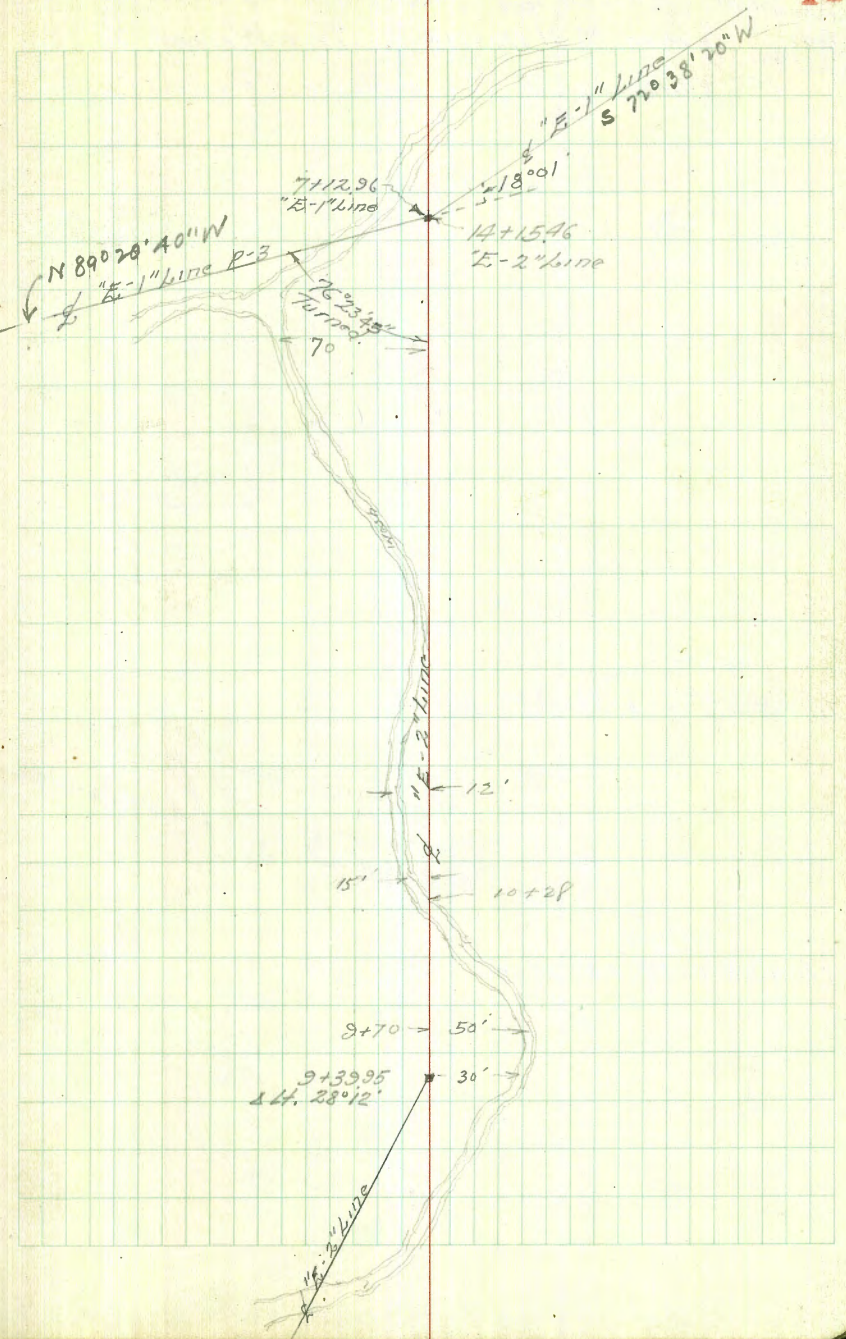
S 1°15'E S 14°15'35"W

11+00

+50

10+00

9+3995 = Δ 14 28°12'



Bliss
Sommer Myer
3/25/42
Relocation Pac. fic. Ave. Sewer
from M. H. 110+98 Kurtz + Wright to
Wetherby St. Pump House (Pressure Line)

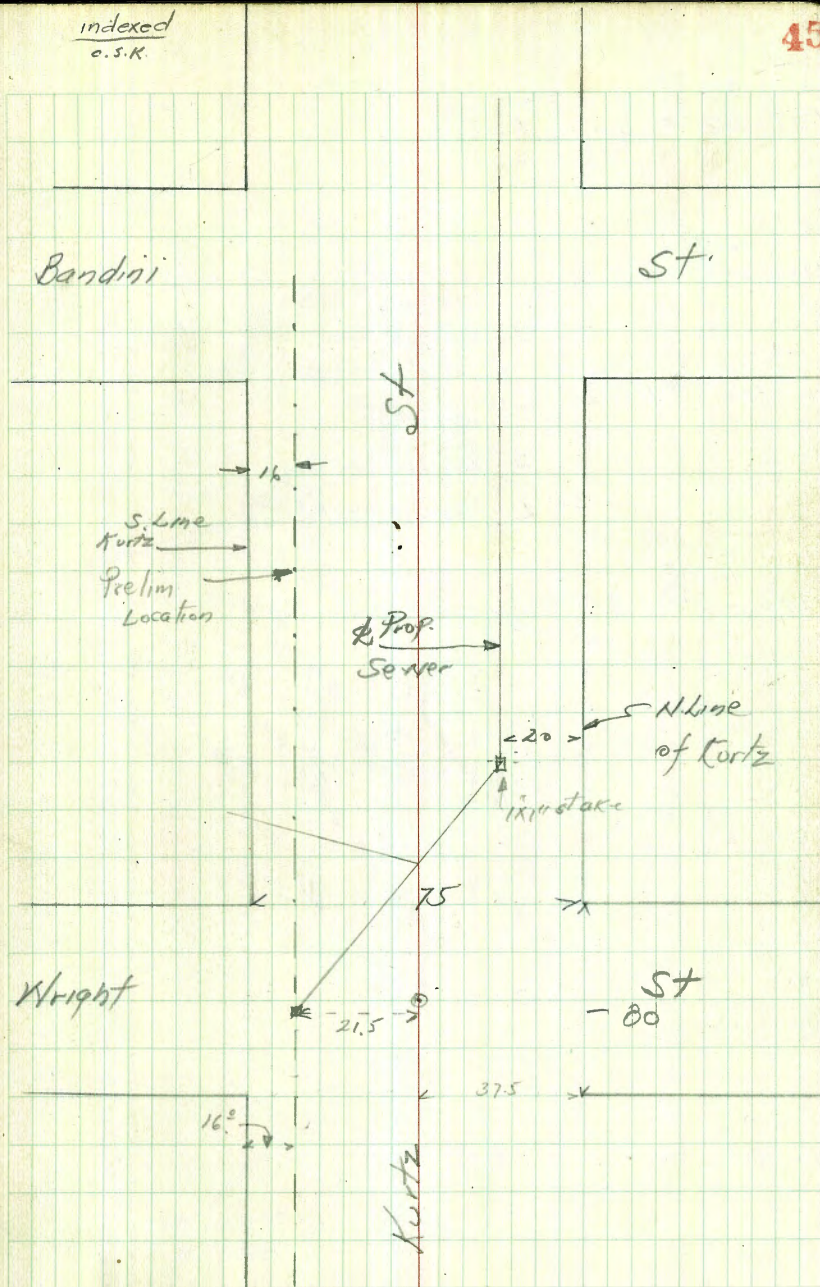
111+99.92 L.Lt 22°-30'-00

See Page 51 Revision

110+98 L.Rt 22°-30'-00

indexed
o.s.k.

