

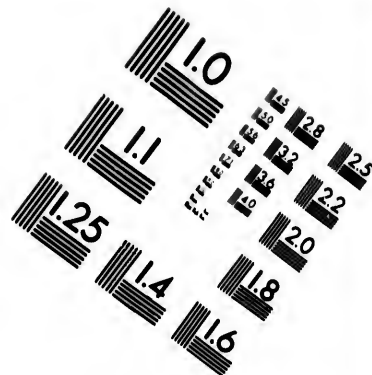
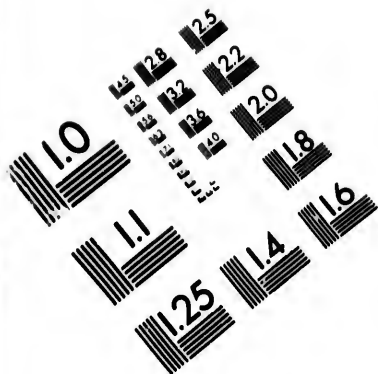
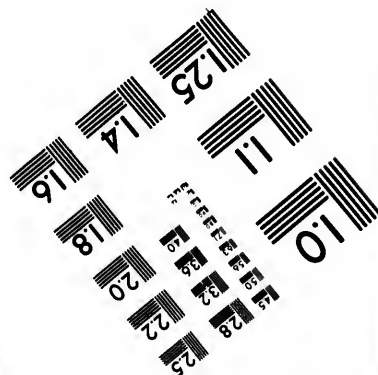
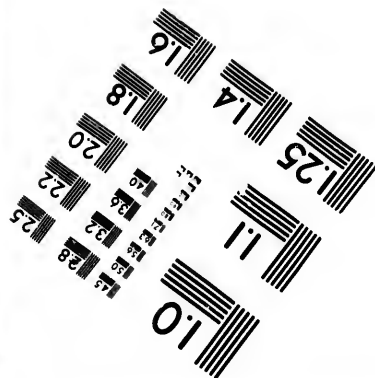
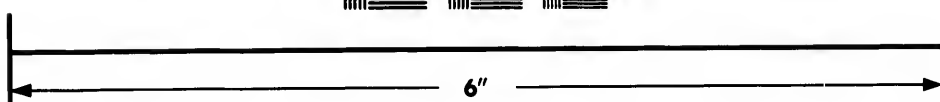
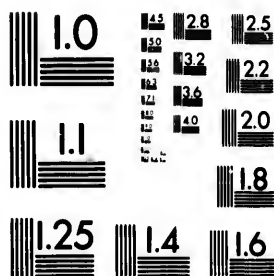


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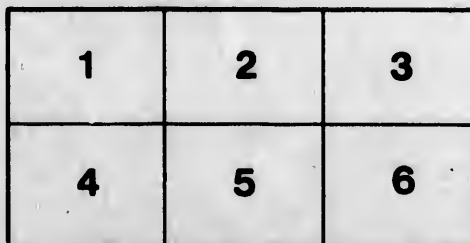
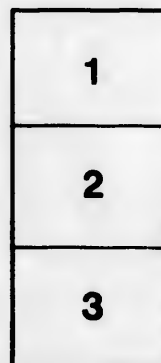
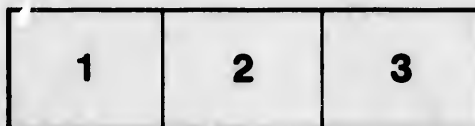
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TABULAR

RAILROAD WORK

BY THE EDITOR OF THE

RAILROAD WORK

WITHOUT ANY ADDITIONAL

SAMUEL HAZENWOOD, C. E.

BROOKVILLE, O. W.

BROOKVILLE

PRINTED BY DAVID WYKE, RECORDER OF DEEDS

1855

TABLES
FOR
ASCERTAINING THE QUANTITY
OF
EARTHWORK

IN THE
GRAND TRUNK RAILWAY OF CANADA,
BY INSPECTION ONLY,
AND
WITHOUT ANY CALCULATION;

BY
SAMUEL HAZLEWOOD, C. E.,
BROCKVILLE, C. W.

~~~~~  
**BROCKVILLE:**  
**PRINTED BY DAVID WYLIE, RECORDER OFFICE.**

**1855.**



## PREFACE.

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I have been induced to prepare the following Tables, from the conviction, that a want is felt by the parties now engaged upon the construction of the Grand Trunk Railway, for a complete set of EARTHWORK TABLES, calculated for all the Bases and Slopes now used in the construction of the Road.

I have introduced two Series of Tables, the first Series consists of eight Tables, calculated by the Prismoidal Rule ; therefore, exhibiting the TRUE cubic quantities for all depths of cutting or heights of embankment from 0 up to 30 feet, and for a length of one hundred feet.

By means of this Series of Tables, the TRUE cubic quantities, either in cuttings or embankments, are found by *inspection only, and without any calculation whatever* ; thus reducing the great labor and the multiplicity of figures attending the calculation of the Earthwork—to almost nothing. This Series will be found to be very useful in

making up the Returns of the Earthwork for the Monthly Estimates, where expedition with accuracy is so necessary.

To Sub-Contractors on the work, this Series of Tables will be invaluable, from the fact, that it will enable them to do what they would otherwise have to employ an Engineer to do for them.

The second Series of Tables was calculated *first*, and the first Series by aid of the second.

The second Series embraces eight Tables, with the same Bases and Slopes as those in the first, and calculated from one-tenth of a foot up to 30 feet, both for cuttings and embankments, but they are not calculated according to the Prismoidal Rule, because the quantities exhibited by the second Series are only for level cuttings or fillings having the same height or depth at the opposite ends of each one hundred feet station. If it is thought necessary, the calculations by these Tables may be carried out to a much greater degree of nicety by applying the Prismoidal Rule to the quantities given by the Tables, which are for every tenth of a foot, whereas the first Series is calculated for even feet only.

## Method of Using the First Series of Tables.

### EXAMPLE.

Suppose in a Railway cutting, with a base or road bed of 22 feet, and side slopes of  $1\frac{1}{2}$  to 1, at one end of a hundred feet station, the cutting is 5 feet, at the other end 27 feet, look in Table No. 2, page 14; place a finger on 5 in the first column, another on 27 in the horizontal column at the head of the Table; move the first finger horizontally, and the second downwards until they intersect, at which place you will find 2950, the actual cubic yards contained in a cutting 5 feet deep at one end, and 27 feet at the other, and for a length of one hundred feet—this example holds good for all the Tables in this Series.

The above exemplification of the practical use of the Tables speaks for itself. Observe, all that is necessary to be known is, the width of road bed, the ratio of side slopes, and the two end depths, and you have by aid of the Tables, and by *inspection only*, the TRUE CUBIC QUANTITIES contained in each 100 feet station.

If the end depths or heights are in feet and decimals, the usual mode is to *take the nearest foot*, if the depth of cutting at one end is 5.2 feet, and at the other end 27.8 feet, look upon them as 5 feet and 28 feet, and take out the cubic yards from the Tables accordingly.

If it becomes necessary, from irregularities in the ground in the direction of the line of the Railway, to take levels nearer together than 100 feet, only the same proportional parts of the cubic yards are to be taken from the Tables.

23127 N. 10th St. S.W.

**FIRST SERIES OF TABLES.**

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| 10  | 10  | 10  | 10  | 10  |
| 20  | 20  | 20  | 20  | 20  |
| 30  | 30  | 30  | 30  | 30  |
| 40  | 40  | 40  | 40  | 40  |
| 50  | 50  | 50  | 50  | 50  |
| 60  | 60  | 60  | 60  | 60  |
| 70  | 70  | 70  | 70  | 70  |
| 80  | 80  | 80  | 80  | 80  |
| 90  | 90  | 90  | 90  | 90  |
| 100 | 100 | 100 | 100 | 100 |

|    |      |      |      |      |      |      |      |      |      |
|----|------|------|------|------|------|------|------|------|------|
| 30 | 1435 | 1483 | 1530 | 1570 | 1658 | 1678 | 1758 | 1830 | 1883 |
| 29 | 1380 | 1427 | 1474 | 1525 | 1571 | 1621 | 1671 | 1721 | 1774 |
| 28 | 1325 | 1372 | 1419 | 1470 | 1515 | 1561 | 1614 | 1664 | 1715 |
| 27 | 1271 | 1317 | 1364 | 1411 | 1457 | 1505 | 1551 | 1602 | 1658 |
| 26 | 1217 | 1263 | 1309 | 1357 | 1407 | 1453 | 1502 | 1552 | 1603 |
| 25 | 1164 | 1209 | 1255 | 1303 | 1350 | 1398 | 1447 | 1497 | 1547 |
| 24 | 1111 | 1156 | 1203 | 1250 | 1298 | 1347 | 1397 | 1447 | 1497 |
| 23 | 1059 | 1105 | 1150 | 1197 | 1243 | 1289 | 1336 | 1384 | 1431 |
| 22 | 1007 | 1053 | 1099 | 1144 | 1191 | 1238 | 1285 | 1333 | 1381 |
| 21 | 955  | 1002 | 1048 | 1094 | 1141 | 1188 | 1235 | 1282 | 1330 |

# TABLE NO. 1, SINGLE TRACK.

Table of Rock Excavation, Base 20 feet, Slopes  $\frac{1}{2}$  to 1, Chain 100 feet.

| Depth<br>at one<br>end in<br>feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|------------------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                    | 1                                                       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|                                    | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                  | 37                                                      | 75      | 114     | 153     | 193     | 233     | 274     | 316     | 358     | 401     |
| 1                                  | 75                                                      | 113     | 152     | 192     | 232     | 272     | 314     | 356     | 398     | 442     |
| 2                                  | 113                                                     | 152     | 191     | 231     | 271     | 312     | 354     | 396     | 439     | 483     |
| 3                                  | 152                                                     | 191     | 231     | 271     | 311     | 353     | 395     | 437     | 480     | 524     |
| 4                                  | 192                                                     | 231     | 271     | 311     | 352     | 394     | 436     | 479     | 522     | 567     |
| 5                                  | 232                                                     | 271     | 311     | 352     | 393     | 435     | 478     | 521     | 565     | 610     |
| 6                                  | 272                                                     | 312     | 353     | 394     | 435     | 478     | 521     | 564     | 608     | 653     |
| 7                                  | 314                                                     | 354     | 395     | 436     | 478     | 521     | 564     | 608     | 652     | 697     |
| 8                                  | 356                                                     | 396     | 437     | 479     | 521     | 564     | 608     | 652     | 697     | 742     |
| 9                                  | 398                                                     | 439     | 480     | 522     | 565     | 608     | 652     | 697     | 742     | 787     |
| 10                                 | 442                                                     | 483     | 524     | 567     | 610     | 653     | 697     | 742     | 787     | 833     |
| 11                                 | 485                                                     | 527     | 569     | 611     | 655     | 698     | 743     | 788     | 834     | 880     |
| 12                                 | 530                                                     | 572     | 614     | 657     | 700     | 744     | 789     | 835     | 881     | 927     |
| 13                                 | 575                                                     | 617     | 660     | 703     | 746     | 791     | 836     | 882     | 928     | 975     |
| 14                                 | 621                                                     | 663     | 706     | 749     | 794     | 838     | 884     | 930     | 976     | 1023    |
| 15                                 | 667                                                     | 709     | 753     | 797     | 841     | 886     | 932     | 978     | 1025    | 1073    |
| 16                                 | 714                                                     | 757     | 800     | 844     | 889     | 934     | 980     | 1027    | 1074    | 1122    |
| 17                                 | 761                                                     | 805     | 848     | 893     | 938     | 984     | 1030    | 1077    | 1124    | 1172    |
| 18                                 | 810                                                     | 853     | 898     | 942     | 987     | 1033    | 1080    | 1127    | 1175    | 1223    |
| 19                                 | 858                                                     | 902     | 947     | 992     | 1037    | 1084    | 1131    | 1178    | 1226    | 1275    |
| 20                                 | 908                                                     | 952     | 996     | 1042    | 1088    | 1135    | 1182    | 1230    | 1278    | 1327    |
| 21                                 | 958                                                     | 1002    | 1047    | 1093    | 1139    | 1186    | 1234    | 1282    | 1331    | 1380    |
| 22                                 | 1008                                                    | 1053    | 1098    | 1144    | 1191    | 1238    | 1286    | 1335    | 1384    | 1433    |
| 23                                 | 1059                                                    | 1105    | 1150    | 1197    | 1243    | 1291    | 1339    | 1388    | 1437    | 1487    |
| 24                                 | 1111                                                    | 1157    | 1203    | 1249    | 1296    | 1344    | 1393    | 1442    | 1492    | 1542    |
| 25                                 | 1164                                                    | 1209    | 1256    | 1303    | 1350    | 1398    | 1447    | 1497    | 1546    | 1597    |
| 26                                 | 1217                                                    | 1263    | 1309    | 1357    | 1405    | 1453    | 1502    | 1552    | 1602    | 1653    |
| 27                                 | 1271                                                    | 1317    | 1364    | 1411    | 1460    | 1508    | 1558    | 1608    | 1658    | 1710    |
| 28                                 | 1325                                                    | 1372    | 1419    | 1467    | 1515    | 1564    | 1614    | 1664    | 1715    | 1767    |
| 29                                 | 1380                                                    | 1427    | 1474    | 1522    | 1571    | 1621    | 1671    | 1721    | 1772    | 1824    |
| 30                                 | 1435                                                    | 1483    | 1530    | 1579    | 1628    | 1678    | 1728    | 1779    | 1830    | 1883    |

**TABLE NO. 1, (CONTINUED.) SINGLE TRACK.**

Table of Rock Excavation, Base 20 feet, Slopes  $\frac{1}{2}$  to 1, Chain 100 feet.

| Depth<br>at one<br>end in<br>feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|------------------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                    | 11                                                      | 12      | 13      | 14      | 15      | 16      | 17      | 18      | 19      | 20      |
|                                    | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                  | 445                                                     | 489     | 533     | 579     | 625     | 672     | 719     | 767     | 815     | 864     |
| 1                                  | 485                                                     | 530     | 575     | 621     | 667     | 714     | 761     | 810     | 858     | 908     |
| 2                                  | 527                                                     | 572     | 617     | 663     | 709     | 757     | 805     | 853     | 902     | 952     |
| 3                                  | 569                                                     | 614     | 660     | 706     | 753     | 800     | 848     | 898     | 947     | 996     |
| 4                                  | 611                                                     | 657     | 703     | 749     | 797     | 844     | 893     | 942     | 992     | 1042    |
| 5                                  | 655                                                     | 700     | 746     | 794     | 841     | 889     | 938     | 987     | 1037    | 1088    |
| 6                                  | 695                                                     | 744     | 791     | 838     | 885     | 934     | 984     | 1033    | 1084    | 1135    |
| 7                                  | 743                                                     | 789     | 836     | 884     | 932     | 980     | 1030    | 1080    | 1131    | 1182    |
| 8                                  | 788                                                     | 835     | 882     | 930     | 978     | 1027    | 1077    | 1127    | 1178    | 1230    |
| 9                                  | 834                                                     | 881     | 928     | 976     | 1025    | 1074    | 1124    | 1175    | 1226    | 1278    |
| 10                                 | 880                                                     | 927     | 975     | 1023    | 1073    | 1122    | 1172    | 1223    | 1275    | 1327    |
| 11                                 | 927                                                     | 974     | 1022    | 1071    | 1121    | 1171    | 1221    | 1272    | 1324    | 1377    |
| 12                                 | 974                                                     | 1022    | 1071    | 1120    | 1169    | 1220    | 1271    | 1322    | 1374    | 1427    |
| 13                                 | 1022                                                    | 1071    | 1119    | 1169    | 1219    | 1269    | 1321    | 1373    | 1425    | 1478    |
| 14                                 | 1071                                                    | 1120    | 1169    | 1218    | 1269    | 1320    | 1371    | 1423    | 1476    | 1529    |
| 15                                 | 1121                                                    | 1169    | 1219    | 1269    | 1319    | 1371    | 1422    | 1475    | 1525    | 1582    |
| 16                                 | 1171                                                    | 1220    | 1269    | 1320    | 1371    | 1422    | 1474    | 1527    | 1580    | 1635    |
| 17                                 | 1221                                                    | 1271    | 1321    | 1371    | 1422    | 1474    | 1527    | 1580    | 1634    | 1688    |
| 18                                 | 1272                                                    | 1322    | 1373    | 1423    | 1475    | 1527    | 1580    | 1633    | 1687    | 1742    |
| 19                                 | 1324                                                    | 1374    | 1425    | 1476    | 1528    | 1580    | 1634    | 1687    | 1742    | 1796    |
| 20                                 | 1377                                                    | 1427    | 1478    | 1529    | 1582    | 1635    | 1688    | 1742    | 1796    | 1852    |
| 21                                 | 1430                                                    | 1480    | 1532    | 1583    | 1636    | 1689    | 1743    | 1797    | 1852    | 1908    |
| 22                                 | 1484                                                    | 1534    | 1586    | 1638    | 1691    | 1744    | 1798    | 1853    | 1908    | 1964    |
| 23                                 | 1538                                                    | 1589    | 1641    | 1693    | 1747    | 1800    | 1854    | 1910    | 1965    | 2021    |
| 24                                 | 1593                                                    | 1644    | 1697    | 1749    | 1803    | 1857    | 1911    | 1967    | 2022    | 2079    |
| 25                                 | 1648                                                    | 1700    | 1753    | 1806    | 1859    | 1914    | 1969    | 2024    | 2080    | 2137    |
| 26                                 | 1705                                                    | 1757    | 1809    | 1863    | 1917    | 1972    | 2027    | 2083    | 2139    | 2196    |
| 27                                 | 1761                                                    | 1814    | 1867    | 1921    | 1975    | 2030    | 2085    | 2142    | 2198    | 2256    |
| 28                                 | 1819                                                    | 1871    | 1925    | 1979    | 2034    | 2089    | 2145    | 2201    | 2258    | 2316    |
| 29                                 | 1877                                                    | 1930    | 1984    | 2038    | 2093    | 2148    | 2205    | 2261    | 2319    | 2377    |
| 30                                 | 1936                                                    | 1989    | 2043    | 2097    | 2153    | 2208    | 2265    | 2322    | 2380    | 2438    |

**TABLE NO. 1, (CONTINUED,) SINGLE TRACK.**

Table of Rock Excavation, Base 20 feet, Slopes  $\frac{1}{2}$  to 1, Chain 100 feet.

