

EL CAPITAN
Pipe Line Survey
Transit — No. 3

W186

Preliminary Survey El Capitan Pipe Line

Transit Notes No. 3

C.M. Boren

Sta. 1133+46 to 1321+99.4

Nov. 6 - Nov. 13

1925 A.D.

Boren's Survey	Page
Stadia Survey by Bissell for relocation	1 to 21
Relocation - "A" Line	23 to 25
Relocation - "B" Line	28 to 47
Levels and Profile on "B" line	55 to 58
Boren's alternate line on Fairmount Ave	59 to 60
	65 - 66

Relocation Surveys and "B" line
levels run by Bissell

MICROFILMED

JAN 8 1965

Dist

2

322.95

1140+30

PI

46°50' L ✓

56°41' E ✓

46°50'
93°40'

193.0 ✓

1140+0

179

1138+51

P.O.T. ✓

8

7

105

6

5

4

1133+46

P.O.T.

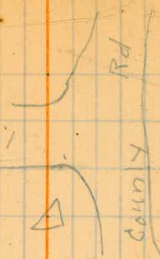
540°04' W

684.0 ✓

Note
Straighten Lin
Sta 1140+30 to Sta 1150+34.6



+26
 +18⁰ Intersoc. A-Line N-End of Bridge Dist
 15-5' R
 +73
 +34.6 PI 54°06'W ✓
 15°52' R
 15°52'30"
 20°45'
 1150+0
 565.4 ✓
 Sunshot Here
 Sighting Forward
 toward Sta 1150+0



+ 26.1 P.O.T.

9

8

7

+59.5 P.O.T.

6

+80

5

4

3

1142+23 5°00'L

511°46'E ✓

56°46'E

5°00'
10°00'

527°45'E

811.6 ✓



Mag

Dist.
314.3

1161+94.7 ✓ 19°25' L

S25°15'E ✓

 $\frac{19.25-50}{38-57}$

Nail R.R. 5' L. Hub

E 3
90°
15' R. Hub

1160+0 ✓

9 ✓

1158+00 ✓ 1°06' L

S5°50'E ✓

 $\frac{1.06}{2.12}$

S21°50'E

394.7 ✓

7 ✓

1156+0 ✓ 4°50' L

S4°44'E ✓

 $\frac{4.50}{11.46}$

200.0 ✓

5 ✓

4 ✓

3 ✓

2 ✓

+ 44 5 - End of Br 15 5' R

S4°06'W

average open

5' x 20

Dist.

2 ✓			
1 ✓			
1170+00 ✓		34° 50' W	
1169+09 ✓	PI 34° 19' R	S 20° 49' W 34° 19' 48° 39' 30"	563.0 ✓
1169+0 ✓	+60		
4			
1167+00 ✓	PI 11° 40' L	S 13° 30' E 11 40 23 20	209.0 ✓
6			
1165+09 ✓	PI 23° 25' R	S 1° 50' E 23° 25' 46° 50'	191.0 ✓
5			
4 ✓			
1/8			
3 ✓	on bank - 3' above E. Edge R.R.	S 41° 15' E	
2			
	S 25° 15' E		

TO

on bank - E of road

36" C.I.P.

 $\Delta + 1 = 90^\circ$  $\Delta + 1 = 4$

18" C.I.P.



Dist.

2 ✓
 1181+27 ✓ 8°27' L
 58°53'E ✓
 $\frac{8^{\circ}27'}{16^{\circ}54'}$
 S 24°55' E 383.0 ✓

1 ✓
 1180+15 ✓ 10°15' L
 50°26'E ✓
 $\frac{10^{\circ}15'}{20^{\circ}26'}$
 S 16°10' E 112.0 ✓

1180+0 ✓

9 ✓

8 ✓

7 ✓
 1176+68 ✓ 17°42' L
 59°47' W ✓
 $\frac{17^{\circ}42'}{35^{\circ}24'}$
 S 6°06' E 347.0 ✓

6 ✓

5 ✓
 1174+72 ✓ 6°40' R
 527°29' W ✓
 $\frac{6^{\circ}40'}{13^{\circ}20'}$
 S 11°50' W 196.0 ✓

1174+70

4 ✓

18' CIP

3 ✓

S 20°49' W

May

Dist.

2 ✓
 1191+00 PI 6°11'L ✓
 544°46'W ✓
 $\frac{6'11''}{12'22''}$
 529°40'W 145.0 ✓

1190+0 ✓
 1189+62 ✓ 14°28'L ✓
 550°57'W ✓
 $\frac{14'28''}{28'56''}$
 538°20'W 138.0 ✓

9 ✓
 + 40
 8 ✓
 1187+76 61°40'R ✓
 563°25'W ✓
 $\frac{61'40''}{123'20''}$
 549°30'W 186.0 ✓

7 ✓
 6 ✓
 1185+10 ✓ 12°38'R ✓
 53°45'W ✓
 $\frac{12'38''}{25'16''}$
 512°15'E 266.0 ✓

5 ✓
 + 95

4 ✓

3 ✓

S8°53'E

36" C.I.P

△ E=16

△ fd E=7°

18" C.I.P

Dist.

2			
+80			
1			
1200+0			
9			
8 ✓			
207 +60 / P.I.	536° 02' W ✓	8° 00' / 16° 00'	S 20° 00' W 568.0
7 ✓			
6 ✓			
1195 +15 / P.I.	544° 02' W ✓	4° 44' / 92° 30'	S 28° 15' W 245.0 ✓
5			
4			
3 ✓			
1192 +45 / P.I.	539° 18' W ✓	5° 28' / 10° 56'	S 23° 20' W 270.0 ✓
	544° 46' W		

18" C) Time
 - Note -
 at 5.05 PM. 120 M merid
 Nov 10-1925.
 with Transit over Hubert Sta 1203+28
 Back sighted on Numb. at Sta 1197+60
 I turned to the left (west) 35° 15'
 where I observed Polaris. at an
 apparent altitude of 33° 03'

Upon this date & hour Polaris
 15 1.02 = (1° 12') East of North.

+ 35° 15'
 1° 12'

36° - 27' = N 36° 27' E = True bearing
 of Tan from Sta 1203+28 to 1197+60

Calculated Bearing as per field notes =

N 36° 02' E = an error of -0° 25'

C.M.B.

Mag

Dist.

1710+17
81
1709+32

Boren
Leach
Reynolds
Simpson

8

+ 21

121170

+ 71

S 12° 20' E

S 3° 10' W ✓

277.1 ✓

PI
1210417 ✓ 12° 51' R

12° 51'
25° 42'

121040

+ 27 Pl. + 00 of "B" line -

19

S 25° 50' E

128
213.0 ✓

S 9° 41' E ✓

1208+04 ✓ 43° 20' L

43° 20'
86° 40'

8

7

6

5

4

PI
1203+28 2° 23' L

S 33° 39' W ✓

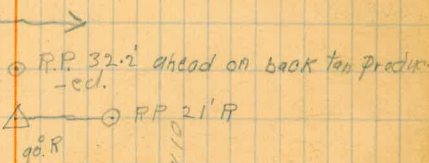
2° 23'
4° 46'

S 17° 35' W

476.0 ✓

3

S 36° 02' W



24" conc Pipe

Dist.

+50 N. Face Park Driv.
 +26 curb line N. side El Cajon
 1219+00 End of concrete Entrance

9

8

7

6

5

4

S 16° 30' E

1213+00

1212+94.1 3° 15' L
 70.6

S 00° 03' E ✓
 curb line $\frac{3' 15''}{62.6}$

677.5^v

+23.5

curb line N. side

st

1212+00

S 33° 10' W

Property line

5' west of E. side of
 Alley.
 At N. end alley bet Fairmount
 & Parkley

△ S. S. Olive St
 Olive St

Mag

Dist.

5A

1227+00

1226+00

1225+00

+94.3

+81.1

+41.2

+29.1

1224+00 00°02'R

1223+00

1222+00

+69.4

+56.3

+16.6

+9.1

1221+00

1220+00

1219+71.6

6-124+012

589°59'W ✓

7000.0

393

1750

589°57'W ✓

428.4 ✓

30°00'R

500°03'E

90°00'
180°00'

573°36'W

Hyd 8'R

Van Dyke ✓

Hyd 8'R

Fouley 43'

Hyd 8'R

1286+00

1285+00

+79.7

+61.8

+22.5

39.3

+10.3

1284+00

POT

1283+00

1282+00

+49.2

+26.9

1281+00

↑
60.3
✓

+86.6

+64.2

1280+00

1279+00

+19.5

+07.2

1278+00

$\phi = 1277 + 86.6$

+66.2

S89°59'W

water cut off on ϕ + curb

$$\begin{array}{r} 1324 + 22.5 \\ 1281 + 42.2 = \phi \\ \hline 29 \quad 71.6 \\ \hline 1470.6 \end{array}$$

$$\begin{array}{r} 1280 + 86.6 \\ 1281 + 06.7 = \phi \\ \hline 20.1 \\ \hline 1277 + 18.1 \end{array}$$

Manlyborough
Steeple

4th Edgware
Road

at d 58

Capeland

+ 69.8

+ 53.3

+ 28

51.8

$$\begin{array}{r} 1760 + 01.5 \\ 259 \\ \hline 1760 + 27.4 = \text{L} \end{array}$$

+ 01.5

1244 + 00

+ 85

1243 + 0

1242 + 00

+ 25.1

+ 10.4

1241 + 00

36.5

$$\begin{array}{r} 1760 + 73.9 \\ 18 \\ \hline 1760 + 92.1 = \text{L} \end{array}$$

+ 73.9

+ 59.9

1240 + 00

1239 + 00

1238 + 00

+ 99.8

+ 84.7

+ 49.3

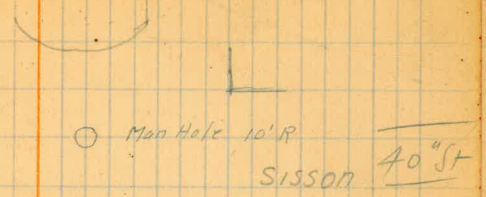
35.4

$$\begin{array}{r} 1237 + 49.0 \\ 17.7 \\ \hline 1237 + 67.0 = \text{L} \\ 21 + 71.6 \\ \hline 1195.4 \end{array}$$

+ 34.7

1237 + 00

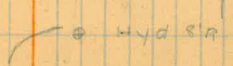
S89°59'W



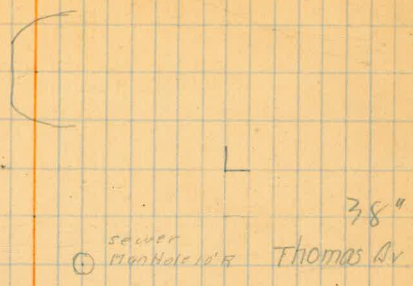
Central Ave



Central 41 ft



Woodrow Wilson T.H.S.



