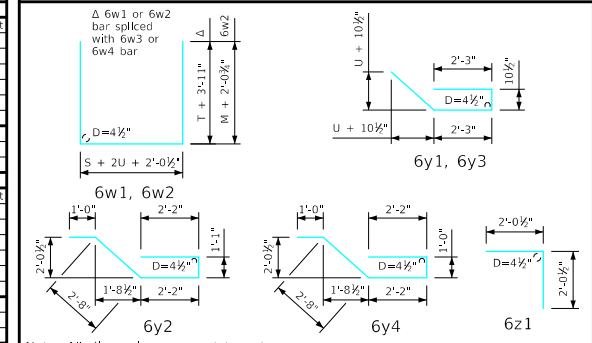


Estimate of Quantities - Flume Bell Joints

| Junction Bell Joint | | 10' x 4' | | 10' x 5' | | 10' x 6' | | 10' x 7' | | 10' x 8' | | 10' x 9' | | 10' x 10' | | 10' x 11' | | 10' x 12' | | | | | | | | | | | |
|---------------------|---------------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|-----------|--------|-----------|--------|-----------|---------|--------|--------|--------|--------|-----|--------|-----|-----|--------|-----|
| | | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | | | | | | | |
| Bar | Location | Shape | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | | | | | | |
| 6w1 | Walls & Floor | | 4 | 23'-7" | 142 | 4 | 23'-7" | 142 | 4 | 23'-7" | 142 | 4 | 23'-9" | 143 | 4 | 23'-9" | 143 | 4 | 23'-11" | 144 | 4 | 24'-1" | 145 | | | | | | |
| 6w3 | Walls Vert. | | 8 | 4'-4" | 52 | 8 | 5'-4" | 64 | 8 | 6'-4" | 76 | 8 | 7'-4" | 88 | 8 | 8'-4" | 100 | 8 | 9'-4" | 112 | 8 | 10'-4" | 124 | 8 | 11'-4" | 136 | 8 | 12'-4" | 148 |
| 6y1 | Walls Horiz. | | 12 | 7'-8" | 138 | 14 | 7'-8" | 161 | 16 | 7'-8" | 184 | 18 | 7'-8" | 207 | 20 | 7'-10" | 235 | 22 | 7'-10" | 259 | 24 | 7'-11" | 282 | 26 | 7'-11" | 309 | 28 | 8'-1" | 340 |
| 6y2 | Floor Vert. | | 12 | 9'-1" | 164 | 12 | 9'-1" | 164 | 12 | 9'-1" | 164 | 12 | 9'-1" | 164 | 12 | 9'-1" | 164 | 12 | 9'-1" | 164 | 12 | 9'-1" | 164 | 12 | 9'-1" | 164 | 12 | 9'-1" | 164 |
| 6z1 | Floor Vert. | | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 |
| Total Weight (LB) | | | | 570 | | 605 | | 640 | | 675 | | 716 | | 752 | | 787 | | 827 | | 871 | | | | | | | | | |
| Concrete (CY) | | Footings | 2.8 | | 2.8 | | 2.8 | | 2.8 | | 2.9 | | 2.9 | | 2.9 | | 2.9 | | 2.9 | | 2.9 | | 2.9 | | 2.9 | | 2.9 | | |
| | | Walls | 1.3 | | 1.6 | | 1.9 | | 2.1 | | 2.4 | | 2.7 | | 3.0 | | 3.3 | | 3.6 | | 3.6 | | 3.6 | | 3.6 | | 3.6 | | |
| Total | | 4.1 | | 4.4 | | 4.7 | | 4.9 | | 5.3 | | 5.6 | | 5.9 | | 6.2 | | 6.5 | | 6.5 | | 6.5 | | 6.5 | | 6.5 | | 6.5 | |

