20

ENGINEERS'

FIELD BOOK

No. 401 F

EUGENE DIETZGEN CO.

PAGE INDEX 20

PAGE	
3	Daniels Survey T14S. R35E (BOISE)
22	Levels at Odlam - Hatch - Pool
44	Survey for William Napper, Smithfield
58	Andersons & Son Co.
61	Hydrographic Engineer on Otter Creek
69	Survey of Reservation City Res. Grounds from Golf Course

30.6 =32.6. For slopes of 1 on 1½ see inside of back cover.

Copyright, 1914, by Eugene Dietzgen Co.

Apr. 1930

Eugene Schaub CE
Logan Utah

Book 1 - 1930

67

8 52 54.5 5612

4 32.6

8 57 27.1 2712.68

41 2x0 32.6

10 am 8 58 08

Ob. Sun Apr 13-1930

89 59 60
92 09 30 42 10.60
1.75 1.30
87 92 09 30 = C

1225 Co θ -47 50 30

1200
1.5225

To pole

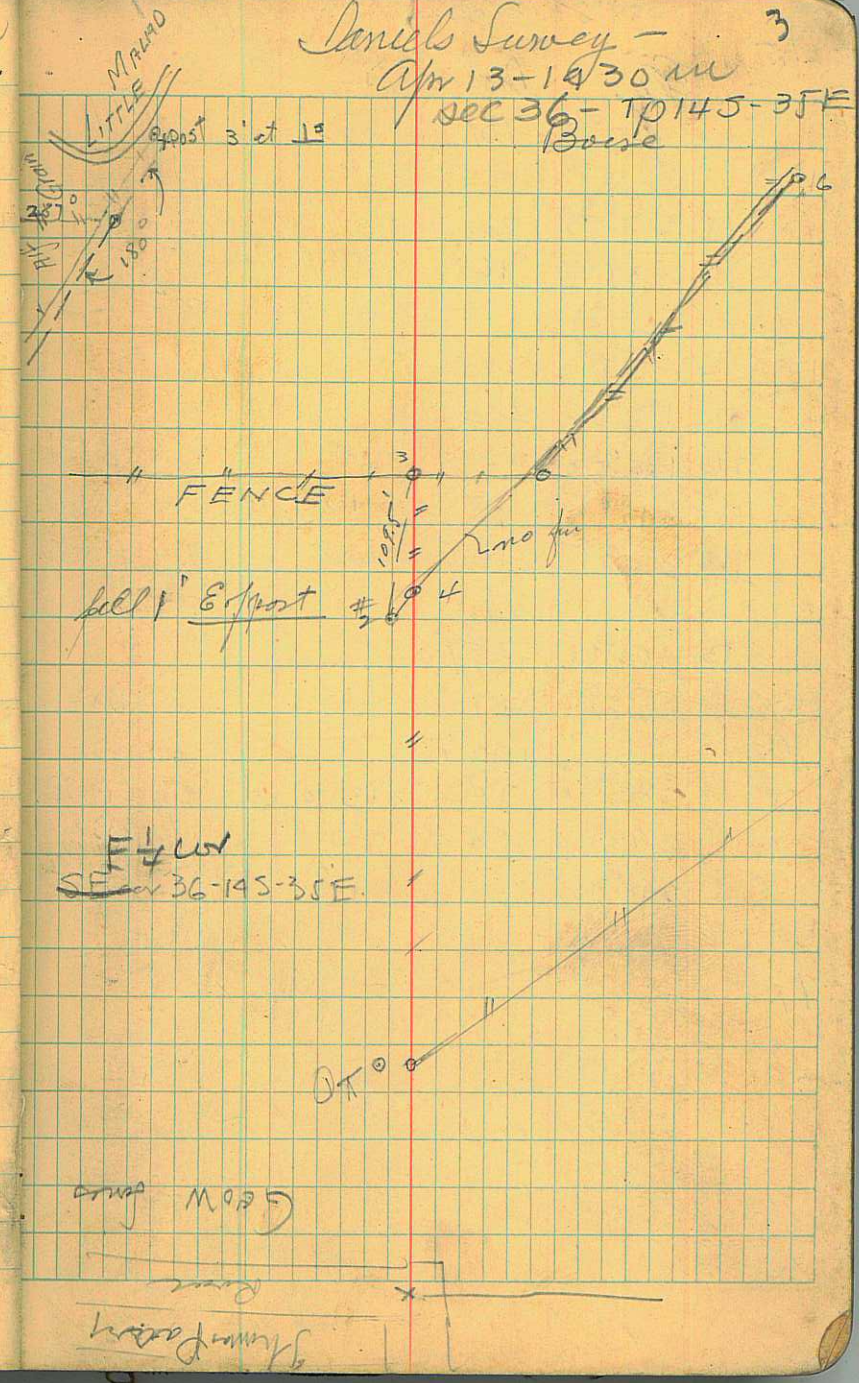
355° 14
355 16
355 12
355 16 L46
4)58
14

Mag 355° 16 To pole

Daniels Survey
in Sec 36 - Tp 16 S
R 35 E

Daniels Survey — Apr 13-14 30 ac
sec 36 - TP 145 - 35 E
Bearse

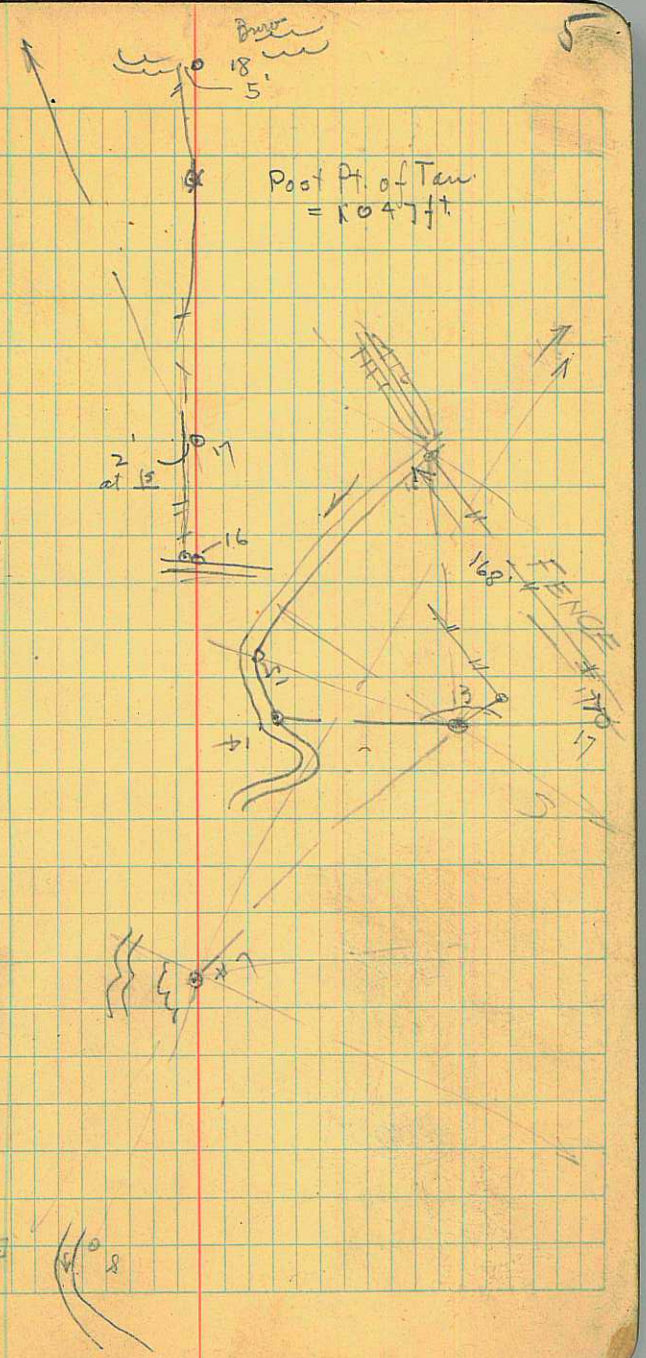
Pt	Adj	Bear	Dist	L	C	D
T						
7	84°51	380'				
	28°32			4.	-5°	5.6
6a	29°26	42'				
6						
6	29°26	1110.0				
			1000. ft pins			
5	29°26		125.5' to sec line			
4	29°26		4.6			
3	0°18'		109.5			
r						
r	359°53		822'			
	78°		3 ft.			
1						

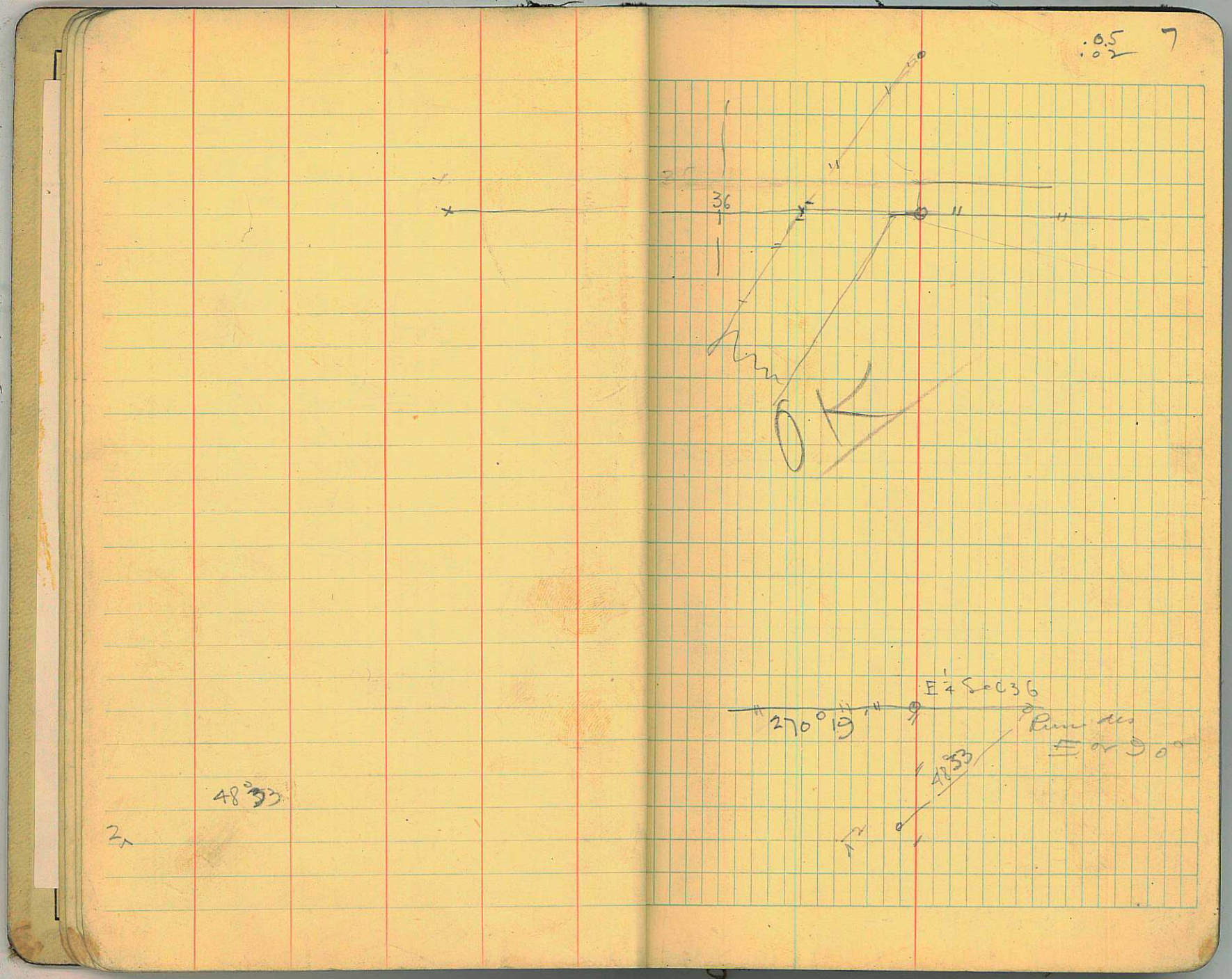


2 359°53 close

Stadia

		Dist		C	D
1					
	Ag				
	217°28'	731 to bag			
18					
18	217°49'	1200.0			
16	37°49'	168	to		
	217°49'				
17					
17	178°22'	242.0			
16	134°53'		4	5.53	
15	342°	88	13	13.88	
14	321°15'	121	12	13.25	
13					
13	101°41'	257.0			
CV 12	93°	170	12	13.7	
CV 11	71°	100.0			
10	347°30'	74	13.0	13.73	
CV 9	292°20'	80	13.0	13.8	
CV 8	290°38'		11	13.55	
7					




.05
.02
7
36
OK
E 45°36
270°19'
48°33
48°33

Pt.	Dist.	Course	Lat N	Lat S	Dep E	Dep W
1						
2	877	S0°07E		877.00	1.07	
6	1110	S29°26W		966.93		545.45
7	380	S84°51W		34.74		378.47
13	257	N78°19W	52.04			251.67
17	292	N1°38W	241.90			6.90
18	1200.0	N37°49E	948.00		735.47	
1	731	N37°28E	580.19		447.67	
1			1822.13	1843.47	1182.11	1187.49

001

899 20 2 — 1.63 04

29.26

1000 100 10

870.93 8709 8.71 — 491.40 49.14 4.91 — 966.73 — 545.45

179.60 178.22 1.38 — 179.60 101.41 78.19

84°51

300 80 — 298.79 79.68 — 378.47 — 26.93 7.81 — 34.74

78°19

200 50 7 — 195.86 48.96 6.85 — 251.67 — 40.50 10.12 1.42 — 52.04

1°38

199.92 199.87 13 — 200 9 2 — 5.70 1.14 06 — 6.90

37°49

1000 200 — 789.98 158.00 — 947.98 — 613.14 122.63 — 735.77

N37°28

700 30 1 — 555.59 23.81 79 — 580.19 — 425.81 18.25 .61 — 444.67

J R Thomas
Beg at pt 85' west
of NE. cor Blk 3
Pk. Ho. Logan City
Ut

S 13½ rds; West
6 rds 14'
N 13½ rds E 6 rds 14
ft to beg
Cont. 92.4 sq rds

11.

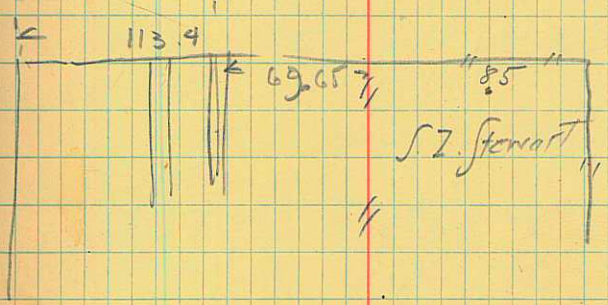
140 | 16 = 8.75

1 1/2 | 0 | 2 | 16 = 7

1,80 / 11 2

6.875
13.5
34 37 5
20 6 25
68 75
92.81 25

70 31 5



Wenona 6-4-20

Survey for
John E. Mills

θ =

41 37 30
— 48 22 30 ea. θ
7 15 54 60

Δ 7 + 22 24 3 4 5
1 30

7 22° 24' 3 x 5"
23

Δ 22 25

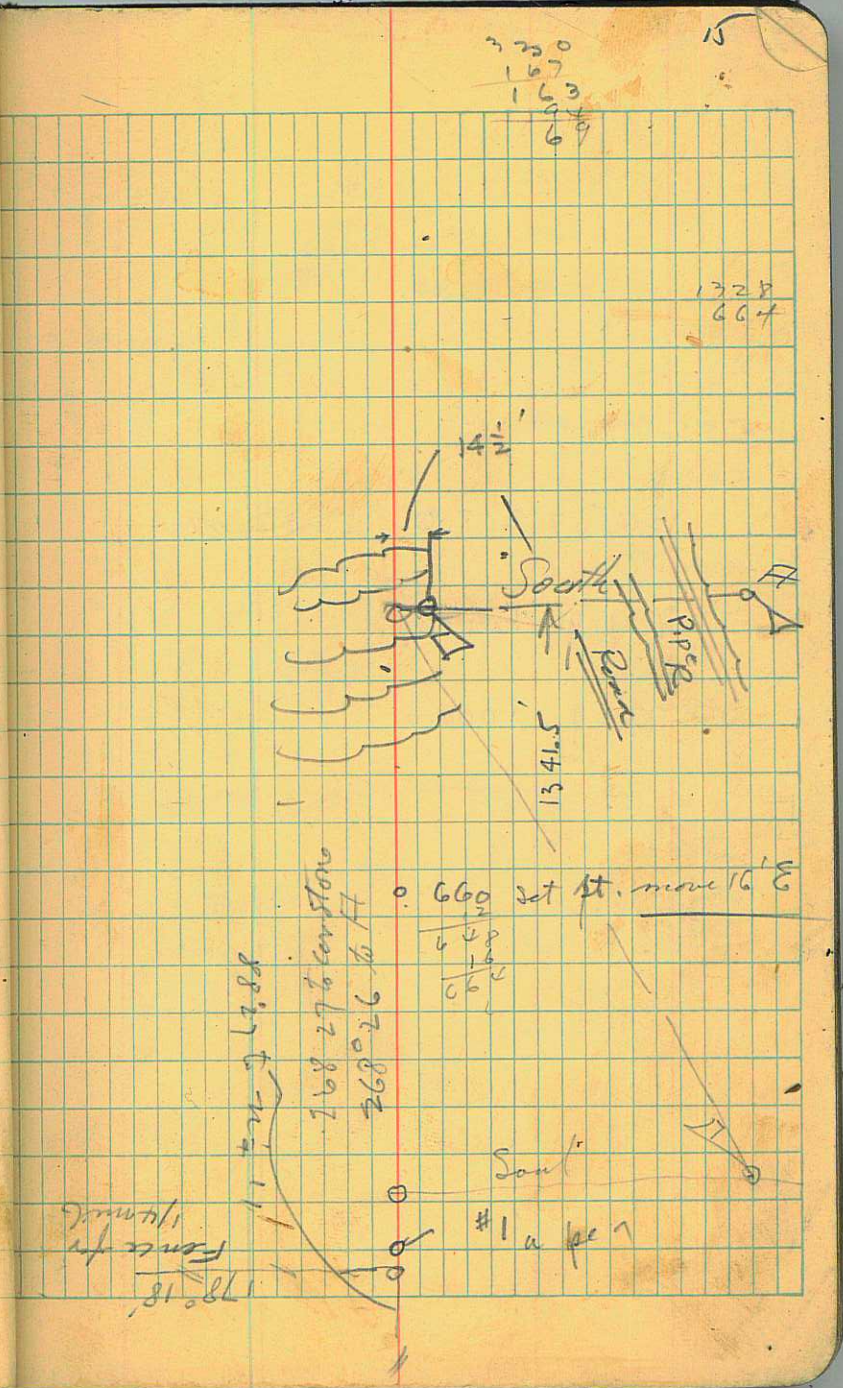
62° 41' to point the pole above
62° 40
62 42
38
4061
40

88°26
40

Mile 62°40

76°38 to new Ecor
Power Sta.

