11

DIETZGEN

ENGINEERS
FIELD BOOK
No. 404

#58

58
1928-1

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.

Paris, Idaho and Vicinity

Book 1928-1

H										9	H
0										8.9	0
1										9.9	1
2										0.9	2
3										1.9	3
4										2.9	4
5										3.9	5
6										4.9	6
7										5.9	7
8										6.9	8
9										7.9	9
10										8.9	10
11										9.9	11
12										0.9	12
13										1.9	13
14										2.9	14
15										3.9	15
16										4.9	16
17										5.9	17
18										6.9	18
19										7.9	19
20										8.9	20
21										9.9	21
22										30.9	22
23										31.9	23
24										32.9	24
25										33.9	25
26										34.9	26
27										35.9	27
28										36.9	28
29										37.9	29
30										38.9	30
31										39.9	31
32										40.9	32
33										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)÷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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Please return to
Eugene Schaub
Logan, Utah -

Sept - 1928

Paris, Ida. and Vicinity
Eng.

Book 1928-1

2640
2766
2530

1

Ob. on Paris Creek
Sept 20 - 1928 near
Fuhr's Flour mill.
4:00 - P.M.

	1 5	24.8	58.21
=	64	84.8	29155
	11	45 "	5831
+	53'	39.8	5831
	1	39	670.561
Here +	55'	18.8	105
			11'45"

60
11

Lat 42 14
Co. Lat 47 46 —
9000

107°	08'	00"
107	07	
107	07	30 —
3 | 321	22	30
107	7	30

Ay to SW cor of Flour mill

7.5 5 111 15 10 1/2
5.8 111 60 7.4 20 5.8
174 3.5 260 10/5.8 1/21

Solar
Sept 21 - 1928 Ob
near Fulding &c.
on hill west of Paris —

S.	0	47	64.7	58.37
		4.	22	45
	0	37	427	37 42.7
	Ref.	1	10.	58
9 am	0.	38	527	384 07
+	0	39	-00	37 100.7
10 am +	0	38	-00	58
				37 427

h change

Lat 42 00
13 30
→ 42 13 30

Colat 47 46 30 → 47 46 30
89 59 60

290°	50'	30"
290	49	00
290	49	00

Use

Pt or Sta	Az	Bearing	Dist-Ft.	Lat N	Lat S	Dep E	Dep W	Total Lat	Long
	3								
	180°59'								
G	194°30								
F	210°42								
E	213°53								
D	244°35								
C	259°31								
B	232°43								
A	120°24								
		S69°31'E	773.6						
			772						
		"							
		"	738						
		"							
		"	414						
		"	377						
		S69°31'E	335						
	290°49								
	290°49'								

Assistants Ch. asst. Mat Ewing

Giry symb. followed by ↖ indicates a transit pt.

180°59

Along △ base

To of E. Antenna staff A. Bridge house

to Pans mile Post on O.S L

N.W. cor A. Wallenten W. chimney red brick house

Pole D for distant on N & S road

East side O.S.L.

C △ pt. SE cor of Mach shed A. Bridge

B △ pt. So. end snow fence W. side OSL

to △ pt E pole W. side of Frank near Bellows

to Sw cor sec 2 — ——

E side sd. lane

W. side N.S line. E side F.A. property

fence N. & S

fence E & W. N side F.A.

intersect D.P.R run

Tab space

To Tab space 290°49'

G
Barge
shore
C
angle post
F
A Pole
ST
Pole
main house
house
D
smart fence
B
upper
Pole
B
Iron
Bar

7

Sta	Dist	Az.	Bearing
15+21			
15+18			
11+88			
11+15			
6+35			

180°55'

020+10 drange pine
19+00 Beg swamp
1½ CFS
Swamp Fork Slight Cana creek
18+40

Pasture

E-W 15+21
15+18

Wet Pasture Ezra Budge

11+88

Ed

S T. in Tank

Edge of Line

11+15

ST.

Pasture Wet 10+91
10+00

a. Sain

G

Willow

180°55'

Wheat
Has not been very much

P. Canal
6+35 to ℄ Canal 6' wide

A/F.

P.R. Est.

44+80

39+40

33

31+73

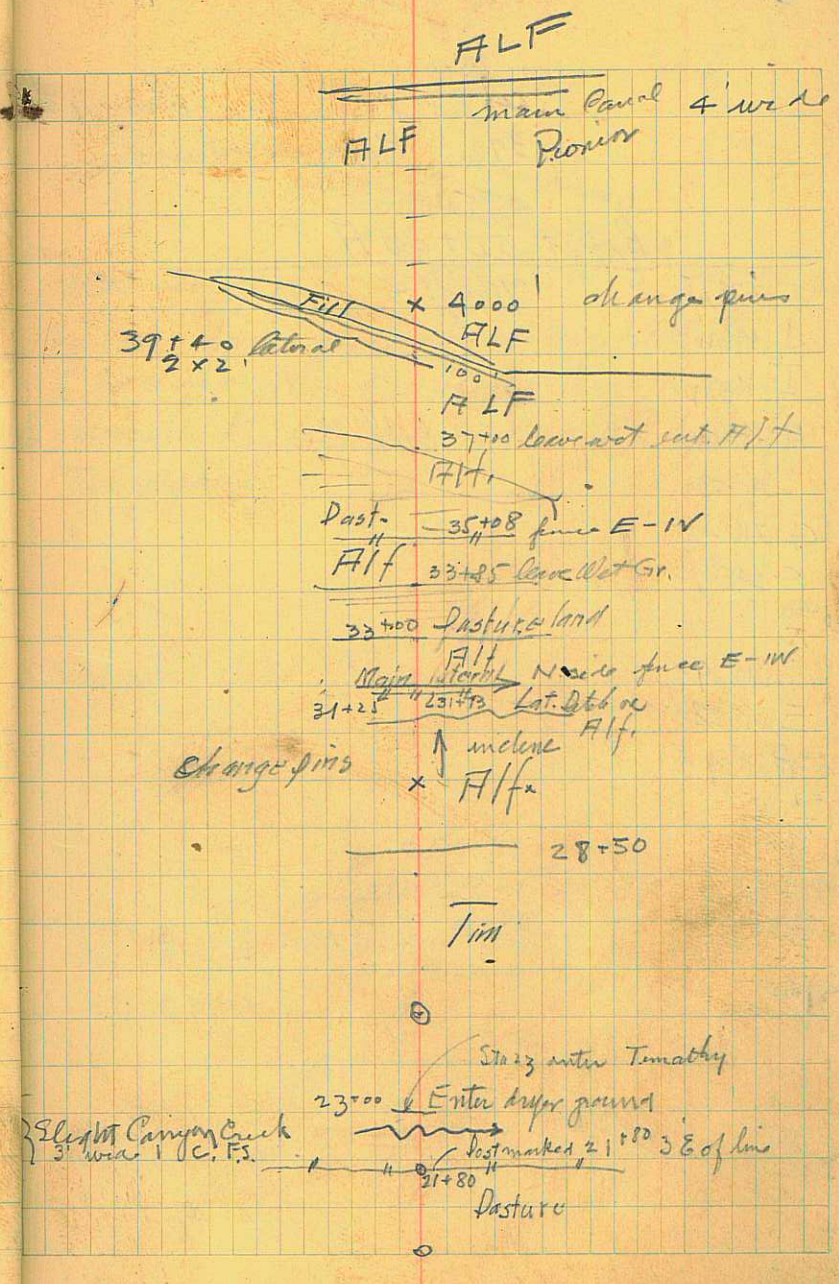
30+00

25+00

22+72

21+80

20+00



11

488 W. side Hway
390 Esc de Hway
385

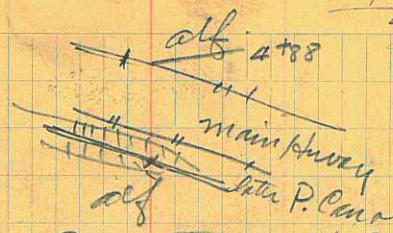
Begat 50+40 A

416 ft.

274°25
J 196°11
I 163°01
H 146°06
340°15'30"
G 216°20
C 245°49
50+40
A
310°29
E 315°28
A 28°39
47+62
A
50+40
49+72 lat.
48+35³
47+62

Line runs above ℄ of Spot Nuuanu st

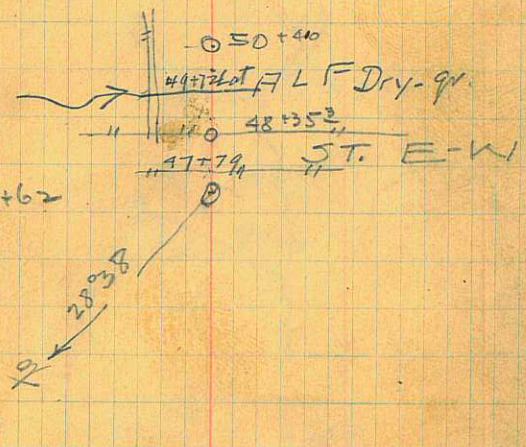
17960
13029
4931



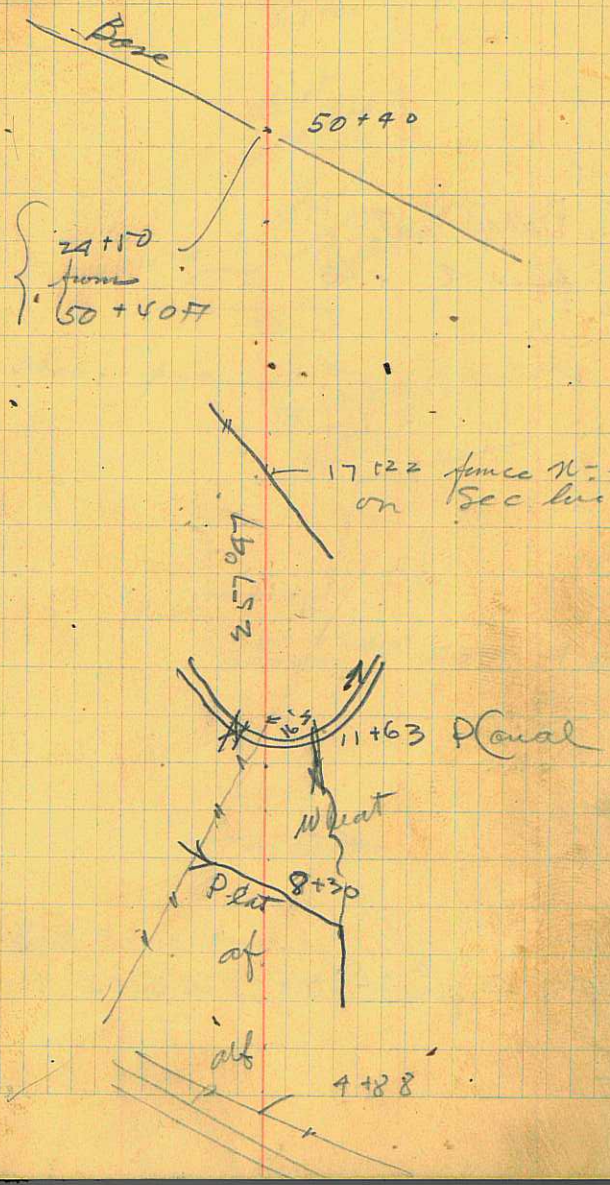
NW cor sec 2 - a stone on N-S fence near Sth Buego place
S end and top cor. sign on Hway - say Kelly tree
E. cable end Mrs. F.W Passey large barn
E. cable end John Kukilo grainery above PR. on pole
Tab Spire

NW grand stand

4835
4599
9434
4807
271
5078



Pt on Sta 29


Base
50+40
24+50
from
50+40 ft
17+22 fence N-S
on Sec line
2570 ft
11+63 P Canal
Wheat
8+30
P Lat
of
alf
4+88

15

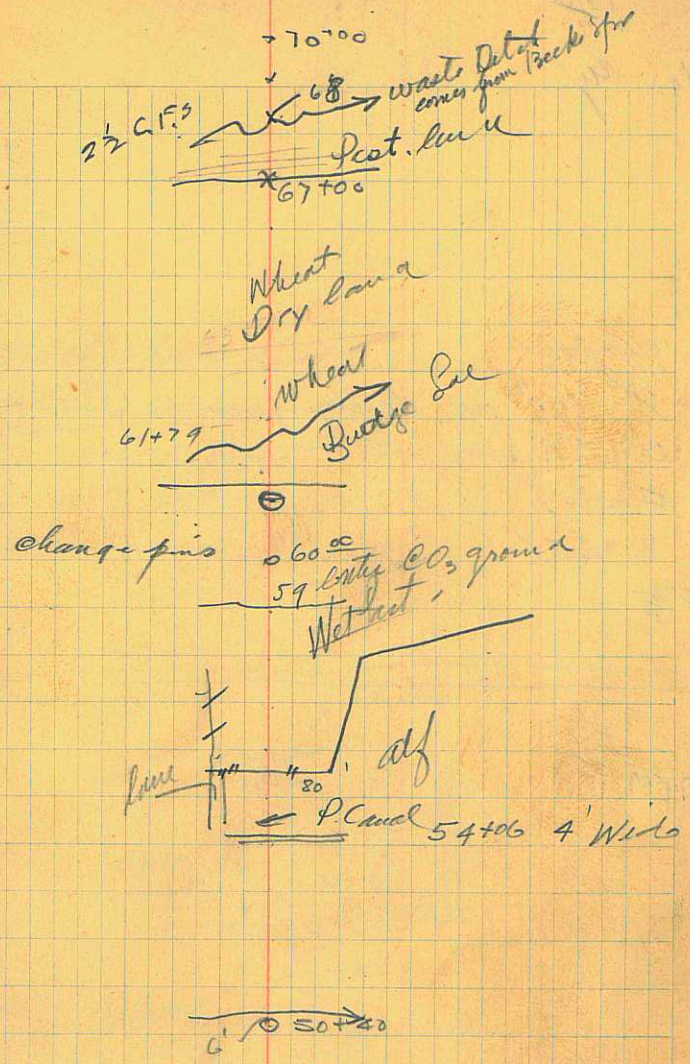
a

61+79 Budget Set
61+48 from E + W
61+00
60+00

55+58
54+06

110°41'
25°49' 2450

50+40



Kelsey's East cable end
To 50+40 Ft. 2450 N 77°47' E - E of Co. Road

Sta | ay

C 239°37'

~~E~~ 334°57' not clearly visible } 334°29' to NE cor more visible

G 165°37'

F 227°43'

B 322°05'

50+40 ~~PK~~

79+09

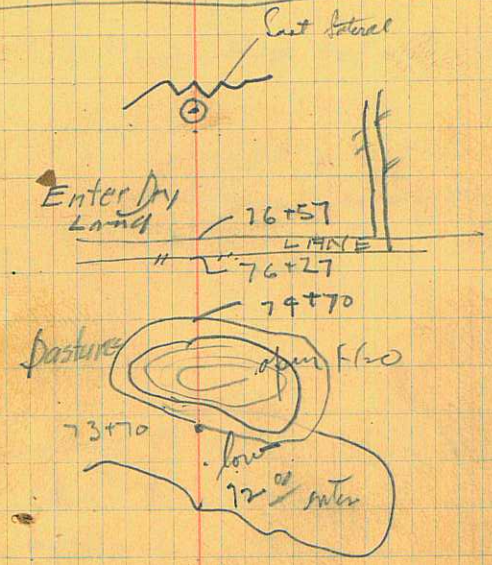
73+70

70+00

79+09
50+40

50+40
25+40
75

Mach shed E of O.S.L
NW cor grand-stand
to E. anten pole A. Bridge
Pais mile post on O.S.L.
end snow fence



19

Sept - 22 - 1928

93+09

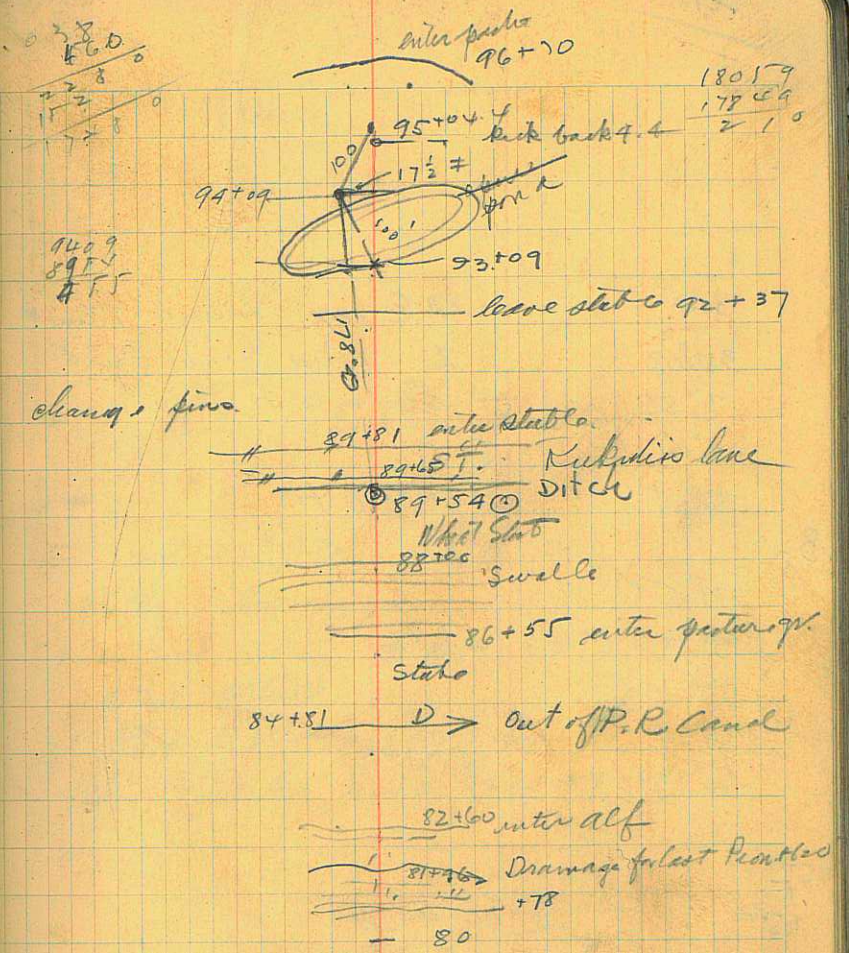
90+00

86+55

84+81

K 19°39
111°53
7807

79+09 -



Albert Lursey W cable end of house
John Kukile E cable end
Kelsip E cable end

21

309°	NE cor Grand Stand
350°08	to NW cor Grandstand
70°56	to Electric L Pole
52°43	to O
142°05	to 50+40 A

