

1088

W175

DEWEY

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ENGINEERS

FIELD BOOK

No. 403

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1088

# 1088

## 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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Return this book to City Engineers  
Office San Diego

# 756 FS 755 Thursday Sept 1-1941

T = H V Rt to Sub

357 139.41 27°49' D

358 350.06 27°14' R.

140.00

255.4

144.3

111.1

1088

MICROFILMED

JAN 6 1965

**ADOLF FRESE OPTICAL CO.**  
Engineering and Drafting Supplies  
Scientific Instruments and Repairing  
546 SOUTH SPRING STREET  
LOS ANGELES, CAL.

## San Diego River

Tie to sec 5-6-7-8	Page 4
Tie to N $\frac{1}{4}$ sec 7	" 5
Continuation of 160 Contour line	" 7-13
Tie to sec 4-5-8-9	" 15-16
Tie to N $\frac{1}{4}$ sec 9	" 17-18
Tie to S $\frac{1}{4}$ sec 33	" 19-20
Tie from from sec Cor 4-5-29 to 8-9-17-16	" 21-22
Tie to S $\frac{1}{4}$ sec 8	" 23
Tie from $\frac{1}{2}$ Chocolate to (160 Contour line at)	" 24
Tie to W $\frac{1}{4}$ sec 22	" 25
Continuation of Traverse of Chocolate Creek $\frac{1}{2}$	" 53-54
Continuation of Traverse of San Diego River $\frac{1}{2}$	" (63-74)
also tie to sec Cor 4-5-8-9	" (76-77)
Flx line from $\frac{1}{2}$ San Diego River from Sta 429+75	Page 98 $\frac{1}{2}$
Solar Obs.	" 75
Tie to Cor sec 15-16-21-22	" 26
Tie to Cor Secs 15-16-21-22-14-23	" 27
Tie to S $\frac{1}{4}$ Cor sec 28	" 29
Traverse of Cuyamaca Flume thru	
Sec. 7 & 8 T15 S R2 E S.B.M.	30-37
El Capitan Project - Survey of W.L.	
of Tract owned by Fletcher	38
Flume Location West of Siphon in	
Chocolate Creek	39-40

		Page
Traverse	San Diego River	64-77
"	Chocolate Creek	53 54

9989  
 3  
 299.67  
 310.75  
 3040 610.42

44+48.9  
 37+59.0  
 687.9

N<sub>0</sub> S F W

44+48.9 6°01' L 584°11' E

78.68

774.08  
772.30

689.9

37+59.0 23°40' L 578°10' E

141.47

675.24

759.0

30+00 24°10' R 554°30' E

440.75

617.91

830.8

24+69.7 25°30' L 578°40' E

163.27

814.60

1858.45

3+10.75 36°50' R 553°10' E

1114.10

1487.50

310.75

0+00 True Course East

00

00

310.75

Williams  
 Banker June 16-1921  
 Riddle

79-60  
 36-50  
 52°10'  
 25°30'  
 78-40  
 24-10  
 54-30  
 73-40  
 78-10  
 60-01  
 84-11

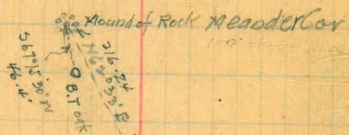
62 33 00  
 40 2 30  
 67 1 5 30

Traverse of S.O. River from  
 EL Cajon Grant Line to Int.  
 with 160' Contour Elev. 713.17

S 1433.07 E 3255.77

78°40'  
 32°47'  
 117 27  
 6233

OK. 1177.64 S. of P. of Bay  
 2804.74 E of P. of Bay.

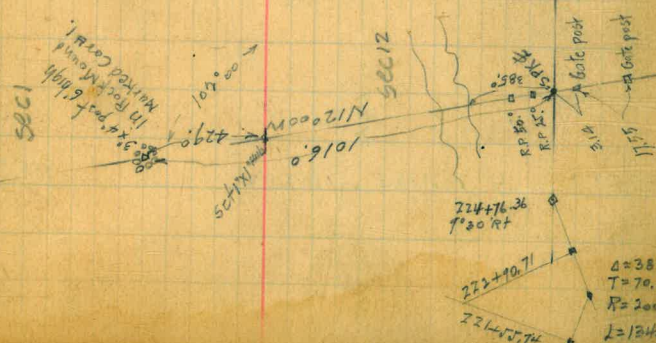


S 1433.07 E 3355.77

1st Hub

2nd Hub

Mag. Var. 15°00'



224+76.36  
 7°30' R  
 222+70.71  
 224+75.74  
 Δ = 38°40'  
 T = 70.17  
 R = 2000  
 L = 124.97

98+04.1  
95+65.2  
✓ 38.9

56.07

N S E W

Sec Page 62 for line continued

101+10.0

N 84° 23' E

98+04.1 Hole # Y Site No.

95+65.2 J 6.27 L N 80° 09' E ✓  
N 80° 10' E

88+85.6 Pot

86+55.7 44947 R 543° 24' E

85+62.3 Pot

85+41.25 Int Sec. Line (see page 4)

85+28.0 41494 Pot

77+19.2 Pot

76+34.4 Pot Int Axis Site No 2

60+17.3 9° 13' R 588° 11' E X 79.59 2509.5

58+70.3 82° 36' L

52+25.2 13° 13' L N 82° 36' E X 102.02

2170.8 from Rank Line

60+17.3

52+25.2

584° 11' E  
13 13  
97 24  
N 82° 36' E  
9° 13'  
91 49  
588° 11' E  
440 47  
43 74  
56 27  
77 51  
80 99

25+28.0  
77 19.2  
80 85  
17 01.9  
25 10.7

52+25.2

444 48.4

792.1

7 76.2

60+17.3

60+17.3

45 10.7

60+17.3

1 47.02

58 70.3

1986

46.2

203.2

1971.4

9932

3828

5742

17226

17226

190.09848

2369

19977

16583

19010

21321

236.35

21321

456.45

23635513

298.86

5000

725.31

2922600

300.00

2174

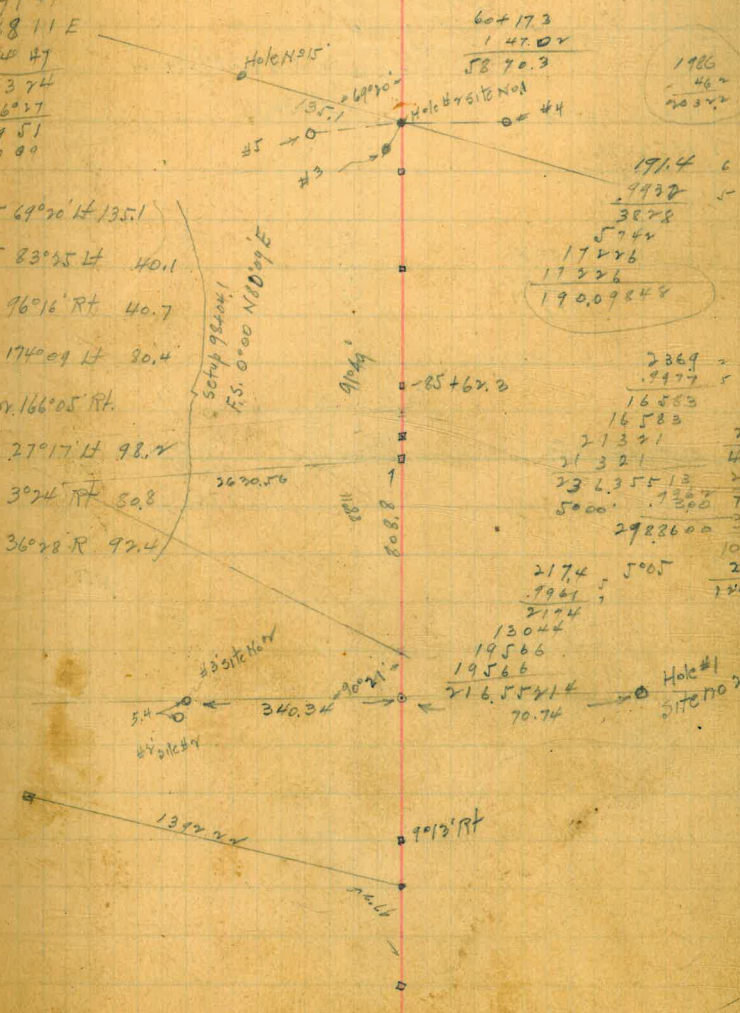
5005

1025.31

216.55

1241.86

#15 69° 20' L 135.1  
#5 83° 25' L 40.1  
#4 96° 16' R 40.7  
#3 174° 09' L 30.4  
1/2 Cor. 166° 05' R.  
#6 27° 17' L 98.2  
#1 30° 24' R 50.8  
#7 36° 28' R 92.4



47+19.20  
842.95  
8562.15

842.95  
80.80  
762.15

77+19.4  
80.8  
7800.0

98°46  
36.50  
135°36  
44.24

762.15  
2.8820405  
9.9967919  
2.8852486 767.80

46024 17678 = 36°50' : X  
2.8852486  
9.777815  
2.6630301  
9.8248891  
2.8181410. 657.87  
389.32  
1047.19



62.15  
20.20  
41.95

36.9 29.40 11.6

11.6  
5214  
869  
669  
10.0800

392.15  
2.83  
389.32

101 0.0042214  
32 9.9822938  
1.9866152  
96.965  
101 0.0042214  
Cos 9.4468927  
9.4512141  
28.263

