PROJECT SPECIAL PROVISIONS

ROADWAY

SAWING AND SEALING EXISTING CONCRETE PAVEMENT JOINTS:

SPI

Description

Saw existing sawed joints and clean and seal joints with Low Modulus Silicone at the **transverse joints and the center longitudinal joint between the mainline concrete pavement slabs** or as directed by the Engineer.

Materials

Meet the requirements of Section 1028-4(A) of the *Standard Specifications* for Low Modulus Silicone Sealant.

Construction

Saw and seal joints at locations as directed by the Engineer.

Equip air compressors for cleaning joints with suitable traps capable of removing all surplus water and oil in the compressed air. The Engineer will check the compressed air daily for contamination. Do not use contaminated air.

Cleaning and sealing shall be as follows:

(A) Cleaning Freshly Cut Sawed Joints

Immediately after sawing the joint, completely remove the resulting slurry from the joint and the immediate area by flushing with a jet of water under pressure, and other tools as necessary. After flushing, blow out the joint with compressed air. After the surfaces are thoroughly clean and dry and just before the joint sealer is placed, blow out the joint with compressed air having a pressure of at least 90 psi and remove all traces of dust. If freshly cut sawed joints becomes contaminated before they are sealed, clean as many times as necessary by one of the optional methods below or other methods of cleaning as approved by the Engineer.

(B) Installing Backup Material

When required, install closed cell, expanded polyethylene foam rod type backup material in a manner that will produce the shape factor specified. If the sealant bonds to the backup material, a bond-breaking type may be required.

(C) Taping Expansion Joints

When the joints have been cleaned and are thoroughly dry, place bond-breaking adhesive tape on top of the joint material or backup material to prevent any bonding action between the bottom of the joint sealer and the top of underlying material. The tape shall completely cover the top of the underlying material, but at no place shall the tape be allowed to adhere to the sides of the joint.

(D) Sealing Joints Requirements

(1) Do not place silicone joint sealer when the air temperature near the joint is less than 50°F or is 50°F and falling or between October 15 and May 1, unless otherwise directed by the Engineer.

(2) Filling the Joint: Do not seal a joint until the seal is thoroughly clean and dry, and properly taped, if taping is required. Place the sealer in reasonably close conformity with dimensions shown on the plans. The joints will be rejected for any unreasonable deviation until satisfactory corrective measures are taken.

Apply the joint sealer by an approved mechanical device or by manual pouring or troweling, depending upon the consistency used. When applied mechanically or by pouring, a nozzle or pouring spout shall be shaped to fit inside the joint to introduce the sealer from inside the joint. Pouring consistency shall be used in horizontal joints, and toweling consistency shall be used in vertical joints, unless the pouring consistency is such that it can be satisfactorily placed in vertical joints.

Recess the joint sealer below the adjacent surface as shown in the plans.

If the joint material fails in either adhesion or cohesion, the joint shall be repaired to the Engineer's satisfaction at the Contractor's expense.

(3) Special Requirements for Installation of Low Modulus Silicone Sealant: The sealant shall be tooled to provide the required recess. The sealant shall be tooled or applied in a manner which causes it to wet the joint faces.

(4) Cleaning Pavement: Promptly remove surplus joint sealer on the pavement after a joint has been sealed so that the joint sealer is not exposed to direct contact with traffic.

(E) Opening to Traffic

Do not permit traffic over sealed joints without the approval of the Engineer.

Measurement and Payment

Sealing Existing Concrete Pavement Joints will be measured along the completed joint of the actual linear feet of joints that have been sawed and sealed and accepted and paid for at the contract unit price per linear foot.

The above price and payment will be full compensation for all work covered by this provision for furnishing all labor, materials, tools, equipment, backer rods, and incidentals for doing all work involved in sawing, cleaning and sealing joints.

Payment will be made under:

Pay Item	**Pay Unit**
Sealing Existing Concrete Pavement Joints	Linear Foot

SEALING EXISTING PAVEMENT CRACKS:
(7-1-95) (Rev.7-18-06) (Rev 11-16-09) R6 R91 (Rev)

Description

The work consists of sealing the **longitudinal pavement crack between the existing mainline concrete pavement and the existing outside asphalt shoulder** with Sealant Type 2, PS/AR (hot-poured rubber asphalt). Other locations may be required as directed by the Engineer.

