Document 2. Drawings and Standards

Webb Chapel Bridge

Pol Pellisé Tintoré
<table>
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<tr>
<th>LOCATION</th>
<th>TYPE OF FOUNDATION</th>
<th>DS SIZE</th>
<th>TOP OF DRILLED SHAFT ELEVATIONS</th>
<th>MINIMUM TF ELEVATION</th>
<th>SSS TOP OF STRATUM ELEVATION</th>
<th>MINIMUM PIER­TATION INTO STRATUM (Ft)</th>
<th>END BEARING STRATUM</th>
<th>PROPOSED MINIMUM LENGTH OF DRILLED SHAFT (Ft)</th>
<th>ULTIMATE MAX REACTION (KNPS)</th>
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(!) TOP OF S.S ELEVATION SHOWN WILL BE LOCATED
2'-0" MINIMUM BELOW FINISHED GRADE
| AREA 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|-------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|       | 499.53 | 498.61 | 499.70 | 499.78 | 498.90 | 498.68 | 500.07 | 500.16 | 500.24 | 500.33 | 500.41 | 500.50 | 500.53 | 500.47 | 500.45 | 500.38 | 500.36 | 500.25 | 500.21 | 500.15 | 500.10 | 500.06 | 500.01 |
| AREA 2 |       | 500.69 | 500.69 | 500.69 | 500.70 | 500.78 | 500.79 | 500.83 | 500.87 | 500.88 | 500.81 | 500.76 | 500.75 | 500.72 | 500.70 | 500.69 | 500.66 | 500.62 | 500.58 | 500.53 | 500.48 | 500.40 | 500.35 |
| AREA 3 |       | 500.11 | 500.20 | 500.28 | 500.37 | 500.43 | 500.46 | 500.41 | 500.37 | 500.32 | 500.27 | 500.23 | 500.20 | 500.17 | 500.14 | 500.10 | 500.06 | 500.01 | 500.00 | 500.00 | 500.00 | 500.00 | 500.00 |

**BEARING SEAT ELEVATIONS**

**Escola de Camins**

Pol Pellise

José Turro and Gonzalo Ramos

Carlos Fernández Lillo

LBJ
BRIDGE No 33 IRWCH
DALLAS (TEXAS)
SECTIONS A-A

SECTIONS B-B

APPROACH SLAB (FLUSH WITH TOP OF SLAB)

WS (ADJUST AS REQUIRED TO AVOID DRILLED SHAFT REAR)

LBJ
BRIDGE No 33 IRWCH
DALLAS (TEXAS)
SPAN 1 & 2 - TYPICAL TRANSVERSE SECTION

TABLE OF OVERHANG

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SPAN 1 & 2 - TYPICAL TRANSVERSE SECTION

Table of Overhang:

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<th>Veh</th>
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<td>3.000'</td>
<td>2.750'</td>
<td>2.750'</td>
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<td></td>
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1. TYPICAL SECTION & ABUTMENT

TYPICAL SECTION - PRECAST OR C.I.P. COPING W/ FLUME

1. NOT TO SCALE
2. NOT TO SCALE

12 + 67.81 - 12 + 88.88
12 + 83.89 - 14 + 00.00

Pol Pellise
Jose Turmo and Gonzalo Ramos
Carlos Fernandez Lillo

LBG
BRIDGE No.33 IRWCH
DALLAS (TEXAS)
STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION
PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT
FEDERAL AID PROJECT

IH-635 MANAGED LANES PROJECT
IH 635 - IH 35E - LOOP 12
DALLAS COUNTY

SEGMENT 2A

IFC ROADWAY PLANS
WEBB CHAPEL ROAD AND MARSH LANE

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STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT
C63-334-008-00, ETC.

IH-635 MANAGED LANES PROJECT
IH 635 - IH 35E - LOOP 12
DALLAS COUNTY

SEGMENT 2A

TRAFFIC CONTROL PLANS
WEBB CHAPEL ROAD ROADWAY CONSTRUCTION

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TxDot Standards

Bearing Pads
Precast Panels
Permanent Metal Deck Forms
Thickened Slab Ends
Sealed Expansion Joints
Approach Slab
C221 Rail
Illumination
To reduce the quantity of cast-in-place concrete, bedding strip thickness may be increased in 3" increments. Bedding strips must be comprised of one layer. Bond bedding strip to the beams with an adhesive compatible with the selected grout. The process of bedding strips is critical to panels. The same thickness strip must be used under any one panel edge and the maximum change in thickness between adjacent panels is 3/8". Additionally, bedding strips may be cut to grade. Panels may be supported by an alternate method as approved by the Engineer of Bridge Design, Bridge Division. If bedding strips exceed 4" high, use Special Grading Detail for Concrete Beams or submit an alternate method to the Bridge Division for approval.

