SECTION 03311

JOINT CLOSURE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Remove asphalt surfacing, deck concrete, joint armor steel, and reinforcing steel at existing joint area; place new reinforcing steel; and recast joint area.

1.2 RELATED SECTIONS

A. Section 03055: Portland Cement Concrete

B. Section 03152: Concrete Joint Control

C. Section 03211: Reinforcing Steel and Welded Wire

D. Section 03310: Structural Concrete

1.3 REFERENCES

A. ASTM C 578: Rigid, Cellular Polystyrene Thermal Insulation

B. ASTM D 412: Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension

PART 2 PRODUCTS

2.1 MATERIALS

A. Portland Cement Concrete: Class AA(AE). Refer to Section 03055, Part 2.

B. Reinforcing Steel (Coated): Refer to Section 03211, Part 2.

C. Galvanized Sheet Metal: 16 gage, 0.06 inch thick.

D. Rigid Plastic Foam: Type 9, density of 2 lbs/ft^3.

E. Backer Rod: Refer to Section 03152, Part 2.

2.2 SEALANT MATERIAL

A. With the following characteristics:
   1. Applied cold and curable under field conditions
   2. Polyurethane based, gun grade
   3. Elastomeric, non-sag seal
   4. Bonds tightly to concrete sides and joints

B. Physical properties when cured 21 days at 73 degrees F. Refer to the following table.

Table 1

Property	Value	Method
Modulus of elasticity of 100 percent elongation	132 psi	ASTM D 412
Hardness	40 ± 5	Shore A
Elongation (at break)	450 percent	ASTM D 412
Recovery	Greater Than 90 percent	
Tensile strength	190 psi	ASTM D 412
Adhesive in Peel	20 lbs/inch	
Adhesive loss	0 percent	
Service range	-40 degree F to 150 degrees F	
Initial cure, tack free, (depending on temperature and humidity)	6 to 8 hours	
Final cure	5 to 8 hours	
Staining Characteristics	Non-staining	

PART 3 EXECUTION

3.1 PREPARATION

A. Asphalt Removal:
   1. Make saw cuts full depth, parallel to existing joints to define removal area.
   2. Do not damage concrete deck when removing asphalt surfacing.

B. Concrete Saw Cuts:
   1. Saw Cut in concrete deck 1 inch deep and parallel to existing joints to define the work area.
   2. Note that the length of the joint closure is the width of the bridge deck adjusted for the skew of the individual structure.

C. Prevent debris from falling into streams, pedestrian areas, traffic areas, and onto railroad tracks.

3.2 REMOVE CONCRETE

A. Use jackhammer method to remove existing concrete.
   1. Partial Depth Removal of Concrete Slab: Use 30-pound class jack hammers or smaller.
   2. Full Depth Removal of Concrete Slab: Use 90-pound class hand operated jack hammers or smaller.
   3. Operate jack hammers at an angle greater than 45 degrees as measured from the deck surface.

B. Remove parapet concrete in the closure area. Where an existing electrical conduit is encountered, protect the conduit from damage.

3.3 REINFORCING STEEL

A. Existing Reinforcing Steel
   1. Refer to the design plans for specific directions.
   2. Thoroughly clean steel that remains in place of all corrosion and adhering materials by sandblasting.

B. New Reinforcing Steel: Place coated reinforcing steel after sandblasting operations are complete.

3.4 PLACE CONCRETE

A. Refer to Sections 03055 and 03310.

B. Clean existing concrete and steel surfaces. Dampen before placing concrete.

C. Restrict traffic on the joint closure areas until the concrete has reached a compressive strength of 3,000 psi. Engineer may take additional concrete samples.

END OF SECTION