

W366

366

ENGINEERING

MINING

TRANSIT BOOKS

No. 22 F. 3



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 1 1/2 see inside of back cover.

Copyright, 1914, by Eugene Dietzgen Co.







E

5310	562.7	✓✓
20	62.9	✓✓
30	62.9	✓✓
40	63.0	✓✓
50	63.1	✓✓
60	63.2	✓✓
70	63.1	✓✓
80	63.1	✓✓
90	63.2	✓✓
5400	63.5	✓✓
10	63.4	✓✓
20	63.4	✓✓
30	63.7	✓✓
40	63.6	✓✓
50	63.5	✓✓
60	63.5	✓✓
70	63.6	✓✓
80	63.7	✓✓
90	63.7	✓✓
5500	63.7	✓✓
10	63.8	✓✓
20	63.7	✓✓
30	63.8	✓✓
40	63.9	✓✓
50	63.9	✓✓

✓



E .

5560	564.0	✓✓
70	63.7	✓✓
80	63.9	✓✓
90	63.9	✓✓
5600	63.9	✓✓
10	64.0	✓
20	64.0	✓
30	64.1	✓
40	64.1	✓
50	63.9	✓
60	63.7	✓
70	63.9	✓
80	63.8	✓
90	63.8	✓
5700	63.7	✓
10	63.7	✓
20	64.1	✓
30	63.2	✓
40	63.6	✓
50	63.3	✓
60	63.1	✓
70	64.1	✓
80	64.2	✓
90	63.4	✓
5800	62.8	✓

Not on Dam Sec.  
70



N3530

4

E

5810	562.5	✓
20	62.5	✓
30	62.4	✓
40	62.1	✓
50	61.4	✓
60	60.4	✓
70	60.9	✓
80	61.0	✓
90	60.3	✓
5900	62.1	✓
10	62.4	✓
20	61.4	✓
30	61.4	✓
40	61.6	✓
50	61.1	✓
60	61.1	✓
70	60.7	✓
80	59.2	✓
90	<del>69.2</del>	✓
6000		
10		
20		
30		
40		
50		

not on beam bar  
70

B339 P54



E

4060	550.3	✓
70	50.4	✓
80	50.4	✓
90	50.5	✓
4100	50.5	✓
10	50.6	✓
20	50.5	✓
30	50.5	✓
40	50.6	✓
50	50.8	✓
60	50.9	✓
70	50.9	✓
80	51.0	✓
90	50.9	✓
4200	51.0	✓
10	51.0	✓
20	51.1	✓
30	51.0	✓
40	51.1	✓
50	51.1	✓
60	51.2	✓
70	51.1	✓
80	51.3	✓
90	51.3	✓
4300	51.5	✓

4060 on Dam  
 4100 on Dam  
 4200 on Dam  
 4300 on Dam

✓



E			
4310	51.4	✓	
20	<del>51.3</del>	✓	
30	51.3	✓	
40	51.4	✓	
50	51.5	✓	
60	51.5	✓	
70	51.2	✓	
80	<del>51.6</del>	✓	
90	51.7	✓	
4400	51.8	✓	
10	51.9	✓	
20	52.1	✓	
30	<del>52.4</del>	✓	
40	52.6	✓	
50	52.2	✓	
60	52.6	✓	
70	52.3	✓	
80	52.4	✓	
90	52.3	✓	
4500	52.0	✓	
10	52.2	✓	
20	52.4	✓	
30	52.5	✓	
40	52.5	✓	
50	52.5	✓	

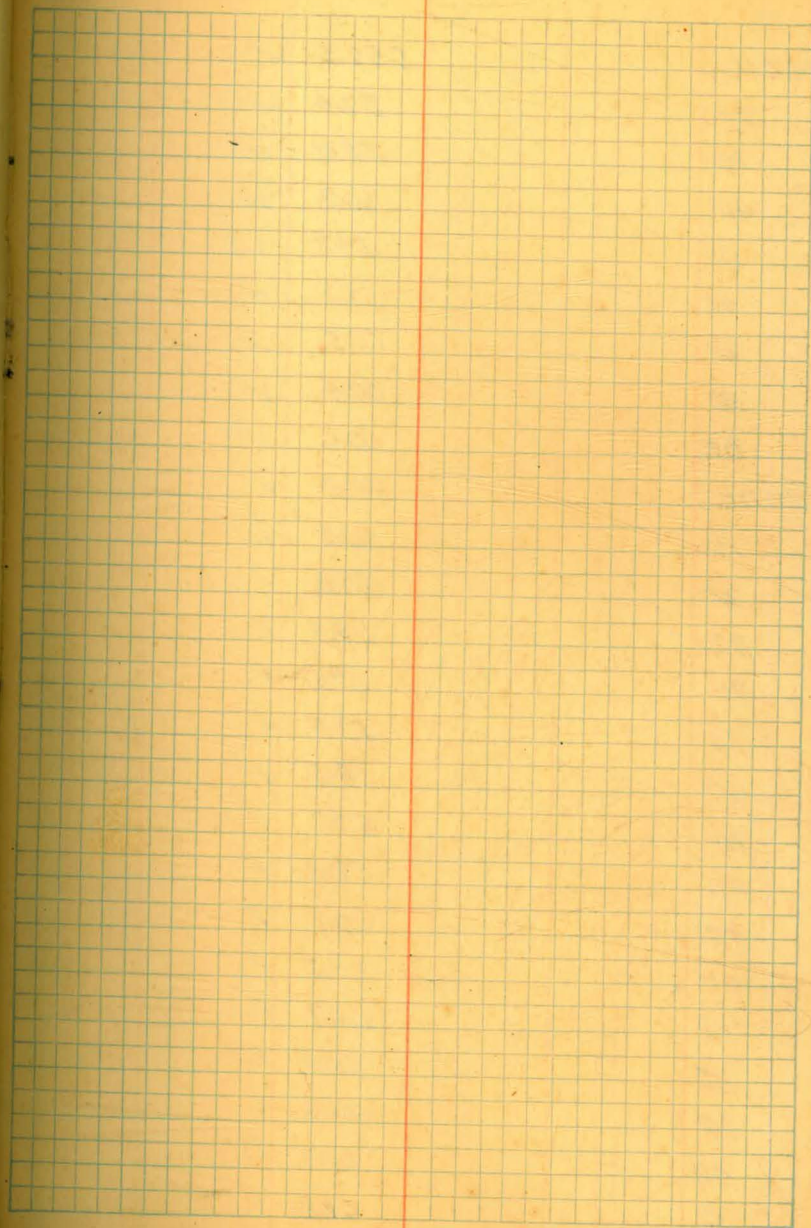
three sets of figures? →

B341-P 50-57



N3540

E		80°
4560	552.6	✓
70	52.7	✓
80	52.7	✓
90	52.8	✓
4600	<del>52.7</del> 53.2	✓
10	52.5	✓
20	52.8	✓
30	52.3	✓
40	52.7	✓
50	52.5	✓
60	52.9	✓
70	52.8	✓
80	52.8	✓
90	52.9	✓
4700	52.9	✓
10	52.6	✓
20	53.1	✓
30	53.1	✓
40	53.2	✓
50	53.8	✓
60	53.8	✓
70	53.9	✓
80	54.3	✓
90	54.8	✓
4800	55.4	✓





E		
4810	556.3	✓
20	57.4	✓
30	58.8	✓
40	60.3	✓
50	59.8	✓
60	59.8	✓
70	60.5	✓
80	60.4	✓
90	60.6	✓
4900	60.8	✓
10	60.6	✓
20	59.8	✓
30	59.7	✓
40	59.5	✓
50	59.0	✓
60	58.8	✓
70	59.7	✓
80	59.8	✓
90	60.1	✓
5000 ✓	61.5	✓
10	61.7	✓
20	61.6	✓
30	61.6	✓
40	61.7	✓
50	61.8	✓



E			
5060	5618	✓	
70	61.9	✓	
80	61.8	✓	
90	61.6	✓	
5100	61.7	✓	
10	61.7	✓	
20	61.6	✓	
30	61.8	✓	
40	61.6	✓	
50	61.7	✓	
60	61.9	✓	
70	61.7	✓	
80	62.1	✓	
90	62.0	✓	
5200	61.9	✓	
10	61.9	✓	
20	62.2	✓	
30	62.1	✓	
40	62.2	✓	
50	62.3	✓	
60	62.5	✓	
70	62.5	✓	
80	62.5	✓	
90	62.5	✓	
5300	62.5	✓	

P31 Brk 334



E			
5310		562.6	✓
20		62.8	✓
30		62.8	✓
40		63.0	✓
50		63.1	✓
60		62.9	✓
70		63.1	✓
80		63.2	✓
90		63.1	✓
5400		63.2	✓
10		63.2	✓
20		63.5	✓
30		63.5	✓
40		63.6	✓
50		63.7	✓
60		63.9	✓
70		63.7	✓
80		63.5	✓
90		63.6	✓
5500		63.5	✓
10		63.4	✓
20		63.8	✓
30		63.8	✓
40		63.8	✓
50	63.9	<del>63.8</del>	✓

B 337

P 69



E			
5560	563.8	✓	
70	64.0	✓	
80	63.7	✓	
90	63.6	✓	
5600	63.8	✓	✓
10	63.7	✓	
20	63.9	✓	
30	63.9	✓	
40	64.0	✓	
50	63.9	✓	
60	63.8	✓	
70	63.7	✓	
80	63.6	✓	
90	63.5	✓	
5700	63.7	✓	
10	63.8	✓	
20	63.4	✓	
30	63.3	✓	
40	63.3	✓	
50	63.4	✓	
60	63.8	✓	
70	63.9	✓	
80	63.3	✓	
90	63.0	✓	
5800	62.7	✓	

Spot on Beam line NW



E

5810	562.3	✓
20	62.4	✓
30	62.2	✓
40	61.3	✓
50	60.2	✓
60	60.5	✓
70	60.7	✓
80	60.4	✓
90	60.6	✓
5900	61.4	✓
10	61.3	✓
20	61.3	✓
30	61.3	✓
40	61.8	✓
50	60.9	✓
60	60.9	✓
70	60.6	✓

not on Dam the  
m



E			
4060	549.9	✓	
70	50.2	✓	
80	50.4	✓	
90	50.5	✓	
4100	50.5	✓	
10	<del>50.6</del>	✓	
20	50.5	✓	
30	50.6	✓	
40	50.5	✓	
50	50.8	✓	
60	50.8	✓	
70	50.9	✓	
80	50.9	✓	
90	51.0	✓	
4200	51.0	✓	
10	51.0	✓	
20	51.0	✓	
30	51.2	✓	
40	51.2	✓	
50	51.2	✓✓	
60	51.3	✓✓	
70	51.2	✓✓	
80	51.1	✓✓	
90	51.2	✓✓	
4300	51.2	✓✓	

not on beam Sec  
W





E			
4310	551.4	✓	✓
20	51.5	✓	✓
30	51.5	✓	✓
40	51.5	✓	✓
50	51.4	✓	✓
60	51.5	✓	✓
70	51.6	✓	✓
80	51.6	✓	✓
90	51.5	✓	✓
4400	51.7	✓	✓
10	51.7	✓	✓
20	51.8	✓	✓
30	51.8	✓	✓
40	52.0	✓	✓
50	51.8	✓	✓
60	51.8	✓	✓
70	51.8	✓	✓
80	52.1	✓	✓
90	52.1	✓	✓
4500	52.1	✓	✓
10	52.2	✓	✓
20	52.3	✓	✓
30	52.3	✓	✓
40	52.4	✓	✓
50	52.4	✓	✓



