

Book-3-A, Dr. 12-A

FIELD BOOK

360 A

29-N1

29-N2

KEUFFEL & ESSER CO.

DRAWING MATERIALS AND SURVEYING INSTRUMENTS. NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

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

"Copyright, 1895, by Keuffel & Esser Co."

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

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

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

IRON RD. SIGN

0

57 65 HUB.

STONE MT. ROAD

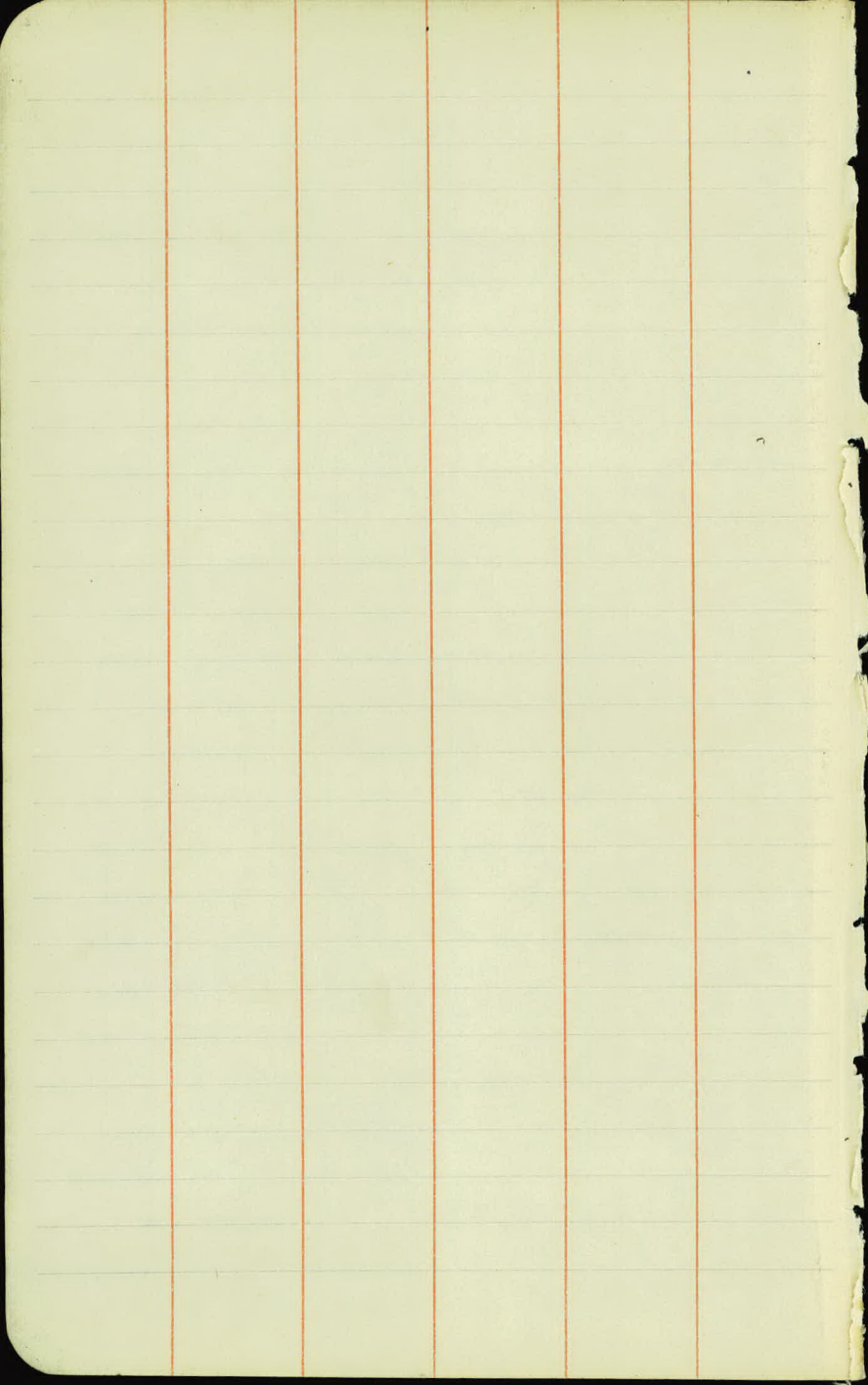
22

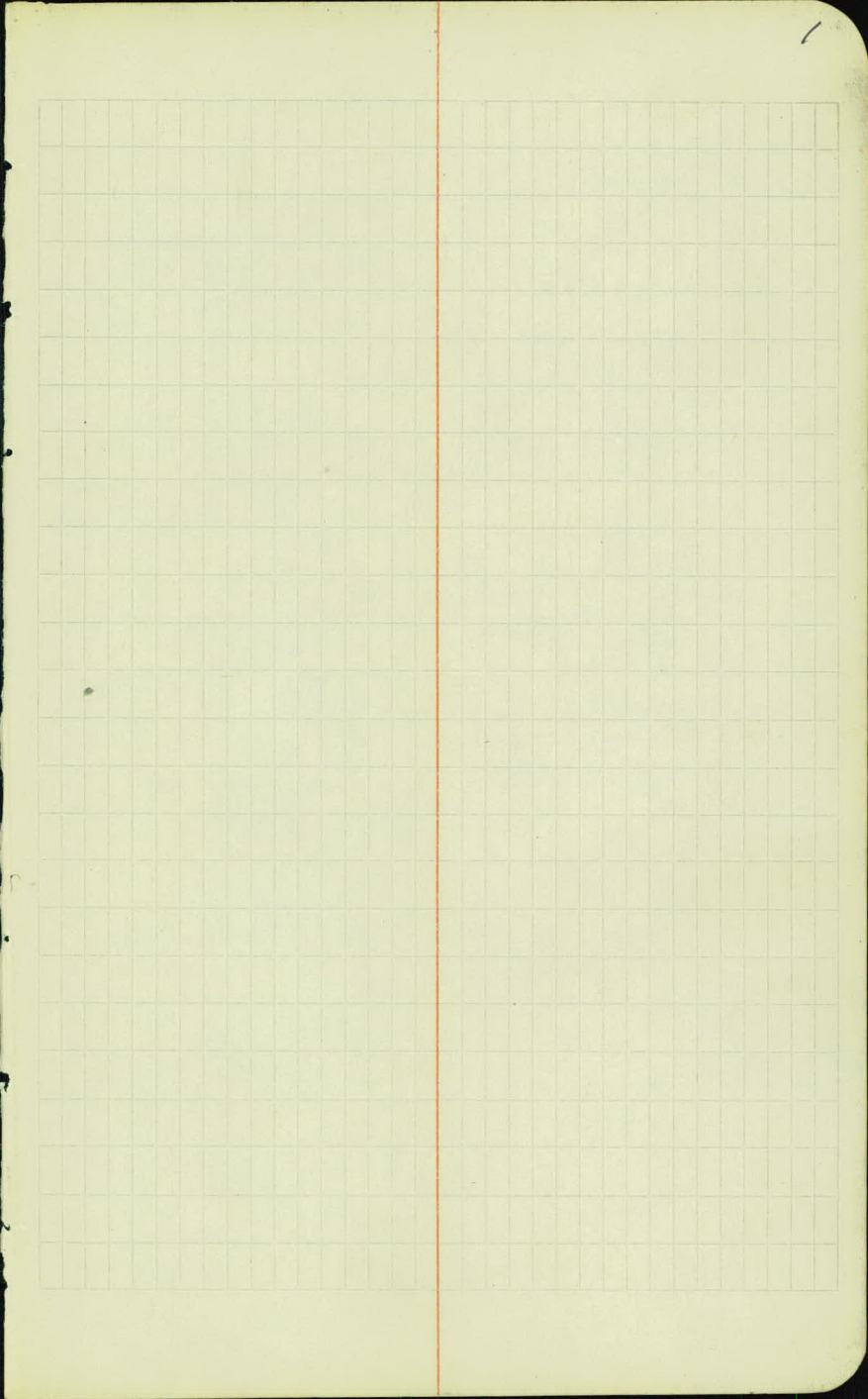
HELEN ST. - PROJ #29-N1.

STA	TO STA	DESCRIPTION	PAGE	TO	PAGE
0+00	27+44	ALIGNMENT	2		
0+00	27+44	ORIGINAL X SECTIONS	4		8
0+00	27+44	FINAL X SECTIONS	9		13

BOCK ST. - PROJ #29-N2.

		DESCRIPTION.			
0+00	54+57	ALIGNMENT.	26		
0+00	54+57	ORIGINAL X SECTIONS	27		





STA.	POINT.	Δ LT.	Δ RT.
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27+45 ²²	P.O.T.		
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16+52 ⁰	P.O.T.		
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3+95 ⁰	P.O.T.		
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0+00	P.O.T.		
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3-21-30,

Co. ROAD "D"

TOP OF
SILO

TUB

55

N 00°-00' E.

HELEN ST.

50

HUB.

10" DIA.

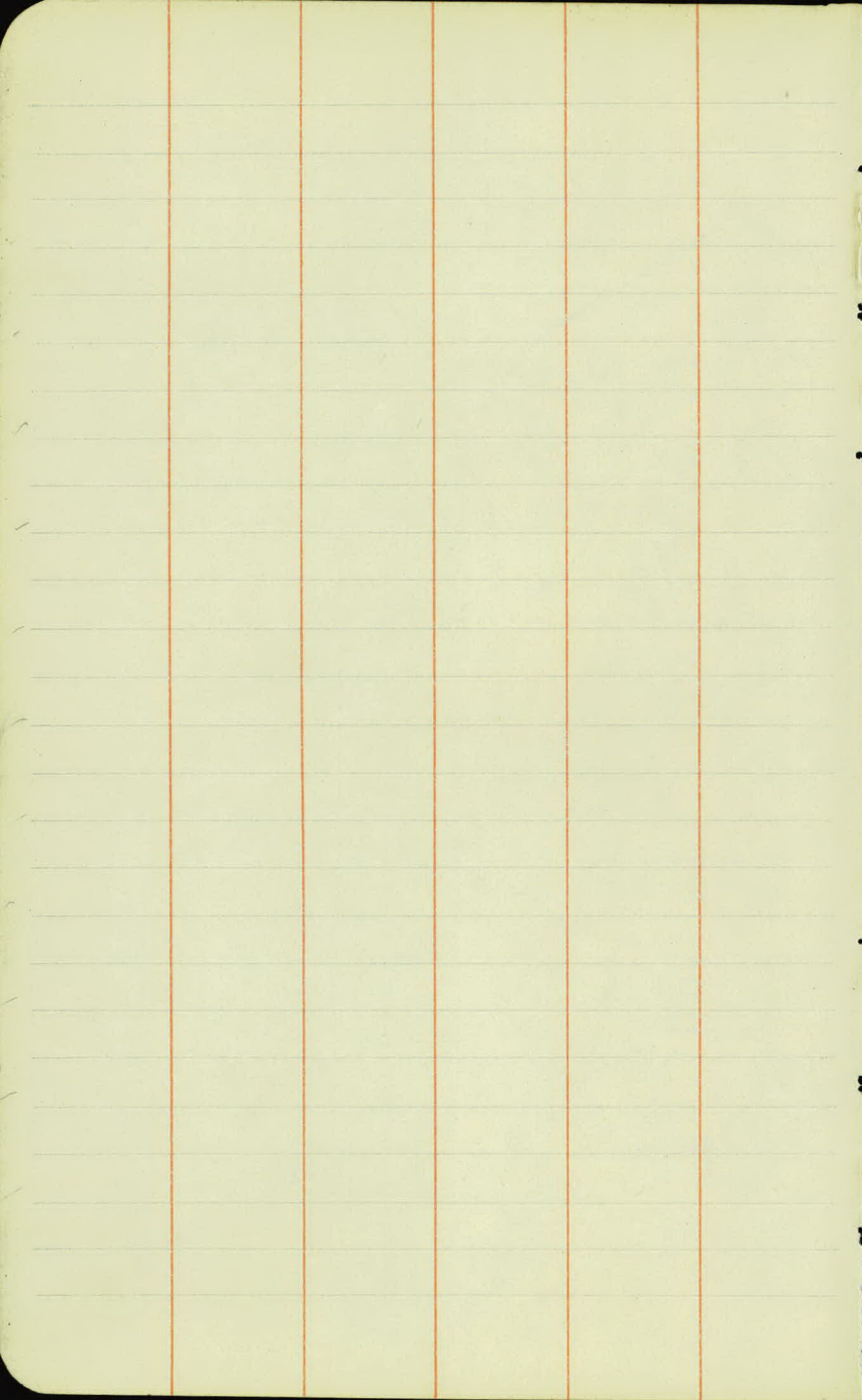
55'

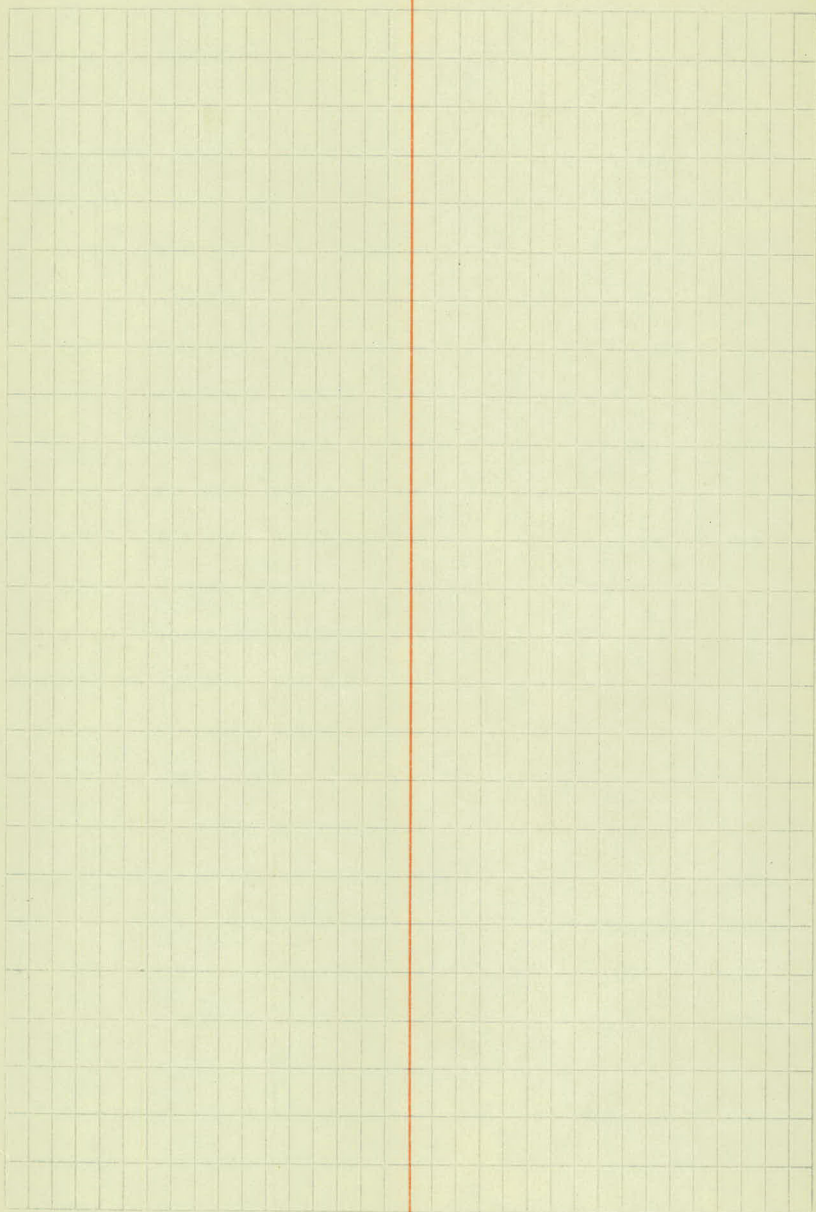
53'

SPX.

HUB.

8" DIA.





STA	+	H. I. ✓	-	ELEV.	GR. ROD
B.M.	8.45	1025.79		1017.34	
0+00			✓	17.0	8.8
+50			✓	18.7	7.1
1+00			✓	20.3	5.5
+50			✓	22.0	3.8
2+00			✓	23.6	2.2
+50			✓	25.3	0.5
T.P.	11.19	1036.36	0.62	1025.77	
3+00			✓	26.7	9.7
+50			✓	27.8	8.6
4+00			✓	28.4	8.0
+26				28.6	7.3
+50			✓	28.7	7.7
5+00			✓	28.6	7.8

LEFT

RIGHT

4-4-30

ON SP IN 24" OAK 45' R. 0-50

4/74	72	74	78	80	81	85	90	1/2/86
2/11.4	33	22	14	7	108	11	13	33

(35)

4/75	7/74	63	69	76	72	64	64	65	69	66	84	0/21
1/04	2/103	33	28	17	10	4	107	9	14	19	33	2/20

(31)

1/5.6	6/7.9	48	54	52	53	55	58	66	70	80	5/20	4/6.3
1/0.1	2/106	33	18	8	102	8	9	17	19	33	1/15	1/0.8

(4)

5/48	0/47	45	48	46	47	48	65	80	85	90	6/62
1/7.0	2/09	33	19	5	09	8	19	28	29	33	1/24

(22)

5/3.7	0/3.8	33	38	37	37	37	6.2	7.2	84	6/23
1/7.5	1/7.6	33	16	5	7.5	8	15	18	33	6/5.1

(3)

6/19	4/2.0	11	18	20	15	13	18	54	67	6/5.5
1/14	1/7.5	30	22	10	6	13	7	19	33	2/50

(17)

7/20	66	72	89	92	93	94	97	103	111	3/104
2/127	33	21	10	105	7	13	18	19	33	2/07

(10)

6/3.3	28	36	65	67	69	70	72	66	71	2/20
2/75.3	33	24	12	7	11.7	6	14	18	33	2/16

(30)

6/2.3	21	25	53	58	60	61	62	65	58	62	6/20
2/15.7	33	22	12	6	120	6	12	15	20	33	6/120

(18)

46	44	60	62	62	63	64	55	3.5	46	5.2
33	20	11	7		5	15	17	20	30	33

(17)

4/6.3	62	63	65	63	64	65	42	49	54	8/49
2/114	33	24	11	11.4	5	13	19	31	33	2/128

(13)

4/74	75	76	72	67	67	68	46	55	0/48
1/10.4	33	22	8	11.1	10	13	19	33	4/130

STA	+	HI. ✓ -	FLEV.	Dr. ROD.
		1036.36		
+50			✓ 28.1	83
6+00			✓ 274	90
+50		✓	✓ 267 ✓	97
T.P.	2.21	1028.31	10.26 1026.10	
7+00			✓ 26.0	23
+50			✓ 253	30
8+00		L 20.3	✓ 246	37
+29	X DRAIN	19	R. 19.5 21	
+50			✓ 23.7	44
9+00		✓	✓ 23.2 ✓	51
T.P.	8.38	1029.64	7.05 1021.24	
+50			✓ 22.7	69
10+00			✓ 22.8	68
+50			✓ 23.2	64
11+00			✓ 24.2	54

LEFT

RIGHT 4-14-30.

$$\begin{array}{r} 1/76 \\ 2/107 \end{array} \quad \begin{array}{r} 82 \\ 33 \end{array} \quad \begin{array}{r} 71 \\ 18 \end{array} \quad \begin{array}{r} 77 \\ 7 \end{array} \quad \begin{array}{r} 75 \\ 9 \end{array} \quad \begin{array}{r} 74 \\ 109 \end{array} \quad \begin{array}{r} 72 \\ 10 \end{array} \quad \begin{array}{r} 76 \\ 13 \end{array} \quad \begin{array}{r} 58 \\ 17 \end{array} \quad \begin{array}{r} 54 \\ 27 \end{array} \quad \begin{array}{r} 63 \\ 33 \end{array} \quad \begin{array}{r} 0/5.5 \\ 2/130 \end{array}$$

$$\begin{array}{r} 1/104 \\ 1/14 \end{array} \quad \begin{array}{r} 5/105 \\ 9/15 \end{array} \quad \begin{array}{r} 105 \\ 33 \end{array} \quad \begin{array}{r} 103 \\ 12 \end{array} \quad \begin{array}{r} 90 \\ 3 \end{array} \quad \begin{array}{r} 91 \\ -0.17 \end{array} \quad \begin{array}{r} 90 \\ 13 \end{array} \quad \begin{array}{r} 97 \\ 17 \end{array} \quad \begin{array}{r} 9.5 \\ 28 \end{array} \quad \begin{array}{r} 87 \\ 33 \end{array} \quad \begin{array}{r} 84 \\ 2/24 \end{array} \quad \begin{array}{r} 0/94 \\ 1/0.4 \end{array}$$

$$\begin{array}{r} 8/109 \\ 1/12 \end{array} \quad \begin{array}{r} 9/109 \\ 1/12 \end{array} \quad \begin{array}{r} 108 \\ 33 \end{array} \quad \begin{array}{r} 109 \\ 16 \end{array} \quad \begin{array}{r} 105 \\ 8 \end{array} \quad \begin{array}{r} 99 \\ 4 \end{array} \quad \begin{array}{r} 100 \\ -0.3 \end{array} \quad \begin{array}{r} 98 \\ 9 \end{array} \quad \begin{array}{r} 106 \\ 13 \end{array} \quad \begin{array}{r} 95 \\ 15 \end{array} \quad \begin{array}{r} 101 \\ 20 \end{array} \quad \begin{array}{r} 100 \\ 30 \end{array} \quad \begin{array}{r} 98 \\ 33 \end{array} \quad \begin{array}{r} 7/100 \\ 2/-0.3 \end{array} \quad \begin{array}{r} 7/102 \\ 1/0.5 \end{array}$$

$$\begin{array}{r} 3/32 \\ 1/-0.9 \end{array} \quad \begin{array}{r} 1/26 \\ 2/-0.5 \end{array} \quad \begin{array}{r} 20 \\ 33 \end{array} \quad \begin{array}{r} 30 \\ 15 \end{array} \quad \begin{array}{r} 36 \\ 13 \end{array} \quad \begin{array}{r} 26 \\ 6 \end{array} \quad \begin{array}{r} 2.7 \\ -0.4 \end{array} \quad \begin{array}{r} 26 \\ 8 \end{array} \quad \begin{array}{r} 33 \\ 13 \end{array} \quad \begin{array}{r} 28 \\ 14 \end{array} \quad \begin{array}{r} 28 \\ 23 \end{array} \quad \begin{array}{r} 26 \\ 29 \end{array} \quad \begin{array}{r} 21 \\ 33 \end{array} \quad \begin{array}{r} 6/2.7 \\ 2/-0.4 \end{array} \quad \begin{array}{r} 9/2.7 \\ 1/-0.4 \end{array}$$

$$\begin{array}{r} 1/124 \\ 1/-14 \end{array} \quad \begin{array}{r} 2/38 \\ 2/-0.8 \end{array} \quad \begin{array}{r} 52 \\ 33 \end{array} \quad \begin{array}{r} 40 \\ 17 \end{array} \quad \begin{array}{r} 44 \\ 15 \end{array} \quad \begin{array}{r} 40 \\ 6 \end{array} \quad \begin{array}{r} 38 \\ 4 \end{array} \quad \begin{array}{r} 4.1 \\ -1.1 \end{array} \quad \begin{array}{r} 41 \\ 5 \end{array} \quad \begin{array}{r} 43 \\ 10 \end{array} \quad \begin{array}{r} 46 \\ 12 \end{array} \quad \begin{array}{r} 41 \\ 21 \end{array} \quad \begin{array}{r} 40 \\ 22 \end{array} \quad \begin{array}{r} 45 \\ 33 \end{array} \quad \begin{array}{r} 7/43 \\ 1/13 \end{array} \quad \begin{array}{r} 1/124 \\ 1/-14 \end{array}$$

$$\begin{array}{r} 1/73 \\ 1/36 \end{array} \quad \begin{array}{r} 66 \\ 33 \end{array} \quad \begin{array}{r} 72 \\ 33 \end{array} \quad \begin{array}{r} 72 \\ 15 \end{array} \quad \begin{array}{r} 58 \\ 12 \end{array} \quad \begin{array}{r} 54 \\ 5 \end{array} \quad \begin{array}{r} 5.7 \\ -2.0 \end{array} \quad \begin{array}{r} 5.7 \\ 7 \end{array} \quad \begin{array}{r} 75 \\ 14 \end{array} \quad \begin{array}{r} 77 \\ 24 \end{array} \quad \begin{array}{r} 80 \\ 33 \end{array} \quad \begin{array}{r} 9/77 \\ 1/-40 \end{array}$$

$$\begin{array}{r} 1/77 \\ 1/33 \end{array} \quad \begin{array}{r} 69 \\ 33 \end{array} \quad \begin{array}{r} 76 \\ 23 \end{array} \quad \begin{array}{r} 76 \\ 14 \end{array} \quad \begin{array}{r} 63 \\ 7 \end{array} \quad \begin{array}{r} 5.7 \\ -1.5 \end{array} \quad \begin{array}{r} 6.2 \\ 6 \end{array} \quad \begin{array}{r} 8.8 \\ 14 \end{array} \quad \begin{array}{r} 9.5 \\ 27 \end{array} \quad \begin{array}{r} 9.6 \\ 33 \end{array} \quad \begin{array}{r} 5/94 \\ 2/-5.0 \end{array}$$

$$\begin{array}{r} 8/70 \\ 1/19 \end{array} \quad \begin{array}{r} 2/69 \\ 1/-13 \end{array} \quad \begin{array}{r} 60 \\ 33 \end{array} \quad \begin{array}{r} 66 \\ 23 \end{array} \quad \begin{array}{r} 71 \\ 12 \end{array} \quad \begin{array}{r} 62 \\ 7 \end{array} \quad \begin{array}{r} 52 \\ 71 \end{array} \quad \begin{array}{r} 64 \\ 6 \end{array} \quad \begin{array}{r} 26 \\ 14 \end{array} \quad \begin{array}{r} 94 \\ 25 \end{array} \quad \begin{array}{r} 98 \\ 33 \end{array} \quad \begin{array}{r} 8/90 \\ 1/39 \end{array}$$

$$\begin{array}{r} 2/74 \\ 1/-0.5 \end{array} \quad \begin{array}{r} 1/69 \\ 2/00 \end{array} \quad \begin{array}{r} 5.7 \\ 33 \end{array} \quad \begin{array}{r} 6.8 \\ 24 \end{array} \quad \begin{array}{r} 7.5 \\ 14 \end{array} \quad \begin{array}{r} 80 \\ 13 \end{array} \quad \begin{array}{r} 75 \\ 6 \end{array} \quad \begin{array}{r} 7.4 \\ -0.5 \end{array} \quad \begin{array}{r} 80 \\ 7 \end{array} \quad \begin{array}{r} 85 \\ 10 \end{array} \quad \begin{array}{r} 82 \\ 11 \end{array} \quad \begin{array}{r} 9.6 \\ 18 \end{array} \quad \begin{array}{r} 10.6 \\ 33 \end{array} \quad \begin{array}{r} 6/93 \\ 1/-2.4 \end{array}$$

$$\begin{array}{r} 3/55 \\ 2/11.8 \end{array} \quad \begin{array}{r} 46 \\ 33 \end{array} \quad \begin{array}{r} 53 \\ 24 \end{array} \quad \begin{array}{r} 60 \\ 14 \end{array} \quad \begin{array}{r} 75 \\ 12 \end{array} \quad \begin{array}{r} 70 \\ 7 \end{array} \quad \begin{array}{r} 70 \\ -0.2 \end{array} \quad \begin{array}{r} 75 \\ 7 \end{array} \quad \begin{array}{r} 75 \\ 11 \end{array} \quad \begin{array}{r} 87 \\ 23 \end{array} \quad \begin{array}{r} 97 \\ 33 \end{array} \quad \begin{array}{r} 484 \\ 19/16 \end{array} \quad \begin{array}{r} 4/79 \\ 1/-1.1 \end{array}$$

$$\begin{array}{r} 5/49 \\ 2/11.5 \end{array} \quad \begin{array}{r} 44 \\ 33 \end{array} \quad \begin{array}{r} 49 \\ 25 \end{array} \quad \begin{array}{r} 52 \\ 14 \end{array} \quad \begin{array}{r} 67 \\ 12 \end{array} \quad \begin{array}{r} 64 \\ 8 \end{array} \quad \begin{array}{r} 63 \\ 70.1 \end{array} \quad \begin{array}{r} 66 \\ 7 \end{array} \quad \begin{array}{r} 66 \\ 8 \end{array} \quad \begin{array}{r} 65 \\ 16 \end{array} \quad \begin{array}{r} 78 \\ 33 \end{array} \quad \begin{array}{r} 6/68 \\ 2/-0.4 \end{array} \quad \begin{array}{r} 5/64 \\ 1/0.0 \end{array}$$

$$\begin{array}{r} 4/50 \\ 2/10.4 \end{array} \quad \begin{array}{r} 45 \\ 33 \end{array} \quad \begin{array}{r} 49 \\ 23 \end{array} \quad \begin{array}{r} 52 \\ 13 \end{array} \quad \begin{array}{r} 61 \\ 14 \end{array} \quad \begin{array}{r} 56 \\ 7 \end{array} \quad \begin{array}{r} 54 \\ 0.0 \end{array} \quad \begin{array}{r} 58 \\ 8 \end{array} \quad \begin{array}{r} 62 \\ 9 \end{array} \quad \begin{array}{r} 66 \\ 9 \end{array} \quad \begin{array}{r} 71 \\ 33 \end{array} \quad \begin{array}{r} 8/66 \\ 19/12 \end{array} \quad \begin{array}{r} 6/63 \\ 1/1.1 \end{array}$$

STA.	T	HI	-	FLEY	GR. ROD
		1029.64			
+50				✓ 25.4	4.2
12				✓ 26.6	3.0
+50				✓ 27.8	18
13				✓ 29.0	0.4
T.P.	6.83	1034.54	1.93	1027.71	✓
B.M.	4.19	1038.44	0.31	1034.23	1034.25
+50				✓ 30.2	8.2
14				✓ 31.4	7.0
+50				✓ 32.6	5.8
15				✓ 33.5	4.9
+50				✓ 33.9	4.5
T.P.	4.55	1041.93	1.06	1037.38	
16				✓ 33.8	8.1
+50				✓ 33.1	8.8

LEFT

RIGHT

4-15-30

$\begin{array}{r} 5 \overline{) 47} \\ 2 \overline{) 05} \end{array}$
 $\begin{array}{r} 4 \overline{) 50} \\ 1 \overline{) 08} \end{array}$
 $\begin{array}{r} 41 \\ 33 \end{array}$
 $\begin{array}{r} 44 \\ 25 \end{array}$
 $\begin{array}{r} 50 \\ 13 \end{array}$
 $\begin{array}{r} 54 \\ 12 \end{array}$
 $\begin{array}{r} 48 \\ 7 \end{array}$
 $\begin{array}{r} 48 \\ 0.4 \end{array}$
 $\begin{array}{r} 51 \\ 7 \end{array}$
 $\begin{array}{r} 56 \\ 8 \end{array}$
 $\begin{array}{r} 64 \\ 18 \end{array}$
 $\begin{array}{r} 68 \\ 33 \end{array}$
 $\begin{array}{r} 1 \overline{) 6.8} \\ 6 \overline{) 21} \end{array}$

$\begin{array}{r} 6 \overline{) 42} \\ 1 \overline{) 12} \end{array}$
 $\begin{array}{r} 14 \overline{) 3} \\ 5 \overline{) 13} \end{array}$
 $\begin{array}{r} 38 \\ 33 \end{array}$
 $\begin{array}{r} 39 \\ 25 \end{array}$
 $\begin{array}{r} 43 \\ 15 \end{array}$
 $\begin{array}{r} 47 \\ 13 \end{array}$
 $\begin{array}{r} 42 \\ 7 \end{array}$
 $\begin{array}{r} 43 \\ 1.3 \end{array}$
 $\begin{array}{r} 45 \\ 7 \end{array}$
 $\begin{array}{r} 50 \\ 7 \end{array}$
 $\begin{array}{r} 59 \\ 21 \end{array}$
 $\begin{array}{r} 63 \\ 33 \end{array}$
 $\begin{array}{r} 0 \overline{) 5.7} \\ 17 \overline{) 27} \end{array}$

$\begin{array}{r} 4 \overline{) 34} \\ 1 \overline{) 16} \end{array}$
 $\begin{array}{r} 5 \overline{) 35} \\ 1 \overline{) 17} \end{array}$
 $\begin{array}{r} 29 \\ 33 \end{array}$
 $\begin{array}{r} 34 \\ 22 \end{array}$
 $\begin{array}{r} 35 \\ 12 \end{array}$
 $\begin{array}{r} 32 \\ 10 \end{array}$
 $\begin{array}{r} 33 \\ 1.5 \end{array}$
 $\begin{array}{r} 36 \\ 7 \end{array}$
 $\begin{array}{r} 41 \\ 8 \end{array}$
 $\begin{array}{r} 49 \\ 19 \end{array}$
 $\begin{array}{r} 54 \\ 33 \end{array}$
 $\begin{array}{r} 5 \overline{) 48} \\ 17 \overline{) 30} \end{array}$

$\begin{array}{r} 0 \overline{) 1.6} \\ 2 \overline{) 10} \end{array}$
 $\begin{array}{r} 1 \overline{) 2.0} \\ 1 \overline{) 14} \end{array}$
 $\begin{array}{r} 15 \\ 33 \end{array}$
 $\begin{array}{r} 14 \\ 26 \end{array}$
 $\begin{array}{r} 19 \\ 17 \end{array}$
 $\begin{array}{r} 20 \\ 9 \end{array}$
 $\begin{array}{r} 19 \\ 1.3 \end{array}$
 $\begin{array}{r} 22 \\ 5 \end{array}$
 $\begin{array}{r} 32 \\ 11 \end{array}$
 $\begin{array}{r} 38 \\ 16 \end{array}$
 $\begin{array}{r} 38 \\ 24 \end{array}$
 $\begin{array}{r} 36 \\ 33 \end{array}$
 $\begin{array}{r} 8 \overline{) 32} \\ 17 \overline{) 32} \end{array}$

SPK IN TREE LT. STAR 13 + 20.

