

GRADE BOOK 98

DIETZGEN

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ENGINEERS  
FIELD BOOK

No. 403

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# EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and  
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

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

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

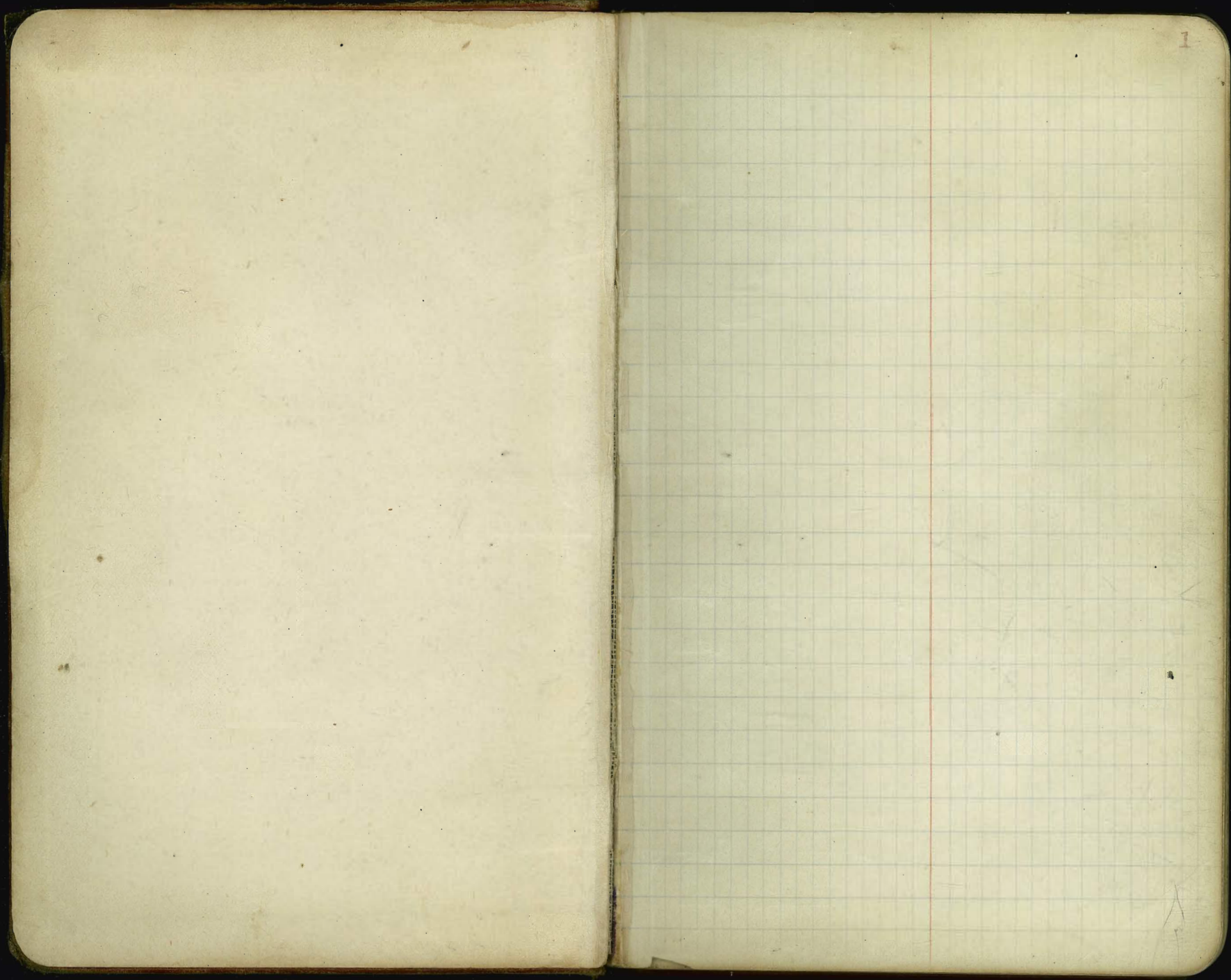
Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be  $30.6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

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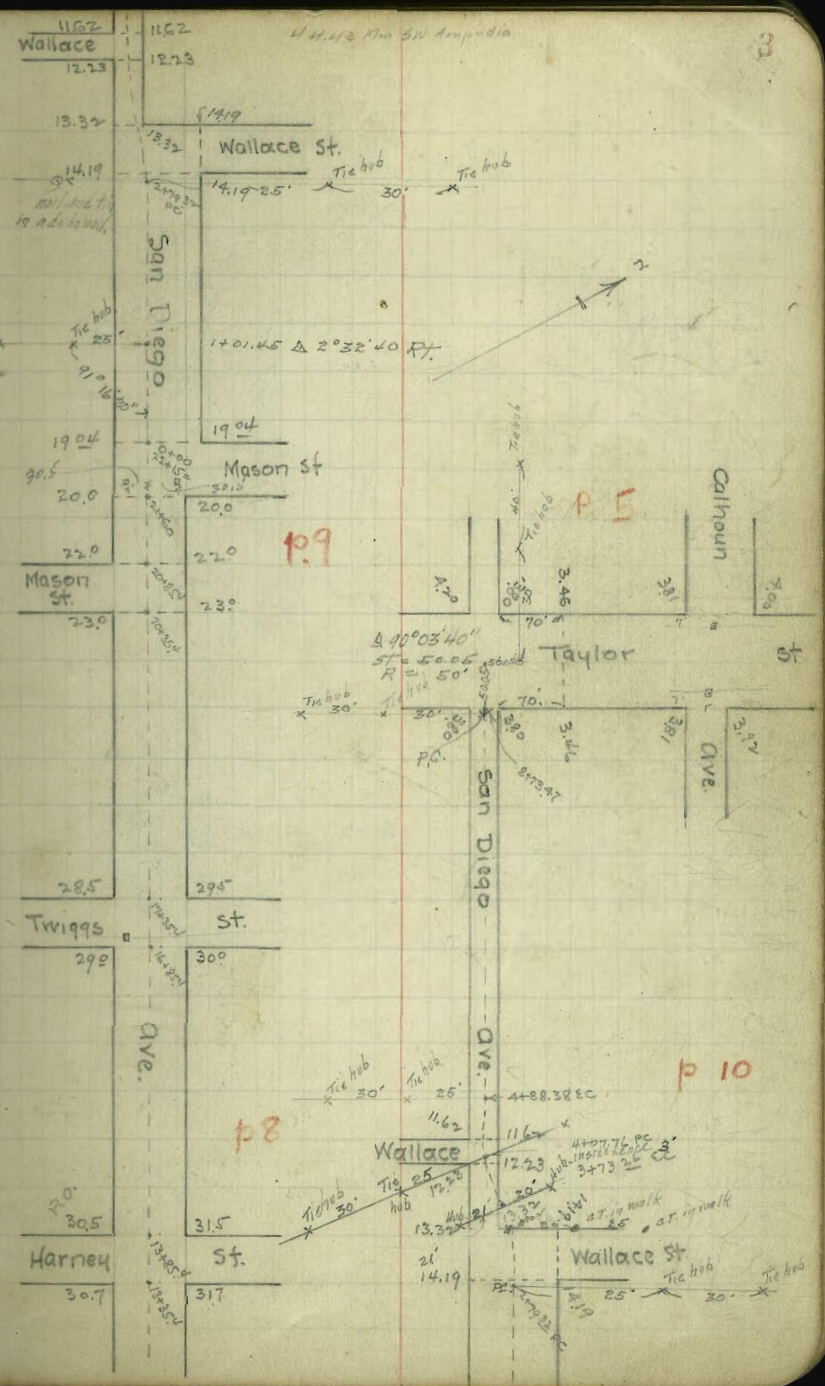
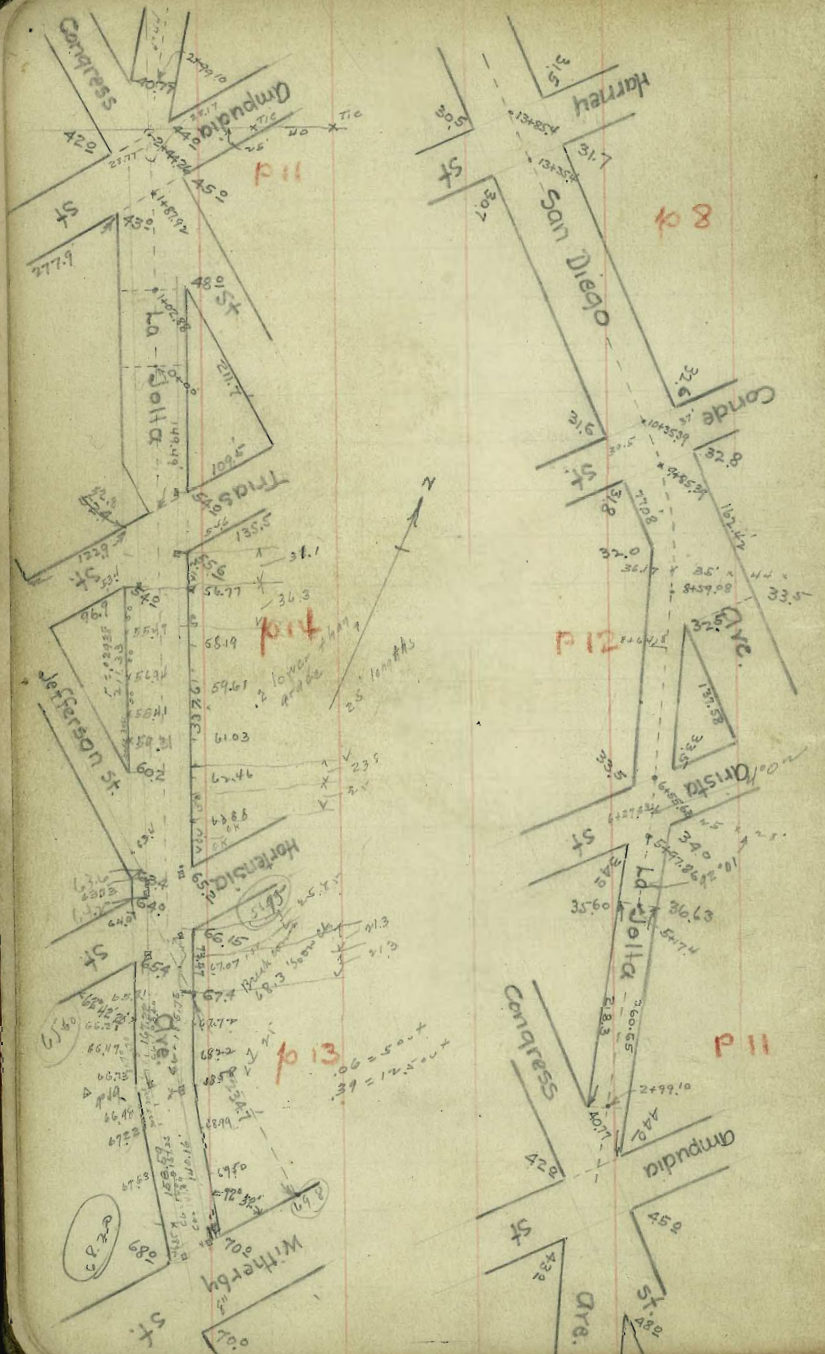












|            |             |
|------------|-------------|
| 1162       | 1162        |
| Wallace    | Wallace St. |
| 12.23      | 12.23       |
| 13.32      | 13.32       |
| 14.19      | 14.19       |
| 19.04      | 19.04       |
| 20.0       | 20.0        |
| 22.0       | 22.0        |
| Mason St.  | Mason St.   |
| 23.0       | 23.0        |
| 28.5       | 28.5        |
| Twigg St.  | Twigg St.   |
| 29.0       | 29.0        |
| 30.5       | 30.5        |
| Harney St. | Harney St.  |
| 30.7       | 30.7        |
| 31.5       | 31.5        |
| 317        | 317         |

1162 Ave SW Ampudia







Taylor St.

|                                 |       |          |
|---------------------------------|-------|----------|
| 70 = nw Calhoun on NW           | ✓ 400 |          |
| 40 = ne Calhoun on SW           | 392   | 372      |
| 25                              | 391   |          |
| 26                              | ✓ 388 |          |
| 20 = E 40 St.                   | 386   |          |
| 15 NW                           | 385   |          |
| 195 = SW Calhoun-               | 381   | +0.2745% |
| 194                             | 381   |          |
| 175                             | ✓ 375 |          |
| 165                             | 372   |          |
| 150                             | 368   | 348      |
| 125                             | ✓ 361 | 341      |
| 100                             | 354   |          |
| 75                              | ✓ 347 |          |
| 70'                             | 346   |          |
| 50 NW                           | 352   |          |
| 35' NE of SD Ave                | 350   |          |
| +78.6 = EC =)                   | 356   |          |
| +60                             | 362   |          |
| +50                             | 365   |          |
| +40                             | 368   |          |
| +30                             | 371   |          |
| +20                             | 374   |          |
| 0+10 on E                       | 377   |          |
| 0 = SW line Taylor<br>P.C. of E | 380   |          |

|           |     |      |      |
|-----------|-----|------|------|
| 8.38 M    | 361 | 324  | 360  |
| 7.24 T.P. | 477 | 5.04 | 478  |
|           | 1.7 | 2.6  | 1.8  |
| 8.53 M    | E   | 372  | 361  |
|           |     | 481  | 492  |
|           |     | -3.1 | -1.5 |
|           | W   | -2.9 | -3.0 |
|           |     |      | -2.1 |
|           |     |      | -2.4 |

|      |     |     |     |     |
|------|-----|-----|-----|-----|
| 1.25 | 376 | 364 | 351 | 351 |
|      | 481 | 5.0 | 5.1 | 481 |
|      |     |     |     | 8.8 |

- 0.2993%



Taylor St.

|                         |      |      |
|-------------------------|------|------|
| 450 = ne SS Blvd        | 5.79 | 5.99 |
| 400 = SW SS Blvd        | 5.65 | 5.85 |
| 350 = ne SS Blvd        | 5.62 | 5.72 |
| 300 = SW SS Blvd        | 5.39 | 5.58 |
| 250                     | 5.24 | 5.44 |
| 200                     | 5.10 | 5.30 |
| 150                     | 4.97 | 5.17 |
| 100                     | 4.82 | 5.03 |
| 50                      | 4.69 | 4.89 |
| 50 = ne J main = 0      | 4.55 | 4.75 |
| 25 = $\phi$             | 4.49 | 4.69 |
| 15                      |      | 4.66 |
| 225 = SW Juan           | 4.42 | 4.62 |
| 200                     |      | 4.55 |
| 175                     |      | 4.48 |
| 150                     |      | 4.41 |
| 125                     |      | 4.36 |
| 100                     |      | 4.27 |
| 75                      |      | 4.21 |
| 50                      |      | 4.14 |
| 25                      |      | 4.07 |
| 0 = ne Calhoun<br>on NW |      | 4.00 |

+0.2745%

4.42

4.21

4.01

3.90

6.64 RRSPK SW Taylor B.S.S. Blvd  
6.36 Tip Hdd. Juan + Taylor

|          |      |      |      |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|------|------|------|
| 10.41 MI | 5.52 | 5.38 | 5.10 | 4.83 | 4.55 | 4.26 | 4.02 | 4.01 | 3.80 |
| 8.91     | 4.87 | 4.73 | 4.51 | 4.29 | 4.00 | 3.75 | 3.50 | 3.25 | 3.00 |
| 4.61 T.P | 0.0  | 0.0  | 0.0  | -0.1 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 2.77     | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 8.39 MI  | 4.42 | 4.21 | 4.01 | 3.80 | 3.59 | 3.38 | 3.17 | 2.96 | 2.75 |
| 6.35     | 4.11 | 3.92 | 3.72 | 3.53 | 3.34 | 3.15 | 2.96 | 2.77 | 2.58 |
| 2.12     | 0.5  | 0.9  | 1.3  | 1.7  | 2.1  | 2.5  | 2.9  | 3.3  | 3.7  |
| 8.54 MI  | 4.11 | 3.92 | 3.72 | 3.53 | 3.34 | 3.15 | 2.96 | 2.77 | 2.58 |
| 9.44 MI  | 3.79 | 3.59 | 3.39 | 3.19 | 2.99 | 2.79 | 2.59 | 2.39 | 2.19 |
| 5        | -1.0 | -0.5 | -0.7 | -1.0 | -0.9 | -0.8 | -0.7 | -0.6 | -0.5 |

|      |     |     |     |     |     |     |     |     |     |     |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 636  | 465 | 479 | 483 | 507 | 520 | 524 | 545 | 567 | 575 | 587 |
| 342  | 513 | 499 | 485 | 471 | 457 | 444 | 430 | 416 | 403 | 389 |
| 9.79 |     |     |     |     |     |     |     |     |     |     |

|      |     |     |     |     |     |     |
|------|-----|-----|-----|-----|-----|-----|
| 636  | 452 | 445 | 431 | 417 | 404 | 390 |
| 247  | 415 | 420 | 432 | 444 | 456 | 470 |
| 8.65 |     |     |     |     |     |     |



Taylor St.

|                      |       |      |
|----------------------|-------|------|
| 157 21.20            | 17.77 | 1804 |
| 1522, 21 = NW Taylor | 17.45 |      |
| 1510 NW 00           | 17.05 | 1789 |
| 1500                 | 17.00 |      |
| 1475                 | 16.50 |      |
| 1450                 | 16.00 |      |
| 1425                 | 15.50 |      |
| 1400 = NW Hickory    | 15.00 |      |
| 1372, 61 = PC        | 14.45 | 1426 |
| 1350 = SW Hickory    | 14.00 | 1396 |
| 1300                 | 13.08 | 1325 |
| 1250                 | 12.17 |      |
| 1200                 | 11.25 |      |
| 1150                 | 10.33 |      |
| 1100                 | 9.42  |      |
| 1050 = NW Chestnut   | 8.50  |      |
| 1000 = SW Chestnut   | 7.50  |      |
| 950                  | 7.36  |      |
| 900                  | 7.23  |      |
| 850                  | 7.09  |      |
| 800                  | 6.95  |      |
| 750                  | 6.81  |      |
| 700 = NW Whitman     | 6.68  |      |
| 650 = SW Whitman     | 6.54  |      |
| 600                  | 6.40  |      |
| 550                  | 6.26  |      |
| 500                  | 6.13  |      |
| 450 = NW S.S. Blvd   | 5.99  |      |

+ 2.004%

+ 1.8333%

+ 0.2745%

604 BM SW Chestnut & Taylor

|          |       |       |       |       |      |      |      |      |      |      |      |
|----------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| 855      | 13.80 | 13.98 | 11.97 | 10.13 | 8.20 | 7.31 | 7.02 | 6.75 | 6.48 | 6.24 | 6.00 |
| 1450 HT  | 0.17  | 1.51  | 2.62  | 4.46  | 6.29 | 7.27 | 7.62 | 7.80 | 8.07 | 8.21 | 8.47 |
| 1150 HT  | 5.22  | 0.6   | 0.8   | 0.6   | 0.5  | 0.1  | 0.4  | 0.5  | 0.4  | 0.1  | 0.0  |
| 4.62     |       |       |       |       |      |      |      |      |      |      |      |
| 6.08 TP  | 0.0   |       |       |       |      |      |      |      |      |      |      |
| 6.33     |       |       |       |       |      |      |      |      |      |      |      |
| 10.41 HT | 7.05  | 7.03  | 6.89  | 6.75  | 6.61 | 6.48 | 6.34 | 6.20 | 6.06 | 5.93 | 5.79 |
| 6.04 AM  | 3.93  | 3.97  | 4.10  | 4.24  | 4.38 | 4.52 | 4.65 | 4.79 | 4.93 | 5.07 | 5.20 |
| 5.03     | -0.7  | -1.0  | -0.8  | -0.9  | -0.7 | -0.8 | -0.7 | -0.5 | -0.3 | -0.7 | -0.4 |
| 11.13 HT | -0.3  | -0.6  | -0.9  | -1.0  | -1.2 | -1.0 | -0.9 | -0.8 | -0.9 | -0.9 | -1.1 |
| 5.71     |       |       |       |       |      |      |      |      |      |      |      |
| 5.42 TP  |       |       |       |       |      |      |      |      |      |      |      |
| 4.55     |       |       |       |       |      |      |      |      |      |      |      |
| 7.00 HT  |       |       |       |       |      |      |      |      |      |      |      |

|       |         |       |       |       |       |       |       |      |      |      |      |
|-------|---------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| 866   | 130     | 9.22  | 10.13 | 11.05 | 12.07 | 12.88 |       |      |      |      |      |
| 2.96  | 2.5     | 1.9   | 1.8   | 1.7   | 1.6   | 1.5   |       |      |      |      |      |
| 10.70 | W - 1.1 | -1.6  | -1.5  | -1.7  | -1.5  | -1.1  | 1520  | 1370 | 1472 | 1491 | 1522 |
| 1.46  | E - 1.2 | -1.4  | -0.5  | -1.1  | -0.5  | 2.2   | 2.7   | 4.7  | 3.8  | 3.2  | 3.5  |
| 1.81  |         |       |       |       |       |       | 2.6   | 0.0  | 0.0  | 0.0  | -0.1 |
| 18.07 |         |       |       |       |       |       |       |      |      |      |      |
| 15.45 | 14.30   | 18.50 | 17.30 | 17.35 | 16.75 | 16.25 | 15.75 |      |      |      |      |
| 2.32  | 1.74    | -4.5  | 2.7   | 8.0   | 1.32  | 1.82  | 4.32  |      |      |      |      |
| -0.2  | -1.2    | -2.0  | -3.2  | -2.7  | -1.9  | +0.5  | +2.7  |      |      |      |      |

|       |       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 476   | 603   | 616   | 630   | 644   | 10.63 | 655   | 671   | 685   | 699   | 713   | 726   | 763   |
| 3.72  | 3.84  | 3.98  | 3.94  |       |       | 4.05  | 4.14  | 4.24  | 4.34  | 4.44  | 4.54  | 4.64  |
| 7.26  | 8.00  | 9.30  | 10.23 | 11.5  | 12.07 | 12.95 | 13.84 | 14.72 | 15.60 | 16.48 | 17.36 | 18.24 |
| 10.4  | 1.2   | 1.36  | 1.5   | 1.63  | 1.77  | 1.95  | 2.12  | 2.28  | 2.44  | 2.60  | 2.76  | 2.92  |
| 15.68 |       |       |       |       |       |       |       |       |       |       |       |       |
| 13.47 | 13.96 | 13.85 | 13.50 | 13.00 | 12.50 | 12.00 | 11.50 | 11.00 | 10.50 | 10.00 | 9.50  | 9.00  |
| 2.21  | 1.7   | 1.73  | 1.8   | 1.8   | 1.8   | 1.8   | 1.8   | 1.8   | 1.8   | 1.8   | 1.8   | 1.8   |
| 14.50 | 15.60 | 14.0  | 15.5  | 17    | 16    | 17.50 | 19.7  |       |       |       |       |       |
| 5.73  | 4.72  | 4.73  | 4.73  | 4.73  | 4.73  | 4.73  | 4.73  | 4.73  | 4.73  | 4.73  | 4.73  | 4.73  |
| 2.23  |       |       |       |       |       |       |       |       |       |       |       |       |

8.66 Top Hydd. Whitman & Taylor

13 26  
26







San Diego Ave.

|                  |      |       |      |      |      |
|------------------|------|-------|------|------|------|
|                  |      | ±     |      |      |      |
| 250              | 1294 | 1294  | 1334 | 1339 |      |
| 200              | 1290 | 1295  | 1335 | 1345 | 1350 |
| 2000             | 1321 | 1350  | 1376 | 1416 | 1421 |
| 2+79.32 PC       | 1322 | 1391  | 1417 | 1457 | 1462 |
| 2+20             | 1535 | 1545  | 1555 | 1545 | 1535 |
| 1+50             |      | 1642  |      |      | 1622 |
| 1+05             |      | 1685  |      |      | 1622 |
|                  |      | 1721  |      |      | 1707 |
| 1+01.45          |      | 1727  |      |      | 1707 |
| 0+50             |      | 1732  |      |      | 1707 |
|                  |      | 1817  |      |      | 1797 |
| 0 = NW Masonry W |      | 1906  |      |      | 1814 |
| ± mason          |      | 1952  |      |      |      |
| 21+60 = SE Mason |      | 20.00 |      |      |      |
| 21+25            |      | 20.94 |      |      |      |
| 20+85.4 NW Mason |      | 22.00 |      |      |      |
| 20+85.4 SE Mason |      | 23.00 |      |      |      |
| 20               |      | 23.71 |      |      |      |
| 19+50            |      | 24.71 |      |      |      |
| 19               |      | 25.71 |      |      |      |
| 18+50            |      | 26.71 |      |      |      |
| 18               |      | 27.71 |      |      |      |
| 17+65            |      | 28.41 |      |      |      |
| 17+35.4 NW Twigg |      | 29.00 |      |      |      |
| 16+85.4 SE Twigg |      | 29.50 |      |      |      |
| 16+50            |      | 29.68 |      |      |      |
| 16               |      | 29.93 |      |      |      |

