

1732

1732

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

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

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

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

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CITY ENGINEER'S OFFICE

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Made in U. S. A.

Cudaby sewer align. - 2

M.H. #16 to #18 - 8

Ex. ⁰⁺⁰⁰M.H. to 5+16.4 M.H. #18 - 16
Sinda Vista Lateral

11+28.4 M.H. #8 to 43+78.66 M.H. #16 - 21

Beg. at SLY end job - 43

M.H. #7 at River Dyke to M.H. #8 - 52

#1 LIGN. Cudahy Sewer

25+6.1 6°58' LT. M.H. #5
at Congress St.

Cuts 15 20' LT end here

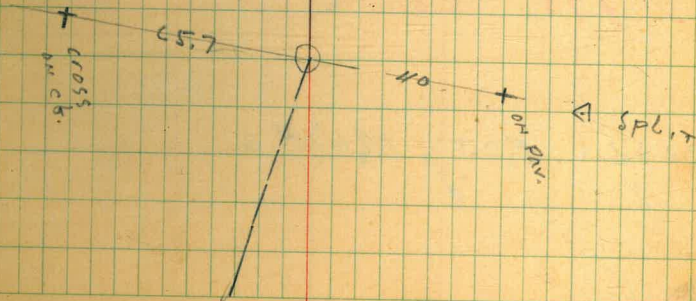
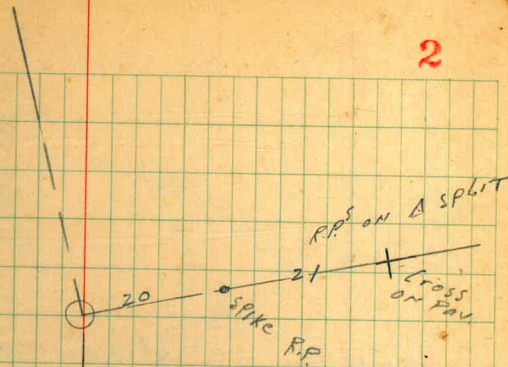
21+13.22 9°08' LT. M.H. #4

20+77.5 Begin -

Moore
Sawyer & Moore
W.F.M.
3099
7-31-XC.

W.O. #1

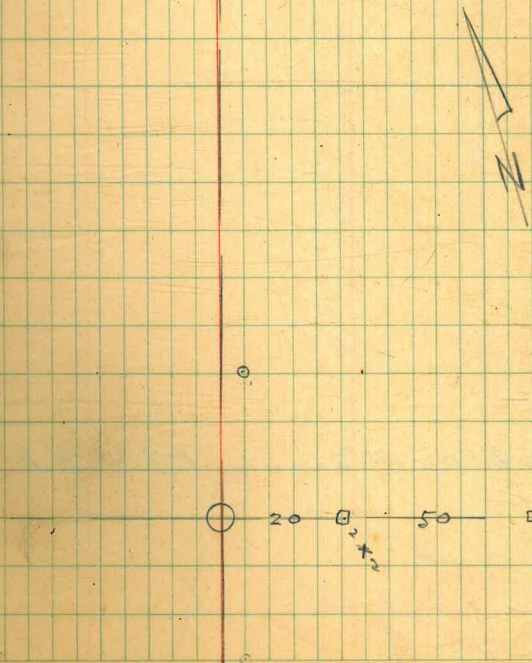
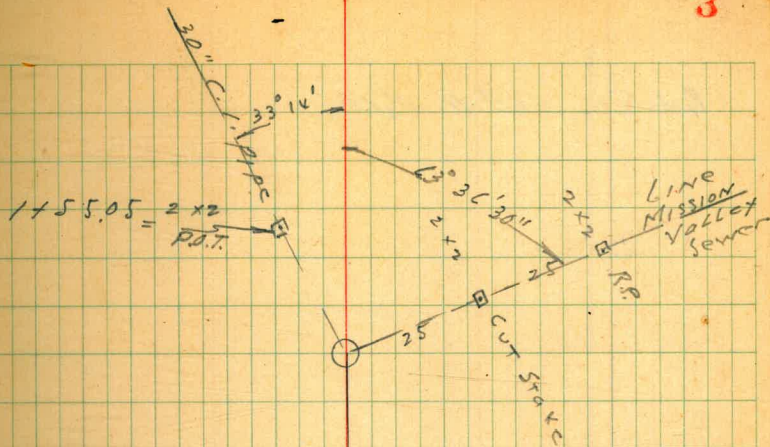
2



0+60.69 33°14' LT. M.H. #7
35+52

31+70 CONST. CHIMNEY

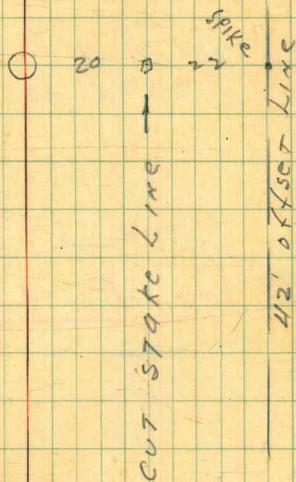
30+61 P.O.T. M.H. #6



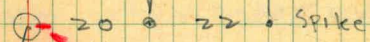
18+50 M.H. #10



14+00.28 M.H. #9 Anna St.



11+28.40 4°21' Lt M.H. #8



FL. outside of
10" stub EL. 658
P. 59



32 + 00 M.H. #13
 $\Delta = 0^{\circ} 06' 30''$ LT.

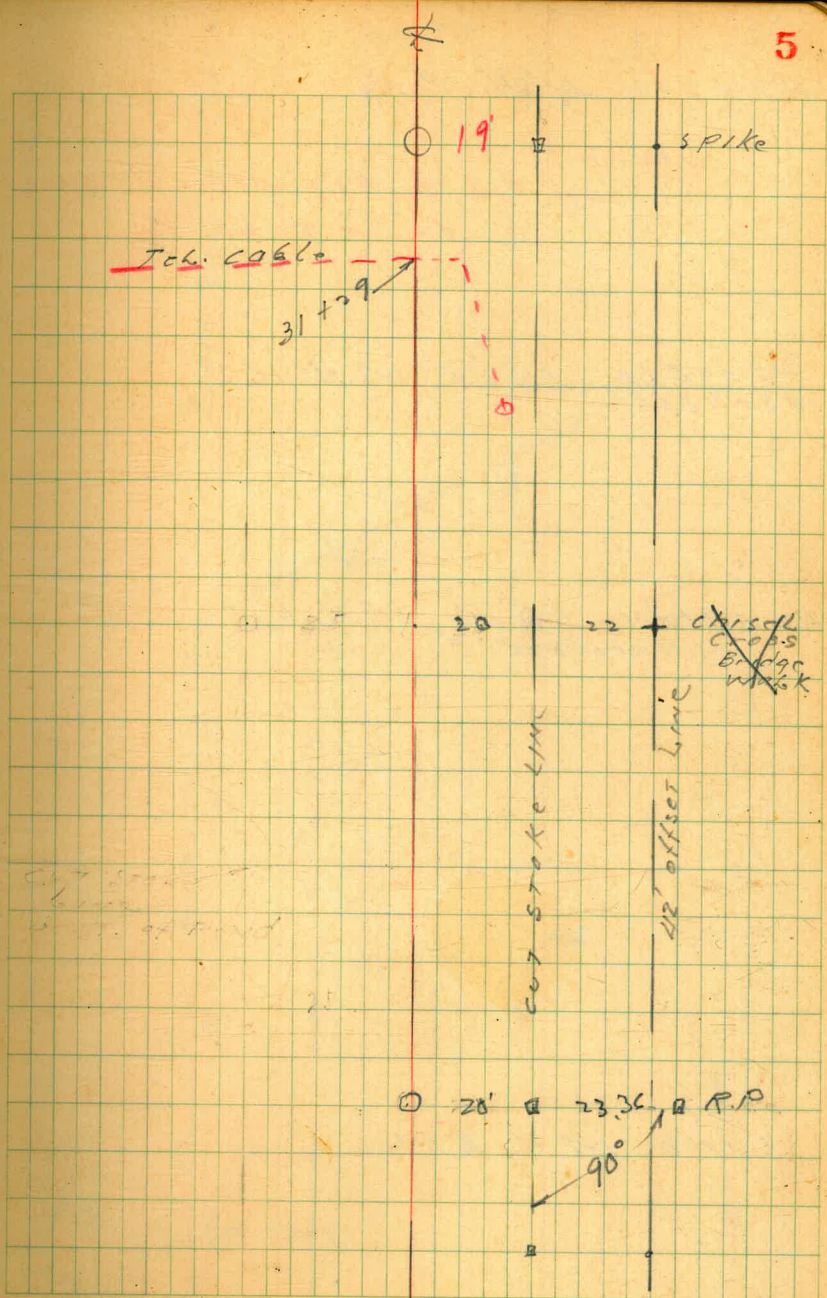
26 + 90
26 + 50 M.H. #12 Cudaby Bridge
 $\Delta 0^{\circ} 06' 30''$ RT