| Depth<br>at one<br>end in<br>feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|------------------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                    | 21                                                      | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |
|                                    | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                  | 914                                                     | 964     | 1015    | 1067    | 1119    | 1172    | 1225    | 1279    | 1333    | 1389    |
| 1                                  | 958                                                     | 1008    | 1059    | 1111    | 1164    | 1217    | 1271    | 1325    | 1380    | 1435    |
| 2                                  | 1002                                                    | 1053    | 1105    | 1157    | 1209    | 1263    | 1317    | 1372    | 1427    | 1483    |
| 3                                  | 1047                                                    | 1098    | 1150    | 1203    | 1256    | 1309    | 1364    | 1419    | 1474    | 1530    |
| 4                                  | 1093                                                    | 1144    | 1197    | 1249    | 1303    | 1357    | 1411    | 1467    | 1522    | 1579    |
| 5                                  | 1139                                                    | 1191    | 1243    | 1296    | 1350    | 1405    | 1460    | 1515    | 1571    | 1628    |
| 6                                  | 1186                                                    | 1238    | 1291    | 1344    | 1398    | 1453    | 1508    | 1564    | 1621    | 1678    |
| 7                                  | 1234                                                    | 1286    | 1339    | 1393    | 1447    | 1502    | 1558    | 1614    | 1671    | 1728    |
| 8                                  | 1282                                                    | 1335    | 1388    | 1442    | 1497    | 1552    | 1608    | 1664    | 1721    | 1779    |
| 9                                  | 1331                                                    | 1384    | 1437    | 1492    | 1546    | 1602    | 1658    | 1715    | 1772    | 1830    |
| 10                                 | 1380                                                    | 1433    | 1487    | 1542    | 1597    | 1653    | 1710    | 1767    | 1824    | 1883    |
| 11                                 | 1430                                                    | 1484    | 1538    | 1593    | 1648    | 1705    | 1761    | 1819    | 1877    | 1936    |
| 12                                 | 1480                                                    | 1534    | 1589    | 1644    | 1700    | 1757    | 1814    | 1871    | 1930    | 1989    |
| 13                                 | 1532                                                    | 1586    | 1641    | 1697    | 1753    | 1809    | 1867    | 1925    | 1984    | 2043    |
| 14                                 | 1583                                                    | 1638    | 1693    | 1749    | 1806    | 1863    | 1921    | 1979    | 2038    | 2097    |
| 15                                 | 1636                                                    | 1691    | 1747    | 1803    | 1859    | 1917    | 1975    | 2034    | 2093    | 2153    |
| 16                                 | 1689                                                    | 1744    | 1800    | 1857    | 1914    | 1972    | 2030    | 2089    | 2148    | 2208    |
| 17                                 | 1743                                                    | 1798    | 1854    | 1911    | 1969    | 2027    | 2085    | 2145    | 2205    | 2265    |
| 18                                 | 1797                                                    | 1853    | 1910    | 1967    | 2024    | 2083    | 2142    | 2201    | 2261    | 2322    |
| 19                                 | 1852                                                    | 1908    | 1965    | 2022    | 2080    | 2139    | 2198    | 2258    | 2319    | 2380    |
| 20                                 | 1908                                                    | 1964    | 2021    | 2079    | 2137    | 2196    | 2256    | 2316    | 2377    | 2438    |
| 21                                 | 1964                                                    | 2021    | 2078    | 2136    | 2195    | 2254    | 2314    | 2374    | 2435    | 2497    |
| 22                                 | 2021                                                    | 2078    | 2135    | 2194    | 2253    | 2312    | 2372    | 2433    | 2495    | 2557    |
| 23                                 | 2078                                                    | 2135    | 2194    | 2252    | 2311    | 2371    | 2432    | 2493    | 2555    | 2617    |
| 24                                 | 2136                                                    | 2194    | 2252    | 2311    | 2371    | 2431    | 2492    | 2553    | 2615    | 2678    |
| 25                                 | 2195                                                    | 2253    | 2311    | 2371    | 2430    | 2491    | 2552    | 2614    | 2676    | 2739    |
| 26                                 | 2254                                                    | 2312    | 2371    | 2431    | 2491    | 2552    | 2613    | 2675    | 2738    | 2801    |
| 27                                 | 2314                                                    | 2372    | 2432    | 2492    | 2552    | 2613    | 2675    | 2737    | 2800    | 2864    |
| 28                                 | 2374                                                    | 2433    | 2493    | 2553    | 2614    | 2675    | 2737    | 2800    | 2863    | 2927    |
| 29                                 | 2435                                                    | 2495    | 2555    | 2615    | 2676    | 2738    | 2800    | 2863    | 2927    | 2991    |
| 30                                 | 2497                                                    | 2557    | 2617    | 2678    | 2739    | 2801    | 2864    | 2927    | 2991    | 3055    |

# TABLE NO. 2, SINGLE TRACK.

Table of Clay Excavation, Base 23 feet, Slopes 1½ to 1, Chain 100 feet

| Depth at one end in feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|---------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                           | 1                                                       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|                           | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                         | 43                                                      | 89      | 139     | 193     | 250     | 311     | 376     | 446     | 517     | 593     |
| 1                         | 87                                                      | 135     | 187     | 243     | 302     | 365     | 431     | 502     | 576     | 654     |
| 2                         | 135                                                     | 185     | 239     | 296     | 357     | 422     | 491     | 563     | 639     | 718     |
| 3                         | 187                                                     | 239     | 294     | 354     | 416     | 483     | 554     | 628     | 705     | 787     |
| 4                         | 243                                                     | 296     | 354     | 415     | 480     | 548     | 620     | 696     | 776     | 859     |
| 5                         | 302                                                     | 357     | 416     | 480     | 546     | 617     | 691     | 768     | 850     | 935     |
| 6                         | 365                                                     | 422     | 483     | 548     | 617     | 689     | 765     | 844     | 928     | 1015    |
| 7                         | 431                                                     | 491     | 554     | 620     | 691     | 765     | 843     | 924     | 1009    | 1098    |
| 8                         | 502                                                     | 563     | 628     | 696     | 768     | 844     | 924     | 1007    | 1094    | 1185    |
| 9                         | 576                                                     | 639     | 705     | 776     | 850     | 928     | 1009    | 1094    | 1183    | 1276    |
| 10                        | 654                                                     | 718     | 787     | 859     | 935     | 1015    | 1098    | 1185    | 1276    | 1370    |
| 11                        | 735                                                     | 802     | 872     | 946     | 1024    | 1105    | 1191    | 1280    | 1372    | 1468    |
| 12                        | 820                                                     | 889     | 961     | 1037    | 1117    | 1200    | 1287    | 1378    | 1472    | 1570    |
| 13                        | 909                                                     | 980     | 1054    | 1131    | 1213    | 1298    | 1387    | 1480    | 1576    | 1676    |
| 14                        | 1002                                                    | 1074    | 1150    | 1229    | 1313    | 1400    | 1491    | 1585    | 1683    | 1785    |
| 15                        | 1098                                                    | 1172    | 1250    | 1331    | 1417    | 1505    | 1598    | 1694    | 1794    | 1898    |
| 16                        | 1198                                                    | 1274    | 1354    | 1437    | 1524    | 1615    | 1709    | 1807    | 1909    | 2015    |
| 17                        | 1302                                                    | 1380    | 1461    | 1546    | 1635    | 1727    | 1824    | 1924    | 2028    | 2135    |
| 18                        | 1409                                                    | 1489    | 1572    | 1659    | 1750    | 1844    | 1943    | 2034    | 2150    | 2259    |
| 19                        | 1520                                                    | 1602    | 1687    | 1776    | 1868    | 1965    | 2065    | 2168    | 2276    | 2387    |
| 20                        | 1635                                                    | 1718    | 1805    | 1896    | 1981    | 2089    | 2191    | 2296    | 2405    | 2519    |
| 21                        | 1755                                                    | 1839    | 1928    | 2020    | 2117    | 2217    | 2320    | 2428    | 2539    | 2654    |
| 22                        | 1876                                                    | 1963    | 2054    | 2148    | 2246    | 2348    | 2454    | 2563    | 2676    | 2793    |
| 23                        | 2002                                                    | 2091    | 2183    | 2280    | 2380    | 2483    | 2591    | 2702    | 2817    | 2935    |
| 24                        | 2132                                                    | 2222    | 2317    | 2415    | 2517    | 2622    | 2731    | 2844    | 2961    | 3081    |
| 25                        | 2266                                                    | 2357    | 2454    | 2554    | 2657    | 2765    | 2876    | 2991    | 3109    | 3231    |
| 26                        | 2402                                                    | 2496    | 2594    | 2696    | 2802    | 2911    | 3024    | 3141    | 3261    | 3385    |
| 27                        | 2543                                                    | 2639    | 2739    | 2843    | 2950    | 3061    | 3176    | 3294    | 3417    | 3543    |
| 28                        | 2687                                                    | 2785    | 2887    | 2993    | 3102    | 3215    | 3331    | 3452    | 3576    | 3704    |
| 29                        | 2835                                                    | 2935    | 3039    | 3146    | 3257    | 3372    | 3491    | 3613    | 3739    | 3868    |
| 30                        | 2987                                                    | 3089    | 3194    | 3304    | 3416    | 3533    | 3654    | 3778    | 3905    | 4037    |

# TABLE NO. 2, (CONTINUED.) SINGLE TRACK.

Table of Clay Excavation, Base 22 feet, Slopes  $1\frac{1}{2}$  to 1, Chain 100 feet.

| Depth<br>at one<br>end in<br>feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|------------------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                    | 11                                                      | 12      | 13      | 14      | 15      | 16      | 17      | 18      | 19      | 20      |
| cu. yds                            | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 593                                | 472                                                     | 755     | 842     | 933     | 1028    | 1126    | 1228    | 1333    | 1443    | 1555    |
| 654                                | 735                                                     | 820     | 909     | 1002    | 1098    | 1194    | 1302    | 1409    | 1520    | 1635    |
| 718                                | 802                                                     | 889     | 980     | 1074    | 1172    | 1274    | 1380    | 1489    | 1602    | 1718    |
| 787                                | 872                                                     | 961     | 1054    | 1150    | 1250    | 1354    | 1461    | 1572    | 1687    | 1805    |
| 859                                | 946                                                     | 1037    | 1131    | 1229    | 1331    | 1437    | 1546    | 1659    | 1776    | 1896    |
| 935                                | 1024                                                    | 1117    | 1213    | 1313    | 1417    | 1524    | 1635    | 1750    | 1868    | 1981    |
| 1015                               | 1105                                                    | 1200    | 1298    | 1400    | 1505    | 1615    | 1727    | 1844    | 1965    | 2089    |
| 1098                               | 1191                                                    | 1287    | 1387    | 1491    | 1598    | 1709    | 1824    | 1943    | 2065    | 2191    |
| 1185                               | 1280                                                    | 1378    | 1480    | 1585    | 1694    | 1807    | 1924    | 2034    | 2168    | 2296    |
| 1276                               | 1372                                                    | 1472    | 1576    | 1683    | 1794    | 1909    | 2028    | 2150    | 2276    | 2405    |
| 1370                               | 1468                                                    | 1570    | 1676    | 1785    | 1898    | 2015    | 2135    | 2259    | 2387    | 2519    |
| 1468                               | 1568                                                    | 1672    | 1779    | 1891    | 2006    | 2124    | 2246    | 2372    | 2502    | 2635    |
| 1570                               | 1672                                                    | 1778    | 1887    | 2000    | 2117    | 2237    | 2361    | 2489    | 2620    | 2756    |
| 1676                               | 1779                                                    | 1887    | 1998    | 2113    | 2231    | 2354    | 2480    | 2609    | 2743    | 2880    |
| 1785                               | 1891                                                    | 2000    | 2113    | 2230    | 2350    | 2474    | 2602    | 2733    | 2868    | 3007    |
| 1898                               | 2006                                                    | 2117    | 2231    | 2350    | 2472    | 2598    | 2728    | 2861    | 2998    | 3139    |
| 2015                               | 2124                                                    | 2237    | 2354    | 2474    | 2598    | 2726    | 2857    | 2992    | 3131    | 3274    |
| 2135                               | 2246                                                    | 2361    | 2480    | 2602    | 2728    | 2857    | 2991    | 3128    | 3269    | 3413    |
| 2259                               | 2372                                                    | 2489    | 2609    | 2733    | 2861    | 2992    | 3128    | 3267    | 3409    | 3555    |
| 2387                               | 2502                                                    | 2620    | 2743    | 2868    | 2998    | 3131    | 3269    | 3409    | 3554    | 3702    |
| 2519                               | 2635                                                    | 2756    | 2880    | 3007    | 3139    | 3274    | 3413    | 3555    | 3702    | 3852    |
| 2654                               | 2772                                                    | 2894    | 3020    | 3150    | 3283    | 3420    | 3561    | 3705    | 3854    | 4006    |
| 2793                               | 2913                                                    | 3037    | 3165    | 3296    | 3431    | 3570    | 3713    | 3859    | 4009    | 4163    |
| 2935                               | 3057                                                    | 3183    | 3313    | 3446    | 3583    | 3724    | 3868    | 4017    | 4168    | 4324    |
| 3081                               | 3205                                                    | 3333    | 3465    | 3600    | 3739    | 3881    | 4028    | 4173    | 4331    | 4489    |
| 3231                               | 3357                                                    | 3487    | 3620    | 3757    | 3898    | 4043    | 4191    | 4342    | 4498    | 4657    |
| 3385                               | 3513                                                    | 3644    | 3779    | 3918    | 4061    | 4207    | 4357    | 4511    | 4668    | 4830    |
| 3543                               | 3672                                                    | 3805    | 3942    | 4083    | 4228    | 4376    | 4528    | 4683    | 4843    | 5005    |
| 3704                               | 3835                                                    | 3970    | 4109    | 4252    | 4398    | 4548    | 4702    | 4859    | 5020    | 5185    |
| 3868                               | 4002                                                    | 4139    | 4280    | 4424    | 4572    | 4724    | 4880    | 5039    | 5202    | 5368    |
| 4037                               | 4172                                                    | 4311    | 4454    | 4600    | 4750    | 4904    | 5061    | 5222    | 5387    | 5555    |

**TABLE NO. 2. (CONTINUED). SINGLE TRACK.**

Table of Clay Excavation. Base 22 feet. Slopes  $1\frac{1}{2}$  to 1. Chain 100 feet.

| Depth<br>at one<br>end in<br>feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|------------------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                    | 21                                                      | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |
|                                    | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                  | 1672                                                    | 1794    | 1917    | 2044    | 2176    | 2311    | 2450    | 2593    | 2739    | 2889    |
| 1                                  | 1755                                                    | 1876    | 2002    | 2132    | 2265    | 2402    | 2543    | 2687    | 2835    | 2987    |
| 2                                  | 1839                                                    | 1963    | 2091    | 2222    | 2357    | 2496    | 2639    | 2785    | 2935    | 3089    |
| 3                                  | 1928                                                    | 2054    | 2183    | 2317    | 2454    | 2594    | 2739    | 2887    | 3039    | 3194    |
| 4                                  | 2020                                                    | 2148    | 2280    | 2415    | 2554    | 2696    | 2843    | 2993    | 3146    | 3304    |
| 5                                  | 2117                                                    | 2246    | 2380    | 2517    | 2657    | 2802    | 2950    | 3102    | 3257    | 3416    |
| 6                                  | 2217                                                    | 2348    | 2483    | 2622    | 2765    | 2911    | 3061    | 3215    | 3372    | 3533    |
| 7                                  | 2320                                                    | 2454    | 2591    | 2731    | 2876    | 3024    | 3176    | 3331    | 3491    | 3654    |
| 8                                  | 2428                                                    | 2563    | 2702    | 2844    | 2991    | 3141    | 3294    | 3452    | 3613    | 3778    |
| 9                                  | 2539                                                    | 2676    | 2817    | 2961    | 3109    | 3261    | 3417    | 3576    | 3739    | 3905    |
| 10                                 | 2654                                                    | 2793    | 2935    | 3081    | 3231    | 3385    | 3543    | 3704    | 3868    | 4037    |
| 11                                 | 2772                                                    | 2913    | 3057    | 3205    | 3357    | 3513    | 3672    | 3835    | 4002    | 4172    |
| 12                                 | 2894                                                    | 3037    | 3183    | 3333    | 3487    | 3644    | 3805    | 3970    | 4139    | 4311    |
| 13                                 | 3020                                                    | 3165    | 3313    | 3465    | 3620    | 3779    | 3942    | 4109    | 4280    | 4454    |
| 14                                 | 3150                                                    | 3296    | 3446    | 3600    | 3757    | 3918    | 4083    | 4252    | 4424    | 4600    |
| 15                                 | 3283                                                    | 3431    | 3583    | 3739    | 3898    | 4061    | 4228    | 4398    | 4572    | 4750    |
| 16                                 | 3420                                                    | 3570    | 3724    | 3881    | 4043    | 4207    | 4376    | 4548    | 4724    | 4904    |
| 17                                 | 3561                                                    | 3713    | 3868    | 4028    | 4191    | 4357    | 4528    | 4702    | 4880    | 5061    |
| 18                                 | 3705                                                    | 3859    | 4017    | 4178    | 4342    | 4511    | 4683    | 4859    | 5039    | 5222    |
| 19                                 | 3854                                                    | 4009    | 4168    | 4331    | 4498    | 4668    | 4843    | 5020    | 5202    | 5387    |
| 20                                 | 4006                                                    | 4163    | 4324    | 4489    | 4657    | 4830    | 5005    | 5185    | 5368    | 5555    |
| 21                                 | 4161                                                    | 4320    | 4483    | 4650    | 4820    | 4994    | 5172    | 5354    | 5539    | 5728    |
| 22                                 | 4320                                                    | 4481    | 4646    | 4815    | 4987    | 5163    | 5342    | 5526    | 5713    | 5904    |
| 23                                 | 4483                                                    | 4646    | 4813    | 4983    | 5157    | 5335    | 5516    | 5702    | 5891    | 6083    |
| 24                                 | 4650                                                    | 4815    | 4983    | 5155    | 5331    | 5511    | 5694    | 5882    | 6072    | 6267    |
| 25                                 | 4820                                                    | 4987    | 5157    | 5331    | 5509    | 5691    | 5876    | 6065    | 6257    | 6454    |
| 26                                 | 4994                                                    | 5163    | 5335    | 5511    | 5691    | 5874    | 6061    | 6252    | 6446    | 6644    |
| 27                                 | 5172                                                    | 5342    | 5516    | 5694    | 5876    | 6061    | 6250    | 6443    | 6639    | 6839    |
| 28                                 | 5354                                                    | 5526    | 5702    | 5882    | 6065    | 6252    | 6443    | 6637    | 6835    | 7037    |
| 29                                 | 5539                                                    | 5713    | 5891    | 6072    | 6257    | 6446    | 6639    | 6835    | 7035    | 7239    |
| 30                                 | 5728                                                    | 5904    | 6083    | 6267    | 6454    | 6644    | 6839    | 7037    | 7239    | 7444    |

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# TABLE NO. 3, SINGLE TRACK.

Table of Excavation in Sand and Gravel, Base 22 feet, Slopes 2 to 1, Chain 100 feet

|          | 30 |
|----------|----|
| 92889    |    |
| 52987    |    |
| 53089    |    |
| 393194   |    |
| 463304   |    |
| 573416   |    |
| 723533   |    |
| 913654   |    |
| 133778   |    |
| 393905   |    |
| 3684037  |    |
| 0024172  |    |
| 1394311  |    |
| 2804454  |    |
| 4244600  |    |
| 5724750  |    |
| 7244904  |    |
| 8805061  |    |
| 50395222 |    |
| 52025387 |    |
| 53685555 |    |
| 55395728 |    |
| 57135904 |    |
| 58916083 |    |
| 60726267 |    |
| 62576454 |    |
| 64466644 |    |
| 66396839 |    |
| 68357037 |    |
| 70357239 |    |
| 72397444 |    |

| Depth at one end in feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|---------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                           | 1                                                       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|                           | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                         | 43                                                      | 91      | 144     | 202     | 265     | 333     | 406     | 484     | 567     | 654     |
| 1                         | 89                                                      | 140     | 195     | 256     | 321     | 391     | 466     | 547     | 632     | 722     |
| 2                         | 140                                                     | 193     | 251     | 313     | 381     | 454     | 532     | 615     | 702     | 795     |
| 3                         | 195                                                     | 251     | 311     | 376     | 447     | 522     | 602     | 688     | 778     | 873     |
| 4                         | 256                                                     | 313     | 376     | 444     | 517     | 595     | 678     | 765     | 858     | 956     |
| 5                         | 321                                                     | 381     | 447     | 517     | 593     | 673     | 758     | 848     | 943     | 1043    |
| 6                         | 391                                                     | 454     | 522     | 595     | 673     | 755     | 843     | 936     | 1033    | 1136    |
| 7                         | 466                                                     | 532     | 602     | 678     | 758     | 843     | 933     | 1028    | 1128    | 1233    |
| 8                         | 547                                                     | 615     | 688     | 765     | 848     | 936     | 1028    | 1126    | 1228    | 1336    |
| 9                         | 632                                                     | 702     | 778     | 858     | 943     | 1033    | 1128    | 1228    | 1333    | 1443    |
| 10                        | 722                                                     | 795     | 873     | 956     | 1043    | 1136    | 1233    | 1336    | 1443    | 1556    |
| 11                        | 817                                                     | 892     | 973     | 1058    | 1148    | 1243    | 1343    | 1448    | 1558    | 1673    |
| 12                        | 917                                                     | 995     | 1078    | 1165    | 1258    | 1355    | 1458    | 1565    | 1678    | 1795    |
| 13                        | 1022                                                    | 1102    | 1188    | 1278    | 1373    | 1473    | 1578    | 1688    | 1802    | 1922    |
| 14                        | 1132                                                    | 1215    | 1302    | 1395    | 1493    | 1595    | 1702    | 1815    | 1932    | 2054    |
| 15                        | 1247                                                    | 1332    | 1422    | 1517    | 1617    | 1722    | 1832    | 1947    | 2066    | 2191    |
| 16                        | 1367                                                    | 1454    | 1547    | 1644    | 1747    | 1854    | 1966    | 2084    | 2206    | 2333    |
| 17                        | 1491                                                    | 1581    | 1676    | 1776    | 1881    | 1991    | 2106    | 2226    | 2351    | 2480    |
| 18                        | 1621                                                    | 1714    | 1811    | 1913    | 2021    | 2133    | 2251    | 2373    | 2500    | 2632    |
| 19                        | 1755                                                    | 1851    | 1950    | 2055    | 2165    | 2280    | 2400    | 2525    | 2654    | 2789    |
| 20                        | 1895                                                    | 1992    | 2095    | 2202    | 2315    | 2432    | 2554    | 2681    | 2813    | 2951    |
| 21                        | 2039                                                    | 2139    | 2244    | 2354    | 2469    | 2589    | 2713    | 2843    | 2978    | 3117    |
| 22                        | 2189                                                    | 2291    | 2399    | 2511    | 2628    | 2751    | 2878    | 3010    | 3147    | 3289    |
| 23                        | 2343                                                    | 2448    | 2558    | 2673    | 2793    | 2917    | 3047    | 3181    | 3321    | 3465    |
| 24                        | 2503                                                    | 2610    | 2722    | 2839    | 2962    | 3089    | 3221    | 3358    | 3500    | 3647    |
| 25                        | 2667                                                    | 2776    | 2891    | 3011    | 3136    | 3265    | 3400    | 3539    | 3684    | 3833    |
| 26                        | 2836                                                    | 2948    | 3065    | 3188    | 3313    | 3447    | 3584    | 3726    | 3873    | 4025    |
| 27                        | 3010                                                    | 3125    | 3244    | 3369    | 3499    | 3633    | 3773    | 3917    | 4067    | 4221    |
| 28                        | 3189                                                    | 3306    | 3428    | 3556    | 3688    | 3825    | 3966    | 4114    | 4265    | 4422    |
| 29                        | 3373                                                    | 3493    | 3617    | 3747    | 3881    | 4021    | 4165    | 4315    | 4469    | 4628    |
| 30                        | 3562                                                    | 3684    | 3811    | 3943    | 4080    | 4222    | 4369    | 4521    | 4678    | 4839    |

**TABLE NO. 3, (CONTINUED,) SINGLE TRACK.**

Table of Excavation in Sand and Gravel, Base 23 feet, Slopes 2 to 1, Chain 100 feet.