E

4560	552.5	✓	✓
70	52.5	✓	✓
80	52.5	✓	✓
90	52.3	✓	✓
4600	<del>52.3</del> 52.4	✓	✓
10	52.7	✓	✓
20	52.7	✓	✓
30	52.6	✓	✓
40	52.8	✓	✓
50	52.8	✓	✓
60	52.8	✓	✓
70	52.8	✓	✓
80	52.8	✓	✓
90	52.8	✓	✓
4700	53.0	✓	✓
10	53.0	✓	✓
20	53.0	✓	✓
30	53.1	✓	✓
40	53.0	✓	✓
50	53.1	✓	✓
60	53.0	✓	✓
70	53.8	✓	✓
80	54.0	✓	✓
90	54.1	✓	✓
4800	54.0	✓	✓



E			
4810	554.0	✓	✓
20	54.9	✓	✓
30	<del>55.8</del> 55.0	✓	✓
40	56.5	✓	✓
50	57.6	✓	✓
60	59.1	✓	✓
70	59.1	✓	✓
80	59.7	✓	✓
90	59.8	✓	✓
4900	59.0	✓	✓
10	58.1	✓	✓
20	57.9	✓	✓
30	58.1	✓	✓
40	57.9	✓	✓
50	58.3	✓	✓
60	60.6	✓	✓
70	60.2	✓	✓
80	60.9	✓	✓
90	60.2	✓	✓
5000	61.3	✓	✓
10	61.5	✓	✓
20	61.8	✓	✓
30	61.7	✓	✓
40	61.7	✓	✓
50	61.9	✓	✓



E			
5060	561.9	✓	✓
70	61.8	✓	✓
80	62.0	✓	✓
90	61.9	✓	✓
5100	62.0	✓	✓
10	62.2	✓	✓
20	62.1	✓	✓
30	61.9	✓	✓
40	62.0	✓	✓
50	62.1	✓	✓
60	61.9	✓	✓
70	62.1	✓	✓
80	61.9	✓	✓
90	62.1	✓	✓
5200	61.9	✓	✓
10	62.6	✓	✓
20	62.2	✓	✓
30	62.2	✓	✓
40	62.2	✓	✓
50	62.3	✓	✓
60	62.3	✓	✓
70	62.4	✓	✓
80	62.4	✓	✓
90	62.5	✓	✓
5300	62.5	✓	✓



E		
5310	562.5	✓✓
20	62.7	✓✓
30	62.8	✓✓
40	63.0	✓✓
50	63.9	✓✓
60	63.2	✓✓
70	63.1	✓✓
80	63.1	✓✓
90	63.2	✓✓
5400	63.0	✓✓
10	63.1	✓✓
20	63.2	✓✓
30	63.2	✓✓
40	63.3	✓✓
50	63.4	✓✓
60	63.3	✓✓
70	63.4	✓✓
80	63.4	✓✓
90	63.5	✓✓
5500	63.7	✓✓
10	63.9	✓✓
20	63.5	✓✓
30	63.7	✓✓
40	63.9	✓✓
60	63.8	✓✓



E

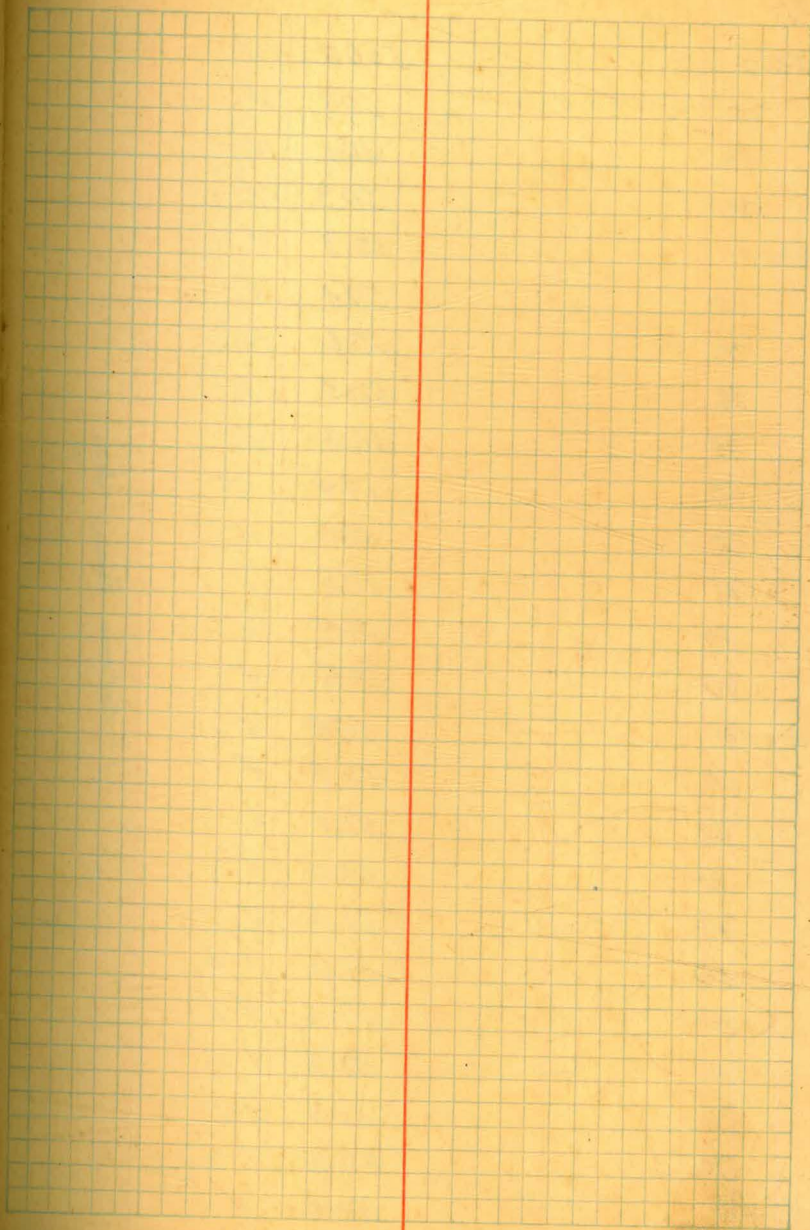
5560	563.6	✓✓
70	63.7	✓✓
80	63.8	✓✓
90	64.1	✓✓
5600	64.1	✓✓
10	63.6	✓
20	63.6	✓
30	63.6	✓
40	63.5	✓
50	63.1	✓
60	63.3	✓
70	63.3	✓
80	63.3	✓
90	63.2	✓
5400	63.4	✓
10	62.9	✓
20	63.0	✓
30	63.5	✓
40	63.9	✓
50	63.9	✓
60	63.4	✓
70	63.8	✓
80	63.2	✓
90	62.9	✓
5800	62.6	✓

At one hour. See #



E			
5810	582.2	✓	
20	62.0	✓	
30	61.0	✓	
40	60.0	✓	
50	60.6	✓	
60	60.5	✓	
70	60.4	✓	
80	60.8	✓	
90	61.1	✓	
5900	61.3	✓	
10	61.2	✓	
20	61.4	✓	
30	61.4	✓	
40	61.4	✓	
50	60.7	✓	
60	60.6	✓	
70	59.2	✓	
80			
90			
6000			

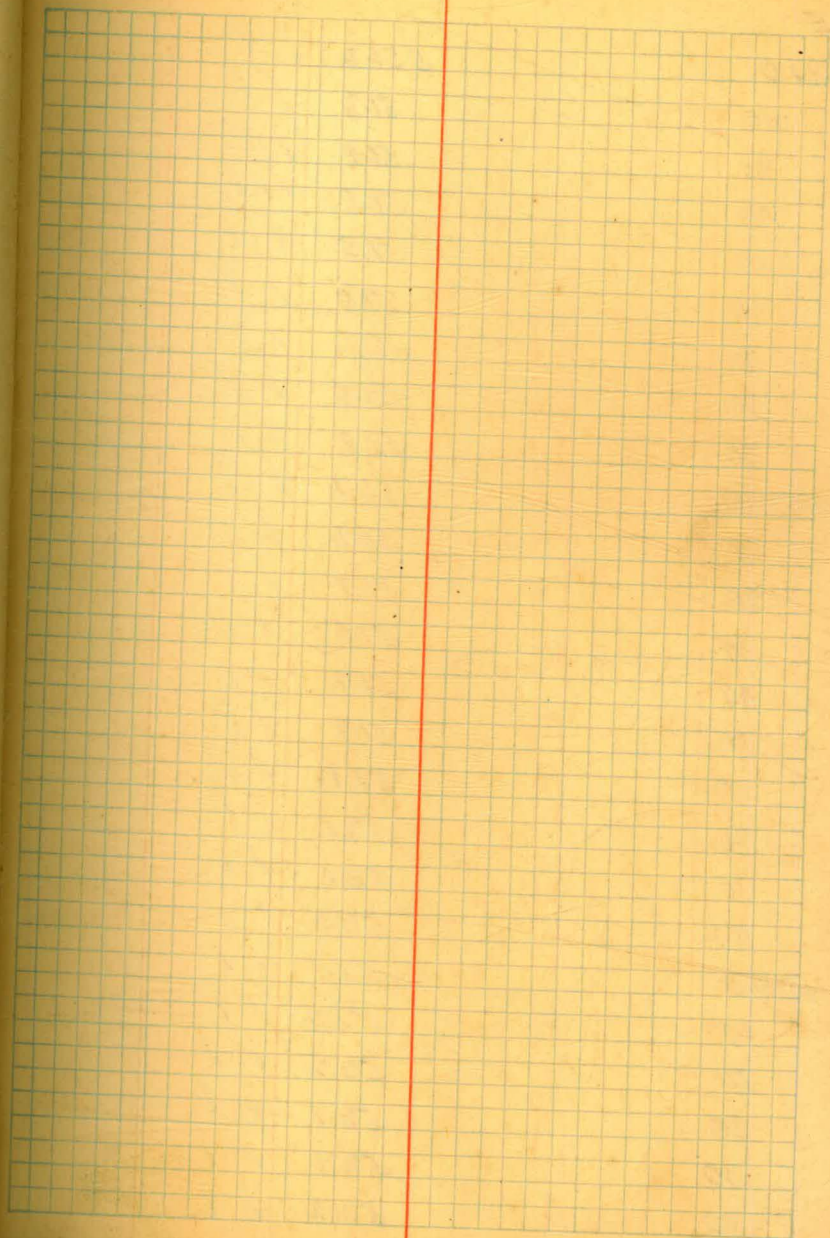
Water Drain Sec  
X





E			
4060	550.7	✓	
70	50.7	✓	
80	50.1	✓	
90	50.3	✓	
4100	50.3	✓	
10	50.4	✓	
20	50.6	✓	
30	50.5	✓	
40	50.4	✓	
50	50.4	✓	
60	50.5	✓	
70	50.8	✓	
80	50.9	✓	
90	50.9	✓	
4200	50.9	✓	
10	50.9	✓	
20	51.0	✓	
30	51.0	✓	
40	51.0	✓	
50	51.2	✓✓	
60	51.2	✓✓	
70	51.2	✓✓	
80	51.3	✓✓	
90	51.3	✓✓	
4300	51.3	✓✓	

