

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**RESAWING AND SEALING LONGITUDINAL  
PAVEMENT JOINTS**

C&amp;T:ARB

1 of 2

04-16-98

C&amp;T:APPR:JFS:JTL 05-07-98

**a. Description.** This work includes all labor, equipment, and material required to resaw and seal existing longitudinal concrete pavement joints.

All work and materials shall be in accordance with the 1996 Standard Specifications for Construction with the exceptions and additions specified herein.

The longitudinal joints shall be resawed to the dimensions specified, cleaned, and sealed with a low-modulus hot-poured joint sealant as directed by the Engineer.

**b. Materials.** The joint sealant shall be in accordance with Subsection 914.04 A.

**c. Construction.** The joints shall be sealed with the hot-poured sealant as specified in Subsection 602.03 S with the following exceptions and additions:

1. All spalls along the longitudinal joint which are directed by the Engineer to be repaired, shall be repaired as specified under the Special Provision for Joint Spall Repair contained in this proposal. The spalls shall be repaired prior to resawing the longitudinal joint.
2. The existing longitudinal joints shall be resawed to a depth of 25 mm to 32 mm and a width of 6 mm to 10 mm. Immediately following the sawing operation, the joint groove shall be flushed with water of sufficient pressure to remove the slurry and debris from the joint groove. The longitudinal joints shall be sawed prior to resealing the intersecting transverse joints.
3. The joints shall receive a final cleaning, just prior to sealing, as specified in Subsection 602.03 N of the 1996 Standard Specifications for Construction. After final cleaning, a backer rod, specified in Subsection 914.04 B, shall be inserted into the longitudinal joint to a depth that will provide a 1:1 width to depth ratio of the low-modulus hot-poured joint sealant.
4. The faces of the joint groove and the pavement surface shall be dry at the time of sealing. The joint groove shall be sealed flush to 3 mm (after cooling) below the surface of the pavement.

**d. Measurement and Payment.** The completed work as measured for **Resawing and Sealing Longitudinal Pavement Joints** will be paid for at the contract unit price for the following contract item (pay item).

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Resawing and Sealing Longitudinal Pavement Joints . . . . .	meter

Payment for **Resawing and Sealing Longitudinal Pavement Joints** includes all labor, equipment, and materials required to saw, clean, and seal the joints, with the exception of spall repair, which will be paid for separately as provided in the Special Provision for Joint Spall Repair contained in this proposal.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**RESEALING TRANSVERSE JOINTS WITH SILICONE**

M&amp;T:ARB

1 of 3

10-22-96

C:APPR:EDW:JTL: 11-08-96

**a. Description.** This work consists of removing existing sealers, cleaning the joint, and sealing the joint with a silicone sealant.

The location of the joints to be sealed shall be as shown in the proposal or as directed by the Engineer.

All work and materials shall conform to the 1996 Standard Specifications with exceptions and additions specified herein.

**b. Materials.** The silicone sealant shall be a low-modulus sealant having a one part formulation which does not require a primer for proper bonding to Portland cement concrete. The non-sag silicone shall meet the following requirements:

<b>Property</b>	<b>Value</b>	<b>Test Method</b>
Shelf Life, months	6 min (from date of shipment)	
Flow, mm	8 max	ASTM C 639
Extrusion Rate, grams/minute	90-300	MIL S 8802
Tack Free Time, minutes	35-75	MIL S 8802
Specific Gravity	1.010-1.515	ASTM D 792 (Method A)

**Tests on Sealant Cured 7 Days at 24 °C and 50% RH**

Durometer Hardness, Shore A	5-25	*ASTM D 2240
Tensile Stress at 150% Elongation, kPa	310 max	*ASTM D 412 (Die C)
Elongation, %	700 min	*ASTM D 412 (Die C)

\* The hardness, tensile stress, and elongation specimens shall be prepared from a sheet of material 3 mm to 5 mm thick which has been cast and cured on a sheet of polyethylene.

