H30SI–05 PRETENSIONED
PRESTRESSED CONCRETE
BEAM BRIDGE STANDARDS
ABUTMENT NOTES:
Minimum clear distance from face of concrete to rear reinforcing bar is to be 8" unless otherwise noted or shown.

PART REAR ELEVATION AT ABUTMENT
NOTE: Barrier rail not shown.
(Shown for solid barrier rail)

PART SECTION B-B
NOTE: Spiral at the top of each pile to be 7 turns of No. 7, 3/4" diameter, 3" pitch with 2-7/8 x 3" spacing. Punched to hold spiral.

PART SECTION A-A

ABUTMENT PILE SPACING

<table>
<thead>
<tr>
<th>Dimension</th>
<th>No. of Piles</th>
<th>Spacing Form</th>
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</thead>
<tbody>
<tr>
<td>31&quot; - 8g1</td>
<td>5 - 5 - 6</td>
<td>5 equal spaces</td>
</tr>
<tr>
<td>35&quot; - 8g3</td>
<td>5 - 5 - 6</td>
<td>5 equal spaces</td>
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ABUTMENT PILE PLAN

ABUTMENT DETAILS
20" Slab A & B Beams

Pretensioned Prestressed Concrete Beam Bridges
Standard Design - 30" roadway, single span bridge
January 2020
H20-14 Loading

JOGA Department of Transportation - Highway Division

27 April 2005 (3:51)
## Reinforcing Bar List

### One Superstructure and Two Abutments

<table>
<thead>
<tr>
<th>Bar</th>
<th>Location</th>
<th>Shape</th>
<th>No.</th>
<th>Length</th>
<th>Weigh (%)</th>
<th>No.</th>
<th>Length</th>
<th>Weigh (%)</th>
<th>No.</th>
<th>Length</th>
<th>Weigh (%)</th>
<th>No.</th>
<th>Length</th>
<th>Weigh (%)</th>
<th>No.</th>
<th>Length</th>
<th>Weigh (%)</th>
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<tbody>
<tr>
<td>SLS</td>
<td>SLAB TRANSVERSE 1-2 &amp; 3</td>
<td>168</td>
<td>25'-10</td>
<td>333</td>
<td>32'-10 9719</td>
<td>32'-10 9719</td>
<td>32'-10 9719</td>
<td>32'-10 9719</td>
<td>32'-10 9719</td>
<td>32'-10 9719</td>
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<td>32'-10 9719</td>
<td>32'-10 9719</td>
<td>32'-10 9719</td>
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<td>G6</td>
<td>BENT BAR DETAILS</td>
<td>-</td>
<td>-</td>
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### Bridge Length

- **5d5** & **8f3 & 8f4**
- **8g3**
- **5k1**
- **5k2**
- **5p1 & 5p2**
- **6p3**
- **6p1**

### Concretes Placement Quantities

<table>
<thead>
<tr>
<th>Location</th>
<th>46'-8</th>
<th>55'-0</th>
<th>67'-6</th>
<th>80'-0</th>
<th>90'-0</th>
<th>100'-0</th>
<th>110'-0</th>
<th>200'-0</th>
<th>225'-0</th>
<th>240'-0</th>
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<tr>
<td>SLS A</td>
<td>26,802</td>
<td>26,802</td>
<td>26,802</td>
<td>26,802</td>
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<td>SLS B</td>
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### Deck & Abutment Reinforcement

- **411**

### Pretensioned Prestressed Concrete Beam Bridges

- **January 2025**

---

**Note:** All dimensions are cut to cut. D.P.H. Diameter.
## REINFORCING BAR LIST

<table>
<thead>
<tr>
<th>SUPERSTRUCTURE</th>
<th>BAR</th>
<th>LOCATION</th>
<th>SHAPE</th>
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<th>55'-0&quot;</th>
<th>67'-6&quot;</th>
<th>80'-0&quot;</th>
<th>90'-0&quot;</th>
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## BENT BAR DETAILS

### 5d5
- 8f3 and 8f4

### 5d6, 8f11 and 8f2

### 8g3

### 5k1

### 5k2

### 5p1, 5p2, and 5p4

### 6p3

### 5r1

### 4f1

### CONCRETE PLACEMENT QUANTITIES

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## DECK AND ABUTMENT REINF.

