DERAL AID PROJECT No. ___

PINE RIVER-REMER ROAD

TRANSIT BOOK No. 1

DIETZGEN

ENGINEER'S

FIELD BOOK

No. 2100

100

EUGENE DIETZGEN CO.

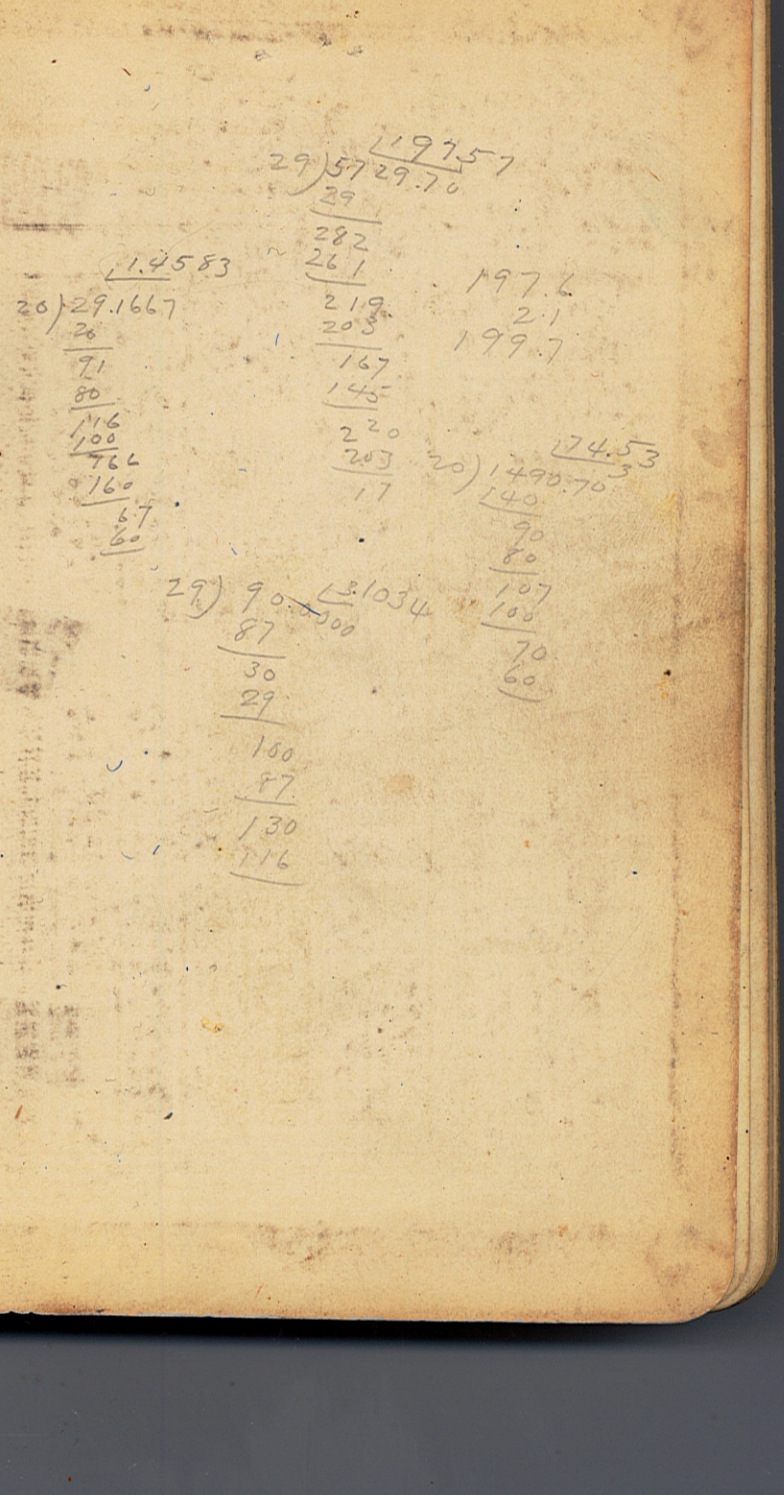
DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

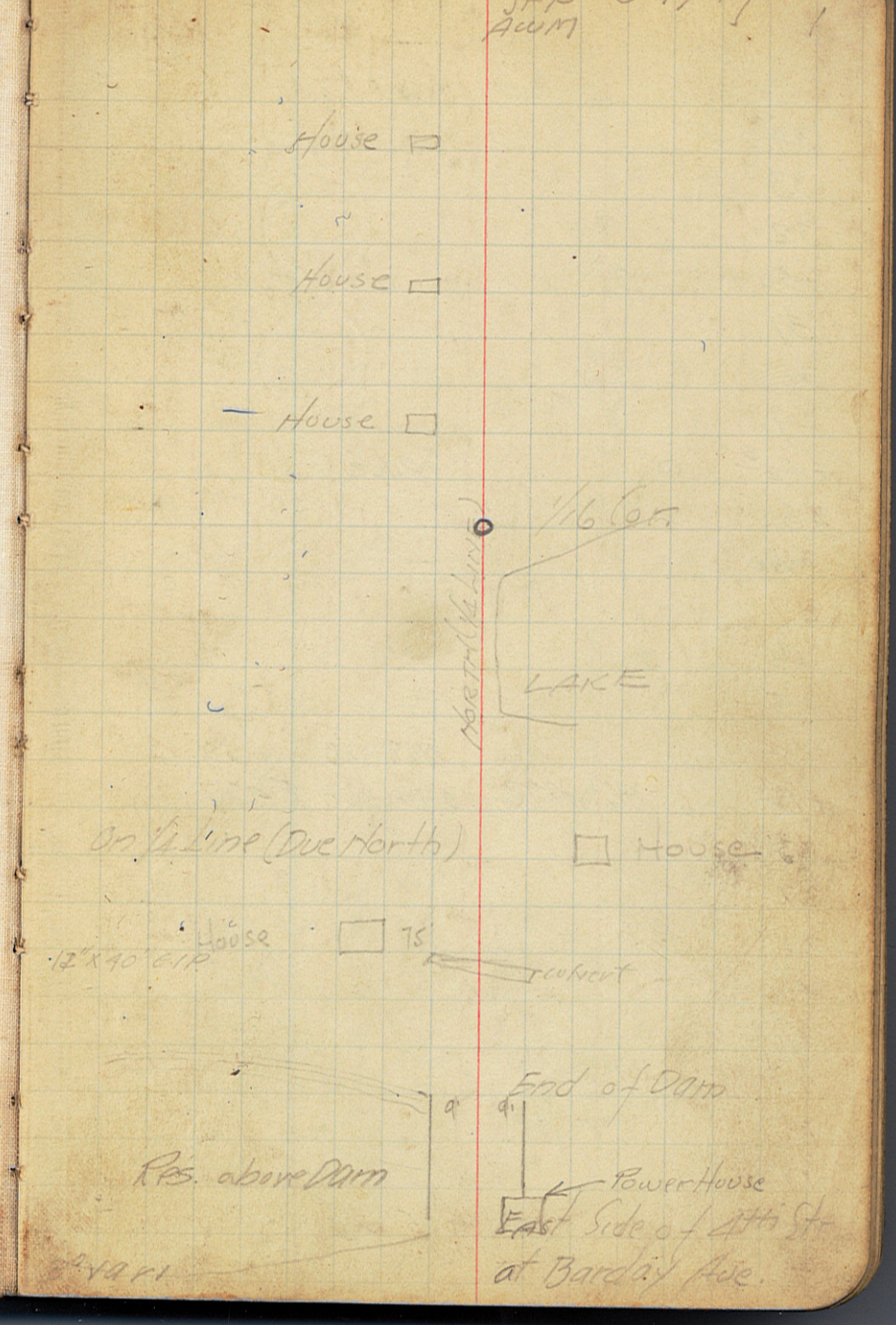
Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be 30.6+(20—16)÷2 or 2 ft. added to 30.6 =32.6. For slopes of 1 on 1½ see inside of back cover.



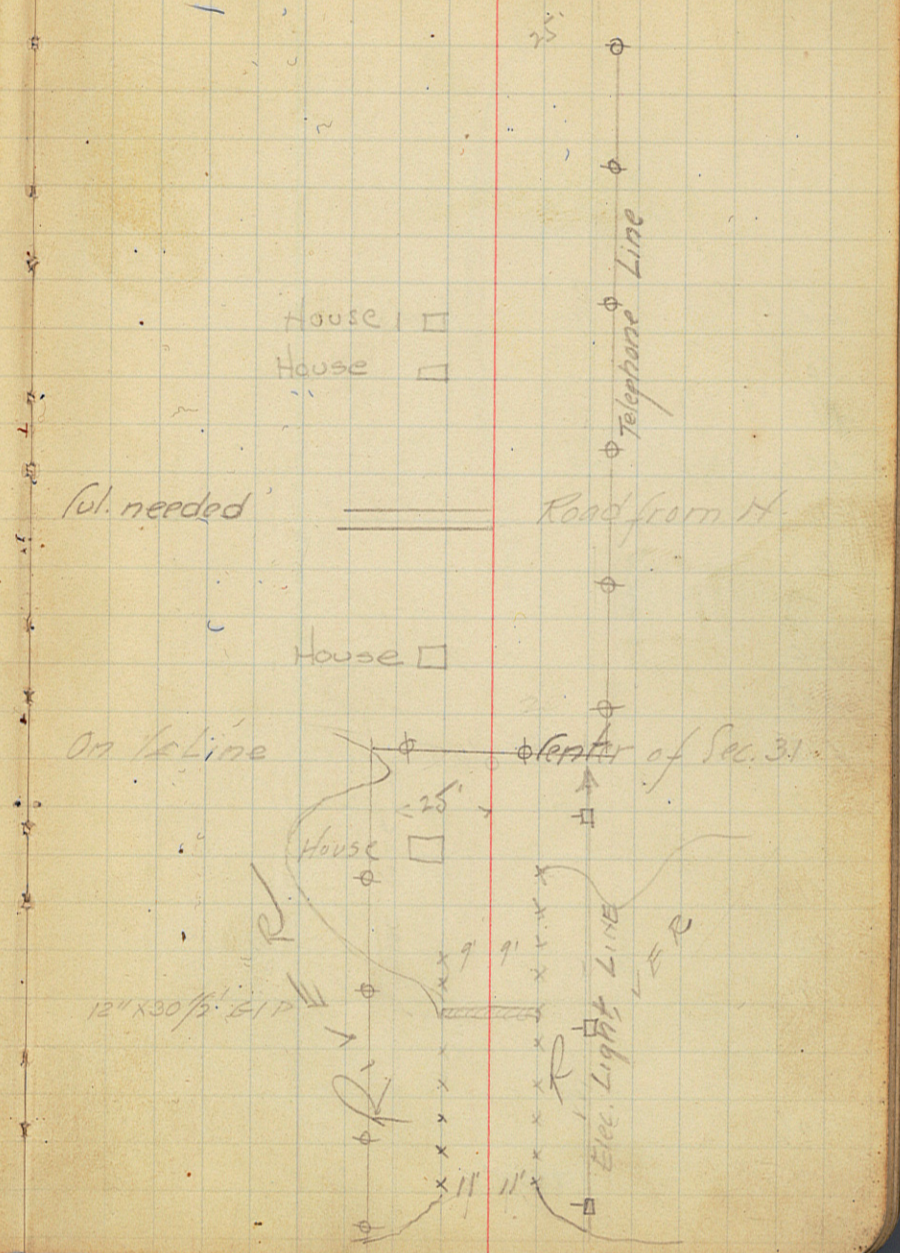
Sec 31 - 138-29

FEM
JFP
Acum 5-17-19

		True Bearing	
+60			
15			
14			
+50			
13			
12			
+75			
11			
+66.8	○	5" cement post	
+50			
10			
9			
+40			
8			
7			
+01.7	△	91°33'L	N2°53'E spike
6			
5			
+03			
4			
3			
+35.8	△	25°44'R	S85°31'E
2			
1			
00	○	Spike	N68°42'E



34			
33			
32			
+50			
31			
30			
29			
+46 3/4	⊙	Spike	
28			
+40			
27			
26			
25			
24		N89°42'E	
+93.6	△	86°49'R	5" Con. Mon. EAST
23			
22			
21			
+60			
20			
+24 19			
18			
17			
+75			
16			



1 5-17-19

3

+41 △ IRON E/4 COR SEC 31

50

49

48

47

46

45

44

+95

+62

43

42

41

40

39

38

37

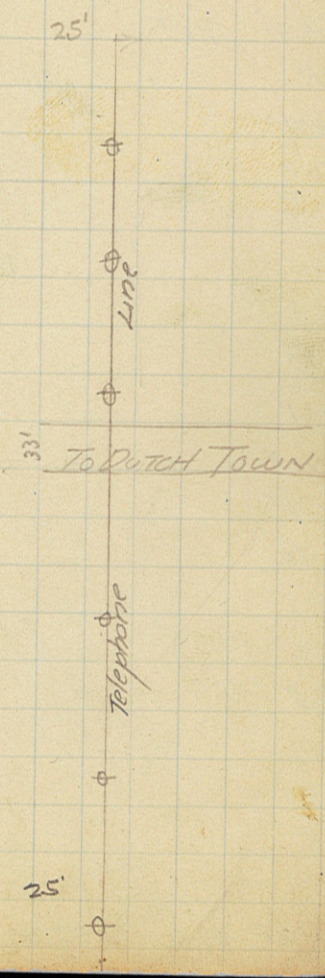
36

35

N89°12'E

31+75

House □

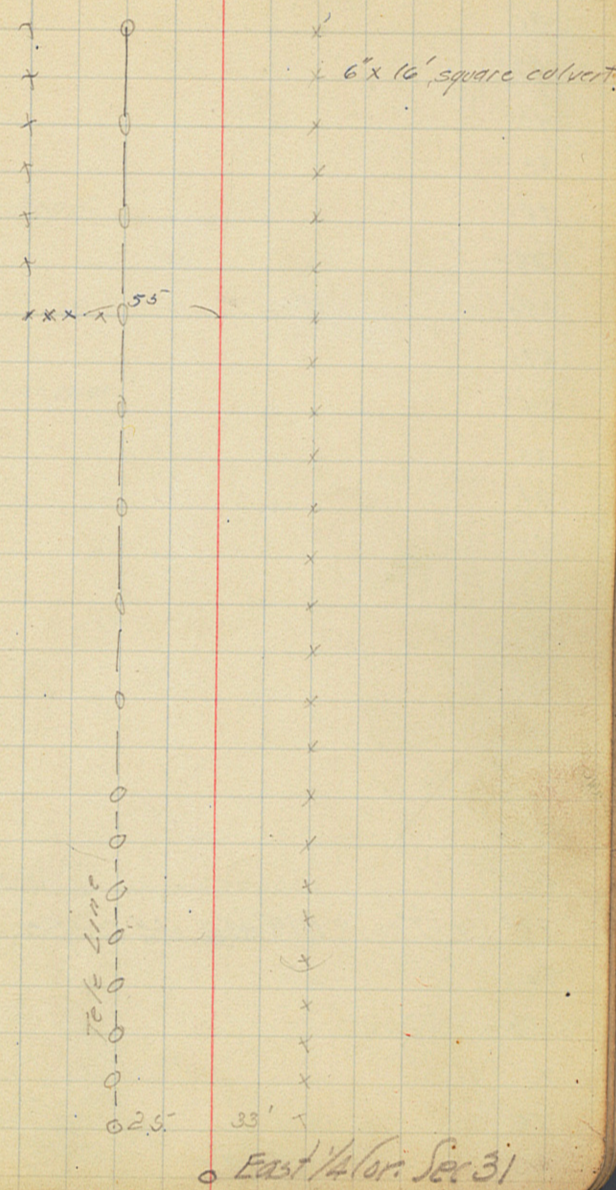


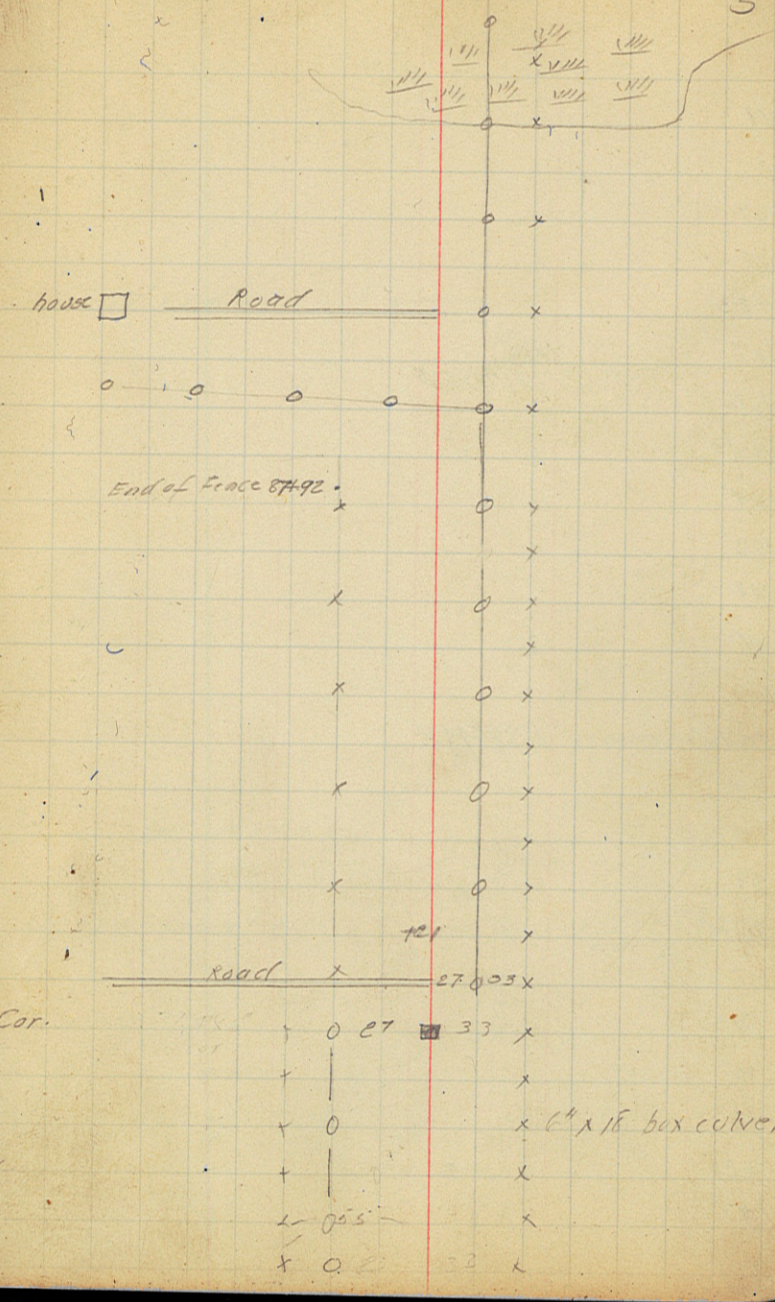
72			
+57			
71			
70			
69			
68+00	P.O.T.		
67			
+02.0			
66			
65			
64			
63			
62			
61			
60			
59			
58			
57			
56			
55			
54			
53			
52			
51			
50+41.'	△	87°23 L	N2°19E Iron

J.F.P.
F.M.
A. Sigman

5-19-19

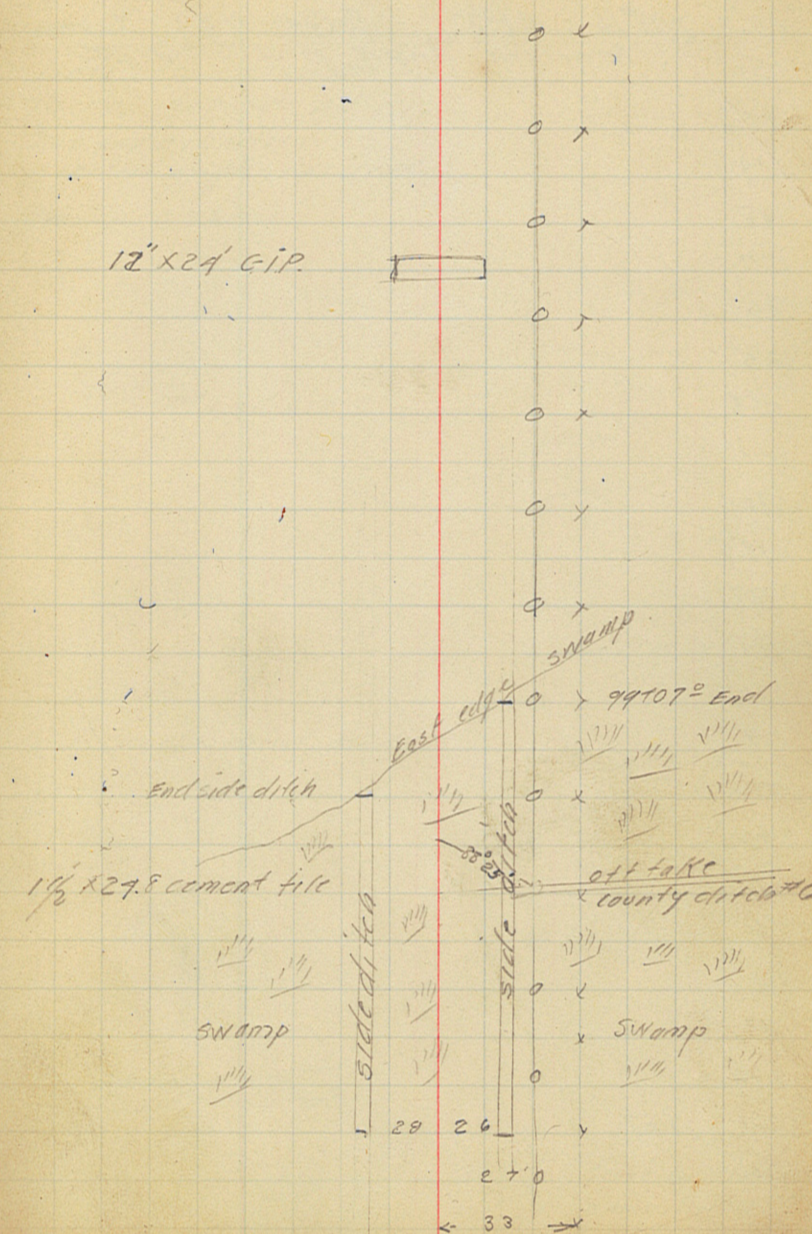
4





78+80
92
91
90
T05
88
+91
87
86
85
84
83
82
81
80
79
78
+21
77
+88.2 BET 25' R N89°44'E NE Cor Sec 31 4"x4" wooden Cor.
76
T 56
75
74
73
N2°19'E

111	
110	
109	
108	
+83	
107	
106	
105	
104	
103	
102	
101	
100	
+07	N89°44'E
99	
+43	
98	
+06°	
97	
96	
95	
94	
+20	
93	



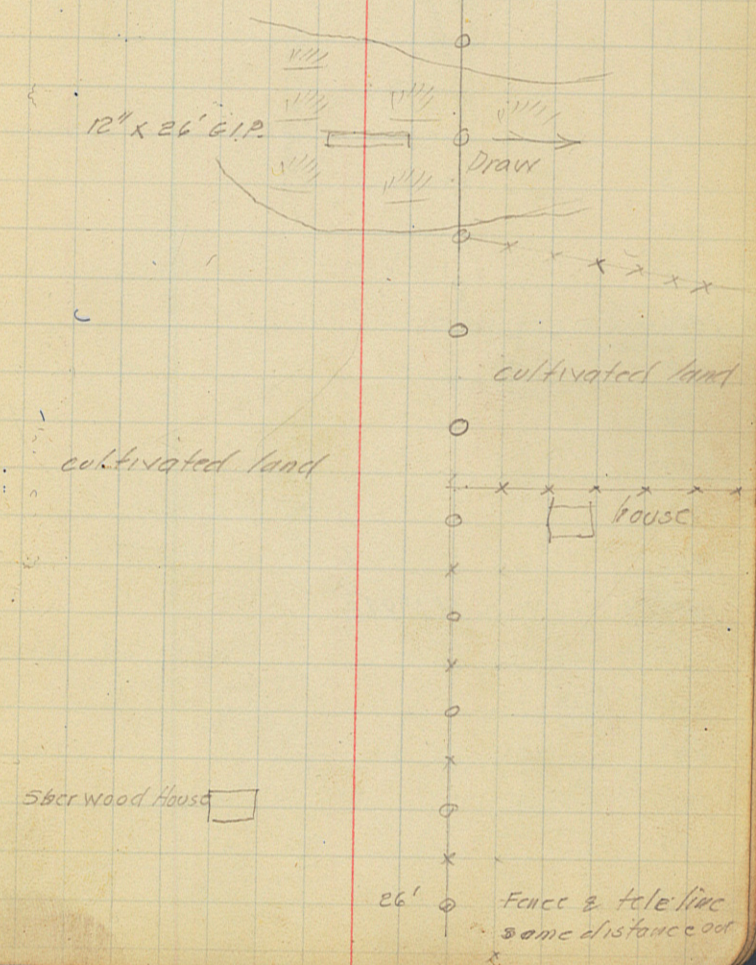
	Δ88°17' Corrected angle
+11.3	Δ88°16' ∠ N1°27'E N.E. Cor. sec 32. Iron
130	Random Angle misses cor 1.9'
+88	
129	
128	
127	
126	
125	
+58	
124	
+64	
123	
122	
121	
120	
119	
+59	
118	
+60	
117	
116	
115	
114	
+90	
+16.1	P.o.T.
113	
112	

130.11.3
76.88.2
53.23.1

5-19-19.
J.F.P.
E. Marsh.
A. Zigmund.

Tele. line
pipe
Road.
25

Note: from sta 130+11.3 To sta 209+74.0. All R.Ps are from random. Corrected angles for true line are shown

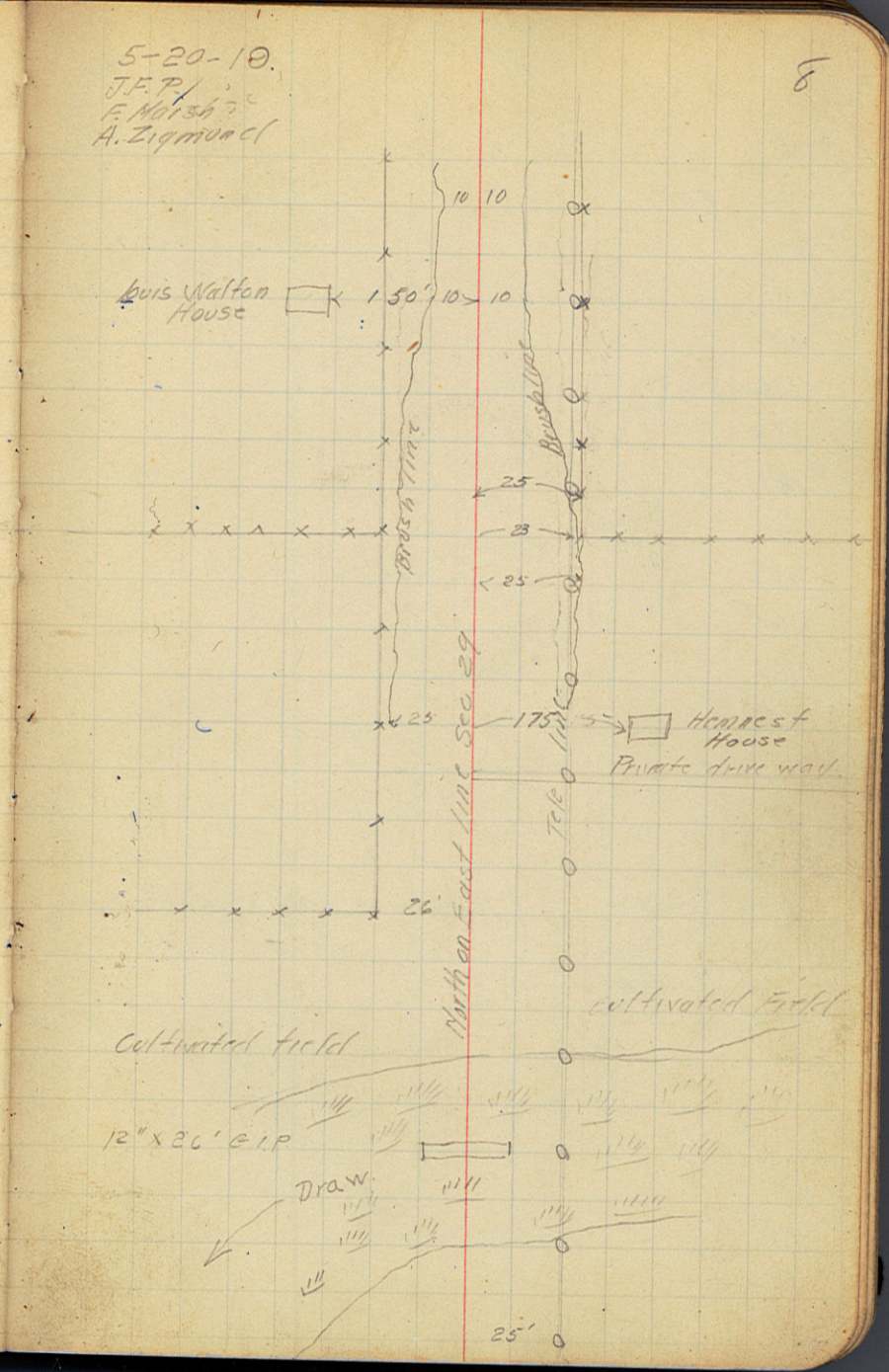


7

5-20-10.
J.F.P.
F. Walsh
A. Zigmond

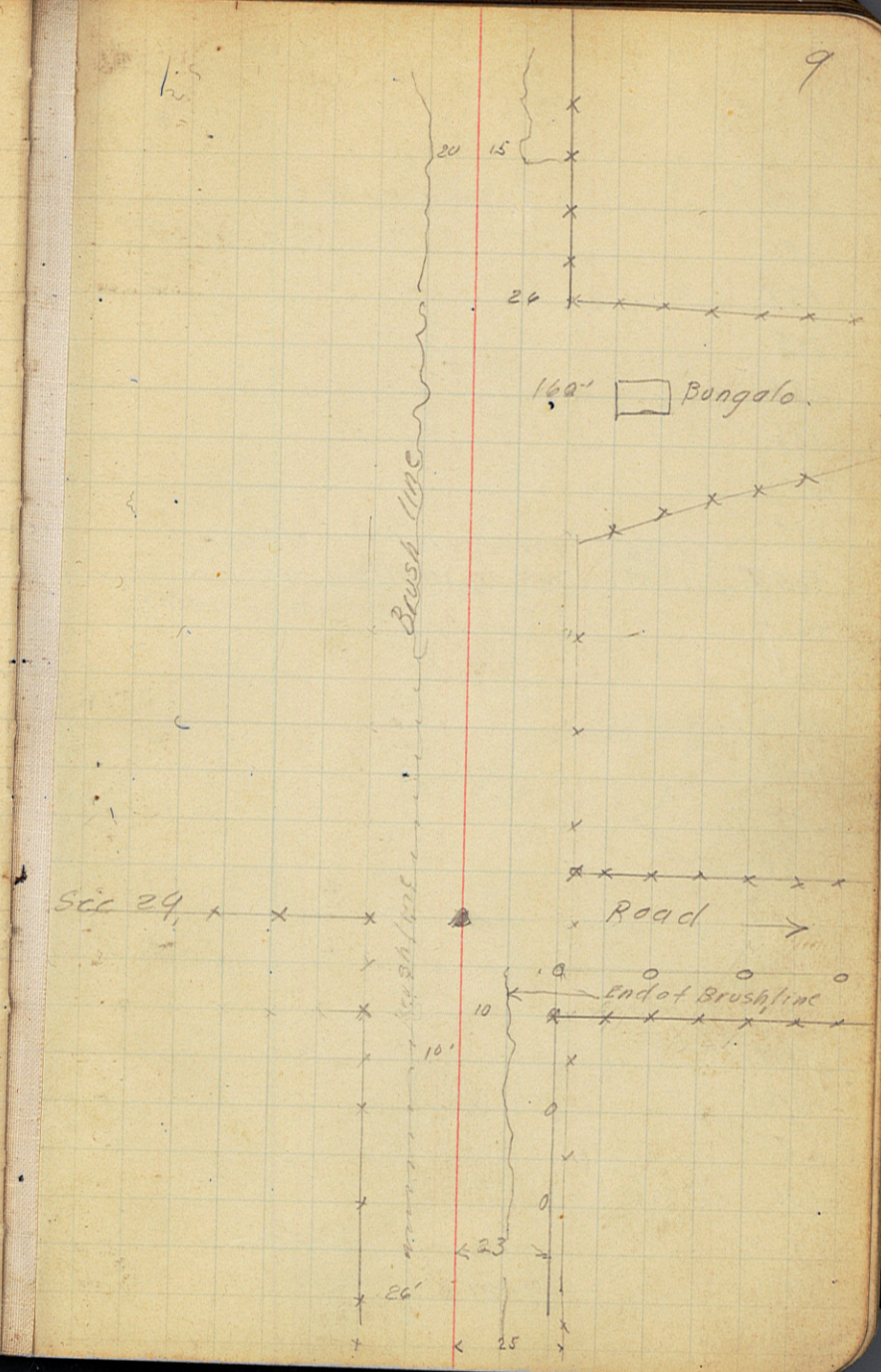
150
149
148
+91
147
146
145
144
140
143
124
141
140
139
138
137
+82
136
135
+40
134
+10
133
+70
132
131

N 1° 27' E



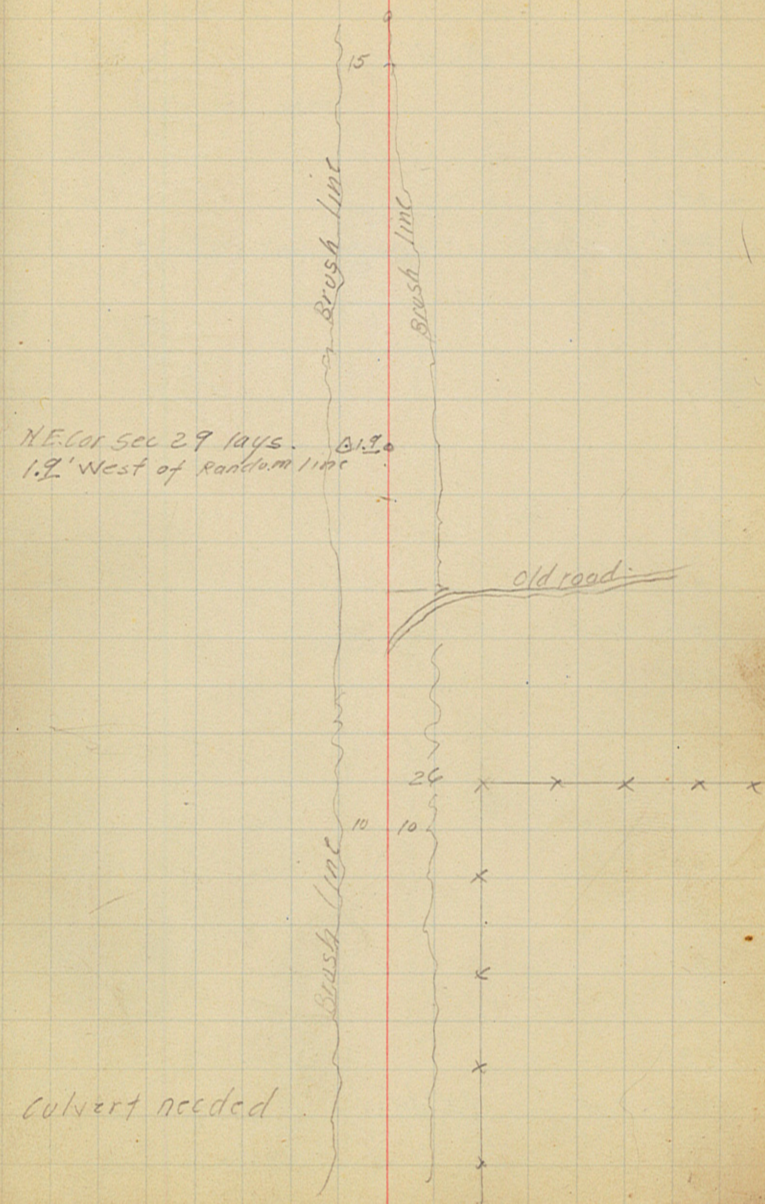
168
167 POT
166
+71
165
+25
164
163
+94
162
161
160
159
158
157
+97.5
+64
+44
+32
156
155
154
153
+82.7 Pot. N 10° 27' E
152
151

(Temp. 1/4 Cor East side
1/4 Cor not found.)

