42-1939

47

FIELD BOOK

830

47

KEUFFEL & ESSER CO.

DRAWING MATERIALS AND SURVEYING INSTRUMENTS.

NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION.

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

Calculated by Julien A. Hall, M. Am. Soc. C. E.

For Keith's Railroad Curve Tabels see end of book.

Eugene Schaub
Sept 24 - 1929
Logan, Utah

4-1929

1 5.80

$\frac{10}{5.8} = \frac{x}{1.16} = x = \frac{11.6}{5.8}$

$= 2'$ 112

2

Survey for Mendon So Pasture Co. Sept 24 - 1929

Lat N line 17 =

41 42'

Co lat. — 48 18

89 60

δ = Sept 24 app. G Noon = $-0^\circ 22' 24''$

change hourly = 58.46

5

29 2.30 60

4.52.3

— 27 16.3

58

= -26 76.3

58

final δ = -26 18 3

~~2 32° 38~~ extra

2 32 34

2 32 34

2 32° 34

Wire Silo

A. Card on road

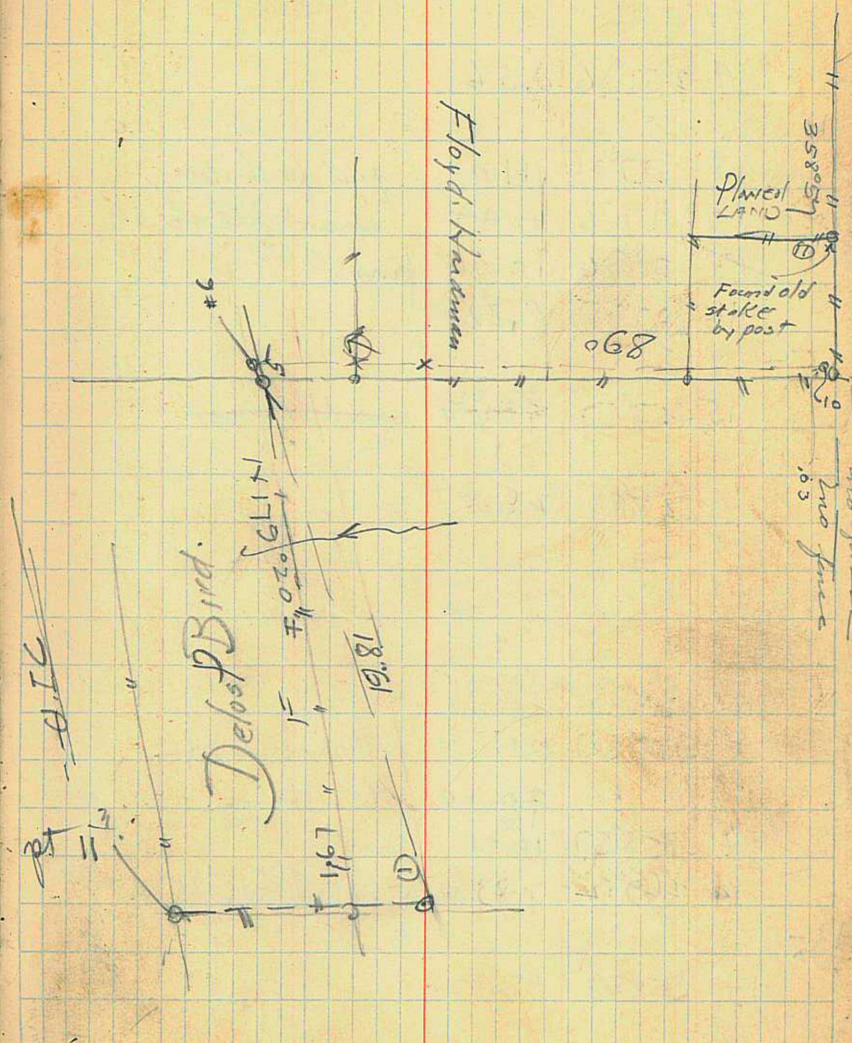
Meandon So Part

12	358°57	45.30	cor post on ridge
	358°57'	40.00	pins
	358°57'	30.00	
	358°57	20.00	along fence E side Plaws
11	358°57'	13.00	intersect fence go. East
	358°57	10.00	change pins
10 -			
10	89°00'	31.07	
9	89°00	31.11	
		30.00	pins
8a	89°00	23.37	fence going So
	89°	20.00	chains.
8	89°	14.00	on line
7	89°	3.03	fence leaves So
	179°20		along fence to So.
6			
6	354°10'30"	19.84	
5	354°10'30"	19.81	
4	354°10'30"	16.20	intersect Spr branch
3	268°56	4.27	
2	268°56	1.67	

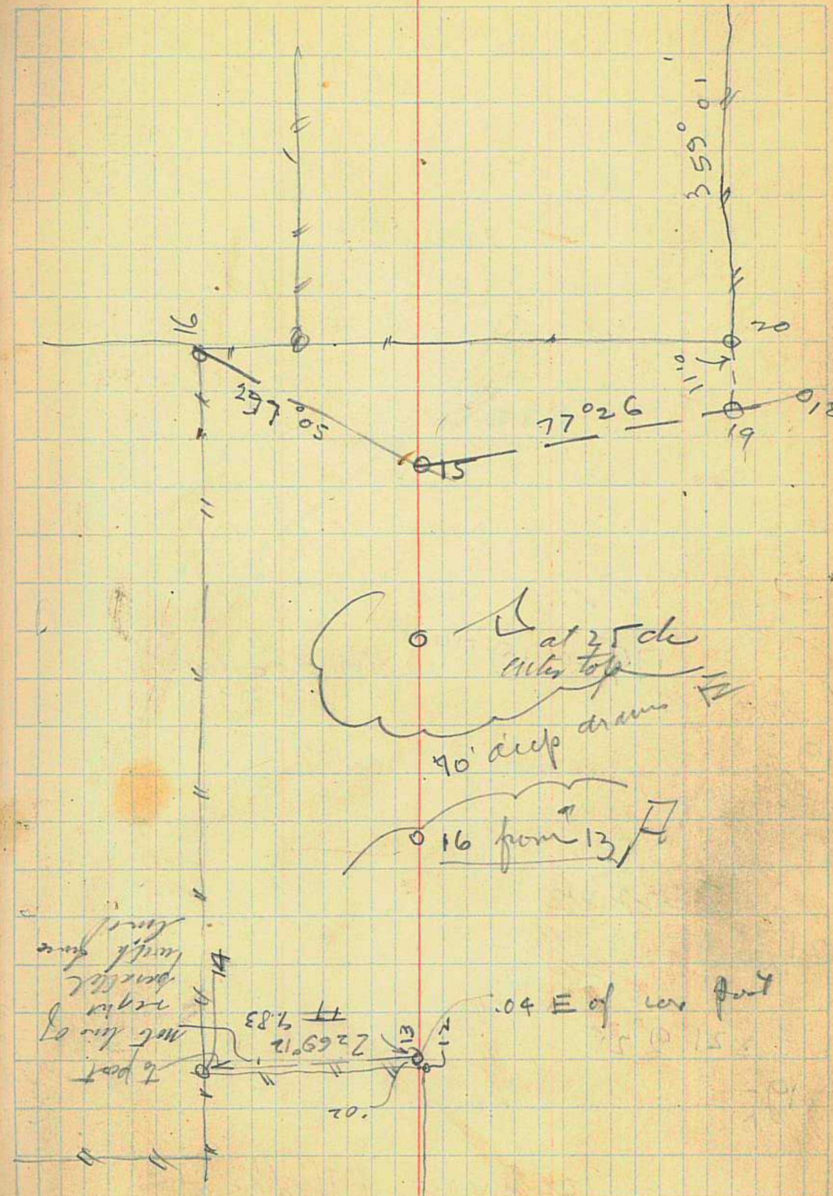
Φ

31.01
3x03
28.08

11 Ŧ 3.2



20	359°01	0.11	
19-			
19	257°26	0.56	
18^			
18	77°26	11.00	quit for the day
17	77°26	10.44	must be 10.44
~~17~~	77°26	10.00	pins
16	297°05	8.88	
15^-			
15	358°57	30.00 ~~40.00~~	~~must be 30~~
	358°57'	25.00	
	358°57	21.	bottom hollow
	"	20.00	ch. pins
	358°57	16 10.00	pins' Heath
14	269°12	7.83 to post with brack from 20	
13^-			
13	358°57'	45.32	



179°20 19^{+10} @ along prec line

19 -

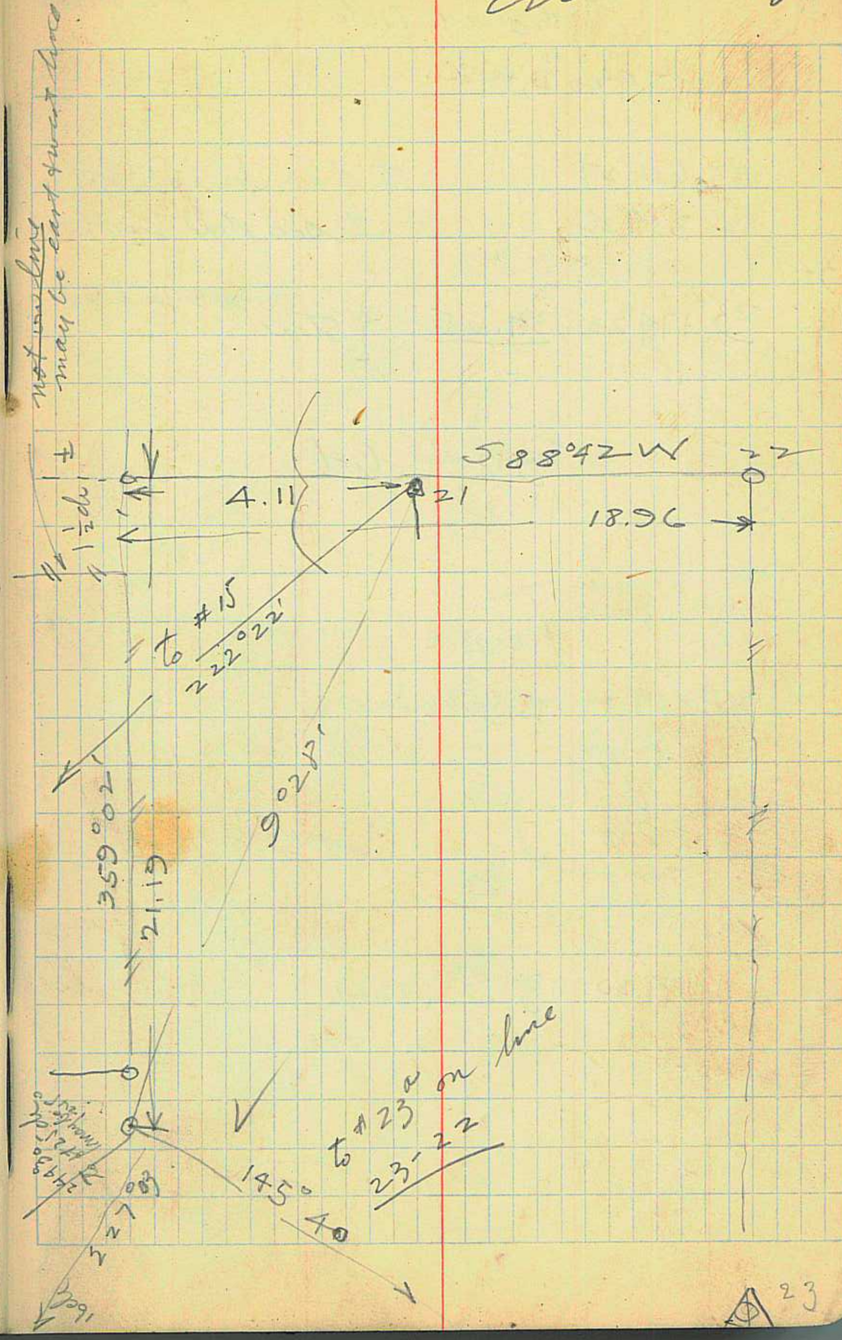
w 88°42'
15 222°22

21

Δ21 9°28

19

@ mean lath stake at
10 ch bear 19



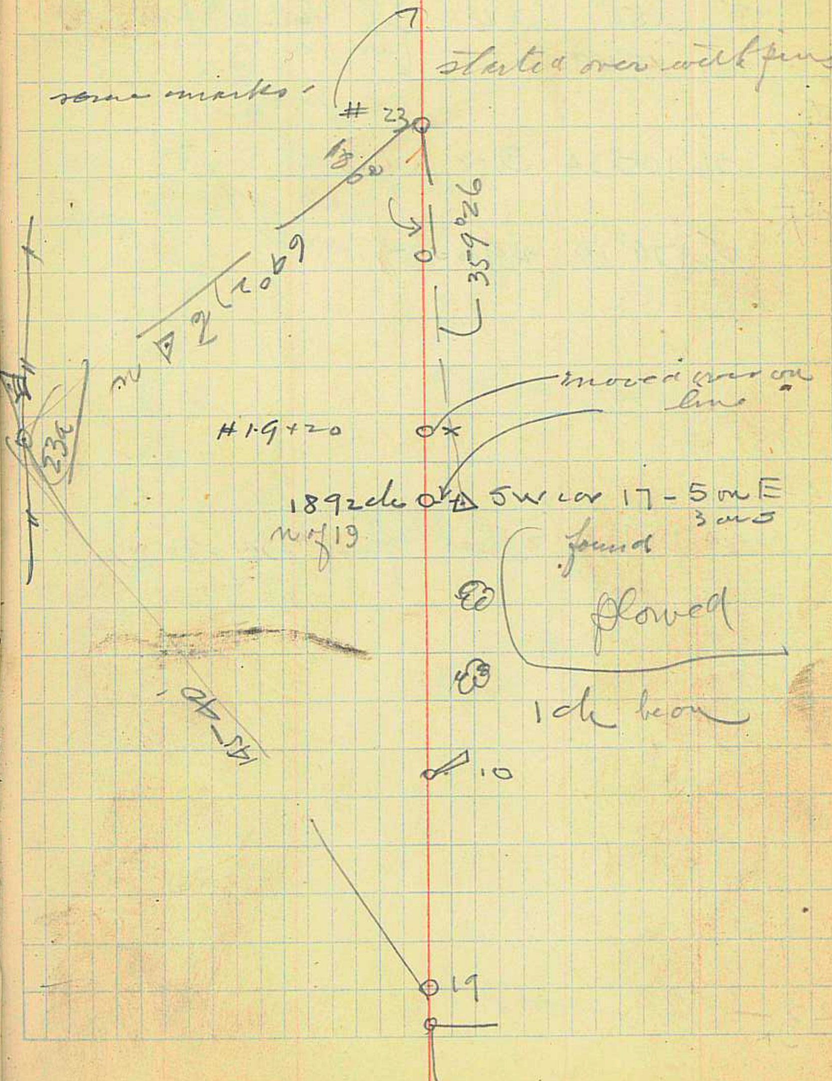
Δ 23

	179 20	20.18	fall 2½ lks west of ¼ stone
	179°20'	#23+20 ch lath	
	179°20'	#23+10 ch	
23	64°27		to Δ on fence to W
24	359°26		to sec stone see sketch
23-			
23	179°20	39.035	{ Stone NB west face
		#19+30 ch	lath
		#19+20 ch	
24		18.92 ch	
	179 20	19+10	record

well marked on west side

39.03
18.92
20.11

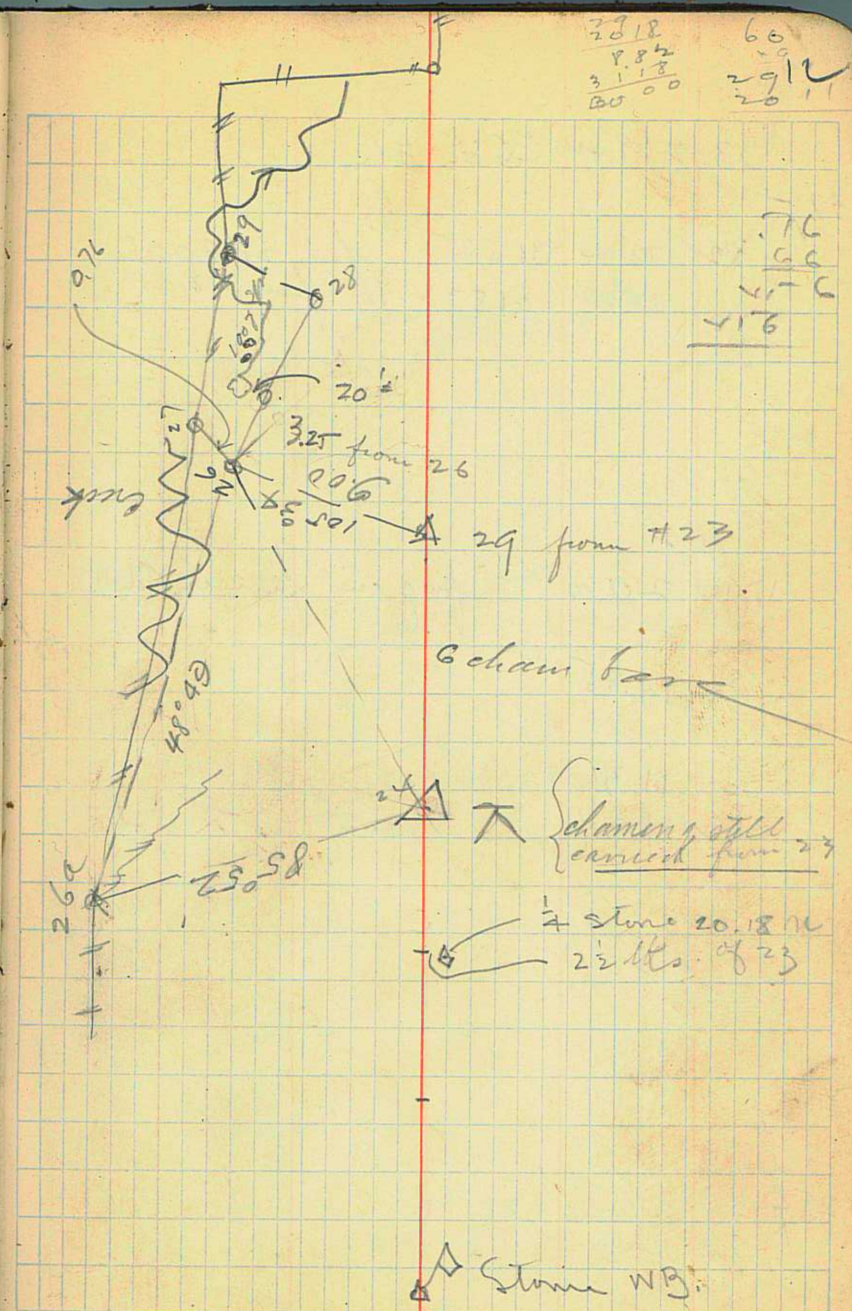
20.43
20.18



11

29	68°12	1.54	Angle pt in fence
28	223°41	6.00	to fence bear SW
27	150°	0.76	in a – line b ccr 26a
26a	48°49		
26	105°34	9.00	A bar
25	179°20	29.00	–
24	179°20	23.00	from #23a stone WB

28 –
26 –
25
23



13

#33 269°44' 36.00 ch

32 ⊼

32 179°20 31.545 { from 25=40.75
179°20 31.57 { from W¼ cor 17

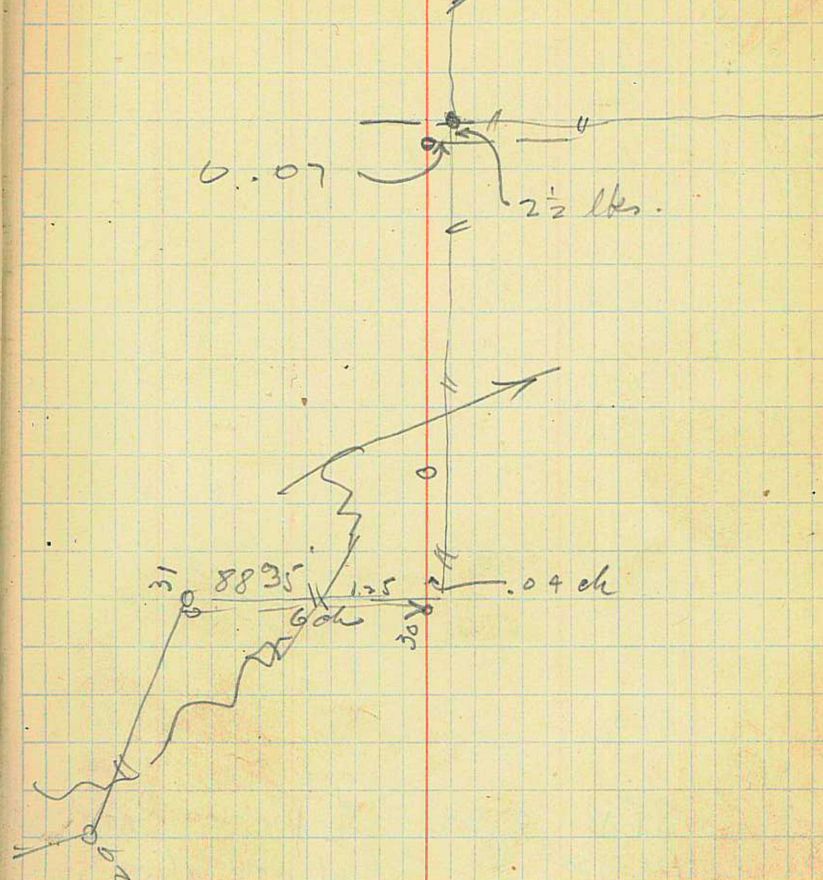
#25
179°20 20.00 peg in fence N&S

⊼ 14.85

11.37
179°20 17.34 to peg for ⊼ pt

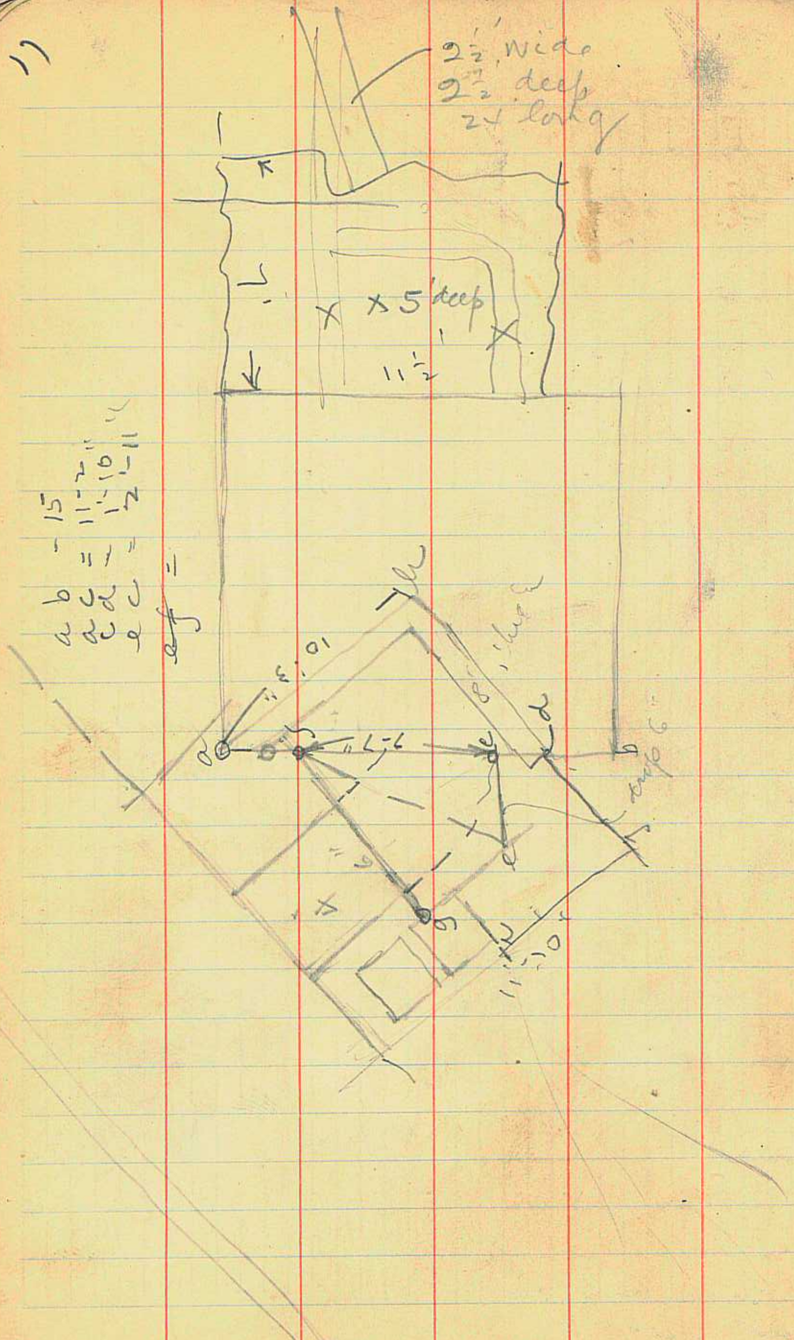
25 ⊼

24
20|48
9.18
31.57
40.75



#25 starting over with pins

			bears 0°
	89°18	0.34	to ℄ proposed Road
	232°32		to West side sec
1			
1	26°18	12.52	
33 —			



ef = 8'-3"   gh = 4'-8"
fg = 6'-8"
ah = 7'-1"
ij = 6'-3"