| Depth<br>at one<br>end in<br>feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|------------------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                    | 11                                                      | 12      | 13      | 14      | 15      | 16      | 17      | 18      | 19      | 20      |
|                                    | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                  | 747                                                     | 844     | 947     | 1054    | 1167    | 1284    | 1406    | 1533    | 1665    | 1802    |
| 1                                  | 817                                                     | 917     | 1022    | 1132    | 1247    | 1367    | 1491    | 1621    | 1755    | 1895    |
| 2                                  | 892                                                     | 995     | 1102    | 1215    | 1332    | 1454    | 1581    | 1714    | 1851    | 1992    |
| 3                                  | 973                                                     | 1078    | 1188    | 1302    | 1422    | 1547    | 1676    | 1811    | 1950    | 2095    |
| 4                                  | 1058                                                    | 1165    | 1278    | 1395    | 1517    | 1644    | 1776    | 1913    | 2055    | 2202    |
| 5                                  | 1148                                                    | 1258    | 1373    | 1493    | 1617    | 1747    | 1881    | 2021    | 2165    | 2315    |
| 6                                  | 1243                                                    | 1355    | 1473    | 1595    | 1722    | 1854    | 1991    | 2133    | 2280    | 2432    |
| 7                                  | 1343                                                    | 1458    | 1578    | 1702    | 1832    | 1966    | 2106    | 2251    | 2400    | 2554    |
| 8                                  | 1448                                                    | 1565    | 1688    | 1815    | 1947    | 2084    | 2226    | 2373    | 2525    | 2681    |
| 9                                  | 1558                                                    | 1678    | 1802    | 1932    | 2066    | 2206    | 2351    | 2500    | 2654    | 2813    |
| 10                                 | 1673                                                    | 1795    | 1922    | 2054    | 2191    | 2333    | 2480    | 2632    | 2789    | 2951    |
| 11                                 | 1792                                                    | 1917    | 2047    | 2182    | 2321    | 2465    | 2615    | 2769    | 2928    | 3093    |
| 12                                 | 1917                                                    | 2044    | 2177    | 2314    | 2456    | 2602    | 2754    | 2911    | 3073    | 3239    |
| 13                                 | 2047                                                    | 2177    | 2311    | 2451    | 2595    | 2744    | 2899    | 3058    | 3222    | 3391    |
| 14                                 | 2182                                                    | 2314    | 2451    | 2593    | 2739    | 2891    | 3048    | 3210    | 3376    | 3548    |
| 15                                 | 2321                                                    | 2456    | 2595    | 2739    | 2889    | 3043    | 3202    | 3367    | 3536    | 3710    |
| 16                                 | 2465                                                    | 2602    | 2744    | 2891    | 3043    | 3200    | 3362    | 3528    | 3700    | 3877    |
| 17                                 | 2615                                                    | 2754    | 2899    | 3048    | 3202    | 3362    | 3526    | 3695    | 3869    | 4048    |
| 18                                 | 2769                                                    | 2911    | 3058    | 3210    | 3367    | 3528    | 3695    | 3867    | 4043    | 4225    |
| 19                                 | 2928                                                    | 3073    | 3222    | 3376    | 3536    | 3700    | 3869    | 4043    | 4222    | 4406    |
| 20                                 | 3093                                                    | 3239    | 3391    | 3548    | 3710    | 3877    | 4048    | 4225    | 4406    | 4593    |
| 21                                 | 3262                                                    | 3411    | 3565    | 3725    | 3889    | 4058    | 4232    | 4411    | 4595    | 4784    |
| 22                                 | 3436                                                    | 3588    | 3744    | 3906    | 4073    | 4244    | 4421    | 4602    | 4789    | 4980    |
| 23                                 | 3615                                                    | 3765    | 3928    | 4093    | 4262    | 4436    | 4615    | 4799    | 4988    | 5181    |
| 24                                 | 3799                                                    | 3956    | 4117    | 4284    | 4455    | 4632    | 4814    | 5000    | 5191    | 5388    |
| 25                                 | 3988                                                    | 4147    | 4311    | 4480    | 4654    | 4833    | 5017    | 5206    | 5400    | 5599    |
| 26                                 | 4181                                                    | 4343    | 4510    | 4681    | 4858    | 5039    | 5226    | 5417    | 5613    | 5815    |
| 27                                 | 4380                                                    | 4544    | 4713    | 4888    | 5067    | 5251    | 5439    | 5633    | 5832    | 6036    |
| 28                                 | 4584                                                    | 4750    | 4922    | 5099    | 5280    | 5467    | 5658    | 5854    | 6055    | 6262    |
| 29                                 | 4792                                                    | 4962    | 5136    | 5315    | 5499    | 5687    | 5882    | 6080    | 6284    | 6492    |
| 30                                 | 5006                                                    | 5178    | 5354    | 5536    | 5722    | 5914    | 6110    | 6311    | 6517    | 6728    |

K.  
feet.

**TABLE NO. 3, (CONTINUED,) SINGLE TRACK.**  
Table of Excavation in Sand and Gravel, Base 22 feet, Slopes 2 to 1, Chain 100 feet.

| Depth<br>at one<br>end in<br>feet. | Depth at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|------------------------------------|---------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                    | 21                                                      | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |
| 0                                  | cu. yds                                                 | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0.02                               | 01944                                                   | 2091    | 2243    | 2400    | 2562    | 2728    | 2900    | 3076    | 3258    | 3444    |
| 0.05                               | 12039                                                   | 2189    | 2343    | 2503    | 2667    | 2836    | 3010    | 3189    | 3373    | 3562    |
| 0.09                               | 22139                                                   | 2291    | 2448    | 2610    | 2776    | 2948    | 3125    | 3306    | 3493    | 3684    |
| 0.095                              | 32244                                                   | 2399    | 2558    | 2722    | 2891    | 3065    | 3244    | 3428    | 3617    | 3811    |
| 0.202                              | 42354                                                   | 2511    | 2673    | 2839    | 3011    | 3188    | 3369    | 3556    | 3747    | 3943    |
| 0.315                              | 52469                                                   | 2628    | 2793    | 2962    | 3136    | 3315    | 3499    | 3688    | 3881    | 4080    |
| 0.432                              | 62589                                                   | 2751    | 2917    | 3089    | 3265    | 3447    | 3633    | 3825    | 4021    | 4222    |
| 0.554                              | 72713                                                   | 2878    | 3047    | 3221    | 3400    | 3584    | 3773    | 3966    | 4165    | 4369    |
| 0.681                              | 82843                                                   | 3010    | 3181    | 3358    | 3539    | 3726    | 3917    | 4114    | 4315    | 4521    |
| 0.813                              | 92978                                                   | 3147    | 3321    | 3500    | 3684    | 3873    | 4067    | 4265    | 4469    | 4678    |
| 0.951                              | 103117                                                  | 3289    | 3465    | 3647    | 3833    | 4025    | 4221    | 4422    | 4628    | 4839    |
| 1.093                              | 113262                                                  | 3436    | 3615    | 3799    | 3988    | 4181    | 4380    | 4584    | 4792    | 5006    |
| 1.239                              | 123411                                                  | 3588    | 3765    | 3956    | 4147    | 4343    | 4544    | 4750    | 4962    | 5178    |
| 1.391                              | 133565                                                  | 3744    | 3928    | 4117    | 4311    | 4510    | 4713    | 4922    | 5136    | 5354    |
| 1.548                              | 143725                                                  | 3906    | 4093    | 4284    | 4480    | 4681    | 4888    | 5099    | 5315    | 5536    |
| 1.710                              | 153889                                                  | 4073    | 4262    | 4455    | 4654    | 4858    | 5067    | 5280    | 5499    | 5722    |
| 1.877                              | 164058                                                  | 4244    | 4436    | 4632    | 4833    | 5039    | 5251    | 5467    | 5687    | 5914    |
| 2.048                              | 174232                                                  | 4421    | 4615    | 4814    | 5017    | 5226    | 5439    | 5658    | 5882    | 6110    |
| 2.225                              | 184411                                                  | 4602    | 4799    | 5000    | 5206    | 5417    | 5633    | 5854    | 6080    | 6311    |
| 2.406                              | 194595                                                  | 4789    | 4988    | 5191    | 5400    | 5613    | 5832    | 6055    | 6284    | 6517    |
| 2.593                              | 204784                                                  | 4980    | 5181    | 5388    | 5599    | 5815    | 6036    | 6262    | 6492    | 6728    |
| 2.784                              | 214978                                                  | 5176    | 5380    | 5589    | 5802    | 6021    | 6244    | 6473    | 6706    | 6944    |
| 2.980                              | 225176                                                  | 5378    | 5584    | 5795    | 6011    | 6232    | 6458    | 6689    | 6924    | 7165    |
| 3.181                              | 235380                                                  | 5584    | 5793    | 6006    | 6225    | 6448    | 6676    | 6910    | 7148    | 7391    |
| 3.388                              | 245589                                                  | 5795    | 6006    | 6222    | 6443    | 6669    | 6900    | 7136    | 7377    | 7622    |
| 3.599                              | 255802                                                  | 6011    | 6225    | 6443    | 6667    | 6895    | 7128    | 7367    | 7610    | 7858    |
| 3.815                              | 266021                                                  | 6232    | 6448    | 6669    | 6895    | 7126    | 7362    | 7602    | 7848    | 8099    |
| 4.036                              | 276244                                                  | 6458    | 6676    | 6900    | 7128    | 7362    | 7600    | 7843    | 8091    | 8344    |
| 4.262                              | 286478                                                  | 6689    | 6910    | 7136    | 7367    | 7602    | 7843    | 8089    | 8340    | 8595    |
| 4.492                              | 296706                                                  | 6924    | 7148    | 7377    | 7610    | 7848    | 8091    | 8340    | 8593    | 8851    |
| 4.728                              | 306944                                                  | 7165    | 7391    | 7622    | 7858    | 8099    | 8344    | 8595    | 8851    | 9111    |

# TABLE NO. 4, SINGLE TRACK.

Table of Rock Embankment, Base 18 feet, Slopes 1 to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 1                                                        | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                   | 34                                                       | 71      | 111     | 153     | 197     | 244     | 294     | 345     | 400     | 457     |
| 1                                   | 70                                                       | 109     | 149     | 193     | 238     | 286     | 337     | 390     | 446     | 504     |
| 2                                   | 109                                                      | 148     | 190     | 234     | 281     | 331     | 383     | 437     | 494     | 553     |
| 3                                   | 147                                                      | 190     | 233     | 279     | 327     | 378     | 431     | 486     | 544     | 605     |
| 4                                   | 193                                                      | 234     | 279     | 326     | 375     | 427     | 481     | 538     | 597     | 659     |
| 5                                   | 238                                                      | 281     | 327     | 375     | 426     | 479     | 534     | 592     | 653     | 716     |
| 6                                   | 286                                                      | 331     | 378     | 427     | 479     | 533     | 590     | 649     | 711     | 775     |
| 7                                   | 337                                                      | 383     | 431     | 481     | 534     | 590     | 648     | 709     | 772     | 837     |
| 8                                   | 390                                                      | 437     | 486     | 538     | 592     | 649     | 709     | 770     | 834     | 901     |
| 9                                   | 446                                                      | 494     | 544     | 597     | 653     | 711     | 772     | 834     | 900     | 968     |
| 10                                  | 504                                                      | 553     | 605     | 659     | 716     | 775     | 837     | 901     | 968     | 1037    |
| 11                                  | 564                                                      | 615     | 668     | 723     | 781     | 842     | 905     | 970     | 1038    | 1109    |
| 12                                  | 627                                                      | 679     | 733     | 790     | 849     | 911     | 975     | 1042    | 1111    | 1183    |
| 13                                  | 693                                                      | 746     | 801     | 859     | 920     | 983     | 1048    | 1116    | 1186    | 1259    |
| 14                                  | 760                                                      | 815     | 871     | 931     | 993     | 1057    | 1123    | 1193    | 1264    | 1338    |
| 15                                  | 831                                                      | 886     | 944     | 1005    | 1068    | 1133    | 1201    | 1271    | 1344    | 1420    |
| 16                                  | 904                                                      | 960     | 1020    | 1081    | 1146    | 1212    | 1281    | 1353    | 1427    | 1504    |
| 17                                  | 979                                                      | 1037    | 1098    | 1160    | 1226    | 1294    | 1364    | 1437    | 1512    | 1590    |
| 18                                  | 1057                                                     | 1116    | 1178    | 1242    | 1309    | 1378    | 1449    | 1523    | 1600    | 1679    |
| 19                                  | 1137                                                     | 1197    | 1260    | 1326    | 1394    | 1464    | 1537    | 1612    | 1690    | 1770    |
| 20                                  | 1220                                                     | 1281    | 1346    | 1412    | 1481    | 1553    | 1627    | 1704    | 1783    | 1864    |
| 21                                  | 1305                                                     | 1368    | 1433    | 1501    | 1572    | 1644    | 1720    | 1797    | 1878    | 1960    |
| 22                                  | 1392                                                     | 1457    | 1523    | 1593    | 1664    | 1738    | 1815    | 1894    | 1975    | 2059    |
| 23                                  | 1483                                                     | 1548    | 1616    | 1686    | 1759    | 1834    | 1912    | 1993    | 2075    | 2160    |
| 24                                  | 1575                                                     | 1642    | 1711    | 1783    | 1857    | 1933    | 2012    | 2094    | 2178    | 2264    |
| 25                                  | 1670                                                     | 1738    | 1809    | 1881    | 1957    | 2034    | 2115    | 2197    | 2283    | 2370    |
| 26                                  | 1768                                                     | 1837    | 1909    | 1983    | 2059    | 2138    | 2220    | 2304    | 2390    | 2479    |
| 27                                  | 1868                                                     | 1938    | 2011    | 2086    | 2164    | 2244    | 2327    | 2412    | 2500    | 2590    |
| 28                                  | 1970                                                     | 2042    | 2116    | 2192    | 2271    | 2353    | 2437    | 2523    | 2612    | 2704    |
| 29                                  | 2075                                                     | 2148    | 2223    | 2301    | 2381    | 2464    | 2549    | 2637    | 2727    | 2820    |
| 30                                  | 2183                                                     | 2257    | 2333    | 2412    | 2494    | 2578    | 2664    | 2753    | 2844    | 2938    |

TABLE NO. 4, (CONTINUED), SINGLE TRACK.

Table of Rock Embankment: Base 18 feet, Slopes 1 to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |          |          |          |          |          |          |          |          |          |
|-------------------------------------|----------------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                     | 11                                                       | 12       | 13       | 14       | 15       | 16       | 17       | 18       | 19       | 20       |
| cu. yds.                            | cu. yds.                                                 | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 457                                 | 0                                                        | 516      | 578      | 642      | 709      | 778      | 849      | 923      | 1000     | 1079     |
| 504                                 | 1                                                        | 564      | 627      | 693      | 760      | 831      | 904      | 979      | 1057     | 1137     |
| 553                                 | 2                                                        | 615      | 679      | 746      | 815      | 886      | 960      | 1037     | 1116     | 1197     |
| 605                                 | 3                                                        | 668      | 733      | 801      | 871      | 944      | 1020     | 1098     | 1178     | 1260     |
| 659                                 | 4                                                        | 723      | 790      | 859      | 931      | 1005     | 1081     | 1160     | 1242     | 1326     |
| 716                                 | 5                                                        | 781      | 849      | 920      | 993      | 1068     | 1146     | 1226     | 1309     | 1394     |
| 775                                 | 6                                                        | 842      | 911      | 983      | 1057     | 1133     | 1212     | 1294     | 1378     | 1464     |
| 837                                 | 7                                                        | 905      | 975      | 1048     | 1123     | 1201     | 1281     | 1364     | 1449     | 1537     |
| 901                                 | 8                                                        | 970      | 1042     | 1116     | 1193     | 1271     | 1353     | 1437     | 1523     | 1612     |
| 968                                 | 9                                                        | 1038     | 1111     | 1186     | 1264     | 1344     | 1427     | 1512     | 1600     | 1690     |
| 1037                                | 10                                                       | 1109     | 1183     | 1259     | 1338     | 1420     | 1504     | 1590     | 1679     | 1770     |
| 1109                                | 11                                                       | 1181     | 1257     | 1334     | 1415     | 1498     | 1583     | 1670     | 1760     | 1853     |
| 1183                                | 12                                                       | 1257     | 1333     | 1412     | 1494     | 1579     | 1665     | 1753     | 1844     | 1938     |
| 1259                                | 13                                                       | 1334     | 1412     | 1493     | 1575     | 1660     | 1748     | 1838     | 1931     | 2026     |
| 1338                                | 14                                                       | 1415     | 1494     | 1575     | 1659     | 1746     | 1835     | 1926     | 2020     | 2116     |
| 1420                                | 15                                                       | 1498     | 1579     | 1660     | 1746     | 1833     | 1923     | 2016     | 2111     | 2208     |
| 1504                                | 16                                                       | 1583     | 1665     | 1748     | 1835     | 1923     | 2015     | 2108     | 2205     | 2304     |
| 1590                                | 17                                                       | 1670     | 1753     | 1838     | 1926     | 2016     | 2108     | 2204     | 2301     | 2401     |
| 1679                                | 18                                                       | 1760     | 1844     | 1931     | 2020     | 2111     | 2205     | 2301     | 2400     | 2501     |
| 1770                                | 19                                                       | 1853     | 1938     | 2026     | 2116     | 2208     | 2304     | 2401     | 2501     | 2604     |
| 1864                                | 20                                                       | 1948     | 2034     | 2123     | 2215     | 2308     | 2405     | 2504     | 2605     | 2708     |
| 1960                                | 21                                                       | 2046     | 2133     | 2223     | 2316     | 2411     | 2509     | 2609     | 2711     | 2816     |
| 2059                                | 22                                                       | 2146     | 2234     | 2326     | 2420     | 2516     | 2615     | 2716     | 2820     | 2926     |
| 2160                                | 23                                                       | 2248     | 2338     | 2431     | 2526     | 2623     | 2723     | 2826     | 2931     | 3038     |
| 2264                                | 24                                                       | 2353     | 2444     | 2538     | 2634     | 2733     | 2834     | 2938     | 3044     | 3153     |
| 2370                                | 25                                                       | 2460     | 2553     | 2648     | 2746     | 2845     | 2948     | 3053     | 3160     | 3270     |
| 2479                                | 26                                                       | 2570     | 2664     | 2760     | 2859     | 2960     | 3064     | 3170     | 3279     | 3390     |
| 2590                                | 27                                                       | 2683     | 2778     | 2875     | 2975     | 3078     | 3183     | 3290     | 3400     | 3512     |
| 2704                                | 28                                                       | 2797     | 2894     | 2993     | 3094     | 3197     | 3304     | 3412     | 3523     | 3637     |
| 2820                                | 29                                                       | 2915     | 3012     | 3112     | 3215     | 3320     | 3427     | 3537     | 3649     | 3764     |
| 2938                                | 30                                                       | 3035     | 3133     | 3234     | 3338     | 3444     | 3553     | 3664     | 3778     | 3894     |

# TABLE NO. 4, (CONTINUED), SINGLE TRACK.

Table of Rock Embankment. Base 16 feet. Slopes 1 to 1. Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |          |          |          |          |          |          |          |          |          |
|-------------------------------------|----------------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                     | 21                                                       | 22       | 23       | 24       | 25       | 26       | 27       | 28       | 29       | 30       |
|                                     | cu. yds.                                                 | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 0                                   | 1244                                                     | 1331     | 1420     | 1511     | 1605     | 1701     | 1800     | 1901     | 2005     | 2111     |
| 1                                   | 1305                                                     | 1392     | 1483     | 1575     | 1670     | 1768     | 1868     | 1970     | 2075     | 2183     |
| 2                                   | 1368                                                     | 1457     | 1548     | 1642     | 1738     | 1837     | 1938     | 2042     | 2148     | 2257     |
| 3                                   | 1433                                                     | 1523     | 1616     | 1711     | 1809     | 1909     | 2011     | 2116     | 2223     | 2333     |
| 4                                   | 1501                                                     | 1593     | 1686     | 1783     | 1881     | 1983     | 2086     | 2192     | 2301     | 2412     |
| 5                                   | 1572                                                     | 1664     | 1759     | 1857     | 1957     | 2059     | 2164     | 2271     | 2381     | 2494     |
| 6                                   | 1644                                                     | 1738     | 1834     | 1933     | 2034     | 2138     | 2244     | 2353     | 2464     | 2578     |
| 7                                   | 1720                                                     | 1815     | 1912     | 2012     | 2115     | 2220     | 2327     | 2437     | 2549     | 2664     |
| 8                                   | 1797                                                     | 1894     | 1993     | 2094     | 2197     | 2304     | 2412     | 2523     | 2637     | 2753     |
| 9                                   | 1878                                                     | 1975     | 2075     | 2178     | 2283     | 2390     | 2500     | 2612     | 2727     | 2844     |
| 10                                  | 1960                                                     | 2059     | 2160     | 2264     | 2370     | 2479     | 2590     | 2704     | 2820     | 2938     |
| 11                                  | 2046                                                     | 2146     | 2248     | 2353     | 2460     | 2570     | 2683     | 2797     | 2915     | 3035     |
| 12                                  | 2133                                                     | 2234     | 2338     | 2444     | 2553     | 2664     | 2778     | 2894     | 3012     | 3133     |
| 13                                  | 2223                                                     | 2326     | 2431     | 2538     | 2648     | 2760     | 2875     | 2993     | 3112     | 3234     |
| 14                                  | 2316                                                     | 2420     | 2526     | 2634     | 2746     | 2859     | 2975     | 3094     | 3215     | 3338     |
| 15                                  | 2411                                                     | 2516     | 2623     | 2733     | 2845     | 2960     | 3078     | 3197     | 3320     | 3444     |
| 16                                  | 2509                                                     | 2615     | 2723     | 2834     | 2948     | 3064     | 3183     | 3304     | 3427     | 3553     |
| 17                                  | 2609                                                     | 2716     | 2826     | 2938     | 3053     | 3170     | 3290     | 3412     | 3537     | 3664     |
| 18                                  | 2711                                                     | 2820     | 2931     | 3044     | 3160     | 3279     | 3400     | 3523     | 3649     | 3778     |
| 19                                  | 2816                                                     | 2926     | 3038     | 3153     | 3270     | 3390     | 3512     | 3637     | 3764     | 3894     |
| 20                                  | 2923                                                     | 3035     | 3148     | 3264     | 3383     | 3503     | 3627     | 3753     | 3881     | 4012     |
| 21                                  | 3033                                                     | 3146     | 3260     | 3378     | 3498     | 3620     | 3744     | 3872     | 4001     | 4133     |
| 22                                  | 3146                                                     | 3259     | 3375     | 3494     | 3615     | 3738     | 3864     | 3992     | 4123     | 4257     |
| 23                                  | 3260                                                     | 3375     | 3493     | 3612     | 3735     | 3859     | 3986     | 4116     | 4248     | 4383     |
| 24                                  | 3378                                                     | 3494     | 3612     | 3733     | 3857     | 3983     | 4111     | 4242     | 4375     | 4511     |
| 25                                  | 3498                                                     | 3615     | 3735     | 3857     | 3981     | 4108     | 4238     | 4370     | 4505     | 4642     |
| 26                                  | 3620                                                     | 3738     | 3859     | 3983     | 4108     | 4237     | 4368     | 4501     | 4637     | 4775     |
| 27                                  | 3744                                                     | 3864     | 3986     | 4111     | 4238     | 4368     | 4500     | 4634     | 4771     | 4911     |
| 28                                  | 3872                                                     | 3992     | 4116     | 4242     | 4370     | 4501     | 4634     | 4770     | 4909     | 5049     |
| 29                                  | 4001                                                     | 4123     | 4248     | 4375     | 4505     | 4637     | 4771     | 4909     | 5048     | 5190     |
| 30                                  | 4133                                                     | 4257     | 4383     | 4511     | 4642     | 4775     | 4911     | 5049     | 5190     | 5333     |

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## TABLE NO. 5, SINGLE TRACK.