1. Height must not exceed twice the width.
2. Provide level plane of bedding strips at 45° Max.
3. Space Bars UP(#4) with Beam Bars R(#4) in all areas where measured haunch exceeds 3" or 3" high with Prestressed Concrete I-Girders. Epoxy coating for Bars UP is not required.
4. Do not locate construction joints on top of a panel.
5. Butt adjacent bedding strips together with adhesive. Cut n-thatches, approx 1/2" deep, in the top of the bedding strips 8 o.c.

CONSTRUCTION NOTES:
Epoxy panels may be uniformly on bedding strips of extruded plastic on top of a panel edges or submittal for the contract. If additional bedding is needed, special grading details for supporting the panels and extruding between beam and slab will be considered subsidiary to the bid items. Design and distribution of bedding strips to panels is considered subsidiary to the bid items. See Span Details for other possible restrictions on their use.

MATERIALS:
Provide Grade 50 reinforcing steel in the cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement. See Span Details for horizontal and vertical reinforcing bars. If additional bedding is needed, special grading details for supporting the panels and extruding between beam and slab will be considered subsidiary to the bid items. Design and distribution of bedding strips to panels is considered subsidiary to the bid items. See Span Details for other possible restrictions on their use.

GENERAL NOTES:
- Provide Grade 50 reinforcing steel in the cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement.
- For clear cover as indicated, unless otherwise shown on Span Details.
- Provide bar laps, where required, as follows: Grade 60 reinforcing steel in the cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement.
- Self-drilling, self-tapping screws are used for supporting the panels and extra reinforcing between beam and panel. The minimum vertical opening must be at least 9.6. See Span Details for other possible restrictions on their use.

TYPICAL SECTION AT PANEL JOINT
(Panels reinforcing is shown for clarity. The panel cannot be considered as a panel fabrication tolerance.)

HANCHING AND PANELING
- Butt Joint
- Provide clear cover as indicated, unless otherwise shown on Span Details.
- See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels in accordance with panel clear cover.
- Space Bars U(#4) with Beam Bar R(#4) in all areas where measured haunch exceeds 3" or 3" high with Prestressed Concrete I-Girders. Epoxy coating for Bars UP is not required.
- Do not locate construction joints on top of a panel.
- Butt adjacent bedding strips together with adhesive. Cut n-thatches, approx 1/2" deep, in the top of the bedding strips 8 o.c. in the top of the panel.

Bedding Strip Detail 1
- To reduce the quantity of cast-in-place concrete, bedding strip thickness may be increased in 3" increments. Bedding strips must be comprised of one layer. Bond bedding strip to the beams with an adhesive compatible with the selected grout. The process of bedding strips is critical to panels. The same thickness strip must be used under any one panel edge and the maximum change in thickness between adjacent panels is 3/8". Additionally, bedding strips may be cut to grade. Panels may be supported by an alternate method as approved by the Engineer of Bridge Design, Bridge Division. If bedding strips exceed 4" high, use Special Grading Detail for Concrete Beams or submit an alternate method to the Bridge Division for approval.

1. Height must not exceed twice the width.
2. Provide level plane of bedding strips at 45° Max.
3. Space Bars UP(#4) with Beam Bars R(#4) in all areas where measured haunch exceeds 3" or 3" high with Prestressed Concrete I-Girders. Epoxy coating for Bars UP is not required.
4. Do not locate construction joints on top of a panel.
5. Butt adjacent bedding strips together with adhesive. Cut n-thatches, approx 1/2" deep, in the top of the bedding strips 8 o.c. in the top of the panel.

Bedding Strip Detail 1
- To reduce the quantity of cast-in-place concrete, bedding strip thickness may be increased in 3" increments. Bedding strips must be comprised of one layer. Bond bedding strip to the beams with an adhesive compatible with the selected grout. The process of bedding strips is critical to panels. The same thickness strip must be used under any one panel edge and the maximum change in thickness between adjacent panels is 3/8". Additionally, bedding strips may be cut to grade. Panels may be supported by an alternate method as approved by the Engineer of Bridge Design, Bridge Division. If bedding strips exceed 4" high, use Special Grading Detail for Concrete Beams or submit an alternate method to the Bridge Division for approval.

