SPECIAL NOTE FOR STEEL REPAIRS

**1. DESCRIPTION**. Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway’s Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings (Current Editions), this Note, and the attached detailed drawings for Steel Repairs. Section references are to the Standard Specifications. This work consists of the following: (1) Furnish all labor, materials, tools, and equipment, (3) Bearing Repair, Floor Beam Repair and Replace Bridge Rail, (4) Any other work specified as part of this contract.

**2. MATERIALS.**

1. **Structural Steel**

ASTM Material, A709 Grade 50 Structural Steel Plates and Shapes. Minimum structural steel strength ~ 50,000 psi.

1. **Welding.**

Welding and weld materials are to be in accordance with the Standard Specifications Sections 106-4, 813-6, 607-2 and 607-9 unless otherwise noted.

1. **High Strength Bolts**

All bolted connection shall be ASTM F3125 Grade A325 the diameter as specified high strength bolts, nuts and washers. Holes shall be the diameter as specified. Furnish type 1 galvanized bolts as described in AASHTO M164.

1. **Cleaning and Painting**

See Section 607.

**3. CONSTRUCTION.**

1. **Steel Repairs.**

Complete these items as specified in this special note and shown in the attached detailed drawings.

1. **High Strength Bolts and Anchor Bolts.**

Install all high strength bolted field connections using “direct tension indicators” (DTIs) in accordance with the Standard Specifications and ASTM F959. Install DTIs under the bolt head with the bumps facing the underside of the bolt head. Place a hardened washer under the nut tension connection from the nut side. See section 607.03.03 for edge distance.

1. **Charpy V-Notch Toughness Test (Floor Beam Repair).**

All floor beams retrofit angles and plates shall meet the longitudinal Charpy V-Notch Toughness Test applicable to Zone 2 minimum service temperature from -1-degree Fahrenheit to -30-degree Fahrenheit in accordance with the following:

M270 GR 50W (Up to 2” thickness) of 25 ft-lbs. at 40 degrees Fahrenheit.

M270 GR 50W (Up to 2”-4” thickness) of 25 ft-lbs. at 40 degrees Fahrenheit.

 Sampling and testing procedures shall be in accordance with AASHTO T243

 current edition, utilizing (H) frequency testing. When plate thickness exceeds

1. ½”, frequency of testing shall be (P).
2. **Cleaning and Painting.**

**Existing Steel.** All existing faying surfaces where new steel is to be installed shall be cleaned and receive the prime coat in accordance with Section 607. Level of cleaning shall be to an **SSPC-SP 15** (Commercial Grade Power Tool Cleaning). All Power tools shall be equipped with vacuum shrouds and fitted with HEPA filters at their air exhausts. Maintain and operate all vacuum shrouded power tools to collect generated debris. Any existing paint that is damaged shall be recoated in accordance with Section 607.

**New Structural Steel.** All new structural steel shall receive shop surface preparation and shop applied prime coating in accordance with Section 607. Necessary touch up/repair of the shop applied prime coat on the new steel may be performed in the field. Intermediate and Finish coatings specified shall be field applied in accordance with Section 607. Brush and rollers must be used for all field applied coatings. No spray application will be permitted. All items necessary to complete cleaning and painting as specified in this note shall be considered incidental to the unit price bid for Steel Repair.

1. **Verifying Field Conditions**

The Contractor shall field verify all plate and shape dimensions, bolt patterns and locations before ordering any material. New material that is unsuitable due to variation in existing structure shall be replaced at the Contractors expense.

1. **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 the removal and replacement of a fallen span, should the fallen span result from the Contractors actions.

1. **Residual Lead.** Residual lead paint may still be on bridge. The Contractor is advised to take all necessary protective measures including worker safety and environmental regulations when performing surface preparation and other work. The Department will not consider any claims based on residual lead paint.

**4. MEASUREMENT.**

1. **Steel Repair.** The Department will measure the quantity for “Each” bearing repair.

**5. PAYMENT.**

1. **Steel Repair (24879EC).** Payment at the contract unit price for “Each” is full compensation for furnishing and installing all material as specified.