### H3051-15-05
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<th>50-9</th>
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<td>6a</td>
<td>SLAB TRANSVERSE, AT CORNER</td>
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<td>4</td>
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<td>6b</td>
<td>SLAB TRANSVERSE, END, TOP</td>
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<td>11</td>
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<td>20</td>
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<tr>
<td>6c</td>
<td>SLAB TRANSVERSE, END, MID</td>
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<td>20</td>
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<tr>
<td>6e</td>
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<td>7d</td>
<td>FLOOR JOIST, TOP, CENTER</td>
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<td>32</td>
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<td>13</td>
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<td>8a</td>
<td>ADJACENT POSTING, TOP, FLOOR</td>
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<td>4</td>
<td>0</td>
<td>1</td>
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<td>8b</td>
<td>ADJACENT POSTING, TOP, MID</td>
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<td>1</td>
<td>4</td>
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<td>1</td>
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<td>1</td>
<td>4</td>
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</table>

**BENT BAR DETAILS**

- 5d5
- 8f3 & 8f4
- 5d6, 8f1 & 8f2
- 8g3
- 5k1
- 5k2, 5p1, 5p2 & 5p4
- 6p3
- 5ri

**NOTE**: All dimensions are cut to cut, 0" pin diameter.
SLAB LAYOUT

(LEFT AHEAD SKEN SHOWN, RIGHT AHEAD SKEN SIMILAR)

<table>
<thead>
<tr>
<th>SPAN LENGTH (FT.)</th>
<th>12' 0&quot;</th>
<th>12' 6&quot;</th>
<th>13' 0&quot;</th>
<th>13' 6&quot;</th>
<th>14' 0&quot;</th>
<th>14' 6&quot;</th>
<th>15' 0&quot;</th>
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</thead>
<tbody>
<tr>
<td>LOCATION OF EXTREME 60 Bars TO BAR FROM END OF SLAB</td>
<td>2' 0&quot;</td>
<td>2' 0&quot;</td>
<td>2' 0&quot;</td>
<td>2' 0&quot;</td>
<td>2' 0&quot;</td>
<td>2' 0&quot;</td>
<td>2' 0&quot;</td>
</tr>
<tr>
<td>OUT TO OUT OF SLAB</td>
<td>1' 4&quot;</td>
<td>1' 4&quot;</td>
<td>1' 4&quot;</td>
<td>1' 4&quot;</td>
<td>1' 4&quot;</td>
<td>1' 4&quot;</td>
<td>1' 4&quot;</td>
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<tr>
<td>VERTICAL CURVE</td>
<td>5' - 7&quot;</td>
<td>5' - 7&quot;</td>
<td>5' - 7&quot;</td>
<td>5' - 7&quot;</td>
<td>5' - 7&quot;</td>
<td>5' - 7&quot;</td>
<td>5' - 7&quot;</td>
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<tr>
<td>STRAIGHT GRADE</td>
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<td>5' - 7&quot;</td>
<td>5' - 7&quot;</td>
<td>5' - 7&quot;</td>
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<tr>
<td>ABUTMENT REACTION (FLD 4T3 NO IMPACT)</td>
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<td>176.6</td>
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<td>207.4</td>
<td>222.8</td>
<td>238.2</td>
<td>253.6</td>
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END OF SLAB REINFORCING

(TYPICAL EACH END OF DECK)

PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

STANDARD DESIGN - 30' SPAN, SINGLE SPAN BRIDGE

4020-44 LOADING

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

SUPERSTRUCTURE

30' SPAN

H3051-21-05

27-MAR-2015 14:13

Iowa Highway Bridge Wid Standards H3051-21-05 dpn h3051-21-05
<table>
<thead>
<tr>
<th>BAR</th>
<th>LOCATION</th>
<th>AREA</th>
<th>DIA</th>
<th>MIN</th>
<th>MAX</th>
<th>CH</th>
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<th>CAC</th>
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<td>ABUT INVERT BENT</td>
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<td>42</td>
<td>WEDGE BEAMS AT ABUTMENT</td>
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<td>43</td>
<td>WEDGE BEAMS AT EMBANKMENT</td>
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<td>SFC BARRIER Rail DETAILS</td>
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**CONCRETE PLACEMENT QUANTITIES**

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<th>(SUBSTRUCTURE PLUS INTERNAL ABUTMENTS)</th>
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**PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES**

- 120-140 LOAD-WAY
- IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

**DECK & ABUTMENT REIN.**

- H3051-22-05

**NOTE:** ALL DIMENSIONS ARE OUT TO OUT. D-D PIN DIAMETER
LIFTING LOOP DETAIL

ALTERNATIVE TYPES MAY BE UTILIZED WITH THE APPROVAL OF THE ENGINEER. LIFTING LOOPS ARE TO BE STRUCTURAL GRADE.

