

Dr. #11 Blackhawk Co

No. 3.

DEI ZGEN
TRADE MARK

Prelim Levels.

ENGINEERS'
LEVEL BOOK
No. 412

1094

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

R. P. BRIGGS,
CIVIL ENGINEER
WATERLOO, IOWA

FILED
AUG - 8 '21
J. W. Fisher
Clerk of Court

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 $30.6 + (20 - 16) \div 2$ or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1½ see inside of back cover.

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El. TP Main Sta 108

Lines Not run 1st time over
on acct. of crops Pp 157
Main Pp 16-36 - Sta 0-11743

BR-1 Pp 38-40

BR-2 - Pp 42-58

" 2.A + 2.B Pp 60.

" 2.G + 2.G-1 " " 62

2-D. " " 64

2.E " " 66-68

2.F " " 70-72

2.G-12H " " 72

BR 3 74-78

" 3.A + 3.B. 80

BR 4 82-86

" 4.A. 88

4-B 90

BR 5 92-94

BR 6	Pp 96-98
" 6-A	" 100
" 7	" 102-116
" 7-A	" 118-124
" 7-A-1	" 126-128
" 7-A-2	" 130
" 7-A-3	" 134
" 7-A-4	"
" 7-B	" 136
" 7-B-1	" 138
" 7-G	" 138
" 7-D	140
" 7-E	140
" 8	142-144

Bench Marks Pp 4

B.M. #	Elev.	Des	Description
#1	10.00	Top of NE Cor BR#4	of S.E. wing of Bulkhead outlet 1000' E of Center Sec 15
#2	11.56	Spike at.	bottom of square corner post opposite Sta 17+50. Main.
#3	14.20	Spike in E	end N. cap Bridge Bet Secs 15+16
#4	12.96	Spike in	Stump E side Hwy Bet Secs 15+16 at Jct Main + BR 3.
#5	18.68	Spike in	W. of Row Willow stumps E & W of Sec 16 opposite Sta 50+50 Main.
#6	19.28	Spike in	N.E. Cor. post S.E. $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 16. 50' S Sta 71+55 Main
#7	17.64	Spike in	NE Cor post SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 16
#8	22.10	Spike in top	of E end N. cap. Bridge W Line Sec 16
#9	22.09	Lat & lub S.	side 3 ^d F.P. E of NW Cor. NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 17

Bench Marks.

B.M.	Elev.	Description.
# 20	16.43	Top NE Cor. E wing Culvert (Conc) N. W Cor Sec 16
# 21	19.53	Spike in root of 5 of Glump willows in pasture opposite Sta 47 BR 2.
# 22	30.62	Spike in 3 ^d Tel. post W of Sec 9.
# 23	56.90	Spike in Cor. post End E-W & sec 8 at side Hwy - End BR 2
# 24	23.04	Spike in NE Cor. post S.E. $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 16 across Hwy from Sta 17 BR 3.
# 25	28.74	Spike in Cor post E of SE Cor NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 16 opposite Sta 1 BR 4-A.
# 26	27.12	Center of top of N wall Conc Culvert on Hwy Sta 18+30 BR 5.
# 27	22.71	NE Cor N. wall Conc Culvert S Line Sec 16 Sta 14+30 BR 7
# 28	26.77	Top of Short post SE side Center post sec 21 (Brace wires attached.)

Bench Marks,

BM.	Elev.	Description
# 29	39.13	Spilke in NE cor. post SW $\frac{1}{4}$ - SW $\frac{1}{4}$ Sec. 20 Opposite Sta 75+25 BR 7.
# 30	34.28	Top of large boulder in pasture 300' E of Hwy Opposite Sta 21 BR 7-A.
# 31	30.11	Spilke in large post W side Hwy 2 of NE cor Sec 20 - Sta 10+15 BR 7-A-2.

Aug 25 1920 ¹⁷

Sta B.S. H.I. -S Elev

BM #1 3.82 13.82 10.00

Creek Bed 8.85 4.97 ~~8.85~~

Gr level 4.02 9.80 4.02

Creek Bed 8.60 5.22

" 8.50 5.32

" 8.45 5.37

" 8.65 5.17

8.55 5.27

BM #1 3.26 13.26 10.00

Creek 0 8.17 5.09

Gr level 0 4.33 8.93

1 5.10 8.16

4.2 5.10 8.16

3 6.25 7.01

4 5.95 7.31

5 4.50 8.76

6 4.55 8.71

T.P. { 5.33 14.08 4.51 8.75 H.P.

" " { 4.99 14.08 4.15 9.11

outlet Dr #4.

Top of N.E. Cor. of S-E Wall Bulkhead

At outlet Dr #4 = outlet #11

" " " " " " "

100' below outlet.

200'

300'

400'

500'

outlet in Crane Creek

25' N. of outlet Dr #4.

Sta	B.S	H.I.	-S.	Elev
7		14.08	4.85	9.23
8			4.50	9.58
9			4.10	9.98
10			3.95	10.13
10+43				
11			4.90	9.18
12			5.50	8.58
T.P.	6.30	14.93	5.45	8.63
T.P.	5.99	14.91	5.13	8.95
13			5.30	9.64
14			4.75	10.19
15			4.70	10.24
16			5.15	9.79
17			4.40	10.54
BM #2			3.36	11.58
18			3.90	11.04
T.P.	6.39	17.46	3.87	11.07
" "	6.13	17.47	3.60	11.34

N45 E Sec 15 - 50' N of Sec. Cen.

Spike in Square Cor. post opp Sta. 11450

Sta B.S H.I. -S Elev

19 17.46 5.50 11.96

20 5.50 11.96

21 5.20 12.26

22 5.05 12.41

23 4.95 12.51

= 0 BR. 1 South

23+75

N 15° NW 1/4 Sec 15 - 50' N of E 1/4

24 4.50 12.96

T.P. 5.23 18.37 4.32 13.14

" " 4.97 18.37 4.06 13.40

25 5.20 13.17

26 4.90 13.47

27 4.80 13.57

28 5.00 13.37

29 4.65 13.72

30 4.35 14.02

T.P. 4.47 18.57 4.27 14.10

" " 4.35 18.56 4.16 14.21

H.P.

Sta B.S H.I. - S. Elev

31 18.56 4.55 14.01

32 4.70 13.86

33 4.85 13.71

34 4.85 13.71

35 5.50 13.06

36 5.75 12.81

T.P. 1.51 20.35 5.72 12.84

... 7.27 20.35 5.48 13.08

36+87

36+98 8.10 12.25

37 7.15 13.20

37+10 7.00 13.35

37+25 8.45 11.90

37+35

BM#3 6.15 14.20

38 7.70 12.65

39 7.25 13.10

40 7.00 13.35 H.P. #

= Sta 0 BR 2 - North

E Hwy Fence

E Hwy Ditch = 0 BR 3 - S.

50' N of E + W 1/4
E Hwy - W Line Sec 15.

W. Hwy Ditch

W. Hwy Fence

Sec 15
Spike in End Neap Bridge W-Line

Sta B.S. H.I. -5 Elev.

41 20.35 6.60 13.75

42 6.30 14.05

T.P. 5.80 14.94 6.24 14.11

" " 5.35 19.90 5.80 19.55

43 5.35 14.55

44 5.15 14.75

45 4.80 15.10

46 4.20 15.70

47 3.60 16.30

48 3.30 16.60

T.P. 4.42 21.10 3.23 16.68

" " 4.12 21.10 2.93 16.98

49 4.15 16.95

50 4.40 16.70

BM ⁵ 2.69 21.35 2.42 18.68

51 5.05 16.05

52 6.20 15.15

53 7.15 14.20

H.P.A.

Hot Row Willow Stump S on E/W

1/4 E opp Sta 50 + 50.

Sta. B5 H.I. -5. Elev.