1/2 HYD 8' R



DALEY



+ 09.5
 1252+00
 + 20.1
 + 07.6
 1251+00
 + 8.7
 + 66.1
 + 55.6

↑
 1.5
 ↓

1280+66.1
 20.7
 1280+86.8

1250+00

1249+00

1248+00

794.8
 + 22.1
 + 56.1
 + 42.8
 + 35
 + 30.1
 + 22.7

↑
 22.4
 ↓

1247+22.7
 16.7
 1247+39.4 = 1/2 Reymore

1245+00 P.O.T

S89°59'W

+
 1261+00
 +63 ✓
 +50.7
 1260+00

 1258+00

 1258+00
 +20
 +73.8

 +21.2 ✓
 +05.7
 1257+00
 1256+0
 1255+00 POT
 +44.8
 +31
 1254+0
 +84 35.9
 +95.1 ✓
 +80.5
 1253+00
 1252+75
 +63.9

Prop = 1260+52 $\phi = 1260+82$

$\begin{array}{r} 1267+21.2 \\ 26.3 \\ \hline 1257+47.5 = \phi \end{array}$

$\begin{array}{r} 1253+95.1 \\ 17.9 \\ \hline 1254+13.0 \neq \phi \end{array}$

S89°59'W

Cherokee ✓

Hyd 8'R

374

374 Reed St

Hyd 8'R

(is 5.5' net curb)

McClintock

Man Hole 108

Reed Ave

Hyd 8'R

opposite Entrance of School

127040

1269700

1268700

+65.5

+50.5

+15.2

+01.8

1267700

6

5

1266799 P.O.T

+40.7

+28

1264700

+83.1

+76.2

3

1262700

+15.2

1261703

$$\frac{1267+15.2}{1267+37.8} = \phi$$

35.3

$$\frac{26.5}{27.8}$$

27.8

7

39.9

✓

$$\frac{1263+88.1}{1264+08.1} = \phi$$

S89°59'W

Wilson Bay

HYDR

STORE

36"

HYDR

1279+00

1278+00

60.9

+46.2

+10.9

35.8

$$\begin{array}{r} 1277+10.0 \\ 17.9 \\ \hline 1277+28.3 = \phi \end{array}$$

1277+00

+97.1

6

5

+35.7

+21.6

1274+00

+35.5

+71.8

$$\begin{array}{r} 1273+80.1 \\ 17.8 \\ \hline 1273+97.9 = \phi \end{array}$$

3

2

+10.7

1271+00

+94.2

+42.3

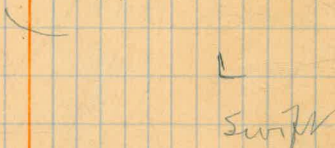
+26.6

$$\begin{array}{r} 1270+42.3 \\ 26.6 \\ \hline 1270+68.9 = \phi \end{array}$$

S89°59'W



Hyd



Hyd 8R

PACIFIC Ave



Hyd 8R

1289+00

1288+00

1287+00 P.O.T.

1286+00

1285+00

+30.8

+14.9

1284+00

+62.9

+45.3

1283+00

1282+00

1281+00

1280+00

+85.9

+71.9

+36.1

+22.1

1280+00

560

$$\frac{1283+62.9}{28} = \frac{1283+90.1}{28} = \frac{1283}{28}$$

35.8

$$\frac{1280+36.1}{17.9} = \frac{1280+54.0}{17.9} = \frac{1280}{17.9}$$

M 65.585

Mission Ave

Mission Ave

Hyd 8'R

33.8

Wabash Ave

Feltm

Hyd 8'R

Dist.

2588.0

1
 PI 1275 + 05 4° 48' L S89° 16' W ✓
 $\frac{4^{\circ} 48'}{936}$

1275 + 00

+ 83.9

+ 52.6

+ 16.4

+ 06.2

1294 + 0

4° 05' R

N85° 56' W ✓

 $\frac{4^{\circ} 05'}{810}$

105.0

Prop line = $\frac{1294}{1504 + 69.8}$

1299 + 00

+ 74.1

+ 81.1

+ 44.6

1292 + 20.3

7

2

1

1290 + 0.0

+ 87.0

+ 73.9

+ 37.4

1289 + 23.5

365 $\frac{1289 + 37.4}{1515 + 56.6} = \phi$

S89° 59' W

Boundary St ✓

Point from Boundary west
 is 385' or so

△

E 59° 11'

approx

Hyd. s.r.

△

3015 + 372

35th St Bancroft

1304+0

1303+00

1302+00

+18.7

1301+00

+98

+45.8

+26.2

1300+00

9

1298+00

+38.4

+19.3

1297+00

+66.3

+49.9

+46.1

1296+00

$$\begin{array}{r} 1300+00 \\ 1301+00 \\ \hline 1302+00 \end{array} = \frac{1300+00}{1301+00} = \frac{1}{1.007719} = \frac{1}{1.007719}$$

 $\begin{array}{c} \uparrow \\ 53.0 \\ \downarrow \end{array}$

$$\begin{array}{r} 1296 \\ 1297+00 \\ \hline 1298+00 \end{array} = \frac{1296}{1297+00} = \frac{1}{1.007719}$$

Illinois St

IOWA St

Hyd. 14 1/2 ft

S89°16'W

1311.0

1310.0

60

1309+0.0

+80.5

+50

+33.2

+08.0

?

$$\begin{array}{r} 1308+0.8 \\ 26 \\ \hline 1308+32 = \end{array}$$

1308+0.0

+82.5

+75

P.O.T

1307+0

1306+0

1305+0.0

+99

+78.3

+73.9

+33.4

+26.4

+10.6

1304+06.4

51.9

$$\begin{array}{r} 1304+26.4 \\ 26 \\ \hline +51.9 = \end{array}$$

S89°16'W

30% SY

S.D.F. R.Y

OK 10 SY

Hyd 16 R

+97.9

+93.1

+53.1

+46.5

+26.8

9

8

1317+00

+39

+18.5

1316+00

+66.8

1315+46.8

5

4

1313+00

+59.6

+39.2

1312+00

+39.7

+66.8

+71.2

1311+66.8

$$\begin{array}{r} 1317+46.5 \\ 267 \\ \hline +97.2 = 0 \end{array}$$

Idaho St

$$\begin{array}{r} 1315+66.8 \\ 25.9 \\ \hline +97.7 = 0 \end{array}$$

Utah St

$$\begin{array}{r} 1311+66.8 \\ 76.2 \\ \hline 1312+139.0 = 0 \end{array}$$

Kansas St

S89°16'W

Hyd 15R

of Idaho = 1319+723

Here 2.20 PM Nov 13-1925.

+ 99.4

+ 98.1

1321+50

1

S00°44'E ✓

106.4 ✓

1320+93 ^{PI} 90° 00'L

+ 18.4

1320+00

S89°16'W

+ Keel + on side of Steel Res.
out edge concrete base

⊙ Hub 3' S. of Edge of
side walk

△ is 5' N of near side
of curb.

11x10³⁰ - Δ L
11x42
11x570 - charge

1138751 Δ L. to abt 1145

11287 Δ R to flag -

1106+68 Δ P.O.T.

1108+00 Δ R to flag on fence cor's -

also ran line-around to Fairmount

1075+45 P.O.T. Δ (30?) to go down hog back -

1068 ←

10x8 Red Fl. \square Turn R (150?)

1003 - Leak up -

984+0 \square Δ R around road

1075+45
980 25
91 - 20

Stadia Survey - Relocation -

118+45 Δ	526° C.	2475
475		
93+70 AR. 10° 24'		610
610		
87+60 AL. 11° 27'		1280
(1280)		
74+80 AL. 4° 51'		1380
(1380)		
61+00 AR. 9° 11'		1300
(1300)		
48+00 AL. 12° 50'		1500
(1500)		
33+00 AR. 3° 01'		590
590		
27+10 AR. 21° 30'		255
255		
24+55 AR. 30° 00'		1100
1100		
13+55 AL. 55° 15'		215
215		
11+40 AR. 5° 44'		450
450		
6+90 AR. 8° 32'		690
690		
984+25	AB. Sta. 980	9890
= 0+00	Stadia Inscr.	

690
1380
205
190
1060
1068
910
8400
1185
2370
100
2475
24

In Flat.

Top of Hog backs

Any R. 100° to 107° of old line = 184 ft.

12/7/15 (P. Bissell -
McCarty -
Ruplinger -
Reynolds)

1015+45

Run Tang. from 48+ to 74+80

Top of Hill.

Slope back to 11+55 - 10° to crk.

440



S4°06'W.

183+35 [R29°15' (to N.S.P.I.) Intersoc - Oldline - 115+19±

535

178+00 Δ L. 3°34' E. Edge Farm. Rd.

440

173+60 Δ R. 14°06' do

525

425

169+35 Δ L. 14°26' do

610

610

163+15 Δ R. 13°38' do

475

475

158+50 Δ L. 28°17' E. Edge Farm. Rd.

60

60

157+90 Δ P.O.T.

155

155

156+35 Δ L. 76°24'

1030

1030

146+05 Δ L. 17°04'

630

630

139+15 Δ R. 25°26'

780

780

131+95 Δ L. 24°00'

1350

1350

118+45 Δ R. 46°50'

265
530

1151+26
675
128

25

1112+50
964 25
128 25

1151+26

6.6

1151+19.2

984+25

166+94

18530

1641

N° End Body - 1151+26.