**SPECIAL NOTE FOR END BENT ENCASEMENT**

**1. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway’s Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings (Current Editions), this Note, and the attached detail drawings. Section references are to the Standard Specifications. This work consists of the following: (1) Furnish all labor, materials, tools, and equipment, (2) Remove existing concrete and expansion device(s) and/or bridge ends, (3) Install New concrete, armored edge and steel reinforcement as specified in this note and the attached detail drawings and (4) Any other work specified as part of this contract.

**2. MATERIALS.**

**A. Class “AA” Concrete.** See Section 601.

**B. Epoxy Coated Steel Reinforcement.** Use Grade 60. See Section 602.

**C. Structural Steel.** Use new, commercial grade steel suitable for welding. The Engineer will base acceptance on visual inspection.

**D. Stud Anchors.** The armored edge stud anchors are ¾” x 6” embedded stud shear connectors conforming to ASTM A108, Grade 1015 (Nelson Studs or equal).

**E. Epoxy Bond Coat.** See Section 511.

**3. EQUIPMENT.**

**A. Hammer.** Provide Power driven hammers lighter than nominal 45 lb. class.

**B.** **Sawing Equipment**. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.

**C. Hydraulic Impact Equipment.** Hydraulic Impact/Skid Steer Type Equipment with a maximum rated striking Energy of 360 ft-lbs. are permitted only in areas of concrete removal more than 6 inches away from boundaries of surface areas to remain in service. The Contractor is to provide data information to the engineer on the equipment they wish to utilize to ensure compliance with this note.

**4. CONSTRUCTION.**

**A. Remove Existing Materials.** Remove existing expansion material and specified areas of concrete as shown on the attached detailed drawings. Clean and leave all existing steel reinforcement encountered in place. Damaged steel reinforcement will be repaired/replaced as directed by the Engineer at no additional cost to the Department. Dispose of all removed material entirely away from the job site.

**B. Placing Class AA Concrete and Armored Edges.** After all specified existing materials have been removed; place new armored edges to match the grade of the existing bridge deck. (See attached detail drawings). Place the new Class “AA” concrete to match the grade of the existing bridge deck or and finish with broom strokes drawn transversely from curb to curb (See attached detail drawings). All new structural steel shall be cleaned and painted in accordance with requirements of Section 607.03.23, except that surfaces to come in contact with concrete are not to be painted. Blast clean all areas of existing concrete and structural steel to come in contact with new concrete until free of all laitance and deleterious substances immediately prior to the placement of the Class "AA" Concrete. The surface areas of existing concrete to come in contact with the new Class "AA" Concrete are to be coated with an epoxy bond coat immediately prior to placing new concrete in accordance with Section 511. The interfaces of the new and old concrete shall be as nearly vertical and horizontal as possible.

**C. Epoxy Coated Steel Reinforcement.** Place all steel reinforcement as specified in this note, the attached detailed drawings and section 602 of the standard specification.

**D. Stage Construction.** Installation of concrete and armored edges in two (or more if specified) stages is necessary. Join the armored edges at or near the centerline of the roadway or lane line, field weld and grind smooth.

**E.** **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 Contractors expense.

**F. 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 fall span, should the fallen span result from the Contractor’s actions.

**F. Residual Lead.** Residual lead paint may still be on bridge. The Contractor is advised to take all necessary protective measures including worker safety and environmental regulations when performing surface preparation. The Department will not consider any claims based on residual lead paint.

**G. Approach Pavement Repair**. The Contractor shall repair any and all damage to the approach pavement and traffic striping due to this construction. A new asphalt surface wedge for all approaches to each structure in this project 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. 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.

1. **Order of Work.** All end bent encasement work must be completed before any cleaning and painting production operations in the adjacent area.

**5. MEASUREMENT.**

1. **Remove Concrete Masonry.** The Department will measure the quantity inCubic Yards

**B. Concrete Class AA**. The Department will measure the quantity in Cubic Yards.

**C. Armored Edge for Concrete.**  The Department will measure the quantity in linear feet from gutter line to gutter line along the face of the bridge end.

