BRIDGE DECK JOINTS
(REV 2-4-26)

ARTICLE 458-1 is deleted and the following substituted:

458-1 Description.

Furnish and install bridge deck joints of the types and at the locations shown in the Plans. Repair existing concrete headers and furnish and install bridge deck joints at the locations shown in the Plans.

This Section covers the following types of joints:

Poured Joint
Poured Joint with Backer Rod System
Strip Seal Joint System
Modular Joint
Bridge Deck Joint Header Repair

Furnish and install sidewalk cover plates at the locations shown in the Plans.

ARTICLE 458-2 is expanded by the following:

458-2 Materials.

Meet the following requirements:

Galvanized Steel Sidewalk Cover Plates..... 962-10.5
Preformed Joint Filler 932-1
Type D Silicone Sealant*..... 932-1
Foam Backer Rod 932-1
Strip Seal Joint Systems*..... 932-2
Modular Joints 962-14
Polymer Concrete …….. 930-8

*Use products on the Department's Approved Product List (APL).

Transport, store and prepare all joint materials and components for all joint types as per the manufacturer's recommendations.

ARTICLE 458-4 is expanded by the following:

458-4.7 Bridge Deck Joint Header (Nosing) Repair: Remove concrete headers and replace with polymer concrete for the joint type per Section 458-4.3. Remove the existing expansion joint material to the limits shown in the Plans.

458-4.7.1 For Projects with Concrete (Rigid) Pavement

1. Mark the limits of deteriorated concrete surrounding the expansion joint avoiding interior angles of 90-degrees or less. Saw cut the proposed repair areas perpendicular to the surface at the depth specified in the Plans to a maximum depth of 1-inch to avoid cutting the steel reinforcement. Remove unsound concrete within the sawcut areas by chipping, grinding, cutting, hydrodemolition, or with small pneumatic hammers or hand tools until top mat of reinforcement is exposed. Remove concrete to provide at least 1-inch clearance around exposed reinforcing. Avoid striking the reinforcing with removal tools. Provide a surface texture of a

minimum 1/4-inch amplitude and expose the coarse aggregate of the concrete. Document the volume of each repair area and obtain written concurrence from the Engineer prior to installation of the polymer concrete.

2. If corroded reinforcing steel is encountered, remove surface residue and remove the corrosion from reinforcing steel by sandblasting or wire brushing. For locations where the loss in cross-sectional area of reinforcing steel is more than 20 percent, develop a repair proposal for the Engineer's approval.

3. Ensure the block out is cleaned of joint sealant, concrete debris, asphalt, water proofing membrane, dirt, grease, and any other deleterious material. Remove unsound concrete as directed by the Engineer.

4. Clean and inspect the surfaces of the concrete that are to remain for any visible cracks after removal of the concrete is complete. Treat cracks in accordance with Table 400-4.

5. Once the unsound concrete has been completely removed and any visible cracks have been treated, clean and prepare all surfaces to be in contact with the polymer concrete in accordance with the manufacturer's recommendations.

6. Install formwork and prepare the area to accommodate installation of the joint type per Section 458-4.3 ensuring the joint opening specified in the Plans is achieved.

7. Mix and place polymer concrete in accordance with manufacturer's recommendations. The polymer concrete must be installed flush with the existing deck or approach slab surface, as applicable.

8. Do not open the newly repaired surfaces to traffic until the polymer concrete has been cured for the minimum period as recommended by the manufacturer.

9. Complete the installation of the expansion joint system in accordance with Section 458-4.3.

458-4.7.2 For Projects with Asphalt (Flexible) Pavement: Remove the existing asphalt overlay to the limits shown in the Plans, ensuring that the underlying concrete deck is undisturbed. Ensure that the width of the joint header is a minimum of 6 inches or as specified in the plans. Prepare the concrete substrate in accordance with the polymer concrete manufacturer's recommendations. If damaged or unsound concrete is encountered, follow the procedures outlined above for concrete removal and surface preparation.

