

THE
FIELD
NOTEBOOK
No. 224

ccc 70

Chic

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E
to be
of roa
examp
30.6 =

TT 426

Sta. 0.

N60°30'E	316.4
N76°15'E	561.6
N85°30'E	147.7
N72°15'E	346.4
N56°45'E	315.0
N22°E	267.65
N47°30'E	248.9
N65°30'E	407.3
N80°15'E	232.8
S83°15'E	203.7
S60°15'E	357.5
S74°30'E	359.4
S53°E	317.0
S83°15'E	182.6
N70°E	656.9
N82°15'E	405.6
S76°45'E	355
S67°30'E	279.9
S88°E	397.0
N42°30'E	287.2
N39°30'E	152
N58°30'E	245.2
N33°E	269.3

2000.

396

15

381

3

26

105

230

N72°45'E - 739.4 to $\frac{1}{4}$ Cor.

45' along bearing to right of way running North

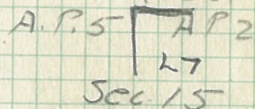
N73°30'E 66.3' to poster
poster is 497.1' South of $\frac{1}{4}$ Cor
Secs 16 & 17

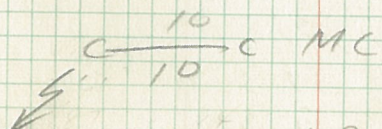
381' South to CS $\frac{1}{4}$ Sec. 16

N59°15'E	364.3
N55°45'E	240.9
N68°15'E	341.45
S89°30'E	408.7
N55°15'E	187.0
N11°30'E	359.5
N12°30'E	351.2
N0°20'W	479.4
N -	196.2
N50°E	179.9
N85°30'E	392.2
N42°15'E	433.5
N50°15'E	285.
N16°E	158.4
N84°15'E	331.2
N6°30'E	444.9
N17°30'E	559.4
N26°E	375.0
N30°E	398.2
N15°30'E	339.
N33°E	856.6
N23°30'E	785.6
N29°15'E	338.1
N28°30'E	633.6
N23°30'E	235.7

543.4

S20°30'E - 41.8 to $\frac{1}{4}$ Cor. Sec. 15816
T142 R30

N84°W 78.5 ft to A.P. 5

 TR1261
 L7
 Sec. 15


 MC 261 ft East of a point 242 ft along
 next bearing
 A.P. 1 at 200' along this bearing

N 11° E	446.8
N 31° 15' E	587.7
S 21° 15' E	225.4

to MC in Lake - C-1 Sect 13

428

Sta. 0	N6°30'W	476.00	
Sta. 1.	N3°15'E	203.7	
2	N48°30'E	166.2	✓
3	N70°E	152.9	✓
4	S78°45'E	329.5	✓
5	N87°15'E	421.1	✓
6	S82°30'E	280.1	✓
7	S44°45'E	447.4	✓
8	S47°E	132.8	✓
9	S35°30'E	128.6	✓
10	S78°15'E	236.1	✓
11.	N61°E	240.00	✓
12.	N49°30'E	163.4	✓
	N79°E	309.1	✓
	S57°15'E	183.9	✓
	S42°E	154.6	✓
	S17°15'E	198.1	✓
	S60°30'E	301.9	✓✓
	S68°30'E	186.3	✓
	S52°15'E	321.7	✓
	S44°E	124.9	✓
	S55°45'E	170.7	✓
	S70°E	184.4	✓
	N59°E	226.8	✓

66

3

115.9

198

115.9

313.9

S40°E - 43.0

From a point either
10 chs either North or S of
1/4 Sec 14

23' along this bearing is 313.9' N of
1/4 G.O. between
Sec. 13 & 14

133' along bearing hits line E & W

544°E 316.9

534°E 233.7

N36°15'E 809.9

N49°15'E 614.8

N 21°05' E - 1100'
End of road

as it joins Oregon Road
to MC on Lake - C - C Sec. 13

Sta.			Elev.
Sta. 0		11.65	100.00
Sta. 1	73.5	6.53	94.88
2	55.67	2.27	90.62
3	70.35		82.94
4	59.9		75.41
5	62.32		65.18
6	69.44		51.54
7	170.50		
8	<u>45.9</u>	disc 7.83' from 7	
	608.58		

48.46

$$\begin{array}{r} 125 \\ 25 \overline{) 3125} \\ \underline{250} \\ 625 \\ \underline{500} \\ 1250 \\ \underline{1250} \\ 0 \end{array}$$

Beginning at 1/4 Sec 19824

Thence South along line 366'