		Slope	Vert ∠	Hor
		69	0°	69
		100	20°20	94
		80	0°	80
	180°	100'	−30°	87
				330
B−	218°12		NE cor sec 11	
B				
	B 0°	X		
	Ħ 317°28	X		
4				
	4 268°47	12.0	to NW cor of NE¼NE¼ 11	
1^				
		1341.5		
	268°26			
1^ Ħ				



245°57 208.0 to N 4 cor 11

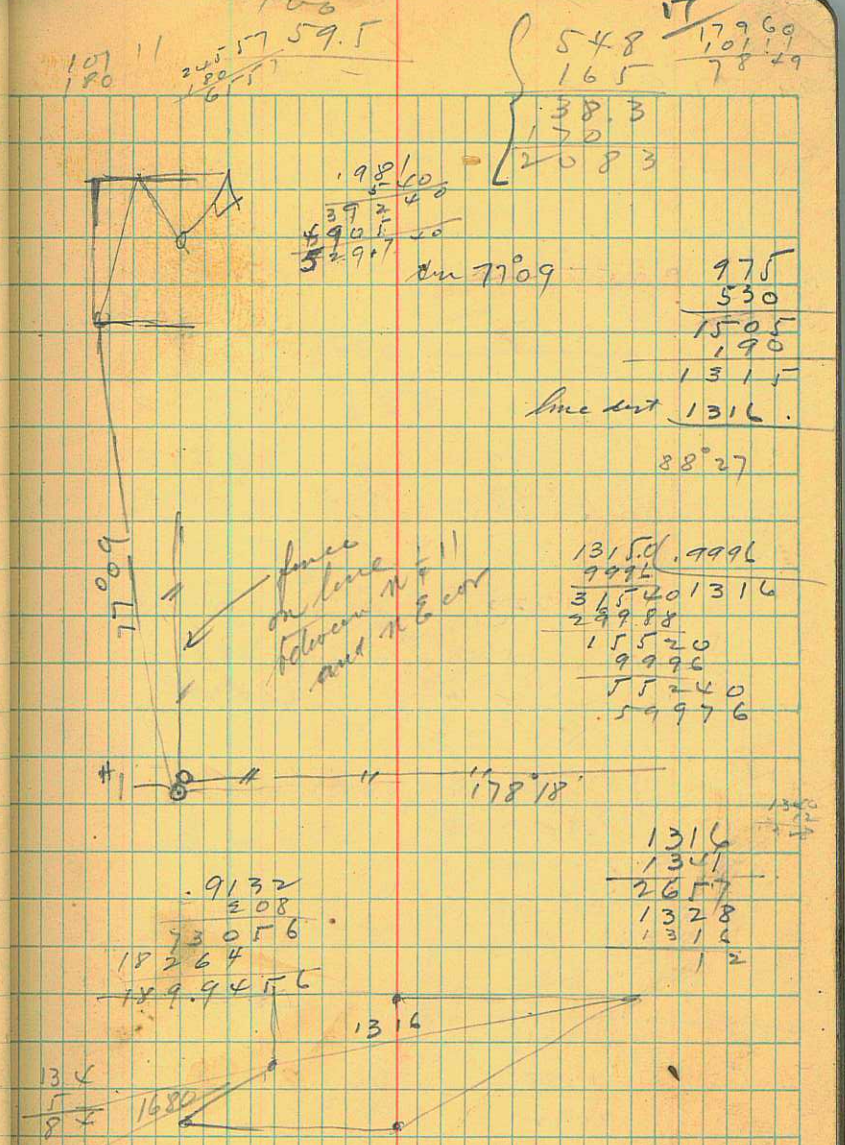
3 — 3 101 11' 540.5

2 ∧ N 77°09 1000.0

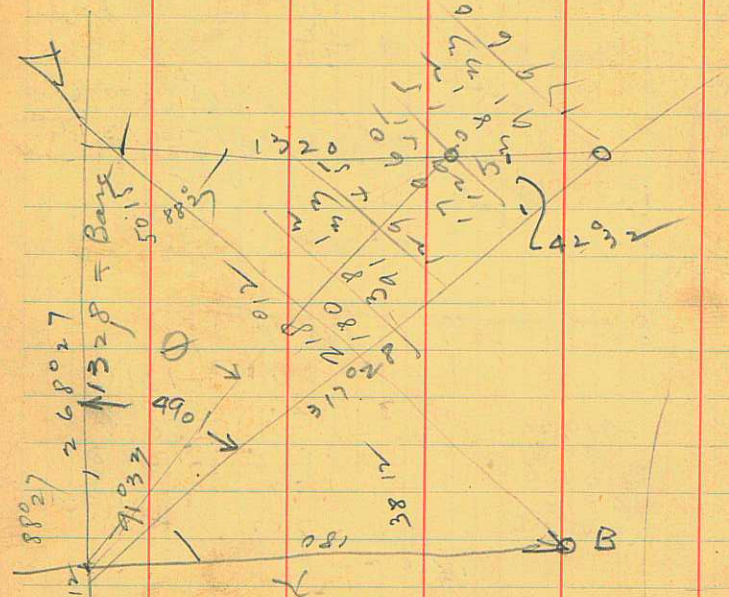
1 ∧

1 ∧

17



Sun 77°09 =



$\frac{1328}{38°12} = \frac{X}{50°12}$

$X = \frac{1328 \times \sin 50°15}{\sin 38°12}$

1668 ft

1320

348

$\log \sin 38°12 = 3.123198$

$\log = 1.885522$

3.008720

1791271

$\log \sin 38°12 = 3.317445$

1650

1320

330

31728

26827

4901

8827

4901

13728

17460

13728

3732

13728

4032

$\frac{1328}{42°32} \rightarrow \frac{X}{4901} \rightarrow 1480$

$\log 1328 = 3.123198$

$\log = 4901 = 1.877890$

3.001078

$\log = 42°3 = 1.829959$

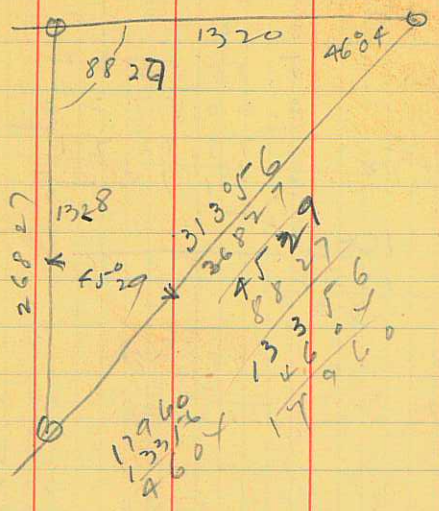
3.171129

1328

1320

163

$\frac{\theta}{1320} =$



$$\frac{1320}{45^\circ 29} = \frac{1328 \times 45^\circ 29}{46^\circ 04}$$

3.12 3198

log 45°29 T.85 31 1·8

2.97 63 1·6

1. 85 74 22

log 46°04 3. 11 88 94

1315

June 13 - 1930

Levels at Odlum - Hatch Pool -

BS	FS	HI	Elev	
			110.63	
			113.2	
			114.41	
			113.95	
			111.04	
			110.79	
			106.20	
			106.70	
2.8			114.28	117.10
June 14 -				
5.37			114.28	119.65
			110.7	
			106.6	

23

113.2 / 110.63 / 2.57

1.66 113.2

113.20

1.67

111.04 / 2.16

117.1 / 2.98 / 114.12

114.28 / 2.82 / 117.10

15' E of west end of 1420 Surface top of drain gutter top wall

under side walk

1st cpc, west end

13 feet E of west end

E end 1st cpc

20 W of E end

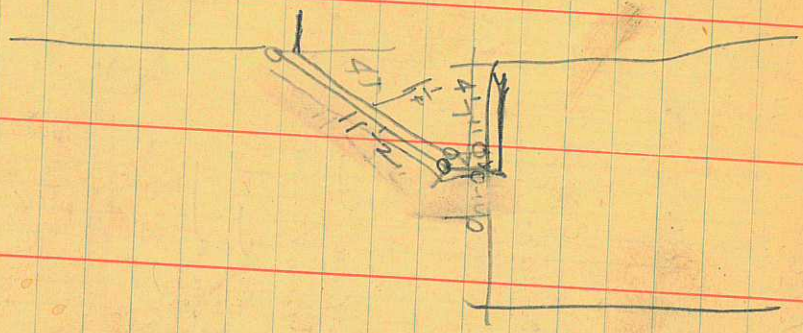
Bm on nail S E cor garage

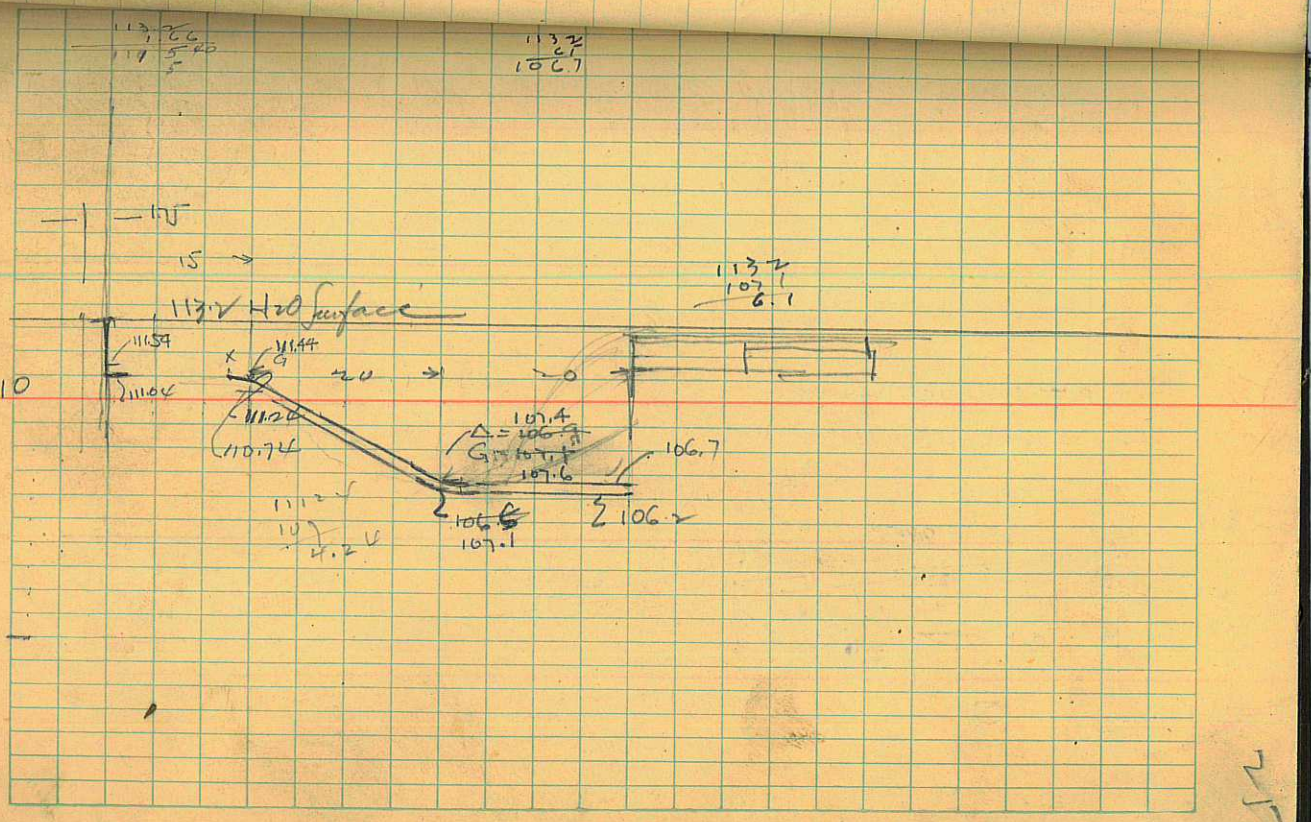
B

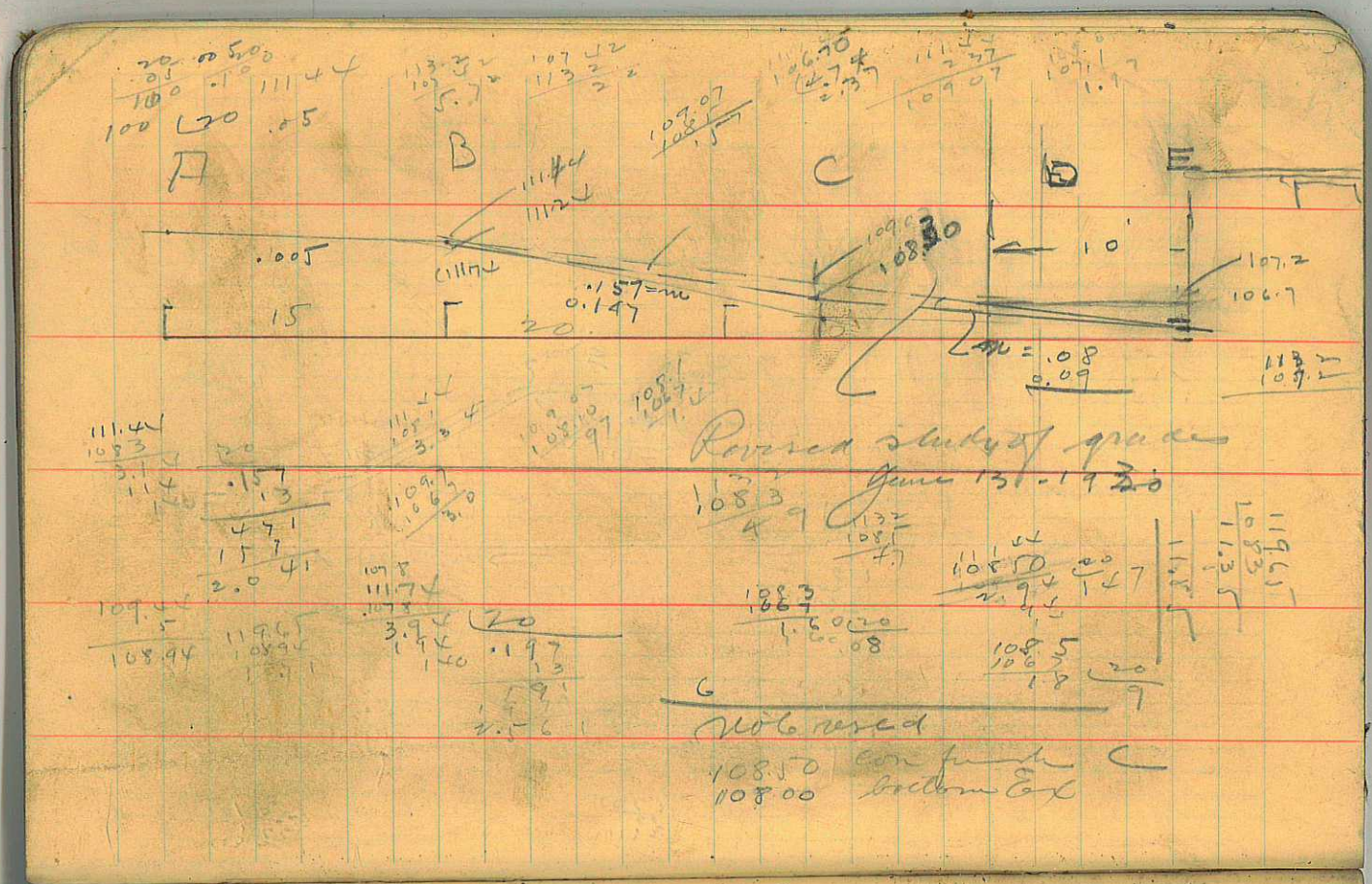
119.61 / 106.6 / 130 / 119.51 / 110.75 / 8.91