54 21.35 7.40 13.95

T.P. 5.12 19.19 7.28 14.07

" " 4.92 19.19 7.08 14.27

55 4.55 14.64

56 4.55 14.64

1/256+50 4.50 14.69

57 4.50 14.69

57+10

58 4.60 14.59

59 4.95 14.24

60 5.20 13.99

61 4.60 14.59

T.P. 507 14.73 4.53 14.66

" " 4.83 19.72 19.71 4.31 14.88 W

62 5.40 14.32

63 5.30 14.42

64 4.90 14.82

64+75 in ditch. 5.90 12.82

65 4.85 14.87

= Sta 0 Br. 4 - N.W.

E-W 1/2 Sec 16

Sta B.S. H.I. - S. Elev.

66 19.72 5.00 14.72

T.P. 5.89 20.66 4.95 14.77

,, 5.55 20.67 4.60 15.12

67. 5.00 15.67

68. 4.20 16.47

68+50

69 3.65 17.02

70 3.30 17.37

71 2.70 17.97

V
71+55

T.P. 4.63 23.17 2.13 18.54

,, 4.42 23.11 1.92 18.75

BM ⁶₅ 3.89 19.28

72 5.30 17.87

73 5.60 17.57

74 5.40 17.77

75 5.25 17.92

76 5.20 17.97

H.P.

= O.B.S. - S.E.

N+5 $\frac{1}{4}$ sec 16 - 50' N E + W E 5 $\frac{1}{2}$ secSpike in Cor. post N.E. Cor SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec 16

Sta B.S. H.I. -S Elev.

77 23.17 5.45 17.72

78 5.90 17.27

T.P. 4.17 21.56 5.78 17.39

" " 4.04 21.56 5.65 17.52

79 4.75 16.81

80 5.05 16.51

80+40

81 4.80 16.76

82 5.00 16.56

83 4.65 16.91

84 4.55 17.01

T.P. 5.95 43.08 4.43 17.13

" " 5.63 43.09 4.10 17.46

85 5.90 17.19

86 5.15 17.94

86+35

87 4.90 18.19

88 4.70 18.39 H.P.P.

= 0 BR 6 - N

= 0 BR 7 - S 100 dam art

89	23.09	5.20	17.89
90		5.00	18.09
T.P.	5.77	24.03	4.83 18.26
" "	5.18	24.03	4.54 18.55
91		5.50	18.53
92		5.45	18.58
93		5.20	18.83
94		4.60	19.43
95		4.35	19.68
96		4.20	19.83
T.P.	5.96	25.91	4.08 19.95
" "	5.64	25.91	3.76 20.27
97		6.35	19.56
97+91			
98		5.70	20.21
98+15		4.50	21.41
98+32		6.00	19.91
98+43			

K.R.F.

= OBR 8 - N.

E Hwy F

" " Ditch

E Hwy W Line Sec 16 E & W 1/2 Line
SD Not

W. Hwy Ditch

W Hwy F.

Sta. B.S. H.I. - S. Elev.

25.91

BM #8

3.81 22.10

99

5.70 20.71

100

6.10 19.81

101

5.45 20.46

102

5.30 20.61

T.P. 4.44 25.25 5.10 20.81

" " 4.20 25.26 4.85 21.06

103

4.70 20.56

104

5.00 20.26

105

5.05 20.21

106

5.00 20.26

107

5.30 19.96

108

5.50 19.76

T.P. 6.12 26.07 5.81 19.95

" " 5.88 26.06 5.08 20.18

109

5.25 20.81

110

5.25 20.81 H.P. 70

W Line sec 16

Spikes in End N. Cap Bridge

= 0 BR 9 - S.W.

Sta. B.S. H.I. - S. Elev.

111 26.06 4.70 21.36

112 4.55 21.51

113 4.60 21.46

114 4.50 21.56

T.P. 5.12 26.78 4.45 21.61

" " 4.80 26.73 4.13 21.93

115 4.90 21.83

116 4.90 21.83

117 4.55 22.18

117+13

BM #9 4.64 22.09

NE 1/4 SE 1/4 SEC 17
E-W 1/2 SEC 17 - 66 W. NW CorSE 1/4 17
Lat h hub 5 of 5 F. Post E of NW Cor NE 1/4

H. R. H.

B.R. 1.Oct 22-20

Sta	B.S	H.I	- S	Elev
B.M. #2	9.75	21.31		11.52
0			9.25	12.06
+50			8.55	12.76
1			8.90	12.41
2			7.50	13.81
3			6.80	14.51
4			6.25	15.06
5			6.50	14.81
6			4.75	17.56
7			3.50	17.81
8			4.20	17.11
✓ 9			3.95	17.36
T.P.	13.95	32.09	3.17	18.14
10		$\frac{17.57}{4.50}$	14.50	17.59
11			13.80	18.59
12			12.60	19.49
✓ +50			12.30	19.79

= Sta 20 Main

E.W. & Sec 15

Ditch Xing

Sta BS H.I. - 5

13	32.09	12.00	20.09
14		11.50	20.59
15		12.00	20.09
16		10.70	21.39
17		10.00	22.09
18		8.55	23.54
19		7.40	24.69
20		6.50	25.59
21		5.50	26.59
22		4.85	27.24
+10		4.90	27.19

Note - 6 Willows to remove
at Sta 20

End Nyst

BR-2Aug 26 - 1920 43

Sta B.S. H.I. -5 Elev.

B.M.#3 3.11 17.31 14.20

0 3.45 13.86

1 4.15 13.16

2 4.85 12.46

3 6.50 10.81

4 5.50 11.81

5 5.90 11.41

6 5.50 11.81

T.P. 5.06 ~~16.74~~ 5.43 11.88 ✓

" " 4.70 16.93 5.08 12.23

7 4.45 12.48

8 4.75 12.18

9 4.85 12.08

10 4.70 12.23

11 4.35 12.58

11+15
4.92 17.52 4.33 12.60
4.31 ~~17.51~~ 3.73 13.20

Sta 32 Main

E. + W. & NW 1/4 Sec 15

H.P.F.

Sta B.S. H.I. -S. Elev.

12 17.52 4.75 12.77

13 4.45 13.07

14 4.80 12.72

15 5.10 12.42

16 4.70 12.82

17 4.75 12.77

18 4.55 12.97

T.P. 4.57 17.70 4.36 13.16

" " 4.31 17.70 4.13 13.39

19 4.30 13.40

20 4.30 13.40

21 5.00 12.70

L21+50

= 0 2-H.

22 5.05 12.65

23 4.95 12.75

24 4.40 13.30

T.P. 5.97 19.39 4.28 13.42

" 5.74 19.39 4.05 13.65 H.P.F.

25	19.39	5.65	1374
26		5.10	1429
26+8		6.25	1314
26+39		4.75	14.64
26+72		6.50	12.89
26+81			
27		5.40	13.99
27+68			
27+74		6.40	12.99
28		5.25	14.14
28+21			
¹⁴ B.M. 20		2.96	16.43
29		4.90	14.49
30		4.50	14.89
T.P.	6.52	21.07	4.84 14.55
" "	6.56	21.06	4.89 14.50
31		5.10	15.96
32		5.00	16.39 H.P.H.

E Hwy FL

E.H. D 105' S. of N.W. cor.
E Hwy W. Line Sec 15.

W Hwy Ditch

W " FL.

S Hwy FL

S Hwy 90' W. of SE cor.
E Hwy S. Line Sec 9S N.W. cor Sec 15
NE cor E. wall Conc Culvert

Stg	B.S	H.I.	-S	Elev.
32+75				
33		21.06	4.90	16.16
L 34			4.55	16.51
34+14			6.40	14.66
34+30				
35			5.15	15.91
36			5.15	15.91
T.P.	5.01	21.22	4.85	16.21
" "	4.79	21.21	4.69	16.42
37			5.05	16.16
38			4.85	16.36
39			4.55	16.66
40			4.45	16.76
41			4.15	17.06
42			3.70	17.51
T.P.	6.36	24.03	3.55	17.66
" "	6.17	24.03	3.36	17.85
43			5.80	18.23
44			5.35	18.68

= 0-2-B

N Hwy Ditch

" " FL

H.P.H.

