

ROZBUDOWA ZAKŁADU PRZETWÓRSTWA OWOCÓW O HALĘ PRODUKCYJNĄ Z CZĘŚCIĄ SOCJALNĄ, HALĘ PRODUKCJI LIOFILIZATÓW,  
ORAZ 3 HALE NAMIOTOWE NA OPAKOWANIA I MAGAZYN OWOCÓW MROŻONYCH

ISTNIEJĄCY ZAKŁAD Z NOWĄ INSTALACJĄ

PORA NOCY

BEZ UWZGLĘDNIENIA TŁA AKUSTYCZNEGO

HAŁAS PRZEMYSŁOWY I DROGOWY  
PROGRAM SON2 WERSJA 3.2

#### DANE WEJŚCIOWE

Rodzaj obliczeń: Poziom hałasu równonoważnego

1. Nazwa projektu:  
Rozbudowa zakładu przetwórstwa owoców o halę produkcyjną z częścią socjalną, halę produkcji liofilizatów,  
oraz 3 hale namiotowe na opakowania i magazyn owoców mrożonych
2. Temperatura powietrza [st C.] = 10
3. Wilgotność względna powietrza [%] = 70
4. Tłó akustyczne dB(A):  
Pora dnia : 0  
Pora nocy : 0
5. Rodzaj gruntu : grunt twardy. wskaźnik gruntu G = 0
6. Punktowe źródła hałasu

| Lp | Symbol | współrzędne źródła |       |      | Rodzaj źródła | LAW   | tN  |
|----|--------|--------------------|-------|------|---------------|-------|-----|
|    |        | x                  | y     | z    |               |       |     |
|    |        | m                  | m     | m    |               | dB(A) | h   |
| 1  | 1      | 113.9              | 281.4 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 2  | 2      | 106.9              | 284.7 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 3  | 3      | 106.2              | 294.7 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 4  | 4      | 105.5              | 304.6 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 5  | 5      | 96.2               | 314.6 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 6  | 6      | 86.2               | 314.6 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 7  | 7      | 104.7              | 316.0 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 8  | 8      | 104.0              | 326.0 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 9  | 9      | 103.3              | 336.0 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 10 | 10     | 102.6              | 345.9 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 11 | 11     | 101.9              | 355.9 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 12 | 12     | 101.2              | 365.9 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 13 | 13     | 100.5              | 375.9 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 14 | 14     | 99.9               | 385.8 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 15 | 15     | 99.2               | 395.8 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 16 | 16     | 98.6               | 405.8 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 17 | 17     | 98.0               | 415.8 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 18 | 18     | 97.3               | 425.8 | 1.0  | wszechkier.   | 71.4  | 1.0 |
| 19 | 19     | 55.6               | 313.9 | 7.0  | wszechkier.   | 70.0  | 1.0 |
| 20 | 20     | 56.3               | 308.4 | 8.0  | wszechkier.   | 70.0  | 1.0 |
| 21 | 21     | 64.9               | 313.5 | 1.0  | wszechkier.   | 70.0  | 1.0 |
| 22 | 22     | 69.4               | 313.7 | 1.0  | wszechkier.   | 70.0  | 1.0 |
| 23 | 23     | 71.2               | 307.3 | 1.0  | wszechkier.   | 70.0  | 1.0 |
| 24 | 24     | 115.6              | 344.8 | 18.0 | wszechkier.   | 60.0  | 1.0 |
| 25 | 25     | 114.7              | 350.6 | 18.0 | wszechkier.   | 60.0  | 1.0 |
| 26 | 26     | 117.3              | 352.4 | 18.0 | wszechkier.   | 60.0  | 1.0 |
| 27 | 27     | 119.2              | 343.2 | 18.0 | wszechkier.   | 60.0  | 1.0 |
| 28 | 28     | 198.8              | 400.4 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 29 | 29     | 205.0              | 401.6 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 30 | 30     | 197.4              | 397.3 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 31 | 31     | 200.4              | 397.9 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 32 | 32     | 203.7              | 398.5 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 33 | 33     | 206.6              | 399.1 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 34 | 34     | 200.7              | 177.1 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 35 | 35     | 206.6              | 178.3 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 36 | 36     | 199.1              | 173.9 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 37 | 37     | 202.1              | 174.5 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 38 | 38     | 205.4              | 175.1 | 18.1 | wszechkier.   | 60.0  | 1.0 |
| 39 | 39     | 208.3              | 175.7 | 18.1 | wszechkier.   | 60.0  | 1.0 |

LAW - poziom mocy akustycznej źródła nominalny

tN - czas pracy źródła w przedziale 1 najmniej korzystnej godzinie nocy

#### 7. Ekran - budynek

| Lp | Symbol | współrzędne x.y wierzchołków ekranu [m] |       |       |       |       |       |       |       | ho<br>m | h1<br>m | współczynniki odbicia ścian nr 1 - 4 |
|----|--------|---|-------|-------|-------|-------|-------|-------|-------|---------|---------|--------------------------------------|
|    |        | x1                                      | y1    | x2    | y2    | x3    | y3    | x4    | y4    |         |         |                                      |
| 1  | 1      | 106.5                                   | 112.1 | 113.7 | 108.1 | 433.3 | 434.5 | 426.6 | 425.7 | 4.5     | 0.0     | 1.0                                  |
| 2  | 2      | 108.1                                   | 122.6 | 129.8 | 114.0 | 425.7 | 428.1 | 392.0 | 392.0 | 4.5     | 0.0     | 1.0                                  |
| 3  | 3      | 50.6                                    | 68.5  | 70.9  | 52.8  | 306.0 | 306.8 | 267.3 | 266.0 | 6.8     | 0.0     | 1.0                                  |
| 4  | 4      | 68.6                                    | 76.5  | 78.0  | 70.2  | 305.3 | 305.7 | 278.3 | 278.0 | 6.8     | 0.0     | 1.0                                  |
| 5  | 5      | 76.2                                    | 94.0  | 96.0  | 78.0  | 312.0 | 313.1 | 279.3 | 278.0 | 8.1     | 0.0     | 1.0                                  |
| 6  | 6      | 70.2                                    | 106.1 | 108.2 | 72.4  | 278.0 | 279.8 | 243.5 | 241.4 | 10.8    | 0.0     | 1.0                                  |
| 7  | 7      | 52.2                                    | 70.9  | 72.0  | 53.2  | 266.2 | 267.3 | 249.3 | 248.0 | 10.8    | 0.0     | 1.0                                  |
| 8  | 8      | 63.9                                    | 72.0  | 72.5  | 64.4  | 248.8 | 249.3 | 238.8 | 238.4 | 10.8    | 0.0     | 1.0                                  |
| 9  | 9      | 140.5                                   | 169.4 | 170.2 | 141.3 | 258.8 | 263.8 | 259.0 | 254.0 | 7.7     | 0.0     | 1.0                                  |

#### 8. Źródła hałasu typu budynek

| Lp | Symbol | współrzędne wierzchołków budynku [m] |           |           |           |       |       |       |       | ho<br>m | h1<br>m |
|----|--------|--------------------------------------|-----------|-----------|-----------|-------|-------|-------|-------|---------|---------|
|    |        | A(x1. y1)                            | B(x2. y2) | C(x3. y3) | D(x4. y4) |       |       |       |       |         |         |
| 1  | 1      | 109.7                                | 388.5     | 153.1     | 396.0     | 161.7 | 348.6 | 112.7 | 339.2 | 0.0     | 17.52   |
| 2  | 2      | 164.3                                | 398.9     | 236.0     | 412.0     | 245.4 | 360.7 | 173.7 | 347.6 | 0.0     | 17.62   |
| 3  | 3      | 119.6                                | 273.3     | 166.4     | 281.3     | 169.4 | 263.8 | 122.6 | 255.8 | 0.0     | 7.70    |
| 4  | 4      | 166.0                                | 176.6     | 237.1     | 189.5     | 246.2 | 139.0 | 175.0 | 126.2 | 0.0     | 17.62   |
| 5  | 5      | 50.1                                 | 315.4     | 60.3      | 316.0     | 61.0  | 306.5 | 50.6  | 306.0 | 0.0     | 5.00    |

