

### BILL OF REINFORCING STEEL - ONE ABUTMENT - 0° SKEW

| BRIDGE LENGTH                                 |   | QUANTITY |        |        |        |        |         |         |         |         |         |         |     |    |     |
|---|---|----------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|-----|----|-----|
| MARK  | LOCATION                                  | SHAPE    | LENGTH | 70'-0" | 80'-0" | 90'-0" | 100'-0" | 110'-0" | 120'-0" | 130'-0" | 140'-0" | 150'-0" |     |    |     |
| 8r1   | ABUTMENT FOOTING LONGITUDINAL             | —        | 26'-4" | 7      | 492    | 7      | 492     | 7       | 492     | 7       | 492     | 7       | 492 | 7  | 492 |
| 8r2   | ABUTMENT FOOTING LONGITUDINAL             | —        | 21'-4" | 7      | 399    | 7      | 399     | 7       | 399     | 7       | 399     | 7       | 399 | 7  | 399 |
| 5s1   | ABUTMENT FOOTING HOOPS                    | ⊠        | 11'-0" | 40     | 459    | 40     | 459     | 34      | 390     | 34      | 390     | 37      | 425 | 40 | 459 |
| 6+1   | FOOTING TO SLAB DOWELS                    | —        | 5'-0"  | 46     | 345    | 46     | 345     | 46      | 345     | 46      | 345     | 46      | 345 | 46 | 345 |
| 6+2   | FOOTING TO SLAB DOWELS                    | —        | 5'-7"  | 46     | 386    | 46     | 386     | 46      | 386     | 46      | 386     | 46      | 386 | 46 | 386 |
| #2  | PILE SPIRAL                               | ⊠        | 38'-6" | 10     | 64     | 10     | 64      | 11      | 71      | 11      | 71      | 12      | 77  | 13 | 84  |
|   | SPIRAL SPACERS - L 3/8 X 3/8 X 3/8 X 0.70 | —        | 1'-10" | 30     | 39     | 30     | 39      | 33      | 43      | 33      | 43      | 36      | 47  | 39 | 50  |
| REINFORCING STEEL EPOXY COATED - TOTAL (LBS.) |   |          |        | 2184   | 2184   | 2126   | 2126    | 2171    | 2215    | 2215    | 2143    | 2177    |     |    |     |

### BILL OF REINFORCING STEEL - ONE ABUTMENT - 15° SKEW

| BRIDGE LENGTH                                 |   | QUANTITY |        |        |        |        |         |         |         |         |         |         |     |    |     |
|---|---|----------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|-----|----|-----|
| MARK  | LOCATION                                  | SHAPE    | LENGTH | 70'-0" | 80'-0" | 90'-0" | 100'-0" | 110'-0" | 120'-0" | 130'-0" | 140'-0" | 150'-0" |     |    |     |
| 8r1   | ABUTMENT FOOTING LONGITUDINAL             | —        | 27'-2" | 7      | 508    | 7      | 508     | 7       | 508     | 7       | 508     | 7       | 508 | 7  | 508 |
| 8r2   | ABUTMENT FOOTING LONGITUDINAL             | —        | 22'-1" | 7      | 413    | 7      | 413     | 7       | 413     | 7       | 413     | 7       | 413 | 7  | 413 |
| 5s1   | ABUTMENT FOOTING HOOPS                    | ⊠        | 11'-0" | 36     | 413    | 36     | 413     | 40      | 459     | 40      | 459     | 33      | 379 | 36 | 413 |
| 5s2   | ABUTMENT FOOTING HOOPS                    | ⊠        | 11'-3" | 4      | 47     | 4      | 47      | 4       | 47      | 4       | 47      | 4       | 47  | 4  | 47  |
| 6+1   | FOOTING TO SLAB DOWELS                    | —        | 5'-0"  | 46     | 345    | 46     | 345     | 46      | 345     | 46      | 345     | 46      | 345 | 46 | 345 |
| 6+2   | FOOTING TO SLAB DOWELS                    | —        | 5'-7"  | 46     | 386    | 46     | 386     | 46      | 386     | 46      | 386     | 46      | 386 | 46 | 386 |
| #2  | PILE SPIRAL                               | ⊠        | 38'-6" | 10     | 64     | 10     | 64      | 11      | 71      | 11      | 71      | 12      | 77  | 13 | 84  |
|   | SPIRAL SPACERS - L 3/8 X 3/8 X 3/8 X 0.70 | —        | 1'-10" | 30     | 39     | 30     | 39      | 33      | 43      | 33      | 43      | 36      | 47  | 39 | 50  |
| REINFORCING STEEL EPOXY COATED - TOTAL (LBS.) |   |          |        | 2215   | 2215   | 2272   | 2272    | 2202    | 2246    | 2246    | 2174    | 2208    |     |    |     |