B

229°05 ✓	
214°56 ✓	66+6
329° ✓	
114°54 ✓	
60°23 ✓	

165+60
105+60

102+80

100+60

99+60

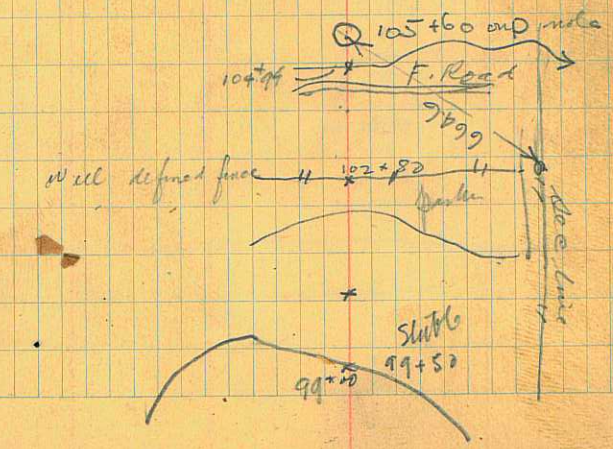
180°59

66+6

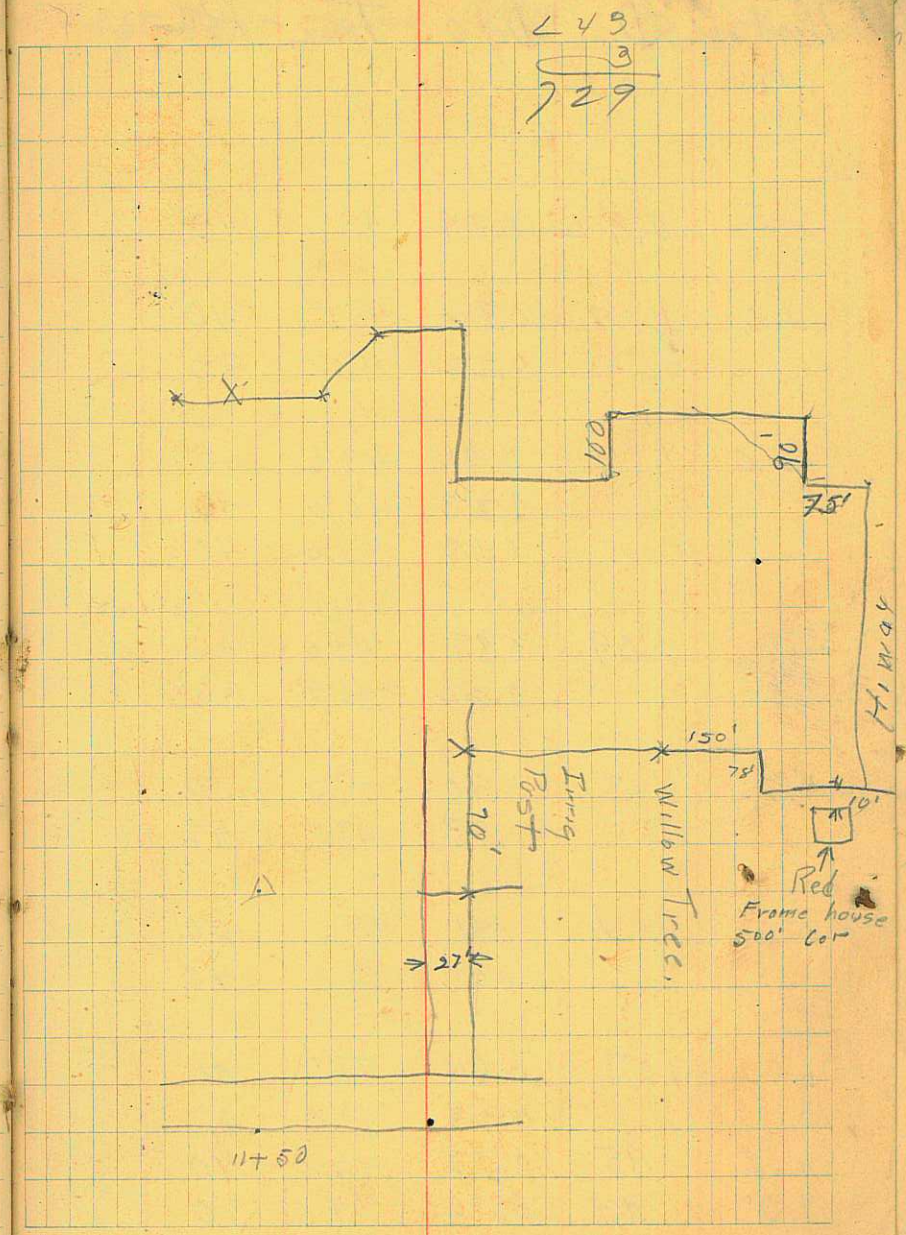
102+80
50+0

well stake
ale Passey

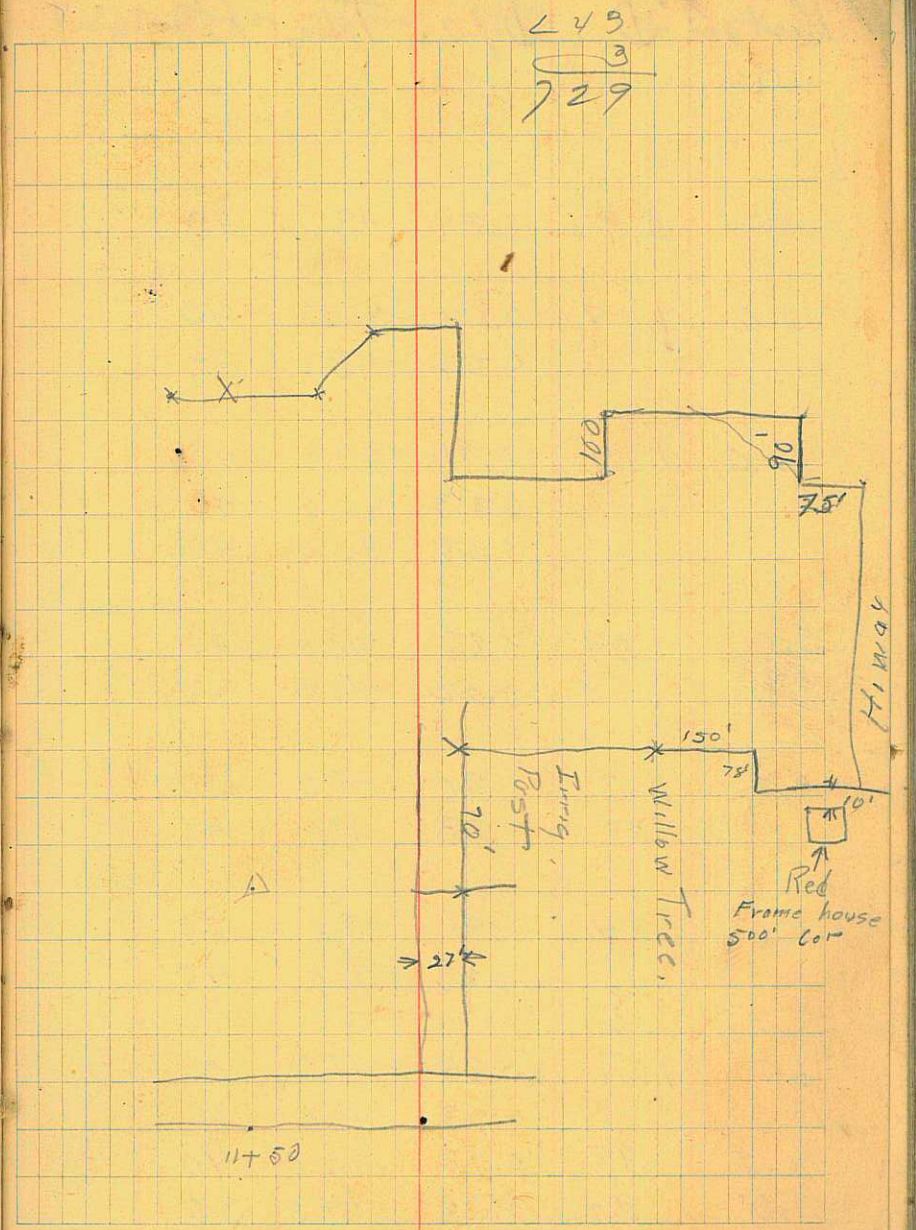
set 52°43 BS to O.
Kelly here sign
NE cor sec 34 - 135 - 93 E
West antenna
Mrs. F W Passey's Barn, E cable end
John Kukulic E end Granary



23


L 4 9
3
729
100
90
75'
Hiway
150'
75'
10'
Red
Frame house
500' Cor
Iron post
William Tree
70'
27'
11+50

23


L 49
9
729
Hiway
75'
90
100
150'
75'
10'
Red
Frame house
500' lot
Post
Fence
Willow Tree
70'
27'
11+50

25

Dist out	D	D of O	Time	Rev
0	0			
.5	0.92	0.54	43	40
1.0	1.08	0.86	41.5	40
		0.22	43.0	30
2.0	1.14	0.91	43.0	40
		0.23	46.0	40
		0.68	45.0	40
3.0	1.09	0.87	46.0	40
		0.22	46.5	40
4.0	1.13	.90	49.0	50
		.23	47.0	40
5.0	1.14	0.91	49.0	50
		0.23	51.0	40
6.0	1.07	0.84	47.0	50
		0.23	40.0	30
6.5	.95	0.57	42.0	40
7.0	.94	0.56	44.0	30
		0.56	41.5	30

Pioneer Irr & Mfg Co
Sept. 29, 28
Time 4:40 PM

Vert Sec				
Val pt	Mean	mean	area	Q

27

7.5	0.72	0.42	40.0	15	

Start 4 PM
Stop 4:30 PM

R side

Water Surface 0.36 below top of plank.
No change in gauge ht.

Plank used before by some one else - about 150' below gates at shingle Mill

Observer Eugene Schaub
Recorder Mat Ewing

By Eugene Schaub
7-29-28

29

H20 meas in P. P.
Canal & Mlf Co at
Ed Johnston Place 9-29-28

Dist out	Depth	Dep fo	Time	Rev
Beg 1.0	1.00	.6	43	5
1.5	1.15	.66	51	20
2.	1.15	.66	44	40
3.	1.22	.74	46	50
		.96	42	40
4.	1.20	.24	48	50
		.9	62	50
		6/10D	51	50
5.	1.17	.22	42	40
		.88	50½	40
6.	1.18	.22	43	40
		.88	46	30
7.	1.1	.22	42½	30
		.88	45	20
8.	1.0	.2	70	15
		.8	43	15
		.2	58	10

115

Start 5.20 P
Stop 6.05 P no change
Meter in good in Gage
shape

Left bank

See over for Remarks

Paris P. & M.C. Co
Discharge Meas
9-29-28
at 6 PM midway
near Ed. Johnston about
500' down stream from
Base line of Δ system
Water certified to By
Mr. Ed. Johnston to be
flow at its max. stage
he has lived there for
35 years.
Drove a stake the top
coincided with H2O
Surface on Right side
by a fine post about ~~40'~~ 45'
upstream from bridge over
Canal.
H2O ~~Cane~~ surface was within
or 1½" below bottom of downstream
North and South beam
of said bridge.
Meas. taken 18' below
said bridge.

Eugene Slade
C.E.

Water surface came
within 8" from top
bank just above bridge
~~at~~

33

Oct 6 - 1928

Soil Samples Under Pioneer Canal out of Lairs Creek

350' E of Highway R.W.W. line

Ground Surf. 0 H1 = Hole #1

-10 H2O Surface -10"

H2 = Hole 2

approx 400' N of #1 by Ditch in alf for

0

-6 Hard sandy clay.

wet white clay

red sand

Sand

bog

Red Clay

H2O

H3

0

no soil taken; study for H2O Table 350 E of Highway about 350 N of H2 in hay field So of N an E-W Cattle Ditch 135' W of N-S fence

Clay frame

-3.9

Coarse Sand

H2O 1.45

BS + FS -

Elev H1

.47
8.97

12.1
8.97

7.85
12.25

H1

12.1

on H2O

11.80 5950 5961.80 350'

on ground

H2O flowing in D

200

8.97 5952.8 on H2O

H2O 8.50 below ground

T.P.

5.50 0.47 5961.33 5966.83

7.80 5959. on ground

12.25 5954.58 on H2O

H2O 4.45 below surface

H3

5.59 1.32 5965.51 5971.10

By E-W fence

35 Under Pioneer Canal

H4

On North of E-W Levee 100' E of Wall. Bird's yard and about 350' E of Hallway in Stub, Oct 6 - 1928

Soil Tak

1
2
3
4
5 Wet sandy clay
6
7 Hard wet sandy clay
8 Compact not so wet sandy clay
9
10 Sand
11 Hard sandy clay
12
13 ~~H20 + Sandy dark clay~~
13.2 dark clay course sand & H20

Elev H5 0 H3

3.00 5968.10 — 8d nail in N side of stump 100' W of vacant cabin in line E-W Levee

12.00 59.10 — on ground in swale

0.809 6.426 5964.67 5965.48 — 826' from T(e) at H4 H2012.5 below grd 6.426 on ground + fly tide H20 in ditch

10'

Levee

Cow barn

6.100 6.469 5959.01 5965.11 on Hwy syphon Cross at Humphreys

3.92 5961.19

Cross in con. → E

Syphon Rec chamber in H. Bridge land

37.

Oct 6 - 1928

H5

On Budgen alf.
in swale about 125 N of
Humphrys N line and 350' E
of Hiway

Soil Samples taken

0

sandy (very) clay H2O starts
H2O saturated -

Oct 7 - 1928

H6

0

#1
#2
#3

Soil Sample taken on
Budgen's stable field on
ridge by N side Foul
about 300' S of long
narrow Grass strip and 350' E
of Hiway -

5
4 Clay hard-Pan
5 softer - more moisture
6 Hard sandy clay -
7
8 Very Hardy clay 6 - 10
9
10 10 soft sand & some clay
11

BS. +	FS. −	Elev.	HI
7.35	10.15	594.96	596.31

on Bucket alf.

Driveway

0 14 LF

Oct 8 - 1928
depth H2O below
ground 6.00

12.60 594.71 on ground by H5
18.60 594.31 on H2O in H5

0 Dry Ditch → F

4.40 594.91 Oct 8 - 14' from ground to well
18.40 594.91 on ground by H6
on H2O in H6
Wet Quick sand - H2O saturated

H7

1
2
3 ← Compact red sandy clay
4 white rock - hard sand quick fine
5
6 wet quick sand

H8

0
1
2
3 + Hard white clay
4
5 Hard white sandy clay
6 Hard red - white clay
7 Softer white clay · moisture increasing
8 Wet sand
9 Quick sand + H2O

BS +
FS

350 ←→
0 ← 12

Narrow uniform valley
Level E of Hilway
in Bridge plane

12.65 5949.66 on ground by H7
18.35 5943.96 on H20 in H7

Hiway
Bridge
350 Pasture
16' 0* Irriga → N

8.59 9.77 5952.54 5961.13 T.P. by H8 0.12 above ground
17.30 5943.83 8½ ft to Hiway pavement

14.50 5946.63 in bottom Swale
N side A. Bridge
in of Balsam

7.68 0.92 5960.21 5967.89 on stubble A Bridge

41

H9

0

Hard sandy red clay

Hard sandy red clay

4

5 Sandy clay

6

7 Compact light sandy clay

8

9 " damp sandy clay

10

11 " " " "

12 Clay mixed with small rocks

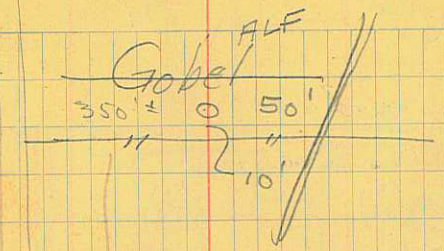
13 Hard white sandy clay

14 White very sandy soft clay

15 White quick sand

H2O in Quick sand

BS +	FS -	Garden Spot	↑N	16.4



3.30 9.81 5958.08 5961.38 (B)

16.4 ft from ground surface to H2O in H9

1.50 5959.88 on ground by H9

17.9 5943.98 on H2O in H9

~~1.50~~ ~~on g~~

3.29 11.27 5950.16 5953.45

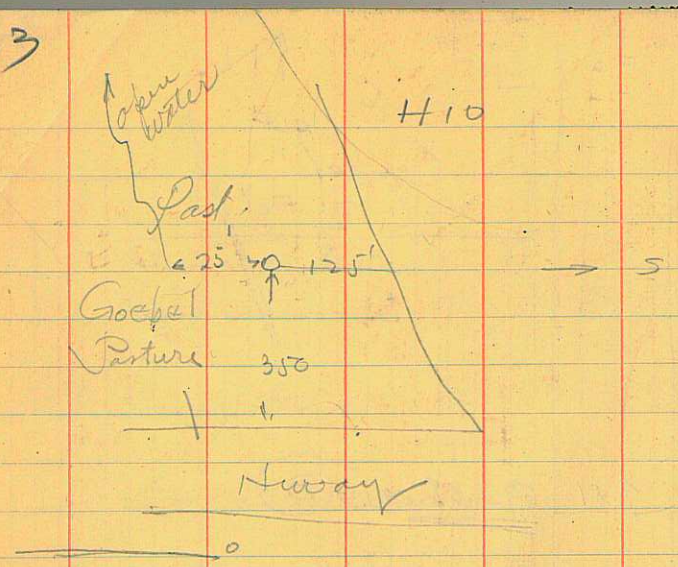
10.3 5943.15

11.7 5941.75

on ground by H10

H2O 1.4 below ground surface

on H2O in H10



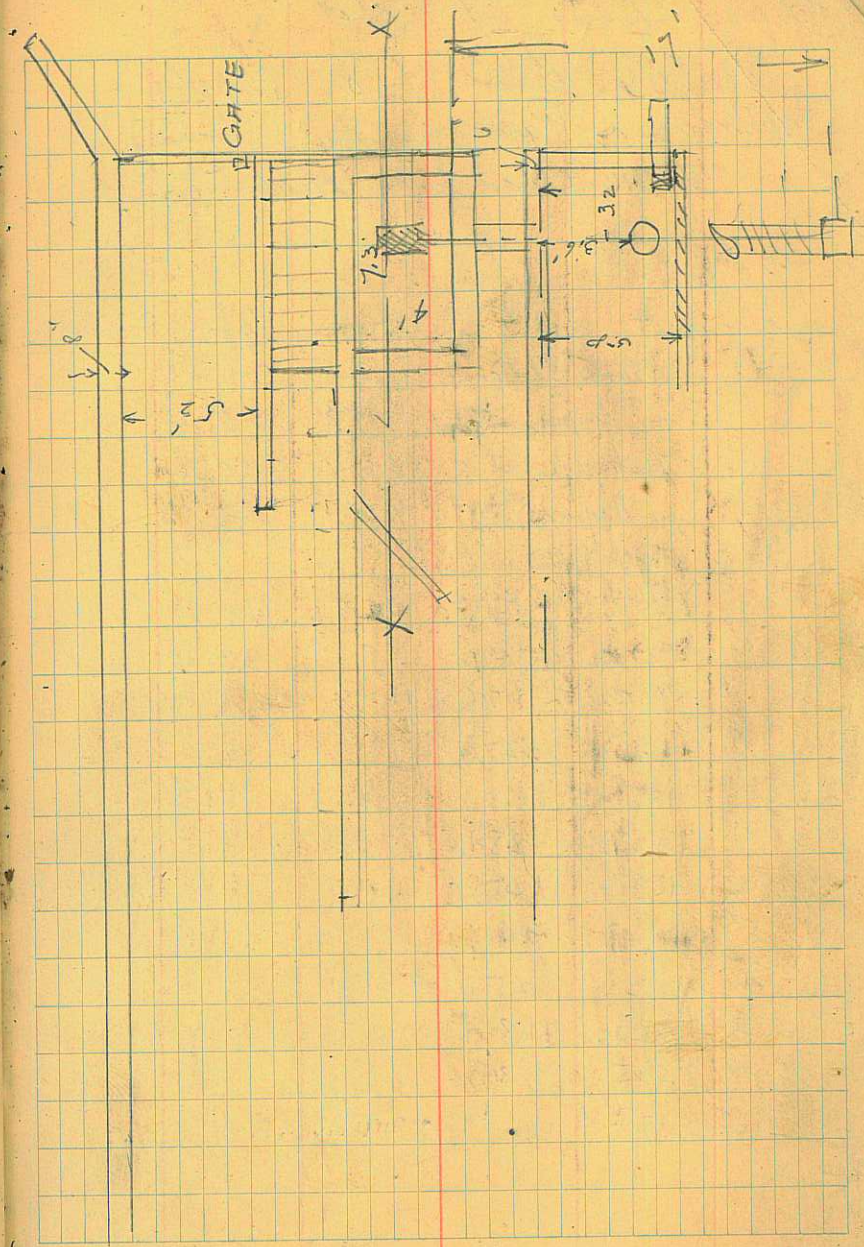
compact clay

wet fine dark compact clay

2640
2766
5406

26400 5406
21624 . 4883
47760
43248
45120
43248
1872 0 07

N6

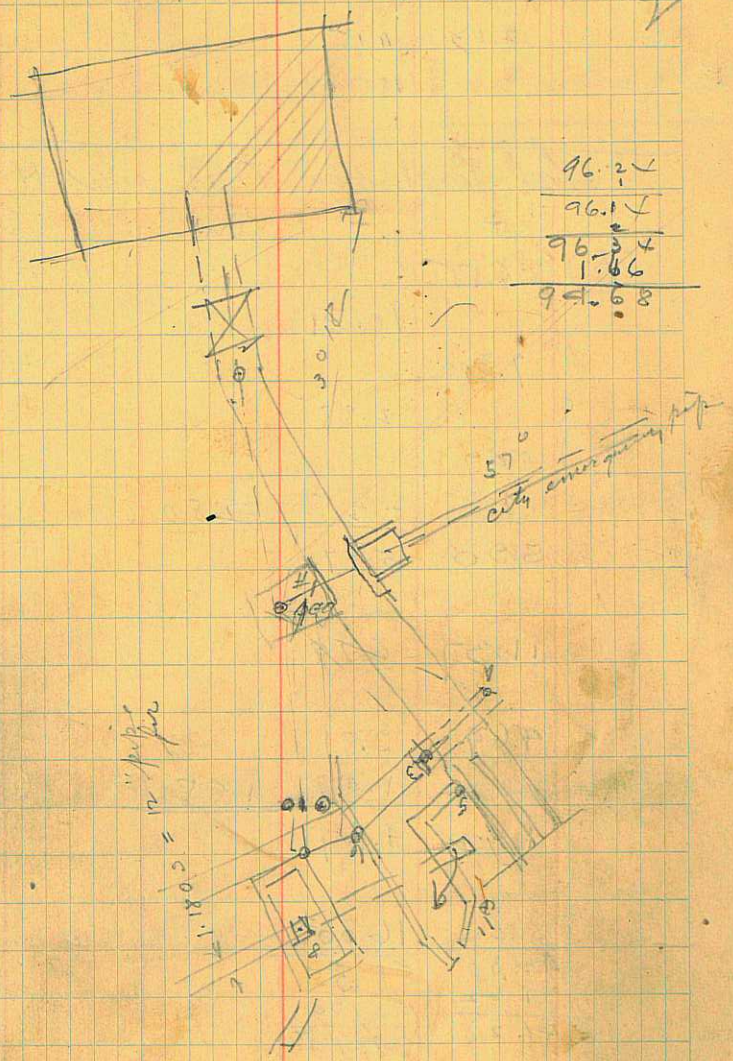


Notes at old
Antelope Paris H_2O Supply
(Mr. Ezra Passey, Paris Idaho)
R.M. Crawford chairman

H_2O Surf	4.78	100.	104.78
Tank bottom	10.4	94.3	
on pipe in tank	8.58	96.20	
on pipe at 8	8.5	96.24	
in Upper So. Ditch	9.60	95.18	
Sat 3 bottom			
of 2-12" cor pipe	9.50	95.28	
(10) ground	7.5	99.28	
(11) Creek bed	11.2	93.58	

9	146°30	32.7	
8	176°22	34.8	joint in 19' wood
7	173°30	28.2	
6	159°	27.0	
5	137°48'	29.6	
4	103	25.0	
3	132°10	21.8	
2	355°15	28	
	3°18	100'±	mw cor Sta.