## 8.1 Opis ścian budynków

| Lp | Budynek | wielkość              | Jedn. | Ściana AB | Ściana BC | Ściana CD | Ściana DA | dach  |
|----|---------|-----------------------|-------|-----------|-----------|-----------|-----------|-------|
| 1  | 1       | wsp. odbicia          | -     | 1.0       | 1.0       | 1.0       | 1.0       | 1.0   |
|    |         | LA <sub>wew</sub> noc |       | 77.70     | 77.70     | 77.70     | 77.70     | 77.30 |
|    |         | Izolacyjność          | dB(A) | 31.00     | 31.00     | 31.00     | 31.00     | 31.00 |
| 2  | 2       | wsp. odbicia          | -     | 1.0       | 1.0       | 1.0       | 1.0       | 1.0   |
|    |         | LA <sub>wew</sub> noc |       | 77.50     | 77.70     | 77.50     | 77.50     | 77.20 |
|    |         | Izolacyjność          | dB(A) | 31.00     | 31.00     | 31.00     | 31.00     | 31.00 |
| 3  | 3       | wsp. odbicia          | -     | 1.0       | 1.0       | 1.0       | 1.0       | 1.0   |
|    |         | LA <sub>wew</sub> noc |       | 78.40     | 80.10     | 78.40     | 80.10     | 77.70 |
|    |         | Izolacyjność          | dB(A) | 31.00     | 31.00     | 31.00     | 31.00     | 31.00 |
| 4  | 4       | wsp. odbicia          | -     | 1.0       | 1.0       | 1.0       | 1.0       | 1.0   |
|    |         | LA <sub>wew</sub> noc |       | 77.50     | 77.60     | 77.50     | 77.60     | 77.20 |
|    |         | Izolacyjność          | dB(A) | 31.00     | 31.00     | 31.00     | 31.00     | 31.00 |
| 5  | 5       | wsp. odbicia          | -     | 1.0       | 1.0       | 1.0       | 1.0       | 1.0   |
|    |         | LA <sub>wew</sub> noc |       | 81.60     | 81.70     | 81.60     | 81.70     | 81.00 |
|    |         | Izolacyjność          | dB(A) | 31.00     | 31.00     | 31.00     | 31.00     | 31.00 |

LA<sub>wew</sub> noc - poziom dźwięku A wewnątrz budynku w przedziale 1 najmniej korzystnej godzinie nocy

## 9. Punkty obserwacji

| Lp | Symbol | współrzędne punktu |       |     | Poziom dźwięku<br>w porze nocy |
|----|--------|--------------------|-------|-----|--------------------------------|
|    |        | x                  | y     | z   |                                |
|    |        | m                  | m     | m   | dB(A)                          |
| 1  | 1      | 24.9               | 683.3 | 4.0 | 24.2                           |
| 2  | 2      | 49.3               | 690.2 | 4.0 | 24.2                           |
| 3  | 3      | 56.4               | 663.2 | 4.0 | 25.0                           |
| 4  | 4      | 121.1              | 682.7 | 4.0 | 24.4                           |
| 5  | 5      | 132.6              | 639.0 | 4.0 | 25.4                           |
| 6  | 6      | 67.5               | 617.7 | 4.0 | 26.5                           |
| 7  | 7      | 76.6               | 581.4 | 4.0 | 27.8                           |
| 8  | 8      | 81.6               | 560.8 | 4.0 | 28.7                           |
| 9  | 9      | 89.2               | 556.8 | 4.0 | 29.0                           |
| 10 | 10     | 93.7               | 537.7 | 4.0 | 29.9                           |
| 11 | 11     | 108.6              | 480.1 | 4.0 | 33.8                           |
| 12 | 12     | 116.7              | 432.6 | 4.0 | 33.9                           |
| 13 | 13     | 125.8              | 433.8 | 4.0 | 33.9                           |
| 14 | 14     | 132.2              | 397.9 | 4.0 | 38.4                           |
| 15 | 15     | 155.4              | 400.2 | 4.0 | 35.9                           |
| 16 | 16     | 155.1              | 403.6 | 4.0 | 35.5                           |
| 17 | 17     | 224.2              | 417.4 | 4.0 | 35.5                           |
| 18 | 18     | 266.4              | 425.8 | 4.0 | 29.8                           |
| 19 | 19     | 279.4              | 357.4 | 4.0 | 31.3                           |
| 20 | 20     | 242.6              | 350.7 | 4.0 | 35.8                           |
| 21 | 21     | 193.4              | 341.9 | 4.0 | 37.4                           |
| 22 | 22     | 144.2              | 333.0 | 4.0 | 39.7                           |
| 23 | 23     | 112.5              | 327.3 | 4.0 | 46.2                           |
| 24 | 24     | 114.3              | 302.7 | 4.0 | 45.8                           |
| 25 | 25     | 156.6              | 310.8 | 4.0 | 38.1                           |
| 26 | 26     | 205.8              | 320.1 | 4.0 | 35.5                           |
| 27 | 27     | 236.4              | 325.9 | 4.0 | 34.3                           |
| 28 | 28     | 241.8              | 323.3 | 4.0 | 33.8                           |
| 29 | 29     | 245.7              | 307.6 | 4.0 | 32.9                           |
| 30 | 30     | 199.9              | 299.0 | 4.0 | 35.0                           |
| 31 | 31     | 184.3              | 299.4 | 4.0 | 35.9                           |
| 32 | 32     | 181.0              | 310.3 | 4.0 | 36.4                           |
| 33 | 33     | 174.4              | 309.8 | 4.0 | 36.4                           |
| 34 | 34     | 177.2              | 295.1 | 4.0 | 36.1                           |
| 35 | 35     | 115.6              | 284.3 | 4.0 | 49.0                           |
| 36 | 36     | 116.1              | 276.2 | 4.0 | 46.2                           |
| 37 | 37     | 145.5              | 281.2 | 4.0 | 41.8                           |
| 38 | 38     | 169.3              | 285.3 | 4.0 | 37.2                           |
| 39 | 39     | 176.1              | 250.6 | 4.0 | 31.6                           |
| 40 | 40     | 144.3              | 244.4 | 4.0 | 31.2                           |
| 41 | 41     | 136.0              | 249.2 | 4.0 | 35.6                           |
| 42 | 42     | 117.4              | 248.1 | 4.0 | 37.4                           |
| 43 | 43     | 117.7              | 237.1 | 4.0 | 35.6                           |
| 44 | 44     | 49.4               | 233.8 | 4.0 | 25.8                           |
| 45 | 45     | 47.7               | 259.5 | 4.0 | 26.0                           |
| 46 | 46     | 43.7               | 320.5 | 4.0 | 41.4                           |
| 47 | 47     | 82.7               | 324.3 | 4.0 | 45.3                           |
| 48 | 48     | 79.5               | 373.9 | 4.0 | 42.2                           |
| 49 | 49     | 76.2               | 423.8 | 4.0 | 39.9                           |
| 50 | 50     | 64.5               | 487.8 | 4.0 | 32.4                           |
| 51 | 51     | 96.1               | 492.8 | 4.0 | 32.7                           |
| 52 | 52     | 95.5               | 496.7 | 4.0 | 32.4                           |
| 53 | 53     | 64.6               | 492.0 | 4.0 | 32.1                           |
| 54 | 54     | 50.8               | 557.7 | 4.0 | 28.5                           |
| 55 | 55     | 40.6               | 606.7 | 4.0 | 26.6                           |
| 56 | 56     | 30.5               | 655.7 | 4.0 | 25.0                           |
| 57 | 57     | 122.3              | 176.3 | 4.0 | 32.0                           |
| 58 | 58     | 200.2              | 189.9 | 4.0 | 38.5                           |
| 59 | 59     | 249.4              | 199.0 | 4.0 | 32.2                           |
| 60 | 60     | 293.0              | 206.7 | 4.0 | 29.3                           |
| 61 | 61     | 295.4              | 151.0 | 4.0 | 30.4                           |
| 62 | 62     | 297.3              | 101.1 | 4.0 | 27.3                           |
| 63 | 63     | 298.5              | 68.0  | 4.0 | 25.8                           |
| 64 | 64     | 233.4              | 52.8  | 4.0 | 27.6                           |
| 65 | 65     | 184.6              | 41.6  | 4.0 | 27.1                           |
| 66 | 66     | 133.0              | 29.7  | 4.0 | 26.7                           |
| 67 | 67     | 129.0              | 76.6  | 4.0 | 28.7                           |
| 68 | 68     | 124.8              | 126.4 | 4.0 | 31.6                           |
| 69 | 69     | 122.4              | 154.4 | 4.0 | 32.4                           |
| 70 | 70     | 137.2              | 427.5 | 4.0 | 34.3                           |
| 71 | 71     | 157.8              | 409.5 | 4.0 | 34.9                           |
| 72 | 72     | 205.7              | 419.1 | 4.0 | 36.0                           |
| 73 | 73     | 186.1              | 611.8 | 4.0 | 24.8                           |
| 74 | 74     | 296.0              | 480.0 | 4.0 | 25.8                           |
| 75 | 75     | 240.1              | 453.5 | 4.0 | 29.4                           |

