

REVISED 07-09 - OPEN RAIL REIN. QTY'S CHANGED WHICH CHANGED TOTAL REIN. QTY'S.
REVISED 08-2022 UPDATED BRIDGE ENGINEER SIGNATURE. CHANGED PAVING BLOCK LIFTING HOOP BAR MARK, WAS SK1.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE - 90' BRIDGE

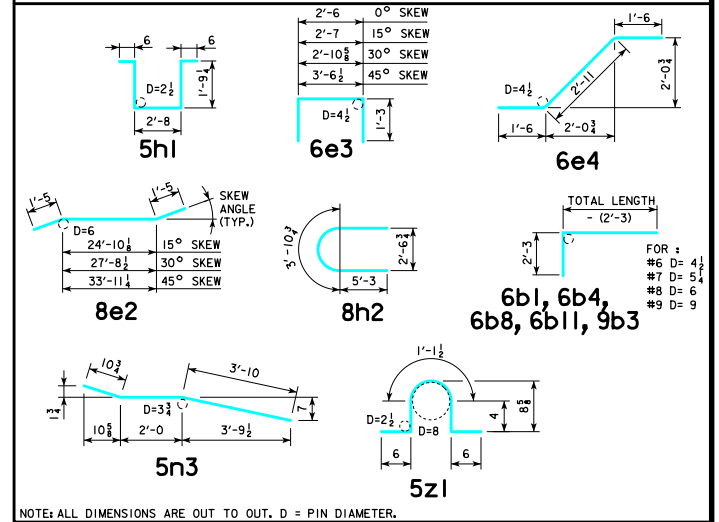
| LOCATION | SHAPE | BAR NO. | 0° | | 15° | | 30° | | 45° | | | | | |
|---|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | LENGTH | WEIGHT | NO. | LENGTH | WEIGHT | NO. | LENGTH | WEIGHT | NO. | LENGTH | WEIGHT | |
| SLAB LONGITUDINAL BOTTOM | | 8a1 | 31 | 19'-0 | 1573 | 31 | 19'-0 | 1573 | 31 | 19'-0 | 1573 | 31 | 19'-0 | 1573 |
| SLAB LONGITUDINAL BOTTOM | | 8a2 | 31 | 28'-3 | 2339 | 31 | 28'-3 | 2339 | 31 | 28'-3 | 2339 | 31 | 28'-3 | 2339 |
| SLAB LONGITUDINAL BOTTOM | | 8a3 | 31 | 26'-6 | 2194 | 31 | 26'-6 | 2194 | 31 | 26'-6 | 2194 | 31 | 26'-6 | 2194 |
| SLAB LONGITUDINAL BOTTOM | | 8a4 | 32 | 24'-6 | 2094 | 32 | 24'-6 | 2094 | 32 | 24'-6 | 2094 | 32 | 24'-6 | 2094 |
| SLAB LONGITUDINAL BOTTOM | | 8a5 | 16 | 27'-0 | 1154 | 16 | 27'-0 | 1154 | 16 | 27'-0 | 1154 | 16 | 27'-0 | 1154 |
| SLAB LONGITUDINAL BOTTOM, AT RAIL | | 8a6 | 8 | 32'-3 | 689 | 8 | 32'-3 | 689 | 8 | 32'-3 | 689 | 8 | 32'-3 | 689 |
| SLAB LONGITUDINAL BOTTOM, AT RAIL | | 8a7 | 4 | 31'-8 | 339 | 4 | 31'-8 | 339 | 4 | 31'-8 | 339 | 4 | 31'-8 | 339 |
| SLAB LONGITUDINAL BOTTOM, AT RAIL | | 8a8 | 8 | 21'-9 | 465 | 8 | 21'-9 | 465 | 8 | 21'-9 | 465 | 8 | 21'-9 | 465 |
| SLAB LONGITUDINAL BOTTOM, AT RAIL | | 8a9 | 4 | 19'-0 | 203 | 4 | 19'-0 | 203 | 4 | 19'-0 | 203 | 4 | 19'-0 | 203 |
| SLAB LONGITUDINAL TOP | | 6b1 | 31 | 7'-9 | 361 | 31 | 7'-9 | 361 | 31 | 7'-9 | 361 | 31 | 7'-9 | 361 |
| SLAB LONGITUDINAL TOP | | 9b2 | 31 | 21'-3 | 2240 | 31 | 21'-3 | 2240 | 31 | 21'-3 | 2240 | 31 | 21'-3 | 2240 |
| SLAB LONGITUDINAL TOP | | 9b3 | 31 | 34'-3 | 3610 | 31 | 34'-3 | 3610 | 31 | 34'-3 | 3610 | 31 | 34'-3 | 3610 |
| SLAB LONGITUDINAL TOP | | 6b4 | 4 | 31'-8 | 613 | 4 | 31'-8 | 613 | 4 | 31'-8 | 613 | 4 | 31'-8 | 613 |
| SLAB LONGITUDINAL TOP | | 9b5 | 32 | 26'-0 | 2829 | 32 | 26'-0 | 2829 | 32 | 26'-0 | 2829 | 32 | 26'-0 | 2829 |
| SLAB LONGITUDINAL TOP | | 6b6 | 16 | 17'-6 | 421 | 16 | 17'-6 | 421 | 16 | 17'-6 | 421 | 16 | 17'-6 | 421 |
| SLAB LONGITUDINAL TOP, AT RAIL | | 6b8 | 8 | 26'-2 | 315 | 8 | 26'-2 | 315 | 8 | 26'-2 | 315 | 8 | 26'-2 | 315 |
| SLAB LONGITUDINAL TOP, AT RAIL | | 9b9 | 8 | 18'-0 | 490 | 8 | 18'-0 | 490 | 8 | 18'-0 | 490 | 8 | 18'-0 | 490 |
| SLAB LONGITUDINAL TOP, AT RAIL | | 6b10 | 4 | 18'-4 | 111 | 4 | 18'-4 | 111 | 4 | 18'-4 | 111 | 4 | 18'-4 | 111 |