Thence N 87° E 250.5'

" N 87° E 723'

" S 41° 30' E 379.4'

S 55° E ~~4~~ 75'

0. ~~48~~ 6' wide

50

0. 18' wide
30

50

0. 28 to 46

75

0. 20 to 45

76

0. 12 to 17

300

15 to

water

30'

100

	50	100	150	200	250
116.09	119.19	120.09	121.09	112.90	108.20*
114.29 ³	114.69	116.79 ^{20*}	118.79 ^{25*}	117.00	
114.75 ^{10*}	112.75	116.35*	118.85	121.25	130.
115.72	109.72	111.72	116.7	121.5*	121.5
113.72	108.72	108.22	111.6	118.4	119.8
106.65	104.55	103.80	108.2*	112.9 ¹⁹	115.4
100.08	98.5	99.5	103.9*	109.9*	110.*
96.78	96.25	97.00	101.5	108.9 ¹⁵	108.5*
99.01	96.7	98.4	109.6 ¹³	111.0*	104.1*
101.46	100.00	101.4 ¹¹	106.9 ¹⁸	105.4	99.0
99.06	98.9	103.2	101.6	94.4	83.4
95.85 ¹	100.15	101.75	106.05	96.85	90. ²³⁰
97.96	101.36 ¹	100.56 ¹	98.86	77.86 ¹⁹⁴	74.26 ²²⁰
100.00*	102.4	97.9	86.8	74.8	
96.38 ¹	97.18	95.00 ¹	88.7	86.7 ¹⁶⁰	
92.47	92.5 ¹	92.47	88.00	86.8 ¹⁶⁴	
84.99 ¹	86.8	86.3	84.1	81. ¹⁷⁷	
81.47	86.07	84.3	82.7	80.9 ¹⁷³	
84.67	85.47	83.87	83.2	79.5 ¹⁸⁹	
87.78	88.0	86.7	85. ^{(b) 185 DC5}	85. ⁸⁵	
91.42	92.00	91.2	92.5	94.1 ¹⁷⁶	
97.06	97.00	97.8	97.5	98.5 ¹⁷⁵	

	300	350	400
100.5	98.5		
119.1 ²²⁰	112.6	371*	1086
114.5 ³¹⁰	113. ³¹⁰		
111.2	115.7*		
104.6 ³¹³	100.6		
103.9 ³¹⁰	100.4		
100.6	305		
94.7	308		
83.5	310		
27.5	81.5		
91.			

20' to 1/4 hr

West

	50	100	150	200	
√ 104.68	102.	102.2	100.8	101.9	
109.20	107.1	103.9	102.9	106.5	
111.16	110.46	108.56	104.86	103.36	
117.26	114.0	111.5	106.2	100.	* 212 98

East

√ 104.68	101.58	98.78	97.88	99.58	
109.20	107.40	106.7	103.5	104.6	105
111.16	112.66	112.66	109.86	109.8	
117.26	119.16	119.66	117.26	114.26	111.

131.8' S86°W from a
point 33 chs West of 1/4 corner
to the 900' on baseline
See line run N88°38'E

* at 150

Shingobee playground

Sta. 0. S20°E 178.7 (178.5) d 8'
 N32°45'E 195.9 (185.4) r 11.5
 N66°45'E 130.7
 N81°15'E 56.6 (52.4) d 4
 N16°30'E 138.0 137.8 r 7
 N63°32'E 192.0
 N75°45'E 66.9 #2
 N38°30'E 134.8
 N49°15'E 53' #3
 N23°45'E 140.4 -
 N69°W 91.7 (90) +45=d-2.7 +91.7-r 5.6
 N50°E 62.4 (62) d 6.6
 N83°E 434.4 (439) 50-d 11.5-100 d 7.4
 S86°15'E 122.3 - 50-4.3' 122.3 r 1.8
 N49°W 164 (162.7) 50-r-7.6 100 r-6.8-164 r-5.5
 N28°15'E 272.7 (271) 50-d-7.4-d-4.4-150-d 6.7-200-d-1 272.7 r 10.6
 S35°30'E 83 (82) r-12.5
 S51°30'E 134.1 (133) r-7'
 N66°E 84.5
 N0°30'W 232.1 ✓
 N59°30'E 158.0
 S53°45'E 58.4
 Sta. 22. N84°E 292.1 (289) 50 d 8.6 100 d 8.2

Shi trail traverses

51 77

150-d-6.9 - 200-d-9.0 - 250-d-14 - 280-d-8-300-r-7.0
 350-r-7.6 - 400-r-2.2 - 434.4 r-2.5

