

**ITEM 588.01010115 - REHABILITATION OF BRIDGE JOINT SYSTEMS - , JOINT
WIDTH XX, REPAIR TYPE YY**

DESCRIPTION

The work consists of rehabilitating bridge joint systems by installing the required portions of a bridge joint system. The work consists of one of the following:

- A. Replace sealing element.** The existing joint system consists of armoring angles, concrete headers or elastomeric concrete headers and a sealing element. The system is deteriorated, debonded, missing, or leaking. The sealing element is replaced as part of the work.
- B. Seal armoring angle.** The existing joint system consists of armoring angles, concrete headers and a sealing element whereby there may be leakage at the existing concrete interface with the armoring angle. The armoring angle is sealed.
- C. Replace joint with an unarmored joint header.** In this case, one or both sides of the existing joint system is significantly deteriorated. If one side or both sides of the existing joint system and some abutting material is removed then install an approved armorless joint system (705-04).
- D. Repair headers, or remove portions thereof, with elastomeric concrete.** The existing joint system consists of armoring angles, concrete headers or elastomeric headers are locally deteriorated or damaged whereby they may leak. The entire sealing element is replaced and a portion of the header is replaced with elastomeric concrete.

MATERIALS

For work involving replacement of the sealing element, use a sealing element conforming to §705-08 Type I Joint Seal and an elastomeric concrete appearing on the approved list

For joint rehabilitation, use joint components appearing on the Approved List or conforming to the appropriate Materials Subsection of the Standard Specifications. Sealing elements, adhesives, and elastomeric concrete shall be products included in the selected approved joint system appearing in the Departments Approved List of Materials and Equipment, Joint Materials, Structural, Armorless Joint Systems (705-04). **Substitutions are not allowed.** Miscellaneous materials required for the system are selected by the joint manufacturer or as permitted by the manufacturer's representative.

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CONSTRUCTION DETAILS

General. The construction details shall be as required for the various joint systems as shown on the Approved Materials Detail Sheets and the following.

Manufacturer's Representative. A manufacturer's representative shall be present at the first installation of each type of seal or each configuration of joint in the Contract and shall be present until the installation is competently installed by the contractor as determined by the EIC. The representative shall be fully conversant with the proper joint system installation methods. The representative will advise both the Engineer and the Contractor about proper installation methods and will certify that proper methods were followed for the joint installations he observes. The representative will document, in writing, any deviations from the Materials Detail Sheets that he recommends.

Removal of Existing Joints. Saw cut to a minimum depth of 25 mm into the deck. Do not cut existing reinforcing unless required by the plans. Remove the joint and required concrete using lightweight chipping hammers meeting §580-3.02. Blast clean the concrete surfaces and exposed reinforcing. Remove rust from any exposed steel and reinforcing bars and leave saw cut surfaces roughened. Clean the area by vacuuming or blowing with air that is free of oil and moisture.

Repairing Headers. Saw cut the concrete perimeter of header(s) to a minimum depth of 25 mm. Also saw cut areas of the deck adjacent to but beyond the concrete perimeter of header(s) that are spalled or deteriorated areas to a minimum depth of 25 mm. The perimeters of the localized repairs shall be as approximately delineated in the plans and as set by the EIC. Use lightweight chipping hammers meeting §580-3.02 to remove concrete to a minimum depth of 25 mm. Remove the unsound concrete, and if it extends to the surface of the deck reinforcement, remove the concrete at least to the depth of the reinforcement. Blast clean the concrete surfaces and exposed reinforcing. Remove rust from any exposed steel and reinforcing bars to an SSPC SP6 standard and leave saw cut surfaces roughened. Clean the area by vacuuming or blowing with air that is free of oil and that is dry. Place elastomeric concrete according to the directions below.