Note Res top 1½ above ground

Shell walls 3'-8" deep

Estimate for John Tueller
Paris Idaho Outlake 10-4-1929

Extra concrete (Pat.) cu ft

2.5 x 6 x .5	1	7.5	
2 x 2 x .5	2	2.0	
Walls 17.3 x 1 x .7	3	12.10	on top slab
4.2 x 3 x .5	4	6.30	division wall
4.2 x 5	5	21.00	
14 x 15 x .16		33.60	floor
1.5 x 3 x 5		2.15	
		84.65	

Charge for work not put in

8 x 9.5 x .5	38.00	flume
13 x 1 x 3	39.00	wall side
16 x 1 x 1	16.00	cut off
	93.00	

Con. in vert walls 416
roof slab 55
471

19 Mendon So Pasture

check meas. (+)

15		1345		-5°
19-				
13		1976½		
		920		
		800	100	
			50	
			200	
			+50	break
	178°57	400		
15				

52.17
51.89
.28

100.03
99.88
.15

66.00
1.98

14
66
84
84
139.24

66
396
66
1056

10.44
66
6264
6264
6890
6864
1329

13 - 16 ch to 17 = 1056

13-15 notes say 4 ch
should be 30 or 1980'

15 to 19 - 10.44 = 669'
666
should be 20.44 or 1329 for -

lat So .15 lks long
Long W 0.28 long

note

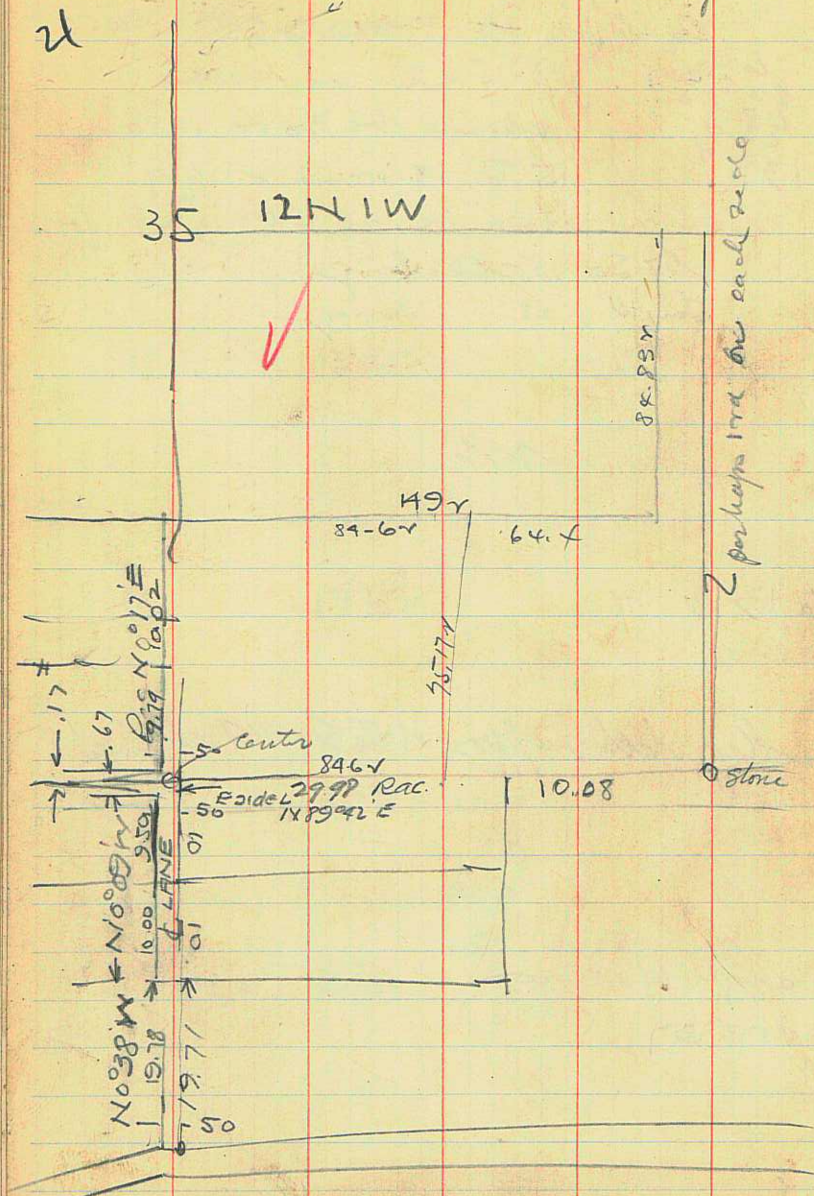
to 13

to flag path supposed to be 14 ch from 15

S edge Hollow
set 178° 57

Oct 12-1929 Thomas Smith Jr

21



29.98
10.06

Thomas Smith Jr
Beg at SW cor of SE¼
sec 35 - E 84.6r N 75.17r
W 84.6 - S 75.17 to beg
area 39.75 ac

Albert H Smith -
Beg at pt 84.6r E of SW
cor of SE¼ sec 35 E 74.4 rds
N 160r W 10 rds S 84.83r
W 64.4 rds S 75.17r to beg
39.75

744
846
1590

4	270°15	0.90
3 ^ (3)	270°15	20.00
(2) ^		58.70
N±		50.00
		40.00
		39.97
N±		19.69
N±		

0

58.70
39.97
18.73

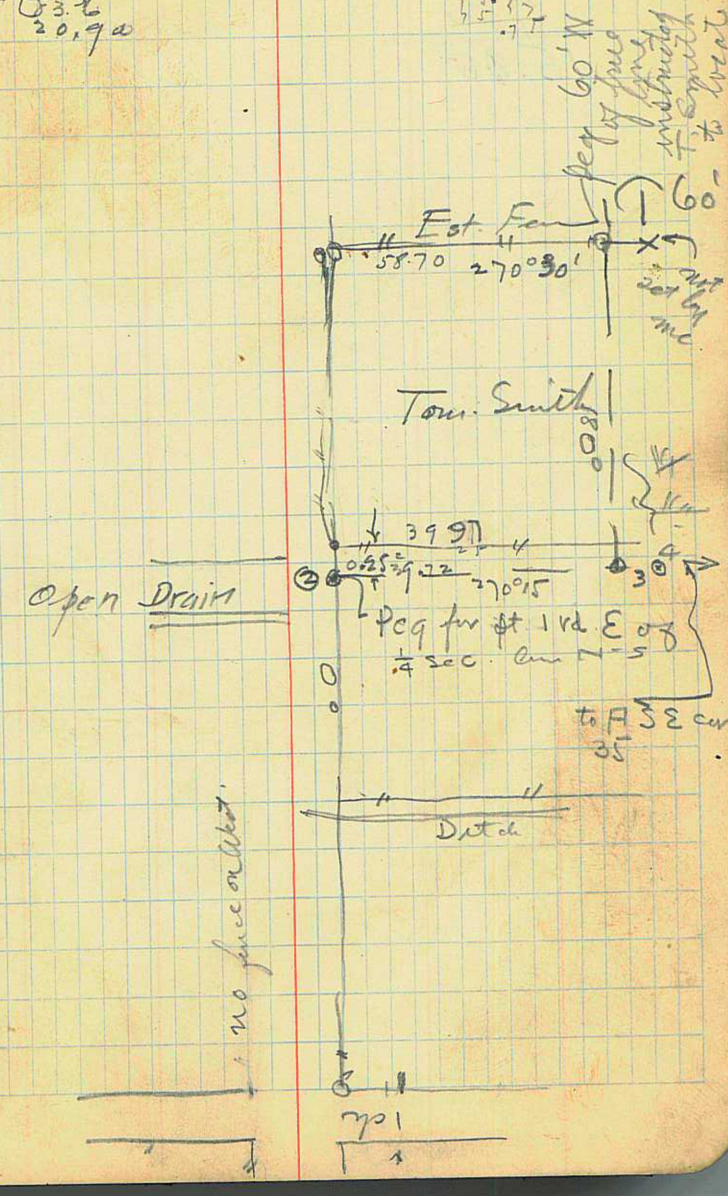
39.91
19.69
20.22

75.17
74.92
.25

39.97
39.69
28

39.97
39.72

58.70
39.72
18.98



21 auto	1.65	Realh
	1.00	
	1.00	Lee
	4.00	
	7.50	
	15.00	

Oct 14 - 1929

Water flow Study
Crooked Creek

Weir measurement at
branch junction 9 30 am

$h = 9.16'' - 2.75 = 6.41'' = 0.534$

calc $2.5 H^{\frac{5}{2}}$ = approx Q from 225 gal per min
tables Q = 0.533 = 240

No water entering Creek

Meas at Spr. at 10:00 am

$h = 9\frac{1}{8} - 3\frac{5}{8} = 0.46 = 0.37$ CFS
tables = .37 = 166 gal

9.16
2.75
6.41

.12 | .534

9.16
3625
.5535
.46
.46
276
184
.2116
.46
1.26
84
.0978
.46
582
388
.0456
.46
270
180
.02070

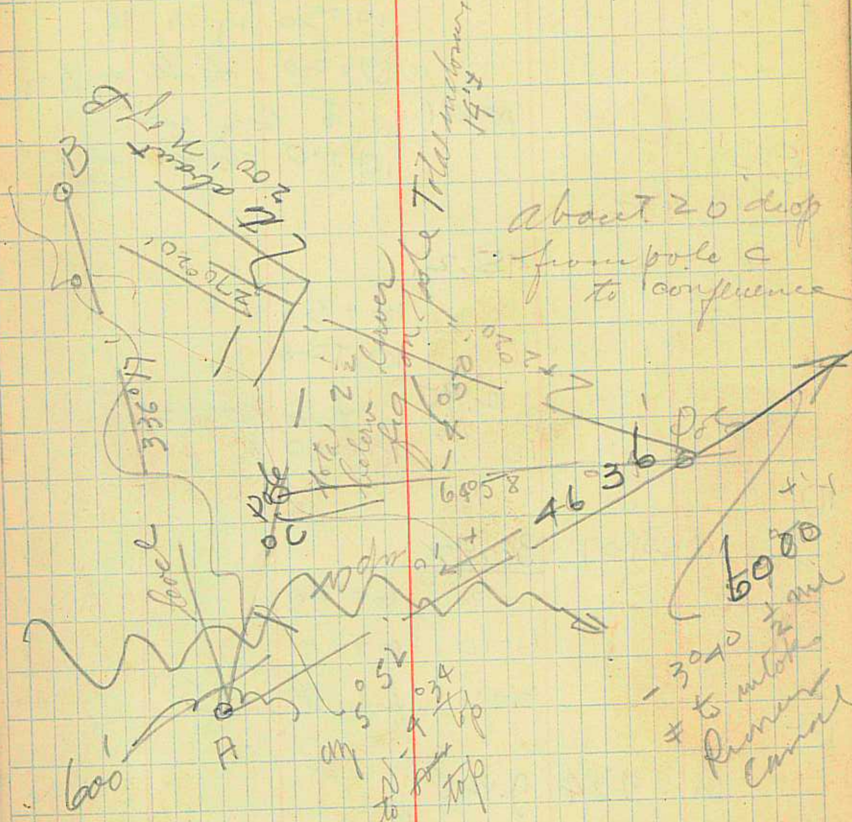
53
.53
159
265
.2809
.53
84
140
.1484
.53
444
740
.0784
.53
234
390
.0435
.0207 | .15
1
107

2.5
.02
.50
225

2.5
.15
125
25
370

450
37
2750
1350
162.5

Triangulation on
Crooked Creek 10-15-29



31

10-17-29

Mendon So

Pasture - rechecks meas-
urement -

	First	Sec as meas	# + to lath	old lath
23	39.035	39.01		
			19 +30	# 19+29.985
			# 19+20	checks within 1 inch
		18.91	to sec cut	
19-			19 +10	checks with 11 lath
		45.21		
			10 +30	
		10	10 +20	
		12.97	fence goes # E	
		10+	10 +10	
10				
10	31.07	30.92		
		6+20	6+20	
		6+10	6+10	
		3.02	fence leaves S	
6-				
6	19.84	19.845		
6	19.84		# 1+10	
1-				

32

	1 first 12.52	sec 12.51	New lath	old lath as meas
33				
33	36.00	35.99		
				32+30
			~~32~~	32+26
			32+20	32+20
			32+10.0	32+10
32				
32	31.545	31.50		
		30.00		
			25+20	25+~~10~~ 9.98
	14.85	14.84		
		11.37		fence goes
25				
25	29.00	29.00		
		29.		
	23	23.00	lath	
	20.18	20.18		
			23+20	23+20
			23+10.01	23+10.01
23 —				

$$\begin{array}{r} 71 \\ 69 \\ \hline 140 \\ 60 \\ \hline 200 \end{array}$$

left same on left — fence E+W

rag on wire

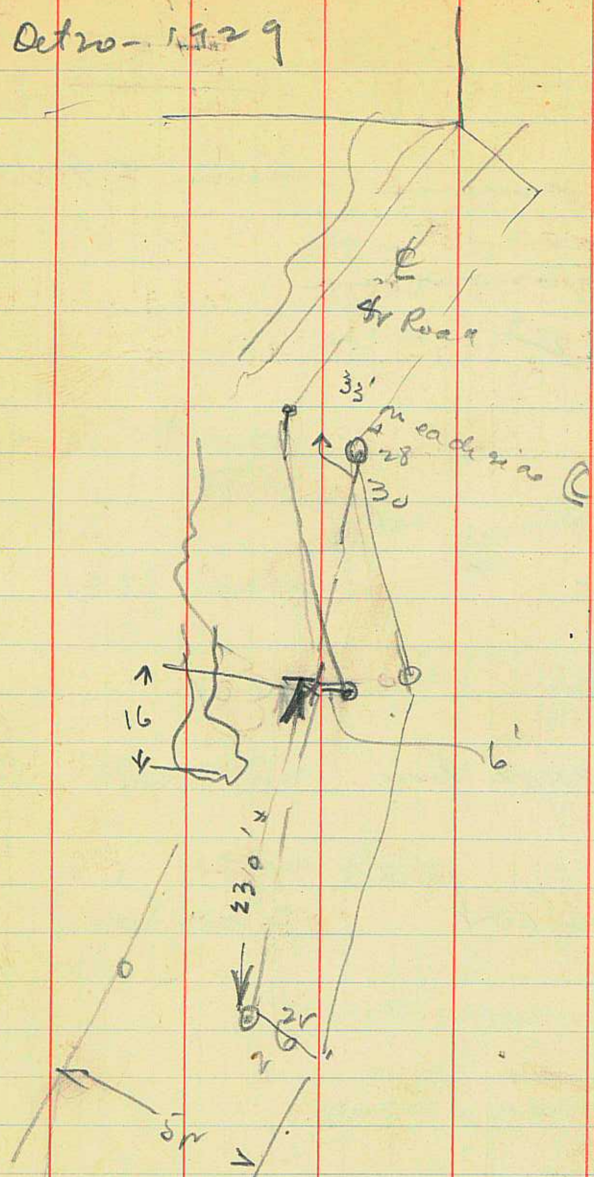
post ✓

peg ✓

change fence

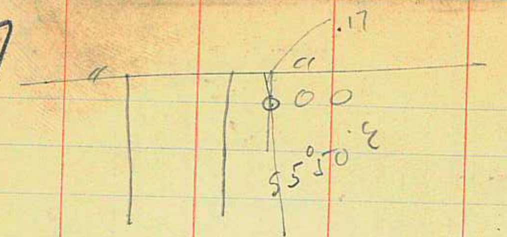
$\frac{1}{4}$ sec cor

 Oct 20 - 1929



3.25
66
19.50
195.0
214.50

Lars M. Anderson
So of N Line
W of Sec line



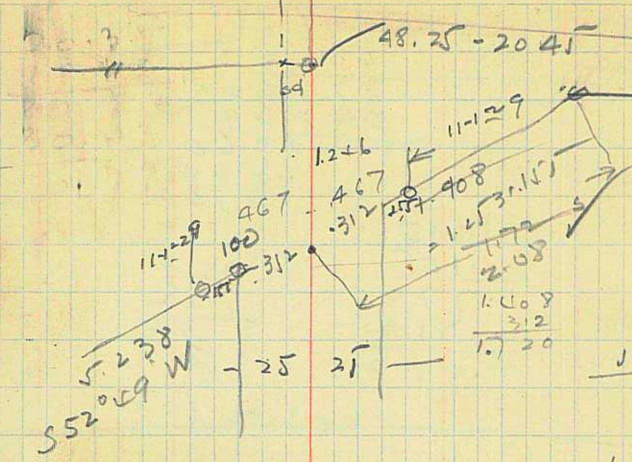
10 -

S89°02'W .42 W side 2nd St
N89°02' .08 E side 2nd St

7a
7a N .1.035
6a
6a S89°02' 2.11
6

Oct 27 -

3.03
2.11
.92



467
312
155
S .083
238

.155
1.253
1.408

Mean S 51°03' E 0.79 from #10+30 to S E cor S C S
mean S 51°03' E 0.36 from #10+20 NS/6 S E cor