28° C.

X-Oldline 118+50
R. 46°50'

A line - Re-location - from 980425

8+

7+

6+

5+

4+

3+30 A →
985+85 ← EC

532-51W

1+70

984+25

P.I.

R. 33°00'

10°C
169.7
T = +70.0
E = 24.6
L = 370.0
75' chds.
Det = 195'
12 x 75 = 375
last chd 5'

R = 572.96

682.6
~~672.10~~
~~682.0~~

0+00 A →

987+55

PC = 0+00 A line.

50-09 E

Brissell
McCarty
Reynolds
Raplinger

90 16-30 28

1-15

2-30

3-45

5-

6-15

7-30

8-45 ⊗

10-

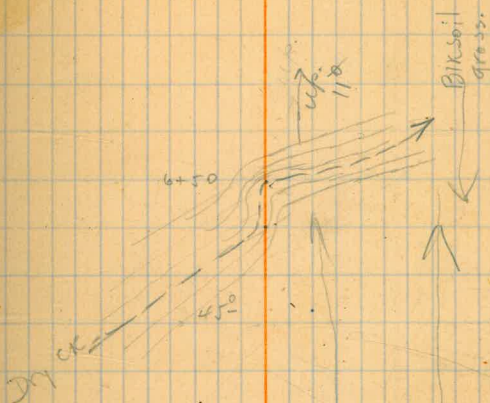
11-15

12-30

13-45

15-

16-15



Top of Hill

Top of Hill

Top of Hill

14+
+22^g P.S.
13+
101
12+89^g P.I. R 4° 40'

+40

12+

11+

10+

9+

153

8+84^z EC8+50^d ○8+42^o P.I. R. 8° 26'8+75^d ○8+00^z P.C.

8+

S45-57W ✓

R 4° 40'

S44-17W ✓

10°C.
T 42^z ✓
E 16^z ✓
L 84^z ✓

R = 572.96.

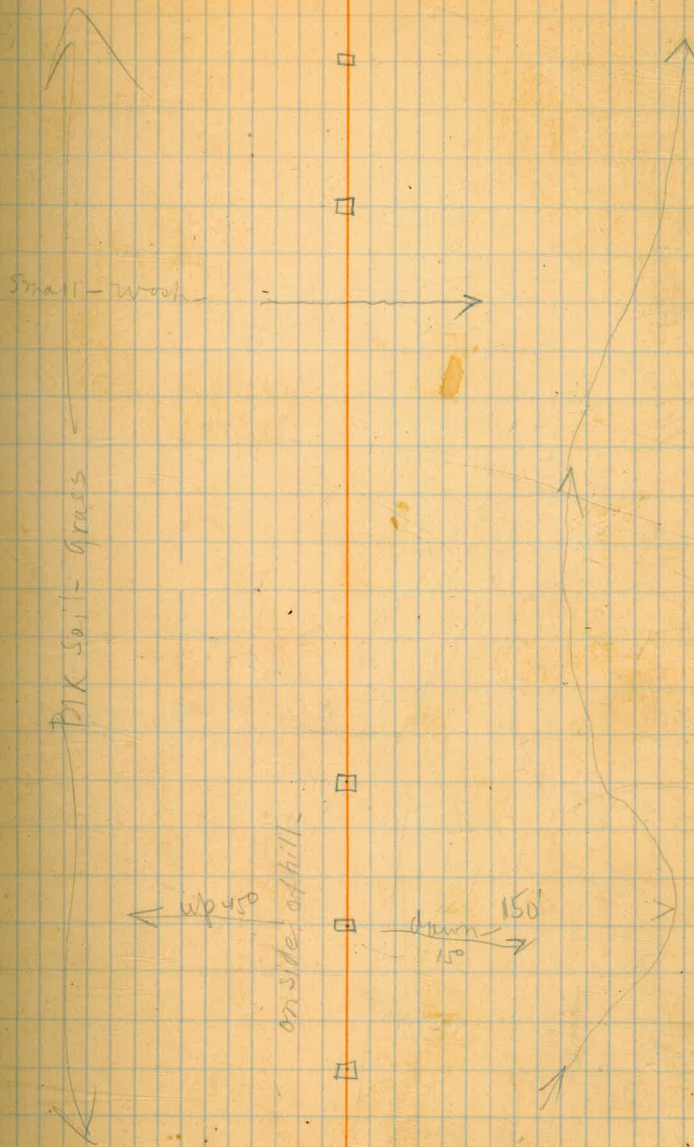
447^z ✓757^z ✓

Small - wash

Dark soil - grass

wp 450

on side of hill

150'
150'

21+
20+
19+
18+
17+
16+60.1
15+05.0
13+22.0
15+

E.C.

P.L.

P.C.

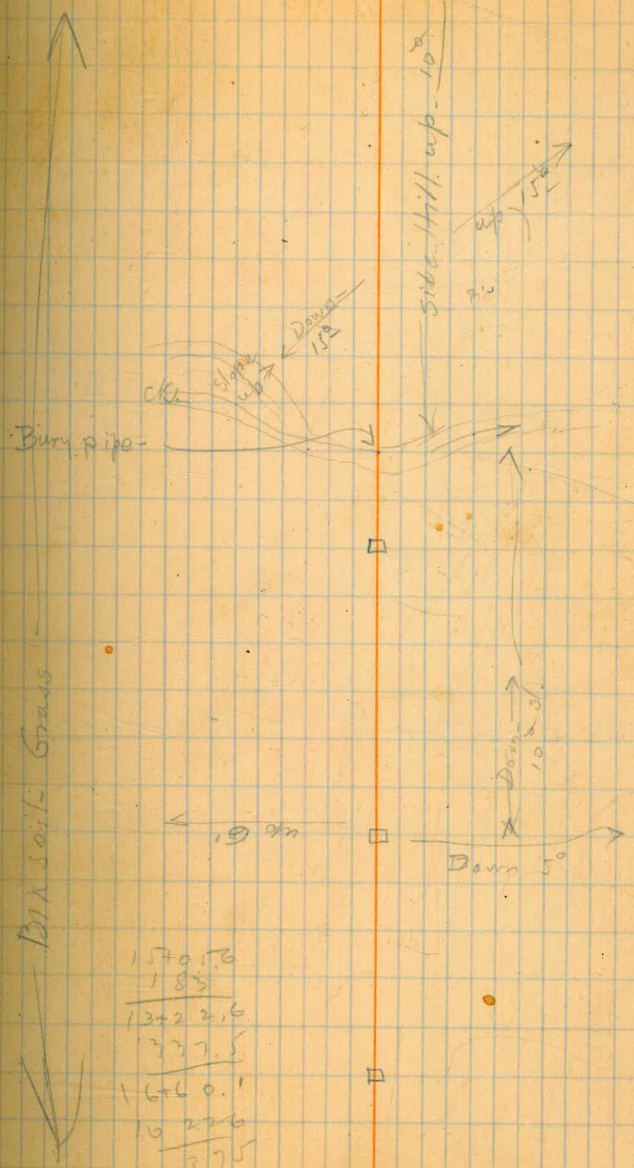
58°03' E

16° C
182.5 ✓
T = 183
L = 337.5 ✓ R = 358.10
E = 43.8 ✓

L 54°00' Day. n' = 200'

25ft chds.

1078.3 ✓



1570.6
185
1342.6
337.5
1660.1
1022.6
375

78.5
29 + 21.5 E.C.

543-10W ✓

100 C
107.3 ✓
T = 107 ✓
E = 10.0 ✓
L = 212.7 ✓
R = 572.96 ✓
25' chds
Def 195'

593° ✓

28 + 16.7 P.I.

R. 21° 13'

268° ✓

27 + 09.3 P.C.

27 + 01.8 E.C.

571-57W ✓

100 C
153.5 ✓
T = 153 ✓
L = 300 ✓
E = 20.2 ✓
R = 572.96 ✓
25' chds
Def 195' each

+55.4

25 + 55.4 P.I.

R. 30° 00'

25

+ 01.8 P.C.

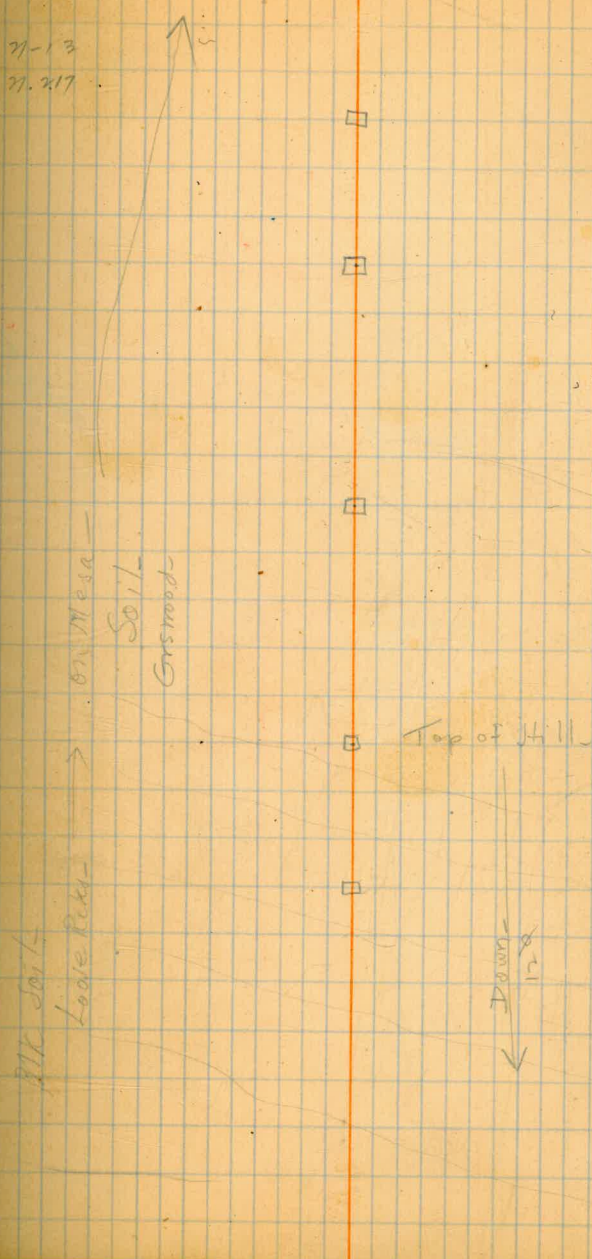
24

23

22 +

100.2
147
21-13
21.217

67.2
2.76



40

39

38

37

36

35

+07.1 P.I. R=300'

34

33

32

31

30

14929 ✓

506-10W ✓

On mesa.