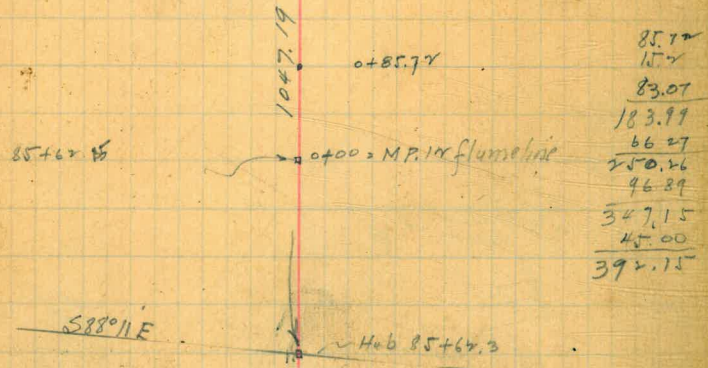
3492.15

10.10



33°50 83.07  
28°13 75.4 =  
88.12  
1504  
752

6016  
6016  
8676 624  
14°20' 100



85.12  
15.4  
83.07  
183.97  
66.27  
250.26  
46.89  
347.15  
45.00  
392.15

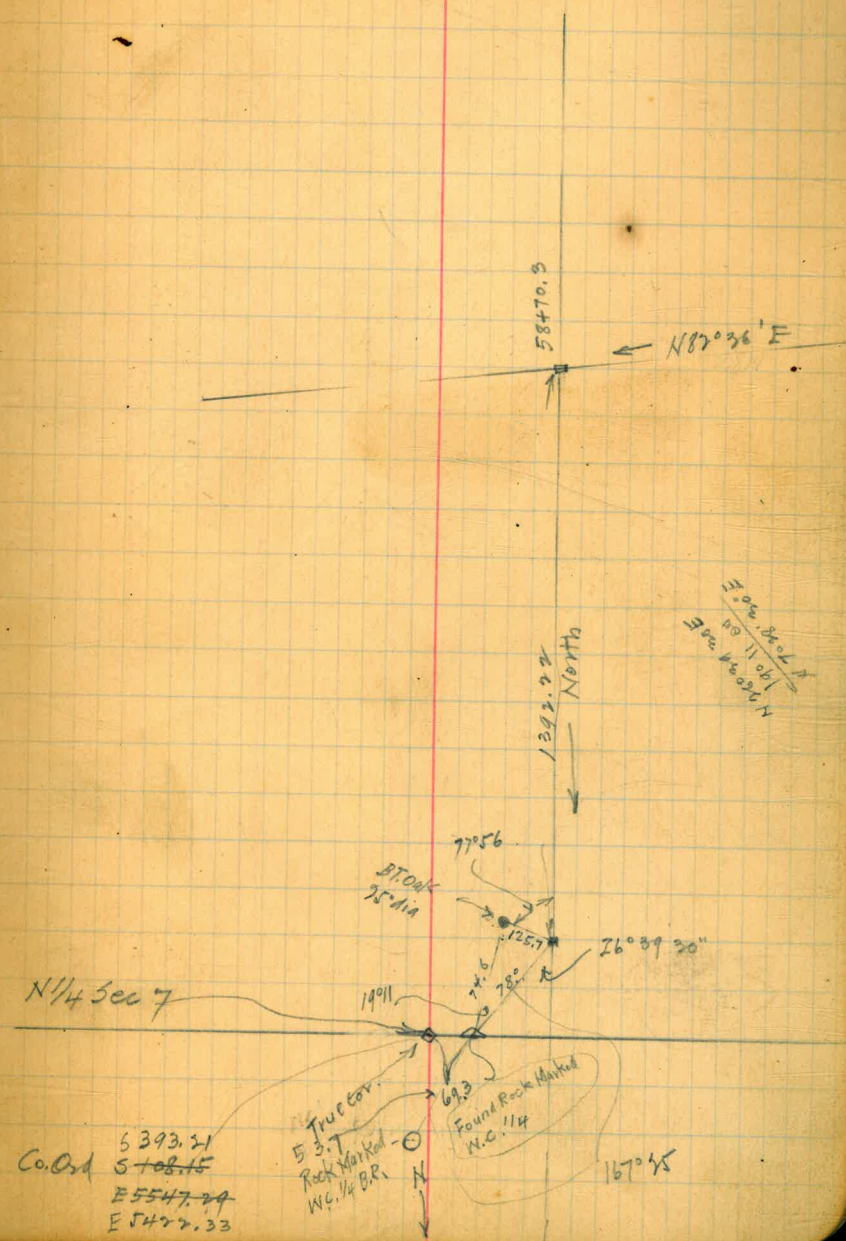




Tie to N<sup>1</sup>/<sub>4</sub> Sec 7

5

5



N<sup>1</sup>/<sub>4</sub> Sec 7

Co. Ord  
 5393.21  
 5708.15  
 E5547.79  
 E5477.33

5 3/4 True Elev.  
 Rock Marked  
 W.C. 1/2 B.R.

Found Rock Marked  
 N.S. 114

167°45'



Traverse of (160' Contourline)

N7°55' W 716	6	82.3
N15°51' W 715	5	118.2
N57°53' W 714	5	74.9
N47°51' W 713	5	94.1
N31°57' W 712	5	72.4
N22°43' E 711	5	163.0
N6°03' W 710	5	91.2
N5°39' E 709	5	107.5
N20°01' E 708	5	127.8

554°03' W 4

725 ✓

562°27' W 7

726 ✓

574°43' W 6

723 ✓

N 86°40' W ✓ 6

724

N 84°24' W <sup>gone</sup> set Mar/ 6

721

N 51°54' W ✓ set 6

720

N 19°33' W ✓ set 6

719

N 5°16' E <sup>gone</sup> 6

718

N 23°53' E <sup>gone</sup> 6

717

x 169.4 x 54.4 x 73.8 x 123.5 x 115.7 x 203.7 x 63.6 x 82.6 x 139.7

83 84  
51 52  
32 30

51 54  
19 33  
32 21

554 N 69° 53' W

725 734

8

562° 558° 03' W

726 733

8

574° 567° 27' W

723 732

8

N 86° 572° 06' W

724 731

7

N 84° 523° 22' W

721 730

7

N 51° 561° 04' W

720 729

7

N 19° 580° 01' W

729 728 ✓

7

N 5° 589° 41' W

718 727 ✓

7

N 23° N 85° 15' W

717 726 ✓

7

x 73.0 x 81.5 x 36.0 x 43.5 x 139.3 x 85.8 x 99.2 x 212.9 x 116.9

S54°58'W

9

743

S58°50'W

9

742

N63°56'W

9

741

N40°45'W

9

740

N35°08'W

9

739

N77°48'W

8

738

N58°48'W

8

737

N70°35'W

8

736

N78°35'W

8

735

\* 57.6 \* 83.2 \* 110.6 \* 107.8 \* 108.7 \* 86.2 \* 110.4 \* 158.4 \* 64.9

N 45° 23' W

10

752

N 50° 46' W

10

751

N 58° 44' W

10

750

N 74° 15' W

10

749

N 86° 58' W

10

748

N 81° 21' W

9

747

N 62° 27' W

9

746

N 56° 53' W

9

745

N 60° 44' W

9

744

x 76.3 x 82.9 x 143.2 x 65.7 x 85.0 x 116.5 x 109.9 x 92.6 x 124.6

Cross Dam site #1 - 60' past Sta. 746

Below flume trestle # 162

N60° 01' W

762

N549° 41' W

761

N67° 57' W

760

West

759

N80° 35' W

758

N75° 00' W

757

N48° 35' W

756

N58° 03' W

10

755

N56° 52' W

10

754

N52° 11' W

10

753

x 75.2 x 106.4 x 54.5 x 25.4 x 47.8 x 70.2 x 129.5 x 57.8 x 58.6 x 48.4

Solar N58° 12' 40" W  
Set on N58° 14' 40" W ahead



771 =  
Hole #3 Site #4

N1°20'E = N1°28'E original

770 =  
76+34.4 Base line or beginning of Survey

N2°27'E

769

N71°44'W

768

N82°28'W

767

N83°15'W

766

N53°34'W

765

N72°12'W

764

N41°01'W

763

x 68.6 x 68.2 x 115.1 x 153.0 x 148.1 x 183.5 x 417.52 x 340.34 x

10'44" Rt  
0'41" Rt

S88°19'E on baseline 13  
S88°11'E

- 1- 75.8 27°22' 46.34
- 2- 188.0 31°06' 160.98 N1°20'E from 76+34.4
- 3- 191.7 7°08' - to 76+34.4 190.22 To Test Hole #
- 4- 100.6 4°04' 100.32 Streamflow stake

Sta 769 Int. Dam Site #2 South side 160 ft Contour Line

777

683  
 6.8  
 689.8  
 7+27.7  
 6.8  
 7+34.5  
 9+57.6  
 6.8  
 9+94.4

6+42.1  
 6+35.3  
 6.8

Tie to sec 4-5-8-9

Sept 7, 1921

Williams  
 Edwards  
 Harlan  
 Hodgert

255.4

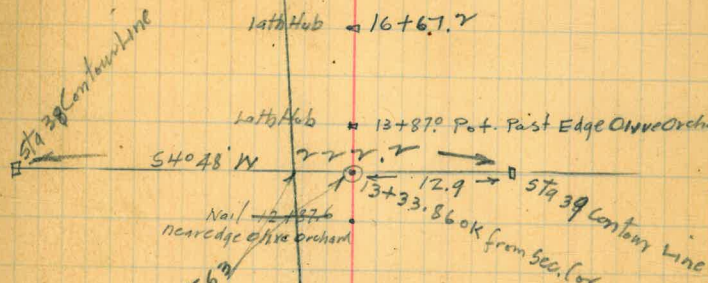
17+57.6  
 91.4  
 1387.0

15

19+30.0 Lath Pot

Lath Hub 16+67.7

Lath Hub 13+87.0 Pot. Past Edge Olive Orchard



Nail 12+87.6  
 near edge of Olive Orchard

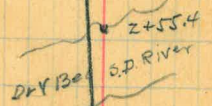
9+94.4  
 11+87.6 Lath in Olive Orchard

7+34.5  
 7+27.7 Lath Pot

6+89.8  
 6+83.0 Lath Pot. Sec. Cor

Nail 6+35.30 Pot 6+42.1

Nail 6+33.0 53.80



2+55.4  
 S.P. River  
 Cor. is Live Oak 24" dia Blazed  
 5 notches south S. W notches E side

- ②
- ③
- ④

142.4

5

□ 25+87.4 Pot Lath

□ 25+10.7 Lath Pot.

□ 24+49.0 Lath Pot.

□ 21+92.9 Lath Pot

Sept 8, 1921

105° 14'

17

• Tict to N 1/4 sec 9. (see next page)

Found Stone 12"x6"  
MKD 1/4 N Pale

Q 25°

105° 14' → 7+98.4

□ 5+25.35

532° 50' N  
169.0

Found B.T. Marked 1/4 39, BT

589° 16' 40" E □ 2+68.35 Lath Pot

□ 2+88.15 Lath Pot

□ 1+49.7 Lath Pot

SD. Flume 0+13 E

□ 0+00 set Hub

○ Cottonwood 5' West of 0+00 Hub  
South side knot is line

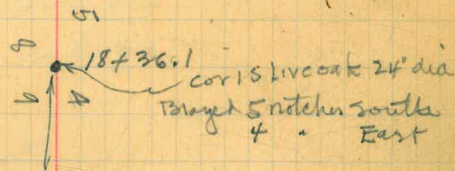
37.5 from #61

4+19.7  
103.4  
7+23.1

18

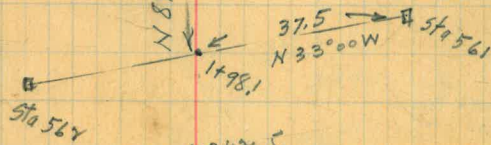
52

1836.1  
198.1  
1638.0



9+77.0  
1638.0  
7+23.1

6+19.7  
3+21.9  
N 89° 16' 40" W

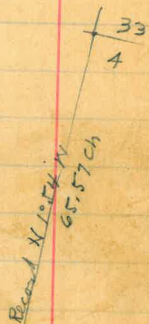


0+26.5

0 Cotton wood  
0+00 5' East of Cotton wood near  
flume

46.09

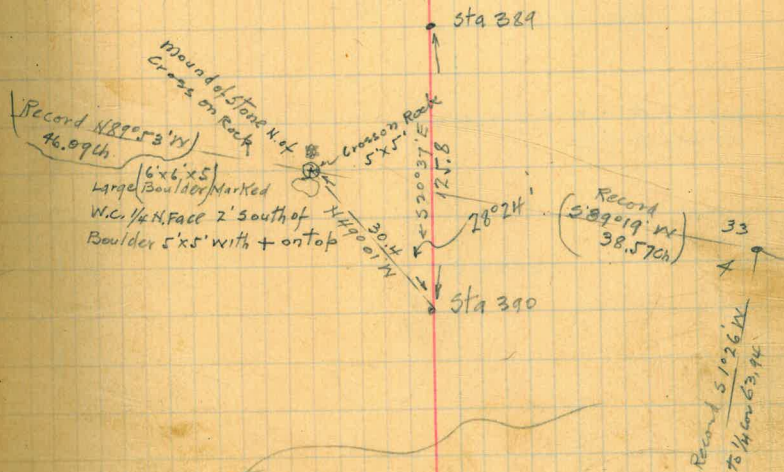
Set on Sta 285 (160 Contem) F.S. 0°00 on 286 turned 119°06 Rt to Sec



N 20° 37' W  
48 24  
N 29° 01' W

19

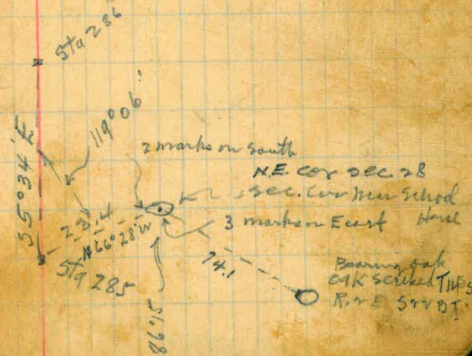
### Tie to 5/4 Sec 33



### Tie to N.E. Cor Sec 28

119°06  
113°32  
66°25

Cor 23.4'



352.4  
 647.2  
999.6  
 300.0  
 300.0  
 102.3  
 73.4  
 100.0  
 200.0  
 149.2  
2224.5  
 200.0  
2424.5

2640.0  
 2424.5  
215.5

W.S.