45



35.28
 125+24 = 12519.02
 See Moore Notes
 FB 1604-P40

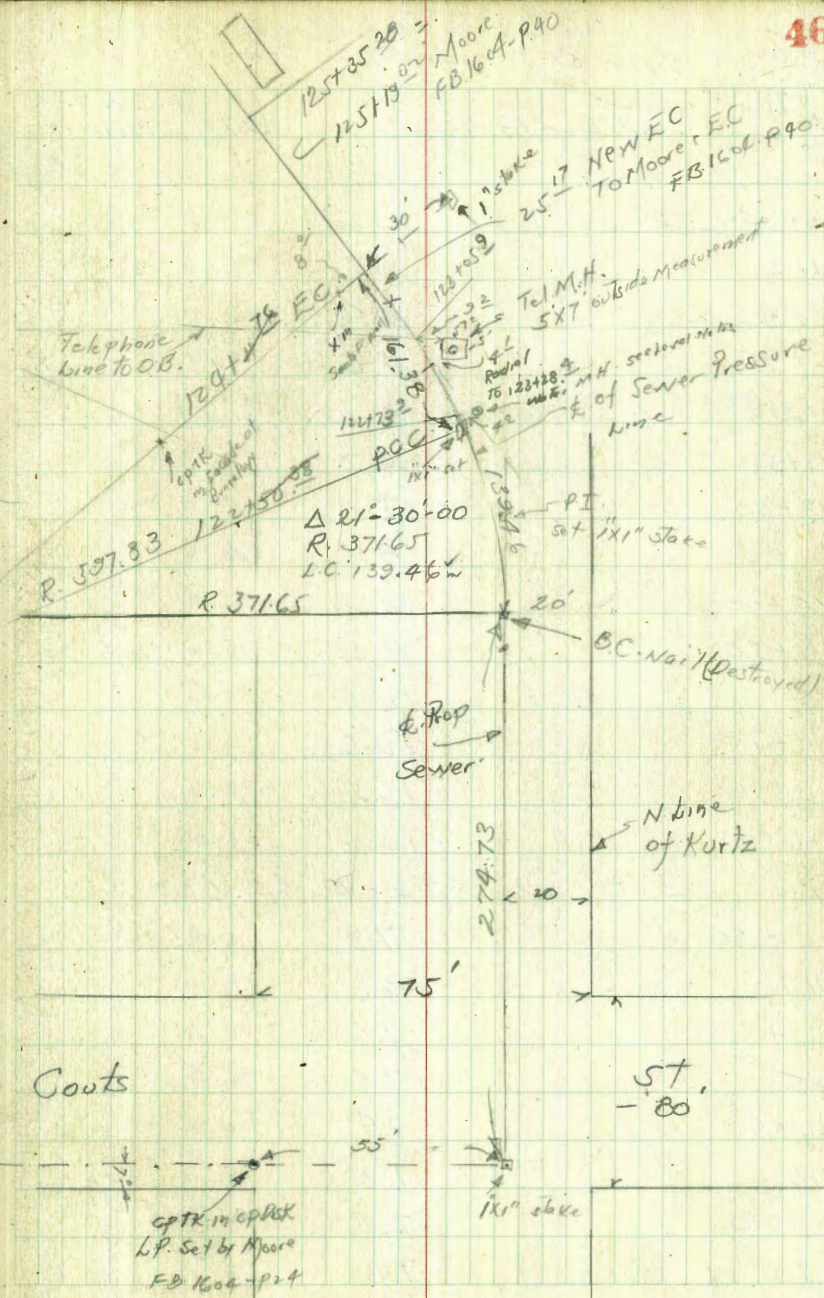
12.13
 124+27 E.C. $\Delta 15^\circ-28'-00''$ Def. prof't 2.875
 R. 597.93
 L of Arc 161.38

75
 122+50 P.C.C. $\Delta 21^\circ-30'-00''$ M. 81.18
 R. 371.65
 S. Tan 70.56
 L of Arc 139.46

11.29
 121+27 B.C.

Alignment removed
 See sewer 971.0
 for location
 near as in known
 station

118+36.55 E 7° line of Couts



Couts

ST.
 -80

CPK in CPK
 L.P. Set by Moore
 FB 1604-P24

T
984

120+50		6.9	2.9 ✓
TR	7.28	6.53 7.28	3.31 ✓
121+10 ⁹² BC.		7.7	2.9 ✓
121+50		7.5	3.1 ✓
122+00		7.4	3.2 ✓
+50		7.6	3.0 ✓
TR BM	5.96	8.12	2.47 ✓
+73 ⁹	Rad to curb	6.3 PMH	2.45
+75	Gr 4 Pole 10.3M	0.62 error	0.02 error
123+00		6.1	2.3 ✓
+10 ²	mt A.C. paving	6.05	2.38 ✓
+25		6.09	2.34 ✓
+28	8.5 ch Tel M.H. Rim	5.66	2.77 ✓
"	Bottom Box	16.90	-7.97 ✓
+4 ²	Ground	6.2	2.2 ✓
4 ⁴	Top wall	6.03	2.40 ✓
+44	Edge walk	7.88	0.55 ✓
+52 ⁶	Top cb	7.81	0.62 ✓
"	Edge ex. Paving	9.35	-0.92 ✓
123+98 ⁴	" "	8.30	+0.13 ✓
"	" Top wall	5.97	2.46 ✓
124+00.4W	Edge of wall	5.99	2.44 ✓
+11 ^{7b}	F.C. Grd	5.6	2.8 ✓
+28		5.7	2.1 ✓
+37		4.4	4.0 ✓