Light Gr. Sage Br.

Med. Soil - Small Rts.

+22

58

57

+40 P.O.T.

56

55

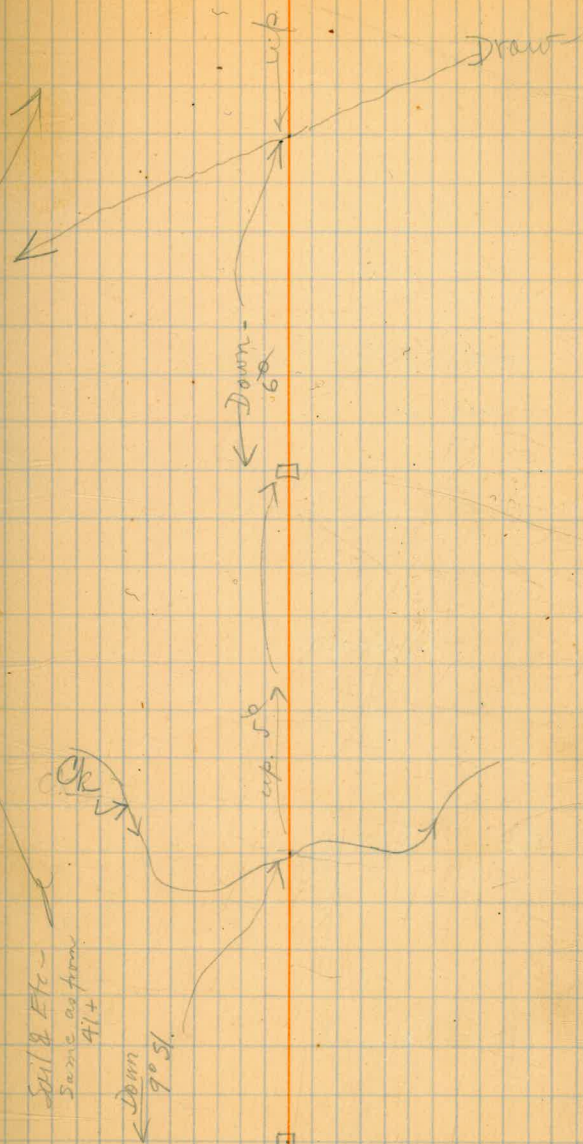
54

53

52

51

50+50 P.O.T.



7071
 6970
 689
 678 add 100 ft to all bay, mid
 67. 2-#66 Sta-
 66
 65
 64 540-10W
 63
 62 P.I. R. 200'
 61
 60
 59

76650 ✓
~~77050~~ ✓

Mesa - Russell - gravelly -

Top of Mesa

up

83

81

80

7980

789

+78

778

767

756

POT.

74

738

723

71

do

mark Small

On Mesa -
do ground

$$\begin{array}{r} 17960 \\ 10915 \\ \hline 7855 \end{array}$$

9091

8990

88+19.8 EC S29-10W

10° C.

T=55°

L=110°

E=2.7

A=572.96

25ft chds

110

88+65 PL

I=110°

88+09.8 PC

87°

86°

85°

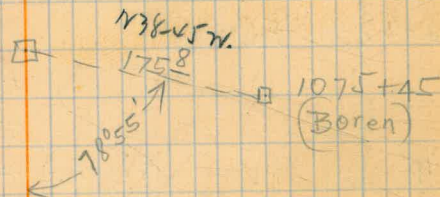
84°

83°

S40-10W

6524

Sail nr. 67.1000



97⁸96⁷

+84.3 P.O.T.

95⁶16.6
95+83.4 E.C.

S. 42-10W

2481.9 ✓

10° C. ✓

T = 65° ✓

E = 32 ✓

L = 130° ✓

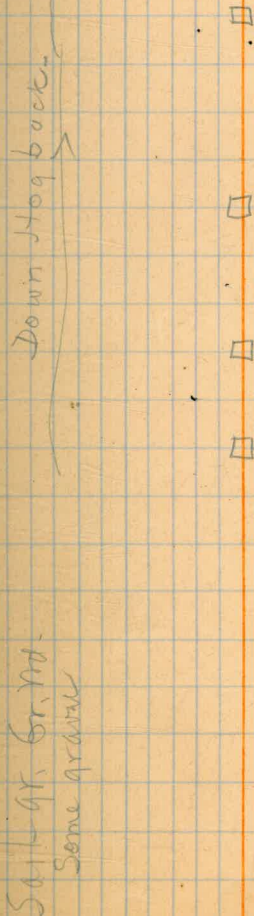
R = 57296 ✓

120
98+18.7 P.L.

R. 13°00'

0.53
94+53.4 P.C.

4A

93⁴92³91²

110
~~109~~

1089

1078

1067

1056

1045

1034

1023

1012

1001m

991m

98100

Sail at 9m hood -
 Some glare!

← In flat

Down the back

121
190+913 F.C.

S82-10W

10°C

208.5 ✓

T=208

H9120 P.L. R40°00' L=400° ✓

+35

E=368 ✓

H8119

16 @ 25 ft.

R=57296

H7118

+913

P.C.

1187

1156

1145

1095+81

1134

1094+81

1122

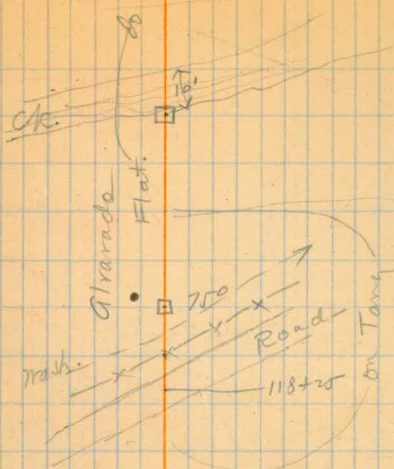
1092+81

111

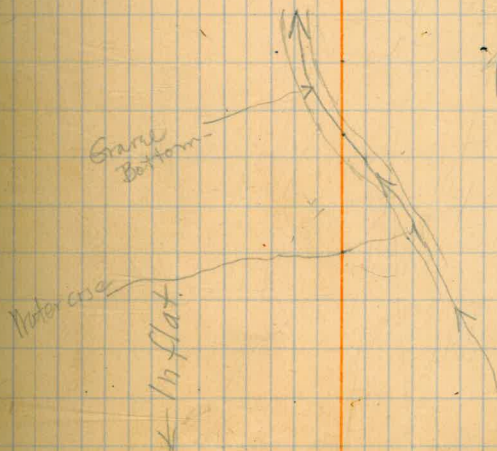
110

11419 ✓

114
2087
1169 1.2
120+962



131+293
120

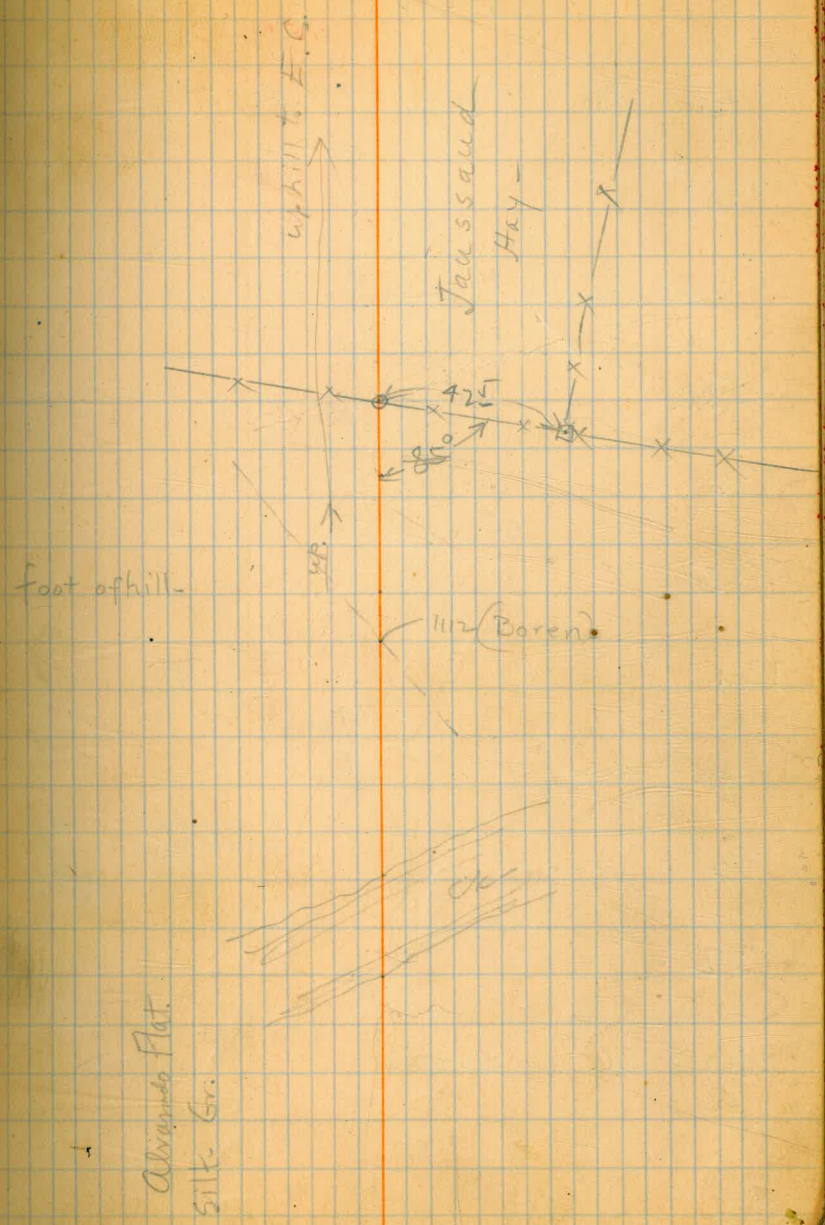


1243 P.I. L 2000'
 101.1
 1301
 + 23.2 P.G.
 1291.2
 1289
 124 +86 Fence.
 1278
 1267
 +25
 1256
 1245
 +09 Wash
 1234
 1223
 121

