

PROJECT SPECIAL PROVISIONS**ROADWAY****SHOULDER RECONSTRUCTION PER SHOULDER MILE:**

(1-18-00) (Rev 11-16-10)

SP1 R07 B (REV.)

Description

The Contractor shall place ABC(M) along the completed edge of pavement and construct shoulders as shown on the sketch map and/or as directed by the Engineer. The area shall be backfilled and compacted to the satisfaction of the Engineer.

Materials

The ABC(M) shall meet the requirements of Section 1005 in the NCDOT Standard Specifications for Roads and Structures.

Construction Methods

Perform shoulder reconstruction in the following order: scarify the existing shoulder to provide the proper bond; add the ABC(M) to the shoulder; and compact the reconstructed shoulder to the satisfaction of the Engineer.

Measurement and Payment

Shoulder Reconstruction will be measured and paid for as the actual number of miles of shoulders that have been reconstructed. Measurement will be made along the surface of each shoulder to the nearest 0.01 of a mile. Such price will include disposing of any excess material in an approved disposal site and for all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item

Shoulder Reconstruction

Pay Unit

Shoulder Mile

INCIDENTAL STONE BASE:

(7-1-95) (Rev.8-21-12)

545

SP5 R28R

Description

Place incidental stone base on driveways, mailboxes, etc. immediately after paving and do not have the paving operations exceed stone base placement by more than one week without written permission of the Engineer.

Materials and Construction

Provide and place incidental stone base in accordance with Section 545 of the *2012 Standard Specifications*.

Measurement and Payment

Incidental Stone Base will be measured and paid in accordance with Article 545-6 of the *2012 Standard Specifications*.

ASPHALT PAVEMENTS - SUPERPAVE:

(6-19-12)

605

SP6 R01

Revise the *2012 Standard Specifications* as follows:

Page 6-3, Article 605-7 APPLICATION RATES AND TEMPERATURES, replace this article, including Table 601-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

**TABLE 605-1
APPLICATION RATES FOR TACK COAT**

Existing Surface	Target Rate (gal/sy)
	Emulsified Asphalt
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

**TABLE 605-2
APPLICATION TEMPERATURE FOR TACK COAT**

Asphalt Material	Temperature Range
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Page 6-18, Article 610-1 DESCRIPTION, lines 40-41, delete the last sentence of the last paragraph.

Page 6-19, Subarticle 610-3(A) Mix Design-General, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor's option in accordance with the NCDOT Approved Products List for WMA Technologies available at:
<http://www.ncdot.org/doh/operations/materials/pdf/wma.pdf>.

SHOULDER WEDGE:

(9-20-11) (Rev. 8-21-12)

610

SP6 R03R

Revise the *2012 Standard Specifications* as follows:

Page 6-26, Article 610-8, add the following after line 43:

Attach a device, mounted on screed of paving equipment, capable of constructing a shoulder wedge with an angle of 30 degrees plus or minus 4 degrees along the outside edge of the roadway, measured from the horizontal plane in place after final compaction on the final surface course. Use an approved mechanical device which will form the asphalt mixture to produce a wedge with uniform texture, shape and density while automatically adjusting to varying heights.

Payment for use of this device will be incidental to the other pay items in the contract.

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:

(11-21-00) (Rev. 7-17-12)

609

SP6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5	6.0%
Asphalt Concrete Surface Course	Type S 12.5	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2012 Standard Specifications*.

ASPHALT PLANT MIXTURES:

(7-1-95)

609

SP6 R20

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00)

620

SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2012 Standard Specifications*.

The base price index for asphalt binder for plant mix is \$ **557.33** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **December 1, 2012**.

FINAL SURFACE TESTING NOT REQUIRED:

(5-18-04) (Rev. 5-15-12)

610

SP6 R45

Final surface testing is not required on this project.

ASPHALT CONCRETE SURFACE COURSE COMPACTION:

(7-1-95) (Rev. 8-21-12)

SP6 R49R

Compact the asphalt surface course on this project in accordance with Subarticle 610-9 of the *2012 Standard Specifications* and the following provision:

Perform the first rolling with a steel wheel roller followed by rolling with a self-propelled pneumatic tired roller with the final rolling by a steel wheel roller.