Not one same <sup>1/4</sup>





E		P.O.
4310	551.2	✓ ✓
20	51.3	✓ ✓
30	51.4	✓ ✓
40	51.5	✓ ✓
50	51.5	✓ ✓
60	51.6	✓ ✓
70	51.6	✓ ✓
80	51.6	✓ ✓
90	51.8	✓ ✓
4400	51.7	✓ ✓
10	51.7	✓ ✓
20	51.7	✓ ✓
30	51.8	✓ ✓
40	51.7	✓ ✓
50	51.9	✓ ✓
60	52.1	✓ ✓
70	52.1	✓ ✓
80	52.1	✓ ✓
90	52.0	✓ ✓
4500	52.1	✓ ✓
10	52.3	✓ ✓
20	52.2	✓ ✓
30	52.1	✓ ✓
40	52.3	✓ ✓
50	52.2	✓ ✓



E		P. 06
4560	552.2	✓✓
70	52.1	✓✓
80	52.4	✓✓
90	52.1	✓✓
4600	52.4	✓✓
10	52.0	✓✓
20	52.5	✓✓
30	52.5	✓✓
40	52.9	✓✓
50	52.8	✓✓
60	52.7	✓✓
70	52.9	✓✓
80	53.0	✓✓
90	53.0	✓✓
4700	53.0	✓✓
10	52.9	✓✓
20	<del>53.0</del> <sup>53.1</sup>	✓✓
30	53.2	✓✓
40	53.3	✓✓
50	53.2	✓✓
60	53.3	✓✓
70	53.3	✓✓
80	53.4	✓✓
90	53.2	✓✓
4800	53.9	✓✓



E			
4810		554.1	✓✓
20		57.1	✓✓
30		54.3	✓✓
40		55.9	✓✓
50		56.4	✓✓
60		56.9	✓✓
70		57.3	✓✓
80		58.0	✓✓
90		57.6	✓✓
4900		57.6	✓✓
10	58.1	58.9	✓✓
20		59.0	✓✓
30		60.5	✓✓
40		61.1	✓✓
50		61.3	✓✓
60		61.6	✓✓
70		61.7	✓✓
80		61.9	✓✓
90		61.7	✓✓
5000		61.7	✓✓
10		61.9	✓✓
20		61.9	✓✓
30		62.0	✓✓
40		62.1	✓✓
50		62.2	✓✓

B 334 P 1



N3560

E

5060	562.3	✓✓
70	62.2	✓✓
80	62.2	✓✓
90	62.2	✓✓
5100	62.1	✓✓
10	62.0	✓✓
20	62.0	✓✓
30	62.3	✓✓
40	62.2	✓✓
50	62.2	✓✓
60	61.9	✓✓
70	61.8	✓✓
80	62.1	✓✓
90	62.4	✓✓
5200	62.2	✓✓
10	62.1	✓✓
20	62.2	✓✓
30	62.1	✓✓
40	62.1	✓✓
50	62.6	✓✓
60	62.4	✓✓
70	62.4	✓✓
80	62.4	✓✓
90	62.6	✓✓
5300	62.9	✓✓

