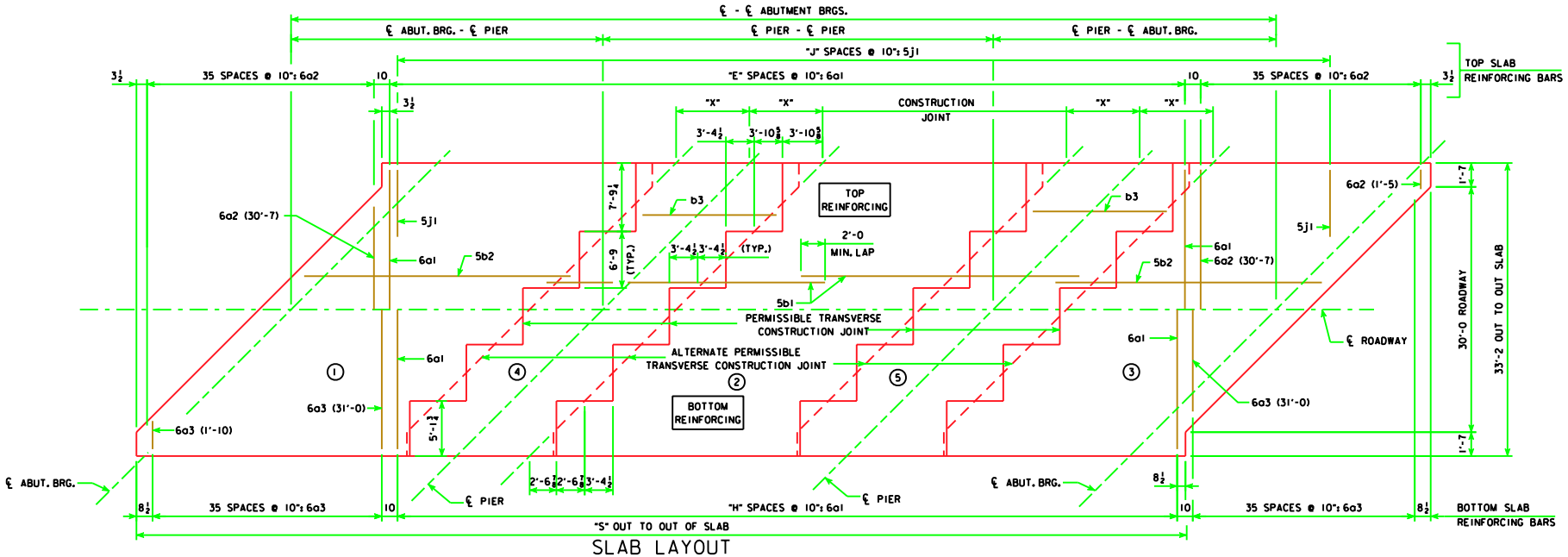


## SLAB LAYOUT

(LEFT AHEAD SKEW SHOWN, RIGHT AHEAD SKEW SIMILAR)

THE ROADWAY SLAB IS TO BE PLACED CONTINUOUSLY FROM ONE END OF THE BRIDGE TO THE OTHER. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT EVIDENCE THAT THE NECESSARY EQUIPMENT AND FACILITIES ARE AVAILABLE TO ACCOMPLISH THE REQUIRED RESULT. PERMISSIBLE TRANSVERSE SLAB CONSTRUCTION JOINTS MAY BE USED, AT LOCATION SHOWN.

