

**APPENDIX J**  
**Caltrans Warrantee Specifications for Pilot Projects**

**a) SSP 37-810 Seal Coat**

## **10-1. \_\_ WARRANTY**

The Contractor shall warranty the materials and workmanship of the seal coat for a period of 365 days and shall repair defects identified during the warranty period, in conformance with these special provisions. The warranty period shall start and end in conformance with the provisions in "Interim Estimate and Claims" of these special provisions.

Attention is directed to "Seal Coat" of these special provisions.

During the warranty period, should any area of seal coat be found to be defective, the Engineer will notify the Contractor in writing of any needed repairs. The Contractor shall complete the repairs within 60 days from the date of notification, unless the Engineer determines that weather conditions are unsuitable for completing the repair work, in which case the Engineer will allow additional time for completion of the repairs.

The Engineer shall decide all questions which arise as to the performance of the seal coat during the warranty period and as to the acceptable fulfillment of the warranty, in conformance with the provisions in Section 5-1.01, "Authority of the Engineer," of the Standard Specifications.

During the warranty period, construction area signs shall be, at the Contractor's option, either stationary mounted or portable signs conforming to the provisions in "Construction Area Signs" of these special provisions.

The warranty shall not apply to areas so designated on the plans and to other identified areas where the existing surfacing contains defective areas. At least 7 days prior to beginning placement of the seal coat, the Contractor shall submit to the Engineer a written list of existing defective areas, identifying the lane direction, lane number, starting and ending highway post locations and defect type. Within 4 days of receiving the list of existing defective areas, the Engineer will review the list and provide the Contractor written approval or revisions to the listed areas, as being excluded from the warranty. Defects in the existing surfacing which may qualify areas for exclusion from the warranty include rutting and patches of cold mixed asphalt concrete placed within the last 12 months. Placement of the seal coat shall not begin until the Engineer has approved the list of existing defective areas.

When it is anticipated that there will be a suspension of work of more than 120 days, the Contractor may request in writing that a separate warranty period be established for the portion of seal coat already completed. If the Engineer determines that the designated portion of seal coat work has been completed in all respects in conformance with the requirements of the contract, the Engineer will recommend that the Director relieve the Contractor of the duty of maintaining and protecting the designated portion of seal coat work in conformance with the provisions in Section 7-1.15, "Relief from Maintenance and Responsibility," of the Standard Specifications, except for work required by the warranty, and the Engineer will notify the Contractor in writing of the date of the start of the separate warranty period and the date on which the separate warranty period will be complete. The relief from maintenance and responsibility shall apply to the designated portion of seal coat only, and does not constitute completion of any contract item of work. Upon completion of the separate warranty period, no further work will be required on the designated portion of seal coat. No separate interim estimate will be prepared for the designated portion of seal coat. No more than one separate warranty period will be allowed during the contract.

The following criteria shall apply to the seal coat during the warranty period:

- A. Raveling consists of the separation of the aggregate from the binder, caused by wearing of the surface.
- B. Flushing consists of the occurrence of a film of bituminous material on the surface of the seal coat which results in a coefficient of friction of less than 0.30, determined in conformance with the requirements in California Test 342.
- C. Streaking consists of alternating longitudinal bands of binder without uniform aggregate retention, approximately parallel with the lane line.

Areas of raveling, flushing or streaking that are greater than  $0.5\text{-m}^2$  shall be considered defective and shall be repaired. The final determination that an area is defective will be made by the Engineer. If the area between any 2 repairs is less than 6 m in length, measured along the lane line, that area shall also be repaired.

Raveling shall be repaired by placement of an additional layer of seal coat over the defective area.

Areas of flushing to be repaired shall be removed to the full depth of the seal coat by grinding in conformance with the provisions in Section 42-2, "Grinding," of the Standard Specifications, for the length of the area determined to be defective, plus 2 m on each end measured along the lane line. The width of the area to be repaired shall be one meter if the flushing occurs in one wheel path, or the width of the lane if the flushing occurs in both wheel paths. The area ground shall then be repaired by placing an additional layer of seal coat.

Streaking shall be repaired by placement of an additional layer of seal coat over the defective area.

Any areas of raveling or flushing which create a condition hazardous to traffic shall be temporarily patched by placing a layer of commercially available paving grade asphalt concrete, 9.5-mm, maximum, grading, over the defective area to provide a temporary travelling surface, or shall be repaired as specified above. The Contractor shall begin placing temporary patches within 2 days after notification of the condition by the Engineer and shall complete the work within 3 days of that notification. Upon notification of the Contractor, the Engineer may make or cause to be made the needed temporary patches and provide a detailed billing to the Contractor for the work. The Contractor shall reimburse the State for the work within 60 days of receipt of the billing, or the costs may be deducted from any moneys due or to become due the Contractor under the contract. If the total area of temporary patching placed or to be placed exceeds 5 percent of any 160-m length of any lane or shoulder, the entire lane or shoulder for that 160-m length shall be repaired as specified above, and any temporary patches previously placed in that 160-m length shall be removed prior to placing the repair.

Temporary patches greater than  $0.5\text{-m}^2$  in area shall be removed and a repair placed by October 15 of each calendar year prior to expiration of the warranty period, or within 20 days after expiration of the warranty period, whichever occurs first. If the Engineer determines that a temporary patch provides an acceptable travelling surface, the patch may remain in place.

If the total length of repairs, measured along the lane line, exceeds 30 percent of any 30-m length of any lane or shoulder, an additional layer of seal coat shall be placed on that 30-m length of lane or shoulder.