Table of Clay Embankment, Base 18 feet, Slopes  $1\frac{1}{2}$  to 1, Chain 100 feet.

| 30      | Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|---------|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|         |                                     | 1                                                        | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
| cu. yds |                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 2111    | 0                                   | 35                                                       | 74      | 117     | 163     | 213     | 267     | 324     | 385     | 450     | 518     |
| 2183    | 1                                   | 72                                                       | 113     | 157     | 205     | 257     | 313     | 372     | 435     | 502     | 572     |
| 2257    | 2                                   | 113                                                      | 155     | 202     | 252     | 305     | 363     | 424     | 489     | 557     | 630     |
| 2333    | 3                                   | 157                                                      | 202     | 250     | 302     | 357     | 417     | 480     | 546     | 617     | 691     |
| 2412    | 4                                   | 205                                                      | 252     | 302     | 355     | 413     | 474     | 539     | 607     | 680     | 755     |
| 2494    | 5                                   | 257                                                      | 305     | 357     | 413     | 472     | 535     | 602     | 672     | 746     | 824     |
| 2578    | 6                                   | 313                                                      | 363     | 417     | 474     | 535     | 600     | 668     | 741     | 817     | 896     |
| 2664    | 7                                   | 372                                                      | 424     | 480     | 539     | 602     | 668     | 739     | 813     | 891     | 972     |
| 2753    | 8                                   | 435                                                      | 489     | 546     | 607     | 672     | 741     | 813     | 889     | 968     | 1052    |
| 2844    | 9                                   | 502                                                      | 557     | 617     | 680     | 746     | 817     | 891     | 968     | 1050    | 1135    |
| 2938    | 10                                  | 572                                                      | 630     | 691     | 755     | 824     | 896     | 972     | 1052    | 1135    | 1222    |
| 3035    | 11                                  | 646                                                      | 705     | 768     | 835     | 905     | 980     | 1057    | 1139    | 1224    | 1313    |
| 3133    | 12                                  | 724                                                      | 785     | 850     | 918     | 991     | 1067    | 1146    | 1230    | 1317    | 1407    |
| 3234    | 13                                  | 805                                                      | 868     | 935     | 1005    | 1080    | 1157    | 1239    | 1324    | 1413    | 1505    |
| 3338    | 14                                  | 891                                                      | 955     | 1024    | 1096    | 1172    | 1252    | 1335    | 1422    | 1513    | 1607    |
| 3444    | 15                                  | 980                                                      | 1046    | 1117    | 1191    | 1268    | 1350    | 1435    | 1524    | 1617    | 1713    |
| 3553    | 16                                  | 1072                                                     | 1141    | 1213    | 1289    | 1368    | 1452    | 1539    | 1630    | 1724    | 1822    |
| 3664    | 17                                  | 1168                                                     | 1239    | 1313    | 1391    | 1472    | 1557    | 1646    | 1739    | 1835    | 1935    |
| 3778    | 18                                  | 1268                                                     | 1341    | 1417    | 1496    | 1580    | 1667    | 1757    | 1852    | 1950    | 2052    |
| 3894    | 19                                  | 1372                                                     | 1446    | 1524    | 1605    | 1691    | 1780    | 1872    | 1968    | 2068    | 2172    |
| 4012    | 20                                  | 1480                                                     | 1555    | 1635    | 1718    | 1805    | 1896    | 1991    | 2089    | 2181    | 2296    |
| 4133    | 21                                  | 1591                                                     | 1668    | 1750    | 1835    | 1924    | 2017    | 2113    | 2213    | 2317    | 2424    |
| 4257    | 22                                  | 1705                                                     | 1785    | 1868    | 1955    | 2046    | 2141    | 2239    | 2341    | 2446    | 2555    |
| 4383    | 23                                  | 1824                                                     | 1905    | 1991    | 2080    | 2172    | 2268    | 2368    | 2472    | 2580    | 2697    |
| 4511    | 24                                  | 1946                                                     | 2030    | 2117    | 2207    | 2302    | 2400    | 2502    | 2607    | 2717    | 2830    |
| 4642    | 25                                  | 2072                                                     | 2157    | 2246    | 2339    | 2435    | 2535    | 2639    | 2746    | 2857    | 2972    |
| 4775    | 26                                  | 2202                                                     | 2289    | 2380    | 2474    | 2572    | 2674    | 2780    | 2889    | 3002    | 3118    |
| 4911    | 27                                  | 2335                                                     | 2424    | 2517    | 2613    | 2713    | 2817    | 2924    | 3035    | 3150    | 3268    |
| 5049    | 28                                  | 2472                                                     | 2563    | 2657    | 2755    | 2857    | 2963    | 3072    | 3185    | 3302    | 3422    |
| 5190    | 29                                  | 2613                                                     | 2705    | 2802    | 2902    | 3005    | 3113    | 3224    | 3339    | 3457    | 3580    |
| 5333    | 30                                  | 2757                                                     | 2852    | 2950    | 3052    | 3157    | 3267    | 3380    | 3496    | 3617    | 3741    |

# TABLE NO. 5, (CONTINUED.) SINGLE TRACK.

Table of City Embankment, Base 18 feet, Slopes  $1\frac{1}{2}$  to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 11                                                       | 12      | 13      | 14      | 15      | 16      | 17      | 18      | 19      | 20      |
|                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                   | 591                                                      | 667     | 746     | 830     | 917     | 1007    | 1102    | 1200    | 1302    | 1407    |
| 1                                   | 646                                                      | 724     | 805     | 891     | 980     | 1072    | 1168    | 1268    | 1372    | 1480    |
| 2                                   | 705                                                      | 785     | 868     | 955     | 1046    | 1141    | 1239    | 1341    | 1446    | 1555    |
| 3                                   | 768                                                      | 850     | 935     | 1024    | 1117    | 1213    | 1313    | 1417    | 1524    | 1635    |
| 4                                   | 835                                                      | 918     | 1005    | 1096    | 1191    | 1289    | 1391    | 1496    | 1605    | 1718    |
| 5                                   | 905                                                      | 991     | 1080    | 1172    | 1268    | 1368    | 1472    | 1580    | 1691    | 1805    |
| 6                                   | 980                                                      | 1067    | 1157    | 1252    | 1350    | 1452    | 1557    | 1667    | 1780    | 1896    |
| 7                                   | 1057                                                     | 1146    | 1239    | 1335    | 1435    | 1539    | 1646    | 1757    | 1872    | 1991    |
| 8                                   | 1139                                                     | 1230    | 1324    | 1422    | 1524    | 1630    | 1739    | 1852    | 1968    | 2089    |
| 9                                   | 1224                                                     | 1317    | 1413    | 1513    | 1617    | 1724    | 1835    | 1950    | 2068    | 2191    |
| 10                                  | 1313                                                     | 1407    | 1505    | 1607    | 1713    | 1822    | 1935    | 2052    | 2172    | 2296    |
| 11                                  | 1405                                                     | 1502    | 1602    | 1705    | 1813    | 1924    | 2039    | 2157    | 2280    | 2405    |
| 12                                  | 1502                                                     | 1600    | 1702    | 1807    | 1917    | 2030    | 2146    | 2267    | 2391    | 2518    |
| 13                                  | 1602                                                     | 1702    | 1805    | 1913    | 2024    | 2139    | 2257    | 2380    | 2505    | 2635    |
| 14                                  | 1705                                                     | 1807    | 1913    | 2022    | 2135    | 2252    | 2372    | 2496    | 2624    | 2755    |
| 15                                  | 1813                                                     | 1917    | 2024    | 2135    | 2250    | 2368    | 2491    | 2617    | 2746    | 2880    |
| 16                                  | 1924                                                     | 2030    | 2139    | 2252    | 2368    | 2489    | 2613    | 2741    | 2872    | 3007    |
| 17                                  | 2039                                                     | 2146    | 2257    | 2372    | 2491    | 2613    | 2739    | 2868    | 3002    | 3139    |
| 18                                  | 2157                                                     | 2267    | 2380    | 2496    | 2617    | 2741    | 2868    | 3000    | 3135    | 3274    |
| 19                                  | 2280                                                     | 2391    | 2505    | 2624    | 2746    | 2872    | 3002    | 3135    | 3272    | 3413    |
| 20                                  | 2405                                                     | 2518    | 2635    | 2755    | 2880    | 3007    | 3139    | 3274    | 3413    | 3555    |
| 21                                  | 2535                                                     | 2650    | 2768    | 2891    | 3017    | 3146    | 3280    | 3417    | 3557    | 3702    |
| 22                                  | 2668                                                     | 2785    | 2905    | 3030    | 3157    | 3289    | 3424    | 3563    | 3705    | 3852    |
| 23                                  | 2805                                                     | 2924    | 3046    | 3172    | 3302    | 3435    | 3572    | 3713    | 3857    | 4005    |
| 24                                  | 2946                                                     | 3067    | 3191    | 3318    | 3450    | 3585    | 3724    | 3867    | 4013    | 4163    |
| 25                                  | 3091                                                     | 3213    | 3339    | 3468    | 3602    | 3739    | 3880    | 4024    | 4172    | 4324    |
| 26                                  | 3239                                                     | 3363    | 3491    | 3622    | 3757    | 3896    | 4039    | 4185    | 4335    | 4489    |
| 27                                  | 3391                                                     | 3517    | 3646    | 3780    | 3917    | 4057    | 4202    | 4350    | 4502    | 4657    |
| 28                                  | 3546                                                     | 3674    | 3805    | 3941    | 4080    | 4222    | 4368    | 4518    | 4672    | 4830    |
| 29                                  | 3705                                                     | 3835    | 3968    | 4105    | 4246    | 4391    | 4539    | 4691    | 4846    | 5005    |
| 30                                  | 3868                                                     | 4000    | 4135    | 4274    | 4417    | 4563    | 4713    | 4867    | 5024    | 5185    |

# TRACK.

in 100 feet.

feet.

| 19      | 20      |
|---------|---------|
| cu. yds | cu. yds |
| 1302    | 1407    |
| 1372    | 1480    |
| 1446    | 1555    |
| 1524    | 1635    |
| 1605    | 1718    |
| 1691    | 1805    |
| 1780    | 1896    |
| 1872    | 1991    |
| 1968    | 2089    |
| 2068    | 2191    |
| 2172    | 2296    |
| 2280    | 2405    |
| 2391    | 2518    |
| 2505    | 2635    |
| 2624    | 2755    |
| 2746    | 2880    |
| 2872    | 3007    |
| 2902    | 3139    |
| 3035    | 3274    |
| 3172    | 3413    |
| 3313    | 3555    |
| 3457    | 3702    |
| 3605    | 3852    |
| 3740    | 4005    |
| 3881    | 4163    |
| 4024    | 4324    |
| 4169    | 4489    |
| 4317    | 4657    |
| 4463    | 4830    |
| 4605    | 5005    |
| 4751    | 5185    |

## TABLE NO. 5, (CONTINUED), SINGLE TRACK.

Table of Clay Embankment, Base 18 feet, Slopes 1½ to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 21                                                       | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |
|                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                   | 1517                                                     | 1630    | 1746    | 1867    | 1991    | 2118    | 2250    | 2385    | 2524    | 2667    |
| 1                                   | 1591                                                     | 1705    | 1824    | 1946    | 2072    | 2202    | 2335    | 2472    | 2613    | 2757    |
| 2                                   | 1668                                                     | 1785    | 1905    | 2030    | 2157    | 2289    | 2424    | 2563    | 2705    | 2852    |
| 3                                   | 1750                                                     | 1868    | 1991    | 2117    | 2246    | 2380    | 2517    | 2657    | 2802    | 2950    |
| 4                                   | 1835                                                     | 1955    | 2080    | 2207    | 2339    | 2474    | 2613    | 2755    | 2902    | 3052    |
| 5                                   | 1924                                                     | 2046    | 2172    | 2302    | 2435    | 2572    | 2713    | 2857    | 3005    | 3157    |
| 6                                   | 2017                                                     | 2141    | 2268    | 2400    | 2535    | 2674    | 2817    | 2963    | 3113    | 3267    |
| 7                                   | 2113                                                     | 2239    | 2368    | 2502    | 2639    | 2780    | 2924    | 3072    | 3224    | 3380    |
| 8                                   | 2213                                                     | 2341    | 2472    | 2607    | 2746    | 2889    | 3035    | 3185    | 3339    | 3496    |
| 9                                   | 2317                                                     | 2446    | 2580    | 2717    | 2857    | 3002    | 3150    | 3302    | 3457    | 3617    |
| 10                                  | 2424                                                     | 2555    | 2697    | 2830    | 2972    | 3118    | 3268    | 3422    | 3580    | 3741    |
| 11                                  | 2535                                                     | 2668    | 2805    | 2946    | 3091    | 3239    | 3391    | 3546    | 3705    | 3868    |
| 12                                  | 2650                                                     | 2785    | 2924    | 3067    | 3213    | 3363    | 3517    | 3674    | 3835    | 4000    |
| 13                                  | 2768                                                     | 2905    | 3046    | 3191    | 3339    | 3491    | 3646    | 3805    | 3968    | 4135    |
| 14                                  | 2891                                                     | 3030    | 3172    | 3318    | 3468    | 3622    | 3780    | 3941    | 4105    | 4274    |
| 15                                  | 3017                                                     | 3157    | 3302    | 3450    | 3602    | 3757    | 3917    | 4080    | 4246    | 4417    |
| 16                                  | 3146                                                     | 3289    | 3435    | 3585    | 3739    | 3896    | 4057    | 4222    | 4391    | 4563    |
| 17                                  | 3280                                                     | 3424    | 3572    | 3724    | 3880    | 4039    | 4202    | 4368    | 4539    | 4713    |
| 18                                  | 3417                                                     | 3563    | 3713    | 3867    | 4024    | 4185    | 4350    | 4518    | 4691    | 4867    |
| 19                                  | 3557                                                     | 3705    | 3857    | 4013    | 4172    | 4335    | 4502    | 4672    | 4846    | 5024    |
| 20                                  | 3702                                                     | 3852    | 4005    | 4163    | 4324    | 4489    | 4657    | 4830    | 5005    | 5185    |
| 21                                  | 3850                                                     | 4002    | 4157    | 4317    | 4480    | 4646    | 4817    | 4991    | 5168    | 5350    |
| 22                                  | 4002                                                     | 4156    | 4313    | 4474    | 4639    | 4807    | 4980    | 5155    | 5335    | 5518    |
| 23                                  | 4157                                                     | 4313    | 4472    | 4635    | 4802    | 4972    | 5146    | 5324    | 5505    | 5691    |
| 24                                  | 4317                                                     | 4474    | 4635    | 4800    | 4968    | 5141    | 5317    | 5496    | 5680    | 5867    |
| 25                                  | 4480                                                     | 4639    | 4802    | 4968    | 5139    | 5313    | 5491    | 5672    | 5857    | 6046    |
| 26                                  | 4646                                                     | 4807    | 4972    | 5141    | 5313    | 5489    | 5668    | 5852    | 6039    | 6230    |
| 27                                  | 4817                                                     | 4980    | 5146    | 5317    | 5491    | 5668    | 5850    | 6035    | 6224    | 6417    |
| 28                                  | 4991                                                     | 5155    | 5324    | 5496    | 5672    | 5852    | 6035    | 6222    | 6413    | 6607    |
| 29                                  | 5168                                                     | 5335    | 5505    | 5680    | 5857    | 6039    | 6224    | 6413    | 6606    | 6802    |
| 30                                  | 5350                                                     | 5518    | 5691    | 5867    | 6046    | 6230    | 6417    | 6607    | 6802    | 7000    |

# TABLE NO. 6, SINGLE TRACK.

Table of Embankment in Sand & Gravel, Base 18 feet, Slopes 2 to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>ft. at. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|---------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                       | 1                                                        | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|                                       | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                     | 36                                                       | 76      | 122     | 173     | 228     | 289     | 354     | 424     | 500     | 580     |
| 1                                     | 74                                                       | 117     | 165     | 218     | 276     | 339     | 407     | 480     | 558     | 641     |
| 2                                     | 117                                                      | 163     | 213     | 269     | 329     | 395     | 465     | 541     | 621     | 706     |
| 3                                     | 165                                                      | 213     | 267     | 325     | 387     | 456     | 528     | 606     | 689     | 776     |
| 4                                     | 218                                                      | 269     | 325     | 385     | 451     | 521     | 596     | 676     | 762     | 852     |
| 5                                     | 276                                                      | 329     | 387     | 451     | 518     | 591     | 669     | 752     | 839     | 932     |
| 6                                     | 339                                                      | 395     | 456     | 521     | 591     | 667     | 747     | 832     | 922     | 1017    |
| 7                                     | 407                                                      | 465     | 528     | 596     | 669     | 747     | 830     | 917     | 1010    | 1107    |
| 8                                     | 480                                                      | 541     | 606     | 676     | 752     | 832     | 917     | 1007    | 1102    | 1202    |
| 9                                     | 558                                                      | 621     | 689     | 762     | 839     | 922     | 1010    | 1102    | 1200    | 1302    |
| 10                                    | 641                                                      | 706     | 776     | 852     | 932     | 1017    | 1107    | 1202    | 1302    | 1407    |
| 11                                    | 728                                                      | 796     | 869     | 947     | 1030    | 1117    | 1210    | 1307    | 1410    | 1517    |
| 12                                    | 821                                                      | 891     | 967     | 1047    | 1132    | 1222    | 1317    | 1417    | 1522    | 1632    |
| 13                                    | 919                                                      | 991     | 1069    | 1152    | 1239    | 1332    | 1430    | 1532    | 1639    | 1752    |
| 14                                    | 1021                                                     | 1096    | 1176    | 1262    | 1352    | 1447    | 1547    | 1652    | 1762    | 1876    |
| 15                                    | 1128                                                     | 1206    | 1289    | 1377    | 1469    | 1567    | 1669    | 1776    | 1889    | 2006    |
| 16                                    | 1241                                                     | 1321    | 1406    | 1496    | 1591    | 1691    | 1796    | 1906    | 2021    | 2141    |
| 17                                    | 1358                                                     | 1441    | 1528    | 1621    | 1718    | 1821    | 1928    | 2041    | 2158    | 2280    |
| 18                                    | 1480                                                     | 1565    | 1656    | 1751    | 1851    | 1955    | 2065    | 2180    | 2300    | 2425    |
| 19                                    | 1607                                                     | 1695    | 1788    | 1885    | 1988    | 2095    | 2207    | 2325    | 2447    | 2574    |
| 20                                    | 1739                                                     | 1830    | 1925    | 2025    | 2130    | 2239    | 2354    | 2474    | 2599    | 2728    |
| 21                                    | 1876                                                     | 1969    | 2067    | 2169    | 2277    | 2389    | 2506    | 2628    | 2756    | 2888    |
| 22                                    | 2018                                                     | 2113    | 2214    | 2319    | 2428    | 2543    | 2663    | 2788    | 2917    | 3052    |
| 23                                    | 2165                                                     | 2263    | 2365    | 2473    | 2585    | 2702    | 2825    | 2952    | 3084    | 3221    |
| 24                                    | 2317                                                     | 2417    | 2522    | 2632    | 2747    | 2867    | 2991    | 3121    | 3255    | 3395    |
| 25                                    | 2474                                                     | 2576    | 2684    | 2796    | 2914    | 3036    | 3163    | 3295    | 3432    | 3574    |
| 26                                    | 2636                                                     | 2741    | 2851    | 2965    | 3085    | 3210    | 3339    | 3474    | 3613    | 3758    |
| 27                                    | 2802                                                     | 2910    | 3022    | 3139    | 3262    | 3389    | 3521    | 3658    | 3800    | 3947    |
| 28                                    | 2974                                                     | 3084    | 3199    | 3318    | 3443    | 3573    | 3707    | 3847    | 3991    | 4141    |
| 29                                    | 3151                                                     | 3263    | 3380    | 3502    | 3629    | 3762    | 3899    | 4041    | 4188    | 4339    |
| 30                                    | 3332                                                     | 3447    | 3567    | 3691    | 3821    | 3956    | 4095    | 4239    | 4389    | 4543    |

# TABLE NO. 6, (CONTINUED,) SINGLE TRACK.

Table of Embankment in Sand & Gravel, Base 18 feet, Slopes 2 to 1, Chain 100 feet.