✓ 340.7' South along line from sec corner

150 d 2.9 200 d 8.9 250 d 13.4 d 2.2 w 29.2

Sta 23 N 10°W 110.2 R 5.5
N 84°15' E 140.6 (10) 50 r 41 100 r 70 R 26.6 sta
N 44° E 89.3 (8) 50 r 103 r 63
N 41° W 120.1 (11) 40 r 97 r 6.0

Sta. 27 N 28°15' E 190.7
S 89°30' E 149.3
N 44°30' E 110.9
N 66°50' E 83.9
N 43°30' E 167 (16) 50 d 8.1 100 d 12.8 150 d 55
N 67°45' E 193.8
N 45°45' E 105.0
S 81°30' E 151.
N 71°30' E 81.5 (6) d 7.6
S 72° E 376.7 (13) 50 d 6.6 100 d 5.0 150 d 4.2 200 d 5.6 250 d 4.5 300 d 4.4 376.7 d 7.0
S 15°45' W 189.3 (18) 50 d 6.5 100 d 5.0 150 d 3.8
S 38°45' W 300.4
S 37°45' W 182.9
Sta. 40 S 35°15' W 161.7
S 19°15' E 403.9
S 52° E 493.3
S 20° E 273.6
S 33°15' E 171.9
S 25°15' E 172.2
S 64°30' E 178.3
S 44° E 173.3
S 8° W 191.5

Sta 23 is intersection of two tracks
S 52°45' E 497' 50-d 6.3 100-d 10.6 150-d 9.5
200-d 7.5 250-d 5 300-d 5
350-d 5 400-d 4 450-d 7.2
497-d 1.5

North line of 17 runs N 89° E (204)
Sta 27 is (588' East of) Sec. Co. 17-41E
19720

R 2.8

189.3 d 7.4
S 69°45' E 22.8' to a point 26 chains E of S. Corner

36.5
24.3
340.7

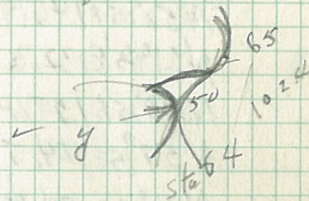
old road fork

	S42°30'W	185.5		
	S36°15'W	143.8		
	S55°45'W	179.8		
	S21°W	138.1		
	N54°W	162.8	R-10'	1006/62.8
	S76°W	317.5	220 r 5	317.5 r 7
Sta 55	S42°W	199.6	r 9.2	
	S9°W	197.7	50 d 6.7	100 level
	S66°45'W	271.6	100 r 5.5	150 r 5
	N80°W	66.1	r 8.5	
	N59°W	170.4	r 8.8	
	N86°15'W	69.0		
	N61°45'W	121.6	d 7.0	
	N23°45'W	187.4		
	N70°30'W	79.7	d 8.4	
Sta 64	N51°W	102.4	50 r 2.3	102 r 6
	S63°15'W	141.8	100 r 8	141.8 r 4.0
	S44°W	148.2	r 7	
	S71°15'W	133.2	50 r 5.3	133.2 r 5.5
	S85°45'W	116.7	r 5	
	S70°W	120.6	100 d 2.9	120.6 r 1
	N89°45'W	116.7	50 r 2.3	116.7 r 6.5
	S65°30'W	124.2	50 r 5.1	124.2 r 4.3
	S79°W	902.0	50 r 3.5	124.2 r 2.6
Sta 73	S66°15'W	142.2	100 d 3	142.2 d 3.5

150 R 5.5 197.7 r 8.0

200 r 5.5 271.6 r 5

← parking take off
end of parking



124.2 r 1.5

202 d 7

S 120°45'W 84.40 ✓ d 3.5
 Sta. 75 S 49°45'N 189.9 ✓ r-7
 N 81°45'W 369.0
 77 S 88°15'W 100 50 d 3.8 100 d-9
 S 87°15'W 195.3 50 d 9.6 100 d 8.6 150 d 8.6 195.3 d 7.9
 N 53°45'W 228.6 50 d 13.0 100 d 15.3 150 d 10.9 200 d 9.5 228.6 d 2.8
 N 48°45'W 170.3 ✓ 50 r 1.6 100 r 5.5 170.3 r 11.3
 Sta. 81 S 84°30'W 177.4 50 d 7.3 100 d 4.0 177.4 r 20
 N 11°45'E 130 50 d 1.6 130 r 4.00
 N 25°30'E 139.7 5 r 3.2 100 r 4.4 139.7 r 3.2
 N 3°45'E 222.7 5 r 3.5 100 r 3.5 150 r 3.5 222.7 r 1.7
 N 50°15'E 146.9 50 r 5.5 100 r 5.5 146.9 r 5.8
 N 21°45'E 132.3 50 r 6.1 100 r 6.4 132.3 r 3.6
 N 42°15'E 139.6 50 r 3.6 100 r 4.0 139.6 r 2.8
 N 57°15'E 104.5 50 r 2.6 100 r 7.7
 N 36°15'E 84.4 ✓ 34.4 r 5.2 84.4 r 6.7