As an alternative to the materials and methods specified above for repairs and temporary patches, the Contractor may use other materials or methods which will provide performance

equal to or better than the seal coat specified, if approved in writing by the Engineer, except no alternative to removing the full depth of seal coat will be allowed for areas of flushing.

Should the Contractor fail or refuse to comply with the requirements of the warranty, the Engineer may make or cause to be made the needed repair work and provide a detailed billing to the Contractor for the work. The Contractor shall reimburse the State for the work within 60 days of receipt of the billing, or the costs may be deducted from any moneys due or to become due the Contractor under the contract.

Temporary patches and repairs made or caused to be made by the State shall not void the warranty of the seal coat. The Contractor shall continue to warranty the seal coat, including areas patched or repaired by the Contractor or by the State, for the remainder of the warranty period.

Conflicts regarding the warranty shall be resolved utilizing the partnering relationship in conformance with the provisions in "Partnering" of these special provisions. If the Contractor's authorized representative, as specified in Section 5-1.06, "Superintendence," of the Standard Specifications, and the Engineer are unable to resolve the conflicts, the next level of resolution of the partnering process shall consist of the Contractor's project manager, the Engineer and representatives from the Department's materials and maintenance units. If no partnering relationship has been formed, the Engineer will notify the Contractor of the Department's decision regarding the conflicts.

Warranty will be paid for on a lump sum basis. The contract lump sum price paid for warranty shall include full compensation for providing a warranty for seal coat and for furnishing all labor, materials, tools, equipment, and incidentals, and doing all the work involved in repairing defective areas in the seal coat, including job site inspection, placement and removal of temporary patches, grinding, repair of defective areas and replacement of traffic stripes, pavement markings and pavement markers obliterated by patches and repairs, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. Payment for the warranty item will be made in 10 equal payments. The first payment will be made on the third progress payment date after the warranty period begins, and subsequent payments will be made monthly thereafter.

Full compensation for furnishing construction area signs required for the direction of public traffic through or around the work during the warranty period and for erecting or placing, maintaining (including covering and uncovering as needed) and, when no longer required, removing construction area signs at locations shown on the plans, during the warranty period, shall be considered as included in the contract lump sum price paid for warranty and no separate payment will be made therefor.

Except for flagging costs, full compensation for providing the traffic control system shown on the plans (including signs), during the warranty period, shall be considered as included in the contract lump sum price paid for warranty and no separate payment will be made therefor. Flagging costs will be paid for as provided in Section 12-2.02, "Flagging Costs," of the Standard Specifications.

**b) SSP 37-830 Asphalt Rubber Seal Coat**

## **10-1. \_\_ WARRANTY**

The Contractor shall warranty the materials and workmanship of the asphalt-rubber seal coat for a period of 365 days and shall repair defects identified during the warranty period, in conformance with these special provisions. The warranty period shall start and end in conformance with the provisions in "Interim Estimate and Claims" of these special provisions.

Attention is directed to "Asphalt-Rubber Seal Coat" of these special provisions.

During the warranty period, should any area of asphalt-rubber seal coat be found to be defective, the Engineer will notify the Contractor in writing of any needed repairs. The Contractor shall complete the repairs within 60 days from the date of notification, unless the Engineer determines that weather conditions are unsuitable for completing the repair work, in which case the Engineer will allow additional time for completion of the repairs.

The Engineer shall decide all questions which arise as to the performance of the asphalt-rubber seal coat during the warranty period and as to the acceptable fulfillment of the warranty, in conformance with the provisions in Section 5-1.01, "Authority of the Engineer," of the Standard Specifications.

During the warranty period, construction area signs shall be, at the Contractor's option, either stationary mounted or portable signs conforming to the provisions in "Construction Area Signs" of these special provisions.

The warranty shall not apply to areas so designated on the plans and to other identified areas where the existing surfacing contains defective areas. At least 7 days prior to beginning placement of the asphalt-rubber seal coat, the Contractor shall submit to the Engineer a written list of existing defective areas, identifying the lane direction, lane number, starting and ending highway post locations and defect type. Within 4 days of receiving the list of existing defective areas, the Engineer will review the list and provide the Contractor written approval or revisions of the areas, as being excluded from the warranty. Defects in the existing surfacing which may qualify areas for exclusion from the warranty include: rutting, patches of cold mixed asphalt concrete placed within the last 12 months, and any 30-m length of lane or shoulder in which the cracking exceeds 10 percent as determined by the length of interconnecting cracks in the wheel paths divided by 60 m and expressed as a percentage. Cracks in the asphalt-rubber seal coat, which appear over existing cracks greater than 6 mm in width and existing cracks filled with emulsified filler within the last 12 months or filled with hot applied filler within the last 4 months, will also be excluded from the warranty.

When it is anticipated that there will be a suspension of work of more than 120 days, the Contractor may request in writing that a separate warranty period be established for the portion of asphalt-rubber seal coat already completed. If the Engineer determines that the designated portion of asphalt-rubber seal coat work has been completed in all respects in conformance with the requirements of the contract, the Engineer will recommend that the Director relieve the Contractor of the duty of maintaining and protecting the designated portion of asphalt-rubber seal coat work in conformance with the provisions in Section 7-1.15, "Relief from Maintenance and Responsibility," of the Standard Specifications, except for work required by the warranty, and the Engineer will notify the Contractor in writing of the date of the start of the separate warranty period and the date on which the separate warranty period will be complete. The relief from maintenance and responsibility shall apply to the designated portion of asphalt-rubber seal coat only, and does not constitute completion of any contract item of work. Upon completion of the separate warranty period, no further work will be required on the designated portion of asphalt-rubber seal coat. No separate interim estimate will be prepared for the designated

portion of asphalt-rubber seal coat. No more than one separate warranty period will be allowed during the contract.