100 c
 T. TOT = 101.0
 L 2000'
 R = 572.96
 E = 8.8

new line
~~Produce up~~

13024.3
 1011
 12923.2



140
 139+492 E.C. ✓
 586-52W 10° E
 125.4
 T=125.4 ✓
 +78.3 P.I. R 24°42' L=247.0
 = 24.7
 25ft chds.
 R=572.96
 E=13.6

+96.7 Fence.
 +02.7 P.C.
 1378

1367

1356

1345

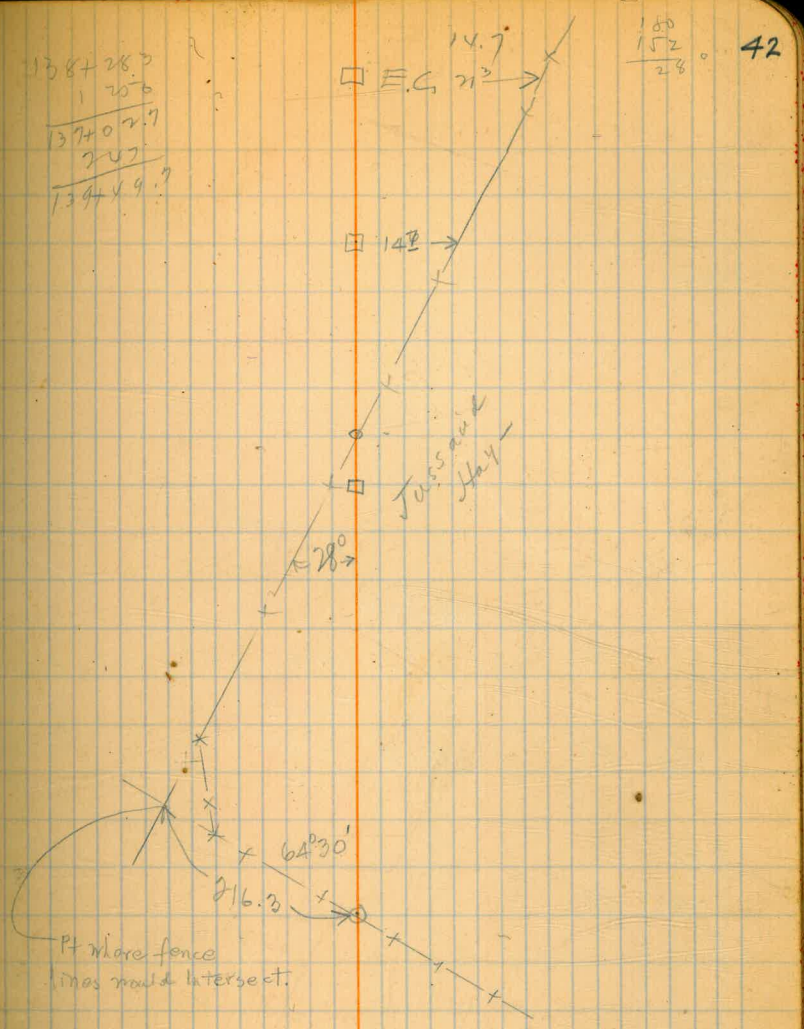
+36.7 Fence

1334

1322

160
 131+232 E.C. ✓
 562-10W

506.2 ✓



149

148

147

146

145 + 144² E.C.

568-52W ✓

10° C.

T = 90.7

L = 180° ✓

E. 7¹ ✓

R = 572.96

+JJ P.I.

L. 18°00'

144

+64² P.C.

143

142

141

140

670⁹ ✓
$$\begin{array}{r} 144 \text{ JJ} \\ 908 \\ \hline 14346 \text{ 0.2} \\ 110 \\ \hline 14456 \text{ 0.2} \end{array}$$

Small Galley

40°

18°

41°

Jusband

12442

112

155+98⁴ E.C.

S. 31-08 E

L. 30°00' 20° C.

T = 200.6

701.6 ✓

+50 P.I.

S 108 E

L 70°00' L = 350° ✓

25' ch. d.

63.2

R = 286.48

154

+88⁵ fence

(+48⁵) X fence on 20° C.

153

+48⁴ P.C.

152

151

150

+04.5 Fence

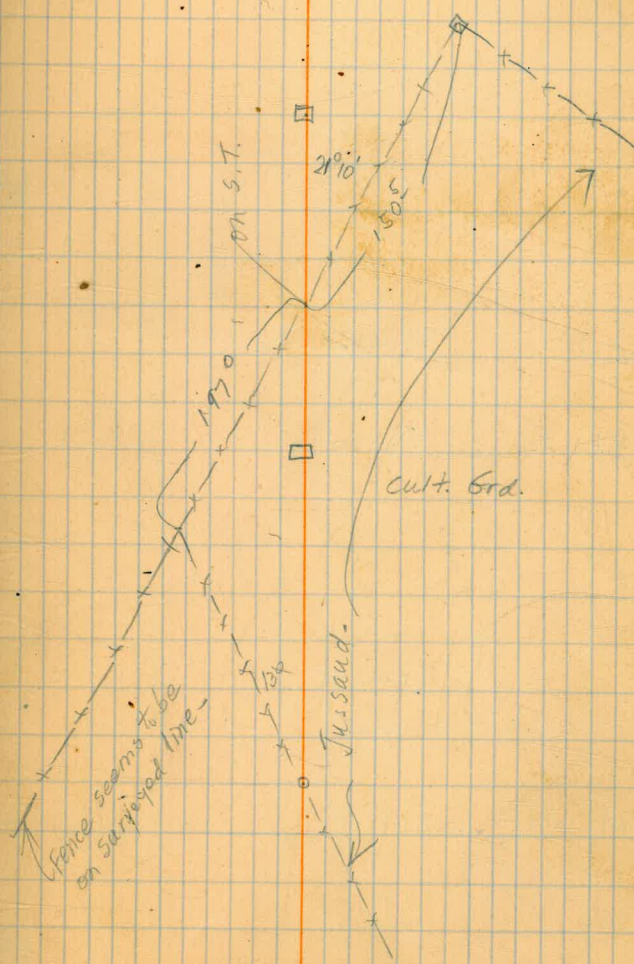
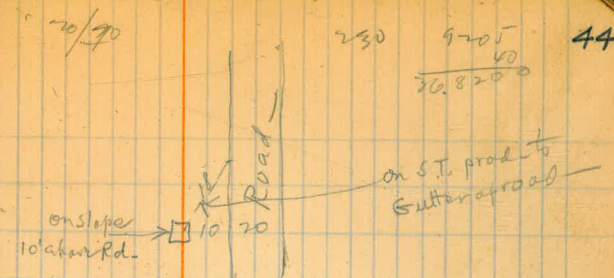
149

148

9.966 ✓

154+50
 201.6
 152+48⁴
 3 50
 155+98⁴ ✓

152+48⁴
 1 75
 154+23.4



166

165

164

163

162

161

S 71° 01' E

+80.1

P.I.

R 13° 20'

160

159

158

S 34° 21' E

in Gut. E. side rd.

+44

P.I.

L 30° 13'

157

607 $\frac{1}{2}$ ✓336 $\frac{1}{2}$ ✓145 $\frac{1}{2}$ ✓

3

4

4

7

7

3 ft.

Gut line

In E. Gut line of road.

+57 P.I. L. 30°27'

175

174

173

172

S71-41E

+20 P.I. R. 13°50'

171

170

169

168

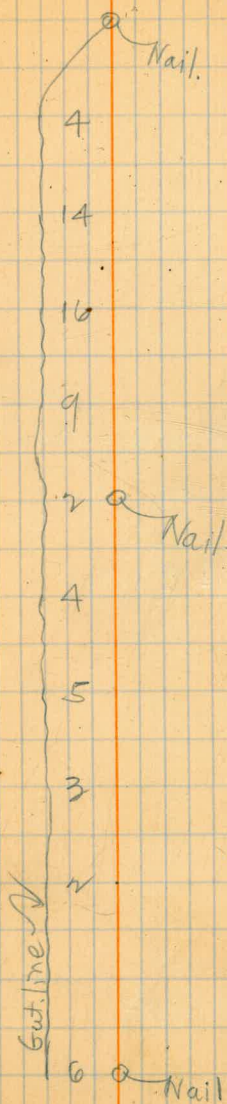
167

S35-31E

166+87° P.I. L. 14°30'

4370 ✓

4322 ✓



$$\begin{array}{r}
 1151 + 18.6 \\
 982 + \sqrt{} \\
 \hline
 168 + 63.6 \\
 181 + 94.6 \\
 \hline
 1331.0
 \end{array}$$

$$\begin{array}{r}
 2 \\
 181 + 23.1
 \end{array}$$

21.8

S4-06W = Bottom S4-06W181 + 01.3 N^o end Base about.