Materials for filling at dam
1 - 90° 12" wood ell
1 - P 6" cast bell & spigot about 20" long



Levels from H 4 to H 20 Surface on slough E of Bres line

+	−		Elev
0.900			
2.13	11.15		
	18.70		

Check levels from TP(B) near H 9

+	−	m
(B) 6.55		
	10.31	
7.300		
	2.8.8	
5.47		
		-.250
5.90	5.47	
11.37	6.79	
4.69	3.81	
		1.48
1.02	4.69	
	16.00±	
42.30	50.55	
1.02	42.30	
41.28	8.15	

on T.P. peg by H 4

on H 20 surface on sd slough

to H 1 Oct 8 - 1925

on BM concrete Bridge syphon

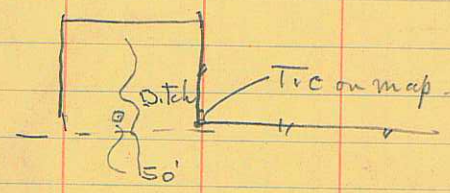
BM on nail in stump near vacant Edin.

to ground at Hole H 1

Soils - Data Oct-13-1928

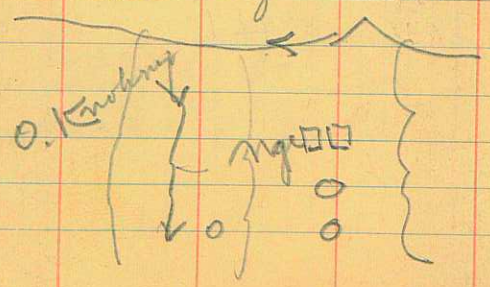
1-2-3 — Miller Valley

Trad. known as the Burrows Land
near the Walman Field
one foot of fresh snow on
the ground — samples 1-2-3
in the center of 1-2-3
foot sections

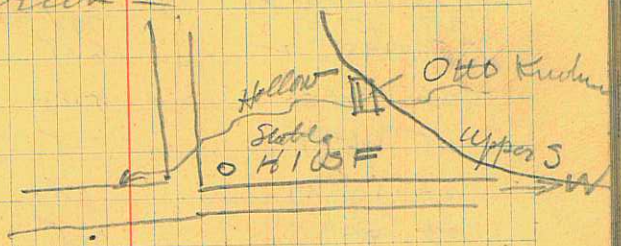


Otto Knohner — 1-2-3
in Alf. field see
P.T. map —

Nye 1-2 3
~~also~~ on Ridge 75' N
of lateral and about
500 E of Main ditch

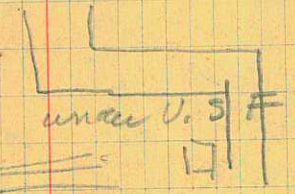


Hole 1 under Upper S F
Paris Creek —



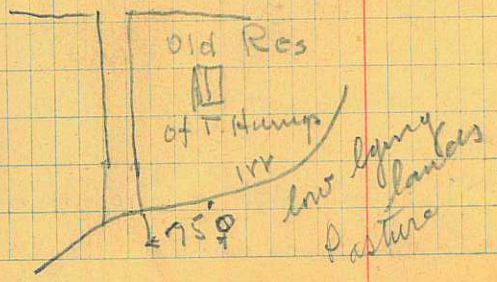
1 — 2 — 3

Hole #2 under U. S F
S 70° W 200 from an old
vacant rock house on Thomas
Humphreys lane



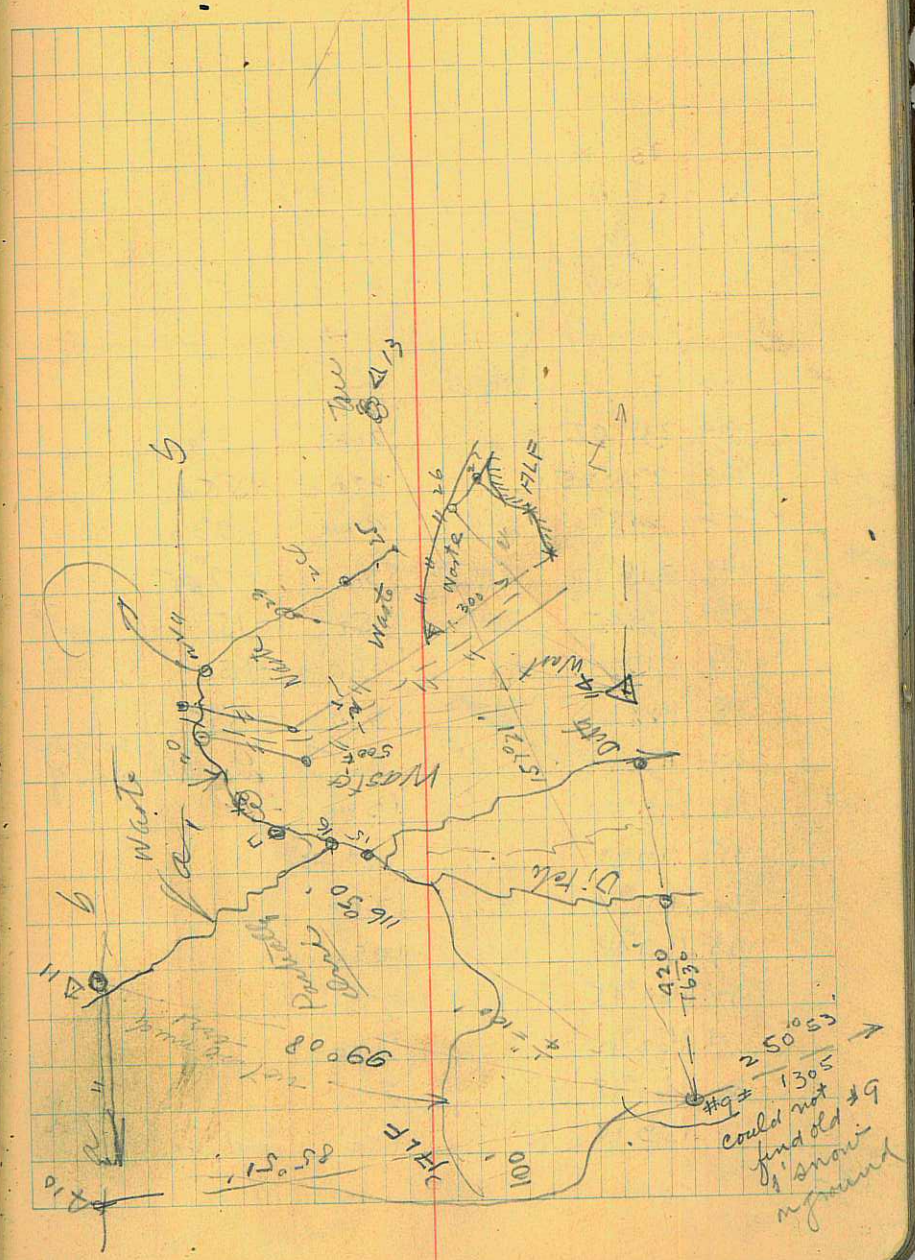
could not ~~Gender~~ secure 3rd sample
struck Hardpan at 2 ft —

Soils under L - S. F
1-2-3



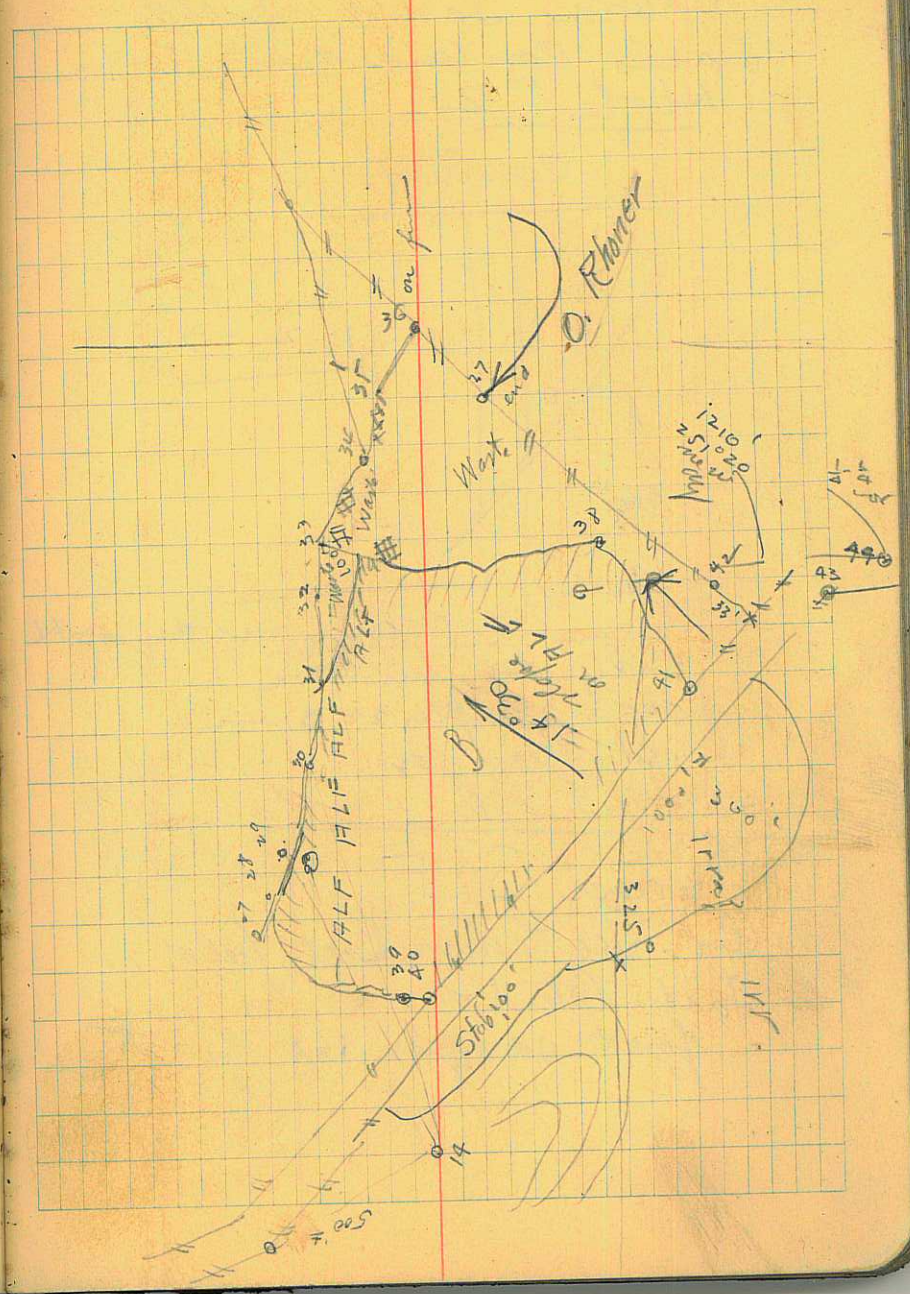
Survey for Burrow's tract
continued 10 - 13 - 28

28	158°37		790		
27	148°52		645		
26	136°50		540		
25	116°42		535	D	
24	101°47		635	D	
23	97°10		745	Delta	
22	92°35		950		
21	90°05		990		
20	88°00		960		
19	82°15		880	Delta	
Δ12					
18	74°15		Tree		
17	70°50		950		
16	66°52		800	forks of Delta	
Δ11	56°52				
15	65°		600		
Δ10	47°08				
14 ^			850	+2°20'	
14	165°44				
	164°	Ditch EW	730'		
Δ13	157°21				
Δ12	116°50				
Δ11	99°08				
Δ10	85°51				
8	250°53	N70°53E	0.95	-1°30'	14.00
9± ^					


Waste
Waste
Waste
Waste
Waste
Waste
Ditch
Ditch
Ditch

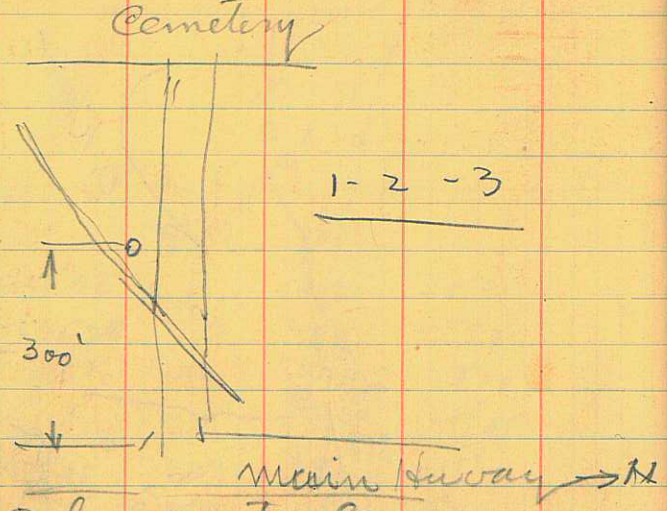
		Hor D		
44	231°02'		2000'	-5°40'
43	230°25'		1800	-5°50
42	218°	890	920	-9°30
41	216°10	810	830	-9°45
40	175°45'	327	350'	-15°
39	172	450	460	-7°50'
38	199°20'	965	970	-5°15
37	190°04'		1165.0	mid dist. O Kohner alt of
36	179°40'		1380.	
35	173°		1230	
34	171°10		1200	
33	167°13		1050	
32	164°45		975	
31	162°12'		930	
30	160°18		900	
29	159°10		850'	tree see P.T.

14 $\frac{1}{x}$



55

Lower South Field
Sails continued -
Hole #2



Only one tin can
filled - samples 2 - 3 in
pt. glass jar.

Lower S. F.
In Geo Parker's Beet field
Last lateral -
first sample 1x4 for 1 pt

m

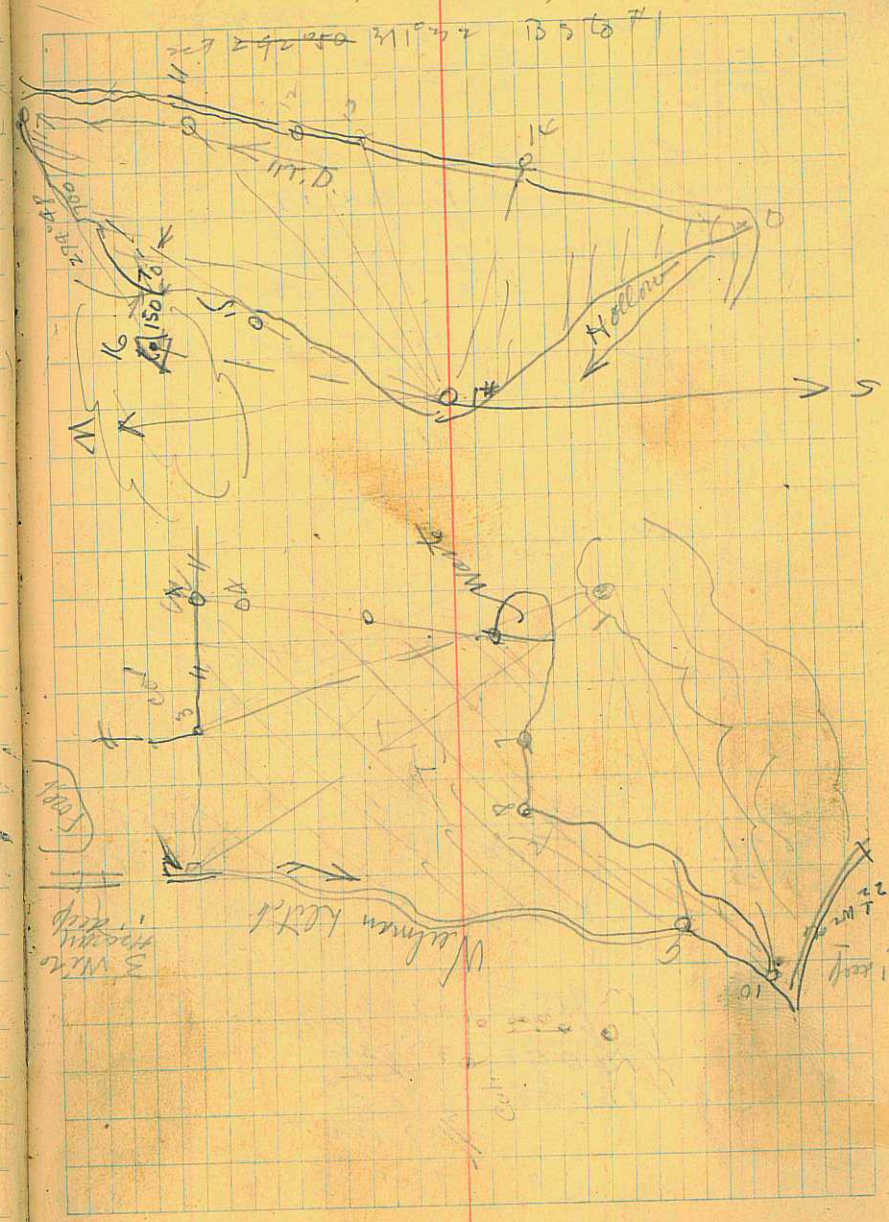
57

	51°	to ⊼ & 1st tam-ue stub. fuel
	36°41	to NW cor Power House
	38°11	along approx Allred P.T. line
17 -		
3	37°2	cor fence
	274°50	700'
	112°50	to cor house 17
△ 16 -		
△ 16	193°55	508 -155
15	220°30	410
14	281°30	500
13	247°10	300
12	240°	470
11	239°	590
10	324°10'	480
9	349°10	450
8	345°20	260
7	27°20	310
6	48°30	570
5	51°40	720
4	52°30	850
3	49°45	940
2	42°	1050
H	131°32	-12°