P. 31. Book 334



E

5310

563.0

✓✓

20

62.7

✓✓

30

62.8

✓✓

40

62.9

✓✓

50

62.9

✓✓

60

62.9

✓✓

70

62.9

✓✓

80

63.3

✓✓

90

63.3

✓✓

5400

63.4

✓✓

10

63.2

✓✓

20

63.1

✓✓

30

63.3

✓✓

40

63.2

✓✓

50

63.3

✓✓

60

63.2

✓✓

70

63.3

✓✓

80

63.7

✓✓

90

63.5

✓✓

5500

63.7

✓✓

10

63.5

✓✓

20

63.8

✓✓

30

63.8

✓✓

40

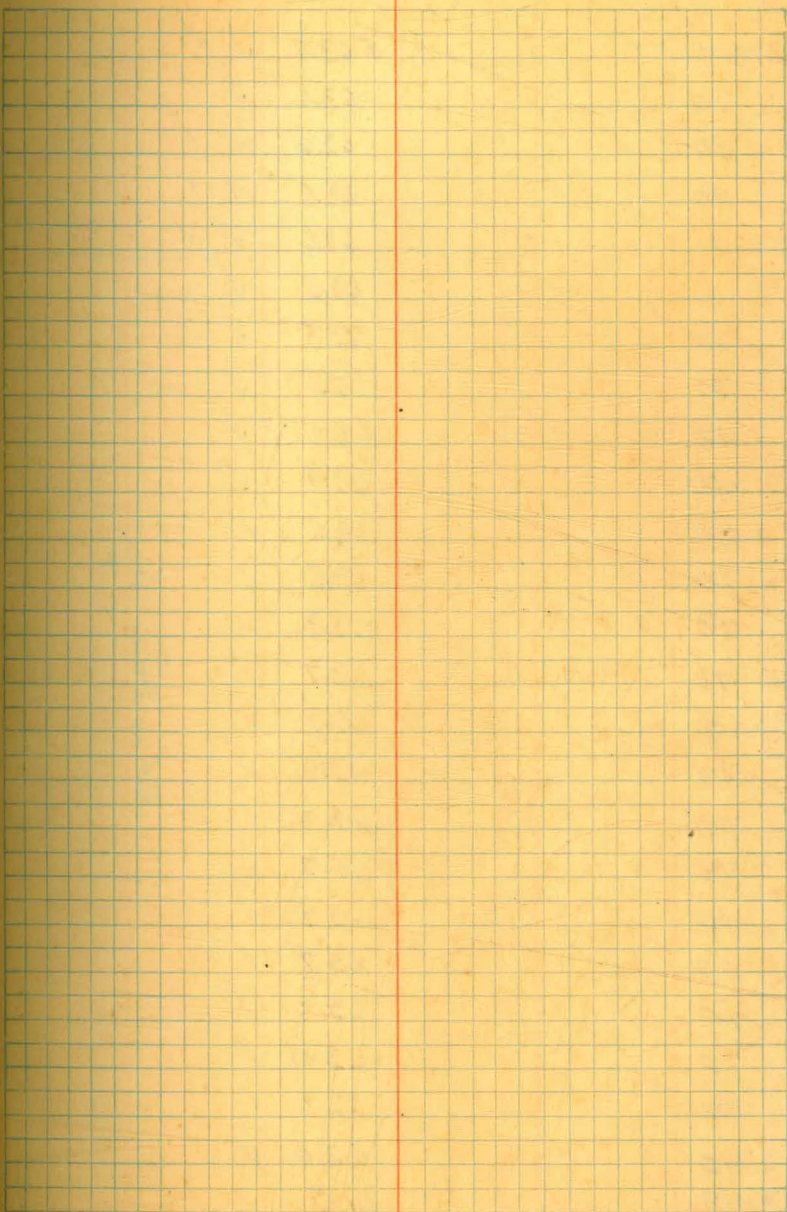
63.7

✓✓

50

63.6

✓✓





E

5560

563.7 ✓ ✓

70

63.6 ✓ ✓

80

63.6 ✓ ✓

90

63.6 ✓ ✓

5600

63.6 ✓ ✓

10

63.6 ✓

20

63.5 ✓

30

63.5 ✓

40

63.6 ✓

50

63.9 ✓

60

63.5 ✓

70

63.6 ✓

80

63.9 ✓

90

63.7 ✓

5700

63.3 ✓

10

63.6 ✓

20

64.2 ✓

30

64.2 ✓

40

63.9 ✓

50

63.7 ✓

60

63.2 ✓

70

63.0 ✓

80

62.6 ✓

90

62.6 ✓

5800

61.9 ✓

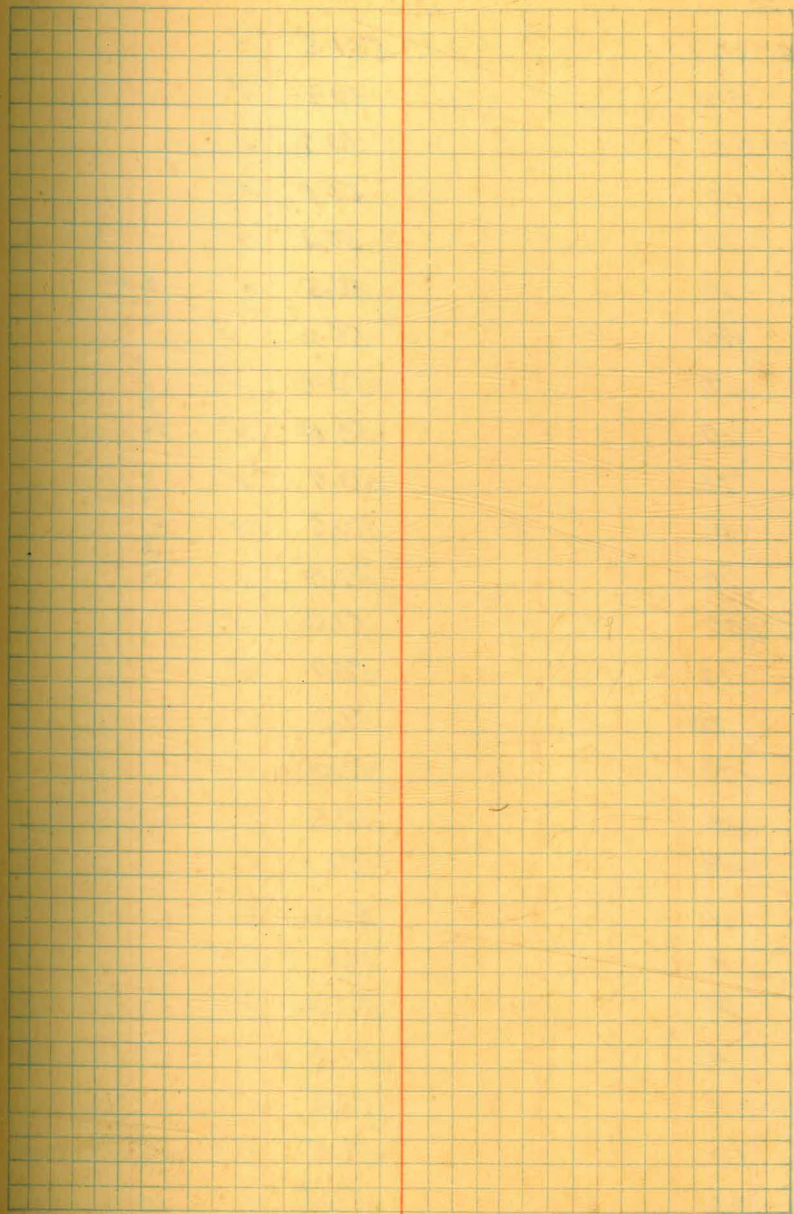
Not on Dam Sec. #



N3560

E			
5810	561.0	✓	
20	60.5	✓	
30	60.7	✓	
40	59.7	✓	
50	59.8	✓	
60	60.6	✓	
70	61.3	✓	
80	61.4	✓	
90	61.7	✓	
5900	61.6	✓	
10	61.5	✓	
20	61.7	✓	
30	61.3	✓	
40	60.8	✓	
50	60.6	✓	
60	59.0	✓	
70			
80			
90			
6000			

Kotowai Dam Sec 4





N3570

E			
4080	551.5	✓	
90	50.9	✓	
4100	50.2	✓	
10	50.4	✓	
20	50.2	✓	
30	50.5	✓	
40	50.6	✓	
50	50.6	✓	
60	50.4	✓	
70	50.7	✓	
80	50.6	✓	
90	51.0	✓	
4200	51.0	✓	
10	50.9	✓	
20	51.0	✓	
30	51.0	✓	
40	51.2	✓	
50	51.1	✓	
60	51.1	✓	
70	51.1	✓	
80	51.3	✓	
90	51.4	✓	
4300	51.5	✓	
10	51.5	✓	
20	51.5	✓	

Not on Dam Site #

✓



N3570

P.O.

E			
4330	551.4	✓	✓
46	51.5	✓	✓
50	51.5	✓	✓
60	51.5	✓	✓
70	51.4	✓	✓
80	51.7	✓	✓
90	51.8	✓	✓
44 00	51.8	✓	✓
10	52.0	✓	✓
20	51.8	✓	✓
30	52.0	✓	✓
40	51.9	✓	✓
50	52.0	✓	✓
60	51.8	✓	✓
70	52.1	✓	✓
80	52.1	✓	✓
90	52.2	✓	✓
45 00	52.2	✓	✓
10	52.2	✓	✓
20	52.0	✓	✓
30	52.2	✓	✓
40	52.2	✓	✓
50	52.3	✓	✓
60	52.4	✓	✓
70	52.5	✓	✓



N3570

31

E		P. 05
4580	552.3	✓ ✓
90	52.4	✓ ✓
4600	52.4	✓ ✓
10	52.7	✓ ✓
20	52.7	✓ ✓
30	52.6	✓ ✓
40	52.6	✓ ✓
50	52.8	✓ ✓
60	53.0	✓ ✓
70	53.0	✓ ✓
80	52.9	✓ ✓
90	52.9	✓ ✓
4700	53.1	✓ ✓
10	53.2	✓ ✓
20	53.2	✓ ✓
30	53.2	✓ ✓
40	53.1	✓ ✓
50	53.1	✓ ✓
60	53.2	✓ ✓
70	53.2	✓ ✓
80	53.3	✓ ✓
90	53.3	✓ ✓
4800	53.2	✓ ✓
10	53.0	✓ ✓
20	53.5	✓ ✓



N3570

E

4830

553.9

✓ ✓

40

54.0

✓ ✓

50

54.4

✓ ✓

60

56.0

✓ ✓

70

55.5

✓ ✓

80

56.9

✓ ✓

90

57.5

✓ ✓

4900

59.1

✓ ✓

10

59.6

✓ ✓

20

60.0

✓ ✓

30

60.3

✓ ✓

40

61.1

✓ ✓

50

61.5

✓ ✓

60

61.5

✓ ✓

70

61.9

✓ ✓

80

61.9

✓ ✓

90

61.9

✓ ✓

5000

62.1

✓ ✓

10

62.4

✓ ✓

20

62.3

✓ ✓

30

62.3

✓ ✓

40

62.4

✓ ✓

50

62.4

✓ ✓

60

62.4

✓ ✓

70

62.4

✓ ✓

✓



E			
5080	562.5	✓	
90	62.5	✓	<del>62.4</del>
5100	62.4	✓	✓
10	62.6	✓	✓
20	62.4	✓	✓
30	62.2	✓	✓
40	62.3	✓	✓
50	62.2	✓	✓
60	62.4	✓	✓
70	61.9	✓	✓
80	62.2	✓	✓
90	62.1	✓	✓
5200	62.5	✓	✓
10	62.3	✓	✓
20	62.2	✓	✓
30	62.2	✓	✓
40	62.2	✓	✓
50	62.3	✓	✓
60	62.3	✓	✓
70	62.6	✓	✓
80	62.7	✓	✓
90	62.8	✓	✓
5300	62.4	✓	✓
10	62.4	✓	✓
20	62.9	✓	✓

Pro Box 334



E

5330	562.7	✓	✓
40	62.7	✓	✓
50	63.0	✓	✓
60	63.1	✓	✓
70	63.1	✓	✓
80	63.1	✓	✓
90	63.1	✓	✓
5400	63.4	✓	✓
10	63.5	✓	✓
20	63.2	✓	✓
30	63.1	✓	✓
40	63.0	✓	✓
50	63.0	✓	✓
60	62.9	✓	✓
70	63.0	✓	✓
80	63.0	✓	✓
90	63.2	✓	✓
5500	63.0	✓	✓
10	63.2	✓	✓
20	63.3	✓	✓
30	63.5	✓	✓
40	63.7	✓	✓
50	63.7	✓	✓
60	63.5	✓	✓
70	63.9	✓	✓

✓



E			
5580	563.6	✓✓	
90	63.5	✓✓	
5600	63.7	✓✓	
10	63.5	✓	
20	63.8	✓	
30	63.8	✓	
40	64.0	✓	
50	63.9	✓	
60	63.7	✓	
70	63.0	✓	
80	63.0	✓	
90	62.5	✓	
5700	64.6	✓	
10	64.3	✓	
20	64.2	✓	
30	64.0	✓	
40	63.7	✓	
50	63.2	✓	
60	63.0	✓	
70	62.6	✓	
80	62.3	✓	
90	61.5	✓	
5800	60.7	✓	
10	61.3	✓	
20	60.5	✓	

Not on Dam See H



E

5830	560.0	✓
40	59.7	✓
50	61.3	✓
60	61.9	✓
70	61.8	✓
80	61.9	✓
90	61.8	✓
5900	61.6	✓
10	61.5	✓
20	61.5	✓
30	61.2	✓
40	61.0	✓
50	59.4	✓
60		
70		
80		
90		

Not on Dam Sec  
H



N3580

37

E

4100	551.3	✓
10	51.3	✓
20	51.3	✓
30	51.3	✓
40	51.3	✓
50	50.9	✓
60	50.5	✓
70	50.8	✓
80	50.6	✓
90	50.5	✓
4200	50.6	✓
10	50.8	✓
20	51.1	✓
30	51.0	✓
40	51.1	✓
50	51.3	✓
60	51.3	✓
70	51.4	✓
80	51.4	✓
90	51.3	✓
4300	51.4	✓
10	51.5	✓
20	51.5	✓
30	51.5	✓
40	51.7	✓

Not one. Draw See H.



E

4350	551.8	✓
60	51.6	✓
70	51.6	✓
80	51.8	✓
90	51.9	✓
4400	51.9	✓
10	51.9	✓
20	51.9	✓
30	51.9	✓
40	51.8	✓
50	52.1	✓
60	52.0	✓
70	52.2	✓
80	52.0	✓
90	52.1	✓
4500	52.2	✓
10	52.3	✓
	<del>52.2</del>	
20	52.3	✓
30	52.3	✓
40	52.4	✓
50	52.3	✓
60	52.3	✓
70	52.3	✓
80	52.4	✓
90	52.3	✓