**D. Epoxy Coated Steel Reinforcement.**  See Section 602.

**6. PAYMENT.**

 **A. Remove Concrete Masonry (02403).** Payment at the contract unit price per

Cubic Yard is full compensation for removing specified materials including

 expansion devises as specified pay limits as specified by this note and as

 shown on the attached detailed drawings.

**B. Concrete Class AA (08104).** Payment at the contract unit price per Cubic Yard is full compensation for placing all new Class AA Concrete and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detailed drawings.

**C. Armored Edge for Concrete (03299).** Payment at the contract unit price per linear foot is full compensation for placing new armored edge and any approach pavement repair, traffic striping repair and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detailed drawings.

**D. Epoxy Coated Steel Reinforcement (08151).** See Section 602.

**SPECIAL NOTE FOR BRIDGE DECK RESTORATION AND WATERPROOFING WITH CONCRETE OVERLAYS**

**1. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway’s Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings (current editions), this Note, and the attached detail drawings. Section references are to the Standard Specifications. This work consists of the following: (1) Furnish all labor, materials, tools, and equipment, (2) Machine prep the existing slab, (3) Complete full-depth and partial depth repairs as directed by the Engineer, (4) Repair/replace damaged and corroded reinforcing bars, (5) Place new concrete overlay and epoxy-sand slurry in accordance with Section 606, (6) Complete asphalt approach pavement, and (7) Any other work specified as part of this contract. All construction will be in accordance with Section 606 unless otherwise specified.

**2. MATERIALS**.

1. **Latex Concrete.** See Section 606.03.17.
2. **Class “M” Concrete.** Use either “M1” or “M2”. See Section 601.
3. **Epoxy-Sand Slurry.** See Section 606.03.10.

**3. CONSTRUCTION.**

**A. Remove Existing Overlay.** In addition to Section 606.03.03, totally remove the existing concrete overlay by milling.

**B. Partial Depth Slab Repair and Latex Overlay.** Remove areas determined to be unsound by the Engineer via hydro-demolition or via handheld jackhammers weighing less than 45 lbs. in accordance with Section 606.02.10 D. Repair/Replace all damaged or severely corroded reinforcing bars prior to partial depth repair operation. The Department will not measure material removal and will consider this work incidental to the bid item “PARTIAL DEPTH PATCHING”. Mix and place Latex Modified Concrete Overlay in accordance with Sections 606.03.08 and 606.03.17.

**C. Surface Texturing.** Texture the concrete surface of the overlay in accordance with Section 609.03.10.

**D. Verifying Field Conditions.** The Contractor shall field verify all joint openings, locations, and manufacture before ordering any material. New material that is unsuitable due to variation in existing structure shall be replaced at the Contractors expense.

**E. 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.

**4. MEASUREMENT.** See Section 606 and the following:

* 1. **Remove Existing Overlay**. The Department will measure the removal of the existing overlay in square yards.
	2. **Partial Depth Patching.** The Department will measure the quantity in cubic yards by deducting the theoretical volume of bridge deck overlay (LMC) from the total volume (as indicated by the batch quantity tickets) of Concrete required to obtain the finished grade shown on the plans or established by the Engineer.
	3. **Concrete Class M Full Depth Patch.** The Department will measure the quantity in cubic yards.
	4. **Blast Cleaning.** The Department will measure the quantity in square yards.
	5. **Epoxy Sand Slurry.** The Department will measure the quantity in square yards.
	6. **Concrete Overly-Latex.** The Department will measure the quantity in cubic yards.
	7. **Steel Reinforcement-Epoxy Coated.** The Department will measure any reinforcing steel necessary for the partial or full depth patch in pounds.