Koniec danych

Poziom hałas w sieci  
LAeq . pory nocy

| Nr     | współrzędne punktów |        |     | Poziom dźwięku<br>w porze<br>nocy |
|--------|---------------------|--------|-----|-----------------------------------|
| punktu | x                   | y      | z   |                                   |
|        | m                   | m      | m   | dB(A)                             |
| 1      | 0.00                | 0.00   | 4.0 | 21.71                             |
| 2      | 0.00                | 20.00  | 4.0 | 22.13                             |
| 3      | 0.00                | 40.00  | 4.0 | 22.55                             |
| 4      | 0.00                | 60.00  | 4.0 | 22.98                             |
| 5      | 0.00                | 80.00  | 4.0 | 23.34                             |
| 6      | 0.00                | 100.00 | 4.0 | 24.44                             |
| 7      | 0.00                | 120.00 | 4.0 | 24.61                             |
| 8      | 0.00                | 140.00 | 4.0 | 24.74                             |
| 9      | 0.00                | 160.00 | 4.0 | 24.32                             |
| 10     | 0.00                | 180.00 | 4.0 | 24.65                             |
| 11     | 0.00                | 200.00 | 4.0 | 25.52                             |
| 12     | 0.00                | 220.00 | 4.0 | 26.58                             |
| 13     | 0.00                | 240.00 | 4.0 | 28.04                             |
| 14     | 0.00                | 260.00 | 4.0 | 29.58                             |
| 15     | 0.00                | 280.00 | 4.0 | 31.09                             |
| 16     | 0.00                | 300.00 | 4.0 | 32.40                             |
| 17     | 0.00                | 320.00 | 4.0 | 33.64                             |
| 18     | 0.00                | 340.00 | 4.0 | 33.74                             |
| 19     | 0.00                | 360.00 | 4.0 | 33.67                             |
| 20     | 0.00                | 380.00 | 4.0 | 33.24                             |
| 21     | 0.00                | 400.00 | 4.0 | 32.85                             |
| 22     | 0.00                | 420.00 | 4.0 | 32.37                             |
| 23     | 0.00                | 440.00 | 4.0 | 31.75                             |
| 24     | 0.00                | 460.00 | 4.0 | 31.16                             |
| 25     | 0.00                | 480.00 | 4.0 | 30.43                             |
| 26     | 0.00                | 500.00 | 4.0 | 29.69                             |
| 27     | 0.00                | 520.00 | 4.0 | 29.04                             |
| 28     | 0.00                | 540.00 | 4.0 | 28.36                             |
| 29     | 0.00                | 560.00 | 4.0 | 27.64                             |
| 30     | 0.00                | 580.00 | 4.0 | 26.99                             |
| 31     | 0.00                | 600.00 | 4.0 | 26.34                             |
| 32     | 0.00                | 620.00 | 4.0 | 25.71                             |
| 33     | 0.00                | 640.00 | 4.0 | 25.14                             |
| 34     | 0.00                | 660.00 | 4.0 | 24.59                             |
| 35     | 0.00                | 680.00 | 4.0 | 24.07                             |
| 36     | 0.00                | 700.00 | 4.0 | 23.59                             |
| 37     | 0.00                | 720.00 | 4.0 | 23.11                             |
| 38     | 0.00                | 740.00 | 4.0 | 22.67                             |
| 39     | 20.00               | 0.00   | 4.0 | 22.17                             |
| 40     | 20.00               | 20.00  | 4.0 | 22.58                             |
| 41     | 20.00               | 40.00  | 4.0 | 23.01                             |
| 42     | 20.00               | 60.00  | 4.0 | 23.45                             |
| 43     | 20.00               | 80.00  | 4.0 | 23.90                             |
| 44     | 20.00               | 100.00 | 4.0 | 25.05                             |
| 45     | 20.00               | 120.00 | 4.0 | 25.26                             |
| 46     | 20.00               | 140.00 | 4.0 | 25.52                             |
| 47     | 20.00               | 160.00 | 4.0 | 24.90                             |
| 48     | 20.00               | 180.00 | 4.0 | 25.10                             |
| 49     | 20.00               | 200.00 | 4.0 | 25.46                             |
| 50     | 20.00               | 220.00 | 4.0 | 26.09                             |
| 51     | 20.00               | 240.00 | 4.0 | 27.62                             |
| 52     | 20.00               | 260.00 | 4.0 | 29.80                             |
| 53     | 20.00               | 280.00 | 4.0 | 32.01                             |
| 54     | 20.00               | 300.00 | 4.0 | 34.56                             |
| 55     | 20.00               | 320.00 | 4.0 | 35.87                             |
| 56     | 20.00               | 340.00 | 4.0 | 35.98                             |
| 57     | 20.00               | 360.00 | 4.0 | 35.49                             |
| 58     | 20.00               | 380.00 | 4.0 | 34.87                             |
| 59     | 20.00               | 400.00 | 4.0 | 34.31                             |
| 60     | 20.00               | 420.00 | 4.0 | 33.70                             |
| 61     | 20.00               | 440.00 | 4.0 | 33.05                             |
| 62     | 20.00               | 460.00 | 4.0 | 32.15                             |
| 63     | 20.00               | 480.00 | 4.0 | 31.27                             |
| 64     | 20.00               | 500.00 | 4.0 | 30.46                             |
| 65     | 20.00               | 520.00 | 4.0 | 29.57                             |
| 66     | 20.00               | 540.00 | 4.0 | 28.75                             |
| 67     | 20.00               | 560.00 | 4.0 | 27.97                             |
| 68     | 20.00               | 580.00 | 4.0 | 27.23                             |
| 69     | 20.00               | 600.00 | 4.0 | 26.57                             |
| 70     | 20.00               | 620.00 | 4.0 | 25.93                             |
| 71     | 20.00               | 640.00 | 4.0 | 25.34                             |
| 72     | 20.00               | 660.00 | 4.0 | 24.77                             |
| 73     | 20.00               | 680.00 | 4.0 | 24.24                             |
| 74     | 20.00               | 700.00 | 4.0 | 23.74                             |
| 75     | 20.00               | 720.00 | 4.0 | 23.26                             |
| 76     | 20.00               | 740.00 | 4.0 | 22.81                             |
| 77     | 40.00               | 0.00   | 4.0 | 22.37                             |
| 78     | 40.00               | 20.00  | 4.0 | 22.91                             |
| 79     | 40.00               | 40.00  | 4.0 | 23.37                             |
| 80     | 40.00               | 60.00  | 4.0 | 23.89                             |
| 81     | 40.00               | 80.00  | 4.0 | 24.35                             |
| 82     | 40.00               | 100.00 | 4.0 | 24.82                             |
| 83     | 40.00               | 120.00 | 4.0 | 25.96                             |
| 84     | 40.00               | 140.00 | 4.0 | 26.23                             |
| 85     | 40.00               | 160.00 | 4.0 | 25.76                             |
| 86     | 40.00               | 180.00 | 4.0 | 25.78                             |
| 87     | 40.00               | 200.00 | 4.0 | 25.85                             |
| 88     | 40.00               | 220.00 | 4.0 | 26.19                             |
| 89     | 40.00               | 240.00 | 4.0 | 27.06                             |
| 90     | 40.00               | 260.00 | 4.0 | 27.50                             |
| 91     | 40.00               | 280.00 | 4.0 | 30.67                             |
| 92     | 40.00               | 300.00 | 4.0 | 37.37                             |
| 93     | 40.00               | 320.00 | 4.0 | 40.05                             |
| 94     | 40.00               | 340.00 | 4.0 | 38.57                             |
| 95     | 40.00               | 360.00 | 4.0 | 37.42                             |
| 96     | 40.00               | 380.00 | 4.0 | 36.63                             |

