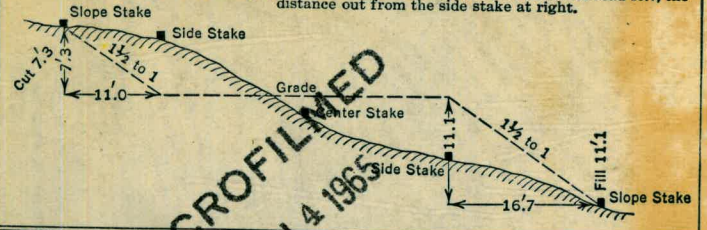
## DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

**Roadway of any Width. Side Slopes 1½ to 1.**

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.






| Cut or Fill | 0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | Cut or Fill |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Distance out from Side or Shoulder Stake | | | | | | | | | | |
| 0 | 0.0 | 0.2 | 0.3 | 0.5 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 | 1.4 | 0 |
| 1 | 1.5 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 2.7 | 2.9 | 1 |
| 2 | 3.0 | 3.2 | 3.3 | 3.5 | 3.6 | 3.8 | 3.9 | 4.1 | 4.2 | 4.4 | 2 |
| 3 | 4.5 | 4.7 | 4.8 | 5.0 | 5.1 | 5.3 | 5.4 | 5.6 | 5.7 | 5.9 | 3 |
| 4 | 6.0 | 6.2 | 6.3 | 6.5 | 6.6 | 6.8 | 6.9 | 7.1 | 7.2 | 7.4 | 4 |
| 5 | 7.5 | 7.7 | 7.8 | 8.0 | 8.1 | 8.3 | 8.4 | 8.6 | 8.7 | 8.9 | 5 |
| 6 | 9.0 | 9.2 | 9.3 | 9.5 | 9.6 | 9.8 | 9.9 | 10.1 | 10.2 | 10.4 | 6 |
| 7 | 10.5 | 10.7 | 10.8 | 11.0 | 11.1 | 11.3 | 11.4 | 11.6 | 11.7 | 11.9 | 7 |
| 8 | 12.0 | 12.2 | 12.3 | 12.5 | 12.6 | 12.8 | 12.9 | 13.1 | 13.2 | 13.4 | 8 |
| 9 | 13.5 | 13.7 | 13.8 | 14.0 | 14.1 | 14.3 | 14.4 | 14.6 | 14.7 | 14.9 | 9 |
| 10 | 15.0 | 15.2 | 15.3 | 15.5 | 15.6 | 15.8 | 15.9 | 16.1 | 16.2 | 16.4 | 10 |
| 11 | 16.5 | 16.7 | 16.8 | 17.0 | 17.1 | 17.3 | 17.4 | 17.6 | 17.7 | 17.9 | 11 |
| 12 | 18.0 | 18.2 | 18.3 | 18.5 | 18.6 | 18.8 | 18.9 | 19.1 | 19.2 | 19.4 | 12 |
| 13 | 19.5 | 19.7 | 19.8 | 20.0 | 20.1 | 20.3 | 20.4 | 20.6 | 20.7 | 20.9 | 13 |
| 14 | 21.0 | 21.2 | 21.3 | 21.5 | 21.6 | 21.8 | 21.9 | 22.1 | 22.2 | 22.4 | 14 |
| 15 | 22.5 | 22.7 | 22.8 | 23.0 | 23.1 | 23.3 | 23.4 | 23.6 | 23.7 | 23.9 | 15 |
| 16 | 24.0 | 24.2 | 24.3 | 24.5 | 24.6 | 24.8 | 24.9 | 25.1 | 25.2 | 25.4 | 16 |
| 17 | 25.5 | 25.7 | 25.8 | 26.0 | 26.1 | 26.3 | 26.4 | 26.6 | 26.7 | 26.9 | 17 |
| 18 | 27.0 | 27.2 | 27.3 | 27.5 | 27.6 | 27.8 | 27.9 | 28.1 | 28.2 | 28.4 | 18 |
| 19 | 28.5 | 28.7 | 28.8 | 29.0 | 29.1 | 29.3 | 29.4 | 29.6 | 29.7 | 29.9 | 19 |
| 20 | 30.0 | 30.2 | 30.3 | 30.5 | 30.6 | 30.8 | 30.9 | 31.1 | 31.2 | 31.4 | 20 |
| 21 | 31.5 | 31.7 | 31.8 | 32.0 | 32.1 | 32.3 | 32.4 | 32.6 | 32.7 | 32.9 | 21 |
| 22 | 33.0 | 33.2 | 33.3 | 33.5 | 33.6 | 33.8 | 33.9 | 34.1 | 34.2 | 34.4 | 22 |
| 23 | 34.5 | 34.7 | 34.8 | 35.0 | 35.1 | 35.3 | 35.4 | 35.6 | 35.7 | 35.9 | 23 |
| 24 | 36.0 | 36.2 | 36.3 | 36.5 | 36.6 | 36.8 | 36.9 | 37.1 | 37.2 | 37.4 | 24 |
| 25 | 37.5 | 37.7 | 37.8 | 38.0 | 38.1 | 38.3 | 38.4 | 38.6 | 38.7 | 38.9 | 25 |
| 26 | 39.0 | 39.2 | 39.3 | 39.5 | 39.6 | 39.8 | 39.9 | 40.1 | 40.2 | 40.4 | 26 |
| 27 | 40.5 | 40.7 | 40.8 | 41.0 | 41.1 | 41.3 | 41.4 | 41.6 | 41.7 | 41.9 | 27 |
| 28 | 42.0 | 42.2 | 42.3 | 42.5 | 42.6 | 42.8 | 42.9 | 43.1 | 43.2 | 43.4 | 28 |
| 29 | 43.5 | 43.7 | 43.8 | 44.0 | 44.1 | 44.3 | 44.4 | 44.6 | 44.7 | 44.9 | 29 |
| 30 | 45.0 | 45.2 | 45.3 | 45.5 | 45.6 | 45.8 | 45.9 | 46.1 | 46.2 | 46.4 | 30 |
| 31 | 46.5 | 46.7 | 46.8 | 47.0 | 47.1 | 47.3 | 47.4 | 47.6 | 47.7 | 47.9 | 31 |
| 32 | 48.0 | 48.2 | 48.3 | 48.5 | 48.6 | 48.8 | 48.9 | 49.1 | 49.2 | 49.4 | 32 |
| 33 | 49.5 | 49.7 | 49.8 | 50.0 | 50.1 | 50.3 | 50.4 | 50.6 | 50.7 | 50.9 | 33 |
| 34 | 51.0 | 51.2 | 51.3 | 51.5 | 51.6 | 51.8 | 51.9 | 52.1 | 52.2 | 52.4 | 34 |
| 35 | 52.5 | 52.7 | 52.8 | 53.0 | 53.1 | 53.3 | 53.4 | 53.6 | 53.7 | 53.9 | 35 |
| 36 | 54.0 | 54.2 | 54.3 | 54.5 | 54.6 | 54.8 | 54.9 | 55.1 | 55.2 | 55.4 | 36 |
| 37 | 55.5 | 55.7 | 55.8 | 56.0 | 56.1 | 56.3 | 56.4 | 56.6 | 56.7 | 56.9 | 37 |
| 38 | 57.0 | 57.2 | 57.3 | 57.5 | 57.6 | 57.8 | 57.9 | 58.1 | 58.2 | 58.4 | 38 |
| 39 | 58.5 | 58.7 | 58.8 | 59.0 | 59.1 | 59.3 | 59.4 | 59.6 | 59.7 | 59.9 | 39 |
| 40 | 60.0 | 60.2 | 60.3 | 60.5 | 60.6 | 60.8 | 60.9 | 61.1 | 61.2 | 61.4 | 40 |

KEUFFEL & ESSER CO., N. Y.

For Curve Tables see end of book.

668



The paper in this book **No. F363A** is made of **50%** high grade rag stock with a **WATER RESISTING** surface sizing.

11,112. ks, x, yc. kM.

9/24/42
Soper
King
Davis

1

## Profile of Harbor Front Pipeline location

Alignment in Book # 667

| | + | H.I. | − | Elev. | |
|---|---|---|---|---|---|
| B.M. | 4.49 | 6.76' | | 2.27 | Brass plug, S.W. Corner Market & India 2.27 (State Hwy) 2.423 (City Eng. Office) |
| | | | 2.80 | 3.96 | Top of F. Hyd. N.E. Cor Market & Kellner Rec. 3.98 (Shelton's location) |
| TP | 5.93 | 8.68' | 4.01 | 2.75' | |
| TP | 5.02 | 10.13' | 3.57 | 5.11' | |
| 0−09 | | | 4.84 | 5.29' | edge of concrete walk |
| 0+00 | | | 4.91 | 5.22' | |
| 0+01 | | | 4.94 | 5.19' | " " " " |
| 0+06 | | | 5.07 | 5.06' | Top of curb |
| 0+06 | | | 6.1 | 4.0 | ground |
| 0+09 2 | | | 5.76 | 4.27' | top of rail |
| 0+14 | | | 5.75 | 4.38' | " " " |
| 0+19 | | | 6.1 | 4.0' | ground |

10.13

| | | | |
|---|---|---|---|
| 0+19.8 | | 5.06 | 5.07 | top of curb |
| 0+20 | | 5.72 | 4.41 | on pavement |
| 0+37 | | 5.28 | 4.85 | ℄ pavement |
| 0+54.5 | | 5.05 | 5.08 | on pavement |
| 0+54.5 | | 4.45 | 5.68 | top of curb |
| 0+56 | | 5.2 | 4.9 | ground |
| 0+65 | | 5.5 | 4.6 | |
| 1+00 | | 5.5 | 4.6 | |
| 1+10.9 | | 5.5 | 4.6 | ground |
| 1+10.9 | | 4.96 | 5.17 | conc. walk |
| 1+20.9 | | 4.85 | 5.28 | " " |

10.13

| | | | | |
|---|---|---|---|---|
| 1+50 | | | 4.4 | 5.7 |
| 2+00 | | | 4.5 | 5.6 |
| 2+50 | | | 5.1 | 5.0 |
| 3+00 | | | 5.2 | 4.9 |
| TP | 3.95 | 9.09 ~~8.09~~ | 4.99 | 5.14 |
| 3+50 | | | 4.3 | 4.8 |
| 4+00 | | | 4.0 | 5.1 |
| 4+50 | | | 3.6 | 5.5 |
| 5+00 | | | 4.0 | 5.1 |
| 5+50 | | | 3.8 | 5.3 |
| 5+72.26 ℄ | | | 4.0 | 5.1 |
| 6+00 | | | 4.5 | 4.6 |

| | | | | |
|---|---|---|---|---|
| | | 9.09<br>~~8.09~~ | | |
| | | | 5.7 | 3.4 |
| | | | 16.8 | -7.7 |
| 6+50 | | | 5.5 | 3.6 |
| 7+00 | | | 5.7 | 3.4 |
| 7+50 | | | 5.6 | 3.5 |
| 8+00 | | | 5.7 | 3.4 |
| TP | 5.61 | 9.02<br>~~8.02~~ | 5.68 | 3.41<br>~~2.41~~ |
| 9+00 | | | 55 | 3.5 |
| 10+00 | | | 5.8 | 3.2 |
| 11+00 | | | 5.5 | 3.5 |
| 12+00 | | | 5.5 | 3.5 |
| TP | 3.33 | 6.65<br>~~5.65~~ | 5.70 | 3.32<br>~~2.32~~ |
| 13+00 | | | 3.6 | 3.1 |



Rim of Sewer M.H. 315 Lt 6+12 (11 drop)

Fl. line " " " " " "

| | | | | |
|---|---|---|---|---|
| | | 6.65<br>5.65 | | |
| 14+00 | | | 4.2 | 2.5' |
| 15+00 | | | 4.0 | 2.7' |
| 16+00 | | | 4.3 | 2.4' |
| TP | 5.04 | 6.85'<br>5.85 | 4.84 | 1.81'<br>0.81 |
| 17+00 | | | 4.5 | 2.4' |
| 18+00 | | | 4.5 | 2.4' |
| 19+00 | | | 4.4 | 2.5' |
| 20+00 | | | 4.8 | 2.1' |
| 21+00 | | | 4.4 | 2.5' |
| 22+00 | | | 4.7 | 2.2' |
| 23+00 | | | 4.4 | 2.5 |
| TP | 5.00 | 6.78'<br>5.78 | 5.07 | 1.78'<br>0.78 |
| 24+00 | | | 4.3 | 2.5' |

| | | | | |
|---|---|---|---|---|
| | | 6.78<br>~~5.78~~ | | |
| 25+00 | | | 4.4 | 2.4 |
| 26 | | | 4.4 | 2.4 |
| 27 | | | 4.7 | 2.1 |
| B.M. | 4.94 | 6.59<br>~~5.59~~ | 5.13 | 1.65<br>~~0.65~~ |
| 27+96.62 | | | 4.6 | 2.0 |
| 29+00 | | | 4.5 | 2.1 |
| 30 | | | 4.6 | 2.0 |
| 31 | | | 4.6 | 2.0 |
| 31+56.11 | | | 4.4 | 2.2 |
| 32 | | | 4.5 | 2.1 |
| 33 | | | 4.6 | 2.0 |