100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 11                                                       | 12      | 13      | 14      | 15      | 16      | 17      | 18      | 19      | 20      |
| cu. yds                             | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 580                                 | 0 665                                                    | 755     | 850     | 951     | 1056    | 1165    | 1280    | 1400    | 1525    | 1654    |
| 641                                 | 1 728                                                    | 821     | 919     | 1021    | 1128    | 1241    | 1358    | 1480    | 1607    | 1739    |
| 706                                 | 2 796                                                    | 891     | 991     | 1096    | 1206    | 1321    | 1441    | 1565    | 1695    | 1830    |
| 776                                 | 3 869                                                    | 967     | 1069    | 1176    | 1289    | 1406    | 1528    | 1656    | 1788    | 1925    |
| 852                                 | 4 947                                                    | 1047    | 1152    | 1262    | 1377    | 1496    | 1621    | 1751    | 1885    | 2025    |
| 932                                 | 5 1030                                                   | 1132    | 1239    | 1352    | 1469    | 1591    | 1718    | 1851    | 1988    | 2130    |
| 1017                                | 6 1117                                                   | 1222    | 1332    | 1447    | 1567    | 1691    | 1821    | 1955    | 2095    | 2239    |
| 1107                                | 7 1210                                                   | 1317    | 1430    | 1547    | 1669    | 1796    | 1928    | 2065    | 2207    | 2354    |
| 1202                                | 8 1307                                                   | 1417    | 1532    | 1652    | 1776    | 1906    | 2041    | 2180    | 2325    | 2474    |
| 1302                                | 9 1410                                                   | 1522    | 1639    | 1762    | 1889    | 2021    | 2158    | 2300    | 2447    | 2599    |
| 1407                                | 10 1517                                                  | 1632    | 1752    | 1876    | 2006    | 2141    | 2280    | 2425    | 2574    | 2728    |
| 1517                                | 11 1630                                                  | 1747    | 1869    | 1996    | 2128    | 2265    | 2407    | 2554    | 2706    | 2863    |
| 1632                                | 12 1747                                                  | 1867    | 1991    | 2121    | 2256    | 2395    | 2539    | 2689    | 2843    | 3002    |
| 1752                                | 13 1869                                                  | 1991    | 2119    | 2251    | 2388    | 2530    | 2676    | 2828    | 2985    | 3147    |
| 1876                                | 14 1996                                                  | 2121    | 2251    | 2385    | 2525    | 2669    | 2818    | 2973    | 3132    | 3296    |
| 2006                                | 15 2125                                                  | 2256    | 2388    | 2525    | 2667    | 2813    | 2965    | 3122    | 3284    | 3450    |
| 2141                                | 16 2265                                                  | 2395    | 2530    | 2669    | 2813    | 2963    | 3117    | 3276    | 3441    | 3610    |
| 2280                                | 17 2407                                                  | 2539    | 2676    | 2818    | 2965    | 3117    | 3274    | 3436    | 3602    | 3774    |
| 2425                                | 18 2554                                                  | 2689    | 2828    | 2973    | 3122    | 3276    | 3436    | 3600    | 3769    | 3943    |
| 2574                                | 19 2706                                                  | 2843    | 2985    | 3132    | 3284    | 3441    | 3602    | 3769    | 3941    | 4117    |
| 2728                                | 20 2863                                                  | 3002    | 3147    | 3296    | 3450    | 3610    | 3774    | 3943    | 4117    | 4296    |
| 2888                                | 21 3025                                                  | 3167    | 3313    | 3465    | 3622    | 3784    | 3951    | 4122    | 4299    | 4480    |
| 3052                                | 22 3191                                                  | 3336    | 3485    | 3639    | 3799    | 3963    | 4132    | 4306    | 4485    | 4669    |
| 3221                                | 23 3363                                                  | 3510    | 3662    | 3813    | 3980    | 4147    | 4318    | 4495    | 4676    | 4863    |
| 3395                                | 24 3539                                                  | 3689    | 3843    | 4002    | 4167    | 4336    | 4510    | 4689    | 4873    | 5062    |
| 3574                                | 25 3721                                                  | 3873    | 4030    | 4191    | 4358    | 4530    | 4706    | 4888    | 5074    | 5265    |
| 3758                                | 26 3907                                                  | 4062    | 4221    | 4385    | 4554    | 4728    | 4907    | 5091    | 5280    | 5474    |
| 3947                                | 27 4099                                                  | 4255    | 4417    | 4584    | 4756    | 4932    | 5113    | 5300    | 5491    | 5688    |
| 4141                                | 28 4295                                                  | 4454    | 4619    | 4788    | 4962    | 5141    | 5325    | 5514    | 5707    | 5906    |
| 4339                                | 29 4496                                                  | 4658    | 4825    | 4996    | 5173    | 5354    | 5541    | 5732    | 5928    | 6130    |
| 4543                                | 30 4702                                                  | 4867    | 5036    | 5210    | 5389    | 5573    | 5762    | 5956    | 6154    | 6358    |

**TABLE NO. 6, (CONTINUED,) SINGLE TRACK.**

Table of Embankment in Sand & Gravel, Base 18 feet, Slopes 2 to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 21                                                       | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |
|                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                   | 1789                                                     | 1928    | 2073    | 2222    | 2377    | 2536    | 2700    | 2869    | 3043    | 3222    |
| 1                                   | 1876                                                     | 2018    | 2165    | 2317    | 2474    | 2636    | 2802    | 2974    | 3151    | 3332    |
| 2                                   | 1969                                                     | 2113    | 2263    | 2417    | 2576    | 2741    | 2910    | 3084    | 3263    | 3447    |
| 3                                   | 2067                                                     | 2214    | 2365    | 2522    | 2684    | 2851    | 3022    | 3199    | 3380    | 3567    |
| 4                                   | 2169                                                     | 2319    | 2473    | 2632    | 2796    | 2965    | 3139    | 3318    | 3502    | 3691    |
| 5                                   | 2277                                                     | 2428    | 2585    | 2747    | 2914    | 3085    | 3262    | 3443    | 3629    | 3821    |
| 6                                   | 2389                                                     | 2543    | 2702    | 2867    | 3036    | 3210    | 3389    | 3573    | 3762    | 3956    |
| 7                                   | 2506                                                     | 2663    | 2825    | 2991    | 3163    | 3339    | 3521    | 3707    | 3899    | 4095    |
| 8                                   | 2628                                                     | 2788    | 2952    | 3121    | 3295    | 3474    | 3658    | 3847    | 4041    | 4239    |
| 9                                   | 2756                                                     | 2917    | 3084    | 3255    | 3432    | 3613    | 3800    | 3991    | 4188    | 4389    |
| 10                                  | 2888                                                     | 3052    | 3221    | 3395    | 3574    | 3758    | 3947    | 4141    | 4339    | 4543    |
| 11                                  | 3025                                                     | 3191    | 3363    | 3539    | 3721    | 3907    | 4099    | 4295    | 4496    | 4702    |
| 12                                  | 3167                                                     | 3336    | 3510    | 3689    | 3873    | 4062    | 4255    | 4454    | 4658    | 4867    |
| 13                                  | 3313                                                     | 3485    | 3662    | 3843    | 4030    | 4221    | 4417    | 4619    | 4825    | 5036    |
| 14                                  | 3465                                                     | 3639    | 3818    | 4002    | 4191    | 4385    | 4584    | 4788    | 4996    | 5210    |
| 15                                  | 3622                                                     | 3799    | 3980    | 4167    | 4358    | 4554    | 4756    | 4962    | 5173    | 5389    |
| 16                                  | 3784                                                     | 3963    | 4147    | 4336    | 4530    | 4728    | 4932    | 5141    | 5354    | 5573    |
| 17                                  | 3951                                                     | 4132    | 4318    | 4510    | 4706    | 4907    | 5113    | 5325    | 5541    | 5762    |
| 18                                  | 4122                                                     | 4306    | 4495    | 4689    | 4888    | 5091    | 5300    | 5514    | 5732    | 5956    |
| 19                                  | 4299                                                     | 4485    | 4676    | 4873    | 5074    | 5280    | 5491    | 5707    | 5928    | 6154    |
| 20                                  | 4480                                                     | 4669    | 4863    | 5062    | 5265    | 5474    | 5688    | 5906    | 6130    | 6358    |
| 21                                  | 4667                                                     | 4858    | 5054    | 5255    | 5462    | 5673    | 5889    | 6110    | 6336    | 6567    |
| 22                                  | 4858                                                     | 5052    | 5250    | 5454    | 5663    | 5876    | 6095    | 6318    | 6547    | 6780    |
| 23                                  | 5054                                                     | 5250    | 5452    | 5658    | 5869    | 6085    | 6306    | 6532    | 6763    | 6999    |
| 24                                  | 5255                                                     | 5454    | 5658    | 5867    | 6080    | 6299    | 6522    | 6751    | 6984    | 7222    |
| 25                                  | 5462                                                     | 5663    | 5869    | 6080    | 6296    | 6517    | 6743    | 6974    | 7210    | 7451    |
| 26                                  | 5673                                                     | 5876    | 6085    | 6299    | 6517    | 6741    | 6969    | 7202    | 7441    | 7684    |
| 27                                  | 5889                                                     | 6095    | 6306    | 6522    | 6743    | 6969    | 7200    | 7436    | 7676    | 7922    |
| 28                                  | 6110                                                     | 6318    | 6532    | 6751    | 6974    | 7202    | 7436    | 7674    | 7917    | 8165    |
| 29                                  | 6336                                                     | 6547    | 6763    | 6984    | 7210    | 7441    | 7676    | 7917    | 8163    | 8413    |
| 30                                  | 6567                                                     | 6780    | 6999    | 7222    | 7451    | 7684    | 7922    | 8165    | 8413    | 8667    |

CK.  
0 feet.

TABLE NO. 7, SINGLE TRACK.  
Table of Clay Embankment, Base 20 feet. Slopes  $1\frac{1}{2}$  to 1, Chain 100 feet.

30

cu. yds

222

332

447

567

691

821

956

1095

1239

1389

1543

1702

1867

2036

2210

2389

2573

2762

2956

3154

3358

3567

3780

3999

4222

4451

4684

4922

5165

5413

5667

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 1                                                        | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                   | 39                                                       | 81      | 128     | 178     | 231     | 289     | 350     | 415     | 483     | 555     |
| 1                                   | 80                                                       | 124     | 172     | 224     | 280     | 339     | 402     | 468     | 539     | 613     |
| 2                                   | 124                                                      | 170     | 220     | 274     | 331     | 392     | 457     | 526     | 598     | 674     |
| 3                                   | 172                                                      | 220     | 272     | 328     | 387     | 450     | 517     | 587     | 661     | 739     |
| 4                                   | 224                                                      | 274     | 328     | 385     | 446     | 511     | 580     | 652     | 728     | 807     |
| 5                                   | 280                                                      | 331     | 387     | 446     | 509     | 576     | 646     | 720     | 798     | 880     |
| 6                                   | 339                                                      | 392     | 450     | 511     | 576     | 644     | 717     | 792     | 872     | 955     |
| 7                                   | 402                                                      | 457     | 517     | 580     | 646     | 717     | 791     | 868     | 950     | 1035    |
| 8                                   | 468                                                      | 526     | 587     | 652     | 720     | 792     | 868     | 948     | 1031    | 1118    |
| 9                                   | 539                                                      | 598     | 661     | 728     | 798     | 872     | 950     | 1031    | 1117    | 1205    |
| 10                                  | 613                                                      | 674     | 739     | 807     | 880     | 955     | 1035    | 1118    | 1205    | 1296    |
| 11                                  | 691                                                      | 754     | 820     | 891     | 965     | 1042    | 1124    | 1209    | 1298    | 1391    |
| 12                                  | 772                                                      | 837     | 905     | 978     | 1054    | 1133    | 1217    | 1304    | 1394    | 1489    |
| 13                                  | 857                                                      | 924     | 994     | 1068    | 1146    | 1228    | 1313    | 1402    | 1494    | 1591    |
| 14                                  | 946                                                      | 1015    | 1087    | 1163    | 1242    | 1326    | 1413    | 1504    | 1598    | 1696    |
| 15                                  | 1039                                                     | 1109    | 1183    | 1261    | 1342    | 1428    | 1517    | 1609    | 1705    | 1805    |
| 16                                  | 1135                                                     | 1207    | 1283    | 1363    | 1446    | 1533    | 1624    | 1718    | 1816    | 1918    |
| 17                                  | 1235                                                     | 1309    | 1387    | 1468    | 1554    | 1642    | 1735    | 1831    | 1931    | 2035    |
| 18                                  | 1339                                                     | 1415    | 1494    | 1578    | 1665    | 1755    | 1850    | 1948    | 2050    | 2155    |
| 19                                  | 1446                                                     | 1524    | 1605    | 1691    | 1780    | 1872    | 1968    | 2068    | 2172    | 2280    |
| 20                                  | 1557                                                     | 1637    | 1720    | 1807    | 1898    | 1992    | 2091    | 2192    | 2298    | 2407    |
| 21                                  | 1672                                                     | 1754    | 1839    | 1928    | 2020    | 2117    | 2217    | 2320    | 2428    | 2539    |
| 22                                  | 1791                                                     | 1874    | 1961    | 2052    | 2146    | 2244    | 2346    | 2452    | 2561    | 2674    |
| 23                                  | 1913                                                     | 1998    | 2087    | 2180    | 2276    | 2376    | 2480    | 2587    | 2698    | 2813    |
| 24                                  | 2039                                                     | 2126    | 2217    | 2311    | 2409    | 2511    | 2617    | 2726    | 2839    | 2955    |
| 25                                  | 2168                                                     | 2257    | 2350    | 2446    | 2546    | 2650    | 2757    | 2868    | 2983    | 3111    |
| 26                                  | 2302                                                     | 2392    | 2487    | 2585    | 2687    | 2792    | 2902    | 3015    | 3131    | 3252    |
| 27                                  | 2439                                                     | 2531    | 2628    | 2728    | 2831    | 2939    | 3050    | 3165    | 3283    | 3405    |
| 28                                  | 2579                                                     | 2674    | 2772    | 2874    | 2980    | 3089    | 3202    | 3318    | 3439    | 3563    |
| 29                                  | 2724                                                     | 2820    | 2920    | 3024    | 3131    | 3243    | 3357    | 3476    | 3598    | 3724    |
| 30                                  | 2872                                                     | 2970    | 3072    | 3178    | 3287    | 3400    | 3517    | 3637    | 3761    | 3889    |

TABLE NO. 7, (CONTINUED), SINGLE TRACK.

Table of Clay Embankment, Base 20 feet, Slopes 1½ to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 11                                                       | 12      | 13      | 14      | 15      | 16      | 17      | 18      | 19      | 20      |
|                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                   | 631                                                      | 711     | 794     | 881     | 972     | 1067    | 1165    | 1267    | 1372    | 1481    |
| 1                                   | 691                                                      | 772     | 857     | 946     | 1039    | 1135    | 1235    | 1339    | 1446    | 1557    |
| 2                                   | 754                                                      | 837     | 924     | 1015    | 1109    | 1207    | 1309    | 1415    | 1524    | 1637    |
| 3                                   | 820                                                      | 905     | 994     | 1087    | 1183    | 1283    | 1387    | 1494    | 1605    | 1720    |
| 4                                   | 891                                                      | 978     | 1068    | 1163    | 1261    | 1363    | 1468    | 1578    | 1691    | 1807    |
| 5                                   | 965                                                      | 1054    | 1146    | 1242    | 1342    | 1446    | 1554    | 1665    | 1780    | 1898    |
| 6                                   | 1042                                                     | 1133    | 1228    | 1326    | 1428    | 1533    | 1642    | 1755    | 1872    | 1992    |
| 7                                   | 1124                                                     | 1217    | 1313    | 1413    | 1517    | 1624    | 1735    | 1850    | 1968    | 2091    |
| 8                                   | 1209                                                     | 1304    | 1402    | 1504    | 1609    | 1718    | 1831    | 1948    | 2068    | 2192    |
| 9                                   | 1298                                                     | 1394    | 1494    | 1598    | 1705    | 1816    | 1931    | 2050    | 2172    | 2298    |
| 10                                  | 1391                                                     | 1489    | 1591    | 1696    | 1805    | 1918    | 2035    | 2155    | 2280    | 2407    |
| 11                                  | 1487                                                     | 1587    | 1691    | 1798    | 1909    | 2024    | 2142    | 2265    | 2391    | 2520    |
| 12                                  | 1587                                                     | 1689    | 1794    | 1903    | 2017    | 2133    | 2254    | 2378    | 2505    | 2637    |
| 13                                  | 1691                                                     | 1794    | 1902    | 2013    | 2128    | 2246    | 2368    | 2494    | 2624    | 2757    |
| 14                                  | 1798                                                     | 1903    | 2013    | 2126    | 2242    | 2363    | 2487    | 2615    | 2746    | 2881    |
| 15                                  | 1909                                                     | 2017    | 2128    | 2242    | 2361    | 2483    | 2609    | 2739    | 2872    | 3009    |
| 16                                  | 2024                                                     | 2133    | 2246    | 2363    | 2483    | 2607    | 2735    | 2867    | 3002    | 3141    |
| 17                                  | 2142                                                     | 2254    | 2368    | 2487    | 2609    | 2735    | 2865    | 2998    | 3135    | 3276    |
| 18                                  | 2265                                                     | 2378    | 2494    | 2615    | 2739    | 2867    | 2998    | 3133    | 3272    | 3415    |
| 19                                  | 2391                                                     | 2505    | 2624    | 2746    | 2872    | 3002    | 3135    | 3272    | 3413    | 3557    |
| 20                                  | 2520                                                     | 2637    | 2757    | 2881    | 3009    | 3141    | 3276    | 3415    | 3557    | 3704    |
| 21                                  | 2654                                                     | 2772    | 2894    | 3020    | 3150    | 3283    | 3420    | 3561    | 3705    | 3854    |
| 22                                  | 2791                                                     | 2911    | 3035    | 3163    | 3294    | 3430    | 3568    | 3711    | 3857    | 4007    |
| 23                                  | 2931                                                     | 3054    | 3179    | 3309    | 3442    | 3580    | 3720    | 3865    | 4013    | 4165    |
| 24                                  | 3076                                                     | 3200    | 3328    | 3459    | 3594    | 3733    | 3876    | 4022    | 4172    | 4326    |
| 25                                  | 3224                                                     | 3350    | 3479    | 3613    | 3750    | 3891    | 4035    | 4183    | 4335    | 4491    |
| 26                                  | 3376                                                     | 3503    | 3635    | 3770    | 3909    | 4052    | 4198    | 4348    | 4502    | 4659    |
| 27                                  | 3531                                                     | 3661    | 3794    | 3931    | 4072    | 4217    | 4365    | 4517    | 4672    | 4831    |
| 28                                  | 3691                                                     | 3822    | 3957    | 4096    | 4239    | 4385    | 4535    | 4688    | 4846    | 5007    |
| 29                                  | 3854                                                     | 3987    | 4124    | 4265    | 4409    | 4557    | 4707    | 4863    | 5024    | 5187    |
| 30                                  | 4020                                                     | 4155    | 4294    | 4437    | 4583    | 4733    | 4887    | 5044    | 5205    | 5370    |