1. Height must not exceed twice the width.
2. Provide level plane of bedding strips at 45° Max.
3. Space Bars U(#4) with Beam Bars R(#4) in all areas where measured haunch exceeds 3" or 3" high with Prestressed Concrete I-Girders. Epoxy coating for Bars UP is not required.
4. Do not locate construction joints on top of a panel.
5. Butt adjacent bedding strips together with adhesive. Cut n-thatches, approx 1/2" deep, in the top of the bedding strips 8 o.c. in the top of the panel.
OPTION 1 ~ PLAN OF SLABS WITH NORMAL REINFORCEMENT

- **OPTION 1 ~ PLAN OF SLABS WITH SKewed REINFORCEMENT**

- **OPTION 1 ~ ELEVATIONS AT BEAM ENDS**

- **TABLE OF REINFORCING STEEL**

- **PRESTRESSED CONCRETE PANELS DECK DETAILS**

- **PCP**

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- **FILE:** DIAPHRAGMS FOR STEEL BMS

- **DATE:** January 2015

- **FILE:** pcpsdte1.dgn

- **REVISIONS**

- **JMH**

- **DIAMETER**

- **HIGHWAY**

- **COUNTY**

- **DIVISION**

- **SECT**

- **DN:**

- **COUNTY JOB**

- **HIGHWAY JOB**

- **SHEET NO.**

- **COUNTY JOB**

- **HIGHWAY JOB**

- **SHEET NO.**
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<tr>
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**Reinforcing Thickness**

- **Bar (Typ)** + 2" Max
- **Spa** (in.)
  - **Min**
    - L Beams: 4" thick
    - L Interior Bent: 3" thick
    - L Exp Jt: 2" thick
  - **Max**
    - L Beams: 4" thick
    - L Interior Bent: 3" thick
    - L Exp Jt: 2" thick
  - **Skew** top flange of Abut Bkwl or Face of Inverted-T Stem

---

**OPTION 2 - PLAN OF SLAB**

(Showing 3 beams; other beams similar)

- Place first P panel to slab edge (Typ). Field bend as needed.
- Place panel within 1/2" of slab edge and end panel within 1/2" of slab width.
- 1/2" thick steel form. Removable forms are acceptable.
- Place additional #4 bar continuous 2'-4" beyond each side of Inverted-T Stem between every slab bar.
- Top Plastic Joint Former at Controlled Joints.
- Bedding strips under skewed end panels must conform to the requirements of Item 425 except their minimum compressive strength must be 40 psi. Prestress bars AA, G, K and OA from standard TIGTS(MOD) in the slab.

**OPTION 2 - ELEVATIONS AT BEAM ENDS**

- Place end panel within 1/2" of expansion joint opening.
- Place additional #4 bar 2'-4" in length between every slab bar and control #4 bar on joint.
- Additional #4 bar continuous 2'-4" beyond each side of Inverted-T Stem between every slab bar.

**SPECIAL OPTION 2 CONSTRUCTION NOTES:**

- Provide Bars AA, G, K and OA from standard IGTS(MOD) to the requirements of Item 425 except their minimum compressive strength must be 40 psi.
- Prestress bars AA, G, K and OA from standard TIGTS(MOD) in the slab.

---

**CONVENTIONAL INTERIOR BENT**

Panel against Panel between structures.

**INVERTED-T BENT**

Panel against Inverted-T Stem.

---

**OPTION 2 - SHOWING MODIFICATION TO BEAM/GIRDER TOP FLANGE FOR SKEWS OVER 5°**

Showing 3 beams; other beams similar.

- Skew top flange of Abut Bkwl or Face of Inverted-T Stem as shown for flap edge supporting a panel. Not applicable to flap edges on exterior side of Tascia or Bms/Girders.