$\begin{array}{r} 2 \overline{) 50} \\ 2 \overline{) 102} \end{array}$
 $\begin{array}{r} 72 \\ 53 \end{array}$
 $\begin{array}{r} 76 \\ 27 \end{array}$
 $\begin{array}{r} 81 \\ 13 \end{array}$
 $\begin{array}{r} 86 \\ 12 \end{array}$
 $\begin{array}{r} 86 \\ 10 \end{array}$
 $\begin{array}{r} 91 \\ 0.7 \end{array}$
 $\begin{array}{r} 93 \\ 5 \end{array}$
 $\begin{array}{r} 98 \\ 9 \end{array}$
 $\begin{array}{r} 92 \\ 11 \end{array}$
 $\begin{array}{r} 94 \\ 33 \end{array}$
 $\begin{array}{r} 0 \overline{) 91} \\ 4 \overline{) 20} \end{array}$
 $\begin{array}{r} 1 \overline{) 89} \\ 17 \overline{) 08} \end{array}$

$\begin{array}{r} 1 \overline{) 59} \\ 2 \overline{) 11} \end{array}$
 $\begin{array}{r} 53 \\ 33 \end{array}$
 $\begin{array}{r} 56 \\ 25 \end{array}$
 $\begin{array}{r} 63 \\ 14 \end{array}$
 $\begin{array}{r} 72 \\ 12 \end{array}$
 $\begin{array}{r} 71 \\ 9 \end{array}$
 $\begin{array}{r} 74 \\ 0.4 \end{array}$
 $\begin{array}{r} 76 \\ 6 \end{array}$
 $\begin{array}{r} 77 \\ 9 \end{array}$
 $\begin{array}{r} 69 \\ 10 \end{array}$
 $\begin{array}{r} 73 \\ 33 \end{array}$
 $\begin{array}{r} 0 \overline{) 70} \\ 2 \overline{) 00} \end{array}$

$\begin{array}{r} 2 \overline{) 46} \\ 2 \overline{) 112} \end{array}$
 $\begin{array}{r} 43 \\ 35 \end{array}$
 $\begin{array}{r} 44 \\ 24 \end{array}$
 $\begin{array}{r} 47 \\ 14 \end{array}$
 $\begin{array}{r} 60 \\ 12 \end{array}$
 $\begin{array}{r} 59 \\ 9 \end{array}$
 $\begin{array}{r} 60 \\ 0.2 \end{array}$
 $\begin{array}{r} 60 \\ 5 \end{array}$
 $\begin{array}{r} 63 \\ 7 \end{array}$
 $\begin{array}{r} 56 \\ 10 \end{array}$
 $\begin{array}{r} 59 \\ 33 \end{array}$
 $\begin{array}{r} 1 \overline{) 56} \\ 2 \overline{) 102} \end{array}$

$\begin{array}{r} 7 \overline{) 30} \\ 2 \overline{) 119} \end{array}$
 $\begin{array}{r} 28 \\ 33 \end{array}$
 $\begin{array}{r} 31 \\ 23 \end{array}$
 $\begin{array}{r} 31 \\ 14 \end{array}$
 $\begin{array}{r} 45 \\ 12 \end{array}$
 $\begin{array}{r} 45 \\ 9 \end{array}$
 $\begin{array}{r} 46 \\ 70 \end{array}$
 $\begin{array}{r} 47 \\ 5 \end{array}$
 $\begin{array}{r} 48 \\ 9 \end{array}$
 $\begin{array}{r} 42 \\ 11 \end{array}$
 $\begin{array}{r} 48 \\ 33 \end{array}$
 $\begin{array}{r} 9 \overline{) 44} \\ 2 \overline{) 105} \end{array}$

$\begin{array}{r} 5 \overline{) 0.4} \\ 2 \overline{) 141} \end{array}$
 $\begin{array}{r} 00 \\ 33 \end{array}$
 $\begin{array}{r} 05 \\ 25 \end{array}$
 $\begin{array}{r} 12 \\ 13 \end{array}$
 $\begin{array}{r} 25 \\ 12 \end{array}$
 $\begin{array}{r} 31 \\ 8 \end{array}$
 $\begin{array}{r} 33 \\ 112 \end{array}$
 $\begin{array}{r} 34 \\ 5 \end{array}$
 $\begin{array}{r} 36 \\ 8 \end{array}$
 $\begin{array}{r} 24 \\ 11 \end{array}$
 $\begin{array}{r} 30 \\ 33 \end{array}$
 $\begin{array}{r} 429 \\ 2 \overline{) 116} \end{array}$

$\begin{array}{r} 7 \overline{) 14} \\ 2 \overline{) 167} \end{array}$
 $\begin{array}{r} 07 \\ 33 \end{array}$
 $\begin{array}{r} 11 \\ 26 \end{array}$
 $\begin{array}{r} 25 \\ 14 \end{array}$
 $\begin{array}{r} 53 \\ 12 \end{array}$
 $\begin{array}{r} 61 \\ 10 \end{array}$
 $\begin{array}{r} 61 \\ 120 \end{array}$
 $\begin{array}{r} 61 \\ 8 \end{array}$
 $\begin{array}{r} 43 \\ 11 \end{array}$
 $\begin{array}{r} 49 \\ 19 \end{array}$
 $\begin{array}{r} 57 \\ 25 \end{array}$
 $\begin{array}{r} 60 \\ 33 \end{array}$
 $\begin{array}{r} 7 \overline{) 5.4} \\ 2 \overline{) 137} \end{array}$

$\begin{array}{r} 1 \overline{) 0.7} \\ 9 \overline{) 181} \end{array}$
 $\begin{array}{r} 00 \\ 33 \end{array}$
 $\begin{array}{r} 07 \\ 25 \end{array}$
 $\begin{array}{r} 22 \\ 14 \end{array}$
 $\begin{array}{r} 58 \\ 11 \end{array}$
 $\begin{array}{r} 65 \\ 112 \end{array}$
 $\begin{array}{r} 62 \\ 9 \end{array}$
 $\begin{array}{r} 49 \\ 12 \end{array}$
 $\begin{array}{r} 58 \\ 26 \end{array}$
 $\begin{array}{r} 59 \\ 33 \end{array}$
 $\begin{array}{r} 2 \overline{) 56} \\ 17 \overline{) 32} \end{array}$

STA.	T	HI. ✓	-	ELEV.	B.R. Rdn
		1041.95			
17				✓ 31.9	10.0
+50				✓ 30.2 ✓	11.7
T.P.	1.19	1029.87	13.25	1028.68	
18				✓ 28.1	1.7
+50				✓ 26.2	3.7
19				✓ 24.2	5.7
+50				✓ 22.2	7.7
20				✓ 20.2	9.7
+50				✓ 18.2 ✓	11.7
T.P.	1.53	1017.54	11.84	1018.03	
21				✓ 16.4	3.2
+50				✓ 15.1	4.5
22				✓ 14.3	5.3
+50				✓ 13.9	5.7

LEFT

RIGHT

4-16-30

$\frac{7}{1} \frac{3}{1.7}$ $\frac{2.7}{33} \frac{34}{25} \frac{44}{14} \frac{69}{12} \frac{80}{8} \frac{82}{11.8} \frac{100}{7} \frac{82}{15} \frac{75}{25} \frac{7.5}{33}$ $\frac{3}{2} \frac{7}{1.7}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{9}{2} \frac{8.8}{12.9}$ $\frac{84}{53} \frac{87}{25} \frac{96}{14} \frac{107}{10} \frac{107}{8} \frac{110}{107} \frac{110}{8} \frac{11.5}{9} \frac{11.0}{10} \frac{11.5}{24} \frac{11.4}{33}$ $\frac{3}{2} \frac{11.2}{105}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{6}{1} \frac{2.1}{2.4}$ $\frac{4}{2} \frac{2.3}{-0.6}$ $\frac{1.9}{33} \frac{1.9}{24} \frac{2.1}{16} \frac{1.6}{7} \frac{1.2}{-0.2} \frac{1.2}{6} \frac{2.0}{7} \frac{2.4}{19} \frac{2.5}{33}$ $\frac{2}{0} \frac{2.5}{-0.8}$ $\frac{2}{1} \frac{2.5}{-0.8}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{6}{1} \frac{5.1}{-1.4}$ $\frac{4}{1} \frac{5.3}{-1.6}$ $\frac{5.7}{33} \frac{5.4}{25} \frac{5.0}{14} \frac{4.1}{8} \frac{4.3}{-0.6} \frac{4.2}{7} \frac{5.1}{11} \frac{5.2}{22} \frac{4.7}{33}$ $\frac{5}{1} \frac{5.2}{-1.5}$ $\frac{5}{1} \frac{5.2}{-1.5}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{4}{1} \frac{2.4}{-1.7}$ $\frac{3}{1} \frac{2.4}{-1.7}$ $\frac{7.8}{33} \frac{7.2}{18} \frac{6.5}{7} \frac{6.6}{-0.9} \frac{6.6}{7} \frac{7.8}{11} \frac{8.4}{22} \frac{7.8}{33}$ $\frac{6}{1} \frac{2.2}{-2.5}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{3}{1} \frac{2.9}{-2.2}$ $\frac{10.5}{33} \frac{10.1}{23} \frac{10.1}{15} \frac{9.3}{8} \frac{8.7}{7} \frac{8.7}{-1.1} \frac{8.7}{7} \frac{9.9}{10} \frac{10.4}{22} \frac{9.9}{33}$ $\frac{4}{1} \frac{10.0}{-2.5}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{4}{1} \frac{12.0}{-2.3}$ $\frac{12.6}{33} \frac{12.3}{22} \frac{11.8}{12} \frac{10.5}{6} \frac{10.6}{-0.9} \frac{10.6}{7} \frac{11.4}{10} \frac{11.6}{23} \frac{11.4}{33}$ $\frac{5}{1} \frac{11.4}{-1.7}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{7}{2} \frac{13.0}{-7.3}$ $\frac{6}{1} \frac{13.1}{-1.4}$ $\frac{13.4}{33} \frac{13.2}{23} \frac{13.1}{17} \frac{12.8}{9} \frac{11.9}{5} \frac{12.1}{-0.4} \frac{12.2}{7} \frac{12.8}{10} \frac{13.0}{21} \frac{12.6}{33}$ $\frac{6}{1} \frac{13.1}{-1.4}$ $\frac{4}{1} \frac{12.8}{-1.1}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{1}{1} \frac{3.5}{-0.1}$ $\frac{8}{2} \frac{3.4}{-0.2}$ $\frac{5.6}{33} \frac{3.4}{19} \frac{3.2}{10} \frac{5.6}{7} \frac{5.0}{7} \frac{3.2}{0.0} \frac{5.1}{7} \frac{5.6}{7} \frac{3.8}{21} \frac{3.5}{33}$ $\frac{4}{2} \frac{3.3}{-0.6}$ $\frac{6}{1} \frac{3.6}{-0.4}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{3}{1} \frac{4.7}{-0.2}$ $\frac{8}{2} \frac{4.7}{-0.2}$ $\frac{5.2}{33} \frac{4.7}{21} \frac{4.8}{11} \frac{4.5}{8} \frac{4.5}{0.0} \frac{4.7}{7} \frac{5.2}{12} \frac{5.1}{25} \frac{4.7}{31}$ $\frac{2}{2} \frac{5.3}{-0.8}$ $\frac{4}{1} \frac{5.3}{-0.8}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{8}{14} \frac{6.5}{-1.2}$ $\frac{8}{17} \frac{6.5}{-1.2}$ $\frac{5.9}{33} \frac{6.3}{24} \frac{6.5}{19} \frac{6.4}{13} \frac{5.0}{7} \frac{4.9}{10.4} \frac{5.5}{6} \frac{6.4}{9} \frac{6.5}{21} \frac{6.3}{33}$ $\frac{8}{17} \frac{6.5}{-1.2}$ $\frac{8}{14} \frac{6.5}{-1.2}$
 $\frac{2}{1} \frac{7}{1.7}$

$\frac{6}{1} \frac{8.1}{-2.4}$ $\frac{7.6}{33} \frac{7.7}{22} \frac{7.7}{12} \frac{5.5}{6} \frac{5.3}{10.4} \frac{5.3}{8} \frac{6.8}{12} \frac{7.5}{14} \frac{7.4}{33}$ $\frac{5}{15} \frac{7.5}{-1.8}$
 $\frac{2}{1} \frac{7}{1.7}$

STA.	T	H.I. ✓	-	ELEV.	CR. ROD
		1019.56			

23		✓		13.7 ✓	5.9
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T.P.	7.98	1022.15	5.39	1014.17	
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+40				13.6	8.4
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+85				13.5	8.7
-----	--	--	--	------	-----

24				13.4	8.8
----	--	--	--	------	-----

+35				13.2	9.0
-----	--	--	--	------	-----

25				13.3	8.9
----	--	--	--	------	-----

+50				14.6	7.6
-----	--	--	--	------	-----

150 X DEBRIN

09.2

09.2

19

21

26				16.5	5.7
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+50				18.2	7.0
-----	--	--	--	------	-----

27		✓		21.7 ✓	0.5
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T.P.	10.03	1029.64	2.54	1019.61	
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+32				23.5	6.1
-----	--	--	--	------	-----

+44				24.7 ✓	4.9
-----	--	--	--	--------	-----

B.M.			1.61	1028.03	1028.04
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LEFT

RIGHT

4-16-30

5 ^x / ₁ 23 -1.7	9 ^x / ₁ 24 -1.5	67	73	74	55	53	57	76	76	76	5 ^x / ₁ 26 -1.7
		33	22	11	7	10.6	9	14	27	33	
	9 ^x / ₁ 77 -1.09	79	77	80	76	74	75	83	76	74	2 ^x / ₁ 75 -1.1
		33	22	7	6	71.2	7	13	19	33	
		74	78	83	79	75	77	81	78	14	1.0
		33	14	11	6		9	13	17	26	33
	9 ^x / ₁ 89 -2.01	97	85	88	81	77	77	81	77	2.6	1.5
		33	14	11	6	71.1	7	12	15	21	33
											2 ^x / ₁ 67
10 ^x / ₁ 11.0 -2.0	114	114	109	110	88	8.6	8.5	9.5	2.3	2.6	7 ^x / ₁ 25 -2.5
	33	25	15	13	6	10.4	9	14	24	33	3 ^x / ₁ 91 -0.1
	6 ^x / ₁ 120 -3.1	108	116	113	73	71	93	12.1	12.6	12.5	7 ^x / ₁ 2.8 -3.7
		33	24	13	6	-0.2	9	14	18	33	
	6 ^x / ₁ 130 -4.4	111	113	117	77	73	97	12.6	13.5	12.8	2 ^x / ₁ 13.0 -5.4
		33	24	12	7	-1.7	8	13	21	33	
	6 ^x / ₁ 12.1 -6.4	119	123	120	88	8.7	8.8	12.0	13.0	13.2	4 ^x / ₁ 13.1 -7.4
		33	27	17	8	3.0	6	11	16	22	33
5 ^x / ₁ 12.2 -8.2	124	121	114	74	69	6.7	6.7	11.6	12.1	12.2	5 ^x / ₁ 12.0 -9.0
	33	18	15	10	8	2.7	7	14	24	33	
	4 ^x / ₁ 12.1 -7.6	87	83	77	1.8	1.6	1.5	2.7	2.3	7.6	9 ^x / ₁ 12.1 -8.6
		33	28	17	7	-1.1	9	12	21	33	
		5.8	5.6	5.3	5.3	4.6	4.5				
		33	20		19	30	33				
		5.2	5.0	4.9	4.4	4.1					
		33	16		17	33					

SPK IN P.P. RT OF STA. 27+60.

STA.	+	M.I. ✓	-	ELEV
	6.23	1023.57		1017.34
0-50				
0+00				
+50				
1+00				
+50				
T.P.	9.26	1032.27 ✓	0.56	1023.01 ✓
2+00				
+50				
3+00				
T.P.	8.71	1037.32 ✓	3.66	1028.61 ✓
+50				
4+00				
+26				
+50				

LEFT

RIGHT

Spike in 24' Oak 45' 184 Sta. 0-50

$\frac{92}{33}$	$\frac{92}{28}$	$\frac{92}{16}$	$\frac{88}{10}$	84	$\frac{86}{13}$	$\frac{90}{19}$	$\frac{90}{25}$	$\frac{80}{28}$	$\frac{80}{36}$
-----------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------	-----------------	-----------------

			(66)						
6.0	6.0	6.6	6.6	6.6	8.2	8.1	6.6	6.8	
33	22	11	66	13	15	18	21	33	

$\frac{4.4}{33}$	$\frac{5.4}{20}$	$\frac{6.6}{18}$	$\frac{6.6}{15}$	$\frac{4.8}{13}$	(49)	$\frac{5.0}{13}$	$\frac{6.8}{16}$	$\frac{6.8}{19}$	$\frac{4.9}{21}$	$\frac{6.4}{33}$
------------------	------------------	------------------	------------------	------------------	------	------------------	------------------	------------------	------------------	------------------

$\frac{2.3}{33}$	$\frac{2.7}{21}$	$\frac{5.5}{19}$	$\frac{5.5}{15}$	$\frac{3.4}{13}$	(93)	$\frac{3.4}{13}$	$\frac{5.3}{16}$	$\frac{5.3}{19}$	$\frac{4.7}{20}$	$\frac{5.8}{33}$
------------------	------------------	------------------	------------------	------------------	------	------------------	------------------	------------------	------------------	------------------

$\frac{2.2}{33}$	$\frac{2.6}{20}$	$\frac{3.5}{19}$	$\frac{3.5}{16}$	$\frac{1.8}{13}$	(10)	$\frac{2.0}{13}$	$\frac{4.0}{17}$	$\frac{6.3}{29}$	$\frac{6.8}{33}$
------------------	------------------	------------------	------------------	------------------	------	------------------	------------------	------------------	------------------

$\frac{9.8}{33}$	$\frac{10.3}{20}$	(9.8)	$\frac{10.8}{15}$	$\frac{9.0}{13}$	(97)	$\frac{8.8}{13}$	$\frac{13.7}{22}$	$\frac{14.9}{33}$
------------------	-------------------	-------	-------------------	------------------	------	------------------	-------------------	-------------------

$\frac{7.5}{33}$	$\frac{8.5}{19}$	$\frac{9.1}{19}$	$\frac{8.8}{15}$	$\frac{7.1}{13}$	(110)	$\frac{6.8}{14}$	$\frac{11.8}{21}$	$\frac{13.2}{33}$
------------------	------------------	------------------	------------------	------------------	-------	------------------	-------------------	-------------------

$\frac{2.6}{33}$	$\frac{2.9}{24}$	$\frac{7.0}{20}$	$\frac{7.0}{17}$	$\frac{5.1}{13}$	(66)	$\frac{5.4}{13}$	$\frac{7.5}{16}$	$\frac{7.5}{19}$	$\frac{6.2}{21}$	$\frac{7.0}{33}$
------------------	------------------	------------------	------------------	------------------	------	------------------	------------------	------------------	------------------	------------------

$\frac{3.7}{33}$	$\frac{4.3}{27}$	$\frac{11.3}{20}$	$\frac{11.1}{16}$	$\frac{9.5}{13}$	(95)	$\frac{9.7}{13}$	$\frac{11.4}{16}$	$\frac{11.6}{19}$	$\frac{8.2}{22}$	$\frac{8.3}{33}$
------------------	------------------	-------------------	-------------------	------------------	------	------------------	-------------------	-------------------	------------------	------------------

$\frac{2.9}{33}$	$\frac{3.2}{26}$	$\frac{10.7}{20}$	$\frac{10.7}{16}$	$\frac{8.9}{13}$	(89)	$\frac{9.0}{13}$	$\frac{10.7}{16}$	$\frac{10.8}{20}$	$\frac{7.2}{24}$	$\frac{7.3}{33}$
------------------	------------------	-------------------	-------------------	------------------	------	------------------	-------------------	-------------------	------------------	------------------

$\frac{5.7}{33}$	$\frac{5.6}{23}$	$\frac{10.2}{19}$	$\frac{10.2}{15}$	$\frac{8.5}{12}$	(91)	$\frac{8.9}{13}$	$\frac{10.6}{16}$	$\frac{10.5}{20}$	$\frac{4.7}{25}$	$\frac{6.1}{33}$
------------------	------------------	-------------------	-------------------	------------------	------	------------------	-------------------	-------------------	------------------	------------------

$\frac{7.3}{33}$	$\frac{7.3}{22}$	$\frac{10.2}{19}$	$\frac{10.2}{15}$	$\frac{8.5}{13}$	(86)	$\frac{8.8}{13}$	$\frac{10.6}{16}$	$\frac{10.5}{20}$	$\frac{5.8}{24}$	$\frac{6.3}{33}$
------------------	------------------	-------------------	-------------------	------------------	------	------------------	-------------------	-------------------	------------------	------------------

STA.	+	H.I.	-	ELEV
		1037.32		
5+00				
	+50			
6+00				
	+50			
T.P.	2.13	1028.69	10.76	1026.56
7+00				
	+50			
8+00				
	+27	X Drain 24" x 40' C.M.		
	+50			
9+00				
	+50			
10+00				
	+50			

LEFT

RIGHT

$$\begin{array}{ccccccc} \frac{84}{33} & \frac{84}{22} & \frac{104}{20} & \frac{103}{16} & \frac{55}{13} & \textcircled{87} & \frac{88}{13} & \frac{106}{16} & \frac{106}{20} & \frac{58}{24} & \frac{64}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{91}{33} & \frac{87}{19} & \frac{109}{18} & \frac{107}{15} & \frac{90}{12} & \textcircled{87} & \frac{89}{13} & \frac{106}{17} & \frac{106}{20} & \frac{63}{24} & \frac{70}{33} \end{array}$$

$$\frac{11.5}{33} \quad \frac{11.5}{20}$$

$$\begin{array}{ccccccc} \textcircled{75} & \textcircled{78} & \frac{122}{19} & \frac{122}{16} & \frac{100}{13} & \textcircled{87} & \frac{98}{13} & \frac{114}{16} & \frac{114}{20} & \frac{104}{21} & \frac{94}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{118}{33} & \frac{119}{20} & \frac{128}{19} & \frac{128}{15} & \frac{107}{13} & \textcircled{106} & \frac{106}{13} & \frac{125}{16} & \frac{126}{20} & \frac{110}{21} & \frac{108}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{24}{33} & \frac{30}{24} & \frac{49}{20} & \frac{48}{18} & \frac{24}{13} & \textcircled{27} & \frac{25}{13} & \frac{44}{16} & \frac{49}{19} & \frac{31}{21} & \frac{28}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{36}{33} & \frac{42}{21} & \frac{56}{20} & \frac{55}{16} & \frac{30}{13} & \textcircled{34} & \frac{32}{13} & \frac{58}{16} & \frac{59}{19} & \frac{47}{20} & \frac{47}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{69}{33} & \frac{74}{25} & \frac{75}{17} & \frac{41}{13} & \frac{38}{13} & \textcircled{41} & \frac{41}{13} & \frac{80}{19} & \frac{83}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{85}{20} & \leftarrow & \text{Flow line} & \rightarrow & \frac{94}{20} & & & & & & \end{array}$$

$$\begin{array}{ccccccc} \frac{74}{33} & \frac{78}{17} & \frac{48}{13} & \textcircled{48} & \frac{47}{13} & \frac{95}{20} & \frac{97}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{64}{33} & \frac{77}{16} & \frac{55}{13} & \textcircled{56} & \frac{54}{13} & \frac{93}{19} & \frac{100}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{48}{33} & \frac{60}{21} & \frac{80}{19} & \frac{78}{16} & \frac{60}{13} & \textcircled{60} & \frac{60}{13} & \frac{85}{17} & \frac{95}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{35}{33} & \frac{45}{22} & \frac{74}{20} & \frac{73}{16} & \frac{58}{13} & \textcircled{60} & \frac{60}{13} & \frac{76}{16} & \frac{76}{19} & \frac{73}{19} & \frac{88}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{35}{33} & \frac{39}{23} & \frac{68}{20} & \frac{67}{16} & \frac{53}{13} & \textcircled{66} & \frac{55}{13} & \frac{70}{16} & \frac{72}{20} & \frac{59}{21} & \frac{66}{33} \end{array}$$

STA.	+	H.I.	-	ELEV
		1028.69		
11+00				
	+50			
T.P.	9.57	1034.98	3.28	1025.41
12+00				
	+50			
13+00				
	+50			
B.M.	4.48	1038.73	0.73	1034.25 1034.25
14+00				
	+50			
15+00				
	+50			
	9.06	1042.71	5.08	1053.65
16				
	+52			

LEFT

RIGHT

6-13-30

4.5

$\frac{36}{33}$	$\frac{41}{22}$	$\frac{62}{20}$	$\frac{58}{76}$	$\frac{47}{73}$	$\frac{40}{71}$	41	$\frac{44}{13}$	$\frac{62}{76}$	$\frac{65}{79}$	$\frac{56}{20}$	$\frac{62}{33}$
-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------	-----------------	-----------------

3.3

$\frac{32}{33}$	$\frac{37}{21}$	$\frac{46}{19}$	$\frac{44}{16}$	$\frac{33}{18}$	$\frac{29}{72}$	30	$\frac{33}{13}$	$\frac{54}{76}$	$\frac{61}{33}$
-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------

6.4

$\frac{91}{33}$	$\frac{95}{20}$	$\frac{102}{19}$	$\frac{101}{76}$	$\frac{84}{73}$	81	$\frac{84}{13}$	$\frac{110}{77}$	$\frac{117}{33}$
-----------------	-----------------	------------------	------------------	-----------------	----	-----------------	------------------	------------------

1.7

$\frac{83}{33}$	$\frac{87}{20}$	$\frac{93}{19}$	$\frac{90}{76}$	$\frac{72}{13}$	70	$\frac{73}{13}$	$\frac{100}{17}$	$\frac{107}{33}$
-----------------	-----------------	-----------------	-----------------	-----------------	----	-----------------	------------------	------------------

6.0

$\frac{68}{33}$	$\frac{70}{20}$	$\frac{83}{79}$	$\frac{77}{16}$	$\frac{60}{13}$	58	$\frac{60}{13}$	$\frac{88}{18}$	$\frac{88}{33}$
-----------------	-----------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------

4.6

$\frac{38}{33}$	$\frac{47}{21}$	$\frac{67}{19}$	$\frac{66}{16}$	$\frac{48}{13}$	47	$\frac{48}{13}$	$\frac{59}{15}$	$\frac{64}{20}$	$\frac{57}{21}$	$\frac{60}{33}$
-----------------	-----------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------	-----------------	-----------------

SPK IN TREE LT. STA 134 20

1.3

$\frac{56}{33}$	$\frac{62}{22}$	$\frac{92}{20}$	$\frac{92}{16}$	$\frac{73}{13}$	73	$\frac{72}{13}$	$\frac{90}{12}$	$\frac{90}{19}$	$\frac{73}{21}$	$\frac{75}{33}$
-----------------	-----------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------	-----------------	-----------------