**5. PAYMENT.** See Section 606 and the following:

1. **Remove Epoxy Bit Foreign Overlay (08510).** The Department will make payment for the removal of the existing overlay.
2. **Partial Depth Patching (24094EC).** The Department will make payment for removing exiting materials, furnishing, and placing all new materials completed and accepted.
3. **Concrete Class M Full Depth Patch (08526).** The Department will make payment for removing exiting materials, furnishing, and placing all new materials.
4. **Blast Cleaning (08549).** The Department will make payment for blast cleaning all surfaces specified.
5. **Epoxy Sand Slurry (08504).** The Department will make payment for furnishing and placing all new materials as specified.
6. **Concrete Latex Overlay (08534).** The Department will make payment for furnishing and placing all new material as specified.
7. **Steel Reinforcement-Epoxy Coated (08151).** The Department will make payment for steel reinforcement, if necessary.

SPECIAL NOTE FOR REPLACING EXPANSION JOINTS AND/OR

**INSTALLING ARMORED EDGES FOR CONCRETE ON BRIDGES**

**1. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway’s Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings (current editions), this Note, and the attached detail drawings. Section references are to the Standard Specifications. This work consists of the following: (1) Furnish all labor, materials, tools, and equipment, (2) Remove existing concrete and expansion joint(s) and/or bridge ends, (3) Install armored edges, modular expansion joint assembly and new concrete as specified and in accordance with the attached detail drawings, (4) Install new joint seals (where required) and (5) Any other work specified as part of this contract.

**2. MATERIALS.**

**A. Class “M” Concrete.** Use either “M1” or “M2”. See Section 601.

**B. Structural Steel.** Use new, commercial grade steel suitable for welding. The Engineer will base acceptance on visual inspection. See attach detailed drawings

**C. Stud Anchors.** The armored edge stud anchors are ¾” x 6” embedded stud shear connectors conforming to ASTM A108, Grade 1015

**D. Epoxy Coated Steel Reinforcement.** Use Grade 60. See Section 602.

**E. Epoxy Bond Coat.** See Section 511.

**F.**  **Joint Seals.**

 **Pre-compressed Silicon and Hybrid Foam Joint Seals (Bridge Deck and Parapet).** See Section 807.03.02. Choose one from the following list of manufactures:

 **1” Joint Seal:**

SSI SES-100,

 Watson Bowman Acme FS-100

 BEJS EMSEAL-BEJS-ON-A-Reel.

 **4” Joint Seal (Parapet):**

 SSI SES-400

 Watson Bowman Acme SF-400 or

      BEJS EMSEAL (4”) or DS Brown V-400

 **4” Neoprene Strip Seals (Bridge Deck).** See Section 807.03.03.

**3. EQUIPMENT.**

**A. Hammer.** Provide Power driven hammers lighter than nominal 45 lb. class.

**B.** **Sawing Equipment**. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.

**C. Hydraulic Impact Equipment.** Hydraulic Impact/Skid Steer Type Equipment with a maximum rated striking Energy of 360 ft-lbs. are permitted only in areas of concrete removal more than 6 inches away from boundaries of surface areas to remain in service. The Contractor is to provide data information to the engineer on the equipment they wish to utilize to ensure compliance with this note.

**4. CONSTRUCTION.**

**A. Remove Existing Materials.** Remove existing expansion joints, existing modular expansion join assembly, bridge end armored edges and specified areas of concrete as shown on the attached detailed drawings. Remove debris and/or expansion joint filler as directed by the Engineer. Clean and leave all existing steel reinforcement encountered in place. Damaged steel reinforcement will be repaired/replaced as directed by the Engineer at no additional cost to the Department. Dispose of all removed material entirely away from the job site. This work is incidental to the contract unit price for "Expansion Joint Replacement" or “Armored Edge for Concrete”.

**B. Place New Concrete and Armored Edges.** After all specified existing materials have been removed; place new armored edges to match the original grade (See attached detail drawings). Place the new Class “M” concrete to the original grade and finish with broom strokes drawn transversely from curb to curb. All new structural steel shall be cleaned and painted in accordance with requirements of Section 607.03.23, except that surfaces to come in contact with concrete are not to be painted. Blast clean all areas of existing concrete and structural steel to come in contact with new concrete until free of all laitance and deleterious substances immediately prior to the placement of the Class "M" Concrete. The surface areas of existing concrete to come in contact with the new Class "M" Concrete are to be coated with an epoxy bond coat immediately prior to placing new concrete in accordance with Section 511. The interfaces of the new and old concrete shall be as nearly vertical and horizontal as possible. Shop drawings will not be required.