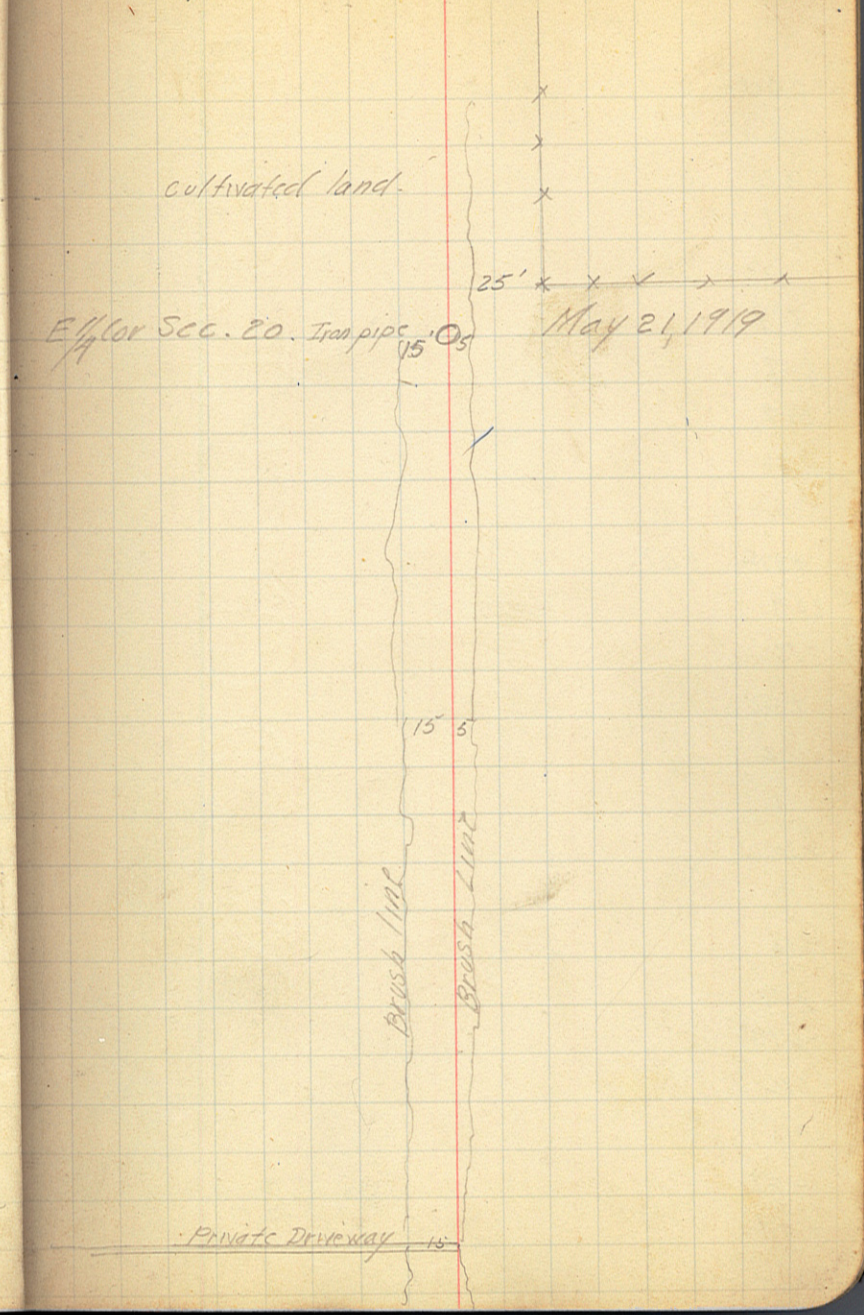


191			
190			
189			
188			
187			
186			
185			
184			
+25.7	Δ1°36'L Δ1°37'L	'corrected set on random	N0°09'W
183			
182			
180			
+10			
179			
178			
177			
+55			
176			
175			
174			
173			
172			
171			
+50			
170			
169		N1°27'E	

5-8-19

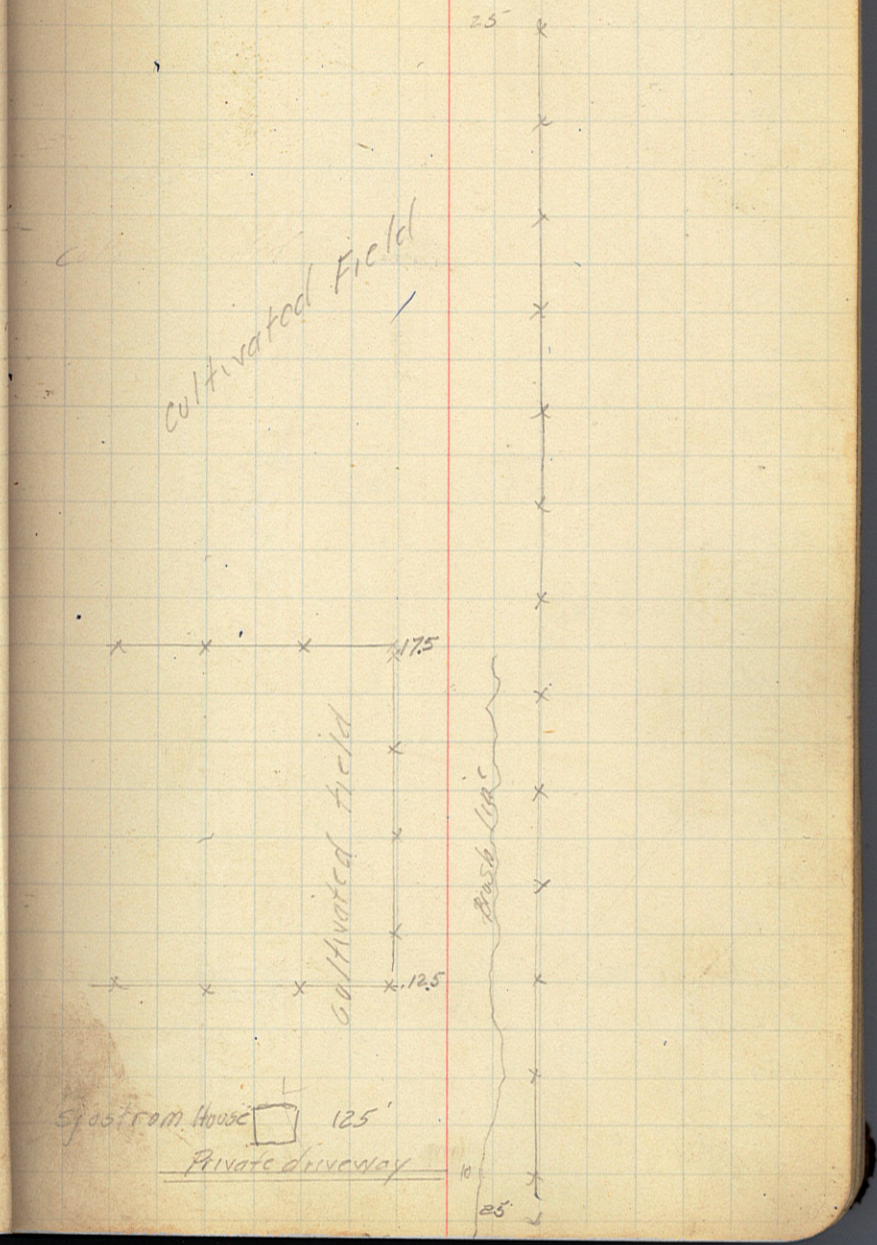


213			
212		N 00°09' W	
211			
210			
+93.	Δ 00 00	corrected	
+71°	Δ 00°03' R.	taken from back	Random Line
209			
208			
207			
206			
205			
204			
203			
202.	P.O.T.	Spike	
201			
200			
199			
198			
197			
196			
195			
194			
193			
+52.5	P.O.T.	N 00°09' W	
+23			
192			



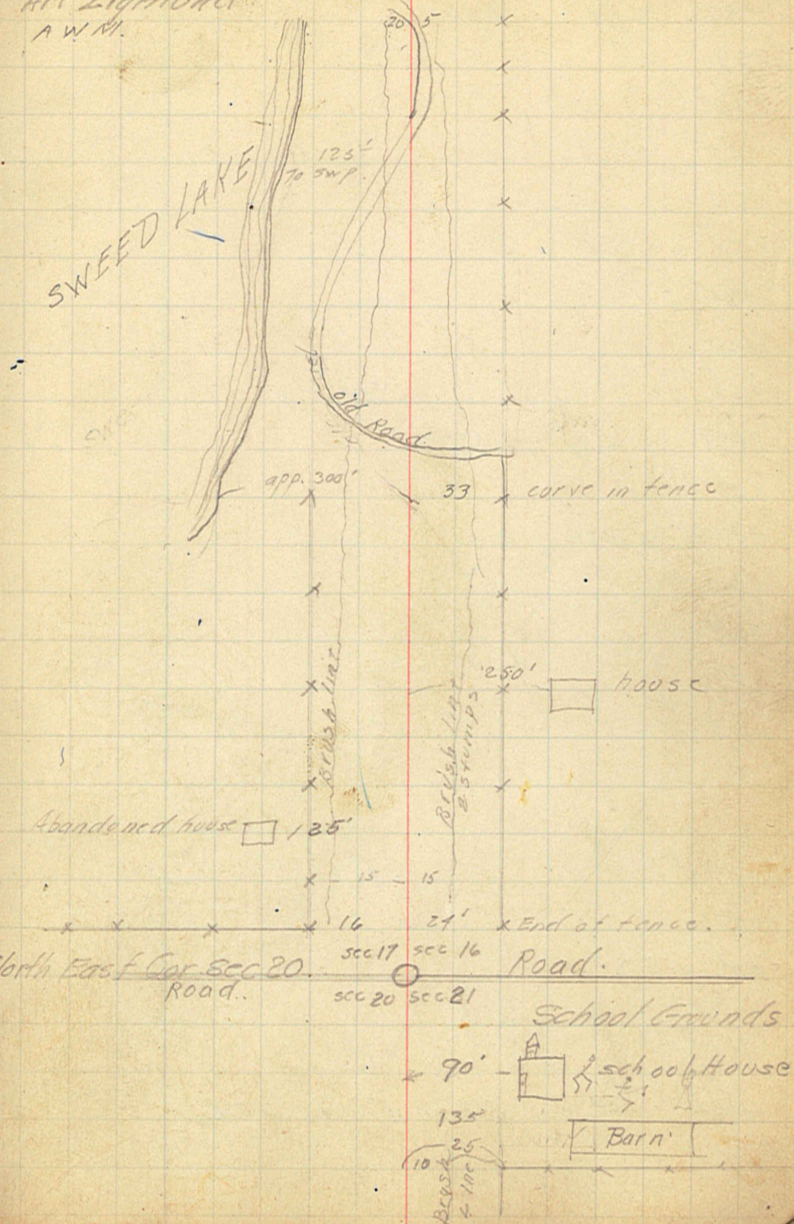
5-21-19

231			
233			
232			
231			
230			
229			
228			
227			
226			
225			
+33	POT	Oak Hub	
224		N00°05'W	
223			
+59			
222			
221			
220			
219			
218			
217			
+16			
216			
215			
+88			
+14			
219			

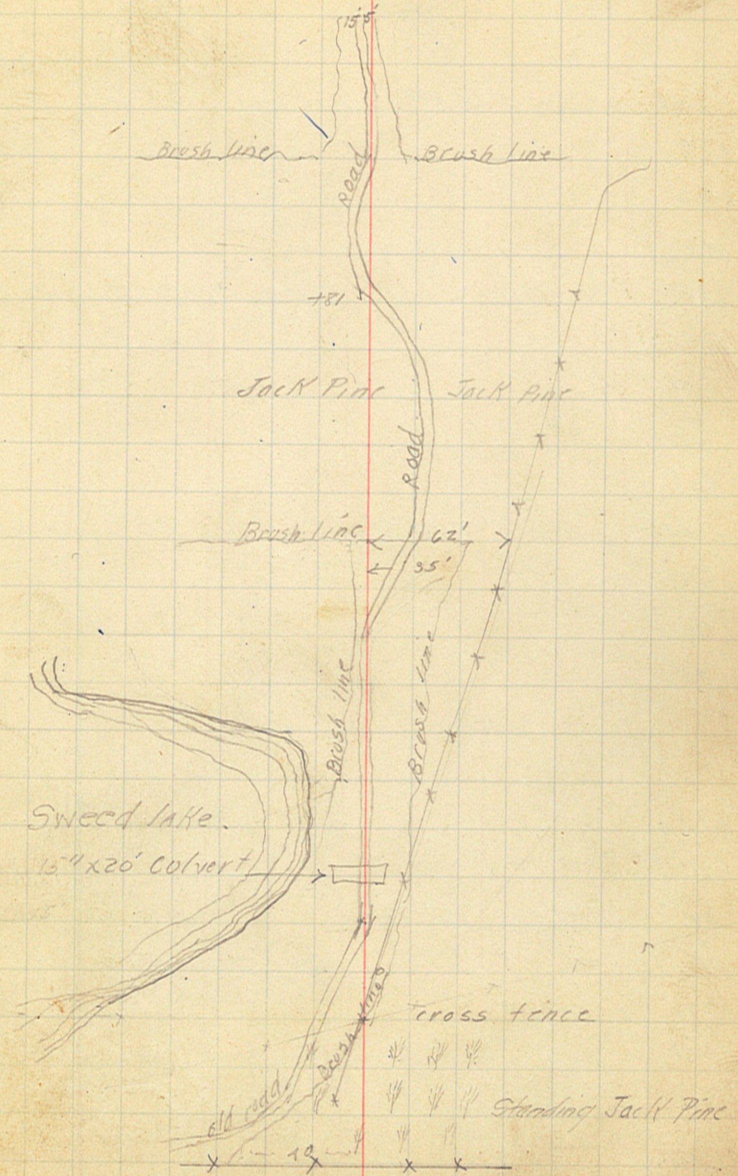


5-22-19
F Marsh
J.F. Pomiastl
Art Zigmund
A.W.M.

+75						
251						
250						
249						
248						
247						
246						
245						
244						
+77°			22° EA	E= 12.0 T= 80.1		
+67.8	Δ 33°59' R	N33°41'E	leave True Sec line			
243						
242						
241		East line Sec 17				
240						
239						
238						
+89						
237						
+18°						
+22.4	Δ 00°09' L	N00°18'W	8" Iron pipe	138-29	North East Cor Sec 20	
236						
235						
+26						
234+11°						

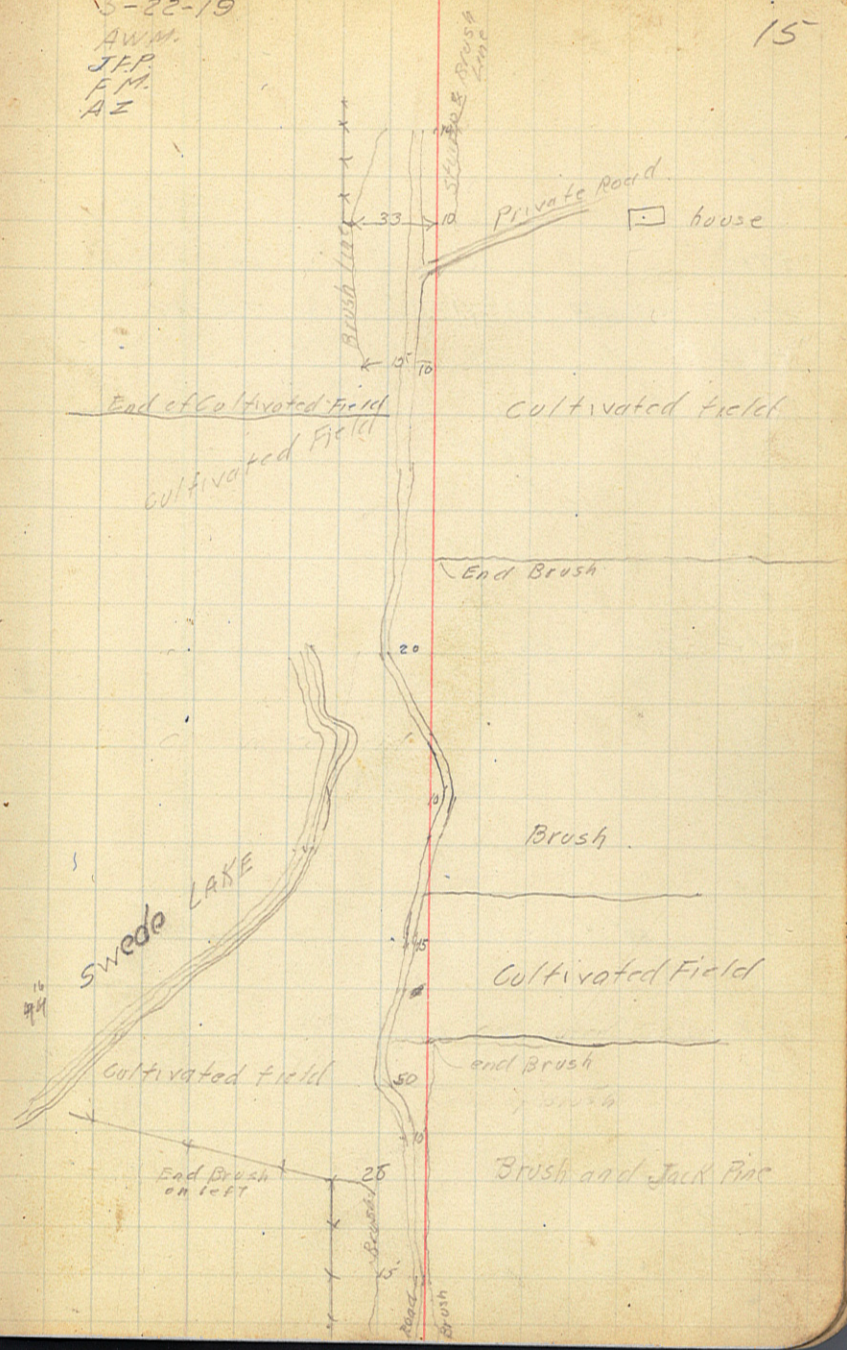


+80	⊙ P.O.T.	Hub.			
267					
266					
+35					
265					
264					
+81.					
263					
262					
+80.4	Δ12°50' R.	N32°00'E		26° C.R.	E = 16.5 T = 97.1
261					
+20.2	⊙ P.O.T.	Hub			
260					
259					
258					
257					
256					
255					
+92'					
+75'					
254					
+35.0					
253					
+98.2	Δ44°31' L.	N18°50'W		28° C L	E = 16.7 T =
+70					
252					



5-22-19
A.W.M.
J.F.P.
F.M.
A.Z

+18	Δ 32°01' L	N58°26'W	23°C L	Approx. E=7.5 T=54.9
283				
282				
+5				
281				
280				
279				
+25				
278				
+46	Δ 18°10' L	N26°22'W	F°C L	E=9.85 T=10.2
277				
76				
75				
74				
+20				
273				
272				
+80	Δ 40°12' L	N8°12'W	26°C L	E=14.3 T=8.6
271				
270				
+10				
269				
268				



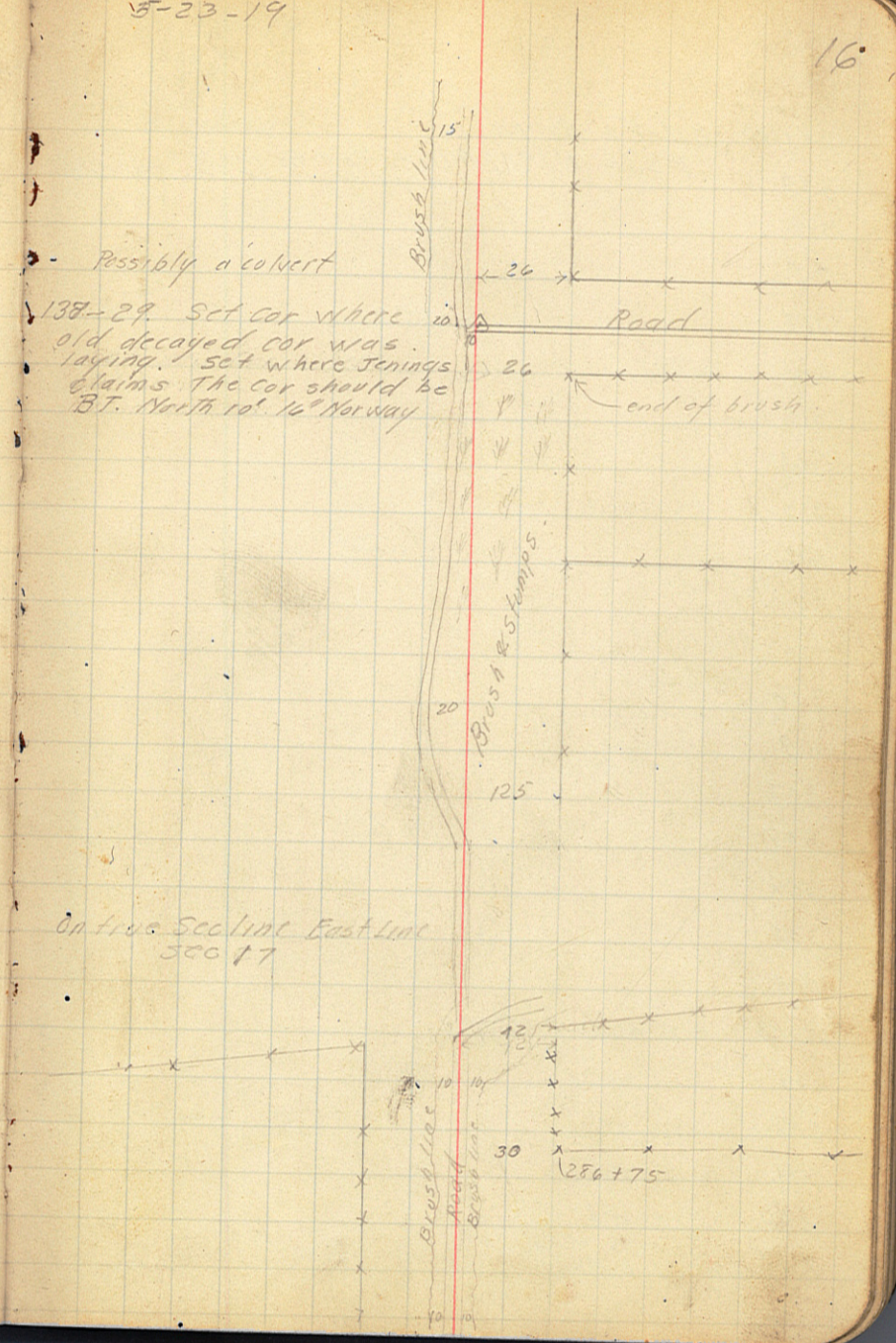
5-23-19

16

298			
297			
+98			
+65	Δ 3°02' R	N2°44'E	N.E. Cor. Sec 17
+29			
296			
295+00	Pat.	Hub	
294			
+14			
293			
+10	Pat.	Hub	
292			
291			
+20			
+08			
290			
+83	Δ 58°08' R	N00°18'W	
+69			
289			
288			
287			
286	○ Pat.	Hub	
285			
284			

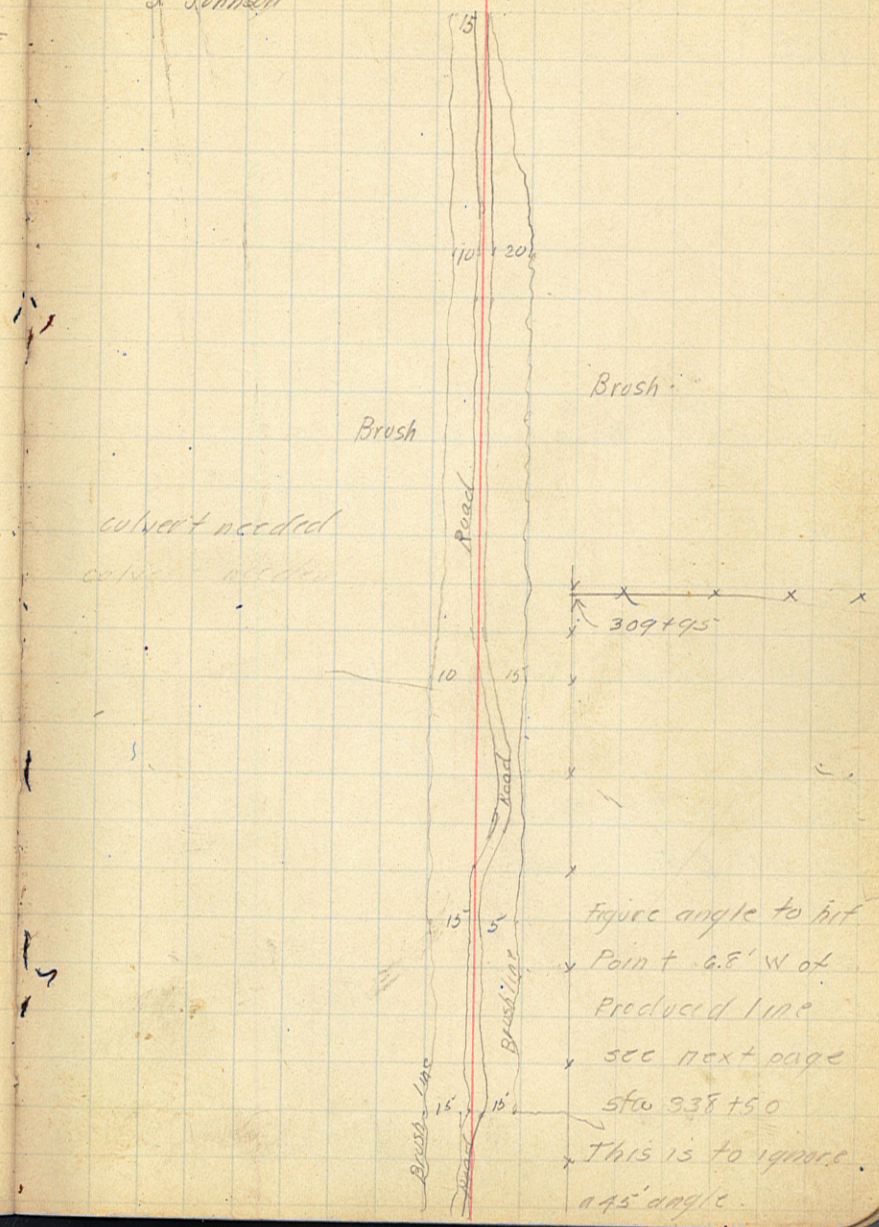
Possibly a culvert

138-29 Set car where old decayed car was laying. Set where Jennings claims. The car should be B.T. North 10° 16' Norway



5-23-19
A.W.M.
J.F.P.
F.M.
S. Johnson

321+00	A 1°22' L	N 2°24' W
320	1°36' L	N 1°47' W (is to Kerr to ignore a 45° Angle at sta 333+28
319		
318		
317		
316	O Pot	Hub
315		
314		
313		
312		
311		
310		
309		
308		
307		
306		
305		
304		
+23'	D 2°55' L	N 00°11' W
303		
302		
311		
300		
299		



+45°	Δ1°53'R.		Point on West line of / by ignoring 45' Angle.
338	1°22 R.	N00°25'W	
337			
336			
335			
+50			
335			
334			
+30.4	ignore		
+21.8	∠ Δ00°45'L	Hub.	(For change of line see page 20.
333			
332			
331			
330			
329			
328			
327			
326			
325+97°	P.O.T.	Hub.	
+73			
325			
324			
323			
322			
+50			
321+40			

5-23-19

J.F.P. cloudy
F.M.
A.W.M.
S. Johnson

Sec. 9. 138-29

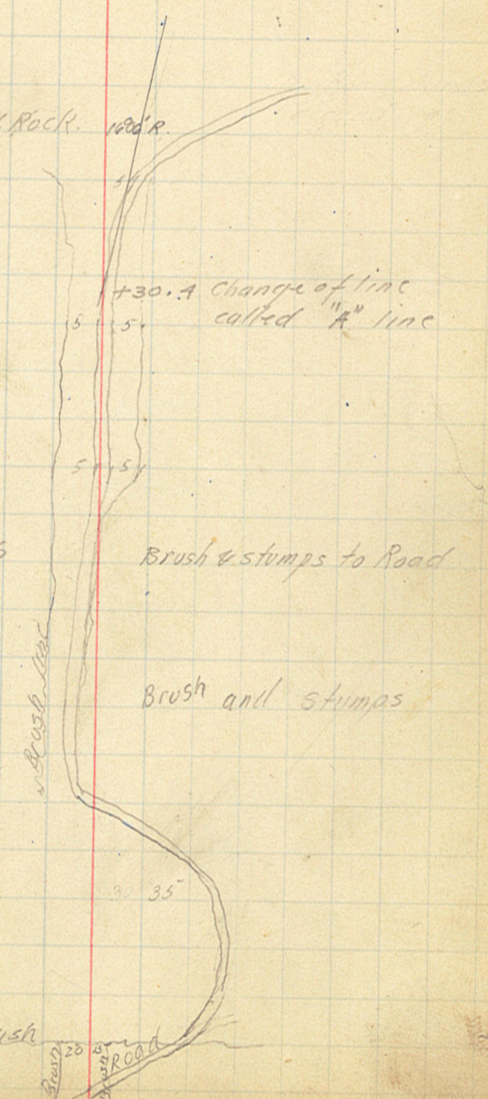
Tang produced from sta 333+21.8 = 6.8 East of sta 338+50. which is on section line.