2.08
.467
1.613

21.416
20.44
.9760 | 6044
6044 | 1.615
37160
36264
8960
6044
29160

1.615
.155
1.770
.312
2.082

12
208
172
36

101 29.24 2.32

101

101 52.49 5.238

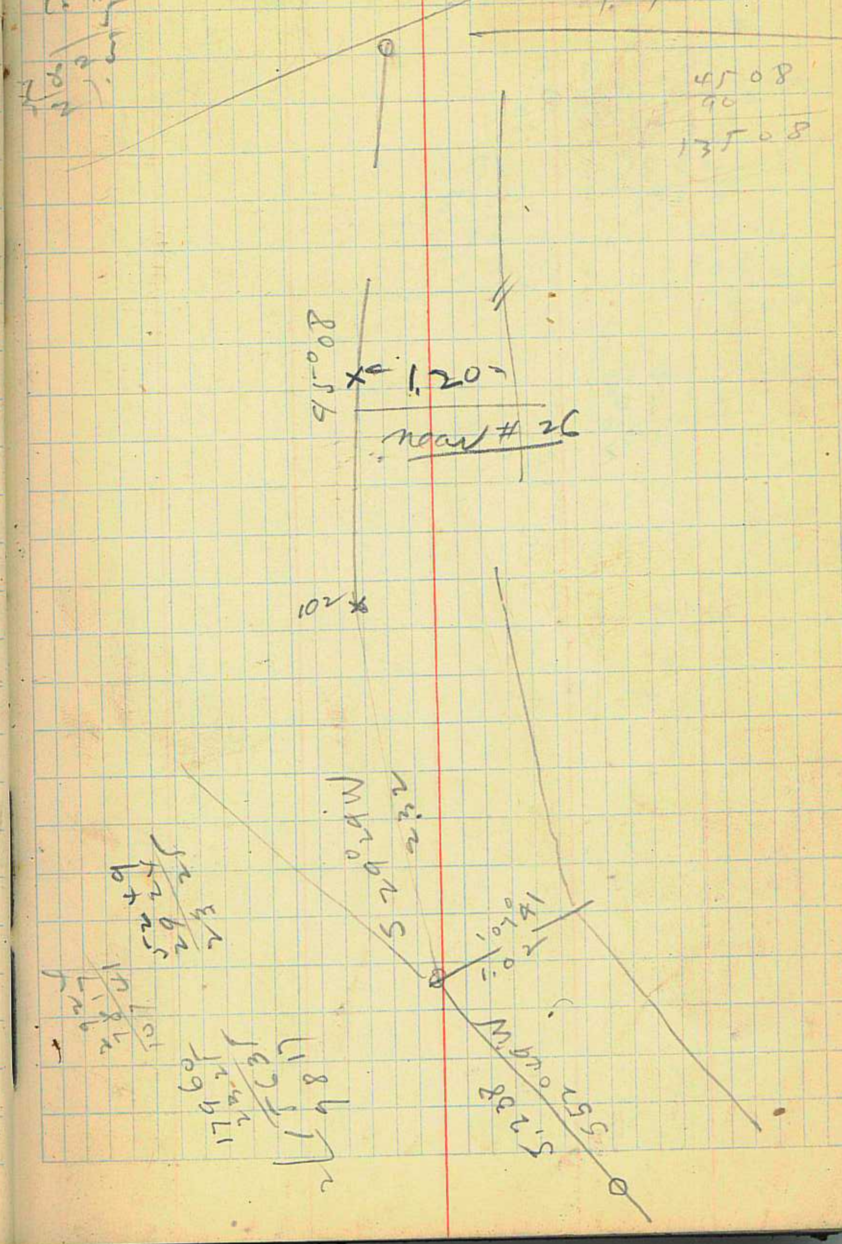
100

5.083
.155

.238

20.45
1.246
21.696
.288
21.458

45 08
90
135 08



2 1/2

NO 20 IN

23 410

25

10.53
.0015
4172
5053
.014602
1892
6.82
21 0

35

025
14
411

60.82
40.64
2018
.0044
8072
2018
.028252
8092
75.82
5.10
9994
80.92
19.02

11.92
1510
6.82
510

39.03
1892
21.11

60.82
2010
8092
682
87.74

9994
8774
1220

Nov 1 1929
Meridian So Part

23 359°25'30"
23b 359°25

23a –

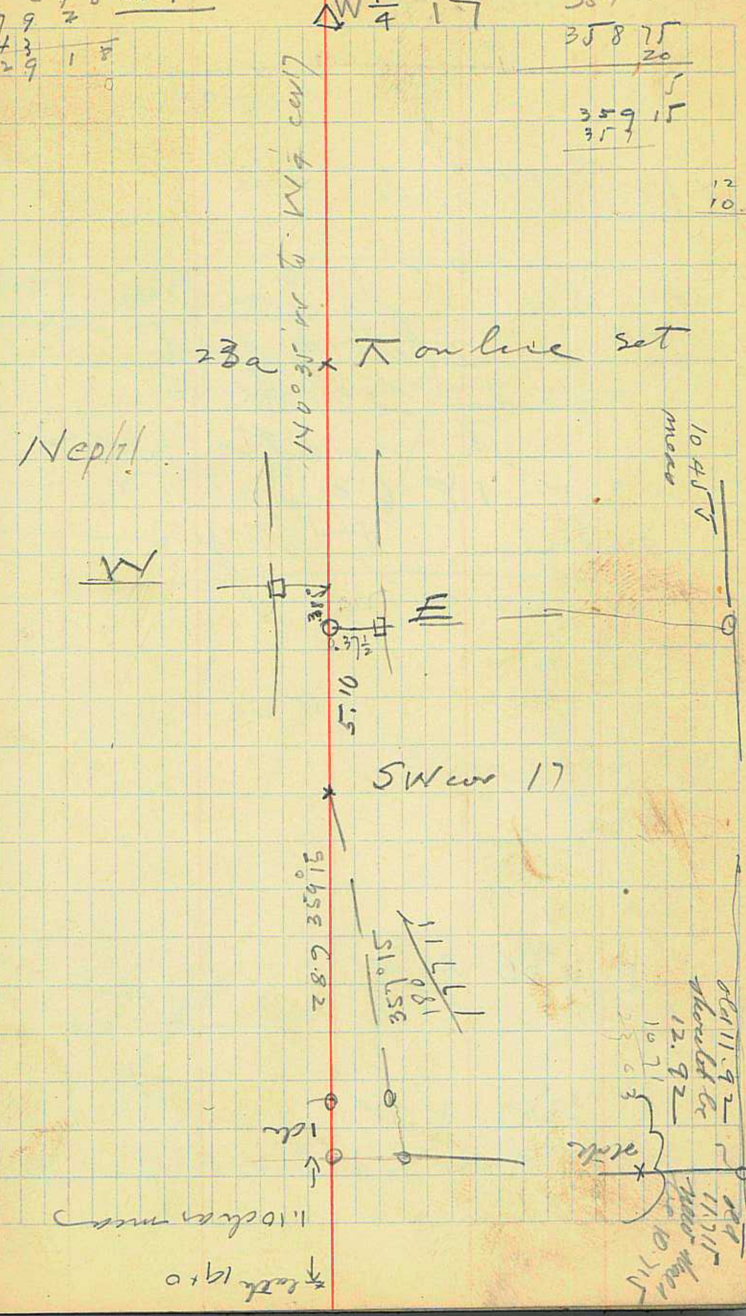
0.349
4.82
69.8 0.27
tan 2°

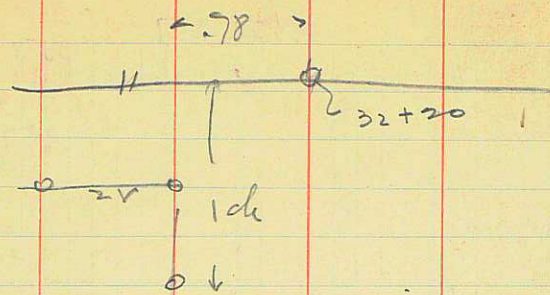
1000
325
.675

68
3

359 15
358 75
20
359 15
357

12 20
10. 11





H.J.

sketch found
3 links E
to make ...
18.69 at N
... H ...

A.

B. 11°00' 4.08

A 31°47 1.12

0.0

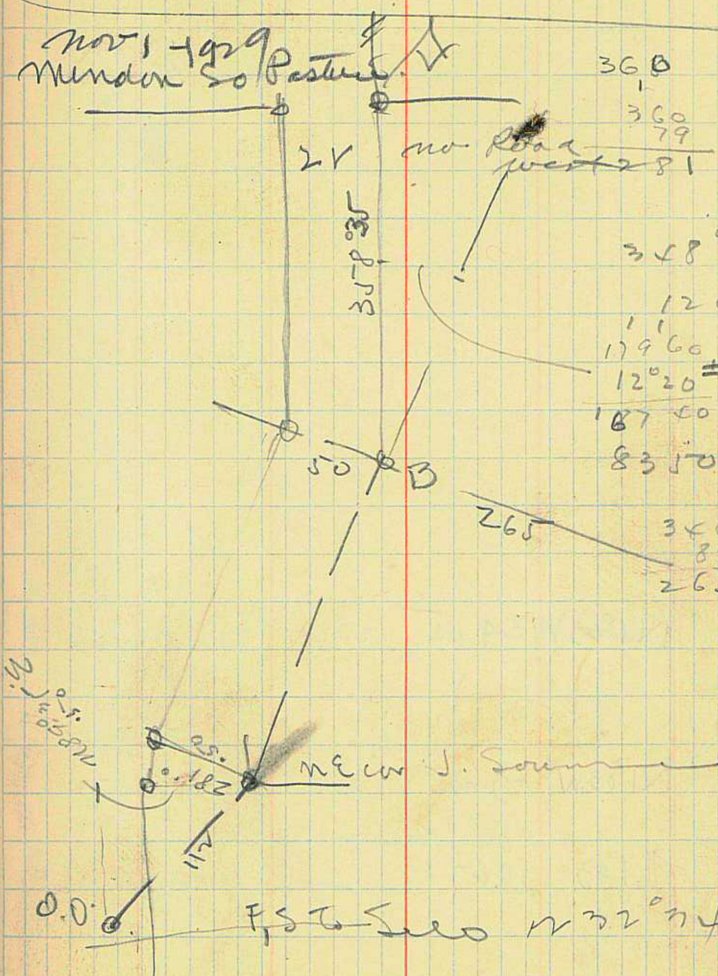
19.93
.78
19.15
1.20
18-65

19.93
.78
19.15
1.20

8
32

Orval Bird

nov 1 1929
Mundon So Pasture



36.0
360
79
281

90
11
79

348°40
120
179°60
12°20
167 40
83 50

348 40
83 50
265

N1°03'W	34.05
N1°03'W	23.635
N1°03'	10.67

Beg 16

34.05

W

34.05	365
23.635	635
10.425	.45

to our post

to L projected from W

Survey for Cardox Co.

S89°53

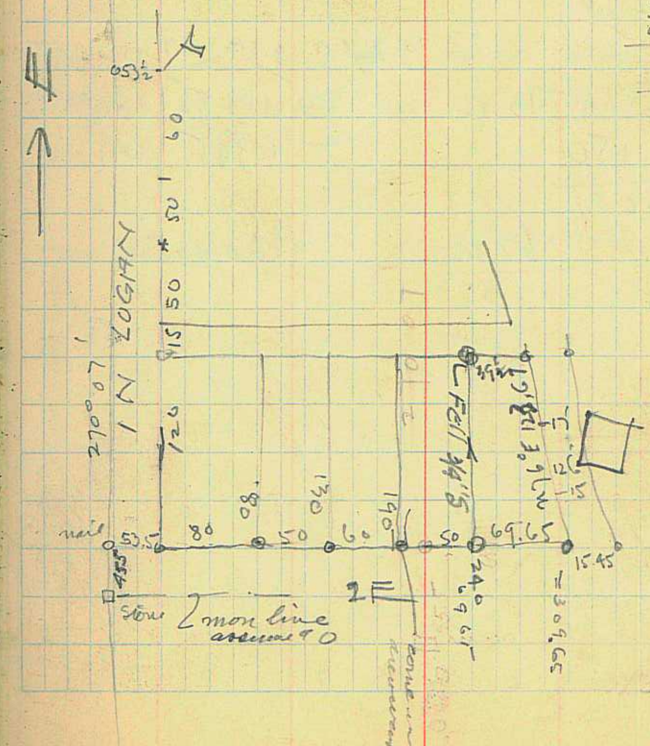
90 07

15.53
23.57
39.10

80
50
130
60
190
50
240
69.85
309.85

53.500
49.985
35150
29991
51590
49985
16050

(4997
53.52



Levels 11-14-29

Hyrum Irri Co from tail water Hyrum City Plant to pt where it empties into B

BS	FS	m	Ele	HI
13.00 #				
	1.78			
5.58				
	7.00			
3.270				
		2~~4~~8	114.47	116.95
~~4~~	13.10		103.85	116.95
2.150			103.85	106.00
24.00				
	6.00		100.00	106.00
	27.88			
	24			
	3.88			

13.10

106
2.15
103.85
13.1
116.95
2.48
114.47
2.48
116.95
13.1
103.85
2.15
106.00

on tail water

{on 60d nail in 5" fence about 8" above ground north post of Chas. Eames gate E of Barn

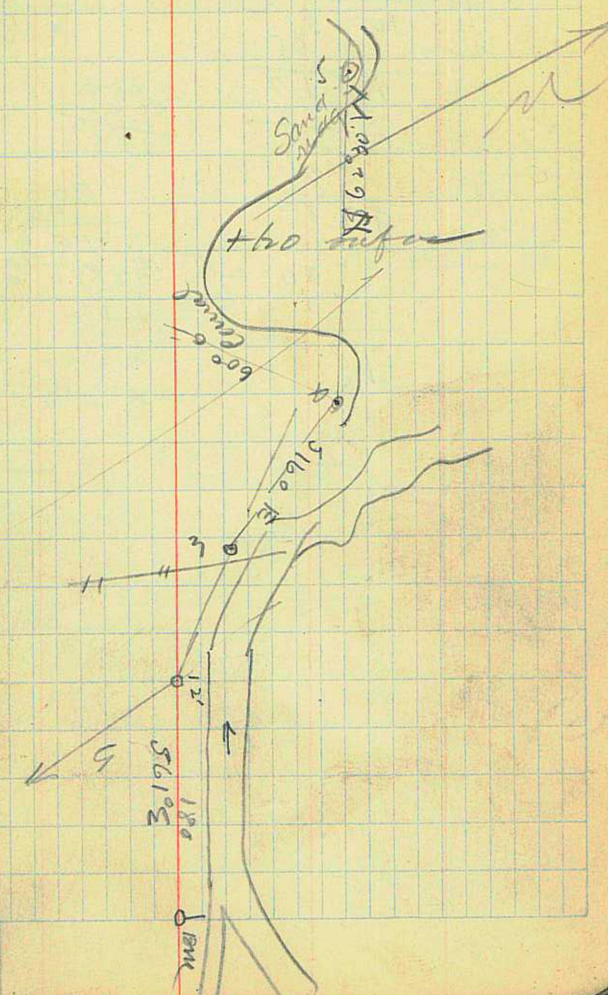
on River H_2O confluence with Bear

Alignment and preliminary survey

Hyrum Irri. Co

Sta	BS	FS		Elev	HI	Bearing	L	Stake C	VL
	4.00				103.17				
#7 24+73		8.65		99.17		N74°30'W	8.5	8.93	
6 24+30									
HS				98.8					
	1.68				107.82	S57°E	1.5		
#5 23+80		1.0		106.14		N62°30'W	0	12.7	
4 11+10									
3 -						S16°E			
#3 7+60	2.25	10.20		104.89	107.14	main			
2 1+80									
0	0.62			114.47	115.09	S61°E			

Nov 14-1929



114.47
62
115.09
10.2
104.89
2.25
107.1
106.17
1.68
107.82
8.65
99.17
4
103.17
5.37
99.80
98.80
57
93.10

103.17
97.1
5.67

26.34
2.71
23.63

98.8
2.2
96.6

80
40
3200
9
3/288.00
96

1.15
20
3.00

93.10
23.63
116.73

$HP = \frac{Qh\ 62.5}{550 .90}$

385.0

62.5
385
2400

385
.47

5000

180

Pump
$HP = Qh .2$

$h = \frac{HP}{Q.2}$

18.0

4460
20

6460
5
3.2300

100
3.25
96.75

62.5
.80
50.0.00

98.8
96
2.8

Turbine
$HP = Qh .09$

40
90 CFS
3600
9
324.00

5000
4950 .09

550

Pump
$HP = Qh \times 0.15$, $h = \frac{HP}{Q.15}$

$= \frac{324}{1.5} = \frac{324}{24}$

1.5
220

.12
.15
60
12
1.8

80
40 CFS
3200
9
288.00

$\frac{18}{108}$

11.8
160

18
15
60

90
18
270

360
90
90

.27
133

$\frac{360^{HP = 100\,CFS}}{.27 = 18\,CFS} = h\ 133$

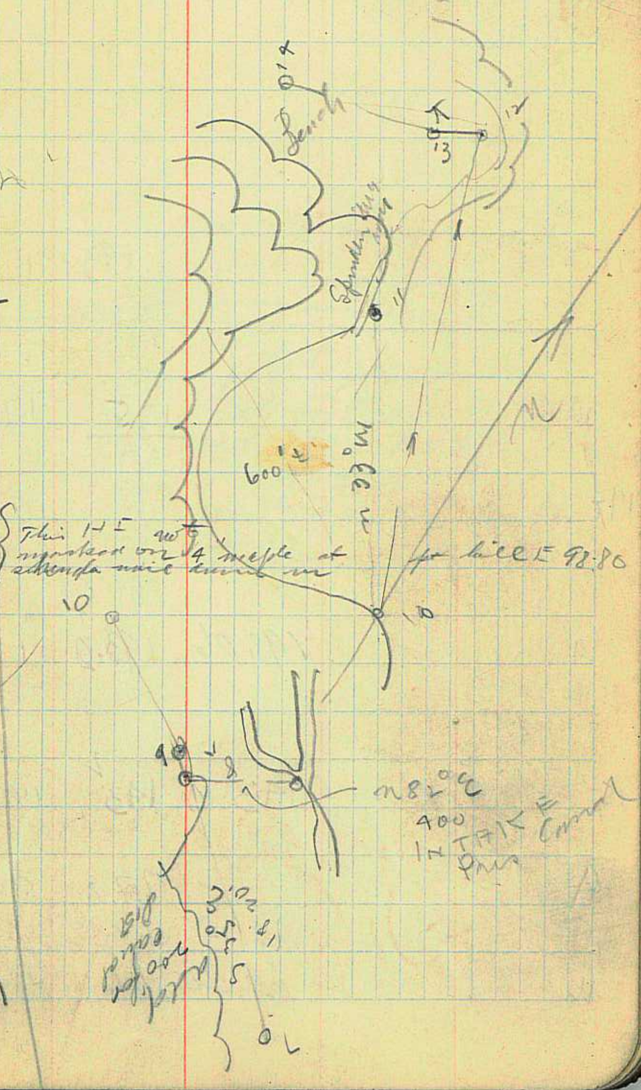
Pump

Sta	BS	FS	[illegible]	Ele	HI	Bear.
						N53°W
14	14			156		S84W
13	4.55 HI				121.28	
	~~13 4~~					
~~15~~	12					E
	13	0.87		116.73		
	12.86	1.84				
	12 13.48					
12	64+00	5.70		on peg 93.10		N26°W
11	60+00 on peg		r.20 ~~2.20~~	96.60 G 96.75		N33°30W
10	44+61					
-9	1.00 water				98.80	S32°E
-9	43+03 1.58	5.37		H2O G 97.75 97.80		N12°W
8	42+93			G 97.50		
7	4.00				103.17	S35°E

116.73
4.55
121.28

L	Stadia C	
	-20'	
2	+65'	5.65
5	-22°	5.65
5		13.5
0		13.6
	158	
4		13.1

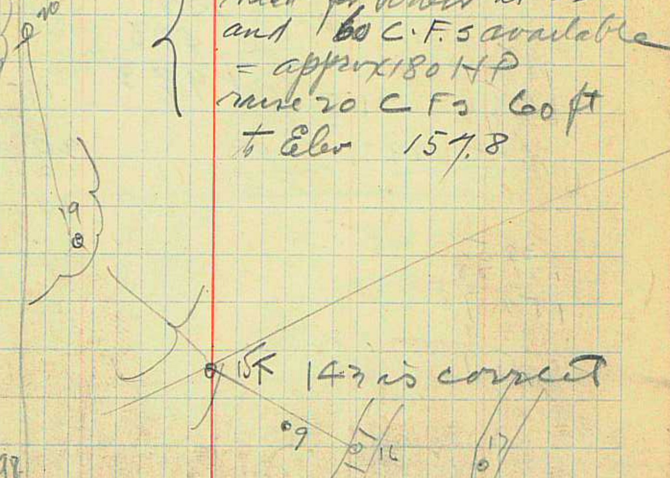
high ½ mile N53°W
to where slope runs out on



#8 Sta	BS	FS	Direct Level Elev	Stadia Ele	HI	Bear	L	Stadia C	D	
15				143.01						
20				175	175	N29°W	-48'	6.0	13.8	
19A					195					
19			198.06	193.0	190	S84°W	5	+18°15'	6.9	
15A			143	143	148.00 HI					
9				97.8		N62°E	10	-25°50'	10.98	
17			62.4	64.4		N61°E	2	-12°30'	5.75	on Power
16			64.44	66	——	N65°E	5.88	-14°20'	9	on Hy. Flume

.98
.81
98

Note assuming head for Power at 33 and 60 C.F.S available = approx 180 HP raise 20 C.F.S 60 ft to Elev 157.8



143 is correct

(lower down)

365

121.28
365
157.78
3
154
978
56.2

39.6
10 25
49.85
978
147.65

39.50
10 50
5000
9780
14780

148
750
73.7
7.5
665

148
66

267.75
38

148
79.5
68.5
39
64.4

21.5
19

148
50.3
1983
6

203

198
46
202.6
21.5
181.1
6
175.1

38.5
121.28
159.78
38
159.8

143
14
157

56
978
153.8

154

93.10
23.63
116.73

.98
.81
98
784
7938

.484
80
39.720

780
1560

765
38

9
588
3.12
74
1248
2808
4 | 29.3.28
73.3

.97
.97
679
873
.9409

40
10.25
1025
978
14.805
73
75
7.5
675

94
.94
376
846
.8736

1.69
8.7
1183
1352
147.03
33
441
441
48.50
190
167
23

780
2
1560
.0145
1600
87000
145
42.2

148
48
196
6

195
22
173
6
167

140
97.8
92.2
23
69

1520

2400
9
21600

1800
9
16200

3 | 162
54

33
60
1980

180

900

60
978
157.8

33

64

	BS	FS	m	
	13.40			62.4
			11.5	64.44
			11.25	
		0.55		
	13.10			
		2.60		
3927	12.77			
		0.64		
	12.24			
		0.18		
	12.06			
		0.15		
	12.20			
		0.92		
	11.59			
		1.62	2.87	
	13.35			
61.44			13.29	~~143.08~~ 61.6
		0.80		
	10.90			
		0.00		
	12.62			
		0.63		
	12.18			
	10.29	0.34		
		253		

13.40
4.9

m

97.8
61

65

possible Elev = 61 — see over
River 1/20
canal about 2 00 ft below Rate F
Rate flume same as 16

Eff head to canal
32.5 and
canal develops 35

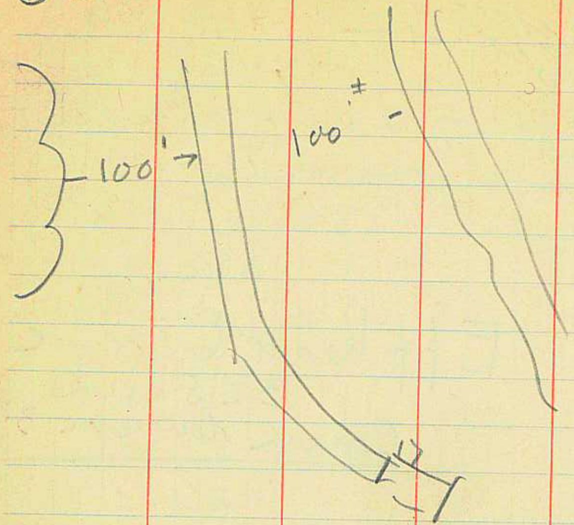
on # 9
on # 9

61.46
16.28
45

on #15 on top rock

on lath hub #19 = 198.06
and 1.45 on BM top 8d nail in
E = 199.7

6" in cor post about 30 mi of #19



Note from Sta (for lower studs)
43+03 [illegible] on [illegible] .075 [illegible]

100.5
1.5
102
94
8 [illegible] pt. [illegible] line [illegible]
[illegible] bad. side line

43
1
2.25

100
2.25

97.75
3.3
94.45

99
43
56
.075
280
392

97.75
4
93.75
4

9
94

116.73
4.68
121.41
8.4
113.01
12.4
125.46
1

87.20
43
44.30
.075
22150
31010
3.3

Cut

Nov 15 1929
Survey for Hyrum
[illegible] Co. Continued

	Sta	BS	FS	mm	Elev.	HI	Bear	L	C	J
27										
26		1.5					S20°E	0.		1.85
26	99+32		13.65		~~94.08~~ 100.44		N4°30'W	13.		13.32
25	99+00									
24		2.23				114.09	S20°E	25 1/2		
24	98+60		13.6		111.86		N9°W	2		13.3
23	87+30				94.45					
22		12.45				125.46	S15°30'E	6.9		14.
22	80+30		8.40		113.01	~~113.01~~	N40°W		5	13.15
21										
13		4.68			116.73	121.41	N73°E	4.		4.48