See P. 60

23 + 27 M.H. #11 Moved N by

20 + 91 as built
20 + 90 Chimney

5



47+80 M.H. #17

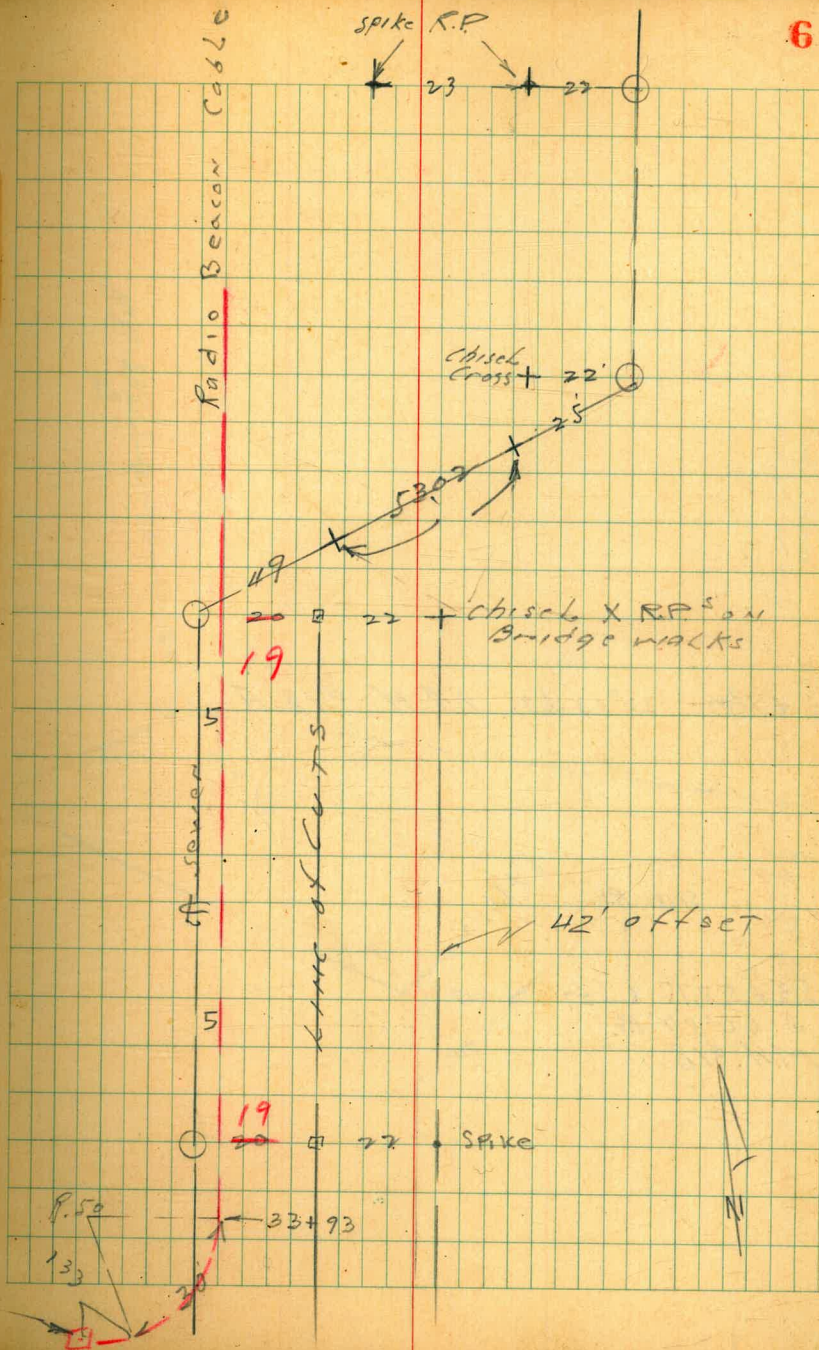
NOTE!
M.H. #16 to #17 offset 22' LT.
from true &

42+40.83 CO^o LT. M.H. 16
43+98.66

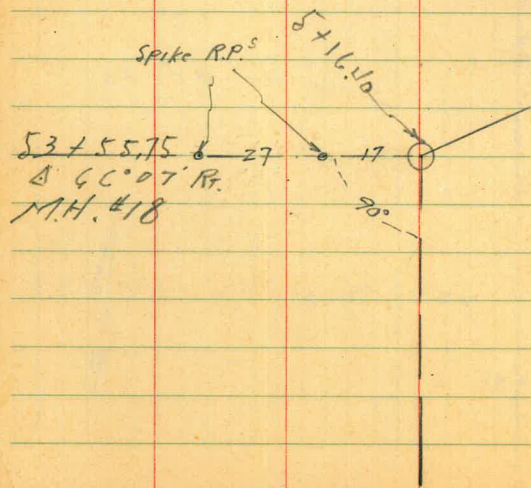
42+71.64 CO^o Rt. M.H. #15
Tocolore Bridge

36+48 M.H. #14

Most
Ely Towers



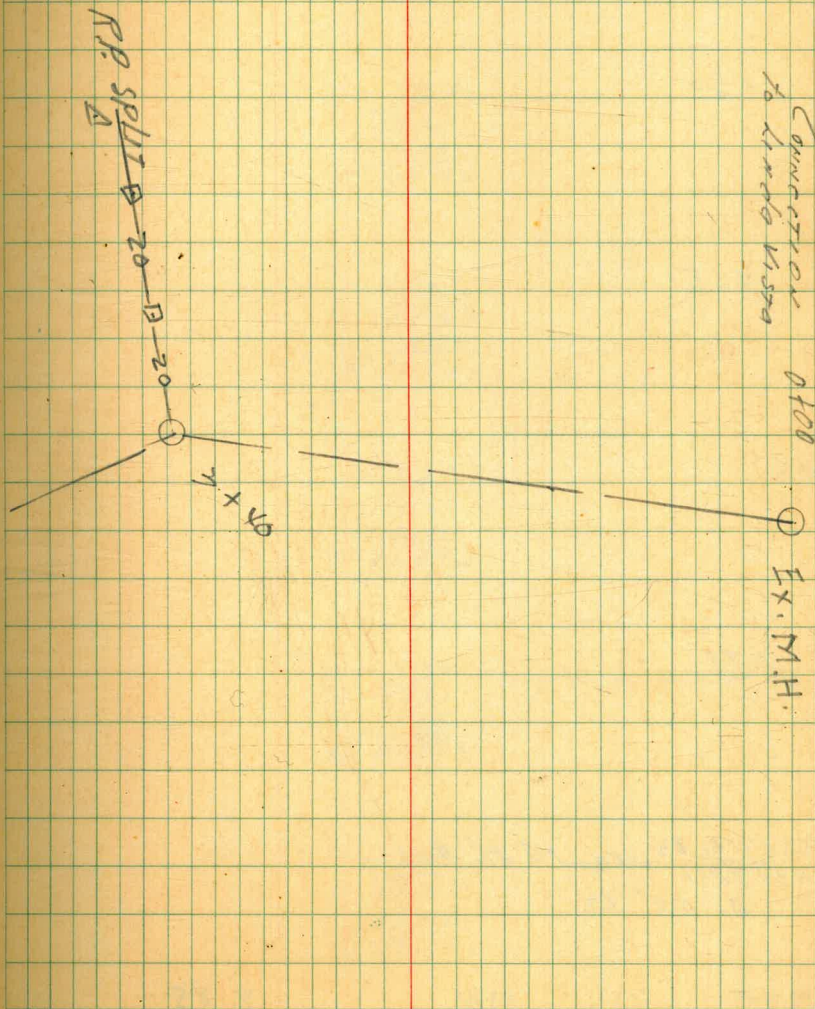
3 + 110 32° 03' Lt. M.H. #18 A



Conductor
to Linda N. 1970

0100

EX. M.H.