Sta	B.S.	H.I.	-5	Elev
145		24.03	5.15	18.88
46			5.00	19.03
47			5.00	19.03
48			4.90	19.33
T.P.	6.10	25.12	5.01	19.02
" "	5.83	25.11	4.75	19.28
B.M. ^F 21			4.50	19.53
49			5.70	19.41
50			5.20	19.91
Hvd = R.P.				
51			4.46	20.65
52			4.50	20.61
53			4.40	20.71
54			4.15	20.96
T.P.	6.13	27.23	4.02	21.19
" "	5.81	27.24	3.69	21.42
55			6.05	21.19
56			5.55	21.69
57			4.90	22.34

H.P.H.

B.S.	H.I.	-5	Elev
BM	—	3.64	23.17
T.P.		5.00	24.42
		3.75	19.42
		7.60	16.52

Bottom pond 50' NW Sta. 50

opposite Sta 47
 spike in root of S. of clump willows

= 0 2-C.

54 B.S. H.I. -S. Elev

58 27.23 4.05 28.18

59 3.65 28.58

60 2.90 24.33

L 60+34

T.P. 6.72 31.68 2.27 24.96

" 6.37 31.67 1.93 25.30

61 6.40 25.27

62 5.70 25.97

63 5.00 26.67

H.I. = R.P.

63+50 4.61 27.06

64 4.40 27.27

65 4.25 27.42

66 3.65 28.02

T.P. 5.57 ~~33.59~~ 3.65 28.02

" " 4.94 ~~33.58~~ 3.04 28.63

67 5.50 28.08

68 5.35 28.23

69 5.25 28.33

H.R.P.

N45 1/2 E sec 9 350' N of ^{H.I.} 16 Cor.

= 540 2-D.

= 540 2-E.

Sta B.S. H.I. -S. Elev

70 33.58 4.60 29.18

71 4.10 29.48

L 71+87

B.M. #22 2.96 30.62

T.P. 7.02 36.55 3.75 29.53

" " 6.97 36.84 3.87 30.07

72 6.75 30.09

73 6.35 30.49

74 5.90 30.94

75 5.20 31.64

76 4.30 32.54

L 77=T.P. 7.66 40.61 3.89 32.95

" " 7.13 40.60 3.37 33.47

78 7.15 33.45

79 6.15 34.45

80 5.20 35.40

81 4.65 35.95

82 3.20 37.40

H.R.A.

E+W of Sec 9 615' W of Sec Gen

Spoke in 3^d Tel. pole W of Gen. Sec. 9.

= Sta 0 2-F

E+W FL.

Sta B.S. H.I. - S Elev

83 40.61 3.65 37.95

84 2.95 38.16

T.P. 7.83 46.05 2.39 38.22

" " 7.34 46.05 1.90 38.71

85 7.05 39.00

86 5.80 40.25

86+50

87 4.70 41.35

88 3.90 42.15

T.P. 8.75 51.55 3.25 42.80

" " 8.50 51.55 3.00 43.05

89 8.60 42.95

90 7.20 44.35

91 6.10 45.45

92 5.05 46.50

L 93 3.80 47.75

94 2.15 49.40

95 0.00 51.55

T.P. 7.87 58.76 0.16 57.39

" 7.13 58.77 0.01 57.57

M.R.A.

= Sta 0 - 2.5

= Sta 0 - 2. H.

Sta B.S. H.I. -5 Elev.

96 58.77 2.15 52.62

97 4.25 54.52

97+23 4

97+30 4.80 53.97

97+52 2.85 55.92

97+76 3.80 54.97

97+85=End 2.55 56.22

BM #23 1.85 56.92

H.R.F.

E. Hwy FL

E. Hwy Ditch

E Hwy

End at end of E. H. & NE 1/4 Sec 8 at Hwy.

Spike in cor. post on Hwy at End BR 2

BR 2-A.

Sta B.S. H.I. - S. Elev.

2.15 18.58 16.43

0 5.80 12.78

1 5.60 12.98

2 5.95 12.63

3 5.00 13.58

4 5.10 13.46

4 + 56

9 + 66 6.50 12.08

4 + 89 9.40 14.18

5 6.00 12.58

5 + 05 6.25 12.33

5 + 18 = 4.95 13.63

BR-2-B

0 21.06 4.85 16.21

0 + 16 4.70 16.36

0 + 42 6.60 14.46

0 + 50 7.55 13.51

H.P.H.

Aug 27 1920 61

= Sta 21 + 50 BR 2.

S Hwy. F.

S. Ditch

E Hwy N Line Sec 15-190' E of NW.

N Hwy Ditch

End N Hwy F.L.

= Sta 32 + 75 BR-2

E Hwy - N Line Sec 16

S Hwy Ditch.

= Flowline present tile outlet.

BR 2-C

Sta 55 H.I. -5 Elev
 Hub = R.P.
 0 10.75 31.41 20.66

1 10.80 20.61

2 8.20 23.21

L 3 7.60 23.81

4 5.85 25.56

5 4.35 26.06

6 2.95 28.46

T.P 6.83 35.89 2.35 29.06

L 7 5.80 30.09

≡ 8 4.60 31.29

8+52 3.65 32.24

BR 2-G-1.

0 35.89 12.20 23.69

1 11.30 24.59

2 10.00 25.89

3 8.80 27.09

3+14 6.65 27.24

H.P.A.

= Sta 51 BR 2

= 0 BR 2-C-1

= End N+54 sec 9

= Sta 3 BR 2-G.

= End N+54 sec 9

BR 2-D

Sta	B.S.	H.I.	- S	Elev
Hub-R.P.				
0	8.90	35.96		27.06
1			8.40	27.56
2			7.45	28.51
3			6.60	29.36
4			5.95	30.51
5			4.90	31.56
6			3.20	32.76
T.P.	10.65	43.48	3.13	32.63
" "	10.46	43.41	2.95	33.01
7			9.55	33.92
8			8.10	35.31
9			6.70	36.77
V.A.S.D.				
10			5.35	38.12
11			3.15	39.72
12			1.00	42.47
12+16			.60	42.87

H.R.H.

= Sta 63+50 BR 2

END E+WE SW 1/4 SEC 9

BR 2-E

1.20 + 59

Sta	BS	H.I.	-S	Elev
Low Hub - R.P.				
0	5.33	33.35		28.02
1		6.35		27.00
2		5.85		27.50
3		4.85		28.50
4		4.05		29.30
4+ 18		2.85		30.50
R.P.		1.76		31.59

H.P.F.

Same				
R.P.	15.53	49.12		31.59
5		15.60		31.52
6		14.30		32.82
7		12.75		34.37
8		11.85		35.27
9		10.90		36.22
10		9.80		37.32
11		8.55		38.57
12		7.25		39.87

= Sta 66 BR 2

ETW & sec 9 - 225' w of sec center
 not found. stopped here Aug 27-20 crop. acct.
 Spike in 1st tel. post w of center sec 9.

13 47.2 6.10 41.02

V14 4.60 42.52

15 3.60 43.52

16 2.00 44.12

17 2.50 44.62

18 1.25 45.87

+6.2 0.25 46.87

350' E of N 15° E
End E-W & NE 1/4 Sec 9

BR 2-F.

Sta B.S. H.I. -5 Elev
 Low Hub.
 - R.P.
 0 5.15 38.40 32.95

1 5.00 33.40

2 3.90 34.50

HUB = R.P. - H. 9th Hub.

2+59 2.50 35.90

H.R.F.

