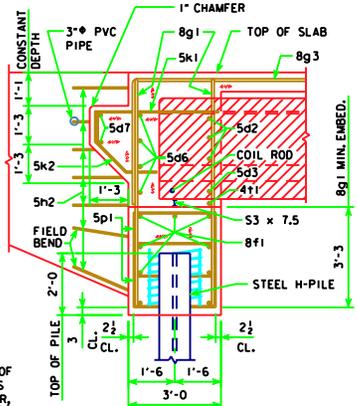


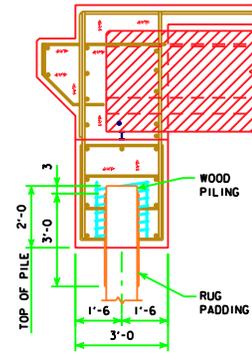
PART REAR ELEVATION AT ABUTMENT

NOTE: BARRIER RAIL NOT SHOWN.  
(SHOWN FOR SOLID BARRIER RAIL)

NOTE:  
THE SPIRAL AT THE TOP OF EACH PILE TO BE 7 TURNS OF NO. 2 BAR, 2" DIAMETER, 3" PITCH WITH 2 - 1/4" x 1/4" x 1/4" SPACERS PUNCHED TO HOLD SPIRAL.



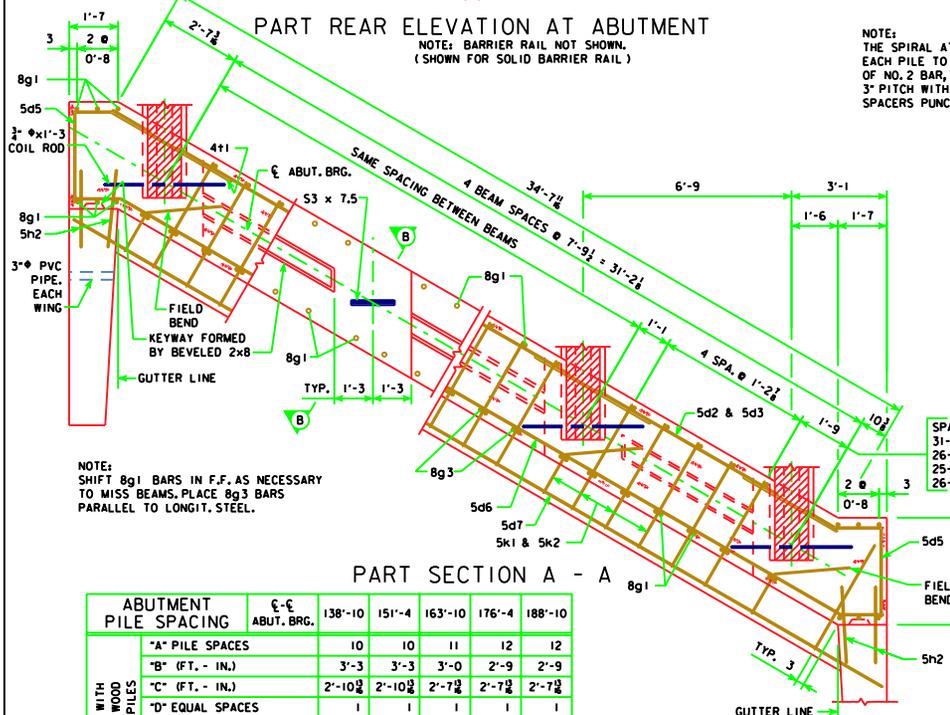
PART SECTION B-B  
(FOR STEEL H-PILING)



PART SECTION B-B  
(FOR WOOD PILING)

WOOD PILING NOTE:  
AFTER PILES ARE CUT OFF, THE UPPER 3', EXCEPT AS SHOWN, IS TO BE WRAPPED WITH A DOUBLE THICKNESS OF RUG PADDING HELD IN PLACE BY TACKING WITH GALVANIZED ROOFING NAILS AND WRAPPED WITH #14 GAUGE GALVANIZED WIRE AT A 4" PITCH, CARE IS TO BE TAKEN NOT TO DAMAGE PADDING WHEN PLACING CONCRETE. RUG PADDING MAY BE EITHER OF THE FOLLOWING:

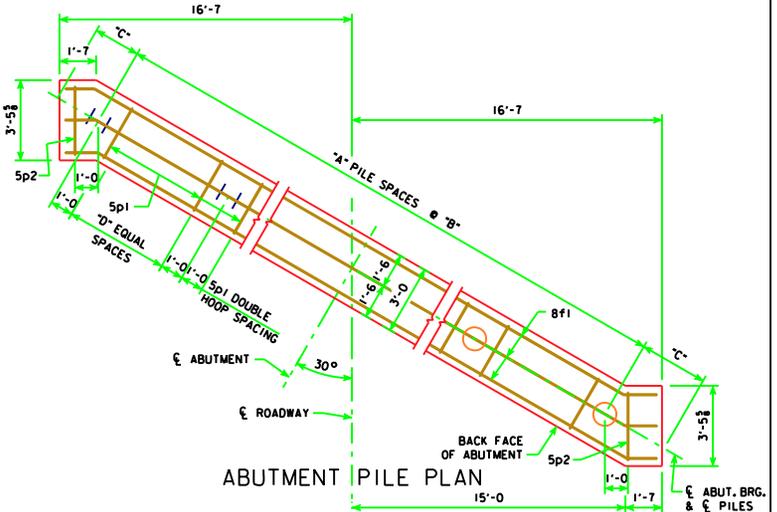
- (1) HAIR AND JUTE RUG PADDING, RUBBERIZED ON BOTH SIDES, AND WEIGHING NOT LESS THAN 47 OZ. PER SQ. YD.
- (2) BONDED URETHANE OR BONDED POLYFOAM WITH A MINIMUM DENSITY OF 5 LBS. PER CU. FT. AND SHALL BE AT LEAST 1/2 IN. THICK, (MATERIAL LESS THAN 1/2 IN. IN THICKNESS MAY BE USED, BUT WILL REQUIRE ADDITIONAL WRAPS FOR A TOTAL OF AT LEAST ONE INCH).



PART SECTION A - A

NOTE:  
SHIFT 8g1 BARS IN F.F. AS NECESSARY TO MISS BEAMS. PLACE 8g3 BARS PARALLEL TO LONGIT. STEEL.

SPACING FOR:  
31- 8g1 BACK FACE  
26- 8g1 FRONT FACE  
25- 8g3 BACK FACE  
26- 5k1 & 5k2 BACK FACE



ABUTMENT PILE PLAN

ABUTMENT NOTES:  
MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

IF NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR AT NO EXTRA COST TO THE COUNTY OR STATE.

ABUTMENT PILES ARE TO BE DRIVEN TO THE DESIGN BEARING VALUE AS GIVEN IN THE ABUTMENT PILE SPACING TABLE.

|                    |                         | 4'-4 ABUT. BRG. | 138'-10   | 151'-4   | 163'-10  | 176'-4   | 188'-10 |
|--------------------|-------------------------|-----------------|-----------|----------|----------|----------|---------|
| WITH WOOD PILES    | "A" PILE SPACES         | 10              | 10        | 11       | 12       | 12       |         |
|                    | "B" (FT. - IN.)         | 3'-3            | 3'-3      | 3'-0     | 2'-9     | 2'-9     |         |
|                    | "C" (FT. - IN.)         | 2'-10 1/2       | 2'-10 1/2 | 2'-7 1/2 | 2'-7 1/2 | 2'-7 1/2 |         |
|                    | "D" EQUAL SPACES        | 1               | 1         | 1        | 1        | 1        |         |
|                    | NO. OF PILES PER ABUT.  | 11              | 11        | 12       | 13       | 13       |         |
| WITH STEEL H-PILES | DESIGN PILE LOAD (TONS) | 19              | 20        | 20       | 19       | 20       |         |
|                    | "A" PILE SPACES         | 5               | 5         | 5        | 5        | 5        |         |
|                    | "B" (FT. - IN.)         | 6'-7            | 6'-7      | 6'-7     | 6'-7     | 6'-7     |         |
|                    | "C" (FT. - IN.)         | 2'-8 1/2        | 2'-8 1/2  | 2'-8 1/2 | 2'-8 1/2 | 2'-8 1/2 |         |
|                    | DESIGN PILE LOAD (TONS) | 39              | 40        | 43       | 44       | 46       |         |

**Iowa Department of Transportation**  
Highway Division

STANDARD DESIGN - 30' ROADWAY, THREE SPAN BRIDGES  
**PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES**

HL93 SUPERSTRUCTURE      DECEMBER, 2006      HS25 SUBSTRUCTURE

|                      |  |  |           |
|----------------------|--|--|-----------|
| LATEST REVISION DATE | <i>Thomas E. M. Dwyer</i><br>APPROVED BY BRIDGE ENGINEER | ABUTMENT DETAILS<br>30° SKEW A & B BEAMS | H30-18-06 |
|----------------------|--|--|-----------|