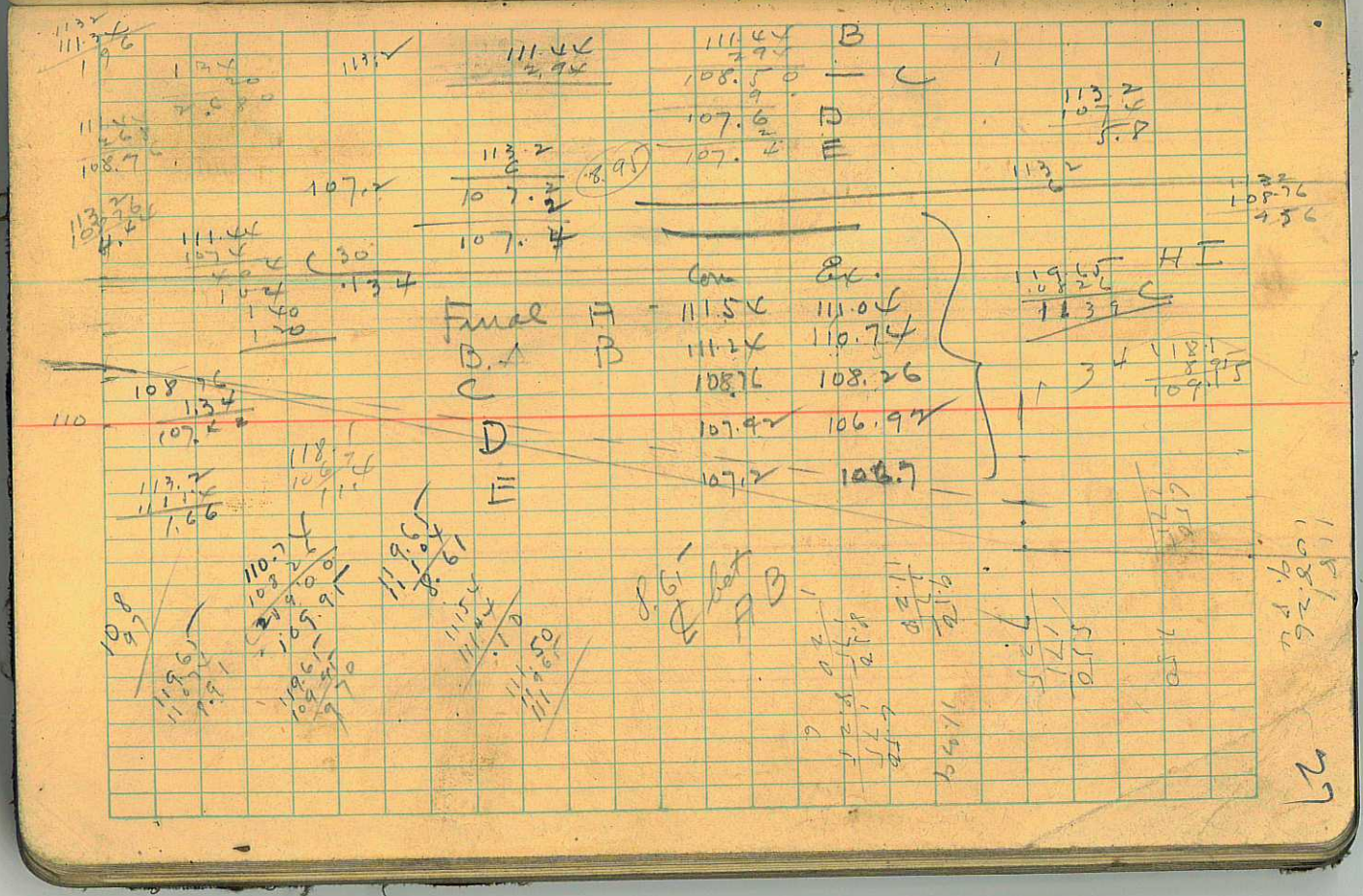
10.4 119.51 / 110.2 / 119.55

119.6 / 9.80 / 109.7 / 8.7 / 10

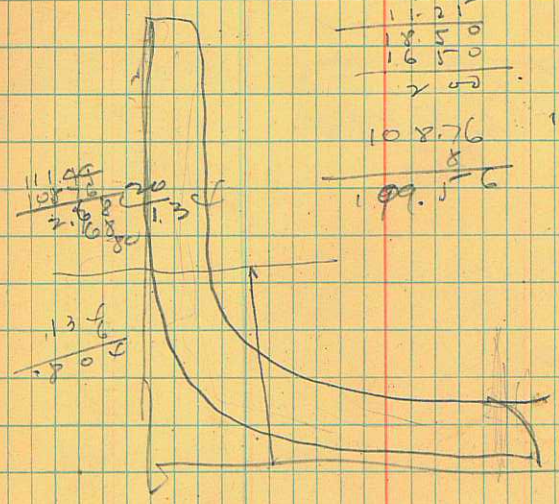



113.2
113.5
110
15
113.2 H2O surface
111.54
111.44
111.04
110.74
107.4
106.7
107.6
107.1
106.2
113.2
107.1
100

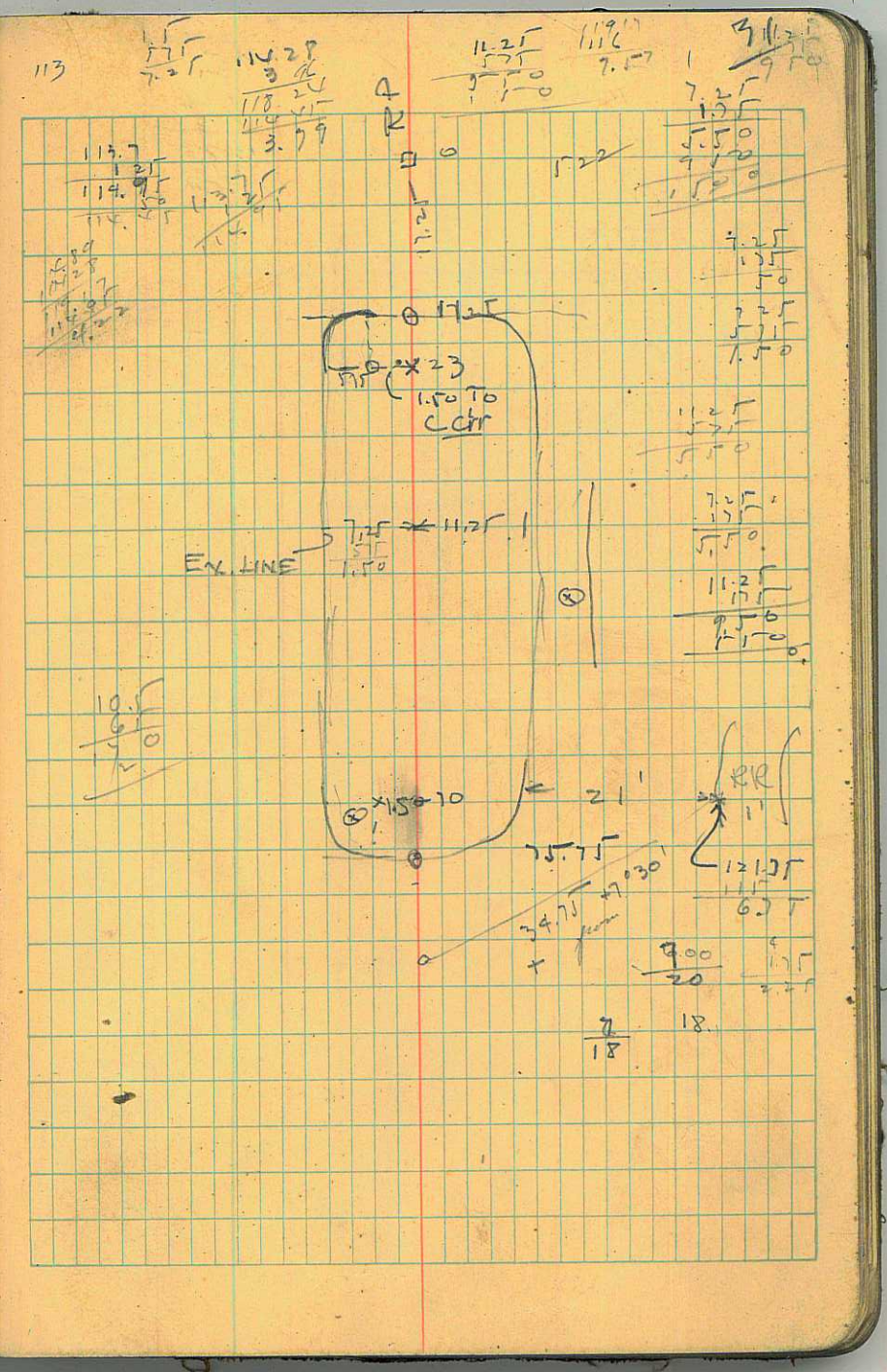

A
B
C
D
E
Revised study of grade
June 13 - 19
C
106 revised
108.50 con finish
108.00 bridge Ex

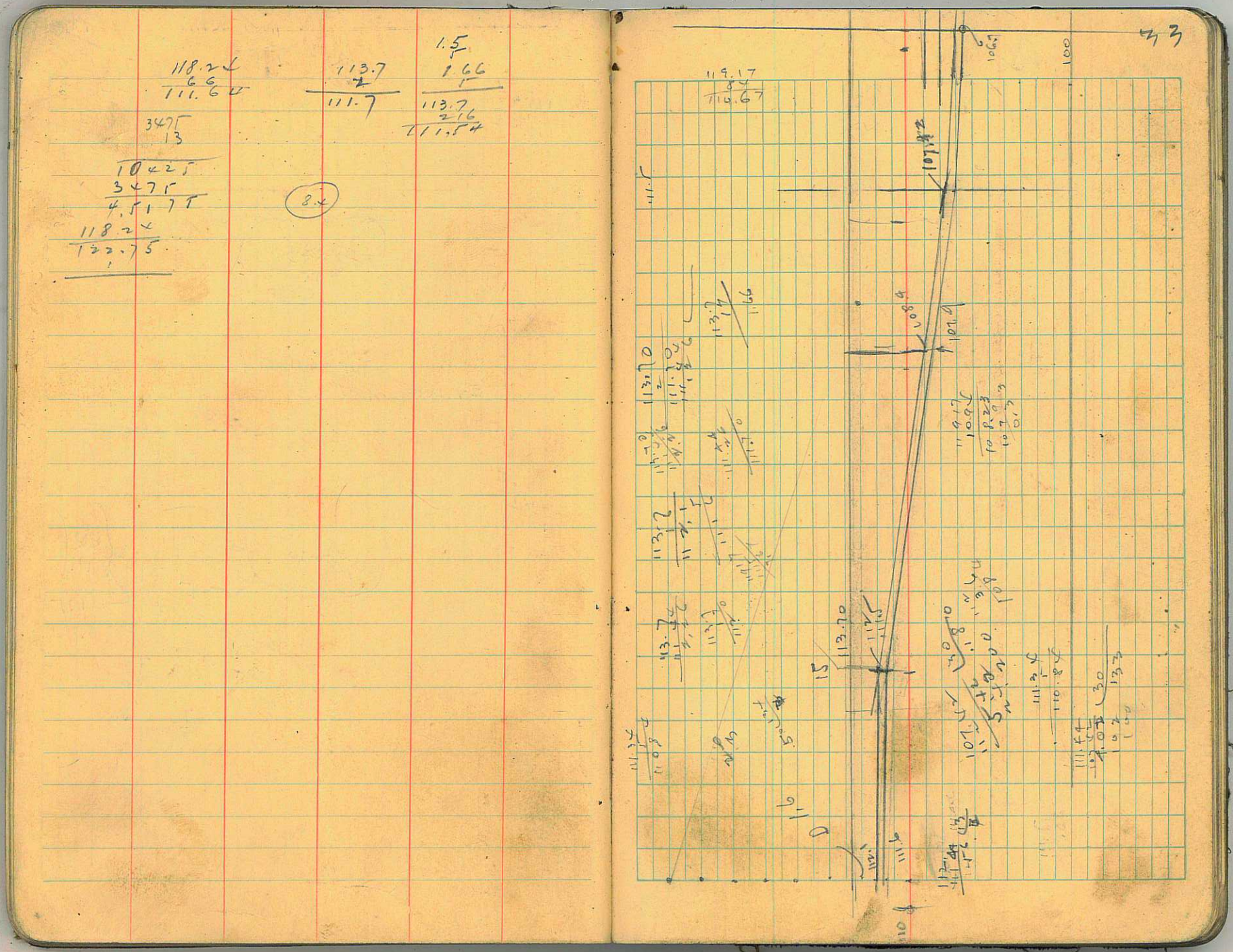

Final
Con
Ex.
111.5
111.0
111.2
110.74
108.26
108.26
107.97
106.97
107.2
106.7
H I

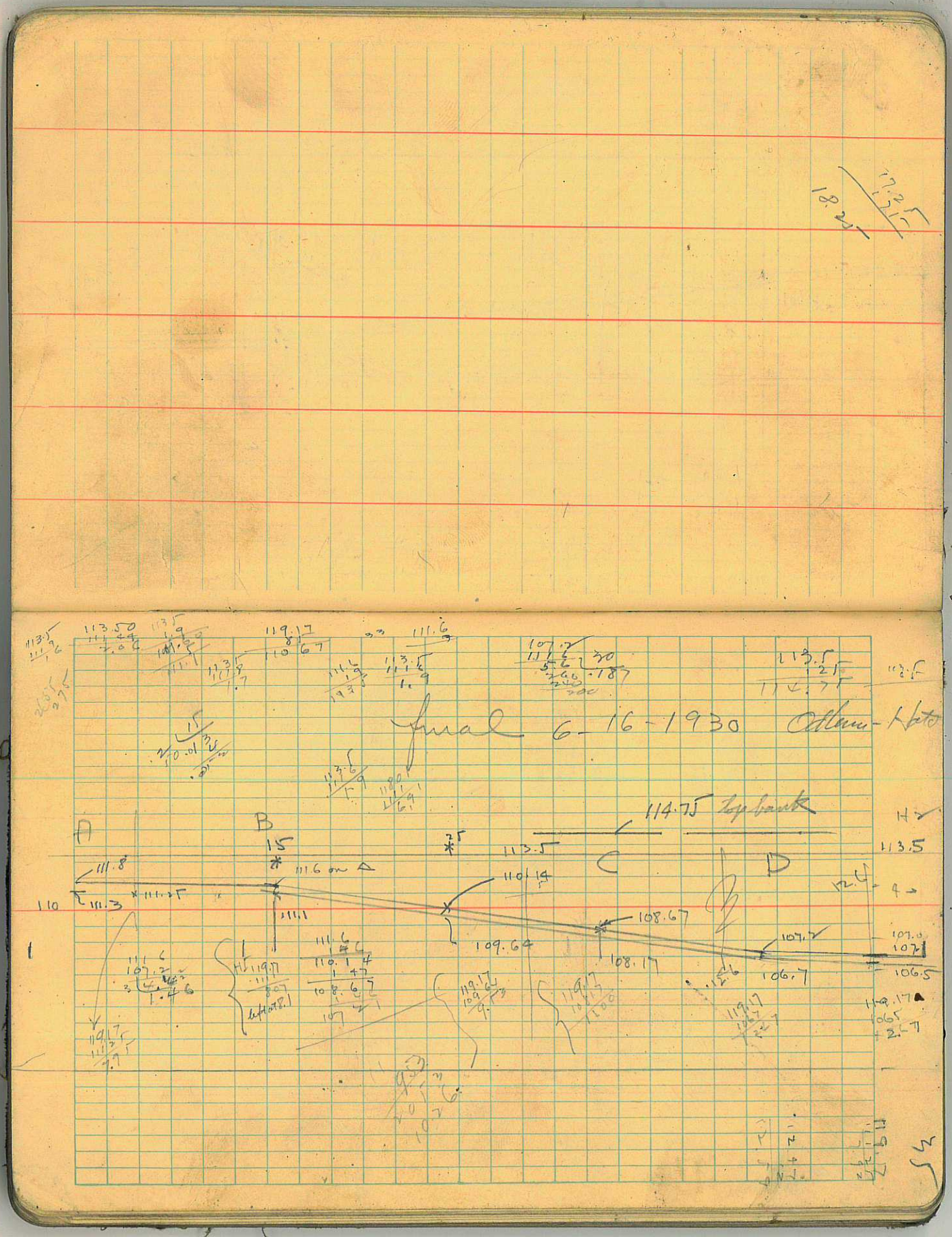
BS	FS		Elev	Ht
3.82			114.28	118.10



	BS	FS			
	3.96			114.28	118.24
①		ground NW cor	6.6		
			3.4		
	4.89 ✓			114.28	119.17
		brake	5.22	114.28 1.705 9.52 ✓	1.705






final 6-16-1930 Ottawa-Hato
114.75 Top bank
A
B
C
D
111.8
111.6 on A
111.1
109.64
108.67
108.17
107.7
106.7
113.5
110