999.2  
 3  
2997.6  
 2640.00  
 2937.6 Mt Peter  
 10+29.8 Sta 618+619  
 214.5  
3152.2

41+21.4 Lath Pot

39+02.9 Lath Pot

36+02.9 Lath Pot

87050

34+53.2 Pot.

31+54.2 Pot top ridge  
near syphon

22+24.5

503905

87050  
 5029  
8221

14 Frank  
2000

9+99.6 Lath Pot

3+52.4 Lath Pot

0+52.4 Lath Pot

98

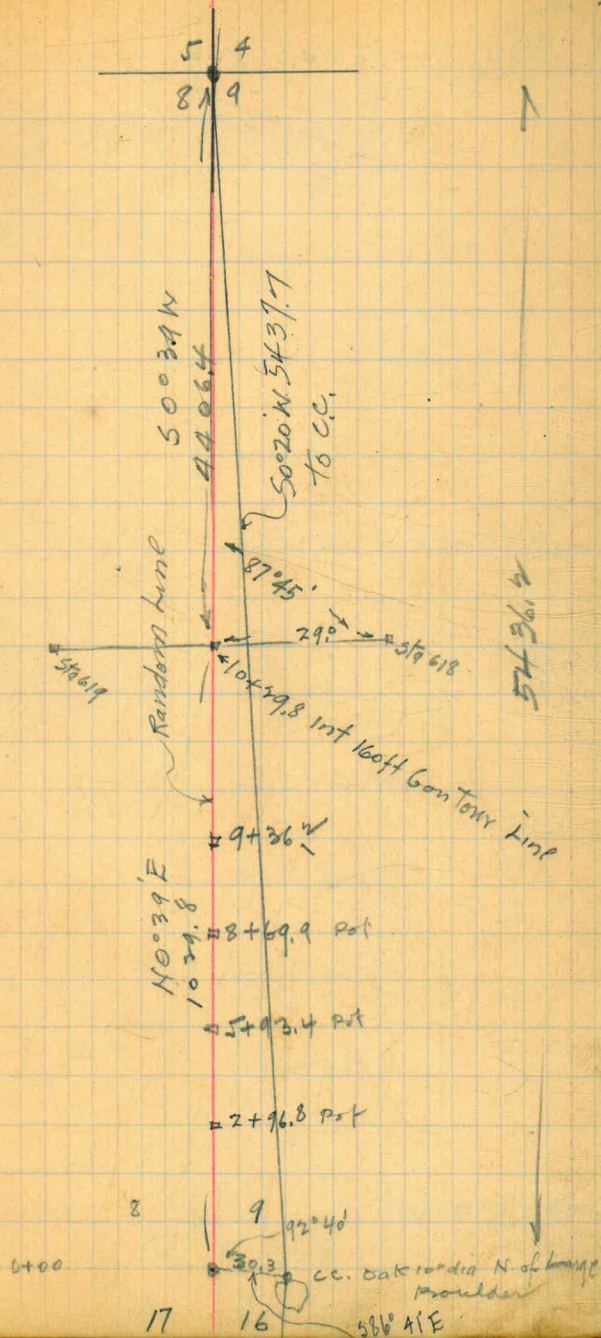
504K Tree See Cor

Mendenhall's house

3+25.0 - 630



Tie from Sec. Cor. 4-5-8-9 + Sec Cor 8-9-16-17



Tieto sec 8-9-16-17

0.54  
 85.0  
 11+39.9  
 110.0  
 12+40.9  
 183.16  
 14233.06  
 223.67  
 16456.73  
 1.93  
 16458.66  
 297.47  
 19456.08

160' contour  
 Sta 694

160' contour  
 Sta 695

NS 904 W  
 Contour

16458.7  
 16+56.7  
 111.04

14+33.10 Lath Pot

NS 904 W

12+49.9 Pot with W.S. Chocolate

11+39.9 Chocolate

10+54.9 Hub on E. Bank of River

Sta 633 (160' Contour)

0.49  
 7+93.2

160' Contour

5130  
 38 W 137.9

7+66.7 Lath Pot

590.8 Lath Pot

Hub 3+39.6

N 91/1735.9

80.21

N 0°39' E

0+00

1.15

17

16

305  
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 400

10+54.9  
 21.63  
 10+76.53

90-21  
 84-44  
 5039

688  
 .49  
 69.29

0+00 going West

19+56.  
180.6  
 21+36.7  
291.4  
 24+28.1  
197.6  
 26+25.9  
158.5  
 27+24.2  
20.0  
10.0  
17.0  
 28+33.2

208

23

Tie to S 1/4 Sec 8

South 1/4 Cor Sec. 8.  
 Found 1/4 Sec Cor.  
 Stone Marker a 1/4 on N. side  
 Mound of Rock 3' north

20 1/2 Cor. is 20' south of Random line  
 28+33.2  
 Mound of Rock 3' north of Cor.

27+24.2  
 26+25.7 Nail Pot.  
 24+28.10 Lat. Pot  
 21+26.7 Lat. Pot on Rock  
 19+77.0 Old flume line  
 grade  
 19+56.10 Lat. Pot

N 89° 44' W 2863.5

$$\begin{array}{r} 3.10185 \\ 5.5126 \\ \hline 6.514 \\ 1.566 \end{array}$$

$$\begin{array}{r} 2.10485 \\ 30.28 \\ \hline 26.5145 \end{array}$$

$$\begin{array}{r} 77.28 \\ 297.84 \\ 85.5 \\ \hline 383.3 \end{array}$$

$$\begin{array}{r} 397 \\ 1994 \\ 21934 \\ \hline 21934 \end{array}$$

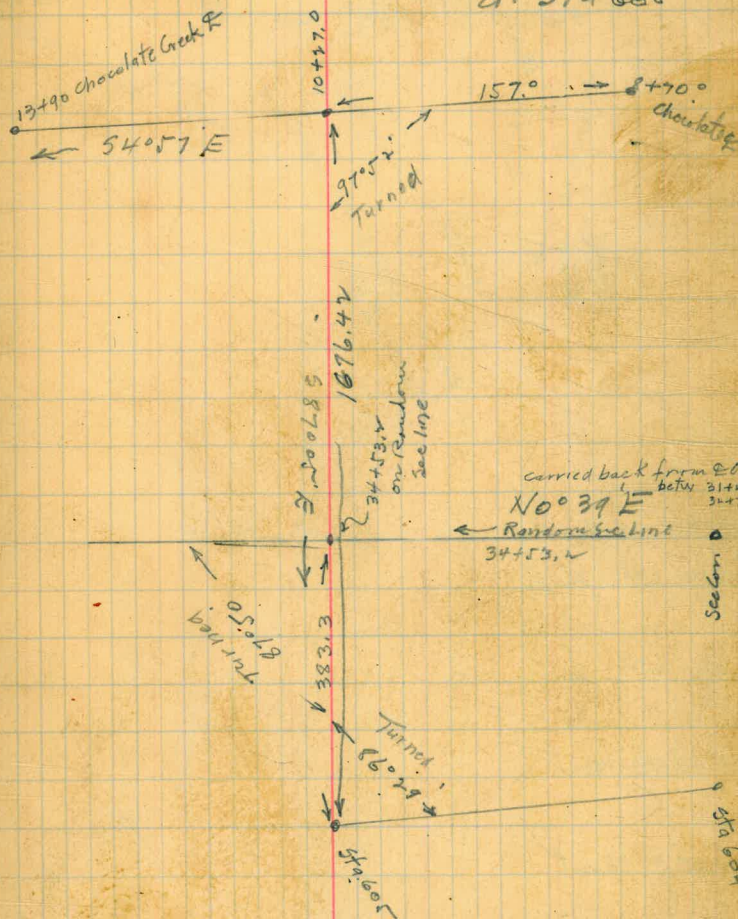
$$\begin{array}{r} 9894 \\ 100.0 \\ 29676 \\ 489200 \\ \hline 9921676 \end{array}$$

6°52' 200  
 0°00' 85.5  
 3°17' 200 99.84  
 4°36' 220  
 8°25' 100.3

$$\begin{array}{r} 297.84 \\ 85.50 \\ 299.54 \\ 675.00 \\ 219.34 \\ 99.22 \\ \hline 1676.42 \end{array}$$

24  
 2+70  
 1.57  
 10.27

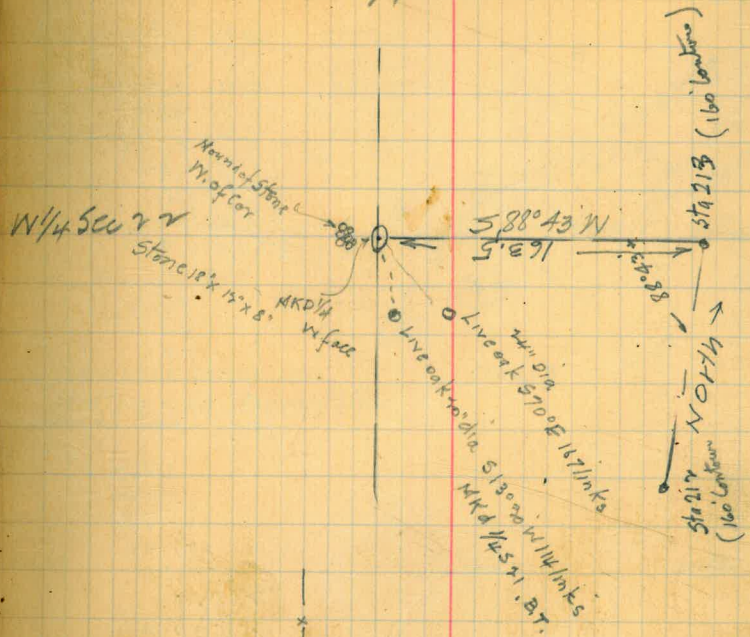
Tie from Chocolate Creek to  
Contour line  
at Sta 605



7+34.6w  
 3.21  
 7+37.87

Tie to W/4 Sec 27

25



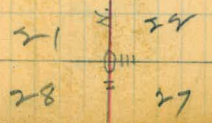
7+34.6w Hub.