WEDGE COURSE:

(7-1-95) (Rev. 8-21-12)

SP6 R52R (REV.)

Place a wedge course at locations ahead of the paving operation as required by the Engineer. **Materials used during this process have been added to Surface, Intermediate or Base quantities. No wedging pay item will be used.**

WARRANTY OF ASPHALT SURFACE TREATMENT:

(6-18-02) (Rev 8-21-12)

660

SP6 R56R

Description

The warranty for Asphalt Surface Treatment (AST) shall consist of partial acceptance, warranty bond, warranty performance criteria, and the rights and responsibilities of the Department and the Contractor. The warranty period shall be for 2 years, beginning on the Engineer's acceptance date.

Definitions

Extent - This distress indicator refers to the size of the problem area (extent of occurrence). The extent of occurrence will be measured on frequency.

Lot - A 1,000-foot section of pavement or portion thereof, a lane width wide, on which AST is constructed on a single day and a single map.

Map - A segment of roadway defined in the contract with definitive beginning and ending points.

Severity - This distress indicator describes the problem area.

Warranty Bond - The bond that guarantees the AST against defects in materials and workmanship that may develop after the Engineer's acceptance date and during the warranty period.

Warranty Period - The 2-year period beginning on the date of the Engineer's acceptance by the Department.

Warranty Work - If the thresholds are exceeded during the warranty period, corrective action will be completed by the Contractor to bring the warranted work back into compliance prior to the release of the warranty. All costs associated with any warranty work shall be borne by the Contractor.

AST Acceptance and Warranty

(A) Engineer's Acceptance

At the completion of the AST, the Department will conduct an inspection of the work. If appropriate, the Department may inspect a portion of the work as necessary. If the work is determined by the Department to have been satisfactorily completed in accordance with the contract, the Department will issue an Engineer's acceptance of all or part of the work as described above. If the work is determined by the Department not to have been satisfactorily completed in accordance with the contract, the Contractor shall correct at his own expense any and all defects in materials and workmanship, after which the Engineer's acceptance date will be established. The Engineer's acceptance dates so established will constitute the start date for the warranty period.

(B) Subsequent Inspections

The Department will inspect the work for determination of warranty compliance within 6 months of the date of Engineer's acceptance and just prior to the end of the warranty period.

(C) Situations Affecting the Warranty

During the warranty period, the Contractor will not be held responsible for distresses that are caused by factors not related to materials and workmanship. These include, but are not limited to, chemical and fuel spills, vehicle fires, base failures, and snow plows. Other factors considered to be beyond the control of the Contractor, which may contribute to pavement distress, will be considered by the Engineer on a case by case basis upon receipt of a written request from the Contractor. Maintaining traffic on the pavement surface prior to the Engineer's acceptance will not be a condition for voiding the warranty.

(D) Emergency Repairs

If, in the opinion of the Department, a pavement condition covered by the warranty requires immediate attention for the safety of the traveling public, the Contractor will be notified immediately. If the Contractor cannot be contacted or cannot perform the required work in a timely fashion, the Department may perform or have the work performed at the Contractor’s expense. Any emergency work performed will not alter the requirements, responsibilities, or obligations of the warranty.

(E) Warranty Bond

The Contractor shall furnish a warranty bond in an amount equal to 100% of the amount bid for the AST items of work. The warranty shall be for a period of 2 years. The effective starting date of the warranty bond shall be the Engineer’s acceptance date.

(F) Warranty Performance Criteria

Surface Defects	Severity	Extent (Per Lot)
Surface Patterns	Alternate lean and heavy lines streaking over the entire pavement surface.	Greater than 20% of a lot affected; distress spotted evenly over the lot or over localized areas within the lot.
Bleeding/Flushing	Distinctive appearance (with excess asphalt binder already free).	Greater than 20% of the wheel tracks within a lot affected.
Loss of Cover Aggregate	Large patches of cover aggregate lost from the pavement surface.	Greater than 20% of a lot affected; distress spotted evenly over the lot or over localized areas within the lot.

The beginning point of the first lot will be the beginning point of each day’s operation or the beginning of a map, which ever is applicable.

(G) Rights and Responsibilities of the Department

The Department:

Will be responsible for monitoring the AST during the warranty period and will provide the Contractor all written reports of the surface treatment’s condition related to the warranty performance criteria.