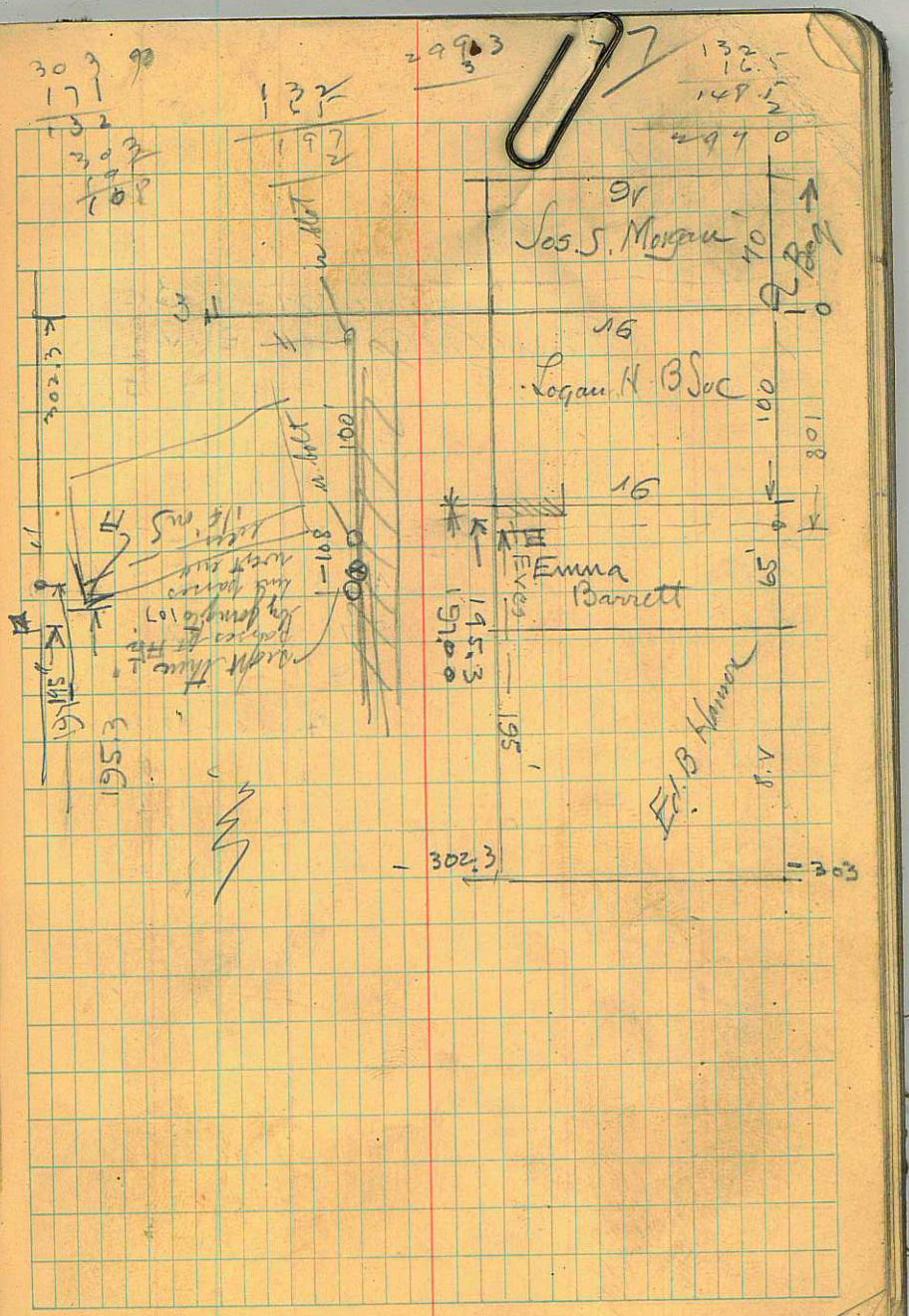
Logan Home

Beg at NE cor lot 1, W on N line sd lot 9 rds to W cor sd lot 5 on W line sd lot 100 ft E on S par with N line 9 rds to E L sd lot 1, N on E line sd lot 100 to beg.

Home Bg SE cor lot 1 N 8 rds W 5 rds 15½ ; S 8 rds E 5 rds 15½ ; to beg

Barrett. Beg on E L lot 1 at pt 8 rds N of SE cor of sd lot 1, N 65' along E line sd lot W 128½ ft 56.5'; E 128½ to beg to Barrett

same beg thence ~~cor~~ N 65' W 9 rds. 56.5'; S 9 rds to beg



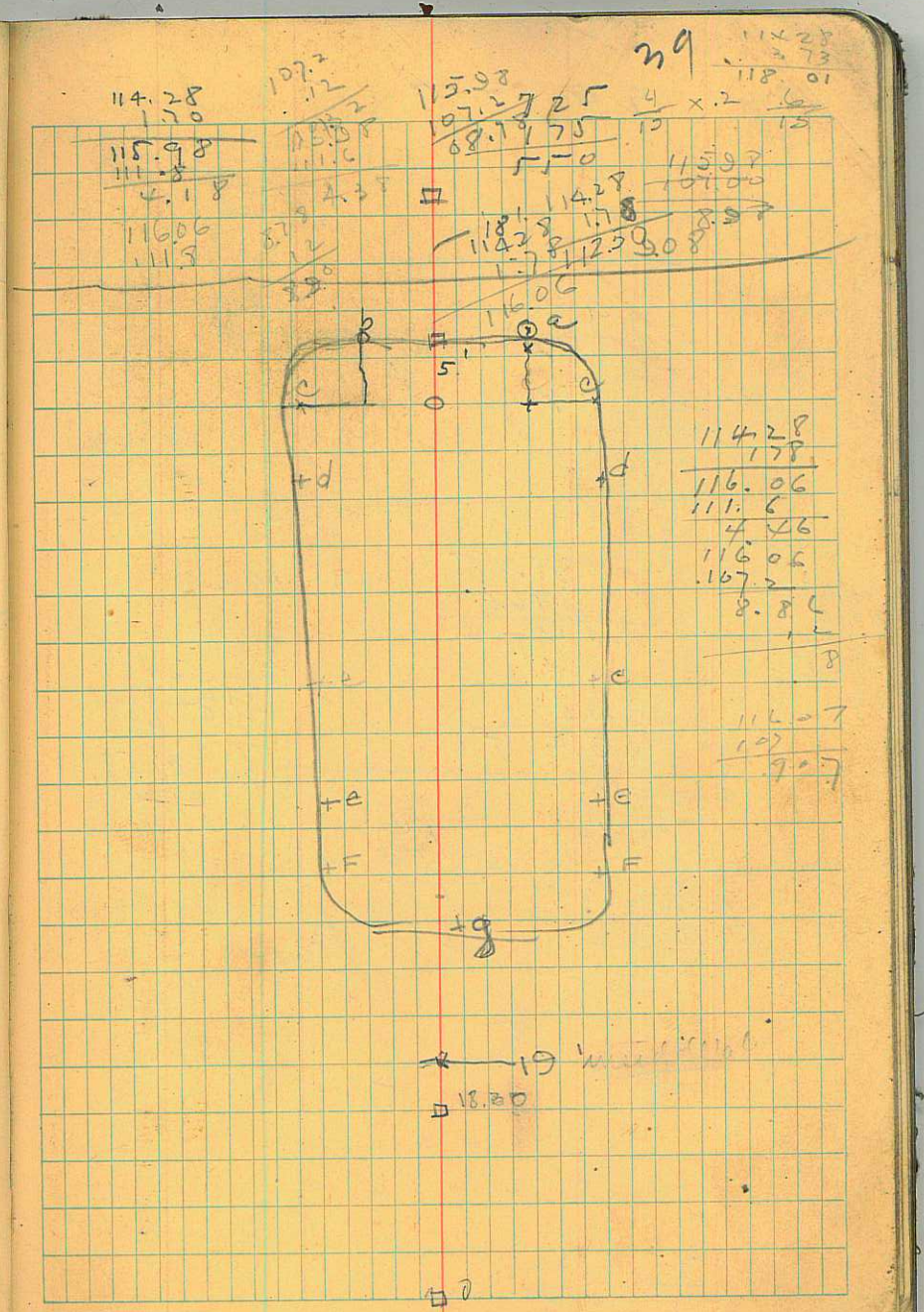
3.73 | 114.28 | 118.01

6.91

June 21 – 10:30

Final Grade Elev.

	1.70	114.28	115.98
a		4.18	111.80
b		4.18	111.80
2c		4.23	
2d		4.38	111.6
2e		8.78	107.2
2f		8.9	
g		9.03	



29 → 3×5

10 17

13

29 ✓

8 ✓ 1 bag 7 gal

15 ✓

57

16.6

5) 83.0

11 6 2

9 4 6 2

4

315 ÷ 16.6

214.50

2450

3525

2 | 5 9 3.4 5 0

6 | 2 9 6. 4 8

5930 | 946.

5676 62

2540

16.6

2 | 36

216 60

1/4 = .8

7.5/1 = 15/2 = .8

7/1 = 6.5/.8

16.10

18.63

4.7

3 | 29

4.7

4.3

4.7

47

329

188

2 | 20.9

3.14

8836

2204

662

2 | 69.362 6

34.68

20

72.2 ✓

33

35

1402 ✓

952

4500

95 ✓

15

17x = 15

15 | 17

150

140

.8 0

31 9 13

6 | 193

9

5/7

5 | 16.8

4 | 36

32

40

56

9 5 2.5 6

Leinds for first wall pour 6-28-30

top first pour 76 of Wall

pt. 4' W of east end

top wall seam at the pt of flare

Jan 30 - 1930

3.99	114.28	118.27
5.97	112.30	
	~~111.81~~	
3.90	114.28	118.18
3.76	114.42	
4.68	113.50	
5.88	112.30	

Surv. for Wm Napper
Smithfield – June 30-1930

11.5
16.1
57.5
690
115
189.75

5.97
1.12
12
75
7.97

Agnes B Fuller
Com. at pt 7.97 ch N
of SE cor of NW¼ sec 28
E 16.5 lks to St. to E line frac.
bet B. & C. Pl C N along
sd E line 2 ch W 11.0 lks
5 ch. E 9.35 to beg

50.00

7-8½
7½
8-6
9-

660.45

16.5
7
11.55
2.25
189.75
13
202.75
205.00
202.75
2.25

66
8.25

620
616.5 end wire fence

189.75
8.25
198.00

673

? ledge at house
saw this no line

205.00
2.25
202.75

197.7
13
184.7

LAIN
387.3
13
374

1897.5
18.57

255.13
88°25
180.0

205
13
192
189.75
2.25

205.00
197.7
7.3
8.25
13
75

50'

205 meas
202.71
a peg
for line bet.
T W Smith &
L. C. Peterson
rd.

197.7
13

+14 N

July 1 - 1935

Started to pour walls of H Pool

31 shovels gravel
15 fine sand
8 course sand

$1 \times 1.5 \times 5$

$.75$

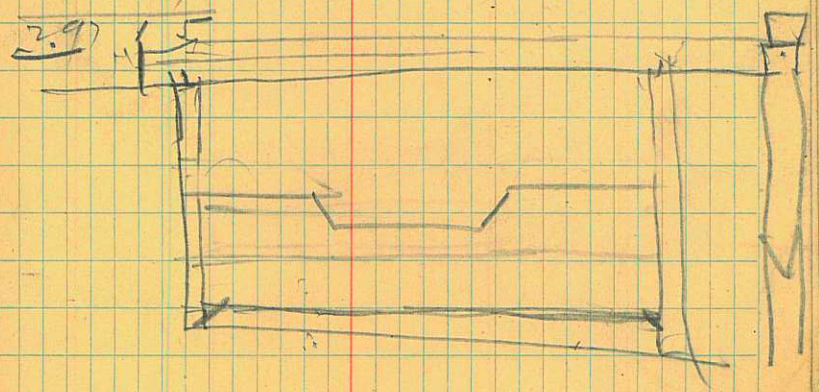
$.87$
$.8 \quad .64$
$0.7 \quad .49$
8.08

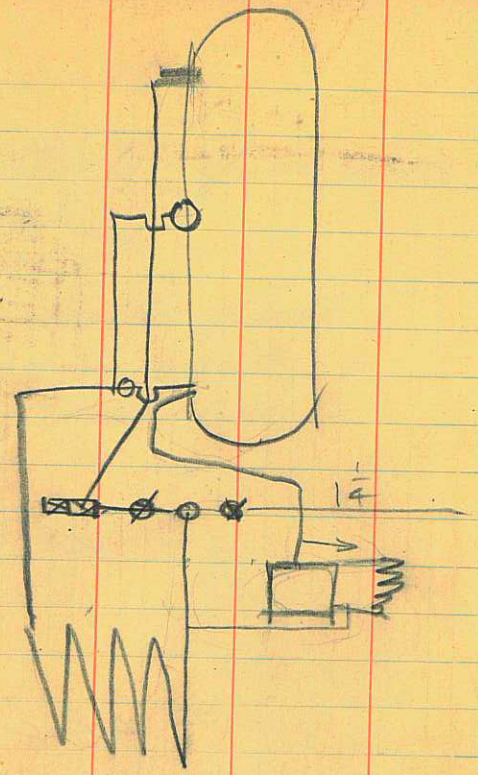
$Q = aC\sqrt{2gh}$

$Q = aC\,8.08\sqrt{h}$

6" h

4" c F s





11.12



Courses for Fogarty
Golf Course July 2 - 1930

May 28 - 1932

272° 21 00
272 22
272 22

May. 28 - 1932

δ =		21	28.5
9. am	21°	30'	42" ✓
9:30	21	30	48 ✓
10.00	21	31	00
10 30	21	31	06

Det on NW Sec 36-12N 1E

δ = 23° 04' 60.4" 10.61
2 7.32
23 04 53.08 1061
43 127.3
δ = 23° 03' 36.08" 7.32

θ = 41° 44' 40" 2.65
Co θ = 48 15 20

89 59 60 10 2.65
5.80

26.50 80
2320 4.6
330 0

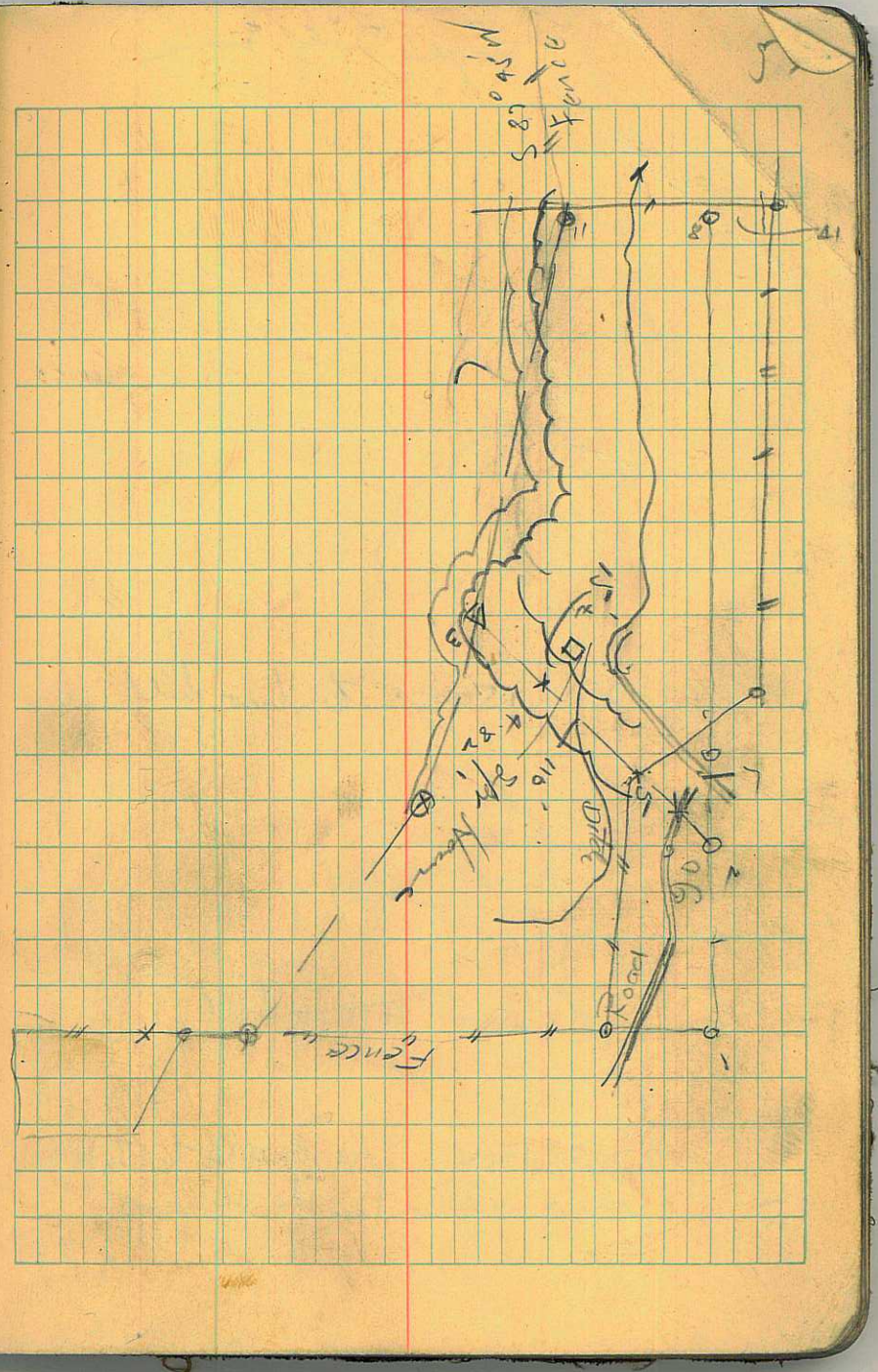
272° 33' 00 SW corner of pasture
(272° 21' 30") box
272° 33' 00