## TABLE NO. 7, (CONTINUED,) SINGLE TRACK.

Table of Clay Embankment, Base 20 feet, Slopes  $1\frac{1}{2}$  to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |          |          |          |          |          |          |          |          |          |
|-------------------------------------|----------------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                                     | 21                                                       | 22       | 23       | 24       | 25       | 26       | 27       | 28       | 29       | 30       |
| cu. yds.                            | cu. yds.                                                 | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 0                                   | 1594                                                     | 1711     | 1831     | 1955     | 2083     | 2215     | 2350     | 2489     | 2631     | 2778     |
| 1                                   | 1672                                                     | 1791     | 1913     | 2039     | 2168     | 2302     | 2439     | 2579     | 2724     | 2872     |
| 2                                   | 1754                                                     | 1874     | 1998     | 2126     | 2257     | 2392     | 2531     | 2674     | 2820     | 2970     |
| 3                                   | 1839                                                     | 1961     | 2087     | 2217     | 2350     | 2487     | 2628     | 2772     | 2920     | 3072     |
| 4                                   | 1928                                                     | 2052     | 2180     | 2311     | 2446     | 2585     | 2728     | 2874     | 3024     | 3178     |
| 5                                   | 2020                                                     | 2146     | 2276     | 2409     | 2546     | 2687     | 2831     | 2980     | 3131     | 3287     |
| 6                                   | 2117                                                     | 2244     | 2376     | 2511     | 2650     | 2792     | 2939     | 3089     | 3243     | 3400     |
| 7                                   | 2217                                                     | 2346     | 2480     | 2617     | 2757     | 2902     | 3050     | 3202     | 3357     | 3517     |
| 8                                   | 2320                                                     | 2452     | 2587     | 2726     | 2868     | 3015     | 3165     | 3318     | 3476     | 3637     |
| 9                                   | 2428                                                     | 2561     | 2698     | 2839     | 2983     | 3131     | 3283     | 3439     | 3598     | 3761     |
| 10                                  | 2539                                                     | 2674     | 2813     | 2955     | 3111     | 3252     | 3405     | 3563     | 3724     | 3889     |
| 11                                  | 2654                                                     | 2791     | 2931     | 3076     | 3224     | 3376     | 3531     | 3691     | 3854     | 4020     |
| 12                                  | 2772                                                     | 2911     | 3054     | 3200     | 3350     | 3503     | 3661     | 3822     | 3987     | 4155     |
| 13                                  | 2894                                                     | 3035     | 3179     | 3328     | 3479     | 3635     | 3794     | 3957     | 4124     | 4294     |
| 14                                  | 3020                                                     | 3163     | 3309     | 3459     | 3613     | 3770     | 3931     | 4096     | 4265     | 4437     |
| 15                                  | 3150                                                     | 3294     | 3442     | 3594     | 3750     | 3909     | 4072     | 4239     | 4409     | 4583     |
| 16                                  | 3283                                                     | 3430     | 3580     | 3733     | 3891     | 4052     | 4217     | 4385     | 4557     | 4733     |
| 17                                  | 3420                                                     | 3568     | 3720     | 3876     | 4035     | 4198     | 4365     | 4535     | 4709     | 4887     |
| 18                                  | 3561                                                     | 3711     | 3865     | 4022     | 4183     | 4348     | 4517     | 4689     | 4865     | 5044     |
| 19                                  | 3705                                                     | 3857     | 4013     | 4172     | 4335     | 4502     | 4672     | 4846     | 5024     | 5205     |
| 20                                  | 3854                                                     | 4007     | 4165     | 4326     | 4491     | 4659     | 4831     | 5007     | 5187     | 5370     |
| 21                                  | 4005                                                     | 4161     | 4320     | 4483     | 4650     | 4820     | 4994     | 5172     | 5354     | 5539     |
| 22                                  | 4161                                                     | 4318     | 4480     | 4644     | 4813     | 4985     | 5161     | 5341     | 5524     | 5711     |
| 23                                  | 4320                                                     | 4480     | 4642     | 4809     | 4980     | 5154     | 5331     | 5513     | 5698     | 5887     |
| 24                                  | 4483                                                     | 4644     | 4809     | 4978     | 5150     | 5326     | 5505     | 5689     | 5876     | 6067     |
| 25                                  | 4650                                                     | 4813     | 4980     | 5150     | 5324     | 5502     | 5683     | 5868     | 6057     | 6239     |
| 26                                  | 4820                                                     | 4985     | 5154     | 5326     | 5502     | 5681     | 5865     | 6052     | 6241     | 6437     |
| 27                                  | 4994                                                     | 5161     | 5331     | 5505     | 5683     | 5865     | 6050     | 6228     | 6431     | 6628     |
| 28                                  | 5172                                                     | 5341     | 5513     | 5689     | 5868     | 6052     | 6228     | 6430     | 6624     | 6812     |
| 29                                  | 5354                                                     | 5524     | 5698     | 5876     | 6057     | 6231     | 6431     | 6624     | 6820     | 7020     |
| 30                                  | 5539                                                     | 5711     | 5887     | 6067     | 6239     | 6437     | 6628     | 6812     | 7020     | 7222     |

# TABLE NO. 8, SINGLE TRACK.

Table of Embankment in Sand & Gravel, Base 20 feet, Slopes 2 to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 1                                                        | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
|                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                   | 40                                                       | 84      | 133     | 188     | 247     | 311     | 380     | 454     | 533     | 617     |
| 1                                   | 81                                                       | 128     | 180     | 237     | 299     | 365     | 437     | 513     | 595     | 681     |
| 2                                   | 128                                                      | 178     | 232     | 291     | 355     | 425     | 499     | 578     | 662     | 751     |
| 3                                   | 180                                                      | 232     | 289     | 351     | 417     | 489     | 565     | 647     | 733     | 825     |
| 4                                   | 237                                                      | 291     | 351     | 415     | 484     | 558     | 637     | 721     | 810     | 904     |
| 5                                   | 299                                                      | 355     | 417     | 484     | 555     | 632     | 713     | 800     | 891     | 988     |
| 6                                   | 365                                                      | 425     | 489     | 558     | 632     | 711     | 795     | 884     | 978     | 1076    |
| 7                                   | 437                                                      | 499     | 565     | 637     | 713     | 795     | 881     | 973     | 1069    | 1170    |
| 8                                   | 513                                                      | 578     | 647     | 721     | 800     | 884     | 973     | 1067    | 1165    | 1269    |
| 9                                   | 595                                                      | 662     | 733     | 810     | 891     | 978     | 1069    | 1165    | 1267    | 1373    |
| 10                                  | 681                                                      | 751     | 825     | 904     | 988     | 1076    | 1170    | 1269    | 1373    | 1481    |
| 11                                  | 773                                                      | 844     | 921     | 1002    | 1089    | 1180    | 1276    | 1378    | 1484    | 1595    |
| 12                                  | 869                                                      | 943     | 1022    | 1106    | 1195    | 1289    | 1388    | 1491    | 1600    | 1713    |
| 13                                  | 970                                                      | 1047    | 1128    | 1215    | 1306    | 1402    | 1504    | 1610    | 1721    | 1837    |
| 14                                  | 1076                                                     | 1155    | 1239    | 1328    | 1422    | 1521    | 1625    | 1733    | 1847    | 1965    |
| 15                                  | 1188                                                     | 1269    | 1355    | 1447    | 1543    | 1644    | 1751    | 1862    | 1978    | 2099    |
| 16                                  | 1304                                                     | 1388    | 1476    | 1570    | 1669    | 1773    | 1881    | 1995    | 2113    | 2237    |
| 17                                  | 1425                                                     | 1511    | 1602    | 1699    | 1800    | 1906    | 2017    | 2133    | 2254    | 2380    |
| 18                                  | 1551                                                     | 1639    | 1733    | 1832    | 1936    | 2044    | 2158    | 2276    | 2400    | 2528    |
| 19                                  | 1681                                                     | 1773    | 1869    | 1970    | 2077    | 2188    | 2304    | 2425    | 2551    | 2681    |
| 20                                  | 1817                                                     | 1911    | 2010    | 2113    | 2222    | 2336    | 2454    | 2578    | 2706    | 2840    |
| 21                                  | 1958                                                     | 2054    | 2155    | 2262    | 2373    | 2489    | 2610    | 2736    | 2867    | 3002    |
| 22                                  | 2104                                                     | 2202    | 2306    | 2415    | 2528    | 2647    | 2770    | 2899    | 3032    | 3170    |
| 23                                  | 2254                                                     | 2355    | 2462    | 2573    | 2689    | 2810    | 2936    | 3067    | 3202    | 3343    |
| 24                                  | 2410                                                     | 2513    | 2622    | 2736    | 2854    | 2978    | 3106    | 3239    | 3378    | 3521    |
| 25                                  | 2570                                                     | 2676    | 2788    | 2904    | 3025    | 3151    | 3282    | 3417    | 3558    | 3704    |
| 26                                  | 2736                                                     | 2844    | 2958    | 3077    | 3200    | 3328    | 3462    | 3600    | 3743    | 3891    |
| 27                                  | 2906                                                     | 3017    | 3133    | 3254    | 3380    | 3511    | 3647    | 3788    | 3933    | 4084    |
| 28                                  | 3081                                                     | 3195    | 3313    | 3437    | 3565    | 3699    | 3837    | 3980    | 4128    | 4281    |
| 29                                  | 3262                                                     | 3378    | 3499    | 3625    | 3756    | 3891    | 4032    | 4178    | 4328    | 4484    |
| 30                                  | 3447                                                     | 3565    | 3689    | 3818    | 3951    | 4089    | 4232    | 4380    | 4533    | 4691    |

100 feet.

**TABLE NO. 8, (CONTINUED,) SINGLE TRACK.**

Table of Embankment in Sand & Gravel, Base 20 feet, Slopes 2 to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 11                                                       | 12      | 13      | 14      | 15      | 16      | 17      | 18      | 19      | 20      |
| cu. yds                             | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 3 617                               | 0 706                                                    | 800     | 899     | 1002    | 1111    | 1225    | 1343    | 1467    | 1595    | 1728    |
| 5 681                               | 1 773                                                    | 869     | 970     | 1076    | 1188    | 1304    | 1425    | 1551    | 1681    | 1817    |
| 2 751                               | 2 844                                                    | 943     | 1047    | 1155    | 1269    | 1388    | 1511    | 1639    | 1773    | 1911    |
| 3 825                               | 3 921                                                    | 1022    | 1128    | 1239    | 1355    | 1476    | 1602    | 1733    | 1869    | 2010    |
| 0 904                               | 4 1002                                                   | 1107    | 1215    | 1328    | 1447    | 1570    | 1699    | 1832    | 1970    | 2113    |
| 1 988                               | 5 1089                                                   | 1195    | 1306    | 1422    | 1543    | 1669    | 1800    | 1936    | 2077    | 2222    |
| 78 1076                             | 6 1180                                                   | 1289    | 1402    | 1521    | 1644    | 1773    | 1906    | 2044    | 2188    | 2336    |
| 59 1170                             | 7 1277                                                   | 1388    | 1504    | 1625    | 1751    | 1881    | 2017    | 2158    | 2304    | 2454    |
| 55 1269                             | 8 1378                                                   | 1491    | 1610    | 1733    | 1862    | 1995    | 2133    | 2276    | 2425    | 2578    |
| 57 1373                             | 9 1484                                                   | 1600    | 1721    | 1847    | 1978    | 2113    | 2254    | 2400    | 2551    | 2706    |
| 73 1481                             | 10 1595                                                  | 1713    | 1837    | 1965    | 2099    | 2237    | 2380    | 2528    | 2681    | 2840    |
| 84 1595                             | 11 1711                                                  | 1832    | 1958    | 2089    | 2225    | 2365    | 2511    | 2662    | 2817    | 2978    |
| 00 1713                             | 12 1832                                                  | 1955    | 2084    | 2217    | 2355    | 2499    | 2647    | 2800    | 2958    | 3121    |
| 21 1837                             | 13 1958                                                  | 2084    | 2215    | 2351    | 2491    | 2637    | 2788    | 2943    | 3104    | 3269    |
| 47 1965                             | 14 2089                                                  | 2217    | 2351    | 2489    | 2632    | 2780    | 2933    | 3091    | 3254    | 3422    |
| 78 2099                             | 15 2225                                                  | 2355    | 2491    | 2632    | 2778    | 2928    | 3084    | 3244    | 3410    | 3580    |
| 13 2237                             | 16 2365                                                  | 2499    | 2637    | 2780    | 2928    | 3081    | 3239    | 3402    | 3570    | 3743    |
| 54 2380                             | 17 2511                                                  | 2647    | 2788    | 2933    | 3084    | 3239    | 3400    | 3565    | 3736    | 3911    |
| 00 2528                             | 18 2662                                                  | 2800    | 2943    | 3091    | 3244    | 3402    | 3565    | 3733    | 3906    | 4084    |
| 51 2681                             | 19 2817                                                  | 2958    | 3104    | 3254    | 3410    | 3570    | 3736    | 3906    | 4081    | 4262    |
| 06 2840                             | 20 2978                                                  | 3121    | 3269    | 3422    | 3580    | 3743    | 3911    | 4084    | 4262    | 4444    |
| 86 3002                             | 21 3143                                                  | 3289    | 3439    | 3595    | 3755    | 3921    | 4091    | 4267    | 4447    | 4632    |
| 03 3170                             | 22 3313                                                  | 3462    | 3615    | 3773    | 3936    | 4104    | 4276    | 4454    | 4637    | 4825    |
| 20 3343                             | 23 3489                                                  | 3639    | 3795    | 3955    | 4121    | 4291    | 4467    | 4647    | 4832    | 5022    |
| 378 3521                            | 24 3669                                                  | 3822    | 3980    | 4143    | 4311    | 4484    | 4662    | 4844    | 5032    | 5225    |
| 558 3704                            | 25 3855                                                  | 4010    | 4170    | 4336    | 4506    | 4681    | 4862    | 5047    | 5237    | 5432    |
| 743 3891                            | 26 4044                                                  | 4202    | 4365    | 4533    | 4706    | 4884    | 5067    | 5254    | 5447    | 5644    |
| 933 4084                            | 27 4240                                                  | 4400    | 4565    | 4736    | 4911    | 5091    | 5276    | 5467    | 5662    | 5862    |
| 128 4281                            | 28 4440                                                  | 4602    | 4770    | 4943    | 5121    | 5304    | 5491    | 5684    | 5881    | 6084    |
| 328 4484                            | 29 4644                                                  | 4810    | 4980    | 5155    | 5336    | 5521    | 5711    | 5906    | 6106    | 6311    |
| 593 4691                            | 30 4855                                                  | 5022    | 5195    | 5373    | 5555    | 5743    | 5936    | 6133    | 6336    | 6543    |

**TABLE NO. 8, (CONTINUED), SINGLE TRACK.**  
 Table of Embankment in Sand & Gravel, Base 30 feet, Slopes 2 to 1, Chain 100 feet.

| Height<br>at one<br>end in<br>feet. | Height at the other end of the 100 feet station in feet. |         |         |         |         |         |         |         |         |         |
|-------------------------------------|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                     | 21                                                       | 22      | 23      | 24      | 25      | 26      | 27      | 28      | 29      | 30      |
|                                     | cu. yds                                                  | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds | cu. yds |
| 0                                   | 1867                                                     | 2010    | 2158    | 2311    | 2469    | 2632    | 2800    | 2973    | 3151    | 3333    |
| 1                                   | 1958                                                     | 2104    | 2254    | 2410    | 2570    | 2736    | 2906    | 3081    | 3262    | 3447    |
| 2                                   | 2054                                                     | 2202    | 2355    | 2513    | 2676    | 2844    | 3017    | 3195    | 3378    | 3565    |
| 3                                   | 2155                                                     | 2306    | 2462    | 2622    | 2788    | 2958    | 3133    | 3313    | 3499    | 3689    |
| 4                                   | 2262                                                     | 2415    | 2573    | 2736    | 2904    | 3077    | 3254    | 3437    | 3625    | 3818    |
| 5                                   | 2373                                                     | 2528    | 2689    | 2854    | 3025    | 3200    | 3380    | 3565    | 3756    | 3951    |
| 6                                   | 2489                                                     | 2647    | 2810    | 2978    | 3151    | 3328    | 3511    | 3699    | 3891    | 4089    |
| 7                                   | 2610                                                     | 2770    | 2936    | 3106    | 3282    | 3462    | 3647    | 3837    | 4032    | 4232    |
| 8                                   | 2736                                                     | 2899    | 3067    | 3239    | 3417    | 3600    | 3788    | 3980    | 4178    | 4380    |
| 9                                   | 2867                                                     | 3032    | 3202    | 3378    | 3558    | 3743    | 3933    | 4128    | 4328    | 4533    |
| 10                                  | 3002                                                     | 3170    | 3343    | 3521    | 3704    | 3891    | 4084    | 4281    | 4484    | 4691    |
| 11                                  | 3143                                                     | 3313    | 3489    | 3669    | 3855    | 4044    | 4240    | 4440    | 4644    | 4855    |
| 12                                  | 3289                                                     | 3462    | 3639    | 3822    | 4010    | 4202    | 4400    | 4602    | 4810    | 5022    |
| 13                                  | 3439                                                     | 3615    | 3795    | 3980    | 4170    | 4365    | 4565    | 4770    | 4980    | 5195    |
| 14                                  | 3595                                                     | 3773    | 3955    | 4143    | 4336    | 4533    | 4736    | 4943    | 5155    | 5373    |
| 15                                  | 3755                                                     | 3936    | 4121    | 4311    | 4506    | 4706    | 4911    | 5121    | 5336    | 5555    |
| 16                                  | 3921                                                     | 4104    | 4291    | 4484    | 4681    | 4884    | 5091    | 5304    | 5521    | 5743    |
| 17                                  | 4091                                                     | 4276    | 4467    | 4662    | 4862    | 5067    | 5276    | 5491    | 5711    | 5936    |
| 18                                  | 4267                                                     | 4454    | 4647    | 4844    | 5047    | 5254    | 5467    | 5684    | 5906    | 6133    |
| 19                                  | 4447                                                     | 4637    | 4832    | 5032    | 5237    | 5447    | 5662    | 5881    | 6106    | 6336    |
| 20                                  | 4632                                                     | 4825    | 5022    | 5225    | 5432    | 5644    | 5862    | 6084    | 6211    | 6543    |
| 21                                  | 4822                                                     | 5017    | 5217    | 5422    | 5632    | 5847    | 6067    | 6291    | 6521    | 6755    |
| 22                                  | 5017                                                     | 5215    | 5417    | 5625    | 5837    | 6054    | 6276    | 6504    | 6736    | 6973    |
| 23                                  | 5217                                                     | 5417    | 5622    | 5832    | 6047    | 6267    | 6491    | 6721    | 6955    | 7195    |
| 24                                  | 5422                                                     | 5625    | 5832    | 6044    | 6262    | 6484    | 6711    | 6943    | 7180    | 7422    |
| 25                                  | 5632                                                     | 5837    | 6047    | 6262    | 6481    | 6706    | 6936    | 7170    | 7410    | 7655    |
| 26                                  | 5847                                                     | 6054    | 6267    | 6484    | 6706    | 6933    | 7165    | 7402    | 7644    | 7891    |
| 27                                  | 6067                                                     | 6276    | 6491    | 6711    | 6936    | 7165    | 7400    | 7640    | 7884    | 8133    |
| 28                                  | 6291                                                     | 6504    | 6721    | 6943    | 7170    | 7402    | 7640    | 7881    | 8128    | 8380    |
| 29                                  | 6521                                                     | 6736    | 6955    | 7180    | 7410    | 7644    | 7884    | 8128    | 8378    | 8632    |
| 30                                  | 6755                                                     | 6973    | 7195    | 7422    | 7655    | 7891    | 8133    | 8380    | 8632    | 8889    |

### Method of Using the Second Series of Tables.

There are different methods of using the following form of Tables, but there are two methods more generally used than any others, *both of them erroneous*, in one case the result obtained being less than the truth, and in the other case more than the truth.

By the first method the mean of the two end depths is used, and the cubic yards corresponding to this mean taken from the Tables, the result in this case is less than the truth.

By the second method, the cubic yards corresponding to each end depth are taken from the Tables, the two quantities added together, and the half sum taken for a mean, this gives a result more than the truth.

"There is but one correct principle upon which to calculate the cubic contents of Excavations and Embankments; and that is, by means of what is known as the Prismoidal Formula or Rule." This Rule is as follows:—

"Add together the areas of the two parallel ends of the Prismoid, and four times the area of a section, half way between and parallel to them; and multiply the sum by one-sixth of the length of the Prismoid, measured perpendicularly, to its two parallel ends." Or which amounts to the same, find from my Tables the cubic yards corresponding to the two end depths, and also, those corresponding to a mean depth half way between, to the two

former add four times the latter, and one-sixth of the sum will be the cubic yards contained in the station.

Suppose then in a Railway, with a base or road-bed of 22 feet, and with side slopes of  $1\frac{1}{2}$  to 1, the cutting at one end of a hundred feet station is 15 feet, and at the other end 29 feet.

Then, by the first method,  $15 + 29 = 44 \div 2 = 22$  feet, the mean depth; look in Table No. 2, page 40, and find the cubic yards for a cutting of 22 feet, which is 4481 cubic yards, the result by the first method.

By the second method.

Cubic yards by same Table for 15 feet = 2472

Do. " " " " 29 " = 7035

2)9507

4753.5 cu.yds.

Or 4754 cubic yards, the result by the second method.

The same thing by the true method or Prismoidal Rule.

Cubic quantity by same Table for 15 feet = 2472 cu.yds.