T
843

48

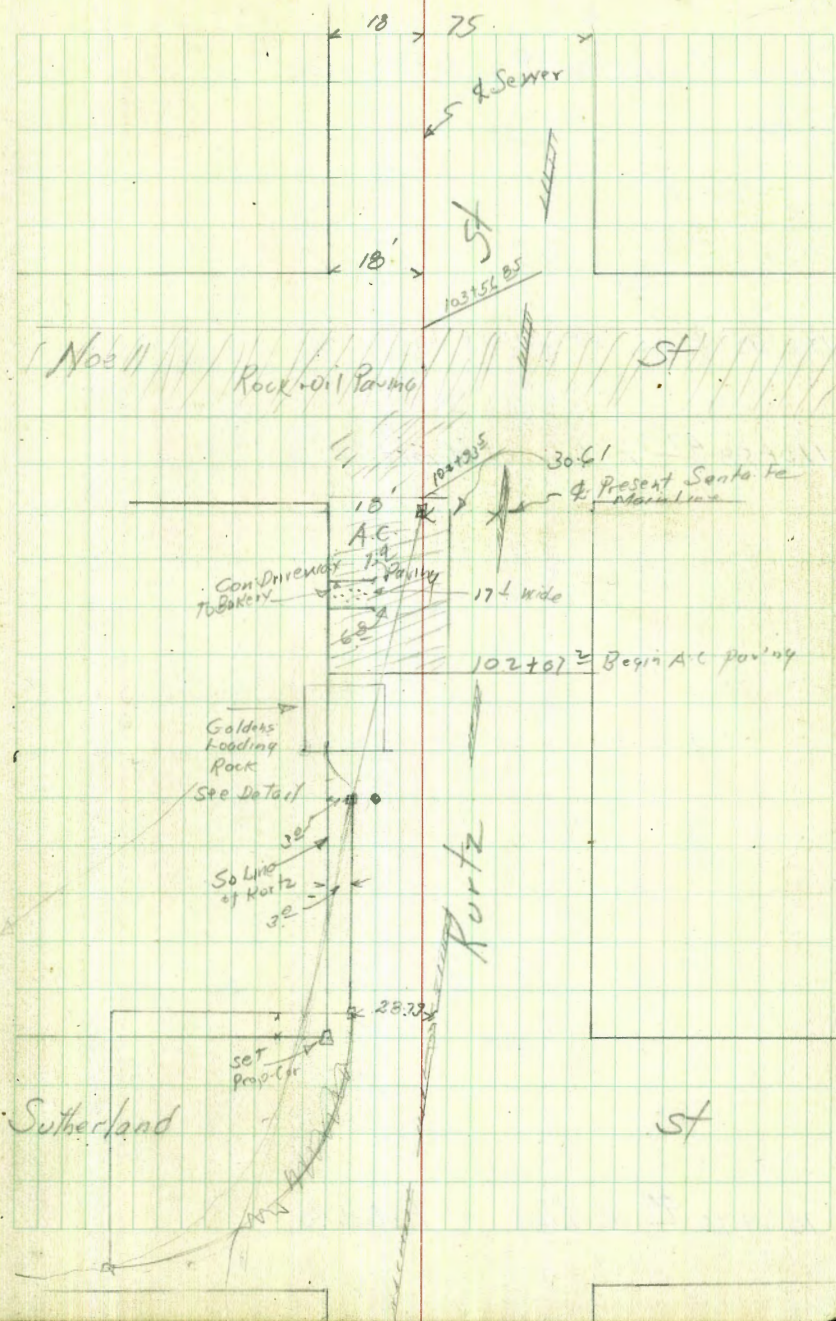
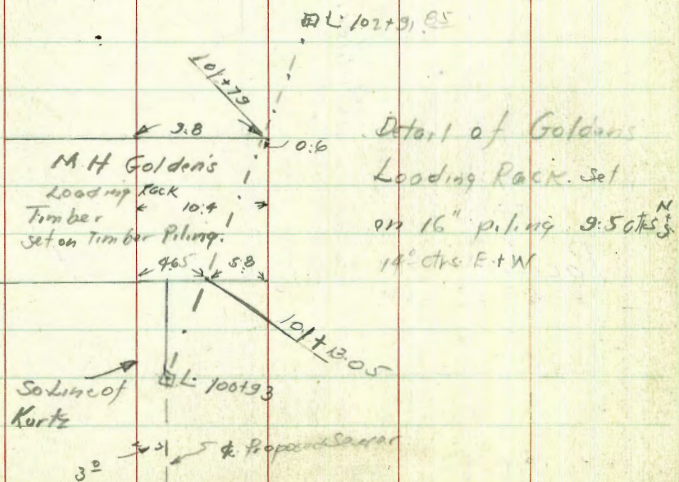
+50	4.1	4.7 ✓
+63	3.8	4.6 ✓
+75	5.0	3.4 ✓
+85	4.5	3.9 ✓
125+00	4.6	3.8 ✓
check BM	5.96	2.47 ✓

2.45
0.02 error

102+94 @ E. line of Noell

102+91 @ L & 4°-19'-30"

100+93 L & 4°-19'-30"



111+96 ⁵¹ = 111+99 ³² L. Lt 21° 28' 00"



14

110+95 ³⁷ L. Rt 21° 28' 00"