Brush stumps & Rock.

Brush & stumps To Road

culvert needed

Enter Brush

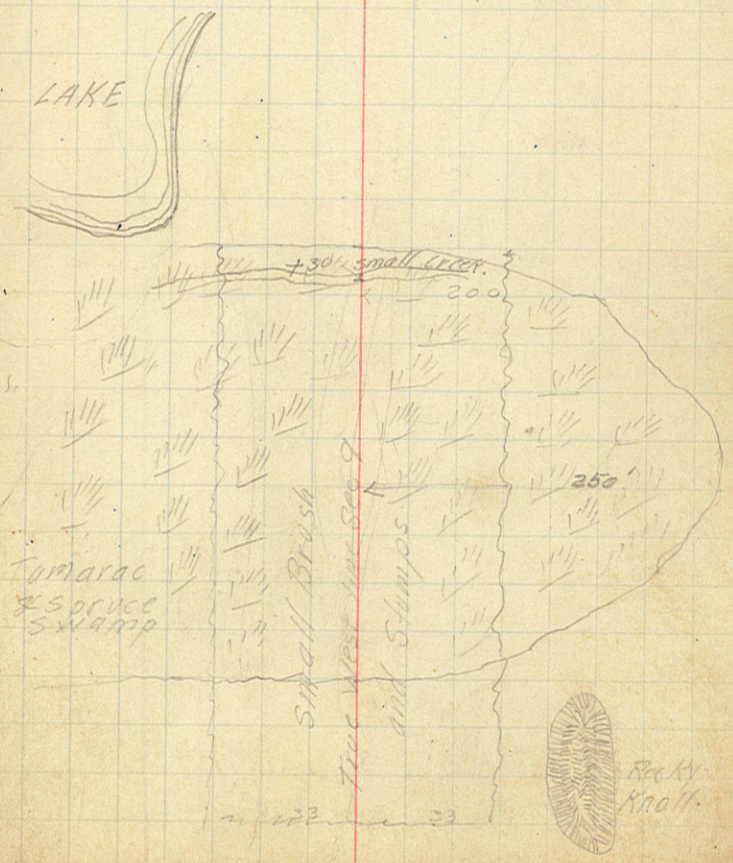


5-24-19
Frank L. Marsh
J. F. Tomasek
S. Johnson.

Continued on page 22

A 29° 41' R N 29° 16 E N.E. Cor Sec 8 138-29

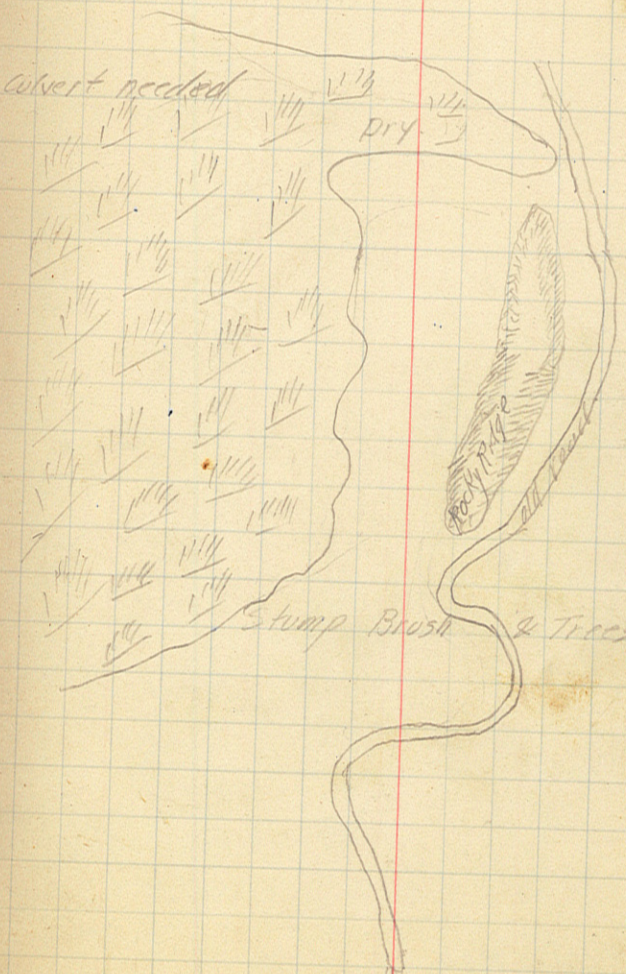
+75.2
+30
349
348
347
346
345
344
343
342
341
+90
340
339
338+50



5-26-19
J.F.P.
E.M.
S. Johnson.
Chas. Wideman.

("A") line

351
350
349
348
+50
47
+07.5 Δ35°16' L
346
345
344
343
342
+18.3 Pot Hub
341
340
339
338
+60
337
336
335
334
333+30.4 Δ16°06' R
333+21.5 Tang produced from sta 321+00



Change of line Cont From page 18

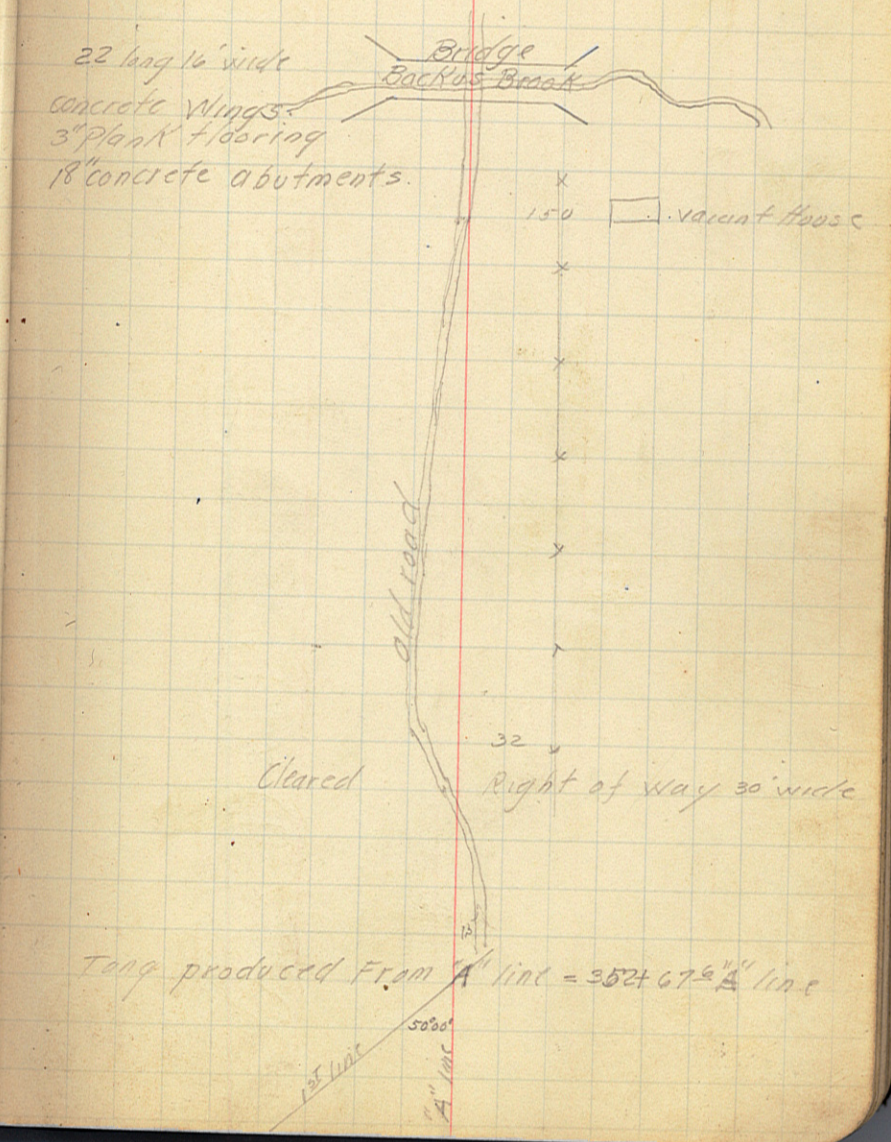
+67.6 ⊙ P.O.T. Hob.
352

352+67.6 = 352+11.3 at Main line

Line 50°00'

371
370
+76
369
368
367
366+00 ⊙ POT.
365
364
362
361
360
359
358
357
356
355
+80.3 Δ 23°14'R N20°30'E on true west line Sec 4
351
353
+11.4 Δ 50°00'L N20°14'W
352
351
350 N29°16'E

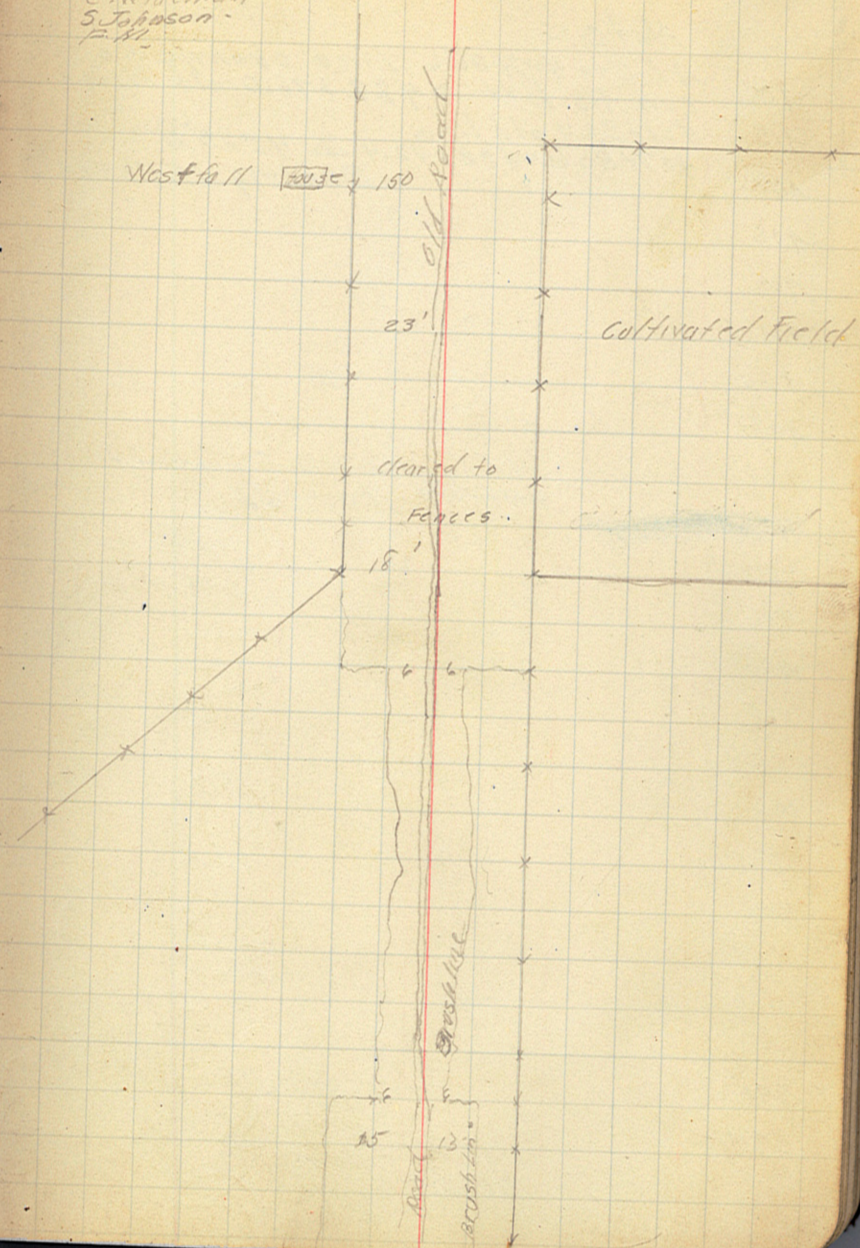
Continued from page 19



393						
+50						
392						
391						
390						
389+00	P.o.T.					
388						
387						
386						
385						
+94°						
384						
383						
382						
381						
380						
379						
378						
377						
376						
375						
374		N2°30'E				
733						
372						

5-27-19
T.F.P.
C. Wideman
S. Johnson
F.B.L.

℄



change ↓

409
408
407
406
405
404
+60
403
+60²
402
+36°
401
400
399
+25
398
397
396
+52
+20
+12
395
394

Note:-
At Sta. 407+86.6 Line changed and run to hit ⊙ 422+76.0 old line = 421+93.4 old line
407+86.6 = 408+42.4 △ 43°20' L
Bearing N. 42°24' E

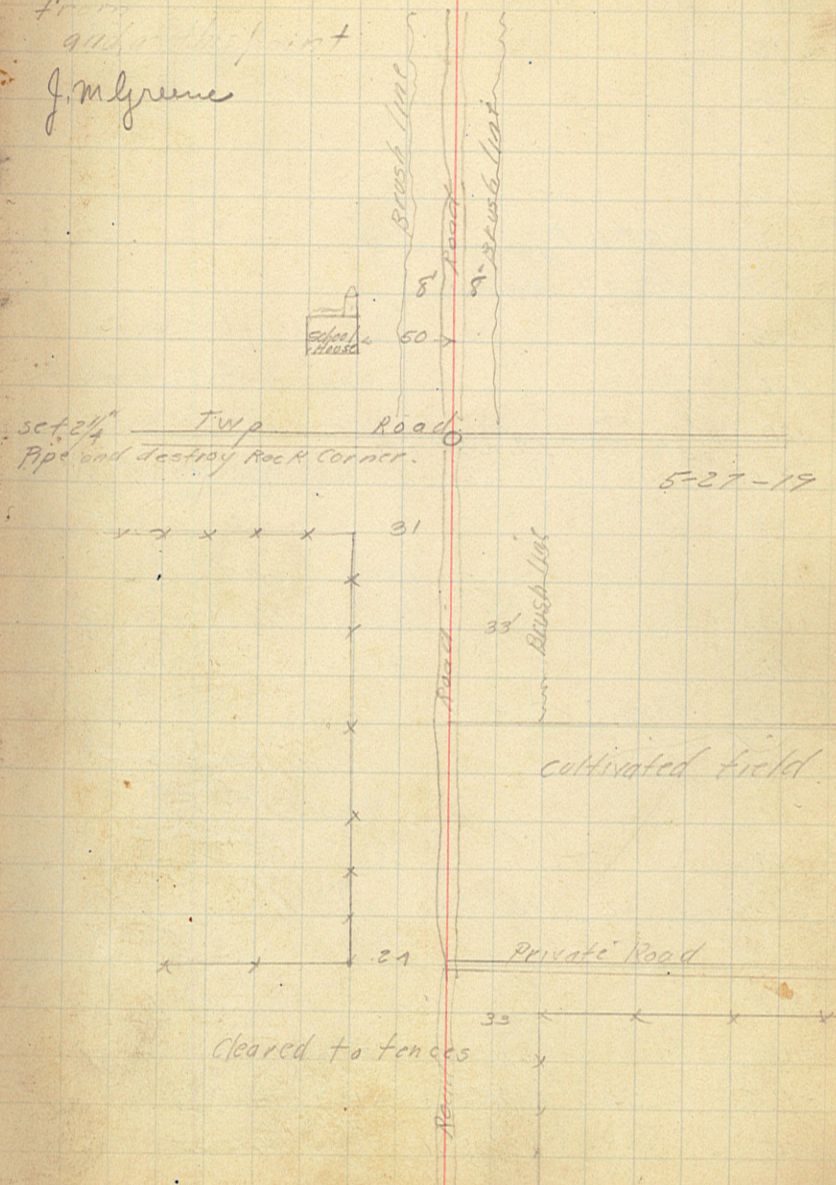
5-31-19

△ 1°31' L N.E. Cor. Sec 5 138-29
~~N 00°56' E~~ N. 00°56' E

2° 34'
1 94
1° 90
1 34
0° 56' E

N 2°30' E

5/31 1919
J.F.P.
S. Johnson
C. Wideman
from
[illegible]
J. M. Greene



427		
426		
425		
424		
+34		
423	Δ34°16'R	N.8°08'W.
+76.0	Δ26°49'R	~~N8°14'W~~
422		
421		
420	=Sta. 418+73.5 Δ17°01'R	
+70.0	Δ24°09'R	N35°03'W
419		
418		
417		
416		
+96.3	Δ29°23'L	N59°12'W
415		
414		
+43.7	Δ38°02'R	N29°49'W
413		
412		
411		
+11.8	Δ68°41'L	N67°51'W
410		

Changed Nov. 13 1919 N. 43°24'W. →

Johnson & Wideman
Make a 100' error at
Sta 415+00 and carried
Same to sta 516+
Error found when
levels were run and
corrected on stakes as
well as transit and
reference notes.

5-31-19.
Chas Wideman } (Raining)
S. Johnson } in experienced help 25
J.F. Pomasel.

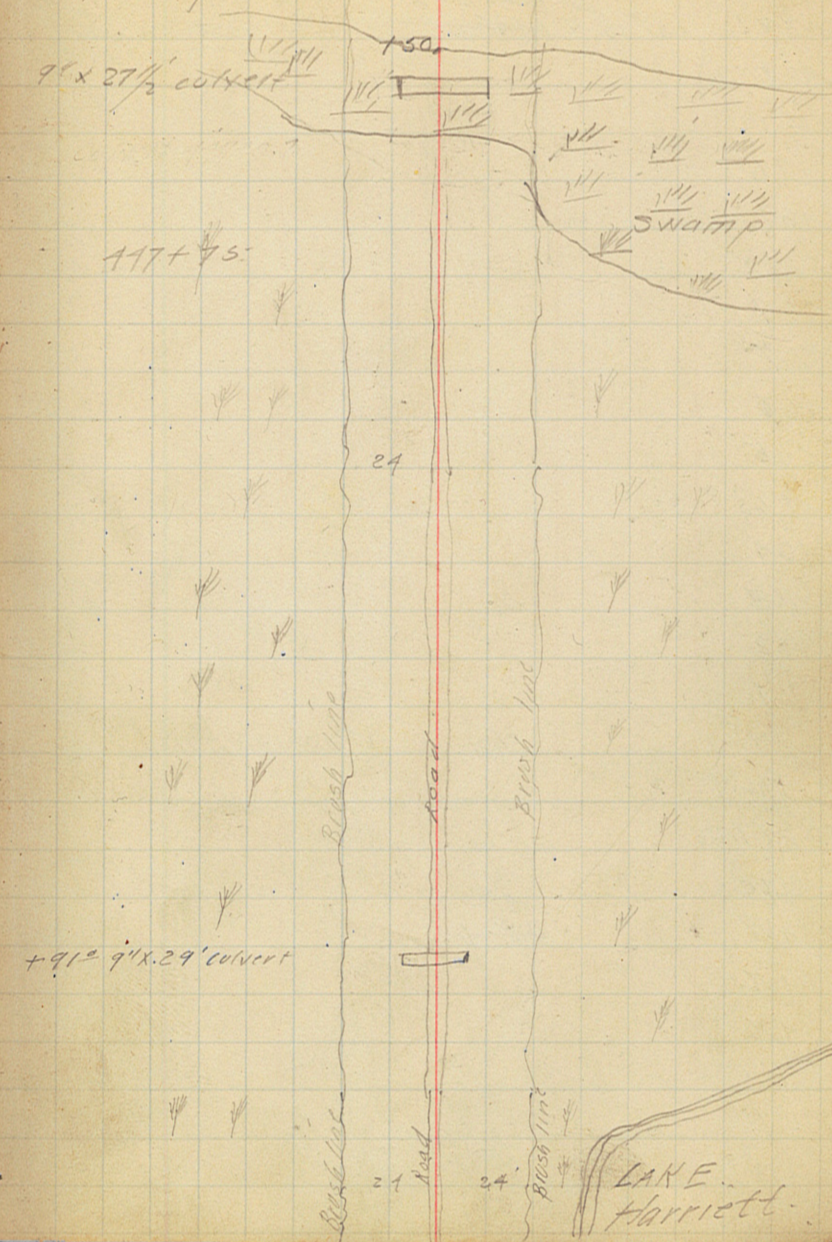
Note.
New line is 6' from
sta. 413+43.7
Sta. 419+70 = Sta. 418+73.5
See sketch below

152
151
150
149
+50
+0.7
148
147
+85
146
145
144
143
+31.3 O Pot.
142
141
140
139
138
137
136
135
134
133
+91
132
131
130
129
128

N.8°08'W
~~N.8°11'W~~

5-31-19

Raining



N. 26° 55' E

+39.3 Δ 35° 03' R. ~~N 26° 40 E~~

171

+34

170

169

+73

168

167

166

165

+65

164

163

162

161

+98

+76.4 Pot. 5/31.19. Raining Hard
Angle to be read.

160

159

158 N. 8° 08' W
~~N 8° 14' W~~

157

156

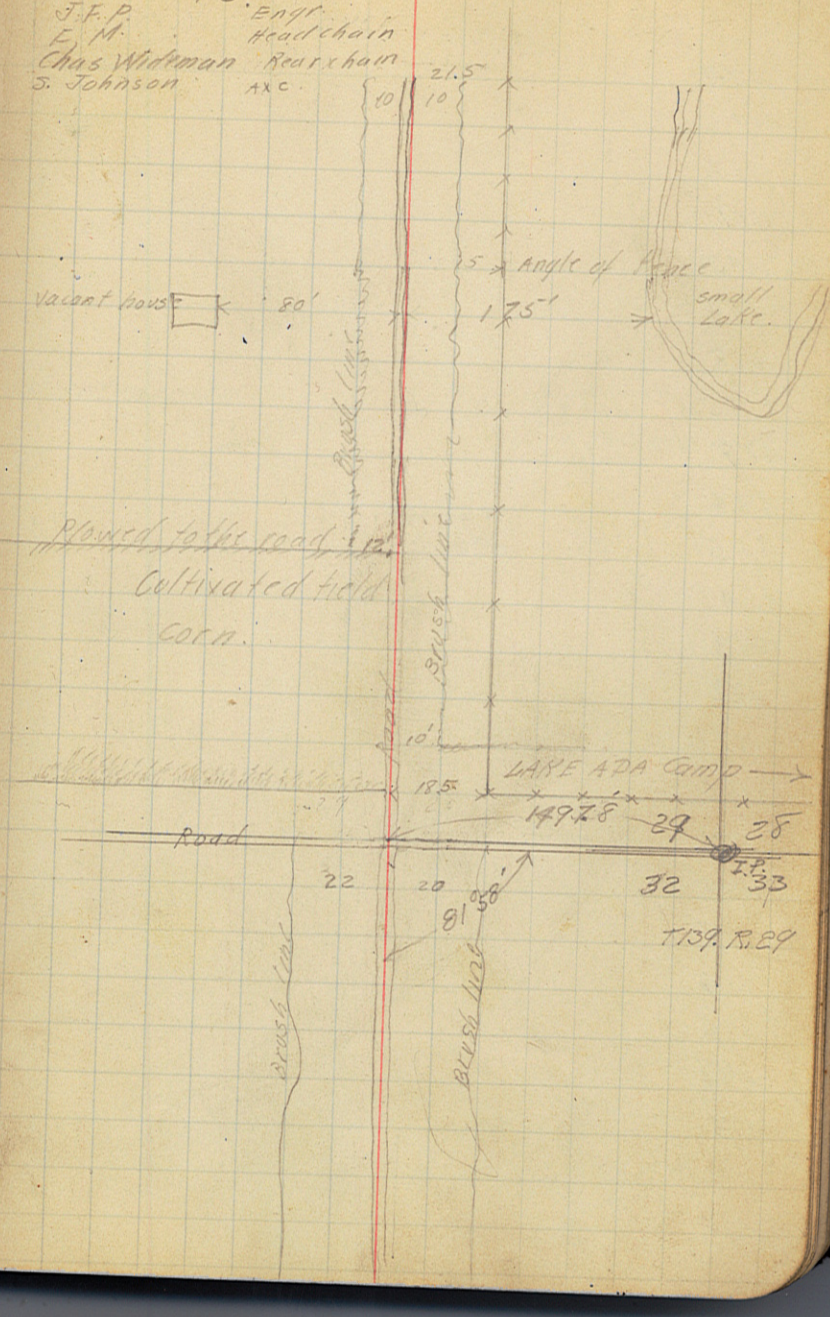
155

154

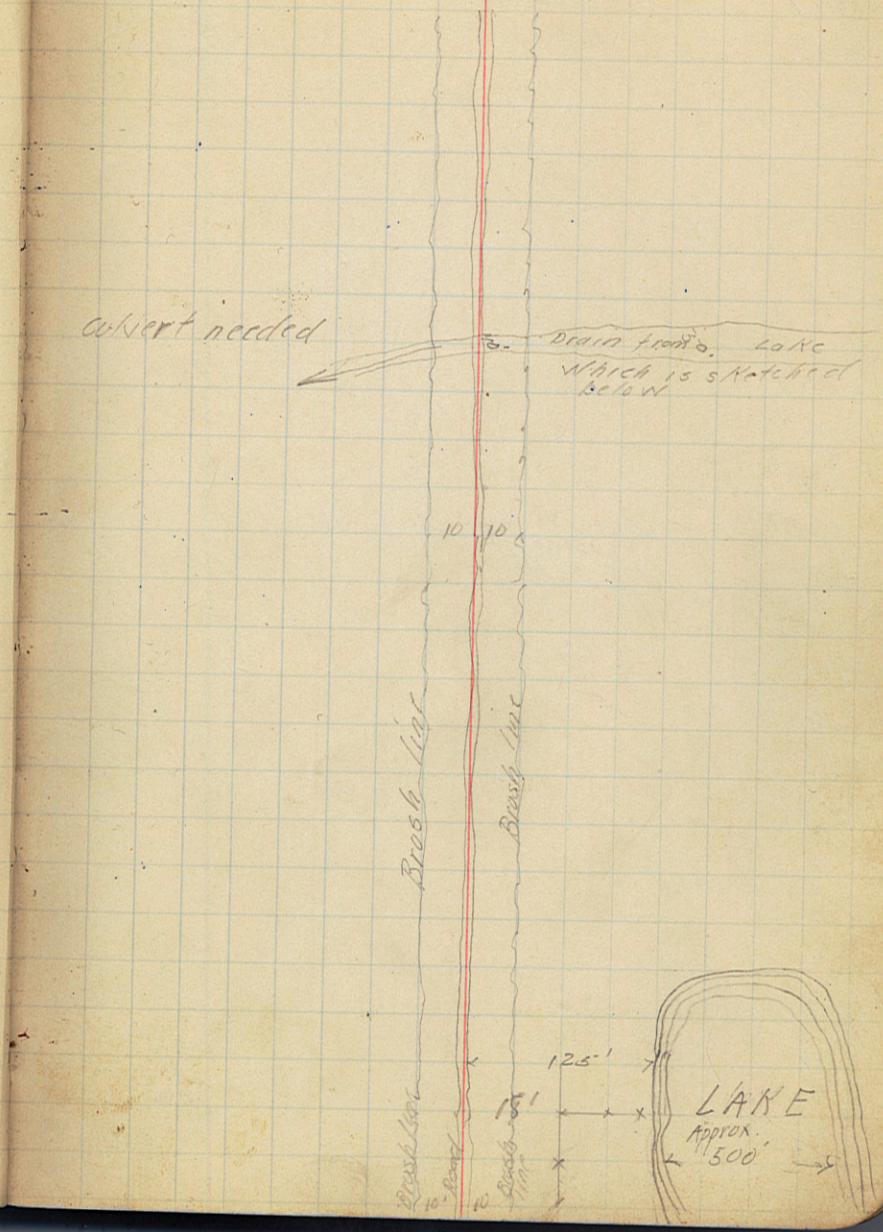
153

6-2-19.

J.F.P. Engr.
E.M. Headchain
Chas Widman Rearchain
S. Johnson AXC.



194
193
192
191
190
189
188
+65
187
186
185+00 P.O.T. N. 26°55'E.
~~N26°49'E~~
184
183
182
181
180
179
178
177
176
175
174
173
+36
172



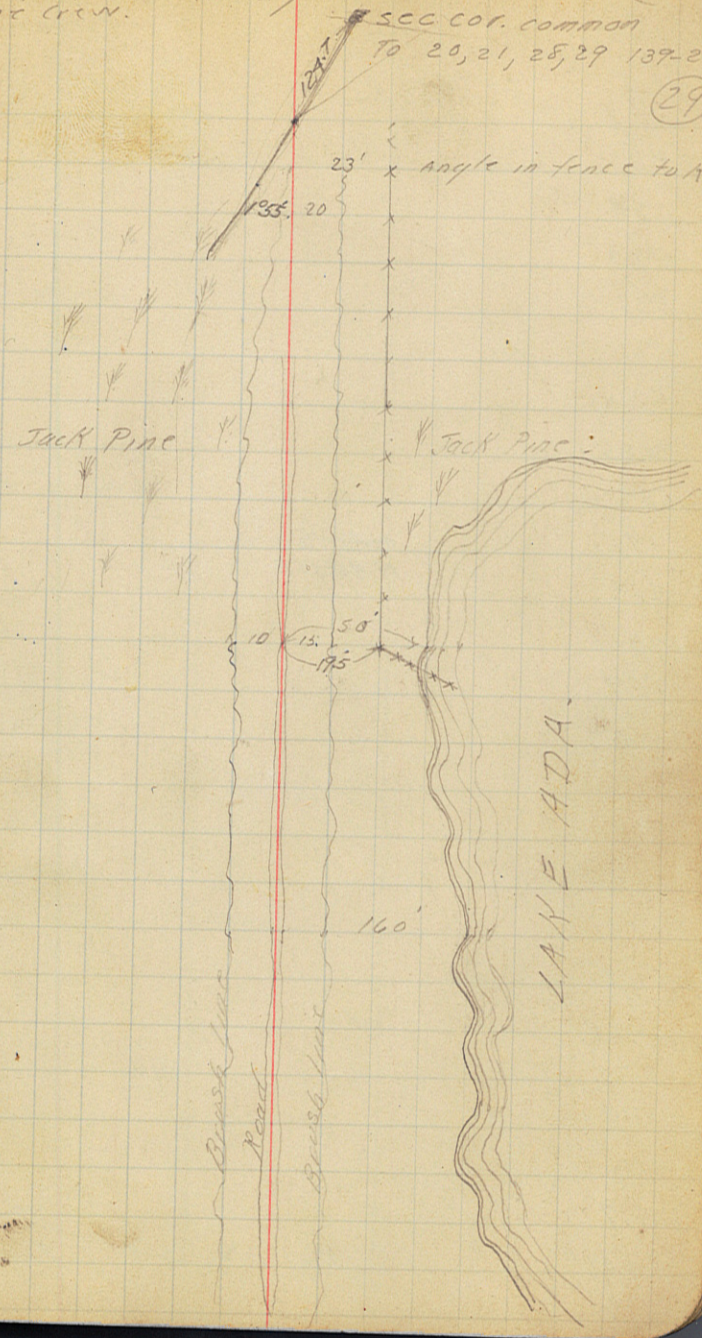
+68.7	Δ 18°55' R	~~N 41°38 E~~ N. 48°30' E
+ 55		
516		
515		
514		
513		
512		
511		
510		
509		
508		
+29.2	Δ 27°20' L	Near West line of SEC 28 139-29
507		~~N 00°17 W~~ N, 0°25 W
506		
505		
504		
503		
502		
501		
500		
499		
498		
497		
496		
495		

6-2-19
Same Crew.