121.45
90.45
31.00

.075

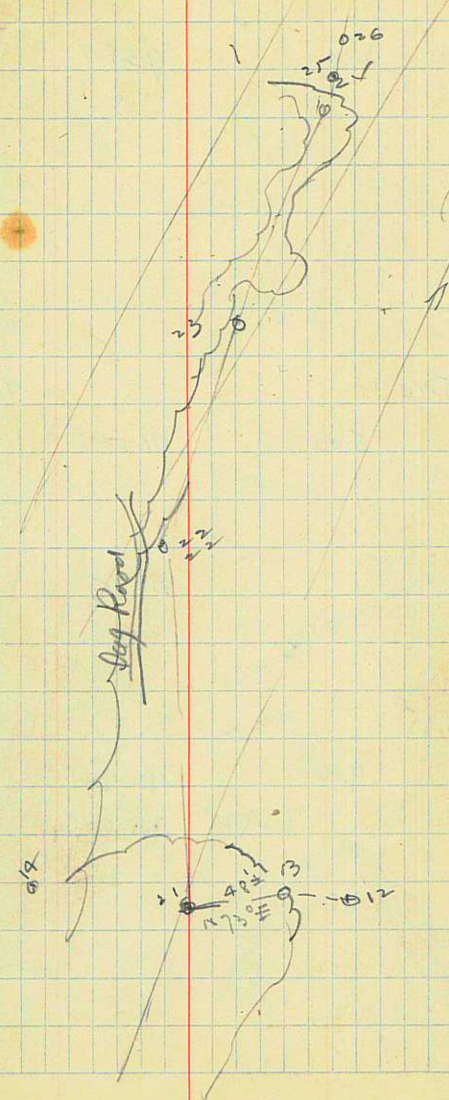
1130

13.11
5
8

811

64
1630
8030

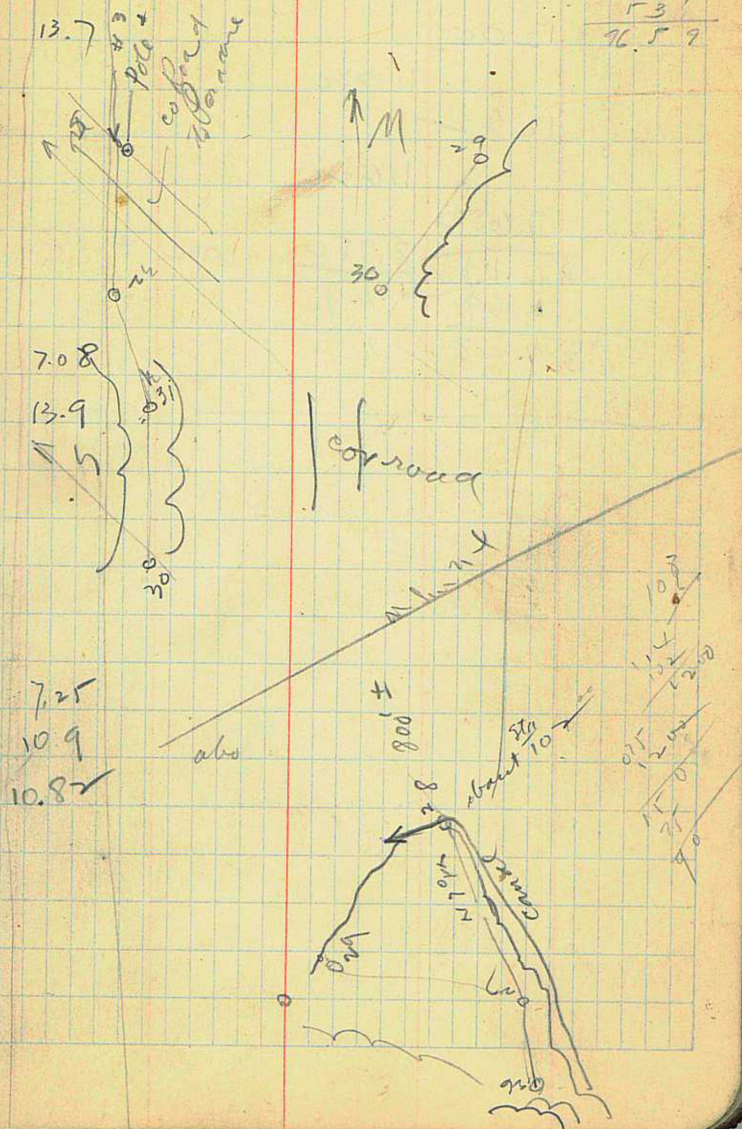
125.46
13.6
111.86
2.23
114.09
13.65
100.44
1.50



6 0

Sta	BS	FS	m	Elev	HI	bear	Sta	dist
33		3.00		93.59		S13°W	4	13.7
32+								
31	5.30				96.59	N19°E	4	7.08
31		5.00		91.29		S29°W	4	13.9
30+ 114+00				93.G				
29	3.35				96.29	N44°E	1	7.25
29 108+00		9.00		92.94		N86°W	5	10.9
28			8.42	94.00G		N6°30'W	7	10.82
27+					101.94			

10694
101.94
9
92.94
3.35
96.29
5
91.29
5.30
96.59

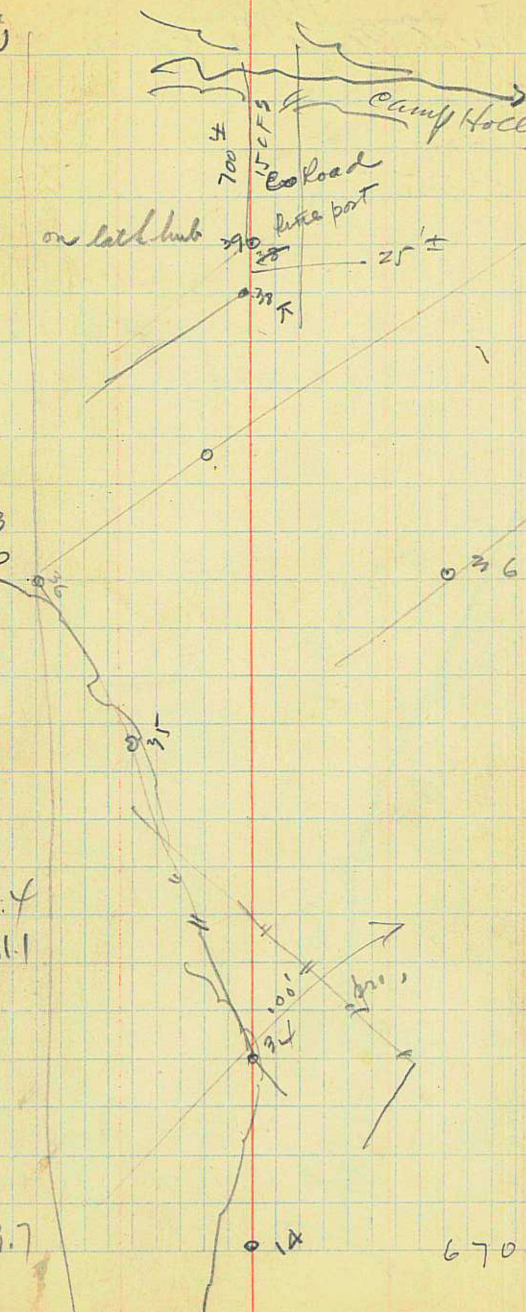


direct level from 13 to 14 11-15-29

BS	FS
12.85	
	0.90
13.00	
	1.320
12.62	
	1.620
7.650	
46.12	2.850 on #14
6.69	6.69
39.43	

39.43
116.73
156.16

#	Bs	Fs	~~~	Elev	H.I.	Bear	Stadia L	C	U
	2.51	11.40	on 33						
	0.97	11.30							
	0.98	11.86							
	1.94	12.84							
	1.58	13.18							
39	5.21	13.15							
		73.73							
39	13.19	5.21		154.25					
38									
37	4.4				159.06	N48°E	3		13
37		8.35		155.06		S76°30'W	7		10
36									
35	8.15					N80°E	2		8.4
35		8.9				N60°W	4		11.1
34									
14	8.00			156.16	164.16	S55°E	7		13.7



164.16
89
155.26
8.15
163.41
8.35
155.06
4.4
159.46
5.21
154.25
60.54
93.71
.59
12

73.73
13.19
60.54

77

Study of possible
cut from Hyp... ...
mech. Plant to camp ...

20

N22°30'E 6 -59' 13.2

S56°E +7' angle) to BM near 19 ℄ HI cor post

HI about 4 1/2

44

44
19

N88°E 6 +37' 13.0
S69°E +16° 4.0 13.0

43

S 42
47

S83°W 6 +0°04' 13.6
N69°E 1. +1°39' 7.4

41

40

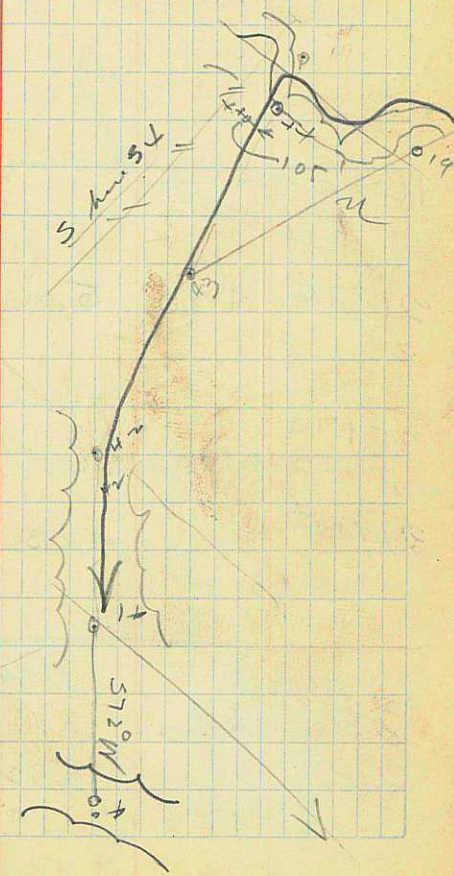
S69°W 3.0 -4°4' 5.20

800 27/30 1400 30

198 157 41.

97.80 .60 157 8 0

78



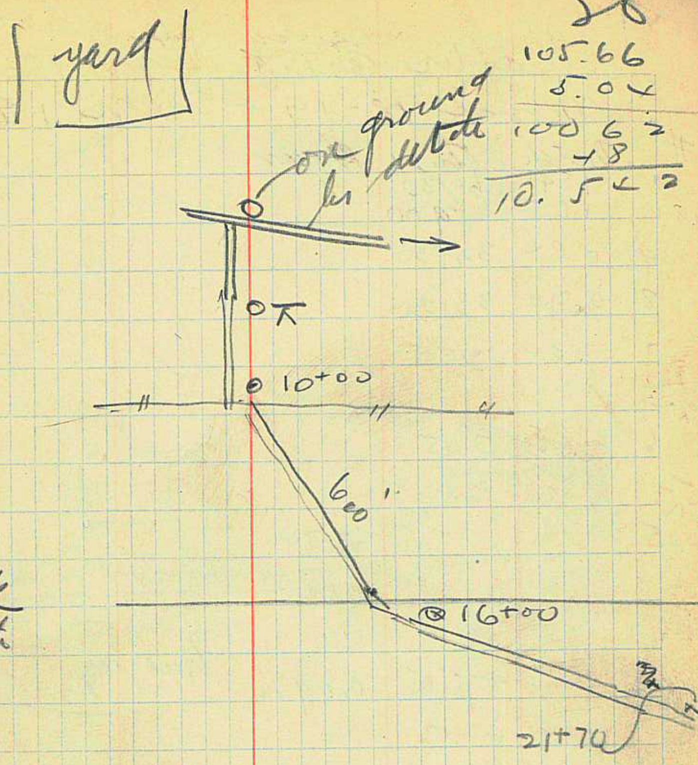
11-16-29

Survey for
A. H. Westover at Lewiston

	BS	FS		Elev	H I
0	4.25			100.00	104.25
4+50±			4.90	99.35	
10+00	6.04	4.63		99.62 6.04	105.66
16+00			5.00 7.00±	100.66 98.66	
21+70	4.80	5.04		100.62	105.42
25+70			5.00 6.50±		100.42 99±
31+00±		4.03		101.39	

Check back

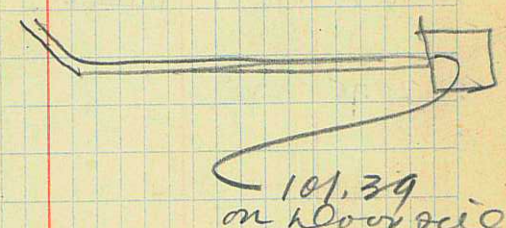
31	3.40			101.39	104.79
		5.32		99.47	
	4.48				103.95
		4.02		99.93	



105.66
5.04
100.62
4.8
105.42

on bank
in Ditch

Ditch bank
bottom ditch
on door sill
pumphouse



104.79
5.32
99.47
4.48
103.95
4.02
99.93

checks - OK

81

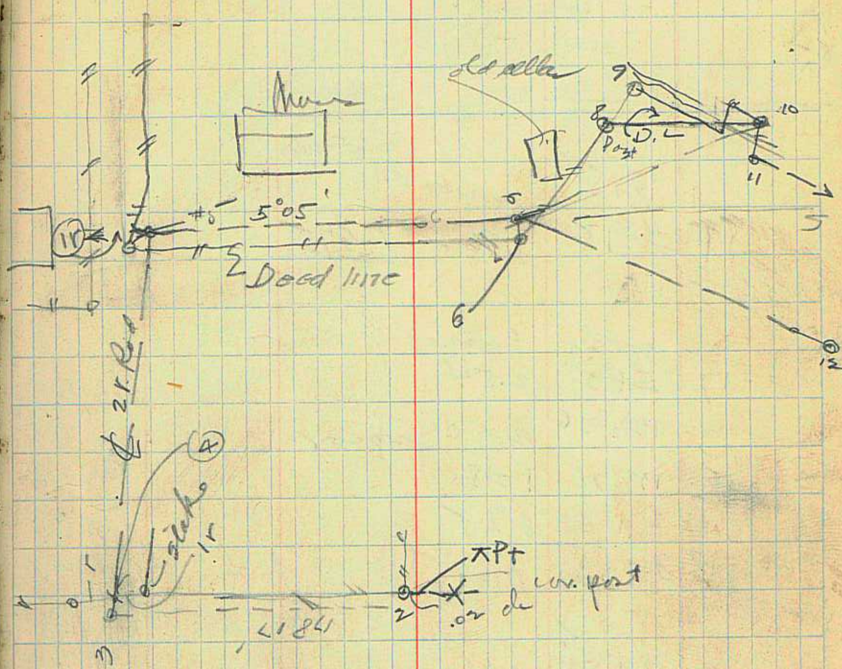
Baxter Estate Survey for Nov 18-1929
in sec 18-19 - 10 N 1 E —

#	Dist ch	Ang	Bear	
11	1.54	6°30'		
10	1.65	359°00		
9	0.84	331°30		
8	0.70	331°30'		
7	.04	95°05		
6r				
6	2.65	5°05'		
5r				
5			7.70	
			7.66	
4		275°05	0.09 ch	true ang 275°17
3r				
3	10.90	178°17	N1°43W	
1r				
2	20.75	270°		

35817

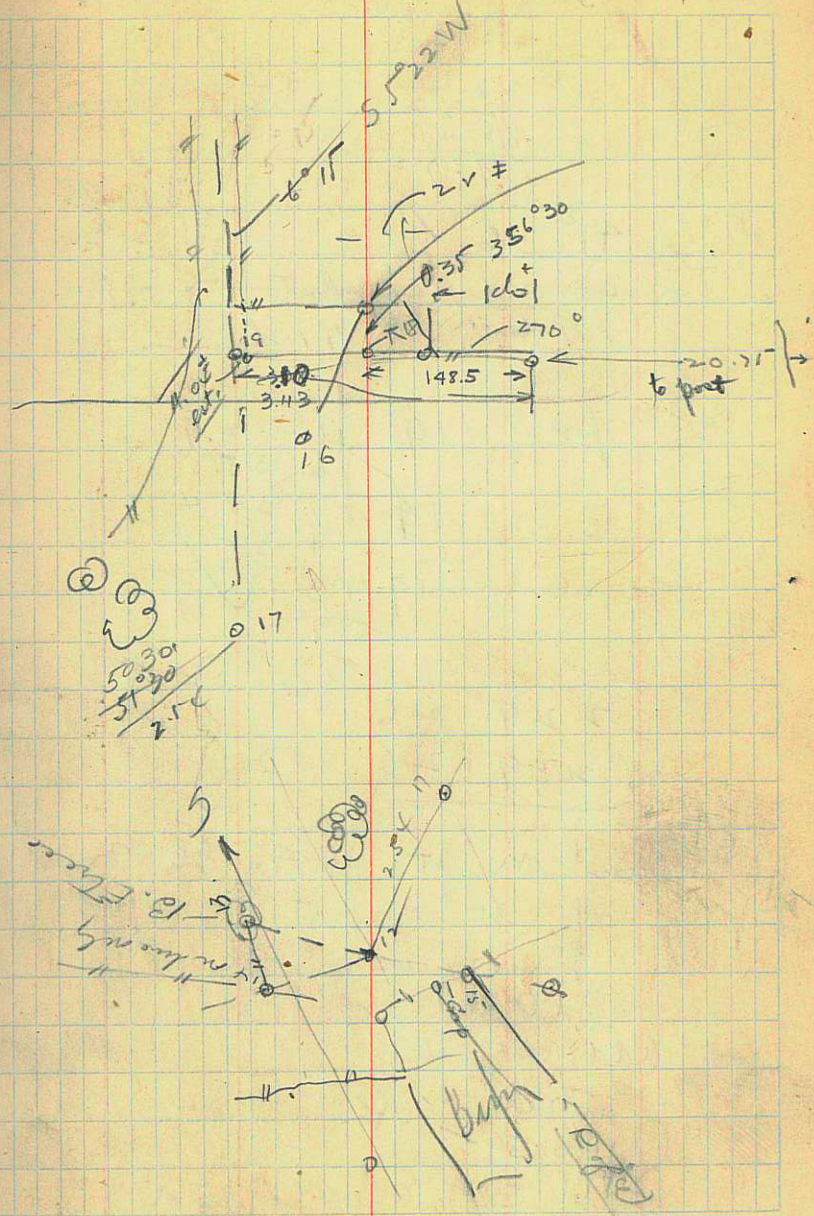
16,982
10,

add 7' to ang



SW cor 18 - no cor found
Started on mean ℄ of Md 45
St. with 4 rds

	Ang	dist	ch
18			
19	5 15 ~~6° 15~~	1.962 error 10	1.975 sec meas
17	50°30 ~~51°30~~	2.54	error
16	133°36	2.00	prep cor
15	133°36	1.28	
14	271°40	0.65	
13	3.13°30	0.69	
12			
11	24°54'	4.41	
6			



$\frac{x}{3.4} = \frac{5.8}{5.8}$ Nov 18 - 21
4 PM

5.8
34
232
174
19.72

348 (58
34 (6

lat 41° 36
co 48 24 co lat
89 60

35.96
35 9 6
39 5 5 6 | 60
36 0 | 6
35.5

11 hours

£

for 19 11 2.9
6. 35.5
19 17 38 4
4 35
final 19 13

229° 26 φ
229° 26 ⊙

27659
27505
154

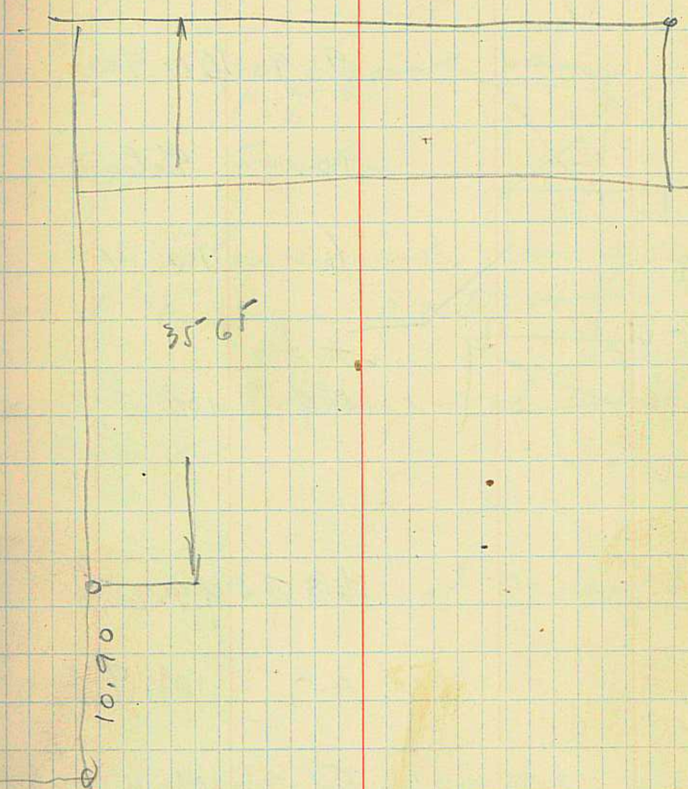
Set on pt 10.90 ch N
of pt 20.75 E of
Sw cor Sec 18
10 N 1 E
add 1°54
true
166 59 ok
166° 58 to E cable end
of Josh Brown Gramercy

178 52
1
179 4
180 11
N 11 E

35.65
4

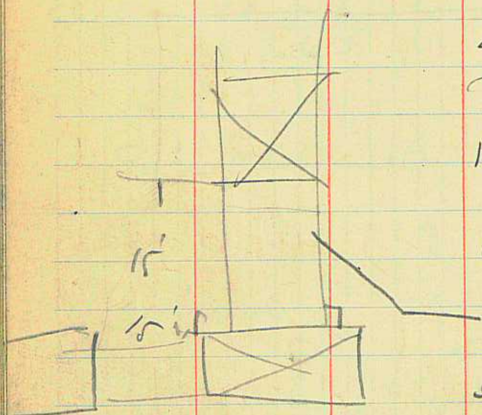
35.65
10 90
46 55
5 55
40.80

4 23
5.75



87 Smithfield Irri Co
Nov 19 - 1927

6.60		100.00	106.60
	7.32	99.28	
	4.9	101.70	
	10.0	96.60	
	6.2	100.4	
	5.9	100.9	
	6.85	99.75	
	4.7	101.9	
	5.13	101.47	



6.5
5.9
7

Studio Creek & L-N Canal 1st N bet-M+1 E 88

on H_2O L-N Canal bet bridge
and flume over ~~the~~ creek

in bottom channel ~~slop~~ spillway into Creek

on pro. opp proposed dam
bottom Creek

in bottom waste-way
and 18" pipe outlet

ditto as : it passes over canal
N side

4.9

H. H_2O ℄ N Canal on N side 15

HI

℄ bridge St grade

89

72

.00

27
162

75.00

6

Gravel 19.00
cement 30.00
~~Lumber~~ 4.00
30.00
74.00

Baxter Estate.