Oct 22 20

HUB
 2+59 6.90 42.80 35.90

3 7.40 35.40

4 6.00 36.80

5 7.70 38.10

6 7.45 38.35

7 7.10 38.70

8 5.15 39.65

9 2.80 40.00

V+30 2.30 40.50 E.W.R.

10 2.00 40.80

11 0.80 42.00

12 17.00 59.80 0.00 42.50

13 16.00 43.80

= Sta 77 BR 2

E.W.R. & 5W 1/4 NW 1/4 SEC 9

Not end. stopped, here Aug 27-20 400 ft Comp.

Sta B.S. H.I. -5 Elev

14 - 59.80 15.50 44.30

15 15.00 44.80

16 13.40 46.40

17 12.00 47.80

18 10.50 49.30

19 9.50 50.30

20 8.35 51.45

21 8.00 51.80

22 7.20 52.60

+58 6.30 53.50 S Hwy F

+68 6.40 53.40 S 11.17

+90 7.50 55.30 E Hwy

23 5.35 54.45

+15 6.40 53.40 N Hwy. D.

+25 5.25 54.55 End. N Hwy F

BR 2-G.

Sta B.S. H.I. - S Elev

T.P. 4.83 47.63 42.50

0 6.80 40.83

1 6.15 41.48

2 5.10 42.53

3 3.95 43.68

4 3.60 44.03

4+23 3.55 44.08

BR 2-H.

0 51.55 3.80 47.75

0+36 3.70 48.35

H.P.P.

= Sta 86+50 BR 2.

End - ENE NW 1/4 Sec 9

= Sta 93 BR-2.

End ENE NW 1/4 Sec 9

Sta	BS	H.I	-S	Elev
# B.M. 3	6.57	20.77		14.20
T.P.	6.64	19.05	8.36	14.41
"		19.06		
"	6.71	19.07	8.11	14.66
# B.M. 4			6.10	14.96
0				
1.			5.50	13.56
2.			5.20	13.86
3			4.65	14.41
4			4.40	14.66
5			4.05	15.01
6			3.40	15.66
T.P.	7.51	23.29	3.28	15.78
" "	7.16	23.28 23.29	2.95	16.11
7			6.65	16.63
8			4.95	18.83
9			3.80	19.48
10			5.10	18.18

W Line 3616
Spike End N cap bridge

540 BR 3
Spike in stump E side Hwy
= Sta 36+98 Main

Note: Hwy Ditch ave 2.0'
below Elevs taken —

Approx 15 small willow & poplar
trees along BR 3

Sta B.S. H.I. - S Elev.

11 23.28 4.85 18.43

12 4.85 18.43

= Sta BR3-A.

T.P. 6.66 ~~25.20~~ 4.84 18.44

" 6.42 25.11 4.59 18.69

13 6.10 19.01

14 5.50 19.61

15 5.10 20.01

16 4.25 20.86

17 3.00 22.11

B.M. #24 2.07 23.04

18 2.00 23.11

T.P. 6.50 29.78 1.83 23.28

" 6.13 29.79 1.45 23.66

19 6.80 22.98

20 6.90 22.88

21 6.50 23.28

22 5.65 24.13

acrossing from Sta. 16

Spike in NE corner post of SE 1/4 - SE 1/4 Sec 16

H.R.A.

Sta	B.S.	H.I.	-S	Elev
23		29.78	5.05	24.73
24			4.60	25.18
25			5.60	24.18
26			4.00	25.78
26+93			3.85	25.93
27			1.92	27.86
27+6			1.90	27.88
27+25			4.80	24.98
+37			3.35	26.43
B.M.			1.70	28.08

H.R.H.

= O Br 3-B

W Line Sec 15
E Hwy Ditch N Hwy

N Hwy Ditch

E Hwy

E Hwy S Line Sec 15

S Hwy Ditch

S Hwy F - Edd

BR 3-A

549 B.S. H.I. -5 Elev

0 25.11 6.65 18.46

0+12 6.45 18.66

0+38 7.50 17.61 "

0+48 6.45 18.66

BR 3-B.

0 29.78 4.60 25.18

0+10 4.40 25.38

0+30 6.10 23.68

0+41 1

1
0+70

1 4.25 25.53

2 3.70 26.08

3 2.90 26.88

3+07

3+17 3.60 26.18

3+35 1.90 27.88

3+53 3.60 26.18

+68 2.20 27.58

H.P.H

= 549 12 BR 3

E Hwy W Line Sec 15

W Hwy Ditch

End. W Hwy FL

= 549 24 BR 3

E Hwy W Line Sec 15

W Hwy Ditch

W Hwy FL

N. Hwy FL

" Ditch

E Hwy - S Line Sec 16

S Hwy Ditch

S Hwy FL = End

BR 4

Sta	BS	H.I	-S	Elev
B.M.				78.66
T.P.	5.47	19.54		14.07
" "	5.29	19.55		14.27
0			4.90	14.64
1			4.95	14.59
2			4.50	15.04
3			4.00	15.54
4			3.55	15.99
5			3.10	16.44
T.P.	7.31	23.74	3.11	16.43
" "	6.93	23.74	2.73	16.81
6			6.45	17.29
7			5.90	17.84
8			5.35	18.39
V ₈ +50				
9			4.90	18.84
10			4.60	19.14

H.P.F.

Elev & sec 16.

Spike in W. of row willow stumps

= Sta 56+50 Main

N-15 & sec 16

Sta B5. H.I.

11 23.74 3.95 19.79

12 3.15 20.59

T.P. 7.23 27.77 3.20 20.57

" " 6.82 27.78 2.75 20.96

13 6.40 21.38

14 5.65 22.13

15 4.90 22.78

16 3.85 23.93

17 3.35 24.43

18 3.35 24.43

T.P. 7.22 31.85 3.15 24.63

" " 7.02 31.85 2.95 24.83

19 6.90 24.95

20 6.15 25.10

L-20+50

#

B.M. 25

3.11 28.74

21 5.55 26.30

22 4.55 27.30

H.P.A.

= Sta O BR 4-H

NW 1/4 NW 1/4 Sec 16

Spike in Gorpost SE. Cor

Opposite Sta-1
BR 3-A.

Sta B.S. H.I. -5 Elev.

100 ft cb

23 31.85 4.45 27.40

24 3.50 28.35

T.P. 1.49 35.98 3.36 28.49

" " 6.89 35.77 2.77 29.08

25 6.45 29.52

26 5.45 30.52

27 5.20 30.77

28 4.50 31.47

L29 3.90 32.07

= STA 0 BR 4-B

~~30 3.05~~

T.P. 8.50 41.47 3.00 32.97

" " 8.10 41.47 2.60 33.37

30 8.70 32.77

30+59

N45 E NW 1/4 NW 1/4 sec 16

31 7.70 33.77

32 6.25 35.22

33 5.20 36.27

H.P. 17.

34	41.47	435	37.12
35		3.30	38.17
36		2.35	39.12
37		1.20	40.27

37+20

= 5 Hwy FL

T.P.	7.84	44.68	1.63	39.84
------	------	-------	------	-------

37+40		3.95	40.73
-------	--	------	-------

SHwy Ditch

37+60		2.10	42.58
-------	--	------	-------

EHwy

37+75		3.75	40.73
-------	--	------	-------

N Hwy Ditch

37+85		2.95	41.73
-------	--	------	-------

End N Hwy FL

BR 4-A

0	31.85	6.40	26.45
---	-------	------	-------

= Sta 20+50 BR 4

1		4.80	27.05
---	--	------	-------

2		3.45	28.40
---	--	------	-------

3		3.15	28.70
---	--	------	-------

4		2.20	29.65
---	--	------	-------

4+67		1.00	30.85
------	--	------	-------

End N+5 & NW 1/4 sec 16.

H.R.A.

