

TENDER DOCUMENTS

SUBSECTION 6.63 DECK JOINTS

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SUBSECTION 6.63 DECK JOINTS

6.63.1 GENERAL

- 6.63.1.1 This subsection sets out the requirements related to replacement of deck joints under this Contract.
- 6.63.1.2 Any specific requirements related to replacement of deck joints under this Contract are set out in Section 4 *Specific Technical Conditions*.
- 6.63.1.3 The requirements related to demolition work are set out in subsection 6.21 *Demolition and Removal*.
- 6.63.1.4 The requirements related to reinforcing steel are set out in subsection 6.31 *Reinforcing Steel for Concrete*.
- 6.63.1.5 The requirements related to formwork are set out in subsection 6.32 *Formwork*.
- 6.63.1.6 The requirements related to concrete placement are set out in subsection 6.33 *Cast-in-Place Concrete*.
- 6.63.1.7 The requirements related to steelwork are set out in subsection 6.41 *Steelwork*.
- 6.63.1.8 The requirements related to waterproofing membranes are set out in subsection 6.64 *Waterproofing Membrane*.
- 6.63.1.9 The requirements related to asphalt pavement are set out in subsection 6.65 *Asphalt Pavement*.

6.63.2 REFERENCE STANDARDS

- 6.63.2.1 The **Contractor** shall perform all deck joint work in conformity with the following standards and documents to which the provisions of the Contract are added:
- 6.63.2.1.1 (ASTM) ASTM International
- ASTM D2628-91(2005) – *Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements*.
- 6.63.2.1.2 (CSA) Canadian Standards Association
- CAN/CSA S6-06 *Canadian Highway Bridge Design Code*.
- 6.63.2.1.3 (MTQ) Ministère des Transports du Québec
- MTQ – *Cahier des charges et devis généraux (CCDG)*.

6.63.3 MATERIALS

6.63.3.1 GENERAL

6.63.3.1.1 The **Contractor** chooses the materials to be used and is responsible for the performance of those products once they are used.

6.63.3.2 ELASTOMER COMPOUND

6.63.3.2.1 The elastomer seal shall conform to standard ASTM D2628-91(2005).

6.63.4 EXECUTION OF WORK

6.63.4.1 PLANNING

6.63.4.1.1 At least fourteen (14) calendar days prior to ordering any materials or fabricating any components, the **Contractor** shall submit to the Engineer for review, shop drawings, technical data sheets and samples for each material to be used under the Contract, in particular all steel components of the joints and the seals.

6.63.4.1.2 The **Contractor** may not make any changes to the materials or construction details indicated on the shop drawings reviewed by the Engineer without first obtaining written authorization from the Engineer.

6.63.4.1.3 Before preparing the shop drawings, the **Contractor** shall conduct a complete, detailed site survey of all existing components in order to determine their exact dimensions and confirm the size and location of the assembly holes shown on the drawings. The **Contractor** shall conduct such a survey wherever a given detail applies.

6.63.4.1.4 If the dimensions determined in the course of the detailed survey of components differ significantly from those indicated on the drawings or if the actual conditions make it impossible to perform the work as indicated on the drawings and in the specifications, the **Contractor** shall notify the Engineer and follow the Engineer's instructions.

6.63.4.1.5 The fact that the documents or components referred to in the preceding paragraphs are reviewed by the Engineer does not relieve the **Contractor** of its responsibilities under the Contract, including, but not limited to, its responsibility to supply appropriate materials and equipment, use suitable work methods, ensure good workmanship and apply proper safety measures.