|     |        |        |     |       |
|-----|--------|--------|-----|-------|
| 97  | 40.00  | 400.00 | 4.0 | 36.09 |
| 98  | 40.00  | 420.00 | 4.0 | 35.33 |
| 99  | 40.00  | 440.00 | 4.0 | 34.39 |
| 100 | 40.00  | 460.00 | 4.0 | 33.22 |
| 101 | 40.00  | 480.00 | 4.0 | 32.15 |
| 102 | 40.00  | 500.00 | 4.0 | 31.03 |
| 103 | 40.00  | 520.00 | 4.0 | 30.01 |
| 104 | 40.00  | 540.00 | 4.0 | 29.09 |
| 105 | 40.00  | 560.00 | 4.0 | 28.27 |
| 106 | 40.00  | 580.00 | 4.0 | 27.51 |
| 107 | 40.00  | 600.00 | 4.0 | 26.79 |
| 108 | 40.00  | 620.00 | 4.0 | 26.13 |
| 109 | 40.00  | 640.00 | 4.0 | 25.52 |
| 110 | 40.00  | 660.00 | 4.0 | 24.94 |
| 111 | 40.00  | 680.00 | 4.0 | 24.40 |
| 112 | 40.00  | 700.00 | 4.0 | 23.92 |
| 113 | 40.00  | 720.00 | 4.0 | 23.39 |
| 114 | 40.00  | 740.00 | 4.0 | 22.94 |
| 115 | 60.00  | 0.00   | 4.0 | 22.75 |
| 116 | 60.00  | 20.00  | 4.0 | 23.27 |
| 117 | 60.00  | 40.00  | 4.0 | 23.82 |
| 118 | 60.00  | 60.00  | 4.0 | 24.33 |
| 119 | 60.00  | 80.00  | 4.0 | 24.90 |
| 120 | 60.00  | 100.00 | 4.0 | 25.42 |
| 121 | 60.00  | 120.00 | 4.0 | 26.65 |
| 122 | 60.00  | 140.00 | 4.0 | 26.99 |
| 123 | 60.00  | 160.00 | 4.0 | 26.42 |
| 124 | 60.00  | 180.00 | 4.0 | 26.47 |
| 125 | 60.00  | 200.00 | 4.0 | 26.26 |
| 126 | 60.00  | 220.00 | 4.0 | 25.87 |
| 127 | 60.00  | 240.00 | 4.0 | 24.90 |
| 128 | 60.00  | 260.00 | 4.0 | -0.07 |
| 129 | 60.00  | 280.00 | 4.0 | -0.03 |
| 130 | 60.00  | 300.00 | 4.0 | -0.03 |
| 131 | 60.00  | 320.00 | 4.0 | 46.92 |
| 132 | 60.00  | 340.00 | 4.0 | 40.89 |
| 133 | 60.00  | 360.00 | 4.0 | 39.50 |
| 134 | 60.00  | 380.00 | 4.0 | 38.86 |
| 135 | 60.00  | 400.00 | 4.0 | 38.32 |
| 136 | 60.00  | 420.00 | 4.0 | 37.45 |
| 137 | 60.00  | 440.00 | 4.0 | 36.04 |
| 138 | 60.00  | 460.00 | 4.0 | 34.33 |
| 139 | 60.00  | 480.00 | 4.0 | 32.84 |
| 140 | 60.00  | 500.00 | 4.0 | 31.52 |
| 141 | 60.00  | 520.00 | 4.0 | 30.39 |
| 142 | 60.00  | 540.00 | 4.0 | 29.41 |
| 143 | 60.00  | 560.00 | 4.0 | 28.52 |
| 144 | 60.00  | 580.00 | 4.0 | 27.72 |
| 145 | 60.00  | 600.00 | 4.0 | 27.00 |
| 146 | 60.00  | 620.00 | 4.0 | 26.32 |
| 147 | 60.00  | 640.00 | 4.0 | 25.75 |
| 148 | 60.00  | 660.00 | 4.0 | 25.11 |
| 149 | 60.00  | 680.00 | 4.0 | 24.55 |
| 150 | 60.00  | 700.00 | 4.0 | 24.02 |
| 151 | 60.00  | 720.00 | 4.0 | 23.51 |
| 152 | 60.00  | 740.00 | 4.0 | 23.04 |
| 153 | 80.00  | 0.00   | 4.0 | 23.43 |
| 154 | 80.00  | 20.00  | 4.0 | 24.03 |
| 155 | 80.00  | 40.00  | 4.0 | 24.65 |
| 156 | 80.00  | 60.00  | 4.0 | 25.11 |
| 157 | 80.00  | 80.00  | 4.0 | 25.67 |
| 158 | 80.00  | 100.00 | 4.0 | 26.22 |
| 159 | 80.00  | 120.00 | 4.0 | 27.68 |
| 160 | 80.00  | 140.00 | 4.0 | 28.06 |
| 161 | 80.00  | 160.00 | 4.0 | 28.32 |
| 162 | 80.00  | 180.00 | 4.0 | 27.58 |
| 163 | 80.00  | 200.00 | 4.0 | 27.73 |
| 164 | 80.00  | 220.00 | 4.0 | 27.11 |
| 165 | 80.00  | 240.00 | 4.0 | 24.81 |
| 166 | 80.00  | 260.00 | 4.0 | -0.06 |
| 167 | 80.00  | 280.00 | 4.0 | -0.05 |
| 168 | 80.00  | 300.00 | 4.0 | -0.05 |
| 169 | 80.00  | 320.00 | 4.0 | 46.12 |
| 170 | 80.00  | 340.00 | 4.0 | 43.04 |
| 171 | 80.00  | 360.00 | 4.0 | 42.40 |
| 172 | 80.00  | 380.00 | 4.0 | 42.24 |
| 173 | 80.00  | 400.00 | 4.0 | 41.92 |
| 174 | 80.00  | 420.00 | 4.0 | 41.22 |
| 175 | 80.00  | 440.00 | 4.0 | 38.41 |
| 176 | 80.00  | 460.00 | 4.0 | 35.49 |
| 177 | 80.00  | 480.00 | 4.0 | 33.46 |
| 178 | 80.00  | 500.00 | 4.0 | 31.94 |
| 179 | 80.00  | 520.00 | 4.0 | 30.74 |
| 180 | 80.00  | 540.00 | 4.0 | 29.68 |
| 181 | 80.00  | 560.00 | 4.0 | 28.75 |
| 182 | 80.00  | 580.00 | 4.0 | 27.93 |
| 183 | 80.00  | 600.00 | 4.0 | 27.22 |
| 184 | 80.00  | 620.00 | 4.0 | 26.48 |
| 185 | 80.00  | 640.00 | 4.0 | 25.81 |
| 186 | 80.00  | 660.00 | 4.0 | 25.21 |
| 187 | 80.00  | 680.00 | 4.0 | 24.64 |
| 188 | 80.00  | 700.00 | 4.0 | 24.11 |
| 189 | 80.00  | 720.00 | 4.0 | 23.62 |
| 190 | 80.00  | 740.00 | 4.0 | 23.23 |
| 191 | 100.00 | 0.00   | 4.0 | 23.90 |
| 192 | 100.00 | 20.00  | 4.0 | 24.56 |
| 193 | 100.00 | 40.00  | 4.0 | 25.25 |
| 194 | 100.00 | 60.00  | 4.0 | 25.97 |
| 195 | 100.00 | 80.00  | 4.0 | 26.75 |
| 196 | 100.00 | 100.00 | 4.0 | 27.48 |
| 197 | 100.00 | 120.00 | 4.0 | 29.12 |
| 198 | 100.00 | 140.00 | 4.0 | 29.61 |
| 199 | 100.00 | 160.00 | 4.0 | 29.99 |
| 200 | 100.00 | 180.00 | 4.0 | 29.50 |
| 201 | 100.00 | 200.00 | 4.0 | 29.41 |
| 202 | 100.00 | 220.00 | 4.0 | 29.39 |
| 203 | 100.00 | 240.00 | 4.0 | 26.78 |