272° 31' 30" mm

Lat 41° 44' 20
Co- 48 15 40

3	280°56		S79°04' E
11	0°12	171.5	
10	0°12	79	℄ College Ditch
9	180°	41	to So side St
8		1120	
		1121	1 from N 4 S
		300	18½ N to So side Road
		252	from town N W
7	90°	30	to Ditch
3	42°03	445.5	
2		445.5	
6		310	Dug Road
5		268	to fence town N W
4		8	
1	90°	200.00	

272°31'30" } to S.W. cor. Concrete Pressure box Ut Power



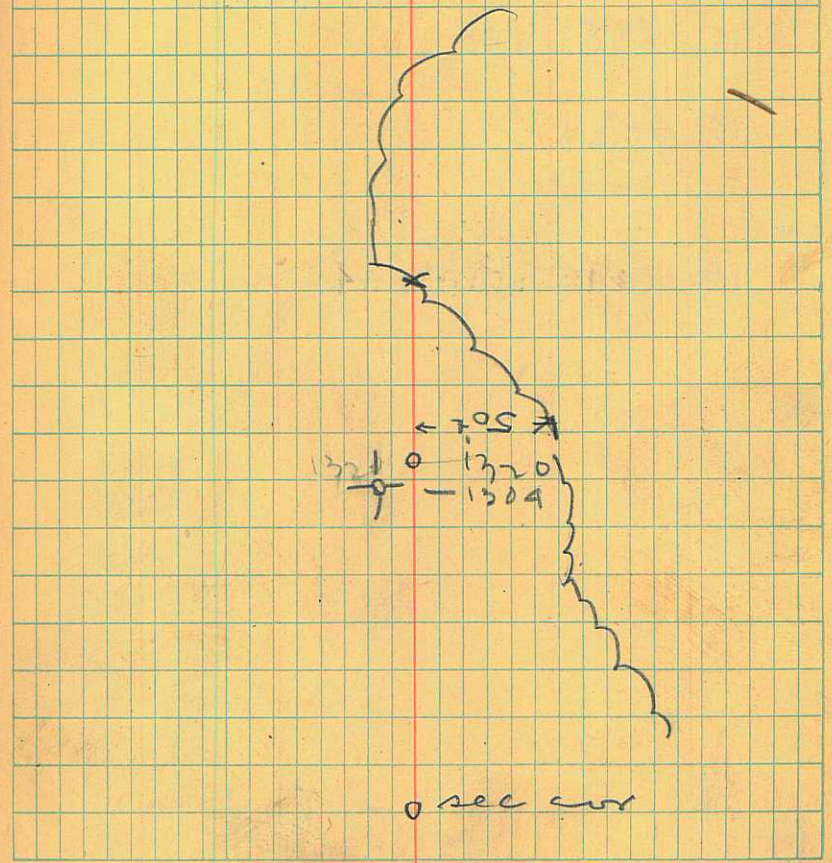
Logan Golf Course

270 1500 ± to brow hill

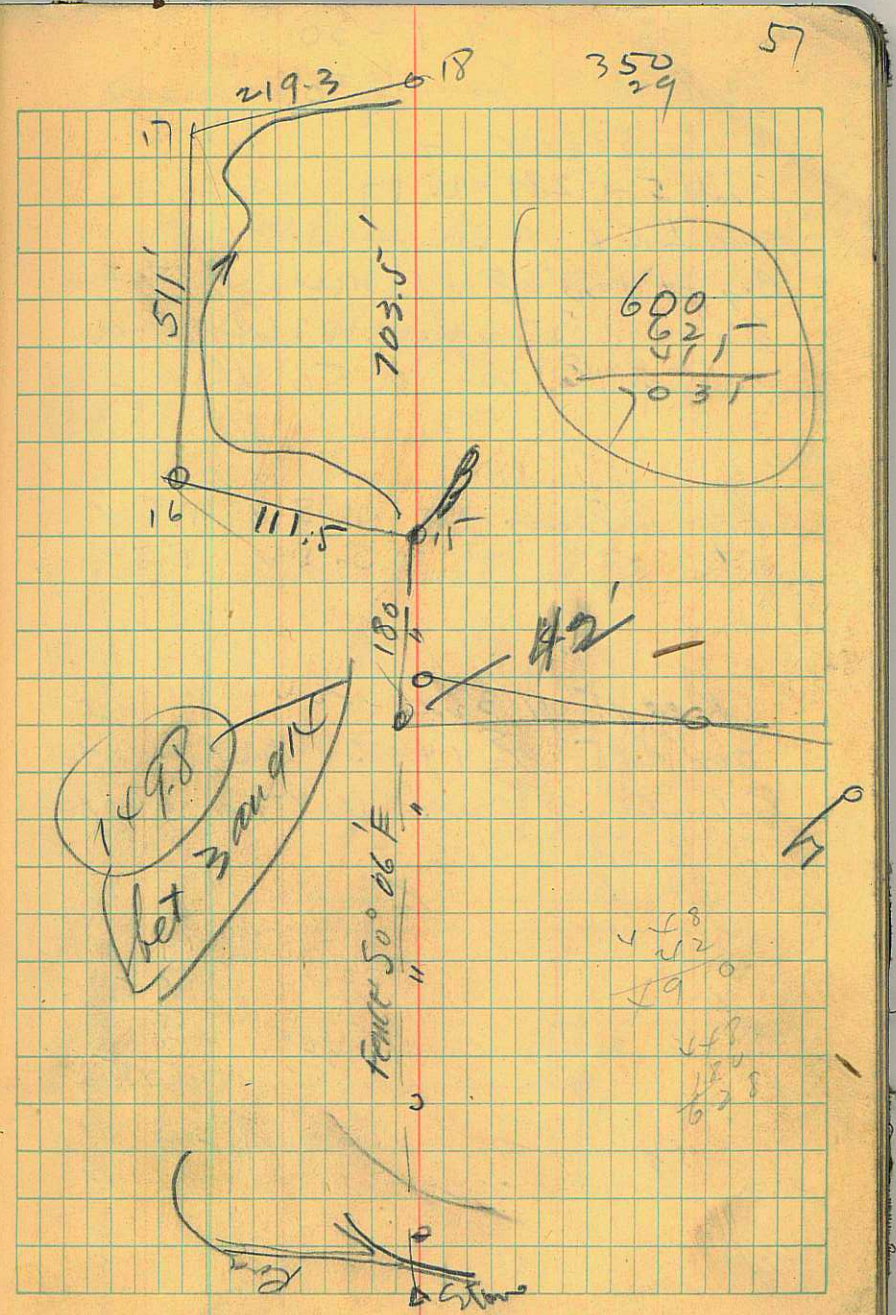
~~1500 ± brow hill~~

270° 1304 } N about 14 to Cth pole with ± gump.

15



18	0°37'		
17	347°37'		
16	335°46'		
15	0°35'	180'	
14	95°20'		379.4'
13	359°43'	S0°17'E	448
12			



7-5-30

Anderson & Sons Co

Smithfield —

Book 5 - 281 - L 17

same L 64 - P 214 -

Beg pt 130' E of NW cor lot 6
E 134' 57 rds - W 264 ft N
65 ft. E 130 N 50 to beg

also

Beg SE cor lot N 5 rd, W 5 rd
S 5 rd E 5 rd to beg

Beg at pt 3 rds N of SW
cor lot 5 E 14 rds N 2 rds
E 6 rds N 4 rds W 20 rds
S 6 rds to beg

99
49 5
65
50
263 5

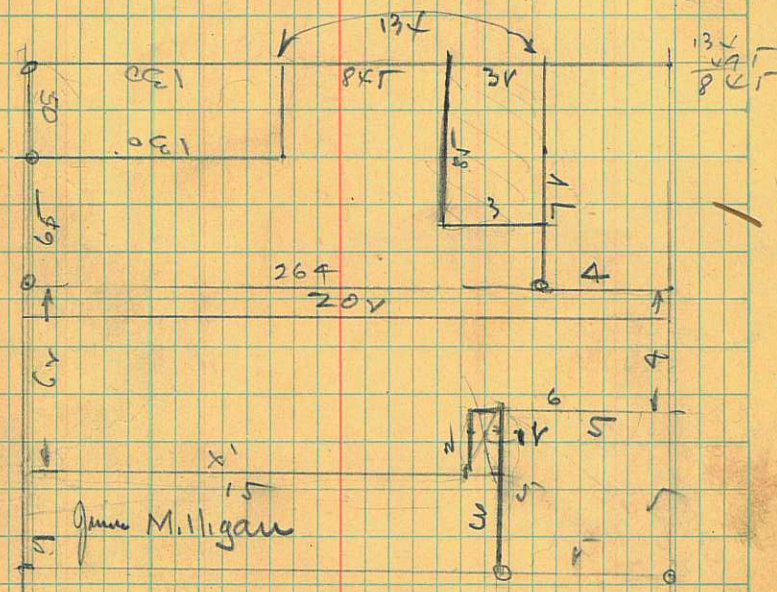
Smithfield City

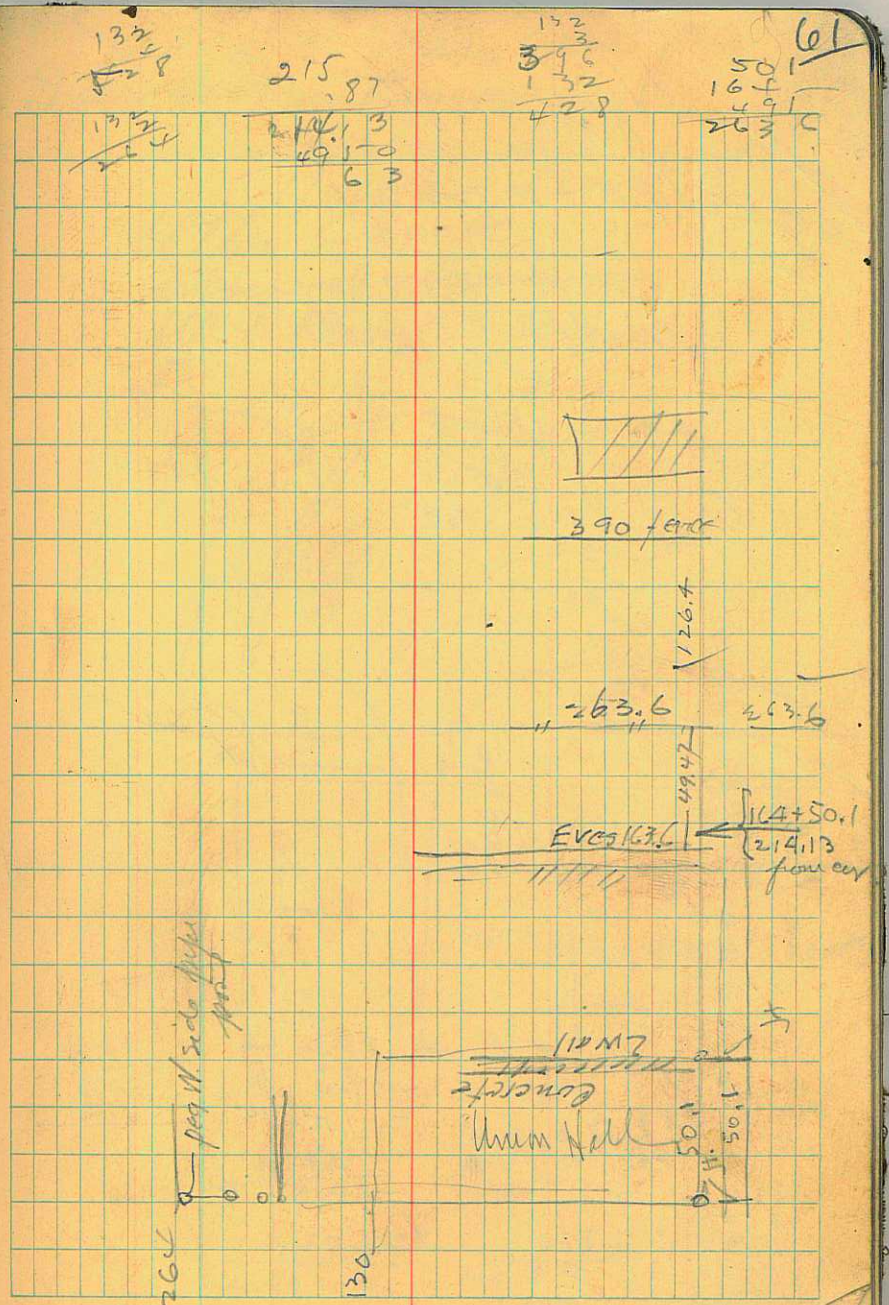
59

L 52 - Page 214
Com NE cor lot 6 57 rds
N 4 rds, N 7 rds E 4 rds along
St line to beg

99
49 5
16

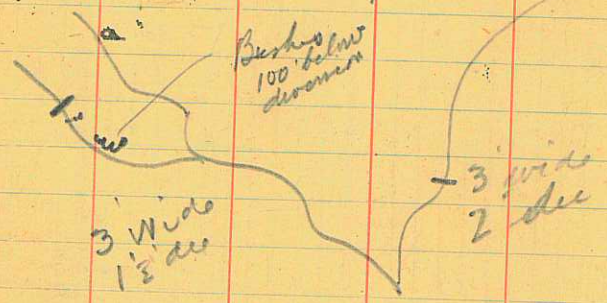
Also —
Beg 264' E of NW cor lot 6
S 85', W 3 rd N 85' E 3 rd to beg




390 feet
126.4
263.6
263.6
49.42
EVG 163.6
164+50.1
214.13
from ev
Concrete
Wall
Wall with side
264
130

Hydrographic Engineer
on Alder Creek
July 8 - 1920

Dick Jackson
Middle fork



4.42
720
884
3098
3182.40

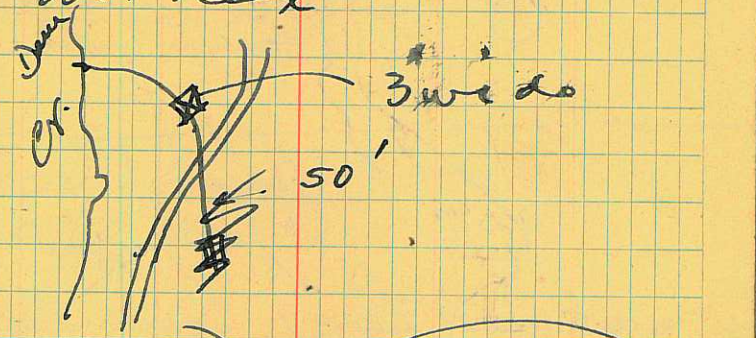
1180
0.42
2360
4720
496.0
√2215.60

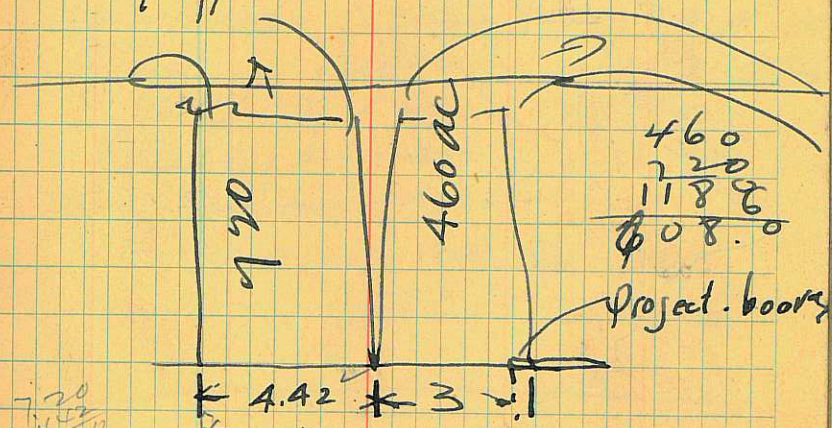
3215.6 = 720 x + 3182.4
3182.4
2033.2 / 720 = x
1440 / 2.82
5930
5760
1700

Appointed Water Comm. by
St. Engr. Geo. M. Bacon

6.2

North Fork
Alder Creek 7-8-20
upper diversion
W. T. Rex





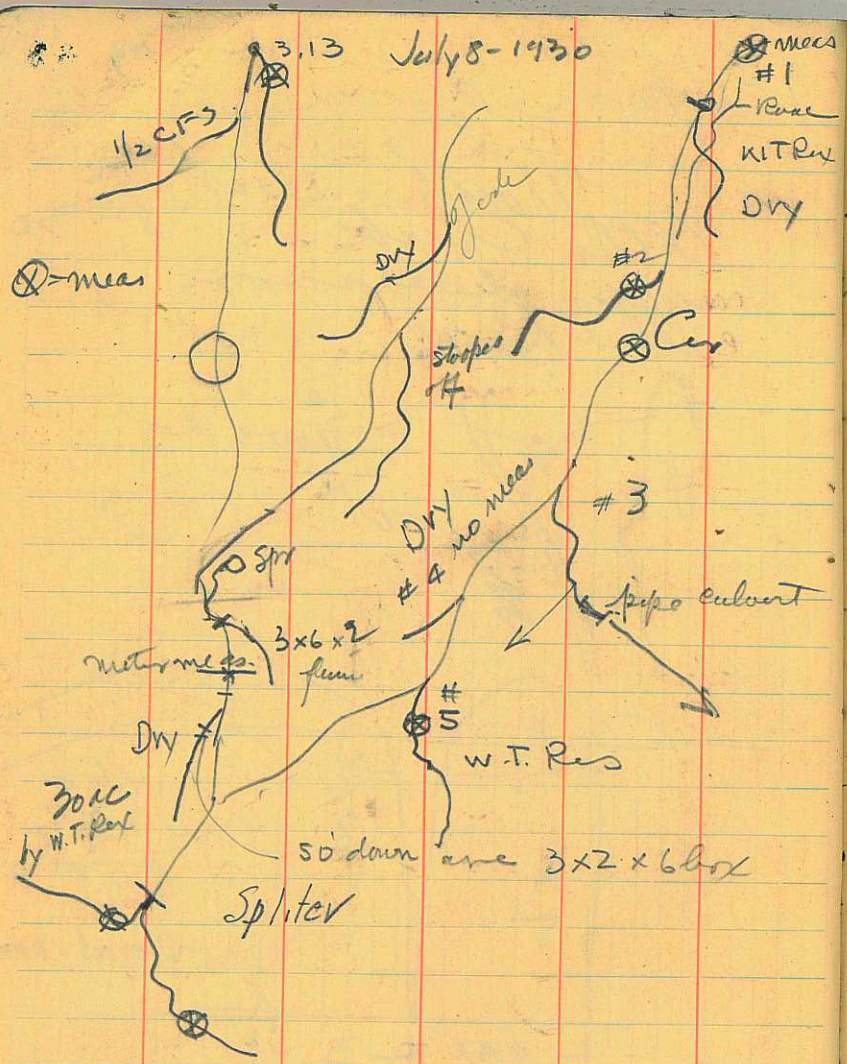
460
720
1180
608.0

7.20
4.42
2.78

4.42 / 7.42

4.420 / 4.42 = 6

4.42 × 1180 / 4.42 + x = 720



= 2.88

Otter Creek Waterman

63

South Fork	3.13	
+	.50	
	3.63	

Middle Fork
e.g. mingled with So. and N before being meas.