**C.** **Additional Steel Reinforcement.** Furnish for replacement, as directed by the Engineer, 200 linear feet each joint of #4 steel reinforcing bars in 20’ lengths. Place these bars in areas deemed by the Engineer to require additional reinforcement. Field cutting and bending is permitted. Do not place any additional steel reinforcement above the height of the top row of Nelson Studs on the armored edges. Ensure that all exposed steel reinforcement is tied in accordance with Section 602.03.04 prior to pouring the new Class “M” concrete. Deliver unused bars to the Local County Maintenance Barn. Payment will be made in accordance with Section 602.

**D. Stage Construction.** Installation of concrete, armored edges and modular expansion joint assembly in two (or more if specified) stages is necessary. Join the armored edges and modular expansion joint assembly at or near the centerline of the roadway or lane line, field weld and grind smooth.

**E. Preformed Neoprene Joint Seal.** Place the preformed joint seal in one continuous, unbroken length. Place neoprene strip seals as recommended by the manufacturer and in accordance with Section 609.03.04 except that shop drawings will not be required.

**F.** **Pre-compressed Silicone and Foam Hybrid Seals.** Place pre-compressed silicone and foam Hybridge seals as recommended by the manufacturer. Shop drawings will not be required.

**G. Approach Pavement Repair**. The Contractor shall repair any and all damage to the approach pavement and traffic striping due to this construction. A new asphalt surface wedge for all approaches to each structure in this project 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. Residual Lead.** Residual lead paint may still be on bridge. The Contractor is advised to take all necessary protective measures including worker safety and environmental regulations when performing surface preparation. The Department will not consider any claims based on residual lead paint.

**I. Verifying Field Conditions.** The Contractor shall field verify all joint openings, locations, and manufacture before ordering any material. New material that is unsuitable due to variation in existing structure shall be replaced at the Contractors expense.

**J. 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.

**5. MEASUREMENT.**

**A. Expansion Joint Replace 1 In.** The Department will measure the quantity in linear feet from gutter line to gutter line along the centerline of the joint.

**B. Expansion Joint Replace 4 In.** The Department will measure the quantity in linear feet from gutter line to gutter line along the centerline of the joint.

**C. Armored Edge for Concrete.**  The Department will measure the quantity in linear feet from gutter line to gutter line along the face of the bridge end.

**D. Epoxy Coated Steel Reinforcement.**  See Section 602.

**6. PAYMENT.**

**A. Expansion Joint Replace 1 In. (03293)** Payment at the contract unit price per linear foot is full compensation for removing specified existing materials, furnishing, and installing the new armored edges, concrete, joint seal, and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detail drawings.

**B. Expansion Joint Replace 4 In. (03298)** Payment at the contract unit price per linear foot is full compensation for removing specified existing materials, furnishing, and installing the new armored edges, concrete, neoprene strip seal (bridge deck), Pre-compressed Silicone and Foam Hybrid Seals (parapets) and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detail drawings.

**C. Armored Edge for Concrete (03299).** Payment at the contract unit price per linear foot is full compensation for placing new armored edge and any approach pavement repair, traffic striping repair and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detailed drawings.

**D. Epoxy Coated Steel Reinforcement (08151).** See Section 602.

**SPECIAL NOTE FOR ELIMINATING TRANSVERSE JOINTS ON BRIDGES**

**1. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway’s Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings (current editions), this Note, and the Attached Detailed Drawings. Section references are to the Standard Specifications. This work consists of the following: (1) Furnish all labor, materials, tools, and equipment, (2) Remove existing concrete and expansion device(s), (3) Place new concrete and steel reinforcement as specified and (4) Any other work specified as part of this contract. See attached detailed drawings.