6.1

$\frac{45}{33}$	$\frac{48}{23}$	$\frac{83}{21}$	$\frac{83}{16}$	$\frac{61}{13}$	61	$\frac{61}{13}$	$\frac{81}{16}$	$\frac{81}{20}$	$\frac{57}{22}$	$\frac{65}{33}$
-----------------	-----------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------	-----------------	-----------------

5.2

$\frac{31}{33}$	$\frac{33}{23}$	$\frac{70}{20}$	$\frac{68}{16}$	$\frac{50}{13}$	50	$\frac{51}{13}$	$\frac{70}{16}$	$\frac{70}{20}$	$\frac{47}{22}$	$\frac{49}{33}$
-----------------	-----------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------	-----------------	-----------------

4.2

$\frac{0.2}{33}$	$\frac{0.6}{25}$	$\frac{65}{19}$	$\frac{63}{16}$	$\frac{46}{13}$	46	$\frac{46}{13}$	$\frac{66}{16}$	$\frac{66}{20}$	$\frac{3.2}{23}$	$\frac{5.4}{33}$
------------------	------------------	-----------------	-----------------	-----------------	----	-----------------	-----------------	-----------------	------------------	------------------

8.9

$\frac{15}{33}$	$\frac{2.2}{28}$	$\frac{110}{20}$	$\frac{110}{15}$	$\frac{91}{13}$	90	$\frac{92}{13}$	$\frac{109}{16}$	$\frac{109}{20}$	$\frac{62}{24}$	$\frac{67}{33}$
-----------------	------------------	------------------	------------------	-----------------	----	-----------------	------------------	------------------	-----------------	-----------------

9.6

$\frac{0.9}{33}$	$\frac{1.4}{30}$	$\frac{11.7}{21}$	$\frac{11.7}{17}$	$\frac{9.7}{13}$	9.7	$\frac{9.7}{13}$	$\frac{11.8}{14}$	$\frac{11.8}{20}$	$\frac{6.5}{24}$	$\frac{6.5}{33}$
------------------	------------------	-------------------	-------------------	------------------	-----	------------------	-------------------	-------------------	------------------	------------------

STN.	T	M.I	-	ELEV.
17+00		104 ⁷ 7.71		
+50				
18+00	0.78	103 ⁷ 1.52	11.97	1030.74 ✓
+50				
19+00				
+50				
20+00	0.83	102 ⁷ 2.72	9.63	1021.89 ✓
+50				
21+00				
+50				
22+00				
+50				

LEFT

RIGHT

6-13-30

$\frac{5.4}{33}$	$\frac{4.5}{25}$	$\frac{12.7}{20}$	$\frac{12.7}{16}$	$\frac{10.4}{13}$	$\frac{10.8}{13}$	$\frac{12.9}{15}$	$\frac{12.9}{19}$	$\frac{8.0}{24}$	$\frac{8.2}{33}$
------------------	------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	------------------	------------------

$\frac{9.3}{33}$	$\frac{9.6}{24}$	$\frac{14.4}{21}$	$\frac{14.4}{17}$	$\frac{12.3}{13}$	$\frac{12.5}{13}$	$\frac{14.2}{16}$	$\frac{14.2}{19}$	$\frac{12.1}{22}$	$\frac{12.1}{33}$
------------------	------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------

ON ROCK 17.577. 17.75

$\frac{3.5}{33}$	$\frac{4.0}{21}$	$\frac{5.2}{20}$	$\frac{4.8}{16}$	$\frac{3.3}{13}$	$\frac{3.5}{13}$	$\frac{4.7}{16}$	$\frac{5.0}{19}$	$\frac{4.0}{20}$	$\frac{4.0}{33}$
------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{7.4}{33}$	$\frac{7.4}{19.5}$	$\frac{7.6}{19}$	$\frac{7.2}{16}$	$\frac{5.3}{13}$	$\frac{5.7}{13}$	$\frac{7.4}{16}$	$\frac{7.4}{19}$	$\frac{6.8}{19.5}$	$\frac{6.3}{33}$
------------------	--------------------	------------------	------------------	------------------	------------------	------------------	------------------	--------------------	------------------

$\frac{9.5}{33}$	$\frac{9.1}{19}$	$\frac{9.5}{18}$	$\frac{9.5}{16}$	$\frac{7.5}{13}$	$\frac{7.7}{13}$	$\frac{10.0}{16}$	$\frac{9.8}{23}$	$\frac{9.4}{33}$
------------------	------------------	------------------	------------------	------------------	------------------	-------------------	------------------	------------------

$\frac{12.1}{33}$	$\frac{11.6}{16}$	$\frac{9.5}{13}$	$\frac{9.5}{9.5}$	$\frac{9.5}{13}$	$\frac{11.8}{17}$	$\frac{11.6}{33}$
-------------------	-------------------	------------------	-------------------	------------------	-------------------	-------------------

$\frac{5.4}{33}$	$\frac{4.9}{20}$	$\frac{5.2}{19}$	$\frac{4.9}{16}$	$\frac{2.9}{13}$	$\frac{2.5}{13}$	$\frac{4.4}{16}$	$\frac{4.8}{19}$	$\frac{4.5}{20}$	$\frac{4.1}{33}$
------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{6.3}{33}$	$\frac{5.9}{20}$	$\frac{7.1}{19}$	$\frac{7.0}{16}$	$\frac{4.7}{13}$	$\frac{4.6}{13}$	$\frac{6.6}{17}$	$\frac{6.6}{19}$	$\frac{5.9}{20}$	$\frac{5.3}{33}$
------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{6.8}{33}$	$\frac{6.6}{20}$	$\frac{8.1}{19}$	$\frac{7.8}{15}$	$\frac{6.3}{13}$	$\frac{6.3}{13}$	$\frac{8.2}{17}$	$\frac{8.2}{19}$	$\frac{7.0}{20}$	$\frac{6.4}{33}$
------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{8.4}{33}$	$\frac{7.9}{21}$	$\frac{9.6}{19}$	$\frac{9.4}{16}$	$\frac{7.6}{13}$	$\frac{7.6}{13}$	$\frac{9.5}{16}$	$\frac{9.5}{19}$	$\frac{8.5}{20}$	$\frac{8.1}{33}$
------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{9.1}{33}$	$\frac{9.6}{19}$	$\frac{10.5}{18}$	$\frac{10.3}{16}$	$\frac{8.4}{13}$	$\frac{8.4}{13}$	$\frac{10.1}{16}$	$\frac{10.1}{20}$	$\frac{9.6}{21}$	$\frac{9.5}{33}$
------------------	------------------	-------------------	-------------------	------------------	------------------	-------------------	-------------------	------------------	------------------

$\frac{10.8}{33}$	$\frac{11.2}{23}$	$\frac{11.2}{16}$	$\frac{8.9}{13}$	$\frac{8.4}{12}$	$\frac{8.4}{13}$	$\frac{8.8}{16}$	$\frac{10.5}{16}$	$\frac{10.8}{20}$	$\frac{10.5}{21}$	$\frac{10.5}{33}$
-------------------	-------------------	-------------------	------------------	------------------	------------------	------------------	-------------------	-------------------	-------------------	-------------------

STA	+	H. I.	-	ELEV
23+00		1022.72		
+40				
+85				
24+00				
T.P.	8.50	1020.79	10.43	1012.29
+35				
25+00				
+48	X Drain 24" X 40' C.M. (New.)			
+50				
26+00				
+50				
T.P.	9.52	1028.53	1.78	1019.01
27+00				
+32				
+44				
B.M.		L Co. Rd.	0.48	1028.05 1028.04

LEFT

RIGHT

9.8 10.7 11.1 11.2 9.2 9.0 11.0 11.0 10.7 10.7
33 20 19 16 13 13 16 20 21 33

8.6 8.4 12.0 11.7 9.2 9.2 11.0 11.3 8.8 8.0
33 23 20 16 13 13 15 19 22 33

9.7 8.7 11.7 11.7 9.6 9.5 11.3 11.3 2.1 1.8
33 21 18 15 13 13 16 20 28 33

10.3 9.7 11.7 11.7 9.7 9.3 11.5 11.5 2.7 2.1
33 21 19 15 13 13 17 20 28 33

Top of Sec. End Culv. 17' 4" Sta. 23 + 10

10.0 10.0 7.6 7.8 9.7 9.8 8.1 7.6
33 17 13 13 16 20 23 33

9.5 10.5 7.5 7.2 7.8 11.1 11.4
33 18 13 11 13 18 33

11.5 ← Flowline → 11.8
20 20

9.8 11.0 6.2 6.3 11.8 11.4
33 21 13 13 20 33

10.4 10.7 4.4 4.4 11.5 11.5
33 21 13 13 24 33

11.0 11.0 2.5 2.5 10.8 11.0
33 24 13 13 24 33

15.3 14.7 6.8 6.8 15.5 15.7
33 25 13 13 27 33

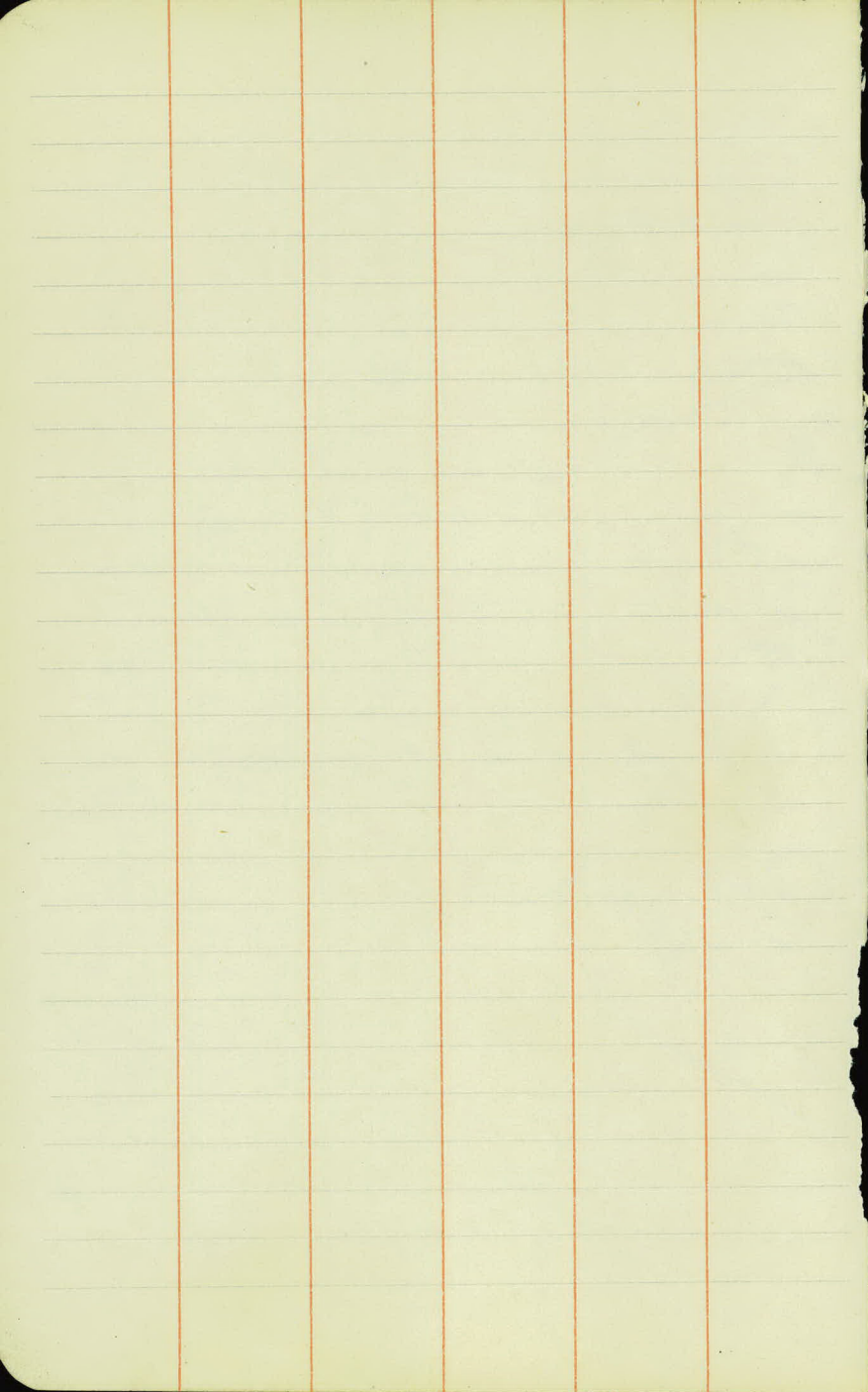
4.8 4.3 4.1 3.5
33 13 13 33

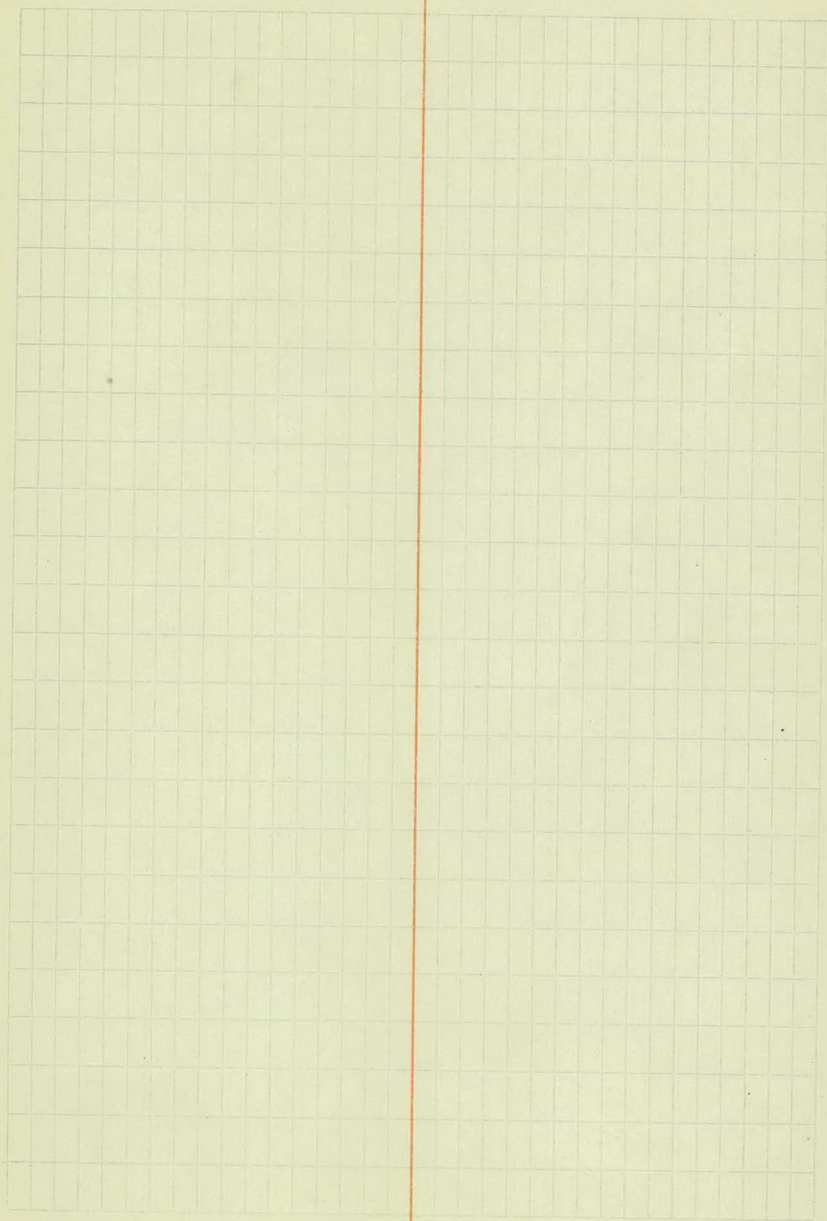
4.2 3.7 3.4 2.9
33 16 16 33

Spike in R.R. Rt Sta. 27 + 60

		Cut	Yard Fill
0 + 00	Field Entrance		10.0
6 + 78	Private "		8.0
8 + 27	X Drain		
9 + 13	F.E.		5.0
13 + 34	Field Entrance		5.0
21 + 86	" "		6.0
23 + 19	" "		8.0
23 + 31	" "		8.0
25 + 48	X Drain		

= 15" X 28' C.M. (Old)	18' Lt	X
= 12" X 24' C.M. (Old)	18' Lt.	X
= 24" X 40' C.M. (New)		X
= 12" X 20' C.M. (New)	17' Lt.	X
= 12" X 20' C.M. (New)	18' Rt	X
= 12" X 20' " "	18' Lt	X
12" X 20' " "	18' Lt	X
12" X 20' " "	18' Rt.	X
24" X 40' C.M. New.		X





STA POINT Δ LT. Δ RT

54+57² P.O.T.

42+19²⁵ P.O.T.

33+51² P.O.T.

26+36⁶ P.I.

0°-03'

12+00 P.O.T.

0+00 P.O.T.

N.00°-03'E

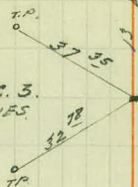
x

N.00°-00'E

3-22-30

N $\frac{1}{4}$ COR. SEC. 3.
EST. BY TIES

Co. ROAD "D"



BOCK ST

66.80

HUB.

①
POINT ON TOP
OF GREEN
SILO.

61.25

HUB.

S.W. COR. OF
CHIMNEY



CENTER SEC 3

STONE MONT.

58.9

HUB.

ROCK 200

8" OAK

50

HUB.

S $\frac{1}{4}$ COR. SEC. 3.

STONE MONT.

Co. ROAD "C"

43.62

59.10

T.P.

T.P.

STA.	+	H.I.	-	ELEV	ROD
B.M.	6.83	924.86		918.03	
0+00				21.0	3.9
B.M.			1.79	923.07	
+14				20.7	4.2
+17				20.8	4.1
+40				✓ 20.6	4.3
1+00				✓ 20.0	4.9
+50				✓ 19.5	5.4
2				✓ 19.0	5.9
+50				✓ 18.3	6.6
3				✓ 17.5	7.6
+50				✓ 16.0	8.9
4				✓ 14.4	10.5
	1.85	915.80	10.91	913.95	
+50				✓ 12.7	3.1

LT.

RT.

5-12-30

ON P.P. 50' R. STA 0+30

2.9
2.7 3.3 4.0
3.3 3.3

SPK IN 18" OAK 45' L. STA 0+70

3.3 3.4 4.1 3.7 3.8 4.2
3.3 2.9 2.4 1.9 3.3

2.1 2.2 4.3 4.0 3.9 5.1 7.3
3.3 2.4 2.1 1.5 2.8 3.6

6/4.7 3/4.0 3.4 3.4 4.9 4.9 4.4 4.2 4.8 6.3 7.5 8.3 6/7.7
1/-0.4 2/10.3 3.3 2.4 1.9 1.5 1.3 10.1 1.1 1.4 2.5 3.3 1/-2.4

6/5.3 1/3.8 2.9 4.4 5.9 4.9 4.6 5.0 5.3 7.6 9.0 9.7 4/8.5
1/-0.4 2/11.1 3.3 2.0 1.8 1.1 5 -0.1 5 1.1 2.3 3.3 1/-3.6

7/5.9 6/4.8 4.4 4.7 6.4 5.4 5.0 5.2 5.5 7.9 8.7 9.5 7/8.1
1/-0.5 2/10.6 3.3 2.0 1.8 1.1 5 10.2 4 1.3 2.6 3.3 1/-2.7

7/6.4 4/4.7 5.0 5.1 7.1 6.0 5.6 5.8 6.1 7.6 7.9 8.7 6/7.9
1/-0.5 2/11.2 3.3 2.1 1.9 1.2 5 10.1 6 1.2 2.2 3.3 1/-2.0

4/7.2 6.5 6.5 6.9 7.5 6.5 5.9 6.1 6.2 6.9 7.3 6.7 3/7.3 7/7.2
2/-0.6 3.3 3.0 2.2 1.9 1.5 5 10.5 3 4 1.7 3.3 2/-0.7 1/-0.6

7/7.9 6.5 6.6 7.7 8.0 9.1 6.2 6.5 6.7 7.9 5.6 5.0 1/5.5 6/8.0
2/-0.5 3.3 2.5 2.4 2.1 1.7 5 11.1 5 1.5 1.8 3.3 2/12.1 1/-0.4

7/7.2 4.8 4.9 9.0 7.3 8.4 7.8 8.2 8.3 9.6 9.7 6.5 6.9 4/6.7
2/-0.3 3.3 2.7 2.2 2.0 1.5 4 10.7 4 1.1 1.5 2.0 3.3 2/12.2

1/11.4 5.9 5.9 6.3 11.4 10.2 10.0 10.4 10.6 11.7 12.3 10.8 10.9 1/10.8
2/-0.9 3.3 3.0 2.8 2.2 1.4 4 10.1 4 9 1.3 1.9 3.3 2/-0.3

7/4.2 1.4 1.5 1.7 4.1 3.3 3.0 3.2 3.3 4.0 4.2 4.7 7/4.4
1/-1.1 3.0 3.0 2.3 2.2 1.2 4 -0.1 3 8 1.7 3.3 1/-1.3

STA.	+	H.I.	-	ELEV.	St. ROAD
		715.80 ✓			
5				✓ 11.3 ✓	4.5
	+50			✓ 10.2 ✓	5.6
6				✓ 09.4 ✓	6.4
	2.79	713.87 ✓	4.72	711.08 ✓	
	+50			✓ 08.8 ✓	5.1
7				✓ 08.4 ✓	5.5
	+50			✓ 08.2 ✓	5.7
8				✓ 08.0 ✓	5.9
	+50		x ✓	07.8 ✓	6.1
9			x ✓	07.4 ✓	6.5
	+50		x ✓	07.2 ✓	6.7
10				✓ 07.0 ✓	6.9
	+50			✓ 06.2 ✓	7.7

LT

RT

5-12-30

(45)

$$\begin{array}{r} 47.8 \\ 1 \overline{) 17.08} \end{array} \quad \begin{array}{r} 7.58 \\ 1 \overline{) 17.18} \end{array} \quad \begin{array}{r} 50 \ 51 \ 60 \ 57 \ 49 \ 45 \\ 33 \ 29 \ 27 \ 18 \ 14 \ 5 \end{array} \quad \begin{array}{r} 4.7 \ 50 \ 60 \ 6.7 \ 7.8 \\ 0.2 \ 6 \ 10 \ 21 \ 33 \end{array} \quad \begin{array}{r} 8.64 \\ 1 \overline{) 15.19} \end{array}$$

(56)

$$\begin{array}{r} 3.63 \\ 2 \overline{) 2.07} \end{array} \quad \begin{array}{r} 50 \ 53 \ 55 \ 67 \ 56 \ 52 \ 57 \\ 28 \ 27 \ 25 \ 17 \ 13 \ 5 \end{array} \quad \begin{array}{r} 5.9 \ 76 \ 83 \ 9.1 \\ 0.1 \ 5 \ 9 \ 20 \ 35 \end{array} \quad \begin{array}{r} 9.28 \\ 1 \overline{) 17.26} \end{array}$$

(64)

$$\begin{array}{r} 3.71 \\ 2 \overline{) 2.07} \end{array} \quad \begin{array}{r} 57 \ 59 \ 70 \ 67 \ 63 \ 58 \\ 33 \ 28 \ 24 \ 16 \ 13 \ 5 \end{array} \quad \begin{array}{r} 61 \ 64 \ 28 \ 9.0 \ 94 \\ 10.3 \ 5 \ 10 \ 22 \ 35 \end{array} \quad \begin{array}{r} 9.90 \\ 1 \overline{) 17.26} \end{array}$$

(51)

$$\begin{array}{r} 6.35 \\ 2 \overline{) 7.16} \end{array} \quad \begin{array}{r} 26 \ 28 \ 34 \ 44 \ 53 \ 45 \ 41 \\ 33 \ 29 \ 23 \ 18 \ 12 \ 11 \ 5 \end{array} \quad \begin{array}{r} 4.3 \ 46 \ 64 \ 7.1 \ 72 \\ 10.8 \ 5 \ 10 \ 16 \ 33 \end{array} \quad \begin{array}{r} 0.71 \\ 1 \overline{) 17.20} \end{array}$$

(58)

$$\begin{array}{r} 5.20 \\ 2 \overline{) 13.5} \end{array} \quad \begin{array}{r} 08 \ 23 \ 58 \ 50 \ 47 \ 49 \\ 33 \ 23 \ 16 \ 13 \ 4 \end{array} \quad \begin{array}{r} 5.1 \ 70 \ 77 \ 82 \\ 10.6 \ 6 \ 12 \ 17 \ 33 \end{array} \quad \begin{array}{r} 6.77 \\ 1 \overline{) 17.22} \end{array}$$

(57)

$$\begin{array}{r} 7.30 \\ 2 \overline{) 14.27} \end{array} \quad \begin{array}{r} 1.5 \ 36 \ 65 \ 58 \ 52 \ 54 \\ 33 \ 21 \ 15 \ 12 \ 3 \end{array} \quad \begin{array}{r} 5.7 \ 78 \ 8.5 \ 9.1 \\ 10.3 \ 7 \ 12 \ 22 \ 33 \end{array} \quad \begin{array}{r} 0.84 \\ 1 \overline{) 17.27} \end{array}$$

(59)

$$\begin{array}{r} 1.48 \\ 2 \overline{) 11.1} \end{array} \quad \begin{array}{r} 27 \ 34 \ 49 \ 54 \ 54 \ 55 \\ 33 \ 29 \ 22 \ 9 \ 3 \end{array} \quad \begin{array}{r} 5.9 \ 59 \ 84 \ 89 \ 95 \\ 10.4 \ 6 \ 12 \ 18 \ 33 \end{array} \quad \begin{array}{r} 3.82 \\ 1 \overline{) 17.29} \end{array}$$

(61)

$$\begin{array}{r} 9.52 \\ 2 \overline{) 12.9} \end{array} \quad \begin{array}{r} 21 \ 37 \ 70 \ 56 \ 52 \ 53 \\ 33 \ 21 \ 16 \ 10 \ 2 \end{array} \quad \begin{array}{r} 5.8 \ 79 \ 82 \ 87 \\ 10.8 \ 4 \ 12 \ 23 \ 33 \end{array} \quad \begin{array}{r} 8.20 \\ 1 \overline{) 17.19} \end{array}$$

(65)

$$\begin{array}{r} 0.45 \\ 2 \overline{) 12.0} \end{array} \quad \begin{array}{r} 26 \ 37 \ 66 \ 65 \ 51 \ 50 \\ 33 \ 24 \ 19 \ 15 \ 9 \end{array} \quad \begin{array}{r} 5.4 \ 6.5 \ 7.1 \ 7.0 \\ 11.5 \ 6 \ 10 \ 20 \ 33 \end{array} \quad \begin{array}{r} 6.70 \\ 8 \overline{) 17.05} \end{array} \quad \begin{array}{r} 4.28 \\ 1 \overline{) 17.05} \end{array}$$

(62)

$$\begin{array}{r} 1.66 \\ 1 \overline{) 17.01} \end{array} \quad \begin{array}{r} 41 \ 50 \ 65 \ 72 \ 72 \ 63 \ 58 \\ 33 \ 23 \ 27 \ 20 \ 15 \ 12 \ 4 \end{array} \quad \begin{array}{r} 6.0 \ 6.3 \ 6.9 \ 7.1 \ 6.9 \\ 10.7 \ 6 \ 11 \ 21 \ 33 \end{array} \quad \begin{array}{r} 1.70 \\ 2 \overline{) 17.03} \end{array}$$

(61)

$$\begin{array}{r} 0.76 \\ 1 \overline{) 17.07} \end{array} \quad \begin{array}{r} 0.76 \\ 2 \overline{) 17.07} \end{array} \quad \begin{array}{r} 33 \ 36 \ 77 \ 72 \ 68 \\ 33 \ 26 \ 20 \ 13 \ 4 \end{array} \quad \begin{array}{r} 7.0 \ 72 \ 76 \ 54 \ 57 \ 58 \\ 0.1 \ 5 \ 11 \ 15 \ 21 \ 33 \end{array} \quad \begin{array}{r} 2.58 \\ 2 \overline{) 17.11} \end{array}$$

(61)

$$\begin{array}{r} 4.83 \\ 2 \overline{) 10.06} \end{array} \quad \begin{array}{r} 34 \ 37 \ 88 \ 82 \ 77 \\ 33 \ 27 \ 19 \ 13 \ 4 \end{array} \quad \begin{array}{r} 7.7 \ 86 \ 32 \ 37 \ 36 \\ 0.2 \ 9 \ 19 \ 28 \ 33 \end{array} \quad \begin{array}{r} 3.51 \\ 2 \overline{) 17.45} \end{array}$$

STA.	+	M.I.	-	ELEV	POD
		913.87			
11			✓	05.1	8.8
+50			✓	036	10.3
12			✓	01.9	12.0
	1.90	903.46	12.31	901.56	
+25				01.0	2.5
+50			✓	900.2	3.3
B.M.	0.65	900.75	3.37	900.09	900.10
13			✓	898.5	2.3
+50			✓	96.8	4.0
14			✓	95.1	5.7
+30			✓	93.4	7.4
+72				92.7	8.1
15			✓	91.7	9.1
+50			✓	90.0	10.8
	1.68	890.73	11.70	887.05	

LT

RT

5-12-30

8.6
 $\frac{5.7}{2/11.5} \begin{matrix} 3.1 & 3.3 & 4.5 & 9.3 & 8.4 & 8.7 & 9.0 & 7.5 & 9.8 & 7.6 & 2.9 & 1.0 & 1.1 & 8.1 \end{matrix} \frac{3.0}{2/7.58}$

10.3
 $\frac{9.4}{2/10.7} \begin{matrix} 3.2 & 3.7 & 1.0 & 1.5 & 7.8 & 9.9 & 10.2 & 9.0 & 10.9 & 10.7 & 2.0 & 10.7 & 2.0 & 11.0 \end{matrix}$

12.0
 $\frac{1.1}{2/10.1} \begin{matrix} 1.9 & 8.0 & 8.6 & 11.9 & 12.0 & 1.6 & 1.3 & 1.2 & 1.9 & 7.6 & 6.5 & 7.6 & 5.0 & 6.5 \end{matrix} \frac{1.1}{2/10.1}$

2.5
 $\frac{8.7}{1/1.2} \begin{matrix} 4.2 & 4.8 & 2.1 & 2.2 & 2.4 & 3.3 & 3.5 & 3.3 & 3.6 & 8.0 & 2.7 & 2.0 & 2.2 \end{matrix}$

3.3
 $\begin{matrix} 12.3 & 1.6 & 3.8 & 5.4 & 3.9 & 9.0 & 9.1 \\ 3.3 & 3.3 & 1.3 & 1.1 & 1.9 & 3.3 \end{matrix}$

ON SPR IN 8" ONK 50 L. 5TH 14+50

9.3
 $\frac{4.1}{2/-9.6} \begin{matrix} 1.9 & 12.6 & 1.9 & 9.1 & 3.2 & 2.2 & 3.5 & 1.2 & 13.3 & 1.1 & 2.8 & 2.0 & 3.3 \end{matrix} \frac{1.1}{2/-10.3}$

4.0
 $\frac{9.1}{2/-6.6} \begin{matrix} 10.8 & 10.8 & 4.4 & 3.9 & 4.5 & 1.8 & 12.8 & 13.8 & 9.1 & 2.6 & 2.0 & 8.6 \end{matrix}$

5.7
 $\frac{9.1}{2/10.9} \begin{matrix} 4.2 & 4.7 & 4.9 & 4.7 & 5.0 & 6.9 & 7.1 & 8.7 & 7.4 & 2.8 & 3.0 & 2.9 \end{matrix}$

7.1
 $\frac{9.1}{2/16.0} \begin{matrix} 1.1 & 1.2 & 7.2 & 7.0 & 6.3 & 3.7 & 6.1 & 7.5 & 7.7 & 1.8 & 4.8 & 2.0 & 2.6 \end{matrix}$

8.1
 $\begin{matrix} 1.8 & 2.1 & 1.2 & 7.2 & 7.3 & 6.6 & 6.2 & 6.6 & 7.9 & 8.0 & 1.1 \\ 3.3 & 2.9 & 2.2 & 1.5 & 1.1 & 7 & 8 & 1.8 & 2.4 & 3.7 \end{matrix}$

9.1
 $\frac{3.1}{2/12.3} \begin{matrix} 6.8 & 1.1 & 8.0 & 8.1 & 7.6 & 7.4 & 7.9 & 8.7 & 8.4 & 2.1 & 6.8 & 2.0 & 7.0 & 6.6 \end{matrix}$

10.8
 $\frac{2.1}{2/12.2} \begin{matrix} 7.2 & 8.5 & 8.7 & 9.8 & 9.8 & 7.4 & 7.9 & 1.7 & 1.2 & 9.8 & 9.4 & 7.9 & 7.9 & 7.1 & 2.1 \end{matrix} \frac{1.1}{2/12.2}$

STN.	T	H.I.	-	ELEV	DR ROD
		890.73 ✓			
16			✓	88.3 ✓	2.4
+30			✓	86.6 ✓	4.1
	5.09	885.28 ✓	10.54	880.19 ✓	
17			✓	84.9	0.4
+50			78.3 ✓	83.4 ✓	1.9 20
18			78.05 ✓	82.1 ✓	3.2 7.2
+30			77.8 ✓	81.2 ✓	4.1 7.5
19			77.55 ✓	80.6 ✓	4.7 7.7
+30			77.3 ✓	80.4 ✓	4.9 8.0
20			78.4 ✓	80.4 ✓	6.9 4.9
+30			78.3 ✓	80.5 ✓	7.0 4.8
21			78.2 ✓	80.6 ✓	7.1 4.7
	6.61	887.18 ✓	4.71	880.57 ✓	
+50			78.1 ✓	80.6 ✓	7.1 6.6
B.M.			5.39	881.79 ✓	

LT.