The following criteria shall apply to the asphalt-rubber seal coat during the warranty period:

- A. Raveling consists of the separation of the aggregate from the binder, caused by wearing of the surface.
- B. Flushing consists of the occurrence of a film of bituminous material on the surface of the asphalt-rubber seal coat which results in a coefficient of friction of less than 0.30, determined in conformance with the requirements in California Test 342.
- C. Streaking consists of alternating longitudinal bands of binder without uniform aggregate retention, approximately parallel with the lane line.
- D. Cracking consists of narrow breaks or fissures greater than 6 mm occurring in the asphalt-rubber seal coat.

Areas of raveling, flushing or streaking that are greater than 0.5-m<sup>2</sup>, and cracking, shall be considered defective and shall be repaired. The final determination that an area is defective will be made by the Engineer. If the area between any 2 repairs, except repairs of cracking, is less than 6 m in length, measured along the lane line, that area shall also be repaired.

Raveling shall be repaired by placement of an additional layer of asphalt-rubber seal coat over the defective area.

Areas of flushing to be repaired shall be removed to the full depth of the asphalt-rubber seal coat by grinding in conformance with the provisions in Section 42-2, "Grinding," of the Standard Specifications, for the length of the area determined to be defective, plus 2 m on each end measured along the lane line. The width of the area to be repaired shall be one meter if the flushing occurs in one wheel path, or the width of the lane if the flushing occurs in both wheel paths. The area ground shall then be repaired by placing an additional layer of asphalt-rubber seal coat.

Streaking shall be repaired by placement of an additional layer of asphalt-rubber seal coat over the defective area.

Cracking shall be repaired by cleaning and filling with crack sealant and aggregate in conformance with the following:

- A. The low modulus asphalt crack sealant shall be a mixture of paving asphalt and polymer conforming to the following requirements:

Test	Test Method	Requirements
Softening Point	ASTM D 36	82°C min.
Ductility @ 4° C., 1 cm./min., cm.	ASTM D 113	30 min.
Force Ductility @ 4° C.	Utah DOT Method Note (1)	18 N max
Flow	ASTM D 3407	3 mm max.
Note: (1) The Utah DOT Test Method is available for review at the Transportation Laboratory, 5900 Folsom Boulevard, Sacramento, CA 95819		

- B. The sealant shall be capable of being melted and applied to cracks at temperatures below 204°C. When heated, it shall readily penetrate cracks 6 mm wide or wider.

- C. The low modulus asphalt crack sealant shall be furnished premixed in containers with an inside liner of polyethylene. Packaged material shall not exceed 30 kg in mass.
- D. The Contractor shall provide the Engineer with a Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificate of Compliance," of the Standard Specifications with each shipment of crack sealant. The certificate shall certify that the sealant complies with the specifications and shall be accompanied with storage and heating instructions and cautions for the material.
- E. Cracks that are 25-mm wide or wider shall be filled with sealant, flush with the asphalt-rubber seal coat. While the sealant is still hot, these cracks shall be covered with crushed aggregate conforming to the provisions for Type II slurry seal in Section 37-2.02C, "Aggregate," of the Standard Specifications and compacted with a wetted steel wheel roller or vibrating plate compactor large enough to compact the sealant.
- F. Cracks to be filled and adjacent asphalt-rubber seal coat shall be free of dirt, vegetation, debris and loose sealant and shall be cleaned and dried by hot compressed air immediately prior to application of material.
- G. Crack sealant material shall be spread with any type nozzle or device approved for use by the Engineer that will place the material within the specified temperature range.
- H. Cracks shall be squeegeed when necessary after application of the crack sealant material.
- I. Within 2 days after application of sealant, sealed cracks that reopen or in which the sealant material sags below the surrounding asphalt-rubber seal coat shall be resealed.

Any areas of raveling or flushing which create a condition hazardous to traffic shall be temporarily patched by placing a layer of commercially available paving grade asphalt concrete, 9.5-mm, maximum, grading, over the defective area to provide a temporary travelling surface, or shall be repaired as specified above. The Contractor shall begin placing temporary patches within 2 days after notification of the condition by the Engineer and shall complete the work within 3 days of that notification. Upon notification of the Contractor, the Engineer may make or cause to be made the needed temporary patches and provide a detailed billing to the Contractor for the work. The Contractor shall reimburse the State for the work within 60 days of receipt of the billing, or the costs may be deducted from any moneys due or to become due the Contractor under the contract. If the total area of temporary patching placed or to be placed exceeds 5 percent of any 160-m length of any lane or shoulder, the entire lane or shoulder for that 160-m length shall be repaired as specified above, and any temporary patches previously placed in that 160-m length shall be removed prior to placing the repair.

Temporary patches greater than 0.5-m<sup>2</sup> in area shall be removed and a repair placed by October 15 of each calendar year prior to expiration of the warranty period, or within 20 days after expiration of the warranty period, whichever occurs first. If the Engineer determines that a temporary patch provides an acceptable travelling surface, the patch may remain in place.

If the total length of repairs, measured along the lane line, exceeds 30 percent of any 30-m length of any lane or shoulder, an additional layer of asphalt-rubber seal coat shall be placed on that 30-m length of lane or shoulder.