### BILL OF REINFORCING STEEL - ONE ABUTMENT - 30° SKEW

| BRIDGE LENGTH                                 |   | QUANTITY |         |        |        |        |         |         |         |         |         |         |     |    |     |
|---|---|----------|---------|--------|--------|--------|---------|---------|---------|---------|---------|---------|-----|----|-----|
| MARK  | LOCATION                                  | SHAPE    | LENGTH  | 70'-0" | 80'-0" | 90'-0" | 100'-0" | 110'-0" | 120'-0" | 130'-0" | 140'-0" | 150'-0" |     |    |     |
| 8r1   | ABUTMENT FOOTING LONGITUDINAL             | —        | 29'-6"  | 7      | 551    | 7      | 551     | 7       | 551     | 7       | 551     | 7       | 551 | 7  | 551 |
| 8r2   | ABUTMENT FOOTING LONGITUDINAL             | —        | 24'-5"  | 7      | 456    | 7      | 456     | 7       | 456     | 7       | 456     | 7       | 456 | 7  | 456 |
| 5s1   | ABUTMENT FOOTING HOOPS                    | ⊠        | 11'-0"  | 45     | 516    | 40     | 459     | 44      | 505     | 44      | 505     | 36      | 413 | 39 | 447 |
| 5s2   | ABUTMENT FOOTING HOOPS                    | ⊠        | 11'-11" | 4      | 50     | 4      | 50      | 4       | 50      | 4       | 50      | 4       | 50  | 4  | 50  |
| 6+1   | FOOTING TO SLAB DOWELS                    | —        | 5'-0"   | 46     | 345    | 46     | 345     | 46      | 345     | 46      | 345     | 46      | 345 | 46 | 345 |
| 6+2   | FOOTING TO SLAB DOWELS                    | —        | 5'-7"   | 46     | 386    | 46     | 386     | 46      | 386     | 46      | 386     | 46      | 386 | 46 | 386 |
| #2  | PILE SPIRAL                               | ⊠        | 38'-6"  | 10     | 64     | 11     | 71      | 11      | 71      | 12      | 77      | 12      | 77  | 13 | 84  |
|   | SPIRAL SPACERS - L 3/8 X 3/8 X 3/8 X 0.70 | —        | 1'-10"  | 30     | 39     | 33     | 43      | 33      | 43      | 36      | 47      | 39      | 50  | 42 | 54  |
| REINFORCING STEEL EPOXY COATED - TOTAL (LBS.) |   |          |         | 2407   | 2361   | 2361   | 2417    | 2417    | 2335    | 2379    | 2297    | 2330    |     |    |     |