BR 4-B

Sta 9 BS H 1 -5

0 41.47 9.50 31.97

1 8.60 32.87

2 7.35 34.12

3 6.10 35.37

4 4.80 36.67

5 3.25 38.22

Sta 98

T.P. 4.84 44.68 1.63 39.84

6 5.60 39.06

L + 16 3.95 40.73

L + 33 4.95 39.13

L + 48 4.60 40.08

H.P.F.

= Sta 29 BR 4

N 1/2 & NW 1/4

S Hwy FL

S Hwy Ditch

at 1/4-1/4 Cor.

E Hwy

N Line sec 16

N Hwy Ditch

N Hwy FL = End

BR-5Sept. 8. '20⁹³

Sta. BS H.I. -S Elev.

BM #5 3.23 22.51 19.28

Spite 10 Cor post NE Cor SW-SW Sec 16.

0 6.30 16.21

= 51968 + 50 Main

1 5.25 17.26

2 4.85 17.66

3 4.15 18.36

Ditch
4 4.30 18.21

5 2.95 19.56

6 = T.P. 5.66 26.14 2.03 20.46

" 5.47 26.14 1.84 20.67

7 5.60 20.54

8 5.55 20.59

9 5.30 20.84

10 4.80 21.34

11 4.25 21.89

12 = T.P. 6.59 29.18 3.55 22.59

" 6.50 29.17 3.47 22.67

13 6.35 22.82

H.P.F.

Sta	B.S.	H.I.	-S	Elev
13+50		29.17	5.85	23.32
Ditch				
14			6.20	22.97
15			4.60	24.57
16			5.25	23.92
0			6.75	22.42
17			5.50	23.67
17+87			4.70	24.47
18+8			4.70	24.47
18+20			4.80	24.37
18+30			3.90	25.27
18+42			4.80	24.37
18+66			5.15	24.02
#				
B.M. 26			2.05	27.12

Small pond 50' W Sta. 16

N. Hwy Fence

" " Ditch

E Hwy S Line sec 16

S Hwy Ditch

S " F = End

Center of top N wall concrete culvert
Sta 18+30

H.P.H.

5+9	B.S.	H.I.	-5	Elev
5+10	3.16	22.44		19.28
R.P.				
T.P.	5.42	22.07	5.80	16.64
"	5.26	22.07	5.63	16.81
0	5.40		5.40	16.67
1			5.25	16.82
2			5.35	16.72
V2+50			5.15	16.92
3			5.00	17.00
4			4.10	17.97
5			2.70	19.37
6-T.P.	10.84	31.00	1.91	20.16
"	10.42	31.00	1.49	20.85
7			9.20	21.80
8			7.50	23.50
9			7.10	23.90
L 10			4.80	26.20
11			4.05	26.95

Spike in NE. Corner post SW SW Sec 16

= 5+9 80+40 Main

= 5+10 BR 6-A

H.P.F.

		H.I.		
Sta	B.S	31.00	-5	Elev
12 = T.P	8.37	36.70	2.67	28.33
" "	8.21	36.71	2.50	28.50
13			6.75	29.96
14			5.30	31.41
15			3.30	33.41
15 + 19			2.05	34.66

H.R.R.

= Eod. E.H.W. & sec 16

BR 6-A.

Sta BS H.I. - S Elev

T.P.R.P 10.13 30.29 20.16

" " 9.73 30.31 20.58

0 13.35 16.95

1 15.25 17.05

2 12.20 18.10

3 11.10 19.20

4 9.35 20.95

5 8.30 22.00

6 = T.P. 11.46 33.80 7.96 22.34

" 11.28 33.81 7.77 22.53

L.L. + 35

7 10.00 23.81

8 7.65 26.16

9 5.55 28.26

10 2.80 31.01

11 1.40 32.41

11 + 02

= Sta 2+50 B.P. 6.

= End E.W. & Sec 16

H.P.A.

4.00
4.08BR 7

Rodamar lines

Sept 11 '20

Sta B.S. H.1 - 5 Elev

R.P.
3160 BR 6 R 4.84 21.48 16.64

" 4.67 21.48 16.81

Vse

B.M. 7 5.28 22.82 3.94 17.54 17.64

0 4.85 17.97

0+48

1 5.00 17.82

2 4.80 18.02

Ditch Xing

2+15 6.95 15.87

3 5.10 17.72

4 4.80 18.02

5 4.60 18.22

6 T.P. 5.23 23.83 4.22 18.60

" " 5.13 23.83 4.12 18.70

7 5.20 18.63

8 4.85 18.98

Ditch Xing

9 5.80 18.03

Gr level

9 4.70 19.13

10 4.50 19.33

Spike in Cor post N.E. Cor SW-SW sec 16.

= Sta 86.35 M 110
= N Line SW SW sec 16 200' W of E Line

H.P.H.

5+4	BS	H.I.	-5	Elev
11		23.88	4.15	19.68
V 12	T.P.	6.91	26.82	4.12 19.71
11.1		6.73	26.62	3.94 19.89
Ditching			8.70	17.92
12+40				
13			7.00	19.62
14			7.45	19.17
8+ Ditch				
14+22			9.60	17.02
14+30			6.15	20.47
14+40			4.40	22.22
14+55			6.30	20.32
14+70			6.10	20.52
B.M. 27			4.01	22.61
V 15			6.80	19.82
16			6.55	20.01
Ditching				
16			7.90	18.72
17			5.90	20.72
18	T.P.	5.57	26.75	5.44 21.18
"		5.46	26.75	5.33 21.29

N. Hwy F Elev Not Tike line

" " Ditch

E Hwy

S Hwy Ditch

" " F.

NE Cor N Wall G.C. Culv 5 Line

= OBR 7-A

Sec 16

vse

22.71

0

0

Sta 135, H.I. - S Elev
26.75

L 19			5.45	21.30
20			5.05	21.70
21			4.70	22.05
22			3.75	23.00
23			4.30	22.45
24 - T.P	4.77	2759 2758	3.43	22.82
"	4.69	2759	3.87	22.88
Hub = R.P.				
L 25			4.15	22.83
26			4.65	22.93
27			4.30	23.08
28			4.45	23.13
29			4.20	23.38
30 T.P	5.29	2860	4.27	23.31
"	5.17	2860	4.15	23.43
31			4.95	23.65
32			4.55	24.05

= Sta 0 BR 7-B

H.R.F.

X

X

33 28.60 4.50 24.10

34 4.25 24.35

T.P. 4.74 29.77 3.57 25.03

" 4.66 ~~29.76~~ 3.50 25.10

35 5.40 24.37

36 4.75 25.02

37 4.85 24.92

38 5.30 24.47

39 7.25 23.52

40 5.80 23.97

41 5.20 24.57

42 4.55 25.22

42 TR 5.64 30.54 4.87 24.90

" 5.50 30.54 4.73 25.04

43 5.75 24.79

44 4.95 25.59

45 5.75 24.79

46 4.85 25.69 H.R.F.

BR 7-C

= O.B.R. 7-C

Bot. of Pond 75' Est 38

= O.B.R. 7-D

Sta	135	141	-5	Elev
47		30.54	4.30	26.24
48 T.P.	3.93	30.53	3.94	26.60
...	3.18	30.50	3.79	26.75
B.M. #28			3.86	26.67
Same T.P.	6.70	33.30		26.60
...	6.57	33.29		26.75
49			5.70	27.59
50			5.25	28.04
D. Xing 50+10			6.15	27.14
51			4.95	28.34
D. Xing 51+25			5.70	27.59
52			4.55	28.74
53			3.85	29.44
D. Xing T.P. 54	6.88	35.36	4.81	28.48
		35.35		
T.P.	6.66	35.34	4.57	28.72
55			5.60	29.77
56			5.25	30.12
57			4.85	30.52

Use

To post

S.E. (Brace wire attached)

Short post for post center Sec 21

H.R.P.