1.83%

2.00%

0.55%

11.35 RR Spk Hitching post S.W.S.D. Wallace 417°52' 15' from E. outside 7157  
 Note Use this BM. to Sta 2+99.32 PC  
 21.46 RR Spk NE Mason 4 S.D.  
 Use this BM to Sta 2+00

|        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |      |      |      |       |       |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |        |        |        |        |        |        |        |        |       |      |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |       |      |       |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |        |        |        |        |        |        |        |        |       |      |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |  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|         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |        |        |        |        |        |        |        |        |       |      |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |       |      |       |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |        |        |        |        |        |        |        |        |   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| 167.1M | 13.97 | 15.35 | 17.07 | 18.21 | 19.47 | 20.84 | 22.30 | 23.84 | 25.47 | 27.17 | 28.94 | 30.77 | 32.65 | 34.58 | 36.56 | 38.59 | 40.67 | 42.79 | 44.95 | 47.15 | 49.39 | 51.67 | 53.99 | 56.35  | 58.74  | 61.16  | 63.61  | 66.09  | 68.60  | 71.14  | 73.71  | 76.31  | 78.93  | 81.58  | 84.26  | 86.97  | 89.70  | 92.46  | 95.24  | 98.05  | 100.89 |        |       |       |       |       |       |      |      |      |      |       |       |       |       |       |       |       |       |       |       |      |      |      |       |       |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |        |    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|         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |        |        |        |        |        |        |        |        |       |      |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |       |       |       |       |      |       |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |        |        |        |        |        |        |        |        |   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| 11.25  | 11.15 | 10.4  | 9.77  | 9.05  | 8.24  | 7.35  | 6.39  | 5.37  | 4.29  | 3.16  | 2.00  | 0.71  | -0.71 | -2.00 | -3.16 | -4.29 | -5.37 | -6.39 | -7.35 | -8.24 | -9.05 | -9.77 | -10.4 | -10.95 | -11.45 | -11.90 | -12.30 | -12.65 | -12.95 | -13.20 | -13.40 | -13.55 | -13.65 | -13.70 | -13.70 | -13.65 | -13.45 | -13.10 | -12.60 | -11.95 | -11.15 | -10.20 | -9.00 | -7.55 | -5.85 | -3.90 | -1.65 | 0.80 | 3.30 | 5.80 | 8.20 | 10.40 | 12.30 | 13.85 | 15.00 | 15.70 | 15.90 | 15.55 | 14.65 | 13.15 | 11.00 | 8.10 | 4.35 | 0.00 | -4.35 | -9.60 | -15.45 | -21.80 | -28.55 | -35.70 | -43.15 | -50.80 | -58.50 | -66.25 | -74.00 | -81.70 | -89.30 | -96.75 | -104.00 | -111.00 | -117.75 | -124.20 | -130.35 | -136.10 | -141.45 | -146.40 | -150.90 | -154.95 | -158.55 | -161.70 | -164.40 | -166.65 | -168.45 | -169.80 | -170.70 | -171.15 | -171.15 | -170.70 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.05 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 | 1.80 | -9.80 | -20.90 | -32.55 | -43.75 | -54.50 | -64.80 | -74.65 | -84.05 | -93.00 | -101.50 | -109.55 | -117.15 | -124.30 | -131.00 | -137.25 | -143.00 | -148.45 | -153.40 | -157.90 | -161.95 | -165.60 | -168.85 | -171.15 | -171.15 | -168.85 | -165.60 | -161.95 | -157.90 | -153.40 | -148.45 | -143.00 | -137.25 | -131.00 | -124.30 | -117.15 | -109.55 | -101.50 | -93.00 | -84.05 | -74.65 | -64.80 | -54.50 | -43.75 | -32.55 | -20.90 | -9.80 | 1.80 | 13.90 | 26.50 | 39.60 | 52.10 | 64.00 | 75.20 | 85.60 | 95.10 | 103.70 | 111.40 | 118.10 | 123.80 | 128.50 | 132.20 | 134.90 | 136.50 | 137.00 | 136.50 | 134.90 | 132.20 | 128.50 | 123.80 | 118.10 | 111.40 | 103.70 | 95.10 | 85.60 | 75.20 | 64.00 | 52.10 | 39.60 | 26.50 | 13.90 |



San Diego Ave.

|                       | Berm  | Edge Paving | Edge Paving | Berm  |
|-----------------------|-------|-------------|-------------|-------|
|                       |       | ⊕           |             |       |
| Continued P5386       |       |             | 3.15        |       |
| EC on inside          | 4.25  | 4.00        | 3.50        | 3.00  |
| EC on outside         | 4.35  | 4.20        | 4.30        | 3.75  |
|                       | 4.46  | 4.21        |             | 3.16  |
|                       | 4.58  | 4.33        |             | 3.32  |
|                       | 4.69  | 4.44        |             | 3.48  |
| 8+73.47 PC on outside | 4.80  | 4.55        |             |       |
| 8+53 PC on inside     | 4.90  | 4.65        | 4.15        | 3.65  |
| 8+50                  |       |             | 4.21        | 3.40  |
| 8+00                  |       | 5.08        |             | 4.89  |
| 7+50                  |       | 5.96        |             | 5.76  |
| 7+00                  |       | 6.85        |             | 6.63  |
| 6+65                  |       | 7.44        |             |       |
| 6+50                  |       | 7.70        |             | 7.50  |
| 6+39                  |       | 7.89        |             |       |
| 6+32                  |       | 8.01        |             |       |
| 6+00                  |       | 8.57        |             | 9.37  |
| 5+50                  | 9.24  | 9.34        | 9.44        | 9.24  |
| 5+00                  |       | 10.32       |             |       |
| 4+88.38 EC            | 10.97 | 10.92       | 10.52       | 10.24 |
| 4+75                  | 11.32 | 11.27       | 10.87       | 10.42 |
| 4+50                  | 11.67 | 11.63       | 11.23       | 10.77 |
| 4+25                  | 12.02 | 11.98       | 12.53       | 11.12 |
| 4+07.76 PC            | 12.38 | 12.20       | 11.93       | 11.48 |
| 3+73.26 EC            | 12.08 | 12.03       | 12.53       | 12.83 |
| 3+50                  |       |             |             | 12.98 |

|          |       |       |      |      |      |      |       |  |
|----------|-------|-------|------|------|------|------|-------|--|
| 7.21     | 360   | 576   | 750  | 922  | 1032 | 1178 | 1233  |  |
| 9.51     | 13.18 | 11.02 | 9.28 | 7.54 | 6.46 | 5.05 | 4.45  |  |
| 1678 M   | 2.75  | 2.91  | 3.07 | 3.23 | 3.40 | 3.58 | 3.74  |  |
| 853 M E  | 5.78  | 5.67  | 5.46 | 5.30 | 5.13 | 4.95 | 4.78  |  |
| 439      | 2.1   | 2.24  | 2.4  | 2.5  | 2.6  | 2.7  | 2.8   |  |
| 4141 P W | 4.25  | 4.35  | 4.4  | 4.5  | 4.6  | 4.7  | 4.8   |  |
| 876      | 4.58  | 4.18  | 4.07 | 3.95 | 3.84 | 3.73 | 3.62  |  |
| 1290 M   | 3.7   | 3.9   | 3.8  | 3.7  | 3.6  | 3.5  | 3.4   |  |
| 261      | 8.27  | 8.2   | 8.1  | 8.0  | 7.9  | 7.8  | 7.7   |  |
| 10.29 P  | 10.53 | 10.26 | 10.0 | 9.7  | 9.4  | 9.1  | 8.8   |  |
| 541      | 13.7  | 13.5  | 13.2 | 13.0 | 12.7 | 12.4 | 12.1  |  |
| 18.90 M  | 18.4  | 18.2  | 18.0 | 17.8 | 17.6 | 17.4 | 17.2  |  |
| 8.25     | 386   | 316   | 410  |      |      |      |       |  |
|          | 452   | 523   | 608  |      |      |      |       |  |
| 11.5     | 1299  | 1293  | 1297 | 1300 | 1303 | 1306 | 1309  |  |
| 20.6     | 8.21  | 8.24  | 8.28 | 8.30 | 8.33 | 8.36 | 8.39  |  |
| 11.0     | 4.85  | 5.36  | 6.13 | 7.10 | 8.24 | 9.54 | 10.92 |  |
|          | 6.2   | 5.34  | 4.81 | 4.40 | 4.04 | 3.76 | 3.52  |  |
| 17.72    | 1263  | 1282  | 1303 | 1327 |      |      |       |  |
|          | 529   | 689   | 869  | 1071 |      |      |       |  |
| 17.55    | 1202  | 1236  | 1274 | 1316 | 1363 | 1413 | 1466  |  |
|          | 556   | 736   | 939  | 1167 | 1423 | 1703 | 2008  |  |
| 11.36    | 1193  | 1118  | 1043 | 971  | 904  | 842  | 784   |  |
| 6.13     | 550   | 600   | 653  | 711  | 774  | 842  | 915   |  |
| 17.48    |       |       |      |      |      |      |       |  |
| 30.8     |       |       |      |      |      |      |       |  |
| 20.2     |       |       |      |      |      |      |       |  |
| 30.6     |       |       |      |      |      |      |       |  |

0.54%  
- 1.17%







La Jolla ave

Continues on p. 8

San Diego Ave

8+59.08 = SW SD. ave.

32.25

8+50

32.31

7+36.16

32.39

8+25

32.46



La Jolla Crv

|                | S curb | S gutter | S 1/4 | ϕ     | N 1/4 | N gutter | N curb |
|----------------|--------|----------|-------|-------|-------|----------|--------|
| NL Jefferson   |        |          |       |       |       |          |        |
| N curb         |        |          |       |       |       |          |        |
| N 1/4          |        |          |       |       |       |          |        |
| ϕ Jefferson    |        |          |       |       |       |          |        |
| S 1/4          |        |          |       |       |       |          |        |
| S curb         |        |          |       |       |       |          |        |
| Sec G          |        |          |       |       |       |          |        |
| Sec F SL Jeff. |        |          |       |       |       |          |        |
| NL Hortencia   |        |          |       |       |       |          |        |
| N curb         |        |          |       |       |       |          |        |
| N 1/4          |        |          |       |       |       |          |        |
| ϕ              |        |          |       |       |       |          |        |
| S 1/4          |        |          |       |       |       |          |        |
| S curb         |        |          |       |       |       |          |        |
| SL Hortencia   | 65.40  | 64.60    | 65.46 | 65.78 | 65.82 | 65.57    | 66.24  |
| 162 = Sec E    | 65.40  | 64.98    | 65.57 | 66.00 | 66.15 | 66.01    | 66.68  |
| 119.50         | 65.74  | 65.07    | 66.03 | 66.57 | 66.83 | 66.73    | 67.40  |
| 100            | 65.94  | 65.27    | 66.20 | 66.77 | 67.02 | 66.93    | 67.60  |
| 50' N          | 66.33  | 65.66    | 66.62 | 67.22 | 67.50 | 67.44    | 68.11  |
| Sec D          | 66.73  | 66.06    | 67.05 | 67.67 | 67.98 | 67.94    | 68.61  |
| Sec C          | 66.77  | 66.10    | 67.08 | 67.70 | 68.00 | 67.95    | 68.62  |
| 134.63 = Sec B | 66.80  | 66.13    | 67.11 | 67.72 | 68.01 | 67.96    | 68.63  |
| 100            | 67.08  | 66.41    | 67.40 | 68.03 | 68.35 | 68.31    | 68.98  |
| 50' N          | 67.48  | 66.81    | 67.83 | 68.49 | 68.83 | 68.82    | 69.49  |
| Sec A          | 67.88  | 67.21    | 68.25 | 68.94 | 69.31 | 69.33    | 70.00  |
| NL Witherby    | 68.00  | 67.33    | 68.35 | 69.00 | 69.36 | 69.33    | 70.00  |



La Jolla Ave

S curb  
N gutter  
S 1/4  
41  
N 1/4  
N gutter  
N curb

See sketch p 16

|                    |       |       |       |       |       |       |       |
|--------------------|-------|-------|-------|-------|-------|-------|-------|
| 134+14 = 0+00 p.11 | 47.81 | 47.14 | 48.38 | 49.20 | 49.77 | 49.93 | 50.60 |
| 100                | 48.76 | 48.09 | 49.32 | 50.12 | 50.59 | 50.80 | 51.47 |
| 50                 | 50.15 | 49.48 | 50.69 | 51.46 | 51.88 | 52.06 | 52.73 |
| Sec I              | 51.55 | 50.88 | 52.07 | 52.79 | 53.17 | 53.33 | 54.00 |
| NL Trias           | 52.26 | 51.59 | 52.63 | 53.20 | 53.43 | 53.48 | 54.15 |
| N curb             |       |       |       |       |       |       |       |
| N 1/4              |       |       |       |       |       |       |       |
| 4 Trias            |       |       |       |       |       |       |       |
| S 1/4              |       |       |       |       |       |       |       |
| S curb             |       |       |       |       |       |       |       |
| SL Trias           | 53.85 | 53.18 | 54.23 | 54.80 | 55.03 | 55.08 | 55.75 |
| 212 = Sec. H       | 54.00 | 53.33 | 54.52 | 55.24 | 55.62 | 55.80 | 56.47 |
| 150                | 55.81 | 55.14 | 56.30 | 57.03 | 57.42 | 57.57 | 58.24 |
| 100                | 57.28 | 56.61 | 57.74 | 58.47 | 58.86 | 58.99 | 59.66 |
| 50                 | 58.74 | 58.07 | 59.17 | 59.91 | 60.31 | 60.41 | 61.08 |
| SL Jefferson       | 60.20 | 59.53 | 60.61 | 61.35 | 61.76 | 61.83 | 62.50 |











12/21/19  
 largest  
 Middle  
 X-section of Marlin Drive 24' wide  
 from Co. Highway to  
 N.L. Hollywood Dr  
 section of  
 Grading

166.83

|     | 296                   | π<br>16683       | Elev.<br>163.87 | B.M. on<br>Highway |     |      |      |
|-----|-----------------------|------------------|-----------------|--------------------|-----|------|------|
|     |                       |                  |                 |                    | -6  | 12.2 | 54.6 |
|     |                       |                  |                 |                    | W   | 9.3  | 57.5 |
|     |                       | N.L. Co. Highway |                 |                    | +3  | 7.1  | 59.7 |
| W   |                       | 5.3              | 161.5           |                    | C   | 6.6  | 60.2 |
| C   |                       | 5.0              | 61.83           |                    | +7  | 7.0  | 59.8 |
| E   |                       | 4.9              | 61.9            |                    | E   | 10.1 | 56.7 |
|     | 3.84' Ho. on d = 0+00 |                  |                 |                    | +4  | 11.8 | 55.0 |
| E   |                       | 4.9              | 61.9            |                    | +10 | 11.8 | 55.0 |
| C   |                       | 5.1              | 61.7            |                    |     |      |      |
| W   |                       | 5.3              | 61.5            |                    | -10 |      |      |
|     | 0+20                  |                  |                 |                    | E   | 11.5 | 55.3 |
| W   |                       | 5.7              | 61.1            |                    | C   | 12.2 | 54.6 |
| C   |                       | 5.2              | 61.6            |                    | W   | 12.1 | 54.7 |
| E   |                       | 5.3              | 61.5            |                    | +10 | 12.0 | 54.8 |
|     | 0+40                  |                  |                 |                    |     | 12.7 | 54.1 |
|     |                       |                  |                 |                    |     |      |      |
| -10 |                       | 11.4             | 55.4            |                    | -10 | 12.8 | 54.0 |
| -5  |                       | 11.2             | 55.6            |                    | W   | 12.4 | 54.4 |
| E   |                       | 8.2              | 58.6            |                    | C   | 12.0 | 54.8 |
| +4  |                       | 6.4              | 60.4            |                    | E   | 11.8 | 55.0 |
| -2  |                       | 5.9              | 60.9            |                    | +10 | 12.0 | 54.8 |
| +9  |                       | 6.6              | 60.2            |                    |     |      |      |
| W   |                       | 8.6              | 58.2            |                    | -10 | 11.8 | 55.0 |
| +6  |                       | 12.1             | 54.7            |                    | -3  | 11.3 | 55.5 |
| +10 |                       | 12.7             | 54.1            |                    | E   | 9.9  | 56.9 |
|     | 0+54                  |                  |                 |                    | +5  | 7.5  | 58.3 |
| -10 |                       | 12.5             | 54.3            |                    | C   | 6.9  | 59.9 |

0+59

0+66

0+71



|     | 166.83                            |                |      |
|-----|-----------------------------------|----------------|------|
| +9  |                                   | 7.3            | 59.5 |
| W   |                                   | 8.7            | 58.1 |
| +10 |                                   | 12.2           | 54.6 |
|     | 0+79.6                            | = S.L. R.O.W.  |      |
| -5  |                                   | 7.6            | 59.2 |
| W   |                                   | 7.3            | 59.5 |
| C   |                                   | 6.8            | 60.0 |
| E   |                                   | 7.2            | 59.6 |
| +5  |                                   | 7.9            | 58.9 |
|     | R.O.W. + Bridge Opening Left out. |                |      |
|     | 1+40                              |                |      |
| -10 |                                   | 14.2           | 52.6 |
| E   |                                   | 14.5           | 52.3 |
| C   |                                   | 14.4           | 52.4 |
| W   |                                   | 14.9           | 51.9 |
| +10 |                                   | 15.1           | 51.7 |
|     | 1+45.58                           | N.L. of Bridge |      |
| -10 |                                   | 14.5           | 52.3 |
| W   |                                   | 14.4           | 52.4 |
| C   |                                   | 14.3           | 52.5 |
| E   |                                   | 14.2           | 52.6 |
| +10 |                                   | 14.4           | 52.4 |
|     | 1+49                              |                |      |
| -10 |                                   | 13.7           | 53.1 |
| E   |                                   | 13.0           | 53.8 |
| C   |                                   | 10.8           | 56.0 |

|  | 166.83  | Mer/17 24        | 8    |
|--|---------|------------------|------|
|  |         | 10.4             | 56.4 |
|  |         | 12.6             | 54.2 |
|  | 1+54    |                  |      |
|  |         | 12.2             | 54.6 |
|  |         | 11.6             | 55.2 |
|  |         | 9.9              | 56.9 |
|  |         | 7.3              | 59.5 |
|  |         | 7.2              | 59.6 |
|  |         | 7.5              | 59.3 |
|  |         | 9.9              | 56.9 |
|  |         | 11.2             | 55.6 |
|  | 1+79.58 | = break in grade |      |
|  |         | 11.1             | 55.7 |
|  |         | 10.9             | 55.9 |
|  |         | 8.9              | 57.9 |
|  |         | 6.9              | 59.9 |
|  |         | 6.7              | 60.1 |
|  |         | 7.0              | 59.8 |
|  |         | 10.3             | 56.5 |
|  |         | 11.9             | 54.9 |
|  |         | 11.6             | 55.2 |
|  | 2+12    |                  |      |
|  |         | 12.6             | 54.2 |
|  |         | 12.4             | 54.4 |
|  |         | 8.8              | 58.0 |
|  |         | 6.3              | 60.5 |



|     |      |        |      |        |
|-----|------|--------|------|--------|
| C   |      |        | 6.1  | 160.1  |
| +6  |      |        | 6.2  | 60.6   |
| TP  | 9.01 | 169.89 | 5.95 | 160.88 |
| E   |      |        | 12.5 | 56.3   |
| +10 |      |        | 13.2 | 56.6   |
|     |      | 2+17   |      |        |
| -10 |      |        | 13.3 | 56.5   |
| E   |      |        | 12.5 | 57.3   |
| +7  |      |        | 11.8 | 58.0   |
| +9  |      |        | 9.0  | 60.8   |
| C   |      |        | 8.9  | 60.9   |
| +8  |      |        | 9.2  | 60.6   |
| W   |      |        | 12.1 | 57.7   |
| +5  |      |        | 15.3 | 54.5   |
| +10 |      |        | 15.9 | 53.9   |
|     |      | 2+30   |      |        |
| -10 |      |        | 15.8 | 54.0   |
| W   |      |        | 12.0 | 57.8   |
| +4  |      |        | 8.6  | 61.2   |
| +9  |      |        | 8.6  | 61.2   |
| C   |      |        | 10.7 | 59.1   |
| +2  |      |        | 10.8 | 59.0   |
| +4  |      |        | 8.6  | 61.2   |
| +6  |      |        | 8.8  | 61.0   |
| E   |      |        | 13.0 | 56.8   |
| +10 |      |        | 13.8 | 56.0   |

|  |  |  |  |         |                                      |      |
|--|--|--|--|---------|--------------------------------------|------|
|  |  |  |  | 2+68.7  |                                      |      |
|  |  |  |  | -10     | 13.7                                 | 56.1 |
|  |  |  |  | -5      | 13.4                                 | 56.4 |
|  |  |  |  | E       | 10.3                                 | 59.5 |
|  |  |  |  | +5      | 7.2                                  | 62.6 |
|  |  |  |  | +10     | 6.8                                  | 63.0 |
|  |  |  |  | C       | 8.1                                  | 61.7 |
|  |  |  |  | +3      | 7.5                                  | 62.0 |
|  |  |  |  | +4      | 6.6                                  | 63.2 |
|  |  |  |  | +10     | 6.4                                  | 63.4 |
|  |  |  |  | W       | 7.3                                  | 62.5 |
|  |  |  |  | +10     | 10.8                                 | 59.0 |
|  |  |  |  |         |                                      |      |
|  |  |  |  |         | 2+88.7                               |      |
|  |  |  |  | W       | 5.2                                  | 64.6 |
|  |  |  |  | +16 = Q | 5.3                                  | 64.5 |
|  |  |  |  | +10     | 5.2                                  | 64.6 |
|  |  |  |  | +16 = E | 6.5                                  | 63.3 |
|  |  |  |  | +4      | 5.4                                  | 64.4 |
|  |  |  |  |         |                                      |      |
|  |  |  |  |         | 3+08.73 = St. Hollywood Dr = 40 wide |      |
|  |  |  |  | E       | 3.3                                  | 66.5 |
|  |  |  |  | +10     | 3.9                                  | 65.9 |
|  |  |  |  | +20 = C | 3.5                                  | 66.3 |
|  |  |  |  | +10     | 3.4                                  | 66.4 |
|  |  |  |  | +20 = W | 2.8                                  | 67.0 |
|  |  |  |  |         |                                      |      |
|  |  |  |  |         | Q Hollywood                          |      |
|  |  |  |  | W       | 1.9                                  | 67.9 |



169.89

+20=C

2.3 167.5

2.53 167.36

2 Hub  
Merlin x Hub

+20=B

2.3 167.5

H. L. Hollywood Dr.

E

1.4 68.4

+20=C

0.9 68.9

+20=W

0.8 69.0

12/11/19 Gregory X section of Hollywood Dr  
from W.L. of Merlin Dr 24' wide  
To Radio Dr.

30

169.89

W. L. Merlin

N

0.8 169.0

+20=C

1.9 67.9

+20=S

2.8 67.0

40' W.

S

2.7 67.1

HVC

2.1 67.7

HVC

1.7 68.1

1+20

N

1.5 68.3

C

1.7 68.1

S

2.1 67.4

1+90

S

1.8 68.0

C

1.3 68.5

N

1.0 68.8

0+00 u+25 = P.C. see grading plan

N

1.4 68.4

C

1.9 67.9

S

2.1 67.4

 $\frac{1}{2}$  of curve =  $45^\circ = 35.24'$ 

S

3.9 65.9

C

3.2 66.6

N

2.6 67.2

This is not a perfect curve as it does not come  
tangent at the E.C. But it is considered to be so,  
with a  $\Delta$  of  $90^\circ$  for purposes of X section



|          |      |                                 |      |        |
|----------|------|---------------------------------|------|--------|
| TP       | 7.33 | 173.61                          | 3.61 | 166.28 |
|          |      | $\frac{5}{8}$ of Curve = +44.07 |      |        |
| A        |      |                                 | 6.9  | 66.7   |
| C        |      |                                 | 7.5  | 66.1   |
| +9       |      |                                 | 7.9  | 65.7   |
| S        |      |                                 | 9.2  | 64.4   |
| +10      |      |                                 | 13.5 | 60.1   |
|          |      | $\frac{3}{4}$ of Curve = +53.01 |      |        |
| -10      |      |                                 | 14.9 | 58.7   |
| -6       |      |                                 | 14.3 | 59.3   |
| S. or W. |      |                                 | 11.1 | 62.5   |
| +7       |      |                                 | 7.8  | 65.8   |
| C        |      |                                 | 11.5 | 62.1   |
| +7       |      |                                 | 10.9 | 62.7   |
| N. or E  |      |                                 | 7.8  | 65.8   |
|          |      | $\frac{7}{8}$ of Curve = +61.84 |      |        |
| E        |      |                                 | 8.7  | 64.9   |
| +8       |      |                                 | 9.7  | 63.9   |
| +10      |      |                                 | 7.1  | 66.5   |
| C        |      |                                 | 7.3  | 66.3   |
| +3       |      |                                 | 7.7  | 65.9   |
| W        |      |                                 | 13.3 | 60.3   |
| +10      |      |                                 | 14.4 | 59.2   |
|          |      | End of Curve = +70.68           |      |        |
| -10      |      |                                 | 14.6 | 59.0   |
| W        |      |                                 | 13.6 | 60.0   |

C

7.1

66.5

E

7.0

66.6



12/11/19 Gregory  
Miller  
show

Cross section of  
RADIO DRIVE  
TYRANT ST 24' wide

from N. End of Curve at  
Hollywood Dr to  
60th St

173.61

0+00 = E.C. at Hollywood Dr.