Decree owners — 3 6/10

2160 total

Henry Nicholas	300	= 0.138 o/o
Argile Res	310	0.142 o/o
	800	0.370
Oren Jackson	460	0.216
Holstrom	110	0.051
Richard Jack	180	0.083
	2160	1.000

Water in Creek —

South Fork 3.63
Middle " 00
N. Fork ② 1426
③ 1875 3.201
④ 000
⑤ 480 3.78 1
3515
Argyle 2.474
Orsino Jackson 9770

9.77
13.40

July 27 - 1930 Time
at Splash 9:15a 0.49

July 27 - 1930 After calibrating flume for Left Fork Middle Fork we gave him 1 C.F.S at this pt.

Henry Nicholas .138
Argyle .142
Adams .051
0.331

			Shoshone	Meas
Argyle	13.4	x 3.3 =	4.40	3.50
Rec 800 - 3.71	13.4	x 3.7 =	4.95	3.78
Orsino Jackson 400	13.4	x 21.6	2.90	2.47
	13.4	x 083.	1.10	3.63

3.63
1.10
2.53

3.51
2.47
5.98

3.65
2.31
5.90

3.65
5.71
.14

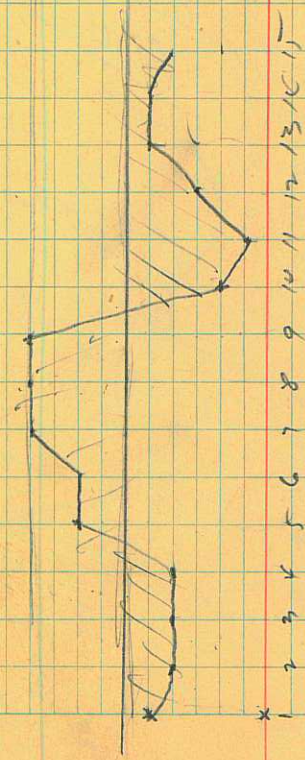
July 12 - 1920
Levels at C - IV pool.

1.27 15.25" 114.28 115.55

①	13 5/16
②	13 4/16
③	13 4/16
④	13 4/16
⑤	13 8/16
⑥	13 8/16
⑦	13 10/16
⑧	13 10/16
⑨	13 10/16
10	13 2/16
11	13 1/16
12	13 3/16
13	13 5/16
14	13 5/16
	13

113.50
92
114.42
28
1.27
100 16
140 62
2 8
13.062 12 1.68
106 109

5
1.09



30 8
60 37

15.25 12
1.27

3 27
2 4
8 5

114.28
1.27
115.55
1.09
114.47

13 37 12
1.2 1.11
13 17

115.55
1 1
114.44

113.50
92

3 3/16
3 8
12
3 13
8

20 00.0 (1440
14 400 1.3x
5600 .65

24
.65
120
1 x 2
1560

1	14	3/4	12
2	14	1/2	8
3	14	1/2	8
4	14	9/16	9
5	14	8/16	8
6	14	15/16	15
7	14	3/4	12
8	14	5/8	10
9	14	5/8	10
10	14	3/4	12
11		3/4	12
12		8/16	8
13		12/16	12
14		12/16	12
15	15	1/4	20
16		12/12	12
	14	10/16	10

Grade
14 7/16

11
5 1/4 or
Bill
11 4 28

13 3/4
1 3/4
15 1/2

17.47
14.44
3.03

70 16/24 (2

3.116
8
1 1/3 2 8
6 2/3 8
9.7 8
8 2 8
18
26.00

6.3

8.3
11
30
6 6 30
3 1 0
6 5 4 0

4 2 5
1.1
4.3 5
2 2 5

2.0 0 (65
1.9 5 .03
1.9 5

26
.03
.78

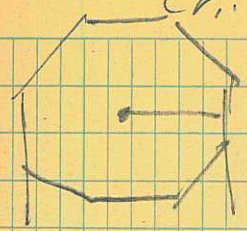
3/4

14.44
.78
15.22
2.25
17.47

8/6

χ 17.4ϕ

Cr. 03" = 5 m



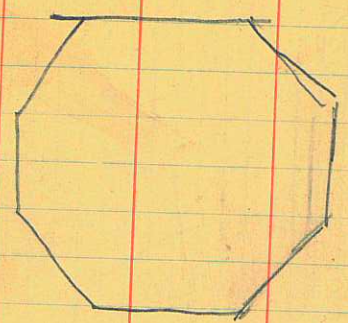
7.8
3.
10.8 11.8
5

3.1 66
3
1 5
8.6 6

26 → 17.47

0

W ems



101.2
5.00
7.5
1.21
6.2
1.95
1.68
6.2

6.86

6.2
.33
.33
6.86
.95
.33
1.28

6.86
1.28
5.58

× 4.5
101.7

× 7.9 98.3
4.5
(12
6.2

106.2
6.86
99.33
.33
99.67
.33
100.00

106.2
5.58
100.62

7.5
× 98.7

106.2
7.5
98.7

106.2
7.9
98.3

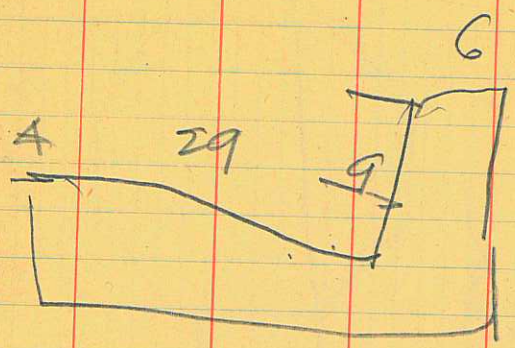
100.00 106.2

100.5

100.62 top wall

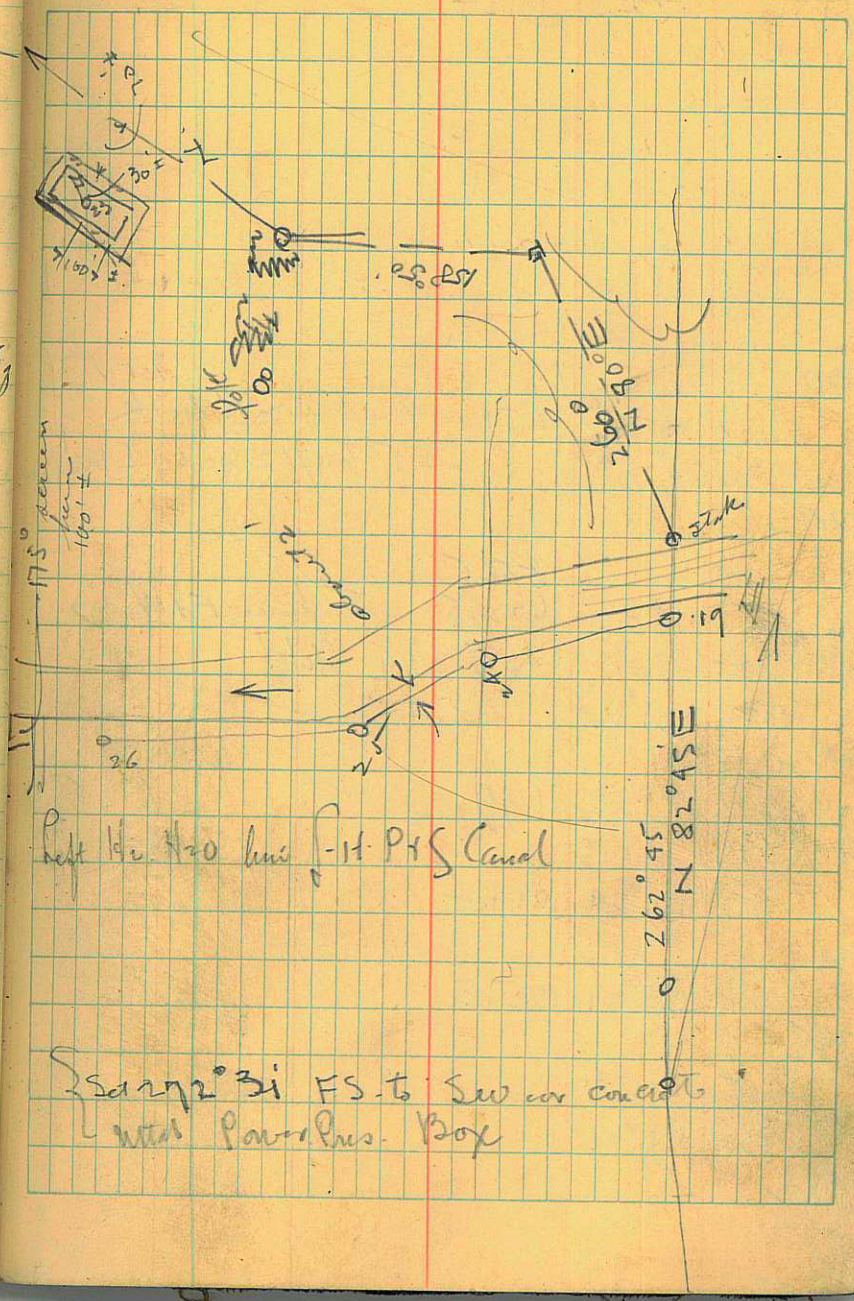
found work
mark sub-grade
99.6

106.2
7.2
99.2


6
4
29
9

Survey of Reservation
City Res. Grounds from
Golf Course 7-22-30

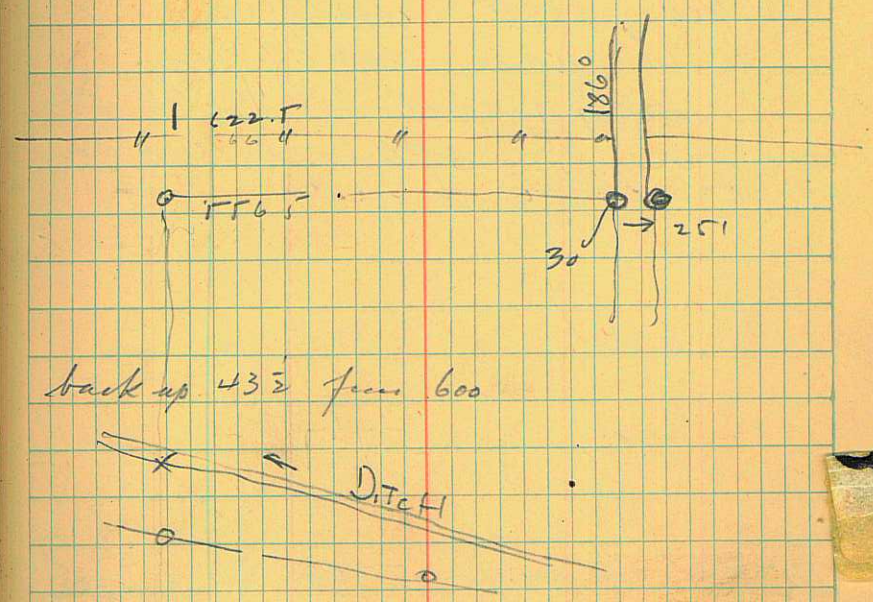
		Dist.	
18	131°16		
24	158°29	400.0	
	140°18		NE cor Gymnasium House
19-			
23a	135°25		To SW cor of cove S. West 2½ ft
23	154°16		
22			
22	158°50'	150.0	
21			
21	260°	225'	N 80° E
20			
20	262°45'	28.2	
19			
		1892.0	
19	262°45'	1890.0	
		1600.0	
		1000.	
17			



Pt	Az	Dist.	
30			
	270°	251'	to spegum R bank
30	270°		225 to spg 2' west of L bk. Cm.
29			
29	6	556.5	
	180	622.5	to fence E+W
~~24~~	180°	28	to ℄ ditch
19	131°16'	Reset	
28	98°33'	199	
27			
27	121°24	214.2'	
26			
26	158°09	185.3	
25			
25	147°07	55'	
23a	191°00		
19			

600 556.5 43.5 — 622.5 66 556.5 — 131°16 18 311 16

71



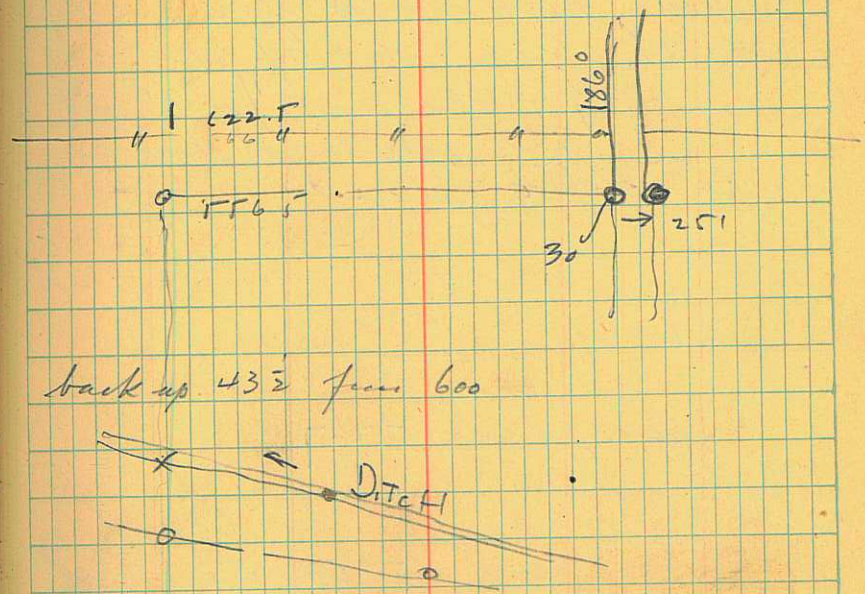
Pt	Az	Dist.	
30			
	270°	251'	to ⊥ pegon R bank
30	270°		225 to ⊥ 2' west of L bk. Cm.
29			
29	6	556.5	
	180	622.5	to fence E+W
~~24~~	180°		28 to ℄ ditch
19	131°16'	Rect	
28			
28	98°33' 24	199	
27			
27	121°24	214.2'	
26			
26	158°09	185.3	
25			
25	147°07	55'	
23a	191°00		
19			

600 − 556.5 = 43.5

622.5 − 66 = 556.5

131°16' − 15 = 311 16

71



back up 43½ from 600

7-28-1930

Leads at
Gage House to Field
Camp on Paris Creek
Set Hook gage

11

When hook reads zero on
tenth gage top of staff
is 0.897 below 1/2" bolt
on R. spill gate weir
50' above gage

4.861

5.757

5.733

7.443

4.175

6.723 7.20 P

3.465

4.86
897

5.772
717
.015

on 1/2 bolt.