6.7

$$+94.6 \quad A = 1151 + 18.6 \quad R.29^{\circ}14'$$

186

179.180

178.179

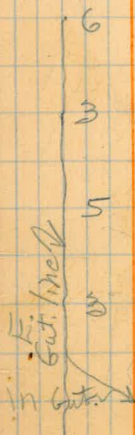
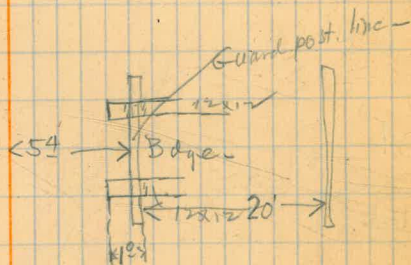
177

176

S25-08E

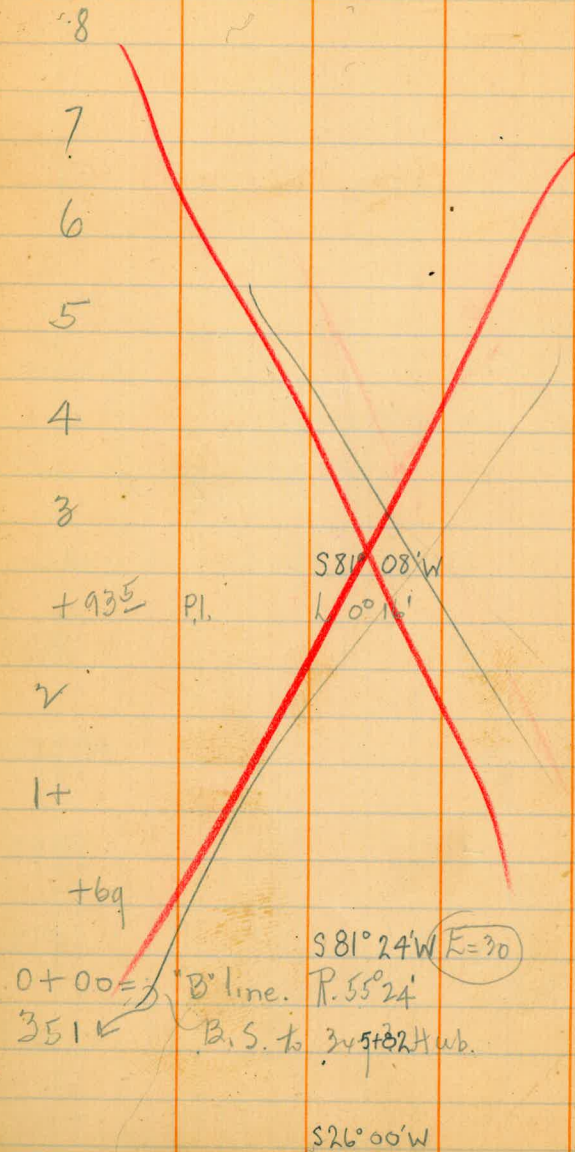
$$\begin{array}{r}
 137.6 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1150 + 34.6 \\
 84 \\
 \hline
 1151 + 18.6
 \end{array}$$



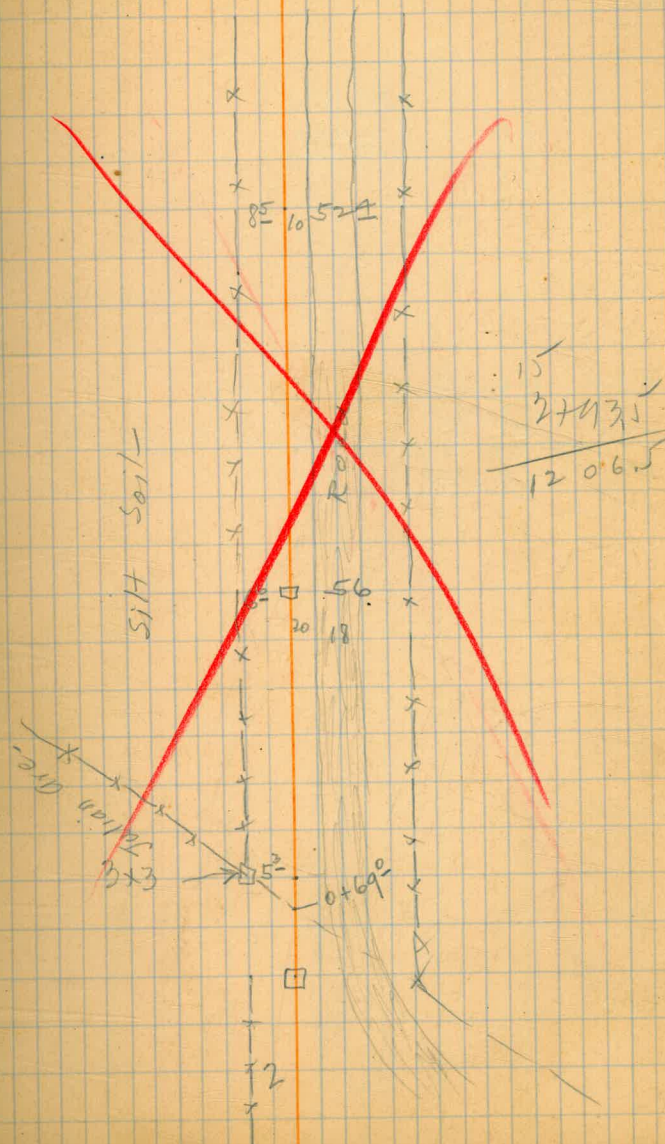
17/1/70
 Russell
 Murray
 Ruppel
 Reynolds

"B" Line - Re-loc. from
 Sta 351+00 to.



1206.5

520.5



15
2+93.5

1206.5

+83^I fence post on line

16

570

10°c

S50°18'W

15

P.I.

L30°50'

+32

+22 N. end Bdge - 10 11' P of line

+09 ~~Site~~ of Wash - cut bot. 8' wide

+04 E. end Bdge

14

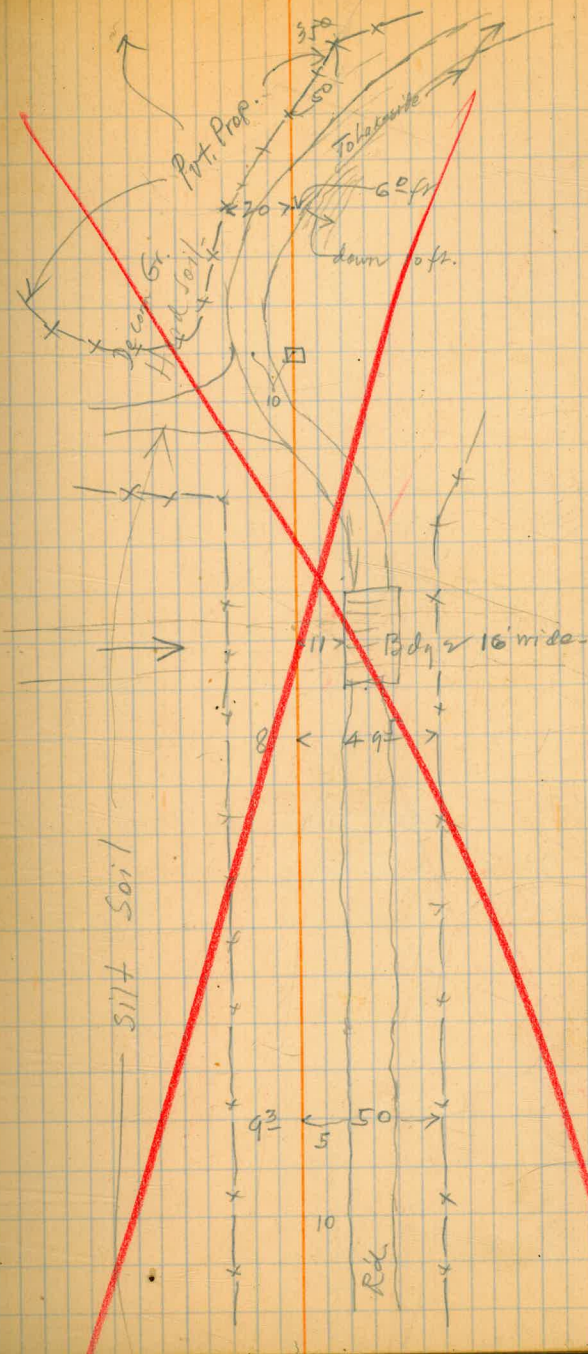
13

12

11

10

9+00



27

26

25

24

23

22

21

170

P.I.

S 40° 58' W

90° 20'

20

19

18

17

807.4

Red soil - Flat



381+32
 30
 30 32
 28 77
 1.5

~~S81°00'W
 R. 40°02' (20°c)
 78+77.4 P.I. ← Intersec. Old line. Sta. 381+32.
 76.1
 +76 Line of Euc. Tr.
 76+01.3 P.O.T.~~

Boren's Bearing S80°59'W

"B" Line Levels

McCarty - Instr.

	+ H.I.	- E.I.
B.M. on Stake # 74779.		
351+20		466.419
5.85	472.271 ✓	
0+00		7.0
1		9.1
2		5.9
+93.5		5.3
4		8.2
5		12.1
T.P.		11.465 460.806 ✓
1.840	462.646 ✓	
6		4.8
7		7.8
8		12.2

	+ H.I.	- E.I.
TP	1.800	462.646
	0.130	462.467 ✓
9		3.0
10		4.5
11		5.5
12		7.2
13		9.8
14		12.8
+09		14.3
+14		13.9
Floor of Bridge		9.4
+50		9.7
15 T.P. on Hub.		8.505 442.967 ✓
	4.236	447.198 ✓
	6.206	441.279

	+	H.L.	-	E.L.
16	6.200	447.198	7.719	4.8
17			9.1	
18			11.6	
19			14.4	
20			7.5	
20+70			4.7	
21			5.4	
22			6.9	
23			9.5	
TP	1.625	439.410	9.413	439.785
24			6.6	
+75.			6.3	
	7.831		40.694	

53

	+	H.L.	-	E.L.
25	7.831	439.410	40.694	9.7
+60			14.7	
26			11.1	
+25			7.7	
27			9.0	
+25			10.3	
+30			14.6	
28+13			14.5	
T.P.	1.873	431.341	9.942	439.468
T.P. on Inter. Sub.			12.310	439.031
+15	8.647	439.674		
28+18			3.4	
	15.924		67.044	

H.I. - E.I.

	15.327	62.944	
TP	424.674	10.459	414.715 ✓
	6.267	20.482	
BM		(2.595)	417.887 ✗
TP		8.876	411.606 ✓
	1.456	413.062	
TP		8.307	404.755 ✓
	4.472	409.179	
BM	79.542	4495	404.732 ✓ 403.676
		95081	
	67.539		1.056
	5.052		
	61.687		
	466.414		
	404.732		

382+20 Euc. Tree 62

S.D.C.G. + F.C. Pole # 76129 Sta 393+00 (M.A. El. 400.81)

"B" Line

0+00 = 1204+32 Orig. line -
 B.S. to 1208+04 - Tang - 1208 to 1207+17
 10' S. 9-41 E.