These sections for 200' taken pt 43 to E.L. of Tyrant

|       |      |       |
|-------|------|-------|
| -10   | 146  | 159.0 |
| W     | 13.6 | 60.0  |
| C     | 7.1  | 66.5  |
| E     | 7.0  | 66.6  |
| 0+50  |      |       |
| E     | 5.4  | 68.2  |
| C     | 6.2  | 67.4  |
| +6    | 9.8  | 63.8  |
| W     | 10.9 | 62.7  |
| +10   | 126  | 610   |
| 0+75  |      |       |
| -10   | 9.4  | 64.2  |
| W     | 8.3  | 65.3  |
| E + 9 | 7.1  | 66.5  |
| C     | 6.1  | 67.5  |
| +6    | 4.1  | 69.5  |
| E     | 4.0  | 69.6  |
| 1+00  |      |       |
| E     | 1.9  | 71.7  |
| +4    | 2.2  | 70.4  |
| +9    | 3.7  | 69.9  |
| C     | 4.0  | 69.6  |

173.61

|      |     |        |
|------|-----|--------|
| W    | 5.6 | 168.0  |
| +10  | 7.1 | 66.5   |
| TP   | 922 | 181.32 |
| 1+50 |     | 172.10 |
| W    | 7.5 | 73.8   |
| C    | 6.0 | 75.3   |
| E    | 4.4 | 76.7   |
| 1+75 |     |        |
| E    | 2.6 | 78.7   |
| C    | 4.1 | 77.2   |
| W    | 6.2 | 75.1   |
| 2+00 |     |        |
| W    | 6.0 | 75.3   |
| C    | 3.8 | 77.5   |
| E    | 1.7 | 79.6   |
| 2+25 |     |        |
| E    | 2.1 | 79.2   |
| C    | 4.1 | 77.2   |
| W    | 6.6 | 74.7   |
| 2+40 |     |        |
| W    | 9.1 | 72.2   |
| C    | 6.4 | 74.9   |
| E    | 5.0 | 76.3   |
| TP   | 387 | 172.41 |
| 2+65 |     | 168.54 |
| -18  | 2.6 | 169.8  |



172.41

|     |      |       |
|-----|------|-------|
| -6  | 6.4  | 166.0 |
| E   | 6.9  | 65.5  |
| C   | 8.4  | 64.0  |
| W   | 9.3  | 63.1  |
| +18 | 10.6 | 61.8  |
| +30 | 10.2 | 61.2  |
|     | 2+80 |       |
| -30 | 8.8  | 63.6  |
| -10 | 10.1 | 62.3  |
| W   | 10.4 | 62.0  |
| C   | 10.4 | 62.0  |
| E   | 10.2 | 62.2  |
| +18 | 8.4  | 64.0  |
| +24 | 7.9  | 64.3  |
|     | 2+85 |       |
| -27 | 9.7  | 62.7  |
| E   | 10.2 | 62.2  |
| C   | 10.2 | 62.2  |
| W   | 8.9  | 63.5  |
| +28 | 6.6  | 65.8  |
|     | 2+95 |       |
| -18 | 4.8  | 67.6  |
| W   | 6.1  | 66.3  |
| C   | 7.0  | 65.4  |
| E   | 8.6  | 63.8  |
| +15 | 10.1 | 62.3  |
| +30 | 10.0 | 62.4  |

172.41

TYRANT rd 23

|      |                    |          |
|------|--------------------|----------|
|      | 3+10               |          |
| -20  | 5.6                | 66.8     |
| E    | 3.3                | 69.1     |
| C    | 2.3                | 70.1     |
| W    | 1.5                | 70.9     |
| +15  | 0.5                | 71.6     |
| T.P. | 12.75              | 184.22   |
|      | 0.94               | 171.47   |
|      | 3+40               |          |
| -10  | 7.4                | 176.8    |
| W    | 8.1                | 76.1     |
| C    | 9.6                | 74.6     |
| E    | 10.9               | 73.3     |
| +18  | 13.5               | 70.7     |
|      | 3+75 = 5L. KENWOOD | 40' wide |
| -18  | 12.2               | 72.0     |
| E    | 8.5                | 75.7     |
| C    | 6.1                | 78.1     |
| W    | 3.9                | 80.3     |
|      | 1.54               | hub SW   |
|      | L Kenwood          |          |
| W    | 2.3                | 81.9     |
| C    | 5.3                | 78.9     |
| E    | 8.4                | 75.8     |
| +10  | 10.9               | 73.3     |
|      | N.L. KENWOOD       |          |
| -18  | 14.8               | 69.4     |



184.22

|      |      |        |       |                  |
|------|------|--------|-------|------------------|
| -10  |      |        | 11.4  | 72.8             |
| E    |      |        | 8.9   | 75.3             |
| C    |      |        | 6.0   | 78.2             |
| W    |      |        | 2.5   | 81.7             |
| -10  |      |        | 2.4   |                  |
| W    |      |        | 5.6   | 78.6             |
| C    |      |        | 9.0   | 73.2             |
| E    |      |        | 13.1  | 71.1             |
| T.P. | 8.05 | 179.44 | 12.83 | 171.39           |
| +5   |      |        | 9.7   | 69.7             |
| +25  |      |        | 11.8  | 67.6             |
|      |      |        | 44.11 | No. = P.C. = 0.0 |
| -28  |      |        | 11.4  | 68.0             |
| -24  |      |        | 15.7  | 63.7             |
| -18  |      |        | 12.2  | 67.2             |
| E    |      |        | 10.0  | 69.4             |
| C    |      |        | 11.3  | 72.1             |
| W    |      |        | 3.6   | 76.8             |
| +11  |      |        | 0.0   | 79.4             |
|      |      |        | 0+20  |                  |
| -18  |      |        | 1.0   | 78.4             |
| W    |      |        | 7.5   | 71.9             |
| +6   |      |        | 9.5   | 69.9             |
| C    |      |        | 9.8   | 69.6             |
| E    |      |        | 11.2  | 68.2             |
| +7   |      |        | 15.3  | 64.1             |
| +20  |      |        | 9.1   | 70.3             |

179.4

TYRANT 24' 24

|     |  |  |      |       |
|-----|--|--|------|-------|
|     |  |  | 0+23 |       |
| -20 |  |  | 8.8  | 170.6 |
| E   |  |  | 14.5 | 64.6  |
| +2  |  |  | 12.7 | 66.7  |
| C   |  |  | 10.2 | 69.2  |
| +9  |  |  | 9.5  | 69.9  |
| W   |  |  | 8.2  | 71.2  |
| +18 |  |  | 2.4  | 67.0  |
|     |  |  | 0+30 |       |
| -18 |  |  | 5.7  | 73.7  |
| W   |  |  | 10.8 | 68.6  |
| C   |  |  | 15.1 | 64.3  |
| E   |  |  | 12.2 | 67.2  |
| +18 |  |  | 7.2  | 72.2  |
|     |  |  | 0+36 |       |
| -18 |  |  | 4.8  | 74.6  |
| -8  |  |  | 8.9  | 70.5  |
| E   |  |  | 9.5  | 69.9  |
| C   |  |  | 11.4 | 68.0  |
| +5  |  |  | 14.3 | 65.1  |
| W   |  |  | 14.4 | 65.0  |
| +3  |  |  | 11.2 | 68.2  |
| +20 |  |  | 8.4  | 71.0  |
|     |  |  | 0+45 |       |
| -30 |  |  | 12.2 | 76.2  |
| -25 |  |  | 13.9 | 65.5  |



|      |      |        |      |        |     |
|------|------|--------|------|--------|-----|
|      |      | 179.44 |      |        |     |
| -16  |      |        | 11.6 | 167.8  |     |
| W    |      |        | 10.3 | 69.1   |     |
| C    |      |        | 9.5  | 69.9   |     |
| E    |      |        | 8.2  | 61.2   |     |
| +18  |      |        | 3.3  | 76.1   |     |
|      |      | 0+70   |      |        |     |
| -10  |      |        | 3.2  | 76.2   |     |
| E    |      |        | 3.7  | 75.7   |     |
| C    |      |        | 5.2  | 74.2   |     |
| W    |      |        | 6.4  | 73.0   |     |
| +20  |      |        | 8.1  | 71.3   |     |
|      |      | 1+00   |      |        |     |
| -20  |      |        | 6.0  | 73.4   |     |
| W    |      |        | 3.1  | 76.3   |     |
| C    |      |        | 0.6  | 78.8   |     |
| T.P. | 7.46 | 186.41 | 0.49 | 178.95 | per |
| E    |      |        | 5.2  | 81.2   |     |
| +5   |      |        | 4.4  | 82.0   |     |
|      |      | 1+25   |      |        |     |
| E    |      |        | 2.2  | 84.0   |     |
| C    |      |        | 5.1  | 81.3   |     |
| W    |      |        | 7.8  | 78.6   |     |
| +18  |      |        | 12.6 | 73.8   |     |
|      |      | 1+45   |      |        |     |
| -30  |      |        | 15.1 | 71.3   |     |
| -23  |      |        | 18.7 | 67.7   |     |

|  |  |  |  |      |        |
|--|--|--|--|------|--------|
|  |  |  |  |      |        |
|  |  |  |  |      | 15.5   |
|  |  |  |  |      | 8.9    |
|  |  |  |  |      | 5.5    |
|  |  |  |  |      | 1.9    |
|  |  |  |  | 1+75 |        |
|  |  |  |  |      | 1.8    |
|  |  |  |  |      | 5.1    |
|  |  |  |  |      | 8.8    |
|  |  |  |  |      | 12.9   |
|  |  |  |  |      | 13.3   |
|  |  |  |  |      | 14.5   |
|  |  |  |  |      | 18.0   |
|  |  |  |  |      | 13.9   |
|  |  |  |  |      | 72.5   |
|  |  |  |  | 2+00 |        |
|  |  |  |  |      | 11.2   |
|  |  |  |  |      | 14.8   |
|  |  |  |  |      | 16.9   |
|  |  |  |  |      | 15.3   |
|  |  |  |  |      | 13.3   |
|  |  |  |  |      | 12.1   |
|  |  |  |  |      | 8.3    |
|  |  |  |  |      | 2.8    |
|  |  |  |  |      | 83.6   |
|  |  |  |  | 8.46 | 187.41 |
|  |  |  |  |      | 7.1.6  |
|  |  |  |  |      | 171.95 |
|  |  |  |  | 2+10 |        |
|  |  |  |  |      | 5.9    |
|  |  |  |  |      | 181.5  |
|  |  |  |  |      | 10.2   |
|  |  |  |  |      | 77.2   |

15.5  
3  
12.7

186.41

TYRANT 24 25



|     |                       |      |
|-----|-----------------------|------|
| C   | 13.8                  | 73.6 |
| +7  | 15.7                  | 71.7 |
| W   | 17.7                  | 69.7 |
| +4  | 15.6                  | 71.8 |
| +16 | 12.6                  | 75.0 |
| +25 | 9.2                   | 78.2 |
|     | 2+25                  |      |
| -25 | 8.4                   | 79.0 |
| W   | 14.7                  | 72.7 |
| +7  | 18.2                  | 69.2 |
| C   | 14.7                  | 72.7 |
| E   | 10.6                  | 76.8 |
| +13 | 5.6                   | 81.8 |
|     | 2+35                  |      |
| -13 | 5.4                   | 82.0 |
| E   | 11.6                  | 75.8 |
| C   | 17.8                  | 69.6 |
| +5  | 14.6                  | 72.8 |
| W   | 13.7                  | 73.7 |
| +10 | 9.9                   | 77.5 |
| +25 | 7.6                   | 79.8 |
|     | 2+48.95 = E.C. = 0+00 |      |
| -25 | 5.4                   | 82.0 |
| -10 | 8.2                   | 79.2 |
| W   | 11.6                  | 75.8 |
| C   | 14.1                  | 73.3 |

|     |      |                      |
|-----|------|----------------------|
| +6  | 17.0 | 70.4                 |
| E   | 13.9 | 73.5                 |
| +8  | 10.3 | 77.1                 |
| +18 | 4.26 | 83.2 <i>Hub on E</i> |
|     | 0+10 |                      |
| -18 | 5.9  | 81.5                 |
| -5  | 13.3 | 74.1                 |
| E   | 16.9 | 70.5                 |
| +5  | 14.3 | 73.1                 |
| C   | 13.3 | 74.1                 |
| W   | 9.9  | 77.5                 |
| +10 | 7.0  | 80.4                 |
|     | 0+20 |                      |
| -10 | 5.7  | 81.7                 |
| W   | 8.6  | 78.8                 |
| C   | 12.3 | 75.1                 |
| E   | 14.4 | 73.0                 |
| +4  | 16.5 | 70.6                 |
| +10 | 12.6 | 74.8                 |
| +20 | 5.9  | 81.5                 |
|     | 0+40 |                      |
| -25 | 8.7  | 78.7                 |
| -15 | 16.3 | 71.1                 |
| -6  | 13.5 | 73.9                 |
| E   | 12.4 | 75.6                 |
| C   | 10.4 | 77.0                 |



187.41

|      |      |      |
|------|------|------|
| W    | 7.4  | 80.0 |
| +10  | 5.0  | 82.4 |
|      | 0+60 |      |
| -15  | 5.9  | 81.5 |
| W    | 9.1  | 78.3 |
| C    | 10.8 | 76.6 |
| E    | 12.2 | 75.2 |
| +10  | 13.7 | 73.7 |
| +18  | 14.9 | 74.5 |
| +25  | 16.3 | 71.1 |
| +30  | 11.8 | 75.6 |
|      | 0+65 |      |
| -30  | 13.2 | 74.1 |
| E-25 | 16.2 | 71.2 |
| -18  | 12.8 | 74.6 |
| E    | 13.5 | 73.9 |
| C    | 12.5 | 74.9 |
| W    | 10.0 | 77.4 |
| +20  | 5.2  | 82.1 |
|      | 0+75 |      |
| -20  | 7.5  | 79.9 |
| W    | 11.8 | 75.6 |
| C    | 11.7 | 75.7 |
| E    | 11.4 | 76.0 |
| +22  | 12.4 | 75.0 |

187.4

TYRANT 24.27

187.4

|  |      |      |
|--|------|------|
|  | 0+95 |      |
|  | -25  | 75.8 |
|  | E    | 78.9 |
|  | C    | 80.3 |
|  | W    | 80.6 |
|  | +20  | 80.6 |
|  | 1+25 |      |
|  | -10  | 85.9 |
|  | W    | 84.9 |
|  | C    | 82.8 |
|  | E    | 79.9 |
|  | +25  | 76.8 |
|  | 1+30 |      |
|  | -25  | 76.7 |
|  | -8   | 78.2 |
|  | -5   | 76.2 |
|  | E    | 76.7 |
|  | C    | 79.8 |
|  | W    | 82.3 |
|  | +10  | 85.3 |
|  | 1+33 |      |
|  | -15  | 85.4 |
|  | W    | 81.3 |
|  | C    | 78.0 |
|  | E    | 76.1 |
|  | +9   | 75.8 |



187.4/

|     |      |      |      |
|-----|------|------|------|
| +10 |      | 9.9  | 77.5 |
| +25 |      | 10.9 | 76.5 |
|     | 1+38 |      |      |
| -30 |      | 12.0 | 75.4 |
| -20 |      | 11.5 | 75.9 |
| E   |      | 12.0 | 75.4 |
| C   |      | 10.5 | 76.9 |
| W   |      | 8.6  | 78.8 |
| +15 |      | 3.5  | 83.9 |
|     | 1+49 |      |      |
| -25 |      | 2.2  | 85.2 |
| -10 |      | 8.2  | 79.2 |
| W   |      | 9.6  | 77.8 |
| C   |      | 11.8 | 75.6 |
| E   |      | 10.2 | 77.2 |
| +30 |      | 12.2 | 75.2 |
|     | 1+75 |      |      |
| -20 |      | 6.3  | 81.1 |
| E   |      | 7.0  | 80.4 |
| C   |      | 7.3  | 80.1 |
| +6  |      | 8.4  | 79.0 |
| W   |      | 11.2 | 76.2 |
| +10 |      | 9.4  | 78.0 |
| +25 |      | 7.6  | 79.8 |
|     | 2+00 |      |      |
| -30 |      | 7.6  | 79.8 |

187.4 TYRANT 24/28

|      |                               |             |      |
|------|-------------------------------|-------------|------|
| -13  |                               | 10.9        | 76.5 |
| W    |                               | 6.2         | 81.2 |
| C    |                               | 4.2         | 83.2 |
| E    |                               | 2.8         | 84.6 |
| +10  |                               | 1.6         | 85.8 |
|      | 2+25                          |             |      |
| -10  |                               | +1.3        | 86.1 |
| E    |                               | 0.0         | 87.4 |
| C    |                               | 1.5         | 85.9 |
| W    |                               | 3.8         | 84.1 |
| +30  |                               | 2.3         | 79.1 |
|      | 2+62.8m = P.C. of 400' Radius |             |      |
| -30  |                               | 6.2         | 81.2 |
| -15  |                               | 4.2         | 83.2 |
| W    |                               | 0.6         | 86.8 |
| T.P. | 1220 199.28                   | 0.33 189.08 |      |
| C    |                               | 9.7         | 89.5 |
| E    |                               | 7.2         | 92.0 |
| +10  |                               | 5.8         | 93.4 |
|      | 2+86.09                       |             |      |
| -10  |                               | 4.8         | 94.4 |
| E    |                               | 6.3         | 92.9 |
| C    |                               | 8.3         | 90.9 |
| W    |                               | 10.8        | 88.4 |
| +15  |                               | 15.0        | 84.2 |
| +30  |                               | 17.5        | 81.7 |



199.28

3+29.36

|      |      |      |
|------|------|------|
| - 30 | 16.5 | 82.7 |
| W    | 10.2 | 89.0 |
| C    | 7.5  | 91.7 |
| E    | 5.2  | 94.0 |
| +15  | 2.8  | 96.4 |

3+32.63 = E.C. = 0+00

|     |      |      |
|-----|------|------|
| -15 | 1.4  | 97.8 |
| E   | 3.9  | 95.3 |
| C   | 6.1  | 93.1 |
| W   | 8.2  | 91.0 |
| +30 | 15.9 | 83.3 |

0+25

|     |      |      |
|-----|------|------|
| -30 | 14.5 | 84.7 |
| -10 | 8.7  | 90.5 |
| W   | 6.8  | 92.4 |
| C   | 4.7  | 94.5 |
| E   | 2.6  | 96.6 |
| +10 | 0.5  | 98.7 |

0+56.04 = SL Brooklyn on W

|   |       |      |
|---|-------|------|
| E | + 1.3 | 97.9 |
| C | 1.7   | 97.5 |
| W | 3.9   | 95.3 |

0+67.54 = SL Brooklyn on E

|      |       |        |
|------|-------|--------|
| W    | 2.0   | 96.2   |
| T.P. | 10.43 | 205.26 |
|      | 4.45  | 194.83 |

TYRANT 24 29

205.2

7.0 198.2

4.1 201.1

0+80

4.0 201.2

6.2 199.0

8.5 196.7

1+00.39 = NL Brooklyn on W

9.3 195.9

6.6 198.6

3.8 201.4

1+11.89 = NL Brooklyn on E

3.8 201.4

6.5 198.7

9.7 195.5

1+25

10.1 195.1

6.5 198.7

3.6 201.6

1+50

4.1 201.1

7.0 198.2

9.3 195.9

1+75

14.8 190.4

10.2 195.0

6.7 198.5

4.7 200.5



20526

1+93

|   |      |       |
|---|------|-------|
| E | 4.2  | 201.0 |
| C | 6.6  | 198.6 |
| W | 10.3 | 194.9 |

2+00

|     |      |       |
|-----|------|-------|
| -25 | 20.0 | 185.2 |
| -15 | 22.6 | 182.6 |
| -7  | 20.6 | 184.6 |
| -5  | 15.7 | 189.5 |
| W   | 13.5 | 191.7 |
| C   | 6.9  | 198.3 |
| E   | 3.8  | 201.4 |

2+10

|     |      |       |
|-----|------|-------|
| E   | 4.0  | 201.2 |
| C   | 10.7 | 194.5 |
| W   | 19.0 | 186.2 |
| +9  | 23.1 | 182.1 |
| +17 | 20.5 | 184.7 |
| +25 | 20.1 | 185.1 |

2+25

|     |      |       |
|-----|------|-------|
| -25 | 19.7 | 185.5 |
| -20 | 20.0 | 185.2 |
| -9  | 22.5 | 182.7 |
| W   | 19.0 | 186.2 |
| C   | 12.4 | 192.8 |
| E   | 4.4  | 200.8 |

13 TYRANT 24 30

2052

2+50

|     |      |       |
|-----|------|-------|
| E   | 3.2  | 202.0 |
| C   | 9.0  | 196.2 |
| W   | 16.8 | 188.4 |
| +5  | 19.0 | 186.2 |
| +20 | 21.8 | 183.4 |

2+75

|     |      |       |
|-----|------|-------|
| -20 | 19.1 | 186.1 |
| -10 | 17.0 | 188.2 |
| W   | 12.1 | 193.1 |
| C   | 5.6  | 199.6 |
| E   | 2.6  | 202.6 |

3+00

|     |      |       |
|-----|------|-------|
| E   | 1.5  | 203.7 |
| C   | 3.8  | 201.4 |
| W   | 6.4  | 199.0 |
| +10 | 10.8 | 194.4 |

3+25

|     |     |       |
|-----|-----|-------|
| -10 | 7.3 | 197.9 |
| W   | 4.5 | 200.7 |
| C   | 2.6 | 202.6 |
| E   | 0.3 | 204.9 |

3+52.08 = P.C.

|    |      |                |
|----|------|----------------|
| E  | 0.51 | 204.75 on Aug. |
| C  | 2.5  | 202.7          |
| W  | 4.6  | 200.6          |
| +5 | 5.5  | 199.7          |

Continued in  
F.B. 1029, p 7



Gunn St. Grades

W.L. Ray. 346.25 346.      345.5      345

50' W 346.0 345.75

100' W 345.75 345.5

150' W 345.5 345.25

EL 30<sup>th</sup> 345.      344.5      344

343.93 SW 30<sup>th</sup> Gunn  
 $\begin{matrix} 6.21 \\ 350.24 \end{matrix}$

Final Stake 5/18/00  
 Gregory  
 Moore  
 Miller  
 Shaw

$\begin{matrix} 345.75 \\ 4.72 \\ 341.03 \end{matrix}$      $\begin{matrix} 345.75 \\ 4.72 \\ 341.03 \end{matrix}$      $\begin{matrix} 346 \\ 4.25 \\ 341.75 \end{matrix}$      $\begin{matrix} 346.25 \\ 3.97 \\ 342.28 \end{matrix}$















|     |        |        |        |
|-----|--------|--------|--------|
| 500 | 283.13 |        | 283.13 |
| 479 | 284.75 |        | 284.75 |
| 463 | 284.94 | 284.69 | 284.94 |
| 450 | 285.10 |        | 285.10 |

|     |        |        |        |
|-----|--------|--------|--------|
| 400 | 287.70 |        | 287.70 |
|     | 287.91 | 287.46 | 287.91 |

|     |        |        |        |
|-----|--------|--------|--------|
| 375 | 288.83 |        | 288.83 |
|     | 289.06 | 288.61 | 289.06 |

|     |        |        |        |
|-----|--------|--------|--------|
| 350 | 289.62 |        | 289.62 |
|     | 289.68 | 289.47 | 289.68 |

|     |        |        |        |
|-----|--------|--------|--------|
| 326 | 290.05 |        | 290.05 |
|     | 290.23 | 289.91 | 290.23 |

|     |       |        |       |
|-----|-------|--------|-------|
| 300 | 290.2 | 290.06 | 290.2 |
|-----|-------|--------|-------|

11.0 289.6  
 289.21  
 289.24  
 289.600

0736 N 11 W  
 289.6  
 5.2  
 294.8  
 47.2  
 290.07  
 1.54  
 291.61

289.67  
 5.13  
 294.80  
 0.50 on E  
 289.9  
 5.07  
 294.97

100 150 200 250 300  
 1.0 1.0 1.0 1.0  
 290.8 290.9 290.0 290.10 290.2  
 4.99 4.89 4.79 4.69 4.59  
 0.0 0.0 0.0 1.0 1.89  
 290.2 290.2 290.6 290.6 289.81 285.52  
 1.21 1.38 1.73 2.55 3.70 6.09  
 284.95 285.10 289.70 288.83  
 6.86 6.51 3.91 2.18