Will be responsible for notifying the Contractor in writing of any required warranty work.

Will review and approve the date(s) requested by the Contractor to perform warranty work.

Will approve all materials and methods used in warranty work.

Will determine if warranty work performed by the Contractor meets the contract.

Will perform or have performed, routine maintenance during the warranty period, which routine maintenance will not relieve the Contractor from meeting the warranty requirements of this provision.

Will require the Contractor to make immediate emergency repairs to the AST to prevent as unsafe road condition as determined by the Department. Should the Contractor fail to comply with this requirement, to the Department's satisfaction and within the time frame required by the Department, the Department has the right to perform, or have performed, at the Contractor's sole expense, any emergency repairs deemed necessary by the Department. Any such emergency repairs undertaken will not relieve the Contractor from meeting the warranty requirements of this provision.

Will document the condition of the AST prior to emergency repairs.

(H) Rights and Responsibilities of the Contractor

The Contractor:

Shall unconditionally warrant to the Department that the AST shall be free of defects in materials and workmanship as defined by the warranty performance criteria as set forth above for a period of 2 years from the Engineer's acceptance date of the AST. The warranty bond shall be submitted to the Department upon the Engineer's acceptance.

Shall be responsible for performing all warranty work, including but not limited to, traffic control and restoring all associated pavement features at no additional cost to the Department.

Shall be responsible for replacing all temporary repairs, resulting from the AST being in non-compliance with the warranty performance criteria, with Department approved materials and methods.

Shall notify the Department and shall submit a written course of action proposing appropriate corrective measures for the needed warranty work 5 calendar days prior to commencement of warranty work, unless the warranty work requires immediate emergency repairs as determined by the Department.

Shall follow all maintenance of traffic requirements of the contract when any warranty work is performed.

Shall complete all warranty work in a neat and uniform manner and shall meet the requirements specified in the contract.

Shall supply to the Department original documentation in accordance with the *2012 Standard Specifications* that all insurance required by the contract is in effect during the periods that any warranty work is being performed.

Shall make repairs to the AST prior to the conclusion of the warranty period or within such other time as agreed to by the Department and the Contractor after receiving notification from the Department that required warranty work is necessary, unless the Department notifies the Contractor that immediate emergency repairs are necessary to the AST to prevent an unsafe road condition, in which event the Contractor shall make said emergency repairs within the time frame required by the Department.

Shall be liable during the warranty period in the same manner contractors currently are liable for their construction related activities with the Department in accordance with the *2012 Standard Specifications*. This liability shall arise and continue only during the period when the Contractor is performing warranty work.

(I) Non-extension of Contract

No extension in contract time will be allowed as a result of work performed under the provisions of this warranty.

Measurement and Payment

No separate measurement or payment will be made for any work performed under this provision as the cost of such work will be incidental to the contract.

RESURFACING EXISTING BRIDGES:

(3-20-12) (Rev. 8-21-12)

SP6 R61BR (REV.)

The Contractor's attention is directed to the fact that he will be required to mill and resurface the bridges on this project if directed by the Engineer.

Place the surface so as to follow a grade line set by the Engineer with the minimum thickness as shown on the sketch herein or as directed by the Engineer. State Forces will make all necessary repairs to the bridge floors prior to the time that the Contractor places the proposed surfacing. Give the Engineer at least 15 days notice prior to the expected time to begin operations so that State Forces will have sufficient time to complete their work.

At bridges that are not to be resurfaced, the bridge approaches are to be milled in accordance with the detail shown in the typical sections. Also any bridge that is to be milled and then resurfaced, the bridge approaches should be milled in accordance with the detail shown in the typical sections. Both of these types of milling is considered incidental to the paving items and no direct payment will be made for this milling.

The Contractor's attention is directed to the fact that bridge number 18 map 1 and bridge number 47 and 169 map 4 will be milled 1½" and then resurfaced, this milling is paid for by type of milling being done. Bridge number 38 map 1 and bridge number 56 map 2 will not be paved.