Cudahy Sewer grades.
M.H. #16 Nby to End

NOTE! M.H. #16 to #17 F.L. grades
offsets 22' LT. or West

8

+75

-5.22
10.23
4.73
C 11.50 ✓

+50

-5.24
10.25
4.63
C 11.62 ✓

+25

-5.26
10.27
4.51
C 11.76 ✓

+3

-5.28
10.29
4.40
C 11.89 ✓

+75

-5.30
10.31
4.58
C 14.73 ✓

nail on Guard rail

$42 + 48.83 = E8$ M.H. #16
43198.66
Δ 60° LT.

-5.32 X on Bridge
10.33
3.17
C 13.14 ✓

B.M.B.P. 3.16 11.01

7.85

E. C. 6. Φ

Tecolore Bridge

+25

$$\begin{array}{r} - 5.10 \\ 10.11 \\ 4.83 \\ \hline C 11.28 \checkmark \end{array}$$

+15

$$\begin{array}{r} - 5.12 \\ 10.13 \\ 4.80 \\ \hline C 11.27 \checkmark \end{array}$$

+75

$$\begin{array}{r} 5.14 \\ 10.15 \\ 4.78 \\ \hline C 11.37 \checkmark \end{array}$$

+50

$$\begin{array}{r} - 5.16 \\ 10.17 \\ 4.72 \\ \hline C 11.45 \checkmark \end{array}$$

+25

$$\begin{array}{r} - 5.18 \\ 10.19 \\ 4.70 \\ \hline C 11.49 \checkmark \end{array}$$

+14

$$\begin{array}{r} - 5.20 \\ 10.21 \\ 4.74 \\ \hline C 11.47 \checkmark \end{array}$$

11.01

+75

T.P. 4.48 10.40 5.09 5.92

+50

+25

46

+75

45 + 50

11.01

$$\begin{array}{r} -4.98 \\ 15.38 \\ 4.48 \\ \hline C 10.90 \checkmark \end{array}$$

$$\begin{array}{r} -5.00 \\ 16.01 \\ 5.06 \\ \hline 10.95 \checkmark \end{array}$$

$$\begin{array}{r} -5.02 \\ 16.03 \\ 5.00 \\ \hline C 11.03 \checkmark \end{array}$$

$$\begin{array}{r} -5.04 \\ 16.05 \\ 4.97 \\ \hline C 11.08 \checkmark \end{array}$$

$$\begin{array}{r} -5.06 \\ 16.07 \\ 4.97 \\ \hline C 11.10 \checkmark \end{array}$$

$$\begin{array}{r} 5.08 \\ 16.09 \\ 4.87 \\ \hline C 11.02 \checkmark \end{array}$$

+25

$$\begin{array}{r} -4.86 \\ 15.26 \\ \hline 5.10 \\ \hline 10.16 \checkmark \end{array}$$

48

$$\begin{array}{r} -4.88 \\ 15.28 \\ \hline 5.00 \\ \hline 10.28 \checkmark \end{array}$$

47+80 M.H. #17

$$\begin{array}{r} -4.90 \\ 15.30 \\ \hline 4.77 \\ \hline 10.53 \checkmark \end{array}$$

47+50

$$\begin{array}{r} -4.92 \\ 15.32 \\ \hline 4.73 \\ \hline 10.59 \checkmark \end{array}$$

+25

$$\begin{array}{r} -4.94 \\ 15.34 \\ \hline 4.60 \\ \hline 10.74 \checkmark \end{array}$$

47

$$\begin{array}{r} -4.96 \\ 15.36 \\ \hline 4.54 \\ \hline 10.82 \checkmark \end{array}$$

10.40

+75

+50

+25

49

49 +75

48 +50

10.40

$$\begin{array}{r}
 -4.74 \\
 15.14 \\
 \hline
 5.23 \\
 \hline
 C9.81 \checkmark
 \end{array}$$

$$\begin{array}{r}
 -4.70 \\
 15.10 \\
 \hline
 5.23 \\
 \hline
 C9.93 \checkmark
 \end{array}$$

$$\begin{array}{r}
 -4.78 \\
 15.18 \\
 \hline
 5.12 \\
 \hline
 C10.04 \checkmark
 \end{array}$$

$$\begin{array}{r}
 -4.80 \\
 15.20 \\
 \hline
 5.04 \\
 \hline
 C10.10 \checkmark
 \end{array}$$

$$\begin{array}{r}
 -4.82 \\
 15.22 \\
 \hline
 5.11 \\
 \hline
 C10.11 \checkmark
 \end{array}$$

$$\begin{array}{r}
 -4.84 \\
 15.24 \\
 \hline
 5.12 \\
 \hline
 C10.12 \checkmark
 \end{array}$$

+25

51

+75

+50

+25

T.P.
SPIKE
50+00

4.38

9.32

5.46

4.94

50+00

10.40

Fl.

13

- 4.62
13.94
4.71
C 9.23 ✓

- 4.64
13.96
4.65
C 9.31 ✓

- 4.66
13.98
4.60
C 9.38 ✓

- 4.68
14.00
4.52
C 9.48 ✓

- 4.70
14.02
4.43
C 9.59 ✓

- 4.72
15.12
5.46
C 9.66 ✓

+75

+50

+25

52

+75

51+50

9.32

F.L.

14

$$\begin{array}{r}
 - 4.50 \\
 \underline{13.82} \\
 4.93 \\
 \hline
 C 8.89 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 4.52 \\
 \underline{13.84} \\
 4.92 \\
 \hline
 C 8.92 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 4.54 \\
 \underline{13.86} \\
 4.89 \\
 \hline
 C 8.97 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 4.56 \\
 \underline{13.88} \\
 4.91 \\
 \hline
 C 8.97 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 4.58 \\
 \underline{13.90} \\
 4.87 \\
 \hline
 C 9.03 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 4.60 \\
 \underline{13.92} \\
 4.80 \\
 \hline
 C 9.12 \checkmark
 \end{array}$$

check to B.M. BP E Adwall

Box Culy. 53+50	4.46	4.86	4.85
			0.01

53+55.75 @ 66°07' R. M.H. #18

+25

53+00

9.37

	F.L. IN.
- 4.44	- 3.37
13.76	12.69
5.11	5.11
<u>C 8.65 ✓</u>	<u>C 7.58 ✓</u>

- 4.46
13.78
5.03
<u>C 8.75 ✓</u>

- 4.48
13.80
5.02
<u>C 8.78 ✓</u>

Sewer Grades

End Linda Vista = 0+00

to 5+16.4 = M.H. #18

offsets 20' Pt. on North

F.L.

1+00

-1.95
 $\frac{12.38}{7.43}$
 C 4.95

+75

-1.93
 $\frac{12.36}{7.27}$
 C 5.09

+50

-1.91
 $\frac{12.34}{6.19}$
 C 6.15

+25

-1.89
 $\frac{12.32}{6.41}$
 C 5.91

0+00 = END at Ex. M.H.

" Linda Vista Line

on Marana Blvd.

-1.87
 $\frac{12.30}{5.42}$
 C 6.88

B.M. B.P.

E. Adml. Cul. 5.58 10.43

53+50

4.85

2 + 40

2 + 20

2 + 00

Req. 24" C.I. Pipe

+ 75

+ 50

1 + 25

10.43

4.1

F.L.

5.72 π
4.06
1.68 T.P. 17
4.08
5.72 π

- 2.06
12.49
2.22
C 10.27

- 2.05
12.48
10.31
C 2.17

- 2.05 ✓
7.77

- 2.03
12.46
7.84
C 4.62

- 2.01
12.44
7.80
C 4.64

- 1.99
12.42
7.61
C 4.81

- 1.97
12.40
7.50
C 4.90

3 + 40 32°03' LT. = M.H. # 18 A

3 + 20

3 + 00

2 + 73

2 + 57

10.43

FL.