## ESTIMATED QUANTITIES
(SUPERSTRUCTURE PLUS INTEGRAL ABUTMENTS)

| | | ℄-℄ ABUT. BRG. | 138'-10 | 151'-4 | 163'-10 | 176'-4 | 188'-10 | 201'-4 | 213'-10 | 226'-4 | 243'-0 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STRUCTURAL CONCRETE SUPERSTRUCTURE | WITH BARRIER RAIL | C.Y. | 186.9 | 197.4 | 217.9 | 228.8 | 239.7 | 261.8 | 272.5 | 284.0 | 298.8 |
| (INCLUDES ABUTMENT WINGS) | WITH OPEN RAIL | C.Y. | 189.4 | 200.1 | 220.9 | 232.0 | 243.1 | 265.3 | 276.2 | 287.9 | 303.0 |
| STRUCTURAL CONCRETE ABUTMENTS (w/ WOOD PILES) *** | | C.Y. | 36.6 | 36.6 | 36.5 | 36.5 | 36.4 | ----- | ----- | ----- | ----- |
| STRUCTURAL CONCRETE ABUTMENTS (w/ STEEL H PILES) *** | | C.Y. | 38.0 | 38.0 | 38.0 | 38.0 | 38.0 | 45.0 | 45.0 | 45.0 | 45.0 |
| PRETENSIONED PRESTRESSED CONCRETE BEAM, CENTER SPAN | | NO. | 5-A50 | 5-A55 | 5-B59 | 5-B63 | 5-B67 | 5-C71 | 5-C75 | 5-C80 | 5-C80 |
| PRETENSIONED PRESTRESSED CONCRETE BEAM, END SPAN | | NO. | 10-A42 | 10-A46 | 10-B50 | 10-B55 | 10-B59 | 10-C63 | 10-C67 | 10-C71 | 10-C80 |
| CONCRETE RAIL (BARRIER OR OPEN) | | L.F. | 314.2 | 339.2 | 364.2 | 389.2 | 414.2 | 456.7 | 481.7 | 506.7 | 540.0 |
| STRUCTURAL STEEL (w/ PILE BENT PIERS & DRAINS) | | LB. | 3873 | 3873 | 3961 | 3961 | 3961 | 3965 | 3965 | 3965 | 3965 |
| STRUCTURAL STEEL (w/ PILE BENT PIERS & NO DRAINS) | | LB. | 3305 | 3305 | 3305 | 3305 | 3305 | 3229 | 3229 | 3229 | 3229 |
| STRUCTURAL STEEL (w/ TEE PIERS & DRAINS) | | LB. | 4769 | 4769 | 4857 | 4857 | 4857 | 5023 | 5023 | 5023 | 5023 |
| STRUCTURAL STEEL (w/ TEE PIERS & NO DRAINS) | | LB. | 4201 | 4201 | 4201 | 4201 | 4201 | 4287 | 4287 | 4287 | 4287 |
| REINFORCING STEEL (w/ WOOD PILES & BARRIER RAIL) | | LB. | 53,414 | 56,911 | 60,676 | 64,541 | 67,700 | ----- | ----- | ----- | ----- |
| REINFORCING STEEL (w/ WOOD PILES & OPEN RAIL) | | LB. | 53,663 | 57,107 | 61,003 | 65,026 | 68,106 | ----- | ----- | ----- | ----- |
| REINFORCING STEEL (w/ STEEL H PILES & BARRIER RAIL) | | LB. | 53,192 | 56,689 | 60,305 | 64,170 | 67,749 | 73,857 | 78,001 | 81,579 | 85,899 |
| REINFORCING STEEL (w/ STEEL H PILES & OPEN RAIL) | | LB. | 53,441 | 56,885 | 60,632 | 64,655 | 68,155 | 74,811 | 78,855 | 82,612 | 86,961 |
| NO. OF WOOD PILES, TREATED FOR TWO ABUTMENTS | | NO. | 24 | 24 | 26 | 26 | 28 | ----- | ----- | ----- | ----- |
| NO. OF STEEL H-PILES, HP 10 x 57 FOR TWO ABUTMENTS | | NO. | 14 | 14 | 14 | 14 | 14 | 18 | 18 | 18 | 18 |
| PREBORED HOLES (w/ WOOD PILES) | | L.F. | 240 | 240 | 260 | 260 | 280 | ----- | ----- | ----- | ----- |
| PREBORED HOLES (w/ STEEL H-PILES) | | L.F. | 140 | 140 | 140 | 140 | 140 | 180 | 180 | 180 | 180 |

## CONCRETE PLACEMENT QUANT.
(SUPERSTRUCTURE PLUS INTEGRAL ABUTMENTS)

| | | ℄-℄ ABUT. BRG. | 138'-10 | 151'-4 | 163'-10 | 176'-4 | 188'-10 | 201'-4 | 213'-10 | 226'-4 | 243'-0 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SLAB INCLUDING HAUNCH, ABUT. DIAPHRAGM, | WITH BARRIER RAIL | C.Y. | 102.6 | 108.6 | 120.6 | 126.8 | 133.0 | 148.2 | 154.6 | 161.4 | 176.2 |
| & WINGWALLS** , SECTIONS 1 & 3 | WITH OPEN RAIL | C.Y. | 103.9 | 110.0 | 122.2 | 128.5 | 134.8 | 150.1 | 156.6 | 163.5 | 178.6 |
| SLAB INCLUDING | WITH BARRIER RAIL | C.Y. | 33.5 | 36.2 | 38.9 | 41.6 | 44.1 | 47.0 | 49.7 | 52.4 | 52.4 |
| HAUNCH, SECTION 2 | WITH OPEN RAIL | C.Y. | 34.2 | 37.0 | 39.7 | 42.5 | 45.1 | 48.0 | 50.7 | 53.5 | 53.5 |
| SLAB INCLUDING HAUNCH & | WITH BARRIER RAIL | C.Y. | 43.6 | 45.4 | 51.2 | 53.2 | 55.4 | 59.4 | 61.0 | 63.0 | 63.0 |
| PIER DIAPHRAGM, SECTIONS 4 & 5 | WITH OPEN RAIL | C.Y. | 44.1 | 45.9 | 51.8 | 53.8 | 56.0 | 60.0 | 61.7 | 63.7 | 63.7 |
| ABUTMENT WINGS | | C.Y. | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 |
| ABUTMENT FOOTINGS (w/ WOOD PILES) *** | | C.Y. | 36.6 | 36.6 | 36.5 | 36.5 | 36.4 | ----- | ----- | ----- | ----- |
| ABUTMENT FOOTINGS (w/ STEEL H PILES) *** | | C.Y. | 38.0 | 38.0 | 38.0 | 38.0 | 38.0 | 45.0 | 45.0 | 45.0 | 45.0 |