|     |        |        |     |       |
|-----|--------|--------|-----|-------|
| 204 | 100.00 | 260.00 | 4.0 | -0.06 |
| 205 | 100.00 | 280.00 | 4.0 | 44.71 |
| 206 | 100.00 | 300.00 | 4.0 | 47.19 |
| 207 | 100.00 | 320.00 | 4.0 | 49.35 |
| 208 | 100.00 | 340.00 | 4.0 | 48.84 |
| 209 | 100.00 | 360.00 | 4.0 | 49.30 |
| 210 | 100.00 | 380.00 | 4.0 | 49.47 |
| 211 | 100.00 | 400.00 | 4.0 | 49.19 |
| 212 | 100.00 | 420.00 | 4.0 | 48.39 |
| 213 | 100.00 | 440.00 | 4.0 | 40.43 |
| 214 | 100.00 | 460.00 | 4.0 | 36.03 |
| 215 | 100.00 | 480.00 | 4.0 | 33.78 |
| 216 | 100.00 | 500.00 | 4.0 | 32.18 |
| 217 | 100.00 | 520.00 | 4.0 | 30.91 |
| 218 | 100.00 | 540.00 | 4.0 | 29.85 |
| 219 | 100.00 | 560.00 | 4.0 | 29.07 |
| 220 | 100.00 | 580.00 | 4.0 | 28.20 |
| 221 | 100.00 | 600.00 | 4.0 | 27.45 |
| 222 | 100.00 | 620.00 | 4.0 | 26.74 |
| 223 | 100.00 | 640.00 | 4.0 | 26.14 |
| 224 | 100.00 | 660.00 | 4.0 | 25.53 |
| 225 | 100.00 | 680.00 | 4.0 | 24.95 |
| 226 | 100.00 | 700.00 | 4.0 | 24.22 |
| 227 | 100.00 | 720.00 | 4.0 | 23.71 |
| 228 | 100.00 | 740.00 | 4.0 | 23.22 |
| 229 | 120.00 | 0.00   | 4.0 | 24.80 |
| 230 | 120.00 | 20.00  | 4.0 | 25.56 |
| 231 | 120.00 | 40.00  | 4.0 | 26.58 |
| 232 | 120.00 | 60.00  | 4.0 | 27.67 |
| 233 | 120.00 | 80.00  | 4.0 | 28.50 |
| 234 | 120.00 | 100.00 | 4.0 | 29.36 |
| 235 | 120.00 | 120.00 | 4.0 | 31.15 |
| 236 | 120.00 | 140.00 | 4.0 | 31.82 |
| 237 | 120.00 | 160.00 | 4.0 | 32.35 |
| 238 | 120.00 | 180.00 | 4.0 | 32.05 |
| 239 | 120.00 | 200.00 | 4.0 | 32.76 |
| 240 | 120.00 | 220.00 | 4.0 | 33.98 |
| 241 | 120.00 | 240.00 | 4.0 | 36.21 |
| 242 | 120.00 | 260.00 | 4.0 | 40.75 |
| 243 | 120.00 | 280.00 | 4.0 | 45.97 |
| 244 | 120.00 | 300.00 | 4.0 | 43.89 |
| 245 | 120.00 | 320.00 | 4.0 | 43.81 |
| 246 | 120.00 | 340.00 | 4.0 | 42.45 |
| 247 | 120.00 | 360.00 | 4.0 | -1.00 |
| 248 | 120.00 | 380.00 | 4.0 | -1.00 |
| 249 | 120.00 | 400.00 | 4.0 | -0.02 |
| 250 | 120.00 | 420.00 | 4.0 | -0.02 |
| 251 | 120.00 | 440.00 | 4.0 | 34.15 |
| 252 | 120.00 | 460.00 | 4.0 | 33.79 |
| 253 | 120.00 | 480.00 | 4.0 | 32.56 |
| 254 | 120.00 | 500.00 | 4.0 | 31.37 |
| 255 | 120.00 | 520.00 | 4.0 | 30.33 |
| 256 | 120.00 | 540.00 | 4.0 | 29.42 |
| 257 | 120.00 | 560.00 | 4.0 | 28.56 |
| 258 | 120.00 | 580.00 | 4.0 | 27.57 |
| 259 | 120.00 | 600.00 | 4.0 | 26.89 |
| 260 | 120.00 | 620.00 | 4.0 | 26.23 |
| 261 | 120.00 | 640.00 | 4.0 | 25.57 |
| 262 | 120.00 | 660.00 | 4.0 | 25.11 |
| 263 | 120.00 | 680.00 | 4.0 | 24.53 |
| 264 | 120.00 | 700.00 | 4.0 | 23.97 |
| 265 | 120.00 | 720.00 | 4.0 | 23.46 |
| 266 | 120.00 | 740.00 | 4.0 | 23.00 |
| 267 | 140.00 | 0.00   | 4.0 | 25.51 |
| 268 | 140.00 | 20.00  | 4.0 | 26.34 |
| 269 | 140.00 | 40.00  | 4.0 | 27.15 |
| 270 | 140.00 | 60.00  | 4.0 | 28.08 |
| 271 | 140.00 | 80.00  | 4.0 | 29.06 |
| 272 | 140.00 | 100.00 | 4.0 | 30.12 |
| 273 | 140.00 | 120.00 | 4.0 | 32.34 |
| 274 | 140.00 | 140.00 | 4.0 | 33.18 |
| 275 | 140.00 | 160.00 | 4.0 | 33.68 |
| 276 | 140.00 | 180.00 | 4.0 | 32.67 |
| 277 | 140.00 | 200.00 | 4.0 | 32.57 |
| 278 | 140.00 | 220.00 | 4.0 | 31.79 |
| 279 | 140.00 | 240.00 | 4.0 | 31.71 |
| 280 | 140.00 | 260.00 | 4.0 | -3.00 |
| 281 | 140.00 | 280.00 | 4.0 | 42.48 |
| 282 | 140.00 | 300.00 | 4.0 | 39.86 |
| 283 | 140.00 | 320.00 | 4.0 | 39.99 |
| 284 | 140.00 | 340.00 | 4.0 | 41.09 |
| 285 | 140.00 | 360.00 | 4.0 | -1.00 |
| 286 | 140.00 | 380.00 | 4.0 | -1.00 |
| 287 | 140.00 | 400.00 | 4.0 | 37.18 |
| 288 | 140.00 | 420.00 | 4.0 | 34.74 |
| 289 | 140.00 | 440.00 | 4.0 | 33.15 |
| 290 | 140.00 | 460.00 | 4.0 | 32.02 |
| 291 | 140.00 | 480.00 | 4.0 | 30.87 |
| 292 | 140.00 | 500.00 | 4.0 | 29.80 |
| 293 | 140.00 | 520.00 | 4.0 | 29.09 |
| 294 | 140.00 | 540.00 | 4.0 | 28.44 |
| 295 | 140.00 | 560.00 | 4.0 | 27.78 |
| 296 | 140.00 | 580.00 | 4.0 | 26.98 |
| 297 | 140.00 | 600.00 | 4.0 | 26.27 |
| 298 | 140.00 | 620.00 | 4.0 | 25.71 |
| 299 | 140.00 | 640.00 | 4.0 | 25.11 |
| 300 | 140.00 | 660.00 | 4.0 | 24.50 |
| 301 | 140.00 | 680.00 | 4.0 | 24.02 |
| 302 | 140.00 | 700.00 | 4.0 | 23.48 |
| 303 | 140.00 | 720.00 | 4.0 | 22.99 |
| 304 | 140.00 | 740.00 | 4.0 | 22.52 |
| 305 | 160.00 | 0.00   | 4.0 | 25.49 |
| 306 | 160.00 | 20.00  | 4.0 | 26.23 |
| 307 | 160.00 | 40.00  | 4.0 | 27.16 |
| 308 | 160.00 | 60.00  | 4.0 | 28.12 |
| 309 | 160.00 | 80.00  | 4.0 | 29.23 |
| 310 | 160.00 | 100.00 | 4.0 | 30.61 |