514°E 180 to parking area
 return to parking area

d 8.6	195.3	d 7.9	3.1	4.4
d 10.9	200	d 9.5	2.8	8.5
		d 2.8	2.4	2.4
170.3	r 11.3		15.3	
177.4	r 20			5.9
				3.3
201	r 2.8	222.7	r 1.7	8.4
				9.4

ending wt. Sta. 1.

Sta 64
S66°30'W 100.1 50 d 9.0 100 d 2.2
S10°15'W 100.1 50 d 9.4 100 d 5.5
S35°45'E 147.9 50 d 4.0 100 d 8.3
S49°30'W 66.7 d 9.4

West 219.7

S44°W 175.6

S68°45'W 142.9

Sta 1A
N11°W 38.3

S19°30'E 226.9

N197°15'E 100.1

N75°E 151.4

S55°30'E 74.6 r 4.0

S17°45'W 176.4 100 r 13.5 ^{176.4} r 10.5

N140W 138.4 100 r 9.0 ^{138.4} r 3.0

S85°W 111.2 50 d 2.8 d 2.8

S46°W 138.4 50 r 6 100 r 8.9

S51°30'E 901.3 50 r 4.2 ¹⁰⁰ r 4.00 ^{901.3} r 4.3

S20°45'E 144.7 r 5.6

S7°15'W 143.1

S18°30'E 75.7

S41°15'E 255.2

S45°15'E 222.7

S27°15'E 272.6

S45°15'E 182.6

S17°15'W 175.1

¹⁷⁷ d 1.70

N10W - 141.5' to $\frac{1}{4}$ in Sec 17+18

- 166.8 ft to bridge

^{138.4} r 4.3

sta. 90A ✓ 58°W 305.1 ✓ d 14.00
 545°SE 121.1
 576°E 242.4
 515°E 140.6 100 r 1.00 140.6 r 4.5
 525°45'E 152.2 ✓ 100 r 8.2 152.2 r 8.3
 530°SW 268.7
 592°E 116.3 } rise 20'
 519°15'W 114.7
 576°45'E 185.9
 55°45'W 139.8
 532°15'W 155.5 r 9.00
 533°45'E 43.4 r 3.5
 563°30'E 140.7
 510°15'E 96.5
 520°15'W 115.4
 544°W 125.4
 575°30'W 135.1
 555°W 320.9 100 d 5.00 120 d 7 the
 594°30'W 272.6 50 d 2 100 d 4.2 150 d 1.4
 540°45'W 198.1
 29°30'E 110.3
 525°15'E 153.3
 574°45'E 182.9
 522°15'E 52.3
 515°45'W 205.7
 533°52'E 108.9

S 11°15'E 42.5' to a point on line 14 ch. +
 265.5' East of Cor.

use grad. of 150' - 12'
 200 d 4.5 272.6 d 5.5

S123°30'W 61.2
sta 116A S22°15'W 90.4
S1°15'E 385.9 100 d 5.5 130 d 20
S42°15'E 216.1
S8°15'W 206.
S79°15'W 466.1
S59°45'W 517.5
sta 122A S53°15'W 211.5
N83°15'W 171.0
N65°30'W 175.6
N38°15'W 221.7
N66°30'W 196.3
sta 127A S60°45'W 131.2
S18°30'W 112.9
S1°15'W 139.1
S6°15'E 197.4
S2°45'E 321.1
S19°15'W 26.6
S13°45'W 113.4
S79°30'W 72.8
N83°30'W 61.2
S76°15'W 183.9
S56°03'W 308.7
S38°15'W 98.4
West 137.8

562°15'W 109.2

548°15'W 153.3

566°30'W 224.6

Sta 143A N85°45'W 325.1 ✓

144A N39°30'W 63.1

N19°45'W 116.4

N18°5' E 100.00

N34°15' E 100.00

N10°45'W 155.9

S88°45'W 347.5

S86°30'W 494.1

S83°30'W 276.2

S76°45'W 155.0

S57°45'W 287.0

S61°45'W 154.8

S45°30'W 285.6 ✓

S86°45'W 382.8

S86°15'W 154.8

fork in road

End of crusty

285' along bearing

End of road.