4.25

0.89

5.74 *

18

- 2.14
12.57
7.78
C 4.79

2.14
7.88 ✓ 7.88
2.17 C 7.88
5.74

- 2.12
12.55
10.79
C 1.76

- 2.12
7.86
- 2.11
7.85 ✓

- 2.11
12.54
9.09
C 3.45

- 2.09
12.52
9.85
C 2.67

- 2.08
12.51
2.44
C 10.07

+ 75

$$\begin{array}{r}
 -3.09 \\
 13.52 \\
 11.57 \\
 \hline
 C 1.95
 \end{array}$$

+ 50

$$\begin{array}{r}
 -2.91 \\
 13.34 \\
 7.63 \\
 \hline
 C 5.71
 \end{array}$$

+ 25

$$\begin{array}{r}
 -2.74 \\
 13.17 \\
 9.77 \\
 \hline
 C 3.40
 \end{array}$$

4

$$\begin{array}{r}
 -2.56 \\
 12.99 \\
 10.03 \\
 \hline
 C 2.90
 \end{array}$$

3 + 80

$$\begin{array}{r}
 -2.42 \\
 12.85 \\
 9.85 \\
 \hline
 C 3.00
 \end{array}$$

3 + 60

$$\begin{array}{r}
 -2.28 \\
 12.71 \\
 8.45 \\
 \hline
 C 4.26
 \end{array}$$

10.43

5 + 16.40 = 17.40 #18 = Drop in

5 + 00

10.43
H.L.

- 3.37 CUTS F.L. OUT
 P.15 - 4.44

- 3.20
13.69
11.40
C 2.29

Cudahy Sewer
 11+28.40 M.H. #8 nly to
 M.H. #16 = 43+98.66 = E8.

+25

12

+75

+50

11+28.4 Δ 4'21" LT. M.H. #8 P.59
 END 30" C.I. Pipe

BM Spike 9.45 ✓ 18.00 8.58
 Pole N.E.
 Anna +
 Pacific
 P.23

FL

21

- 7.86
 25.86
 11.31
 C 14.55

- 7.88
 25.88
 11.28
 C 14.00

- 7.90
 25.90
 11.32
 C 14.52

STAKING
 11-19-46

- 7.92
 25.92
 11.66
 C 14.26

- 7.93
 C 13.22

SET 10" STUB
 TO ELY EL 75

See P. 59

.43

+75

+50

+25

13

+75

12+50

18.00

$$\begin{array}{r} -774 \\ 25.74 \\ 0.49 \\ \hline C 19.25 \end{array}$$

$$\begin{array}{r} -776 \\ 25.76 \\ 0.02 \\ \hline C 19.72 \end{array}$$

$$\begin{array}{r} -778 \\ 25.78 \\ 8.33 \\ \hline C 17.45 \end{array}$$

$$\begin{array}{r} -780 \\ 25.80 \\ 12.36 \\ \hline C 13.44 \end{array}$$

$$\begin{array}{r} -782 \\ 25.82 \\ 11.86 \\ \hline C 13.96 \end{array}$$

$$\begin{array}{r} -784 \\ 25.84 \\ 11.49 \\ \hline C 14.35 \end{array}$$

Staked
11-19-45

34 Bolt
N.E. Curb
Cudahy
Bridge

CUTS = 8-30-46

5.19 16.88 11.59
T.P. 5.41 16.86 5.43 11.45

T.P. 5.56 17.62 4.80 12.06

+25 T.P. 6.02 17.60 6.04 11.58

CUT STUB
14+00.28

Set B.M.

9.02

8.58

Spike Tel. P.

Anna
and
Pacific
N.E. Cor.

15

+75

+50

+25

14+00.28 M.H. #9 Anna St.

CUT
T.P. STUB
Above

5.68

17.26

11.58

F.L.

23

- 7.67
24.88
12.30
C 17.58

- 7.64
24.90
14.96
C 17.94

- 7.66
24.97
12.47
C 17.50

- 7.68
24.94
12.15
C 12.79

- 7.70
24.96
9.43
C 15.53

CONST. CHIMNEY

- 7.72
24.98
5.68
C 19.30

+75

+50

+25

16

+75

15+50

17.26

$$\begin{array}{r} -7.50 \\ 24.76 \\ 12.34 \\ \hline C 12.42 \end{array}$$

$$\begin{array}{r} -7.52 \\ 24.78 \\ 12.41 \\ \hline C 12.37 \end{array}$$

$$\begin{array}{r} -7.54 \\ 24.80 \\ 11.88 \\ \hline C 12.92 \end{array}$$

$$\begin{array}{r} -7.56 \\ 24.82 \\ 12.20 \\ \hline C 12.62 \end{array}$$

$$\begin{array}{r} -7.58 \\ 24.84 \\ 12.00 \\ \hline C 12.84 \end{array}$$

$$\begin{array}{r} -7.60 \\ 24.86 \\ 12.18 \\ \hline C 12.68 \end{array}$$

+25

18

+75

+47 ON RAMP

+25 ON RAMP

T.P.	4.03	<u>15.37</u>	5.45	11.34
BM. Sq. Bolt				
NE Cor.	5.10	16.79		11.69
Cudany				
17 Bridge				

17.26

- 7.38
22.75
 10.86
 C 11.89

- 7.40
22.77
 10.71
 C 12.06

- 7.42
22.79
 10.86
 C 11.93

- 7.44
22.81
 4.55
 C 18.26

- 7.46
22.83
 5.13
 C 17.70

- 7.46

15.37 = H.I.

22.85
10.57
 C 12.22 ✓

- 7.48
24.74
 12.46
 C 12.28

Staked
H-26-46

ON RAMP

ON RAMP

T.P. 5,52 9,33 5,25 -3,81

+75

-7,26
 22,03
 11,54
 C 11,09

14,32
 5,25
 C 11,07

+50

-7,28
 22,05
 11,81
 C 10,84

16,34
 5,53
 C 10,81

+25 Remarked stakes 12-10-46

Find that ground settles
 above diaphragm also shrinkage from
9.06 = H.L. 12-10-46

Wall Pt.
 Pumping

-7,30
 22,07
 11,46
 C 11,21

-7,30
 9,04
 16,36
 5,19
 C 11,17

19

-7,32
 22,49
 11,54
 C 11,15

+75

-7,34
 22,71
 11,62
 C 11,09

+51,5
 18+50 M.H. #10

1537 = H.L.

-7,36
 22,73
 11,05
 C 11,08

+25

21 OUT

20 + 90 CONST. CHIMNEY

+75

T.P. ^{on} stub 20 + 50 3.43 7.78 11.02 4.35

+50

+25

20

15.37

FL

27

~~-7.14~~
~~14.92~~
~~3.86~~
C 11.52

-7.14
14.97
4.95
C 11.52

~~-7.16~~ OUT

-7.17

~~-7.17~~ -7.17
~~14.95~~ 14.50
~~3.82~~ 4.71
C 11.83 C 11.79

~~-7.18~~
~~14.96~~
~~3.81~~
C 11.65

14.51
4.89
C 11.62

~~-7.20~~
~~14.97~~
~~11.02~~
C 11.55

14.53
OUT

-7.22
22.59
11.67
C 10.92

14.55
5.66
C 10.89

-7.24
22.61
11.85
C 10.76

-7.24
14.57
5.83
C 10.74

9.33

~~2~~
4.1. 12-10.16

+75

$$\begin{array}{r}
 -7.07 \\
 14.80 \\
 \hline
 7.73 \\
 C 11.03
 \end{array}$$

$$\begin{array}{r}
 16.35 \\
 4.80 \\
 \hline
 C 11.55
 \end{array}$$

22 + 50

$$\begin{array}{r}
 -7.04 \\
 14.82 \\
 \hline
 7.78 \\
 C 11.03
 \end{array}$$

$$\begin{array}{r}
 16.37 \\
 5.40 \\
 \hline
 C 10.97
 \end{array}$$

+25

$$\begin{array}{r}
 -7.06 \\
 14.84 \\
 \hline
 7.78 \\
 C 11.98
 \end{array}$$

$$\begin{array}{r}
 16.39 \\
 4.57 \\
 \hline
 C 11.92
 \end{array}$$

22

$$\begin{array}{r}
 -7.06 \\
 14.86 \\
 \hline
 7.80 \\
 C 11.25
 \end{array}$$

$$\begin{array}{r}
 16.41 \\
 5.22 \\
 \hline
 C 11.19
 \end{array}$$

+75

$$\begin{array}{r}
 -7.14 \\
 14.88 \\
 \hline
 7.74 \\
 C 11.78
 \end{array}$$

$$\begin{array}{r}
 16.43 \\
 4.70 \\
 \hline
 C 11.73
 \end{array}$$

21 + 50

$$\begin{array}{r}
 -7.12 \\
 14.90 \\
 \hline
 7.78 \\
 C 11.38
 \end{array}$$

$$\begin{array}{r}
 16.45 \\
 5.11 \\
 \hline
 C 11.34
 \end{array}$$

7.78

9.33

HJ. 12-10-46

F.L.