| SLAB LONGITUDINAL TOP, AT RAIL | | 6b11 | 8 | 28'-8 | 345 | 8 | 28'-8 | 345 | 8 | 28'-8 | 345 | 8 | 28'-8 | 345 |
| SLAB LONGITUDINAL TOP, AT RAIL | | 10b12 | 8 | 11'-9 | 405 | 8 | 11'-9 | 405 | 8 | 11'-9 | 405 | 8 | 11'-9 | 405 |
| SLAB TRANSVERSE, BOTTOM | | 87 | 87 | 26'-10 | 3507 | 87 | 27'-9 | 3627 | 76 | 26'-10 | 3064 | 66 | 26'-10 | 2661 |
| SLAB TRANSVERSE, BOTTOM | | 6c2 | - | - | - | - | - | - | 24 | VARIES | 579 | 44 | VARIES | 970 |
| SLAB TRANSVERSE, TOP | | 5d1 | 87 | 26'-10 | 2435 | 87 | 27'-9 | 2519 | 76 | 26'-10 | 2128 | 66 | 26'-10 | 1848 |
| SLAB TRANSVERSE ENDS, TOP | | 5d2 | - | - | - | - | - | - | 24 | VARIES | 402 | 44 | VARIES | 674 |
| SLAB TRANSVERSE AT ABUTMENT | | 8e1 | 18 | 26'-10 | 1290 | - | - | - | - | - | - | - | - | - |
| SLAB TRANSVERSE AT ABUTMENT | | 8e2 | - | - | - | 18 | 27'-8 | 1330 | 18 | 30'-7 | 1470 | 18 | 36'-9 | 1767 |
| SLAB, HAIRPINS, AT ABUTMENT | | 6e3 | 60 | 5'-0 | 451 | 60 | 5'-1 | 459 | 60 | 5'-5 | 489 | 60 | 5'-11 | 549 |
| SLAB, DIAGONALS, AT ABUTMENT | | 6e4 | 60 | 5'-11 | 534 | 60 | 5'-11 | 534 | 60 | 5'-11 | 534 | 60 | 5'-11 | 534 |
| PIER CAP HOOPS | | 5h1 | 36 | 7'-3 | 273 | 36 | 7'-3 | 273 | 48 | 7'-3 | 363 | 60 | 7'-3 | 454 |
| PIER CAP ENDS | | 8h2 | 4 | 14'-5 | 154 | 4 | 14'-5 | 154 | 4 | 14'-5 | 154 | 4 | 14'-5 | 154 |
| PIER CAP, BOTTOM LONGITUDINAL | | 8h3 | 8 | 23'-10 | 510 | 8 | 24'-8 | 527 | 8 | 27'-6 | 588 | 8 | 33'-8 | 720 |
| PIER CAP, TOP LONGITUDINAL | | 8h4 | 4 | 26'-10 | 287 | 4 | 27'-9 | 297 | 4 | 30'-11 | 331 | 4 | 37'-11 | 405 |
| TOP OF SLAB, TRANSVERSE, AT RAIL | | 5j1 | 172 | 8'-6 | 1525 | 172 | 8'-6 | 1525 | 172 | 8'-6 | 1525 | 170 | 8'-6 | 1508 |
| WING, VERTICAL | | 5m1 | 40 | 4'-5 | 185 | 40 | 4'-5 | 185 | 40 | 4'-5 | 185 | 40 | 4'-5 | 185 |
| WING, HORIZONTAL BACK FACE | | 5n1 | 24 | 6'-8 | 167 | 24 | 6'-8 | 167 | 24 | 6'-8 | 167 | 24 | 6'-8 | 167 |
| WING, HORIZONTAL TRAFFIC FACE | | 5n3 | 24 | 6'-9 | 169 | 24 | 6'-9 | 169 | 24 | 6'-9 | 169 | 24 | 6'-9 | 169 |
| PAVING BLOCK LIFTING HOOPS | | 5z1 | 8 | 2'-10 | 24 | 8 | 2'-10 | 24 | 8 | 2'-10 | 24 | 8 | 2'-10 | 24 |
| SUB TOTAL - LBS. | | | | | 34,301 | | | 34,580 | | | 34,962 | | | 35,579 |
| OPEN RAIL - SEE LIST ON RAIL SHEET J24-41-06 | | | | | 6330 | | | 6330 | | | 6330 | | | 6330 |
| TOTAL - LBS. WITH MONOLITHIC PIER CAP AND OPEN RAIL | | | | | 40,631 | | | 40,910 | | | 41,292 | | | 41,909 |
| TOTAL - LBS. WITH NON-MONOLITHIC PIER CAP AND OPEN RAIL | | | | | 39,407 | | | 39,659 | | | 39,856 | | | 40,176 |
| SAME AS ABOVE EXCEPT ALL "h" BARS DELETED | | | | | | | | | | | | | | |