□ on curb 120' Rt 27+17 (State B.M. Lt 29+00 ± elev 1.56

| | | | | |
|---|---|---|---|---|
| | | 6.59<br>5.59 | | |
| 34 | | | 4.7 | 1.9 |
| PI | 4.46 | 6.39<br>5.39 | 4.66 | 1.93<br>0.93 |
| 35 | | | 4.5 | 1.9 |
| 36 | | | 4.4 | 2.0 |
| 37 | | | 4.5 | 1.9 |
| 38 | | | 4.5 | 1.9 |
| Sct B M. | | | 1.48 | 4.91 |
| 39 | | | 4.4 | 2.0 |
| 40 | | | 4.4 | 2.0 |
| 41 | | | 4.5 | 1.9 |
| 41+70.70 Δ | | | 4.3 | 2.1 |

Top of F. Hyd. 18'Lt 38+23

| | | | | |
|---|---|---|---|---|
| | | 1.39<br>~~5.29~~ | | |
| TP | 5.93 | 7.56'<br>~~6.56~~ | 4.76 | 1.63'<br>~~0.63~~ |
| 42 | | | 5.5 | 2.1' |
| 43 | | | 5.6 | 2.0' |
| 44 | | | 5.2 | 2.4' |
| 45 | | | 4.7 | 2.9' |
| Set B.M. | | | 2.13 | 5.43' |
| 46 | | | 4.6 | 3.0' |
| | | | 4.6 | 3.0' |
| 47 | | | 4.9 | 2.7' |
| 48 | | | 4.9 | 2.7' |
| 49 | | | 4.8 | 2.8' |
| TP | 5.03 | 7.76'<br>~~6.76~~ | 4.83 | 2.73'<br>~~1.73~~ |

Top of F. Hyd. 10' ± Rt 45+59

Rim of Sewer MH. 7' ± Lt 46+78 - (Covered with bit. pave)

| | | |
|---|---|---|
| | 7.76<br>~~6.76~~ | |
| 50+00 | 5.7 | 2.1 |
| | 11.1 | - 3.3 |
| 50+62.95 ± Δ | 6.1 | 1.7 |
| 51 | 5.6 | 2.2 |
| 52 | 5.4 | 2.4 |
| | 5.7 | 2.1 |
| | 5.7 | 2.1 |
| 53 | 6.1 | 1.7 |
| 53+86.00 ± Δ | 5.7 | 2.1 |
| Set B.M. | 5.31 | 2.45<br>~~2.45~~ |

Fl line 24" drain 30 Lt 50+57

Rim of Gas. Co. M.H. 35.5 ± Lt 52+43

" " " " " 34.5 ± Lt 52+49

R.P. Nail in pole 21.2 Lt 50+62.95 ± (out)

| | | | | |
|---|---|---|---|---|
| B.M. | 4.30 | 6.75<br>~~5.75~~ | | 2.45<br>~~1.45~~ |
| 54+00 | | | 4.3 | 2.5 |
| 54+35 | | | 4.0 | 2.8 |
| 55 | | | 4.8 | 2.0 |
| 56 | | | 5.3 | 1.5 |
| 57 | | | 5.8 | 1.0 |
| 58 | | | 5.7 | 1.1 |
| 59 | | | 4.1 | 2.7 |
| TP | 2.02 | 5.56<br>~~4.56~~ | 3.21 | 3.54<br>~~2.54~~ |
| 59+40 | | | 2.9 | 2.7 |
| 60 | | | 4.0 | +1.6 |
| 61 | | | 5.8 | −0.2 |
| 61+50 | | | 6.9 | −1.3 |
| 62 | | | 4.7 | +0.9 |

| | | | | |
|---|---|---|---|---|
| | | 5.56<br>4.56 | | |
| 62+04 20 back<br>62+00 ahead | | | 4.6 | 1.0 |
| 63 | | | 4.8 | 0.8 |
| 64 | | | 4.6 | 1.0 |
| 65 | | | 4.8 | 0.8 |
| 66 | | | 4.9 | 0.7 |
| 67 | | | 4.8 | 0.8 |
| TP | 5.89 | 6.73<br>~~5.73~~ | 4.72 | 0.84<br>~~0.16~~ |
| 68 | | | 5.8 | 0.9 |
| 69 | | | 5.4 | 1.3 |
| 70 | | | 4.6 | 2.1 |
| 70+02 | | | 8.5 | −1.8 |
| 70+25 | | | 15.3 | −8.6 |

bottom of slough

| | | | | |
|---|---|---|---|---|
| | | 6.73 ~~5.73~~ | | |
| 70+36 | | | 10.7 | - 4.0 |
| +54 | | | 9.0 | - 2.3 |
| +56 | | | 5.1 | + 1.6 |
| 71 | | | 4.9 | 1.8 |
| 72 | | | 4.3 | 2.4 |
| 73 | | | 5.6 | 1.1 |
| 74 | | | 5.2 | 1.5 |
| TP. | 5.88 | 7.24 ~~6.24~~ | 5.37 | 1.36 ~~0.36~~ |
| 75 | | | 7.6 | -0.4 |
| 76 | | | 5.7 | + 1.5 |
| 77 | | | 5.2 | 2.0 |
| Set B.M. | 2.42 | 7.71 | 1.95 | 5.29 ~~4.29~~ |
| 78 | | | 5.4 | 2.3 |

Top of F Hyd 11'Rt 77+88

7.71

| | | | | |
|---|---|---|---|---|
| 79 | | | 5.0 | 2.7 |
| 80 | | | 4.7 | 3.0 |
| 81 | | | 4.4 | 3.3 |
| TP | 4.81 | 8.06 | 4.46 | 3.25 |
| 82 | | | 4.6 | 3.5 |
| 83 | | | 4.5 | 3.6 |
| | | | 5.3 | 2.8 |
| | | | 8.0 | + 0.1 |
| | | | 4.3 | 3.8 |
| | | | 9.7 | - 1.6 |
| | | | 5.14 | 2.92 |
| 84 | | | 4.6 | 3.5 |
| 85 | | | 4.3 | 3.8 |
| 86 | | | 4.1 | 4.0 |

Top of grate of drop inlet catch basin 18' Rt 83+62

Fl. line 12" x 24" wood culvert " " " 12" x 24"

Rim of sewer M.H. 14' Lt 83+78

Fl. line " " " " " "

or concrete wall, marked elev. 11.95

2.92 City datum
9.01 U.S.C.+G.S. datum
11.93

| | | | | | |
|---|---|---|---|---|---|
| | | 8.06 | | | |
| 87 | | | 3.8 | 4.3 | |
| TP | 6.34 | 10.62 | 3.78 | 4.28 | |
| 88 | | | 6.1 | 4.5 | |
| 89 | | | 5.8 | 4.8 | |
| 90 | | | 5.2 | 5.4 | |
| 91 | | | 5.4 | 5.2 | |
| 92 | | | 5.4 | 5.2 | -0.2 |
| 93 | | | 5.7 | 4.9 | -0.3 |
| 94 | | | 5.7 | 4.9 | -0.5 |
| TP | 6.99 | 11.87 | 5.74 | 4.88 | |
| 95 | | | 6.4 | 5.5 | 0.0 |
| 96 | | | 5.7 | 6.2 | -2.0 |

11.87

| | | | | | Grade |
|---|---|---|---|---|---|
| 97 | | | 5.8 | 6.1' | 0.5 |
| 97+08 36 Δ | | | 5.4 | 6.5' | 0.5 |
| 97+49 36 Δ | | | 6.0 | 5.9' | 0.7 |
| 98 | | | 5.4 | 6.5' | 1.0 |
| 99 | | | 5.4 | 6.5' | 1.5 |
| 100 | | | 5.2 | 6.7' | 2.0 |
| 100+50 | | | 5.2 | 6.7' | 2.2 |
| | | | 2.9 | 9.0' | |
| 101 | | | 3.4 | 8.5' | 2.5 |
| TP | 3.74 | 13.59' | 2.02 | 9.85' | |
| | | | 4.2 | 9.4' | |
| 102 | | | 2.3 | 11.3' | 3.0 |
| | | | 5.0 | 8.6' | |
| 103 | | | 2.5 | 11.1' | 3.5 |
| 103+65 | | | 4.8 | 8.8' | |

Top of P 8" Gas - 100+68

Top of steel tank 4' Lt 101+44

Top of 4½" O.D. pipe 7' Lt 102+03

| | | 13.59 | | Grade |
|---|---|---|---|---|
| 104 | | 4.8 | 8.8 | 4.0 |
| 105 | | 4.9 | 8.7 | 3.6 |
| 106 | | 5.2 | 8.4 | 3.2 |
| 107 | | 6.1 | 7.5 | 2.8 |
| TP | 6.24 | 13.46 | 7.22 | |
| 108 | | 6.5 | 7.0 | 2.5 |
| 108+70 | | 6.3 | 7.2 | 2.5 |
| 109 | | 6.0 | 7.5 | 2.5 |
| 110 | | 6.6 | 6.9 | 2.3 |
| B.M. | | 5.35 | 8.11 | |
| B.M (Corrected) | 5.67 | 13.83 | 8.16 | |

2" pipe - Williams Base Line Mon. Rec. City elev. 8.155

| | | | | | |
|---|---|---|---|---|---|
| | | 13.83 | | | Grade |
| | | | 6.4 | 7.4 | |
| | | | 15.4 | -1.6 | |
| | | | 15.9 | -2.1 | |
| | | | 15.3 | -1.5 | |
| | | | 8.4 | 5.4 | |
| 111 | | | 7.5 | 6.3 | 2.0 |
| 111+67.76 | | | 7.6 | 6.2 | 1.7 |
| 112 | | | 7.7 | 6.1 | 1.5 |
| 112+73.02 | | | 7.8 | 6.0 | 1.5 |
| 113 | | | 7.8 | 6.0 | 1.5 |
| 114 | | | 7.4 | 6.4 | 1.5 |
| TP | 5.75 | 12.19 | 7.39 | 6.44 | |

Rim of catch basin 26' Lt 110+52 (9' deep)
El. line 42" Storm drain 26' Lt 110+52
" " " " " at M.H. 76'± Rt
" " 24" " " " " " " "
Rim of M.H 76'± Rt

| | | 12.19 | | Grade |
|---|---|---|---|---|
| 115 | | 6.3 | 5.9 | 1.5 |
| 116 | | 6.4 | 5.8 | 1.5 |
| 117 | | 6.2 | 6.0 | 1.5 |
| B.M. | | 3.45 | 8.74 | |
| 118 | | 6.1 | 6.1 | 1.7 |
| 119 | | 6.2 | 6.0 | 2.0 |
| 120 | | 5.4 | 6.8 | 2.2 |
| TP | 4.61 | 11.51 | 6.90 | |
| 121 | | 4.3 | 7.2 | 2.4 |
| 122 | | 4.2 | 7.3 | -1.3 (?) |
| 123 | | 4.6 | 6.9 | 2.0 (?) |

Top F. Hyd 8' R4,117443 Marked 17.80 (8.74 / 9.0) 17.85

| | | 11.51 | | | Grade |
|---|---|---|---|---|---|
| 124 | | | 5.0 | 6.5 | 2.3 |
| 125 | | | 5.1 | 6.4 | 2.1 |
| 126 | | | 5.5 | 6.0 | 1.9 |
| 127 | | | 5.6 | 5.9 | 1.7 |
| 128 | | | 5.8 | 5.7 | 1.6 |
| | | | 6.8 | 4.7 | |
| 129 | | | 5.8 | 5.7 | 1.6 |
| Set B.M. | 1.10 | 9.83 | 2.78 | 8.73 | |
| | | 9.83 | | | |
| | | | 5.3 | 4.5 | 1.4 |
| 130 | | | 4.2 | 5.6 | 1.2 |
| 131 | | | 4.1 | 5.7 | 1.0 |
| 132 | | | 4.8 | 5.0 | 0.8 |

Top of ? G.V. stem 8' Lt 128+52

Top F. Hyd. 8' Rt 129+24 (States elev = 8.65)

Top of ? G.V. stem 11' Lt 129+37

| | | | | |
|---|---|---|---|---|
| | | 9.83 | | Grade |
| 133 | | 4.8 | 5.0 | 0.5 |
| 134 | | 5.4 | 4.4 | 0.3 |
| 135 | | 5.8 | 4.0 | + 0.1 |
| 136 | | 6.1 | 3.7 | - 0.1 |
| 137 | | 6.1 | 3.7 | - 0.3 |
| Set B.M. | | 2.58 | 7.25 | |
| | 1.39 | 8.64 | | |
| 138 | | 4.9 | 3.7 | - 0.6 |
| 139 | | 4.8 | 3.8 | - 0.9 |
| 140 | | 5.4 | 3.2 | - 1.3 |
| 141 | | 5.7 | 2.9 | - 1.8 |
| 142 | | 6.1 | 2.5 | - 2.2 |
| | 1.50 | 6.4 | 2.2 | - 2.4 |

Top of F. Hyd 8' Rt 137+51

| | | 864 | | Grade |
|---|---|---|---|---|
| IP | 489 | 6.80 | 6.73 | 1.91 |
| 143 | | | 4.8 | 2.0 - 2.80 |
| | | | 7.0 | - 0.2 |
| 143+50 | | | 5.0 | 1.8 |
| | | | 5.8 | 1.0 |
| | | | 11.3 | - 4.5 |
| | | | | - 3.0 |
| 144+07.02 | | | 5.0 | 1.8 - 9.5 |
| | | | | - 1.3 |
| 144+86.02 | | | 4.8 | 2.0 - 5.9 |
| 145 | | | 4.8 | 2.0 - 4.6 |
| 146 | | | 4.5 | 2.3 - 2.3 |
| 147 | | | 4.5 | 2.3 - 2.3 |
| 147+98 | | | 4.6 | 2.2 - 2.2 |

3.1
1.5
1.3

℄ of Horizontal water G.V. 38' Lt 143+45

Top of grate of storm drain M.H.