Sta	B.S	H.I.	-S	Elev
58		35.37	5.15	30.22
59			5.05	30.32
✓ 60 - T.P.	5.60	36.70	4.27	31.10
" "	5.43	36.71	4.07	31.28
61			5.50	31.21
62			5.30	31.41
63			5.15	31.56
64			4.55	32.76
65			4.15	32.56
✓ 66 T.P.	6.22	39.09	3.84	32.87
" "	6.12	39.09	3.74	32.97
67			5.60	33.49
68			5.35	33.74
69			4.75	34.34
70			4.15	34.94
71			3.60	35.49
72 - T.P.	5.10	41.49	2.70	36.39
" "	5.09	41.49	2.69	36.40 H.M.F.

Sta B.S. H.I. - 5 Elev

73 41.49 5.00 36.49

74 5.05 36.44

74+68 4.45 37.04

E Hwy F

B.M.#29 3.56 42.59 2.46 39.03 ^{use} 39.13 Spite in Cor. post NE Cor. SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 20

74+83 6.70 35.89

E Hwy Ditch

Sept 13 20

75 4.80 37.79

E Hwy

V 75+12 6.00 36.59

10 Ditch

75+12 6.95 35.64

W Hwy Ditch

76 5.25 37.34

77 5.10 37.49

78-T.P. 6.62 43.01 6.20 36.39

Hwy Ditch

78-T.P. 5.86 43.02 5.43 37.16

Gr level

79 5.45 37.57

80 5.25 37.77

81 4.85 38.17

82 4.45 38.57

83 3.40 39.62

H.P.F.

H.1
43.02

84-TP	10.56	49.34	4.24	38.78
84	9.00	49.35	2.67	40.35
85			8.55	40.79
86			8.15	41.19
87			7.30	42.04
88			6.55	42.79
88+75			4.95	44.39
89			2.90	43.44
89+55			5.70	43.64
89+50			4.85	44.49
89+95			5.55	43.79
90			4.75	44.59

Hwy Ditch

Gr level

= OBR 7-E.

E E+W Hwy at X Roads

E Hwy

E Hwy Ditch

End - E Hwy F.

B+A B.S. H.I. - S Elev

B.M. 3.46 26.07 22.61 21.71

0 6.23 19.84

Ditch Xing

0+10

7.10 18.97

HOB=RR

0+50

5.06 21.01

= Sta 15 BR 7

~~= Sta 15 BR 7~~

= Sta 0 BR 7-A-1

1 5.20 20.87

2 4.80 21.27

3 4.40 21.67

4 4.40 21.67

5 3.75 22.32

6=T.P. 5.92 28.55 3.44 22.63

" " 5.92 28.55 3.44 22.63

7 5.90 22.65

8 5.50 23.05

9 4.40 24.15

10 4.45 24.10

11 4.25 24.30

12-T.P. 7.16 32.19 3.52 25.03

" " 7.19 32.19 3.50 25.05

= 0 BR 7-A-2.

Sta B.S. H.I. -5 Elev

13 32.19 5.85 26.34

14 5.35 26.84

15 4.65 27.54

16 4.25 27.94

17 4.00 28.19

18 - T.P. 7.12 36.64 2.67 29.52

... 7.04 36.64 2.57 29.60

19 5.95 30.69

L 20 5.85 30.79

21 4.90 31.74

B.M. #30 2.46 34.18 34.28

VSC

300' E of N45 Hwy

Top of large boulder opp sta 21

22 4.15 32.49

23 3.40 33.24

23+24 2.50 34.24

E Hwy F

23+35 3.50 33.14

E Hwy D

T.P. 6.57 40.67 2.54 39.10

E Hwy

23+50 5.50 35.17

E Hwy

5+9	B.S	H.I.	- 3	Elev
23+80		40.67	7.00	33.67
23+95			5.60	35.07
24			5.80	34.87
25			5.50	35.17
26			5.10	35.57
27			4.00	36.67
28			3.40	37.27
29			2.65	38.02
30- T.P	6.48	45.94	1.21	39.46
" "	6.68	45.94	1.41	39.26
31			6.85	39.09
L 31+15			6.35	39.59
32			6.40	39.54
33			5.30	40.64
L 33+75			4.15	41.79
34			4.30	41.64
35			3.90	42.04

W Hwy Ditch

= 0 BR 7.1A-24

12 E.H.
6.16.50
- 3.3.10

Sta. B.S. H.I. - S Elev

36 45.94 2.45 43.49

37 1.70 44.24

38 0.80 45.14

38+55 0.00 45.94

= End - 145¢ NE ¼ Sec 20

Sta	B.S.	H.I.	-5	Elev
Hub				
0	6.29	27.30		21.01
1			6.25	21.05
2			5.70	21.60
3			4.90	22.40
4			4.05	23.25
5			3.70	23.60
6 - T.P.	6.93	31.26	2.97	24.33
...	6.79	31.26	2.83	24.47
7			6.30	24.96
8			5.60	25.66
9			5.10	26.16
10			4.75	26.51
10+76			4.80	26.46
10+86			5.70	25.56
11			3.20	28.06
11+15			5.50	25.76
11+30			4.60	26.66

= 0+50 7-A.

E Hwy F

E Hwy D

E Hwy

W Hwy D

W " F

H.A.H.

H.I.				
5+9	BS.	31.26	- 2	Elev
12				
12-TP	9.73	36.66	4.33	26.92
		36.67		
...	9.50	36.68	4.08	27.18
13			8.90	27.77
14			7.85	28.82
15			6.75	29.92
16			5.75	30.92
17			5.00	31.67
18			4.25	32.42
18+91			2.75	33.92
19			3.70	32.97
19+21			1.60	35.07
19+36			3.20	33.47
19+58			2.15	34.52

H.R.H.

Hwy F

" " D

Hwy 5 Line sec 17

N Hwy D

= End N Hwy F

BR 7-A-2.

Sta	BS	HI	-S	Elev
0	6.27	27.94		21.67
1			3.70	22.24
2			4.95	22.99
3			4.85	23.09
4			4.30	23.64
5			3.75	24.19
5+50	6.79	31.10	3.63	24.31
6	6.71	31.11	3.54	24.40
6			6.35	24.76
7			6.05	25.06
8			4.90	26.21
9			3.90	27.21
9+61			3.15	27.96
9+70			3.25	27.86
9+82			1.60	29.51
10			2.75	28.16
10+15			1.77	29.34
BM #31			1.00	30.11

= Sta 4 BR 7-A

E Hwy F

E Hwy D

E Hwy

Not end - Stopped here 9/13/60 acct

Spike in large post by Sta 10+15

H.A.J.

Sta	B.S.	H.I.	- S	Elev
B.M. #31				
10	6.60	36.71		30.11
11			7.15	29.56
12			6.50	30.21
13			6.00	30.71
14			5.80	30.91
15			5.05	31.66
16			4.30	32.41
17			3.75	32.96 = 0 BR
18			3.15	33.56
19			2.25	34.46
20	9.17	44.98	0.90	35.81
21			8.50	36.48
22			8.50	36.48
23			8.00	36.98
24			6.80	38.18
25			5.80	39.18
26			5.00	39.98
27				End 145 ft

M.A.

NE 1/4 Sec 20

Sta	B.S.	H.I.	- S	Elev
0	14.98			32.96
1			11.00	33.98
2			9.80	35.18
3			9.10	35.88
4			8.20	36.78
5			6.95	38.03
6			6.35	38.63
7			5.45	39.53
8			4.80	40.18
9			3.90	41.08
10			2.95	42.03
11			1.85	43.13
12				End 145

ENE 1/4 Sec 20

BR 7A-3

Sta BS H.I. - S Elev

B.O. 30	1.35	40.63	6.05	34.28
1			5.75	34.58
2			5.25	34.88
3			4.75	35.38
4			4.30	35.88
5			3.70	36.33
+ 43			2.60	36.93

= Sta 23+77 BR 7-A

inside Hwy,
End - End E+W of Sec 20

BR 7A-3

0	45.94	41.54	41.79
1		340	42.54

= Sta 33+75 BR 7-A.

