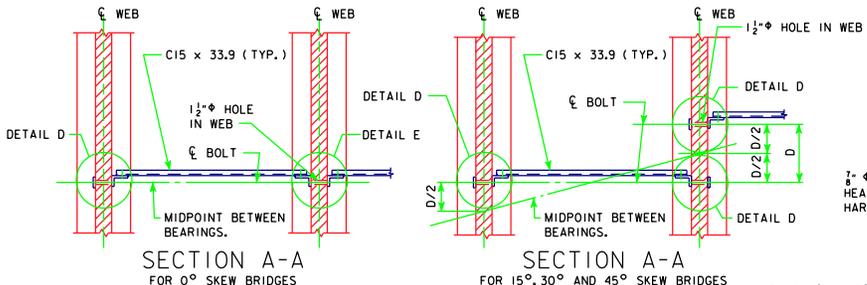


SECTION SHOWING INTERMEDIATE DIAPHRAGM



SECTION A-A FOR 0° SKEW BRIDGES

SECTION A-A FOR 15°, 30° AND 45° SKEW BRIDGES

NOTES:
 ALL DIAPHRAGM MATERIALS, INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.
 SHOP DRAWINGS OF THE STEEL DIAPHRAGMS SHOWING LAYOUT AND DETAILS OF THE DIAPHRAGMS SHALL BE SUBMITTED FOR APPROVAL.
 ALL COSTS FOR FURNISHING AND INSTALLING STEEL INTERMEDIATE DIAPHRAGMS SHALL BE INCLUDED IN THE PRICE BID FOR STRUCTURAL STEEL.
 THE 1 1/2" HOLES FOR THE 7/8" H.S. BOLTS SHALL BE CAST INTO THE WEB. DRILLING IS NOT ALLOWED.
 THE 7/8" H.S. BOLTS THROUGH THE WEB SHALL HAVE A THREAD LENGTH OF 3" MIN. AND 4" MAX. AND SHALL MEET THE REQUIREMENTS OF ASTM A449.
 ALL BOLTS ARE TO BE TIGHTENED PRIOR TO PLACING BRIDGE FLOOR CONCRETE.

CONCRETE DIAPHRAGM DETAILS SHALL BE PROVIDED IN THE BRIDGE PLANS FOR OVERHEAD BRIDGES. DESIGNER SHALL ADJUST THE CONCRETE, REINFORCING AND STRUCTURAL STEEL QUANTITIES ACCORDINGLY.

INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL

ONE CONNECTION DETAIL "E"

2 - 7/8" x LENGTH H.S. BOLTS WITH NUTS AND WASHERS

WEB THICKNESS (IN.)	LENGTH OF H.S. BOLTS (IN.)	WEIGHT PER DETAIL "E" (LB.)	BRIDGE SKEW	
			0°	15°, 30° & 45°
6	9	4.30	12	0
9	12	5.34	12	0
2-L6x4x1/2x1'-3 1/4" = 41.2 LB			12	0
			12	0

ONE CONNECTION DETAIL "D"

2 - 7/8" x LENGTH H.S. BOLTS WITH NUTS AND WASHERS

WEB THICKNESS (IN.)	LENGTH OF H.S. BOLTS (IN.)	WEIGHT PER DETAIL "D" (LB.)	BRIDGE SKEW	
			0°	15°, 30° & 45°
6	9	4.30	6	30
9	12	5.34	6	30
1-BACKING PL 4x3x1'-3 1/4" = 6.5 LB			6	30
1-L6x4x1/2x1'-3 1/4" = 20.6 LB			6	30

