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ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: SAWING AND SEALING OF ASPHALT CONCRETE OVERLAYS

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Reflection cracking of asphalt concrete overlays at the transverse joints of portland cement concrete pavements reduces the service life of the overlay. Studies done by the Technical Services Division indicate that sawing and sealing the overlay is an effective procedure to reduce the effects of reflective cracking at the transverse joints and extend the service life of the overlay on concrete pavements with high volumes of mixed traffic.

Attached is a special specification, Item 18403.25, Sawing and Sealing Bituminous Concrete Overlays. Starting with the letting of March 3, 1983, this specification should be included for transverse joints when overlaying PCC pavement for the first time on mixed traffic highways having more than 5000 vehicles per day in the most heavily travelled lane.

Overlays over PCC pavements, however, which have lost structural integrity at the joint areas due to blow ups, concrete deterioration, subgrade failure, or exhibit general lack of support will not be benefitted by this procedure. Therefore, where you have such cases you should omit sawing and sealing the overlay.

ITEM 18403.25 - SAWING AND SEALING BITUMINOUS CONCRETE OVERLAYS

DESCRIPTION

This work shall consist of saw cutting, cleaning and sealing transverse joints in new bituminous concrete overlays. Bituminous concrete pavement joints shall be constructed over, and in line with, the existing underlying transverse portland cement concrete pavement joints in accordance with the plans, specifications and as directed by the Engineer.

MATERIALS

Joint Sealant. The sealant shall meet the requirements of Federal Specification SS-S-1401B, Sealing Compound, Hot Applied, For Concrete and Asphalt Pavements. The sealant will be accepted on the basis of the manufacturer's certification that it conforms to the requirements of SS-S-1401B. The joint sealant compound shall be packaged in sealed containers. Each container shall be clearly marked with the name and address of the manufacturer, the trade name of the sealant, specification designation, manufacturer's batch and lot number, recommended pouring temperature, safe heating temperature, and application instructions.

CONSTRUCTION DETAILS

General. The contractor shall conduct his operation so that sawcutting of transverse joints, cleaning, and sealing is a continuous operation. Traffic shall not be allowed to knead together or damage the sawed joints. Sawcutting, cleaning and sealing shall be done within seven days after placement of the top course of asphalt pavement.

If the top course is to be placed the following spring due to seasonal paving limitations, the underlying binder course shall receive a 1" X 1/8" sawcut to facilitiate and control reflective cracking as well as to provide a means of properly referencing the sawcut to eventually be made in the top course. The sawcuts made in the binder course shall be made prior to the end of the construction season and before any evidence of reflective cracking has developed. Sealing of these sawcuts will not be required. No extra payment will be paid for this work.

Sawcutting of Transverse Joints. The contractor shall sawcut transverse joints to the appropriate dimensions shown in Figure I, based on the existing pavement slab length and new overlay depth. The sawcut joints shall be directly over the existing portland cement concrete pavement joints and shall be accurately located by a method employing pins and stringline. The pins shall be accurately located prior to paving. Details of the method for locating the sawcuts shall be subject to the approval of the Engineer.

The saw blade or blades shall be of such size and configuration that the desired dimensions of the sawcut can be made with one pass. Dry or wet cutting will be allowed.

The transverse sawcut joints shall normally extend the full width of the pavement. Existing transverse joints that are offset more than 1 inch shall require separate sawcuts terminating at the center line between lanes.

The sawcut joints shall extend into the asphalt concrete shoulder to a point three feet beyond the edge of the underlying portland cement concrete pavement unless otherwise detailed on the plans or in the proposal.

Cleaning. Dry sawed joints shall be thorougly cleaned with sufficient amount of compressed air to remove any dirt, dust or deleterious matter. Wet sawed joints shall be thoroughly cleaned with a water blast (50 psi minimum) to remove any sawing slurry, dirt, dust or deleterious matter. Wet sawed joints shall be blown with compressed air to provide dry joint surfaces prior to sealing.

All sawing slurry from the wet sawing process shall be immediately flushed from the pavement surface. Dry dust and material from the dry sawing process shall be blown or brushed off the pavement surface.

The contractor shall be required to provide protective screening, subject to the approval of the Engineer, if his cleaning operations are capable of causing damage to or interference with traffic in adjacent lanes.

Sealing. The joint sealant material shall be heated in a kettle or melter constructed as a double boiler, with the space between the inner and outer shells filled with oil or other heat transfer medium. The equipment shall include positive temperature control, mechanical agitation, recirculation pumps and thermometers for continuous reading of the temperature of both the sealing compound and the heat transfer medium.

A copy of the manufacturer's recommendations pertaining to the heating and application of the joint seal material shall be submitted to the Engineer prior to the commencement of work; and these recommendatioms shall be adhered to and followed by the contractor. The temperature of the sealer in the field application equipment should never exceed the safe heating temperature recommended by the manufacturer. Any given quantity of material should never be heated at the pouring temperature for more than four hours and should never be reheated.