Fl. line storm drain 49' Lt 143+75

Fl. line 24" Conc. culv. emptying into 11' x 4' Box. S.D.

Top of 6"-0.D sewer line

bot. of curb

6.80

| | | | Elev. | Grade |
|---|---|---|---|---|
| 147+98 | | | 4.0 | 2.8 ✓ | -2.2 |
| 149 | | | 4.1 | 2.7 ✓ | -2.2 |
| +25 | | | | 2.2 | -2.2 |
| +65 | | | | 2.4 | -2.6 |
| 150 | | | 4.5 | 2.3 ✓ | -1.9 |
| TP | 5.88 | 8.80 ✓ | 3.48 | 2.92 ✓ | |
| 151 | | | 6.1 | 2.7 ✓ | -1.0 |
| 152 | | | 6.3 | 2.5 ✓ | -1.0 |
| 152+49.03 EC. | | | 5.4 | 3.4 ✓ | -1.0 |
| 153 | | | 6.1 | 2.7 ✓ | -1.0 |
| 154 | | | 6.0 | 2.8 ✓ | -1.0 |
| 155 | | | 6.3 | 2.5 ✓ | -1.0 |
| 156 | | | 6.4 | 2.4 ✓ | -1.0 |
| 157 | | | 6.9 | 1.9 ✓ | -1.0 |

Top of curb

22 3/4
26
17.7

8.80

| | | | Elev. | Grade |
|---|---|---|---|---|
| 158 | | | 6.8 | 2.0 ✓ −1.0 |
| 158+36.14 B.C. | | | 6.3 | 2.5 ✓ |
| 159+61.92 (+01) E.C. | | | 6.8 | 2.0 ✓ |
| 159+02.56 B.C. | | | 6.8 | 2.0 ✓ |
| 159+68.34 E.C. | | | 6.9 | 1.9 ✓ |
| 160 | | | 6.8 | 2.0 ✓ |
| PI | 7.88 | 10.13 ✓ | 6.55 | 2.25 ✓ |
| 161 | | | 8.1 | 2.0 ✓ |
| B.M. | | | 9.63 | 0.50 ✓ |
| 162 | | | 10.0 | +0.1 ✓ |
| 162+60 | | | 10.8 | −0.7 ✓ |
| | | | 10.7 | −0.6 ✓ |
| 162+72.5 | | | 7.3 | 2.8 ✓ |

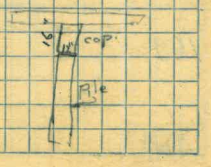
Cut

spike in N.W. Abutt. of S.Fe bridge Stake elev = 0.45

Note: Highway bridge & approaches under construction. Road will probably be built up to retaining wall level.

Bottom of 16" cap on trestle 17.2 Rt 162+60.9

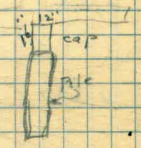
Top of retaining wall



| | | | | |
|---|---|---|---|---|
| | | 10.13 | | |
| 162+73 | | | 12.8 | - 2.7 |
| 163 | | | 15.1 | - 5.0 |
| +50 | | | 15.8 | - 5.7 |
| 164 | | | 15.6 | - 5.5 |
| +50 | | | 14.3 | - 4.2 |
| | | | 9.2 | +0.9 |
| +92 | | | 12.4 | - 2.3 |
| +92 | | | 7.3 | + 2.8 |
| 165 | | | 8.6 | 1.5 |
| 166 | | | 44 | 5.7 |
| 167 | | | 3.8 | 6.3 |
| 168 | | | 3.6 | 6.5 |
| 169 | | | 3.2 | 6.9 |
| TT | 263 | 9.06 | 3.70 | 6.43 |

Obliks Slough

Bottom of 16" cap, on trestle 16' Bt 164+85




Top of retaining wall

| | | | | | |
|---|---|---|---|---|---|
| | | 9.06 | | | |
| 170 | | | 2.8 | 6.3 | ✓ |
| 170+12 | | | 3.1 | 6.0 | ✓ |
| 170+90 | | | 19 | 7.2 | ✓ |
| 171+02 | | | 6.1 | 3.0 | ✓ |
| +22 | | | 7.5 | 1.6 | ✓ |
| +37 | | | 4.7 | 4.4 | ✓ |
| 172 | | | 4.3 | 4.8 | ✓ |
| 173 | | | 3.1 | 6.0 | ✓ |
| B.M. | 8.65 | 17.29 | 0.42 | 8.64 | ✓ |
| 173 ± 174+50± - Building not removed. | | | | | |
| | | | | | |
| | | | | | |
| 174+50 | | | 9.1 | 8.2 | ✓ |
| 175 | | | 10.9 | 6.4 ~~6.3~~ | ✓ |

N.W. Cor. of S. Fe signal foundation State elev. 8.63

| | | | | | |
|---|---|---|---|---|---|
| | | 17.29 | | | |
| 175+44 | | | 12.0 | 5.3 | ✓ |
| 175+44 | | | 12.5 | 4.8 | ✓ |
| 175+70 | | | 12.1 | 5.2 | ✓ |
| 175+95 | | | 12.5 | 4.8 | ✓ |
| 175+95 | | | 12.0 | 5.3 | ✓ |
| 176 | | | 12.0 | 5.3 | ✓ |
| 176+07 | | | 12.0 | 5.3 | ✓ |
| 176+26 | | | 0.5 | 16.8 | ✓ |
| PT | | 3.61 | 20.51' | 0.39 | 16.90' ✓ |

Top of curb
Pave

Pave
Top of curb

| | | | | | |
|---|---|---|---|---|---|
| | | 20.51 | | | |
| 176+50 | | | 3.0 | 17.5 | ✓ |
| 177 | | | 3.2 | 17.3 | ✓ |
| 178 | | | 4.0 | 16.5 | ✓ |
| 179 | | | 6.2 | 14.3 | ✓ |
| 180 | | | 5.9 | 14.6 | ✓ |
| 181 | | | 6.6 | 13.9 | ✓ |
| PI | 1.66 | 16.30 | 5.87 | 14.64 | ✓ |
| 182 | | | 2.9 | 13.4 | ✓ |
| 183 | | | 3.4 | 12.9 | ✓ |
| 184 | | | 3.9 | 12.4 | ✓ |
| 185 | | | 4.5 | 11.8 | ✓ |
| 186 | | | 4.8 | 11.5 | ✓ |
| 187 | | | 4.6 | 11.7 | ✓ |

| | | | | |
|---|---|---|---|---|
| | | 16.30 | | |
| 188 | | | 5.3 | 11.0 |
| 189 | | | 5.7 | 10.6 |
| 190 | | | 5.9 | 10.4 |
| TP | 2.08 | 14.62 | 3.76 | 12.54 |
| 191 | | | 3.4 | 11.2 |
| 192 | | | 4.5 | 10.1 |
| 193 | | | 5.2 | 9.4 |
| Set B.M. | 4.31 | 14.12 14.74 | 4.81 | 9.81 |
| | | | 6.83 | 7.29 |
| 194 | | | 3.9 | 10.2 |
| 195 | | | 4.9 | 9.2 |
| 196 | | | 4.0 | 10.1 |

Nail in pole, 10' Rt 192+90

State B.M. nail in pole, elev. 7.26

10/9/42
Sope
King
Davis

| | | | | |
|---|---|---|---|---|
| | | 14.12 | | |
| 197 | | | 4.4 | 9.7 ✓ |
| 198 | | | 4.7 | 9.4 ✓ |
| 198+37 | | | 8.3 | 5.8 ✓ |
| ~~198+73~~ | | | ~~7.9~~ | ~~6.2~~ ✓ |
| B.M | 4.92 | 12.21 | | 7.29 |
| 198+75 | | | 7.3 | 4.9 ✓ |
| 198+82 | | | 6.0 | 6.2 ✓ |
| 198+873 | | | 5.5 | 6.7 ✓ |
| +94 | | | 5.5 | 6.7 ✓ |
| 199+00 | | | 6.3 | 5.9<br>~~4.9~~ |
| +50 | | | 7.3 | 4.9 ✓ |
| | | | 11.9 | 0.3 |
| +74 80 | | | 7.4 | 4.8 ✓ |
| 200+00 | | | 7.2 | 5.0 ✓ |

Top of rail
" " "

199+70 - Top of 4" Gas line

12.31

200+83.60 5.5 6.7 ✓
199+80.40
0+00 Vesta St. Loc.

0+32 (Vesta St. Loc.) 6.3 5.9 ✓

Note: From Sta. 194+00 to 198+00, ℄ elevs. are about 3' lower than shown in ℄ profile, due to ℄ falling on side slope of sewer trench.

0+00 - 0.0
2+00 -1.00

| | | | | |
|---|---|---|---|---|
| | 2.98 | 10.27 | 7.29 | |
| | | | | Grade |
| down to 199+79.5 | | 5.5 | 4.8 | + 0.40 |
| 199+79.5 - 7LT | | 5.4 | 4.9 | |
| " 7RT | | 5.4 | 4.9 | |
| 200+00 - 7RT | | 5.3 | 5.0 | |
| 200+50 - 7RT | | 5.1 | 5.2 | |
| 200+83.6 = 0+00 | | 4.3 | 6.0 | 0.00 |



Cut

10/20/42 33

Loc. of PL - thru sewer trench cut near Vesta St. PL - 5' N. of S. PL -

| Sta. | Top of cut | bot. of cut | depth below pro-file elevation | Prot. bldg. |
|---|---|---|---|---|
| 193+90 | intersec. trench | | | |
| 194 | 2.8 L. | 10.0 R | 5.0 (Difference 5.2) Elev. | 10.2 |
| 195 | 2.8 L | 6.0 R | 5.2 (4.0) | 9.2 |
| 196 | 5.3 L | 6.0 R | 6.0 (4.10) | 10.1 |
| 197 | 2.3 L | 6.5 R | 3.3 (6.4) | 9.7 |
| 198 | 3.3 L | 5.2 R | 4.8 (4.6) | 9.4 |

Approx. depth at sewer trench 19.