+25

-6.90
13.25
4.81
C 8.44

24

-6.94
13.27
4.01
C 9.26

19' offset

+75

-6.94
13.29
3.48
C 9.81

23 +50.5

12-10-46
T.P. 4.06 6.35 10.60 2.29
C. d. d. h. y
B.M. Bridge 1.20 12.89 11.69

-6.96
13.31
3.03
C 10.28

offset 19' RT

933
5.67
3.66 + T.P.
23 + 27.2
20' RT stake

12-10-46

23 +27.2

M.H. #11

See P. 60

-6.98
14.76
4.06
C 10.70

11.31

11-20-46

3.81 11.68 11.69
B.M.

T.P.

11.77 15.49

4.06 3.72

B.M.

23

-7.00
14.78
3.36
C 11.42

16.33
4.98
C 11.35

7.78

933

H.I. 12-10-46

+75

+50

+25

25

+75

24+50

6.35

$$\begin{array}{r} -6.78 \\ 13.13 \\ \hline 5.35 \\ \hline C 7.77 \end{array}$$

$$\begin{array}{r} -6.80 \\ 13.15 \\ \hline 5.26 \\ \hline C 7.89 \end{array}$$

$$\begin{array}{r} -6.82 \\ 13.17 \\ \hline 4.00 \\ \hline C 9.17 \end{array}$$

$$\begin{array}{r} -6.84 \\ 13.19 \\ \hline 4.42 \\ \hline C 8.77 \end{array}$$

$$\begin{array}{r} -6.86 \\ 13.21 \\ \hline 4.18 \\ \hline C 9.03 \end{array}$$

$$\begin{array}{r} -6.88 \\ 13.23 \\ \hline 3.99 \\ \hline C 9.24 \end{array}$$

27 + 25

B.M. 3.08 14.77 11.69

26 + 90 $\Delta 0^{\circ}06'30''$ ^{Pr} N.H. #2 Δ

check to B.M. ^{Culinary} Bridge 1.33 11.69 11.69

T.P. 10.80 13.04 4.13 2.72 ✓

+ 75

26 + 50 ~~N.H. #2 Culinary Bridge~~

+ 25

26

6.35

2

Fl.

31

Staked 12-12-46

- 6.66
21.43
11.25
C 10.18

- 6.69 ^{13.04}
- 6.69 ^{4.13} C 8.91 end 12-10-46

- 6.70

13.05
4.37
C 8.68

- 6.72

13.07
5.24
C 7.83

- 6.74

13.09
5.25
C 7.34

- 6.76

13.11
6.08
C 7.03

+75

-6.54

OUT

+50

$$\begin{array}{r} -6.56 \\ \sqrt{11.33} \\ 11.29 \\ \hline C 10.04 \end{array}$$

+25

-6.58

OUT

28

$$\begin{array}{r} -6.60 \\ \sqrt{11.37} \\ 11.73 \\ \hline C 9.64 \end{array}$$

+75

-6.62

OUT

27 + 50

$$\begin{array}{r} -6.64 \\ \sqrt{11.41} \\ 11.43 \\ \hline C 9.98 \end{array}$$
14.77

+25

30 = END Gen. Cradles
Beg. rock Bedding

+75

+50

+25

29

14.77

-6.42 out

-6.44
21.21
11.15
10.06

-6.46 out

-6.48
21.25
11.99
9.26

-6.50 out

-6.52
21.29
11.39
9.90

+75

+53

+25

31

+75

30 + 50

1477

- 6,30

OUT

$$\begin{array}{r} -6,32 \\ 21,09 \\ 7,08 \\ \hline C 14,01 \end{array}$$

- 6,34

OUT

$$\begin{array}{r} -6,36 \\ 21,13 \\ 8,13 \\ \hline C 13,00 \end{array}$$

- 6,38

OUT

$$\begin{array}{r} -6,40 \\ 21,17 \\ 11,62 \\ \hline C 9,55 \end{array}$$

+25

33

+75

+50

M.H. #13 to #15

IS 1' E of PLAN.

+25

error by CONTRACTOR

32

M.H. #13

T.P.	10.75	13.94	11.83	3.19
B.M.				
Cuddeby Bridge	3.33	15.02		11.69

F.b.

31

$$\begin{array}{r} -6.18 \\ 20.12 \\ 10.95 \\ \hline C9.17 \end{array}$$

$$\begin{array}{r} -6.20 \\ 20.14 \\ 11.15 \\ \hline C9.99 \end{array}$$

$$\begin{array}{r} -6.22 \\ 20.16 \\ 11.08 \\ \hline C9.08 \end{array}$$

$$\begin{array}{r} -6.24 \\ 20.18 \\ 10.81 \\ \hline C9.37 \end{array}$$

$$\begin{array}{r} -6.26 \\ 20.20 \\ 10.94 \\ \hline C9.26 \end{array}$$

$$\begin{array}{r} -6.28 \\ 20.22 \\ 10.75 \\ \hline C9.47 \end{array}$$

$$\begin{array}{r} -6.28 \\ 14.77 \\ \hline 21.05 \\ 11.57 \\ \hline C9.48 \end{array}$$

Staked 9-3-XC

very windy

12-12-46.

T.P. 10.51 13.16 11.29 2.65
5706 34 + 75

+ 75

+ 50

+ 25

34

+ 75

33 + 50

13.9x

F.b.

36

- 6.06
20.00
11.29
C 8.71

- 6.08
20.02
11.10
C 8.92

- 6.10
20.04
11.47
C 8.57

- 6.12
20.06
10.85
C 9.21

- 6.14
20.08
10.93
C 9.15

- 6.16
20.10
10.33
C 9.77

+25

$$\begin{array}{r}
 - 5.94 \\
 \underline{19.10} \\
 10.78 \\
 \hline
 C 8.32
 \end{array}$$

36

$$\begin{array}{r}
 - 5.96 \\
 \underline{19.12} \\
 10.19 \\
 \hline
 C 8.93
 \end{array}$$

+75

$$\begin{array}{r}
 - 5.98 \\
 \underline{19.14} \\
 10.78 \\
 \hline
 C 8.36
 \end{array}$$

+50

$$\begin{array}{r}
 - 6.00 \\
 \underline{19.16} \\
 10.59 \\
 \hline
 C 8.57
 \end{array}$$

+25

$$\begin{array}{r}
 - 6.02 \\
 \underline{19.18} \\
 9.95 \\
 \hline
 C 9.23
 \end{array}$$

35

13.16

$$\begin{array}{r}
 - 6.04 \\
 \underline{19.20} \\
 10.76 \\
 \hline
 C 8.44
 \end{array}$$

H.I.
12.32

P. 39

Cross Backed in

+75

+50

+25

37

+75

end 9-3-46.

36 + 48 M.H. #14

check to B.M.	Tecolore Bridge	4.15	7.86	7.85
T.P.	4.30	12.01	5.45	7.71
				0.01

13.16

F.L.

38

$$\begin{array}{r} -5.84 \\ 18.14 \\ 10.27 \\ \hline C 7.87 \end{array}$$

$$\begin{array}{r} -5.84 \\ 18.16 \\ 10.28 \\ \hline C 7.88 \end{array}$$

$$\begin{array}{r} -5.86 \\ 18.18 \\ 10.47 \\ \hline C 7.71 \end{array}$$

$$\begin{array}{r} -5.88 \\ 18.20 \\ 9.93 \\ \hline C 8.27 \end{array}$$

$$\begin{array}{r} -5.90 \\ 18.22 \\ 10.27 \\ \hline C 7.95 \end{array}$$

$$\begin{array}{r} 18.24 \\ 10.31 \\ \hline C 9.93 \end{array}$$

$$\begin{array}{r} -5.92 \\ 19.08 \\ 11.14 \\ \hline C 7.94 \end{array}$$

12.32

P. x d

Cuts backed in

+25

39

+75

+50

+25

38

F.L.