4+77.3
 #07.3 ← S.H. Meade Ave.
 RS 54-29 S 84-18 W Course of Meade Ave

54+70

43+70

32+70

125³ P.I. R. 10° 00'

2+

+45'

1+

0+15

0+00 R 55° 00'

477.3
 29.1
 448.2

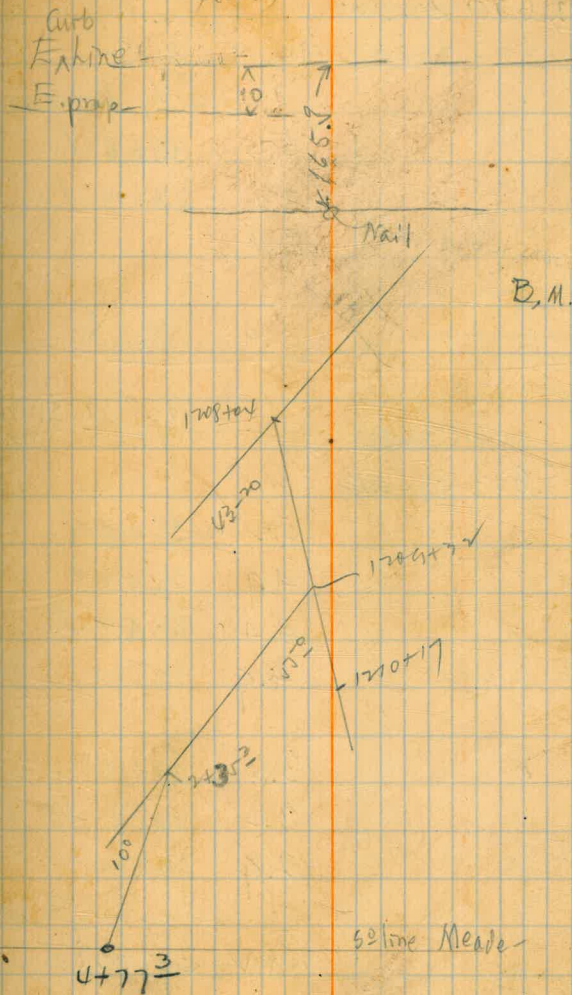
S 84-18 W

S 84-18 W

120
 125
 245

574 60
 9 41
 45-19

35-94
 57-34
 89-58



5707.3
 2453
 444.0

BM	+	T	-	Elev.
				367.803
				- 9.922
				<u>357.877</u>
	12.670	370.547		355.6
		364.4	14.9	355.6
5+07.3				
6+00			9.2	City Datum
1212+43.0			5.5	358.9 ✓
1213+03.4			4.0	360.4 ✓
W.L. on V.D.			2.9	
+ 100'			1.3	
+ 200			0.9	363.6 ✓
1215+68				
T.P.				
		369.1		<u>366.579</u> S.M. Van Dyke + Meado
	8.633	375.212		
1216+28			5.2	363.9 ✓
			4.9	364.2 ✓
1218+78.5			4.4	364.7 ✓
1219+58.5			3.9	365.2 ✓
			3.8	365.3
1221+26			3.2	365.9 ✓
			2.9	366.2
1222+84			2.984	366.1
T.P.				<u>372.228</u>
	6.561	372.670		
		<u>378.789</u>		
		6.119		
			5.5	367.2

367.803 Sewer - Meado 56
Geo. S. Datum -

Sewer Manhole center Meado St.

E. line Van Dyke.
W. " " "

E. line Copeland

W. h. Copeland
& alley
E. h. Edgar Rd.
Paved.
W. h. do

& Alley -
E. h. Marlborough
Paved -
W. h. Marlb.
Cb. S.M. Meado + Marlb.

& alley

367.803
+ 10.151
377.954 = H.I.
- 1449
376.505 T.P.
- 9.926
366.579 - G.S. Datum

Levels - on line
16 ft N^o of 80 Cb.L.

1222+84
182
1224+16

25+488
1222+84.
264.8
132.2
97.0

	+	H1	-	
1225+08 ⁸		372.67 378.789	4.8	³⁶⁸ 367.9
1226+08 ⁸			5.3	^{369.8} 367.4
			4.8	367.9
1228+73.9			5.1	^{Gr=368} 367.6
1229+73.9			4.6	368.1 ✓
			3.5	369.2 ✓
1231+99.2			4.0	368.1
			4.2	368.5
1232+79.2 T.P.				368.0
		378.350	4.657	374.130
10.348		386.473 6.116		
1235+04.8			9.8	368.6
			9.4	369.0
1236+04.8			9.2	369.2
			7.2	371.2
1238+69.7			5.2	373.2
1239+79.3			4.8	373.6

E.L. 41"

Pared

W.L. 41"

E Alley

Dobe

E.L. Cent. av

Pared

W.L. Cent. av

E Alley

E.L. 40"

W.L. ✓

Cb. S. W. cor. Mead + 40"

Gr. S. f. cing

E Alley

E.L. 39"

Pared

W.L. do

E Alley

E.L. 38"

W.L. do

	H.L.	-	
	778.754 784.473		
1241+94.3	3.5	374.9	
1242+54.3	2.0	376.4 ✓	
TP.	1.3	377.1 ✓	
	2.162	382.311 ¹⁹ 396.192	
1251+19.3		380.5 ✓	
✓ +99.3		381.0 ✓	
1258+64.8		384.8 ✓	
1259+74.8		385.0 ✓	
1257+89.9		386.5 ✓	
1257+64.9		386.9 ✓	
1255+146		387.4 ✓	
✓ +74.6		387.2 ✓	
1258+40.1		386 ✓	
1259+70.1		386 ✓	
1261+85.7		387.5 ✓	
1262+45.1 765		387.2 ✓	
1265+40.1		384.5 ✓	
1265+70.1		384 ✓	

Galley - Gr. Surf.

R.L. McClintock -

W.L. do

Ob. S.E. La & Meade Sta

Elev		
1264+35.8	381.0 ✓	EL Felton
+95.8	381.0 ✓	WL ✓
1271+62.7	378.5 ✓	EL 33
1272+42.7	378.5 ✓	WL ✓
1277+37.6	377.0 ✓	EL Bancroft
1277+97.4	377.0 ✓	WL ✓
1280+44.6	380.0 ✓	EL 32
1281+04.6	380.0 ✓	WL ✓
1284+44.6	382.5 ✓	EL Iowa
1285+44.6	382.0 ✓	WL ✓
1288+43.7	381.0 ✓	EL Illinois
1289+23.7	380.0 ✓	WL ✓
1292+74.4	378.5 ✓	EL Ohio
1293+04.4	373.0 ✓	WL ✓
1294+05.8	365.5 ✓	EL 304
✓ +81.8	365.0 ✓	WL ✓
1297+84.8	366.8 ✓	EL Kansas
1300+64.8	367.2 ✓	WL ✓
1303+64.1	368.0 ✓	EL Utah
1304+44.1	368.5 ✓	WL ✓
	375.5 ✓	EL Idw 376° W.L.
1306+80.8		B.C.
1308+68.2		E.G.
1313+78.2		W.L. El Cij
1315+78.2		S.W. ✓

EL 35

WL ✓

EL San Jn

WL ✓

EL 34

WL ✓

"B" Levels

1205+96

	4148	322.603	338.455
0+0	Null-		
0+10-	Δ Edge of Rd.	3.8	338.6
T.P.	0.238	332.664 ✓	10.177 332.426 ✓
T.P.	3.795	320.983 ✓	11.476 321.188 ✓
0+65		5.0	320.0
0+74		7.5	317.5
0+90		6.9	318.1
1+30	T.P.	0.830	324.153 ✓
	11.716	335.869 ✓	
B.M. Hub. 1+30		11.745	324.124 ✓
1+35		9.8	326.1
1+55	T.P.	0.629	335.230 ✓
	6.504	341.732 ✓	
2+		4.7	337.0
+35 ²		5.0	336.7
450		6.0	335.7

El. Nails 338.455

363,850⁵⁹

957
 867
 6657
 5706
 63.717

4+20
 57
 4+77

341.732

2770 110 330.7

3+ 9.8 331.9

+30 37 338.6

T.P.

10.776 350.998 ✓
1.010 340.722 ✓

3+50 10.1 340.9

T.P.

10.566 360.442 ✓
1.122 349.876 ✓

4+20 54 355.0

B.M. - M.H. Carey

2.595 357.847 ✓
357.817
0.030

T.P.