Windy and Hard to See

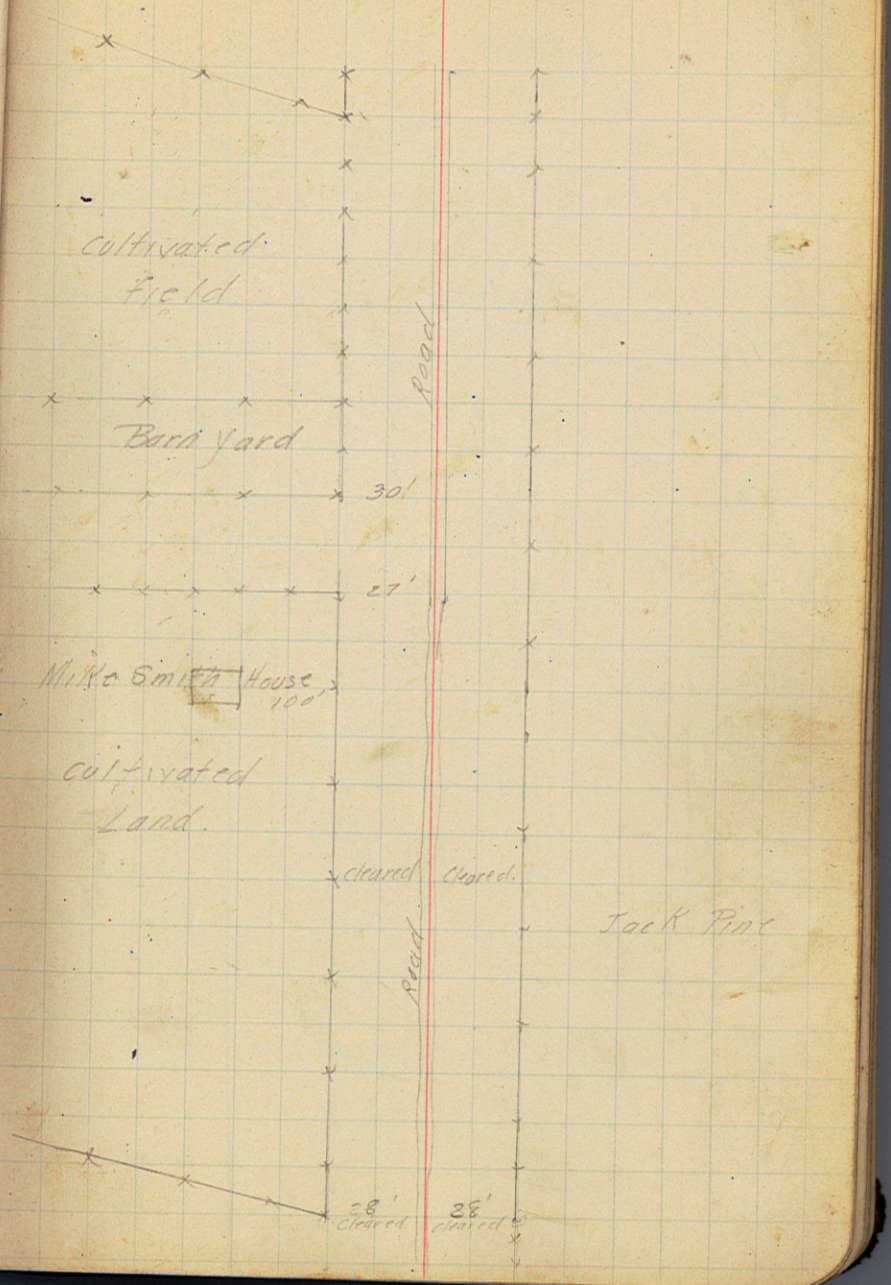
SEC cor. common
To 20, 21, 25, 29 139-29

29



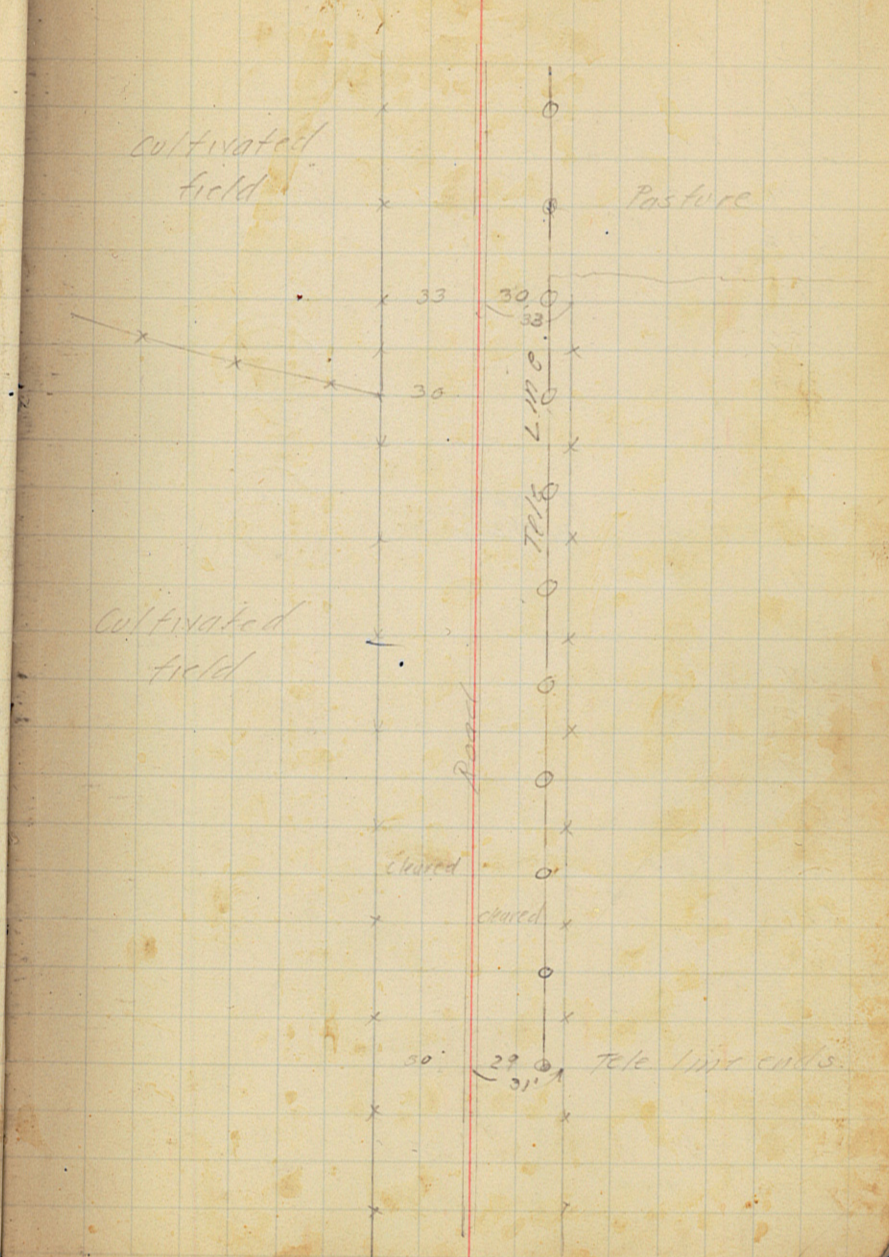
535
+25
534
533
532
531
530
+35
529
+75
~~N. 48°58'E~~
N. 48°30'E
528
+22
527
+63
526
525
524
523
522
521
520
519
518
517
+98
516

6-3-19 (Sprinkling)
Same Crew



557					
556					
555					
554					
553					
552		N.00°42'W			
551+51.5 Δ 19°12' L		~~N00°34'W~~ Near	Center	of Sec 21	134-34
+33					
551					
550					
549					
548					
547					
546					
545+00 Pot					
544					
543					
542					
541					
540					
539					
538					
+10					
537					
536.	Pot				

6-3-19 (Raining)

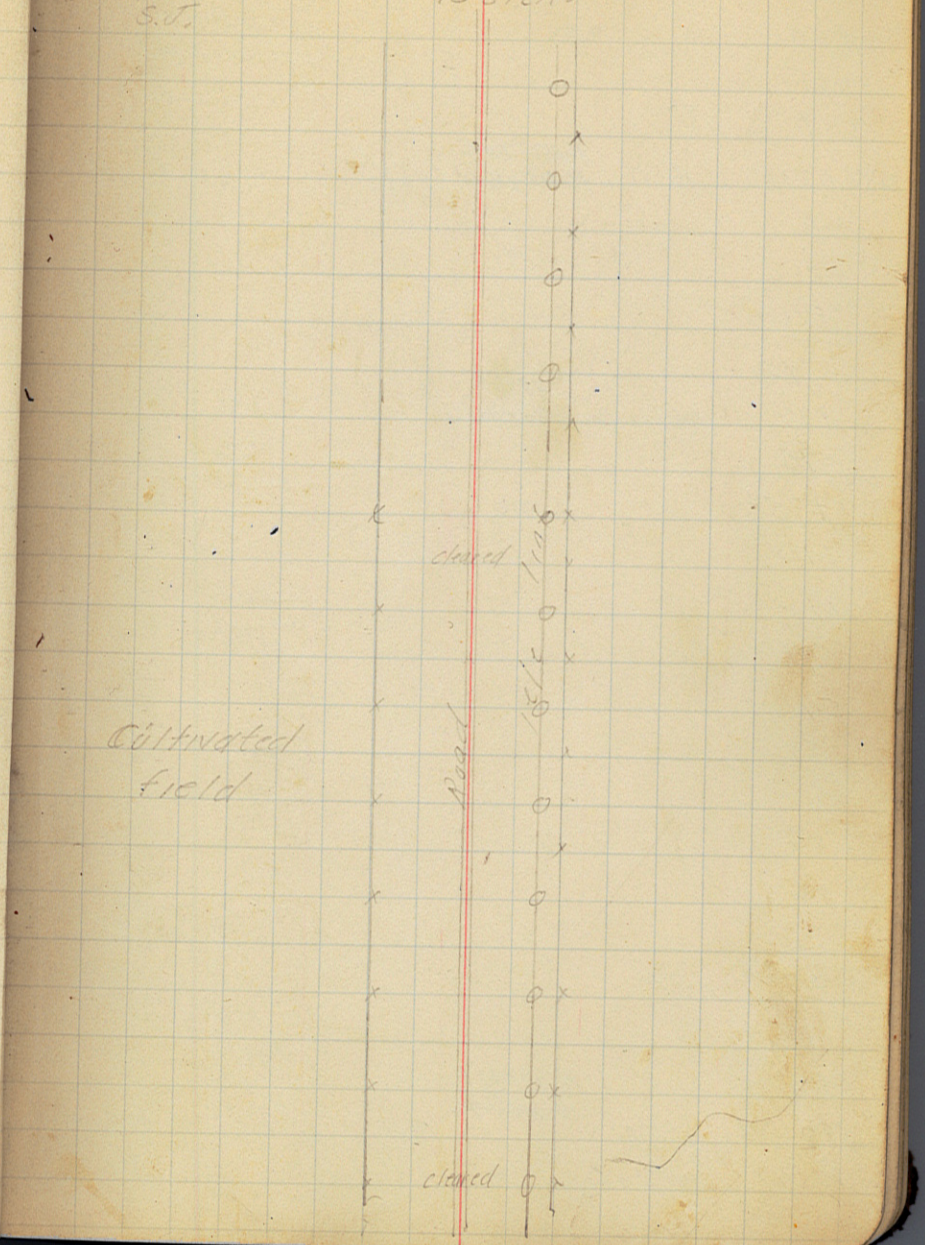


582
581
580
579
578
577
576
575
574
573
572+00 Pot
571
570
569
568
567
566
565
564
563
562
561
560
559
558

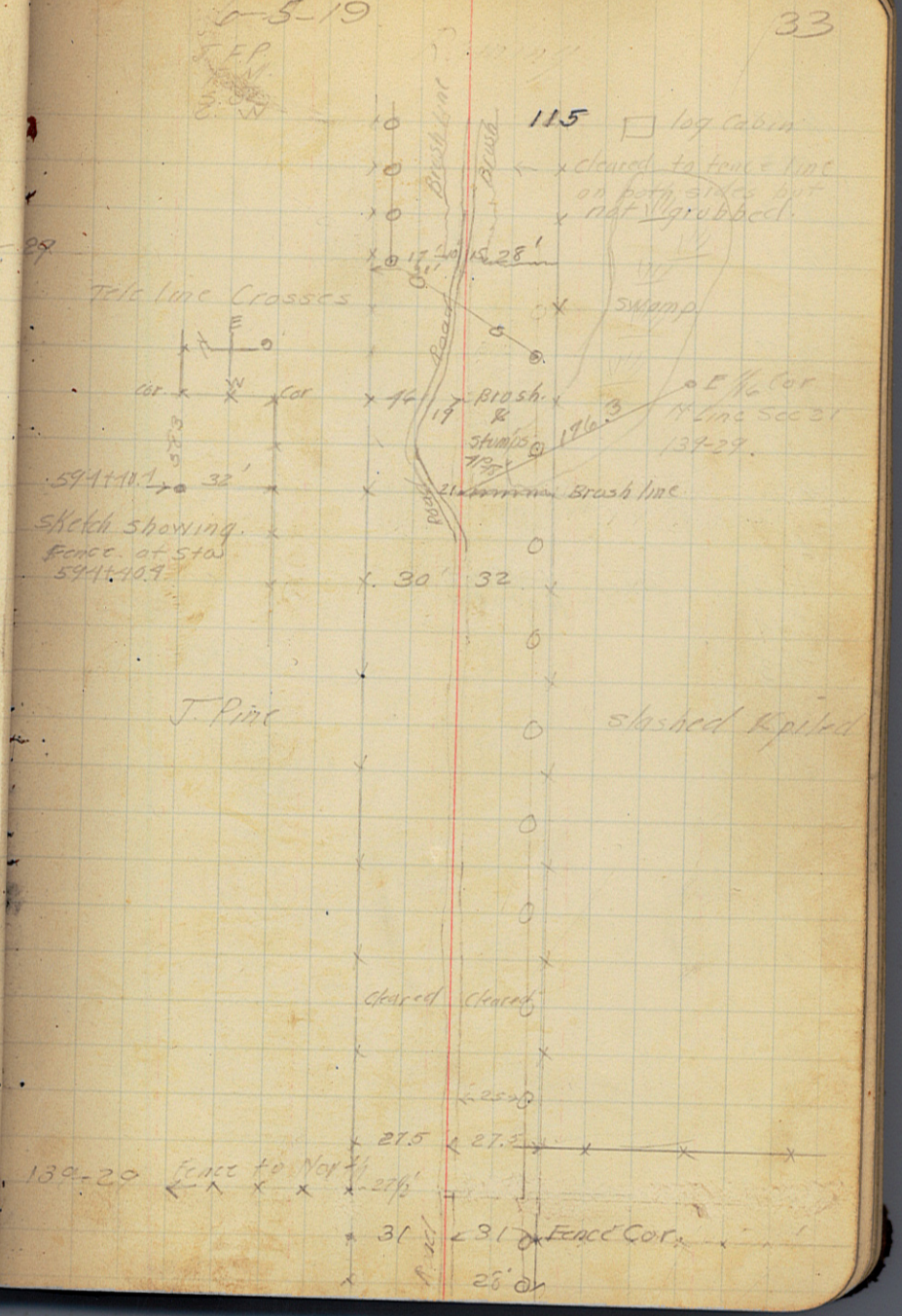
N. 0° 42' W.
~~N. 00° 34' W.~~

6-4-19. (sprinkling)
J.F.P. (Chas. Wideman not working.)
F.M. is sick.
S.J.

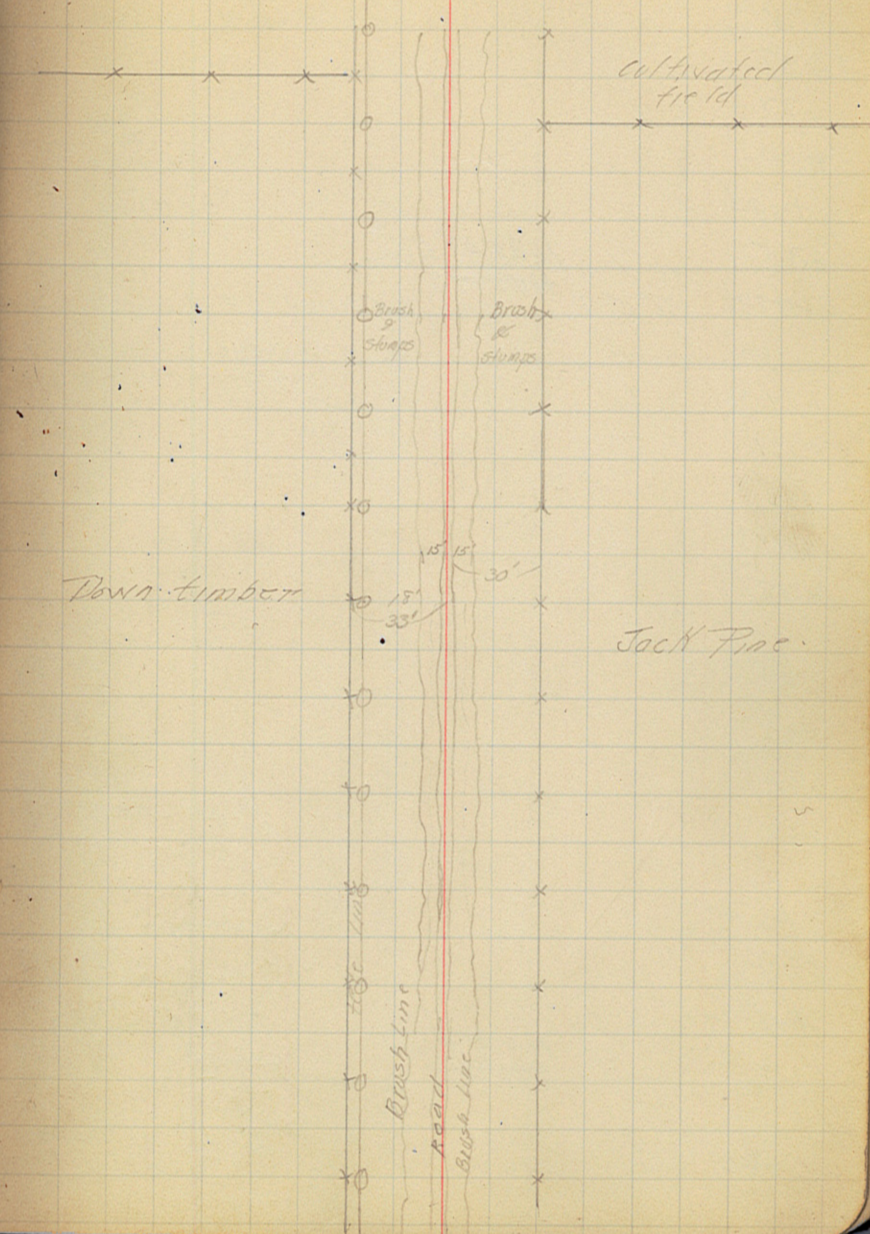
32



599		
+50		
598		
597		
596+73	Δ 5°03' L	~~N 00° 06' E~~ N. 0° 08' W on E 1/16 line of Sec 16 139-28
+18		
+21		
596		
595		
+10.1	Δ 41°45' L	47°55' ~~N 48° 09' E~~
594		
+75°		
593		
592		
591		
590		
589		
588		
587		
586		
585		
584		
+21		
583		N. 89° 40' E
582+89	Δ 90°22' R	~~N 89° 54' E~~ Near North 1/4 Cor Sec 21
582+62		



622		
+95		
+67		
621		
620		
619		
618		
617		
616		
615		
+23	POT.	~~N.0°06'E~~ N.0°08'W
614		
613		
612		
611		
610		
609		
608		
607		
606		
605		
604		
603		
602		
601		
600		

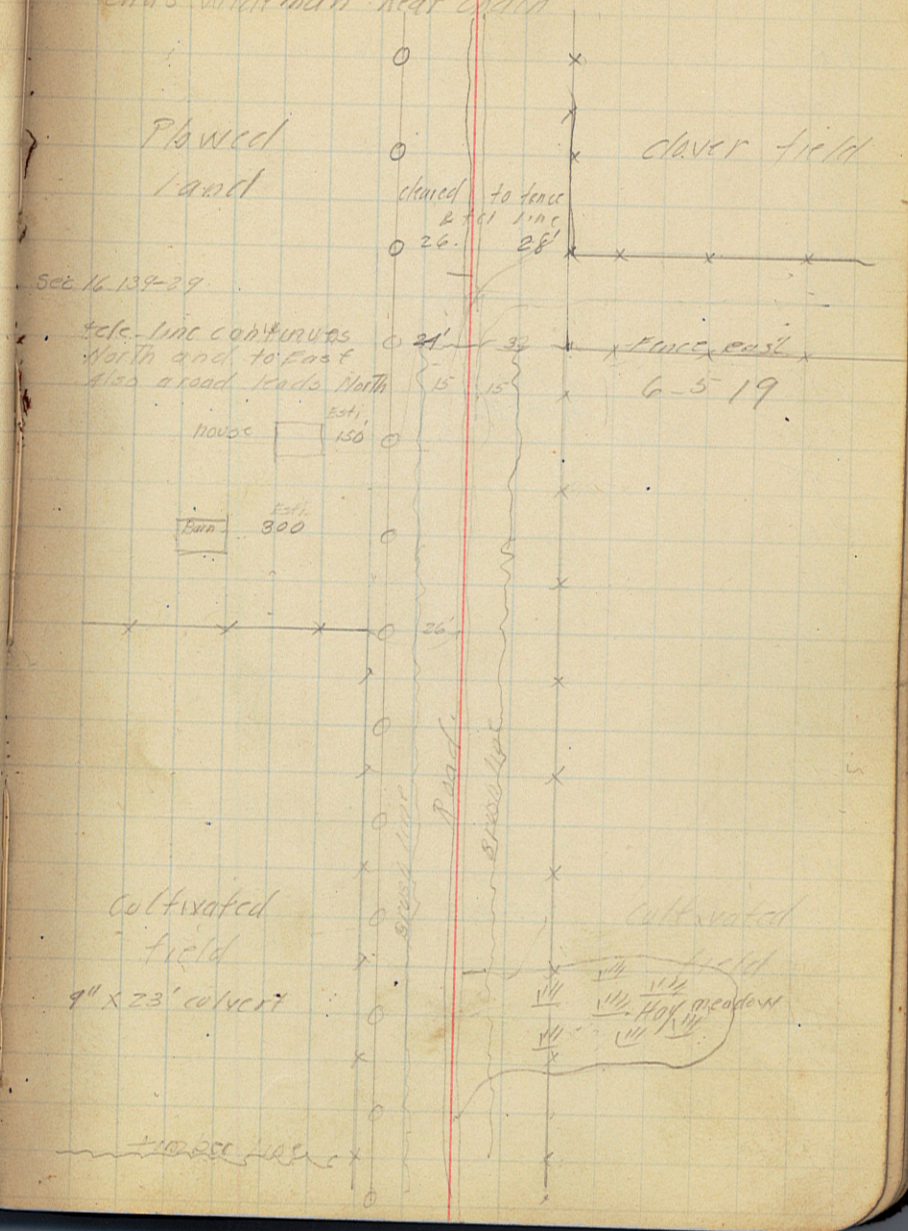


639
638
637
636
+19
635
631+87
+60
631.
+91
633
+49
632
+70
631
630
629
628
627
626
625
+11
624
623
622+65

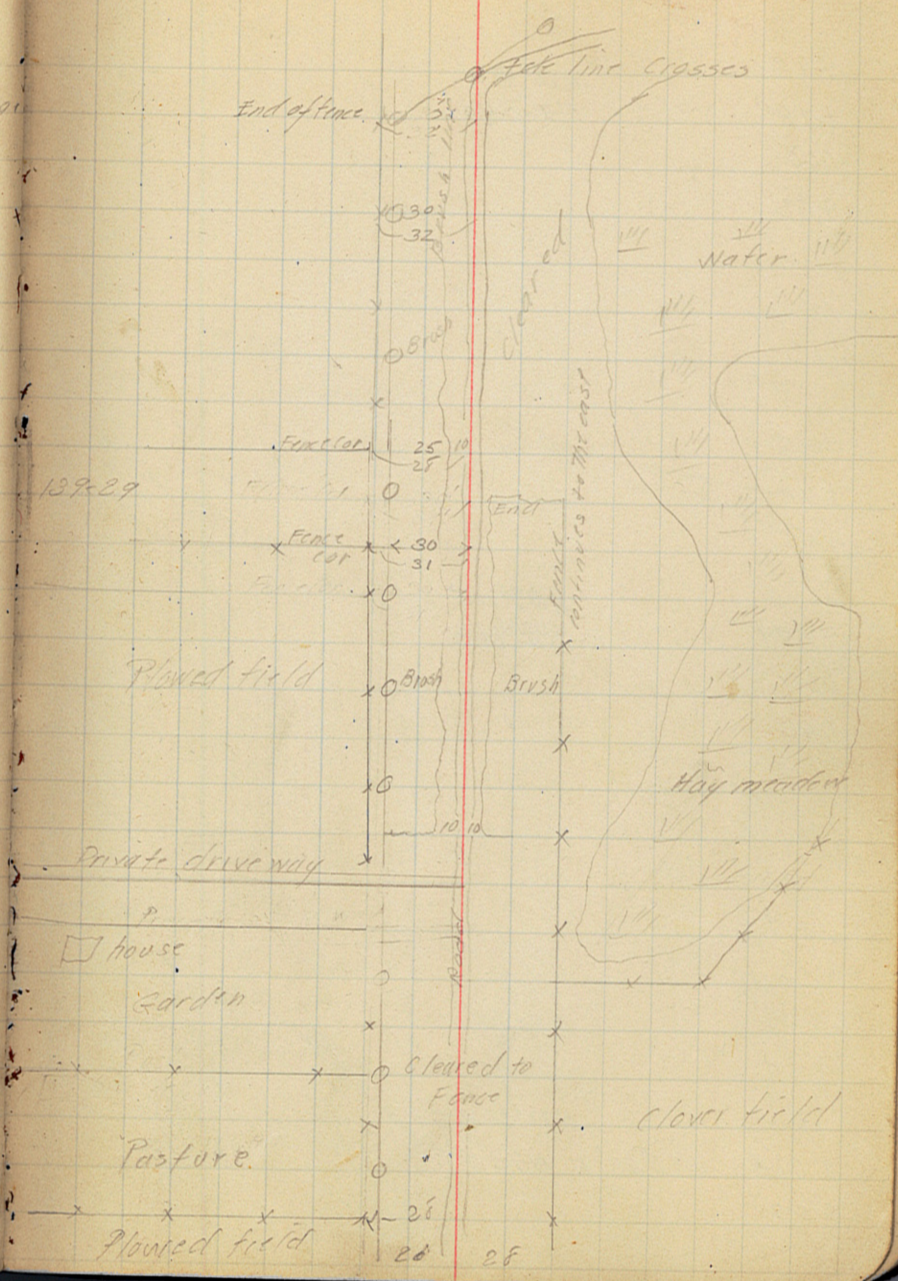
N. 88° 50' E
~~N 89° 04' E~~
Δ 88° 58 R
Rear SW cor of NE ¼ of NE ¼

N. 0° 03' W.
~~N 0° 06' E~~

6-7-19.
35
J.F.P.
E.J. Hoelchain
Chas Wideman Rear chain

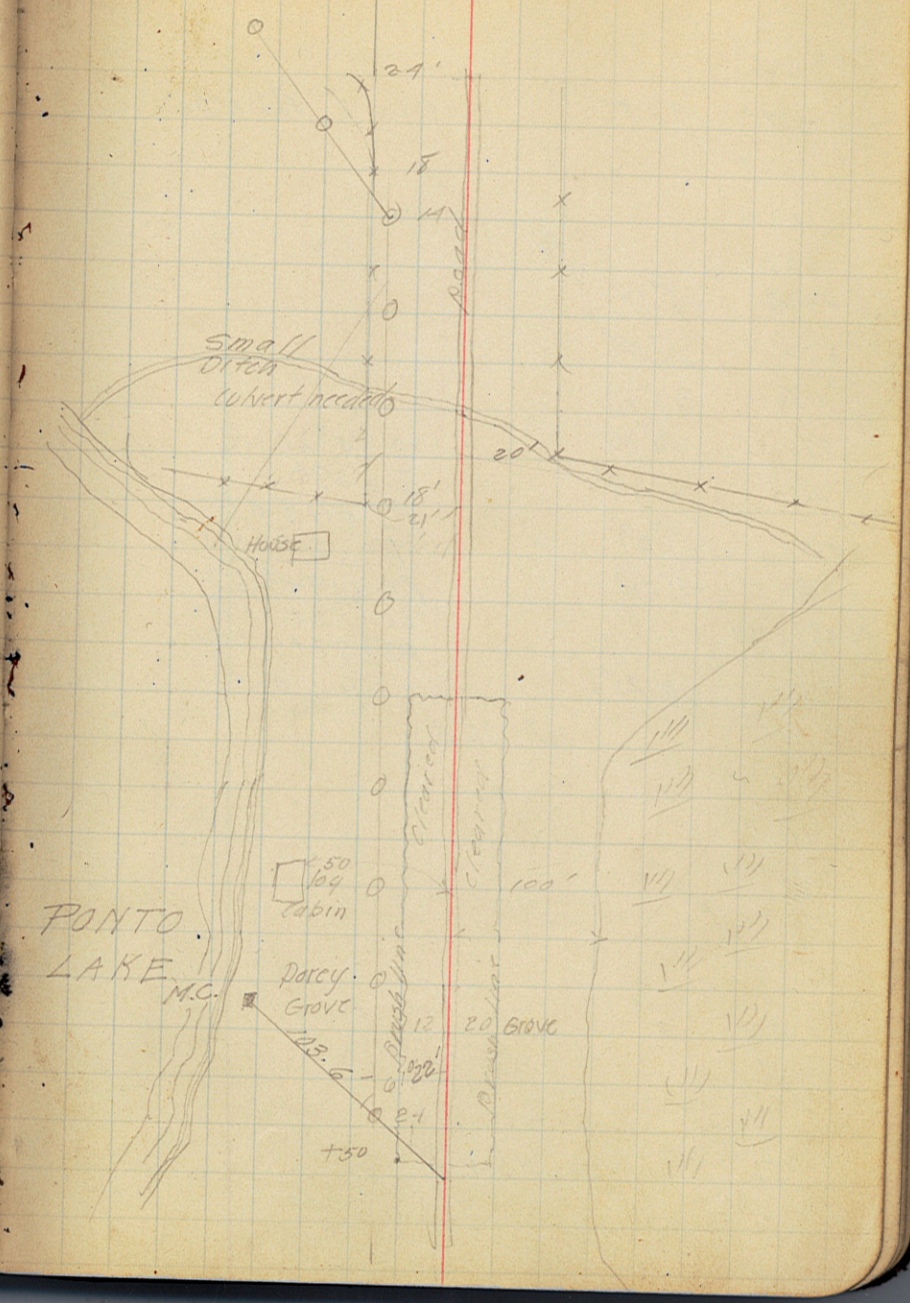


+87^0		
+58^6	Pot.	to be used in case of line change
+11^9		
652		
651		
650		
649		
+09		
648		N. 0°09'E
+77^5	Δ 88°41'L	~~N 00°23'E~~ Near N 1/16 cor East line Sec 16
+18^5		
647		
646		
+50	Pot.	
645		
644		
643		
+45		
+10		
642		88°50' N ~~89°01'~~E
+85		
+13		
641		
640		
639+40		



6-7-19.