39

$$\begin{array}{r}
 -5.70 \\
 \hline
 18.07 \\
 10.44 \\
 \hline
 C7.58
 \end{array}$$

$$\begin{array}{r}
 -5.72 \\
 \hline
 18.04 \\
 10.08 \\
 \hline
 C7.96
 \end{array}$$

$$\begin{array}{r}
 -5.74 \\
 \hline
 18.06 \\
 10.30 \\
 \hline
 C7.76
 \end{array}$$

$$\begin{array}{r}
 -5.76 \\
 \hline
 18.08 \\
 10.08 \\
 \hline
 C8.00
 \end{array}$$

$$\begin{array}{r}
 -5.78 \\
 \hline
 18.10 \\
 10.00 \\
 \hline
 C8.04
 \end{array}$$

$$\begin{array}{r}
 -5.80 \\
 \hline
 18.12 \\
 10.27 \\
 \hline
 C7.85
 \end{array}$$

Fk.

$$\begin{array}{r} -5.58 \\ 14.75 \\ 7.18 \\ \hline C 7.57 \end{array}$$

$$\begin{array}{r} -5.60 \\ 14.77 \\ 7.74 \\ \hline C 7.03 \end{array}$$

$$\begin{array}{r} -5.62 \\ 14.79 \\ 7.66 \\ \hline C 7.13 \end{array}$$

$$\begin{array}{r} -5.64 \\ 14.81 \\ 7.76 \\ \hline C 7.05 \end{array}$$

$$\begin{array}{r} -5.66 \\ 17.98 \\ 10.10 \\ \hline C 7.88 \end{array}$$

$$\begin{array}{r} -5.68 \\ 18.00 \\ 2.43 \\ \hline C 14.57 \end{array}$$

one Hwy Ramp

917

H.I.

P. 42

Cuts backed in

+75

+50

+25

40

T.P. stub
 40+100 10.91 12.32 7.76 141

+75

39+50

H.I.
9.17

P. 42
Cuts backed in

+25

42

+75

+50

+25

41

F. 6.

41

$$\begin{array}{r} -5.46 \\ 14.63 \\ 9.09 \\ \hline C 5.54 \end{array}$$
$$\begin{array}{r} -5.48 \\ 14.65 \\ 9.72 \\ \hline C 4.95 \end{array}$$
$$\begin{array}{r} -5.50 \\ 14.67 \\ 6.08 \\ \hline C 8.59 \end{array}$$
$$\begin{array}{r} -5.52 \\ 14.69 \\ 6.40 \\ \hline C 8.29 \end{array}$$
$$\begin{array}{r} -5.54 \\ 14.71 \\ 6.88 \\ \hline C 7.83 \end{array}$$
$$\begin{array}{r} -5.56 \\ 14.73 \\ 7.30 \\ \hline C 7.43 \end{array}$$

$42 + 48.83$
 $43 + 98.66 = \text{Eq. } \Delta 60^\circ \text{ Lt. M.H. \#16}$
 P. 8

+75

+50

+25

43

$42 + 71.64 \Delta 60^\circ \text{ Rt. M.H. \#15}$

S.M.B.P.
 Tealozz Bridge 1.32 9.17 7.85

42 + 50

CUTS BACK IN
9-17-46

9-11-46

$7.85 = \text{B.M.}$
 1.74
 $9.59 = \text{H.H.}$

A.G.
 - 5.32

42

- 5.34

- 5.36

- 5.38

- 5.40

- 5.43
15.02
 9.72
 C 5.30

- 5.43
14.60
 10.55
 $4.05 = \text{NEW CUT}$

- 5.44
14.61
 8.51
 C 6.10

CUTS BACKED
 IN - 9-17-46

Cudahy Sewer Grades
Beg. at Sly End.

offsets 20 ft. on West
up to Congress St.
Then 20 ft on East
from M.H. #5 Nly.

+75

-10.96
20.54
4.74
C 15.80

+50

-10.99
20.57
4.85
C 15.72

+25

-11.07
20.60
5.08
C 15.52

21 +137.7 A 9°08' LT. M.H. #11

-11.0X
20.62
5.08
C 15.54

20 +77.5 Ex. Stub end

-11.11
20.69
5.28
C 15.41

T.P.	568	<u>9.58</u>	4.86	3.90
T.P.	536	8.76	4.97	3.40
B.M.				
Ld. C.T.	535	8.37		3.02
E Greenwood				
S.L. Kurtz				

450

425

23

475

450

425

22

9.58

Fl.

44

$$\begin{array}{r}
 -10.75 \\
 \underline{20.33} \\
 4.64 \\
 \hline
 C 15.69
 \end{array}$$

$$\begin{array}{r}
 -10.78 \\
 \underline{20.34} \\
 4.69 \\
 \hline
 C 15.67
 \end{array}$$

$$\begin{array}{r}
 -10.81 \\
 \underline{20.39} \\
 4.61 \\
 \hline
 C 15.78
 \end{array}$$

$$\begin{array}{r}
 -10.84 \\
 \underline{20.42} \\
 4.46 \\
 \hline
 C 15.96
 \end{array}$$

$$\begin{array}{r}
 -10.87 \\
 \underline{20.45} \\
 4.74 \\
 \hline
 C 15.71
 \end{array}$$

$$\begin{array}{r}
 -10.90 \\
 \underline{20.48} \\
 4.77 \\
 \hline
 C 15.71
 \end{array}$$

$$\begin{array}{r}
 -10.93 \\
 \underline{20.51} \\
 4.82 \\
 \hline
 C 15.69
 \end{array}$$

~~25+10~~ CONST. CHIMNEY

25+08,5

25

+75

+50

+25

2x

23+75

T.P.

5.51

10.45

4.6x

4.94

9.58

F.L.

-10.56

21.01

5.36

C 15.65

-10.57

21.02

4.76

C 15.26

-10.60

21.05

5.58

C 15.47

-10.63

21.08

5.74

C 15.34

-10.66

21.11

5.51

C 15.60

-10.69

21.14

4.97

C 16.17

CROSS ON STEP

-10.72

21.17

5.40

C 15.77

450

+25

HI.
10.71

Set B.M. ^{at} Congress
Sty Greenwood
10-21-46. 3.69 7.02

26

+75

Cuts 20' to Rt from here Nly to M.H. #7

25 + 61 C° 58' 47. M.H. #5

+50

20' LT to cuts end here

+25

10.45

F.L.

-10.39

20.84

7.70

C 13.14 ✓

-10.42

20.87

6.02

C 14.85 ✓

-10.45

20.90

4.44

spike C 10.46 ✓

-10.48

20.93

4.78

spike C 10.75 ✓

-10.50

20.95

3.96

spike C 10.99 ✓

-10.51

20.96

5.49

C 15.47

-10.54

20.99

5.52

C 15.47

46

check cuts
10-21-46

r.A. STUB 26 + 50

2.75

7.96

10.71 = X

10.71 ✓

CUTS 20' E
of RT.

+25

28

+75

+50

+75

27

26+75

T.P.
STUB
26+50

4.71

7.46
10.45

7.70

2.75

F.L.
-10.18
17.64
5.13
C 12.51

20.89
8.38
12.51 ✓ 47

-10.21
17.67
5.08
C 12.54

20.92
8.39
12.51 ✓

-10.24
17.70
4.93
C 12.77 ✓

10.71 X Fwd.

-10.27
17.73
4.53
C 12.00
OUT

20.98
7.53
C 13.45 ✓

-10.30
17.76
4.54
C 13.00
OUT

21.01
8.18
C 12.83 ✓

-10.33
17.79
4.48
C 13.31 ✓

21.04
7.73
C 13.31

-10.36
17.82
4.51
C 13.31
OUT

21.07
7.92
C 13.15 ✓

+75

+50

+25

29

+75

28 + 50

7.4C

$$\begin{array}{r}
 Fk. \\
 - 9.97 \\
 \hline
 17.43 \\
 3.51 \\
 \hline
 C 13.92 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 10.00 \\
 \hline
 17.46 \\
 4.85 \\
 \hline
 C 12.61 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 10.03 \\
 \hline
 17.49 \\
 4.98 \\
 \hline
 C 12.51 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 10.06 \\
 \hline
 17.52 \\
 5.38 \\
 \hline
 C 12.14 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 10.09 \\
 \hline
 17.55 \\
 5.42 \\
 \hline
 C 12.13 \checkmark
 \end{array}$$

$$\begin{array}{r}
 10.71 \\
 8.52 \\
 \hline
 2.19 \text{ T.P.} \\
 5.02 \\
 \hline
 7.21 = \pi
 \end{array}$$

3.19

4.02 = BM spike
 7 cl. pole 100W
 0f 30 + 00

$$\begin{array}{r}
 - 10.12 \\
 \hline
 17.58 \\
 5.04 \\
 \hline
 C 12.04 \checkmark
 \end{array}$$

$$\begin{array}{r}
 17.33 \\
 5.30 \\
 \hline
 C 11.77 \checkmark
 \end{array}$$

$$\begin{array}{r}
 10.15 \\
 17.61 \\
 5.27 \\
 \hline
 C 12.34 \checkmark
 \end{array}$$

+ 50

+ 25

31

+ 75

30 + 61

M.H. #C

+ 50

T.P.

