INDEX FOR H30SI-12 STANDARDS:

EXAMPLES OF BRIDGE SEAT AND STEP CALCULATIONS:

THE DESIGNER SHALL SHOW ON THE PLANS THE 5 ELEVATIONS AND THE 4 STEP DIMENSIONS REQUIRED FOR THE ABUTMENT BRIDGE SEATS.

THE BOXED IN DETAILS IN THE FOLLOWING EXAMPLES SHOW HOW THE INFORMATION SHOULD BE INDICATED ON THE PLANS.

EXAMPLE NO. 1
A STRAIGHT GRADE OF -3.25% WITH THE P.I. STATION OF 103+75.00 AND ELEVATION OF 653.29. THE BRIDGE LENGTH IS 80'-0 ℄ TO ℄ OF ABUTMENT BEARINGS WITH 30° SKEW RIGHT AHEAD.

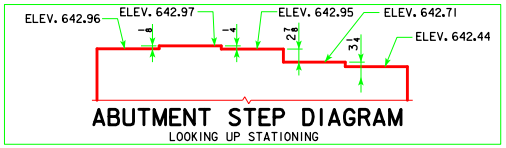
STATIONS
℄ BRIDGE STA. = 105+85.00
℄ ½ OF SPAN LENGTH ± 40.00
℄ ABUT. BRGS. = 106+25.00 105+45.00

ELEVATIONS ALONG PROFILE GRADE LINE (P.G.L. ELEV.)
℄ ABUT. BRG. = 653.29-[(105+45.00)-(103+75.00)](0.0325) = 647.77
℄ ABUT. BRG. = 653.29-[(106+25.00)-(103+75.00)](0.0325) = 645.17

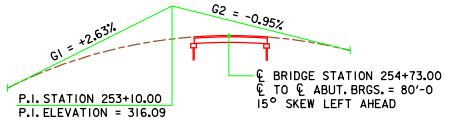
ELEVATIONS TOP OF SLAB FACING ALONG THE STATIONING
(BEAM SPACING)(TAN. SK.Δ)(GRADE) = (7.0)TAN 30°(0.0325) = 0.13'

ABUTMENT NO. 1

BEAMS	EXTERIOR	INTERIOR	CENTER	INTERIOR	EXTERIOR
PGL ELEV.	647.77	647.77	647.77	647.77	647.77
SK. ΔCORRECT	+ 0.26	+ 0.13	0.00	- 0.13	- 0.26
SLAB CROWN	- 0.25	- 0.11	0.00	- 0.11	- 0.25
TOP SLAB ELEV.	647.78	647.79	647.77	647.53	647.26
-"U" (4'-9 7/8)	- 4.82	- 4.82	- 4.82	- 4.82	- 4.82
BR. SEAT ELEV.	642.96	642.97	642.95	642.71	642.44



EXAMPLE NO. 2



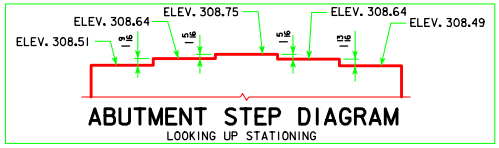
FROM SHEET H30SI-1-12 { LENGTH OF VERTICAL CURVE = (20000)(0.0358) = 716 FEET
M.O. = (0.0358)(716)(1/8) = 3.204 FEET

STATIONS
℄ BRIDGE STA. = 254+73.00 P.I. STA. 253+10.00
℄ ½ OF SPAN LENGTH ± 40.00 ±(½)(LENGTH V.C.) 3+58.00
℄ ABUT. BRGS. = 255+13.00 254+33.00 P.C. STA. 249+52.00
P.T. STA. 256+68.00

ELEVATIONS TOP OF SLAB FACING ALONG THE STATIONING
(BEAM SPACING)(TAN. SK.Δ) = (7.0)TAN 15° = 1.88'

ABUTMENT NO. 1

BEAMS	EXTERIOR	INTERIOR	CENTER	INTERIOR	EXTERIOR
STATION	254+36.75	254+34.88	254+33.00	254+31.12	254+29.25
PGL ELEV.	313.55	313.54	313.54	313.54	313.53
SLAB CROWN	- 0.25	- 0.11	0.00	- 0.11	- 0.25
TOP SLAB ELEV.	313.30	313.43	313.54	313.43	313.28
-"U" (4'-9 7/16)	- 4.79	- 4.79	- 4.79	- 4.79	- 4.79
BR. SEAT ELEV.	308.51	308.64	308.75	308.64	308.49