|     |        |        |     |       |
|-----|--------|--------|-----|-------|
| 311 | 160.00 | 120.00 | 4.0 | 32.13 |
| 312 | 160.00 | 140.00 | 4.0 | 35.36 |
| 313 | 160.00 | 160.00 | 4.0 | 36.00 |
| 314 | 160.00 | 180.00 | 4.0 | 33.33 |
| 315 | 160.00 | 200.00 | 4.0 | 32.17 |
| 316 | 160.00 | 220.00 | 4.0 | 32.12 |
| 317 | 160.00 | 240.00 | 4.0 | 31.22 |
| 318 | 160.00 | 260.00 | 4.0 | -0.09 |
| 319 | 160.00 | 280.00 | 4.0 | -3.00 |
| 320 | 160.00 | 300.00 | 4.0 | 37.99 |
| 321 | 160.00 | 320.00 | 4.0 | 37.98 |
| 322 | 160.00 | 340.00 | 4.0 | 38.85 |
| 323 | 160.00 | 360.00 | 4.0 | 39.43 |
| 324 | 160.00 | 380.00 | 4.0 | 39.95 |
| 325 | 160.00 | 400.00 | 4.0 | 35.94 |
| 326 | 160.00 | 420.00 | 4.0 | 33.96 |
| 327 | 160.00 | 440.00 | 4.0 | 33.02 |
| 328 | 160.00 | 460.00 | 4.0 | 31.58 |
| 329 | 160.00 | 480.00 | 4.0 | 30.73 |
| 330 | 160.00 | 500.00 | 4.0 | 29.55 |
| 331 | 160.00 | 520.00 | 4.0 | 28.57 |
| 332 | 160.00 | 540.00 | 4.0 | 27.69 |
| 333 | 160.00 | 560.00 | 4.0 | 27.09 |
| 334 | 160.00 | 580.00 | 4.0 | 26.33 |
| 335 | 160.00 | 600.00 | 4.0 | 25.66 |
| 336 | 160.00 | 620.00 | 4.0 | 25.21 |
| 337 | 160.00 | 640.00 | 4.0 | 24.63 |
| 338 | 160.00 | 660.00 | 4.0 | 24.05 |
| 339 | 160.00 | 680.00 | 4.0 | 23.50 |
| 340 | 160.00 | 700.00 | 4.0 | 22.99 |
| 341 | 160.00 | 720.00 | 4.0 | 22.61 |
| 342 | 160.00 | 740.00 | 4.0 | 22.14 |
| 343 | 180.00 | 0.00   | 4.0 | 25.19 |
| 344 | 180.00 | 20.00  | 4.0 | 26.05 |
| 345 | 180.00 | 40.00  | 4.0 | 26.98 |
| 346 | 180.00 | 60.00  | 4.0 | 28.13 |
| 347 | 180.00 | 80.00  | 4.0 | 29.49 |
| 348 | 180.00 | 100.00 | 4.0 | 32.62 |
| 349 | 180.00 | 120.00 | 4.0 | 35.29 |
| 350 | 180.00 | 140.00 | 4.0 | -4.00 |
| 351 | 180.00 | 160.00 | 4.0 | -4.00 |
| 352 | 180.00 | 180.00 | 4.0 | 37.10 |
| 353 | 180.00 | 200.00 | 4.0 | 34.59 |
| 354 | 180.00 | 220.00 | 4.0 | 32.82 |
| 355 | 180.00 | 240.00 | 4.0 | 31.88 |
| 356 | 180.00 | 260.00 | 4.0 | 33.09 |
| 357 | 180.00 | 280.00 | 4.0 | 36.30 |
| 358 | 180.00 | 300.00 | 4.0 | 35.92 |
| 359 | 180.00 | 320.00 | 4.0 | 36.80 |
| 360 | 180.00 | 340.00 | 4.0 | 37.92 |
| 361 | 180.00 | 360.00 | 4.0 | -2.00 |
| 362 | 180.00 | 380.00 | 4.0 | -2.00 |
| 363 | 180.00 | 400.00 | 4.0 | -2.00 |
| 364 | 180.00 | 420.00 | 4.0 | 35.13 |
| 365 | 180.00 | 440.00 | 4.0 | 33.14 |
| 366 | 180.00 | 460.00 | 4.0 | 31.41 |
| 367 | 180.00 | 480.00 | 4.0 | 30.09 |
| 368 | 180.00 | 500.00 | 4.0 | 29.25 |
| 369 | 180.00 | 520.00 | 4.0 | 28.19 |
| 370 | 180.00 | 540.00 | 4.0 | 27.31 |
| 371 | 180.00 | 560.00 | 4.0 | 26.48 |
| 372 | 180.00 | 580.00 | 4.0 | 25.73 |
| 373 | 180.00 | 600.00 | 4.0 | 25.24 |
| 374 | 180.00 | 620.00 | 4.0 | 24.67 |
| 375 | 180.00 | 640.00 | 4.0 | 24.07 |
| 376 | 180.00 | 660.00 | 4.0 | 23.54 |
| 377 | 180.00 | 680.00 | 4.0 | 23.04 |
| 378 | 180.00 | 700.00 | 4.0 | 22.69 |
| 379 | 180.00 | 720.00 | 4.0 | 21.91 |
| 380 | 180.00 | 740.00 | 4.0 | 21.47 |
| 381 | 200.00 | 0.00   | 4.0 | 25.63 |
| 382 | 200.00 | 20.00  | 4.0 | 26.58 |
| 383 | 200.00 | 40.00  | 4.0 | 27.55 |
| 384 | 200.00 | 60.00  | 4.0 | 28.89 |
| 385 | 200.00 | 80.00  | 4.0 | 30.32 |
| 386 | 200.00 | 100.00 | 4.0 | 32.55 |
| 387 | 200.00 | 120.00 | 4.0 | 35.81 |
| 388 | 200.00 | 140.00 | 4.0 | -4.00 |
| 389 | 200.00 | 160.00 | 4.0 | -4.00 |
| 390 | 200.00 | 180.00 | 4.0 | -4.00 |
| 391 | 200.00 | 200.00 | 4.0 | 35.57 |
| 392 | 200.00 | 220.00 | 4.0 | 33.25 |
| 393 | 200.00 | 240.00 | 4.0 | 32.22 |
| 394 | 200.00 | 260.00 | 4.0 | 33.23 |
| 395 | 200.00 | 280.00 | 4.0 | 34.85 |
| 396 | 200.00 | 300.00 | 4.0 | 35.05 |
| 397 | 200.00 | 320.00 | 4.0 | 35.79 |
| 398 | 200.00 | 340.00 | 4.0 | 37.24 |
| 399 | 200.00 | 360.00 | 4.0 | -2.00 |
| 400 | 200.00 | 380.00 | 4.0 | -2.00 |
| 401 | 200.00 | 400.00 | 4.0 | -2.00 |
| 402 | 200.00 | 420.00 | 4.0 | 35.85 |
| 403 | 200.00 | 440.00 | 4.0 | 33.03 |
| 404 | 200.00 | 460.00 | 4.0 | 31.08 |
| 405 | 200.00 | 480.00 | 4.0 | 29.79 |
| 406 | 200.00 | 500.00 | 4.0 | 28.63 |
| 407 | 200.00 | 520.00 | 4.0 | 27.84 |
| 408 | 200.00 | 540.00 | 4.0 | 27.02 |
| 409 | 200.00 | 560.00 | 4.0 | 26.19 |
| 410 | 200.00 | 580.00 | 4.0 | 25.45 |
| 411 | 200.00 | 600.00 | 4.0 | 24.76 |
| 412 | 200.00 | 620.00 | 4.0 | 23.76 |
| 413 | 200.00 | 640.00 | 4.0 | 23.38 |
| 414 | 200.00 | 660.00 | 4.0 | 22.84 |
| 415 | 200.00 | 680.00 | 4.0 | 22.35 |
| 416 | 200.00 | 700.00 | 4.0 | 21.86 |
| 417 | 200.00 | 720.00 | 4.0 | 21.43 |