**2. MATERIALS.**

**A. Class “M” Concrete.** Use either “M1” or “M2”. See Section 601.

**B. Epoxy Coated Steel Reinforcement.** Use Grade 60. See Section 602.

**C. Epoxy Bond Coat.** See Section 511.

**3. EQUIPMENT.**

**A. Hammer.** See Section 606.02.10 B.

**B.** **Sawing Equipment**. See Section 606.02.10 C.

**C. Hydraulic Impact Equipment.** See Section 606.02.10 D.

**4. CONSTRUCTION.**

**A. Remove Existing Materials.**  Remove the existing transverse joints, joint filler, and specified areas of concrete as shown on the plans or as directed by the Engineer. Clean and leave all existing steel reinforcement encountered in place. Damaged steel reinforcement will be repaired/replaced as directed by the Engineer at no additional cost to the Department.

Dispose of all removed material entirely away from the job site. This work is incidental to the contract unit price for "Eliminate Transverse Joint".

1. **Additional Steel Reinforcement.** Furnish for this work steel reinforcing bars as shown on the plans. Splice these bars to the existing longitudinal reinforcement in the deck and curb/sidewalk in the areas of removed concrete to tie the slabs together as shown on the plans. Ensure that all exposed steel reinforcement is tied in accordance with Section 602.03.04 prior to pouring the new Class “M” concrete.
2. **Place New Concrete.**  Blast-clean all areas of existing concrete and structural steel to come in contact with new concrete until free of all laitance and deleterious substances immediately prior to the placement of the Class "M" Concrete. The surface areas of existing concrete to come in contact with the new Class "M" Concrete are to be coated with an epoxy bond coat immediately prior to placing new concrete in accordance with Section 511. The interfaces of the new and old concrete shall be as nearly vertical and horizontal as possible. Place new Class "M" Concrete to the specified grade and finish to receive the new overlay or as shown on the plans. On the sidewalk and curb, place the new concrete to original grade and finish to match the existing curb/sidewalk. Repair all pavement striping that is disturbed.

 **D. Stage Construction.** Installation of concrete in two (or more if specified) stages is necessary.

 **E. Residual Lead.** Residual lead paint may still be on bridge. The Contractor is advised to take all necessary protective measures including worker safety and environmental regulations when performing surface preparation. The Department will not consider any claims based on residual lead paint.

 **F. 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 Contractors expense.

 **G. 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.

**5. MEASUREMENT.**

**A. Eliminate Transverse Joint.** The Department will measure the quantity in linear feet from plinth to plinth perpendicular to the centerline of the bridge.

**B. Steel Reinforcement.**  See Section 602.

**6. PAYMENT.**

**A. Eliminate Transverse Joint (03300).** Payment at the contract unit price per linear foot is full compensation for furnishing equipment, labor, tools, and materials needed to complete removal and disposal of the specified existing materials, cleaning and straightening of existing steel reinforcement, furnishing and installing the concrete, repairing traffic striping and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detail drawings.

 B. Epoxy Coated Steel Reinforcement (08151). See Section 602.

**SPECIAL NOTE FOR CONCRETE PATCHING REPAIR**

1. **DESCRIPTION.**

Perform all work in accordance with the Department's Standard Specifications and applicable Supplemental Specifications (current editions), this note and the attached detailed drawings. Section references are to the Standard Specifications. This work consists of: (1) Furnish all labor, materials, tools, and equipment, (2) Remove existing spalled/delaminated concrete, (3) Prepare the existing surface for concrete patching, (4) Apply concrete patching as specified by this note and as shown on the attached detail drawings, (6) Finish and cure the new Concrete Patches, (7) Any other work specified as part of this contract. See attachment detailed drawing “Layout Sheet”for locations.

**2. MATERIALS**.

 **A. Concrete.** **“M” Concrete.** Use either “M1” or “M2”. See Section 601.

 **B Steel Reinforcement.** Use Grade 60. See Section 602.

 **C. Epoxy Bond Coat.** See Section 511.

 D. Welded Steel Wire Fabric (WWF). Conform to Section 811.

1. **Hook Fasteners.** Use commercial grade galvanized hook fasteners. Minimum 3/16” diameter.