7.96

11.67

3.75

3.71

30 + 25

7.46

Fk.
- 9.79
21.46
7.71
C 13.75

- 9.82
21.49
8.11
C 13.38

- 9.85
21.52
8.03
C 13.49

- 9.88
21.55
7.86
C 13.69

- 9.90
21.57
8.18
C 13.39 ✓

- 9.91
21.58
7.82
C 13.76 ✓

7.21 X

- 9.94
17.40
3.75
C 13.65 ✓

+25

33

+75

+50

+25

32

~~+65~~
31 + ~~70~~

CONST. CHIMNEY

11.67

F.L.
-9.58
21.25
6.98
C 14.27

-9.61
21.28
6.97
C 14.30

-9.64
21.31
3.38
C 17.93 or Ramp

-9.67
21.34
1.61
C 20.23 or Ramp

-9.70
21.37
6.59
C 14.78

-9.73
21.40
7.05
C 14.35

-9.77
21.44
7.61
C 13.83

35

+75

+50

+25

+18 = -chimney

3v

+75

33+50

11.67
-2

$$\begin{array}{r}
 \text{Fl.} \\
 -9.37 \\
 \hline
 21.04 \\
 7.90 \\
 \hline
 C 13.14
 \end{array}$$

$$\begin{array}{r}
 -9.40 \\
 \hline
 21.07 \\
 7.74 \\
 \hline
 C 13.33
 \end{array}$$

$$\begin{array}{r}
 -9.43 \\
 \hline
 21.10 \\
 7.67 \\
 \hline
 C 13.48
 \end{array}$$

$$\begin{array}{r}
 -9.46 \\
 \hline
 21.13 \\
 7.61 \\
 \hline
 C 13.52
 \end{array}$$

$$\begin{array}{r}
 -9.49 \\
 \hline
 21.16 \\
 6.95 \\
 \hline
 C 14.21
 \end{array}$$

$$\begin{array}{r}
 -9.52 \\
 \hline
 21.19 \\
 7.07 \\
 \hline
 C 14.17
 \end{array}$$

$$\begin{array}{r}
 -9.55 \\
 \hline
 21.22 \\
 6.98 \\
 \hline
 C 14.24
 \end{array}$$

+50

+25

1					
T.P.	3.22	<u>9.06</u>	3.52	5.84	Restake
B.M.	4.61	9.36		4.75	<u>11-12-46</u>

0+75

B.M. Mon	3.19	<u>7.94</u>		4.75	
check to B.M. STATE Mon.			6.93	4.74	<u>4.75</u> 0.01

$35+52 = 0+60.69 = \Delta$ 33' 14" LT. **M.H. #7**
 Req. 30" C.I. Pipe

35+25 Cuts 20' RT. on E
 to here
11.67

F.L.

52

-9.19	-9.19
<u>18.25</u>	<u>17.13</u>
5.13	4.03
C 13.12 ✓	C 13.10

-9.22
<u>17.16</u>
4.59
C 12.57 ✓

Staked
10-31-46

-9.25
<u>17.19</u>
4.30
C 12.99 ✓

Checked
11-12-46

-9.28
<u>17.22</u>
4.33
C 12.89 ✓

C 3+36' 30 ft.
F.L. 24" on E

Cut stake 25' E
 on line of
 Mission Valley sewer

-9.31
<u>20.98</u>
8.49
C 12.49

4.75 = B.M.
 1.78
 6.53 = H.I.
 14.80
 -8.27 = F.L. of
 24" stub M.H. #7
 11-19-46

-9.34
<u>21.01</u>
8.04
C 12.97

-7.80
<u>19.47</u>
8.49
C 10.98

changed
 - 8.80

checked 11-19-46

F.L.

3

$$\begin{array}{r} - 8.99 \\ 12.94 \\ 4.17 \\ \hline C 8.77 \end{array}$$

$$\begin{array}{r} - 8.99 \\ 16.93 \\ 8.15 \\ \hline C 8.78 \end{array}$$

End stake
10-31-46

+75

$$\begin{array}{r} - 9.03 \\ 12.98 \\ 3.57 \\ \hline C 9.41 \end{array}$$

$$\begin{array}{r} - 9.03 \\ 16.97 \\ 6.76 \\ \hline C 10.27 \end{array}$$

+50

$$\begin{array}{r} - 9.06 \\ 18.12 \\ 6.98 \\ \hline C 11.14 \end{array}$$

$$\begin{array}{r} - 9.06 \\ 17.00 \\ 5.82 \\ \hline C 11.78 \end{array}$$

+25

$$\begin{array}{r} - 9.09 \\ 18.15 \\ 6.11 \\ \hline C 12.04 \end{array}$$

$$\begin{array}{r} - 9.09 \\ 17.03 \\ 4.85 \\ \hline C 12.18 \end{array}$$

2

T.P. 1.87 3.95 6.98 2.08
9.06 = H.L. 11-12-46

$$\begin{array}{r} - 9.17 \\ 18.18 \\ 4.75 \\ \hline C 13.43 \end{array}$$

$$\begin{array}{r} - 9.17 \\ 17.06 \\ 4.73 \\ \hline C 12.33 \end{array}$$

+75

$$\begin{array}{r} - 9.15 \\ 18.21 \\ 5.71 \\ \hline C 13.00 \end{array}$$

$$\begin{array}{r} - 9.15 \\ 17.09 \\ 4.10 \\ \hline C 12.99 \end{array}$$

7.94

1+55.05 2x7 P.O.T.

2x7 P.O.T.

+50

+25

4

+75

+50

3+25

3.95

$$\begin{array}{r}
 - 8.80 \\
 \underline{12.75} \\
 3.88 \\
 \hline
 C 8.87 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 8.83 \\
 \underline{12.78} \\
 4.42 \\
 \hline
 C 8.36 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 8.87 \\
 \underline{12.82} \\
 4.43 \\
 \hline
 C 8.39 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 8.90 \\
 \underline{12.85} \\
 5.33 \\
 \hline
 C 7.52 \checkmark
 \end{array}$$

staked
 11-12 x 6.

$$\begin{array}{r}
 - 8.93 \\
 \underline{12.88} \\
 5.33 \\
 \hline
 C 7.55 \checkmark
 \end{array}$$

$$\begin{array}{r}
 - 8.96 \\
 \underline{12.91} \\
 5.07 \\
 \hline
 C 7.84 \checkmark
 \end{array}$$

6

$$\begin{array}{r} - 8.41 \\ 16.59 \\ \hline 5.00 \\ \hline C 11.59 \end{array}$$

475

$$\begin{array}{r} - 8.44 \\ 16.62 \\ \hline 5.26 \\ \hline C 11.36 \end{array}$$

450

$$\begin{array}{r} - 8.67 \\ 16.65 \\ \hline 5.61 \\ \hline C 11.04 \end{array}$$

425

$$\begin{array}{r} - 8.70 \\ 12.65 \\ \hline 1.76 \\ \hline C 10.89 \end{array}$$

11-12-46

5

T.P. 5.79 7.98 1.76 2.19

$$\begin{array}{r} - 8.74 \\ 12.69 \\ \hline 2.45 \\ \hline C 10.24 \end{array}$$

4475

395

$$\begin{array}{r} - 8.77 \\ 12.72 \\ \hline 3.55 \\ \hline C 9.17 \end{array}$$

+50

+25

7

+75

+50

6+25

7.98

- 8.47
16.40
 5.11
 C 11.29

- 8.45
16.43
 5.27
 C 11.16

25' offset ✓

- 8.48
16.46
 4.60
 C 11.86

- 8.51
16.49
 4.91
 C 11.58

- 8.55
16.53
 4.70
 C 11.77

11-12-45

- 8.58
16.50
 4.79
 C 11.77

F.6.