34 2
5

19 34 7.4
2 51.05

171.05 60
120 2
51

19 41 58 41
-1 .56
19 40 02 04 10 am

90

228 86
166 58
62 28

1

227° 40
62 28
165 12

Co. lat = 48 24

to dawek
Nov. 20-29
10 am

227° 32
227 41
227 40
227 39
227 41
227 39

5 (240)0
40

275° 12
line 3-5
34

ave 227° 40

165° 13 to E cable end
Josh Brown Granary

91

Nov 20-1929

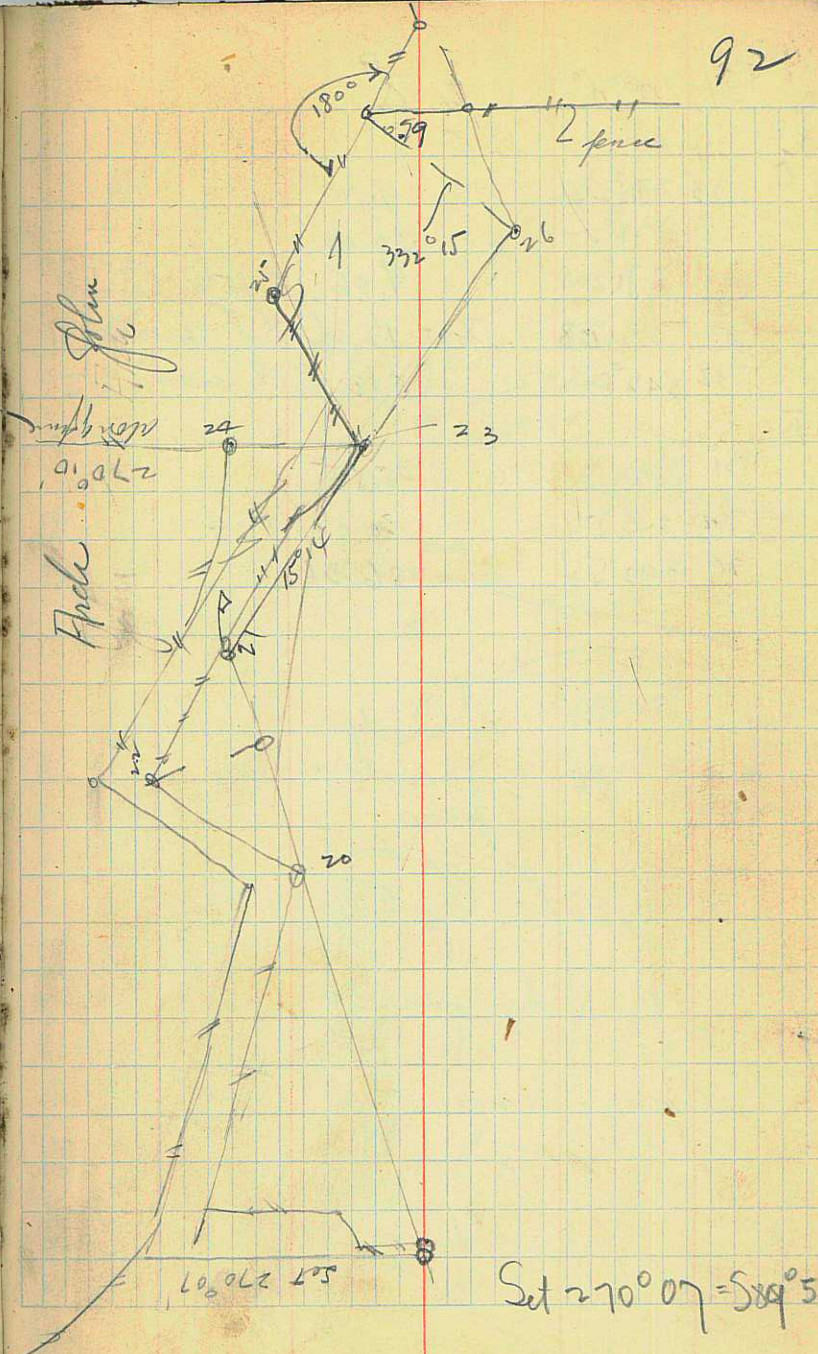
Survey for Baxter

East continued

28	342°54		5.30	
27	342°54'		3.66	
26				
26	15°14		5.73	
25	328°37'		3.14	
24	270°10'	Hor 1.46	1.58	slope meas -22°15
23				
23	15°14		5.455	
22	194°40'		4.13	
~~23~~	~~15°14'~~		~~5.43~~	
22			4.13	
21				
21	349°32	S10°28E	19.20	
20	349°32	S10°28E	10.33	
2				

true az

92



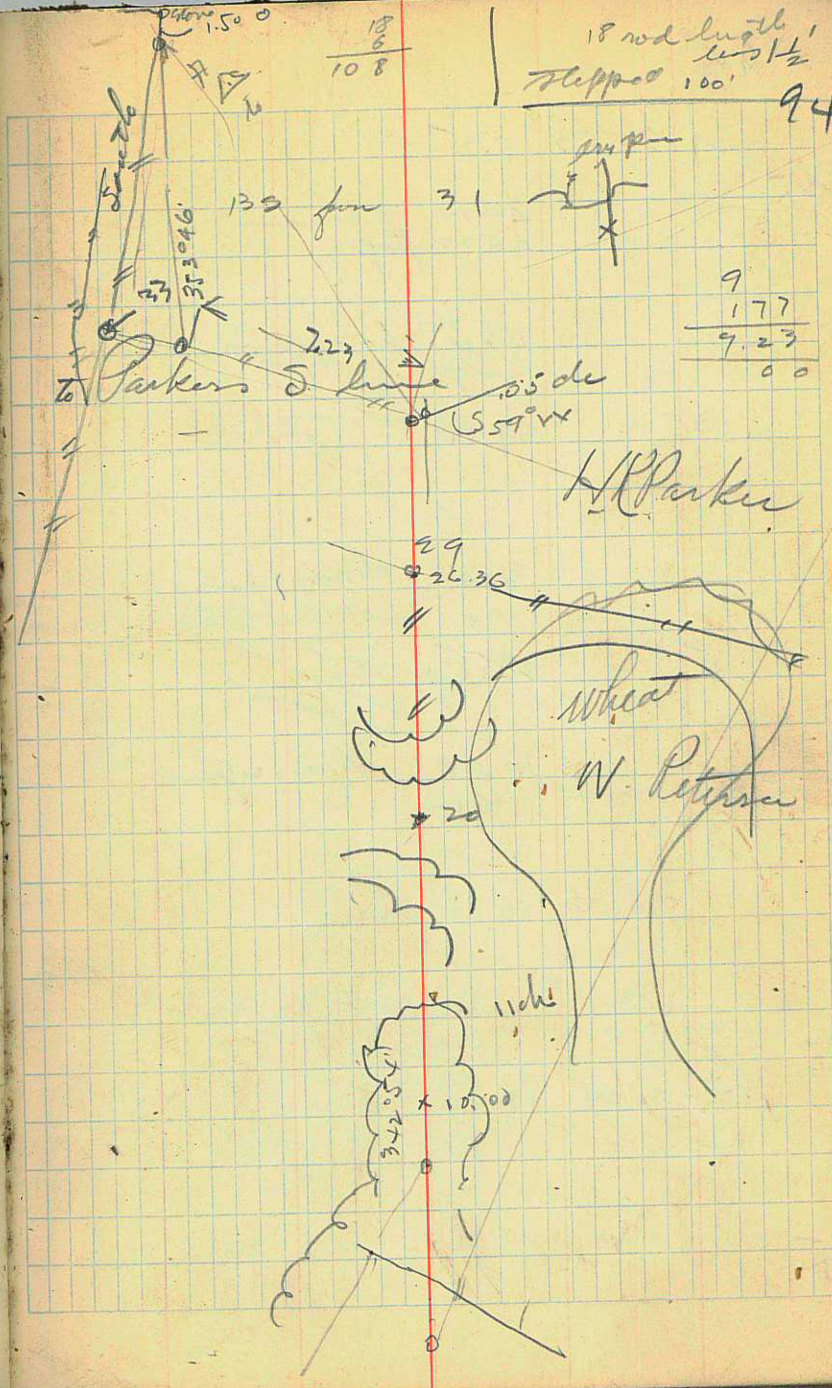
Set 270°07 = S89°53'E

	0°0'	to	△A
33△			
33	271°24		9.00
	271°24		10.00
	271°24		9.06 to pt in line well 1145 Fa
△A	331°08	To pt	1½ ch S of S¼ cor sec 19
32	342°54		8.13
31△			
31	342°54		35.55
30	342°54		30.00 fns
29	342°54		26.36

18 rod length less 1½'
Slipped 100'

18
6
108

9
177
9.23
00

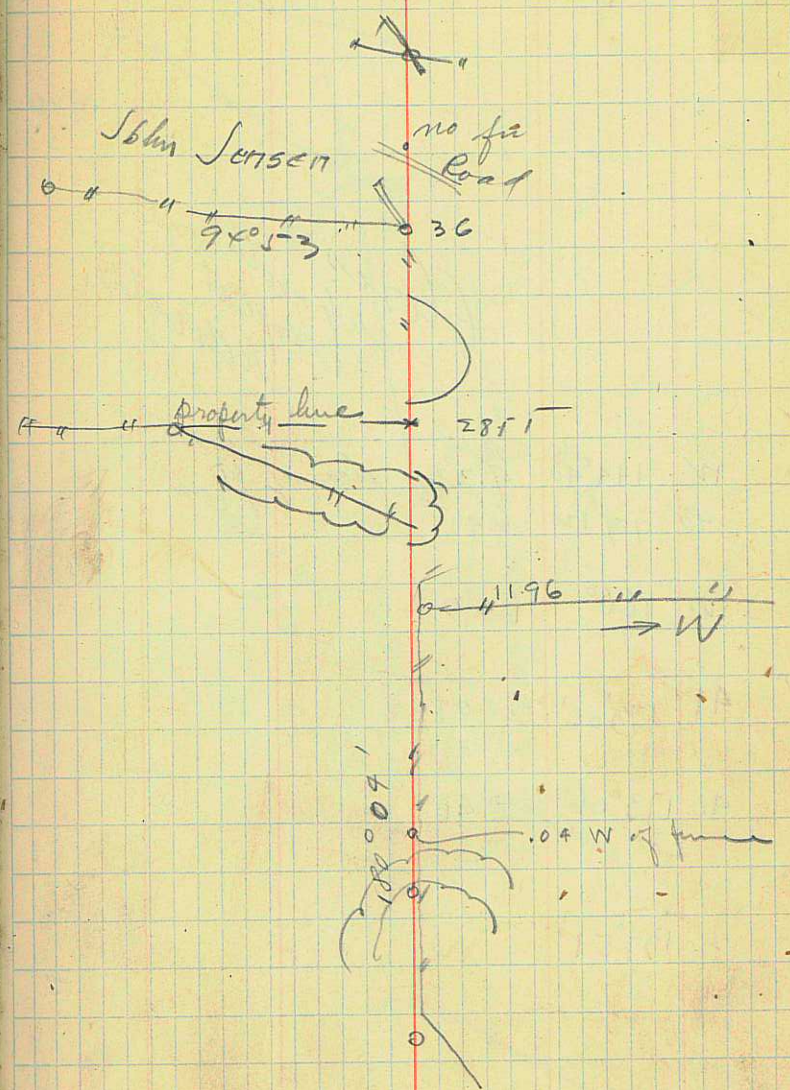


36

39	94°53	8.35	
38		44.24	to fence
37		44.22	to peg
		40.00	change pin
36		39.11	
		30.00	change pins
35		28.55	
		20.00	change pins
nta		11.96	
	180°04	10.00	change
	1' 30"		to △ A on line
34	180°04	11.00	

34

33



(23-
18.15
21.
39.75

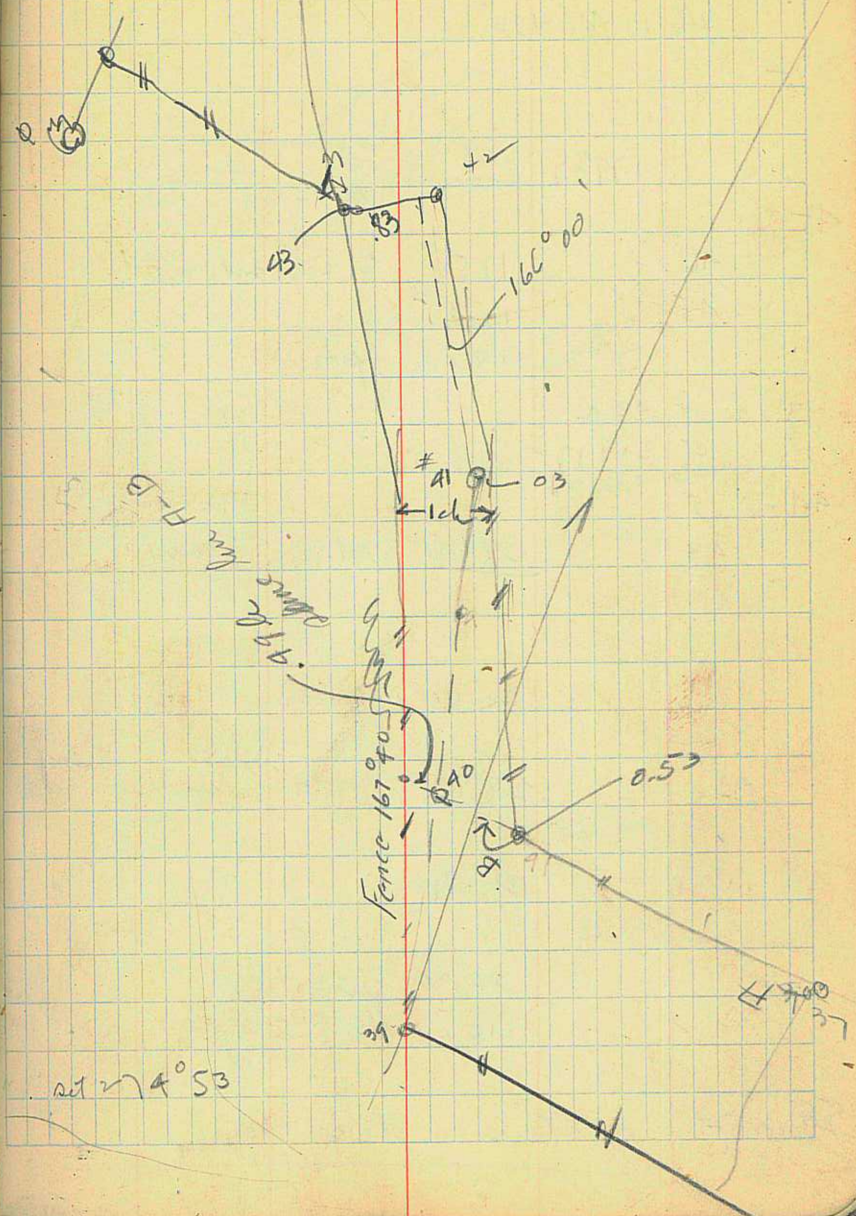
Closes up with respect to angles

12

12	144°40	9.33	closing pt.
43	159°12	6.45	
42	166°	6.23	
41	173°06'	9.00	
40	173°06	4.96	
2	137°51'		

41

39



99

44 N0°04'E 8.53
45 292°46'
46 127°46+180°

37 -

179°07 note this should be correct

45

46 17.50 to cor set station

45 13.35

5± 10.00 pins

Beg tch at 43a

45 319°17' 319.17
46 326°3

44 -

44 39.66 est. as 5 1/4 cor 18

30.00 pins

43a 28.16

43b 26.91

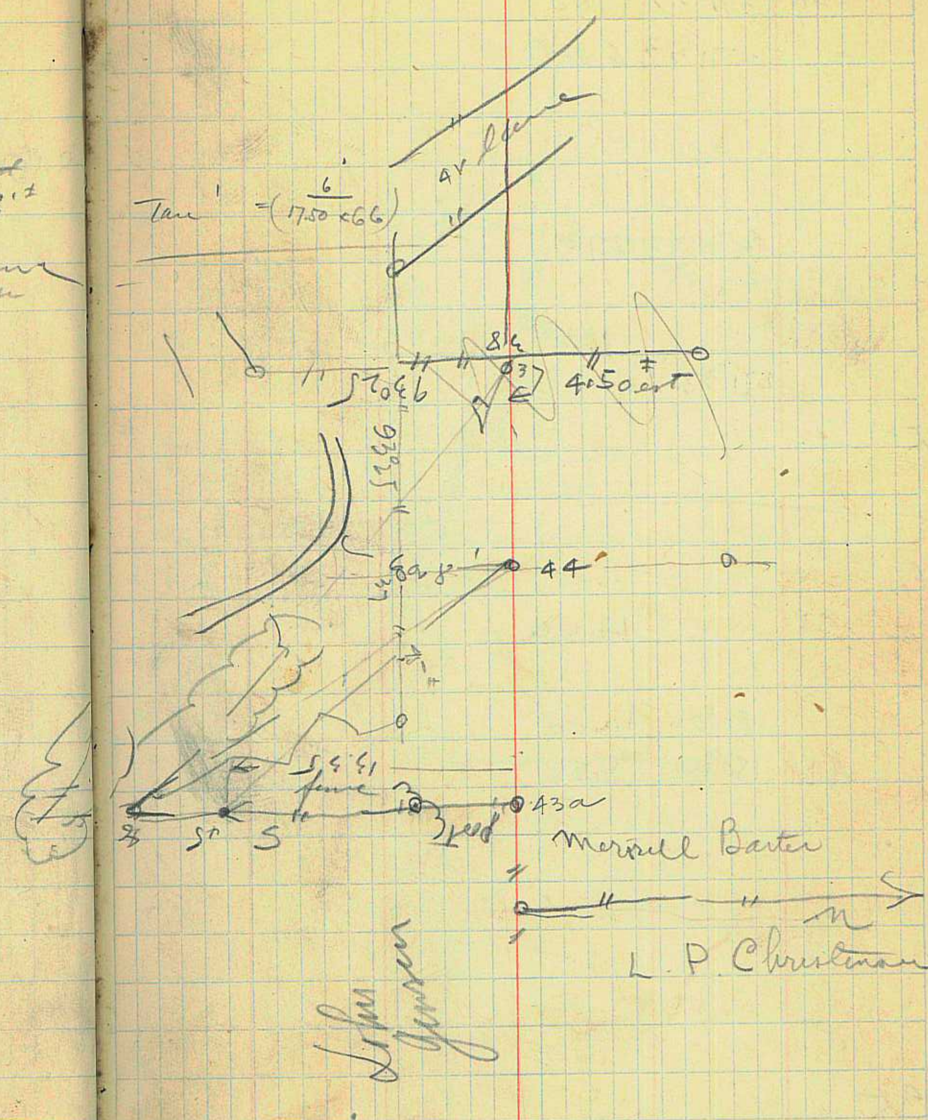
20.00 pins
10.00 ch. pins

SE cor 18 - a stone in place

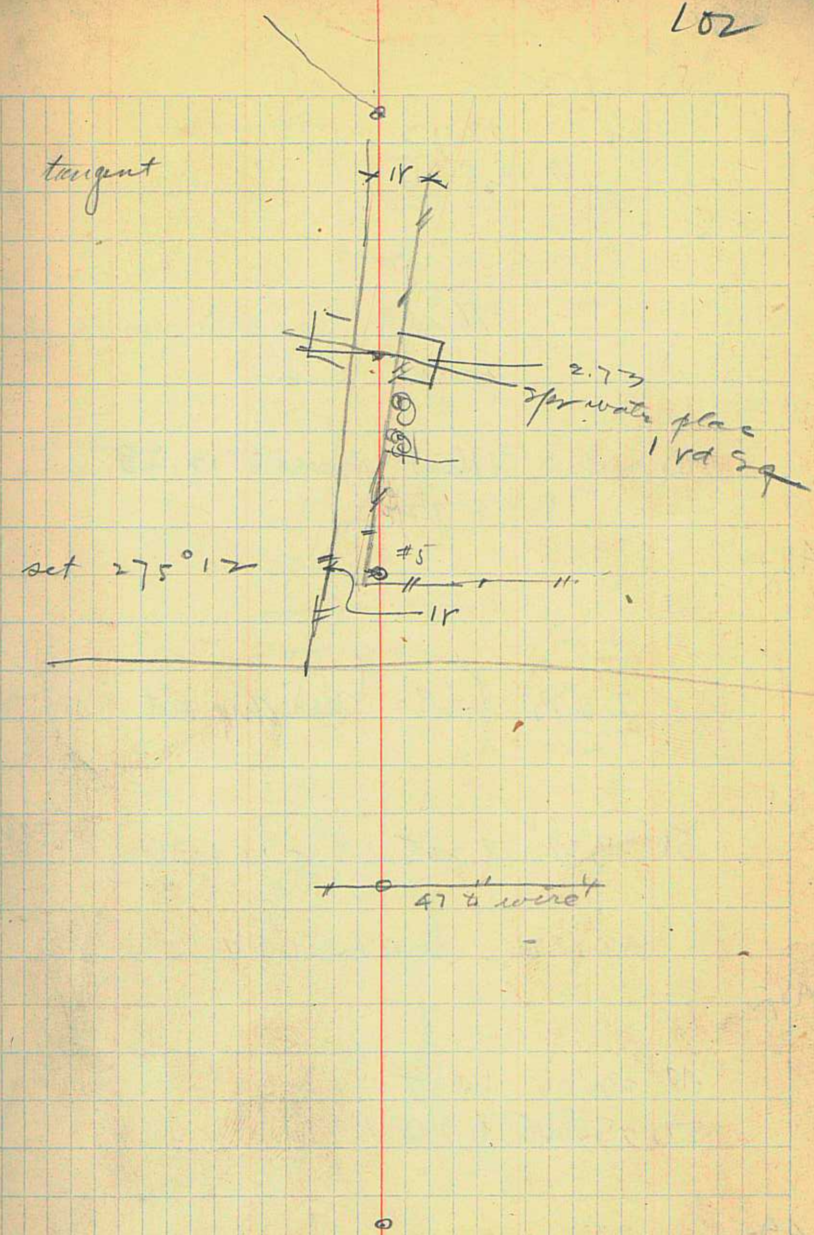
100

39.66

39.66
28.16
11.50



49	271°33	8.00
	271°33	6.84
	271.33	2.73
	271°33'	
5		
48		
48		14.00
	180°04	10.00
47	180°04'	8.58
44		

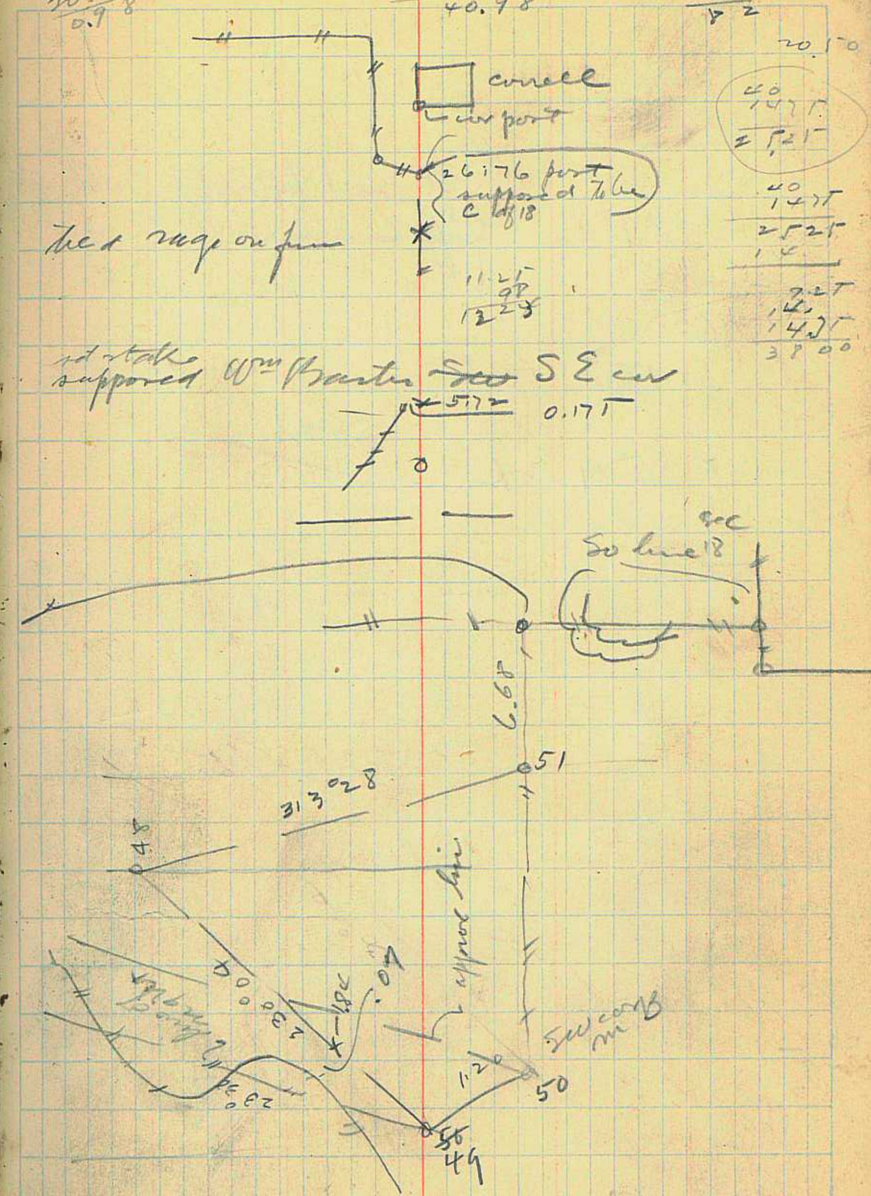


53	17952		
		32.73	
		28.86	
		26.00	
		20.00	pins
48ᴧ		11.25	moved to 12.23
		5.72	
48ᴧ			
52	272°33	6.68	(this any out ... prox)
51ᴧ			
51	313°28'	8.205	to pt 0.2 N of fence E+W
	180°05'30		Read on 0°04'
48ᴧ			
48	230°04	6.135	
50	352°45	1.20	
49ᴧ			