As an alternative to the materials and methods specified above for repairs and temporary patches, the Contractor may use other materials or methods which will provide performance equal to or better than the asphalt-rubber seal coat specified, if approved in writing by the Engineer, except no alternative to removing the full depth of asphalt-rubber seal coat will be allowed for areas of flushing.

Should the Contractor fail or refuse to comply with the requirements of the warranty, the Engineer may make or cause to be made the needed repair work and provide a detailed billing to the Contractor for the work. The Contractor shall reimburse the State for the work within 60 days of receipt of the billing, or the costs may be deducted from any moneys due or to become due the Contractor under the contract.

Temporary patches and repairs made or caused to be made by the State shall not void the warranty of the asphalt-rubber seal coat. The Contractor shall continue to warranty the asphalt-rubber seal coat, including areas patched or repaired by the Contractor or by the State, for the remainder of the warranty period.

Conflicts regarding the warranty shall be resolved utilizing the partnering relationship in conformance with the provisions in "Partnering" of these special provisions. If the Contractor's authorized representative, as specified in Section 5-1.06, "Superintendence," of the Standard Specifications, and the Engineer are unable to resolve the conflicts, the next level of resolution of the partnering process shall consist of the Contractor's project manager, the Engineer and representatives from the Department's materials and maintenance units. If no partnering relationship has been formed, the Engineer will notify the Contractor of the Department's decision regarding the conflicts.

Warranty will be paid for on a lump sum basis. The contract lump sum price paid for warranty shall include full compensation for providing a warranty for asphalt-rubber seal coat and for furnishing all labor, materials, tools, equipment, and incidentals, and doing all the work involved in repairing defective areas in the asphalt-rubber seal coat, including job site inspection, placement and removal of temporary patches, grinding, repair of defective areas, flush coat, sealing cracks and replacement of traffic stripes, pavement markings and pavement markers obliterated by patches and repairs, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. Payment for the warranty item will be made in 10 equal payments. The first payment will be made on the third progress payment date after the warranty period begins, and subsequent payments will be made monthly thereafter.

Full compensation for furnishing construction area signs required for the direction of public traffic through or around the work during the warranty period and for erecting or placing, maintaining (including covering and uncovering as needed) and, when no longer required, removing construction area signs at locations shown on the plans, during the warranty period, shall be considered as included in the contract lump sum price paid for warranty and no separate payment will be made therefor.

Except for flagging costs, full compensation for providing the traffic control system shown on the plans (including signs), during the warranty period, shall be considered as included in the contract lump sum price paid for warranty and no separate payment will be made therefor. Flagging costs will be paid for as provided in Section 12-2.02, "Flagging Costs," of the Standard Specifications.

**c) SSP 39-810 Asphalt Concrete**

## **10-1. \_\_ WARRANTY**

The Contractor shall warranty the materials and workmanship of the asphalt concrete for a period of 365 days, and shall repair defects identified during the warranty period, in conformance with these special provisions. The warranty period shall start and end in conformance with the provisions in "Interim Estimate and Claims" of these special provisions.

Attention is directed to "Asphalt Concrete" of these special provisions.

During the warranty period, should any area of asphalt concrete be found to be defective, the Engineer will notify the Contractor in writing of any needed repairs. The Contractor shall complete the repairs within 60 days from the date of notification, unless the Engineer determines that weather conditions are unsuitable for completing the repair work, in which case the Engineer will allow additional time for completion of the repairs.

The Engineer shall decide all questions which arise as to the performance of the asphalt concrete during the warranty period and as to the acceptable fulfillment of the warranty, in conformance with the provisions in Section 5-1.01, "Authority of the Engineer," of the Standard Specifications.

During the warranty period, construction area signs shall be, at the Contractor's option, either stationary mounted or portable signs conforming to the provisions in "Construction Area Signs" of these special provisions.

The warranty shall not apply to areas so designated on the plans and to other identified areas where the existing surfacing contains defective areas. At least 7 days prior to beginning placement of the asphalt concrete, the Contractor shall submit to the Engineer a written list of existing defective areas, identifying the lane direction, lane number, starting and ending highway post locations and defect type. Within 4 days of receiving the list of existing defective areas, the Engineer will review the list and provide the Contractor written approval or revisions of the areas, as being excluded from the warranty. Defects in the existing surfacing which may qualify areas for exclusion from the warranty include: rutting, patches of cold mixed asphalt concrete placed within the last 12 months, and any 30-m length of lane or shoulder in which the cracking exceeds 10 percent as determined by the length of interconnecting cracks in the wheel paths divided by 60 m and expressed as a percentage. Cracks in the asphalt concrete placed, which appear over existing cracks greater than 6 mm in width and existing cracks filled with emulsified filler within the last 12 months or filled with hot applied filler within the last 4 months, will also be excluded from the warranty.

When it is anticipated that there will be a suspension of work of more than 120 days, the Contractor may request in writing that a separate warranty period be established for the portion of asphalt concrete already completed. If the Engineer determines that the designated portion of asphalt concrete work has been completed in all respects in conformance with the requirements of the contract, the Engineer will recommend that the Director relieve the Contractor of the duty of maintaining and protecting the designated portion of asphalt concrete work in conformance with the provisions in Section 7-1.15, "Relief from Maintenance and Responsibility," of the Standard Specifications, except for work required by the warranty, and the Engineer will notify the Contractor in writing of the date of the start of the separate warranty period and the date on which the separate warranty period will be complete. The relief from maintenance and responsibility shall apply to the designated portion of asphalt concrete only, and does not constitute completion of any contract item of work. Upon completion of the separate warranty period, no further work will be required on the designated portion of asphalt concrete. No

separate interim estimate will be prepared for the designated portion of asphalt concrete. No more than one separate warranty period will be allowed during the contract.

