ITEM 567.93 18 – ASPHALTIC PLUG BRIDGE JOINT SYSTEM

DESCRIPTION

This work shall consist of furnishing and installing Asphaltic Plug Bridge Joint Systems into prepared joint recesses at locations shown on the plans as detailed on the plans. Operations related to creating the joint recess shall be paid for under separate Items as shown on the plans. The joint systems shall be composed of a mixture of specially blended, polymer modified bituminous material and select aggregate. The joint systems shall be capable of providing up to 50 mm of movement while maintaining a continuous load bearing surface.

MATERIAL

The suppliers of the joint systems shall furnish the following: polymer modified bituminous binder, aggregate, backer rod, bridging plate, locating spikes a minimum of 50 mm long, and material for sealing the expansion gap at curbs, parapets, and sidewalks.

The binder shall be a polymer modified bituminous material. The aggregate shall be as per the manufacturer's recommendation and shall be double-washed, dried, and delivered to site in pre-weighed, labeled packages.

Backer rod, used to control the depth of the binder material in the expansion gap, shall be a closed cell, foam expansion joint filler, compatible with the polymer modified bituminous binder and the elevated application temperatures of the binder. The size of the backer rod shall be in accordance with the manufacturer's recommendation for the existing expansion gap width and the anticipated expansion and contraction at each joint.

The bridging plates shall be composed of aluminum or mild steel and be a minimum of 1 m long. The thickness and width of each bridging plate shall be as recommended by the manufacturer's representative for the existing expansion gap and the anticipated expansion and contraction of each joint.

CONSTRUCTION PROCEDURES

The contractor shall notify the Director, Materials Bureau through the Engineer a minimum of ten (10) days prior to installation of the joint system. Notification will include the contract number, joint system name, BIN number, and approximate date of installation.

The joint manufacturer shall supply the Engineer with installation instructions at least two weeks prior to the joint's installation. In the event of a conflict between the manufacturer's installation instructions and this specification, the Engineer shall contact the Director, Materials Bureau, prior to joint installation. All resolutions made by the Director, Materials Bureau shall be final and binding.

An experienced technical representative employed by the manufacturer of the joint system shall be present during all phases of surface and material preparation, and material installation. The representative shall advise both the Engineer and Contractor regarding proper installation procedures to assure the asphaltic plug bridge joint system is installed correctly. No material placement will be permitted unless the Technical Representative is at the placement site. The manufacturer's representative shall certify to the Engineer in writing that the asphaltic plug bridge joint system was installed in accordance with the manufacturer's requirements before the Watertight Integrity Test is performed.

No material shall be installed if the ambient temperature is expected to be below 5° C at any time during the installation. All receiving surfaces shall be completely dry prior to any material application.

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The expansion gap at curbs, parapets, and sidewalks shall be sealed where shown on the plans as detailed on the plans.

Repairs to the joint recess necessitated by the Contractor's operation shall be the Contractor's responsibility and shall be completed at no additional cost to the State. Repairs to the joint recess necessitated by deterioration of the concrete not attributable to the Contractor's operation shall be eligible for payment. Additional joint material required to fill a wider joint recess, necessitated by deterioration of the adjacent wearing surface, shall also be eligible for payment. Existing joint material in the expansion gap shall be removed to a depth which will allow the new joint system to be installed as shown on the plans. Temporary compressible fillers may remain in position below this depth. All other material shall be removed to allow the joint to open and close through the full range of theoretical movement without damaging the joint or structure. All surfaces to come in contact with the joint system shall be abrasive blast cleaned of all laitance, oil, grease, or any other material which may affect the bond between the binder and the surfaces of the joint recess.

The backer rod shall be installed in the expansion gap to the depth shown on the plans (25 mm minimum).

The binder shall be melted and heated to the application temperature recommended by the manufacturer's representative. The heating kettle shall be double oil or air jacketed melter having a continuous agitation system, temperature controls, and calibrated thermometer. Direct heating shall not be used. At no time shall the manufacturer's recommended safe heating temperature be exceeded. The binder material may be reheated once as recommended by the manufacturer's representative. At no time shall any binder material be heated more than two times.

No loose material of any nature shall be permitted on any surface to come in contact with the binder material. Immediately prior to placing any binder, the joint recess, expansion gap, and road surface 150 mm either side of the joint recess shall be thoroughly cleaned and dried using a hot compressed air (HCA) lance. The heated binder shall be poured into the expansion gap, as recommended by the manufacturer's representative.

The bridging plate shall be centered and placed over the entire length of the expansion gap and secured with spikes placed through pre-drilled holes, spaced a maximum of 1 m on center, along the centerline of the plate. Each piece of bridging plate shall be secured with a minimum of two spikes. Adjacent pieces of plate shall be butted tightly to form a continuous bridging over the entire length of the joint. The plates shall be cut as required in the manner recommended by the manufacturer's representative. Where possible, the cut plates shall be a minimum of 460 mm in length. No overlapping of the plates shall be permitted.

The entire joint recess shall be coated by pouring the heated binder into the joint recess and spread to coat all exposed surfaces of the bridging plates and joint recess, both horizontal and vertical. The coating shall be continuous and adhere to all surfaces.

The aggregate shall be heated in accordance with the manufacturer's recommendation in a suitable heated rotating drum blending unit. Temperature of the aggregate shall be monitored with a hand held calibrated digital thermometer sensor or by other means approved by the Engineer. The heated aggregate and heated binder shall be combined and placed in accordance with the manufacturer's recommendation.

The size of aggregate and the thickness of each layer shall be as recommended by the manufacturer's representative to achieve the joint thickness required. The manufacturer's representative shall determine when the joint system shall be compacted. The joint system shall be compacted using a small vibratory

roller from the Approved List or a static roller recommended by the manufacturer's representative which shall not exceed the weight limit of the structure. The compacted joint shall be level with the wearing surface. Immediately following compaction, the surface of the joint system and surrounding road shall be dried and cleaned using the HCA lance. Sufficient binder shall immediately be spread over the joint system and adjacent road surface to fill surface voids and coat the surface stone. The finished joint shall immediately be dusted with a fine, dry aggregate or sand to prevent tackiness. The joint shall be ready for traffic within three (3) hours after being dusted.

After the joint system has been installed and exposed to normal daily vehicular traffic for a minimum of five (5) days, a Watertight Integrity Test shall be performed in accordance with the requirements of Subsection 567-3.01D. Repairs made to the joint system for the successful completion of the Watertight Integrity Test shall be done at no cost to the state.

METHOD OF MEASUREMENT

Measurement for payment purposes shall be taken as the number of meters of sealed joint system measured horizontally and vertically along the centerline of the completed joint system between the outer limits indicated on the Contract Plans. Measurement will be taken only after the successful completion of a Watertight Integrity Test meeting all of the requirements and conditions of Subsection 567-3.01D.

BASIS OF PAYMENT

The unit price bid per meter shall include all labor, materials, and equipment necessary to complete the work. This includes any required asphalt removal. Payment will not be made for the following:

1. Repairs to the joint recess necessitated by the Contractor's operation.
2. Repairs made to the completed joint system to ensure the successful completion of the Watertight Integrity Test.