+82		
+16.0	Δ 90°09' L	N. 00° 48' W ~~N 00° 34' W~~
666		
+52		
665		
664		
663		
+97.0		
+80		
+70		
+15.		
662		
+19.1	Δ 16°43' R.	N. 89° 21' E ~~N 69° 38' E~~
661		
660		
659		
658		
+46		
657		
656		
655		
654		
+99		N. 72° 38' E
+20.4	Δ 72°29' R.	~~N 72° 52' E~~
653		

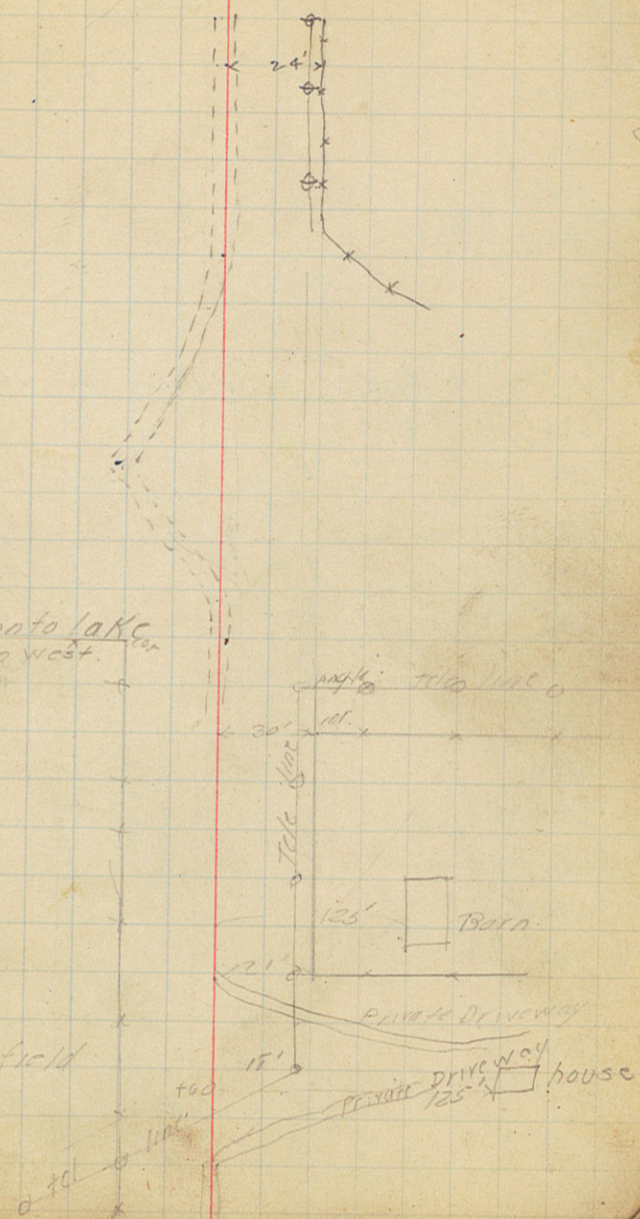


676		
+77±	P.O.T.	S 89°30' E Var 8°30'
675		
674		
673		
P.T. +48.4	45°10'	
672	38°09'	
+50	30°54'	
671	23°39'	
+50	16°24'	
670	9°09'	
+50	1°54'	
P.C 669+36.9		
+37.7	Δ90°20' R.	on south line of Sec 10 139.29
+12°		N.89°32'E
+05		
671		
670		
669		
+85°		
+70		
668		
+68		
+60 / +52°		
667		N 3°48' W

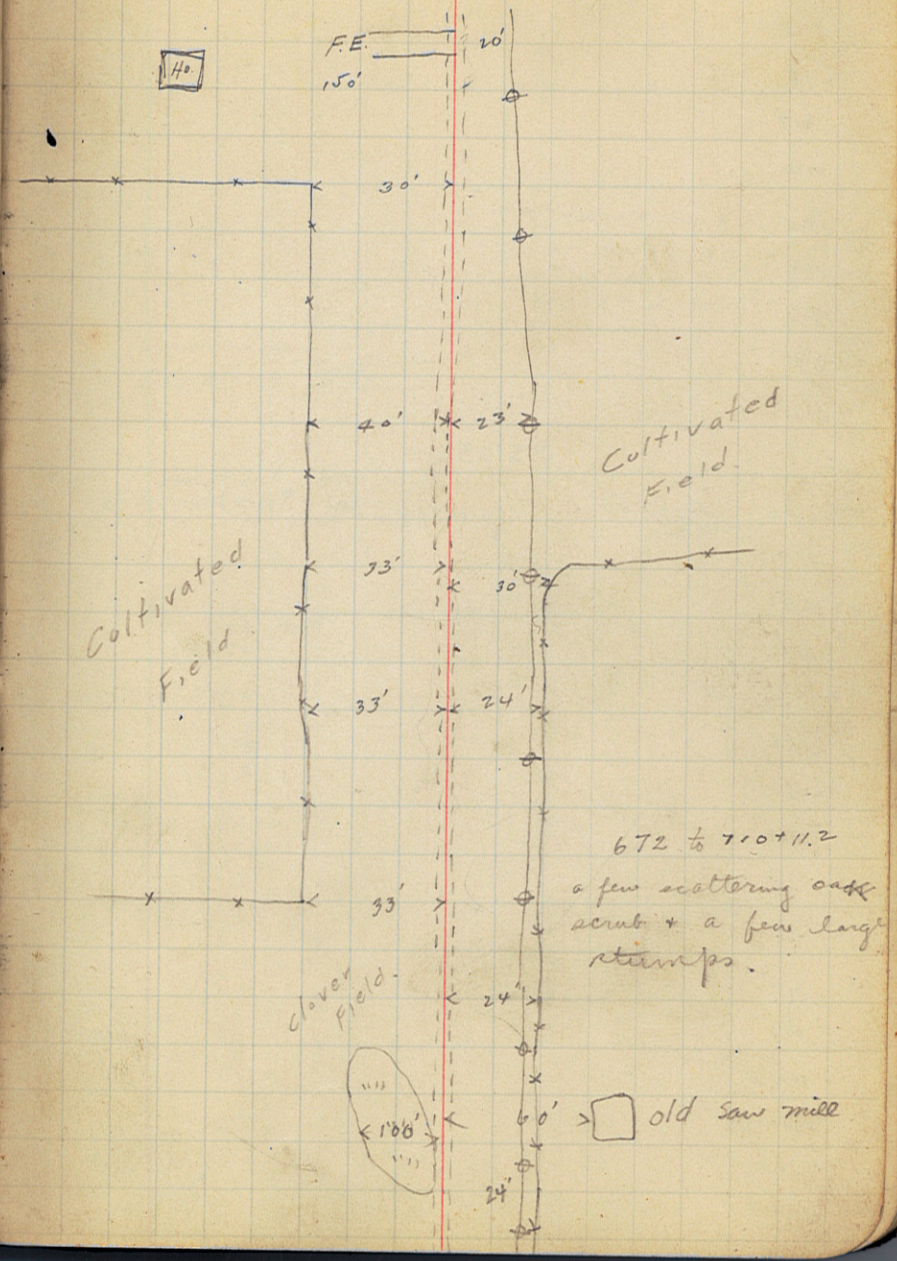
Δ 90°20' R.
D = 29°
P.I. 671+37.7
T 2+00.8
P.C 669+36.9
Lc 3+11.5
P.T. 672+48.4

Sec Cor in Ponto Lake

JFP C.&W.



699
+83
+25
698
+46
697
696
695
694
693 ⊙ P.O.T. sq. Hub. s. edge wheel Track.
692
691
690
689
688
687
686
685
684
+80
683
682
681
680
679
678
677



718
+18
717
716
715
714
713
+35
712
713
+11.2
710
+80
709
+63
708
+50
707
706
705
704
703
702
701
700
+88

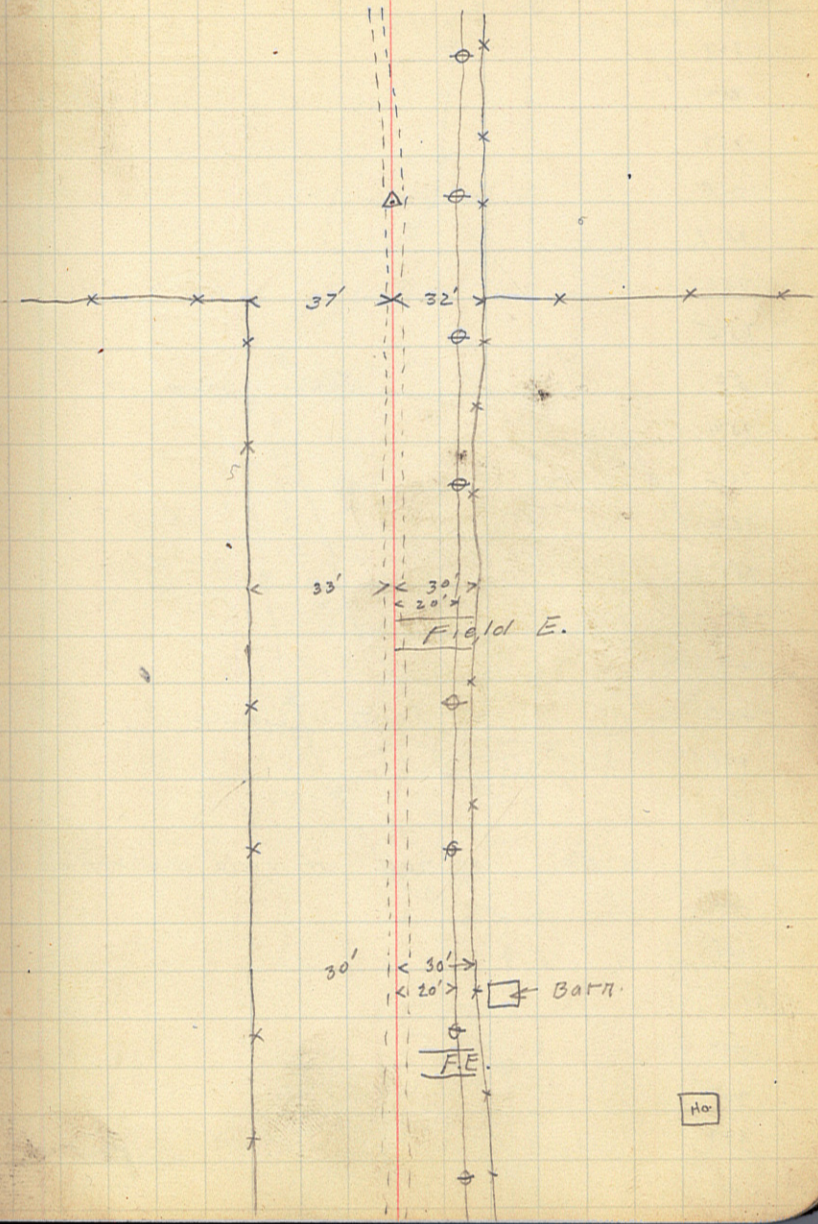
N. 2°23' W.

△ 91°55' L. Sq. Hub N 1° W. Var. 8°30'

710+11.2
707+50
261.2

30'
30'
20'
710+11.2 to 819
Light brush along sides of road + a few Large Trees - L. C. & G.
30'
Cemetery. Gate
Found butt of old stake under ground. 2-2' East of △ and on Line with back Tang.
Lat 0.0
R.P.'s. F.P. N.E. 39.9
Con. Mon. N.W. 46.2
Cor. Cem.
10'
Con. Mon.
33.1'
Cemetery.
Gate. Entrance
33.8
Con. Mon.
Cor. Cem.
cultivated
30'
Barn
Barn to
150'
30'
20'

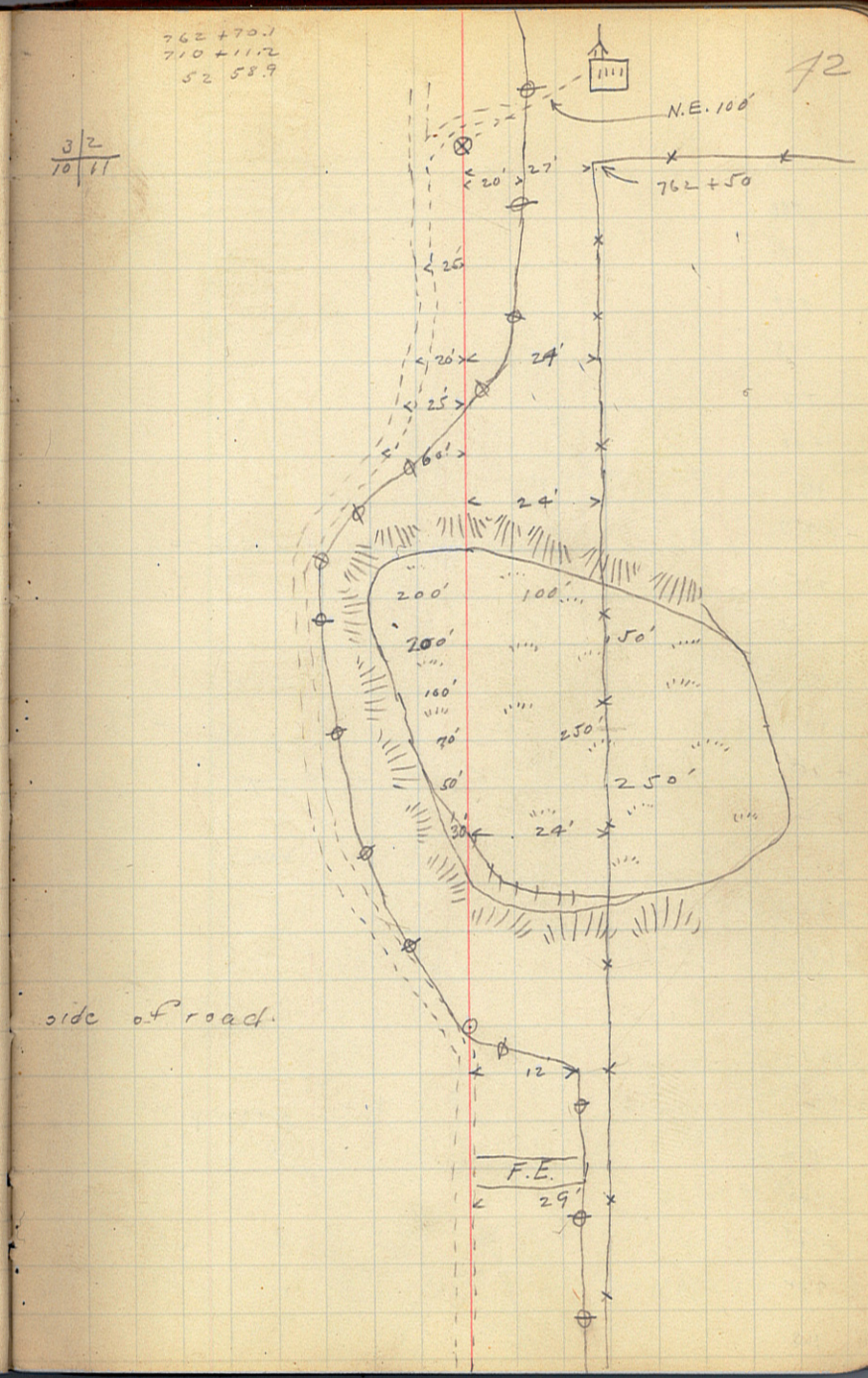
740
739
738
737
+51.2 △ 1°41' R. N.0°42'W sq. hub in otr. road.
736
+85
735
734
733
732
731
730
+30
729
728
727
726
725
724
723
722
721
+50
720
719



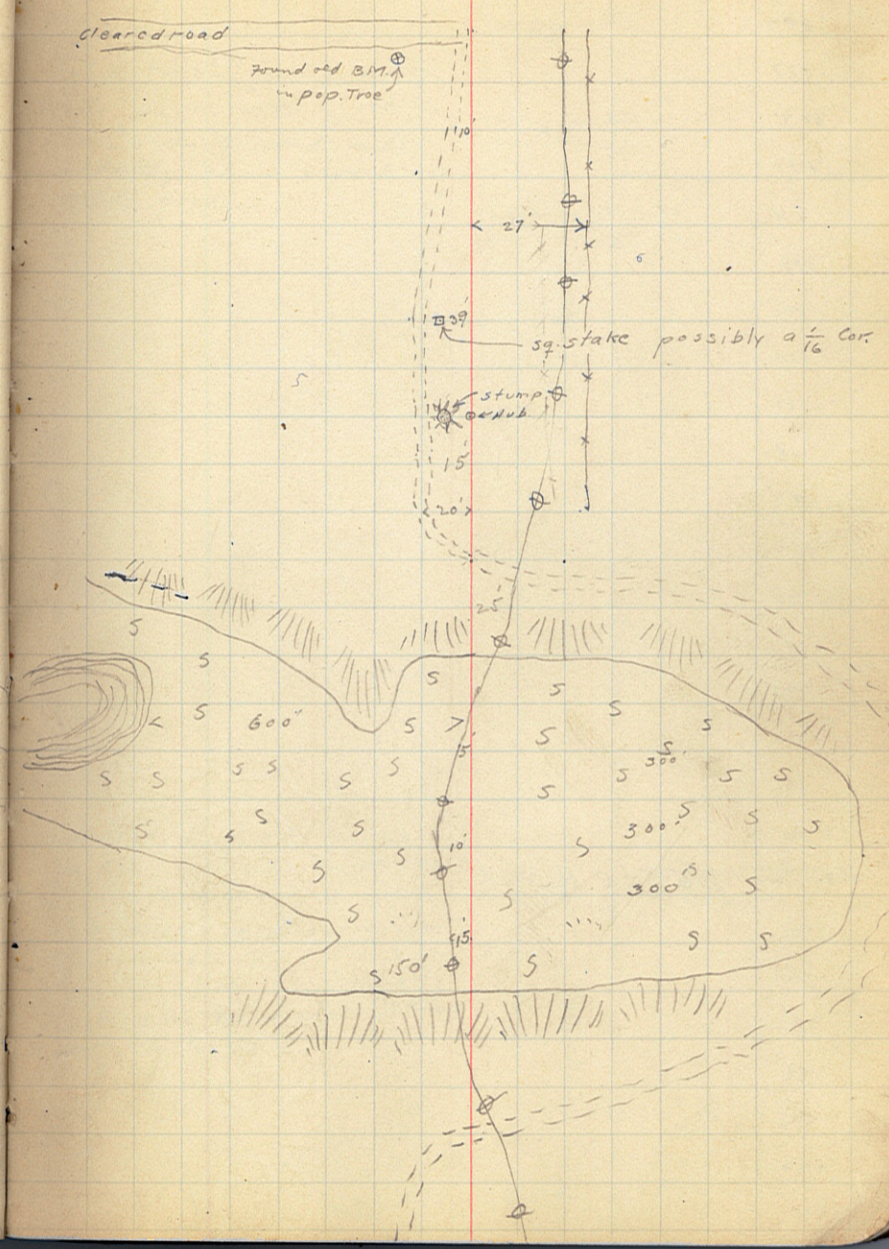
762 +70.1
710 +11.2
52 58.9

+70.1	⊕ P.O.T.	sec. Cor. Large sq. stake scribed.
762		
761		
760		
759		
758		
757		
756		
755		
+88		Leave swamp
754		
753		
752		
751		
750		
749		
+15		Enter swamp.
748		
747		
+86	⊙ POT	sq hub in side ditch on Rt. side of road.
746		
745		
+61		
744		
743		
742		
741		

3/2
10/11

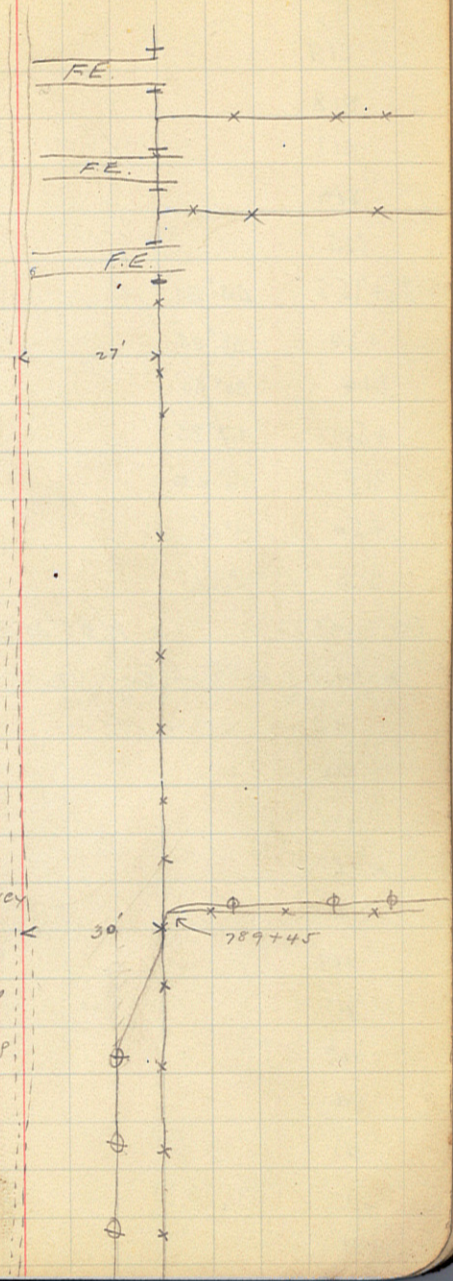


782
781
780
779
778
777
+08
776
+52.7 ① sq. hub. 5' East of Large Pine stp.
775
774
+46
773
+70 Leave swamp
772
771
770
769
768
767
+52 Enter swamp
766
765
+75
764
763



+90
+77
803
+37
+10
802
801
800
799
798
797
796
795
794
793
792
791
790
+10.1 △ @ 0°50' R. N. 0°08' E.
789
788
787
786
785
784
783

802+6.7 found old ¼ cor post setting out to one side of road. on Lt. evidently been moved by road graders.



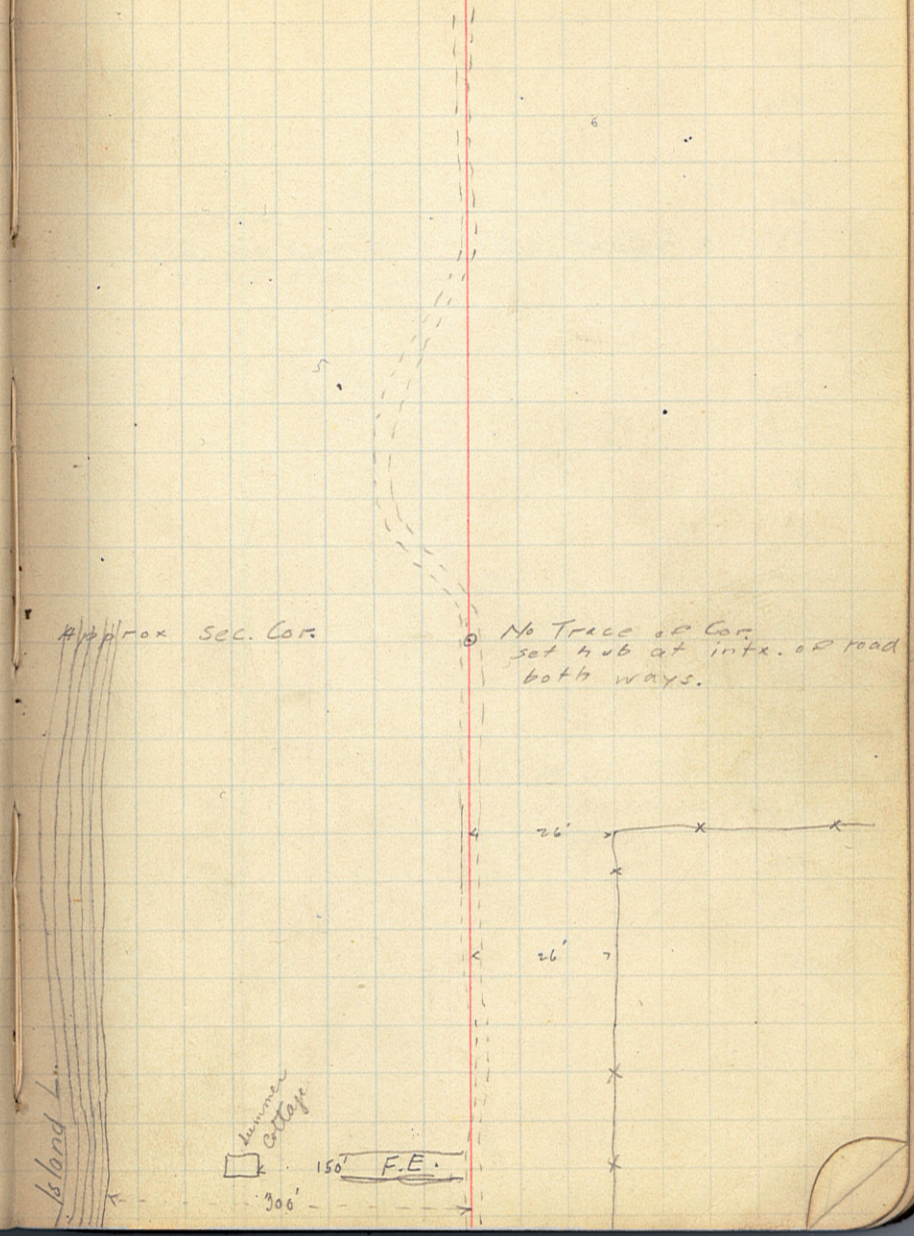
at 789+45 is a Fence Cor on Rt. 2 new B.T.s and a survey Line thru brush to west. This must be Location of ¼ Cor. but could find no Trace of it. B.T. 6" J.P. with Tack. S.W. B.T. 8' black stump with Tack S.E.

819			
818			
817			
816			
815			
P.T. +95.5	44° 41'		
+50	38° 05'		
814	30° 50'		Δ 89° 23' R.
+50	23° 35'		D: 29°
813	16° 20'		P.I. 813+84.8
+50	9° 05'		T. 1+97.5
812	1° 50'		P.C. 811+87.3
			Lc 3+08.2
			P.T. 814+95.5
P.C. 811+87.3		N. 89° 31' E	R=199.7
+ 84.8	Δ 89° 23' R. = P.I. 29° C.R.		Lc=308.2
813			S 89° 40' E. Var. 8° 30'
812			
811			
+16			
810			
809			
808			
807			
806			
805			
+11			
804			

813 + 84.8
762 + 70.1
51 14.7

5280
5115
165

45

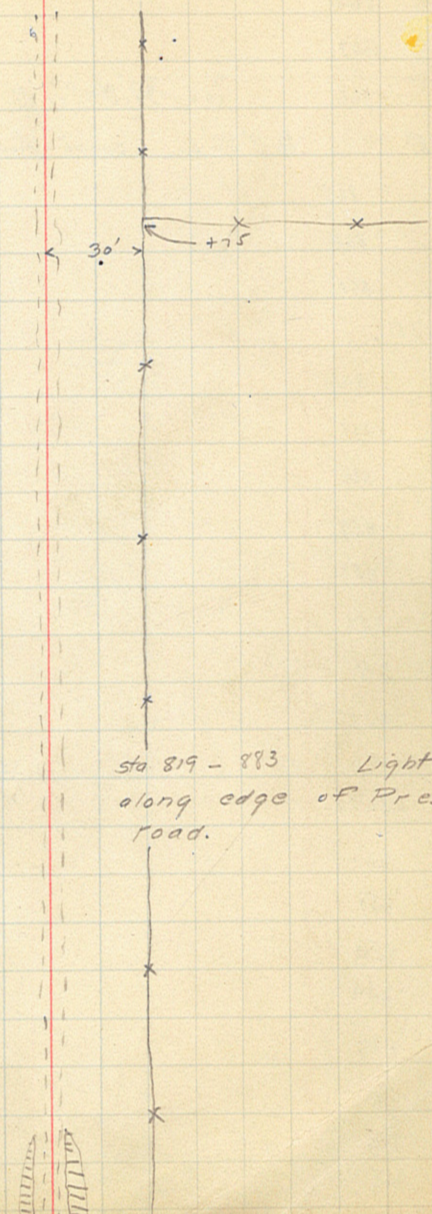


2640
197.5
2442.5

814+55.5
24+42.5
838+98.0

844		
843		
842		
841		
840		
839	⊙ Birch Hub.	2' north of N. wheel Tk.
838		
837		
836		
835		
834		
833		
832		
831		
830		
829		
828		
827		
826		
825		
824		
823		
822		
821		
820		
+94.3	⊙	Sq. Hub in North wheel Tk. in Cut.

R.P.s 4" Pop N.W. 48.7'
5" Pop. S.W. 47.3'
4" Pop N.E. 44.5



sta 819 – 883 Light C+G along edge of Present road.

+65
868
867
866 N. 89° 11' E
+78± Δ 0°20' L. Birch hub in ctr. of road. approx sec. cor.
865
864
863
+35
862
861
860
859
858
857
856
855
854 ⊙ Birch hub in center of road.
853
852
851
850
849
848
847
846
845

814+95.5 5280.0
50+82.5 1975
865+78.0 5082.5
cor.

17

870+30 F.C.

+65 F.E.

Ho

125'

866+70

33'

10'
10'

36'

+35

R.Ps F.P. S.E. 36.4
F.P. S.W. 43.3

F.E.

37'

36'

F.E. F.E. 845+90

+ 53.7 △ 22° 02' R.

889

888

887

+ 98° + △ 35° 43' L.

886

885

884

+ 57.1 △ 69° 25' L.