112°50
180
292°50

131°32
180
311°32

292°50 311°32 135 to #1



59

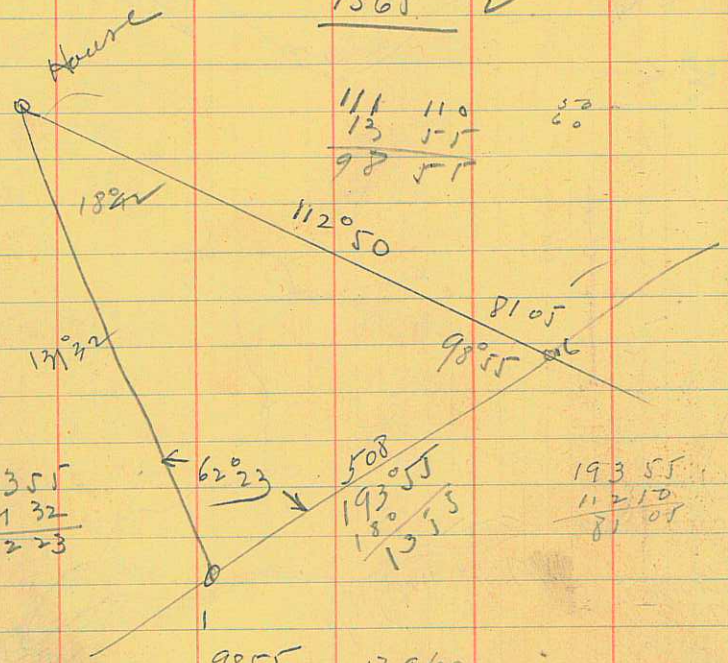
1552

Shiaw

$\frac{508}{18°42} = \frac{x}{81°05} =$

log 508 = 2.705864
log sin 81°05 $\bar{1}$.994719
2.700583
log sin 18°42 $\bar{1}$.505981
3.194602

1565 ✓



111 11 0
13 5 5
98 5 5

50
60

19355
131 32
6223

508
193°55
180 15
13 55

19355
112 50
81 05

9855
6223
16078
161 18

17960
16118
1842
6223
98 55
178 90
1800

Logan Air Port
8-5-1941

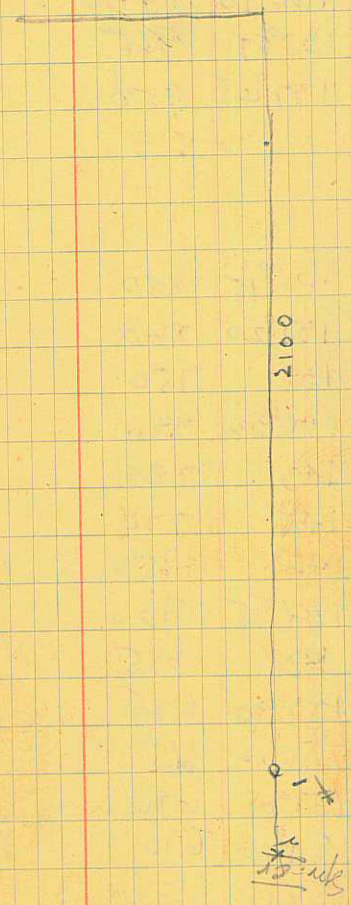
Pl Ag Dist

Set 269 42 BST

Survey for Geo Zellinger
College work

22	156°55	632
21	157°45	585
20	157°15	560
19	155°50	540
18	152°15	530
17	151°40	510
16	153°30	500
15	154°20	472
14	149°45	430
13	147°30	350
12	144°30	320
11	141°	315
10	134°20	350
9	134°45	400
8	126°07	420
7	132°35	390
6	121°	313
5	134°30	234
	143°06	cor post
4	123°30'	120
3	106°30	133
2	90°	175

1



63

42 –

42	180°10	891.0
41	138°07'	965
40	137°45	950
36	136°15'	880
35	137°20	860
34	138	750
33	140°30	770
32	143	780
31	145°	770
30	146°	750
29	146°05	730
28	143	685
27	143°40	675
26	150°12	665
25	151°08	670
24	154°06	670
23	156°12	650

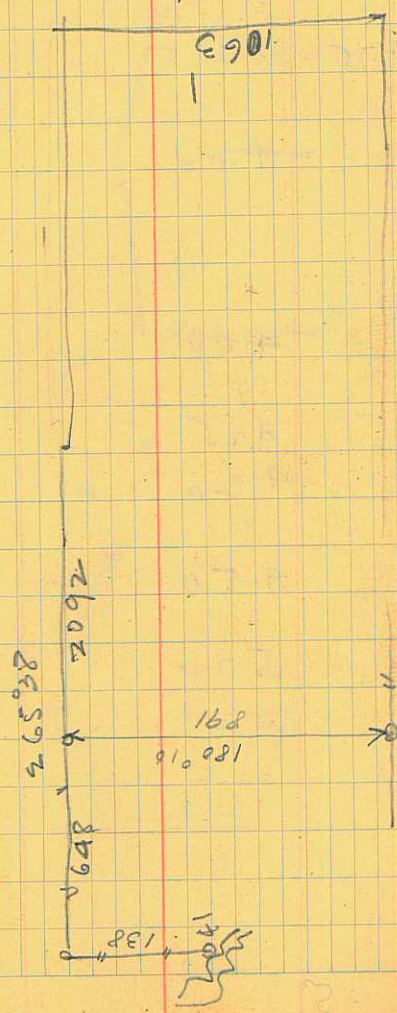
15

137

13

29
90
261 00

To fence



65

5.00
1
1
7
6
$13.00

+3.75 620'

~~4.00~~

~~4.00~~

4.25
4.20

4.50

5.20

480 12/40 16/3

50% ca
3000

Jos Zellinger

3.05
1.5
1170
31 V
4.31 1
2.35/2
4.70
20

75

3.75 H2O surface

on

N

4.00 on top bank

25 1.25

Study of Water Supply
for Fairview — Oct 27 - 1928

Lyn Olverson Spring at his pipe diversion

7' in 2" 2.2" pipe ½ full

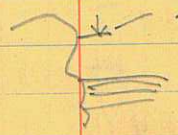
on Maple Creek Drainage

0.2 acep

45 | 1.5 = time
3 = V

4 | 450
112
336

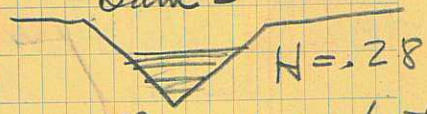
.2
3
0.66 C.F.s



mark on rock

3.14
2.88
.0 22
260

in Ditch below Dam —



H = .28

Q = .11 or about
50 gal per min.

3.5
.011
35
55
33
.0385
450
19250
1440
19.3250

(E. I. Rawlings
Preston R3)

Sugar Creek Spr
Oct 27 - 1928

C. gage H20 6 ⅛" below mark on rock

meas. section

175 ~~ft~~ feet into pass
to Maple Creek

69

7 179°35' 2700' drove a 2×2 peg

a 179°35' 150'

31°43'15" W. spire Logan Temple

359°39 looking So on Main

6

2648

#6 2624

2600

5

5 2530

2526

2102

1764 fence on N S. de Co

89°42 1566

89°42 1462 fence

1" pipe 211°51 170.5

4

2676 + a N + S line there

8 2500
126

Logan Air Port
8-5-1941
copy given the
Book

563°57'E

fence & Wire

Road on

150'

did not look for cor

S.L.M.

#5

2650
2766
2530
1936
5280
2656

117'
181°55'

Elect. fence

50°08'W

coral

Electric Trans

This pt may have been

176

N 45° W

1566

Co. Road

fence

88°40

359°60
635
2960

1" pipe in fence

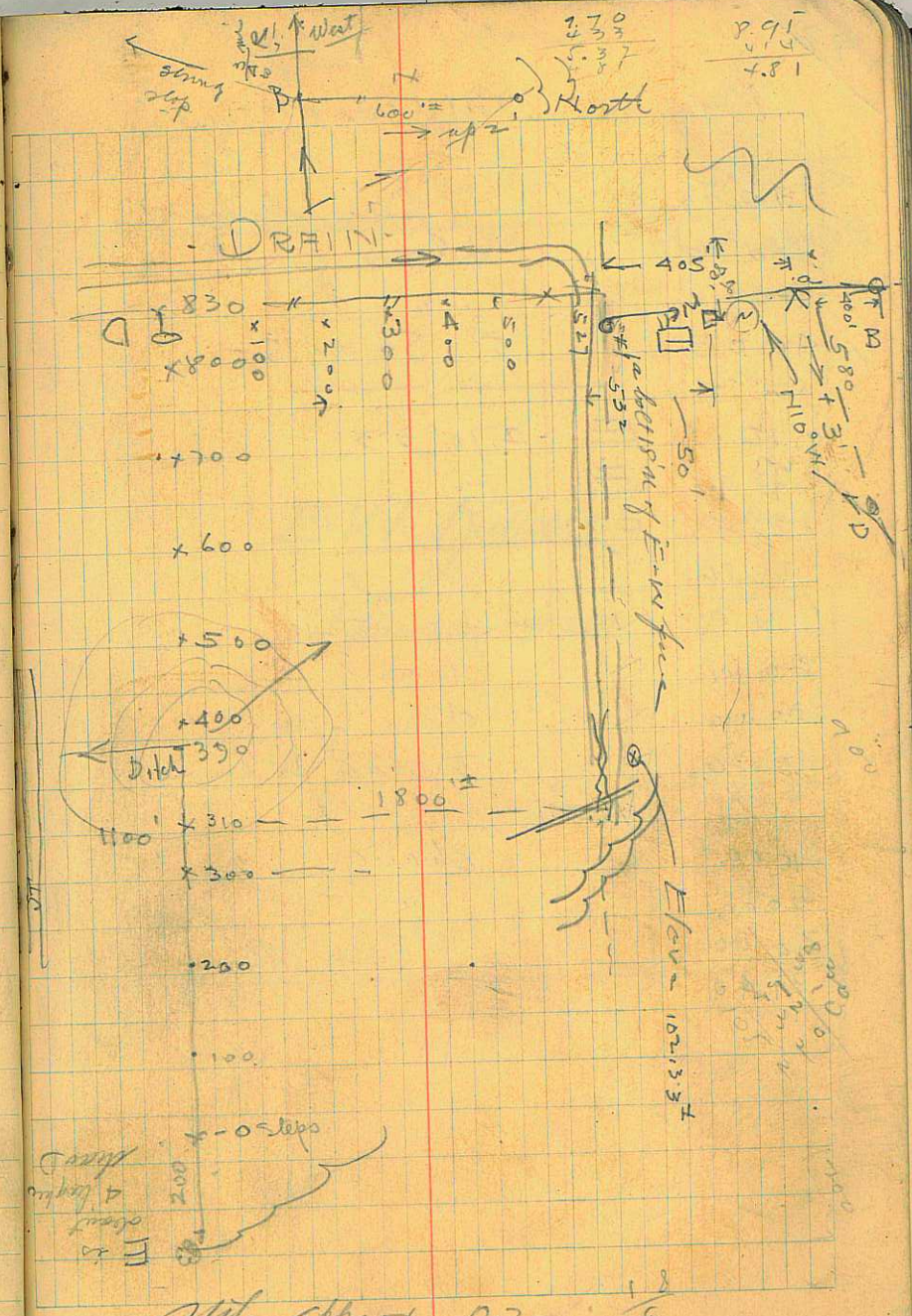
170.5

pipe

2766
90
2676

DRAIN Survey for Fonnesbeck & Nelson
Nov-25-1928 in sec 12-14 N 1 W of L.R. Peterson

Pt	BS	FS	HI	Ele	HT
1	4.33			100.00	104.33
H-O Well #2			9.70	94.93	
@ on bolt. E 405	7.10			100.00	107.10
W240'			6.40	100.70	
W480			9.20	97.90	
(8) W 900		20' ¢ to top of ¢ about 16½	13.50	88.38	
TB			5.00	88.38	93.38
N840' of SW corner of Peterson			3.50	87.88	~~89.88~~
#1	4.14			100.00	104.14
on H-O on Drain near house			8.95	95.19	
ground by well			4.35	99.79	
So. line property ¢ drain face E			5.00	99.14	
* 1" ~~4.05~~					
C- bolt 1 W700	4.00			100.00	104.00
			8.80 on H-O Drain	95.20	
E 850			4.00	100.00	
F	8.35				108.35
H-O Drain			12.80	95.55	



Note approx -0.2
C.F. Sun Drain

Beg at NW cor of SW ¼

10.03	S	fence bears W
20.00		change
30.00		"
40.03		to S¼ cor 5 –

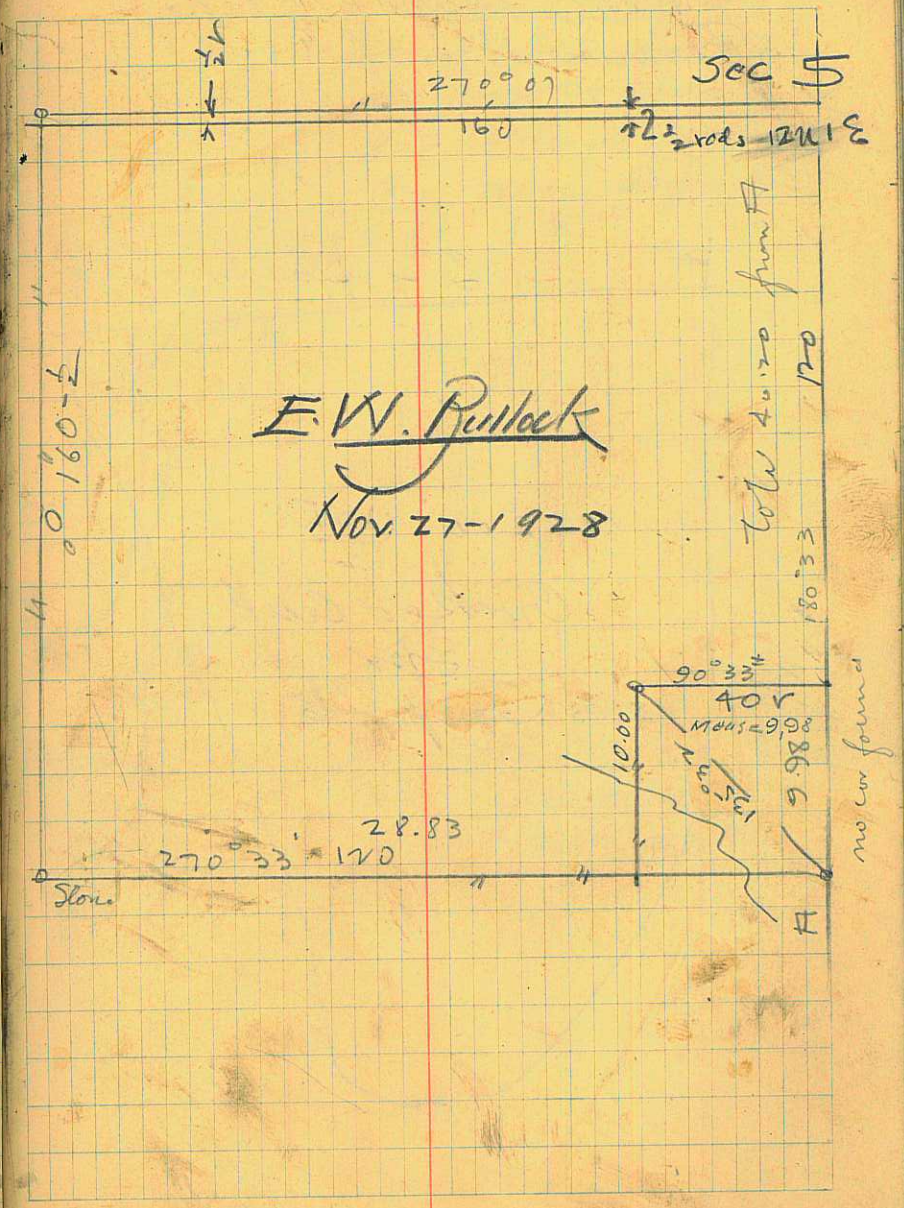
10.00	E	270°33
20.00	E	
28.83	E	
38.86		
9.98	N	fence E-W
20.00	N	change pins
30.00	N	change pins
40.20	N	to old E-W line

West –

10.00	change
20.00	"
30.00	
39.40	

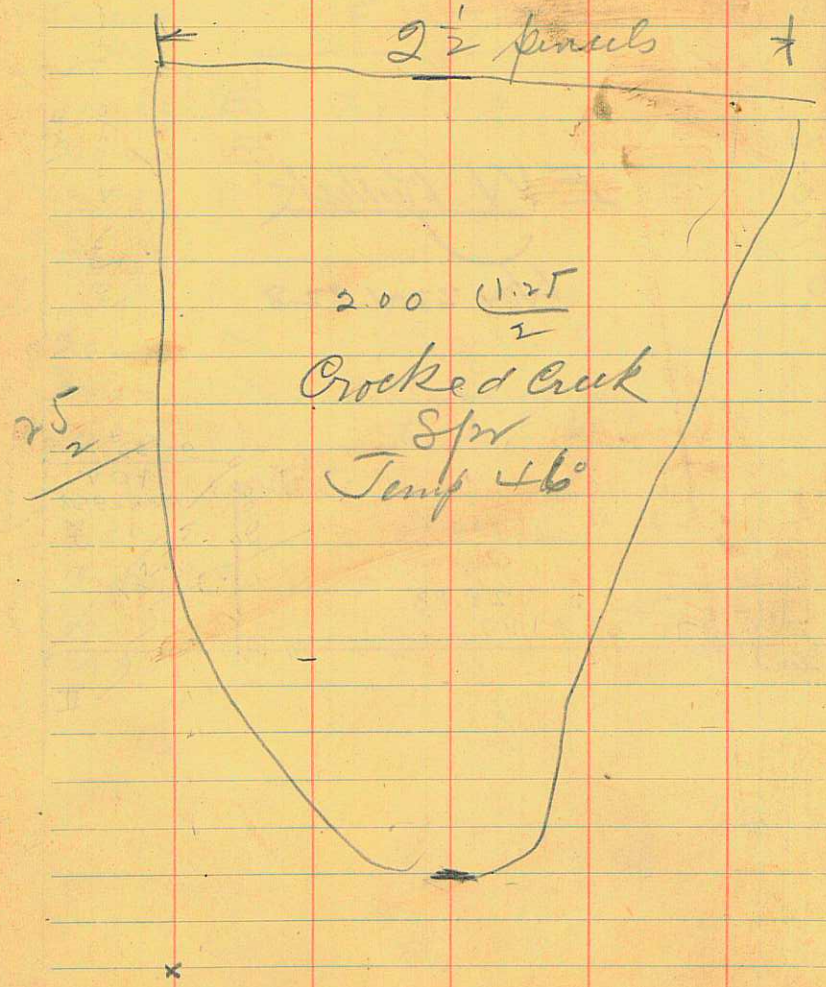
38.86
28.83
10.03

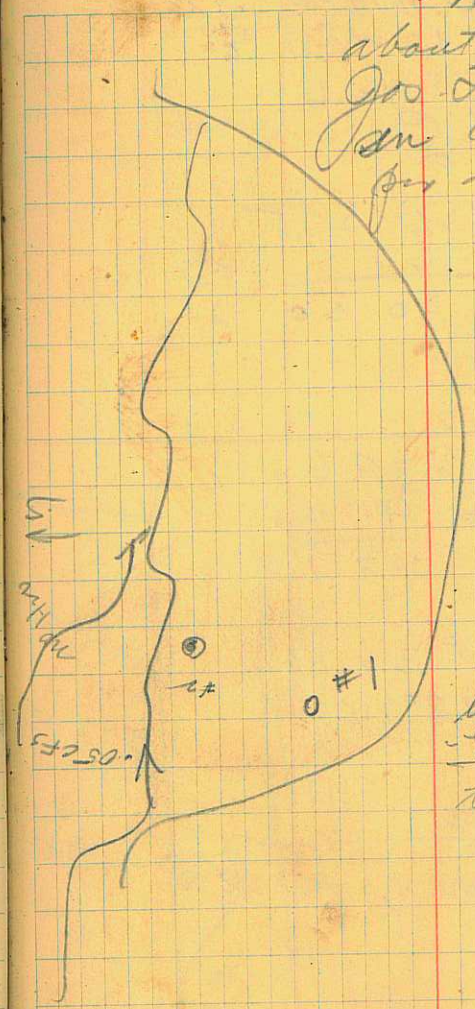
8.3
1.7



Dec 11-1928

Water Supply study
Farview H_2O & Work





Note Q spr
about 800 So of
Geo Fowes House &
San Cable bed 8 gal
per min temperature
65°