RT.

5-14-30

21
 $\frac{1}{8} \frac{5}{58}$ 84 83 49 26 2.0 2.4 2.8 3.5 3.3 1.4 $\frac{3}{5} \frac{3.1}{1}$ $\frac{6}{7} \frac{3.5}{-1.1}$
 $\frac{1}{8} \frac{3.4}{-}$ 33 30 15 10 104 6 8 13 17 33 $\frac{2}{0} \frac{-0.7}{-}$

41
 $\frac{5}{2} \frac{5.8}{-5.7}$ 109 88 52 48 49 63 57 40 37 $\frac{5}{5} \frac{5.8}{-5.7}$ $\frac{9}{1} \frac{5.2}{-1.1}$
 33 16 9 -0.7 7 15 17 30 33 $\frac{1}{5} \frac{5.8}{-5.7}$ $\frac{9}{1} \frac{5.2}{-1.1}$

NRIL IN TIR RT STA 17450

19
 $\frac{5}{0} \frac{5.4}{-5.0}$ 62 54 35 16 1.6 2.2 3.9 4.0 3.2 $\frac{7}{8} \frac{4.2}{-3.8}$
 33 19 11 5 0.2 10 15 23 33

19
 $\frac{2}{1} \frac{8.0}{-6.1}$ 80 80 70 40 3.4 3.7 6.7 6.7 5.9 5.3 $\frac{3}{0} \frac{6.8}{-4.9}$ $\frac{5}{5} \frac{6.0}{-5.0}$
 33 22 14 6 -1.5 10 13 20 23 33

30
 $\frac{7}{0} \frac{8.3}{-5.3}$ 86 84 78 48 4.4 5.0 7.4 7.7 7.0 6.4 $\frac{1}{9} \frac{7.7}{-4.5}$ $\frac{3}{2} \frac{6.7}{-7.0}$
 33 24 13 6 -1.2 10 14 20 22 33

21
 $\frac{1}{9} \frac{8.2}{-4.1}$ 84 82 76 54 4.8 5.5 7.6 7.6 6.2 5.6 $\frac{4}{8} \frac{7.7}{-5.6}$ $\frac{3}{2} \frac{6.2}{-7.1}$
 33 16 12 7 0.7 10 15 17 23 33

27
 $\frac{4}{6} \frac{5.8}{-7.1}$ $\frac{4}{0} \frac{6.1}{-7.4}$ 64 59 52 50 5.3 5.7 5.8 5.5 $\frac{2}{4} \frac{5.5}{-0.8}$ $\frac{8}{4} \frac{5.9}{-7.8}$
 33 17 5 0.3 7 11 19 33

41
 $\frac{5}{14} \frac{5.9}{-7.0}$ $\frac{2}{2} \frac{4.7}{-7.02}$ 48 51 58 59 5.3 4.8 5.4 7.7 8.0 7.6 7.4 $\frac{7}{1} \frac{8.0}{-3.1}$
 33 19 15 12 8 10.1 9 14 20 30 33

41
 $\frac{4}{3} \frac{3.8}{-0.9}$ $\frac{4}{5} \frac{3.5}{-5.4}$ 28 34 46 60 62 5.2 4.8 5.4 7.2 8.6 $\frac{8}{10} \frac{4.1}{-3.2}$
 33 27 17 14 12 9 10.1 11 13 33

41
 $\frac{4}{1} \frac{0.5}{-0.7}$ $\frac{5}{2} \frac{4.3}{-7.47}$ 12 35 52 56 4.7 4.5 4.7 7.5 8.4 8.5 $\frac{7}{1} \frac{8.1}{-3.3}$
 33 19 16 12 9 10.3 6 13 23 33

47
 $\frac{2}{19} \frac{5.5}{-0.8}$ $\frac{3}{2} \frac{1.8}{-7.53}$ 1.8 1.9 5.4 5.2 3.7 3.5 3.4 3.6 4.4 4.9 $\frac{5}{2} \frac{4.5}{-7.02}$
 33 23 18 11 9 11.2 7 10 22 33

66
 $\frac{4}{14} \frac{6.7}{-7.1}$ $\frac{5}{2} \frac{4.8}{-7.43}$ 59 56 48 4.9 7.7 7.5 5.0 5.2 7.8 7.8 1.8 1.8 $\frac{6}{0} \frac{5.6}{-4.0}$ $\frac{9}{1} \frac{6.6}{-7.0}$
 33 29 28 23 19 11 5 11.4 7 16 21 33 35

SPK 1X 24" TREL 50' L. STA 21450

STA.	T	M.I.	-	ELEV	BR. ROD
		887.18 ✓			
22			77.0 ✓	80.4 ✓	9.2 68
B.M.	5.32	887.11 ✓	5.39	881.79 ✓	
+50			77.9 ✓	80.1 ✓	9.2 70
23				77.8 ✓	9.3
+50				77.4 ✓	7.7
24				78.8 ✓	8.3
+50				78.2 ✓	8.9
	8.09	886.40 ✓	8.80	878.31 ✓	
25		Foot		77.8 ✓	8.4
+50				77.8 ✓	8.6
26				78.3 ✓	8.1
B.M.	8.11	886.43 ✓	8.11	878.29 ✓	878.32 ✓
+50				79.1 ✓	7.3
27				80.4 ✓	6.0
+50				82.0 ✓	4.4

LT

RT

5-14-30

$\frac{5}{4} \frac{7.8}{-7.0}$ $\frac{9}{2} \frac{6.3}{-7.29}$ $\frac{7.2}{33}$ $\frac{6.6}{28}$ $\frac{5.9}{31}$ $\frac{7.4}{18}$ $\frac{7.4}{10}$ $\frac{5.9}{7}$ $\frac{5.4}{7.29}$ $\frac{5.5}{9}$ $\frac{7.5}{14}$ $\frac{8.4}{20}$ $\frac{0.8}{33}$ $\frac{10.5}{55}$ $\frac{10.5}{57}$ $\frac{0.25}{2.105}$ $\frac{3}{4} \frac{7.7}{-0.9}$

$\frac{7}{5} \frac{8.8}{-1.8}$ $\frac{6}{2} \frac{7.6}{-1.16}$ $\frac{8.5}{33}$ $\frac{7.6}{24}$ $\frac{8.5}{19}$ $\frac{8.8}{15}$ $\frac{6.5}{7}$ $\frac{6.3}{70.7}$ $\frac{6.2}{12}$ $\frac{8.1}{18}$ $\frac{8.0}{22}$ $\frac{11}{32}$ $\frac{10}{33}$ $\frac{7.5.6}{2.14}$ $\frac{0.25}{2.105}$

$\frac{4}{1} \frac{7.6}{-2.3}$ $\frac{10.4}{33}$ $\frac{9.7}{25}$ $\frac{7.2}{20}$ $\frac{7.7}{16}$ $\frac{7.2}{11}$ $\frac{6.9}{4}$ $\frac{6.8}{70.5}$ $\frac{6.9}{9}$ $\frac{8.1}{5}$ $\frac{8.0}{23}$ $\frac{4.2}{29}$ $\frac{4.4}{33}$ $\frac{0.75}{2.0}$ $\frac{3}{1} \frac{7.7}{-0.4}$

$\frac{8}{1} \frac{7.16}{-3.9}$ $\frac{12.2}{33}$ $\frac{12.4}{27}$ $\frac{11.8}{25}$ $\frac{11.1}{13}$ $\frac{7.1}{5}$ $\frac{7.0}{70.7}$ $\frac{7.0}{8}$ $\frac{10.0}{15}$ $\frac{10.0}{20}$ $\frac{8.2}{25}$ $\frac{8.6}{33}$ $\frac{7.10.2}{2.5}$ $\frac{0.83}{2.120}$

$\frac{0}{1} \frac{7.25}{-4.0}$ $\frac{12.9}{33}$ $\frac{11.4}{15}$ $\frac{12.1}{12}$ $\frac{7.7}{5}$ $\frac{7.4}{70.7}$ $\frac{8.0}{6}$ $\frac{11.3}{12}$ $\frac{12.4}{18}$ $\frac{11.8}{33}$ $\frac{7.12.4}{2.41}$

$\frac{0}{1} \frac{7.29}{-4.0}$ $\frac{13.0}{33}$ $\frac{12.4}{13}$ $\frac{9.8}{9}$ $\frac{9.3}{5}$ $\frac{7.3}{2.3}$ $\frac{7.3}{5}$ $\frac{12.2}{12}$ $\frac{12.9}{33}$ $\frac{7.12.7}{2.38}$

$\frac{5}{1} \frac{7.1.6}{-3.0}$ $\frac{12.1}{33}$ $\frac{11.9}{22}$ $\frac{11.1}{11}$ $\frac{9.2}{8}$ $\frac{9.0}{-0.4}$ $\frac{7.1}{7}$ $\frac{11.2}{11}$ $\frac{11.7}{20}$ $\frac{11.5}{33}$ $\frac{5.7.1.6}{2.30}$

$\frac{2}{1} \frac{7.11.4}{-2.8}$ $\frac{11.7}{33}$ $\frac{11.2}{11}$ $\frac{9.2}{7}$ $\frac{9.0}{-0.4}$ $\frac{7.4}{7}$ $\frac{11.5}{10}$ $\frac{11.2}{20}$ $\frac{11.6}{33}$ $\frac{7.11.7}{2.31}$

$\frac{6}{1} \frac{7.11.2}{-3.1}$ $\frac{11.2}{33}$ $\frac{11.5}{25}$ $\frac{11.0}{12}$ $\frac{8.6}{7}$ $\frac{8.6}{-0.5}$ $\frac{8.6}{4}$ $\frac{11.0}{10}$ $\frac{11.2}{20}$ $\frac{11.1}{33}$ $\frac{6.7.11.2}{2.31}$

TOP OF MONT. STM. 26 + 36.

$\frac{7}{1} \frac{7.28}{-2.5}$ $\frac{10.4}{33}$ $\frac{10.1}{26}$ $\frac{9.7}{14}$ $\frac{7.6}{8}$ $\frac{7.6}{-0.3}$ $\frac{7.9}{7}$ $\frac{9.5}{10}$ $\frac{10.2}{33}$ $\frac{6.7.2.7}{2.24}$

$\frac{0}{1} \frac{7.10.0}{-4.0}$ $\frac{10.2}{33}$ $\frac{9.9}{25}$ $\frac{9.6}{14}$ $\frac{6.6}{7}$ $\frac{6.6}{-0.6}$ $\frac{6.8}{5}$ $\frac{9.3}{11}$ $\frac{10.3}{33}$ $\frac{8.7.2.9}{2.3.9}$

$\frac{2}{2} \frac{7.10.4}{-6.0}$ $\frac{10.1}{33}$ $\frac{10.4}{23}$ $\frac{9.7}{14}$ $\frac{6.5}{10}$ $\frac{5.4}{6}$ $\frac{5.4}{-1.0}$ $\frac{5.4}{4}$ $\frac{10.0}{11}$ $\frac{10.3}{20}$ $\frac{10.2}{33}$ $\frac{4.7.10.7}{2.6.3}$

STA.	+	H. I	-	ELEV	GR, RON
		886.43			
28				84.1	2.3
28 + 50				86.5	-0.1
29				89.4	-3.0
	13.35	898.99	0.79	885.64	
29				89.4	7.6
29 + 50				92.7	6.3
30				96.2	2.8
	13.13	911.46	0.66	898.33	
30				96.2	15.3
30 + 50				99.7	11.8
31				03.2	8.3
31 + 50				06.4	5.1
	13.73	923.95	1.24	910.22	
31-				03.2	20.8
31 + 50				06.4	17.6

LT

RT

5-14-30

(2.3)

$$\begin{array}{r} 5 \overline{) 102} \quad 102 \quad 102 \quad 95 \quad 48 \quad 34 \quad 35 \quad 34 \quad 90 \quad 100 \quad 98 \quad 4 \overline{) 79} \\ 2 \overline{) -77} \quad 23 \quad 26 \quad 16 \quad 11 \quad 6 \quad -13 \quad 4 \quad 14 \quad 20 \quad 33 \quad 4 \overline{) -76} \end{array}$$

(-2.1)

$$\begin{array}{r} 8 \overline{) 10.1} \quad 99 \quad 101 \quad 8.4 \quad 18 \quad 06 \quad 07 \quad 06 \quad 23 \quad 58 \quad 5.9 \quad 63 \quad 0 \overline{) 5.9} \\ 2 \overline{) -10.2} \quad 33 \quad 38 \quad 21 \quad 10 \quad 6 \quad -08 \quad 5 \quad 10 \quad 16 \quad 24 \quad 33 \quad 2 \overline{) -60} \end{array}$$

(-3.0)

$$\begin{array}{r} 8 \overline{) 4.9} \quad 52 \quad 50 \quad 40 \quad 0.3 \quad 0.7 \quad 1.1 \quad 5 \overline{) 00} \\ 4 \overline{) -7.9} \quad 33 \quad 25 \quad 20 \quad 18 \quad 24 \quad 33 \quad 7 \overline{) -30} \end{array}$$

(9.6)

$$\begin{array}{r} 102 \quad 97 \quad 101 \quad 94 \quad 100 \\ 10 \quad 5 \quad 0.3 \quad 5 \quad 12 \end{array}$$

(6.3)

$$\begin{array}{r} 5 \overline{) 8.3} \quad 117 \quad 113 \quad 99 \quad 69 \quad 62 \quad 64 \quad 60 \quad 77 \quad 79 \quad 63 \quad 86 \quad 64 \quad 4 \overline{) 79} \quad 7 \overline{) 79} \\ 1 \overline{) -20} \quad 33 \quad 25 \quad 19 \quad 15 \quad 8 \quad -01 \quad 6 \quad 13 \quad 21 \quad 24 \quad 29 \quad 33 \quad 1 \overline{) -16} \quad 5 \overline{) -10} \end{array}$$

(2.8)

$$\begin{array}{r} 2 \overline{) 3.0} \quad 6 \overline{) 1.2} \quad 3.1 \quad 0.8 \quad 3.0 \quad 2.7 \quad 2.6 \quad 2.3 \quad 3.4 \quad 3.5 \quad 1.5 \quad 2 \overline{) 8.6} \\ 1 \overline{) -0.2} \quad 2 \overline{) 1.6} \quad 33 \quad 17 \quad 14 \quad 8 \quad 10.2 \quad 7 \quad 12 \quad 17 \quad 21 \quad 1 \overline{) -0.8} \end{array}$$

(15.3)

$$\begin{array}{r} 91 \quad 8.2 \quad 88 \quad 2 \overline{) 9.1} \\ 27 \quad 33 \quad 35 \quad 2 \overline{) 16.2} \end{array}$$

(11.8)

$$\begin{array}{r} 13 \overline{) 7.25} \quad 9 \overline{) 2.8} \quad 88 \quad 76 \quad 70 \quad 122 \quad 117 \quad 115 \quad 115 \quad 129 \quad 127 \quad 90 \quad 18 \quad 07 \quad 1 \overline{) 7.1} \quad 7 \overline{) 25} \\ 13 \overline{) -0.5} \quad 2 \overline{) 140} \quad 33 \quad 35 \quad 22 \quad 15 \quad 8 \quad 10.3 \quad 7 \quad 11 \quad 13 \quad 24 \quad 32 \quad 36 \quad 2 \overline{) 149} \quad 1 \overline{) -0.5} \end{array}$$

(8.3)

$$\begin{array}{r} 0 \overline{) 2.0} \quad 2 \overline{) 3.6} \quad 46 \quad 38 \quad 28 \quad 89 \quad 81 \quad 82 \quad 7.7 \quad 9.0 \quad 7.5 \quad 03 \quad 3 \overline{) 8.5} \\ 1 \overline{) -0.7} \quad 2 \overline{) 147} \quad 33 \quad 26 \quad 22 \quad 15 \quad 9 \quad 10.1 \quad 7 \quad 9 \quad 13 \quad 25 \quad 1 \overline{) -0.2} \end{array}$$

(6.1)

$$\begin{array}{r} 1 \overline{) 5.1} \quad 2 \overline{) 2.3} \quad 36 \quad 30 \quad 20 \quad 44 \quad 54 \quad 46 \quad 45 \quad 45 \quad 5.2 \quad 4.8 \quad 64 \\ 1 \overline{) -0.0} \quad 2 \overline{) 128} \quad 33 \quad 33 \quad 22 \quad 18 \quad 14 \quad 10 \quad 10.6 \quad 7 \quad 7 \quad 11 \quad 17 \end{array}$$

(20.8)

$$\begin{array}{r} 11.7 \quad 10.1 \quad 10.2 \quad 1 \overline{) 10.1} \\ 26 \quad 33 \quad 35 \quad 5 \overline{) 110.7} \end{array}$$

(7.6)

$$\begin{array}{r} 8.5 \quad 8.1 \quad 79 \quad 3 \overline{) 8.3} \\ 25 \quad 33 \quad 35 \quad 8 \overline{) 79.3} \end{array}$$

STA.	+	H.I.	-	ELEV.	GR. ROD
		723.95 ✓			
32				✓ 09.1 ✓	14.9
+50				✓ 11.3 ✓	12.7
+80				12.3	10.7
33				✓ 12.9 ✓	11.1
+50				✓ 14.0 ✓	10.0
	4.28	920.03 ✓	8.20	915.75 ✓	
34				✓ 14.6 ✓	5.4
+50				✓ 14.9 ✓	5.1
35				✓ 15.2 ✓	4.8
+50				✓ 15.5 ✓	4.5
36				✓ 15.8 ✓	4.2
+50				✓ 16.1 ✓	3.9
37				✓ 16.4 ✓	3.6

L.T.

(14.9)

R.T.

5-15-50

$\frac{5}{4} \frac{1.4}{73.5}$ $\frac{124}{33}$ $\frac{122}{26}$ $\frac{110}{22}$ $\frac{147}{15}$ $\frac{140}{8}$ $\frac{13.4}{+1.5}$ $\frac{13.5}{5}$ $\frac{13.7}{8}$ $\frac{140}{12}$ $\frac{126}{15}$ $\frac{80}{21}$ $\frac{72}{24}$ $\frac{66}{33}$ $\frac{1}{2} \frac{6.8}{72.1}$

(12.7)

$\frac{8}{9} \frac{4.4}{723}$ $\frac{48}{33}$ $\frac{39}{27}$ $\frac{112}{13}$ $\frac{108}{+1.9}$ $\frac{10.4}{6}$ $\frac{113}{10}$ $\frac{110}{18}$ $\frac{98}{21}$ $\frac{55}{26}$ $\frac{47}{29}$ $\frac{21}{32}$ $\frac{22}{35}$ $\frac{8}{2} \frac{4.9}{778}$

(10.7)

$\frac{2.5}{33}$ $\frac{21}{29}$ $\frac{14}{24}$ $\frac{8.0}{17}$ $\frac{10.1}{13}$ $\frac{10.0}{8}$ $\frac{9.8}{8}$ $\frac{10.0}{15}$ $\frac{10.1}{23}$ $\frac{3.0}{28}$ $\frac{0.3}{33}$ $\frac{0.3}{33}$

(11.1)

$\frac{8}{2} \frac{3.5}{778}$ $\frac{3.6}{33}$ $\frac{32}{27}$ $\frac{2.7}{22}$ $\frac{9.6}{14}$ $\frac{9.3}{11.8}$ $\frac{9.5}{12}$ $\frac{9.6}{15}$ $\frac{3.7}{19}$ $\frac{1.5}{21}$ $\frac{1.7}{33}$ $\frac{8}{2} \frac{1.5}{798}$

(10.0)

$\frac{8}{2} \frac{8.0}{720}$ $\frac{83}{33}$ $\frac{82}{26}$ $\frac{75}{19}$ $\frac{94}{16}$ $\frac{96}{11}$ $\frac{88}{5}$ $\frac{8.6}{+1.4}$ $\frac{8.6}{7}$ $\frac{9.5}{11}$ $\frac{9.5}{18}$ $\frac{8.3}{20}$ $\frac{5.5}{24}$ $\frac{5.7}{33}$ $\frac{6}{2} \frac{5.4}{746}$

(5.0)

ON HUB 50 R. STR 33790

$\frac{3}{1} \frac{7.2}{78}$ $\frac{4}{1} \frac{7.0}{7.16}$ $\frac{7.2}{33}$ $\frac{7.4}{14}$ $\frac{5.3}{8}$ $\frac{5.1}{70.3}$ $\frac{5.2}{10}$ $\frac{5.2}{22}$ $\frac{4.7}{33}$ $\frac{2}{2} \frac{5.2}{70.2}$

(5.1)

$\frac{6}{1} \frac{7.2}{-21}$ $\frac{7.8}{33}$ $\frac{7.4}{20}$ $\frac{7.5}{13}$ $\frac{6.1}{7}$ $\frac{5.1}{3}$ $\frac{5.0}{70.1}$ $\frac{5.1}{10}$ $\frac{5.1}{20}$ $\frac{4.7}{33}$ $\frac{0}{2} \frac{5.1}{0.0}$ $\frac{5}{1} \frac{5.3}{-0.2}$

(4.8)

$\frac{9}{6} \frac{7.4}{-26}$ $\frac{8.2}{33}$ $\frac{7.4}{21}$ $\frac{7.2}{13}$ $\frac{5.4}{5}$ $\frac{5.3}{-0.5}$ $\frac{5.2}{10}$ $\frac{5.4}{14}$ $\frac{4.8}{33}$ $\frac{5}{0} \frac{5.3}{-0.5}$ $\frac{4}{1} \frac{5.5}{-0.7}$

(4.5)

$\frac{8}{1} \frac{8.4}{-39}$ $\frac{10.1}{33}$ $\frac{9.2}{26}$ $\frac{8.3}{16}$ $\frac{7.5}{11}$ $\frac{6.1}{7}$ $\frac{5.4}{-1.1}$ $\frac{5.6}{11}$ $\frac{5.7}{15}$ $\frac{5.7}{28}$ $\frac{5.7}{33}$ $\frac{9}{1} \frac{5.8}{-7.3}$

(4.2)

$\frac{9}{1} \frac{8.6}{-44}$ $\frac{10.0}{33}$ $\frac{8.9}{22}$ $\frac{8.3}{14}$ $\frac{7.5}{7}$ $\frac{5.7}{4}$ $\frac{5.6}{7.4}$ $\frac{5.6}{10}$ $\frac{5.5}{17}$ $\frac{5.4}{28}$ $\frac{5.2}{33}$ $\frac{8}{1} \frac{5.4}{-1.2}$ $\frac{2}{1} \frac{5.7}{-1.5}$

(3.9)

$\frac{5}{0} \frac{8.9}{-50}$ $\frac{10.2}{33}$ $\frac{9.1}{23}$ $\frac{8.4}{13}$ $\frac{5.7}{5}$ $\frac{5.2}{-1.3}$ $\frac{5.2}{5}$ $\frac{5.2}{9}$ $\frac{5.0}{14}$ $\frac{4.8}{24}$ $\frac{4.5}{33}$ $\frac{0}{1} \frac{4.9}{-7.0}$

(3.6)

$\frac{8}{1} \frac{7.5}{-39}$ $\frac{9.2}{33}$ $\frac{8.1}{25}$ $\frac{7.5}{23}$ $\frac{7.2}{15}$ $\frac{5.6}{10}$ $\frac{4.6}{3}$ $\frac{4.6}{-1.0}$ $\frac{4.2}{4}$ $\frac{3.8}{7}$ $\frac{3.6}{15}$ $\frac{3.0}{22}$ $\frac{9}{33} \frac{3.7}{-0.1}$ $\frac{1}{1} \frac{3.7}{-0.1}$

STA.	+	H. I.	-	ELEV	BR. ROD
		720.03 ✓			
+50			✓	16.7 ✓	33
	57.21	722.97 ✓	2.27	917.76 ✓	
38			✓	16.9 ✓	61
+50			✓	17.2 ✓	5.8
B.M.	1.81	723.44 ✓	1.32	921.65 ✓	921.63 ✓
39			✓	17.4 ✓	60
+50			✓	17.6 ✓	5.8
40			✓	17.8 ✓	5.4
+50			✓	18.0 ✓	5.4
41			✓	18.0 ✓	5.4
+50			✓	18.0 ✓	5.4
42			✓	17.7 ✓	5.7
+50			✓	17.2 ✓	6.2
43			✓	16.5 ✓	6.9

LT

RT

5-15-30

(33)

$\frac{0}{17} \frac{60}{27}$	$\frac{84}{33}$	$\frac{75}{27}$	$\frac{62}{23}$	$\frac{59}{14}$	$\frac{35}{10}$	$\frac{40}{8}$	$\frac{35}{4}$	$\frac{35}{0.2}$	$\frac{3.4}{6}$	$\frac{3.0}{7}$	$\frac{3.3}{16}$	$\frac{0.9}{18}$	$\frac{1.3}{20}$	$\frac{0.5}{25}$	$\frac{0.3}{33}$	$\frac{0.8}{2.25}$
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(61)

$\frac{0}{13} \frac{61}{0.0}$	$\frac{111}{33}$	$\frac{94}{24}$	$\frac{79}{16}$	$\frac{53}{10}$	$\frac{57}{9}$	$\frac{5.6}{10.5}$	$\frac{5.4}{7}$	$\frac{5.3}{11}$	$\frac{5.5}{15}$	$\frac{4.3}{17}$	$\frac{2.2}{20}$	$\frac{2.5}{22}$	$\frac{2.0}{23}$	$\frac{2.2}{2.39}$
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(58)

$\frac{8}{1} \frac{27}{37}$	$\frac{128}{33}$	$\frac{120}{30}$	$\frac{110}{27}$	$\frac{91}{17}$	$\frac{51}{6}$	$\frac{5.0}{10.8}$	$\frac{4.9}{8}$	$\frac{4.2}{16}$	$\frac{2.7}{23}$	$\frac{2.1}{33}$	$\frac{0}{2} \frac{28}{7.50}$
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(63)

SPK IN F. POST RT. ST. 39740

$\frac{5}{2} \frac{17}{57}$	$\frac{136}{33}$	$\frac{122}{27}$	$\frac{111}{17}$	$\frac{62}{7}$	$\frac{5.5}{5}$	$\frac{5.4}{10.4}$	$\frac{5.2}{9}$	$\frac{4.6}{23}$	$\frac{3.7}{33}$	$\frac{4}{2} \frac{46}{7.14}$
-----------------------------	------------------	------------------	------------------	----------------	-----------------	--------------------	-----------------	------------------	------------------	-------------------------------

(58)

$\frac{2}{1} \frac{15}{55}$	$\frac{131}{23}$	$\frac{118}{27}$	$\frac{109}{17}$	$\frac{86}{10}$	$\frac{5.4}{2}$	$\frac{5.3}{10.5}$	$\frac{5.5}{10}$	$\frac{5.8}{21}$	$\frac{4.2}{33}$	$\frac{0}{2} \frac{5.5}{10.8}$
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(510)

$\frac{9}{17} \frac{102}{46}$	$\frac{120}{33}$	$\frac{109}{27}$	$\frac{98}{18}$	$\frac{79}{8}$	$\frac{5.4}{3}$	$\frac{5.4}{10.2}$	$\frac{5.2}{9}$	$\frac{5.4}{13}$	$\frac{5.0}{19}$	$\frac{4.8}{24}$	$\frac{4.2}{33}$	$\frac{0}{2} \frac{4.8}{10.8}$
-------------------------------	------------------	------------------	-----------------	----------------	-----------------	--------------------	-----------------	------------------	------------------	------------------	------------------	--------------------------------