6+21.6w Hub

4493.77 nail

1+95.° Nail

North from N.E. Cor. Sec. 28 stone



167.8  
9557.7  
 10068  
 8390.  
15102  
 16034.968  
 257.9  
9981  
 2579.  
 20632  
 13211  
23211  
 25740.999  
 17638  
9963  
 5289  
 10578  
 15867  
15867  
 17564769

15+59.8 Hubs

13+73.1 Hubs

8+78.7

5+93.4

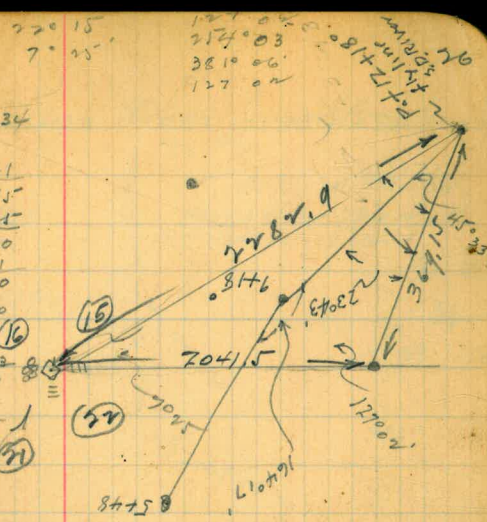
4+17.95

1+60.34

286.2  
9964  
 25758  
 17174  
25758  
 25758  
28531278  
 9828  
 190  
884520  
 9828  
1867320

47.29 45.30 72° 15'  
 284850 7.25  
 197.02  
7802.00  
 17° 08' 167.8 .9556 160.34  
 20° 30' 257.9 .9981 257.41  
 40° 54' 176.3 .9963 175.65  
 40° 32' 286.2 .9969 283.40  
 00° 00' 195 195.00  
 30° 20' 300 299.43  
 10° 38' 190 182.8  
 13473.10  
 186.7  
15259.8

Found Stone 24"x9"x9"  
 Snotchus S+E Mouth of Stone  
 W. of Cor



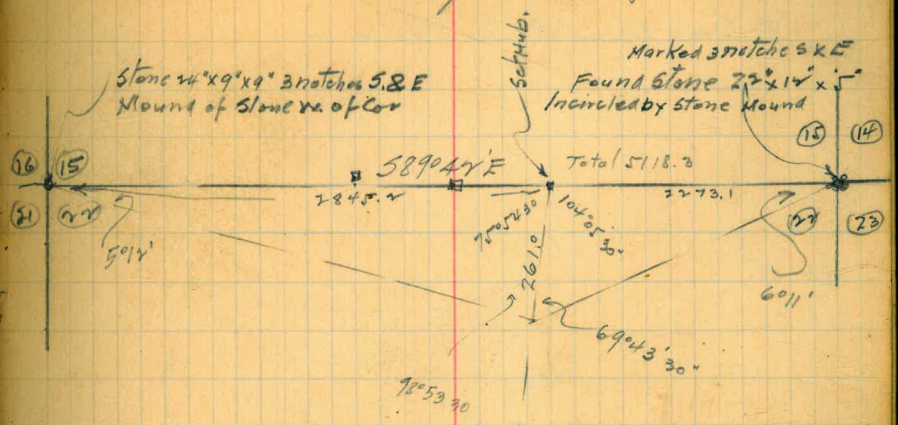
Hubs.  
 Hubs.  
 Hubs.  
 Point on Boulder  
 Point on Rocks

W 1/4 Sec 20

W 1/4 Sec 20

Tie to San Diego River from Sec Cors

75° 54' 30"  
1510 50      75° 55'



99° 47'  
98° 53' 30"

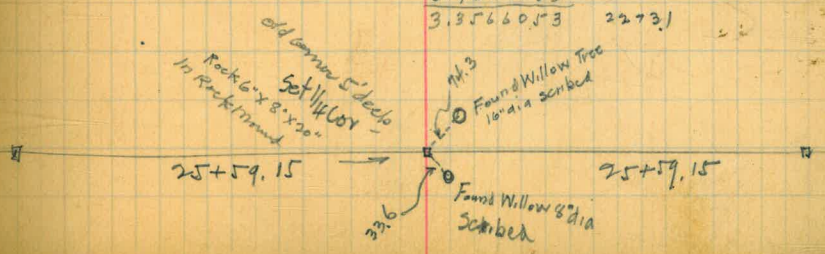
198° 03' 30"      197 47 00  
58° 20' 00"      178 03 30  
69° 43' 30"      69 43 30

5° 12' : 261 = 98° 53' 30" : x

2.416 6405  
9.994 7492  
1.044 7157  
3.455 1054      2845.2

6° 11' : 261 = 69° 43' 30" : x

2.416 6405  
9.974 2215  
0.967 7433  
3.356 6053      2273.1



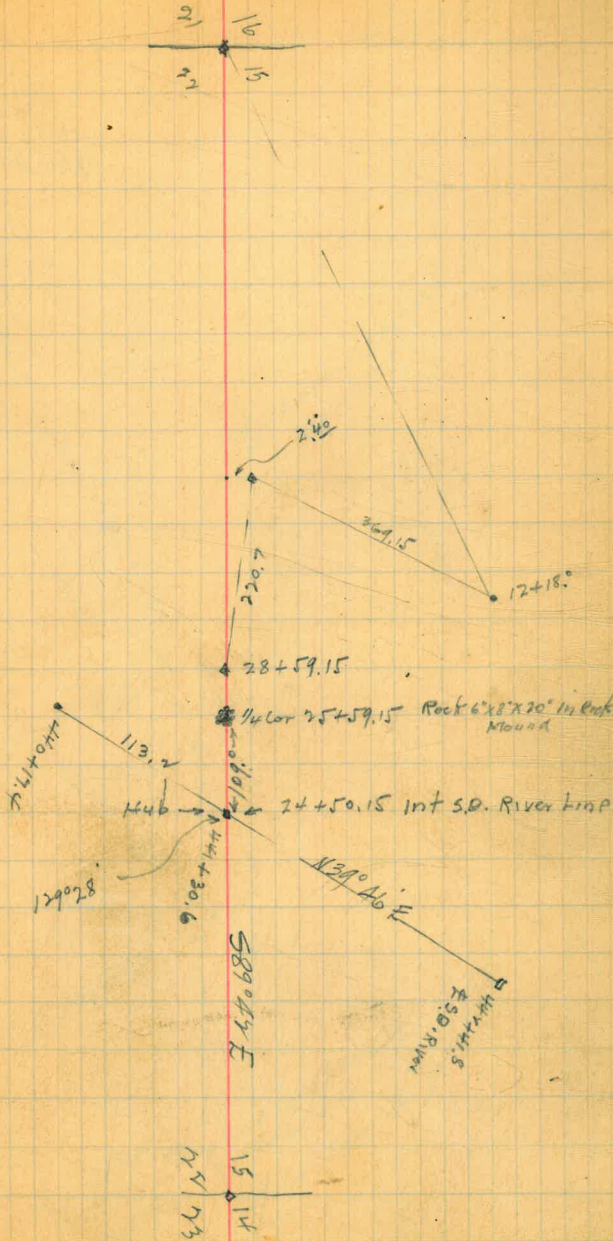
Oct 22 1921

William  
Hansen  
Rodgers

Tie to Sec 14-15-21-22-23 from  
San Diego River Traverse

258.55

129° 28'





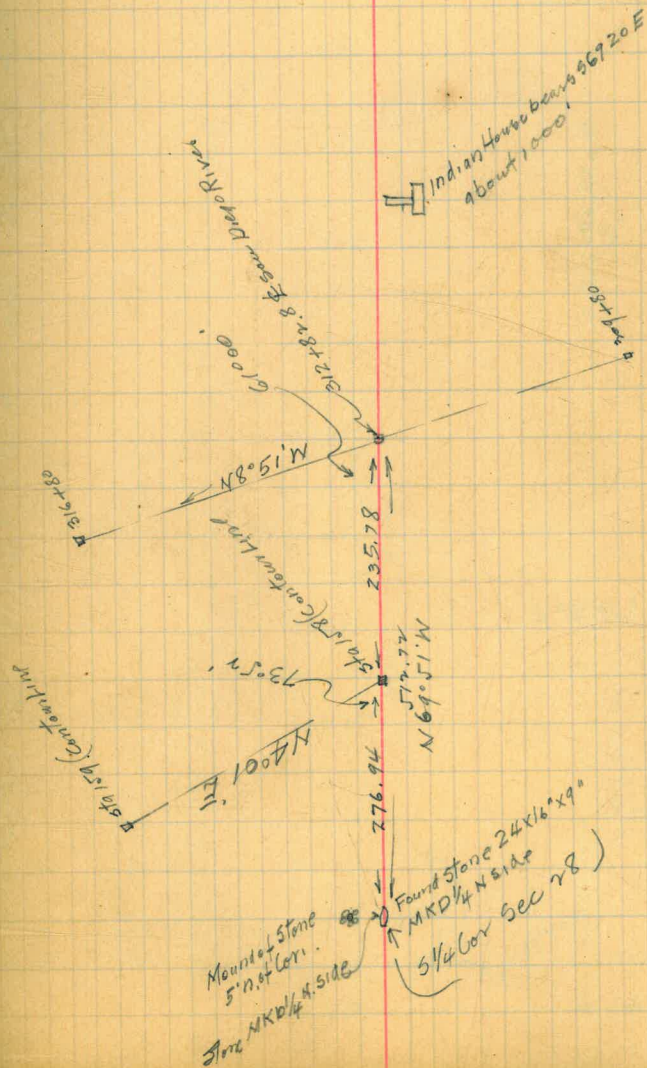
9452  
 293  
 28356  
 25068  
 18904  
 276,9436  
 952  
 190  
 25680  
 952  
 180,880  
 N 8° 51' W  
 61000  
 M. 15° 51' W

Tie to 5 1/4 Cor Sec 28

Williams  
 Harvey  
 Hodgson  
 Oct 24-1921

29

19003 293 276.94  
 17° 50 190 180.88  
 5490  
 735.78  
 512.72



6/9/25

Gregory,  
Moore  
Walker  
Sisson,  
PrestonTRAVERSE OF CUYAMACA  
FLUME THROUGH SECTIONS  
7 & 8 Township 15 S R2E S.B. Mer.2+50  $\Delta$  21°36' R.