**Bond test, -29° C, 100% Elongation, 3 cycles**

Non-Immersed	Pass	**Departmental
Water-Immersed, 96 hours	Pass	**Departmental

\*\* Bond tests shall be run in triplicate on sealant sections 13 mm W x 10 mm D x 50 mm L, poured and tooled between sawed concrete blocks. A cycle shall consist of 100 percent extension at -29° C at a rate of 3 mm per hour. The specimens shall be allowed to recover at laboratory temperature for four hours, then conditioned for a minimum of four hours at -29° C before starting a cycle. Failure is determined by one or more of the three specimens exhibiting 10 percent or more adhesion or cohesion failure after three cycles.

The container of the sealant shall be plainly marked with the manufacturer's name or trace name, color, lot number, and date of manufacture. The sealant will be sampled by a representative of the Department and tested by the Department. A minimum of three weeks will be required for testing from the time the sample is received.

**c. Joint Preparation.** Existing joint sealer or sealant shall be removed from the joint groove as designated by the Engineer. Immediately prior to sealing, the joint groove shall be cleaned to remove all dust and contamination from the groove faces and reservoir. The cleaning shall consist of dry abrasive blast cleaning of both faces of the joint followed by a final cleaning with compressed air free of oil and water and having a minimum pressure of 620 kPa. Where adjoining an area of previously installed silicone, a fresh cut must be made to provide a clean face for the new silicone to bond. After the final cleaning, a closed cell polyethylene backer rod shall be installed into the joint groove to the depth shown on the attached detail sheet.

**d. Joint Sealing.** The joint groove shall be sealed after insertion of the backer rod and prior to becoming contaminated. At the time of sealing, the joint groove faces shall be dry and dust free. The silicone shall be pumped into the joint groove in a continuous operation to properly fill and seal the joint groove. A list of recommended pumps for this procedure can be obtained from the supplier of the sealant. In conjunction with or immediately after placement, the sealant shall be tooled to force it against the joint faces and to obtain the correct depth as shown on the attached detail sheet.

The joints shall not be sealed when the air or pavement temperature is below 4 °C or when the pavement is wet.

Traffic shall not be allowed on the sealed joint for a minimum of two hours after tooling, unless otherwise approved by the Engineer.