Do. " " " " 29 " = 7035 "

Four times the cubic yards corresponding to a mean depth

half-way between, =  $4481 \times 4 = 17924$  "

6)27431

4571.8

Or 4572 cubic yards, the true cubic quantity contained in the station.

Thus it will be observed, that the first method gives a result just 91 cubic yards too little; while the second method gives no less than 182 cubic

yards too much. If a contractor were to be paid according to the first method of calculating, and assuming the price per yard to be a shilling, he would receive 91 shillings less than he was actually entitled to; and, according to the second method, he would receive 182 shillings more than he would be entitled to. If either of these methods were used in the calculation of rock excavation, the error would then be more serious, instead of shillings it would then amount to dollars.

The substitution of the correct Prismoidal rule for the erroneous ones which are so frequently employed, is demanded by every consideration of accuracy and justice; and by this rule the quantities in the first series of my Tables have been found.

The Tables in the second Series are calculated for every tenth of a foot in height or depth, and if the cutting or filling should not be even feet, (which in practice seldom happens,) the Tables are so constructed, that the cubic yards for any number of feet and tenths of feet from 0 to 30 may be had at once by reference to them. If, instead of the end depths being 15 and 29 as in the preceding example, they are 15.2 feet and 29.8 feet, look in Table No. 2, as before, placing a finger on 15 in the first column, under the head of depth in feet, move this finger horizontally until it comes into the column headed .2, at which place, you will find the cubic yards corresponding to 15 feet and 2 tenths, which is 2522 yards; proceed in the

same way to find the cubic yards corresponding to 29.8 feet, which will be 7362; and now, in order to find the *true cubic* quantity, we must find the cubic yards corresponding to a mean depth half-way between, this will be 22.5 feet, (because 22.5 is the half of 15.2 + 29.8,) look in the same Table for the cubic yards corresponding to a depth of 22.5 feet, which is 4646 yards; then, according to the rule, four times this quantity added to the two former and divided by 6, will give the true cubic quantity as follows:—

Cubic yards, by Table No. 2, for 15.2 feet = 2522

Do. Do. for 29.8 " = 7362

Do. for 22.5 feet = 4646 x 4 = 18584

6)28468

4744.6

Or 4745 cubic yards the true cubic quantity contained in a Railway cutting 15.2 feet deep at one end, 29.8 feet deep at the other end, and 100 feet in length, and with road-bed and side slopes exhibited by Table No. 2.

— *expressed in the following way:*

10



Exhibited by Table No. 2.

|        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |   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299089 | 299088 | 299087 | 299086 | 299085 | 299084 | 299083 | 299082 | 299081 | 299080 | 299079 | 299078 | 299077 | 299076 | 299075 | 299074 | 299073 | 299072 | 299071 | 299070 | 299069 | 299068 | 299067 | 299066 | 299065 | 299064 | 299063 | 299062 | 299061 | 299060 | 299059 | 299058 | 299057 | 299056 | 299055 | 299054 | 299053 | 299052 | 299051 | 299050 | 299049 | 299048 | 299047 | 299046 | 299045 | 299044 | 299043 | 299042 | 299041 | 299040 | 299039 | 299038 | 299037 | 299036 | 299035 | 299034 | 299033 | 299032 | 299031 | 299030 | 299029 | 299028 | 299027 | 299026 | 299025 | 299024 | 299023 | 299022 | 299021 | 299020 | 299019 | 299018 | 299017 | 299016 | 299015 | 299014 | 299013 | 299012 | 299011 | 299010 | 299009 | 299008 | 299007 | 299006 | 299005 | 299004 | 299003 | 299002 | 299001 | 299000 | 298999 | 298998 | 298997 | 298996 | 298995 | 298994 | 298993 | 298992 | 298991 | 298990 | 298989 | 298988 | 298987 | 298986 | 298985 | 298984 | 298983 | 298982 | 298981 | 298980 | 298979 | 298978 | 298977 | 298976 | 298975 | 298974 | 298973 | 298972 | 298971 | 298970 | 298969 | 298968 | 298967 | 298966 | 298965 | 298964 | 298 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----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--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|

|    | Dp<br>in<br>ft. |
|----|-----------------|
|    | 0               |
|    | 1               |
|    | 2               |
|    | 3               |
|    | 4               |
|    | 5               |
|    | 6               |
|    | 7               |
|    | 8               |
|    | 9               |
| 10 | 10              |
| 11 | 11              |
| 12 | 12              |
| 13 | 13              |
| 14 | 14              |
| 15 | 15              |
| 16 | 16              |
| 17 | 17              |
| 18 | 18              |
| 19 | 19              |
| 20 | 20              |
| 21 | 21              |
| 22 | 22              |
| 23 | 23              |
| 24 | 24              |
| 25 | 25              |
| 26 | 26              |
| 27 | 27              |
| 28 | 28              |
| 29 | 29              |
| 30 | 30              |

# TABLE NO. 1. SINGLE TRACK.

Table of Rock Excavation, Base 20 feet, Slopes  $\frac{1}{2}$  to 1, Chain 100 feet.

| Dp<br>in<br>ft. | 0        | .1       | .2       | .3       | .4       | .5       | .6       | .7       | .8       | .9       |
|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                 | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 0               |          | 7.4      | 14.9     | 22.3     | 29.8     | 37.2     | 44.8     | 52.3     | 59.9     | 67.4     |
| 1               | 75.0     | 82.6     | 90.2     | 97.9     | 105.5    | 113.2    | 120.9    | 128.6    | 136.3    | 144.1    |
| 2               | 151.9    | 159.6    | 167.4    | 175.3    | 183.1    | 190.9    | 198.8    | 206.7    | 214.7    | 222.6    |
| 3               | 230.6    | 238.5    | 246.5    | 254.5    | 262.5    | 270.6    | 278.7    | 286.7    | 294.8    | 303.0    |
| 4               | 311.1    | 319.3    | 327.5    | 335.6    | 343.9    | 352.1    | 360.3    | 368.6    | 376.9    | 385.2    |
| 5               | 393.5    | 401.9    | 410.2    | 418.6    | 427.0    | 435.4    | 443.8    | 452.3    | 460.8    | 469.3    |
| 6               | 477.8    | 486.3    | 494.8    | 503.4    | 511.9    | 520.6    | 529.2    | 537.8    | 546.5    | 555.1    |
| 7               | 562.8    | 572.5    | 581.2    | 589.9    | 598.7    | 607.5    | 616.3    | 625.1    | 633.9    | 642.8    |
| 8               | 651.7    | 660.6    | 669.5    | 678.4    | 687.3    | 696.3    | 705.3    | 714.3    | 723.3    | 732.4    |
| 9               | 741.6    | 750.5    | 759.6    | 768.7    | 777.8    | 786.9    | 796.1    | 805.3    | 814.5    | 823.7    |
| 10              | 833      | 842      | 851      | 861      | 870      | 879      | 889      | 898      | 907      | 917      |
| 11              | 927      | 936      | 945      | 955      | 964      | 974      | 983      | 993      | 1002     | 1012     |
| 12              | 1022     | 1031     | 1041     | 1051     | 1060     | 1070     | 1080     | 1090     | 1099     | 1109     |
| 13              | 1119     | 1129     | 1139     | 1149     | 1159     | 1169     | 1178     | 1188     | 1198     | 1208     |
| 14              | 1218     | 1228     | 1238     | 1248     | 1259     | 1269     | 1279     | 1289     | 1299     | 1309     |
| 15              | 1319     | 1330     | 1340     | 1350     | 1360     | 1371     | 1381     | 1392     | 1402     | 1412     |
| 16              | 1422     | 1433     | 1443     | 1454     | 1464     | 1475     | 1485     | 1495     | 1506     | 1517     |
| 17              | 1527     | 1538     | 1549     | 1559     | 1570     | 1580     | 1591     | 1602     | 1613     | 1623     |
| 18              | 1633     | 1643     | 1654     | 1665     | 1676     | 1687     | 1698     | 1708     | 1719     | 1730     |
| 19              | 1742     | 1752     | 1763     | 1774     | 1785     | 1796     | 1807     | 1818     | 1829     | 1840     |
| 20              | 1852     | 1863     | 1874     | 1885     | 1896     | 1907     | 1918     | 1930     | 1941     | 1952     |
| 21              | 1964     | 1975     | 1986     | 1997     | 2009     | 2020     | 2032     | 2043     | 2055     | 2066     |
| 22              | 2078     | 2089     | 2100     | 2112     | 2123     | 2135     | 2147     | 2158     | 2170     | 2181     |
| 23              | 2164     | 2205     | 2217     | 2228     | 2240     | 2252     | 2264     | 2275     | 2287     | 2299     |
| 24              | 2311     | 2323     | 2335     | 2346     | 2358     | 2370     | 2382     | 2394     | 2406     | 2418     |
| 25              | 2420     | 2442     | 2454     | 2466     | 2479     | 2491     | 2503     | 2515     | 2527     | 2539     |
| 26              | 2552     | 2564     | 2576     | 2588     | 2601     | 2613     | 2625     | 2638     | 2650     | 2662     |
| 27              | 2675     | 2687     | 2700     | 2712     | 2725     | 2737     | 2750     | 2762     | 2776     | 2788     |
| 28              | 2800     | 2813     | 2826     | 2839     | 2851     | 2864     | 2877     | 2889     | 2902     | 2915     |
| 29              | 2927     | 2940     | 2953     | 2966     | 2979     | 2991     | 3004     | 3017     | 3030     | 3042     |
| 30              | 3055     |          |          |          |          |          |          |          |          |          |

# TABLE NO. 2, SINGLE TRACK.

Table of Clay Excavation, Base 22 feet, Slopes 1½ to 1, Chain 100 feet:

| Op.<br>in<br>ft. | 0        | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                  | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 0                |          | 8.2      | 16.5     | 24.9     | 33.4     | 42.1     | 50.8     | 59.7     | 68.7     | 77.8     |
| 1                | 87.0     | 96.3     | 105.8    | 115.3    | 125.0    | 134.8    | 144.6    | 154.6    | 164.7    | 174.9    |
| 2                | 185.2    | 195.6    | 206.1    | 216.8    | 227.6    | 238.4    | 249.4    | 260.5    | 271.6    | 283.0    |
| 3                | 294.4    | 306.0    | 317.6    | 329.4    | 344.3    | 353.2    | 365.3    | 377.5    | 389.8    | 402.3    |
| 4                | 414.8    | 427.5    | 440.2    | 453.1    | 466.1    | 479.2    | 492.4    | 505.7    | 519.1    | 532.7    |
| 5                | 546.3    | 560.1    | 574.0    | 588.0    | 602.0    | 616.3    | 630.6    | 645.0    | 659.5    | 674.2    |
| 6                | 689.0    | 703.8    | 718.8    | 733.9    | 749.1    | 764.4    | 779.9    | 795.4    | 811.0    | 826.8    |
| 7                | 842.7    | 858.7    | 874.8    | 891.0    | 907.3    | 923.7    | 940.2    | 956.9    | 973.6    | 990.5    |
| 8                | 1007     | 1025     | 1042     | 1059     | 1076     | 1094     | 1112     | 1129     | 1147     | 1165     |
| 9                | 1183     | 1202     | 1220     | 1238     | 1257     | 1275     | 1294     | 1313     | 1332     | 1351     |
| 10               | 1370     | 1390     | 1409     | 1429     | 1448     | 1468     | 1487     | 1508     | 1528     | 1548     |
| 11               | 1568     | 1589     | 1609     | 1630     | 1651     | 1672     | 1693     | 1714     | 1735     | 1756     |
| 12               | 1778     | 1799     | 1821     | 1843     | 1865     | 1887     | 1909     | 1931     | 1953     | 1976     |
| 13               | 1998     | 2021     | 2044     | 2066     | 2089     | 2112     | 2136     | 2159     | 2182     | 2206     |
| 14               | 2230     | 2253     | 2277     | 2301     | 2325     | 2350     | 2374     | 2398     | 2423     | 2447     |
| 15               | 2472     | 2497     | 2522     | 2547     | 2572     | 2598     | 2623     | 2649     | 2674     | 2700     |
| 16               | 2726     | 2752     | 2778     | 2804     | 2831     | 2857     | 2884     | 2910     | 2937     | 2964     |
| 17               | 2991     | 3018     | 3045     | 3072     | 3100     | 3127     | 3155     | 3183     | 3211     | 3239     |
| 18               | 3267     | 3295     | 3323     | 3352     | 3380     | 3409     | 3438     | 3467     | 3496     | 3525     |
| 19               | 3554     | 3583     | 3613     | 3642     | 3672     | 3702     | 3731     | 3761     | 3792     | 3822     |
| 20               | 3852     | 3882     | 3913     | 3944     | 3974     | 4005     | 4036     | 4067     | 4099     | 4130     |
| 21               | 4161     | 4193     | 4224     | 4256     | 4288     | 4320     | 4352     | 4384     | 4417     | 4449     |
| 22               | 4481     | 4514     | 4549     | 4580     | 4613     | 4646     | 4679     | 4713     | 4746     | 4779     |
| 23               | 4813     | 4847     | 4881     | 4915     | 4949     | 4983     | 5017     | 5052     | 5086     | 5121     |
| 24               | 5155     | 5191     | 5226     | 5261     | 5296     | 5331     | 5367     | 5402     | 5438     | 5473     |
| 25               | 5509     | 5545     | 5581     | 5618     | 5654     | 5690     | 5727     | 5764     | 5800     | 5837     |
| 26               | 5874     | 5911     | 5948     | 5986     | 6023     | 6061     | 6098     | 6136     | 6174     | 6212     |
| 27               | 6250     | 6288     | 6327     | 6365     | 6404     | 6442     | 6481     | 6520     | 6559     | 6598     |
| 28               | 6637     | 6676     | 6716     | 6755     | 6795     | 6835     | 6875     | 6915     | 6955     | 6995     |
| 29               | 7035     | 7076     | 7116     | 7157     | 7198     | 7238     | 7279     | 7320     | 7362     | 7403     |
| 30               | 7444     |          |          |          |          |          |          |          |          |          |

# TABLE NO. 3, SINGLE TRACK.

Table of Excavation in Sand and Gravel, Base 22 feet, Slopes 2 to 1, Chain 100 feet.

| .9       | Dp<br>in<br>ft. | 0        | .1       | .2       | .3       | .4       | .5       | .6       | .7       | .8       | .9       |
|----------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| cu. yds. |                 | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 77.8     | 0               |          | 8.2      | 16.6     | 25.1     | 33.8     | 42.6     | 51.6     | 60.7     | 69.9     | 79.3     |
| 174.9    | 1               | 88.9     | 89.6     | 108.4    | 118.4    | 128.6    | 138.9    | 149.3    | 159.9    | 170.7    | 181.6    |
| 283.0    | 2               | 192.6    | 203.8    | 215.1    | 226.6    | 238.2    | 250.0    | 261.9    | 274.0    | 286.2    | 298.6    |
| 402.3    | 3               | 311.1    | 323.8    | 336.6    | 349.6    | 362.7    | 375.9    | 389.4    | 402.9    | 416.6    | 430.5    |
| 532.7    | 4               | 444.4    | 458.6    | 472.9    | 487.4    | 501.9    | 516.7    | 531.6    | 546.6    | 561.8    | 577.2    |
| 674.2    | 5               | 592.6    | 608.3    | 624.1    | 639.9    | 656.0    | 672.2    | 688.6    | 705.2    | 721.8    | 738.6    |
| 826.8    | 6               | 755.6    | 772.7    | 790.0    | 807.4    | 824.9    | 842.6    | 860.5    | 878.5    | 896.7    | 915.0    |
| 990.5    | 7               | 933.3    | 952.0    | 970.7    | 989.6    | 1009     | 1028     | 1047     | 1067     | 1086     | 1106     |
| 1165     | 8               | 1126     | 1146     | 1166     | 1187     | 1207     | 1228     | 1249     | 1270     | 1291     | 1312     |
| 1351     | 9               | 1333     | 1355     | 1377     | 1399     | 1421     | 1444     | 1467     | 1487     | 1510     | 1533     |
| 1548     | 10              | 1556     | 1579     | 1602     | 1625     | 1648     | 1672     | 1696     | 1720     | 1744     | 1768     |
| 1756     | 11              | 1792     | 1817     | 1841     | 1866     | 1891     | 1916     | 1941     | 1967     | 1992     | 2018     |
| 1976     | 12              | 2044     | 2070     | 2096     | 2122     | 2149     | 2175     | 2202     | 2229     | 2256     | 2283     |
| 2206     | 13              | 2311     | 2338     | 2365     | 2393     | 2421     | 2449     | 2478     | 2506     | 2535     | 2563     |
| 2447     | 14              | 2592     | 2621     | 2650     | 2680     | 2709     | 2739     | 2768     | 2798     | 2828     | 2858     |
| 2700     | 15              | 2889     | 2919     | 2950     | 2981     | 3016     | 3043     | 3074     | 3105     | 3137     | 3168     |
| 2964     | 16              | 3200     | 3232     | 3264     | 3296     | 3329     | 3361     | 3394     | 3427     | 3460     | 3493     |
| 3239     | 17              | 3526     | 3560     | 3593     | 3627     | 3661     | 3695     | 3729     | 3764     | 3798     | 3833     |
| 3525     | 18              | 3867     | 3902     | 3937     | 3972     | 4008     | 4043     | 4077     | 4115     | 4151     | 4187     |
| 3822     | 19              | 4222     | 4259     | 4295     | 4332     | 4369     | 4406     | 4443     | 4480     | 4517     | 4553     |
| 4130     | 20              | 4593     | 4630     | 4668     | 4707     | 4745     | 4784     | 4822     | 4861     | 4900     | 4939     |
| 4449     | 21              | 4978     | 5018     | 5057     | 5097     | 5136     | 5176     | 5216     | 5256     | 5297     | 5337     |
| 4779     | 22              | 5378     | 5418     | 5459     | 5500     | 5542     | 5583     | 5625     | 5666     | 5708     | 5750     |
| 5121     | 23              | 5792     | 5835     | 5877     | 5920     | 5963     | 6005     | 6047     | 6091     | 6134     | 6177     |
| 5473     | 24              | 6222     | 6266     | 6310     | 6354     | 6398     | 6443     | 6487     | 6532     | 6577     | 6622     |
| 5837     | 25              | 6667     | 6712     | 6757     | 6803     | 6849     | 6895     | 6941     | 6987     | 7033     | 7080     |
| 6212     | 26              | 7126     | 7173     | 7220     | 7267     | 7314     | 7361     | 7409     | 7456     | 7504     | 7552     |
| 6598     | 27              | 7600     | 7648     | 7697     | 7745     | 7794     | 7843     | 7892     | 7941     | 7990     | 8040     |
| 6995     | 28              | 8099     | 8139     | 8189     | 8239     | 8289     | 8339     | 8390     | 8440     | 8491     | 8542     |
| 7403     | 29              | 8553     | 8604     | 8655     | 8707     | 8758     | 8810     | 8862     | 8914     | 8966     | 9018     |
| 7822     | 30              | 9111     |          |          |          |          |          |          |          |          | 4447.08  |

# TABLE NO. 4, SINGLE TRACK.

Table of Rock Embankment, Base 18 feet, Slopes 1 to 1, Chain 110 feet.