The following criteria shall apply to the asphalt concrete during the warranty period:

- A. Rutting consists of a longitudinal surface depression in the wheel path greater than 6 mm, measured in conformance with the provisions for testing the uniformity of the transverse slope in Section 39-6.03, "Compacting," of the Standard Specifications.
- B. Raveling consists of the separation of the aggregate from the binder, caused by wearing of the surface.
- C. Flushing consists of the occurrence of a film of bituminous material on the surface of the asphalt concrete which results in a coefficient of friction of less than 0.30, determined in conformance with the requirements in California Test 342.
- D. Delamination consists of the loss of the bond between the layers of pavement.
- E. Cracking consists of narrow breaks or fissures greater than 6 mm occurring in the asphalt concrete.
- F. Pot holes consist of the loss of asphalt concrete material, between 0.008-m<sup>2</sup> and 0.5-m<sup>2</sup>, and typically with vertical sides.

Areas of rutting, raveling, flushing or delamination that are greater than 0.5-m<sup>2</sup>, pot holes and cracking, shall be considered defective and shall be repaired. The final determination that an area is defective will be made by the Engineer. If the area between any 2 repairs, except repairs of pot holes and cracking, is less than 6 m in length, measured along the lane line, that area shall also be repaired.

Areas of rutting, raveling, flushing and delamination to be repaired shall be removed to the full depth of the asphalt concrete placed, by cold planing in conformance with the provisions in "Cold Plane Asphalt Concrete Pavement" of these special provisions, for the full lane width and the length of the area determined to be defective, plus 2 m on each end measured along the lane line. The area planed shall then be repaired by placing asphalt concrete in conformance with the provisions in "Asphalt Concrete" of these special provisions.

Cracking shall be repaired by cleaning and filling with crack sealant and aggregate in conformance with the following:

- A. The low modulus asphalt crack sealant shall be a mixture of paving asphalt and polymer conforming to the following requirements:

Test	Test Method	Requirements
Softening Point	ASTM D 36	82°C min.
Ductility @ 4° C., 1 cm./min., cm.	ASTM D 113	30 min.
Force Ductility @ 4° C.	Utah DOT Method Note (1)	18 N max
Flow	ASTM D 3407	3 mm max.
Note: (1) The Utah DOT Test Method is available for review at the Transportation Laboratory, 5900 Folsom Boulevard, Sacramento, CA 95819		

- B. The sealant shall be capable of being melted and applied to cracks at temperatures below 204°C. When heated, it shall readily penetrate cracks 6 mm wide or wider.

- C. The low modulus asphalt crack sealant shall be furnished premixed in containers with an inside liner of polyethylene. Packaged material shall not exceed 30 kg in mass.
- D. The Contractor shall provide the Engineer with a Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificate of Compliance," of the Standard Specifications with each shipment of crack sealant. The certificate shall certify that the sealant complies with the specifications and shall be accompanied with storage and heating instructions and cautions for the material.
- E. Cracks that are 25-mm wide or wider shall be filled with sealant, flush with the asphalt concrete. While the sealant is still hot, these cracks shall be covered with crushed aggregate conforming to the provisions for Type II slurry seal in Section 37-2.02C, "Aggregate," of the Standard Specifications and compacted with a wetted steel wheel roller or vibrating plate compactor large enough to compact the sealant.
- F. Cracks to be filled and adjacent asphalt concrete shall be free of dirt, vegetation, debris and loose sealant and shall be cleaned and dried by hot compressed air immediately prior to application of material.
- G. Crack sealant material shall be spread with any type nozzle or device approved for use by the Engineer that will place the material within the specified temperature range.
- H. Cracks shall be squeegeed when necessary after application of the crack sealant material.
- I. Within 2 days after application of sealant, sealed cracks that reopen or in which the sealant material sags below the surrounding asphalt concrete shall be resealed.

Pot holes shall be repaired by removing any remaining damaged material, and filling the hole with asphalt concrete in conformance with the provisions in "Asphalt Concrete" of these special provisions.

Any areas of rutting, raveling, flushing, delamination, cracking or pot holes which create a condition hazardous to traffic shall be temporarily patched by placing a layer of commercially available paving grade asphalt concrete over the defective area, or filling the pot holes with that material, to provide a temporary travelling surface, or shall be repaired as specified above. The Contractor shall begin placing temporary patches within 2 days after notification of the condition by the Engineer and shall complete the work within 3 days of that notification. Upon notification of the Contractor, the Engineer may make or cause to be made the needed temporary patches and provide a detailed billing to the Contractor for the work. The Contractor shall reimburse the State for the work within 60 days of receipt of the billing, or the costs may be deducted from any moneys due or to become due the Contractor under the contract. If the total area of temporary patching placed or to be placed exceeds 5 percent of any 160-m length of any lane or shoulder, the entire lane or shoulder for that 160-m length shall be repaired as specified above, and any temporary patches previously placed in that 160-m length shall be removed prior to placing the repair.

Temporary patches greater than 0.5-m<sup>2</sup> in area shall be removed and a repair placed by October 15 of each calendar year prior to expiration of the warranty period, or within 20 days after expiration of the warranty period, whichever occurs first. If the Engineer determines that a temporary patch provides an acceptable travelling surface, the patch may remain in place.