32.73
11.25
21.48
20.50
0.98

46.23
5.75
82

32.73
14
46.73
5.75
40.98



89°46 { pt set by Arch & Bill
fill about 3.5 ft

C –

C

180° 0.96

B

B ~~89°39~~ x

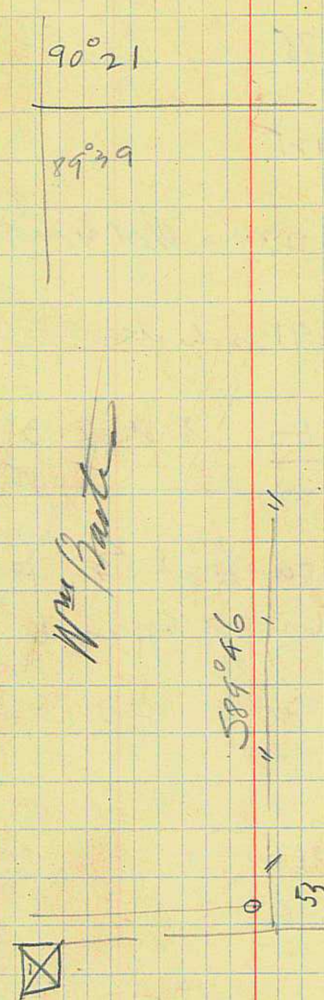
89°21

48a

~~46a~~

53 F

00×3 .17 0.087 .64 348 522 .005568



107

Nov 22 · 1929

Baxter Est.

check meas -

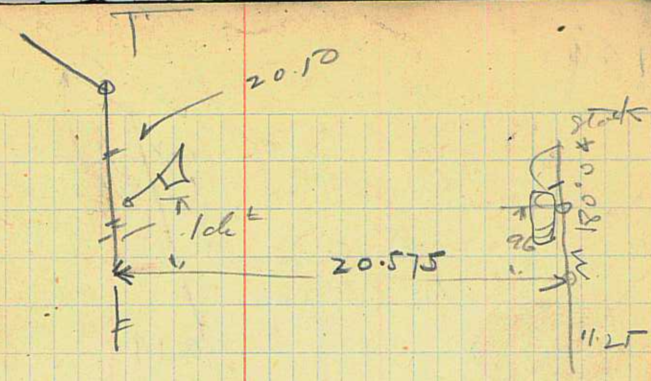
17	17	2.54
	17	1.975
19		
	E	3.125
2	tencor	20.25 West side 4th St.
	5±	10.91 recheck
3		
		35.67 to pt of 3

1/2	N	20.50 opp # 1/4 F = flag
	N	18.60 pt opp cor 6
5A		
	5	20.06
		0.26
	5	0.10
x-		

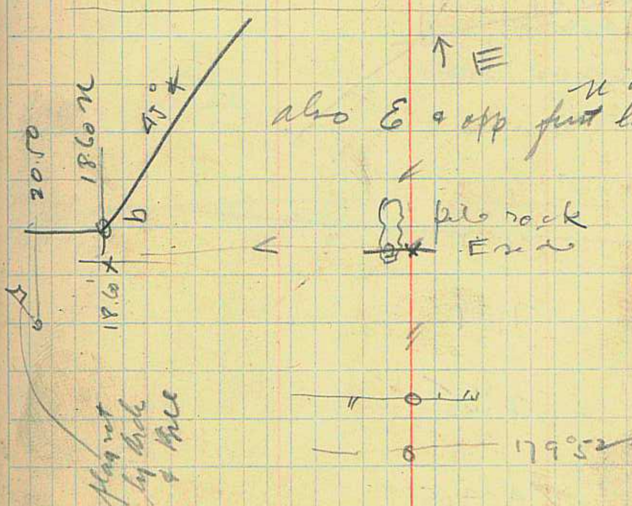
23 rds N of C sec 18
and west along N. line of Wm Bat

Beg. pt. 180°04 of S 1/4 cor 18

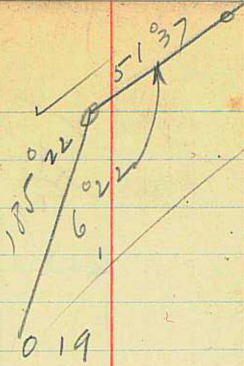
note wp

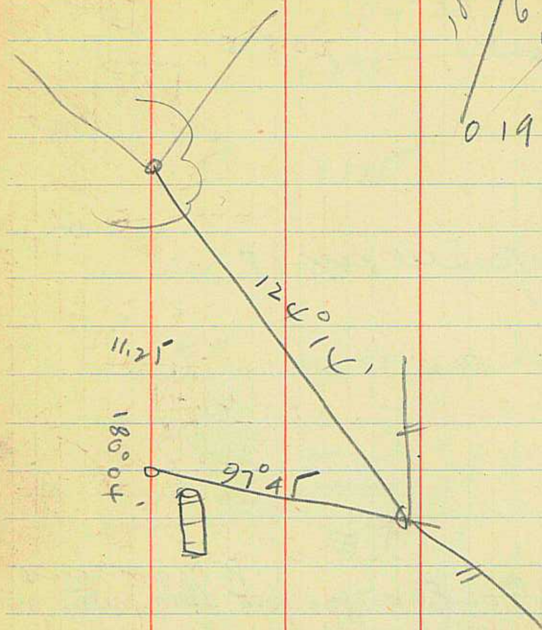


0.50 ch E of SW cor 18

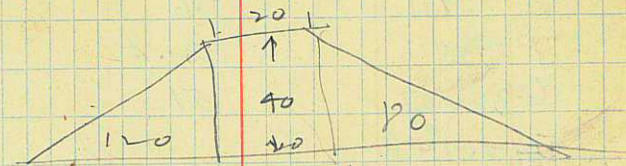


also E + opp first large noty post
N of each tree

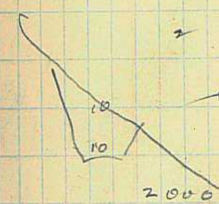




	2	7.69
5	5	2.65
6	6	4.405
12		



220 240
120 40
4800 2000
96000 00
36
162 360000



+2000

2000
50
100000

40000
Dam 60000
20
100,000 2000
5

Survey for
Lewis Olsen of College
Ward -

	1	268°57		237.00
	8	339°11		186
	7	12°		122.4
	6	306°07		51'
	5a	209°44		
3				
	5	145°41		230.4'
	4a	145°41		173.00
	4	145°41	N34°19W	35'
2	3	83°		
2	3	88°57		
	2	216°07	33.4'	
1-		216°49		

173
150
23 0?

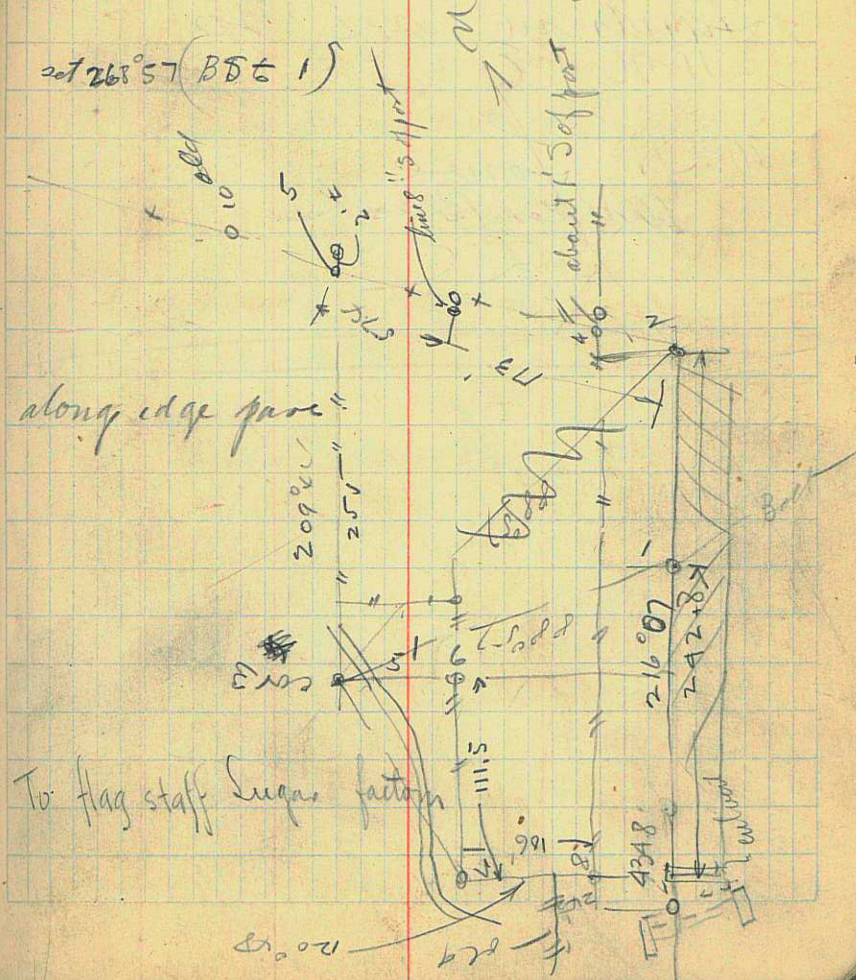
N 28°23 W

255.00

21607
90
30607

100
77.6
22.4
00

James Olsen
Alice H. Olsen



Moroni Ward

160
32
———
192

Geo M. Ward –
Riverside 32-01

Lands in sec 30
11 N 1 E

Wm J. Lowe
Walker Bank
SLC

Nov. 29-1929
Survey for Clark
Est. Sec 9 - 14 N 2 W

$\frac{10}{5.8} = \frac{x}{1.31}$

2' 20

42 00° Lat = 41 60
2 20
41 57 40

Co-lat ~~48~~ 48 02 20
89 59 60

S.P. for Nov 29 = 21° 27 12.3
2 8.1
21 25 4 2
01 2 6
21 0 2 3

25.63
5 hr
128.15 60
2
10

① 57° 10 to Neda pipe
② 57° 16
③ 57° 16
57 16 3
57 16 use this

Clark Survey

in sec 9. 14N 2W

	ang	Bear	Dist	
	89°18		temp pt.	
4r 4	90°19		5¼ cor	
2r			set 83.07	
4			39.96	found S¼ cor 9
	89°33' to S.W. cor 9		36+	
			36.0 fin	
		E±	20.00	drive ¾" bolt ½' long
		E±	10.00 fence	

Beg at S.W. cor sec 9 - 14N 2W

3 88°38 39

2r

2 83°07'

1r

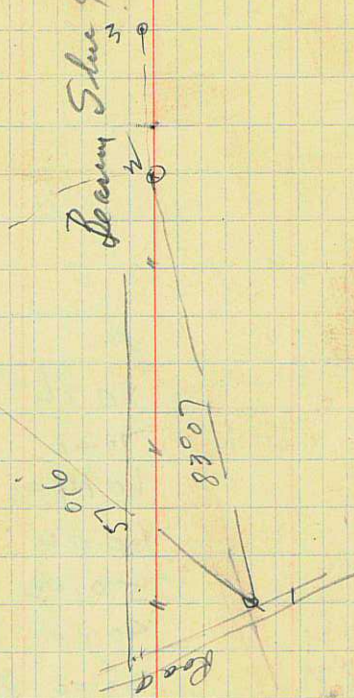
105
36

38 89 33 ½

Hans Wahle's place

pipeline Meter

Bearing S line 9 = S 89°28' W



± mahog. tree on pt.

Ob. pt.

			80.16	
			70.00	
			60.19	
			60.00	
			50.06	
7	179 21		40.00	
	179°21		30.00	pass
6	179°21		20.00	stake
5	179°21		10.00	
cor	269°28		20.00	
	269°28	N89°28'E	10.0	ch fin

4

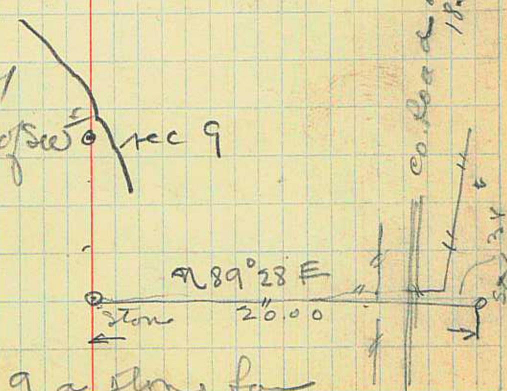
1,187.385 stake 6 N89°28'E

to fence E & W

5 ×

in plowed land

N E cor S½ of SE¼ of SW¼ sec 9



S¼ cor 9 a stone fence

119

90° 08

3 ⌊269 3̸5 (3)
89

120
3 ⌊155
51

(3) Repit 269° 35

0 2 n

3 ⌊269° 35 + 40
89 51
19

3 ⌊155 50
51

0

179 59 60
89 51 40
90 08 20

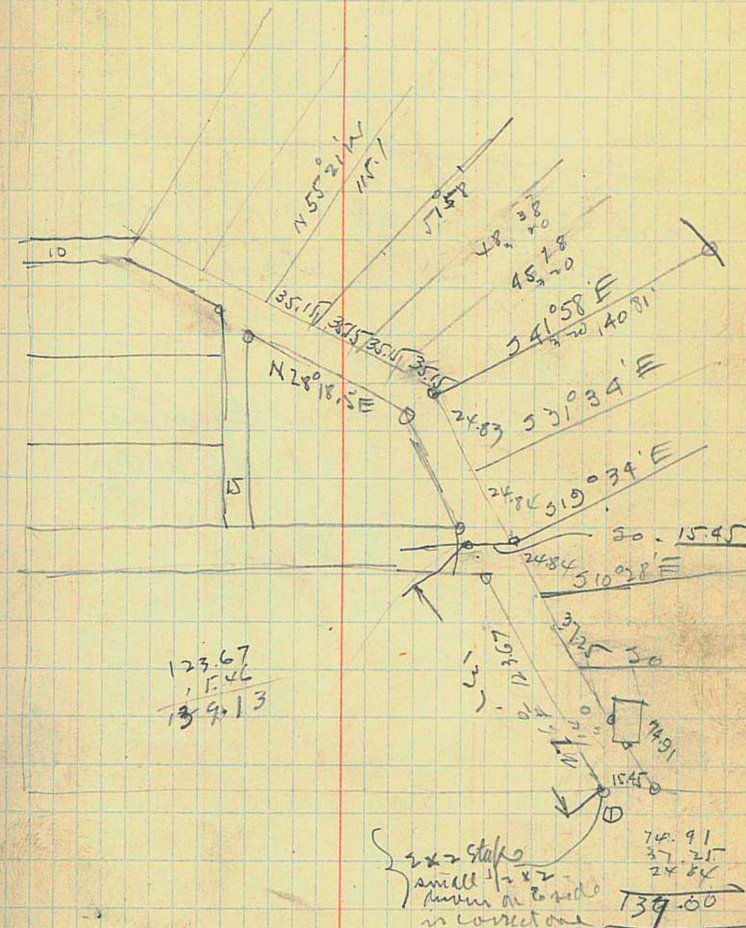
120

66
80
1 5 28 0 3 ⌊83 20 4
2 3

5481
4158
13 2 3
3

3 ⌊83
27

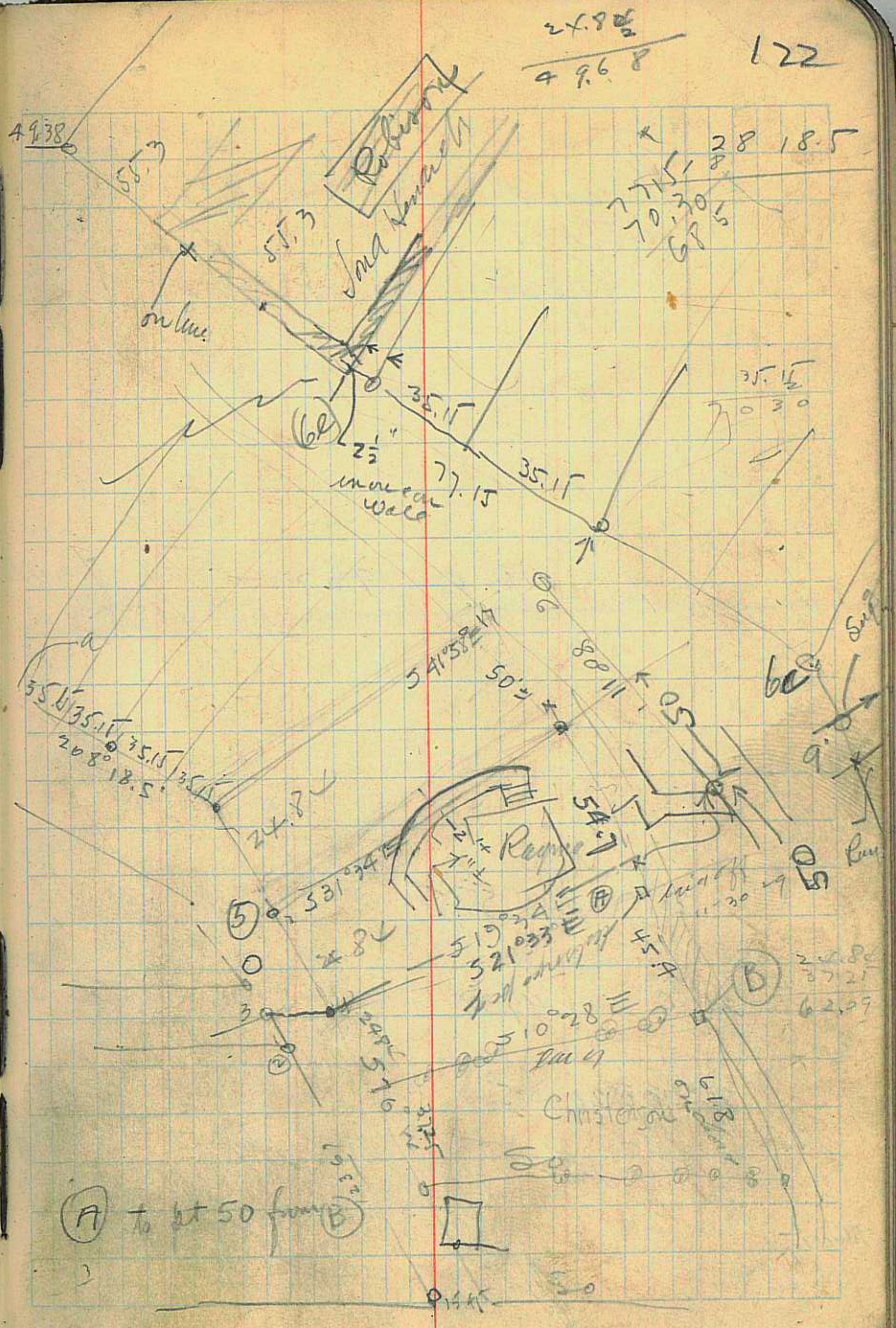
3 4 5
9 16 25



Cordon survey
of Temple heights
Beg at SW cor lot 1

300.28

nail	201°22'	176.40	nail SE cor Rob.
	202°	54.5	to pt opp. old slide
7x			
7	240°52'	61.8	
	80°11		to SW cor Raymond lot
	240 52		to top pine N pt Saddle mt
6x			
6 (12-31)	~~31°31~~ S31°34E	140.8	
5x Dec 31-29			
4	0°	15.45	
3x			
3	256°00	137.00	
1x			