(5.1)

$\frac{6}{1} \frac{78}{24}$	$\frac{95}{33}$	$\frac{82}{23}$	$\frac{70}{11}$	$\frac{5.5}{8}$	$\frac{5.3}{5}$	$\frac{5.1}{10.3}$	$\frac{5.1}{8}$	$\frac{4.4}{17}$	$\frac{3.5}{33}$	$\frac{0}{2} \frac{4.2}{11.2}$
-----------------------------	-----------------	-----------------	-----------------	-----------------	-----------------	--------------------	-----------------	------------------	------------------	--------------------------------

(5.1)

$\frac{6}{1} \frac{74}{20}$	$\frac{93}{33}$	$\frac{83}{24}$	$\frac{68}{11}$	$\frac{5.3}{5}$	$\frac{5.1}{10.3}$	$\frac{5.0}{8}$	$\frac{4.8}{15}$	$\frac{4.5}{25}$	$\frac{4.0}{33}$	$\frac{0}{2} \frac{4.6}{10.8}$
-----------------------------	-----------------	-----------------	-----------------	-----------------	--------------------	-----------------	------------------	------------------	------------------	--------------------------------

(5.1)

$\frac{8}{14} \frac{66}{12}$	$\frac{1}{9} \frac{73}{19}$	$\frac{84}{33}$	$\frac{73}{22}$	$\frac{66}{11}$	$\frac{5.1}{6}$	$\frac{4.9}{10.5}$	$\frac{5.1}{7}$	$\frac{4.8}{14}$	$\frac{4.5}{22}$	$\frac{3.8}{33}$	$\frac{0}{2} \frac{4.5}{10.9}$
------------------------------	-----------------------------	-----------------	-----------------	-----------------	-----------------	--------------------	-----------------	------------------	------------------	------------------	--------------------------------

(5.1)

$\frac{13}{13} \frac{58}{0.1}$	$\frac{8}{0} \frac{65}{0.8}$	$\frac{73}{33}$	$\frac{64}{19}$	$\frac{59}{11}$	$\frac{4.8}{4}$	$\frac{4.6}{11.1}$	$\frac{4.4}{7}$	$\frac{4.9}{8}$	$\frac{4.5}{9}$	$\frac{4.1}{20}$	$\frac{3.5}{33}$	$\frac{0}{2} \frac{4.0}{11.7}$
--------------------------------	------------------------------	-----------------	-----------------	-----------------	-----------------	--------------------	-----------------	-----------------	-----------------	------------------	------------------	--------------------------------

(6.1)

$\frac{17}{2} \frac{155}{10.7}$	$\frac{61}{33}$	$\frac{55}{30}$	$\frac{53}{12}$	$\frac{58}{10}$	$\frac{5.1}{4}$	$\frac{5.0}{11.2}$	$\frac{4.9}{4}$	$\frac{5.2}{14}$	$\frac{5.0}{29}$	$\frac{5.5}{33}$	$\frac{0}{2} \frac{5.1}{11.1}$
---------------------------------	-----------------	-----------------	-----------------	-----------------	-----------------	--------------------	-----------------	------------------	------------------	------------------	--------------------------------

(6.1)

$\frac{2}{1} \frac{46.5}{10.4}$	$\frac{67}{33}$	$\frac{66}{17}$	$\frac{65}{13}$	$\frac{69}{11}$	$\frac{6.5}{5}$	$\frac{6.4}{10.5}$	$\frac{6.7}{4}$	$\frac{6.4}{4}$	$\frac{6.7}{10}$	$\frac{7.1}{15}$	$\frac{6.7}{33}$	$\frac{0}{2} \frac{6.9}{0.0}$
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STA	+	H.I.	-	ELEV	dr. Rod
		923.44			
	+50		✓	15.2	78
44			✓	14.6	88
	2.20	916.16	9.48	913.96	
	+50		✓	13.7	2.5
45			✓	12.9	3.3
	+50		✓	12.1	4.1
46			✓	11.4	48
	+50		✓	10.8	54
47			✓	10.3	5.9
	+50		✓	09.8	6.4
48			✓	09.2	7.0
	3.72	913.53	6.35	909.81	
	+50		✓	08.8	4.7
49			✓	08.2	5.3

LT

RT

5-15-30

73
 $\frac{8}{0/22} \frac{85}{33} \frac{72}{27} \frac{76}{18} \frac{76}{12} \frac{81}{10} \frac{79}{8} \frac{80}{0.2} \frac{78}{5} \frac{8.5}{10} \frac{8.6}{17} \frac{8.4}{33} \frac{5/8.3}{0/-0.5}$

74
 $\frac{9}{13/0.6} \frac{9/9.4}{0/-0.6} \frac{8/9.6}{0/-0.8} \frac{105}{33} \frac{104}{26} \frac{96}{19} \frac{74}{15} \frac{76}{11} \frac{77}{6} \frac{77}{0.9} \frac{76}{3} \frac{9.7}{7} \frac{10.1}{15} \frac{10.3}{33} \frac{6/10.2}{9/14} \frac{7/10.1}{4/-1.3}$

75
 $\frac{5/3.9}{0/-14} \frac{4.8}{33} \frac{5.3}{28} \frac{4.1}{20} \frac{3.9}{15} \frac{3.7}{7} \frac{3.8}{4} \frac{3.7}{-1.3} \frac{4.2}{4} \frac{4.8}{9} \frac{4.8}{14} \frac{4.8}{33} \frac{6/4.8}{0/-2.3}$

76
 $\frac{6/5.5}{0/-22} \frac{6.5}{33} \frac{6.6}{24} \frac{5.6}{20} \frac{5.8}{14} \frac{4.9}{7} \frac{4.7}{4} \frac{4.8}{-1.5} \frac{4.9}{3} \frac{5.6}{5} \frac{6.4}{16} \frac{5.9}{26} \frac{5.8}{33} \frac{5/6.3}{7/3.0}$

77
 $\frac{6/6.5}{0/-24} \frac{7.2}{33} \frac{7.1}{27} \frac{7.0}{19} \frac{6.6}{18} \frac{6.7}{14} \frac{5.4}{7} \frac{5.2}{4} \frac{5.4}{-1.3} \frac{5.3}{2} \frac{5.4}{5} \frac{7.8}{7} \frac{7.8}{20} \frac{7.8}{33} \frac{5/7.8}{8/3.7}$

78
 $\frac{0/6.8}{0/-20} \frac{7.4}{33} \frac{6.8}{22} \frac{6.7}{14} \frac{6.2}{10} \frac{5.6}{8} \frac{5.6}{-0.8} \frac{5.8}{4} \frac{6.2}{7} \frac{8.0}{10} \frac{8.2}{21} \frac{8.2}{33} \frac{9/8.1}{0/3.3}$

79
 $\frac{5/6.9}{0/-15} \frac{7.2}{33} \frac{7.2}{29} \frac{6.9}{20} \frac{6.5}{18} \frac{6.6}{15} \frac{6.2}{9} \frac{5.9}{8} \frac{6.1}{-0.5} \frac{7.6}{12} \frac{7.8}{15} \frac{7.5}{18} \frac{8.2}{28} \frac{8.0}{33} \frac{6/7.7}{0/2.5}$

80
 $\frac{1/6.4}{0/-0.5} \frac{0/6.9}{0/-10} \frac{6.9}{33} \frac{7.2}{24} \frac{6.9}{19} \frac{6.2}{11} \frac{6.7}{9} \frac{6.4}{4} \frac{6.2}{-0.3} \frac{6.3}{5} \frac{6.7}{10} \frac{8.0}{15} \frac{8.2}{22} \frac{8.5}{33} \frac{5/8.1}{0/2.2}$

81
 $\frac{5/6.9}{0/-0.5} \frac{6.8}{33} \frac{6.7}{25} \frac{6.8}{16} \frac{6.3}{11} \frac{6.9}{8} \frac{6.5}{-0.1} \frac{6.8}{4} \frac{7.5}{11} \frac{8.0}{14} \frac{7.4}{18} \frac{7.3}{33} \frac{8/7.6}{0/-7.2}$

82
 $\frac{0/7.0}{0/-0.0} \frac{0/6.8}{0/10.2} \frac{7.2}{33} \frac{6.7}{19} \frac{7.1}{18} \frac{6.8}{10} \frac{7.3}{8} \frac{7.1}{4} \frac{6.8}{10.2} \frac{6.9}{8} \frac{7.2}{9} \frac{7.3}{12} \frac{6.8}{21} \frac{6.8}{33} \frac{1/6.7}{0/10.1} \frac{3/7.2}{0/-0.2}$

83
 $\frac{4/4.3}{0/10.4} \frac{4.2}{33} \frac{4.6}{25} \frac{3.8}{18} \frac{4.3}{13} \frac{4.9}{10} \frac{4.6}{6} \frac{4.3}{10.4} \frac{4.4}{7} \frac{4.9}{9} \frac{4.9}{15} \frac{3.7}{17} \frac{3.4}{24} \frac{3.4}{33} \frac{0/4.7}{0/11.0}$

84
 $\frac{2/3.1}{0/12.2} \frac{3.5}{33} \frac{3.4}{20} \frac{2.9}{18} \frac{3.2}{13} \frac{5.2}{8} \frac{4.7}{10.6} \frac{4.9}{7} \frac{5.6}{10} \frac{5.0}{14} \frac{6.4}{17} \frac{2.3}{21} \frac{2.1}{33} \frac{9/6.4}{0/12.9}$

STA.	+	H.I.	-	FLEX	CR. FOOT
		713.53 ✓			
+50			✓	07.5	6.0
50			✓	06.4	7.1
+50			✓	05.3	8.2
51			✓	03.8	9.7
+50			✓	02.2	11.3
	2.29	902.58 ✓	13.24	900.29 ✓	
52			✓	00.4 ✓	2.2
+50			✓	98.7 ✓	3.9
53			✓	97.2	5.4
+50			✓	96.3	6.3
54			✓	95.9	6.7
+33				96.0	6.6
+46				96.15	6.4

LT.

PT. 5-15-30

(6)

$$\begin{array}{r} 7/3.3 \quad 3.5 \quad 3.4 \quad 3.3 \quad 3.8 \quad 5.8 \quad 5.5 \quad 5.6 \quad 6.1 \quad 4.7 \quad 2.4 \quad 2.3 \quad 2.5 \quad 5/3.5 \\ 2/12.7 \quad 33 \quad 28 \quad 17 \quad 11 \quad 8 \quad 10.5 \quad 8 \quad 12 \quad 14 \quad 16 \quad 20 \quad 33 \quad 2/12.5 \end{array}$$

(7)

$$\begin{array}{r} 9/4.2 \quad 4.7 \quad 4.3 \quad 4.6 \quad 4.4 \quad 7.0 \quad 6.7 \quad 7.0 \quad 7.3 \quad 5.5 \quad 3.5 \quad 3.4 \quad 3.3 \quad 9/3.2 \\ 2/12.9 \quad 33 \quad 16 \quad 13 \quad 10 \quad 6 \quad 10.4 \quad 10 \quad 11 \quad 14 \quad 16 \quad 22 \quad 23 \quad 2/12.9 \end{array}$$

(8)

$$\begin{array}{r} 6/5.6 \quad 5.5 \quad 5.6 \quad 5.7 \quad 6.1 \quad 8.4 \quad 8.2 \quad 8.5 \quad 4.9 \quad 5.1 \quad 5.4 \quad 5.3 \quad 4/5.1 \\ 2/12.6 \quad 33 \quad 24 \quad 14 \quad 10 \quad 7 \quad 0.0 \quad 11 \quad 15 \quad 21 \quad 29 \quad 33 \quad 2/12.1 \end{array}$$

(9)

$$\begin{array}{r} 0/7.7 \quad 7.4 \quad 7.9 \quad 8.0 \quad 8.4 \quad 10.2 \quad 9.9 \quad 10.5 \quad 9.4 \quad 7.8 \quad 8.1 \quad 8.3 \quad 7/8.0 \\ 2/12.0 \quad 33 \quad 20 \quad 13 \quad 10 \quad 7 \quad 0.2 \quad 11 \quad 13 \quad 15 \quad 21 \quad 33 \quad 2/11.7 \end{array}$$

(10)

$$\begin{array}{r} 4/7.9 \quad 9.6 \quad 9.8 \quad 9.9 \quad 10.7 \quad 11.7 \quad 11.6 \quad 11.8 \quad 12.0 \quad 10.8 \quad 11.5 \quad 12.0 \quad 12.2 \quad 4/11.4 \\ 2/11.9 \quad 33 \quad 24 \quad 16 \quad 9 \quad 7 \quad 0.3 \quad 10 \quad 11 \quad 15 \quad 21 \quad 29 \quad 33 \quad 2/-0.1 \end{array}$$

(11)

$$\begin{array}{r} 0/3.2 \quad 1.3 \quad 2.0 \quad 2.2 \quad 1.7 \quad 2.6 \quad 2.4 \quad 2.3 \quad 2.4 \quad 3.9 \quad 4.9 \quad 5.5 \quad 5.2 \quad 0/4.9 \\ 2/0.0 \quad 33 \quad 27 \quad 17 \quad 11 \quad 10 \quad 8 \quad 0.1 \quad 9 \quad 13 \quad 17 \quad 22 \quad 33 \quad 1/-2.7 \end{array}$$

(12)

$$\begin{array}{r} 8/5.8 \quad 5.9 \quad 6.2 \quad 6.3 \quad 5.1 \quad 4.0 \quad 4.0 \quad 4.3 \quad 8.9 \quad 9.6 \quad 9.8 \quad 4/7.5 \\ 15/1.9 \quad 33 \quad 27 \quad 20 \quad 13 \quad 7 \quad 0.1 \quad 8 \quad 16 \quad 24 \quad 33 \quad 2/-3.2 \end{array}$$

(13)

$$\begin{array}{r} 0/8.1 \quad 7.7 \quad 7.9 \quad 8.1 \quad 5.3 \quad 5.2 \quad 5.4 \quad 10.5 \quad 11.1 \quad 10.9 \quad 2/10.9 \\ 12/-2.7 \quad 33 \quad 21 \quad 14 \quad 8 \quad 10.2 \quad 6 \quad 15 \quad 24 \quad 33 \quad 2/-5.5 \end{array}$$

(14)

$$\begin{array}{r} 7/10.1 \quad 10.1 \quad 10.0 \quad 9.8 \quad 6.0 \quad 5.9 \quad 6.1 \quad 10.1 \quad 10.7 \quad 10.9 \quad 7/10.8 \\ 13/3.8 \quad 33 \quad 24 \quad 16 \quad 9 \quad 10.4 \quad 5 \quad 11 \quad 21 \quad 33 \quad 9/-4.5 \end{array}$$

(15)

$$\begin{array}{r} 14/7.6 \quad 7/7.9 \quad 7.9 \quad 7.9 \quad 7.8 \quad 6.4 \quad 6.3 \quad 6.7 \quad 9.2 \quad 9.8 \quad 10.4 \quad 10.7 \quad 9/10.0 \\ 14/-0.9 \quad 17/12 \quad 33 \quad 25 \quad 15 \quad 10 \quad 10.4 \quad 5 \quad 11 \quad 14 \quad 23 \quad 33 \quad 17/3.3 \end{array}$$

(16)

$$\begin{array}{r} 0/6.6 \quad 6.6 \quad 6.6 \quad 6.8 \quad 6.7 \quad 4.1 \quad 6.4 \quad 6.8 \quad 8.8 \quad 10.2 \quad 10.4 \quad 7/9.6 \\ 2/0.0 \quad 33 \quad 30 \quad 12 \quad 14 \quad 4 \quad 10.2 \quad 8 \quad 13 \quad 24 \quad 33 \quad 17/3.0 \end{array}$$

(17)

$$\begin{array}{r} 6.3 \quad 6.2 \quad 7.0 \\ 33 \quad \quad 33 \end{array}$$

STA	+	H.I.	-	ELEV	BR. POD
		902.58			
757 ²					
	6.47	902.92	6.13	896.45	
B.M.			1.80	901.12	901.17

LT.

RT.

5-15-30

 $\frac{5.7}{33}$ $\frac{6.1}{33}$ $\frac{6.6}{33}$

SPK IN T.P. 130 LT. STA 54 + 30.

Sta.	+	H.I.	-	Elev.
B.M.	6.50	924.53 ✓		918.03
0+00				
B.M.			1.46	923.07 ✓
+14				
+17				
+40				
1				
+50				
2				
+50				
3				
+50				
4				
T.P.	1.83	915.20 ✓	11.16	913.37 ✓
+50				

June 18-30 Left

±

Right

on RR 50' Rt Sta. 0 + 30 (3.5)

$\frac{2.1}{50}$	$\frac{2.5}{25}$	2.9	$\frac{3.5}{25}$	$\frac{4.0}{50}$
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spike in 18" Oak 45' Lt Sta 0 + 90

$\frac{3.0}{33}$	$\frac{3.1}{16}$	(3.8)	$\frac{3.5}{16}$	$\frac{4.1}{33}$
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$\frac{3.4}{33}$	$\frac{3.1}{15}$	(3.7)	$\frac{3.6}{14}$	$\frac{4.0}{30}$	$\frac{6.4}{34}$
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$\frac{3.0}{33}$	$\frac{3.3}{23}$	$\frac{5.5}{20}$	$\frac{5.3}{16}$	$\frac{3.9}{14}$	(3.9)	$\frac{3.8}{14}$	$\frac{6.4}{18}$	$\frac{8.1}{33}$
------------------	------------------	------------------	------------------	------------------	-------	------------------	------------------	------------------

$\frac{2.7}{33}$	$\frac{3.4}{23}$	$\frac{6.4}{20}$	$\frac{6.2}{16}$	$\frac{3.5}{13}$	(4.1)	$\frac{4.5}{13}$	$\frac{8.3}{19}$	$\frac{9.5}{33}$
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$\frac{4.0}{33}$	$\frac{4.4}{22}$	$\frac{7.1}{20}$	$\frac{7.0}{16}$	$\frac{5.0}{13}$	(5.0)	$\frac{5.0}{13}$	$\frac{7.8}{17}$	$\frac{9.1}{33}$
------------------	------------------	------------------	------------------	------------------	-------	------------------	------------------	------------------

$\frac{4.5}{33}$	$\frac{4.5}{23}$	$\frac{7.8}{20}$	$\frac{7.7}{16}$	$\frac{5.7}{13}$	(6.5)	$\frac{6.0}{13}$	$\frac{7.6}{17}$	$\frac{8.5}{33}$
------------------	------------------	------------------	------------------	------------------	-------	------------------	------------------	------------------

$\frac{6.0}{33}$	$\frac{6.8}{21}$	$\frac{8.2}{20}$	$\frac{8.0}{16}$	$\frac{6.4}{13}$	(6.7)	$\frac{6.4}{13}$	$\frac{8.0}{16}$	$\frac{8.2}{19}$	$\frac{6.7}{21}$	$\frac{6.5}{33}$
------------------	------------------	------------------	------------------	------------------	-------	------------------	------------------	------------------	------------------	------------------

$\frac{6.6}{33}$	$\frac{6.2}{25}$	$\frac{7.0}{24}$	$\frac{7.7}{21}$	$\frac{9.3}{20}$	$\frac{9.1}{16}$	(7.7)	$\frac{7.5}{13}$	$\frac{9.1}{16}$	$\frac{9.3}{19}$	$\frac{5.1}{24}$	$\frac{4.8}{33}$
------------------	------------------	------------------	------------------	------------------	------------------	-------	------------------	------------------	------------------	------------------	------------------

$\frac{4.6}{33}$	$\frac{4.6}{26}$	$\frac{8.0}{24}$	$\frac{8.8}{21}$	$\frac{10.5}{20}$	$\frac{10.5}{16}$	$\frac{8.5}{13}$	(8.5)	$\frac{9.0}{13}$	$\frac{10.5}{15}$	$\frac{10.6}{19}$	$\frac{6.2}{24}$	$\frac{6.6}{33}$
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$\frac{5.4}{33}$	$\frac{5.5}{31}$	$\frac{6.0}{28}$	$\frac{11.0}{23}$	$\frac{11.0}{20}$	$\frac{12.1}{19}$	$\frac{12.1}{16}$	$\frac{10.0}{13}$	(10.1)	$\frac{11.4}{12}$	$\frac{12.0}{15}$	$\frac{12.3}{18}$	$\frac{10.2}{21}$	$\frac{10.7}{33}$
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T.P. Lt

$\frac{1.2}{33}$	$\frac{2.0}{23}$	$\frac{3.3}{23}$	$\frac{3.5}{20}$	$\frac{4.2}{19}$	$\frac{4.1}{16}$	$\frac{2.5}{13}$	(2.5)	$\frac{2.8}{13}$	$\frac{4.3}{15}$	$\frac{4.6}{19}$	$\frac{3.7}{20}$	$\frac{4.2}{33}$
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Sta.	+	H.I. ✓	-	Elev
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915.20

5

+50

6

+50

7

+50

8

+50

9

+50

10

+50

T.P.

11.42

915.50 ✓

11.12

904.08 ✓

Left

L

Right

$$\begin{array}{ccccccc} \frac{4.5}{33} & \frac{5.1}{20} & \frac{5.8}{19} & \frac{5.5}{16} & \frac{3.8}{13} & \frac{3.4}{13} & \frac{5.6}{16} & \frac{6.7}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{4.5}{33} & \frac{6.0}{20} & \frac{6.7}{19} & \frac{6.5}{15} & \frac{5.0}{13} & \frac{5.0}{13} & \frac{7.5}{17} & \frac{8.5}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{5.2}{33} & \frac{6.5}{20} & \frac{7.3}{19} & \frac{7.3}{16} & \frac{5.7}{13} & \frac{5.3}{13} & \frac{8.3}{18} & \frac{9.0}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{4.0}{33} & \frac{5.0}{22} & \frac{7.7}{19} & \frac{7.4}{16} & \frac{6.2}{13} & \frac{6.4}{13} & \frac{8.3}{17} & \frac{8.7}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{2.1}{33} & \frac{3.3}{24} & \frac{8.4}{21} & \frac{8.6}{16} & \frac{6.6}{13} & \frac{6.4}{14} & \frac{9.0}{19} & \frac{9.6}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{2.6}{33} & \frac{4.2}{23} & \frac{8.9}{19} & \frac{8.9}{15} & \frac{7.2}{13} & \frac{7.0}{14} & \frac{9.7}{18} & \frac{10.5}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{4.0}{33} & \frac{6.0}{22} & \frac{9.1}{20} & \frac{9.0}{16} & \frac{7.2}{13} & \frac{7.1}{13} & \frac{10.1}{18} & \frac{10.8}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{3.5}{33} & \frac{4.5}{24} & \frac{9.5}{19} & \frac{9.5}{15} & \frac{7.7}{13} & \frac{7.4}{13} & \frac{9.6}{16} & \frac{10.2}{20} & \frac{9.6}{21} & \frac{10.1}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{4.0}{33} & \frac{5.0}{24} & \frac{9.7}{20} & \frac{9.6}{16} & \frac{7.8}{13} & \frac{7.9}{13} & \frac{9.5}{16} & \frac{9.7}{19} & \frac{8.5}{21} & \frac{8.4}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{5.4}{33} & \frac{8.0}{22} & \frac{10.0}{19} & \frac{10.0}{16} & \frac{8.2}{13} & \frac{8.4}{13} & \frac{10.2}{15} & \frac{10.2}{19} & \frac{8.2}{21} & \frac{8.4}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{4.7}{33} & \frac{5.2}{27} & \frac{8.8}{22} & \frac{10.8}{19} & \frac{10.4}{15} & \frac{8.4}{12} & \frac{8.9}{13} & \frac{10.5}{15} & \frac{10.8}{18} & \frac{7.2}{22} & \frac{7.3}{33} \end{array}$$

$$\begin{array}{ccccccc} \frac{4.8}{33} & \frac{5.3}{27} & \frac{8.8}{23} & \frac{11.6}{19} & \frac{11.5}{16} & \frac{9.3}{13} & \frac{9.7}{13} & \frac{11.5}{16} & \frac{11.6}{20} & \frac{5.2}{26} & \frac{5.0}{33} \end{array}$$

Sta.	+	H.I.	-	Elev
		915.50		

11

+50

T.P.	4.08	908.16	11.42	904.08
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12

+25

T.P.	0.46	901.02	7.60	900.56
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+50

+95 X Drain - 24" x 56'

13

+50

14

B.M.	0.95	901.05	0.95	900.07	900.10
------	------	--------	------	--------	--------

+50

+72

15

+50

T.P.	0.08	889.70	11.43	889.62
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Left L Right

$\frac{4.8}{33}$	$\frac{5.7}{28}$	$\frac{9.8}{22}$	$\frac{12.5}{19}$	$\frac{12.5}{16}$	$\frac{10.6}{13}$	$\frac{10.4}{13}$	$\frac{11.0}{13}$	$\frac{12.8}{15}$	$\frac{12.8}{19}$	$\frac{2.5}{30}$	$\frac{2.6}{33}$
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$\frac{5.0}{33}$	$\frac{5.2}{29}$	$\frac{9.8}{24}$	$\frac{14.6}{21}$	$\frac{14.6}{17}$	$\frac{12.0}{13}$	$\frac{11.8}{13}$	$\frac{12.2}{13}$	$\frac{14.2}{16}$	$\frac{14.2}{20}$	$\frac{0.9}{31}$	$\frac{0.9}{33}$
------------------	------------------	------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	------------------	------------------

$\frac{2.4}{33}$	$\frac{3.0}{27}$	$\frac{5.5}{24}$	$\frac{8.8}{21}$	$\frac{8.7}{17}$	$\frac{6.2}{13}$	$\frac{6.0}{13}$	$\frac{6.6}{13}$	$\frac{8.7}{16}$	$\frac{8.6}{19}$	$\frac{1.3}{27}$	$\frac{1.7}{33}$
------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{9.2}{33}$	$\frac{10.1}{28}$	$\frac{9.6}{17}$	$\frac{7.0}{12}$	$\frac{6.9}{12}$	$\frac{7.1}{12}$	$\frac{9.2}{15}$	$\frac{9.8}{18}$	$\frac{8.0}{20}$	$\frac{8.5}{33}$
------------------	-------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{8.6}{33}$	$\frac{8.8}{25}$	$\frac{0.4}{13}$	$\frac{0.6}{12}$	$\frac{6.6}{20}$	$\frac{6.6}{33}$
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13.6 ← Flowline → 13.5
30 26

$\frac{12.2}{33}$	$\frac{11.3}{27}$	$\frac{2.9}{13}$	$\frac{2.8}{13}$	$\frac{3.1}{13}$	$\frac{12.8}{30}$	$\frac{13.5}{33}$
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$\frac{10.7}{33}$	$\frac{10.4}{22}$	$\frac{4.3}{19}$	$\frac{4.1}{13}$	$\frac{4.5}{13}$	$\frac{12.7}{25}$	$\frac{14.2}{33}$
-------------------	-------------------	------------------	------------------	------------------	-------------------	-------------------

$\frac{4.5}{33}$	$\frac{5.5}{22}$	$\frac{6.9}{17}$	$\frac{5.9}{13}$	$\frac{5.8}{13}$	$\frac{6.1}{13}$	$\frac{8.4}{17}$	$\frac{8.5}{21}$	$\frac{7.3}{22}$	$\frac{9.2}{33}$
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spike in 8" Oct 50 Lt Sta 14+50

$\frac{1.6}{33}$	$\frac{1.6}{28}$	$\frac{10.5}{19}$	$\frac{10.4}{15}$	$\frac{7.8}{13}$	$\frac{8.0}{13}$	$\frac{9.7}{16}$	$\frac{9.8}{20}$	$\frac{8.3}{21}$	$\frac{8.3}{27}$	$\frac{4.0}{33}$
------------------	------------------	-------------------	-------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{2.2}{33}$	$\frac{2.2}{28}$	$\frac{10.5}{19}$	$\frac{11.0}{16}$	$\frac{8.4}{13}$	$\frac{8.2}{13}$	$\frac{8.2}{16}$	$\frac{10.5}{20}$	$\frac{8.6}{21}$	$\frac{8.2}{26}$	$\frac{3.6}{33}$
------------------	------------------	-------------------	-------------------	------------------	------------------	------------------	-------------------	------------------	------------------	------------------

$\frac{1.4}{33}$	$\frac{7.1}{23}$	$\frac{11.8}{19}$	$\frac{11.7}{16}$	$\frac{9.5}{13}$	$\frac{9.2}{13}$	$\frac{9.2}{15}$	$\frac{11.1}{19}$	$\frac{11.1}{21}$	$\frac{9.1}{24}$	$\frac{8.6}{34}$
------------------	------------------	-------------------	-------------------	------------------	------------------	------------------	-------------------	-------------------	------------------	------------------

$\frac{8.2}{33}$	$\frac{9.5}{24}$	$\frac{13.0}{19}$	$\frac{13.0}{16}$	$\frac{11.2}{13}$	$\frac{10.9}{13}$	$\frac{11.3}{15}$	$\frac{13.0}{18}$	$\frac{13.1}{19}$	$\frac{12.3}{23}$	$\frac{11.3}{33}$
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Sta.	+	H.I.	-	Elev
		889.70		

16

+50

17

+50

T.P.	6.85	885.54	11.01	878.69	
B.M.	7.53	889.32	3.76	881.78	881.79

18

June 19-30

+50

19

+50

20

+50

21

+50

Left

L

Right

$\frac{6.8}{33}$	$\frac{4.0}{19}$	$\frac{1.5}{13}$	(1.4) 1.5	$\frac{1.8}{13}$	$\frac{3.6}{17}$	$\frac{3.2}{23}$	$\frac{1.7}{25}$	$\frac{0.4}{33}$
------------------	------------------	------------------	--------------	------------------	------------------	------------------	------------------	------------------

$\frac{9.8}{33}$	$\frac{8.6}{22}$	$\frac{3.4}{13}$	(1.1) 3.3	$\frac{3.6}{13}$	$\frac{6.7}{20}$	$\frac{7.0}{26}$	$\frac{3.2}{30}$	$\frac{2.7}{33}$
------------------	------------------	------------------	--------------	------------------	------------------	------------------	------------------	------------------

$\frac{10.7}{33}$	$\frac{9.7}{21}$	$\frac{5.2}{13}$	(1.8) 5.0	$\frac{5.4}{13}$	$\frac{8.6}{20}$	$\frac{9.0}{24}$	$\frac{8.3}{25}$	$\frac{7.5}{33}$
-------------------	------------------	------------------	--------------	------------------	------------------	------------------	------------------	------------------