Transit notes Book 667 P 83 — King, Hymon, Otten, 1-4-92

Prokle - Harbor Drive - #7 (Revision) Benson Lumber Co.

| | | | | |
|---|---|---|---|---|
| B.M. | Topo Fine H. 77+88 | | | 5.29 |
| | 1.09 | 6.38 ✓ | | |
| T.P | 4.48 | 5.08 ✓ | 5.78 | 0.60 ✓ |
| △ 69+65 | | | 3.8 | 1.3 |
| 69+97 | | | 3.7 | 1.4 |
| 70+00 | | | 4.9 | 0.2 |
| 70+05 | | | 10.6 | -5.5 |
| 70+42 | | | 10.5 | -5.4 |
| 70+50 | | | 5.3 | -0.2 |
| 70+~~57~~ 52 ℄ | | | 7.16 | -2.08 |
| 70+~~55~~ 53 → | | | 3.3 | 1.80 |
| 70+~~61~~ 33 △ | | | ~~3.4~~ 3.0 | 1.7 ~~+30~~ |
| 71+00 | | | 4.4 | 0.70 |
| 71+50 | | | 4.4 | 0.70 |
| 71+92 | | | 7.10 | -2.0 |
| 72 | | | 4.1 | 1.00 |
| 72+50 | | | 4.3 | 0.80 |
| 73 | | | 4.4 | 0.70 |
| 73+30 | | | 7.09 | -2.01 |
| 73+50 | | | 4.4 | 0.70 |
| 74 | | | 4.2 | 0.90 |
| 74+36 | | | 7.05 | -2.0 |
| T.P. | 5.95 ✓ | 6.31 ✓ | 4.22 | 086 ✓ |
| 74+50 | | | 5.7 | 0.60 |
| 75 | | | 5.8 | 0.50 |

3.1 5.2 2.9

34

4.1 4.6 8.5 7.5 1.0

Top oil Pipe ℄

Top oil Pipe 3.9' lower 2.5 R

Top oil Pipe 2.9' lower 2.6 R

Top oil Pipe ~~2.5~~ 2.5 R

Top oil Pipe ~~2.5~~ 2.5 R

? Top of oil pipe

| | | |
|---|---|---|
| 75+50 | 5.7 | 0.60 |
| 76 | 5.0 | 1.30 |
| 76+50 | 5.0 | 1.30 |
| 77 | 4.9 | 1.40 |
| 77+50 | 4.7 | 1.60 |
| 78+80 | 4.1 | 2.20 |
| △ 78+83.3 ± | 3.7 | 2.6 |
| 78+92 Top Rail | 3.89 | 2.42 |
| 79+09 Top Rail | 3.87 | 2.44 |
| △ 79+11.2 ± | 3.7 | 2.6 |
| B.M. E.H. 76+77+88 | 1.06 | 5.29<br>5.25 ✓ |

King Otton Hyman 1-5-43

| | | | | | |
|---|---|---|---|---|---|
| Profile | 7 off sets | | | | |
| B.M. Top Five H. Pt SIG 77+88 | | | | 5.29 | |
| | 1.20 | 6.99 | | | |
| Δ 79+11.21 | | | 3.8 | 2.7 | -2.7 |
| Δ 78+83.32 | | | 4.0 | 2.5 2.2 2.3 | -2.7 -2.8 -3.0 |
| 78+50 | | | | | |
| 78+00 | | | 4.2 | | |
| 77+50 | | | 4.9 | 1.6 | -3.0 |
| 77+00 | | | 5.2 | 1.3 | -3.0 |
| 76+50 | | | 5.4 | 1.1 | -3.0 |
| 76+00 | | | 5.6 | 0.9 | -4.0 -3.0 |
| 75+50 | | | 5.7 | 0.8 | -5.0 -4.0 |
| 75+25 | | | | 0.8 | -5.5 |
| 75+00 | | | 5.6 | 0.9 | -5.1 |
| 74+50 | | | 5.5 | 1.0 | -4.3 |
| 74+00 | | | 5.3 | 1.2 | -3.5 |
| 73+50 | | | 5.1 | 1.4 | -4.5 -3.3 |
| 73+80 | | | 5.7 | 0.8 | -3.5 -3.1 |
| 72+50 | | | 5.6 | 0.9 | -3.0 |
| T.P. | 5.46 | 6.24 | 5.71 | 0.78 | |
| 72+00 | | | 5.5 | 0.7 | -3.5 -2.8 |
| 71+50 | | | 6.1 | 0.1 | -3.5 -2.6 |
| 71 | | | 5.6 | 0.6 | -3.5 |
| Δ 70+64 61 33 33 | | | 6.1 | 0.1 | -2.5 -1.5 |
| 69+76 | | | 5.1 | 1. | |
| 69+65 93 | | | 4.8 | | |
| Set B.M. 7 | | | 3.68 | 2.56 | |

5.4
5.4
5.0
5.3
4.6
4.3
4.1
4.7
4.4
4.4
5.8
5.8
6.3
6.0
5.3
4.7
4.9 5.9
4.7
4.3
3.9
5.9
4.1
4.2
3.4
4.1
1.6
1.6

73+80 1.2 -2.5 4.7
73+09 2.9 -3.5 4.3
72+90 Elev. G Cut
0.9 -3.50 4.4
72+18 1.0 -3.50 1.5

T.P. 41 65+50 on B.R.

Hill King Often

| Profile Harbor Drive -7' off ℄ | | | | 1-18-95 | |
|---|---|---|---|---|---|
| B.M. Nail in T.P. Lt 194? | | | | 7.26 | |
| 199 ℄ | 3.29 | 10.55 | 4.5 | 6.1 | .9 |
| | | | 4.1 | | |
| 198+89 ℄ | | | 4.0 | 6.6 | 1.0 |
| | | | 4.0 | | |
| 198+75 | | | 4.2 | 6.4 | 1.1 |
| ℄ | | | 4.3 | | |
| 198+50 | | | 4.2 | 6.4 | 1.2 |
| ℄ | | | 4.0 | | |
| 198+24 ~~51~~ | | | 4.8 | 5.8 | 1.4 |
| ℄ | | | 4.0 | | |
| 198 | | | 4.7 | 5.9 | 1.9 ~~2.0~~ |
| ℄ | | | 4.8 | | |
| 197+75 | | | 4.9 | 5.7 | 2.3 ~~3.2~~ |
| ℄ | | | 5.0 | | |
| 197+50 | | | 4.9 | 5.7 | 2.8 ~~3.8~~ |
| ℄ | | | 4.9 | 5.7 | |
| B.M. Nail T.P. Lt 197 | | | | 7.26 | |
| 197 | 7.39 | 14.65 ✓ | 8.8 | 5.9 | 3.0 |
| ℄ | | | 9.0 | 5.7 | |
| 196+50 | | | 8.7 | 6.0 | 3.1 |
| 196 ℄ | | | 9.0 | 5.7 | |
| 196 | | | 8.6 | 6.1 | 3.5 |
| ℄ | | | 8.8 | 5.9 | |
| 195+50 | | | 8.3 | 6.4 | 3.4 |
| ℄ | | | 8.5 | 6.2 | |
| 195 | | | 8.1 | 6.6 | 3.6 |

Andok Pipe 199+54.2

~~2-4~~" C.I. Pipe Rt. 4' - 199+28 Elev 2.1

5.2
5.6
5.3

54 - Rt 5.2 Top Pipe

5.2

39

Rope

9.4

Rope

4.0
~~3.9~~

3.4
~~2.8~~

2.9
1.9

2.9

~~3.1~~

2.8

3.0

3.0

| | | 14.65 | F.S. | Elev. | Grade |
|---|---|---|---|---|---|
| | ℄ | | 8.3 | 6.9 | |
| | 194+50 | | 7.9 | 6.8 | 3.8 |
| | ℄ | | 8.1 | 6.6 | |
| | 194 | | 7.5 | 7.2 | 4.0 |
| | ℄ | | 7.7 | 7.0 | |
| | 193+50 | | 7.1 | 7.6 | 4.2 |
| | ℄ | | 7.2 | 7.5 | |
| | 193 | | | 8.9 | 4.4 |
| | ℄ | | | | |
| | 192+50 | | | | 4.6 |
| | ℄ | | | | |
| B.C | 192+22.32 | | | 8.8 H.keff. | 4.8 |
| | ℄ | | | 8.8 | |
| | 192 | | | 8.9 Hazen | 4.8 |
| | ℄ | | | 9.0 | 4 |
| | 191+63 | | 7.17 | 7.5 | |
| | 191+50 | | 5.1 | 9.6 | 5.0 |
| | ℄ | | 5.5 | 9.2 | |
| | 191 | | 5.2 | 9.5 | 6.0 |
| | ℄ | | 5.4 | 9.3 | |
| | 190+50 | | 4.9 | 9.8 | 6.2 |
| | ℄ | | 5.1 | 9.4 | |
| | 190 | | 3.7 | 11.0 | 6.5 |
| | ℄ | | 4.0 | 10.7 | |
| | 189+5 | | 3.2 | 11.5 | 6.8 |

℄
3.0

3.2

3.9

4.5

4.0

4.1

F.L. 18" CON. CULV.

3.6

3.5

3.6

4.5

4.7

| | | | | | |
|---|---|---|---|---|---|
| ℄ | | | 3.5 | 11.2 | |
| 189 | | | 3.1 | 11.6 | 7.0 |
| ℄ | | | 3.5 | 11.2 | |
| 188+50 | | | 3.0 | 11.7 | 7.3 |
| ℄ | | | 3.3 | 11.4 | |
| 188 | | | 2.8 | 11.9 | 7.5 |
| ℄ | | | 3.1 | 11.6 | |
| 187+50 | | | 2.9 | 12.3 | 7.8 |
| ℄ | | | 2.8 | 11.9 | |
| T.P. | 5.88 | 18.06 | 2.47 | 12.18 | |
| 187 | | | 5.7 | 12.4 | 8.1 |
| ℄ | | | 4.1 | 12.0 | |
| 186+50 | | | 5.3 | 12.8 | 8.3 |
| ℄ | | | 5.6 | 12.5 | |
| 186 | | | 5.1 | 13.0 | 8.6 |
| ℄ | | | 5.5 | 12.6 | |
| 185+50 | | | 5.0 | 13.1 | 8.8 |
| ℄ | | | 5.2 | 12.9 | |
| 185 | | | 5.0 | 13.1 | 8.7 |
| ℄ | | | 5.1 | 13.0 | |
| 184+50 | | | 4.8 | 13.3 | 8.6 |
| ℄ | | | 5.1 | 13.0 | |
| 184 | | | 4.8 | 13.3 | 8.6 |
| ℄ | | | 5.0 | 13.1 | |
| 183+50 | | | 4.8 | 13.3 | 8.5 |

Cut

4.6

4.4

4.4

4.5

Rt. 187+96 - Gate Foundation - T.P.

4.3

4.5

4.4

4.3

4.4

4.7

4.7

4.8

H.11
KING
OTTAWA
1-10-43

| | | | | | Grade |
|---|---|---|---|---|---|
| ℄ | | | 5.3 | 12.8 | |
| 7' R+187+95 B.M. N.INT.P | | | 3.74 | 14.32 | |
| B.M. — ON R.R. LT 195 | | | | 7.53 | |
| ℄ | | | 5.9 | 5.7 | |
| 198 | 9.10 | 11.63 | 5.9 | 5.7 | 2.0 |
| ℄ | | | 5.6 | 6.0 | |
| +50 | | | 5.4 | 6.2 | 1.2 |
| ℄ | | | 5.5 | 6.1 | |
| A +60 | | | 5.1 | 6.5 | 1.1 |
| +82.6 | | | 5.0 | 6.6 | 1.0 |
| +93.4 | | | 5.1 | 6.1 | 0.9 |
| ℄ | | | 5.5 | 6.1 | |
| A 199+22.02 | | | 4.7 | 6.9 | 0.7 |
| ℄ | | | 4.8 | 5.8 | |
| 199+50 | | | 5.0 | 6.6 | 0.5 |
| B.M. N. INT. P. R+ 183+95 | | | | 14.32 | |
| | 2.41 | 16.73 | | | |
| 183 | | | 3.9 | 12.8 | 8.4 |
| ℄ | | | 4.1 | 12.6 | |
| 182+50 | | | 4.0 | 12.7 | 8.3 |
| ℄ | | | 4.3 | 12.4 | |
| 182 | | | 4.2 | 12.5 | 8.3 |
| ℄ | | | 4.4 | 12.3 | |
| 181+50 | | | 4.5 | 12.2 | 7.9 |
| ℄ | | | 4.7 | 12.0 | |
| 181 | | | 5.0 | 11.7 | 7.5 |
| ℄ | | | 5.2 | 11.5 | |
| 180+50 | | | 5.6 | 11.1 | 7.1 |
| ℄ | | | 5.7 | 11.0 | |

| |
|---|
| C |
| 3.7 |
| 5.0 |
| 5.4 |
| 5.6 |
| 5.2 |
| 6.2 |
| 6.1 |
| 4.4 |
| 4.4 |
| 4.2 |
| 4.3 |
| 4.2 |
| 4.0 |

| | | | Fs. | Elev | Grade |
|---|---|---|---|---|---|
| | | 16.73 | | | |
| 180 | | | 6.3 | 10.4 | 6.7 |
| ℄ | | | 6.5 | 10.2 | |
| 175+50 | | | 6.6 | 10.1 | 6.3 |
| ℄ | | | 6.8 | 9.9 | |
| 179 | | | 7.1 | 9.6 | 5.9 |
| ℄ | | | 7.4 | 9.3 | |
| 178+50 | | | 7.6 | 9.1 | 5.5 |
| ℄ | | | 7.9 | 8.8 | |
| 178 | | | 7.9 | 8.8 | 5.1 |
| ℄ | | | 8.2 | 8.5 | |
| T.P. 177+50 | | | 8.40 | 08.33 | |
| | 2.49 | 10.82 | | | |
| 177+50 | | | 2.5 | 8.3 | 4.7 |
| ℄ | | | 2.8 | 8.0 | |
| 177 | | | 3.0 | 7.8 | 4.3 |
| ℄ | | | 3.3 | 7.5 | |
| 176+50 | | | 3.7 | 7.1 | ~~3.5~~ 2.8 |
| ℄ | | | 3.8 | 7.0 | |
| 176+45 | | | 3.8 | 7.0 | Gr. Elev. |
| 176 ahead 175+99.62 = | | | 4.7 | 6.1 | ~~2.8~~ |
| ℄ | | | 4.8 | 6.0 state B.M. 8.63 | |
| B.M. N.W. Cor | R.R. Signal | | 2.20 | 8.62 | |
| | | | | 8.63 | |
| 175+50 | 2.33 | 10.96 | | 5.7 | ~~2.5~~ 2.0 |
| 175+13 | | | | 5.6 H.I. | 1.0 |

| |
|---|
| 3.7 |
| 3.8 |
| 3.7 |
| 3.6 |
| 3.7 |
| 3.6 |
| 3.5 |
| ~~3.6~~ 4.3 |
| 18" Conc. Pipe |
| ~~3.5~~ 3.3 |
| ~~3.7~~ 3.7 |
| 4.6 |