883

882

881

+ 46

880

879

878

877

876

875

874

873

872

871

+ 36

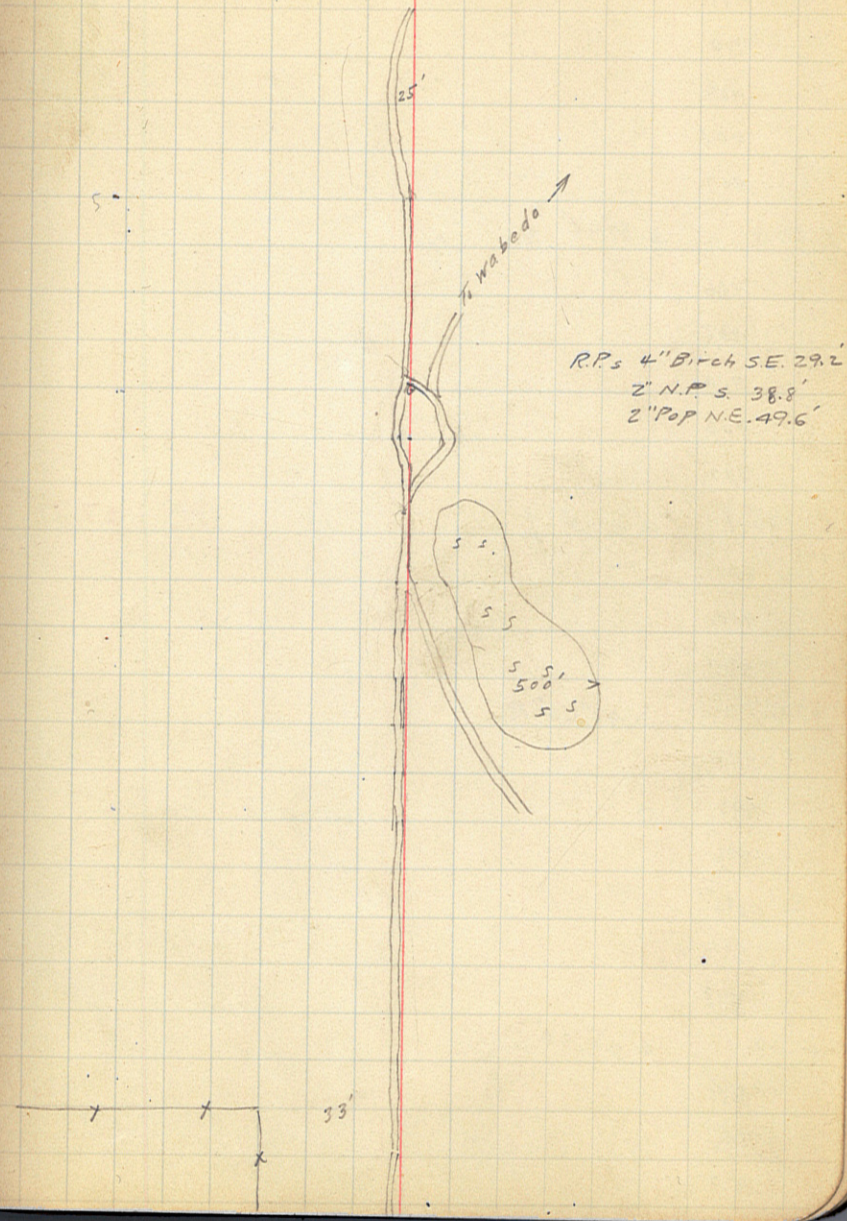
870

869

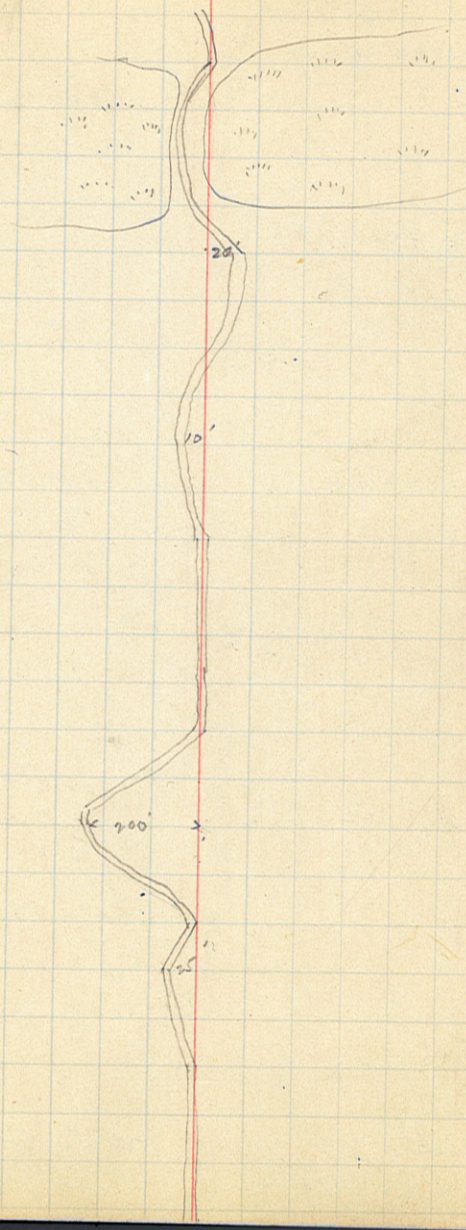
△ 69° 29'
299 C.L.
P.I. =
T =
L.C. =
P.C. =
P.T. =

Birch hub.

Note:- Alignment from 882+78° to 928+27.7 is a Preliminary traverse. For Located line alignment see Page. 53.-54

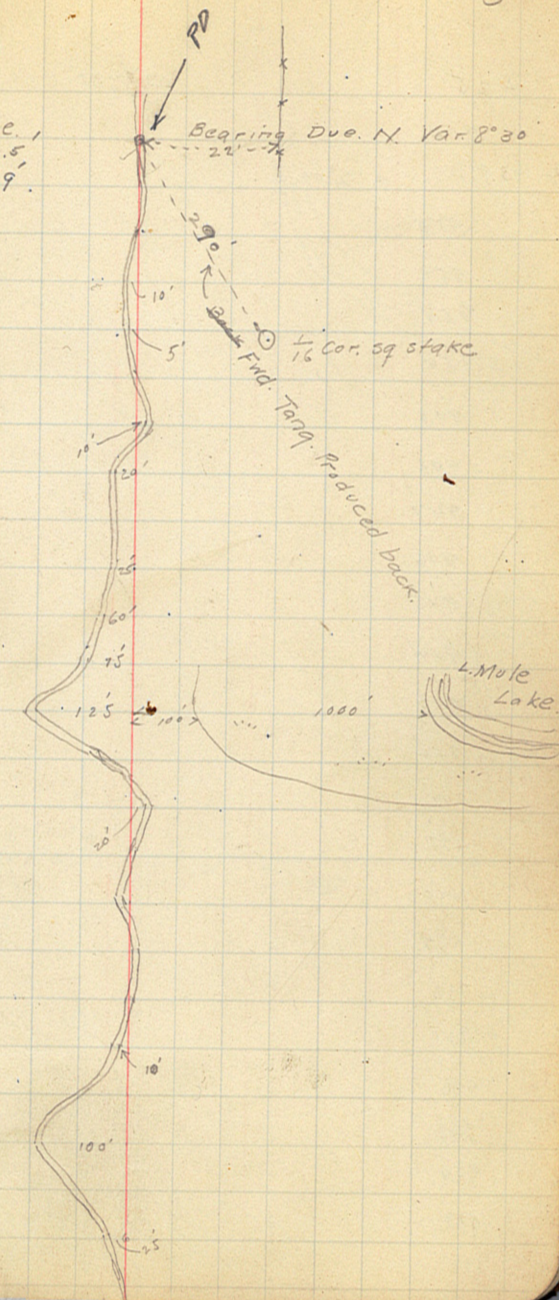


911
910
909
908
907
+ 59.7 △ 80°48' R.
906
905
904
903
902
+ 28.9 △ 11°03' L.
901
900
899
+70.8 △ 42°23' R.
898
897 ⊙
896
895
894
893
+ 40 △ 25° 20' L.
892
891
890



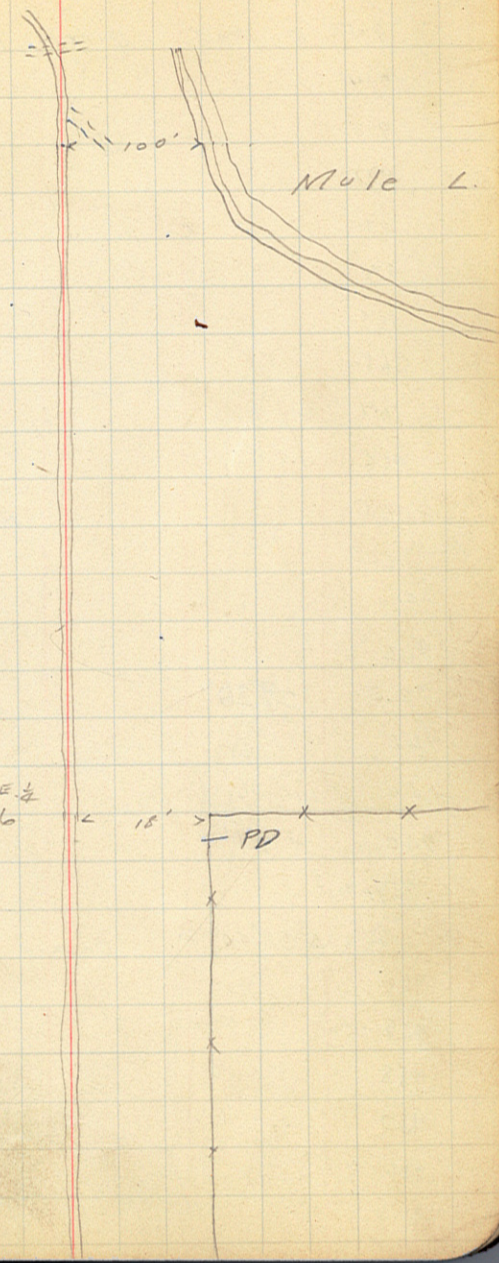
931 +21' = 928+27 of new line			
+52.7	Δ 63°21'L. (21')		Intx. with 1/16 Line
930			
929			
928			
+52.9	Δ 23°41'L.		
927			
926			
925			
924			
+ 85.4	Δ 44°20'R.	N 87°30'E.	Var 8°30'
923			
922			
921			
920			
919			
918			
+70.9	Δ 31°20'L.		
917			
916			
915			
914			
913			
912			
911+16.7	Δ 19°39'L	N 74°30'E	Var 8°30'

Run N. on 1/16 Line.
R.P.s F.P. N.E. 24.5'
F.P. S.E. 34.9'



12" × 18" CM Imp.

+25
954
+33.9 Δ 2°00' L.
953
952
951
950
949
948
947
946
945
944
943
942
941
+97
940
939
938
937
936
935
934
933
932



Continued on P. 55

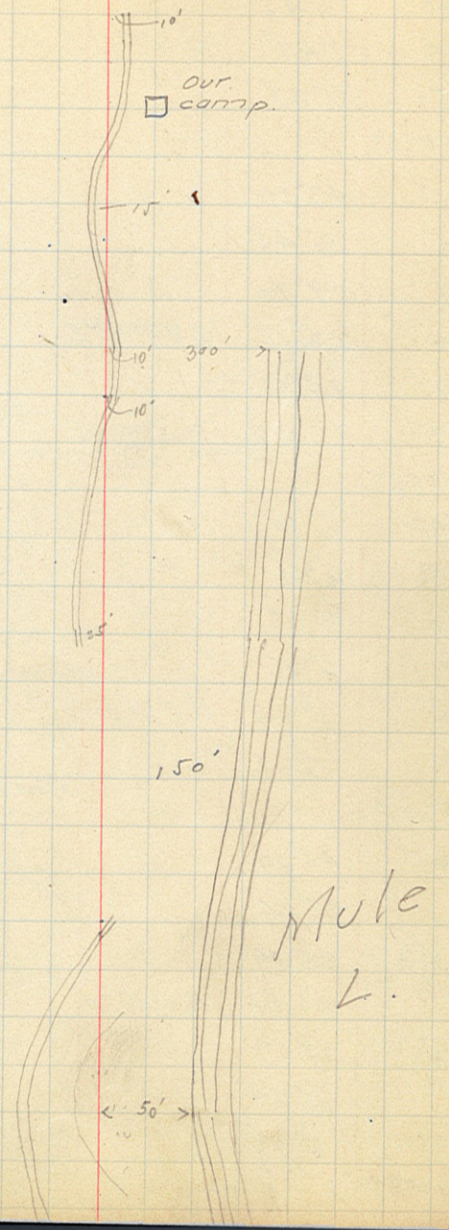
975 ⊙ P.O.T. Birch Hub N. of road.
974
973
972
971
970
969
968
967 ⊙ P.O.T. Pap Hub N. of road.
966
965 N 56° 30' E Var 8° 30'
964
963
962

P.T. + 72.3 29°20'
961 18°51'
+50 11°36'
960 4°21'
P.C. 959+70

+82 ± Δ 58°40' R. Backed up + put in Curve.

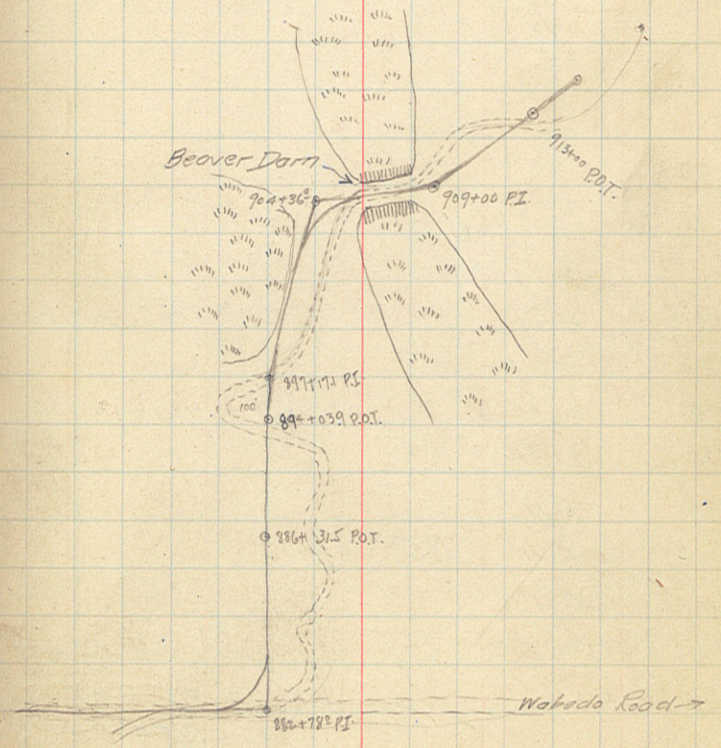
Δ 58°40' R.
D = 29° C.R.
P.I. 960+82.1
T = 1+12.1
P.C. 959+70.0
Lc = 2+02.3
P.T. 961+72.3

960
959
958
957
956
955



913+00 P.O.T.
N 68° E. Var. 8°30'

P.T. +72.9	15°00'		
+50	12°43'		Δ 30° L.
			D 20° L.
909	7°43'	N. 67°11' E	P.I. 909+00
+50	2°43'		T. 77.1
			L. 150.0
P.C. 908+22.9			
P.T. +46.5	43°30'		
905	36°45'		Δ 87° R.
			D 29° R.
+50	29°30'		P.I. 904+36
904	22°15'	S 82°49' E	T = 189.5'
			L = 300.0'
+50	15°00'		
903	7°45'		
P.C. 902+46.5			
P.T. +54.2	5°30'		
			Δ 11° R.
898	4°25'		D 4° C.R.
			P.I. 897+17.1 = In ctr. of road.
+50	3°25'		T. 137.9
897	2°25'		L. 275.0'
+50	1°25'	N. 10°11' E	
896	0°25'		
		886+31.5 P.O.T.	
P.C. 895+79.2		894+03.9 P.O.T.	
P.T. +88.6	45°00'		
+50	39°24'		Δ = 90° L.
			D = 29° L.
883	32°09'		P.I. 882+78.2
+50	24°54'	N. 0°43' W.	T = 199.7'
882	17°39'		L = 310.3'
+50	10°24'		
881	3°09'		
P.C. 880+78.3			



P.T. +27.7	33°57'	= 931+21° Prelim. Traverse
928	31°11'	
+50	26°11'	P.D. on Rt. 927+50
927	21°11'	
+50	16°11'	
926	11°11'	N. 0°43' W.
+50	6°11'	
925	1°11'	
P.C. 924+88.2		

P.I. 926+82.0 Intx. 1/16 L.
△ 67°54' L
T = 193.8
L_c = 339.5'
D = 20°

27.7
4.46
166.2
120
46

100.0
88.7
11.8
2
70.8
2°

71

2° 46'
31° 11
33° 57
2
66° 114
67° 54'

3.395
20) 67.900
60
79
60
190
180
100
100

926+82.0
1+93.8
924+88.2
3+39.5
928+27.7

67°50' = 3864.7
3852.6
12.1
4.84

3852.6
4.8
3857.40
20) 3857.40
20
185
180
57
40
174
160
140

192.87

~~1st~~ 1/16 Cor. sets South of P.I. 164.5'

994					
993					
992					
991					
990					
989					
988					
987					
986					
985					
+29.2	⊙	Pop. Hub.			
984					
983					
982					
981					
980					
979				P.I. 977+81.3	
P.T. +67.9	27°52'			Δ 55°42' L.	
+50	25°16'			D= 29° L	
978	18°01'			T= 105.5	
+50	10°46'			L= 192.1	
977	3°31'				
P.C. 976+75.8					
P.I.+81.3	55°42' L				
977.					
976					

55

24.2
2 8.7
167 4
1936
210.54
180
3.1

1.920 7
29) 55.700
29
267
261
60
58
200
203

3°31'
7 15
10 46
7 15
17 61
18°01
7 15
25 16
2°36
27°52

17.9
8.7
125 3
1432
155.73
121
3 6

2°

54° 104
55° 44'

190.8
8.8
182.0

3035.8
3025.2
10.6
2.12

977+81.3
1+05.5
976+75.8
1+92.1
978+67.9

3025.2
2.1
3027.3
29) 3027.36
29
127
116
113
87
260

(8.8)

Intx. N+S Sec. Line.

M.C. sq. stake south of P.I. 190.8'
W.C. M.C. I.P. sets " " " 182.0
10' from M.C. to water edge

1013		
1012		
1011		
1010		
1009	Δ0°55' L	
1008		
1007		
1006		
1005		
1004		
1003		
1002		
P.T. +83.4	36°50'	
+50	31°59'	P.I. 1000+78.9
1001	24°44'	Δ73°40' R
+50	17°29'	D = 29°
1000	10°14'	T = 149.5
+50	2°59'	L = 254.0'
P.C. 999+29.4		
+ 78.9	Δ73°40' R. N74°30'E.	N.E. Cor. Sec. 25-140-29
1000		
999		
998		
997		
996		
995		

20.6
8.7
1442
1648
179.22
120
59.

33.4
8.7
2338
2672
290.58
240
51

4°

2°
2°59'
7 15
9 74
10°14'
7 15
17 29
7 15
24 44
7 15
31 59
4°51'
35 110
36°50'

2.5402
29) 73.6666
58
156
145
116
116
66
58

1.4798
29) 42.9150
29
139
116
231
203
285
261
240
232

148.0
1.5
149.5

1000+78.9
1+49.5
999+29.4
2+54
1001+83.4

sq. scribed stake.

2 new B.T.s.
8" Birch N49°30'E. 67.9'
16" Bk. stump. S10°W 41.2

1032
1031
1030
1029
1028
1027
+25
1026
+ 57± ⊙ P.O.T.
1025
1024
1023
1022
1021 N 44° E
1020
P.T. + 72.9 15°00'
+50 12°43'
1019 7°43'
+50 2°43'
P.C. 1018+22.9
1019 Δ 30°00' L.
1018
1017
1016
1015
1014

P.I. 1019+00
Δ 30°0.0' L.
D = 2.0° L.
T. 77.1
L. 150.0

22.9
.5.6
137.4
120
17

2°17'
1243
460

50.0
22.9
27.1
.6
162.6
120
43

1019+00.0
77.1
1018+22.9
150
1019+72.9

2°43'

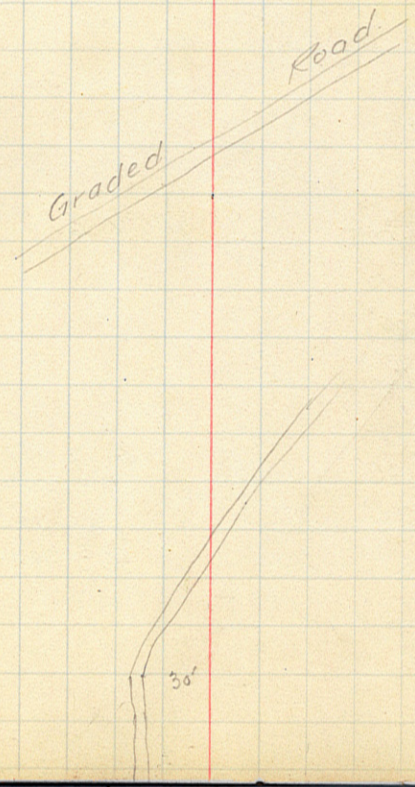
400'

Graded Road

Mule Lake

1054
1053
+28.3 ⊙ P.O.T.
1052
1051
1050
1049
1048
1047
1046
1045
1044
+~~75~~ +75
1043
+ 77.5 ⊙ P.O.T.
1042
1041
1040
1039
1038
1037
1036
1035
+25.9 ⊙ P.O.T.
1034
1033

Near Large Leaning w. Pine.



P.T. +30.2	15°00'		P.I. 1066+57.3 Δ = 30° R D = 20° R T = 77.1 L = 150.0
1067	11°59'		
+50	6°59'		
1066	1°59'		
P.C. 1065+80.2			
+57.3	Δ 30°00' R. P.I.		
1066			
1065			
+56.3	⊙ P.O.T.		
1064			
1063			
1062			
1061			
+45			
1060			
+66°	⊙ P.O.T.	N 64° E.	
1059			
P.T. +08.1	10°00'		
1058	9°36'		
+50	7°06'		P.I. 1057+09.3 Δ 20°00' R. D = 10°00' T = 101.2 L = 200.0'
1057	4°36'		
+50	2°06'		
P.C. 1056+08.1			
+09.3	Δ 20°00' R. P.I.		
1057			
1056			
1055			

1066+57.3
77.9 36
8.1
20.3

50.0
8.1
41.9
3
125.7

1057+09.3
1+01.2
1056+08.1
2

2° 06

2°

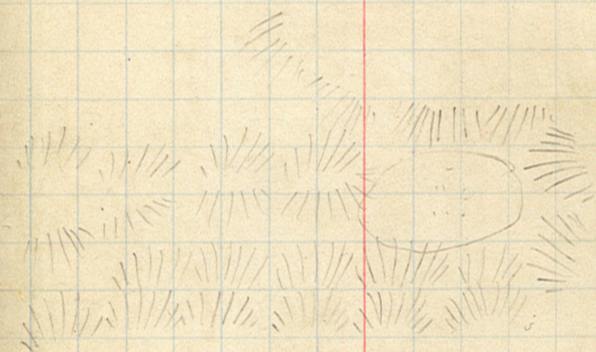
1065+80.2
1 50
1067 30.2

101.03
1.3
101.16

19.8
.6
11.8.8
.6
0.9

1°

30.2
18 11.2



1080		
1079		
1078		
1077		
1076		
1075		
1074		
+ 72±	O P.O.T.	N 53° 45' E.
1073		
P.T. + 34.6	10° 00'	
1072	8° 16'	P.I. 1071 + 35.8
+ 50	5° 46'	Δ 20° L. D = 10° L.
1071	3° 16'	T. 101.2 Lc 200.0'
+ 50	0° 46'	
P.C. 1070 + 34.6		
+ 35.8	Δ 20° L.	
1071		
P.T. + 19.3	10° 00'	
1070	9° 02'	P.I. 1069 + 20.5
+ 50	6° 32'	Δ 20° L. D = 10° L.
1069	4° 02'	T = 101.2
+ 50	1° 32'	L = 200.0'
P.C. 1068 + 19.3		
+ 20.5	Δ 20° 00' L. P.I.	
1069		
1068		S 85° E.

1071 + 35.8
1 + 01.2
1071 + 34.6 1070 + 34.6
2+

30.7
3
92.1
50
3
150

500
193
307

1069 + 20.5
1 + 01.2
1068 + 19.3
2

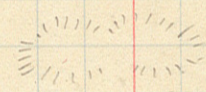
1° 32'
2 30
3 62
4 02.

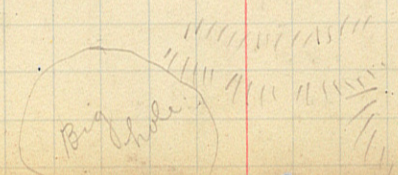
19.3
3
57.9

0° 46'
2° 30
2 76
3 16
2 30
46

500
346
15.4
3
46.2

88.4 8.8





+36.9	⊙ 45°00' L.		
1092			
1091			
1090			
1089			
1088			
1087			
P.T. +50.8	22°30'		P.I. 1085+78.3
1086	15°08'		Δ 45° R.
+50	7°53'		D = 29° R.
1085	0°38'		T = 82.7
P.C. 1084+95.6			L. = 155.2
+78.3	Δ		
1085			
1084			
P.T. +98.8		10°00'	
+50	~~10°~~	7°34'	
1083	~~7°34~~	5°04'	P.I. 1083+00
+50	~~5°04'~~	2°34'	Δ 20° L.
1082	~~2°34'~~		D = 10° L.
P.C. 1081+98.8			T = 101.2
1083	Δ 20° L.		L. = 200.0
1082			
+61.0	⊙ P.O.T.		
1081			

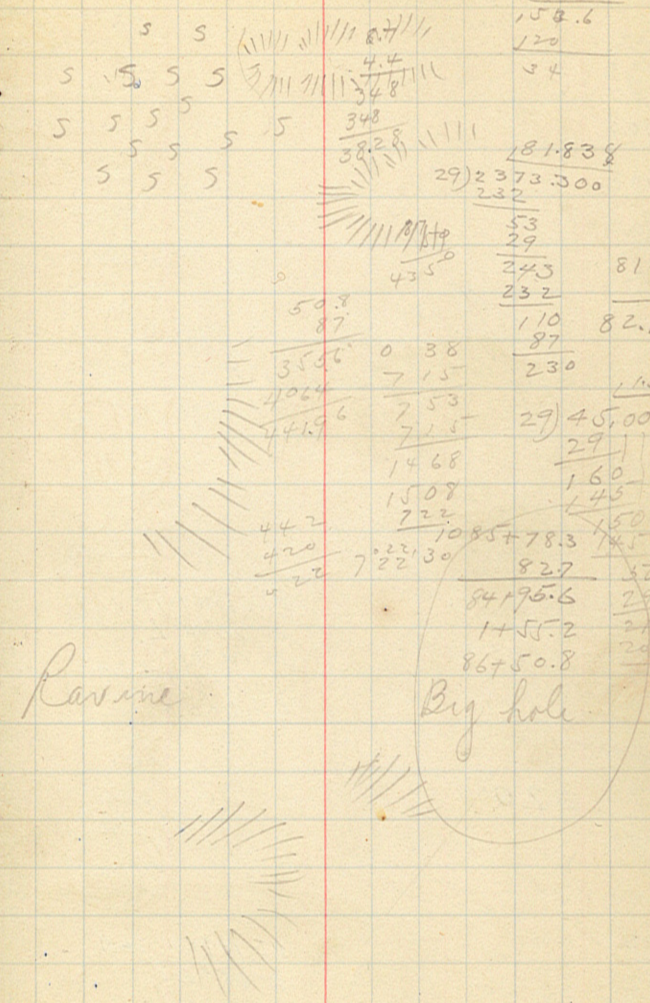
2°26'
7 34
10 00

48.8
3
146.4

1083+00.0
1+01.2
1081+98.8

51.2
3
153.6
120
34

2°34'
2 30
4 64
5°04'



81.838
29) 2373.300
232
53
29
243
232
110
87
230

81.8
.9
82.7

1.5517
29) 45.0000
29
160
145
150
145
50
29
210
203

1085+78.3
82.7
84+95.6
1+55.2
86+50.8

		P.I. 1107+22.2
		Δ 35°00′ L.
		D = 20° L.
		T = 90.8
+50	1°52′	L = 175.0′
P.C. 1106+31.4		
1106		
1105		
1104		
1103		
1102		
1101		
1100		
+16°	⊙	N. 13°30′ E.
1099		
1098		
P.T. +17.5	10°00′	
1097	9°08′	
+50	6°38′	P.I. 1096+18.7
1096	4°08′	Δ 20°00′ L.
		D = 10°00′
		T = 101.2
+50	1°38′	L = 200.0′
P.C. 1095+17.5		
+ 18.7	Δ 20°00′ L.	
1096		
1095		
1094		P.I. 1092 + 36.9
P.T. +09.4	22°30′	Δ 45° L.
		D = 29° L.
1093	21°08′	T = 82.7
+50	13°53′	L = 155.2
1092	6°38′	
P.C. 1091+54.2		

1°

50.0
31.4
18.6
36
111.6
60
52

1000
54.2
45.8
18.7
320 6
3664
358.46
360
38
9.4
8.7
65 8
75 2
81.78
60
22

6°38
7 15
13 53
7 15
20 68
21 08
1°
22
22 30

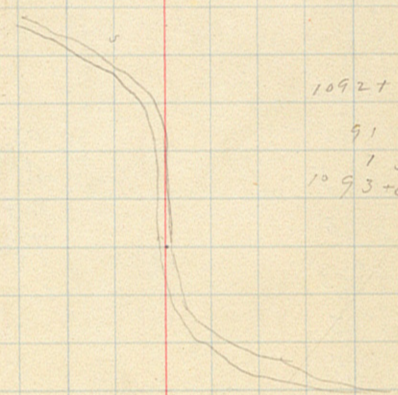
1096+18.7
1+01.2
1095+17.5

17.5
3
52.5
53
9 08
81

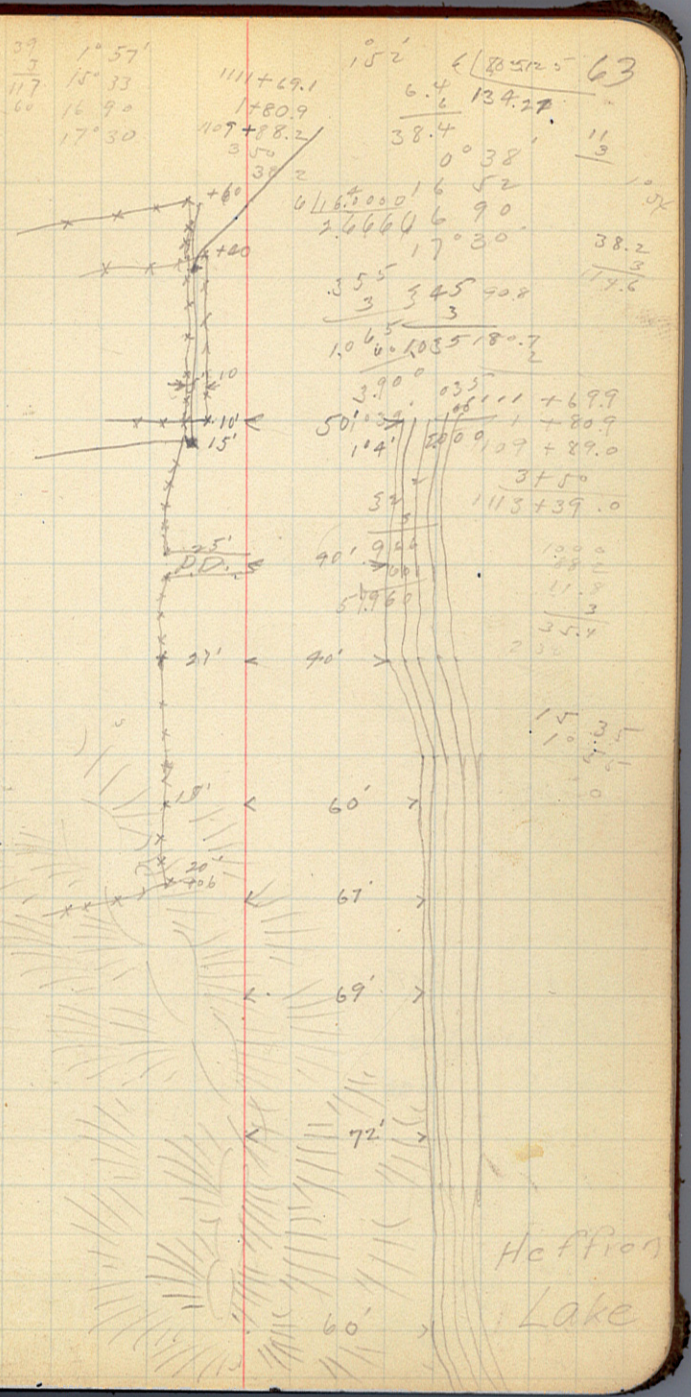
50.0
17.5
32.5
3
97.5
60
38

1°38′
2 30
3 68
4°08′

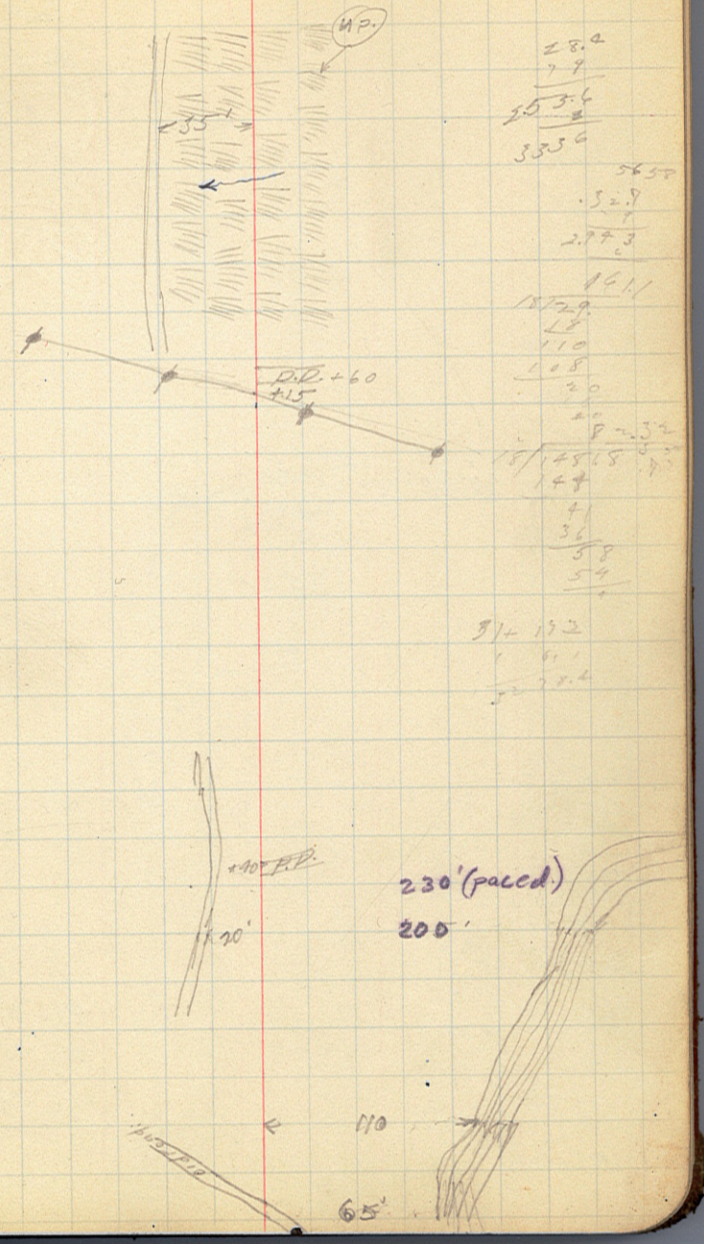
1092+36.9
82.7
91 54 2
1 55 2
1093+09.4



1119		
1118		
1117		
P.T. + 82		
+ 50	8° 00	
1116	7° 02	Δ 16° R
+ 50	5° 34	P.I. = 1115 + 49.2
1115	4° 06	6°C
+ 50	2° 38	T = 134.2
P.C. + 65.5	1° 02	L = 266.7
1114		
P.T. + 38.2	17° 30'	
1113	15° 35	
+ 50	13° 05	P.I. 1101 + 69.1
1112	10° 35'	Δ 35° 00' R
+ 50	8° 05	D = 10° 00 R
1111	5° 35	T = 180.9
+ 50	3° 05'	L = 350.0
1110	0° 35'	
P.C. + 88.2		
1109		
P.T. + 06.4	17° 30'	
1108	16° 52'	
+ 50	11° 52'	
1107	6° 52'	