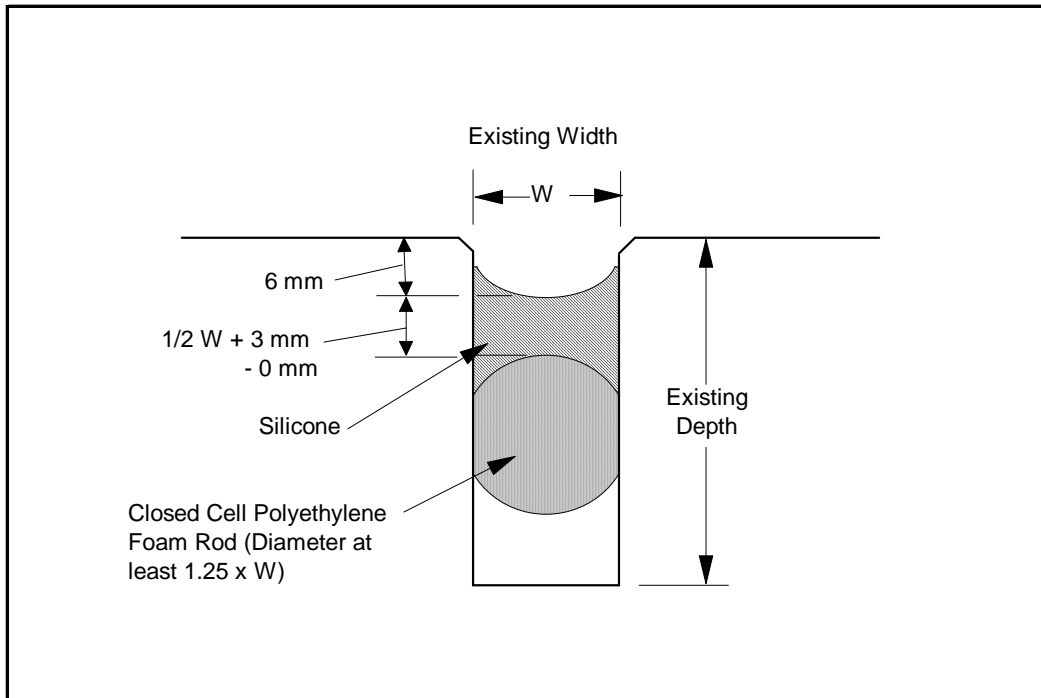
**e. Measurement and Payment.-**

**Contract Item (Pay Item)**

**Pay Unit**

Joint Resealing, Silicone ..... meter

Payment for **Resealing Transverse Joints With Silicone** includes furnishing all labor, equipment, and materials required to remove all existing sealers or sealants, clean the joint groove, install the backer rod, and seal the joint with silicone sealant.



Detail For Resealing Transverse Joints With Silicone

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**RESEALING TRANSVERSE JOINTS WITH SELF-LEVELING SILICONE**

M&amp;T:ARB

1 of 3

10-22-96

C:APPR:EDW:JTL 11-08-96

**a. Description.** This work consists of removing existing sealers, cleaning the joint, and sealing the joint with self-leveling silicone sealant. The location of the joints to be sealed shall be as shown in the proposal or as directed by the Engineer. All work materials shall be in accordance with the 1996 Standard Specifications with exceptions and additions specified herein.

**b. Materials.** The silicone sealant shall be a low-modulus sealant having a one part formulation which does not require a primer for proper bonding to Portland cement concrete. The self-leveling silicone shall meet the following requirements:

<u>Properties</u>	<u>Value</u>	<u>Test Method</u>
Shelf Life, months	6 min	(from date of shipment)
Flow, Sag or Slump	Self-Leveling	ASTM C 639 (Type I)
Extrusion Rate, grams per minute, minimum	250	MIL S8802
Tack Free Time, minutes, maximum	120	ASTM C 679
Specific Gravity	1.1 - 1.5	ASTM D 792 (Method A)
Tests on Sealant Cured 14 Days at 24° C and RH		
Durometer Hardness, Shore A, maximum	15	*ASTM D 2240
Elongation, percent minimum	800	*ASTM D 412 (Die C)
Tensile Stress at 150% Elongation, max kPa	205	*ASTM D 412 (Die C)
Adhesion to Concrete, minimum % Elongation	500	ASTM D 3583 (Section 14, Modified)
Bond Test, -29° C, 100% Elongation, 3 Cycles		
Non-Immersed	Pass	**Departmental
Water-Immersed, 96 hours	Pass	**Departmental

\* The hardness, tensile stress, and elongation specimens shall be prepared from a sheet of material 3 mm to 5 mm thick which has been cast and cured on a sheet of polyethylene.

- \*\* Bond tests shall be run in triplicate on sealant sections 13 mm Wx 10 mm Dx 50mm L, poured and tooled between sawed concrete blocks. A cycle shall consist of 100 percent extension at -29° C at a rate of 3 mm per hour. The specimens shall be allowed to recover at laboratory temperature for four hours, then conditioned for a minimum of four hours at -29° C before starting a cycle. Failure is determined by one or more of the three specimens exhibiting 10 percent or more adhesion or cohesion failure after three cycles.

The containers of the sealant shall be plainly marked with the manufacturer's name of trade name, color, lot number, and date of manufacturer. The sealant will be sampled and tested by the Department. A minimum of four weeks will be required for testing from the time the sample is received.