KING
OTTON
2-13-42

10.96

| | | | Grade |
|---|---|---|---|
| ℄ | 5.8 | 5.2 | |
| 175 | 5.1 | 5.9 | 1.0 |
| ℄ 174+75 | 9.8 | 6.2 5.8 | 1.5 |
| 174+50 | 5.3 | 5.7 | 1.6 |
| ℄ | 5.3 | 5.7 | |
| 174 | 6.0 | 5.0 | 1.6 |
| ℄ | 6.0 | 5.0 | |
| 173+50 | N.G. | H.Level 4.7 | 1.3 |
| ℄ | | 4.7 | |
| 173 | 5.0 | 6.0 | 1.0 |
| ℄ | 5.5 | 5.5 | |
| 172+50 | 7.3 | 3.7 | 0.7 |
| ℄ | 7.1 | 3.9 | |
| 172+25 | 7.2 | 3.8 | 0.6 |
| ℄ | 7.0 | 4.0 | |
| 172 | 6.9 | 4.6 | 0.2 |
| ℄ | 6.3 | 4.7 | |
| 171+75 | 6.3 | 4.7 | -0.6 |
| ℄ | 6.9 | 4.6 | |
| 171+50 | 6.6 | 4.4 | -1.0 |
| ℄ | 6.2 | 4.8 | |
| 171+25 | 7.3 | 3.7 | -0.6 |
| | 7.2 | 3.8 | |
| 171+00 | 7.7 | 3.3 | 0.2 |
| | 7.6 | 3.4 | |

~~4.9~~
~~3.7~~

~~4.3~~
~~4.1~~
~~3.6~~

3.4

3.4

173+69 ℄ 5.0

5.0 173+07.3 4.99

3.0

3.2

4.4

5.3

171+61 Elev. 91 1.9 F.L. 18" CONC. CULV

5.4

4.3

3.1

| | | | | | |
|---|---|---|---|---|---|
| I.R. - Spike RR 170+89 | | 10.96 | 6.06 | 4.90 | |
| 170+89 RR | 6.30 | 11.20 | 6.00 | 5.26 | |
| 170+82 RR | | | 6.00 | 5.20 | |
| 170+75 | | | 6.3 | 4.9 | 0.6 |
| ℄ | | | 6.0 | 5.2 | |
| 170+50 | | | 6.5 | 4.7 | 0.6 |
| ℄ | | | 6.0 | 5.2 | |
| 170 | | | 6.5 | 4.7 | 0.6 |
| ℄ | | | 5.2 bank | 6.0 | |
| 169+50 | | | 5.7 | 5.5 | 0.5 |
| ℄ | | | 4.9 | 6.3 | |
| 169 | | | 4.7 | 6.5 | 0.5 |
| ℄ | | | 4.5 | 6.7 | |
| 168+50 | | | 4.3 | 6.9 | 0.5 |
| ℄ | | | 4.4 | 6.8 | |
| 168 | | | 4.9 | 6.3 | 0.4 |
| ℄ | | | 4.8 | 6.4 | |
| 167+50 | | | 4.7 | 6.5 | 0.4 |
| ℄ | | | 4.8 | 6.4 | |
| 167 | | | 5.6 | 5.6 | 0.4 |
| ℄ | | | 5.4 | 5.8 | |
| 166+50 | | | 5.5 | 5.7 | 0.3 |
| | | | 5.4 | 5.8 | |
| 166 | | | 6.0 | 5.2 | 0.3 |
| ℄ | | | 6.1 | 5.1 | |
| 165+50 | | | 6.9 | 4.3 | 0.5 |
| ℄ | | | 6.9 | | |
| 165+19 | | | 8.3 | 2.9 | 0.3 |
| B.M. | N.W. cor. Bridge | | 5.15 | 1.7 | 6.05 |

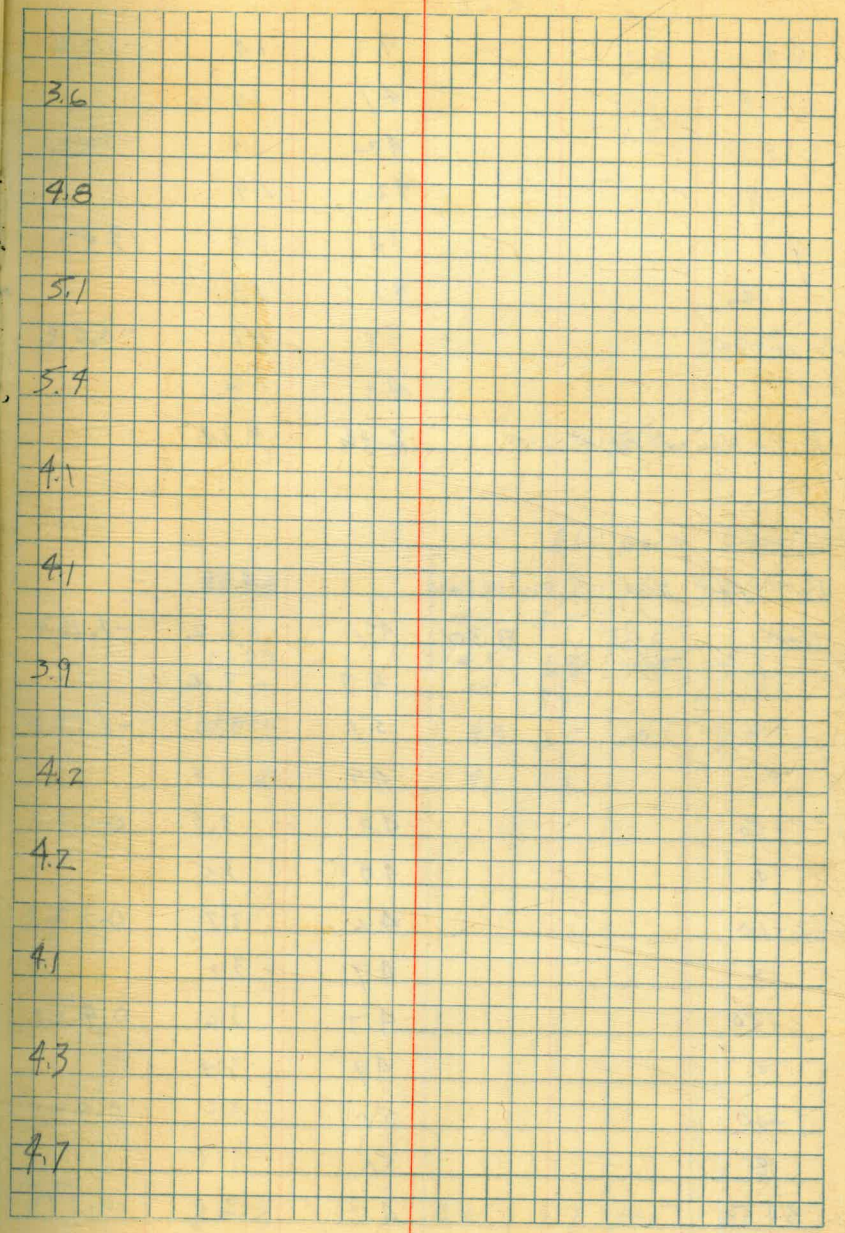
4.3
4.1
4.1
5.0
6.0
6.4
5.9
6.1
5.2
5.4
166+36 9.6 L+17'8" CON. Cut
4.9
4.0
2.6 165+07 F/.1

Profile Harbor Drive

HI

King Offen 2-18-42

| | | | | Elev. | Grade |
|---|---|---|---|---|---|
| B.M. T.P.H. 65+50 | | | | 2.56 | |
| 69+85.23 | | | | | |
| △ 69+84.75= | 3.04 | 5.60 | 4.5 | 1.1 | -2.5 |
| ℄ | | | 3.9 | 1.7 | |
| 69+50 | | | 4.3 | 1.3 | -3.5 |
| ℄ | | | 4.6 | 1.0 | |
| 69 | | | 4.0 | 1.6 | -3.5 |
| ℄ | | | 4.5 | 1.1 | |
| 68+50 | | | 3.7 | 1.9 | -3.5 |
| ℄ | | | 4.1 | 1.5 | |
| 68 | | | 5.0 | 0.6 | -3.5 |
| ℄ | | | 4.5 | 1.1 | |
| 67+50 | | | 5.0 | 0.6 | -3.5 |
| ℄ | | | 4.6 | 1.0 | |
| 67 | | | 5.2 | 0.4 | -3.5 |
| ℄ | | | 4.5 | 1.1 | |
| 66+50 | | | 4.9 | 0.7 | -3.5 |
| ℄ | | | 4.4 | 1.2 | |
| 66 | | | 4.9 | 0.7 | -3.5 |
| ℄ | | | 4.5 | 1.1 | |
| 65+50 | | | 5.0 | 0.6 | -3.5 |
| ℄ | | | 4.5 | 1.1 | |
| 65 | | | 4.8 | 0.8 | -3.5 |
| ℄ | | | 4.6 | 1.0 | |
| 64+50 | | | 4.4 | 1.2 | -3.5 |
| ℄ | | | 4.3 | 1.3 | |



K. NG
Otten
3-20-43

| | | | | | |
|---|---|---|---|---|---|
| | | 5.60 | | | |
| 64 | | | 4.2 | 1.4 | -3.4 |
| ℄ | | | 4.1 | 1.5 | |
| 63+57 | | | 4.2 | 1.4 | -3.4 |
| ℄ | | | 4.2 | 1.4 | |
| 63 | | | 3.8 | 1.8 | -3.3 |
| ℄ | | | 4.1 | 1.5 | |
| A 62+84.33 | | | 3.7 | 1.9 | -3.3 |
| | | | 4.0 | 1.6 | |
| B.M. Nail | in T. Pole Lt. 62+45 | | 2.96 | 3.14 | |
| | | | | | |
| | | | | | |
| B.M. East | Rail Car tracks 0+14 | | | 4.38 | |
| 0+93 | 3.92 | 8.30 | 5.1 | 3.2 | -1.6 |
| ℄ | | | 4.7 | 3.6 | |
| 1+00 | | | 5.1 | 3.2 | -1.5 |
| ℄ | | | 4.9 | 3.4 | |
| 1+50 | | | 4.8 | 3.5 | 0.0 |
| ℄ | | | 4.8 | 3.5 | |
| 2+00 | | | 4.6 | 3.7 | 0.3 |
| ℄ | | | 4.7 | 3.6 | |
| 2+50 | | | 4.7 | 3.6 | 0.4 |
| ℄ | | | 4.9 | 3.4 | |
| 3+00 | | | 5.0 | 3.3 | 0.4 |
| ℄ | | | 5.0 | 3.3 | |
| 3+50 | | | 4.7 | 3.6 | 0.5 |
| ℄ | | | 4.8 | 3.5 | |



5.3
3.5
0.8
7.3
1.5

4.8
4.8
5.1
5.2
4.8
4.7
3.5
3.4
3.2
2.9
3.1

| | | | | |
|---|---|---|---|---|
| | | Elev. | Grade | Cut |
| 1+09 | 5.0 | 3.3 | -1.6 | 4.9 |
| | 4.9 | 3.4 | | |
| 1+22 | 4.5 | 3.8 | -0.5 | 4.3 |
| ℄ | 4.5 | 3.8 | | |
| 1+40 | 4.8 | 3.5 | -0.1 | 3.6 |
| ℄ | 4.6 | 3.7 | | |
| 3+25 | 4.6 | 3.7 | +0.5 | 3.2 |
| ℄ | 4.6 | 3.7 | | |

KING otten 3-22-43.