Materials

Use Sealant Type 2, PS/AR (hot-poured rubber asphalt) in accordance with the requirements of Article 1028-2 Joint Sealer of the *2006 Standard Specifications*.

Construction Methods

Install the sealant so that it forms a complete watertight bond with a high degree of elasticity, with maximum flexibility and longevity under extreme temperature ranges.

Use an HCA (hot compressed air) lance at all times to blast out any vegetation, dirt, dampness and loose materials from the cracks.

Use a concentrated hot air jet that is at least 3000°F in temperature and that has an air jet force of not less than 3000 feet per second of blasting.

Force open asphalt cracks, cleaned warm and dry, and make ready for the application of the preheated sealant for maximum crack sealability.

Preheat the sealant to correct temperature, using the air jacketed flow method to prevent the burning of the modified rubber in the sealant. Perform this by means of a trailer mounted 190 gallon safety tested crack sealant preheater melter kettle, with a horizontally mounted full sweep double paddle agitator.

Apply sealant in the prepared cracks at a temperature range of 370°F minimum and 420°F maximum, using the pressure screed shoe to completely fill the crack, leaving a sealed 2" overband. Excessive overbanding or waste of sealant materials will not be tolerated.

Do not apply the PS/AR sealant when the surface temperature of the pavement is below 32°F.

Seal all cracks with a minimum of 1/8" depth of sealant installed.

After the crack has been sealed, promptly remove surplus sealer on the pavement. Do not permit traffic over the sealed cracks without approval by the Engineer.

The sealant shall be packaged in polyethylene bags and placed in boxes, which weigh approximately 60 pounds. The sealant may be packed in 60 pound boxes containing two polyethylene bags of sealant which weigh approximately 30 pounds each. Boxes of sealant are to be palletized for shipment. The pallets are to be protected with a weatherproof covering. The Contractor is responsible for storage.

Measurement and Payment

Sealing Existing Pavement Cracks will be measured along the completed joint of the actual linear feet of joints that have been sealed and accepted and paid for at the contract unit price per linear foot.

The above price and payment will be full compensation for all work required to seal the pavement cracks including but not limited to furnishing, hauling, loading and unloading, and storage of all sealant materials; cleaning and preparation of cracks to be sealed; application of sealant material in the prepared cracks; any clean-up; and any incidentals necessary to satisfactorily complete the work.

Payment will be made under:

Pay Item	**Pay Unit**
Sealing Existing Pavement Cracks	Linear Foot

REMOVAL OF EXISTING PAVEMENT MARKERS:

Remove existing pavement markers in preparation for diamond grinding. Patch all locations where existing pavement markers are removed and repair any pavement damage due to existing pavement marker removal. Complete this work prior to opening lane to traffic. Patching and pavement repair of these areas shall be accomplished with Fibrecrete or approved equal. The Fibrecrete or approved equal is to be installed in accordance with Manufacturers recommendations and installation instructions. Dispose of existing pavement markers as directed by the Engineer. No direct payment will be made for this work. All labor, equipment and materials necessary to complete this work will be considered incidental to the diamond grinding operation.

DIAMOND GRINDING CONCRETE PAVEMENT:

Description

Perform the work covered by this provision including but not limited to diamond grinding and regrinding concrete pavement to meet final surface testing requirements detailed in Article 710-7, evaluating existing concrete pavement and aggregate properties, selecting diamond tipped saw blades and configuration of cutting head; continual removal of residual slurry from pavement and disposal off-site; furnishing all labor, materials, supplies, tools, equipment and incidentals as necessary. Perform this work at locations indicated in the plans or as directed by the engineer.

Equipment

Use equipment with diamond tipped saw blades gang mounted on a power driven self propelled machine with a minimum wheel base length of 15 feet (4.6 meter) that is specifically designed to smooth and texture Portland Cement Concrete pavement. Utilize equipment that does not cause ravels; aggregate fracture; spalls or disturbance to the longitudinal or transverse joints; or damage and/or strain to the underlying surface of the pavement. Should any of the above problems occur immediately suspend operations.