COIL TIE DETAIL

NUMBER AND EXACT LOCATION OF COIL TIES TO BE DETAILED ON CONDITIONAL SECTION SHEETS.

SPECIFICATIONS:

CONSTRUCTION SHOPS SPECIFICATIONS OF THE IDOT
DEPARTMENT OF TRANSPORTATION, CURRENT SERIES, WITH CURRENT APPLICATIONS SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

DESIGN AASHTO, SERIES OF 1985, WITH MINOR MODIFICATIONS.

REINFORCING BAR LIST

CONCRETE IN ACCORDANCE WITH SECTION 5, F'c = 5000 psi.
PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 6.
F'p = 270000 psi.

AA 401 AND 403 BARS TO BE EPOXY COATED.
WHERE DEFLECTING STRANDS INTERFERENCE WITH PLACEMENT, SOME IN-PLACE BENDING MAY BE NECESSARY.

NOTES:

THES BEAMS ARE DESIGNED FOR ASKED 2002 LIVE LOADS WITH AN ALLOWANCE OF 20 LPS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

HOLD DOWN POINTS FOR DEFLECTED STRANDS MAY BE MOVED TOWARDS END OF BEAM A DISTANCE OF 0.25 L MAXIMUM AT PRODUCER'S OPTION.

ALL PRESSTRESSING STRANDS SHALL CONFORM TO ASTM A416, GRADE 270 LOW RELAXATION STRAND.

TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND FINISHED 500 PER MATERIALS DELTAIL.

BEARINGS SHALL BE DETAIL AS SHOWN ON OTHER DESIGN SHEETS.

THE PORTIONS OF THE PRESTRESS BEAMS THAT ARE TO BE EMBEDDED IN THE ABUTMENT SHALL BE PROTECTED FOR A DISTANCE OF 10" FROM THE BEAM END BY SANDBLASTING OR OTHER APPROVED METHODS TO PROVIDE SUITABLE BOND BETWEEN THE BEAM AND THE DIAPHRAGM IN ACCORDANCE WITH ARTICLE 2001.14 OF THE SPECIFICATIONS.

UNLESS OTHERWISE NOTED, ALL BARS ARE TO BE INCREASED IN LENGTH BY 6000 TO COMPENSATE FOR ELASTIC SHORTENING, CREEP, AND SHrinkage.

HOLES MUST BE CLEAT IN THE MOLD TO ACCOMMODATE THE DIAPERHAGM DIAPHRAGM DETAILS AS SHOWN ON THE DRAWING.

1/8 DIAMETER STRANDS STRESSED TO NOT MORE THAN 3,000 LPS. EACH MAY BE USED IN LIEU OF THE 4 DIAMETERS WHICH RUN THE FULL LENGTH OF THE BEAM IN THE TOP FLANGE.

BEAMS SHALL BE AT LEAST 28 DAYS OLD BEFORE THE SLAB IS PLACED EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.

LSA BEAM DATA

C DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND STEEL DIAPHRAGM.

DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND DIAPHRAGM FOR DETAILING PURPOSES:

TOTAL initial PRESSURE FOR LSAB IS BASED ON 72,664 PSF, AND FOR LSAB IN TSD, F'p = 270000, 6 1/2 = 0.153 sq in.

SECTION A-A SHOWING PLACEMENT OF STIRRUPS NEAR END OF BEAM

LIFTING LOOP DETAIL

ALTERNATIVE TYPES MAY BE UTILIZED WITH THE APPROVAL OF THE ENGINEER. LIFTING LOOPS ARE TO BE STRUCTURAL GRADE.

COIL TIE DETAIL

NUMBER AND EXACT LOCATION OF COIL TIES TO BE DETAILED ON CONDITIONAL SECTION SHEETS.

SPECIFICATIONS:

CONSTRUCTION SHOPS SPECIFICATIONS OF THE IDOT
DEPARTMENT OF TRANSPORTATION, CURRENT SERIES, WITH CURRENT APPLICATIONS SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

DESIGN AASHTO, SERIES OF 1985, WITH MINOR MODIFICATIONS.

REINFORCING BAR LIST

CONCRETE IN ACCORDANCE WITH SECTION 5, F'c = 5000 psi.
PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 6.
F'p = 270000 psi.

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HOLD DOWN POINTS FOR DEFLECTED STRANDS MAY BE MOVED TOWARDS END OF BEAM A DISTANCE OF 0.25 L MAXIMUM AT PRODUCER'S OPTION.