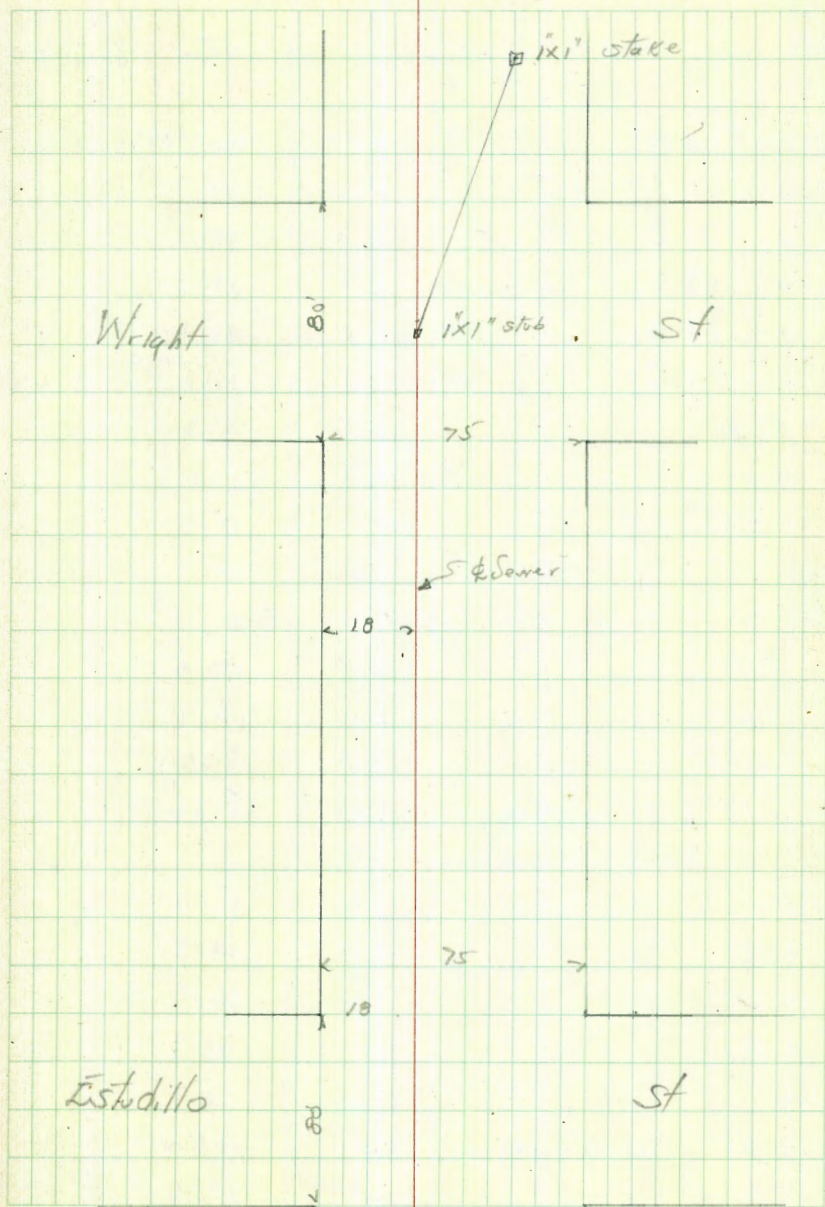
110+58 ⁴⁷ E. Line of Wright

v

106+75 ⁴⁴ E. Line of Estudillo

110+2537
5847
76.90

51



BM.	1054	14.85	4.32	N.W. 1/4 Spot on c6 56th Hwy B.M.
98+75 ¹² BC		4.15	10.71	✓
99+00		4.0	10.9	✓
+25		2.8	14.1	✓
+35		1.1	13.8	✓
+40		3.5	11.4	✓
+50		3.6	11.3	✓
+68		3.6	11.3	✓
+75		1.9	13.0	✓
+95 ³⁹ EC		3.0	11.9	✓
100		2.8	14.1	✓
TP.	8.56	20.75	2.67	12.19
+15		7.3	13.4	✓
+50		6.0	14.7	✓
+70		5.1	15.6	✓
+93 L.Rt on stone		5.29	15.46	✓
11 Gas + Lt Pole 6.4 Rt in clear				
101		5.7	15.0	✓
+15		6.4	14.3	✓
+50		6.2	14.5	✓
+80		6.0	14.7	✓
102		6.0	14.7	✓
+7 ² Begin a.c. Runway		5.93	14.82	✓
+50		5.99	14.76	✓

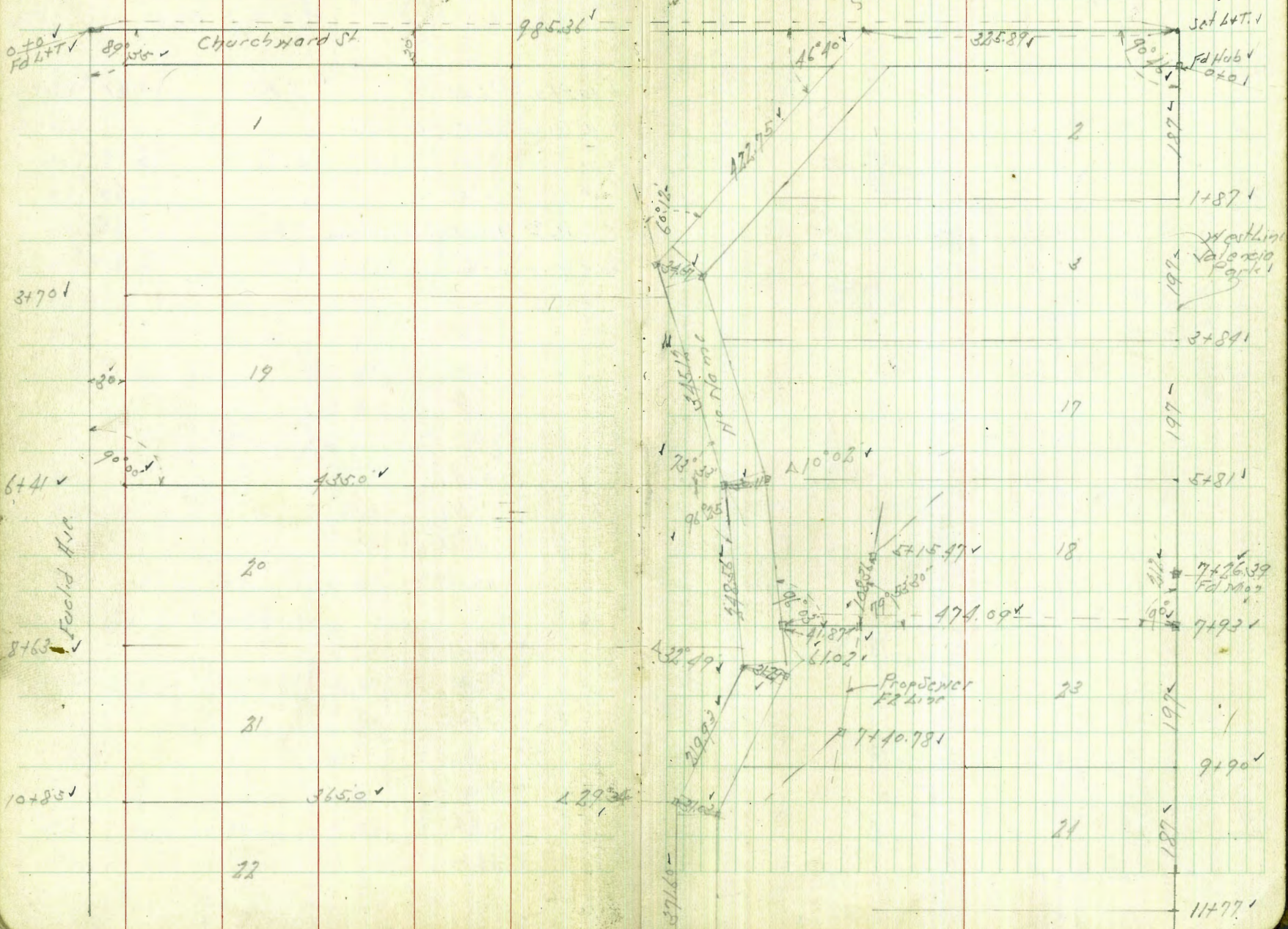
Standard
+ Refric

2075

91.85
1.65
93.50

52

+102+91 ⁸⁵ L.Lt	5.85	14.90	✓
+11 G.Lt Pole 7.7 Lt in clear			
103+00	5.50	15.15	✓
+50	5.25	15.50	✓
+56 ⁸⁵ Westly Edge of Petroil Pump	5.90	14.85	✓
40 ft in 4 Spike			
Check B.M. in G.Lt Pole SE of 11.1	4.93	15.82	✓



Tie H. F. Cor. Lot 54 Ex Mission Landt.
of San D 1890

Fa Mon

May 29-42
Simon
x Moor

Lot 53

Fa Mon

666.10

89° 45'

Cross in
Paving

30

Lot 54 ExMISSION Lands
of San Diego
(Horton's Purchase)

Fecid Ave

321.20

Only size of Name
Page 54

F. Somerville?
Page 3

107° 45' 40"
1012.88
905'

154D
143

MCCANDLESS

96+55.33
Δ 4°30' RT
Cont. on Rt Page

ST.