$\frac{12.3}{33}$	$\frac{12.1}{22}$	$\frac{6.7}{13}$	(6.2) 6.5	$\frac{6.6}{13}$	$\frac{10.8}{21}$	$\frac{11.1}{25}$	$\frac{10.4}{26}$	$\frac{9.7}{33}$
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Top of So. End Side Drain 18' Lt Sta. 19+00

spike in 24" Tree So' Lt Sta. 21+50

$\frac{12.8}{33}$	$\frac{12.3}{21}$	$\frac{7.5}{13}$	(7.2) 7.3	$\frac{7.3}{13}$	$\frac{11.2}{20}$	$\frac{11.5}{24}$	$\frac{11.0}{25}$	$\frac{10.5}{33}$
-------------------	-------------------	------------------	--------------	------------------	-------------------	-------------------	-------------------	-------------------

$\frac{12.5}{33}$	$\frac{12.1}{20}$	$\frac{8.1}{13}$	(8.1) 8.0	$\frac{8.4}{13}$	$\frac{11.4}{18}$	$\frac{11.6}{22}$	$\frac{10.3}{23}$	$\frac{9.7}{33}$
-------------------	-------------------	------------------	--------------	------------------	-------------------	-------------------	-------------------	------------------

$\frac{10.5}{33}$	$\frac{10.5}{23}$	$\frac{11.2}{22}$	$\frac{11.0}{16}$	$\frac{9.1}{13}$	(8.1) 8.6	$\frac{8.8}{13}$	$\frac{11.8}{20}$	$\frac{11.8}{23}$	$\frac{9.8}{25}$	$\frac{9.6}{33}$
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$\frac{8.6}{33}$	$\frac{8.6}{26}$	$\frac{11.2}{23}$	$\frac{11.0}{17}$	$\frac{9.2}{13}$	(8.9) 8.8	$\frac{9.5}{13}$	$\frac{12.0}{19}$	$\frac{11.5}{33}$
------------------	------------------	-------------------	-------------------	------------------	--------------	------------------	-------------------	-------------------

$\frac{7.0}{33}$	$\frac{7.8}{24}$	$\frac{10.7}{22}$	$\frac{10.7}{19}$	$\frac{9.0}{13}$	(8.9) 8.9	$\frac{9.5}{13}$	$\frac{12.0}{19}$	$\frac{12.6}{33}$
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$\frac{5.4}{33}$	$\frac{6.6}{25}$	$\frac{11.1}{20}$	$\frac{11.1}{17}$	$\frac{9.1}{13}$	(8.8) 8.9	$\frac{9.5}{13}$	$\frac{12.2}{19}$	$\frac{12.6}{33}$
------------------	------------------	-------------------	-------------------	------------------	--------------	------------------	-------------------	-------------------

$\frac{5.9}{33}$	$\frac{5.9}{26}$	$\frac{11.1}{21}$	$\frac{11.1}{18}$	$\frac{9.1}{13}$	(8.7) 8.8	$\frac{9.2}{13}$	$\frac{11.5}{18}$	$\frac{11.5}{22}$	$\frac{8.6}{25}$	$\frac{8.8}{33}$
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$\frac{7.9}{33}$	$\frac{6.9}{26}$	$\frac{11.2}{22}$	$\frac{11.2}{17}$	$\frac{9.0}{13}$	(6.1) 8.7	$\frac{9.1}{13}$	$\frac{11.7}{18}$	$\frac{11.5}{23}$	$\frac{7.5}{27}$	$\frac{4.1}{33}$
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Sta.	+	H.I.	-	Elev
22		889.32 ✓		
	+50			
23				
T.P.	333	882.90 ✓	9.75	879.57 ✓
	+50			
	+96	X Drain County Ditch = 48" x 40 C.M. (Old)		
24				
	+50			
25				
	+50			
26				
B.M.				878.32
	+50			
27				
	+50			
T.P.	8.08	889.94 ✓	1.04	881.86 ✓

Left

L

Right

$\frac{9.3}{33}$	$\frac{8.6}{25}$	$\frac{11.6}{22}$	$\frac{11.6}{17}$	$\frac{9.2}{13}$	$\frac{8.1}{9.0}$	$\frac{9.4}{13}$	$\frac{11.4}{17}$	$\frac{11.4}{22}$	$\frac{8.2}{25}$	$\frac{1.8}{34}$
------------------	------------------	-------------------	-------------------	------------------	-------------------	------------------	-------------------	-------------------	------------------	------------------

$\frac{10.8}{33}$	$\frac{7.8}{25}$	$\frac{12.1}{22}$	$\frac{12.1}{18}$	$\frac{9.4}{13}$	$\frac{9.1}{9.2}$	$\frac{9.4}{13}$	$\frac{11.6}{16}$	$\frac{11.8}{23}$	$\frac{7.7}{26}$	$\frac{3.3}{33}$
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$\frac{12.5}{33}$	$\frac{11.1}{23}$	$\frac{12.8}{21}$	$\frac{12.5}{17}$	$\frac{9.9}{13}$	$\frac{9.3}{9.3}$	$\frac{9.6}{13}$	$\frac{12.0}{18}$	$\frac{12.1}{22}$	$\frac{9.5}{25}$	$\frac{6.7}{33}$
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$\frac{6.2}{33}$	$\frac{8.2}{26}$	$\frac{7.2}{24}$	$\frac{7.3}{19}$	$\frac{3.8}{13}$	$\frac{2.5}{3.5}$	$\frac{3.6}{13}$	$\frac{6.6}{18}$	$\frac{6.6}{22}$	$\frac{4.0}{26}$	$\frac{4.3}{33}$
------------------	------------------	------------------	------------------	------------------	-------------------	------------------	------------------	------------------	------------------	------------------

$\frac{14.0}{18.4} \leftarrow$ Flow line $\rightarrow \frac{13.0}{20.6}$
 $\frac{9.5}{33}$ $\frac{9.1}{18}$ $\frac{4.8}{13}$ $\frac{4.1}{4.2}$ $\frac{4.2}{13}$ $\frac{8.5}{18}$ $\frac{7.5}{33}$

$\frac{9.0}{33}$	$\frac{8.5}{19}$	$\frac{4.9}{13}$	$\frac{4.1}{4.5}$	$\frac{5.0}{13}$	$\frac{8.5}{17}$	$\frac{9.0}{33}$
------------------	------------------	------------------	-------------------	------------------	------------------	------------------

$\frac{6.7}{33}$	$\frac{8.2}{17}$	$\frac{5.2}{13}$	$\frac{5.1}{4.9}$	$\frac{5.0}{13}$	$\frac{8.4}{18}$	$\frac{8.4}{33}$
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$\frac{8.3}{33}$	$\frac{6.0}{17}$	$\frac{5.1}{13}$	$\frac{5.1}{4.9}$	$\frac{5.3}{13}$	$\frac{8.1}{17}$	$\frac{8.2}{33}$
------------------	------------------	------------------	-------------------	------------------	------------------	------------------

$\frac{7.8}{33}$	$\frac{7.6}{17}$	$\frac{4.6}{13}$	$\frac{4.6}{4.4}$	$\frac{4.6}{13}$	$\frac{7.8}{18}$	$\frac{7.6}{33}$
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Top Mont Sta $26 + 36$ $\frac{3.8}{3.5}$

$\frac{7.1}{33}$	$\frac{6.2}{17}$	$\frac{2.8}{13}$	$\frac{3.5}{13}$	$\frac{6.3}{18}$	$\frac{7.0}{33}$
------------------	------------------	------------------	------------------	------------------	------------------

$\frac{6.8}{33}$	$\frac{6.2}{20}$	$\frac{2.6}{13}$	$\frac{2.5}{2.5}$	$\frac{2.6}{13}$	$\frac{6.4}{19}$	$\frac{6.8}{33}$
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$\frac{6.8}{33}$	$\frac{6.7}{22}$	$\frac{1.2}{13}$	$\frac{0.9}{1.2}$	$\frac{1.4}{13}$	$\frac{6.7}{22}$	$\frac{6.8}{33}$
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Sta. + H.I. -
889.94

28.

+50

29

T.P. 9.96 899.30 0.60 889.34

+50

30

T.P. 8.04 906.37 0.97 898.33

30

+50

31

T.P. 10.14 915.52 0.99 905.38

30+50

31

+50

32

Left

✱

Right

(5.8)

$$\begin{array}{r} 12.0 \\ 33 \end{array} \quad \begin{array}{r} 13.6 \\ 24 \end{array} \quad \begin{array}{r} 6.2 \\ 13 \end{array} \quad 6.0 \quad \begin{array}{r} 6.1 \\ 13 \end{array} \quad \begin{array}{r} 12.5 \\ 23 \end{array} \quad \begin{array}{r} 12.8 \\ 33 \end{array}$$

washed
in

(3.4)

$$\begin{array}{r} 13.6 \\ 33 \end{array} \quad \begin{array}{r} 13.1 \\ 27 \end{array} \quad \begin{array}{r} 9.6 \\ 13 \end{array} \quad 3.4 \quad \begin{array}{r} 3.4 \\ 13 \end{array} \quad \begin{array}{r} 9.3 \\ 22 \end{array} \quad \begin{array}{r} 9.3 \\ 33 \end{array}$$

(0.5)

$$\begin{array}{r} 8.6 \\ 33 \end{array} \quad \begin{array}{r} 8.3 \\ 26 \end{array} \quad \begin{array}{r} 0.6 \\ 13 \end{array} \quad 0.4 \quad \begin{array}{r} 0.5 \\ 13 \end{array} \quad \begin{array}{r} 3.7 \\ 18 \end{array} \quad \begin{array}{r} 4.0 \\ 33 \end{array}$$

(6.6)

$$\begin{array}{r} 12.5 \\ 33 \end{array} \quad \begin{array}{r} 12.1 \\ 26 \end{array} \quad \begin{array}{r} 8.8 \\ 16 \end{array} \quad \begin{array}{r} 6.5 \\ 13 \end{array} \quad 6.3 \quad \begin{array}{r} 6.6 \\ 13 \end{array} \quad \begin{array}{r} 8.3 \\ 17 \end{array} \quad \begin{array}{r} 8.8 \\ 20 \end{array} \quad \begin{array}{r} 8.0 \\ 22 \end{array} \quad \begin{array}{r} 6.7 \\ 24 \end{array} \quad \begin{array}{r} 6.7 \\ 33 \end{array}$$

(3.1)

$$\begin{array}{r} 3.4 \\ 33 \end{array} \quad \begin{array}{r} 1.5 \\ 23 \end{array} \quad \begin{array}{r} 1.6 \\ 19 \end{array} \quad \begin{array}{r} 4.6 \\ 16 \end{array} \quad \begin{array}{r} 3.1 \\ 13 \end{array} \quad 2.8 \quad \begin{array}{r} 3.1 \\ 13 \end{array} \quad \begin{array}{r} 5.8 \\ 17 \end{array} \quad \begin{array}{r} 5.7 \\ 20 \end{array}$$

(10.2)

$$\begin{array}{r} 4.0 \\ 28 \end{array} \quad \begin{array}{r} 3.2 \\ 33 \end{array}$$

(6.7)

$$\begin{array}{r} 4.0 \\ 33 \end{array} \quad \begin{array}{r} 2.6 \\ 26 \end{array} \quad \begin{array}{r} 8.6 \\ 19 \end{array} \quad \begin{array}{r} 8.5 \\ 16 \end{array} \quad \begin{array}{r} 6.5 \\ 13 \end{array} \quad 6.4 \quad \begin{array}{r} 6.6 \\ 13 \end{array} \quad \begin{array}{r} 9.1 \\ 19 \end{array} \quad \begin{array}{r} 9.1 \\ 22 \end{array} \quad \begin{array}{r} 1.6 \\ 26 \end{array}$$

(3.0)

$$\begin{array}{r} 4.8 \\ 19 \end{array} \quad \begin{array}{r} 5.4 \\ 16 \end{array} \quad \begin{array}{r} 3.1 \\ 13 \end{array} \quad 2.9 \quad \begin{array}{r} 3.0 \\ 13 \end{array} \quad \begin{array}{r} 5.8 \\ 17 \end{array} \quad \begin{array}{r} 5.8 \\ 21 \end{array}$$

$$\begin{array}{r} 5.8 \\ 34 \end{array} \quad \begin{array}{r} 5.9 \\ 38 \end{array}$$

$$\begin{array}{r} 8.7 \\ 33 \end{array} \quad \begin{array}{r} 8.0 \\ 26 \end{array}$$

(12.3)

$$\begin{array}{r} 1.7 \\ 33 \end{array} \quad \begin{array}{r} 1.7 \\ 38 \end{array}$$

$$\begin{array}{r} 7.8 \\ 33 \end{array} \quad \begin{array}{r} 6.6 \\ 23 \end{array} \quad \begin{array}{r} 11.5 \\ 19 \end{array} \quad \begin{array}{r} 11.7 \\ 16 \end{array} \quad \begin{array}{r} 9.3 \\ 13 \end{array} \quad 9.1 \quad \begin{array}{r} 9.4 \\ 13 \end{array} \quad \begin{array}{r} 12.0 \\ 17 \end{array} \quad \begin{array}{r} 12.0 \\ 20 \end{array} \quad + \begin{array}{r} 0.1 \\ 32 \end{array} \quad + \begin{array}{r} 0.2 \\ 36 \end{array}$$

(6.4)

$$\begin{array}{r} 3.8 \\ 33 \end{array} \quad \begin{array}{r} 3.1 \\ 24 \end{array} \quad \begin{array}{r} 9.0 \\ 20 \end{array} \quad \begin{array}{r} 9.0 \\ 16 \end{array} \quad \begin{array}{r} 6.8 \\ 13 \end{array} \quad 6.5 \quad \begin{array}{r} 6.9 \\ 13 \end{array} \quad \begin{array}{r} 9.6 \\ 17 \end{array} \quad \begin{array}{r} 9.6 \\ 20 \end{array}$$

+ 141. ✓ - Elev
915.52

32+50

+80

33

+50

T.P. 10.35 924.35 ✓ 1.52 914.00 ✓

32

+50

+80

33

+50

34

+50

35

T.P. 884 922.71 ✓ 10.48 913.87 ✓

Left

L

Right

44

$$\frac{6.8}{19} \quad \frac{6.6}{16} \quad \frac{4.8}{13} \quad \textcircled{2.7} \quad \frac{4.6}{13} \quad \frac{7.3}{17} \quad \frac{7.3}{20}$$

$$\frac{5.6}{20} \quad \frac{5.6}{16} \quad \frac{3.8}{13} \quad \textcircled{2.7} \quad \frac{3.7}{13} \quad \frac{6.0}{16} \quad \frac{5.8}{20}$$

$$\frac{5.2}{20} \quad \frac{5.4}{16} \quad \frac{3.1}{13} \quad \textcircled{2.8} \quad \frac{2.9}{13} \quad \frac{5.4}{16} \quad \frac{5.4}{19}$$

$$\frac{4.3}{20} \quad \frac{4.2}{16} \quad \frac{1.8}{13} \quad \textcircled{1.5} \quad \frac{1.5}{13} \quad \frac{3.8}{16} \quad \frac{3.8}{19}$$

$$\textcircled{15.3}$$

$$\frac{7.1}{30} \quad \frac{7.0}{35}$$

$$\frac{5.2}{33} \quad \frac{4.8}{30}$$

$$\textcircled{13.1}$$

$$\frac{5.3}{29} \quad \frac{2.6}{32} \quad \frac{2.6}{37}$$

$$\frac{2.8}{33} \quad \frac{2.8}{30}$$

$$\textcircled{12.1}$$

$$\frac{1.0}{32} \quad \frac{1.2}{37}$$

$$\frac{4.4}{33} \quad \frac{3.9}{28}$$

$$\textcircled{11.7}$$

$$\frac{1.6}{30} \quad \frac{2.0}{35}$$

$$\frac{8.7}{33} \quad \frac{8.5}{23}$$

$$\textcircled{10.4}$$

$$\frac{6.1}{26} \quad \frac{6.3}{33}$$

$$\frac{11.7}{33} \quad \frac{11.4}{19} \quad \frac{12.1}{18} \quad \frac{12.0}{15} \quad \frac{10.1}{13} \quad \textcircled{9.8} \quad \frac{9.8}{13} \quad \frac{11.8}{16} \quad \frac{12.0}{21} \quad \frac{9.8}{23} \quad \frac{9.3}{33}$$

$$\frac{12.5}{33} \quad \frac{11.7}{23} \quad \frac{11.6}{16} \quad \frac{9.8}{13} \quad \textcircled{9.5} \quad \frac{9.4}{13} \quad \frac{11.8}{18} \quad \frac{11.6}{21} \quad \frac{9.7}{23} \quad \frac{9.3}{33}$$

$$\frac{12.5}{33} \quad \frac{11.5}{17} \quad \frac{9.3}{13} \quad \textcircled{9.2} \quad \frac{9.2}{13} \quad \frac{10.8}{16} \quad \frac{11.3}{20} \quad \frac{9.5}{31} \quad \frac{9.5}{33}$$

✓
922.71

35+50

36

+50

37

+50

38

+50

39

T.P.

0.99

922.61[✓]

1.09

921.62[✓]

+50

40

+50

41

Left

L

Right

$$\begin{array}{cccccccc} \frac{12.4}{33} & \frac{11.0}{19} & \frac{7.2}{13} & \textcircled{7.2} & \frac{7.2}{13} & \frac{9.0}{16} & \frac{9.8}{32} & \frac{8.4}{33} & \frac{8.4}{35} \end{array}$$

$$\begin{array}{cccccccc} \frac{12.6}{33} & \frac{11.3}{20} & \frac{7.0}{13} & \textcircled{6.9} & \frac{7.0}{13} & \frac{8.8}{16} & \frac{9.4}{32} & \frac{8.0}{35} & \frac{8.0}{35} \end{array}$$

$$\begin{array}{cccccccc} \frac{12.9}{33} & \frac{11.3}{20} & \frac{6.9}{13} & \textcircled{6.6} & \frac{6.7}{13} & \frac{8.5}{16} & \frac{9.1}{31} & \frac{7.2}{33} & \frac{7.2}{35} \end{array}$$

$$\begin{array}{cccccccc} \frac{11.8}{33} & \frac{10.0}{19} & \frac{6.7}{13} & \textcircled{6.3} & \frac{6.4}{13} & \frac{8.2}{16} & \frac{8.0}{26} & \frac{6.0}{27} & \frac{5.7}{33} \end{array}$$

$$\begin{array}{cccccccc} \frac{11.0}{33} & \frac{9.8}{26} & \frac{8.5}{16} & \frac{6.3}{13} & \textcircled{6.0} & \frac{6.0}{13} & \frac{7.6}{17} & \frac{8.1}{21} & \frac{3.2}{26} & \frac{3.2}{33} \end{array}$$

$$\begin{array}{cccccccc} \frac{11.0}{33} & \frac{8.7}{24} & \frac{7.5}{16} & \frac{5.8}{13} & \textcircled{5.8} & \frac{5.9}{13} & \frac{7.3}{16} & \frac{7.3}{21} & \frac{2.1}{26} & \frac{2.0}{33} \end{array}$$

$$\begin{array}{cccccccc} \frac{12.4}{33} & \frac{10.4}{26} & \frac{9.8}{22} & \frac{5.5}{13} & \textcircled{5.5} & \frac{5.4}{14} & \frac{7.0}{16} & \frac{7.0}{20} & \frac{2.4}{25} & \frac{1.8}{33} \end{array}$$

$$\begin{array}{cccccccc} \frac{12.8}{33} & \frac{11.4}{27} & \frac{10.6}{21} & \frac{5.6}{13} & \textcircled{5.3} & \frac{5.5}{13} & \frac{6.6}{16} & \frac{6.8}{20} & \frac{4.2}{22} & \frac{3.0}{33} \end{array}$$

spike in F.P. 84 84a. 39 + 40

$$\begin{array}{cccccccc} \frac{12.4}{33} & \frac{11.0}{26} & \frac{10.2}{21} & \frac{5.0}{13} & \textcircled{5.0} & \frac{5.0}{13} & \frac{6.4}{16} & \frac{6.6}{21} & \frac{4.9}{23} & \frac{4.1}{33} \end{array}$$

$$\begin{array}{cccccccc} \frac{11.0}{33} & \frac{9.7}{26} & \frac{9.1}{20} & \frac{5.1}{13} & \textcircled{4.8} & \frac{4.6}{13} & \frac{6.4}{16} & \frac{6.6}{20} & \frac{4.0}{22} & \frac{3.4}{33} \end{array}$$

$$\begin{array}{cccccccc} \frac{8.6}{33} & \frac{6.8}{19} & \frac{4.9}{14} & \textcircled{4.6} & \frac{4.8}{13} & \frac{6.2}{16} & \frac{6.4}{20} & \frac{3.4}{22} & \frac{2.7}{33} \end{array}$$

$$\begin{array}{cccccccc} \frac{8.5}{33} & \frac{7.0}{19} & \frac{5.0}{13} & \textcircled{4.6} & \frac{4.8}{13} & \frac{6.5}{16} & \frac{6.5}{20} & \frac{3.7}{23} & \frac{3.1}{33} \end{array}$$

Sta. + H.I. ✓ - E/cv.

922.61

+50

42

+50

43

+50

44

+50

T.P. 232 915.88 ✓ 9.05 913.56 ✓

45

+50

46

+50

47

LEFT

=

RIGHT

$$\begin{array}{ccccccccc} \frac{7.5}{33} & \frac{6.5}{21} & \frac{7.5}{19} & \frac{7.3}{16} & \frac{5.2}{13} & \textcircled{49} & \frac{4.9}{13} & \frac{6.7}{16} & \frac{6.8}{20} & \frac{3.7}{23} & \frac{3.0}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{6.4}{33} & \frac{5.7}{21} & \frac{7.3}{19} & \frac{7.1}{16} & \frac{5.3}{13} & \textcircled{49} & \frac{5.3}{13} & \frac{7.3}{16} & \frac{7.3}{19} & \frac{3.3}{23} & \frac{2.7}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{5.2}{33} & \frac{4.7}{23} & \frac{7.9}{19} & \frac{7.5}{16} & \frac{5.7}{13} & \textcircled{51} & \frac{5.5}{13} & \frac{7.0}{16} & \frac{7.0}{19} & \frac{4.4}{23} & \frac{4.2}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{6.0}{33} & \frac{5.8}{22} & \frac{8.2}{19} & \frac{8.0}{15} & \frac{6.2}{13} & \textcircled{61} & \frac{6.2}{13} & \frac{7.8}{15} & \frac{8.1}{19} & \frac{5.6}{24} & \frac{5.8}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{7.7}{33} & \frac{7.2}{21} & \frac{8.8}{19} & \frac{8.6}{15} & \frac{7.2}{13} & \textcircled{70} & \frac{7.2}{13} & \frac{8.7}{15} & \frac{9.3}{19} & \frac{7.5}{22} & \frac{7.7}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{9.6}{33} & \frac{8.7}{20} & \frac{9.8}{19} & \frac{9.8}{15} & \frac{8.2}{13} & \textcircled{80} & \frac{8.1}{13} & \frac{10.3}{16} & \frac{10.4}{20} & \frac{9.4}{21} & \frac{9.7}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{11.4}{33} & \frac{10.4}{21} & \frac{10.7}{20} & \frac{10.5}{17} & \frac{9.2}{13} & \textcircled{81} & \frac{9.0}{13} & \frac{11.4}{17} & \frac{11.4}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{6.3}{33} & \frac{6.3}{25} & \frac{5.2}{17} & \frac{3.1}{13} & \textcircled{30} & \frac{3.1}{13} & \frac{5.8}{17} & \frac{5.7}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{6.8}{33} & \frac{6.7}{21} & \frac{6.1}{17} & \frac{3.9}{13} & \textcircled{38} & \frac{4.0}{13} & \frac{7.4}{19} & \frac{7.5}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{7.0}{33} & \frac{6.5}{16} & \frac{4.5}{13} & \textcircled{41} & \frac{4.7}{13} & \frac{7.8}{18} & \frac{8.0}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{6.8}{33} & \frac{6.6}{20} & \frac{7.2}{19} & \frac{7.3}{15} & \frac{5.2}{13} & \textcircled{51} & \frac{5.3}{13} & \frac{7.3}{17} & \frac{7.7}{33} \end{array}$$

$$\begin{array}{ccccccccc} \frac{6.7}{33} & \frac{6.6}{21} & \frac{7.6}{19} & \frac{7.6}{16} & \frac{5.7}{13} & \textcircled{56} & \frac{5.8}{13} & \frac{7.8}{17} & \frac{8.1}{33} \end{array}$$

Sta.				Elev.
	+	4.1	-	
		915.88		

+50

48

+50

49

+50

50

T.P.	3.13	909.44	9.57	906.31
------	------	--------	------	--------

+50

51

+50

52

T.P.	2.36	900.97	10.83	898.61
------	------	--------	-------	--------

+50

53

$$\frac{6.5}{33} \quad \frac{6.5}{21} \quad \frac{8.1}{19} \quad \frac{8.0}{15} \quad \frac{6.1}{13} \quad \textcircled{6.1} \quad \frac{6.2}{13} \quad \frac{8.0}{16} \quad \frac{8.2}{20} \quad \frac{7.2}{21} \quad \frac{7.2}{33}$$

$$\frac{7.0}{33} \quad \frac{6.5}{21} \quad \frac{8.4}{20} \quad \frac{8.3}{16} \quad \frac{6.6}{13} \quad \textcircled{6.7} \quad \frac{6.6}{13} \quad \frac{7.8}{15} \quad \frac{8.0}{19} \quad \frac{6.3}{21} \quad \frac{6.5}{33}$$

$$\frac{6.6}{33} \quad \frac{6.6}{22} \quad \frac{8.9}{19} \quad \frac{8.7}{15} \quad \frac{7.3}{13} \quad \textcircled{7.1} \quad \frac{7.2}{13} \quad \frac{8.4}{15} \quad \frac{8.5}{19} \quad \frac{6.0}{22} \quad \frac{5.8}{33}$$

$$\frac{5.5}{33} \quad \frac{5.5}{24} \quad \frac{9.6}{19} \quad \frac{9.6}{16} \quad \frac{8.1}{13} \quad \textcircled{7.7} \quad \frac{8.0}{13} \quad \frac{9.3}{15} \quad \frac{9.2}{19} \quad \frac{4.8}{24} \quad \frac{4.6}{33}$$

$$\frac{5.8}{33} \quad \frac{5.7}{24} \quad \frac{10.4}{19} \quad \frac{10.0}{15} \quad \frac{8.7}{13} \quad \textcircled{8.1} \quad \frac{8.8}{13} \quad \frac{10.3}{15} \quad \frac{10.3}{19} \quad \frac{4.8}{25} \quad \frac{4.8}{33}$$

$$\frac{7.0}{33} \quad \frac{6.6}{24} \quad \frac{11.4}{19} \quad \frac{11.1}{15} \quad \frac{9.8}{13} \quad \textcircled{9.5} \quad \frac{9.7}{13} \quad \frac{11.2}{15} \quad \frac{11.2}{19} \quad \frac{5.7}{25} \quad \frac{5.1}{33}$$

$$\frac{1.2}{33} \quad \frac{1.5}{23} \quad \frac{6.0}{19} \quad \frac{5.6}{15} \quad \frac{4.2}{13} \quad \textcircled{4.1} \quad \frac{4.3}{13} \quad \frac{5.8}{15} \quad \frac{5.7}{19} \quad \frac{1.0}{24} \quad \frac{1.4}{33}$$

$$\frac{3.3}{33} \quad \frac{3.5}{23} \quad \frac{7.6}{18} \quad \frac{7.0}{15} \quad \frac{5.8}{13} \quad \textcircled{5.7} \quad \frac{6.0}{13} \quad \frac{7.4}{15} \quad \frac{7.5}{19} \quad \frac{4.0}{23} \quad \frac{4.5}{33}$$

$$\frac{5.5}{33} \quad \frac{6.0}{23} \quad \frac{9.5}{19} \quad \frac{9.2}{15} \quad \frac{7.7}{13} \quad \textcircled{7.9} \quad \frac{7.6}{13} \quad \frac{9.2}{15} \quad \frac{9.1}{19} \quad \frac{7.3}{21} \quad \frac{8.0}{33}$$

$$\frac{8.2}{33} \quad \frac{9.0}{21} \quad \frac{10.8}{18} \quad \frac{10.5}{15} \quad \frac{9.1}{13} \quad \textcircled{9.0} \quad \frac{9.4}{13} \quad \frac{11.8}{18} \quad \frac{12.2}{33}$$

$$\frac{4.1}{33} \quad \frac{4.7}{30} \quad \frac{4.2}{16} \quad \frac{2.6}{13} \quad \textcircled{2.3} \quad \frac{2.8}{13} \quad \frac{7.6}{22} \quad \frac{8.0}{33}$$

$$\frac{6.0}{33} \quad \frac{6.3}{17} \quad \frac{3.8}{13} \quad \textcircled{2.8} \quad \frac{4.0}{14} \quad \frac{9.4}{22} \quad \frac{9.3}{33}$$

900.97

+50

54

+33

+46

+573

T.P.

5.09

902.21

3.85

897.12

B.M.