bored down 9'
Gravel 2½ to 5
then clay
H_2O 40°

Ob on track S line
sec 16 - 12 N. 1 E
3 - 14 - 1926
11 am ☉ =

2° 36' 29.5"
6
2 30 30 ☉

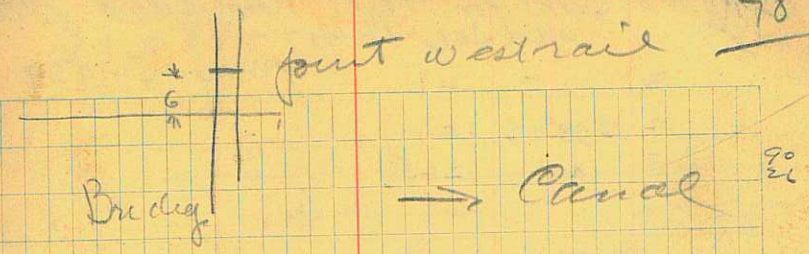
59.16
6
354.96 60
5

C Lat = 89.60
41° 46
48 14

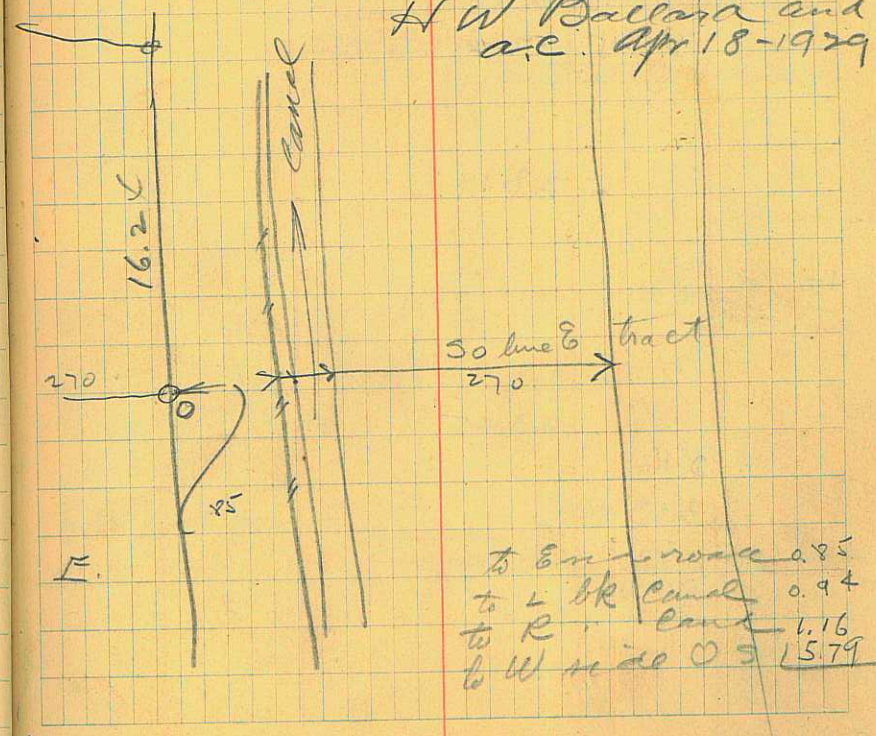
☉ - 2° 30 30
co. 48° 14

2° 34 along track
2 24

339° 03 W Span Temple
338° 53



H W Ballard et al and a.c. Apr 18-1929

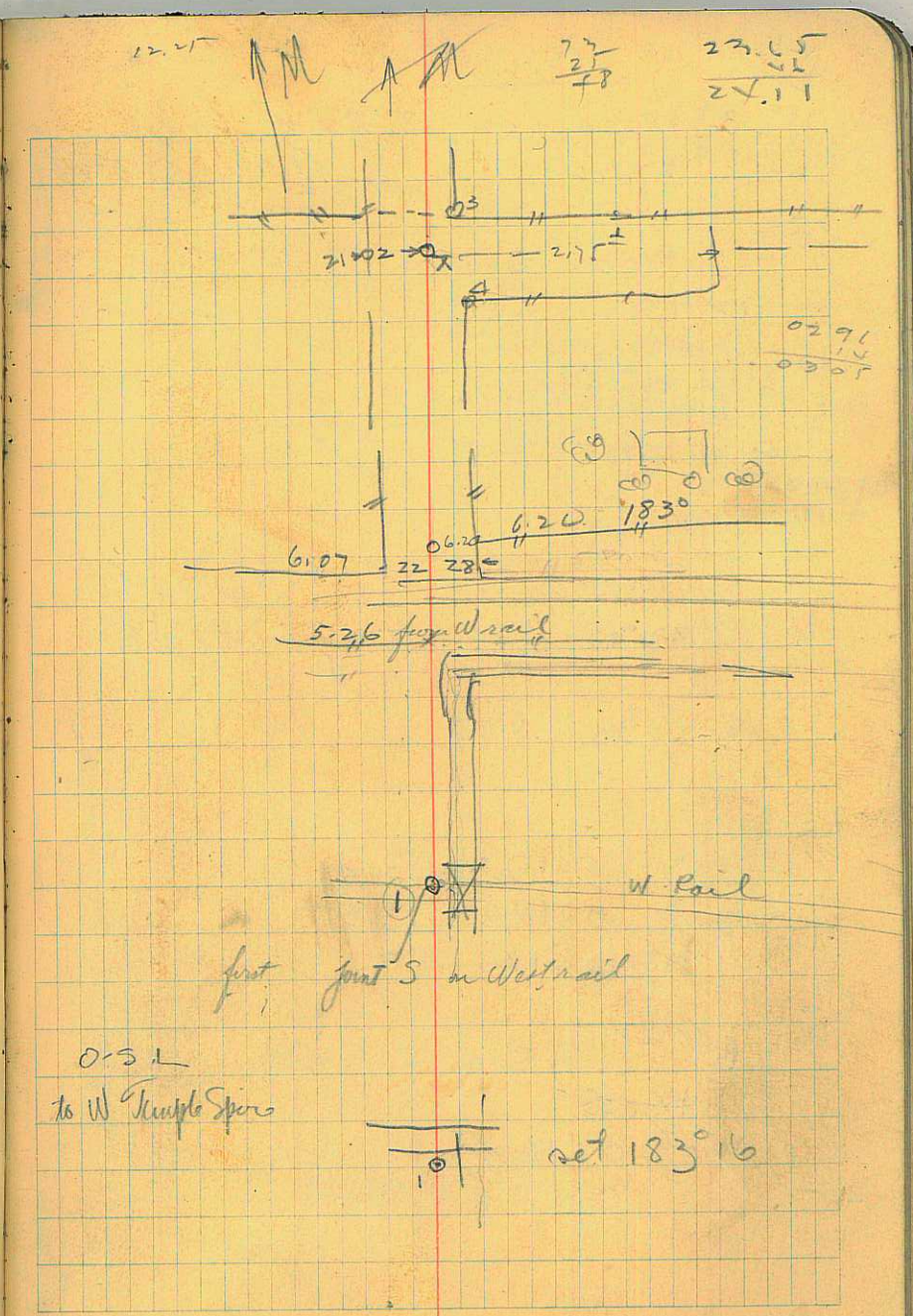


to Em road 0.85
to L bk Canal 0.94
to R " Canal 1.16
to W side O S 1.579

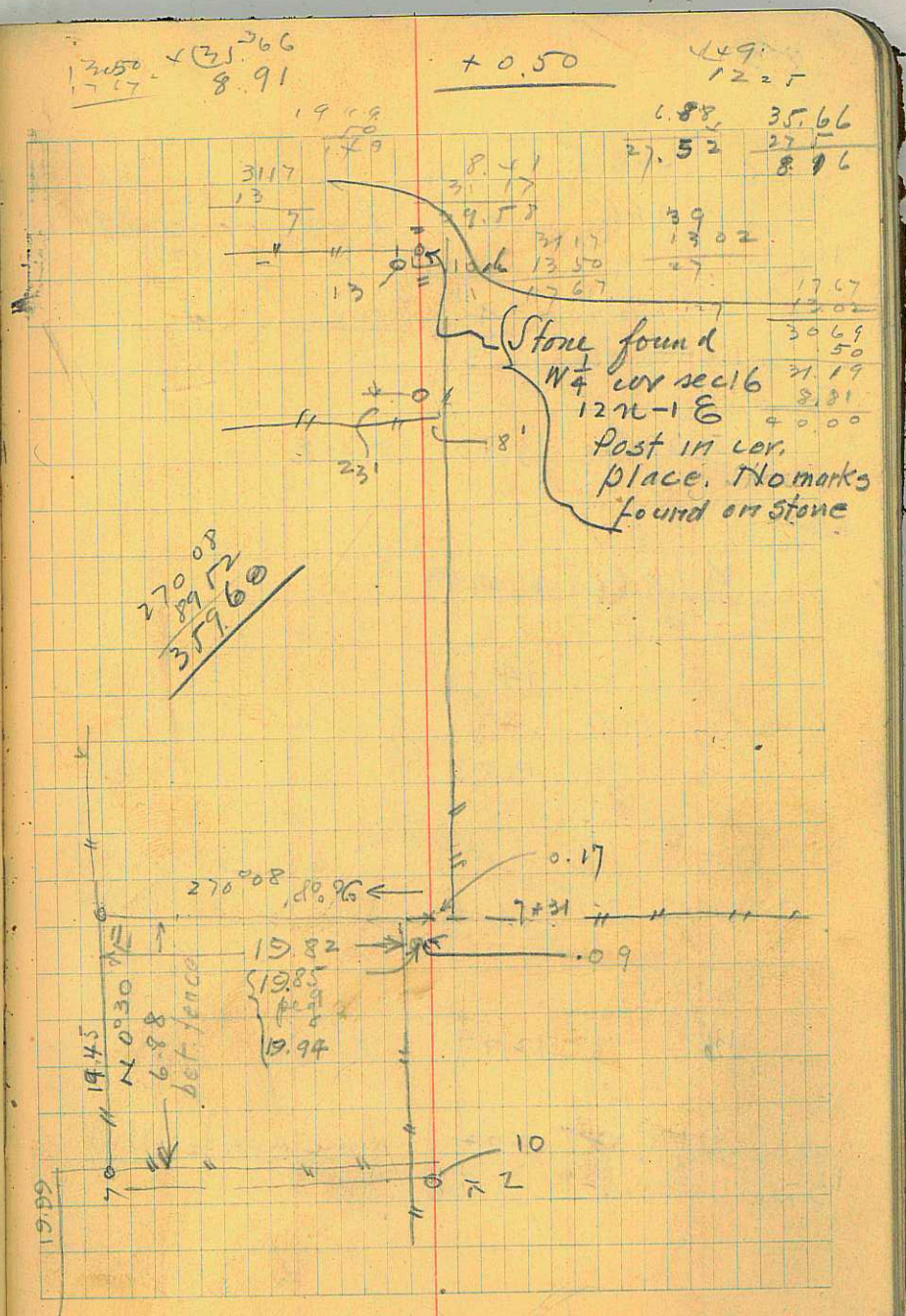
79

Scr. for H W Ballard et al
in Sec 16-17 - 12 N 1 E
Mar 14-1929

5		.21
4	238°22'	.40
3	147°10	.265
2		
2		
2	91°45	24.38
1a	91°45	6.20
	91°45	6.07
	91°45	5.26
		24.11
1		
		23.65
	3°16	
	339°44	
1		



13a	180°20	.02	to E & W fence
	270°06		on ℄ 16-17 EW
13 F			
13	180°22	9.61	
12	180°20	8.81	
11 F			
11	N0°20E	17.67	
10a	N0°20E	7.31	to #9
10 F			
9	270°08	19.94	to my line N0°20E
8			
8	180°30	6.88	
7 F			
	91°20	~~19.99~~ 20.49	
7	91°20	~~19.45~~ 19.95	
	91°20	.12	
6 F			
6		13.00	
		~~13.025~~	
10	0°20	13.025	
2 F			



83

	269°15'		
17	246°	.06	to post cor of lot
16			
	272°20	4'	to cor.
16	~~N~~180°16	5.30	
15			
15	272°20	13.80	S87°40'E
14			
14	180°20	16.99	
		14.39	
		13.83	
13b		12.77	
	180°02	0.02	fence n & ℄ E & W
13			

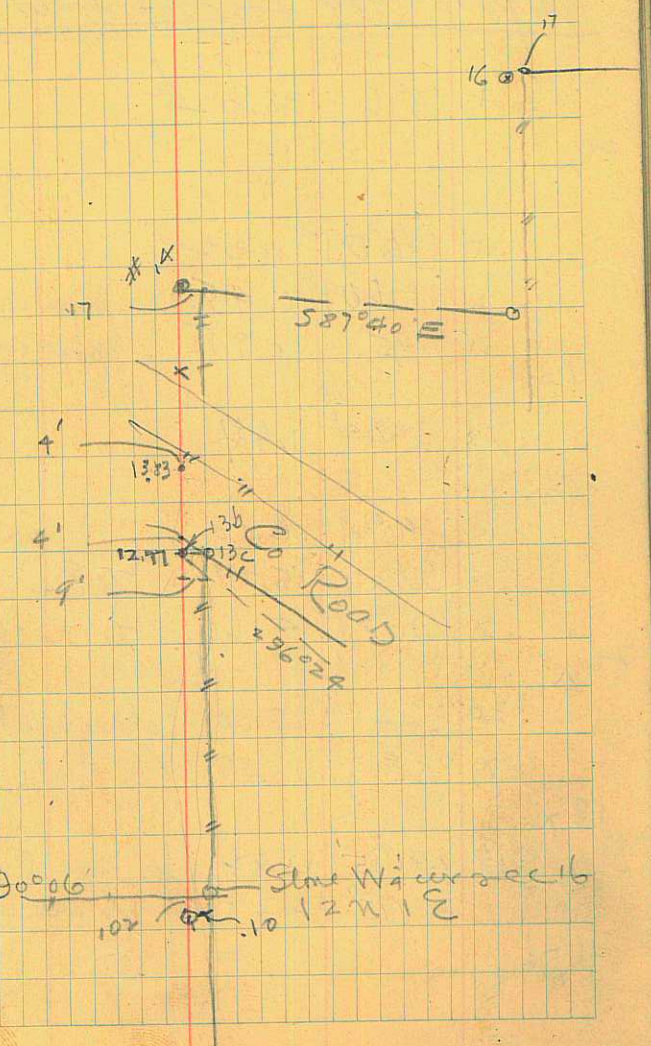
15.15
9.81
5.30

1.06

12.77
1.06
13.83

13.63
.17
13.80

12.77
1.06
13.83
.56
14.39



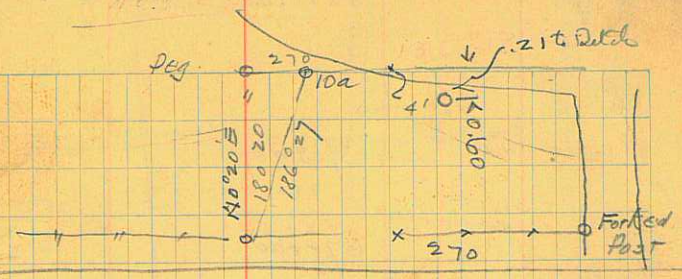
85

10b	240°15	to pt on road N	dr of
	171°56	11.19	to W ¼ cor 16
10a π	10a 186°27	to π point on approx. N line D&C.	(and)
	270°	to Co. Road	
10*		F.S. 180°20	

apr 18-1929 Land off lines for 17C.

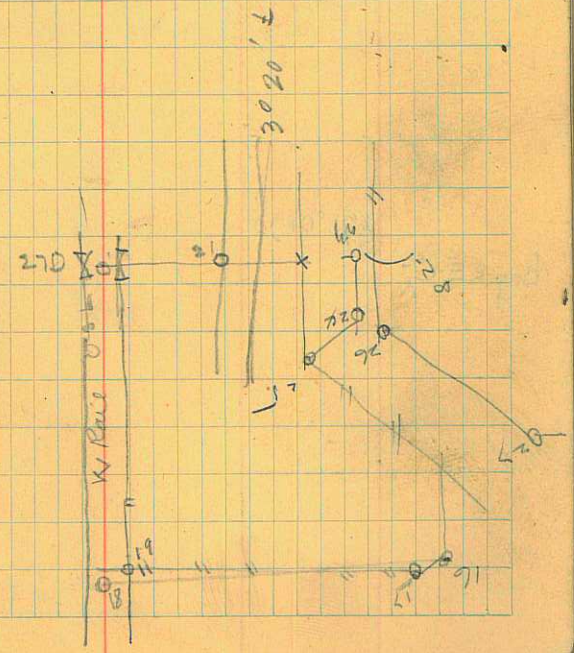
1	3°16	38.02 dr	
20			
27	136°09'	11.32	
26	136°09'	0.45	pipe cor Co Road
25	235°	0.85	spot cor Co Road
24			
24	184°49'	1.47	
23			
23	90°39'	6.00	
22	90°39'	5.27	to E side Co. Road
N	90°39'	4.66	to R bk Dimond trail
20			
20	3°14	25.00	along west rail
19	82°07	0.48	
18			
18	269°15'	13.82	(west rail OSL)
	269°15'	13.34	to west side OSL Ref W
16			