ALL PRESSTRESSING STRANDS SHALL CONFORM TO ASTM A416, GRADE 270 LOW RELAXATION STRAND.

TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND FINISHED 500 PER MATERIALS DELTAL.

BEARINGS SHALL BE DETAIL AS SHOWN ON OTHER DESIGN SHEETS.

THE PORTIONS OF THE PRESTRESS BEAMS THAT ARE TO BE EMBEDDED IN THE ABUTMENT SHALL BE PROTECTED FOR A DISTANCE OF 10" FROM THE BEAM END BY SANDBLASTING OR OTHER APPROVED METHODS TO PROVIDE SUITABLE BOND BETWEEN THE BEAM AND THE DIAPHRAGM IN ACCORDANCE WITH ARTICLE 2001.14 OF THE SPECIFICATIONS.

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UNLESS OTHERWISE NOTED, ALL BARS ARE TO BE INCREASED IN LENGTH BY 6000 TO COMPENSATE FOR ELASTIC SHORTENING, CREEP, AND SHrinkage.

HOLES MUST BE CLEAT IN THE MOLD TO ACCOMMODATE THE DIAPERHAGM DIAPHRAGM DETAILS AS SHOWN ON THE DRAWING.

1/8 DIAMETER STRANDS STRESSED TO NOT MORE THAN 3,000 LPS. EACH MAY BE USED IN LIEU OF THE 4 DIAMETERS WHICH RUN THE FULL LENGTH OF THE BEAM IN THE TOP FLANGE.

BEAMS SHALL BE AT LEAST 28 DAYS OLD BEFORE THE SLAB IS PLACED EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.
NOTE: DIMENSIONS FOR THE LOCATION OF THE DEFLECTED STRANDS ARE AT 1/4 BEAM AND END OF BEAM.

BEAM LXA46

BEAM LXA46

NOTE: BARS 601 AND 602 ARE TO BE PLACED IN PAIR.

A = 31.5 in²
T = 1403 lb
I = 74,692 in⁴

BEAM LXA55

BEAM LXA55

NOTE: BARS 601 AND 602 ARE TO BE PLACED IN PAIR.

A = 31.5 in²
T = 1403 lb
I = 74,692 in⁴

PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

STANDARD DESIGN - 60' SPAN, SINGLE SPAN BRIDGE

PRETENSIONED BEAM DETAILS

LXA46 - LXA55 BEAM DETAILS H3051-25-05
LXC BEAM DATA

- **Material:** Concrete Beam
- **Weight:** 23.8 Tons
- **Camber:** 1/32
- **Deflection:** 1/32
- **Steel:** 1/4" THICK PLATE

**NOTES:**
- These beams are designed for ASD/90 live loads with an allowance of 20 lbs per square foot of roadway for future wearing surface.
- Hold down points for deflected strands may be moved toward ends of beam a distance of 6 to 8 ft in accordance with the manufacturer's instructions.
- All prestressing strands shall conform to ASTM A416 Grade 70, low-relaxation strands.
- Tandem loads shall be applied at 48" centres.
- Tops of beams are to be strike off level and finished as per materials, etc.
- Bearings shall be as detailed on other design sheets.
- The portions of the prestressed beams that are to be embedded in the abutment shall be provided for a distance of 8 ft from the beam line by procedures of the designer or other approved methods to provide suitable bond between the beam and the diaphragm in accordance with Article 240.14 of the specifications.
- Unless otherwise noted, all bearings are to be increased in length to 72" to compensate for elastic shortening, creep and shrinkage.
- Holes must be cast in the web to accommodate the steel diaphragm attachments as detailed on the steel diaphragm detail sheets.
- **Diameter:** Strands stressed to not more than 5/8000 L/FL.

**SPECIFICATIONS:**
- Construction standard specifications of the Iowa Department of Transportation, current series, with current applicable special provisions and supplement.

**REINFORCING BAR LIST:**
- **Beam:** LXC-10
- **Span:** 80 ft
- **No. of Bars:** 40
- **Dia. 4-1/2:** 4
- **Dia. 2:** 10
- **Dia. 3:** 6

**COIL TIE DETAIL:**
- **Number and fixed location of coils used.**
- **Ties to be as detailed as longitudinal section sheets.**

**LIFTING LOOP DETAIL:**
- Alternate types may be substituted with the approval of the engineer.
- Lifting loops are to be structural grade.

