**General Notes**

**SPECIFICATIONS:** All references to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. All references to the AASHTO Specifications are to the current edition of the AASHTO LRFD Bridge Design Specifications.

**WELDING SPECIFICATIONS:** Ensure techniques and welding procedure comply with current joint specification ANSI/AASHTO/AWS D1.5 Bridge Welding Code.

**MATERIALS:**
A. Structural Steel Use new, commercial grade steel suitable for welding. The Engineer will base acceptance on visual inspection.
B. Stud Anchors The armored edge stud anchors are \( \frac{1}{8} \) embedded stud shear connectors conforming to ASTM A108, Grade 1015.

**LOCATION:** Locate armored edges and/or expansion dams in accordance with detail plans, proposals and applicable Standard Drawings.

**PAINT:** Clean and paint all structural steel in accordance with the with the requirement of Section 607, except that surfaces to come in contact with concrete are not to be painted and no field coating will be required.

**SHOP DRAWINGS:** Contrary to the Specifications, no shop plans are required.

**PLACEMENT:** Fabricate and place new armored edges to match original or new grade.

**STAGE CONSTRUCTION:** If installation of armored edges in two or more stages is necessary, join the armored edges at or near the centerline of the roadway or lane line, field weld and grind smooth.

**BASIS OF PAYMENT:**
A. ARMORED EDGE AT END OF BRIDGE: Payment at the contract unit price bid for Amored Edge for Concrete shall be full compensation for furnishing and installing the armored edge as specified. Measurement shall be in linear feet from gutter line to gutter line with concrete barrier or curb type railing or existing parapet applications and from fascia to fascia of slab for metal or guardrail type railing systems and no curb.
B. ARMORED EDGE AT EXPANSION JOINTS: Payment for armored edge at expansion joints shall be included in the unit price bid for the specified application and joint size.

---

**ARMORED EDGE**
(For 1"-3" Expansion Dams and Bridge End)

**ARMORED EDGE**
(For 4" & 5" Expansion Dams)

**ARMORED EDGE**
(For 5" Composite Box Beam Slab Ends)
**General Notes**

**SPECIFICATIONS:** All references to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. All references to the AASHTO Specifications are to the current edition of the AASHTO LRFD Bridge Design Specifications.

**LOCATION:** Locate armored edges and/or expansion dams in accordance with detail plans.

**SHOP DRAWINGS:** Contrary to the Specifications, no shop plans are required.

**BASIS OF PAYMENT:** Payment at the contract unit price bid for Expansion Joint (specified size) shall be full compensation for finishing and installing expansion joint as specified. Measurement shall be in lineal feet from gutter line to gutter line.

---

**SECTION THROUGH JOINT**

**EXPANSION JOINT 1"-3"**

- Incidental to Expansion Dam
- Pay Limits for Expansion Dam

**SECTION THROUGH BARRIER**

- Joint Seal
- Armored Edge
- Embed Extrusions

**SECTION THROUGH JOINT**

**EXPANSION JOINT 4" & 5"**

- Incidental to Expansion Dam
- Pay Limits for Expansion Dam

**SECTION THROUGH BARRIER**

- Joint Seal
- Armored Edge
- Embed Extrusions

---

**Joint Data**

<table>
<thead>
<tr>
<th>Dim. A</th>
<th>Maximum Opening</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>2&quot;</td>
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<tr>
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</tr>
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<td>4&quot;</td>
<td>4&quot;</td>
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</table>

Note: The joint seal supplied must accommodate the required movement shown. Set Dimension A with temperature change increment and as required by the manufacturer to obtain the required movement.

---

**Temperature Change Increment per 10°F**

<table>
<thead>
<tr>
<th>Concrete</th>
<th>Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expansion Length (ft)</td>
<td>Increment (in)</td>
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<tr>
<td>0 - 80</td>
<td>1/16</td>
</tr>
<tr>
<td>81 - 140</td>
<td>1/8</td>
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<tr>
<td>141 - 200</td>
<td>1/4</td>
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<tr>
<td>201 - 260</td>
<td>3/16</td>
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<tr>
<td>261 - 320</td>
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<tr>
<td>381 - 440</td>
<td>3/16</td>
</tr>
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<td>441 - 500</td>
<td>1/4</td>
</tr>
</tbody>
</table>

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**KENTUCKY DEPARTMENT OF HIGHWAYS**

**EXPANSION JOINTS**

STANDARD DRAWING NO: BJE-002

STATE HIGHWAY ENGINEER

DATE

DIRECTOR DIVISION OF STRUCTURAL DESIGN

SUBMITTED

APPROVED

DEPARTMENT OF HIGHWAYS KENTUCKY
The joint seal supplied must accommodate the required movement shown. Set Dimension A with temperature change increment and as required by the manufacturer to obtain the required movement.

<table>
<thead>
<tr>
<th>Joint Data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dim. A</td>
<td></td>
</tr>
<tr>
<td>Maximum Opening</td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td>1½&quot;</td>
</tr>
<tr>
<td>2&quot;</td>
<td>2½&quot;</td>
</tr>
<tr>
<td>3&quot;</td>
<td>3&quot;</td>
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</tbody>
</table>

<table>
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<tr>
<th>Temperature Change</th>
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</tr>
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<tbody>
<tr>
<td></td>
<td>Concrete</td>
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<tr>
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<td>Expansion Length</td>
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<td>0 - 80</td>
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<td>381 - 440</td>
<td>261 - 300</td>
</tr>
<tr>
<td></td>
<td>301 - 340</td>
</tr>
</tbody>
</table>

Note: Remove X-Hatched Areas of Concrete & Expansion Device.