= End E+W of Sec 20

BR 7-B

Sept 14 '20

Sta	BS	H.I.	-S	Elev.
Hub=R.P.				22.83
0	4.83	27.66		20.04
1			5.20	22.46
2			4.80	22.86
3			4.70	22.96
4			4.20	23.46
5			4.55	23.11
6	RR T.P.	6.07	29.30	4.43 23.23
" "		5.87	29.30	4.23 23.43
7			5.60	23.70
8			5.00	24.30
9			4.60	24.70
10			4.25	25.05
11			3.25	26.05
11+23			2.40	26.90
11+29			3.55	25.75
11+45			2.00	27.30
11+60			3.40	25.90
11+73			2.30	27.00

H.P.F

= Sta 25 BR. 7.

= Sta 0 BR 7-B-1.

S Hwy F

S " D.

E Hwy 5 Line Sec 16

N " D

N. Hwy F = End.

BR 7-B.1

Sta³ BS H.1 - 5 Elev

R.P.

0 6.07 29.30 23.23

1 5.90 23.40

2 5.50 23.80

3 4.95 24.35

4 4.60 24.70

5 4.25 25.05

Sta 45 3.55 25.45

H.R.A.

BR 7-C

Hub = R.P.

0 5.30 29.77 24.47

1 6.95 22.82

0 7.25 22.52

H.R.A.

= Sta 6 BR 7-B.

End - N45 E sec 21

- Sta 38 BR 7

End N45 E sec 21

Bot. of Pond

Use G.P. + Cement Joints.

BR 7-D.

Sta	B.S.	H.I.	-S	E/cv
0	5.55	30.45		24.90
1		5.00	25.45	
2		4.55	25.90	
3		4.55	25.90	
3+70		4.30	26.15	
4		4.80	25.65	
5		4.65	25.80	
5+10		3.95	26.50	
①		5.60	24.85	
B.M.		3.38	27.07	H.R.A.

BR 7-E.

①	49.34	8.55	40.79	Sta 85 = BR 7.
0+5		10.10	39.24	W Hwy D 4+32
0+24		8.45	40.89	W " F 4+42
1		8.65	40.69	4+57
2		8.15	41.19	4+75
3		7.95	41.59	4+98
4		7.25	42.09	H.R.A.

= Sta 42 BR 7

N+5 ± Sec 21 100' N of Sec ^{Center}

End - E-W ± Sec 21 100' E of Cen.

Bot of pond 50' NE Sta 4+50
brace wire

Same 50' post center Sec 21

BR 7-E

49.34	6.90	42.44	N Hwy F
7.20	42.14	" " D	Line 520
5.65	43.69	E Hwy	
7.20	42.14	S " D	
5.85	43.49	End = S Hwy F	

BR-8

Sta B.S. H.I. -5 Elev.

B.M. 5.53 23.07 17.54

O - T.P. 4.38 ~~23.18~~ 4.27 18.80

" " 4.22 23.19 4.10 18.99

1 4.45 18.74

2 4.50 18.69

Ditching
2+45

7.90 15.29

3 4.45 18.74

4 2.65 20.54

T.P.
L 4+60 8.35 30.10 1.44 21.75

" 8.29 30.10 1.33 21.86

5 8.35 21.75

6 7.45 22.65

7 6.35 23.75

8 5.30 24.80

✓ 9 4.15 25.85

T.P. 8.53 35.67 3.09 27.01

" " 8.25 ~~35.85~~ 2.80 27.30

H.P.M.

= Sta 93 Main

Use S.P. + Cement Joints
from Sta 5 to end.

Sta	BS.	H.I	-S	Elev.
L: 10		35.57	7.95	27.59
11		6.20		29.34
12		4.60		30.94
13		3.35		32.19
13+03		2.90		33.64

End - F.W.E. 500 16

H.R. 17.

Lines Not run on acct of Crops.

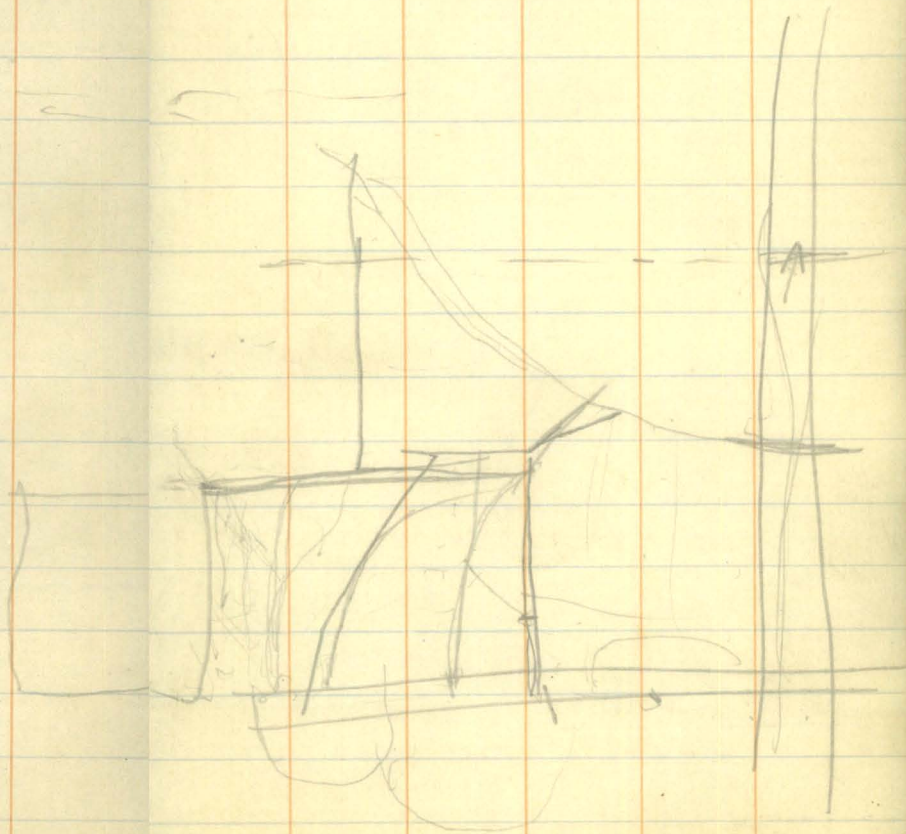
BR-1 540 = 540 20 Main

" - 2F " 0 = " 66 BR 2

" 2F 0 = " 77 " 2
" 7-A-4 0 = " 23.75 " 7-A

" 7-A-2 0 = " 4 " 7-A

" 7A-2-A " 0 = " 7-A-2



BR 7-E

0

46.55 8.55

=51485²⁸

0+5

10.10

W. Hwy
Ditch

0+24

8.45

W. Hwy

1

8.65

2

8.15

3

7.75

4

7.25

4+32

6.90

N Hwy F

4+42

7.20

" " Ditch

4+57

5.65

E Hwy

4+75

7.20

S Hwy D.