6.63.4.2 NON-INTERRUPTION OF TRAFFIC

- 6.63.4.2.1 Unless otherwise indicated in the *Specific Technical Conditions*, the **Contractor** shall carry out the work in the sequence indicated on the drawings and in the specifications and in accordance with the requirements of subsection 6.14 *Traffic Control and Temporary Signage*.
- 6.63.4.2.2 Where the sequence of work calls for lanes to be re-opened between the various phases of work, the **Contractor** shall maintain the road in drivable condition by laying over the joints being replaced steel plates embedded in the first layer of bituminous concrete and fastened to the deck with steel bolts in accordance with the drawings and the *Specific Technical Conditions*.
- 6.63.4.2.3 The **Contractor** shall eliminate any transverse and longitudinal unevenness between travel lanes by placing bituminous concrete chamfers with a transition slope of 1.25% (1:80) or less in order to minimize driver discomfort and allow traffic to move safely.
- 6.63.4.2.4 The **Contractor** shall also install signs indicating that the driving surface is uneven and sloped.
- 6.63.4.2.5 The **Contractor** shall inspect the chamfers and steel plates daily and make any necessary adjustments as quickly as possible, while conforming to the requirements of subsection 6.14 *Traffic Control and Temporary Signage*, at no additional cost to the **Owner**.
- 6.63.4.2.6 The **Contractor** shall ensure that a work crew is available twenty-four (24) hours a day, at no additional cost to the **Owner**, to repair any damage to chamfers or steel plates. Repair work shall begin not more than sixty (60) minutes after the call is made or as otherwise agreed by the **Contractor** and the Engineer.
- 6.63.4.2.7 If the **Contractor** fails to begin the repairs within sixty (60) minutes, the **Owner** reserves the right to carry out at the **Contractor's** expense the work needed to repair the damage.
- 6.63.4.2.8 In the event of accidental damage caused by a third party, such as damage caused by a snow plow, the **Owner** and the **Contractor** may come to an agreement on the action to be taken and the parameters of the necessary repairs.
- 6.63.4.2.9 The road surface shall be cleaned using a vacuum sweeper after each phase of work before the lanes are re-opened to traffic.

6.63.4.3 REMOVAL, DEMOLITION AND DISMANTLING OF EXISTING COMPONENTS

- 6.63.4.3.1 Removal of the existing bituminous concrete, demolition of concrete and the existing joint, and dismantling of steel, electrical, telecommunications and other components shall be carried out in accordance with subsection 6.21 *Demolition and Removal* and the *Specific Technical Conditions* and as indicated on the drawings.
- 6.63.4.3.2 The **Contractor** shall use screens to protect vehicles moving in the vicinity of the demolition work to the satisfaction of the Engineer.
- 6.63.4.3.3 The **Contractor** shall take such measures as are necessary to ensure that the slab of the deck is not damaged beyond the limits indicated on the drawings.

6.63.4.4 DECK JOINT INSTALLATION

- 6.63.4.4.1 Fabrication and placement of the steel components of joints shall be carried out in accordance with the requirements of subsection 6.41 *Steelwork* and the *Specific Technical Conditions* and as indicated on the drawings.
- 6.63.4.4.2 Deck joints shall be made in accordance with standard CAN/CSA S6 and the requirements indicated on the drawings and in the *Specific Technical Conditions*, with the following clarifications:
 - 6.63.4.4.2.1 the longitudinal and transverse slopes of the concrete shoulders shall match the profiles prescribed for the asphalt on each side of the joint;
 - 6.63.4.4.2.2 the opening of a joint made in a single section shall be adjusted to the opening indicated on the drawings based on the air temperature measured under the bridge at the location of the joint when the joint is set;
 - 6.63.4.4.2.3 the opening of a joint made in two (2) or more sections after work is done in stages shall be adjusted taking the following requirements into account:
 - 6.63.4.4.2.3.1 for the first section, the joint shall be made at the opening indicated on the drawings based on the air temperature measured under the bridge at the location of the joint when the joint is set;
 - 6.63.4.4.2.3.2 for the remaining sections, the joint shall be made at the same opening used for the first section.

6.63.4.5 PLACEMENT OF SEAL

- 6.63.4.5.1 The elastomer seal shall be placed using appropriate tools approved by the manufacturer of the joint in order to avoid damaging the seal.
- 6.63.4.5.2 The **Contractor** shall replace at its own expense any seal that is damaged (torn, cracked, warped, etc.) as a result of mishandling during the placement process.

6.63.5 QUALITY CONTROL

- 6.63.5.1 Deck joints with elastomer seals shall be waterproof once they are completed.
- 6.63.5.2 The **Contractor** shall, with the Engineer present, conduct a seal test of the deck joint using a direct water spray with a diameter of 20 mm at the nozzle outlet and a pressure of at least 700 kPa.
- 6.63.5.3 The water shall be sprayed back and forth over the joint for at least thirty (30) minutes.
- 6.63.5.4 The **Contractor** shall ensure that the Engineer has access under the joint when the seal is being tested.
- 6.63.5.5 Any joint that is not sealed shall be repaired and shall undergo a new seal test to the satisfaction of the Engineer.

END OF SUBSECTION