---

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The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

**DISCLAIMER:**

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**FILE:**

**DATE:**

**FILE:**

**COUNTY:**

**SECT:**

**DIST:**

**REVISIONS:**

---

**SECTION A-A**

**SECTION A-A**

**DETAIL "A"**

**DETAIL "B"**

**WIDENING DETAILS**

---

**PERMANENT METAL DECK FORMS**

---

**DETAILS AT ENDS OF BEAMS**

---

**FACE SHEET:**

**DRAWN:**

**CHECKED:**

**APPROVED:**

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**Texas Department of Transportation**

**Bridge Design Standard**

**SHEET 2 OF 2**

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**DATE:**

**DRAWN:**

**CHECKED:**

**APPROVED:**

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**File:**

**Page:**

**File:**

**Count:**

**Sheet:**

**H R Sheet**

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**PMD:**

**File:**

**Page:**

**File:**

**Count:**

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**H R Sheet**
**TABLE OF SEALED EXPANSION JOINT INFORMATION**

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<tr>
<td>5&quot; JOINT</td>
<td>5&quot;</td>
<td>6&quot;</td>
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**RECOMMENDED LONGITUDINAL MOVEMENT**

- **45°**: 1.0 in.
- **30°**: 1.5 in.
- **15°**: 2.0 in.
- **0°**: 3.0 in.

**DESIGN NOTES**

- Carefully plan installations on a site scale to accommodate longitudinal movement.
- Use table values in the design calculations.
- Decide on the correct joint size for skewed installations.
- For skewed joints over 25°, use table values to determine the correct joint size for skewed installations.

**FABRICATION NOTES**

- Temporarily shop assemble corresponding temporary bracing to ensure that the joint can be installed on site as per the manufacturer's installation procedures.
- Provide the Engineer's approval if fabrication is in accordance with the details shown on the plans.
- The seal must be continuous and includes the use of the correct sealant in the price bid for the Sealed Expansion Joint.

**GENERAL NOTES**

- Provide Sealed Expansion Joints in the size and at locations shown on the plans.
- Minimize slab and subgrade thickness required for the use of SEJ-A is 6 ½".

---

**GENERAL NOTES**

- Cast or install barrier median after construction of the slab and at locations shown on the plans.
- Steel sections shown is typical. Variations in sections must be approved by the Engineer.
- Other conditions affecting the joint profile should be noted elsewhere.
- These openings are also the recommended minimum installation openings.
- Reduce for sidewalk or parapet heights less than 7 ½".
- Other conditions affecting the joint profile should be noted elsewhere.
- Move transverse bars that are in conflict with SeJ-A studs to the junction of the studs.
- Weld top and bottom of shop splice distance to 2" Min and 4" Max.
-Do not use erection bolts.

---

**PLAN OF END CONDITIONS**

- Used for Watson Bowman Acme and D.S. Brown joint systems.
- Shows typical installations.
- Principles of shop welding.
- Sealed Expansion Joints will not require the Engineer's approval if fabrication is in accordance with the details shown on the plans.
- Provide the Engineer's approval if fabrication is in accordance with the details shown on the plans.

---

**GENERAL NOTES**

- Cast median after construction of the slab and at locations shown on the plans.
- Steel sections shown is typical. Variations in sections must be approved by the Engineer.
- Other conditions affecting the joint profile should be noted elsewhere.
- These openings are also the recommended minimum installation openings.
- Reduce for sidewalk or parapet heights less than 7 ½".
- Other conditions affecting the joint profile should be noted elsewhere.
- Move transverse bars that are in conflict with SeJ-A studs to the junction of the studs.
- Weld top and bottom of shop splice distance to 2" Min and 4" Max.
- Do not use erection bolts.
**Joint Detail**

**See Sealed Construction Joint Detail**

**Approach Slab**

**Concrete Pavement**

**Transverse Section**

**SECTION A-A**

**SECTION B-B**

**SECTION C-C**

**SECTION D-D**

**BAR TABLE**

**APPROXIMATE QUANTITIES**

- **Reinforcing steel weight =** 8.5 Lbs/SF of Approach Slab
- **Vol of Appr Slab Conc (ft³) =** 0.052W + 1.052W - 0.093W x T + 0.02W
- **T = Conc Pavement Thickness (in)**
- **W = Width of Approach Slab (ft)**
- **S = Skew Angle (deg)**

1. Place Bars B and D in this region (1'-6" Max Spa, 3'-6" Min Spa). Minimum clear length of 2'-0". Bend bars as necessary.
2. Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
3. See details elsewhere in plans for shoulder drain location and details.
4. For Contractor's information only.
5. On portion of support slab that supports the concrete pavement, adjust top surface elevation, if required, to accommodate concrete pavement thickness and required grade plane. Oil top of support slab with 60 grade oil and apply heavy coat of powdered graphite. Press down one layer of 30# roofing felt. Cure for 4 days using water or membrane curing per Table 422.
6. Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
7. Provide multiple piece tie bars that are acceptable at longitudinal construction joints provided minimum cross section is achieved.
8. See details elsewhere in plans for required cross-slope.
9. Place in accordance with Item 422.
10. Place ½ Preformed dilatancy fiber material between concrete cabling and top of approach slab as shown. Concrete cabling project over the approach slab.