ARTICLE 458-5 is deleted and the following substituted:

458-5 Method of Measurement.

The poured joints without backer rod will be incidental to the concrete work and included in the cost of the concrete. Poured joints with backer rod, strip seal joints, and modular expansion joints will be the plan quantity length of each type of joint constructed and accepted. Unless otherwise noted in the Plans, include the cost of the pourback in the unit bid price of superstructure concrete.

Polymer concrete, referred to as Polymer Nosing in the Pay Item description, will be paid by volume per cubic foot, furnished, installed, and accepted.

Sidewalk cover plates will be the plan quantity length installed and accepted.

ARTICLE 458-6 is deleted and the following substituted:

458-6 Basis of Payment.

458-6.1 Joints. The Contract unit price per foot for joints will be full compensation for all work and materials necessary for the complete installation. Such price and payment will include, but not be limited to, the following specific incidental work:

1. Any work required to clean and prepare the adjacent bridge deck, deck block out or deck joint gap.
2. Any work to replace any rejected joints.
3. Any repairs to the galvanizing on metallic joint components.
4. Any additional work or materials required for non-standardized or special construction or installation techniques.
5. Any cost of erection and removal of any temporary supports which may be necessary for ensuring proper alignment and positioning of the joint relative to the bridge deck.
6. All costs associated with the manufacturer's installation technician.
7. All work related to performance of the watertight integrity test and any necessary repairs and retesting.

458-6.2 Polymer Nosing for Bridge Deck Expansion Joint: Payment will be full compensation for all equipment, labor, concrete removal, surface preparation, temporary shoring if and where needed, bonding agent, forming, materials and any incidental items necessary to complete all work specified in this Section.

458-6.3 Galvanized Steel Sidewalk Cover Plate: The Contract unit price per foot will be full compensation for all work and materials necessary for the complete installation.

458-6. 4 Payment Items: Payment shall be made under:

Item No. 458 - 1- Bridge Deck Expansion Joint - per foot.
Item No. 458 - 2- Polymer Nosing for Bridge Deck Expansion Joint – per cubic foot.
Item No. 458 - 3- Galvanized Steel Sidewalk Cover Plate – per foot.

MATERIALS FOR CONCRETE REPAIR
(REV 2-4-26)

ARTICLE 930-1 is deleted and the following substituted:

930-1 Description.

This Section covers materials used to repair concrete including defects or purposely placed openings in concrete elements. Any depth larger than the manufacturer's recommendation for the specific material shall be repaired with portland cement concrete meeting the requirements of Section 346.

SECTION 930 is expanded by the following:

930-8 Polymer Concrete for Bridge Deck Joint Header Repair.

930-8.1 General: Polymer concrete will be used to repair damaged or spalled areas of concrete headers at bridge expansion joints. The polymer concrete must be a multi-component,

rapid curing, abrasion and impact resistant material composed of a polymer-based material as the principal binder and well graded aggregate. The polymer binder must be a thermosetting, pure reactive material containing no volatile solvents.

930-8.2 Physical Properties: The polymer concrete must meet or exceed the physical properties listed in Tables 930-5 as determined by the specified standard test methods.

Table 930-5
Physical Properties of Polymer Concrete (1)

Physical Properties	Test Method	Requirements
Minimum Compressive Strength at 6 hours	ASTM C579	3,000 psi
Minimum Compressive Strength at 7 Days	ASTM C579	5,000 psi
Minimum Bond Strength at 7 days	ASTM C882	2,000 psi
Maximum Linear Shrinkage	ASTM C531	0.10%
Maximum Thermal Compatibility of Repair Materials with Concrete	FM 5-609	90%
Minimum Flexural Strength at 7 Days	ASTM C580	2,000 psi
Maximum Modulus of Elasticity	ASTM C580	200,000 psi
Maximum Working/Gel Time	ASTM D2471	4 hours

(1) Well graded durable aggregate must be provided by the manufacturer as part of the polymer concrete.