| | | | | | |
|---|---|---|---|---|---|
| 4+00 | | 8.30 | 4.6 | 3.7 | 0.4 |
| ℄ | | | 4.5 | 3.8 | |
| B.C 4+21.40 | | | 4.6 | 3.7 | 0.4 |
| ℄ | | | 4.8 | 3.5 | |
| | | | | | |
| B.M. E.Rail | | | | 4.38 | |
| 4+50 | 4.47 | 8.75 | 5.1 | 3.7 | 0.3 |
| ℄ | | | 5.2 | 3.6 | |
| 5+00 | | | 5.2 | 3.6 | 0.2 |
| ℄ | | | 5.3 | 3.5 | |
| +50 | | | 5.9 | 3.4 | 0.1 |
| ℄ | | | 5.4 | 3.4 | |
| 6+00 | | | 6.1 | 2.7 | 0.0 |
| ℄ | | | 5.9 | 2.9 | |
| 6+50 | | | 5.8 | 3.0 | -0.4 |
| ℄ | | | 5.6 | 3.2 | |
| 7+00 | | | 5.6 | 3.2 | -0.8 |
| ℄ | | | 5.3 | 3.5 | |
| 7+50 | | | 6.3 | 2.5 | -0.9 |
| ℄ | | | 5.4 | 3.2 | |
| +96.02 | | | 6.9 | 1.9 | -0.9 |
| | | | 5.8 | 3.0 | |
| T.P. | | | 5.44 | 3.31 | |
| Stat. B.M. #35 | | | | 6.14 | |
| | 1.77 | 7.91 | | | |

3.3

3.3

3.4

3.4

3.3

2.7

3.4

4.0

3.4

~~3.4~~

2.8

| | | | | | KING OTTER 3-23- |
|---|---|---|---|---|---|
| 8+50 | | 7.91 | 5.9 | 2.0 | -1.0 |
| ℄ | | | 5.0 | 2.9 | |
| 9+00 | | | 5.4 | 2.5 | -1.0 |
| ℄ | | | 5.2 | 2.7 | |
| 9+50 | | | 5.3 | 2.6 | -1.1 |
| ℄ | | | 5.3 | 2.4 | |
| 10+00 | | | 5.2 | 2.7 | -1.2 |
| ℄ | | | 5.5 | 2.4 | |
| 10+50 | | | 5.5 | 2.4 | -1.2 |
| ℄ | | | 5.7 | 2.2 | |
| 11+00 | | | 5.5 | 2.4 | -1.3 |
| ℄ | | | 5.7 | 2.2 | |
| 11+50 | | | 5.4 | 2.5 | -1.3 |
| ℄ | | | 5.5 | 2.4 | |
| T.T | | | 5.41 | 2.50 | |
| 12+00 | 5.44 | 7.94 | 5.7 | 2.2 | -1.4 |
| ℄ | | | 5.4 | 2.5 | |
| 12+50 | | | 6.9 | 1.0 | -1.4 |
| ℄ | | | 5.0 | 2.9 | |
| 13+00 | | | 7.0 | 0.9 | -1.5 |
| ℄ | | | 5.0 | 2.9 | |
| 13+50 | | | 7.2 | 0.7 | -1.8 |
| ℄ | | | 6.8 | 1.1 | |
| 14+00 | | | 7.4 | 0.5 | -2.1 |
| ℄ | | | 6.4 | 1.5 | |

3.0

3.5

3.7

3.9

3.6

3.7

3.8

3.6

2.4

2.4

2.5

2.6

| | | | | | |
|---|---|---|---|---|---|
| 14+50 | | 7.94 | 7.5 | 0.4 | -2.4 |
| ℄ | | | 7.0 | 0.9 | |
| 15+00 | | | 7.8 | 0.1 | -3.8 |
| ℄ | | | 6.4 | 1.5 | |
| 15+39 | | | 10.0 | -2.1 | |
| P.O.T. 15+31.48 | | | | | |
| B.M. & Top Cut x Box | | | 5.83 | 2.11 | |
| BM | 3.5-3 | 5.64 | | | |
| 15+00 | | | 5.5 | 0.1 | |
| +50 | | | 4.6 | 1.0 | -2.4 |
| ℄ | | | 4.6 | 1.0 | |
| 16 | | | 4.6 | 1.0 | -2.4 |
| ℄ | | | 4.5 | 1.1 | |
| +50 | | | 4.7 | 0.9 | -2.3 |
| ℄ | | | 4.6 | 1.0 | |
| 17 | | | 4.6 | 1.0 | -2.3 |
| ℄ | | | 4.4 | 1.2 | |
| +50 | | | 4.9 | 0.7 | -2.3 |
| ℄ | | | 4.6 | 1.0 | |
| 18 | | | 4.8 | 0.8 | -2.4 |
| ℄ | | | 4.5 | 1.1 | |
| +50 | | | 4.7 | 0.9 | -2.5 |
| ℄ | | | 4.7 | 0.9 | |
| 19 | | | 4.7 | 0.9 | -2.5 |
| ℄ | | | 4.7 | 0.9 | |
| +50 | | | 4.6 | 1.0 | -2.5 |
| ℄ | | | 4.8 | 0.8 | |

Cut
2.8

3.1

F.L. 24"

3.4

3.4

3.2

3.3

3.0

3.2

3.4

3.4

3.5

| | | | | | |
|---|---|---|---|---|---|
| BM. | 3.52 | 5.63 | | 2.11 | |
| ~~19+50~~ 20 | | | 4.1 | 1.2 | −2.6 |
| ℄ | | | 4.8 | 0.8 | −2.6 |
| +50 | | | 4.8 | 0.8 | −2.6 |
| ℄ | | | 5.1 | 0.5 | −2.6 |
| 21 | | | 4.7 | 0.9 | −2.6 |
| ℄ | | | 5.0 | 0.6 | −2.6 |
| +50 | | | 5.0 | 0.6 | −2.7 |
| ℄ | | | 4.9 | 0.7 | −2.7 |
| 22 | | | 5.1 | 0.5 | −2.7 |
| ℄ | | | 4.9 | 0.7 | −2.7 |
| +50 | | | 5.1 | 0.5 | −2.8 |
| ℄ | | | 4.8 | 0.8 | −2.8 |
| 23 | | | 4.8 | 0.8 | −2.8 |
| ℄ | | | 4.9 | 0.7 | −2.8 |
| TP.2 +50 | | | 5.00 | 0.63 | −2.8 |
| ℄ | | | 4.9 | 0.7 | −2.8 |
| | 4.61 | 5.24 | | | |
| 24 | | | 4.6 | 0.6 | −2.9 |
| ℄ | | | 4.6 | 0.6 | −2.9 |
| +50 | | | 5.2 | 0.0 | −2.9 |
| ℄ | | | 4.7 | 0.5 | −2.9 |
| 25 | | | 5.2 | 0.0 | −2.9 |
| ℄ | | | 4.7 | 0.5 | −2.9 |
| ~~26~~ +50 | | | 5.1 | 0.1 | −3.0 |
| ℄ | | | 4.8 | 0.4 | −3.0 |

C.B. sta. 15+38.48

3.8
3.4
3.5
3.3
3.2
3.3
3.6
3.1
3.5 −3.3 ~~Diff~~ ft. calc
2.9
2.9
3.1

5.24

| | | | | | |
|---|---|---|---|---|---|
| 26 | | | 1.0 | 1.2 | -3.0 |
| d | | | 4.2 | 1.0 | -3.0 |
| +50 | | | 1.1 | 1.1 | -2.9 |
| d | | | 1.3 | 0.9 | -2.9 |
| 27 | | | 1.3 | 0.9 | -2.9 |
| d | | | 1.7 | 0.5 | -2.9 |
| +50 | | | 1.80 | 0.4 | -2.8 |
| d | | | 1.8 | 0.4 | -2.8 |
| B.M. | | | 2.35 | 2.89 | |
| | 3.64 | 6.53 | 4.95 | 1.56 1.58 | |
| 31+56 Δ | | | 4.4 | 2.1 | -2.0 |
| 32 +08 | | | 4.5 | 2.0 | -2.1 |
| +50 | | | 4.6 | 1.9 | -2.1 |
| 33 +08 | | | 4.7 | 1.8 | -2.1 |
| +50 | | | 4.7 | 1.8 | -2.1 |
| 34+00 | | | 4.7 | 1.8 | -2.2 |
| +50 | | | 4.7 | 1.8 | -2.2 |
| 35+00 | | | 4.7 | 1.8 | -2.2 |
| +50 | | | 4.7 | 1.8 | -2.2 |
| T.P. | | | 4.76 | 1.77 | |
| 36 +00 | 4.70 | 6.47 | 4.7 | 1.8 | -2.3 |
| +50 | | | 4.6 | 1.9 | -2.3 |
| 37 | | | 4.7 | 1.8 | -2.3 |
| +50 | | | 4.7 | 1.8 | -2.3 |
| 38 | | | 4.7 | 1.8 | -2.4 |
| B.M. | | | 1.61 | 4.91 4.86 | |

| |
|---|
| 4.2 |
| 4.0 |
| 3.8 |
| 3.2 |
| Noise fence app 27+50 |
| State B.M. Elev 1.56 |
| 4.1 |
| 4.1 |
| 4.0 |
| 3.9 |
| 3.9 |
| 4.0 |
| 4.0 |
| 4.0 |
| 4.0 |
| 4.1 |
| 4.2 |
| 4.1 |
| 4.1 |
| 4.2 |
| Top Fire Hyd |

| | | | | | |
|---|---|---|---|---|---|
| | | 6.47 | | | |
| +50 | | | 4.6 | 1.9 | -2.4 |
| 39 | | | 4.6 | 1.9 | -2.4 |
| +50 | | | 4.6 | 1.9 | -2.4 |
| 40 | | | 4.6 | 1.9 | -2.4 |
| +50 | | | 4.7 | 1.8 | -2.4 |
| 41 | | | 4.7 | 1.8 | -2.4 |
| +50 | | | 4.7 | 1.8 | -2.4 |
| Δ 41+70 ℄ | | | 4.5 | 2.0 | -2.3 |
| B.M. | 4.69 | 6.63 | 4.53 | 1.94 | |
| 42+70 ℄ | | | 4.6 | 2.0 | -2.3 |
| 42 | | | 4.7 | 1.9 | -2.3 |
| +50 | | | 4.6 | 2.0 | -2.3 |
| 43 | | | 4.5 | 2.1 | -2.3 |
| +50 | | | 4.4 | 2.2 | -2.3 |
| 44 | | | 4.2 | 2.4 | -2.2 |
| +50 | | | 3.8 | 2.8 | -2.2 |
| T.P. | 4.72 | 7.38 | 3.97 | 2.66 | |
| 45 | | | 4.3 | 3.1 | -2.2 |
| +50 | | | 4.1 | 3.3 | -2.2 |
| 46 | | | 4.3 | 3.1 | -2.3 |
| +50 | | | 4.3 | 3.1 | -2.4 |
| 47 | | | 4.6 | 2.8 | -2.5 |
| +50 | | | 4.7 | 2.7 | -2.6 |
| 48 | | | 4.5 | 2.9 | -2.7 |
| +50 | | | 4.4 | 3.0 | -2.8 |

| | | |
|---|---|---|
| 4.3 | | |
| 4.3 | | |
| 4.3 | | |
| 4.3 | | |
| 4.2 | | |
| 4.2 | | |
| 4.2 | | |
| 4.3 | | |
| 1" offset Nail - Sta 41+70 | | |
| 4.3 | | |
| 4.2 | | |
| 4.3 | | 8.7 |
| 4.4 | | 7.9 |
| 4.5 | | -0.8 |
| 4.6 | | |
| 5.0 | | |
| 5.3 | 45+59 | -6.8 Top Hub Pipe 8" |
| 5.5 | | -3.1 Bottom Invert |
| 5.4 | | |
| 5.5 | | |
| 5.8 | | |
| 5.3 | | |
| 5.6 | | |
| 5.8 | | |

| | | | | | |
|---|---|---|---|---|---|
| | | 7.38 | | | |
| 49 | | | 4.3 | 3.1 | -2.9 |
| +50 | | | 4.7 | 2.7 | -3.0 |
| 50 | | | 5.3 | 2.1 | -3.0 |
| A 50+55.81 | | | 5.5 | 1.9 | -3.0 |
| B.M. | 4.15 | 7.31 | 4.22 | 3.16 | |
| 51 ℄ | | | 5.3 / 5.5 | 2.0 / 1.8 | -2.8 |
| +50 | | | 5.0 | 2.3 | -2.9 |
| 52 ℄ | | | 5.0 / 5.0 | 2.3 / 2.3 | -3.0 |
| +50 ℄ | | | 4.9 / 5.0 | 2.4 / 2.3 | -3.0 |
| 53 ℄ | | | 5.6 / 5.6 | 1.7 / 1.7 1.5 | -3.0 |
| +50 ℄ Same | | | 5.0 | 2.3 | -3.0 |
| 53+82.83= 53+86 | | | 5.2 | 2.1 | -3.0 |
| T.P. | 1.88 | 6.25 | 2.94 | 4.37 | |
| 54 | | | 3.8 | 2.5 | -3.0 |
| ℄ | | | 3.8 | 2.5 | |
| +50 | | | 3.5 | 2.8 | -3.2 |
| ℄ | | | 3.6 | 2.7 | |
| 55 | | | 4.3 | 2.0 | -3.4 |
| ℄ | | | 4.3 | 2.0 | |
| +50 | | | 4.3 | 2.0 | -3.5 |
| ℄ | | | 4.5 | 1.8 | |
| 56 | | | 4.7 | 1.6 | -3.6 |
| ℄ | | | 5.0 | 1.3 | |
| +50 | | | 4.8 | 1.5 | -3.6 |
| ℄ | | | 4.8 | 1.5 | |