If the total length of repairs, measured along the lane line, exceeds 30 percent of any one-kilometer length of any lane or shoulder, an additional layer of asphalt concrete in conformance with the provisions in "Asphalt Concrete" of these special provisions, 30 mm in thickness, shall be placed on that one-kilometer length on all lanes and shoulders. If a continuous area of 300 m or more in length, within that one-kilometer length, has not been repaired and does not contain

defective areas, the additional layer of asphalt concrete will not be required on that area. If placement of the additional layer will interfere with the location, clearances or function of highway facilities, areas requiring the additional layer shall be removed to the full depth of the asphalt concrete placed, by cold planing in conformance with the provisions in "Cold Plane Asphalt Concrete Pavement" of these special provisions, and asphalt concrete shall be placed in conformance with the provisions in "Asphalt Concrete" of these special provisions.

As an alternative to the materials and methods specified above for repairs and temporary patches, the Contractor may use other materials or methods which will provide performance equal to or better than the asphalt concrete placed in conformance with the provisions in "Asphalt Concrete" of these special provisions, if the alternative materials and methods are approved in writing by the Engineer, except no alternative to removing the full depth of the asphalt concrete placed will be allowed for areas of flushing.

Should the Contractor fail or refuse to comply with the requirements of the warranty, the Engineer may make or cause to be made the needed repair work and provide a detailed billing to the Contractor for the work. The Contractor shall reimburse the State for the work within 60 days of receipt of the billing, or the costs may be deducted from any moneys due or to become due the Contractor under the contract.

Temporary patches and repairs made or caused to be made by the State shall not void the warranty of the asphalt concrete. The Contractor shall continue to warranty the asphalt concrete, including areas patched or repaired by the Contractor or by the State, for the remainder of the warranty period.

Conflicts regarding the warranty shall be resolved utilizing the partnering relationship in conformance with the provisions in "Partnering" of these special provisions. If the Contractor's authorized representative, as specified in Section 5-1.06, "Superintendence," of the Standard Specifications, and the Engineer are unable to resolve the conflicts, the next level of resolution of the partnering process shall consist of the Contractor's project manager, the Engineer and representatives from the Department's materials and maintenance units. If no partnering relationship has been formed, the Engineer will notify the Contractor of the Department's decision regarding the conflicts.

Warranty will be paid for on a lump sum basis. The contract lump sum price paid for warranty shall include full compensation for providing a warranty for asphalt concrete and for furnishing all labor, materials, tools, equipment, and incidentals, and doing all the work involved in repairing defective areas in the asphalt concrete, including job site inspection, placement and removal of temporary patches, cold planing, repair of defective areas, sealing cracks and replacement of traffic stripes, pavement markings and pavement markers obliterated by patches and repairs, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. Payment for the warranty item will be made in 10 equal payments. The first payment will be made on the third progress payment date after the warranty period begins, and subsequent payments will be made monthly thereafter.

Full compensation for furnishing construction area signs required for the direction of public traffic through or around the work during the warranty period and for erecting or placing, maintaining (including covering and uncovering as needed) and, when no longer required, removing construction area signs at locations shown on the plans, during the warranty period, shall be considered as included in the contract lump sum price paid for warranty and no separate payment will be made therefor.

Except for flagging costs, full compensation for providing the traffic control system shown on the plans (including signs), during the warranty period, shall be considered as included in the contract lump sum price paid for warranty and no separate payment will be made therefor. Flagging costs will be paid for as provided in Section 12-2.02, "Flagging Costs," of the Standard Specifications.

**d) SSP 39-849 Rubberized Asphalt Concrete  
(Type O-HB)**

## **10-1. \_\_ WARRANTY**

The Contractor shall warranty the materials and workmanship of the rubberized asphalt concrete (Type O-HB) for a period of 365 days, and shall repair defects identified during the warranty period, in conformance with these special provisions. The warranty period shall start and end in conformance with the provisions in "Interim Estimate and Claims" of these special provisions.

Attention is directed to "Rubberized Asphalt Concrete (Type O-HB)" of these special provisions.

During the warranty period, should any area of rubberized asphalt concrete (Type O-HB) be found to be defective, the Engineer will notify the Contractor in writing of any needed repairs. The Contractor shall complete the repairs within 60 days from the date of notification, unless the Engineer determines that weather conditions are unsuitable for completing the repair work, in which case the Engineer will allow additional time for completion of the repairs.

The Engineer shall decide all questions which arise as to the performance of the rubberized asphalt concrete (Type O-HB) during the warranty period and as to the acceptable fulfillment of the warranty, in conformance with the provisions in Section 5-1.01, "Authority of the Engineer," of the Standard Specifications.

During the warranty period, construction area signs shall be, at the Contractor's option, either stationary mounted or portable signs conforming to the provisions in "Construction Area Signs" of these special provisions.

The warranty shall not apply to areas so designated on the plans and to other identified areas where the existing surfacing contains defective areas. At least 7 days prior to beginning placement of the rubberized asphalt concrete (Type O-HB), the Contractor shall submit to the Engineer a written list of existing defective areas, identifying the lane direction, lane number, starting and ending highway post locations and defect type. Within 4 days of receiving the list of existing defective areas, the Engineer will review the list and provide the Contractor written approval or revisions of the areas, as being excluded from the warranty. Defects in the existing surfacing which may qualify areas for exclusion from the warranty include: rutting, patches of cold mixed asphalt concrete placed within the last 12 months, and any 30-m length of lane or shoulder in which the cracking exceeds 10 percent as determined by the length of interconnecting cracks in the wheel paths divided by 60 m and expressed as a percentage. Cracks in the rubberized asphalt concrete (Type O-HB), which appear over existing cracks greater than 6 mm in width and existing cracks filled with emulsified filler within the last 12 months or filled with hot applied filler within the last 4 months, will also be excluded from the warranty.