Walker
Hurdup
Reed 7-20-42

Alignment change
from station 90+83.63
to Box "A" Page 36-57

New Levels from 101+1338
to Junction Box "A"
See FB 1602-47

22+2140
Δ Lt 4°18'30" spike

Change of line begins
at this point

Alley 10' 10'
90+83.63 Spike
Δ Rt. 4°18'30"

35' 25'

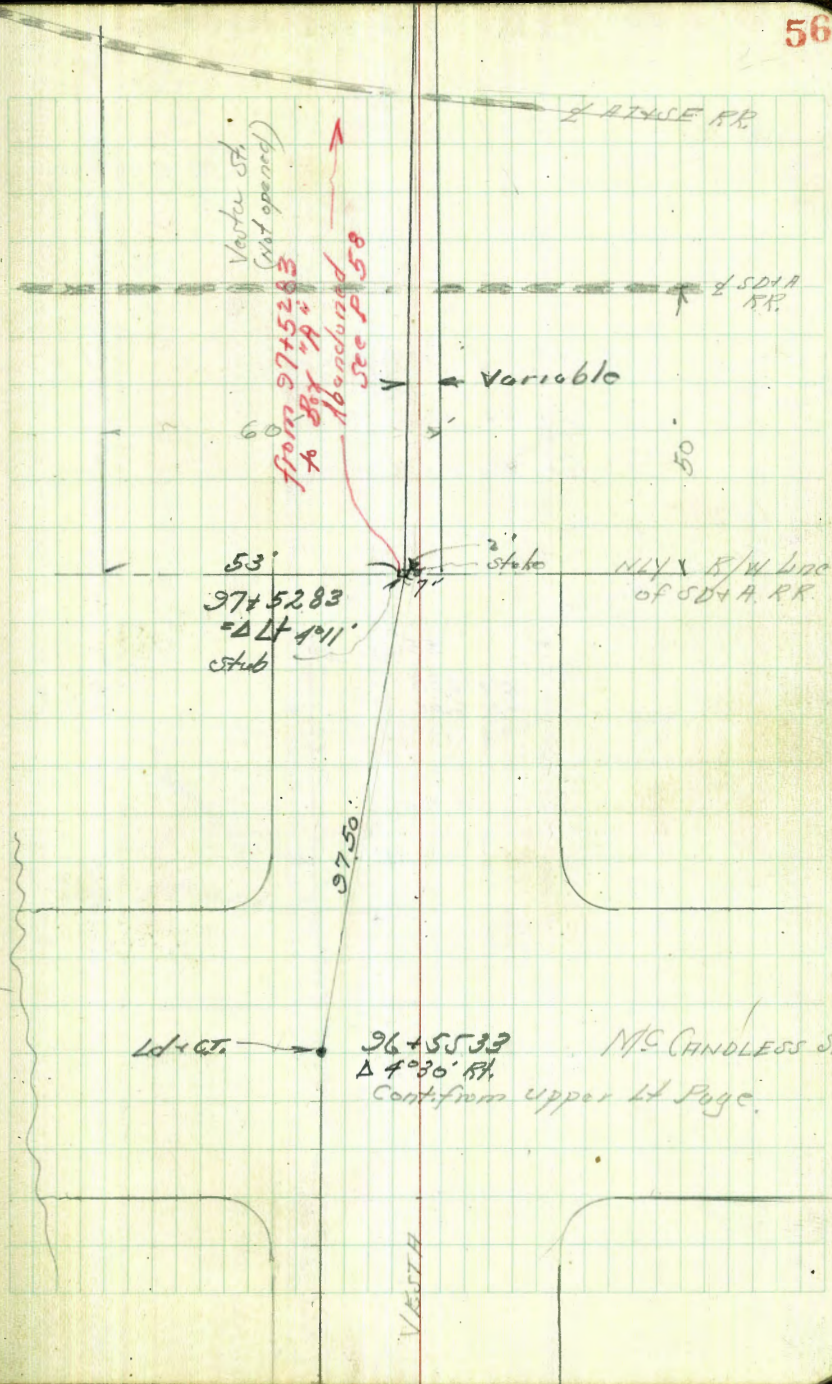


TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

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

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

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
61°	3375.0	920.2	71°	4086.9	1308.2	81°	4893.6	1805.3
10'	3386.3	925.9	10'	4099.5	1315.0	10'	4908.0	1814.7
20	3397.5	931.6	20	4112.1	1322.9	20	4922.5	1824.1
30	3408.8	937.3	30	4124.8	1330.3	30	4937.0	1833.6
40	3420.1	943.1	40	4137.4	1337.7	40	4951.5	1843.1
50	3431.4	948.9	50	4150.1	1345.1	50	4966.1	1852.6
62°	3442.7	954.8	72°	4162.8	1352.6	82°	4980.7	1862.2
10	3454.1	960.6	10	4175.6	1360.1	10	4995.4	1871.8
20	3465.4	966.5	20	4188.5	1367.6	20	5010.0	1881.5
30	3476.8	972.4	30	4201.2	1375.2	30	5024.8	1891.2
40	3488.3	978.3	40	4214.0	1382.8	40	5039.5	1900.9
50	3499.7	984.3	50	4226.8	1390.4	50	5054.3	1910.7
63°	3511.1	990.2	73°	4239.7	1398.0	83°	5069.2	1920.5
10	3522.6	996.2	10	4252.6	1405.7	10	5084.0	1930.4
20	3534.1	1002.3	20	4265.6	1413.5	20	5099.0	1940.3
30	3545.6	1008.3	30	4278.5	1421.2	30	5113.9	1950.3
40	3557.2	1014.4	40	4291.5	1429.0	40	5128.9	1960.2
50	3568.7	1020.5	50	4304.6	1436.8	50	5143.9	1970.3
64°	3580.3	1026.6	74°	4317.6	1444.6	84°	5159.0	1980.4
10	3591.9	1032.8	10	4330.7	1452.5	10	5174.1	1990.5
20	3603.5	1039.0	20	4343.8	1460.4	20	5189.3	2000.6
30	3615.1	1045.2	30	4356.9	1468.4	30	5204.4	2010.8
40	3626.8	1051.4	40	4370.1	1476.4	40	5219.7	2021.1
50	3638.5	1057.7	50	4383.3	1484.4	50	5234.9	2031.4
65°	3650.2	1063.9	75°	4396.5	1492.4	85°	5250.3	2041.7
10	3661.9	1070.2	10	4409.8	1500.5	10	5265.6	2052.1
20	3673.7	1076.6	20	4423.1	1508.6	20	5281.0	2062.5
30	3685.4	1082.9	30	4436.4	1516.7	30	5296.4	2073.0
40	3697.2	1089.3	40	4449.7	1524.9	40	5311.9	2083.5
50	3709.0	1095.7	50	4463.1	1533.1	50	5327.4	2094.1
66°	3720.9	1102.2	76°	4476.5	1541.4	86°	5343.0	2104.7
10	3732.7	1108.6	10	4489.9	1549.7	10	5358.6	2115.3
20	3744.6	1115.1	20	4503.4	1558.0	20	5374.2	2126.0
30	3756.5	1121.7	30	4516.9	1566.3	30	5389.9	2136.7
40	3768.5	1128.2	40	4530.4	1574.7	40	5405.6	2147.5
50	3780.4	1134.8	50	4544.0	1583.1	50	5421.4	2158.4
67°	3792.4	1141.4	77°	4557.6	1591.6	87°	5437.2	2169.2
10	3804.4	1148.0	10	4571.2	1600.1	10	5453.1	2180.2
20	3816.4	1154.7	20	4584.8	1608.6	20	5469.0	2191.1
30	3828.4	1161.3	30	4598.5	1617.1	30	5484.9	2202.2
40	3840.5	1168.1	40	4612.2	1625.7	40	5500.9	2213.2
50	3852.6	1174.8	50	4626.0	1634.4	50	5517.0	2224.3
68°	3864.7	1181.6	78°	4639.8	1643.0	88°	5533.1	2235.5
10	3876.8	1188.4	10	4653.6	1651.7	10	5549.2	2246.7
20	3889.0	1195.2	20	4667.4	1660.5	20	5565.4	2258.0
30	3901.2	1202.0	30	4681.3	1669.2	30	5581.6	2269.3
40	3913.4	1208.9	40	4695.2	1678.1	40	5597.8	2280.6
50	3925.6	1215.8	50	4709.2	1686.9	50	5614.2	2292.0
69°	3937.9	1222.7	79°	4723.2	1695.8	89°	5630.5	2303.5
10	3950.2	1229.7	10	4737.2	1704.7	10	5646.9	2315.0
20	3962.5	1236.7	20	4751.2	1713.7	20	5663.4	2326.2
30	3974.8	1243.7	30	4765.3	1722.7	30	5679.9	2338.2
40	3987.2	1250.8	40	4779.4	1731.7	40	5696.4	2349.8
50	3999.5	1257.9	50	4793.6	1740.8	50	5713.0	2361.5
70°	4011.9	1265.0	80°	4807.7	1749.9	90°	5729.7	2373.3