1.10

901.11

901.17

LEFT

±

RIGHT

$$\begin{array}{r} 8.5 \\ 33 \end{array} \quad \begin{array}{r} 8.2 \\ 20 \end{array} \quad \begin{array}{r} 4.6 \\ 13 \end{array} \quad \begin{array}{r} 4.9 \\ 4.5 \end{array} \quad \begin{array}{r} 4.7 \\ 14 \end{array} \quad \begin{array}{r} 9.2 \\ 22 \end{array} \quad \begin{array}{r} 9.4 \\ 33 \end{array}$$

$$\begin{array}{r} 6.3 \\ 33 \end{array} \quad \begin{array}{r} 6.2 \\ 20 \end{array} \quad \begin{array}{r} 7.1 \\ 19 \end{array} \quad \begin{array}{r} 7.0 \\ 16 \end{array} \quad \begin{array}{r} 5.0 \\ 13 \end{array} \quad \begin{array}{r} 5.2 \\ 4.9 \end{array} \quad \begin{array}{r} 5.1 \\ 13 \end{array} \quad \begin{array}{r} 8.6 \\ 20 \end{array} \quad \begin{array}{r} 9.1 \\ 33 \end{array}$$

$$\begin{array}{r} 5.1 \\ 33 \end{array} \quad \begin{array}{r} 4.7 \\ 22 \end{array} \quad \begin{array}{r} 5.7 \\ 21 \end{array} \quad \begin{array}{r} 5.7 \\ 16 \end{array} \quad \begin{array}{r} 4.8 \\ 14 \end{array} \quad \begin{array}{r} 5.1 \\ 4.6 \end{array} \quad \begin{array}{r} 5.3 \\ 14 \end{array} \quad \begin{array}{r} 8.5 \\ 20 \end{array} \quad \begin{array}{r} 9.2 \\ 33 \end{array}$$

$$\begin{array}{r} 4.6 \\ 33 \end{array} \quad \begin{array}{r} 4.5 \\ 22 \end{array} \quad \begin{array}{r} 4.8 \\ 4.5 \end{array} \quad \begin{array}{r} 5.3 \\ 28 \end{array} \quad \begin{array}{r} 5.4 \\ 33 \end{array}$$

$$\begin{array}{r} 3.8 \\ 50 \end{array} \quad \begin{array}{r} 4.1 \\ 25 \end{array} \quad 4.5 \quad \begin{array}{r} 4.8 \\ 25 \end{array} \quad \begin{array}{r} 5.2 \\ 50 \end{array}$$

SFK in T.P. 150' Lt 54 + 30

			Cubic Cut	Yards Fill
1+35	Field Entrance	Right		13.0
2+65	Private ..	Left		7.0
2+76	Field ..	Right		6.0
8+23	Private ..	Left		8.0
8+73	Field ..	Right		7.0
9+94	Private ..	Left.	8.0	8.0
11+04	" "	Left	15.0	10.0
12+95	X Drain			
14+03	Private ..	Left		9.0
15+80	Field ..	Right		7.0
19+03	" "	Left		11.0
19+78	Private ..	"		13.0
19+78	Field ..	Right		14.0
23+96	X Drain			
24+10	Field ..	Right		4.0
26+85	" "	Left		13.0
29+26	" "	Right		8.0
34+12	" "	Right		7.0
39+29	" "	Right		8.0
42+29	" "	Left		4.0
42+34	" "	Right		8.0
43+91	" "	Right		5.0
47+90	" "	"		5.0

No. Culvert.

15" X 20' C.M. X	New.	17' Lt.
10" X 20' C.M. X	Old	17' Rt.
15" X 20' C.M. X	New	17' Lt.

No. Culvert

15" X 20' C.M. X	New	17' Lt.
15" X 20' " X	New	18' Lt.
24" X 56' X	"	

No Culvert

15" X 20' C.M. X	New	17' Lt.
12" X 20' " X	"	20' Lt.
15" X 20' " X	"	22' Lt.

No. Culv.

48" X 39' C.M. (Old)

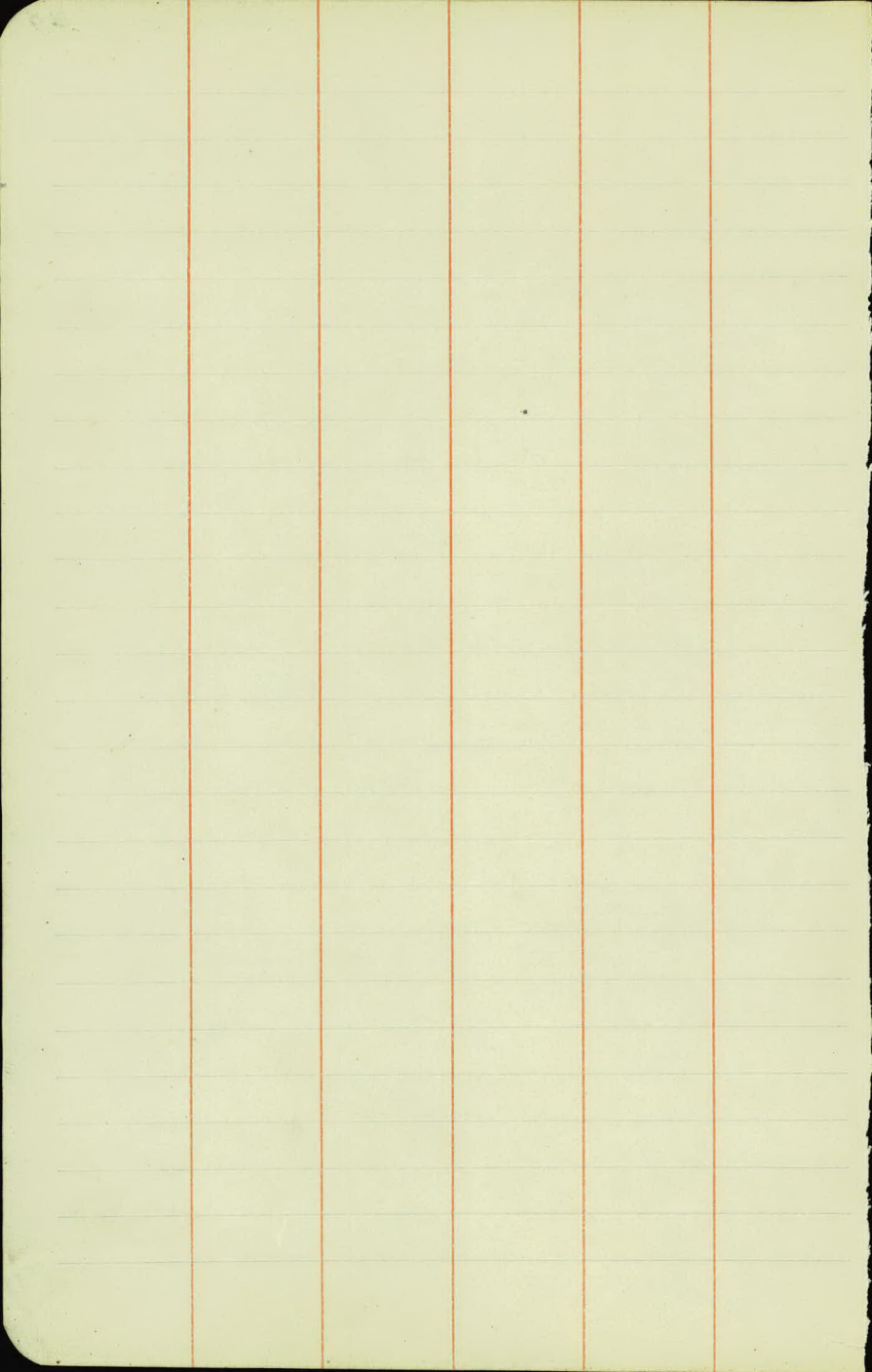
No Culv.

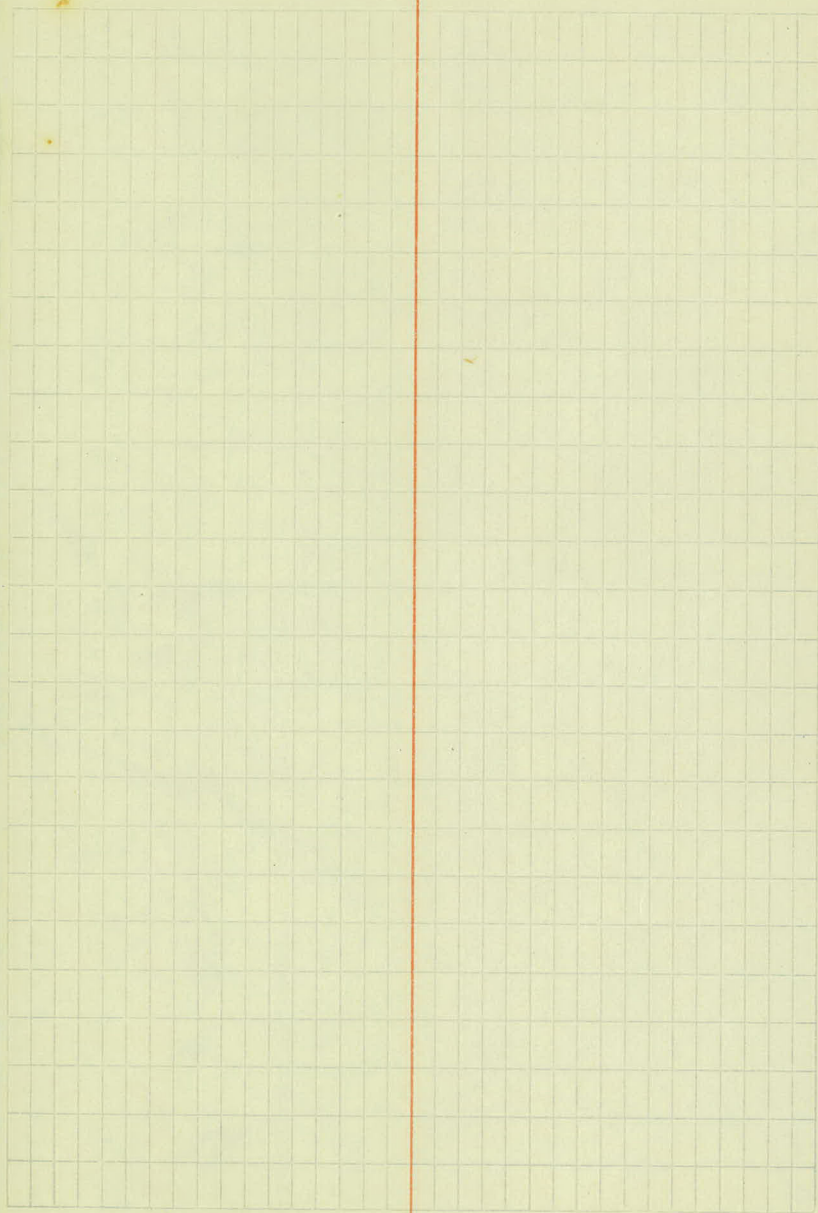
No. "

12" X 20' C.M. X	Old.	19' Rt.
12" X 16' C.M. X	"	18' Rt.
15" X 20' C.M. X	New.	18' Rt.

No. Culv.

12" X 20' C.M. X	Old.	19' Rt.
12" X 20' " " X	"	17' Rt.
12" X 20' C.M. X (New)	Old	18' Rt.





13700 24" X 56" p 3

23796 48"

88757

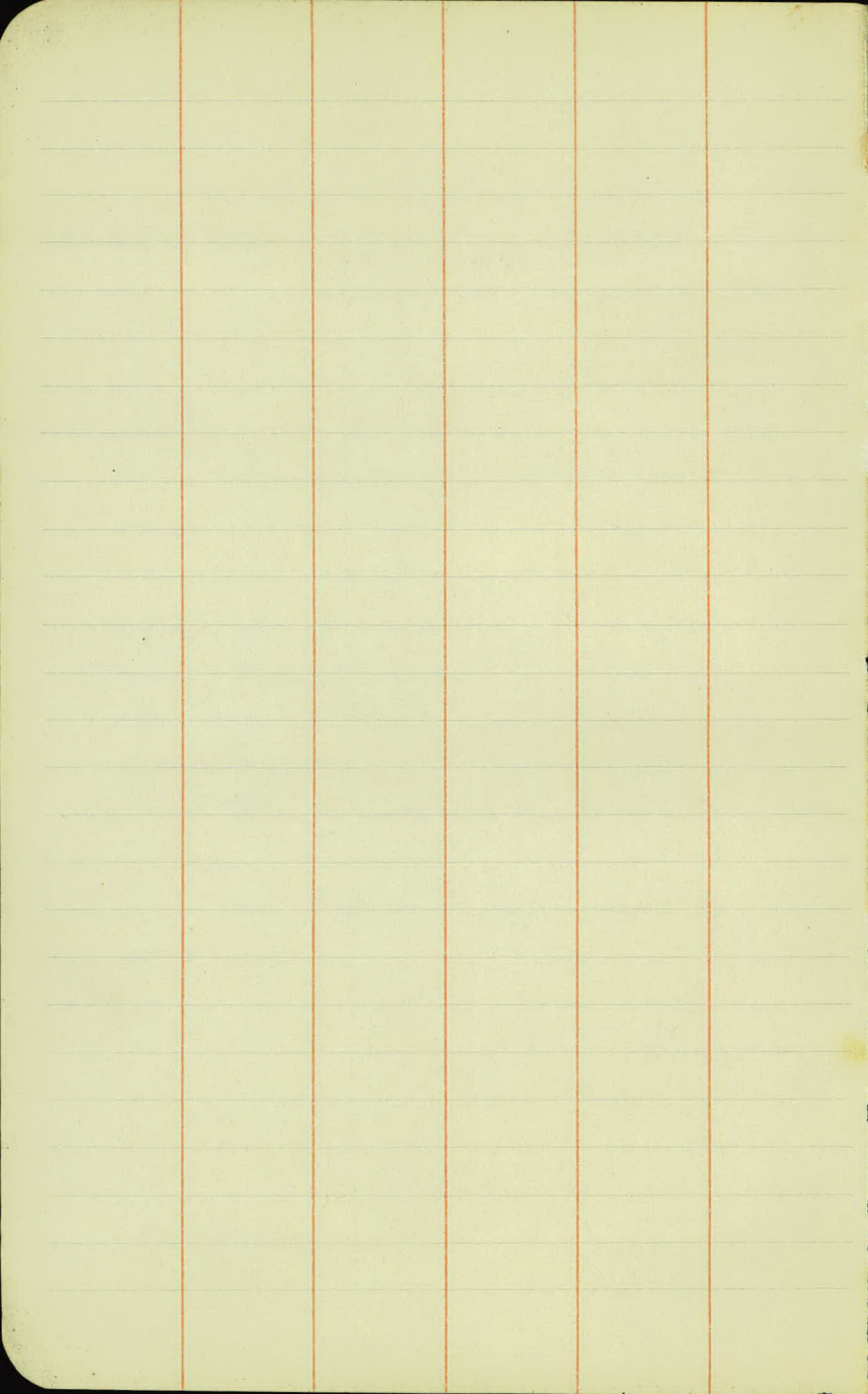
274

88707

18.6

86706

19.5~~86746~~~~19.5~~867.26



KEITH'S RAILROAD CURVE TABLES.

Published by KEUFFEL & ESSER CO., New York.

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HOW TO USE KEITH'S TABLES.

EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle
of Intersection or I. P.= $23^{\circ} 20'$ to the R. at Station
542+72.

Ext. in Tab. IV opposite $23^{\circ} 20' = 120.87$
 $120.87 \div 12 = 10.07$. Say a 10° Curve.

Tan. in Tab. IV opp. $23^{\circ} 20' = 1183.1$
 $1183.1 \div 10 = 118.31$.

Tab. V. correction for A. $23^{\circ} 20'$ for a 10° Cur.=0.16
 $118.31 + 0.16 = 118.47 = \text{corrected Tangent}$.

(If corrected Ext. is required find in same way)
Ang. $23^{\circ} 20' = 23.33^{\circ} \div 10 = 2.3333 = \text{L. C.}$

$2^{\circ} 19\frac{1}{2}' = \text{def. for sta.}$	543	I. P.=sta.	542+72
$4^{\circ} 49\frac{1}{2}' = \text{ " " "}$	+50	Tan.=	1.18.47
$7^{\circ} 19\frac{1}{2}' = \text{ " " "}$	543	B. C.=sta.	541+53.53
$9^{\circ} 49\frac{1}{2}' = \text{ " " "}$	+50	L. C.=	2.33.33
$11^{\circ} 40' = \text{ " " "}$	543+	E. C.=sta.	543+86.86
	86.86		

$100 - 53.53 = 46.47 \times 3' (\text{def. for 1 ft. of } 10^{\circ} \text{ Cur.}) = 139.41' =$
 $2^{\circ} 19\frac{1}{2}' = \text{def. for sta. 542.}$

Def. for 50 ft.= $2^{\circ} 30'$ for a 10° Curve.

Def. for 36.86 ft.= $1^{\circ} 50\frac{1}{2}'$ for a 10° Curve

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

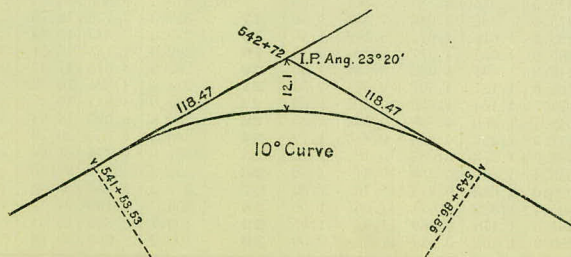


TABLE I. — Minutes in Decimals of a Degree.

1'	.0167	11'	.1833	21'	.3500	31'	.5167	41'	.6833	51'	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

TABLE II. — Inches in Decimals of a Foot.

1-16	3-32	$\frac{1}{8}$	3-16	$\frac{1}{4}$	5-16	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729
1	2	3	4	5	6	7	8	9	10	11
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167

TABLE III. — Radii, Ordinates and Deflections.

Deg.	Radius	Mid. Ord.	Tan. Def.	Chd. Def.	Def. for 1 Foot	Deg.	Radius	Mid. Ord.	Tan. Def.	Chd. Def.	Def. for 1 Foot
0° 10'	34377.	.036	.145	.291	0.05'	7°	819.0	1.528	6.105	12.21	2.10'
20	17189.	.073	.291	.582	0.10	20'	781.8	1.600	6.395	12.79	2.20
30	11459.	.109	.436	.873	0.15	30	764.5	1.637	6.540	13.08	2.25
40	8594.4	.145	.582	1.164	0.20	40	747.9	1.673	6.685	13.37	2.30
50	6875.5	.182	.727	1.454	0.25	8	716.8	1.746	6.976	13.95	2.40
1	5729.6	.218	.873	1.745	0.30	20	688.2	1.819	7.266	14.53	2.50
10	4911.2	.255	1.018	2.036	0.35	30	674.7	1.855	7.411	14.82	2.55
20	4297.3	.291	1.164	2.327	0.40	40	661.7	1.892	7.556	15.11	2.60
30	3819.8	.327	1.309	2.618	0.45	9	637.3	1.965	7.846	15.69	2.70
40	3437.9	.364	1.454	2.909	0.50	20	614.6	2.037	8.136	16.27	2.80
50	3125.4	.400	1.600	3.200	0.55	30	603.8	2.074	8.281	16.56	2.85
2	2864.9	.436	1.745	3.490	0.60	40	593.4	2.110	8.426	16.85	2.90
10	2644.6	.473	1.891	3.781	0.65	10	573.7	2.183	8.716	17.43	3.00
20	2455.7	.509	2.036	4.072	0.70	30	546.4	2.292	9.150	18.30	3.15
30	2292.0	.545	2.181	4.363	0.75	11	521.7	2.402	9.585	19.16	3.30
40	2148.8	.582	2.327	4.654	0.80	30	499.1	2.511	10.02	20.04	3.45
50	2022.4	.618	2.472	4.945	0.85	12	478.3	2.620	10.45	20.91	3.60
3	1910.1	.655	2.618	5.235	0.90	30	459.3	2.730	10.89	21.77	3.75
10	1809.6	.691	2.763	5.526	0.95	13	441.7	2.839	11.32	22.64	3.90
20	1719.1	.727	2.908	5.817	1.00	30	425.4	2.949	11.75	23.51	4.05
30	1637.3	.764	3.054	6.108	1.05	14	410.3	3.058	12.18	24.37	4.20
40	1562.9	.800	3.199	6.398	1.10	30	396.2	3.168	12.62	25.24	4.35
50	1495.0	.836	3.345	6.689	1.15	15	383.1	3.277	13.05	26.11	4.50
4	1432.7	.873	3.490	6.980	1.20	30	370.8	3.387	13.49	26.97	4.65
10	1375.4	.909	3.635	7.271	1.25	16	359.3	3.496	13.92	27.84	4.80
20	1322.5	.945	3.781	7.561	1.30	30	348.5	3.606	14.35	28.70	4.95
30	1273.6	.982	3.926	7.852	1.35	17	338.3	3.716	14.78	29.56	5.10
40	1228.1	1.018	4.071	8.143	1.40	18	319.6	3.935	15.61	31.29	5.40
50	1185.8	1.055	4.217	8.433	1.45	19	302.9	4.155	16.51	33.01	5.70
5	1146.3	1.091	4.362	8.724	1.50	20	287.9	4.374	17.37	34.73	6.00
10	1109.3	1.127	4.507	9.014	1.55	21	274.4	4.594	18.22	36.44	6.30
20	1074.7	1.164	4.653	9.305	1.60	22	262.0	4.814	19.08	38.16	6.60
30	1042.1	1.200	4.798	9.596	1.65	23	250.8	5.035	19.94	39.87	6.90
40	1011.5	1.237	4.943	9.886	1.70	24	240.5	5.255	20.79	41.58	7.20
50	982.6	1.273	5.088	10.18	1.75	25	231.0	5.476	21.64	43.28	7.50
6	955.4	1.309	5.234	10.47	1.80	26	222.3	5.697	22.50	44.99	7.80
10	929.6	1.346	5.379	10.76	1.85	27	214.2	5.918	23.35	46.69	8.10
20	905.1	1.382	5.524	11.05	1.90	28	206.7	6.139	24.19	48.38	8.40
30	881.9	1.418	5.669	11.34	1.95	29	199.7	6.360	25.04	50.07	8.70
40	859.9	1.455	5.814	11.63	2.00	30	193.2	6.583	25.88	51.76	9.00

TABLE IV. — Tangents and Externals to a 1° Curve.

Angle	Tangent	External	Angle	Tangent	External	Angle	Tangent	External
1°	50.00	.22	11°	551.70	26.50	21°	1061.9	97.57
10'	58.34	.30	10'	560.11	27.31	10'	1070.6	99.16
20	66.67	.39	20	568.53	28.14	20	1079.2	100.75
30	75.01	.49	30	576.95	28.97	30	1087.8	102.35
40	83.34	.61	40	585.36	29.82	40	1096.4	103.97
50	91.68	.73	50	593.79	30.68	50	1105.1	105.60
2	100.01	.87	12	602.21	31.56	22	1113.7	107.24
10	108.35	1.02	10	610.64	32.45	10	1122.4	108.90
20	116.68	1.19	20	619.07	33.35	20	1131.0	110.57
30	125.02	1.36	30	627.50	34.26	30	1139.7	112.25
40	133.36	1.55	40	635.93	35.18	40	1148.4	113.95
50	141.70	1.75	50	644.37	36.12	50	1157.0	115.66
3	150.04	1.96	13	652.81	37.07	23	1165.7	117.38
10	158.38	2.19	10	661.25	38.03	10	1174.4	119.12
20	166.72	2.43	20	669.70	39.01	20	1183.1	120.87
30	175.06	2.67	30	678.15	39.99	30	1191.8	122.63
40	183.40	2.93	40	686.60	40.99	40	1200.5	124.41
50	191.74	3.21	50	695.06	42.00	50	1209.2	126.20
4	200.08	3.49	14	703.51	43.03	24	1217.9	128.00
10	208.43	3.79	10	711.97	44.07	10	1226.6	129.82
20	216.77	4.10	20	720.44	45.12	20	1235.3	131.65
30	225.12	4.42	30	728.90	46.18	30	1244.0	133.50
40	233.47	4.76	40	737.37	47.25	40	1252.8	135.35
50	241.81	5.10	50	745.85	48.34	50	1261.5	137.23
5	250.16	5.46	15	754.32	49.44	25	1270.2	139.11
10	258.51	5.83	10	762.80	50.55	10	1279.0	141.01
20	266.86	6.21	20	771.29	51.68	20	1287.7	142.93
30	275.21	6.61	30	779.77	52.89	30	1296.5	144.85
40	283.57	7.01	40	788.26	53.97	40	1305.3	146.79
50	291.92	7.43	50	796.75	55.13	50	1314.0	148.75
6	300.28	7.86	16	805.25	56.31	26	1322.8	150.71
10	308.64	8.31	10	813.75	57.50	10	1331.6	152.69
20	316.99	8.76	20	822.25	58.70	20	1340.4	154.69
30	325.35	9.23	30	830.76	59.91	30	1349.2	156.70
40	333.71	9.71	40	839.27	61.14	40	1358.0	158.72
50	342.08	10.20	50	847.78	62.38	50	1366.8	160.76
7	350.44	10.71	17	856.30	63.63	27	1375.6	162.81
10	358.81	11.22	10	864.82	64.90	10	1384.4	164.86
20	367.17	11.75	20	873.35	66.18	20	1393.2	166.95
30	375.54	12.29	30	881.88	67.47	30	1402.0	169.04
40	383.91	12.85	40	890.41	68.77	40	1410.9	171.15
50	392.28	13.41	50	898.95	70.09	50	1419.7	173.27
8	400.66	13.99	18	907.49	71.42	28	1428.6	175.41
10	409.03	14.58	10	916.03	72.76	10	1437.4	177.55
20	417.41	15.18	20	924.58	74.12	20	1446.3	179.72
30	425.79	15.80	30	933.13	75.49	30	1455.1	181.89
40	434.17	16.43	40	941.69	76.86	40	1464.0	184.08
50	442.55	17.07	50	950.25	78.26	50	1472.9	186.29
9	450.93	17.72	19	958.81	79.67	29	1481.8	188.51
10	459.32	18.38	10	967.38	81.09	10	1490.7	190.74
20	467.71	19.06	20	975.96	82.53	20	1499.6	192.99
30	476.10	19.75	30	984.53	83.97	30	1508.5	195.25
40	484.49	20.45	40	993.12	85.43	40	1517.4	197.53
50	492.88	21.16	50	1001.7	86.90	50	1526.3	199.82
10	501.28	21.89	20	1010.3	88.39	30	1535.3	202.12
10	509.68	22.62	10	1018.9	89.89	10	1544.2	204.44
20	518.08	23.38	20	1027.5	91.40	20	1553.1	206.77
30	526.48	24.14	30	1036.1	92.92	30	1562.1	209.12
40	534.89	24.91	40	1044.7	94.46	40	1571.0	211.48
50	543.29	25.70	50	1053.3	96.01	50	1580.0	213.86

TABLE IV. — Tangents and Externals to a 1° Curve.

Angle	Tangent	External	Angle	Tangent	External	Angle	Tangent	External
31°	1589.0	216.3	41°	2142.2	387.4	51°	2732.9	618.4
10'	1598.0	218.7	10'	2151.7	390.7	10'	2743.1	622.8
20	1606.9	221.1	20	2161.2	394.1	20	2753.4	627.2
30	1615.9	223.5	30	2170.8	397.4	30	2763.7	631.7
40	1624.9	226.0	40	2180.3	400.8	40	2773.9	636.2
50	1633.9	228.4	50	2189.9	404.2	50	2784.2	640.7
32	1643.0	230.9	42	2199.4	407.6	52	2794.5	645.2
10	1652.0	233.4	10	2209.0	411.1	10	2804.9	649.7
20	1661.0	235.9	20	2218.6	414.5	20	2815.2	654.3
30	1670.0	238.4	30	2228.1	418.0	30	2825.6	658.8
40	1679.1	241.0	40	2237.7	421.4	40	2835.9	663.4
50	1688.1	243.5	50	2247.3	425.0	50	2846.3	668.0
33	1697.2	246.1	43	2257.0	428.5	53	2856.7	672.7
10	1706.3	248.7	10	2266.6	432.0	10	2867.1	677.3
20	1715.3	251.3	20	2276.2	435.6	20	2877.5	682.0
30	1724.4	253.9	30	2285.9	439.2	30	2888.0	686.7
40	1733.5	256.5	40	2295.6	442.8	40	2898.4	691.4
50	1742.6	259.1	50	2305.2	446.4	50	2908.9	696.1
34	1751.7	261.8	44	2314.9	450.0	54	2919.4	700.9
10	1760.8	264.5	10	2324.6	453.6	10	2929.9	705.7
20	1770.0	267.2	20	2334.3	457.3	20	2940.4	710.5
30	1779.1	269.9	30	2344.1	461.0	30	2951.0	715.3
40	1788.2	272.6	40	2353.8	464.6	40	2961.5	720.1
50	1797.4	275.3	50	2363.5	468.4	50	2972.1	725.0
35	1806.6	278.1	45	2373.3	472.1	55	2982.7	729.9
10	1815.7	280.8	10	2383.1	475.8	10	2993.3	734.8
20	1824.9	283.6	20	2392.8	479.6	20	3003.9	739.7
30	1834.1	286.4	30	2402.6	483.4	30	3014.5	744.6
40	1843.3	289.2	40	2412.4	487.2	40	3025.2	749.6
50	1852.5	292.0	50	2422.3	491.0	50	3035.8	754.6
36	1861.7	294.9	46	2432.1	494.8	56	3046.5	759.6
10	1870.9	297.7	10	2441.9	498.7	10	3057.2	764.6
20	1880.1	300.6	20	2451.8	502.5	20	3067.9	769.7
30	1889.4	303.5	30	2461.7	506.4	30	3078.7	774.7
40	1898.6	306.4	40	2471.5	510.3	40	3089.4	779.8
50	1907.9	309.3	50	2481.4	514.3	50	3100.2	784.9
37	1917.1	312.2	47	2491.3	518.2	57	3110.9	790.1
10	1926.4	315.2	10	2501.2	522.2	10	3121.7	795.2
20	1935.7	318.1	20	2511.2	526.1	20	3132.6	800.4
30	1945.0	321.1	30	2521.1	530.1	30	3143.4	805.6
40	1954.3	324.1	40	2531.1	534.2	40	3154.2	810.9
50	1963.6	327.1	50	2541.0	538.2	50	3165.1	816.1
38	1972.9	330.2	48	2551.0	542.2	58	3176.0	821.4
10	1982.2	333.2	10	2561.0	546.3	10	3186.9	826.7
20	1991.5	336.3	20	2571.0	550.4	20	3197.8	832.0
30	2000.9	339.3	30	2581.0	554.5	30	3208.8	837.3
40	2010.2	342.4	40	2591.0	558.6	40	3219.7	842.7
50	2019.6	345.5	50	2601.1	562.8	50	3230.7	848.1
39	2029.0	348.6	49	2611.2	566.9	59	3241.7	853.5
10	2038.4	351.8	10	2621.2	571.1	10	3252.7	858.9
20	2047.8	354.9	20	2631.3	575.3	20	3263.7	864.3
30	2057.2	358.1	30	2641.4	579.5	30	3274.8	869.8
40	2066.6	361.3	40	2651.5	583.8	40	3285.8	875.3
50	2076.0	364.5	50	2661.6	588.0	50	3296.9	880.8
40	2085.4	367.7	50	2671.8	592.3	60	3308.0	886.4
10	2094.9	371.0	10	2681.9	596.6	10	3319.1	892.0
20	2104.3	374.2	20	2692.1	600.9	20	3330.3	897.5
30	2113.8	377.5	30	2702.3	605.3	30	3341.4	903.2
40	2123.3	380.8	40	2712.5	609.6	40	3352.6	908.8
50	2132.7	384.1	50	2722.7	614.0	50	3363.8	914.5

TABLE IV. — Tangents and Externals to a 1° Curve.

