

| SPAN  |       | HGHT |             | REINFORCING STEEL |             |             |             |             |             |       |          |              |              |                                  | QUAN./LF                  |                            | HEADWALLS       |          |            |              |              |                            |                               | WINGWALL |                             |                                |
|-------|-------|------|-------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------|----------|--------------|--------------|----------------------------------|---------------------------|----------------------------|-----------------|----------|------------|--------------|--------------|----------------------------|-------------------------------|----------|-----------------------------|--------------------------------|
| (FT.) | (FT.) | SIZE | SPACING C-C | a                 | b           | c           | d           | e           | f           | g     | LENGTH   | NO. BL1 BARS | NO. BL2 BARS | REINFORCING STEEL (LBS/LONG. JT) | CONCRETE CLASS A4 (CY/LF) | REINFORCING STEEL (LBS/LF) | HEADWALL LENGTH | HW1 SIZE | HW1 LENGTH | NO. HW2 BARS | NO. HW3 BARS | INLET CONCRETE CL. A4 (CY) | INLET REINFORCING STEEL (LBS) |          | OUTLET CONCRETE CL. A4 (CY) | OUTLET REINFORCING STEEL (LBS) |
| 3     | 3     | 4    | 12"         | 2'- 8 7/8"        | 0'- 4 1/2"  | 1'- 6 5/8"  | 0'- 5 7/8"  | 0'- 3 3/4"  | 7'- 7 7/8"  | ----- | 7'- 11"  | 32           | 12           | 30.956                           | 0.695                     | 79.439                     | 9'- 6"          | 6        | 9'- 2"     | 1            | 4            | 1.433                      | 67.988                        | 1.425    | 55.073                      | A                              |
| 3     | 4     | 4    | 12"         | 2'- 8 7/8"        | 0'- 4 1/2"  | 1'- 6 5/8"  | 0'- 5 7/8"  | 0'- 3 3/4"  | 7'- 7 7/8"  | ----- | 7'- 11"  | 32           | 18           | 33.074                           | 0.768                     | 85.703                     | 9'- 6"          | 6        | 9'- 2"     | 1            | 5            | 1.531                      | 71.439                        | 1.517    | 55.073                      | C                              |
| 4     | 3     | 4    | 12"         | 3'- 6 1/4"        | 0'- 5"      | 1'- 11"     | 0'- 6 1/2"  | 0'- 4 1/4"  | 9'- 8"      | ----- | 9'- 11"  | 40           | 12           | 37.636                           | 0.823                     | 93.133                     | 11'- 6"         | 6        | 11'- 2"    | 1            | 4            | 1.629                      | 80.004                        | 1.628    | 67.089                      | A                              |
| 4     | 4     | 4    | 12"         | 3'- 6 1/4"        | 0'- 5"      | 1'- 11"     | 0'- 6 1/2"  | 0'- 4 1/4"  | 9'- 8"      | ----- | 9'- 11"  | 40           | 18           | 39.754                           | 0.897                     | 99.397                     | 11'- 6"         | 6        | 11'- 2"    | 1            | 5            | 1.728                      | 83.455                        | 1.721    | 67.089                      | C                              |
| 4     | 5     | 4    | 12"         | 3'- 6 1/8"        | 0'- 5 1/4"  | 1'- 10 3/4" | 0'- 6 7/8"  | 0'- 4 1/2"  | 9'- 8"      | ----- | 10'- 0"  | 40           | 24           | 41.872                           | 0.986                     | 105.995                    | 11'- 6"         | 6        | 11'- 2"    | 1            | 6            | 1.824                      | 86.907                        | 1.811    | 67.089                      | E                              |