289.6  
 4.56  
 294.16

289.27  
 4.91  
 294.18

289.6  
 4.86  
 294.46

290.05  
 4.38  
 294.43

289.7  
 4.73  
 294.43

289.5  
 4.63  
 294.13

290.05  
 4.37  
 294.42

289.1  
 4.54  
 293.66

289.62  
 4.83  
 294.45

289.47  
 5.03  
 294.50

288.83  
 5.62  
 294.45

288.61  
 1.9  
 290.53

288.43  
 2.10  
 290.53

289.70  
 2.83  
 292.53

284.69  
 5.84  
 290.53

284.50  
 6.03  
 290.53

284.2  
 5.59  
 289.94

285.10  
 5.43  
 290.53











27703 BP SW Lewis & Lark

27803  $\frac{6790}{10.13}$   $\frac{6710}{1093}$

MONTECITO

WAY

27703  $\frac{E\ gtr}{323}$   $\frac{W\ gtr}{327}$   $\frac{6799}{11.72}$   $\frac{6707}{11.64}$   $\frac{6798}{1193}$   $\frac{6745}{1194}$   $\frac{6735}{1236}$   
 $\frac{268}{277.71}$   $\frac{27640}{27644}$

268.18  
 Grade 67.5 67.90 67.94 68.07 67.95 67.95 67.35 67.10  
 267.57 Grade 67.5

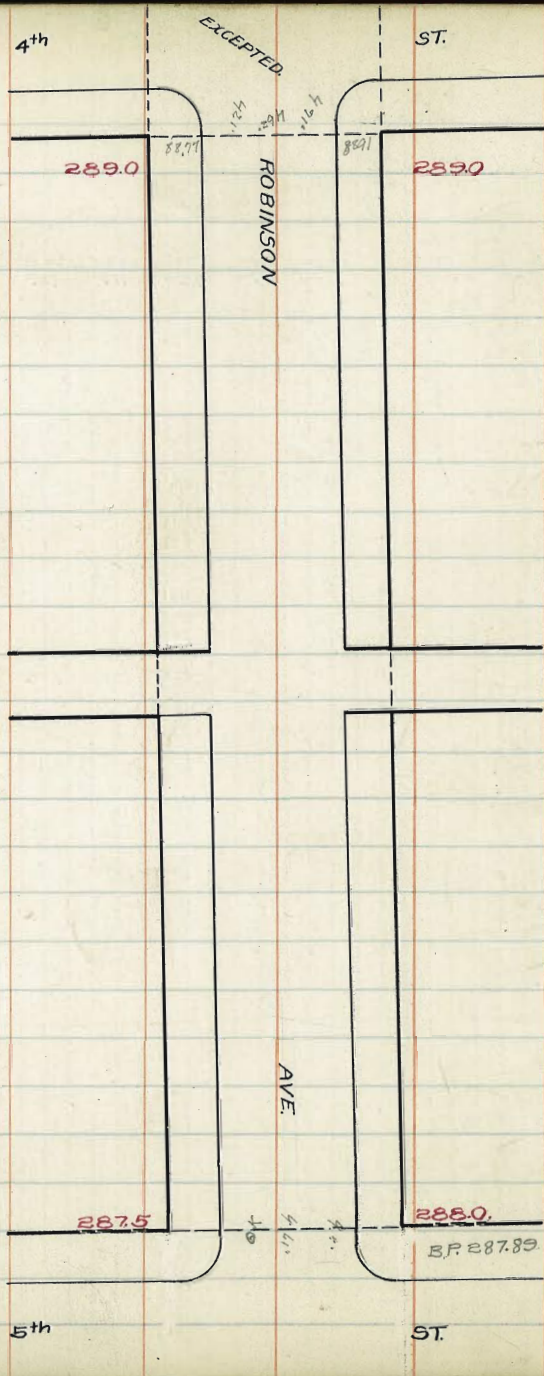
277.0 2645 2665 4800 2657.99 2675.77 2687.09 2625.03 2645  
 277.0 277.0

LEWIS

ST

LARK





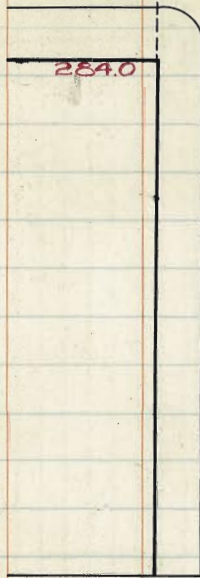
288.87  
 375  
 292.62



3rd

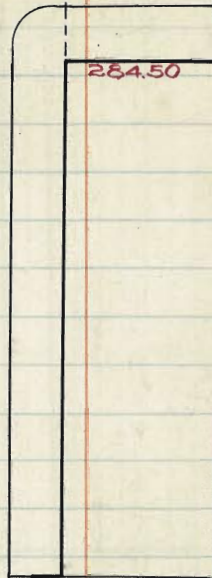
ST.

280.5



284.0

ROBINSON



284.50

286.0

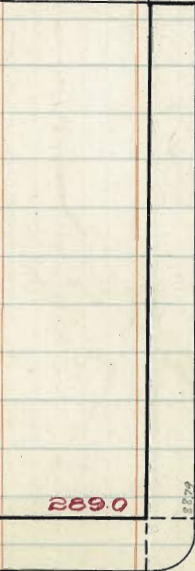
$$\begin{array}{r} 288.87 \\ 365 \\ \hline 292.52 \end{array}$$

$$\frac{266}{886}$$

$$\frac{834}{913}$$

$$\frac{275}{877}$$

$$\frac{373}{879}$$



289.0

AVE.

big to road  
 highest site  
 40411.1183  
 40411.1183  
 40411.1183  
 Excepted.

4th



289.0

S.F. 288.87

ST.







1st

ST.

276.0

276.0

ROBINSON

AVE.

283.50

284.0

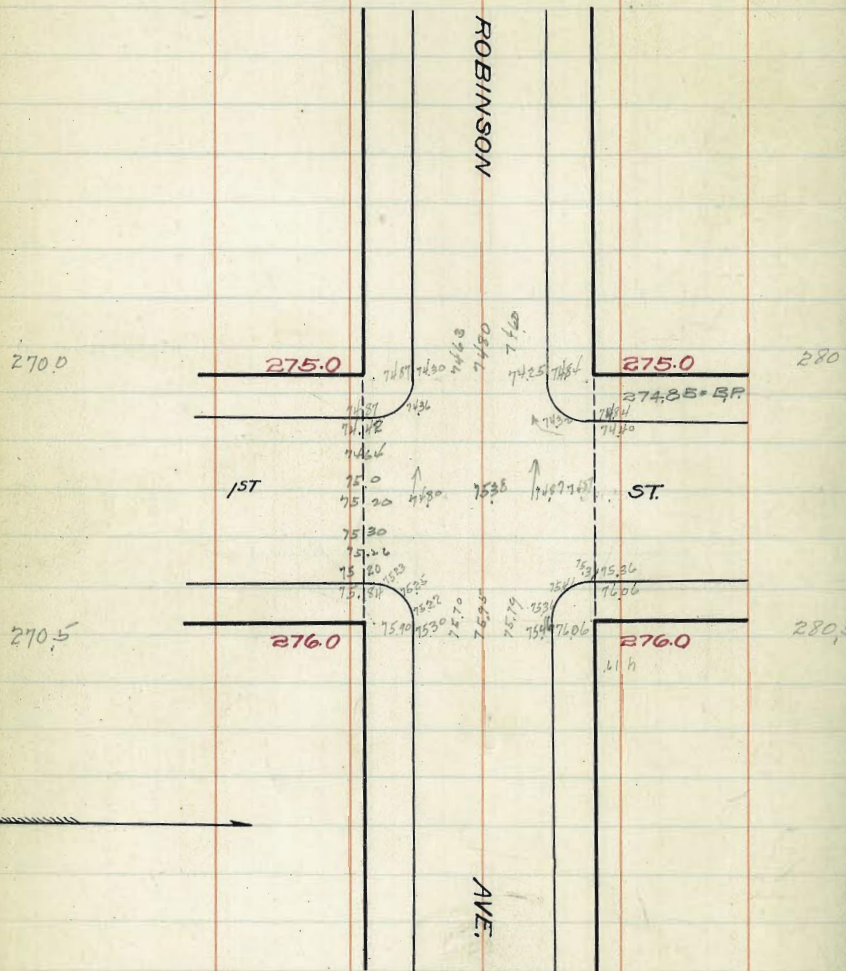
BP 283.84

3rd

ST.

0.00





$$\begin{array}{r}
 274.85 \\
 - 0.14 \\
 \hline
 274.71
 \end{array}$$

$$\begin{array}{r}
 274.85 \\
 - 0.14 \\
 \hline
 274.71
 \end{array}$$

$$\begin{array}{r}
 274.85 \\
 - 0.14 \\
 \hline
 274.71
 \end{array}$$

$$\begin{array}{r}
 274.85 \\
 - 0.14 \\
 \hline
 274.71
 \end{array}$$

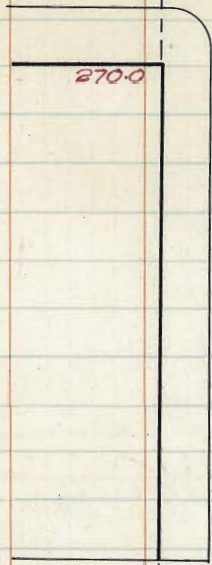
$$\begin{array}{r}
 274.85 \\
 - 0.14 \\
 \hline
 274.71
 \end{array}$$

$$\begin{array}{r}
 274.85 \\
 - 0.14 \\
 \hline
 274.71
 \end{array}$$



FRONT.

ST.



ROBINSON

AVE.



1ST



275.0

B.P. 269.97 B.P.

B.P. 274.05

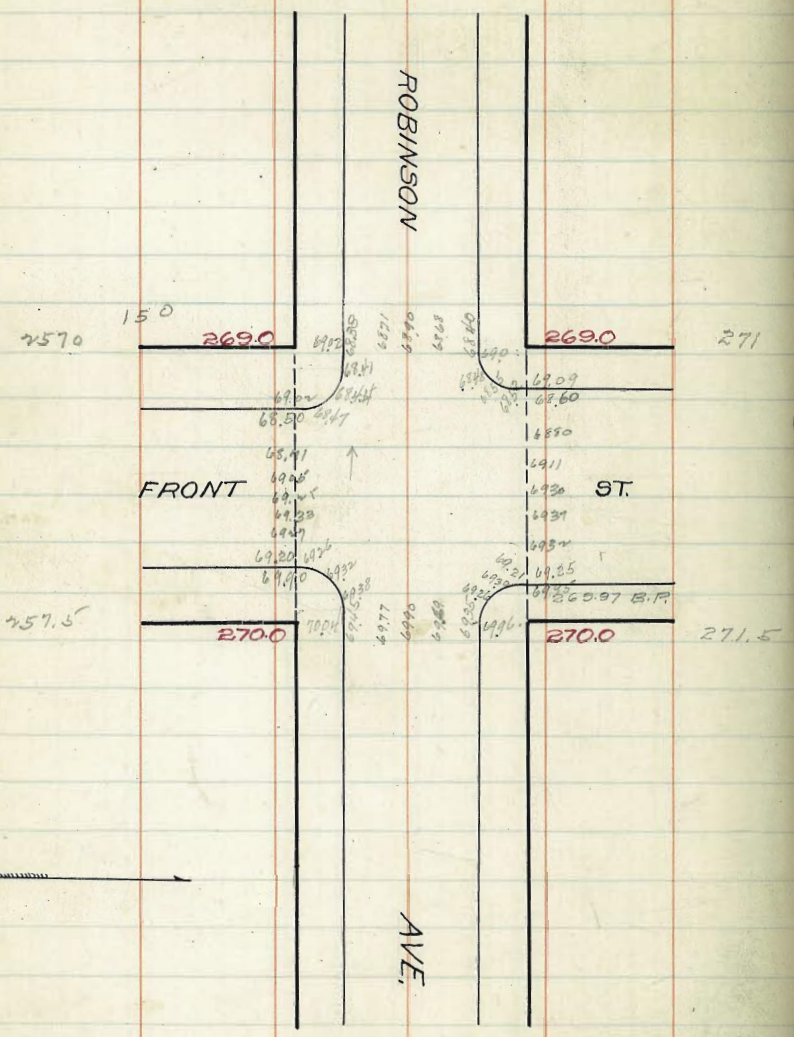
ST.



~~269.97~~  
~~4.35~~  
~~274.35~~

|      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|
| 6868 | 6890 | 6871 | 6901 | 6925 | 6932 | 6947 |
| 564  | 545  | 564  | 530  | 510  | 507  | 508  |
| 6877 | 6892 | 6932 | 6927 | 6920 | 6911 | 6850 |
| 568  | 445  | 503  | 498  | 500  | 544  | 558  |

~~601~~  
~~507~~  
~~38~~

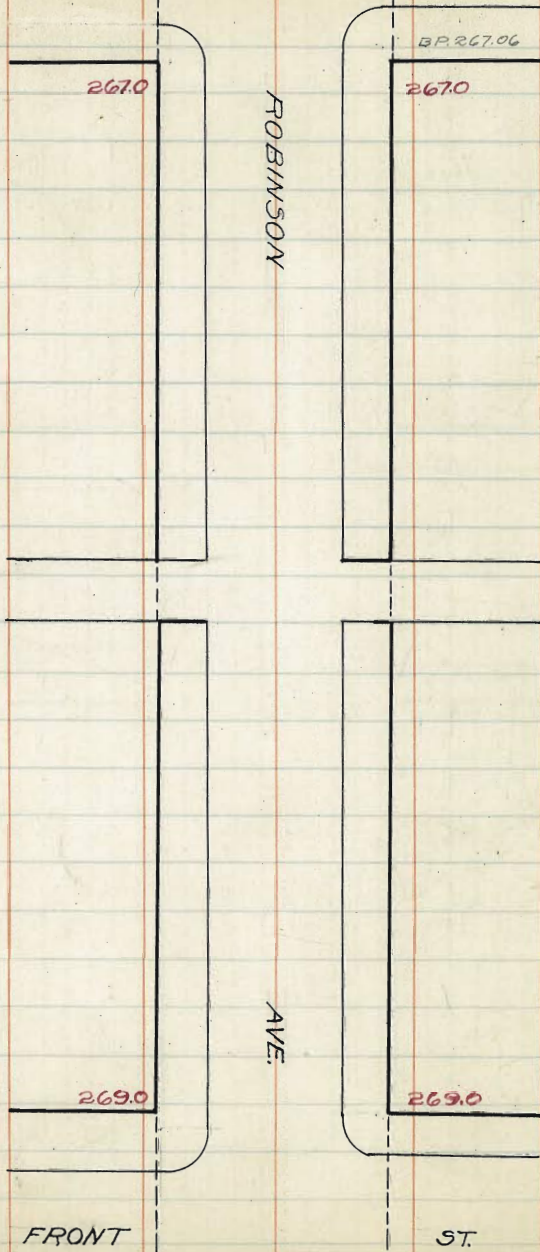




ALBATROSS

ST.

#6



267.0

ROBINSON

BP 267.06

267.0

269.0

FRONT

AVE.

269.0

ST.



$$\begin{array}{r} 26706 \\ 4.12 \\ \hline 27118 \end{array}$$

$$\begin{array}{r} 420 \\ 488 \\ \hline 908 \end{array}$$

$$\begin{array}{r} 507 \\ 661 \\ \hline 1168 \end{array}$$

$$\begin{array}{r} 525 \\ 659 \\ \hline 1184 \end{array}$$

$$\begin{array}{r} 521 \\ 894 \\ \hline 1415 \end{array}$$

$$\begin{array}{r} 521 \\ 651 \\ \hline 1172 \end{array}$$

$$\begin{array}{r} 6515 \\ 623 \\ \hline 588 \end{array}$$

$$\begin{array}{r} 6560 \\ 558 \\ \hline 593 \end{array}$$

$$\begin{array}{r} 588 \\ 593 \\ \hline 1181 \end{array}$$

$$\begin{array}{r} 588 \\ 543 \\ \hline 1131 \end{array}$$

$$\begin{array}{r} 6590 \\ 528 \\ \hline 6118 \end{array}$$

$$\begin{array}{r} 6660 \\ 485 \\ \hline 7145 \end{array}$$

$$\begin{array}{r} 6645 \\ 473 \\ \hline 7118 \end{array}$$

$$\begin{array}{r} 6620 \\ 488 \\ \hline 7108 \end{array}$$

$$\begin{array}{r} 6645 \\ 473 \\ \hline 7118 \end{array}$$

$$\begin{array}{r} 26706 \\ 389 \\ \hline 27095 \end{array}$$

$$\begin{array}{r} 6500 \\ 468 \\ \hline 6968 \end{array}$$

$$\begin{array}{r} 6575 \\ 520 \\ \hline 7095 \end{array}$$

$$\begin{array}{r} 6578 \\ 517 \\ \hline 7095 \end{array}$$

$$\begin{array}{r} 6595 \\ 510 \\ \hline 7105 \end{array}$$

$$\begin{array}{r} 6546 \\ 479 \\ \hline 7025 \end{array}$$

$$\begin{array}{r} 6518 \\ 522 \\ \hline 7040 \end{array}$$

$$\begin{array}{r} 66 \\ 496 \\ \hline 562 \end{array}$$

$$\begin{array}{r} 6639 \\ 456 \\ \hline 7095 \end{array}$$

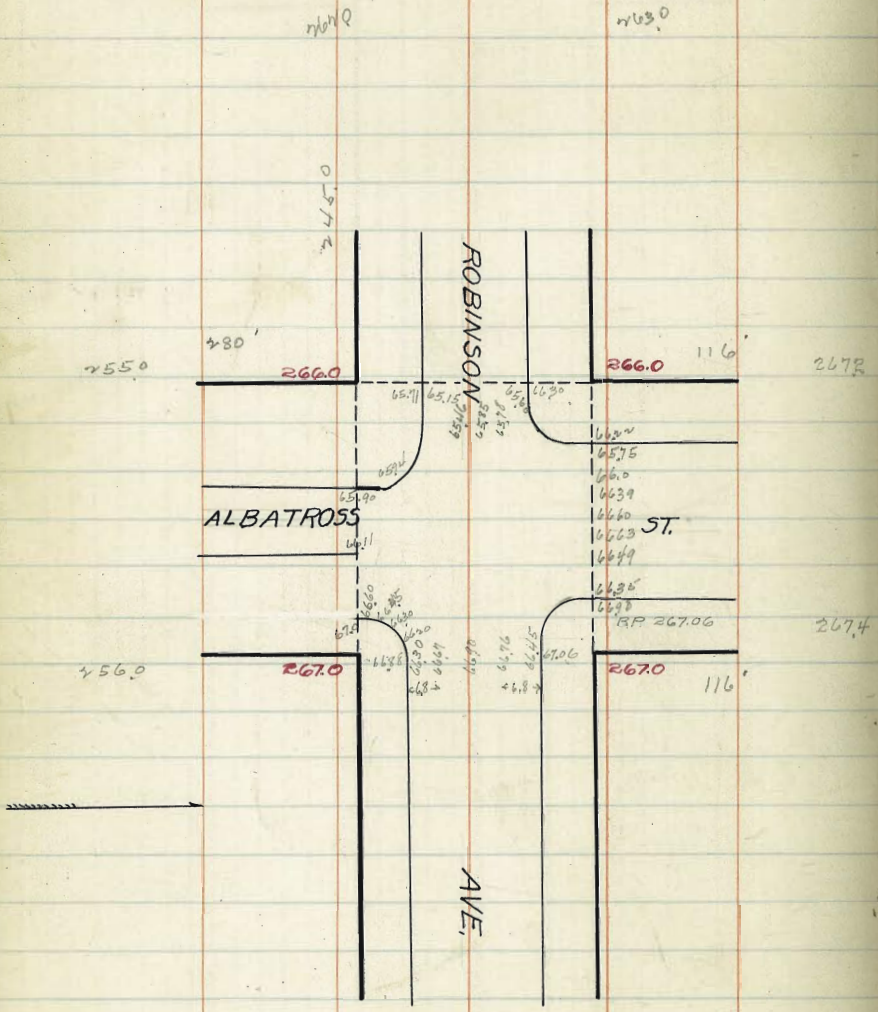
$$\begin{array}{r} 6660 \\ 438 \\ \hline 7098 \end{array}$$

$$\begin{array}{r} 6663 \\ 437 \\ \hline 7098 \end{array}$$

$$\begin{array}{r} 6649 \\ 442 \\ \hline 7091 \end{array}$$

$$\begin{array}{r} 6690 \\ 405 \\ \hline 7095 \end{array}$$

$$\begin{array}{r} 6603 \\ 492 \\ \hline 7095 \end{array}$$



2678

2674

$$\begin{array}{r} 26706 \\ 4.12 \\ \hline 27118 \end{array}$$

$$\begin{array}{r} 420 \\ 488 \\ \hline 908 \end{array}$$

$$\begin{array}{r} 507 \\ 661 \\ \hline 1168 \end{array}$$

$$\begin{array}{r} 525 \\ 659 \\ \hline 1184 \end{array}$$

$$\begin{array}{r} 521 \\ 894 \\ \hline 1415 \end{array}$$

$$\begin{array}{r} 521 \\ 651 \\ \hline 1172 \end{array}$$

$$\begin{array}{r} 6515 \\ 623 \\ \hline 588 \end{array}$$

$$\begin{array}{r} 6560 \\ 558 \\ \hline 593 \end{array}$$

$$\begin{array}{r} 588 \\ 593 \\ \hline 1181 \end{array}$$

$$\begin{array}{r} 588 \\ 543 \\ \hline 1131 \end{array}$$

$$\begin{array}{r} 6590 \\ 528 \\ \hline 6118 \end{array}$$

$$\begin{array}{r} 6660 \\ 485 \\ \hline 7145 \end{array}$$

$$\begin{array}{r} 6645 \\ 473 \\ \hline 7118 \end{array}$$

$$\begin{array}{r} 6620 \\ 488 \\ \hline 7108 \end{array}$$

$$\begin{array}{r} 6645 \\ 473 \\ \hline 7118 \end{array}$$

$$\begin{array}{r} 26706 \\ 389 \\ \hline 27095 \end{array}$$

$$\begin{array}{r} 6500 \\ 468 \\ \hline 6968 \end{array}$$

$$\begin{array}{r} 6575 \\ 520 \\ \hline 7095 \end{array}$$

$$\begin{array}{r} 6578 \\ 517 \\ \hline 7095 \end{array}$$

$$\begin{array}{r} 6595 \\ 510 \\ \hline 7105 \end{array}$$

$$\begin{array}{r} 6546 \\ 479 \\ \hline 7025 \end{array}$$

$$\begin{array}{r} 6518 \\ 522 \\ \hline 7040 \end{array}$$

$$\begin{array}{r} 66 \\ 496 \\ \hline 562 \end{array}$$

$$\begin{array}{r} 6639 \\ 456 \\ \hline 7095 \end{array}$$

$$\begin{array}{r} 6660 \\ 438 \\ \hline 7098 \end{array}$$

$$\begin{array}{r} 6663 \\ 437 \\ \hline 7098 \end{array}$$

$$\begin{array}{r} 6649 \\ 442 \\ \hline 7091 \end{array}$$

$$\begin{array}{r} 6690 \\ 405 \\ \hline 7095 \end{array}$$

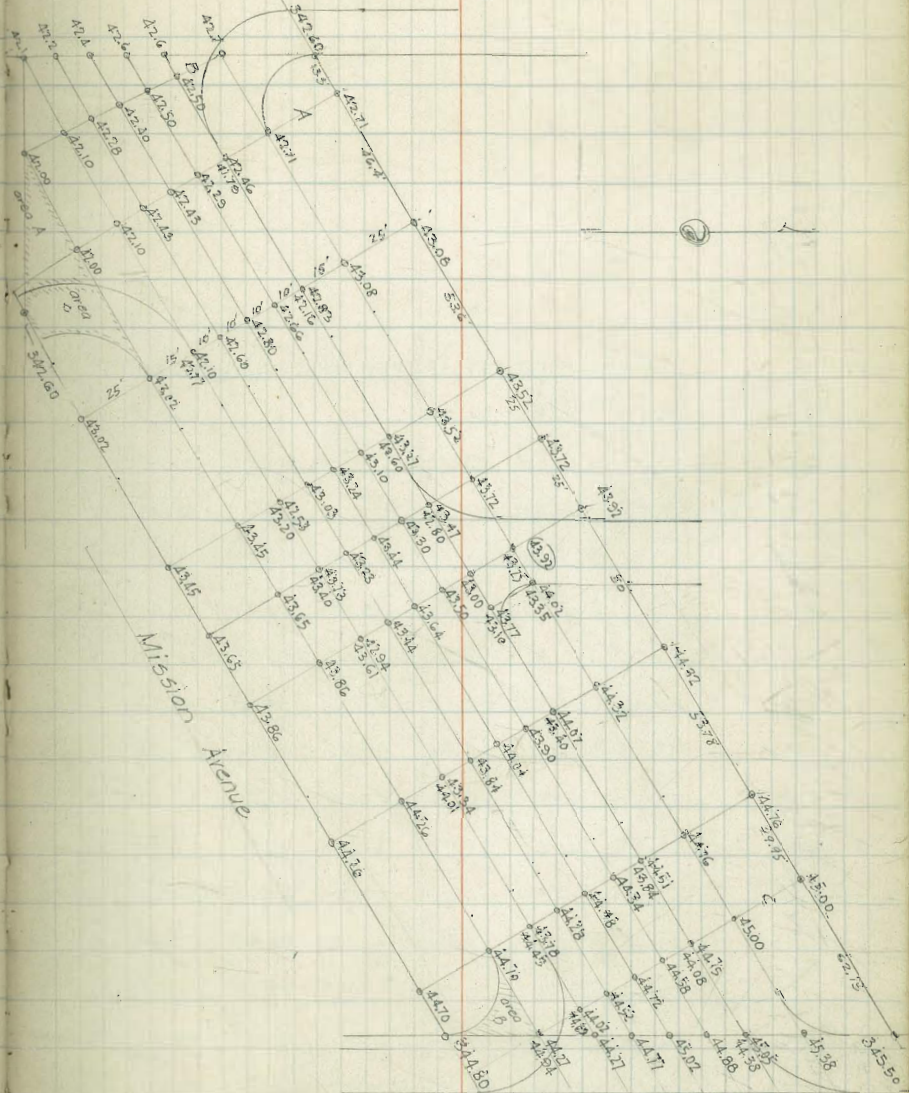
$$\begin{array}{r} 6603 \\ 492 \\ \hline 7095 \end{array}$$



F. Book 1915  
p 48

Mission Avenue

Park Blvd.