11.569 364.336 ✓
7.675 352.767 ✓0.540 363.796 ✓
0.850
0.054

$$575 + 378.5 = 343.80 = H.I.$$

$$- 5.2$$

$$338.6 = \text{Grd. Sta. } \textcircled{1} = \text{O.H.O. B. Line}$$

Az	Dist	V. A.	
169-00	79.0	-2°5'	W. edge Rd
170-00	46'	-2°10'	✓ ✓ ✓
240-00	54'	+3°30'	✓ ✓ ✓
324-00	23'	+1°	East edge of Road
178-20	91'	-2°40'	✓ ✓ ✓ ✓
113-00	30'	-29°40'	Break in E. slope
101-00	60'	-24°45'	Channel Bottom
125-00	78'	-19°15'	
141-00	56'	-15°44'	E. Toe of slope
140-30	105'	-15°15'	Channel Bottom
148-30	85'	-11°40'	W. Toe of Slope
105-20	83'	-13°30'	W. Toe of Slope
44-00	70'	-16°5'	Channel Bottom
40-00	113'	-9°45'	W. Toe of Slope
62-00	120'	-1°20'	W. Side of "
82-30	76'	-4°0'	" " " "
106-30	103'	-6°0'	" " " "
51-00	166'	+2°0'	" " " Slope
44-20	220'	+0°40'	" " " "
45-20	225'	-0°30'	Side slope of (B. 2 + 35.5)
34-00	162'	-5°30'	Toe of W Slope
39-00	230'	-2°1'	Channel
44-30	240'	-1°30'	Toe of W Slope
48-00	260'	+0°30'	Side of W "
47-30	295'	+7°30'	Top of W "

Horiz Dist	Diff E1	
79	-1.7	335.7 ✓
46	-1.7	336.9 ✓
54	+3.3	341.9 ✓
78	+0.4	339.0 ✓
91	-4.2	334.4 ✓
73	-12.9	325.7 ✓
50	-22.8	315.8 ✓
70	-24.2	314.4 ✓
56	-18.0	320.6 ✓
98	-26.6	312.0 ✓
82	-20.8	317.8 ✓
78	-18.8	319.8 ✓
65	-20.6	318.0 ✓
110	-18.8	319.8 ✓
120	-2.8	335.8 ✓
96	-6.8	331.8 ✓
108	-12.7	325.9 ✓
166	+5.8	344.4 ✓
220	+2.6	341.2 ✓
225	+2.0	340.6 ✓
162	-15.4	323.2 ✓
230	-10.0	328.6 ✓
240	-6.6	331.8 ✓
260	+2.3	340.9 ✓
295	+7.7	346.3 ✓

$$\frac{338.6}{E1}$$

St	Dist.	V. A.	
46-10	340'	+1°30'	Side of W. Slope
42-00	300'	-1°21'	" " "
39-30	325'	-1°0'	Top of W. "
41-30	405'	+3°22'	Top of Slope on line (4+20)
38-20	395'	+1°50'	Side of W. Slope
45-00	385'	+2°30'	Top of Slope N.W. of line.
43-30	287'	-1°20'	At (sta 3)

Horiz Diff
El.

338.6

El.

Horiz	Diff	El.	
340	+8.9	347.5	✓
300	-7.0	331.6	✓
325	-5.7	332.9	✓
405	+16.6	355.2	✓
395	+17.6	351.2	✓
385	+16.8	355.4	✓
287	-6.7	331.9	✓

Nov. 13 1925

Mag

Alternate Line from Sta 1210+17
to Sta 1219+71.6 Via Fairmount Ave.

1218+00

7

6

5

4

1213+38.5

6°48'R

S0°07'W

694.6

6°48'
79°36'

+24.4

1213+00

171.7

791

1212+07.3

43°05'R

S6°41'E

522.05E

131.2

43°05'
86°10'

1212+00

190.3

1211+00

S49°46'E

565.16E

190.3

40°04'30"
30°11'

1210+17.4

40°05'L

S9°41'E

1209+04

in Fairmount Ave S. west of East Curb.

Partly Boren
Reynolds
Simpson
McCarty

65

Note =
In Case this Alternate line is
to be used, it would be well to
investigate the feasibility of
producing this tangent backward
to the intersection of the line.
At same point along the Curb Road.
Boren

Olive St

curb line 5' L

Curb Prop Line 13.5' L
Nail in Road

stake 7' L

Flag

PI
1222+08.3 = 1219+71.6 of Φ
1222+0

1221+00
+ 79.3
+ 68.9
175.2
389°59'W

1220+33.1 89°51' R $\frac{89.52}{179.04}$

+ 11.9
+ 09.3
1220+00
69.6 ✓

+ 87.2
1219+00

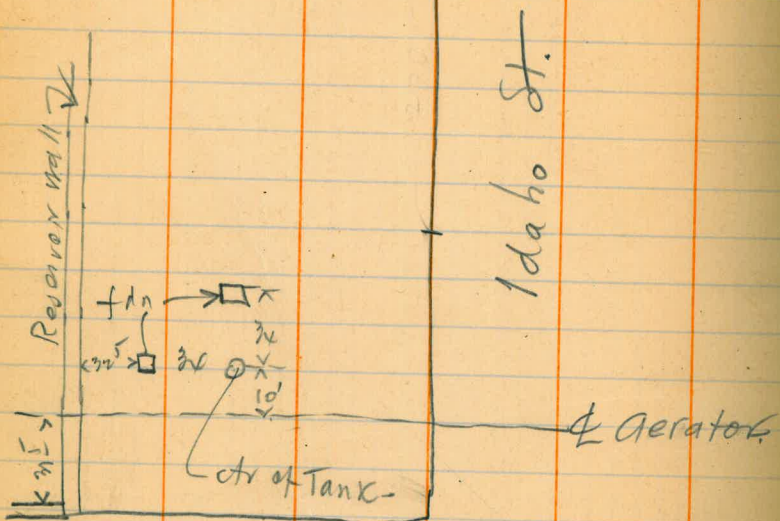
173+38.5
50°07'W

curb line

curb line

PL ID PK

S. L. El Cajon



2/18/76
Exp.

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

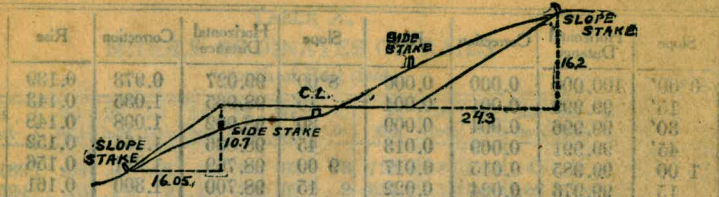
Distance of slope stake from side or shoulder stake for any width roadway, slope $1\frac{1}{2}$ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance

IMPROVED TABLES
AND
INFORMATION

TABLE No. 2.

To find Tangent and External for curve of any other degree divide by degree of curve and add correction found in column of corrections. Degree of curve with a given L may be found by dividing tangent, (or external), opposite L by given tangent, (or external). The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

TABLE XII
INCLINED DISTANCE OF 100 FT. REDUCED TO HORIZONTAL



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

SLOPE 1 1/2 TO 1, ROADWAY OF ANY WIDTH

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	2
3	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	3
4	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85	7
8	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85	9
10	15.00	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	10
11	16.50	16.65	16.80	16.95	17.10	17.25	17.40	17.55	17.70	17.85	11
12	18.00	18.15	18.30	18.45	18.60	18.75	18.90	19.05	19.20	19.35	12
13	19.50	19.65	19.80	19.95	20.10	20.25	20.40	20.55	20.70	20.85	13
14	21.00	21.15	21.30	21.45	21.60	21.75	21.90	22.05	22.20	22.35	14
15	22.50	22.65	22.80	22.95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24.15	24.30	24.45	24.60	24.75	24.90	25.05	25.20	25.35	16
17	25.50	25.65	25.80	25.95	26.10	26.25	26.40	26.55	26.70	26.85	17
18	27.00	27.15	27.30	27.45	27.60	27.75	27.90	28.05	28.20	28.35	18
19	28.50	28.65	28.80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30.00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31.50	31.65	31.80	31.95	32.10	32.25	32.40	32.55	32.70	32.85	21
22	33.00	33.15	33.30	33.45	33.60	33.75	33.90	34.05	34.20	34.35	22
23	34.50	34.65	34.80	34.95	35.10	35.25	35.40	35.55	35.70	35.85	23
24	36.00	36.15	36.30	36.45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37.80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39.00	39.15	39.30	39.45	39.60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40.65	40.80	40.95	41.10	41.25	41.40	41.55	41.70	41.85	27
28	42.00	42.15	42.30	42.45	42.60	42.75	42.90	43.05	43.20	43.35	28
29	43.50	43.65	43.80	43.95	44.10	44.25	44.40	44.55	44.70	44.85	29
30	45.00	45.15	45.30	45.45	45.60	45.75	45.90	46.05	46.20	46.35	30
31	46.50	46.65	46.80	46.95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48.00	48.15	48.30	48.45	48.60	48.75	48.90	49.05	49.20	49.35	32
33	49.50	49.65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51.00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52.50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54.00	54.15	54.30	54.45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55.50	55.65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57.45	57.60	57.75	57.90	58.05	58.20	58.35	38
39	58.50	58.65	58.80	58.95	59.10	59.25	59.40	59.55	59.70	59.85	39
40	60.00	60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	40
41	61.50	61.65	61.80	61.95	62.10	62.25	62.40	62.55	62.70	62.85	41
42	63.00	63.15	63.30	63.45	63.60	63.75	63.90	64.05	64.20	64.35	42
43	64.50	64.65	64.80	64.95	65.10	65.25	65.40	65.55	65.70	65.85	43
44	66.00	66.15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67.50	67.65	67.80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69.00	69.15	69.30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70.65	70.80	70.95	71.10	71.25	71.40	71.55	71.70	71.85	47
48	72.00	72.15	72.30	72.45	72.60	72.75	72.90	73.05	73.20	73.35	48
49	73.50	73.65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

Computed by L. Leland Locke.

$f = 2.00$ E 740
187 46

8.7
174

125.3
+
127.1



125.3
2
1
125.6

10° C. Defl = 5° for 100'
 = 11° = 1°15' for 25' ch do.

8111
 687

200.6
 401.9
 102
 402.1 = T

121294.1
 121017.0
 277.1

16/54 (337) 51208 = E.
 48
 60
 48
 120
 5122 45
 8030
 16-15

121294.1
 1211270
 173.1

4634
 4004
 6.30

1126.5
 2
 253.0
 253.3

46.32
 4004
 6-46

15705.6
 12249.9
 215.7
 182
 32.7

2(401.2
 200.6
 100
 T 201.6

126.5
 63.2
 63.5 83.7
 401.2 7.3
 2 91.0
 802.4
 1.02
 803.4



DISTO 1203728 5 PM Herangte BS 350 13

792 8.26
 1070.6 8.43
 8.6
 3
 25.80
 10
 79.3

1070.6 20.7 291.4
 26 2 292.2
 1073.2 20.7
 1074 1505
 125.0
 41.5

164.7
 3
 170.0

922.25
 170
 982.5
 330
 854.85

4258
 8524
 4714
 1.8
 25

417.4
 5
 2.22
 15.5
 16/291.92 (182.5)
 16
 131
 128
 29
 32
 44

Sto
 Discor
 Rev
 p
 d
 3.02 30"
 3.08 30"
 20° 04' 00"
 18° 00'
 48' 13' 30"
 49 51 30"

Nov 9