MICROSURFACING:

(7-1-95) (Rev. 4-3-12)

SPI 7-1

Description

This provision covers the materials, equipment, construction and application procedures for rut filling and/or surfacing of existing paved surfaces in accordance with the contract. The microsurfacing system shall be a mixture of cationic latex modified asphalt emulsion, mineral aggregate, mineral filler, water and other additives, properly proportioned, mixed and spread on the paved surface in accordance with this provision and as directed by the Engineer.

Materials**(A) Latex Modified Emulsified Asphalt**

The emulsified asphalt shall be a cationic type CSS-1h or CQS-1h and shall conform to AASHTO M 208 or ASTM D2397. In general a 3% polymer solids, based on asphalt weight, is considered minimum. The ring and ball softening point of the residue shall be a minimum of 140°F. It shall show no separation after mixing. The cement mixing test is waived for the latex modified CSS-1h and CQS-1h.

(B) Mineral Aggregate

The mineral aggregate used shall be compatible with the latex modified emulsified asphalt and can produce a good skid resistant surface. The aggregate shall meet requirements in Article 1012-1 of the *2012 Standard Specifications*.

(C) Mineral Filler

Mineral filler shall be any recognized brand of non-air entrained Portland cement that is free of lumps or hydrated lime meeting the requirements of ASTM D242. It may be accepted upon visual inspection.

(D) Water

The water shall be potable and shall be free of harmful soluble salts in accordance with Article 1024-4 of the *2012 Standard Specifications*.

(E) Latex Modifier

A latex based modifier, certified from an approved source, along with special emulsifiers shall be milled into the asphalt emulsion by an approved emulsion manufacturer. The latex modified emulsified asphalt shall be so formulated that when the paving mixture is applied at a thickness of one inch it will cure sufficiently so that rolling traffic can be allowed back on the pavement in one hour with no damage to the surface.

(F) Other Additives

The additives are any other materials that are added to the emulsion mix or to any of the component materials to provide the specified properties. The additives shall be supplied by the emulsion manufacturer to provide control of the set time in the field.

Mix Design

The Contractor shall submit a mix design certified by the latex modified emulsion manufacturer and present certified test results for the Engineer's approval. Compatibility of the aggregate and latex modified CSS-1h or CQS-1h shall be certified. The job mix formula shall provide a minimum Marshall stability of 1,800 pounds and a flow of 6 to 16 units when tested according to modified ASTM procedures. Aggregate used in the job mix formula shall be of the material proposed by the Contractor for use on the project.

Submit mix design to the Materials and Tests Unit for approval. The mix design shall conform to the International Slurry Surfacing Association's ISSA A143, Section 5.2.

The gradation of the aggregate shall be in accordance with the following:

Screen Size	Type II (% passing)	Type III (% passing)	Stockpile Tolerance
3/8"	100	100	
#4	90 - 100	70 - 90	± 5
#8	65 - 90	45 - 70	± 5
#16	45 - 70	28 - 50	± 5
#30	30 - 50	19 - 34	± 5
#50	18 - 30	12 - 25	± 4
#100	10 - 21	7 - 18	± 3
#200	5 - 15	5 - 15	± 2

The gradation of the aggregate stockpile shall not vary by more than the stockpile tolerance from the mix design gradation (indicated in the table above) while also remaining within the specification gradation band. The percentage of aggregate passing any 2 successive sieves shall not change from one end of the specified range to the other end.

The aggregate will be accepted at the job location or stockpile based on 5 gradation tests sampled according to AASHTO T 2. If the average of the 5 tests is within the stockpile tolerance from the mix design gradation, the material will be accepted. If the average of those test results is out of specification or tolerance, the Contractor will be given the choice to either remove the material or blend additional aggregate with the stockpile material to bring it into compliance. Materials used in blending shall meet the required aggregate quality test specifications in Section 1012 of the *2012 Standard Specifications* before blending and shall be blended in a manner to produce a consistent gradation.

Aggregate blending may require a new mix design. Screening shall be required at the stockpile if there are any problems created by oversized materials in the mix.

Type II aggregate gradation is used to fill surface voids, address surface distresses, seal and provide a durable wearing surface.

Type III aggregate gradation provides maximum skid resistance and an improved wearing surface. This type of microsurfacing is appropriate for heavily traveled pavements or for placement on highly textured surfaces requiring larger size aggregate to fill voids. Type III microsurfacing shall be used for rut filling.