### BILL OF REINFORCING STEEL - ONE ABUTMENT - 45° SKEW

| BRIDGE LENGTH                                 |   | QUANTITY |        |        |        |        |         |         |         |         |         |         |     |    |     |
|---|---|----------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|-----|----|-----|
| MARK  | LOCATION                                  | SHAPE    | LENGTH | 70'-0" | 80'-0" | 90'-0" | 100'-0" | 110'-0" | 120'-0" | 130'-0" | 140'-0" | 150'-0" |     |    |     |
| 8r1   | ABUTMENT FOOTING LONGITUDINAL             | —        | 34'-8" | 7      | 648    | 7      | 648     | 7       | 648     | 7       | 648     | 7       | 648 | 7  | 648 |
| 8r2   | ABUTMENT FOOTING LONGITUDINAL             | —        | 29'-7" | 7      | 553    | 7      | 553     | 7       | 553     | 7       | 553     | 7       | 553 | 7  | 553 |
| 5s1   | ABUTMENT FOOTING HOOPS                    | ⊠        | 11'-0" | 50     | 574    | 50     | 574     | 55      | 631     | 48      | 551     | 52      | 597 | 42 | 482 |
| 5s2   | ABUTMENT FOOTING HOOPS                    | ⊠        | 13'-6" | 4      | 56     | 4      | 56      | 4       | 56      | 4       | 56      | 4       | 56  | 4  | 56  |
| 6+1   | FOOTING TO SLAB DOWELS                    | —        | 5'-0"  | 46     | 345    | 46     | 345     | 46      | 345     | 46      | 345     | 46      | 345 | 46 | 345 |
| 6+2   | FOOTING TO SLAB DOWELS                    | —        | 5'-7"  | 46     | 386    | 46     | 386     | 46      | 386     | 46      | 386     | 46      | 386 | 46 | 386 |
| #2  | PILE SPIRAL                               | ⊠        | 38'-6" | 11     | 71     | 11     | 71      | 12      | 77      | 13      | 84      | 13      | 84  | 14 | 90  |
|   | SPIRAL SPACERS - L 3/8 X 3/8 X 3/8 X 0.70 | —        | 1'-10" | 33     | 43     | 33     | 43      | 36      | 47      | 39      | 50      | 39      | 50  | 42 | 54  |
| REINFORCING STEEL EPOXY COATED - TOTAL (LBS.) |   |          |        | 2676   | 2676   | 2743   | 2673    | 2673    | 2729    | 2624    | 2714    | 2714    |     |    |     |

NOTE: THE PILE SPIRALS AND SPIRAL SPACERS ARE TO BE NON-COATED REINFORCING BUT MAY BE EPOXY COATED AT THE CONTRACTORS OPTION AND EXPENSE.

### ESTIMATED QUANTITIES - ONE ABUT. - 0° SKEW

| LOCATION                       | UNIT | QUANTITY |        |        |         |         |         |         |         |         |  |
|--------------------------------|------|----------|--------|--------|---------|---------|---------|---------|---------|---------|--|
| BRIDGE LENGTH                  |      | 70'-0"   | 80'-0" | 90'-0" | 100'-0" | 110'-0" | 120'-0" | 130'-0" | 140'-0" | 150'-0" |  |
| STRUCTURAL CONCRETE ( BRIDGE ) | C.Y. | 13.8     | 13.8   | 13.8   | 13.8    | 13.7    | 13.6    | 13.6    | 13.5    | 13.5    |  |
| REINFORCING STEEL EPOXY COATED | LBS. | 2184     | 2184   | 2126   | 2126    | 2171    | 2215    | 2215    | 2143    | 2177    |  |
| WOOD PILES (TREATED)           | NO.  | 10       | 10     | 11     | 11      | 12      | 13      | 13      | 15      | 16      |  |
| PREBORE HOLES                  | FT.  | -        | -      | -      | -       | -       | -       | -       | 150     | 160     |  |

### ESTIMATED QUANTITIES - ONE ABUT. - 15° SKEW

| LOCATION                       | UNIT | QUANTITY |        |        |         |         |         |         |         |         |  |
|--------------------------------|------|----------|--------|--------|---------|---------|---------|---------|---------|---------|--|
| BRIDGE LENGTH                  |      | 70'-0"   | 80'-0" | 90'-0" | 100'-0" | 110'-0" | 120'-0" | 130'-0" | 140'-0" | 150'-0" |  |
| STRUCTURAL CONCRETE ( BRIDGE ) | C.Y. | 14.3     | 14.3   | 14.3   | 14.3    | 14.2    | 14.1    | 14.1    | 14.0    | 14.0    |  |
| REINFORCING STEEL EPOXY COATED | LBS. | 2215     | 2215   | 2272   | 2272    | 2202    | 2246    | 2246    | 2174    | 2208    |  |
| WOOD PILES (TREATED)           | NO.  | 10       | 10     | 11     | 11      | 12      | 13      | 13      | 15      | 16      |  |
| PREBORE HOLES                  | FT.  | -        | -      | -      | -       | -       | -       | -       | 150     | 160     |  |