11.19



not add

set 184°19



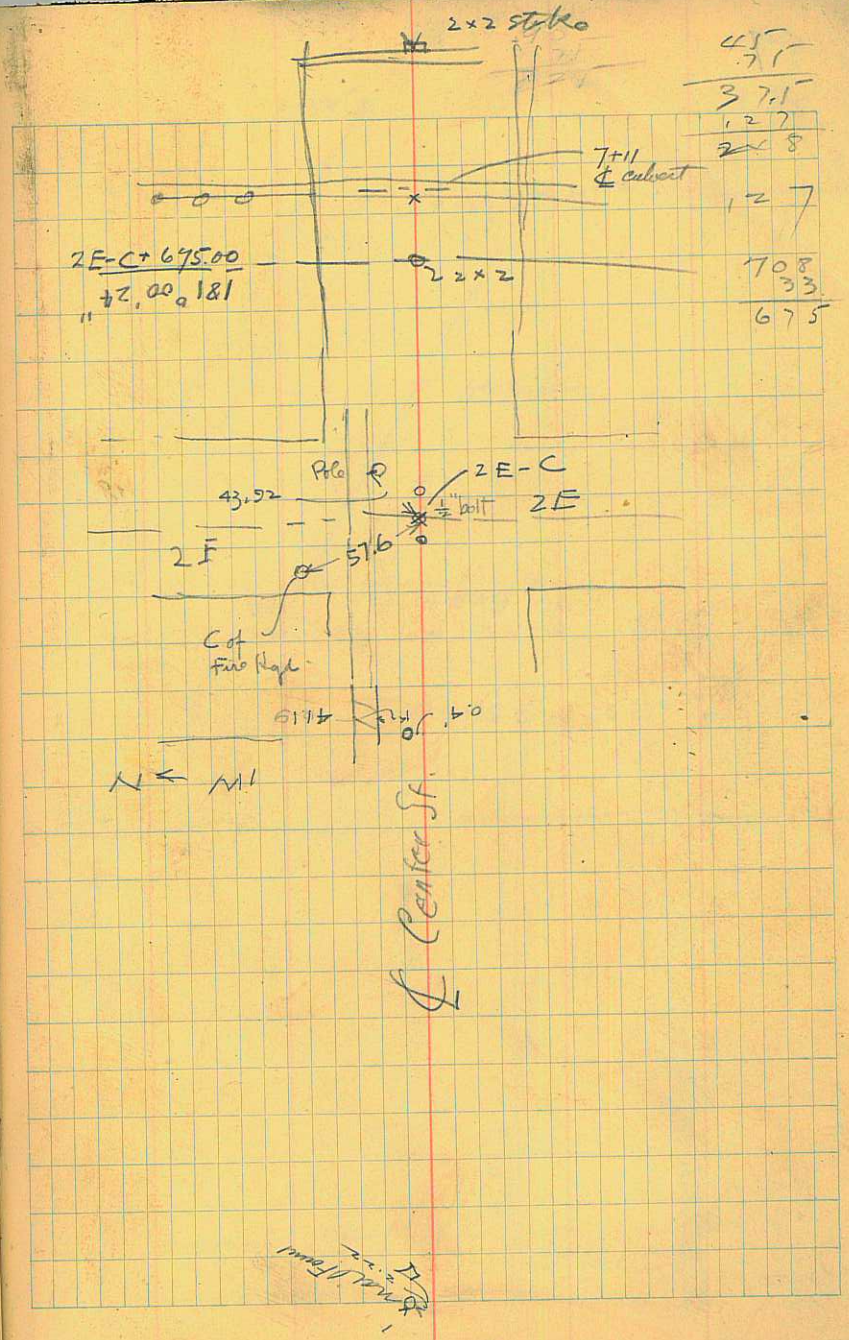
87

822.70 E. end of 6" culv

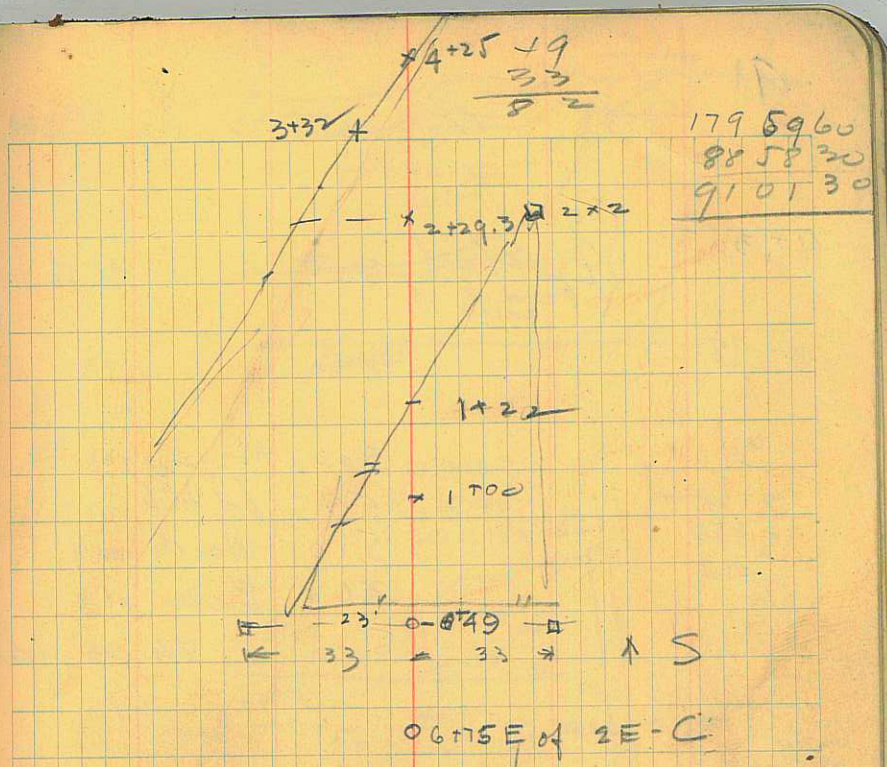
708.00
333
675+00

271°01'30"

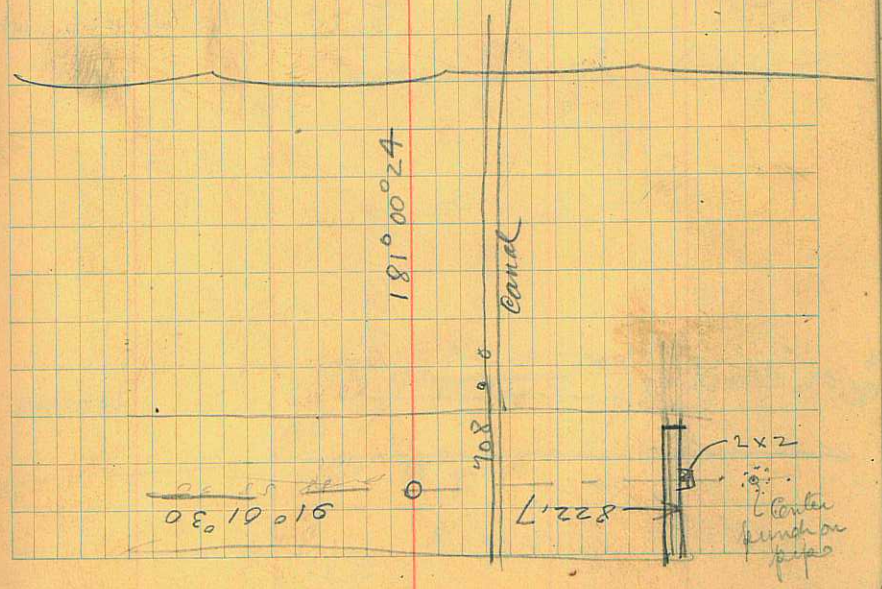
Beg 2E-C



45
71
37.1
127
8
127
708
33
675

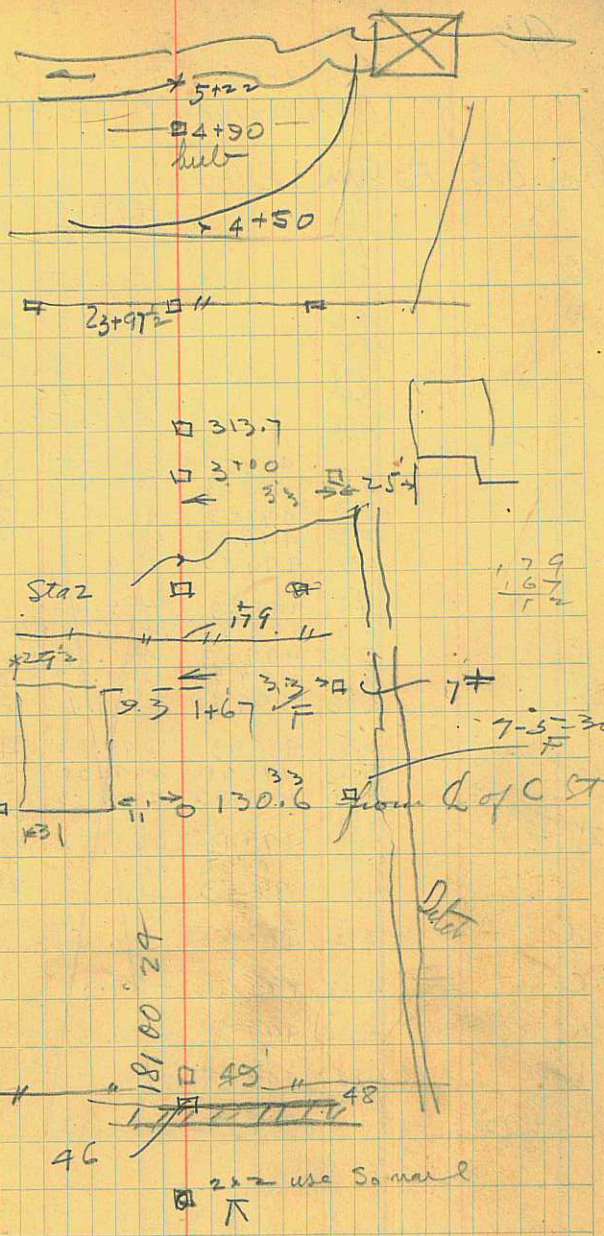

4+25
19
33
8 2
3+32
2+29.3
2x2
1+22
1+00
23'
0-6'49"
33
33
S
179 59 60
88 58 30
91 01 30

06+75 E of 2E-C


181°00'24"
Canal
708
L'228
2x2
℄ Center punch on pipe
91°01'30"

91

	BS	FS	HI	L 33	R 33	Elev.
4+30 ±	℄ old travel road rate 1'		9.50			98.5
3+98			8.00			100.
3			5.00	4.6	4.0	103
2+10			5.3	hot Ditch		102.7
2+00			5.10	W side		102.9
2+10			4.60	E side		103.4
			5.00		5.4	103 102.6
			5.70		6.0	102.3 102
+46 on cement	8.00					100.00
	6.85					
		aug 6-1930				
		6.70				
			5.11			

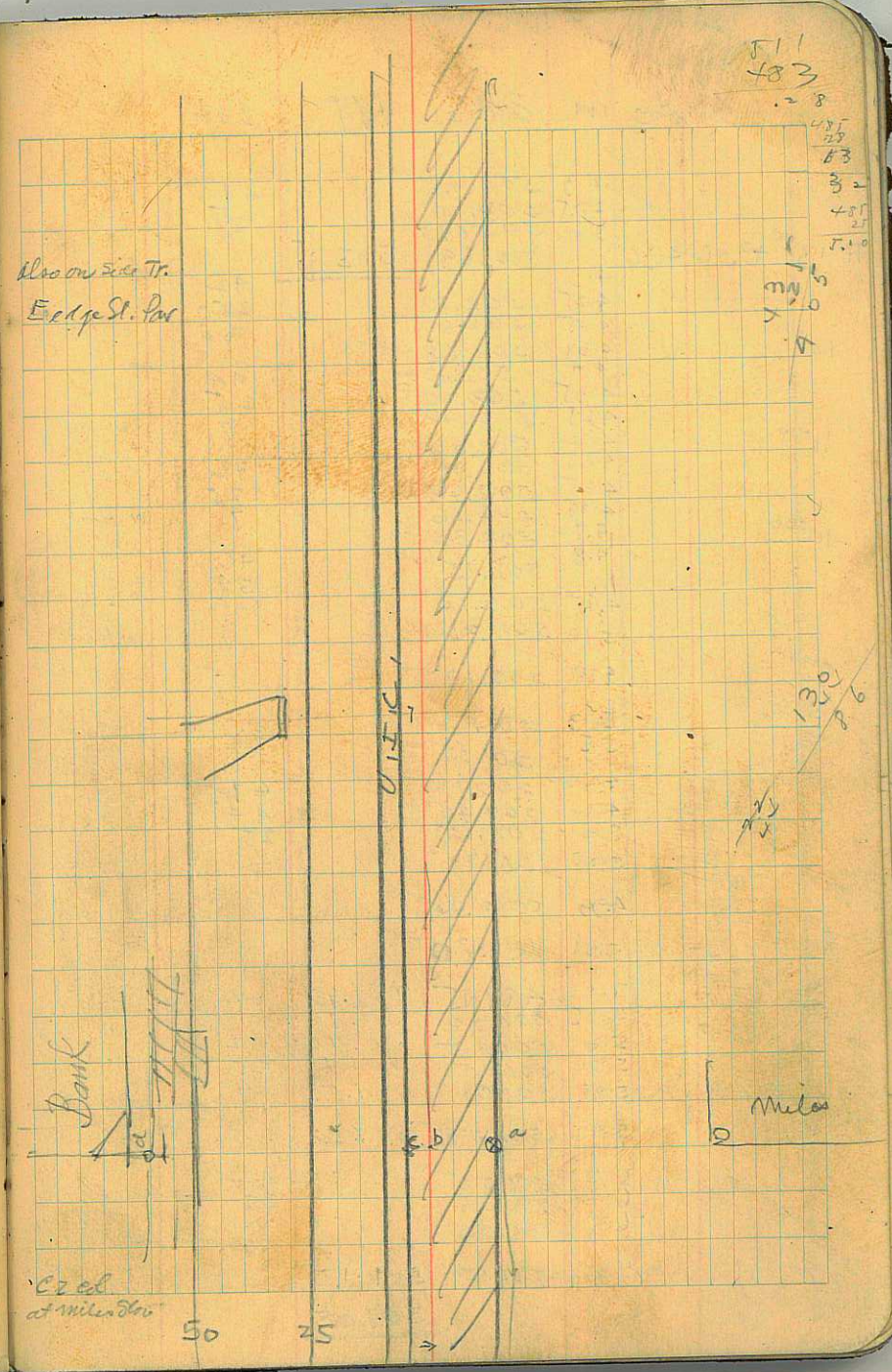


93

3-28-1929

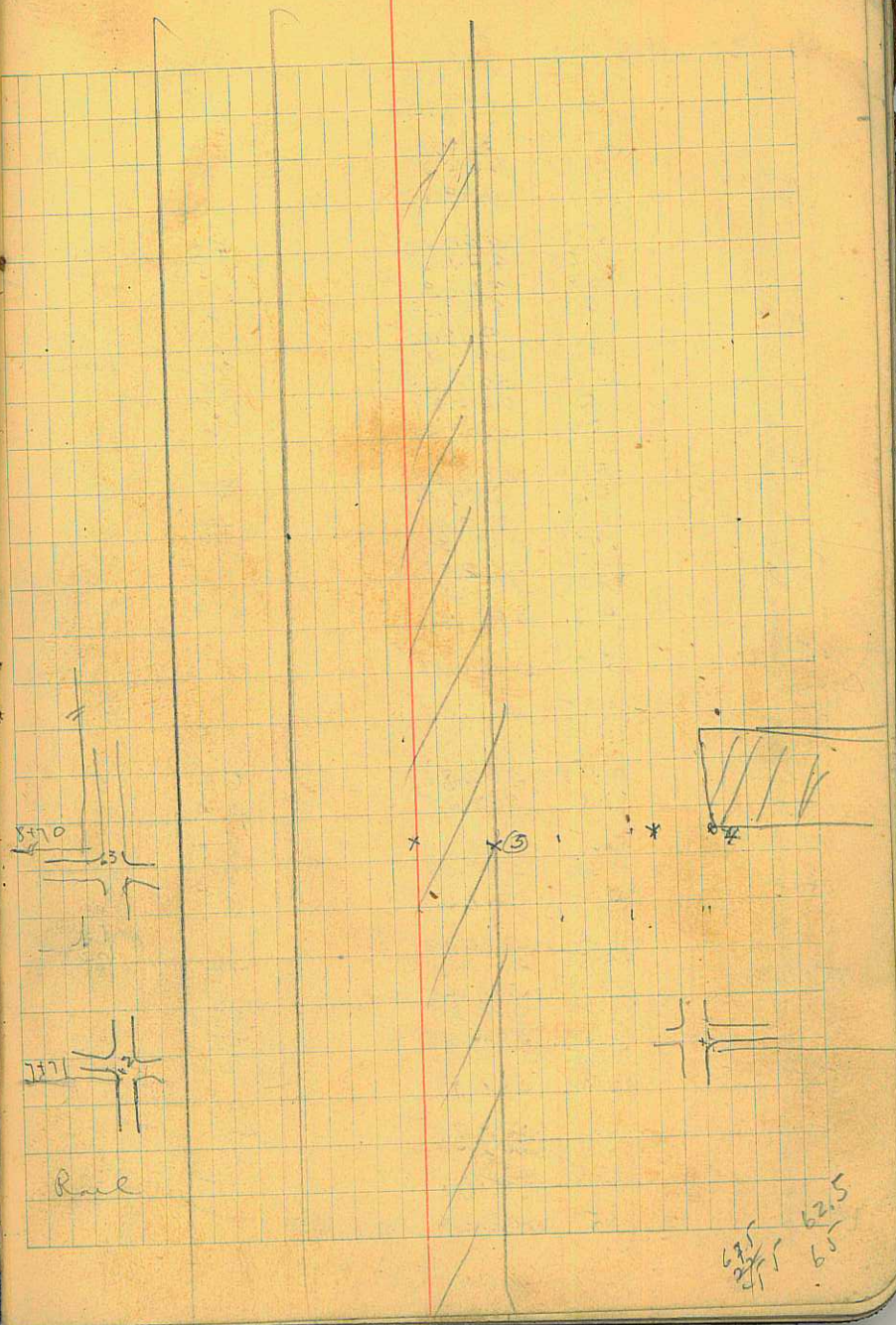
Levels and Cross sections E. side of 18th pavement. Smithfield

Sta	B.S	F.S	Um	Elev	HI	Left	Right
			7.9		499.15	45	
			7.0		500.05	25	door
			7.05		500.00	7	W Rail
6			6.7		500.35		
			8.6		498.45	45	
			8.0		499.05	25	
			7.45		499.60	7	
5.			7.18		499.87		
			9.0		498.05		
	7.500	4.88		499.55	507.05	3	
			6.20	498.23	498.23	57	W. cement walk
			5.8	498.63	498.63	26	
			5.15	499.28	499.28	7.	
4			4.9	999.53	499.53		
			9.8	994.63	494.63		hollow
			4.7	499.73	499.73	29	top wall
			5.20	499.23	499.23	29	by wall
			5.16	499.27	499.27	7.	
3			5.63	499.40	499.40	0.	
			5.5	498.93	498.93	46	
			5.05	499.38	499.38	23	
			4.9	499.53	499.53	7.	W Rail
2+00			4.89	499.54	499.54		
			4.16	500.27	500.27	49	on pav.
			4.6	499.83	499.83	23	
1+12 d			3.85	500.58	500.58		
1+12 c			4.73	499.70	499.70		
1+12 a			5.12	499.31	499.31		
b			4.85	499.58	499.58		
	493			499.50	504.43		
	493			499.50	504.43		