When it is anticipated that there will be a suspension of work of more than 120 days, the Contractor may request in writing that a separate warranty period be established for the portion of rubberized asphalt concrete (Type O-HB) already completed. If the Engineer determines that the designated portion of rubberized asphalt concrete (Type O-HB) work has been completed in all respects in conformance with the requirements of the contract, the Engineer will recommend that the Director relieve the Contractor of the duty of maintaining and protecting the designated portion of rubberized asphalt concrete (Type O-HB) work in conformance with the provisions in Section 7-1.15, "Relief from Maintenance and Responsibility," of the Standard Specifications, except for work required by the warranty, and the Engineer will notify the Contractor in writing of the date of the start of the separate warranty period and the date on which the separate

warranty period will be complete. The relief from maintenance and responsibility shall apply to the designated portion of rubberized asphalt concrete (Type O-HB) only, and does not constitute completion of any contract item of work. Upon completion of the separate warranty period, no further work will be required on the designated portion of rubberized asphalt concrete (Type O-HB). No separate interim estimate will be prepared for the designated portion of rubberized asphalt concrete (Type O-HB). No more than one separate warranty period will be allowed during the contract.

The following criteria shall apply to the rubberized asphalt concrete (Type O-HB) during the warranty period:

- A. Rutting consists of a longitudinal surface depression in the wheel path greater than 6 mm, measured in conformance with the provisions for testing the uniformity of the transverse slope in Section 39-6.03, "Compacting," of the Standard Specifications.
- B. Raveling consists of the separation of the aggregate from the binder, caused by wearing of the surface.
- C. Flushing consists of the occurrence of a film of bituminous material on the surface of the rubberized asphalt concrete (Type O-HB) which results in a coefficient of friction of less than 0.30, determined in conformance with the requirements in California Test 342.
- D. Delamination consists of the loss of the bond between the layers of pavement.
- E. Cracking consists of narrow breaks or fissures greater than 6 mm occurring in the rubberized asphalt concrete (Type O-HB).
- F. Pot holes consist of the loss of rubberized asphalt concrete (Type O-HB) material, between 0.008-m<sup>2</sup> and 0.5-m<sup>2</sup>, and typically with vertical sides.

Areas of rutting, raveling, flushing or delamination that are greater than 0.5-m<sup>2</sup>, pot holes and cracking, shall be considered defective and shall be repaired. The final determination that an area is defective will be made by the Engineer. If the area between any 2 repairs, except repairs of pot holes and cracking, is less than 6 m in length, measured along the lane line, that area shall also be repaired.

Areas of rutting, raveling, flushing and delamination to be repaired shall be removed to the full depth of the rubberized asphalt concrete (Type O-HB), by cold planing in conformance with the provisions in "Cold Plane Asphalt Concrete Pavement" of these special provisions, for the full lane width and the length of the area determined to be defective, plus 2 m on each end measured along the lane line. The area planed shall then be repaired by placing rubberized asphalt concrete (Type O-HB) in conformance with the provisions in "Rubberized Asphalt Concrete (Type O-HB)" of these special provisions.

Cracking shall be repaired by cleaning and filling with crack sealant and aggregate in conformance with the following:

- A. The low modulus asphalt crack sealant shall be a mixture of paving asphalt and polymer conforming to the following requirements:

Test	Test Method	Requirements
Softening Point	ASTM D 36	82°C min.
Ductility @ 4° C., 1 cm./min., cm.	ASTM D 113	30 min.
Force Ductility @ 4° C.	Utah DOT Method Note (1)	18 N max
Flow	ASTM D 3407	3 mm max.
Note: (1) The Utah DOT Test Method is available for review at the Transportation Laboratory, 5900 Folsom Boulevard, Sacramento, CA 95819		

- B. The sealant shall be capable of being melted and applied to cracks at temperatures below 204°C. When heated, it shall readily penetrate cracks 6 mm wide or wider.
- C. The low modulus asphalt crack sealant shall be furnished premixed in containers with an inside liner of polyethylene. Packaged material shall not exceed 30 kg in mass.
- D. The Contractor shall provide the Engineer with a Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificate of Compliance," of the Standard Specifications with each shipment of crack sealant. The certificate shall certify that the sealant complies with the specifications and shall be accompanied with storage and heating instructions and cautions for the material.
- E. Cracks that are 25-mm wide or wider shall be filled with sealant, flush with the rubberized asphalt concrete (Type O-HB). While the sealant is still hot, these cracks shall be covered with crushed aggregate conforming to the provisions for Type II slurry seal in Section 37-2.02C, "Aggregate," of the Standard Specifications and compacted with a wetted steel wheel roller or vibrating plate compactor large enough to compact the sealant.
- F. Cracks to be filled and adjacent rubberized asphalt concrete (Type O-HB) shall be free of dirt, vegetation, debris and loose sealant and shall be cleaned and dried by hot compressed air immediately prior to application of material.
- G. Crack sealant material shall be spread with any type nozzle or device approved for use by the Engineer that will place the material within the specified temperature range.
- H. Cracks shall be squeegeed when necessary after application of the crack sealant material.
- I. Within 2 days after application of sealant, sealed cracks that reopen or in which the sealant material sags below the surrounding asphalt concrete shall be resealed.

