## STEEL ROUND PIPE
## 2 2/3″ x ½″ CORRUGATIONS

| DIAMETER OF PIPE 'D' Inches | MINIMUM COVER ABOVE PIPE ① Inches | ( H ) MAXIMUM ALLOWABLE COVER IN FEET | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 16 GAGE ( 0.064″ ) | | 14 GAGE ( 0.079″ ) | | 12 GAGE ( 0.109″ ) | | 10 GAGE ( 0.138″ ) | | 8 GAGE ( 0.168″ ) | |
| | | Round | Elongated | Round | Elongated | Round | Elongated | Round | Elongated | Round | Elongated |
| 12 | 12 | 70 | - | 76 | - | - | - | - | - | - | - |
| 15 | 12 | 56 | - | 61 | - | - | - | - | - | - | - |
| 18 | 12 | 40 | - | 48 | - | 64 | - | - | - | - | - |
| 24 | 12 | 23 | - | 26 | - | 33 | - | - | - | - | - |
| 30 | 12 | - | - | 18 | 30 | 22 | 43 | 25 | 51 | - | - |
| 36 | 12 | - | - | 15 | 25 | 17 | 33 | 19 | 38 | - | - |
| 42 | 12 | - | - | - | - | 14 | 28 | 16 | 31 | 17 | 34 |
| 48 | 12 | - | - | - | - | 13 | 25 | 14 | 27 | 15 | 29 |
| 54 | 18 | - | - | - | - | 12 | 24 | 13 | 25 | 13 | 26 |
| 60 | 18 | - | - | - | - | - | - | 12 | 23 | 12 | 25 |
| 66 | 18 | - | - | - | - | - | - | 11 | 22 | 12 | 23 |
| 72 | 18 | - | - | - | - | - | - | 11 | 17 | 11 | 21 |
| 78 | 24 | - | - | - | - | - | - | - | - | 11 | 17 |
| 84 | 24 | - | - | - | - | - | - | - | - | 11 | 13 |

## STEEL ROUND PIPE
## 3″ X 1″ and 5″ X 1″ CORRUGATIONS

| DIAMETER OF PIPE 'D' Inches | MINIMUM COVER ABOVE PIPE ① Inches | ( H ) MAXIMUM ALLOWABLE COVER IN FEET | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 16 GAGE ( 0.064″ ) | | 14 GAGE ( 0.079″ ) | | 12 GAGE ( 0.109″ ) | | 10 GAGE ( 0.138″ ) | | 8 GAGE ( 0.168″ ) | |
| | | Round | Elongated | Round | Elongated | Round | Elongated | Round | Elongated | Round | Elongated |
| 36 | 12 | 27 | 40 | 31 | 50 | 40 | 74 | - | - | - | - |
| 42 | 12 | 21 | 34 | 23 | 42 | 29 | 58 | - | - | - | - |
| 48 | 12 | 17 | 30 | 19 | 37 | 23 | 46 | - | - | - | - |
| 54 | 12 | 15 | 27 | 16 | 32 | 19 | 38 | - | - | - | - |
| 60 | 12 | 13 | 24 | 15 | 29 | 16 | 33 | - | - | - | - |
| 66 | 12 | 13 | 22 | 13 | 27 | 15 | 30 | - | - | - | - |
| 72 | 12 | 12 | 20 | 12 | 25 | 14 | 27 | - | - | - | - |
| 78 | 12 | 12 | 18 | 12 | 23 | 13 | 26 | - | - | - | - |
| 84 | 12 | - | - | 12 | 21 | 12 | 24 | 13 | 26 | - | - |
| 90 | 12 | - | - | - | - | 12 | 24 | 12 | 35 | 13 | 26 |
| 96 | 12 | - | - | - | - | 11 | 23 | 12 | 24 | 12 | 25 |
| 102 | 24 | - | - | - | - | - | - | 12 | 23 | 12 | 24 |
| 108 | 24 | - | - | - | - | - | - | - | - | 12 | 23 |
| 114 | 24 | - | - | - | - | - | - | - | - | 11 | 23 |
| 120 | 24 | - | - | - | - | - | - | - | - | 11 | 20 |