**GENERAL NOTES:**

- Provide Class "S" concrete with a minimum compressive strength of 4,000 psi.
- Provide Grade 60 reinforcing steel.
- Construct the support slab from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.
- Provide a 1" bondbreaker (asphaltic concrete pavement material) between the approach slab and adjacent concrete pavement. Bondbreakers may be used if approved by the Engineer.
- Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
- Provide multiple piece tie bars that are acceptable at longitudinal construction joints provided minimum cross section is achieved.
- Place in accordance with Item 422.
- Provide a 1" bondbreaker (asphaltic concrete pavement material) between the approach slab and adjacent concrete pavement. Bondbreakers may be used if approved by the Engineer.

**BARS E (#5)**

- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max

**BARS F (#5)**

- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max

**APPROXIMATE QUANTITIES**

- **Vol of Appr Slab Conc (ft³) =** 0.052W + 1.052W - 0.093W x T + 0.02W
- **W = Width of Approach Slab (ft)**
- **T = Conc Pavement Thickness (in)**
- **S = Skew Angle (deg)**

**SECTION D-D**

**PLAN**

**(Showing Non-Stowe Approach Slab)**

**PLAN**

**(Showing Between Approach Slab)**

**SECTION C-C**

**SECTION D-D**

**SECTION A-A**

**SECTION B-B**

**SECTION C-C**

**SECTION D-D**

**BAR TABLE**

**APPROXIMATE QUANTITIES**

- **Reinforcing steel weight =** 8.5 Lbs/SF of Approach Slab
- **Vol of Appr Slab Conc (ft³) =** 0.052W + 1.052W - 0.093W x T + 0.02W
- **T = Conc Pavement Thickness (in)**
- **W = Width of Approach Slab (ft)**
- **S = Skew Angle (deg)**

1. Place Bars B and D in this region (1'-6" Max Spa, 3'-6" Min Spa). Minimum clear length of 2'-0". Bend bars as necessary.
2. Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
3. See details elsewhere in plans for shoulder drain location and details.
4. For Contractor's information only.
5. On portion of support slab that supports the concrete pavement, adjust top surface elevation, if required, to accommodate concrete pavement thickness and required grade plane. Oil top of support slab with 60 grade oil and apply heavy coat of powdered graphite. Press down one layer of 30# roofing felt. Cure for 4 days using water or membrane curing per Table 422.
6. Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
7. Provide multiple piece tie bars that are acceptable at longitudinal construction joints provided minimum cross section is achieved.
8. See details elsewhere in plans for required cross-slope.
9. Place in accordance with Item 422.
10. Place ½ Preformed dilatancy fiber material between concrete cabling and top of approach slab as shown. Concrete cabling project over the approach slab.

**GENERAL NOTES:**

- Provide Class "S" concrete with a minimum compressive strength of 4,000 psi.
- Provide Grade 60 reinforcing steel.
- Construct the support slab from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.
- Provide a 1" bondbreaker (asphaltic concrete pavement material) between the approach slab and adjacent concrete pavement. Bondbreakers may be used if approved by the Engineer.
- Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
- Provide multiple piece tie bars that are acceptable at longitudinal construction joints provided minimum cross section is achieved.
- Place in accordance with Item 422.
- Provide a 1" bondbreaker (asphaltic concrete pavement material) between the approach slab and adjacent concrete pavement. Bondbreakers may be used if approved by the Engineer.

**BARS E (#5)**

- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max

**BARS F (#5)**

- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max
- Bars B (Top) and D (Bottom) spaced at 12" Max

**APPROXIMATE QUANTITIES**

- **Vol of Appr Slab Conc (ft³) =** 0.052W + 1.052W - 0.093W x T + 0.02W
- **W = Width of Approach Slab (ft)**
- **T = Conc Pavement Thickness (in)**
- **S = Skew Angle (deg)**