ESTIMATED QUANTITIES FOR SUPERSTRUCTURE - 90' BRIDGE

| ITEM | SKEW | WITH MONOLITHIC PIER CAP | | | | WITH NON-MONOLITHIC PIER CAP | | | |
|-----------|-----------------------------------|--------------------------|--------|--------|--------|------------------------------|--------|--------|--------|
| | | 0° | 15° | 30° | 45° | 0° | 15° | 30° | 45° |
| OPEN RAIL | STRUCTURAL CONCRETE (BRIDGE) C.Y. | 144.8 | 145.5 | 147.8 | 152.7 | 140.6 | 141.1 | 143.0 | 146.9 |
| OPEN RAIL | REINFORCING STEEL LBS. | 40,631 | 40,910 | 41,292 | 41,909 | 39,407 | 39,659 | 39,856 | 40,176 |
| OPEN RAIL | LIN. FT. | 202.0 | 202.2 | 202.9 | 204.5 | 202.0 | 202.2 | 202.9 | 204.5 |

* INCLUDES 4 WINGS @ 0.68 C.Y. EACH AND 2 TEMPORARY PAVING BLOCKS; EXCLUDES RAIL CONCRETE.

BENT BAR DETAILS



| | | | |
|---|-----------------------------|---|--|
| 08-2022 LATEST REVISION DATE | APPROVED BY BRIDGE ENGINEER | IOWA DOT | |
| | | STANDARD DESIGN - 24'-0 ROADWAY, 3 SPAN BRIDGES | |
| | | CONTINUOUS CONCRETE SLAB BRIDGES NOVEMBER, 2006 | |
| SUPERSTRUCTURE DETAILS 90'-0 BRIDGE | | J24-07-06 | |