		N	S	E
Sta. O.	S 20° E		168.2	661.2
	N 32° 45' E	158.2		106.0
	N 66° 45' E	53.		120.0
	N 81° 15' E	8.7		55.9
	N 16° 30' E	138.0	132.2	39.2
	N 63° 30' E	192.0	85.6	171.6
	N 75° 45' E	66.9	16.1	64.8
	N 38° 30' E	134.8	105.2	83.8
	N 49° 15' E	53.	34.6	40.2
	N 23° 45' E	140.4	128.5	56.6
	N 69° W	91.	32.6	
	N 5° E	62	61.7	.5
	N 83° E	429	52.4	426.0
	S 86° 15' E	122.3	8.0	122.0
	N 49° W	162.7	106.7	
	N 28° 15' E	271	238.8	128.4
	S 35° 30' E	82	66.7	47.7
	S 51° 30' E	137.1	82.6	108.3
	N 66° E	84.5	34.5	77.4
	N 0° 30' W	332.1	332.0	
	N 59° 30' E	158.	80.4	136.
	S 53° 45' E	58.4	34.5	47.2
	N 84° E	289	30.1	287.
		1591.3	360.	2179.8

W Lat. Dep.

84.8

122.7

2.1

209.6

			N	S	E
23	N 1° W	110.2	110.0		
	N 84° 15' E	140.	14.3		139.3
	N 44° E	88.	63.3		61.2
	N 41° W	118.5	89.5		
	N 28° 15' E	190.7	168.0		90.2
	S 89° 30' E	149.3		1.3	149.0
	N 44° 30' E	110.9	79.1		77.7
	N 66° 50' E	83.9	33.0		77.1
	N 43° 30' E	165.	119.7		113.6
	N 67° 45' E	193.8	73.5		179.1
	N 45° 45' E	105	73.3		75.2
	S 81° 30' E	151		22.3	149.3
	N 71° 30' E	81.	25.7		76.8
	S 72° E	375		115.9	356.6
	S 15° 45' W	188.		180.8	
	S 38° 45' W	300		233.7	
	S 37° 45' W	182.9		144.5	
40	S 35° 15' W	161.7		131.9	
	S 19° 15' E	403.9		381.3	133.3
	S 52° E	493.3		242.3	383.7
	S 20° E	273.6		257.2	93.5
	S 33° 15' E	171.8		143.6	94.1
	S 25° 15' E	72.2		65.3	30.8
	S 64° 30' E	178.3		76.7	161.0
	S 44° E	173.3		124.6	120.4
48	S 8° W	191.5		189.6	
			749.4	231.8	2561.9

W. Lat Dep.

2.00

77.7

50.9

187.8

111.9

93.3

26.6

550.2

			N	S	E	W.	Lat	Dep.
49	S42°30'W	185.5		136.7		125.4		
	S36°15'W	143.8		115.9		85.0		
	S55°45'W	179.8		101.2		147.5		
	S21°W	138.1		129.0		49.5		
	N54°W	162.8	95.7			131.6		
	S76°W	317.5		76.8		308.0		
	S42°W	129.6		96.3		86.7		
	S9°W	197.7		195.3		30.9		
	S66°45'W	271.6		107.3		249.3		
	N80°W	661	11.5			65.1		
	N59°W	170.4	87.8			146.		
	N86°15'W	69.0	4.6			68.9		
	N61°45'W	121.6	57.5			107.1		
	N23°45'W	187.4	171.5			75.5		
	N170°30'W	79.7	26.6			75.1		
Sta. 64	N51°W	102.4	64.4			79.5		
	S63°15'W	141.8		63.8		126.6		
	S44°W	148.2		106.6		103.0		
	S71°15'W	133.2		42.8		126.		
	S85°45'W	116.7		8.6		116.3		
	S70°W	120.6		41.2		113.4		
	N89°45'W	116.7	.5			116.6		
	S65°30'W	124.2		51.5		113.0		
	S79°W	202.0		38.6		198.4		
Sta 73	S66°15'W	182.2		73.4		166.7		
			520.1	1385.0		3011.1		