The mineral aggregate shall be weighed by means of scale approved by the Engineer before delivery to the job site. Emulsified asphalt shall be weighed by means of approved scales or be measured by volume.

Precautions shall be taken to insure that stockpiles do not become contaminated.

Samples for gradation will be taken from aggregate stockpiles designated by the Contractor for use. Samples for asphalt content shall be taken from the completed mix. Samples of aggregate and filler will be taken at the job site. The frequency of sampling and testing will be established by the Engineer based upon the Department's current acceptance program. The asphalt content will be determined by AASHTO T 308 modified.

Equipment

Use equipment that meets ISSA A143 Section 6.

Each mixing unit to be used in performance of the work shall be calibrated in the presence of the Engineer before beginning the work. Submit calibration documentation to the Engineer. Any equipment replacement affecting material proportioning requires that the machine be recalibrated. No machine will be allowed to work on the project until the calibration has been accepted.

Construction Methods

(A) Weather Limitations

The material shall be placed only when the surface is dry and the atmospheric and surface temperature is at least 45°F and rising and there is no chance of temperatures below 32°F within 24 hours from the time the material is applied.

(B) Surface Preparation

Immediately prior to applying the paving mixture the surface shall be thoroughly cleaned of all vegetation, loose materials, dirt, mud, and other deleterious materials. If water is used, cracks shall be allowed to dry thoroughly before applying microsurfacing. Manholes, valve boxes, drop inlets and other service entrances shall be protected from the microsurfacing by a suitable method.

(C) Tack Coat for Microsurfacing

The emulsified asphalt used for tack coat shall be CSS, CQS, CRS or the microsurfacing emulsion diluted to one part emulsified asphalt to two (2) or three (3) parts water, as approved by the Engineer. Consult with the microsurfacing emulsion supplier to determine dilution stability. The distributor shall be capable of applying the diluted tack coat evenly at a rate of 0.08 to 0.15 gallons per square yard as required by the Engineer. The tack coat shall be allowed to cure sufficiently before the application of microsurfacing.

(D) Application

When rutting or deformation is less than 0.5 inch, a full width scratch course may be applied with the spreader box using a metal or stiff rubber strike-off. Apply at a sufficient rate to level the pavement surface. The mixture shall be spread to fill minor cracks, minor surface irregularities, and shallow potholes and leave a uniform high-skid resistant application of aggregate and asphalt on the surface. Approved squeegees shall be used to spread the mixture in areas inaccessible to the spreader box and other areas hand spreading may be required. Ruts that are greater than 0.5 inch depth shall be filled independently by means of a box specifically designed for that purpose. The box shall be 5 to 6 feet in width and have a dual chamber with an inner "V" configuration of augers to channel the large aggregate to the center of the rut and the fines to the edges of the rut fill pass. The box shall be equipped with dual steel strike-off to control both the width and depth of the rut fill. All rut-filling and leveling material should cure under traffic for at least 24 hours before additional material is placed.

A sufficient amount of surface sealer shall be carried to all parts of the spreader box at all times so that complete coverage is obtained. Water in very limited quantity may be sprayed into the spreader box to prevent build-up on the blades to facilitate spreading without harming the mix. No lumping, balling, or unmixed aggregate shall be permitted in the finished surface. Any oversized aggregate or foreign materials shall be screened from the aggregate prior to delivery to the mixing machine. Microsurfacing for the final surface course shall be placed at an application rate of 18 to 22 pounds per square yard for Type II and 22 to 26 pounds per square yard for Type III.

In restricted areas where hand spreading is necessary, slight adjustments to the mix formula may be required to slow setting time. The paving mixture shall be poured into a small windrow along one edge of the surface to be covered. The mixture then shall be spread uniformly by a hand squeegee or lute.

The seam where two passes join shall be neat in appearance and uniform.

All excess material shall be removed from ends of each run immediately on surface course.

(E) Curing

Adequate means shall be provided to protect the microsurfacing from damage by traffic until the mixture has cured sufficiently so that it will not adhere to or be picked up by the

tire of vehicles. Normally, microsurfacing accepts straight rolling traffic on a 0.5 inch thick surface within one hour after placement. Stopping and starting traffic may require additional curing time. All rut-filling and level-up material should cure under traffic for at least 24 hours before additional material is placed.