✓



E

4600

552.8 ✓

10

52.8 ✓

20

52.6 ✓

30

52.9 ✓

40

53.0 ✓

50

52.9 ✓

60

52.9 ✓

70

53.0 ✓

80

53.0 ✓

90

53.1 ✓

4700

53.1 ✓

10

53.2 ✓

20

53.3 ✓

30

53.3 ✓

40

53.4 ✓

50

53.4 ✓

60

53.3 ✓

70

53.4 ✓

80

53.3 ✓

90

53.2 ✓

4800

53.3 ✓

10

53.2 ✓

20

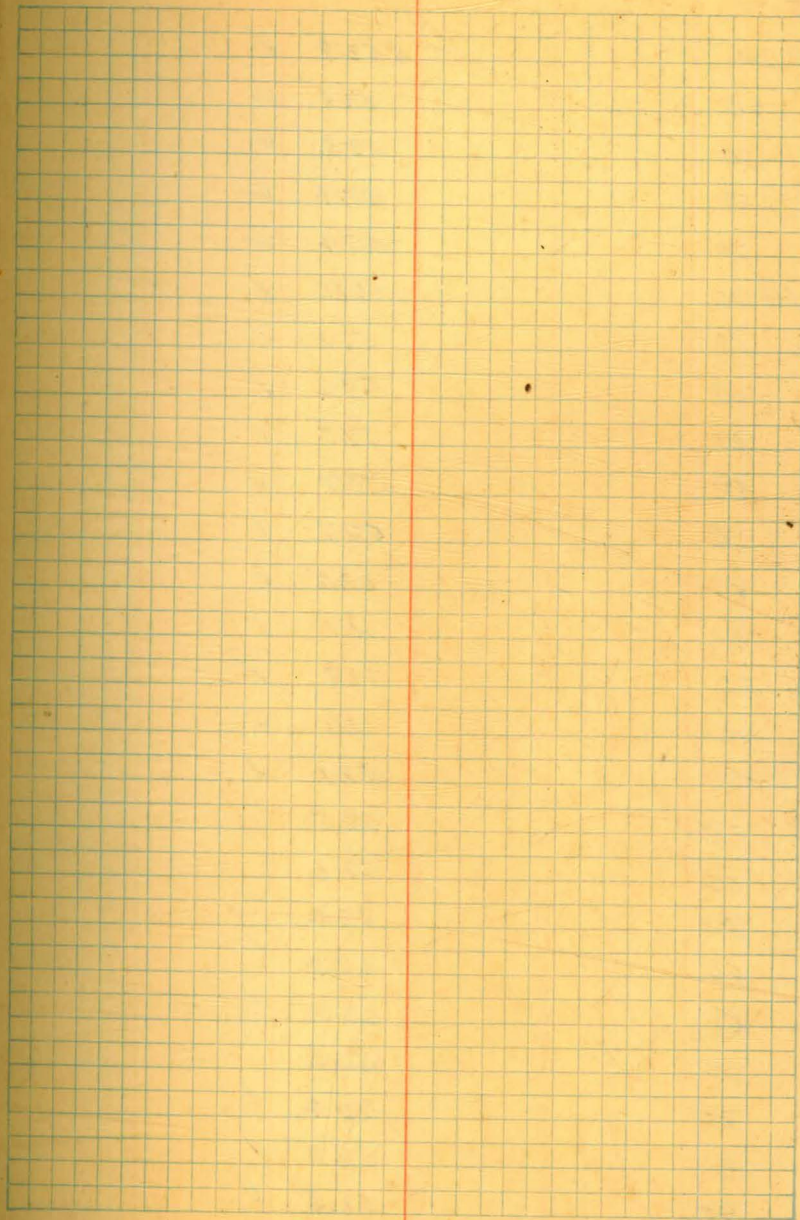
53.2 ✓

30

53.3 ✓

40

53.4 ✓





E

4850	553.9	✓
60	53.8	✓
70	53.8	✓
80	58.4	✓
90	55.4	✓
4900	56.0	✓
10	56.7	✓
20	58.6	✓
30	59.8	✓
40	59.7	✓
50	60.5	✓
60	60.6	✓
70	61.7	✓
80	61.8	✓
90	61.9	✓
5000	62.1	✓
10	62.5	✓
20	62.3	✓
30	62.4	✓
40	62.4	✓
50	62.3	✓
60	62.5	✓
70	62.4	✓
80	62.5	✓
90	62.5	✓



E

5100

562.5 ✓

10

62.6 ✓

20

62.7 ✓

30

62.7 ✓

40

62.6 ✓

50

62.6 ✓

60

62.6 ✓

70

62.2 ✓

80

62.6 ✓

90

62.5 ✓

5200

62.5 ✓

10

62.4 ~~62.5~~ ✓

20

62.6 ✓

30

62.5 ✓

40

62.3 ✓

50

62.6 ✓

60

62.7 ✓

70

62.5 ✓

80

62.5 ✓

90

62.5 ✓

5300

62.7 ✓

10

62.8 ✓

20

62.9 ✓

30

62.7 ✓

40

62.8 ✓

B334

P33



E

5350	62.8	✓
60	62.7	✓
70	62.8	✓
80	62.8	✓
90	63.2	✓
5400	62.9	✓
10	62.9	✓
20	62.9	✓
30	62.9	✓
40	63.3	✓
50	63.7	✓
60	63.7	✓
70	63.7	✓
80	63.4	✓
90	63.3	✓
5500	63.2	✓
10	63.4	✓
20	63.3	✓
30	63.2	✓
40	63.1	✓
50	63.2	✓
60	63.4	✓
70	63.4	✓
80	63.5	✓
90	63.5	✓



N3580

E

5600	563.4	✓	Not on Diagram See X
10	63.4	✓	
20	63.5	✓	
30	63.3	✓	
40	63.2	✓	
50	63.3	✓	
60	63.4	✓	
70	64.0	✓	
80	64.7	✓	
90	64.5	✓	
5700	64.4	✓	
10	64.0	✓	
20	63.7	✓	
30	63.5	✓	
40	63.3	✓	
50	63.0	✓	
60	62.6	✓	
70	61.8	✓	
80	61.1	✓	
90	60.6	✓	
5800	61.5	✓	
10	60.1	✓	
20	60.2	✓	
30	59.5 <del>69.5</del>	✓	
40	60.1	✓	

B339 P38



N3580

44

E		
5850	561.5	✓
60	61.7	✓
70	61.9	✓
80	61.7	✓
90	61.6	✓
5900	61.7	✓
10	61.4	✓
20	61.5	✓
30	61.2	✓
40	60.3	✓

Not on same Damu Sea H



E

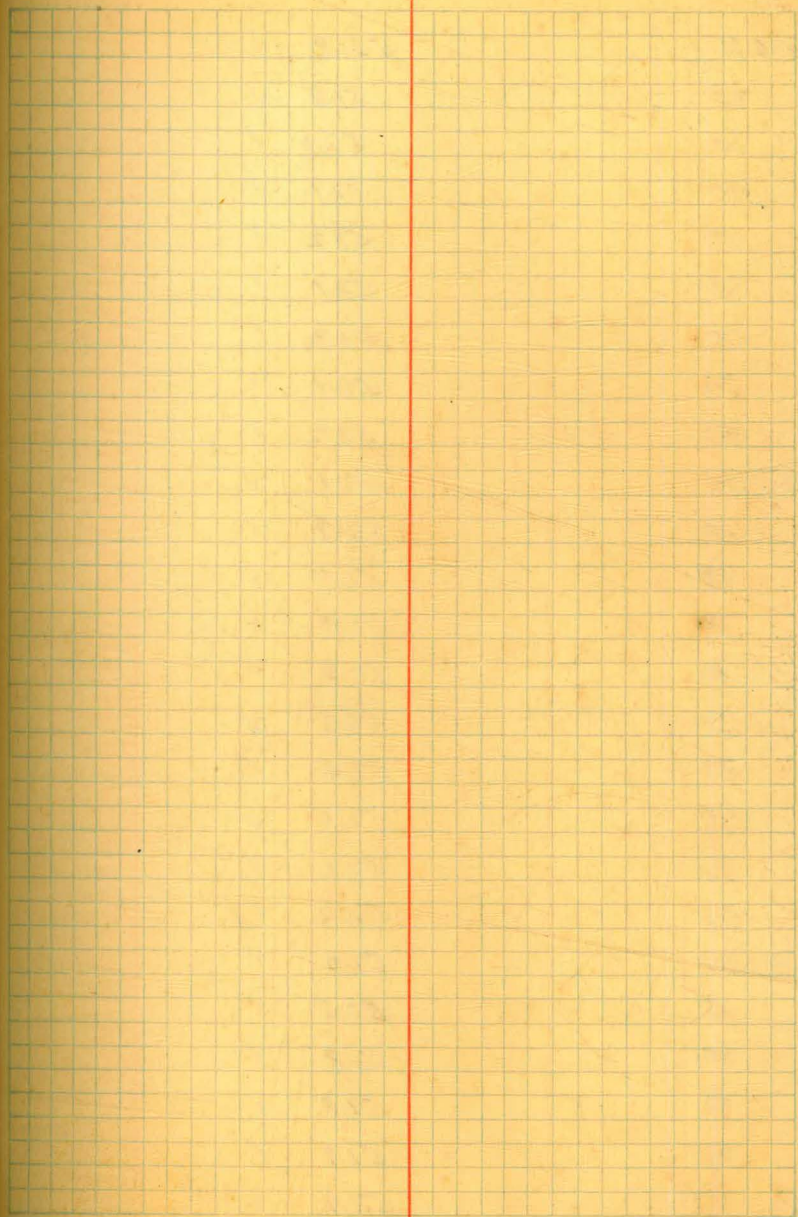
4160	551.7	✓
70	51.6	✓
80	51.5	✓
90	51.7	✓
4200	51.2	✓
10	50.8	✓
20	51.0	✓
30	51.0	✓
40	51.2	✓
50	51.2	✓
60	51.3	✓
70	51.3	✓
80	51.7	✓
90	51.5	✓
4300	51.5	✓
10	51.5	✓
20	51.7	✓
30	51.7	✓
40	51.6	✓
50	51.5	✓
60	51.6	✓
70	51.8	✓
80	51.8	✓
90	51.9	✓
4400	51.8	✓

Notow Dams Sea

A

↑

↓





E		
4410	551.8	✓
20	51.8	✓
30	52.0	✓
40	52.1	✓
50	52.2	✓
60	52.1	✓
70	52.2	✓
80	52.1	✓
90	52.2	✓
4500	52.1	✓
10	52.4	✓
20	52.4	✓
30	52.4	✓
40	52.3	✓
50	<del>52.2</del> 52.3	✓
60	52.4	✓
70	52.6	✓
80	52.6	✓
90	52.7	✓
4600	52.7	✓
10	52.8	✓
20	52.8	✓
30	52.8	✓
40	52.9	✓
50	52.9	✓

✓



N3590

E			
4660		552.9	✓
70		53.0	✓
80		53.1	✓
90		53.1	✓
4700		53.2	✓
10		53.2	✓
20		53.2	✓
30		53.4	✓
40		53.4	✓
50		53.3	✓
60		53.2	✓
70		53.3	✓
80		53.4	✓
90		53.4	✓
4800.		53.5	✓
10		53.7	✓
20		53.4	✓
30		53.4	✓
40		53.2	✓
50		53.3	✓
60		53.5	✓
70		54.0	✓
80		53.8	✓
90		53.9	✓
4900		54.6	✓



E

4910	555.2	✓
20	56.0	✓
30	57.1	✓
40	57.7	✓
50	58.2	✓
60	59.8	✓
70	60.1	✓
80	60.7	✓
90	61.0	✓
5000	61.5	✓
10	62.0	✓
20	62.0	✓
30	62.4	✓
40	62.3	✓
50	62.6	✓
60	62.3	✓
70	62.3	✓
80	62.3	✓
90	62.5	✓
5100	62.5	✓
10	62.6	✓
20	62.6	✓
30	62.8	✓
40	63.0	✓
50	62.8	✓



E

5160	562.9	✓
70	62.6	✓
80	63.0	✓
90	62.9	✓
5200	62.8	✓
10	62.8	✓
20	62.9	✓
30	63.0	✓
40	62.8	✓
50	62.8	✓
60	62.9	✓
70	62.8	✓
80	62.9	✓
90	62.9	✓
5300	63.0	✓
10	63.1	✓
20	63.0	✓
30	62.9	✓
40	62.8	✓
50	62.8	✓
60	62.7	✓
70	62.7	✓
80	62.7	✓
90	62.7	✓
5400	62.9	✓



N3530

E			
5410		562.8	✓
20		63.1	✓
30		62.9	✓
40		63.2	✓
50		63.1	✓
60		63.2	✓
70		63.4	✓
80		63.7	✓
90		63.7	✓
5500		63.7	✓
10		63.6	✓
20		63.8	✓
30		63.6	✓
40		63.5	✓
50		63.2	✓
60		63.3	✓
70		63.3	✓
80		63.2	✓
90		63.4	✓
5600		63.6	✓
10		63.6	✓
20		63.6	✓
30		63.6	✓
40		63.9	✓
50		64.4	✓

Not one same Sec.  
H.