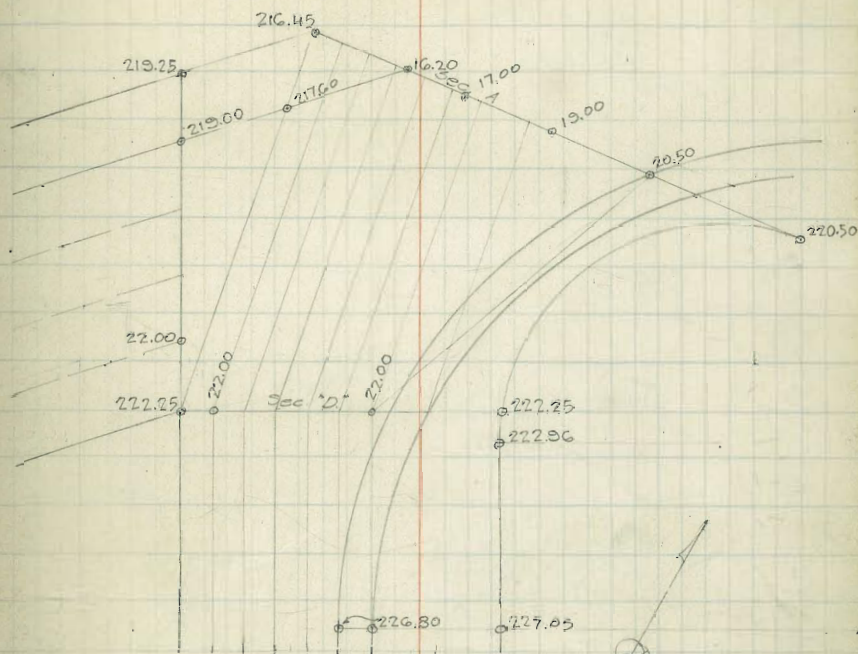
Mission Avenue

Georgia

51



Exchange Place



|                            | W.L.   | Cb     | 1/4    | Q      | 1/4    | Cb     | E.L.   |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|
| Sec. D                     | 222.75 | 222.00 | 221.83 | 222.00 | 221.83 | 222.00 | 222.75 |
| + 25                       | 26.77  | 26.52  | 26.35  |        |        | 26.52  |        |
| + 50                       | 31.30  | 31.05  | 30.88  |        |        | 31.05  |        |
| + 75                       | 35.82  | 35.57  | 35.40  |        |        | 35.57  |        |
| N. Pepita St<br>1+05       | 241.25 | 241.00 | 240.83 | 241.00 | 240.83 | 241.00 | 241.25 |
| S. Pepita St               | 43.75  | 43.50  | 43.33  | 43.50  | 43.33  | 43.50  | 43.75  |
| " "                        | 246.25 | 246.00 | 245.83 | 246.00 | 245.83 | 246.00 | 246.25 |
| + 25                       | 50.02  | 49.77  | 49.60  | 49.77  | 49.60  | 49.77  | 50.02  |
| + 50                       | 53.78  | 53.53  | 53.36  | 53.53  | 53.36  | 53.53  | 53.78  |
| + 75                       | 57.55  | 57.30  | 57.13  | 57.30  | 57.13  | 57.30  | 57.55  |
| 1+00                       | 61.32  | 61.07  | 60.90  | 61.07  | 60.90  | 61.07  | 61.32  |
| 1+25                       | 65.09  | 64.84  | 64.67  | 64.84  | 64.67  | 64.84  | 65.09  |
| 1+50                       | 68.85  | 68.60  | 68.43  | 68.60  | 68.43  | 68.60  | 68.85  |
| + 75                       | 72.62  | 72.37  | 72.20  | 72.37  | 72.20  | 72.37  | 72.62  |
| 2+00                       | 76.39  | 76.14  | 75.97  | 76.14  | 75.97  | 76.14  | 76.39  |
| + 25                       | 80.15  | 79.90  | 79.73  | 79.90  | 79.73  | 79.90  | 80.15  |
| + 50                       | 83.92  | 83.67  | 83.50  | 83.67  | 83.50  | 83.67  | 83.92  |
| 2+55:49 West<br>63.62 East | 284.75 | 284.50 | 284.33 | 285.11 | 285.55 | 285.72 | 285.97 |

284.50 ————— 285.72



6.50 B.P. NE Newport + Abbot

3.51  
10.01  
5.00  
14.92

5.86  
4.92

Santa

Abbot St Paving

50  
Monica

5.0

5.5

5.45

4.91

5.86 6.46

6.45

B.P. 6.50

NEWPORT



















|      |           |      |      |      |      |      |      |      |      |      |
|------|-----------|------|------|------|------|------|------|------|------|------|
| 6.86 | B.M. 3.36 | 704  | 704  | 704  | 704  | 704  | 704  | 704  | 704  | 704  |
| 3.50 | 3.68      | 2.40 | 2.50 | 2.15 | 2.70 | 2.85 | 2.95 | 3.60 | 3.56 | 3.51 |
|      | 7.04      | 4.62 | 4.73 | 4.89 | 4.82 | 4.19 | 4.09 | 3.44 | 3.48 | 3.53 |

|       |      |      |      |
|-------|------|------|------|
| +4.20 | 704  | 704  | 704  |
| 3.32  | 3.15 | 3.10 | 3.20 |
| 1.756 | 3.99 | 3.94 | 3.89 |

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| 756 | 756 | 756 | 756 | 756 |
| 220 | 326 | 402 | 326 | 360 |
| 436 | 380 | 354 | 360 | 396 |

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| 756 | 756 | 756 | 756 | 756 |
| 215 | 277 | 307 | 305 | 370 |
| 542 | 477 | 472 | 451 | 486 |

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| 756 | 756 | 756 | 756 | 756 |
| 286 | 324 | 323 | 327 | 351 |
| 461 | 402 | 373 | 374 | 405 |

|      |      |      |      |      |
|------|------|------|------|------|
| 756  | 756  | 756  | 756  | 756  |
| 280  | 290  | 320  | 328  | 315  |
| 5.16 | 4.66 | 4.36 | 4.28 | 4.41 |

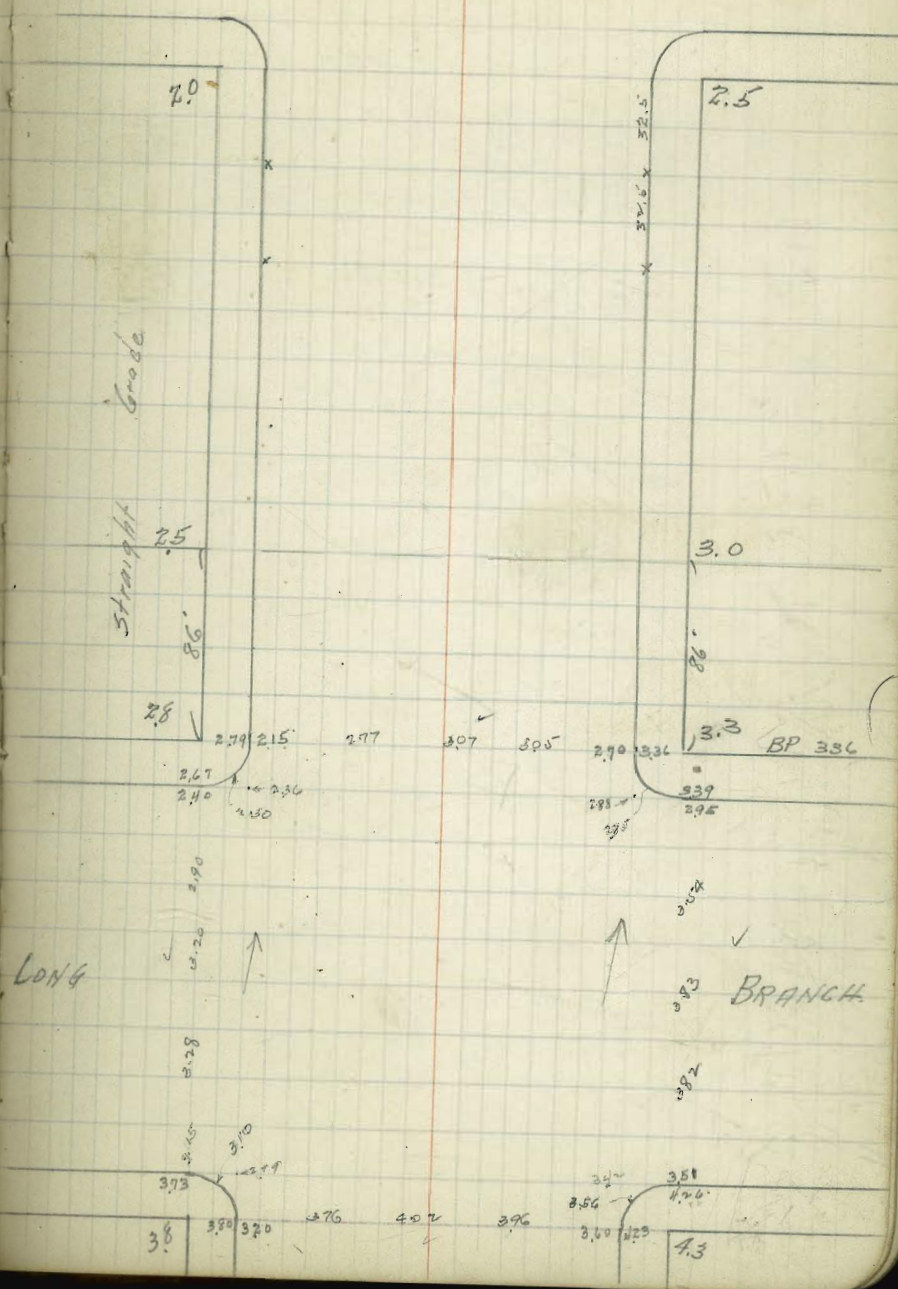
Muir

Abbot St Paving

50.90 110

55.

Ave





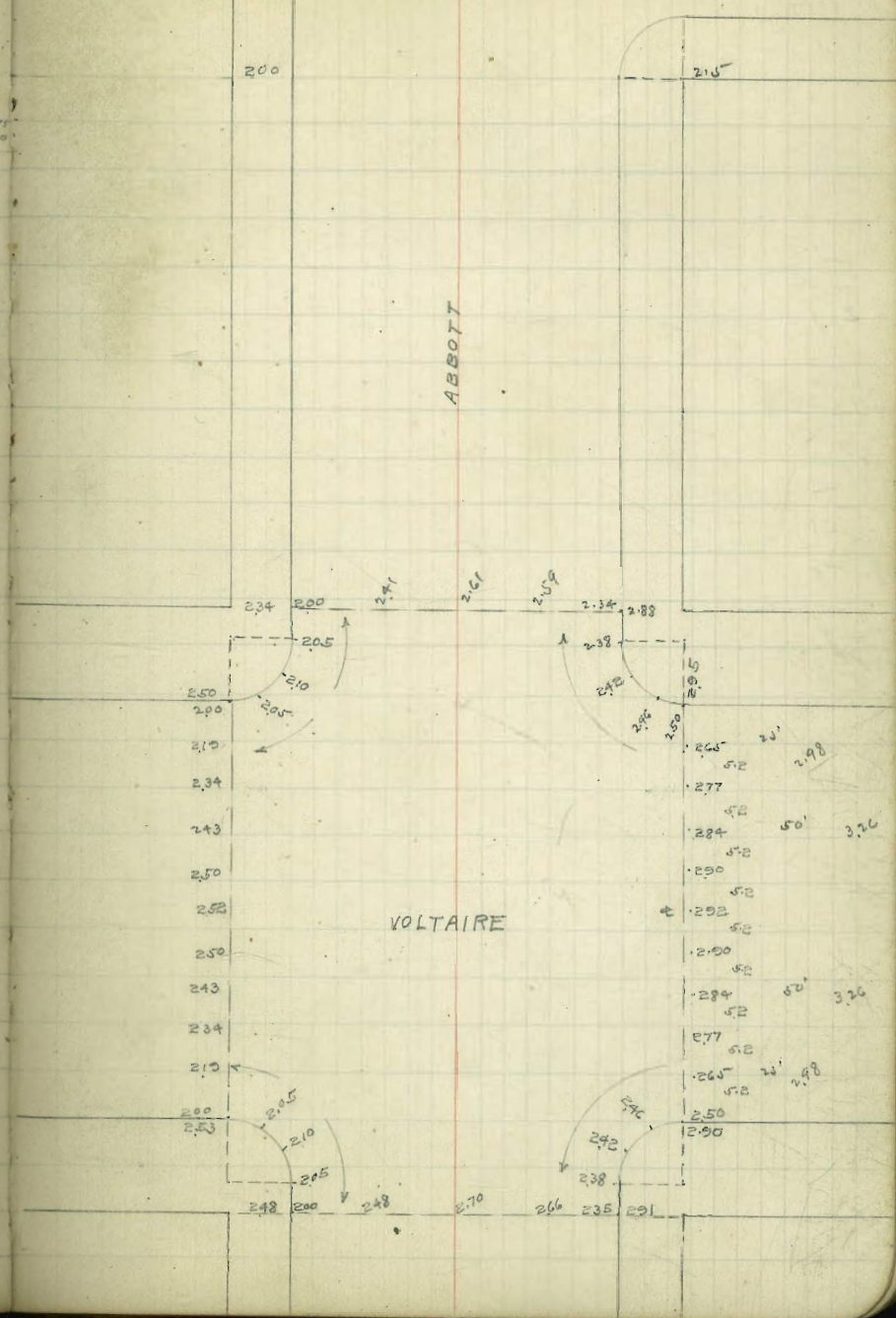




5.05  
44.96  
59.81

463  
39

|       |       |       |       |       |       |      |      |      |
|-------|-------|-------|-------|-------|-------|------|------|------|
| 247   | 715   | 715   | 215   | 715   | 715   | 715  | 215  | 215  |
| 468   | 240   | 208   | 210   | 205   | 200   | 234  | 234  | 246  |
| 715   | 515   | 515   | 515   | 515   | 515   | 484  | 472  | 473  |
| 41.75 | 715   | 715   | 715   | 715   | 715   | 715  | 715  | 715  |
| 5.05  | 240   | 241   | 261   | 259   | 239   | 240  | 219  | 239  |
| 46.80 | 515   | 474   | 484   | 486   | 481   | 515  | 496  | 496  |
| 40.09 | 715   | 715   | 715   | 715   | 715   | 715  | 715  | 715  |
| 6.71  | 240   | 248   | 270   | 266   | 235   | 250  | 265  | 281  |
| 6.25  | 449   | 433   | 473   | 473   | 473   | 473  | 473  | 473  |
| 0.43  | -     | 427   | 474   | 474   | 474   | 474  | 474  | 474  |
| 46.80 | -     | 445   | 495   | 495   | 495   | 495  | 495  | 495  |
| 6.50  | 449   | 457   | 472   | 472   | 472   | 468  | 475  | 484  |
| 40.27 | 1302  | 1302  | 1302  | 1302  | 1302  | 1120 | 1120 | 1120 |
| 37.52 | 402   | 406   | 406   | 406   | 406   | 885  | 885  | 885  |
| 170   | 8.93  | 8.96  | 8.96  | 8.96  | 8.96  | 412  | 412  | 412  |
| 13.02 |       |       |       |       |       |      |      |      |
| 5.22  | 4600  | 4680  | 4680  | 4680  | 4680  | 571  | 571  | 571  |
| 5.30  | 41.69 | 41.49 | 41.49 | 41.49 | 41.49 |      |      |      |

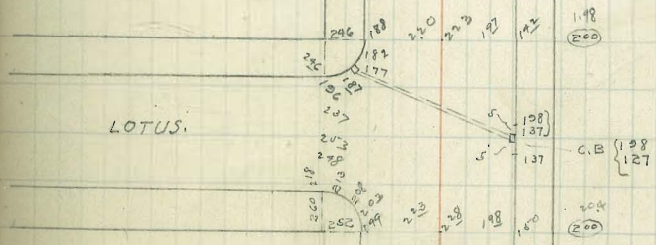




VOLTAIRE

ABBOTT

LOTUS.

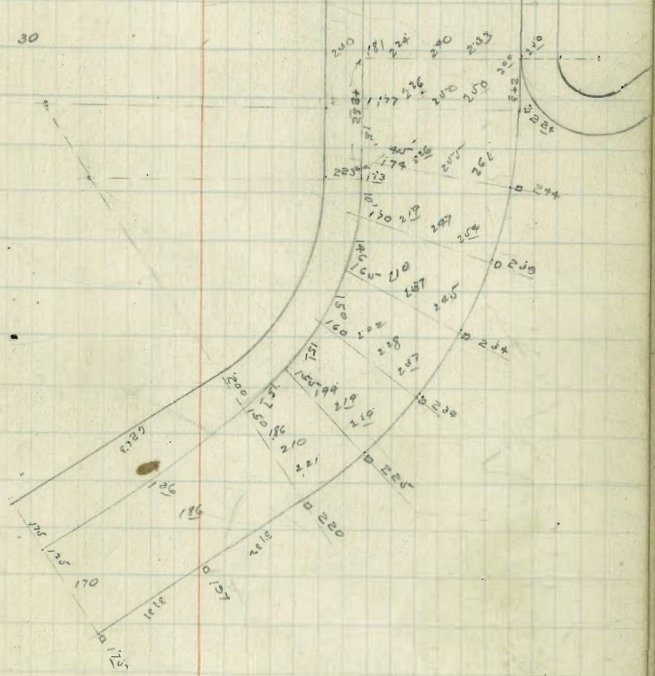




WEST POINT LOMA BLVD.

A = 56° 54' R = 12373 L.C. 11807 C = 2096

- 4° 44' 30"
- 9 28 00
- 14 13 30
- 18 58 00
- 23 42 30
- 28 27

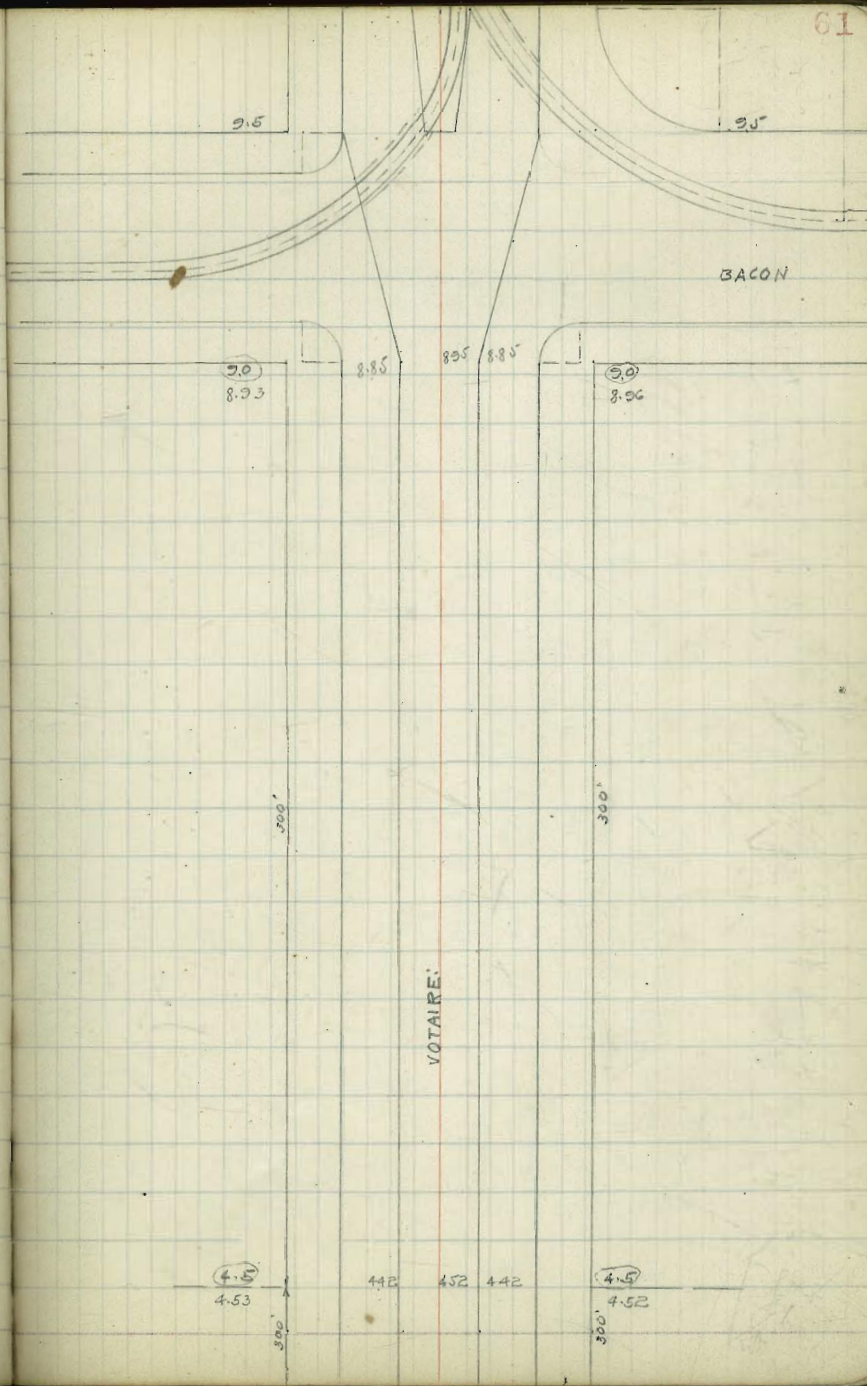








7.12 B.M.  
460  
10.127





BM. 6.50 N.E. Cor. Abbad & Newport:

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 10.64 | 10.64 | 10.64 | 10.64 | 10.64 | 10.64 | 10.64 | 10.64 |
| 4.17  | 4.90  | 5.74  | 5.22  | 5.20  | 5.01  | 5.52  |       |
| 6.47  | 5.84  | 7.90  | 5.42  | 5.39  | 5.63  | 5.12  |       |

6.50  
4.40  
10.90

|       |       |       |       |
|-------|-------|-------|-------|
| 10.64 | 10.64 | 10.64 | 10.64 |
| 4.50  | 4.80  | 4.80  |       |
| 6.14  | 6.24  |       |       |

|       |       |       |       |
|-------|-------|-------|-------|
| 10.90 | 10.90 | 10.90 | 10.90 |
| 4.35  | 4.52  | 5.97  | 5.80  |
| 6.55  | 6.38  | 7.93  | 5.10  |

6.50  
3.90  
10.40

6.50  
3.91  
10.41

|       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| 10.41 | 10.41 | 10.41 | 10.41 | 10.41 | 10.41 |
| 5.27  | 5.57  | 5.45  | 5.32  | 5.19  | 5.06  |
| 4.94  | 4.84  | 4.96  | 5.09  | 5.22  | 5.35  |

|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 10.41 | 10.41 | 10.41 | 10.41 | 10.41 | 10.41 | 10.41 | 10.41 | 10.41 |
| 6.47  | 6.31  | 6.16  | 6.01  | 5.86  | 5.71  | 5.56  | 5.41  | 5.26  |
| 3.94  | 4.19  | 4.25  | 4.40  | 4.55  | 5.50  | 5.39  | 5.28  | 5.17  |