Found points a-b-c d
intact
April 12 - 1932

Apr 12 - 1932 Temple Hgts
Survey m

28° 17' actual 58.55

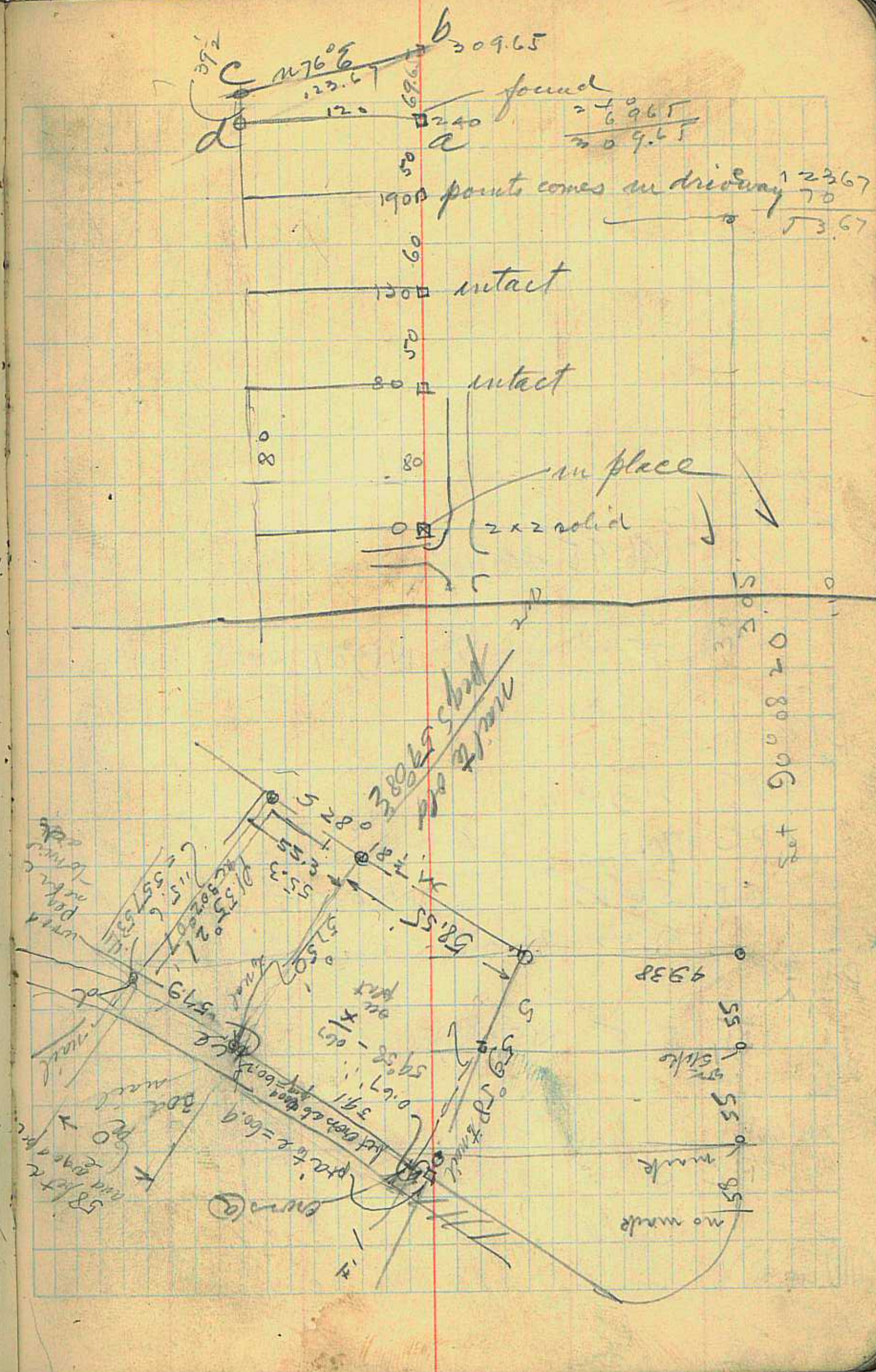
21K

21 0° 49.38

20K

20 270 08 20" 305.00

McIcor K



196.95 200°14

75 N19°09'

PI

PI 213.00

PC 170.8

Tan D. 56 1/2 114.3 N80°09'E

7.3 343°57

PI₁ -

PI₁ 87.5 N53°32'E

PT SW -

SW cor PI

P.C 0°

MW cor -

156.5
56.5
213.0

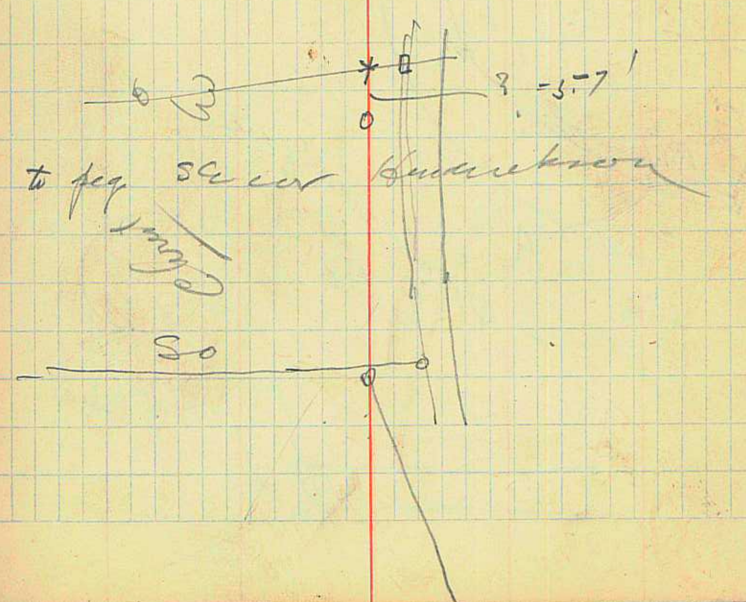
114.3
56.5
170.8

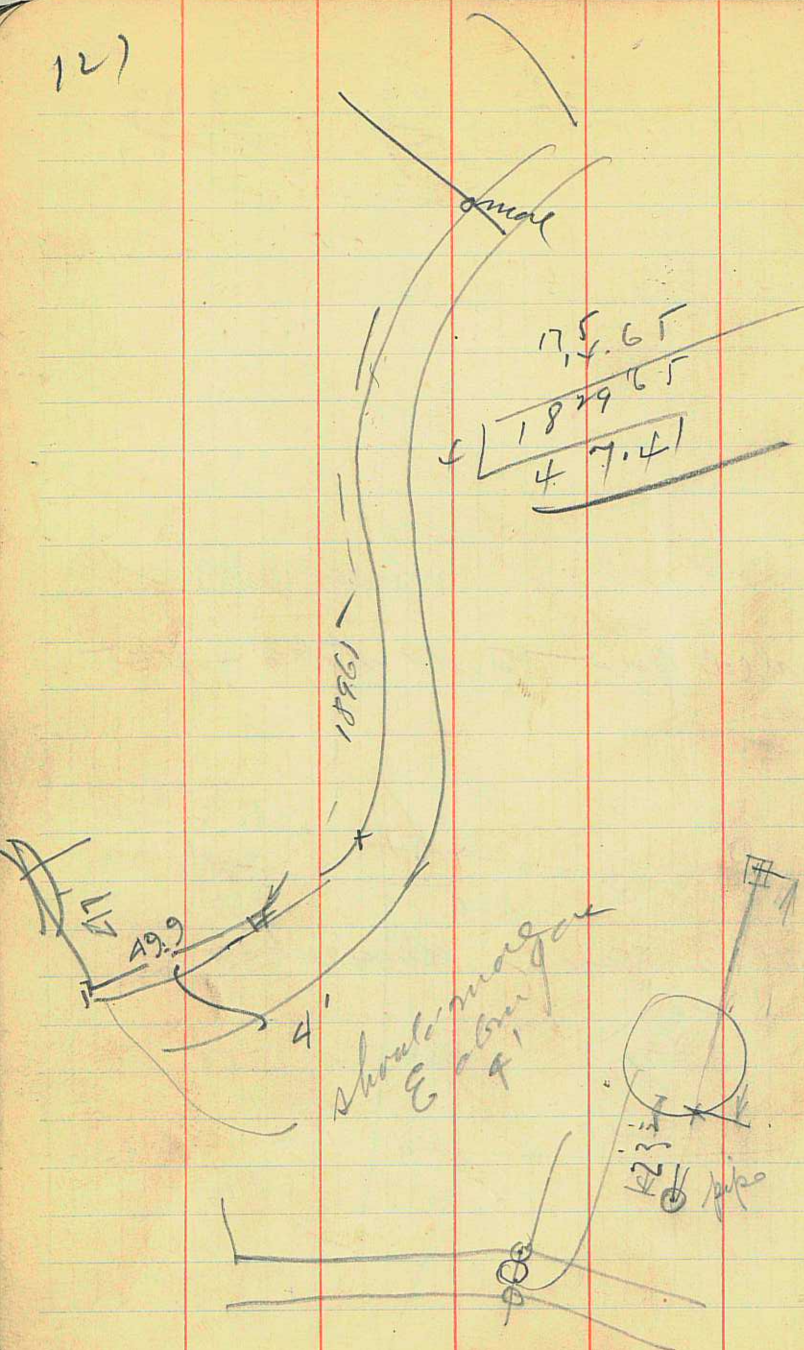
114.3
42.2
156.5

53 32
26 37
80 09

unit at Robinson

parallel pav to old state + pav





17.5.65
1879 65
4 | 47.41

77.3

70.3
77.15
4 | 147.4
36.86
4
147.44

147.45
9
4 | 138.45
34.61

346   38

36.86
35.15
1.71

57 53
55
2 32

35.75
140.60

147.45
140.6
6.85

Survey for
H. B. Anderson
near Little Bear

Cord. Comp. from Sur. Feb 1920

#	Dist	course	sin	cos	Dep E	W	Lat N	S	Total Long	Total Lat
3									0.000	0.00
	371	N5°56'E	.10337	.99464	38.35		369.0			
1									+38.35	369
61	495	N68°21'E	.92945	.36894	139.00		293.3			
					177.35		662.3			
1									+38.35	369
62	1836	N7°57'W	.13831	.99039		25.40	1818.			
73	1979	N41°53E	.66767	.74451	987.4		1001			
					254					
					733		2919			

cor post

cor post

174 42
2X
174 18

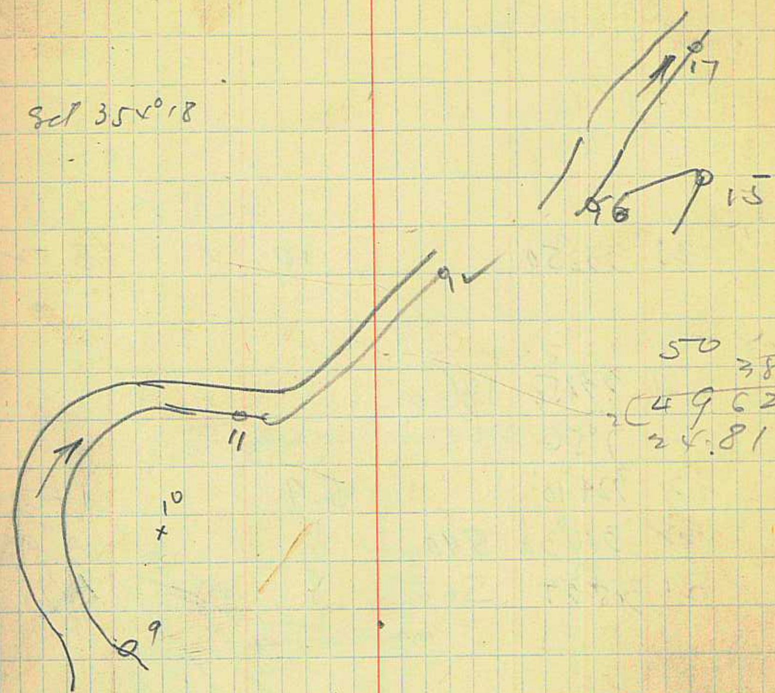
18x						
	18	174°18		1.00		8.8
	17	59°30		5.8		10.40
	16	33°45		10		13.32
15x						
	15x	174°18'			4	13.4
D R	14	164°35'			5	12.
D R	13	165°54		2		14.00
D R	12	153°40'		4		13.7
R	11	141°40'			8.0	13.2
R	10	138°15'		5.		14.2
R	9	143°40'		6		13.1
R	8	134°05'		8		13.7
R	7	125°	700	10	13.5	
R	6	110°50'		7		13.6
R	5	106°15'	900.00			
R	4	83°10'	1000'			
R	3	85°30'		4		13.5
R	2	87°13'		6.3 ~~14~~		14.0
	1a	102°59	1000.	clamica		
	1	102°59	960	L B R		

62x

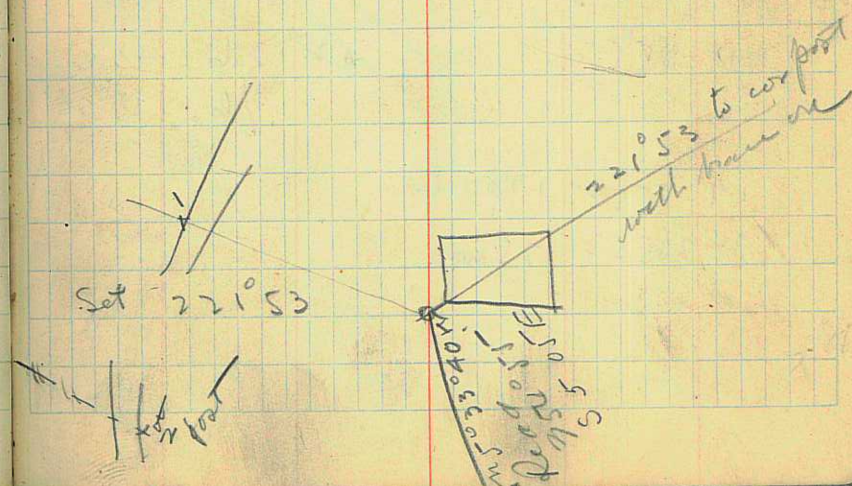
D = Indefinite 14 / 4.5 / 45

17418 / 18 / 35x18

Set 35x°18



50
38
2)4962
24.81



25 —

25	332°50'		10		5.12

24 —

24	332°50'	1360			
	7°56				
23	324°10'		5.9		14.00
22	320°30'	590	8		13.9
21	305°34	500	8		13.0

20.

20	85°52		x2	6	13.6
				6	13.2

19	85°52	1380 Stadia
74	265°52'	25' mean

18

13.8
7
6.8
7

14
7

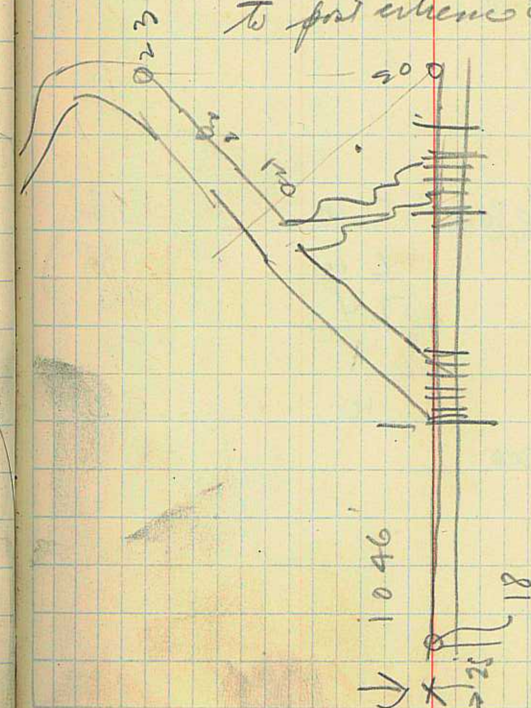
13.6
6
7.6
2.2

13.2
6
7

2.2
3.6,0.46
3.48

set 152°50

To far extreme Section



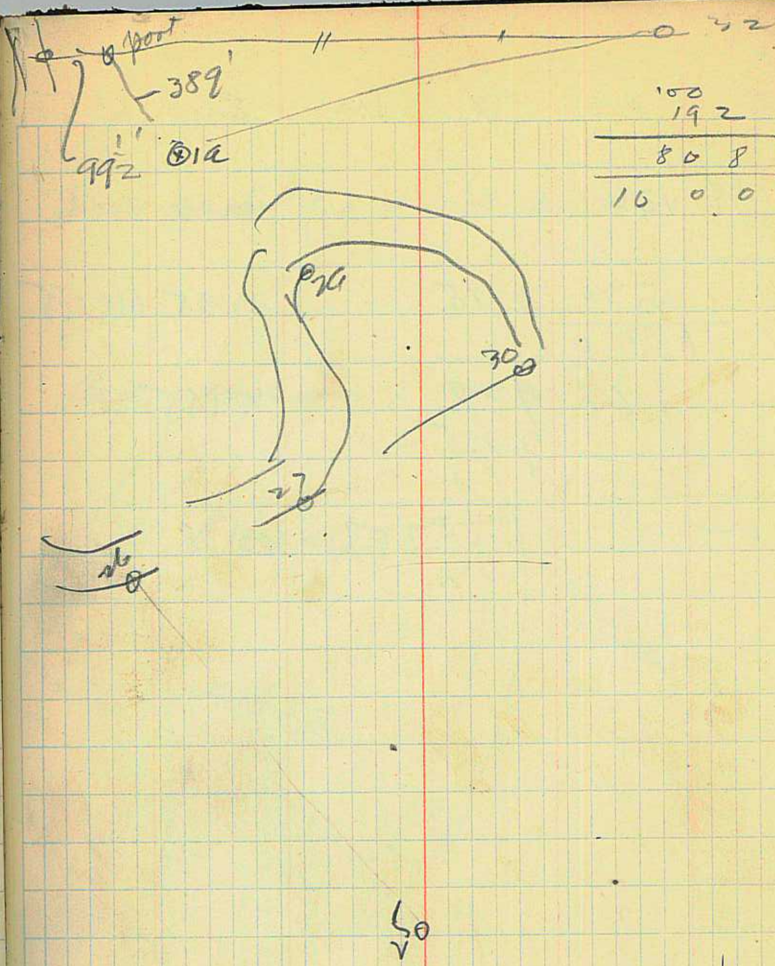
H B Anderson

32	74°50'	✓ endpost			
	162°23'	flag at O.S.L			
31	32°43'	389' post			

19r

32	51°01'				
1a	8°52'	680.2 mean	7.00		13.85
30	206°50'		6.00		13.8
29	193°		7.4		14
28	193°05'		1		5.8
27	173°15'		10		5.3
26	173°30'	1000'			

25r

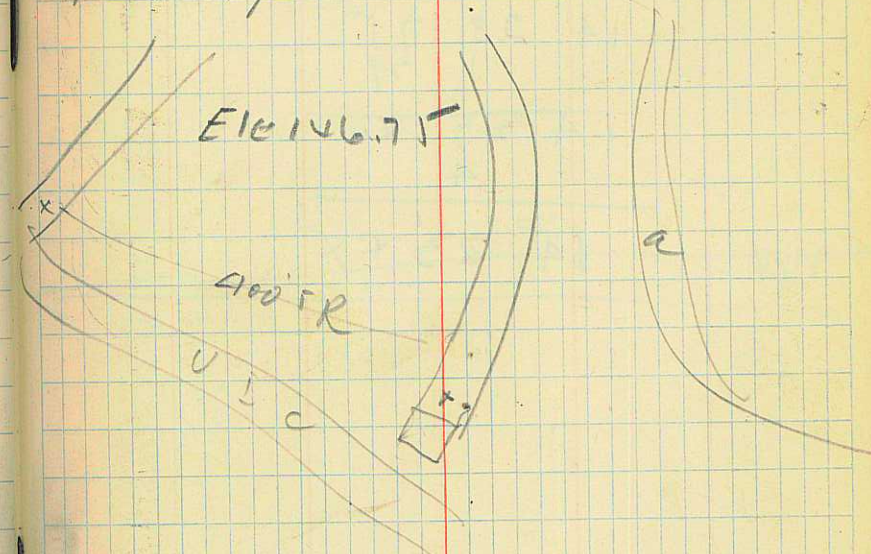


100
192
808
1000

Sta	BS	FS	un	Ele	HI
	13.60			100.00	113.60
	5.30	0.15		113.45	118.75
	18.90				
	9.35	9.20		109.55	
	9.65	9.35			
u			7	+6.38	10.1

Bed Millville Canal just above V I C

Bed Hypam Canal



So. Lin 9 - 13 N½ E

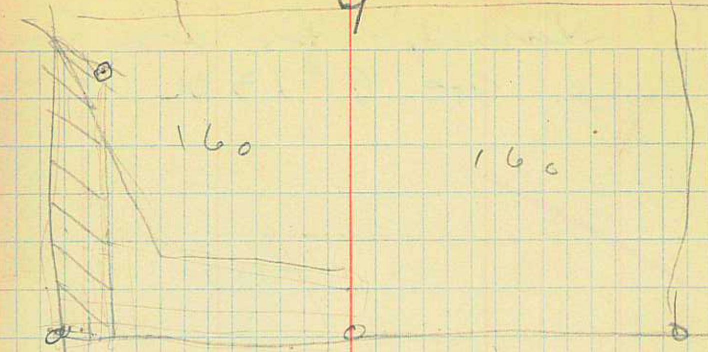
Q = 41.52 30

L = 14 29 15
4
15 48.49 5
24 24 5 L

14 28 75
1 31
14 27 44
4

net 14° 23' 44"

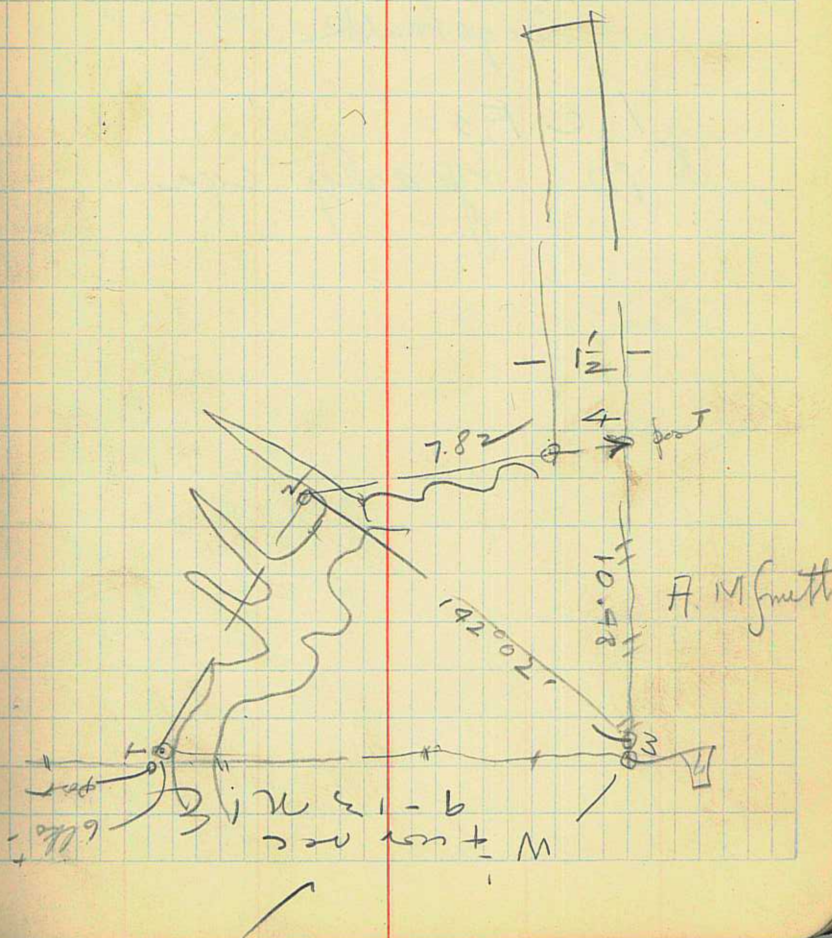
9



2-10-30

Survey for am Smith
NW Sec. 9 13N 1E

	1		16.00		
3 ⊼				did not set up here	
	3	179°46'	10.48		
4 -					
	4 / 3	86°45' / 142°02'	7.82	not 7.81 to ⊼ pt -	
2 ⊼ / 3 A		90°03'			
	2	38°58'		5	13.58
1 ⊼					



