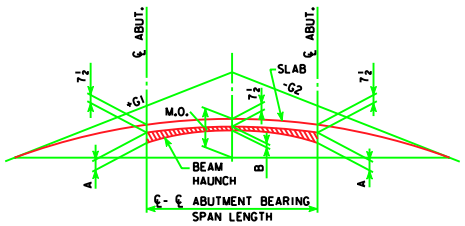
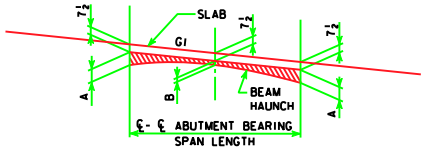



| THICKNESS \ SPAN | 46'-8 | 55'-0 | 67'-6 | 80'-0 | 90'-0 | 100'-0 | 110'-0 |
|---|---|---|---|---|---|---|---|
| A | 1 3/16 | 1 3/16 | 1 3/16 | 1 3/16 | 1 5/16 | 1 3/8 | 1 5/16 |
| B | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |

LENGTH OF VERTICAL CURVE REQUIRED = ( 20,000 X G1-G2 )
M.O. = ( G1-G2 X LENGTH OF V.C. ) / 8

( G1-G2 ) IS THE ALGEBRAIC DIFFERENCE OF THE APPROACH GRADES EXPRESSED IN DECIMAL FORM. G1 NEED NOT HAVE THE SAME VALUE AS G2. MAXIMUM VALUE OF G1 OR G2 IS 5%. LENGTH OF CURVE AND M.O. ARE IN FEET.

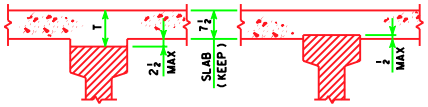
## SLAB AND HAUNCH THICKNESS AT BEAMS FOR VERTICAL CURVE




| THICKNESS \ SPAN | 46'-8 | 55'-0 | 67'-6 | 80'-0 | 90'-0 | 100'-0 | 110'-0 |
|---|---|---|---|---|---|---|---|
| A | 1 3/8 | 1 3/8 | 1 3/8 | 1 5/8 | 1 3/8 | 2 1/8 | 2 3/8 |
| B | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |

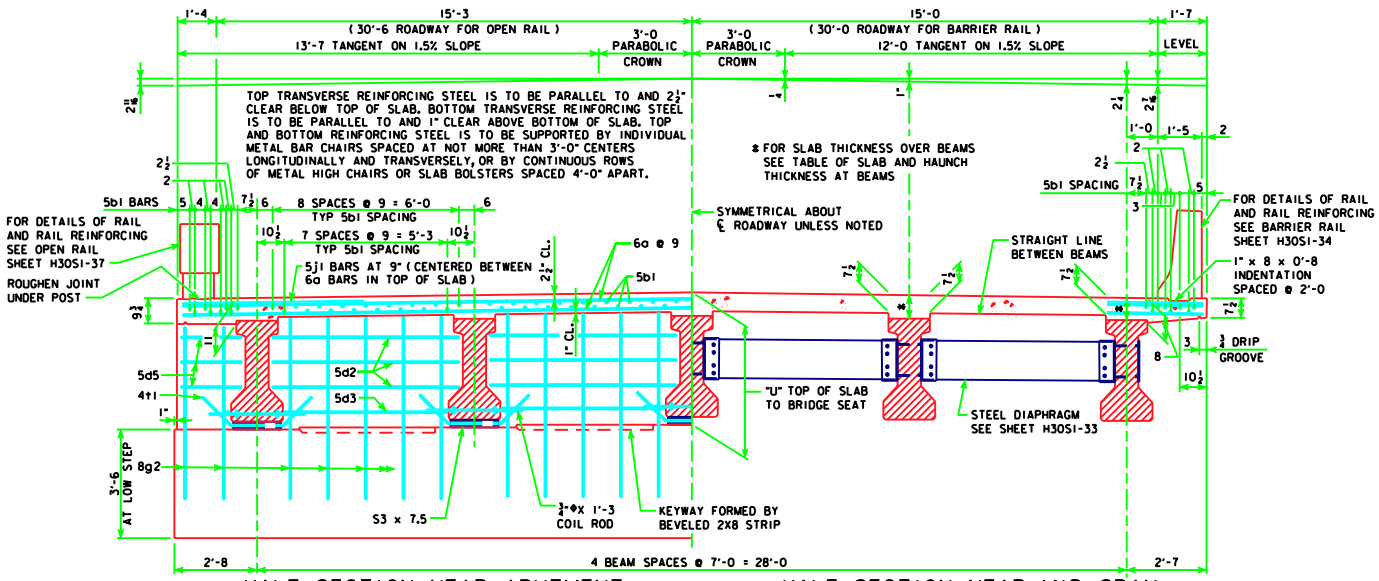
G1 MAY HAVE A + OR - SIGN. THE MINIMUM NUMERICAL VALUE OF THE GRADE IS 0.3% AND THE MAXIMUM VALUE IS 8%.