2+25.0

2+09.0

1+64

1+50

1+42

1+30

1+14  $\Delta$  26°42'30" L

1+00

0+50

0+00

25' E of 0+00

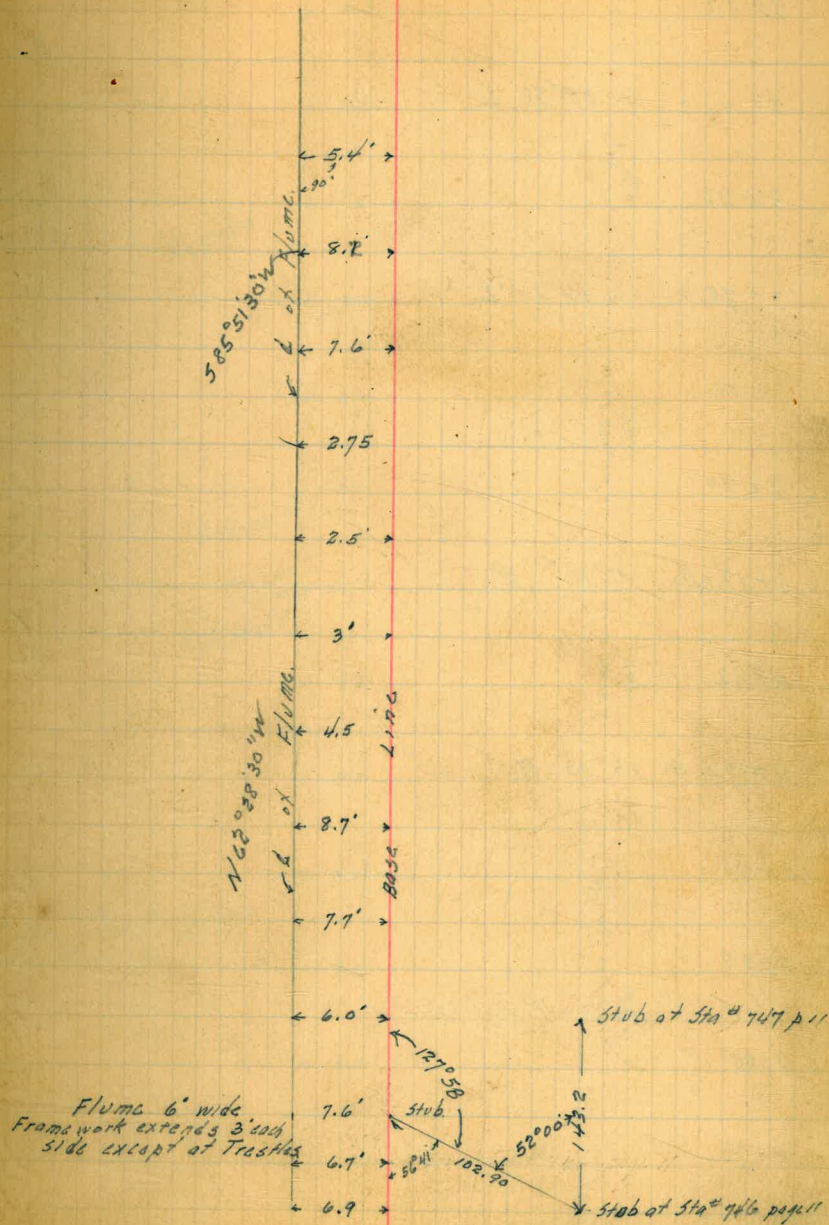
50' E of 0+00

N 89°01'36" W

N 62°25' W

117

30



9+65

N 83°39'30" W

9+47.0  $\Delta$  28°32' L

9+32

N 55°07'30" W

7+72.0  $\Delta$  10°24' L

7+56

N 44°43'30" W

7+40

6+13.0  $\Delta$  7°15' R

N 51°58'30" W

4+42

4+17.0  $\Delta$  15°33' R

3+95

N 67°03'30" W

3+35

3+00

2+95

FLUME TRAVERSE

201

5.3

9.3

7.2

7.5

6.0

5.1

8.1

7.7

5.2

7.1

9.6

8.9

8.20

N 55°01' W

N 43°22'30" W

Angle of  
in flume  
N 51°50'30" W

Flume is 6' wide  
Frame extends 3' on  
each side

N 67°00' W

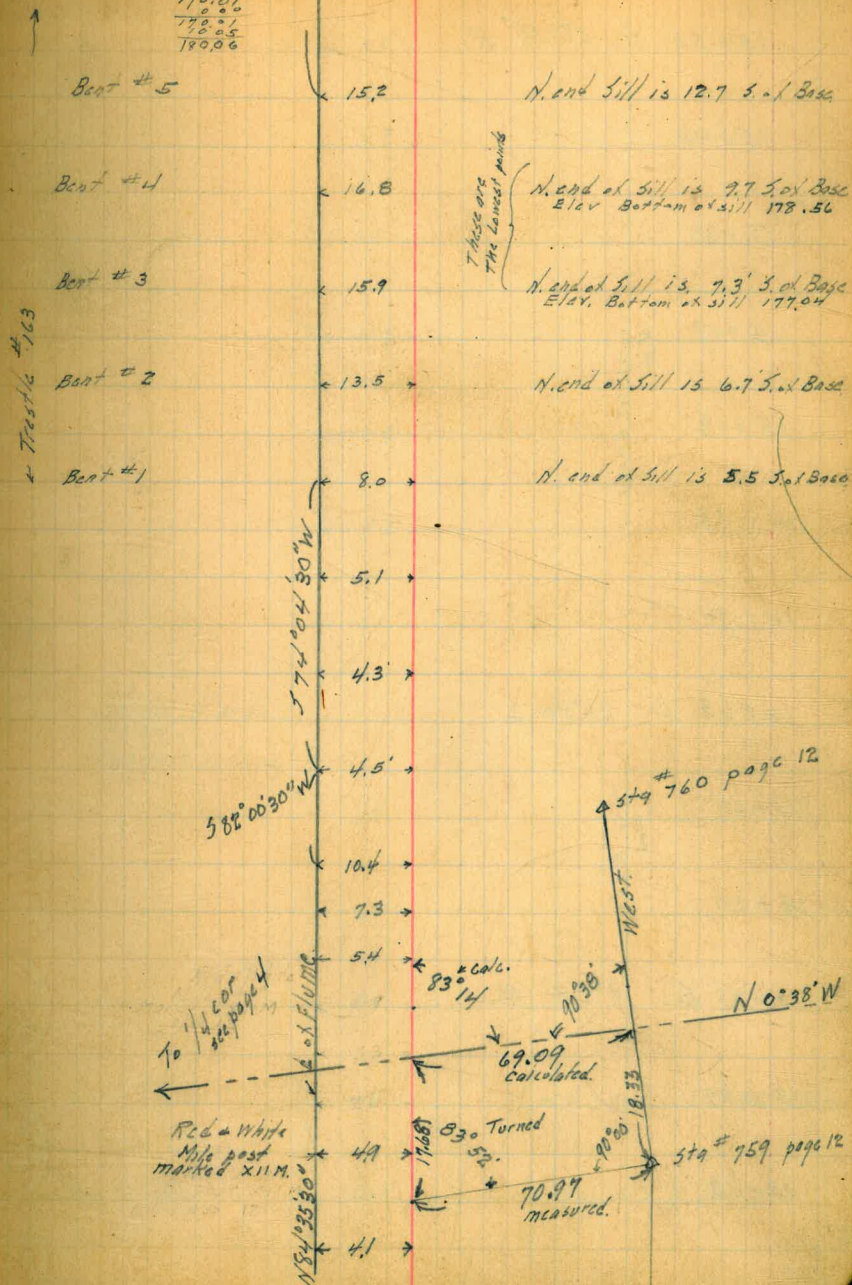
6' of Flume

12+96  
 12+81 N 79°01'30"W 10.0  
 12+66  
 12+53  
 12+38 Δ 24°24' R.  
 11+94 144'  
 11+73 S 76°34'30"W  
 11+58  
 10+94.0 Δ 19°46' L.  
 10+78  
 10+61  
 10+42.71  
 10+29 N 83°39'30"W  
 10+25.03  
 9+81

(Levels on Trestle)  
 160.0 on #765  
 10.01  
 170.01  
 0.00  
 170.01  
 0.05  
 180.06

FLUME

37



15+55  $\Delta$  28°16' R.

15+43

15+33

15+17

15+02

14+86

14+70

14+63  $\Delta$  20°40' L

14+37

14+20

13+38  $\Delta$  9°25' R

13+29

13+13

92'  
N 89°48'30"W

125'  
N 69°36'30"W

FLUME

33

5.5'

8.6'

9.9'

10.9'

10.5'

9.2'

8.7'

7.1'

4.3'

3.8'

6.6'

9.6'

12.0'

Box Flume

Flume 6' wide  
inside  
Frame 3' Extension

N 67°39' W

Truss # 163

Bent # 7

Bent # 6

N 67°27'30" W

N end of sill is 7.6' to Base

N end of sill 9' 5.0' to Base

22+20

22+06  $\Delta$  24°00' R.

21+85

21+62

20+67

20+51

20+35  $\Delta$  23°33' L

20+18

19790 "Dam site" app.

18+67

17+36

17+20  $\Delta$  11°50' L

17+04

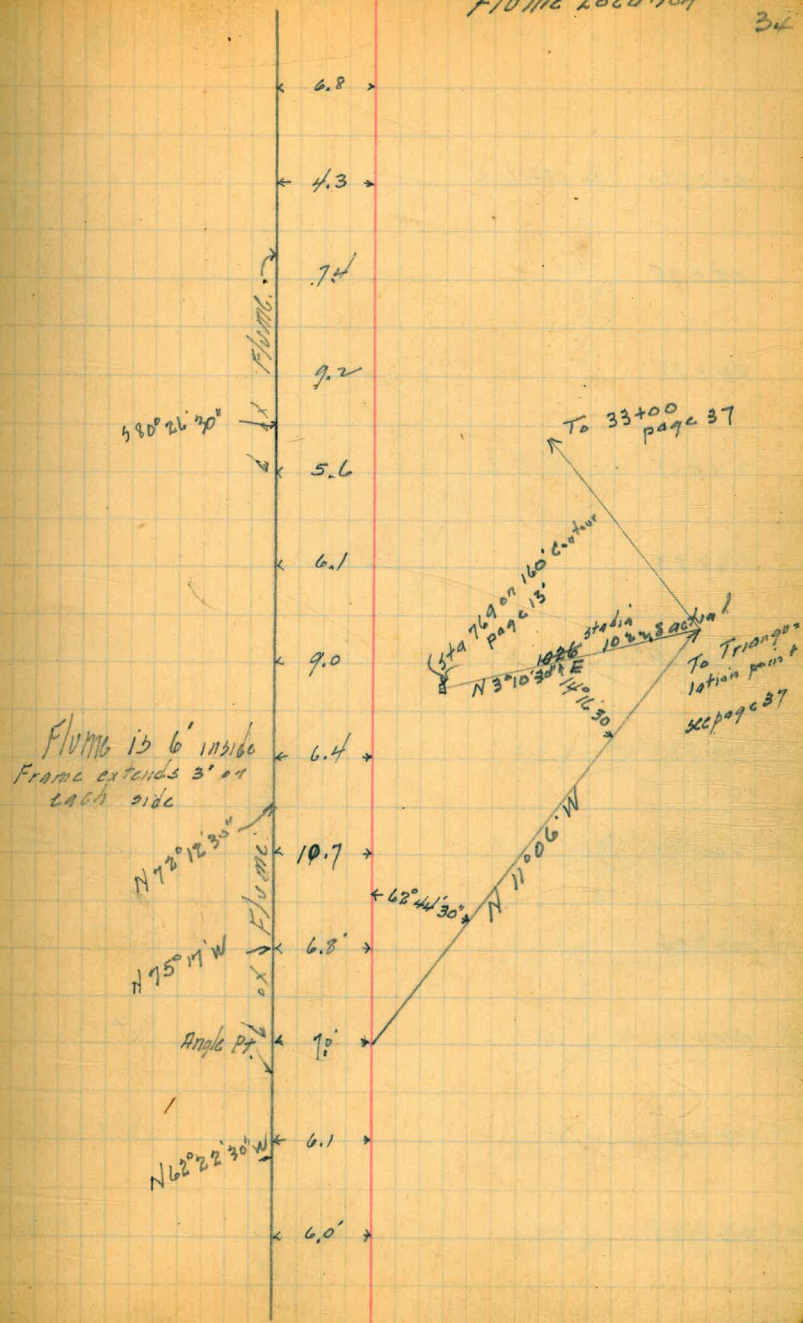
15+65

171  
M. 08. 26. 50° W

3/5  
N 73° 50' 30" W

165  
N 62° 00' 30" W

Flume Location



25+97.0  $\Delta$  18°16' L

25+75

24+28

24+15  $\Delta$  20°17' L

24+03

23+22

23+06

22+90

22+74

22+59

22+44

22+28

182'  
S 86°19'30" W

209'  
N 73°23'30" W

Levels Trestle #163

160.00  
12.53  
172.53  
0.21  
172.32  
12.51  
184.83  
0.28  
184.55  
12.37  
196.93  
0.27  
194.66  
0.60  
203.56

49.5  
193.9  
474  
198.82 = Top of Stringer

132.1  
18.54  
114.4  
187.4  
15.0  
182.8  
14.5  
174.9  
7.8  
191.0  
7.0

Flume Location

35

↑

Bent #7

Bent #6

Bent #5

Bent #4

Bent #3

Bent #2

↓

Bent #1

TRESTLE #163

586.042' 30" W  
Flume  
N 72°33'30" W

6.0

7.0

8.2

6.7

7.7

8.3

9.5

8.9

8.8

8.5

7.6

N. end of sill 2.5 S. of Base  
Elev. Bottom of sill 191.5

N. end of Post 3.5 S. of Base  
Elev. Bottom of Post 191.0  
No sill here.

N. end of sill is 2' S. of Base  
Elev. Bottom of sill 194.3

N. end of sill is 1.5 S. of Base  
Elev. Bottom of sill 193.8

N. end of sill is 1.5 S. of Base  
Elev. Bottom of sill 189.4

N. end of sill is 1' S. of Base  
Elev. Bottom of sill 185.4

N. end of sill 2.6 S. of Base  
Elev. Bottom of sill 193.9

29+31

29+15

28+99

28+83

28+73  $\Delta$  44°08' L

28+65

27+68  $\Delta$  6°02' L No Curve

26+94

26+81.0  $\Delta$  30°18' R

26+67

26+52

26+32

26+16

M<sub>05</sub> 110845105°  
N 30° 07' 33" W87°  
N 05° 36' 18" W78°  
M<sub>05</sub> 80,87 J

Frame extends E on each side

2.0

0.5

2.0

5.8

Flume 6' wide

N 88° 55' W

8.3

6.2

N 79° 05' 30" W

9.5

Flume

7.4

Flume

9.3

8.5

6.3

5.6



33+00

32+81.