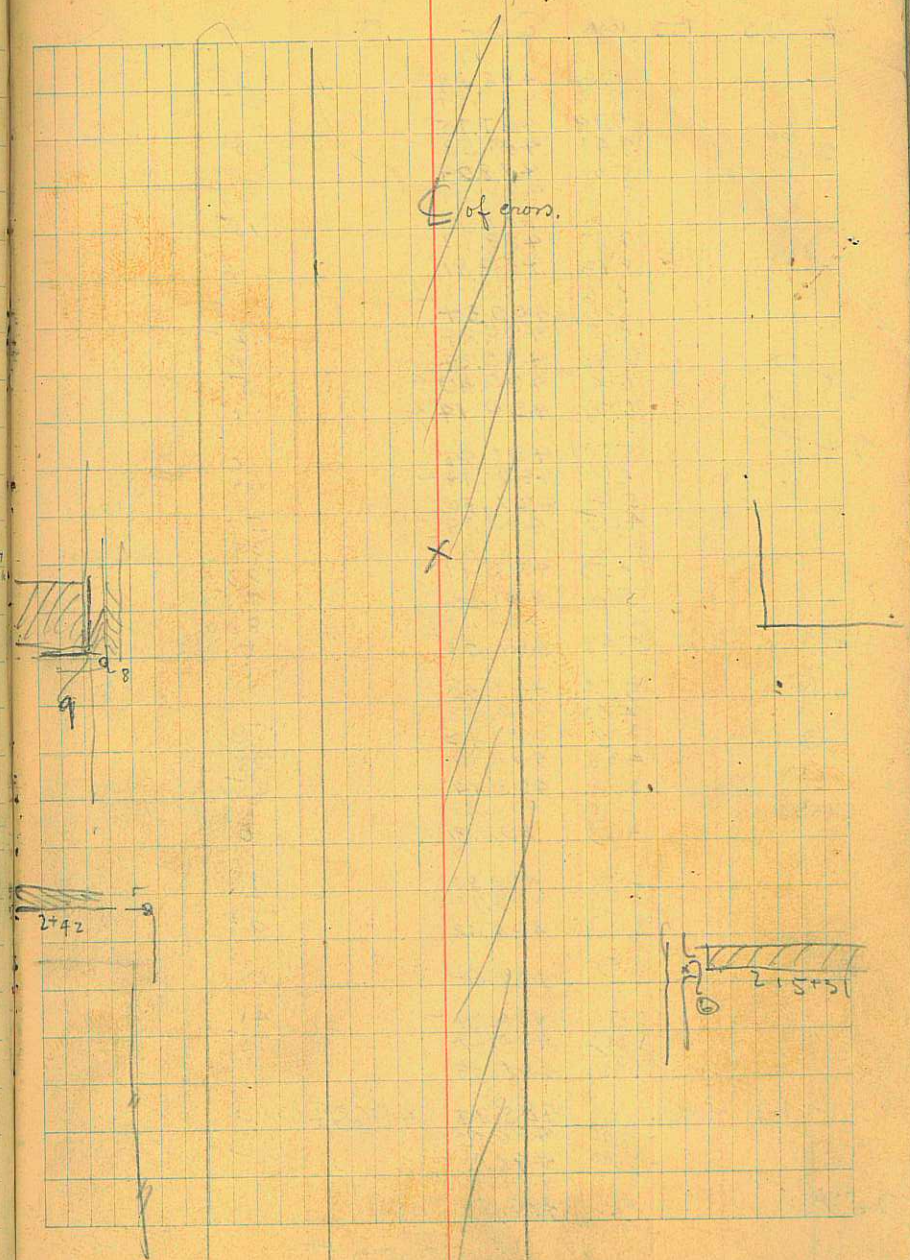


95

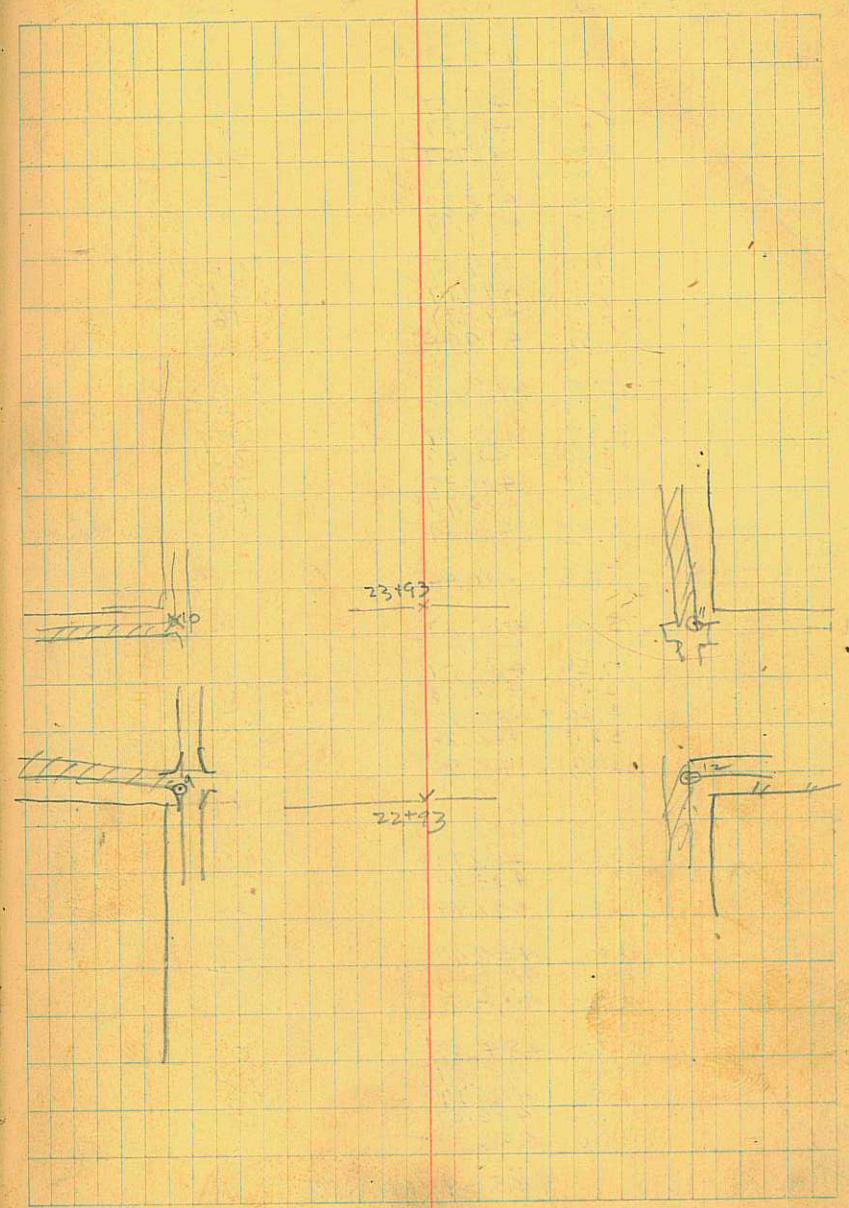
Sta	BS	FS	IM	Elev	HI	Left	
			2.3	503.45		44	
			2.75	503.00		25	
			3.06	502.69		7	W rail
TP 13 00	+3.06	-4.36		502.69	505.75		
			4.3			42	
			4.25	502.80		25.0	
			4.45	502.60		7.0	W rail
12 +00			4.37	502.68			
			4.4	502.65		44	
			4.35	502.70		25	
			4.65	502.40		7	W. rail
11 +00			4.52	502.53			
			4.65	502.40		46	
			4.65	502.40		25	
			4.79	502.26		7	W Rail
10 +00			4.72	502.33			
			4.8	502.25		46	
						39	to ℄ gob line
			4.95	502.10		25	
			5.10	501.95		7	W Rail
9 +00			4.88	502.17			
(5)							
(4)			5.13	501.92			18.0
			5.5	501.55		4	07
(3)			4.37	502.73		6	5
			4.6	502.45		44	
			5.0	502.05		25	
			5.28	501.77		7	W Rail
8 +70			4.99	502.06			
8			5.25	501.80			
(1)							
(2)			7.1	499.95		62	62
			5.35	501.70		61	
			5.60	501.45		42	
			5.90	501.15		25	
			5.98	501.07		7	W Rail
7 +71			5.47	501.58			
			6.50	500.55		44	
			6.20	500.85		25	
			6.50	500.55		7	
7			5.95	501.10			
					507.05		



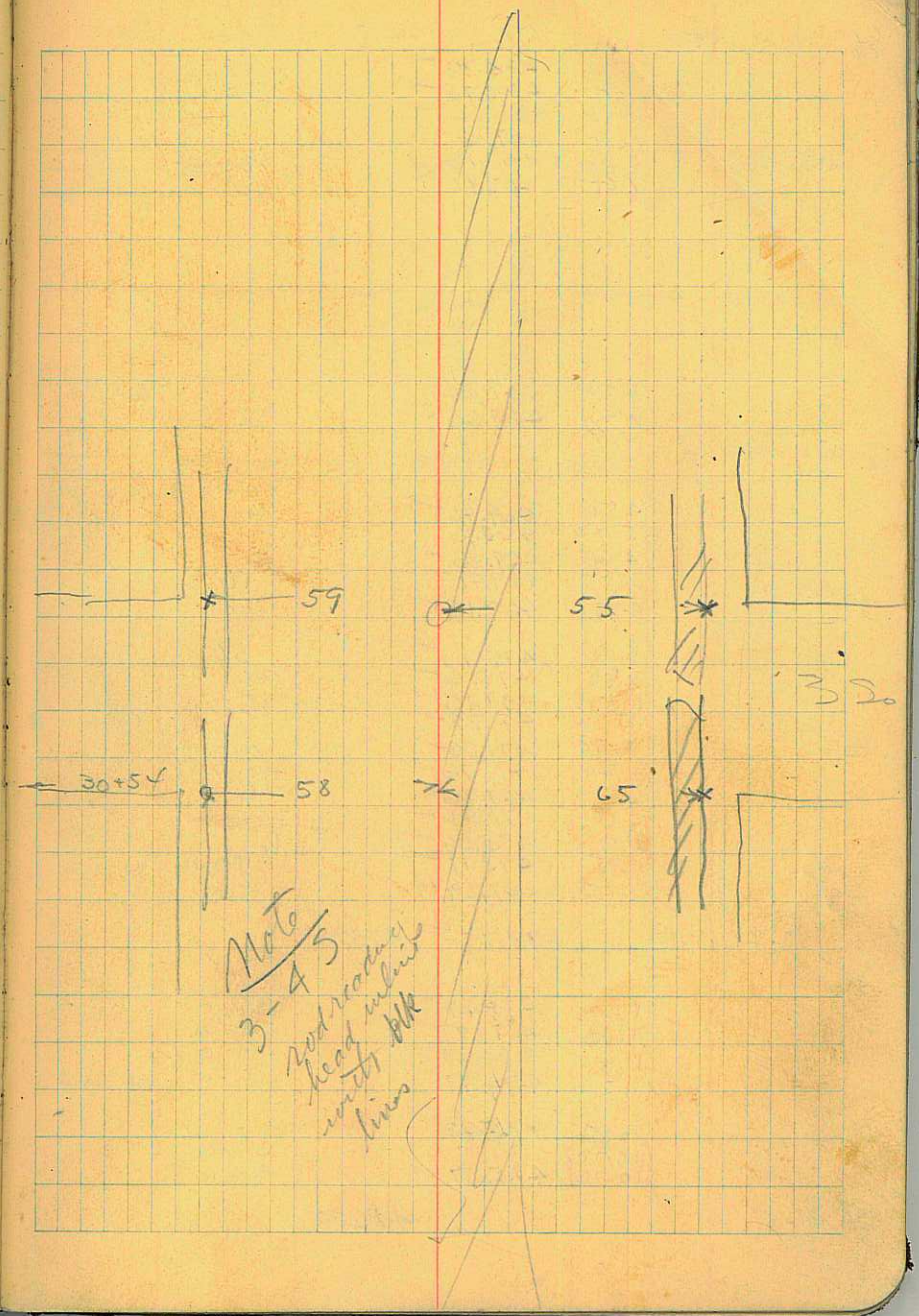
Sta	BS	FS	HI	Elev	HI	Left	R
			6.70	499.05		42	
			7.60	498.15		39	To ℄ pole
						38	
			7.90	497.85		25	
19+00			7.65	498.10		8	
			7.70	498.05		0	
			5.40	500.35		43	
			6.65	499.10		35	
			6.80	498.95		25	
			6.37	499.38		8	
18+00			6.70	499.05		0	
			4.60	501.15		46	on ditch
			5.20	500.55		39	
			5.15	500.60		25	
			5.26	500.49		8	W rail
17+00			5.70	500.05		~~8~~ 0	
			6.61	499.14			64
			5.34	500.41		~~18~~	18
			4.47	501.33		87	W rail
⑨			2.84	502.91		61.5	
⑩			3.38	502.37			on stone frogs on concrete block
			4.3	501.45		59	
						25	
+28			5.04	500.71		0	
16+00			4.75	501.00			
⑦			2.93	502.82		60	
			3.1	502.65		44	
			3.65	502.10		25	
			3.66	502.09		8	W rail
+42			4.22	501.53		0	
⑥			5.47	500.28			63
			4.55	501.20		~~18~~	18.0
15+31			4.12	501.63		0	
			3.30	502.45		45.0	
			3.50	502.25		45.0	
			3.35	502.40		9.0	
15+00			3.76	501.99			
			2.6	503.15		46	
			3.0	502.75		25.0	
			3.05	502.70		7.5	W Rail
14+00			3.52	502.23	505.75		



Sta	BS	FS	mm	Elev	HI	Left	R
			8.60	488.34		38	
			9.10	487.84		25	
			9.19	487.75			W rail
27+00			9.41	487.53		0	
			8.0	488.94		39	
			8.[illegible]	488.54		25	
			8.0	488.94		15	
			7.87	489.07			W. Rail
26+00			8.13	488.81		0	
			6.6	490.34		38	
			6.7	490.24		25	
			6.60	490.34		19	
25+00			6.45	490.49		8	
			6.80	490.14		0	
24+00							
			5.53	491.41		0	
			6.10	490.84		~~67~~	67
			5.64	491.30			18
	(10)		4.15	492.79		57	
						39	Pole line
			4.83	492.11		133	
			5.0	491.94		250	
			4.80	492.14		800	
23+93			5.43	491.51		0	
	(11)		5.54	491.40			67
			4.42	492.52			18
	(9)		3.78	493.16		56	
			4.00	492.94		38	
			3.80	493.14		25	
22+93			3.70	493.24			W rail
			4.13	492.81		0	
			3.10	493.84		39	
			2.80	494.14		25	
			2.52	494.42		8	
22+00			2.9	494.04		0	
			0.7	496.24		41	
			1.30	495.64		25	
			1.35	495.59		8	
21+00	1.71	-10.52		495.23	496.94	0	
			-9.30	496.45		37.0	
			-9.40	496.35		25	
			8.85	496.90		8	W rail
20+00			9.2	496.55			
					505.75		

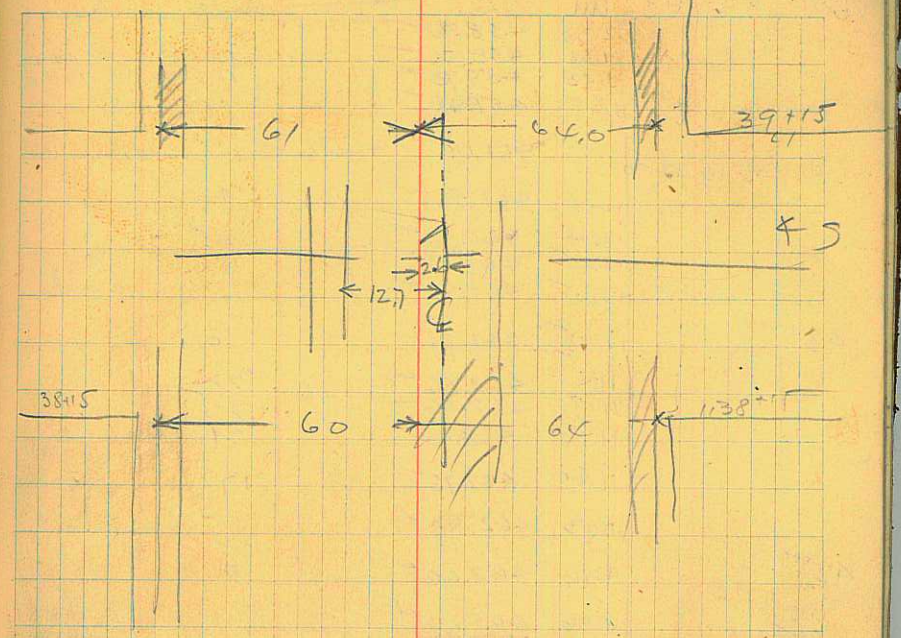


Sta	BS	FS	m	Elev	HI	Left	R
			9.8	477.67			
			9.72	476.55		16	
34+00			10	476.27		0	W Rail
			8.7	477.57		35	
			9.0	477.27		25	
			8.80	477.47		20	
			8.00	478.27		15	
			8.00	478.27			
33+00			8.28	477.99		0	W Rail
			7.0	479.27		34	
			7.1	479.17		21	
			6.50	479.77		16	
			6.33	479.94			W Rail
32+00			6.6	479.67		0	
			6.39	479.88		~~54~~	55
			4.68	481.59		59	
			5.80	480.47		34	
			5.90	480.37		20	
			5.30	480.97		17	
			5.43	480.84			W Rail
+51			5.83	480.44		0	
31+00			5.00	481.27		0	
			4.80	481.47			65
			4.56	481.71			18
			3.19	483.08		58	
			4.20	482.07		25	
30+54			3.99	482.28		meas. 9.2	to W rail
			4.33	481.94			
			3.70	482.57		36	
			3.50	482.77		25	
30+00			3.20	483.07			W rail
			3.48	482.79		0	
			1.8	484.47		39	
			2.0	484.27		35	
			1.70	484.57			W rail
29+00			1.97	484.30		0	
			0.40	485.87		37	
			0.50	485.77		25	
			0.20	486.07		17	
			0.10	486.17			W rail
28+00	0.33	11.00		485.94	486.27	0	



Sta	BS	FS	HI	Elev	HS	left	R
				5.26	468.70		
				7.2	466.76	20	
				6.50	467.46	16	
				6.45	467.51		
39+15				6.80	467.16	37.0	W Rail
				6.61	467.31	0	0
				6.52	467.44		64.00
				4.30	469.66	60.00	
38+15							
				4.50	469.46	40.00	Pole line
				5.20	468.76	40	
				4.60	469.36	20	
				4.55	469.41	16	
38 00				4.78	469.18	10.0	
				3.80	470.16	0	
				3.80	470.16	36	
				2.80	471.16	20	
				2.72	471.22	16	W rail
37 00				2.9	471.06	0.0	
				2.20	471.76	40.0	
				2.5	471.46	26	
				2.0	471.96	20	
				0.9	473.06	16	
36 00				0.85	473.11	10 meas	W rail
				1.15	472.81	0	
	0.21	12.52			473.75	473.96	
36							
				12.8	473.47	36.0	
				12.3	473.97	20.0	
				11.4	474.87	17.0	
				11.50	474.77		W Rail
35 00				11.85	474.42		
				10.70		38	
				10.70	475.57	20.0	
34 00							
						48627	