## SLAB AND HAUNCH THICKNESS AT BEAMS FOR STRAIGHT GRADE




## SLAB THICKNESS DETAIL

NOTE:
THE SLAB THICKNESS T AT THE BEAMS, ( 7 1/2" SLAB PLUS HAUNCH ), IS BASED ON THE ANTICIPATED BEAM CAMBER REMAINING AFTER PLACING THE SLAB, BUT IS NOT GUARANTEED FOR CONSTRUCTION. IF BEAM IS UNDER CAMBERED INCREASE THE HAUNCH THICKNESS OVER THE BEAM AT THE MIDPOINT OF THE SPANS ( POINT B ). IF THE BEAM IS OVER CAMBERED DECREASE THE HAUNCH THICKNESS OVER THE BEAM AT THE MIDPOINT OF THE SPANS ( POINT B ) TO A MAXIMUM OF 1/2" EMBEDMENT IN THE SLAB. IF MORE THAN 1/2" EMBEDMENT IS REQUIRED OR IF THE HAUNCH EXCEEDS 2 1/2", THE GRADE LINE IS TO BE REVISED.




## HALF SECTION NEAR ABUTMENT

SLAB CROSS SECTION AREA
FOR OPEN RAIL= 21.98 SQ. FT.

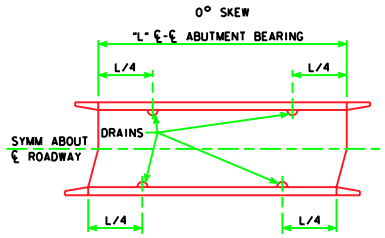
## HALF SECTION NEAR MID SPAN

SLAB CROSS SECTION AREA
FOR BARRIER RAIL= 21.18 SQ. FT.

## LENGTH OF S3 x 7.5

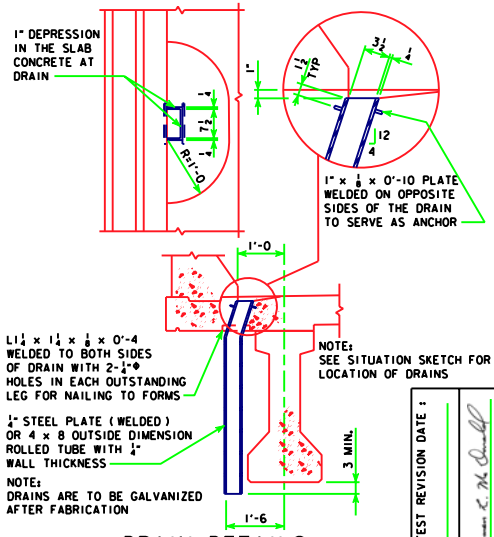
( ABUTMENT BEAM SEAT )

| BEAM BOTTOM FLANGE WIDTH | LENGTH OF S3 x 7.5 |
|---|---|
| 1'-5 | 1'-3 1/2 |
| 1'-8 | 1'-6 1/2 |
| 1'-10 | 1'-8 1/2 |




15° AND 30° SKEW

## SITUATION SKETCH




## DRAIN DETAILS

( USE FOR BARRIER RAIL ONLY, NOT REQUIRED FOR OPEN RAIL )

## GENERAL NOTES:

THESE BRIDGES ARE DESIGNED FOR HS20-44 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE.

SLAB THICKNESS INCLUDES 1/2" INTEGRAL WEARING SURFACE.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE NOTED OR SHOWN. ALL REINFORCING BARS ARE TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED ON BAR CHAIRS BEFORE CONCRETE IS PLACED.

ALL PRESTRESSED BEAMS ARE TO BE SET VERTICAL.

FORMS FOR THE SLAB AND RAILS ARE TO BE SUPPORTED BY THE PRESTRESSED BEAMS.

COST OF DRAINS IS TO BE INCLUDED IN PRICE BID FOR STRUCTURAL STEEL.

THE ABUTMENT DIAPHRAGM CONCRETE IS TO BE PLACED MONOLITHIC WITH THE FLOOR SLAB.

ALL REINFORCING STEEL IS TO BE GRADE 60.

COST OF BEARING MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR PRETENSIONED, PRESTRESSED CONCRETE BEAM.

LATEST REVISION DATE :

APPROVED BY

STANDARD DESIGN - 30' ROADWAY, SINGLE SPAN BRIDGE

# PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

JANUARY, 2005 HS20-44 LOADING

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

SUPERSTRUCTURE DETAILS | H30S1-02-05