**SECTION A-A SHOWING PLACEMENT OF STIRRUPS NEAR END OF BEAM:**
- Coils tie is minimum 5000 lbs full out capacity.

**STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS:**
- Four top reflected or straight strands are to be cut with 1/16 projections and shop bent up or down as shown (tend top and bottom forms). The remaining top strands are to be cut with 1/16 projections.
- Four bottom strands are to be cut with 1/16 projections and shop bent as shown. The remaining bottom strands shall be cut off reasonably flush with the concrete.

**NOTES:**
- These beams are designed for ASD/90 live loads with an allowance of 20 lbs per square foot of roadway for future wearing surface.
- Hold down points for deflected strands may be moved toward ends of beam a distance of 6 to 8 ft in accordance with the manufacturer's instructions.
- All prestressing strands shall conform to ASTM A416 Grade 70, low-relaxation strands.
- Tandem loads shall be applied at 48" centres.
- Tops of beams are to be strike off level and finished as per materials, etc.
- Bearings shall be as detailed on other design sheets.
- The portions of the prestressed beams that are to be embedded in the abutment shall be provided for a distance of 8 ft from the beam line by procedures of the designer or other approved methods to provide suitable bond between the beam and the diaphragm in accordance with Article 240.14 of the specifications.
- Unless otherwise noted, all bearings are to be increased in length to 72" to compensate for elastic shortening, creep and shrinkage.
- Holes must be cast in the web to accommodate the steel diaphragm attachments as detailed on the steel diaphragm detail sheets.
- Diameter strands stressed to not more than 5/8000 L/FL.

**CONCRETE BEAM BRIDGES:**
- Standard design - 80' span, single span bridge
- Iowa Department of Transportation - Highway Division
- H305-1-28-05

27-MAY-2005 14:14
- Textures - 90356-25.dgn - H30512805
NOTED DIMENSIONS FOR THE LOCATION OF THE DEFLECTED STRANDS ARE AT 1/2 BEAM AND END OF BEAM.

BEAM LXC80

NOTE: BARS 605 AND 3d ARE TO BE PLACED IN PADS.

- DEFLECTED STRANDS
- KEEP
- DIMENSIONS AT END OF BEAM
- EPOXY COATED BARS

BEAM LXC80

a = 5644.5 in²

\[ \frac{a}{b} = 20.23 \, \text{in} \]

\[ \frac{c}{d} = 16.364 \, \text{in} \]

27-MAR-2005 14:10

Iowa Department of Transportation - Highway Division

LXC80 Beam Details

H305-29-05
NO NOTES:

These beams are designed for axially loaded live loads with an allowance of 20 psi per square foot of roadway for future netting surface.

Hold down points for deflected strands may be moved toward ends of beam if distance from centerline is less than maximum on project.

All prestressing strands shall conform to ASTM A416 Grade 70 low relaxation strands.

Tops of beams are to be struck off level and finished as per materials in Table 1.

Bearings shall be as detailed on other design sheets.

The portions of the Prestress beams that are to be embedded in the concrete shall be roughened for a minimum of 3" around the beam end by standard means or on other approved methods to provide surface bond between the beam and the concrete in accordance with Article 2405 of the Specifications.

Unless otherwise noted, all beams are to be increased in length by 4" for compensation for elastic shortening, creep and shrinkage.

Holes must be cast in the slab to accommodate the steel bar attachments as detailed on the steel bar detail sheet.

For transporting the overhang shall be in accordance with Art. 30513 of 305 Spec. Except the overhang may be increased to a maximum of 8 feet for the LBD and 7 feet for the LBD and 2 feet for the LBD beam. If beam concrete strength is 5700 psi, then beam overhang may be increased as follows: 17 feet for the LBD beam and 14 feet for the LBD beam.

The contractor shall assume the lateral stability of the LBD and LBD beam during handling, transportation and erection by providing temporary bracing as needed.

All strands stressed to not more than 3000 lbs. each may be used in lieu of the A 100 gals which run the full length of the beam in the top flange.

Beams shall be at least 28 days old before the slab is placed except as otherwise approved by the engineer.
NOTE: DIMENSIONS FOR THE LOCATION OF THE DEFLECTED STRANDS ARE AT & BEAM AND END OF BEAM.