**3. CONSTRUCTION.**

**A. Concrete Removal and Preparation.** The Contractor, as directed by the Engineer shall locate and remove all loose, spalled, deteriorated, and delaminated concrete. Care shall be exercised not to damage areas of sound concrete or reinforcing steel during concrete removal operations. Unless specifically *directed by the Engineer*, depth of removal shall not exceed 4 inches. Concrete removal shall be in accordance with a sequence approved by the Engineer. Concrete removal shall be accomplished by chipping with hand picks, chisels, or light duty pneumatic or electric chipping hammers (not to exceed 35 lbs.). If sound concrete is encountered before existing reinforcing steel is exposed, the surface shall be prepared and repaired without further removal of the concrete. When corroded reinforcing steel is exposed, concrete removal shall continue until there is a minimum ¾ inch clearance around the exposed, corroded reinforcing bar. Care shall be taken to not damage bond to adjacent non-exposed reinforcing steel during concrete removal processes. After all deteriorated concrete has been removed; the repair surface to receive concrete patching shall be prepared by blast cleaning. Blast cleaning shall remove all fractured surface concrete and all traces of any unsound material or contaminants such as oil, grease, dirt, slurry, or any materials which could interfere with the bond of freshly placed concrete. The Contractor shall dispose all removed material off State Right of Way in an approved site.

**B. Steel Reinforcement.** All corroded reinforcing steel exposed during concrete removal shall have corrosion products removed by abrasive blasting or wire brush whichever is more appropriate. If required, furnish for replacement, as directed by the Engineer, adequate quantity of steel reinforcing bars ½” diameter for the patch in curb areas. Place these bars in areas deemed by the Engineer to require additional reinforcement. Field cutting and bending is permitted.

**C.** **Concrete Patching Repair.** Place and finish the new concrete for the patching area in accordance with the manufacturer’s recommendations, as shown on the attached detail drawings, or as directed by the Engineer. The Engineer shall approve the Contractor’s method of placing and consolidating the concrete prior to the beginning of this operation.

**D**. **Curing.** On completion of finishing operation, patching concrete shall immediately be prevented from drying out and cracking by fogging, wetting, and/or any appropriate method approved by the Engineer. Curing shall continue for duration recommended by the product manufacturer.

Each Contractor submitting a bid for this work shall make a thorough inspection of the site prior to submitting his bid and shall thoroughly familiarize himself with existing conditions so that the work can be expeditiously performed after a contract is awarded. Submission of a bid will be considered evidence of this inspection having been made. Any claims resulting from site conditions will not be honored by the Department. Quantities given are approximate. The quantity for “Concrete Repair” shall be bid with the contingency that quantities may be increased, decreased, or eliminated by the Engineer. Dispose of all removed material entirely away from the job site as approved by the Engineer. This work is incidental to the contract unit price for “Concrete Patching Repair”.

1. **MEASUREMENT**

**A. Concrete Patching Repair.** The Department will measure the quantity per square feet of each area restored, completed, and accepted.

**B. Steel Reinforcement, Welded Wire Fabric & Hook Fasteners.** Steel Reinforcement, Welded Wire Fabric and Hook Fasteners will not be measured for payment but shall be considered incidental to “Concrete Patching Repair”.

**5.** **PAYMENT**

 **A. Concrete Patching Repair (22146EN).** Payment at the contract unit price per square feet is full compensation for the following: (1) Furnish all labor, materials, tools, equipment; (2) preparation of specified areas including removing and disposing of specified existing materials; (3) place, finish and cure new concrete patches; and (4) all incidentals necessary to complete the work as specified by this note and as shown on the attached detail drawings.

SPECIAL NOTE FOR REMOVING ABANDONED

GAS LINE AND NAVIGATION LIGHTS

The Contractor shall remove all abandoned gas line and navigation lights and all mounting hardware. All removed items shall become property of the contractor and shall be removed from the site. Cost of all labor, tools, equipment, and materials to complete the remove the abandoned gas line and navigation lights shall be included in the Lump Sum unit price bid for Clean and Paint Structural Steel.