Son top staff when hook
reads zero

Son staff after 1H2O measurements were made
6.16 and 6.17

on hook when staff reads 0

Son top 1/2 x 12" bolt driven in on E side
of large boulder 2' N of fence & 21' SW
of Crawford bridge

100.000 2000
100000 50

20 cfs ft
40

1200

4000 66
60 8
480

60 20

976
976

58 16
6 8 3 2
87 84
.95.2 7 6
145
91
72
130
137.
22
276
276
30.1 4
12
42
37

1380
1000

12
13.4
0380
- 12

13

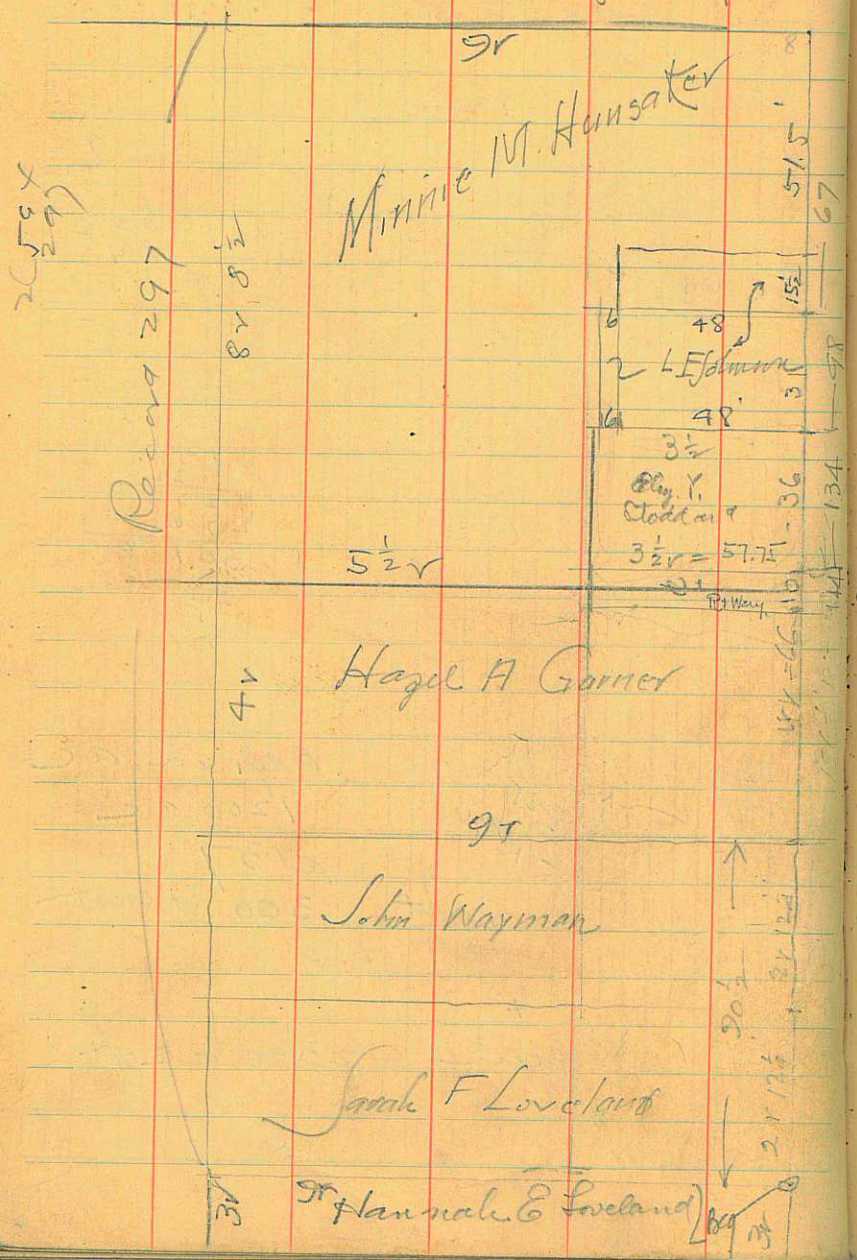
1200
11

37 ft
37
13

@ap. in ac
1200 ac
@37
300 ft cent

50' dam 2300 ac ft

Blk 33 - Pl. Logan Cty



Minnie Hunsaker

Part lot 8 - lines 66-67 - Page 81 - 14

Sec over Deed Bk - 163

L E

1/160 C
3.5

65-149 L E Johnson Com 98' S from NE cor lot 8
148 W 48 N 31 E 48 S 31

Also com 67' S & 48' W of NE cor lot 8 W 6
S 31; E 6 - N 31 to beg

also Beg at pt 67' S & 48 W of NE cor
8 - N 15 1/2 E 48'; S 15 1/2 W 48 ft.

50-104 Bby Y Stoddard, Beg at pt 134' S
of NE cor lot 8 W. 3 1/2 r N 36 E 3 1/2 r
S 36 ft to beg

with R of W Beg 134' S of NE cor
on lot 8, S 10', W 3 1/2 rods, N 10' E 3 1/2 r
to beg

52-371 Jacob F Loveland

Beg on E bdy l lot 8 at pt 14 r 20 3/4' S of NE cor. Sd lot 8 W 9 r. S 2 r 12 1/4 to SW cor of lot E 9 rds to SE cor sd lot N 2 r 12 1/4' to beg

55-207 Hazel Gain Beg at pt 8 r 8 1/2' S of NE W 9 rds S 4 r E 9 N 4 rds to beg

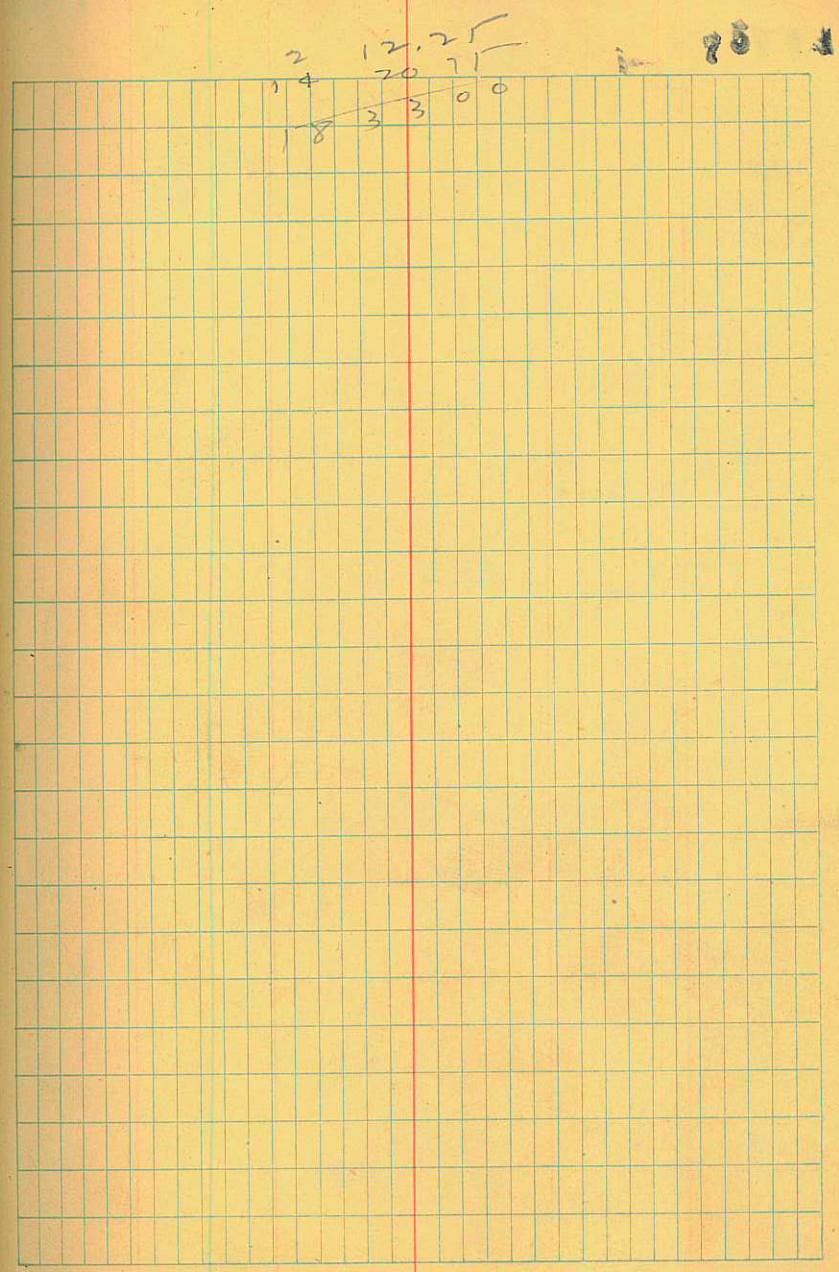
61-163 Mary A. Gainer widow to return

Beg at NE lot 8 : S 67' W 48' S 31' W 9 3/4' S 36 E 3 1/2 rds to st line S 6 1/2' to beg. W 9 rds. N 8 r 8 1/2 r E 9 r to beg

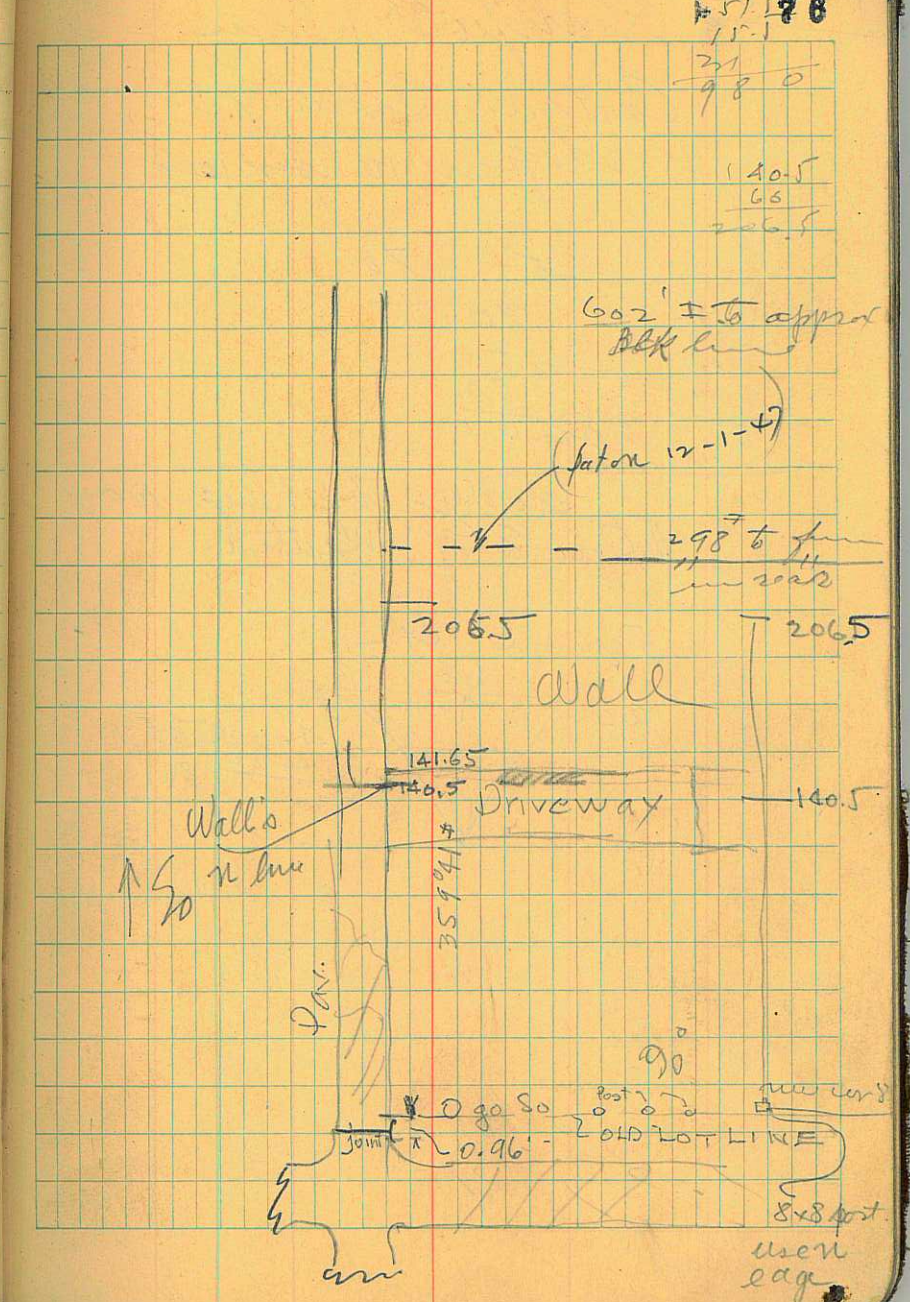
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62-608 John Wayman et E O Stewart

Beg at E bdy line lot 8 12 r 8 1/2 S of NE cor lot 8 W 9 r to W bdy sd lot 8; S 2 r 12 1/2' ; E 9 rds; N 2 r 12 1/2 to beg



Wack Survey
Bck 33 Pca
city



7-31-30

Chatfield Dam

Contour Grouper.

Slopes 10' per 1000

5 80.

80

25

80

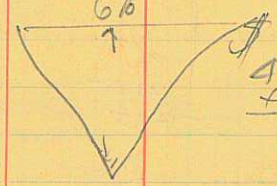
2000

Study top Dug-way

thru E of Martin

500 ac ft –

20



4000 500

4000 8

Levels at O & H. Res
aug 4 – 1930

Cut

0.92

100.92

90.92

98.92
10.5
88.42

7.63 NE cor

TP Mut SE cor 7.69 4.81 96.11
BS 4.75

100.86

SW cor 4.63 96.23

NW cor 10.22 2.22 90.64

NE cor 8.67 3.8 99.19

8.22

89

100.92
5.81
96.11
7.69

100.92
10
90.92

100.92
992

100.92
5.92
96000

96
88.42
7.58

100.92
5.81
96.11
5.72
2.86

↑W

4.92

96.00
cut 7.80

9.92

(71)

Mr. Surface Rec adopted

96.51
5.28

100.86
4.63

96
88.4
7.6

Top fill

X 93.15
92

100.86
4.63
96.23
88.42
7.81

100.71
8.67
92.19
88.42
3.77

88.42
10.5
98.92
91
7.92

93.30 8
3
6
3
= 5

100.92
7.63
93.29

98.92
93.3
5.6

34

C6.8

30 Vert
20 = 5 - 3 rel

3
V
8

45°

88.42
9.42

45°

on rod

100
2500

500

20
32

.63
198

22
20
25

68
17

100.86
8.22
92.64
89.42
3.22
5

88.42
89.42
7.69
6.69
4.90
11.59

12.60

SE con 4.90

13.65 on pipe 86.46
11.65

5.75 94.36

4.00 100.11

1.41 19

2.00
1.00
2.80
13.65
1.41
2.82
31.0
100.11
3.15
86.46
89.50
86.46
3.0
100.11
94.36
87.50
6.86
1.73

$v = f l h$

$h = \frac{v^2}{2g} + f \frac{l}{d} \frac{v^2}{2g}$

$\sqrt{\frac{h d 2g}{fl}} = v = 8.08 \sqrt{\frac{hd}{fl}}$

8.08
1.7
5656
808
13.736
.2
2.74

30.
.02
0.60

.25 1.6
2 .04
.64
.4
.2
.96
.0288

2.75
.05
.1375
.14
41.0
700
56

Pt			Elev H.I.
	0.58		100.00 100.58
			88.42
	1	11.75	86.83 bot trench
		12.16	86.83
	6.55		88.42 94.97
		10.50	84.47
a		4.1	

Spill cone in Tank

sub grade

41° cut

on tank Sec cor sub grade

94.97 7.4 5:1

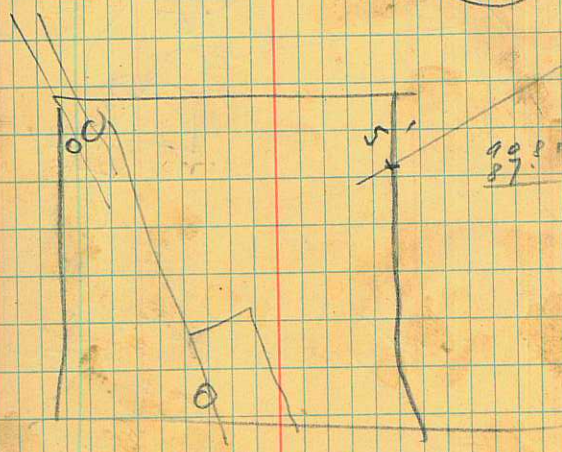
89.57

88.42

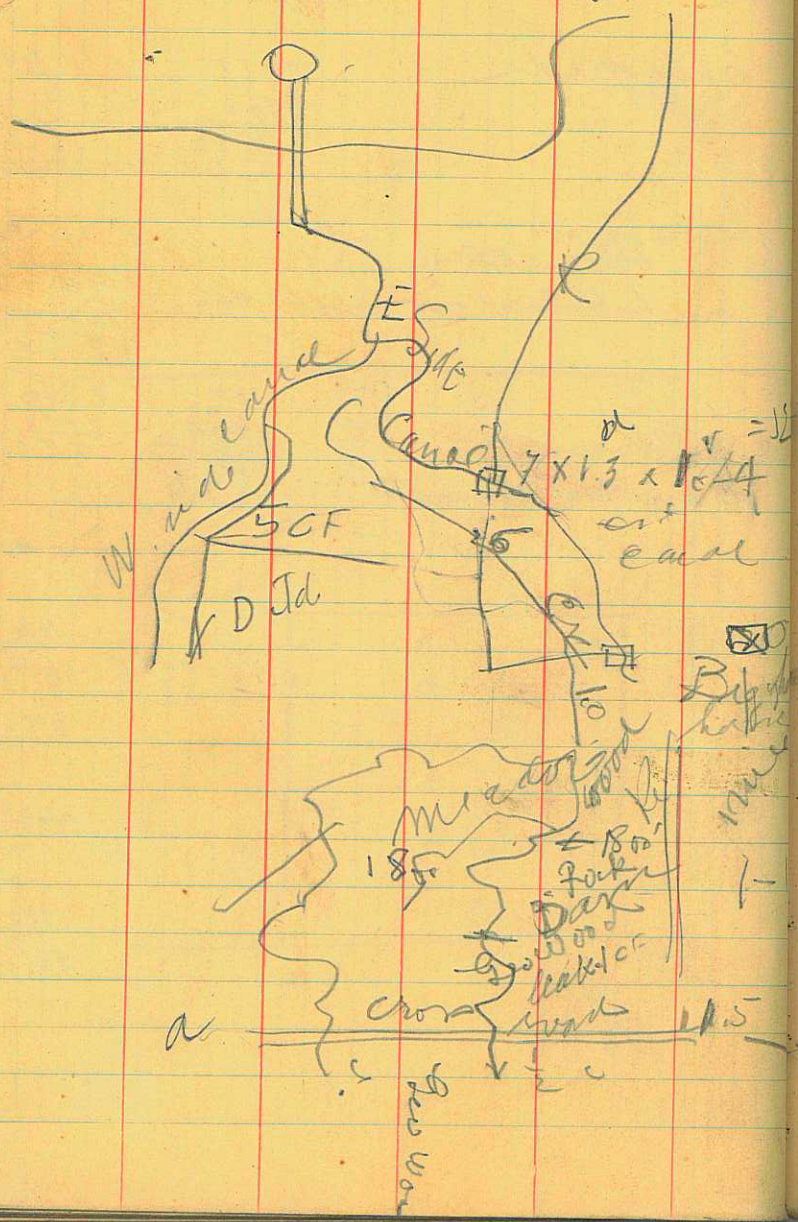
87.09

26'