6.0
5.7
5.1
4.9
H.I. RT. 50+30
4.8
5.2
5.3
5.4 5.1
4.7 4.5
5.3
5.1
+55+82 - Top conc. Block - 40' Rt
5.5
6.0
5.4
5.5
5.2
5.1

| | | 6.25 | | Elev | |
|---|---|---|---|---|---|
| 57 | | | 5.0 | 1.3 | -3.7 |
| ℄ | | | 5.3 | 1.0 | |
| +50 | | | 5.7 | 0.6 | -3.7 |
| ℄ | | | 5.8 | 0.5 | |
| 58 | | | 5.1 | 1.2 | -3.8 |
| ℄ | | | 5.3 | 1.0 | |
| 150 | | | 5.0 | 1.3 | -3.8 |
| ℄ | | | 5.4 | 0.9 | |
| T.P | 3.03 | 5.30 | 3.98 | 2.27 | |
| 59 | | | 2.8 | 2.5 | -3.9 |
| ℄ | | | 3.0 | 2.3 | |
| +50 | | | 2.8 | 2.5 | -3.9 |
| ℄ | | | 3.1 | 2.2 | |
| 60 | | | 3.7 | 1.6 | -4.0 |
| ℄ | | | 4.1 | 1.2 | |
| +50 | | | 5.0 | 0.3 | -4.0 |
| ℄ | | | 4.7 | 0.6 | |
| 61 | | | 5.2 | 0.1 | -3.9 |
| ℄ | | | 4.9 | 0.4 | |
| +50 | | | 5.1 | 0.2 | -3.9 |
| ℄ | | | 5.8 | -0.5 | |
| 62+04.20= 62+00 | | | 5.5 | -0.2 | -3.8 |
| ℄ | | | 4.3 | 1.0 | |
| 62+50 | | | 4.3 | 1.0 | -3.9 |
| | | | 4.8 | 0.5 | |
| | | | 2.21 | 3.09 3.14 | |

5.0
4.3
5.0
5.1
6.4
6.4
5.6
4.3
4.0
4.1
3.6
4.9

Bm L+62+45 N IN T.P

Harbor Drive #1 28th St.
Top of Pipe

| | | | | |
|---|---|---|---|---|
| B.M. - Top F. Hyd 137+51 | | | | 7.25 |
| T.P. | 1.08 | 8.35 | 5.39 | 2.96 |
| | 3.90 | 6.86 | | |
| 143 | | | 7.7 | -0.8 |
| +25 | | | 7.6 | -0.7 |
| +37 | | | 8.6 | -1.7 |
| +49 | | | 9.5 | -2.6 |
| +61 | | | 12.1 | -5.2 |
| +72 | | | 13.4 | -6.5 |
| +84 | | | 13.4 | -6.5 |
| +96 | | | 11.2 | -4.3 |
| 144+08 | | | 8.2 | -1.3 |
| +20 | | | 6.5 | +0.4 |
| +32 | | | 6.3 | 0.6 |
| +44 | | | 6.9 | 0.0 |
| +56 | | | 8.2 | -1.3 |
| +68 | | | 9.6 | -2.7 |
| +80 | | | 10.3 | -3.4 |
| +92 | | | 10.2 | -3.3 |
| 145+04 | | | 10.1 | -3.2 |

Con. Box

Bell St. pipe goes into Bell

Elev. Top B.J. Pipe

Harbor Drive #7 - Cholla Creek - F

| | | | | |
|---|---|---|---|---|
| B.M. | 1.27 | 7.37 | | 6.10 |
| 162+23.2 | | | 6.3 | 1.1 |
| 162+30 | | | 6.3 | 1.1 |
| +42 | | | 6.3 | 1.1 |
| +54 | | | 5.8 | 1.6 |
| +66 | | | 4.7 | 2.7 |
| +78 | | | 3.0 | 4.4 |
| +82.6 | | | 2.6 | 4.8 |
| | | | | |
| 165+03 | | | 2.6 | 4.8 |
| +08.5 | | | 2.8 | 4.6 |
| +20.5 | | | 4.5 | 2.9 |
| +26.7 | | | 4.8 | 2.6 |

H.W. King Hilton Otten 1-5-93

Profile -

| | | | |
|---|---|---|---|
| Elev. Sta. 89+00 | | | 4.90 |
| | 5.52 | 10.42 | |
| 90+25 | | 13.7 | -2.9 |
| 90+00 | | 13.1 | -2.7 |
| 89+50 | | 11.6 | -1.2 |
| 89+00 | | 11.1 | -0.7 |
| 88+50 | | 10.5 | -0.1 |
| 88+00 | | 10.4 | -0.0 |

Profile - Top Pipe - Harbor Drive

| | | | |
|---|---|---|---|
| B.M. Top Hyd Sta 78+18 | | | 5.29 |
| | 1.79 | 7.08 | |
| 80+00 | | 8.5 | -1.4 |
| Ea 79+50 | | 9.0 | -1.9 |
| 79+22 | | 10.2 | -3.1 |
| 79+33 | | 10.1 | -3.0 |
| 80+50 | | 8.2 | -1.1 |
| 81+00 | | 8.0 | -0.9 |
| 81+50 | | 7.7 | -0.6 |
| 80+75 | | 8.5 | +1.4 |
| B.M. Top F.H. 1.92 | | 7.21 | 5.29 |
| 79+22 | | 10.1 | -2.9 |
| 79+11 | | 10.0 | -2.8 |
| 78+83 | | 8.9 | -1.7 |
| 78+50 | | 8.7 | -1.5 -Sand B.F. |
| 78+00 | | 9.3 | -2.1 |

Profile - Top Pipe -

| | | | | |
|---|---|---|---|---|
| Bm. F.H. | 78+10 | | | 5.29 |
| 77+50 | 1.41 | 6.70 | 8.7 | -2.1 |
| 6" Cl. W. 77+35 | | | 9.1 | -2.9 |
| 77+10 | | | 8.9 | -2.2 |
| 76+50 | | | 8.5 | -1.8 |
| B.M. F.H. | 78+10 | | | 5.29 |
| | 1.26 | 6.55 | | |
| 76 | | | 8.9 | -2.3 |
| 75+50 | | | 9.8 | -3.5 |
| 75+25 | | | 10.6 | -4.0 |
| 75+18 | | | 10.6 | -4.0 |
| 75 | | | 10.5 | -3.9 |
| Ball st - 75+76 | | | | |
| B.M. | 3.87 | 7.03 | | 3.16 |
| 50+00 | | | 8.1 | |
| +25 | | | 8.8 | |
| +55 | | | 9.0 | |
| +73 | | | 9.0 | |
| Valve Chamber - 50+ | | | | Top Elev. 2.16 |

# CURVE TABLES.

**Published by KEUFFEL & ESSER CO.**

## HOW TO USE CURVE TABLES.

Table I. contains Tangents and Externals 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 External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I.: 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.

### *EXAMPLE.*

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P. = 23° 20′ to the R. at Station 542+72.

Ext. in Tab. I opposite 23° 20′ = 120.87
120.87 ÷ 12 = 10.07. Say a 10° Curve.

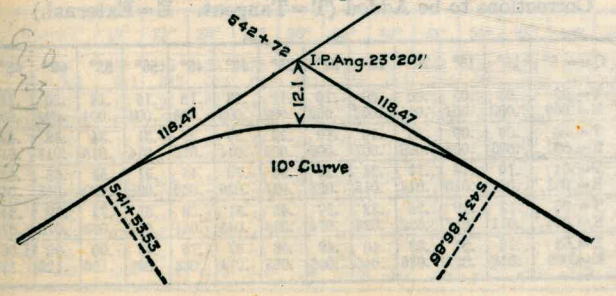
Tan. in Tab. I opp. 23° 20′ = 1183.1
1183.1 ÷ 10 = 118.31.

Correction for A. 23° 20′ for a 10° Cur. = 0.16
118.31 + 0.16 = 118.47 = corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20′ = 23.33° ÷ 10 = 2.3333 = L. C.

| | | | |
|---|---|---|---|
| 2° 19½′ = def. for sta. | 542 | I. P. = sta. | 542+72 |
| 4° 49½′ = " " " | +50 | Tan. = | 1 .18.47 |
| 7° 19½′ = " " " | 543 | B. C. = sta. | 541+53.53 |
| 9° 49½′ = " " " | +50 | L. C. = | 2 .33.33 |
| 11° 40′ = " " " | 543+ | | |
| | 86.86 | E. C. = Sta. | 543+86.86 |

100 − 53.53 = 46.47 × 3′ (def. for 1 ft. of 10° Cur.) = 139.41′ = 2° 19½′
2° 19½′ = def. for sta. 542.
Def. for 50 ft. = 2° 30′ for a 10° Curve.
Def. for 36.86 ft. = 1° 50½′ for a 10° Curve.



# Natural Trigonometrical Functions

| Angle | Sin. | Tan. | Sec. | Cosec. | Cotg. | Cosin. | |
|---|---|---|---|---|---|---|---|
| ° ′ | | | | | | | ° ′ |
| 32 | .5299 | .6249 | 1.1792 | 1.887 | 1.600 | .84805 | 58 |
| 10 | .5324 | .6289 | 1.1813 | 1.878 | 1.590 | .84650 | 50 |
| 20 | .5348 | .6330 | 1.1835 | 1.870 | 1.580 | .84495 | 40 |
| 30 | .5373 | .6371 | 1.1857 | 1.861 | 1.570 | .84339 | 30 |
| 40 | .5398 | .6412 | 1.1879 | 1.853 | 1.560 | .84182 | 20 |
| 50 | .5422 | .6453 | 1.1901 | 1.844 | 1.550 | .84025 | 10 |
| 33 | .5446 | .6494 | 1.1924 | 1.836 | 1.540 | .83867 | 57 |
| 10 | .5471 | .6536 | 1.1946 | 1.828 | 1.530 | .83708 | 50 |
| 20 | .5495 | .6577 | 1.1969 | 1.820 | 1.520 | .83549 | 40 |
| 30 | .5519 | .6619 | 1.1992 | 1.812 | 1.511 | .83389 | 30 |
| 40 | .5544 | .6661 | 1.2015 | 1.804 | 1.501 | .83228 | 20 |
| 50 | .5568 | .6703 | 1.2039 | 1.796 | 1.492 | .83066 | 10 |
| 34 | .5592 | .6745 | 1.2062 | 1.788 | 1.483 | .82904 | 56 |
| 10 | .5616 | .6787 | 1.2086 | 1.781 | 1.473 | .82741 | 50 |
| 20 | .5640 | .6830 | 1.2110 | 1.773 | 1.464 | .82577 | 40 |
| 30 | .5664 | .6873 | 1.2134 | 1.766 | 1.455 | .82413 | 30 |
| 40 | .5688 | .6916 | 1.2158 | 1.758 | 1.446 | .82248 | 20 |
| 50 | .5712 | .6959 | 1.2183 | 1.751 | 1.437 | .82082 | 10 |
| 35 | .5736 | .7002 | 1.2208 | 1.743 | 1.428 | .81915 | 55 |
| 10 | .5760 | .7046 | 1.2233 | 1.736 | 1.419 | .81748 | 50 |
| 20 | .5783 | .7089 | 1.2258 | 1.729 | 1.411 | .81580 | 40 |
| 30 | .5807 | .7133 | 1.2283 | 1.722 | 1.402 | .81412 | 30 |
| 40 | .5831 | .7177 | 1.2309 | 1.715 | 1.393 | .81242 | 20 |
| 50 | .5854 | .7221 | 1.2335 | 1.708 | 1.385 | .81072 | 10 |
| 36 | .5878 | .7265 | 1.2361 | 1.701 | 1.376 | .80902 | 54 |
| 10 | .5901 | .7310 | 1.2387 | 1.695 | 1.368 | .80730 | 50 |
| 20 | .5925 | .7355 | 1.2413 | 1.688 | 1.360 | .80558 | 40 |
| 30 | .5948 | .7400 | 1.2440 | 1.681 | 1.351 | .80386 | 30 |
| 40 | .5972 | .7445 | 1.2466 | 1.675 | 1.343 | .80212 | 20 |
| 50 | .5995 | .7490 | 1.2494 | 1.668 | 1.335 | .80038 | 10 |
| 37 | .6018 | .7536 | 1.2521 | 1.662 | 1.327 | .79864 | 53 |
| 10 | .6041 | .7581 | 1.2549 | 1.655 | 1.319 | .79688 | 50 |
| 20 | .6065 | .7627 | 1.2577 | 1.649 | 1.311 | .79512 | 40 |
| 30 | .6088 | .7673 | 1.2605 | 1.643 | 1.303 | .79335 | 30 |
| 40 | .6111 | .7720 | 1.2633 | 1.636 | 1.295 | .79158 | 20 |
| 50 | .6134 | .7766 | 1.2661 | 1.630 | 1.288 | .78980 | 10 |
| 38 | .6157 | .7813 | 1.2690 | 1.624 | 1.280 | .78801 | 52 |
| 10 | .6180 | .7860 | 1.2719 | 1.618 | 1.272 | .78622 | 50 |
| 20 | .6202 | .7907 | 1.2748 | 1.612 | 1.265 | .78442 | 40 |
| 30 | .6225 | .7954 | 1.2778 | 1.606 | 1.257 | .78261 | 30 |
| 40 | .6248 | .8002 | 1.2808 | 1.601 | 1.250 | .78079 | 20 |
| 50 | .6271 | .8050 | 1.2838 | 1.595 | 1.242 | 77897 | 10 |

| Cosin. | Cotg. | Cosec. | Sec. | Tan. | Sin. | Angle |
|---|---|---|---|---|---|---|