10	4024.4	1272.1	10	4822.0	1759.0	10	5746.3	2385.1
20	4036.8	1279.3	20	4836.2	1768.2	20	5763.1	2397.0
30	4049.3	1286.5	30	4850.5	1777.4	30		

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

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
91°	5830.5	2444.9	101°	6950.6	3278.1	111°	8336.7	4386.1
10'	5847.5	2457.1	10'	6971.3	3294.1	10'	8362.7	4407.6
20	5864.6	2469.3	20	6992.0	3310.1	20	8388.9	4429.2
30	5881.7	2481.5	30	7012.7	3326.1	30	8415.1	4450.9
40	5898.8	2493.8	40	7033.6	3342.3	40	8441.5	4472.7
50	5916.0	2506.1	50	7054.5	3358.5	50	8468.0	4494.6
92	5933.2	2518.5	102	7075.5	3374.9	112	8494.6	4516.6
10	5950.5	2531.0	10	7096.6	3391.2	10	8521.3	4538.8
20	5967.9	2543.5	20	7117.8	3407.7	20	8548.1	4561.1
30	5985.3	2556.0	30	7139.0	3424.3	30	8575.0	4583.4
40	6002.7	2568.6	40	7160.3	3440.9	40	8602.1	4606.0
50	6020.2	2581.3	50	7181.7	3457.6	50	8629.3	4628.6
93	6037.8	2594.0	103	7203.2	3474.4	113	8656.6	4651.3
10	6055.4	2606.8	10	7224.7	3491.3	10	8684.0	4674.2
20	6073.1	2619.7	20	7246.3	3508.2	20	8711.5	4697.2
30	6090.8	2632.6	30	7268.0	3525.2	30	8739.2	4720.3
40	6108.6	2645.5	40	7289.8	3542.4	40	8767.0	4743.6
50	6126.4	2658.5	50	7311.7	3559.6	50	8794.9	4766.9
94	6144.3	2671.6	104	7333.6	3576.8	114	8822.9	4790.4
10	6162.6	2684.7	10	7355.6	3594.2	10	8851.0	4814.1
20	6180.2	2697.9	20	7377.8	3611.7	20	8879.3	4837.8
30	6198.3	2711.2	30	7399.9	3629.2	30	8907.7	4861.7
40	6216.4	2724.5	40	7422.2	3646.8	40	8936.3	4885.7
50	6234.6	2737.9	50	7444.6	3664.5	50	8965.0	4909.9
95	6252.8	2751.3	105	7467.0	3682.3	115	8993.8	4934.1
10	6271.1	2764.8	10	7489.6	3700.2	10	9022.7	4958.6
20	6289.4	2778.3	20	7512.2	3718.2	20	9051.7	4983.1
30	6307.9	2792.0	30	7534.9	3736.2	30	9080.9	5007.8
40	6326.3	2805.6	40	7557.7	3754.4	40	9110.3	5032.6
50	6344.8	2819.4	50	7580.5	3772.6	50	9139.8	5057.6
96	6363.4	2833.2	106	7603.5	3791.0	116	9169.4	5082.7
10	6382.1	2847.0	10	7626.6	3809.4	10	9199.1	5107.9
20	6400.8	2861.0	20	7649.7	3827.9	20	9229.0	5133.3
30	6419.5	2875.0	30	7672.9	3846.5	30	9259.0	5158.8
40	6438.4	2889.0	40	7696.3	3865.2	40	9289.2	5184.5
50	6457.3	2903.1	50	7719.7	3884.0	50	9319.5	5210.3
97	6476.2	2917.3	107	7743.2	3902.9	117	9349.9	5236.2
10	6495.2	2931.6	10	7766.8	3921.9	10	9380.5	5262.3
20	6514.3	2945.9	20	7790.5	3940.9	20	9411.3	5288.6
30	6533.4	2960.3	30	7814.3	3960.1	30	9442.2	5315.0
40	6552.6	2974.7	40	7838.1	3979.4	40	9473.2	5341.5
50	6571.9	2989.2	50	7862.1	3998.7	50	9504.4	5368.2
98	6591.2	3003.8	108	7886.2	4018.2	118	9535.7	5395.1
10	6610.6	3018.4	10	7910.4	4037.8	10	9567.2	5422.1
20	6630.1	3033.1	20	7934.6	4057.4	20	9598.9	5449.2
30	6649.6	3047.9	30	7959.0	4077.2	30	9630.7	5476.5
40	6669.2	3062.8	40	7983.5	4097.1	40	9662.6	5504.0
50	6688.8	3077.7	50	8008.0	4117.0	50	9694.7	5531.7
99	6708.6	3092.7	109	8032.7	4137.1	119	9727.0	5559.4
10	6728.4	3107.7	10	8057.4	4157.3	10	9759.4	5587.4
20	6748.2	3122.9	20	8082.3	4177.5	20	9792.0	5615.5
30	6768.1	3138.1	30	8107.3	4197.9	30	9824.8	5643.8
40	6788.1	3153.3	40	8132.3	4218.4	40	9857.7	5672.3
50	6808.2	3168.7	50	8157.5	4239.0	50	9890.8	5700.9
100	6828.3	3184.1	110	8182.8	4259.7	120	9924.0	5729.7
10	6848.5	3199.6	10	8208.2	4280.5	10	9957.5	5758.7
20	6868.8	3215.1	20	8233.7	4301.4	20	9991.0	5787.7
30	6889.2	3230.8	30	8259.3	4322.4	30	10025.0	5817.0
40	6909.6	3246.5	40	8285.0	4343.6	40	10059.0	5846.5
50	6930.1	3262.3	50	8310.8	4364.8	50	10093.0	5876.1