29+92

29+79.58  $\Delta$  15°10' R

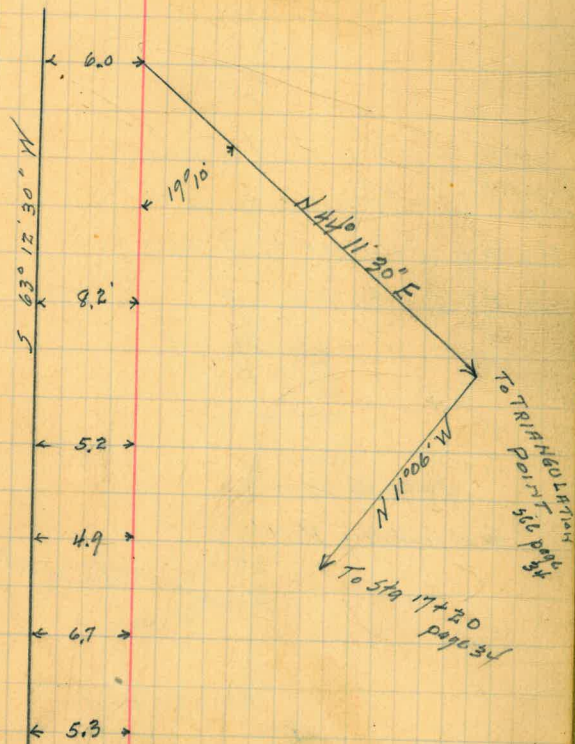
29+62

29+51

320.42'  
S 63°21'30" W

106.58'  
S 48°11'30" W

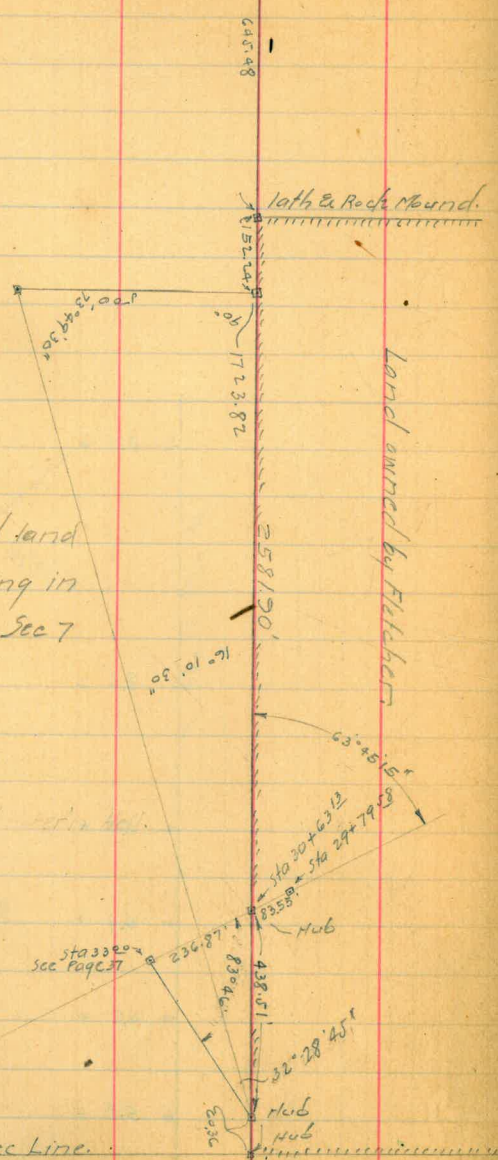
37



Sec 6  
Sec 7

60.36  
62.12

62.29  
61.42



Survey of W.L. of tract of land owned by Ed Fletcher, lying in the W 1/2 of the N.E 1/4 of Sec 7 for El Capita Project

Dennan  
Sisson  
Bliss  
Northern

July 5th 1925

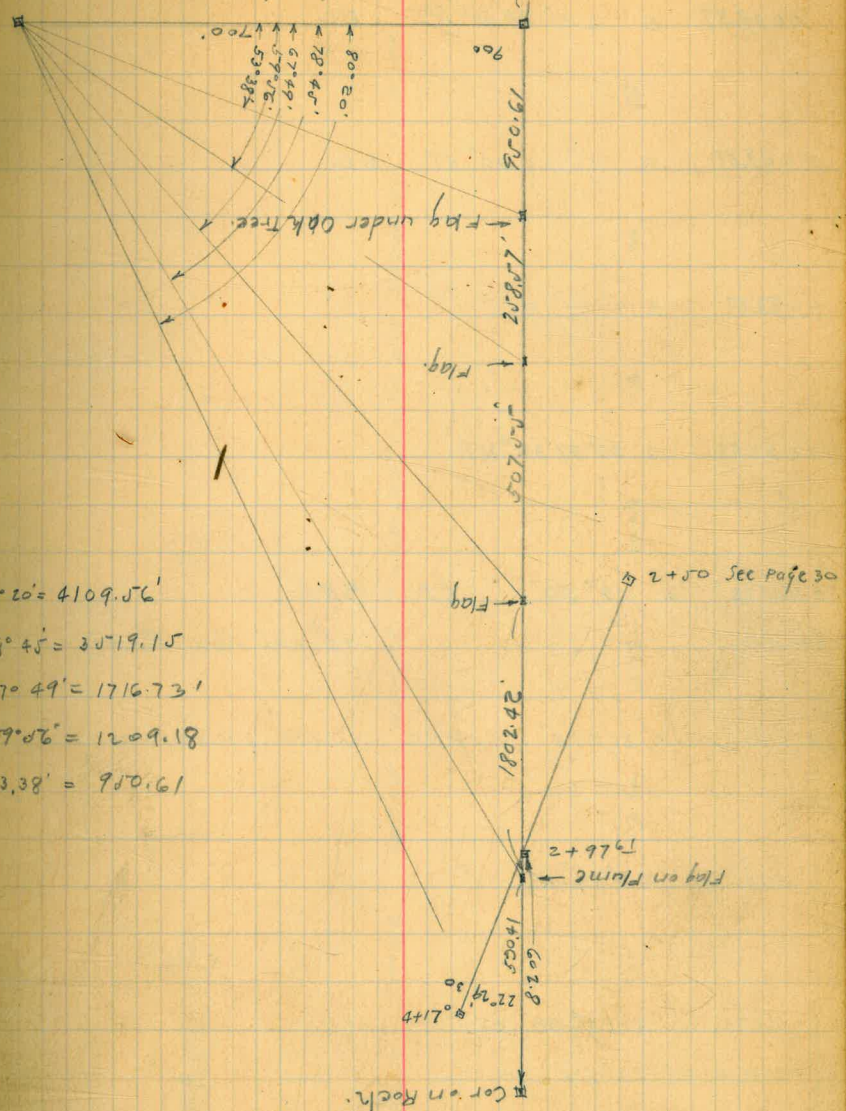
Visibility Bum

Weather Meter in Hell!

1/4 Sec Line

- 80° 20' = 4109.56'
- 78° 45' = 3019.15'
- 67° 49' = 1716.73'
- 59° 06' = 1209.18'
- 53.38' = 950.61'

Hub on bank of River



2+50 Sec Page 30

Flag on Plumc

Cor on Rock

6/18/25 Moore  
Gregory Sissol  
WALKER  
PRESTON

# FLUME LOCATION West of SYPHON IN CHOCOLATE CREEK

6+69.57 Δ 23° 29' 30" RT = P.C.

126'

5+43.57 Δ 8° 22' 00" RT = E.C.

60'

4+83.57 Δ 17° 01' RT

38'

4+21.57 Δ 20° 57' 30" RT.

24' 45"

3+57.12 Δ 13° 50' Lt. = P.R.C.

3+45. = E. end Metal Flume.

26.62'

2+60.5 Δ 31° 15' Lt. = P.R.C. = W. end of METAL FLUME

90.50'

1+70 Δ 23° 19' RT.

100'

0+70 Δ 18° 38' RT.

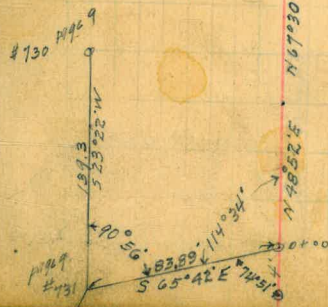
70'

0+00 = Approx. P.C.

- 4' = METAL SECTION OF FLUME TO WEST

7206  
2300  
4906

29



317. VA = 26° 58' = .89127

Slope = 90.66 + 3.09%

Hor. = 3.09%

364720 E  
305 64 1/2 S 30° E 387+49 30 E  
N 83° 48' 30" E N 83° 48' 30" E  
305 14 1/2 S 30° E  
N 66° 41' 30" E  
N 45° 44' E  
N 59° 24' E  
389° 11' E  
N 67° 30' E  
N 48° 52' E