| Chute Bell Joint | | 10' x 4' | | 10' x 5' | | 10' x 6' | | 10' x 7' | | 10' x 8' | | 10' x 9' | | 10' x 10' | | 10' x 11' | | 10' x 12' | | | | | | | | | | | |
|-------------------|---------------|----------|--------|---|--------|----------|---|----------|--------|---|--------|----------|---|-----------|--------|---|--------|-----------|---|--------|--------|------------------------|--------|-----|--------|-----|-----|-------|-----|
| | | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | No. | Length | Weight | | | | | | | |
| Bar | Location | Shape | No. | Length <td>Weight</td> <td>No.</td> <td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td> </td></td></td></td></td></td> | Weight | No. | Length <td>Weight</td> <td>No.</td> <td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td> </td></td></td></td></td> | Weight | No. | Length <td>Weight</td> <td>No.</td> <td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td> </td></td></td></td> | Weight | No. | Length <td>Weight</td> <td>No.</td> <td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td> </td></td></td> | Weight | No. | Length <td>Weight</td> <td>No.</td> <td>Length<td>Weight</td><td>No.</td><td>Length<td>Weight</td> </td></td> | Weight | No. | Length <td>Weight</td> <td>No.</td> <td>Length<td>Weight</td> </td> | Weight | No. | Length <td>Weight</td> | Weight | | | | | | |
| 6w2 | Walls & Floor | | 4 | 23'-8" | 142 | 4 | 25'-2" | 151 | 4 | 23'-7" | 142 | 4 | 23'-7" | 142 | 4 | 23'-9" | 143 | 4 | 23'-9" | 143 | 4 | 23'-11" | 144 | 4 | 24'-1" | 145 | | | |
| 6w4 | Walls Vert. | | - | - | - | - | - | - | 8 | 4'-0" | 48 | 8 | 4'-9" | 57 | 8 | 5'-6" | 66 | 8 | 6'-3" | 75 | 8 | 7'-0" | 84 | 8 | 7'-9" | 93 | 8 | 8'-6" | 102 |
| 6y3 | Walls Horiz. | | 8 | 7'-8" | 92 | 10 | 7'-8" | 115 | 12 | 7'-8" | 138 | 12 | 7'-8" | 138 | 14 | 7'-10" | 165 | 16 | 7'-10" | 188 | 18 | 7'-10" | 212 | 18 | 7'-11" | 214 | 20 | 8'-1" | 243 |
| 6y4 | Floor Vert. | | 12 | 9'-0" | 162 | 12 | 9'-0" | 162 | 12 | 9'-0" | 162 | 12 | 9'-0" | 162 | 12 | 9'-0" | 162 | 12 | 9'-0" | 162 | 12 | 9'-0" | 162 | 12 | 9'-0" | 162 | 12 | 9'-0" | 162 |
| 6z1 | Floor Vert. | | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 | 12 | 4'-1" | 74 |
| Total Weight (LB) | | | | 470 | | 502 | | 564 | | 573 | | 610 | | 642 | | 675 | | 687 | | 726 | | | | | | | | | |
| Concrete (CY) | | Footings | 2.8 | | 2.8 | | 2.8 | | 2.8 | | 2.8 | | 2.8 | | 2.8 | | 2.8 | | 2.9 | | 2.9 | | 2.9 | | 2.9 | | 2.9 | | |
| | | Walls | 0.8 | | 1.0 | | 1.2 | | 1.4 | | 1.6 | | 1.8 | | 2.0 | | 2.3 | | 2.5 | | 2.5 | | 2.5 | | 2.5 | | 2.5 | | |
| Total | | 3.6 | | 3.8 | | 4.0 | | 4.2 | | 4.4 | | 4.6 | | 4.8 | | 5.1 | | 5.4 | | 5.4 | | 5.4 | | 5.4 | | 5.4 | | 5.4 | |