SYMETRICAL ABOUT £

TYPICAL "LXD" BEAM CROSS SECTION

AREA = 363,765 in²
W = 24,951 in
I = 214,574 in⁴

2, 6"d

505 in² C'S TIE TO 461 & 162

2 - 5°10'

2 - 6"d

505 in² C'S TIE TO 461 & 162

2 - 8"d

505 in² C'S TIE TO 461 & 162

505 in² C'S TIE TO 461 & 162

10°-0 £ - £ BEARINGS
10°-0 END TO END OF BEAM

10°-0 £ - £ BEARINGS
10°-0 END TO END OF BEAM

BEAM LXD90

BEAM LXD100

DEFLECTED STRANDS
KEEP

DIMENSIONS AT END OF BEAM
AA C'PPLY COATED BARS

27-MAY-2005 14:15

LX090 & LX0100 BEAM DETAILS H301-05-06
NOTED: DIMENSIONS FOR THE LOCATION OF THE DEFLECTED STRANDS
ARE AT BEAM AND END OF BEAM.

TYPICAL "LXD" BEAM CROSS SECTION
AREA = 638.75 in²
I₁ = 244.37 in⁴
LXDII0 BEAM DETAILS
H305I-32-05
NOTES:
ALL DIAPHRAGM MATERIALS, INCLUDING BOLTS, NUTS AND WASHERS
SHALL BE GALVANIZED.
SHIP 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 1/4" HOLES FOR THE 2" H.T.S. BOLTS SHALL BE CAST INTO
THE WEB. DRILLING IS NOT ALLOWED.
THE 2" H.T.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.

SECTION SHOWING INTERMEDIATE DIAPHRAGM

INTERMEDIATE DIAPHRAGM
STRUCTURAL STEEL

ONE CONNECTION DETAIL "E"
2 2/"8" LENGTH H.T.S. BOLTS WITH NUTS AND WASHERS
THICKNESS: 1/8"
WEIGHT: 1/2 LB.
DETAIL: "E"

ONE CONNECTION DETAIL "D"
2 2/"8" LENGTH H.T.S. BOLTS WITH NUTS AND WASHERS
THICKNESS: 1/8"
WEIGHT: 1/2 LB.
DETAIL: "D"

ONE C15 x 33.9 DIAPHRAGM
BEAM STAINLESS
THICKNESS: 1/2"
WEIGHT: 1/2 LB.
LENGH: 24" (9)

DIAPHRAGM CONNECTION BOLTS
8 1/8" 1/2 LB. BOLTS WITH NUTS
AND WASHERS, FOR UNIT DIAPHRAGM

SECTION B-B
TABLE OF BARRIER RAIL DIMENSIONS AND NUMBERS

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<th>CODE</th>
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<th>30°</th>
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</tbody>
</table>

BARRIER RAIL NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BARS IS 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BILLED ON PLAN QUANTITIES.

PRICE BID FOR CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR TURNING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. IF CONCRETE IS REQUIRED IN THIS PLAN THE BIDDER SHALL INCLINE ALL ADDITIONAL WORK TO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

ALL BARRIER RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL.

THE JOINT SEALER SHALL BE LIGHT GRAY NOSAC LATEX CURING SEALER MANUFACTURED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL E-GRADING.

CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 24 SQUARE FEET.

CONCRETE BARRIER RAILS PLACED USING THE SLIPFORM METHOD WILL REQUIRE THE USE OF A CLASS B CONCRETE IN ACCORDANCE WITH ARTICLE 1110 OF THE STANDARD SPECIFICATION. CLASS C CONCRETE IS NOT PERMITTED FOR CONCRETE BARRIER RAILS PLACED USING THE SLIPFORM METHOD.
OPEN RAIL REINFORCING BAR LIST - TWO RAILS

NOTE: THESE REINFORCING BARS TO BE USED ON ALL SHEARS.

<table>
<thead>
<tr>
<th>BAR</th>
<th>LOCATION</th>
<th>SHAPE</th>
<th>40'-6&quot;</th>
<th>55'-0&quot;</th>
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Note: All reinforcement to be epoxy coated if epoxy coating option is used. See Sheet H3051-09-D, H3051-16-05 and H3051-23-05.

CONCRETE OPEN RAIL QUANTITIES

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<tr>
<th>BRIDGE LENGTH</th>
<th>UNIT</th>
<th>40'-6&quot;</th>
<th>55'-0&quot;</th>
<th>67'-6&quot;</th>
<th>80'-0&quot;</th>
<th>90'-0&quot;</th>
<th>100'-0&quot;</th>
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<td>12&quot;</td>
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CONCRETE PLACEMENT QUANTITIES

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OPEN RAIL DEATLIES

[Diagram and specifications related to open rail details]