Angle	Tangent	External	Angle	Tangent	External	Angle	Tangent	External
61°	3375.0	920.2	71°	4086.9	1308.2	81°	4893.6	1805.3
10'	3386.3	925.9	10'	4099.5	1315.6	10'	4908.0	1814.7
20	3397.5	931.6	20	4112.1	1322.9	20	4922.5	1824.1
30	3408.8	937.3	30	4124.8	1330.3	30	4937.0	1833.6
40	3420.1	943.1	40	4137.4	1337.7	40	4951.5	1843.1
50	3431.4	948.9	50	4150.1	1345.1	50	4966.1	1852.6
62	3442.7	954.8	72	4162.8	1352.6	82	4980.7	1862.2
10	3454.1	960.6	10	4175.6	1360.1	10	4995.4	1871.8
20	3465.4	966.5	20	4188.5	1367.6	20	5010.0	1881.5
30	3476.8	972.4	30	4201.2	1375.2	30	5024.8	1891.2
40	3488.3	978.3	40	4214.0	1382.8	40	5039.5	1900.9
50	3499.7	984.3	50	4226.8	1390.4	50	5054.3	1910.7
63	3511.1	990.2	73	4239.7	1398.0	83	5069.2	1920.5
10	3522.6	996.2	10	4252.6	1405.7	10	5084.0	1930.4
20	3534.1	1002.3	20	4265.6	1413.5	20	5099.0	1940.3
30	3545.6	1008.3	30	4278.5	1421.2	30	5113.9	1950.3
40	3557.2	1014.4	40	4291.5	1429.0	40	5128.9	1960.2
50	3568.7	1020.5	50	4304.6	1436.8	50	5143.9	1970.3
64	3580.3	1026.6	74	4317.6	1444.6	84	5159.0	1980.4
10	3591.9	1032.8	10	4330.7	1452.5	10	5174.1	1990.5
20	3603.5	1039.0	20	4343.8	1460.4	20	5189.3	2000.6
30	3615.1	1045.2	30	4356.9	1468.4	30	5204.4	2010.8
40	3626.8	1051.4	40	4370.1	1476.4	40	5219.7	2021.1
50	3638.5	1057.7	50	4383.3	1484.4	50	5234.9	2031.4
65	3650.2	1063.9	75	4396.5	1492.4	85	5250.3	2041.7
10	3661.9	1070.2	10	4409.8	1500.5	10	5265.6	2052.1
20	3673.7	1076.6	20	4423.1	1508.6	20	5281.0	2062.5
30	3685.4	1082.9	30	4436.4	1516.7	30	5296.4	2073.0
40	3697.2	1089.3	40	4449.7	1524.9	40	5311.9	2083.5
50	3709.0	1095.7	50	4463.1	1533.1	50	5327.4	2094.1
66	3720.9	1102.2	76	4476.5	1541.4	86	5343.0	2104.7
10	3732.7	1108.6	10	4489.9	1549.7	10	5358.6	2115.3
20	3744.6	1115.1	20	4503.4	1558.0	20	5374.2	2126.0
30	3756.5	1121.7	30	4516.9	1566.3	30	5389.9	2136.7
40	3768.5	1128.2	40	4530.4	1574.7	40	5405.6	2147.5
50	3780.4	1134.8	50	4544.0	1583.1	50	5421.4	2158.4
67	3792.4	1141.4	77	4557.6	1591.6	87	5437.2	2169.2
10	3804.4	1148.0	10	4571.2	1600.1	10	5453.1	2180.2
20	3816.4	1154.7	20	4584.8	1608.6	20	5469.0	2191.1
30	3828.4	1161.3	30	4598.5	1617.1	30	5484.9	2202.2
40	3840.5	1168.1	40	4612.2	1625.7	40	5500.9	2213.2
50	3852.6	1174.8	50	4626.0	1634.4	50	5517.0	2224.3
68	3864.7	1181.6	78	4639.8	1643.0	88	5533.1	2225.5
10	3876.8	1188.4	10	4653.6	1651.7	10	5549.2	2246.7
20	3889.0	1195.2	20	4667.4	1660.5	20	5565.4	2258.0
30	3901.2	1202.0	30	4681.3	1669.2	30	5581.6	2269.3
40	3913.4	1208.9	40	4695.2	1678.1	40	5597.8	2280.6
50	3925.6	1215.8	50	4709.2	1686.9	50	5614.2	2292.0
69	3937.9	1222.7	79	4723.2	1695.8	89	5630.5	2303.5
10	3950.2	1229.7	10	4737.2	1704.7	10	5646.9	2315.0
20	3962.5	1236.7	20	4751.2	1713.7	20	5663.4	2326.6
30	3974.8	1243.7	30	4765.3	1722.7	30	5679.9	2338.2
40	3987.2	1250.8	40	4779.4	1731.7	40	5696.4	2349.8
50	3999.5	1257.9	50	4793.6	1740.8	50	5713.0	2361.5
70	4011.9	1265.0	80	4807.7	1749.9	90	5729.7	2373.3
10	4024.4	1272.1	10	4822.0	1759.0	10	5746.3	2385.1
20	4036.8	1279.3	20	4836.2	1768.2	20	5763.1	2397.0
30	4049.3	1286.5	30	4850.5	1777.4	30	5779.9	2408.9
40	4061.8	1293.6	40	4864.8	1786.7	40	5796.7	2420.9
50	4074.4	1300.9	50	4879.2	1796.0	50	5813.6	2432.9

TABLE IV. — Tangents and Externals to a 1° Curve.

Angle	Tangent	External	Angle	Tangent	External	Angle	Tangent	External
91°	5830.5	2444.9	101°	6950.6	3278.1	111°	8336.7	4386.1
10'	5847.5	2457.1	10'	6971.3	3294.1	10'	8362.7	4407.6
20	5864.6	2469.3	20	6992.0	3310.1	20	8388.9	4429.2
30	5881.7	2481.5	30	7012.7	3326.1	30	8415.1	4450.9
40	5898.8	2493.8	40	7033.6	3342.3	40	8441.5	4472.7
50	5916.0	2506.1	50	7054.5	3358.5	50	8468.0	4494.6
92	5933.2	2518.5	102	7075.5	3374.9	112	8494.6	4516.6
10	5950.5	2531.0	10	7096.6	3391.2	10	8521.3	4538.8
20	5967.9	2543.5	20	7117.8	3407.7	20	8548.1	4561.1
30	5985.3	2556.0	30	7139.0	3424.3	30	8575.0	4583.4
40	6002.7	2568.6	40	7160.3	3440.9	40	8602.1	4606.0
50	6020.2	2581.3	50	7181.7	3457.6	50	8629.3	4628.6
93	6037.8	2594.0	103	7203.2	3474.4	113	8656.6	4651.3
10	6055.4	2606.8	10	7224.7	3491.3	10	8684.0	4674.2
20	6073.1	2619.7	20	7246.3	3508.2	20	8711.5	4697.2
30	6090.8	2632.6	30	7268.0	3525.2	30	8739.2	4720.3
40	6108.6	2645.5	40	7289.8	3542.4	40	8767.0	4743.6
50	6126.4	2658.5	50	7311.7	3559.6	50	8794.9	4766.9
94	6144.3	2671.6	104	7333.6	3576.8	114	8822.9	4790.4
10	6162.6	2684.7	10	7355.6	3594.2	10	8851.0	4814.1
20	6180.2	2697.9	20	7377.8	3611.7	20	8879.3	4837.8
30	6198.3	2711.2	30	7399.9	3629.2	30	8907.7	4861.7
40	6216.4	2724.5	40	7422.2	3646.8	40	8936.3	4885.7
50	6234.6	2737.9	50	7444.6	3664.5	50	8965.0	4909.9
95	6252.8	2751.3	105	7467.0	3682.3	115	8993.8	4934.1
10	6271.1	2764.8	10	7489.6	3700.2	10	9022.7	4958.6
20	6289.4	2778.3	20	7512.2	3718.2	20	9051.7	4983.1
30	6307.9	2792.0	30	7534.9	3736.2	30	9080.9	5007.8
40	6326.3	2805.6	40	7557.7	3754.4	40	9110.3	5032.6
50	6344.8	2819.4	50	7580.5	3772.6	50	9139.8	5057.6
96	6363.4	2833.2	106	7603.5	3791.0	116	9169.4	5082.7
10	6382.1	2847.0	10	7626.6	3809.4	10	9199.1	5107.9
20	6400.8	2861.0	20	7649.7	3827.9	20	9229.0	5133.3
30	6419.5	2875.0	30	7672.9	3846.5	30	9259.0	5158.8
40	6438.4	2889.0	40	7696.3	3865.2	40	9289.2	5184.5
50	6457.3	2903.1	50	7719.7	3884.0	50	9319.5	5210.3
97	6476.2	2917.3	107	7743.2	3902.9	117	9349.9	5236.2
10	6495.2	2931.6	10	7766.8	3921.9	10	9380.5	5262.3
20	6514.3	2945.9	20	7790.5	3940.9	20	9411.3	5288.6
30	6533.4	2960.3	30	7814.3	3960.1	30	9442.2	5315.0
40	6552.6	2974.7	40	7838.1	3979.4	40	9473.2	5341.5
50	6571.9	2989.2	50	7862.1	3998.7	50	9504.4	5368.2
98	6591.2	3003.8	108	7886.2	4018.2	118	9535.7	5395.1
10	6610.6	3018.4	10	7910.4	4037.8	10	9567.2	5422.1
20	6630.1	3033.1	20	7934.6	4057.4	20	9598.9	5449.2
30	6649.6	3047.9	30	7959.0	4077.2	30	9630.7	5476.5
40	6669.2	3062.8	40	7983.5	4097.1	40	9662.6	5504.0
50	6688.8	3077.7	50	8008.0	4117.0	50	9694.7	5531.7
99	6708.6	3092.7	109	8032.7	4137.1	119	9727.0	5559.4
10	6728.4	3107.7	10	8057.4	4157.3	10	9759.4	5587.4
20	6748.2	3122.9	20	8082.3	4177.5	20	9792.0	5615.5
30	6768.1	3138.1	30	8107.3	4197.9	30	9824.8	5643.8
40	6788.1	3153.3	40	8132.3	4218.4	40	9857.7	5672.3
50	6808.2	3168.7	50	8157.5	4239.0	50	9890.8	5700.9
100	6828.3	3184.1	110	8182.8	4259.7	120	9924.0	5729.7
10	6848.5	3199.6	10	8208.2	4280.5	10	9957.5	5758.6
20	6868.8	3215.1	20	8233.7	4301.4	20	9991.0	5787.7
30	6889.2	3230.8	30	8259.3	4322.4	30	10025.0	5817.0
40	6909.6	3246.5	40	8285.0	4343.6	40	10059.0	5846.5
50	6930.1	3262.3	50	8310.8	4364.8	50	10093.0	5876.1

Table V. Corrections for use with table IV,

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		For Tangents Add													
ANGLE	CURVE	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°		.03	.06	.09	.13	.16	.19	.22	.25	.28	.31	.34	.38	.42	.46
15°		.04	.10	.14	.19	.24	.29	.34	.39	.45	.51	.53	.58	.63	.68
20°		.06	.13	.19	.26	.32	.39	.45	.51	.58	.65	.72	.79	.84	.90
25°		.08	.16	.24	.33	.40	.49	.58	.67	.75	.83	.90	.99	1.06	1.14
30°		.10	.19	.29	.39	.49	.59	.69	.79	.89	.99	1.09	1.20	1.29	1.39
35°		.11	.22	.34	.47	.58	.69	.70	.81	.92	1.04	1.29	1.42	1.54	1.66
40°		.13	.26	.40	.53	.67	.80	.93	1.06	1.20	1.34	1.49	1.64	1.79	1.94
45°		.15	.30	.44	.60	.76	.91	1.06	1.21	1.37	1.52	1.70	1.87	2.04	2.21
50°		.17	.34	.51	.68	.85	1.02	1.19	1.36	1.54	1.72	1.91	2.10	2.29	2.48
55°		.19	.38	.57	.76	.95	1.14	1.32	1.52	1.72	1.92	2.14	2.35	2.56	2.77
60°		.21	.42	.63	.84	1.05	1.27	1.49	1.71	1.94	2.17	2.38	2.60	2.83	3.07
65°		.23	.46	.69	.93	1.16	1.40	1.64	1.88	2.13	2.38	2.63	2.88	3.13	3.39
70°		.25	.51	.76	1.02	1.28	1.54	1.80	2.06	2.33	2.60	2.88	3.16	3.44	3.72
75°		.27	.56	.83	1.12	1.40	1.69	1.98	2.27	2.57	2.87	3.16	3.47	3.78	4.09
80°		.30	.61	.91	1.22	1.53	1.84	2.15	2.46	2.78	3.10	3.44	3.78	4.12	4.46
85°		.33	.66	1.00	1.33	1.68	2.02	2.36	2.70	3.05	3.40	3.77	4.14	4.55	4.89
90°		.36	.72	1.09	1.45	1.83	2.20	2.57	2.94	3.32	3.70	4.10	4.50	4.91	5.32
95°		.39	.79	1.19	1.55	2.00	2.40	2.80	3.20	3.61	4.02	4.49	4.98	5.38	5.83
100°		.43	.86	1.30	1.74	2.18	2.62	3.06	3.50	3.95	4.40	4.88	5.37	5.85	6.34

For Externals Add

ANGLE	CURVE	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°		.001	.003	.004	.006	.007	.008	.009	.011	.012	.014	.015	.017	.018	.020
15°		.003	.007	.010	.014	.018	.023	.027	.029	.032	.035	.039	.043	.047	.051
20°		.006	.011	.017	.022	.028	.034	.038	.045	.051	.057	.063	.070	.076	.083
25°		.009	.018	.027	.036	.046	.056	.065	.074	.083	.093	.106	.120	.127	.135
30°		.013	.025	.038	.051	.065	.078	.090	.103	.116	.129	.149	.170	.179	.188
35°		.018	.035	.054	.072	.086	.109	.131	.153	.175	.197	.213	.230	.247	.264
40°		.023	.046	.070	.093	.117	.141	.172	.203	.234	.265	.277	.290	.315	.341
45°		.030	.060	.093	.119	.153	.184	.216	.254	.289	.325	.351	.378	.411	.445
50°		.037	.075	.116	.151	.189	.227	.266	.305	.345	.384	.425	.467	.508	.550
55°		.046	.093	.142	.188	.236	.283	.332	.381	.420	.479	.530	.582	.641	.700
60°		.056	.112	.168	.225	.283	.340	.398	.457	.516	.575	.636	.697	.774	.851
65°		.067	.135	.204	.273	.343	.412	.483	.554	.625	.697	.711	.845	.922	1.01
70°		.080	.159	.240	.321	.403	.485	.568	.652	.735	.819	.906	.994	1.08	1.17
75°		.095	.182	.286	.383	.480	.578	.678	.777	.877	.977	1.07	1.18	1.29	1.39
80°		.110	.220	.332	.445	.558	.671	.787	.903	1.02	1.13	1.25	1.38	1.50	1.62
85°		.128	.259	.391	.524	.657	.790	.926	1.06	1.20	1.34	1.47	1.62	1.76	1.91
90°		.149	.299	.450	.603	.756	.910	1.07	1.22	1.38	1.54	1.70	1.87	2.03	2.20
95°		.174	.350	.522	.706	.985	1.06	1.25	1.43	1.62	1.80	1.99	2.18	2.38	2.58
100°		.200	.401	.604	.809	1.01	1.22	1.43	1.64	1.85	2.06	2.28	2.50	2.73	2.96

Table VI. Deflections for Sub Chords for Short Radius Curves.

Degree of Curve	Radius 50 sin. def. ang.	$\frac{1}{2}$ sub chord R = sin of def. angle				Length of arc for 100 ft.
		12.5 Ft.	15 Ft.	20 Ft.	25 Ft.	
30°	193.18	1° 51'	2° 17'	2° 58'	3° 43'	101.15
32°	181.39	1° 59'	2° 25'	3° 10'	3° 58'	101.33
34°	171.01	2° 06'	2° 33'	3° 21'	4° 12'	101.48
36°	161.80	2° 13'	2° 41'	3° 33'	4° 26'	101.66
38°	153.58	2° 20'	2° 49'	3° 44'	4° 40'	101.85
40°	146.19	2° 27'	2° 57'	3° 55'	4° 54'	102.06
42°	139.52	2° 34'	3° 05'	4° 07'	5° 08'	102.29
44°	133.47	2° 41'	3° 13'	4° 18'	5° 22'	102.53
46°	127.97	2° 48'	3° 21'	4° 29'	5° 36'	102.76
48°	122.92	2° 55'	3° 29'	4° 40'	5° 50'	103.00
50°	118.31	3° 02'	3° 38'	4° 51'	6° 04'	103.24
52°	114.06	3° 09'	3° 46'	5° 02'	6° 17'	103.54
54°	110.11	3° 16'	3° 54'	5° 13'	6° 31'	103.84
56°	106.50	3° 22'	4° 02'	5° 23'	6° 44'	104.14
58°	103.14	3° 29'	4° 10'	5° 34'	6° 57'	104.43
60°	100.00	3° 35'	4° 18'	5° 44'	7° 11'	104.72

CURVE FORMULAS.

$$T = R \tan \frac{1}{2} I$$

$$T = \frac{50 \tan \frac{1}{2} I}{\sin. D}$$

$$\sin. D = \frac{50}{R}$$

$$\sin. D = \frac{50 \tan \frac{1}{2} I}{T}$$

$$R = T \cot. \frac{1}{2} I$$

$$R = \frac{50}{\sin. D}$$

$$E = R \text{ ex. sec. } \frac{1}{2} I$$

$$E = T \tan \frac{1}{4} I$$

$$\text{Chord def.} = \frac{\text{chord}^2}{R}$$

$$\text{No. chords} = \frac{\frac{1}{2} I}{D}$$

$$\text{Tan. def.} = \frac{1}{2} \text{ chord def.}$$

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

Table IV. contains Tangents and External to a 1° curve. Tan. and Ext. to any other radius may be found, nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Ext. opposite the given Central Angle by the given External.

To find. Nat. Tan. and Nat. Ex. Sec. for any angle by Table IV.: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

To find angle for a given distance and deflection.

Rule 1. Multiply the given distance by .01745 (def. for 1° for 1 ft.), and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by the given distance.

To find deflection for a given angle and distance: Multiply the angle by .01745, and the product by the distance.

RIGHT ANGLE TRIANGLES.— Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given Base 100, Alt 10. $10^2 \div 200 = .5$. $100 + .5 = 100.5$ hyp.

Given Hyp. 100, Alt. 25. $25^2 \div 200 = 3.125$. $100 - 3.125 = 96.875 = \text{Base}$.

Error in first example, .002; in last, .045.

To find Tons of Rail in one mile of track: multiply weight per yard by 11, and divide by 7.

Natural Sines

DEG.	0'	10'	20'	30'	40'	50'	DEG.	0'	10'	20'	30'	40'	50'	DEG.	
0	0000	0029	0058	0087	0116	0145	89	40	6428	6450	6472	6494	6517	6539	49
1	0175	0204	0233	0262	0291	0320	88	41	6561	6583	6604	6626	6648	6670	48
2	0349	0378	0407	0436	0465	0494	87	42	6661	6713	6734	6756	6777	6799	47
3	0523	0552	0581	0610	0640	0669	86	43	6820	6841	6862	6884	6905	6926	46
4	0698	0727	0756	0785	0814	0843	85	44	6947	6967	6988	7009	7030	7050	45
5	0872	0901	0929	0958	0987	1016	84	45	7071	7092	7112	7133	7153	7173	44
6	1045	1074	1103	1132	1161	1190	83	46	7193	7214	7234	7254	7274	7294	43
7	1219	1248	1276	1305	1334	1363	82	47	7314	7333	7353	7373	7392	7412	42
8	1392	1421	1449	1478	1507	1536	81	48	7431	7451	7470	7490	7509	7528	41
9	1564	1593	1622	1650	1679	1708	80	49	7547	7566	7585	7604	7623	7642	40
10	1736	1765	1794	1822	1851	1880	79	50	7660	7679	7698	7716	7735	7753	39
11	1908	1937	1965	1994	2022	2051	78	51	7771	7790	7808	7826	7844	7862	38
12	2079	2108	2136	2164	2193	2221	77	52	7880	7898	7916	7934	7951	7969	37
13	2250	2278	2306	2334	2363	2391	76	53	7986	8004	8021	8039	8056	8073	36
14	2419	2447	2476	2504	2532	2560	75	54	8090	8107	8124	8141	8158	8175	35
15	2588	2616	2644	2672	2700	2728	74	55	8192	8208	8225	8241	8258	8274	34
16	2756	2784	2812	2840	2868	2896	73	56	8290	8307	8323	8339	8355	8371	33
17	2924	2952	2979	3007	3035	3062	72	57	8387	8403	8418	8434	8450	8465	32
18	3090	3118	3145	3173	3201	3228	71	58	8480	8496	8511	8526	8542	8557	31
19	3256	3283	3311	3338	3365	3393	70	59	8572	8587	8601	8616	8631	8646	30
20	3420	3448	3475	3502	3529	3557	69	60	8660	8675	8689	8704	8718	8732	29
21	3584	3611	3638	3665	3692	3719	68	61	8746	8760	8774	8788	8802	8816	28
22	3746	3773	3800	3827	3854	3881	67	62	8829	8843	8857	8870	8884	8897	27
23	3907	3934	3961	3987	4014	4041	66	63	8910	8923	8936	8949	8962	8975	26
24	4067	4094	4120	4147	4173	4200	65	64	8988	9001	9013	9026	9038	9051	25
25	4226	4253	4279	4305	4331	4358	64	65	9063	9075	9088	9100	9112	9124	24
26	4384	4410	4436	4462	4488	4514	63	66	9135	9147	9159	9171	9182	9194	23
27	4540	4566	4592	4617	4643	4669	62	67	9205	9216	9228	9239	9250	9261	22
28	4695	4720	4746	4772	4797	4823	61	68	9272	9283	9293	9304	9315	9325	21
29	4848	4874	4899	4924	4950	4975	60	69	9336	9346	9356	9367	9377	9387	20
30	5000	5025	5050	5075	5100	5125	59	70	9397	9407	9417	9426	9436	9446	19
31	5150	5175	5200	5225	5250	5275	58	71	9455	9465	9474	9483	9492	9502	18
32	5299	5324	5348	5373	5398	5422	57	72	9511	9520	9528	9537	9546	9555	17
33	5446	5471	5495	5519	5544	5568	56	73	9563	9572	9580	9588	9596	9605	16
34	5592	5616	5640	5664	5688	5712	55	74	9613	9621	9628	9636	9644	9652	15
35	5736	5760	5783	5807	5831	5854	54	75	9659	9667	9674	9681	9689	9696	14
36	5878	5901	5925	5948	5972	5995	53	76	9703	9710	9717	9724	9730	9737	13
37	6018	6041	6065	6088	6111	6134	52	77	9744	9750	9757	9763	9769	9775	12
38	6157	6180	6202	6225	6248	6271	51	78	9781	9787	9793	9799	9805	9811	11
39	6293	6316	6338	6361	6383	6406	50	79	9816	9822	9827	9833	9838	9843	10
DEG.	60'	50'	40'	30'	20'	10'	DEG.	DEG.	60'	50'	40'	30'	20'	10'	DEG.

DEG.	60'	50'	40'	30'	20'	10'	DEG.	60'	50'	40'	30'	20'	10'	DEG.
80	9848	9853	9858	9863	9868	9872	9							
81	9877	9881	9886	9890	9894	9899	8							
82	9903	9907	9911	9914	9918	9922	7							
83	9925	9929	9932	9936	9939	9942	6							
84	9945	9948	9951	9954	9957	9959	5							
85	9962	9964	9967	9969	9971	9974	4							
86	9976	9978	9980	9981	9983	9985	3							
87	9986	9988	9989	9990	9992	9993	2							
88	9994	9995	9996	9997	9997	9998	1							
89	9998	9999	9999	9999	I.0000	I.0000	0							
DEG.	60'	50'	40'	30'	20'	10'	DEG.							

Natural Cosines

Natural Tangents

deg.	0'	10'	20'	30'	40'	50'	deg.	deg.	0'	10'	20'	30'	40'	50'	deg.
0	0000	0029	0058	0087	0116	0145	89	40	8391	8441	8491	8541	8591	8642	49
1	0175	0204	0233	0262	0291	0320	88	41	8693	8744	8796	8847	8899	8952	48
2	0349	0378	0407	0437	0466	0495	87	42	9004	9057	9110	9163	9217	9271	47
3	0524	0553	0582	0612	0641	0670	86	43	9325	9380	9435	9490	9545	9601	46
4	0699	0729	0758	0787	0816	0846	85	44	9657	9713	9770	9827	9884	9942	45
5	0875	0904	0934	0963	0992	1022	84	45	1.0000	1.0058	1.0117	1.0176	1.0235	1.0295	44
6	1051	1080	1110	1139	1169	1198	83	46	1.0355	1.0416	1.0477	1.0533	1.0599	1.0661	43
7	1228	1257	1287	1317	1346	1376	82	47	1.0724	1.0786	1.0850	1.0913	1.0977	1.1041	42
8	1405	1435	1465	1495	1524	1554	81	48	1.1106	1.1171	1.1237	1.1303	1.1369	1.1436	41
9	1584	1614	1644	1673	1703	1733	80	49	1.1504	1.1571	1.1640	1.1708	1.1778	1.1847	40
10	1763	1793	1823	1853	1883	1914	79	50	1.1918	1.1988	1.2059	1.2131	1.2203	1.2276	39
11	1944	1974	2004	2035	2065	2095	78	51	1.2349	1.2423	1.2497	1.2572	1.2647	1.2723	38
12	2126	2156	2186	2217	2247	2278	77	52	1.2799	1.2876	1.2954	1.3032	1.3111	1.3190	37
13	2309	2339	2370	2401	2432	2462	76	53	1.3270	1.3351	1.3432	1.3514	1.3597	1.3680	36
14	2493	2524	2555	2586	2617	2648	75	54	1.3764	1.3848	1.3934	1.4019	1.4106	1.4193	35
15	2679	2711	2742	2773	2805	2836	74	55	1.4281	1.4370	1.4460	1.4550	1.4641	1.4733	34
16	2867	2899	2931	2962	2994	3026	73	56	1.4826	1.4919	1.5013	1.5108	1.5204	1.5301	33
17	3057	3089	3121	3153	3185	3217	72	57	1.5399	1.5497	1.5597	1.5697	1.5798	1.5900	32
18	3249	3281	3314	3346	3378	3411	71	58	1.6003	1.6107	1.6212	1.6319	1.6426	1.6534	31
19	3443	3476	3508	3541	3574	3607	70	59	1.6643	1.6753	1.6864	1.6977	1.7090	1.7205	30
20	3640	3673	3706	3739	3772	3805	69	60	1.7321	1.7437	1.7556	1.7675	1.7797	1.7917	29
21	3839	3872	3906	3939	3973	4006	68	61	1.8040	1.8165	1.8291	1.8418	1.8546	1.8676	28
22	4040	4074	4108	4142	4176	4210	67	62	1.8807	1.8940	1.9074	1.9210	1.9347	1.9486	27
23	4245	4279	4314	4348	4383	4417	66	63	1.9626	1.9768	1.9912	2.0057	2.0204	2.0353	26
24	4452	4487	4522	4557	4592	4628	65	64	2.0503	2.0655	2.0809	2.0965	2.1123	2.1283	25
25	4663	4699	4734	4770	4806	4841	64	65	2.1445	2.1609	2.1775	2.1943	2.2113	2.2286	24
26	4877	4913	4950	4986	5022	5059	63	66	2.2450	2.2637	2.2817	2.2998	2.3183	2.3369	23
27	5095	5132	5169	5206	5243	5280	62	67	2.3559	2.3750	2.3945	2.4142	2.4342	2.4545	22
28	5317	5354	5392	5430	5467	5505	61	68	2.4751	2.4960	2.5172	2.5386	2.5605	2.5826	21
29	5543	5581	5619	5658	5696	5735	60	69	2.6051	2.6279	2.6511	2.6746	2.6985	2.7228	20
30	5774	5812	5851	5890	5930	5969	59	70	2.7475	2.7725	2.7980	2.8239	2.8502	2.8770	19
31	6009	6048	6088	6128	6168	6208	58	71	2.9042	2.9319	2.9600	2.9887	3.0178	3.0475	18
32	6249	6289	6330	6371	6412	6453	57	72	3.0777	3.1084	3.1397	3.1716	3.2041	3.2371	17
33	6494	6536	6577	6619	6661	6703	56	73	3.2709	3.3052	3.3402	3.3759	3.4124	3.4495	16
34	6745	6787	6830	6873	6916	6959	55	74	3.4874	3.5261	3.5656	3.6059	3.6470	3.6891	15
35	7002	7046	7089	7133	7177	7221	54	75	3.7321	3.7760	3.8208	3.8667	3.9136	3.9617	14
36	7265	7310	7355	7400	7445	7490	53	76	4.0108	4.0611	4.1126	4.1653	4.2193	4.2747	13
37	7536	7581	7627	7673	7720	7766	52	77	4.3315	4.3897	4.4494	4.5107	4.5736	4.6382	12
38	7813	7860	7907	7954	8002	8050	51	78	4.7046	4.7729	4.8430	4.9152	4.9894	5.0658	11
39	8098	8146	8195	8243	8292	8342	50	79	5.1446	5.2257	5.3093	5.3955	5.4845	5.5764	10
deg.	60'	50'	40'	30'	20'	10'	deg.	deg.	60'	50'	40'	30'	20'	10'	deg.

deg.	0'	10'	20'	30'	40'	50'	deg.
80	5.6713	5.7694	5.8708	5.9758	6.0844	6.1970	9
81	6.3138	6.4348	6.5606	6.6912	6.8269	6.9682	8
82	7.1154	7.2687	7.4287	7.5958	7.7704	7.9530	7
83	8.1443	8.3450	8.5555	8.7769	9.0098	9.2553	6
84	9.5144	9.7882	10.078	10.385	10.711	11.059	5
85	11.430	11.826	12.250	12.706	13.197	13.727	4
86	14.300	14.924	15.605	16.350	17.169	18.075	3
87	19.081	20.206	21.470	22.903	24.542	26.432	2
88	28.636	31.242	34.368	38.189	42.964	49.104	1
89	57.290	68.750	85.940	114.588	171.885	343.770	0
deg.	60'	50'	40'	30'	20'	10'	deg.

Natural Cotangents

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1 $\frac{1}{2}$ TO 1.

FOR SINGLE TRACK EMBANKMENT.

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

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

MADE IN GERMANY.

22700