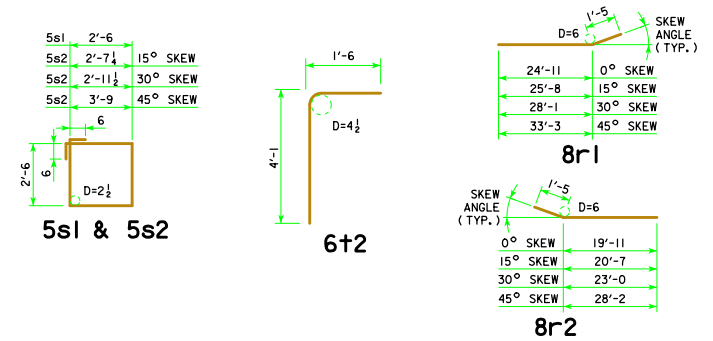
### ESTIMATED QUANTITIES - ONE ABUT. - 30° SKEW

| LOCATION                       | UNIT | QUANTITY |        |        |         |         |         |         |         |         |  |
|--------------------------------|------|----------|--------|--------|---------|---------|---------|---------|---------|---------|--|
| BRIDGE LENGTH                  |      | 70'-0"   | 80'-0" | 90'-0" | 100'-0" | 110'-0" | 120'-0" | 130'-0" | 140'-0" | 150'-0" |  |
| STRUCTURAL CONCRETE ( BRIDGE ) | C.Y. | 16.0     | 16.0   | 16.0   | 15.9    | 15.9    | 15.8    | 15.8    | 15.7    | 15.6    |  |
| REINFORCING STEEL EPOXY COATED | LBS. | 2407     | 2361   | 2361   | 2417    | 2417    | 2335    | 2379    | 2297    | 2330    |  |
| WOOD PILES (TREATED)           | NO.  | 10       | 11     | 11     | 12      | 12      | 13      | 14      | 16      | 17      |  |
| PREBORE HOLES                  | FT.  | -        | -      | -      | -       | -       | -       | -       | 160     | 170     |  |

### ESTIMATED QUANTITIES - ONE ABUT. - 45° SKEW

| LOCATION                       | UNIT | QUANTITY |        |        |         |         |         |         |         |         |  |
|--------------------------------|------|----------|--------|--------|---------|---------|---------|---------|---------|---------|--|
| BRIDGE LENGTH                  |      | 70'-0"   | 80'-0" | 90'-0" | 100'-0" | 110'-0" | 120'-0" | 130'-0" | 140'-0" | 150'-0" |  |
| STRUCTURAL CONCRETE ( BRIDGE ) | C.Y. | 19.7     | 19.7   | 19.7   | 19.6    | 19.6    | 19.5    | 19.4    | 19.4    | 19.4    |  |
| REINFORCING STEEL EPOXY COATED | LBS. | 2676     | 2676   | 2743   | 2673    | 2673    | 2729    | 2624    | 2714    | 2714    |  |
| WOOD PILES (TREATED)           | NO.  | 11       | 11     | 12     | 13      | 13      | 14      | 15      | 17      | 17      |  |
| PREBORE HOLES                  | FT.  | -        | -      | -      | -       | -       | -       | -       | 170     | 170     |  |

### BENT BAR DETAILS



NOTE: DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

LATEST REVISION DATE

Approved by BRIDGE ENGINEER

**IOWA DOT** Highway Division

STANDARD DESIGN - 40' ROADWAY, 3 SPAN BRIDGES

**CONTINUOUS CONCRETE SLAB BRIDGES**

JULY, 2014

**ABUTMENT DETAILS  
TIMBER PILING**

**J40-38-14**