SECTION THROUGH JOINT

Existing

Pay limit for Armor Edge
for Concrete

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

3⁄4"x6" Studs

Class "M" Concrete

SECTION THROUGH JOINT

Proposed

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

SECTION THROUGH JOINT

@ End Bents or Abutments

@ Piers or Bents

SECTION THROUGH JOINT

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Existing

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

SECTION THROUGH JOINT

Proposed

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Existing

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Proposed

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Existing

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Proposed

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Existing

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Proposed

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Existing

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Proposed

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Existing

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH JOINT

Proposed

Pay limit for Exp.
Joint Replacement

Armored Edge

Joint Seal

Class "M" Concrete

SECTION THROUGH PAPAPET

(Typ. for Plinth Walls)

For Pre-compressed foam
Expansion Joint Seals
Extend Up and Across Curb

End Plates
at Gutterline

For V-Seal Expansion Joint Seals
Bend up to Restrict Water
Flow onto Substructure Cap

SECTION THROUGH PAPAPET

(Typ. for Barrier Walls)

For Pre-compressed foam
Expansion Joint Systems
Extend Up 3" Minimum

End Plates
at Gutterline

For V-Seal Expansion Joint Systems
Bend up to Restrict Water
Flow onto Substructure Cap

Exercise care in the use of paint in the area. Apply the same colors that were used on the adjacent structures.
General Notes

SPECIFICATIONS: All references to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. All references to the AASHTO Specifications are to the current edition of the AASHTO Standard Specifications for Highway Bridges.

MATERIAL SPECIFICATIONS: Steel material shall be new, M270 GR50 steel suitable for welding. Shop drawings will be required for the assembly. Anchor studs/connectors shall conform to ASTM A108, Grade 1015. Acceptance will be based on visual inspection by the Engineer. Joint sealing material, only, is in accordance with Section 807 of the Specifications. Ensure sheaf shear connectors conform to ASTM A108, Grade 1015. All structural steel shall be galvanized in accordance with ASTM A123.

WELDING SPECIFICATIONS: Ensure techniques and welding procedure comply with current joint specification ANSI/AASHTO/AFS D1.5 Bridge Welding Code.

BASIS OF PAYMENT: The cost of furnishing and placing the Expansion Joint and all plates, hardware and materials as shown in these assembly details shall be included in the contract unit price per linear foot, measured along centerline of joint between the ends of the trough. Joint assembly shall conform to the roadway grade and cross slope or 2% with parabolic crown.

SIDWALK SLIDE PLATE

COVER PLATE DETAILS

PLAN

SECTION

KENTUCKY
DEPARTMENT OF HIGHWAYS
EXPANSION JOINT
COVER PLATE DETAILS

STANDARD DRAWING NO. B1E-004

KENTUCKY DEPARTMENT OF HIGHWAYS
EXPANSION JOINT COVER PLATE DETAILS

PLAN

SECTION

ANCHOR BOLT DETAIL
GENERAL NOTES ~ EXPANSION JOINT REPLACEMENT

CONSTRUCTION. (Continued)

F. Preformed Neoprene Strip Seals and V Seals. Place the seals in one continuous, unbroken length. Place neoprene strip seals as recommended by the manufacturer and in accordance with Section 609.

G. Approach Pavement Repair. If no bridge overlay approach is specified the Contractor shall repair any and all damage to the approach pavement due to this construction. A new asphalt surface wedge up to three feet long and the width of the bridge deck shall be placed and compacted to the satisfaction of the Engineer prior to allowing traffic back onto the structure after each section of the joint is replaced. No additional payment will be allowed for this work, as it will be considered incidental to the pay item “Armored Edge for Concrete”.

H. Verifying Field Conditions. The Contractor shall field verify all dimensions before ordering any material. New material that is unsuitable due to variation in existing structure shall be replaced at the Contractor’s expense.

I. Damage to the Structure. The Contractor shall bear all responsibility and expense for any and all damage to the structure during the repair work even to removal and replacement of a fallen span, should the fallen span result from the Contractor’s actions.

J. Shop Plans. Shop plans will not be required. The Contractor is responsible for obtaining field measurements and supplying properly sized materials to complete the work.

MEASUREMENT.

A. Expansion Joint Replace - 1", 1½", 2", 2½", 3", 4" & 5". The Department will measure the quantity in linear feet from gutter line to gutter line along the centerline of the joint.

B. Armored Edge for Concrete. The Department will measure the quantity in linear feet from gutter line to gutter line along the centerline of the joint.

C. Steel Reinforcement. The Department will measure the quantity in linear feet from gutter line to gutter line along the centerline of the joint.

D. Approach Pavement Repair. If no bridge overlay approach is specified the Department will measure the quantity in linear feet from gutter line to gutter line along the centerline of the joint.

PAYMENT:

A. Expansion Joint Replace - 1", 1½", 2", 2½", 3", 4" & 5". Payment at the contract unit price per linear foot shall be full compensation for removing specified existing materials, furnishing and installing the new armored edges, concrete, seal, and all incidental items necessary to complete the work within the specified pay limits.

B. Armored Edge for Concrete. Payment at the contract unit price per linear foot shall be full compensation for furnishing and installing new armored edges at each end of bridge.

C. Steel Reinforcement. See Section 602.
Joint Data

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SECTION THROUGH JOINT

Pay limit for Armored Edge for Concrete

Existing

Pay limit for Expansion Joint Replacement

@ End Bents or Abutments

@ @ @ @ @ Piers or Bents

SECTION THROUGH JOINT

Proposed

Note: For Details of Armored Edge See STD DWG BJE-001 (C.E.)

SECTION THROUGH PAPAPET

(Typ. for Plinth Walls)

SECTION THROUGH PARAPET

(Typ. for Barrier Walls)

Note: Remove X-Hatched Areas of Concrete & Expansion Device.

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