|     |        |        |     |       |
|-----|--------|--------|-----|-------|
| 418 | 200.00 | 740.00 | 4.0 | 21.04 |
| 419 | 220.00 | 0.00   | 4.0 | 25.19 |
| 420 | 220.00 | 20.00  | 4.0 | 25.98 |
| 421 | 220.00 | 40.00  | 4.0 | 26.95 |
| 422 | 220.00 | 60.00  | 4.0 | 28.32 |
| 423 | 220.00 | 80.00  | 4.0 | 30.05 |
| 424 | 220.00 | 100.00 | 4.0 | 32.28 |
| 425 | 220.00 | 120.00 | 4.0 | 35.52 |
| 426 | 220.00 | 140.00 | 4.0 | -4.00 |
| 427 | 220.00 | 160.00 | 4.0 | -4.00 |
| 428 | 220.00 | 180.00 | 4.0 | -4.00 |
| 429 | 220.00 | 200.00 | 4.0 | 35.33 |
| 430 | 220.00 | 220.00 | 4.0 | 33.17 |
| 431 | 220.00 | 240.00 | 4.0 | 32.45 |
| 432 | 220.00 | 260.00 | 4.0 | 32.79 |
| 433 | 220.00 | 280.00 | 4.0 | 33.69 |
| 434 | 220.00 | 300.00 | 4.0 | 33.87 |
| 435 | 220.00 | 320.00 | 4.0 | 34.83 |
| 436 | 220.00 | 340.00 | 4.0 | 36.40 |
| 437 | 220.00 | 360.00 | 4.0 | -2.00 |
| 438 | 220.00 | 380.00 | 4.0 | -2.00 |
| 439 | 220.00 | 400.00 | 4.0 | -2.00 |
| 440 | 220.00 | 420.00 | 4.0 | 35.22 |
| 441 | 220.00 | 440.00 | 4.0 | 32.65 |
| 442 | 220.00 | 460.00 | 4.0 | 30.81 |
| 443 | 220.00 | 480.00 | 4.0 | 29.27 |
| 444 | 220.00 | 500.00 | 4.0 | 27.27 |
| 445 | 220.00 | 520.00 | 4.0 | 26.59 |
| 446 | 220.00 | 540.00 | 4.0 | 25.96 |
| 447 | 220.00 | 560.00 | 4.0 | 25.30 |
| 448 | 220.00 | 580.00 | 4.0 | 24.59 |
| 449 | 220.00 | 600.00 | 4.0 | 23.95 |
| 450 | 220.00 | 620.00 | 4.0 | 23.44 |
| 451 | 220.00 | 640.00 | 4.0 | 22.86 |
| 452 | 220.00 | 660.00 | 4.0 | 22.33 |
| 453 | 220.00 | 680.00 | 4.0 | 22.02 |
| 454 | 220.00 | 700.00 | 4.0 | 21.57 |
| 455 | 220.00 | 720.00 | 4.0 | 21.14 |
| 456 | 220.00 | 740.00 | 4.0 | 20.72 |
| 457 | 240.00 | 0.00   | 4.0 | 24.48 |
| 458 | 240.00 | 20.00  | 4.0 | 25.44 |
| 459 | 240.00 | 40.00  | 4.0 | 26.60 |
| 460 | 240.00 | 60.00  | 4.0 | 27.95 |
| 461 | 240.00 | 80.00  | 4.0 | 29.55 |
| 462 | 240.00 | 100.00 | 4.0 | 31.48 |
| 463 | 240.00 | 120.00 | 4.0 | 33.86 |
| 464 | 240.00 | 140.00 | 4.0 | -4.00 |
| 465 | 240.00 | 160.00 | 4.0 | -4.00 |
| 466 | 240.00 | 180.00 | 4.0 | 36.35 |
| 467 | 240.00 | 200.00 | 4.0 | 32.79 |
| 468 | 240.00 | 220.00 | 4.0 | 31.64 |
| 469 | 240.00 | 240.00 | 4.0 | 31.45 |
| 470 | 240.00 | 260.00 | 4.0 | 31.71 |
| 471 | 240.00 | 280.00 | 4.0 | 32.47 |
| 472 | 240.00 | 300.00 | 4.0 | 32.93 |
| 473 | 240.00 | 320.00 | 4.0 | 33.74 |
| 474 | 240.00 | 340.00 | 4.0 | 34.94 |
| 475 | 240.00 | 360.00 | 4.0 | -2.00 |
| 476 | 240.00 | 380.00 | 4.0 | -2.00 |
| 477 | 240.00 | 400.00 | 4.0 | 36.31 |
| 478 | 240.00 | 420.00 | 4.0 | 32.14 |
| 479 | 240.00 | 440.00 | 4.0 | 30.24 |
| 480 | 240.00 | 460.00 | 4.0 | 28.89 |
| 481 | 240.00 | 480.00 | 4.0 | 27.80 |
| 482 | 240.00 | 500.00 | 4.0 | 26.71 |
| 483 | 240.00 | 520.00 | 4.0 | 25.82 |
| 484 | 240.00 | 540.00 | 4.0 | 25.05 |
| 485 | 240.00 | 560.00 | 4.0 | 24.79 |
| 486 | 240.00 | 580.00 | 4.0 | 24.18 |
| 487 | 240.00 | 600.00 | 4.0 | 23.62 |
| 488 | 240.00 | 620.00 | 4.0 | 23.07 |
| 489 | 240.00 | 640.00 | 4.0 | 22.55 |
| 490 | 240.00 | 660.00 | 4.0 | 22.03 |
| 491 | 240.00 | 680.00 | 4.0 | 21.53 |
| 492 | 240.00 | 700.00 | 4.0 | 21.09 |
| 493 | 240.00 | 720.00 | 4.0 | 20.83 |
| 494 | 240.00 | 740.00 | 4.0 | 20.43 |
| 495 | 260.00 | 0.00   | 4.0 | 24.30 |
| 496 | 260.00 | 20.00  | 4.0 | 25.27 |
| 497 | 260.00 | 40.00  | 4.0 | 26.35 |
| 498 | 260.00 | 60.00  | 4.0 | 27.73 |
| 499 | 260.00 | 80.00  | 4.0 | 27.87 |
| 500 | 260.00 | 100.00 | 4.0 | 29.20 |
| 501 | 260.00 | 120.00 | 4.0 | 30.58 |
| 502 | 260.00 | 140.00 | 4.0 | 31.97 |
| 503 | 260.00 | 160.00 | 4.0 | 34.37 |
| 504 | 260.00 | 180.00 | 4.0 | 33.81 |
| 505 | 260.00 | 200.00 | 4.0 | 31.45 |
| 506 | 260.00 | 220.00 | 4.0 | 30.92 |
| 507 | 260.00 | 240.00 | 4.0 | 30.82 |
| 508 | 260.00 | 260.00 | 4.0 | 30.89 |
| 509 | 260.00 | 280.00 | 4.0 | 31.57 |
| 510 | 260.00 | 300.00 | 4.0 | 31.48 |
| 511 | 260.00 | 320.00 | 4.0 | 31.90 |
| 512 | 260.00 | 340.00 | 4.0 | 32.31 |
| 513 | 260.00 | 360.00 | 4.0 | 32.98 |
| 514 | 260.00 | 380.00 | 4.0 | 34.04 |
| 515 | 260.00 | 400.00 | 4.0 | 33.44 |
| 516 | 260.00 | 420.00 | 4.0 | 30.63 |
| 517 | 260.00 | 440.00 | 4.0 | 29.19 |
| 518 | 260.00 | 460.00 | 4.0 | 27.87 |
| 519 | 260.00 | 480.00 | 4.0 | 26.98 |
| 520 | 260.00 | 500.00 | 4.0 | 26.19 |
| 521 | 260.00 | 520.00 | 4.0 | 25.33 |
| 522 | 260.00 | 540.00 | 4.0 | 24.59 |
| 523 | 260.00 | 560.00 | 4.0 | 24.15 |
| 524 | 260.00 | 580.00 | 4.0 | 23.50 |