E

5600	564.6	✓
70	64.7	✓
80	64.4	✓
90	64.1	✓
5700	638 <del>63.9</del>	✓
10	63.7	✓
20	63.5	✓
30	63.0	✓
40	62.7	✓
50	62.0	✓
60	61.5	✓
70	61.2	✓
80	60.8	✓
90	61.3	✓
5800	60.1	✓
10	59.6	✓
20	59.5	✓
30	59.6	✓
40	62.2	✓
50	61.9	✓
60	61.8	✓
70	61.7 <del>61.8</del>	✓
80	61.6	✓
90	61.7	✓
5900	61.8	✓

Noton Dam Sec. 4

B 337 P 5

B 339 P 43



113530

E

59 10

20

30

40

561.3

✓

41.2

✓

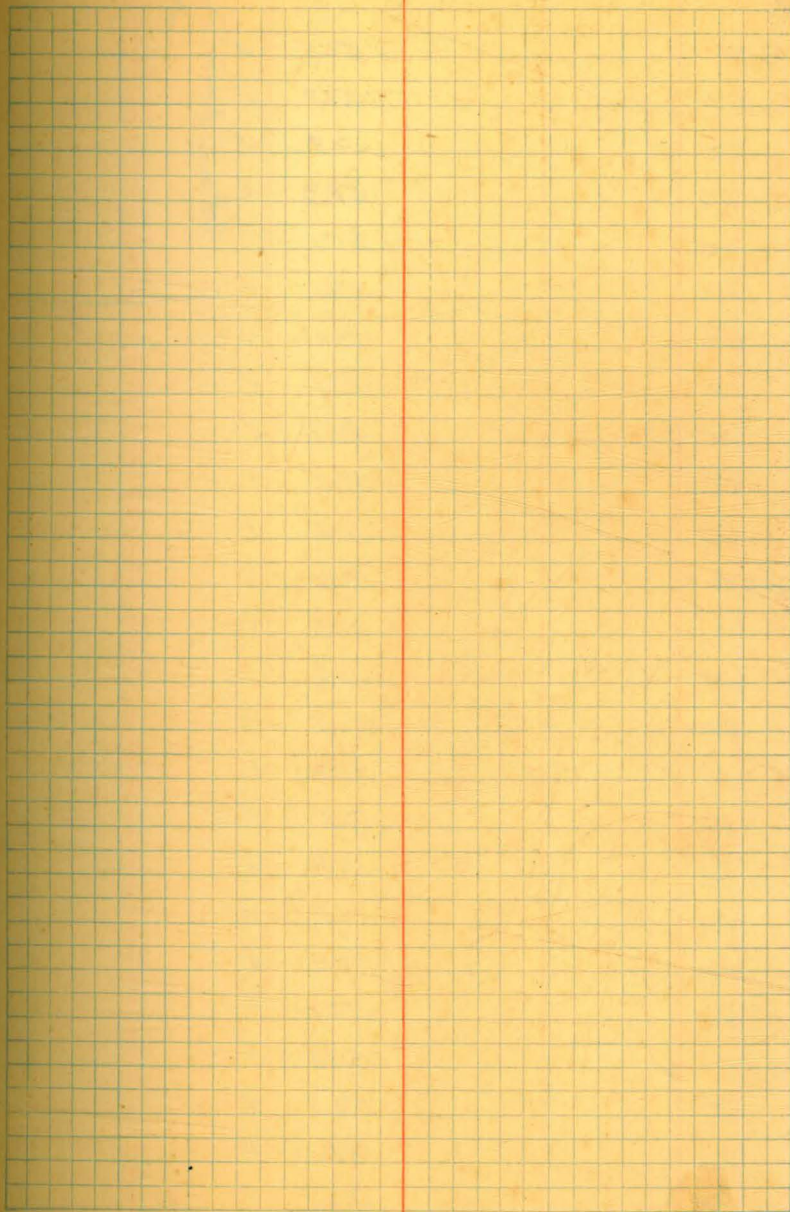
60.4

✓

59.3

✓

Wofon Dan See #





E

4190

551.5

✓  
✓  
✓  
✓  
Not over beam seen  
H

4200

51.9

10

51.8

20

51.3

30

51.1

40

51.1

50

51.1

60

51.1

70

51.1

80

51.0

90

51.2

4300

51.3

10

51.5

20

51.6

30

51.8

40

51.7

50

51.8

60

51.8

70

51.8

80

51.9

90

52.0

4400

51.9

10

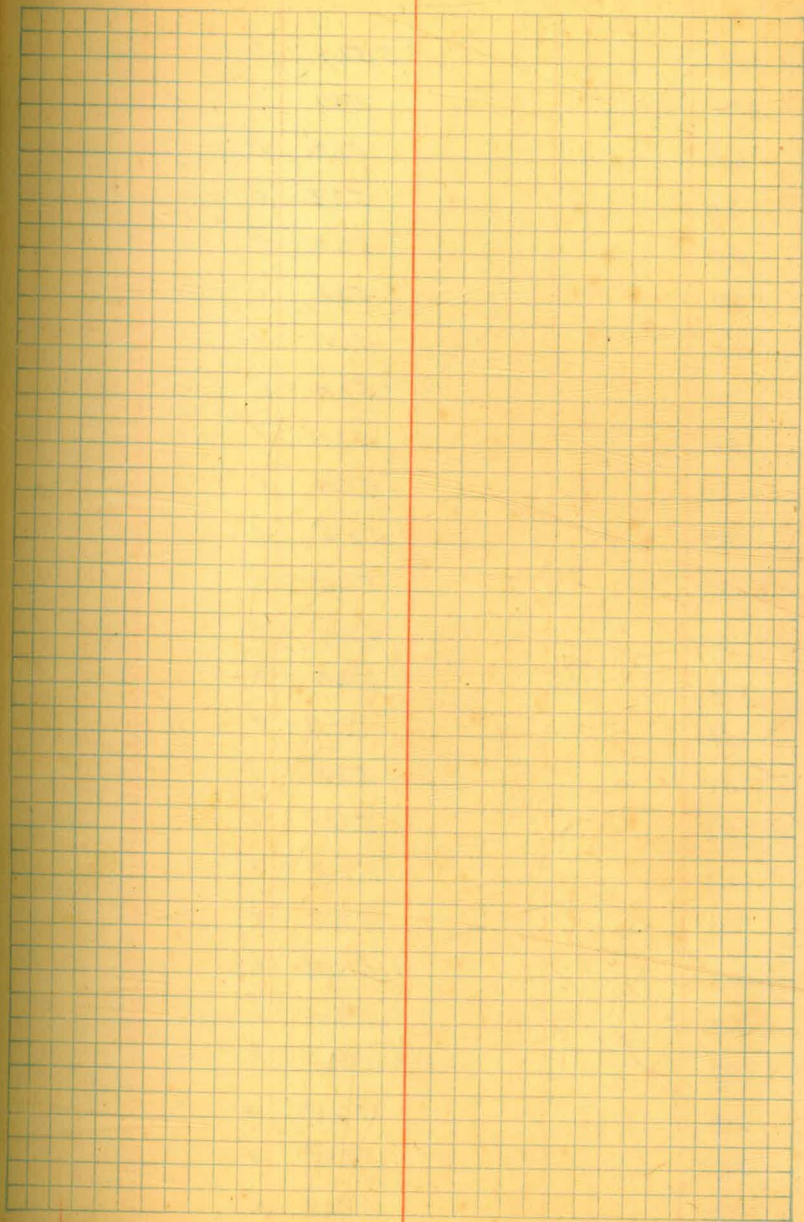
52.1

20

52.0

30

52.1





E

4440

552.1 ✓

50

52.1 ✓

60

52.2 ✓

70

52.2 ✓

80

52.2 ✓

90

52.3 ✓

4500

52.3 ✓

10

52.4 ✓

20

52.4 ✓

30

52.4 ✓

40

52.5 ✓

50

52.5 ✓

60

52.6 ✓

70

52.7 ✓

80

52.7 ✓

90

52.8 ✓

4600

52.7 ✓

10

52.8 ✓

20

52.6 ✓

30

52.7 ✓

40

53.0 ✓

50

53.0 ✓

60

52.9 ✓

70

52.8 ✓

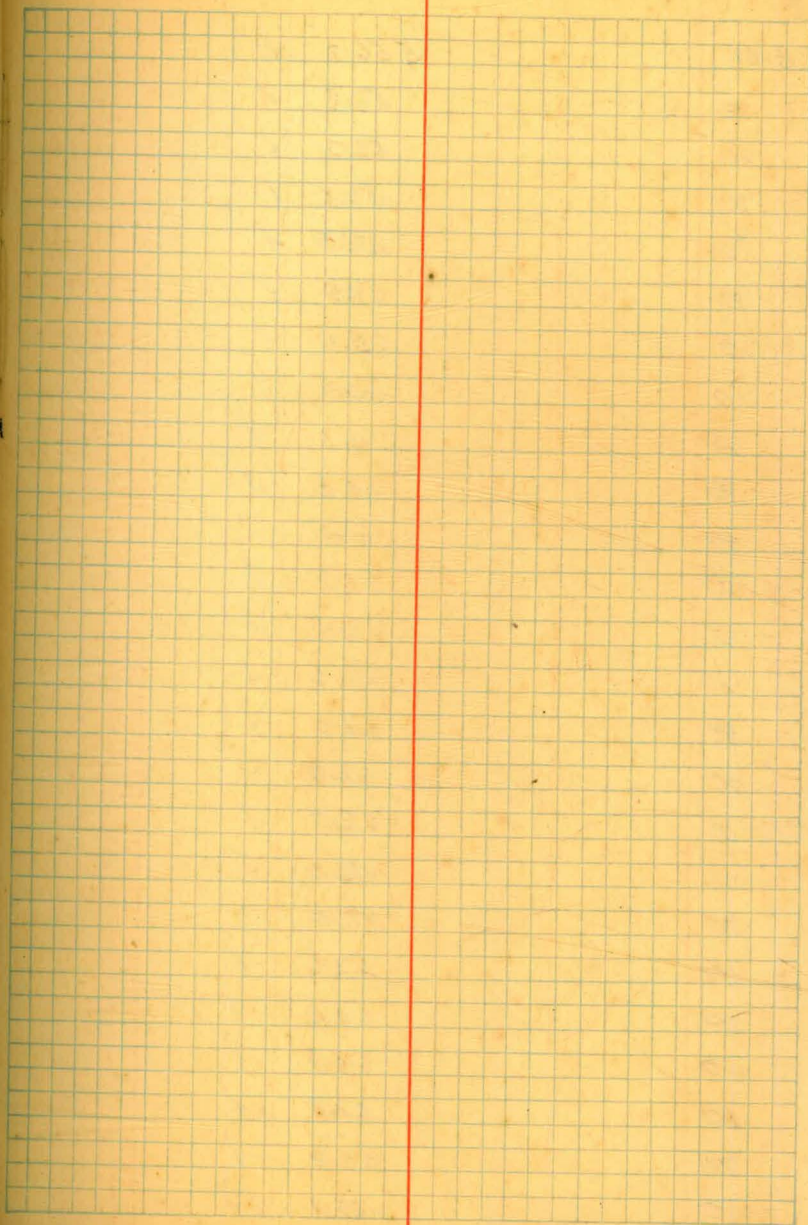
80

53.1 ✓



E

4690	552.7	✓
4700	53.2	✓
10	53.3	✓
20	53.2	✓
30	53.4	✓
40	53.3	✓
50	53.1	✓
60	53.4	✓
70	53.3	✓
80	53.4	✓
90	53.4	✓
4800	53.3	✓
10	53.3	✓
20	53.6	✓
30	53.5	✓
40	53.6	✓
50	53.6	✓
60	53.7	✓
70	53.7	✓
80	53.6	✓
90	54.1	✓
4900	54.1	✓
10	54.5	✓
20	54.2	✓
30	55.4	✓





E

4940	556.3	✓
50	56.5	✓
60	56.2	✓
70	59.6	✓
80	58.3	✓
90	59.4	✓
5000	60.0	✓
10	60.7	✓
20	61.1	✓
30	61.3	✓
40	61.5	✓
50	61.9	✓
60	62.1	✓
70	62.3	✓
80	62.3	✓
90	62.0	✓
5100	62.0	✓
10	62.2	✓
20	62.4	✓
30	62.6	✓
40	62.6	✓
50	62.8	✓
60	62.9	✓
70	62.9	✓
80	63.1	✓



E

5190	563.0	✓
5200	63.3	✓
10	63.2	✓
20	63.0	✓
30	62.9	✓
40	62.9	✓
50	63.0	✓
60	63.0	✓
70	63.0	✓
80	63.0	✓
90	62.8	✓
5300	62.8	✓
10	63.2	✓
20	63.1	✓
30	63.0	✓
40	62.8	✓
50	62.8	✓
60	62.8	✓
70	63.2	✓
80	63.0	✓
90	63.2	✓
5400	63.2	✓
10	63.1	✓
20	63.5	✓
30	63.5	✓



E			
5440	563.0	✓	
50	63.0	✓	
60	63.4	✓	
70	63.3	✓	
80	63.3	✓	
90	63.4	✓	
5500	63.4	✓	
10	63.4	✓	
20	63.3	✓	
30	63.2	✓	
40	63.4	✓	
50	63.4	✓	
60	63.6	✓	
70	63.8	✓	
80	63.8	✓	
90	63.9	✓	
5600	64.0	✓	
10	64.3	✓	
20	64.5	✓	
30	64.8	✓	
40	64.9	✓	
50	65.0	✓	
60	64.6	✓	
70	64.5	✓	
80	64.1	✓	

Not over 10000 feet  
H.



E			
5690	563.5	✓	
5700	63.4	✓	
10	63.3	✓	
20	62.7	✓	