FLUME LOCATION

9+68.74 = 160' CONTOUR LINE

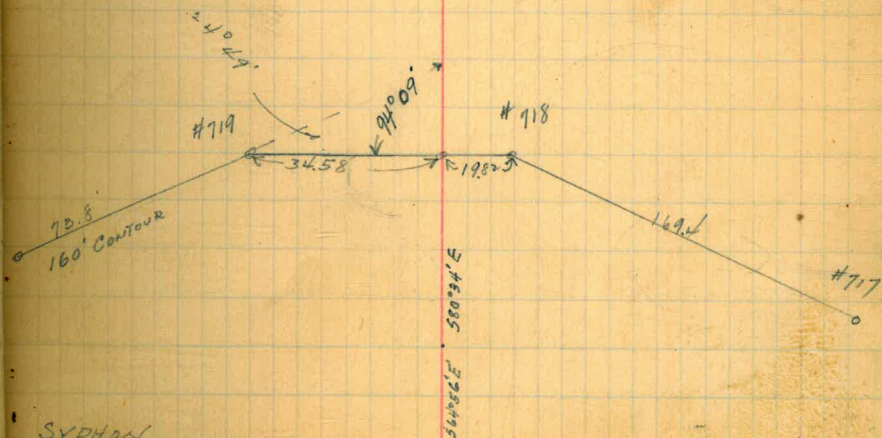
161.71

8+07.07  $\Delta 15^{\circ} 38' LT$  = W END OF SYPHON

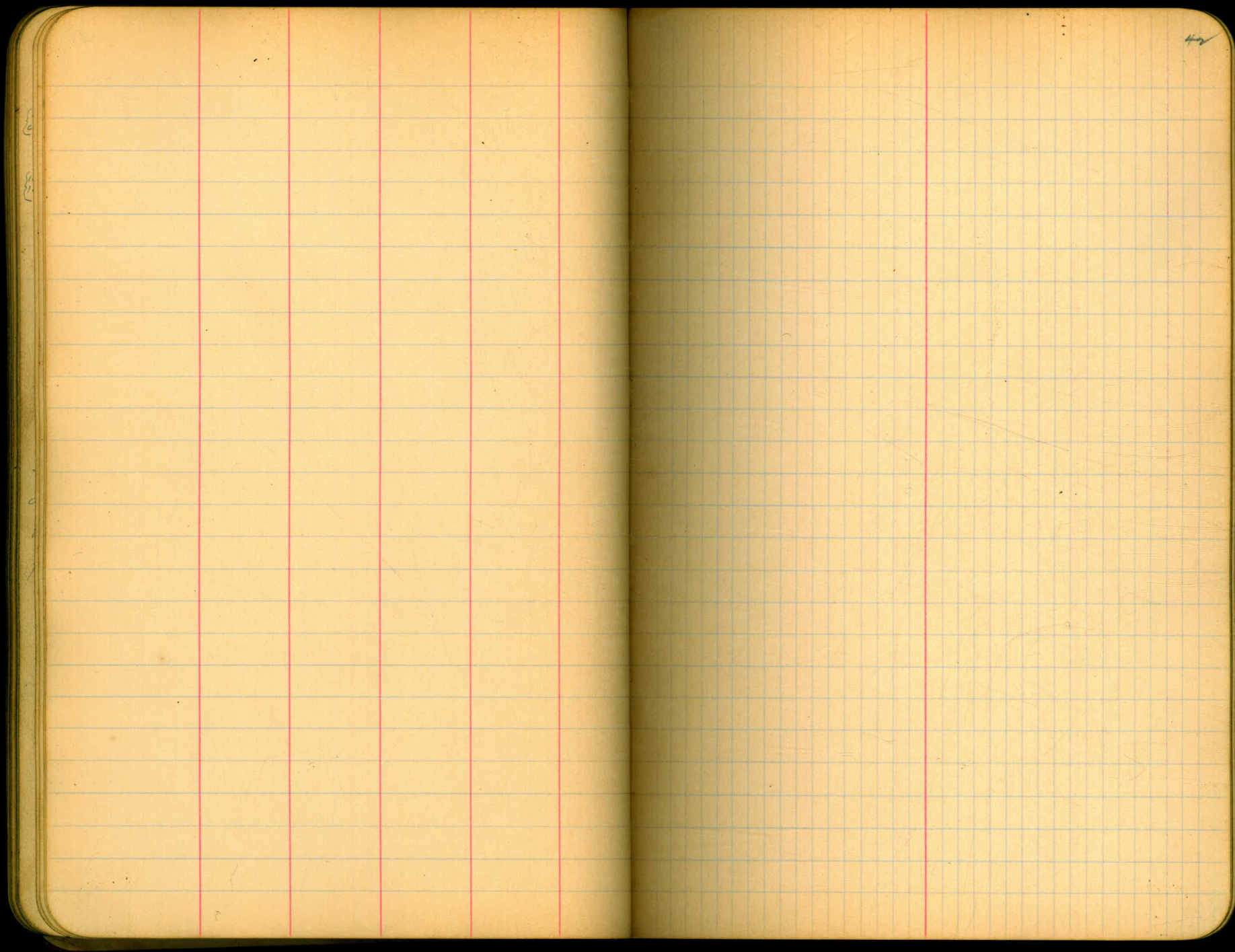
7+50.07  $\Delta 0^{\circ} 36' LT$  = EC. Angles here to west end of SYPHON

57

518

















|



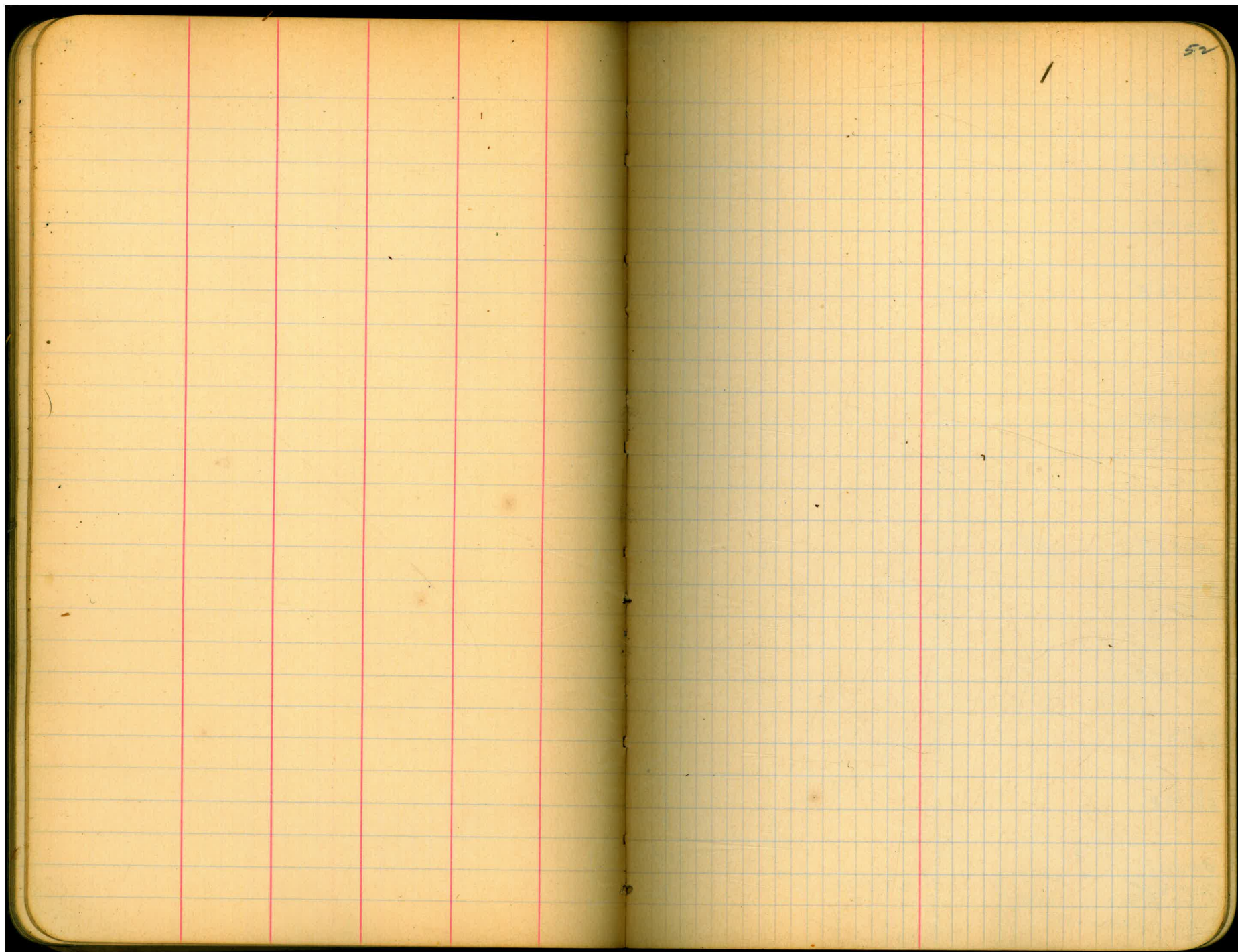


1000.85  
549.75  
586.09  
461.82

---

2598.50







26+10

518°55' E

21+00

52°53' E

17+50

54°30' W

13+90

54°57' E

8+70

527°01' E

4+50

55°23' E

0+00

126+73.85

Cor mag 54°15' W

124+80

549°27' E

126+73.85

127+60

Main Line S.D. RIVER  
TRAVERSE

see BK 164 pg. 1 w. H

32+70

S 45° 39' W

31+40

S 26° 12' W

29+85

S 2° 57' E

28+40

S 38° 24' E

27+50

S 23° 14' E

See Book 1088 B for line continuation

N 89° 44' W  
see line

End Sept 23-

Point on Rock

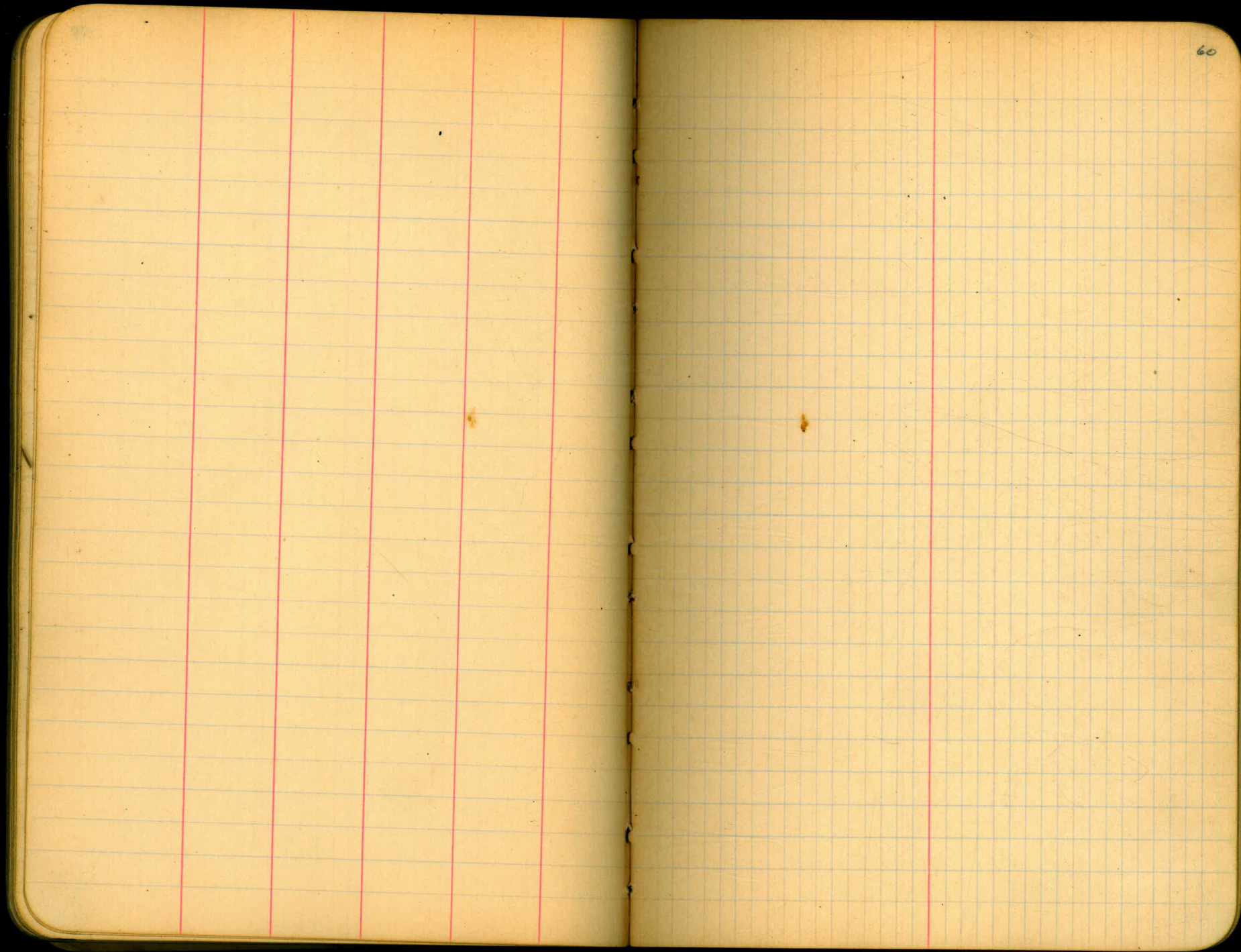
















Traverse San Diego River Sept 14-21

Williams  
Browns  
Harper  
Hedgest

62

138+10

830.0

N55°55'E

129+80

720.0

S49°27'E

122+60

380.0

S89°08'E

118+80

460.0

N78°55'E

114+20

370.0

N76°07'E

110+50.0

300.0

N83°56'E

107+50.0

640.0

S84°21'E

101+10

172+30

N. 85° 34 E

165+80

X 152° 27 E

162+50°

N 17° 04 E

158+10

N 6° 14 E

151+10

N 11° 32 E

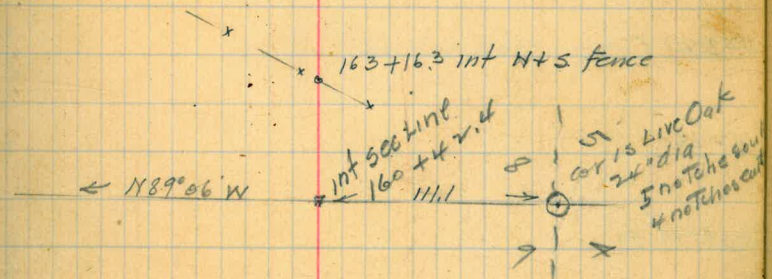
146+82.4 Int fence

N 6° 24 E

144+10

N 28° 04 E

400.0  
477.4  
427.6  
700.0  
440.0  
330.0  
650.0



Sept 15-21

196+44 ✓

N 11° 00 E

194+50

N 43° 01 E

192+60

N 65° 19 E

186+60

N 88° 48 E

180+00

N 80° 52 E

177+00

588° 47 E

174+00

N 72° 11 E

170.0 x 300.0 x 300.0 x 300.0 x 660.0 x 600.0 x 100.0 x 194.2 x

Sept. 19-1921

Williams  
Harper H.Ch.  
Hodgert R.Ch.