		N	S	E
	S 12°45'W	84.4		82.3
	S 49°45'W	188.9		122.
	N 81°45'W	369.	52.8	
Sta. 77	S 88°15'W	100.		3.0
	S 87°15'W	195.3		9.4
	N 53°45'W	228.6	135.1	
	N 48°45'W	170.3	112.2	
Sta. 81	S 84°30'W	177.4		17.0
	N 11°45'E	130.	127.3	26.4
	N 25°30'E	139.7	126.1	59.8
	N 30°45'E	222.7	222.2	14.5
	N 50°15'E	146.9	94.9	113.1
	N 21°45'E	132.3	121.8	48.9
	N 42°15'E	139.6	103.3	93.8
(also Sta. 1)	N 57°15'E	104.5	56.5	87.9
Sta. 89	N 36°15'E	84.4	68.	49.9
		1220.2	233.7	494.3

4081.00

4290.5

$$\begin{array}{r} 168.2 \\ 4122.3 \end{array}$$

+ 41.3

5236.00

$$\begin{array}{r} 61.20 \\ 5174.8 \end{array}$$

+ 92.7

W	Lat	Dep.
18.6		
144.1		
365.3		
100.0		
195.1		
184.2		
127.9		
176.6		

1311.8

5082.7

		N	S	E
Sta. 24c				
Same as ^{Point} Sta. 23	S 52° 45' E		300.7	395.6
Sta. 25c	S 14° 45' W		217.2	
	S 53° W		35.5	
	S 5° 15' W		41.8	
	N 89° 15' W	5.7		
	S 57° 45' W		21.7	
	N 88° W	3.2		
	S 15° 45' E		276.1	77.8
	S 56° 15' E		36.6	54.8
	N 81° 45' E	23.1		160.2
	S 50° 30' E		77.3	93.9
	S 24° 30' E		129.2	58.9
	S 4° 45' E		200.3	16.7
Sta. 37c	S 66° 30' W		227.9	
	N 80° 45' W	40.3		
	S 65° 45' W		145.9	
	S 83° W		24.4	
	S 68° 30' W		102.1	
	N 77° 30' W	75.6		
	S 73° 15' W		47.8	
	S 72° 45' W		101.3	
	S 84° W		30.3	
	N 80° 15' W	14.2		
Sta. 47c	N 51° W	75.2		

W Lat. Dep.

57.3

47.