30	61.9	✓	
40	61.5	✓	
50	61.4	✓	
60	61.1	✓	
70	60.8	✓	
80	60.1	✓	
90	59.7	✓	
5800	59.3	✓	
10	59.7	✓	
20	60.0	✓	
30	62.2	✓	
40	61.8	✓	
50	61.6	✓	
60	61.7	✓	
70	61.4	✓	
80	61.5	✓	
90	62.0	✓	
5900	61.4	✓	
10	61.1	✓	
20	60.6	✓	
30	59.0	✓	

Not on same base.  
H



E

4220

552.2

✓

30

52.4

✓

40

52.0

✓

50

51.4

✓

60

51.1

✓

70

51.2

✓

80

51.4

✓

90

51.5

✓

4300

51.5

✓

10

51.5

✓

20

51.6

✓

30

51.8

✓

40

51.7

✓

50

51.8

✓

60

51.8

✓

70

51.8

✓

80

51.8

✓

90

51.9

✓

4400

51.8

✓

10

51.9

✓

20

51.9

✓

30

52.0

✓

40

51.9

✓

50

52.1

✓

60

52.1

✓

not on Down Set H



E			
4470		5522	✓
80		52.1	✓
90		<del>52.3</del> 52.2	✓
4500		52.3	✓
10		52.4	✓
20		52.0	✓
30		52.0	✓
40		52.2	✓
50		52.2	✓
60		52.2	✓
70		52.2	✓
80		52.5	✓
90	52.4	<del>53.4</del>	✓
4600		53.5	✓
10		52.7	✓
20		53.6	✓
30		53.7	✓
40		53.2	✓
50		53.3	✓
60		53.6	✓
70		53.4	✓
80		53.6	✓
90		53.4	✓
4700		53.3	✓
10		53.2	✓

B337 P41



E

4720	553.3	✓
30	53.3	✓
40	54.1	✓
50	54.0	✓
60	54.1	✓
70	54.1	✓
80	53.6	✓
90	53.7	✓
4800	54.0	✓
10	54.0	✓
20	53.6	✓
30	53.3	✓
40	53.5	✓
50	53.3	✓
60	53.2	✓
70	53.5	✓
80	53.6	✓
90	54.0	✓
4900	53.6	✓
10	54.1	✓
20	54.0	✓
30	54.1	✓
40	54.8	✓
50	55.9	✓
60	56.2	✓



F		
49.70	556.3	✓
80	55.8	✓
90	56.8	✓
5000	57.9	✓
10	59.3	✓
20	59.8	✓
30	60.6	✓
40	60.4	✓
50	60.4	✓
60	60.2	✓
70	61.0	✓
80	61.3	✓
90	61.6	✓
5100	61.3	✓
10	60.6	✓
20	61.5	✓
30	61.7	✓
40	61.6	✓
50	61.7	✓
60	61.8	✓
70	62.9	✓
80	61.7	✓
90	62.2	✓
5200	62.3	✓
10	62.2	✓



E

5220		562.3	✓
30		62.4	✓
40		62.3	✓
50		62.9	✓
60		62.7	✓
70		62.9	✓
80		63.0	✓
90		63.0	✓
5300		62.8	✓
10		62.8	✓
20		62.8	✓
30		62.9	✓
40		63.0	✓
50		63.2	✓
60		63.2	✓
70		63.4	✓
80		63.2	✓
90		63.4	✓
5400		63.4	✓
10	63.2	63.4	✓
20		63.1	✓
30		63.3	✓
40		63.4	✓
50		63.2	✓
60		63.2	✓

B33A PSI



E

5470	563.2	✓
80	63.6	✓
90	63.4	✓
5500	63.2	✓
10	63.0	✓
20	63.2	✓
30	63.5	✓
40	63.5	✓
50	63.5	✓
60	63.9	✓
70	64.0	✓
80	64.4	✓
90	65.1	✓
5600	65.6	✓
10	65.1	✓
20	65.2	✓
30	65.0	✓
40	64.6	✓
50	64.5	✓
60	64.3	✓
70	64.0	✓
80	63.6	✓
90	63.2	✓
5700	62.8	✓
10	62.2	✓

Not on same Sec. H



E

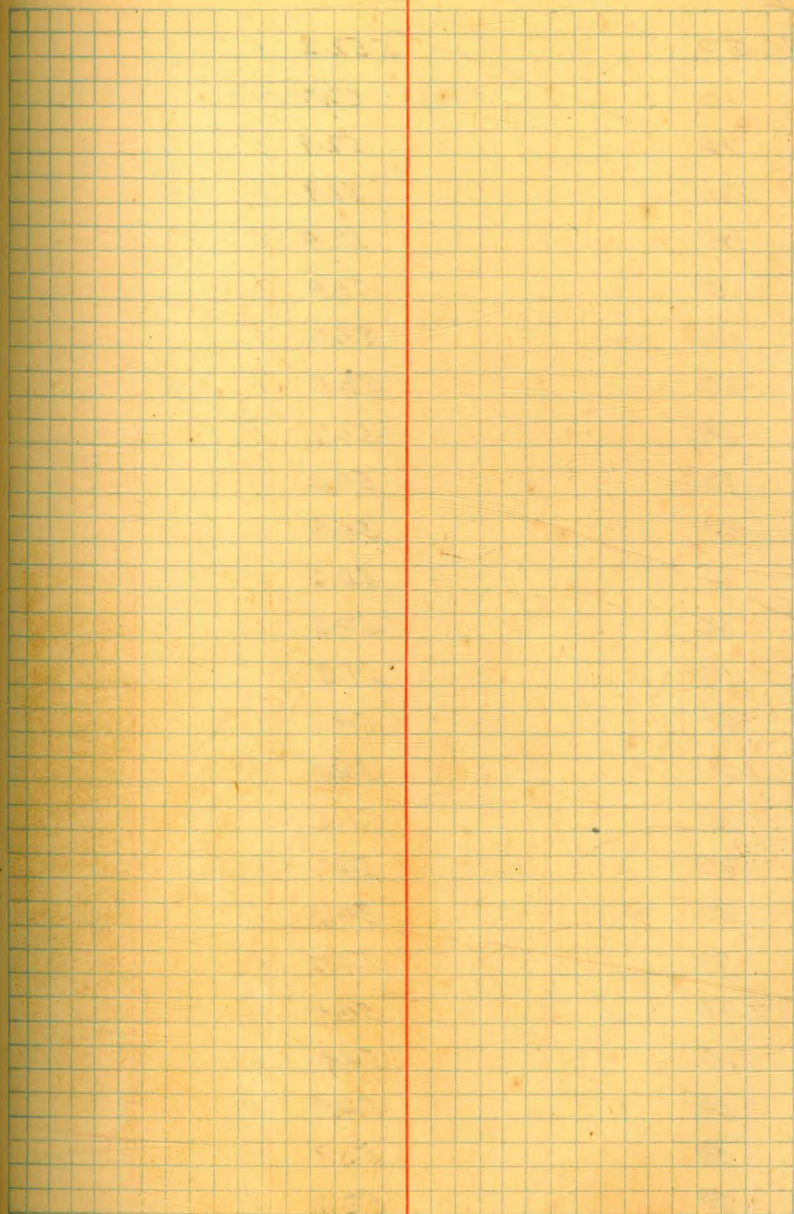
5720	561.7	✓
30	60.4	✓
40	61.5	✓
50	61.9	✓
60	60.7	✓
70	59.9	✓
80	59.7	✓
90	59.9	✓
5800	60.1	✓
10	60.2	✓
20	61.9	✓
30	61.5	✓
40	61.5	✓
50	61.5	✓
60	61.5	✓
70	61.5	✓
80	61.7	✓
90	61.3	✓
5900	61.5	✓
10	60.5	✓
20	59.3	✓