TABLE V.—CORRECTIONS FOR TANGENTS AND EXTERNALS.

These corrections are to be added to the approximate values, found by dividing the tangent, or external, for a 1° curve (Table IV) by the degree of curve, in order to obtain the true tangents, or external. Intermediate values may be obtained by interpolation.

FOR TANGENTS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.03	.06	.09	.13	.16	.19	.22	.25	.28	.31	.34	.38	.42	.46
15°	.04	.10	.14	.19	.24	.29	.34	.39	.45	.51	.53	.58	.63	.68
20°	.06	.13	.19	.26	.32	.39	.45	.51	.58	.65	.72	.79	.84	.90
25°	.08	.16	.24	.33	.40	.49	.58	.67	.75	.83	.90	.99	1.06	1.14
30°	.10	.19	.29	.39	.49	.59	.69	.79	.89	.99	1.09	1.20	1.29	1.39
35°	.11	.22	.34	.47	.58	.69	.79	.89	.99	1.04	1.29	1.42	1.54	1.66
40°	.13	.26	.40	.53	.67	.80	.93	1.06	1.20	1.34	1.49	1.64	1.79	1.94
45°	.15	.30	.44	.60	.76	.91	1.06	1.21	1.37	1.52	1.70	1.87	2.04	2.21
50°	.17	.34	.51	.68	.85	1.02	1.19	1.36	1.54	1.72	1.91	2.10	2.29	2.48
55°	.19	.38	.57	.76	.95	1.14	1.32	1.52	1.72	1.92	2.14	2.35	2.56	2.77
60°	.21	.42	.63	.84	1.05	1.27	1.49	1.71	1.94	2.17	2.38	2.60	2.83	3.07
65°	.23	.46	.69	.93	1.16	1.40	1.64	1.88	2.13	2.38	2.63	2.88	3.13	3.39
70°	.25	.51	.76	1.02	1.28	1.54	1.80	2.06	2.33	2.60	2.88	3.16	3.44	3.72
75°	.27	.56	.83	1.12	1.40	1.69	1.98	2.27	2.57	2.87	3.16	3.47	3.78	4.09
80°	.30	.61	.91	1.22	1.53	1.84	2.15	2.46	2.78	3.10	3.44	3.78	4.12	4.46
85°	.33	.66	1.00	1.33	1.68	2.02	2.36	2.70	3.05	3.40	3.77	4.14	4.55	4.89
90°	.36	.72	1.09	1.45	1.83	2.20	2.57	2.94	3.32	3.70	4.10	4.50	4.91	5.32
95°	.39	.79	1.19	1.55	2.00	2.40	2.80	3.20	3.61	4.02	4.40	4.98	5.38	5.83
100°	.43	.86	1.30	1.74	2.18	2.62	3.06	3.50	3.95	4.40	4.88	5.37	5.85	6.34
110°	.51	1.03	1.56	2.08	2.61	3.14	3.67	4.21	4.76	5.31	5.86	6.43	7.01	7.60
120°	.62	1.25	1.93	2.52	3.16	3.81	4.45	5.11	5.77	6.44	7.12	7.80	8.50	9.22