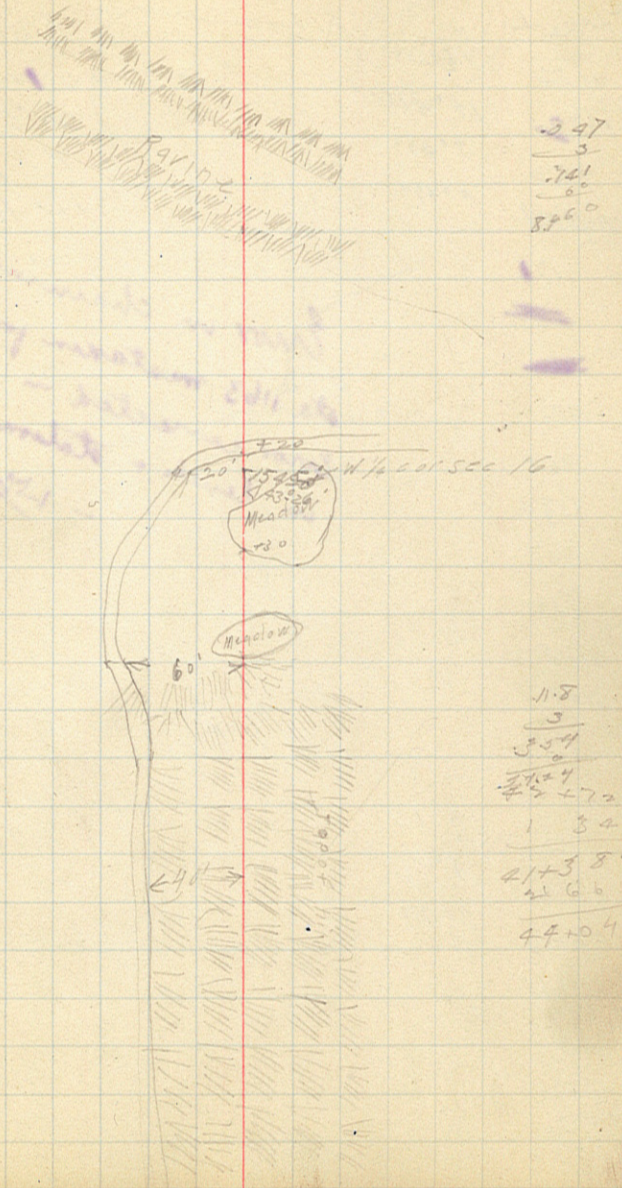


1140		
1139		
1138		
1137		
1136		
1135		
1134		
1133		
P.T. +78.4		
+50	14° 30'	Δ 29°
1132	11° 57'	P.I. 1132+00
+50	7° 27'	18° C.R.
P.C. +43	2° 57'	T = 82.9
1131		L = 161.1
1130		
1129		
1128	P.O.T.	
1127		
1126		
1125		
1124		
1123		
1122		
1121		
1120		



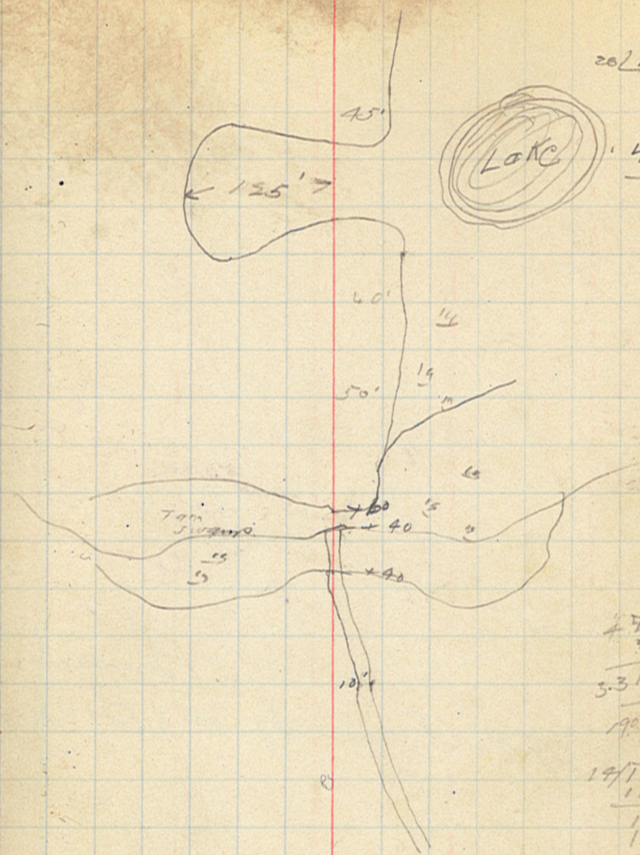
1158
1157
1156
1155
+38 P.O.T
1154
1153
1152
1151
1150 0°40' Approx. on sec. line N42°E 746
1149
1148
1147
1146
1145
P.T. +04
1144 8°00'
+50 70-51'
6°-21'
1143 4°-51'
+50 3°-21'
1142 1°-51'
+50 0°-21'
P.C. +38
1141

6°C
Δ 16°00' Lt
P.I. = 1142+72
T = 134
Lc = 266



P.T. + 62.1		N 35° E	Δ 32° L
+50	16°00'		1171+84.3 P.I.
1172	14°47'		20°C
+50	9°47'		T = 82.6
P.C. ~~+02.1~~ 1 60.	4°47'		Lc = 160
1171			
~~[illegible]~~			
~~[illegible]~~			
1170			
1169			
1168			
1167			
1166			
1165			
1164			
P.T. + 77.6		N66°40'E	Δ 24°30' R
	12°15'		P.I. = 1162+91.7
+50	10°19'		14°0C
1163	6°49'		T = 89.1
+50	3°19'		
P.C.+ 02.6			Lc = 175
1162			
1161			
1160			
+35.2	P.O.T.		
1159			

Error in chaining
sta 1163 mistaken for 1165.
Error corrected in field
in levels + stationing.
— [signature]



20/16.43
8.2
479
10
4.790
.121
1.21
60

47.4
7
3.318
14/122
112
120
14/74.5
7.4
105
98
70

continued in Transit Book 2.

P.T. +65[5]		
	10°-00	
+50		
	9.14'	
1177	6° 44'	Δ 20° R
		P.I. 1176+66[2]
+50	4° 19'	10° 0
1178	~~1~~ 2 44'	T = 101.[4]
P.C. 1175+65[5]		... = 200
1177		
1176		
1175		

3 45
1.7 25 60
235 80

12-27-19
W.M.S.
AWM

PINE RIVER - REMER
Change from 408+42.4 to 422+76.2

422+76.2

+93.4 △ = 422+76.2

421
420
419
418
417
416
415
414
413
412
411
410
409

408+42.4 △ = 407+86.6

LEVELS ON CHANGE

BM	5.26	1332.41			1327.15
408+42 L = 407+86.6				5.9	26.5
09				7.6	24.8
+50				8.8	23.6
10	## 11+75 is level			9.5	22.9
11				10.7	21.7
T.P.	9.51	31.68	10.24		22.17
12				9.9	21.8
13				8.7	23.0
14				9.0	22.7
+50				8.5	23.2
15				7.7	24.0
16				6.9	24.8
+60				5.4	26.3
17				4.7	27.0
+35				5.1	26.6
18				4.0	27.7
19				4.4	27.3
20				5.7	26.0
21				4.9	26.8
+93 4 = 422+76				3.7	28.0
WL				10.33	21.35

Sta 408+42 ± — 419+70 ± 12/27/19 69

L R

Spin FP 31' L 401+36

L 4.7/83 L/12 5.9 L

6.9/33 6.4/20 7.6 6.1/33 L

L 8.8 6.9/33 L

L 9.5 L

L 10.7 10.0/33 L

L 9.9 9.4/20 8.3/25 L

L 9.3/10 8.7 9.7/5 9.6/10 6.7/17 6.4/33 5' to lake

L 9.0 9.1/15 8.2/20 8.4/33

L 8.5 L

7.8/33 7.7 6.0/33

8.0/33 6.9 4.8/33

5.5/33 5.4 4.6/33

L 5.3/25 7.2/16 7.2/10 4.7 L

L 5.1 L

L 4.0 L

L 4.4 4.4/25 5.4/30

L 5.7 4.2/25 6.6/33

3.9/30 4.9 L

3.7

Lake Harriet

PC 908+22.9		△ 30° L.
+50	2° 43'	D = 20° C.
909	7° 43'	P.I. 909+00
+50	12° 43'	T 77.1
P.T. +72.9	15° 00'	P.C. 908+22.9
		L. 1+50
		P.T. 909+72.9
		N 68° E Ver 8 30
91.3	⊙ P.O.T.	

2.5
.3
6.0

50.0
22.9
27.1
6
162.6
120
42

50
6
300

12° 43'
2° 17
15 60

22.9
.56
137.4

30°
20° T = 77.1
L = 150'

P.T. + 46.5	43° 30'
905	36° 45'
+50	29° 30'
904	22° 15'
+50	15° 00'
903	7° 45'
P.C. 902+46.5	
P.T. + 54.2	5° 30'
898	4° 25'
+50	3° 25'
897	2° 25'
+50	1° 25'
896	0° 25'
P.C. 895+79.2	
P.T. + 88.6	45° 00'
+50	39° 24'
883	32° 09'
+50	24° 54'
882	17° 39'
+50	10° 24'
881	3° 09'
P.C. 880+783	

Δ 87°00' R
D = 29°
P.I. 904+36
T. 189.5
L. 300.0'

P.I. 897+17.1
D = 4° R.
Δ = 11°00'
T = 137.9
L = 275.0'

886+31.5 = P.O.T.
894+03.9 = P.O.T.

Δ = 90° L.
D = 29° L.
P.I. 882+78.0
T. 1+99.7
Lc 310.3'

6°45'
14°00'
21°15'

904+36
1+89.5
902+46.5

P.I. is in. ctr. of old road.

883-

light C. medium G.

P.I. 882+78.0
T = 1+99.7
P.C. 880+78.3
Lc 3+10.3
P.T. 883+88.6
20+00.3 Tang.
P.I. 903+88.9
T 1+99.7
P.C. 901+89.2
Lc 3+10.3
P.T. 904+99.5
4+00.3 Tang.
P.I. 908+99.8
T. 74.8
P.C. 908+25.0
Lc 1+45.8
P.T. 909+70.8
19+25.2 Tang.
P.I. 928+96.0 approx.

886+31.5 P.O.T.
894+03.9 P.O.T.
893+80 cross road.

2200.0
199.7
2000.3

600.0
199.7
400.3

P.C. 880+78.3
881 = 3° 09'
+50 = 10° 24'
882 = 17° 39'
+50 = 24° 54'
883 = 32° 09'
+50 = 39° 24'
P.T. + 88.6 = 45° 00'

2000.0
74.8
1925.2
3° 09'
7 15
10 24
7 15
17 39
7 15
24 54
7 15
32 09
7 15
39 24
5° 36
44 60

1000
783
21.7
8.7
1519
1736
188.79
180

38.6
8.7
2702
3088
335.82
300

1.2

275
4) 11:00
8
30
28
20
20

100.0
79.2
20.8
1.2
416
208
24.96

4°
4) 551.70
137.92

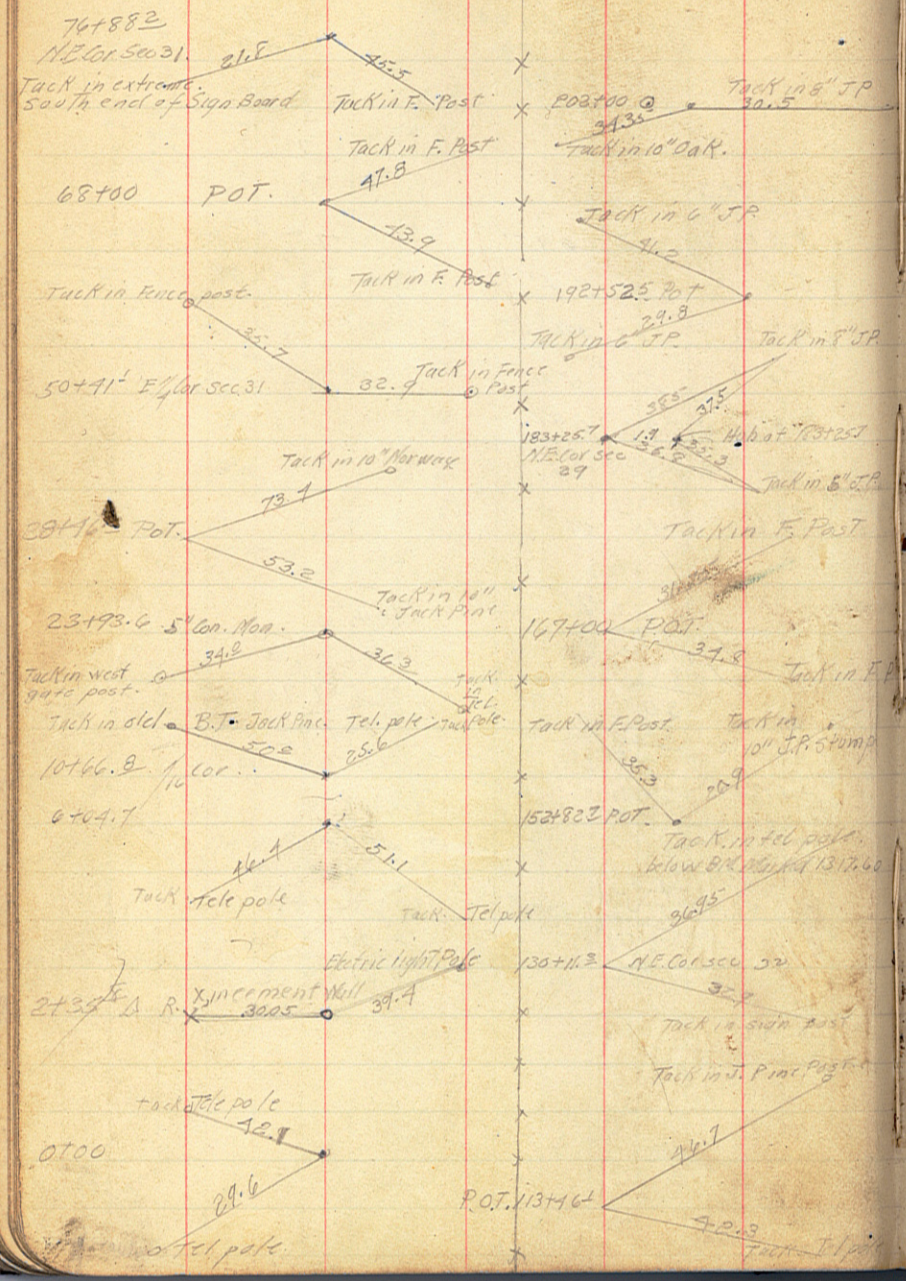
54.2
1.2
1084
542
65.04

1.2
50
60.0

1° 05'
4 25

897+17.1
1+37.9
895+79.2
2+75.0
898+54.2

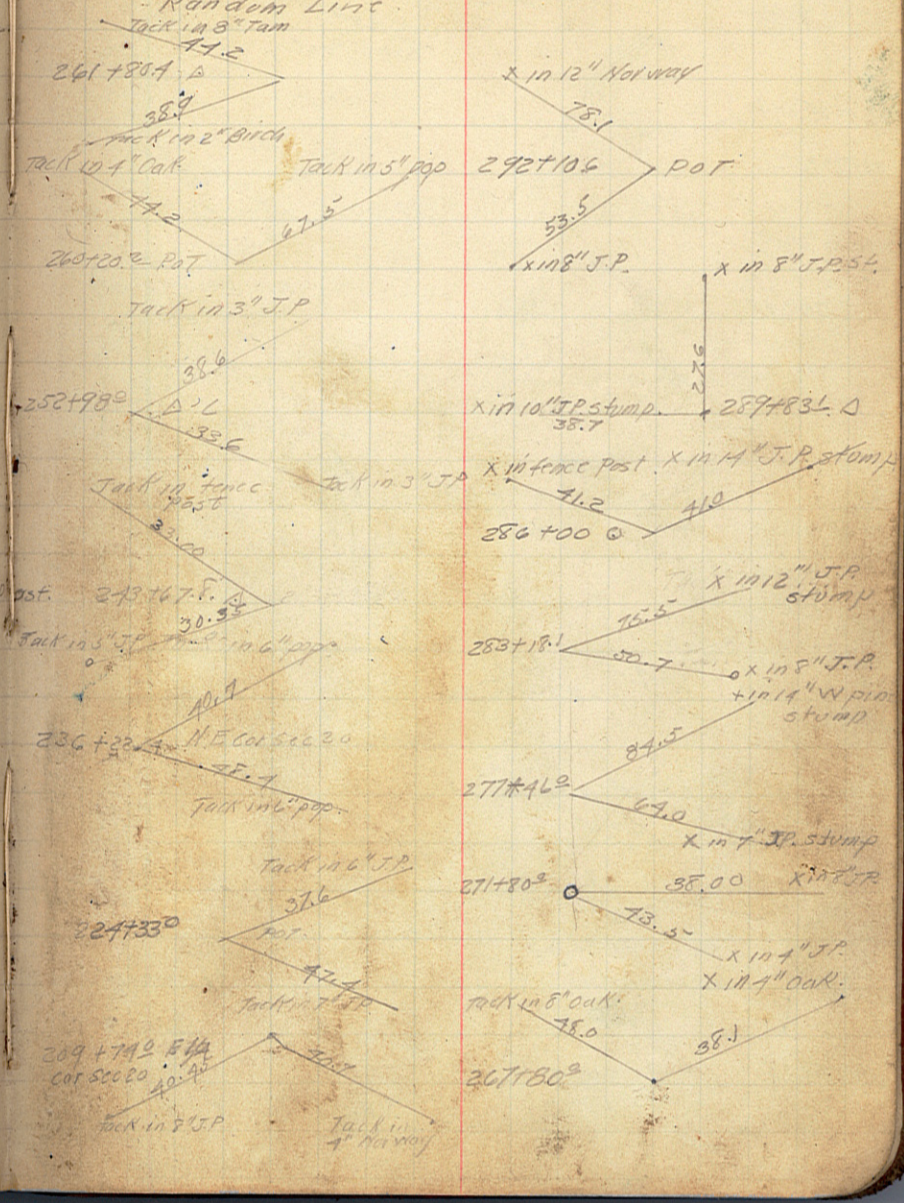
Reference points.



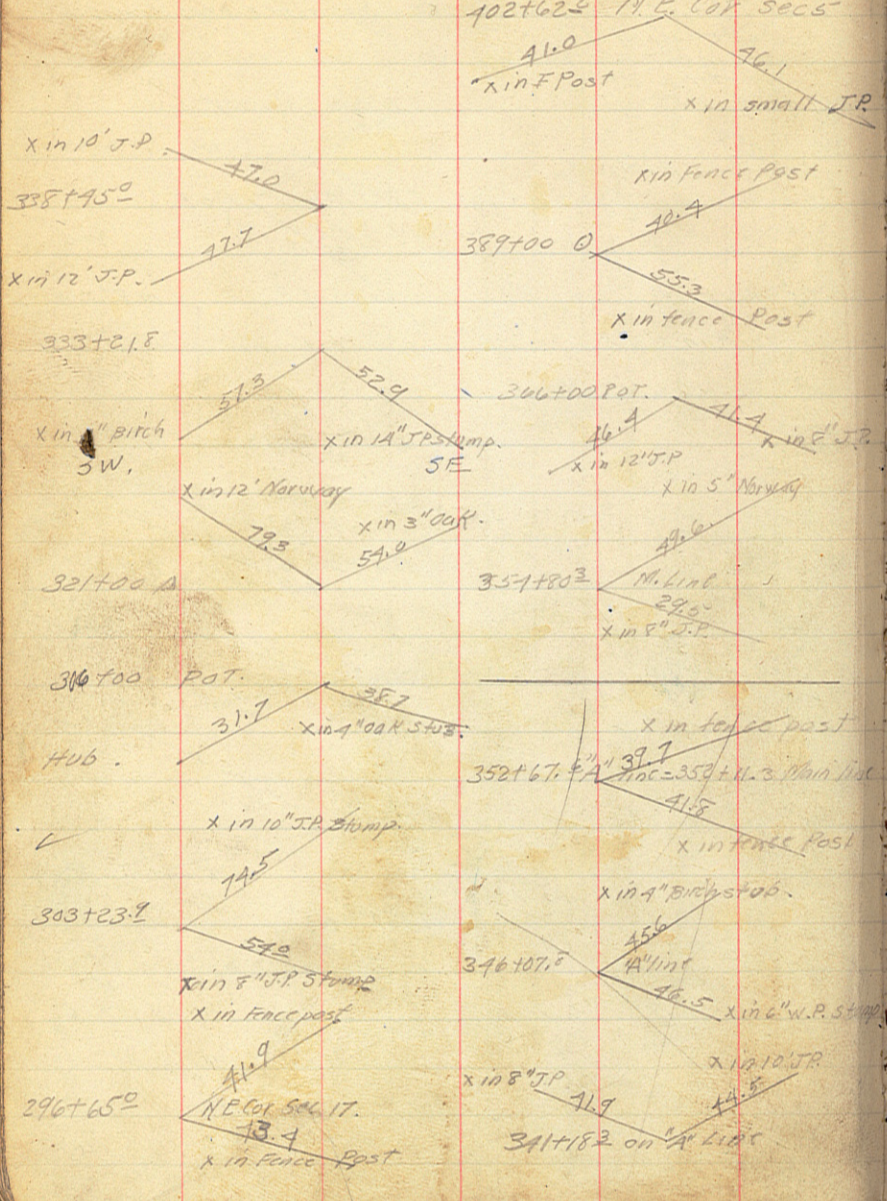
5-29-30 Hot & dusty

T.E.P.
S. Johnson

Note from sta 130+11.3 NE Cor Sec 32 to sta 128+85.7 NE Cor Sec 29. Reference points on Random Line.

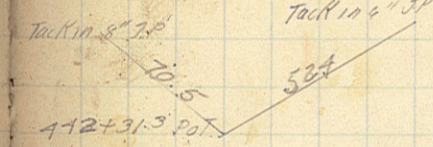


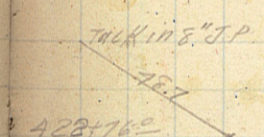
Reference points

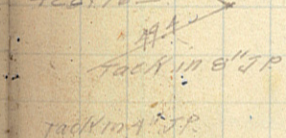


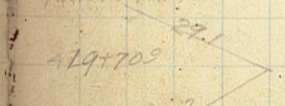
on Federal Aid Road

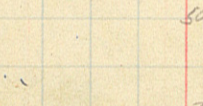
5-29-19.
J.P.
S. Johnson

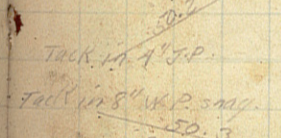


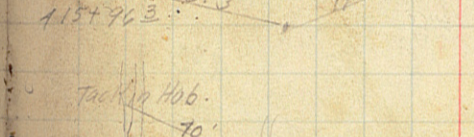


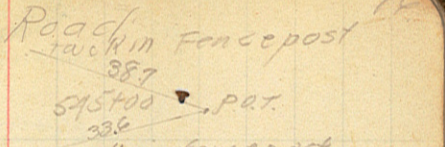


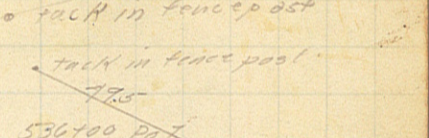


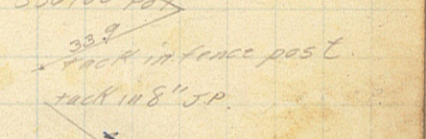


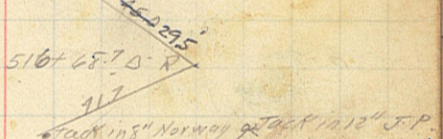


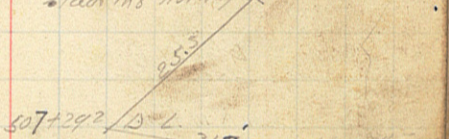


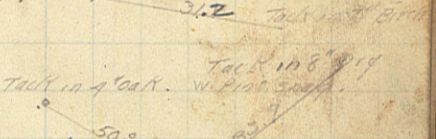












614+62³
tack in fence post
40.2
41.5
Tack in 3" J.P. fence

Tack in 8" J.P. 14.7
Tack in 8" J.P.
35.7
653+20.6
Δ R.

598+73¹ Δ L
tack in fence post
34.4
43.5
tack in fence post

652+68.0
tack in fence post
36.8
38.7
tack in fence post

E 1/16 Cor. N. Line
Sec 21, 137-29
tack in fence post
176.3
on sec line
38.3
00°3'
594+40.⁴ Δ L.
tack in f. Post
36.9
tack in fence Post
tack in fence post
40.8
35.2
582+89¹ Δ R.

tack in 5" J.P.
15.6
647+77⁵ Δ L 28.6 tack in fence post

tack in fence post
28.2
645+30²
36.7
Tack in fence Post

Tack in fence Post
34.4
572+00 PoT.
33.5
Tack in fence post

634+87.9 Δ R
28.1
48.1
tack in cor. Fence Post
Tack in sign post

551+51⁵
41.5
32.7
33.2
Tack in f. Post
RPFP

594+40.4 Δ 41°45' L
27°C.
596+73.1-48°3' L
29°C.

79 60
90 22
89 38
44°49'

634+879 Δ 88°58' R

tack in 3" pop.
11.8
671+37⁷ Δ R.
26.1
Tack in Fence Post

Blacksmith shop
Tack in N.W. Cor. of Bldg 1' above ground
666+14² Δ L
28.1
Tack in 6" J.P.
Tack in J.P. 7"
35.8
661+49.1 Δ R
38.6
Tack in flag pole

TIME SHEET

MAY

DATE	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
F.E. MARSH	1		1	1	1	1	1	1	0	½	1	1	0	0	0
J.F. POMASEL	1		1	1	1	1	1	1	0	½	1	1	1	½	1
A.W. MOULSTER	½		½	0	0	1	½	0	0		0	0	0	0	0
ARTHUR ZIGMUND			1	1	1	quit.	0	0	0	0	0	0	0	0	0
S. Johnson							1	1	0	½	1	1	1	0	1
Chas. Wideman (Claim in to May 29 inclusive)										½	1	1	0	0	1

JUNE 1919.

Date	2	3	4	5	7	9	11	19	20	21
F. Marsh	1	1	1	1	0	0	0	0	0	0
J.F. Pomasel	½	1	1	1	1	1	1	1	1	1
A.W.M.	0	0		0	0	0	0	0	0	0
S. Johnson	1	1	½	1	1	1	1	0	0	0
C. Wideman	1	1	0	1	1	0	0	0	0	0

EXPENSE SHEET

Livery
From H Andrews

May 20.	2 trips		2.50
(May 21	2 Trips (sta 220) Sec. 16		3.50)
" 22	2 Trips sec 17.		4.50
" 23	2 " sec 9		5.00
" 24	2 " N line sec 9		5.00
" 26	2 sec 4		6.00
" 27	2 sec 4 & 5		7.00
" 28	2 " 4 & 5		7.00
" × 29 ×	1 trip to N.E. cor sec 5		3.50
Claim in to May 29 inclusive			14.00
May 31	2 trips to Sec 32	139.29	7.00
June 2	" "	21	8.00
" 3	"	21	8.00
" 4	"	21	8.00
" 5		16	9.00
" 7	2	16 & 10	

Claim in to 29 inclusive

May 19.		20	21	22	23	24	26	27	28
Pomasel	lunch 35	lunch 40	lunch 40	lunch 40	lunch 45	lunch 45	lunch 45	lunch 40	lunch 40
Marsh	lunch 35	lunch 40	lunch 40	lunch 40	lunch 45	lunch 45	lunch 45	lunch 40	lunch 40
Zigmund	lunch 35	" 40	" 40	lunch 45					
S. Johnson					lunch 45	lunch 45	lunch 45	lunch 40	lunch 40
Chas Wideman						" 45	lunch 40	" 40	

May	29	31	Jun 2	3	4	5	7
J.F. Pomasel Lunch	40	40	40	4 lunches	4	4	4
Marsh —	00	00	40				
Johnson Lunch	40	40	40				
Wideman —	00	40	40				

(Lunches from camp to begin June 3)

claim in

Computed Line Notes.

Starting at sta 882+78.0 Turn 90° L. and run 2200' North = sta 904+78.0
At 904+78.0 turn 90° R. and run East 600' to sta. 910+78.0 This Line should follow present road across swamp which lies between sta. 906+59.7 & 911+16.7 on Preliminary traverse.
At sta. 910+78.0 turn 29°10' L. and run N.E. approximately 5000' to intersect ¼ line and graded road. This line should pass very near △ 923+85.4 on traverse line. and should intersect ¼ line at about sta. 932+63. Sta. on this line at intersection should be very near 930+78.0 The △ of Intx should be 60°49' L.