Not on beam level  
4



E

4250	552.2	✓
60	52.7	✓
70	52.4	✓
80	51.8	✓
90	51.4	✓
4300	51.4	✓
10	51.7	✓
20	51.7	✓
30	51.6	✓
40	51.6	✓
50	51.6	✓
60	51.6	✓
70	51.6	✓
80	51.5	✓
90	51.5	✓
4400	51.6	✓
10	51.5	✓
20	51.6	✓
30	51.8	✓
40	51.8	✓
50	51.8	✓
60	51.9	✓
70	51.8	✓
80	52.0	✓
90	52.2	✓





E

4500		552.2	✓
10	52.2	52.3	✓
20		52.7	✓
30		52.9	✓
40		52.9	✓
50		53.0	✓
60		53.0	✓
70		53.5	✓
80		53.7	✓
90		54.0	✓
4600		54.3	✓
10		54.6	✓
20		54.3	✓
30		54.3	✓
40		54.6	✓
50		54.6	✓
60		54.6	✓
70		54.7	✓
80		54.8	✓
90		54.7	✓
4700		54.4	✓
10		54.4	✓
20		54.0	✓
30		53.9	✓
40		53.9	✓

B 337 P 47



N3620

E

4750	53.6	✓
60	54.1	✓
70	54.5	✓
80	54.4	✓
90	54.2	✓
4800	54.0	✓
10	54.0	✓
20	54.3	✓
30	54.4	✓
40	54.3	✓
50	53.5	✓
60	53.2	✓
70	53.3	✓
80	53.5	✓
90	53.6	✓
4900	53.8	✓
10	54.0	✓
20	53.9	✓
30	54.4	✓
40	54.6	✓
50	54.6	✓
60	55.7	✓
70	56.0	✓
80	55.9	✓
90	56.1	✓

N3620

69

E



E

5000

556.3 ✓

10

56.9 ✓

20

57.2 ✓

30

58.3 ✓

40

58.3 ✓

50

58.2 ✓

60

59.7 ✓

70

57.9 ✓

80

57.7 ✓

90

57.5 ✓

5100

57.5 ✓

10

57.4 ✓

20

57.6 ✓

30

57.8 ✓

40

57.7 ✓

50

57.8 ✓

60

57.7 ✓

70

61.9 ✓

80

58.5 ✓

90

58.9 ✓

5200

59.9 ✓

10

61.0 ✓

20

61.7 ✓

30

62.0 ✓

40

61.7 ✓



055

N3620

E

5250		562.0	✓
60		62.3	✓
70		62.2	✓
80		61.2	✓
90		62.2	✓
5300		62.2	✓
10		62.4	✓
20		62.7	✓
30		63.0	✓
40		63.1	✓
50		63.1	✓
60		63.1	✓
70		63.2	✓
80		63.2	✓
90		63.4	✓
5400		63.5	✓
10		63.3	✓
20	63.2	<del>63.3</del>	✓
30		63.5	✓
40		63.2	✓
50		63.7	✓
60		63.7	✓
70	63.2	<del>63.3</del>	✓
80		63.3	✓
90		63.6	✓

71

B334 P56

B334 P61



N3620

E

72

5500	563.7	✓
10	63.9	✓
20	64.3	✓
30	63.4	✓
40	64.7	✓
50	64.8	✓
60	65.0	✓
70	65.0	✓
80	65.2	✓
✓ 90	65.4	✓
5600	65.0	✓
10	65.0	✓
20	67.8	✓
30	64.5	✓
40	64.3	✓
50	64.4	✓
60	64.1	✓
70	63.5	✓
80	63.2	✓
✓ 90	62.5	✓
5700	61.9	✓
10	61.4	✓
20	61.1	✓
30	62.3	✓
40	61.9	✓

Not in Bam. Sec.  
H.



N3620

E

57 50

560.7 ✓

60

59.3 ✓

70

59.5 ✓

80

59.5 ✓

90

59.8 ✓

58 00

59.7 ✓

10

61.5 ✓

20

61.5 ✓

30

61.6 ✓

40

61.4 ✓

50

61.4 ✓

60

61.4 ✓

70

61.8 ✓

80

61.6 ✓

90

60.9 ✓

59 00

60.5 ✓

10

59.0-~~69.0~~ ✓

20

30

40

50

60

70

80

90

Not in Dew Sec.  
H.

B 339 10 47



E			
4280		55.50	✓ /
90		53.6	✓ ✓
4300		52.3	✓ /
10		53.5	✓ /
20		52.1	✓ /
30		52.3	✓ /
40		51.9	✓ /
50		52.9	✓ /
60		53.9	✓ /
70		53.8	✓ /
80		54.2	✓ ✓
90		53.7	✓ /
4400		53.8	✓ /
10		53.3	✓ /
20		52.3	✓ /
30		53.8	✓ /
40		54.0	✓ /
50		54.3	✓ ✓
60		54.5	✓ ✓
70		54.6	✓ /
80		54.5	✓ ✓
90		54.6	✓ /
4500		55.2	✓ ✓
10		54.6	✓ /
20		55.3	✓ /



E

4530	554.7	✓✓
40	54.8	✓✓
50	55.0	✓✓
60	56.4	✓✓
70	56.4	✓✓
80	57.6	✓✓
90	57.2	✓✓
4600	57.1	✓✓
10	57.7	✓✓
20	58.4	✓✓
30	57.7	✓✓
40	56.9	✓✓
50	57.3	✓✓
60	57.7	✓✓
70	55.7	✓✓
80	55.6	✓✓
90	55.1	✓✓
4700	55.2	✓✓
10	55.2	✓✓
20	55.3	✓✓
30	54.4	✓✓
40	54.3	✓✓
50	54.0	✓✓
60	53.6	✓✓
70	53.6	✓✓



E

4780	553.7	✓✓	
90	54.2	✓✓	
4800	54.1	✓✓	
10	54.3	✓✓	
20	54.3	✓✓	
30	54.4	✓✓	
40	54.4	✓✓	
50	54.3	✓✓	
60	54.3	✓✓	
70	53.9	✓✓	
80	53.5	✓✓	
90	53.6	✓✓	
4900	53.9	✓✓	
10	54.0	✓✓	
20	53.8	✓✓	
30	54.1	✓✓	
40	54.4	✓✓	
50	54.4	✓✓	
60	54.7	✓✓	
70	55.0	✓✓	
80	55.9	✓✓	
90	56.0	✓✓	
5000	56.5	56.0	✓✓
10	56.3	✓✓	
20	56.6	✓✓	

B.334 P. 10



113630

77

E

5030

556.6

✓✓

40

56.6

✓✓

50

57.0

✓✓

60

57.1

✓✓

70

57.2

✓✓

80

57.3

✓✓

90

57.4

✓✓

5100

57.5

✓✓

10

57.4

✓✓

20

57.8

✓✓

30

57.8

✓✓

40

58.2

✓✓

50

58.4

✓✓

60

58.6

✓✓

70

58.2

✓✓

80

59.0

✓✓

90

58.9

✓✓

5200

58.5

✓✓

10

59.0

✓✓

20

59.3

✓✓

30

60.2

✓✓

40

60.5

✓✓

50

60.5

✓✓

60

62.3

✓✓

70

59.8

✓✓



N3630

E

5280	560.0	✓✓
90	60.5	✓✓
5300	60.6	✓✓
10	60.9	✓✓
20	61.6	✓✓
30	62.3	✓✓
40	62.4	✓✓
50	62.6	✓✓
60	63.0	✓✓
70	62.6	✓✓
80	62.8	✓✓
90	62.8	✓✓
5400	62.8	✓✓
10	62.9	✓✓
20	63.1	✓✓
30	63.2	✓✓
40	63.1	✓✓
50	63.4	✓✓
60	63.5	✓✓
70	63.5	✓✓
80	63.9	✓✓
90	64.1	✓✓
5500	64.1	✓✓
10	64.2	✓✓
20	64.4	✓✓



N 3630

E

5530

569.8

✓ ✓

40

65.0

✓ ✓

50

65.3

✓ ✓

60

65.4

✓ ✓

70

64.9

✓ ✓

80

65.5

✓ ✓

90

65.5

✓ ✓

5600

64.8

✓ ✓

10

64.7

✓

20

64.2

✓

30

64.3

✓

40

64.1

✓

50

63.9

✓

60

63.2

✓

70

62.8

✓

80

62.1

✓

90

61.3

✓

5700

61.2

✓

10

61.1

✓

20

61.7

✓

30

61.7

✓

40

60.1

✓

50

59.3

✓

60

59.7

✓

70

59.7

✓

Cont in #367

All Elev. that is used on Dam  
Sections are sk. in  
in this Book

Not on Dam Sec.  
H.



80

NE

5780

90

5800

10

20

30

40

50

60

70

80

90

5900

N3630

559.5 ✓

60.3 ✓

62.0 ✓

61.7 ✓

61.5 ✓

61.4 ✓

61.5 ✓

61.3 ✓

61.7 ✓

61.5 ✓

61.2 ✓

60.6 ✓

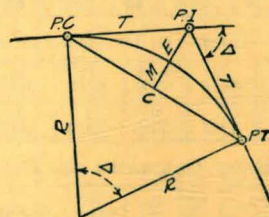
59.1 ✓

Not on same level  
H.

Cont. in F. Book #367

# DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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



## 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= $M = R(1 - \cos \frac{\Delta}{2})$  (5)  $= R \text{vers} \frac{\Delta}{2}$  (6)

External= $E = T \tan \frac{\Delta}{4}$  (7)  $= R \div \cos \frac{\Delta}{2} - R$  (8)  $= R \text{exsec} \frac{\Delta}{2}$  (9)

Long Chord= $C = 2 R \sin \frac{\Delta}{2}$  (10)  $\Delta =$  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  $1^\circ$  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  $1^\circ$  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  $D = 5^\circ 30'$ .



DISTANCES FROM CENTER OF ROADWAY FOR  
CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½.  
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
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.

Made in Germany.