Any damage done by traffic to the microsurfacing shall be repaired by the Contractor.

(F) Test Strip

A test strip shall be placed with job site materials and approved by the Engineer. The weather and time of day, day or night, during the test strip shall be similar to expected conditions during construction. Upon completion of the test strip the Engineer will approve the mixture for proper curing and placement.

Measurement and Payment

(A) *Latex Modified Microsurfacing Type C* will be measured along the top surface of the completed work, placed and accepted as specified herein. Payment will be made at the contract unit price per square yard for the type specified, which price will be full compensation for all materials including modifiers and additives, emulsion, aggregate, tack coat, labor, tools, equipment, and all other incidentals necessary to complete the work.

(B) *Latex Modified Emulsion* will be measured and paid at the contract unit price per gallon, which price will be full compensation for all materials including modifiers and additives, tack coat, labor, tools, equipment, and all other incidentals necessary to complete the work.

Aggregate, Type __ will be measured and paid at the contract unit price per ton which price will be full compensation for all material, including mineral filler, labor, tools, equipment, and maintenance of traffic and all incidentals necessary to complete the work.

Rut filling will be measured and paid at the contract unit price per gallon for *Latex Modified Emulsion* and at the contract unit price per ton of *Aggregate, Type III*. Payment will be full compensation for all materials including modifiers and additives, tack coat, mineral filler, labor, tools, equipment, maintenance of traffic, and all other incidentals necessary to complete the work.

Microsurfacing will be measured and paid by either (A) or (B) as described herein.

Payment will be made under:

Pay Item

Latex Modified Microsurfacing Type C

Pay Unit

Square Yard

PAVING DRIVEWAYS AND MAILBOX TURNOUTS:

(8-21-12)

610

SP6 R70BR

Condition, prime, and surface all driveway and mailbox turnouts as directed by the Engineer. Place pavement on driveway and mailbox turnouts of the same material as used on the main line and in depths directed by the Engineer. Widen the pavement on curves as directed by the Engineer.

TRENCHING FOR BASE COURSE:

(7-1-95) (Rev. 8-21-12)

610

SP6 R79AR

Perform all trenching necessary to place the asphalt concrete base course widening in accordance with the typical sections, at locations shown on the sketch maps, and as directed by the Engineer.

Perform the trenching for the base course on the same day that the base course is to be placed. If the base course cannot be placed on the same day the trench section is excavated, backfill the trench with earth material and compact it to the satisfaction of the Engineer. Once the trench is open, perform backfilling and re-opening of the trench at no cost to the Department.

The Contractor will be restricted to widening one side of the project at a time unless otherwise permitted by the Engineer. In widening, operate equipment and conduct operations in the same direction as the flow of traffic.

Density tests may be taken every 2,000 feet in the widened areas as directed by the Engineer. Shape and compact the subgrade in the widened areas to the satisfaction of the Engineer. Compact the asphalt concrete base course in the widened areas in accordance with the provisions of Article 610-9 of the *2012 Standard Specifications*.

Place the excavated material from trenching operation on the adjacent shoulder area as directed by the Engineer. Cut adequate weep holes in the excavated material to provide for adequate drainage as directed by the Engineer. Remove all excavated material from all drives to provide ingress and egress to abutting properties and from in front of mailboxes and paper boxes. Saw a neat edge and remove all asphalt and/or concrete driveways, and existing asphalt widening, as directed by the Engineer, to the width of the widening and dispose of any excavated concrete or asphalt materials. Properly reconnect driveways.

Upon completion of the paving operation, backfill the trench to the satisfaction of the Engineer. Properly dispose of any excess material remaining after this operation.

No direct payment will be made for trenching, sawing, and removal of driveways, depositing material on shoulder area, backfilling trench, or removal of spoil material, as the cost of this work shall be included in the bid unit price per ton for *Asphalt Concrete Base Course, Type ____*.

PATCHING EXISTING PAVEMENT:

(1-15-02) (Rev.12-18-12)

610

SP6 R88R

Description

The Contractor's attention is directed to the fact that there are areas of existing pavement on this project that will require repair prior to resurfacing. Patch the areas that, in the opinion of the

Engineer, need repairing. The areas to be patched will be delineated by the Engineer prior to the Contractor performing repairs.