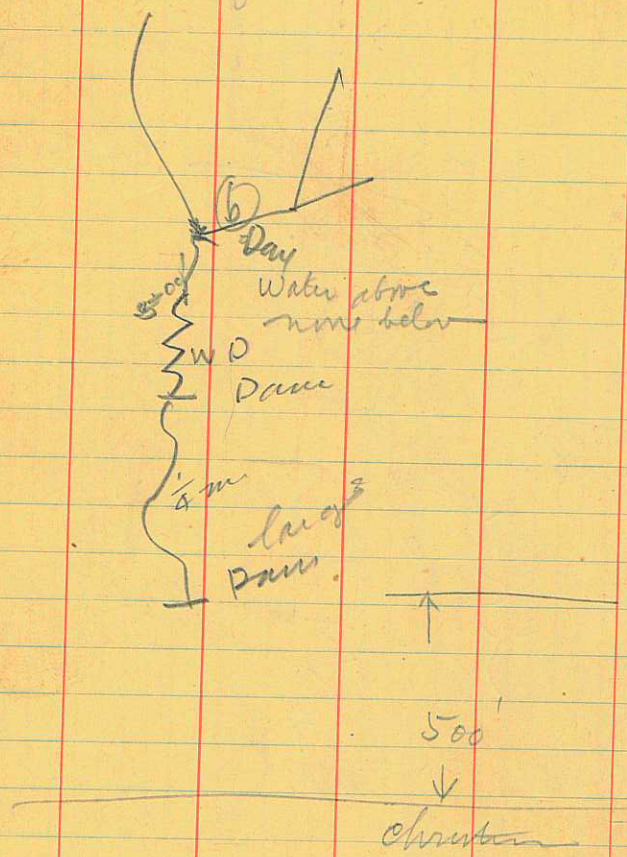
drain & cleanout

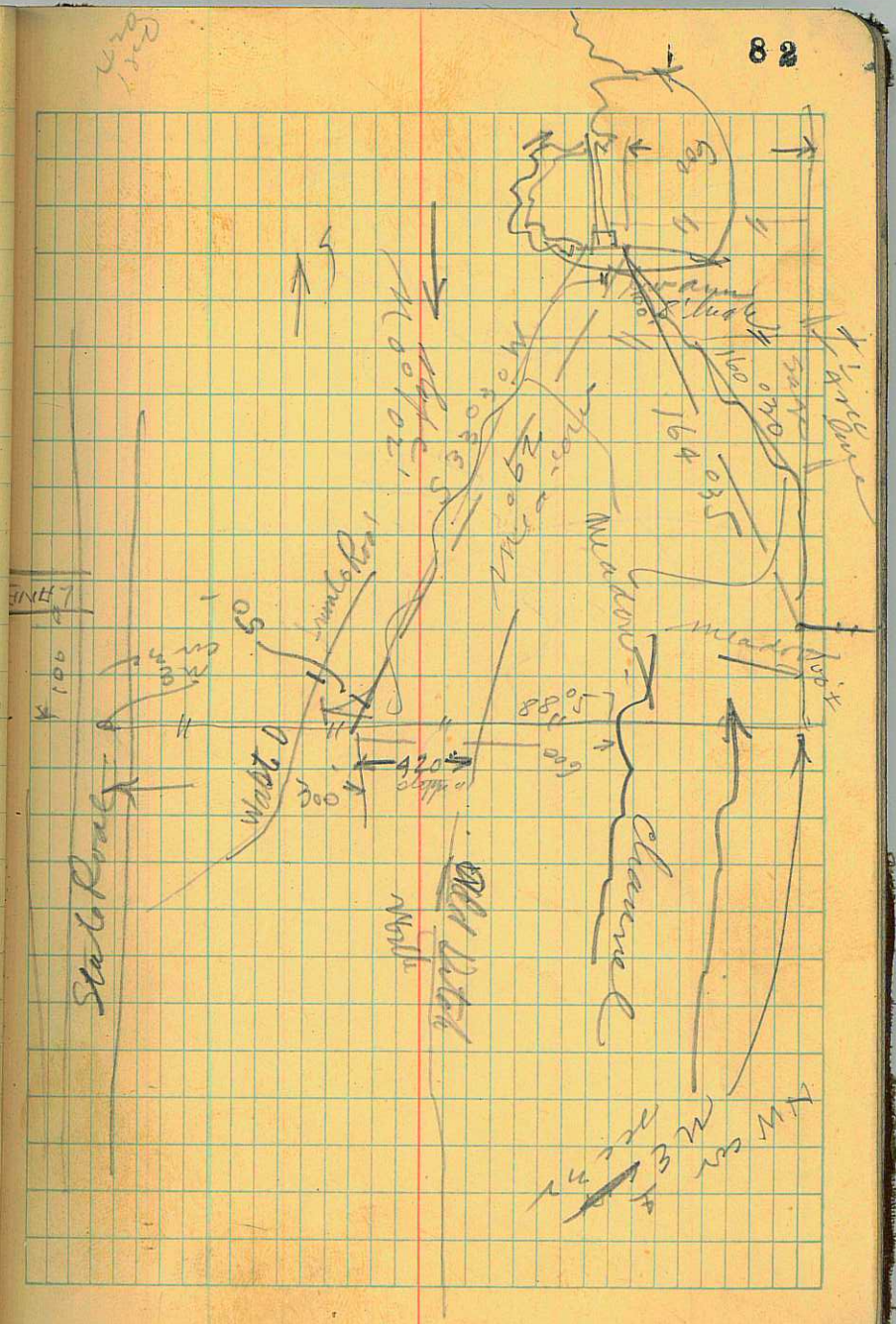


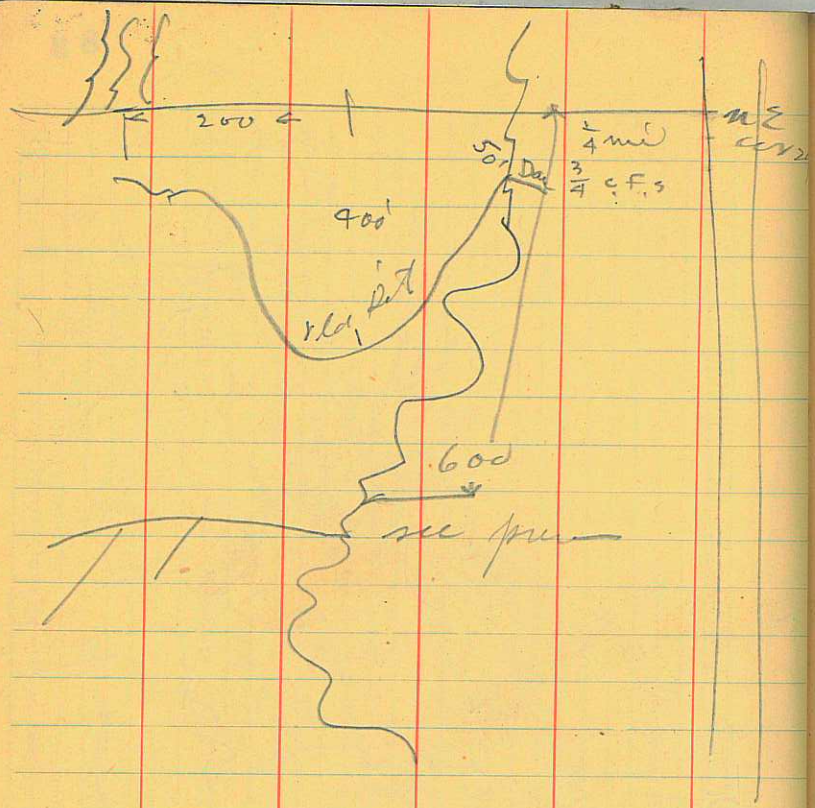
Study of Water on Blue Creek


Canoe
7 x 1.3 x 1.4
Wind
CF
D
Id
Dam
Dam
Dam

WD = Well defined




Stark Road
Cleveland
Wall
Mill
Main
Creek
Bridge
Ditch
Swamp
Ditch
Ditch
Ditch


200 ft
1/4 mile
50'
Dam
3/4 c.f.s
400'
600'

Blue Cr. Case

Plaintiff's Exhibit -

age 58 4:20 P.M.

Wm. Davis - sworn

Co. Commissioner -

Prom Sch Co 1896

" - not continuously

1905 Gen'l foreman to

1909 sold out this year

1900 start at this pt -

1900 all ark who have

canal were then

W. Side Same

area - except meadow

sec 7-8

1902 only particularly

all Blue Cr. natural flow

used Apr 1 to Oct used

all water -

At last of changing water

dams,

sec 29 400 ac

sec 17 30 or 40 ac

sec 32 60 or 70 ac

How long would it take

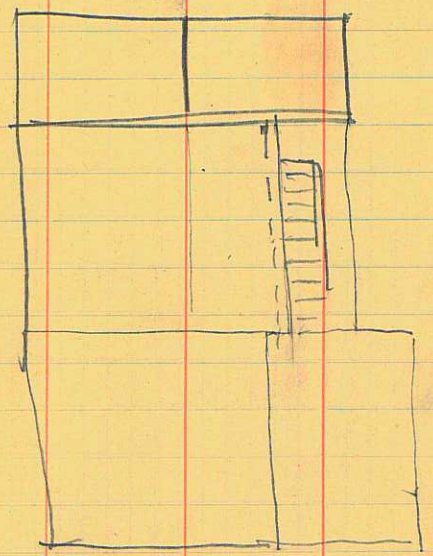
to see pres.

Survey Sept 15 - 1930
for Chas & Walter W.

10	34°30'	1100'			
9	3°	1200'			
8	343°		5'		14
7	352°		11	-22°30	13.4
6	82°20		5.8	-7°30	14
		set 280°56			
9 to 5	329°35	2.40		-18°50	
5 to 4	25°35		1'	-26°40'	13.5
5 to 3	50°30'		11	-22°10	13.3
	78°48	385	8		11.85
RP	48°54'	N dum. 8" Ward church			

Pro Cor 2
Pro. Cor 1

11 ⊕ = Golf Course survey



=157 +45.
=164 +91.50.

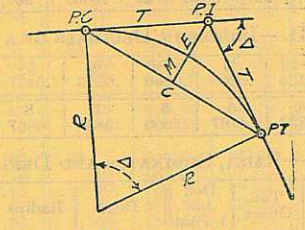
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tance. Thus tangent offset for Sta.
nd as follows. From Table III tangent
stance=158—Sta. P. C.=54.50, hence
6 ft. Also square of any distance
uals (approximately) the distance from
0)² ÷ (2 x 688.26)=2.16 ft.

gle=½ D for 100 ft., ¼ D for 50 ft.,
x C x D° or=defl. for 1 ft. from Table
ove curve=.3 x 54.5 x 8⅓=136.2′ or
from Table III. For Sta. 159 deflec-
6° 26.2′, etc.

n similar manner to tangents. Thus
from Table IV for 1° curve E=960.6
nd from Table V correction=.10 or
° and E is measured and found to be
IV E=230.9 and ÷42=5.5 or D=

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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



CURVE FORMULAS

Radius=R=$\frac{50}{\text{sin. D/2}}$ (1) Degree of Curve=D and sin. $\frac{D}{2}=\frac{50}{R}$ (2)

Tangent=T=Rtan$\frac{\Delta}{2}$ (3) Length of Curve=L=100$\frac{\Delta}{D}$ (4)

Middle ordinate=M= R(1—cos. $\frac{\Delta}{2}$) (5) =Rvers $\frac{\Delta}{2}$ (6)

External=E=Ttan$\frac{\Delta}{4}$- (7) =R÷cos.$\frac{\Delta}{2}$—R (8)=Rexsec$\frac{\Delta}{2}$ (9)

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

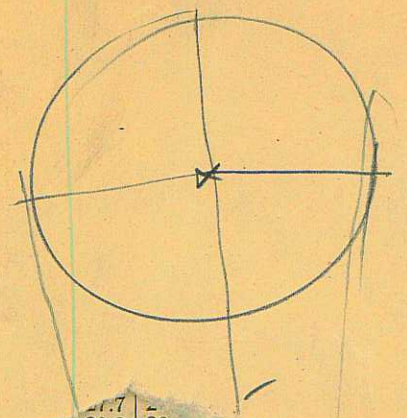
EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T. Δ=62° 10′ D=8° 20′. From Table IV for 1° curve T=3454.1 and÷8⅓=414.49 ft. From Table V correction=.36 or T=414.85 ft. P. C.=Sta. P.I.—T=157+45.50. Also from (4) L=746.00 and P. T.=Sta. P. C.+L=164+91.50.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.=7.27 ft. Distance=158—Sta. P. C.=54.50, hence offset=7.27 $(54.50\div100)^2$=2.16 ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2\div(2\times688.26)$=2.16 ft.

Deflections.—Deflection angle=½ D for 100 ft., ¼ D for 50 ft., etc. For c ft.=(in minutes) .3 x C x D° or=defl. for 1 ft. from Table III x C. For Sta. 158 of above curve=.3 x 54.5 x 8⅓=136.2′ or 2° 16.2′, or=2.50 x 54.5=136.2′ from Table III. For Sta. 159 deflection angle=2° 16.2′+8° 20′÷2=6° 26.2′, etc.

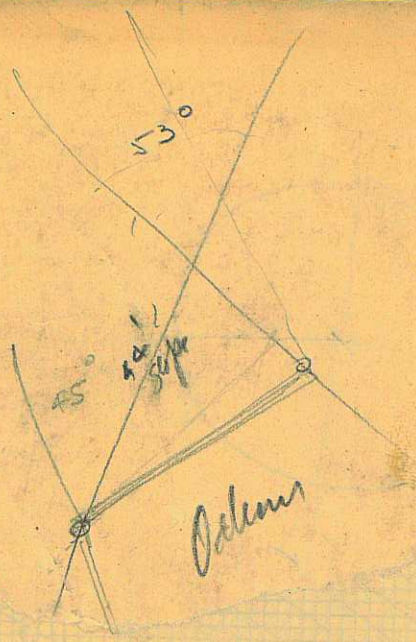
Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve E=960.6 for 8° 20′=960.6÷8⅓=91.27 and from Table V correction=.10 or E=91.37 ft. Or suppose Δ=32° and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and÷42=5.5 or D=5° 30′.



	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.4	[illegible]
	29.2	29.3	29.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	30.5	30.7	30.8	31.0	31.1	[illegible]	[illegible]	[illegible]	[illegible]	31.9	[illegible]
16	32.0	32.2	32.3	32.5	32.6	32.8	[illegible]	[illegible]	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
5	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
	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
0	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
4	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
	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
	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 slope stake point? Ans. from Table 41.9. For same slopes but other widths of ed correct above figures by one-half difference in width of roadbed; thus in example for 20 ft. roadbed distance will be 41.9 + (20—16) ÷ 2 or 2 ft. added to 41.9 = 43.9. lopes of 1 on 1 see inside of front cover.

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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
[illegible]	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
[illegible]	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
[illegible]	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
[illegible]	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
[illegible]	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
[illegible]	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 slope stake point? Ans. from Table 41.9. For same slopes but other widths of ed correct above figures by one-half difference in width of roadbed; thus in example for 20 ft. roadbed distance will be 41.9+(20—16)÷2 or 2 ft. added to 41.9 =43.9. lopes of 1 on 1 see inside of front cover.

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