Sealing Armoring Angles. Remove concrete immediately behind the armoring angle to a depth of 25 mm minimum using saw cutting or saw cutting and chipping. Use lightweight chipping hammers meeting §580-3.02. Remove concrete to the width shown on the plans or 75 mm if no distance is shown. Blast clean the concrete surfaces and exposed reinforcing. Remove rust from any exposed steel and reinforcing bars to an SSPC SP6 standard and leave saw cut surfaces roughened. Clean the area by vacuuming or blowing with air that is free of oil and that is dry. Place elastomeric concrete according to the directions below.

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Placement of Elastomeric Concrete. Install the material in strict accordance with the installation instructions included in the Materials Details and the recommendations of the Manufacturer's representative. In the event of a conflict, the Engineer will contact the Director, Materials Bureau, prior to the placement of any elastomeric concrete material. All resolutions made by the Director, Materials Bureau are final and binding.

Unless the Materials Details require more thorough cleaning, abrasive blast clean surfaces that will come in contact with elastomeric concrete as follows:

1. All Metal Surfaces - Commercial blast clean as defined by SSPC-SP6 and SSPC Vis 1-89 pictorial references B SP-6 and C SP-6. No visible rust may remain.
2. Portland Cement Concretes - Remove all laitance, oil, grease, and other surface contaminants which may affect the bond between the elastomeric material and the concrete. Provide a roughened surface with no evidence of gloss.

Clean the joint recess to remove all loose or foreign matter prior to installation of the elastomeric concrete by vacuuming or blowing with air that is free of oil and is dry.

Elastomeric concretes have stiff consistencies and are fast setting. Care and speed are needed to prevent voids in the material. It is essential to the performance of the joint that the elastomeric concrete completely fills the space under the armoring angles in order to provide a watertight joint and the necessary structural support.

Removal of Joint Seal. Cut and scrape the existing joint seal from the header or armoring angle. Do not rely on blast cleaning to remove the bulk of the material.

Preparation for Seal Installation. Blast clean the surfaces that will receive the new seal elements on the same day as the seal is installed. Minimum cleaning standards are:

Steel: Commercial blast cleaned surface as defined by SSPC-SP6 and SSPC Vis 1-89 pictorial references B Sa2 and C Sa2, and

Elastomeric and Portland Cement Concretes: Remove all surface contaminants and provide a roughened surface with no evidence of gloss.

Follow the manufacturer's cleaning requirements for the joint systems if they are more stringent than those listed above.

Clean the joint recess to remove all loose or foreign matter prior to installation of the seal concrete by vacuuming or air blowing with air that is free of oil and moisture.

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Seal Installation. Install the seal before any rusting of steel surfaces occurs. Re-blast clean any steel surface that exhibits rust, including minor flash rust, or if more than 12 hours has elapsed since blast cleaning. Install the seal according to the manufacturer's instructions, making sure the joint recess is thoroughly coated with adhesive.

Watertight Integrity Test. Follow §567-3.01 H except that testing may be performed the day after the joint is installed.

METHOD OF MEASUREMENT

Measurement of the items delineated herein will be linear (metric) and whose limits are stated in the plans. Measurement of the completed items shall be taken to the nearest 5 mm and as follows:

Sealing element: number of meters installed as measured along the longitudinal axis of the joint and along the horizontal and vertical, e.g. curb, surfaces;

Sealing the armoring angles: number of meters measured along the longitudinal axis of the joint at the surface of the roadway;

Replacing the joint header: for the side being replaced, the number of meters measured along longitudinal axis of the joint and the surface of the roadway, and

Repairing the armored joint: for the side being replaced, the number of meters measures along the surface of the roadway and the longitudinal axis of the joint.

The words "completely installed" mean the joint system in place with the following operations completed (where applicable).

3. Elastomeric concrete placed and finished, and adjacent areas free of excess elastomeric concrete.
4. All sealing elements in proper position.
5. Watertight integrity tests successfully conducted.

BASIS OF PAYMENT

The unit price bid per meter includes all labor, materials and equipment necessary to complete the work.

No additional payment will be made for work done by the Contractor to stop water leakage evidenced by any watertight integrity test.