| 4     | 6     | 4    | 12"         | 3'- 6 1/8"        | 0'- 5 1/4"  | 1'- 10 3/4" | 0'- 6 7/8"  | 0'- 4 1/2"  | 9'- 8"      | ----- | 10'- 0"  | 40           | 30           | 43.990                           | 1.059                     | 112.259                    | 11'- 6"         | 6        | 11'- 2"    | 1            | 7            | 1.923                      | 90.358                        | 1.903    | 67.089                      | G                              |
| 5     | 3     | 4    | 12"         | 4'- 3"            | 0'- 6 3/4"  | 2'- 2"      | 0'- 9"      | 0'- 6"      | 11'- 8"     | ----- | 12'- 1"  | 48           | 12           | 44.316                           | 1.057                     | 107.941                    | 13'- 6"         | 6        | 13'- 2"    | 1            | 4            | 1.816                      | 92.020                        | 1.822    | 79.105                      | B                              |
| 5     | 4     | 4    | 12"         | 4'- 3"            | 0'- 6 3/4"  | 2'- 2"      | 0'- 9"      | 0'- 6"      | 11'- 8"     | ----- | 12'- 1"  | 48           | 18           | 46.434                           | 1.130                     | 114.205                    | 13'- 6"         | 6        | 13'- 2"    | 1            | 5            | 1.915                      | 95.471                        | 1.915    | 79.105                      | D                              |
| 5     | 5     | 4    | 12"         | 4'- 3"            | 0'- 6 3/4"  | 2'- 2"      | 0'- 9"      | 0'- 6"      | 11'- 8"     | ----- | 12'- 1"  | 48           | 24           | 48.552                           | 1.204                     | 120.469                    | 13'- 6"         | 6        | 13'- 2"    | 1            | 6            | 2.014                      | 98.923                        | 2.007    | 79.105                      | F                              |
| 5     | 6     | 4    | 12"         | 4'- 3"            | 0'- 6 3/4"  | 2'- 2"      | 0'- 9"      | 0'- 6"      | 11'- 8"     | ----- | 12'- 1"  | 48           | 30           | 50.670                           | 1.277                     | 134.002                    | 13'- 6"         | 6        | 13'- 2"    | 1            | 7            | 2.113                      | 102.374                       | 2.100    | 79.105                      | H                              |
| 5     | 7     | 4    | 12"         | 4'- 3"            | 0'- 6 3/4"  | 2'- 2"      | 0'- 9"      | 0'- 6"      | 11'- 8"     | ----- | 12'- 1"  | 48           | 36           | 52.788                           | 1.350                     | 145.689                    | 13'- 6"         | 6        | 13'- 2"    | 1            | 8            | 2.212                      | 105.825                       | 2.193    | 79.105                      | J                              |
| 6     | 4     | 4    | 11"         | 4'- 11 5/8"       | 0'- 8 3/4"  | 2'- 4 3/4"  | 0'- 11 7/8" | 0'- 8"      | 13'- 8"     | ----- | 14'- 3"  | 56           | 18           | 53.114                           | 1.428                     | 135.328                    | 15'- 6"         | 6        | 15'- 2"    | 1            | 5            | 2.056                      | 107.487                       | 2.062    | 91.121                      | D                              |
| 6     | 5     | 4    | 11"         | 4'- 11 5/8"       | 0'- 8 3/4"  | 2'- 4 3/4"  | 0'- 11 7/8" | 0'- 8"      | 13'- 8"     | ----- | 14'- 3"  | 56           | 24           | 55.232                           | 1.502                     | 141.713                    | 15'- 6"         | 6        | 15'- 2"    | 1            | 6            | 2.155                      | 110.939                       | 2.155    | 91.121                      | F                              |
| 6     | 6     | 4    | 11"         | 4'- 11 3/4"       | 0'- 8 1/2"  | 2'- 5"      | 0'- 11 1/2" | 0'- 7 3/4"  | 13'- 8"     | ----- | 14'- 2"  | 56           | 30           | 57.350                           | 1.553                     | 156.232                    | 15'- 6"         | 6        | 15'- 2"    | 1            | 7            | 2.260                      | 114.390                       | 2.254    | 91.121                      | H                              |