## GENERAL DATA

| | | ℄-℄ ABUT. BRG. | 138'-10 | 151'-4 | 163'-10 | 176'-4 | 188'-10 | 201'-4 | 213'-10 | 226'-4 | 243'-0 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VERTICAL | TOP OF SLAB TO ABUT. CONSTR. JT. AT C.L. ABUT. BRG. | "U" | 3'-7 5/16 | 3'-7 3/4 | 4'-2 13/16 | 4'-2 13/16 | 4'-3 | 4'-8 1/2 | 4'-8 11/16 | 4'-9 | 4'-9 7/16 |
| CURVE | TOP OF SLAB TO PIER TOP AT C.L. PIER* | "U" | 3'-6 1/16 | 3'-6 3/8 | 4'-1 3/8 | 4'-1 3/8 | 4'-1 9/16 | 4'-7 3/8 | 4'-7 3/8 | 4'-7 3/8 | 4'-7 3/8 |
| STRAIGHT | TOP OF SLAB TO ABUT. CONSTR. JT. AT C.L. ABUT. BRG. | "U" | 3'-8 1/16 | 3'-7 7/8 | 4'-2 5/16 | 4'-2 5/16 | 4'-3 1/16 | 4'-8 11/16 | 4'-8 5/16 | 4'-9 3/8 | 4'-10 |
| GRADE | TOP OF SLAB TO PIER TOP AT C.L. PIER* | "U" | 3'-6 3/8 | 3'-6 7/8 | 4'-1 11/16 | 4'-1 9/16 | 4'-2 3/16 | 4'-7 5/16 | 4'-7 3/4 | 4'-8 1/16 | 4'-8 1/16 |
| D.L. PIER REACTION (D.L. + F.W.S.) | | KIPS | 364.7 | 392.9 | 449.7 | 479.4 | 509.3 | 609.0 | 642.1 | 675.9 | 708.7 |
| L.L. PIER REACTION (HS25-44) NO IMPACT | | KIPS | 169.0 | 170.6 | 171.9 | 179.5 | 187.5 | 195.5 | 203.4 | 211.4 | 221.0 |
| NO. OF SPACES FOR 6a1 BARS (TOP) | | "E" | 135 | 150 | 165 | 180 | 195 | 210 | 225 | 240 | 260 |
| NO. OF SPACES FOR 6a1 BARS (BOTTOM) | | "H" | 134 | 149 | 164 | 179 | 194 | 209 | 224 | 239 | 259 |
| NO. OF SPACES FOR 5j1 BARS (TOP) | | "J" | 164 | 179 | 194 | 209 | 224 | 239 | 254 | 269 | 289 |
| OUT TO OUT OF SLAB | | "S" | 143'-0 7/8 | 155'-6 7/8 | 168'-0 7/8 | 180'-6 7/8 | 193'-0 7/8 | 205'-6 7/8 | 218'-0 7/8 | 230'-6 7/8 | 247'-2 7/8 |
| SLAB TRANSVERSE CONSTR. JT. DISTANCE FROM C.L. PIER | | "X" | 6'-7 | 7'-1 | 7'-7 | 8'-1 | 8'-8 | 9'-2 | 9'-8 | 10'-2 | 10'-2 |

* VALUES SHOWN ARE FOR FIXED PIERS ONLY AND ALLOW FOR 1/16 INCH DEFLECTION OF THE 1 INCH NEOPRENE BEARING PAD. AT EXPANSION PIER LOCATIONS ADD 3/16 INCHES TO "U" VALUES SHOWN.

** WINGWALLS APPLY ONLY TO BRIDGES USING "C" BEAMS.

*** SEE SHEET H30-31-06 FOR ADDITIONAL CONCRETE REQUIRED IN ABUTMENT FOOTINGS.

LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN - 30' ROADWAY, THREE SPAN BRIDGES

# PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

HL93 SUPERSTRUCTURE DECEMBER, 2006 HS25 SUBSTRUCTURE

SUPERSTRUCTURE DETAILS
45° SKEW

H30-29-06