6.50  
3.76  
10.26

|       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| 10.26 | 10.26 | 10.26 | 10.26 | 10.26 | 10.26 |
| 5.86  | 6.05  | 5.98  | 5.87  | 4.91  |       |
| 4.40  | 4.21  | 4.31  | 4.69  | 5.35  |       |

6.50  
3.87  
10.37

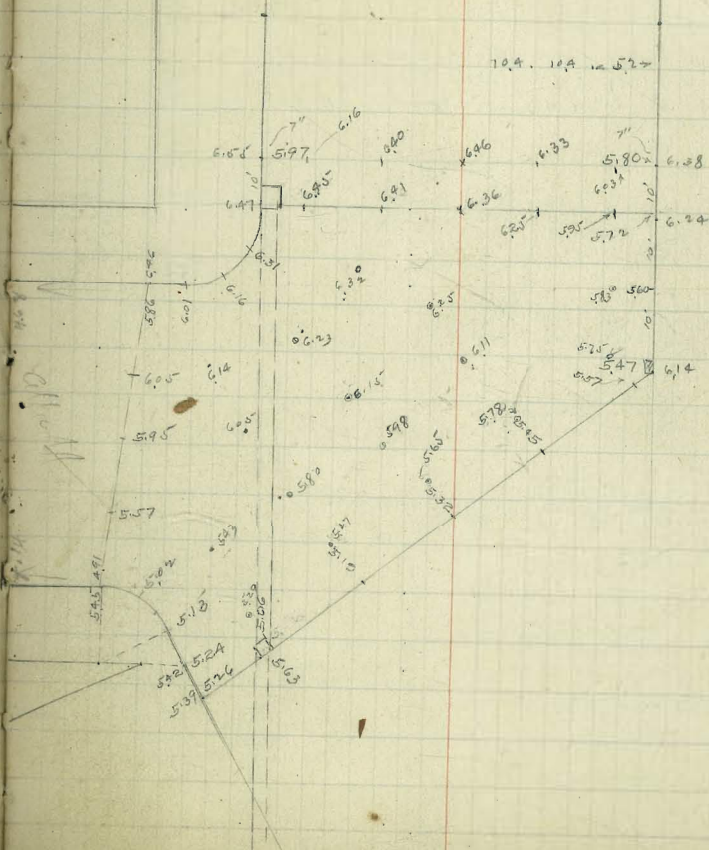
|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 |
| 5.39  | 5.26  | 5.06  | 5.37  | 5.45  | 5.82  | 5.19  |       |
| 4.99  | 5.11  | 5.31  | 5.80  | 4.94  | 5.05  | 5.18  |       |

|       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 |
| 5.97  | 6.14  | 6.40  | 6.46  | 6.33  | 6.03  | 5.80  | 5.72  | 5.80  | 6.25  | 6.36  |
| 4.40  | 4.21  | 3.97  | 3.91  | 4.04  | 4.34  | 4.57  | 4.65  | 4.42  | 4.12  | 4.01  |

|       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 |
| 6.41  | 6.45  | 6.47  | 5.60  | 5.47  | 5.29  | 5.47  | 5.65  | 5.78  | 5.75  | 5.83  |
| 3.96  | 3.94  | 3.98  | 4.77  | 4.90  | 5.08  | 4.90  | 4.72  | 4.59  | 4.62  | 4.64  |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 | 10.37 |
| 5.02  | 5.13  | 5.64  | 5.26  | 6.01  | 6.10  | 6.31  |       |
| 5.35  | 5.24  | 5.12  | 5.11  | 4.36  | 4.21  | 4.06  |       |

|      |       |       |       |       |       |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 3.29 | 979   | 979   | 979   | 979   | 979   | 979   | 979   | 979   | 979   | 979   |
| 6.50 | 6.05  | 6.14  | 6.23  | 6.32  | 6.41  | 6.50  | 6.59  | 6.68  | 6.77  | 6.86  |
| 979  | 3.744 | 3.680 | 3.561 | 3.474 | 3.387 | 3.299 | 3.212 | 3.125 | 3.038 | 2.951 |





B.M. 1105 N.E. Cor Bacon & Newport BR

|       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 3.41  | 12.46 | 12.46 | 12.46 | 14.46 | 14.46 | 14.46 | 12.46 | 14.46 | 12.46 |
| 14.46 | 3.49  | 2.49  | 2.92  | 2.99  | 3.93  | 3.95  | 10.03 | 10.80 | 10.80 |
| 11.04 | 10.97 | 11.97 | 11.52 | 11.47 | 10.53 | 10.51 | 4.43  | 3.66  |       |

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 11.05 | 11.30 | 11.27 | 11.23 | 11.31 | 11.39 | 11.25 | 11.39 |
| 5.27  | 5.09  | 5.05  | 5.09  | 5.01  | 4.95  | 4.97  | 4.93  |

|         |       |       |       |       |       |
|---------|-------|-------|-------|-------|-------|
| 16.32 X | 10.54 | 10.29 | 10.44 | 10.39 | 10.34 |
|         | 5.78  | 5.83  | 5.88  | 5.93  | 5.98  |

|         |       |       |       |       |       |       |       |       |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1105    | 16.01 | 16.01 | 16.01 | 16.01 | 16.01 | 16.01 | 16.01 | 16.01 |
| 4.96    | 10.03 | 10.07 | 10.11 | 11.02 | 10.91 | 10.80 | 10.86 | 10.80 |
| 16.01 X | 5.98  | 5.94  | 5.91  | 4.99  | 5.10  | 5.21  | 5.18  | 5.21  |

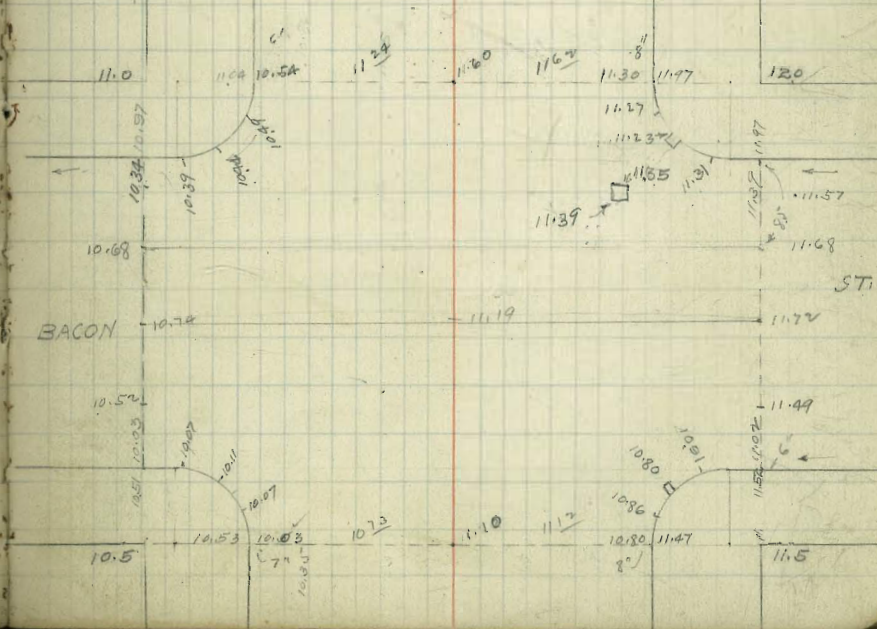
|       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| 11.05 | 15.89 | 15.89 | 15.89 | 15.89 | 15.89 |
| 4.84  | 10.54 | 11.24 | 11.60 | 11.62 | 11.30 |
| 15.89 | 5.36  | 4.66  | 4.49  | 4.27  | 4.59  |

|       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| 11.05 | 15.17 | 15.17 | 15.17 | 15.17 | 15.17 |
| 4.13  | 10.03 | 10.73 | 11.12 | 11.12 | 10.80 |
| 15.17 | 5.74  | 4.49  | 4.07  | 4.00  | 4.37  |

|       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| 15.17 | 15.17 | 15.17 | 15.17 | 15.17 | 15.17 |
| 11.04 | 11.49 | 11.74 | 11.69 | 11.66 | 11.39 |
| 4.13  | 3.68  | 3.4   | 3.49  | 3.51  | 3.78  |

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| 15.17 | 15.17 | 15.17 | 15.17 | 15.17 |
| 11.30 | 11.62 | 11.60 | 11.24 | 10.52 |
| 3.87  | 3.80  | 3.67  | 3.93  | 4.63  |

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| 15.17 | 15.17 | 15.17 | 15.17 | 15.17 |
| 10.34 | 10.68 | 10.74 | 10.82 | 10.03 |
| 4.83  | 4.40  | 4.43  | 4.60  | 5.14  |



NEWPORT AVE

16.5

11.04  
11.30



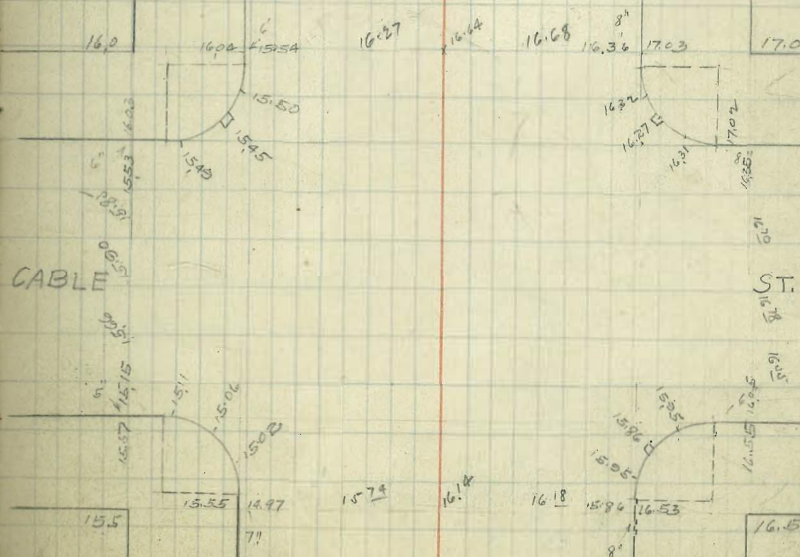
|                     |       |       |       |       |       |      |
|---------------------|-------|-------|-------|-------|-------|------|
| N.E. Coy B.P. 16.01 | 15.54 | 15.50 | 15.43 | 15.49 | 15.43 |      |
| 5.32                | 5.79  | 5.83  | 5.88  | 5.84  | 5.89  | 4.71 |
| 21.33               |       |       |       |       |       | 4.33 |
| 16.36               | 16.32 | 16.27 | 16.31 | 16.35 |       | 4.67 |
| 4.07                | 5.01  | 5.06  | 5.02  | 4.98  |       |      |
| 15.15               | 15.11 | 15.06 | 15.02 | 14.97 |       |      |
| 6.18                | 6.22  | 6.27  | 6.31  | 6.36  |       |      |
| 16.05               | 15.95 | 15.86 | 15.85 | 15.86 |       |      |
| 5.28                | 5.38  | 5.47  | 5.38  | 5.47  |       |      |

16.01  
5.27

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| 21.28 | 21.28 | 21.28 | 21.28 | 21.28 |
| 16.36 | 16.68 | 16.64 | 16.27 | 15.54 |
| 4.92  | 4.60  | 4.64  | 5.01  | 5.74  |

|       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 16.01 | 20.42 | 20.42 | 20.42 | 20.42 | 20.42 | 20.42 | 20.42 | 20.42 | 20.42 |
| 4.41  | 16.35 | 16.70 | 16.78 | 16.44 | 16.05 | 15.86 | 16.18 | 16.14 | 15.74 |
| 2.04  | 4.07  | 8.72  | 3.69  | 3.87  | 4.37  | 4.56  | 4.29  | 4.28  | 4.68  |

|       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| 20.42 | 20.42 | 20.42 | 20.42 | 20.42 | 20.42 |
| 14.97 | 15.15 | 15.66 | 15.90 | 15.85 | 15.53 |
| 5.25  | 5.27  | 4.76  | 4.52  | 4.57  | 4.89  |









|                  | W      | Co     | 1/4    | Q      | 1/2    | Co     | Q      |
|------------------|--------|--------|--------|--------|--------|--------|--------|
| N Pine St        | 264.25 | 264.00 | 63.96  | 64.25  | 64.21  | 264.50 | 264.75 |
| N Co             | 264.00 | 264.00 | 63.46  | 63.58  | 63.70  | 264.50 | 264.50 |
| 1/4              | 63.83  | 63.83  | 63.96  | 64.08  | 64.20  | 64.33  | 64.33  |
| Q                | 264.00 | 264.00 | 64.12  | 64.25  | 64.38  | 264.50 | 264.50 |
| 1/4              | 63.83  | 63.83  | 63.96  | 64.08  | 64.20  | 64.33  | 64.33  |
| S Co             | 264.00 | 64.00  | 63.46  | 63.58  | 63.70  | 64.50  | 264.50 |
| -0100            |        |        |        |        |        |        |        |
| Q Pine St        | 264.25 | 264.00 | 263.96 | 264.25 | 264.21 | 264.50 | 264.75 |
| +25              | 63.63  | 63.38  | 63.34  | 63.65  | 63.62  | 63.92  | 64.17  |
| +50              | 63.00  | 62.75  | 62.73  | 63.04  | 63.02  | 63.33  | 63.58  |
| +75              | 62.37  | 62.12  | 62.12  | 62.44  | 62.43  | 62.75  | 63.00  |
| 1+00             | 61.75  | 61.50  | 61.50  | 61.83  | 61.83  | 62.17  | 62.42  |
| +25              | 61.13  | 60.88  | 60.88  | 61.23  | 61.24  | 61.58  | 61.83  |
| +50              | 60.50  | 60.25  | 60.27  | 60.63  | 60.65  | 61.00  | 61.25  |
| +75              | 59.87  | 59.62  | 59.66  | 60.02  | 60.05  | 60.42  | 60.67  |
| 2+00             | 59.25  | 59.00  | 59.04  | 59.42  | 59.46  | 59.84  | 60.09  |
| +25              | 58.63  | 58.38  | 58.42  | 58.81  | 58.86  | 59.25  | 59.50  |
| +50              | 58.00  | 57.75  | 57.81  | 58.21  | 58.27  | 58.67  | 58.92  |
| +75              | 57.37  | 57.12  | 57.20  | 57.60  | 57.68  | 58.09  | 58.34  |
| 3+00             |        |        |        |        |        |        |        |
| N H. Stockton Dr | 256.75 | 256.50 | 56.58  | 257.00 | 57.08  | 257.50 | 257.75 |

|                | W      | Q      | Q      |
|----------------|--------|--------|--------|
| Q Robinson Ave | 272.61 |        | 272.88 |
| +10            | 272.29 |        | 272.50 |
| +50            | 271.00 |        | 271.00 |
| 1+00           | 269.80 |        | 269.80 |
| +60            | 268.80 |        | 268.80 |
| 2+00           | 268.29 |        | 268.29 |
| +50            | 267.65 |        | 267.65 |
| 3+00           | 267.00 |        | 267.00 |
| +50            | 266.36 |        | 266.36 |
| +70            | 266.11 |        | 266.11 |
| 4+00           | 265.72 |        | 265.72 |
| +50            | 265.08 |        | 265.08 |
| +65            | 264.89 |        | 264.89 |
| 5+00           | 264.44 |        | 264.44 |
| +50            | 263.80 |        | 263.80 |
| N Penna. Ave = | 6+01   | 262.34 | 263.16 |

Changed: See page 69

5-12-23  
U.E.



Alley Block A Allen Terrace

1-22-23  
WZ.

Wightman - Arizona to Arnold

2-21-23  
WZ.

|                          | Φ      | Φ     | N      |
|--------------------------|--------|-------|--------|
| W Hermosa Way =<br>0+00  | 266.20 | 265.0 | 264.04 |
| + 30                     | 67.97  | 67.0  | 67.07  |
| + 65                     | 69.44  | 69.04 | 69.14  |
| 1+00                     | 70.43  | 70.03 | 70.13  |
| + 50                     | 71.50  | 71.10 | 71.20  |
| + 85                     | 72.26  | 71.86 | 71.96  |
| 2+00                     | 72.58  | 72.18 | 72.28  |
| + 50                     | 73.65  | 73.25 | 73.35  |
| 3+00                     | 74.48  | 74.08 | 74.18  |
| + 50                     | 74.91  | 74.51 | 74.61  |
| 4+00                     | 74.00  | 73.60 | 73.70  |
| + 30                     | 72.50  | 72.10 | 72.20  |
| + 65                     | 69.81  | 69.41 | 69.51  |
| 5+00                     | 66.26  | 64.77 | 64.87  |
| W Valle Vista<br>= +15.3 | 263.86 | 63.28 | 63.38  |

$\frac{266.20}{263.86} = 1.01$

$\frac{266.20}{263.86} = 1.01$

|                             | N                         | Φ      | 1/4    | Φ      | 1/2    | Φ      | 3/4                    |
|-----------------------------|---------------------------|--------|--------|--------|--------|--------|------------------------|
| W Arizona<br>= 0+00         | 291.25                    | 291.00 | 290.50 | 290.50 | 290.00 | 290.00 | 290.25                 |
| + 50 <sup>+0.10</sup>       | <sup>92.75</sup><br>92.43 | 92.18  | 91.68  | 91.68  | 91.18  | 91.18  | 91.48 <sup>+0.3</sup>  |
| break + 75 <sup>+0.00</sup> | <sup>94.25</sup><br>93.55 | 93.35  | 92.85  | 92.85  | 92.35  | 92.35  | 92.58 <sup>+0.23</sup> |
| + 10 break <sup>+0.00</sup> | <sup>94.55</sup><br>94.30 | 94.30  | 94.03  | 94.03  | 93.53  | 93.53  | 93.78 <sup>+0.25</sup> |
| + 50 <sup>+0.20</sup>       | <sup>94.71</sup><br>95.32 | 94.53  | 94.03  | 94.03  | 93.53  | 93.53  | 93.78 <sup>+0.25</sup> |
| 2+00 <sup>+0.90</sup>       | <sup>96.28</sup><br>95.70 | 95.70  | 95.20  | 95.20  | 94.70  | 94.70  | 94.95 <sup>+0.25</sup> |
| + 50 <sup>+0.60</sup>       | <sup>97.27</sup><br>97.13 | 96.88  | 96.38  | 96.38  | 95.88  | 95.88  | 96.13 <sup>+0.25</sup> |
| W Arnold<br>= +76.5         | 97.75                     | 297.50 | 297.00 | 297.00 | 296.50 | 296.50 | 96.75                  |

Changed grade to fit steps  
on south side of st.

$\frac{289.80}{297.78} = 1.03$

$\frac{289.80}{297.78} = 1.03$

$\frac{289.80}{297.78} = 1.03$

$\frac{93.80}{3.47} = 27.03$

$\frac{94.30}{2.97} = 31.75$

$\frac{289.80}{297.78} = 1.03$

$\frac{3.47}{1.0} = 3.47$

$\frac{94.30}{2.97} = 31.75$

$\frac{93.80}{2.46} = 38.13$

$\frac{91.90}{3.24} = 28.37$

$\frac{91.90}{3.24} = 28.37$

$\frac{94.80}{3.50} = 27.11$

$\frac{94.80}{3.50} = 27.11$

$\frac{95.36}{94.11} = 1.01$

$\frac{95.36}{94.11} = 1.01$

$\frac{3.47}{1.57} = 2.21$

$\frac{3.47}{1.57} = 2.21$

$\frac{91.90}{3.24} = 28.37$

$\frac{91.90}{3.24} = 28.37$

$\frac{91.90}{3.24} = 28.37$

$\frac{91.90}{3.24} = 28.37$

$\frac{94.20}{3.40} = 27.71$

$\frac{94.20}{3.40} = 27.71$



Harbor St. - Bdy to Atlantic St.

|          | W.  | C   | #   |
|----------|-----|-----|-----|
| ⊔ Bdy =  |     |     |     |
| 0+00     | 5.0 | 4.9 | 4.8 |
| +50      | 4.9 | 4.8 | 4.7 |
| 1+00     | 4.8 | 4.7 | 4.6 |
| +50      | 4.7 | 4.6 | 4.5 |
| 2+00     | 4.6 | 4.5 | 4.4 |
| +50      | 4.6 | 4.5 | 4.4 |
| ⊔ E St = |     |     |     |
| 300.76   | 4.5 | 4.4 | 4.3 |
| ⊔ E St = |     |     |     |
| 37.5     | 4.4 | 4.3 | 4.2 |
| ⊔ E St   |     |     |     |
| 0+00     | 4.4 | 4.3 | 4.2 |
| +50      | 4.3 | 4.2 | 4.1 |
| 1+00     | 4.2 | 4.1 | 4.0 |
| +50      | 4.1 | 4.0 | 3.9 |
| 2+00     | 4.0 | 3.9 | 3.8 |
| +50      | 3.9 | 3.8 | 3.7 |
| ⊔ F St = |     |     |     |
| 2+99.82  | 3.8 | 3.7 | 3.6 |
| ⊔ F St = |     |     |     |
| 37.5     | 3.8 | 3.7 | 3.6 |
| ⊔ F St = |     |     |     |
| 0+00     | 3.7 | 3.6 | 3.5 |
| +18.07   | 3.4 | 3.6 | 3.4 |
| +50      | 3.5 | 3.7 | 3.5 |
| 1+30.80  | 3.8 | 4.0 | 3.8 |
| 2+00     | 3.9 | 4.1 | 3.9 |
| 3+00     | 4.2 | 4.4 | 4.2 |
| ⊔ track  |     |     |     |
| +31.25   | 4.3 | 4.5 | 4.3 |

18.07  
31.03  
30.80  
69.20  
100  
31.25

|         | W   | C   | #   |
|---------|-----|-----|-----|
| 4+00    | 4.2 | 4.4 | 4.2 |
| 5+11.62 | 4.0 | 4.2 | 4.0 |
| 6+00    | 3.8 | 4.0 | 3.8 |
| 7+00    | 3.6 | 3.8 | 3.6 |
| 8+00    | 3.4 | 3.6 | 3.4 |
| +35.77  | 3.4 | 3.6 | 3.4 |
| 9+00    | 3.3 | 3.5 | 3.3 |
| +40.37  | 3.2 | 3.4 | 3.2 |

111.62  
6.875  
100  
35.77  
64.23



|                        | $\mathcal{K}$ | $\mathcal{L}$ |
|------------------------|---------------|---------------|
| $\frac{1}{2}$ Robinson |               |               |
| = 0+00                 | 72.61         | 72.88         |
| +10                    | 72.38         | 72.64         |
| +50                    | 71.44         | 71.69         |
| 1+00                   | 70.27         | 70.49         |
| x +60                  | 69.00         | 69.20         |
| 2+00                   | 68.60         | 68.80         |
| +50                    | 68.10         | 68.30         |
| 3+00                   | 67.60         | 67.80         |
| +50                    | 67.10         | 67.30         |
| +70                    | 66.90         | 67.10         |
| x 4+00                 | 66.60         | 66.80         |
| +50                    | 65.54         | 65.70         |
| +65                    | 65.22         | 65.37         |
| 5+00                   | 64.48         | 64.60         |
| +50                    | 63.42         | X 63.50       |
| M. Penna<br>Arc = 6+01 | 62.34         | 63.14         |



10/29/23

Garage

Sewer Construction  
from 4 Brighton to 4 Long Branch  
4' Ex EL. of Lot 7 BK 85

9.91

944

458  
44  
898

70

|                     | 2.70 | 12.83 | 10.13 | BR NW<br>Abbot + Brighton |       |                                      |
|---------------------|------|-------|-------|---------------------------|-------|--------------------------------------|
| TP                  | 3.41 | 7.82  | 8.42  | 4.41                      |       |                                      |
| 00. = 4 Brighton    |      |       | 8.98  | -                         | -1.16 |                                      |
| +50                 |      |       | 3.44  | 4.38                      | -1.62 | +6.0                                 |
| 1                   |      |       | 1.91  | 5.91                      | -2.09 | +8.0                                 |
| +50                 |      |       | 3.49  | 4.33                      | -2.55 | +6.88                                |
| 2                   |      |       | 5.13  | 2.69                      | -3.02 | +5.71                                |
| +50                 |      |       | 4.85  | 2.97                      | -3.48 | +6.43                                |
| +70 = 4 Long Branch |      |       | 11.48 | -8.66                     | -3.66 | - Flow Line of Main in 4 Long Branch |

436' W of  
W. Abbot

270 | 2500  
 2430  
 700  
 1600























3/15/22  
 Gregory  
 M. Nor  
 Shaw

Levels on Curbs Plumosa Way  
 from Randolph to N.W. end.

|    |      |        |        |                          |
|----|------|--------|--------|--------------------------|
|    | 1.69 | 280.70 | 279.01 | BP SE<br>Palmetto - N.W. |
| TP | 3.62 | 272.93 | 11.39  | 269.31                   |

Levels on Curb N. Side Plumosa Randolph to Palmetto.