Provide a minimum 3 feet (1 meter) wide grinding head with 50 (164) to 60 (200) evenly spaced grooves per foot (meter). Prior to designing the grinding head, evaluate the aggregate hardness of the concrete pavement and select the appropriate diamond size, diamond concentration and bond hardness for the individual saw blades.

Provide vacuuming equipment to continuously remove slurry residue and excess water from the pavement as part of the grinding operation. Transport slurry material off-site and dispose of this material appropriately. Do not allow the slurry material to flow into a travel lane occupied by traffic or into any drainage facility.

Construction

Grind the pavement surface to a uniform appearance with a high skid resistant longitudinal corduroy type texture. Provide grooves between 0.09 (2.28mm) and 0.15 (3.81mm) inches wide with the land area between the grooves between 0.06 (1.52mm) and 0.13 (3.30mm) inches wide. Ensure a ridge peak of approximately 0.0625 inches (1.59mm) higher than the bottom of the grooves.

Begin and end diamond grinding at lines normal to the pavement centerline. Grind only in the longitudinal direction. All grooves and adjacent passes shall be parallel to each other with no variation. Completely lap adjacent passes with no unground surface remaining between passes and no overlap of more than 1½ inches (35 mm). Adjacent passes shall be within 1/8 inch (10 mm) of the same height as measured with a 3 foot (0.914 meter) straightedge. Maintain positive cross-slope drainage for the duration of the grinding operation.

Grind all travel lanes to include auxiliary lanes, ramps and loops with not less than 98 percent of the specified surface being textured by grinding. Grinding of the bridge decks and concrete shoulders will not be required. Remove a minimum 0.0625 inches at all locations except dips. Extra grinding to eliminate minor depressions is not required. It is anticipated that extra grinding will be required on the high side of existing faults in the pavement. There shall be no ridge between lanes. In a separate operation, transition the grinding of any remaining ridges greater than 1/8 inch (10mm) in height on the outside edge next to the shoulder or at a tie to an existing facility to the satisfaction of the Engineer.

Measurement and Payment

The quantity of Diamond Grinding PCC Pavement to be paid for at the contract unit price will be the actual number of square yards of pavement diamond ground in accordance with the requirements of this provision. In measuring this quantity, the length will be the actual length diamond ground measured along the pavement surface. The width will be the width required by the plans or directed, measured along the pavement surface. No separate payment will be made for any overlapping.

Payment is full compensation for the work and includes but is not limited to grinding, disposal of slurry off-site, furnishing all materials, equipment, labor and all incidentals necessary to complete the work satisfactorily.

Payment will be made under:

Pay Item	**Pay Unit**
Diamond Grinding PCC Pavement	Square Yard

GLASS BEADS:
(7-18-06) R10 R35

Revise the *2006 Standard Specifications* as follows:

Page 10-223, 1087-4(C) Gradation & Roundness

Replace the second sentence of the first paragraph with the following:

All Drop-On and Intermixed Glass Beads shall be tested in accordance with ASTM D1155.

Delete the last paragraph.

CHANGEABLE MESSAGE SIGNS
(11-21-06) R11 R11

Revise the *2006 Standard Specifications* as follows:

Page 11-9, Article 1120-3, Replace the 3rd sentence with the following:

Sign operator will adjust flash rate so that no more than two messages will be displayed and be legible to a driver when approaching the sign at the posted speed.

PAVEMENT MARKING LINES:
(11-21-06) (Rev. 9-18-07) R12 R01

Revise the *2006 Standard Specifications* as follows:

Page 12-2, 1205-3(D) Time Limitations for Replacement, add the following at the beginning of the chart:

Facility Type	Marking Type	Replacement Deadline
Full-control-of-access multi-lane roadway (4 or more total lanes) and ramps, including Interstates	All markings including symbols	By the end of each workday's operation if the lane is opened to traffic

Page 12-14, Subarticle 1205-10, Measurement and Payment, delete the first sentence of the first paragraph and replace with the following:

Pavement Marking Lines will be measured and paid for as the actual number of linear feet of pavement marking lines per application that has been satisfactorily placed and accepted by the Engineer.