64

Cor. Mag. N 43° 00 E

N 8° 55' W

222

N 11° 07' E

217+40

N 31° 44' E

211+60

N 42° 05' E

207+30

N 31° 18' E

205+60

N 58° 09' E

204+51

N 14° 59' W

202+30 . x

N 25° 48' W

700+68° pot South Fork

N 25° 48' W

198+56°

N 12° 20' W

197+35°

N 26° 47' W

90.8 x 121.0 x 374.0 x 221.0 x 109.0 x 170.0 x 430 x 580.0 x 460.0 x

Cor map N 31° 18' E

237+80

N18°47'E

236+55

N6°01'W

234+35

N20°11'E

234+85

N1°48'E

230+30

N25°23'W

228+52

N22°35'W

225+20

320.0 x 178.0 x 265.0 x 150.0 x 220.0 x 185.0 x

Cor Mag N26°20'W

N 45° 35' W

254+10

N 17° 26' W

252+20

N 14° 36' E

250+70

N 2° 20' E

248

N 40° 14' W

244+75

N 51° 58' W

239+60

N 10° 59' W

180.0 x 315.0 x 525.0 x 270.0 x 150.0 x 190.0 x 240.0

237+80  
1 80  
239400

67

Cor Mag N 14° 30' E

Cor Mag N 53° W

N39° 00 E

289+50

N2° 28 W

287+80

N16° 21 E

276+60

N7° 06 W

274+30 P.O.T.

N7° 06 W

268+60

N19° 44 E

260+60

N9° 35 W

256+50

x 450.0  
x 670.0  
x 620.0  
x 800.0  
x 800.0  
x 800.0  
x 410.0

Cor Mag N 3° W

Begin Sept 20-21

End of Sept 19-21

Cor Mag N 7° 00 W

Cor Mag N 19° 20 E



N 375+85

Z N5°33'E

N 316+80

Z N8°51'W

N 309+80

Z N21°13'W

N

Z 307+05

N N2°54'W

Z 298+40

N N8°00'E

Z 296+30

N N46°49'E

Z 294+00

230.0 x 210. x 345.0 x 725.0 x 700.0 x 905.0

Cor. Mag N5°20'E

Cor. Mag N3°10'W

160  
241  
37051

351+75  
N 70° 03' E

350+55

N 56° 13' E

348+95

N 31° 59' E

345+40

N 21° 36' E

343+30

N 30° 43' E

339+46

N 3° 44' W

336+60

N 23° 20' E

120.0  
160.0  
355.0  
210.0  
384.0  
286.0  
1075.0

begin Sept 21 - 21  
End Sept 20 - 21

Cor Mag N 56° E

Cor Mag N 4° W

N18°41'W

388+50

N18°15'W

386+35

N30°04'E

384+55

N24°41'E

383+05

N64°20'E

376+50

N16°27'E

374+30

N20°14'E

230.0 X 220.0 X 210.0 X 200.0 X 190.0 X 180.0 X 170.0 X 160.0 X 150.0 X 140.0 X 130.0 X 120.0 X 110.0 X 100.0 X 90.0 X 80.0 X 70.0 X 60.0 X 50.0 X 40.0 X 30.0 X 20.0 X 10.0 X 0.0

388+55  
45

72

$$\begin{array}{r} 9353 \\ 7413 \\ \hline 9353 \\ 37412 \\ 25471 \\ \hline 6930593 \end{array}$$

Begin Sept 22-21

510°27'E Set on Sta 279 turned to 278 (580°25'E)  
 ✓ Setup Sta 381+45 Pot. turned to Sta 279 (510°27'E 69.3')  
 Solar Sept 21-21 Setup 383+05 F.S. 376+50 Rt to sun  
 T= H V Cor Mag N64°E  
 3-45 9°33 Rt 24°21 564°14'30" W  
 3-48 10°10 Rt 23°36'

408+90

N1°50'E

405+75

N74°50'E

403+40

N22°09'E

401+63

N3°40'E

399

N8°59'W

396+60

N22°50'W

394

260.0 X 240.0 X 263.0 X 177.0 X 235.0 X 315.0

see page 76 same book

434+00

N73°04'E

429+25

x see page 98 1/2 same book

N39°28'E

427+60

N50°53'E

424+35 dot

Int & Sand Creek = 0+00 Aux. line

421+50 Δ

N55°58'E

418+60

N71°57'E

416+80

N22°55'E

411+50

N18°20'E

260.0 x 530.0 x 120.0 x 800.0 x 610.0 x 105.0 x 210.0 x

Thursday Sept 22

Cal. Solar (N 75° 30' 20" W)

Solar on Sta 11+80 FS. 9+00 H to Sun

T= 3-46 H= 30° 32' 14" V= 23° 35'

3-50 30° 02' 44" 22° 48'

11+80

575° 21' E

9+00

554° 17' E

6+00

536° 37' E

3+00

549° 07' E

0+00

cor. mag N 22° 15' E

Solars Friday Sept. 2 1921

T	FS	T.	H	V	Lt. or RT
282	283	2.15	28°04' RT	47°31'	RT
		2.18	28°43' RT	46°57'	RT
301	302	2.28	143°22' 30"	44°58'	Lt
		2.31	37°12' 00"	44°26'	Lt
219	218	2.53	36°57'	40°07'	RT
		2.56	37°29'	39°32'	
241	240	3.17	58°31'	35°23'	Lt
		3.20	58°05'	34°48'	
261	260	3.26	72°33'	31°33'	Lt
		3.38	72°10'	31°00'	Lt

Solars Sat Sept 3 1921

30	31	9.27	63°33' RT	49°00'	RT
		9.30	64°21' RT	49°29'	
42	41	9.50	96°48' Lt	53°04'	Lt
		9.53	96°01' Lt	53°30'	
63	64	10.12	55°10' RT	56°45'	RT
		10.15	55°56'	57°01'	RT
147	146	2.37	33°02' RT	43°02'	RT
		2.40	33°33'	42°27'	
348	349	2.54	45°37' RT	39°41'	
		2.56.20	46°04' RT	39°12'	
110	111	3.17	55°52' Lt	35°03'	Lt
		3.19	55°34' Lt	34°41'	
408	407	3.32	117°34' Lt	31°59'	Lt
		3.35	62°52' Lt	31°22'	Lt
84	80	3.54	7°04' Lt	27°18'	Lt
		3.57	6°50' Lt	26°53'	Lt

Sta 240 19 E of S.D. River Crossing

75

548°35'10" W Solar

N 79°11'30" E Solar

S 37°05'30" W

N 49°25'20" W Solar

S 87°57'10" W

↑ to Sun Wedns. Sept 7. 21

T	H	↓
6+83° FS0+00	10.03	42° 23' 54" 20
	10.06	43° 24' 54" 44

444+11.3

N20° 47' E

442+41.8

N39° 46' E

440+17.4

N52° 27' E

438+00

N60° 36' E

436+00

N52° 34' E

435+07.77 int (160' Center Line)

N52° 34' E

433+90

N60° 48' E

169.5  
x  
724.4  
x  
217.4  
x  
180  
x  
117.77  
x  
1223  
x  
190

76

$$\begin{array}{r} 4350.777 \\ 4300.00 \\ \hline 500.777 \end{array}$$

Begin Oct 5. 1921

Sta 240 (No Contour)

N46° 25' W 98.59'

39.3

Sta 244 (No Contour)

	K	S	E	VX
588°11' E 808.8		25.64	808.39	
North 2620.56	2620.56			
N 17° 14' 30" E				

South 2620.56	2620.56			
N 88° 11' W 808.8	25.64		808.39	
N 17° 14' 30" E				

$$\begin{array}{r} 179-59-60 \\ 160-56-30 \\ \hline 19\ 03\ 30 \end{array}$$

$$\begin{array}{r} 89-59-60 \\ 72-45-30 \\ \hline 16056\ 30 \end{array}$$

78

$$\begin{array}{r} 808.39 = 2.9076227 \\ 2604.90 \quad 3.4157911 \\ \hline 9.4913316 \end{array}$$

$$\begin{array}{r} 89\ 59\ 60 \\ 17\ 14\ 30 \\ \hline 72\ 45\ 30 \end{array}$$

$$\begin{array}{r} 88\ 11\ 00 \\ 17\ 14\ 30 \\ 105\ 25\ 30 \\ \hline 74\ 34\ 30 \end{array}$$

$$\begin{array}{r} 179-59-60 \\ 125\ 25\ 30 \\ \hline 74\ 34\ 30 \end{array}$$

N 17° 14' 30" E

$$19^{\circ} 03' 30'' ; 808.8 = 72^{\circ} 45' 30''$$

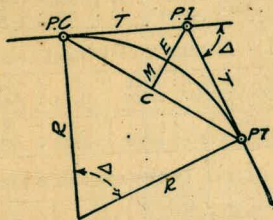
$$\begin{array}{r} 2907.841 \\ 9.5134229 \\ \hline 3.3939172 \\ 9.9800320 \\ \hline 3.3739492 \end{array}$$

2305.6



# DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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## 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) =  $R \cos \frac{\Delta}{2} (1 - \cos. \frac{\Delta}{2})$  (8) =  $R \text{exsec} \frac{\Delta}{2}$  (9)

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

## EXPLANATION AND USE OF TABLES

**Stations.**—Given P. I. = Sta. 161 + 60.35 to find Sta. of P. C. and P. T.  $\Delta = 62^\circ 10'$   $D = 8^\circ 20'$ . From Table IV for  $1^\circ$  curve  $T = 3454.1$  and  $\div 8\frac{1}{2} = 414.49$  ft. From Table V correction = .36 or  $T = 414.85$  ft. P. C. = Sta. P. I. -  $T = 157 + 45.50$ . Also from (4)  $L = 746.00$  and P. T. = Sta. P. C. +  $L = 164 + 91.50$ .

**Offsets.**—Tangent offsets vary (approximately) directly with  $D$  and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft. = 7.27 ft. Distance =  $158 - \text{Sta. P. C.} = 54.50$ , hence offset =  $7.27 \frac{54.50}{100} = 2.16$  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)  $.3 \times C \times D^\circ$  or = defl. for 1 ft. from Table III  $\times C$ . For Sta. 158 of above curve =  $.3 \times 54.5 \times 8\frac{1}{2} = 136.2'$  or  $2^\circ 16.2'$ , or =  $2.50 \times 54.5 = 136.2'$  from Table III. For Sta. 159 deflection angle =  $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$ , etc.

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

981/2

265.2

19+80.8 =

447+56.5 =

N 77° 00' E

14+70.0°

N 61° 04' E

9+18.0°

N 45° 18' E

5+48.0°

N 2° 58' W

3+51.0°

N 11° 35' E

1+97.0°

N 1° 44' E

0+68.0°

N 55° 55' E

0+00 =

429+28.0° = 0+00

197.0° x 370° x 572 x 570 E  
 68.0° x 124.2 x 150.0  
 mag N 55° E