1. Place Bars B and D in this region (1'-6" Max Spa, 3'-6" Min Spa). Minimum clear length of 2'-0". Bend bars as necessary.
2. Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
3. See details elsewhere in plans for shoulder drain location and details.
4. For Contractor's information only.
5. On portion of support slab that supports the concrete pavement, adjust top surface elevation, if required, to accommodate concrete pavement thickness and required grade plane. Oil top of support slab with 60 grade oil and apply heavy coat of powdered graphite. Press down one layer of 30# roofing felt. Cure for 4 days using water or membrane curing per Table 422.
6. Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
7. Provide multiple piece tie bars that are acceptable at longitudinal construction joints provided minimum cross section is achieved.
8. See details elsewhere in plans for required cross-slope.
9. Place in accordance with Item 422.
10. Place ½ Preformed dilatancy fiber material between concrete cabling and top of approach slab as shown. Concrete cabling project over the approach slab.
The use of this railing is restricted to speeds of 45 mph or less.
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act." No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 

FILE: 5

ONTABUMENT WINGWALLS OR CIP RETAINING WALLS

ON BRIDGE SLAB

SECTION THRU

OPTIONAL SIDE SLOT DRAIN

NOTE: Side slot drains may be used where shown elsewhere in the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS

ON BRIDGE SLAB

SECTIONS THRU RAIL WITH RAISED SIDEWALK

SECTIONS THRU RAIL WITHOUT RAISED SIDEWALK

1. Increase 2" for structures with overhang.
2. S 4" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.
3. As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars must be furnished at the Contractor's expense.
4. Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.
5. Raised Sidewalk
6. Space U(#4) bars at 6" Max when end region of panel length is less than 8' 0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 8' 0" and greater to side slot drain.
### SHIPPING PARTS LIST - POLES AND LUMINARIA ARMS

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<th>Nominal Weight M#</th>
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<th>T-Base</th>
<th>C&amp;S/SSC Mounted</th>
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<td>Type SA 20 - 5</td>
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<td>20/22</td>
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</tbody>
</table>

**GENERAL NOTES**

All work, materials, and services not shown on the plans which may be necessary for complete and proper construction shall be performed, furnished, and installed by the contractor. Quality fabrication or workmanship in any material, equipment or installation will be considered justification for rejection. Where manufacturers provide warranties or guarantees as a customary practice, contractor shall furnish to the Department such warranties or guarantees. The location of poles and fixtures are diagrammatically shown and may be shifted by the Engineer to accommodate local conditions. Location and/or removal of poles and luminaires, including the installation of other equipment, is subject to the approval of the Engineer. The Contractor shall consult with the appropriate utility company prior to beginning such work.

A. **Standard Steel Pole Designs.** Steel poles fabricated in accordance with the details and dimensions shown herein, shall be considered standard designs. Substitution of shop drawings and design calculations for standard designs is not required.

B. **Optimal Steel Pole Designs.** Multi-sided steel poles may be allowed as optional designs, if steel poles are permitted or required, pending approval by the Department as outlined below.

1. **Shop Drawings.** Optional designs require submission of shop drawings and design calculations containing the following:
   - Plan and elevations of the pole
   - Details of steel structure
   - Details of fabricated parts
   - Details of shop drawings and design calculations is not required for structures fabricated in accordance with the details and dimensions shown herein.

2. **Structural Support Design for Luminaries.** Lighting support structures shall be designed for a 25-year design life. (A 25-year design life is consistent with the 250 Edition of the ASCE, Standard Specifications for Highway Bridges.) The design shall be based on a 0.5% annual probability of exceedance at a 25-year return period.

3. **Wind Load Design.** Wind loads shall be applied to the following sections of the pole:
   - 3-second gust wind speeds, an additional 20% gust factor shall be applied to wind loads.

4. **Other Requirements.** All transformer base poles, fabric shall include transformer base and shop drawing support brackets. Transformer base poles shall be structurally designed to a 0.5% annual probability of exceedance at a 25-year return period. The design shall be based on a 0.5% annual probability of exceedance at a 25-year return period. The design shall be based on a 0.5% annual probability of exceedance at a 25-year return period.

**EXPLANATION OF ROADWAY ILLUMINATION ASSEMBLY DESIGNATIONS**

**TYPE SA 50 T-X X L4005 S**

- 50: Pole and mast arm may be steel or aluminum.
- 50: Pole and mast arm must be steel.
- L4005: Qualified location, steel or aluminum pole for installing on C&B or SSC. See standard specifications for more information.

The two digit number denote mounting height in feet, the next letter denotes the type of mast, (T-Base, B-Base, or E-Base) and the number after the T denotes the number of mast arms.

**SHEET 1 OF 4**

**ROADWAY ILLUMINATION POLES**

**RIP (1)-11**