### c. Construction

1. **Preparation.** All existing joint sealer or sealant shall be removed from the joint groove. Immediately prior to sealing, the joint groove shall be cleaned to remove all dust and contamination from the groove faces and reservoir. The cleaning shall consist of sand blasting followed by a final cleaning with compressed air, free of oil and water and having a minimum pressure of 620 kPa. Sand blasting shall be performed in two passes (one for each joint face) with the nozzle held at an angle with the face and no more than 50 mm from it. After the final cleaning, a closed cell polyethylene backer rod shall be installed into the joint groove to the depth shown on the attached detail sheet. Due to possible variations of joint widths, the Contractor shall have several different sizes of backer rods available.
2. **Sealing.** The joint groove shall be sealed after insertion of the backer rod and prior to becoming contaminated. At the time of sealing, the joint groove faces shall be dry and dust free. The silicone shall be pumped into the joint groove in a continuous operation to properly fill and sealant the joint groove. A list of recommended pumps for this procedure can be obtained from the supplier of the sealant. Prior to application of silicone, a period of 24 hours without moisture must have expired. It is critical that the joint be clean and dry immediately prior to application. The sealant width to depth ratio should be 2:1. The sealant shall be no thinner than 10 mm and no thicker than 13 mm. The sealant must be recessed below the pavement surface 6 mm.

The joints shall not be sealed when the air or pavement temperature is below 4° C or when the pavement is wet.

Traffic shall not be allowed on the sealed joint for a minimum of two hours after installation of the sealant, unless otherwise approved by the Engineer.

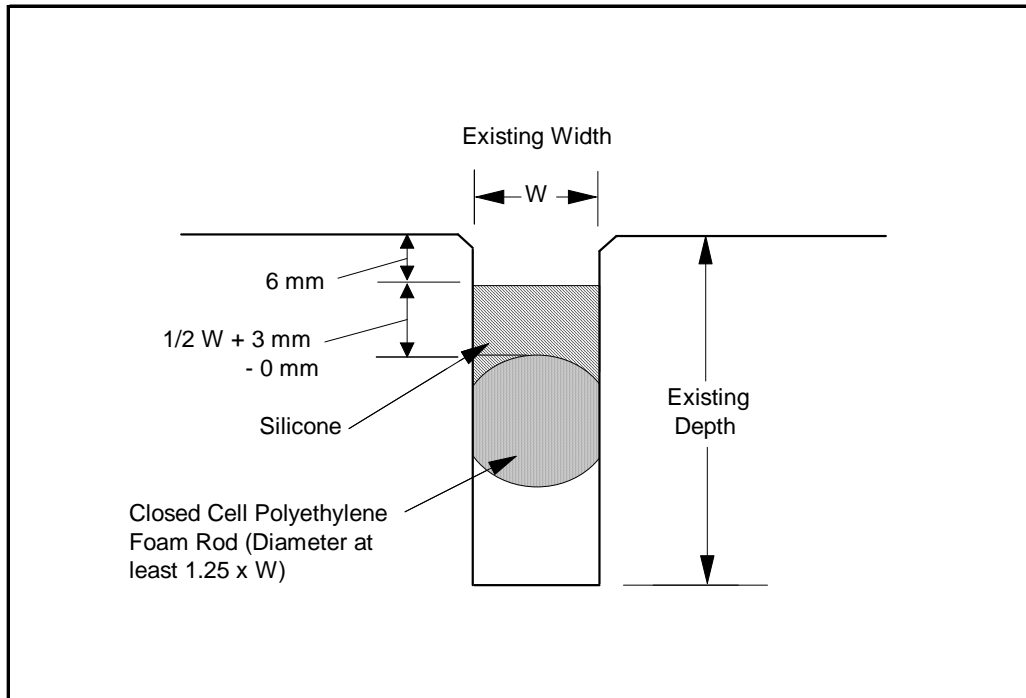
**e. Measurement and Payment.**

**Contract Item (Pay Item)**

**Pay Unit**

Joint Resealing, Self-Leveling Silicone . . . . . meter

Payment for **Resealing Transverse Joints with Self-Leveling Silicone** includes furnishing all labor, equipment, and materials required to remove all existing sealers or sealants, clean the joint groove, install the backer rod, and seal the joint with silicone sealant.



Detail For Resealing Transverse Joints With Self-Leveling Silicone