9

$$\begin{array}{r}
 - 8.23 \\
 \underline{20.71} \\
 1.09 \\
 C 19.62
 \end{array}$$

+75

$$\begin{array}{r}
 - 8.28 \\
 \underline{20.74} \\
 1.66 \\
 C 14.08
 \end{array}$$

+50

$$\begin{array}{r}
 - 8.29 \\
 \underline{20.77} \\
 1.94 \\
 C 13.83
 \end{array}$$

T.P 7.64 12.48 3.14 4.84

+25

$$\begin{array}{r}
 - 8.32 \\
 \underline{16.30} \\
 3.14 \\
 C 13.10
 \end{array}$$

T.P

8

$$\begin{array}{r}
 - 8.35 \\
 \underline{16.33} \\
 3.60 \\
 C 12.73
 \end{array}$$

7+75

$$\begin{array}{r}
 - 8.39 \\
 \underline{16.37} \\
 4.70 \\
 C 11.67
 \end{array}$$

7.98

+ 50

+ 25

10

T.P. 4.78 10.73 6.53 5.95

+ 75

+ 50

9+25

12.48

F₆,

38

- 8.03
18.74
4.44
C 14.32

- 8.07
18.80
4.59
C 14.21

- 8.10
20.58
6.53
C 14.05

11-12-46

- 8.13
20.61
6.58
C 14.03

- 8.16
20.64
6.51
C 14.13

- 8.19
20.67
6.00
C 14.67

check to spike BM.
Guna + Pacific

1.90 8.59 8.58
001

T.P. 6.50 15.49 1.74 8.99

11+2840 @ 4°21' LT. M.H. #8 P. 21
END 30" C.I. PIPE

11

10+75-

-10.73

H.I. 10.73
563 10.92 ✓
ON F.L. 10"
STUB
M.H. #8

F.L. 11-26-46

59

544 8.29 ON 20' offset stub

17.56 - 6.64 ✓ inside MH

0.06
- 6.58 = F.L. outside

P. 23

Set 10" stub
fly side: EL. - 7.5

- 7.93
18.66
5.44
C 13.22

end staking
11-12-46.

- 7.97
18.70
4.84
C 13.86

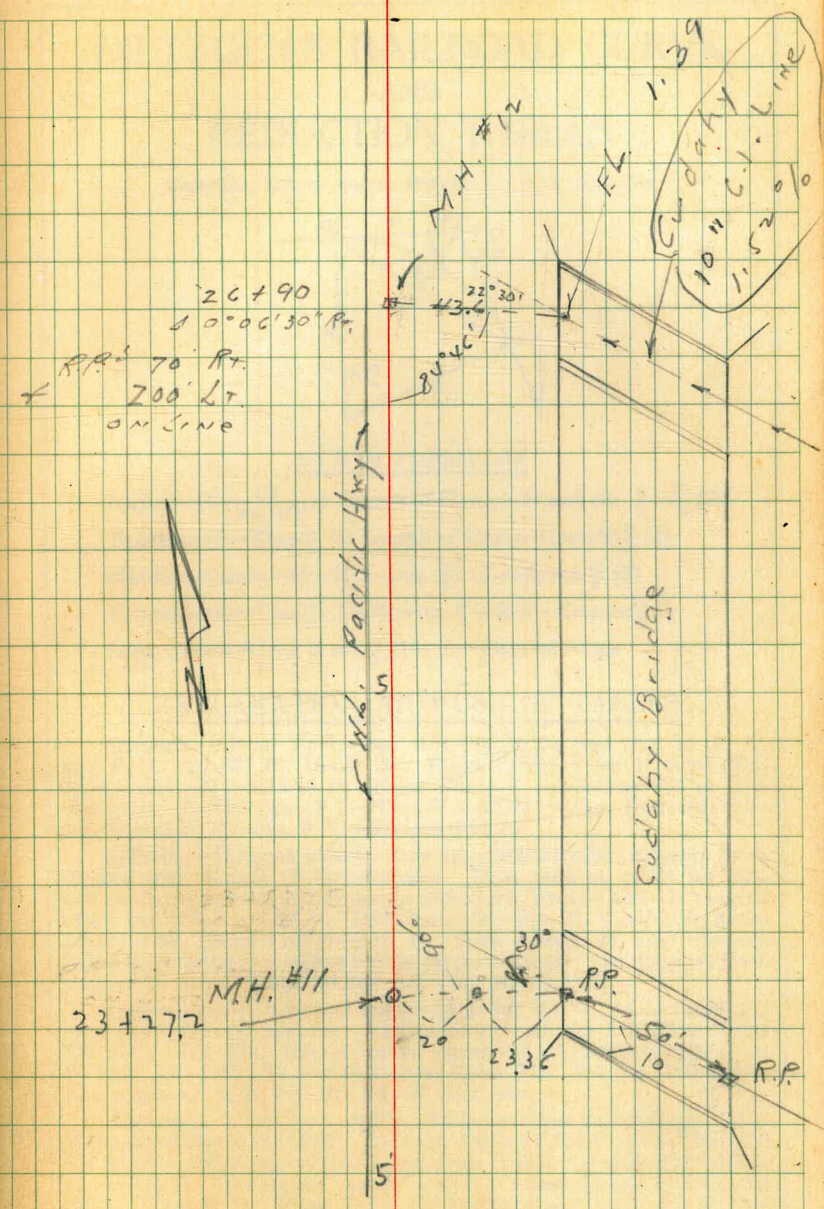
- 8.00
18.73
4.48
C 14.25

25' East of A 4.50 1.77

END PIPE AT A 488 1.39

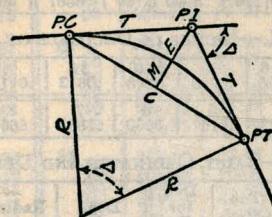
T.P. #31 405 6.27 2.22

20' offset
Stake



DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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CURVE FORMULAS

- Radius— $R = \frac{50}{\sin. \frac{D}{2}}$ (1) Degree of Curve— D and $\sin. \frac{D}{2} = \frac{50}{R}$ (2)
 Tangent— $T = R \tan \frac{\Delta}{2}$ (3) Length of Curve— $L = 100 \frac{\Delta}{D}$ (4)
 Middle ordinate— $M = R(1 - \cos. \frac{\Delta}{2})$ (5) $= R \text{vers} \frac{\Delta}{2}$ (6)
 External— $E = T \tan \frac{\Delta}{4}$ (7) $= R \div \cos. \frac{\Delta}{2} - R$ (8) $= R \text{exsec} \frac{\Delta}{2}$ (9)
 Long Chord— $C = 2 R \sin. \frac{\Delta}{2}$ (10) Δ —Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.—Sta. 161+60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $\div 8\frac{1}{3} = 414.49$ ft. From Table V correction—.36 or $T = 414.85$ ft. P. C.—Sta. P. I.— $T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T.—Sta. P. C.— $L = 164 + 91.50$.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.—7.27 ft. Distance—158—Sta. P. C.—54.50, hence offset— $7.27 (54.50 \div 100) = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

Deflections.—Deflection angle— $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft.—(in minutes) $.3 \times C \times D^\circ$ or—defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve—.3 $\times 54.5 \times 8\frac{1}{3} = 136.2'$ or $2^\circ 16.2'$, or— $2.50 \times 54.5 = 136.2'$ from Table III. For Sta. 159 deflection angle— $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 115.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{3} = 115.27$ and from Table V correction—.10 or $E = 115.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

E. Adm. L.
485. BMBP Box Culv. 53+50

475 B.M. State Mbn. 85' E of 35+00

1270 BMBP

739-B.M.
DISTANCES FROM CENTER OF ROADWAY FOR
CROSS-SECTIONING.

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

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

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

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