| 6     | 7     | 4    | 10"         | 4'- 11 3/4"       | 0'- 8 1/2"  | 2'- 5"      | 0'- 11 1/2" | 0'- 7 3/4"  | 13'- 8"     | ----- | 14'- 2"  | 56           | 36           | 59.468                           | 1.626                     | 171.469                    | 15'- 6"         | 6        | 15'- 2"    | 1            | 8            | 2.359                      | 117.841                       | 2.347    | 91.121                      | J                              |
| 6     | 8     | 4    | 10"         | 4'- 11 3/4"       | 0'- 8 1/2"  | 2'- 5"      | 0'- 11 1/2" | 0'- 7 3/4"  | 13'- 8"     | ----- | 14'- 2"  | 56           | 42           | 61.586                           | 1.699                     | 188.965                    | 15'- 6"         | 6        | 15'- 2"    | 1            | 9            | 2.458                      | 121.293                       | 2.439    | 91.121                      | L                              |
| 7     | 4     | 4    | 9"          | 5'- 8 1/2"        | 0'- 10 1/4" | 2'- 8 1/8"  | 1'- 2"      | 0'- 9 1/2"  | 15'- 8 1/8" | ----- | 16'- 4"  | 64           | 18           | 59.794                           | 1.724                     | 183.296                    | 17'- 6"         | 6        | 17'- 2"    | 1            | 5            | 2.188                      | 119.503                       | 2.200    | 103.137                     | D                              |
| 7     | 6     | 4    | 9"          | 5'- 8 1/2"        | 0'- 10 1/4" | 2'- 8 1/8"  | 1'- 2"      | 0'- 9 1/2"  | 15'- 8 1/8" | ----- | 16'- 4"  | 64           | 30           | 64.030                           | 1.871                     | 196.715                    | 17'- 6"         | 6        | 17'- 2"    | 1            | 7            | 2.386                      | 126.406                       | 2.386    | 103.137                     | H                              |
| 7     | 8     | 4    | 9"          | 5'- 8 1/2"        | 0'- 10 1/4" | 2'- 8 1/8"  | 1'- 2"      | 0'- 9 1/2"  | 15'- 8 1/8" | ----- | 16'- 4"  | 64           | 42           | 68.266                           | 2.017                     | 226.831                    | 17'- 6"         | 6        | 17'- 2"    | 1            | 9            | 2.584                      | 133.309                       | 2.571    | 103.137                     | L                              |
| 7     | 10    | 4    | 9"          | 5'- 8 1/2"        | 0'- 10 1/4" | 2'- 8 1/8"  | 1'- 2"      | 0'- 9 1/2"  | 15'- 8 1/8" | ----- | 16'- 4"  | 64           | 54           | 72.502                           | 2.161                     | 275.694                    | 17'- 6"         | 6        | 17'- 2"    | 1            | 11           | 2.781                      | 140.211                       | 2.757    | 103.137                     | P                              |
| 8     | 4     | 4    | 8"          | 6'- 5 1/8"        | 1'- 0"      | 2'- 11 1/8" | 1'- 4/2"    | 0'- 11 1/4" | 17'- 7 7/8" | ----- | 18'- 5"  | 72           | 18           | 66.474                           | 2.085                     | 219.095                    | 19'- 6"         | 6        | 19'- 2"    | 1            | 5            | 2.310                      | 131.519                       | 2.329    | 115.153                     | E                              |
| 8     | 6     | 4    | 8"          | 6'- 5 1/8"        | 1'- 0"      | 2'- 11 1/8" | 1'- 4/2"    | 0'- 11 1/4" | 17'- 7 7/8" | ----- | 18'- 5"  | 72           | 30           | 70.710                           | 2.232                     | 232.958                    | 19'- 6"         | 6        | 19'- 2"    | 1            | 7            | 2.508                      | 138.422                       | 2.515    | 115.153                     | I                              |