## STRUCTURAL STEEL ROUND PIPE
## 6″ X 2″ CORRUGATIONS

| DIAMETER OF PIPE 'D' Inches | MINIMUM COVER ABOVE PIPE ① Inches | (H) MAXIMUM ALLOWABLE COVER IN FEET | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 12 GAGE ( 0.109″ ) | | 10 GAGE ( 0.138″ ) | | 8 GAGE ( 0.168″ ) | | 7 GAGE ( 0.187″ ) | | 5 GAGE ( 0.218″ ) | | 3 GAGE ( 0.250″ ) | | 1 GAGE ( 0.281″ ) | |
| | | Round | Elongated | Round | Elongated | Round | Elongated | Round | Elongated | Round | Elongated | Round | Elongated | Round | Elongated |
| 60 | 12 | 35 | 35 | 43 | 52 | 51 | 67 | - | - | - | - | - | - | - | - |
| 66 | 12 | 29 | 32 | 35 | 45 | 41 | 61 | - | - | - | - | - | - | - | - |
| 72 | 12 | 25 | 29 | 29 | 43 | 34 | 56 | - | - | - | - | - | - | - | - |
| 78 | 12 | 22 | 27 | 25 | 40 | 29 | 52 | 31 | 60 | - | - | - | - | - | - |
| 84 | 12 | 19 | 25 | 22 | 37 | 25 | 48 | 27 | 53 | - | - | - | - | - | - |
| 90 | 12 | 18 | 23 | 20 | 34 | 22 | 44 | 23 | 47 | - | - | - | - | - | - |
| 96 | 12 | 16 | 22 | 18 | 32 | 20 | 40 | 21 | 42 | - | - | - | - | - | - |
| 102 | 24 | 15 | 21 | 17 | 30 | 18 | 36 | 19 | 38 | - | - | - | - | - | - |
| 108 | 24 | 14 | 19 | 16 | 29 | 17 | 34 | 18 | 36 | - | - | - | - | - | - |
| 114 | 24 | 14 | 18 | 15 | 27 | 16 | 32 | 17 | 33 | 18 | 36 | - | - | - | - |
| 120 | 24 | 13 | 18 | 14 | 26 | 15 | 30 | 16 | 31 | 17 | 33 | - | - | - | - |
| 126 | 24 | 13 | - | 13 | 25 | 14 | 29 | 15 | 30 | 16 | 31 | - | - | - | - |
| 132 | 24 | 12 | - | 13 | 24 | 14 | 27 | 14 | 28 | 15 | 30 | - | - | - | - |
| 138 | 24 | 12 | - | 13 | 23 | 13 | 26 | 14 | 27 | 14 | 29 | - | - | - | - |
| 144 | 24 | 12 | - | 12 | 22 | 13 | 26 | 13 | 26 | 14 | 27 | - | - | - | - |
| 150 | 24 | 12 | - | 12 | 21 | 12 | 25 | 13 | 26 | 13 | 27 | 14 | 28 | - | - |
| 156 | 24 | 11 | - | 12 | 20 | 12 | 24 | 12 | 25 | 13 | 26 | 13 | 27 | - | - |
| 162 | 24 | 11 | - | 12 | 19 | 12 | 24 | 12 | 24 | 13 | 25 | 13 | 26 | 13 | 27 |
| 168 | 24 | 11 | - | 11 | 19 | 12 | 23 | 12 | 24 | 12 | 25 | 13 | 25 | 13 | 26 |
| 174 | 24 | 11 | - | 11 | 18 | 12 | 23 | 12 | 23 | 12 | 24 | 12 | 25 | 13 | 25 |
| 180 | 24 | 11 | - | 11 | 17 | 11 | 23 | 11 | 23 | 12 | 24 | 12 | 24 | 12 | 25 |

Unless specified otherwise, the Contractor may choose the type of corrugated pipe and installation to furnish as long as the selection conforms to the limits indicated for the type specified.

When polyethylene pipe is used, Class "A" Bedding is required. Maximum allowable cover for all sizes and installations of polyethylene pipe is 15 feet.

Depth of cover values were determined in accordance with "AASHTO Standard Specifications for Highway Bridges," Section 12, with the following assumptions:

Iowa DOT Class "A" bedding conditions
Density of soil, W = 120 pcf
Soil stiffness factor, k = 0.55

① Minimum cover for roadway culverts is 24 inches. Minimum cover for entrance culverts is 12 inches.

Iowa Department of Transportation

REVISION
8 | 10-16-07

# STANDARD ROAD PLAN

RF-32

SHEET 1 of 2

REVISIONS: Combined with RF-33. Added entry to structural steel round pipe table.