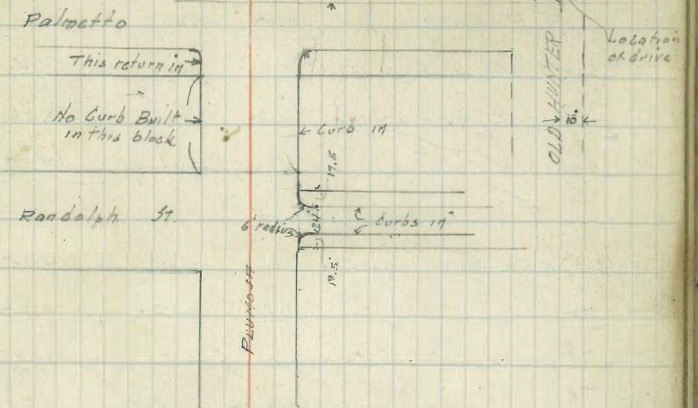
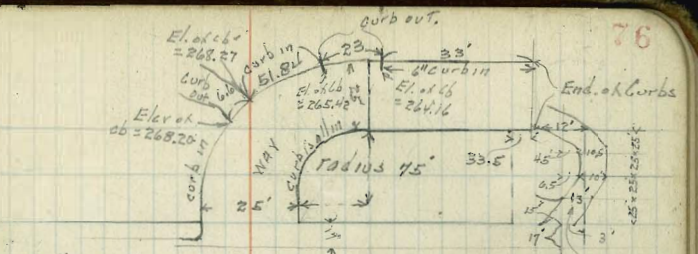
|  |      |        |                |
|--|------|--------|----------------|
| 11.5' E of N. L. Randolph prod. from S.S. side Plumosa | 6.70 | 266.23 |                |
| N. L. Randolph prod. N. = old N. L. Randolph           | 6.72 | 266.21 | curb = 1' deep |
| 50' N. of old N. L. Randolph                           | 6.49 | 66.44  | = .85          |
| 100  | 5.49 | 66.94  | = .27          |
| 150  | 5.26 | 67.67  | = 1.1          |
| 200  |      | 68.33  | = .89          |
| 212  |      | 68.27  |                |

S. Side Plumosa Way.

|                                |      |       |  |
|--------------------------------|------|-------|--|
| S. L. Plumosa a E. L. Palmetto | 3.21 | 69.72 |  |
| on E. cb. Palmetto             | 3.39 | 69.54 |  |

Levels on Curb Palmetto to N. end Plumosa

|                               |   |                       |                           |
|-------------------------------|---|-----------------------|---------------------------|
| N. L. Plumosa N. cb. Palmetto | 4.92                                    | 68.01                 |                           |
| S. L. ✓ ✓ - -                 | 3.78                                    | 69.15                 |                           |
| - - ✓ ✓ Prop. Line            | 3.55                                    | 69.38                 | Wend of Cb from St        |
| - - ✓ ✓ - -                   | 3.19                                    | 69.74                 | E. end of Curb on Plumosa |
| N. L. ✓ ✓ ✓ - -               | 4.55                                    | 68.38                 | Wend of Curb from N. cb   |
| ✓ ✓ ✓ ✓ - -                   | 3.87                                    | 69.06                 | E. end of Curb on Plumosa |
| N. cb of Plumosa              | 25' W. of N. L. Palmetto on Plumosa Way | 3.90                  | 69.13                     |
| S. cb ✓ ✓                     | 1.20                                    | 270.62                | 3.51                      |
| 3cb                           |   | 21.43 W. of last on N | 28.57                     |
| N. cb                         |   | 1.60                  | 69.02                     |
|                               |   | 1.75                  | 68.87                     |
|                               |   | 21.43 W. of last on N | 28.57                     |
| N. cb                         |   | 4.29                  | 68.33                     |
| S ✓                           |   | 4.12                  | 68.50                     |



|                               |       |      |        |
|-------------------------------|-------|------|--------|
| 21.43 W. of last on N         | 28.57 | 249  | 268.13 |
| 21.43 W. of last on N         | 28.57 | 3.30 | 67.32  |
| 21.45 W. of last on N         | 28.57 | 4.27 | 66.35  |
| 21.45 W. of last on N         | 28.57 | 4.22 | 66.40  |
| 10.66 W. of last on N         | 14.43 | 5.38 | 65.24  |
| 33.5' N of last = End of Curb |       | 5.97 | 64.65  |
|                               |       | 8.50 | 62.18  |
|                               |       | 8.17 | 62.45  |



BM's on La Jolla Blvd.

|  |       |       |       |                      |
|--|-------|-------|-------|----------------------|
| 4.61                                       | 10.65 |       | 6.04  | BM Mon Taylor Cont.  |
| Top Hydt S.W. Taylor & Whitman             | 1.99  |       | 8.66  |                      |
| T.P.                                       | 4.82  | 10.07 | 5.41  | 5.24                 |
| R.R. Spk S.W. Taylor & S.S. Blvd           | 3.43  |       | 6.64  |                      |
| Top Hydt NE Taylor & Juan                  | 3.71  |       | 6.36  |                      |
| R.R. Spk NE Calhoun                        | 5.90  |       | 4.17  |                      |
|  | 5.08  | 9.25  |       |                      |
| R.R. Spk S.W. S.D. F Taylor                | 5.10  |       | 4.15  |                      |
| T.P.                                       | 7.93  | 17.15 | 0.03  | 9.22                 |
| R.R. Spk Hatching past S.W. S.D. & Wallace | 5.80  |       | 11.35 |                      |
| T.P.                                       | 8.54  | 23.70 | 1.99  | 15.16                |
|  |       |       | 2.36  | 21.34                |
|  | 7.50  | 35.77 |       | 33.27 Mon NESD Henry |
| R.R. Spk Pole S.E. SD & Twiggs             | 4.89  |       | 30.88 |                      |
| T.P.                                       | 0.20  | 26.26 | 9.71  | 26.06                |
| R.R. Spk Pole N.E. Mason                   | 4.80  |       | 26.46 |                      |

|  |       |       |        |                        |
|--|-------|-------|--------|------------------------|
| 309  | 36.36 |       | 33.27  | Mon Henry              |
| R.R. Spk Pole N.E. Conde   | 3.06  |       | 33.30  |                        |
| T.P.   | 4.65  | 38.11 | 2.90   | 33.46                  |
| R.R. Spk Top fence post Aristot La Jolla Blvd<br>Foot at S. end of sign board. | 1.70  |       | 36.41  |                        |
| T.P.   | 8.04  | 46.13 | 0.02   | 38.09                  |
| Mon S.W. La Jolla & Ampudia  | 16.1  |       | 114.49 | 44.42                  |
|  | 11.85 | 56.28 |        |                        |
| Terra N.W. R.R. Spk pole   | 3.66  |       | 52.62  |                        |
| T.P.   | 11.20 | 67.09 | 0.99   | 55.29                  |
| Hortensia N.W. R.R. Spk pole   | 2.78  |       | 64.31  |                        |
| T.P.   | 6.83  | 72.52 | 1.45   | 65.64                  |
| Withely S.W. R.R. Spk pole   | 2.03  |       | 70.47  | <del>70.47</del> 70.33 |
| T.P.   | 10.99 | 82.85 | 0.66   | 71.86                  |
| Couts N.E. R.R. Spk pole   | 2.49  |       | 80.36  |                        |
| T.P.   | 6.50  | 89.22 | 0.13   | 82.72                  |
| Bardini SE R.R. Spk pole   | 3.62  |       | 85.60  |                        |
| T.P.   | 2.09  | 85.18 | 6.13   | 83.09                  |
| Wright NE R.R. Spk pole  | 2.59  |       | 82.59  |                        |
| T.P.   | 2.25  | 81.05 | 6.38   | 78.80                  |
| Estudillo SE R.R. Spk pole   | 3.67  |       | 71.38  |                        |
| T.P.   | 2.23  | 77.14 | 6.14   | 74.91                  |
| Noell NE R.R. Spk pole   | 2.48  |       | 74.66  |                        |
| T.P.   | 0.90  | 70.40 | 7.64   | 69.50                  |
| Stone N.E. R.R. Spk pole   | 2.75  |       | 67.65  |                        |
| T.P.   | 0.67  | 65.27 | 5.80   | 64.60                  |



|                                       |       |       |       |                  |
|---------------------------------------|-------|-------|-------|------------------|
|                                       | 65.27 |       |       |                  |
| Clayton N. xl R. R. Spk pole          | 4.79  |       | 60.48 |                  |
| T. P.                                 | 3.49  | 60.39 | 8.37  | 56.90            |
| Pierce & Cal about Circl Curve E side | 6.98  |       |       | <del>54.47</del> |
| R R Spk pole                          |       |       |       | 53.54            |
| T. P.                                 | 11.30 | 70.61 | 1.08  | 59.31            |
| Pierce & Arctic SE R R Spk pole       | 4.94  |       | 65.67 |                  |
| T. P.                                 | 11.32 | 81.85 | 0.08  | 70.53            |
| Pierce & India SE R. R. Spk pole      | 1.73  |       | 80.12 |                  |
| Winder X India B. P. SW Cor.          | 4.84  |       | 77.01 |                  |

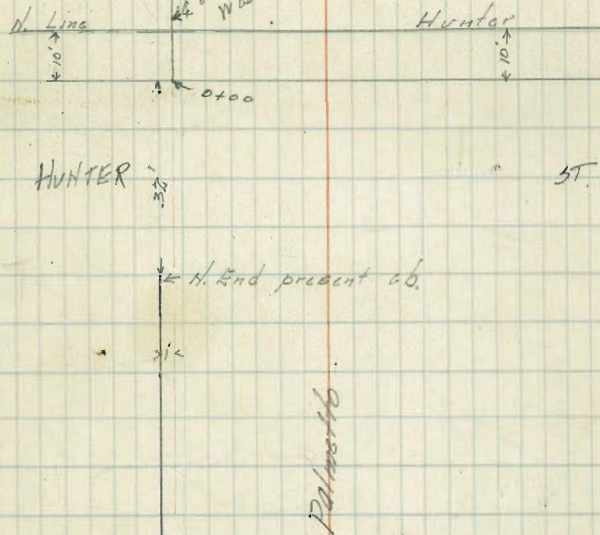


3/9/22

Gregory Levels for Drain on  
Moore Miller Show.  
Palmetto + Hunter

|                    |      |        |        | BP. SE<br>Palmetto's<br>Arbor Dr |
|--------------------|------|--------|--------|----------------------------------|
|                    | 0.91 | 279.92 | 279.01 |                                  |
|                    | 0.58 | 268.86 | 11.64  | 268.28                           |
| 0+00               |      |        | 7.2    | 261.7                            |
| +10                |      |        | 7.1    | 261.8                            |
| +11                |      |        | 13.3   | 255.6                            |
| TP                 | 0.00 | 256.06 | 12.80  | 256.06                           |
| +20                |      |        | 2.4    | 253.7                            |
| +33                |      |        | 7.0    | 249.1                            |
| +45                |      |        | 11.8   | 244.3                            |
| TP                 | 0.62 | 244.68 | 12.00  | 244.06                           |
| +65                |      |        | 9.7    | 235.0                            |
| +70 = bottom Draw. |      |        | 13.7   | 231.0                            |

79

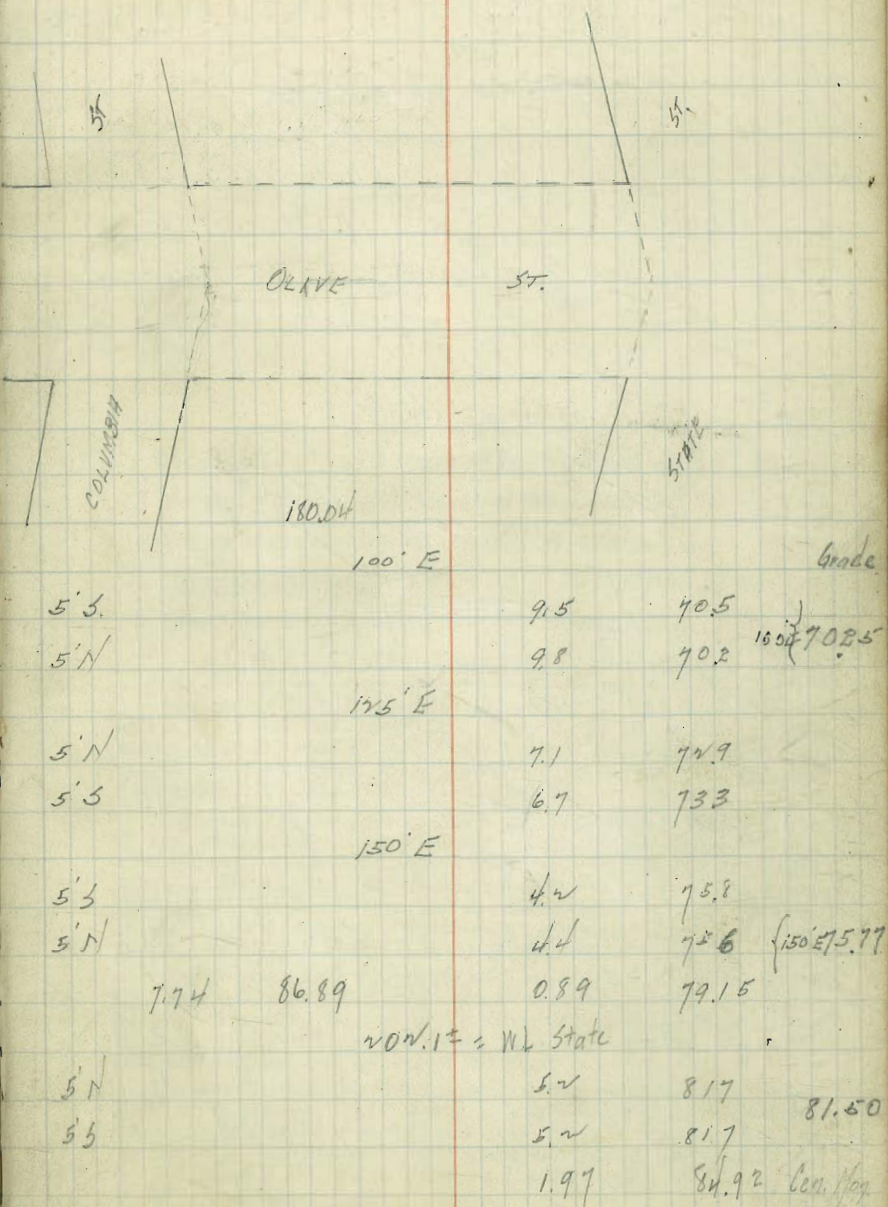




Gregory Levels on Olive St  
E of Columbia  
for Stairway

|                     |        |        |  |
|---------------------|--------|--------|--|
| 12.31               | 144.14 | 131.83 | 56 ft. NE<br>Col. + Nat.                                     |
| 14.33               | 155.89 | 0.58   | 143.56   |
| E.L. Columbia grade |        |        |  |
| 5.5. of Olive       | 12.1   | 43.5   | 43.26  |
| 5.11                | 11.9   | 44.0   |  |
|                     | 28' E  |        |  |
| 5.11                | 11.2   | 44.7   |  |
| 5.5                 | 11.0   | 44.9   | 33E 145.25<br>bot. of steps                                  |
|                     | 35' E  |        |  |
| 5.5                 | 9.7    | 46.2   |  |
| 5.11                | 9.0    | 46.9   |  |
|                     | 37' E  |        |  |
| 5.11                | 6.9    | 49.0   |  |
| 5.5                 | 7.9    | 49.0   |  |
| 14.30               | 167.86 | 0.33   | 155.56   |
|                     | 39' E  |        |  |
| 5.11                | 7.8    | 60.1   |  |
|                     | 40' E  |        |  |
| 5.5                 | 6.6    | 61.3   |  |
|                     | 65' E  |        |  |
| 5.5                 | 3.0    | 64.9   |  |
| 5.11                | 3.2    | 64.7   |  |
|                     | 75' E  |        | 71.47 E<br>Grade = 166.25<br>Top step.<br>East edge of track |
| 5.11                | 1.4    | 66.5   |  |
| 5.5                 | 0.7    | 67.2   |  |
| 14.49               | 180.04 | 0.31   | 167.55   |

10.7 / 11.25 / 11.30 / 11.35 / 11.40 / 11.45 / 11.50 / 11.55 / 12.00 / 12.05 / 12.10 / 12.15 / 12.20 / 12.25 / 12.30 / 12.35 / 12.40 / 12.45 / 12.50 / 12.55 / 13.00



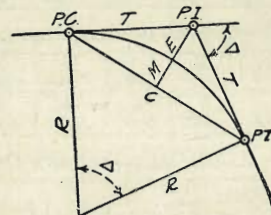


|   | 3.22 | 12.74 | 9.54 | B.P.N.E.<br>C.C. = 10.05 |
|---|------|-------|------|--------------------------|
| plank curb S. End Bridge                        |      | 9.24  | 3.50 |                          |
| deck ✓ ✓ ✓                                      |      | 9.90  | 2.84 |                          |
| Rail at N. E.C.                                 |      | 10.48 | 2.76 |                          |
| C.C.  |      | 10.90 | 1.84 |                          |
| dirt. Int. of 20 lines N. P. to N. Mission Blvd |      | 11.05 | 1.69 |                          |
| Rail at S.E.C.                                  |      | 10.58 | 2.19 |                          |



# DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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## CURVE FORMULAS

Radius= $R = \frac{50}{\sin \frac{D}{2}}$  (1) Degree of Curve= $D$  and  $\sin \frac{D}{2} = \frac{50}{R}$  (2)

Tangent= $T = R \tan \frac{\Delta}{2}$  (3) Length of Curve= $L = 100 \frac{\Delta}{D}$  (4)

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

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

Long Chord= $C = 2 R \sin \frac{\Delta}{2}$  (10)  $\Delta =$  Central Angle

## EXPLANATION AND USE OF TABLES

**Stations.**—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T.  $\Delta=62^\circ 10'$   $D=8^\circ 20'$ . From Table IV for  $1^\circ$  curve  $T=3454.1$  and  $\div 8\frac{1}{2}=414.49$  ft. From Table V correction=.36 or  $T=414.85$  ft. P. C.=Sta. P. I.— $T=157+45.50$ . Also from (4)  $L=746.00$  and P. T.=Sta. P. C. + $L=164+91.50$ .

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

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

**Externals.**—May be found in similar manner to tangents. Thus  $E$  for curve above is 115.37. For from Table IV for  $1^\circ$  curve  $E=960.6$  for  $8^\circ 20'=960.6 \div 8\frac{1}{2}=115.27$  and from Table V correction=.10 or  $E=115.37$ . Or suppose  $\Delta=32^\circ$  and  $E$  is measured and found to be 42 ft. What is  $D$ ? From Table IV  $E=230.9$  and  $\div 42=5.5$  or  $D=5^\circ 30'$ .



TABLE I.—MINUTES IN DECIMALS OF A DEGREE.

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

TABLE II.—INCHES IN DECIMALS OF A FOOT.

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

TABLE III.—RADI, ORDINATES AND DEFLECTIONS.

| Deg.   | Radius  | Mid. Ord. | Tan. Offset | Def. for 1 Foot | Deg. | Radius | Mid. Ord. | Tan. Offset | Def. for 1 Foot |
|--------|---------|-----------|-------------|-----------------|------|--------|-----------|-------------|-----------------|
| 0° 10' | 34377.5 | .036      | .145        | 0.05            | 7°   | 819.02 | 1.528     | 6.105       | 2.10            |
| 20     | 17188.8 | .073      | .291        | 0.10            | 20'  | 781.84 | 1.600     | 6.395       | 2.20            |
| 30     | 11459.2 | .109      | .436        | 0.15            | 30   | 764.49 | 1.637     | 6.540       | 2.25            |
| 40     | 8594.42 | .145      | .582        | 0.20            | 40   | 747.89 | 1.673     | 6.685       | 2.30            |
| 50     | 6875.55 | .182      | .727        | 0.25            | 8    | 716.78 | 1.746     | 6.976       | 2.40            |
| 1      | 5729.65 | .218      | .873        | 0.30            | 20   | 688.16 | 1.819     | 7.266       | 2.50            |
| 10     | 4911.15 | .255      | 1.018       | 0.35            | 30   | 674.69 | 1.855     | 7.411       | 2.55            |
| 20     | 4297.28 | .291      | 1.164       | 0.40            | 40   | 661.74 | 1.892     | 7.556       | 2.60            |
| 30     | 3819.83 | .327      | 1.309       | 0.45            | 9    | 637.28 | 1.965     | 7.846       | 2.70            |
| 40     | 3437.87 | .364      | 1.454       | 0.50            | 20   | 614.56 | 2.037     | 8.136       | 2.80            |
| 50     | 3125.36 | .400      | 1.600       | 0.55            | 30   | 603.80 | 2.074     | 8.281       | 2.85            |
| 2      | 2864.93 | .436      | 1.745       | 0.60            | 40   | 593.42 | 2.110     | 8.426       | 2.90            |
| 10     | 2644.58 | .473      | 1.891       | 0.65            | 10   | 573.69 | 2.183     | 8.716       | 3.00            |
| 20     | 2455.70 | .509      | 2.036       | 0.70            | 30   | 548.44 | 2.292     | 9.150       | 3.15            |
| 30     | 2292.01 | .545      | 2.181       | 0.75            | 40   | 521.67 | 2.402     | 9.585       | 3.30            |
| 40     | 2148.79 | .582      | 2.327       | 0.80            | 11   | 499.06 | 2.511     | 10.02       | 3.45            |
| 50     | 2022.41 | .618      | 2.472       | 0.85            | 12   | 478.34 | 2.620     | 10.45       | 3.60            |
| 3      | 1910.08 | .655      | 2.618       | 0.90            | 13   | 459.28 | 2.730     | 10.89       | 3.75            |
| 10     | 1809.57 | .691      | 2.763       | 0.95            | 14   | 441.68 | 2.839     | 11.32       | 3.90            |
| 20     | 1719.12 | .727      | 2.908       | 1.00            | 15   | 425.40 | 2.949     | 11.75       | 4.05            |
| 30     | 1637.28 | .764      | 3.054       | 1.05            | 16   | 410.28 | 3.058     | 12.18       | 4.20            |
| 40     | 1562.88 | .800      | 3.199       | 1.10            | 17   | 396.20 | 3.168     | 12.62       | 4.35            |
| 50     | 1494.95 | .836      | 3.345       | 1.15            | 18   | 383.07 | 3.277     | 13.05       | 4.50            |
| 4      | 1432.69 | .873      | 3.490       | 1.20            | 19   | 370.78 | 3.387     | 13.49       | 4.65            |
| 10     | 1375.40 | .909      | 3.635       | 1.25            | 20   | 359.27 | 3.496     | 13.92       | 4.80            |
| 20     | 1322.53 | .945      | 3.718       | 1.30            | 21   | 348.45 | 3.606     | 14.35       | 4.95            |
| 30     | 1273.57 | .982      | 3.926       | 1.35            | 22   | 338.27 | 3.716     | 14.78       | 5.10            |
| 40     | 1228.11 | 1.018     | 4.071       | 1.40            | 23   | 319.62 | 3.935     | 15.64       | 5.40            |
| 50     | 1185.78 | 1.055     | 4.217       | 1.45            | 24   | 302.94 | 4.155     | 16.51       | 5.70            |
| 5      | 1146.28 | 1.091     | 4.362       | 1.50            | 25   | 287.94 | 4.374     | 17.37       | 6.00            |
| 10     | 1109.33 | 1.127     | 4.507       | 1.55            | 26   | 274.37 | 4.594     | 18.22       | 6.30            |
| 20     | 1074.68 | 1.164     | 4.653       | 1.60            | 27   | 262.04 | 4.814     | 19.08       | 6.60            |
| 30     | 1042.14 | 1.200     | 4.798       | 1.65            | 28   | 250.79 | 5.035     | 19.94       | 6.90            |
| 40     | 1011.51 | 1.237     | 4.943       | 1.70            | 29   | 240.49 | 5.255     | 20.79       | 7.20            |
| 50     | 982.64  | 1.273     | 5.088       | 1.75            | 30   | 231.01 | 5.476     | 21.64       | 7.50            |
| 6      | 955.37  | 1.309     | 5.234       | 1.80            | 21   | 222.27 | 5.697     | 22.50       | 7.80            |
| 10     | 929.57  | 1.346     | 5.379       | 1.85            | 22   | 214.18 | 5.918     | 23.35       | 8.10            |
| 20     | 905.13  | 1.382     | 5.524       | 1.90            | 23   | 206.68 | 6.139     | 24.19       | 8.40            |
| 30     | 881.95  | 1.418     | 5.669       | 1.95            | 24   | 199.70 | 6.360     | 25.04       | 8.70            |
| 40     | 859.92  | 1.455     | 5.814       | 2.00            | 25   | 193.18 | 6.583     | 25.88       | 9.00            |

Note. Chord Deflection=2 times tangent deflection.