Pot holes shall be repaired by removing any remaining damaged material, and filling the hole with rubberized asphalt concrete (Type O-HB) in conformance with the provisions in "Rubberized Asphalt Concrete (Type O-HB)" of these special provisions.

Any areas of rutting, raveling, flushing, delamination, cracking or pot holes which create a condition hazardous to traffic shall be temporarily patched by placing a layer of commercially available paving grade asphalt concrete over the defective area, or filling the pot holes with that material, to provide a temporary travelling surface, or shall be repaired as specified above. The Contractor shall begin placing temporary patches within 2 days after notification of the condition by the Engineer and shall complete the work within 3 days of that notification. Upon notification of the Contractor, the Engineer may make or cause to be made the needed temporary patches and provide a detailed billing to the Contractor for the work. The Contractor shall reimburse the State for the work within 60 days of receipt of the billing, or the costs may be deducted from any moneys due or to become due the Contractor under the contract. If the total area of temporary patching placed or to be placed exceeds 5 percent of any 160-m length of any

lane or shoulder, the entire lane or shoulder for that 160-m length shall be repaired as specified above, and any temporary patches previously placed in that 160-m length shall be removed prior to placing the repair.

Temporary patches greater than 0.5-m<sup>2</sup> in area shall be removed and a repair placed by October 15 of each calendar year prior to expiration of the warranty period, or within 20 days after expiration of the warranty period, whichever occurs first. If the Engineer determines that a temporary patch provides an acceptable travelling surface, the patch may remain in place.

If the total length of repairs, measured along the lane line, exceeds 30 percent of any one-kilometer length of any lane or shoulder, an additional layer of rubberized asphalt concrete (Type O-HB) in conformance with the provisions in "Rubberized Asphalt Concrete (Type O-HB)" of these special provisions, 30 mm in thickness, shall be placed on that one-kilometer length on all lanes and shoulders. If a continuous area of 300 m or more in length, within that one-kilometer length, has not been repaired and does not contain defective areas, the additional layer of rubberized asphalt concrete (Type O-HB) will not be required on that area. If placement of the additional layer will interfere with the location, clearances or function of highway facilities, areas requiring the additional layer shall be removed to the full depth of the rubberized asphalt concrete (Type O-HB), by cold planing in conformance with the provisions in "Cold Plane Asphalt Concrete Pavement" of these special provisions, and rubberized asphalt concrete (Type O-HB) shall be placed in conformance with the provisions in "Rubberized Asphalt Concrete (Type O-HB)" of these special provisions.

As an alternative to the materials and methods specified above for repairs and temporary patches, the Contractor may use other materials or methods which will provide performance equal to or better than the rubberized asphalt concrete (Type O-HB) placed in conformance with the provisions in "Rubberized Asphalt Concrete (Type O-HB)" of these special provisions, if the alternative materials and methods are approved in writing by the Engineer, except no alternative to removing the full depth of the rubberized asphalt concrete (Type O-HB) will be allowed for areas of flushing.

Should the Contractor fail or refuse to comply with the requirements of the warranty, the Engineer may make or cause to be made the needed repair work and provide a detailed billing to the Contractor for the work. The Contractor shall reimburse the State for the work within 60 days of receipt of the billing, or the costs may be deducted from any moneys due or to become due the Contractor under the contract.

Temporary patches and repairs made or caused to be made by the State shall not void the warranty of the rubberized asphalt concrete (Type O-HB). The Contractor shall continue to warranty the rubberized asphalt concrete (Type O-HB), including areas patched or repaired by the Contractor or by the State, for the remainder of the warranty period.

Conflicts regarding the warranty shall be resolved utilizing the partnering relationship in conformance with the provisions in "Partnering" of these special provisions. If the Contractor's authorized representative, as specified in Section 5-1.06, "Superintendence," of the Standard Specifications, and the Engineer are unable to resolve the conflicts, the next level of resolution of the partnering process shall consist of the Contractor's project manager, the Engineer and representatives from the Department's materials and maintenance units. If no partnering relationship has been formed, the Engineer will notify the Contractor of the Department's decision regarding the conflicts.

Warranty will be paid for on a lump sum basis. The contract lump sum price paid for warranty shall include full compensation for providing a warranty for rubberized asphalt

concrete (Type O-HB) and for furnishing all labor, materials, tools, equipment, and incidentals, and doing all the work involved in repairing defective areas in the rubberized asphalt concrete (Type O-HB), including job site inspection, placement and removal of temporary patches, cold planing, repair of defective areas, sealing cracks and replacement of traffic stripes, pavement markings and pavement markers obliterated by patches and repairs, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. Payment for the warranty item will be made in 10 equal payments. The first payment will be made on the third progress payment date after the warranty period begins, and subsequent payments will be made monthly thereafter.

Full compensation for furnishing construction area signs required for the direction of public traffic through or around the work during the warranty period and for erecting or placing, maintaining (including covering and uncovering as needed) and, when no longer required, removing construction area signs at locations shown on the plans, during the warranty period, shall be considered as included in the contract lump sum price paid for warranty and no separate payment will be made therefor.

Except for flagging costs, full compensation for providing the traffic control system shown on the plans (including signs), during the warranty period, shall be considered as included in the contract lump sum price paid for warranty and no separate payment will be made therefor. Flagging costs will be paid for as provided in Section 12-2.02, "Flagging Costs," of the Standard Specifications.