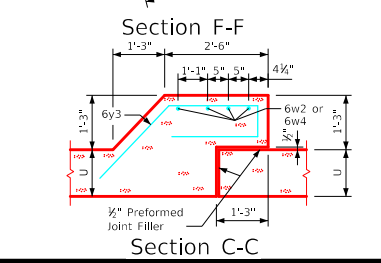
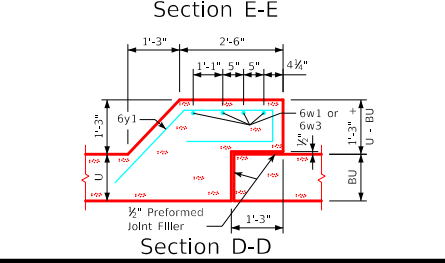
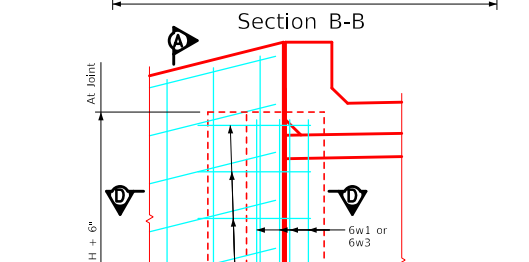
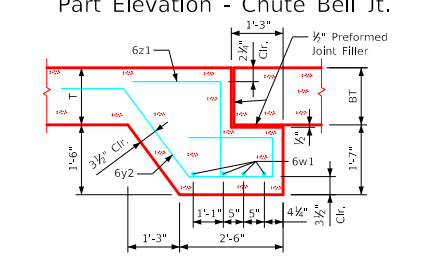
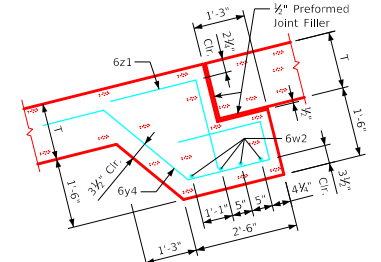
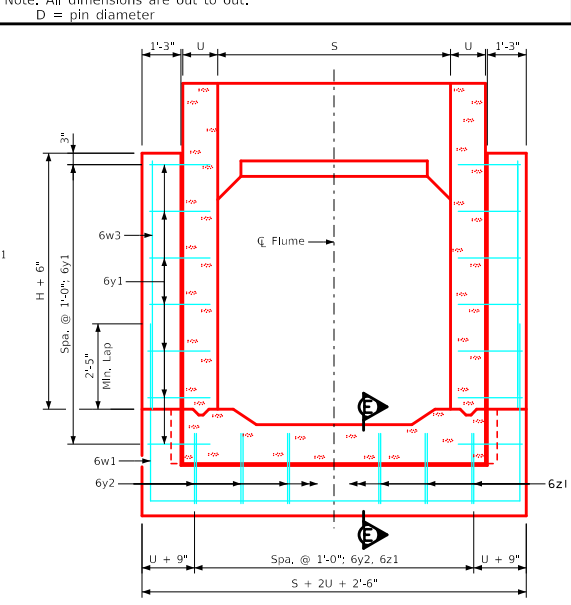
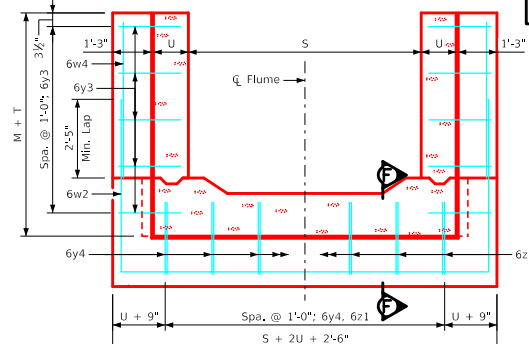
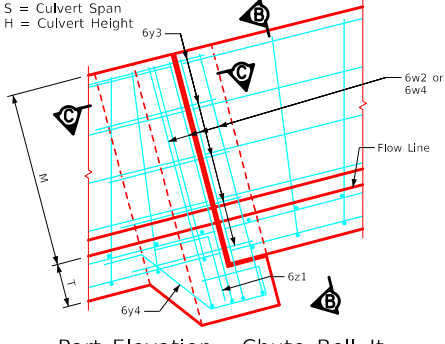
Bent Bar Details



Barrel & Chute Dimensions

| S x H | M | T | U | BT | BU |
|-----------|-------|-------|-------|-------|-------|
| 10' x 4' | 3'-0" | 1'-1" | 9" | 1'-0" | 9" |
| 10' x 5' | 3'-9" | 1'-1" | 9" | 1'-0" | 9" |
| 10' x 6' | 4'-3" | 1'-1" | 9" | 1'-0" | 9" |
| 10' x 7' | 5'-3" | 1'-1" | 9" | 1'-0" | 9" |
| 10' x 8' | 6'-0" | 1'-1" | 10" | 1'-0" | 9" |
| 10' x 9' | 6'-9" | 1'-1" | 10" | 1'-0" | 9" |
| 10' x 10' | 7'-6" | 1'-1" | 10" | 1'-0" | 10" |
| 10' x 11' | 8'-3" | 1'-1" | 11" | 1'-0" | 11" |
| 10' x 12' | 9'-0" | 1'-1" | 1'-0" | 1'-0" | 1'-0" |

- Notes:**
1. Dimensions and quantities shown based on "U" flume walls, "BU" barrel walls, "T" flume floor and "BT" barrel floor thicknesses.
 2. Change lengths of bars 6w1 and adjust reinforcing steel and concrete quantities accordingly for wall and floor thicknesses other than shown.
 3. Floor bars m1 are to be shortened 6" at bell joints.
 4. See Sheet RCF 01-20 for general information.



LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Standard Design
**Single Reinforced Concrete
Box Culverts**
December, 2020

FBJ 04-20

Flume Bell Joint
Details

10'-0" Span

FBJ 04-20

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