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

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



TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

| Angle | Sine.  | Tan.  | Cotg. | Cosin. | Angle  | Sine.  | Tan.  | Cotg. | Cosin. |        |
|-------|--------|-------|-------|--------|--------|--------|-------|-------|--------|--------|
| 0     | 0      | 0     | ∞     | 1      | 90     | 1      | ∞     | 0     | 0      |        |
| 10    | .0029  | .0029 | 343.8 | .99998 | 80     | .1736  | .1763 | 5.671 | .98481 |        |
| 20    | .0058  | .0058 | 171.9 | .99996 | 70     | .1765  | .1793 | 5.769 | .98531 |        |
| 30    | .0087  | .0087 | 114.6 | .99994 | 60     | .1794  | .1823 | 5.485 | .98378 |        |
| 40    | .0116  | .0116 | 85.94 | .99991 | 50     | .1822  | .1853 | 5.396 | .98325 |        |
| 50    | .0145  | .0145 | 68.75 | .99989 | 40     | .1851  | .1883 | 5.309 | .98272 |        |
| 1     | .0175  | .0175 | 57.29 | .99985 | 30     | .1880  | .1914 | 5.226 | .98218 |        |
| 10    | .0204  | .0204 | 49.10 | .99979 | 20     | .1908  | .1944 | 5.145 | .98163 |        |
| 20    | .0233  | .0233 | 42.96 | .99973 | 10     | .1937  | .1974 | 5.066 | .98107 |        |
| 30    | .0262  | .0262 | 38.19 | .99966 | 0      | .1965  | .2003 | 4.915 | .97992 |        |
| 40    | .0291  | .0291 | 34.37 | .99958 | 50     | .2051  | .2095 | 4.773 | .97875 |        |
| 50    | .0320  | .0320 | 31.24 | .99949 | 10     | .2079  | .2126 | 4.705 | .97815 |        |
| 2     | .0349  | .0349 | 28.64 | .99939 | 80     | .2108  | .2156 | 4.638 | .97754 |        |
| 10    | .0378  | .0378 | 26.43 | .99929 | 70     | .2136  | .2186 | 4.574 | .97692 |        |
| 20    | .0407  | .0407 | 24.54 | .99917 | 60     | .2164  | .2217 | 4.511 | .97630 |        |
| 30    | .0436  | .0437 | 22.90 | .99905 | 50     | .2193  | .2247 | 4.449 | .97566 |        |
| 40    | .0465  | .0466 | 21.47 | .99892 | 40     | .2221  | .2278 | 4.390 | .97502 |        |
| 50    | .0494  | .0495 | 20.21 | .99878 | 30     | .2250  | .2309 | 4.331 | .97437 |        |
| 3     | .0523  | .0524 | 19.08 | .99863 | 20     | .2278  | .2339 | 4.275 | .97371 |        |
| 10    | .0552  | .0553 | 18.07 | .99847 | 10     | .2306  | .2370 | 4.219 | .97304 |        |
| 20    | .0581  | .0582 | 17.17 | .99831 | 0      | .2334  | .2401 | 4.165 | .97237 |        |
| 30    | .0610  | .0612 | 16.35 | .99813 | 50     | .2363  | .2432 | 4.113 | .97169 |        |
| 40    | .0640  | .0641 | 15.60 | .99795 | 40     | .2391  | .2462 | 4.061 | .97100 |        |
| 50    | .0669  | .0670 | 14.92 | .99776 | 30     | .2419  | .2493 | 4.011 | .97030 |        |
| 4     | .0698  | .0699 | 14.30 | .99756 | 20     | .2447  | .2524 | 3.962 | .96959 |        |
| 10    | .0727  | .0729 | 13.73 | .99736 | 10     | .2476  | .2555 | 3.914 | .96887 |        |
| 20    | .0756  | .0758 | 13.20 | .99714 | 0      | .2504  | .2586 | 3.867 | .96815 |        |
| 30    | .0785  | .0787 | 12.71 | .99692 | 50     | .2532  | .2617 | 3.821 | .96742 |        |
| 40    | .0814  | .0816 | 12.25 | .99668 | 40     | .2560  | .2648 | 3.776 | .96667 |        |
| 50    | .0843  | .0846 | 11.83 | .99644 | 30     | .2588  | .2679 | 3.732 | .96593 |        |
| 5     | .0872  | .0875 | 11.43 | .99619 | 20     | .2616  | .2711 | 3.689 | .96517 |        |
| 10    | .0901  | .0904 | 11.06 | .99594 | 10     | .2644  | .2742 | 3.647 | .96440 |        |
| 20    | .0929  | .0934 | 10.71 | .99567 | 0      | .2672  | .2773 | 3.606 | .96363 |        |
| 30    | .0958  | .0963 | 10.39 | .99540 | 50     | .2700  | .2805 | 3.566 | .96285 |        |
| 40    | .0987  | .0992 | 10.08 | .99511 | 40     | .2728  | .2836 | 3.526 | .96206 |        |
| 50    | .1016  | .1022 | 9.788 | .99482 | 30     | .2756  | .2866 | 3.486 | .96126 |        |
| 6     | .1045  | .1051 | 9.514 | .99452 | 20     | .2784  | .2896 | 3.446 | .96046 |        |
| 10    | .1074  | .1080 | 9.255 | .99421 | 10     | .2812  | .2926 | 3.406 | .95966 |        |
| 20    | .1103  | .1110 | 9.010 | .99390 | 0      | .2840  | .2956 | 3.366 | .95886 |        |
| 30    | .1132  | .1139 | 8.777 | .99357 | 50     | .2868  | .3086 | 3.326 | .95806 |        |
| 40    | .1161  | .1169 | 8.556 | .99324 | 40     | .2896  | .3116 | 3.286 | .95726 |        |
| 50    | .1190  | .1198 | 8.345 | .99290 | 30     | .2924  | .3146 | 3.246 | .95646 |        |
| 7     | .1219  | .1228 | 8.144 | .99255 | 20     | .2952  | .3176 | 3.206 | .95566 |        |
| 10    | .1248  | .1257 | 7.953 | .99219 | 10     | .2980  | .3206 | 3.166 | .95486 |        |
| 20    | .1276  | .1287 | 7.770 | .99182 | 0      | .3008  | .3236 | 3.126 | .95406 |        |
| 30    | .1305  | .1317 | 7.596 | .99144 | 50     | .3036  | .3266 | 3.086 | .95326 |        |
| 40    | .1334  | .1346 | 7.429 | .99106 | 40     | .3064  | .3296 | 3.046 | .95246 |        |
| 50    | .1363  | .1376 | 7.269 | .99067 | 30     | .3092  | .3326 | 3.006 | .95166 |        |
|       | Cosin. | Cotg. | Tan.  | Sine.  | Angle. | Cosin. | Cotg. | Tan.  | Sine.  | Angle. |

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

| Angle | Sine.  | Tan.  | Cotg. | Cosin. | Angle  | Sine.  | Tan.  | Cotg. | Cosin. |        |
|-------|--------|-------|-------|--------|--------|--------|-------|-------|--------|--------|
| 16    | .2756  | .2867 | 3.487 | .96126 | 74     | .4607  | .4452 | 2.246 | .91355 |        |
| 10    | .2784  | .2899 | 3.450 | .96046 | 50     | .4094  | .4487 | 2.229 | .91236 |        |
| 20    | .2812  | .2931 | 3.412 | .95964 | 40     | .4120  | .4522 | 2.211 | .91116 |        |
| 30    | .2840  | .2962 | 3.376 | .95882 | 30     | .4147  | .4557 | 2.194 | .90996 |        |
| 40    | .2868  | .2994 | 3.340 | .95799 | 20     | .4173  | .4592 | 2.177 | .90875 |        |
| 50    | .2896  | .3026 | 3.305 | .95715 | 10     | .4200  | .4628 | 2.161 | .90753 |        |
| 17    | .2924  | .3057 | 3.271 | .95631 | 73     | .4226  | .4663 | 2.145 | .90631 |        |
| 10    | .2952  | .3089 | 3.237 | .95545 | 50     | .4253  | .4699 | 2.128 | .90507 |        |
| 20    | .2979  | .3121 | 3.204 | .95459 | 40     | .4279  | .4734 | 2.112 | .90383 |        |
| 30    | .3007  | .3153 | 3.172 | .95372 | 30     | .4305  | .4770 | 2.097 | .90259 |        |
| 40    | .3035  | .3185 | 3.140 | .95284 | 20     | .4331  | .4806 | 2.081 | .90133 |        |
| 50    | .3062  | .3217 | 3.108 | .95195 | 10     | .4358  | .4841 | 2.066 | .90007 |        |
| 18    | .3090  | .3249 | 3.078 | .95106 | 72     | .4384  | .4877 | 2.050 | .89879 |        |
| 10    | .3118  | .3281 | 3.048 | .95015 | 50     | .4410  | .4913 | 2.035 | .89752 |        |
| 20    | .3145  | .3314 | 3.018 | .94924 | 40     | .4436  | .4950 | 2.020 | .89623 |        |
| 30    | .3173  | .3346 | 2.989 | .94832 | 30     | .4462  | .4986 | 2.006 | .89493 |        |
| 40    | .3201  | .3378 | 2.960 | .94740 | 20     | .4488  | .5022 | 1.991 | .89363 |        |
| 50    | .3228  | .3411 | 2.932 | .94646 | 10     | .4514  | .5059 | 1.977 | .89232 |        |
| 19    | .3256  | .3443 | 2.904 | .94552 | 71     | .4540  | .5095 | 1.963 | .89101 |        |
| 10    | .3283  | .3476 | 2.877 | .94457 | 50     | .4566  | .5132 | 1.949 | .88968 |        |
| 20    | .3311  | .3508 | 2.850 | .94361 | 40     | .4592  | .5169 | 1.935 | .88835 |        |
| 30    | .3338  | .3541 | 2.824 | .94264 | 30     | .4617  | .5206 | 1.921 | .88701 |        |
| 40    | .3365  | .3574 | 2.798 | .94167 | 20     | .4643  | .5243 | 1.907 | .88566 |        |
| 50    | .3393  | .3607 | 2.773 | .94068 | 10     | .4669  | .5280 | 1.894 | .88431 |        |
| 20    | .3420  | .3640 | 2.747 | .93969 | 70     | .4695  | .5317 | 1.881 | .88295 |        |
| 10    | .3448  | .3673 | 2.723 | .93869 | 50     | .4720  | .5354 | 1.868 | .88158 |        |
| 20    | .3475  | .3706 | 2.699 | .93769 | 40     | .4746  | .5392 | 1.855 | .88020 |        |
| 30    | .3502  | .3739 | 2.675 | .93667 | 30     | .4772  | .5430 | 1.842 | .87882 |        |
| 40    | .3529  | .3772 | 2.651 | .93565 | 20     | .4797  | .5467 | 1.829 | .87743 |        |
| 50    | .3557  | .3805 | 2.628 | .93462 | 10     | .4823  | .5505 | 1.816 | .87603 |        |
| 21    | .3584  | .3839 | 2.605 | .93358 | 69     | .4848  | .5543 | 1.804 | .87462 |        |
| 10    | .3611  | .3872 | 2.583 | .93253 | 50     | .4874  | .5581 | 1.792 | .87321 |        |
| 20    | .3638  | .3906 | 2.560 | .93148 | 40     | .4899  | .5619 | 1.780 | .87178 |        |
| 30    | .3665  | .3939 | 2.539 | .93042 | 30     | .4924  | .5658 | 1.767 | .87036 |        |
| 40    | .3692  | .3973 | 2.517 | .92935 | 20     | .4950  | .5696 | 1.756 | .86892 |        |
| 50    | .3719  | .4006 | 2.496 | .92827 | 10     | .4975  | .5735 | 1.744 | .86748 |        |
| 22    | .3746  | .4040 | 2.475 | .92718 | 68     | .4975  | .5735 | 1.744 | .86748 |        |
| 10    | .3773  | .4074 | 2.455 | .92609 | 50     | .5000  | .5774 | 1.732 | .86603 |        |
| 20    | .3800  | .4108 | 2.434 | .92499 | 40     | .5025  | .5812 | 1.720 | .86457 |        |
| 30    | .3827  | .4142 | 2.414 | .92388 | 30     | .5050  | .5851 | 1.709 | .86310 |        |
| 40    | .3854  | .4176 | 2.394 | .92276 | 20     | .5075  | .5890 | 1.698 | .86163 |        |
| 50    | .3881  | .4210 | 2.375 | .92164 | 10     | .5100  | .5930 | 1.686 | .86015 |        |
| 23    | .3907  | .4245 | 2.356 | .92050 | 67     | .5125  | .5969 | 1.675 | .85866 |        |
| 10    | .3934  | .4279 | 2.337 | .91936 | 50     | .5150  | .6009 | 1.664 | .85717 |        |
| 20    | .3961  | .4314 | 2.318 | .91822 | 40     | .5175  | .6048 | 1.653 | .85567 |        |
| 30    | .3987  | .4348 | 2.300 | .91706 | 30     | .5200  | .6088 | 1.643 | .85416 |        |
| 40    | .4014  | .4383 | 2.282 | .91590 | 20     | .5225  | .6128 | 1.632 | .85264 |        |
| 50    | .4041  | .4417 | 2.264 | .91472 | 10     | .5250  | .6168 | 1.621 | .85112 |        |
|       | Cosin. | Cotg. | Tan.  | Sine.  | Angle. | Cosin. | Cotg. | Tan.  | Sine.  | Angle. |

0223  
126  
239  
2996  
29  
0116  
5800, 016  
76  
0175  
8850  
46

23.54  
2.5  
23.3  
99917  
250000  
199834  
501660  
499886  
207500  
2562

10816  
200  
100  
0816  
20



TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

| Angle | Sine.  | Tan.  | Cotg. | Cosin. | Angle  | Sine.  | Tan.  | Cotg. | Cosin. |        |
|-------|--------|-------|-------|--------|--------|--------|-------|-------|--------|--------|
| 32    | .5299  | .6249 | 1.600 | .84805 | 58     | .30    | .6225 | .7954 | 1.257  |        |
| 10    | .5324  | .6289 | 1.590 | .84650 | 50     | 40     | .6248 | .8002 | 1.250  |        |
| 20    | .5348  | .6330 | 1.580 | .84495 | 40     | 50     | .6271 | .8050 | 1.242  |        |
| 30    | .5373  | .6371 | 1.570 | .84339 | 30     |        |       |       |        |        |
| 40    | .5398  | .6412 | 1.560 | .84182 | 20     |        |       |       |        |        |
| 50    | .5422  | .6453 | 1.550 | .84025 | 10     |        |       |       |        |        |
| 33    | .5446  | .6494 | 1.540 | .83867 | 57     |        |       |       |        |        |
| 10    | .5471  | .6536 | 1.530 | .83708 | 50     |        |       |       |        |        |
| 20    | .5495  | .6577 | 1.520 | .83549 | 40     |        |       |       |        |        |
| 30    | .5519  | .6619 | 1.510 | .83389 | 30     |        |       |       |        |        |
| 40    | .5544  | .6661 | 1.501 | .83228 | 20     |        |       |       |        |        |
| 50    | .5568  | .6703 | 1.492 | .83066 | 10     |        |       |       |        |        |
| 34    | .5592  | .6745 | 1.483 | .82904 | 56     |        |       |       |        |        |
| 10    | .5616  | .6787 | 1.473 | .82741 | 50     |        |       |       |        |        |
| 20    | .5640  | .6830 | 1.464 | .82577 | 40     |        |       |       |        |        |
| 30    | .5664  | .6873 | 1.455 | .82413 | 30     |        |       |       |        |        |
| 40    | .5688  | .6916 | 1.446 | .82248 | 20     |        |       |       |        |        |
| 50    | .5712  | .6959 | 1.437 | .82082 | 10     |        |       |       |        |        |
| 35    | .5736  | .7002 | 1.428 | .81915 | 55     |        |       |       |        |        |
| 10    | .5760  | .7046 | 1.419 | .81748 | 50     |        |       |       |        |        |
| 20    | .5783  | .7089 | 1.411 | .81580 | 40     |        |       |       |        |        |
| 30    | .5807  | .7133 | 1.402 | .81412 | 30     |        |       |       |        |        |
| 40    | .5831  | .7177 | 1.393 | .81242 | 20     |        |       |       |        |        |
| 50    | .5854  | .7221 | 1.385 | .81072 | 10     |        |       |       |        |        |
| 36    | .5878  | .7265 | 1.376 | .80902 | 54     |        |       |       |        |        |
| 10    | .5901  | .7310 | 1.368 | .80730 | 50     |        |       |       |        |        |
| 20    | .5925  | .7355 | 1.360 | .80558 | 40     |        |       |       |        |        |
| 30    | .5948  | .7400 | 1.351 | .80386 | 30     |        |       |       |        |        |
| 40    | .5972  | .7445 | 1.343 | .80212 | 20     |        |       |       |        |        |
| 50    | .5995  | .7490 | 1.335 | .80038 | 10     |        |       |       |        |        |
| 37    | .6018  | .7536 | 1.327 | .79864 | 53     |        |       |       |        |        |
| 10    | .6041  | .7581 | 1.319 | .79688 | 50     |        |       |       |        |        |
| 20    | .6065  | .7627 | 1.311 | .79512 | 40     |        |       |       |        |        |
| 30    | .6088  | .7673 | 1.303 | .79335 | 30     |        |       |       |        |        |
| 40    | .6111  | .7720 | 1.295 | .79158 | 20     |        |       |       |        |        |
| 50    | .6134  | .7766 | 1.288 | .78980 | 10     |        |       |       |        |        |
| 38    | .6157  | .7813 | 1.280 | .78801 | 52     |        |       |       |        |        |
| 10    | .6180  | .7860 | 1.272 | .78622 | 50     |        |       |       |        |        |
| 20    | .6202  | .7907 | 1.265 | .78442 | 40     |        |       |       |        |        |
|       |        |       |       |        |        |        |       |       |        |        |
|       | Cosin. | Cotg. | Tan.  | Sine.  | Angle. | Cosin. | Cotg. | Tan.  | Sine.  | Angle. |

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 | 2.00 | 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 widths 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.  $= 1.48 + .028 + .089 = 1.597$  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.

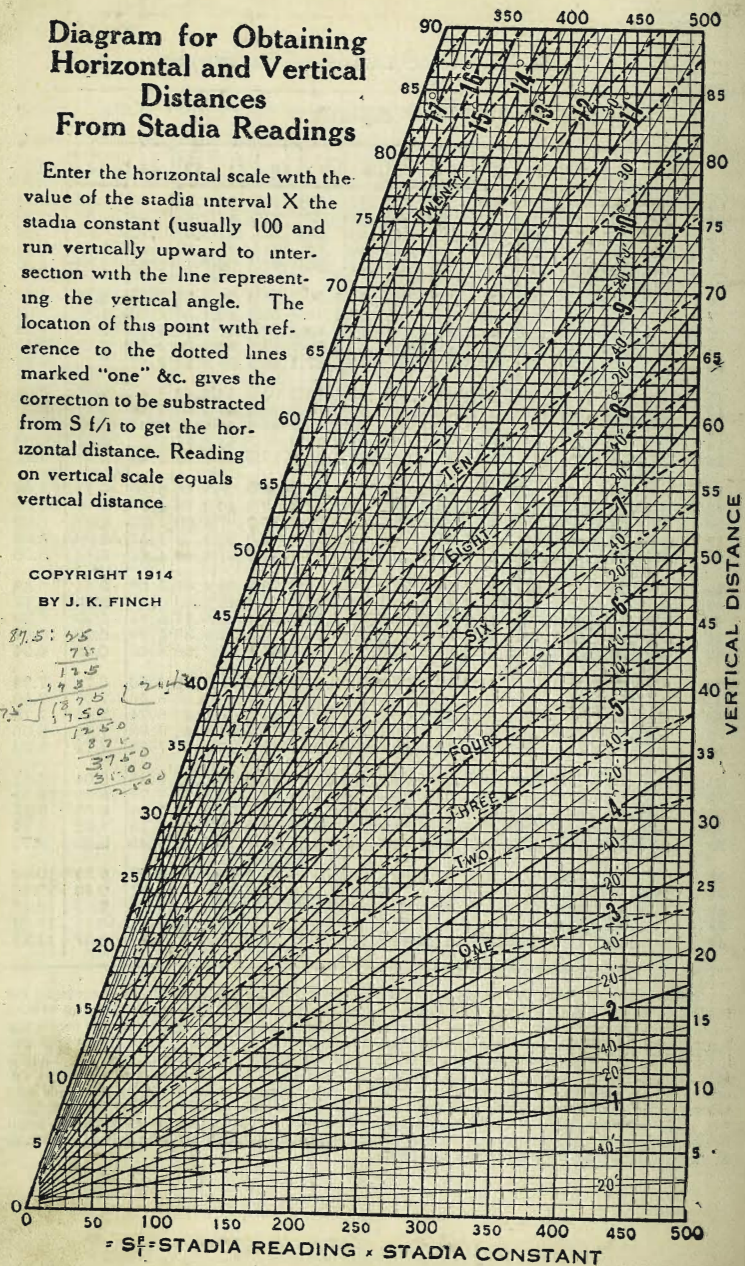


# Diagram for Obtaining Horizontal and Vertical Distances From Stadia Readings

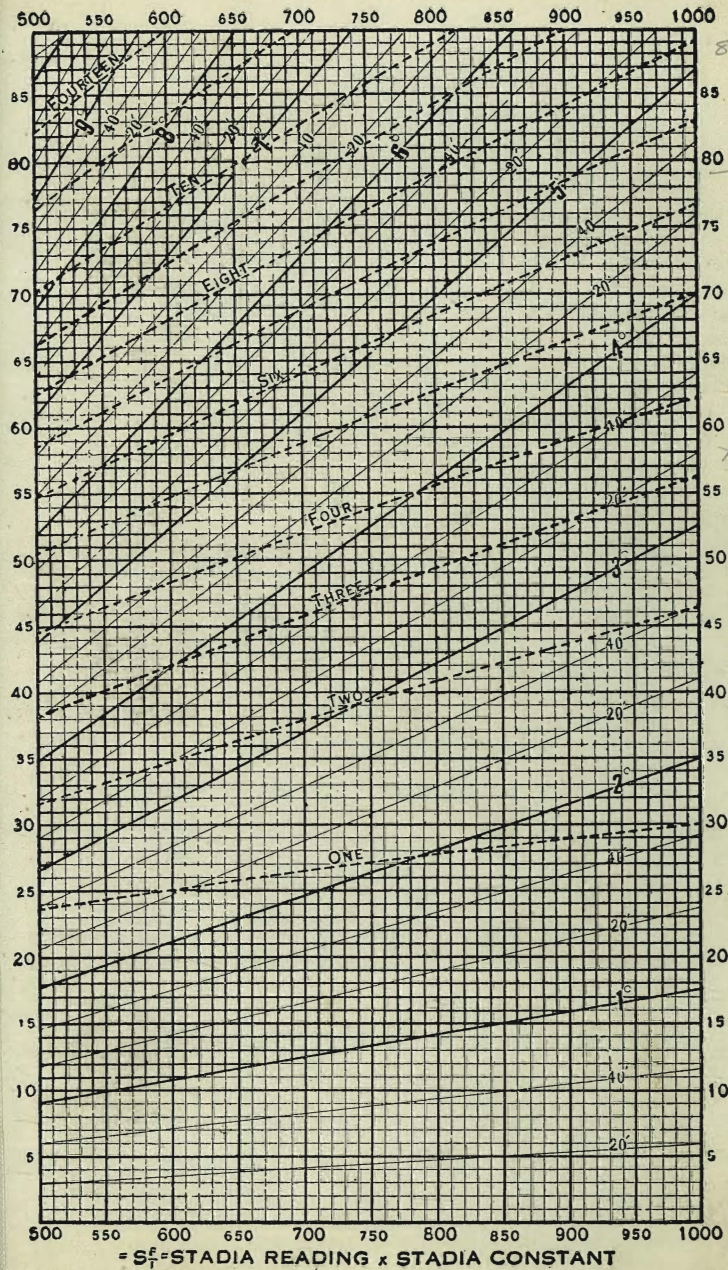
Enter the horizontal scale with the value of the stadia interval  $X$  the stadia constant (usually 100 and run vertically upward to intersection with the line representing the vertical angle. The location of this point with reference to the dotted lines marked "one" &c. gives the correction to be subtracted from  $S f/i$  to get the horizontal distance. Reading on vertical scale equals vertical distance.

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75: X: 87.5: 6.5  
 75  
 12.5  
 14.3  
 17.5  
 17.5  
 12.5  
 87.5  
 37.5  
 31.00  
 27.50



$S f/i = \text{STADIA READING} \times \text{STADIA CONSTANT}$



$S f/i = \text{STADIA READING} \times \text{STADIA CONSTANT}$

24  
 200  
 80  
 28.30  
 9  
 27.4  
 627.33  
 547.26  
 29.07  
 20.0