*** ONE C15 x 33.9 DIAPHRAGM**

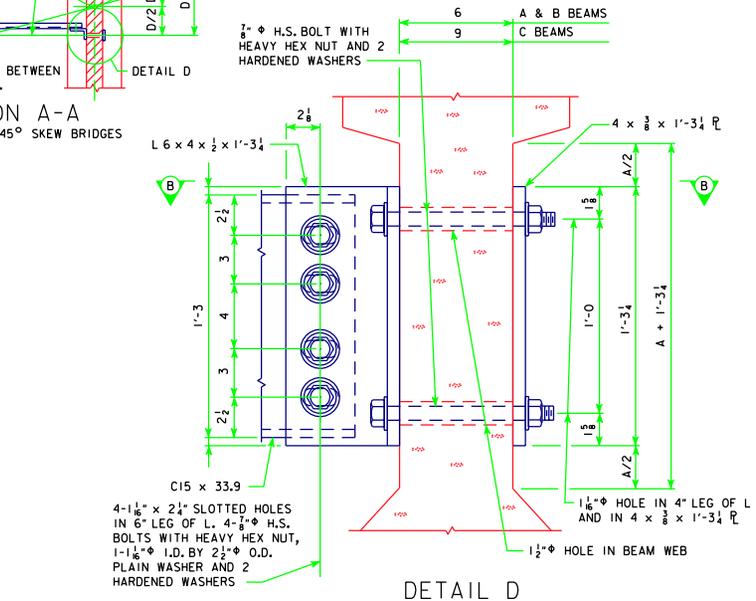
WEB THICKNESS (IN.)	BEAM SPACING	LENGTH	NO. OF DIAPH.	UNIT WEIGHT (LB.)	WEIGHT (LB.)
6	7'-4 1/8"	6'-7 1/8"	15	224.4	3366.2
9	7'-4 1/8"	6'-4 1/8"	15	215.9	3239.0

DIAPHRAGM CONNECTION BOLTS

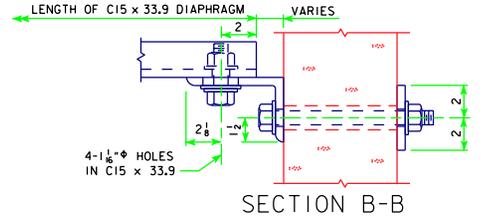
8-7/8" x 0'-2 1/4" H.S. BOLTS WITH NUTS AND WASHERS, PER UNIT DIAPHRAGM = 10.3 LB	NO. OF DIAPH.	WEIGHT (LB.)
	15	154.5

TOTAL WEIGHT

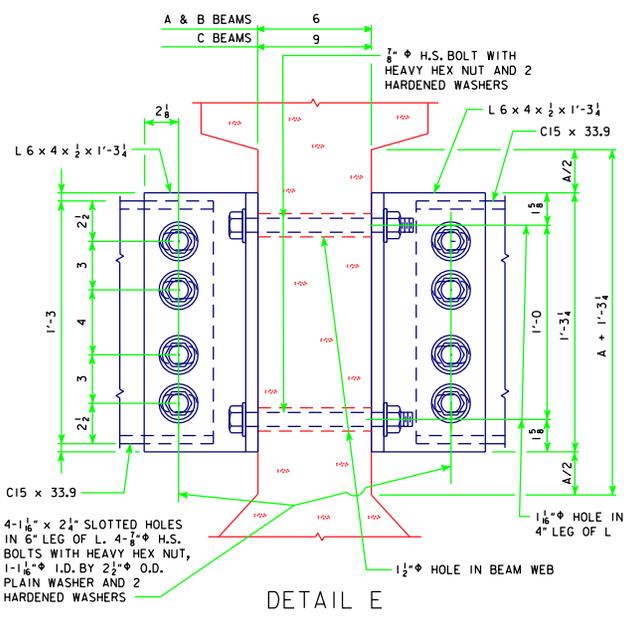
	WEB THICKNESS (IN.)	BRIDGE SKEW
INTERMEDIATE DIAPHR. STRUCT. STEEL - TOTAL (LB.) =	6	4255 4463
INTERMEDIATE DIAPHR. STRUCT. STEEL - TOTAL (LB.) =	9	4147 4367



DETAIL D



SECTION B-B



DETAIL E

BEAM SERIES	DIMENSIONS	
	A + 1'-3 1/4"	A/2
A	1'-4"	3 3/8"
B	1'-8"	2 1/2"
C	2'-1"	4 1/2"

10-09
 LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER
Norman E. McDaniel

Iowa Department of Transportation Highway Division

STANDARD DESIGN - 40' ROADWAY, THREE SPAN BRIDGE
PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
 AUGUST, 2009

INTERMEDIATE STEEL DIAPHRAGMS

H40-38-06

REVISED 10-09 - MINOR CHANGES WERE MADE TO AGREE WITH OFFICE STANDARD.