4+98

5.85

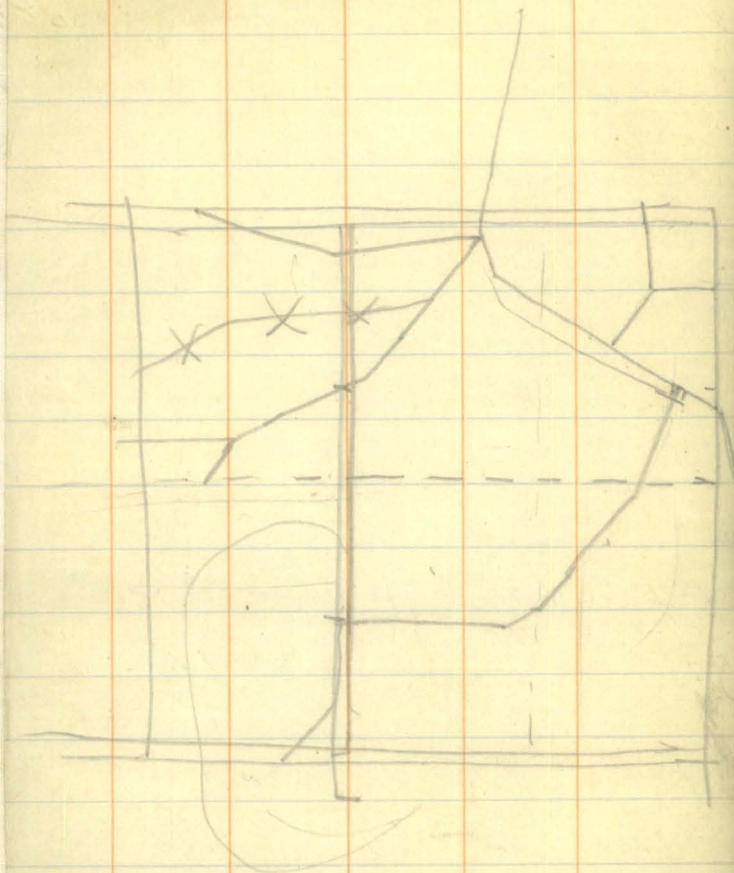
End S Hwy F

482 21.48

16.60

11.68 21.49

16.81



Bc 4A.

0	31.85	6.40	= 20 + SD 4
1		4.80	
2		3.45	
3		3.15	
4		2.20	
4 + 67		1.00 = End	

End = N 56° NW 1/4 Sec 16 20' S of Cen
+ 1/4 Sec

DRES

BM	4.55	5A55	50.00
At Bulkhead Bot Ditch		8.30	46.25
- Sta. 5 Bot Ditch		9.20	45.35
T.P.	3.72	52.01	6.26 48.29
" 1	3.58	52.00 51.99	6.09 48.44
Bot Ditch			
ERRF		6.35	45.65
Bot D			
R.R. Bridge		6.75	45.25

2 B

Sta BS H.1 - 5 Elev.

0			= 32 + 75 2
		4.85	
0 + 16		4.70	± Hwy
+ 42		6.40	± Hwy ditch
+ 50			
		7.55	Flowline outlet

2-H

H1 - 5 Elev

0 = 93 BR 2	56.55	3.80
0 + 36 End of E + W R		3.20

3 A.

H.1

0 = 12 BR 3 25.11

		6.65	
0 + 12		6.45	± Hwy
0 + 38		7.50	W Hwy Ditch
0 + 48		6.45	E W Hwy F End

TABLE IX.—CALCULATION OF EARTHWORK.

Width	HEIGHT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.02	.04	.06	.07	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	.28
2	.04	.07	.11	.15	.18	.22	.26	.30	.33	.37	.41	.44	.48	.52	.56
3	.06	.11	.17	.22	.28	.33	.39	.44	.50	.56	.61	.67	.72	.78	.83
4	.07	.15	.22	.30	.37	.44	.52	.59	.67	.74	.81	.89	.96	1.04	1.11
5	.09	.19	.28	.37	.46	.56	.65	.74	.83	.93	1.02	1.11	1.20	1.30	1.39
6	.11	.22	.33	.44	.56	.67	.78	.89	1.00	1.11	1.22	1.33	1.44	1.55	1.67
7	.13	.26	.39	.52	.65	.78	.91	1.04	1.16	1.30	1.42	1.55	1.68	1.81	1.94
8	.15	.30	.44	.59	.74	.89	1.04	1.19	1.33	1.48	1.63	1.78	1.92	2.08	2.22
9	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50
10	.18	.37	.56	.74	.93	1.11	1.30	1.48	1.67	1.85	2.04	2.22	2.41	2.59	2.78
11	.20	.41	.61	.82	1.02	1.22	1.43	1.63	1.83	2.04	2.24	2.44	2.65	2.85	3.06
12	.22	.44	.67	.89	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.33
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.41	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.08	2.33	2.59	2.85	3.11	3.37	3.63	3.89
15	.28	.56	.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	3.06	3.33	3.61	3.89	4.17
16	.30	.59	.89	1.18	1.48	1.78	2.07	2.37	2.67	2.96	3.26	3.56	3.85	4.15	4.44
17	.31	.63	.94	1.26	1.57	1.89	2.20	2.52	2.83	3.15	3.46	3.78	4.09	4.41	4.72
18	.33	.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00
19	.35	.70	1.06	1.41	1.76	2.11	2.46	2.82	3.17	3.52	3.87	4.22	4.57	4.92	5.28
20	.37	.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.56
21	.39	.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.44	5.83
22	.41	.81	1.22	1.63	2.04	2.44	2.85	3.26	3.67	4.07	4.48	4.89	5.30	5.70	6.11
23	.43	.85	1.28	1.70	2.13	2.56	2.98	3.41	3.83	4.26	4.68	5.11	5.54	5.96	6.39
24	.44	.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	4.89	5.33	5.78	6.22	6.67
25	.46	.92	1.39	1.85	2.31	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	6.94
26	.48	.96	1.44	1.92	2.41	2.89	3.37	3.85	4.33	4.82	5.30	5.78	6.26	6.74	7.24
27	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
28	.52	1.04	1.55	2.07	2.59	3.11	3.63	4.15	4.67	5.18	5.70	6.22	6.74	7.26	7.78
29	.54	1.07	1.61	2.15	2.68	3.22	3.76	4.30	4.83	5.37	5.91	6.44	6.98	7.52	8.06
30	.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.55	6.11	6.67	7.22	7.78	8.33
31	.57	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74	6.32	6.89	7.46	8.04	8.61
32	.59	1.18	1.78	2.37	2.96	3.56	4.15	4.74	5.33	5.92	6.52	7.11	7.70	8.30	8.89
33	.61	1.22	1.83	2.44	3.05	3.67	4.28	4.89	5.50	6.11	6.72	7.33	7.94	8.55	9.17
34	.63	1.26	1.89	2.52	3.15	3.78	4.40	5.04	5.67	6.29	6.93	7.56	8.18	8.81	9.44
35	.65	1.30	1.94	2.59	3.24	3.89	4.53	5.18	5.83	6.48	7.13	7.78	8.42	9.08	9.72
36	.67	1.33	2.02	2.67	3.33	4.00	4.66	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.00
37	.68	1.37	2.06	2.74	3.42	4.11	4.79	5.48	6.17	6.85	7.54	8.22	8.91	9.59	10.28
38	.70	1.41	2.11	2.82	3.52	4.22	4.92	5.63	6.33	7.03	7.74	8.44	9.15	9.85	10.56
39	.72	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	7.22	7.95	8.67	9.39	10.11	10.83
40	.74	1.48	2.22	2.96	3.70	4.44	5.18	5.92	6.67	7.41	8.15	8.89	9.63	10.37	11.11

Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth the values found under each height considering the width from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if $w=16.2$ and $h=5.3$, cu. yds. $=1.48+0.28+.089=1.567$ cu. yds. or practically 160 cu. yds. per 100 ft. If w exceeds 40 ft., use one half and multiply result by 2, if both w and h are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills) $=h$, and $\frac{1}{2}$ the roadbed $=w$, add the triangles formed by taking the distance out to each break in turn ($=w$'s) by the difference between the cuts (or fills) on each side of it ($=h$'s) always subtracting the outer from the inner.

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 $41.9+(20-16) \div 2$ or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.