Sego milk –

Contract dated

Sept 20 – 1921

bet –. J W Funk Vice Pres } first
S W Heninck sec } Part

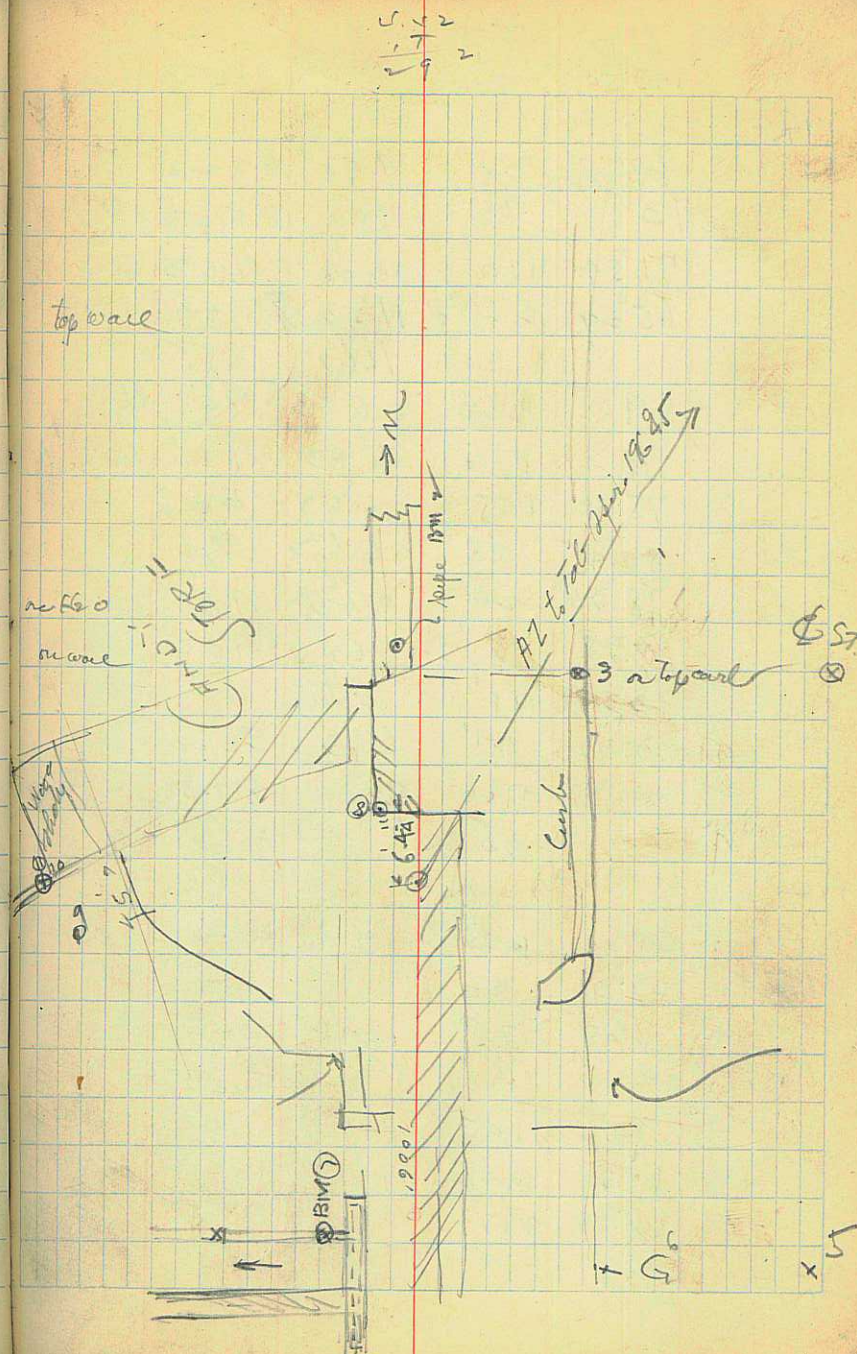
Roy Bullen Vice Pres
Sego milk

1 c. F. s
$10 yearly con

80 00

.050 | 36
36 | .001 4/
140
144

#	Dist	BS / Fs or ang	· ue	Ele	HI	
			·			
		75° 22	5.41	99.73		
15 / 14	288'	75° 22	4.30	100.88		
100	292	70° 40		100		
100 C	226	74°		100.		
13	190	79° 08	4.34	100.84	on Wall	
100 / 100 C	190	76° 10	5.18	100.		
120	132	78° 50	5.18	100.00		
11	83	86° 10	5.35	99.83		
10	~~83~~		4.15	101.03	on	
9	82	80° 15'	5.18	100.00	100.00	
℄ 100	10'	52°	5.18	100.00	100.00	
#8			4.18	cor pav. 101	101.00	105.18
BM 4			10.900	94.28	94.28	
6			7.32	97.86		
5			6.55	98.63		
4			3.04	102.14		
3			3.61	101.57		
BM 2		3.21				
		196° 45	to Tab tower			



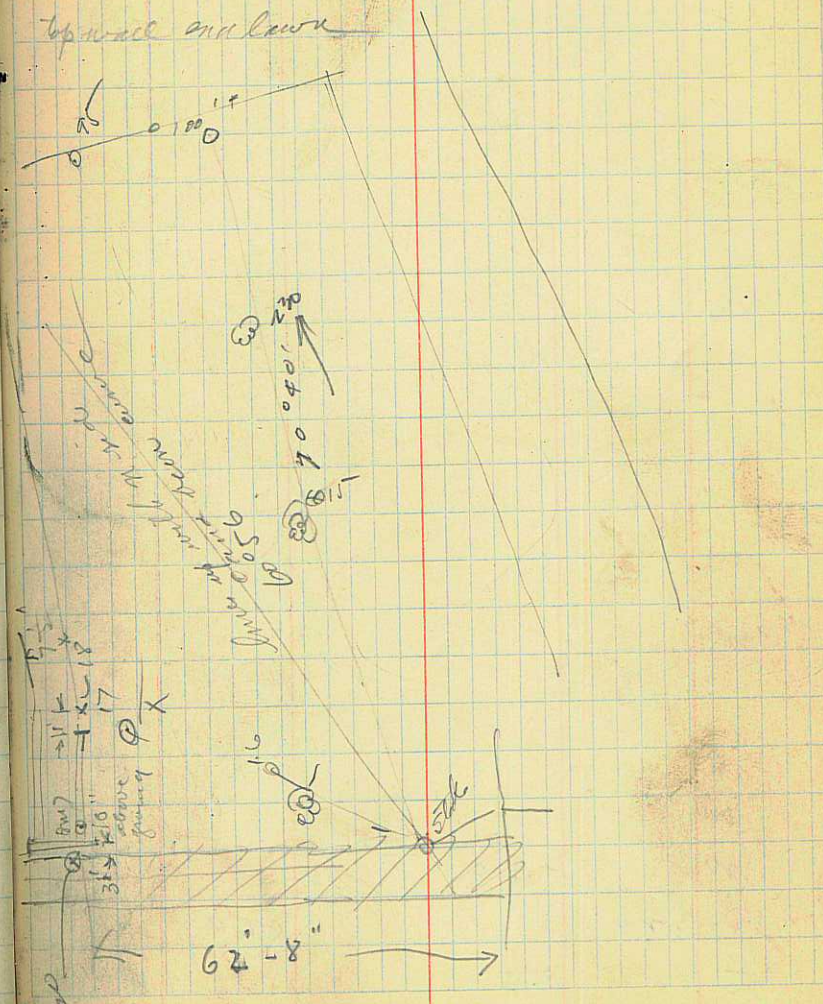
19	6°10'	55'-0"		Ele	
	149°50	9'-1 3/8"			
1x-					
	63°08	38'	9.40	87.23	
	73°	76'	9.80	86.83	PT
	71°54	110'	10.00	86.63	P.C.
	65°29	2.60 ft	11.23	85.40	
			11.63	85	
	69°05	260	-6.63	90	[illegible]
	73°	176	-6.63	90	[illegible]
	75°40	145	-6.63	90	
	80°45	86	6.63	90	
	78°30	26'	6.63	90	
	338°	8'	-6.63	90	
	338	11'	12" tree		
90c	323°20	21'	-6.63	90.00	
18	342°15	17x6	-9.30	87.33	
Bm		+2.35 RR		94.28	96.63
17-					
17c	34°30	46' Tapper	-10.9 Bm	84.28	
(16) 95c	33°30	30'		95	
95c	70°45'	85	10.18	95	
(15) 95c	71°10	125	100" hi tree	95	
95c	72°	145		95	
95c	69°20	228'		95	
95c	66°30	293'		95	
1x-					

cor County bldg —

105.18
10.9
94.28
2.35
96.63

on wall

top wall on lawn



20	-9.9			
2 3.20			101.97	
1	4.78			105.57

5481
4158
4 1323

105.06
956
9.36

48.1
18.1
9.6.2
6
95.6
14.47
110.07

101.97
3.20
105.17
4.78
10012.9

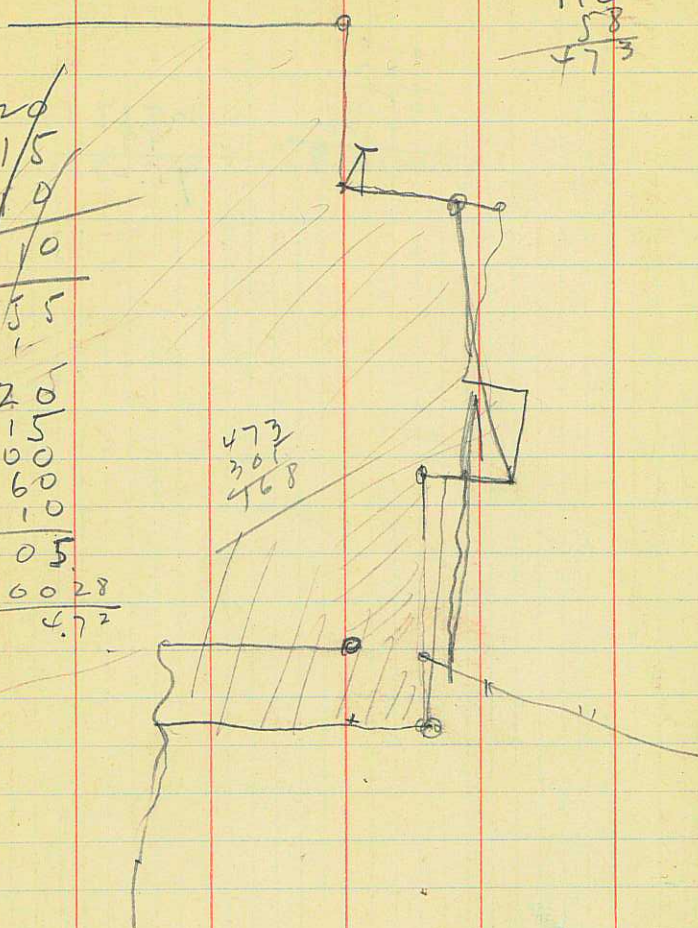
105.17
9.9
95.27

.05

305
110
58
473

120
15
110
10
255

120
15
100
60
10
305
30028
4.72

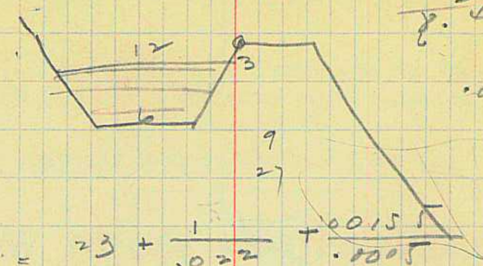


473
305
468

.5/100

.0005
.022

1.4
3
4.2
8.4



.00.05

$$C = \frac{23 + \frac{1}{.022} + \frac{.00155}{.0005}}{.5521\left(.23 + \frac{.00151}{.205}\right)} \quad \frac{.022}{\sqrt{r}}$$

a $\frac{27}{1.4} = 2$

$1.41 = \sqrt{r}$

$.016 = \frac{n}{\sqrt{r}}$

1000 .022 45.5
880
120
110
100 .022 1.41
1400 | 57
790
700
900

45.5
23
3
71.5

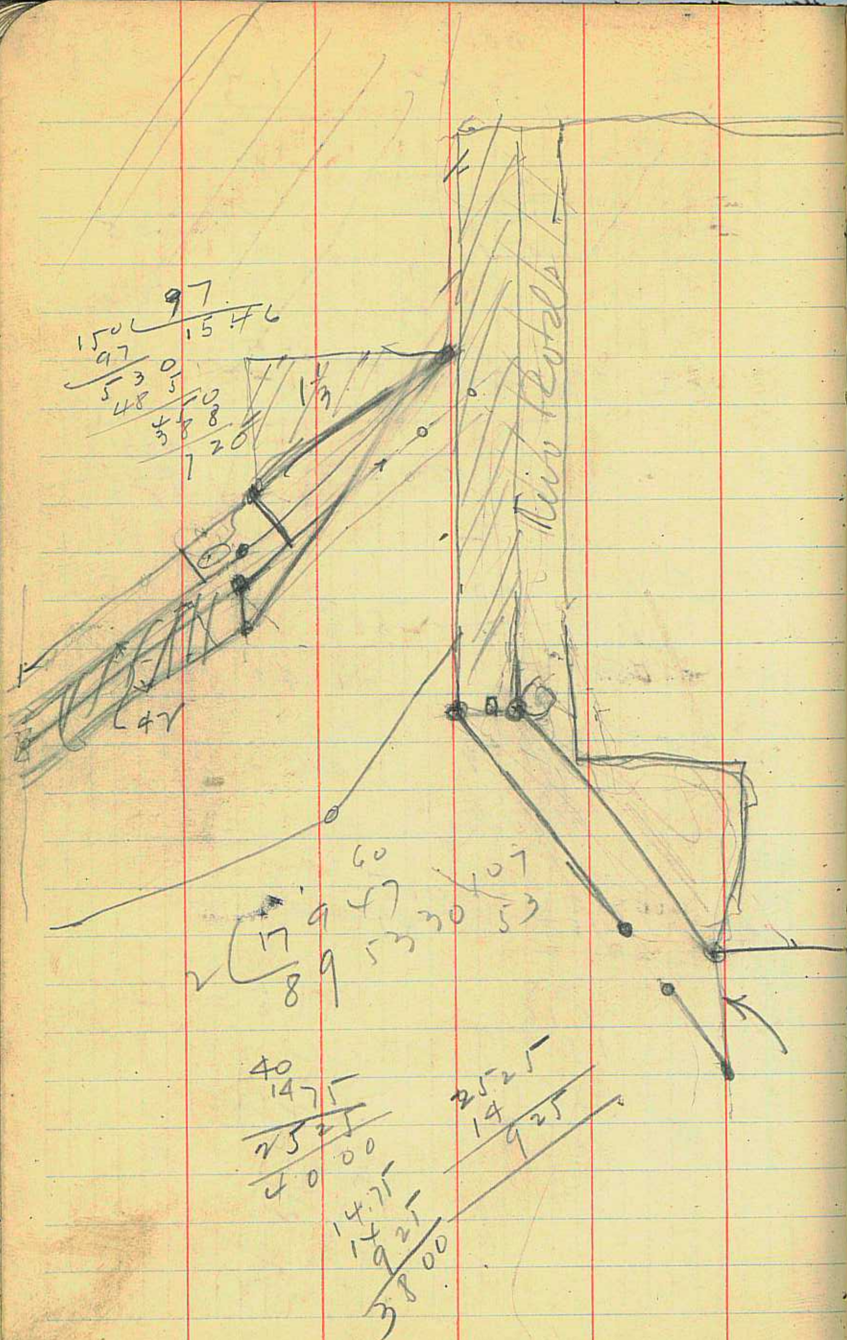
.00155 .0005
155 3.1

00

28
.016
168
28
.448
552
1000

71.5 = C

71.5
.02
1430
143
1
56 2
3
1 + 3
.092



TH'S RAILROAD CURVE TABLES.

blished by KEUFFEL & ESSER CO., New York.

HOW TO USE KEITH'S TABLES.

EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P.=23° 20′ to the R. at Station 542+72.

Ext. in Tab. IV opposite 23° 20′=120.87
120.87÷12=10 07. Say a 10° Curve.

Tan. in Tab. IV opp. 23° 20′=1183.1
1183.1÷10=118.31.

Tab. V. correction for A. 23° 20′ for a 10° Cur.=0.16
118.31+0.16=118.47=corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20′=23.33°÷10=2.3333=L. C.

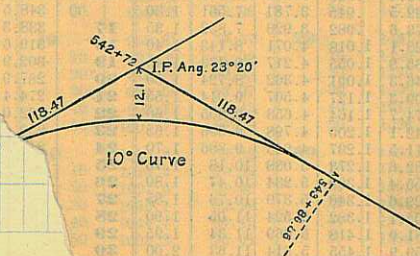
2° 19½′=def. for sta.	542	I. P.=sta.	542+72
4° 49½′= " " "	+50	Tan.=	1.18.47
7° 19½′= " " "	543	B. C.=sta.	541+53.53
° 49½′= " " "	+50	L. C.=	2.33.33
° 40′= " " "	543+ 86.86	E. C.=sta.	543+86.86

)0—53.53=46.47×3′(def. for 1 ft. of 10° Cur.)=139.41′=
2° 19½″=def. for sta. 542.

Def. for 50 ft.=2° 30′ for a 10° Curve.

Def. for 36.86 ft.=1° 50½′ for a 10° Curve

(These tables are published in Field Books of KEUFFEL & ESSER Co., New York, N. Y.)



Natural Tangents

DEG.	0′	10′	20′	30′	40′	50′	DEG.
0	0000	0029	0058	0087	0116	0145	**89**
1	0175	0204	0233	0262	0291	0320	88
2	0349	0378	0407	0437	0466	0495	87
3	0524	0553	0582	0612	0641	0670	86
4	0699	0729	0758	0787	0816	0846	85
5	0875	0904	0934	0963	0992	1022	84
6	1051	1080	1110	1139	1169	1198	83
7	1228	1257	1287	1317	1346	1376	82
8	1405	1435	1465	1495	1524	1554	81
9	1584	1614	1644	1673	1703	1733	80
10	1763	1793	1823	1853	1883	1914	**79**
11	1944	1974	2004	2035	2065	2095	78
12	2126	2156	2186	2217	2247	2278	77
13	2309	2339	2370	2401	2432	2462	76
14	2493	2524	2555	2586	2617	2648	75
15	2679	2711	2742	2773	2805	2836	74
16	2867	2899	2931	2962	2994	3026	73
17	3057	3089	3121	3153	3185	3217	72
18	3249	3281	3314	3346	3378	3411	71
19	3443	3476	3508	3541	3574	3607	70
20	3640	3673	3706	3739	3772	3805	**69**
21	3839	3872	3906	3939	3973	4006	68
22	4040	4074	4108	4142	4176	4210	67
23	4245	4279	4314	4348	4383	4417	66
24	4452	4487	4522	4557	4592	4628	65
25	4663	4699	4734	4770	4806	4841	64
26	4877	4913	4950	4986	5022	5059	63
27	5095	5132	5169	5206	5243	5280	62
28	5317	5354	5392	5430	5467	5505	61
29	5543	5581	5619	5658	5696	5735	60
30	5774	5812	5851	5890	5930	5969	**59**
31	6009	6048	6088	6128	6168	6208	58
32	6249	6289	6330	6371	6412	6453	57
33	6494	6536	6577	6619	6661	6703	56
34	6745	6787	6830	6873	6916	6959	55
35	7002	7046	7089	7133	7177	7221	54
36	7265	7310	7355	7400	7445	7490	53
37	7536	7581	7627	7673	7720	7766	52
38	7813	7860	7907	7954	8002	8050	51
39	8098	8146	8195	8243	8292	8342	50
DEG	60′	50′	40′	30	20′	10′	DEG.

DEG.	0′	10′	20′	30′	40′	50′	DEG.
40	8391	8441	8491	8541	8591	8642	**49**
41	8693	8744	8796	8847	8899	8952	48
42	9004	9057	9110	9163	9217	9271	47
43	9325	9380	9435	9490	9545	9601	46
44	9657	9713	9770	9827	9884	9942	45
45	1.0000	1.0058	1.0117	1.0176	1.0235	1.0295	44
46	1.0355	1.0416	1.0477	1.0533	1.0599	1.0661	43
47	1.0724	1.0786	1.0850	1.0913	1.0977	1.1041	42
48	1.1106	1.1171	1.1237	1.1303	1.1369	1.1436	41
49	1.1504	1.1571	1.1640	1.1708	1.1778	1.1847	40
50	1.1918	1 1988	1.2059	1.2131	1.2203	1.2276	**39**
51	1.2349	1.2423	1.2497	1.2572	1.2647	1.2723	38
52	1.2799	1.2876	1.2954	1.3032	1.3111	1.3190	37
53	1.3270	1.3351	1.3432	1.3514	1.3597	1.3680	36
54	1.3764	1.3848	1,3934	1.4019	1.4106	1.4193	35
55	1.4281	1.4370	1.4460	1.4550	1.4641	1.4733	34
56	1.4826	1.4919	1.5013	1.5108	1.5204	1.5301	33
57	1.5399	1.5497	1.5597	1.5697	1.5798	1.5900	32
58	1,6003	1.6107	1.6212	1.6319	1.6426	1.6534	31
59	1.6643	1 6753	1,6864	1.6977	1.7090	1.7205	30
60	1.7321	1.7437	1.7556	1.7675	1.7797	1.7917	**29**
61	1.8040	1.8165	1.8291	1.8418	1.8546	1.8676	28
62	1.8807	1.8940	1.9074	1.9210	1.9347	1.9486	27
63	1.9626	1.9768	1.9912	2.0057	2.0204	2.0353	26
64	2.0503	2.0655	2.0809	2.0965	2.1123	2.1283	25
65	2.1445	2.1609	2.1775	2.1943	2.2113	2.2286	24
66	2.2460	2.2637	2.2817	2.2998	2.3183	2.3369	23
67	2.3559	2.3750	2.3945	2.4142	2.4342	2.4545	22
68	2.4751	2.4960	2.5172	2.5386	2.5605	2.5826	21
69	2.6051	2 6279	2.6511	2.6746	2.6985	2.7228	20
70	2.7475	2.7725	2.7980	2.8239	2.8502	2.8770	**19**
71	2.9042	2.9319	2.9600	2.9887	3.0178	3.0475	18
72	3,0777	3.1084	3.1397	3.1716	3.2041	3.2371	17
73	3.2709	3.3052	3.3402	3.3759	3.4124	3.4495	16
74	3.4874	3.5261	3.5656	3.6059	3.6470	3.6891	15
75	3.7321	3.7760	3.8208	3.8667	3.9136	3.9617	14
76	4.0108	4.0611	4.1126	4.1653	4.2193	4.2747	13
77	4.3315	4.3897	4.4494	4.5107	4.5736	4.6382	12
78	4.7046	4.7729	4.8430	4.9152	4.9894	5.0658	11
79	5.1446	5.2257	5,3093	5.3955	5.4845	5.5764	10
DEG.	60′	50′	40′	30′	20′	10′	DEG.

DEG.	0′	10′	20′	30′	40′	50′	DEG.
80	5.6713	5.7694	5.8708	5.9758	6.0844	6.1970	**9**
81	6.3138	6.4348	6.5606	6.6912	6.8269	6.9682	8
82	7.1154	7.2687	7.4287	7.5958	7.7704	7.9530	7
83	8.1443	8.3450	8.5555	8.7769	9.0098	9.2553	6
84	9.5144	9.7882	10.078	10.385	10.711	11.059	5
85	11.430	11.826	12.250	12.706	13.197	13.727	4
86	14.300	14.924	15.605	16.350	17.169	18.075	3
87	19.081	20.206	21.470	22.903	24.542	26.432	2
88	28.636	31.242	34.368	38.189	42.964	49.104	1
89	57.290	68.750	85.940	114.588	171.885	343.77	0
DEG.	60′	50′	40′	30′	20′	10′	DEG.

Natural Cotangents

97 8
675
30200

780

8.45
18
6760
845
1.5210

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES $1^1/_2$ TO 1.

FOR SINGLE TRACK EMBANKMENT.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

MADE IN GERMANY.
R.