Materials

The patching consists of Asphalt Concrete Base Course, Asphalt Concrete Intermediate Course, Asphalt Concrete Surface Course, or a combination of base, binder and surface course.

Construction Methods

Remove existing pavement at locations directed by the Engineer in accordance with Section 250 of the *2012 Standard Specifications*.

Place Asphalt Concrete Base Course, in lifts not exceeding 5.5 inches. Utilize compaction equipment suitable for compacting patches as small as 3.5 feet by 6 feet on each lift. Use an approved compaction pattern to achieve proper compaction. If patched pavement is to be open to traffic for more than 48 hours prior to overlay, use Asphalt Surface Course in the top 1.5 inches of the patch.

Schedule operations so that all areas where pavement has been removed will be repaired on the same day of the pavement removal and all lanes of traffic restored.

Measurement and Payment

Patching Existing Pavement will be measured and paid as the actual number of tons of asphalt plant mix complete in place that has been used to make completed and accepted repairs. The asphalt plant mixed material will be measured by being weighed in trucks on certified platform scales or other certified weighing devices. The above price and payment will be full compensation for all work covered by this provision, including but not limited to removal and disposal of all types of pavement; furnishing and applying tack coat; furnishing, placing, and compacting of asphalt plant mix; furnishing of asphalt binder for the asphalt plant mix; and furnishing scales.

Patching Existing Pavement will be considered a minor item. Any provisions included in the contract that provides for adjustments in compensation due to variations in the price of asphalt binder will not be applicable to payment for the work covered by this provision.

Payment will be made under:

Pay Item	Pay Unit
Patching Existing Pavement	Ton

MATERIALS:

(2-21-12) (Rev. 12-18-12)

1000, 1005, 1080, 1081, 1092

SP10 R01

Revise the 2012 Standard Specifications as follows:

Page 10-1, Article 1000-1, DESCRIPTION, line 14, add the following:

Use materials which do not produce a mottled appearance through rusting or other staining of the finished concrete surface.

Page 10-5, Table 1000-1, REQUIREMENTS FOR CONCRETE, replace with the following:

**TABLE 1000-1
REQUIREMENTS FOR CONCRETE**

Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air-Entrained Concrete		Vibrated	Non-Vibrated	Vibrated		Non-Vibrated	
		Rounded Aggregate	Angular Aggregate	Rounded Aggregate	Angular Aggregate			Min.	Max.	Min.	Max.
Units	psi					inch	inch	lb/cy	lb/cy	lb/cy	lb/cy
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light-weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flowable	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flowable	-	-	100	as needed
Pavement	4,500 design, field 650 flexural, design only	0.559	0.559	-	-	1.5 slip form 3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

**TABLE 1005-1
AGGREGATE GRADATION - COARSE AGGREGATE**

Std. Size #	Percentage of Total by Weight Passing													Remarks
	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200		
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix	
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix	
5	-	100	90-100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone	
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone	
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement	
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST	
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix	
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, AST, Str. Conc, Weep Hole Drains	
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete	
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST	
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12B	Aggregate Base Course, Aggregate Stabilization	
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12B	Maintenance Stabilization	
Light-weight C	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST	

A. See Subarticle 1005-4(A).
 B. See Subarticle 1005-4(B).
 C. For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

Page 10-126, Table 1078-1, REQUIREMENTS FOR CONCRETE, replace with the following:

**TABLE 1078-1
REQUIREMENTS FOR CONCRETE**

Property	28 Day Design Compressive Strength 6,000 psi or less	28 Day Design Compressive Strength greater than 6,000 psi
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

Page 10-151, Article 1080-4 Inspection and Sampling, lines 18-22, replace (B), (C) and (D) with the following:

- (B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.
- (C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.
- (D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.
- (E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7, delete the second and third sentences of the description for Type 3A.

Page 10-162, Subarticle 1081-1(B) Requirements, lines 26-30, replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

Page 10-169, Subarticle 1081-3(G) Anchor Bolt Adhesives, delete this subarticle.

Page 10-204, Subarticle 1092-2(A) Performance and Test Requirements, replace Table 1092-3 Minimum Coefficient of Retroreflection for NC Grade A with the following:

Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	120	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27