3.8

54.9

34.4

88.5

523.5

247.1

323.8

198.5

259.0

272.8

158.9

327.0

288.8

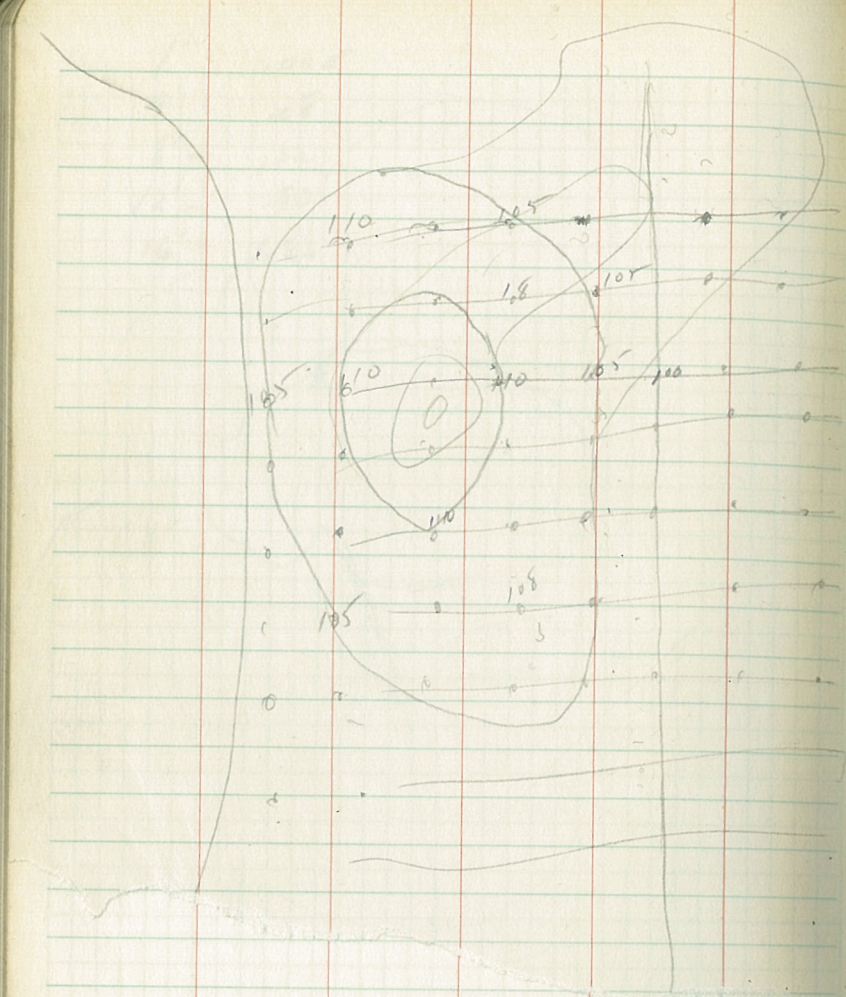
82.7

92.8

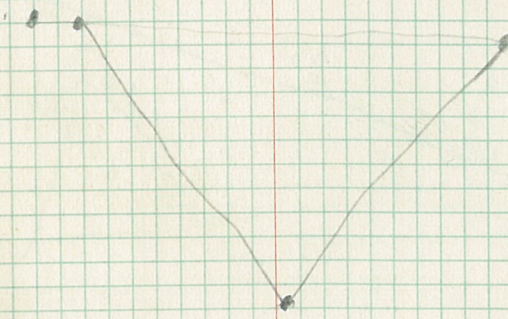
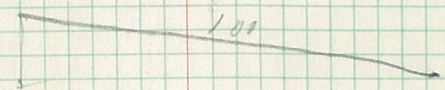
Same as Sta 85+100

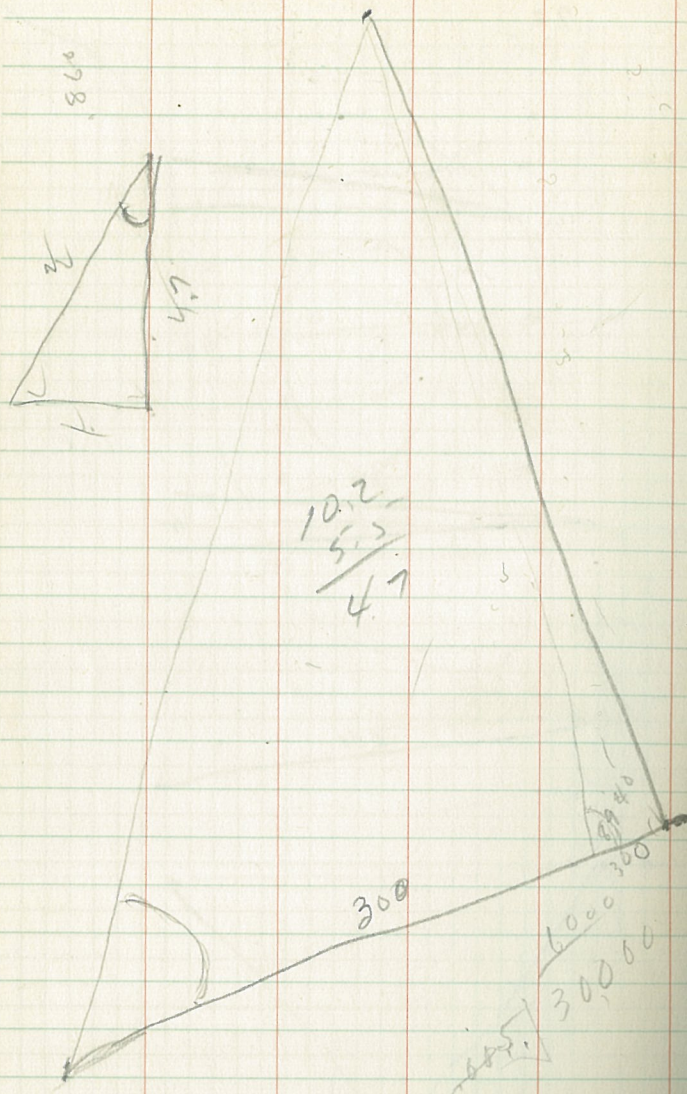
		N	S	E
Sta. 64A	S 66° 30' W	100.	39.9	
	S 10° 15' W	100.	98.4	
	S 35° 45' E	147.9	119.9	86.4
	S 49° 30' W	66.7	43.3	
	West	219.7		
	S 44° 0' W	175.6		
	S 68° 45' W			
71A	"	38.3		
	S 19° 30' E	226.9		
	N 87° 15' E	100.		
	N 75° E	151.4		
	S 55° 30' E	74.6		
	S 17° 45' W	176.4		
	N 14° W	138.4		
	S 85° W	111.2		
	S 46° W	138.6		
	S 51° 30' E	201.3		
	S 20° 45' E	144.7		
	S 7° 15' W	143.1		
	S 18° 30' E	75.7		
	S 41° 15' E	255.2		