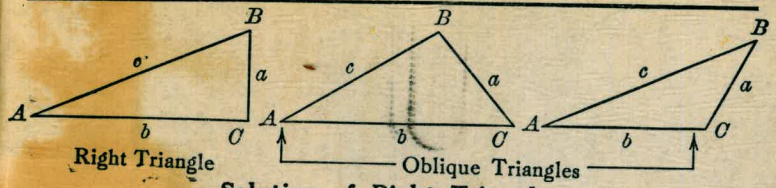
| Angle | Sin. | Tan. | Sec. | Cosec. | Cotg. | Cosin. | |
|---|---|---|---|---|---|---|---|
| ° ′ | | | | | | | ° ′ |
| 39 | .6293 | .8098 | 1.2868 | 1.589 | 1.235 | .77715 | 51 |
| 10 | .6316 | .8146 | 1.2898 | 1.583 | 1.228 | .77531 | 50 |
| 20 | .6338 | .8195 | 1.2929 | 1.578 | 1.220 | .77347 | 40 |
| 30 | .6361 | .8243 | 1.2959 | 1.572 | 1.213 | .77162 | 30 |
| 40 | .6383 | .8292 | 1.2991 | 1.567 | 1.206 | .76977 | 20 |
| 50 | .6406 | .8342 | 1.3022 | 1.561 | 1.199 | .76791 | 10 |
| 40 | .6428 | .8391 | 1.3054 | 1.556 | 1.192 | .76604 | 50 |
| 10 | .6450 | .8441 | 1.3086 | 1.550 | 1.185 | .76417 | 50 |
| 20 | .6472 | .8491 | 1.3118 | 1.545 | 1.178 | .76229 | 40 |
| 30 | .6494 | .8541 | 1.3151 | 1.540 | 1.171 | .76041 | 30 |
| 40 | .6517 | .8591 | 1.3184 | 1.535 | 1.164 | .75851 | 20 |
| 50 | .6539 | .8642 | 1.3217 | 1.529 | 1.157 | .75661 | 10 |
| 41 | .6561 | .8693 | 1.3251 | 1.524 | 1.150 | .75471 | 49 |
| 10 | .6583 | .8744 | 1.3284 | 1.519 | 1.144 | .75280 | 50 |
| 20 | .6604 | .8796 | 1.3318 | 1.514 | 1.137 | .75088 | 40 |
| 30 | .6626 | .8847 | 1.3352 | 1.509 | 1.130 | .74896 | 30 |
| 40 | .6648 | .8899 | 1.3386 | 1.504 | 1.124 | .74703 | 20 |
| 50 | .6670 | .8952 | 1.3421 | 1.499 | 1.117 | .74509 | 10 |
| 42 | .6691 | .9004 | 1.3456 | 1.494 | 1.111 | .74314 | 48 |
| 10 | .6713 | .9057 | 1.3492 | 1.490 | 1.104 | .74120 | 50 |
| 20 | .6734 | .9110 | 1.3527 | 1.485 | 1.098 | .73924 | 40 |
| 30 | .6756 | .9163 | 1.3563 | 1.480 | 1.091 | .73728 | 30 |
| 40 | .6777 | .9217 | 1.3600 | 1.476 | 1.085 | .73531 | 20 |
| 50 | .6799 | .9271 | 1.3636 | 1.471 | 1.079 | .73333 | 10 |
| 43 | .6820 | .9325 | 1.3673 | 1.466 | 1.072 | .73135 | 47 |
| 10 | .6841 | .9380 | 1.3711 | 1.462 | 1.066 | .72937 | 50 |
| 20 | .6862 | .9435 | 1.3748 | 1.457 | 1.060 | .72737 | 40 |
| 30 | .6884 | .9490 | 1.3786 | 1.453 | 1.054 | .72537 | 30 |
| 40 | .6905 | .9545 | 1.3824 | 1.448 | 1.048 | .72337 | 20 |
| 50 | .6926 | .9601 | 1.3863 | 1.444 | 1.042 | .72136 | 10 |
| 44 | .6947 | .9657 | 1.3902 | 1.440 | 1.036 | .71934 | 46 |
| 10 | .6967 | .9713 | 1.3941 | 1.435 | 1.030 | .71732 | 50 |
| 20 | .6988 | .9770 | 1.3980 | 1.431 | 1.024 | .71529 | 40 |
| 30 | .7009 | .9827 | 1.4020 | 1.427 | 1.018 | .71325 | 30 |
| 40 | .7030 | .9884 | 1.4061 | 1.422 | 1.012 | .71121 | 20 |
| 50 | .7050 | .9942 | 1.4101 | 1.418 | 1.006 | .70916 | 10 |
| | .7071 | 1. | 1.414 | 1.414 | 1. | .70711 | 45 |

| Cosin. | Cotg. | Cosec. | Sec. | Tan. | Sin. | Angle |
|---|---|---|---|---|---|---|

State B.M. - top F.H. 131'4 1+95 - elev. 862

R.R. spike in power pole 1426 49' Rt 114+98 elev 5.27

# TRIGONOMETRIC FORMULÆ




## Solution of Right Triangles

For Angle $A$. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\text{cosec} = \frac{c}{a}$

| Given | Required | |
|---|---|---|
| $a, b$ | $A, B, c$ | $\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a\sqrt{1 + \frac{b^2}{a^2}}$ |
| $a, c$ | $A, B, b$ | $\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)} = c\sqrt{1 - \frac{a^2}{c^2}}$ |
| $A, a$ | $B, b, c$ | $B = 90° - A, b = a \cot A, c = \frac{a}{\sin A}$ |
| $A, b$ | $B, a, c$ | $B = 90° - A, a = b \tan A, c = \frac{b}{\cos A}$ |
| $A, c$ | $B, a, b$ | $B = 90° - A, a = c \sin A, b = c \cos A,$ |

## Solution of Oblique Triangles

| Given | Required | |
|---|---|---|
| $A, B, a$ | $b, c, C$ | $b = \frac{a \sin B}{\sin A}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$ |
| $A, a, b$ | $B, c, C$ | $\sin B = \frac{b \sin A}{a}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$ |
| $a, b, C$ | $A, B, c$ | $A + B = 180° - C, \tan \frac{1}{2}(A - B) = \frac{(a-b)\tan \frac{1}{2}(A+B)}{a+b}, c = \frac{a \sin C}{\sin A}$ |
| $a, b, c$ | $A, B, C$ | $s = \frac{a+b+c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{bc}}, \sin \frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{ac}}, C = 180° - (A+B)$ |
| $a, b, c$ | Area | $s = \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$ |
| $A, b, c$ | Area | area $= \frac{bc \sin A}{2}$ |
| $A, B, C, a$ | Area | area $= \frac{a^2 \sin B \sin C}{2 \sin A}$ |

## REDUCTION TO HORIZONTAL


Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10′. From Table, Page IX. cos 5° 10′ = .9959. Horizontal distance = 319.4 × .9959 = 318.09 ft.

Horizontal distance also = Slope distance minus slope distance times (1 − cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′ = .9959. 1 − .9959 = .0041. 319.4 × .0041 = 1.31. 319.4 − 1.31 = 318.09 ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance $= 302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.



DPW-1
11-18-41
jw B-6

selecting and providing suitab
(excepting obtaining and hauli
terials and restoring lands, r
ble and, as directed to their
trench is through concrete and
cost of restoration will be pa
bid. Backfill for structures
be made of suitable materials
by the Owner. No extra payment
the cost thereof shall be inclu
structure or small trench excav
cost of all labor, materials, e

84+59.48 Hwy = 172+53.79 on Sta
81+25 Hwy (pot) = 175+88.33 on Sta.
Eq. 64+84.20 EC } = 192+22.72 " "
64+91.24 POT }

156+88 end of curb Rt

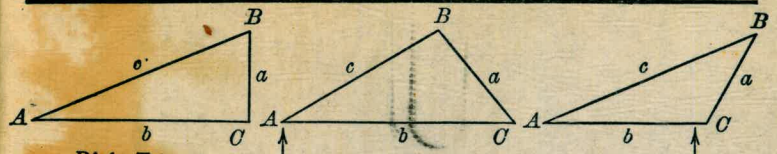
298

84+59.48 Hwy = 172+53.79 our Sta

81+25 Hwy (pot) = 175+88.33 our Sta.

Eq. 64+84.20 EC = 192+22.72 " "
64+91.24 POT

# TRIGONOMETRIC FORMULÆ




## Solution of Right Triangles

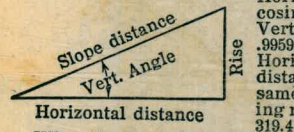
For Angle $A$. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

| Given | Required | |
|---|---|---|
| $a, b$ | $A, B, c$ | $\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a\sqrt{1 + \frac{b^2}{a^2}}$ |
| $a, c$ | $A, B, b$ | $\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)} = c\sqrt{1 - \frac{a^2}{c^2}}$ |
| $A, a$ | $B, b, c$ | $B = 90° - A, b = a \cot A, c = \frac{a}{\sin A}$ |
| $A, b$ | $B, a, c$ | $B = 90° - A, a = b \tan A, c = \frac{b}{\cos A}$ |
| $A, c$ | $B, a, b$ | $B = 90° - A, a = c \sin A, b = c \cos A,$ |

## Solution of Oblique Triangles

| Given | Required | |
|---|---|---|
| $A, B, a$ | $b, c, C$ | $b = \frac{a \sin B}{\sin A}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$ |
| $A, a, b$ | $B, c, C$ | $\sin B = \frac{b \sin A}{a}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$ |
| $a, b, C$ | $A, B, c$ | $A + B = 180° - C, \tan \frac{1}{2}(A - B) = \frac{(a-b)\tan \frac{1}{2}(A+B)}{a+b}, c = \frac{a \sin C}{\sin A}$ |
| $a, b, c$ | $A, B, C$ | $s = \frac{a+b+c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{bc}}, \sin \frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{ac}}, C = 180° - (A+B)$ |
| $a, b, c$ | Area | $s = \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$ |
| $A, b, c$ | Area | area $= \frac{bc \sin A}{2}$ |
| $A, B, C, a$ | Area | area $= \frac{a^2 \sin B \sin C}{2 \sin A}$ |

## REDUCTION TO HORIZONTAL




Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10′. From Table, Page IX. cos 5° 10′ = .9959. Horizontal distance = 319.4 × .9959 = 318.09 ft.

Horizontal distance also = Slope distance minus slope distance times (1 — cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′ = .9959. 1 — .9959 = .0041. 319.4 × .0041 = 1.31. 319.4 — 1.31 = 318.09 ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance $= 302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.

DPW-1
11-18-41
jw B-6

selecting and providing suitable backfill from excavated material, (excepting obtaining and hauling sand), disposing of excess materials and restoring lands, roads and streets as nearly as possible and, as directed to their original condition; excepting where trench is through concrete and/or asphalt or oiled pavement, the cost of restoration will be paid for at the respective unit price bid. Backfill for structures or for trenches for small pipe shall be made of suitable materials to the lines and grades prescribed by the Owner. No extra payment will be made for such backfill, but the cost thereof shall be included in the unit prices bid for structure or small trench excavation which shall also include the cost of all labor, materials, operations and equipment used in

℄ Elevs below ℄ profile


| 193+90 - top of cut | | |
|---|---|---|
| 194+00 | 5⁰ lower | 10' Rt of ℄ |
| 195+00 | 5⅔ " | 6' Rt of ℄ |
| 196+00 | 6⁰ " | 6' Rt of ℄ - C 19' |
| 197+00 | 3 3/3 " | 6⅝ Rt of ℄ |
| 198 | 4⅜ " | 5⅔ " " " |
| | End of cut shown in field book | 5 |

# Harbor Front Near Vesta

| | | |
|---|---|---|
| 194+00 | Top of sewer cut | 2⅜ Lt of ℄ |
| 195+00 | " " " " | 2⅜ " " " |
| 196+00 | " " " " | 5 3/3 " " " |
| 197+00 | " " " " | 2 3/3 " " " |
| 198+00 | " " " " | 3 3/3 " " " |