|     |        |        |     |       |
|-----|--------|--------|-----|-------|
| 525 | 260.00 | 600.00 | 4.0 | 23.22 |
| 526 | 260.00 | 620.00 | 4.0 | 22.76 |
| 527 | 260.00 | 640.00 | 4.0 | 22.26 |
| 528 | 260.00 | 660.00 | 4.0 | 21.76 |
| 529 | 260.00 | 680.00 | 4.0 | 21.29 |
| 530 | 260.00 | 700.00 | 4.0 | 20.84 |
| 531 | 260.00 | 720.00 | 4.0 | 20.40 |
| 532 | 260.00 | 740.00 | 4.0 | 19.99 |
| 533 | 280.00 | 0.00   | 4.0 | 23.38 |
| 534 | 280.00 | 20.00  | 4.0 | 24.18 |
| 535 | 280.00 | 40.00  | 4.0 | 25.05 |
| 536 | 280.00 | 60.00  | 4.0 | 26.00 |
| 537 | 280.00 | 80.00  | 4.0 | 27.08 |
| 538 | 280.00 | 100.00 | 4.0 | 28.12 |
| 539 | 280.00 | 120.00 | 4.0 | 29.21 |
| 540 | 280.00 | 140.00 | 4.0 | 30.15 |
| 541 | 280.00 | 160.00 | 4.0 | 31.85 |
| 542 | 280.00 | 180.00 | 4.0 | 31.63 |
| 543 | 280.00 | 200.00 | 4.0 | 30.06 |
| 544 | 280.00 | 220.00 | 4.0 | 29.87 |
| 545 | 280.00 | 240.00 | 4.0 | 29.70 |
| 546 | 280.00 | 260.00 | 4.0 | 29.83 |
| 547 | 280.00 | 280.00 | 4.0 | 30.20 |
| 548 | 280.00 | 300.00 | 4.0 | 30.57 |
| 549 | 280.00 | 320.00 | 4.0 | 30.68 |
| 550 | 280.00 | 340.00 | 4.0 | 30.96 |
| 551 | 280.00 | 360.00 | 4.0 | 31.27 |
| 552 | 280.00 | 380.00 | 4.0 | 31.76 |
| 553 | 280.00 | 400.00 | 4.0 | 31.16 |
| 554 | 280.00 | 420.00 | 4.0 | 30.48 |
| 555 | 280.00 | 440.00 | 4.0 | 28.20 |
| 556 | 280.00 | 460.00 | 4.0 | 27.17 |
| 557 | 280.00 | 480.00 | 4.0 | 26.50 |
| 558 | 280.00 | 500.00 | 4.0 | 25.69 |
| 559 | 280.00 | 520.00 | 4.0 | 25.09 |
| 560 | 280.00 | 540.00 | 4.0 | 24.30 |
| 561 | 280.00 | 560.00 | 4.0 | 23.69 |
| 562 | 280.00 | 580.00 | 4.0 | 23.28 |
| 563 | 280.00 | 600.00 | 4.0 | 22.59 |
| 564 | 280.00 | 620.00 | 4.0 | 22.08 |
| 565 | 280.00 | 640.00 | 4.0 | 21.94 |
| 566 | 280.00 | 660.00 | 4.0 | 21.52 |
| 567 | 280.00 | 680.00 | 4.0 | 21.06 |
| 568 | 280.00 | 700.00 | 4.0 | 20.62 |
| 569 | 280.00 | 720.00 | 4.0 | 20.20 |
| 570 | 280.00 | 740.00 | 4.0 | 19.79 |
| 571 | 300.00 | 0.00   | 4.0 | 23.02 |
| 572 | 300.00 | 20.00  | 4.0 | 23.86 |
| 573 | 300.00 | 40.00  | 4.0 | 24.62 |
| 574 | 300.00 | 60.00  | 4.0 | 25.45 |
| 575 | 300.00 | 80.00  | 4.0 | 26.21 |
| 576 | 300.00 | 100.00 | 4.0 | 27.11 |
| 577 | 300.00 | 120.00 | 4.0 | 27.93 |
| 578 | 300.00 | 140.00 | 4.0 | 28.54 |
| 579 | 300.00 | 160.00 | 4.0 | 30.08 |
| 580 | 300.00 | 180.00 | 4.0 | 30.07 |
| 581 | 300.00 | 200.00 | 4.0 | 29.99 |
| 582 | 300.00 | 220.00 | 4.0 | 28.87 |
| 583 | 300.00 | 240.00 | 4.0 | 28.89 |
| 584 | 300.00 | 260.00 | 4.0 | 29.02 |
| 585 | 300.00 | 280.00 | 4.0 | 29.35 |
| 586 | 300.00 | 300.00 | 4.0 | 29.65 |
| 587 | 300.00 | 320.00 | 4.0 | 29.66 |
| 588 | 300.00 | 340.00 | 4.0 | 29.79 |
| 589 | 300.00 | 360.00 | 4.0 | 29.94 |
| 590 | 300.00 | 380.00 | 4.0 | 30.34 |
| 591 | 300.00 | 400.00 | 4.0 | 29.63 |
| 592 | 300.00 | 420.00 | 4.0 | 29.07 |
| 593 | 300.00 | 440.00 | 4.0 | 27.12 |
| 594 | 300.00 | 460.00 | 4.0 | 26.34 |
| 595 | 300.00 | 480.00 | 4.0 | 25.63 |
| 596 | 300.00 | 500.00 | 4.0 | 25.16 |
| 597 | 300.00 | 520.00 | 4.0 | 24.44 |
| 598 | 300.00 | 540.00 | 4.0 | 23.98 |
| 599 | 300.00 | 560.00 | 4.0 | 23.42 |
| 600 | 300.00 | 580.00 | 4.0 | 22.88 |
| 601 | 300.00 | 600.00 | 4.0 | 22.50 |
| 602 | 300.00 | 620.00 | 4.0 | 21.99 |
| 603 | 300.00 | 640.00 | 4.0 | 21.57 |
| 604 | 300.00 | 660.00 | 4.0 | 21.10 |
| 605 | 300.00 | 680.00 | 4.0 | 20.97 |
| 606 | 300.00 | 700.00 | 4.0 | 20.55 |
| 607 | 300.00 | 720.00 | 4.0 | 20.02 |
| 608 | 300.00 | 740.00 | 4.0 | 19.63 |
| 609 | 320.00 | 0.00   | 4.0 | 22.59 |
| 610 | 320.00 | 20.00  | 4.0 | 23.26 |
| 611 | 320.00 | 40.00  | 4.0 | 24.04 |
| 612 | 320.00 | 60.00  | 4.0 | 24.80 |
| 613 | 320.00 | 80.00  | 4.0 | 25.62 |
| 614 | 320.00 | 100.00 | 4.0 | 26.27 |
| 615 | 320.00 | 120.00 | 4.0 | 26.86 |
| 616 | 320.00 | 140.00 | 4.0 | 27.42 |
| 617 | 320.00 | 160.00 | 4.0 | 28.78 |
| 618 | 320.00 | 180.00 | 4.0 | 28.86 |
| 619 | 320.00 | 200.00 | 4.0 | 28.87 |
| 620 | 320.00 | 220.00 | 4.0 | 27.98 |
| 621 | 320.00 | 240.00 | 4.0 | 28.08 |
| 622 | 320.00 | 260.00 | 4.0 | 28.23 |
| 623 | 320.00 | 280.00 | 4.0 | 28.46 |
| 624 | 320.00 | 300.00 | 4.0 | 28.78 |
| 625 | 320.00 | 320.00 | 4.0 | 28.72 |
| 626 | 320.00 | 340.00 | 4.0 | 28.77 |
| 627 | 320.00 | 360.00 | 4.0 | 28.82 |
| 628 | 320.00 | 380.00 | 4.0 | 29.40 |
| 629 | 320.00 | 400.00 | 4.0 | 28.52 |
| 630 | 320.00 | 420.00 | 4.0 | 27.93 |
| 631 | 320.00 | 440.00 | 4.0 | 26.17 |



|     |        |        |     |       |
|-----|--------|--------|-----|-------|
| 632 | 320.00 | 460.00 | 4.0 | 25.50 |
| 633 | 320.00 | 480.00 | 4.0 | 24.87 |
| 634 | 320.00 | 500.00 | 4.0 | 24.31 |
| 635 | 320.00 | 520.00 | 4.0 | 23.96 |
| 636 | 320.00 | 540.00 | 4.0 | 23.44 |
| 637 | 320.00 | 560.00 | 4.0 | 23.10 |
| 638 | 320.00 | 580.00 | 4.0 | 22.51 |
| 639 | 320.00 | 600.00 | 4.0 | 22.02 |
| 640 | 320.00 | 620.00 | 4.0 | 21.71 |
| 641 | 320.00 | 640.00 | 4.0 | 21.28 |
| 642 | 320.00 | 660.00 | 4.0 | 20.86 |
| 643 | 320.00 | 680.00 | 4.0 | 20.52 |
| 644 | 320.00 | 700.00 | 4.0 | 20.14 |
| 645 | 320.00 | 720.00 | 4.0 | 20.03 |
| 646 | 320.00 | 740.00 | 4.0 | 19.66 |
| 647 | 340.00 | 0.00   | 4.0 | 22.32 |
| 648 | 340.00 | 20.00  | 4.0 | 22.99 |
| 649 | 340.00 | 40.00  | 4.0 | 23.62 |
| 650 | 340.00 | 60.00  | 4.0 | 24.35 |
| 651 | 340.00 | 80.00  | 4.0 | 24.91 |
| 652 | 340.00 | 100.00 | 4.0 | 25.45 |
| 653 | 340.00 | 120.00 | 4.0 | 26.00 |
| 654 | 340.00 | 140.00 | 4.0 | 26.48 |
| 655 | 340.00 | 160.00 | 4.0 | 27.71 |
| 656 | 340.00 | 180.00 | 4.0 | 27.82 |
| 657 | 340.00 | 200.00 | 4.0 | 27.89 |
| 658 | 340.00 | 220.00 | 4.0 | 27.22 |
| 659 | 340.00 | 240.00 | 4.0 | 27.31 |
| 660 | 340.00 | 260.00 | 4.0 | 27.47 |
| 661 | 340.00 | 280.00 | 4.0 | 27.68 |
| 662 | 340.00 | 300.00 | 4.0 | 27.96 |
| 663 | 340.00 | 320.00 | 4.0 | 27.86 |
| 664 | 340.00 | 340.00 | 4.0 | 27.86 |
| 665 | 340.00 | 360.00 | 4.0 | 27.86 |
| 666 | 340.00 | 380.00 | 4.0 | 28.42 |
| 667 | 340.00 | 400.00 | 4.0 | 27.57 |
| 668 | 340.00 | 420.00 | 4.0 | 26.95 |
| 669 | 340.00 | 440.00 | 4.0 | 25.45 |
| 670 | 340.00 | 460.00 | 4.0 | 24.77 |
| 671 | 340.00 | 480.00 | 4.0 | 24.18 |
| 672 | 340.00 | 500.00 | 4.0 | 23.67 |
| 673 | 340.00 | 520.00 | 4.0 | 23.42 |
| 674 | 340.00 | 540.00 | 4.0 | 22.93 |
| 675 | 340.00 | 560.00 | 4.0 | 22.50 |
| 676 | 340.00 | 580.00 | 4.0 | 22.20 |
| 677 | 340.00 | 600.00 | 4.0 | 21.77 |
| 678 | 340.00 | 620.00 | 4.0 | 21.34 |
| 679 | 340.00 | 640.00 | 4.0 | 21.01 |
| 680 | 340.00 | 660.00 | 4.0 | 20.57 |
| 681 | 340.00 | 680.00 | 4.0 | 20.17 |
| 682 | 340.00 | 700.00 | 4.0 | 19.80 |
| 683 | 340.00 | 720.00 | 4.0 | 19.53 |
| 684 | 340.00 | 740.00 | 4.0 | 19.27 |

Tłumienie przez grunt wg wzoru 9 PN-ISO 9613  
koniec obliczeń