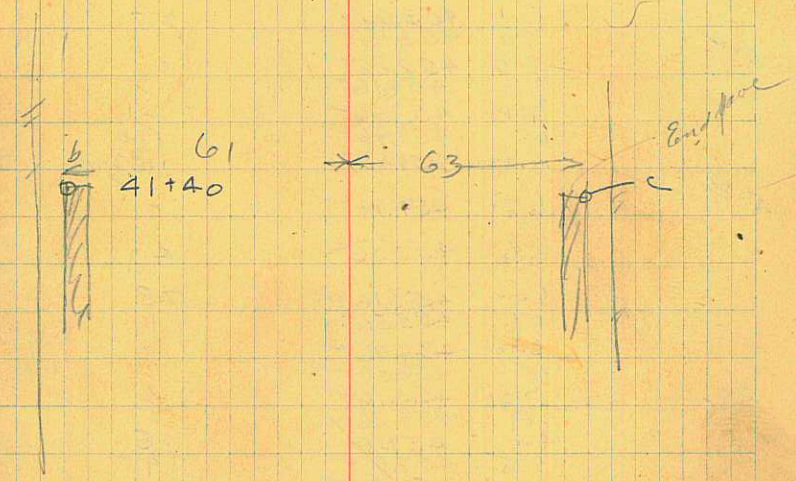
26 11.85
2 1.85
0.3 1370



105

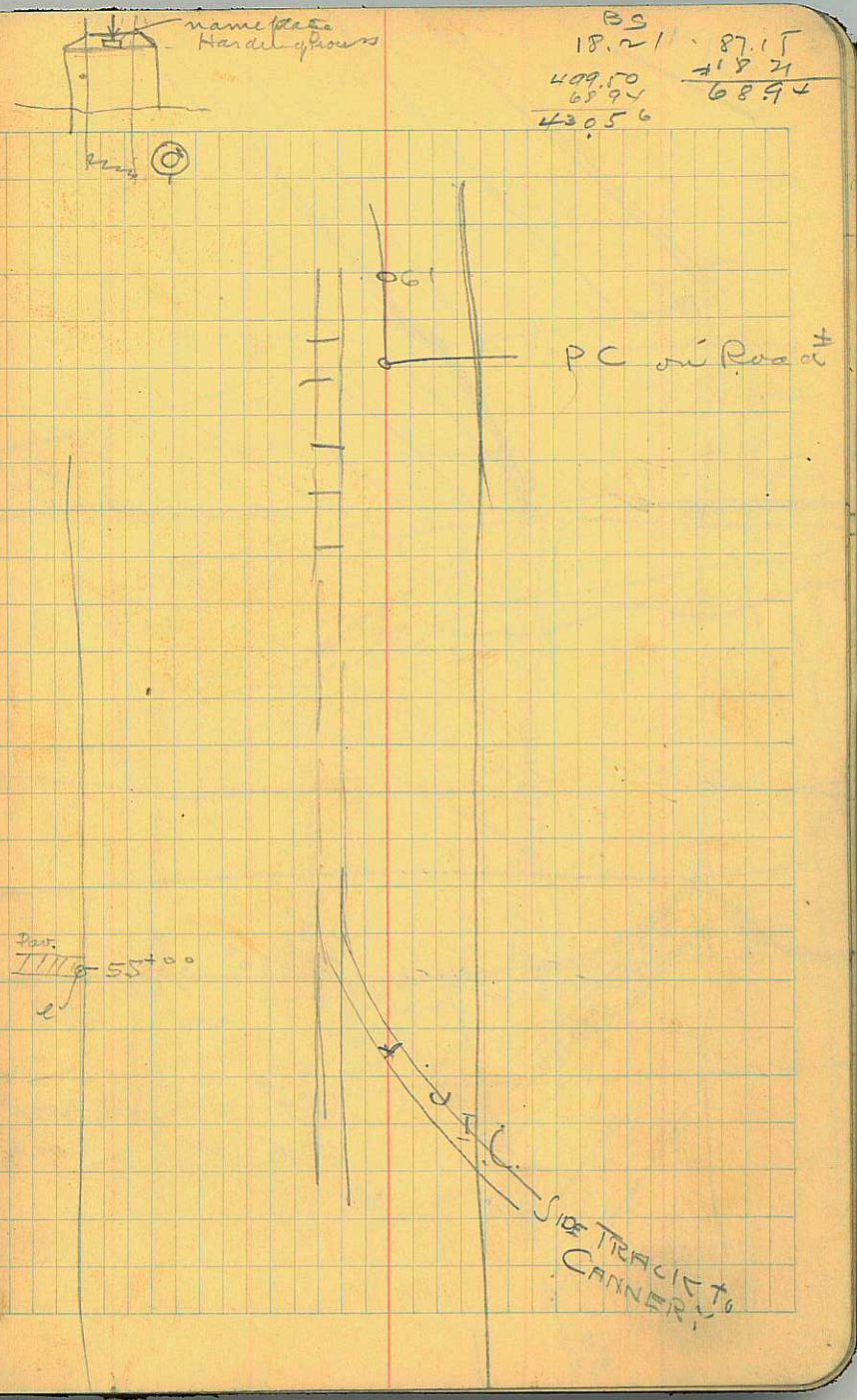
Sta	BS	FS	HI	Elev	HI	Left	R
			2.30	458.86		25	
			1.60	459.56		17	
			1.43	459.73		10.5 meas	W rail
44		+	1.68	459.48		0	
				461.06	461.16		
43+00	0.10	12.90					
			12.4	461.56		40	
			13.4	460.56		25	
			12.75	461.21		18.0	
			12.65	461.31			W rail
43+00			12.95	461.01		0	
			11.4	462.56		32	
			11.9	462.06		25	
			11.80	462.16		21	
			11.20	462.76		17	
			11.03	462.93			W rail
42+00			11.30	462.66		0	
c			10.86	463.10			63.0
b			10.10	463.86		61.0	
41+40			10.25	463.71		0	
			10.00	463.96		38	
			10.5	463.46		25	
			10.45	463.51		20	
			9.50	464.46		16	
			9.37	464.64			W Rail
41+00			9.55	464.41		0	
			9.0	464.96		38	
			9.0			25	
			9.0	464.96		20	
			8.0	465.96		16	
			7.87	466.14			W Rail
40+00			8.03	465.93		0	
39+15			7.80	466.16	473.96		64

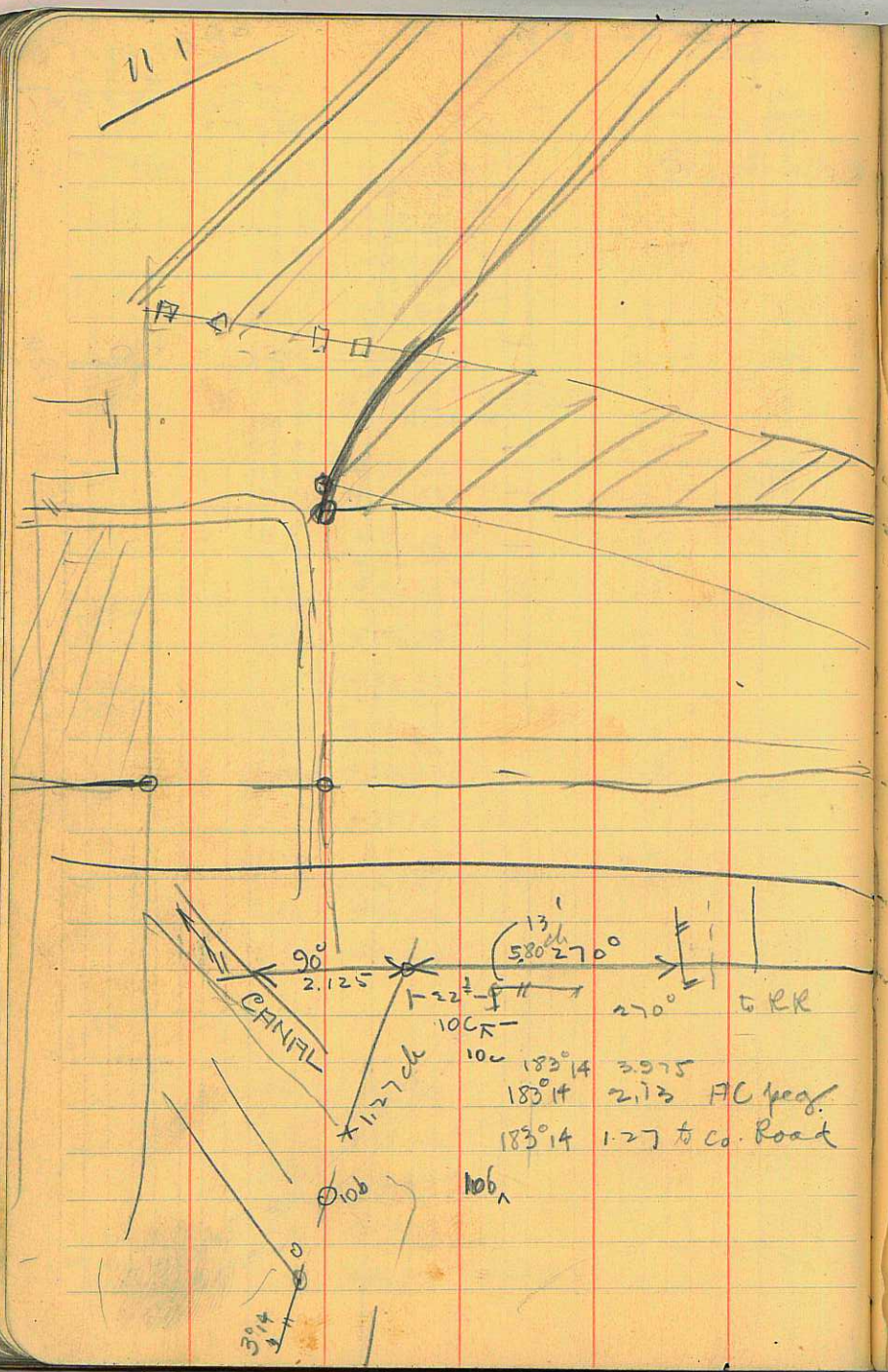
	BS	FS
43.28	54.14	53.38
	17.74	17.74
	36.40 c	35.64 b

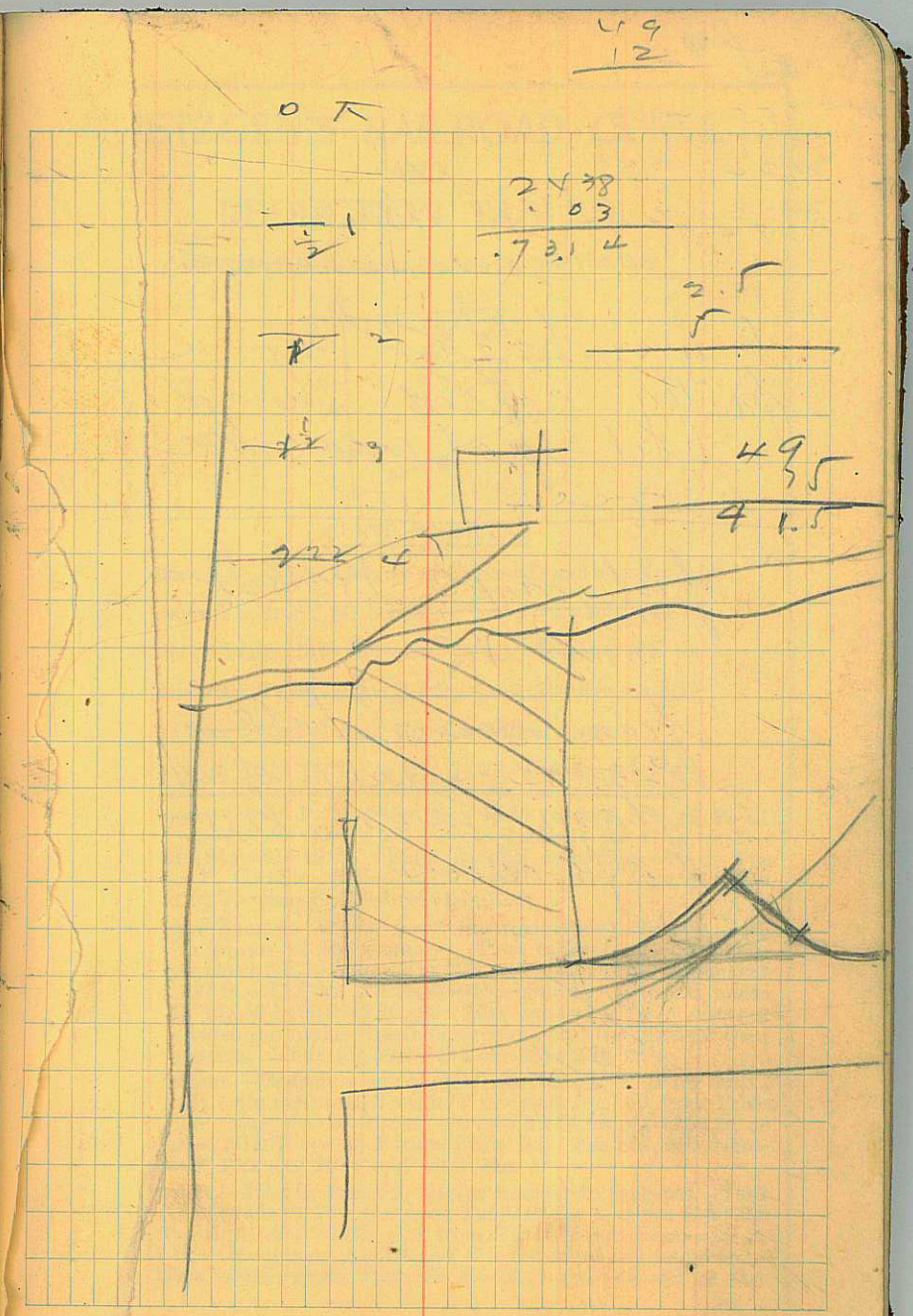


Sta	BS	FS	m	Elev	HI	Left	R
			1.50 }	446.52		38	
			1.50			25	
			1.38	446.64			WR
52+00			1.80	447.22		0	
	0.16	13.30		447.86	448.02		
			12.8	448.36		39	
			13.2	447.96		25	
			12.95	448.21			WR
51+00			13.3	447.86		0	
			11.2	449.96		37	
			11.4	449.76		25	
			11.25	449.91			WR
50+00			11.56	449.60		0	
			9.4	451.76		38	
			10.1	451.06		27	
			9.75	451.41		25	
			9.60	451.56			WR
49+			9.95	451.21		0	
						40	Pole line
			7.85	453.31		39	
			8.1	453.06		25	
			8.0	453.16			WR
48+			8.3	452.86		0	
			7.0	454.16		37	
			7.2	453.96		21	
			6.7	454.46		17.0	
			6.47	454.69		10.8 meas	WR
47+00			6.8	454.36		0	
			5.6	455.56		41	
			6.0	455.16		28	
			5.6	455.56		19	
			5.10	456.06		17	
46			4.80	456.36			WR
			5.0	456.16		0	
			3.9	457.26		37	
			4.0	457.16		26	
			3.75	457.41		19.	
			3.35	457.81		17	
45+00			3.15	458.01			WR
			3.45	457.71		0	
			1.9	459.26		37	
44+00					461.16		

Sta	BS	FS	um	Elev	HI	Left	R
61+60 PBM			4.38	430.56			Pole PBM
			4.70	430.24		38	
			4.60	430.34		24.0	
			4.00	430.94		18.00	
			3.95	430.99		11.70	WR on Hill
61			4.17	430.77		0	
			2.00	432.94		38	
			2.20	432.74		25	
60+00			2.05	432.89		12.2	WR
			2.25	432.69		0	
	0.21	13.29		434.73	434.94		
			14.±	434.02±		36±	
			13.40	434.62		25	
59+00			13.40				WR
			13.50	434.52		0	
			11.9	436.12		39	
			12.0	436.02		26	
			11.65	436.37		21	
58+00			11.60	436.42			WR
			11.80	436.22		0	
			9.69	438.37		37	
			9.65			21	
57+00			10.00	438.02		12.0 on	
			10.02	438.00		0	
			8.70	439.32		39.0	
			8.10	439.92		23.0	
56+00			8.25	439.77			WR
			8.27	439.75		0	
			6.50	441.52		25.	
e			6.55	441.47		54.	Wrong tower
			6.40	441.62			WR
55+00			6.58	441.44		0	
54+80							
			4.90	443.12		37.	
			4.90	443.12		25	
			4.56	443.46		12	WR
54+00			5.13	442.89		0	
			2.90	445.12		38	
			3.30	444.72		25	
			2.88	445.14		12 omen	WR
53+00			3.43	444.59	448.02	0	




111
90°
2.125
CANAL
1.27 ch
106
3°14
13
5.80 ch
270°
22½
10c
183°14 3.975
183°14 2.13 AC pcg.
183°14 1.27 to Co. Road
to RR


49
12
0 ⊼
2.78
.03
73.14
3.5
5
49.5
41.5

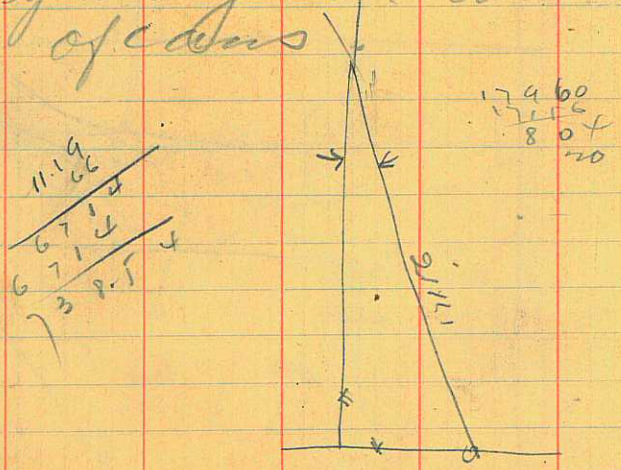
Dep
Lat Long

50+40 +55 −713
2869
2924 +49
2640
284 6.6 x

I was here at noon
partly raised the gate
but not enough
I see

first sample Hole 7
O K

from same hole
2 – 3 were put in
glass jars. run out
of c dus



DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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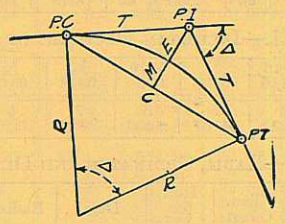


CURVE FORMULAS

Radius=R=$\frac{50}{\sin. D/2}$ (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 vers $\frac{\Delta}{2}$ (6)

External=E=T tan $\frac{\Delta}{4}$ (7) =R÷cos. $\frac{\Delta}{2}$—R (8)=R x sec $\frac{\Delta}{2}$ (9)

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

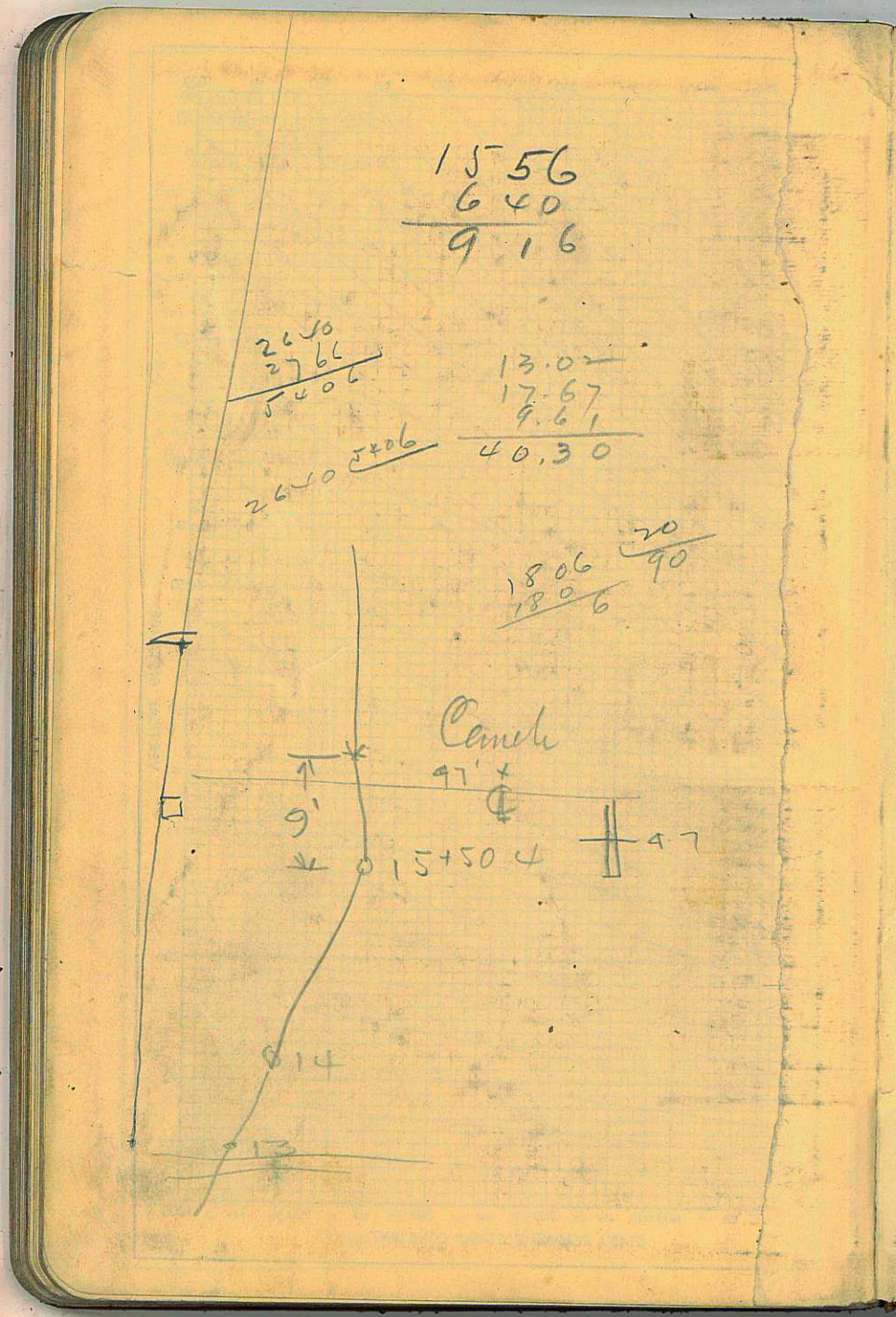
EXPLANATION AND USE OF TABLES

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 $(54.50 \div 100)^2$=2.16 ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26)$=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 2 ft. What is D? From Table IV E=230.9 and ÷42=5.5 or D=30′.



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	25.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

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

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