After cleaning, the joints shall be sealed when the sealant material is at the temperature recommended by the manufacturer. The sealant shall fill the joint such that after cooling, the level of the sealer will not be greater than 1/8 inch below the pavement surface. Care shall be taken in the sealing of the joints so that the joints are not overfilled and the final appearance will present a neat fine line. Sealing shall be continuous across a full lane width.

The applicator wand shall be returned to the machine and the joint sealant material recirculated immediately upon completion of each joint sealing.

METHOD OF MEASUREMENT

This work will be measured by the number of linear feet of joints sealed.

BASIS OF PAVEMENT

The unit price bid per linear foot shall include the cost of all labor, equipment and materials necessary to complete the work as specified.

DETAILS FOR TRANSVERSE JOINTS BITUMINOUS CONCRETE OVERLAY

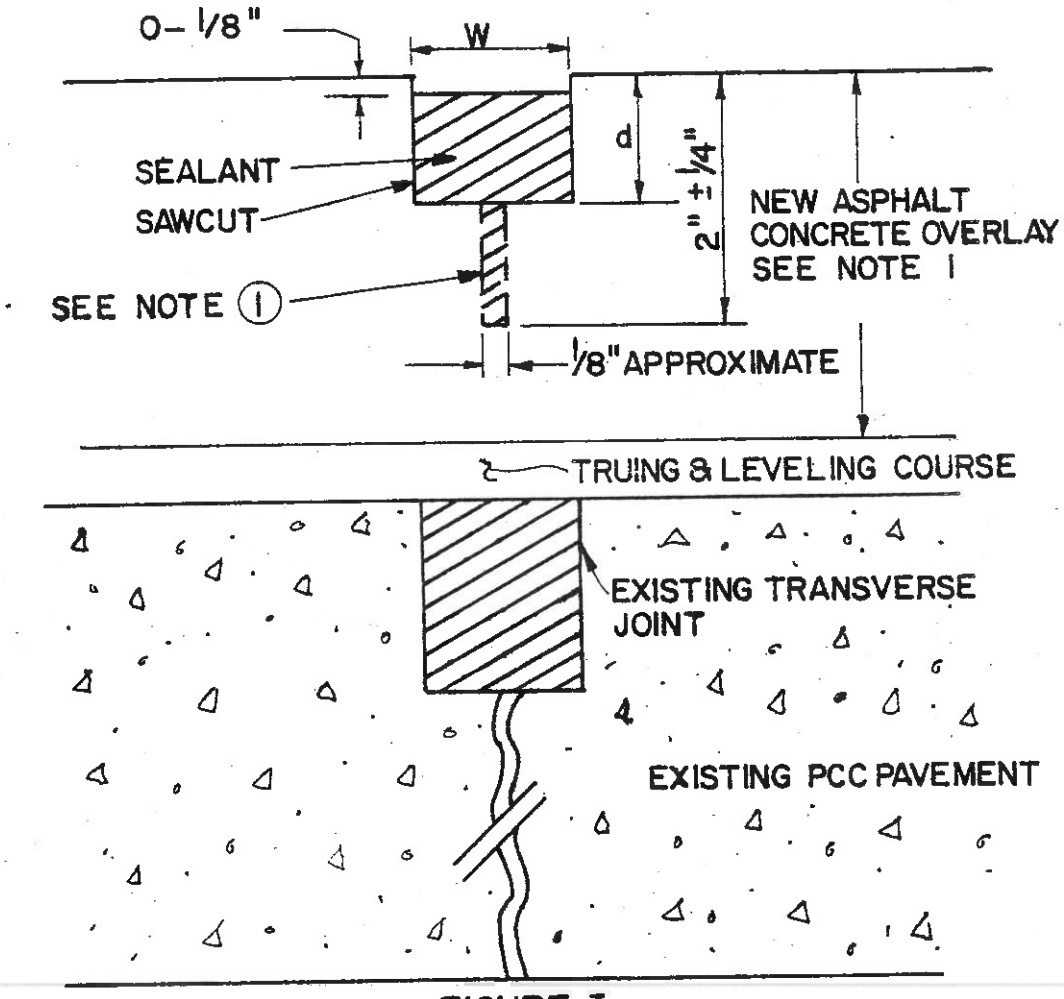

FIGURE I

SAW CUT DIMENSIONS		
SLAB LENGTH	W	d
≤ 50'	1/2"	5/8"
>50' ≤ 62'	5/8"	5/8"
>62' ≤ 75'	3/4"	5/8"
>75' ≤ 87'	7/8"	3/4"
>87' ≤ 100'	1"	7/8"

NOTES

(1) WHEN THE CONTRACT PLANS SPECIFY A TOTAL OVERLAY THICKNESS IN EXCESS OF 3" (T&L NOT INCLUDED). A 1/8" WIDE SAWCUT SHALL BE INCLUDED IN THE JOINT GEOMETRICS TO A DEPTH OF 2" ± 1/4".