W	Lat	Dep
91.7		
17.8		
50.7		
219.7		



7.2
5.5



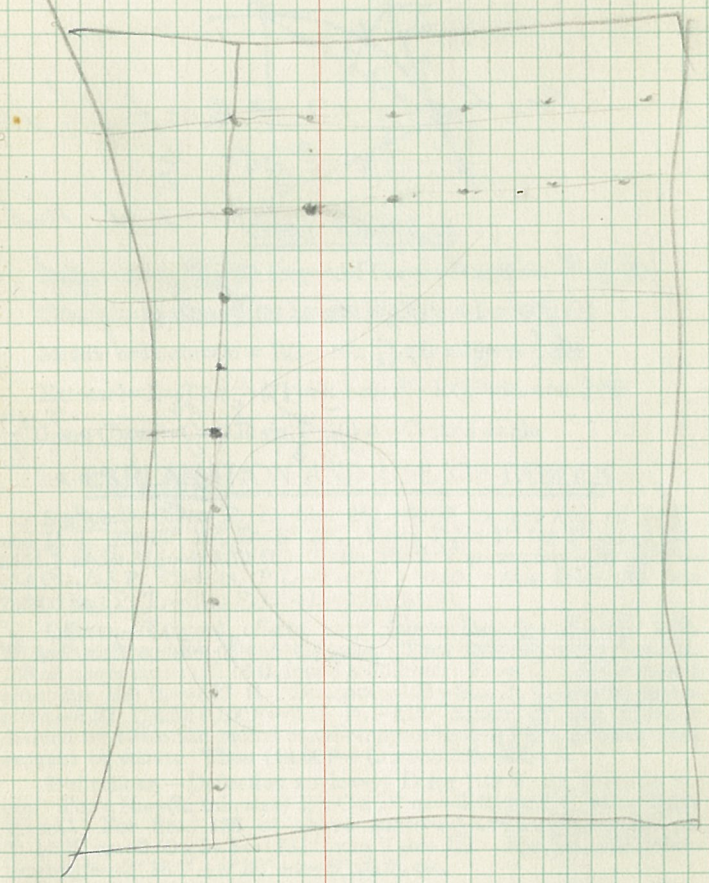


$$\begin{array}{r} 100 \\ 3 \\ \hline 300 \end{array}$$

$$\begin{array}{r} 123 \\ 26 \\ \hline 314 \end{array}$$

$$\begin{array}{r} 26 \\ 5 \\ \hline 130 \end{array}$$

$$\begin{array}{r} 24.15 \\ 2 \\ \hline 48.30 \end{array}$$



428

142-30

Center of 17 - East 1/2 mile
NE 1/2
North 1 mile

428 100 = 66 ft

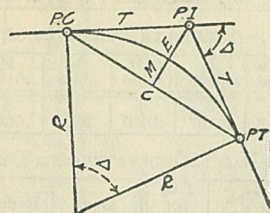
50 / 66 x 100 = 75.75

142-31

center of 13 WNW 1 mile

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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CURVE FORMULAS

- Radius= $R = \frac{50}{\sin \frac{D}{2}}$ (1) Degree of Curve= D and $\sin \frac{D}{2} = \frac{50}{R}$ (2)
- Tangent= $T = R \tan \frac{\Delta}{2}$ (3) Length of Curve= $L = 100 \frac{\Delta}{D}$ (4)
- Middle ordinate= $M = R(1 - \cos \frac{\Delta}{2}) = R \text{vers} \frac{\Delta}{2}$ (5)
- External= $E = T \tan \frac{\Delta}{4} = R \div \cos \frac{\Delta}{2} - R = R \text{exsec} \frac{\Delta}{2}$ (6)
- 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. $\Delta=62^\circ 10'$ $D=8^\circ 20'$. From Table IV for 1° curve $T=3454.1$ and $\div 8\frac{1}{3}=414.49$ 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= $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft.=(in minutes) $.3 \times C \times D^\circ$ or=defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve=.3 $\times 54.5 \times 8\frac{1}{3}=136.2'$ or $2^\circ 16.2'$, or= $2.50 \times 54.5=136.2'$ from Table III. For Sta. 159 deflection angle= $2^\circ 16.2' + 8^\circ 20' \div 2=6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E=960.6$ for $8^\circ 20'=960.6 \div 8\frac{1}{3}=91.27$ and from Table V correction=.10 or $E=91.37$ ft. Or suppose $\Delta=32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E=230.9$ and $\div 42=5.5$ or $D=5^\circ 30'$.