| 8     | 8     | 4    | 8"          | 6'- 5 1/8"        | 1'- 0"      | 2'- 11 1/8" | 1'- 4/2"    | 0'- 11 1/4" | 17'- 7 7/8" | ----- | 18'- 5"  | 72           | 42           | 74.946                           | 2.378                     | 265.997                    | 19'- 6"         | 6        | 19'- 2"    | 1            | 9            | 2.706                      | 145.325                       | 2.700    | 115.153                     | M                              |
| 8     | 10    | 4    | 8"          | 6'- 5 1/8"        | 1'- 0"      | 2'- 11 1/8" | 1'- 4/2"    | 0'- 11 1/4" | 17'- 7 7/8" | ----- | 18'- 5"  | 72           | 54           | 79.182                           | 2.522                     | 318.363                    | 19'- 6"         | 6        | 19'- 2"    | 1            | 11           | 2.904                      | 152.227                       | 2.886    | 115.153                     | Q                              |
| 9     | 4     | 5    | 9"          | 7'- 1 7/8"        | 1'- 1 7/8"  | 3'- 2 1/4"  | 1'- 7"      | 1'- 1"      | 19'- 8"     | ----- | 20'- 7"  | 80           | 18           | 73.154                           | 2.488                     | 283.677                    | 21'- 6"         | 6        | 21'- 2"    | 1            | 5            | 2.393                      | 143.535                       | 2.418    | 127.169                     | E                              |
| 9     | 6     | 5    | 9"          | 7'- 1 7/8"        | 1'- 1 7/8"  | 3'- 2 1/4"  | 1'- 7"      | 1'- 1"      | 19'- 8"     | ----- | 20'- 7"  | 80           | 30           | 77.390                           | 2.635                     | 297.339                    | 21'- 6"         | 6        | 21'- 2"    | 1            | 7            | 2.590                      | 150.438                       | 2.604    | 127.169                     | I                              |
| 9     | 8     | 5    | 9"          | 7'- 1 3/4"        | 1'- 2 1/8"  | 3'- 2"      | 1'- 7 3/8"  | 1'- 1 1/4"  | 19'- 8"     | ----- | 20'- 7"  | 80           | 42           | 81.626                           | 2.811                     | 331.170                    | 21'- 6"         | 6        | 21'- 2"    | 1            | 9            | 2.778                      | 157.341                       | 2.779    | 127.169                     | M                              |
| 9     | 10    | 5    | 9"          | 7'- 1 3/4"        | 1'- 2 1/8"  | 3'- 2"      | 1'- 7 3/8"  | 1'- 1 1/4"  | 19'- 8"     | ----- | 20'- 7"  | 80           | 54           | 85.862                           | 2.956                     | 372.645                    | 21'- 6"         | 6        | 21'- 2"    | 1            | 11           | 2.976                      | 164.243                       | 2.964    | 127.169                     | Q                              |
| 9     | 12    | 5    | 9"          | 7'- 2 1/4"        | 1'- 2 1/8"  | 3'- 2"      | 1'- 7 3/8"  | 1'- 1 1/4"  | 19'- 9"     | ----- | 20'- 8"  | 80           | 66           | 90.098                           | 3.145                     | 447.204                    | 21'- 6"         | 6        | 21'- 2"    | 1            | 13           | 3.128                      | 171.146                       | 3.104    | 127.169                     | U                              |
| 10    | 4     | 5    | 8"          | 7'- 10 3/8"       | 1'- 3 1/8"  | 3'- 5 3/4"  | 1'- 8 3/4"  | 1'- 2 1/4"  | 21'- 8"     | ----- | 22'- 8"  | 88           | 18           | 79.834                           | 2.868                     | 312.906                    | 23'- 6"         | 6        | 23'- 2"    | 1            | 5            | 2.477                      | 155.551                       | 2.510    | 139.185                     | E                              |