Deanna Maifield
APPROVED BY DESIGN METHODS ENGINEER

## DEPTH OF COVER TABLES FOR CORRUGATED PIPE

| STEEL ARCH PIPE 2 2/3" X 1/2" CORRUGATIONS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SPAN Inches | RISE Inches | $R_c$ ② Inches | MINIMUM COVER ABOVE PIPE ① Inches | (H) MAXIMUM ALLOWABLE COVER IN FEET | | | | |
| | | | | 16 GA. ( 0.064" ) | 14 GA. ( 0.079" ) | 12 GA. ( 0.109" ) | 10 GA. ( 0.138" ) | 8 GA. ( 0.168" ) |
| 17 | 13 | 3.5 | 18 | 6 | 6 | - | - | - |
| 21 | 15 | 4.125 | 18 | 6 | 6 | - | - | - |
| 24 | 18 | 4.875 | 18 | 5 | 5 | - | - | - |
| 28 | 20 | 5.5 | 18 | 5 | 5 | - | - | - |
| 35 | 24 | 6.875 | 18 | 5 | 5 | - | - | - |
| 42 | 29 | 8.25 | 18 | 4 | 4 | - | - | - |
| 49 | 33 | 9.625 | 18 | - | - | 4 | 4 | 4 |
| 57 | 38 | 11.0 | 18 | - | - | 4 | 4 | 4 |
| 64 | 43 | 12.375 | 18 | - | - | 4 | 4 | 4 |
| 71 | 47 | 13.75 | 18 | - | - | - | 4 | 4 |
| 77 | 52 | 15.125 | 18 | - | - | - | - | 4 |
| 83 | 57 | 16.5 | 18 | - | - | - | - | 4 |

| STEEL ARCH PIPE 3" X 1" CORRUGATIONS | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPAN Inches | RISE Inches | $R_c$ ② Inches | MINIMUM COVER ABOVE PIPE ① Inches | (H) MAX. ALLOWABLE COVER IN FT. | | | |
| | | | | 16 GA. ( 0.064" ) | 14 GA. ( 0.079" ) | 12 GA. ( 0.109" ) | 10 GA. ( 0.138" ) |
| 60 | 46 | 18.75 | 18 | 6 | 6 | - | - |
| 66 | 51 | 20.75 | 18 | 6 | 6 | - | - |
| 73 | 55 | 22.875 | 18 | 8 | 8 | - | - |
| 81 | 59 | 20.875 | 18 | - | 7 | 7 | - |
| 87 | 63 | 22.625 | 18 | - | 7 | 7 | - |
| 95 | 67 | 24.375 | 18 | - | 6 | 6 | - |
| 103 | 71 | 26.125 | 24 | - | - | 6 | - |
| 112 | 75 | 27.75 | 24 | - | - | 5 | - |
| 117 | 79 | 29.5 | 24 | - | - | 5 | - |
| 128 | 83 | 31.25 | 24 | - | - | - | 5 |

| STRUCTURAL STEEL ARCH PIPE 6" X 2" CORRUGATIONS | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPAN Inches | RISE Inches | $R_c$ ② Inches | MINIMUM COVER ABOVE PIPE ① Inches | (H) MAXIMUM ALLOWABLE COVER IN FEET | | | |
| | | | | 12 GA. (0.109") | 10 GA. (0.138") | 8 GA. (0.168") | 7 GA. (0.187") |
| 73 | 55 | 18 | 18 | 8 | - | - | - |
| 84 | 61 | 18 | 18 | 7 | - | - | - |
| 95 | 67 | 18 | 18 | 6 | - | - | - |
| 106 | 73 | 18 | 24 | 6 | - | - | - |
| 117 | 79 | 18 | 24 | 5 | - | - | - |
| 131 | 85 | 18 | 24 | 5 | - | - | - |
| 142 | 91 | 18 | 24 | 4 | - | - | - |
| 154 | 100 | 18 | 24 | 4 | - | - | - |
| 159 | 112 | 31 | 24 | 6 | - | - | - |
| 170 | 118 | 31 | 24 | 6 | - | - | - |
| 184 | 124 | 31 | 24 | - | 6 | - | - |
| 195 | 130 | 31 | 36 | - | 5 | - | - |
| 206 | 136 | 31 | 36 | - | 5 | - | - |
| 217 | 142 | 31 | 36 | - | - | 5 | - |
| 231 | 148 | 31 | 36 | - | - | 4 | - |
| 239 | 154 | 31 | 36 | - | - | 4 | - |
| 247 | 158 | 31 | 36 | - | - | - | 4 |

① Minimum cover for roadway culverts is 24 inches. Minimum cover for entrance culverts is 12 inches.

② Radius of the lower corners of the arch pipe.

Iowa Department of Transportation

**STANDARD ROAD PLAN**

| REVISION | |
|---|---|
| 8 | 10-16-07 |

**RF-32**

SHEET 2 of 2

REVISIONS: Combined with RF-33. Added entry to structural steel round pipe table.

Deanna Maifield
APPROVED BY DESIGN METHODS ENGINEER

**DEPTH OF COVER TABLES FOR CORRUGATED PIPE**