| Ht.<br>in<br>ft. | 0        | .1       | .2       | .3       | .4       | .5       | .6       | .7       | .8       | .9       |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                  | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 0                |          | 6.7      | 13.5     | 20.3     | 27.3     | 34.3     | 41.3     | 48.5     | 55.7     | 63.0     |
| 1                | 70.4     | 77.8     | 85.3     | 92.9     | 100.6    | 108.3    | 116.1    | 124.0    | 132.0    | 140.0    |
| 2                | 148.1    | 156.3    | 164.6    | 172.9    | 181.3    | 189.8    | 198.4    | 207.0    | 215.7    | 224.5    |
| 3                | 233.3    | 242.3    | 251.3    | 260.3    | 269.5    | 278.7    | 288.0    | 297.4    | 306.8    | 316.3    |
| 4                | 325.9    | 335.6    | 345.3    | 355.1    | 365.0    | 375.0    | 385.0    | 395.1    | 405.3    | 415.6    |
| 5                | 425.9    | 436.3    | 446.8    | 457.4    | 468.0    | 478.7    | 489.5    | 500.3    | 511.3    | 522.3    |
| 6                | 533.3    | 544.5    | 555.7    | 567.0    | 578.4    | 589.8    | 601.3    | 612.9    | 624.6    | 636.3    |
| 7                | 648.1    | 660.0    | 672.0    | 684.0    | 696.1    | 708.3    | 720.6    | 732.9    | 745.3    | 757.8    |
| 8                | 770.4    | 783.0    | 795.7    | 808.5    | 821.3    | 834.3    | 847.3    | 860.3    | 873.5    | 886.7    |
| 9                | 900.0    | 913.4    | 926.8    | 940.3    | 953.9    | 967.6    | 981.3    | 995.1    | 1009     | 1023     |
| 10               | 1037     | 1051     | 1065     | 1080     | 1094     | 1108     | 1123     | 1137     | 1152     | 1167     |
| 11               | 1181     | 1196     | 1211     | 1226     | 1241     | 1256     | 1272     | 1287     | 1302     | 1318     |
| 12               | 1333     | 1349     | 1365     | 1380     | 1396     | 1412     | 1428     | 1444     | 1460     | 1476     |
| 13               | 1493     | 1509     | 1525     | 1542     | 1558     | 1575     | 1592     | 1608     | 1625     | 1642     |
| 14               | 1659     | 1676     | 1693     | 1711     | 1728     | 1745     | 1763     | 1780     | 1798     | 1816     |
| 15               | 1833     | 1851     | 1869     | 1887     | 1905     | 1923     | 1941     | 1960     | 1978     | 1996     |
| 16               | 2015     | 2033     | 2052     | 2071     | 2089     | 2108     | 2127     | 2146     | 2165     | 2184     |
| 17               | 2204     | 2223     | 2242     | 2262     | 2281     | 2301     | 2321     | 2340     | 2360     | 2380     |
| 18               | 2400     | 2420     | 2440     | 2460     | 2481     | 2501     | 2521     | 2542     | 2562     | 2583     |
| 19               | 2604     | 2624     | 2645     | 2666     | 2687     | 2708     | 2729     | 2751     | 2772     | 2793     |
| 20               | 2815     | 2836     | 2858     | 2880     | 2901     | 2923     | 2945     | 2967     | 2989     | 3011     |
| 21               | 3033     | 3056     | 3078     | 3100     | 3123     | 3145     | 3168     | 3191     | 3213     | 3236     |
| 22               | 3259     | 3282     | 3305     | 3328     | 3352     | 3375     | 3398     | 3422     | 3445     | 3469     |
| 23               | 3493     | 3516     | 3540     | 3564     | 3588     | 3612     | 3636     | 3660     | 3685     | 3709     |
| 24               | 3733     | 3758     | 3782     | 3807     | 3832     | 3856     | 3881     | 3906     | 3931     | 3956     |
| 25               | 3981     | 4007     | 4032     | 4057     | 4083     | 4108     | 4134     | 4160     | 4185     | 4211     |
| 26               | 4237     | 4263     | 4289     | 4315     | 4341     | 4368     | 4394     | 4420     | 4447     | 4473     |
| 27               | 4500     | 4527     | 4553     | 4580     | 4607     | 4634     | 4661     | 4688     | 4716     | 4743     |
| 28               | 4770     | 4798     | 4825     | 4853     | 4881     | 4908     | 4936     | 4964     | 4992     | 5020     |
| 29               | 5048     | 5076     | 5105     | 5133     | 5161     | 5190     | 5218     | 5247     | 5276     | 5304     |
| 30               | 5333     |          |          |          |          |          |          |          |          | 000708   |

# TABLE NO. 5, SINGLE TRACK.

Table of Embankment in Clay, Base 18 feet, Slopes 1½ to 1, Chain 100 feet.

| Ht.<br>in<br>ft. | 0        | .1       | .2       | .3       | .4       | .5       | .6       | .7       | .8       | .9       |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| cu. yds.         | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 63.0             | 0        | 6.7      | 13.6     | 20.5     | 27.6     | 34.7     | 42.0     | 49.4     | 56.9     | 64.5     |
| 140.0            | 1        | 72.2     | 80.1     | 88.0     | 96.1     | 104.2    | 112.5    | 120.9    | 129.4    | 138.0    |
| 224.5            | 2        | 155.5    | 164.5    | 173.5    | 182.7    | 191.9    | 201.3    | 210.8    | 220.4    | 230.1    |
| 316.3            | 3        | 249.9    | 260.0    | 270.1    | 280.4    | 290.8    | 301.3    | 311.9    | 322.6    | 333.4    |
| 415.6            | 4        | 355.5    | 366.7    | 378.0    | 389.4    | 400.9    | 412.5    | 424.2    | 436.0    | 448.0    |
| 522.3            | 5        | 472.2    | 484.5    | 496.9    | 509.4    | 522.0    | 534.7    | 547.6    | 560.5    | 573.6    |
| 636.3            | 6        | 600.0    | 613.4    | 626.9    | 640.5    | 654.2    | 668.1    | 682.0    | 696.1    | 710.2    |
| 757.8            | 7        | 739.9    | 753.4    | 768.0    | 782.7    | 797.6    | 812.5    | 827.6    | 842.7    | 858.0    |
| 886.7            | 8        | 888.9    | 904.5    | 920.2    | 936.1    | 952.0    | 968.1    | 984.2    | 1001     | 1017     |
| 1023             | 9        | 1050     | 1067     | 1084     | 1101     | 1118     | 1135     | 1152     | 1169     | 1187     |
| 1167             | 10       | 1222     | 1240     | 1258     | 1276     | 1294     | 1313     | 1331     | 1349     | 1368     |
| 1318             | 11       | 1406     | 1425     | 1444     | 1463     | 1482     | 1501     | 1521     | 1541     | 1560     |
| 1476             | 12       | 1600     | 1620     | 1640     | 1661     | 1681     | 1701     | 1722     | 1743     | 1764     |
| 1642             | 13       | 1806     | 1827     | 1848     | 1869     | 1891     | 1913     | 1934     | 1956     | 1978     |
| 1816             | 14       | 2022     | 2045     | 2067     | 2089     | 2112     | 2135     | 2158     | 2181     | 2204     |
| 1996             | 15       | 2250     | 2273     | 2297     | 2321     | 2344     | 2368     | 2392     | 2416     | 2440     |
| 2184             | 16       | 2489     | 2513     | 2538     | 2563     | 2588     | 2613     | 2638     | 2663     | 2688     |
| 2380             | 17       | 2739     | 2765     | 2790     | 2816     | 2842     | 2868     | 2894     | 2921     | 2947     |
| 2583             | 18       | 3000     | 3027     | 3054     | 3081     | 3108     | 3135     | 3162     | 3189     | 3217     |
| 2793             | 19       | 3272     | 3300     | 3328     | 3356     | 3384     | 3413     | 3441     | 3469     | 3498     |
| 3011             | 20       | 3556     | 3585     | 3614     | 3643     | 3672     | 3701     | 3731     | 3761     | 3790     |
| 3236             | 21       | 3850     | 3880     | 3910     | 3941     | 3971     | 4001     | 4032     | 4063     | 4094     |
| 3469             | 22       | 4156     | 4187     | 4218     | 4249     | 4281     | 4313     | 4344     | 4376     | 4408     |
| 3709             | 23       | 4472     | 4505     | 4537     | 4569     | 4602     | 4635     | 4668     | 4701     | 4734     |
| 3956             | 24       | 4800     | 4833     | 4867     | 4901     | 4934     | 4968     | 5002     | 5036     | 5070     |
| 4211             | 25       | 5139     | 5173     | 5208     | 5243     | 5278     | 5313     | 5348     | 5383     | 5418     |
| 4473             | 26       | 5489     | 5525     | 5560     | 5596     | 5632     | 5668     | 5704     | 5741     | 5777     |
| 4743             | 27       | 5850     | 5887     | 5924     | 5961     | 5998     | 6035     | 6072     | 6109     | 6147     |
| 5020             | 28       | 6222     | 6260     | 6298     | 6336     | 6374     | 6413     | 6451     | 6489     | 6528     |
| 5304             | 29       | 6606     | 6645     | 6684     | 6723     | 6762     | 6801     | 6841     | 6881     | 6920     |
| 0007.08          | 30       | 7000     |          |          |          |          |          |          |          |          |

# TABLE NO. 6, SINGLE TRACK.

Table of Embankment in Sand and Gravel, Base 18 feet, Slopes 2 to 1, Chain 100 feet.

| Ht.<br>in<br>ft. | 0        | .1       | .2       | .3       | .4       | .5       | .6       | .7       | .8       | .9       |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                  | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 0                |          | 6.7      | 13.6     | 20.7     | 27.9     | 35.2     | 42.7     | 50.3     | 58.1     | 66.0     |
| 1                | 74.1     | 82.3     | 90.7     | 99.2     | 107.9    | 116.7    | 125.6    | 134.7    | 144.0    | 153.4    |
| 2                | 163.0    | 172.7    | 182.5    | 192.5    | 202.7    | 213.0    | 223.4    | 234.0    | 244.7    | 255.6    |
| 3                | 266.7    | 277.9    | 289.2    | 300.7    | 312.3    | 324.1    | 336.0    | 348.1    | 360.3    | 372.7    |
| 4                | 385.2    | 397.9    | 410.7    | 423.6    | 436.7    | 450.0    | 463.4    | 477.0    | 490.7    | 504.5    |
| 5                | 518.5    | 532.7    | 547.0    | 561.4    | 576.0    | 590.7    | 605.6    | 620.7    | 635.9    | 651.2    |
| 6                | 666.7    | 682.3    | 698.1    | 714.0    | 730.1    | 746.3    | 762.7    | 779.2    | 795.9    | 812.7    |
| 7                | 829.6    | 846.7    | 864.0    | 881.4    | 899.0    | 916.7    | 934.5    | 952.5    | 970.7    | 989.0    |
| 8                | 1007     | 1026     | 1045     | 1064     | 1083     | 1102     | 1121     | 1141     | 1160     | 1180     |
| 9                | 1200     | 1220     | 1240     | 1261     | 1281     | 1302     | 1323     | 1344     | 1365     | 1386     |
| 10               | 1407     | 1429     | 1451     | 1473     | 1495     | 1517     | 1539     | 1561     | 1584     | 1607     |
| 11               | 1630     | 1653     | 1676     | 1699     | 1723     | 1746     | 1770     | 1794     | 1818     | 1842     |
| 12               | 1867     | 1891     | 1916     | 1941     | 1966     | 1991     | 2016     | 2041     | 2067     | 2093     |
| 13               | 2119     | 2145     | 2171     | 2197     | 2223     | 2250     | 2277     | 2304     | 2331     | 2358     |
| 14               | 2385     | 2413     | 2440     | 2468     | 2496     | 2524     | 2552     | 2581     | 2609     | 2638     |
| 15               | 2667     | 2696     | 2725     | 2754     | 2783     | 2813     | 2843     | 2873     | 2903     | 2933     |
| 16               | 2963     | 2993     | 3024     | 3055     | 3086     | 3117     | 3148     | 3179     | 3211     | 3242     |
| 17               | 3274     | 3306     | 3338     | 3370     | 3403     | 3435     | 3468     | 3501     | 3534     | 3567     |
| 18               | 3600     | 3633     | 3667     | 3701     | 3735     | 3769     | 3803     | 3837     | 3871     | 3906     |
| 19               | 3941     | 3976     | 4011     | 4046     | 4081     | 4117     | 4152     | 4188     | 4224     | 4260     |
| 20               | 4296     | 4333     | 4369     | 4406     | 4443     | 4480     | 4517     | 4554     | 4591     | 4629     |
| 21               | 4667     | 4705     | 4743     | 4781     | 4819     | 4857     | 4896     | 4935     | 4974     | 5013     |
| 22               | 5052     | 5091     | 5131     | 5170     | 5210     | 5250     | 5290     | 5330     | 5371     | 5411     |
| 23               | 5454     | 5493     | 5534     | 5575     | 5616     | 5657     | 5699     | 5741     | 5783     | 5825     |
| 24               | 5867     | 5909     | 5951     | 5994     | 6037     | 6080     | 6123     | 6166     | 6209     | 6253     |
| 25               | 6296     | 6340     | 6384     | 6428     | 6472     | 6517     | 6561     | 6606     | 6651     | 6696     |
| 26               | 6741     | 6787     | 6831     | 6877     | 6923     | 6969     | 7015     | 7061     | 7107     | 7153     |
| 27               | 7200     | 7247     | 7294     | 7341     | 7388     | 7435     | 7483     | 7530     | 7578     | 7626     |
| 28               | 7674     | 7722     | 7771     | 7819     | 7868     | 7917     | 7966     | 8015     | 8064     | 8113     |
| 29               | 8163     | 8213     | 8263     | 8313     | 8363     | 8413     | 8463     | 8514     | 8563     | 8613     |
| 30               | 8667     |          |          |          |          |          |          |          |          |          |

# TABLE NO. 7, SINGLE TRACK.

Table of Clay Embankment, Base 20 feet, Slopes 1½ to 1, Chain 100 feet.

| 00 feet. | 0        | .1       | .2       | .3       | .4       | .5       | .6       | .7       | .8       | .9       |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 66.0     | 0        | 7.5      | 15.0     | 22.7     | 30.5     | 38.4     | 46.4     | 54.6     | 62.8     | 72.0     |
| 153.4    | 1        | 79.6     | 88.2     | 96.9     | 105.7    | 114.6    | 123.6    | 132.8    | 142.0    | 151.3    |
| 255.6    | 2        | 170.4    | 180.1    | 189.9    | 199.8    | 209.9    | 219.9    | 230.2    | 240.5    | 251.0    |
| 372.7    | 3        | 272.2    | 283.1    | 294.0    | 305.0    | 316.1    | 327.4    | 338.7    | 350.2    | 361.8    |
| 504.5    | 4        | 385.2    | 397.2    | 409.2    | 421.3    | 433.6    | 445.8    | 458.3    | 471.0    | 483.6    |
| 651.2    | 5        | 509.3    | 522.4    | 535.5    | 548.8    | 562.1    | 575.4    | 589.0    | 602.7    | 616.5    |
| 812.7    | 6        | 644.4    | 658.6    | 672.8    | 687.2    | 701.7    | 716.2    | 730.9    | 745.7    | 760.6    |
| 989.0    | 7        | 790.7    | 806.0    | 821.3    | 836.8    | 852.3    | 868.0    | 883.8    | 899.8    | 915.8    |
| 1180     | 8        | 948.2    | 964.5    | 980.9    | 997.5    | 1014     | 1031     | 1048     | 1065     | 1082     |
| 1386     | 9        | 1117     | 1134     | 1152     | 1169     | 1187     | 1205     | 1223     | 1241     | 1259     |
| 1607     | 10       | 1296     | 1315     | 1334     | 1352     | 1371     | 1390     | 1409     | 1429     | 1448     |
| 1842     | 11       | 1487     | 1507     | 1527     | 1546     | 1566     | 1587     | 1607     | 1627     | 1648     |
| 2093     | 12       | 1689     | 1710     | 1731     | 1752     | 1773     | 1794     | 1815     | 1837     | 1858     |
| 2358     | 13       | 1902     | 1924     | 1946     | 1968     | 1990     | 2013     | 2035     | 2058     | 2080     |
| 2638     | 14       | 2126     | 2149     | 2172     | 2195     | 2219     | 2242     | 2266     | 2289     | 2313     |
| 2933     | 15       | 2361     | 2385     | 2409     | 2434     | 2458     | 2483     | 2508     | 2532     | 2557     |
| 3242     | 16       | 2608     | 2633     | 2658     | 2683     | 2709     | 2735     | 2761     | 2786     | 2812     |
| 3567     | 17       | 2865     | 2891     | 2918     | 2944     | 2971     | 2998     | 3025     | 3052     | 3079     |
| 3906     | 18       | 3133     | 3161     | 3188     | 3216     | 3244     | 3272     | 3300     | 3328     | 3356     |
| 4260     | 19       | 3413     | 3442     | 3470     | 3499     | 3528     | 3557     | 3586     | 3615     | 3645     |
| 4629     | 20       | 3704     | 3734     | 3763     | 3793     | 3823     | 3853     | 3884     | 3914     | 3944     |
| 5013     | 21       | 4006     | 4036     | 4067     | 4098     | 4129     | 4161     | 4192     | 4224     | 4255     |
| 5411     | 22       | 4319     | 4350     | 4382     | 4415     | 4447     | 4479     | 4512     | 4544     | 4577     |
| 5825     | 23       | 4643     | 4676     | 4709     | 4742     | 4775     | 4809     | 4842     | 4876     | 4910     |
| 6253     | 24       | 4978     | 5012     | 5046     | 5080     | 5115     | 5149     | 5184     | 5219     | 5254     |
| 6696     | 25       | 5324     | 5359     | 5395     | 5430     | 5465     | 5501     | 5537     | 5573     | 5609     |
| 7153     | 26       | 5682     | 5718     | 5754     | 5791     | 5828     | 5864     | 5901     | 5938     | 5975     |
| 7626     | 27       | 6050     | 6087     | 6125     | 6163     | 6201     | 6239     | 6276     | 6315     | 6353     |
| 8113     | 28       | 6430     | 6468     | 6507     | 6546     | 6585     | 6624     | 6663     | 6702     | 6741     |
| 8616     | 29       | 6820     | 6860     | 6900     | 6940     | 6980     | 7020     | 7060     | 7101     | 7141     |
| 9133     | 30       | 7222     | 7262     | 7302     | 7342     | 7382     | 7422     | 7462     | 7502     | 7542     |

45208

# TABLE NO. 8, SINGLE TRACK.

Table of Embankment in Sand and Gravel, Base 20 feet, Slopes 2 to 1, Chain 100 feet.

| Ht.<br>in<br>ft. | 0        | .1       | .2       | .3       | .4       | .5       | .6       | .7       | .8       | .9       |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                  | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. | cu. yds. |
| 0                |          | 7.5      | 15.1     | 22.9     | 30.8     | 38.9     | 47.1     | 55.4     | 64.0     | 72.7     |
| 1                | 81.5     | 90.4     | 99.6     | 108.8    | 118.2    | 127.8    | 137.5    | 147.3    | 157.3    | 167.5    |
| 2                | 177.8    | 188.3    | 198.8    | 209.6    | 220.5    | 231.5    | 242.7    | 254.0    | 265.5    | 277.2    |
| 3                | 288.9    | 300.9    | 312.9    | 325.2    | 337.5    | 350.0    | 362.7    | 375.5    | 388.5    | 401.6    |
| 4                | 414.8    | 428.2    | 441.8    | 455.5    | 469.4    | 483.3    | 497.5    | 511.9    | 526.3    | 540.9    |
| 5                | 555.5    | 570.5    | 585.6    | 600.8    | 616.1    | 631.5    | 647.2    | 663.0    | 678.9    | 695.0    |
| 6                | 711.1    | 727.6    | 744.1    | 760.8    | 777.6    | 794.4    | 811.7    | 828.9    | 846.3    | 863.9    |
| 7                | 881.5    | 899.5    | 917.5    | 935.6    | 953.9    | 972.3    | 990.9    | 1010     | 1029     | 1048     |
| 8                | 1067     | 1086     | 1106     | 1125     | 1145     | 1165     | 1185     | 1205     | 1226     | 1246     |
| 9                | 1267     | 1288     | 1308     | 1330     | 1351     | 1372     | 1394     | 1416     | 1437     | 1459     |
| 10               | 1481     | 1504     | 1526     | 1549     | 1572     | 1595     | 1618     | 1641     | 1664     | 1688     |
| 11               | 1711     | 1735     | 1759     | 1783     | 1807     | 1832     | 1856     | 1881     | 1906     | 1931     |
| 12               | 1956     | 1981     | 2006     | 2032     | 2058     | 2083     | 2109     | 2136     | 2162     | 2188     |
| 13               | 2215     | 2242     | 2268     | 2295     | 2323     | 2350     | 2378     | 2405     | 2433     | 2461     |
| 14               | 2489     | 2517     | 2546     | 2574     | 2603     | 2631     | 2660     | 2690     | 2719     | 2748     |
| 15               | 2778     | 2807     | 2837     | 2867     | 2897     | 2928     | 2958     | 2989     | 3020     | 3050     |
| 16               | 3081     | 3113     | 3144     | 3175     | 3207     | 3239     | 3271     | 3303     | 3335     | 3367     |
| 17               | 3400     | 3433     | 3465     | 3498     | 3532     | 3565     | 3598     | 3632     | 3665     | 3699     |
| 18               | 3733     | 3767     | 3802     | 3836     | 3871     | 3906     | 3941     | 3976     | 4011     | 4046     |
| 19               | 4081     | 4117     | 4153     | 4189     | 4225     | 4261     | 4298     | 4334     | 4371     | 4408     |
| 20               | 4444     | 4482     | 4519     | 4556     | 4594     | 4632     | 4670     | 4708     | 4746     | 4784     |
| 21               | 4832     | 4861     | 4900     | 4939     | 4978     | 5017     | 5056     | 5096     | 5136     | 5175     |
| 22               | 5215     | 5255     | 5296     | 5336     | 5377     | 5417     | 5458     | 5499     | 5540     | 5581     |
| 23               | 5622     | 5665     | 5707     | 5749     | 5791     | 5833     | 5875     | 5918     | 5961     | 6003     |
| 24               | 6044     | 6089     | 6132     | 6175     | 6218     | 6262     | 6305     | 6349     | 6393     | 6437     |
| 25               | 6481     | 6525     | 6571     | 6616     | 6661     | 6706     | 6751     | 6796     | 6842     | 6888     |
| 26               | 6933     | 6979     | 7026     | 7072     | 7118     | 7165     | 7211     | 7258     | 7305     | 7352     |
| 27               | 7400     | 7447     | 7495     | 7543     | 7591     | 7637     | 7689     | 7735     | 7783     | 7832     |
| 28               | 7881     | 7930     | 7979     | 8028     | 8077     | 8128     | 8177     | 8227     | 8277     | 8327     |
| 29               | 8371     | 8427     | 8478     | 8529     | 8579     | 8630     | 8681     | 8733     | 8784     | 8837     |
| 30               | 8889     |          |          |          |          |          |          |          |          |          |

• 9

72.7

67.5

277.2

401.6

540.9

595.0

363.9

1048

1246

1459

1688

1931

2188

2461

2748

13050

336

3698

4040

4408

478

517

558

600

1643

688

735

783

832

882

11