| 10    | 6     | 6    | 9"          | 7'- 10 3/8"       | 1'- 3 1/2"  | 3'- 5 1/2"  | 1'- 9 1/4"  | 1'- 2 1/2"  | 21'- 8"     | ----- | 22'- 8"  | 88           | 30           | 84.070                           | 3.048                     | 351.287                    | 23'- 6"         | 6        | 23'- 2"    | 1            | 7            | 2.663                      | 162.454                       | 2.683    | 139.185                     | I                              |
| 10    | 8     | 6    | 9"          | 7'- 10 3/8"       | 1'- 3 1/2"  | 3'- 5 1/2"  | 1'- 9 1/4"  | 1'- 2 1/2"  | 21'- 8"     | ----- | 22'- 8"  | 88           | 42           | 88.306                           | 3.193                     | 384.857                    | 23'- 6"         | 6        | 23'- 2"    | 1            | 9            | 2.861                      | 169.357                       | 2.869    | 139.185                     | M                              |
| 10    | 10    | 6    | 9"          | 7'- 10 5/8"       | 1'- 3 3/4"  | 3'- 5 1/4"  | 1'- 9 5/8"  | 1'- 2 3/4"  | 21'- 8"     | ----- | 22'- 8"  | 88           | 54           | 92.542                           | 3.371                     | 439.031                    | 23'- 6"         | 6        | 23'- 2"    | 1            | 11           | 3.047                      | 176.259                       | 3.042    | 139.185                     | Q                              |
| 10    | 12    | 6    | 9"          | 7'- 11"           | 1'- 4"      | 3'- 5"      | 1'- 9 7/8"  | 1'- 3"      | 21'- 9"     | ----- | 22'- 9"  | 88           | 66           | 96.778                           | 3.595                     | 507.054                    | 23'- 6"         | 6        | 23'- 2"    | 1            | 13           | 3.186                      | 183.162                       | 3.168    | 139.185                     | U                              |
| 12    | 6     | 7    | 9"          | 9'- 4 1/4"        | 1'- 7 1/8"  | 3'- 11 3/4" | 2'- 2 1/8"  | 1'- 5 7/8"  | 25'- 8"     | ----- | 26'- 11" | 104          | 30           | 97.430                           | 4.060                     | 508.772                    | 27'- 6"         | 6        | 27'- 2"    | 1            | 7            | 2.741                      | 186.486                       | 2.775    | 163.217                     | J                              |
| 12    | 8     | 7    | 9"          | 9'- 4 1/4"        | 1'- 7 1/8"  | 3'- 11 3/4" | 2'- 2 1/8"  | 1'- 5 7/8"  | 25'- 8"     | ----- | 26'- 11" | 104          | 42           | 101.666                          | 4.206                     | 545.503                    | 27'- 6"         | 6        | 27'- 2"    | 1            | 9            | 2.939                      | 193.389                       | 2.960    | 163.217                     | N                              |
| 12    | 10    | 7    | 9"          | 9'- 4 1/4"        | 1'- 7 1/8"  | 3'- 11 3/4" | 2'- 2 1/8"  | 1'- 5 7/8"  | 25'- 8"     | ----- | 26'- 11" | 104          | 54           | 105.902                          | 4.350                     | 600.110                    | 27'- 6"         | 6        | 27'- 2"    | 1            | 11           | 3.137                      | 200.291                       | 3.145    | 163.217                     | R                              |
| 12    | 12    | 7    | 9"          | 9'- 4 5/8"        | 1'- 7 3/8"  | 3'- 11 1/2" | 2'- 2 1/2"  | 1'- 6 1/8"  | 25'- 9"     | ----- | 27'- 0"  | 104          | 66           | 110.138                          | 4.581                     | 673.249                    | 27'- 6"         | 6        | 27'- 2"    | 1            | 13           | 3.271                      | 207.194                       | 3.267    | 163.217                     | V                              |

SPECIFICATION REFERENCE

**DOUBLE BOX CULVERTS**  
 25 TO 30 FT. FILLS  
 VIRGINIA DEPARTMENT OF TRANSPORTATION

**VDOT**  
 ROAD AND BRIDGE STANDARDS

|               |              |
|---------------|--------------|
| REVISION DATE | SHEET 2 OF 2 |
| 1003.17       |              |