29°C 90°△
T=199.7
Lc=310.3

Void of letting wet swamp

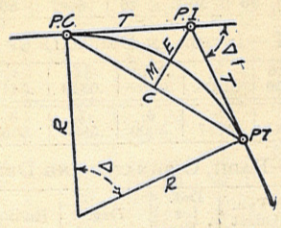
20°c. △29°10'
T=74.8
Lc=145.8

865+78.0
17+00
882+78.0
22+00
904+78.0

930+52.7
2+10
62.7

8d

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES



CURVE FORMULAS

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

Tangent=T=R tan $\frac{\triangle}{2}$ (3) Length of Curve=L=$100\frac{\triangle}{D}$ (4)

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

External=E=T tan $\frac{\triangle}{4}$ (7) =R cos $\frac{\triangle}{2}$ (1—cos. $\frac{\triangle}{2}$) (8)=R exsec $\frac{\triangle}{2}$ (9)

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

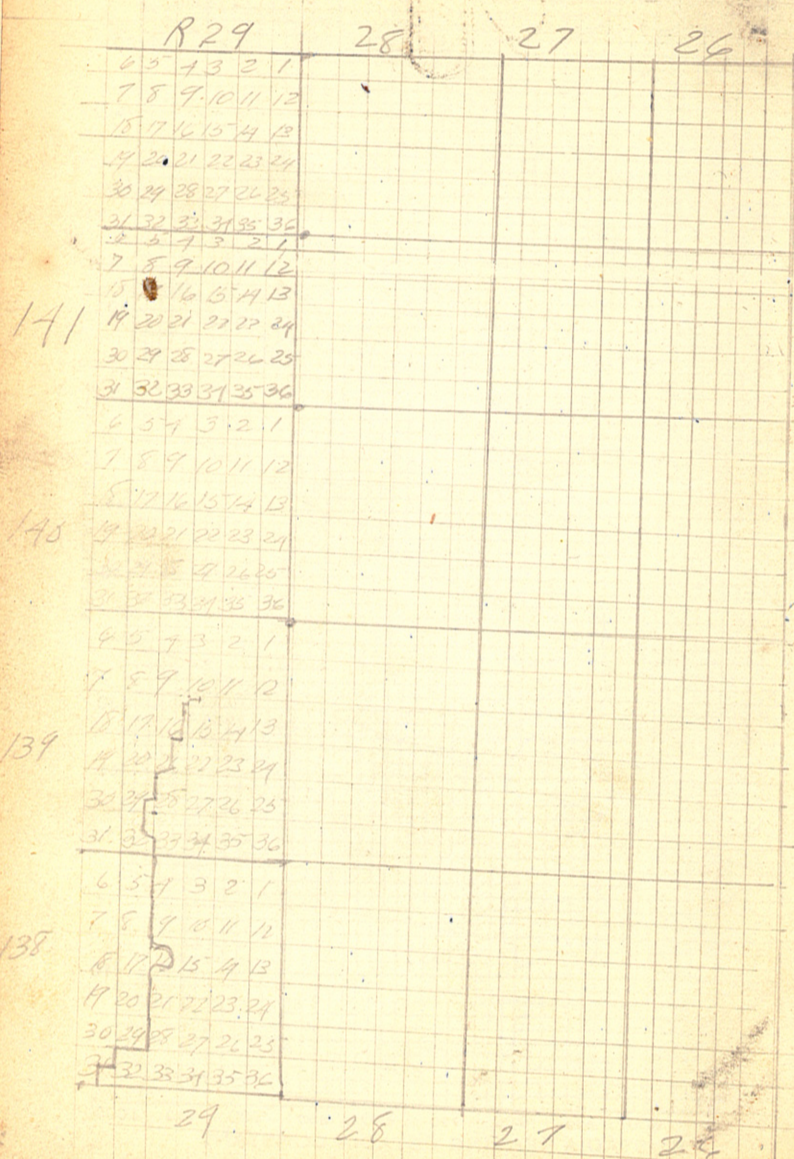
EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T. △=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÷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÷(2 x 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 △=32° and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and ÷42=5.5 or D=5° 30′.



410+11.8
2 25.2
407+86.6
225.2

29) 90.3333 = 3.1149
87
33
29
43
29
143
116
273
261

1106+22.2
90.8
1105+31.4
1 75
1107+06.4

29) 5763.1

29) 5763.10 = 198.72
29
286
261
253
232
211
203
80
68

198.7
2.1
200.8

P.I. 1106+22.2
Δ 35° L
D = 20° L
T = 90.8
L = 175.0
P.C. 1105+31.4
P.T. 1107+06.4

1306.50
2.42
1304.08

Stadia Traverse
on
West side of Long Lake
Rego Lake

Long Lake Stadia

⊼	⊙	Lower wire	Brg.
1	0	9.75	S.
1	2	57 Ft.	S 5°30'W
3	2	190'	S5°15'E.
3	S.L.	109'	N86°W
"	S.L.	213	S70°W
"	S.L.	297'	S60°W
"	4	7.15	S57°W
5	4	8.10	S33°15'W
5	S.L.	9.22	N20°E.
"	S.L.	9.84	N13°30'W
"	"	9.87	N21°W
"	"	9.90	N63°15'W
"	"	9.70	N72°W
"	"	8.95	N87°W
"	"	7.80	S81°45'W
"	MC	7.20	S73°W.
"	S.L.	7.30	S68°W
"	"	7.40	S61°W
"	6	7.05	S39°30'W.
7	6	8.08	S8°W.
"	S.L.	8.60	N7°45'E.
"	"	9.80	N38°W
"	"	9.45	N67°45'W.
"	"	9.95	S73°30'W.
"	"	9.05	S60°W.
"	8	6.65 (overwritten)	S61°15'W.
9	8	8.50	S38°45'W.
"	S.L.	10.34	N33°15'E.
"	M.C.	164'	N42°W

Traverse down west side.

= sta. 1605+58.8

= M.C. Bet. sec 13 + 18 — Shore 90's of M.C.

on S.L.

near NE 1/16 Cor.

on S.L.

on S.L.

Inst.

⊙	OBJECT	Int.	Brg.	V. A.
9	S.L.	10.06	N83°30'W.	
"	S.L.	8.28	S88°30'W.	
"	10	4.65	S65°30'W.	
11	10	8.05	S29°30'W.	
"	S.L.	1.78'	N1°W.	
"	S.L.	8.90	S82°W.	
"	S.L.	7.05	S75°W.	
"	12	5.63	S65°45'W.	
13	12	8.38	S28°W.	
"	S.L.	9.55	N25°E	
"	S.L.	225'	N6°W	
"	M.C.	2.00'	N24°30'W.	
"	S.L.	1.64'	N54°W.	
"	S.L.	10.10	N88°30'W.	
"	S.L.	7.80	S82°30'W.	
"	M.C.	6.10	S78°W.	
"	14	5.84	S73°W.	
15	14	6.95	S	
"	S.L.	8.22	N6°45'W.	
"	S.L.	2.30'	S39°30'W.	
"	16	4.50'	S30°15'W.	
17	16	2.78'	S16°E.	
"	S.L.	2.78'	S87°W.	
"	S.L.	2.98'	S62°30'W.	
"	S.L.	2.95'	S40°W.	
"	S.L.	2.92'	S14°W	
"	18	3.55'	S5°30'W.	
19	18	2.04'	S2°E.	

(38)

on S.L.

Sta 11 on S.L. on Point

Connect this to sta 11 for S.L.

on S.L.

West 1/16 line marked on S.L.M.C.

S 1/16 line marked S.S.M.C.

on S.L.

on S.L.

On S.L. on point.

⊼	⊙	Int	Brg	
25	S.L.	7.50	N83 30 E	
"	"	6.85	N66 E	
"	"	6.65	N33 E	
"	26	5.65	N28 30 E	
27	26	400'	S40 30 W	
"	S.L.	8.10	N40 30 E	
"	"	6.60	N32 30 E	
"	"	5.65	N15 E	
"	"	6.60	N3°30' E	
"	"	8.10	N6 15W	
"	"	9.00	N5 W	
"	"	2.75	N19 30W	
"	"	320'	N50 W	
"	"	385'	N84 W	
"	"	410	S74 45W	
"	28	7.95	S63 15W	
29	28	7.80	S19 45E	
"	S.L.	435'	N40 W	1
"	"	445'	N49 W	2
"	"	470'	N55W	3
"	"	400'	N53W	4
"	"	255'	N67W	5
"	"	283'	S82 30W	6
"	"	318'	S51W	7
"	30	400'	S23W	8
31	30	5.40	S1°15W	
"	S.L.	5.90	N1°15E	
"	"	7.30	N6°W	

78

on S.L.

on S.L.

on S.L.

T	⊙	Int.	Brg.
31	S.L.	335'	N35 45 W.
"	M.C.	275'	N46 W.
"	S.L.	247'	N42 15W.
"	S.L.	95'	N58 30 W.
"	S.L.	115'	S78 W.
"	S.L.	205'	S82 W.
"	"	260'	S73 30W.
"	"	9.05	S70 W.
"	"	7.80	S58 30W.
"	32	6.30	S56 45 W.
33	32	310'	S88 W.
"	S.L.	215'	N53 E.
"	"	182'	N25 E
"	"	233'	N5 W.
"	"	248'	N24 30W
"	"	310'	N76 W.
"	"	355'	S76 30W.
"	"	7.50	S71 45W.
"	"	7.50	S64 W.
"	"	8.00	S52W.
"	"	9.00	S34 W.
"	"	187'	S23 W.
"	"	164'	S1°W.
"	34	204'	S63 E
35	34	255'	S30 E.
"	S.L.	86'	N23 W.
"	S.L.	120'	N80 W.
"	"	165'	S72 30W

78

Marked C.S.M.C.

on S.L.

on S.L. on Point.

T	O				
35	S.L.	255'		S30W.	
"	36	328'		S2645W	
37	36	7.00		S39 30W.	
"	S.L.	7.50		N26E	1
"	S.L.	9.00		N6 30E	2
"	"	9.30		N13W	3
"	"	10.05		N24W.	4
"	"	10.15		N42W.	5
"	"	10.30		N67W	6
"	"	9.95		N74 30W.	7
"	"	9.45		N73W.	8
"	"	8.70		N77W.	9
"	"	8.70		N87W.	10
"	"	9.45		S82W.	11
"	"	250'		S79 30W.	12
"	"	200'		S86W.	13
"	"	180'		S76 30W -	14
"	"	230'		S64W	15
"	38	9.65		S61 30W.	16
39	38	7.40		S62 30W.	
"	S.L.	430'		N60E	
"	"	410'		N63E	
"	"	370'		N59E.	
"	"	385'		N44E	
"	"	350'		N12E	
"	"	310'		N3 30E	
"	"	255'		N3W	
"	"	255'		N15W	

78

On S.L.

On S.L.

39	S.L	295'		N 21 W.	
"	40	8.75		N 20 15W.	
41	40	63' -		S 83 W	
"	S.L	110'		N 86 E	1
"	S.L	190'		N 47 E	2
"	"	230'		N 47 E	3
"	"	282'		N 52 E	4
"	"	400'		N 42 30 E	5
"	"	370'		N 30 E	6
"	"	283'		N 22 E	7
"	"	100'		N 11 30E	8
"	"	71'		N 35 30 E	9
"	"	87'		N 29 30 W.	10
"	"	285'		N 51 W.	11
"	"	500'		N 64 W.	12
"	"	610'		N 69 W.	13
"	"	695'		N 76 W.	14
"	"	5.15		N 76 W.	15
"	"	4.40		N 78 W.	16
"	"	4.40		N 81 45 W.	17
"	42	3.00		N 89 W	18
43	42	272'		S 79 W	
"	SL	183'		N 78 E.	1
"	S.L	127'		N 57 15 E	2
"	"	300'		N 55 E	3
"	"	400'		N 34 30 E	4
"	"	520'		N 35° 30' E	5
"	"	680'		N 16 30 E	6

78

on S.L.

on S.L.

43	S.L.		450'	N9 30E	7
"	△		410'	N9° W.	V9 3°15'8
"	S.L.		320'	N22 W.	9
"	"		268'	N57 30 W.	10
"	"		350'	N69 15W.	11
"	"		480'	N71 W.	12
"	"	1	560'	N78 30W.	13
"	⊙		615'	N79 15W	14
"	S.L.		490'	S89 30W	15
"	"		540'	S70 W	16
"	"		650	S71 30 W	17
"	"		6.00	S63 45 W	18
"	"		595'	S54 W	19
"	"		520'	S37 30W	20
"	"		415'	S10 30W	21
"	"		295'	S10 E.	22
"	"		410'	S21 30E	23
"	44		430'	S27 30 E	24
45	44		172'	S26 E.	
"	S.L.		85'	N40 W	
"	"		82'	S88 W	
"	"		210'	S52 W.	
"	46		335'	S29 30W	
47	46		410'	S31 W.	
"	SL		330'	N23 E	1
"	"		290'	N3 E	2
"	"		320'	N37 30 W	3
"	"		325'	N55 30W	4

(78)

1456+22.6

sta 1450 on ℄

on S.L.

on S.L.

47	S.L.		285'	S87 30W.	5
"	"		345'	S83 30W	6
"	"		400'	S87 W.	7
"	"		560'	"	8
"	"		615'	S77 W	9
"	"		565'	S68 30W	10
"	"		260'	S74 W.	11
"	"		155'	S59 W.	12
"	"		172'	S36 W.	13
"	"		345'	S35 W	14
"	"		655'	S21 30W	15
"	48		4.50	S17 W	16
49	48		217'	S12 30E.	
"	S.L.		100'	N21 30W.	
"	"		75'	S55 W.	
"	"		360'	S37 W	
"	50		500'	S28 30W.	
51	50		1230'	S72 45W.	
"	S.L.		2.80	N71 30E	1
"	SL		700'	N58 E	2
"	M.C.		730'	N55 45 E.	3
"	SL.		500'	N50 E	4
"	"		420'	N42 30E	5
"	"		245'	N20 E	6
"	"		225'	N 9 W.	7
"	"		375'	N35 W.	8
"	"		7.30	N34 W.	9
"	"		620'	N40 W	10

178

16

51	S.L.	680'		N 55 W.	11
"	"	710'		N 63 30 W	12
"	"	730'		N 73 15 W	13
"	"	490		N 76 30 W	14
"	"	430		N 79 15 W	15
"	52	390		N 82 W.	16
52	S.L.	105'		N 13 30 E	1
"	"	182'		N 14 15 E	2
"	"	305'		N 11 45 E	3
"	"	320'		N 2 30 E.	4
"	"	275'		N 25 30 W	5
"	"	360'		N 46 30 W	6
"	"	380'		N 57 W	7
"	"	230'		N 64 W.	8
"	"	50'		S 68 30 W	9
"	"	100'		S 30 E	10
"	53	195'		S 19 30 E.	11
54	53	487'		S 9 15 E.	
"	S.L.	360'		N 8 30 W	1
"	"	215'		N 28 15 W.	2
"	"	290'		N 49 W.	3
"	"	310'		N 33 W.	4
"	"	515'		"	5
"	"	585'		N 37 30 W.	6
"	"	550'		N 46 30 W.	7
"	"	530'		N 55 W.	8
"	"	395'		N 59 30 W.	9
"	"	310'		N 69 30 W	10

(28)

=Sta 1409.

on S.L.

54	S.L.	235'		N 71 30 W	11
"	"	250'		N 89 30 W	12
"	"	450'		S 74 30 W	13
"	"	585'		S 62 30 W	14
"	"	665'		S 55 30 W	15
"	"	580		S 55 45 W	16
"	"	520		S 49 15 W	17
"	"	450		S 44 45 W	18
"	"	470		S 43 30 W	19
"	"	550		"	20
"	"	660'		S 44 15 W	21
"	"	575'		S 42 W	22
"	"	515'		S 33 30 W	23
"	"	480'		S 22 45 W	24
"	"	410'		S 9 30 W	25
"	"	360'		S 16 30 W	26
"	"	300'		S 8 30 W	27
"	"	290'		S 6 30 E	28
"	"	295'		S 30 30 E	29
"	55	380'		S 46 E	30
56	55	430'		S 19 15 E	
"	S.L.	345'		N 18 30 W	1
"	"	308'		N 24 W	2
"	"	235'		N 70 W	3
"	"	245'		S 76 30 W	4
"	"	225'		S 57 30 W	5
"	"	195'		S 34 W	6
"	"	260'		S 26 30 W	7

(78)

on S.L.

= N. end last traverse.

56	SL	285'		S29 15W.	8
"	"	395'		S31 W.	9
"	"	430'		S29 15W	10
"	"	435'		S23 W	11
"	"	365'		S23 15W	12
"	"	360'		S18 30W	13
"	"	380'		S14 W.	14
"	"	380'		S10 45W	15
"	"	360'		S9 30E.	16
"	"	430'		S35E.	17
"	57	555'		S10 15W.	18
58	57	310'		S10 E.	

⊡58 = Sta. △1375+00.

29
280
42
321

LEFAX FILING INDEX

= S. end Trestle.

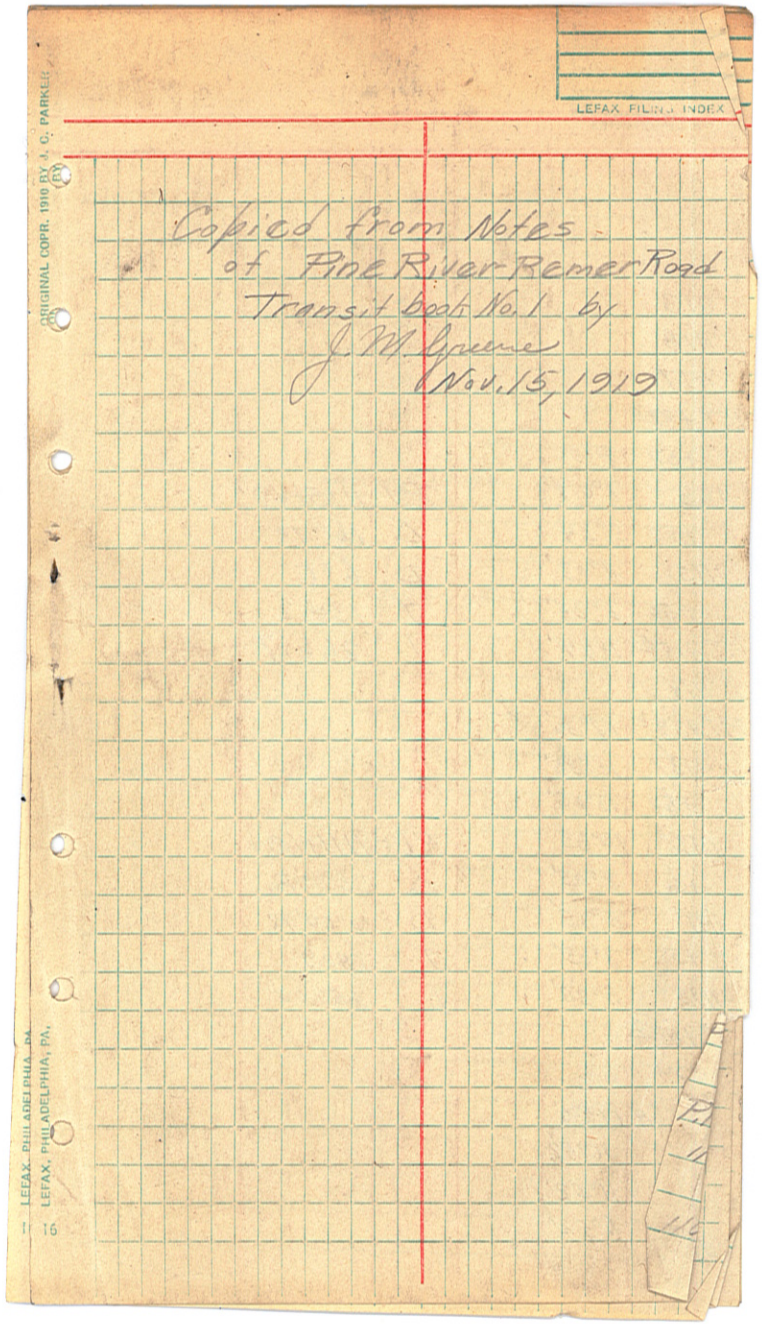
on high land in old road

Kego Lake Traverse

Inst.	Object	V.A.	Int	Bear	
	1512+52 +00				
1			3.24	N28°10'W	
1	2		2.36	N49°00'W	
3	2		1.57	N67°30'W	
3	4		2.53	N83°30'W	
3	4		6.68	S31°30'W	
"	shore		2.3	N38°15'E	1
"	MC. S/4 2.23		6.6	N47°45'E	2
"	shore		5.9	N52°45'E	3
"	"		5.4	N52°15'E	4
"	"		4.1	N63°E	5
"	"		1.)	S71°30'E	6
"	"		3.3	S18°45'E	7
"	"		6.1	S13°45'E	8
"	"		8.9	S7°E	9
"	Y3 house			S7°30'W	10
"	MC. 4-7 4-3		8.73	S8°20'E	11
5	6		8.73	S8°20'E	12
5	6		6.19	S69°15'W	~~#~~
"	shore		5.5	N79°30'E	# 1
"	"		3.65	N80°45'E	2
"	"		2.85	S80°E	3
"	"		1.08	S53°E	4
"	"		1.1	S30°-15'E	5
"	"		1.7	S12°30'E	6
"	"		2.5	S7°W	7
"	Y3 house			S40°E	8
"	MC.		4.67	S0°30'E	9
"	shore		3.89	S2°30'W	10
7	8		5.89	S2°30'W	11

Kego Lake Traverse

Inst.	Object	V.A.	Int	Bear.	
9	8		3.43	S 47° W	
"	shore		1.55	N 48°45' E	1
"	"		1.75	S 31° 15' E	2
"	"		2.9	S 17° E	3
"	NE.		3.06	S 1°30' W	4
"	shore		4.73	S 41°45' W	5
"	Church			S 89° W	6
9	10		4.73	S 41°45' W	7
11	10		4.91	S 53°15' W	
"	shore		2.6	N 71° E	1
"	"		0.37	S 61° E	2
"	"		1.4	S 33°30' W	3
"	"		3.3	S 33° W	4
"	"		5.67	S 50°15' W	5
"	Church			N 75°30' W	6
11	12		5.67	S 50° 15' W	7
13	12		4.93	N 82° W	
"	shore		1.6	S 83° E	1
"	"		1.1	S 1° W	2
"	"		1.7	S 73° W	3
"	"		4.1	S 82° W	4
"	"		5.2	S 79°45' W	5
"	Church			N 57°45' W	6
13	14	6°33'	1.99	S 13°30' E	7
14	15 = 1961+0.03		0.73	S 67° W	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Transit book No. 1 by
J. W. Greene
Nov. 15, 1919
LEFAX, PHILADELPHIA, PA.
16

63

1119			
1118			
1117			
P.T. +82.2			
+50	8°00'		
1116	7°04'	P.I	1115+49.7
+50	5°34	Δ	16° R
1115	4°02'	D	6° C
+50	2°34'	T	134.2
P.C. +15.5	1°04'	L	266.7
1114			
P.T. +38.2	17°30'		
1113	15°35'		
+50	13°05'		
1112	10°35'	P.I =	1111+69.1
+50	8°05'	Δ	35°00' R
1111	5°35'	D	10°00' R
+50	3°05'	T	180.9
1110	0°35'	L	350.00
C. +88.2			
1109			
T +06.4	17°30'		
08	16°5½		
+50	11°52'		
07	6°52'		

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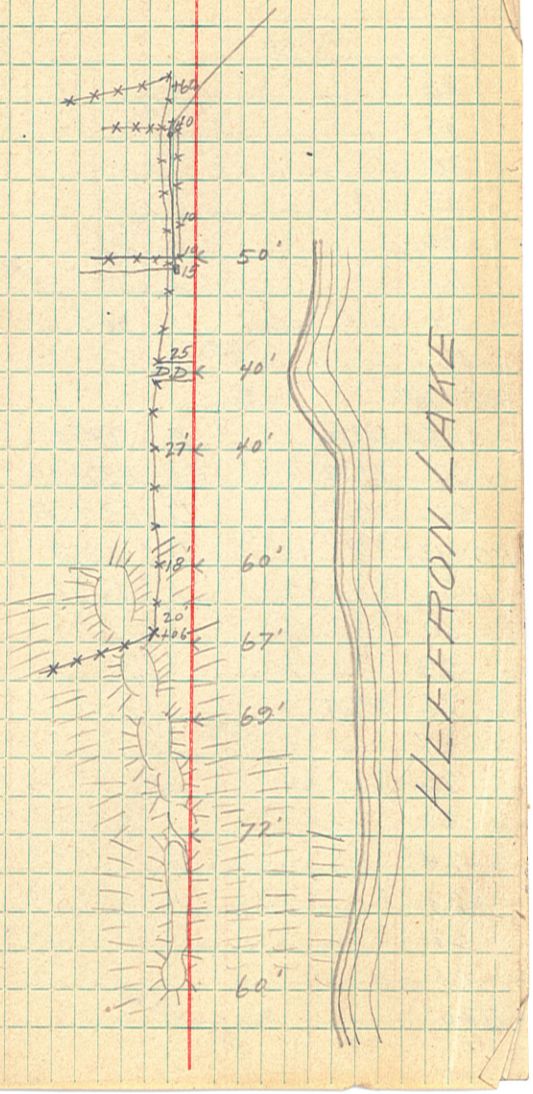
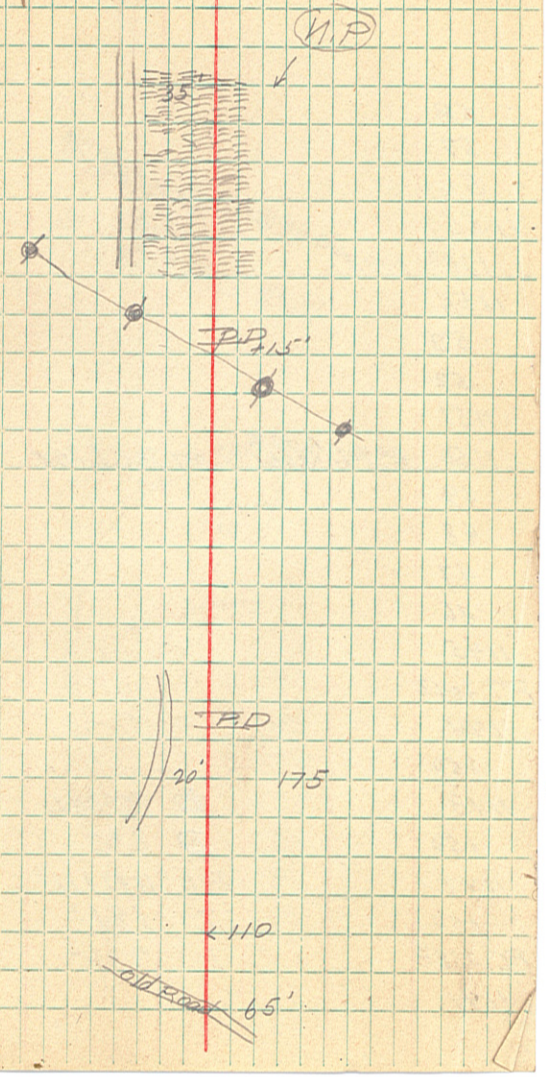


64

1140				
39				
38				
37				
36				
35				
34				
1133				
P.T. +78				
+50	14°30'		Δ	29°R
1132	11°57'		P.I.	1132+00
+50	7°27'		D	18°C.R.
P.C. +17.3	2°57'		T	82.7
1131			L	161.1
30				
29				
28	P.O.T.			
27				
26				
25				
24				
23				
22				
21				
1120				

64



65

58					
57					
56					
1155					
+38.=	P.O.T.				
1154					
53					
52					
1151					
1150	0°40'L	N.42°E Approx. on Sec. Line			
49					
48					
47					
46					
1145					
P.T. +04.7					
1144					
+50					
1143			Δ	16°00'L	
+50			D	6°C	
1142			P.I.	1142+72.=	
+50			T	134.=	
P.C. +38.=			L	266.=	
1141					

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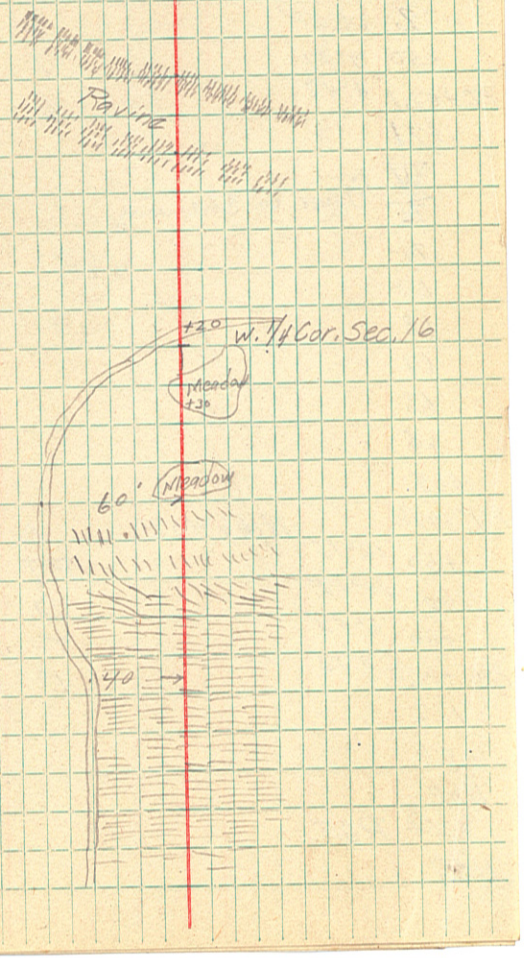

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16

66

P.T. +62.4		N. 35° E	Δ	32° L
+50	16°00'		P.I	1171+84.7
1172	14°47'		D.	20°
+50	9°47'		T	82.6
P.C. +02.1	4°47'		L	160
1171				
~~XX~~	Error in Chaining			
70				
69				
68				
67				
66				
65				
1164				
P.T. +77.6		N. 66°40' E.	Δ	24°30' R
+50	12°15'		P.I.	1162+91.2
1163	10°19'		D.	14° C.
+50	6°49'		T.	89.4
P.C. +02.6	3°19'		L°	175
1162				
61				
1160				
35.2	P.O.T.			
1159				

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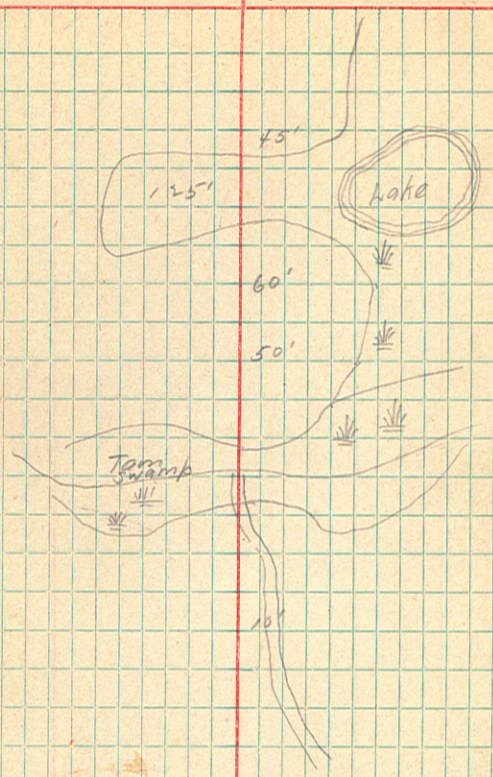

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16

P.I. +65.5	
+50	10°00'
1177	9°14'
+50	6°44'
1178	4°19'
P.C. +65.5	1°44'
1175	
76	
1175	

Δ	20°R.
P.I.	1176+66.7
D	10°C
T	101.2
L^c	200