FOR EXTERNALS ADD

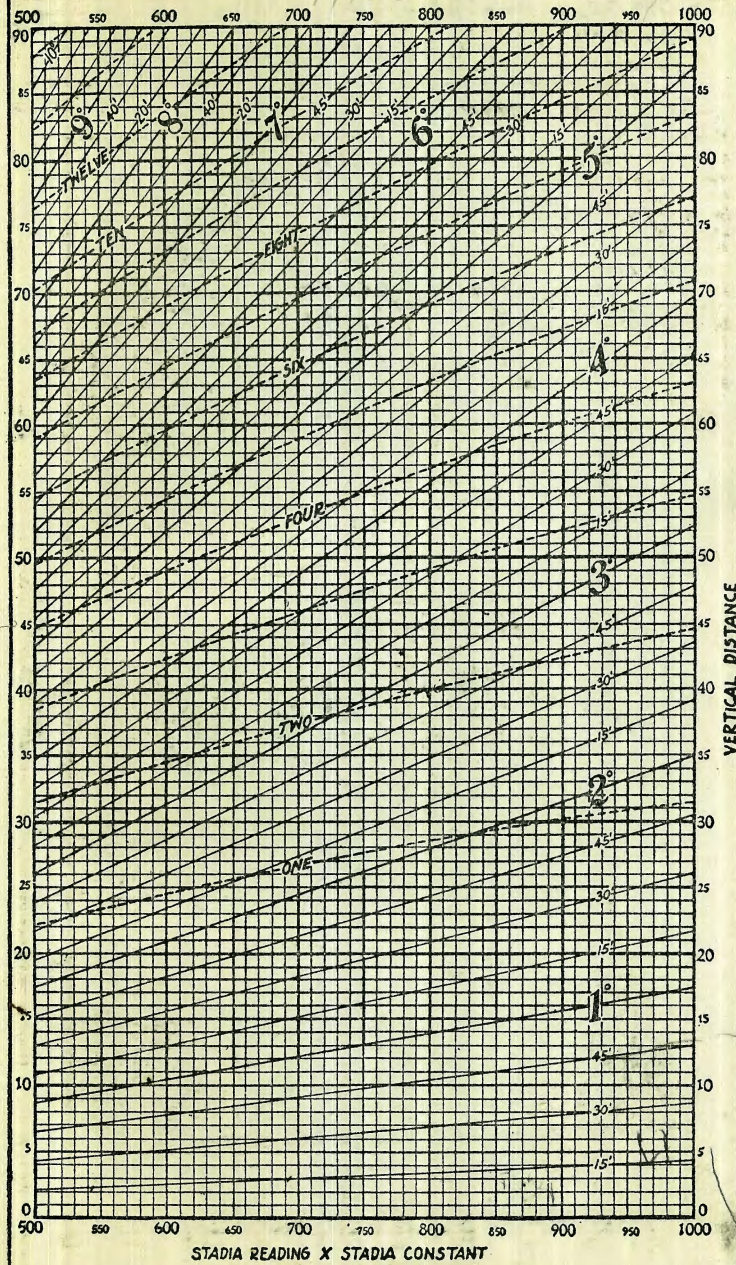
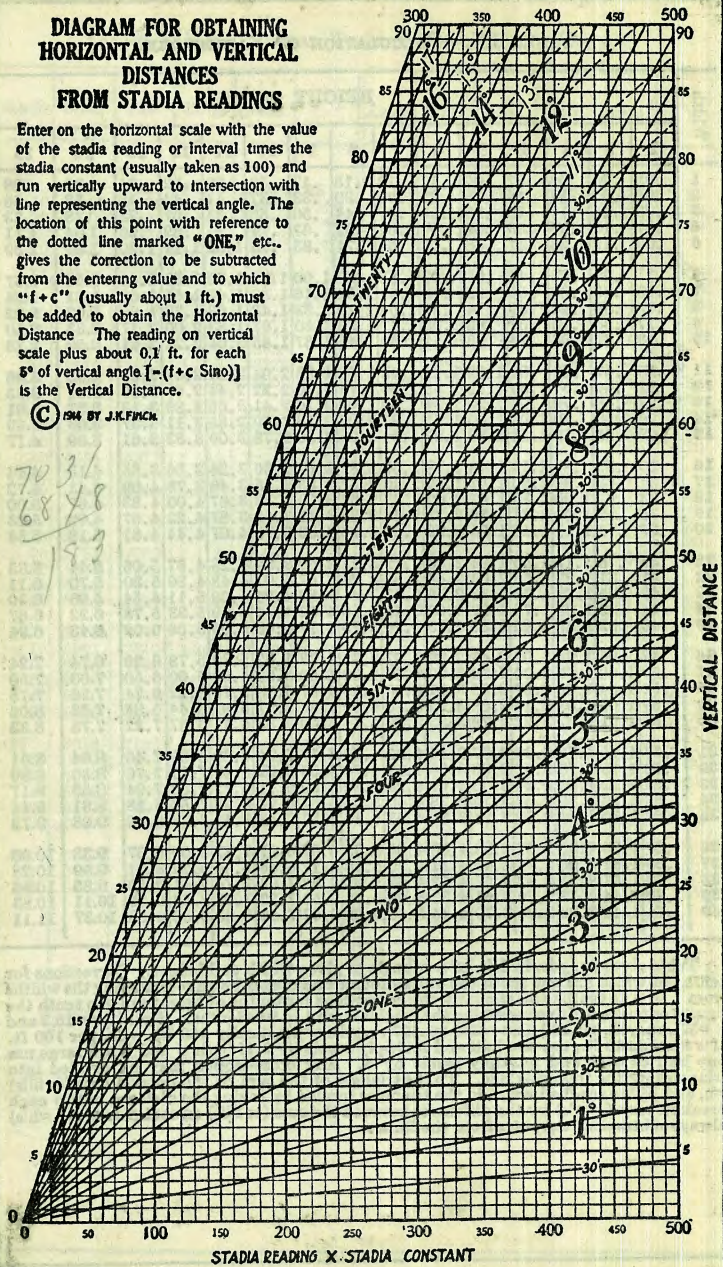
Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.001	.003	.004	.006	.007	.008	.009	.011	.012	.014	.015	.017	.018	.020
15°	.003	.007	.010	.014	.018	.023	.027	.032	.037	.043	.049	.053	.058	.063
20°	.006	.011	.017	.022	.028	.034	.038	.045	.051	.057	.063	.070	.076	.083
25°	.009	.018	.027	.036	.046	.056	.065	.074	.083	.093	.106	.120	.127	.135
30°	.013	.025	.038	.051	.065	.078	.090	.103	.116	.129	.149	.170	.179	.188
35°	.018	.035	.054	.072	.086	.109	.131	.153	.175	.197	.213	.230	.247	.264
40°	.023	.046	.070	.093	.117	.141	.172	.203	.234	.265	.277	.290	.315	.341
45°	.030	.060	.093	.119	.153	.184	.216	.254	.289	.325	.351	.378	.411	.445
50°	.037	.075	.116	.151	.189	.227	.266	.305	.345	.384	.425	.467	.508	.550
55°	.046	.093	.142	.188	.236	.283	.332	.381	.420	.479	.530	.582	.641	.700
60°	.056	.112	.168	.225	.283	.340	.398	.457	.516	.575	.636	.697	.774	.851
65°	.067	.135	.204	.273	.343	.412	.483	.554	.625	.697	.771	.845	.922	1.01
70°	.080	.159	.240	.321	.403	.485	.568	.652	.735	.819	.906	.994	1.08	1.17
75°	.095	.182	.266	.353	.440	.528	.617	.707	.797	.891	.984	1.08	1.18	1.29
80°	.110	.220	.332	.445	.558	.671	.787	.903	1.02	1.13	1.25	1.38	1.50	1.62
85°	.128	.259	.391	.524	.657	.790	.926	1.06	1.20					

**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 [$-(f+c \text{ Sino})$] is the Vertical Distance.

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7031
68 X 8
193



71.82	5071.85
499.93	4408.58
64.41	663.27
26.90	663.06
663.06	.21

19° 05.92

⁶⁰
11.40

11.459 def. pos. ft.

9.6 102+072 - Pav 194

7.7 in clear

65' West of L 102+9185

⁶⁵
103+5685

101+79. = 0.6

9655.33

97.50

97452.83

DISTANCES FROM CENTER OF ROADWAY FOR
CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20 - 16) ÷ 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.

MADE IN U.S.A.

Handwritten calculations and notes on the left page of the notebook. Includes various arithmetic problems, such as $90 \div 13 = 37$, 174 , 172 , 150 , $90 \div 12 = 52$, 360 , 171 , 168 , 210 , $51 \div 29 = 30$, $160'$, $40'$, 183 , 92 , 371.33 , 345.32 , 70.56 , 274.78 , 279 , 38.8 , 66.7 , 91.8 , 281 , $118+36.56$, 274.78 , $124+11.34$, 14.11 , 21.7 , 119.8 , 1032.68 , 37.9 , 1912.89 , $118+36.56$, $51+24.66$, 34.60 , $51+59.26$, 30.83 , 167 , 29.16 ,

Pipe .302 N N Line of Sutherland
M.H. 2' N = 32.2. N
31.4 From E Line
0.6 1160 set 1° off line
Pt is 0.70 S of True
Rt angle to 1160

 $81.64+12$
 96.4
 $102.70+12$