The Contractor shall contact the gas company 14 days before work begins to allow the gas company to preform safety checks before removing the abandoned gas line.

Contact:

Columbia Gas Company Phone Numbers.

**859-556-0004**

**859-621-0699**

The Contractor shall coordinate with the Department to have the power de-energized if needed for removal of the navigation lights. See Special Note for Utilities and Signs.

**Residual lead paint may still be on bridge.** The Contractor is advised to take all necessary protective measures including worker safety and environmental regulations when performing surface preparation. The Department will not consider any claims based on residual lead paint.

SPECIAL NOTE FOR UTILITIES AND SIGNS

All utilities, (see below for electric) and traffic signs shall be maintained and protected from damage.

All electric power that may be on the structure shall be de-energized. The Contractor shall coordinate with the Department to have the power de-energized.

SPECIAL NOTE FOR WEIGHT LIMITS ON STRUCTURE

**033B00016N** is rated at **35** tons.

No equipment, materials, vehicles, trailers nor combination of thereof exceeding the load rating of each structure listed above shall be placed on or drive across the structure. If the Contractor chooses to stage from the bridge deck, he must submit a plan for approval by the KYTC Engineer showing placement and weight of all equipment.

SPECIAL NOTE FOR MAINTAIN AND CONTROL TRAFFIC

All lane closures on this project shall be in accordance with Kentucky Department of Highways Standard Specifications, **FHWA Manual for Uniform** **Traffic Control Devices (current editions) unless otherwise specified** and attached suggested detour plan**.** No work will be conducted over unprotected traffic at any location.  At the discretion of the Engineer, lane closures may be restricted on holiday weekends. The contractor must submit a traffic control plan for be review and approval by the KYTC Engineer 14 days prior to the Pre-Construction Conference.

**1. EMERGENCY REPAIRS AND COORDINATION WITH OTHER CONTRACTS**

In the event it becomes necessary to make emergency repairs at this project by state forces or by other outside contractors, the (painting) contractor agrees to alter his work pattern as directed by the engineer so as not to interfere with the emergency work. The contractor shall be required to coordinate his efforts with those of any other contractor in the construction area.

**2. TRAFFIC CONTROL DEVICES**

The contractor will be required to furnish all traffic control devices whenever his operations endanger or interfere with vehicular traffic as determined by the engineer. The contractor shall furnish any additional traffic control devices necessary to protect traffic and his workmen.

**3. VEHICLES**

The contractor's vehicles shall always move with and not across or against the flow of traffic. Vehicles shall enter or leave work areas in a manner that will not be hazardous to or interfere with normal roadway traffic. Vehicles shall not park or stop except within designated work areas. Personal vehicles will not be permitted to park within the state right-of-way. The contractor's vehicles will be prohibited from crossing the roadway and all pedestrian movement of the contractor's personnel on the roadway will be limited to within the closed work areas.

**6. MISC.**

The Engineer may elect to use Variable Message Boards when necessary

**NARRITIVE.**

The bridge shall be closed to traffic for all work. See attached detailed drawing for the suggested detour plan. If the contractor chooses to stop operations in the off season the bridge shall be re-opened to all traffic. The closure and detour shall be re-installed for the 2022 season.

**MEASUREMENT.**

**A. Maintain and Control Traffic:** The Department will measure the quantity as “Lump Sum”.

**B. Portable Changeable Message Sign:** The Department will measure the quantity for “Each”.

**PAYMENT.**

**A. Maintain and Control Traffic (02650):** Payment of the contract lump sum amount for "maintain and control traffic" shall be full compensation for all items necessary to maintain and control traffic as specified for this project. All traffic control items shall remain the property of the contractor when the work is complete.

**B. Portable Changeable Message Sign (02671):** Payment at “each” shall be full compensation to furnish, install, maintain, and remove all portable message signs as specified.