GENERAL CONSIDERATIONS:

THE H30SI-12 BRIDGE STANDARDS, IF PROPERLY USED, PROVIDE THE STRUCTURAL PLANS NECESSARY TO CONSTRUCT SINGLE SPAN 30' ROADWAY PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES WITH LENGTHS OF 46'-8, 55'-0, 67'-6, 80'-0, 90'-0, 100'-0, AND 110'-0.

THESE BRIDGES MAY BE BUILT ON A 0°, 15° OR 30° SKEW. THESE PLANS SHOW THE BRIDGES SKEWED IN ONE DIRECTION, BUT ALL DIMENSIONS AND DETAILS WOULD BE THE SAME FOR THE OPPOSITE SKEW.

NOTE THAT WHEN APPROACH PAVEMENT IS TO BE PLACED, THE TEMPORARY PAVING BLOCKS SHALL BE REMOVED AND A PROPER JOINT FOR EXPANSION SHALL BE PROVIDED BETWEEN THE BRIDGE AND THE APPROACH PAVING.

THE ABUTMENTS FOR THESE STANDARDS HAVE BEEN DESIGNED FOR FRICTION OR POINT BEARING PILES. IT IS NECESSARY THAT THE LENGTH OF THE ABUTMENT PILES BE DESIGNATED ON THE FRONT SHEET OF THE PLANS.

THESE STANDARDS GIVE MOST OF THE INFORMATION NECESSARY TO BUILD THESE BRIDGES ON EITHER A CREST VERTICAL CURVE OR A STRAIGHT GRADE. BECAUSE OF THE INFINITE NUMBER OF GRADE POSSIBILITIES IT WILL BE NECESSARY TO SHOW ON THE PLANS THE ABUTMENT STEP DIMENSIONS. TO HELP IN OBTAINING THIS STEP INFORMATION SEE "EXAMPLES OF BRIDGE SEAT AND STEP CALCULATIONS" ON THIS SHEET.

PROVIDE TOP OF SLAB ELEVATIONS AND WING ELEVATIONS A, B, AND C AS NOTED ON THE STANDARD SHEETS (LONGITUDINAL SECTION).

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS 5/8 INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

THESE STANDARDS CAN BE USED FOR BRIDGES WITH OR WITHOUT EPOXY COATED REINFORCING. REINFORCING BAR LAP LENGTHS ARE BASED ON THE USE OF EPOXY COATED REINFORCING, BUT NEED NOT BE MODIFIED IF NON-COATED BARS ARE TO BE USED. THE DESIGNER SHALL SPECIFY THE APPROPRIATE BID ITEM NO. FOR THE EPOXY COATED OR NON-EPOXY COATED REINFORCING.

IT IS RECOMMENDED THAT THE EPOXY COATED REINFORCING OPTION BE USED IF IT IS ANTICIPATED THAT THE BRIDGE DECK AND/OR THE BRIDGE APPROACHES WILL BE CHEMICALLY TREATED FOR THE REMOVAL OF ICE OR SNOW.

IF EPOXY COATED BARS ARE USED IN THE DECK, THEN ALL BARS USED IN THE ABUTMENT (FOOTING AND BACKWALL), AND BARRIER RAILS SHALL BE EPOXY COATED.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5th Ed, SERIES OF 2010.

REINFORCING STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 5, GRADE 60.

CONCRETE IN ACCORDANCE WITH LRFD AASHTO SECTION 5, f'c = 4.0 KSI.

FOR 30' STANDARD PRESTRESSED CONCRETE BEAMS, SEE SHEET H30SI-21-12, H30SI-23-12, H30SI-25-12, AND H30SI-27-12.

SPECIFICATIONS:

DESIGN: AASHTO, SERIES OF 2010.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2009, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN - 30' ROADWAY, SINGLE SPAN BRIDGE

PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

APRIL, 2012

INDEX, GENERAL NOTES & GENERAL INFORMATION

H30SI-01-12